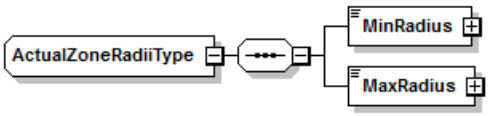
Data dictionary for QIF Library Characteristics.xsd (normative)

schema location: **..\QIFLibrary\Characteristics.xsd**
attributeFormDefault: **unqualified**
elementFormDefault: **qualified**
targetNamespace: **http://qifstandards.org/xsd/qif2**

Complex types

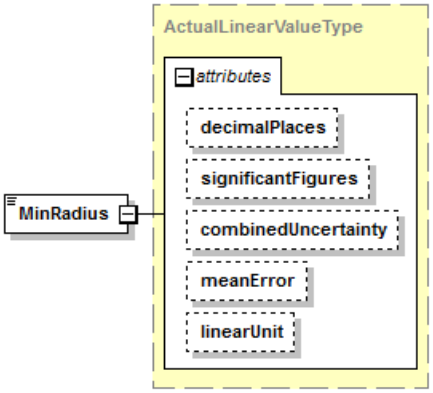
Simple types

complexType **ActualZoneRadiiType**

diagram	
children	MinRadius MaxRadius
used by	elements CircularityCharacteristicActualType/ZoneRadii CylindricityCharacteristicActualType/ZoneRadii
annotation	documentation The ActualZoneRadiiType defines the radial size limits of an actual tolerance zone evaluation.

element **ActualZoneRadiiType/MinRadius**

diagram



type **ActualLinearValueType**

properties content complex

attributes

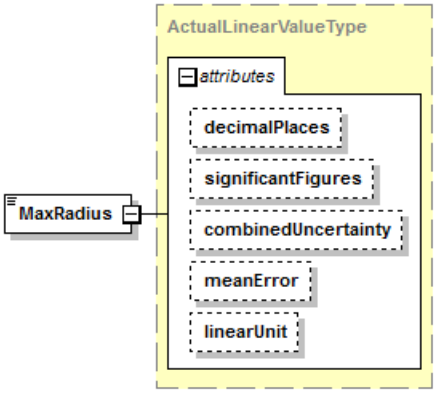
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation

documentation
The MinRadius element is the minimum radius of the evaluated tolerance zone.

element **ActualZoneRadiiType/MaxRadius**

diagram



type **ActualLinearValueType**

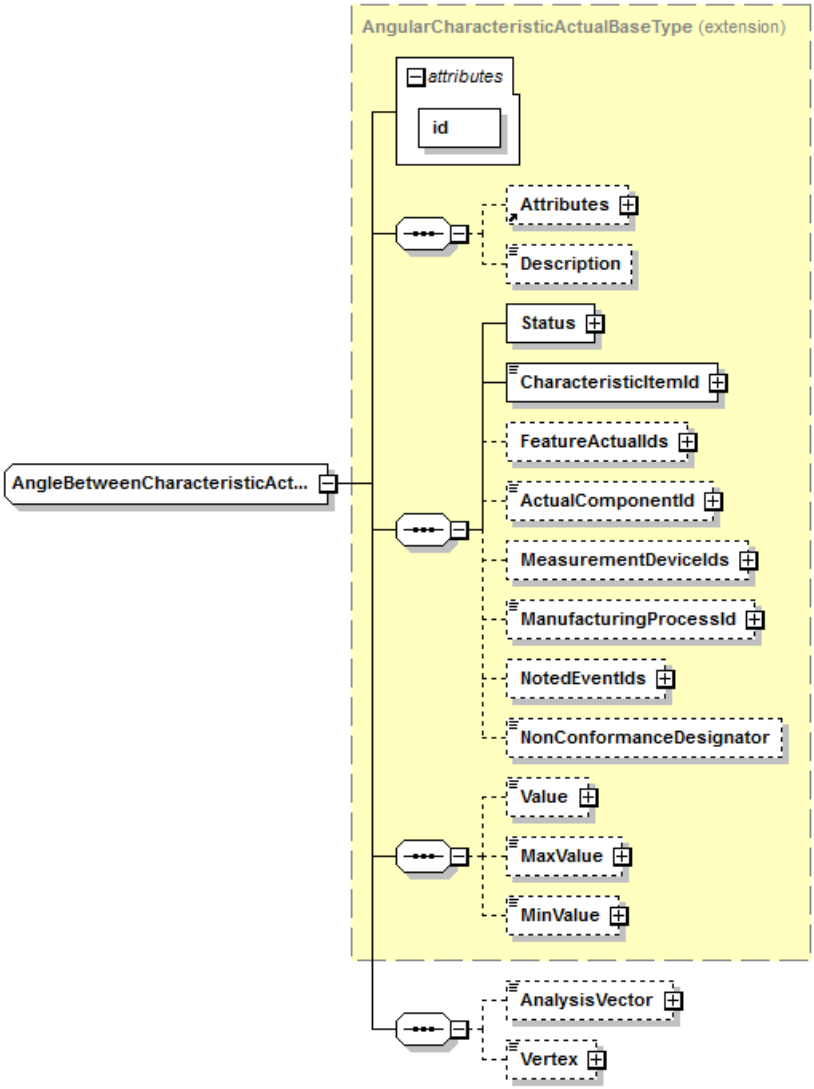
properties content complex

attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

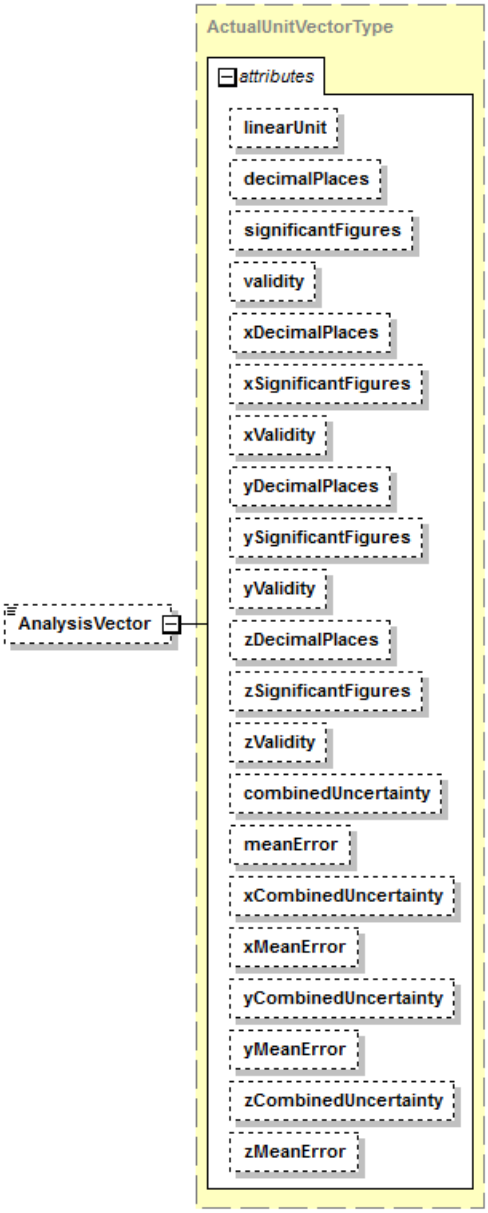
annotation documentation
The MaxRadius element is the maximum radius of the evaluated tolerance zone.

complexType **AngleBetweenCharacteristicActualType**

diagram	
type	extension of **AngularCharacteristicActualBaseType**
properties	base AngularCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **AnalysisVector** **Vertex**
used by	element **AngleBetweenCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleBetweenCharacteristicActualType defines the results of an actual angle-between characteristic evaluation.

element **AngleBetweenCharacteristicActualType/AnalysisVector**

diagram



type	**ActualUnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

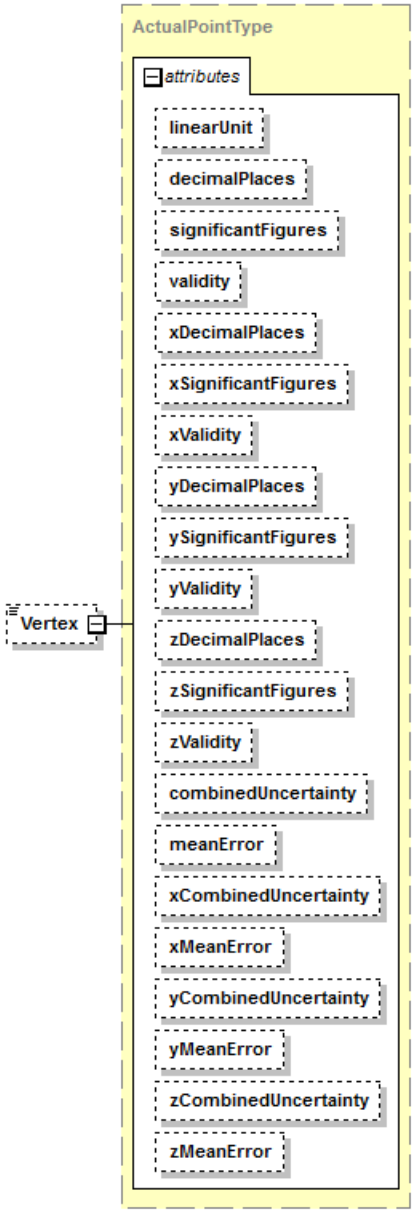
attributes

Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional, actual AnalysisVector element used by the AnalysisMode gives an actual vector defining a unit vector normal to the plane in which the angle-between characteristic is evaluated.	

element **AngleBetweenCharacteristicActualType/Vertex**

diagram



type	**ActualPointType**
properties	minOcc 0 maxOcc 1 content complex

facets

Kind	Value	Annotation
length	3	

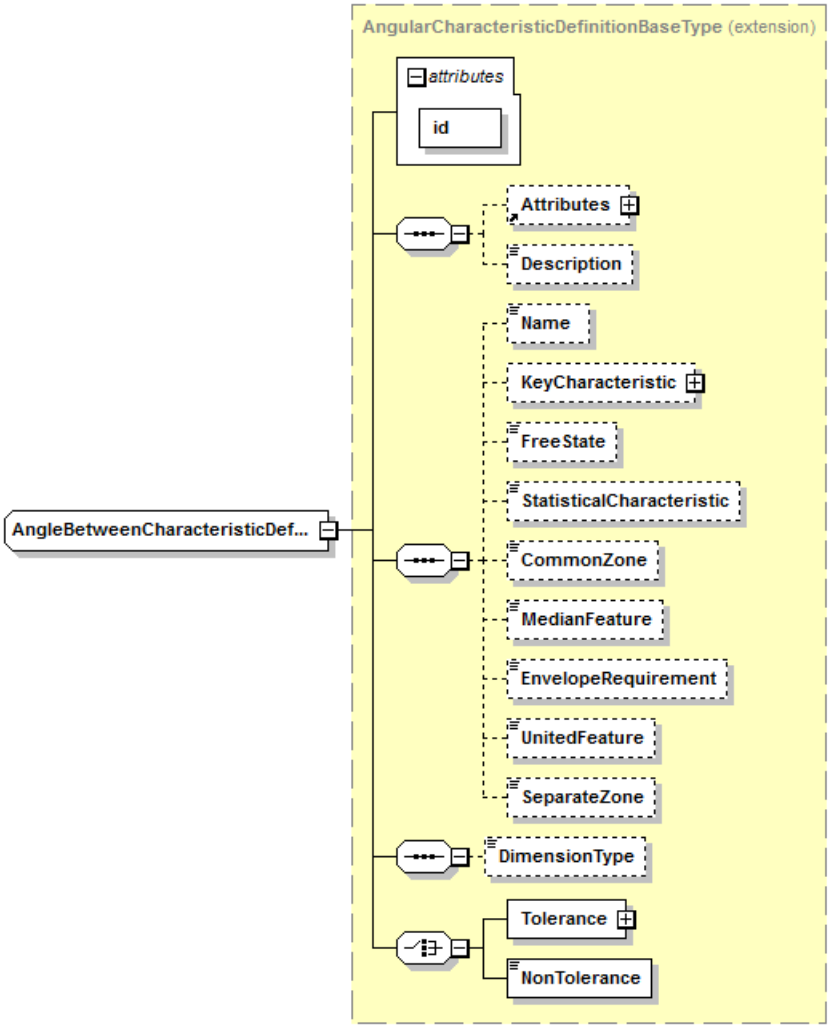
attributes

Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional Vertex element is the point defining the location of the vertex of actual angle.	

complexType **AngleBetweenCharacteristicDefinitionType**

diagram



type	extension of **AngularCharacteristicDefinitionBaseType**
properties	base AngularCharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance**
used by	element **AngleBetweenCharacteristicDefinition**

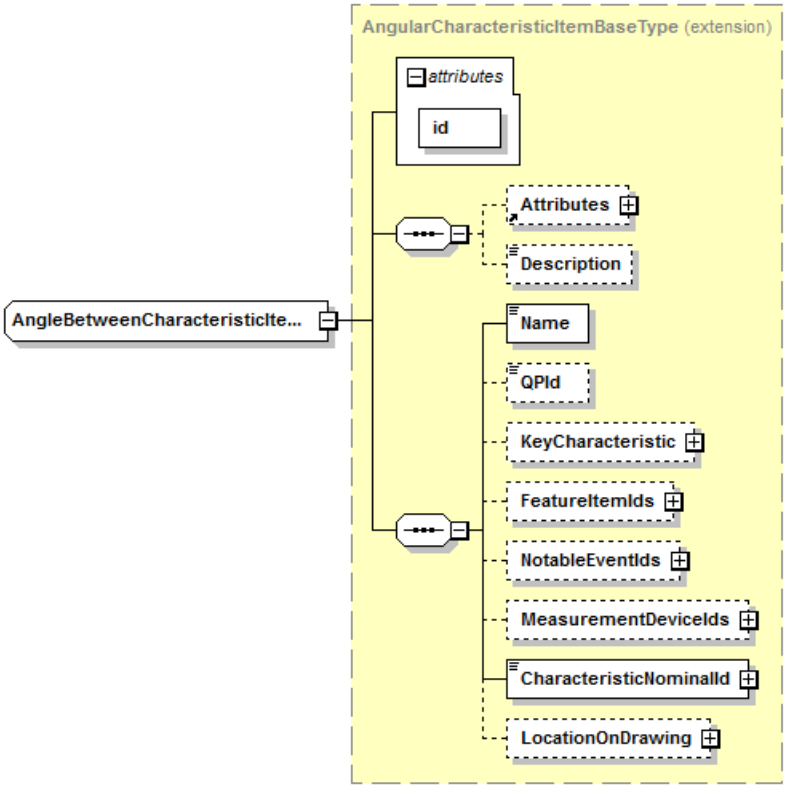
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

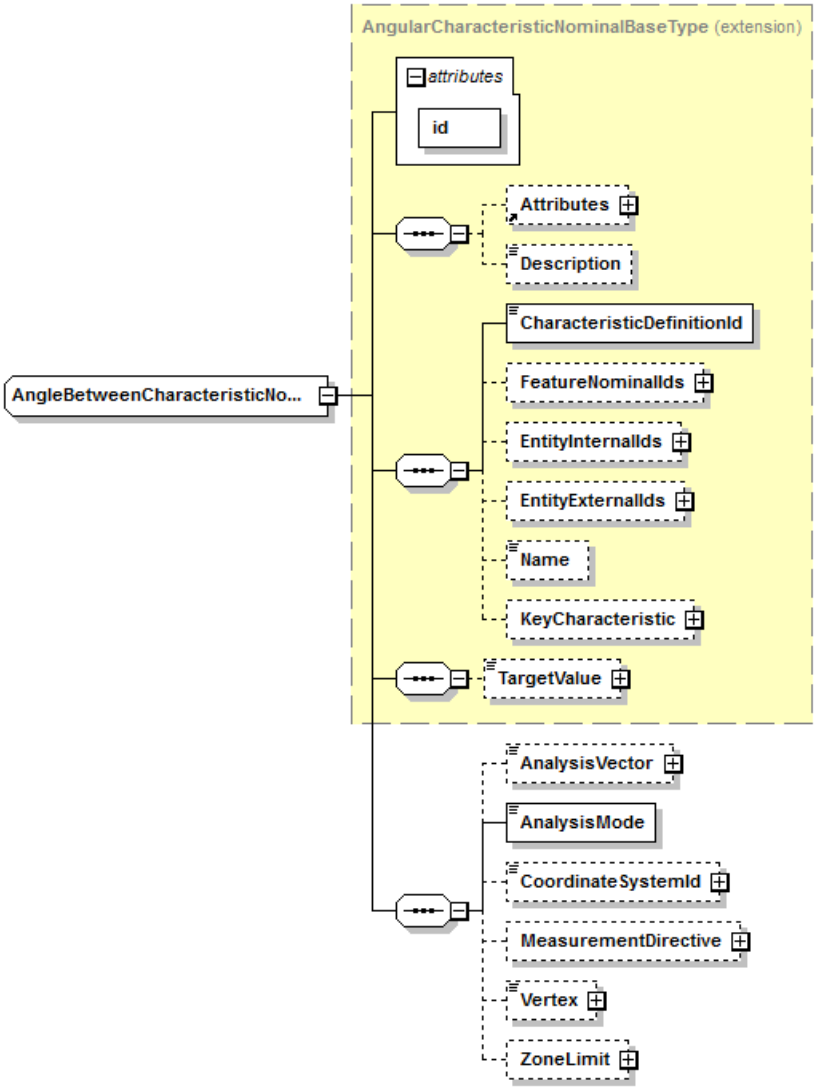
annotation

documentation
The AngleBetweenCharacteristicDefinitionType defines information that can be common to more than one angle between characteristic. An an angle between characteristic is an angle between two features.

complexType **AngleBetweenCharacteristicItemType**

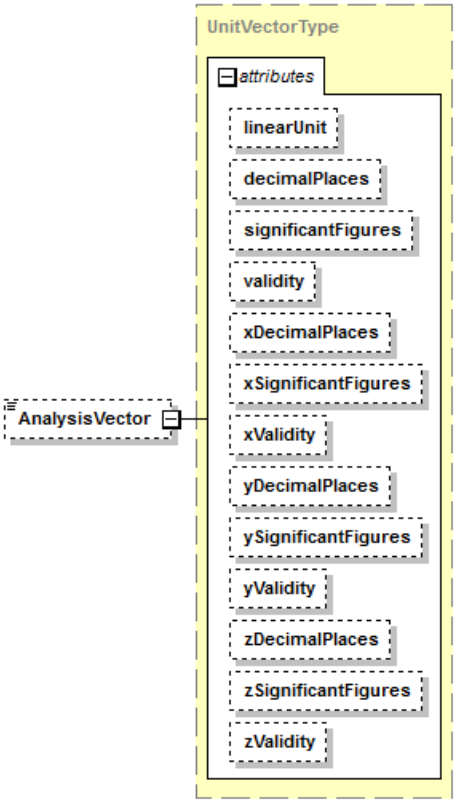
diagram	
type	extension of **AngularCharacteristicItemBaseType**
properties	base AngularCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **AngleBetweenCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleBetweenCharacteristicItemType defines an angle-between characteristic item.

complexType **AngleBetweenCharacteristicNominalType**

diagram	
type	extension of **AngularCharacteristicNominalBaseType**
properties	base AngularCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **AnalysisVector** **AnalysisMode** **CoordinateSystemId** **MeasurementDirective** **Vertex** **ZoneLimit**
used by	element **AngleBetweenCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleBetweenCharacteristicNominalType defines a unique angle-between characteristic nominal.

element **AngleBetweenCharacteristicNominalType/AnalysisVector**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

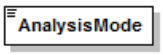
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

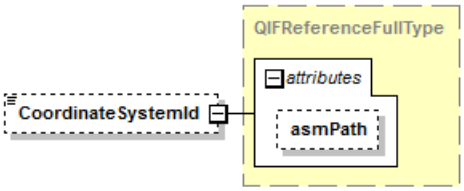
documentation

The optional AnalysisVector element used by the AnalysisMode gives a vector defining a unit vector normal to the plane in which the angle-between characteristic is evaluated.

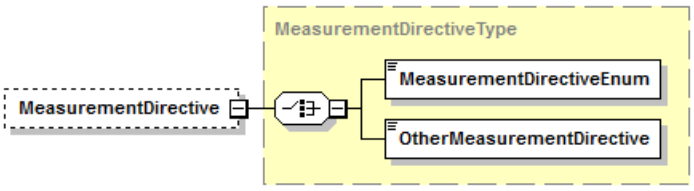
element **AngleBetweenCharacteristicNominalType/AnalysisMode**

diagram	
type	**AngleBetweenAnalysisModeEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The AnalysisMode element indicates whether the angle-between characteristic is two dimensional or three dimensional.

element **AngleBetweenCharacteristicNominalType/CoordinateSystemId**

diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation asmPath / **QIFIdType** / / / / documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional CoordinateSystemId element is the QIF id of the coordinate system in which this characteristic is evaluated.

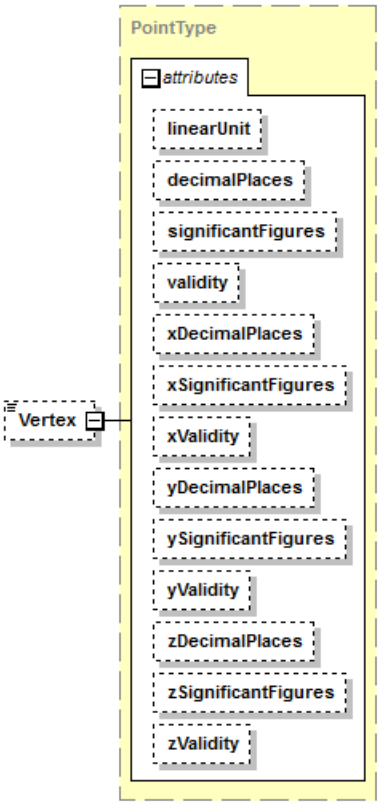
element **AngleBetweenCharacteristicNominalType/MeasurementDirective**

diagram	

type	**MeasurementDirectiveType**
properties	minOcc 0 maxOcc 1 content complex
children	**MeasurementDirectiveEnum OtherMeasurementDirective**
annotation	documentation The optional MeasurementDirective element modifies the characteristic evaluation to be the average, minimum or maximum angle between two features. For example, the angle from an origin to two circles can be from their centers or from their closest or furthest tangents.

element **AngleBetweenCharacteristicNominalType/Vertex**

diagram



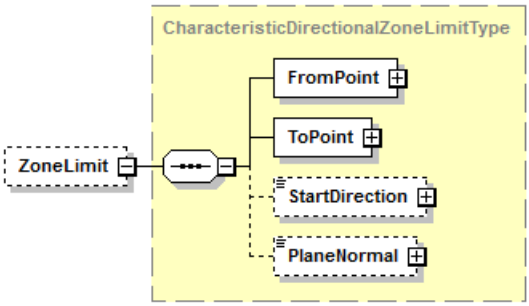
type	**PointType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

attributes

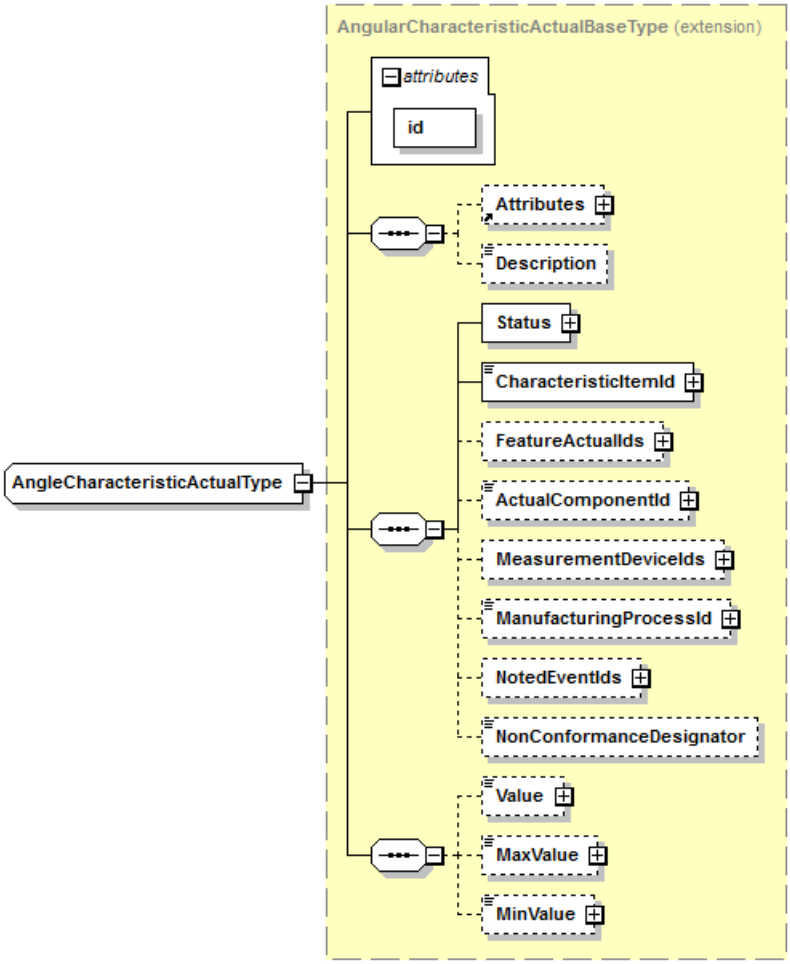
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				

	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
annotation	documentation The optional Vertex element is the point of intersection of the angle. It is needed when the features themselves do not intersect to define a vertex. For example, the angle between two circles with respect to the vertex.	

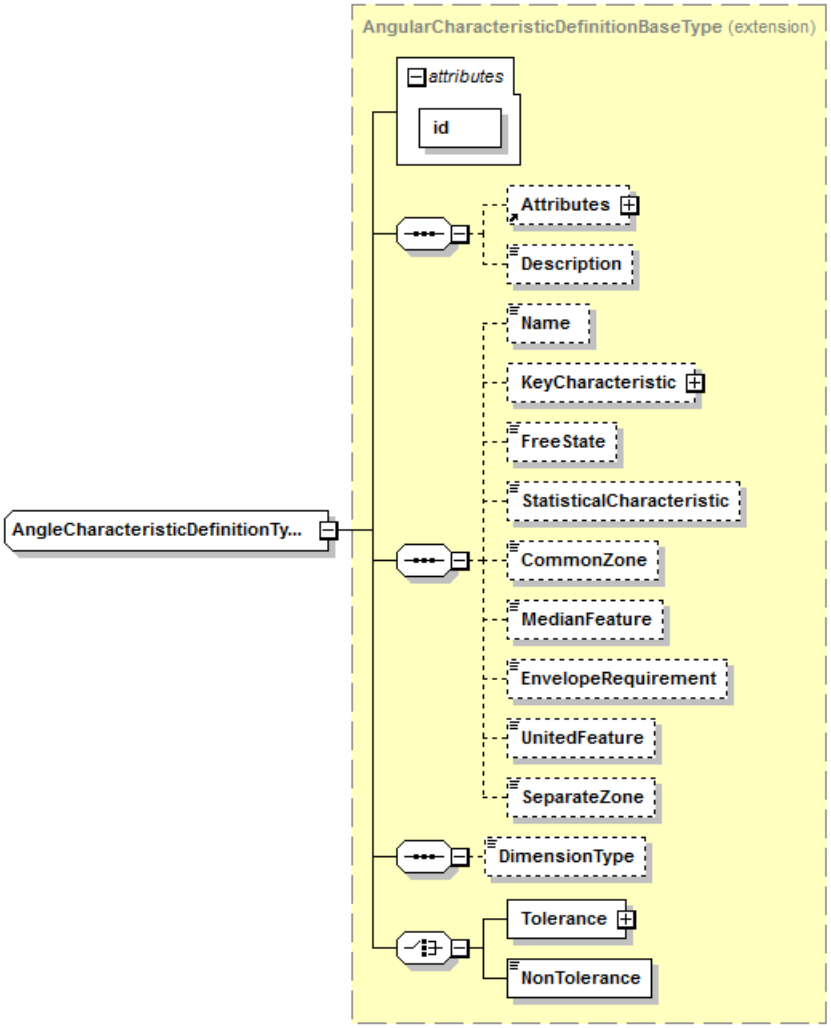
element **AngleBetweenCharacteristicNominalType/ZoneLimit**

diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extent of the tolerance zone limit.

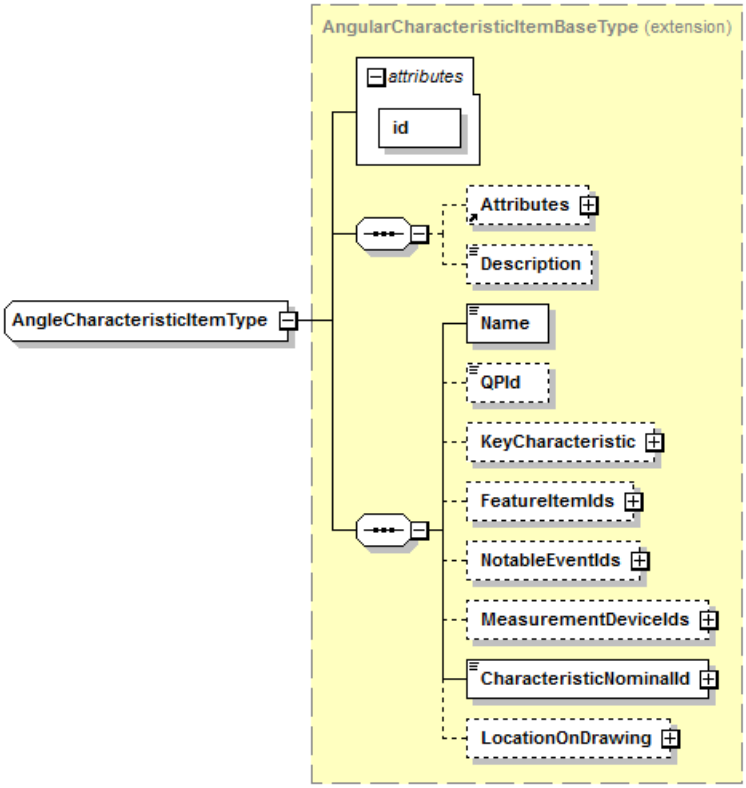
complexType **AngleCharacteristicActualType**

diagram	
type	extension of **AngularCharacteristicActualBaseType**
properties	base AngularCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **AngleCharacteristicActual**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleCharacteristicActualType defines the results of an actual angle characteristic evaluation.

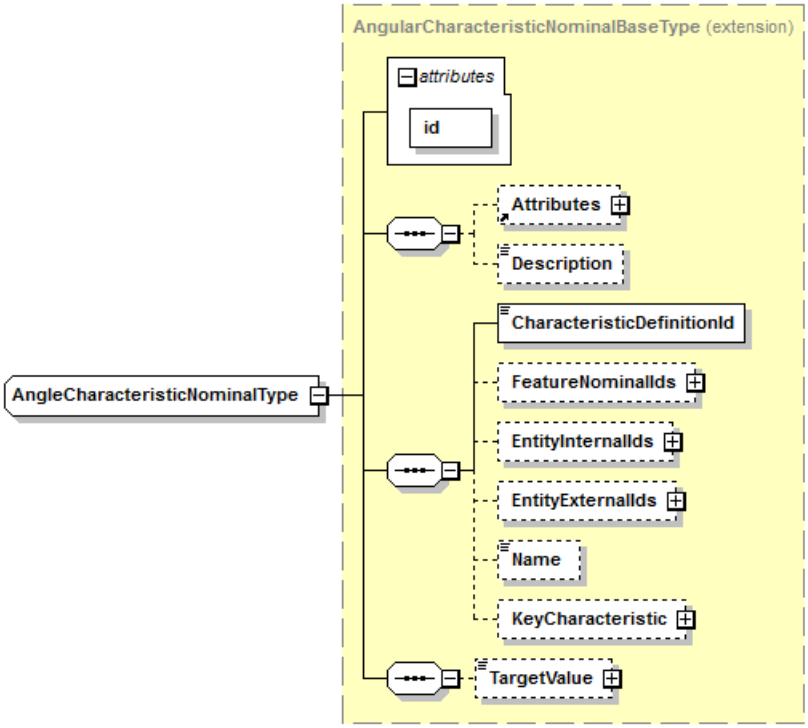
complexType **AngleCharacteristicDefinitionType**

diagram	
type	extension of **AngularCharacteristicDefinitionBaseType**
properties	base AngularCharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance**
used by	element **AngleCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleCharacteristicDefinitionType defines information that can be common to more than one angle characteristic. An angle characteristic applies to a single feature.

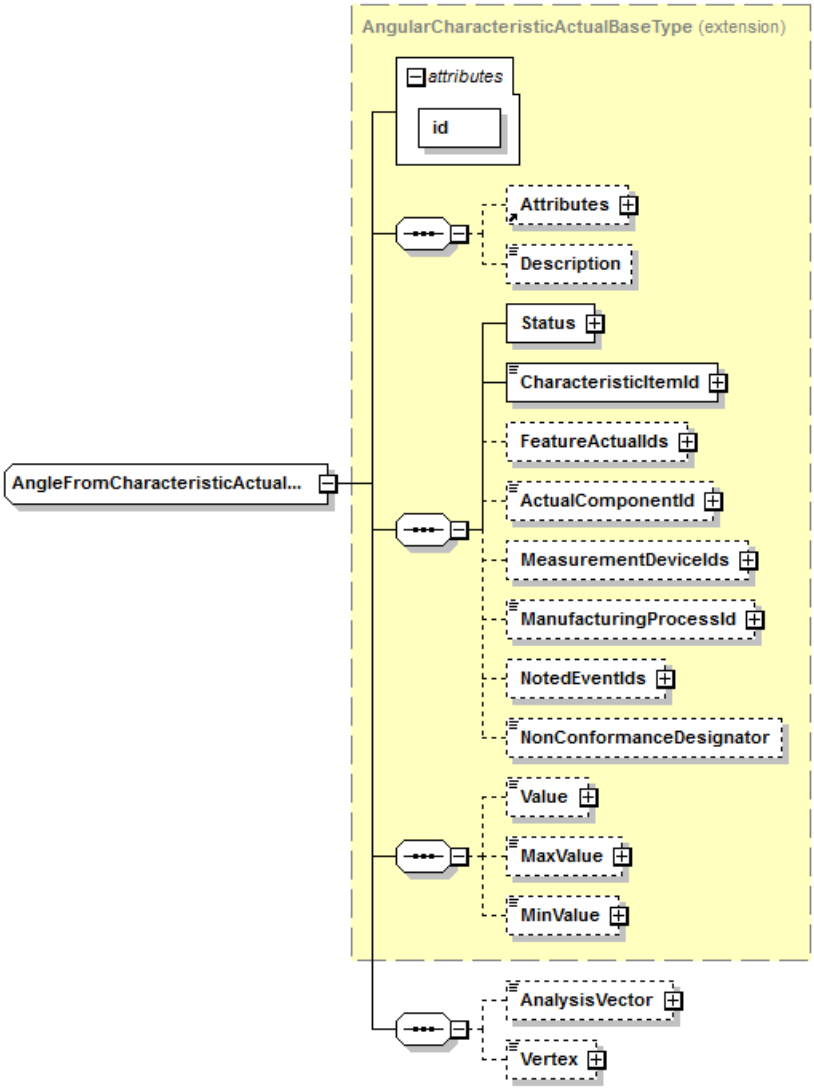
complexType **AngleCharacteristicItemType**

diagram	
type	extension of **AngularCharacteristicItemBaseType**
properties	base AngularCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **AngleCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleCharacteristicItemType defines an angle characteristic item.

complexType **AngleCharacteristicNominalType**

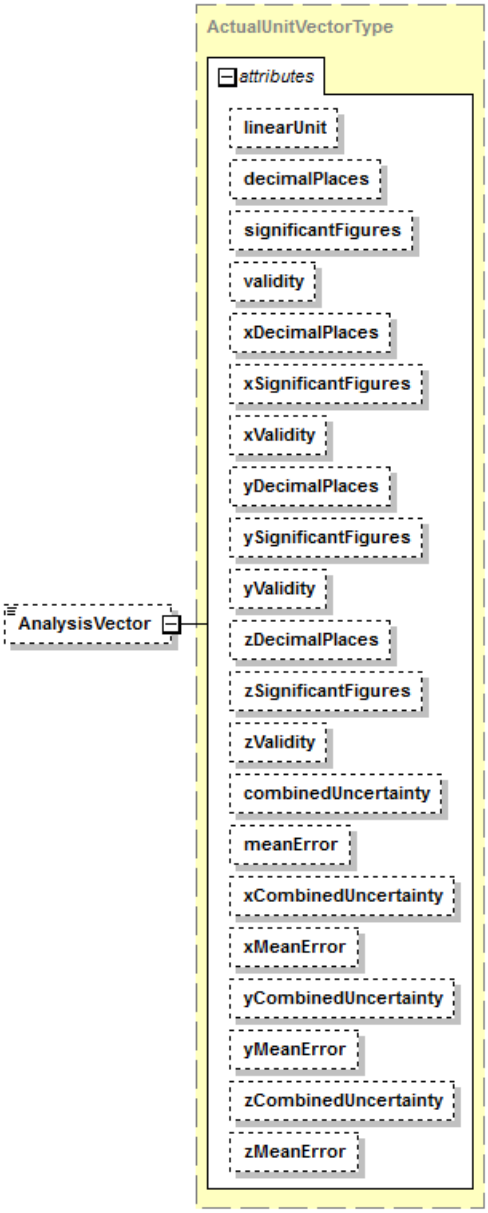
diagram	
type	extension of **AngularCharacteristicNominalBaseType**
properties	base AngularCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **AngleCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleCharacteristicNominalType defines a unique angle characteristic nominal.

complexType **AngleFromCharacteristicActualType**

diagram	
type	extension of **AngularCharacteristicActualBaseType**
properties	base AngularCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **AnalysisVector** **Vertex**
used by	element **AngleFromCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleFromCharacteristicActualType defines the results of an actual angle-from characteristic evaluation.

element **AngleFromCharacteristicActualType/AnalysisVector**

diagram



type	**ActualUnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

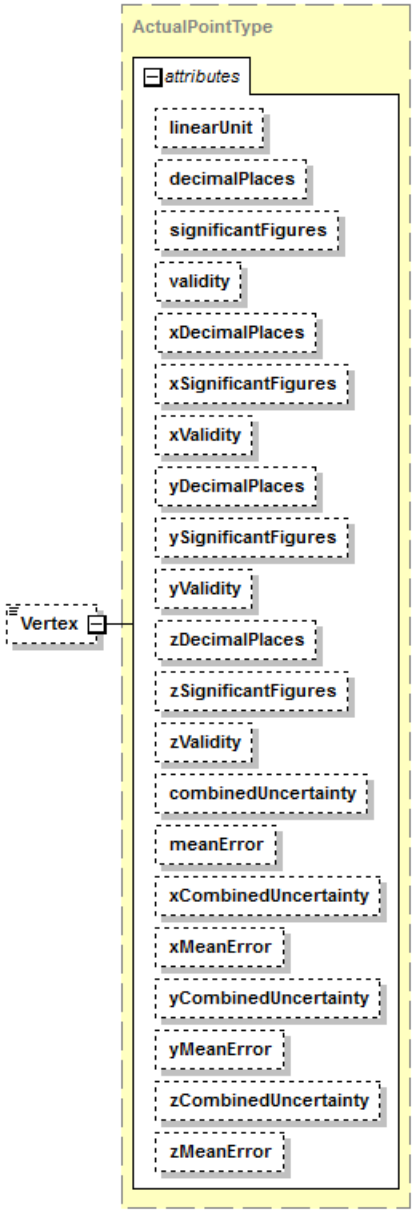
attributes

Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional, actual AnalysisVector element used by the AnalysisMode gives an actual vector defining a unit vector normal to the plane in which the angle-from characteristic is evaluated.	

element **AngleFromCharacteristicActualType/Vertex**

diagram



type	**ActualPointType**
properties	minOcc 0 maxOcc 1 content complex

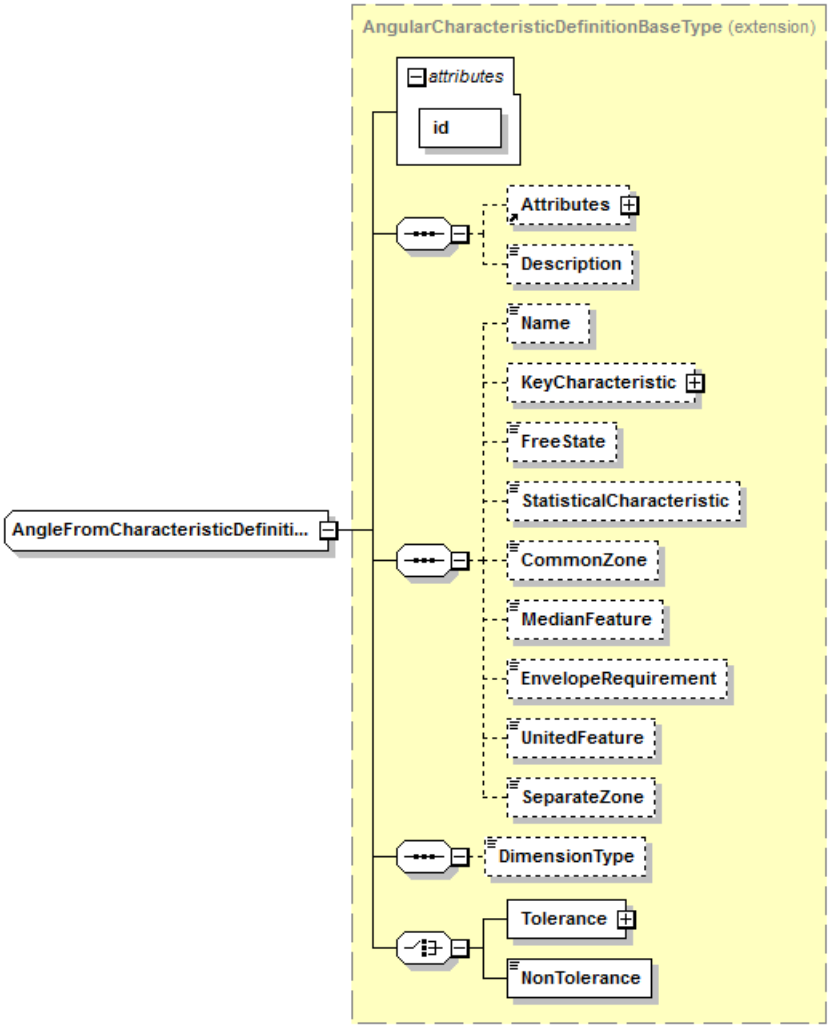
facets	Kind	Value	Annotation
	length	3	

attributes	Name	Type	Use	Default	Fixed	Annotation
	linearUnit	**xs:token**				
	decimalPlaces	**xs:nonNegativeInteger**				
	significantFigures	**xs:nonNegativeInteger**				
	validity	**ValidityEnumType**				
	xDecimalPlaces	**xs:nonNegativeInteger**				
	xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional Vertex element is the point defining the location of the vertex of the actual angle.	

complexType **AngleFromCharacteristicDefinitionType**

diagram



type	extension of **AngularCharacteristicDefinitionBaseType**
properties	base AngularCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **AngleFromCharacteristicDefinition**

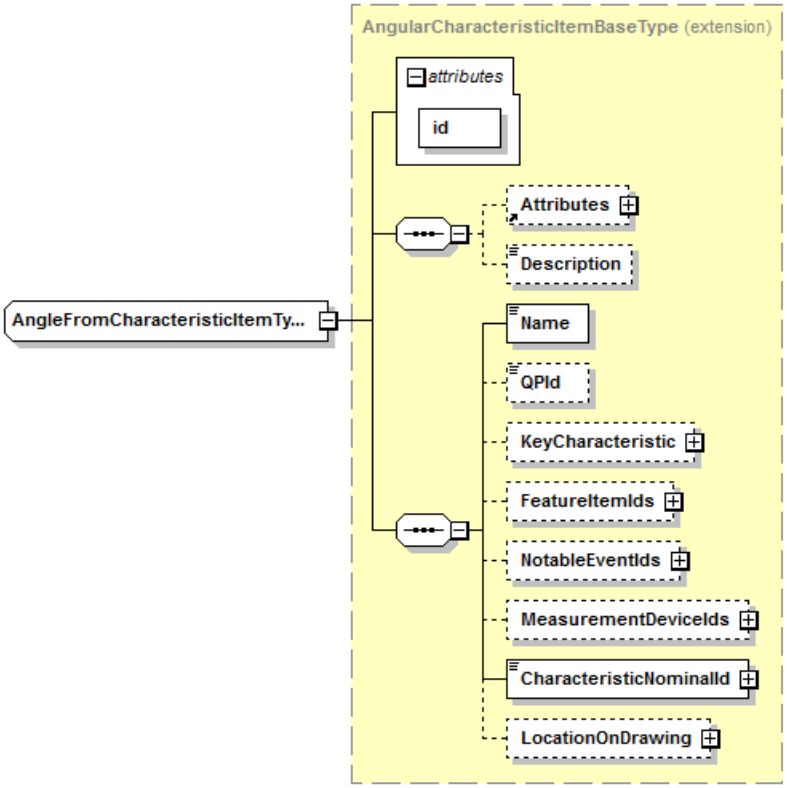
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

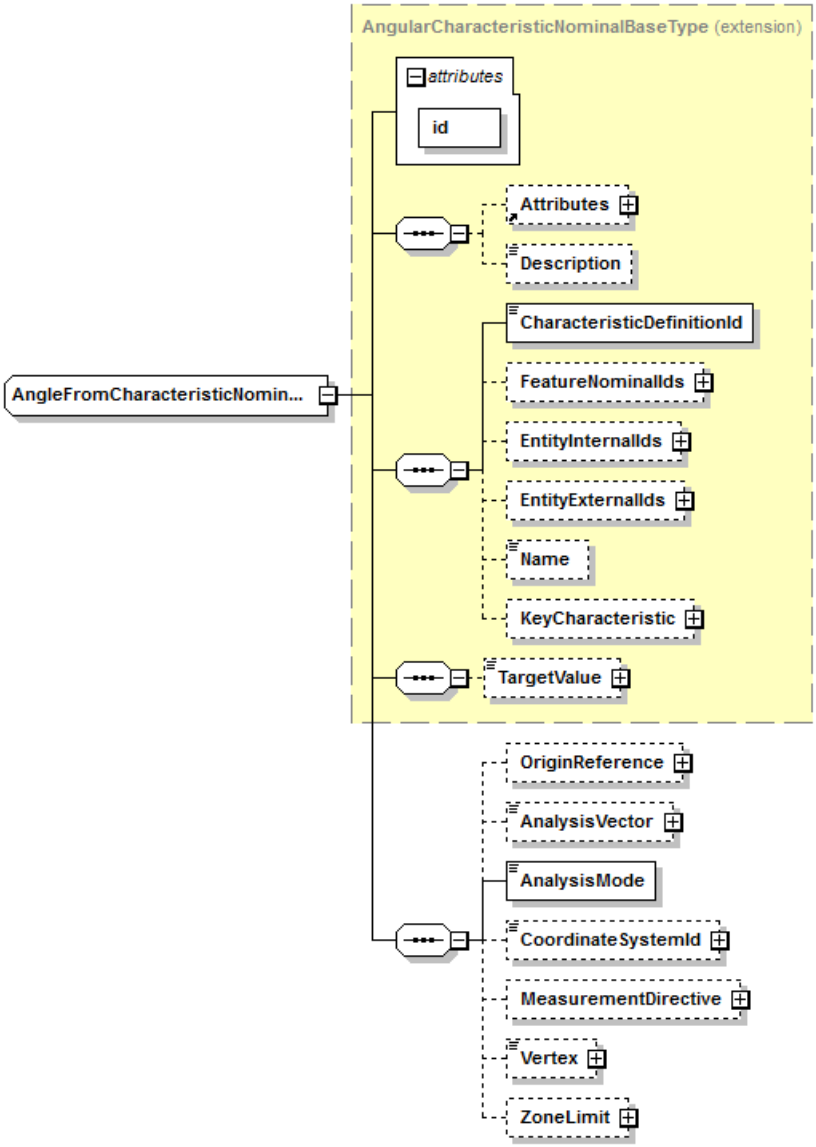
documentation
The AngleFromCharacteristicDefinitionType defines information that can be common to more than one angle-from characteristic. An angle-from characteristic is an angle with respect to an origin reference feature.

complexType **AngleFromCharacteristicItemType**

diagram	
type	extension of **AngularCharacteristicItemBaseType**
properties	base AngularCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **AngleFromCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngleFromCharacteristicItemType defines an angle-from characteristic item.

complexType **AngleFromCharacteristicNominalType**

diagram



type	extension of **AngularCharacteristicNominalBaseType**
properties	base AngularCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **OriginReference** **AnalysisVector** **AnalysisMode** **CoordinateSystemId** **MeasurementDirective** **Vertex** **ZoneLimit**
used by	element **AngleFromCharacteristicNominal**

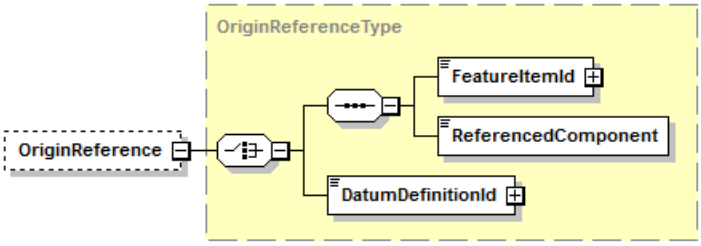
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

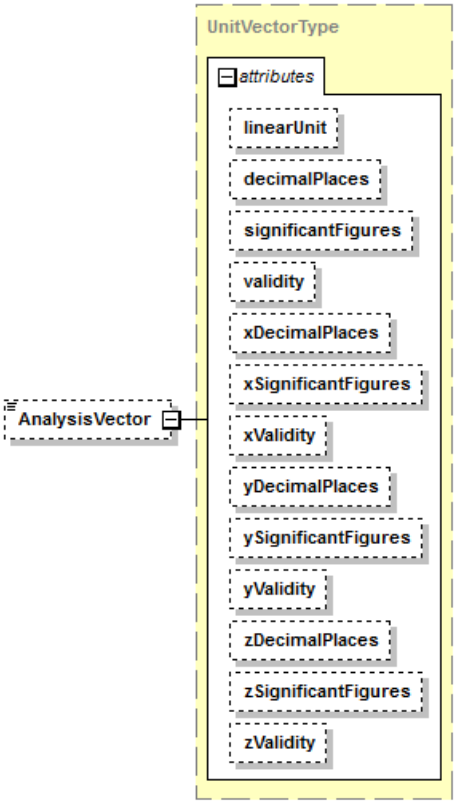
annotation

documentation
The AngleFromCharacteristicNominalType defines a unique angle-from characteristic nominal.

element **AngleFromCharacteristicNominalType/OriginReference**

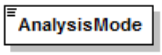
diagram	
type	**OriginReferenceType**
properties	minOcc 0 maxOcc 1 content complex
children	**FeatureItemId** **ReferencedComponent** **DatumDefinitionId**
annotation	documentation The optional OriginReference element gives the reference feature for the angle-from characteristic. This is the first of two features involved in the angle-from characteristic.

element **AngleFromCharacteristicNominalType/AnalysisVector**

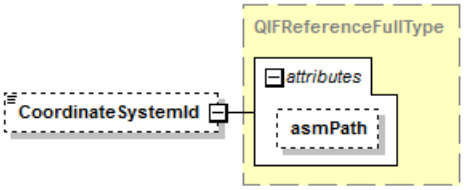
diagram	
type	**UnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

attributes	Name	Type	Use	Default	Fixed	Annotation
	linearUnit	**xs:token**				
	decimalPlaces	**xs:nonNegativeInteger**				
	significantFigures	**xs:nonNegativeInteger**				
	validity	**ValidityEnumType**				
	xDecimalPlaces	**xs:nonNegativeInteger**				
	xSignificantFigures	**xs:nonNegativeInteger**				
	xValidity	**ValidityEnumType**				
	yDecimalPlaces	**xs:nonNegativeInteger**				
	ySignificantFigures	**xs:nonNegativeInteger**				
	yValidity	**ValidityEnumType**				
	zDecimalPlaces	**xs:nonNegativeInteger**				
	zSignificantFigures	**xs:nonNegativeInteger**				
	zValidity	**ValidityEnumType**				
annotation	documentation The optional AnalysisVector element used by the AnalysisMode gives a vector defining a unit vector normal to the plane in which the angle-from characteristic is evaluated.					

element **AngleFromCharacteristicNominalType/AnalysisMode**

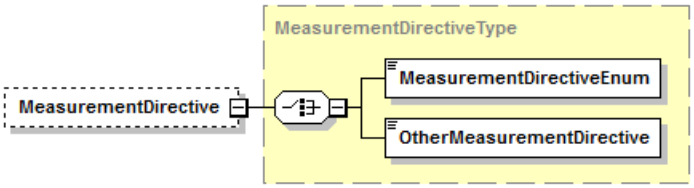
diagram	
type	**AngleBetweenAnalysisModeEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The AnalysisMode element indicates whether the angle-from characteristic is two dimensional or three dimensional.

element **AngleFromCharacteristicNominalType/CoordinateSystemId**

diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation asmPath / **QIFIdType** / / / / / documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the

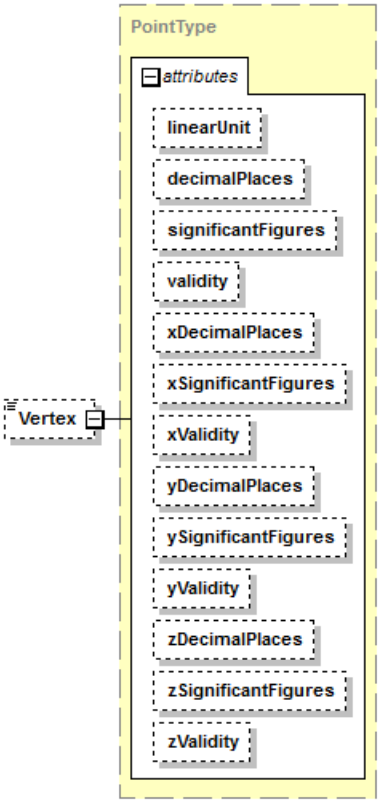
	AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional CoordinateSystemId element is the QIF id of the coordinate system in which this characteristic is evaluated.

element **AngleFromCharacteristicNominalType/MeasurementDirective**

diagram	
type	**MeasurementDirectiveType**
properties	minOcc 0 maxOcc 1 content complex
children	**MeasurementDirectiveEnum OtherMeasurementDirective**
annotation	documentation The optional MeasurementDirective element modifies the characteristic evaluation to be the average, minimum or maximum angle between two features. For example, the angle from an origin to two circles can be from their centers or from their closest or furthest tangents.

element **AngleFromCharacteristicNominalType/Vertex**

diagram



type **PointType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

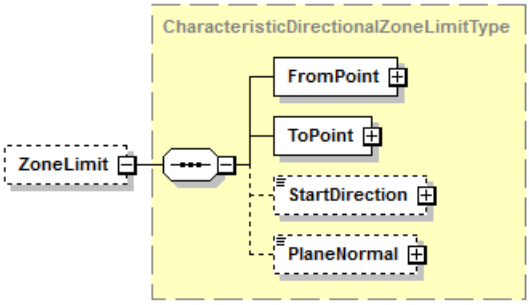
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

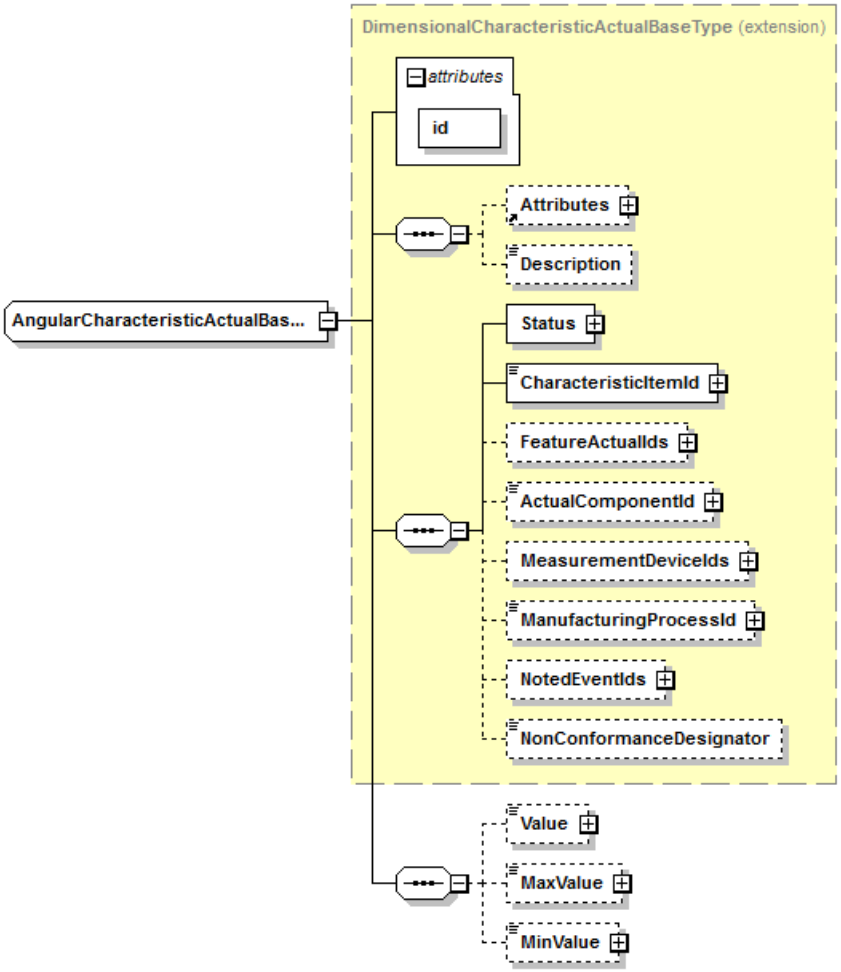
documentation

The optional Vertex element is the point of intersection of the angle. It is needed when the features themselves do not intersect to define a vertex. For example, the angle between two circles with respect to the vertex.

element **AngleFromCharacteristicNominalType/ZoneLimit**

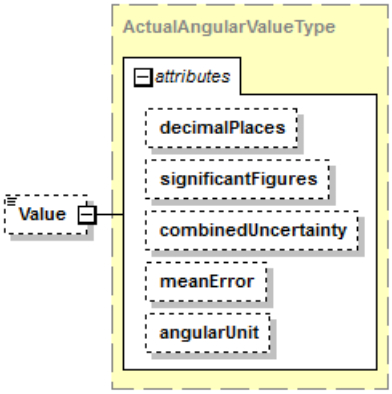
diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extent of the tolerance zone limit.

complexType **AngularCharacteristicActualBaseType**

diagram	

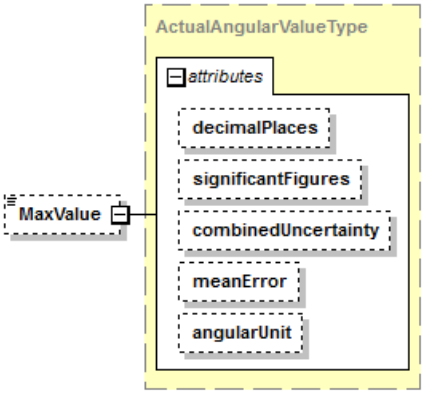
type	extension of **DimensionalCharacteristicActualBaseType**
properties	base DimensionalCharacteristicActualBaseType abstract true
children	**Attributes Description Status CharacteristicItemId FeatureActualIds ActualComponentId MeasurementDeviceIds ManufacturingProcessId NotedEventIds NonConformanceDesignator Value MaxValue MinValue**
used by	complexTypes **AngleBetweenCharacteristicActualType AngleCharacteristicActualType AngleFromCharacteristicActualType UserDefinedAngularCharacteristicActualType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularCharacteristicActualBaseType is the abstract base type that defines the results of an actual angular characteristic evaluation.

element **AngularCharacteristicActualBaseType/Value**

diagram	
type	**ActualAngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: decimalPlaces Type: **xs:nonNegativeInteger** Use: Default: Fixed: Annotation: documentation See documentation of SpecifiedDecimalType. Name: significantFigures Type: **xs:nonNegativeInteger** Annotation: documentation See documentation of SpecifiedDecimalType. Name: combinedUncertainty Type: **NonNegativeDecimalType** Annotation: documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. Name: meanError Type: **NonNegativeDecimalType** Annotation: documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. Name: angularUnit Type: **xs:token** Annotation: documentation The optional angularUnit

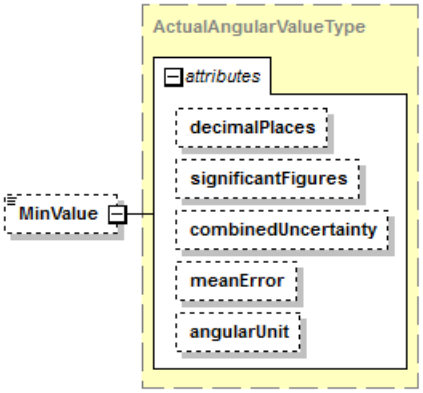
	attribute defines the unit used by ActualAngularValueType.
annotation	documentation The optional Value element is the actual measured value. Where parts are checked using hard gages, it is anticipated that the Value will not be populated.

element **AngularCharacteristicActualBaseType/MaxValue**

diagram	
type	**ActualAngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. angularUnit **xs:token** documentation The optional angularUnit attribute defines the unit used by ActualAngularValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **AngularCharacteristicActualBaseType/MinValue**

diagram



type **ActualAngularValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

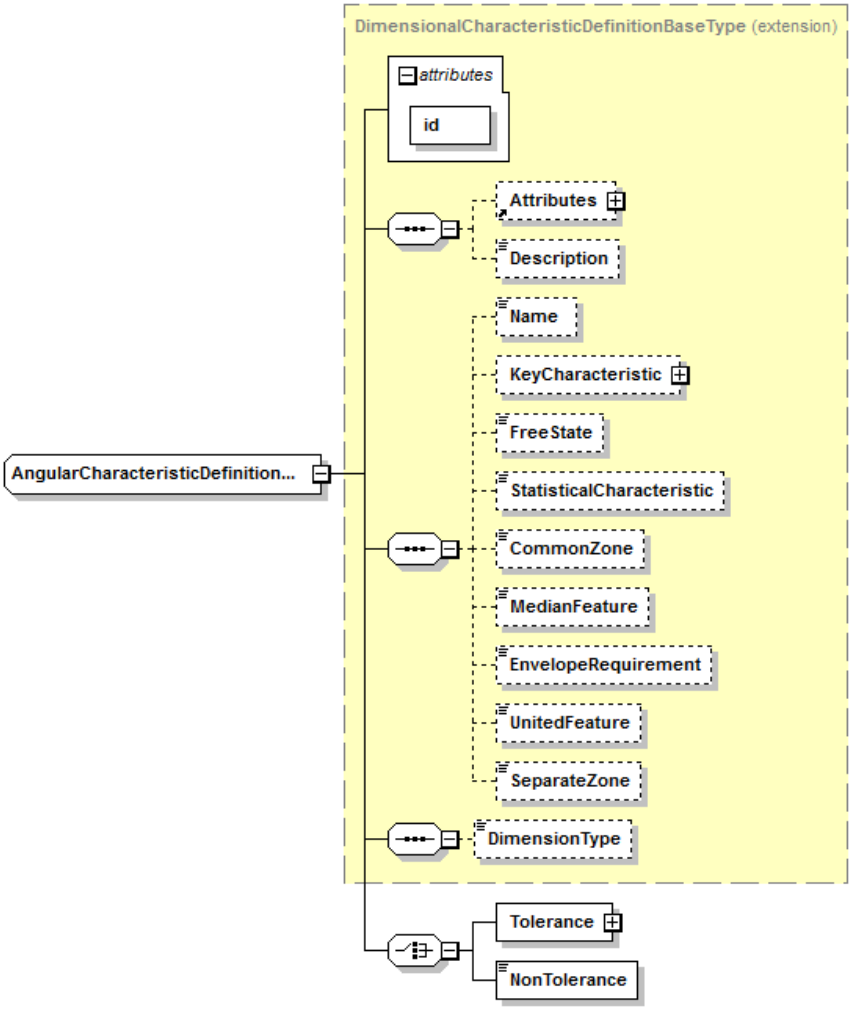
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
angularUnit	**xs:token**				documentation The optional angularUnit attribute defines the unit used by ActualAngularValueType.

annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

complexType **AngularCharacteristicDefinitionBaseType**

diagram



type	extension of **DimensionalCharacteristicDefinitionBaseType**
properties	base DimensionalCharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	complexTypes **AngleBetweenCharacteristicDefinitionType** **AngleCharacteristicDefinitionType** **AngleFromCharacteristicDefinitionType** **UserDefinedAngularCharacteristicDefinitionType**

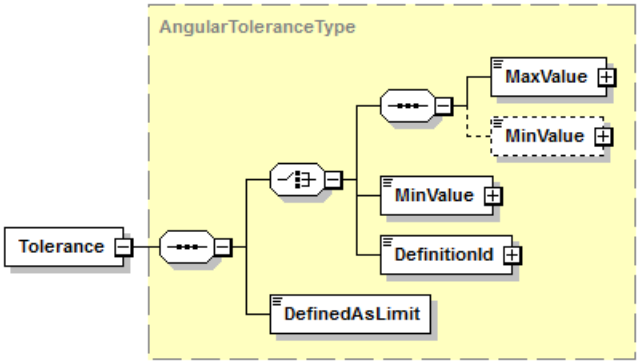
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The AngularCharacteristicDefinitionBaseType is the abstract base type that defines an angular characteristic.

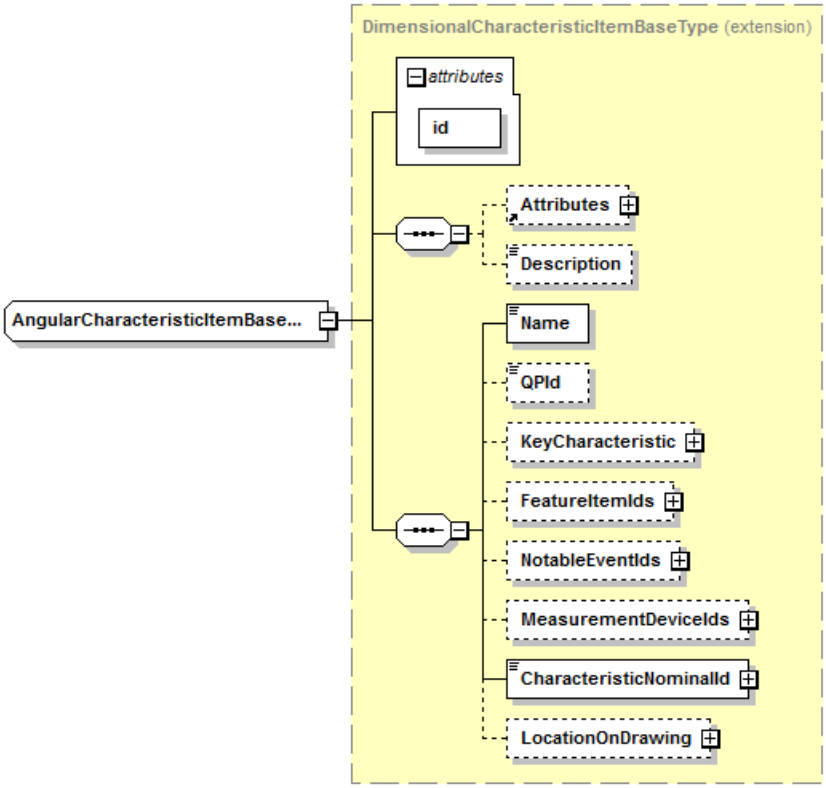
element **AngularCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**AngularToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinitionId DefinedAsLimit**
annotation	documentation The Tolerance element gives information about the angle tolerance.

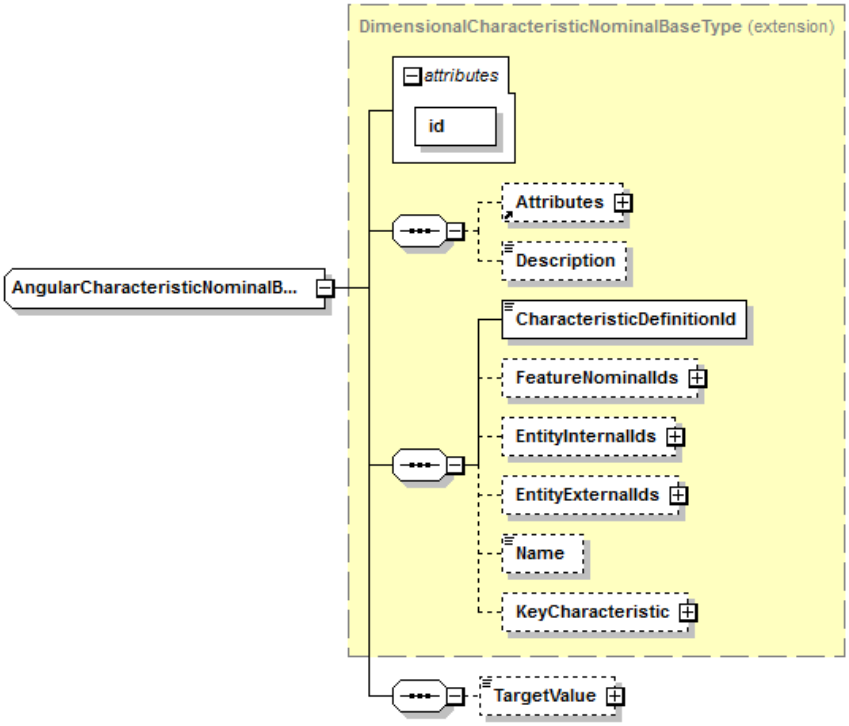
element **AngularCharacteristicDefinitionBaseType/NonTolerance**

diagram	NonTolerance
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration MEASURED — documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration SET — documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

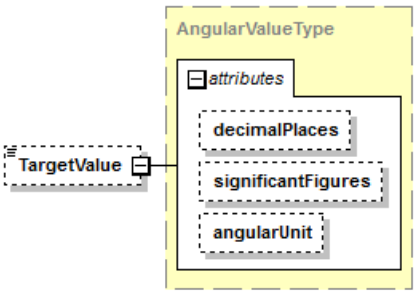
complexType **AngularCharacteristicItemBaseType**

diagram	
type	extension of **DimensionalCharacteristicItemBaseType**
properties	base DimensionalCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **AngleBetweenCharacteristicItemType** **AngleCharacteristicItemType** **AngleFromCharacteristicItemType** **UserDefinedAngularCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularCharacteristicItemBaseType is the abstract base type that defines an angular characteristic item.

complexType **AngularCharacteristicNominalBaseType**

diagram	
type	extension of **DimensionalCharacteristicNominalBaseType**
properties	base DimensionalCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexTypes **AngleBetweenCharacteristicNominalType** **AngleCharacteristicNominalType** **AngleFromCharacteristicNominalType** **UserDefinedAngularCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularCharacteristicNominalBaseType is the abstract base type that defines a unique angular characteristic nominal.

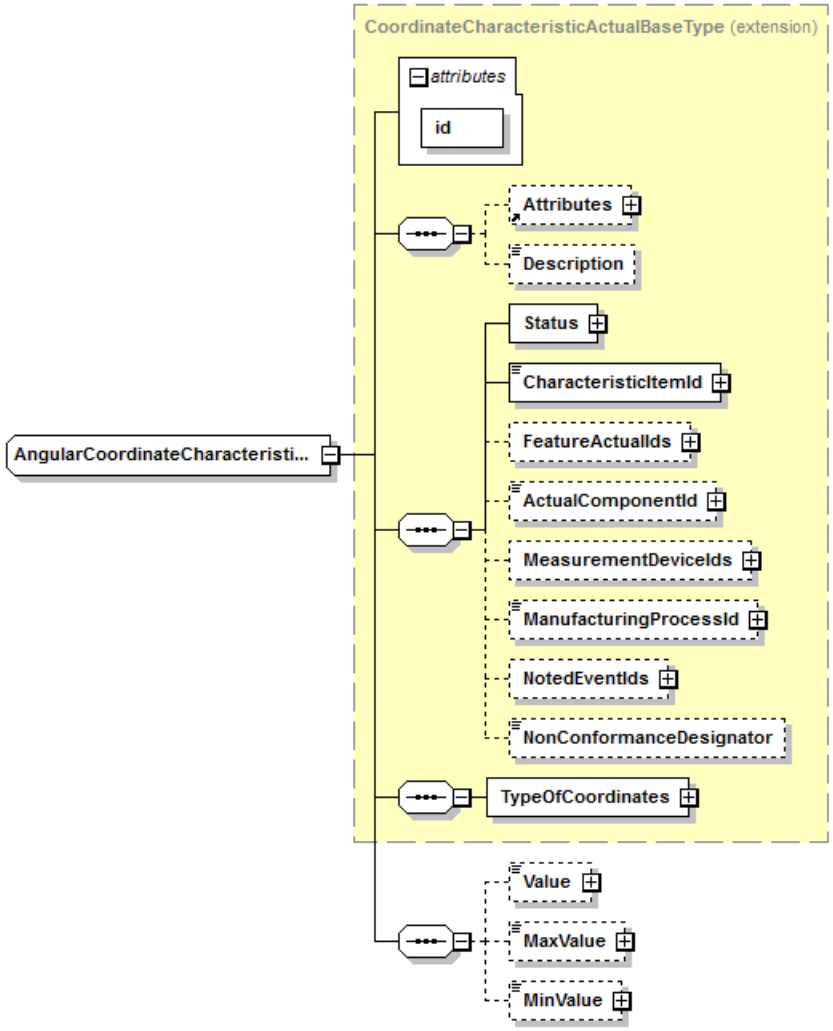
element **AngularCharacteristicNominalBaseType/TargetValue**

diagram	

type	**AngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. angularUnit **xs:token** — documentation: The optional angularUnit attribute defines the UnitName for the AngularValueType.
annotation	documentation The optional TargetValue element is the nominal value of the angle.

complexType **AngularCoordinateCharacteristicActualType**

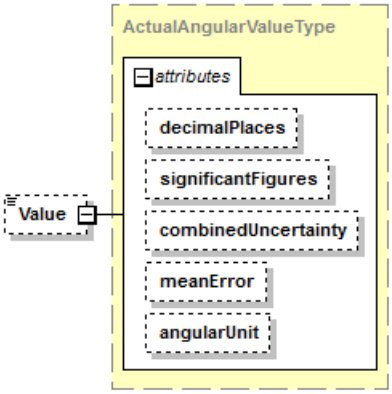
diagram



type	extension of **CoordinateCharacteristicActualBaseType**

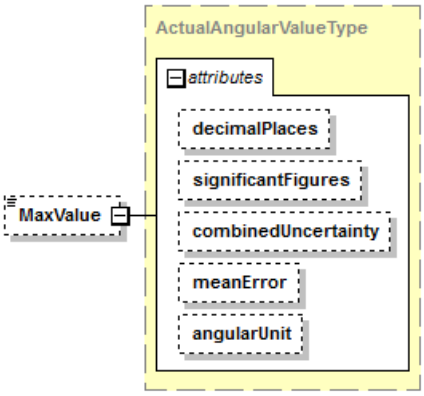
properties	base CoordinateCharacteristicActualBaseType
children	**Attributes** Description Status CharacteristicItemId FeatureActualIds ActualComponentId MeasurementDeviceIds ManufacturingProcessId NotedEventIds NonConformanceDesignator TypeOfCoordinates Value MaxValue MinValue
used by	element **AngularCoordinateCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The AngularCoordinateCharacteristicActualType defines the results of an actual angular coordinate characteristic evaluation.

element **AngularCoordinateCharacteristicActualType/Value**

diagram	
type	**ActualAngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: decimalPlaces; Type: **xs:nonNegativeInteger**; Use; Default; Fixed; Annotation: documentation: See documentation of SpecifiedDecimalType. Name: significantFigures; Type: **xs:nonNegativeInteger**; Annotation: documentation: See documentation of SpecifiedDecimalType. Name: combinedUncertainty; Type: **NonNegativeDecimalType**; Annotation: documentation: The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. Name: meanError; Type: **NonNegativeDecimalType**; Annotation: documentation: The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. Name: angularUnit; Type: **xs:token**; Annotation: documentation: The optional angularUnit attribute defines the unit used by

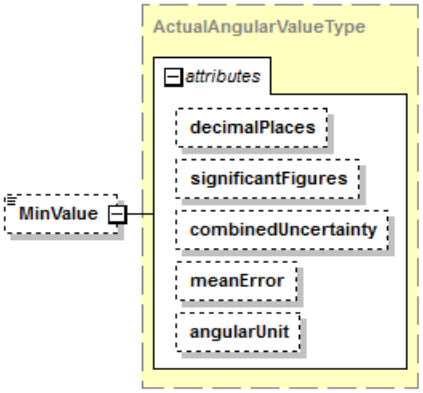
	ActualAngularValueType.
annotation	documentation The optional Value element is the actual measured value of the angular coordinate characteristic.

element **AngularCoordinateCharacteristicActualType/MaxValue**

diagram	
type	**ActualAngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. angularUnit **xs:token** documentation The optional angularUnit attribute defines the unit used by ActualAngularValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **AngularCoordinateCharacteristicActualType/MinValue**

diagram



type **ActualAngularValueType**

properties

minOcc	0
maxOcc	1
content	complex

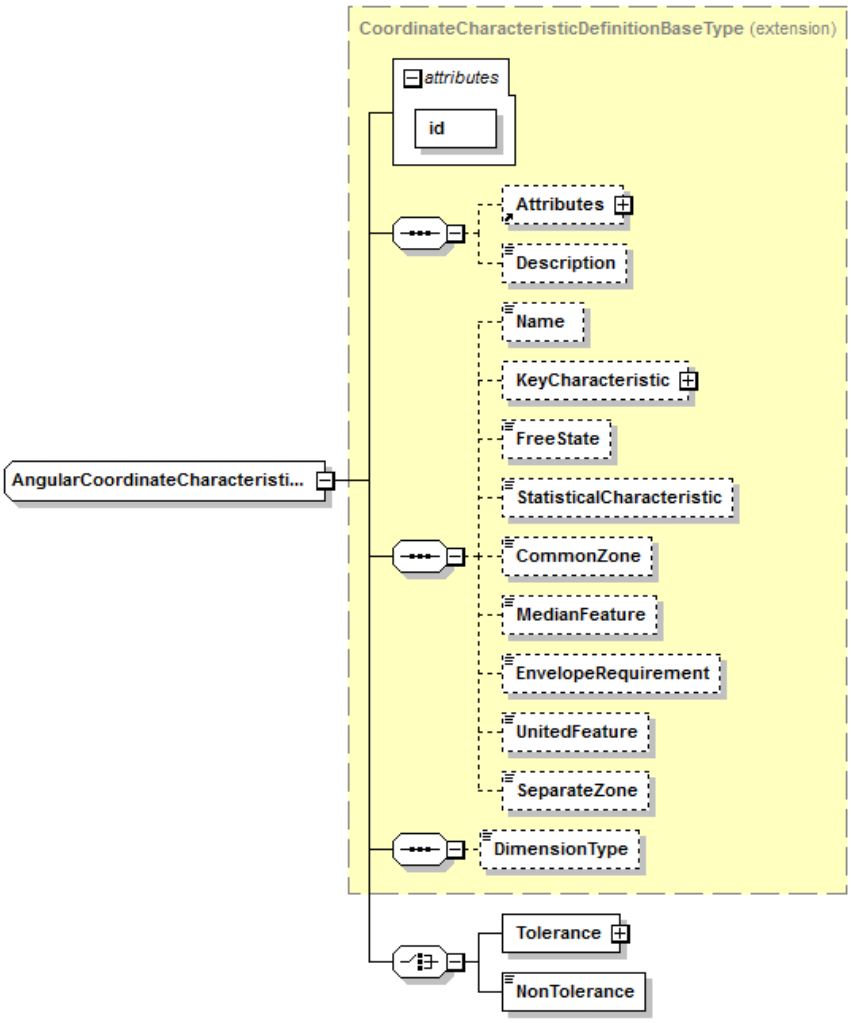
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
angularUnit	**xs:token**				documentation The optional angularUnit attribute defines the unit used by ActualAngularValueType.

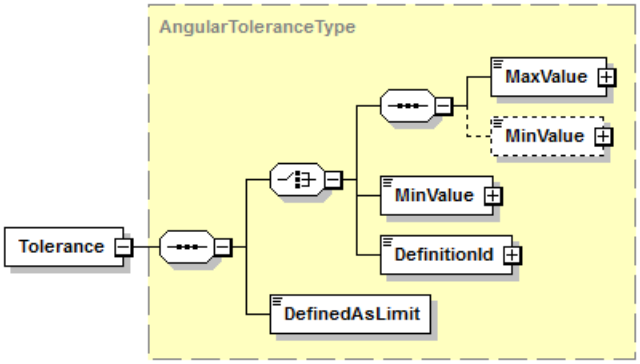
annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

complexType **AngularCoordinateCharacteristicDefinitionType**

diagram	
type	extension of **CoordinateCharacteristicDefinitionBaseType**
properties	base CoordinateCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **AngularCoordinateCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularCoordinateCharacteristicDefinitionType defines information that can be common to more than one angular coordinate characteristic. This may be used with a cylindrical coordinate system.

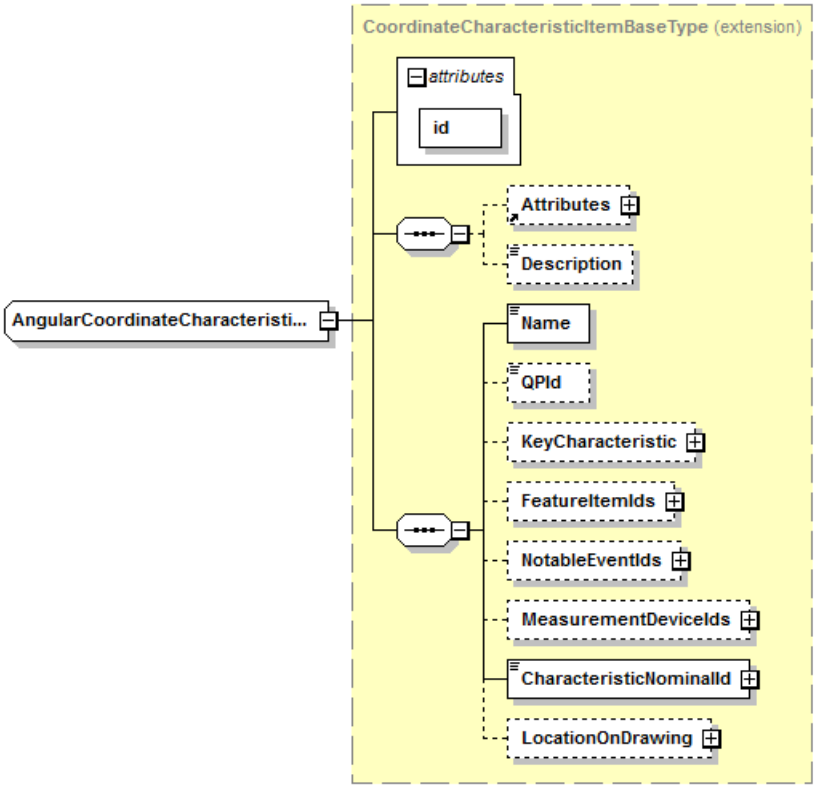
element **AngularCoordinateCharacteristicDefinitionType/Tolerance**

diagram	
type	**AngularToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinitionId DefinedAsLimit**
annotation	documentation The Tolerance element gives information about the angular tolerance.

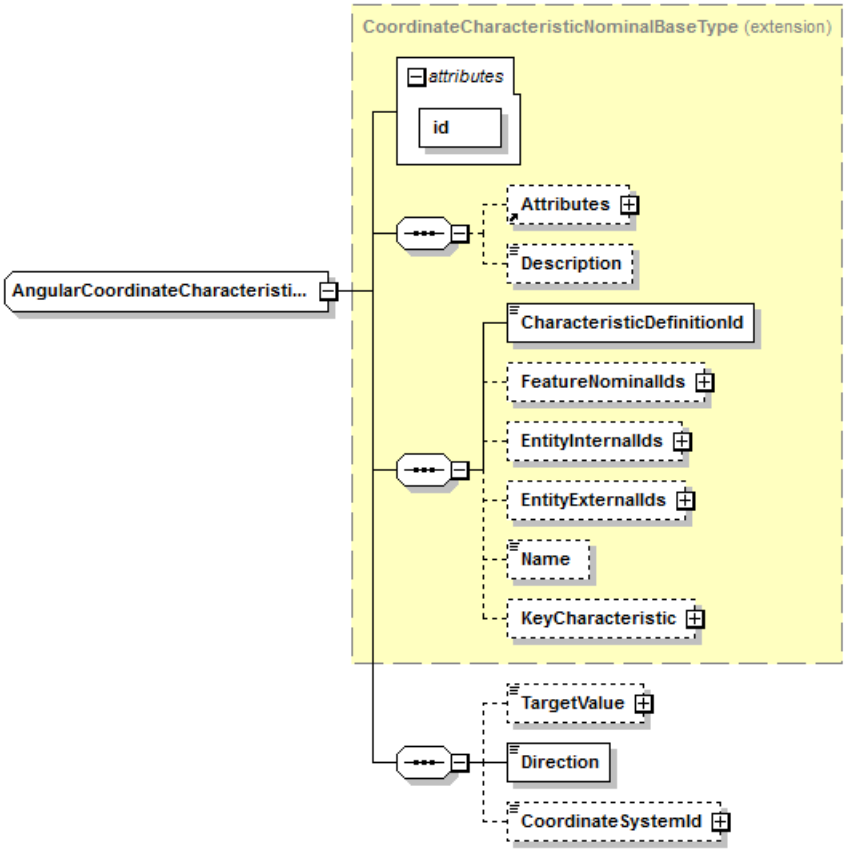
element **AngularCoordinateCharacteristicDefinitionType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

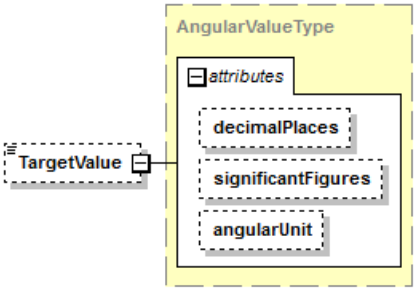
complexType **AngularCoordinateCharacteristicItemType**

diagram	
type	extension of **CoordinateCharacteristicItemBaseType**
properties	base CoordinateCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **AngularCoordinateCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularCoordinateCharacteristicItemType defines an angular coordinate characteristic item.

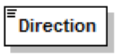
complexType **AngularCoordinateCharacteristicNominalType**

diagram	
type	extension of **CoordinateCharacteristicNominalBaseType**
properties	base CoordinateCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **Direction** **CoordinateSystemId**
used by	element **AngularCoordinateCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularCoordinateCharacteristicNominalType defines a unique angular coordinate characteristic nominal.

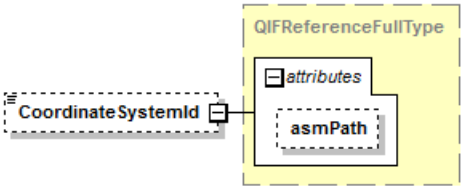
element **AngularCoordinateCharacteristicNominalType/TargetValue**

diagram	
type	**AngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. angularUnit **xs:token** — documentation: The optional angularUnit attribute defines the UnitName for the AngularValueType.
annotation	documentation The optional TargetValue element is the nominal value for the angular coordinate characteristic.

element **AngularCoordinateCharacteristicNominalType/Direction**

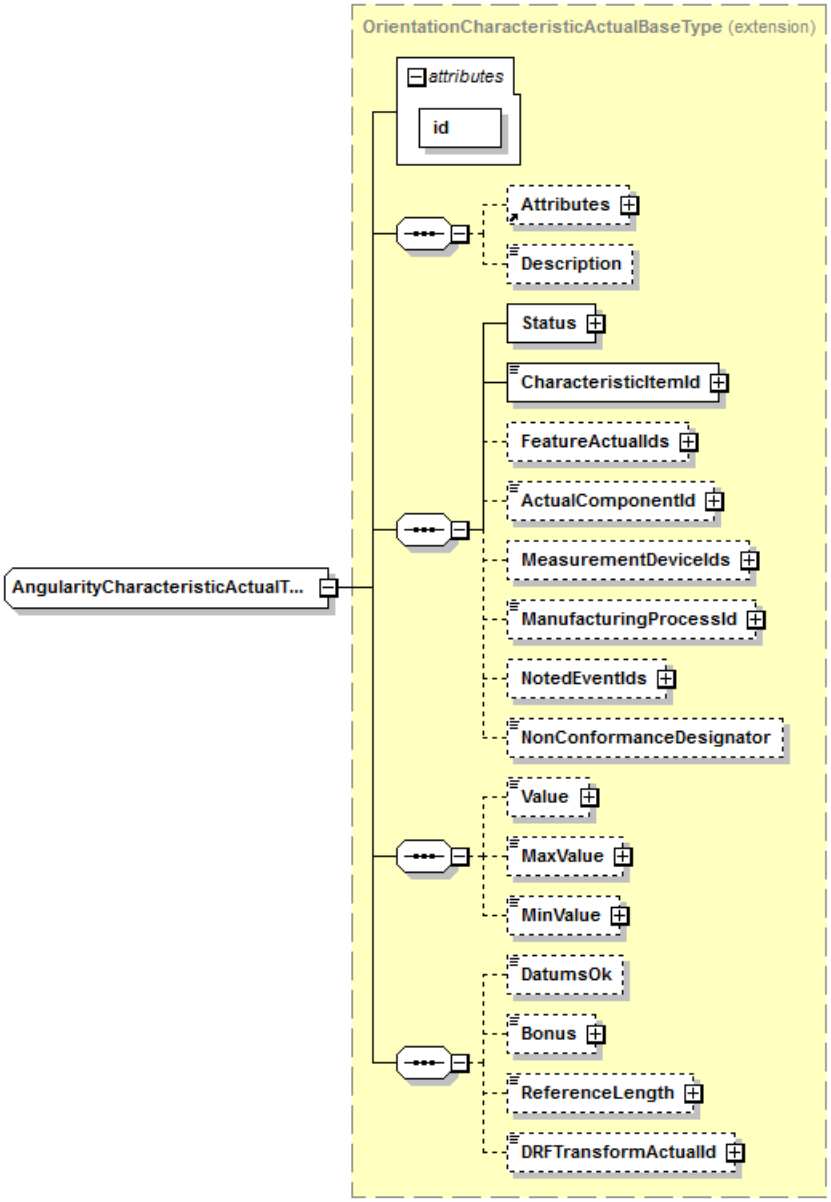
diagram	
type	**AngularCoordinateDirectionEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration ANGULAR enumeration AZIMUTH enumeration POLAR
annotation	documentation The Direction element is the coordinate axis for the characteristic.

element **AngularCoordinateCharacteristicNominalType/CoordinateSystemId**

diagram	
type	**QIFReferenceFullType**

properties	minOcc 0 maxOcc 1 content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation
	asmPath	**QIFIdType**				documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional CoordinateSystemId element is the QIF id of the coordinate system in which this characteristic is evaluated.					

complexType **AngularityCharacteristicActualType**

diagram	
type	extension of **OrientationCharacteristicActualBaseType**
properties	base OrientationCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk** **Bonus** **ReferenceLength** **DRFTransformActualId**
used by	element **AngularityCharacteristicActual**

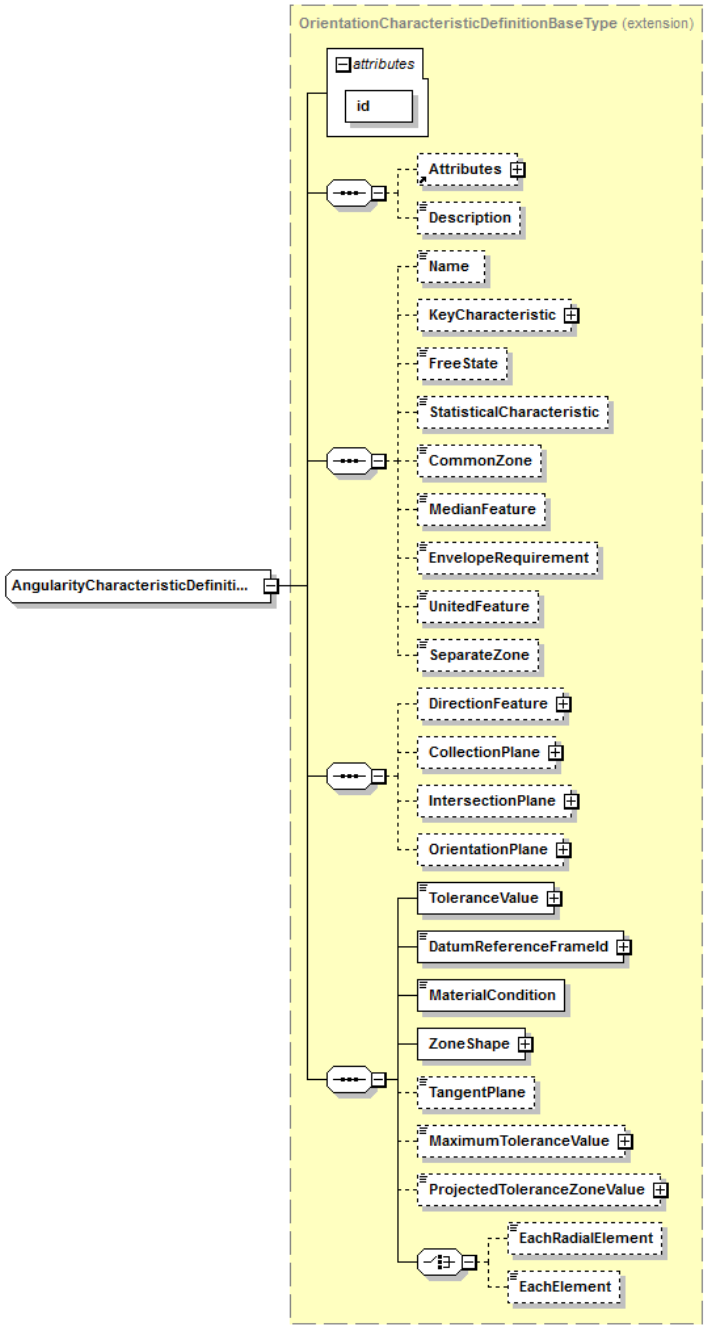
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The AngularityCharacteristicActualType defines the results of an actual angularity characteristic evaluation.

complexType **AngularityCharacteristicDefinitionType**

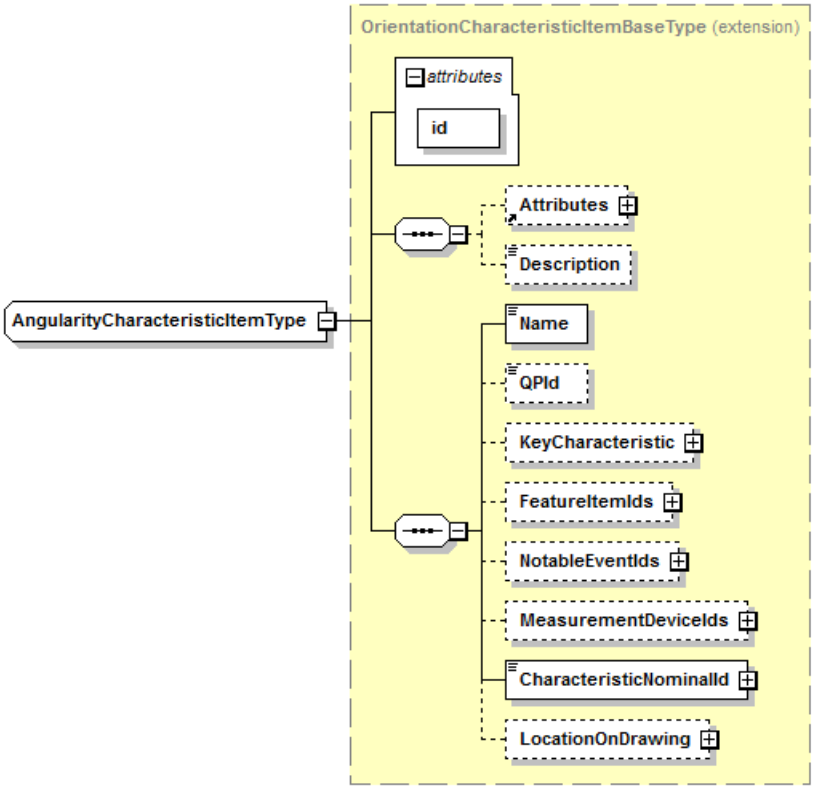
diagram



type	extension of **OrientationCharacteristicDefinitionBaseType**
properties	base OrientationCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **MaterialCondition** **ZoneShape** **TangentPlane** **MaximumToleranceValue** **ProjectedToleranceZoneValue** **EachRadialElement** **EachElement**

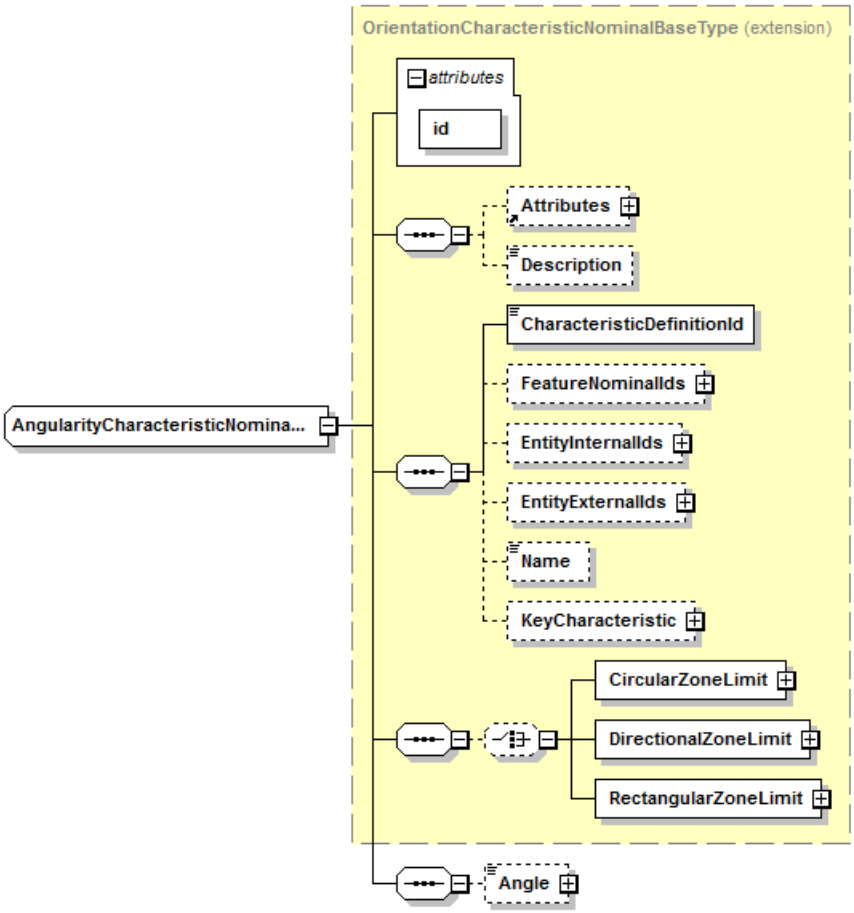
used by	element **AngularityCharacteristicDefinition**					
attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularityCharacteristicDefinitionType defines information that can be common to more than one angularity characteristic.					

complexType **AngularityCharacteristicItemType**

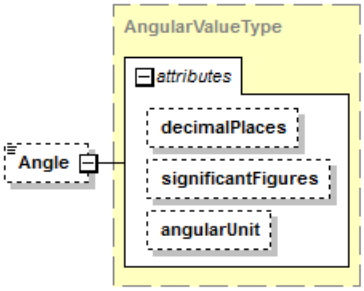
diagram	
type	extension of **OrientationCharacteristicItemBaseType**
properties	base OrientationCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **AngularityCharacteristicItem**

attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularityCharacteristicItemType defines an angularity characteristic item.					

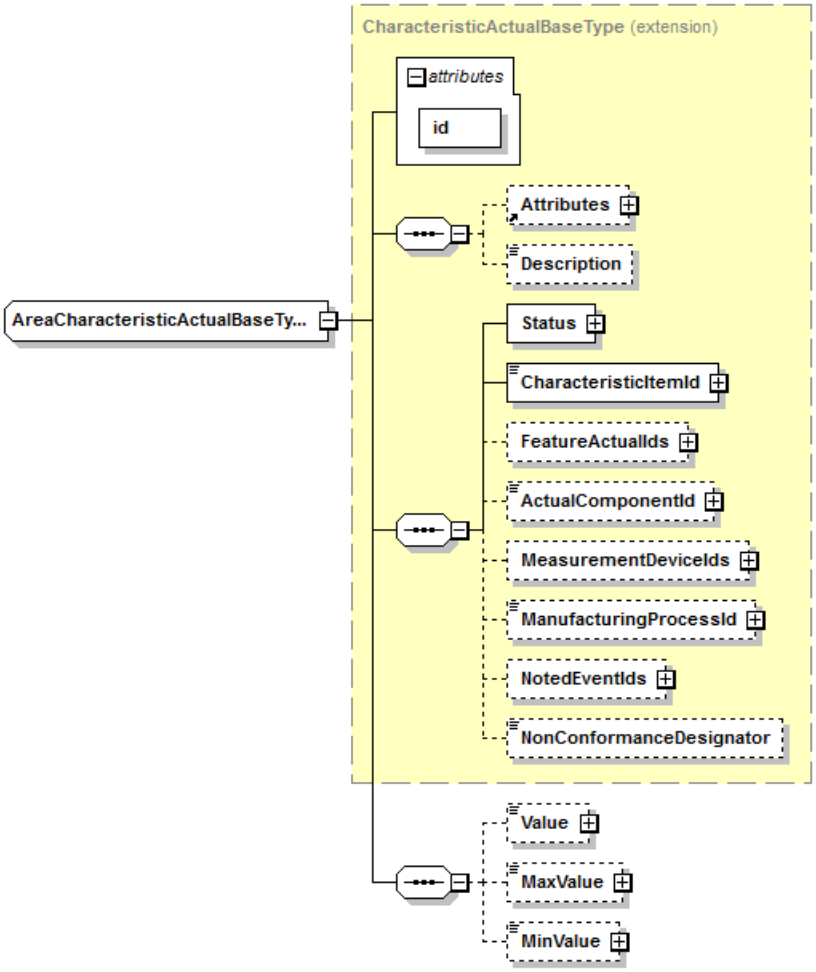
complexType **AngularityCharacteristicNominalType**

diagram	
type	extension of **OrientationCharacteristicNominalBaseType**
properties	base OrientationCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **CircularZoneLimit** **DirectionalZoneLimit** **RectangularZoneLimit** **Angle**
used by	element **AngularityCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AngularityCharacteristicNominalType defines a unique angularity characteristic nominal.

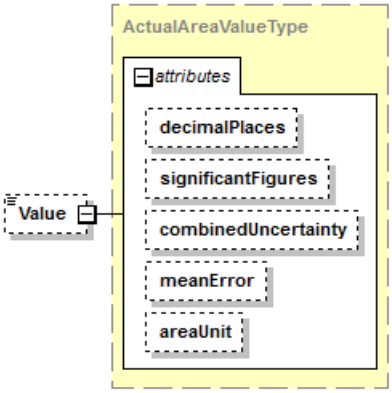
element **AngularityCharacteristicNominalType/Angle**

diagram	
type	**AngularValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. angularUnit **xs:token** — documentation: The optional angularUnit attribute defines the UnitName for the AngularValueType.
annotation	documentation The optional Angle element is the basic angle of the angularity characteristic's tolerance zone (for DMIS compatibility).

complexType **AreaCharacteristicActualBaseType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexType **UserDefinedAreaCharacteristicActualType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AreaCharacteristicActualBaseType is the abstract base type that defines the results of an actual area characteristic evaluation.

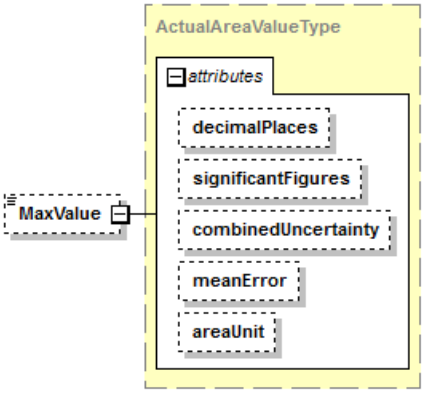
element **AreaCharacteristicActualBaseType/Value**

diagram	
type	**ActualAreaValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	

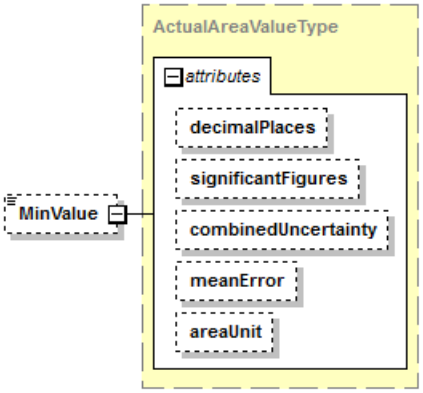
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
areaUnit	**xs:token**				documentation The optional areaUnit attribute defines the unit used by ActualAreaValueType.

annotation	documentation The optional Value element is the actual measured value of the area characteristic.

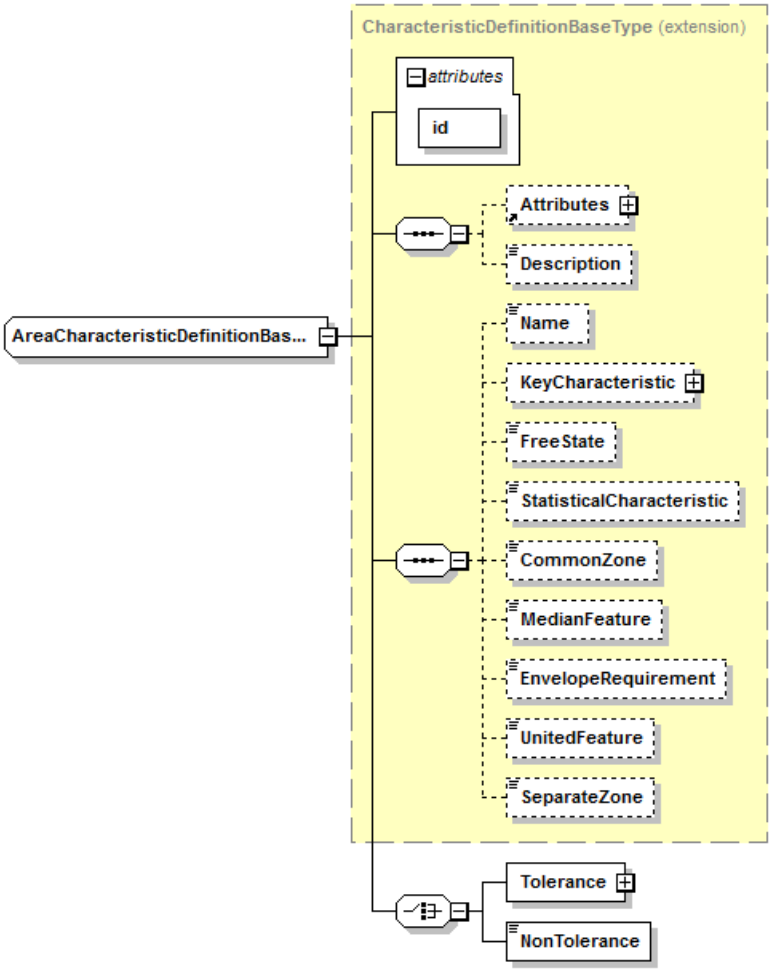
element **AreaCharacteristicActualBaseType/MaxValue**

diagram	
type	**ActualAreaValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. areaUnit **xs:token** documentation The optional areaUnit attribute defines the unit used by ActualAreaValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

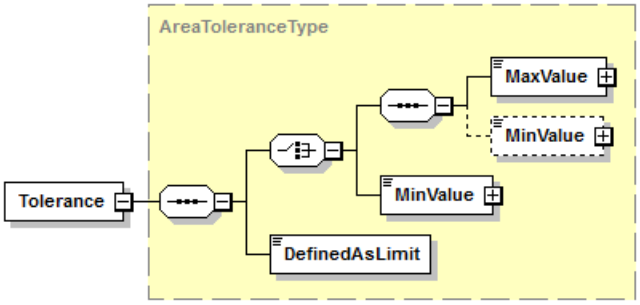
element **AreaCharacteristicActualBaseType/MinValue**

diagram	
type	**ActualAreaValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. areaUnit **xs:token** documentation The optional areaUnit attribute defines the unit used by ActualAreaValueType.
annotation	documentation The optional MinValue element is the minimum of the actual measured value when reported.

complexType **AreaCharacteristicDefinitionBaseType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedAreaCharacteristicDefinitionType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AreaCharacteristicDefinitionBaseType is the abstract base type that defines an area characteristic.

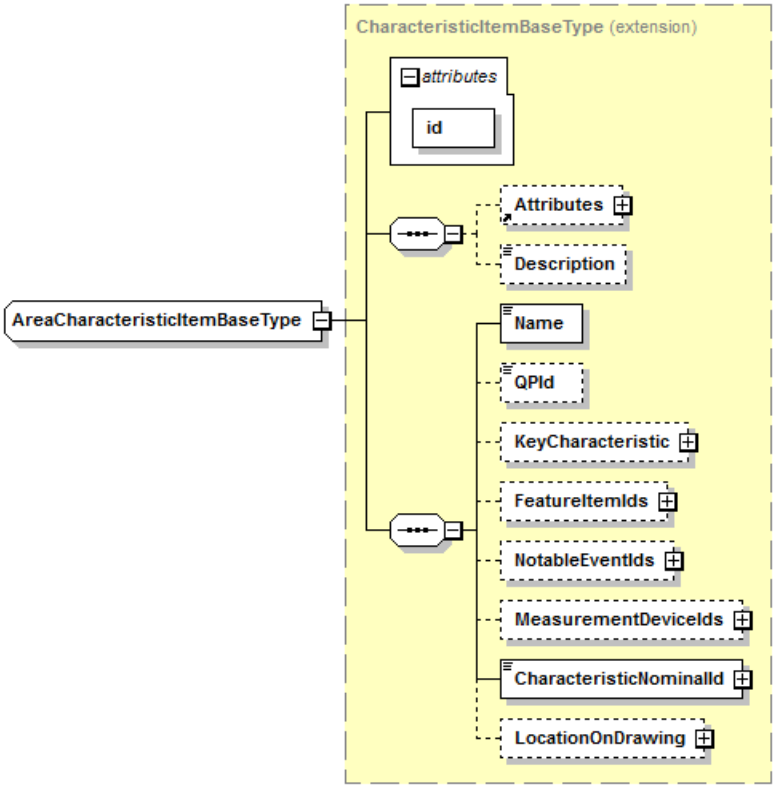
element **AreaCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**AreaToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the area characteristic.

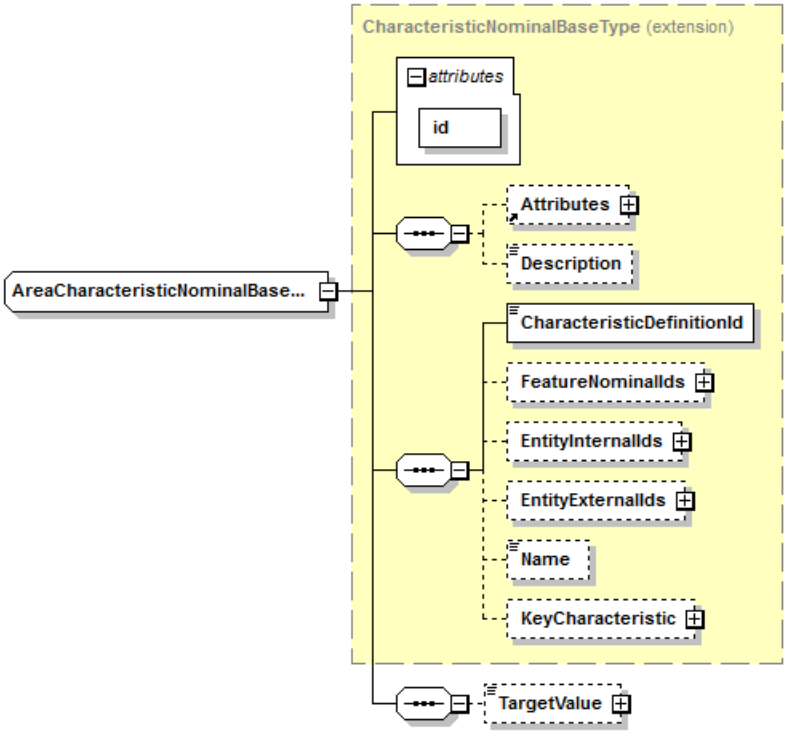
element **AreaCharacteristicDefinitionBaseType/NonTolerance**

diagram	NonTolerance
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

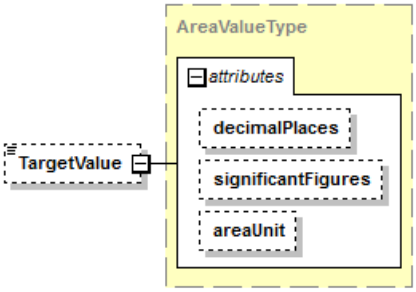
complexType **AreaCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedAreaCharacteristicItemType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AreaCharacteristicItemBaseType is the abstract base type that defines an area characteristic item.

complexType **AreaCharacteristicNominalBaseType**

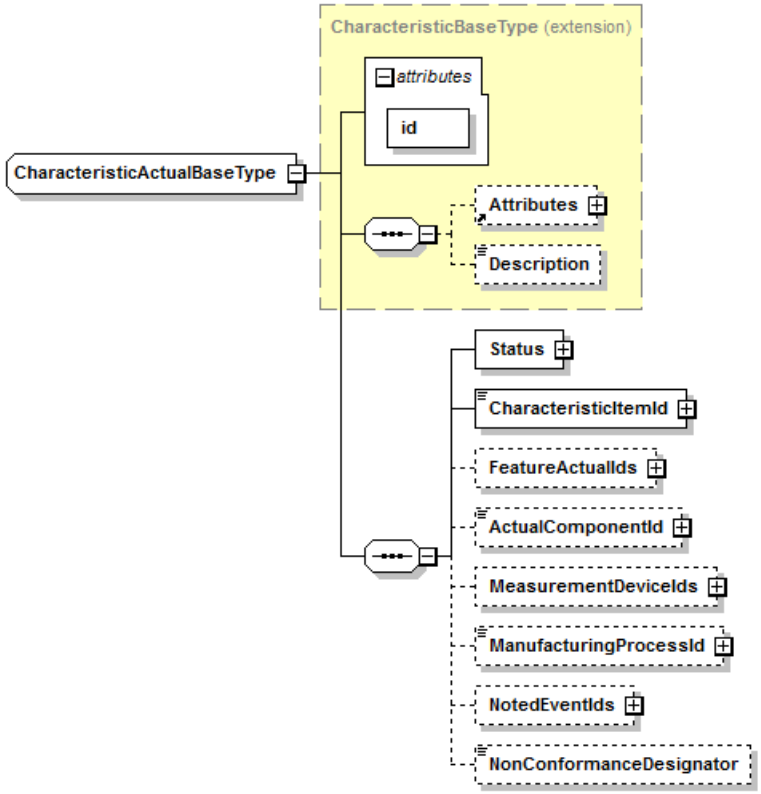
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedAreaCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The AreaCharacteristicNominalBaseType is the abstract base type that defines a unique area characteristic nominal.

element **AreaCharacteristicNominalBaseType/TargetValue**

diagram	

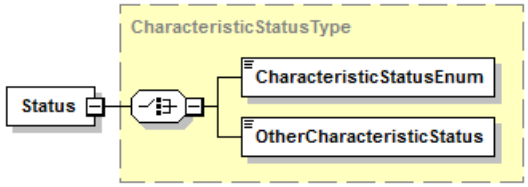
type	**AreaValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. areaUnit **xs:token** — documentation: The optional areaUnit attribute defines the UnitName for the AreaValueType.
annotation	documentation The optional TargetValue element is the nominal value of the area characteristic.

complexType **CharacteristicActualBaseType**

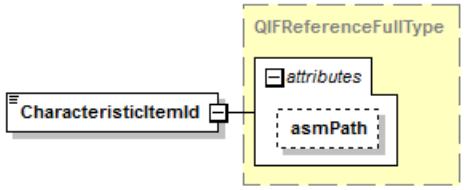
diagram	
type	extension of **CharacteristicBaseType**
properties	base CharacteristicBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator**
used by	element **CharacteristicActual** complexTypes **AreaCharacteristicActualBaseType** **DimensionalCharacteristicActualBaseType** **ForceCharacteristicActualBaseType** **GeometricCharacteristicActualBaseType** **MassCharacteristicActualBaseType** **PressureCharacteristicActualBaseType** **SpeedCharacteristicActualBaseType** **SurfaceTextureCharacteristicActualType** **TemperatureCharacteristicActualBaseType** **ThreadCharacteristicActualType**

	TimeCharacteristicActualBaseType UserDefinedAttributeCharacteristicActualType UserDefinedUnitCharacteristicActualType
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CharacteristicActualBaseType is the abstract base type that defines the results of an actual characteristic evaluation holding measured/analyzed values.

element **CharacteristicActualBaseType/Status**

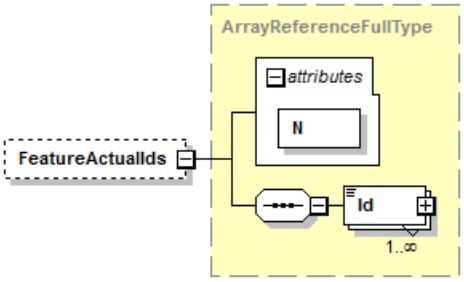
diagram	
type	CharacteristicStatusType
properties	content complex
children	CharacteristicStatusEnum OtherCharacteristicStatus
annotation	documentation The Status element is the tolerance condition: pass (in tolerance), fail (out of tolerance), etc.

element **CharacteristicActualBaseType/CharacteristicItemId**

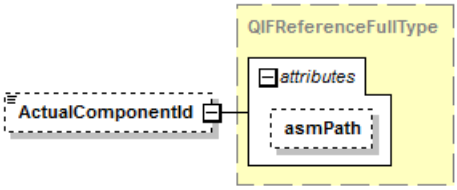
diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity

	within an assembly.
annotation	documentation The CharacteristicItemId element is the QIF id of the associated characteristic item.

element **CharacteristicActualBaseType/FeatureActualIds**

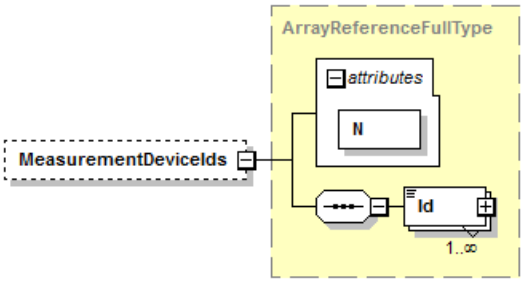
diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation The required N attribute shows how many Id elements are present in this array.
annotation	documentation The optional FeatureActualIds element is a list of QIF ids of the feature actuals to which this characteristic applies.

element **CharacteristicActualBaseType/ActualComponentId**

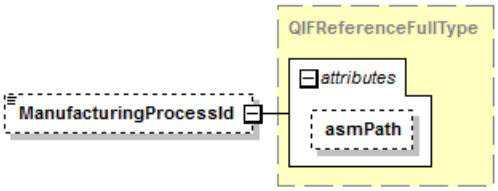
diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly

	path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional ActualComponentId element is the QIF id of the actual component to which this characteristic applies.

element **CharacteristicActualBaseType/MeasurementDeviceIds**

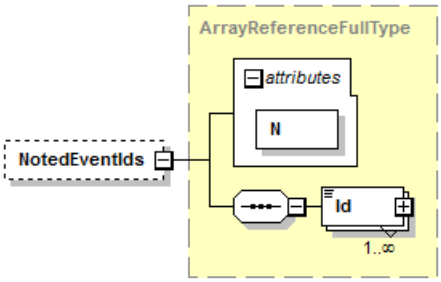
diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation The required N attribute shows how many Id elements are present in this array.
annotation	documentation The optional MeasurementDeviceIds element is a list of references to the measurement devices used in the inspection of the characteristic.

element **CharacteristicActualBaseType/ManufacturingProcessId**

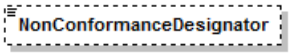
diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an

	id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional ManufacturingProcessId element is a reference to the traceability information for process used to manufacture this characteristic.

element **CharacteristicActualBaseType/NotedEventIds**

diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N; Type: **NaturalType**; Use: required; Default: ; Fixed: ; Annotation: documentation The required N attribute shows how many Id elements are present in this array.
annotation	documentation The optional NotedEventIds element is a list of QIF ids of noted events that happened during the measurement of this characteristic.

element **CharacteristicActualBaseType/NonConformanceDesignator**

diagram	
type	**xs:token**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional NonConformanceDesignator element is an indication that the characteristic is non-conforming.

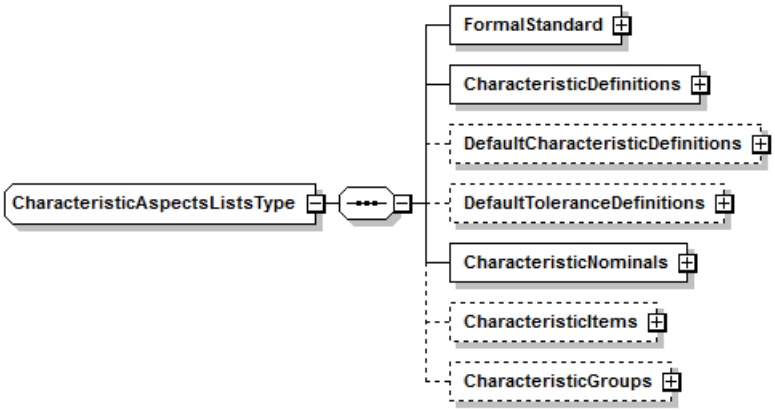
complexType **CharacteristicActualsType**

diagram

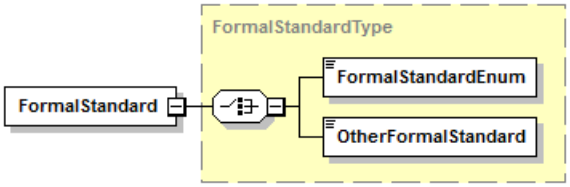

CharacteristicActualsType
CharacteristicActual
1..∞
AngleBetweenCharacteristicAc...
AngleCharacteristicActual
AngleFromCharacteristicActual
AngularCoordinateCharacterist...
AngularityCharacteristicActual
ChordCharacteristicActual
CircularRunoutCharacteristicA...
CircularityCharacteristicActual
ConcentricityCharacteristicAct...
CurveLengthCharacteristicAct...
CylindricityCharacteristicActual
DepthCharacteristicActual
DiameterCharacteristicActual
DistanceBetweenCharacteristi...
DistanceFromCharacteristicAct...
FlatnessCharacteristicActual
HeightCharacteristicActual
LengthCharacteristicActual
LineProfileCharacteristicActual
LinearCoordinateCharacteristi...
ParallelismCharacteristicActual
PerpendicularityCharacteristic...
PointProfileCharacteristicActual
PositionCharacteristicActual
RadiusCharacteristicActual
SquareCharacteristicActual
StraightnessCharacteristicAct...
SurfaceProfileCharacteristicAc...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicA...
SymmetryCharacteristicActual
ThicknessCharacteristicActual
ThreadCharacteristicActual

children	**CharacteristicActual**
used by	element **MeasuredCharacteristicsType/CharacteristicActuals**
annotation	documentation The CharacteristicActualsType defines a list of characteristic actuals.

complexType **CharacteristicAspectsListsType**

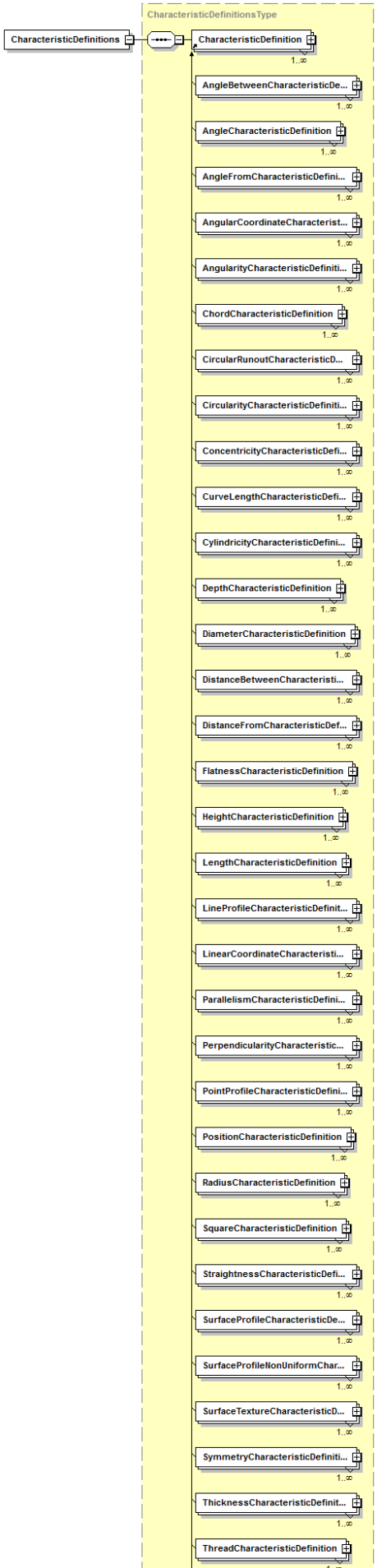
diagram	
children	**FormalStandard CharacteristicDefinitions DefaultCharacteristicDefinitions DefaultToleranceDefinitions CharacteristicNominals CharacteristicItems CharacteristicGroups**
used by	element **Characteristics**
annotation	documentation The CharacteristicAspectsListsType defines three lists of aspects of characteristics (for definitions, nominals, and and items). A list of characteristic actuals is given elsewhere in the QIF model.

element **CharacteristicAspectsListsType/FormalStandard**

diagram	
type	**FormalStandardType**
properties	content complex
children	**FormalStandardEnum OtherFormalStandard**
annotation	documentation The FormalStandard element is the standard against which the inspection characteristics are to be evaluated.

element **CharacteristicAspectsListsType/CharacteristicDefinitions**

diagram


CharacteristicDefinitionsType
CharacteristicDefinitions
CharacteristicDefinition
1..∞
AngleBetweenCharacteristicDe...
AngleCharacteristicDefinition
AngleFromCharacteristicDefini...
AngularCoordinateCharacterist...
AngularityCharacteristicDefiniti...
ChordCharacteristicDefinition
CircularRunoutCharacteristicD...
CircularityCharacteristicDefiniti...
ConcentricityCharacteristicDefi...
CurveLengthCharacteristicDefi...
CylindricityCharacteristicDefini...
DepthCharacteristicDefinition
DiameterCharacteristicDefinition
DistanceBetweenCharacteristi...
DistanceFromCharacteristicDef...
FlatnessCharacteristicDefinition
HeightCharacteristicDefinition
LengthCharacteristicDefinition
LineProfileCharacteristicDefinit...
LinearCoordinateCharacteristi...
ParallelismCharacteristicDefini...
PerpendicularityCharacteristic...
PointProfileCharacteristicDefini...
PositionCharacteristicDefinition
RadiusCharacteristicDefinition
SquareCharacteristicDefinition
StraightnessCharacteristicDefi...
SurfaceProfileCharacteristicDe...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicD...
SymmetryCharacteristicDefiniti...
ThicknessCharacteristicDefinit...
ThreadCharacteristicDefinition

type	**CharacteristicDefinitionsType**
properties	content complex
children	**CharacteristicDefinition**
annotation	documentation The CharacteristicDefinitions element is a list of characteristic definitions.

