

Description of 7C7 Message

PIP[®] 7C7

Validated 11.10.00

| Specification Information | |
|----------------------------------|--------------------------------------|
| Name | Description of 7C7 Message |
| PIP | Notify of Semiconductor Test Data |
| Cluster | Manufacturing |
| Segment | Distribute Manufacturing Information |
| Publication Date | 16 October 2006 |
| Version Identifier | V11.10 |

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1. Document Management

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1.4 Acknowledgments

This document has been prepared by RosettaNet (<http://www.rosettanet.org/>) from requirements gathered during the Milestone Program and in conformance with the methodology. Listed below are the legal entities that contributed to the design and development of this PIP.

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| International Business Machines | National Semiconductor |
| NEC | ST Microelectronics |
| Taiwan Semiconductor Manufacturing Corp. | Texas Instruments (TI) |

1.5 Related Documents

- Associated PIP Message Schemas (included with PIP Specification only)
- Description of Partner Interface Process for 7C7
- Message Structure

1.6 Document Version History

| <u>Version</u> | <u>Date</u> | <u>Description</u> |
|--------------------|-------------|--------------------|
| Validated 11.10.00 | 16 Oct 2006 | Validated Version |

1.7 Document Purpose

The purpose of the document is to explain the structure, the association between objects, the content of objects and the definition for single elements to a non-technical audience.

2.1.2 Dependency Diagram

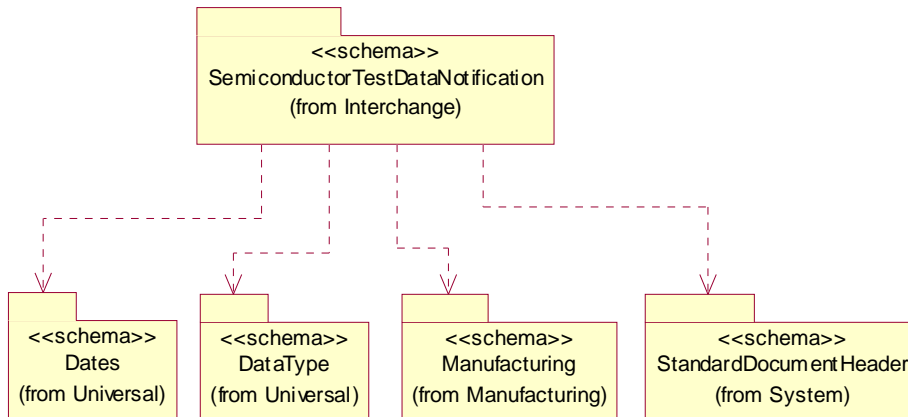


Figure 2-2 Dependency

2.1.3 BALocation

Describes where the wafer was sent for bond and assembly.

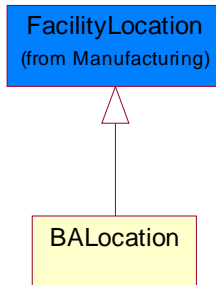


Figure 2-3 BALocation

2.1.4 CalcFailReport

A report that catalogs failing calculations that may be performed in determining the result of a test.

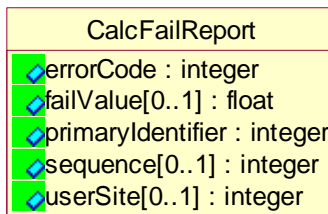


Figure 2-4 CalcFailReport

| Attribute | Type | Documentation |
|-----------------|---------|---|
| errorCode | integer | A user defined code for how the calculation failed. |
| failValue[0..1] | float | The resultant failed value from the calculation test. |
| primaryIdentifi | integer | A reference back to TestSpecificationReport. This |

| | | |
|----------------|---------|--|
| er | | identifier references the electrical attributes only once per lot. |
| sequence[0..1] | integer | An index indicating at which step of the calculation that it failed. |
| userSite[0..1] | integer | A user-defined die coordinate represented as an integer which is often associated with the serial number assigned by the tester or prober executive. |

2.1.5 Die

Reference optional data attributes to identify die on a wafer.

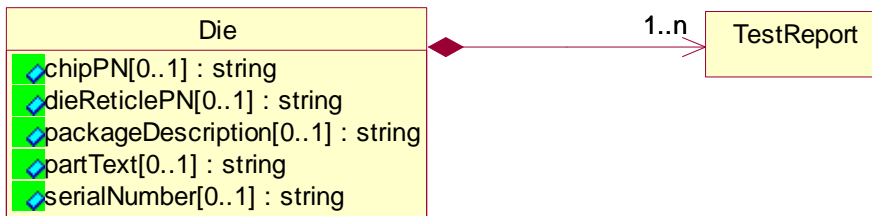


Figure 2-5 Die

| Attribute | Type | Documentation |
|--------------------------|--------|---|
| chipPN[0..1] | string | A string that describes the part number for the device. |
| dieReticlePN[0..1] | string | A string which defines the unique part numbers for die associated with a multi-project wafer. |
| packageDescription[0..1] | string | User definable element for package size (default=mm), package type (string), and pin count (Integer). |
| partText[0..1] | string | String. A user defined comment field to attach additional die information. |
| serialNumber[0..1] | string | An alphanumeric string that uniquely defines the numbering of packaged die. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------------|---|
| TestReport | 1..n | TestReport | The common report for non-pin data collected at PCM, Wafer Sort and Final Test. |

2.1.6 DieReport

References optional information to further identify a die on a wafer.

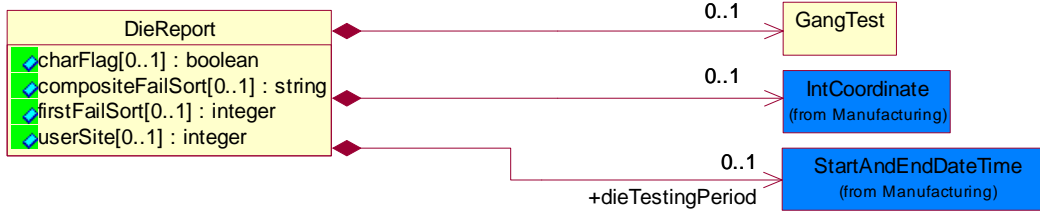


Figure 2-6 DieReport

| Attribute | Type | Documentation |
|-------------------------|---------|--|
| charFlag[0..1] | boolean | Used as a indicator for the presence of characterization data for a die. |
| compositeFailSort[0..1] | string | A user initiated failure override of first fail sort to allow for the collection of additional sort fail data. The additional sort fails can be combined in a comma separated list of sort numbers as a composite fail. The compositeFailSort describes the content of the data in the sortID tag. |
| firstFailSort[0..1] | integer | Described the sort ID for the first fail on the device. See content of data in sortID tag . |
| userSite[0..1] | integer | A user-defined die coordinate represented as an integer which is often associated with the serial number assigned by the tester or prober executive. |

| Composition | Cardinality | Type | Documentation |
|------------------|-------------|-------------------------|---|
| IntCoordinate | 0..1 | IntCoordinate | X, Y and Z Coordinate values. |
| GangTest | 0..1 | GangTest | Describes the test results for a group of die or packaged units, as in strip testing. |
| dieTestingPeriod | 0..1 | StartAndEndDateTim e | Defines the start and end time for a die being tested. |

2.1.7 FabLocation

Describes where the wafer was fabricated.

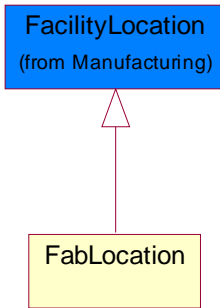


Figure 2-7 FabLocation

2.1.8 FinalTest

A test for packaged product that determines that the die functions and performs to the specification. This test also includes parametric and quality sort data.

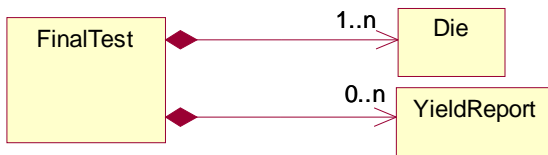


Figure 2-8 FinalTest

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|-------------|--|
| Die | 1..n | Die | Reference optional data attributes to identify die on a wafer. |
| YieldReport | 0..n | YieldReport | A report defining the yield from tests at Wafer Sort and Final Test. |

2.1.9 FinalTestLocation

Describes where the packaged die was sent for final test.

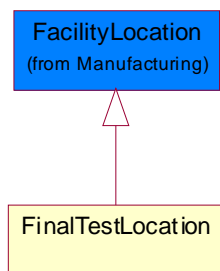


Figure 2-9 FinalTestLocation

2.1.10 FPReport

A report that collects functional pin test results. Valid status values are Passed, Failed.

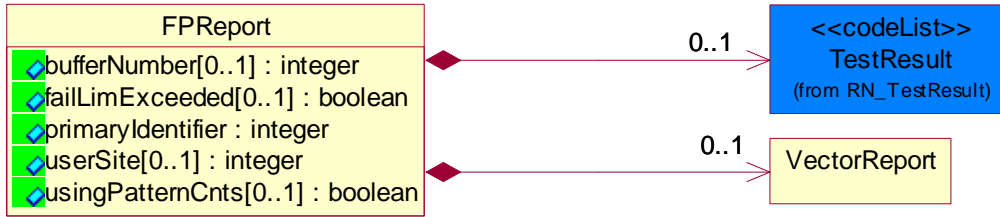


Figure 2-10 FPReport

| Attribute | Type | Documentation |
|------------------------|---------|--|
| bufferNumber[0..1] | integer | Pattern buffer number. |
| failLimExceeded[0..1] | boolean | Flag indicator to whether more fails exists than were datalogged. False = all fails datalogged; True = More fails present. |
| primaryIdentifier | integer | A reference back to TestSpecificationReport. This identifier references the electrical attributes only once per lot. |
| userSite[0..1] | integer | A user-defined die coordinate represented as an integer which is often associated with the serial number assigned by the tester or prober executive. |
| usingPatternCnts[0..1] | boolean | A flag indicator to whether failing addresses or counts were datalogged. True = using pattern counts; False = datalogging vector addresses. |

| Composition | Cardinality | Type | Documentation |
|--------------|-------------|--------------|---|
| VectorReport | 0..1 | VectorReport | A report for collecting functional results for a single vector or pattern count. Valid status values are: H=actual H, expect unknown L=actual L, expect unknown Z=actual Z, expected unknown A=actual H, expected L B=actual H, expect Z C=actual Z, expect H D=actual Z, expect L E=actual L, expect H F=actual L, expect Z. |
| TestResult | 0..1 | TestResult | Describes the test result for a parametric test. |

2.1.11 FunctionalPinReport

A Pass/Fail per pin report of data logged bit results. Valid status options are: Passed, Failed High Limit, Fail Low Limit, Failed Screened and Failed Censor.

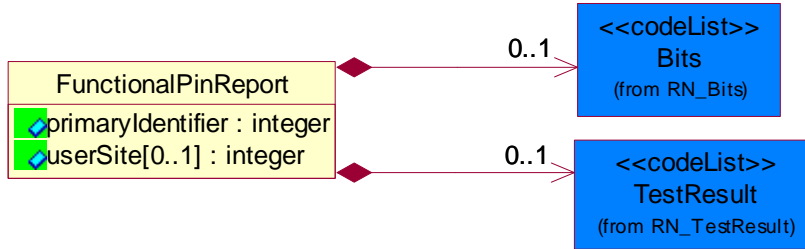


Figure 2-11 FunctionalPinReport

| Attribute | Type | Documentation |
|-------------------|---------|--|
| primaryIdentifier | integer | A reference back to TestSpecificationReport. This identifier references the electrical attributes only once per lot. |
| userSite[0..1] | integer | A user-defined die coordinate represented as an integer which is often associated with the serial number assigned by the tester or prober executive. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------------|---|
| Bits | 0..1 | Bits | The value of 0 or 1, which represent On/Off, Pass/Fail or True/False. |
| TestResult | 0..1 | TestResult | Describes the test result for a parametric test. |

2.1.12 GangTest

Describes the test results for a group of die or packaged units, as in strip testing.

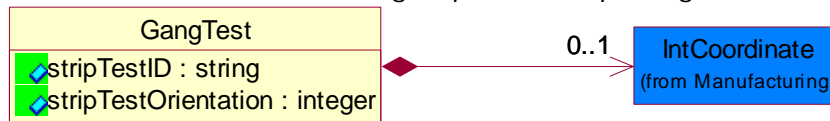


Figure 2-12 GangTest

| Attribute | Type | Documentation |
|----------------------|---------|---|
| stripTestID | string | Identify the packaged die numbering on a strip. |
| stripTestOrientation | integer | Describes the orientation by strip test substrate: Valid values: 0, 90, 180, 270 degrees. Reference SEMI G81, Appendix 2. |

| Composition | Cardinality | Type | Documentation |
|---------------|-------------|---------------|-------------------------------|
| IntCoordinate | 0..1 | IntCoordinate | X, Y and Z Coordinate values. |

2.1.13 LotReport

A report that is common for reporting data collection for PCM, Wafer Sort and Final Test.