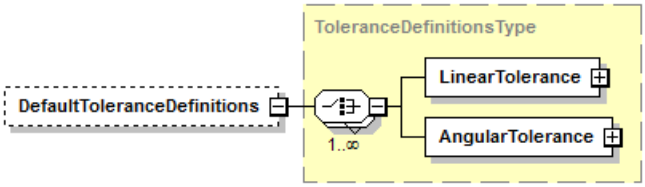
element **CharacteristicAspectsListsType/DefaultCharacteristicDefinitions**

diagram


CharacteristicDefinitionsType
DefaultCharacteristicDefinitions
CharacteristicDefinition
AngleBetweenCharacteristicDe...
AngleCharacteristicDefinition
AngleFromCharacteristicDefini...
AngularCoordinateCharacterist...
AngularityCharacteristicDefiniti...
ChordCharacteristicDefinition
CircularRunoutCharacteristicD...
CircularityCharacteristicDefiniti...
ConcentricityCharacteristicDefi...
CurveLengthCharacteristicDefi...
CylindricityCharacteristicDefini...
DepthCharacteristicDefinition
DiameterCharacteristicDefinition
DistanceBetweenCharacteristi...
DistanceFromCharacteristicDef...
FlatnessCharacteristicDefinition
HeightCharacteristicDefinition
LengthCharacteristicDefinition
LineProfileCharacteristicDefinit...
LinearCoordinateCharacteristi...
ParallelismCharacteristicDefini...
PerpendicularityCharacteristic...
PointProfileCharacteristicDefini...
PositionCharacteristicDefinition
RadiusCharacteristicDefinition
SquareCharacteristicDefinition
StraightnessCharacteristicDefi...
SurfaceProfileCharacteristicDe...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicD...
SymmetryCharacteristicDefiniti...
ThicknessCharacteristicDefinit...
ThreadCharacteristicDefinition
1..∞

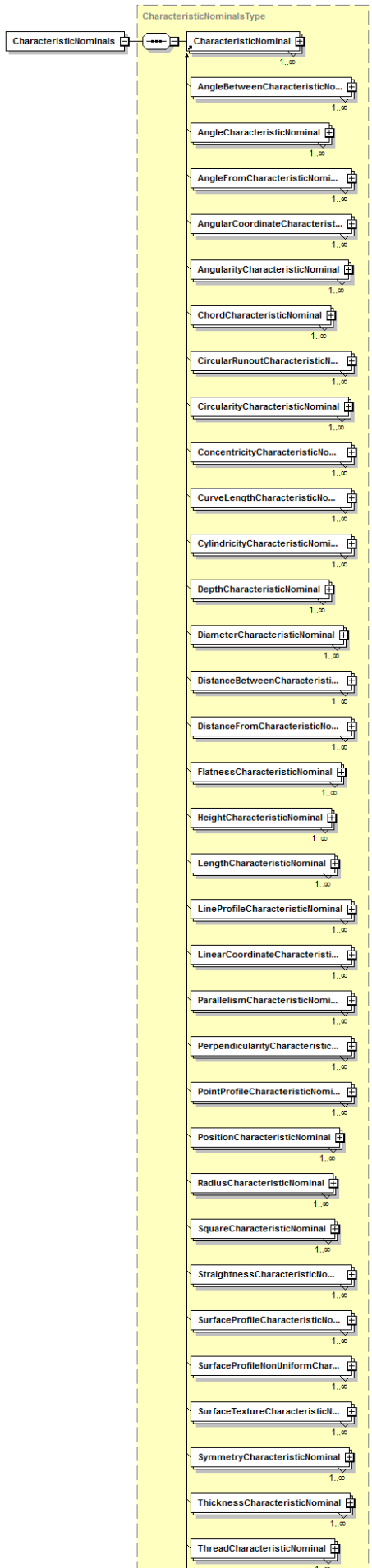
type	**CharacteristicDefinitionsType**
properties	minOcc 0 maxOcc 1 content complex
children	**CharacteristicDefinition**
annotation	documentation The DefaultCharacteristicDefinitions element is a list of default or "unless otherwise specified" characteristic definitions.

element **CharacteristicAspectsListsType/DefaultToleranceDefinitions**

diagram	
type	**ToleranceDefinitionsType**
properties	minOcc 0 maxOcc 1 content complex
children	**LinearTolerance** **AngularTolerance**
annotation	documentation The DefaultToleranceDefinitions element is a list of default or "unless otherwise specified" tolerance definitions with allow a tolerance definition to be shared among characteristic definitions of different types.

element **CharacteristicAspectsListsType/CharacteristicNominals**

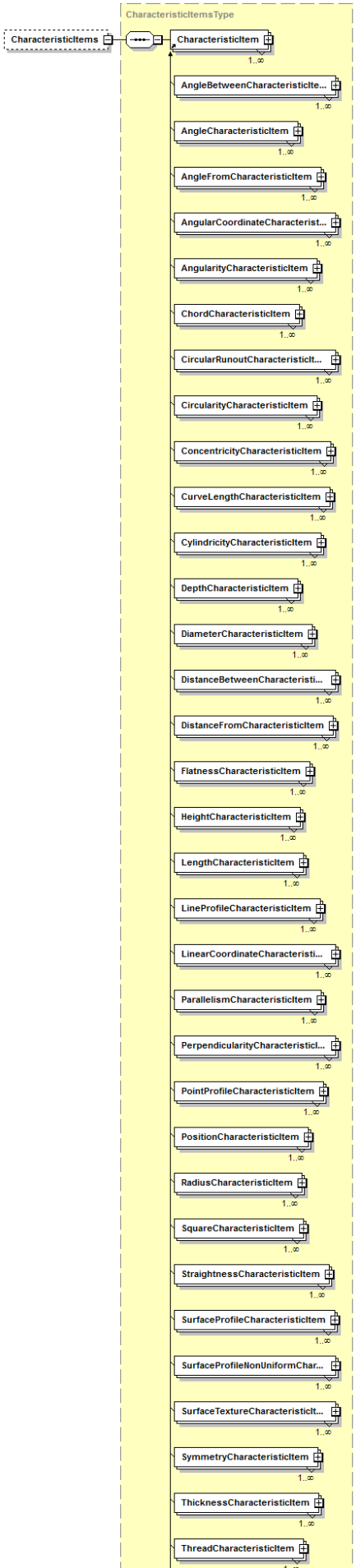
diagram


CharacteristicNominalsType
CharacteristicNominals
CharacteristicNominal
AngleBetweenCharacteristicNo...
AngleCharacteristicNominal
AngleFromCharacteristicNomi...
AngularCoordinateCharacterist...
AngularityCharacteristicNominal
ChordCharacteristicNominal
CircularRunoutCharacteristicN...
CircularityCharacteristicNominal
ConcentricityCharacteristicNo...
CurveLengthCharacteristicNo...
CylindricityCharacteristicNomi...
DepthCharacteristicNominal
DiameterCharacteristicNominal
DistanceBetweenCharacteristi...
DistanceFromCharacteristicNo...
FlatnessCharacteristicNominal
HeightCharacteristicNominal
LengthCharacteristicNominal
LineProfileCharacteristicNominal
LinearCoordinateCharacteristi...
ParallelismCharacteristicNomi...
PerpendicularityCharacteristic...
PointProfileCharacteristicNomi...
PositionCharacteristicNominal
RadiusCharacteristicNominal
SquareCharacteristicNominal
StraightnessCharacteristicNo...
SurfaceProfileCharacteristicNo...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicN...
SymmetryCharacteristicNominal
ThicknessCharacteristicNominal
ThreadCharacteristicNominal
1..∞

type	**CharacteristicNominalsType**
properties	content complex
children	**CharacteristicNominal**
annotation	documentation The CharacteristicNominals element is a list of characteristic nominals.

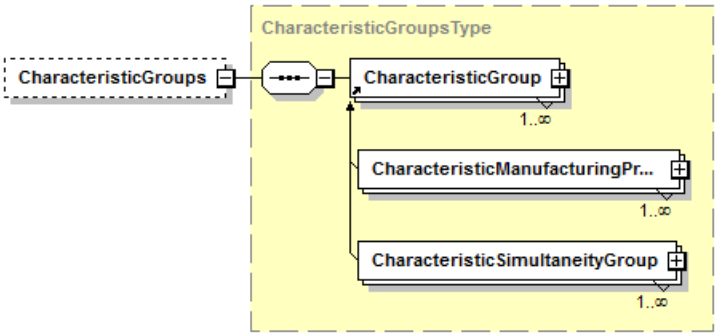
element **CharacteristicAspectsListsType/CharacteristicItems**

diagram

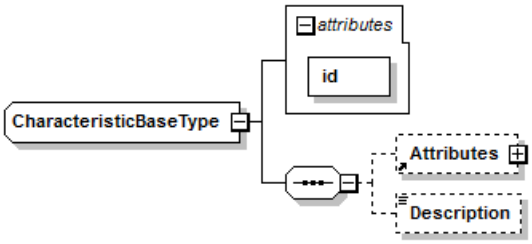

CharacteristicItemsType
CharacteristicItems
CharacteristicItem
AngleBetweenCharacteristicIte...
AngleCharacteristicItem
AngleFromCharacteristicItem
AngularCoordinateCharacterist...
AngularityCharacteristicItem
ChordCharacteristicItem
CircularRunoutCharacteristicIt...
CircularityCharacteristicItem
ConcentricityCharacteristicItem
CurveLengthCharacteristicItem
CylindricityCharacteristicItem
DepthCharacteristicItem
DiameterCharacteristicItem
DistanceBetweenCharacteristi...
DistanceFromCharacteristicItem
FlatnessCharacteristicItem
HeightCharacteristicItem
LengthCharacteristicItem
LineProfileCharacteristicItem
LinearCoordinateCharacteristi...
ParallelismCharacteristicItem
PerpendicularityCharacteristicI...
PointProfileCharacteristicItem
PositionCharacteristicItem
RadiusCharacteristicItem
SquareCharacteristicItem
StraightnessCharacteristicItem
SurfaceProfileCharacteristicItem
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicIt...
SymmetryCharacteristicItem
ThicknessCharacteristicItem
ThreadCharacteristicItem
1..∞

type	**CharacteristicItemsType**
properties	minOcc 0 maxOcc 1 content complex
children	**CharacteristicItem**
annotation	documentation The optional CharacteristicItems element is a list of characteristic items. This is the entry point in QIF for the information contained in a bill of characteristics (BOC).

element **CharacteristicAspectsListsType/CharacteristicGroups**

diagram	
type	**CharacteristicGroupsType**
properties	minOcc 0 maxOcc 1 content complex
children	**CharacteristicGroup**
annotation	documentation The optional CharacteristicGroups element is a list of characteristic groups.

complexType **CharacteristicBaseType**

diagram	
properties	abstract true
children	**Attributes** **Description**
used by	complexTypes **CharacteristicActualBaseType** **CharacteristicDefinitionBaseType** **CharacteristicItemBaseType** **CharacteristicNominalBaseType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CharacteristicBaseType is the abstract base type that defines information common to all characteristics.

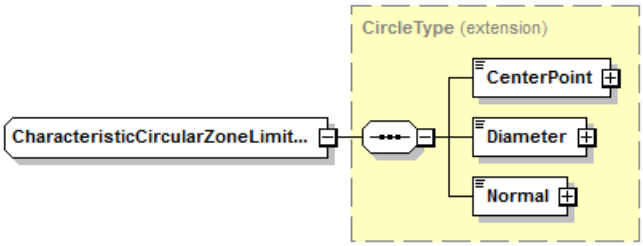
attribute **CharacteristicBaseType/@id**

type	**QIFIdType**
properties	use required
annotation	documentation The id attribute is the QIF id of the characteristic, used for referencing.

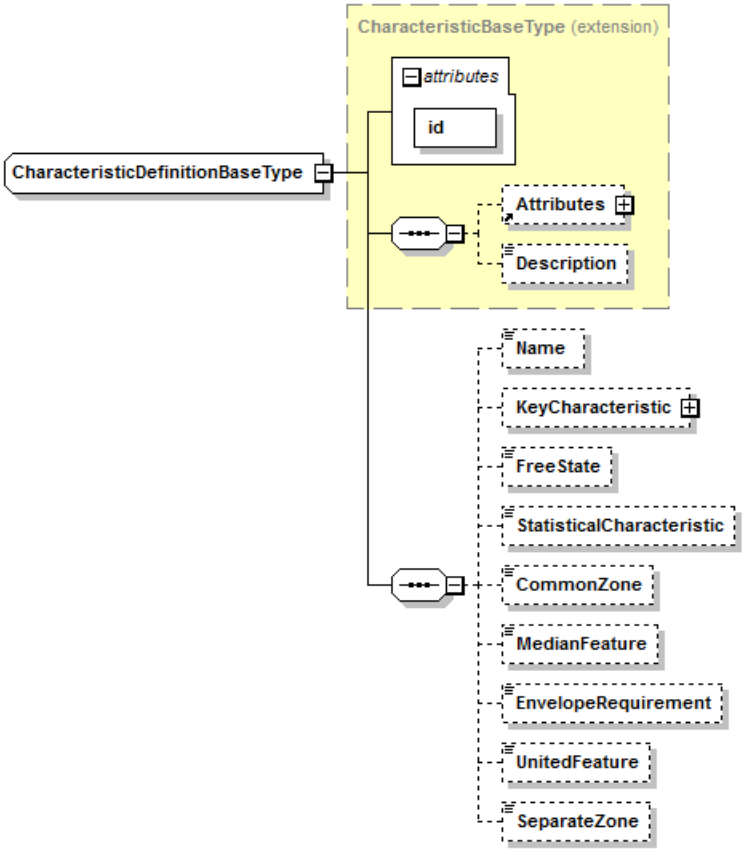
element **CharacteristicBaseType/Description**

diagram	
type	**xs:string**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional Description element is a description of the characteristic.

complexType **CharacteristicCircularZoneLimitType**

diagram	
type	extension of **CircleType**
properties	base CircleType
children	**CenterPoint Diameter Normal**
used by	elements **OrientationCharacteristicNominalBaseType/CircularZoneLimit** **FlatnessCharacteristicNominalType/CircularZoneLimit** **SurfaceProfileCharacteristicNominalType/CircularZoneLimit**
annotation	documentation The CharacteristicCircularZoneLimitType defines the size, location and orientation of a circular tolerance zone limit.

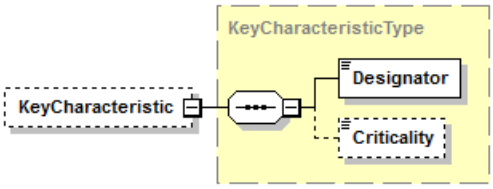
complexType **CharacteristicDefinitionBaseType**

diagram	
type	extension of **CharacteristicBaseType**
properties	base CharacteristicBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone**
used by	element **CharacteristicDefinition** complexTypes **AreaCharacteristicDefinitionBaseType** **DimensionalCharacteristicDefinitionBaseType** **ForceCharacteristicDefinitionBaseType** **GeometricCharacteristicDefinitionBaseType** **MassCharacteristicDefinitionBaseType** **PressureCharacteristicDefinitionBaseType** **SpeedCharacteristicDefinitionBaseType** **SurfaceTextureCharacteristicDefinitionType** **TemperatureCharacteristicDefinitionBaseType** **ThreadCharacteristicDefinitionType** **TimeCharacteristicDefinitionBaseType** **UserDefinedAttributeCharacteristicDefinitionType** **UserDefinedUnitCharacteristicDefinitionType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CharacteristicDefinitionBaseType is the abstract base type that defines information that can be common to more than one characteristic.

element **CharacteristicDefinitionBaseType/Name**

diagram	
type	**xs:token**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional Name element is the name identifying the characteristic.

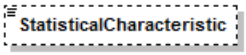
element **CharacteristicDefinitionBaseType/KeyCharacteristic**

diagram	
type	**KeyCharacteristicType**
properties	minOcc 0 maxOcc 1 content complex
children	**Designator** **Criticality**
annotation	documentation The optional KeyCharacteristic element is the designator of a key characteristic together with an optional level of criticality. The designator element of the KeyCharacteristic will typically be at the most general level when used in this CharacteristicDefinitionBaseType. For example, an instance of CharacteristicDefinitionBaseType might have a KeyCharacteristic element with the Designator K. Then there might be three instances of CharacteristicItemBaseType referencing the CharacteristicDefinitionBaseType instance and having KeyCharacteristic elements using Designators K-1, K-2, and K-3.

element **CharacteristicDefinitionBaseType/FreeState**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional FreeState element indicates whether the characteristic is applied to the product in free state or constrained: "true" for free state, "false" or not present for constrained. documentation ASME Y14.5-1994 - 3.3.19

element **CharacteristicDefinitionBaseType/StatisticalCharacteristic**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple

annotation	documentation The optional StatisticalCharacteristic element indicates whether the characteristic is applied on a per-product basis or statistically over a set of products. The element is set to "true" for statistical, and is set to "false" or is not present for per-product. documentation ASME Y14.5-1994 - 3.3.10 - RE: SPC Control Limits

element **CharacteristicDefinitionBaseType/CommonZone**

diagram	CommonZone
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific CZ) The optional CommonZone element indicates whether the characteristic is applied to two or more features using a common tolerance zone: "true" for common zone, "false" or not present for no common zone or not applicable.

element **CharacteristicDefinitionBaseType/MedianFeature**

diagram	MedianFeature
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific (A)) The optional MedianFeature element indicates whether the characteristic is applied to the median feature (center-line, center-plane, etc.): "true" for median feature, "false" or not present for no median feature or not applicable.

element **CharacteristicDefinitionBaseType/EnvelopeRequirement**

diagram	EnvelopeRequirement
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific (E)) The optional EnvelopeRequirement element indicates whether the characteristic is applied with the ISO envelope requirement: "true" for envelope requirement, "false" or not present for no envelope requirement or not applicable.

element **CharacteristicDefinitionBaseType/UnitedFeature**

diagram	UnitedFeature
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple

annotation	documentation (ISO specific UF) The optional UnitedFeature element indicates whether the characteristic is applied to two or more features as if the features were one, united feature: "true" for united feature, "false" or not present for no united feature or not applicable.

element **CharacteristicDefinitionBaseType/SeparateZone**

diagram	SeparateZone
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific SZ) The optional SeparateZone element indicates whether the characteristic is applied to two or more features using separate tolerance zones: "true" for separate zone, "false" or not present for no separate zone or not applicable.

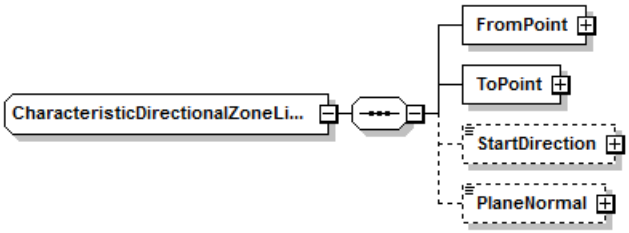
complexType **CharacteristicDefinitionsType**

diagram

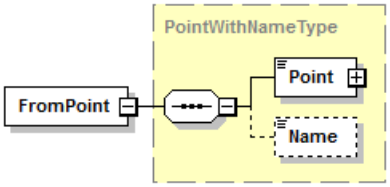

CharacteristicDefinitionsType
CharacteristicDefinition
1..∞
AngleBetweenCharacteristicDe...
AngleCharacteristicDefinition
AngleFromCharacteristicDefini...
AngularCoordinateCharacterist...
AngularityCharacteristicDefiniti...
ChordCharacteristicDefinition
CircularRunoutCharacteristicD...
CircularityCharacteristicDefiniti...
ConcentricityCharacteristicDefi...
CurveLengthCharacteristicDefi...
CylindricityCharacteristicDefini...
DepthCharacteristicDefinition
DiameterCharacteristicDefinition
DistanceBetweenCharacteristi...
DistanceFromCharacteristicDef...
FlatnessCharacteristicDefinition
HeightCharacteristicDefinition
LengthCharacteristicDefinition
LineProfileCharacteristicDefinit...
LinearCoordinateCharacteristi...
ParallelismCharacteristicDefini...
PerpendicularityCharacteristic...
PointProfileCharacteristicDefini...
PositionCharacteristicDefinition
RadiusCharacteristicDefinition
SquareCharacteristicDefinition
StraightnessCharacteristicDefi...
SurfaceProfileCharacteristicDe...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicD...
SymmetryCharacteristicDefiniti...
ThicknessCharacteristicDefinit...
ThreadCharacteristicDefinition

children	**CharacteristicDefinition**
used by	elements **CharacteristicAspectsListsType/CharacteristicDefinitions** **CharacteristicAspectsListsType/DefaultCharacteristicDefinitions**
annotation	documentation The CharacteristicDefinitionsType defines a list of characteristic definitions.

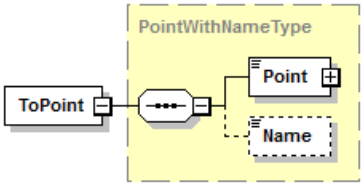
complexType **CharacteristicDirectionalZoneLimitType**

diagram	
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
used by	elements **OrientationCharacteristicNominalBaseType/DirectionalZoneLimit** **FlatnessCharacteristicNominalType/DirectionalZoneLimit** **SurfaceProfileCharacteristicNominalType/DirectionalZoneLimit** **StraightnessCharacteristicNominalType/ZoneLimit** **CircularityCharacteristicNominalType/ZoneLimit** **CylindricityCharacteristicNominalType/ZoneLimit** **PositionCharacteristicNominalType/ZoneLimit** **AngleFromCharacteristicNominalType/ZoneLimit** **AngleBetweenCharacteristicNominalType/ZoneLimit** **DistanceFromCharacteristicNominalType/ZoneLimit** **DistanceBetweenCharacteristicNominalType/ZoneLimit** **RunoutCharacteristicNominalBaseType/ZoneLimit** **ConcentricityCharacteristicNominalType/ZoneLimit** **LineProfileCharacteristicNominalType/ZoneLimit** **SurfaceProfileNonUniformCharacteristicNominalType/ZoneLimit**
annotation	documentation The CharacteristicDirectionalZoneLimitType defines chain-lines, between-points, and projected tolerance zone limits.

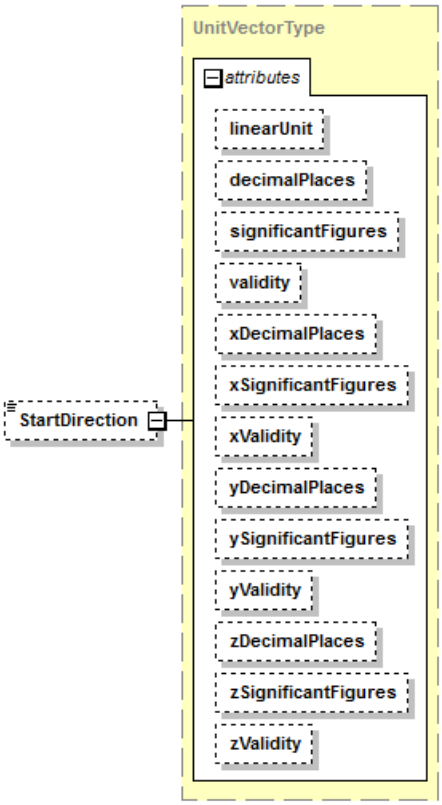
element **CharacteristicDirectionalZoneLimitType/FromPoint**

diagram	
type	**PointWithNameType**
properties	content complex
children	**Point** **Name**
annotation	documentation The FromPoint element is one end of the tolerance zone limit.

element **CharacteristicDirectionalZoneLimitType/ToPoint**

diagram	
type	**PointWithNameType**
properties	content complex
children	**Point** **Name**
annotation	documentation The ToPoint element is the other end of the tolerance zone limit.

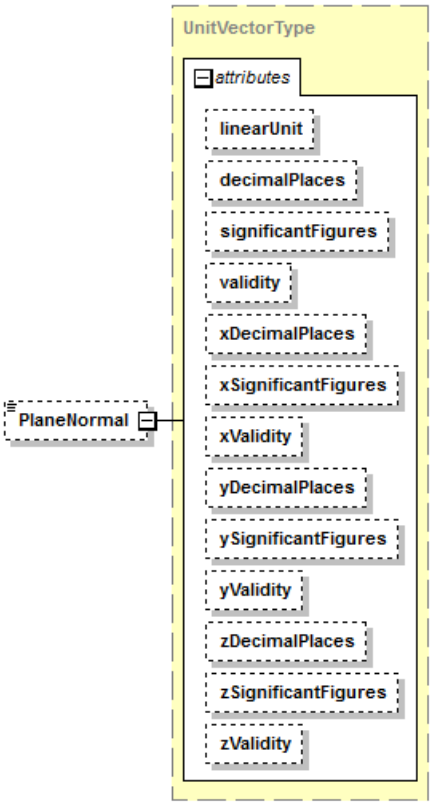
element **CharacteristicDirectionalZoneLimitType/StartDirection**

diagram	
type	**UnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3
attributes	Name Type Use Default Fixed Annotation linearUnit **xs:token** decimalPlaces **xs:nonNegativeInteger** significantFigures **xs:nonNegativeInteger**

	validity	**ValidityEnumType**
	xDecimalPlaces	**xs:nonNegativeInteger**
	xSignificantFigures	**xs:nonNegativeInteger**
	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
annotation	documentation The optional StartDirection element is the unit vector that specifies the initial direction of the tolerance zone limit going from the FromPoint to the ToPoint when the path between the two points would otherwise be ambiguous.	

element **CharacteristicDirectionalZoneLimitType/PlaneNormal**

diagram

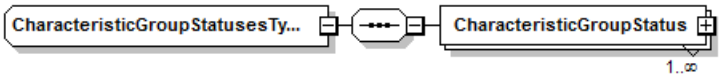


type	**UnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

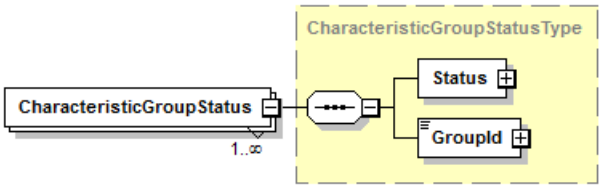
attributes	Name	Type	Use	Default	Fixed	Annotation
	linearUnit	**xs:token**				
	decimalPlaces	**xs:nonNegativeInteger**				
	significantFigures	**xs:nonNegativeInteger**				

	validity	**ValidityEnumType**
	xDecimalPlaces	**xs:nonNegativeInteger**
	xSignificantFigures	**xs:nonNegativeInteger**
	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
annotation	documentation The optional PlaneNormal element is the unit vector that specifies the normal of the plane in which the tolerance zone limit is defined.	

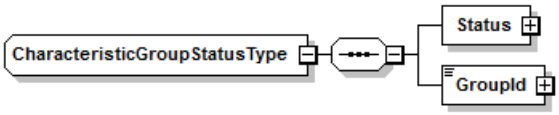
complexType **CharacteristicGroupStatusesType**

diagram	
children	**CharacteristicGroupStatus**
used by	element **MeasuredCharacteristicsType/CharacteristicGroupStatuses**
annotation	documentation The CharacteristicGroupsStatusesType defines a list of characteristic group statuses.

element **CharacteristicGroupStatusesType/CharacteristicGroupStatus**

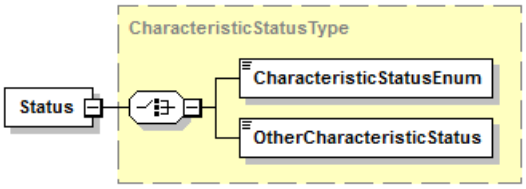
diagram	
type	**CharacteristicGroupStatusType**
properties	minOcc 1 maxOcc unbounded content complex
children	**Status** **GroupId**
annotation	documentation Each CharacteristicGroupStatus element gives information about a the inspection status of a characteristic group.

complexType **CharacteristicGroupStatusType**

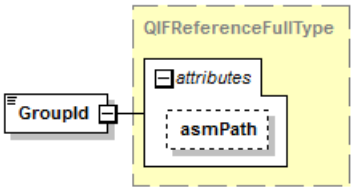
diagram	
children	**Status** **GroupId**
used by	element **CharacteristicGroupStatusesType/CharacteristicGroupStatus**
annotation	documentation

	The CharacteristicGroupStatusType defines a post inspection status of a characteristic group.

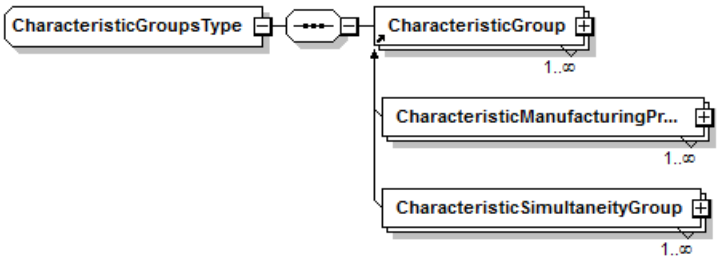
element **CharacteristicGroupStatusType/Status**

diagram	
type	**CharacteristicStatusType**
properties	content complex
children	**CharacteristicStatusEnum** **OtherCharacteristicStatus**
annotation	documentation The Status element is the characteristic condition for the characteristic group as a whole.

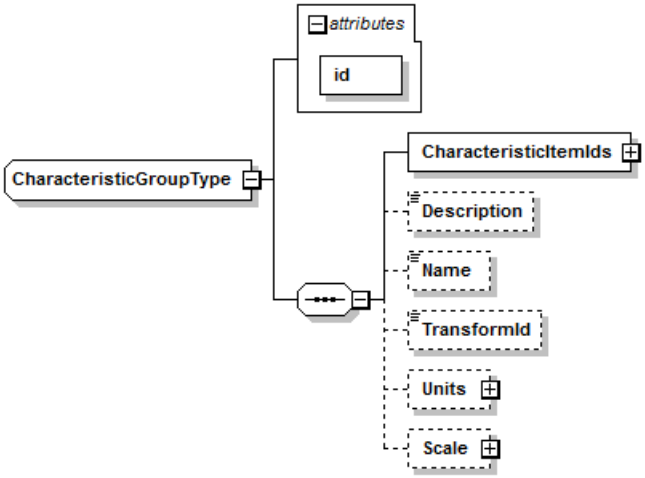
element **CharacteristicGroupStatusType/GroupId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The GroupId element is the QIF id of the characteristic group to which the status applies.

complexType **CharacteristicGroupsType**

diagram	
children	**CharacteristicGroup**
used by	element **CharacteristicAspectsListsType/CharacteristicGroups**
annotation	documentation The CharacteristicGroupsType defines a list of characteristic groups.

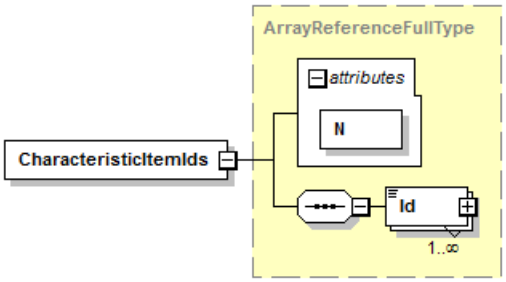
complexType **CharacteristicGroupType**

diagram	
children	**CharacteristicItemIds** **Description** **Name** **TransformId** **Units** **Scale**
used by	element **CharacteristicGroup** complexTypes **CharacteristicManufacturingProcessGroupType** **CharacteristicSimultaneityGroupType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic group, used for referencing.
annotation	documentation The CharacteristicGroupType defines a group of characteristics. In addition to being reported together, the group may be also be transformed into a new space or may undergo a change of units.

attribute **CharacteristicGroupType/@id**

type	**QIFIdType**
properties	use required
annotation	documentation The id attribute is the QIF id of the characteristic group, used for referencing.

element **CharacteristicGroupType/CharacteristicItemIds**

diagram	
type	**ArrayReferenceFullType**
properties	content complex
children	**Id**
attributes	Name: N; Type: **NaturalType**; Use: required; Default; Fixed; Annotation: documentation: The required N attribute shows how many Id elements are present in this array.
annotation	documentation The CharacteristicItemIds element gives a list of ids of the characteristic items in the group.

element **CharacteristicGroupType/Description**

diagram	
type	**xs:string**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional Description element is a text description of the characteristic group.

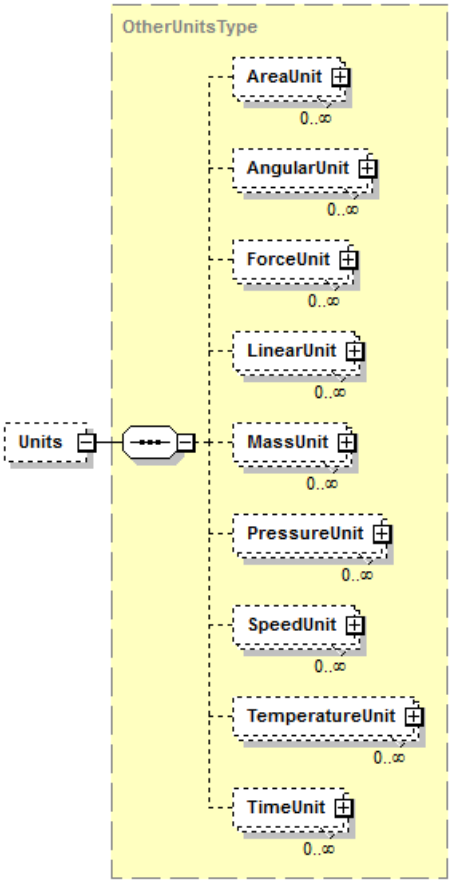
element **CharacteristicGroupType/Name**

diagram	
type	**xs:token**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional Name element is the name of the characteristic group.

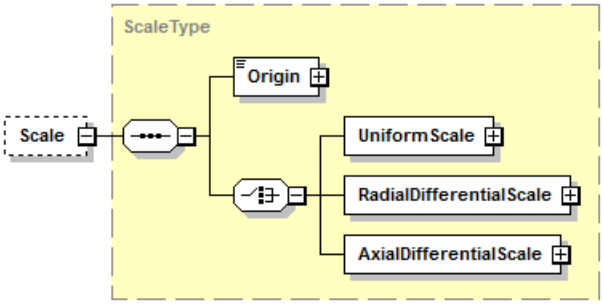
element **CharacteristicGroupType/TransformId**

diagram	
type	**QIFReferenceType**
properties	minOcc 0 maxOcc 1 content complex
annotation	documentation The optional TransformId element is the QIF id of a transform to be used for reporting. All nominal and actual data in the characteristic group will be transformed by the referenced transformation matrix.

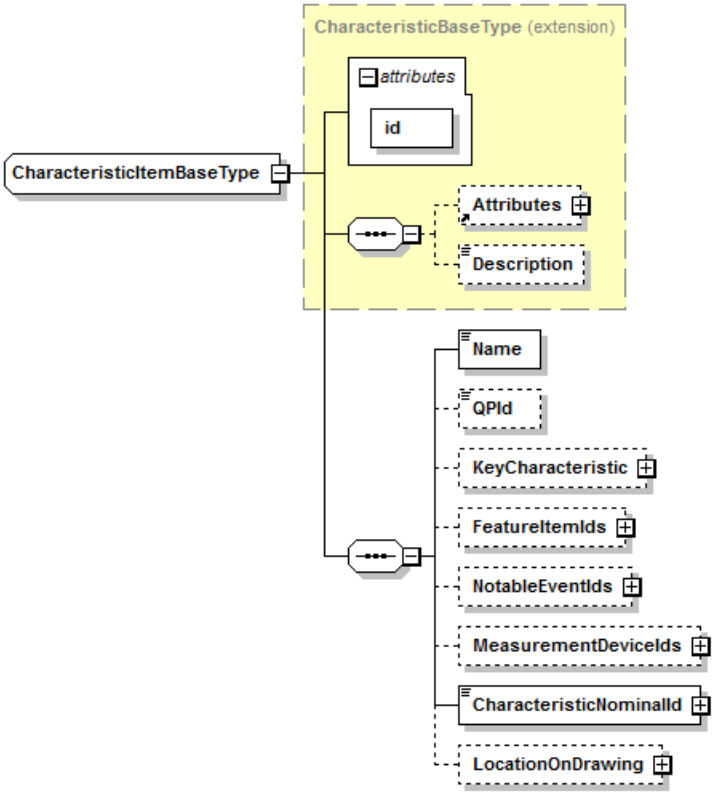
element **CharacteristicGroupType/Units**

diagram	
type	**OtherUnitsType**
properties	minOcc 0 maxOcc 1 content complex
children	**AreaUnit AngularUnit ForceUnit LinearUnit MassUnit PressureUnit SpeedUnit TemperatureUnit TimeUnit**
annotation	documentation The optional Units element specifies the units used for reporting the characteristic group.

element **CharacteristicGroupType/Scale**

diagram	
type	**ScaleType**
properties	minOcc 0 maxOcc 1 content complex
children	**Origin UniformScale RadialDifferentialScale AxialDifferentialScale**
annotation	documentation The optional Scale element specifies the scaling factors and direction for reporting the characteristic group.

complexType **CharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicBaseType**
properties	base CharacteristicBaseType abstract true
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **CharacteristicItem**

	complexTypes **AreaCharacteristicItemBaseType** **DimensionalCharacteristicItemBaseType** **ForceCharacteristicItemBaseType** **GeometricCharacteristicItemBaseType** **MassCharacteristicItemBaseType** **PressureCharacteristicItemBaseType** **SpeedCharacteristicItemBaseType** **SurfaceTextureCharacteristicItemType** **TemperatureCharacteristicItemBaseType** **ThreadCharacteristicItemType** **TimeCharacteristicItemBaseType** **UserDefinedAttributeCharacteristicItemType** **UserDefinedUnitCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The CharacteristicItemBaseType is the abstract base type that defines information common to all characteristic items.

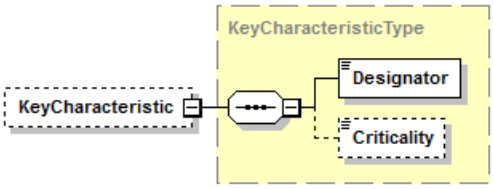
element **CharacteristicItemBaseType/Name**

diagram	
type	**xs:token**
properties	content simple
annotation	documentation: The Name element is the name of the characteristic.

element **CharacteristicItemBaseType/QPId**

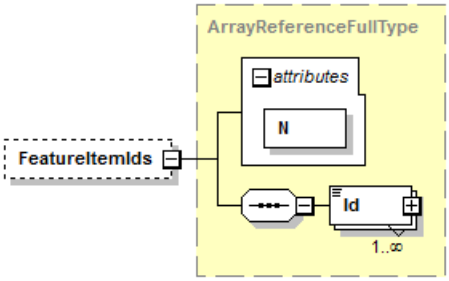
diagram	
type	**QPIdType**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation: The optional QPId element is a persistent identifier for the characteristic item. If used, it should be generated using a widely accepted UUID generator.

element **CharacteristicItemBaseType/KeyCharacteristic**

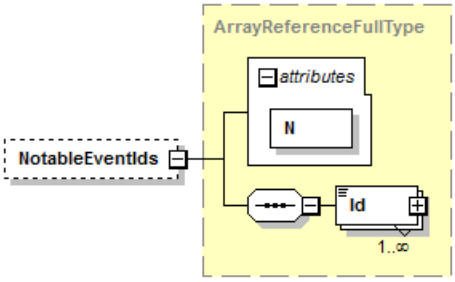
diagram	
type	**KeyCharacteristicType**
properties	minOcc 0 maxOcc 1 content complex
children	**Designator** **Criticality**
annotation	documentation: The optional KeyCharacteristic element is the designator of a key characteristic together with an optional level of criticality. The designator element of the KeyCharacteristic will typically be at the finest level when used in this CharacteristicItemBaseType. For example, if an instance of CharacteristicDefinitionBaseType has a KeyCharacteristic

	element with the Designator K, then there might be three instances of CharacteristicItemBaseType referencing the CharacteristicDefinitionBaseType instance and having KeyCharacteristic elements using Designators K-1, K-2, and K-3.

element **CharacteristicItemBaseType/FeatureItemIds**

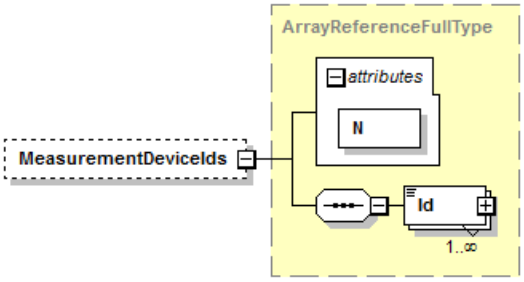
diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation: The required N attribute shows how many Id elements are present in this array.
annotation	documentation The optional FeatureItemIds element is a list of the QIF ids of the instances of FeatureItemType to which the CharacteristicItem applies.

element **CharacteristicItemBaseType/NotableEventIds**

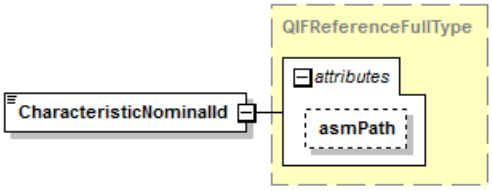
diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation: The required N attribute shows how many Id elements are present in this

	array.
annotation	documentation The optional NotableEventIds element is a list of QIF ids of notable events associated with the measurement of the characteristic.

element **CharacteristicItemBaseType/MeasurementDeviceIds**

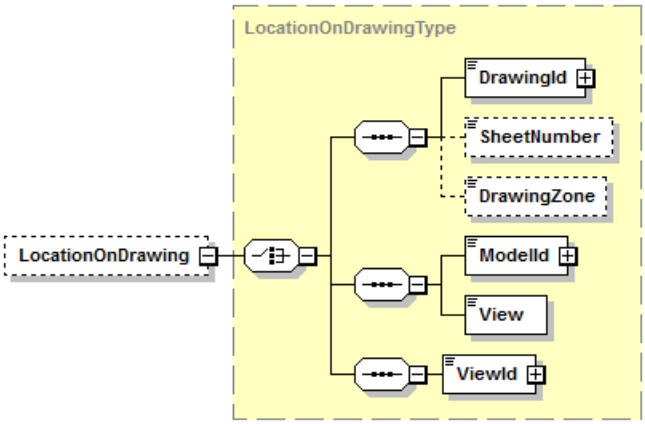
diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation The required N attribute shows how many Id elements are present in this array.
annotation	documentation The optional MeasurementDeviceIds element is a list of references to the measurement devices that may be used in the inspection of the characteristic.

element **CharacteristicItemBaseType/CharacteristicNominalId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly

	path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The CharacteristicNominalId element is the QIF id of the nominal characteristic.

element **CharacteristicItemBaseType/LocationOnDrawing**

diagram	
type	**LocationOnDrawingType**
properties	minOcc 0 maxOcc 1 content complex
children	**DrawingId** **SheetNumber** **DrawingZone** **ModelId** **View** **ViewId**
annotation	documentation The optional LocationOnDrawing element gives information about the location of the characteristic callout on a printed drawing or in a digital model.

complexType **CharacteristicItemsType**

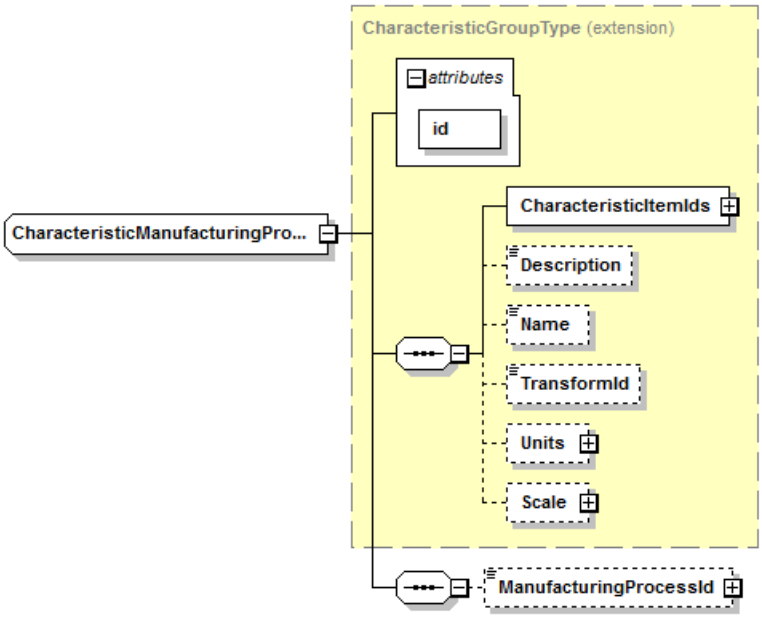
diagram


CharacteristicItemsType
CharacteristicItem
AngleBetweenCharacteristicIte...
AngleCharacteristicItem
AngleFromCharacteristicItem
AngularCoordinateCharacterist...
AngularityCharacteristicItem
ChordCharacteristicItem
CircularRunoutCharacteristicIt...
CircularityCharacteristicItem
ConcentricityCharacteristicItem
CurveLengthCharacteristicItem
CylindricityCharacteristicItem
DepthCharacteristicItem
DiameterCharacteristicItem
DistanceBetweenCharacteristi...
DistanceFromCharacteristicItem
FlatnessCharacteristicItem
HeightCharacteristicItem
LengthCharacteristicItem
LineProfileCharacteristicItem
LinearCoordinateCharacteristi...
ParallelismCharacteristicItem
PerpendicularityCharacteristicI...
PointProfileCharacteristicItem
PositionCharacteristicItem
RadiusCharacteristicItem
SquareCharacteristicItem
StraightnessCharacteristicItem
SurfaceProfileCharacteristicItem
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicIt...
SymmetryCharacteristicItem
ThicknessCharacteristicItem
ThreadCharacteristicItem
1..∞

children	**CharacteristicItem**
used by	element **CharacteristicAspectsListsType/CharacteristicItems**
annotation	documentation The CharacteristicItemsType defines a list of characteristic items.

complexType **CharacteristicManufacturingProcessGroupType**

diagram



type	extension of **CharacteristicGroupType**
properties	base CharacteristicGroupType
children	**CharacteristicItemIds** **Description** **Name** **TransformId** **Units** **Scale** **ManufacturingProcessId**
used by	element **CharacteristicManufacturingProcessGroup**

attributes

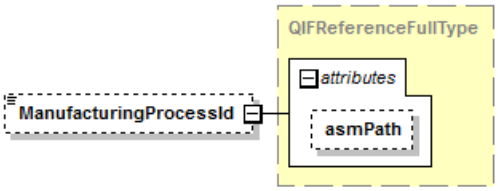
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic group, used for referencing.

annotation

documentation
The CharacteristicManufacturingProcessGroupType defines a group of characteristics associated with a particular manufacturing process.

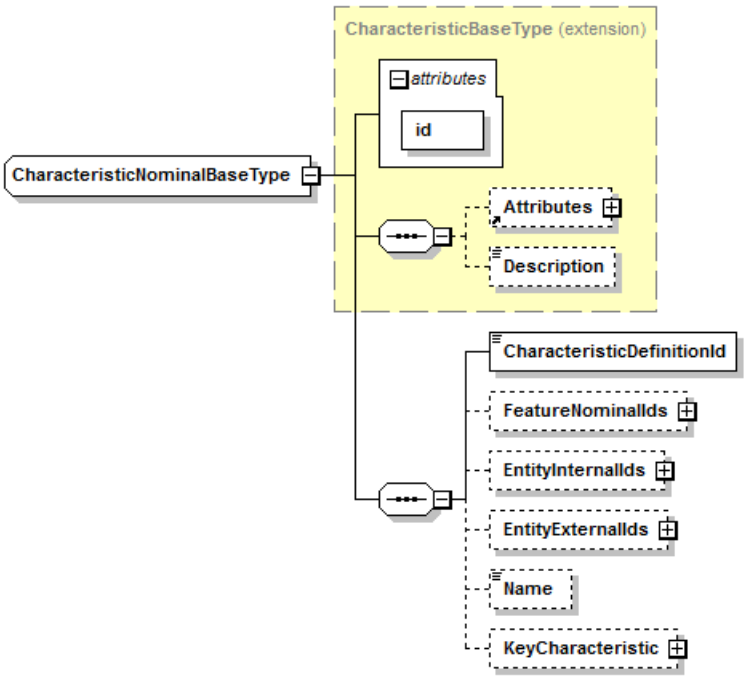
element **CharacteristicManufacturingProcessGroupType/ManufacturingProcessId**

diagram



type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional ManufacturingProcessId element is a reference to the traceability information for process used to manufacture this group of characteristics.

complexType **CharacteristicNominalBaseType**

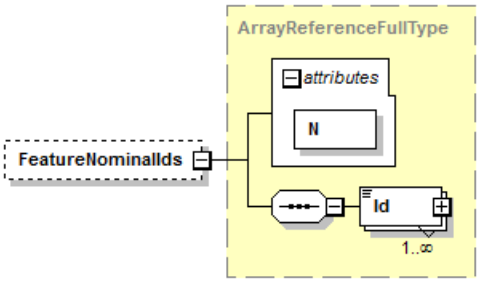
diagram	
type	extension of **CharacteristicBaseType**
properties	base CharacteristicBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	element **CharacteristicNominal** complexTypes **AreaCharacteristicNominalBaseType** **DimensionalCharacteristicNominalBaseType**

	ForceCharacteristicNominalBaseType GeometricCharacteristicNominalBaseType MassCharacteristicNominalBaseType PressureCharacteristicNominalBaseType SpeedCharacteristicNominalBaseType SurfaceTextureCharacteristicNominalType TemperatureCharacteristicNominalBaseType ThreadCharacteristicNominalType TimeCharacteristicNominalBaseType UserDefinedAttributeCharacteristicNominalType UserDefinedUnitCharacteristicNominalType
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The CharacteristicNominalBaseType is the abstract base type that defines a unique characteristic nominal.

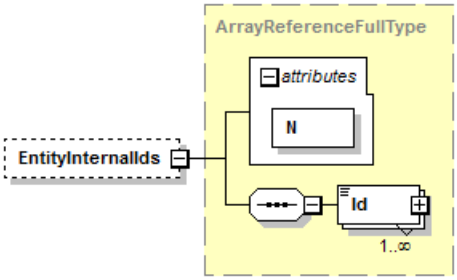
element **CharacteristicNominalBaseType/CharacteristicDefinitionId**

diagram	
type	**QIFReferenceType**
properties	content complex
annotation	documentation: The CharacteristicDefinitionId element is the QIF id of the associated characteristic definition.

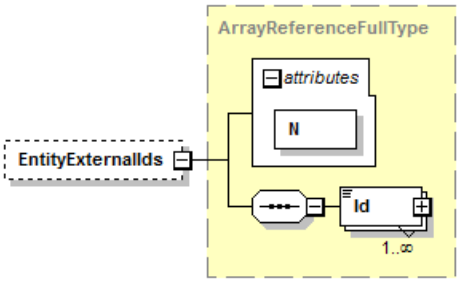
element **CharacteristicNominalBaseType/FeatureNominalIds**

diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N; Type: **NaturalType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The required N attribute shows how many Id elements are present in this array.
annotation	documentation: The optional FeatureNominalIds element is a list of the QIF ids of the instances of FeatureNominalType to which the CharacteristicNominal applies.

element **CharacteristicNominalBaseType/EntityInternalIds**

diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation: The required N attribute shows how many Id elements are present in this array.
annotation	documentation The EntityInternalIds element is a list of the QIF ids of CAD entities associated with this characteristic nominal.

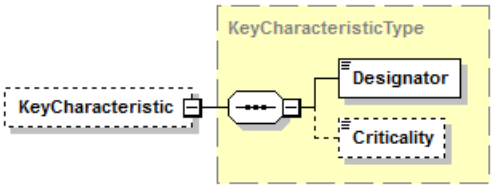
element **CharacteristicNominalBaseType/EntityExternalIds**

diagram	
type	**ArrayReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
children	**Id**
attributes	Name: N Type: **NaturalType** Use: required Default: Fixed: Annotation: documentation: The required N attribute shows how many Id elements are present in this array.
annotation	documentation The EntityExternalIds element is a list of the QIF ids of instances of EntityExternalType associated with this characteristic nominal.

element **CharacteristicNominalBaseType/Name**

diagram	
type	**xs:token**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional Name element is the name of the characteristic nominal.

element **CharacteristicNominalBaseType/KeyCharacteristic**

diagram	
type	**KeyCharacteristicType**
properties	minOcc 0 maxOcc 1 content complex
children	**Designator** **Criticality**
annotation	documentation The optional KeyCharacteristic element is the designator of a key characteristic together with an optional level of criticality. The designator element of the KeyCharacteristic will typically be more fine-grained when used in this CharacteristicNominalBaseType than when used in the corresponding instance of CharacteristicDefinitionBaseType. For example, if an instance of CharacteristicDefinitionBaseType has a KeyCharacteristic element with the Designator K, then there might be three instances of CharacteristicNominalBaseType referencing the CharacteristicDefinitionBaseType instance and having KeyCharacteristic elements using Designators K-1, K-2, and K-3.

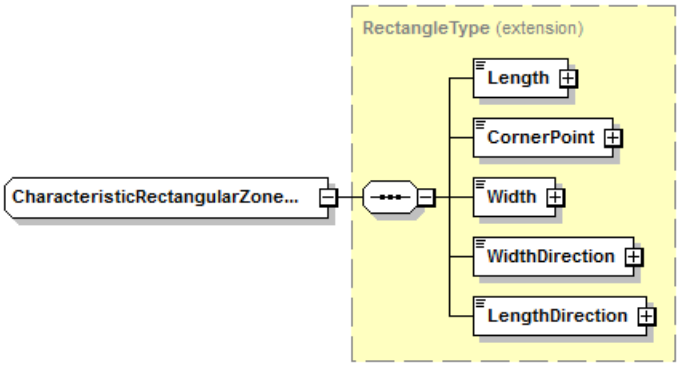
complexType **CharacteristicNominalsType**

diagram

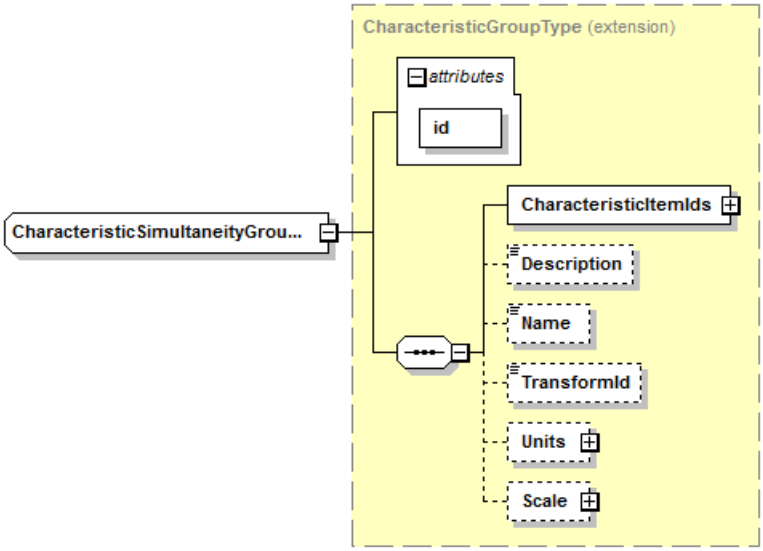

CharacteristicNominalsType
CharacteristicNominal
1..∞
AngleBetweenCharacteristicNo...
AngleCharacteristicNominal
AngleFromCharacteristicNomi...
AngularCoordinateCharacterist...
AngularityCharacteristicNominal
ChordCharacteristicNominal
CircularRunoutCharacteristicN...
CircularityCharacteristicNominal
ConcentricityCharacteristicNo...
CurveLengthCharacteristicNo...
CylindricityCharacteristicNomi...
DepthCharacteristicNominal
DiameterCharacteristicNominal
DistanceBetweenCharacteristi...
DistanceFromCharacteristicNo...
FlatnessCharacteristicNominal
HeightCharacteristicNominal
LengthCharacteristicNominal
LineProfileCharacteristicNominal
LinearCoordinateCharacteristi...
ParallelismCharacteristicNomi...
PerpendicularityCharacteristic...
PointProfileCharacteristicNomi...
PositionCharacteristicNominal
RadiusCharacteristicNominal
SquareCharacteristicNominal
StraightnessCharacteristicNo...
SurfaceProfileCharacteristicNo...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicN...
SymmetryCharacteristicNominal
ThicknessCharacteristicNominal
ThreadCharacteristicNominal

children	**CharacteristicNominal**
used by	element **CharacteristicAspectsListsType/CharacteristicNominals**
annotation	documentation The CharacteristicNominalsType defines a list of characteristic nominals.

complexType **CharacteristicRectangularZoneLimitType**

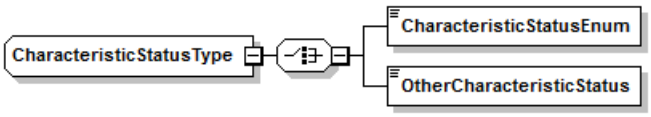
diagram	
type	extension of **RectangleType**
properties	base RectangleType
children	**Length CornerPoint Width WidthDirection LengthDirection**
used by	elements **OrientationCharacteristicNominalBaseType/RectangularZoneLimit** **FlatnessCharacteristicNominalType/RectangularZoneLimit** **SurfaceProfileCharacteristicNominalType/RectangularZoneLimit**
annotation	documentation The CharacteristicRectangularZoneLimitType defines the size, location and orientation of a rectangular tolerance zone limit.

complexType **CharacteristicSimultaneityGroupType**

diagram	
type	extension of **CharacteristicGroupType**
properties	base CharacteristicGroupType

children	**CharacteristicItemIds** **Description** **Name** **TransformId** **Units** **Scale**
used by	element **CharacteristicSimultaneityGroup**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic group, used for referencing.
annotation	documentation The CharacteristicSimultaneityGroupType defines a group of characteristics that are evaluated simultaneously.

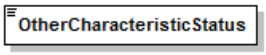
complexType **CharacteristicStatusType**

diagram	
children	**CharacteristicStatusEnum** **OtherCharacteristicStatus**
used by	elements **CharacteristicActualBaseType/Status** **CompositeSegmentActualBaseType/Status** **CharacteristicGroupStatusType/Status**
annotation	documentation The CharacteristicStatusType defines the status of a characteristic.

element **CharacteristicStatusType/CharacteristicStatusEnum**

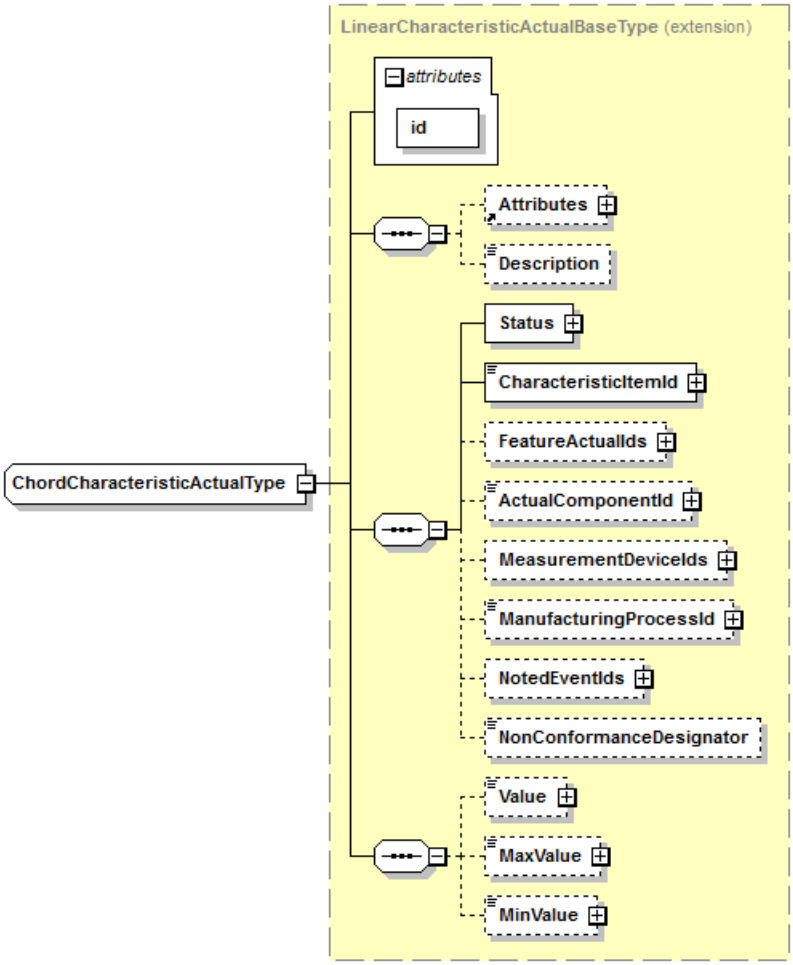
diagram	
type	**CharacteristicStatusEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration PASS enumeration FAIL enumeration REWORK enumeration SYSERROR enumeration INDETERMINATE enumeration NOT_ANALYZED enumeration BASIC enumeration UNDEFINED
annotation	documentation The CharacteristicStatusEnum element describes an often-used status of a characteristic.

element **CharacteristicStatusType/OtherCharacteristicStatus**

diagram	
type	**xs:string**
properties	content simple

annotation	documentation The OtherCharacteristicStatus element describes the status of a characteristic in natural language.

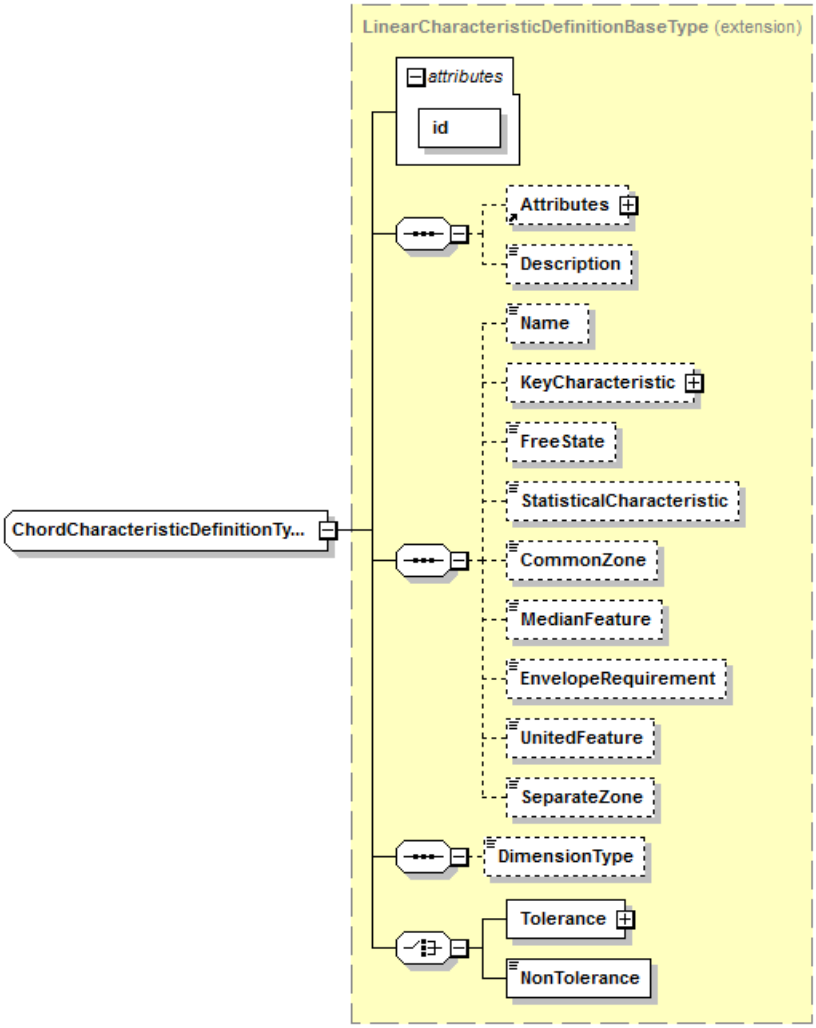
complexType **ChordCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **ChordCharacteristicActual**

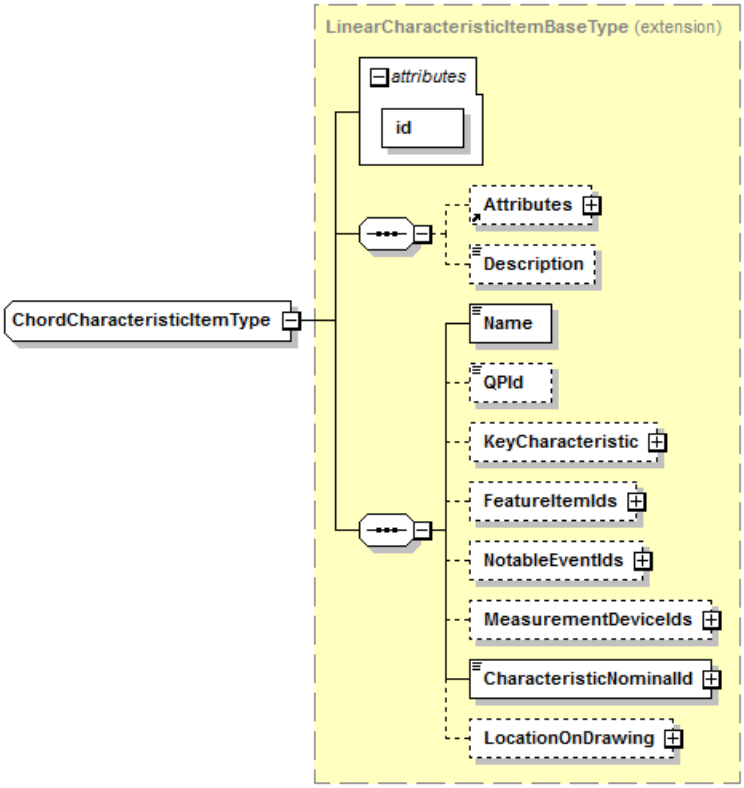
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The ChordCharacteristicActualType defines the results of an actual chord characteristic evaluation.

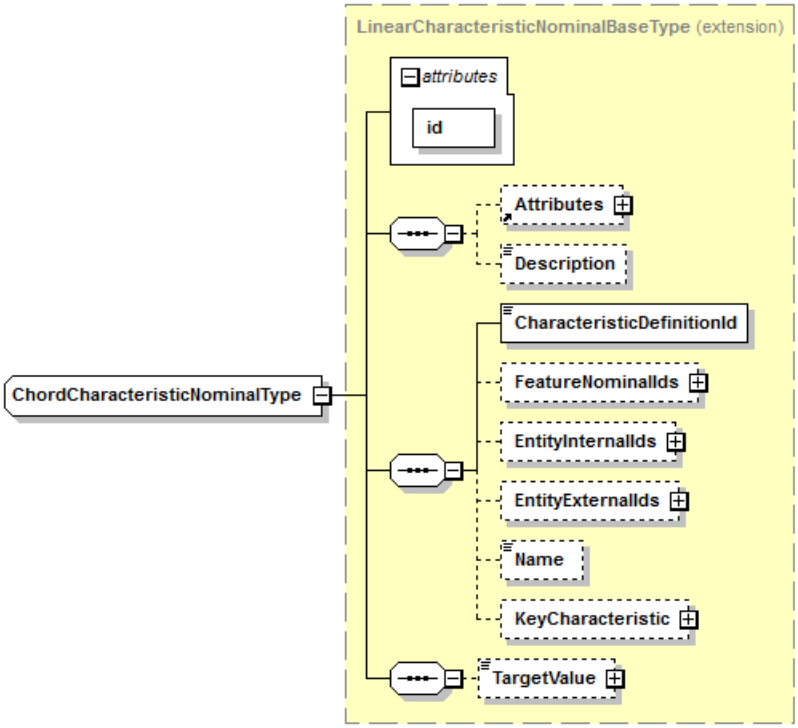
complexType **ChordCharacteristicDefinitionType**

diagram	
type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **ChordCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ChordCharacteristicDefinitionType defines information that can be common to more than one chord characteristic.

complexType **ChordCharacteristicItemType**

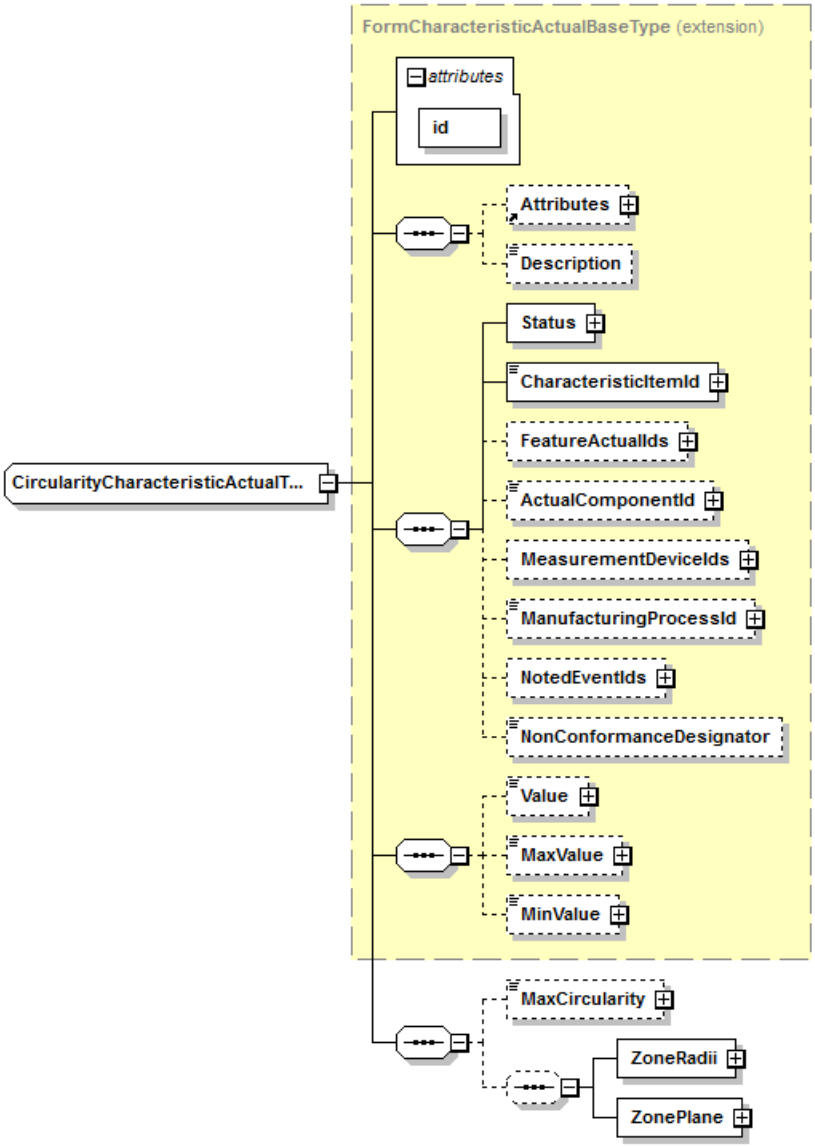
diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **ChordCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ChordCharacteristicItemType defines a chord characteristic item.

complexType **ChordCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **ChordCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ChordCharacteristicNominalType defines a unique chord characteristic nominal.

complexType **CircularityCharacteristicActualType**

diagram



type	extension of **FormCharacteristicActualBaseType**
properties	base FormCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **MaxCircularity** **ZoneRadii** **ZonePlane**
used by	element **CircularityCharacteristicActual**

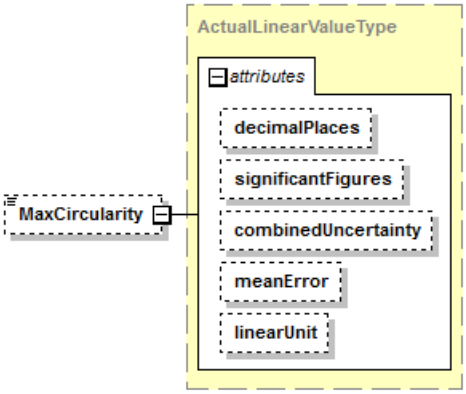
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

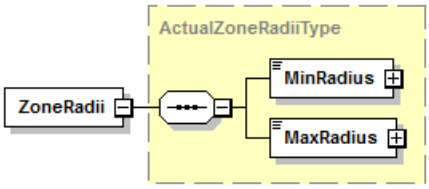
annotation

documentation
The CircularityCharacteristicActualType defines the results of an actual circularity characteristic evaluation.

element **CircularityCharacteristicActualType/MaxCircularity**

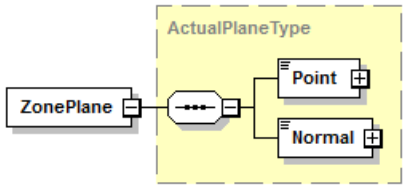
diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional MaxCircularity element is the actual overall feature circularity when a per-unit characteristic is used.

element **CircularityCharacteristicActualType/ZoneRadii**

diagram	
type	ActualZoneRadiiType

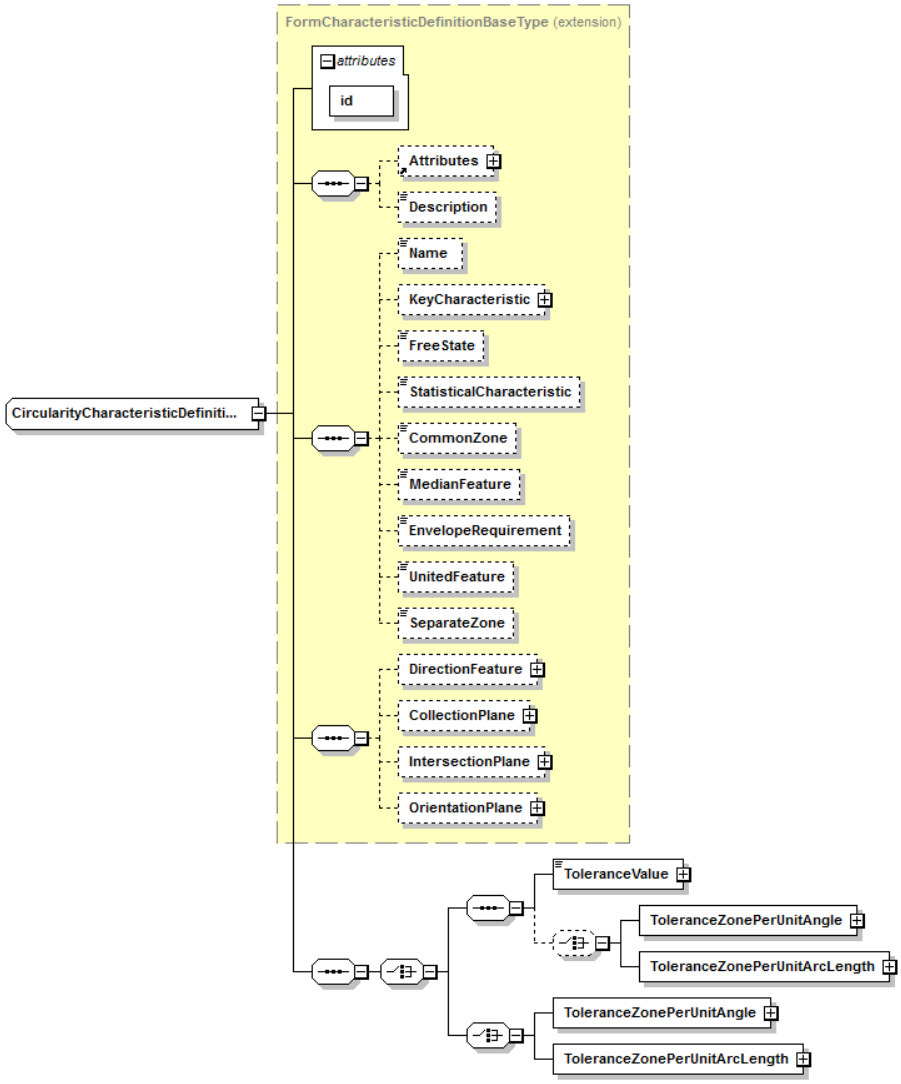
properties	content complex
children	**MinRadius** **MaxRadius**
annotation	documentation The ZoneRadii element gives the inner and outer actual sizes of the evaluated circularity tolerance zone.

element **CircularityCharacteristicActualType/ZonePlane**

diagram	
type	**ActualPlaneType**
properties	content complex
children	**Point Normal**
annotation	documentation The ZonePlane element is the actual plane in which the evaluated circularity tolerance zone lies.

complexType **CircularityCharacteristicDefinitionType**

diagram



type	extension of **FormCharacteristicDefinitionBaseType**
properties	base FormCharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DirectionFeature CollectionPlane IntersectionPlane OrientationPlane ToleranceValue ToleranceZonePerUnitAngle ToleranceZonePerUnitArcLength ToleranceZonePerUnitAngle ToleranceZonePerUnitArcLength**
used by	element **CircularityCharacteristicDefinition**

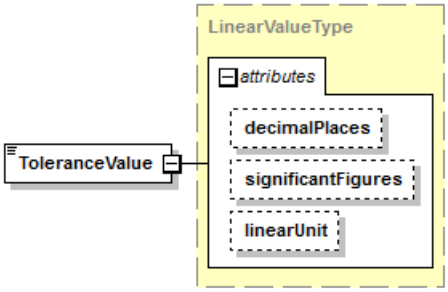
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

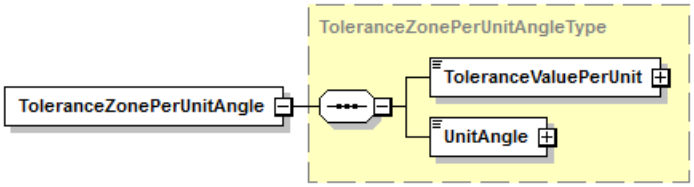
annotation

documentation
The CircularityCharacteristicDefinitionType defines information that can be common to more than one circularity characteristic.

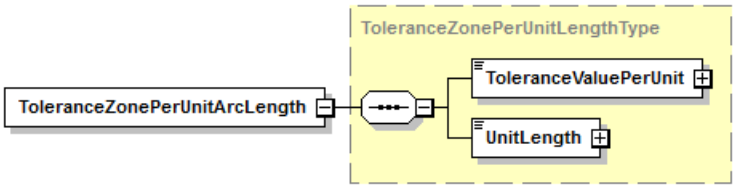
element **CircularityCharacteristicDefinitionType/ToleranceValue**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the circularity characteristic.

element **CircularityCharacteristicDefinitionType/ToleranceZonePerUnitAngle**

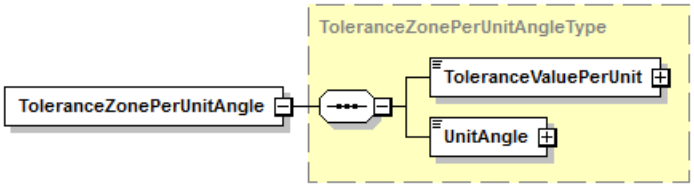
diagram	
type	**ToleranceZonePerUnitAngleType**
properties	content complex
children	**ToleranceValuePerUnit UnitAngle**
annotation	documentation The ToleranceZonePerUnitAngle element is the per-unit-angle circularity tolerance with a parallel-arc shaped tolerance zone.

element **CircularityCharacteristicDefinitionType/ToleranceZonePerUnitArcLength**

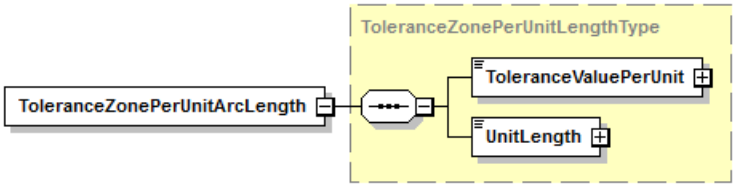
diagram	

type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The ToleranceZonePerUnitArcLength element is the per-unit-arc-length circularity tolerance with a parallel-arc shaped tolerance zone.

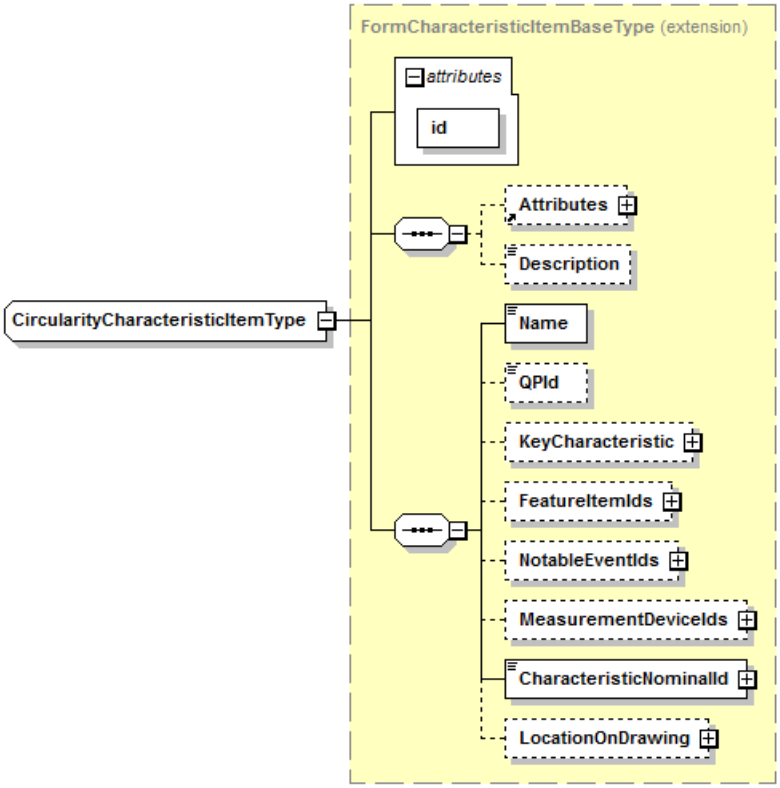
element **CircularityCharacteristicDefinitionType/ToleranceZonePerUnitAngle**

diagram	
type	**ToleranceZonePerUnitAngleType**
properties	content complex
children	**ToleranceValuePerUnit UnitAngle**
annotation	documentation The ToleranceZonePerUnitAngle element is the per-unit-angle circularity tolerance with a parallel-arc shaped tolerance zone.

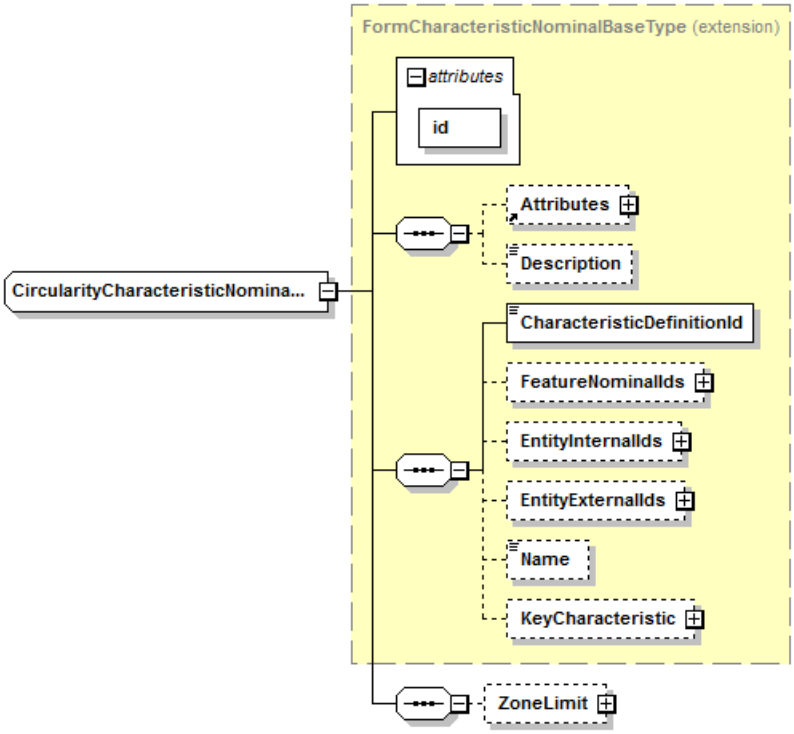
element **CircularityCharacteristicDefinitionType/ToleranceZonePerUnitArcLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The ToleranceZonePerUnitArcLength element is the per-unit-arc-length circularity tolerance with a parallel-arc shaped tolerance zone.

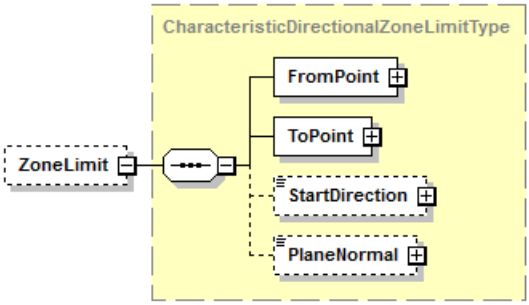
complexType **CircularityCharacteristicItemType**

diagram	
type	extension of **FormCharacteristicItemBaseType**
properties	base FormCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **CircularityCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CircularityCharacteristicItemType defines a circularity characteristic item.

complexType **CircularityCharacteristicNominalType**

diagram	
type	extension of **FormCharacteristicNominalBaseType**
properties	base FormCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit**
used by	element **CircularityCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CircularityCharacteristicNominalType defines a unique circularity characteristic.

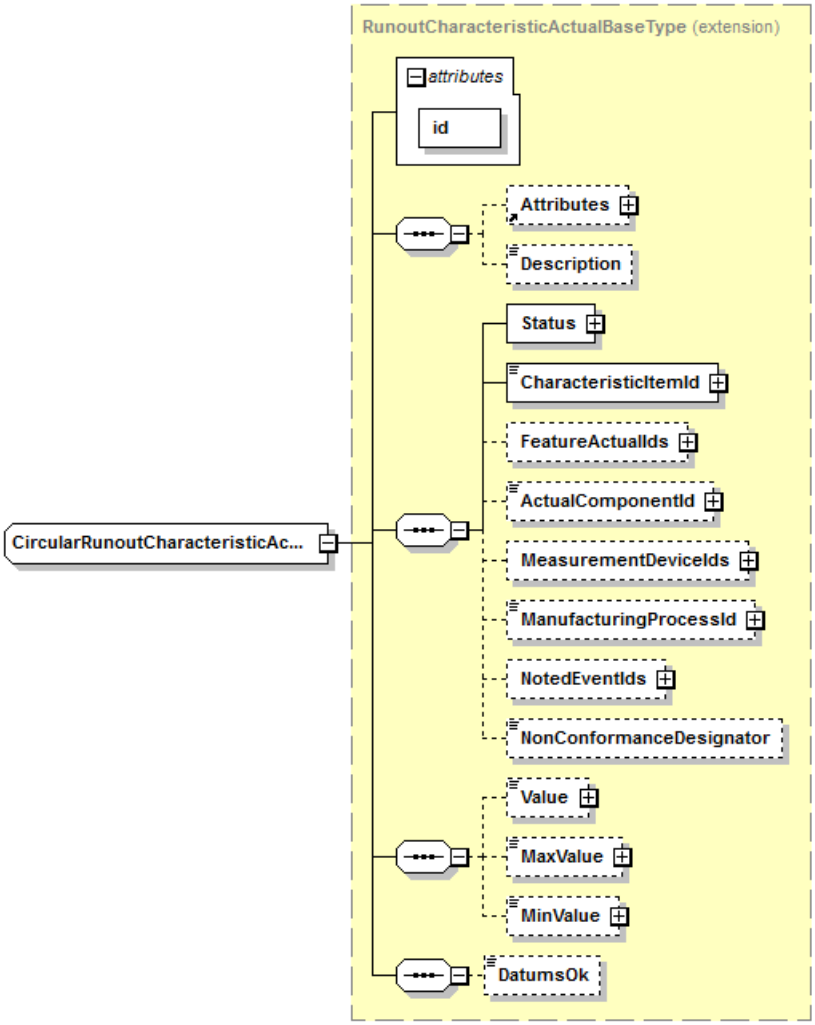
element **CircularityCharacteristicNominalType/ZoneLimit**

diagram	

type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the size and location of the circularity tolerance zone limit.

complexType **CircularRunoutCharacteristicActualType**

diagram



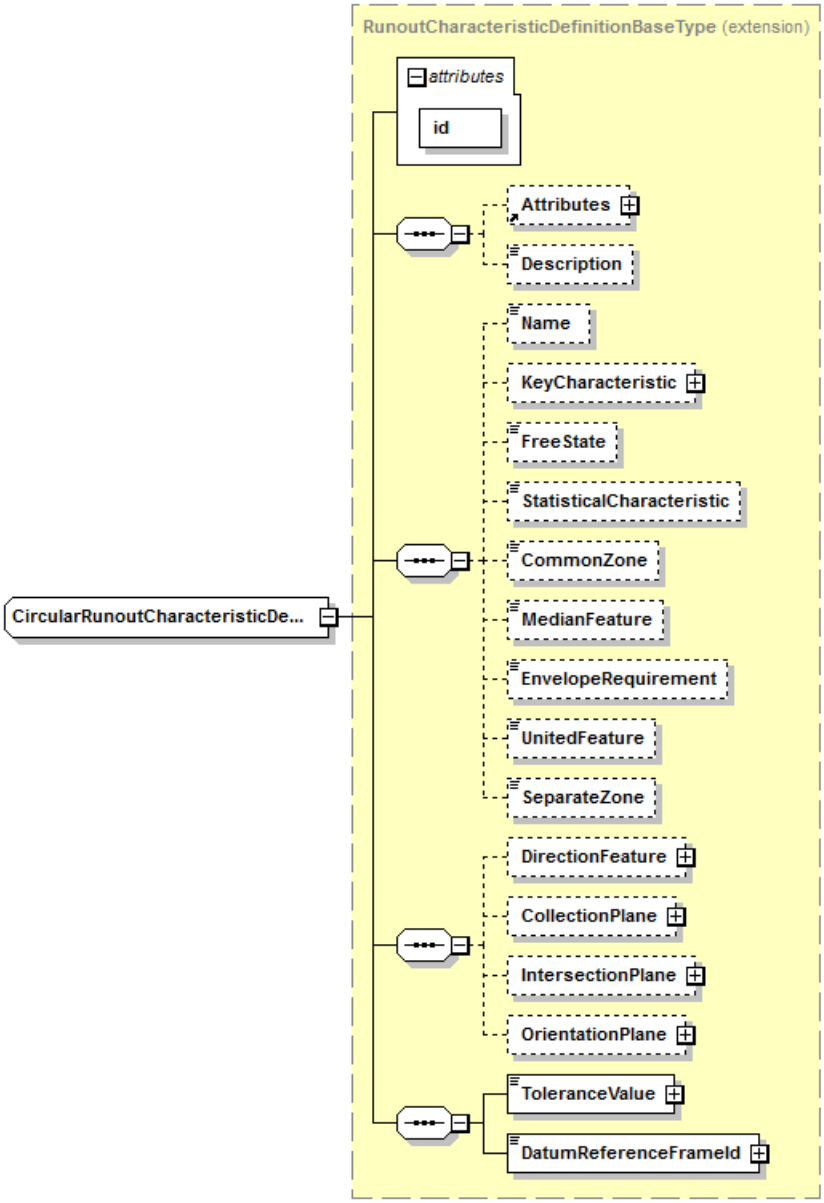
type	extension of **RunoutCharacteristicActualBaseType**
properties	base RunoutCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk**
used by	element **CircularRunoutCharacteristicActual**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the

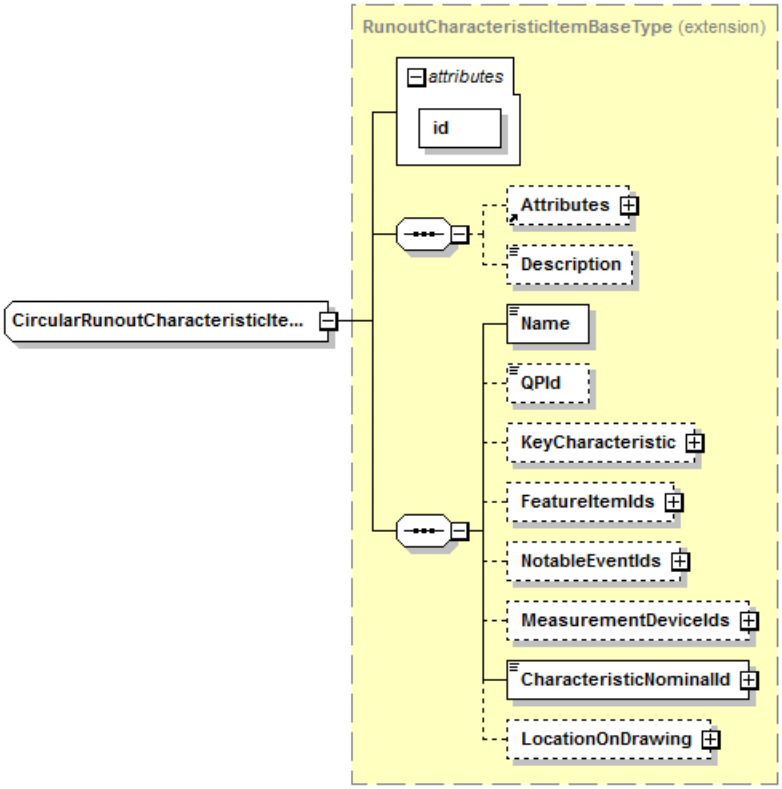
	characteristic, used for referencing.
annotation	documentation The CircularRunoutCharacteristicActualType defines the results of an actual circular runout characteristic evaluation.

complexType **CircularRunoutCharacteristicDefinitionType**

diagram	
type	extension of **RunoutCharacteristicDefinitionBaseType**
properties	base RunoutCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId**
used by	element **CircularRunoutCharacteristicDefinition**

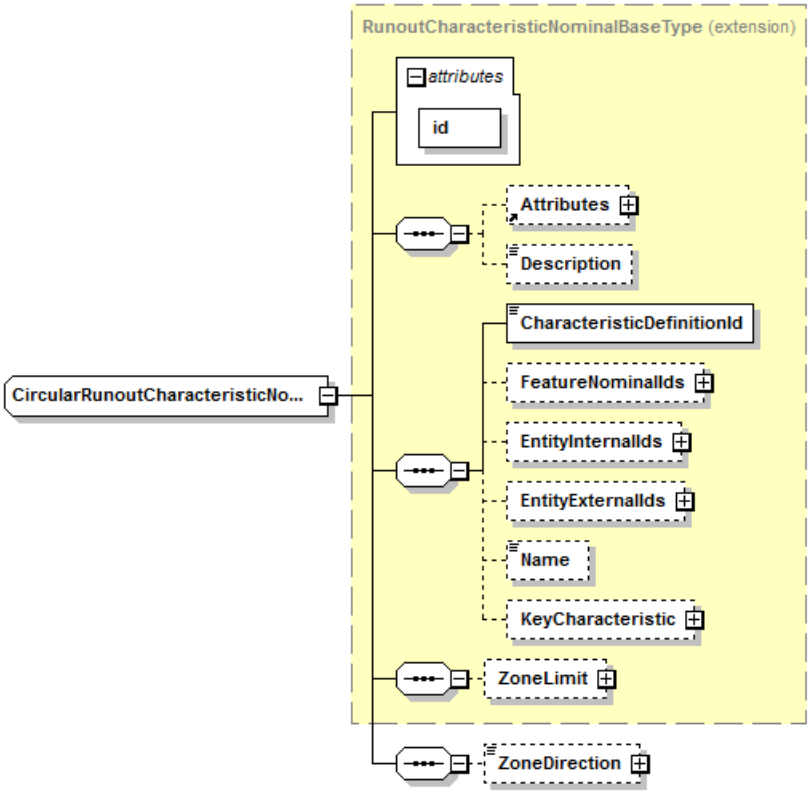
attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CircularRunoutCharacteristicDefinitionType defines information that can be common to more than one circular runout characteristic.					

complexType **CircularRunoutCharacteristicItemType**

diagram	
type	extension of **RunoutCharacteristicItemBaseType**
properties	base RunoutCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **CircularRunoutCharacteristicItem**

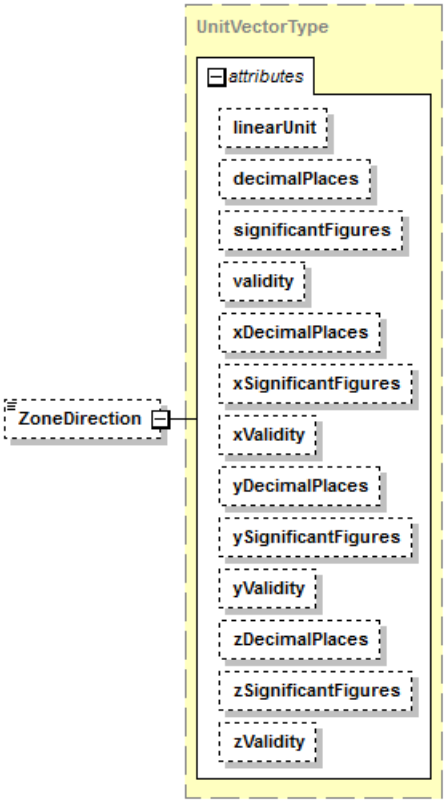
attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CircularRunoutCharacteristicItemType defines a circular runout characteristic item.					

complexType **CircularRunoutCharacteristicNominalType**

diagram	
type	extension of **RunoutCharacteristicNominalBaseType**
properties	base RunoutCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit** **ZoneDirection**
used by	element **CircularRunoutCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CircularRunoutCharacteristicNominalType defines a unique circular runout characteristic nominal.

element **CircularRunoutCharacteristicNominalType/ZoneDirection**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

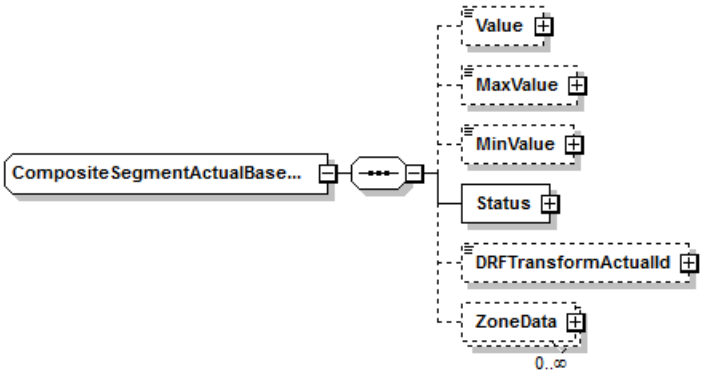
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

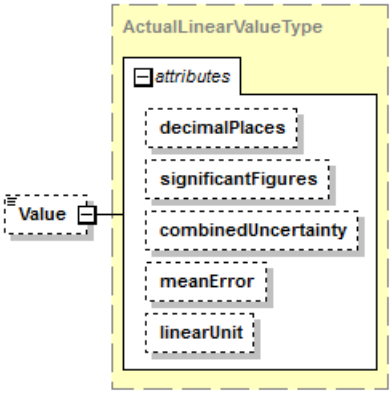
documentation

The optional ZoneDirection element gives the direction for the tolerance zone width when it is not normal to the product surface.

complexType **CompositeSegmentActualBaseType**

diagram	
properties	abstract true
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
used by	complexTypes **CompositeSegmentPositionActualType** **CompositeSegmentProfileActualType** **CompositeSegmentSymmetryActualType**
annotation	documentation The CompositeSegmentActualBaseType is the abstract base type that defines the results of an actual composite segment characteristic evaluation

element **CompositeSegmentActualBaseType/Value**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex

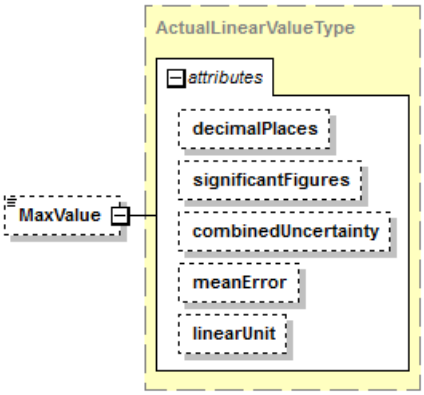
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.

	meanError	**NonNegativeDecimalType**	documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
	linearUnit	**xs:token**	documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional Value element is the actual measured value.		

element **CompositeSegmentActualBaseType/MaxValue**

diagram

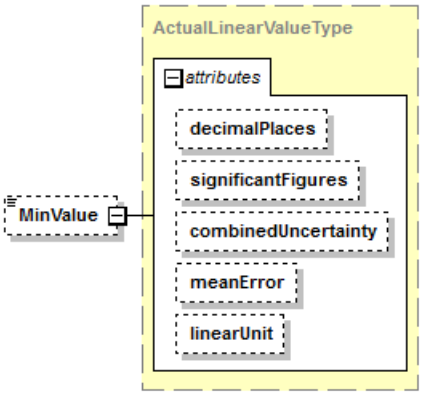


type	**ActualLinearValueType**					
properties	minOcc 0 maxOcc 1 content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation
	decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
	meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
	linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation					

	The optional MaxValue element is the maximum of the actual measured value when reported.

element **CompositeSegmentActualBaseType/MinValue**

diagram



type **ActualLinearValueType**

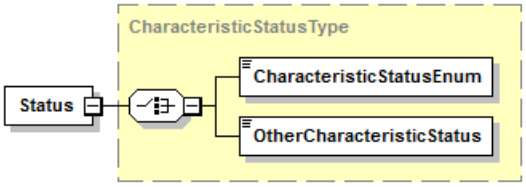
properties
minOcc 0
maxOcc 1
content complex

attributes

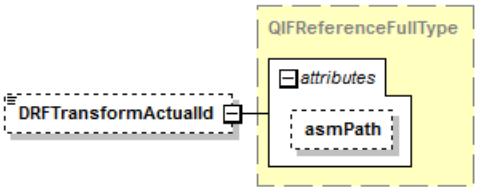
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation
documentation
The optional MinValue element is the minimum of the actual measured value when reported.

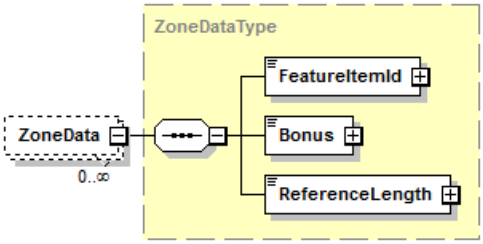
element **CompositeSegmentActualBaseType/Status**

diagram	
type	**CharacteristicStatusType**
properties	content complex
children	**CharacteristicStatusEnum** **OtherCharacteristicStatus**
annotation	documentation The Status element is the characteristic condition: in tolerance, out of tolerance, etc.

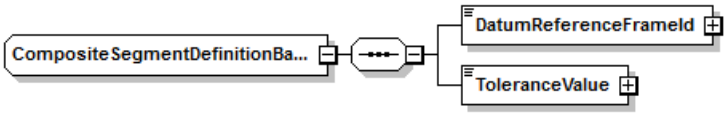
element **CompositeSegmentActualBaseType/DRFTransformActualId**

diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional DRFTransformActualId element is the QIF id of the actual transform associated with the mobile datum reference frame for this segment of the characteristic.

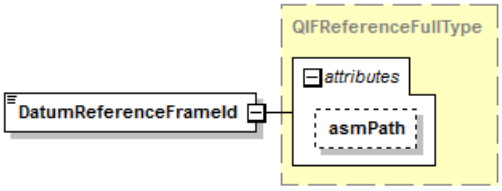
element **CompositeSegmentActualBaseType/ZoneData**

diagram	
type	**ZoneDataType**
properties	minOcc 0 maxOcc unbounded content complex
children	**FeatureItemId Bonus ReferenceLength**
annotation	documentation Each optional ZoneData element gives information about the tolerance zone for the composite segment.

complexType **CompositeSegmentDefinitionBaseType**

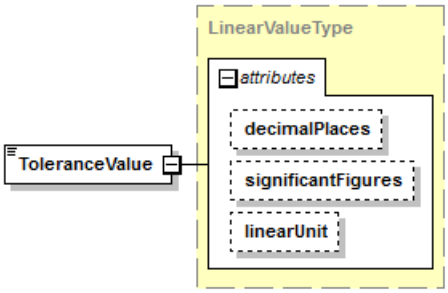
diagram	
properties	abstract true
children	**DatumReferenceFrameId ToleranceValue**
used by	complexTypes **CompositeSegmentPositionDefinitionType CompositeSegmentProfileDefinitionType CompositeSegmentSymmetryDefinitionType**
annotation	documentation The CompositeSegmentDefinitionBaseType is the abstract base type that defines information that can be common to more than one composite segment characteristics. documentation ASME Y14.5 - 2009 Section 7.5

element **CompositeSegmentDefinitionBaseType/DatumReferenceFrameId**

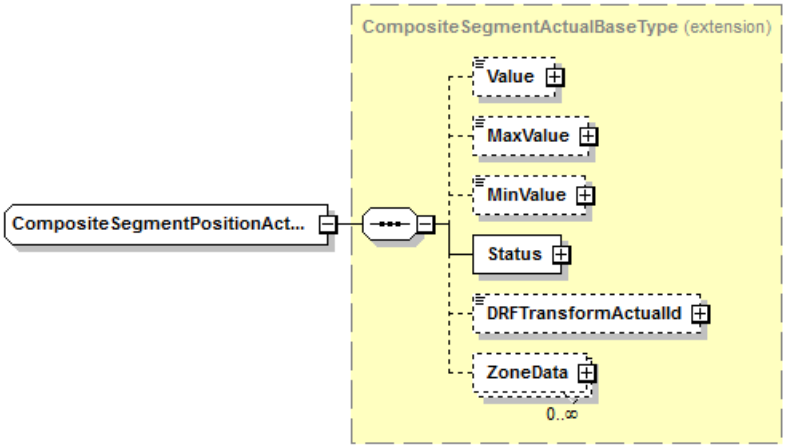
diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the

	AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DatumReferenceFrameId element is the QIF id of the datum reference frame for a composite tolerance segment.

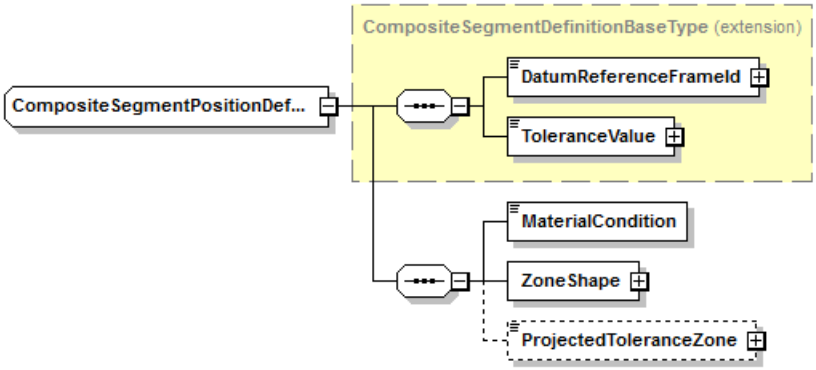
element **CompositeSegmentDefinitionBaseType/ToleranceValue**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces / **xs:nonNegativeInteger** / / / / documentation: See documentation of SpecifiedDecimalType. significantFigures / **xs:nonNegativeInteger** / / / / documentation: See documentation of SpecifiedDecimalType. linearUnit / **xs:token** / / / / documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance value for the segment.

complexType **CompositeSegmentPositionActualType**

diagram	
type	extension of **CompositeSegmentActualBaseType**
properties	base CompositeSegmentActualBaseType
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
used by	elements **PositionCharacteristicActualType/FourthCompositeSegmentPositionActual** **PositionCharacteristicActualType/SecondCompositeSegmentPositionActual** **PositionCharacteristicActualType/ThirdCompositeSegmentPositionActual**
annotation	documentation The CompositeSegmentPositionActualType defines the results of an actual composite segment position characteristic evaluation.

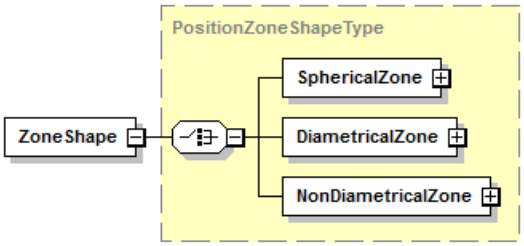
complexType **CompositeSegmentPositionDefinitionType**

diagram	
type	extension of **CompositeSegmentDefinitionBaseType**
properties	base CompositeSegmentDefinitionBaseType
children	**DatumReferenceFrameId** **ToleranceValue** **MaterialCondition** **ZoneShape** **ProjectedToleranceZone**
used by	elements **PositionCharacteristicDefinitionType/FourthCompositeSegmentPositionDefinition** **PositionCharacteristicDefinitionType/SecondCompositeSegmentPositionDefinition** **PositionCharacteristicDefinitionType/ThirdCompositeSegmentPositionDefinition**
annotation	documentation The CompositeSegmentPositionDefinitionType defines information that can be common to more than one composite segment position characteristic.

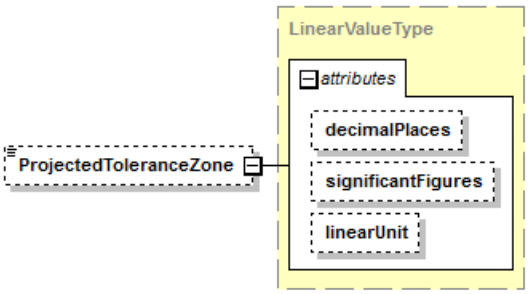
element **CompositeSegmentPositionDefinitionType/MaterialCondition**

diagram	
type	**MaterialModifierEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration REGARDLESS enumeration LEAST enumeration MAXIMUM enumeration NONE
annotation	documentation The MaterialCondition element is the material condition modifier for the tolerance characteristic in the segment.

element **CompositeSegmentPositionDefinitionType/ZoneShape**

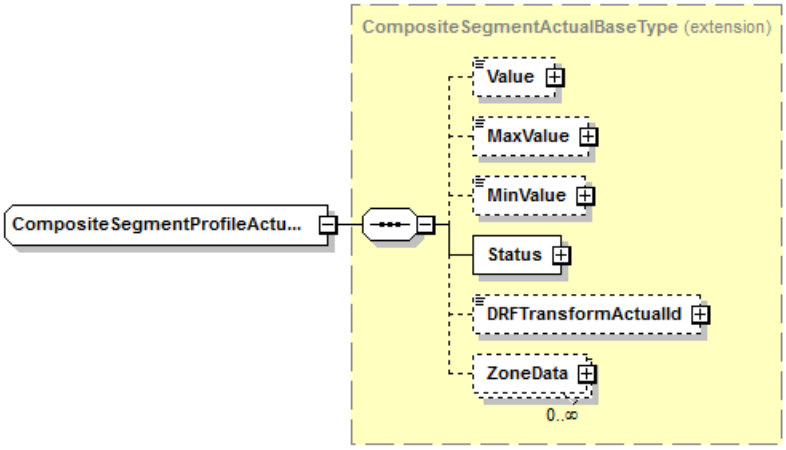
diagram	
type	**PositionZoneShapeType**
properties	content complex
children	**SphericalZone** **DiametricalZone** **NonDiametricalZone**
annotation	documentation The ZoneShape element describes the shape of the tolerance zone in this segment.

element **CompositeSegmentPositionDefinitionType/ProjectedToleranceZone**

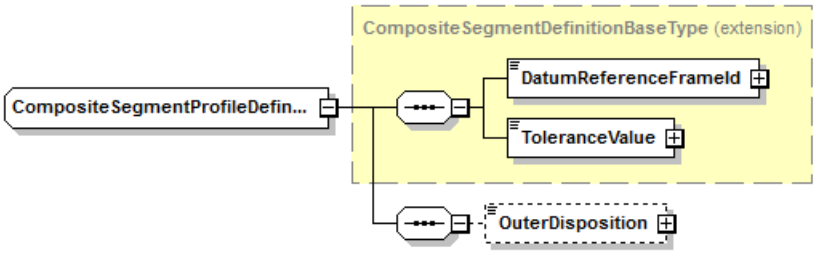
diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of

	linearUnit **xs:token**	SpecifiedDecimalType. documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional ProjectedToleranceZone element is the length of the projected tolerance zone.	

complexType **CompositeSegmentProfileActualType**

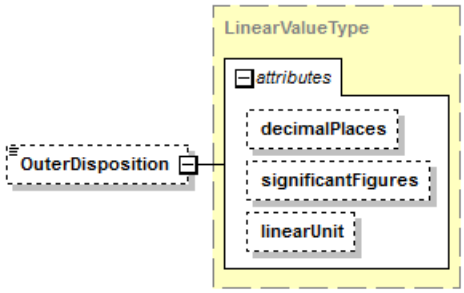
diagram	
type	extension of **CompositeSegmentActualBaseType**
properties	base CompositeSegmentActualBaseType
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
used by	elements **ProfileCharacteristicActualBaseType/FourthCompositeSegmentProfileActual** **ProfileCharacteristicActualBaseType/SecondCompositeSegmentProfileActual** **ProfileCharacteristicActualBaseType/ThirdCompositeSegmentProfileActual**
annotation	documentation The CompositeSegmentProfileActualType defines the results of an actual composite segment profile characteristic evaluation.

complexType **CompositeSegmentProfileDefinitionType**

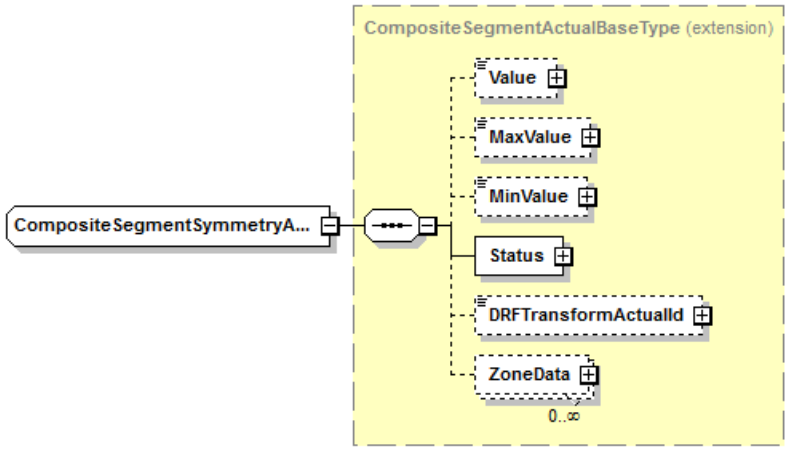
diagram	
type	extension of **CompositeSegmentDefinitionBaseType**
properties	base CompositeSegmentDefinitionBaseType
children	**DatumReferenceFrameId** **ToleranceValue** **OuterDisposition**
used by	elements **ProfileCharacteristicDefinitionBaseType/FourthCompositeSegmentProfileDefinition** **ProfileCharacteristicDefinitionBaseType/SecondCompositeSegmentProfileDefinition** **ProfileCharacteristicDefinitionBaseType/ThirdCompositeSegmentProfileDefinition**
annotation	documentation The CompositeSegmentProfileDefinitionType defines information that can be common to more than one composite

	segment profile characteristic.

element **CompositeSegmentProfileDefinitionType/OuterDisposition**

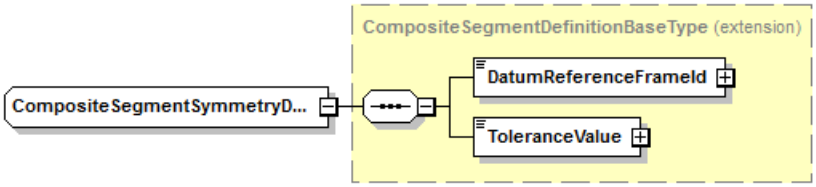
diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional OuterDisposition element is the outer disposition of the composite segment's tolerance zone when the tolerance zone is not symmetric about or is offset from the nominal surface or curve. The value represents the upper tolerance limit when the tolerance zone is expressed as a bi-directional tolerance. For asymmetrically disposed tolerance zones it can range in value from zero when the tolerance zone is completely inside the part material, to the whole tolerance value when the tolerance zone is completely outside the part material. For offset tolerance zones it will have a negative value for a tolerance zone offset inside the part material, or a positive value greater than the tolerance value for a tolerance zone offset outside the part material.

complexType **CompositeSegmentSymmetryActualType**

diagram	
type	extension of **CompositeSegmentActualBaseType**

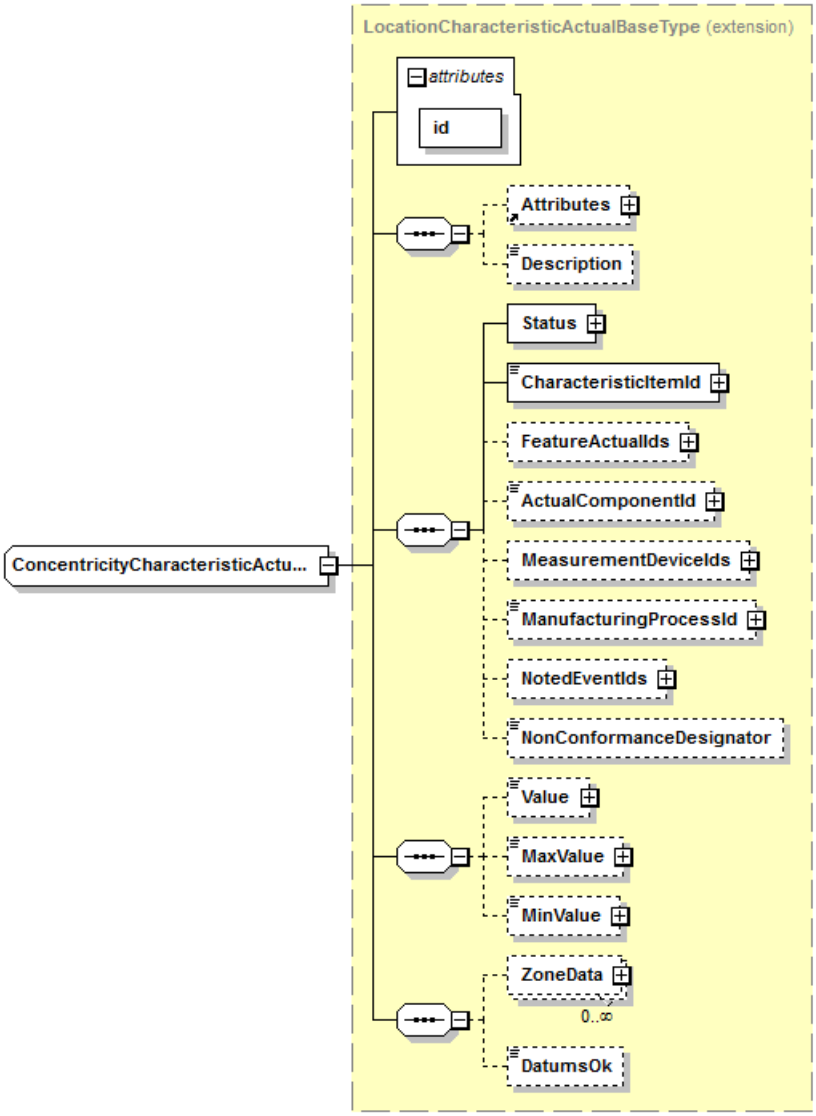
properties	base CompositeSegmentActualBaseType
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
used by	elements **SymmetryCharacteristicActualType/SecondCompositeSegmentSymmetryActual** **SymmetryCharacteristicActualType/ThirdCompositeSegmentSymmetryActual**
annotation	documentation The CompositeSegmentSymmetryActualType defines the results of an actual composite segment symmetry characteristic evaluation.

complexType **CompositeSegmentSymmetryDefinitionType**

diagram	
type	extension of **CompositeSegmentDefinitionBaseType**
properties	base CompositeSegmentDefinitionBaseType
children	**DatumReferenceFrameId** **ToleranceValue**
used by	elements **SymmetryCharacteristicDefinitionType/SecondCompositeSegmentSymmetryDefinition** **SymmetryCharacteristicDefinitionType/ThirdCompositeSegmentSymmetryDefinition**
annotation	documentation The CompositeSegmentSymmetryDefinitionType defines information that can be common to more than one composite segment symmetry characteristic.

complexType **ConcentricityCharacteristicActualType**

diagram



type	extension of **LocationCharacteristicActualBaseType**
properties	base LocationCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **ZoneData** **DatumsOk**
used by	element **ConcentricityCharacteristicActual**

attributes

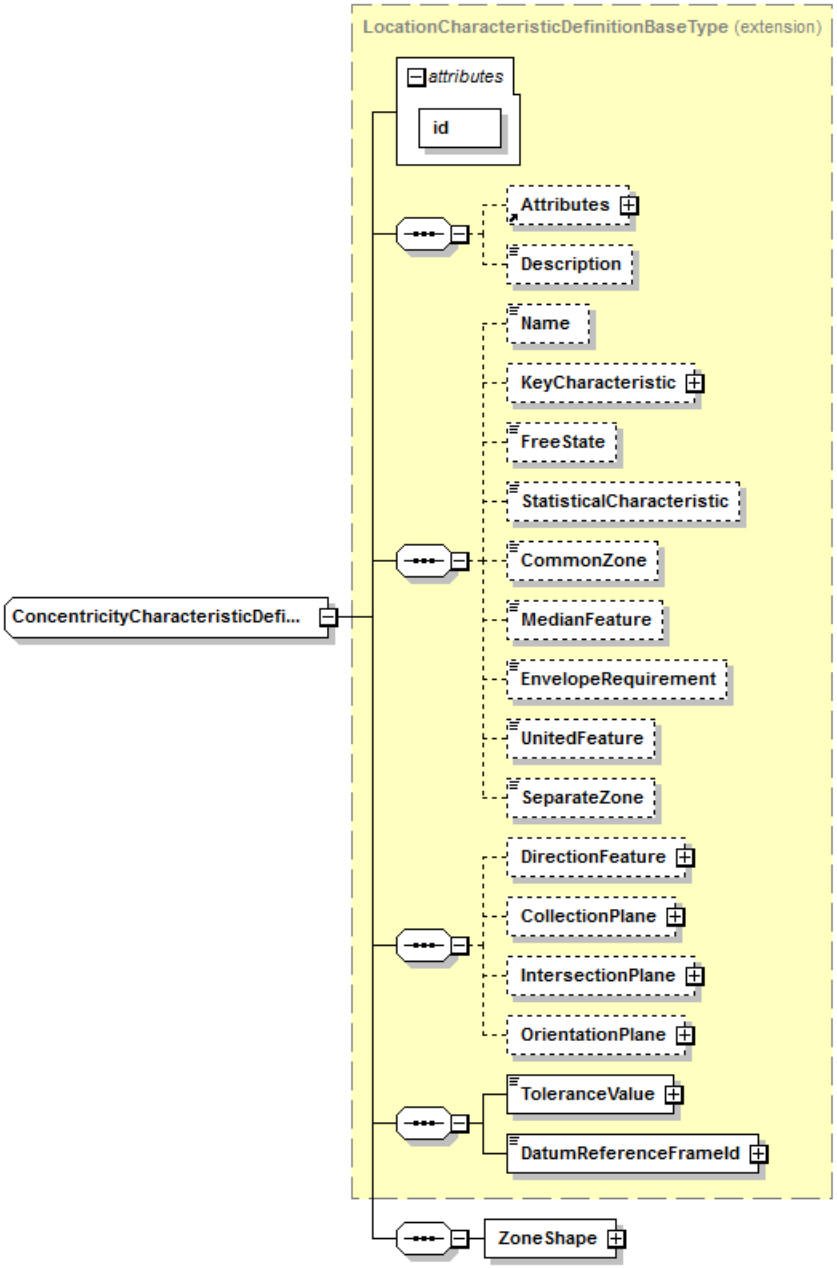
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The ConcentricityCharacteristicActualType defines the results of an actual concentricity characteristic evaluation.

complexType **ConcentricityCharacteristicDefinitionType**

diagram



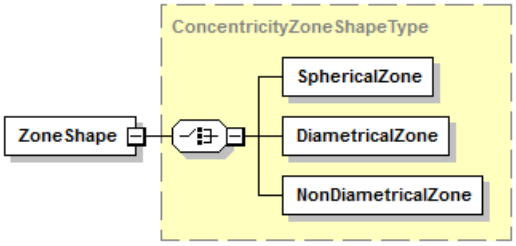
type	extension of **LocationCharacteristicDefinitionBaseType**
properties	base LocationCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **ZoneShape**
used by	element **ConcentricityCharacteristicDefinition**

attributes

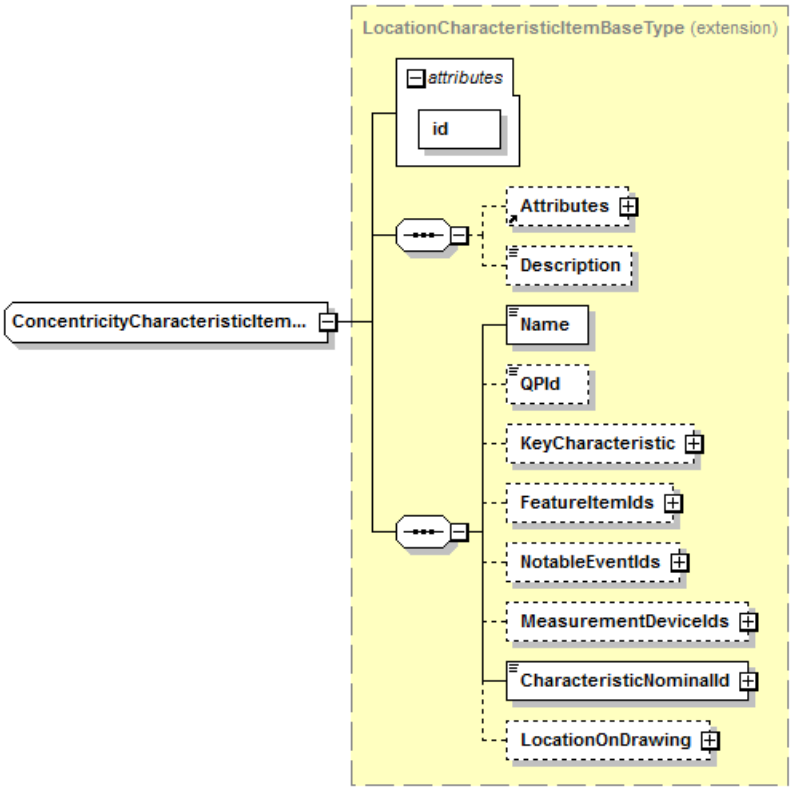
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the

	characteristic, used for referencing.
annotation	documentation The ConcentricityCharacteristicDefinitionType defines information that can be common to more than one concentricity characteristic.

element **ConcentricityCharacteristicDefinitionType/ZoneShape**

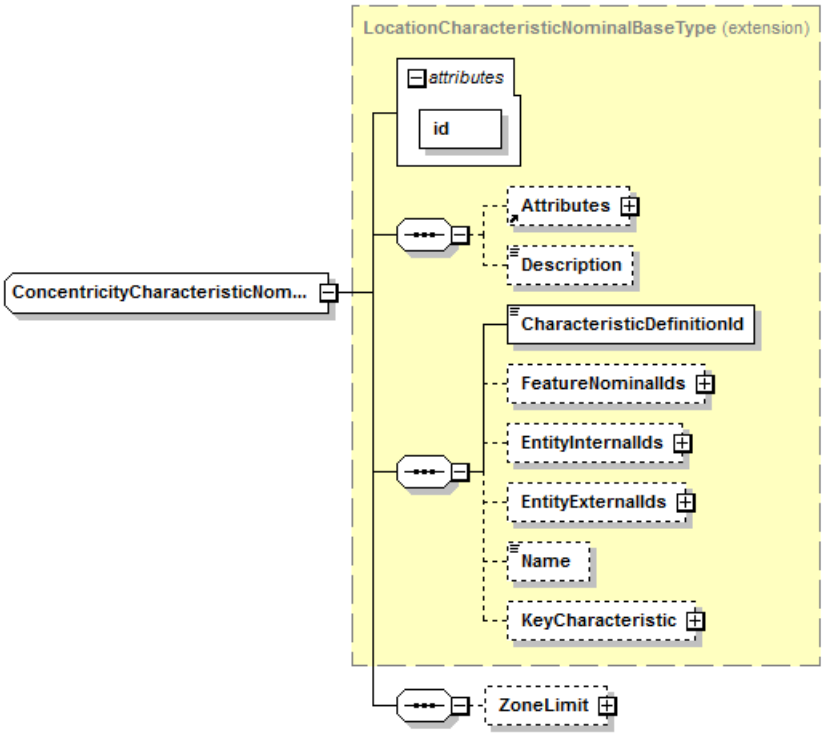
diagram	
type	**ConcentricityZoneShapeType**
properties	content complex
children	**SphericalZone** **DiametricalZone** **NonDiametricalZone**
annotation	documentation The ZoneShape element describes the shape of the tolerance zone.

complexType **ConcentricityCharacteristicItemType**

diagram	
type	extension of **LocationCharacteristicItemBaseType**

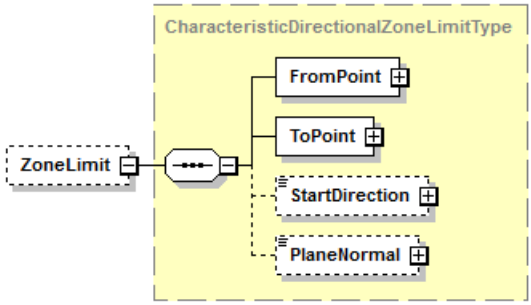
properties	base LocationCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **ConcentricityCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The ConcentricityCharacteristicItemType defines a concentricity characteristic item.

complexType **ConcentricityCharacteristicNominalType**

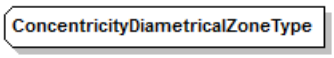
diagram	
type	extension of **LocationCharacteristicNominalBaseType**
properties	base LocationCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit**
used by	element **ConcentricityCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The ConcentricityCharacteristicNominalType defines a unique concentricity characteristic nominal.

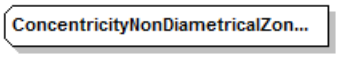
element **ConcentricityCharacteristicNominalType/ZoneLimit**

diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extents and direction of the concentricity tolerance zone limit.

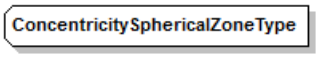
complexType **ConcentricityDiametricalZoneType**

diagram	
used by	element **ConcentricityZoneShapeType/DiametricalZone**
annotation	documentation The ConcentricityDiametricalZoneType defines the shape of a tolerance zone as diametrical.

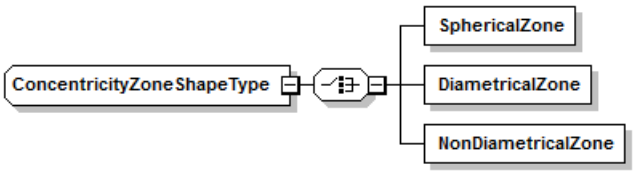
complexType **ConcentricityNonDiametricalZoneType**

diagram	
used by	element **ConcentricityZoneShapeType/NonDiametricalZone**
annotation	documentation The ConcentricityNonDiametricalZoneType defines the shape of a tolerance zone as neither diametrical nor spherical, but as parallel-planes.

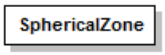
complexType **ConcentricitySphericalZoneType**

diagram	
used by	element **ConcentricityZoneShapeType/SphericalZone**
annotation	documentation The ConcentrictySphericalZoneType defines the shape of a tolerance zone as spherical.

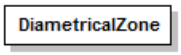
complexType **ConcentricityZoneShapeType**

diagram	
children	SphericalZone DiametricalZone NonDiametricalZone
used by	element ConcentricityCharacteristicDefinitionType/ZoneShape
annotation	documentation The ConcentricityZoneShapeType defines the shape of the tolerance zone for a concentricity characteristic.

element **ConcentricityZoneShapeType/SphericalZone**

diagram	
type	ConcentricitySphericalZoneType
properties	content complex
annotation	documentation The SphericalZone element is present when the concentricity characteristic feature control frame contains a spherical diameter symbol (SØ) modifying the tolerance value.

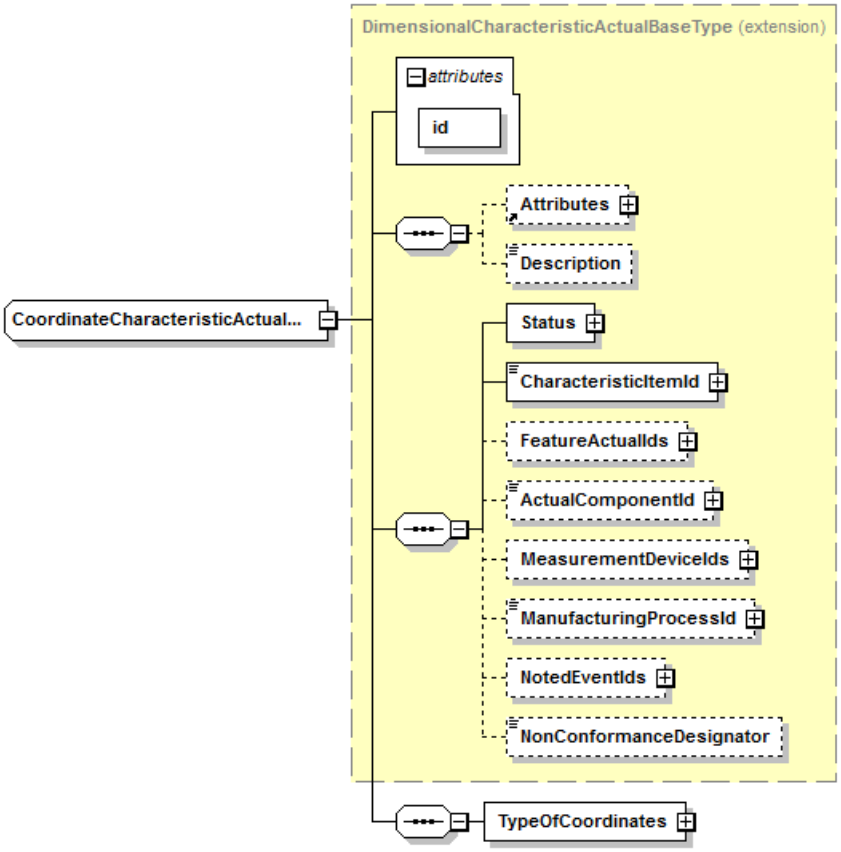
element **ConcentricityZoneShapeType/DiametricalZone**

diagram	
type	ConcentricityDiametricalZoneType
properties	content complex
annotation	documentation The DiametricalZone element is present when the concentricity characteristic feature control frame contains a diameter symbol (Ø) modifying the tolerance value.

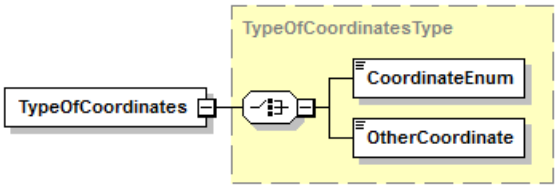
element **ConcentricityZoneShapeType/NonDiametricalZone**

diagram	
type	ConcentricityNonDiametricalZoneType
properties	content complex
annotation	documentation The NonDiametricalZone element is present when the concentricity characteristic feature control frame does not contain a diameter symbol modifying the tolerance value.

complexType **CoordinateCharacteristicActualBaseType**

diagram	
type	extension of **DimensionalCharacteristicActualBaseType**
properties	base DimensionalCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **TypeOfCoordinates**
used by	complexTypes **AngularCoordinateCharacteristicActualType** **LinearCoordinateCharacteristicActualType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CoordinateCharacteristicActualBaseType is the abstract base type that defines the results of an actual coordinate characteristic evaluation.

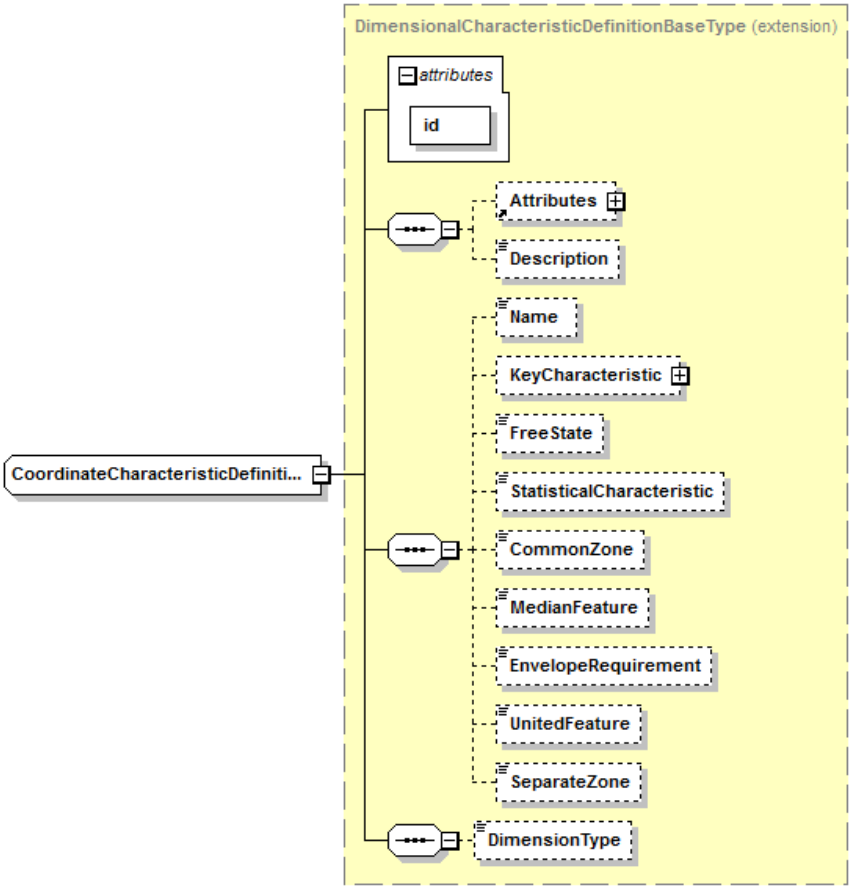
element **CoordinateCharacteristicActualBaseType/TypeOfCoordinates**

diagram	

type	**TypeOfCoordinatesType**
properties	content complex
children	**CoordinateEnum OtherCoordinate**
annotation	documentation The TypeOfCoordinates element is the type of coordinate system used for reporting.

complexType **CoordinateCharacteristicDefinitionBaseType**

diagram



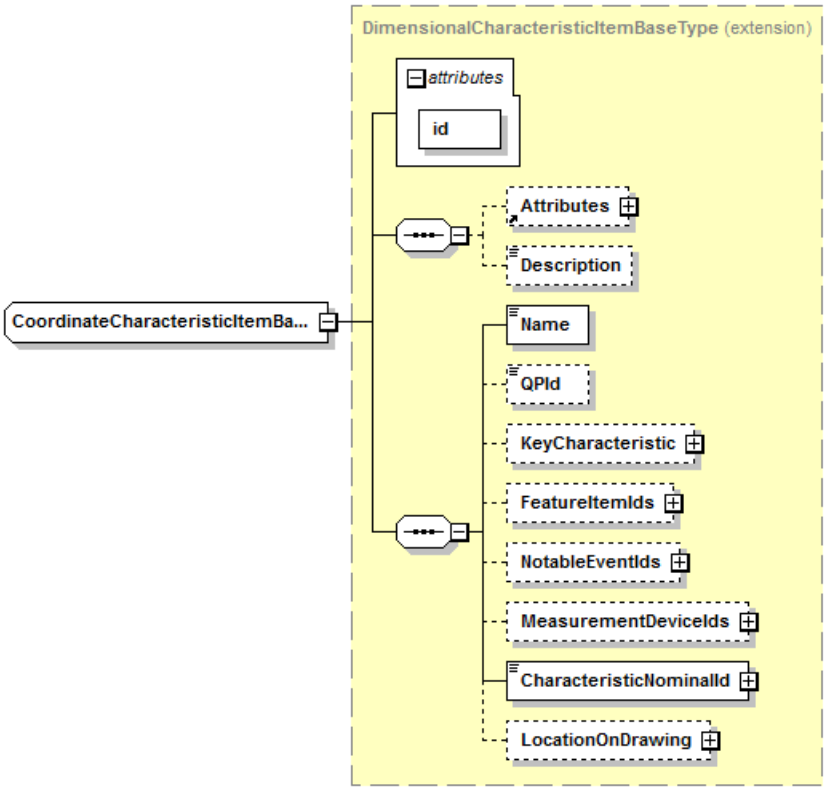
type	extension of **DimensionalCharacteristicDefinitionBaseType**
properties	base DimensionalCharacteristicDefinitionBaseType abstract true
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType**
used by	complexTypes **AngularCoordinateCharacteristicDefinitionType LinearCoordinateCharacteristicDefinitionType**

attributes

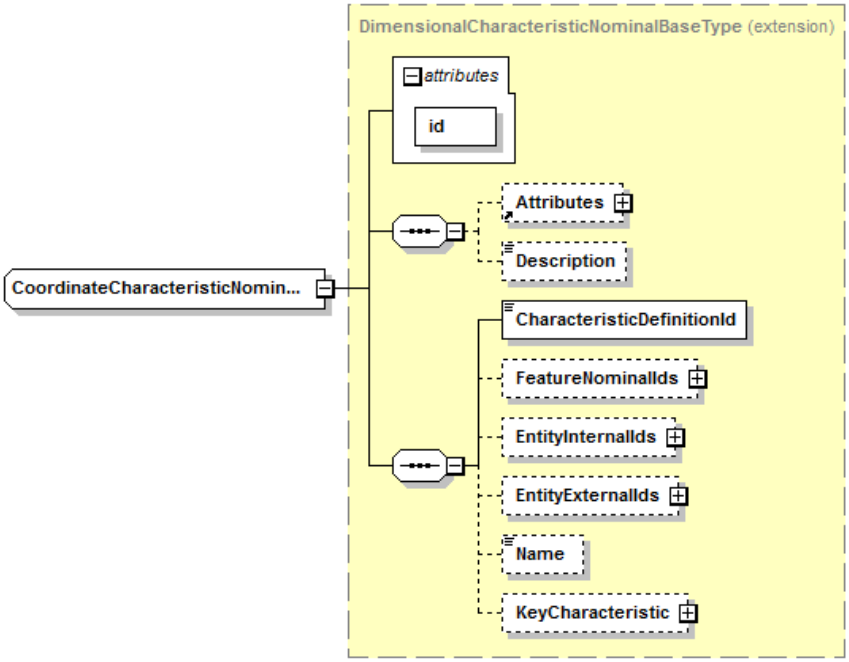
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The CoordinateCharacteristicDefinitionBaseType is the abstract base type that defines information that can be common to more than one coordinate characteristic.

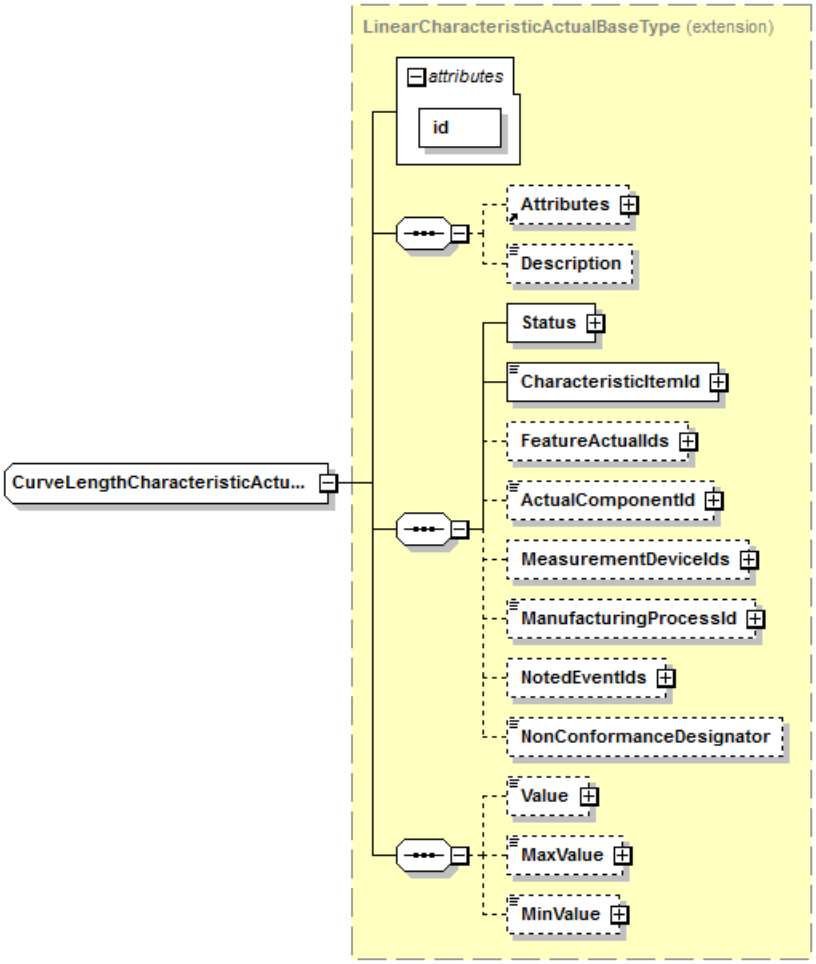
complexType **CoordinateCharacteristicItemBaseType**

diagram	
type	extension of **DimensionalCharacteristicItemBaseType**
properties	base DimensionalCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **AngularCoordinateCharacteristicItemType** **LinearCoordinateCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CoordinateCharacteristicItemBaseType is the abstract base type that defines a coordinate characteristic item.

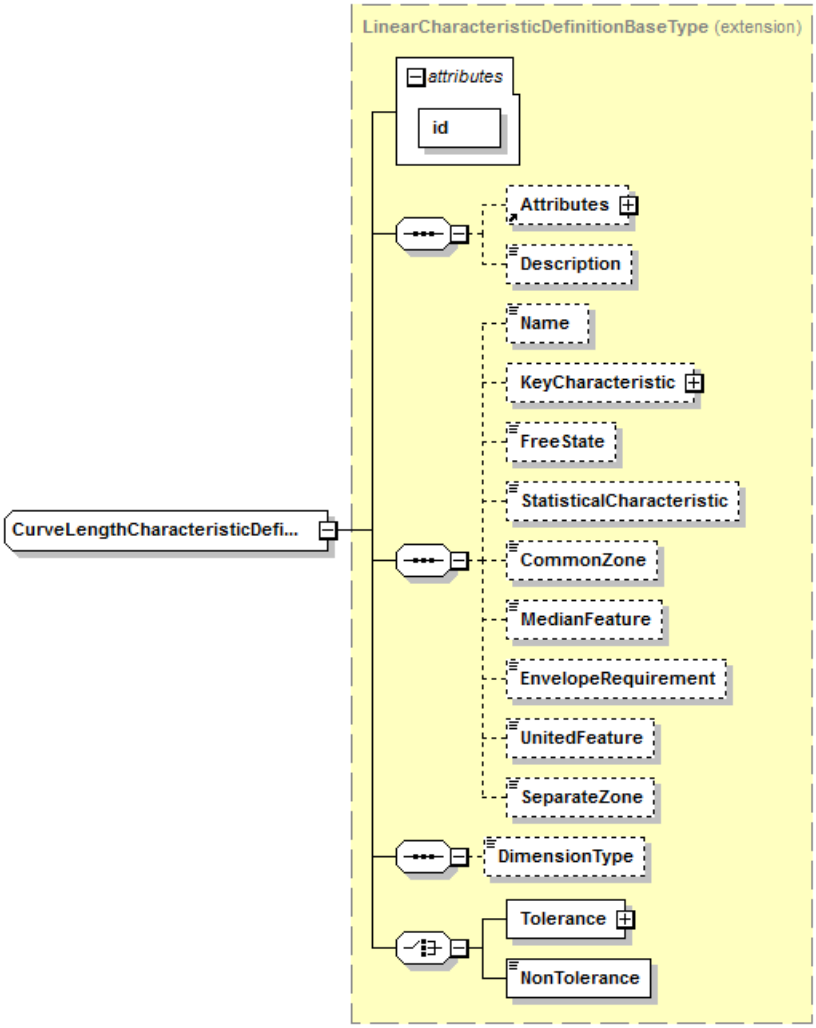
complexType **CoordinateCharacteristicNominalBaseType**

diagram	
type	extension of **DimensionalCharacteristicNominalBaseType**
properties	base DimensionalCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	complexTypes **AngularCoordinateCharacteristicNominalType** **LinearCoordinateCharacteristicNominalType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CoordinateCharacteristicNominalBaseType is the abstract base type that defines a unique coordinate characteristic nominal.

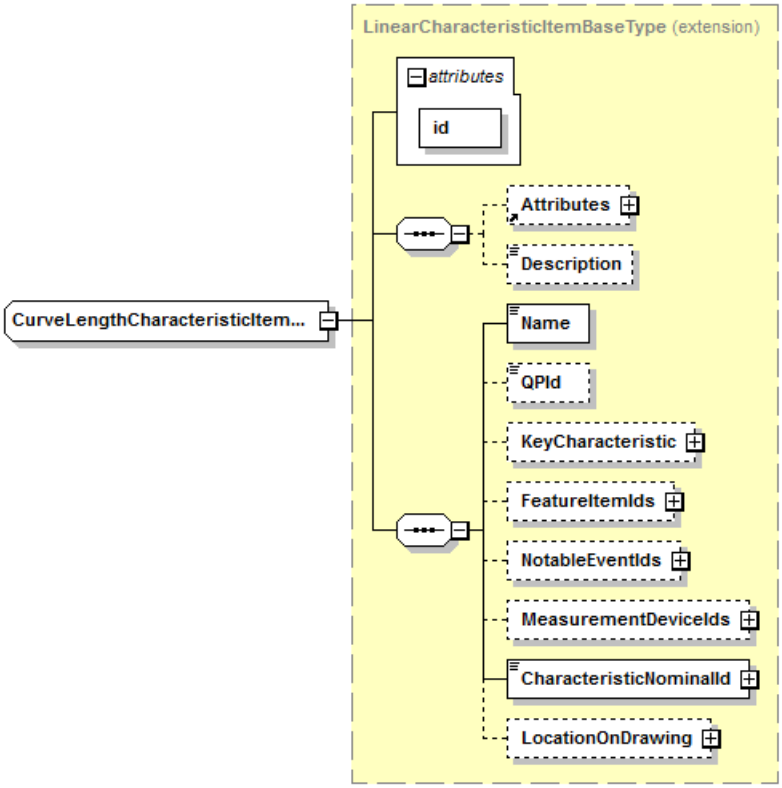
complexType **CurveLengthCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **CurveLengthCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CurveLengthCharacteristicActualType defines the results of an actual curve length characteristic evaluation.

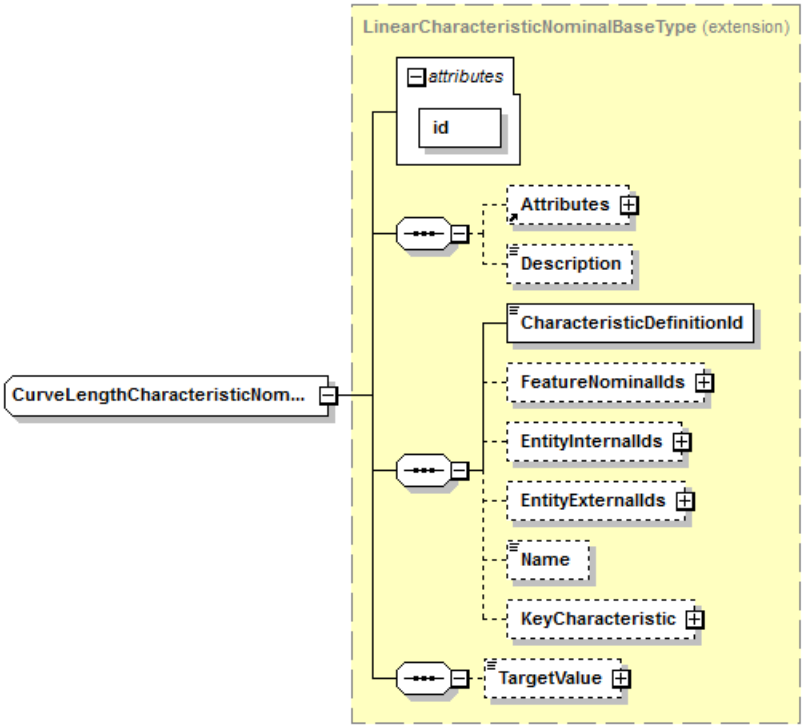
complexType **CurveLengthCharacteristicDefinitionType**

diagram	
type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **CurveLengthCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CurveLengthCharacteristicDefinitionType defines information that can be common to more than one curve length characteristic.

complexType **CurveLengthCharacteristicItemType**

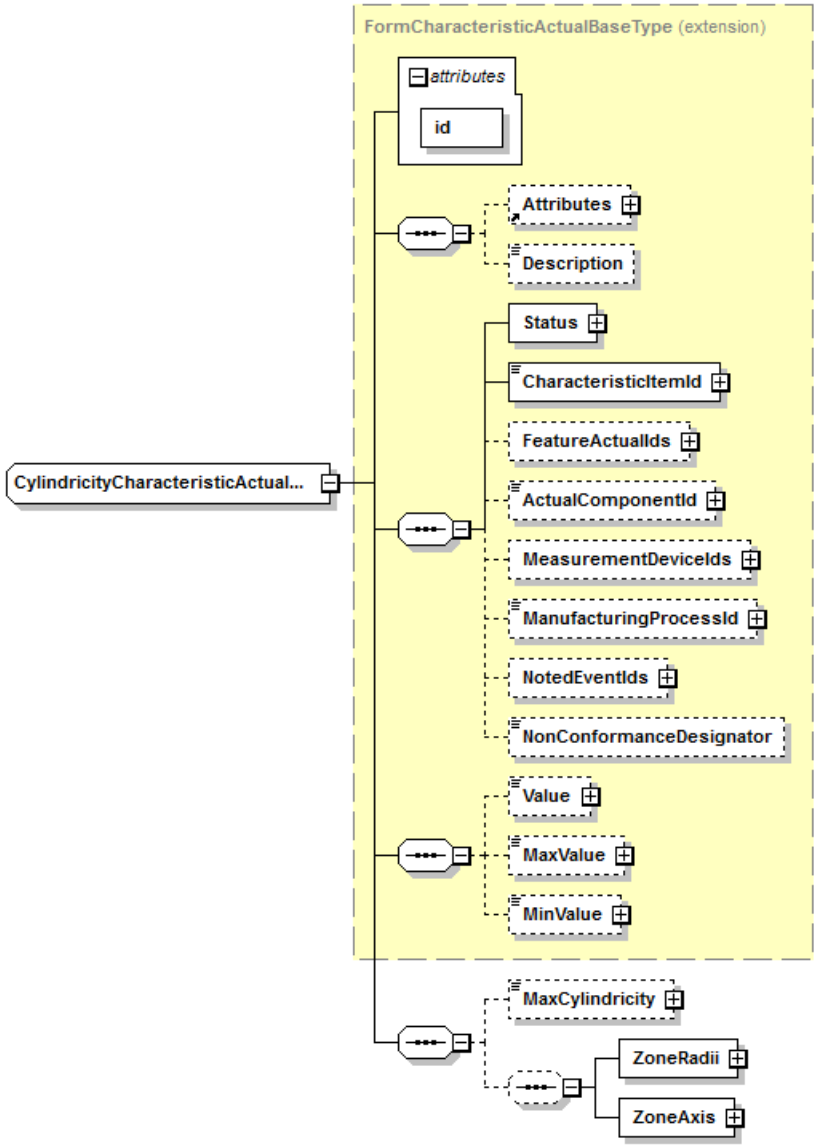
diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **CurveLengthCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CurveLengthCharacteristicItemType defines a curve length characteristic item.

complexType **CurveLengthCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **CurveLengthCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CurveLengthCharacteristicNominalType defines a unique curve length characteristic nominal.

complexType **CylindricityCharacteristicActualType**

diagram



type	extension of **FormCharacteristicActualBaseType**
properties	base FormCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **MaxCylindricity** **ZoneRadii** **ZoneAxis**
used by	element **CylindricityCharacteristicActual**

attributes

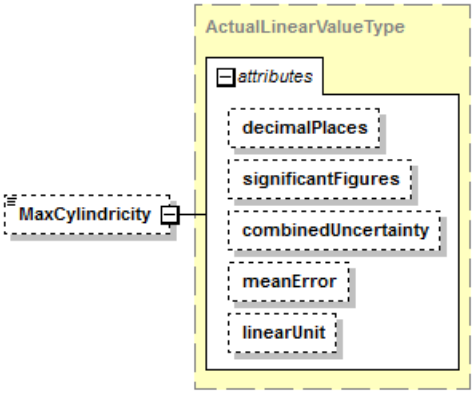
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The CylindricityCharacteristicActualType defines the results of an actual cylindricity characteristic evaluation.

element **CylindricityCharacteristicActualType/MaxCylindricity**

diagram



type **ActualLinearValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

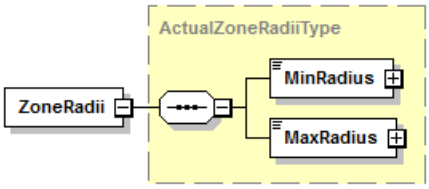
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation

documentation
The optional MaxCylindricity element is the actual overall feature cylindricity when a per-unit characteristic is used.

element **CylindricityCharacteristicActualType/ZoneRadii**

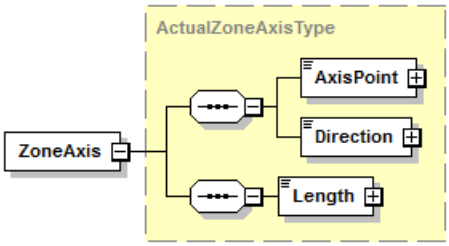
diagram



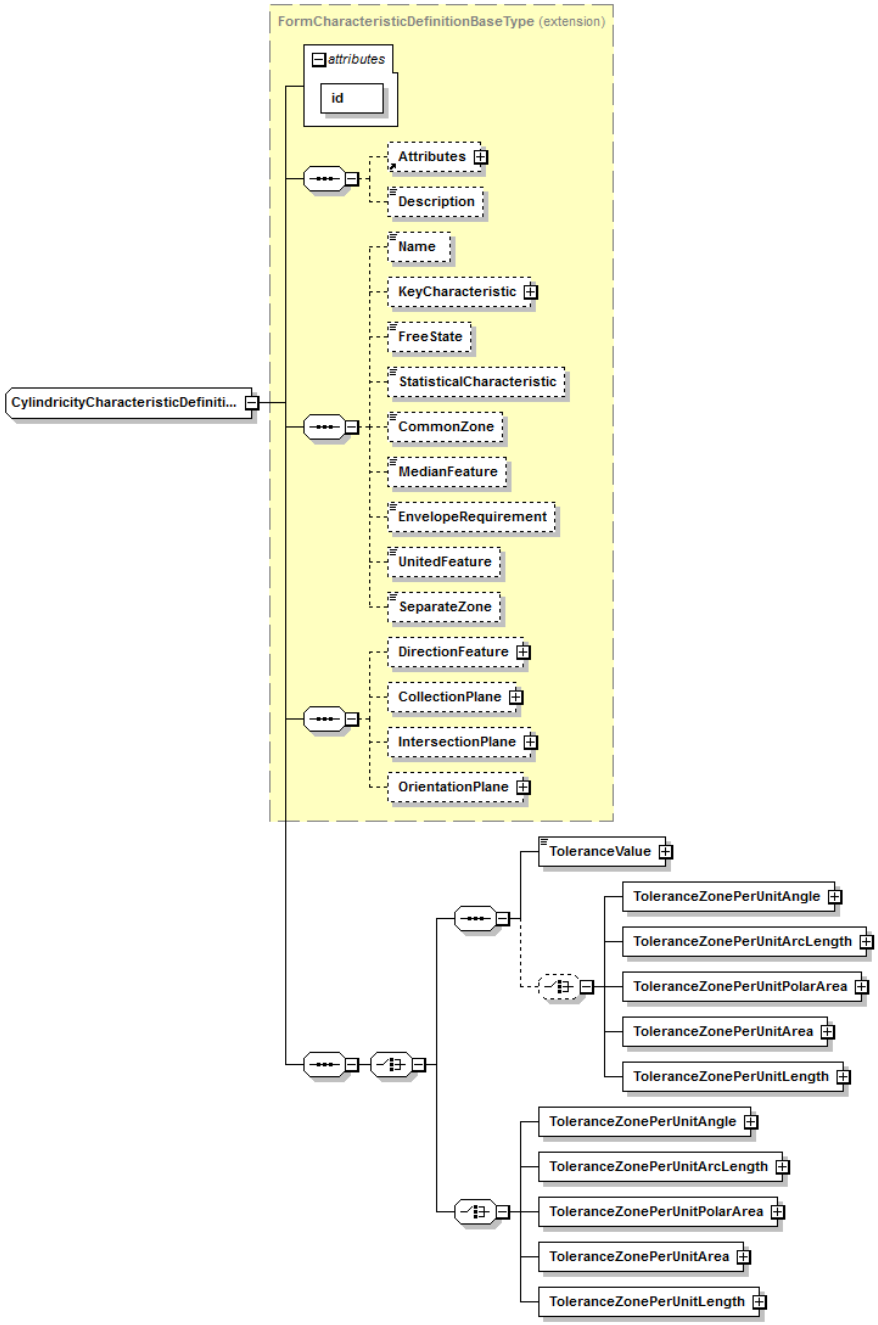
type **ActualZoneRadiiType**

properties	content complex
children	**MinRadius** **MaxRadius**
annotation	documentation The ZoneRadii element gives the inner and outer actual sizes of the evaluated cylindricity tolerance zone.

element **CylindricityCharacteristicActualType/ZoneAxis**

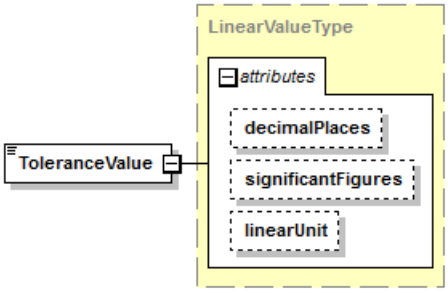
diagram	
type	**ActualZoneAxisType**
properties	content complex
children	**AxisPoint Direction Length**
annotation	documentation The ZoneAxis element gives the actual axis of the evaluated cylindricity tolerance zone.

complexType **CylindricityCharacteristicDefinitionType**

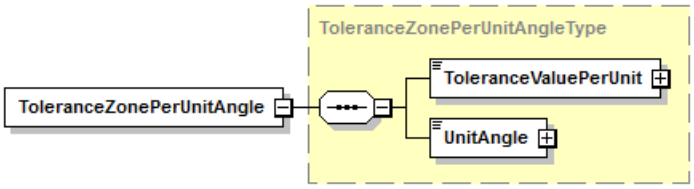
diagram	
type	extension of **FormCharacteristicDefinitionBaseType**
properties	base FormCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **ToleranceZonePerUnitAngle** **ToleranceZonePerUnitArcLength** **ToleranceZonePerUnitPolarArea** **ToleranceZonePerUnitArea** **ToleranceZonePerUnitLength** **ToleranceZonePerUnitAngle** **ToleranceZonePerUnitArcLength** **ToleranceZonePerUnitPolarArea** **ToleranceZonePerUnitArea** **ToleranceZonePerUnitLength**
used by	element **CylindricityCharacteristicDefinition**

attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CylindricityCharacteristicDefinitionType defines information that can be common to more than one cylindricity characteristic.					

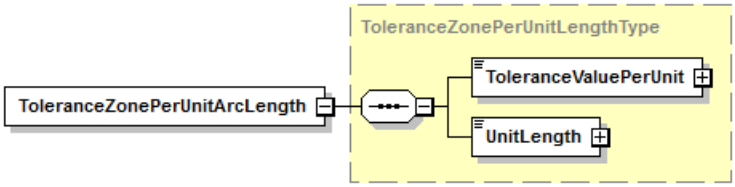
element **CylindricityCharacteristicDefinitionType/ToleranceValue**

diagram						
type	**LinearValueType**					
properties	content complex					
attributes	Name decimalPlaces significantFigures linearUnit	Type **xs:nonNegativeInteger** **xs:nonNegativeInteger** **xs:token**	Use	Default	Fixed	Annotation documentation See documentation of SpecifiedDecimalType. documentation See documentation of SpecifiedDecimalType. documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the cylindricity characteristic.					

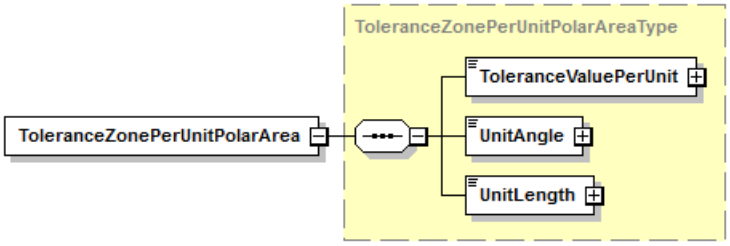
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitAngle**

diagram	
type	**ToleranceZonePerUnitAngleType**
properties	content complex
children	**ToleranceValuePerUnit UnitAngle**
annotation	documentation The ToleranceZonePerUnitAngle element is the per-unit-angle cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the full length of the cylinder.

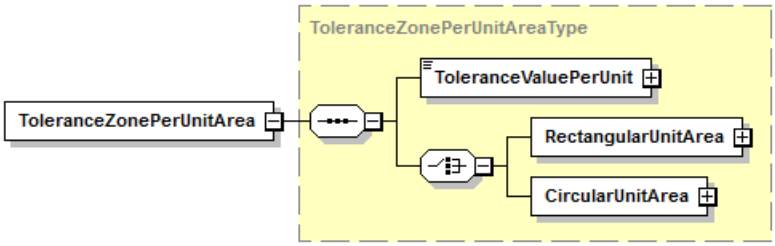
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitArcLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The ToleranceZonePerUnitArcLength element is the per-unit-arc-length cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the full length of the cylinder.

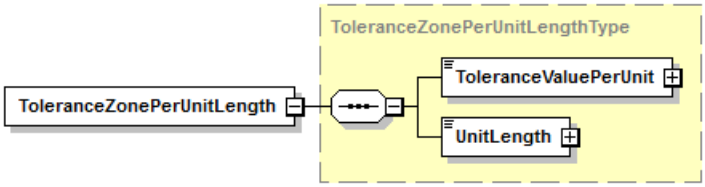
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitPolarArea**

diagram	
type	**ToleranceZonePerUnitPolarAreaType**
properties	content complex
children	**ToleranceValuePerUnit UnitAngle UnitLength**
annotation	documentation The ToleranceZonePerUnitPolarArea element is the per-unit-polar-area cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the specified length and specified angle.

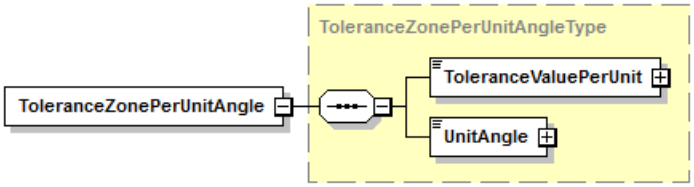
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitArea**

diagram	
type	**ToleranceZonePerUnitAreaType**
properties	content complex
children	**ToleranceValuePerUnit RectangularUnitArea CircularUnitArea**
annotation	documentation The ToleranceZonePerUnitArea element is the per-unit-area cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the specified length and specified arc length or circular area.

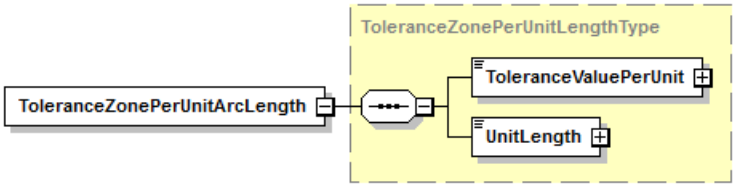
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The optional ToleranceZonePerUnitLength element is the per-unit-length cylindricity tolerance with a parallel-cylindrical shaped tolerance zone applied over the specified length.

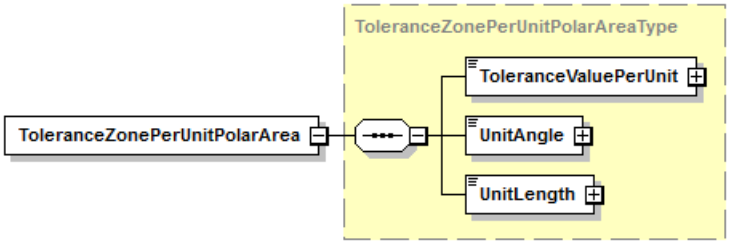
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitAngle**

diagram	
type	**ToleranceZonePerUnitAngleType**
properties	content complex
children	**ToleranceValuePerUnit UnitAngle**
annotation	documentation The ToleranceZonePerUnitAngle element is the per-unit-angle cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the full length of the cylinder.

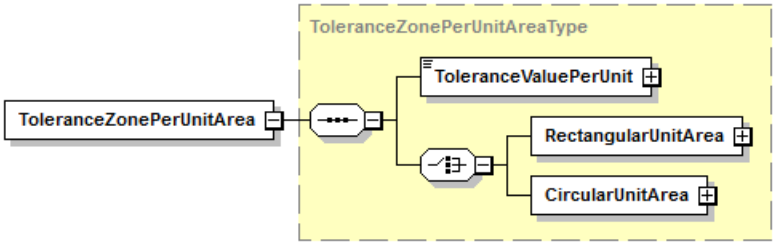
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitArcLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The ToleranceZonePerUnitArcLength element is the per-unit-arc-length cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the full length of the cylinder.

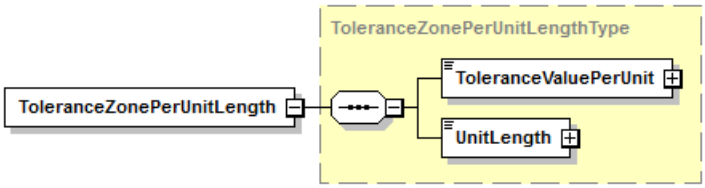
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitPolarArea**

diagram	
type	**ToleranceZonePerUnitPolarAreaType**
properties	content complex
children	**ToleranceValuePerUnit UnitAngle UnitLength**
annotation	documentation The ToleranceZonePerUnitPolarArea element is the per-unit-polar-area cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the specified length and specified angle.

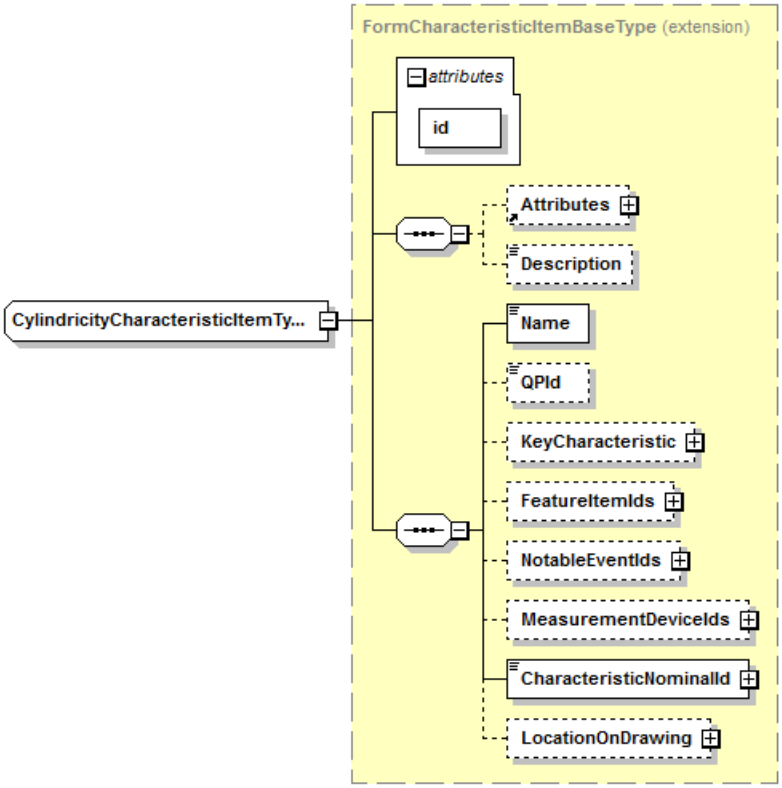
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitArea**

diagram	
type	**ToleranceZonePerUnitAreaType**
properties	content complex
children	**ToleranceValuePerUnit RectangularUnitArea CircularUnitArea**
annotation	documentation The ToleranceZonePerUnitArea element is the per-unit-area cylindricity tolerance with a parallel-cylindrical-segment shaped tolerance zone applied over the specified length and specified arc length or circular area.

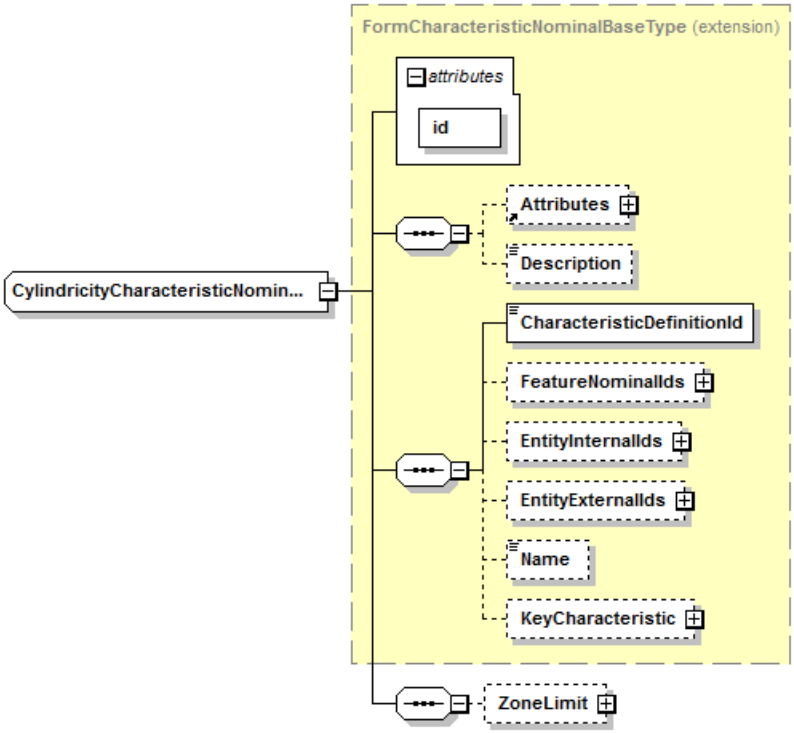
element **CylindricityCharacteristicDefinitionType/ToleranceZonePerUnitLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The optional ToleranceZonePerUnitLength element is the per-unit-length cylindricity tolerance with a parallel-cylindrical shaped tolerance zone applied over the specified length.

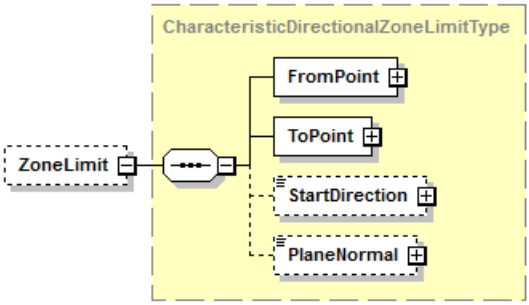
complexType **CylindricityCharacteristicItemType**

diagram	
type	extension of **FormCharacteristicItemBaseType**
properties	base FormCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **CylindricityCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CylindricityCharacteristicItemType defines a cylindricity characteristic item.

complexType **CylindricityCharacteristicNominalType**

diagram	
type	extension of **FormCharacteristicNominalBaseType**
properties	base FormCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit**
used by	element **CylindricityCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The CylindricityCharacteristicNominalType defines a unique cylindricity characteristic nominal.

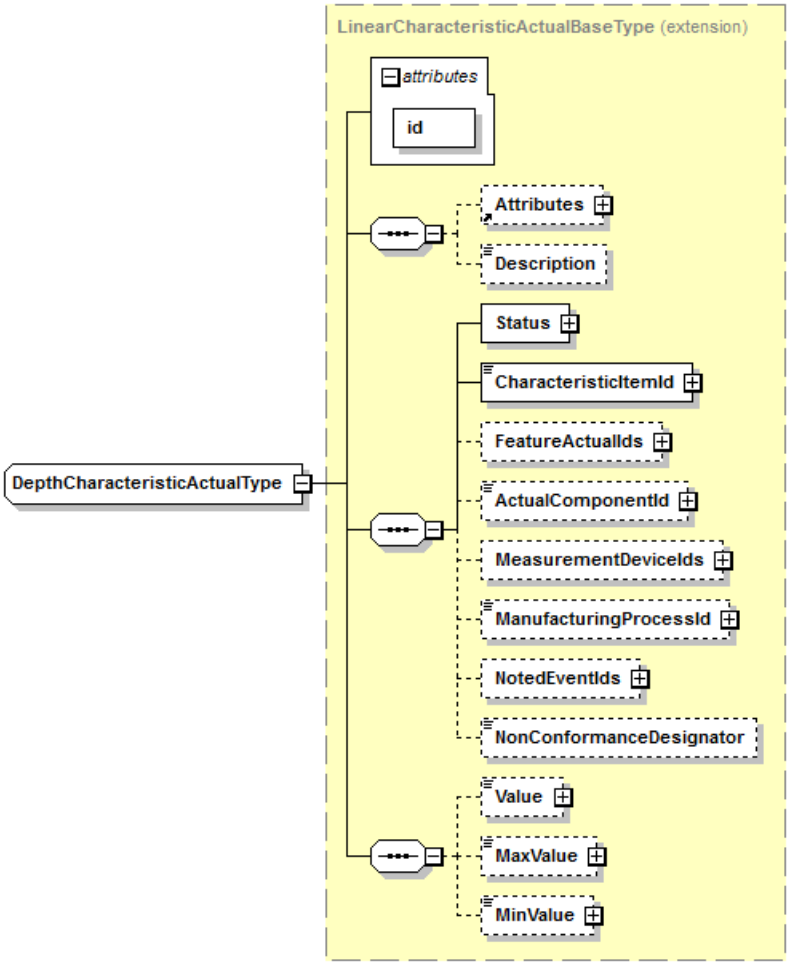
element **CylindricityCharacteristicNominalType/ZoneLimit**

diagram	

type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the size and location of the cylindricity tolerance zone limit.

complexType **DepthCharacteristicActualType**

diagram



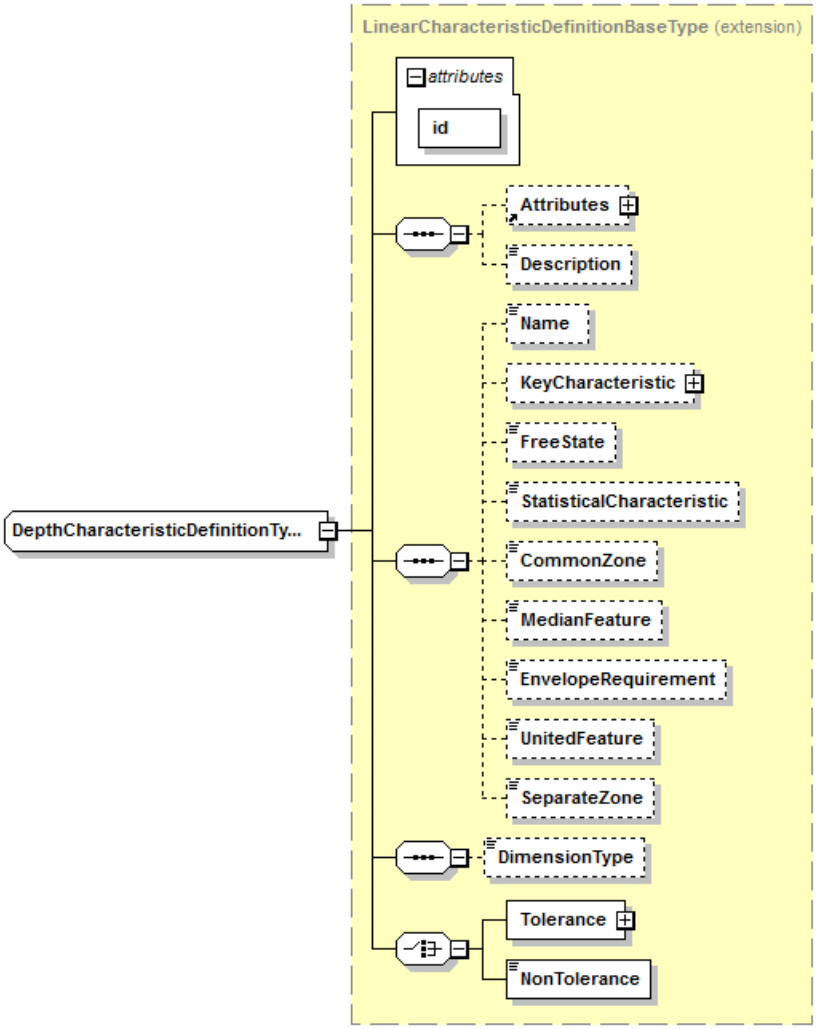
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **DepthCharacteristicActual**

attributes

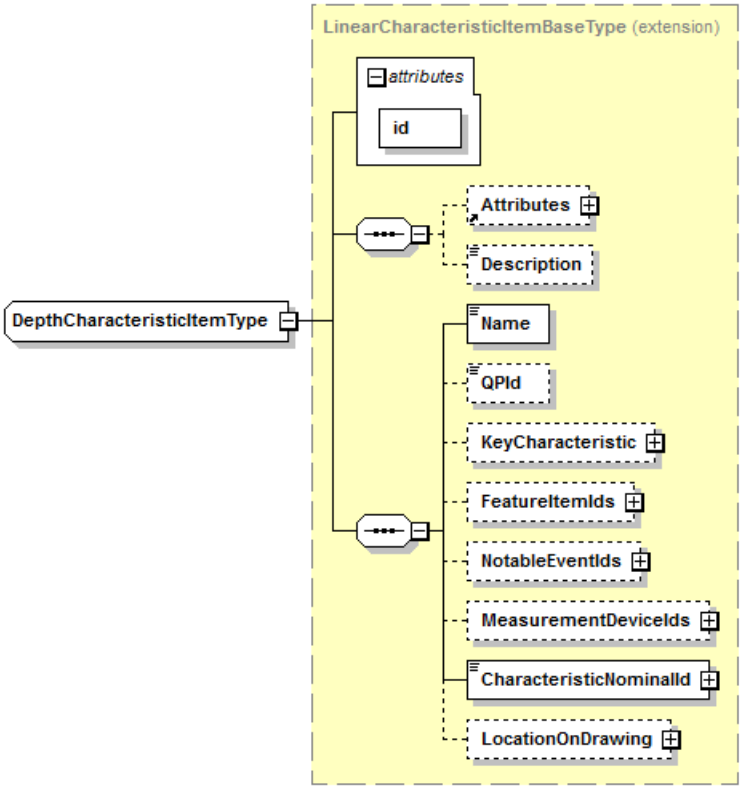
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The DepthCharacteristicActualType defines the results of an actual depth characteristic evaluation.

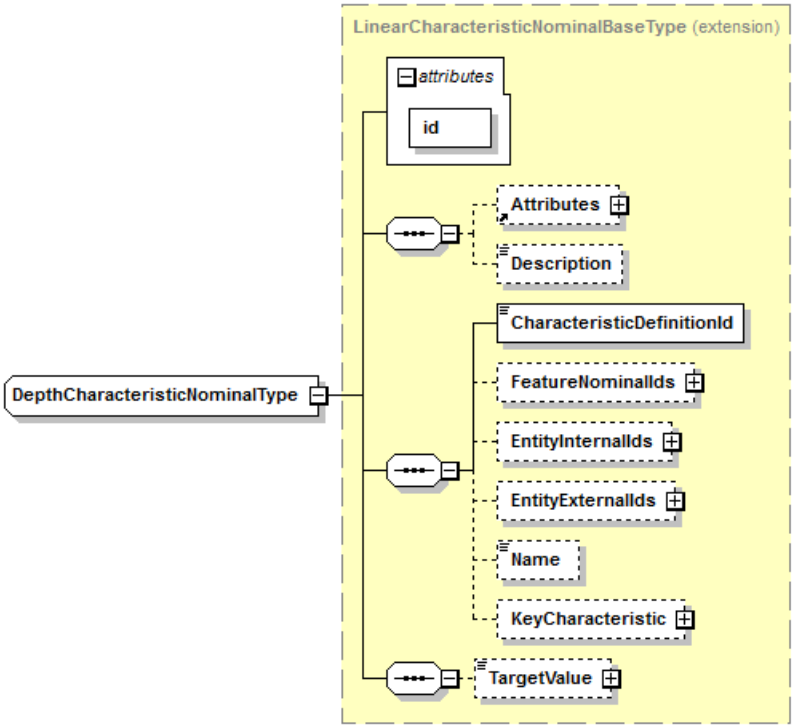
complexType **DepthCharacteristicDefinitionType**

diagram	
type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **DepthCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DepthCharacteristicDefinitionType defines information that can be common to more than one depth characteristic.

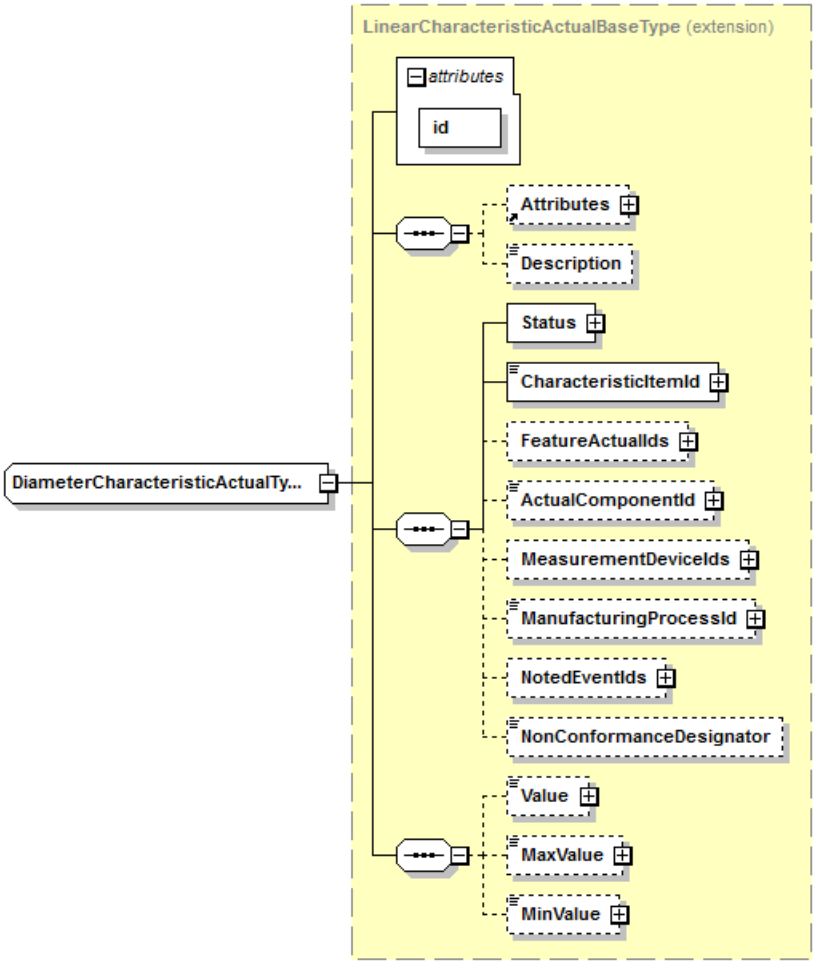
complexType **DepthCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **DepthCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DepthCharacteristicItemType defines a depth characteristic item.

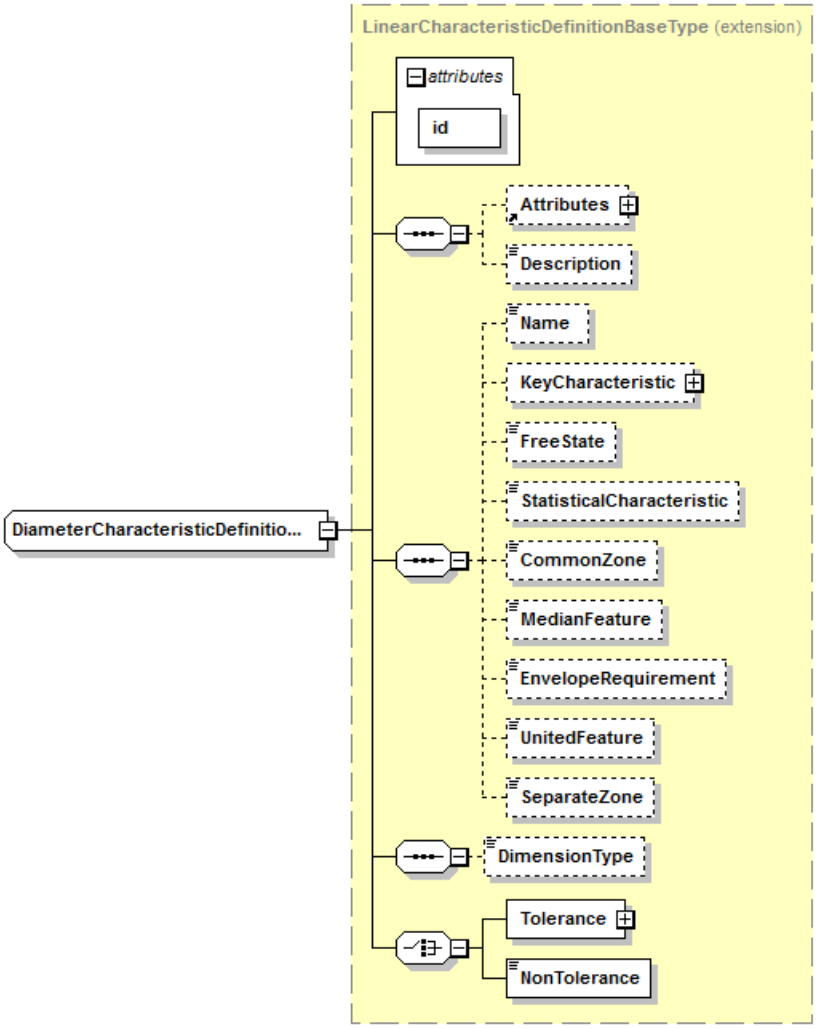
complexType **DepthCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **DepthCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DepthCharacteristicNominalType defines a unique depth characteristic nominal.

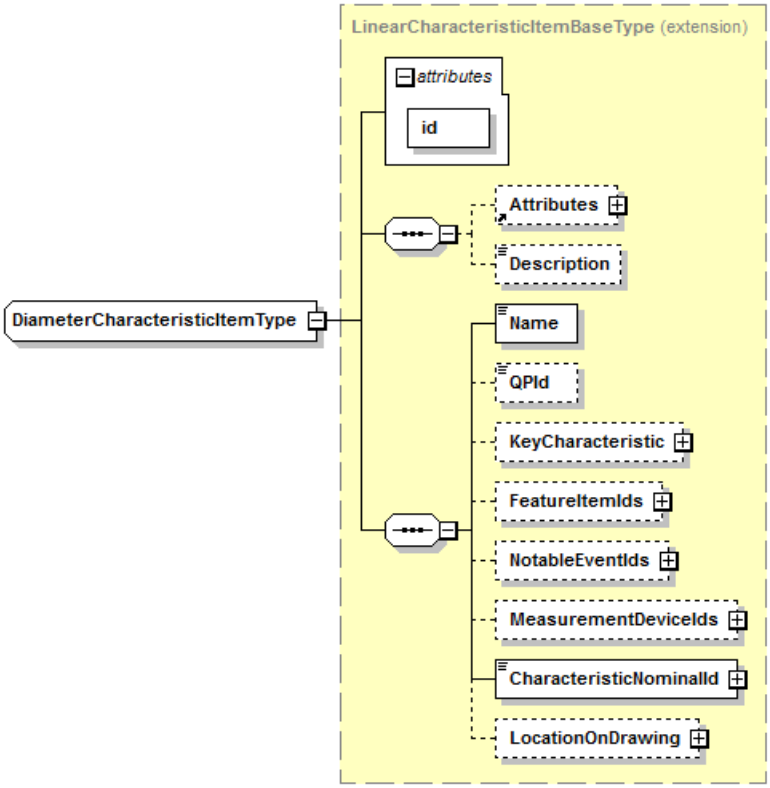
complexType **DiameterCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **DiameterCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DiameterCharacteristicActualType defines the results of an actual diameter characteristic evaluation.

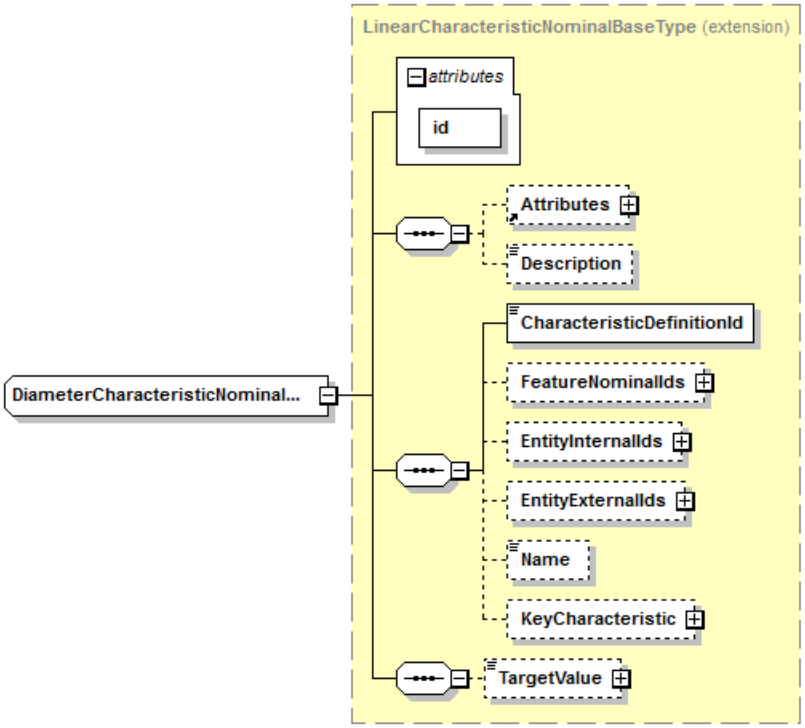
complexType **DiameterCharacteristicDefinitionType**

diagram	
type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance**
used by	element **DiameterCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DiameterCharacteristicDefinitionType defines information that can be common to more than one diameter characteristic.

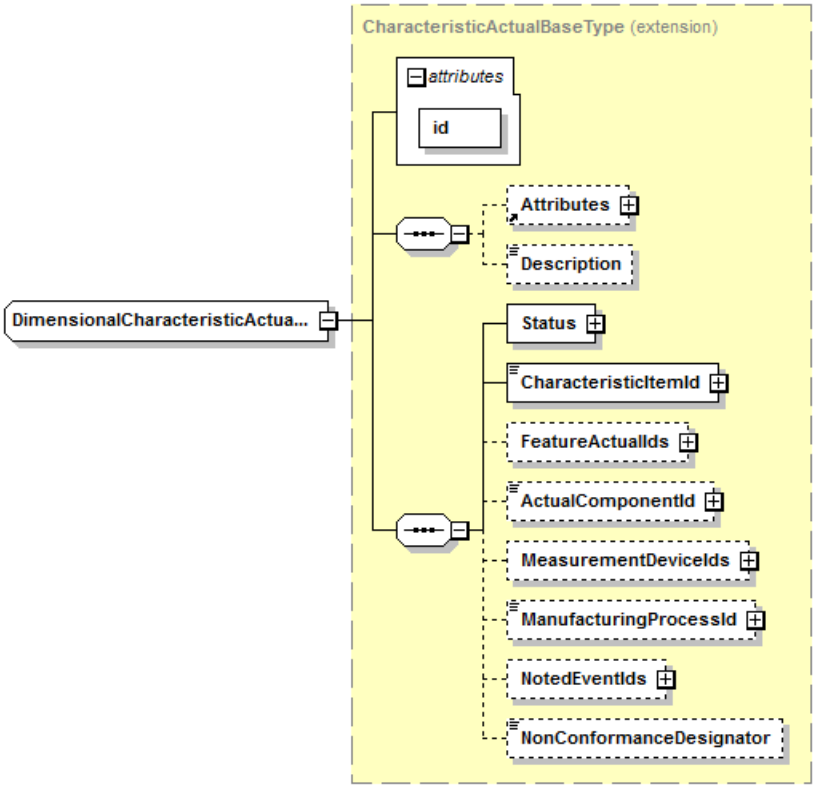
complexType **DiameterCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **DiameterCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DiameterCharacteristicItemType defines a diameter characteristic item.

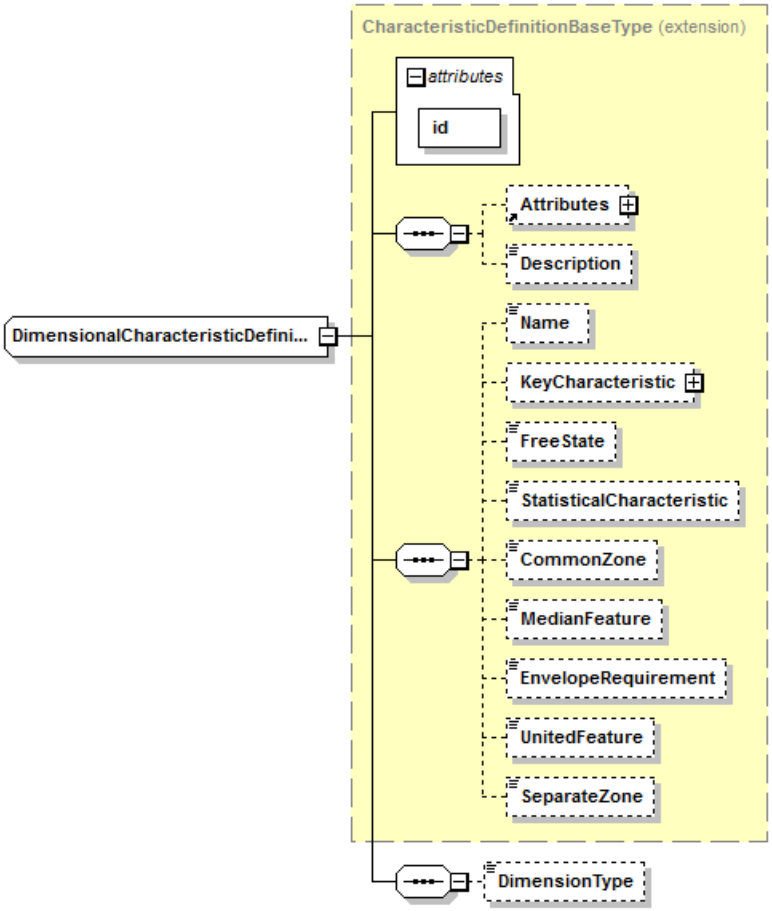
complexType **DiameterCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **DiameterCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DiameterCharacteristicNominalType defines a unique diameter characteristic nominal.

complexType **DimensionalCharacteristicActualBaseType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator**
used by	complexTypes **AngularCharacteristicActualBaseType** **CoordinateCharacteristicActualBaseType** **LinearCharacteristicActualBaseType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DimensionalCharacteristicActualBaseType is the abstract base type that defines the results of an actual dimensional characteristic evaluation.

complexType **DimensionalCharacteristicDefinitionBaseType**

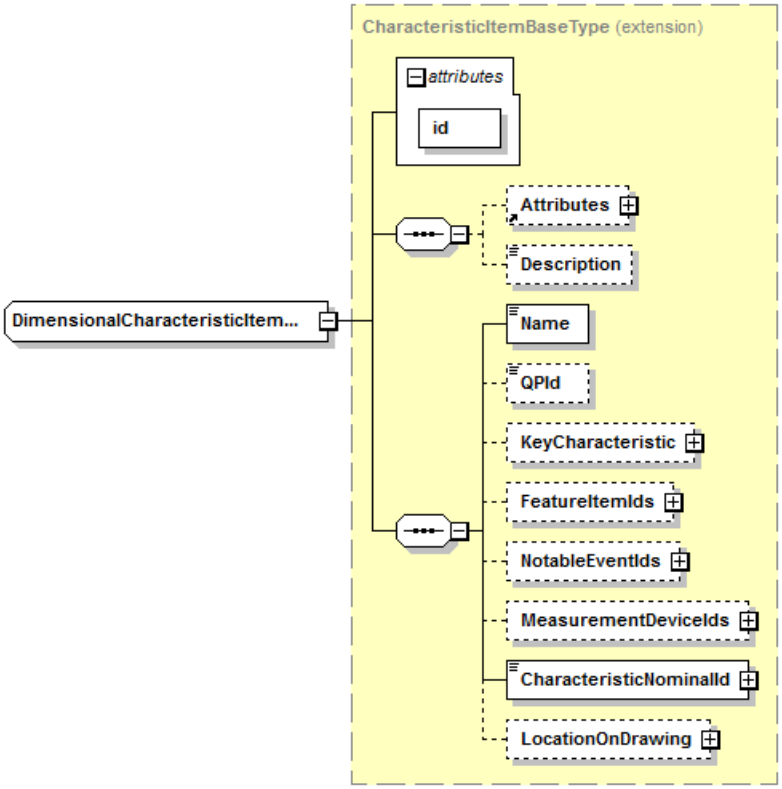
diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType**
used by	complexTypes **AngularCharacteristicDefinitionBaseType CoordinateCharacteristicDefinitionBaseType LinearCharacteristicDefinitionBaseType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DimensionalCharacteristicDefinitionBaseType is the abstract base type that defines dimensional information that can be common to more than one dimensional characteristic.

element **DimensionalCharacteristicDefinitionBaseType/DimensionType**

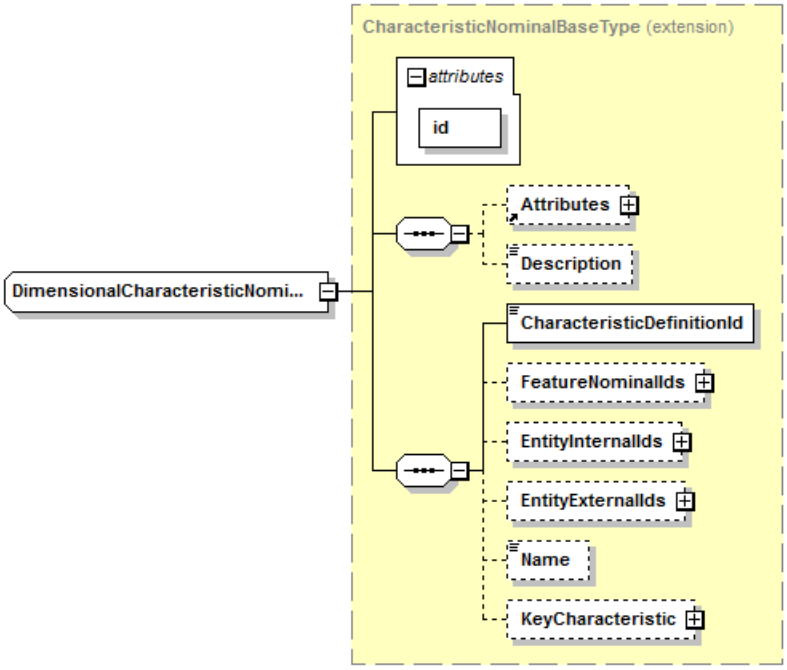
diagram	
type	**DimensionModifierEnumType**

properties	minOcc 0 maxOcc 1 content simple
facets	Kind / Value / Annotation enumeration BASIC enumeration SET enumeration REFERENCE
annotation	documentation The optional DimensionType element specifies that the dimension is a basic dimension, an un-measurable basic dimension that is set to its nominal value, or a reference dimension.

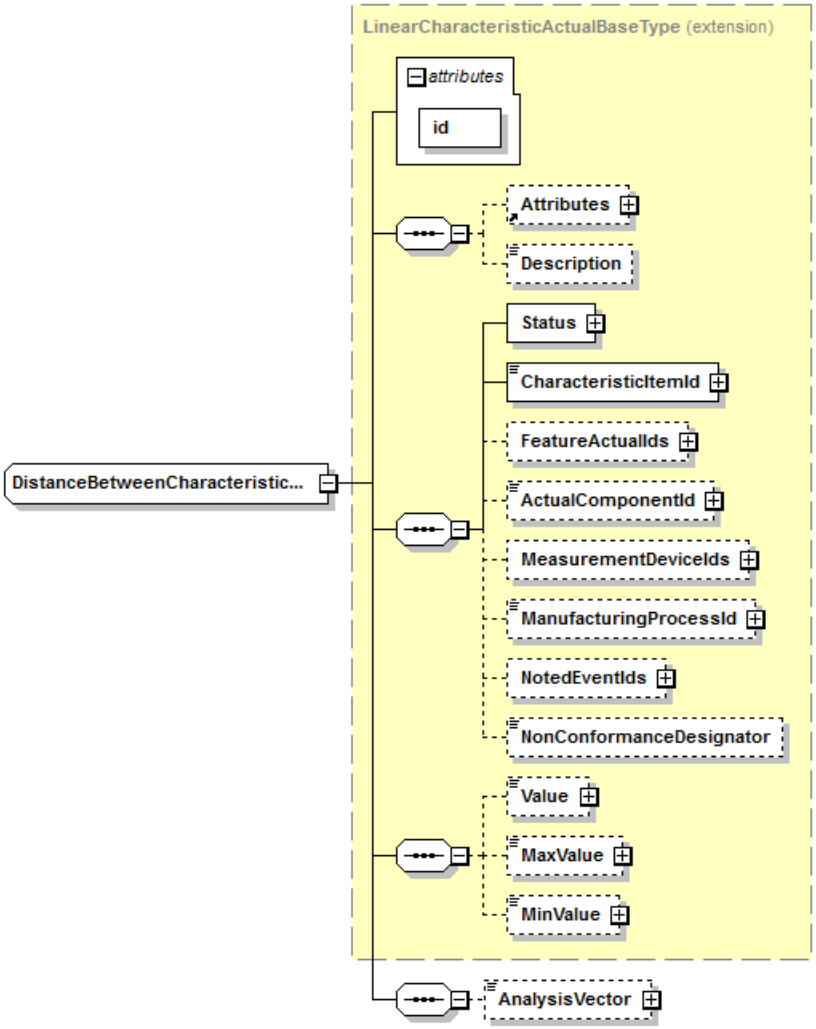
complexType **DimensionalCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **AngularCharacteristicItemBaseType** **CoordinateCharacteristicItemBaseType** **LinearCharacteristicItemBaseType**
attributes	Name / Type / Use / Default / Fixed / Annotation id / **QIFIdType** / required / / / documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DimensionalCharacteristicItemBaseType is the abstract base type that defines a dimensional characteristic item.

complexType **DimensionalCharacteristicNominalBaseType**

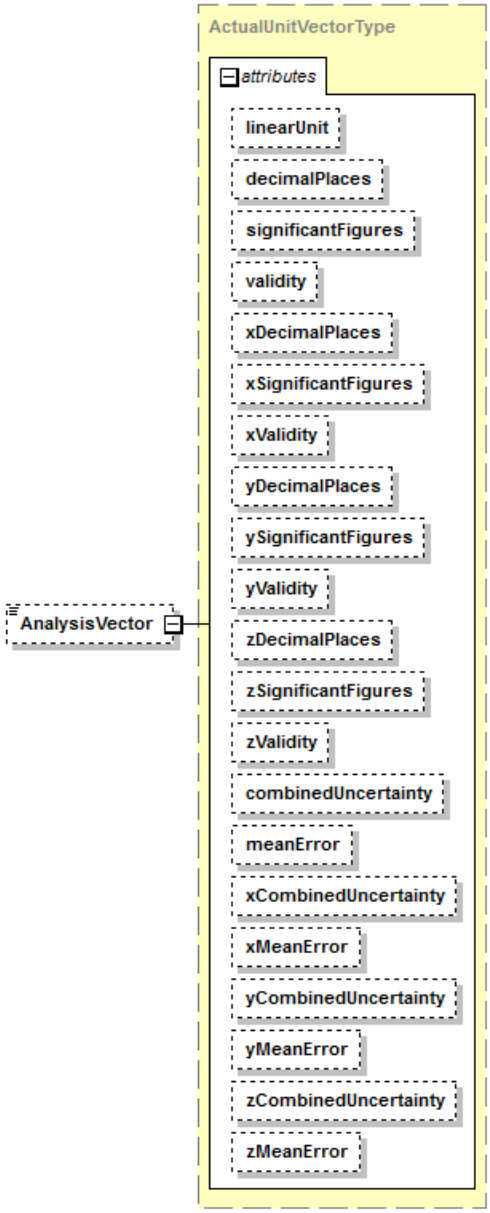
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	complexTypes **AngularCharacteristicNominalBaseType** **CoordinateCharacteristicNominalBaseType** **LinearCharacteristicNominalBaseType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DimensionalCharacteristicNominalBaseType is the abstract base type that defines a unique dimensional characteristic nominal.

complexType **DistanceBetweenCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **AnalysisVector**
used by	element **DistanceBetweenCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DistanceBetweenCharacteristicActualType defines the results of an actual distance-between characteristic evaluation.

element **DistanceBetweenCharacteristicActualType/AnalysisVector**

diagram



type	**ActualUnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

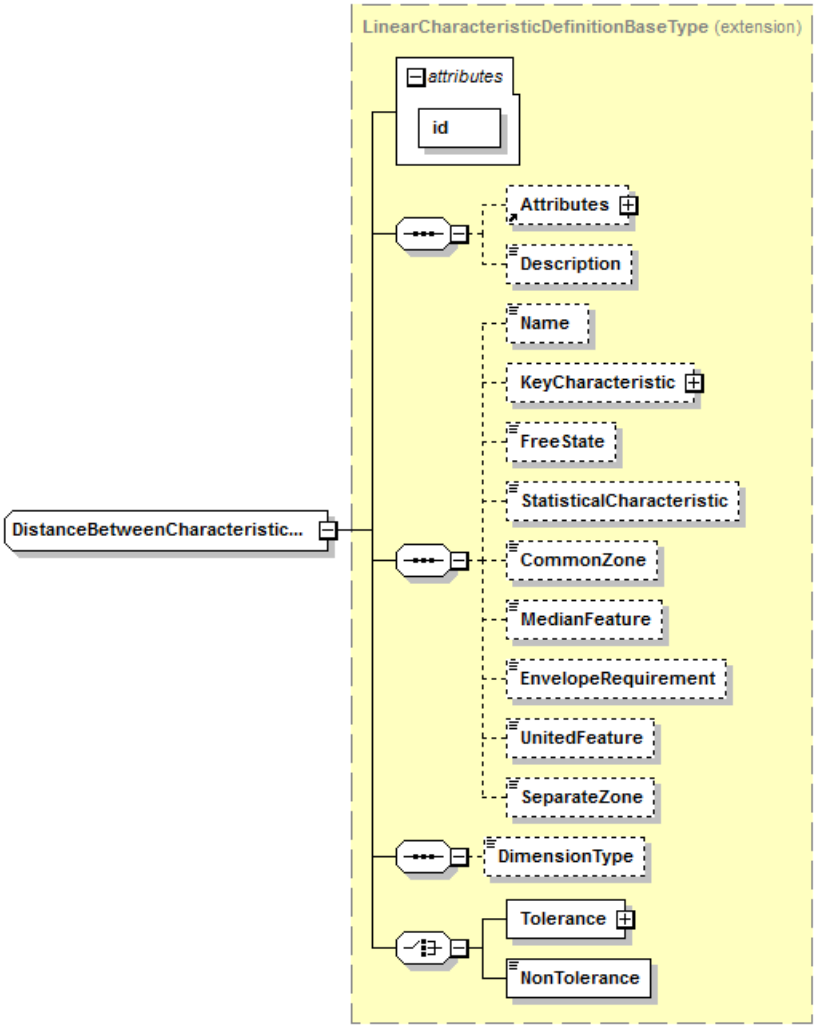
attributes

Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional AnalysisVector element used by the AnalysisMode defines the point-to-point direction, the direction along which, or the plane normal in which the distance-between characteristic was evaluated.	

complexType **DistanceBetweenCharacteristicDefinitionType**

diagram



type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance**
used by	element **DistanceBetweenCharacteristicDefinition**

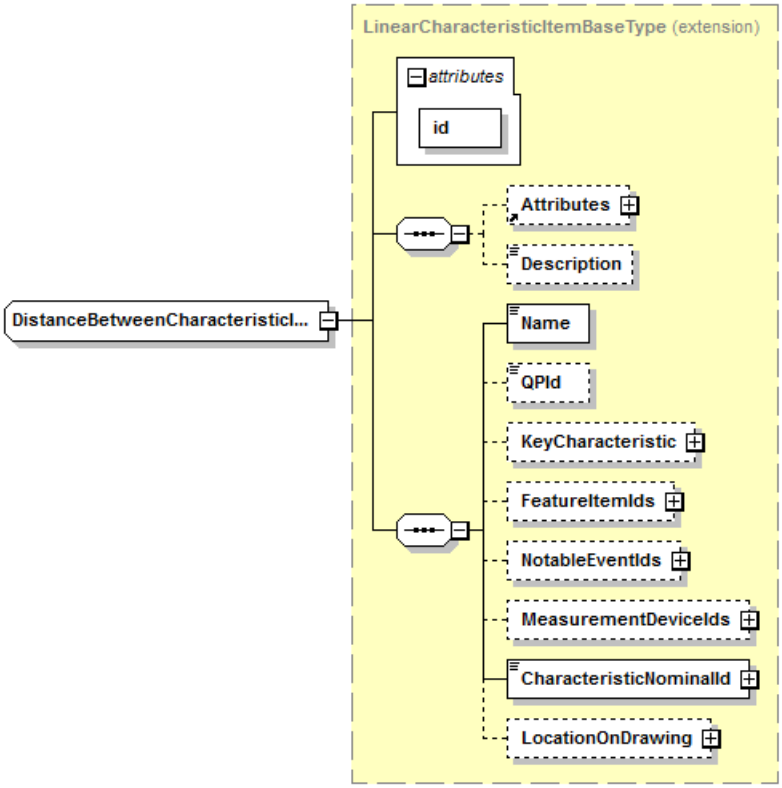
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

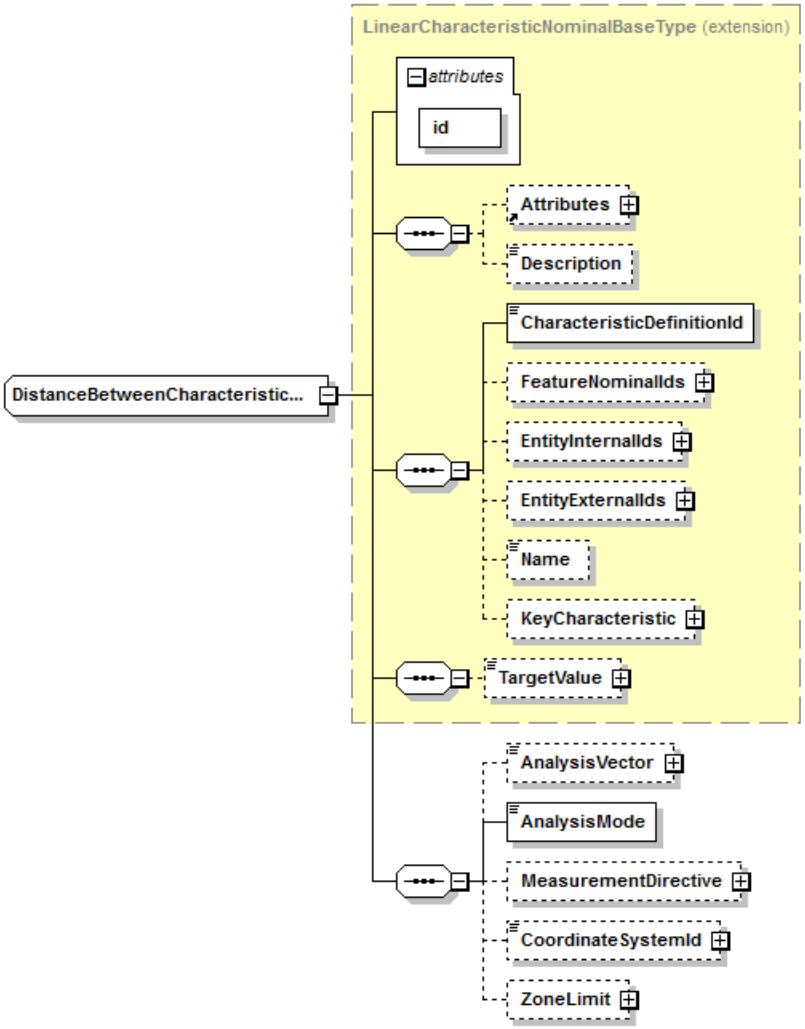
documentation
The DistanceBetweenCharacteristicDefinitionType defines information that can be common to more than one distance-between characteristic. The DistanceBetweenCharacteristicDefinitionType is used to tolerance between two features.

complexType **DistanceBetweenCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **DistanceBetweenCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DistanceBetweenCharacteristicItemType defines a distance-between characteristic item.

complexType **DistanceBetweenCharacteristicNominalType**

diagram



type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **AnalysisVector** **AnalysisMode** **MeasurementDirective** **CoordinateSystemId** **ZoneLimit**
used by	element **DistanceBetweenCharacteristicNominal**

attributes

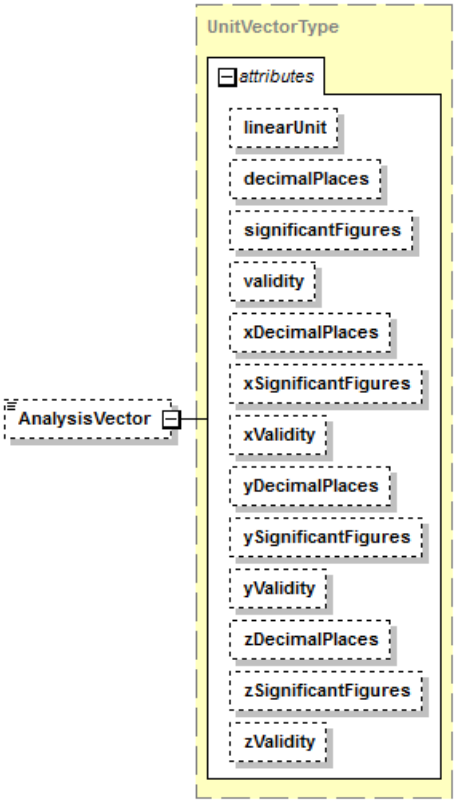
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The DistanceBetweenCharacteristicNominalType defines a unique distance-between characteristic nominal.

element **DistanceBetweenCharacteristicNominalType/AnalysisVector**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

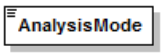
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

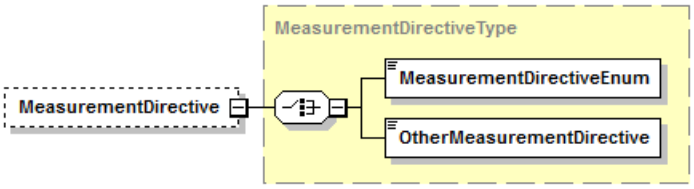
documentation

The optional AnalysisVector element used by the AnalysisMode gives a vector defining the point-to-point direction, the direction along which, or the plane normal in which the distance-between characteristic is evaluated.

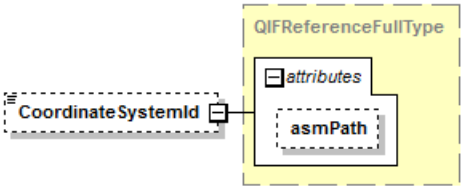
element **DistanceBetweenCharacteristicNominalType/AnalysisMode**

diagram	
type	**DistanceBetweenAnalysisModeEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration ONEDIMENSIONAL enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The AnalysisMode element indicates whether the distance-between characteristic is one dimensional, two dimensional or three dimensional.

element **DistanceBetweenCharacteristicNominalType/MeasurementDirective**

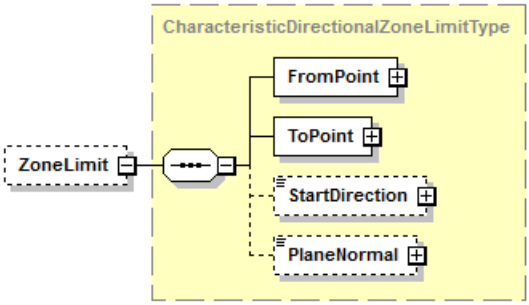
diagram	
type	**MeasurementDirectiveType**
properties	minOcc 0 maxOcc 1 content complex
children	**MeasurementDirectiveEnum OtherMeasurementDirective**
annotation	documentation The optional MeasurementDirective element indicates if the characteristic evaluation is the average, minimum or maximum distance between two features.

element **DistanceBetweenCharacteristicNominalType/CoordinateSystemId**

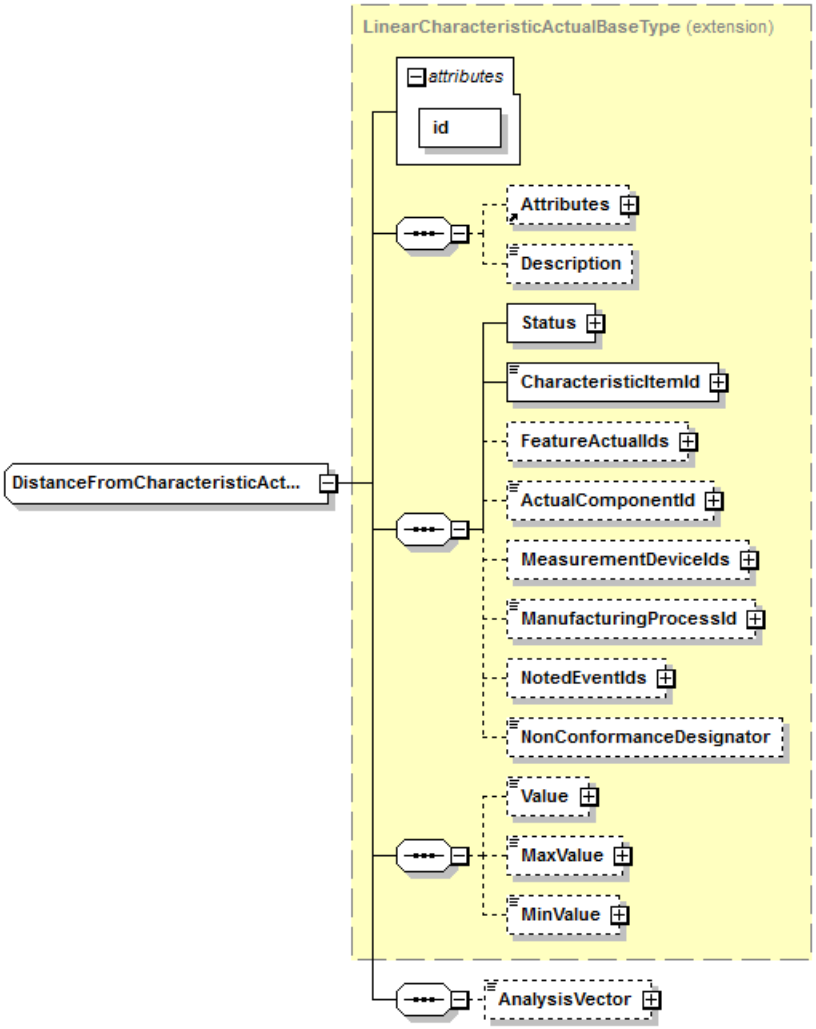
diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation asmPath / **QIFIdType** / / / / documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths.

	The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional CoordinateSystemId element is the QIF id of the coordinate system in which this characteristic is evaluated.

element **DistanceBetweenCharacteristicNominalType/ZoneLimit**

diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives information about the extent of the distance-between tolerance zone limit.

complexType **DistanceFromCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **AnalysisVector**
used by	element **DistanceFromCharacteristicActual**

attributes

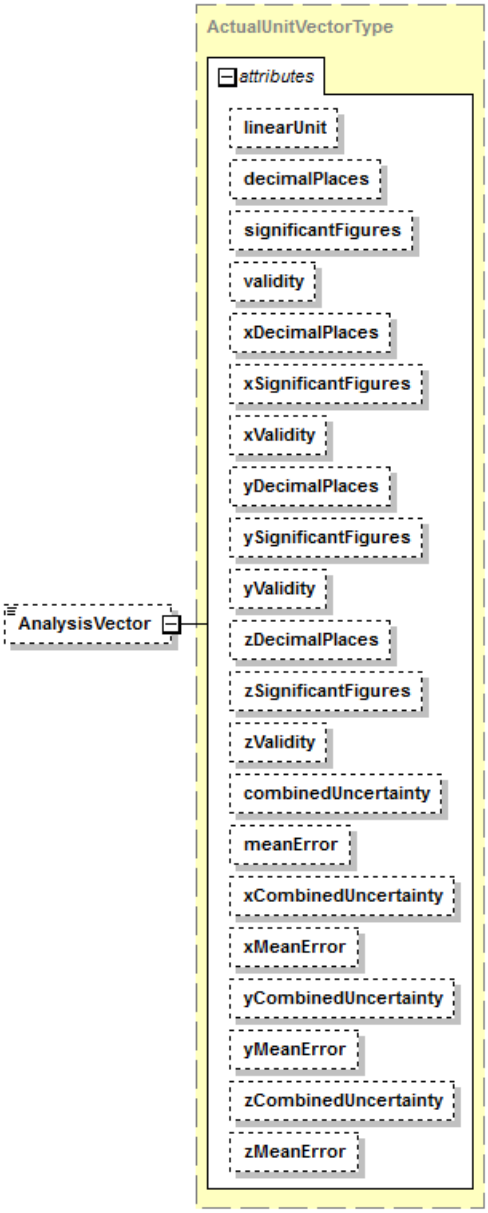
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The DistanceFromCharacteristicActualType defines the results of an actual distance-from characteristic evaluation.

element **DistanceFromCharacteristicActualType/AnalysisVector**

diagram



type	**ActualUnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

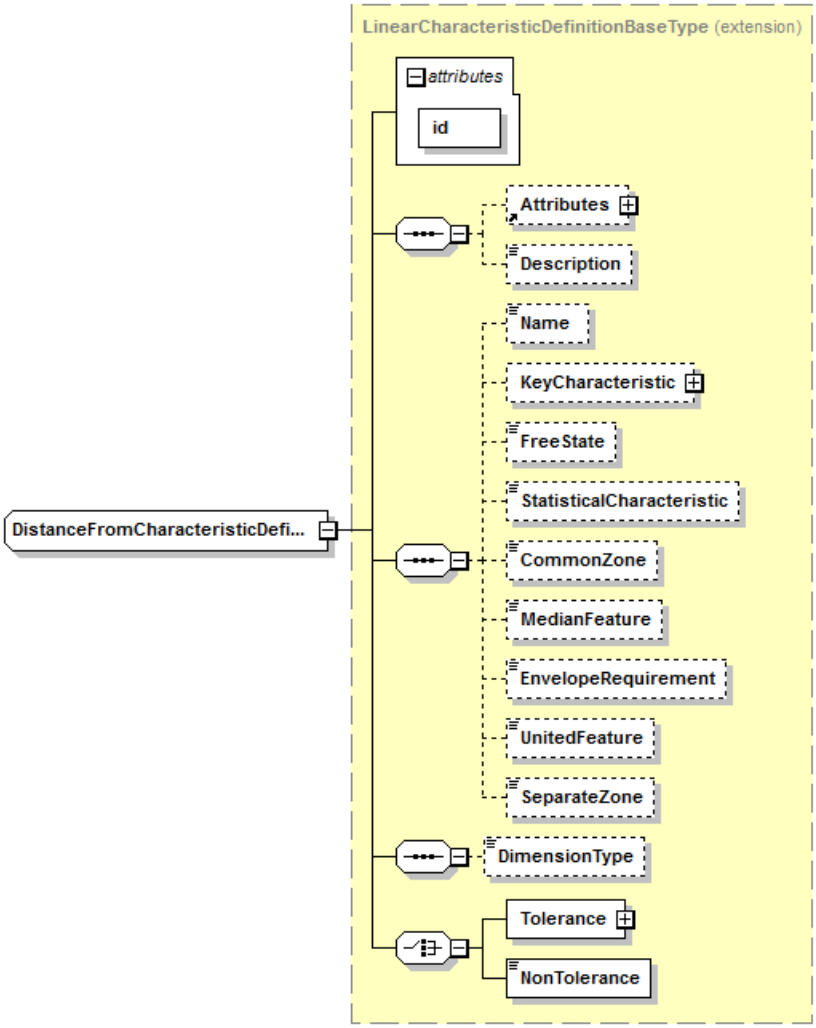
attributes

Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional AnalysisVector element used by the AnalysisMode defines the point-to-point direction, the direction along which, or the plane normal in which the distance-from characteristic was evaluated.	

complexType **DistanceFromCharacteristicDefinitionType**

diagram



type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **DistanceFromCharacteristicDefinition**

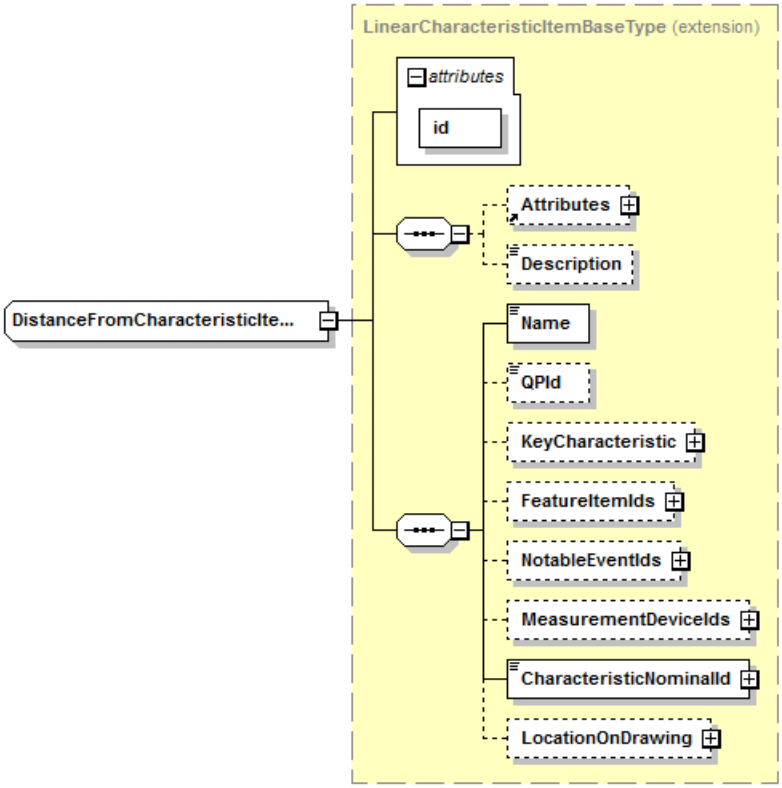
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

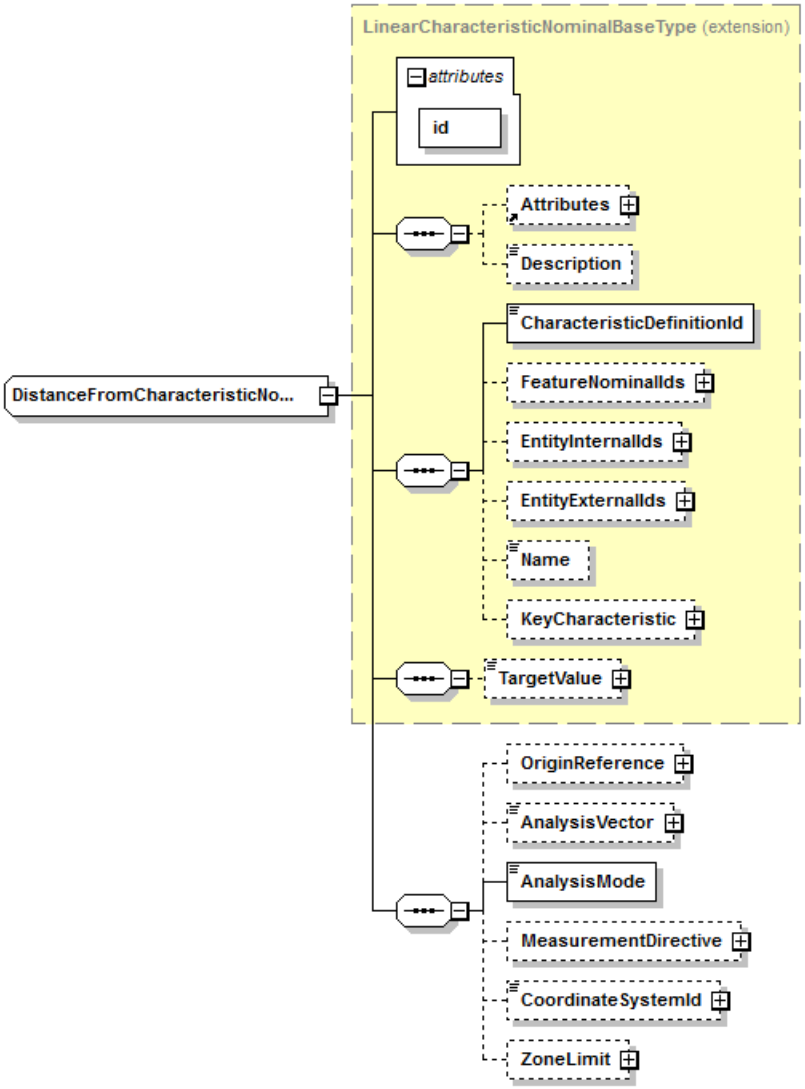
annotation

documentation
The DistanceFromCharacteristicDefinitionType defines information that can be common to more than one distance-from characteristic. The DistanceFromCharacteristicItemType is used to tolerance a feature with respect to an origin reference feature.

complexType **DistanceFromCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **DistanceFromCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The DistanceFromCharacteristicItemType defines a distance-from characteristic item.

complexType **DistanceFromCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **OriginReference** **AnalysisVector** **AnalysisMode** **MeasurementDirective** **CoordinateSystemId** **ZoneLimit**
used by	element **DistanceFromCharacteristicNominal**

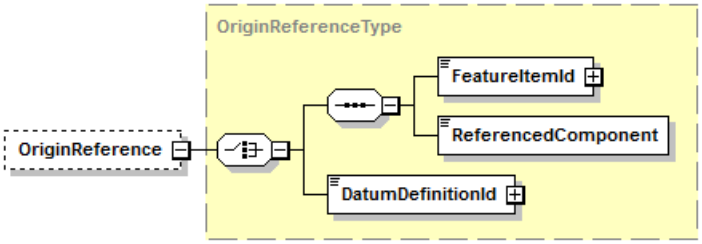
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

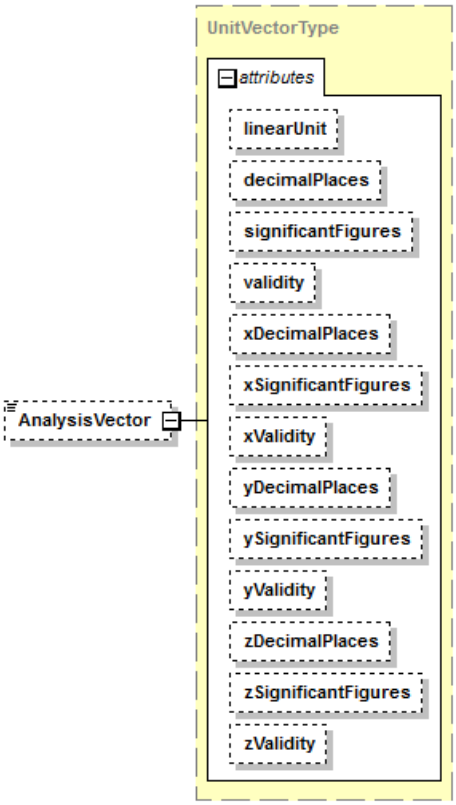
annotation

documentation
The DistanceFromCharacteristicNominalType defines a unique distance-from characteristic nominal.

element **DistanceFromCharacteristicNominalType/OriginReference**

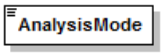
diagram	
type	**OriginReferenceType**
properties	minOcc 0 maxOcc 1 content complex
children	**FeatureItemId** **ReferencedComponent** **DatumDefinitionId**
annotation	documentation The optional OriginReference element indicates the reference feature for the distance-from characteristic. This is the first of two features involved in the distance-from characteristic.

element **DistanceFromCharacteristicNominalType/AnalysisVector**

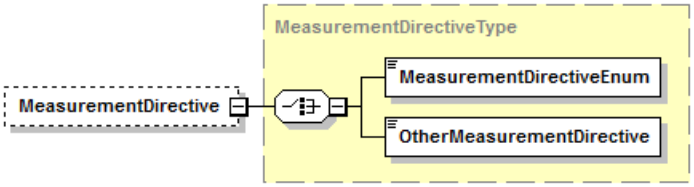
diagram	
type	**UnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

attributes	Name	Type	Use	Default	Fixed	Annotation
	linearUnit	**xs:token**				
	decimalPlaces	**xs:nonNegativeInteger**				
	significantFigures	**xs:nonNegativeInteger**				
	validity	**ValidityEnumType**				
	xDecimalPlaces	**xs:nonNegativeInteger**				
	xSignificantFigures	**xs:nonNegativeInteger**				
	xValidity	**ValidityEnumType**				
	yDecimalPlaces	**xs:nonNegativeInteger**				
	ySignificantFigures	**xs:nonNegativeInteger**				
	yValidity	**ValidityEnumType**				
	zDecimalPlaces	**xs:nonNegativeInteger**				
	zSignificantFigures	**xs:nonNegativeInteger**				
	zValidity	**ValidityEnumType**				
annotation	documentation The optional AnalysisVector element used by the AnalysisMode gives a vector defining the point-to-point direction, the direction along which, or the plane normal in which the distance-from characteristic is evaluated.					

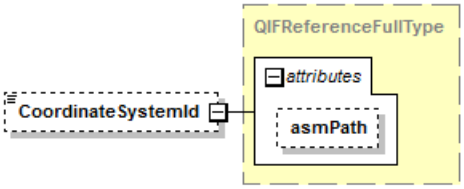
element **DistanceFromCharacteristicNominalType/AnalysisMode**

diagram	
type	**DistanceBetweenAnalysisModeEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration ONEDIMENSIONAL enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The AnalysisMode element indicates whether the distance-from characteristic is one dimensional, two dimensional or three dimensional.

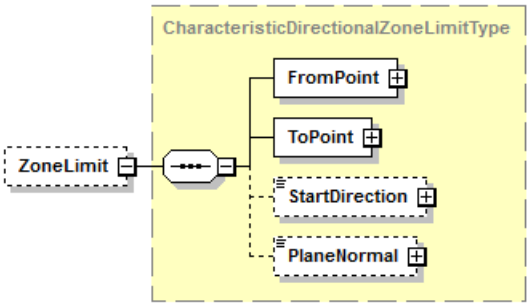
element **DistanceFromCharacteristicNominalType/MeasurementDirective**

diagram	
type	**MeasurementDirectiveType**
properties	minOcc 0 maxOcc 1 content complex
children	**MeasurementDirectiveEnum OtherMeasurementDirective**
annotation	documentation The optional MeasurementDirective element indicates if the characteristic evaluation is the average, minimum or maximum distance between two features.

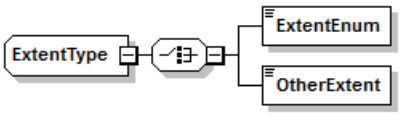
element **DistanceFromCharacteristicNominalType/CoordinateSystemId**

diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional CoordinateSystemId element is the QIF id of the coordinate system in which this characteristic is evaluated.

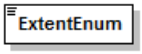
element **DistanceFromCharacteristicNominalType/ZoneLimit**

diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives information about the extent of the distance-from tolerance zone limit.

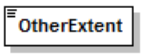
complexType **ExtentType**

diagram	
children	**ExtentEnum** **OtherExtent**
used by	elements **LineProfileCharacteristicDefinitionType/Extent** **SurfaceProfileCharacteristicDefinitionType/Extent**
annotation	documentation The ExtentType defines the extent over which a characteristic is applied.

element **ExtentType/ExtentEnum**

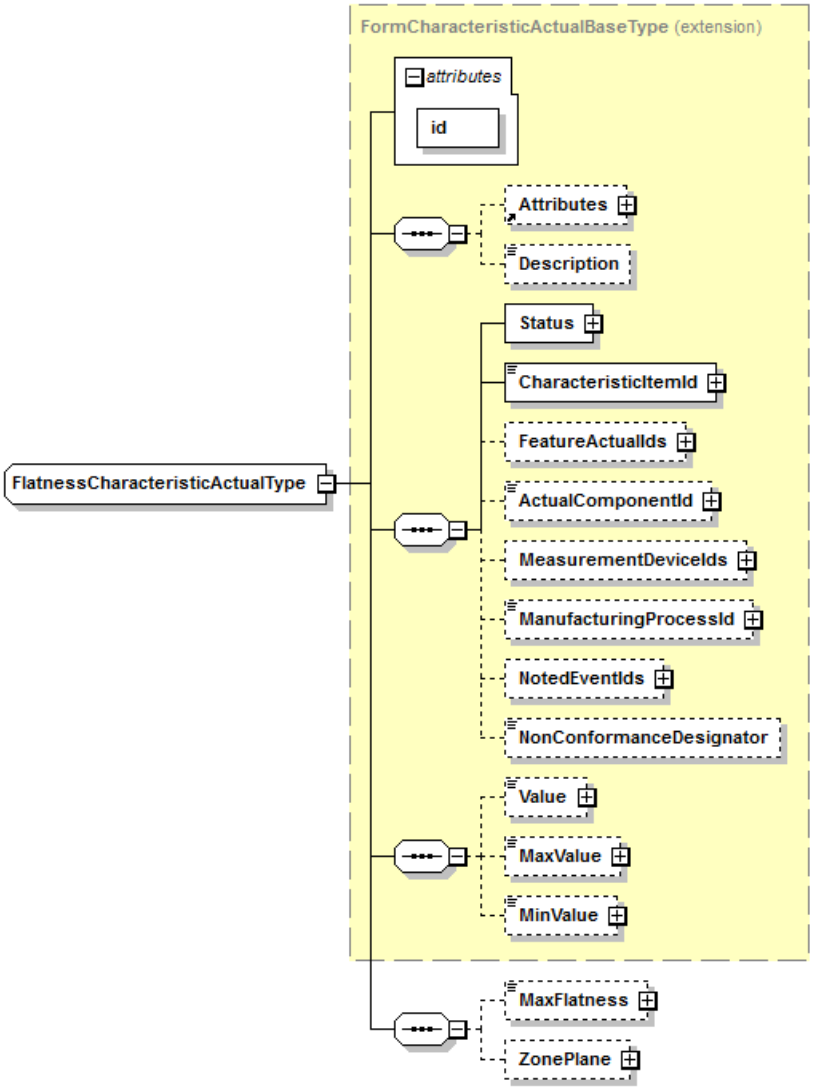
diagram	
type	**ExtentEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration ALLOVER enumeration ALLAROUND enumeration ALLOVERTHISSIDE enumeration ALLAROUNDTHISSIDE enumeration UNDEFINED
annotation	documentation The ExtentEnum element describes an often-used extent over which a characteristic is applied.

element **ExtentType/OtherExtent**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The OtherExtent element describes the extent over which a characteristic is applied in natural language.

complexType **FlatnessCharacteristicActualType**

diagram



type	extension of **FormCharacteristicActualBaseType**
properties	base FormCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **MaxFlatness** **ZonePlane**
used by	element **FlatnessCharacteristicActual**

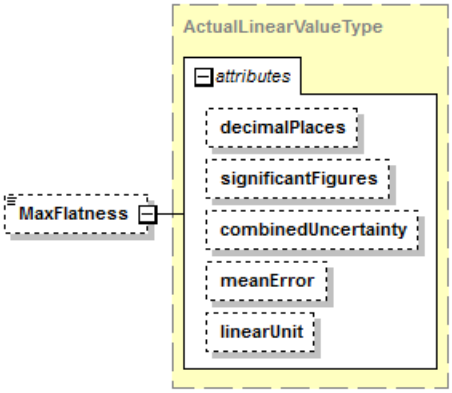
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

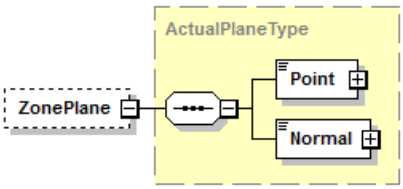
annotation

documentation
The FlatnessCharacteristicActualType defines the results of an actual flatness characteristic evaluation.

element **FlatnessCharacteristicActualType/MaxFlatness**

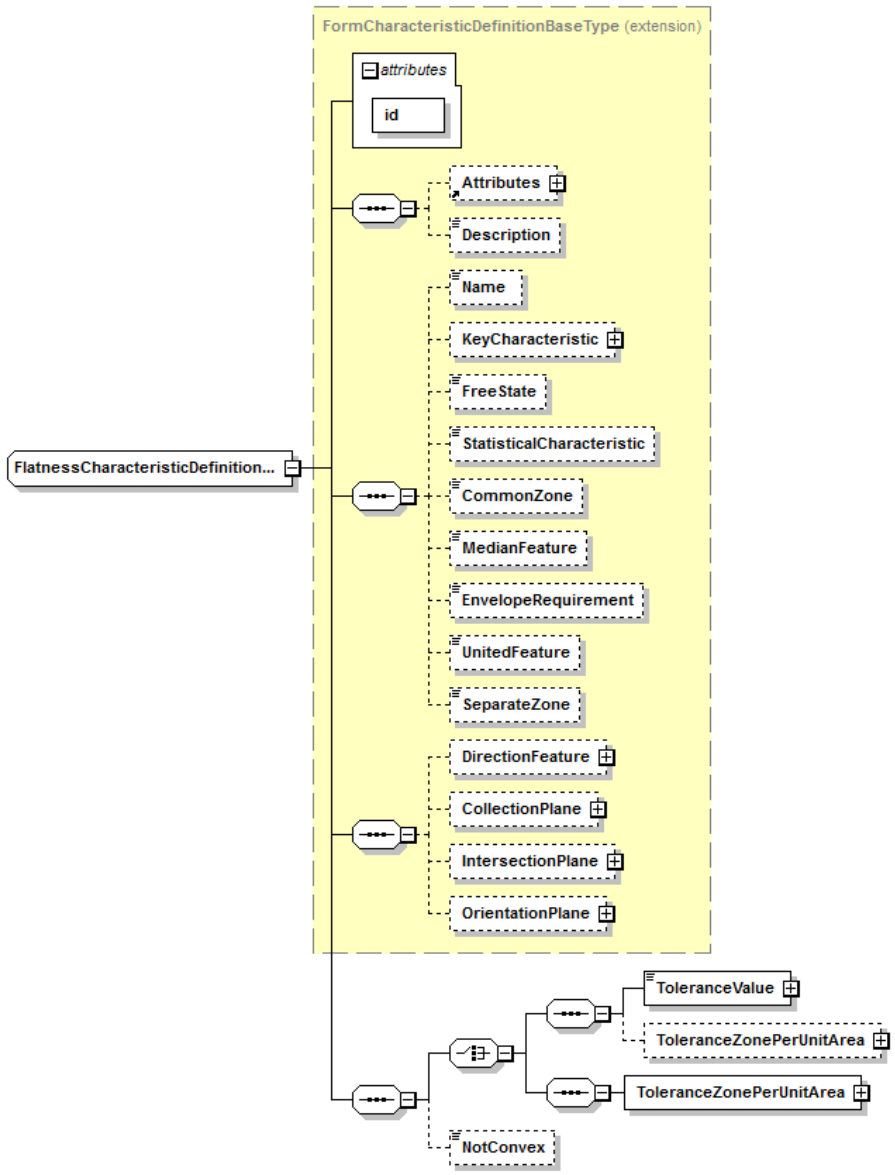
diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces — **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures — **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. combinedUncertainty — **NonNegativeDecimalType** — documentation: The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError — **NonNegativeDecimalType** — documentation: The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit — **xs:token** — documentation: The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional MaxFlatness element is the actual overall feature flatness when a per-unit-area characteristic is used.

element **FlatnessCharacteristicActualType/ZonePlane**

diagram	
type	**ActualPlaneType**
properties	minOcc 0 maxOcc 1

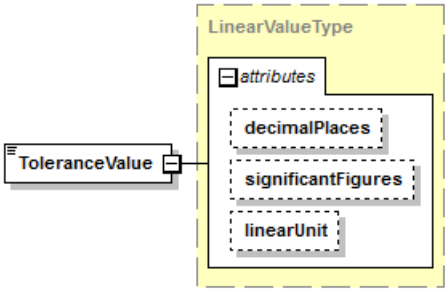
	content complex
children	**Point Normal**
annotation	documentation The optional ZonePlane element is the actual mid-plane of the flatness tolerance zone.

complexType **FlatnessCharacteristicDefinitionType**

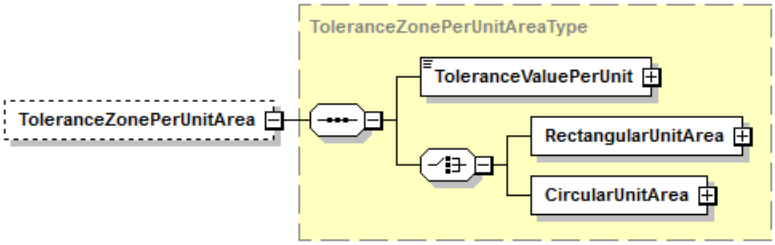
diagram	
type	extension of **FormCharacteristicDefinitionBaseType**
properties	base FormCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **ToleranceZonePerUnitArea** **ToleranceZonePerUnitArea** **NotConvex**
used by	element **FlatnessCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation

	The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The FlatnessCharacteristicDefinitionType defines information that can be common to more than one flatness characteristic.