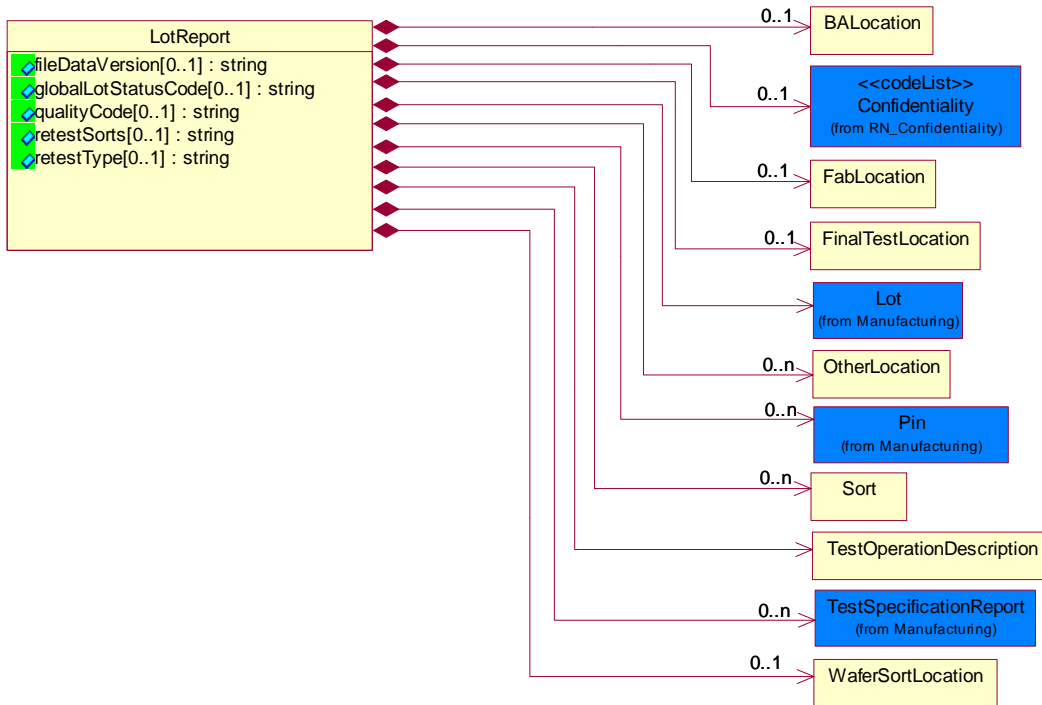


Figure 2-13 LotReport

| Attribute | Type | Documentation |
|---------------------------|--------|---|
| fileDataVersion[0..1] | string | User defined changes i.e. rules changes to content of data in the data file transfer. Examples: version update to loaders, parsers, or operating system, specification limits etc. |
| globalLotStatusCode[0..1] | string | Describes lot or subplot status. |
| qualityCode[0..1] | string | Designate a quality condition of a lot. This can be a proprietary label defined by the Foundry of the Test Services trading partner. |
| retestSorts[0..1] | string | A list of sort numbers from prior pass that will be retested in this pass. |
| retestType[0..1] | string | Describes how test data should be combined with prior data for the same LotID, test and level. Valid Options are: First: Replace all previous data for test and level; Sorts: Removal of module data from prior pass where sort matches a sort in a prior |

| | | |
|--|--|--|
| | | pass; Chip: Replaces data on a by chip basis; TestReplace: replaces data on a wafer sort test basis (deletes prior data for wafer or parameter having a non-null retest value. |
|--|--|--|

| Composition | Cardinality | Type | Documentation |
|--------------------------|-------------|--------------------------|--|
| BALocation | 0..1 | BALocation | Describes where the wafer was sent for bond and assembly. |
| Confidentiality | 0..1 | Confidentiality | A string which describes the level of security associated with the data, as defined by TPA. |
| FabLocation | 0..1 | FabLocation | Describes where the wafer was fabricated. |
| FinalTestLocation | 0..1 | FinalTestLocation | Describes where the packaged die was sent for final test. |
| Lot | 1 | Lot | Describes the lot information. |
| OtherLocation | 0..n | OtherLocation | Describes the location where the wafer or packaged die in a lot or subplot was sent for additional fabrication, assembly or testing. This may be indicated by City, State, Country, Zip Code, DUNS, DUNS+4, or by proprietary label. |
| Pin | 0..n | Pin | Describes the optional attributes that provide additional pin identification information. |
| Sort | 0..n | Sort | Contains accumulated count for a sort at Wafer Sort and Final Test. |
| TestOperationDescription | 1 | TestOperationDescription | Information that describes the manufacturing operation in further detail. |
| TestSpecificationReport | 0..n | TestSpecificationReport | Report that lists each test and their attributes at PCM, wafer sort and final test. e.g. Test name, electrical conditions, sort number, etc. |
| WaferSortLocation | 0..1 | WaferSortLocation | Describes where the wafer was sent for wafer sort test. |

2.1.14 OtherLocation

Describes the location where the wafer or packaged die in a lot or subplot was sent for additional fabrication, assembly or testing.

This may be indicated by City, State, Country, Zip Code, DUNS, DUNS+4, or by proprietary label.

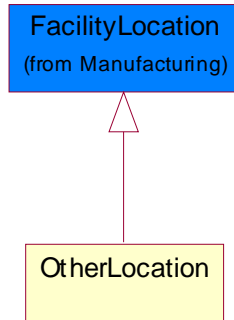


Figure 2-14 OtherLocation

2.1.15 PCM

Process Control Monitor: One of the major test modes which collects in-line parametric (electrical) data for the disposition of wafers in the Foundry based on technology criteria.



Figure 2-15 PCM

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------|--|
| Die | 1..n | Die | Reference optional data attributes to identify die on a wafer. |

2.1.16 PPRReport

A report for datalogged per pin data. Per pin results relate data for tests which measure multiple pins in parallel such as leakage tests.

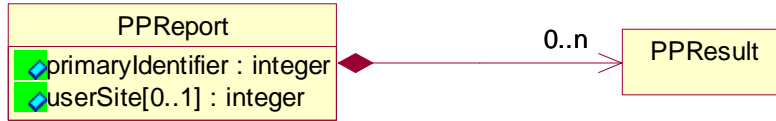


Figure 2-16 PPRReport

| Attribute | Type | Documentation |
|-------------------|---------|--|
| primaryIdentifier | integer | An integer used as a reference back to TestSpecificationReport. This identifier references the electrical attributes only once per lot. |
| userSite[0..1] | integer | A user-defined die coordinate represented as an integer which is often associated with the serial number assigned by the tester or prober executive. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|----------|--|
| PPResult | 0..n | PPResult | A measurement value for each pin in tests which measure multiple pins in parallel such as leakage tests. Valid status options for this report are: Failed High Limit, Failed Low Limit, Passed, Failed, Screened Value, Failed Censor. |

2.1.17 PPRResult

A measurement value for each pin in tests which measure multiple pins in parallel such as leakage tests. Valid status options for this report are: Failed High Limit, Failed Low Limit, Passed, Failed, Screened Value, Failed Censor.

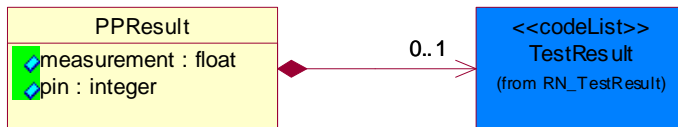


Figure 2-17 PPRResult

| Attribute | Type | Documentation |
|-------------|---------|---|
| measurement | float | A data measurement that are collected from each pin measured. |
| pin | integer | A Pin IDs for each pin measured. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------------|--|
| TestResult | 0..1 | TestResult | Describes the test result for a parametric test. |

2.1.18 PRReport

A report that data logs parametric test results. The report collects non-per-pin data. Valid status options are: Failed High Limit, Failed Low Limit, Passed, Failed, Screened Value, Failed Censor.

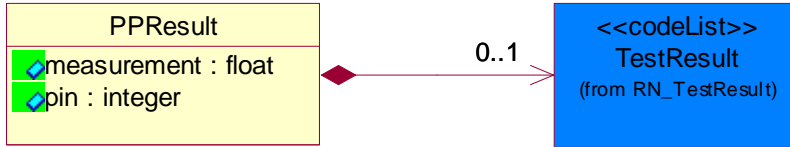


Figure 2-18 PRReport

| Attribute | Type | Documentation |
|-------------------|---------|--|
| measurement | float | Measurement in base units. |
| primaryIdentifier | integer | An integer used as a reference back to TestSpecificationReport. This identifier references the electrical attributes only once per lot. |
| testerAlarm[0..1] | boolean | An indicator status flag on whether the tester was in alarm during wafer sort or final test. |
| userSite[0..1] | integer | A user-defined die coordinate represented as an integer which is often associated with the serial number assigned by the tester or prober executive. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------------|--|
| TestResult | 0..1 | TestResult | Describes the test result for a parametric test. |

2.1.19 SemiconductorTestDataNotification

The message wrapper for SCTDE.

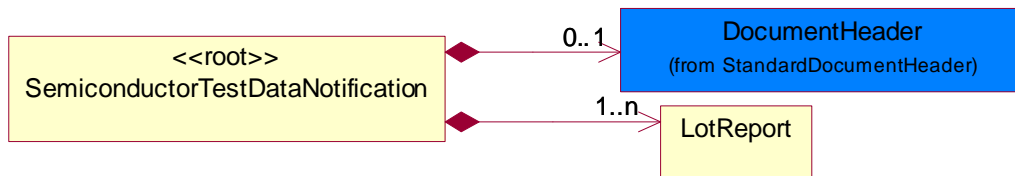


Figure 2-19 SemiconductorTestDataNotification

| Composition | Cardinality | Type | Documentation |
|----------------|-------------|-----------------|---|
| LotReport | 1..n | LotReport | A report that is common for reporting data collection for PCM, Wafer Sort and Final Test. |
| DocumentHeader | 0..1 | Document Header | The object allows for the identification of the sender and receiver of the business document. |

2.1.20 SetupReport

A report that describes setup information for the testing.

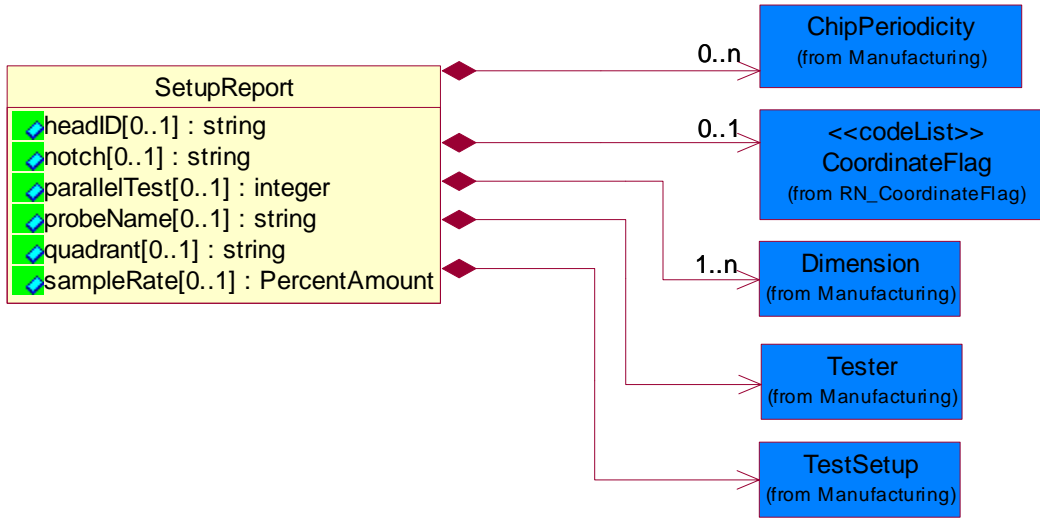


Figure 2-20 SetupReport

| Attribute | Type | Documentation |
|--------------------|---------------|---|
| headID[0..1] | string | Identifies the test head used for wafer sort and final test. |
| notch[0..1] | string | Describes the orientation of the wafer notch in a tester: Valid options are: 12 o'clock; 3 o'clock, 6 o'clock, 9 o'clock, notch up, notch down, notch right or notch left, Up=U, Down=D, Left=L, or Right=R, 0, 90, 180 or 270 degrees. Reference SEMI G81, Appendix 1. |
| parallelTest[0..1] | integer | The number of devices or parallel tests for wafer sort. |
| probeName[0..1] | string | Describes the probe recipe or pattern file. |
| quadrant[0..1] | string | A user defined division of the wafer into 4 quadrants. Valid values: I, II, III, IV, Q1,Q2, Q3, Q4, Upper Left, Upper Right, Lower Left, Lower Right and User defined labels. Reference SEMI G81, Appendix 1. |
| sampleRate[0..1] | PercentAmount | Describes the percentage of die in wafer sort that are being tested under a characterization test plan. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|-----------|--|
| Tester | 1 | Tester | Describe unique tester information for PCM, Wafer Sort and Final Test. |
| TestSetup | 1 | TestSetup | Describes the identification information for tester set-up. |
| Dimension | 1..n | Dimension | Describes the dimensional measurement range in X, Y or Z |

| | | | |
|-----------------|------|-----------------|--|
| | | | axis. |
| CoordinateFlag | 0..1 | CoordinateFlag | A status flag to indicate the coordinate measurement is for a single die on a reticle or a multi-chip die on a reticle. |
| ChipPeriodicity | 0..n | ChipPeriodicity | Dimensional. Describes the distance between devices in micron between established reference points in either the x- and or y-direction on a wafer. |

2.1.21 Sort

Contains accumulated count for a sort at Wafer Sort and Final Test.

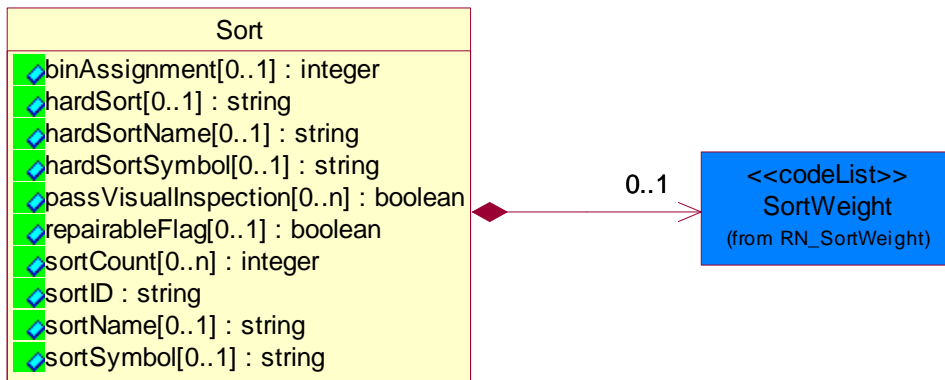


Figure 2-21 Sort

| Attribute | Type | Documentation |
|----------------------------|---------|---|
| binAssignment[0..1] | integer | A user defined integer designation for hard bins. |
| hardSort[0..1] | string | Represents the hard sort ID of the Sort test. |
| hardSortName[0..1] | string | Represents the hard sort name of the Sort Test. |
| hardSortSymbol[0..1] | string | A user defined grouping of hard sort fails on a wafer map. |
| passVisualInspection[0..n] | boolean | A user defined pass/fail quality control inspection flag of wafer after wafer sort. |
| repairableFlag[0..1] | boolean | A flag to indicate if product (die or module) are repairable based on user definition. |
| sortCount[0..n] | integer | A string that describes the number of counts for each sortID during a test. |
| sortID | string | The sortid represents the sort name of the Sort Test for which the firstFailSort and compositeFailSort are related to this sort identification. |
| sortName[0..1] | string | Describes the test in the SortID. |
| sortSymbol[0..1] | string | A user defined grouping of fails on a wafer map. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------------|--|
| SortWeight | 0..1 | SortWeight | A relative representation of yield for a device or module. |

2.1.22 TestOperationDescription

Information that describes the manufacturing operation in further detail.

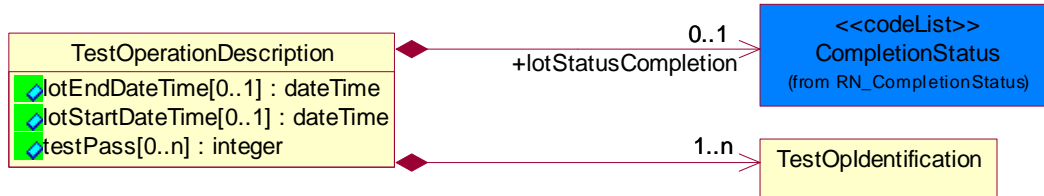


Figure 2-22 TestOperationDescription

| Attribute | Type | Documentation |
|------------------------|----------|---|
| lotEndDateTime[0..1] | dateTime | Defines the end time of a lot for a test. |
| lotStartDateTime[0..1] | dateTime | Defines the start time of the lot for a test. |
| testPass[0..n] | integer | The number of times a test occurs. The test start and end time needs to be associated with each pass. |

| Composition | Cardinality | Type | Documentation |
|----------------------|-------------|----------------------|--|
| TestOpIdentification | 1..n | TestOpIdentification | Describes the manufacturing level of the lot and the test point. |
| lotStatusCompletion | 0..1 | CompletionStatus | Status completion of lot or subplot at the end of testing. |

2.1.23 TestOpIdentification

Describes the manufacturing level of the lot and the test point.

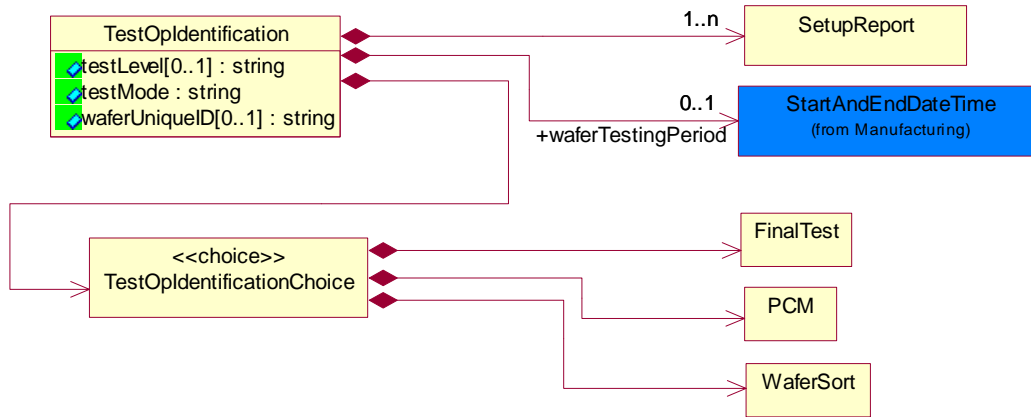


Figure 2-23 TestOpIdentification

| Attribute | Type | Documentation |
|---------------------|--------|---|
| testLevel[0..1] | string | A string that describes the test in further detail. Label may change. This is user definable. |
| testMode | string | A string which is used to identify the type of test: PCM, Wafer Sort or Final Test. Within each major test type their may be multiple tests undertaken for each lot or subplot. |
| waferUniqueID[0..1] | string | An alphanumeric string which describes the wafer serial number for traceability in a lot or subplot. |

| Composition | Cardinality | Type | Documentation |
|----------------------------|-------------|----------------------------|---|
| TestOpIdentificationChoice | 1 | TestOpIdentificationChoice | A Choice structure for the different type of test mode: PCM, Wafer Sort and Final Test. |
| SetupReport | 1..n | SetupReport | A report that describes setup information for the testing. |
| waferTestingPeriod | 0..1 | StartAndEndDateTime | Defines the start and end time for a wafer being tested. |

2.1.24 TestOpIdentificationChoice

A Choice structure for the different type of test mode: PCM, Wafer Sort and Final Test.

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|-----------|---|
| PCM | 1 | PCM | Process Control Monitor: One of the major test modes which collects in-line parametric (electrical) data for the disposition of wafers in the Foundry based on technology criteria. |
| FinalTest | 1 | FinalTest | A test for packaged product that determines that the die functions and performs to the specification. This test also includes parametric and quality sort data. |
| WaferSort | 1 | WaferSort | One of the major test modes which collects data on the electrical performance of the integrated die. The test results may be shared as either reconciled information at the chip summary level or as raw test data. Test results may include parametric measurements and quality sort and/or pass/fail information. |

2.1.25 TestReport

The common report for non-pin data collected at PCM, Wafer Sort and Final Test.

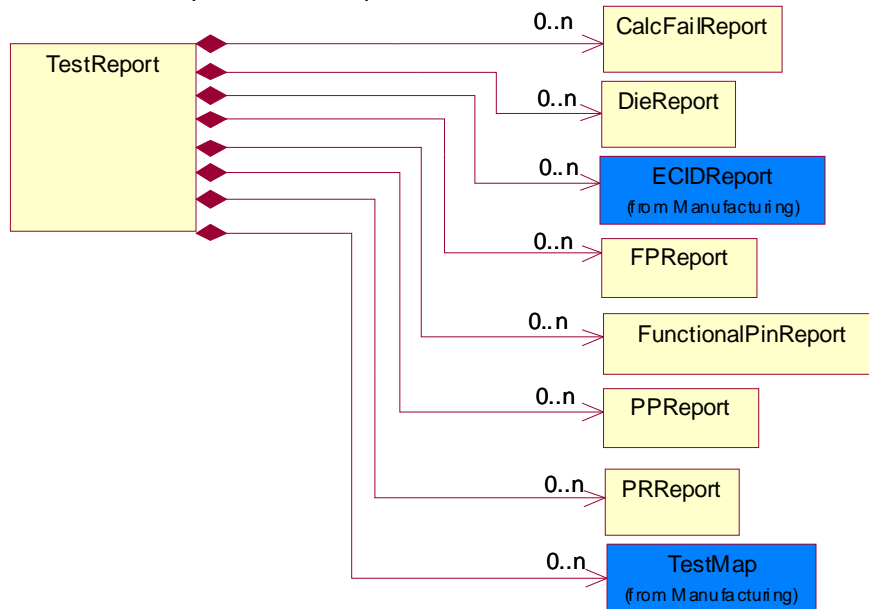


Figure 2-24 TestReport

| Composition | Cardinality | Type | Documentation |
|---------------------|-------------|---------------------|--|
| DieReport | 0..n | DieReport | References optional information to further identify a die on a wafer. |
| PRReport | 0..n | PRReport | A report that data logs parametric test results. The report collects non-per-pin data. Valid status options are: Failed High Limit, Failed Low Limit, Passed, Failed, Screened Value, Failed Censor. |
| PPReport | 0..n | PPReport | A report for datalogged per pin data. Per pin results relate data for tests which measure multiple pins in parallel such as leakage tests. |
| FPReport | 0..n | FPReport | A report that collects functional pin test results. Valid status values are Passed, Failed. |
| FunctionalPinReport | 0..n | FunctionalPinReport | A Pass/Fail per pin report of data logged bit results. Valid status options are: Passed, Failed High Limit, Fail Low Limit, Failed Screened and Failed Censor. |
| CalcFailReport | 0..n | CalcFailReport | A report that catalogs failing calculations that may be performed in determining the result of a test. |
| ECIDReport | 0..n | ECIDReport | Report to collect electronic chip ID data. |
| TestMap | 0..n | TestMap | Describes the wafer orientation and configuration used by manufacturing test (metrology) equipment. |

2.1.26 VectorReport

A report for collecting functional results for a single vector or pattern count. Valid status values are: H=actual H, expect unknown L=actual L, expect unknown Z=actual Z, expected unknown A=actual H, expected L B=actual H, expect Z C=actual Z, expect H D=actual Z, expect L E=actual L, expect H F=actual L, expect Z.

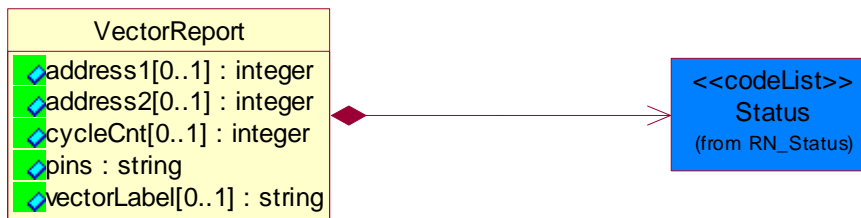


Figure 2-25 VectorReport

| Attribute | Type | Documentation |
|-----------|------|---------------|
|-----------|------|---------------|

| | | |
|-------------------|---------|--|
| address1[0..1] | integer | Failing tester primary address; integer. |
| address2[0..1] | integer | Failing tester secondary address; integer. |
| cycleCnt[0..1] | integer | Integer, Cycle count for ABIST/LBIST diagnostic data collection or the T0 count for a pattern. |
| pins | string | String. Comma separated list of Pin IDs as defined in PinReport. |
| vectorLabel[0..1] | string | String, Label for failing vector. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|--------|--|
| Status | 1 | Status | Describes the Status result for a vector test. |

2.1.27 WaferSort

One of the major test modes which collects data on the electrical performance of the integrated die. The test results may be shared as either reconciled information at the chip summary level or as raw test data. Test results may include parametric measurements and quality sort and/or pass/fail information.