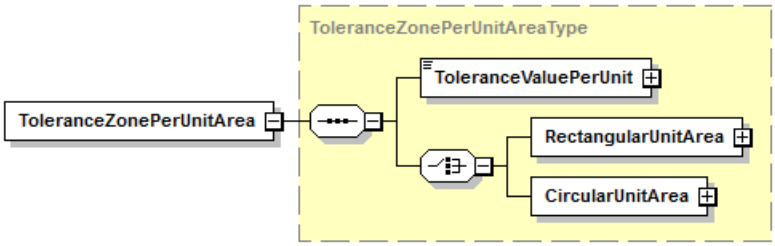
element **FlatnessCharacteristicDefinitionType/ToleranceValue**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the flatness characteristic.

element **FlatnessCharacteristicDefinitionType/ToleranceZonePerUnitArea**

diagram	
type	**ToleranceZonePerUnitAreaType**
properties	minOcc 0 maxOcc 1 content complex
children	**ToleranceValuePerUnit RectangularUnitArea CircularUnitArea**
annotation	documentation The optional ToleranceZonePerUnitArea element is the per-unit-area tolerance of the flatness characteristic.

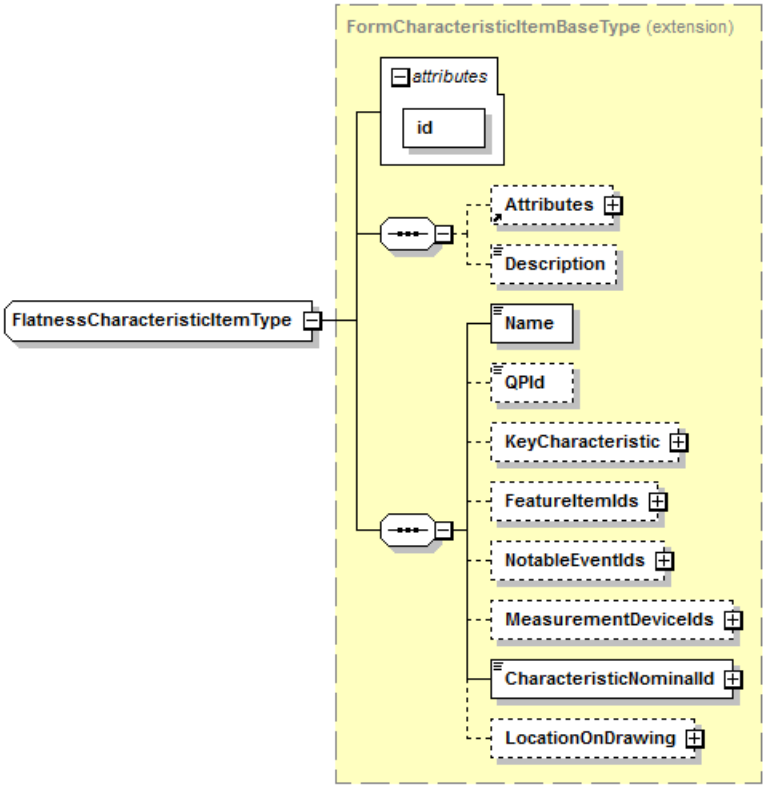
element **FlatnessCharacteristicDefinitionType/ToleranceZonePerUnitArea**

diagram	
type	**ToleranceZonePerUnitAreaType**
properties	content complex
children	**ToleranceValuePerUnit RectangularUnitArea CircularUnitArea**
annotation	documentation The ToleranceZonePerUnitArea element is the per-unit-area tolerance of the flatness characteristic.

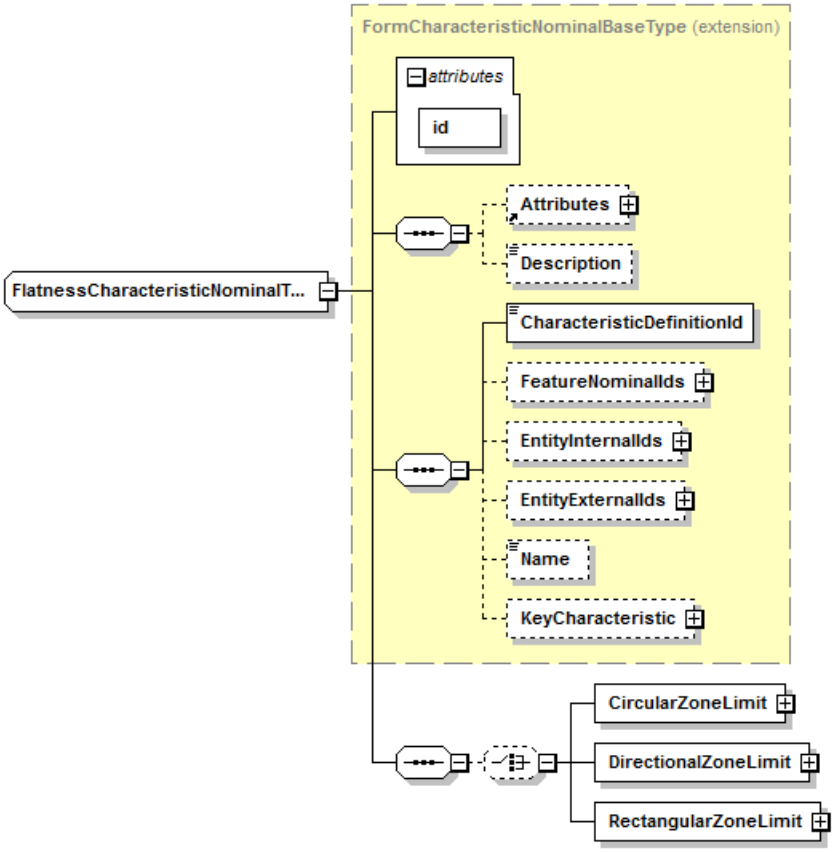
element **FlatnessCharacteristicDefinitionType/NotConvex**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific NC) The optional NotConvex element when present and set to true indicates the feature must not be convex.

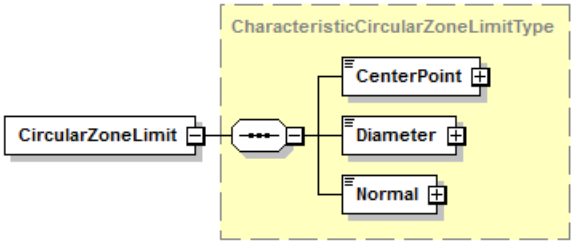
complexType **FlatnessCharacteristicItemType**

diagram	
type	extension of **FormCharacteristicItemBaseType**
properties	base FormCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **FlatnessCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The FlatnessCharacteristicItemType defines a flatness characteristic item.

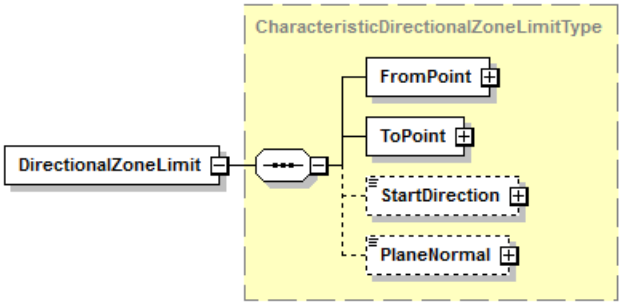
complexType **FlatnessCharacteristicNominalType**

diagram	
type	extension of **FormCharacteristicNominalBaseType**
properties	base FormCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **CircularZoneLimit** **DirectionalZoneLimit** **RectangularZoneLimit**
used by	element **FlatnessCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The FlatnessCharacteristicNominalType defines a unique flatness characteristic nominal.

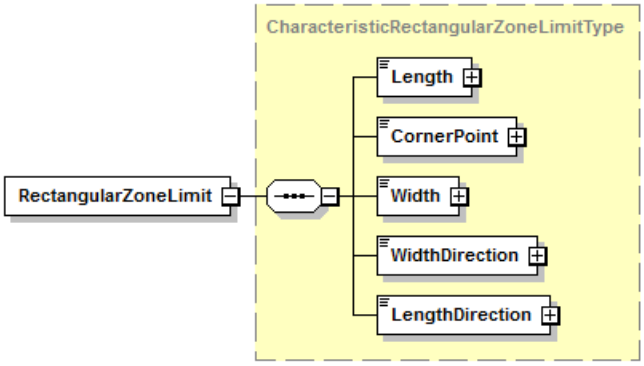
element **FlatnessCharacteristicNominalType/CircularZoneLimit**

diagram	
type	**CharacteristicCircularZoneLimitType**
properties	content complex
children	**CenterPoint Diameter Normal**
annotation	documentation The CircularZoneLimit element gives the location and size of a circular tolerance zone limit. This element is in an optional choice.

element **FlatnessCharacteristicNominalType/DirectionalZoneLimit**

diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	content complex
children	**FromPoint ToPoint StartDirection PlaneNormal**
annotation	documentation The DirectionalZoneLimit element gives the size and location of a cylindrical tolerance zone limit. This element is in an optional choice.

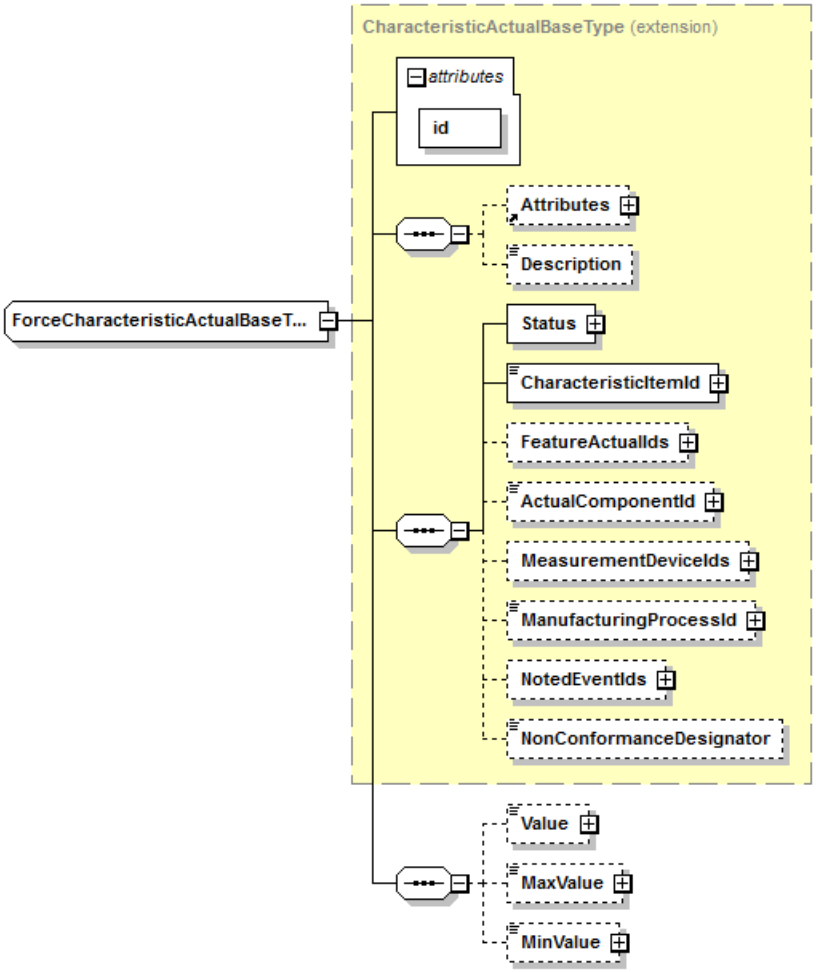
element **FlatnessCharacteristicNominalType/RectangularZoneLimit**

diagram	
type	**CharacteristicRectangularZoneLimitType**

properties	content complex
children	**Length CornerPoint Width WidthDirection LengthDirection**
annotation	documentation The RectangularZoneLimit element gives the size and location of a rectangular characteristic zone limit. This element is in an optional choice.

complexType **ForceCharacteristicActualBaseType**

diagram



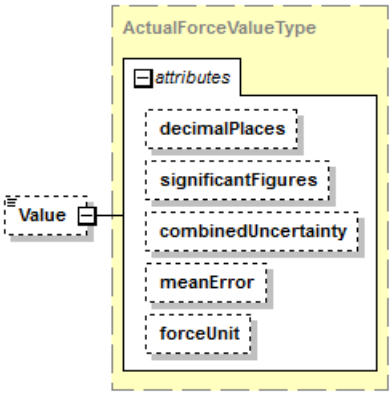
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes Description Status CharacteristicItemId FeatureActualIds ActualComponentId MeasurementDeviceIds ManufacturingProcessId NotedEventIds NonConformanceDesignator Value MaxValue MinValue**
used by	complexType **UserDefinedForceCharacteristicActualType**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The ForceCharacteristicActualBaseType is the abstract base type that defines the results of an actual force characteristic evaluation.

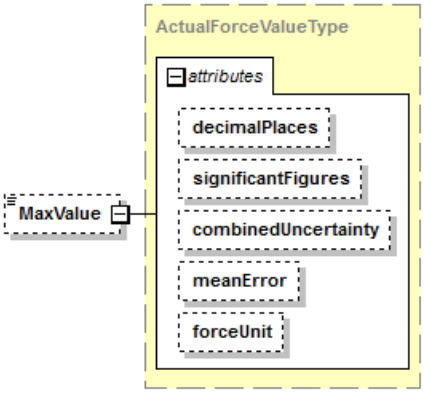
element **ForceCharacteristicActualBaseType/Value**

diagram	
type	**ActualForceValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	

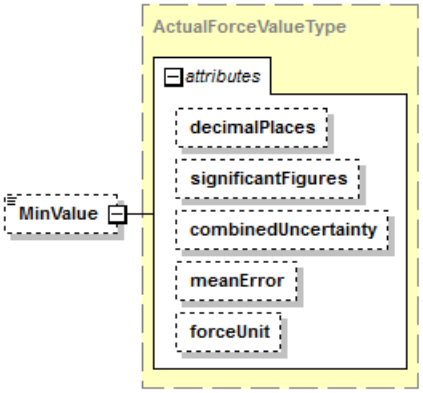
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
forceUnit	**xs:token**				documentation The optional forceUnit attribute defines the unit used by ActualForceValueType.

annotation	documentation The optional Value element is the actual measured value of the force characteristic.

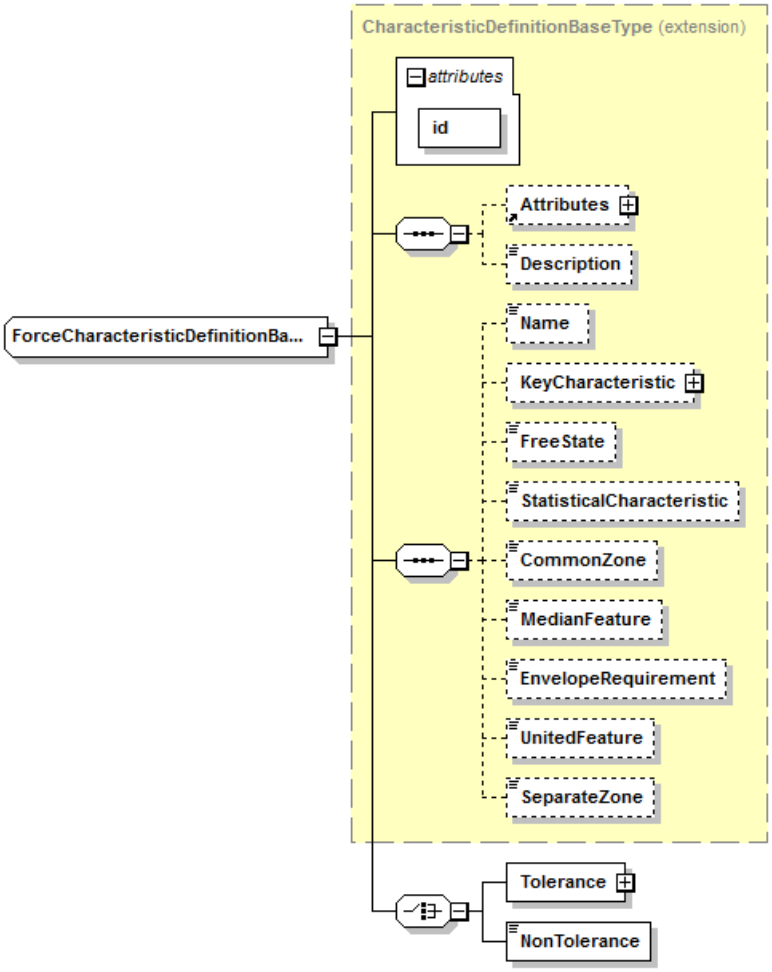
element **ForceCharacteristicActualBaseType/MaxValue**

diagram	
type	**ActualForceValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. forceUnit **xs:token** documentation The optional forceUnit attribute defines the unit used by ActualForceValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

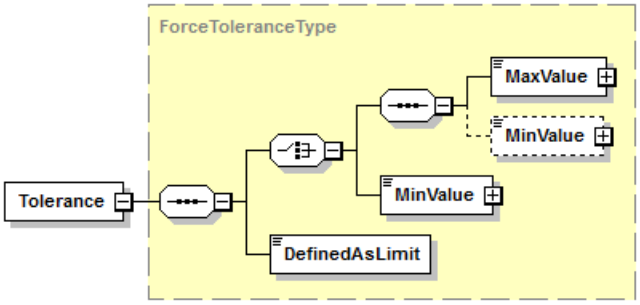
element **ForceCharacteristicActualBaseType/MinValue**

diagram	
type	**ActualForceValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. forceUnit **xs:token** documentation The optional forceUnit attribute defines the unit used by ActualForceValueType.
annotation	documentation The optional MinValue element is the minimum of the actual measured value when reported.

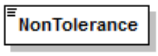
complexType **ForceCharacteristicDefinitionBaseType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedForceCharacteristicDefinitionType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ForceCharacteristicDefinitionBaseType is the abstract base type that defines a force characteristic.

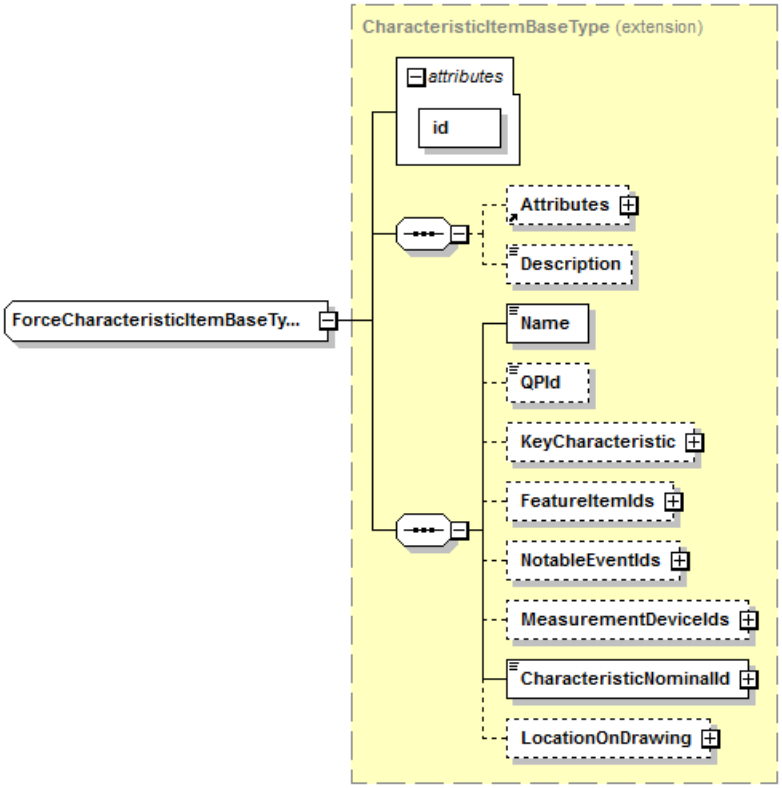
element **ForceCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**ForceToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the force characteristic.

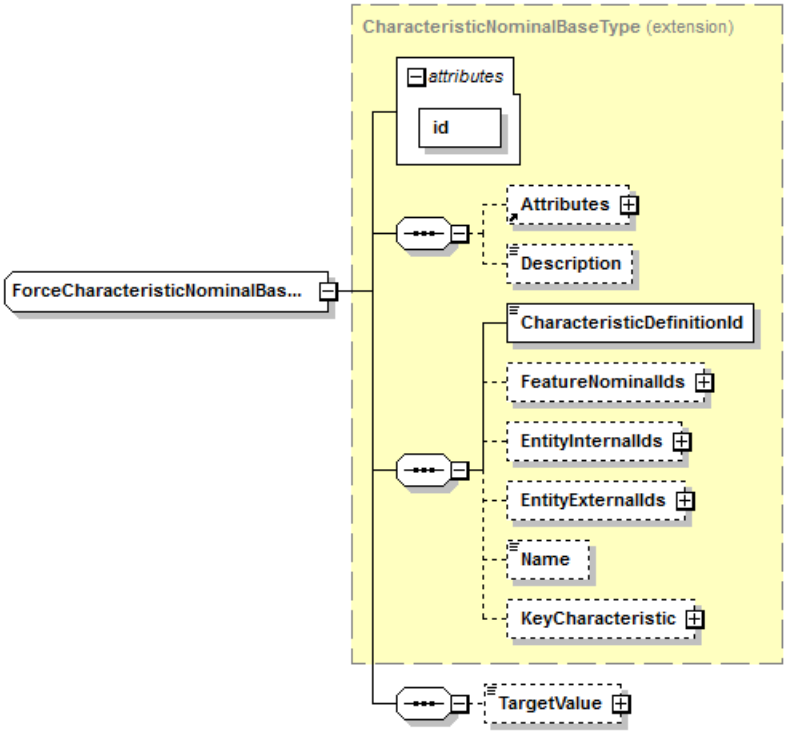
element **ForceCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

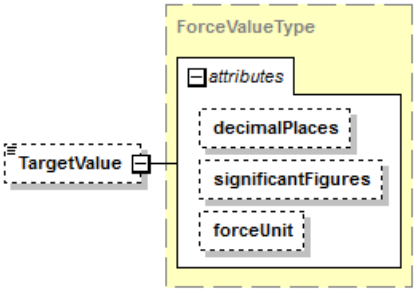
complexType **ForceCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedForceCharacteristicItemType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ForceCharacteristicItemBaseType is the abstract base type that defines a force characteristic item.

complexType **ForceCharacteristicNominalBaseType**

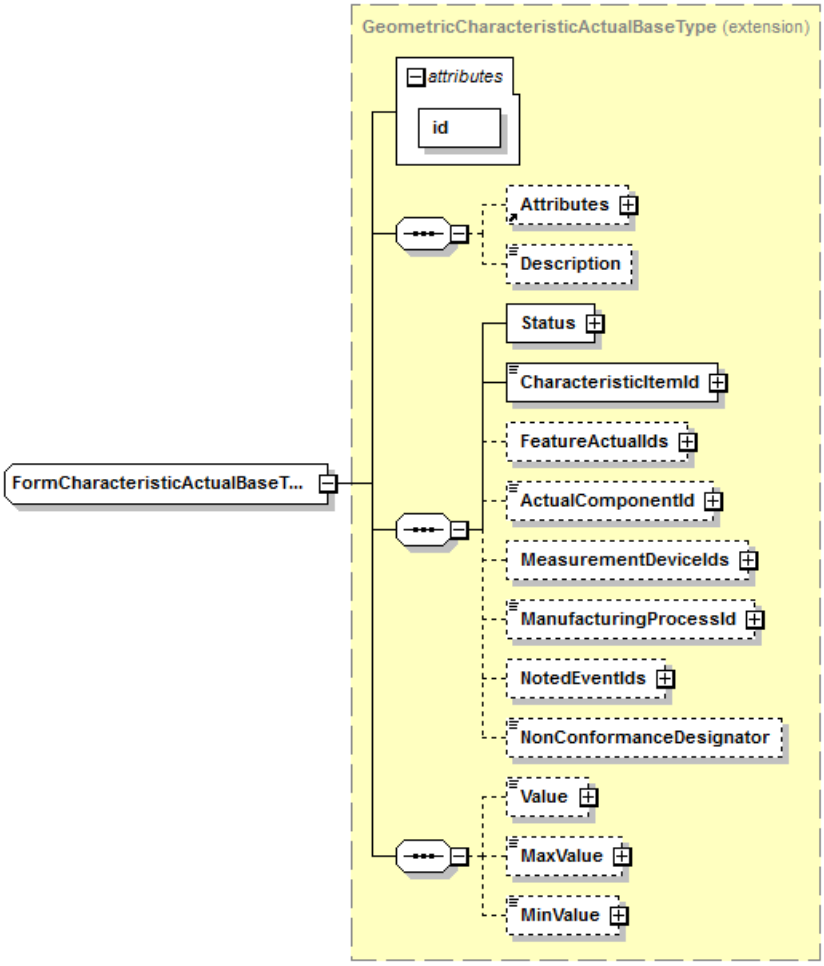
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedForceCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ForceCharacteristicNominalBaseType is the abstract base type that defines a unique force characteristic nominal.

element **ForceCharacteristicNominalBaseType/TargetValue**

diagram	

type	**ForceValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. forceUnit **xs:token** — documentation: The optional forceUnit attribute defines the UnitName for the ForceValueType.
annotation	documentation The optional TargetValue element is the nominal value of the force characteristic.

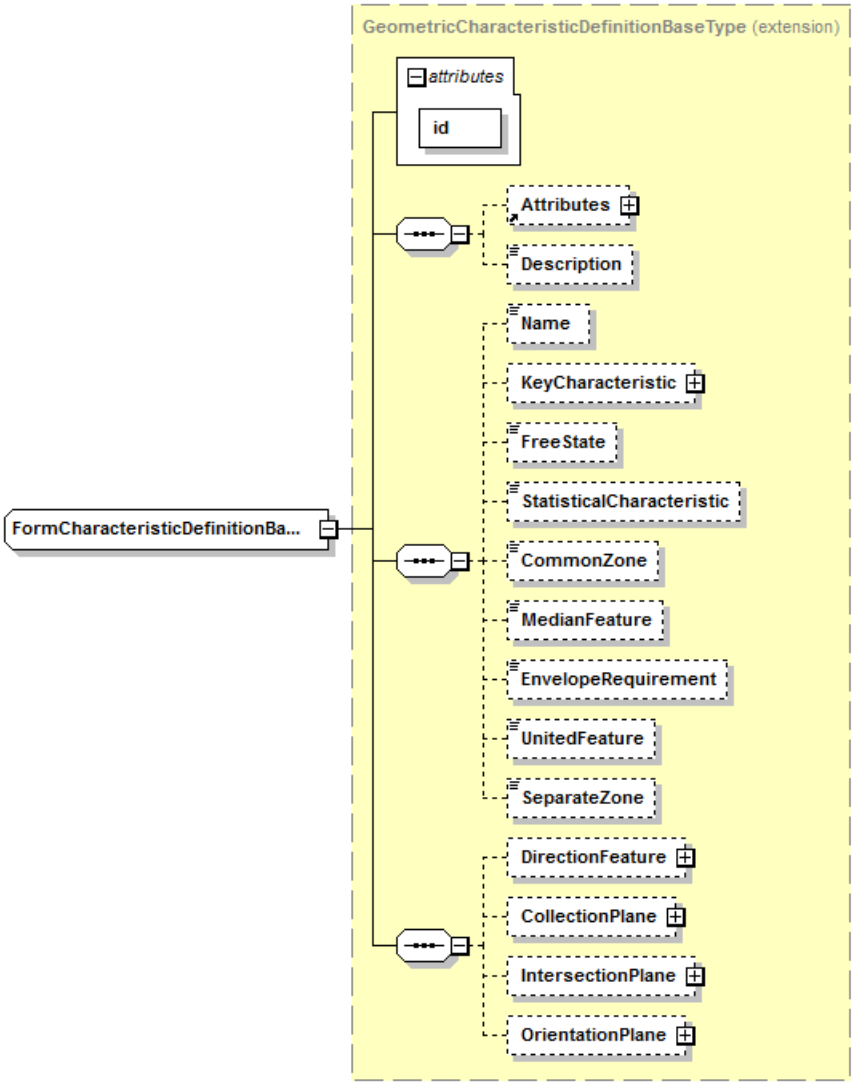
complexType **FormCharacteristicActualBaseType**

diagram	
type	extension of **GeometricCharacteristicActualBaseType**
properties	base GeometricCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds**

	ManufacturingProcessId NotedEventIds NonConformanceDesignator Value MaxValue MinValue
used by	complexTypes CircularityCharacteristicActualType CylindricityCharacteristicActualType FlatnessCharacteristicActualType StraightnessCharacteristicActualType
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The FormCharacteristicActualBaseType is the abstract base type that defines the results of an actual form characteristic evaluation.

complexType **FormCharacteristicDefinitionBaseType**

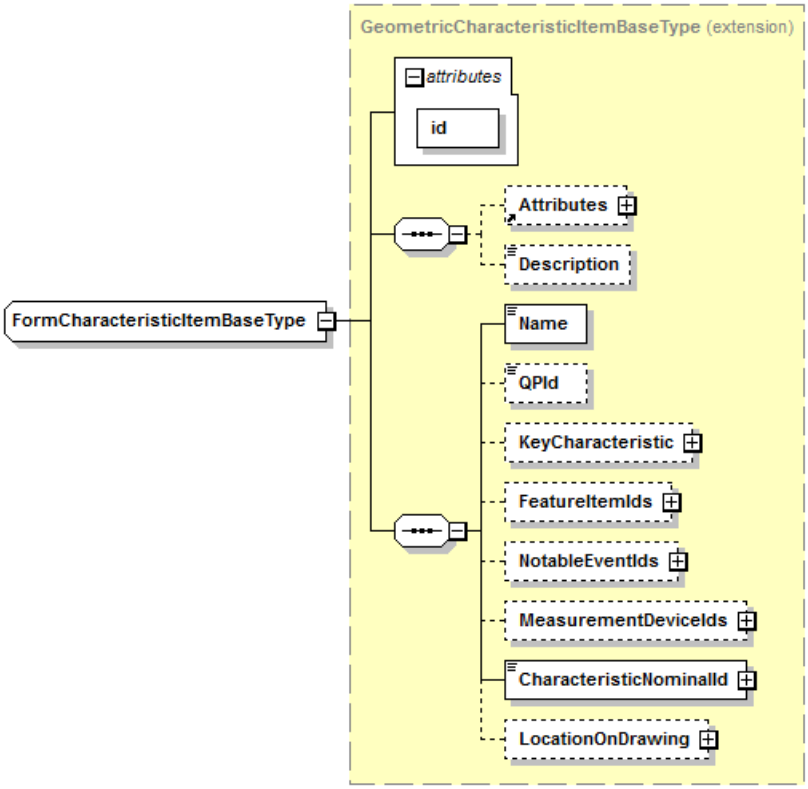
diagram



type	extension of GeometricCharacteristicDefinitionBaseType
properties	base: GeometricCharacteristicDefinitionBaseType abstract: true
children	**Attributes** Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature

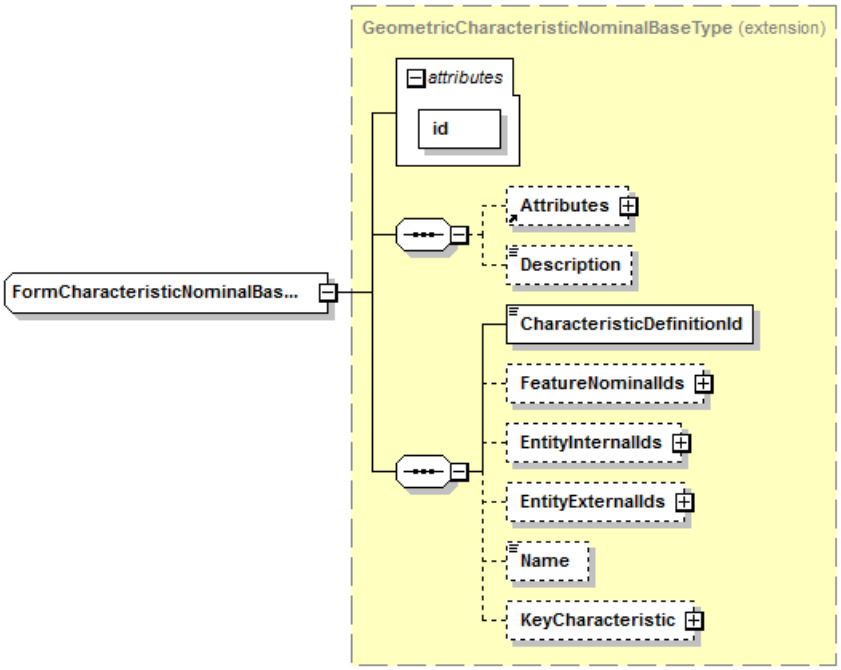
	EnvelopeRequirement UnitedFeature SeparateZone DirectionFeature CollectionPlane IntersectionPlane OrientationPlane
used by	complexTypes CircularityCharacteristicDefinitionType CylindricityCharacteristicDefinitionType FlatnessCharacteristicDefinitionType StraightnessCharacteristicDefinitionType
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The FormCharacteristicDefinitionBaseType is the abstract base type that defines a form characteristic base class. This base type is not used for straightness, flatness or circularity because those form characteristics support the concept of per-unit-length/area/angle tolerances.

complexType **FormCharacteristicItemBaseType**

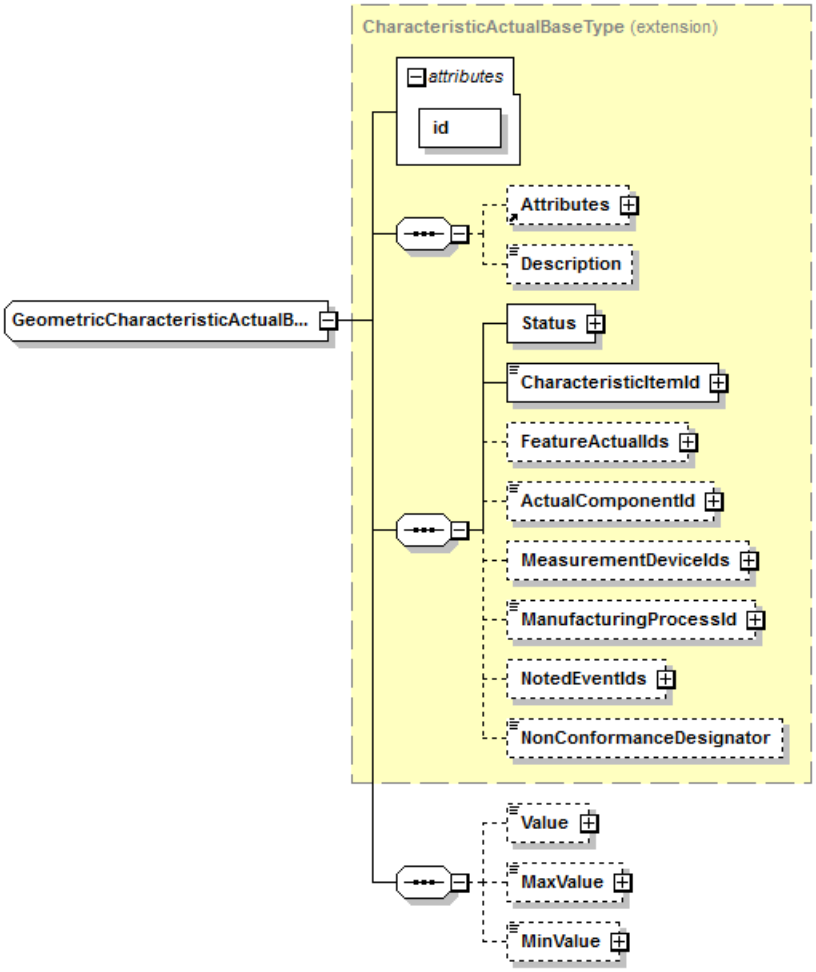
diagram	
type	extension of GeometricCharacteristicItemBaseType
properties	base: GeometricCharacteristicItemBaseType abstract: true
children	**Attributes** Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing
used by	complexTypes CircularityCharacteristicItemType CylindricityCharacteristicItemType FlatnessCharacteristicItemType StraightnessCharacteristicItemType
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for

	referencing.
annotation	documentation The FormCharacteristicItemBaseType is the abstract base type that defines a form characteristic item.

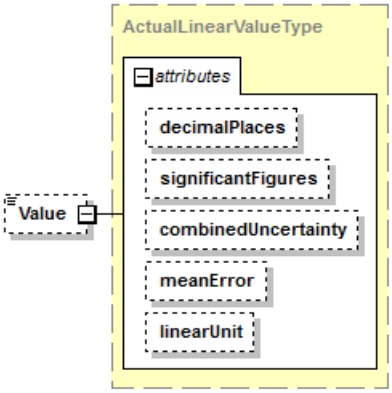
complexType **FormCharacteristicNominalBaseType**

diagram	
type	extension of **GeometricCharacteristicNominalBaseType**
properties	base GeometricCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	complexTypes **CircularityCharacteristicNominalType** **CylindricityCharacteristicNominalType** **FlatnessCharacteristicNominalType** **StraightnessCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The FormCharacteristicNominalBaseType is the abstract base type that defines a unique form characteristic nominal. The TargetValue for a form characteristic is zero.

complexType **GeometricCharacteristicActualBaseType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexTypes **FormCharacteristicActualBaseType** **LocationCharacteristicActualBaseType** **OrientationCharacteristicActualBaseType** **ProfileCharacteristicActualBaseType** **RunoutCharacteristicActualBaseType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The GeometricCharacteristicActualBaseType is the abstract base type that defines the results of an actual geometric characteristic evaluation.

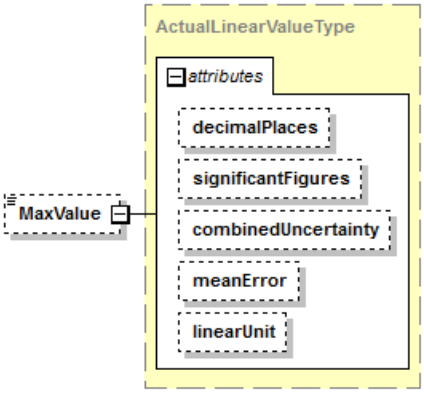
element **GeometricCharacteristicActualBaseType/Value**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	

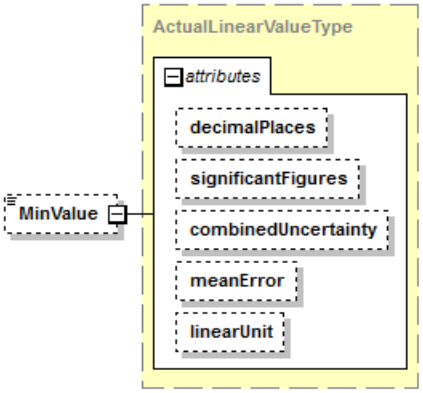
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation	documentation The Value element is the actual measured value. Where parts are checked using hard gages, it is anticipated that the Value will not be populated.

element **GeometricCharacteristicActualBaseType/MaxValue**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **GeometricCharacteristicActualBaseType/MinValue**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex

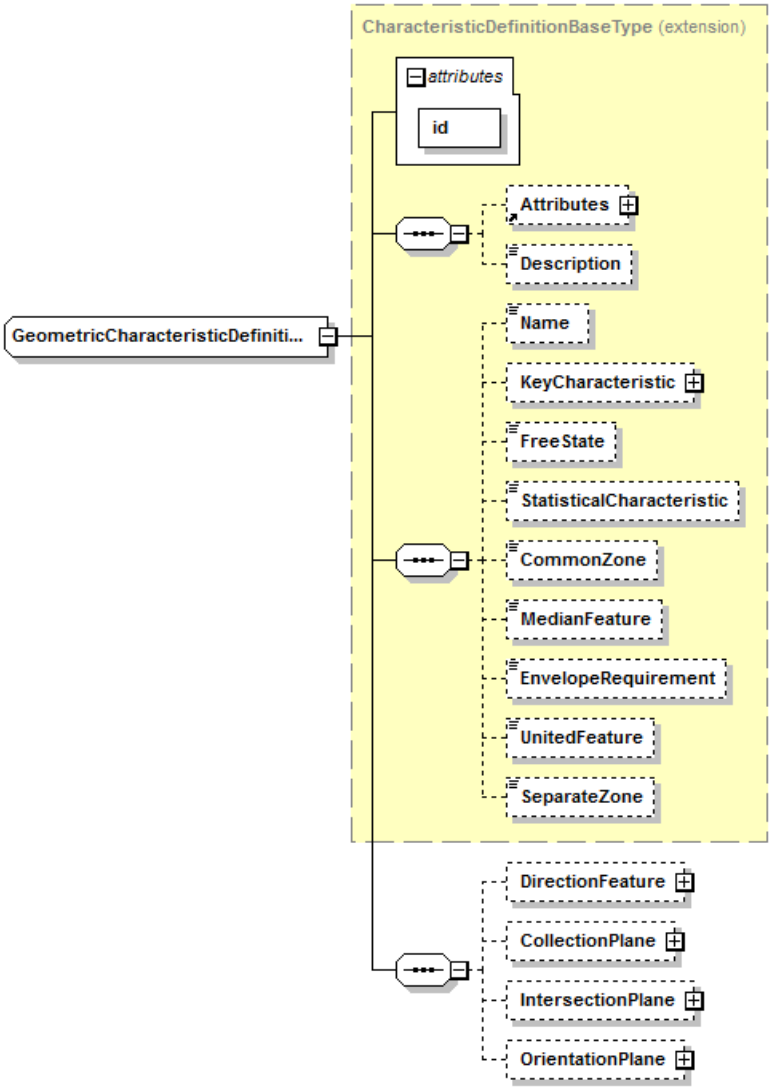
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

complexType **GeometricCharacteristicDefinitionBaseType**

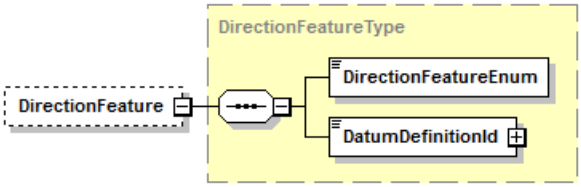
diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane**
used by	complexTypes **FormCharacteristicDefinitionBaseType** **LocationCharacteristicDefinitionBaseType** **OrientationCharacteristicDefinitionBaseType** **ProfileCharacteristicDefinitionBaseType** **RunoutCharacteristicDefinitionBaseType**

attributes

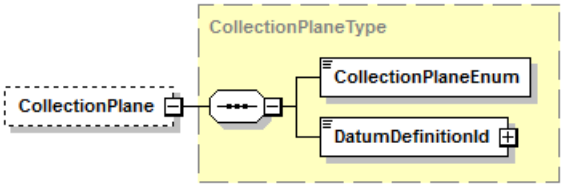
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The GeometricCharacteristicDefinitionBaseType is the abstract base type that defines information that can be common to more than one geometric characteristic.

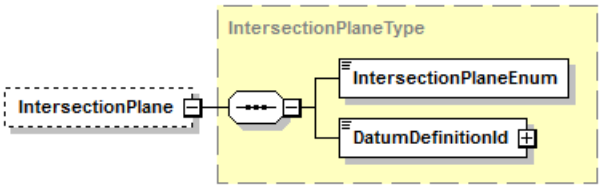
element **GeometricCharacteristicDefinitionBaseType/DirectionFeature**

diagram	
type	**DirectionFeatureType**
properties	minOcc 0 maxOcc 1 content complex
children	**DirectionFeatureEnum DatumDefinitionId**
annotation	documentation (ISO specific leading arrow) The optional DirectionFeature element defines the direction feature modifying the characteristic.

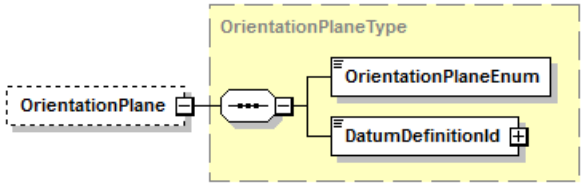
element **GeometricCharacteristicDefinitionBaseType/CollectionPlane**

diagram	
type	**CollectionPlaneType**
properties	minOcc 0 maxOcc 1 content complex
children	**CollectionPlaneEnum DatumDefinitionId**
annotation	documentation (ISO specific leading circle) The optional CollectionPlane element defines the collection plane modifying the characteristic.

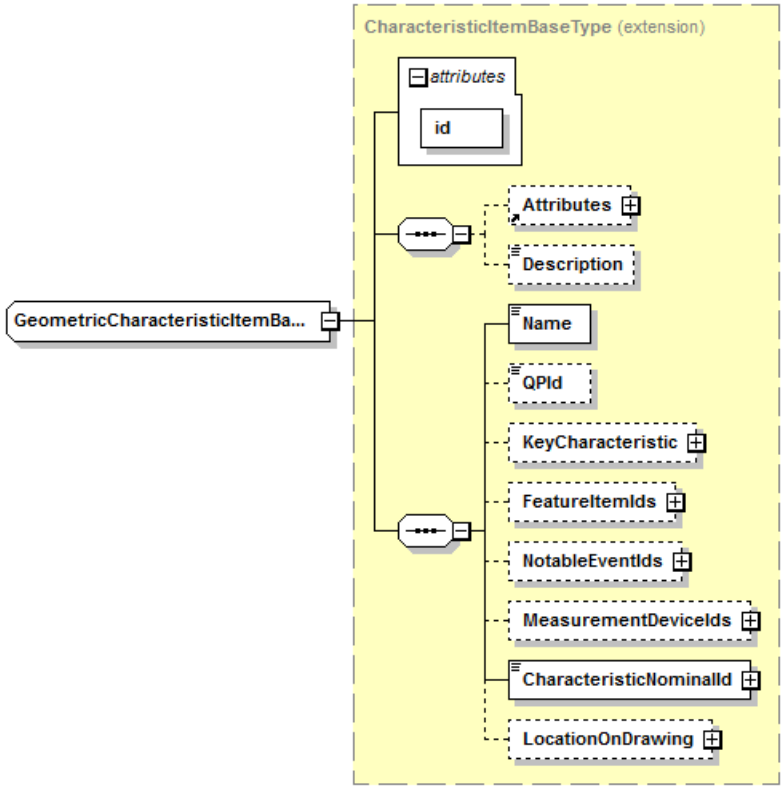
element **GeometricCharacteristicDefinitionBaseType/IntersectionPlane**

diagram	
type	**IntersectionPlaneType**
properties	minOcc 0 maxOcc 1 content complex
children	**IntersectionPlaneEnum DatumDefinitionId**
annotation	documentation (ISO specific leading triangle) The optional IntersectionPlane element defines the intersection plane modifying the characteristic.

element **GeometricCharacteristicDefinitionBaseType/OrientationPlane**

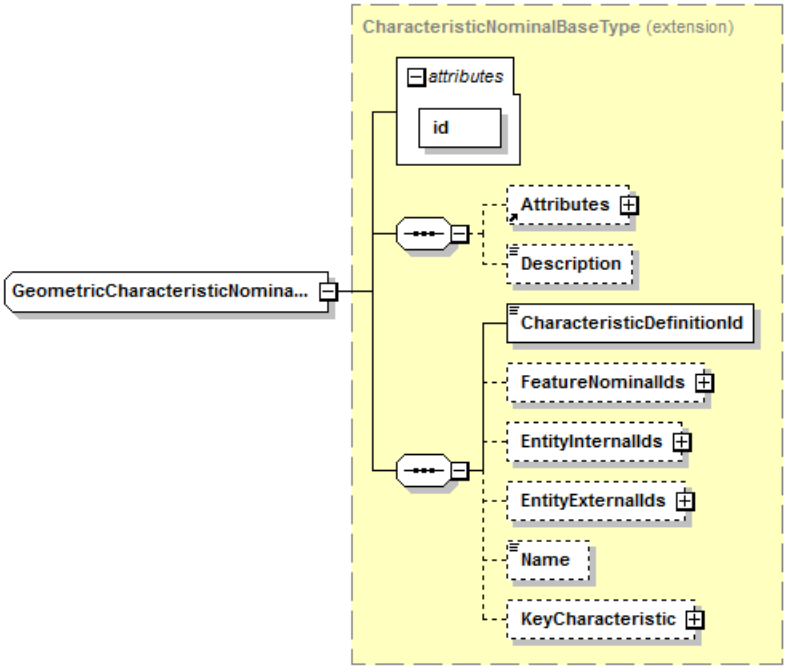
diagram	
type	**OrientationPlaneType**
properties	minOcc 0 maxOcc 1 content complex
children	**OrientationPlaneEnum DatumDefinitionId**
annotation	documentation (ISO specific leading and trailing triangles) The optional OrientationPlane element defines the orientation plane modifying the characteristic.

complexType **GeometricCharacteristicItemBaseType**

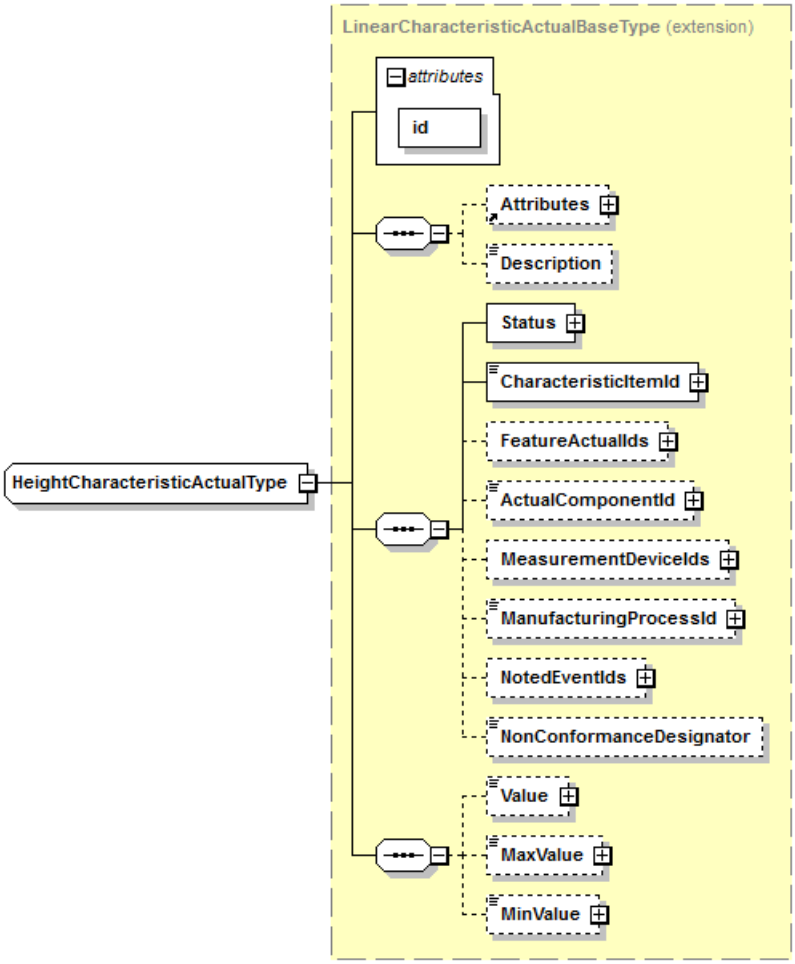
diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	complexTypes **FormCharacteristicItemBaseType LocationCharacteristicItemBaseType OrientationCharacteristicItemBaseType ProfileCharacteristicItemBaseType RunoutCharacteristicItemBaseType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation

	The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The GeometricCharacteristicItemBaseType is the abstract base type that defines a geometric characteristic item.

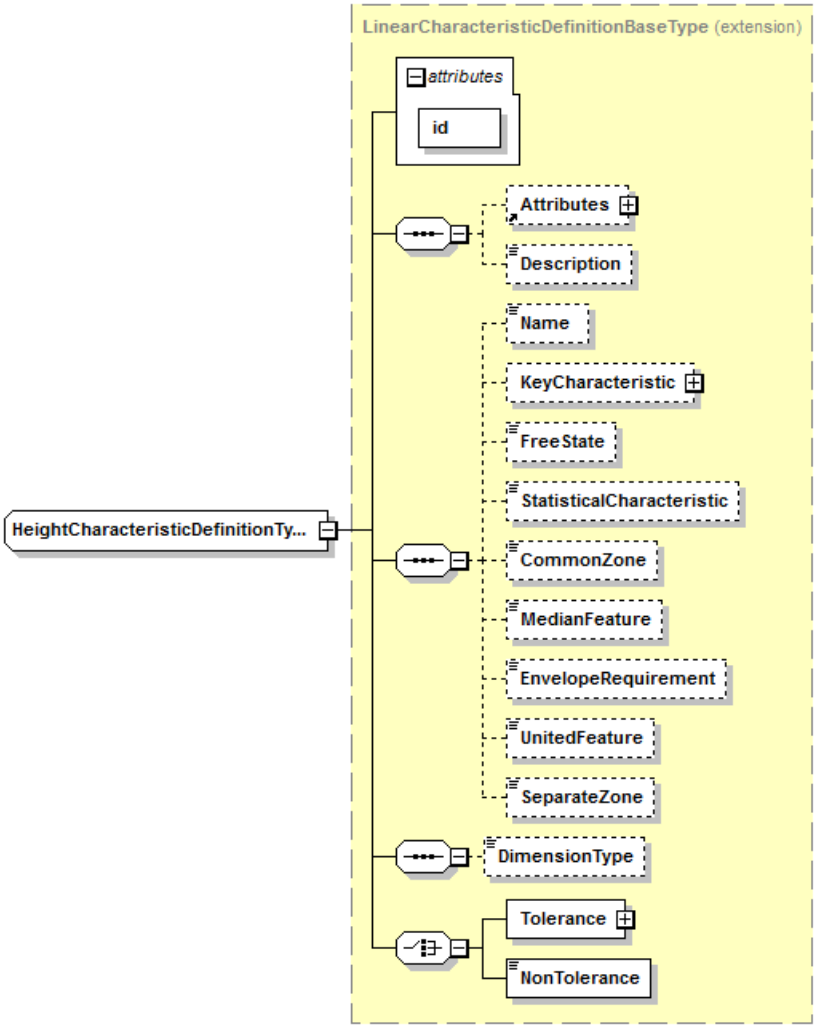
complexType **GeometricCharacteristicNominalBaseType**

diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	complexTypes **FormCharacteristicNominalBaseType** **LocationCharacteristicNominalBaseType** **OrientationCharacteristicNominalBaseType** **ProfileCharacteristicNominalBaseType** **RunoutCharacteristicNominalBaseType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The GeometricCharacteristicNominalBaseType is the abstract base type that defines a geometric characteristic nominal.

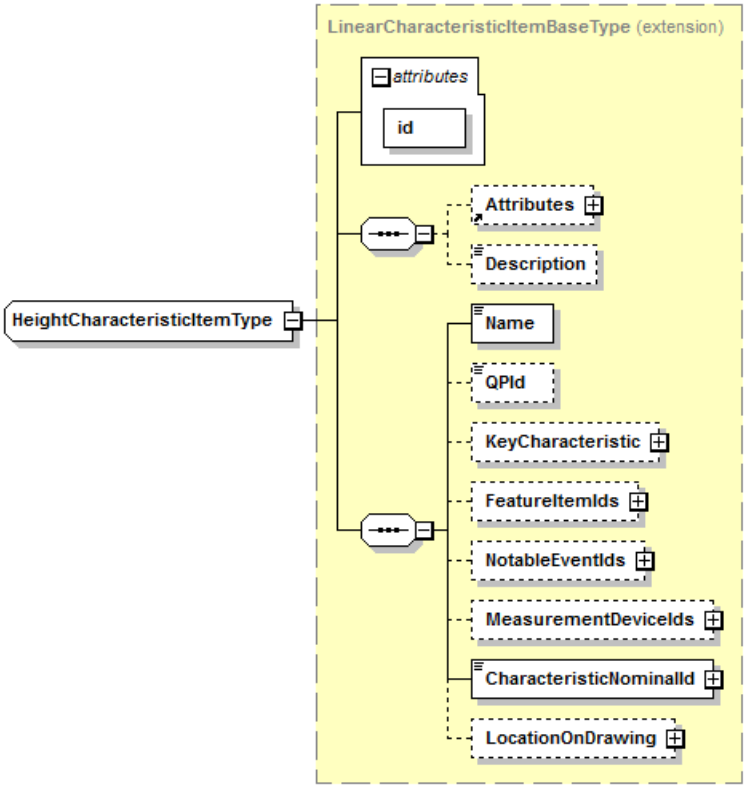
complexType **HeightCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **HeightCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The HeightCharacteristicActualType defines the results of an actual height characteristic evaluation.

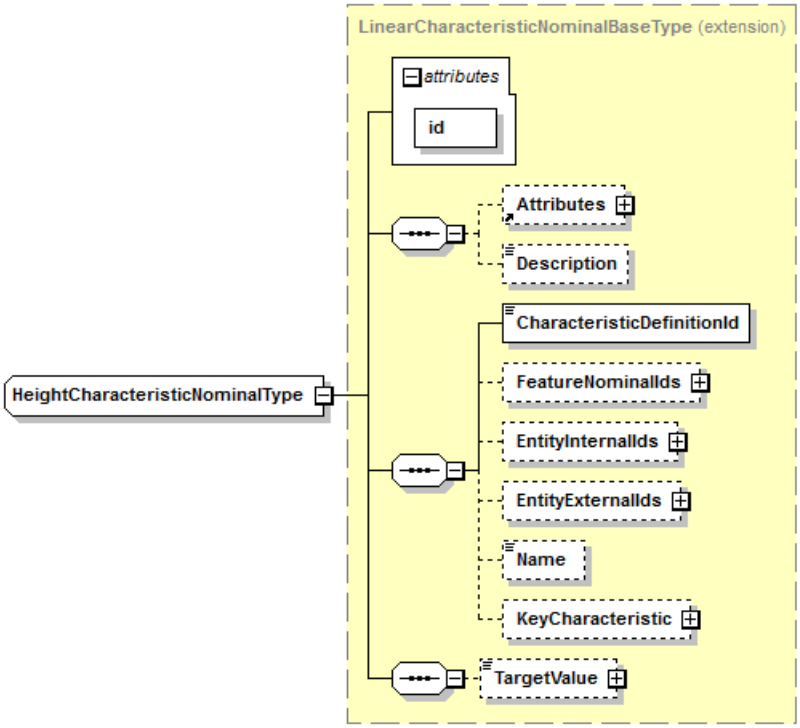
complexType **HeightCharacteristicDefinitionType**

diagram	
type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance**
used by	element **HeightCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The HeightCharacteristicDefinitionType defines information that can be common to more than one height characteristic.

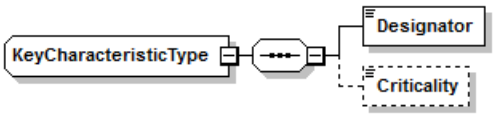
complexType **HeightCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **HeightCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The HeightCharacteristicItemType defines a height characteristic item.

complexType **HeightCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **HeightCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The HeightCharacteristicNominalType defines a unique height characteristic nominal.

complexType **KeyCharacteristicType**

diagram	
children	**Designator** **Criticality**
used by	elements **CharacteristicItemBaseType/KeyCharacteristic** **CharacteristicDefinitionBaseType/KeyCharacteristic** **CharacteristicNominalBaseType/KeyCharacteristic**
annotation	documentation The KeyCharacteristicType defines a designator and a criticality level for a characteristic.

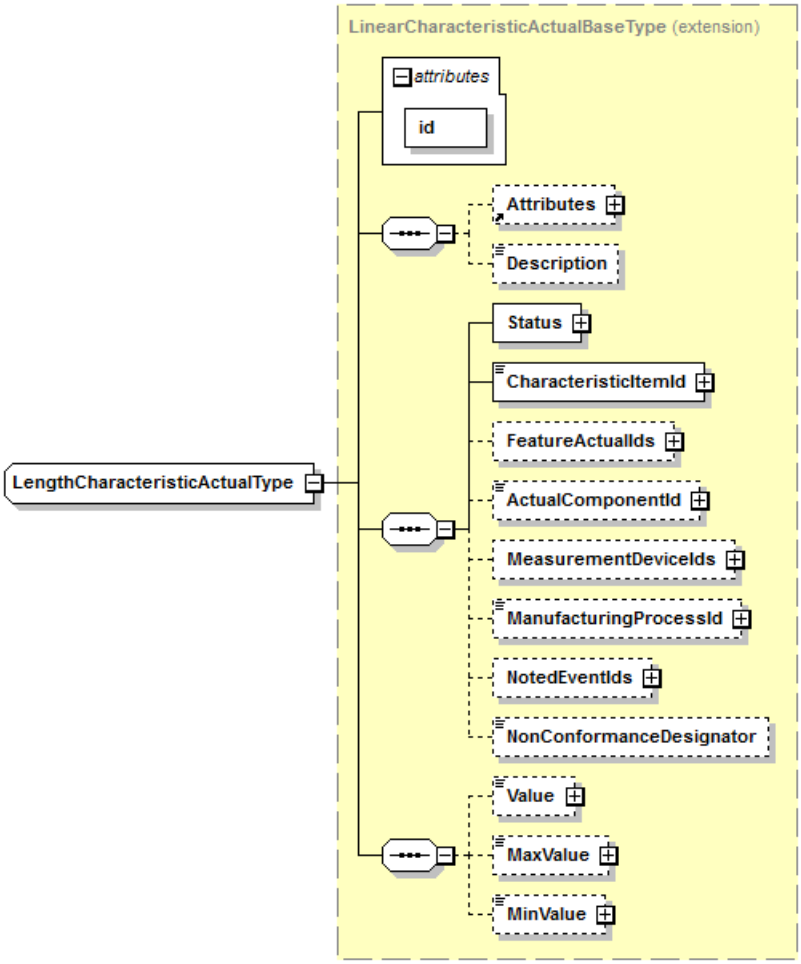
element **KeyCharacteristicType/Designator**

diagram	Designator
type	**xs:token**
properties	content simple
annotation	documentation The Designator element is the identifier of a key characteristic. A key characteristic is often identified by a number (or a number and a letter) in a balloon on a drawing or in a digital model.

element **KeyCharacteristicType/Criticality**

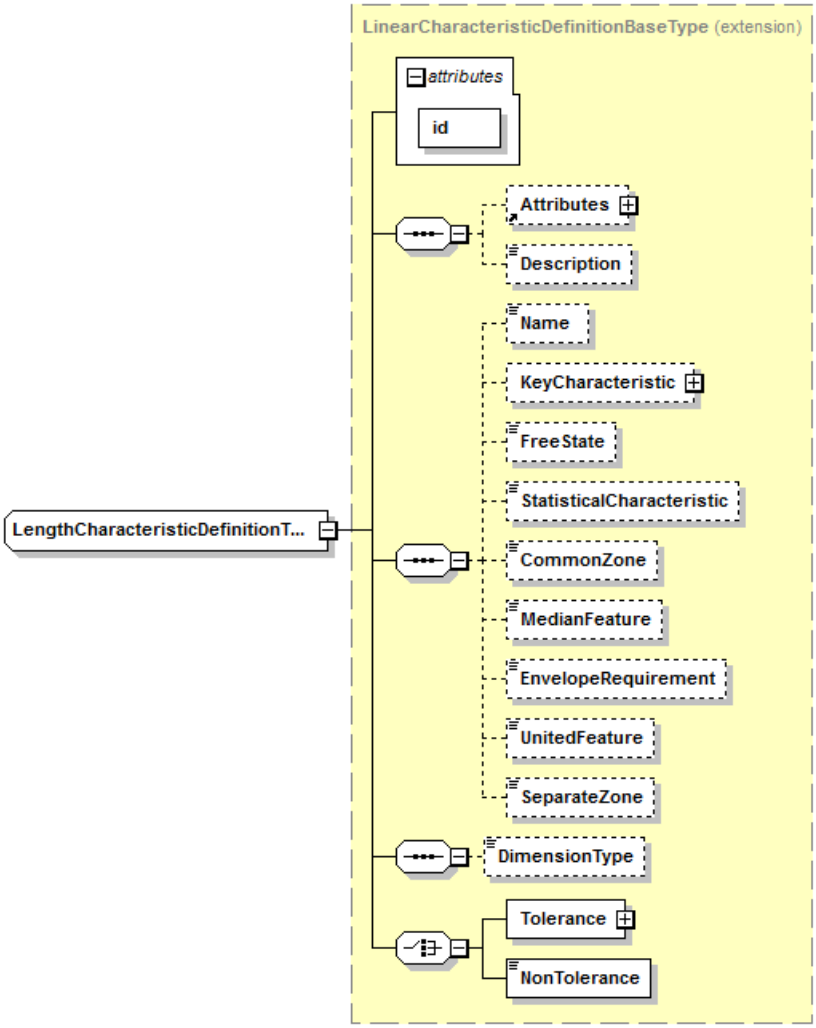
diagram	Criticality
type	**xs:token**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional Criticality element is the criticality level of the key characteristic.

complexType **LengthCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **LengthCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LengthCharacteristicActualType defines the results of an actual length characteristic evaluation.

complexType **LengthCharacteristicDefinitionType**

diagram



type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **LengthCharacteristicDefinition**

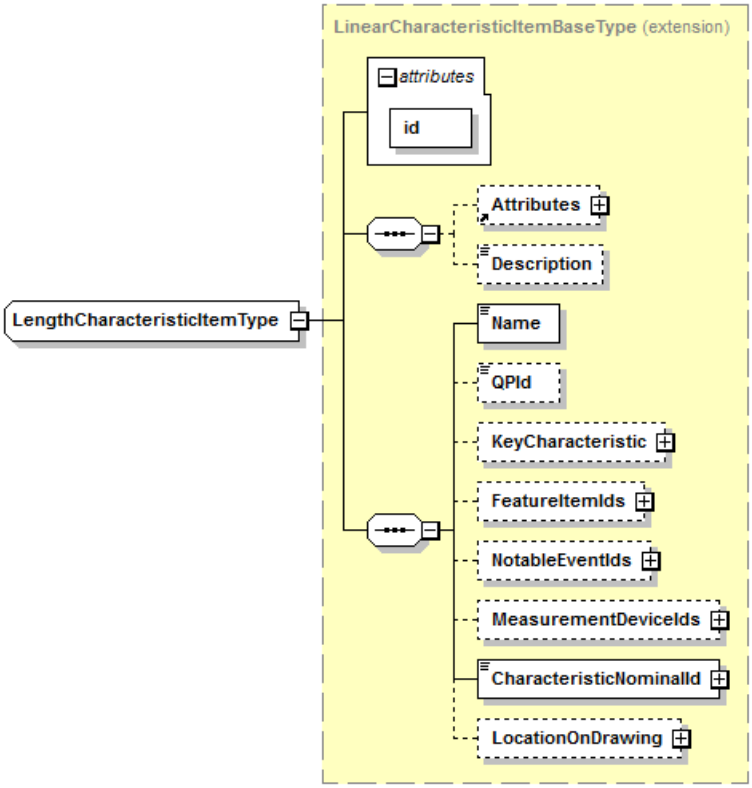
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

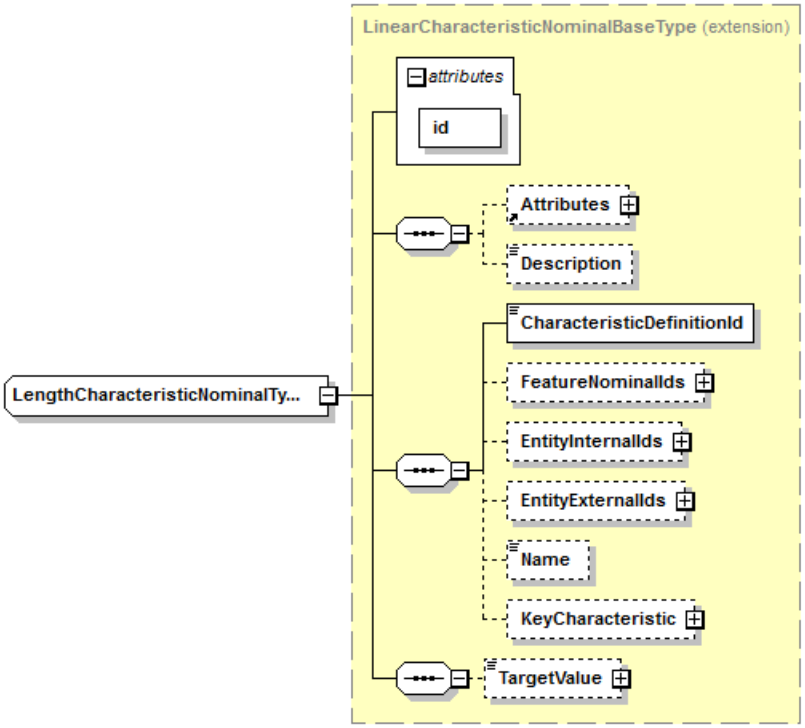
annotation

documentation
The LengthCharacteristicDefinitionType defines information that can be common to more than one length characteristic.

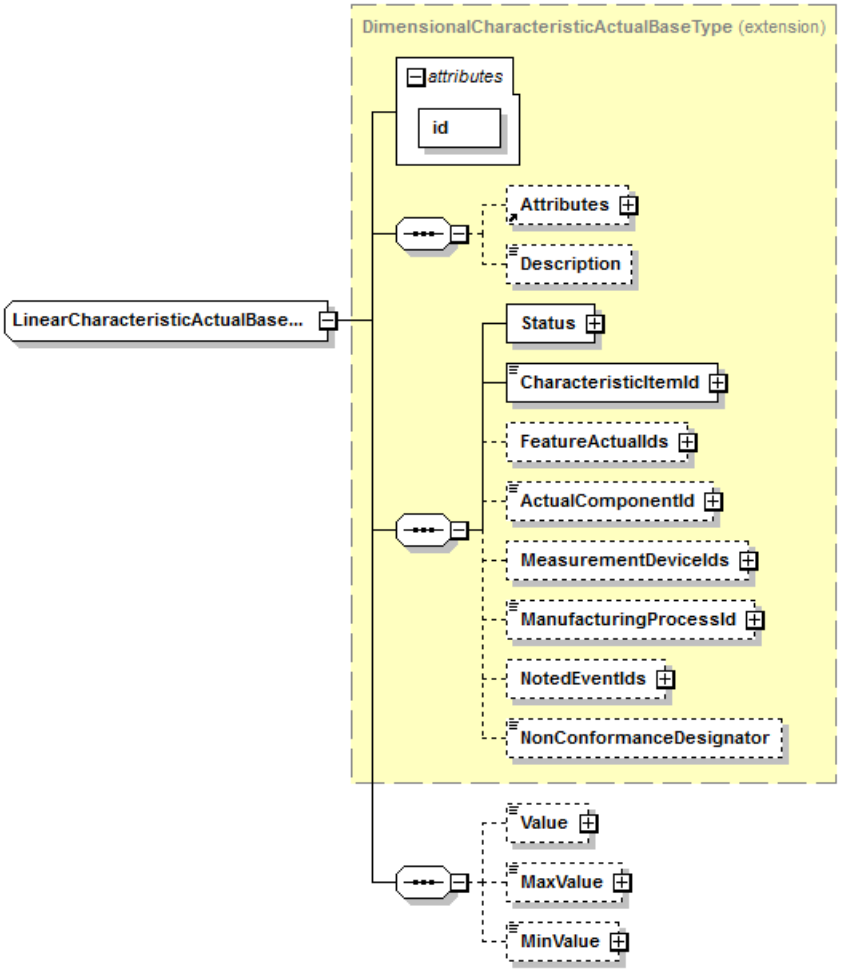
complexType **LengthCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **LengthCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LengthCharacteristicItemType defines a length characteristic item.

complexType **LengthCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **LengthCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LengthCharacteristicNominalType defines a unique length characteristic nominal.

complexType **LinearCharacteristicActualBaseType**

diagram	
type	extension of **DimensionalCharacteristicActualBaseType**
properties	base DimensionalCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexTypes **ChordCharacteristicActualType** **CurveLengthCharacteristicActualType** **DepthCharacteristicActualType** **DiameterCharacteristicActualType** **DistanceBetweenCharacteristicActualType** **DistanceFromCharacteristicActualType** **HeightCharacteristicActualType** **LengthCharacteristicActualType** **RadiusCharacteristicActualType** **SquareCharacteristicActualType** **ThicknessCharacteristicActualType** **UserDefinedLinearCharacteristicActualType** **WidthCharacteristicActualType**

attributes

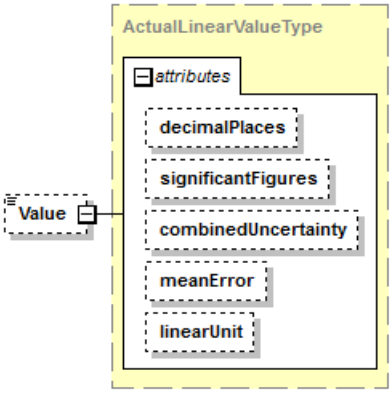
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation

The LinearCharacteristicActualBaseType is the abstract base type that defines the results of an actual linear characteristic evaluation.

element **LinearCharacteristicActualBaseType/Value**

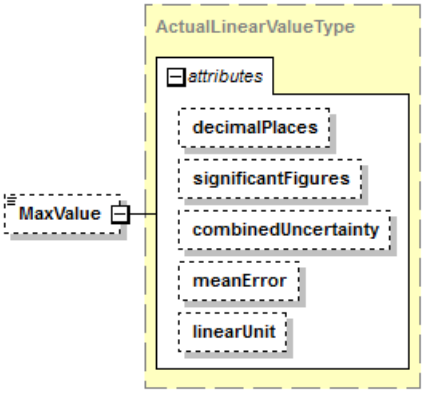
diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation	documentation The optional Value element is the actual measured value of the linear characteristic.

element **LinearCharacteristicActualBaseType/MaxValue**

diagram



type **ActualLinearValueType**

properties

minOcc	0
maxOcc	1
content	complex

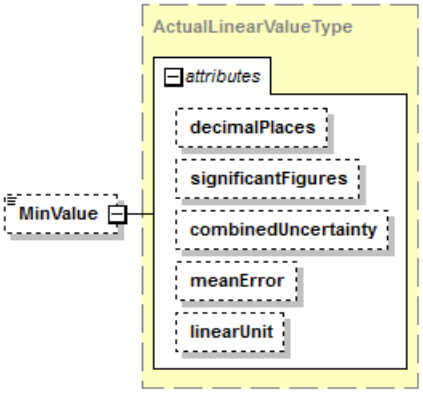
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

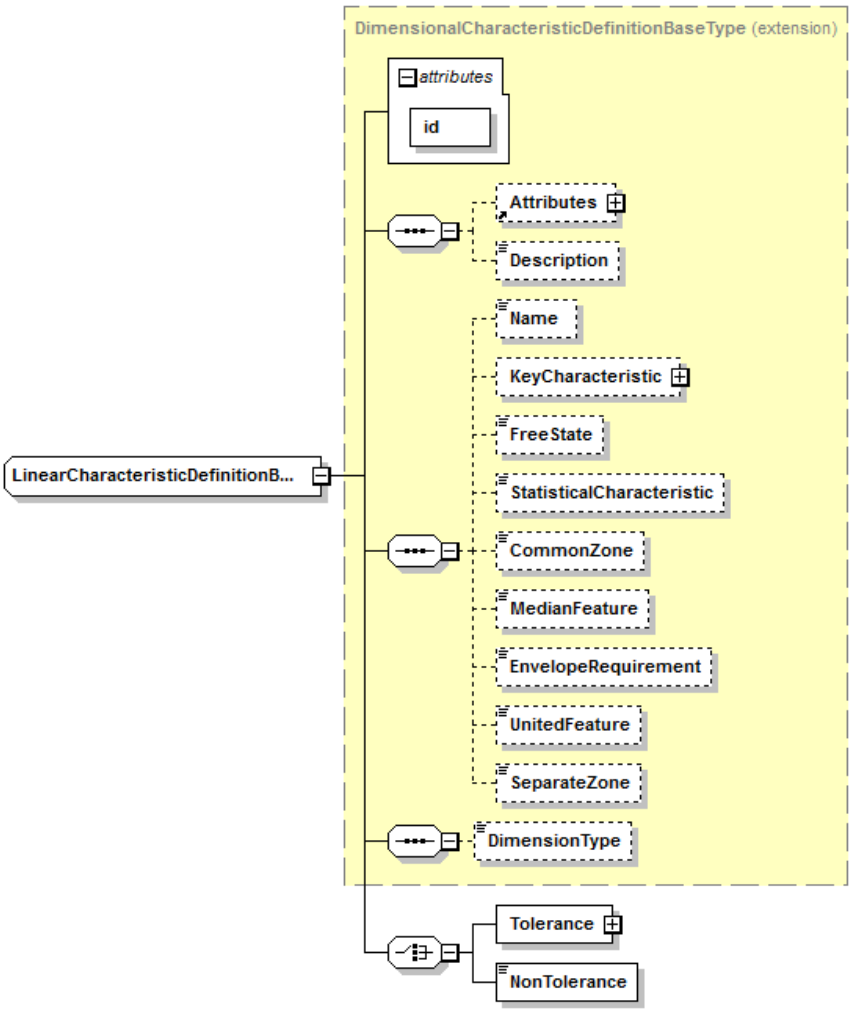
annotation

documentation
The optional MaxValue element is the maximum of the actual measured value when reported.

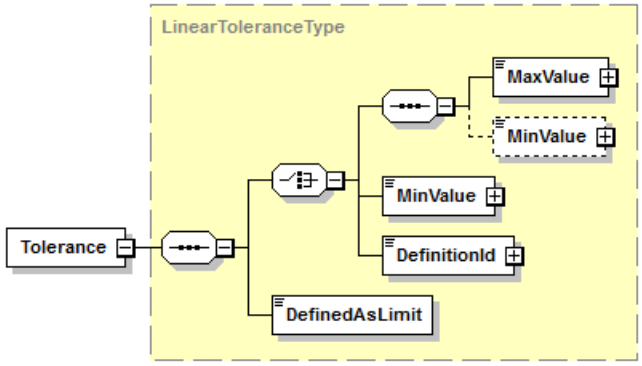
element **LinearCharacteristicActualBaseType/MinValue**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional MinValue element is the minimum of the actual measured value when reported.

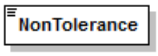
complexType **LinearCharacteristicDefinitionBaseType**

diagram	
type	extension of **DimensionalCharacteristicDefinitionBaseType**
properties	base DimensionalCharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	complexTypes **ChordCharacteristicDefinitionType** **CurveLengthCharacteristicDefinitionType** **DepthCharacteristicDefinitionType** **DiameterCharacteristicDefinitionType** **DistanceBetweenCharacteristicDefinitionType** **DistanceFromCharacteristicDefinitionType** **HeightCharacteristicDefinitionType** **LengthCharacteristicDefinitionType** **RadiusCharacteristicDefinitionType** **SquareCharacteristicDefinitionType** **ThicknessCharacteristicDefinitionType** **UserDefinedLinearCharacteristicDefinitionType** **WidthCharacteristicDefinitionType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LinearCharacteristicDefinitionBaseType is the abstract base type that defines a linear characteristic.

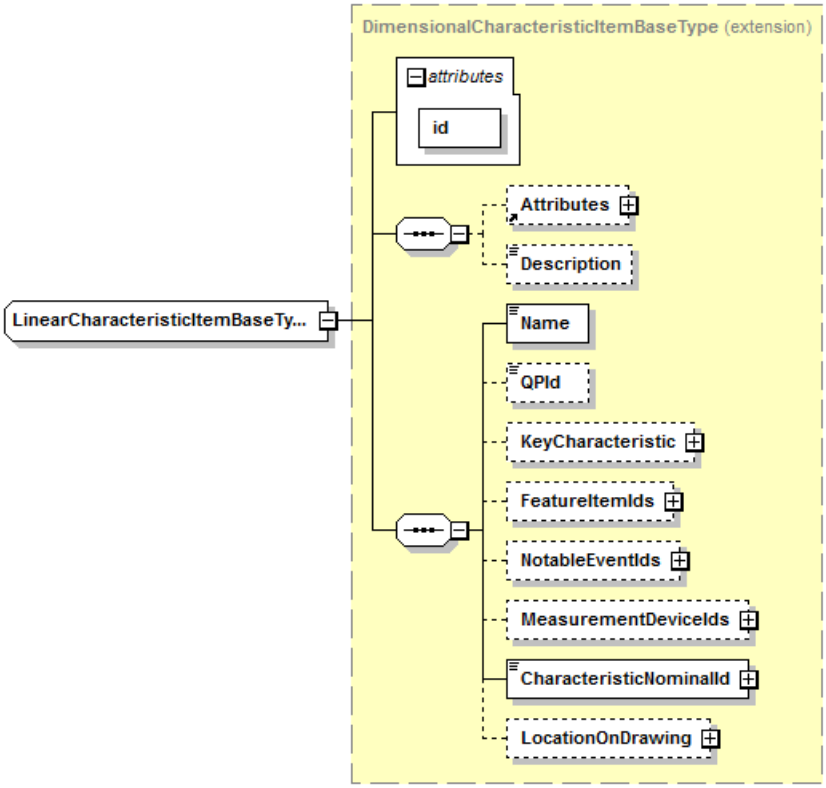
element **LinearCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**LinearToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinitionId DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the linear characteristic.

element **LinearCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

complexType **LinearCharacteristicItemBaseType**

diagram	
type	extension of **DimensionalCharacteristicItemBaseType**
properties	base DimensionalCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **ChordCharacteristicItemType** **CurveLengthCharacteristicItemType** **DepthCharacteristicItemType** **DiameterCharacteristicItemType** **DistanceBetweenCharacteristicItemType** **DistanceFromCharacteristicItemType** **HeightCharacteristicItemType** **LengthCharacteristicItemType** **RadiusCharacteristicItemType** **SquareCharacteristicItemType** **ThicknessCharacteristicItemType** **UserDefinedLinearCharacteristicItemType** **WidthCharacteristicItemType**

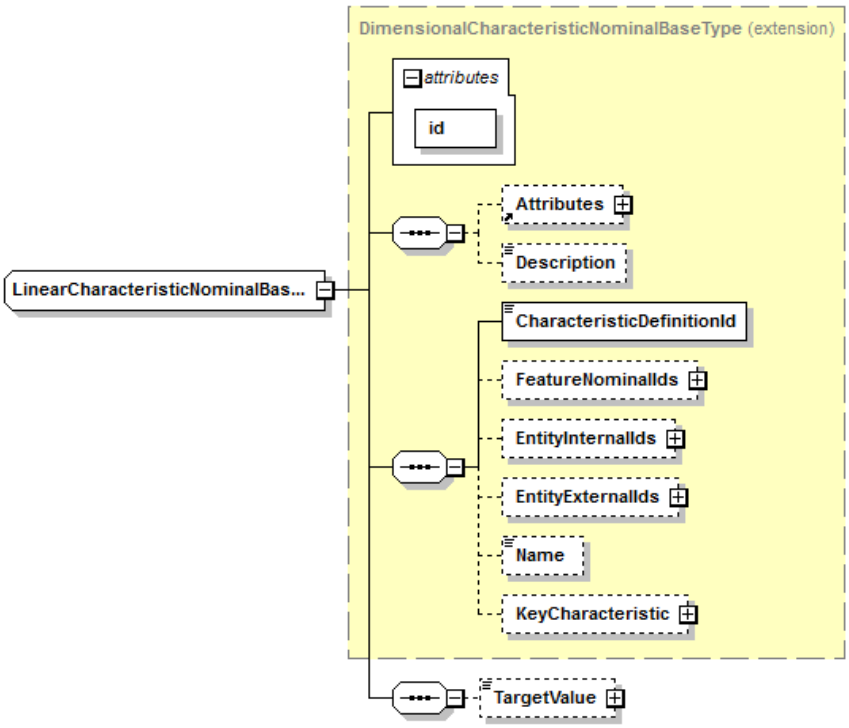
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

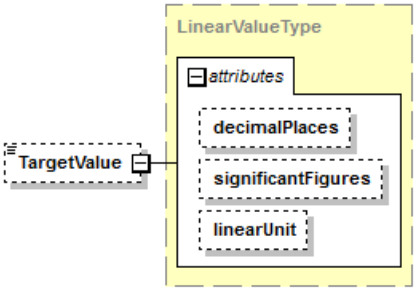
annotation

documentation
The LinearCharacteristicItemBaseType is the abstract base type that defines a linear characteristic item.

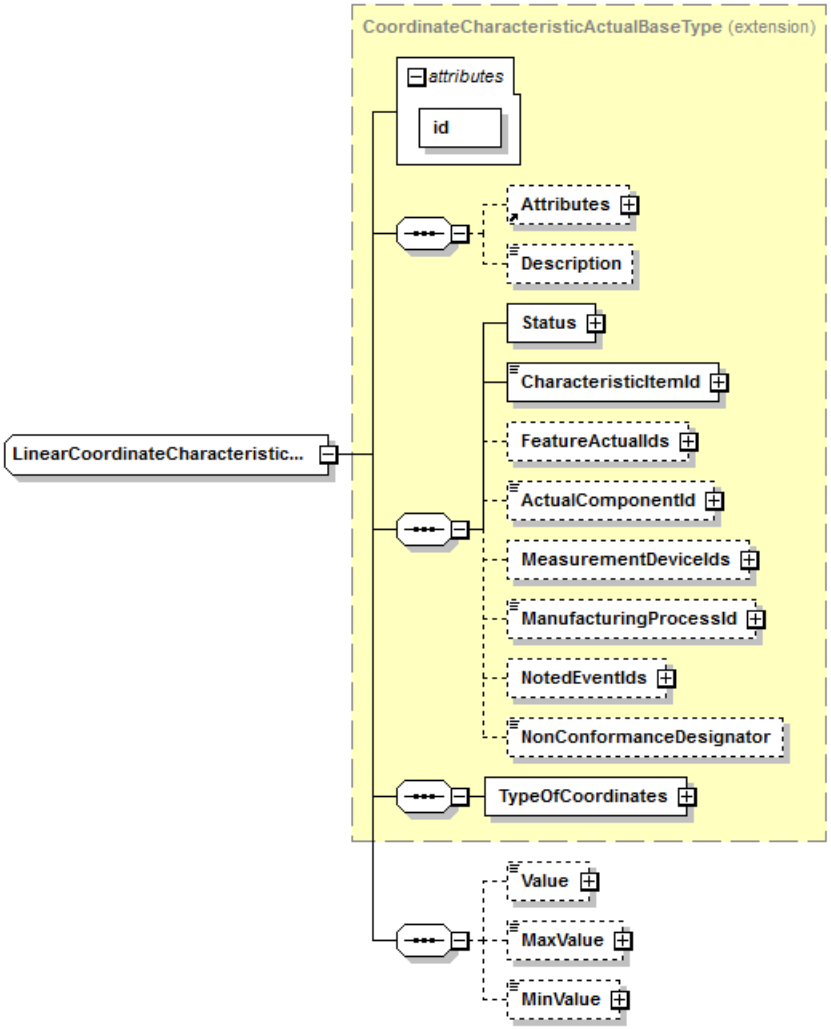
complexType **LinearCharacteristicNominalBaseType**

diagram	
type	extension of **DimensionalCharacteristicNominalBaseType**
properties	base DimensionalCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexTypes **ChordCharacteristicNominalType** **CurveLengthCharacteristicNominalType** **DepthCharacteristicNominalType** **DiameterCharacteristicNominalType** **DistanceBetweenCharacteristicNominalType** **DistanceFromCharacteristicNominalType** **HeightCharacteristicNominalType** **LengthCharacteristicNominalType** **RadiusCharacteristicNominalType** **SquareCharacteristicNominalType** **ThicknessCharacteristicNominalType** **UserDefinedLinearCharacteristicNominalType** **WidthCharacteristicNominalType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LinearCharacteristicNominalBaseType is the abstract base type that defines a unique linear characteristic nominal.

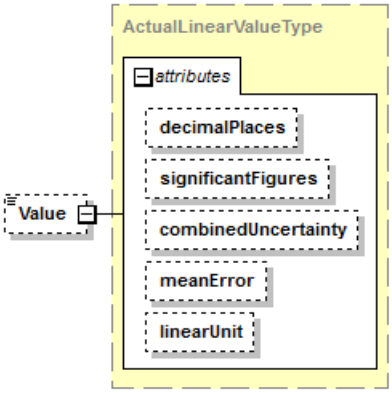
element **LinearCharacteristicNominalBaseType/TargetValue**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional TargetValue element is the nominal value of the linear characteristic.

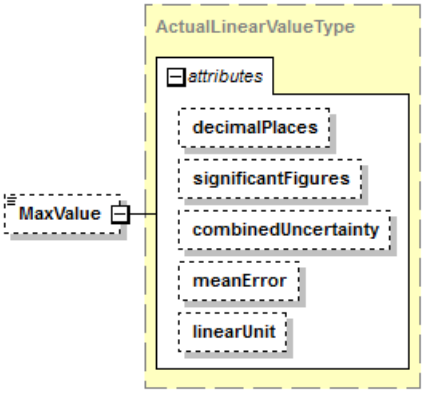
complexType **LinearCoordinateCharacteristicActualType**

diagram	
type	extension of **CoordinateCharacteristicActualBaseType**
properties	base CoordinateCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **TypeOfCoordinates** **Value** **MaxValue** **MinValue**
used by	element **LinearCoordinateCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LinearCoordinateCharacteristicActualType defines the results of an actual linear coordinate characteristic evaluation.

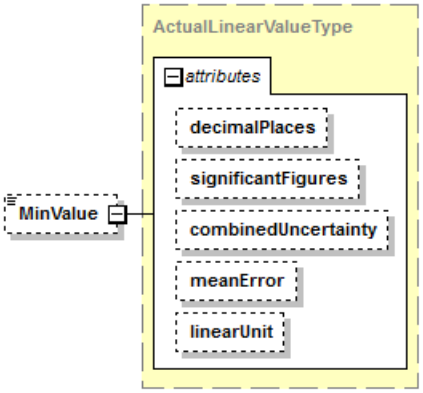
element **LinearCoordinateCharacteristicActualType/Value**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional Value element is the actual measured value.

element **LinearCoordinateCharacteristicActualType/MaxValue**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **LinearCoordinateCharacteristicActualType/MinValue**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex

attributes

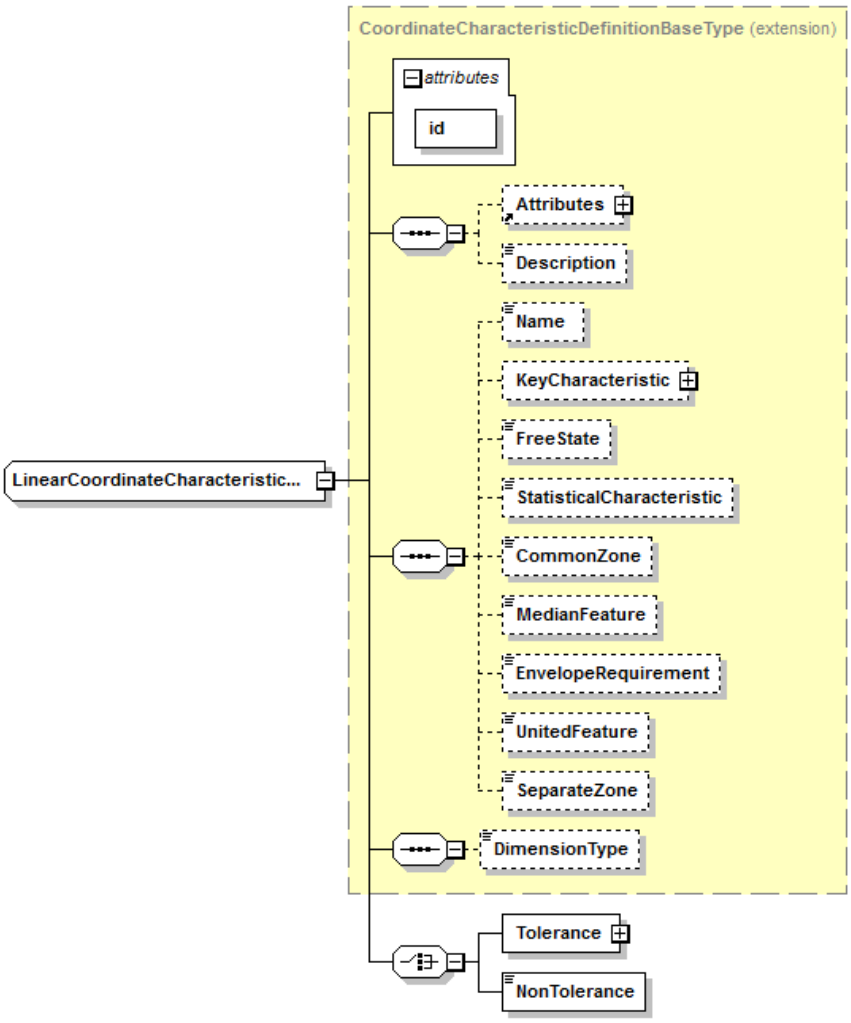
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

complexType **LinearCoordinateCharacteristicDefinitionType**

diagram



type	extension of **CoordinateCharacteristicDefinitionBaseType**
properties	base CoordinateCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance**
used by	element **LinearCoordinateCharacteristicDefinition**

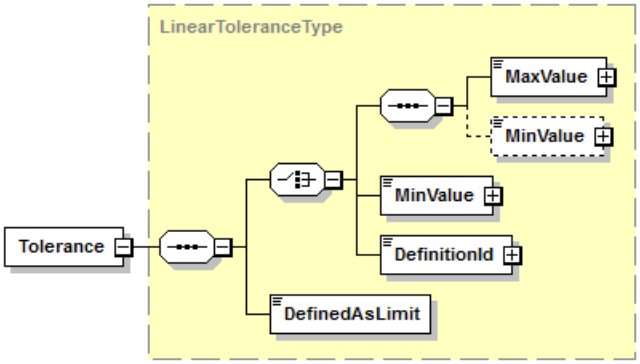
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The LinearCoordinateCharacteristicDefinitionType defines information that can be common to more than one linear coordinate characteristic.

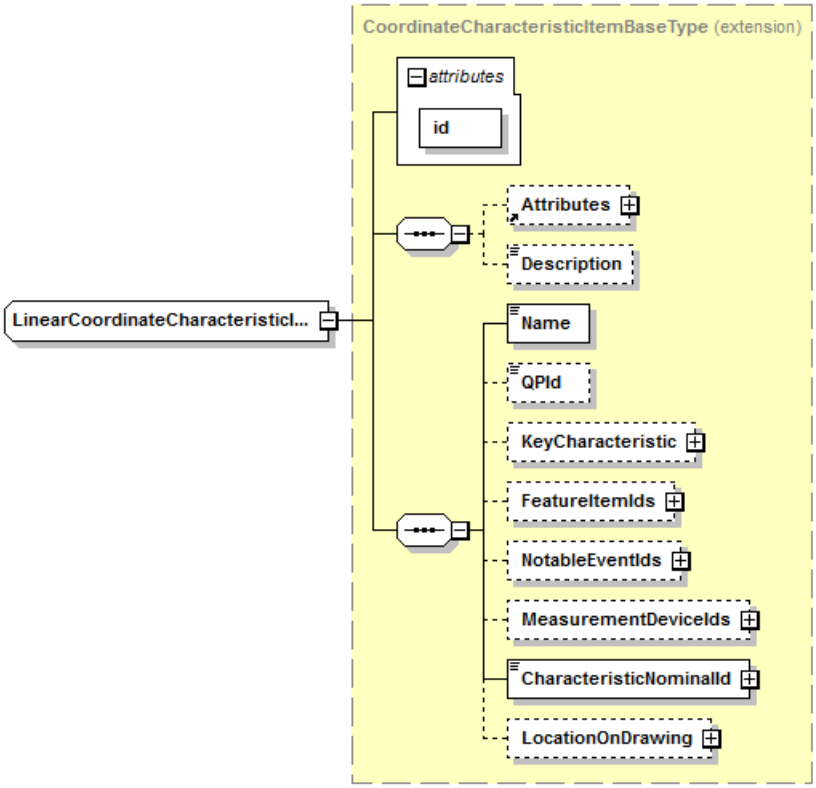
element **LinearCoordinateCharacteristicDefinitionType/Tolerance**

diagram	
type	**LinearToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinitionId DefinedAsLimit**
annotation	documentation The Tolerance element gives information about the linear tolerance.

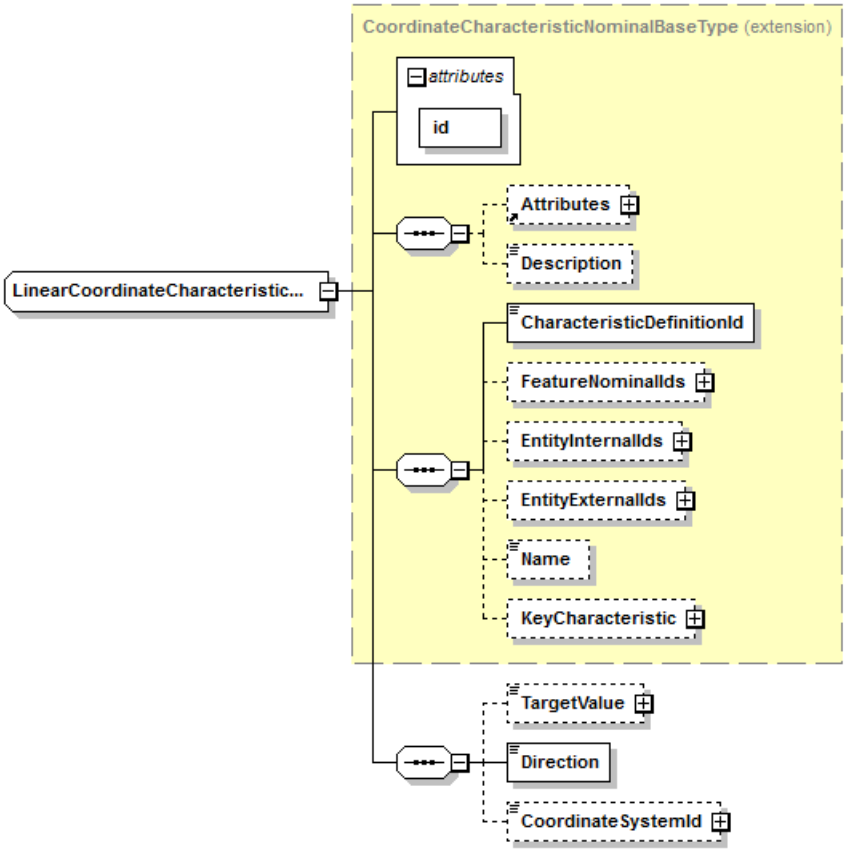
element **LinearCoordinateCharacteristicDefinitionType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

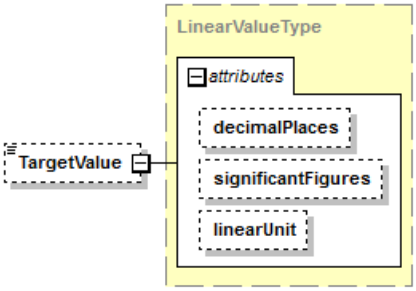
complexType **LinearCoordinateCharacteristicItemType**

diagram	
type	extension of **CoordinateCharacteristicItemBaseType**
properties	base CoordinateCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **LinearCoordinateCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LinearCoordinateCharacteristicItemType defines a linear coordinate characteristic item.

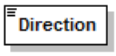
complexType **LinearCoordinateCharacteristicNominalType**

diagram	
type	extension of **CoordinateCharacteristicNominalBaseType**
properties	base CoordinateCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **Direction** **CoordinateSystemId**
used by	element **LinearCoordinateCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LinearCoordinateCharacteristicNominalType defines a unique linear coordinate characteristic nominal.

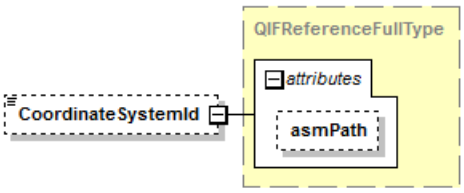
element **LinearCoordinateCharacteristicNominalType/TargetValue**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional TargetValue element is the nominal value.

element **LinearCoordinateCharacteristicNominalType/Direction**

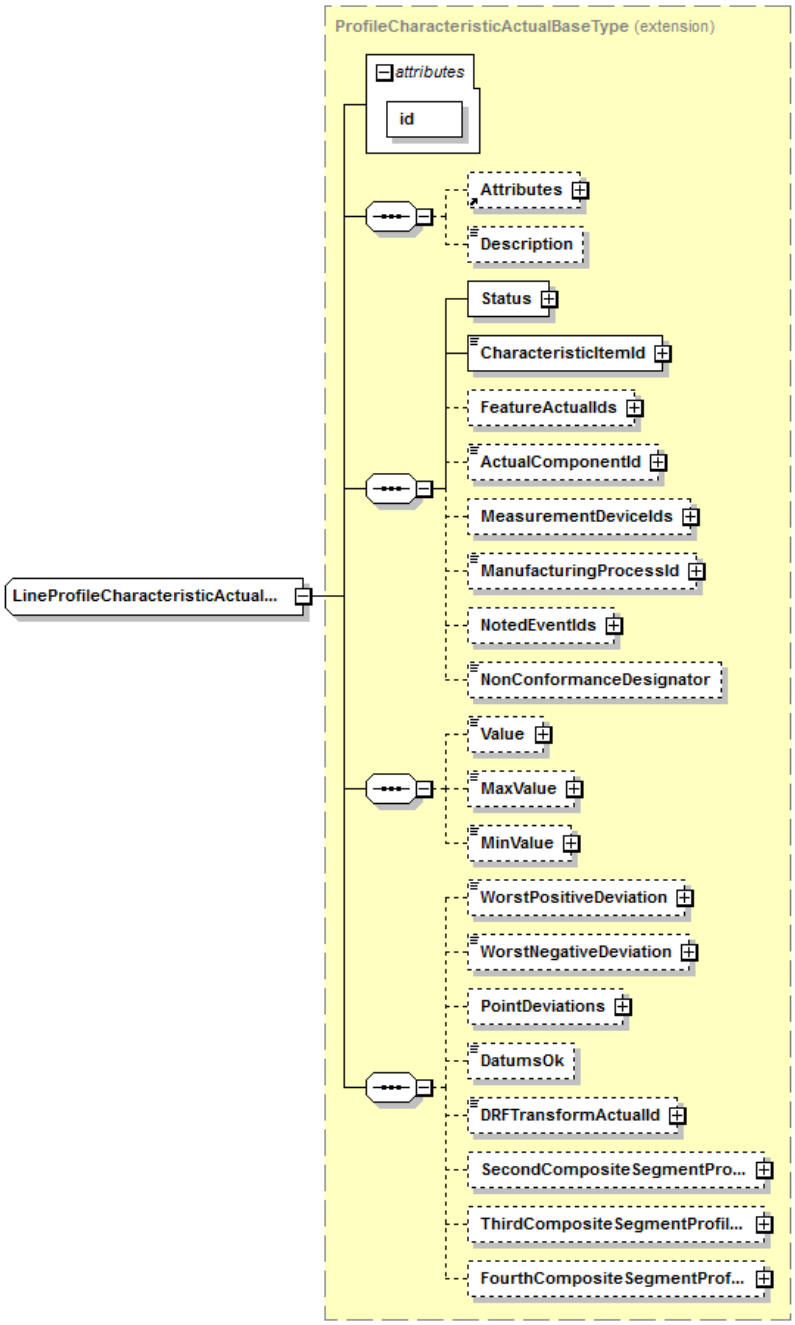
diagram	
type	**LinearCoordinateDirectionEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration XAXIS enumeration YAXIS enumeration ZAXIS enumeration RADIAL
annotation	documentation The Direction element is the coordinate axis for the characteristic.

element **LinearCoordinateCharacteristicNominalType/CoordinateSystemId**

diagram	

type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional CoordinateSystemId element is the QIF id of the coordinate system in which this characteristic is evaluated.

complexType **LineProfileCharacteristicActualType**

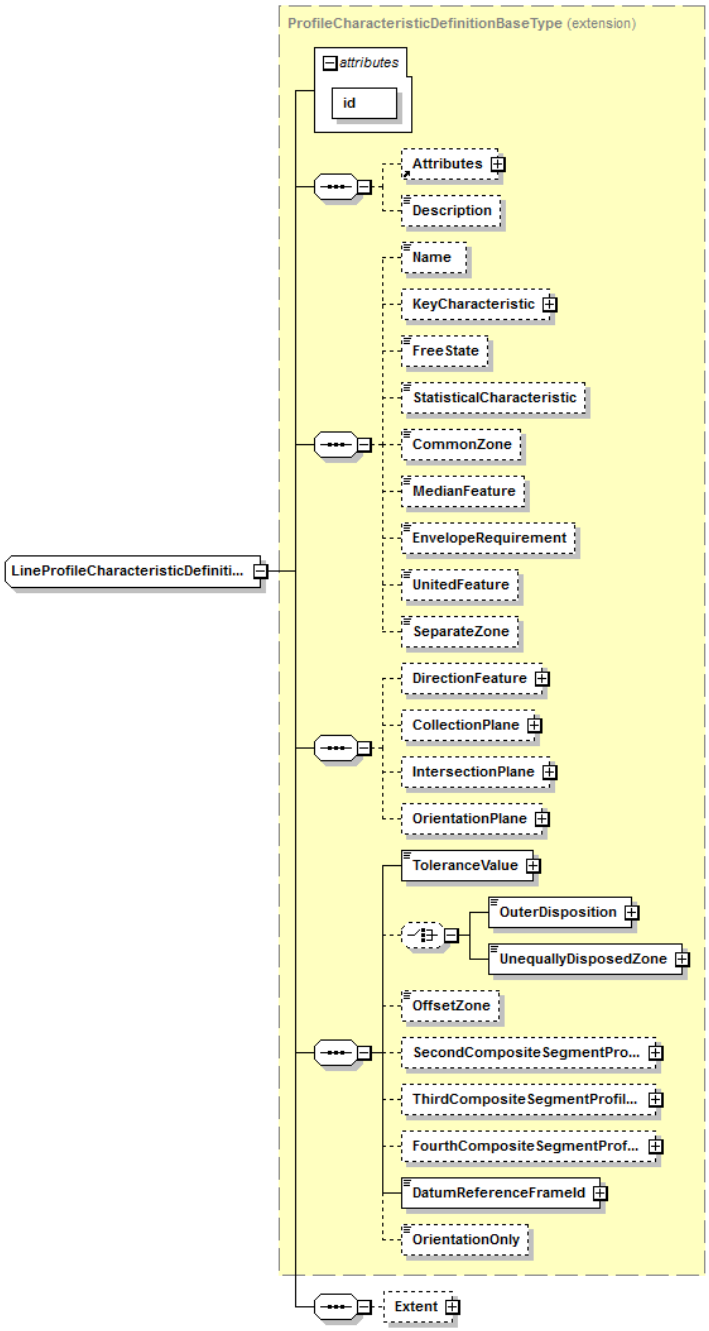
diagram	
type	extension of **ProfileCharacteristicActualBaseType**
properties	base ProfileCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **WorstPositiveDeviation** **WorstNegativeDeviation** **PointDeviations** **DatumsOk** **DRFTransformActualId** **SecondCompositeSegmentProfileActual** **ThirdCompositeSegmentProfileActual** **FourthCompositeSegmentProfileActual**
used by	element **LineProfileCharacteristicActual**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation

	The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LineProfileCharacteristicActualType defines the results of an actual profile of a line characteristic evaluation.

complexType **LineProfileCharacteristicDefinitionType**

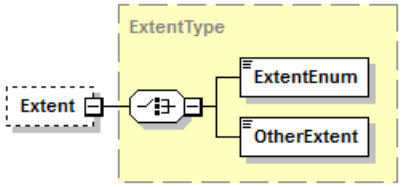
diagram



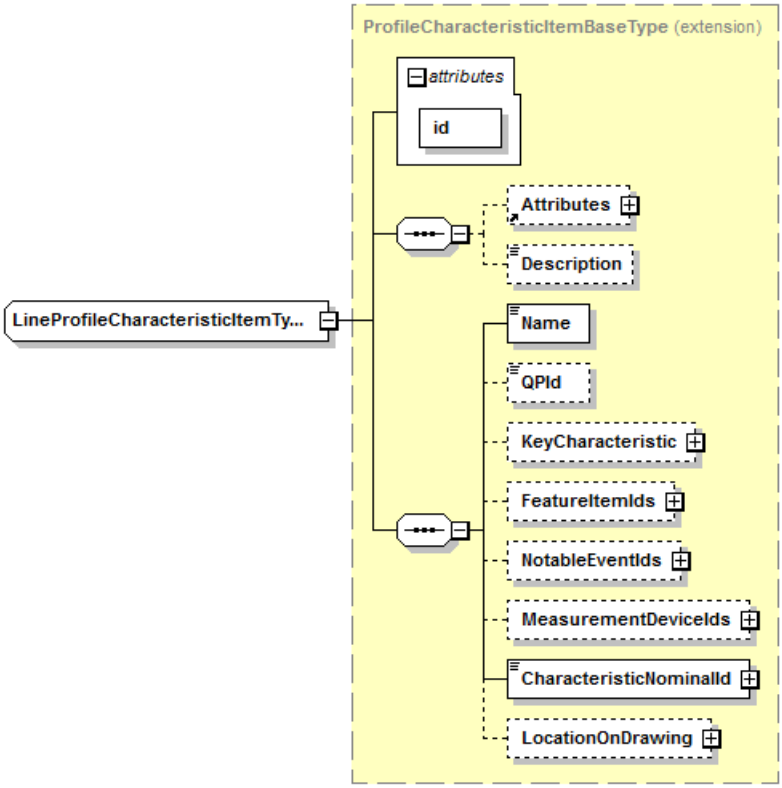
type	extension of **ProfileCharacteristicDefinitionBaseType**

properties	base ProfileCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **OuterDisposition** **UnequallyDisposedZone** **OffsetZone** **SecondCompositeSegmentProfileDefinition** **ThirdCompositeSegmentProfileDefinition** **FourthCompositeSegmentProfileDefinition** **DatumReferenceFrameId** **OrientationOnly** **Extent**
used by	element **LineProfileCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LineProfileCharacteristicDefinitionType defines information that can be common to more than one profile of a line characteristic.

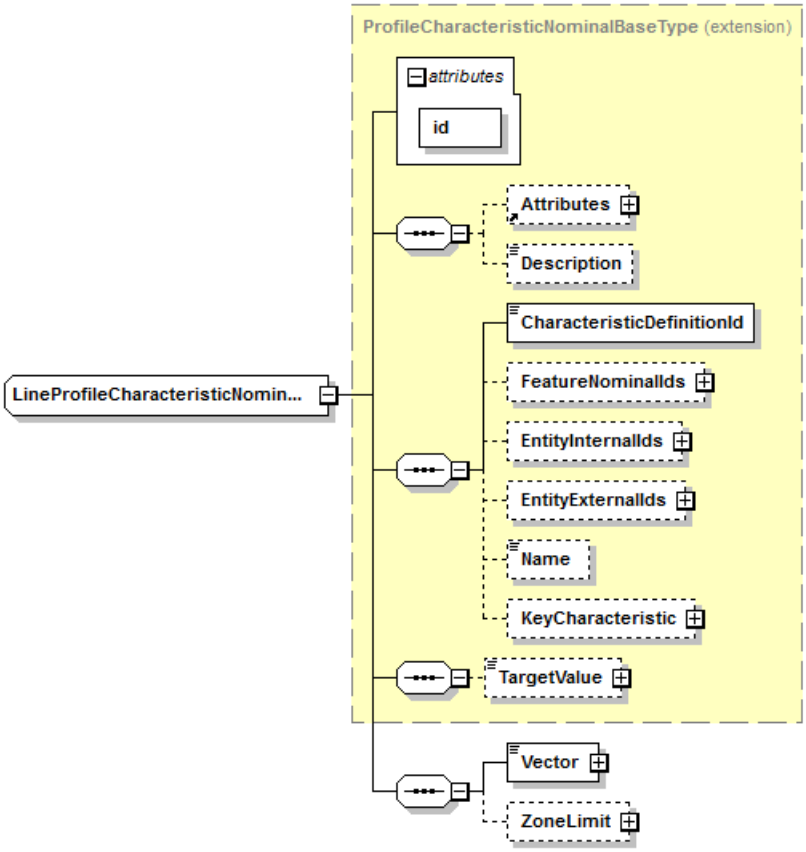
element **LineProfileCharacteristicDefinitionType/Extent**

diagram	
type	**ExtentType**
properties	minOcc 0 maxOcc 1 content complex
children	**ExtentEnum** **OtherExtent**
annotation	documentation The optional Extent element gives the extent of the line profile.

complexType **LineProfileCharacteristicItemType**

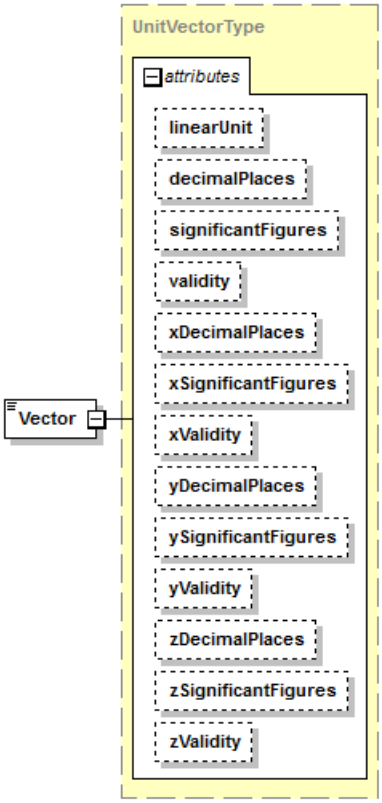
diagram	
type	extension of **ProfileCharacteristicItemBaseType**
properties	base ProfileCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **LineProfileCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LineProfileCharacteristicItemType defines a profile of a line characteristic item.

complexType **LineProfileCharacteristicNominalType**

diagram	
type	extension of **ProfileCharacteristicNominalBaseType**
properties	base ProfileCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **Vector** **ZoneLimit**
used by	element **LineProfileCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LineProfileCharacteristicNominalType defines a unique line profile characteristic nominal. The target value for a profile of a line characteristic can be non-zero to indicate a target value offset from the nominal curve.

element **LineProfileCharacteristicNominalType/Vector**

diagram



type **UnitVectorType**

properties content complex

facets

Kind	Value	Annotation
length	3	

attributes

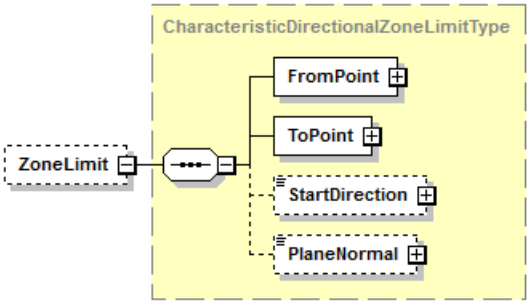
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

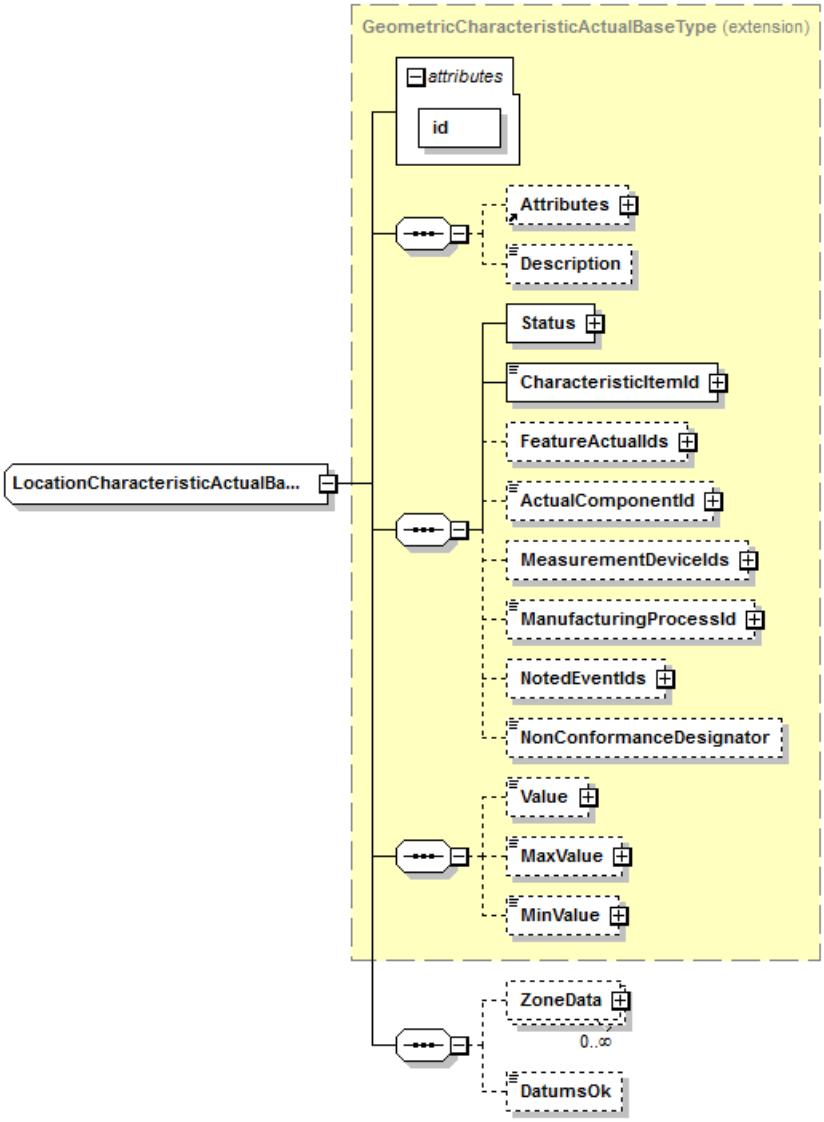
documentation

The vector element is a vector perpendicular to the plane in which the characteristic curve lies.

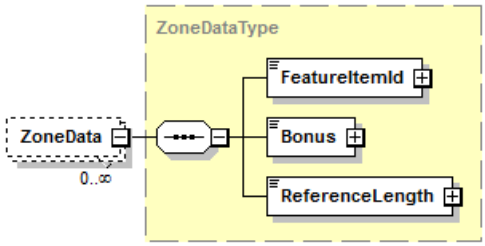
element **LineProfileCharacteristicNominalType/ZoneLimit**

diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extent and orientation of the profile tolerance zone limit.

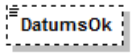
complexType **LocationCharacteristicActualBaseType**

diagram	
type	extension of **GeometricCharacteristicActualBaseType**
properties	base GeometricCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **ZoneData** **DatumsOk**
used by	complexTypes **ConcentricityCharacteristicActualType** **PositionCharacteristicActualType** **SymmetryCharacteristicActualType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LocationCharacteristicActualBaseType is the abstract base type that defines the results of an actual location characteristic evaluation.

element **LocationCharacteristicActualBaseType/ZoneData**

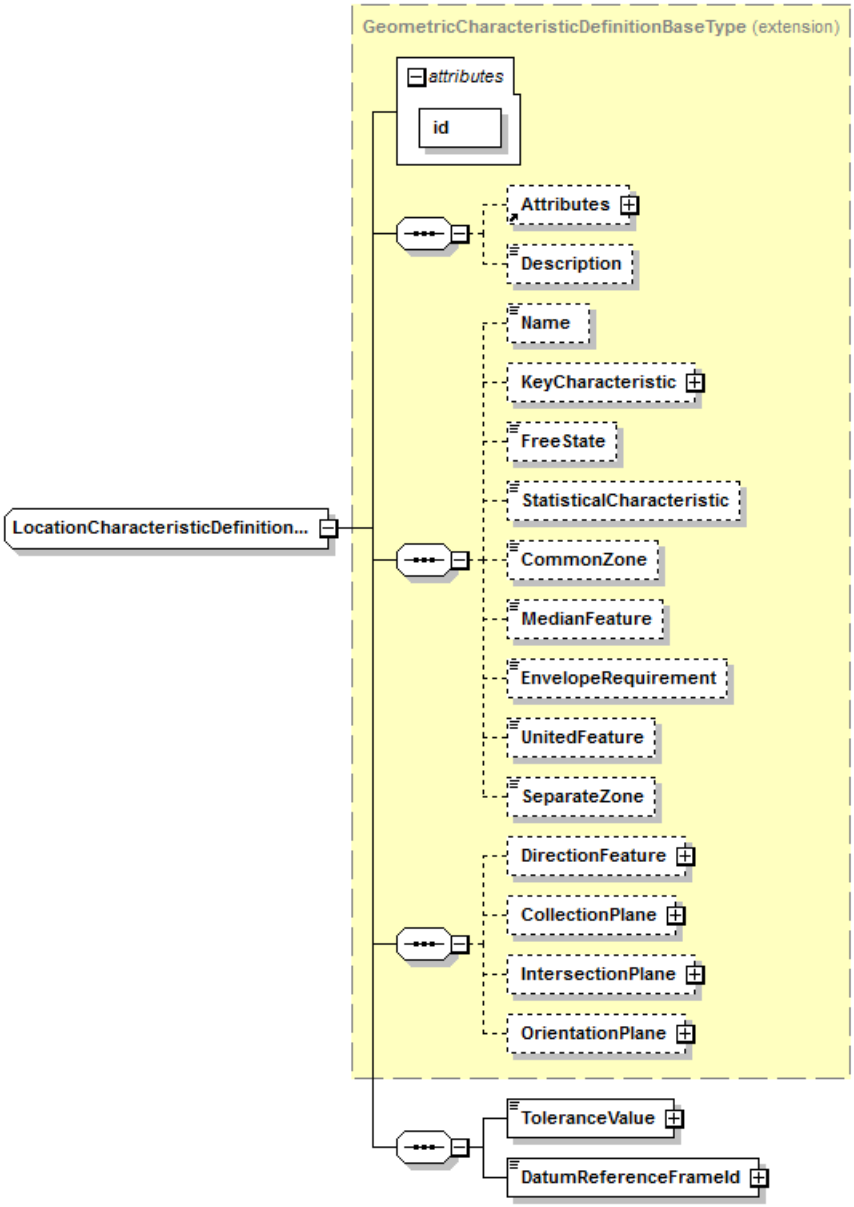
diagram	
type	**ZoneDataType**
properties	minOcc 0 maxOcc unbounded content complex
children	**FeatureItemId Bonus ReferenceLength**
annotation	documentation Each optional ZoneData element gives information about the tolerance zone for the characteristic.

element **LocationCharacteristicActualBaseType/DatumsOk**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional DatumsOk element specifies whether the datum features passed all their associated characteristic evaluations. The element is set to "true" for passed all, is set to "false" for did not pass all, and is not present if the status of the datum features is unknown.

complexType **LocationCharacteristicDefinitionBaseType**

diagram



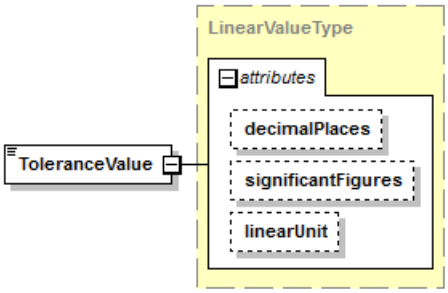
type	extension of **GeometricCharacteristicDefinitionBaseType**
properties	base GeometricCharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId**
used by	complexTypes **ConcentricityCharacteristicDefinitionType** **PositionCharacteristicDefinitionType** **SymmetryCharacteristicDefinitionType**

attributes

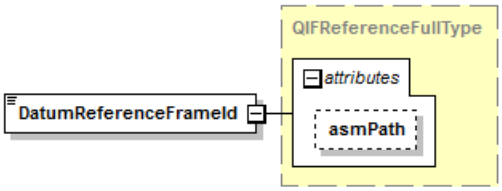
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The LocationCharacteristicDefinitionBaseType is the abstract base type that defines information that can be common to more than one location characteristic.

element **LocationCharacteristicDefinitionBaseType/ToleranceValue**

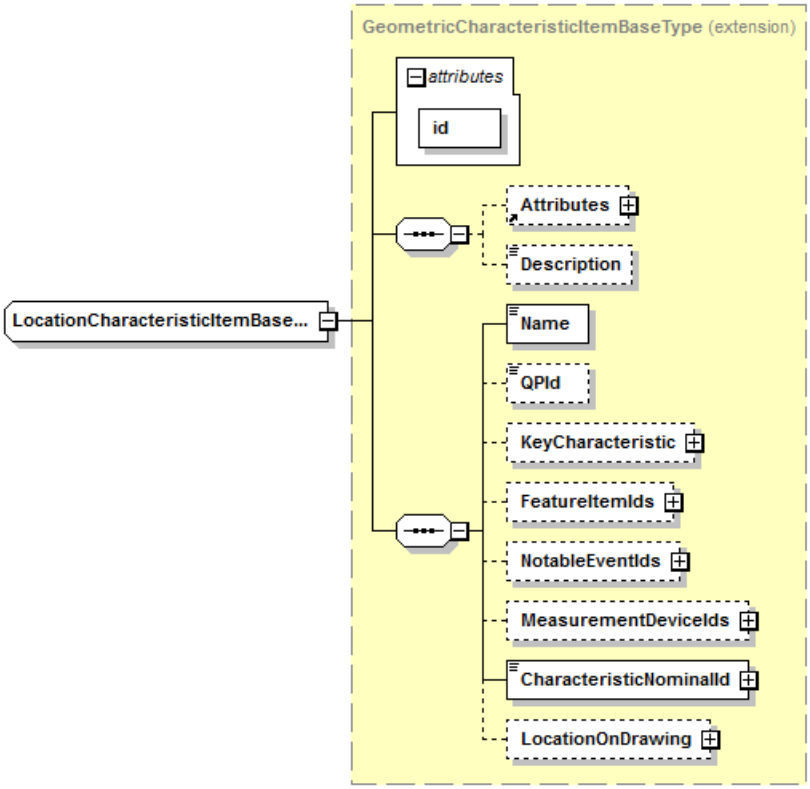
diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces / **xs:nonNegativeInteger** / / / / documentation: See documentation of SpecifiedDecimalType. significantFigures / **xs:nonNegativeInteger** / / / / documentation: See documentation of SpecifiedDecimalType. linearUnit / **xs:token** / / / / documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the location characteristic.

element **LocationCharacteristicDefinitionBaseType/DatumReferenceFrameId**

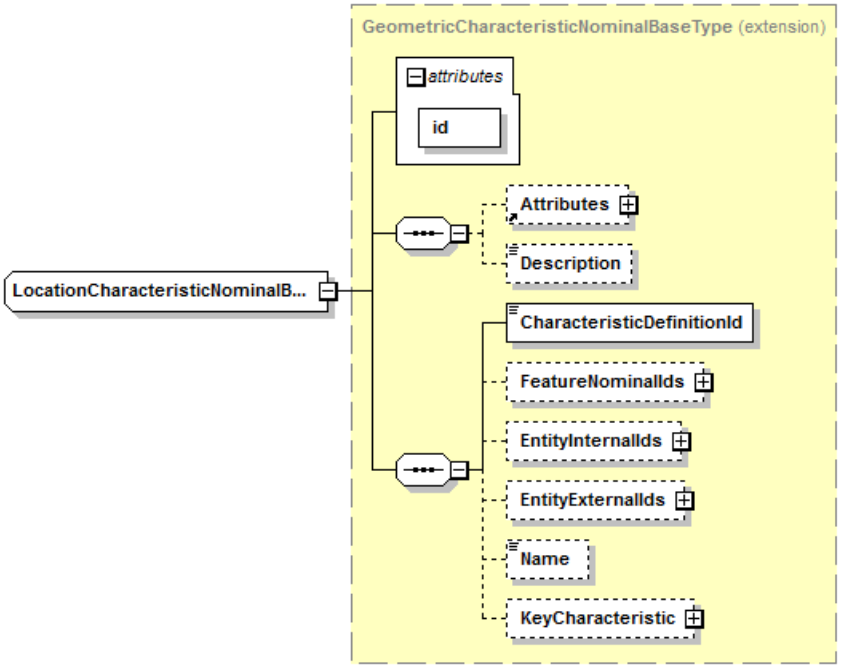
diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation asmPath / **QIFIdType** / / / / documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path

	(instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DatumReferenceFrameId element is the QIF id of the datum reference frame for the location characteristic.

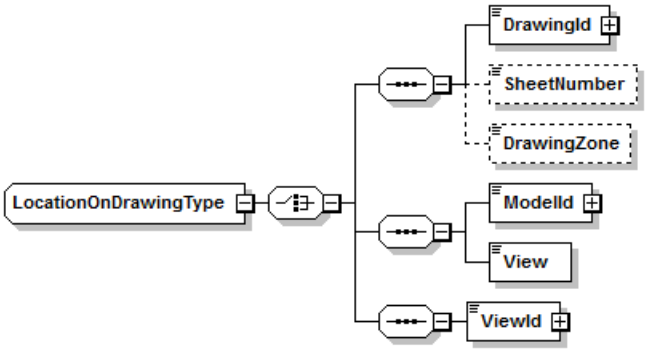
complexType **LocationCharacteristicItemBaseType**

diagram	
type	extension of **GeometricCharacteristicItemBaseType**
properties	base GeometricCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **ConcentricityCharacteristicItemType** **PositionCharacteristicItemType** **SymmetryCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LocationCharacteristicItemBaseType is the abstract base type that defines a location characteristic item base type.

complexType **LocationCharacteristicNominalBaseType**

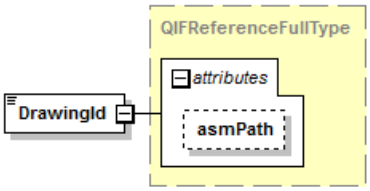
diagram	
type	extension of **GeometricCharacteristicNominalBaseType**
properties	base GeometricCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	complexTypes **ConcentricityCharacteristicNominalType** **PositionCharacteristicNominalType** **SymmetryCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The LocationCharacteristicNominalBaseType is the abstract base type that defines a unique location characteristic nominal.

complexType **LocationOnDrawingType**

diagram	

children	**DrawingId** **SheetNumber** **DrawingZone** **ModelId** **View** **ViewId**
used by	element **CharacteristicItemBaseType/LocationOnDrawing**
annotation	documentation The LocationOnDrawingType defines the drawing location of a characteristic.

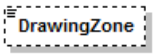
element **LocationOnDrawingType/DrawingId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath; Type: **QIFIdType**; Use: ; Default: ; Fixed: ; Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DrawingId element is the QIF id of the drawing on which information (a characteristic, for example) is given. It should be the QIF id of a PrintedDrawing or DigitalDrawing in a DefinitionExternal.

element **LocationOnDrawingType/SheetNumber**

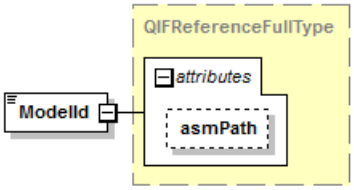
diagram	
type	**xs:string**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional SheetNumber element is the sheet number of the drawing on which information (a characteristic, for example) is given.

element **LocationOnDrawingType/DrawingZone**

diagram	

type	**xs:string**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional DrawingZone element is the drawing zone of the sheet on which information (a characteristic, for example) is given.

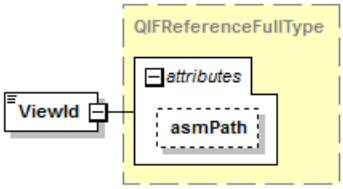
element **LocationOnDrawingType/ModelId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The ModelId element is the QIF id of the model in which information (a characteristic, for example) is given. It should be the QIF id of a DigitalModel in an DefinitionExternal.

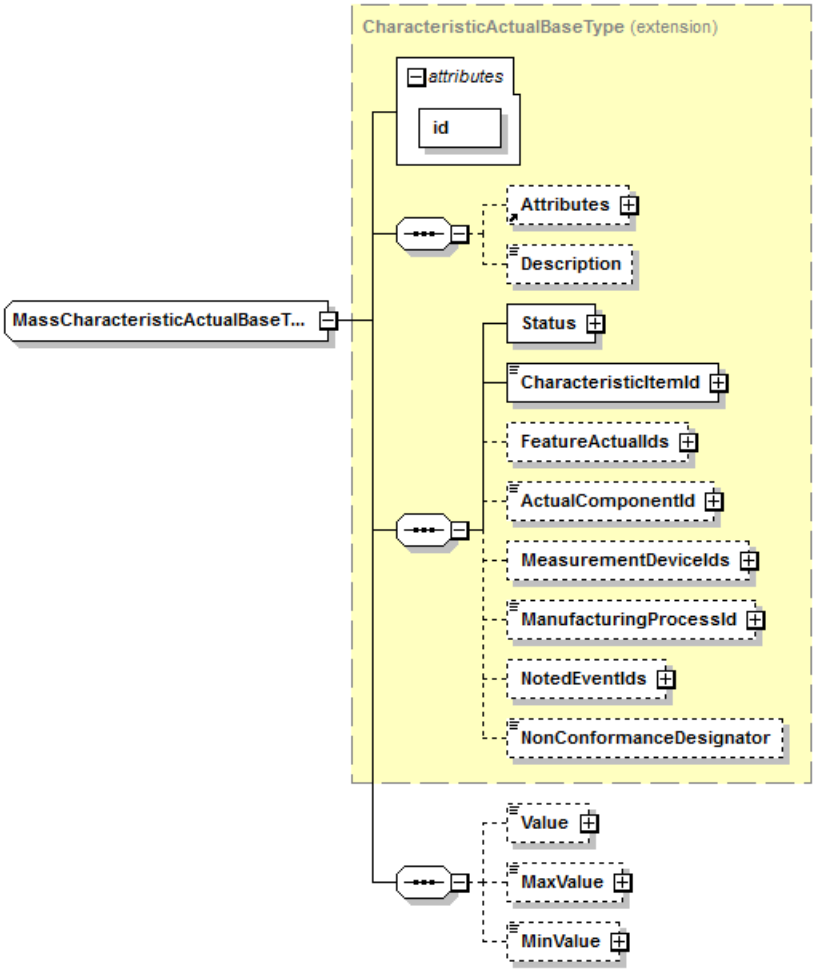
element **LocationOnDrawingType/View**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The View element is the name of the view in which the characteristic is located.

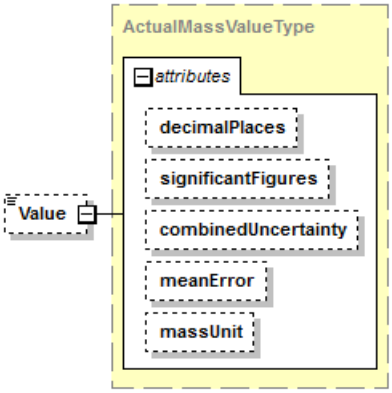
element **LocationOnDrawingType/ViewId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The ViewId element is the QIF id of the view in which the characteristic is located.

complexType **MassCharacteristicActualBaseType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexType **UserDefinedMassCharacteristicActualType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The MassCharacteristicActualBaseType is the abstract base type that defines the results of an actual mass characteristic evaluation.

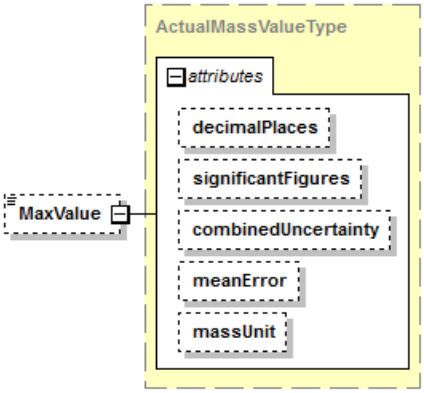
element **MassCharacteristicActualBaseType/Value**

diagram	
type	**ActualMassValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	

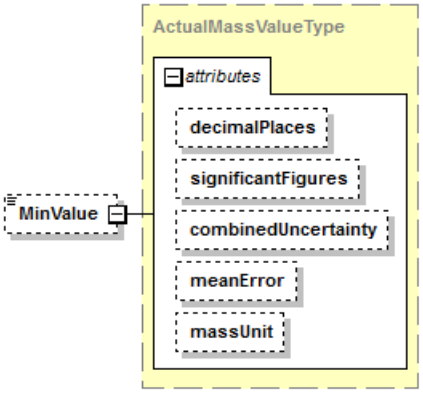
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
massUnit	**xs:token**				documentation The optional massUnit attribute defines the unit used by ActualMassValueType.

annotation	documentation The optional Value element is the actual measured value of the mass characteristic.

element **MassCharacteristicActualBaseType/MaxValue**

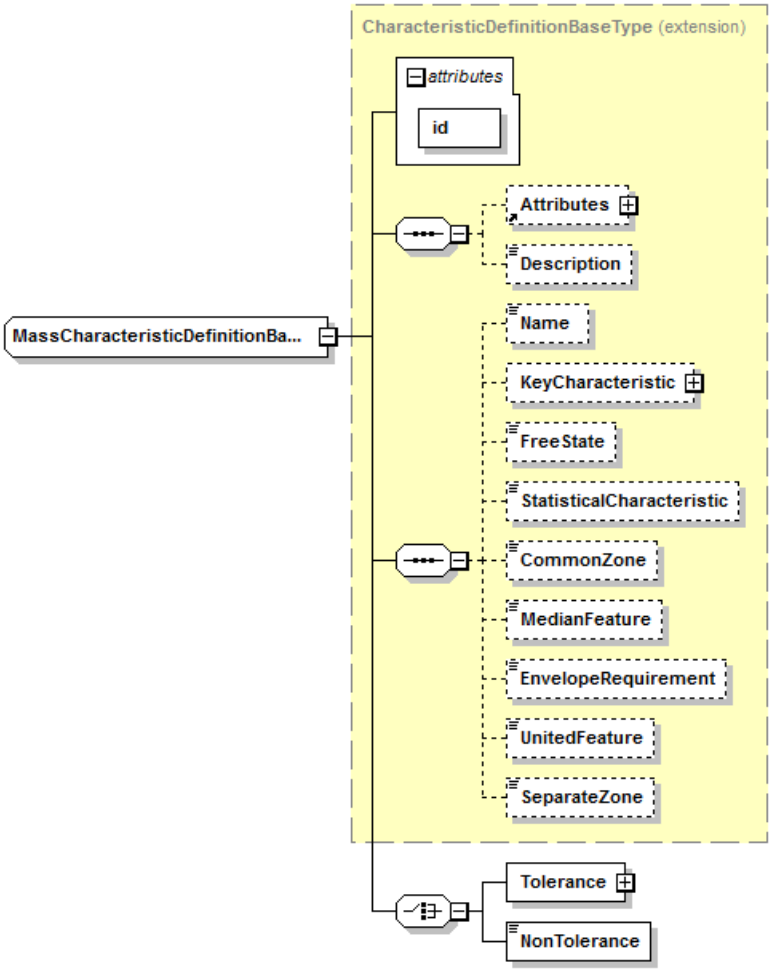
diagram	
type	**ActualMassValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. massUnit **xs:token** documentation The optional massUnit attribute defines the unit used by ActualMassValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **MassCharacteristicActualBaseType/MinValue**

diagram	
type	**ActualMassValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. massUnit **xs:token** documentation The optional massUnit attribute defines the unit used by ActualMassValueType.
annotation	documentation The optional MinValue element is the minimum of the actual measured value when reported.

complexType **MassCharacteristicDefinitionBaseType**

diagram



type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedMassCharacteristicDefinitionType**

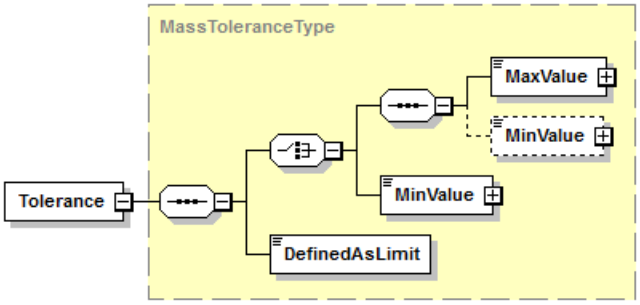
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

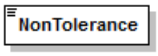
annotation

documentation
The MassCharacteristicDefinitionBaseType is the abstract base type that defines a mass characteristic.

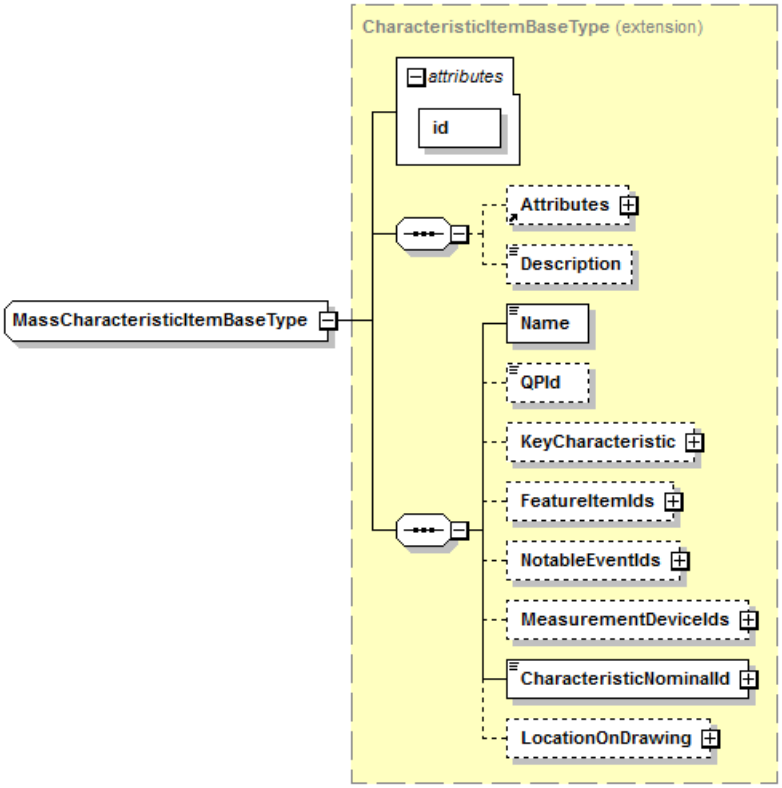
element **MassCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**MassToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the mass characteristic.

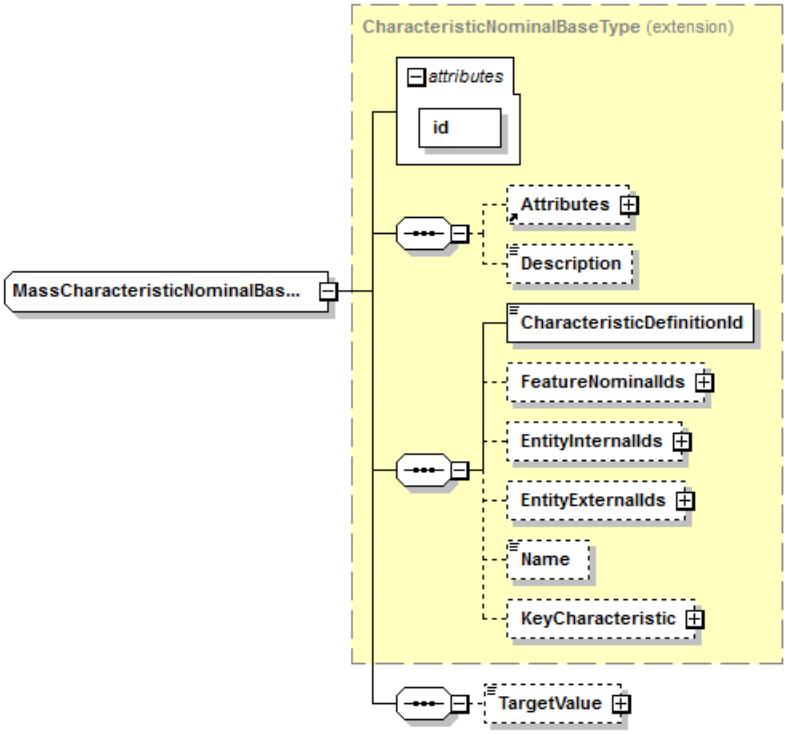
element **MassCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

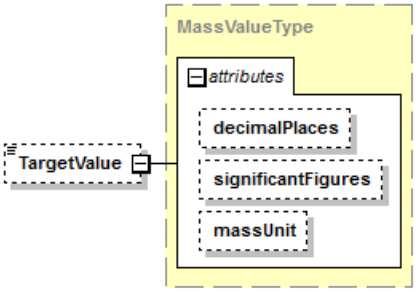
complexType **MassCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedMassCharacteristicItemType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The MassCharacteristicItemBaseType is the abstract base type that defines a mass characteristic item.

complexType **MassCharacteristicNominalBaseType**

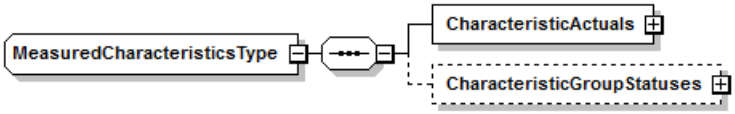
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedMassCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The MassCharacteristicNominalBaseType is the abstract base type that defines a unique mass characteristic nominal.

element **MassCharacteristicNominalBaseType/TargetValue**

diagram	

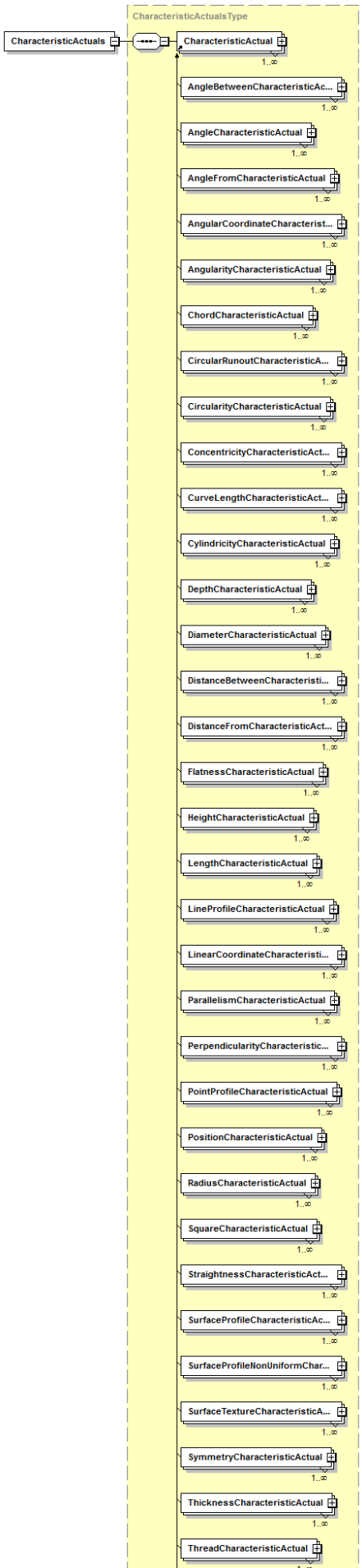
type	**MassValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. massUnit **xs:token** — documentation: The optional massUnit attribute defines the UnitName for the MassValueType.
annotation	documentation The optional TargetValue element is the nominal value of the mass characteristic.

complexType **MeasuredCharacteristicsType**

diagram	
children	**CharacteristicActuals** **CharacteristicGroupStatuses**
used by	element **MeasuredCharacteristics**

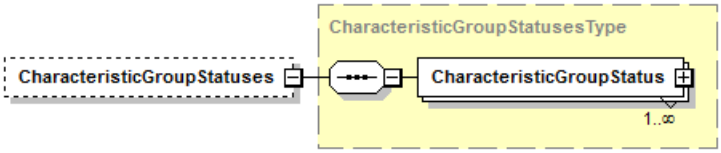
element **MeasuredCharacteristicsType/CharacteristicActuals**

diagram


CharacteristicActualsType
CharacteristicActuals
CharacteristicActual
AngleBetweenCharacteristicAc...
AngleCharacteristicActual
AngleFromCharacteristicActual
AngularCoordinateCharacterist...
AngularityCharacteristicActual
ChordCharacteristicActual
CircularRunoutCharacteristicA...
CircularityCharacteristicActual
ConcentricityCharacteristicAct...
CurveLengthCharacteristicAct...
CylindricityCharacteristicActual
DepthCharacteristicActual
DiameterCharacteristicActual
DistanceBetweenCharacteristi...
DistanceFromCharacteristicAct...
FlatnessCharacteristicActual
HeightCharacteristicActual
LengthCharacteristicActual
LineProfileCharacteristicActual
LinearCoordinateCharacteristi...
ParallelismCharacteristicActual
PerpendicularityCharacteristic...
PointProfileCharacteristicActual
PositionCharacteristicActual
RadiusCharacteristicActual
SquareCharacteristicActual
StraightnessCharacteristicAct...
SurfaceProfileCharacteristicAc...
SurfaceProfileNonUniformChar...
SurfaceTextureCharacteristicA...
SymmetryCharacteristicActual
ThicknessCharacteristicActual
ThreadCharacteristicActual
1..∞

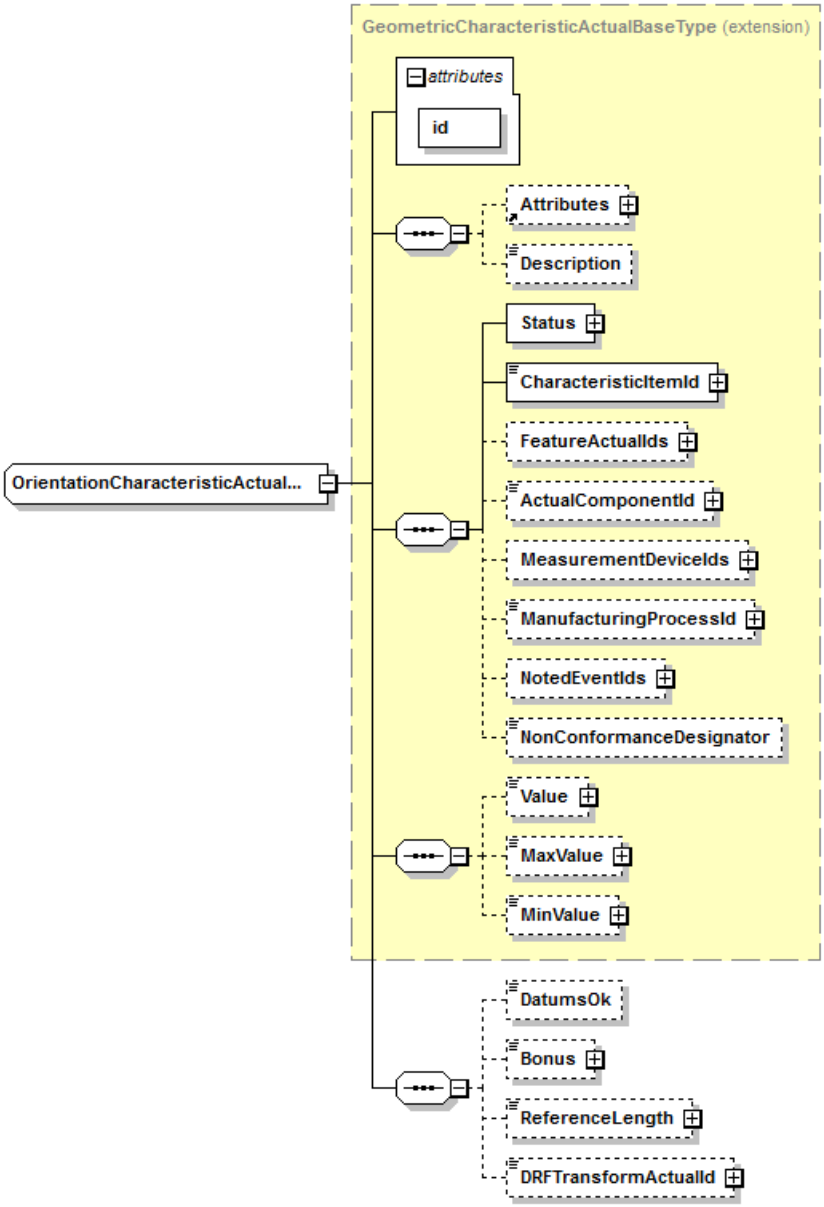
type	**CharacteristicActualsType**
properties	content complex
children	**CharacteristicActual**
annotation	documentation The CharacteristicActuals element is a list of characteristic actuals.

element **MeasuredCharacteristicsType/CharacteristicGroupStatuses**

diagram	
type	**CharacteristicGroupStatusesType**
properties	minOcc 0 maxOcc 1 content complex
children	**CharacteristicGroupStatus**
annotation	documentation The optional CharacteristicGroupsStatuses element is a list of characteristic group statuses.

complexType **OrientationCharacteristicActualBaseType**

diagram



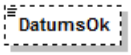
type	extension of **GeometricCharacteristicActualBaseType**
properties	base GeometricCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk** **Bonus** **ReferenceLength** **DRFTransformActualId**
used by	complexTypes **AngularityCharacteristicActualType** **ParallelismCharacteristicActualType** **PerpendicularityCharacteristicActualType**

attributes

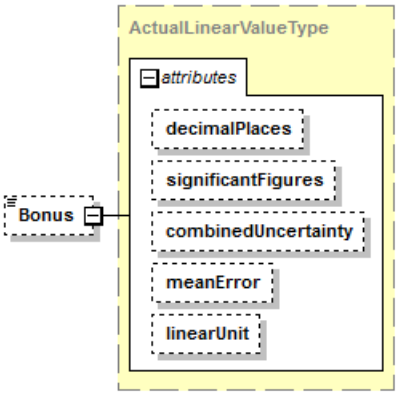
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The OrientationCharacteristicActualBaseType is the abstract base type that defines the results of an actual orientation characteristic evaluation

element **OrientationCharacteristicActualBaseType/DatumsOk**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional DatumsOk element specifies whether the datum features passed all their associated characteristic evaluations. The element is set to "true" for passed all, is set to "false" for did not pass all, and is not present if the status of the datum features is unknown.

element **OrientationCharacteristicActualBaseType/Bonus**

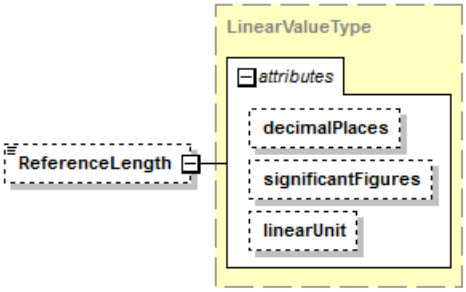
diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex

attributes

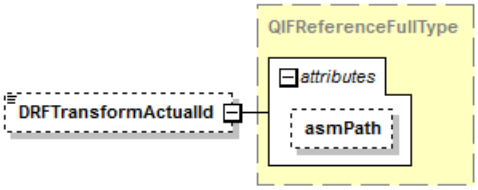
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.

	linearUnit	**xs:token**	documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional Bonus element is the size of the applied bonus.		

element **OrientationCharacteristicActualBaseType/ReferenceLength**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional ReferenceLength element is the length of the applied tolerance zone.

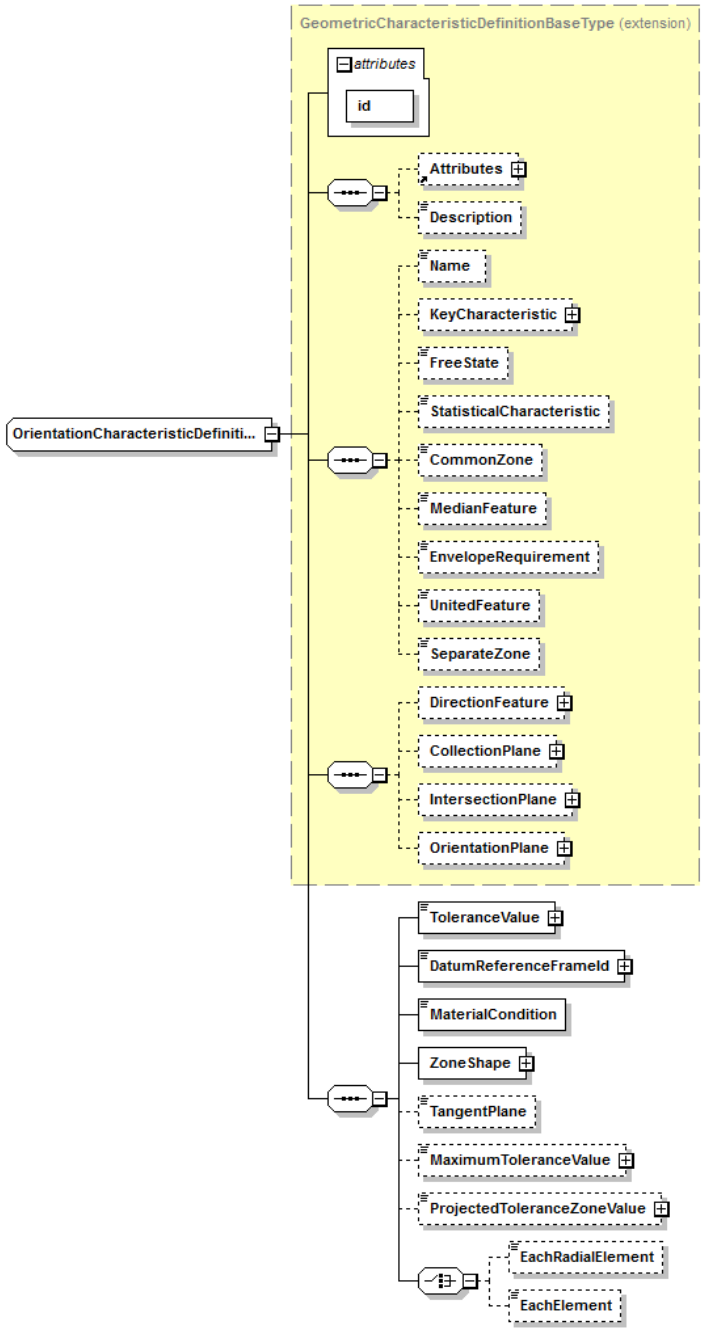
element **OrientationCharacteristicActualBaseType/DRFTransformActualId**

diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation asmPath **QIFIdType** documentation The optional asmPath attribute is an id which must be used for

	locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional DRFTransformActualId element is the QIF id of the actual transform associated with the mobile datum reference frame for this characteristic.

complexType **OrientationCharacteristicDefinitionBaseType**

diagram



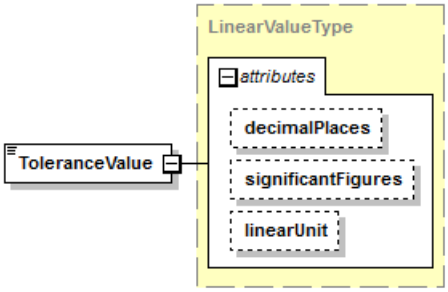
type	extension of **GeometricCharacteristicDefinitionBaseType**
properties	base GeometricCharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **MaterialCondition** **ZoneShape** **TangentPlane** **MaximumToleranceValue** **ProjectedToleranceZoneValue** **EachRadialElement** **EachElement**
used by	complexTypes **AngularityCharacteristicDefinitionType** **ParallelismCharacteristicDefinitionType** **PerpendicularityCharacteristicDefinitionType**

attributes

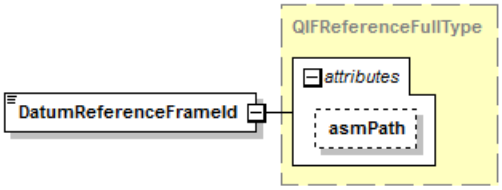
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation

	The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The OrientationCharacteristicDefinitionBaseType is the abstract base type that defines information in an orientation characteristic feature control frame.

element **OrientationCharacteristicDefinitionBaseType/ToleranceValue**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces / **xs:nonNegativeInteger** / / / / documentation See documentation of SpecifiedDecimalType. significantFigures / **xs:nonNegativeInteger** / / / / documentation See documentation of SpecifiedDecimalType. linearUnit / **xs:token** / / / / documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the orientation characteristic.

element **OrientationCharacteristicDefinitionBaseType/DatumReferenceFrameId**

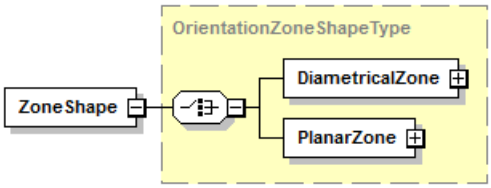
diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation asmPath / **QIFIdType** / / / / documentation The optional asmPath attribute is an id which must be used for

	locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DatumReferenceFrameId element is the QIF id of the datum reference frame for the orientation characteristic.

element **OrientationCharacteristicDefinitionBaseType/MaterialCondition**

diagram	
type	**MaterialModifierEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration REGARDLESS enumeration LEAST enumeration MAXIMUM enumeration NONE
annotation	documentation The MaterialCondition element is the material condition modifier for the orientation characteristic value.

element **OrientationCharacteristicDefinitionBaseType/ZoneShape**

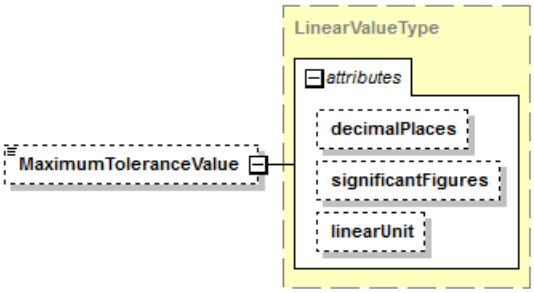
diagram	
type	**OrientationZoneShapeType**
properties	content complex
children	**DiametricalZone** **PlanarZone**
annotation	documentation The ZoneShape element describes the shape of the tolerance zone.

element **OrientationCharacteristicDefinitionBaseType/TangentPlane**

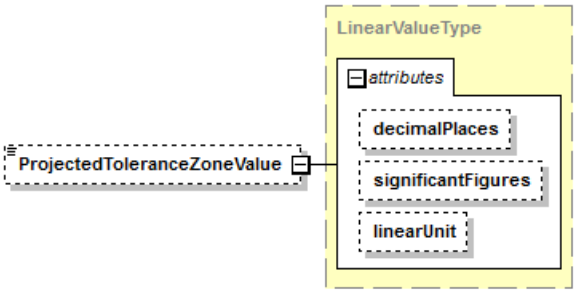
diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple

annotation	documentation The optional TangentPlane element indicates whether the characteristic is evaluated with a tangent plane: "true" for tangent plane, "false" or not present for no tangent plane.

element **OrientationCharacteristicDefinitionBaseType/MaximumToleranceValue**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional MaximumToleranceValue element is the maximum tolerance value in cases where bonus is available.

element **OrientationCharacteristicDefinitionBaseType/ProjectedToleranceZoneValue**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType.

	linearUnit **xs:token**	documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional ProjectedToleranceZoneValue element is the length of a projected tolerance zone.	

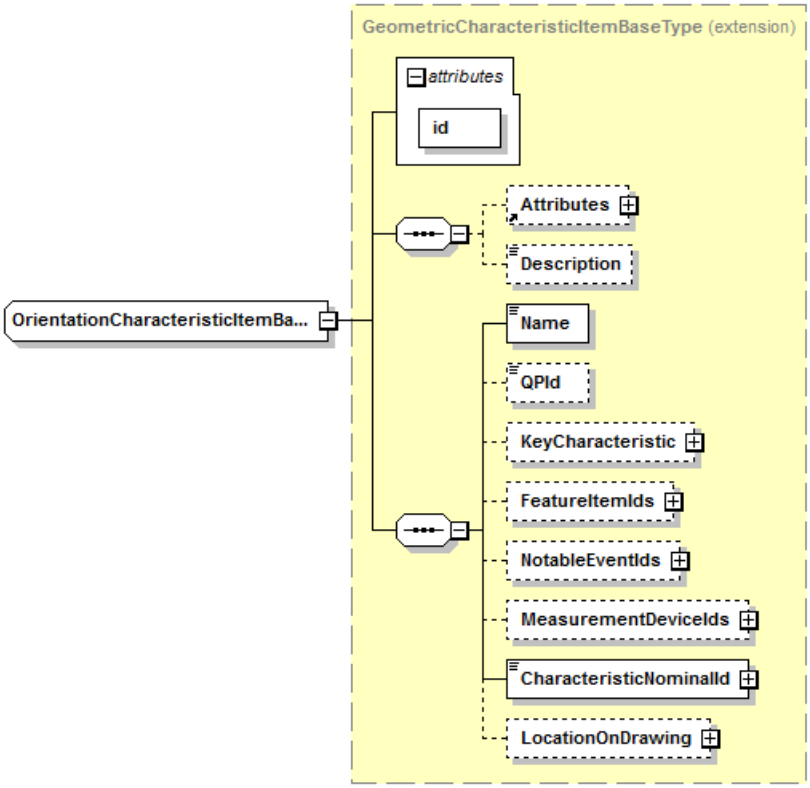
element **OrientationCharacteristicDefinitionBaseType/EachRadialElement**

diagram	EachRadialElement
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional EachRadialElement element indicates whether the characteristic is to be evaluated independently for each radial element. The element is set to "true" for evaluate independently, and is set to "false" or is not present for do not evaluate independently.

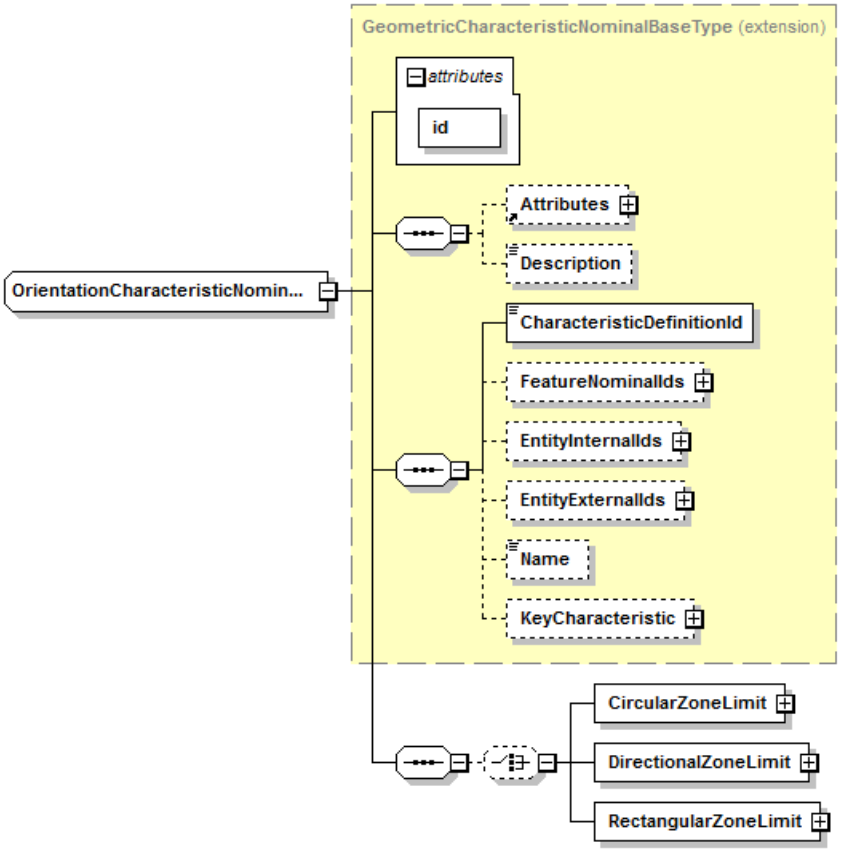
element **OrientationCharacteristicDefinitionBaseType/EachElement**

diagram	EachElement
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional EachElement element indicates whether the characteristic is to be evaluated independently for each element. The element is set to "true" for evaluate independently, and is set to "false" or is not present for do not evaluate independently. (ISO specific equivalent is LE modifier)

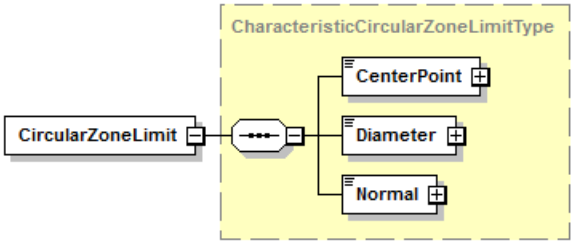
complexType **OrientationCharacteristicItemBaseType**

diagram	
type	extension of **GeometricCharacteristicItemBaseType**
properties	base GeometricCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **AngularityCharacteristicItemType** **ParallelismCharacteristicItemType** **PerpendicularityCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The OrientationCharacteristicItemBaseType is the abstract base type that defines an orientation characteristic item.

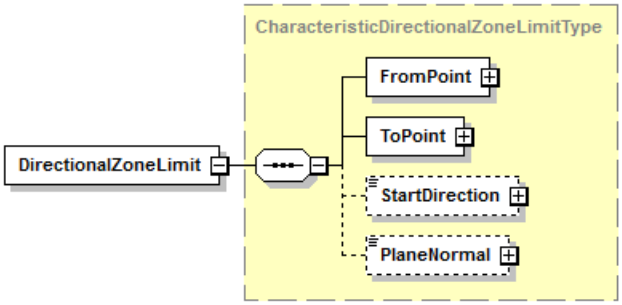
complexType **OrientationCharacteristicNominalBaseType**

diagram	
type	extension of **GeometricCharacteristicNominalBaseType**
properties	base GeometricCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **CircularZoneLimit** **DirectionalZoneLimit** **RectangularZoneLimit**
used by	complexTypes **AngularityCharacteristicNominalType** **ParallelismCharacteristicNominalType** **PerpendicularityCharacteristicNominalType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The OrientationCharacteristicNominalBaseType is the abstract base type that defines a unique orientation characteristic nominal.

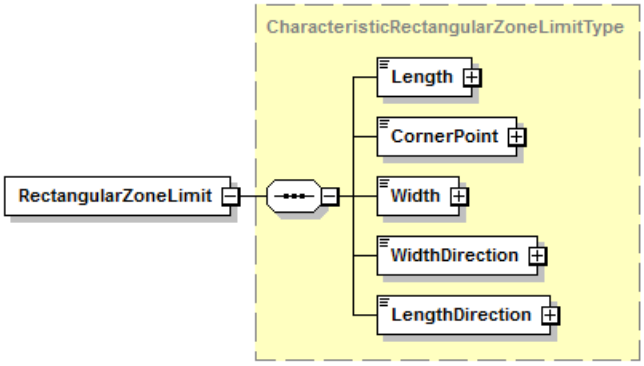
element **OrientationCharacteristicNominalBaseType/CircularZoneLimit**

diagram	
type	**CharacteristicCircularZoneLimitType**
properties	content complex
children	**CenterPoint Diameter Normal**
annotation	documentation The CircularZoneLimit element gives information about a circular tolerance zone limit. This element is in an optional choice.

element **OrientationCharacteristicNominalBaseType/DirectionalZoneLimit**

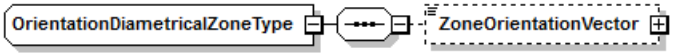
diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	content complex
children	**FromPoint ToPoint StartDirection PlaneNormal**
annotation	documentation The DirectionalZoneLimit element gives information about a directional tolerance zone limit. This element is in an optional choice.

element **OrientationCharacteristicNominalBaseType/RectangularZoneLimit**

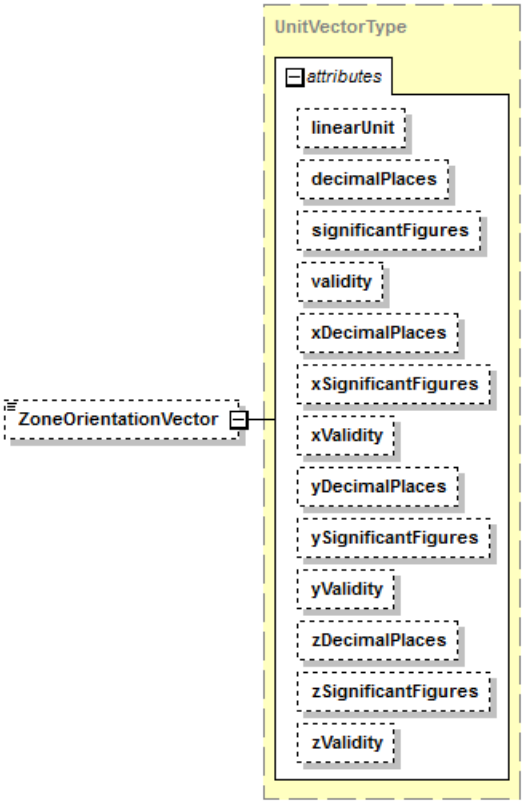
diagram	
type	**CharacteristicRectangularZoneLimitType**

properties	content complex
children	**Length CornerPoint Width WidthDirection LengthDirection**
annotation	documentation The RectangularZoneLimit element gives information about a rectangular tolerance zone limit. This element is in an optional choice.

complexType **OrientationDiametricalZoneType**

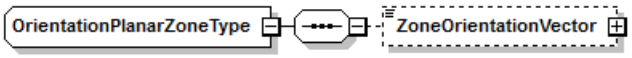
diagram	
children	**ZoneOrientationVector**
used by	element **OrientationZoneShapeType/DiametricalZone**
annotation	documentation The OrientationDiametricalZoneType defines the shape of a tolerance zone as diametrical.

element **OrientationDiametricalZoneType/ZoneOrientationVector**

diagram	
type	**UnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3
attributes	Name Type Use Default Fixed Annotation linearUnit **xs:token**

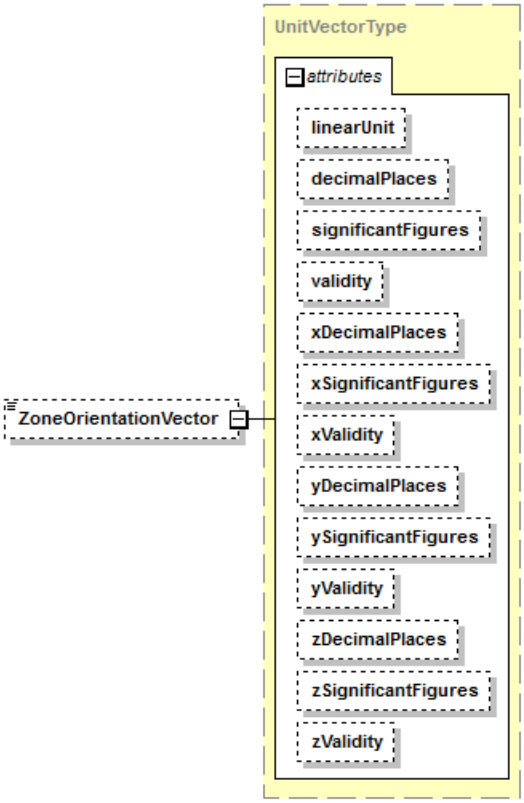
	decimalPlaces	**xs:nonNegativeInteger**
	significantFigures	**xs:nonNegativeInteger**
	validity	**ValidityEnumType**
	xDecimalPlaces	**xs:nonNegativeInteger**
	xSignificantFigures	**xs:nonNegativeInteger**
	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
annotation	documentation The optional ZoneOrientationVector element gives the orientation of the diametrical tolerance zone.	

complexType **OrientationPlanarZoneType**

diagram	
children	**ZoneOrientationVector**
used by	element **OrientationZoneShapeType/PlanarZone**
annotation	documentation The OrientationPlanarZoneType defines the shape of a tolerance zone as planar.

element **OrientationPlanarZoneType/ZoneOrientationVector**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

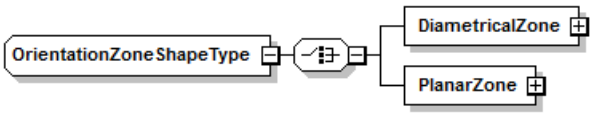
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

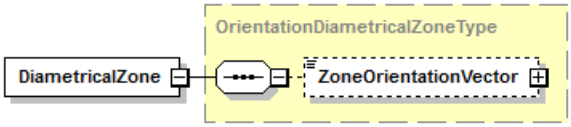
documentation

The optional ZoneOrientationVector element gives the orientation of the tolerance zone.

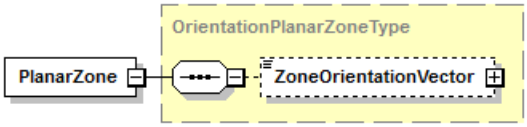
complexType **OrientationZoneShapeType**

diagram	
children	DiametricalZone PlanarZone
used by	element OrientationCharacteristicDefinitionBaseType/ZoneShape
annotation	documentation The OrientationZoneShapeType defines the shape of a tolerance zone for an orientation characteristic.

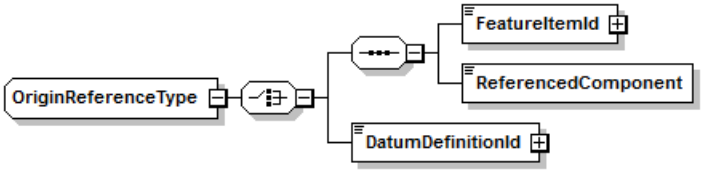
element **OrientationZoneShapeType/DiametricalZone**

diagram	
type	OrientationDiametricalZoneType
properties	content complex
children	ZoneOrientationVector
annotation	documentation The DiametricalZone element is present when the orientation characteristic feature control frame contains a diameter symbol (Ø) modifying the tolerance value.

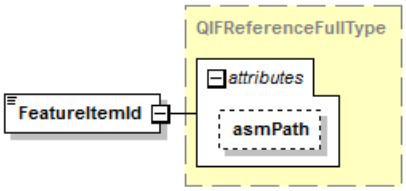
element **OrientationZoneShapeType/PlanarZone**

diagram	
type	OrientationPlanarZoneType
properties	content complex
children	ZoneOrientationVector
annotation	documentation The PlanarZone element is present when the orientation characteristic feature control frame does not contain a diameter symbol modifying the tolerance value.

complexType **OriginReferenceType**

diagram	
children	FeatureItemId ReferencedComponent DatumDefinitionId
used by	elements AngleFromCharacteristicNominalType/OriginReference DistanceFromCharacteristicNominalType/OriginReference
annotation	documentation The OriginReferenceType defines the origin or reference point for a tolerance between two features.

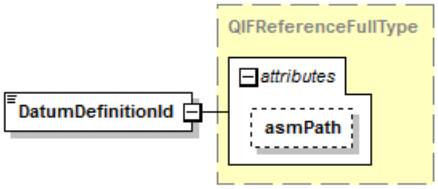
element **OriginReferenceType/FeatureItemId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath; Type: **QIFIdType**; Use; Default; Fixed; Annotation: documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation: The FeatureItemId element is the QIF id of the first of two features involved in an angle-from characteristic or a distance-from characteristic. This must be the QIF id of a feature item.

element **OriginReferenceType/ReferencedComponent**

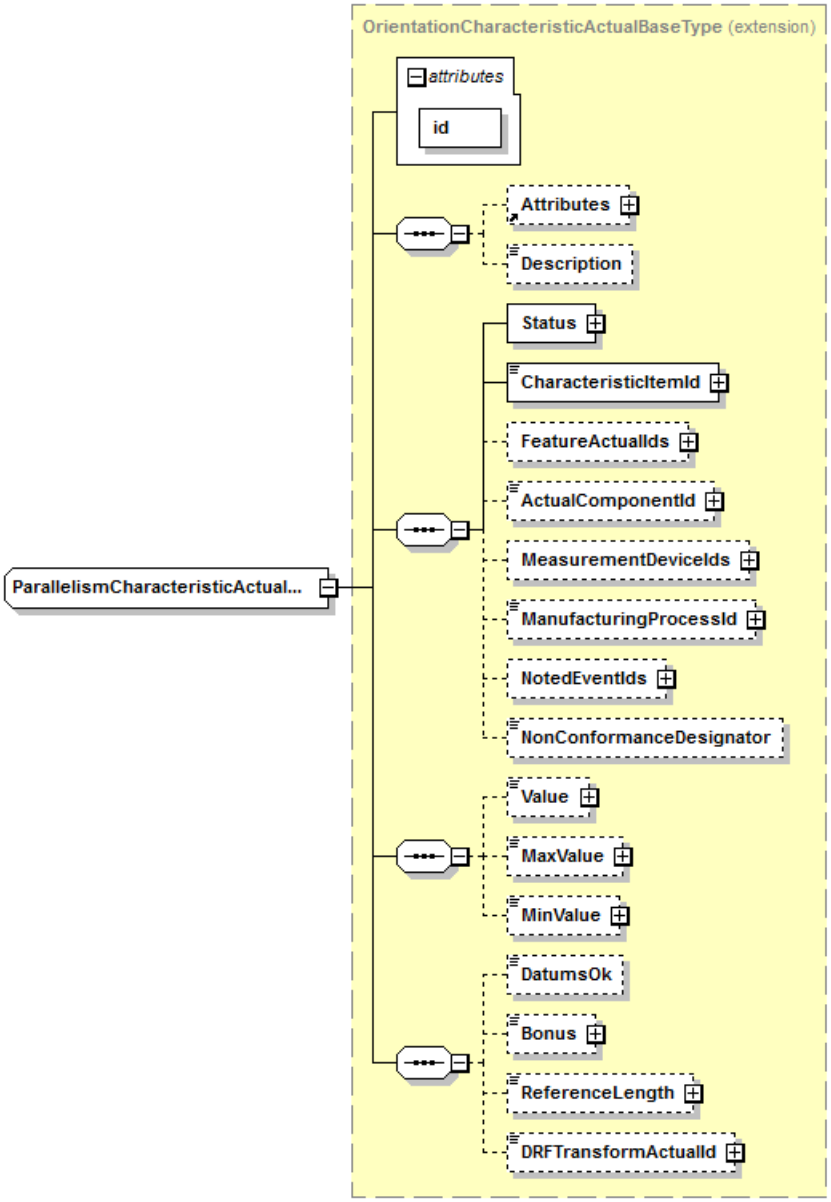
diagram	
type	**ReferencedComponentEnumType**
properties	content simple
facets	Kind: enumeration, Value: NOMINAL; Kind: enumeration, Value: ACTUAL; Annotation
annotation	documentation: The ReferencedComponent element indicates whether the angle or distance is evaluated with respect to the nominal or actual feature.

element **OriginReferenceType/DatumDefinitionId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DatumDefinitionId element is the QIF id of a datum, the first of two features involved in an angle-between characteristic or a distance-between characteristic.

complexType **ParallelismCharacteristicActualType**

diagram



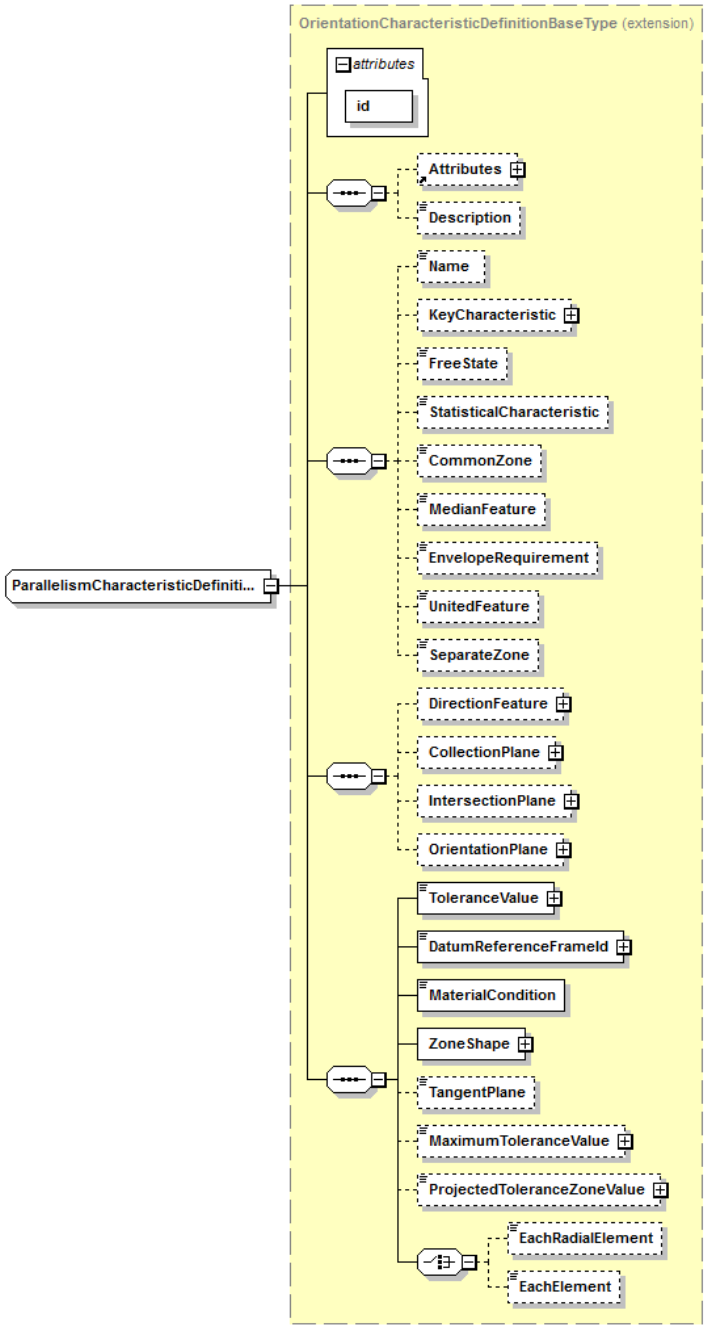
type	extension of **OrientationCharacteristicActualBaseType**
properties	base OrientationCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk** **Bonus** **ReferenceLength** **DRFTransformActualId**
used by	element **ParallelismCharacteristicActual**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

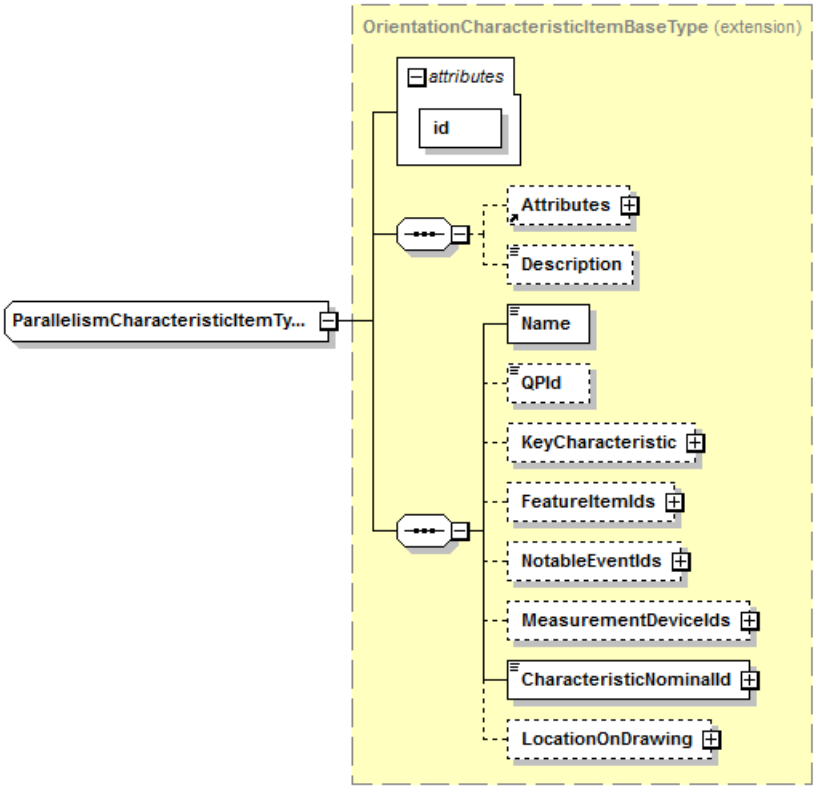
annotation	documentation The ParallelismCharacteristicActualType defines the results of an actual parallelism characteristic evaluation.

complexType **ParallelismCharacteristicDefinitionType**

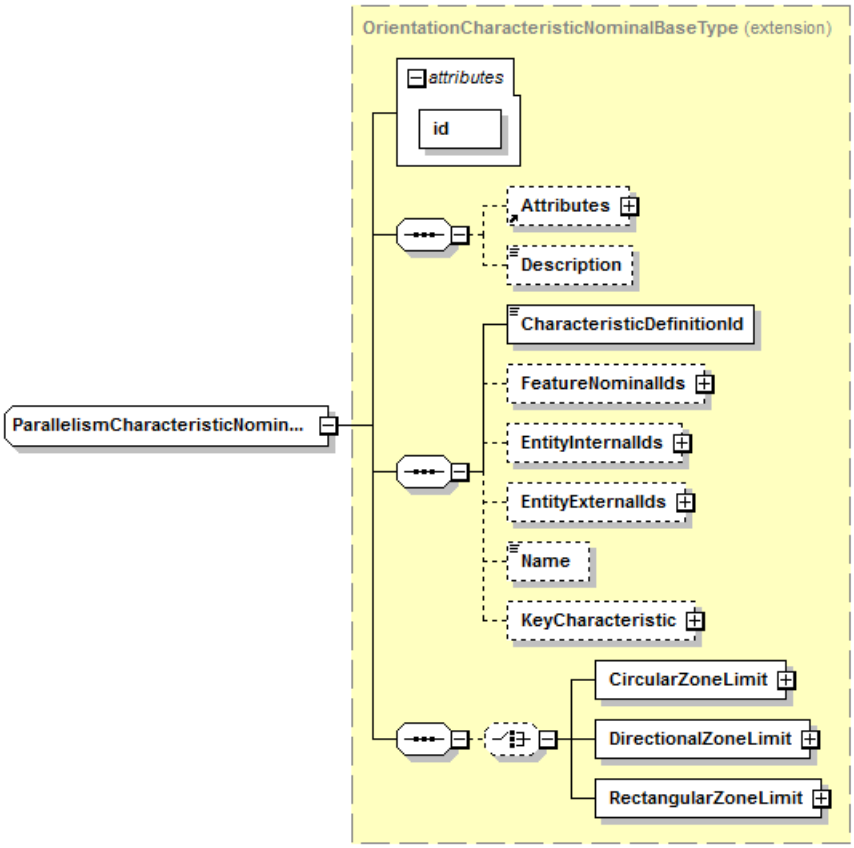
diagram	
type	extension of **OrientationCharacteristicDefinitionBaseType**
properties	base OrientationCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **MaterialCondition** **ZoneShape** **TangentPlane** **MaximumToleranceValue** **ProjectedToleranceZoneValue** **EachRadialElement** **EachElement**

used by	element **ParallelismCharacteristicDefinition**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ParallelismCharacteristicDefinitionType defines information that can be common to more than one parallelism characteristic.					

complexType **ParallelismCharacteristicItemType**

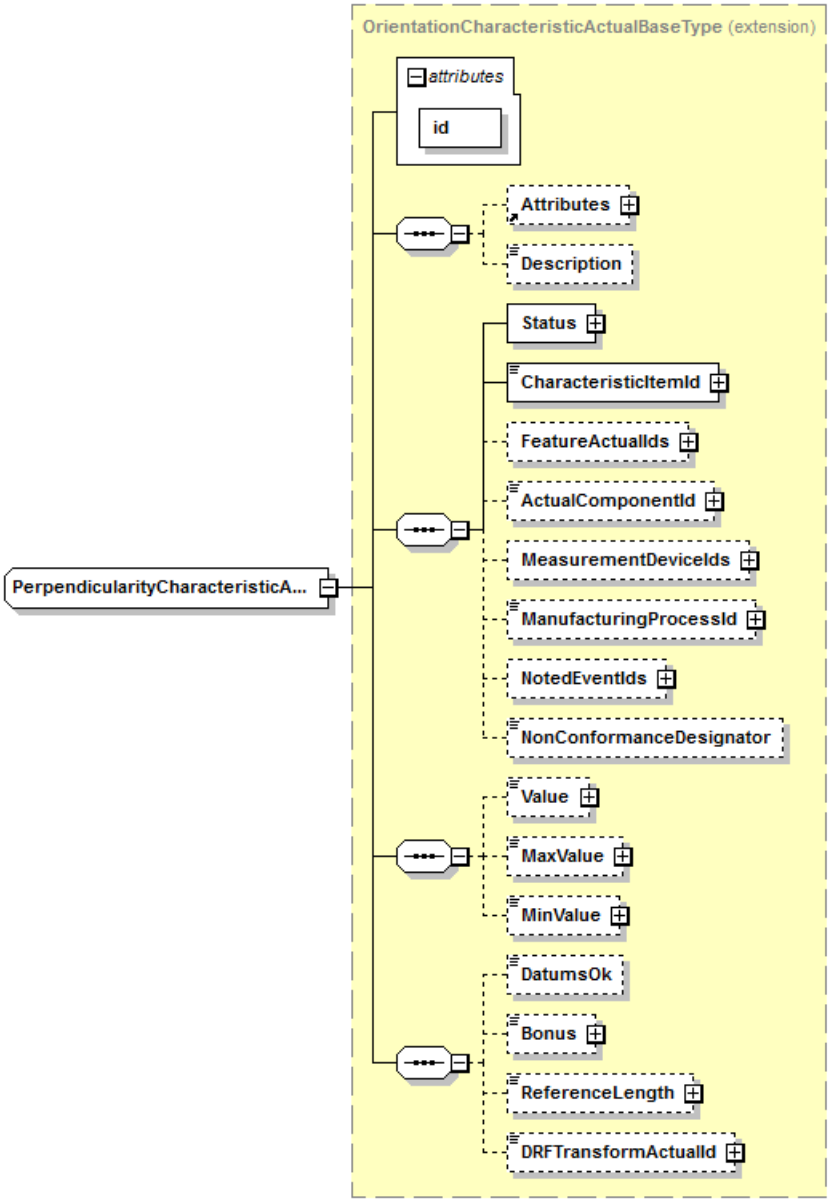
diagram	
type	extension of **OrientationCharacteristicItemBaseType**
properties	base OrientationCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **ParallelismCharacteristicItem**
attributes	Name / Type / Use / Default / Fixed / Annotation id / **QIFIdType** / required / / / documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ParallelismCharacteristicItemType defines a parallelism characteristic item.

complexType **ParallelismCharacteristicNominalType**

diagram	
type	extension of **OrientationCharacteristicNominalBaseType**
properties	base OrientationCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **CircularZoneLimit** **DirectionalZoneLimit** **RectangularZoneLimit**
used by	element **ParallelismCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ParallelismCharacteristicNominalType defines a unique parallelism characteristic nominal.

complexType **PerpendicularityCharacteristicActualType**

diagram



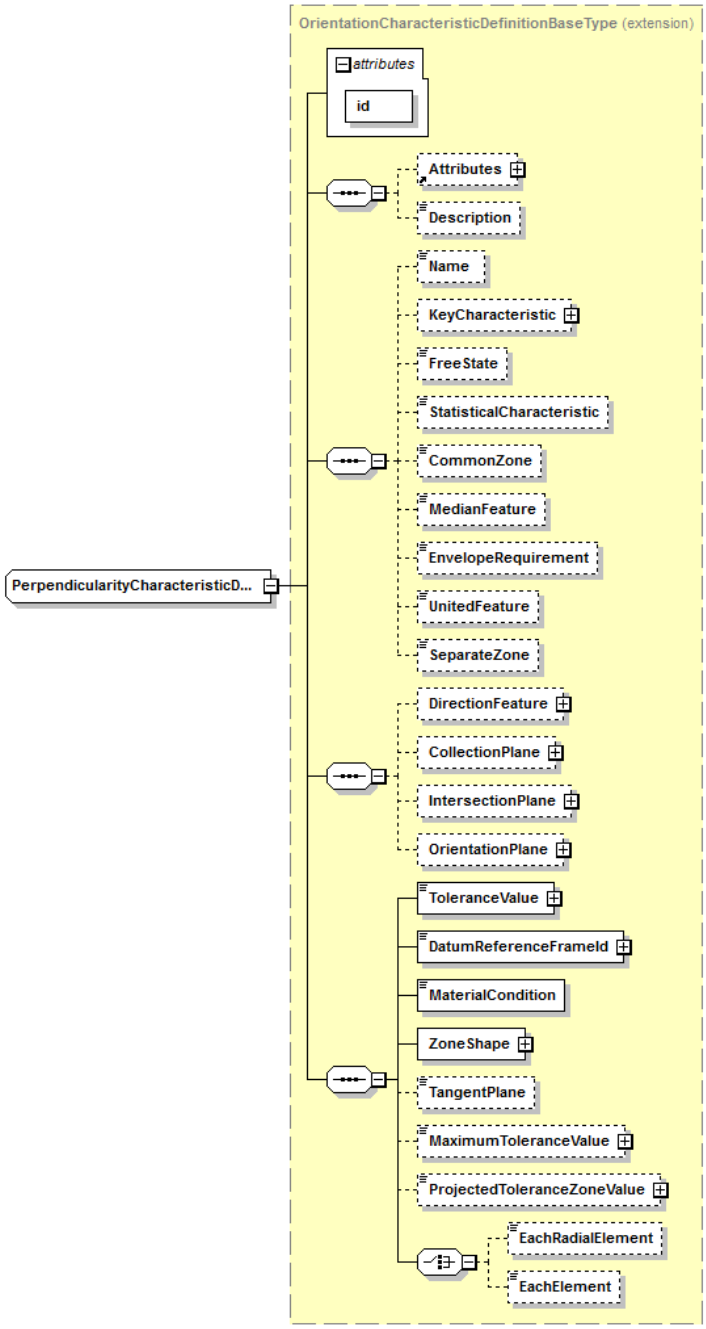
type	extension of **OrientationCharacteristicActualBaseType**
properties	base OrientationCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk** **Bonus** **ReferenceLength** **DRFTransformActualId**
used by	element **PerpendicularityCharacteristicActual**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

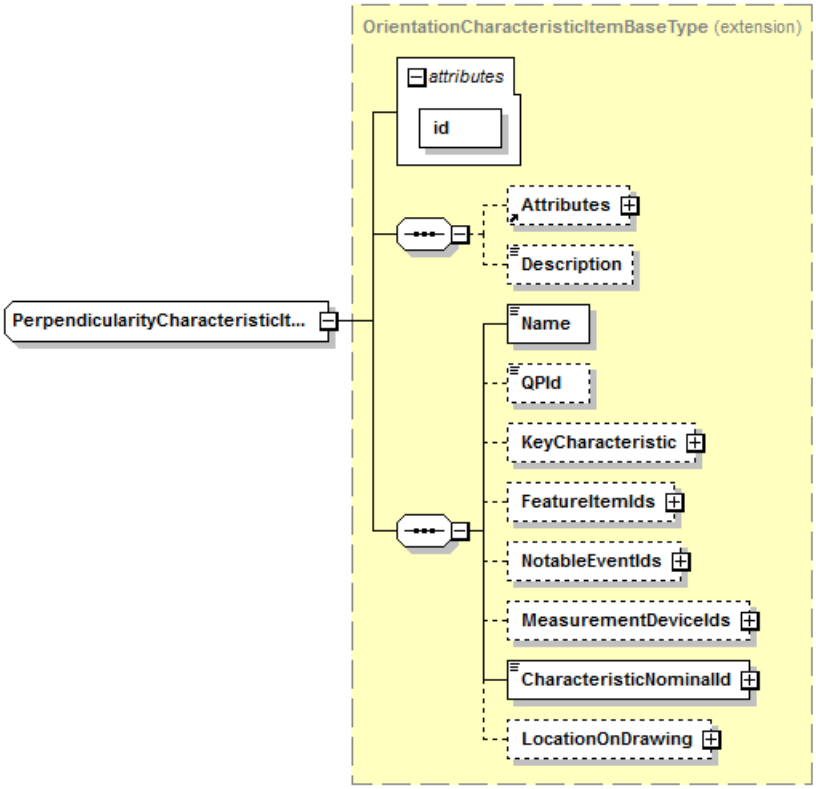
annotation	documentation The PerpendicularityCharacteristicActualType defines the results of an actual perpendicularity characteristic evaluation.

complexType **PerpendicularityCharacteristicDefinitionType**

diagram	
type	extension of **OrientationCharacteristicDefinitionBaseType**
properties	base OrientationCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **MaterialCondition** **ZoneShape** **TangentPlane** **MaximumToleranceValue** **ProjectedToleranceZoneValue** **EachRadialElement** **EachElement**

used by	element **PerpendicularityCharacteristicDefinition**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PerpendicularityCharacteristicDefinitionType defines information that can be common to more than one perpendicularity characteristic.					

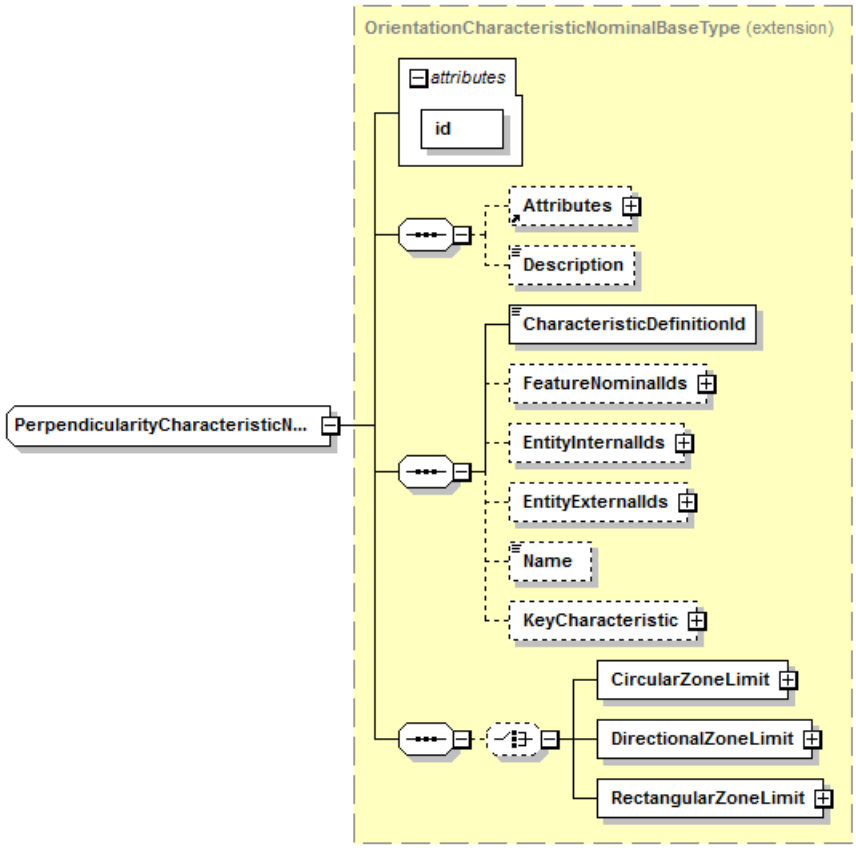
complexType **PerpendicularityCharacteristicItemType**

diagram	
type	extension of **OrientationCharacteristicItemBaseType**
properties	base OrientationCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **PerpendicularityCharacteristicItem**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PerpendicularityCharacteristicItemType defines a perpendicularity characteristic item.					

complexType **PerpendicularityCharacteristicNominalType**

diagram



type	extension of **OrientationCharacteristicNominalBaseType**
properties	base OrientationCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **CircularZoneLimit** **DirectionalZoneLimit** **RectangularZoneLimit**
used by	element **PerpendicularityCharacteristicNominal**

attributes

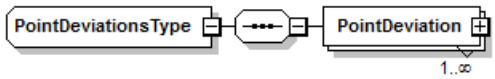
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The PerpendicularityCharacteristicNominalType defines a unique perpendicularity characteristic nominal.

complexType **PointDeviationsType**

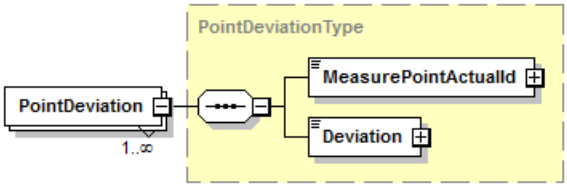
diagram



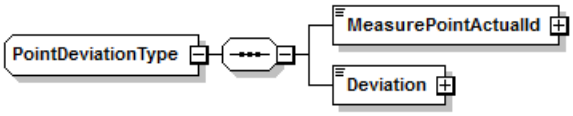
children **PointDeviation**

used by	element **ProfileCharacteristicActualBaseType/PointDeviations**
annotation	documentation The PointDeviationsType defines a list of vector deviations of individual measurement points from nominal.

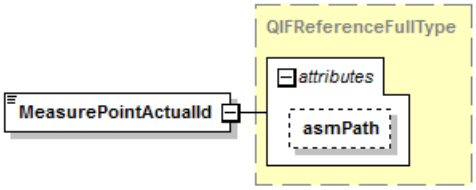
element **PointDeviationsType/PointDeviation**

diagram	
type	**PointDeviationType**
properties	minOcc 1 maxOcc unbounded content complex
children	**MeasurePointActualId** **Deviation**
annotation	documentation Each PointDeviation element gives the vector deviation of an individual measurement point from nominal.

complexType **PointDeviationType**

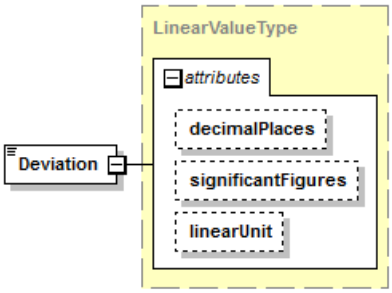
diagram	
children	**MeasurePointActualId** **Deviation**
used by	element **PointDeviationsType/PointDeviation**
annotation	documentation The PointDeviationType defines the deviation of a measurement point from nominal.

element **PointDeviationType/MeasurePointActualId**

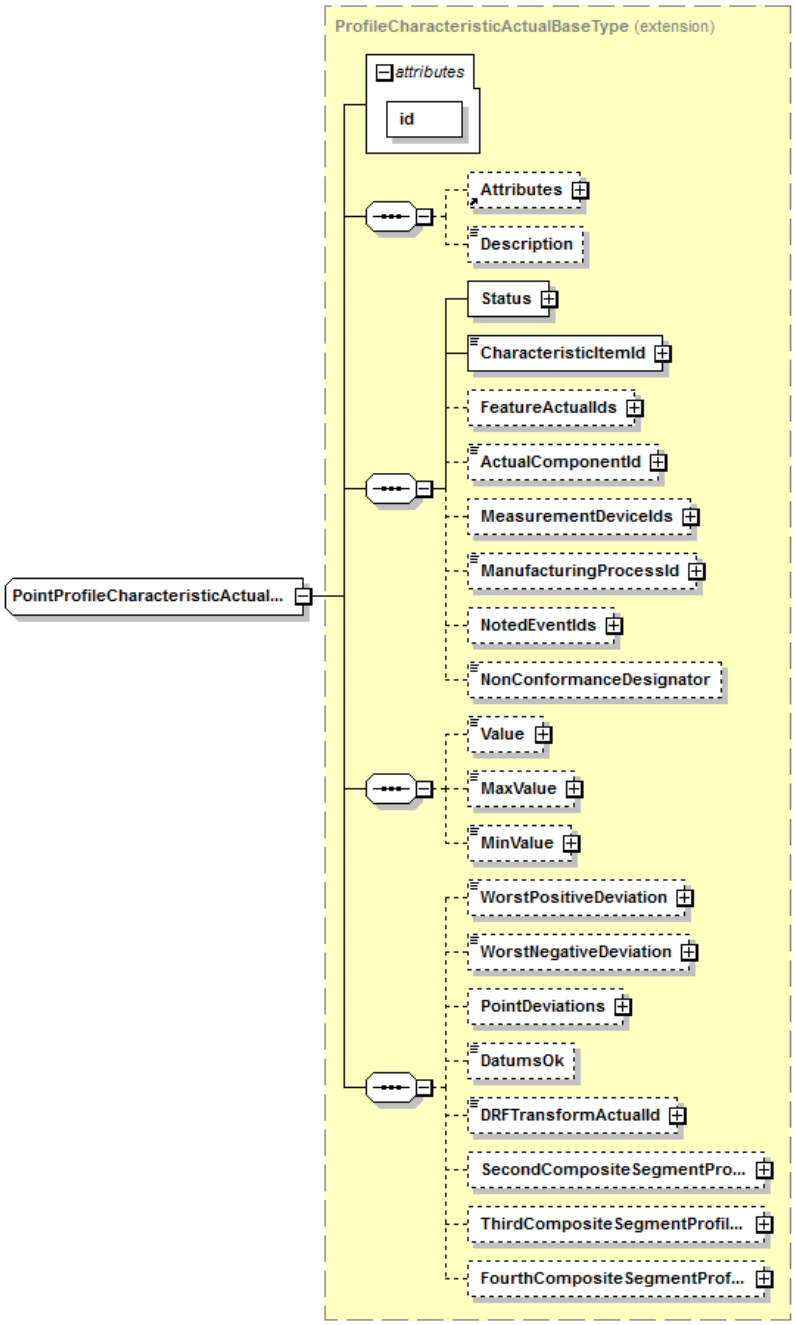
diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the

	AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The MeasurePointActualId element is the QIF id of a point in the feature actual point list.

element **PointDeviationType/Deviation**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The Deviation element is the deviation of the individual measurement point in the direction of the surface or curve normal. It is positive if the deviation is in the direction of the normal vector and negative if the deviation is in the direction opposite the normal vector.

complexType **PointProfileCharacteristicActualType**

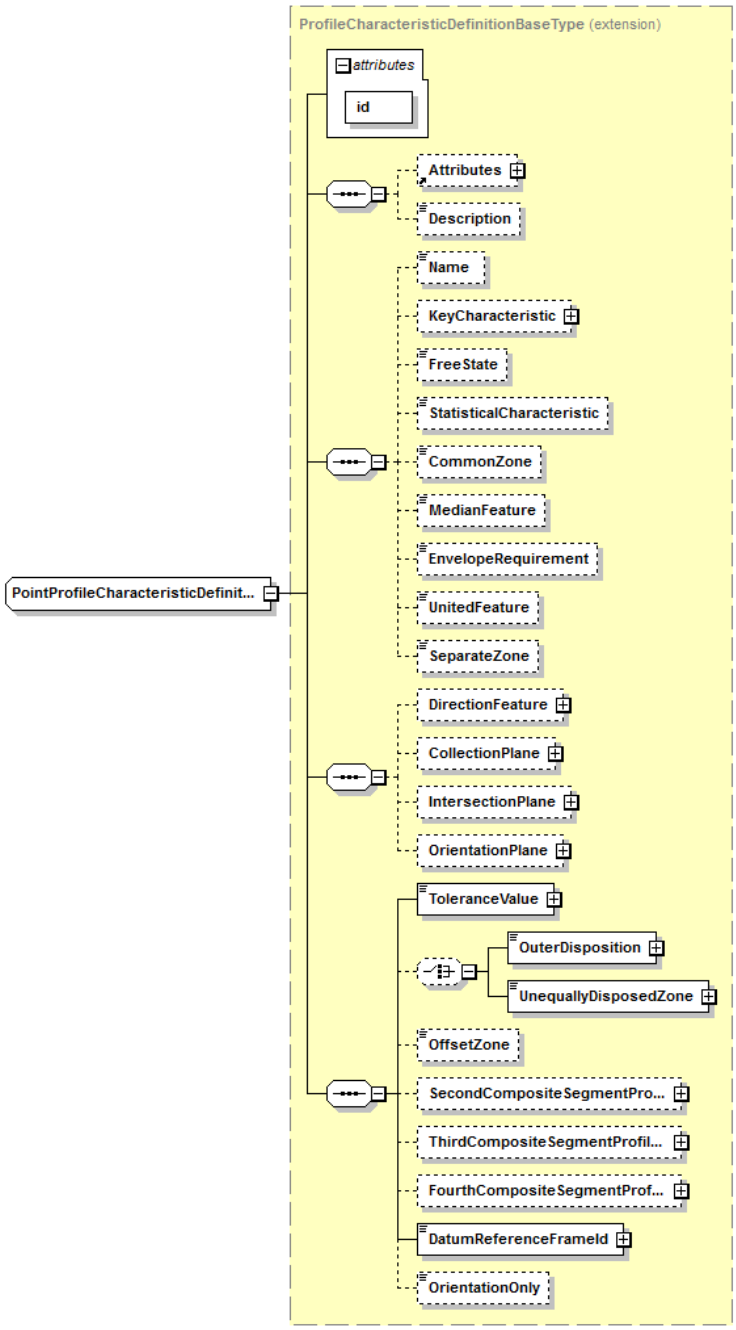
diagram	
type	extension of **ProfileCharacteristicActualBaseType**
properties	base ProfileCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **WorstPositiveDeviation** **WorstNegativeDeviation** **PointDeviations** **DatumsOk** **DRFTransformActualId** **SecondCompositeSegmentProfileActual** **ThirdCompositeSegmentProfileActual** **FourthCompositeSegmentProfileActual**
used by	element **PointProfileCharacteristicActual**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation

	The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PointProfileCharacteristicActualType defines the results of an actual point profile characteristic evaluation.

complexType **PointProfileCharacteristicDefinitionType**

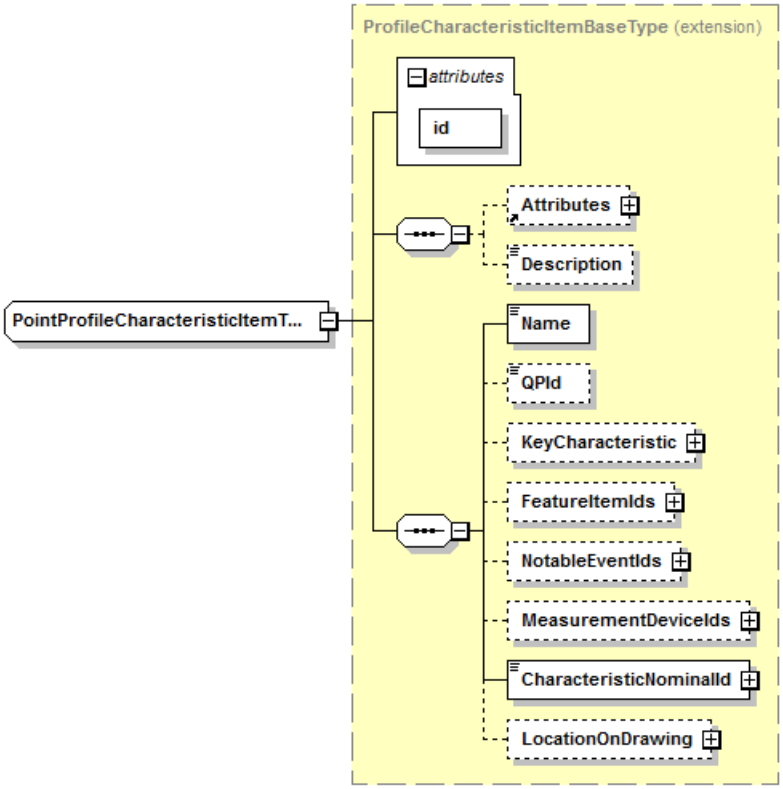
diagram



type	extension of **ProfileCharacteristicDefinitionBaseType**

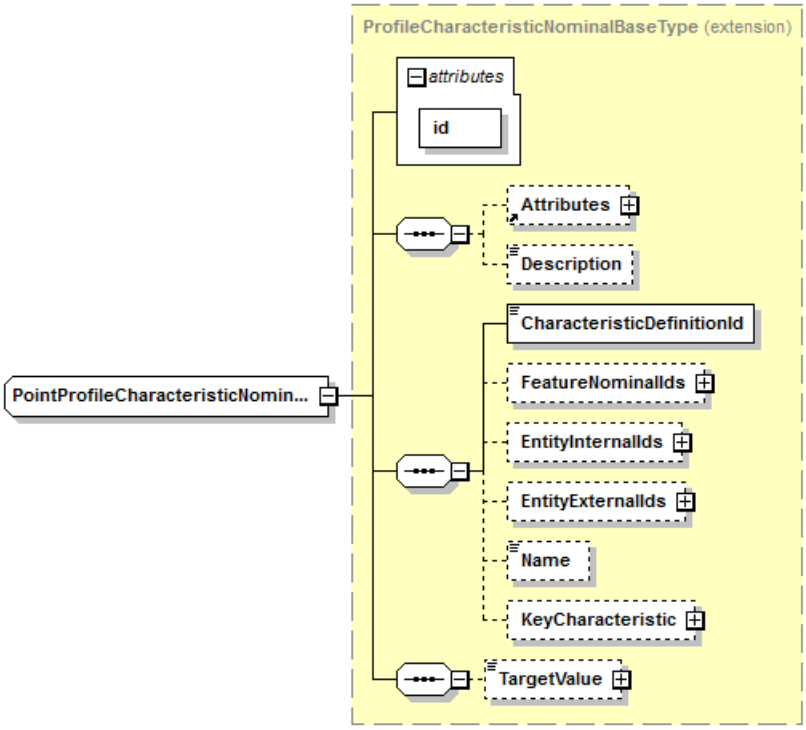
properties	base ProfileCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **OuterDisposition** **UnequallyDisposedZone** **OffsetZone** **SecondCompositeSegmentProfileDefinition** **ThirdCompositeSegmentProfileDefinition** **FourthCompositeSegmentProfileDefinition** **DatumReferenceFrameId** **OrientationOnly**
used by	element **PointProfileCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PointProfileCharacteristicDefinitionType defines information that can be common to more than one point profile characteristic.

complexType **PointProfileCharacteristicItemType**

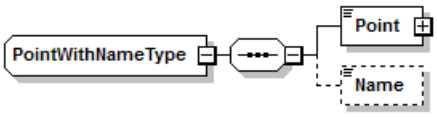
diagram	
type	extension of **ProfileCharacteristicItemBaseType**
properties	base ProfileCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **PointProfileCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id

	attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PointProfileCharacteristicItemType defines a point profile characteristic item.

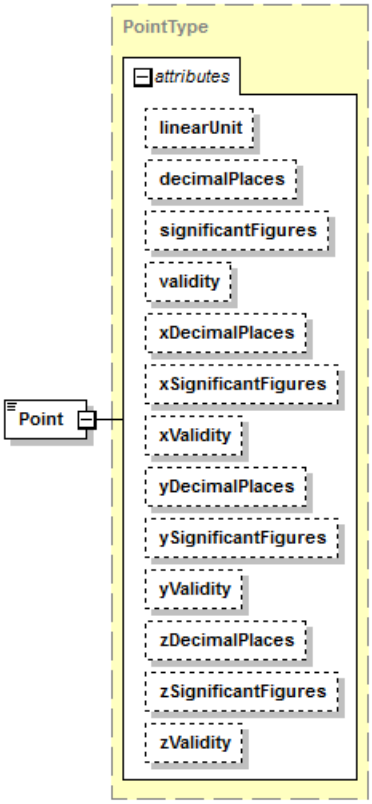
complexType **PointProfileCharacteristicNominalType**

diagram	
type	extension of **ProfileCharacteristicNominalBaseType**
properties	base ProfileCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **PointProfileCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PointProfileCharacteristicNominalType defines a unique point profile characteristic nominal.

complexType **PointWithNameType**

diagram	
children	**Point** **Name**
used by	elements **CharacteristicDirectionalZoneLimitType/FromPoint** **CharacteristicDirectionalZoneLimitType/ToPoint**

element **PointWithNameType/Point**

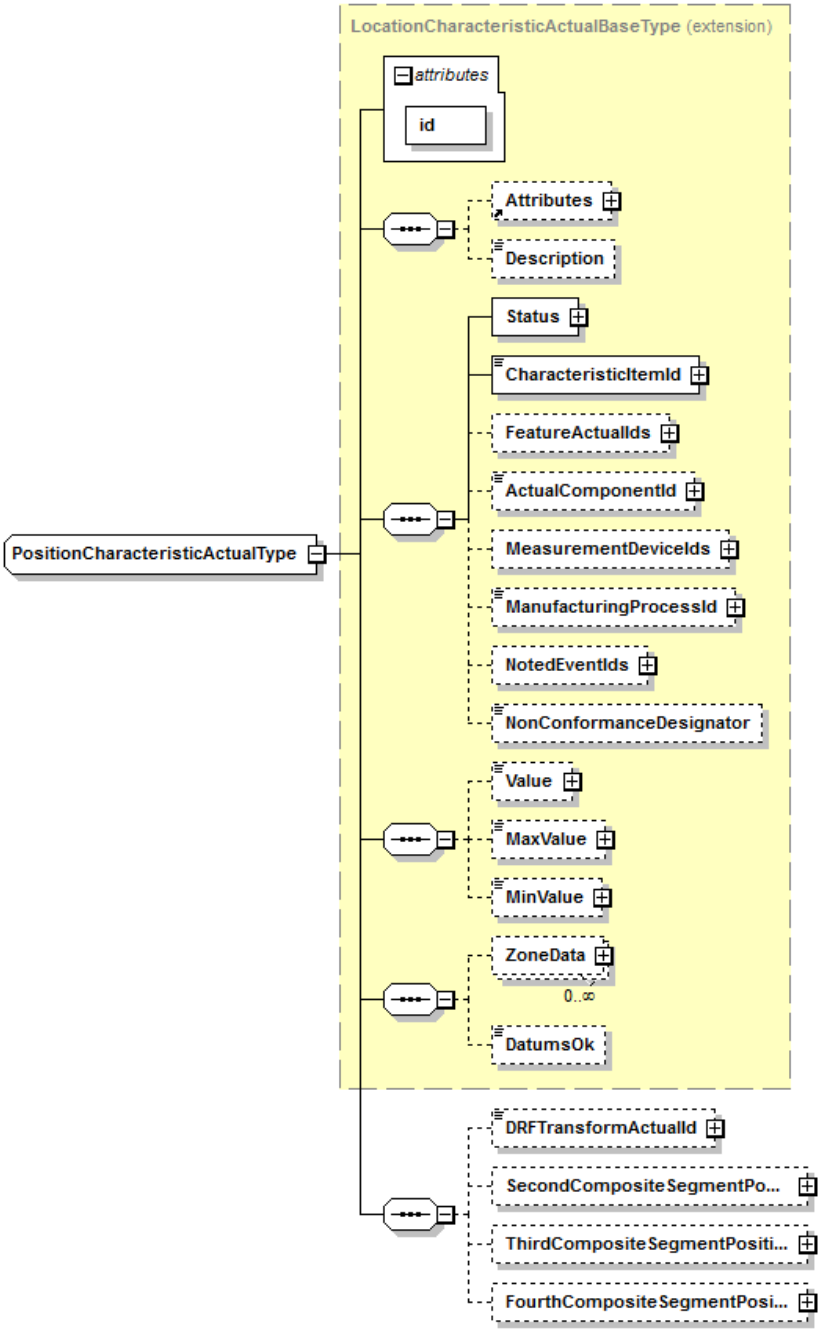
diagram	
type	**PointType**
properties	content complex
facets	Kind Value Annotation length 3
attributes	Name Type Use Default Fixed Annotation linearUnit **xs:token** decimalPlaces **xs:nonNegativeInteger** significantFigures **xs:nonNegativeInteger** validity **ValidityEnumType** xDecimalPlaces **xs:nonNegativeInteger** xSignificantFigures **xs:nonNegativeInteger** xValidity **ValidityEnumType** yDecimalPlaces **xs:nonNegativeInteger**

	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**

element **PointWithNameType/Name**

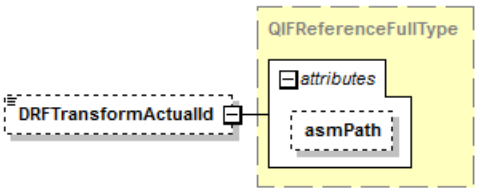
diagram	Name
type	**xs:token**
properties	minOcc 0 maxOcc 1 content simple

complexType **PositionCharacteristicActualType**

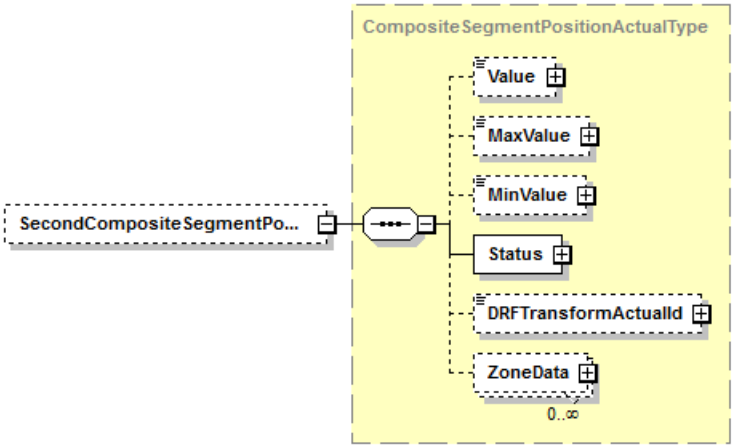
diagram	
type	extension of **LocationCharacteristicActualBaseType**
properties	base LocationCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **ZoneData** **DatumsOk** **DRFTransformActualId** **SecondCompositeSegmentPositionActual** **ThirdCompositeSegmentPositionActual** **FourthCompositeSegmentPositionActual**
used by	element **PositionCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id

	attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PositionCharacteristicActualType defines the results of an actual position characteristic evaluation.

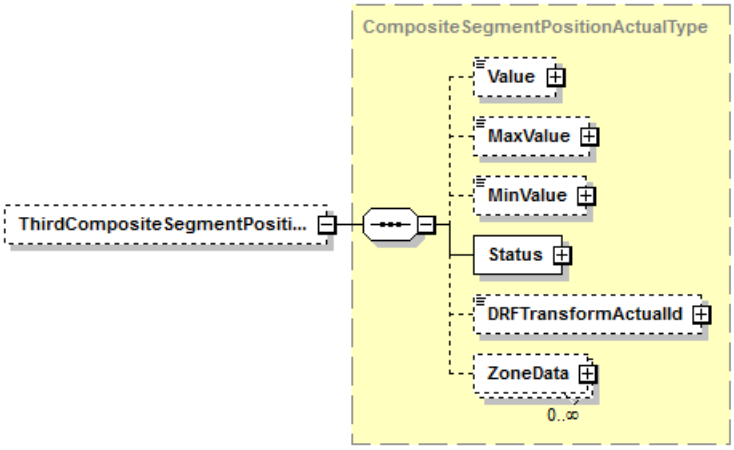
element **PositionCharacteristicActualType/DRFTransformActualId**

diagram	
type	**QIFReferenceFullType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional DRFTransformActualId element is the QIF id of the actual transform associated with the mobile DRF of this characteristic.

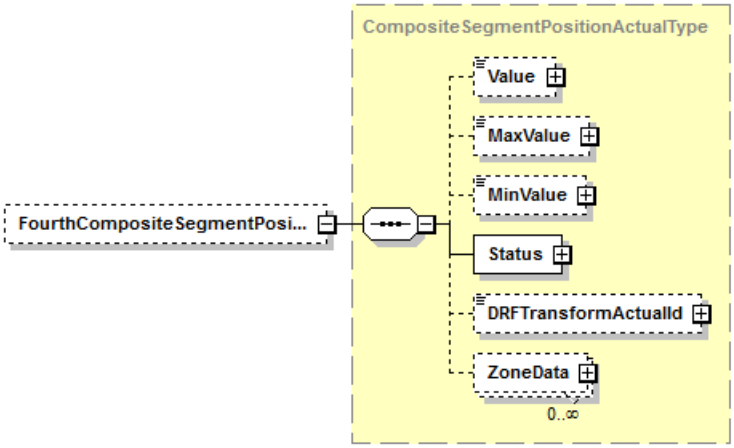
element **PositionCharacteristicActualType/SecondCompositeSegmentPositionActual**

diagram	
type	**CompositeSegmentPositionActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional SecondCompositeSegmentPositionActual gives information about the second actual composite segment characteristic evaluation.

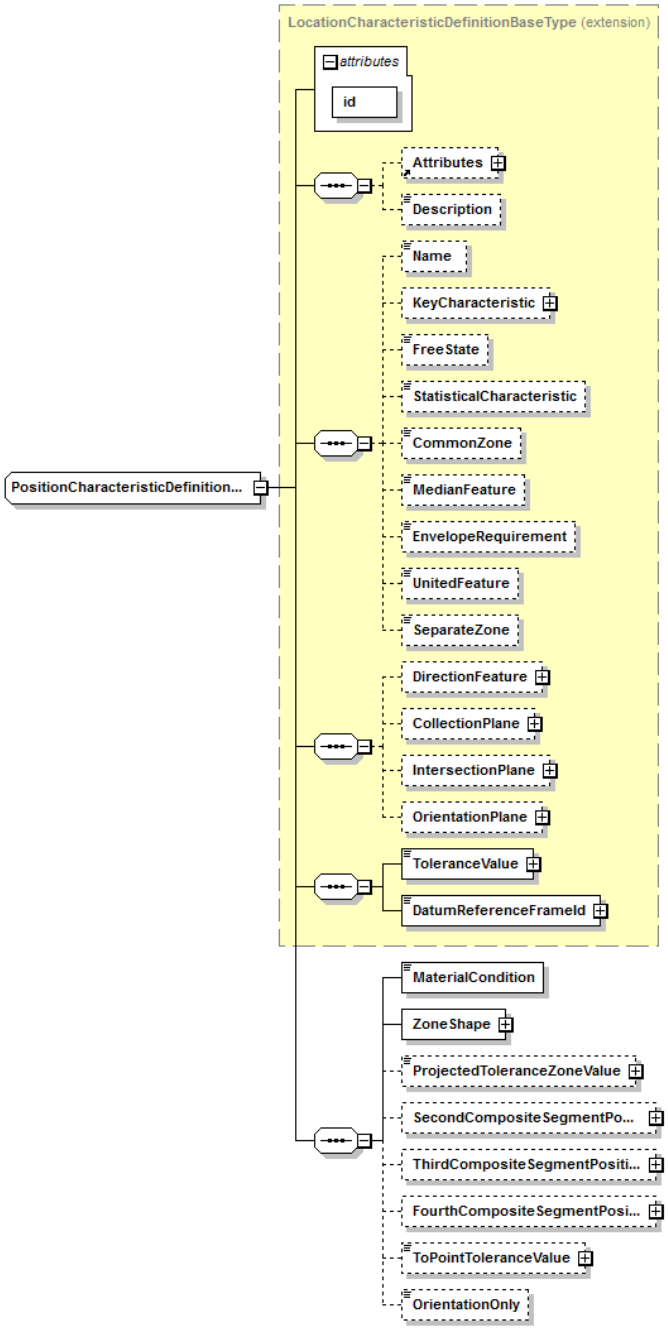
element **PositionCharacteristicActualType/ThirdCompositeSegmentPositionActual**

diagram	
type	**CompositeSegmentPositionActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional ThirdCompositeSegmentPositionActual gives information about the third actual composite segment characteristic evaluation. This element may be used only if the SecondCompositeSegmentPositionActual element is used.

element **PositionCharacteristicActualType/FourthCompositeSegmentPositionActual**

diagram	
type	**CompositeSegmentPositionActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional FourthCompositeSegmentPositionActual gives information about the fourth actual composite segment characteristic evaluation. This element may be used only if the ThirdCompositeSegmentPositionActual element is used.

complexType **PositionCharacteristicDefinitionType**

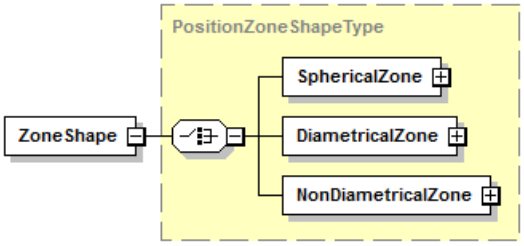
diagram	
type	extension of **LocationCharacteristicDefinitionBaseType**
properties	base LocationCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **MaterialCondition** **ZoneShape** **ProjectedToleranceZoneValue** **SecondCompositeSegmentPositionDefinition** **ThirdCompositeSegmentPositionDefinition** **FourthCompositeSegmentPositionDefinition** **ToPointToleranceValue** **OrientationOnly**
used by	element **PositionCharacteristicDefinition**

attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PositionCharacteristicDefinitionType defines information that can be common to more than one position characteristic.					

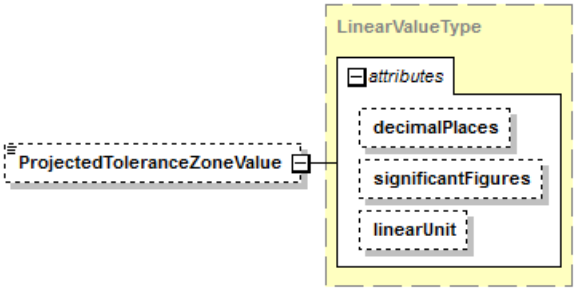
element **PositionCharacteristicDefinitionType/MaterialCondition**

diagram			
type	**MaterialModifierEnumType**		
properties	content simple		
facets	Kind enumeration enumeration enumeration enumeration	Value REGARDLESS LEAST MAXIMUM NONE	Annotation
annotation	documentation The MaterialCondition element is the material condition modifier for the characteristic.		

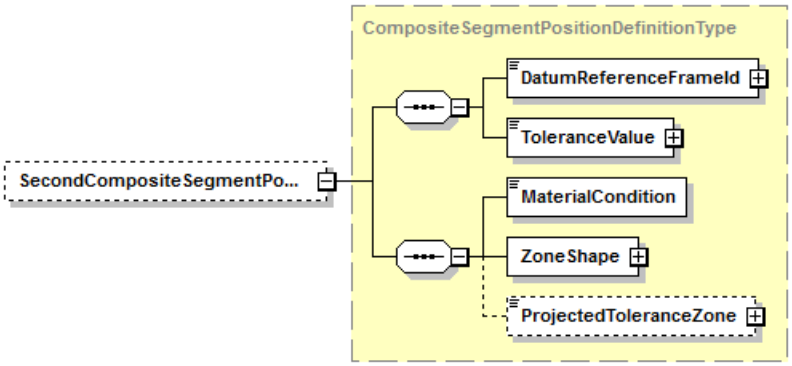
element **PositionCharacteristicDefinitionType/ZoneShape**

diagram	
type	**PositionZoneShapeType**
properties	content complex
children	**SphericalZone** **DiametricalZone** **NonDiametricalZone**
annotation	documentation The ZoneShape element describes the shape of the tolerance zone.

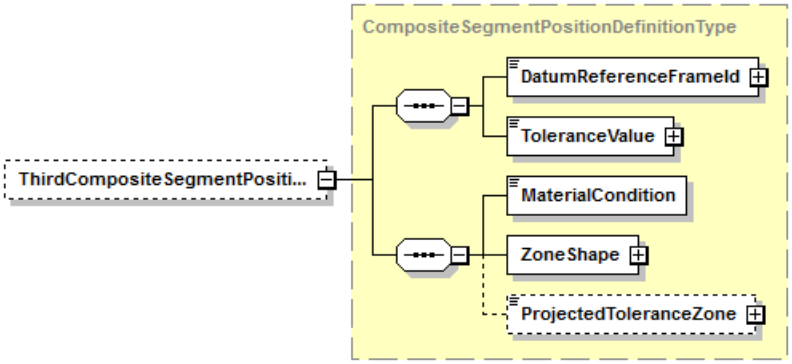
element **PositionCharacteristicDefinitionType/ProjectedToleranceZoneValue**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional ProjectedToleranceZoneValue element is the length of the projected tolerance zone.

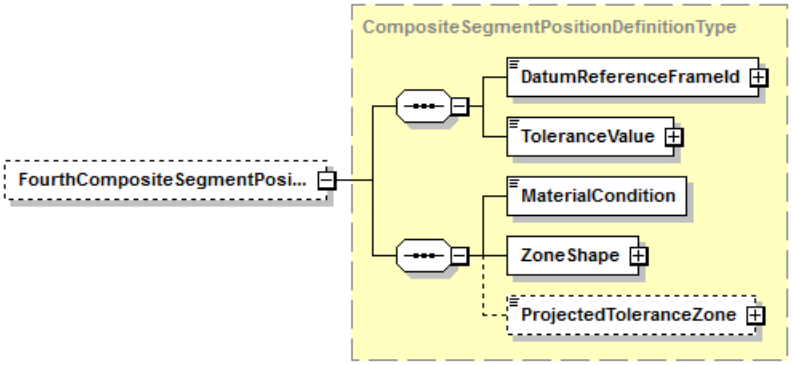
element **PositionCharacteristicDefinitionType/SecondCompositeSegmentPositionDefinition**

diagram	
type	**CompositeSegmentPositionDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue** **MaterialCondition** **ZoneShape** **ProjectedToleranceZone**
annotation	documentation The optional SecondCompositeSegmentPositionDefinition gives information about the second segment of a composite frame position characteristic.

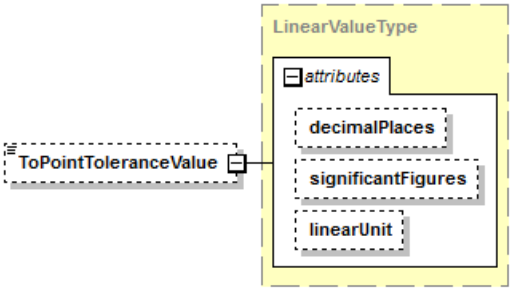
element **PositionCharacteristicDefinitionType/ThirdCompositeSegmentPositionDefinition**

diagram	
type	**CompositeSegmentPositionDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue** **MaterialCondition** **ZoneShape** **ProjectedToleranceZone**
annotation	documentation The optional ThirdCompositeSegmentPositionDefinition gives information about the third segment of a composite frame position characteristic. This element may be used only if the SecondCompositeSegmentPositionDefinition element is used.

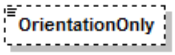
element **PositionCharacteristicDefinitionType/FourthCompositeSegmentPositionDefinition**

diagram	
type	**CompositeSegmentPositionDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue** **MaterialCondition** **ZoneShape** **ProjectedToleranceZone**
annotation	documentation The optional FourthCompositeSegmentPositionDefinition gives information about the fourth segment of a composite frame position characteristic. This element may be used only if the ThirdCompositeSegmentPositionDefinition element is used.

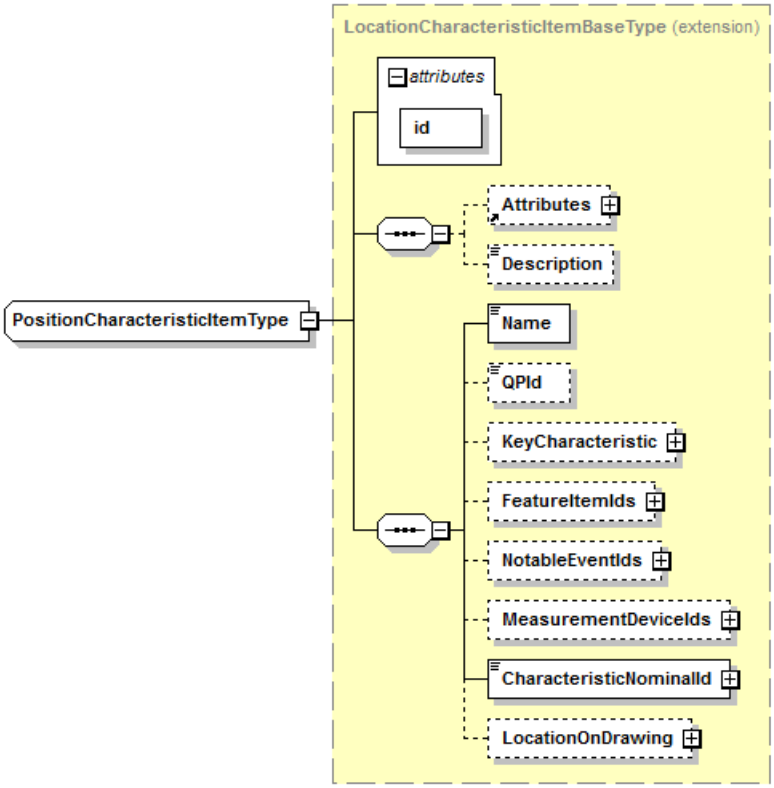
element **PositionCharacteristicDefinitionType/ToPointToleranceValue**

diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional ToPointToleranceValue element is the tolerance value which applies at the ToPoint in a linearly variable tolerance zone (for example, a conical diametrical tolerance zone). The ToleranceValue applies at the FromPoint. The tolerance zone varies linearly between the two points.

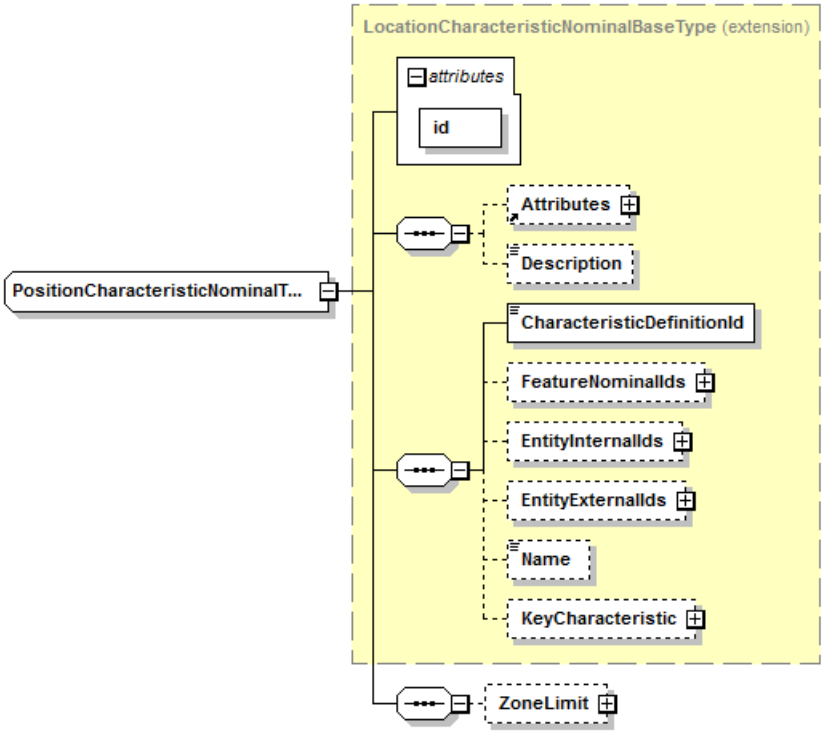
element **PositionCharacteristicDefinitionType/OrientationOnly**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific greaterthan/lessthan) The optional OrientationOnly element when present and set to true signifies that the DRF associated with this position characteristic controls only orientation degrees of freedom.

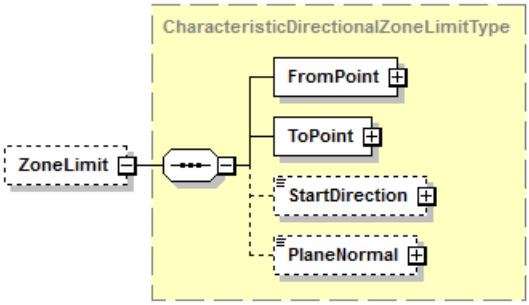
complexType **PositionCharacteristicItemType**

diagram	
type	extension of **LocationCharacteristicItemBaseType**
properties	base LocationCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **PositionCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PositionCharacteristicItemType defines a position characteristic item.

complexType **PositionCharacteristicNominalType**

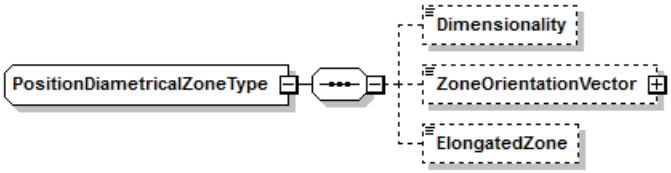
diagram	
type	extension of **LocationCharacteristicNominalBaseType**
properties	base LocationCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit**
used by	element **PositionCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PositionCharacteristicNominalType defines a unique position characteristic nominal.

element **PositionCharacteristicNominalType/ZoneLimit**

diagram	

type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extent and direction of the position tolerance zone limit.

complexType **PositionDiametricalZoneType**

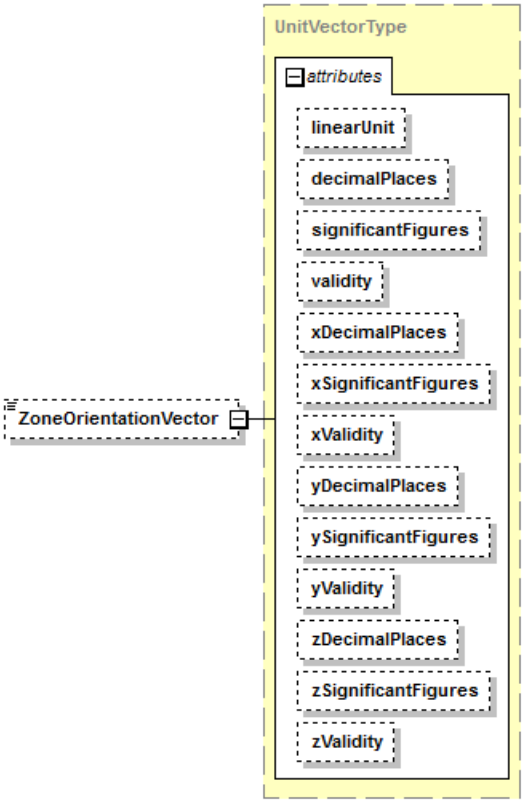
diagram	
children	**Dimensionality** **ZoneOrientationVector** **ElongatedZone**
used by	element **PositionZoneShapeType/DiametricalZone**
annotation	documentation The PositionDiametricalZoneType defines the shape of a tolerance zone as diametrical.

element **PositionDiametricalZoneType/Dimensionality**

diagram	
type	**DimensionCountEnumType**
properties	minOcc 0 maxOcc 1 content simple
facets	Kind / Value / Annotation enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The optional Dimensionality element for the diametrical tolerance zone differentiates between cylindrical (3D) and circular (2D) tolerance zones.

element **PositionDiametricalZoneType/ZoneOrientationVector**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

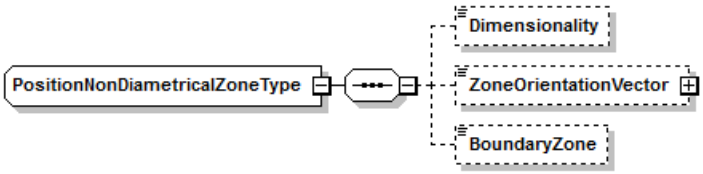
documentation

The optional ZoneOrientationVector element gives the orientation of the diametrical tolerance zone.

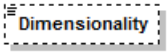
element **PositionDiametricalZoneType/ElongatedZone**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional ElongatedZone element (when present and set to "true") indicates the tolerance zone is elongated as applied to the round ends of a slot.

complexType **PositionNonDiametricalZoneType**

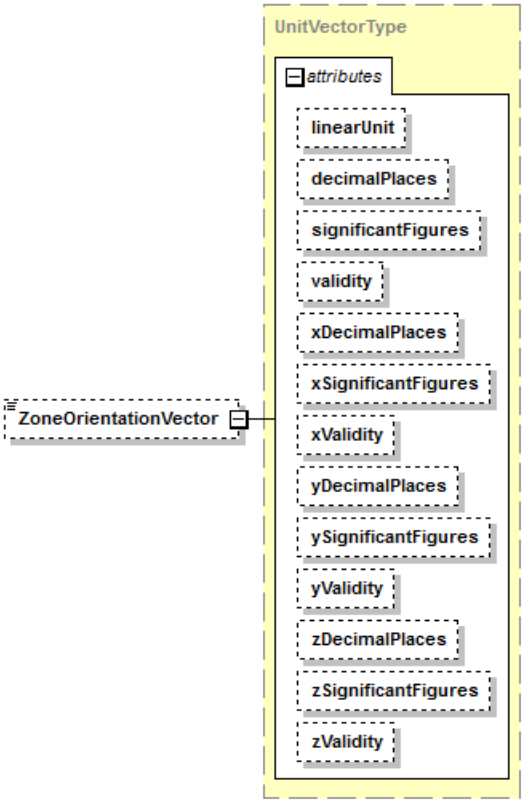
diagram	
children	**Dimensionality** **ZoneOrientationVector** **BoundaryZone**
used by	element **PositionZoneShapeType/NonDiametricalZone**
annotation	documentation The PositionNonDiametricalZoneType defines the shape of a tolerance zone as neither diametrical nor spherical, but as either parallel-planes, parallel-lines or a more complex, non-circular shape.

element **PositionNonDiametricalZoneType/Dimensionality**

diagram	
type	**DimensionCountEnumType**
properties	minOcc 0 maxOcc 1 content simple
facets	Kind Value Annotation enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The optional Dimensionality element differentiates between three dimensional and two dimensional tolerance zones.

element **PositionNonDiametricalZoneType/ZoneOrientationVector**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

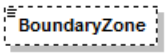
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

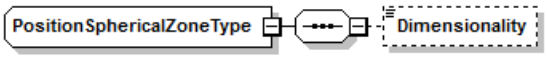
documentation

The optional ZoneOrientationVector element gives the orientation of the tolerance zone.

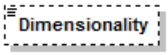
element **PositionNonDiametricalZoneType/BoundaryZone**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional BoundaryZone element (when present and set to "true") indicates the tolerance zone is applied to the boundary of an irregular shape.

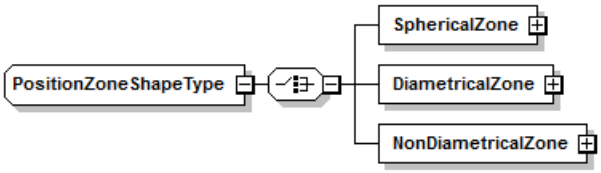
complexType **PositionSphericalZoneType**

diagram	
children	**Dimensionality**
used by	element **PositionZoneShapeType/SphericalZone**
annotation	documentation The PositionSphericalZoneType defines the shape of a tolerance zone as spherical.