Figure 2-26 WaferSort

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|-------------|--|
| Die | 1..n | Die | Reference optional data attributes to identify die on a wafer. |
| YieldReport | 0..n | YieldReport | A report defining the yield from tests at Wafer Sort and Final Test. |

2.1.28 WaferSortLocation

Describes where the wafer was sent for wafer sort test.

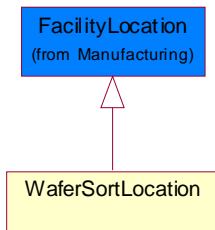


Figure 2-27 WaferSortLocation

2.1.29 YieldReport

A report defining the yield from tests at Wafer Sort and Final Test.

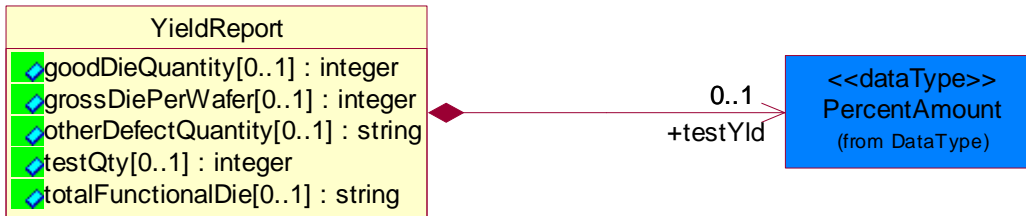


Figure 2-28 YieldReport

| Attribute | Type | Documentation |
|---------------------------|---------|--|
| goodDieQuantity[0..1] | integer | Integer that describes the number of die or packages that are functional in a lot or subplot. |
| grossDiePerWafer[0..1] | integer | Integer, Describes the number of complete die on a wafer. |
| otherDefectQuantity[0..1] | string | String. User defined Quality Control inspection at wafer sort and final test to identify defects. User defined Valid Values. |
| testQty[0..1] | integer | Used for calculation of yield for die and packaged die for a lot or subplot tested. |
| totalFunctionalDie[0..1] | string | String. User defined identifier on the level of functionality of die. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|---------------|---|
| testYld | 0..1 | PercentAmount | A TPA defined calculation for yield at wafer sort and final test. |

3. Domain Model

3.1 Manufacturing

3.1.1 Manufacturing

3.1.1.1 Dependency Diagram

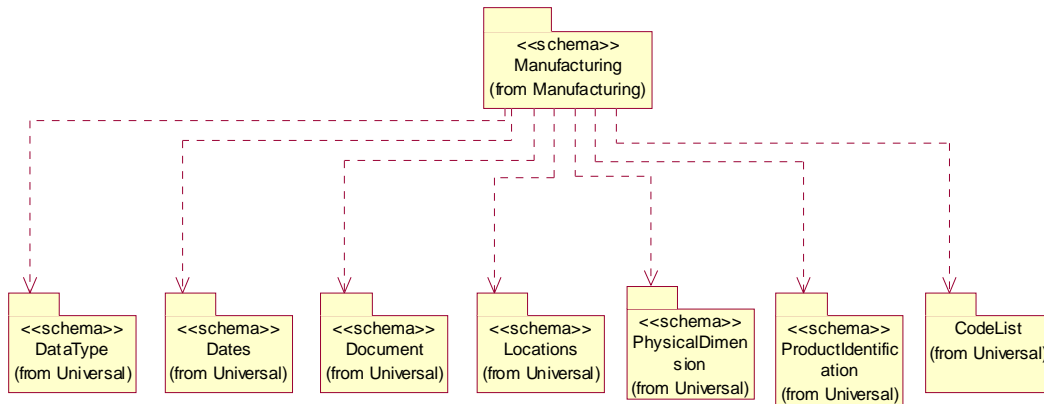


Figure 3-1 Dependency

3.1.1.2 ChipPeriodicity

Dimensional. Describes the distance between devices in micron between established reference points in either the x- and or y-direction on a wafer.



Figure 3-2 ChipPeriodicity

| Attribute | Type | Documentation |
|-------------------|--------|--|
| description[0..1] | string | A string that describes the kind of chip periodicity is being defined. |

| Composition | Cardinality | Type | Documentation |
|-----------------|-------------|-----------------|-------------------------------|
| FloatCoordinate | 1 | FloatCoordinate | X, Y and Z Coordinate values. |

3.1.1.3 Dimension

Describes the dimensional measurement range in X, Y or Z axis.

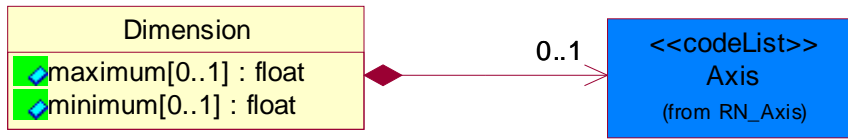


Figure 3-3 Dimension

| Attribute | Type | Documentation |
|---------------|-------|---|
| maximum[0..1] | float | Describes the maximum dimensional measurement for X, Y or Z axis. |
| minimum[0..1] | float | Describes the minimum dimensional measurement for X, Y or Z axis. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|------|---------------------------------------|
| Axis | 0..1 | Axis | Indicate three dimensional direction. |

3.1.1.4 ECIDReport

Report to collect electronic chip ID data.

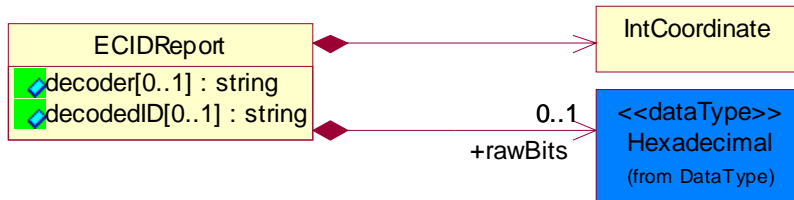


Figure 3-4 ECIDReport

| Attribute | Type | Documentation |
|-----------------|--------|--|
| decoder[0..1] | string | Identifies the decoding scheme if ECID is used |
| decodedID[0..1] | string | Value that could represent waferID or lotID. |

| Composition | Cardinality | Type | Documentation |
|---------------|-------------|---------------|-------------------------------|
| rawBits | 0..1 | Hexadecimal | Hexadecimal data type. |
| IntCoordinate | 1 | IntCoordinate | X, Y and Z Coordinate values. |

3.1.1.5 FacilityLocation

Describes the location where a product is fabricated, manufactured, tested, packaged, etc.

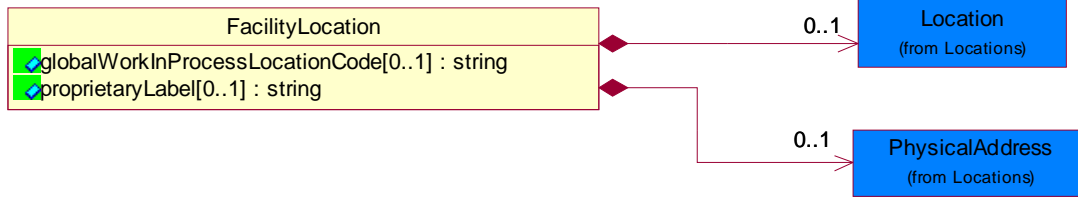


Figure 3-5 FacilityLocation

| Attribute | Type | Documentation |
|--|--------|---|
| globalWorkInProgressLocationCode[0..1] | string | References where fabrication, bond, assembly, test and related activities were performed on a lot or subplot. |
| proprietaryLabel[0..1] | string | User defined label to uniquely identify a facility that is represented in any of the scenarios. |

| Composition | Cardinality | Type | Documentation |
|-----------------|-------------|-----------------|--|
| Location | 0..1 | Location | The business document must specify a location. |
| PhysicalAddress | 0..1 | PhysicalAddress | The business document must provide a physical address for a party to the business transaction. |

3.1.1.6 FloatCoordinate

X, Y and Z Coordinate values.

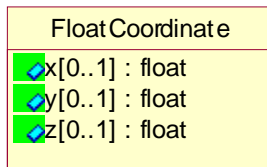


Figure 3-6 FloatCoordinate

| Attribute | Type | Documentation |
|-----------|-------|------------------------------|
| x[0..1] | float | Coordinate value for X-axis. |
| y[0..1] | float | Coordinate value for Y-axis. |
| z[0..1] | float | Coordinate value for Z-axis. |

3.1.1.7 HardwareSets

Describes the unique attachments, handlers or probers that are associated to the tester.

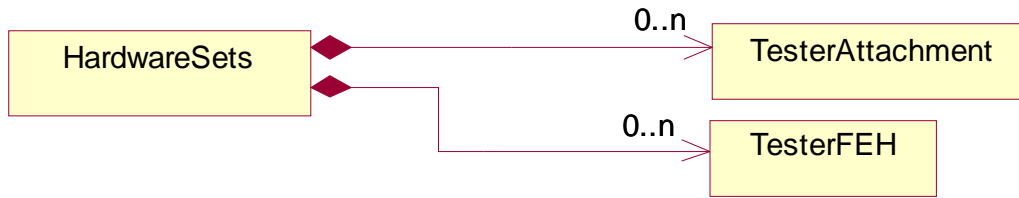


Figure 3-7 HardwareSets

| Composition | Cardinality | Type | Documentation |
|------------------|-------------|------------------|---|
| TesterAttachment | 0..n | TesterAttachment | Describes the handlers or probers that are attached to the tester. |
| TesterFEH | 0..n | TesterFEH | Describes the unique Front-End-Hardware (e.g. DUTboards, probes, interposers) that have been used to connect the product to the tester. |

3.1.1.8 IntCoordinate

X, Y and Z Coordinate values.

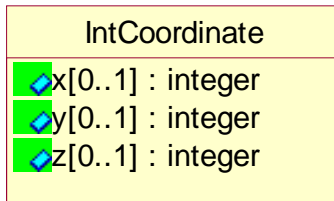


Figure 3-8 IntCoordinate

| Attribute | Type | Documentation |
|-----------|---------|------------------------------|
| x[0..1] | integer | Coordinate value for X-axis. |
| y[0..1] | integer | Coordinate value for Y-axis. |
| z[0..1] | integer | Coordinate value for Z-axis. |

3.1.1.9 Lot

Describes the lot information.

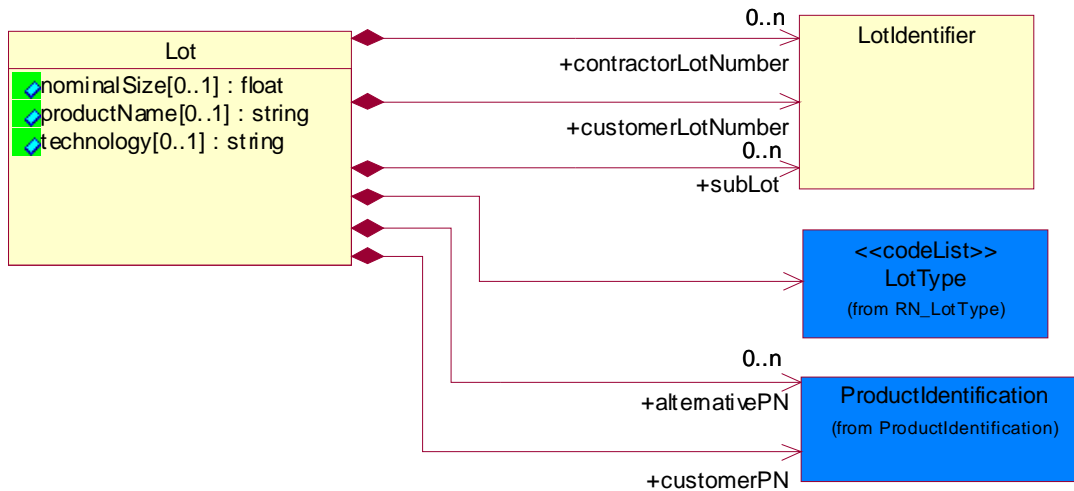


Figure 3-9 Lot

| Attribute | Type | Documentation |
|-------------------|--------|---|
| nominalSize[0..1] | float | Describes the diameter of the wafer in mm, or inches. |
| productName[0..1] | string | A customer defined descriptor or code name for a part being fabricated or tested at a Foundry or Test Service trading partner. Example are Neptune, Big Dog, Antares 6. |
| technology[0..1] | string | An alphanumeric string that is associated with a fabrication technology. Example. CMOS8SF, MOS-11. |

| Composition | Cardinality | Type | Documentation |
|---------------------|-------------|-----------------------|--|
| LotType | 1 | LotType | Describes the mode in which product was tested. |
| customerPN | 1 | ProductIdentification | A string which identifies Foundry defined, the Test Services defined or the customer proprietary defined part number for a wafer or packaged die |
| alternativePN | 0..n | ProductIdentification | A user defined string to identify a part number for a wafer or packaged die which is associated with customerPN. |
| customerLotNumber | 1 | LotIdentifier | Customer defined alphanumeric string used to identify the lot |
| contractorLotNumber | 0..n | LotIdentifier | User defined |

| | | | |
|--------|------|---------------|--|
| ber | | | alphanumeric string which is associated with customer lot number. |
| subLot | 0..n | LotIdentifier | Alphanumeric string which describes a lot which has been separated from the Lot. |

3.1.1.10 LotIdentifier

Description used to identify a lot

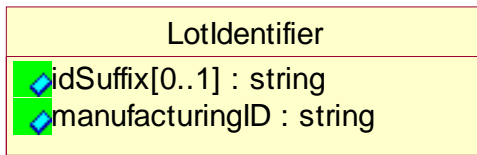


Figure 3-10 LotIdentifier

| Attribute | Type | Documentation |
|-----------------|--------|--|
| idSuffix[0..1] | string | An alphanumeric string that could be used to identify a lot at a location. The suffix string is user defined. It can be used to identify a lot split, a bond assembly location, wafer sort or final test location. |
| manufacturingID | string | Alphanumeric string which describes the lot. |

3.1.1.11 MeasurementUnit

Describes the measurement unit.

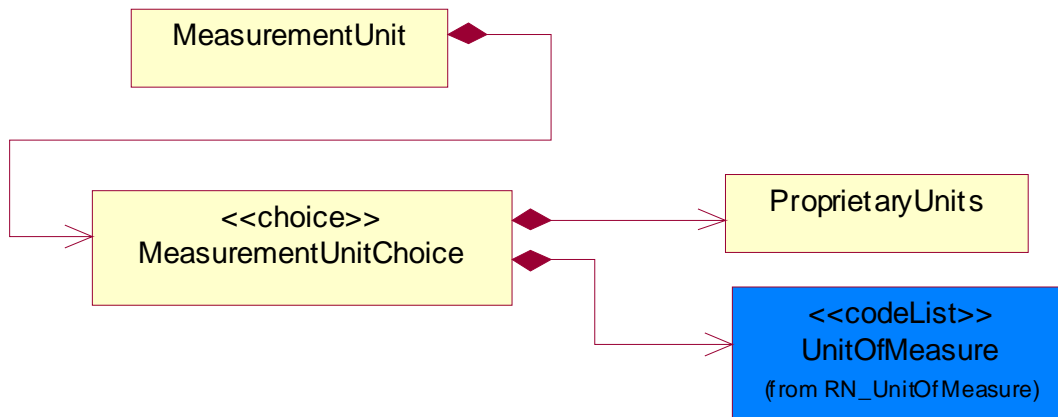


Figure 3-11 MeasurementUnit

| Composition | Cardinality | Type | Documentation |
|------------------------|-------------|-----------------------|---|
| MeasurementUnit Choice | 1 | MeasurementUnitChoice | Choice structure for describing the unit of |

| | | | |
|--|--|--|--------------|
| | | | measurement. |
|--|--|--|--------------|

3.1.1.12 MeasurementUnitChoice

Choice structure for describing the unit of measurement.

| Composition | Cardinality | Type | Documentation |
|------------------|-------------|------------------|--|
| UnitOfMeasure | 1 | UnitOfMeasure | Code identifying a product unit of measure. |
| ProprietaryUnits | 1 | ProprietaryUnits | Describes a class where the sender defines the units of measure for the test. These units are not listed in code list UnitOfMeasure. |

3.1.1.13 Pin

Describes the optional attributes that provide additional pin identification information.

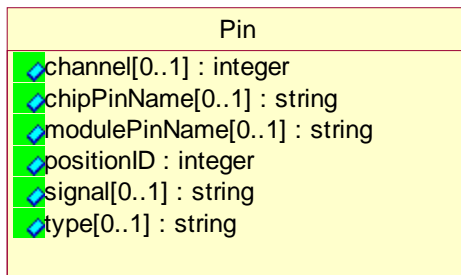


Figure 3-12 Pin

| Attribute | Type | Documentation |
|---------------------|---------|---|
| channel[0..1] | integer | Integer, tester channel number. |
| chipPinName[0..1] | string | Alphanumeric string to describe the name of the pin. |
| modulePinName[0..1] | string | Alphanumeric string to describe the package pin name. |
| positionID | integer | Integer to reference ID for pin. |
| signal[0..1] | string | Alphanumeric string to describes name of signal pin. |
| type[0..1] | string | Alphanumeric string listing the driver/receiver book types. |

3.1.1.14 ProprietaryUnits

Describes a class where the sender defines the units of measure for the test. These units are not listed in code list UnitOfMeasure.

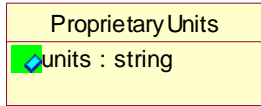


Figure 3-13 ProprietaryUnits

| Attribute | Type | Documentation |
|-----------|--------|---|
| units | string | Special description or code of the units for the measurement value. |

3.1.1.15 StartAndEndDateTime

The start and end date time of a certain period.

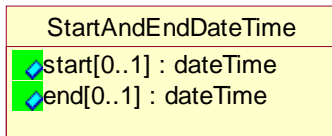


Figure 3-14 StartAndEndDateTime

| Attribute | Type | Documentation |
|-------------|----------|----------------------------------|
| start[0..1] | dateTime | The start date time of a period. |
| end[0..1] | dateTime | The end date time of a period. |

3.1.1.16 Tester

Describe unique tester information for PCM, Wafer Sort and Final Test.



Figure 3-15 Tester

| Attribute | Type | Documentation |
|-------------|--------|--|
| equipmentID | string | An alphanumeric string to identify the tester used at PCM, wafer sort or final test. |

| Composition | Cardinality | Type | Documentation |
|--------------|-------------|--------------|--|
| HardwareSets | 0..n | HardwareSets | Describes the unique attachments, handlers or probers that are associated to the tester. |

3.1.1.17 TesterAttachment

Describes the handlers or probers that are attached to the tester.

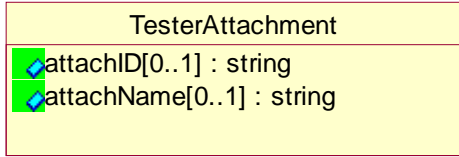


Figure 3-16 TesterAttachment

| Attribute | Type | Documentation |
|------------------|--------|---|
| attachID[0..1] | string | A string that defines the prober handler or any physical device/system that can be attached to the tester used in wafer sort or final test. |
| attachName[0..1] | string | A string to identify the tools attached to the tester system. e.g. Schlumberger 3100. |

3.1.1.18 TesterFEH

Describes the unique Front-End-Hardware (e.g. DUTboards, probes, interposers) that have been used to connect the product to the tester.



Figure 3-17 TesterFEH

| Attribute | Type | Documentation |
|--------------------|--------|--|
| attachmentID[0..1] | string | String. A barcode, electronic ID or alphanumeric identifier for the FEHType used on a tester. |
| name[0..1] | string | A string that specifically labels the FEH type. |
| type[0..1] | string | A string that describes the type hardware. It can be an Attachment Sets or FEH (Front End Hardware) that is attached to a tester system. Example: Probe Heads, Sockets, BIB, DIB and user definable attachments. |

| Composition | Cardinality | Type | Documentation |
|---------------|-------------|---------------------|--|
| testingPeriod | 0..1 | StartAndEndDateTime | Defines the start and end time for a wafer being tested. |

3.1.1.19 TestMap

Describes the wafer orientation and configuration used by manufacturing test (metrology) equipment.

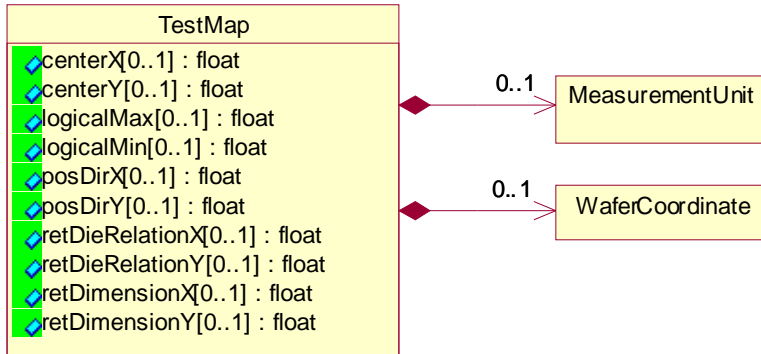


Figure 3-18 TestMap

| Attribute | Type | Documentation |
|-----------------------|-------|---|
| centerX[0..1] | float | The vector in X direction for index units form the (0,0) coordinate to the index containing the physical center of the wafer. For PCM data the index is reticle steps. For Wafer Sort and Final Test data the index is die steps. |
| centerY[0..1] | float | The vector in Y direction for index units form the (0,0) coordinate to the index containing the physical center of the wafer. For PCM data the index is reticle steps. For Wafer Sort and Final Test data the index is die steps. |
| logicalMax[0..1] | float | The logiscal maximum dimensions. For PCM data, units are reticle index steps. For Wafer Sort and Final Test data, units are die index steps. |
| logicalMin[0..1] | float | The logiscal minimum dimensions. For PCM data, units are reticle index steps. For Wafer Sort and Final Test data, units are die index steps. |
| posDirX[0..1] | float | The positive direction of the X-axis. Values illustrate Up (U), Down (D), Left (L)and Right (R). |
| posDirY[0..1] | float | The positive direction of the Y-axis. Values illustrate Up (U), Down (D), Left (L)and Right (R). |
| retDieRelationX[0..1] | float | The X coordinate of the center die within the center reticle. |
| retDieRelationY[0..1] | float | The Y coordinate of the center die within the center reticle. |
| retDimensionX[0..1] | float | The size of the reticle in the X direction , expressed in number of die incements. |
| retDimensionY[0..1] | float | The size of the reticle in the Y direction , |

| | | |
|--|--|---------------------------------------|
| | | expressed in number of die incements. |
|--|--|---------------------------------------|

| Composition | Cardinality | Type | Documentation |
|-----------------|-------------|-----------------|--|
| MeasurementUnit | 0..1 | MeasurementUnit | Describes the measurement unit. |
| WaferCoordinate | 0..1 | WaferCoordinate | The collection of business properties that describe the coordinate on a semiconductor wafer. |

3.1.1.20 TestParameter

Describes optional attributes to provide additional information on the parameters of the test.

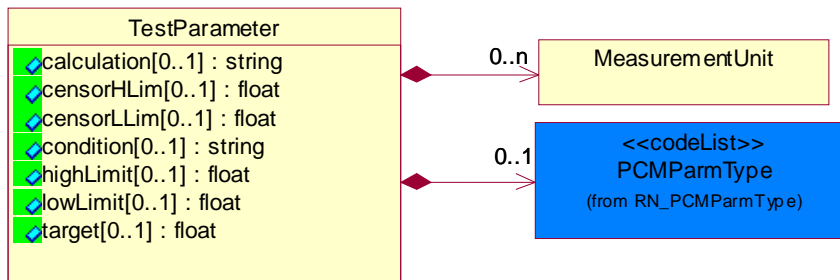


Figure 3-19 TestParameter

| Attribute | Type | Documentation |
|-------------------|--------|---|
| calculation[0..1] | string | A string describing the mathematical expression to derive a result. |
| censorHLim[0..1] | float | FLOAT value for the high boundary for legitimate or valid test data. |
| censorLLim[0..1] | float | FLOAT value for the low boundary for legitimate or valid test data. |
| condition[0..1] | string | A string specifying the test parameter. Example: TestTemperature etc. |
| highLimit[0..1] | float | Describes the high limit value for a test specification. |
| lowLimit[0..1] | float | Describes the low limit value for a test specification. |
| target[0..1] | float | Describes the expected value for the test. |

| Composition | Cardinality | Type | Documentation |
|-----------------|-------------|-----------------|--|
| MeasurementUnit | 0..n | MeasurementUnit | Describes the measurement unit. |
| PCMParmType | 0..1 | PCMParmType | Used to identify whether a PCM parameter is part of the wafer acceptance test (WAT) or customer specific parameter (CSP) list. The WAT and CSP list is negotiated between the customer and the foundry |

| | | | |
|--|--|--|-------------------------|
| | | | for a given technology. |
|--|--|--|-------------------------|

3.1.1.21 TestSetup

Describes the identification information for tester set-up.