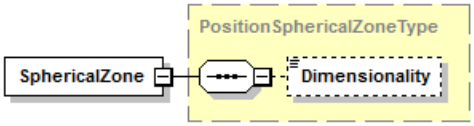
element **PositionSphericalZoneType/Dimensionality**

diagram	
type	**DimensionCountEnumType**
properties	minOcc 0 maxOcc 1 content simple fixed THREEDIMENSIONAL
facets	Kind / Value / Annotation enumeration TWODIMENSIONAL enumeration THREEDIMENSIONAL
annotation	documentation The optional Dimensionality element for a spherical tolerance zone (if present) is always three dimensional.

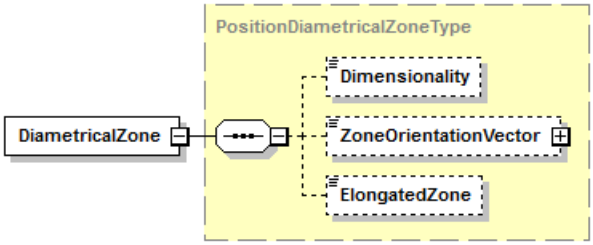
complexType **PositionZoneShapeType**

diagram	
children	**SphericalZone** **DiametricalZone** **NonDiametricalZone**
used by	elements **CompositeSegmentPositionDefinitionType/ZoneShape** **PositionCharacteristicDefinitionType/ZoneShape**
annotation	documentation The PositionZoneShapeType defines the shape of the tolerance zone for a position characteristic.

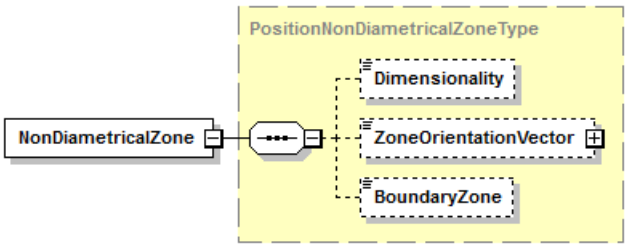
element **PositionZoneShapeType/SphericalZone**

diagram	
type	**PositionSphericalZoneType**
properties	content complex
children	**Dimensionality**
annotation	documentation The SphericalZone element is present when the position characteristic feature control frame contains a spherical diameter symbol (SØ) modifying the tolerance value.

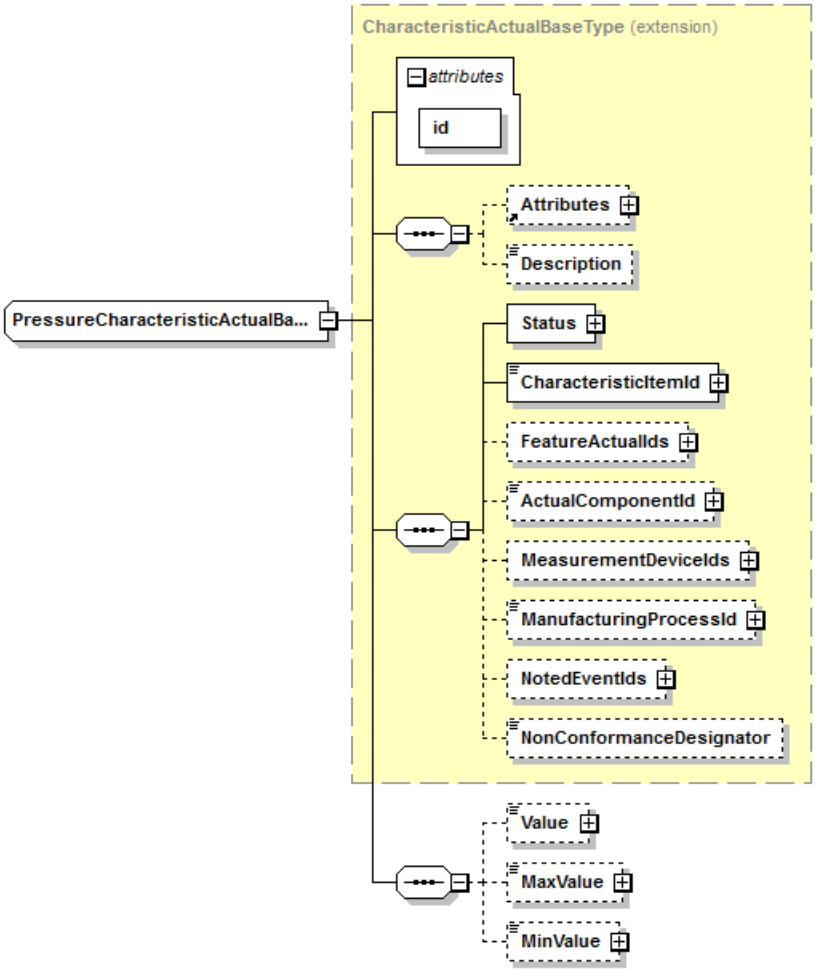
element **PositionZoneShapeType/DiametricalZone**

diagram	
type	**PositionDiametricalZoneType**
properties	content complex
children	**Dimensionality** **ZoneOrientationVector** **ElongatedZone**
annotation	documentation The DiametricalZone element is present when the position characteristic feature control frame contains a diameter symbol (Ø) modifying the tolerance value.

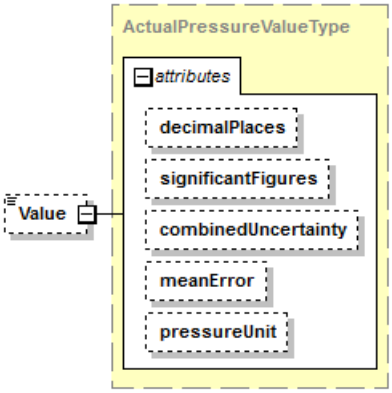
element **PositionZoneShapeType/NonDiametricalZone**

diagram	
type	**PositionNonDiametricalZoneType**
properties	content complex
children	**Dimensionality** **ZoneOrientationVector** **BoundaryZone**
annotation	documentation The NonDiametricalZone element is present when the position characteristic feature control frame does not contain a diameter symbol modifying the tolerance value.

complexType **PressureCharacteristicActualBaseType**

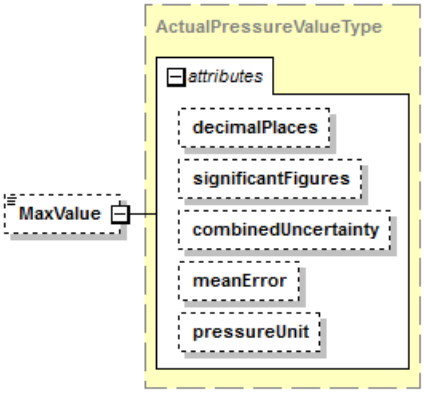
diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexType **UserDefinedPressureCharacteristicActualType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PressureCharacteristicActualBaseType is the abstract base type that defines the results of an actual pressure characteristic evaluation.

element **PressureCharacteristicActualBaseType/Value**

diagram	
type	**ActualPressureValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. pressureUnit **xs:token** documentation The optional pressureUnit attribute defines the UnitName for the ActualPressureValueType.
annotation	documentation The optional Value element is the actual measured value of the pressure characteristic.

element **PressureCharacteristicActualBaseType/MaxValue**

diagram



type **ActualPressureValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

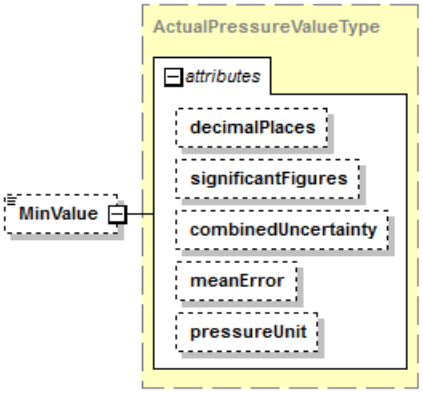
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
pressureUnit	**xs:token**				documentation The optional pressureUnit attribute defines the UnitName for the ActualPressureValueType.

annotation

documentation
The optional MaxValue element is the maximum of the actual measured value when reported.

element **PressureCharacteristicActualBaseType/MinValue**

diagram



type **ActualPressureValueType**

properties

minOcc	0
maxOcc	1
content	complex

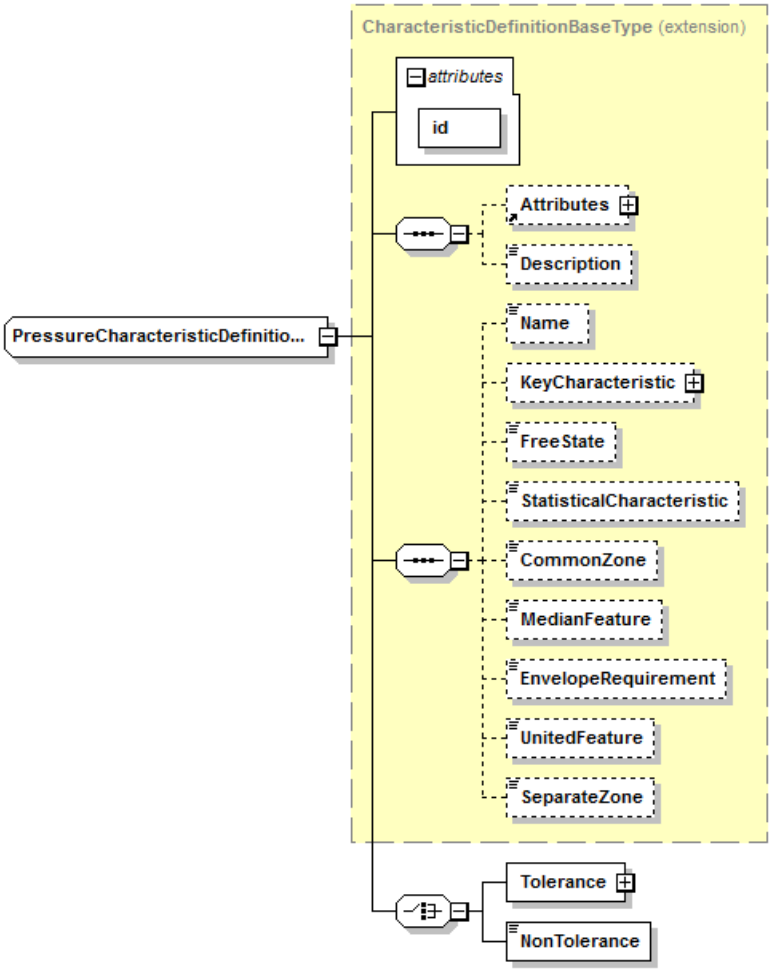
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
pressureUnit	**xs:token**				documentation The optional pressureUnit attribute defines the UnitName for the ActualPressureValueType.

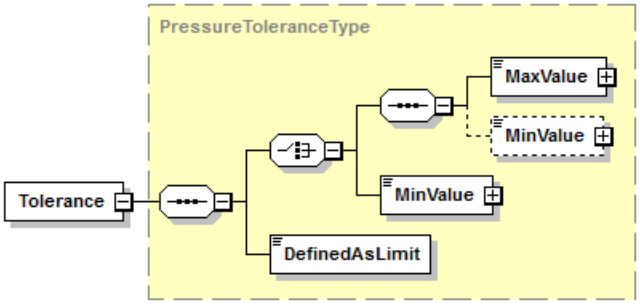
annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

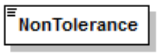
complexType **PressureCharacteristicDefinitionBaseType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedPressureCharacteristicDefinitionType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PressureCharacteristicDefinitionBaseType is the abstract base type that defines a pressure characteristic.

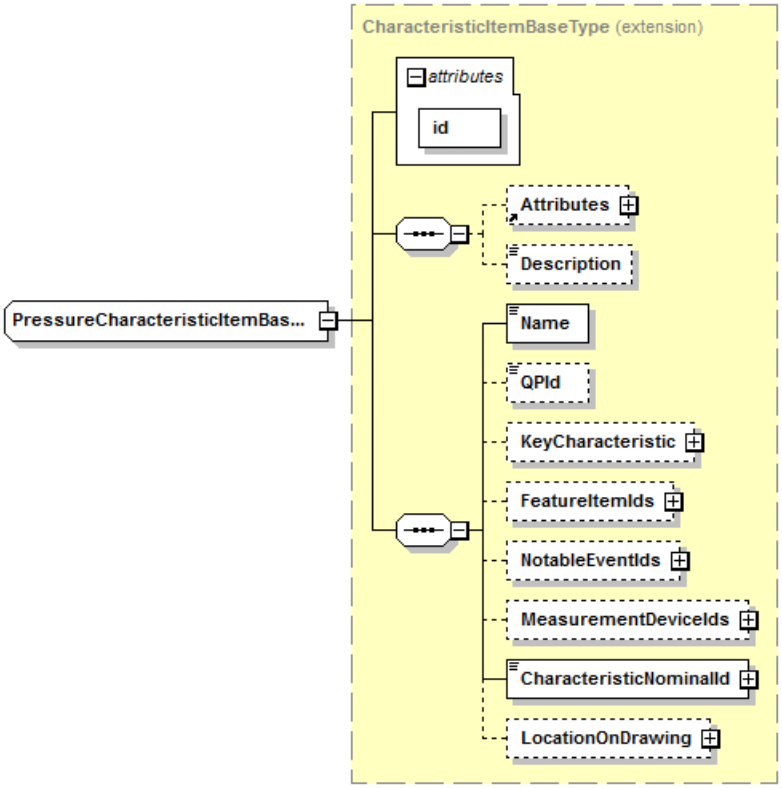
element **PressureCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**PressureToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the pressure characteristic.

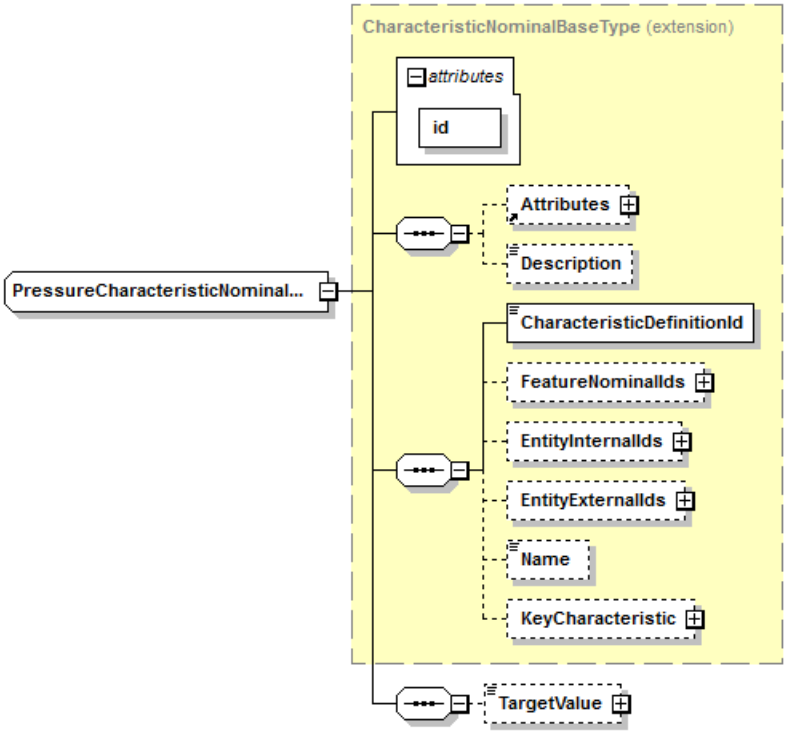
element **PressureCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

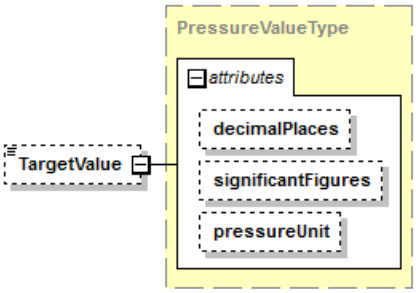
complexType **PressureCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedPressureCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PressureCharacteristicItemBaseType is the abstract base type that defines a pressure characteristic item.

complexType **PressureCharacteristicNominalBaseType**

diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedPressureCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The PressureCharacteristicNominalBaseType is the abstract base type that defines a unique pressure characteristic nominal.

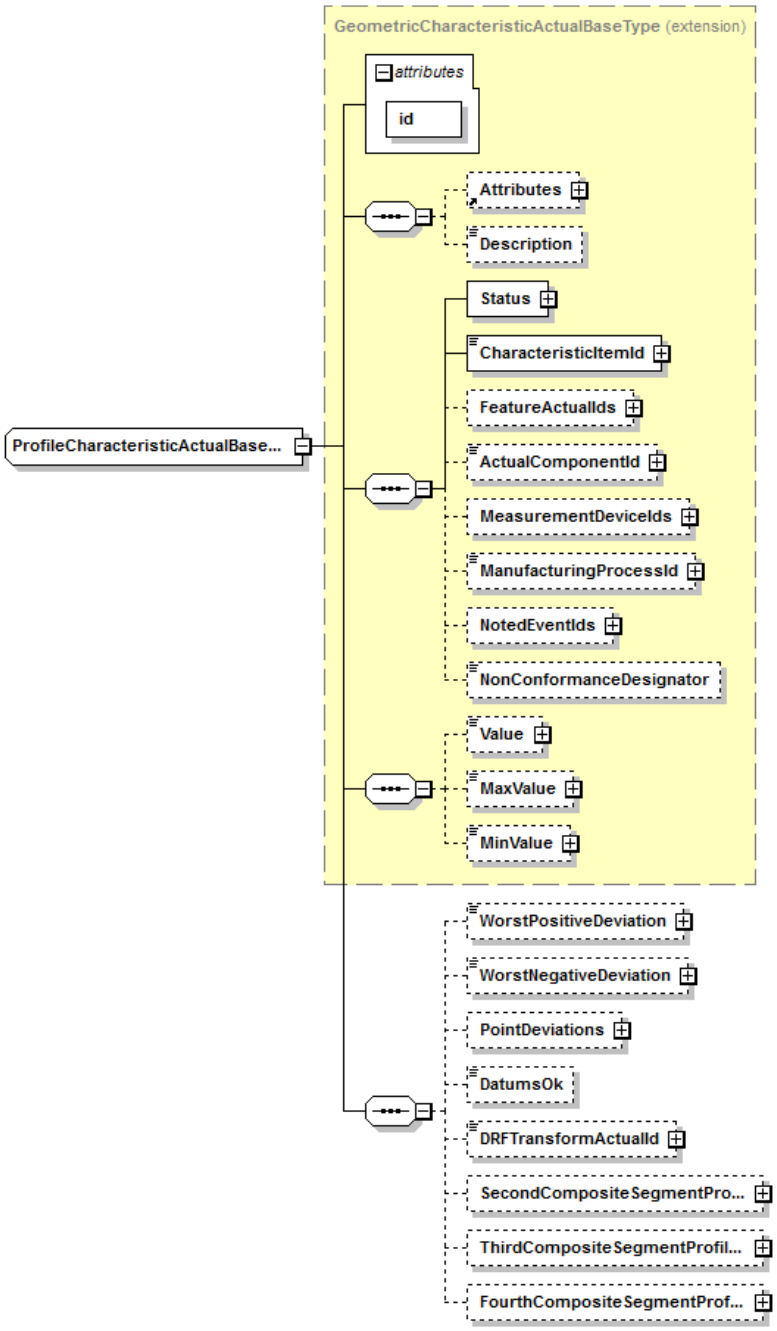
element **PressureCharacteristicNominalBaseType/TargetValue**

diagram	

type	**PressureValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. pressureUnit **xs:token** — documentation: The optional pressureUnit attribute defines the UnitName for the PressureValueType.
annotation	documentation The optional TargetValue element is the nominal value of the pressure characteristic.

complexType **ProfileCharacteristicActualBaseType**

diagram

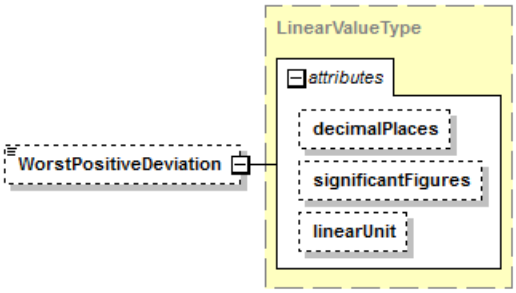


type	extension of **GeometricCharacteristicActualBaseType**
properties	base GeometricCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **WorstPositiveDeviation** **WorstNegativeDeviation** **PointDeviations** **DatumsOk** **DRFTransformActualId** **SecondCompositeSegmentProfileActual** **ThirdCompositeSegmentProfileActual** **FourthCompositeSegmentProfileActual**
used by	complexTypes **LineProfileCharacteristicActualType** **PointProfileCharacteristicActualType** **SurfaceProfileCharacteristicActualType** **SurfaceProfileNonUniformCharacteristicActualType**
attributes	Name Type Use Default Fixed Annotation

	id	**QIFIdType**	required	documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ProfileCharacteristicActualBaseType is the abstract base type that defines the results of an actual profile characteristic evaluation.			

element **ProfileCharacteristicActualBaseType/WorstPositiveDeviation**

diagram



type **LinearValueType**

properties
minOcc 0
maxOcc 1
content complex

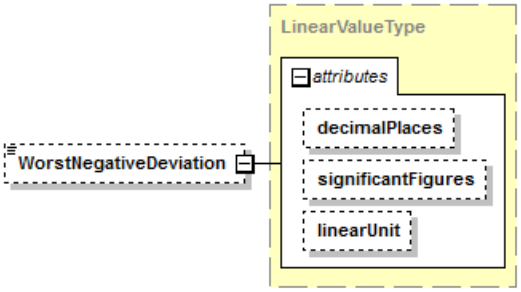
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.

annotation
documentation
The optional WorstPositiveDeviation element is the most positive deviation in the direction of the surface or curve normal. This deviation can be a negative number.

element **ProfileCharacteristicActualBaseType/WorstNegativeDeviation**

diagram

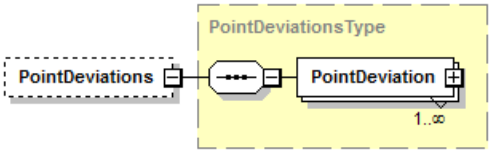


type **LinearValueType**

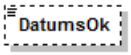
properties
minOcc 0
maxOcc 1

	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional WorstNegativeDeviation element is the most negative deviation in the direction of the surface or curve normal. This deviation can be a positive number.

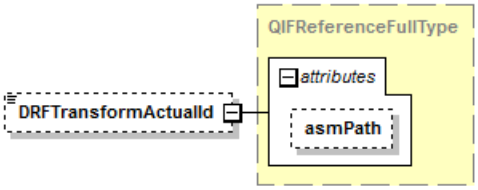
element **ProfileCharacteristicActualBaseType/PointDeviations**

diagram	
type	**PointDeviationsType**
properties	minOcc 0 maxOcc 1 content complex
children	**PointDeviation**
annotation	documentation The optional PointDeviations element is a list of the vector deviations of measurement points from nominal.

element **ProfileCharacteristicActualBaseType/DatumsOk**

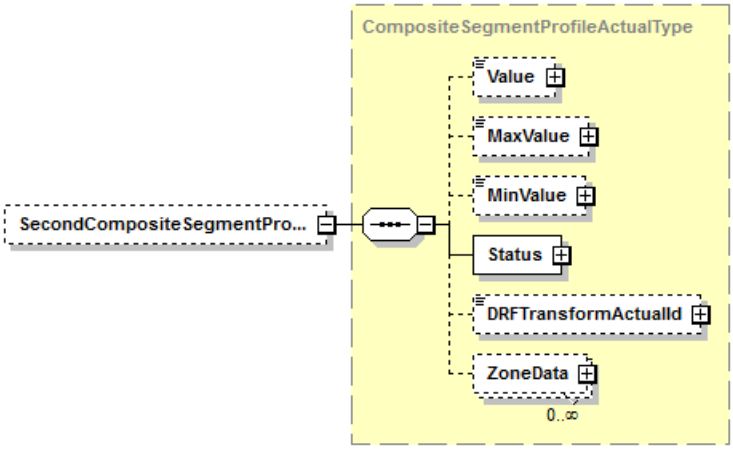
diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional DatumsOk element specifies whether the datum features passed all their associated characteristic evaluations. The element is set to "true" for passed all, is set to "false" for did not pass all, and is not present if the status of the datum features is unknown.

element **ProfileCharacteristicActualBaseType/DRFTransformActualId**

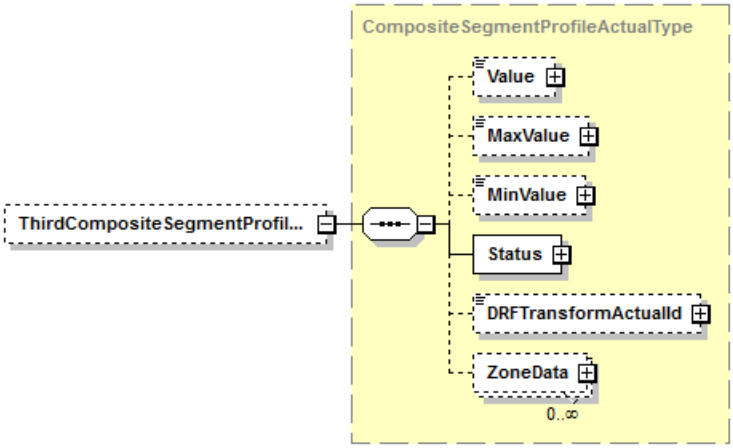
diagram	
type	**QIFReferenceFullType**

properties	minOcc 0 maxOcc 1 content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The optional DRFTransformActualId element is the QIF id of the actual transform associated with the mobile DRF of this characteristic.

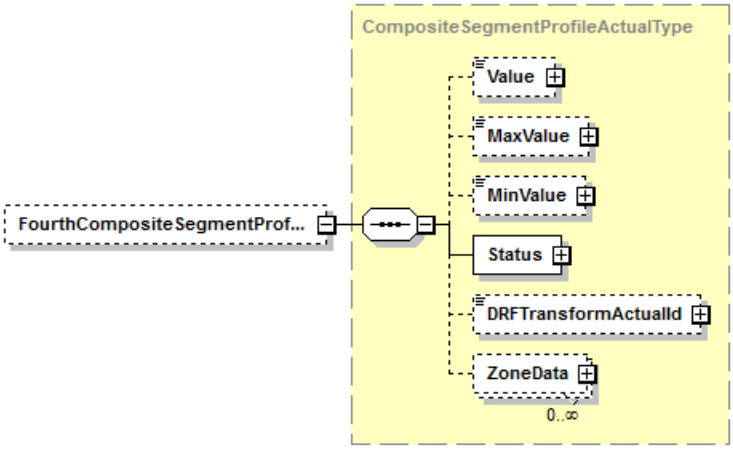
element **ProfileCharacteristicActualBaseType/SecondCompositeSegmentProfileActual**

diagram	
type	**CompositeSegmentProfileActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional SecondCompositeSegmentProfileActual gives information about the second segment of an actual composite frame profile characteristic.

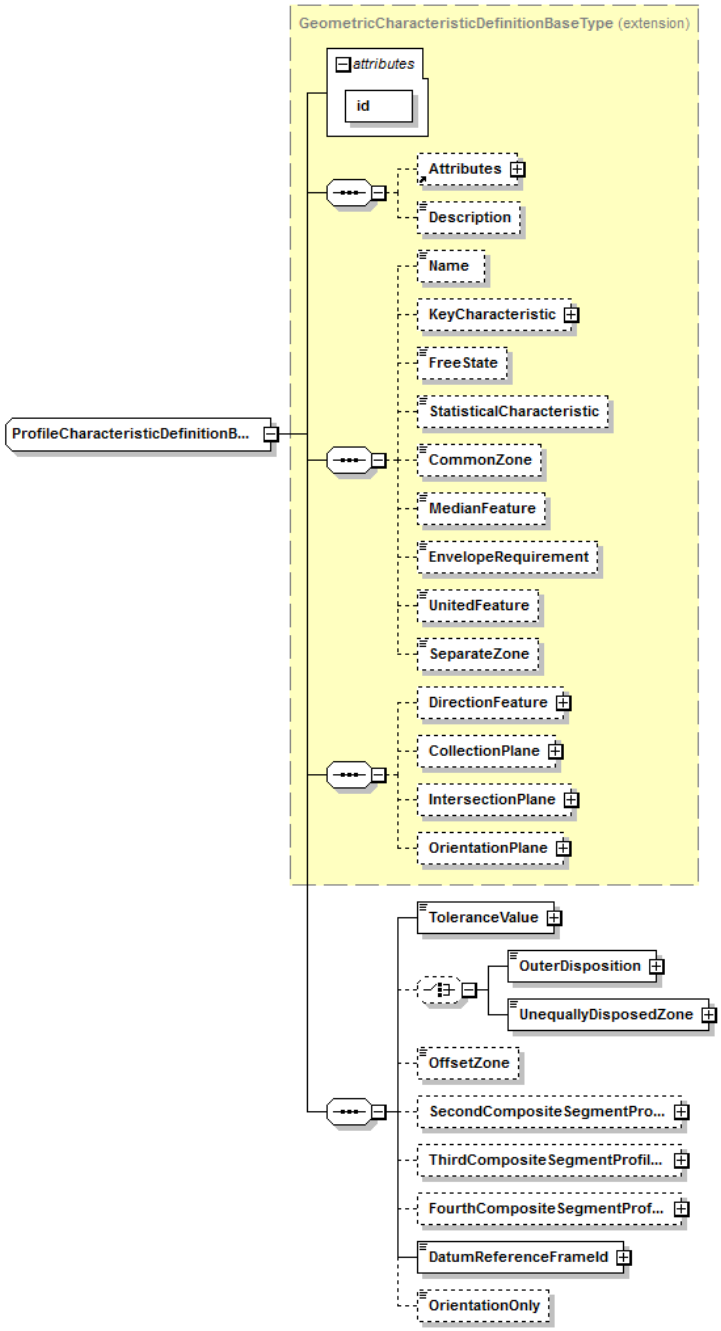
element **ProfileCharacteristicActualBaseType/ThirdCompositeSegmentProfileActual**

diagram	
type	**CompositeSegmentProfileActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional ThirdCompositeSegmentProfileActual gives information about the third segment of an actual composite frame profile characteristic. This element may be used only if the SecondCompositeSegmentProfileActual element is used.

element **ProfileCharacteristicActualBaseType/FourthCompositeSegmentProfileActual**

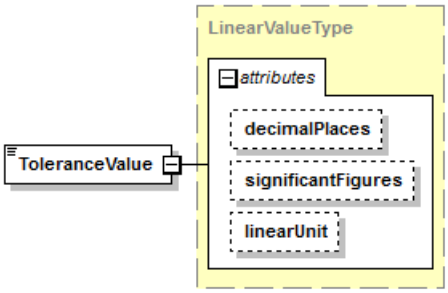
diagram	
type	**CompositeSegmentProfileActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional FourthCompositeSegmentProfileActual gives information about the fourth segment of an actual composite frame profile characteristic. This element may be used only if the ThirdCompositeSegmentProfileActual element is used.

complexType **ProfileCharacteristicDefinitionBaseType**

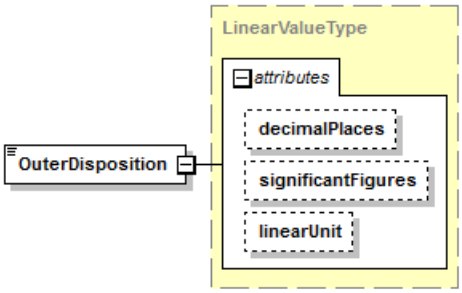
diagram	
type	extension of **GeometricCharacteristicDefinitionBaseType**
properties	base GeometricCharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **OuterDisposition** **UnequallyDisposedZone** **OffsetZone** **SecondCompositeSegmentProfileDefinition** **ThirdCompositeSegmentProfileDefinition** **FourthCompositeSegmentProfileDefinition** **DatumReferenceFrameId** **OrientationOnly**
used by	complexTypes **LineProfileCharacteristicDefinitionType** **PointProfileCharacteristicDefinitionType** **SurfaceProfileCharacteristicDefinitionType** **SurfaceProfileNonUniformCharacteristicDefinitionType**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ProfileCharacteristicDefinitionBaseType is the abstract base type that defines a profile characteristic.					

element **ProfileCharacteristicDefinitionBaseType/ToleranceValue**

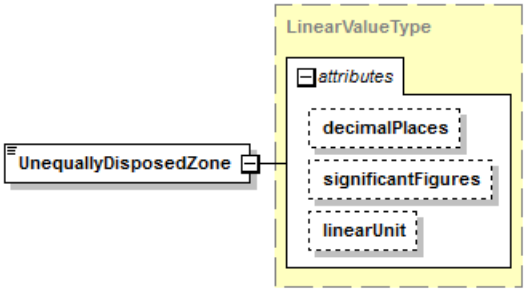
diagram						
type	**LinearValueType**					
properties	content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation
	decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the profile characteristic.					

element **ProfileCharacteristicDefinitionBaseType/OuterDisposition**

diagram						
type	**LinearValueType**					
properties	content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation

	decimalPlaces	**xs:nonNegativeInteger**	documentation See documentation of SpecifiedDecimalType.
	significantFigures	**xs:nonNegativeInteger**	documentation See documentation of SpecifiedDecimalType.
	linearUnit	**xs:token**	documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional OuterDisposition element is the outer disposition of the profile characteristic's tolerance zone when the tolerance zone is not symmetric about or is offset from the nominal surface or curve. The value represents the upper tolerance limit when the tolerance zone is expressed as a bi-directional tolerance. For asymmetrically disposed tolerance zones it can range in value from zero when the tolerance zone is completely inside the part material, to the whole tolerance value when the tolerance zone is completely outside the part material. For offset tolerance zones it will have a negative value for a tolerance zone offset inside the part material, or a positive value greater than the tolerance value for a tolerance zone offset outside the part material.		

element **ProfileCharacteristicDefinitionBaseType/UnequallyDisposedZone**

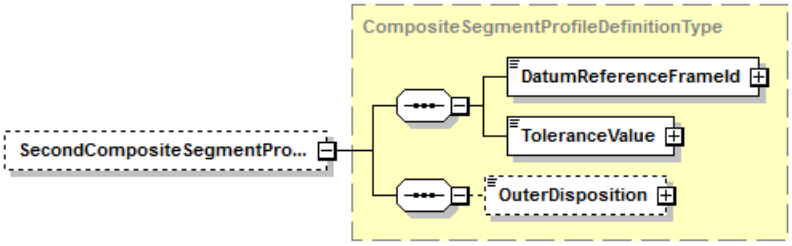
diagram						
type	**LinearValueType**					
properties	content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation
	decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation (ISO specific UZ) The optional UnequallyDisposedZone element is the center of the profile characteristic's tolerance zone when the tolerance zone is not symmetric about or is offset from the nominal surface or curve. For asymmetrically disposed tolerance zones it has a positive value when the center of the tolerance zone is outside the part material, and a negative value when the center of the tolerance zone is inside the part material.					

element **ProfileCharacteristicDefinitionBaseType/OffsetZone**

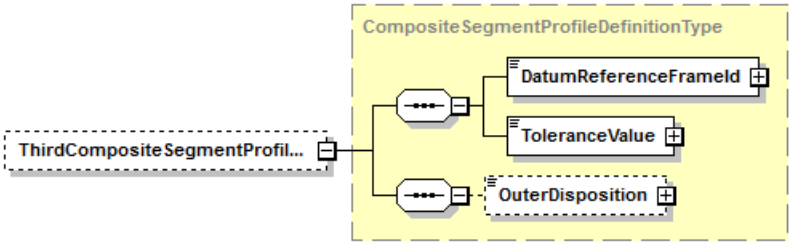
diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1

	content simple
annotation	documentation (ISO specific OZ) The optional OffsetZone element when present and set to true indicates that the profile tolerance zone can be offset by any unspecified amount.

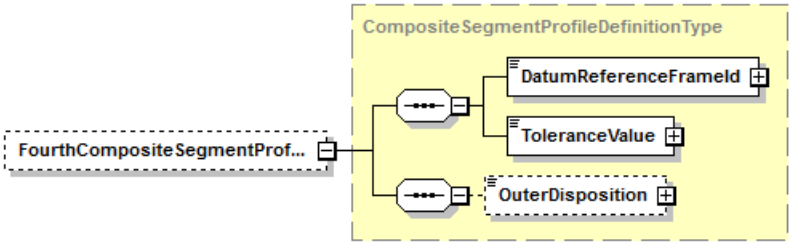
element **ProfileCharacteristicDefinitionBaseType/SecondCompositeSegmentProfileDefinition**

diagram	
type	**CompositeSegmentProfileDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue** **OuterDisposition**
annotation	documentation The optional SecondCompositeSegmentProfileDefinition gives information about the second segment of a composite frame profile characteristic.

element **ProfileCharacteristicDefinitionBaseType/ThirdCompositeSegmentProfileDefinition**

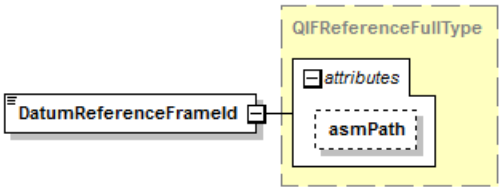
diagram	
type	**CompositeSegmentProfileDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue** **OuterDisposition**
annotation	documentation The optional ThirdCompositeSegmentProfileDefinition gives information about the third segment of a composite frame profile characteristic. This element may be used only if the SecondCompositeSegmentProfileDefinition element is used.

element **ProfileCharacteristicDefinitionBaseType/FourthCompositeSegmentProfileDefinition**

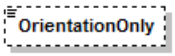
diagram	

type	**CompositeSegmentProfileDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue** **OuterDisposition**
annotation	documentation The optional FourthCompositeSegmentProfileDefinition gives information about the fourth segment of a composite frame profile characteristic. This element may be used only if the ThirdCompositeSegmentProfileDefinition element is used.

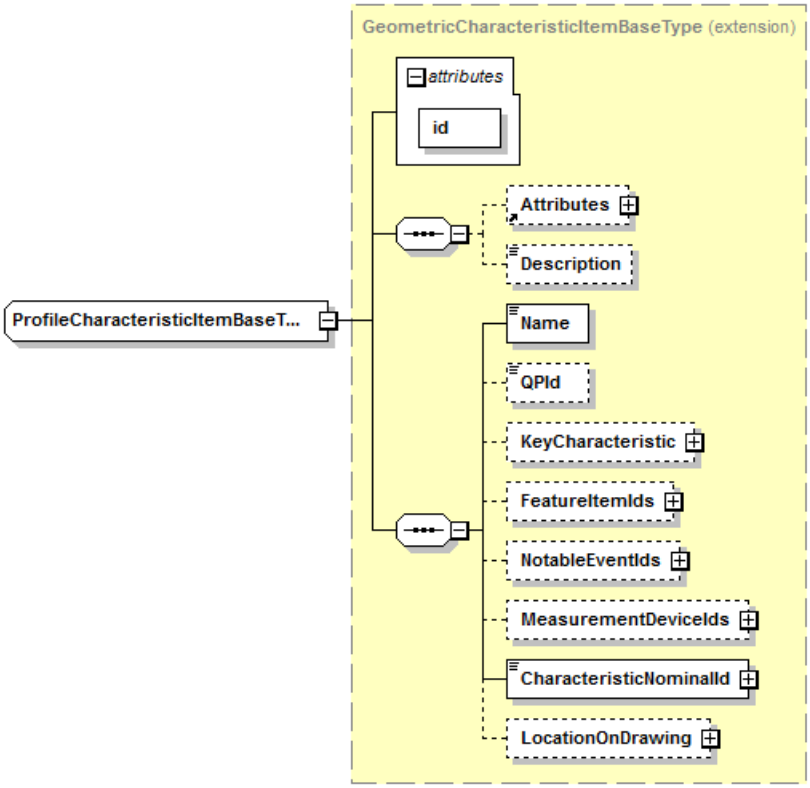
element **ProfileCharacteristicDefinitionBaseType/DatumReferenceFrameId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DatumReferenceFrameId element is the QIF id of the datum reference frame for the profile characteristic.

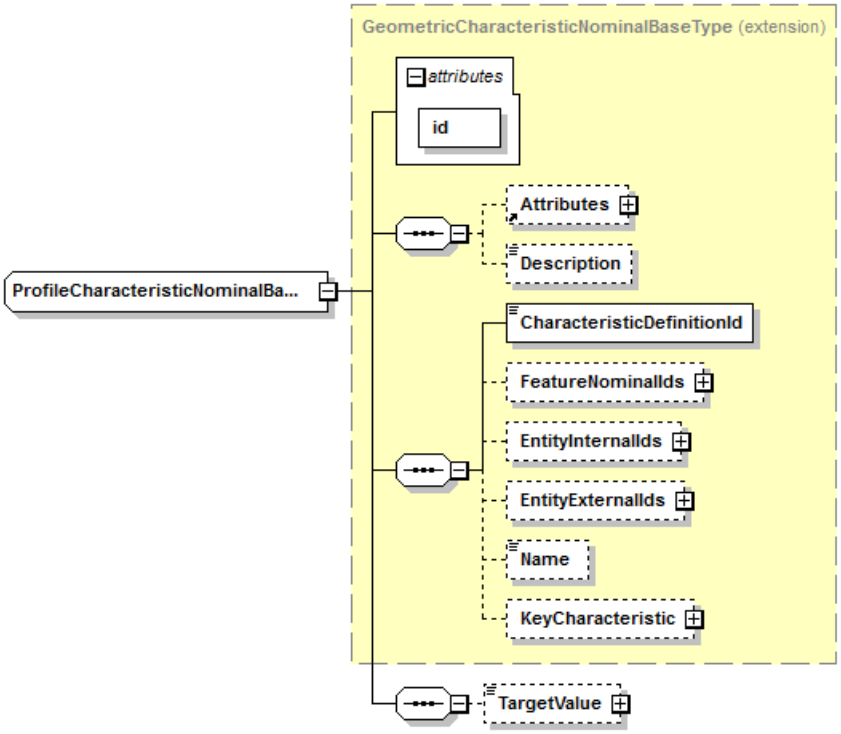
element **ProfileCharacteristicDefinitionBaseType/OrientationOnly**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation (ISO specific greaterthan/lessthan) The optional OrientationOnly element when present and set to true signifies that the DRF associated with this profile characteristic controls only orientation degrees of freedom.

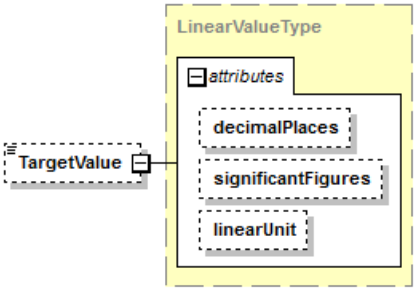
complexType **ProfileCharacteristicItemBaseType**

diagram	
type	extension of **GeometricCharacteristicItemBaseType**
properties	base GeometricCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **LineProfileCharacteristicItemType** **PointProfileCharacteristicItemType** **SurfaceProfileCharacteristicItemType** **SurfaceProfileNonUniformCharacteristicItemType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ProfileCharacteristicItemBaseType is the abstract base type that defines a profile characteristic item.

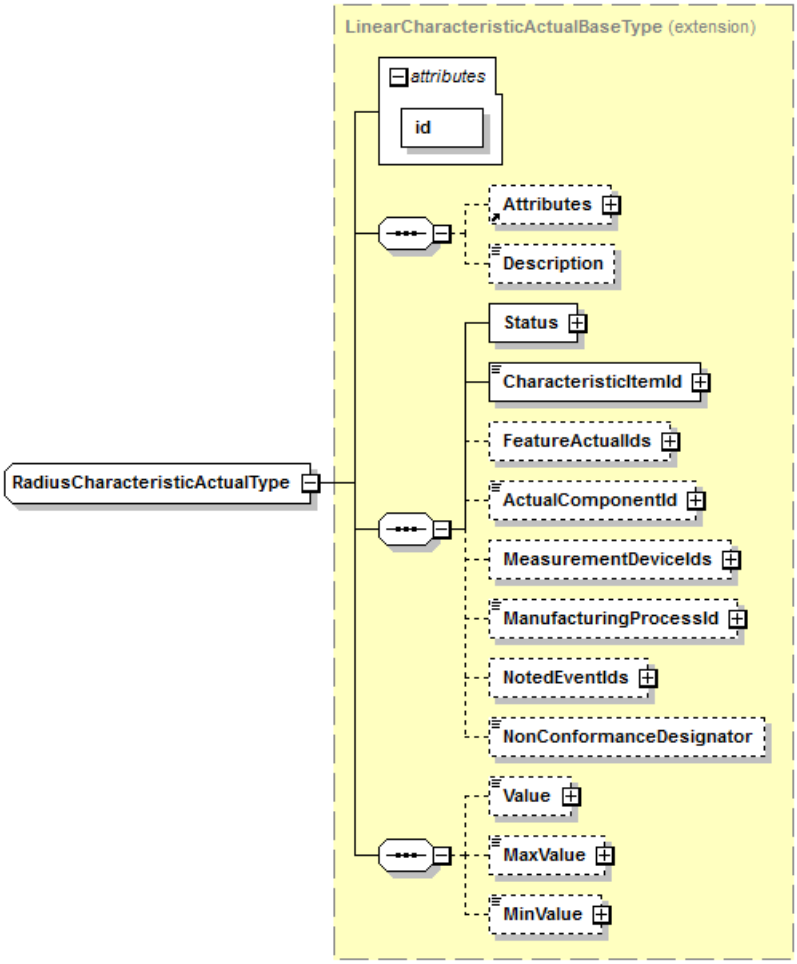
complexType **ProfileCharacteristicNominalBaseType**

diagram	
type	extension of **GeometricCharacteristicNominalBaseType**
properties	base GeometricCharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexTypes **LineProfileCharacteristicNominalType** **PointProfileCharacteristicNominalType** **SurfaceProfileCharacteristicNominalType** **SurfaceProfileNonUniformCharacteristicNominalType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ProfileCharacteristicNominalBaseType is the abstract base type that defines a unique profile characteristic nominal. The TargetValue for a profile characteristic can be non-zero to indicate a target value offset from the nominal surface or curve.

element **ProfileCharacteristicNominalBaseType/TargetValue**

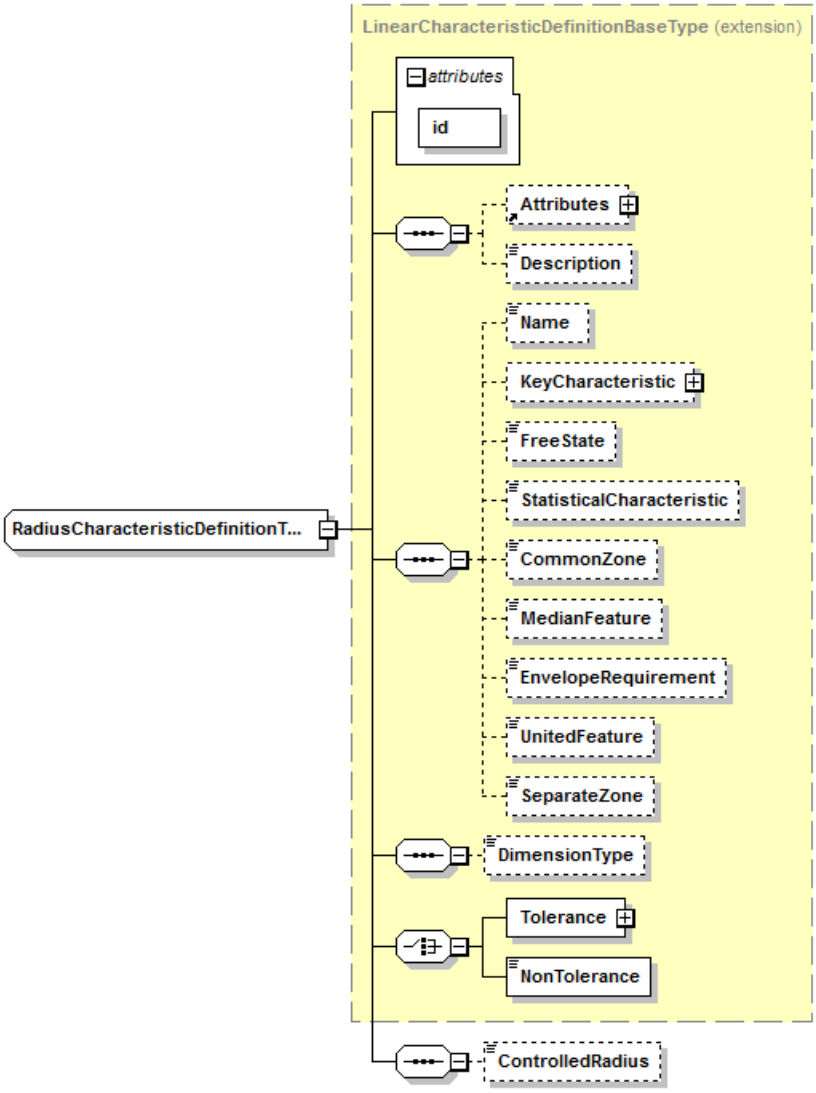
diagram	
type	**LinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. linearUnit **xs:token** — documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The optional TargetValue element is a non-zero value to indicate a target value offset from the nominal surface or curve.

complexType **RadiusCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **RadiusCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The RadiusCharacteristicActualType defines the results of an actual radius characteristic evaluation.

complexType **RadiusCharacteristicDefinitionType**

diagram



type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance** **ControlledRadius**
used by	element **RadiusCharacteristicDefinition**

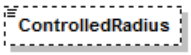
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

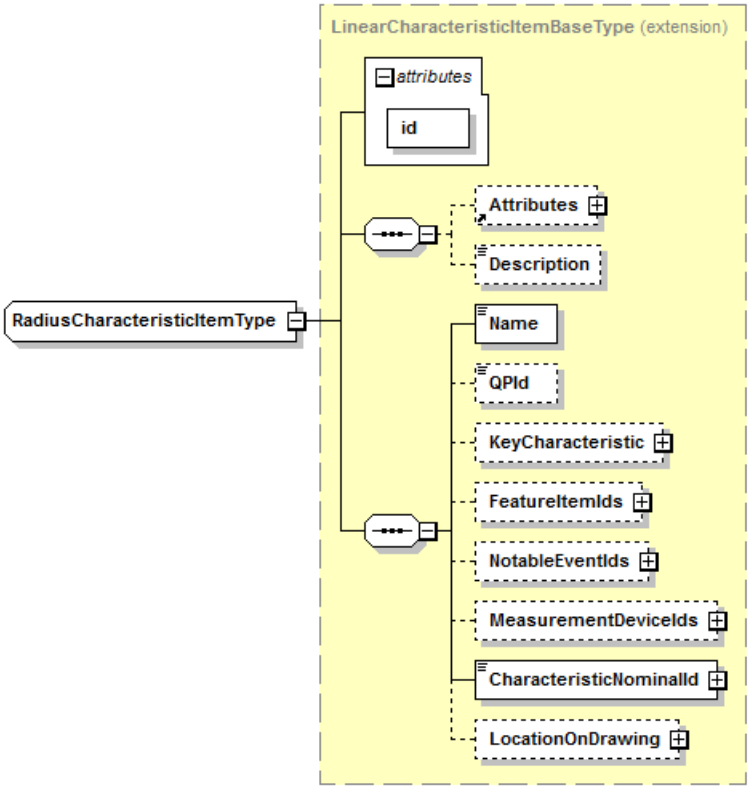
documentation
The RadiusCharacteristicDefinitionType defines information that can be common to more than one radius characteristic.

element **RadiusCharacteristicDefinitionType/ControlledRadius**

diagram	
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional ControlledRadius element indicates whether the characteristic is a controlled radius. The element is set to "true" for controlled, and is set to "false" or is not present for not controlled.

complexType **RadiusCharacteristicItemType**

diagram



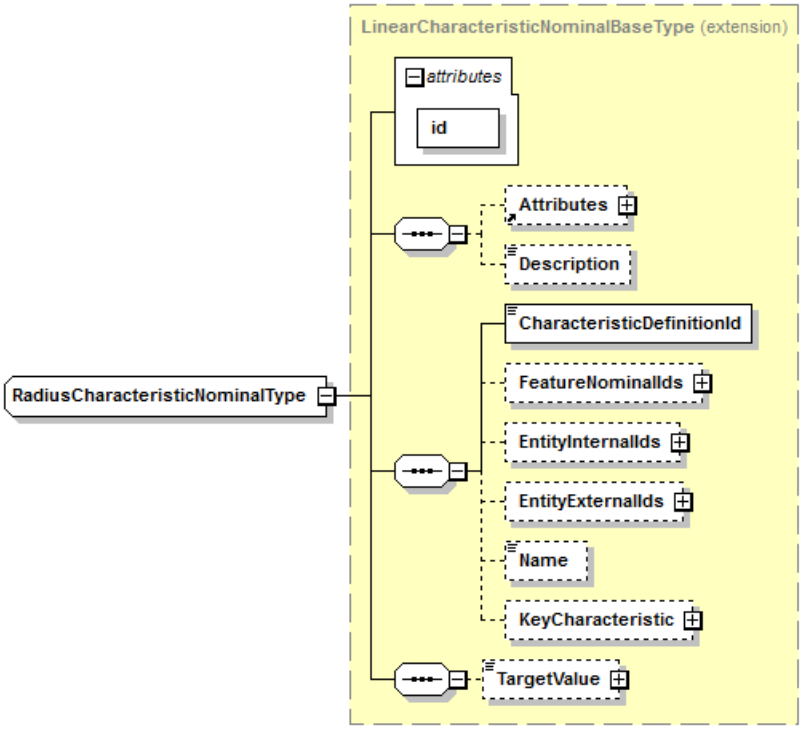
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **RadiusCharacteristicItem**

attributes

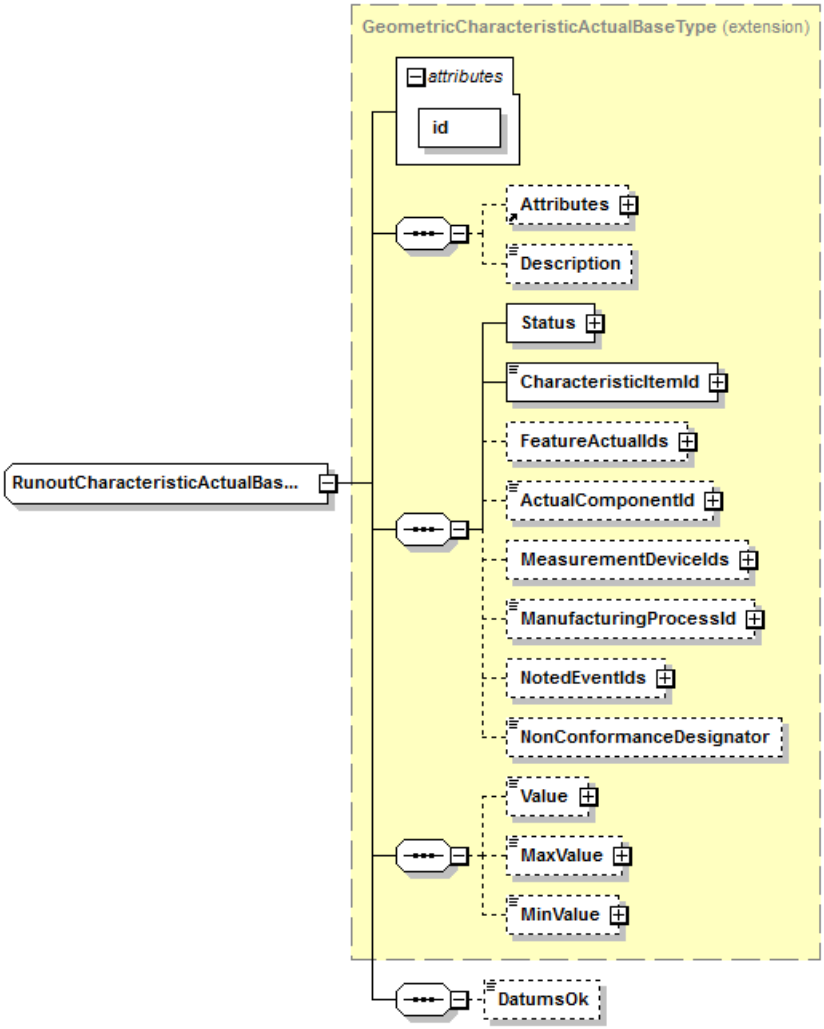
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The RadiusCharacteristicItemType defines a radius characteristic item.

complexType **RadiusCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **RadiusCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The RadiusCharacteristicNominalType defines a unique radius characteristic nominal.

complexType **RunoutCharacteristicActualBaseType**

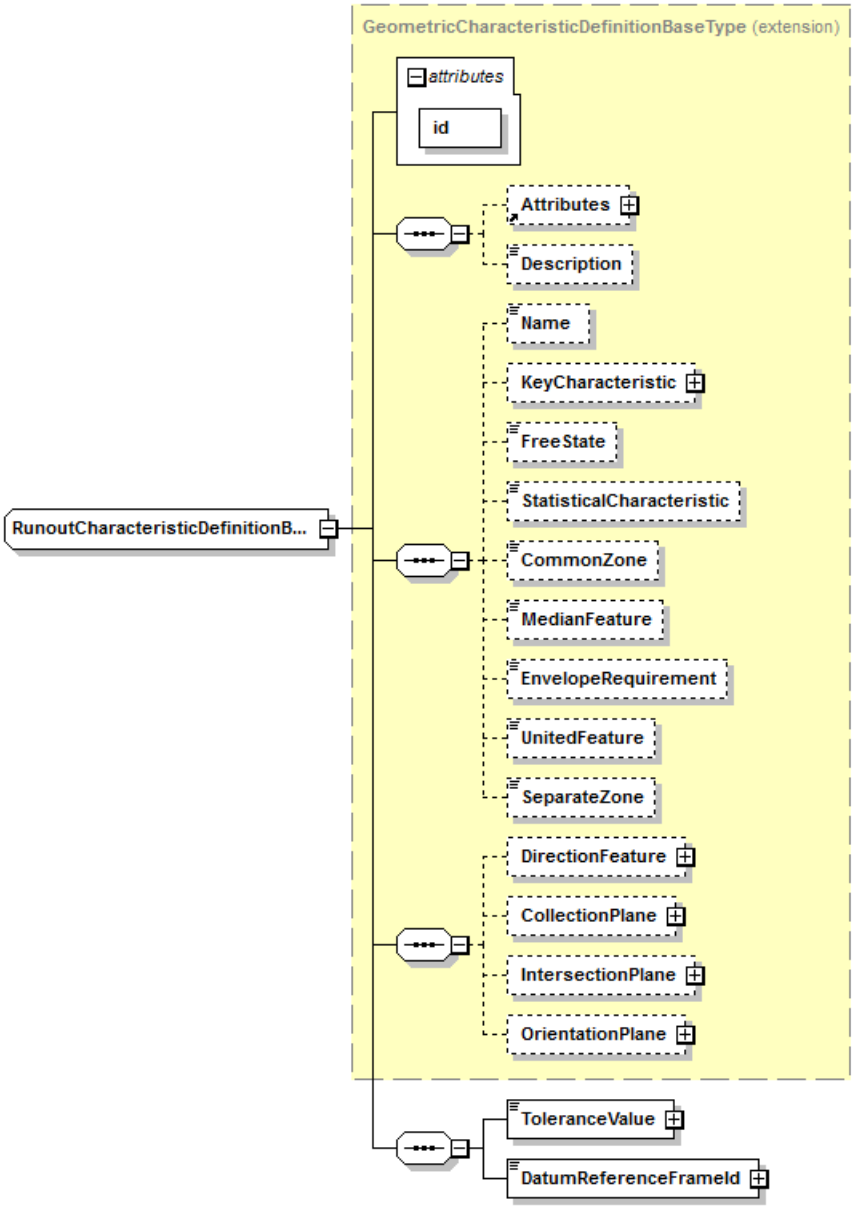
diagram	
type	extension of **GeometricCharacteristicActualBaseType**
properties	base GeometricCharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk**
used by	complexTypes **CircularRunoutCharacteristicActualType** **TotalRunoutCharacteristicActualType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The RunoutCharacteristicActualBaseType is the abstract base type that defines the results of an actual runout characteristic evaluation.

element **RunoutCharacteristicActualBaseType/DatumsOk**

diagram	DatumsOk
type	**xs:boolean**
properties	minOcc 0 maxOcc 1 content simple
annotation	documentation The optional DatumsOk element specifies whether the datum features passed all their associated characteristic evaluations. The element is set to "true" for passed all, is set to "false" for did not pass all, and is not present if the status of the datum features is unknown.

complexType **RunoutCharacteristicDefinitionBaseType**

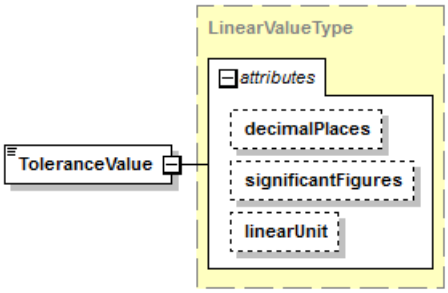
diagram



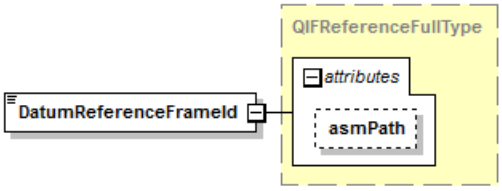
type	extension of **GeometricCharacteristicDefinitionBaseType**

properties	base GeometricCharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId**
used by	complexTypes **CircularRunoutCharacteristicDefinitionType** **TotalRunoutCharacteristicDefinitionType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The RunoutCharacteristicDefinitionBaseType is the abstract base type that defines a runout characteristic.

element **RunoutCharacteristicDefinitionBaseType/ToleranceValue**

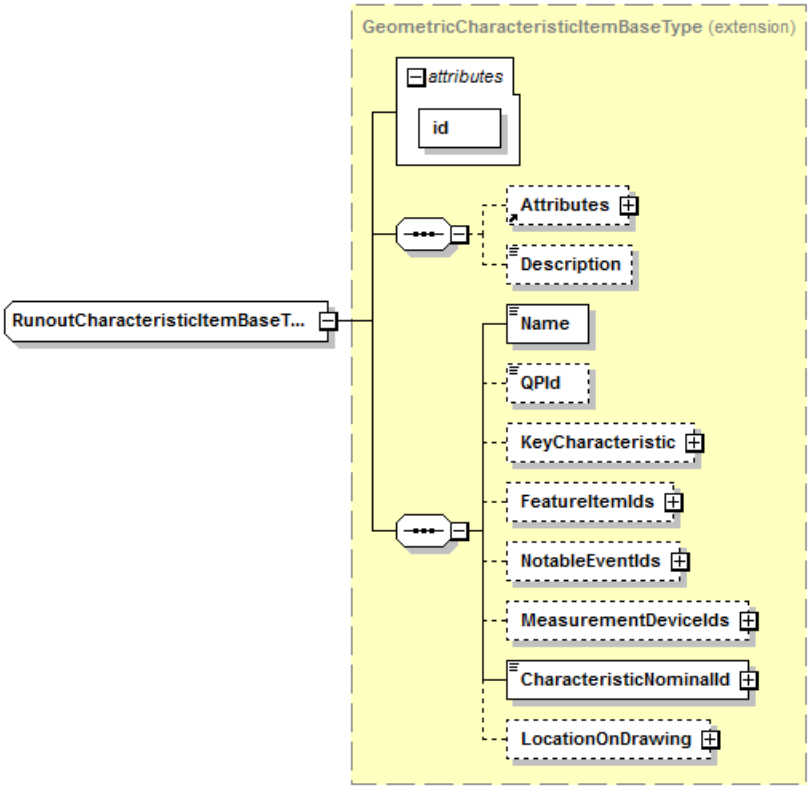
diagram	
type	**LinearValueType**
properties	content complex
attributes	Name: decimalPlaces; Type: **xs:nonNegativeInteger**; Use; Default; Fixed; Annotation: documentation See documentation of SpecifiedDecimalType. Name: significantFigures; Type: **xs:nonNegativeInteger**; Annotation: documentation See documentation of SpecifiedDecimalType. Name: linearUnit; Type: **xs:token**; Annotation: documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the runout characteristic.

element **RunoutCharacteristicDefinitionBaseType/DatumReferenceFrameId**

diagram	
type	**QIFReferenceFullType**

properties	content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation
	asmPath	**QIFIdType**				documentation The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The DatumReferenceFrameId element is the QIF id of the datum reference frame of the runout characteristic.					

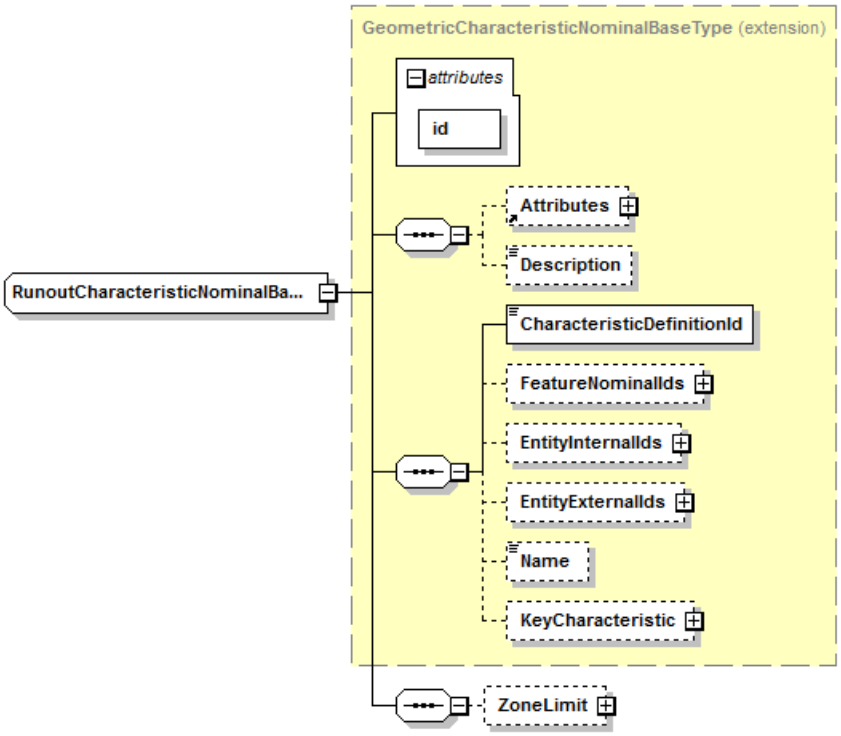
complexType **RunoutCharacteristicItemBaseType**

diagram	
type	extension of **GeometricCharacteristicItemBaseType**
properties	base GeometricCharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexTypes **CircularRunoutCharacteristicItemType** **TotalRunoutCharacteristicItemType**

attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The RunoutCharacteristicItemBaseType is the abstract base type that defines a runout characteristic item.					

complexType **RunoutCharacteristicNominalBaseType**

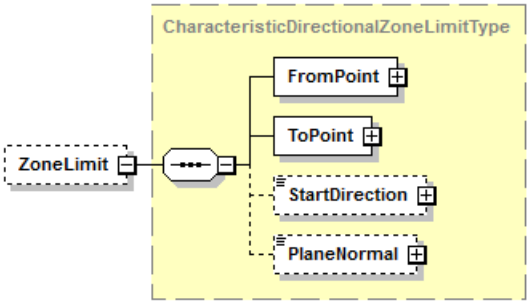
diagram



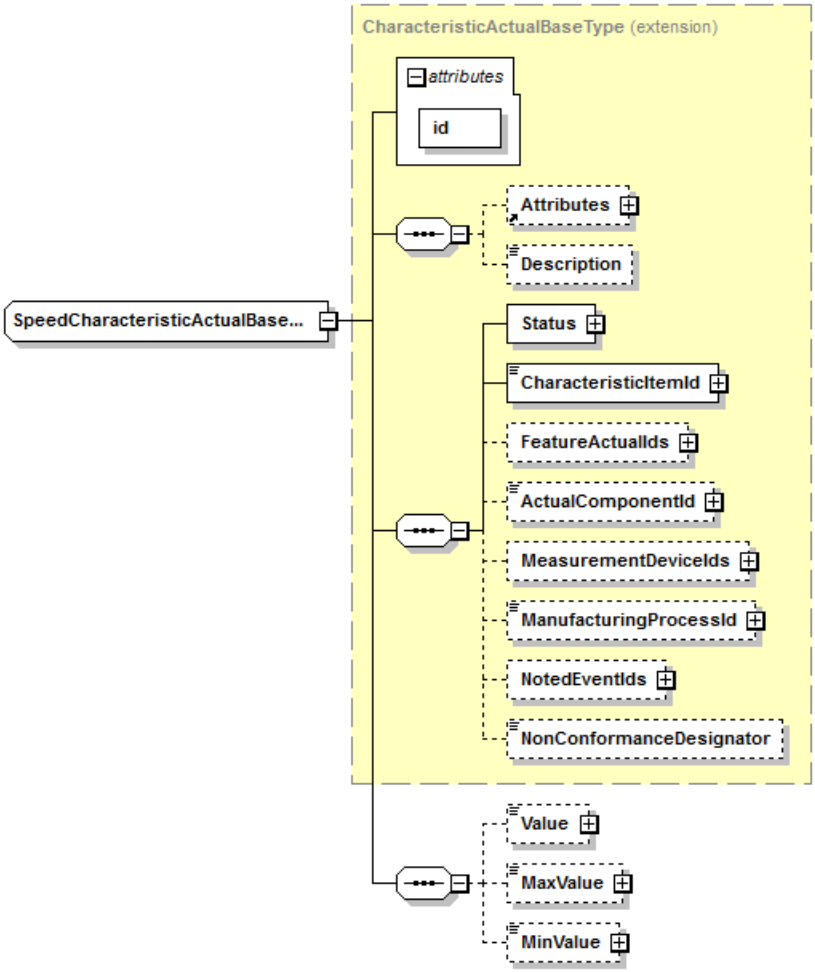
type	extension of **GeometricCharacteristicNominalBaseType**
properties	base GeometricCharacteristicNominalBaseType abstract true
children	**Attributes Description CharacteristicDefinitionId FeatureNominalIds EntityInternalIds EntityExternalIds Name KeyCharacteristic ZoneLimit**
used by	complexTypes **CircularRunoutCharacteristicNominalType TotalRunoutCharacteristicNominalType**

attributes	Name id	Type **QIFIdType**	Use required	Default	Fixed	Annotation documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The RunoutCharacteristicNominalBaseType is the abstract base type that defines a unique runout characteristic nominal.					

element **RunoutCharacteristicNominalBaseType/ZoneLimit**

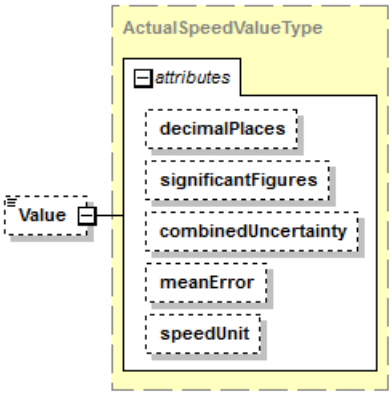
diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extent and orientation of the runout tolerance zone limit.

complexType **SpeedCharacteristicActualBaseType**

diagram	

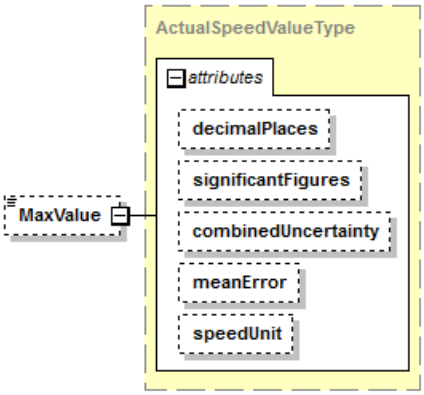
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes Description Status CharacteristicItemId FeatureActualIds ActualComponentId MeasurementDeviceIds ManufacturingProcessId NotedEventIds NonConformanceDesignator Value MaxValue MinValue**
used by	complexType **UserDefinedSpeedCharacteristicActualType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SpeedCharacteristicActualBaseType is the abstract base type that defines the results of an actual speed characteristic evaluation.

element **SpeedCharacteristicActualBaseType/Value**

diagram	
type	**ActualSpeedValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name: decimalPlaces Type: **xs:nonNegativeInteger** Use: Default: Fixed: Annotation: documentation: See documentation of SpecifiedDecimalType. Name: significantFigures Type: **xs:nonNegativeInteger** Annotation: documentation: See documentation of SpecifiedDecimalType. Name: combinedUncertainty Type: **NonNegativeDecimalType** Annotation: documentation: The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. Name: meanError Type: **NonNegativeDecimalType** Annotation: documentation: The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. Name: speedUnit Type: **xs:token** Annotation: documentation: The optional speedUnit

	attribute defines the UnitName for the ActualSpeedValueType.
annotation	documentation The optional Value element is the actual measured value of the speed characteristic.

element **SpeedCharacteristicActualBaseType/MaxValue**

diagram	
type	**ActualSpeedValueType**
properties	minOcc 0 maxOcc 1 content complex

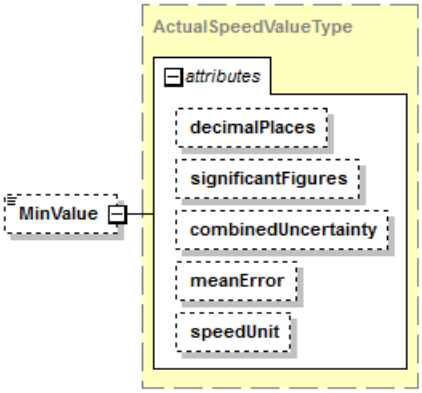
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
speedUnit	**xs:token**				documentation The optional speedUnit attribute defines the UnitName for the ActualSpeedValueType.

annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **SpeedCharacteristicActualBaseType/MinValue**

diagram



type **ActualSpeedValueType**

properties

minOcc	0
maxOcc	1
content	complex

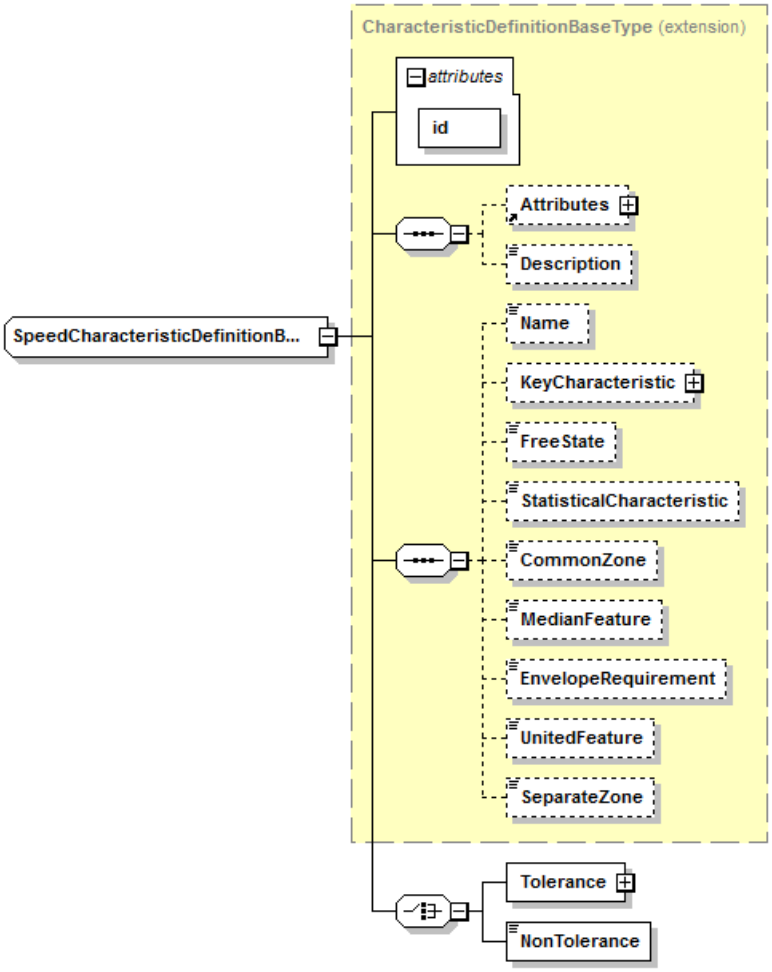
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
speedUnit	**xs:token**				documentation The optional speedUnit attribute defines the UnitName for the ActualSpeedValueType.

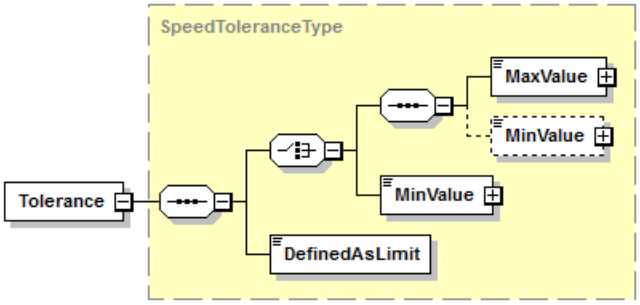
annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

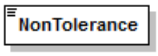
complexType **SpeedCharacteristicDefinitionBaseType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedSpeedCharacteristicDefinitionType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SpeedCharacteristicDefinitionBaseType is the abstract base type that defines a speed characteristic.

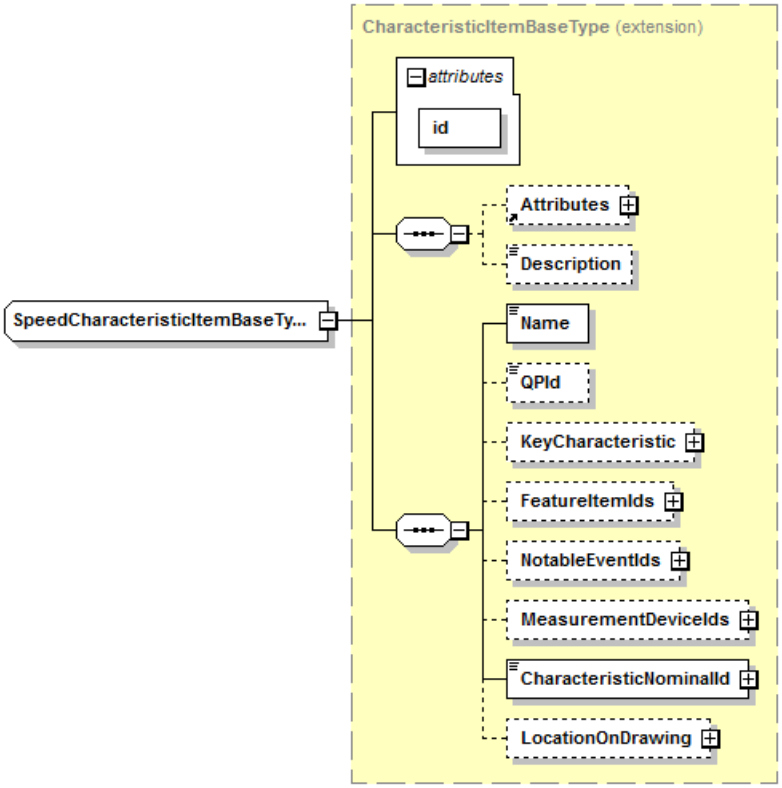
element **SpeedCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**SpeedToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the speed characteristic.

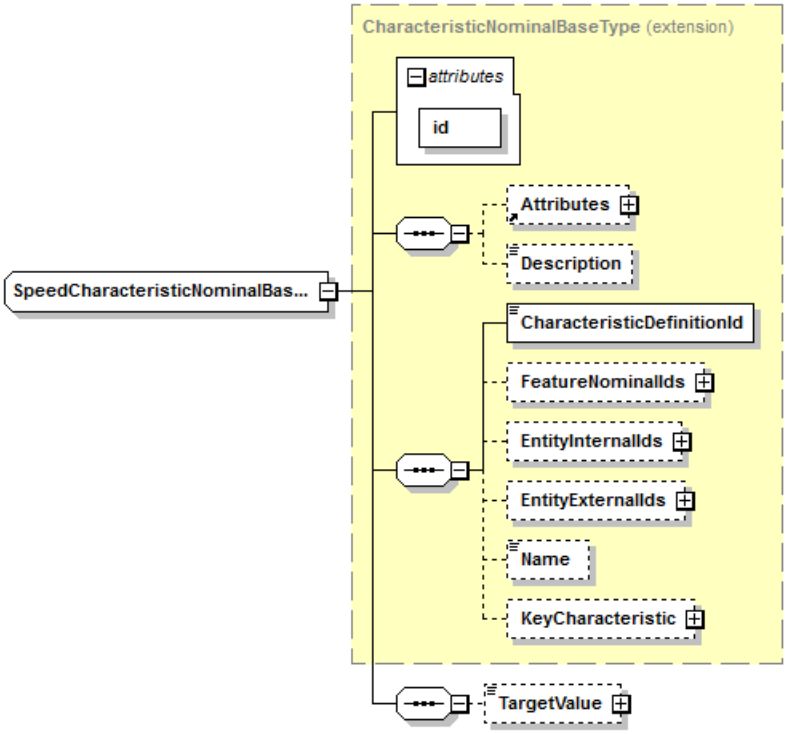
element **SpeedCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

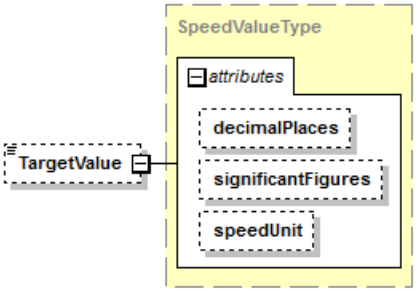
complexType **SpeedCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedSpeedCharacteristicItemType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SpeedCharacteristicItemBaseType is the abstract base type that defines a speed characteristic item.

complexType **SpeedCharacteristicNominalBaseType**

diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedSpeedCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SpeedCharacteristicNominalBaseType is the abstract base type that defines a unique speed characteristic nominal.

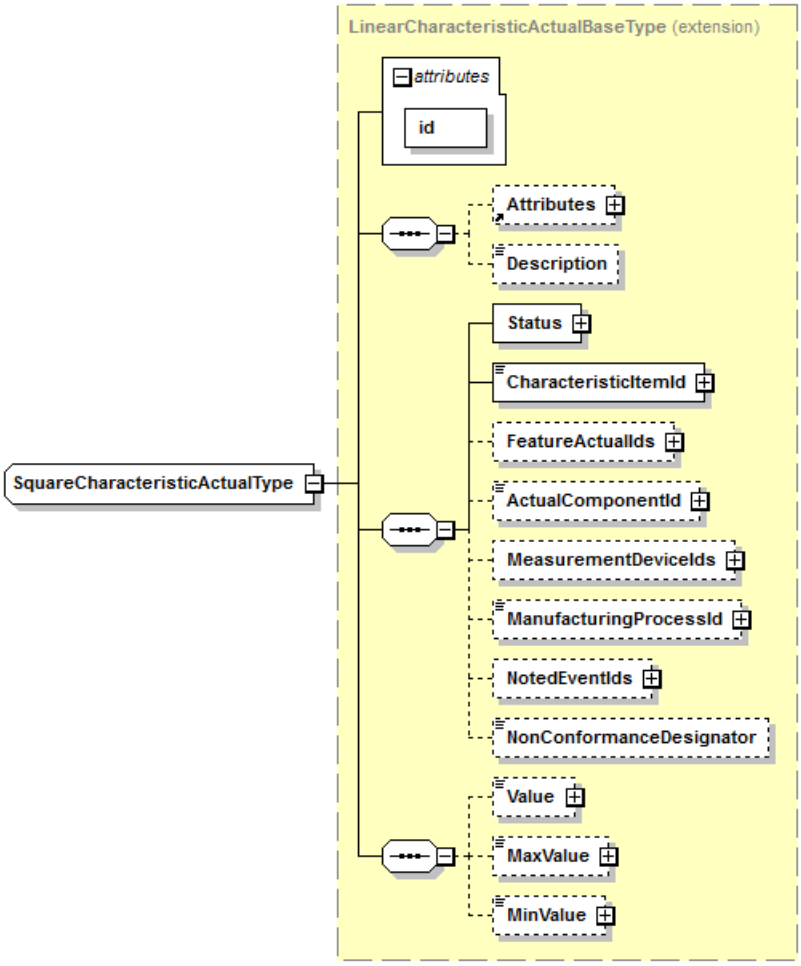
element **SpeedCharacteristicNominalBaseType/TargetValue**

diagram	

type	**SpeedValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. speedUnit **xs:token** — documentation: The optional speedUnit attribute defines the UnitName for the SpeedValueType.
annotation	documentation The optional TargetValue element is the nominal value of the speed characteristic.

complexType **SquareCharacteristicActualType**

diagram

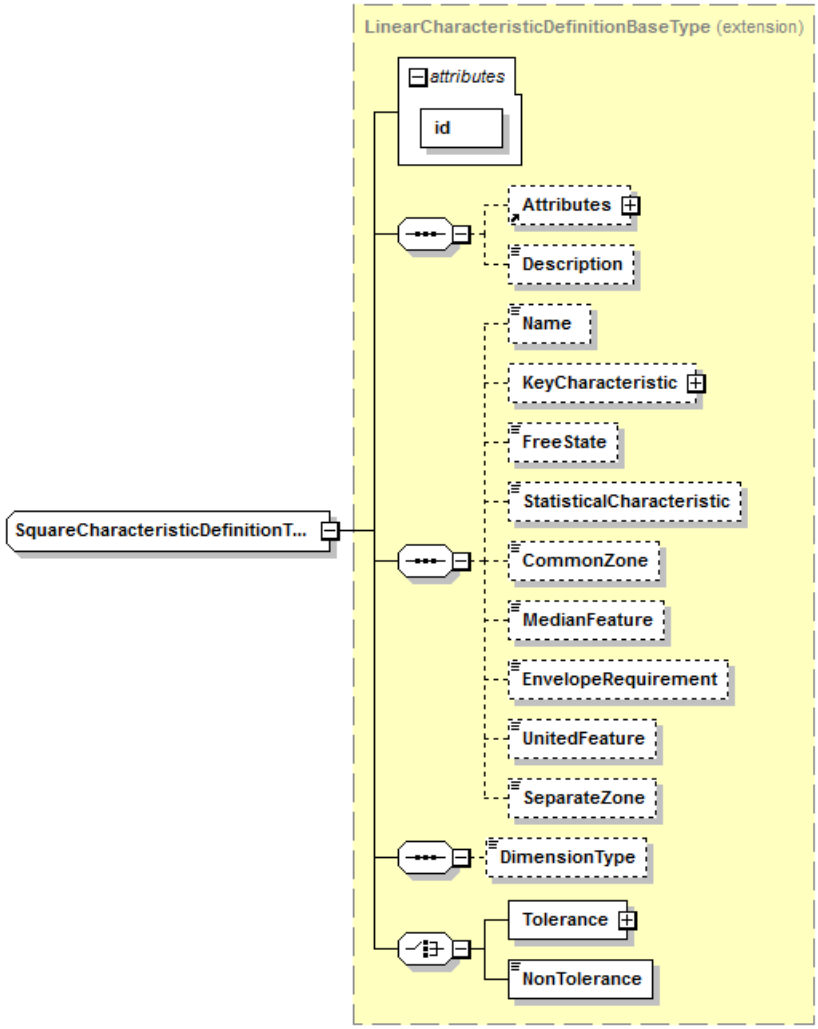


type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType

children	**Attributes** Description Status CharacteristicItemId FeatureActualIds ActualComponentId MeasurementDeviceIds ManufacturingProcessId NotedEventIds NonConformanceDesignator Value MaxValue MinValue
used by	element **SquareCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The SquareCharacteristicActualType defines the results of an actual square characteristic evaluation.

complexType **SquareCharacteristicDefinitionType**

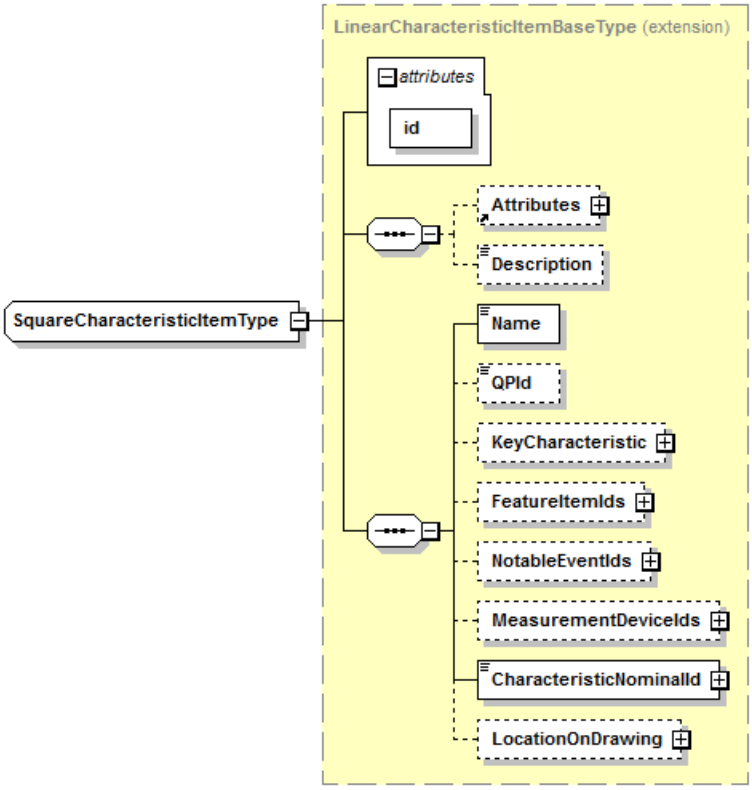
diagram



type	extension of LinearCharacteristicDefinitionBaseType
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance

used by	element **SquareCharacteristicDefinition**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SquareCharacteristicDefinitionType defines information that can be common to more than one square characteristic. This is the length of a side of a square. documentation ASME Y14.5 - 2009 Section 3.3.16					

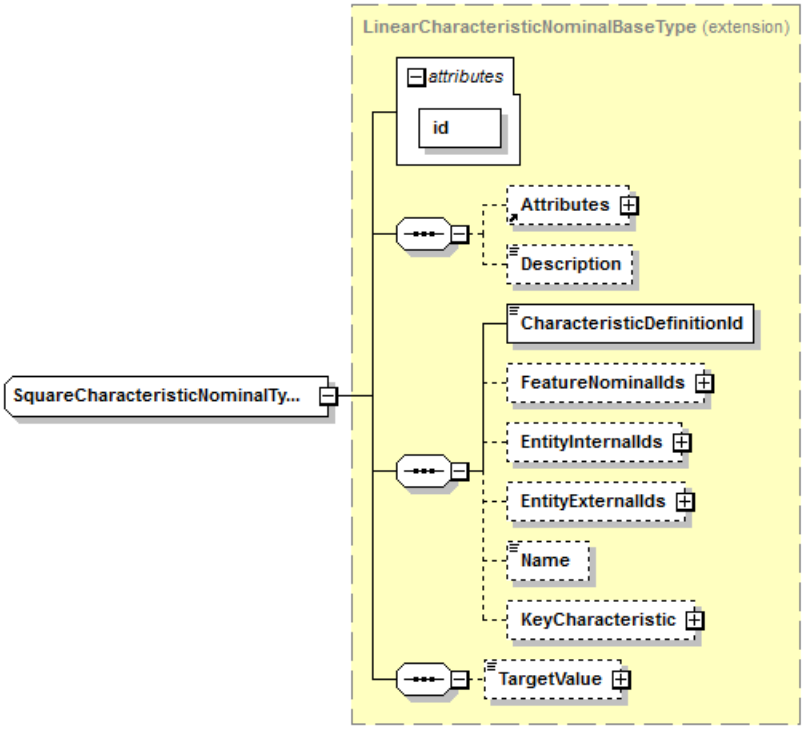
complexType **SquareCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **SquareCharacteristicItem**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

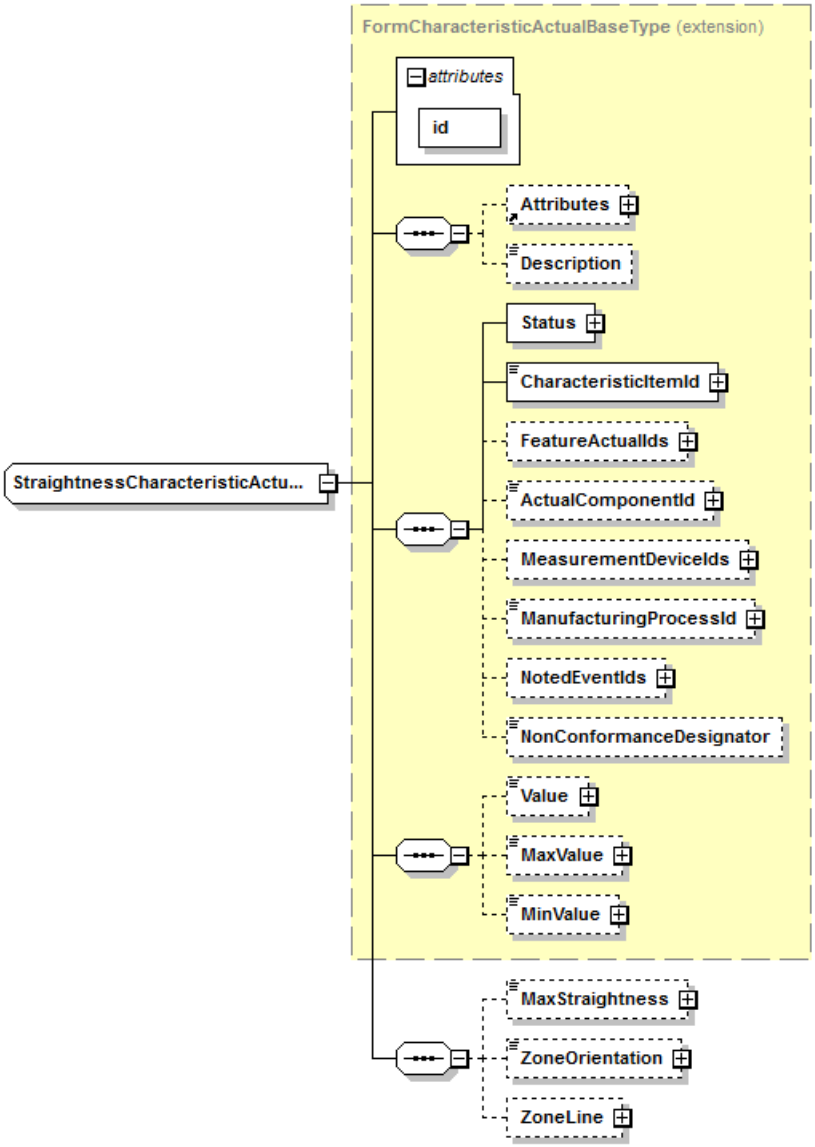
annotation	documentation The SquareCharacteristicItemType defines a square characteristic item.

complexType **SquareCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **SquareCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SquareCharacteristicNominalType defines a unique square characteristic nominal.

complexType **StraightnessCharacteristicActualType**

diagram



type	extension of **FormCharacteristicActualBaseType**
properties	base FormCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **MaxStraightness** **ZoneOrientation** **ZoneLine**
used by	element **StraightnessCharacteristicActual**

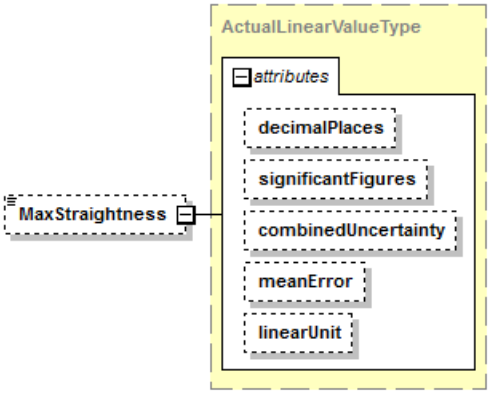
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

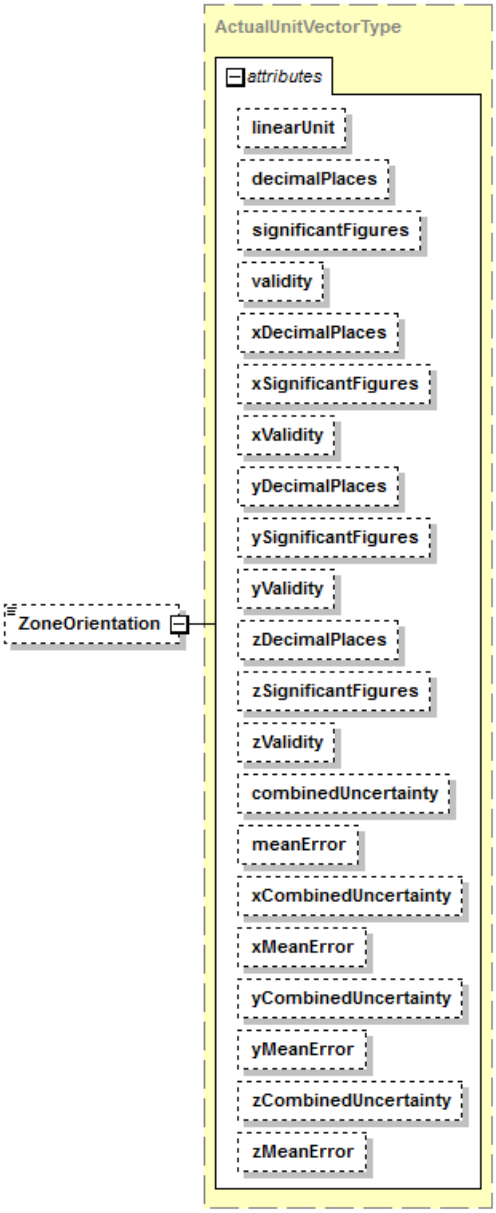
documentation
The StraightnessCharacteristicActualType defines the results of an actual straightness characteristic evaluation.

element **StraightnessCharacteristicActualType/MaxStraightness**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional MaxStraightness element is the actual overall feature straightness when a per-unit-length characteristic is used.

element **StraightnessCharacteristicActualType/ZoneOrientation**

diagram



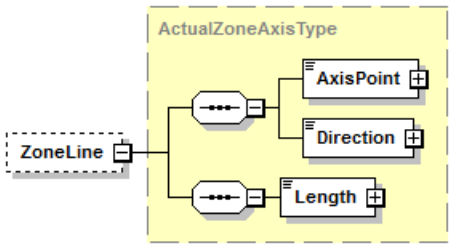
type	**ActualUnitVectorType**
properties	minOcc 0 maxOcc 1 content complex
facets	Kind Value Annotation length 3

attributes

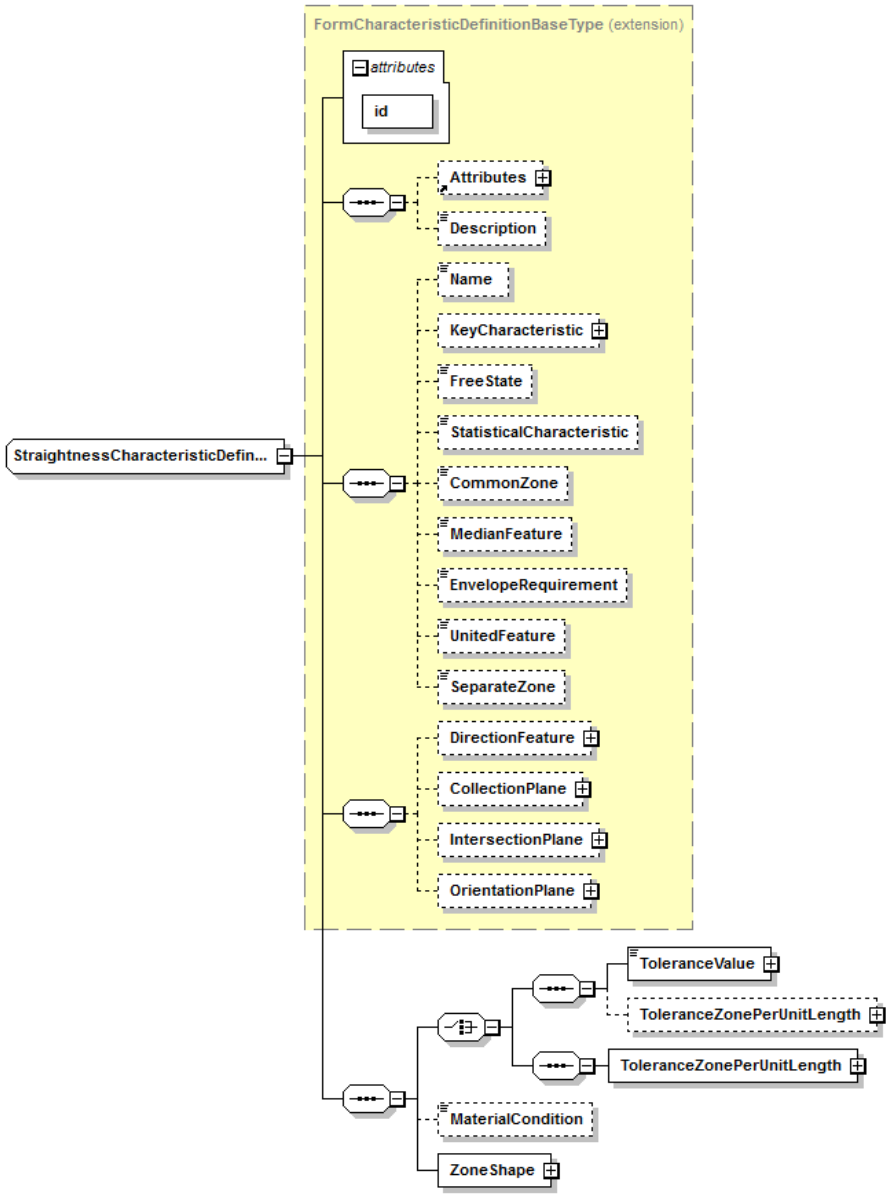
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				

	xValidity	**ValidityEnumType**
	yDecimalPlaces	**xs:nonNegativeInteger**
	ySignificantFigures	**xs:nonNegativeInteger**
	yValidity	**ValidityEnumType**
	zDecimalPlaces	**xs:nonNegativeInteger**
	zSignificantFigures	**xs:nonNegativeInteger**
	zValidity	**ValidityEnumType**
	combinedUncertainty	**xs:decimal**
	meanError	**xs:decimal**
	xCombinedUncertainty	**xs:decimal**
	xMeanError	**xs:decimal**
	yCombinedUncertainty	**xs:decimal**
	yMeanError	**xs:decimal**
	zCombinedUncertainty	**xs:decimal**
	zMeanError	**xs:decimal**
annotation	documentation The optional ZoneOrientation element is the actual orientation of the plane (the plane normal) in which parallel-line shaped tolerance zone lies.	

element **StraightnessCharacteristicActualType/ZoneLine**

diagram	
type	**ActualZoneAxisType**
properties	minOcc 0 maxOcc 1 content complex
children	**AxisPoint Direction Length**
annotation	documentation The optional ZoneLine element is the actual mid-line of the parallel-line or cylinder shaped tolerance zone.

complexType **StraightnessCharacteristicDefinitionType**

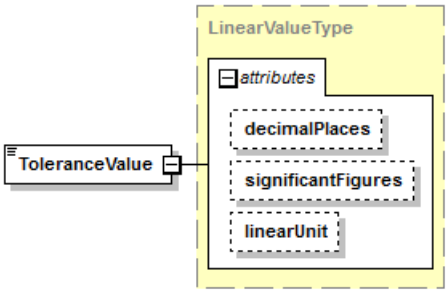
diagram	
type	extension of **FormCharacteristicDefinitionBaseType**
properties	base FormCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **ToleranceZonePerUnitLength** **ToleranceZonePerUnitLength** **MaterialCondition** **ZoneShape**
used by	element **StraightnessCharacteristicDefinition**

attributes

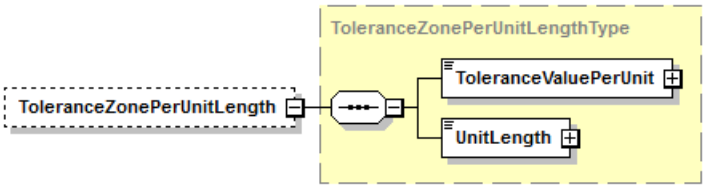
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The StraightnessCharacteristicDefinitionType defines information that can be common to more than one straightness characteristic.

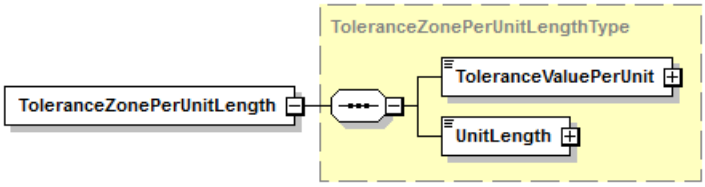
element **StraightnessCharacteristicDefinitionType/ToleranceValue**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces / **xs:nonNegativeInteger** / / / / documentation: See documentation of SpecifiedDecimalType. significantFigures / **xs:nonNegativeInteger** / / / / documentation: See documentation of SpecifiedDecimalType. linearUnit / **xs:token** / / / / documentation: The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToleranceValue element is the tolerance of the straightness characteristic.

element **StraightnessCharacteristicDefinitionType/ToleranceZonePerUnitLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	minOcc 0 maxOcc 1 content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The optional ToleranceZonePerUnitLength element is the per-unit-length tolerance of the straightness characteristic.

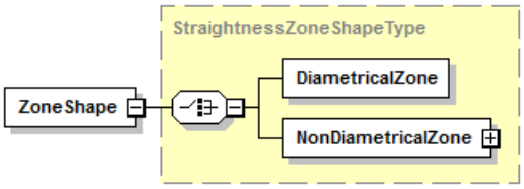
element **StraightnessCharacteristicDefinitionType/ToleranceZonePerUnitLength**

diagram	
type	**ToleranceZonePerUnitLengthType**
properties	content complex
children	**ToleranceValuePerUnit UnitLength**
annotation	documentation The ToleranceZonePerUnitLength element is the per-unit-length tolerance of the straightness characteristic.

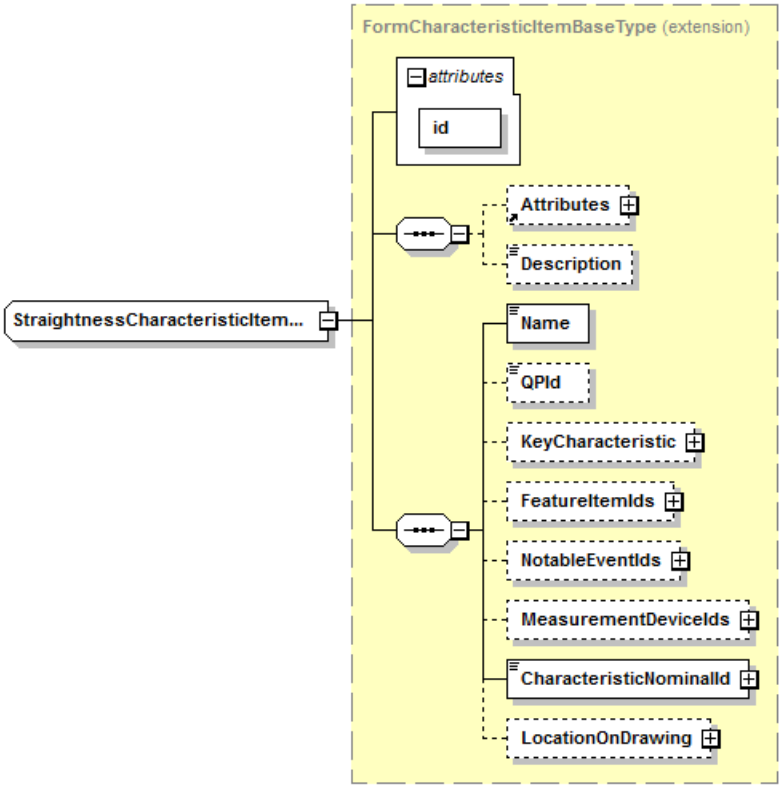
element **StraightnessCharacteristicDefinitionType/MaterialCondition**

diagram	
type	**MaterialModifierEnumType**
properties	minOcc 0 maxOcc 1 content simple
facets	Kind Value Annotation enumeration REGARDLESS enumeration LEAST enumeration MAXIMUM enumeration NONE
annotation	documentation The optional MaterialCondition element is the material condition modifier for a feature of size.

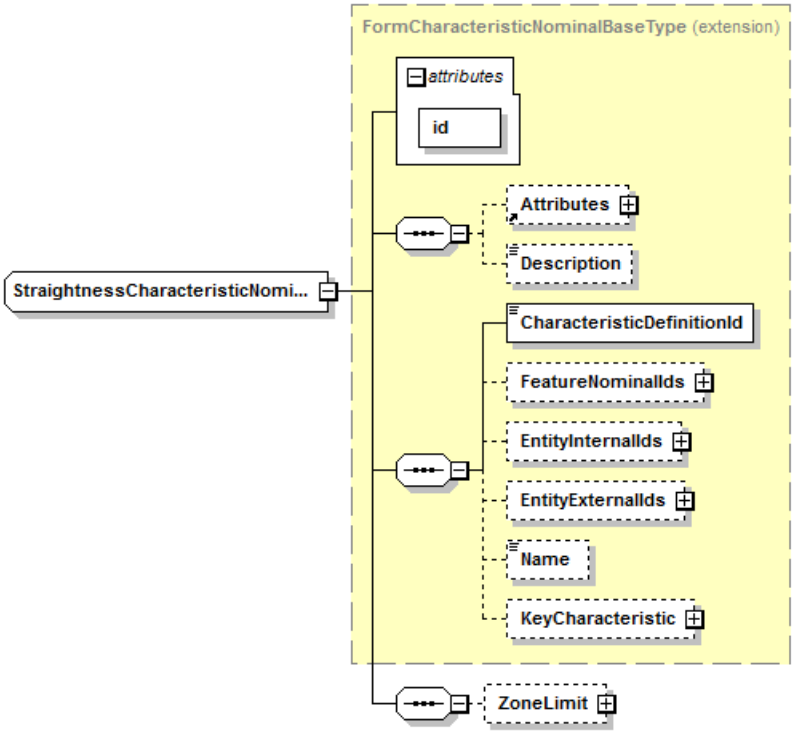
element **StraightnessCharacteristicDefinitionType/ZoneShape**

diagram	
type	**StraightnessZoneShapeType**
properties	content complex
children	**DiametricalZone NonDiametricalZone**
annotation	documentation The ZoneShape element describes the shape of the tolerance zone.

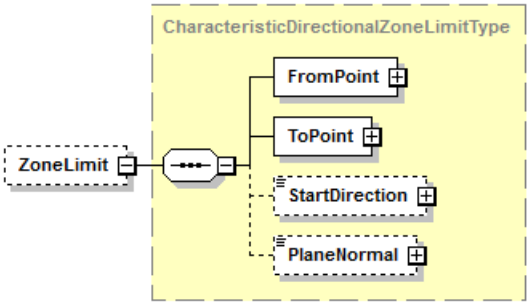
complexType **StraightnessCharacteristicItemType**

diagram	
type	extension of **FormCharacteristicItemBaseType**
properties	base FormCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **StraightnessCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The StraightnessCharacteristicItemType defines a straightness characteristic item.

complexType **StraightnessCharacteristicNominalType**

diagram	
type	extension of **FormCharacteristicNominalBaseType**
properties	base FormCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit**
used by	element **StraightnessCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The StraightnessCharacteristicNominalType defines a unique straightness characteristic nominal.

element **StraightnessCharacteristicNominalType/ZoneLimit**

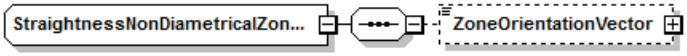
diagram	

type	**CharacteristicDirectionalZoneLimitType**
properties	minOcc 0 maxOcc 1 content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The optional ZoneLimit element gives the extents and direction of the tolerance zone limit.

complexType **StraightnessDiametricalZoneType**

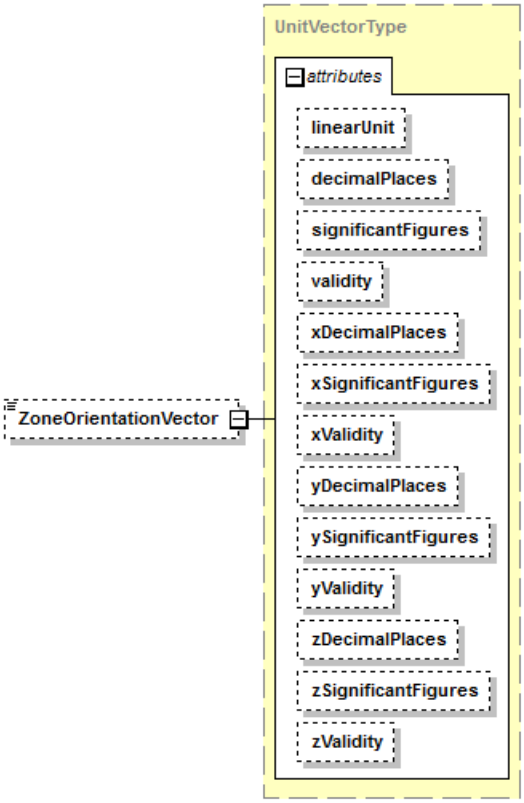
diagram	
used by	element **StraightnessZoneShapeType/DiametricalZone**
annotation	documentation The StraightnessDiametricalZoneType defines the shape of a tolerance zone as diametrical.

complexType **StraightnessNonDiametricalZoneType**

diagram	
children	**ZoneOrientationVector**
used by	element **StraightnessZoneShapeType/NonDiametricalZone**
annotation	documentation The StraightnessNonDiametricalZoneType defines the shape of a tolerance zone as parallel lines.

element **StraightnessNonDiametricalZoneType/ZoneOrientationVector**

diagram



type **UnitVectorType**

properties

minOcc	0
maxOcc	1
content	complex

facets

Kind	Value	Annotation
length	3	

attributes

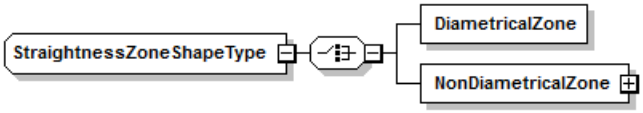
Name	Type	Use	Default	Fixed	Annotation
linearUnit	**xs:token**				
decimalPlaces	**xs:nonNegativeInteger**				
significantFigures	**xs:nonNegativeInteger**				
validity	**ValidityEnumType**				
xDecimalPlaces	**xs:nonNegativeInteger**				
xSignificantFigures	**xs:nonNegativeInteger**				
xValidity	**ValidityEnumType**				
yDecimalPlaces	**xs:nonNegativeInteger**				
ySignificantFigures	**xs:nonNegativeInteger**				
yValidity	**ValidityEnumType**				
zDecimalPlaces	**xs:nonNegativeInteger**				
zSignificantFigures	**xs:nonNegativeInteger**				
zValidity	**ValidityEnumType**				

annotation

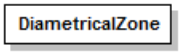
documentation

The optional ZoneOrientationVector element gives the orientation of the tolerance zone.

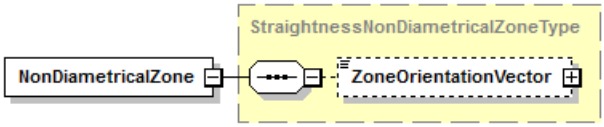
complexType **StraightnessZoneShapeType**

diagram	
children	**DiametricalZone** **NonDiametricalZone**
used by	element **StraightnessCharacteristicDefinitionType/ZoneShape**
annotation	documentation The StraightnessZoneShapeType defines the shape of tolerance zone for a straightness characteristic.

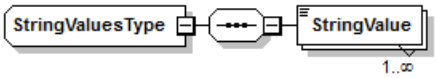
element **StraightnessZoneShapeType/DiametricalZone**

diagram	
type	**StraightnessDiametricalZoneType**
properties	content complex
annotation	documentation The DiametricalZone element is present when the straightness characteristic feature control frame contains a diameter symbol (Ø) modifying the tolerance value.

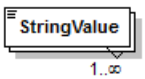
element **StraightnessZoneShapeType/NonDiametricalZone**

diagram	
type	**StraightnessNonDiametricalZoneType**
properties	content complex
children	**ZoneOrientationVector**
annotation	documentation The NonDiametricalZone element is present when the straightness characteristic feature control frame does not contain a diameter symbol (Ø) modifying the tolerance value.

complexType **StringValuesType**

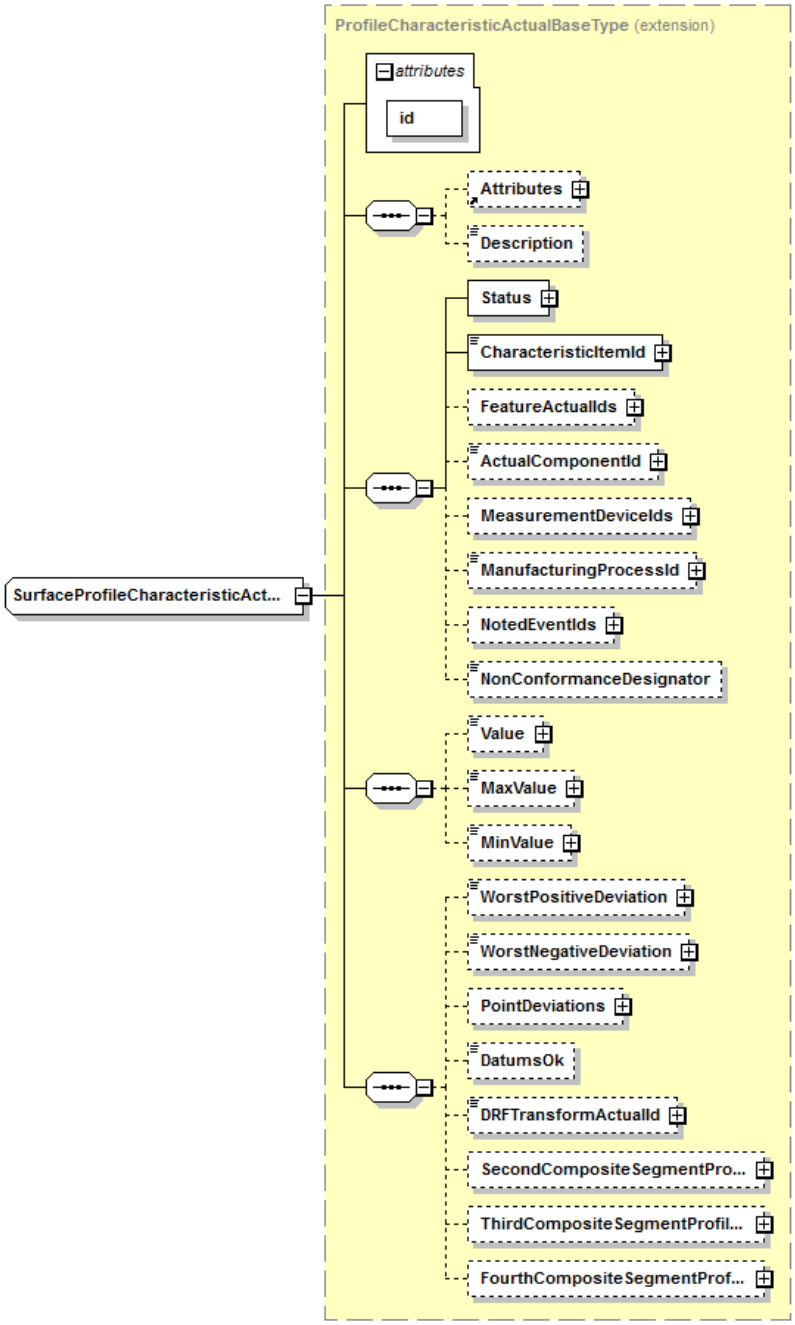
diagram	
children	**StringValue**
used by	elements **UserDefinedAttributeCharacteristicNominalType/FailValues** **UserDefinedAttributeCharacteristicNominalType/PassValues**
annotation	documentation The StringValuesType defines a list of string values.

element **StringValuesType/StringValue**

diagram	

type	**xs:string**
properties	minOcc 1 maxOcc unbounded content simple
annotation	documentation Each StringValue element is a string.