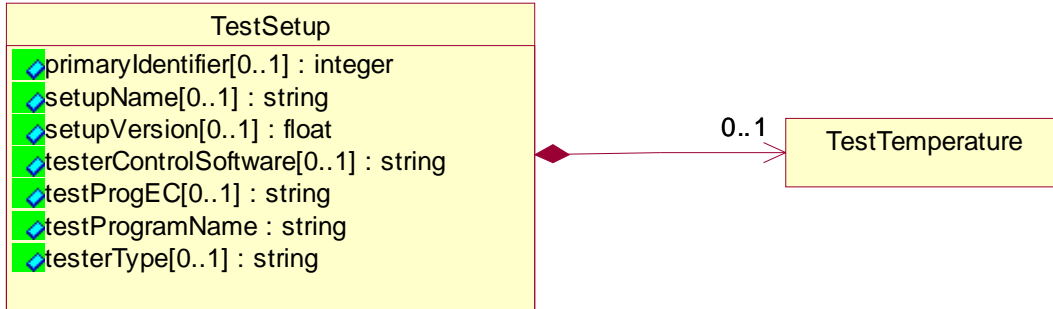


Figure 3-20 TestSetup

| Attribute | Type | Documentation |
|-----------------------------|---------|---|
| primaryIdentifier[0..1] | integer | Reference to link the test report for a lot. |
| setupName[0..1] | string | A string that describes test conditions. |
| setupVersion[0..1] | float | Describes the version for the test conditions specified in setupName. |
| testerControlSoftware[0..1] | string | Describes the software and its version that control the tester. |
| testProgEC[0..1] | string | A string that indicates the version number for the TestProgName (Req. #43) used for testing a lot or subplot. |
| testProgramName | string | A string that describes the test program for either a lot or subplot. |
| testerType[0..1] | string | This object describes the tester model, version and ID number. |

| Composition | Cardinality | Type | Documentation |
|-----------------|-------------|-----------------|---|
| TestTemperature | 0..1 | TestTemperature | Temperature value in either Centigrade or Fahrenheit to identify at which a test is performed for lot or subplot. |

3.1.1.22 TestSpecificationReport

Report that lists each test and their attributes at PCM, wafer sort and final test. e.g. Test name, electrical conditions, sort number, etc.

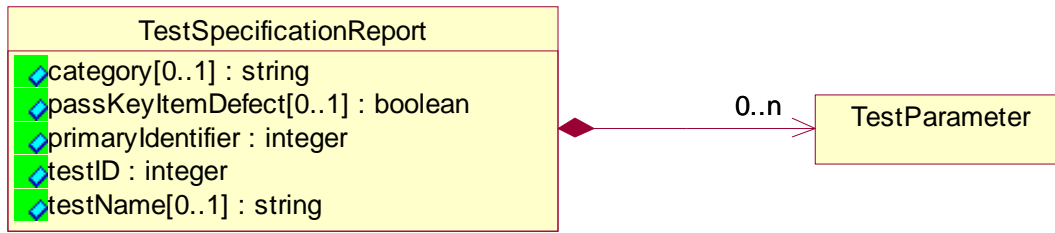


Figure 3-21 TestSpecificationReport

| Attribute | Type | Documentation |
|-------------------------|---------|---|
| category[0..1] | string | A string that describes a category of tests. |
| passKeyItemDefect[0..1] | boolean | A flag to identify if a failing parameter is PCM or optional. |
| primaryIdentifier | integer | Reference to link the test report for a lot. |
| testID | integer | An integer that uniquely identifies a test. |
| testName[0..1] | string | A string that describes the test. |

| Composition | Cardinality | Type | Documentation |
|---------------|-------------|---------------|--|
| TestParameter | 0..n | TestParameter | Describes optional attributes to provide additional information on the parameters of the test. |

3.1.1.23 TestTemperature

Temperature value in either Centigrade or Fahrenheit to identify at which a test is performed for lot or subplot.

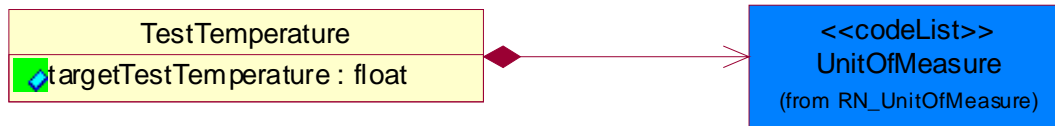


Figure 3-22 TestTemperature

| Attribute | Type | Documentation |
|-----------------------|-------|--|
| targetTestTemperature | float | The targeted temperature value in either Centigrade or Fahrenheit at which a test is performed for lot or subplot. |

| Composition | Cardinality | Type | Documentation |
|---------------|-------------|---------------|---|
| UnitOfMeasure | 1 | UnitOfMeasure | Code identifying a product unit of measure. |

3.1.1.24 WaferCoordinate

The collection of business properties that describe the coordinate on a semiconductor wafer.

| WaferCoordinate | |
|-----------------|---------|
| maxX[0..1] | : float |
| maxY[0..1] | : float |
| minY[0..1] | : float |
| minX[0..1] | : float |

Figure 3-23 WaferCoordinate

| Attribute | Type | Documentation |
|------------|-------|--|
| maxX[0..1] | float | The maximum X coordinate on a semiconductor wafer. |
| maxY[0..1] | float | The maximum Y coordinate on a semiconductor wafer. |
| minY[0..1] | float | The minimum Y coordinate on a semiconductor wafer. |
| minX[0..1] | float | The minimum X coordinate on a semiconductor wafer. |

3.1.2 CodeList

3.1.2.1 Axis

Indicate three dimensional direction.

| Name | Documentation |
|------|---------------|
| X | X-axis. |
| Y | Y-axis. |
| Z | Z-axis. |

3.1.2.2 PCMParmType

Used to identify whether a PCM parameter is part of the wafer acceptance test (WAT) or customer specific parameter (CSP) list. The WAT and CSP list is negotiated between the customer and the foundry for a given technology.

| Name | Documentation |
|------|------------------------------|
| CSP | Customer Specific Parameter. |
| PSR | Product Specification Limit. |
| WAT | Wafer Acceptance Test. |
| WLR | Wafer Level Reliability. |

3.1.2.3 Confidentiality

A string which describes the level of security associated with the data, as defined by TPA.

| Name | Documentation |
|------|---------------------------------|
| CON | Confidential security level. |
| NON | No security restriction (None). |
| RES | Restricted security level. |

3.1.2.4 Bits

The value of 0 or 1, which represent On/Off, Pass/Fail or True/False.

| Name | Documentation |
|------|-----------------|
| 0 | Bit value of 0. |

| | |
|---|-----------------|
| 1 | Bit value of 1. |
|---|-----------------|

3.1.2.5 Status

Describes the Status result for a vector test.

| Name | Documentation |
|------|-----------------------------|
| ATH | H=actual H |
| EHD | expect H D=actual Z |
| EHF | expect H F=actual L |
| ELB | expected L B=actual H |
| ELE | expect L E=actual L |
| EUA | expected unknown A=actual H |
| EUL | expect unknown L=actual L |
| EUZ | expect unknown Z=actual Z |
| EZC | expect Z C=actual Z |
| EZZ | expect Z |

3.1.2.6 LotType

Describes the mode in which product was tested.

| Name | Documentation |
|------|------------------------------|
| DEV | Development. |
| ENG | Engineering. |
| EUH | EUH type. |
| MFG | Manufacturing. |
| PLT | Pilot. |
| PPD | Pre-Production. |
| POC | Process Qualification Check. |
| PRD | Production. |
| RND | Research and Development. |
| SVC | Service. |
| TST | Test. |

3.1.2.7 CoordinateFlag

A status flag to indicate the coordinate measurement is for a single die on a reticle or a multi-chip die on a reticle.

| Name | Documentation |
|------|------------------------------|
| MUL | Multi-chip die on a reticle. |
| SIN | Single Die on a reticle. |

3.1.2.8 SortWeight

A relative representation of yield for a device or module.

| Name | Documentation |
|------|---------------|
| 0 | Bad. |
| 100 | All Good. |
| 25 | 1/4 Good. |

| | |
|----|-----------|
| 50 | 1/2 Good. |
| 75 | 3/4 Good. |

3.1.2.9 CompletionStatus

Describes the status of the lot or subplot at the end of testing.

| Name | Documentation |
|------|--|
| ABO | Aborted: process has been terminated; data is invalid and is purged. |
| COM | Completed: all process have been completed; data is valid and can be migrated. |
| SUS | Suspend: process is partially done; data is valid and can be migrated. |

3.1.2.10 TestResult

Describes the test result for a parametric test.

| Name | Documentation |
|------|--------------------|
| FAL | Failed. |
| FCS | Failed Censor. |
| FHL | Failed High Limit. |
| FLL | Failed Low Limit. |
| PAS | Passed. |
| SCV | Screened Valued. |

4. Universal Structure

4.1 ContactInformation

4.1.1 ContactInformation

The business document must allow for the identification of the name of the department, service or individual to be contacted regarding the context of the business document.

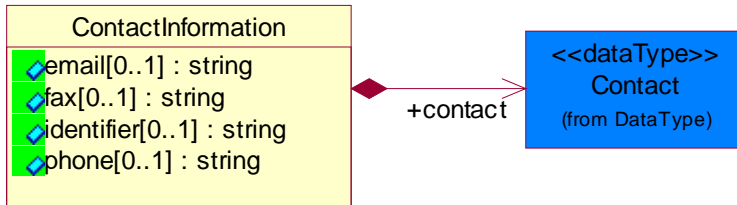


Figure 4-1 ContactInformation

| Attribute | Type | Documentation |
|------------------|--------|--|
| email[0..1] | string | The electronic mail for the specified contact. |
| fax[0..1] | string | The fax number for the specified contact. |
| identifier[0..1] | string | Identifies the role of the contact (i.e. Service Technician, Account Manager) in the Business Process. |
| phone[0..1] | string | The telephone number for the specified contact. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|---------|--|
| contact | 1 | Contact | The name of the department, service or individual to be contacted within the organization. |

4.2 DataType

4.2.1 Contact

The name of the department, service or individual to be contacted within the organization.

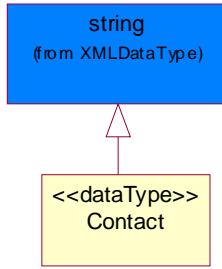


Figure 4-2 Contact

4.2.2 DUNS

A number assigned by Dun and Bradstreet to identify a business location.

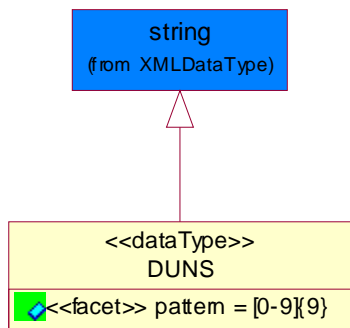


Figure 4-3 DUNS

| Attribute | Type | Documentation |
|-----------|------|---------------|
| pattern | | [0-9]{9} |

4.2.3 DUNSPlus4

A identifier to specify a specific location within a business location.

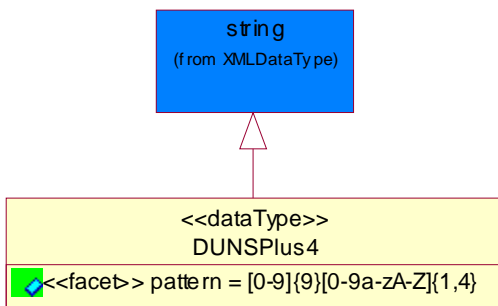


Figure 4-4 DUNSPlus4

| Attribute | Type | Documentation |
|-----------|------|---|
| pattern | | Data Universal Numbering System +4 (DUNS+4) number means the DUNS |

| | | |
|--|--|---|
| | | number assigned by Dun and Bradstreet, Inc. (D&B) plus an alphanumeric of length 4 suffix that may be assigned by a business concern. |
|--|--|---|

4.2.4 GLN

Global Location Number (GLN) - A identifier to identify legal entities, trading parties and location.