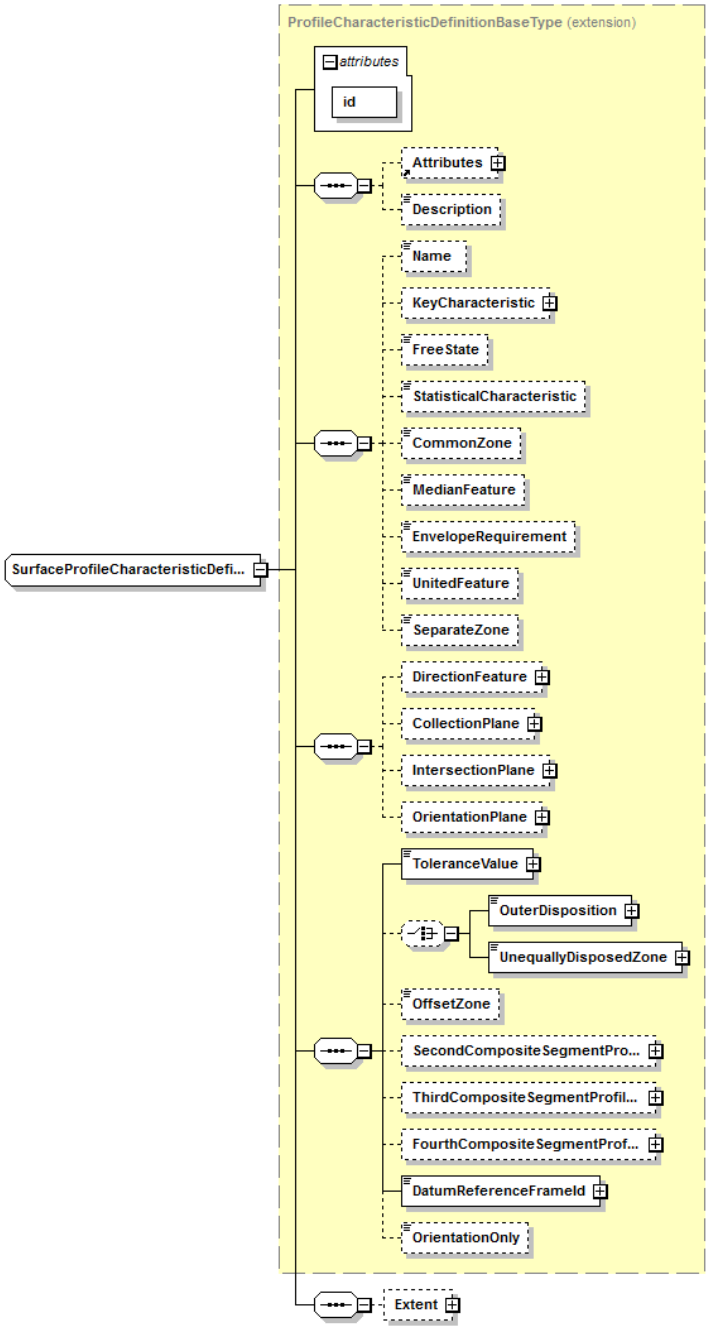
complexType **SurfaceProfileCharacteristicActualType**

diagram	
type	extension of **ProfileCharacteristicActualBaseType**
properties	base ProfileCharacteristicActualBaseType

children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **WorstPositiveDeviation** **WorstNegativeDeviation** **PointDeviations** **DatumsOk** **DRFTransformActualId** **SecondCompositeSegmentProfileActual** **ThirdCompositeSegmentProfileActual** **FourthCompositeSegmentProfileActual**
used by	element **SurfaceProfileCharacteristicActual**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileCharacteristicActualType defines the results of an actual profile of a surface characteristic evaluation.

complexType **SurfaceProfileCharacteristicDefinitionType**

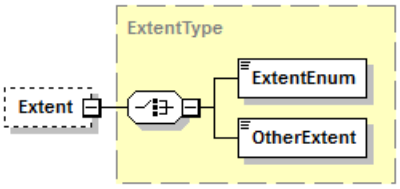
diagram



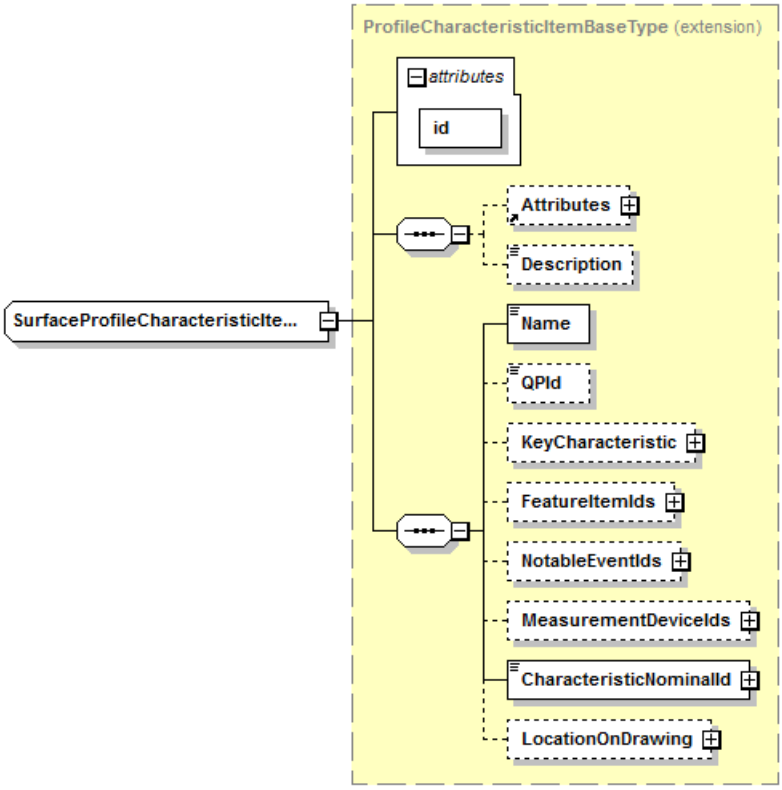
type	extension of **ProfileCharacteristicDefinitionBaseType**
properties	base ProfileCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **OuterDisposition** **UnequallyDisposedZone** **OffsetZone** **SecondCompositeSegmentProfileDefinition** **ThirdCompositeSegmentProfileDefinition** **FourthCompositeSegmentProfileDefinition** **DatumReferenceFrameId** **OrientationOnly** **Extent**
used by	element **SurfaceProfileCharacteristicDefinition**
attributes	Name Type Use Default Fixed Annotation

	id	**QIFIdType**	required	documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileCharacteristicDefinitionType defines information that can be common to more than one profile of a surface characteristic.			

element **SurfaceProfileCharacteristicDefinitionType/Extent**

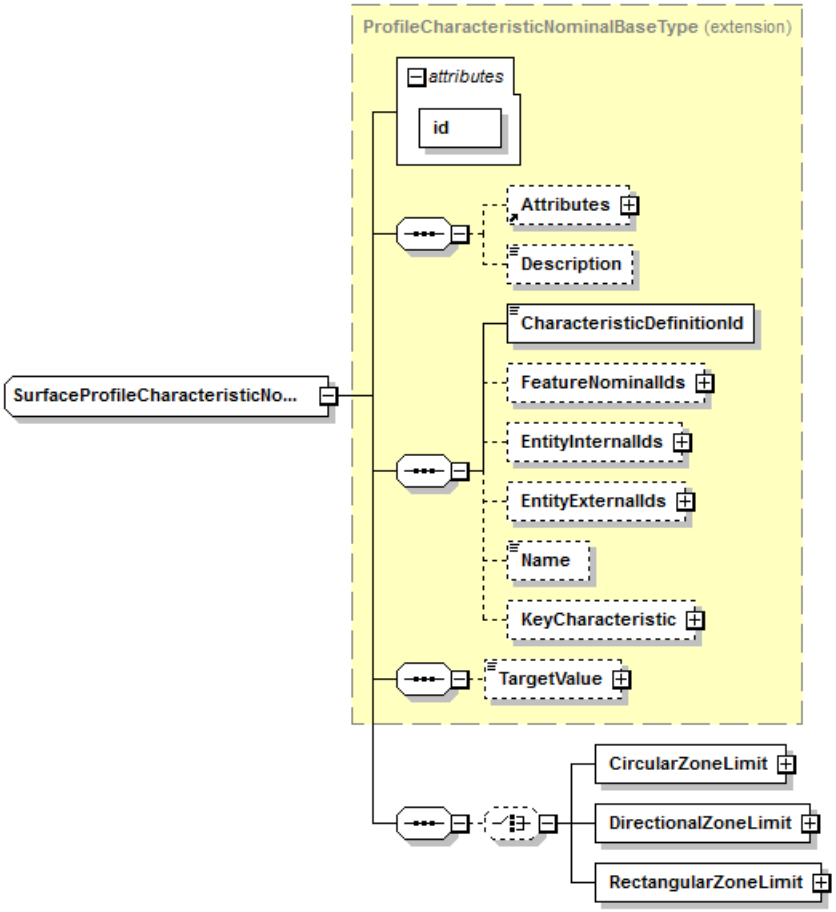
diagram	
type	**ExtentType**
properties	minOcc 0 maxOcc 1 content complex
children	**ExtentEnum** **OtherExtent**
annotation	documentation The optional Extent element gives the extent of the surface profile.

complexType **SurfaceProfileCharacteristicItemType**

diagram	

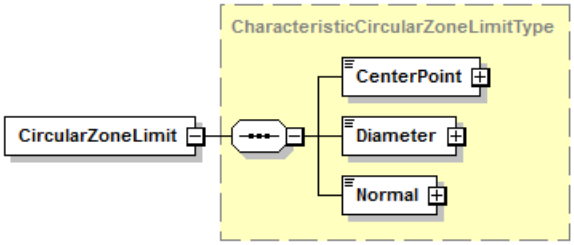
type	extension of **ProfileCharacteristicItemBaseType**
properties	base ProfileCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **SurfaceProfileCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileCharacteristicItemType defines a surface profile characteristic item.

complexType **SurfaceProfileCharacteristicNominalType**

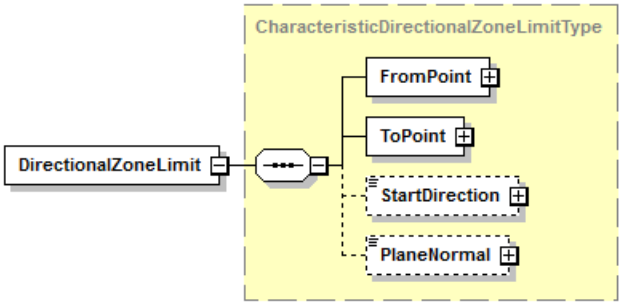
diagram	
type	extension of **ProfileCharacteristicNominalBaseType**
properties	base ProfileCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **CircularZoneLimit** **DirectionalZoneLimit** **RectangularZoneLimit**
used by	element **SurfaceProfileCharacteristicNominal**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileCharacteristicNominalType defines a unique profile of a surface characteristic nominal. The target value for a profile of a surface characteristic can be non-zero to indicate a target value offset from the nominal surface.					

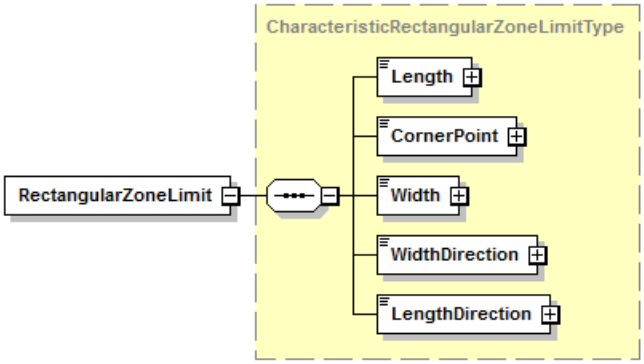
element **SurfaceProfileCharacteristicNominalType/CircularZoneLimit**

diagram	
type	**CharacteristicCircularZoneLimitType**
properties	content complex
children	**CenterPoint Diameter Normal**
annotation	documentation The CircularZoneLimit element gives the location and size of the circular tolerance zone limit. This element is in an optional choice.

element **SurfaceProfileCharacteristicNominalType/DirectionalZoneLimit**

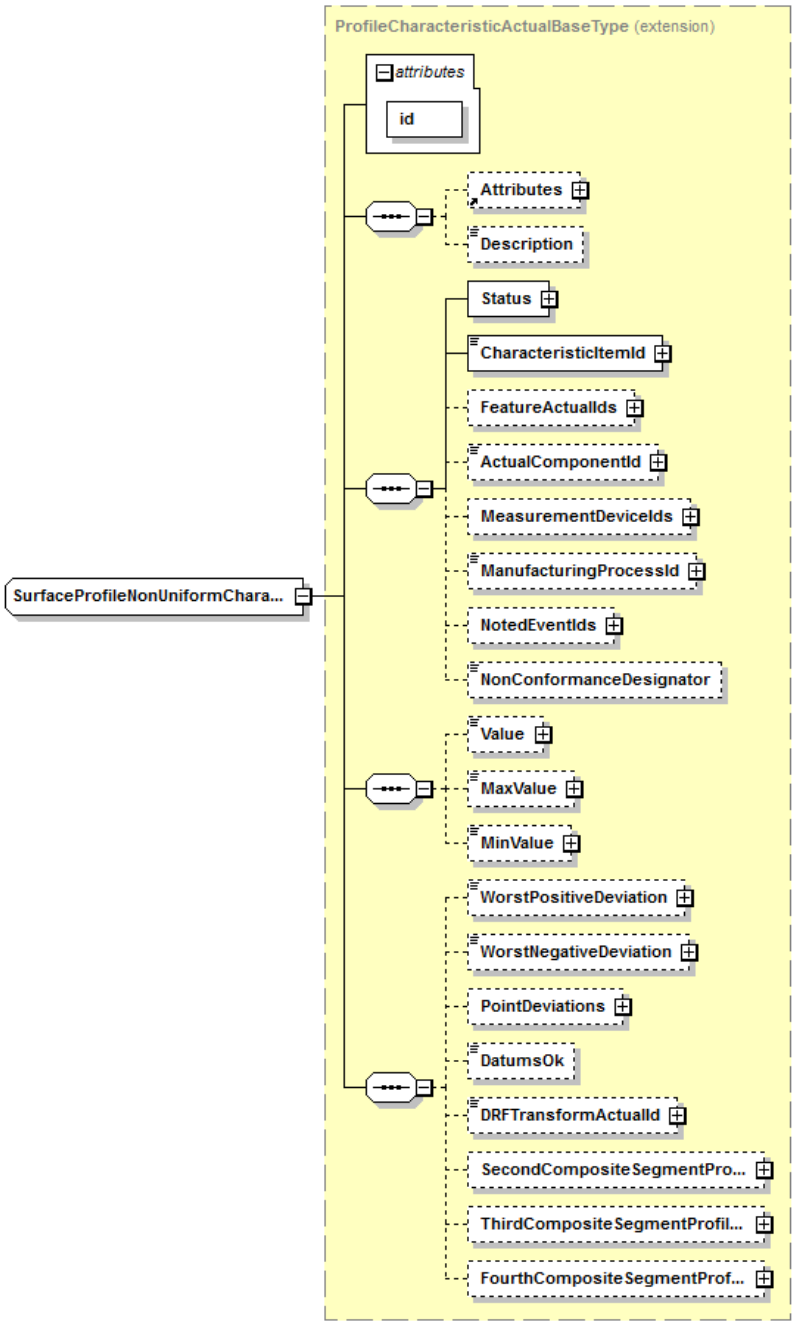
diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	content complex
children	**FromPoint ToPoint StartDirection PlaneNormal**
annotation	documentation The DirectionalZoneLimit element gives the location, orientation and size of the directional tolerance zone limit. This element is in an optional choice.

element **SurfaceProfileCharacteristicNominalType/RectangularZoneLimit**

diagram	
type	**CharacteristicRectangularZoneLimitType**
properties	content complex
children	**Length CornerPoint Width WidthDirection LengthDirection**
annotation	documentation The RectangularZoneLimit element gives the location, orientation and size of the rectangular tolerance zone limit. This element is in an optional choice.

complexType **SurfaceProfileNonUniformCharacteristicActualType**

diagram



type	extension of **ProfileCharacteristicActualBaseType**
properties	base ProfileCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **WorstPositiveDeviation** **WorstNegativeDeviation** **PointDeviations** **DatumsOk** **DRFTransformActualId** **SecondCompositeSegmentProfileActual** **ThirdCompositeSegmentProfileActual** **FourthCompositeSegmentProfileActual**
used by	element **SurfaceProfileNonUniformCharacteristicActual**

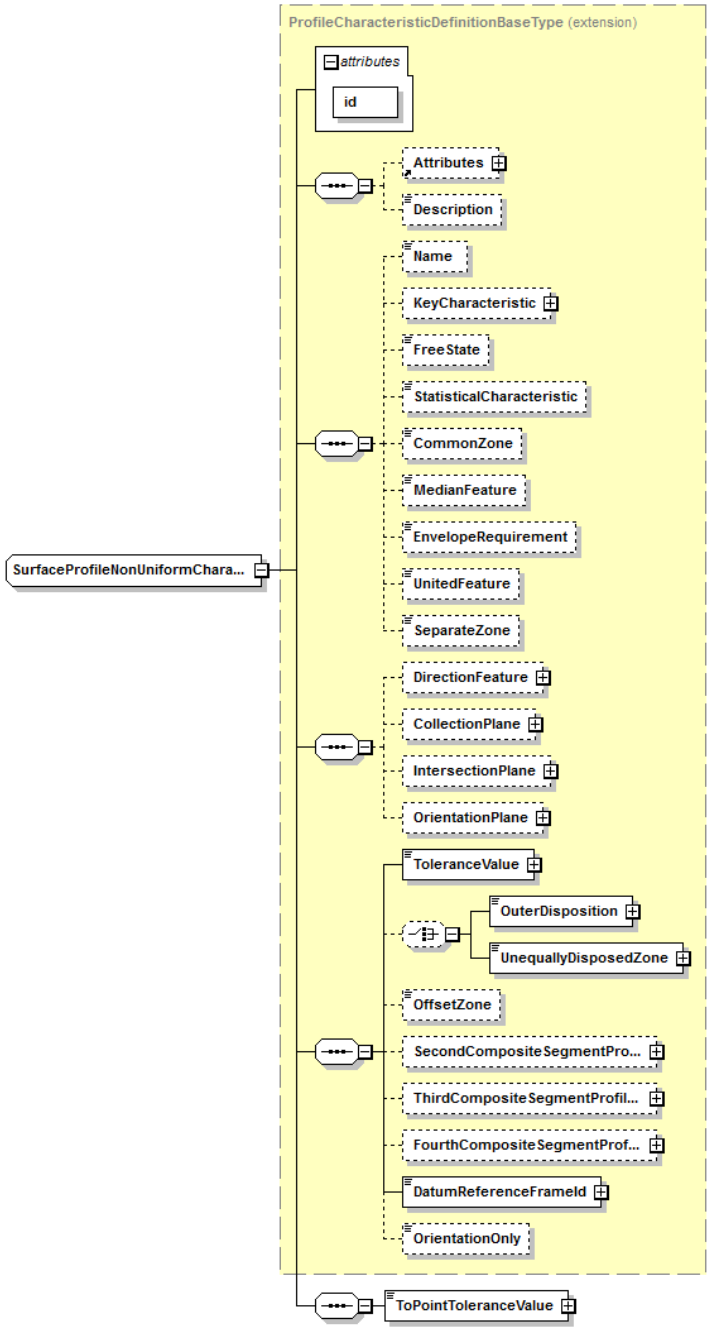
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation

	The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileNonUniformCharacteristicActualType defines the results of an actual non-uniform surface profile characteristic evaluation.

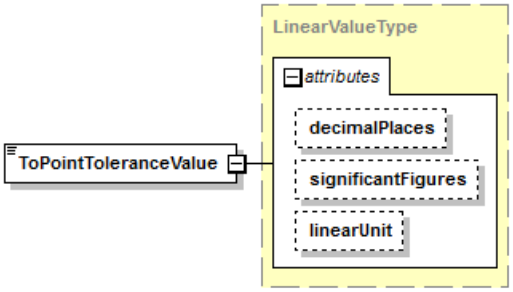
complexType **SurfaceProfileNonUniformCharacteristicDefinitionType**

diagram



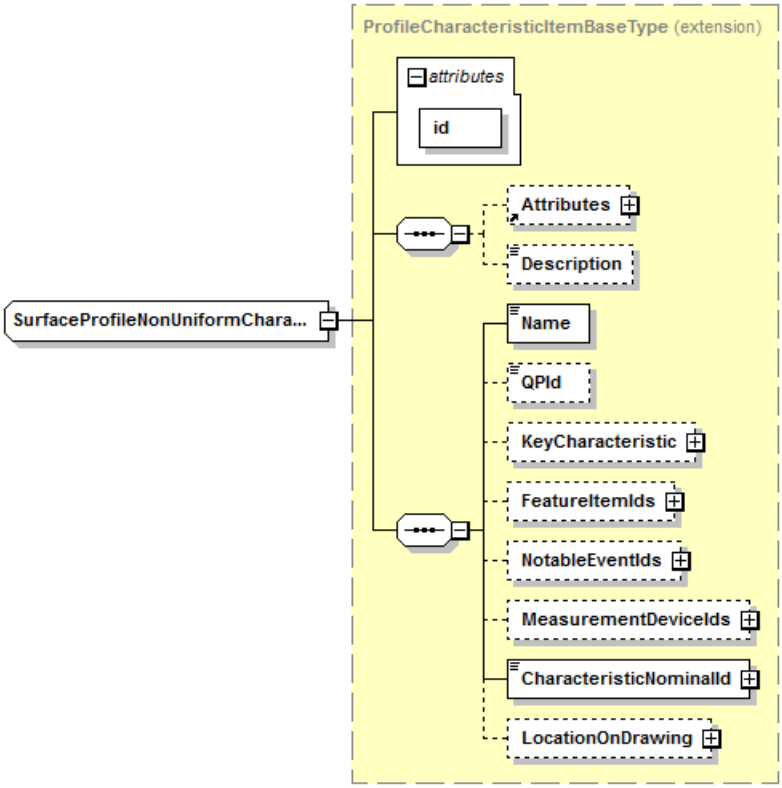
type	extension of **ProfileCharacteristicDefinitionBaseType**
properties	base ProfileCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **OuterDisposition** **UnequallyDisposedZone** **OffsetZone** **SecondCompositeSegmentProfileDefinition** **ThirdCompositeSegmentProfileDefinition** **FourthCompositeSegmentProfileDefinition** **DatumReferenceFrameId** **OrientationOnly** **ToPointToleranceValue**
used by	element **SurfaceProfileNonUniformCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileNonUniformCharacteristicDefinitionType defines information that can be common to more than one non-uniform surface profile characteristic. A non-uniform surface profile characteristic may be used for in-between and chain line tolerances.

element **SurfaceProfileNonUniformCharacteristicDefinitionType/ToPointToleranceValue**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name: decimalPlaces; Type: **xs:nonNegativeInteger**; Use: ; Default: ; Fixed: ; Annotation: documentation See documentation of SpecifiedDecimalType. Name: significantFigures; Type: **xs:nonNegativeInteger**; Annotation: documentation See documentation of SpecifiedDecimalType. Name: linearUnit; Type: **xs:token**; Annotation: documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The ToPointToleranceValue element is the tolerance at the ToPoint of the zone limit. The tolerance zone varies proportionally with the distance along the curve (line, arc, or other) from the FromPoint to the ToPoint. The ToleranceValue applies at the FromPoint and the ToPointToleranceValue applies at the ToPoint.

complexType **SurfaceProfileNonUniformCharacteristicItemType**

diagram



type	extension of **ProfileCharacteristicItemBaseType**
properties	base ProfileCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **SurfaceProfileNonUniformCharacteristicItem**

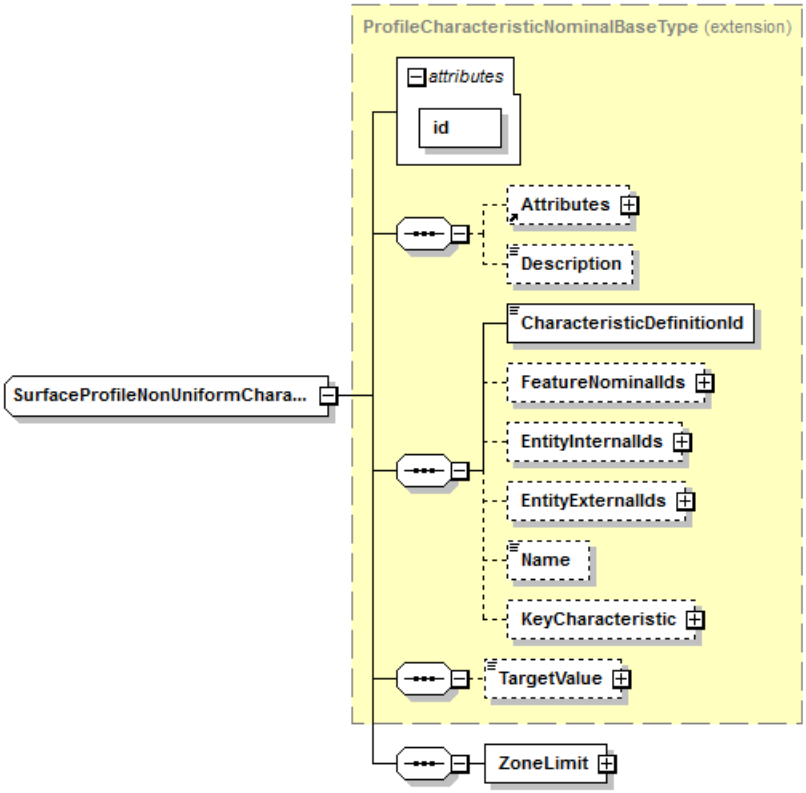
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

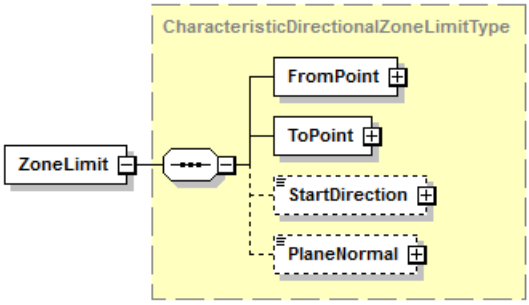
annotation

documentation
The SurfaceProfileNonUniformCharacteristicItemType defines a non-uniform surface profile characteristic item.

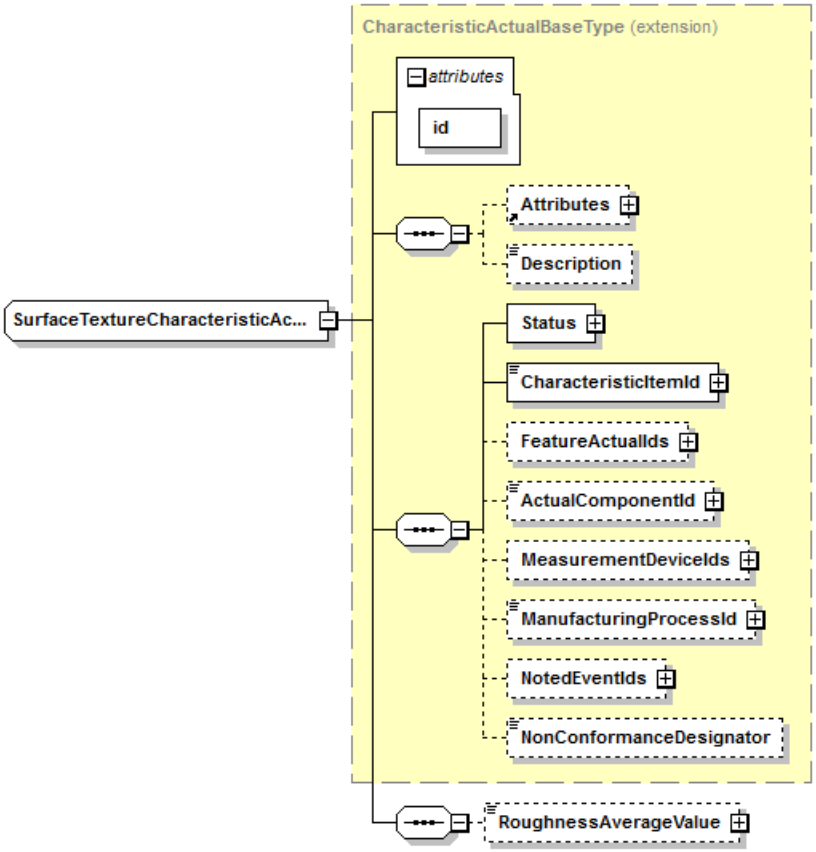
complexType **SurfaceProfileNonUniformCharacteristicNominalType**

diagram	
type	extension of **ProfileCharacteristicNominalBaseType**
properties	base ProfileCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue** **ZoneLimit**
used by	element **SurfaceProfileNonUniformCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceProfileNonUniformCharacteristicNominalType defines a unique non-uniform surface profile characteristic nominal.

element **SurfaceProfileNonUniformCharacteristicNominalType/ZoneLimit**

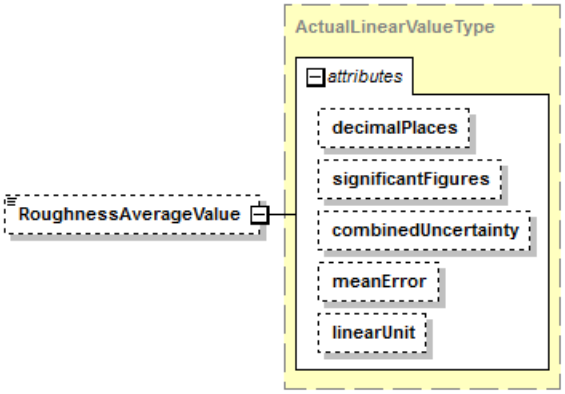
diagram	
type	**CharacteristicDirectionalZoneLimitType**
properties	content complex
children	**FromPoint** **ToPoint** **StartDirection** **PlaneNormal**
annotation	documentation The ZoneLimit element gives the extent and orientation of the profile tolerance zone limit as well as defining the points at which the tolerance value and blend tolerance value apply.

complexType **SurfaceTextureCharacteristicActualType**

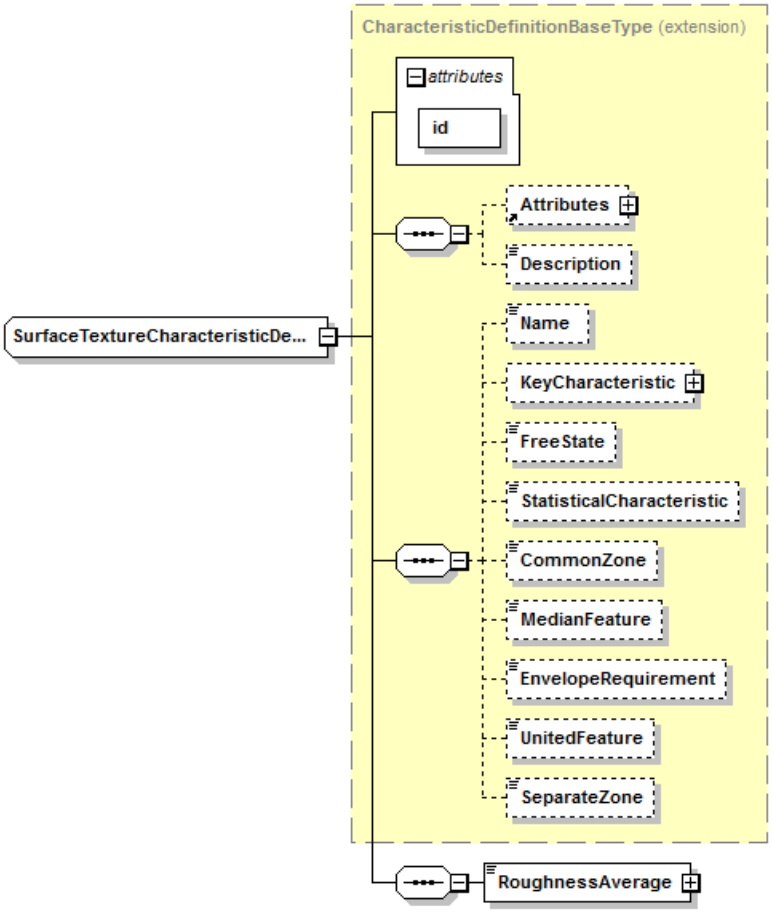
diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **RoughnessAverageValue**

used by	element **SurfaceTextureCharacteristicActual**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceTextureCharacteristicActualType defines the results of an actual surface texture characteristic evaluation.					

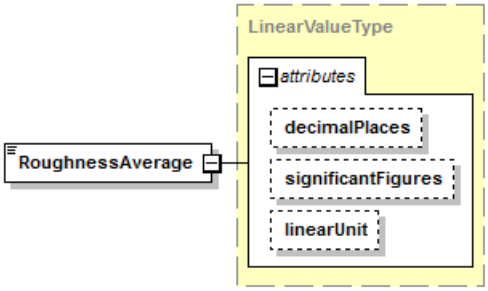
element **SurfaceTextureCharacteristicActualType/RoughnessAverageValue**

diagram						
type	**ActualLinearValueType**					
properties	minOcc 0 maxOcc 1 content complex					
attributes	Name	Type	Use	Default	Fixed	Annotation
	decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
	combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
	meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
	linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional RoughnessAverage element is the actual measured Roughness Average (Ra) value.					

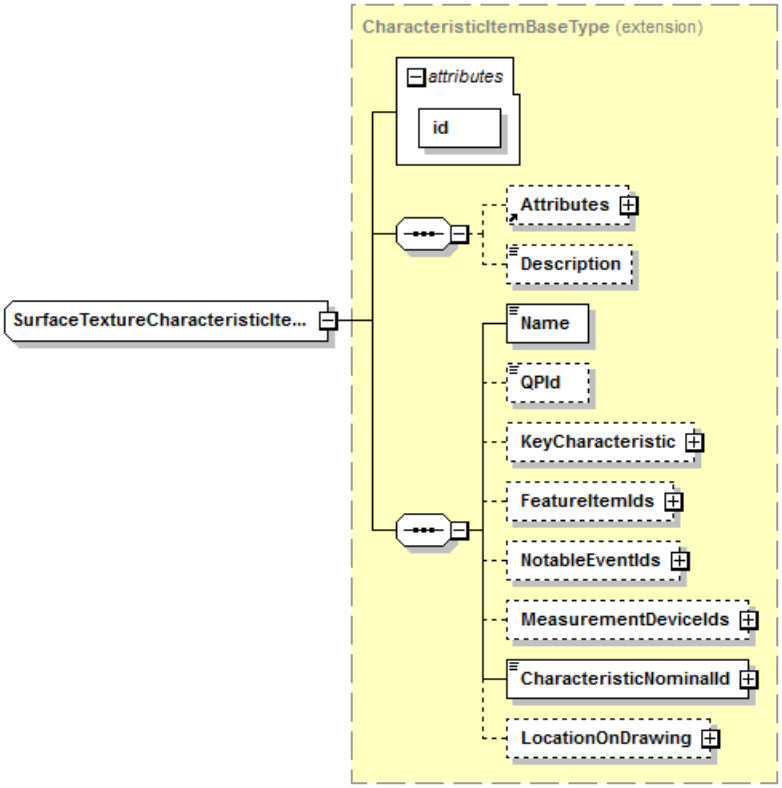
complexType **SurfaceTextureCharacteristicDefinitionType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **RoughnessAverage**
used by	element **SurfaceTextureCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceTextureCharacteristicDefinitionType defines information that can be common to more than one surface texture characteristic.

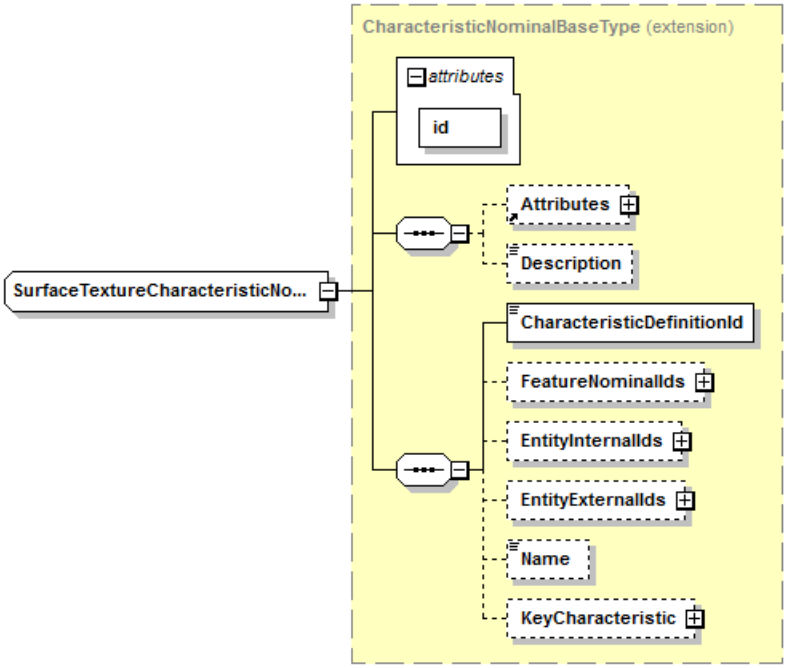
element **SurfaceTextureCharacteristicDefinitionType/RoughnessAverage**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The RoughnessAverage element is the ASME Y14.36 - 1978 nominal Roughness Average (Ra) value of the surface texture.

complexType **SurfaceTextureCharacteristicItemType**

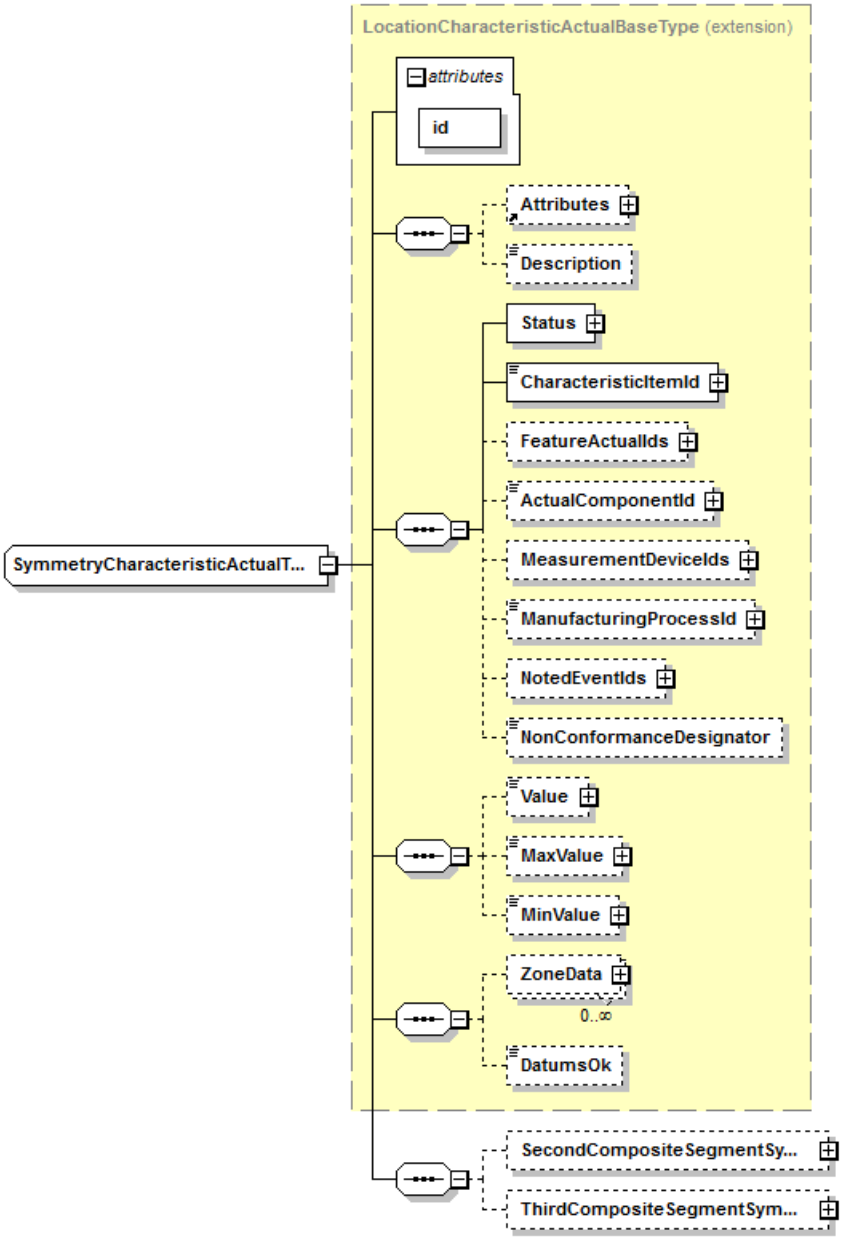
diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **SurfaceTextureCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceTextureCharacteristicItemType defines a surface texture characteristic item.

complexType **SurfaceTextureCharacteristicNominalType**

diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	element **SurfaceTextureCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SurfaceTextureCharacteristicNominalType defines a unique surface texture characteristic nominal.

complexType **SymmetryCharacteristicActualType**

diagram



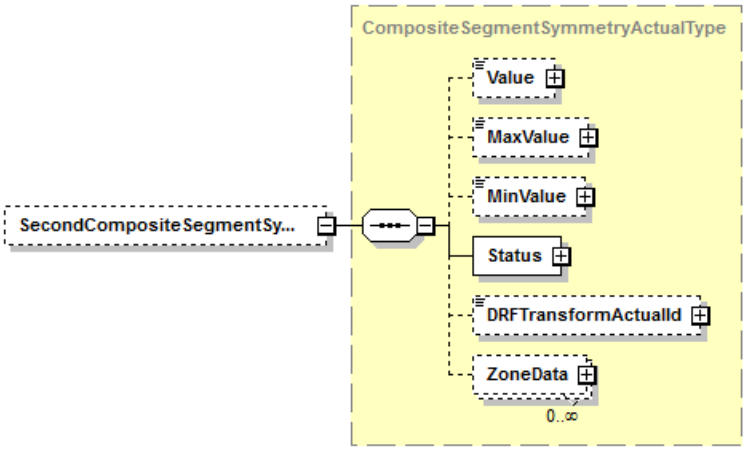
type	extension of **LocationCharacteristicActualBaseType**
properties	base LocationCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **ZoneData** **DatumsOk** **SecondCompositeSegmentSymmetryActual** **ThirdCompositeSegmentSymmetryActual**
used by	element **SymmetryCharacteristicActual**

attributes

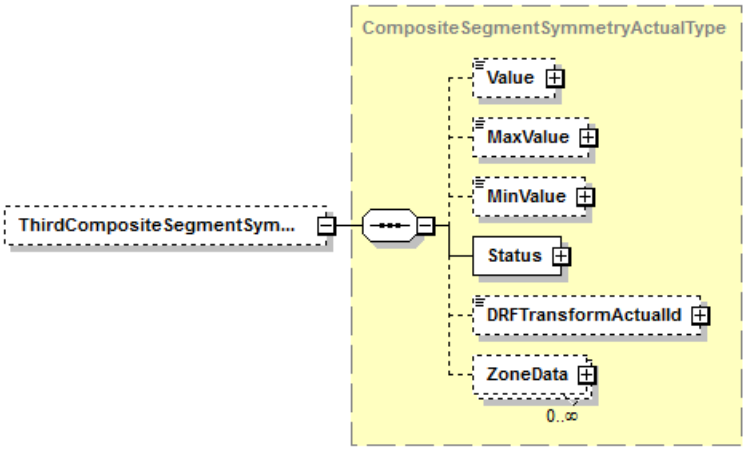
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for

	referencing.
annotation	documentation The SymmetryCharacteristicActualType defines the results of an actual symmetry characteristic evaluation.

element **SymmetryCharacteristicActualType/SecondCompositeSegmentSymmetryActual**

diagram	
type	**CompositeSegmentSymmetryActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional SecondCompositeSegmentSymmetryActual gives information about the second segment of an actual composite frame symmetry characteristic.

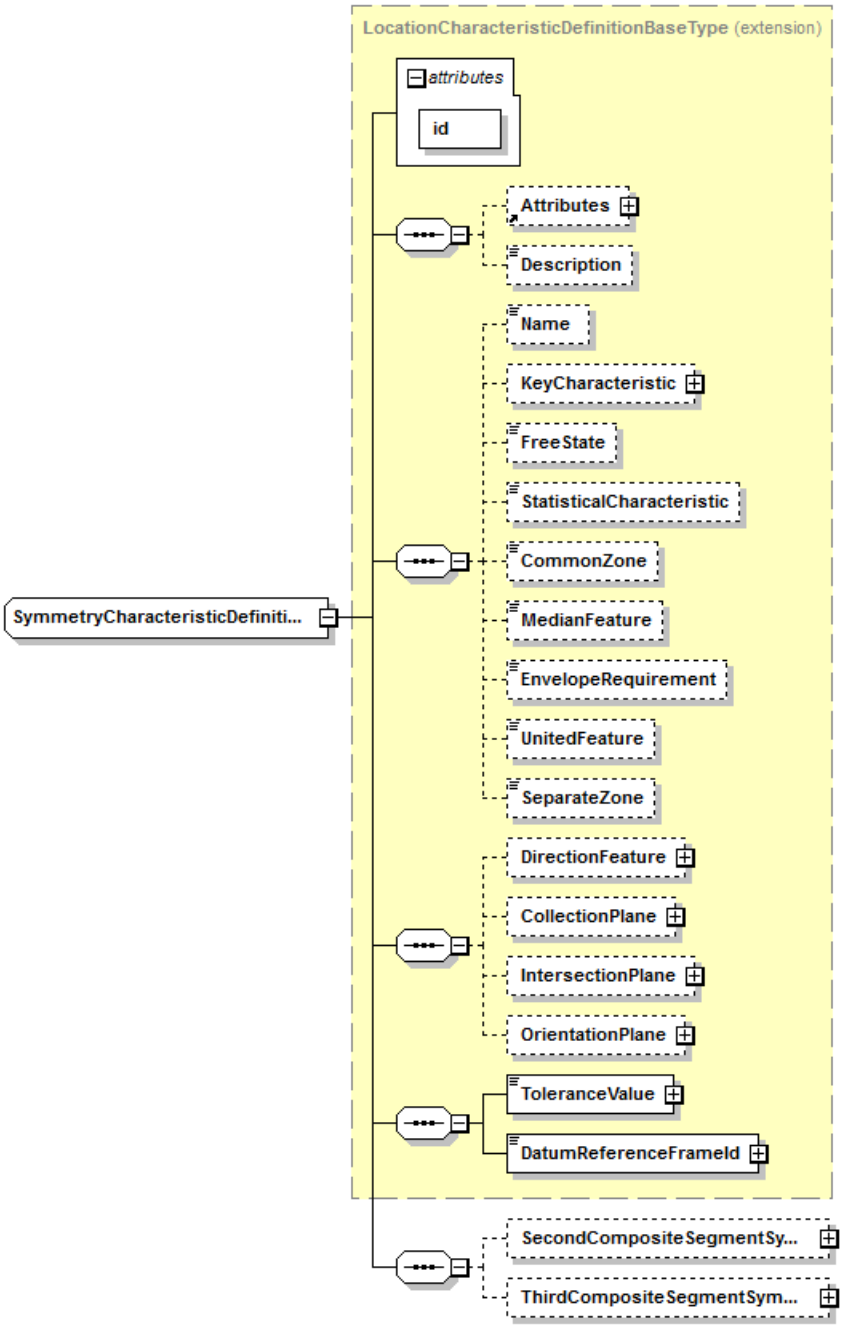
element **SymmetryCharacteristicActualType/ThirdCompositeSegmentSymmetryActual**

diagram	
type	**CompositeSegmentSymmetryActualType**
properties	minOcc 0 maxOcc 1 content complex
children	**Value** **MaxValue** **MinValue** **Status** **DRFTransformActualId** **ZoneData**
annotation	documentation The optional ThirdCompositeSegmentSymmetryActual gives information about the third segment of an actual composite frame symmetry characteristic. This element may be used only if the SecondCompositeSegmentSymmetryActual element

	is used.

complexType **SymmetryCharacteristicDefinitionType**

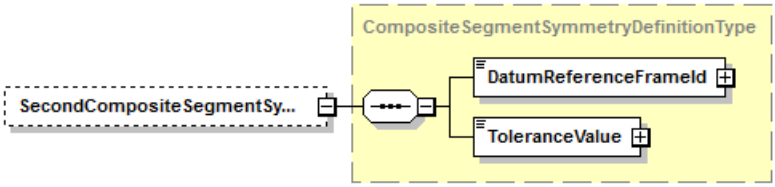
diagram



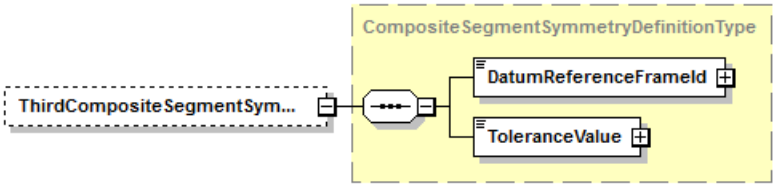
type	extension of **LocationCharacteristicDefinitionBaseType**
properties	base LocationCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId** **SecondCompositeSegmentSymmetryDefinition** **ThirdCompositeSegmentSymmetryDefinition**

used by	element **SymmetryCharacteristicDefinition**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SymmetryCharacteristicDefinitionType defines information that can be common to more than one symmetry characteristic.					

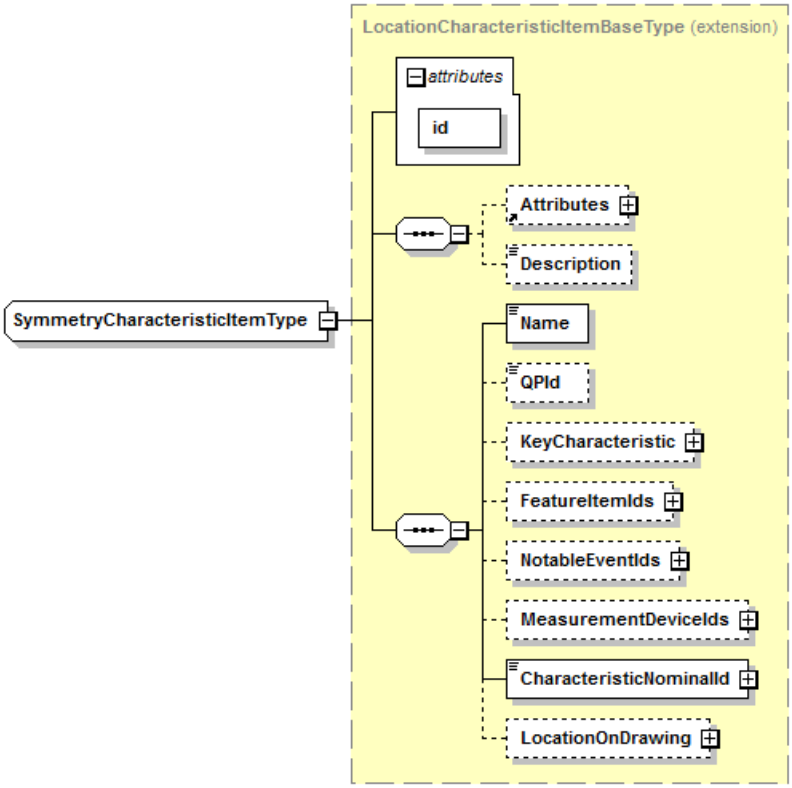
element **SymmetryCharacteristicDefinitionType/SecondCompositeSegmentSymmetryDefinition**

diagram	
type	**CompositeSegmentSymmetryDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue**
annotation	documentation The optional SecondCompositeSegmentSymmetryDefinition gives information about the second segment of a composite frame symmetry characteristic.

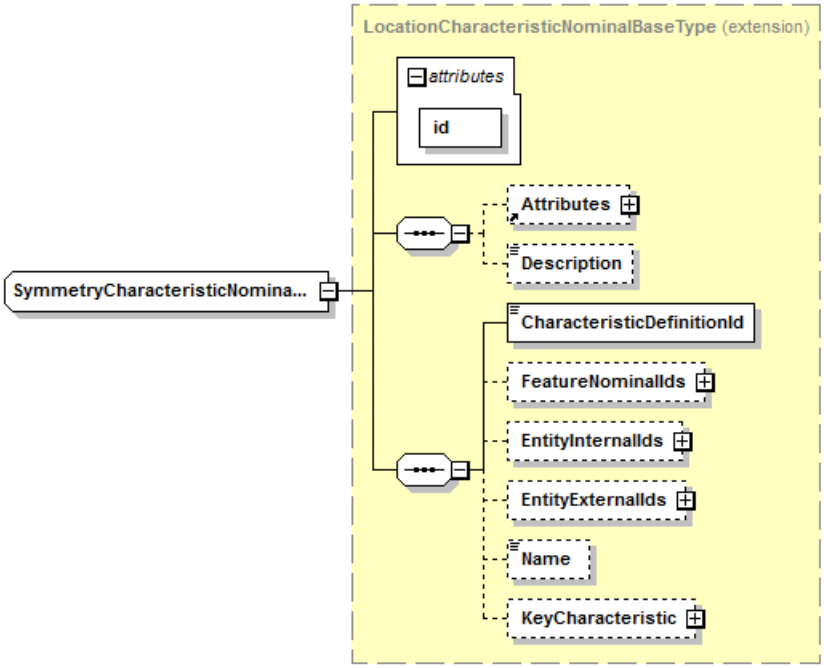
element **SymmetryCharacteristicDefinitionType/ThirdCompositeSegmentSymmetryDefinition**

diagram	
type	**CompositeSegmentSymmetryDefinitionType**
properties	minOcc 0 maxOcc 1 content complex
children	**DatumReferenceFrameId** **ToleranceValue**
annotation	documentation The optional ThirdCompositeSegmentSymmetryDefinition gives information about the third segment of a composite frame symmetry characteristic. This element may be used only if the SecondCompositeSegmentSymmetryDefinition element is used.

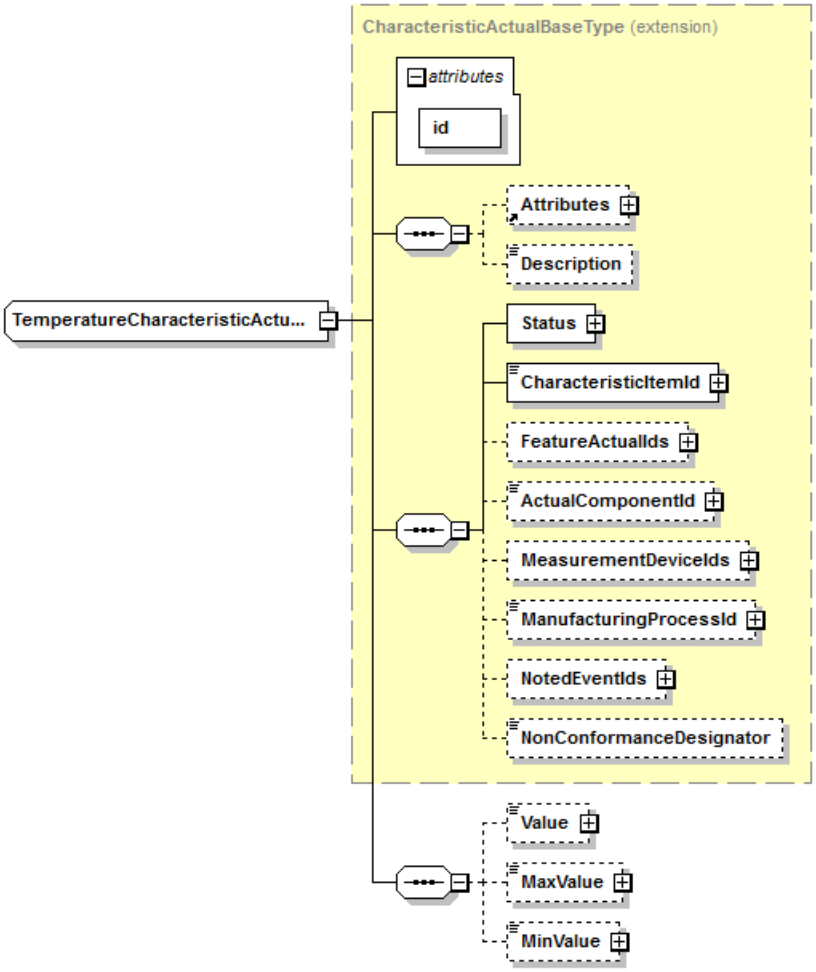
complexType **SymmetryCharacteristicItemType**

diagram	
type	extension of **LocationCharacteristicItemBaseType**
properties	base LocationCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **SymmetryCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SymmetryCharacteristicItemType defines a symmetry characteristic item.

complexType **SymmetryCharacteristicNominalType**

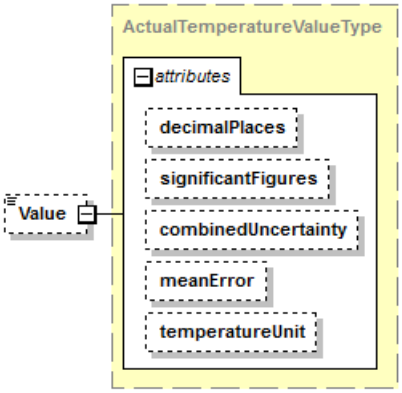
diagram	
type	extension of **LocationCharacteristicNominalBaseType**
properties	base LocationCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	element **SymmetryCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The SymmetryCharacteristicNominalType defines a unique symmetry characteristic nominal.

complexType **TemperatureCharacteristicActualBaseType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexType **UserDefinedTemperatureCharacteristicActualType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TemperatureCharacteristicActualBaseType is the abstract base type that defines the results of an actual temperature characteristic evaluation.

element **TemperatureCharacteristicActualBaseType/Value**

diagram



type **ActualTemperatureValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

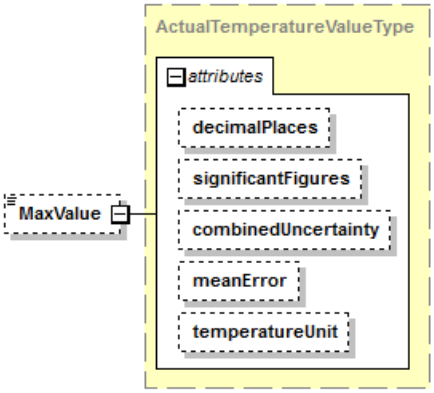
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
temperatureUnit	**xs:token**				documentation The optional temperatureUnit attribute defines the UnitName for the TemperatureValueType.

annotation

documentation
The optional Value element is the actual measured value of the temperature characteristic.

element **TemperatureCharacteristicActualBaseType/MaxValue**

diagram



type **ActualTemperatureValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

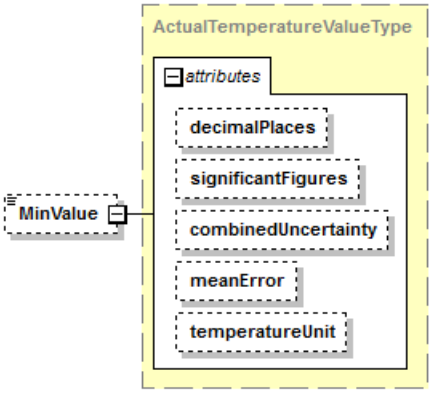
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
temperatureUnit	**xs:token**				documentation The optional temperatureUnit attribute defines the UnitName for the TemperatureValueType.

annotation

documentation
The optional MaxValue element is the maximum of the actual measured value when reported.

element **TemperatureCharacteristicActualBaseType/MinValue**

diagram



type **ActualTemperatureValueType**

properties

minOcc	0
maxOcc	1
content	complex

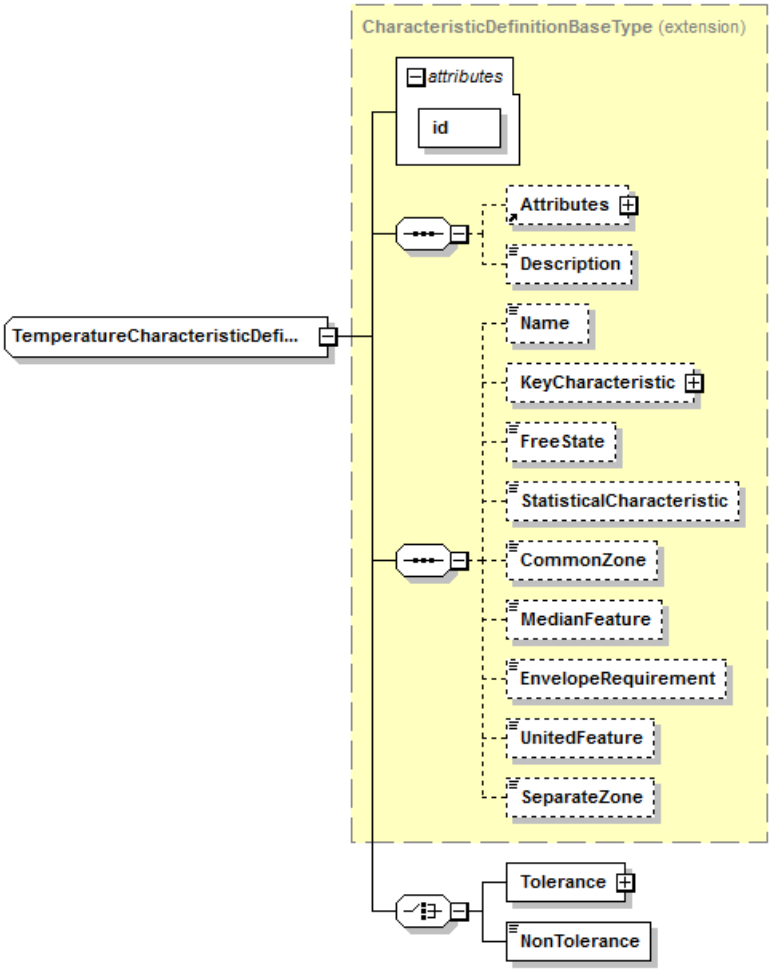
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
temperatureUnit	**xs:token**				documentation The optional temperatureUnit attribute defines the UnitName for the TemperatureValueType.

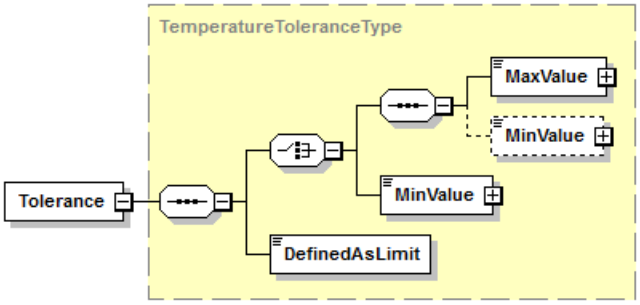
annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

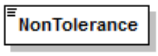
complexType **TemperatureCharacteristicDefinitionBaseType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedTemperatureCharacteristicDefinitionType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TemperatureCharacteristicDefinitionBaseType is the abstract base type that defines a temperature characteristic.

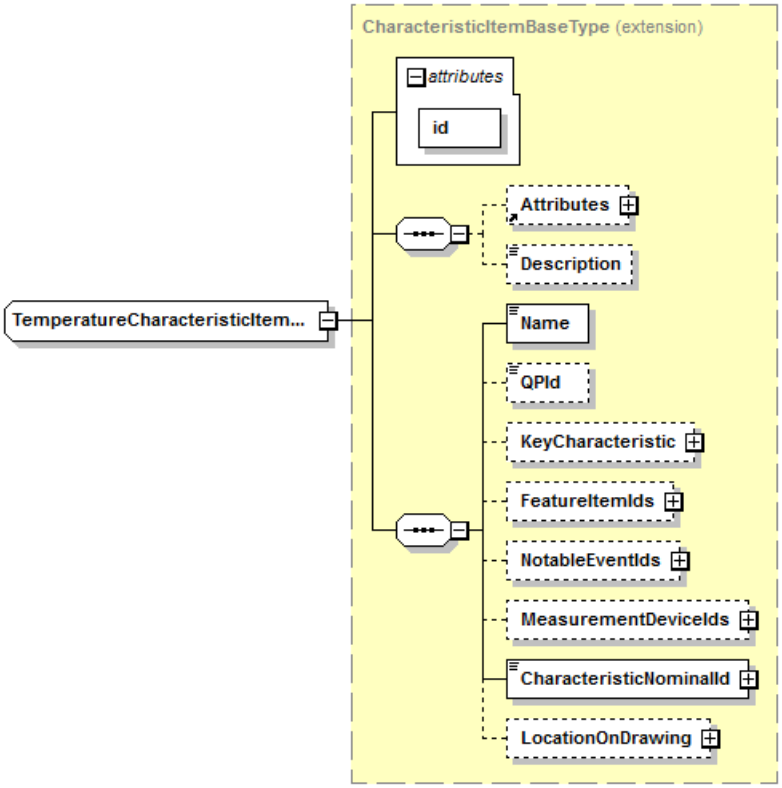
element **TemperatureCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**TemperatureToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the temperature characteristic.

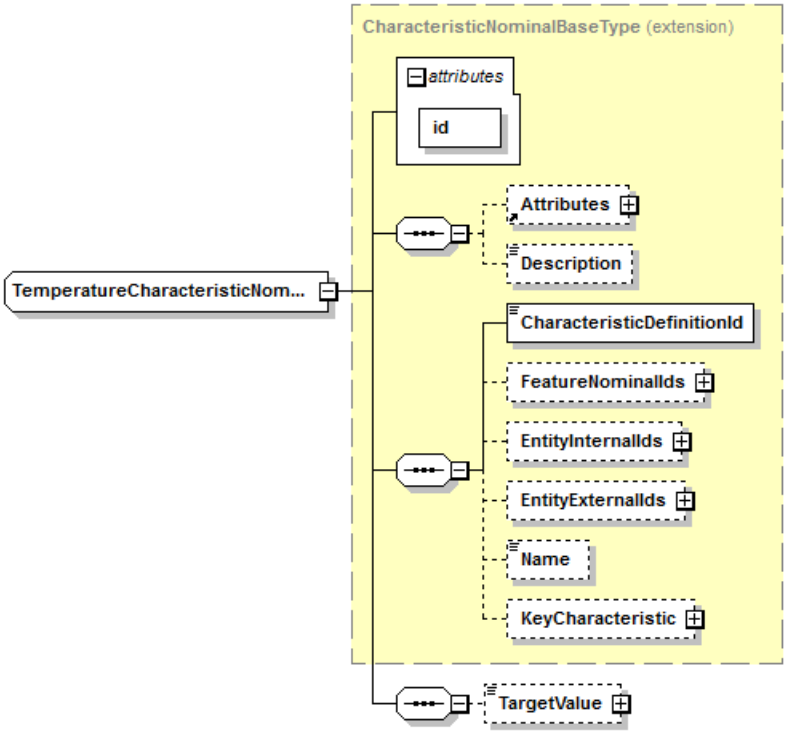
element **TemperatureCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

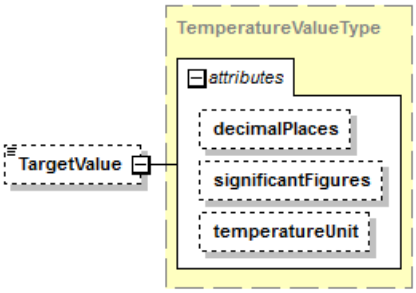
complexType **TemperatureCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedTemperatureCharacteristicItemType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TemperatureCharacteristicItemBaseType is the abstract base type that defines a temperature characteristic item.

complexType **TemperatureCharacteristicNominalBaseType**

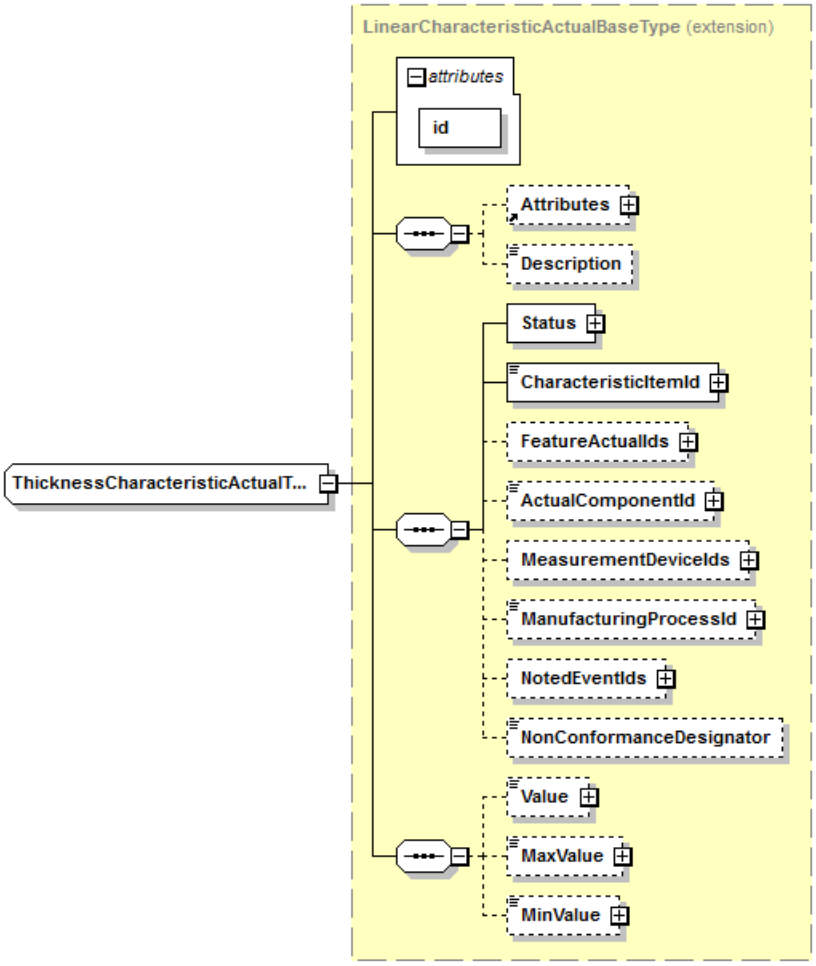
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedTemperatureCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TemperatureCharacteristicNominalBaseType is the abstract base type that defines a unique temperature characteristic nominal.

element **TemperatureCharacteristicNominalBaseType/TargetValue**

diagram	

type	**TemperatureValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. temperatureUnit **xs:token** — documentation: The optional temperatureUnit attribute defines the UnitName for the TemperatureValueType.
annotation	documentation The optional TargetValue element is the nominal value of the temperature characteristic.

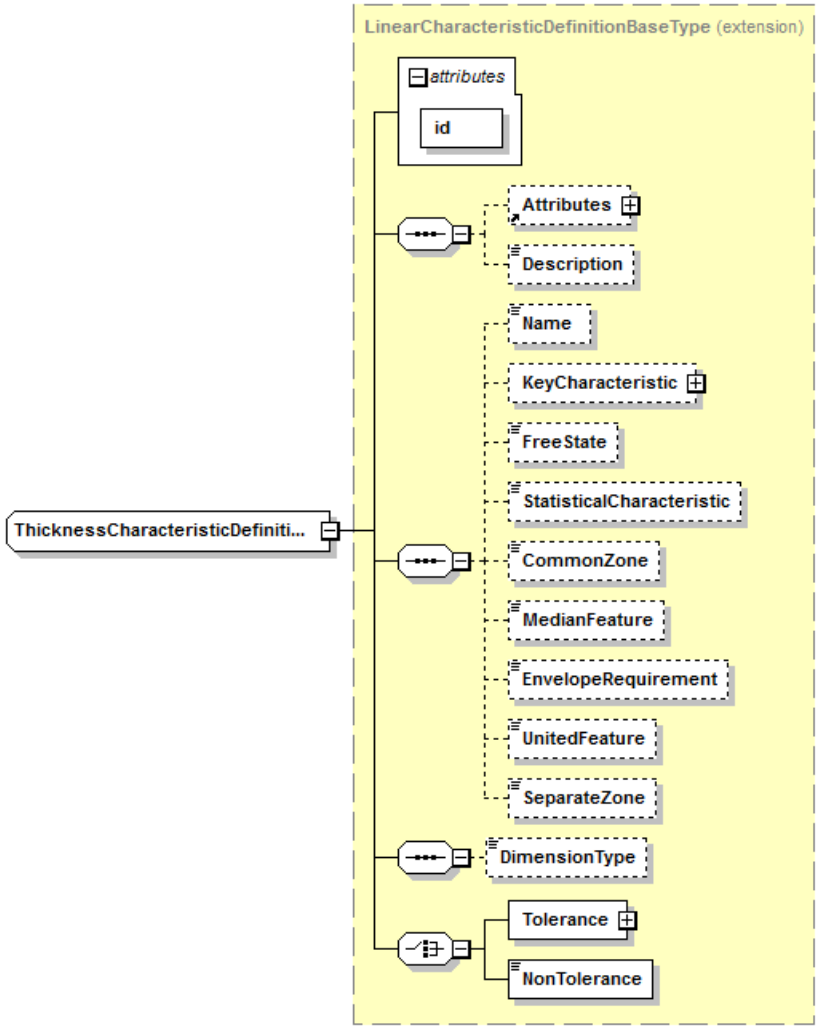
complexType **ThicknessCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType

children	**Attributes** Description Status CharacteristicItemId FeatureActualIds ActualComponentId MeasurementDeviceIds ManufacturingProcessId NotedEventIds NonConformanceDesignator Value MaxValue MinValue
used by	element **ThicknessCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The ThicknessCharacteristicActualType defines the results of an actual thickness characteristic evaluation.

complexType **ThicknessCharacteristicDefinitionType**

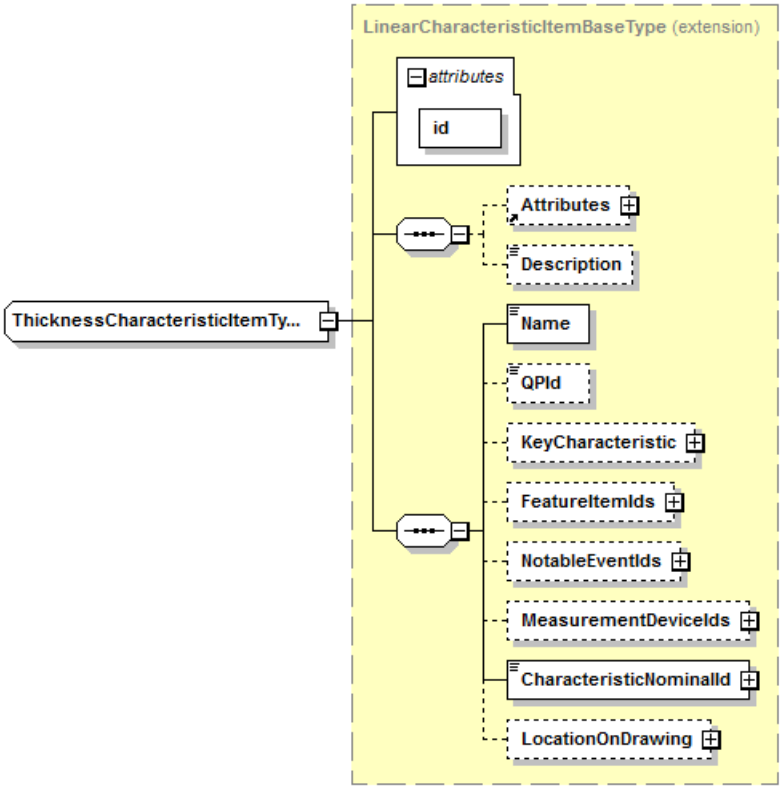
diagram



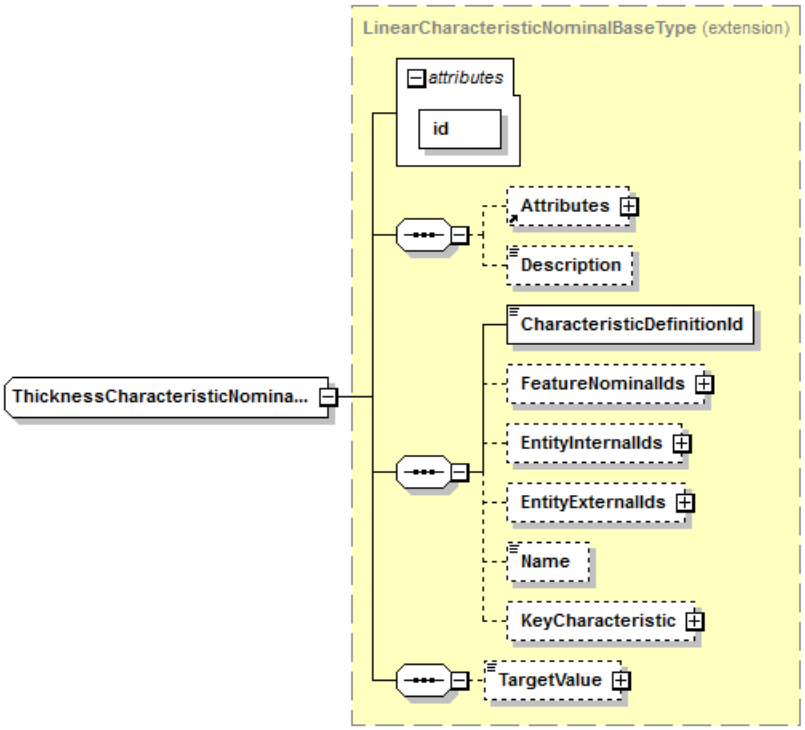
type	extension of LinearCharacteristicDefinitionBaseType
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance

used by	element **ThicknessCharacteristicDefinition**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThicknessCharacteristicDefinitionType defines information that can be common to more than one thickness characteristic.					

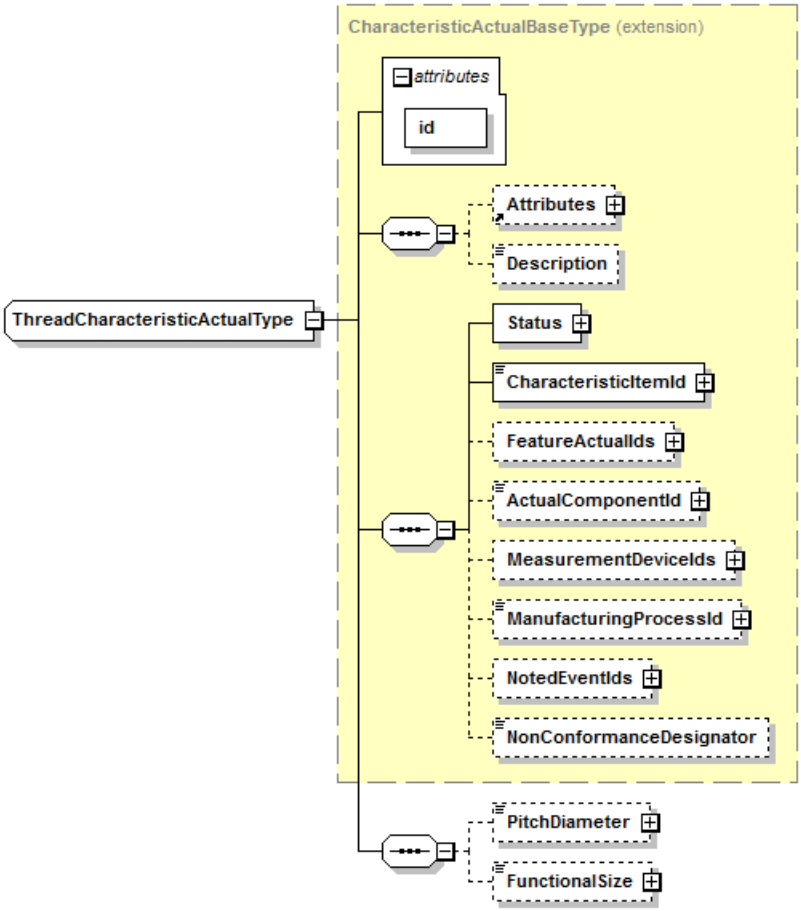
complexType **ThicknessCharacteristicItemType**

diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **ThicknessCharacteristicItem**
attributes	Name / Type / Use / Default / Fixed / Annotation id / **QIFIdType** / required / / / documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThicknessCharacteristicItemType defines a thickness characteristic item.

complexType **ThicknessCharacteristicNominalType**

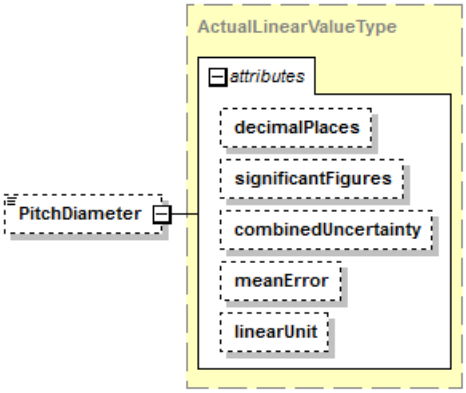
diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **ThicknessCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThicknessCharacteristicNominalType defines a unique thickness characteristic nominal.

complexType **ThreadCharacteristicActualType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **PitchDiameter** **FunctionalSize**
used by	element **ThreadCharacteristicActual**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThreadCharacteristicActualType defines the results of an actual thread characteristic evaluation.

element **ThreadCharacteristicActualType/PitchDiameter**

diagram



type **ActualLinearValueType**

properties

minOcc	0
maxOcc	1
content	complex

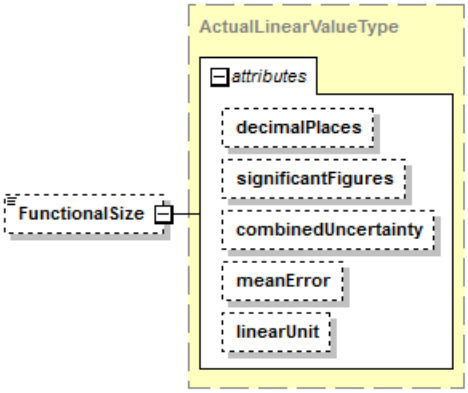
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
linearUnit	**xs:token**				documentation The optional linearUnit attribute defines the unit used by LinearValueType.

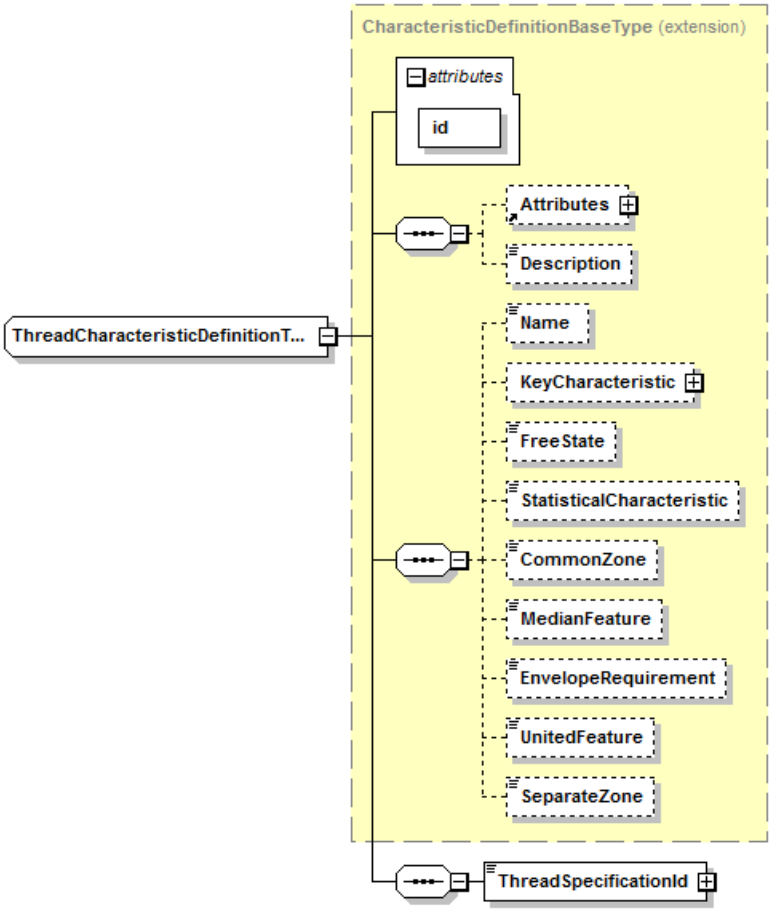
annotation

documentation
The optional PitchDiameter element is the actual pitch diameter of the thread.

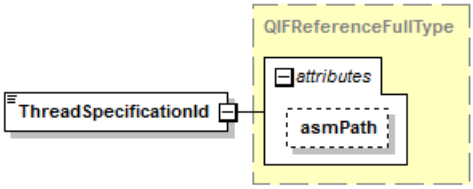
element **ThreadCharacteristicActualType/FunctionalSize**

diagram	
type	**ActualLinearValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the unit used by LinearValueType.
annotation	documentation The optional FunctionalSize element is the actual functional size of the thread.

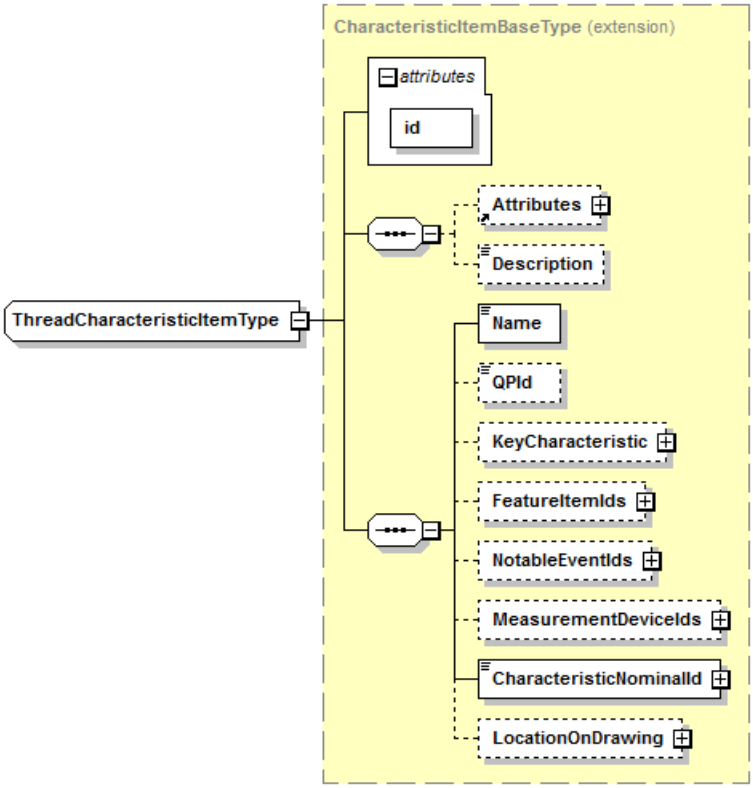
complexType **ThreadCharacteristicDefinitionType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone ThreadSpecificationId**
used by	element **ThreadCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThreadCharacteristicDefinitionType defines information that can be common to more than one thread characteristic.

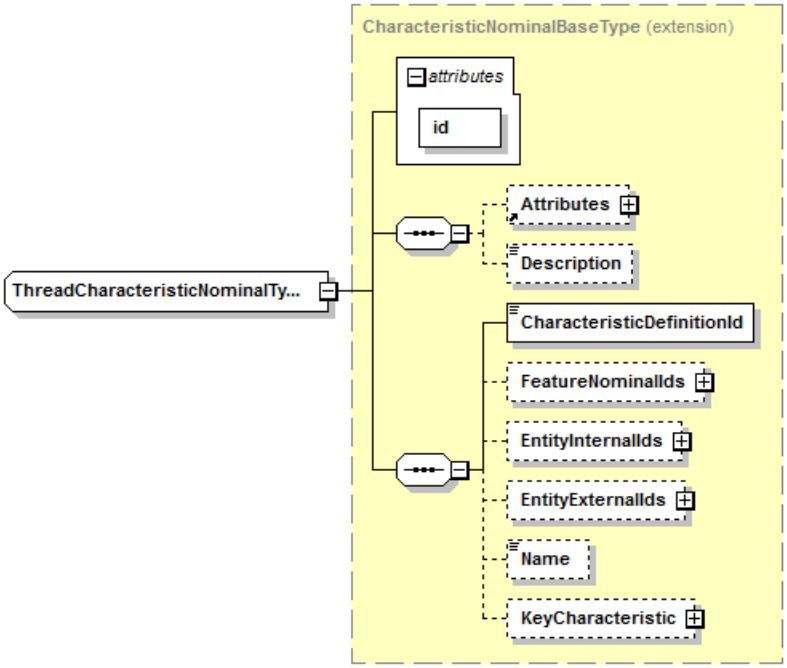
element **ThreadCharacteristicDefinitionType/ThreadSpecificationId**

diagram	
type	**QIFReferenceFullType**
properties	content complex
attributes	Name: asmPath Type: **QIFIdType** Use: Default: Fixed: Annotation: documentation: The optional asmPath attribute is an id which must be used for locating of the assembly path within the AsmPaths. The assembly path (instantiation chain) unambiguously identifies a model entity within an assembly.
annotation	documentation The ThreadSpecificationId element is the QIF id of the thread specification for the thread characteristic. This must be the QIF id of a thread specification.

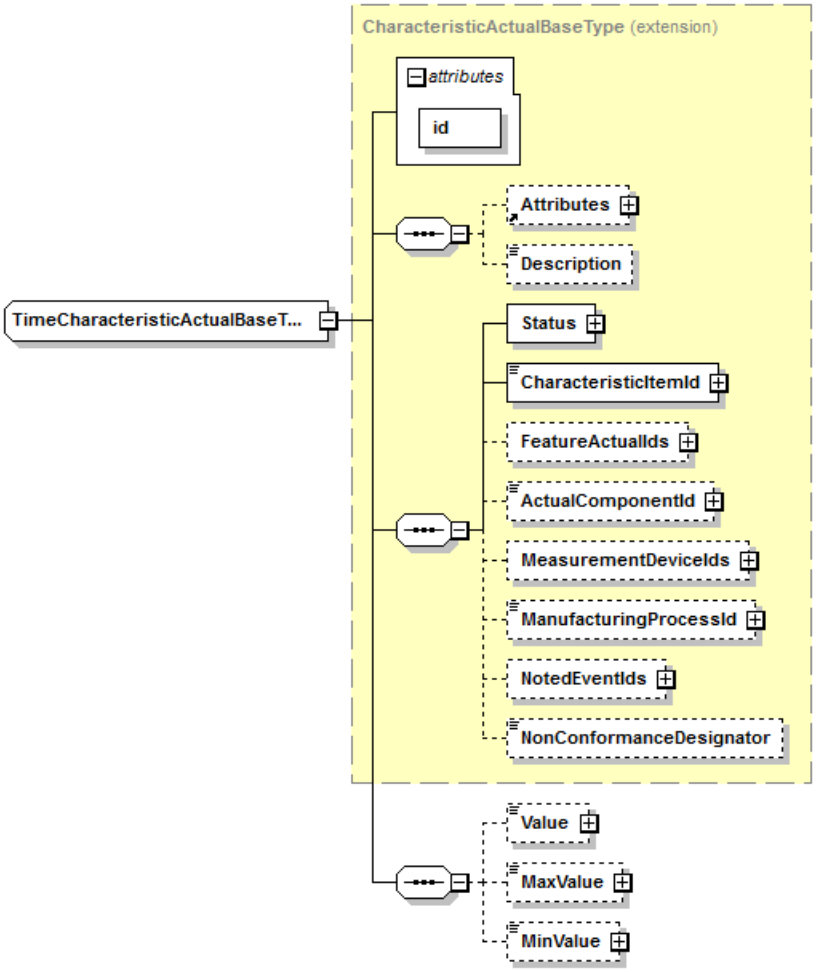
complexType **ThreadCharacteristicItemType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **ThreadCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThreadCharacteristicItemType defines a thread characteristic item.

complexType **ThreadCharacteristicNominalType**

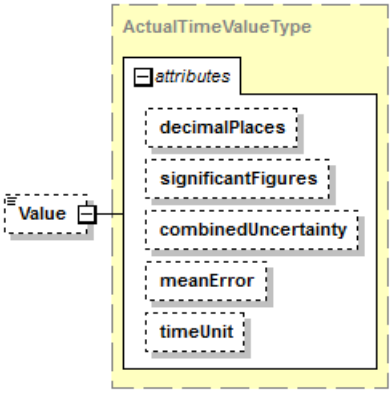
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic**
used by	element **ThreadCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The ThreadCharacteristicNominalType defines a unique thread characteristic nominal.

complexType **TimeCharacteristicActualBaseType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType abstract true
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	complexType **UserDefinedTimeCharacteristicActualType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TimeCharacteristicActualBaseType is the abstract base type that defines the results of an actual time characteristic evaluation.

element **TimeCharacteristicActualBaseType/Value**

diagram



type **ActualTimeValueType**

properties

minOcc	0
maxOcc	1
content	complex

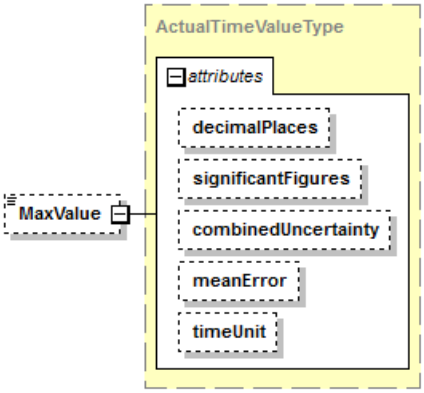
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
timeUnit	**xs:token**				documentation The optional timeUnit attribute defines the UnitName for the TimeValueType.

annotation

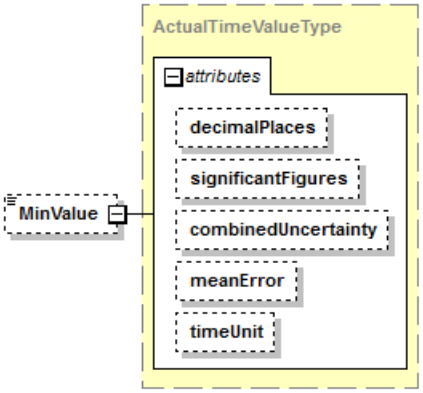
documentation
The optional Value element is the actual measured value of the time characteristic.

element **TimeCharacteristicActualBaseType/MaxValue**

diagram	
type	**ActualTimeValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. combinedUncertainty **NonNegativeDecimalType** documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType. meanError **NonNegativeDecimalType** documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType. timeUnit **xs:token** documentation The optional timeUnit attribute defines the UnitName for the TimeValueType.
annotation	documentation The optional MaxValue element is the maximum of the actual measured value when reported.

element **TimeCharacteristicActualBaseType/MinValue**

diagram



type **ActualTimeValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

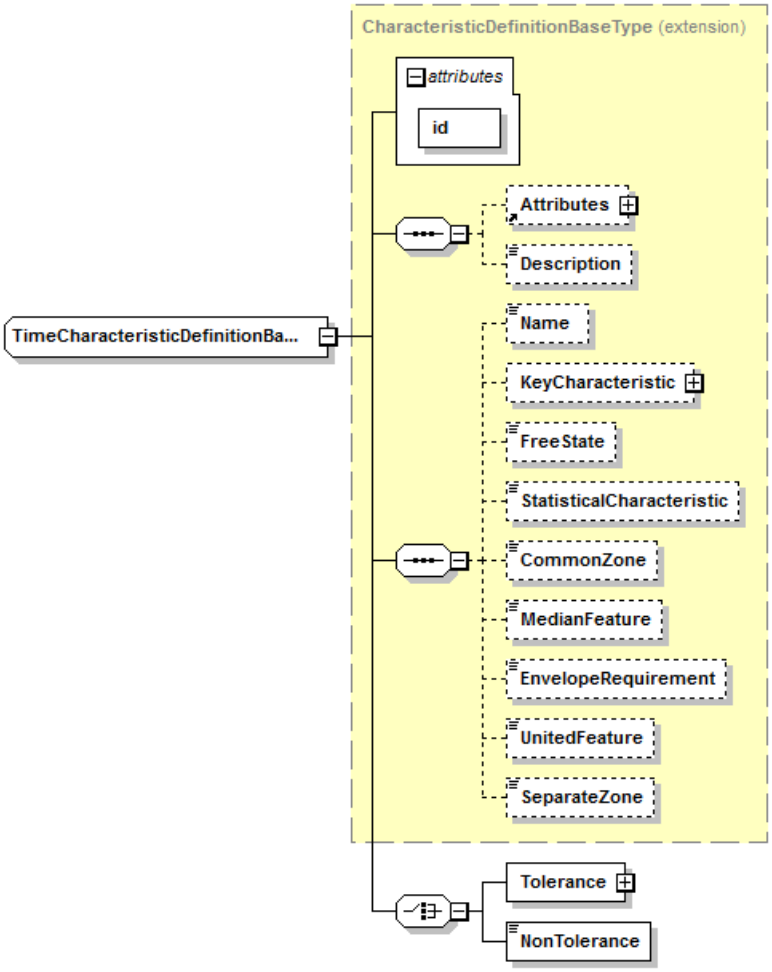
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
timeUnit	**xs:token**				documentation The optional timeUnit attribute defines the UnitName for the TimeValueType.

annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

complexType **TimeCharacteristicDefinitionBaseType**

diagram



type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType abstract true
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance**
used by	complexType **UserDefinedTimeCharacteristicDefinitionType**

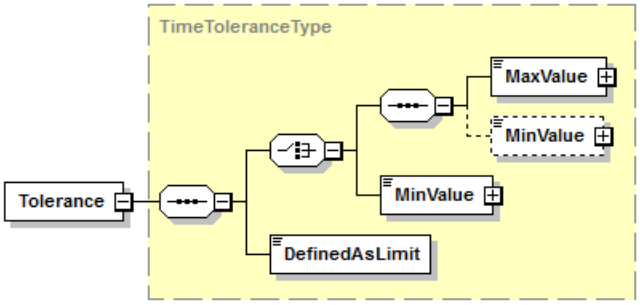
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

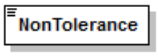
annotation

documentation
The TimeCharacteristicDefinitionBaseType is the abstract base type that defines a time characteristic.

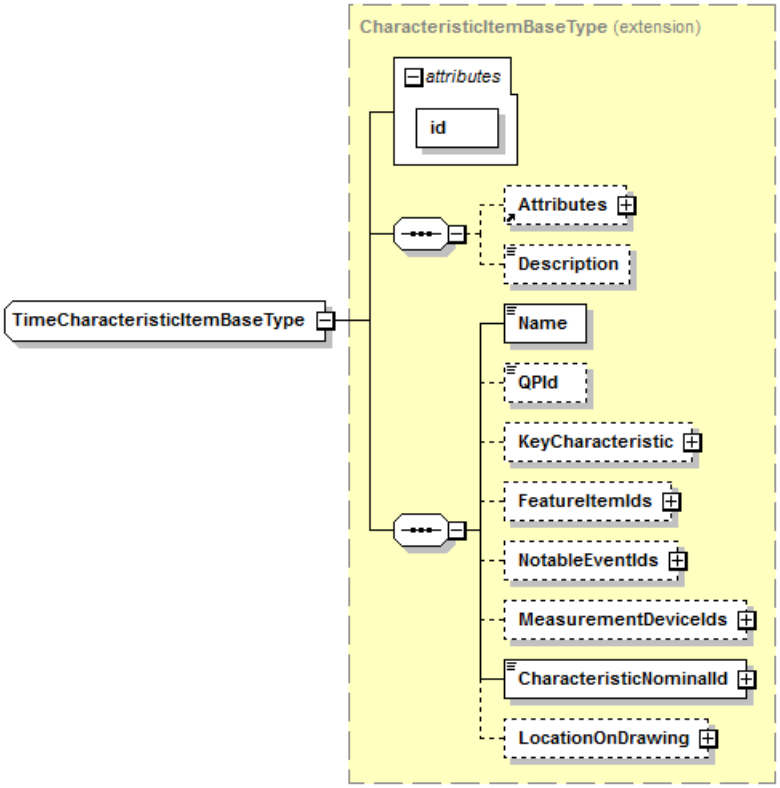
element **TimeCharacteristicDefinitionBaseType/Tolerance**

diagram	
type	**TimeToleranceType**
properties	content complex
children	**MaxValue MinValue MinValue DefinedAsLimit**
annotation	documentation The Tolerance element is the tolerance value for the time characteristic.

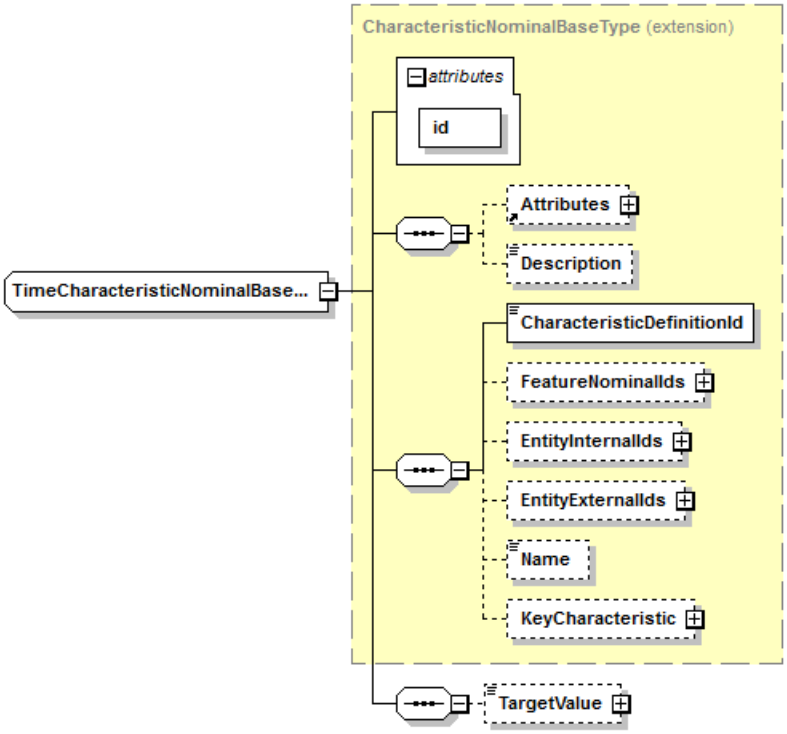
element **TimeCharacteristicDefinitionBaseType/NonTolerance**

diagram	
type	**NonToleranceEnumType**
properties	content simple
facets	Kind / Value / Annotation enumeration / MEASURED / documentation: The MEASURED enumeration defines a characteristic as being a basic dimension which can be measured and therefore a valid actual value may exist. enumeration / SET / documentation: The SET enumeration defines a characteristic as being a dimension which cannot be measured and therefore no valid actual value exists and the actual value is set to the nominal value for reporting purposes.
annotation	documentation The NonTolerance element indicates the characteristic is not toleranced but needs to be tracked and/or reported.

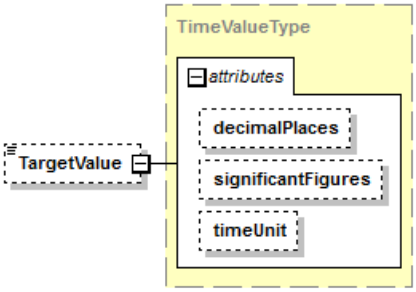
complexType **TimeCharacteristicItemBaseType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType abstract true
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	complexType **UserDefinedTimeCharacteristicItemType**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TimeCharacteristicItemBaseType is the abstract base type that defines a time characteristic item.

complexType **TimeCharacteristicNominalBaseType**

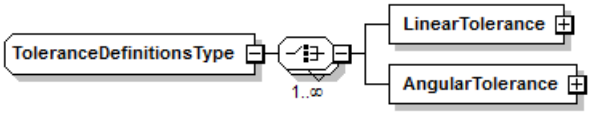
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType abstract true
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	complexType **UserDefinedTimeCharacteristicNominalType**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TimeCharacteristicNominalBaseType is the abstract base type that defines a unique time characteristic nominal.

element **TimeCharacteristicNominalBaseType/TargetValue**

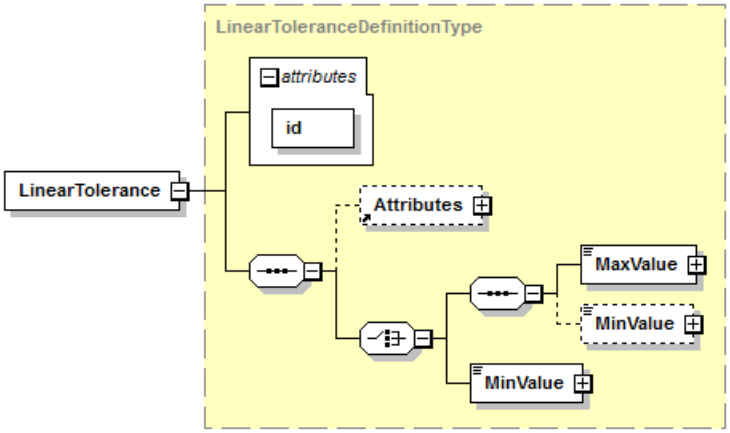
diagram	

type	**TimeValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. timeUnit **xs:token** — documentation: The optional timeUnit attribute defines the UnitName for the TimeValueType.
annotation	documentation The optional TargetValue element is the nominal value of the time characteristic.

complexType **ToleranceDefinitionsType**

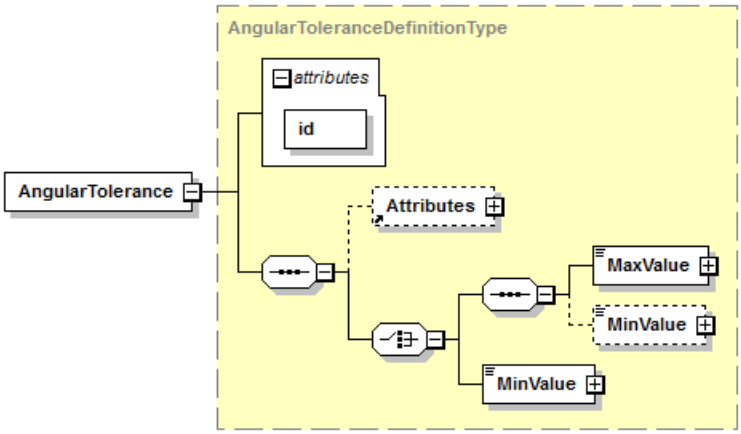
diagram	
children	**LinearTolerance** **AngularTolerance**
used by	element **CharacteristicAspectsListsType/DefaultToleranceDefinitions**
annotation	documentation The ToleranceDefinitionsType defines a list of tolerance definitions.

element **ToleranceDefinitionsType/LinearTolerance**

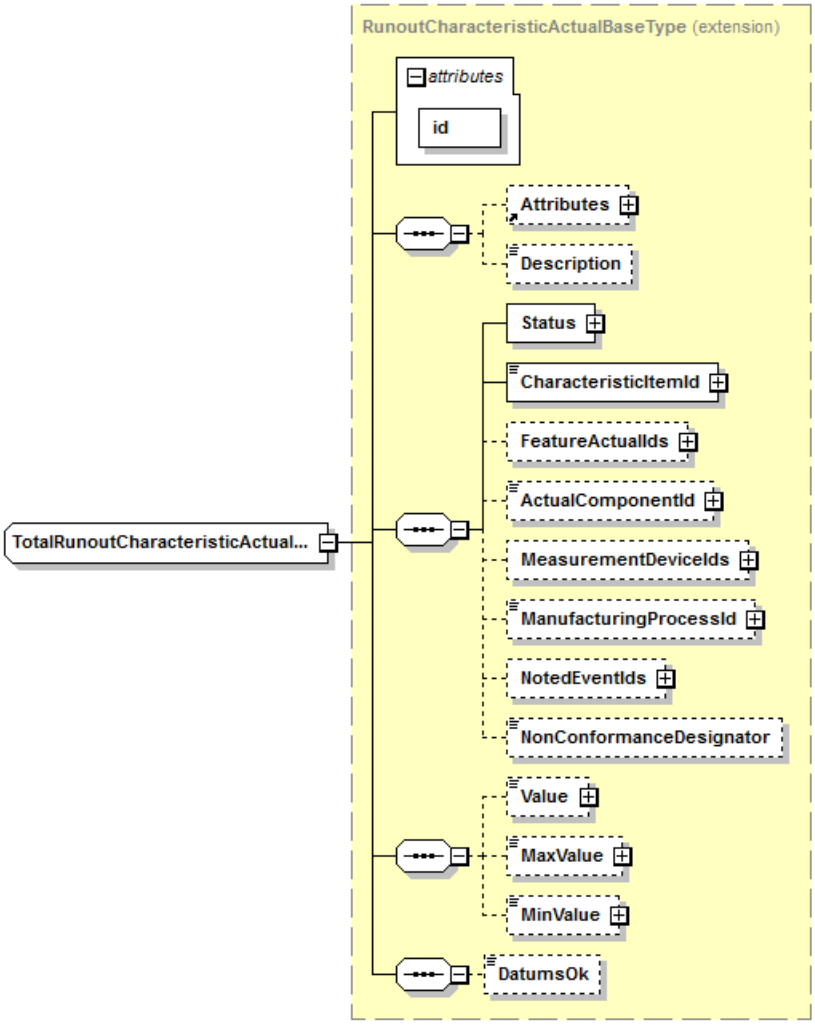
diagram	
type	**LinearToleranceDefinitionType**
properties	content complex
children	**Attributes MaxValue MinValue MinValue**
attributes	Name / Type / Use / Default / Fixed / Annotation id **QIFIdType** required — documentation: The id attribute is the QIF id of the tolerance

	definition, used for referencing.
annotation	documentation Each LinearTolerance element gives information about a linear tolerance definition.

element **ToleranceDefinitionsType/AngularTolerance**

diagram	
type	**AngularToleranceDefinitionType**
properties	content complex
children	**Attributes MaxValue MinValue MinValue**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation The id attribute is the QIF id of the tolerance definition, used for referencing.
annotation	documentation Each AngularTolerance element gives information about a angular tolerance definition.

complexType **TotalRunoutCharacteristicActualType**

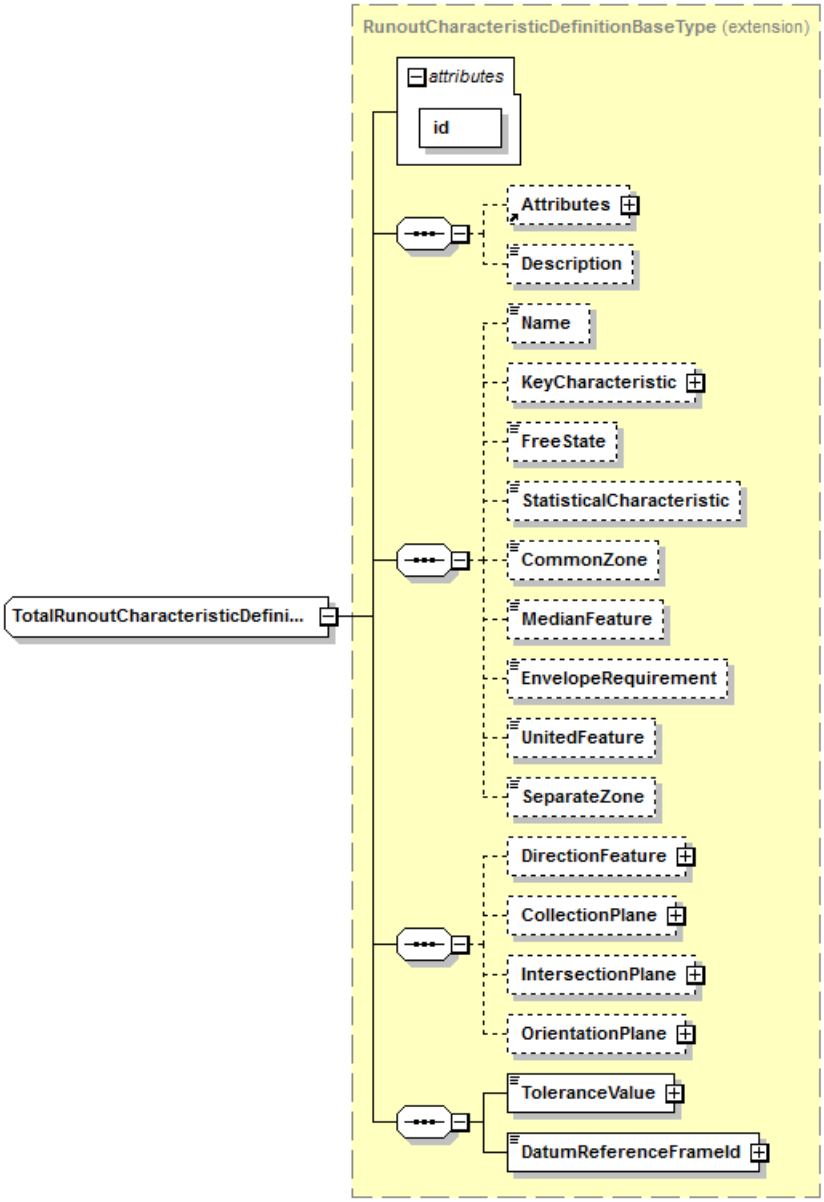
diagram	
type	extension of **RunoutCharacteristicActualBaseType**
properties	base RunoutCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue** **DatumsOk**
used by	element **TotalRunoutCharacteristicActual**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The TotalRunoutCharacteristicActualType defines a total runout characteristic evaluation.

complexType **TotalRunoutCharacteristicDefinitionType**

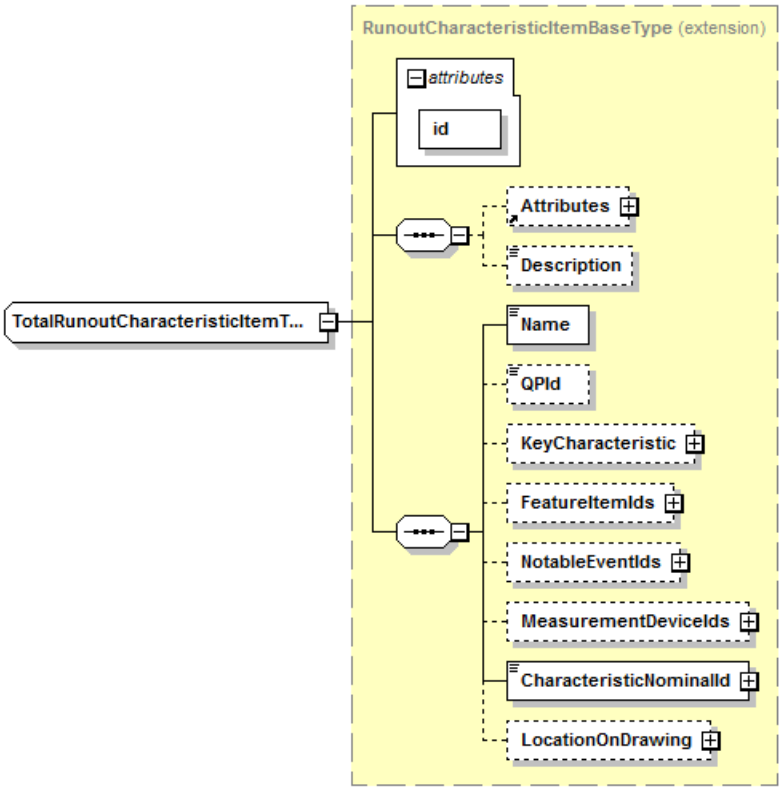
diagram	
type	extension of **RunoutCharacteristicDefinitionBaseType**
properties	base RunoutCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DirectionFeature** **CollectionPlane** **IntersectionPlane** **OrientationPlane** **ToleranceValue** **DatumReferenceFrameId**
used by	element **TotalRunoutCharacteristicDefinition**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

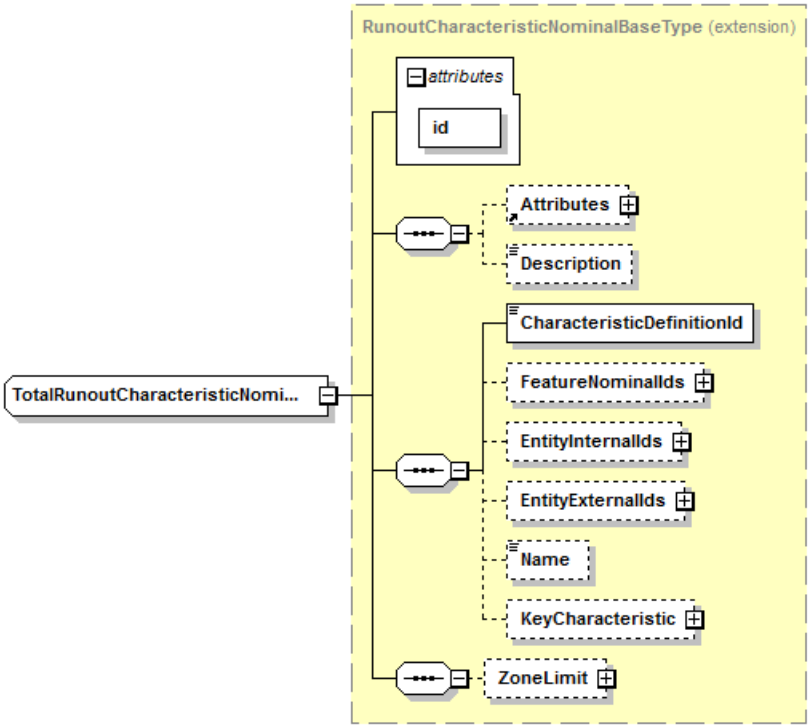
annotation	documentation The TotalRunoutCharacteristicDefinitionType defines information that can be common to more than one total runout characteristic.

complexType **TotalRunoutCharacteristicItemType**

diagram	
type	extension of **RunoutCharacteristicItemBaseType**
properties	base RunoutCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **TotalRunoutCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The TotalRunoutCharacteristicItemType defines a total runout characteristic item.

complexType **TotalRunoutCharacteristicNominalType**

diagram



type	extension of **RunoutCharacteristicNominalBaseType**
properties	base RunoutCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **ZoneLimit**
used by	element **TotalRunoutCharacteristicNominal**

attributes

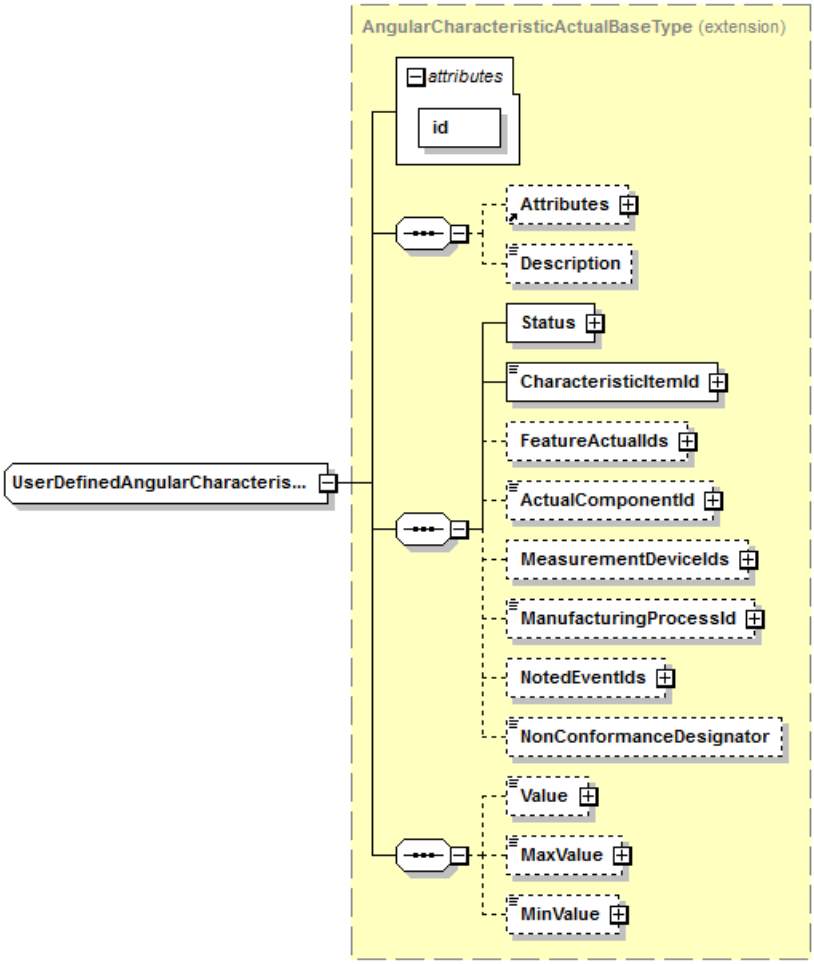
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation
The TotalRunoutCharacteristicNominalType defines a unique total runout characteristic nominal.

complexType **UserDefinedAngularCharacteristicActualType**

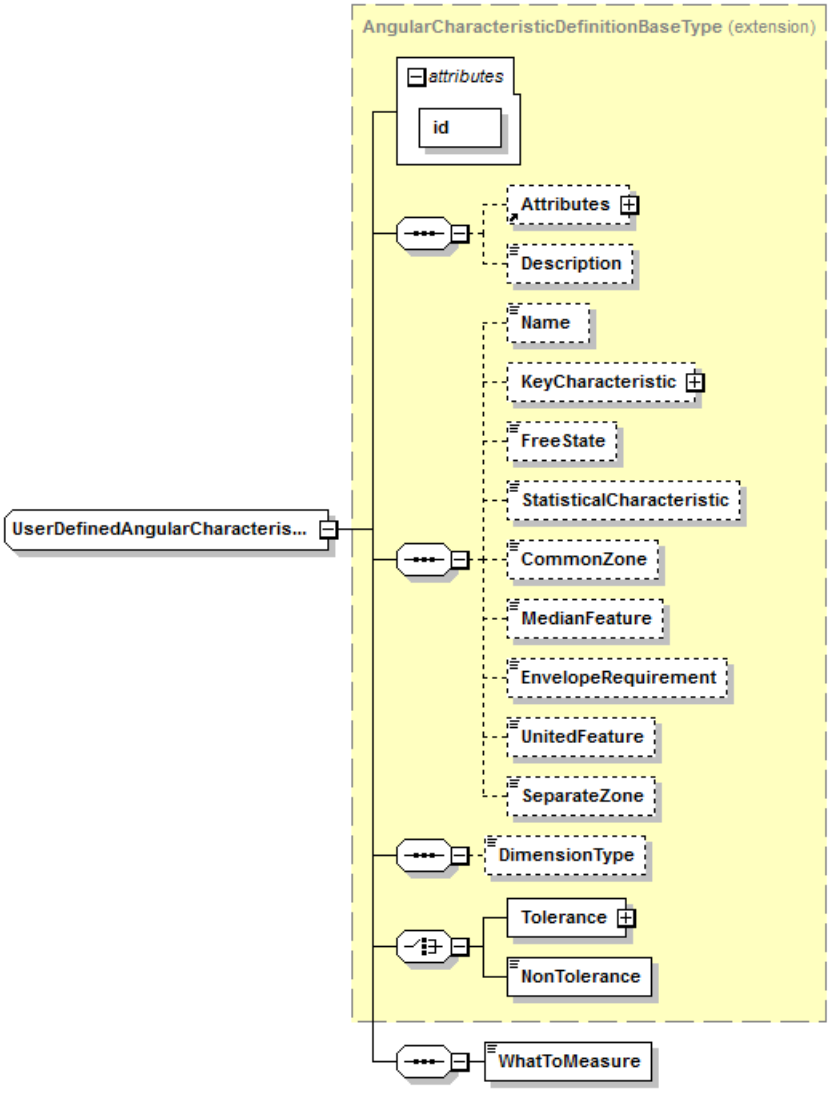
diagram



type	extension of **AngularCharacteristicActualBaseType**
properties	base AngularCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedAngularCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAngularCharacteristicActualType is a characteristic actual specified by the user that is measured in angle units. This user defined type is not to be used where an appropriate type already exists, in particular it is not to be used for: angle-between, angle (the feature angle: included, draft, taper), angular-coordinate or angle-from.

complexType **UserDefinedAngularCharacteristicDefinitionType**

diagram



type	extension of **AngularCharacteristicDefinitionBaseType**
properties	base AngularCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedAngularCharacteristicDefinition**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation

documentation

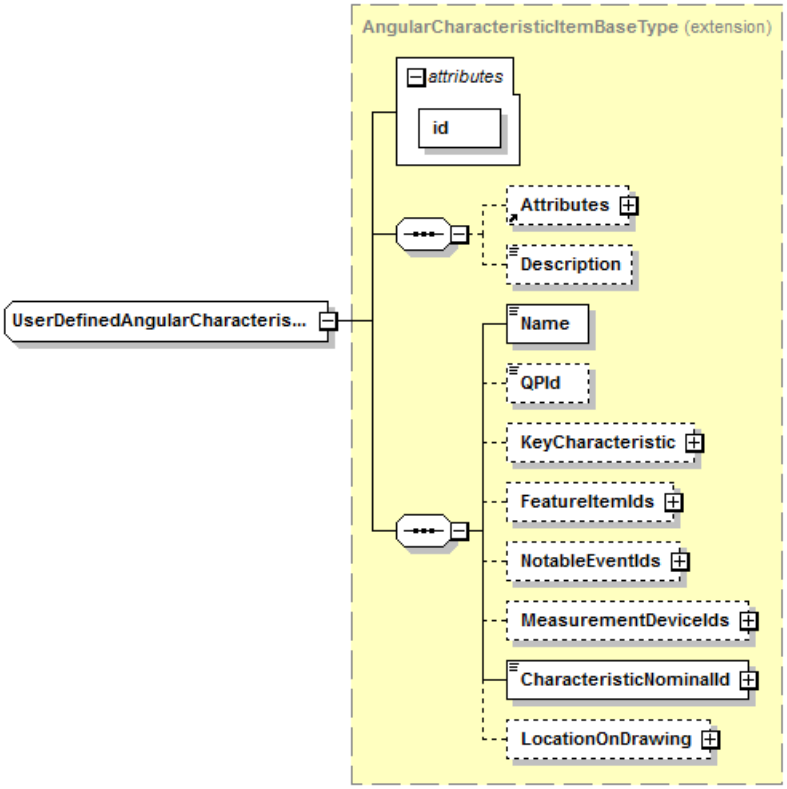
The UserDefinedAngularCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in angle units. This user defined type is not to be used where an appropriate type already exists, in particular it is not to be used for: angle-between, angle (the feature angle: included, draft, taper), angular-coordinate or angle-from.

element **UserDefinedAngularCharacteristicDefinitionType/WhatToMeasure**

diagram	WhatToMeasure
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured. This user defined type is not to be used where an appropriate type already exists, in particular it is not to be used for: angle-between, angle (the feature angle: included, draft, taper), angular-coordinate or angle-from.

complexType **UserDefinedAngularCharacteristicItemType**

diagram



type	extension of **AngularCharacteristicItemBaseType**
properties	base AngularCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **UserDefinedAngularCharacteristicItem**

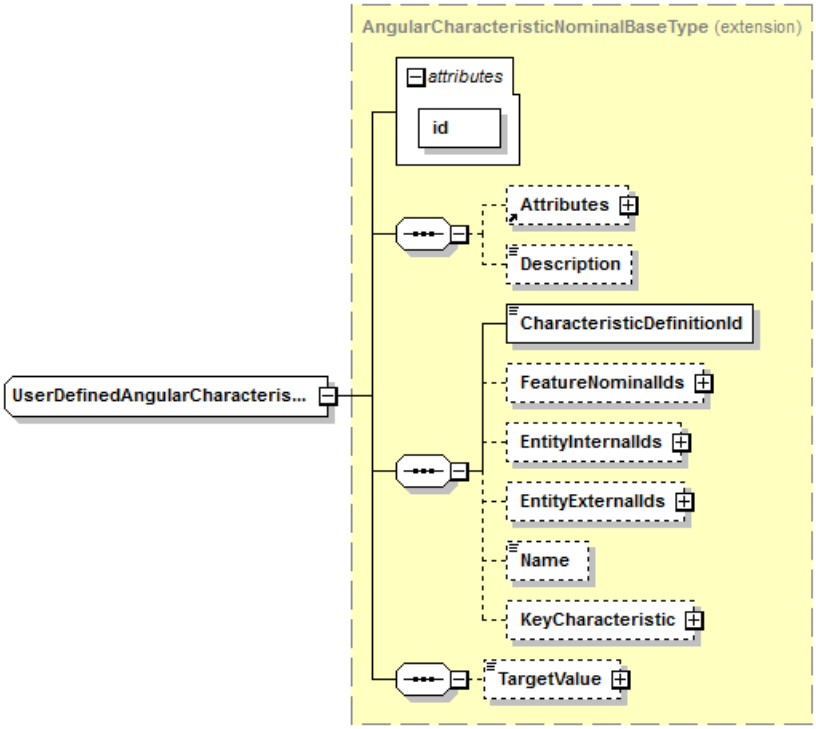
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

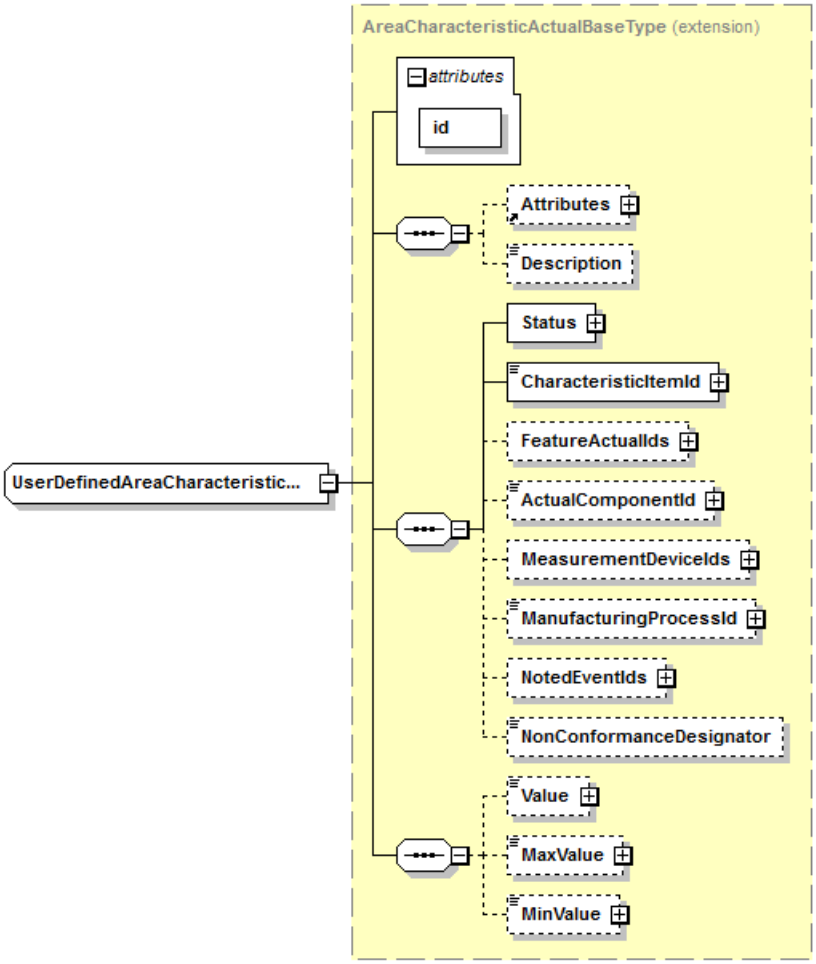
annotation: documentation
The UserDefinedAngularCharacteristicItemType is a characteristic item specified by the user that is measured in angular

	units. This user defined type is not to be used where an appropriate type already exists, in particular it is not to be used for: angle-between, angle (the feature angle: included, draft, taper), angular-coordinate or angle-from.

complexType **UserDefinedAngularCharacteristicNominalType**

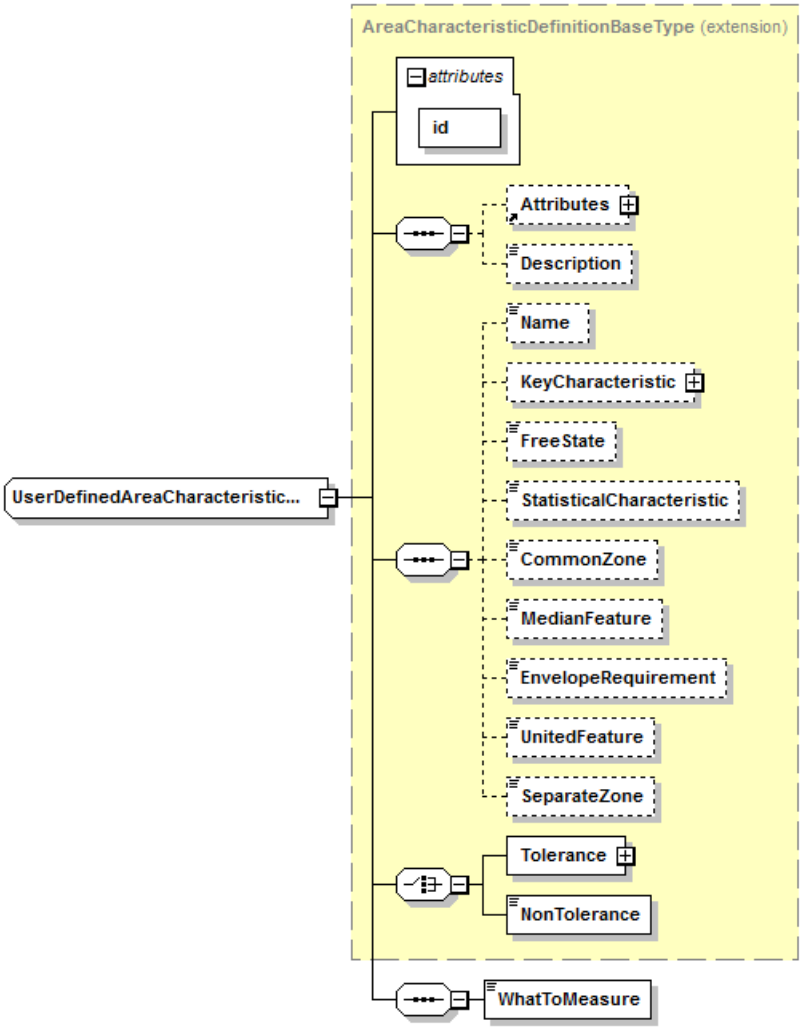
diagram	
type	extension of **AngularCharacteristicNominalBaseType**
properties	base AngularCharacteristicNominalBaseType
children	**Attributes Description CharacteristicDefinitionId FeatureNominalIds EntityInternalIds EntityExternalIds Name KeyCharacteristic TargetValue**
used by	element **UserDefinedAngularCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAngularCharacteristicNominalType is a characteristic nominal specified by the user that is measured in angle units. This user defined type is not to be used where an appropriate type already exists, in particular it is not to be used for: angle-between, angle (the feature angle: included, draft, taper), angular-coordinate or angle-from.

complexType **UserDefinedAreaCharacteristicActualType**

diagram	
type	extension of **AreaCharacteristicActualBaseType**
properties	base AreaCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedAreaCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAreaCharacteristicActualType is a characteristic actual specified by the user that is measured in area units.

complexType **UserDefinedAreaCharacteristicDefinitionType**

diagram



type	extension of **AreaCharacteristicDefinitionBaseType**
properties	base AreaCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedAreaCharacteristicDefinition**

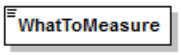
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

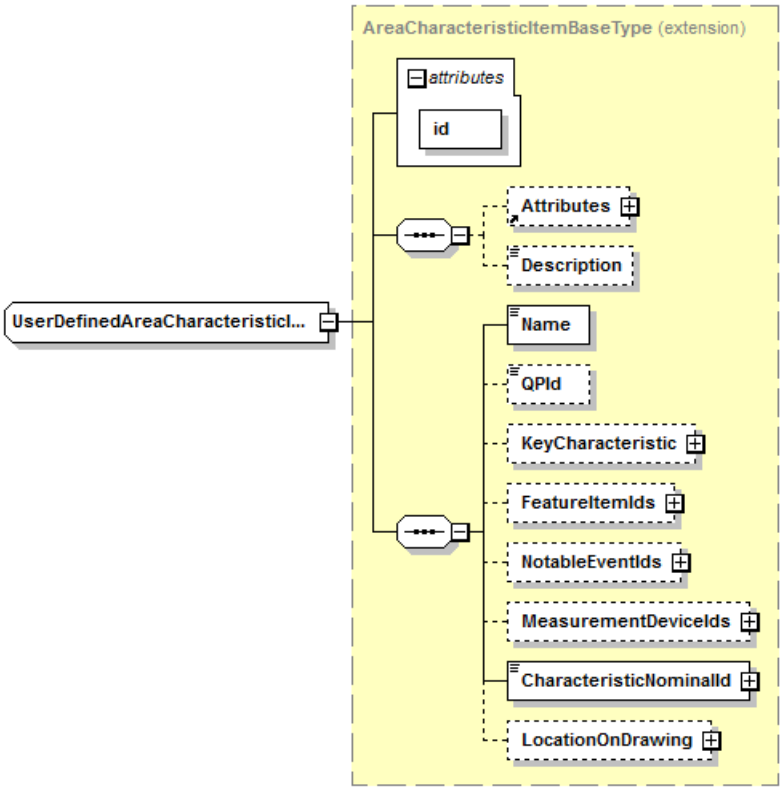
annotation

documentation
The UserDefinedAreaCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in area units.