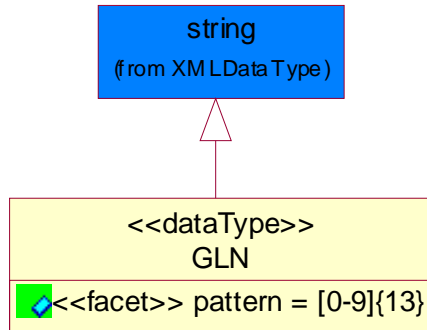


Figure 4-5 GLN

| Attribute | Type | Documentation |
|-----------|------|---------------|
| pattern | | [0-9]{13} |

4.2.5 GTIN

Global Trade Identification Number (GTIN).

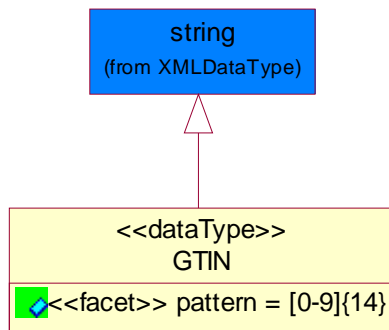


Figure 4-6 GTIN

| Attribute | Type | Documentation |
|-----------|------|---------------|
| pattern | | [0-9]{14} |

4.2.6 Hexadecimal

Hexadecimal data type.

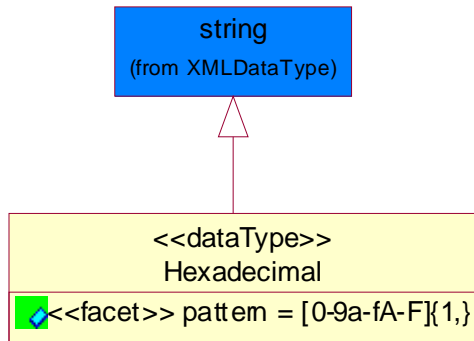


Figure 4-7 Hexadecimal

| Attribute | Type | Documentation |
|-----------|------|-----------------|
| pattern | | [0-9a-fA-F]{1,} |

4.2.7 PercentAmount

A number representing a percentage value, e.g. 75.125 represents 75 1/8 percent.

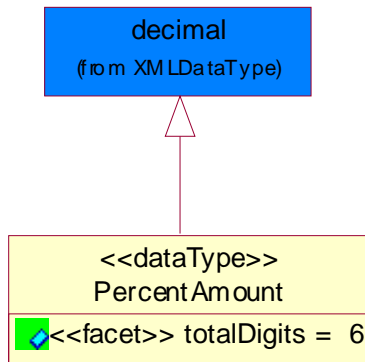


Figure 4-8 PercentAmount

| Attribute | Type | Documentation |
|-------------|------|---------------|
| totalDigits | | 6 |

4.3 Locations

4.3.1 AlternativeIdentifier

Identifies the specified code and the name of the organization that a code is utilized from.

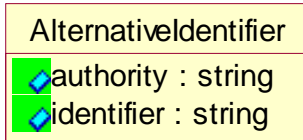


Figure 4-9 Alternative identifier

| Attribute | Type | Documentation |
|------------|--------|--|
| authority | string | The name of the organization that a code is utilized from. |
| identifier | string | The specified code to represent an entity (e.g. product, location, partner, etc.). |

4.3.2 Location

The business document must specify a location.

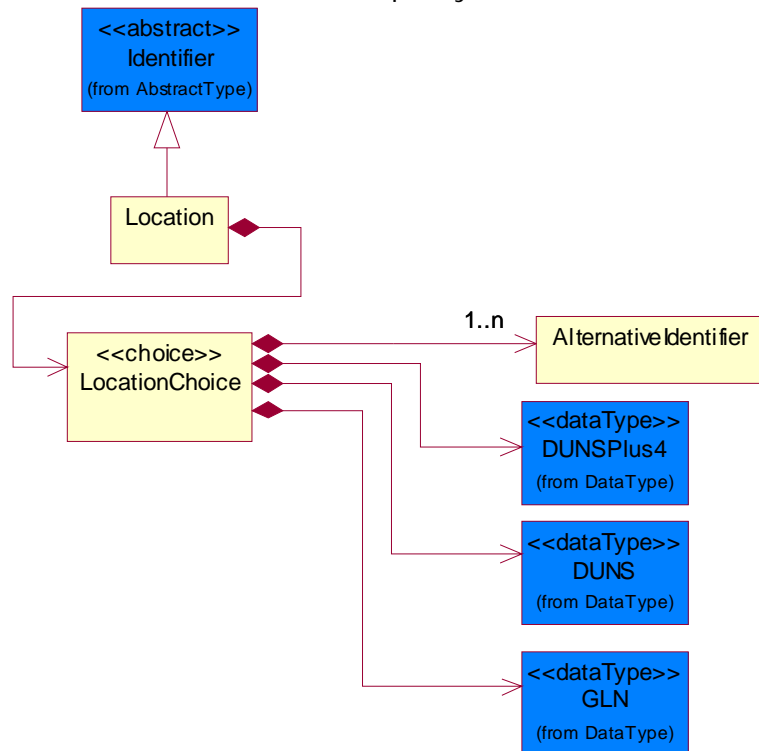


Figure 4-10 Location

| Composition | Cardinality | Type | Documentation |
|----------------|-------------|----------------|---------------|
| LocationChoice | 1 | LocationChoice | |

4.3.3 LocationChoice

| Composition | Cardinality | Type | Documentation |
|-----------------------|-------------|-----------------------|---|
| DUNSPius4 | 1 | DUNSPius4 | A identifier to specify a specific location within a business location. |
| DUNS | 1 | DUNS | A number assigned by Dun and Bradstreet to identify a business location. |
| AlternativeIdentifier | 1..n | AlternativeIdentifier | Identifies the specified code and the name of the organization that a code is utilized from. |
| GLN | 1 | GLN | Global Location Number (GLN) - A identifier to identify legal entities, trading parties and location. |

4.3.4 PhysicalAddress

The business document must provide a physical address for a party to the business transaction.

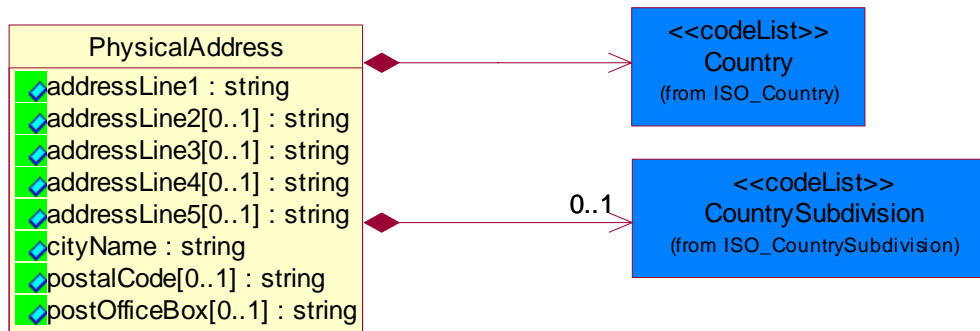


Figure 4-11 PhysicalAddress

| Attribute | Type | Documentation |
|---------------------|--------|---|
| addressLine1 | string | The first line of a physical address. |
| addressLine2[0..1] | string | The second line of a physical address. |
| addressLine3[0..1] | string | The third line of a physical address. |
| addressLine4[0..1] | string | The fourth line of a physical address. |
| addressLine5[0..1] | string | The fifth line of a physical address. |
| cityName | string | The name of a city. |
| postalCode[0..1] | string | Identifying geographic location as specified by a national postal code. |
| postOfficeBox[0..1] | string | The Post Office Box identifier used to |

| | | |
|--|--|-------------------------------------|
| | | identify a party's post office box. |
|--|--|-------------------------------------|

| Composition | Cardinality | Type | Documentation |
|--------------------|-------------|--------------------|--|
| Country | 1 | Country | <p>For representation of Country name RosettaNet has adopted ISO 3166-3; 1999. Refer to the following web page to get the latest version of the standard:</p> <p>http://www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/index.html</p> <p>If you need more information about the ISO standard please contact ISO for more details.</p> |
| CountrySubdivision | 0..1 | CountrySubdivision | <p>For representation of a Countries subdivisions RosettaNet has adopted ISO 3166-3; 1999. Refer to the following web page to get the latest version of the standard:</p> <p>http://www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/index.html</p> <p>If you need more information about the ISO standard please contact ISO for more details.</p> |

4.4 PartnerIdentification

4.4.1 PartnerIdentification

The business document must allow for the identity of one or more parties to the transaction.

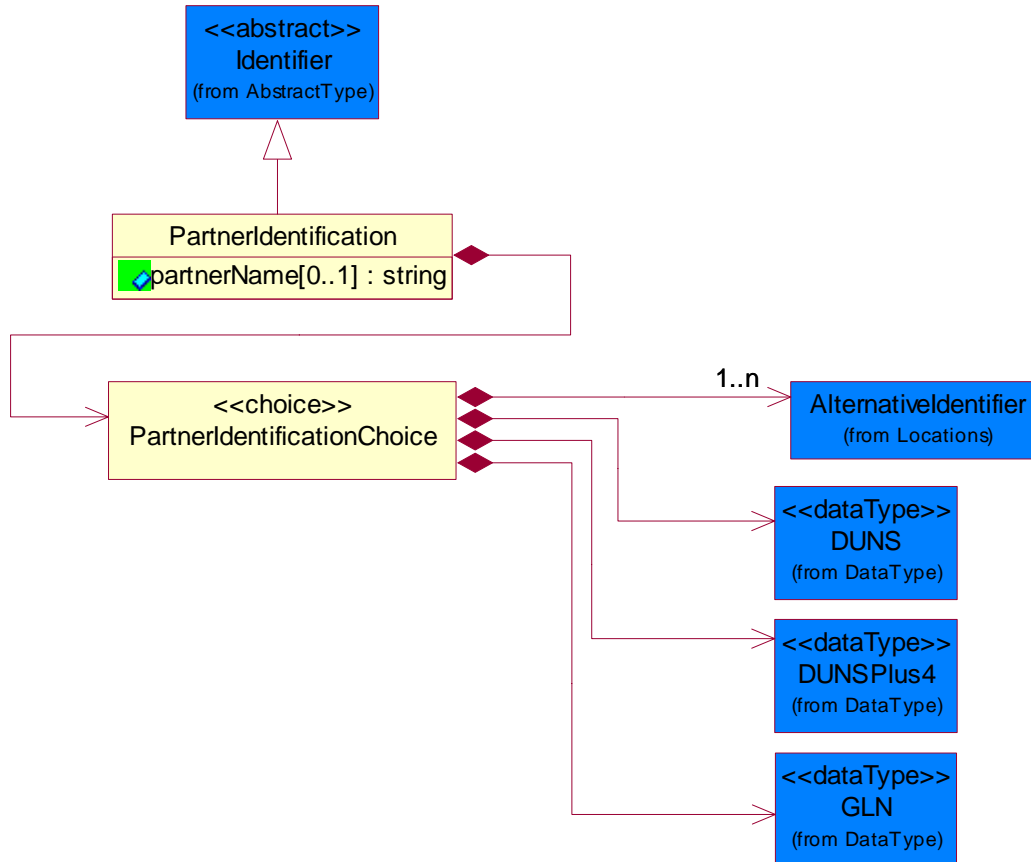


Figure 4-12 PartnerIdentification

| Attribute | Type | Documentation |
|-------------------|--------|---|
| partnerName[0..1] | string | The name of the partner's company/business. |

| Composition | Cardinality | Type | Documentation |
|-----------------------------|-------------|-----------------------------|---------------|
| PartnerIdentificationChoice | 1 | PartnerIdentificationChoice | |

4.4.2 PartnerIdentificationChoice

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|-----------|--|
| DUNS | 1 | DUNS | A number assigned by Dun and Bradstreet to identify a business location. |
| DUNSPlus4 | 1 | DUNSPlus4 | A identifier to specify a |

| | | | |
|-----------------------|------|-----------------------|---|
| | | | specific location within a business location. |
| AlternativeIdentifier | 1..n | AlternativeIdentifier | Identifies the specified code and the name of the organization that a code is utilized from. |
| GLN | 1 | GLN | Global Location Number (GLN) - A identifier to identify legal entities, trading parties and location. |

4.5 ProductIdentification

4.5.1 ProductIdentification

The object provides the identifier(s) of a product.