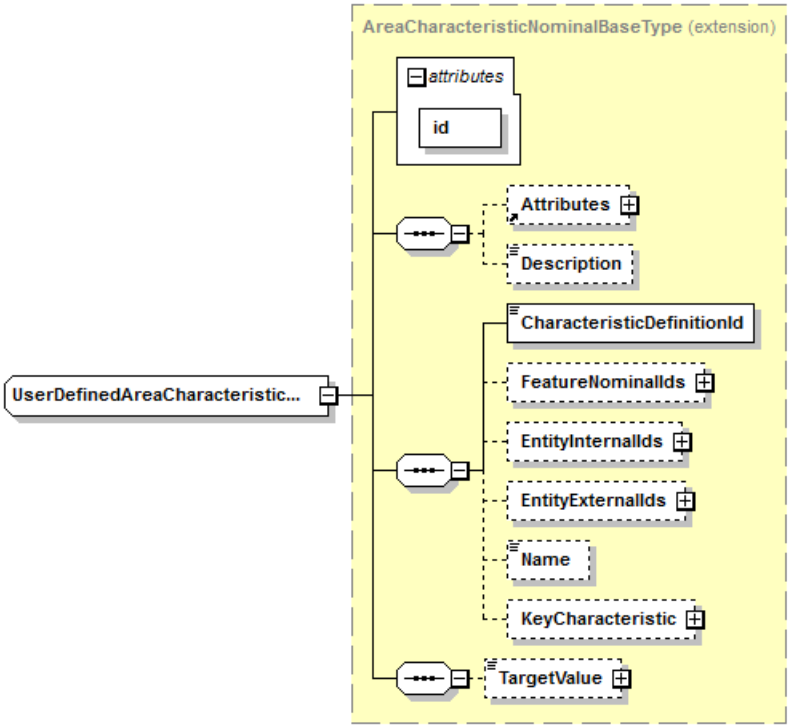
element **UserDefinedAreaCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

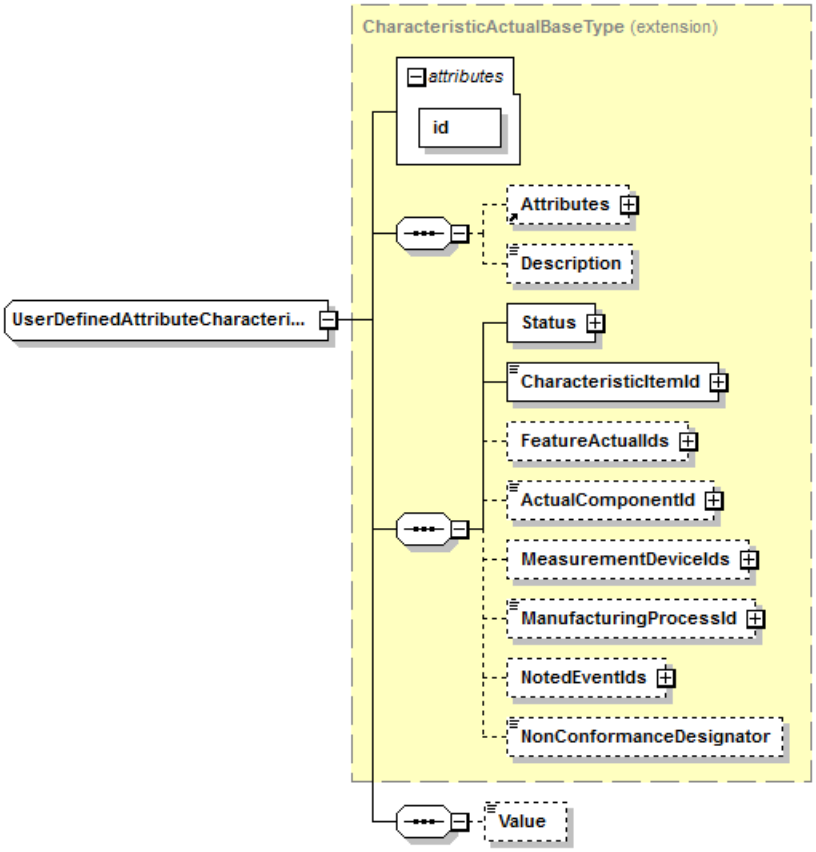
complexType **UserDefinedAreaCharacteristicItemType**

diagram	
type	extension of **AreaCharacteristicItemBaseType**
properties	base AreaCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedAreaCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAreaCharacteristicItemType is a characteristic item specified by the user that is measured in area units.

complexType **UserDefinedAreaCharacteristicNominalType**

diagram	
type	extension of **AreaCharacteristicNominalBaseType**
properties	base AreaCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedAreaCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAreaCharacteristicNominalType is a characteristic nominal specified by the user that is measured in area units.

complexType **UserDefinedAttributeCharacteristicActualType**

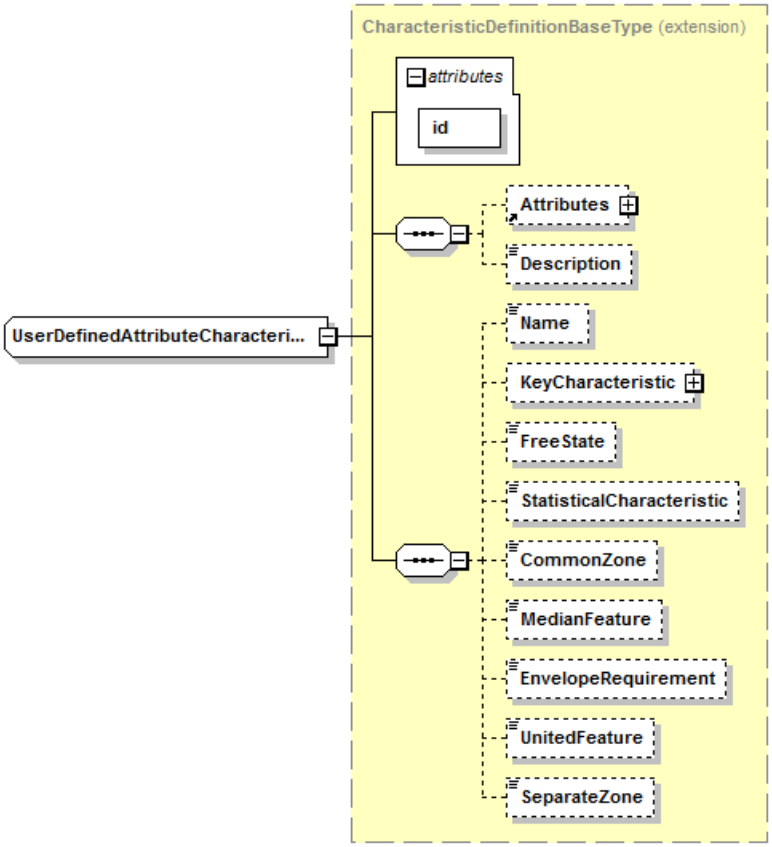
diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value**
used by	element **UserDefinedAttributeCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAttributeCharacteristicActualType defines the results of an actual user-defined characteristic evaluation. The Value must be one of the PassValues or FailValues given in the corresponding nominal characteristic.

element **UserDefinedAttributeCharacteristicActualType/Value**

diagram	
type	**xs:string**
properties	minOcc 0 maxOcc 1 content simple

annotation	documentation The optional Value element is the actual value for the user-defined attribute characteristic.

complexType **UserDefinedAttributeCharacteristicDefinitionType**

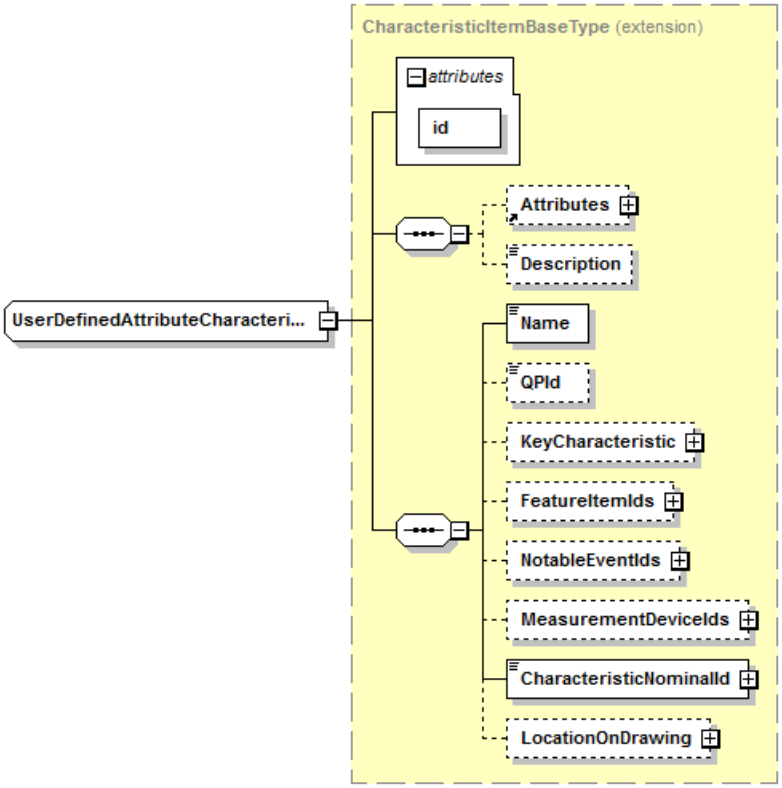
diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone**
used by	element **UserDefinedAttributeCharacteristicDefinition**

attributes

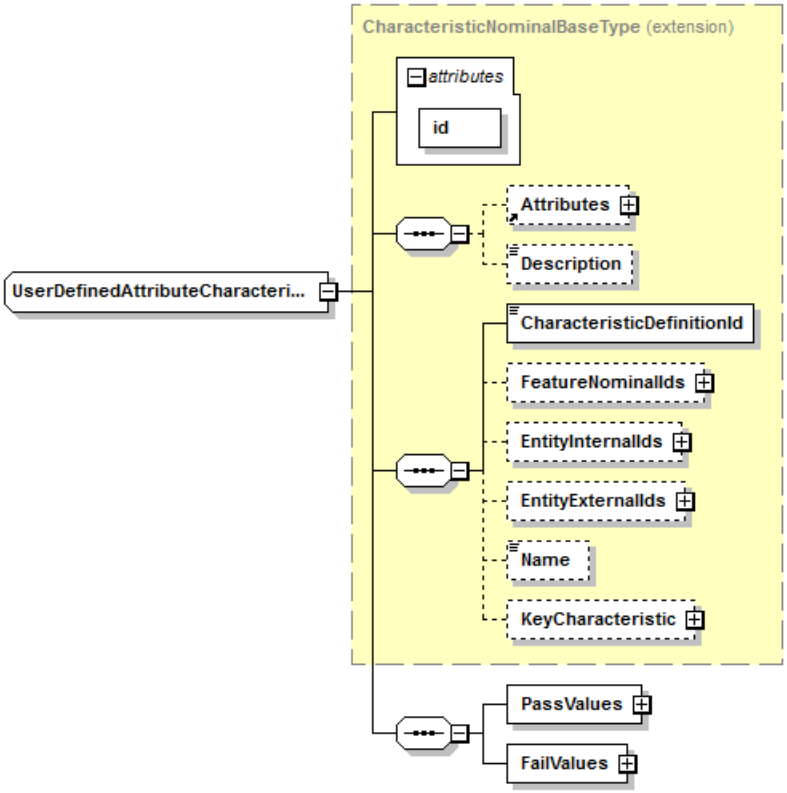
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The UserDefinedAttributeCharacteristicDefinitionType defines characteristics that are specific to an application and do not have numerical values. It defines information that can be common to more than one user-defined characteristic.

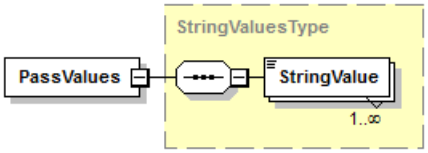
complexType **UserDefinedAttributeCharacteristicItemType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedAttributeCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAttributeCharacteristicItemType defines a user-defined attribute characteristic item.

complexType **UserDefinedAttributeCharacteristicNominalType**

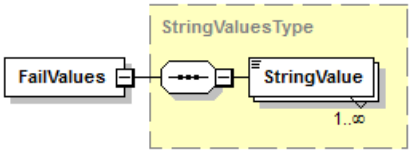
diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **PassValues** **FailValues**
used by	element **UserDefinedAttributeCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedAttributeCharacteristicNominalType defines a unique user-defined characteristic nominal for an attribute characteristic.

element **UserDefinedAttributeCharacteristicNominalType/PassValues**

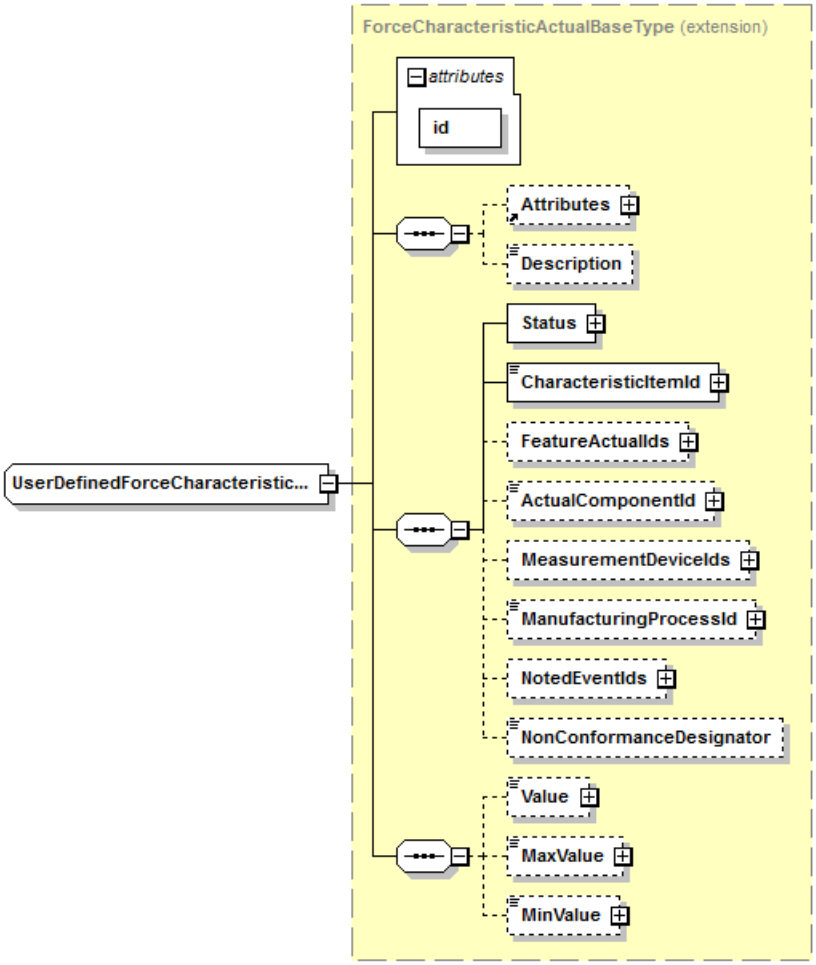
diagram	
type	**StringValuesType**
properties	content complex

children	**StringValue**
annotation	documentation The PassValues element is a list of acceptable target values for the user-defined characteristic.

element **UserDefinedAttributeCharacteristicNominalType/FailValues**

diagram	
type	**StringValuesType**
properties	content complex
children	**StringValue**
annotation	documentation The FailValues element is a list of values for the user-defined characteristic that indicate failure to achieve an allowed target value of the characteristic.

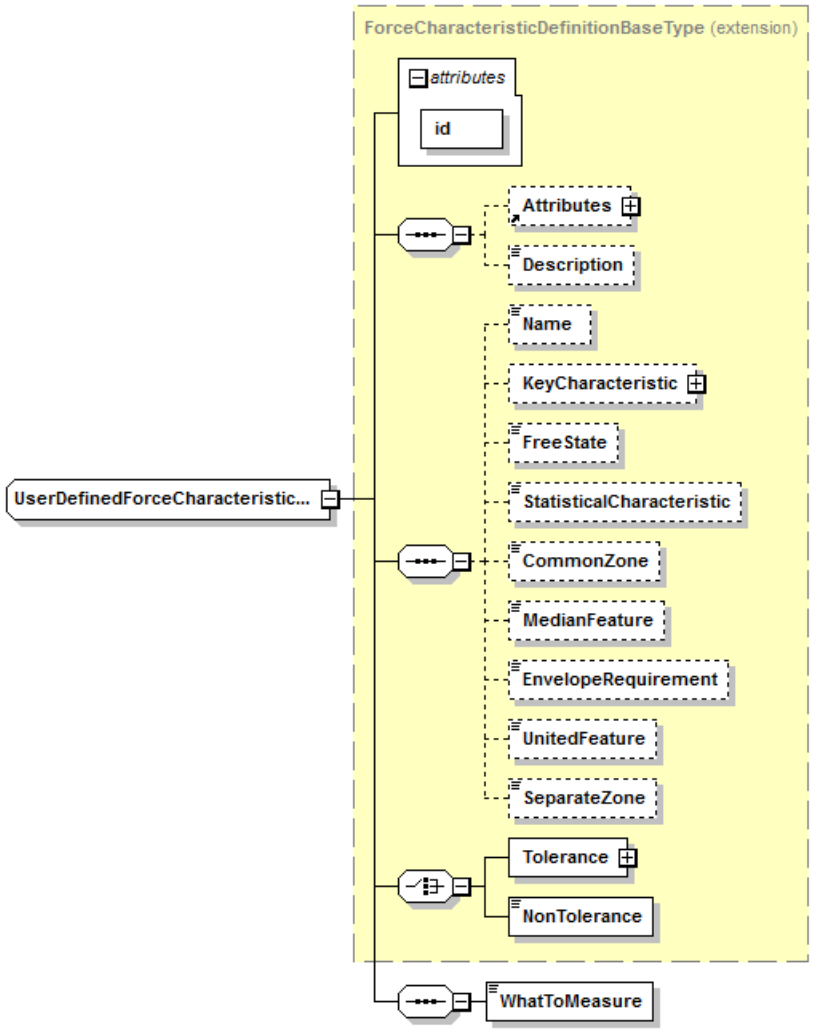
complexType **UserDefinedForceCharacteristicActualType**

diagram	

type	extension of **ForceCharacteristicActualBaseType**
properties	base ForceCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedForceCharacteristicActual**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedForceCharacteristicActualType is a characteristic actual specified by the user that is measured in force units.

complexType **UserDefinedForceCharacteristicDefinitionType**

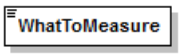
diagram



type	extension of **ForceCharacteristicDefinitionBaseType**

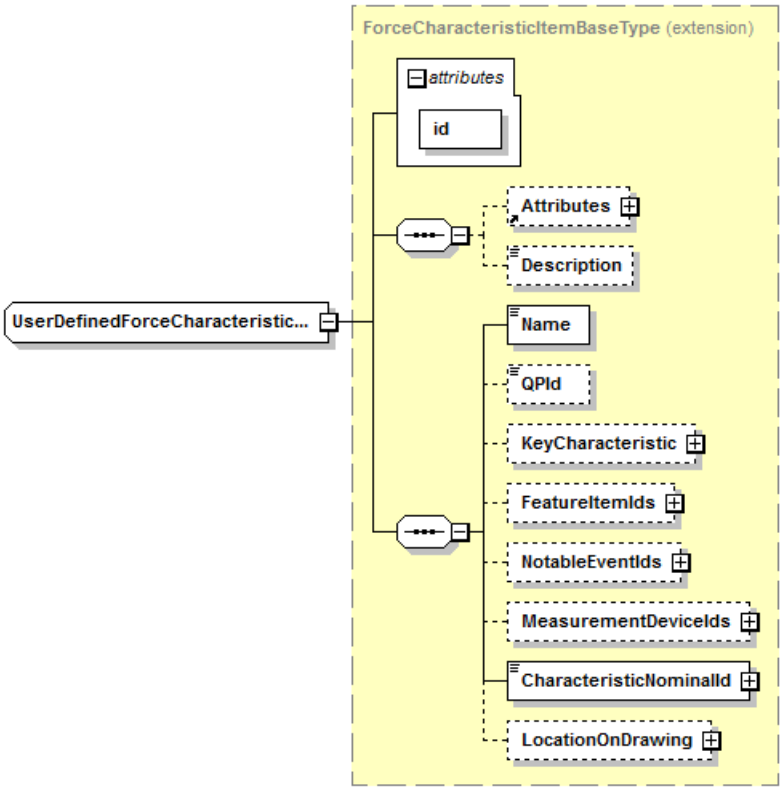
properties	base ForceCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedForceCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation: The UserDefinedForceCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in force units.

element **UserDefinedForceCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation: The WhatToMeasure element is a description of the characteristic to be measured.

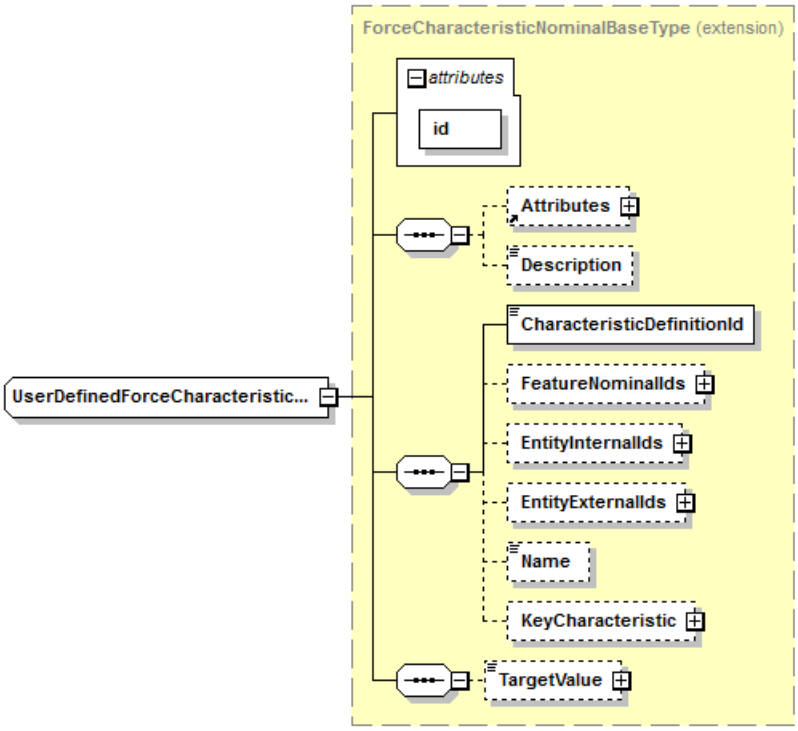
complexType **UserDefinedForceCharacteristicItemType**

diagram



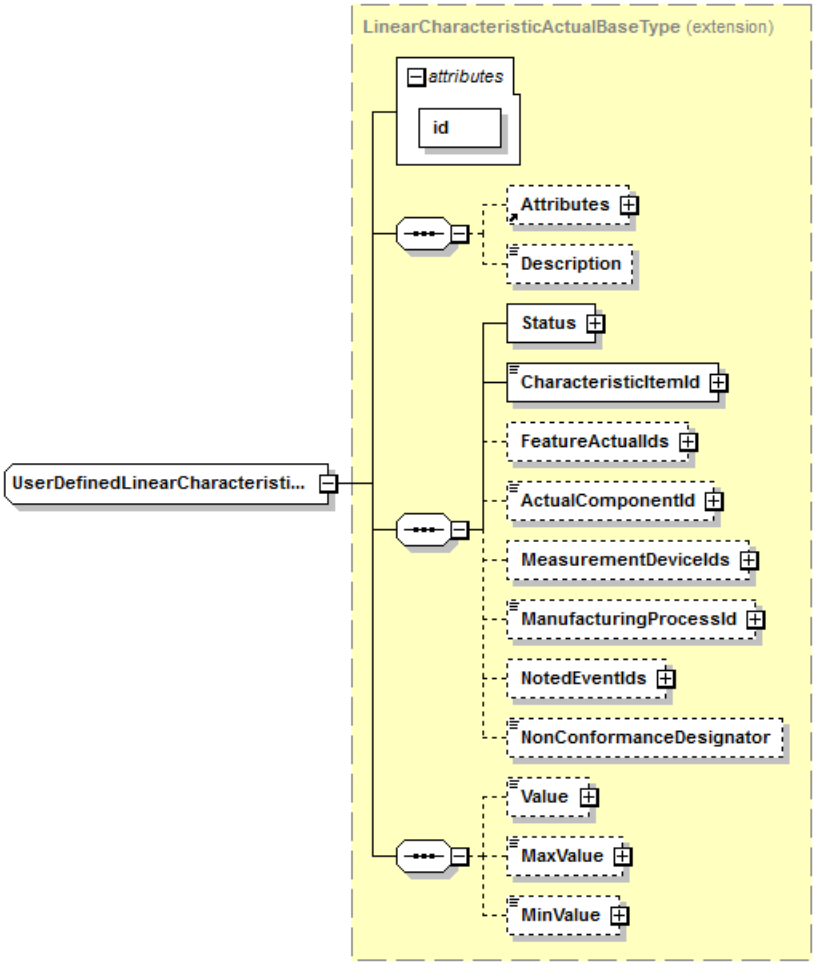
type	extension of **ForceCharacteristicItemBaseType**
properties	base ForceCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedForceCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedForceCharacteristicItemType is a characteristic item specified by the user that is measured in force units.

complexType **UserDefinedForceCharacteristicNominalType**

diagram	
type	extension of **ForceCharacteristicNominalBaseType**
properties	base ForceCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedForceCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for

	referencing.
annotation	documentation The UserDefinedForceCharacteristicNominalType is a characteristic nominal specified by the user that is measured in force units.

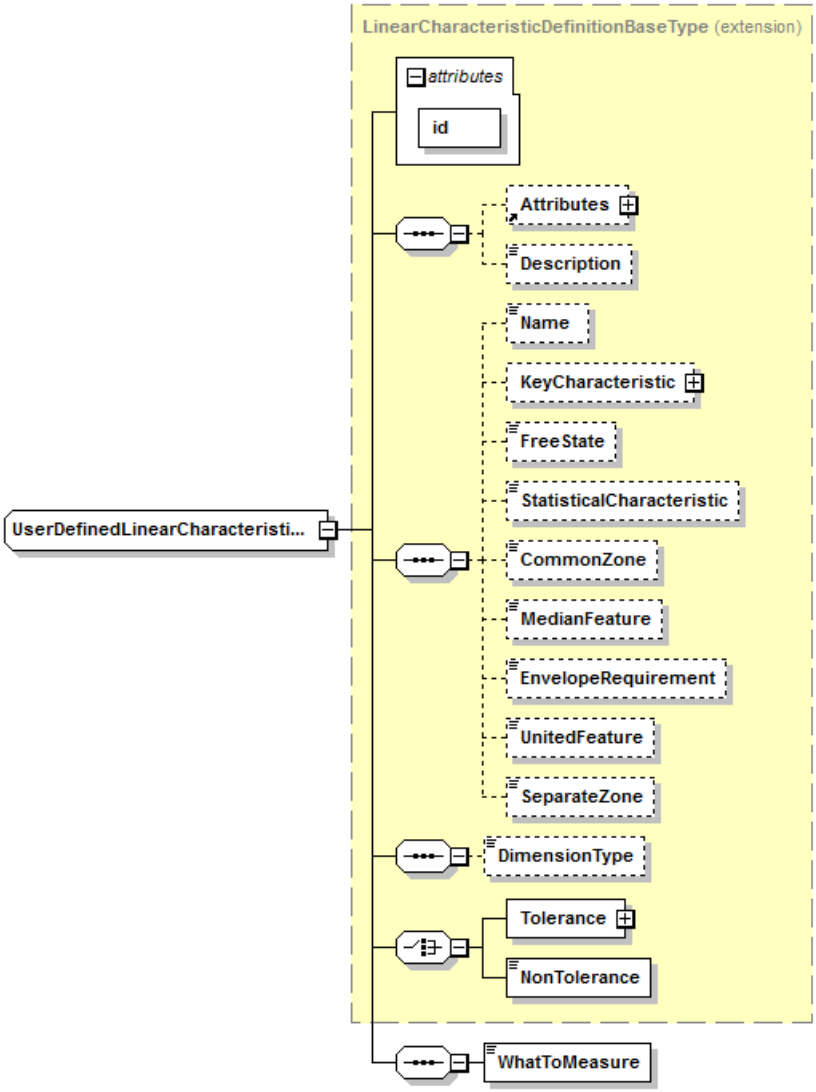
complexType **UserDefinedLinearCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedLinearCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedLinearCharacteristicActualType is a characteristic actual specified by the user that is measured in linear units. This user defined type is not to be used where an appropriate type already exists. In particular it is not to be used for: angularity, chord, circularity, circular-runout, concentricity, curve-length, cylindricity, depth, diameter, distance-

	between, distance-from, flatness, height, length, linear-coordinate, line-profile, parallelism, perpendicularity, point-profile, position, radius, square, straightness, surface-profile, surface-texture, symmetry, thickness, total-runout or width.

complexType **UserDefinedLinearCharacteristicDefinitionType**

diagram



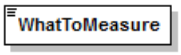
type	extension of **LinearCharacteristicDefinitionBaseType**
properties	base LinearCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **DimensionType** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedLinearCharacteristicDefinition**

attributes

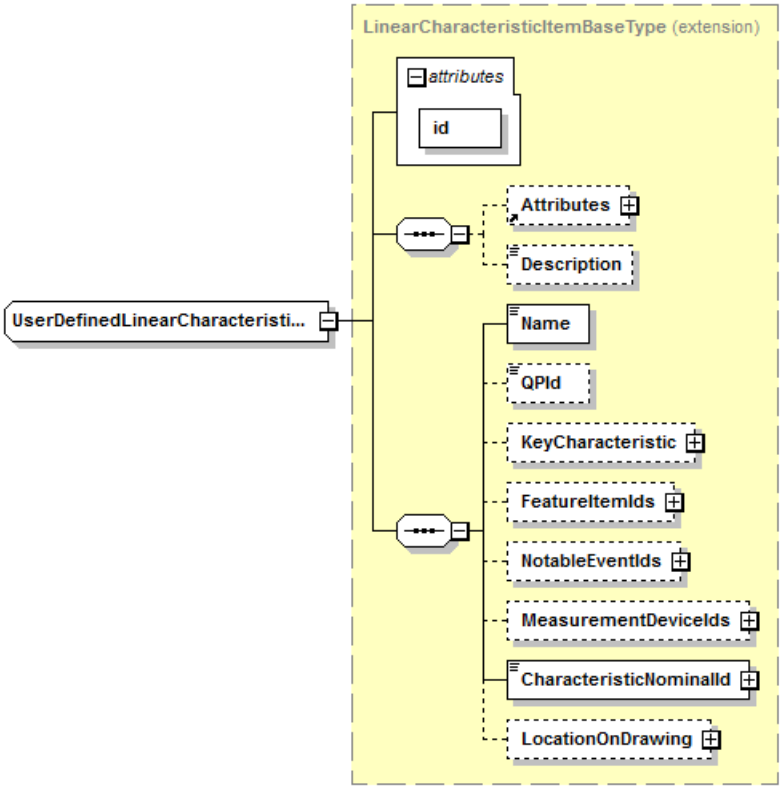
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The UserDefinedLinearCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in linear units. This user defined type is not to be used where an appropriate type already exists. In particular it is not to be used for: angularity, chord, circularity, circular-runout, concentricity, curve-length, cylindricity, depth, diameter, distance-between, distance-from, flatness, height, length, linear-coordinate, line-profile, parallelism, perpendicularity, point-profile, position, radius, square, straightness, surface-profile, surface-texture, symmetry, thickness, total-runout or width.

element **UserDefinedLinearCharacteristicDefinitionType/WhatToMeasure**

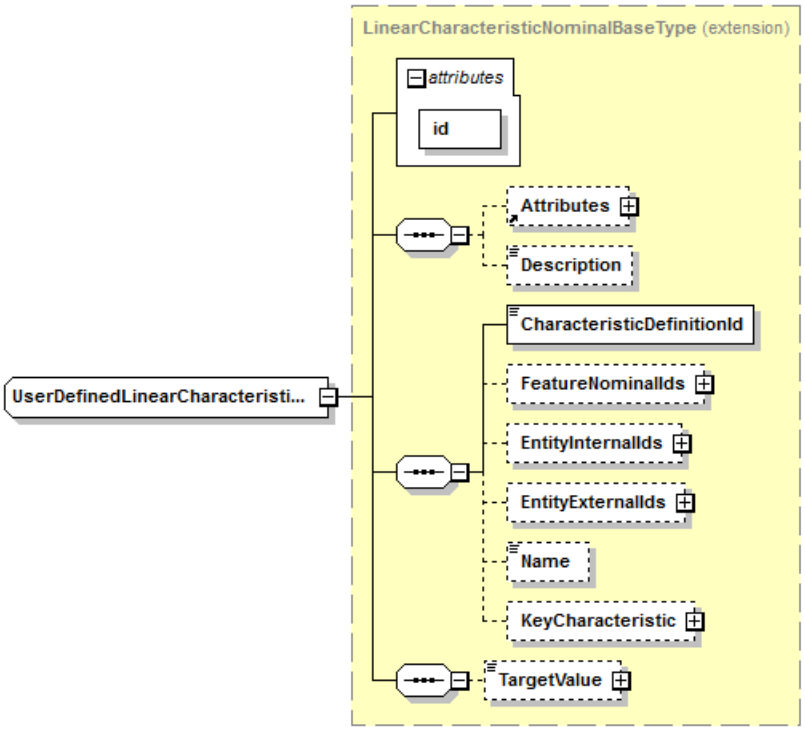
diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

complexType **UserDefinedLinearCharacteristicItemType**

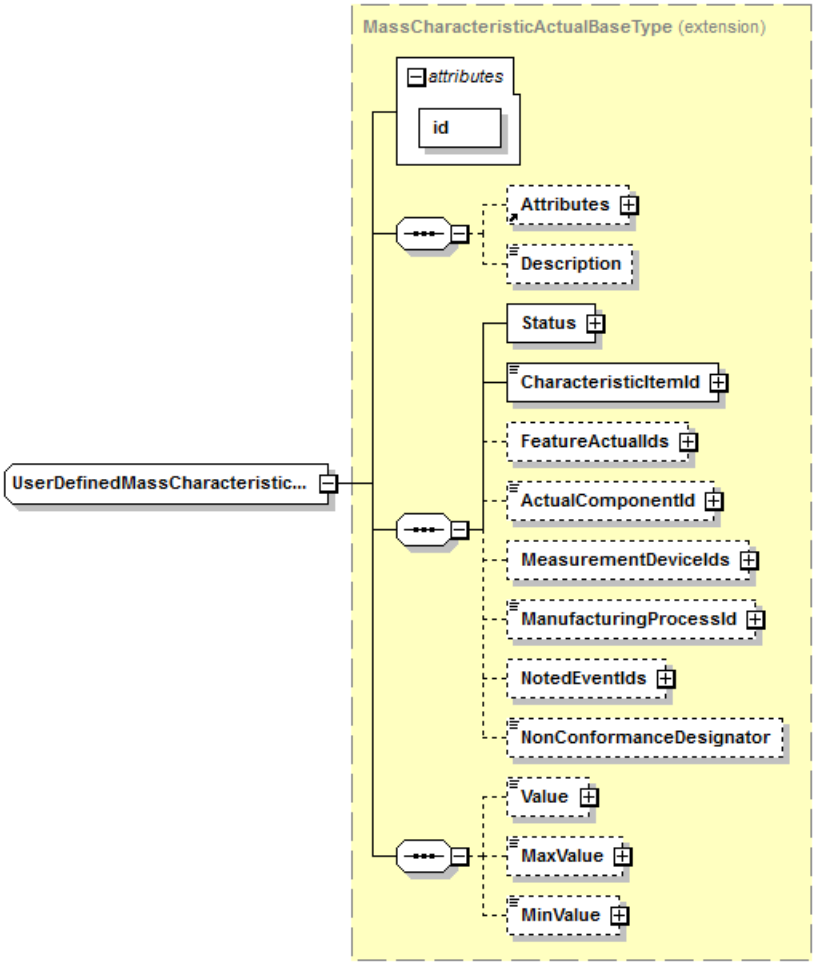
diagram	
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **UserDefinedLinearCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default; Fixed; Annotation: documentation The id attribute is the

	QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedLinearCharacteristicItemType is a characteristic item specified by the user that is measured in linear units. This user defined type is not to be used where an appropriate type already exists. In particular it is not to be used for: angularity, chord, circularity, circular-runout, concentricity, curve-length, cylindricity, depth, diameter, distance-between, distance-from, flatness, height, length, linear-coordinate, line-profile, parallelism, perpendicularity, point-profile, position, radius, square, straightness, surface-profile, surface-texture, symmetry, thickness, total-runout or width.

complexType **UserDefinedLinearCharacteristicNominalType**

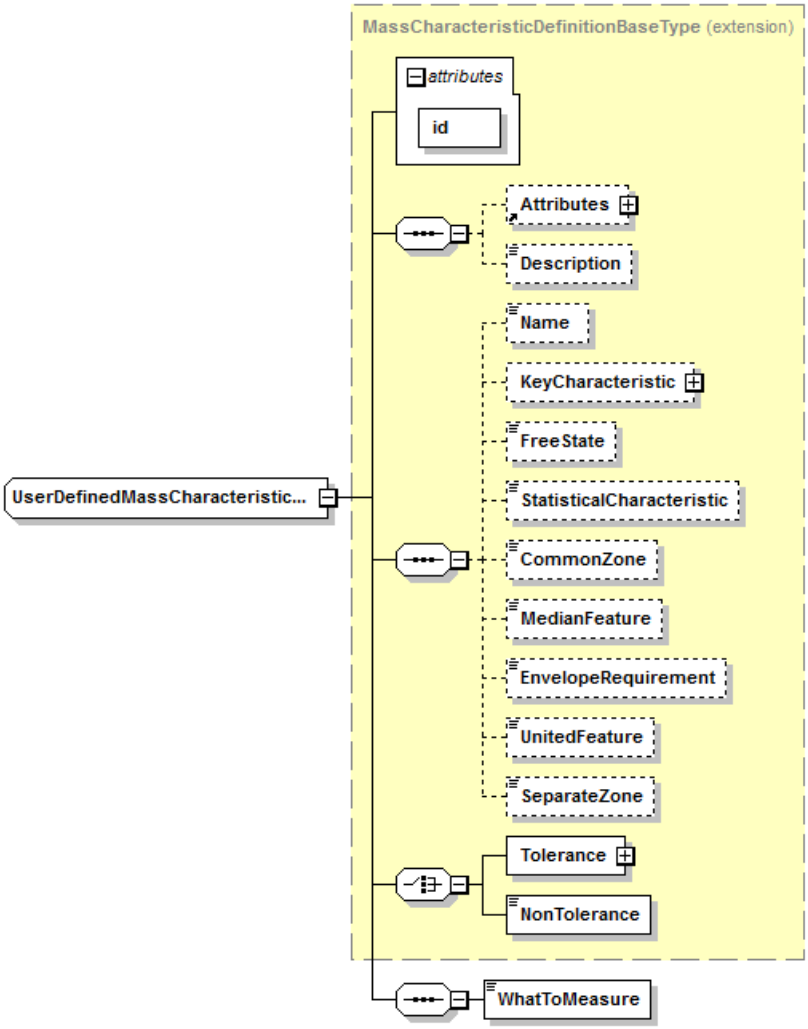
diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes Description CharacteristicDefinitionId FeatureNominalIds EntityInternalIds EntityExternalIds Name KeyCharacteristic TargetValue**
used by	element **UserDefinedLinearCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedLinearCharacteristicNominalType is a characteristic nominal specified by the user that is measured in linear units. This user defined type is not to be used where an appropriate type already exists. In particular it is not to be used for: angularity, chord, circularity, circular-runout, concentricity, curve-length, cylindricity, depth, diameter, distance-between, distance-from, flatness, height, length, linear-coordinate, line-profile, parallelism, perpendicularity, point-profile, position, radius, square, straightness, surface-profile, surface-texture, symmetry, thickness, total-runout or width.

complexType **UserDefinedMassCharacteristicActualType**

diagram	
type	extension of **MassCharacteristicActualBaseType**
properties	base MassCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedMassCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedMassCharacteristicActualType is a characteristic actual specified by the user that is measured in mass units.

complexType **UserDefinedMassCharacteristicDefinitionType**

diagram



type	extension of **MassCharacteristicDefinitionBaseType**
properties	base MassCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedMassCharacteristicDefinition**

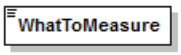
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

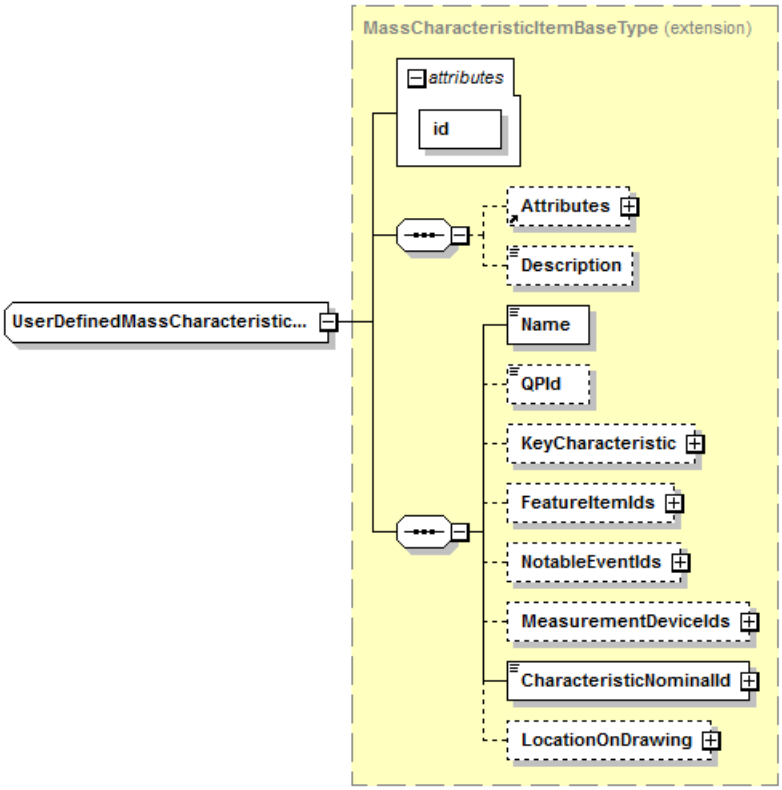
annotation

documentation
The UserDefinedMassCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in mass units.

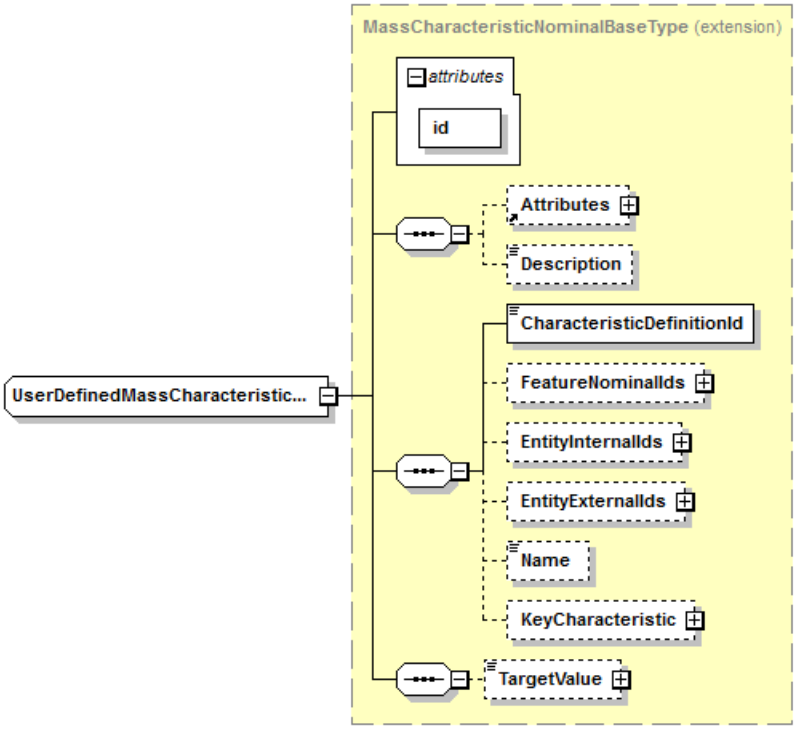
element **UserDefinedMassCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

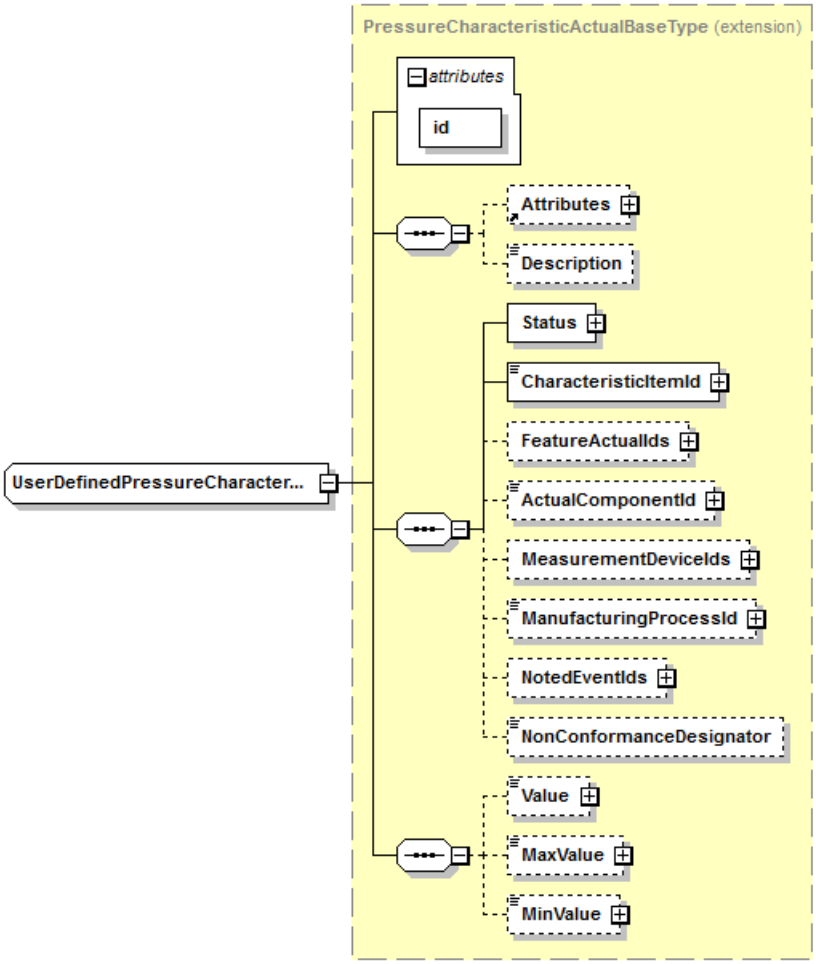
complexType **UserDefinedMassCharacteristicItemType**

diagram	
type	extension of **MassCharacteristicItemBaseType**
properties	base MassCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **UserDefinedMassCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedMassCharacteristicItemType is a characteristic item specified by the user that is measured in mass units.

complexType **UserDefinedMassCharacteristicNominalType**

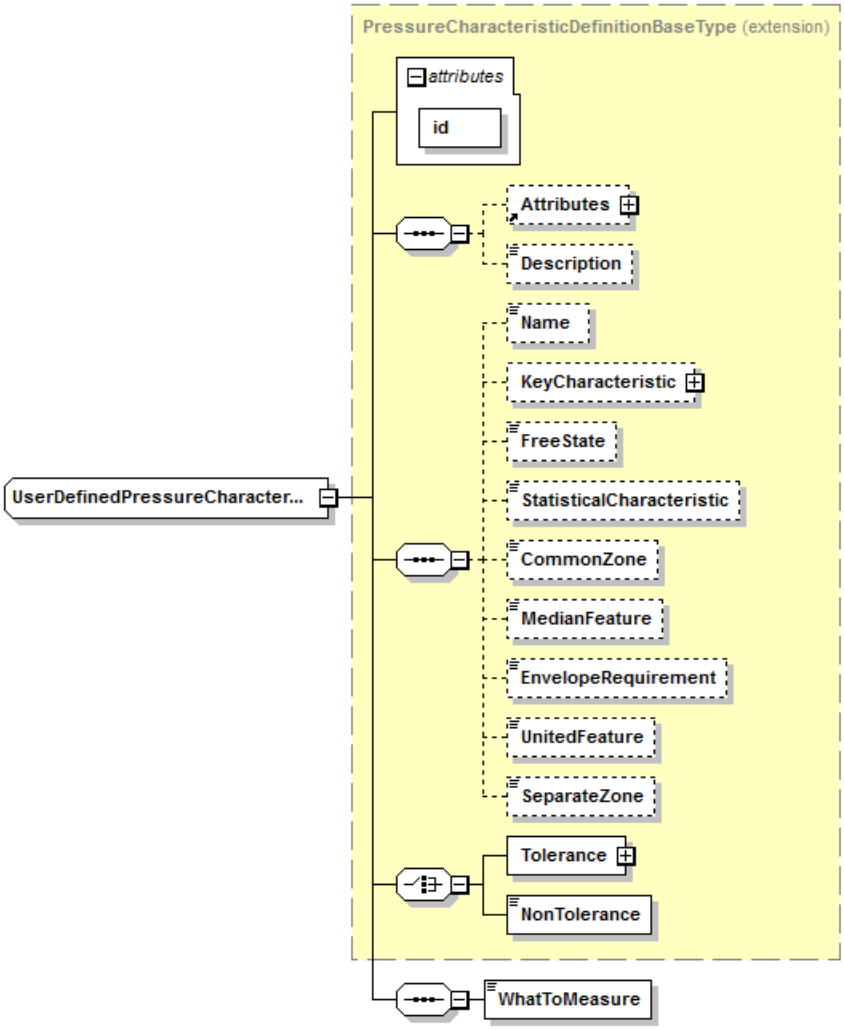
diagram	
type	extension of **MassCharacteristicNominalBaseType**
properties	base MassCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedMassCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedMassCharacteristicNominalType is a characteristic nominal specified by the user that is measured in mass units.

complexType **UserDefinedPressureCharacteristicActualType**

diagram	
type	extension of **PressureCharacteristicActualBaseType**
properties	base PressureCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedPressureCharacteristicActual**
attributes	Name: id Type: **QIFIdType** Use: required Default: Fixed: Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedPressureCharacteristicActualType is a characteristic actual specified by the user that is measured in pressure units.

complexType **UserDefinedPressureCharacteristicDefinitionType**

diagram



type	extension of **PressureCharacteristicDefinitionBaseType**
properties	base PressureCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedPressureCharacteristicDefinition**

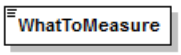
attributes

Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

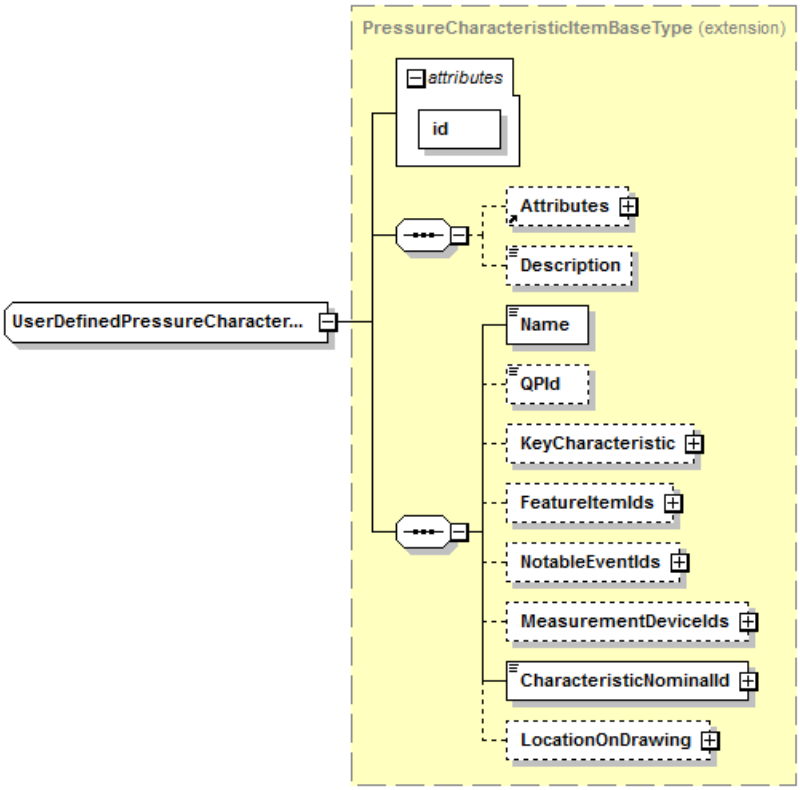
annotation

documentation
The UserDefinedPressureCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in pressure units.

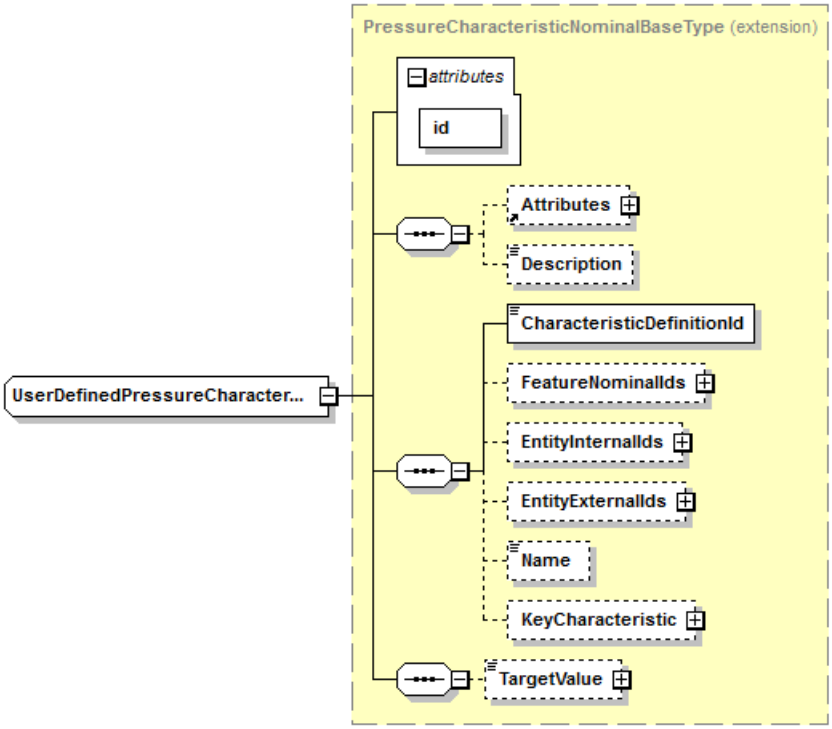
element **UserDefinedPressureCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

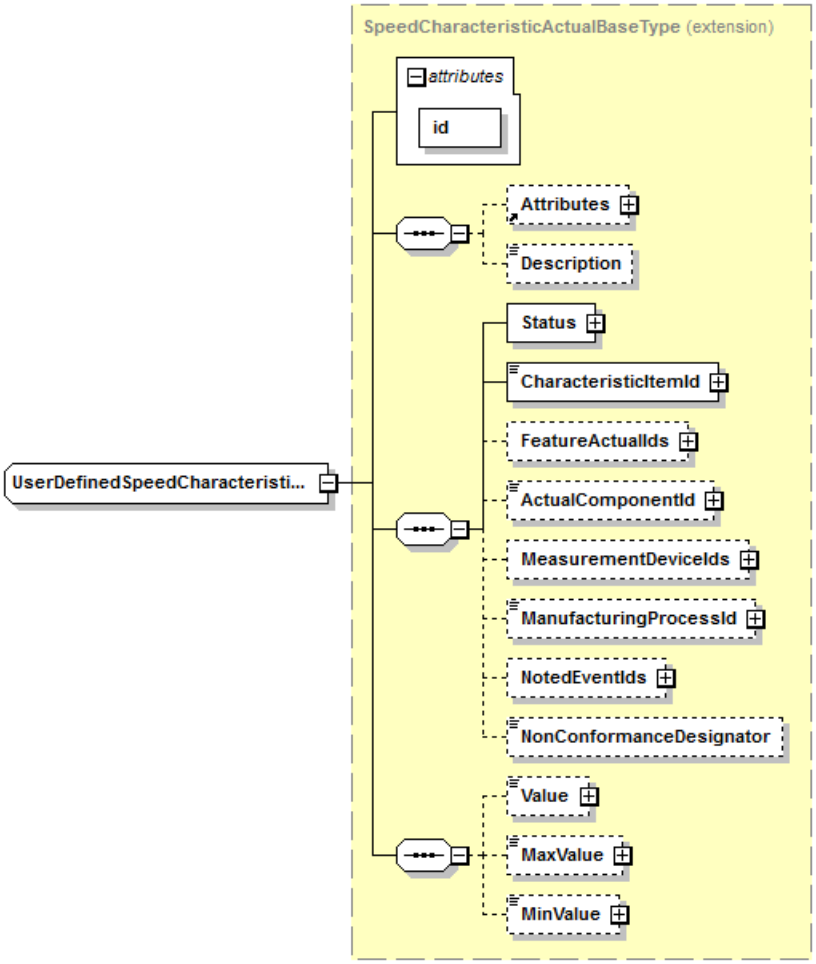
complexType **UserDefinedPressureCharacteristicItemType**

diagram	
type	extension of **PressureCharacteristicItemBaseType**
properties	base PressureCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedPressureCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedPressureCharacteristicItemType is a characteristic item specified by the user that is measured in pressure units.

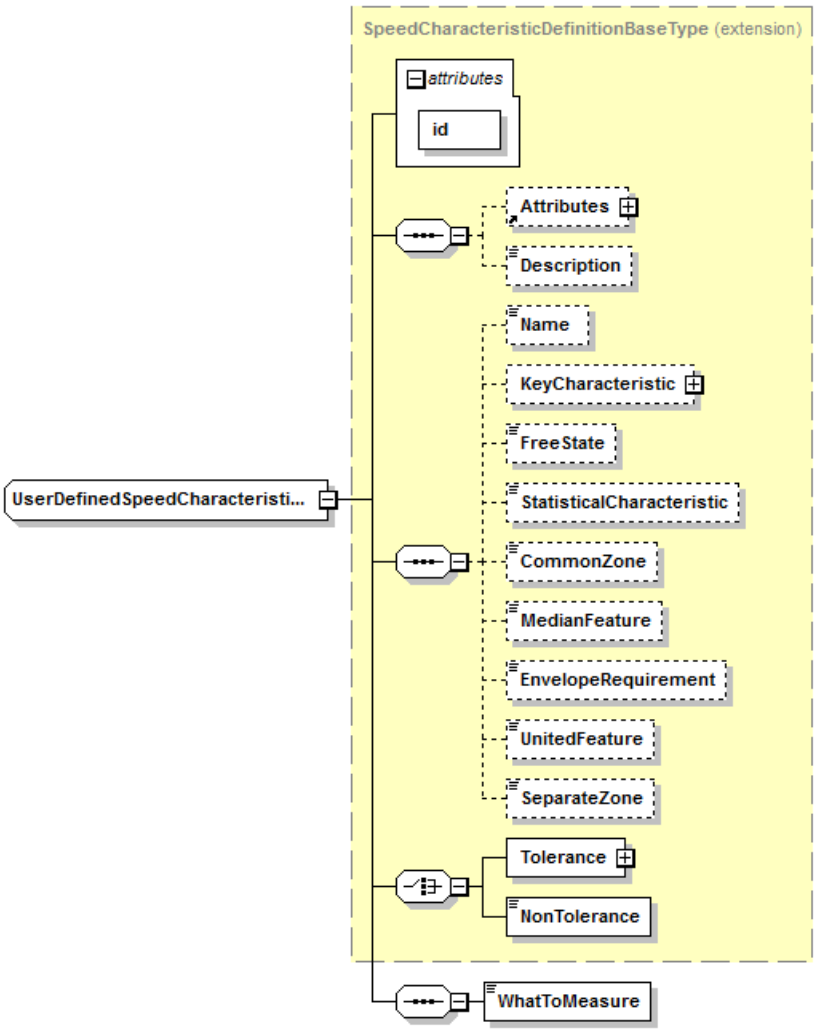
complexType **UserDefinedPressureCharacteristicNominalType**

diagram	
type	extension of **PressureCharacteristicNominalBaseType**
properties	base PressureCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedPressureCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedPressureCharacteristicNominalType is a characteristic nominal specified by the user that is measured in pressure units.

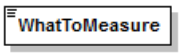
complexType **UserDefinedSpeedCharacteristicActualType**

diagram	
type	extension of **SpeedCharacteristicActualBaseType**
properties	base SpeedCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedSpeedCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedSpeedCharacteristicActualType is a characteristic actual specified by the user that is measured in speed units.

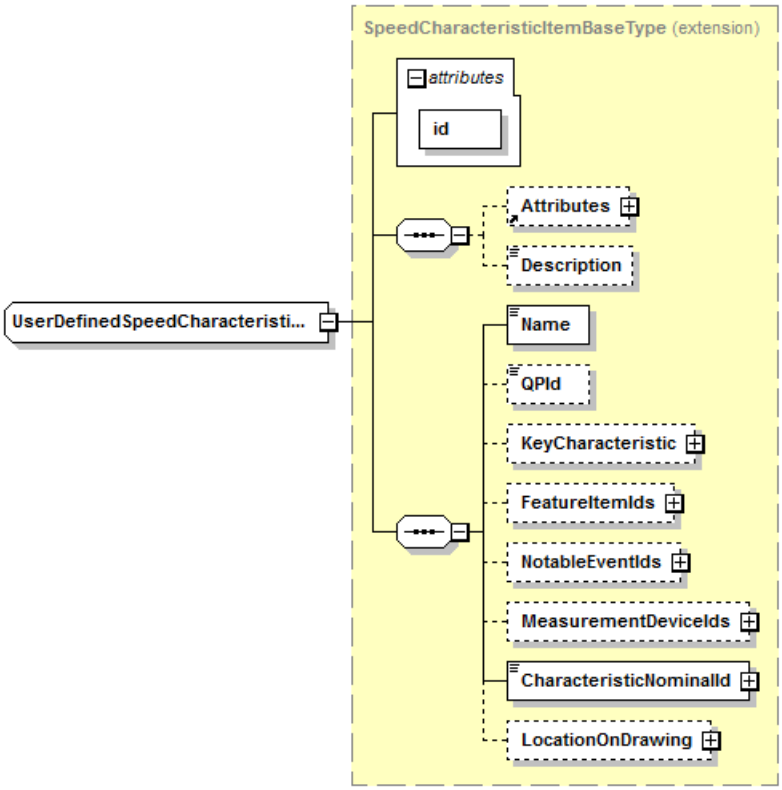
complexType **UserDefinedSpeedCharacteristicDefinitionType**

diagram	
type	extension of **SpeedCharacteristicDefinitionBaseType**
properties	base SpeedCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedSpeedCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedSpeedCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in speed units.

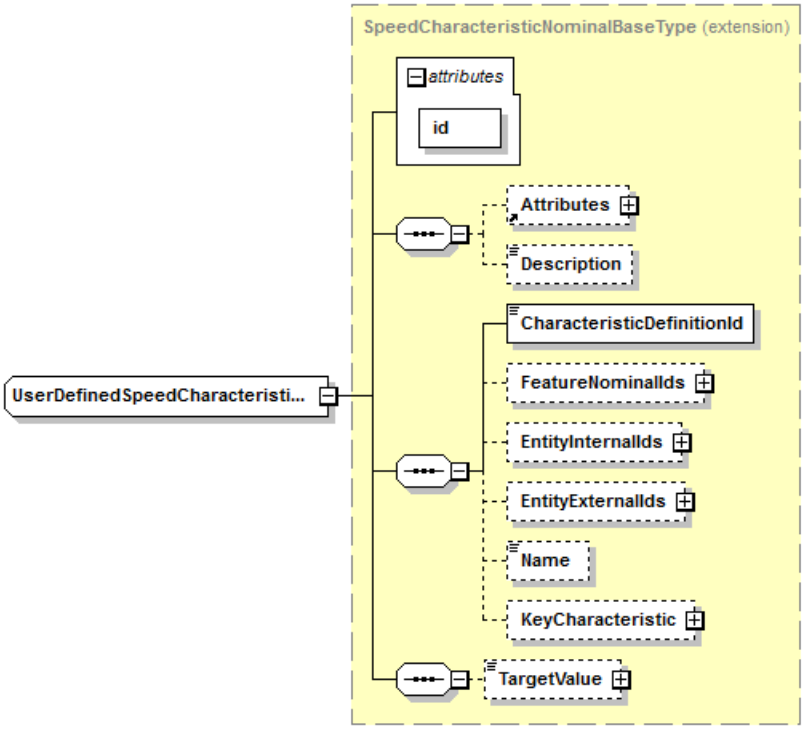
element **UserDefinedSpeedCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

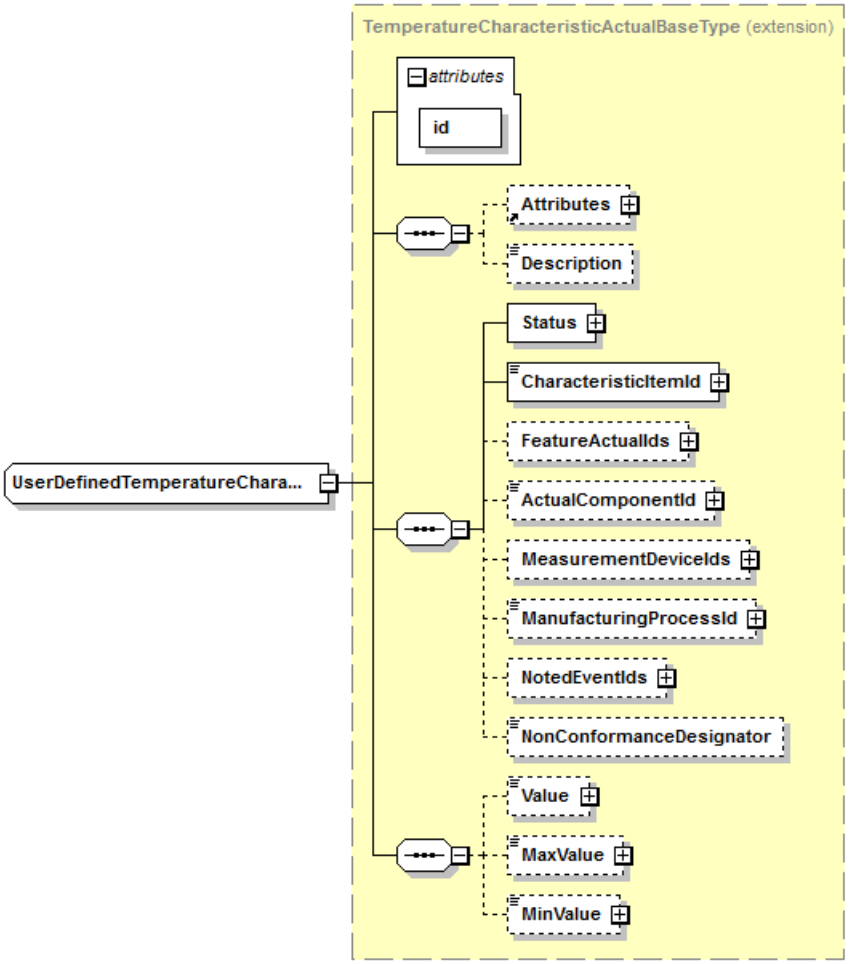
complexType **UserDefinedSpeedCharacteristicItemType**

diagram	
type	extension of **SpeedCharacteristicItemBaseType**
properties	base SpeedCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedSpeedCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedSpeedCharacteristicItemType is a characteristic item specified by the user that is measured in speed units.

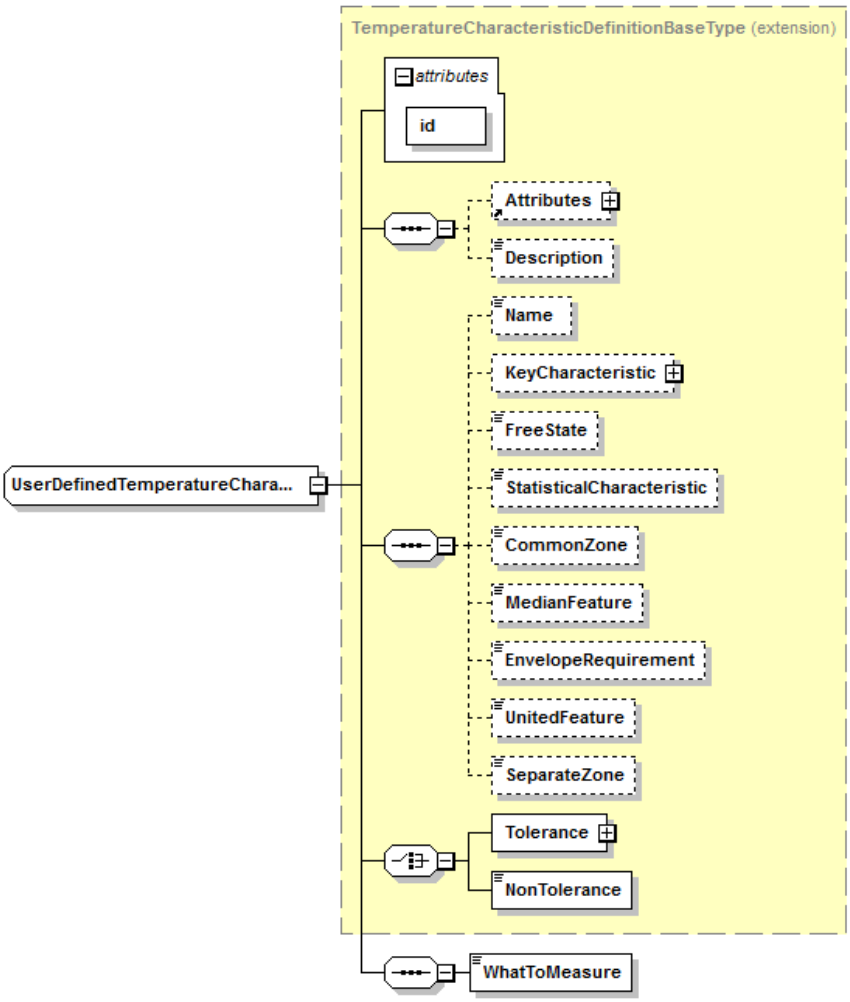
complexType **UserDefinedSpeedCharacteristicNominalType**

diagram	
type	extension of **SpeedCharacteristicNominalBaseType**
properties	base SpeedCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedSpeedCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedSpeedCharacteristicNominalType is a characteristic nominal specified by the user that is measured in speed units.

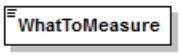
complexType **UserDefinedTemperatureCharacteristicActualType**

diagram	
type	extension of **TemperatureCharacteristicActualBaseType**
properties	base TemperatureCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedTemperatureCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTemperatureCharacteristicActualType is a characteristic actual specified by the user that is measured in temperature units.

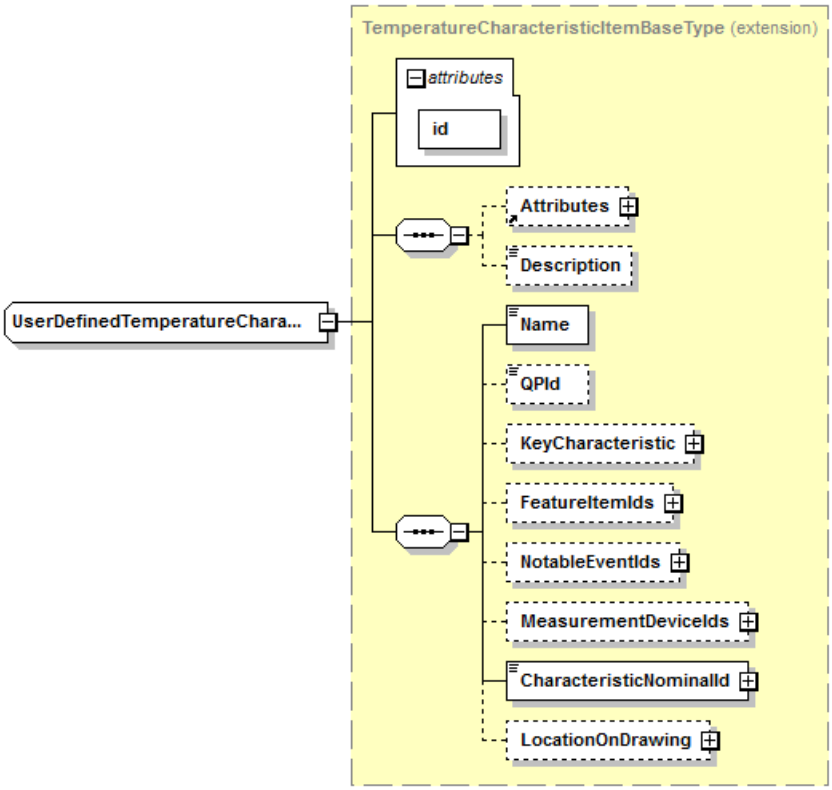
complexType **UserDefinedTemperatureCharacteristicDefinitionType**

diagram	
type	extension of **TemperatureCharacteristicDefinitionBaseType**
properties	base TemperatureCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedTemperatureCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTemperatureCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in temperature units.

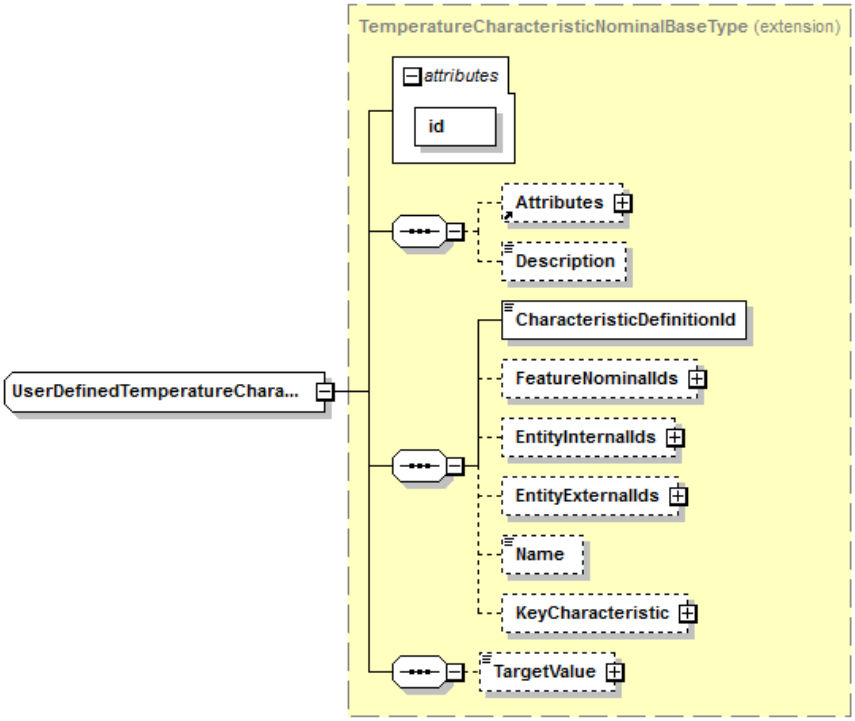
element **UserDefinedTemperatureCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

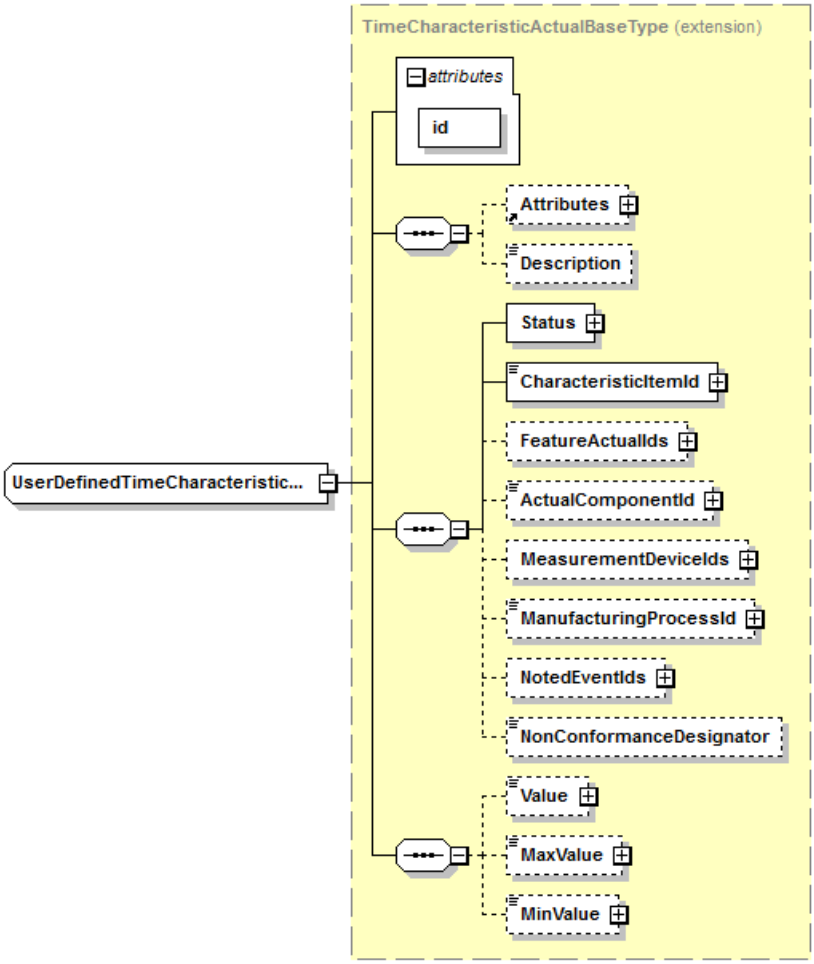
complexType **UserDefinedTemperatureCharacteristicItemType**

diagram	
type	extension of **TemperatureCharacteristicItemBaseType**
properties	base TemperatureCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedTemperatureCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTemperatureCharacteristicItemType is a characteristic item specified by the user that is measured in temperature units.

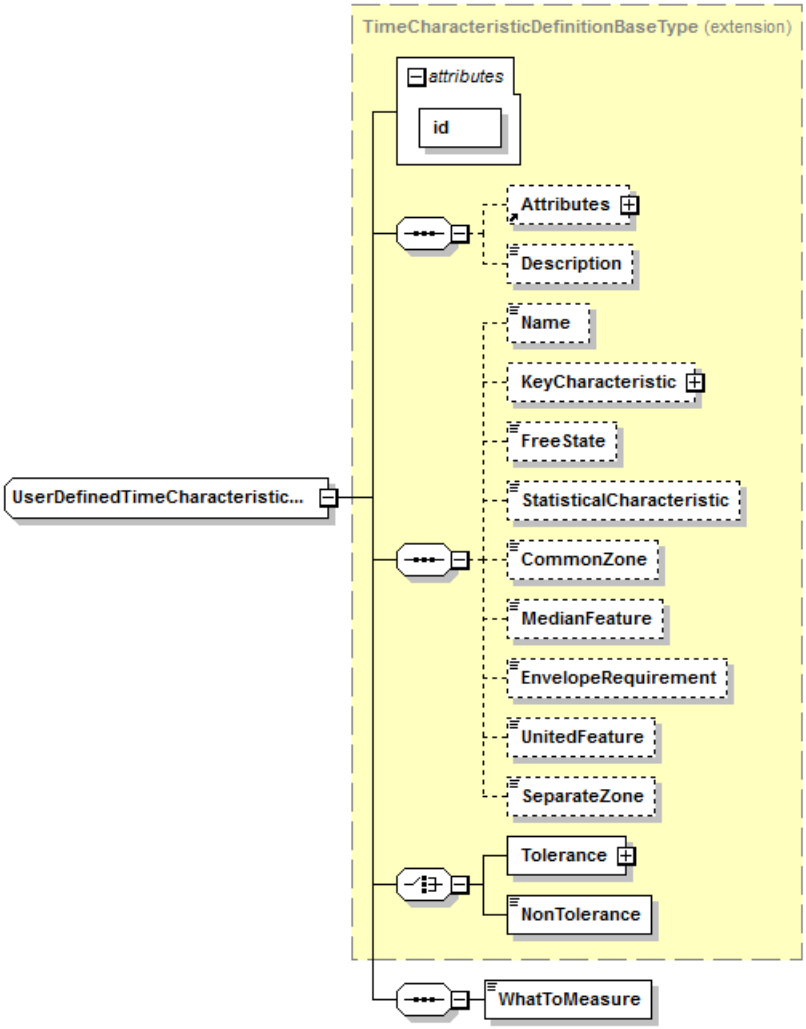
complexType **UserDefinedTemperatureCharacteristicNominalType**

diagram	
type	extension of **TemperatureCharacteristicNominalBaseType**
properties	base TemperatureCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedTemperatureCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTemperatureCharacteristicNominalType is a characteristic nominal specified by the user that is measured in temperature units.

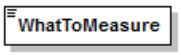
complexType **UserDefinedTimeCharacteristicActualType**

diagram	
type	extension of **TimeCharacteristicActualBaseType**
properties	base TimeCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedTimeCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTimeCharacteristicActualType is a characteristic actual specified by the user that is measured in time units.

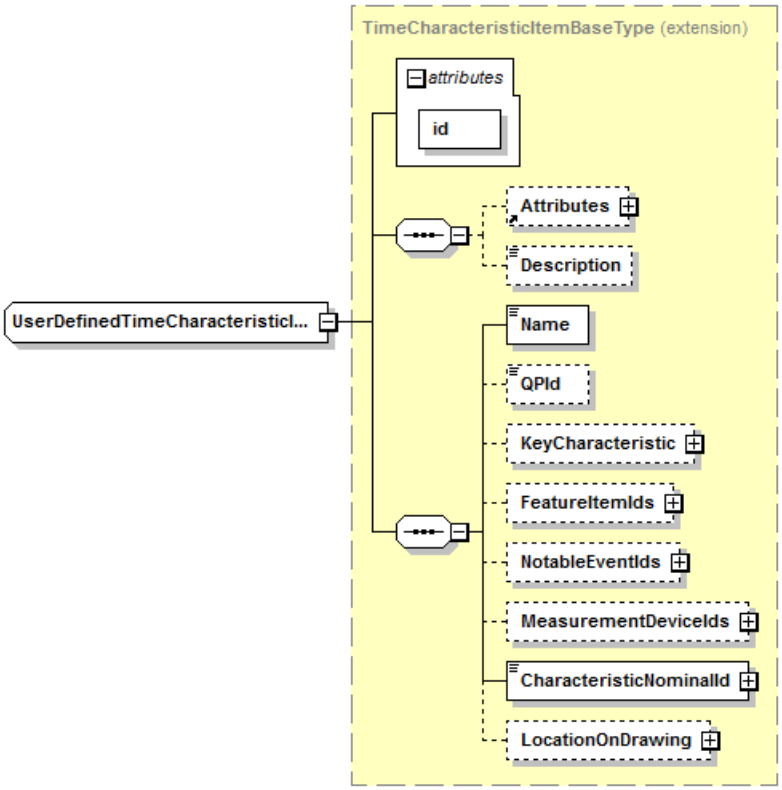
complexType **UserDefinedTimeCharacteristicDefinitionType**

diagram	
type	extension of **TimeCharacteristicDefinitionBaseType**
properties	base TimeCharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone** **Tolerance** **NonTolerance** **WhatToMeasure**
used by	element **UserDefinedTimeCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTimeCharacteristicDefinitionType is a characteristic definition specified by the user that is measured in time units.

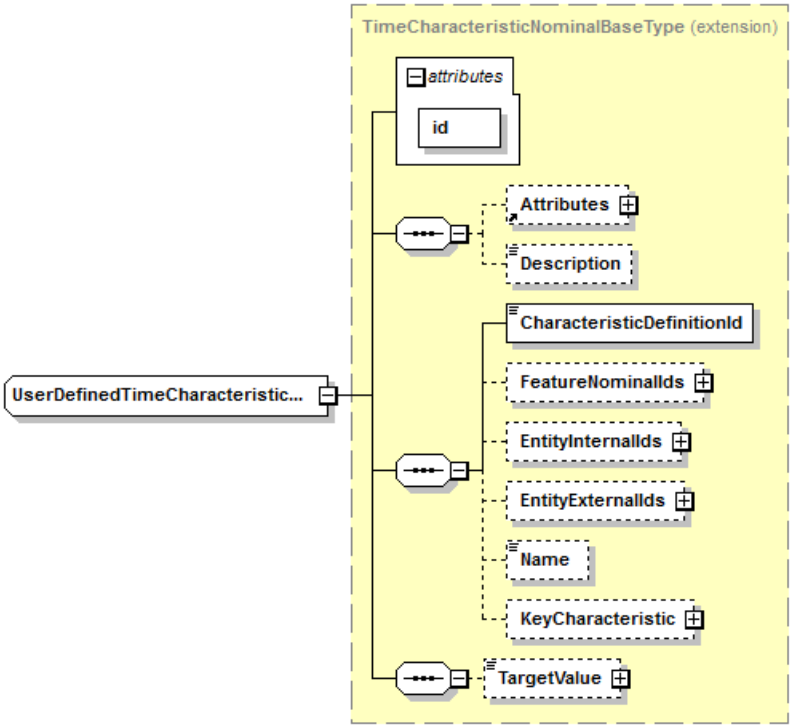
element **UserDefinedTimeCharacteristicDefinitionType/WhatToMeasure**

diagram	
type	**xs:string**
properties	content simple
annotation	documentation The WhatToMeasure element is a description of the characteristic to be measured.

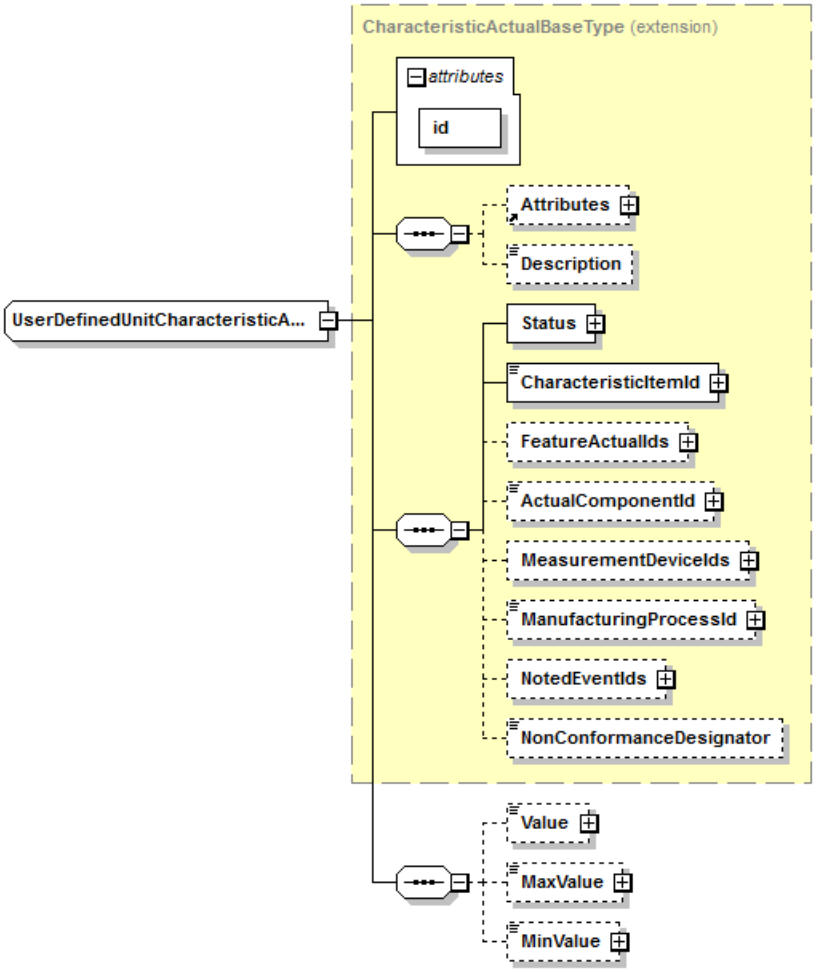
complexType **UserDefinedTimeCharacteristicItemType**

diagram	
type	extension of **TimeCharacteristicItemBaseType**
properties	base TimeCharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedTimeCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTimeCharacteristicItemType is a characteristic item specified by the user that is measured in time units.

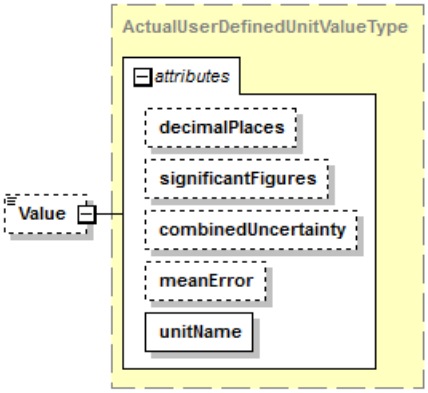
complexType **UserDefinedTimeCharacteristicNominalType**

diagram	
type	extension of **TimeCharacteristicNominalBaseType**
properties	base TimeCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **UserDefinedTimeCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedTimeCharacteristicNominalType is a characteristic nominal specified by the user that is measured in time units.

complexType **UserDefinedUnitCharacteristicActualType**

diagram	
type	extension of **CharacteristicActualBaseType**
properties	base CharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**
used by	element **UserDefinedUnitCharacteristicActual**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedUnitCharacteristicActualType defines the results of an actual user-defined characteristic evaluation that is specific to an application and has a numerical value and units that are not available in another user-defined characteristic type. In particular this type is not to be used to define the actual for characteristics with linear units, angular units, or units of temperature, area, force, mass, pressure, speed, or time.

element **UserDefinedUnitCharacteristicActualType/Value**

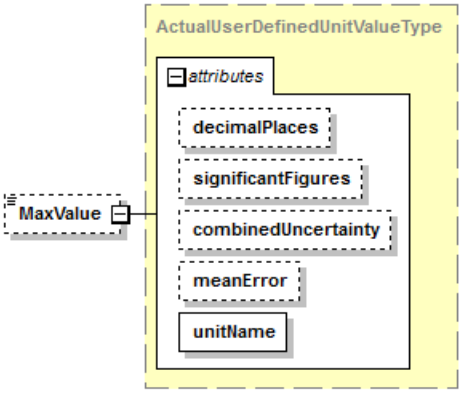
diagram	
type	**ActualUserDefinedUnitValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
unitName	**xs:token**	required			documentation The (required) UnitName attribute is the unit name for the UserDefinedUnitValueType.

annotation	documentation The optional Value element is the actual value of the characteristic.

element **UserDefinedUnitCharacteristicActualType/MaxValue**

diagram



type **ActualUserDefinedUnitValueType**

properties

minOcc	0
maxOcc	1
content	complex

attributes

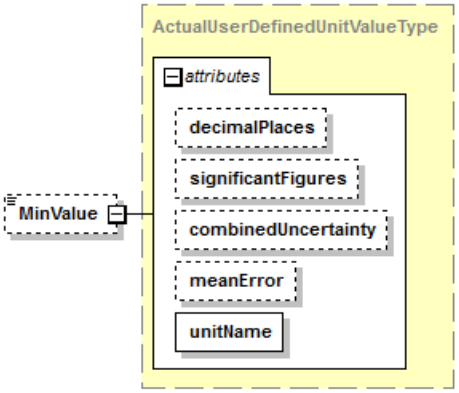
Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
unitName	**xs:token**	required			documentation The (required) UnitName attribute is the unit name for the UserDefinedUnitValueType.

annotation

documentation
The optional MaxValue element is the maximum of the actual measured value when reported.

element **UserDefinedUnitCharacteristicActualType/MinValue**

diagram



type **ActualUserDefinedUnitValueType**

properties

minOcc	0
maxOcc	1
content	complex

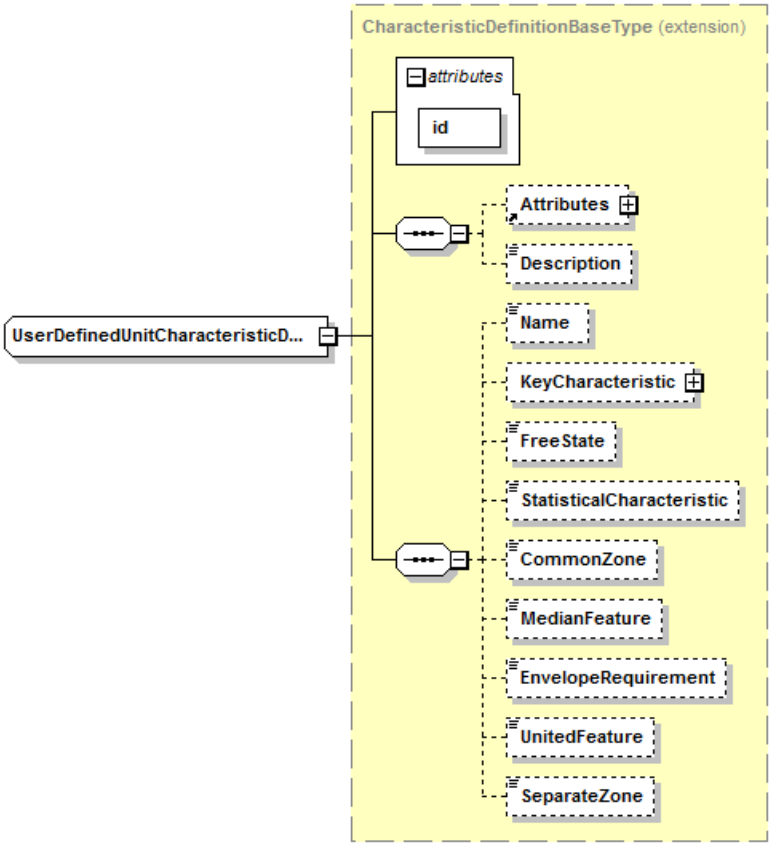
attributes

Name	Type	Use	Default	Fixed	Annotation
decimalPlaces	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
significantFigures	**xs:nonNegativeInteger**				documentation See documentation of SpecifiedDecimalType.
combinedUncertainty	**NonNegativeDecimalType**				documentation The optional combinedUncertainty attribute is a value expressing the combined uncertainty assigned to the SpecifiedDecimalType.
meanError	**NonNegativeDecimalType**				documentation The optional meanError attribute is a value expressing the mean error assigned to the SpecifiedDecimalType.
unitName	**xs:token**	required			documentation The (required) UnitName attribute is the unit name for the UserDefinedUnitValueType.

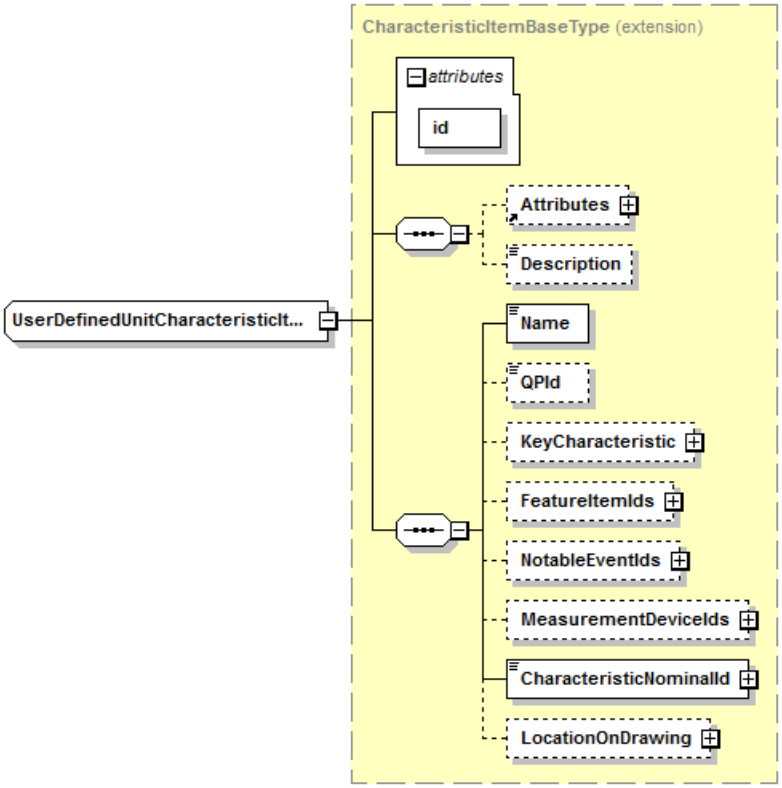
annotation

documentation
The optional MinValue element is the minimum of the actual measured value when reported.

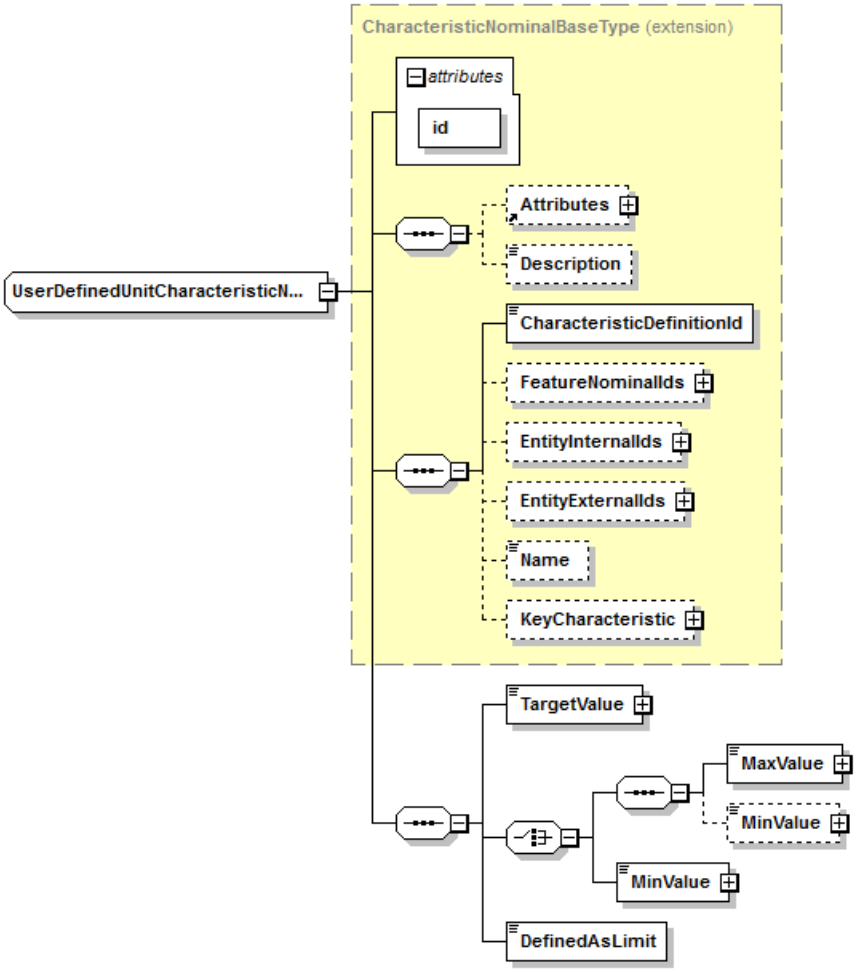
complexType **UserDefinedUnitCharacteristicDefinitionType**

diagram	
type	extension of **CharacteristicDefinitionBaseType**
properties	base CharacteristicDefinitionBaseType
children	**Attributes** **Description** **Name** **KeyCharacteristic** **FreeState** **StatisticalCharacteristic** **CommonZone** **MedianFeature** **EnvelopeRequirement** **UnitedFeature** **SeparateZone**
used by	element **UserDefinedUnitCharacteristicDefinition**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedUnitCharacteristicDefinitionType defines user-defined numerical characteristics that are specific to an application and have numerical values and units that are not available in another user-defined characteristic type. In particular this type is not to be used to define characteristics with linear units, angular units, or units of temperature, area, force, mass, pressure, speed, or time. The information can be common to more than one user-defined characteristic.

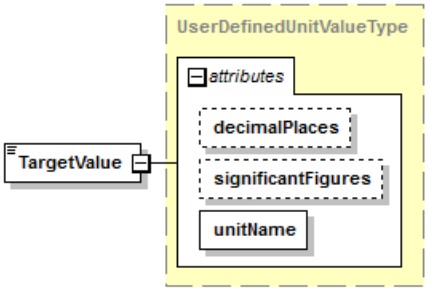
complexType **UserDefinedUnitCharacteristicItemType**

diagram	
type	extension of **CharacteristicItemBaseType**
properties	base CharacteristicItemBaseType
children	**Attributes** **Description** **Name** **QPId** **KeyCharacteristic** **FeatureItemIds** **NotableEventIds** **MeasurementDeviceIds** **CharacteristicNominalId** **LocationOnDrawing**
used by	element **UserDefinedUnitCharacteristicItem**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedUnitCharacteristicItemType defines a user-defined numerical characteristic item that is specific to an application and has numerical values and units that are not available in another user-defined characteristic type. In particular this type is not to be used to define characteristics with linear units, angular units, or units of temperature, area, force, mass, pressure, speed, or time.

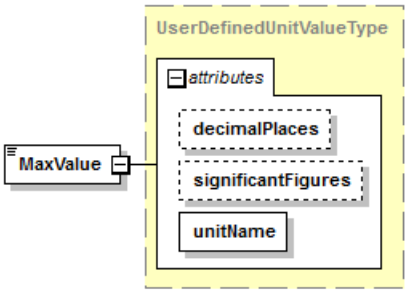
complexType **UserDefinedUnitCharacteristicNominalType**

diagram	
type	extension of **CharacteristicNominalBaseType**
properties	base CharacteristicNominalBaseType
children	**Attributes Description CharacteristicDefinitionId FeatureNominalIds EntityInternalIds EntityExternalIds Name KeyCharacteristic TargetValue MaxValue MinValue MinValue DefinedAsLimit**
used by	element **UserDefinedUnitCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation: The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The UserDefinedUnitCharacteristicNominalType defines a unique user-defined characteristic nominal for a numerical characteristic that is specific to an application and has a numerical value and units that are not available in another user-defined characteristic type. In particular this type is not to be used to define the nominal for characteristics with linear units, angular units, or units of temperature, area, force, mass, pressure, speed, or time.

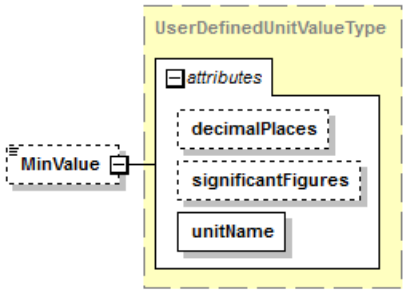
element **UserDefinedUnitCharacteristicNominalType/TargetValue**

diagram	
type	**UserDefinedUnitValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. unitName **xs:token** required — documentation: The (required) UnitName attribute is the unit name for the UserDefinedUnitValueType.
annotation	documentation The TargetValue element is the nominal value of the characteristic.

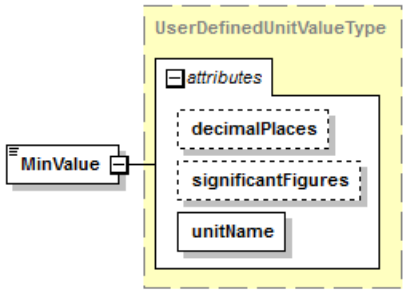
element **UserDefinedUnitCharacteristicNominalType/MaxValue**

diagram	
type	**UserDefinedUnitValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. unitName **xs:token** required — documentation: The (required) UnitName attribute is the unit name for the UserDefinedUnitValueType.
annotation	documentation The MaxValue element is the maximum specification limit or upper tolerance.

element **UserDefinedUnitCharacteristicNominalType/MinValue**

diagram	
type	**UserDefinedUnitValueType**
properties	minOcc 0 maxOcc 1 content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. unitName **xs:token** required — documentation: The (required) UnitName attribute is the unit name for the UserDefinedUnitValueType.
annotation	documentation The optional MinValue element is the minimum specification limit or lower tolerance.

element **UserDefinedUnitCharacteristicNominalType/MinValue**

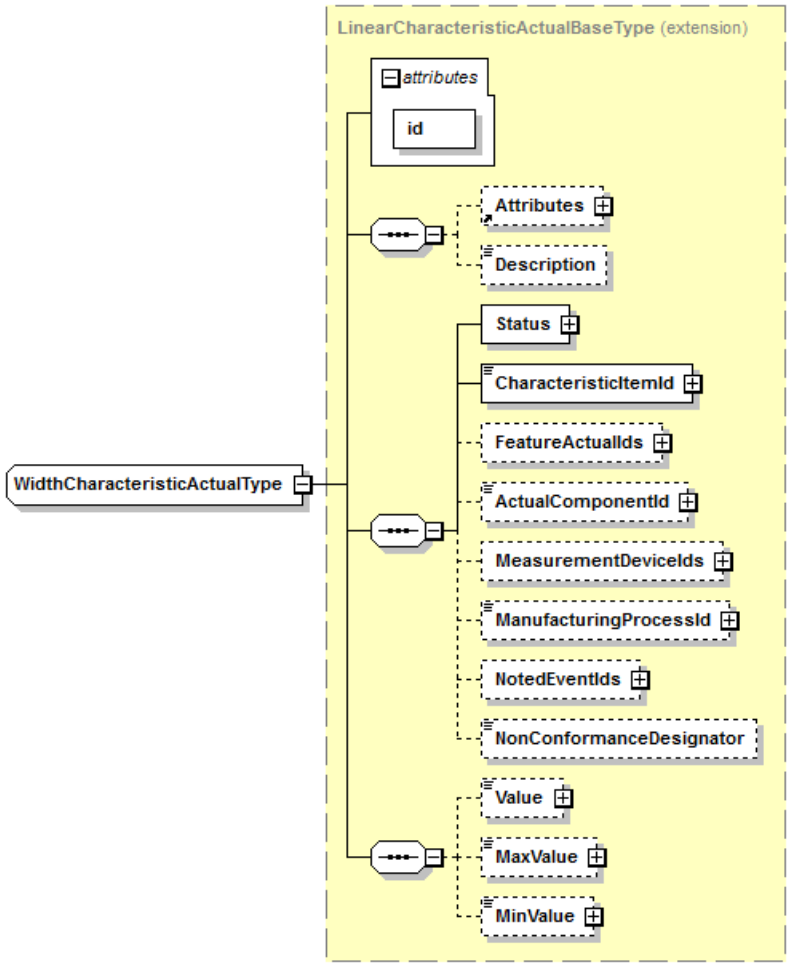
diagram	
type	**UserDefinedUnitValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** — documentation: See documentation of SpecifiedDecimalType. unitName **xs:token** required — documentation: The (required) UnitName attribute is the unit name for the

	UserDefinedUnitValueType.
annotation	documentation The MinValue element is the minimum specification limit or lower tolerance.

element **UserDefinedUnitCharacteristicNominalType/DefinedAsLimit**

diagram	DefinedAsLimit
type	**xs:boolean**
properties	content simple
annotation	documentation The DefinedAsLimit element specifies whether the MinValue and MaxValue represent actual values ("true") or upper and lower tolerances ("false"), respectively. Also when DefinedAsLimit is "false", the MaxValue and MinValue may be negative.

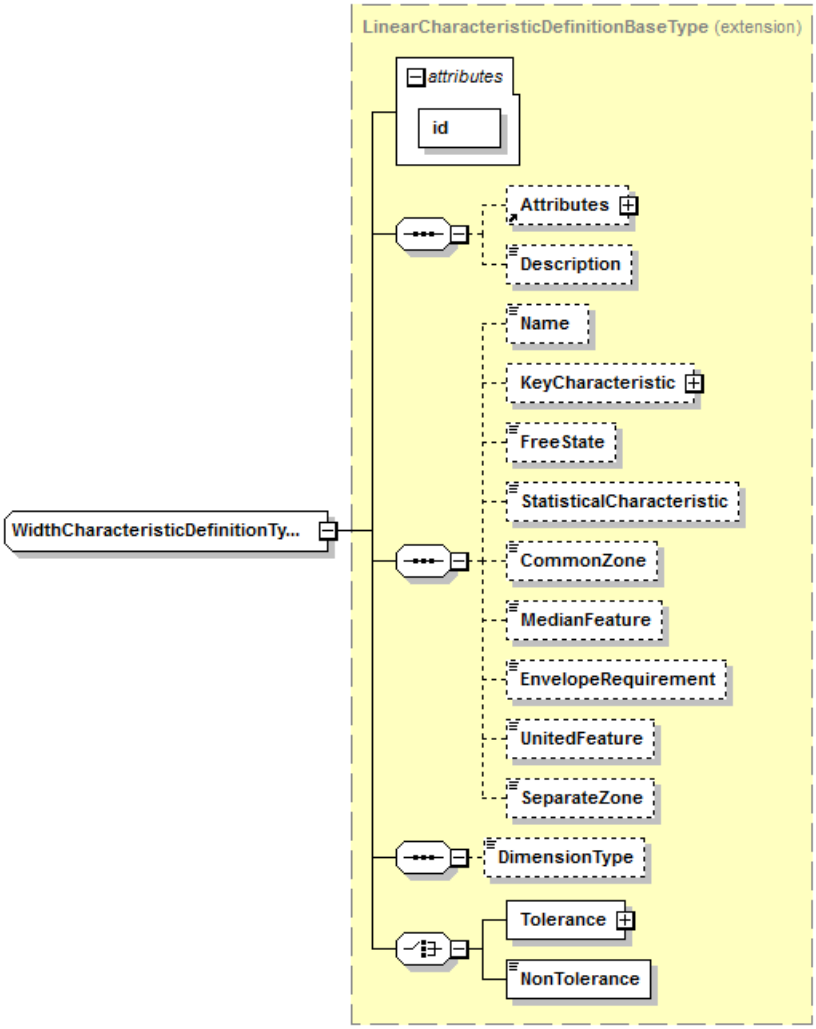
complexType **WidthCharacteristicActualType**

diagram	
type	extension of **LinearCharacteristicActualBaseType**
properties	base LinearCharacteristicActualBaseType
children	**Attributes** **Description** **Status** **CharacteristicItemId** **FeatureActualIds** **ActualComponentId** **MeasurementDeviceIds** **ManufacturingProcessId** **NotedEventIds** **NonConformanceDesignator** **Value** **MaxValue** **MinValue**

used by	element **WidthCharacteristicActual**					
attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The WidthCharacteristicActualType defines the results of an actual width characteristic evaluation.					

complexType **WidthCharacteristicDefinitionType**

diagram

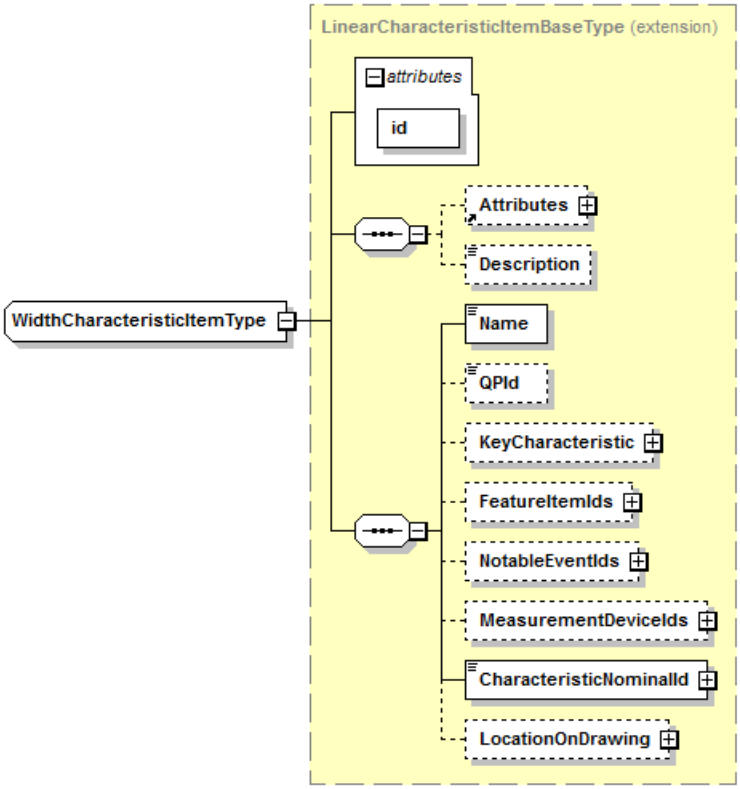


type	extension of **LinearCharacteristicDefinitionBaseType**					
properties	base LinearCharacteristicDefinitionBaseType					
children	**Attributes Description Name KeyCharacteristic FreeState StatisticalCharacteristic CommonZone MedianFeature EnvelopeRequirement UnitedFeature SeparateZone DimensionType Tolerance NonTolerance**					
used by	element **WidthCharacteristicDefinition**					
attributes	Name	Type	Use	Default	Fixed	Annotation

	id	**QIFIdType**	required	documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The WidthCharacteristicDefinitionType defines information that can be common to more than one width characteristic.			

complexType **WidthCharacteristicItemType**

diagram



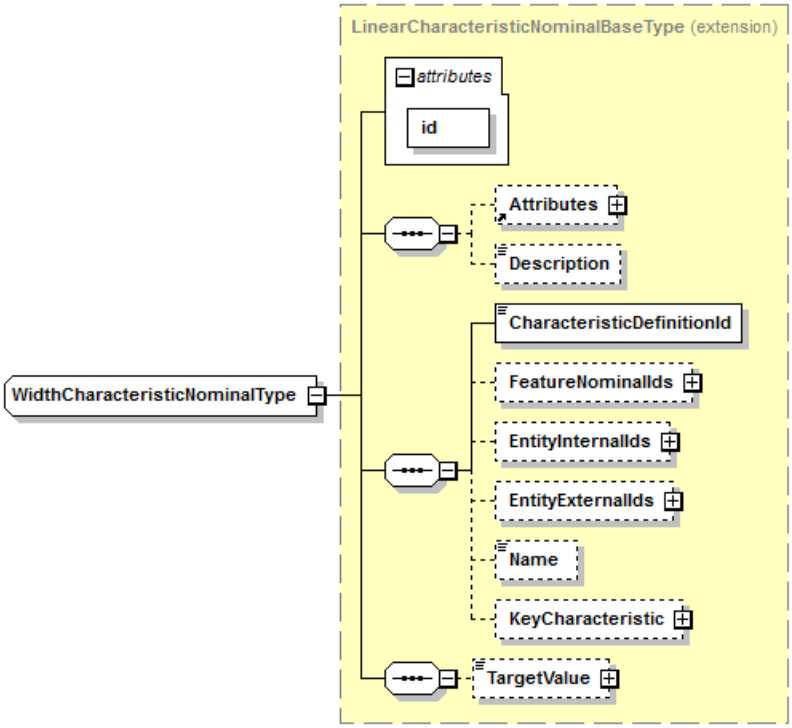
type	extension of **LinearCharacteristicItemBaseType**
properties	base LinearCharacteristicItemBaseType
children	**Attributes Description Name QPId KeyCharacteristic FeatureItemIds NotableEventIds MeasurementDeviceIds CharacteristicNominalId LocationOnDrawing**
used by	element **WidthCharacteristicItem**

attributes

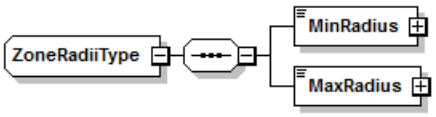
Name	Type	Use	Default	Fixed	Annotation
id	**QIFIdType**	required			documentation The id attribute is the QIF id of the characteristic, used for referencing.

annotation	documentation The WidthCharacteristicItemType defines a width characteristic item.

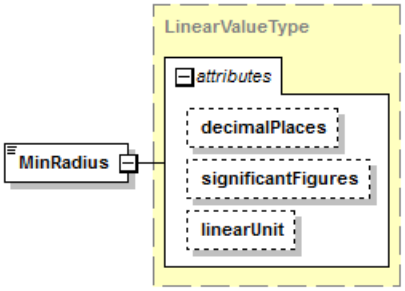
complexType **WidthCharacteristicNominalType**

diagram	
type	extension of **LinearCharacteristicNominalBaseType**
properties	base LinearCharacteristicNominalBaseType
children	**Attributes** **Description** **CharacteristicDefinitionId** **FeatureNominalIds** **EntityInternalIds** **EntityExternalIds** **Name** **KeyCharacteristic** **TargetValue**
used by	element **WidthCharacteristicNominal**
attributes	Name: id; Type: **QIFIdType**; Use: required; Default: ; Fixed: ; Annotation: documentation The id attribute is the QIF id of the characteristic, used for referencing.
annotation	documentation The WidthCharacteristicNominalType defines a unique width characteristic nominal.

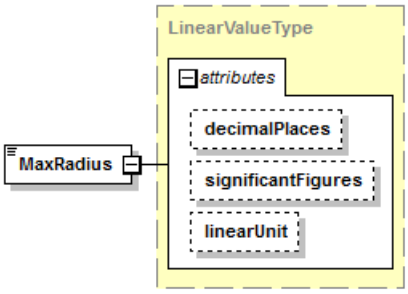
complexType **ZoneRadiiType**

diagram	
children	**MinRadius** **MaxRadius**
annotation	documentation The ZoneRadiiType defines the radial size limits of an actual tolerance zone evaluation.

element **ZoneRadiiType/MinRadius**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The MinRadius element is the minimum radius of the evaluated tolerance zone.

element **ZoneRadiiType/MaxRadius**

diagram	
type	**LinearValueType**
properties	content complex
attributes	Name / Type / Use / Default / Fixed / Annotation decimalPlaces **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. significantFigures **xs:nonNegativeInteger** documentation See documentation of SpecifiedDecimalType. linearUnit **xs:token** documentation The optional linearUnit attribute defines the UnitName for the LinearValueType.
annotation	documentation The MaxRadius element is the maximum radius of the evaluated tolerance zone.

simpleType **CharacteristicStatusEnumType**

type	restriction of **xs:NMTOKEN**
properties	base xs:NMTOKEN
used by	element **CharacteristicStatusType/CharacteristicStatusEnum**
facets	Kind / Value / Annotation enumeration PASS enumeration FAIL enumeration REWORK enumeration SYSERROR enumeration INDETERMINATE enumeration NOT_ANALYZED enumeration BASIC enumeration UNDEFINED
annotation	documentation The CharacteristicStatusEnumType enumerates values that describe the status of a characteristic: in conformance PASS, out of conformance FAIL, or several other possible statuses.

simpleType **ExtentEnumType**

type	restriction of **xs:NMTOKEN**
properties	base xs:NMTOKEN
used by	element **ExtentType/ExtentEnum**
facets	Kind / Value / Annotation enumeration ALLOVER enumeration ALLAROUND enumeration ALLOVERTHISSIDE enumeration ALLAROUNDTHISSIDE enumeration UNDEFINED
annotation	documentation The ExtentEnumType enumerates values that describe the extent over which a characteristic is applied. documentation ASME Y14.9 - 1994 - S 6.5.2