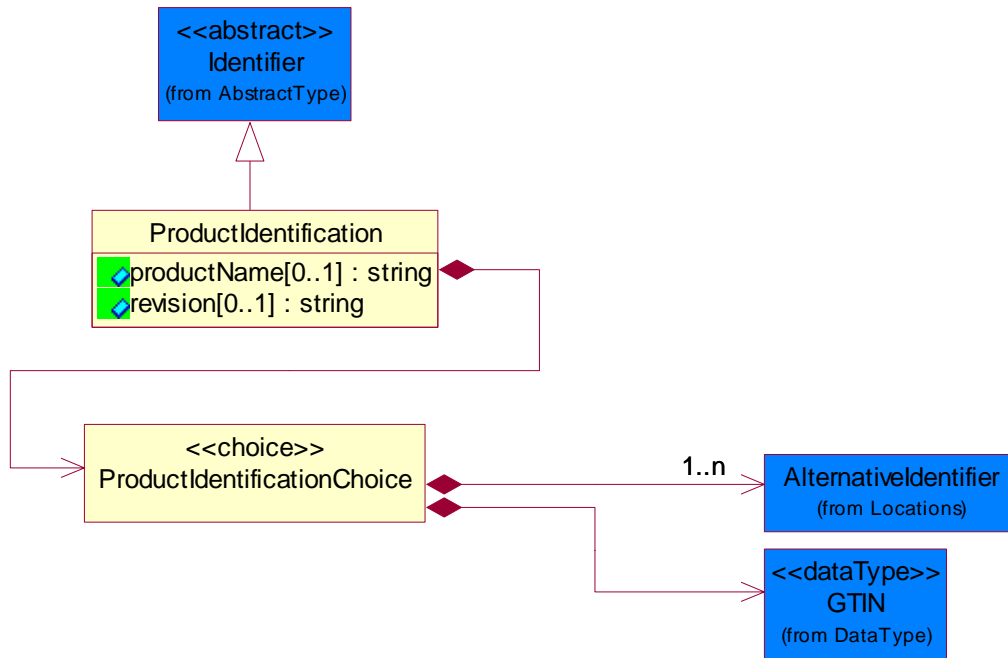


Figure 4-13 ProductIdentification

| Attribute | Type | Documentation |
|-------------------|--------|--|
| productName[0..1] | string | The name of the product. |
| revision[0..1] | string | Referenced the specified product revision. |

| Composition | Cardinality | Type | Documentation |
|-----------------------------|-------------|-----------------------------|---------------|
| ProductIdentificationChoice | 1 | ProductIdentificationChoice | |

4.5.2 ProductIdentificationChoice

| Composition | Cardinality | Type | Documentation |
|-----------------------|-------------|-----------------------|--|
| AlternativeIdentifier | 1..n | AlternativeIdentifier | Identifies the specified code and the name of the organization that a code is utilized from. |
| GTIN | 1 | GTIN | Global Trade Identification Number (GTIN). |

4.6 CodeList

4.6.1 Country

For representation of Country name RosettaNet has adopted ISO 3166-3; 1999. Refer to the following web page to get the latest version of the standard:

<http://www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/index.html>

If you need more information about the ISO standard please contact ISO for more details.

4.6.2 CountrySubdivision

For representation of a Countries subdivisions RosettaNet has adopted ISO 3166-3; 1999. Refer to the following web page to get the latest version of the standard:

<http://www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/index.html>

If you need more information about the ISO standard please contact ISO for more details.

4.6.3 Language

For representation of Language name RosettaNet has adopted ISO 639-2; 1998. Refer to the following web page to get the latest version of the standard:

<http://www.loc.gov/standards/iso639-2/iso639jac.html>

If you need more information about the ISO standard please contact ISO for more details.

4.6.4 MimeTypeQualifier

The MIME type as defined by IANA.

Please refer to <http://www.iana.org/assignments/media-types/> for a list of types.

| Instance | Documentation |
|---------------------------|---------------|
| application/activemessage | [Shapiro] |
| application/andrew-inset | [Borenstein] |
| application/applefile | [Faltstrom] |

| | |
|-------------------------------|------------------------------------|
| application/atomicmail | [Borenstein] |
| application/batch-SMTP | [RFC2442] |
| application/beep+xml | [RFC3080] |
| application/cals-1840 | [RFC1895] |
| application/cnrp+xml | [RFCCNRP] |
| application/commonground | [Glazer] |
| application/cpl+xml | |
| application/cybercash | [Eastlake] |
| application/dca-rft | [Campbell] |
| application/dec-dx | [Campbell] |
| application/dicom | [RFC3240] |
| application/dvcs | [RFC3029] |
| application/EDI-Consent | [RFC1767] |
| application/EDIFACT | [RFC1767] |
| application/EDI-X12 | [RFC1767] |
| application/eshop | [Katz] |
| application/font-tdpfr | [RFC3073] |
| application/http | [RFC2616] |
| application/hyperstudio | [Domino] |
| application/iges | [Parks] |
| application/index | [RFC2652] |
| application/index.cmd | [RFC2652] |
| application/index.obj | [RFC2652] |
| application/index.response | [RFC2652] |
| application/index.vnd | [RFC2652] |
| application/iotp | [RFC2935] |
| application/ipp | [RFC2910] |
| application/isup | [RFC3204] |
| application/mac-binhex40 | [Faltstrom] |
| application/macwriteii | [Lindner] |
| application/marc | [RFC2220] |
| application/mathematica | [Van Nostern] |
| application/msword | [Lindner] |
| application/news-message-id | [RFC1036, Spencer] |
| application/news-transmission | [RFC1036, Spencer] |
| application/ocsp-request | [RFC2560] |
| application/ocsp-response | [RFC2560] |
| application/octet-stream | [RFC2045, RFC2046] |
| application/oda | [RFC2045, RFC2046] |
| application/ogg | [RFC-walleij-ogg-mediatype-08.txt] |
| application/parityfec | [RFC3009] |
| application/pdf | [Lindner] |
| application/pgp-encrypted | [RFC3156] |
| application/pgp-keys | [RFC3156] |
| application/pgp-signature | [RFC3156] |
| application/pkcs10 | [RFC2311] |
| application/pkcs7-mime | [RFC2311] |
| application/pkcs7-signature | [RFC2311] |
| application/pkix-cert | [RFC2585] |

| | |
|--|-------------------------------------|
| application/pkixcmp | [RFC2510] |
| application/pkix-crl | [RFC2585] |
| application/postscript | [RFC2045,RFC2046] |
| application/prs.alvestrand.titrax-sheet | [Alvestrand] |
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| application/vnd.fujitsu.oasys3 | [Okudaira] |
| application/vnd.fujitsu.oasysgp | [Sugimoto] |
| application/vnd.fujitsu.oasysprs | [Ogita] |
| application/vnd.fujixerox.ddd | [Onda] |
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| application/vnd.ibm.Minipay | [Herzberg] |
| application/vnd.ibm.modcap | [Hohensee] |
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| application/vnd.intu.qfx | [Scratchley] |
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| application/vnd.japannet-verification | [Yoshitake] |
| application/vnd.japannet-verification-wakeup | [Fujii] |
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| application/vnd.kde.kspread | [Faure] |
| application/vnd.kde.kword | [Faure] |
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| application/vnd.lotus-organizer | [Wattenberger] |

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| application/vnd.meridian-slingshot | [Wedel] |
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| application/vnd.micrografx.igx | [Prevo] |
| application/vnd.mif | [Wexler] |
| application/vnd.minisoft-hp3000-save | [Bartram] |
| application/vnd.mitsubishi.misty-guard.trustweb | [Tanaka] |
| application/vnd.Mobius.DAF | [Kabayama] |
| application/vnd.Mobius.DIS | [Kabayama] |
| application/vnd.Mobius.MBK | [Devasia] |
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| application/vnd.motorola.flexsuite.ttc | [Patton] |
| application/vnd.motorola.flexsuite.wem | [Patton] |
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| application/vnd.ms-project | [Gill] |
| application/vnd.ms-tnef | [Gill] |
| application/vnd.ms-works | [Gill] |
| application/vnd.ms-wpl | [Plastina] |
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| application/vnd.music-niff | [Butler] |
| application/vnd.netfpx | [Mutz] |
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| application/vnd.noblenet-sealer | [Solomon] |
| application/vnd.noblenet-web | [Solomon] |
| application/vnd.novadigm.EDM | [Swenson] |
| application/vnd.novadigm.EDX | [Swenson] |
| application/vnd.novadigm.EXT | [Swenson] |
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| application/vnd.palm | [Peacock] |

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| application/vnd.powerbuilder75-s | [Shilts] |
| application/vnd.powerbuilder7-s | [Shilts] |
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| application/vnd.publishare-delta-tree | [Ben-Kiki] |
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| application/vnd.street-stream | [Levitt] |
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| application/vnd.uplanet.list-wbxml | [Martin] |
| application/vnd.uplanet.signal | [Martin] |
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| application/whoispp-response | [RFC2958] |
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| audio/EVRC0 | [RFC-ietf-avt-evrc-smv-03.txt] |
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| audio/G726-40 | |
| audio/G728 | |
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| audio/G729D | |
| audio/G729E | |
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| audio/L20 | [RFC3190] |
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| audio/RED | |
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| audio/vnd.nuera.ecelp7470 | [Fox] |
| audio/vnd.nuera.ecelp9600 | [Fox] |
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| audio/vnd.qcelp | [Lundblade] |
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| audio/vnd.vmx.cvsd | [Vaudreuil] |
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| image/g3fax | [RFC1494] |
| image/gif | [RFC2045,RFC2046] |
| image/ief | [RFC1314] Image Exchange Format |
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| image/prs.pti | [Laun] |
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| image/tiff-fx | [RFC3250] Tag Image File Format Fax eXtended |
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| image/vnd.dwg | [Moline] |

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| image/vnd.fujixerox.edmics-mmr | [Onda] |
| image/vnd.fujixerox.edmics-rlc | [Onda] |
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| message/http | [RFC2616] |
| message/news | [RFC 1036, H.Spencer] |
| message/partial | [RFC2045,RFC2046] |
| message/rfc822 | [RFC2045,RFC2046] |
| message/s-http | [RFC2660] |
| message/sip | [RFC3261] |
| message/sipfrag | [RFC3420] |
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| model/mesh | [RFC2077] |
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| model/vnd.flatland.3dml | [Powers] |
| model/vnd.gdl | [Babits] |
| model/vnd.gs-gdl | [Babits] |
| model/vnd.gtw | [Ozaki] |
| model/vnd.mts | [Rabinovitch] |
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| model/vnd.parasolid.transmit.text | [Parasolid] |
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| model/vrml | [RFC2077] |
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| multipart/appledouble | [Faltstrom] |
| multipart/byteranges | [RFC2068] |
| multipart/digest | [RFC2045,RFC2046] |
| multipart/encrypted | [RFC1847] |
| multipart/form-data | [RFC2388] |
| multipart/header-set | [Crocker] |
| multipart/mixed | [RFC2045,RFC2046] |
| multipart/parallel | [RFC2045,RFC2046] |
| multipart/related | [RFC2387] |
| multipart/report | [RFC1892] |
| multipart/signed | [RFC1847] |
| multipart/voice-message | [RFC2421,RFC2423] |
| text/calendar | [RFC2445] |
| text/css | [RFC2318] |

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| text/directory | [RFC2425] |
| text/enriched | [RFC1896] |
| text/html | [RFC2854] |
| text/parityfec | [RFC3009] |
| text/plain | [RFC2646,RFC2046] |
| text/prs.lines.tag | [Lines] |
| text/rfc822-headers | [RFC1892] |
| text/richtext | [RFC2045,RFC2046] |
| text/rtf | [Lindner] |
| text/sgml | [RFC1874] |
| text/t140 | [RFC2793] |
| text/tab-separated-values | [Lindner] |
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| text/vnd.DMClientScript | [Bradley] |
| text/vnd.fly | [Gurney] |
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| text/vnd.in3d.spot | [Powers] |
| text/vnd.IPTC.NewsML | [IPTC] |
| text/vnd.IPTC.NITF | [IPTC] |
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| text/vnd.wap.sl | [WAP-Forum] |
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| video/BT656 | |
| video/CeIB | |
| video/DV | [RFC3189] |
| video/H261 | |
| video/H263 | |
| video/H263-1998 | |
| video/H263-2000 | |
| video/JPEG | |
| video/MP1S | |
| video/MP2P | |
| video/MP2T | |
| video/MP4V-ES | [RFC3016] |
| video/mpeg | [RFC2045,RFC2046] |
| video/MPV | |
| video/nv | |
| video/parityfec | [RFC3009] |

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| video/quicktime | [Lindner] |
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| video/vnd.objectvideo | [Clark] |
| video/vnd.vivo | [Wolfe] |

4.6.5 UnitOfMeasure

Code identifying a product unit of measure.

| Instance | Documentation |
|----------|------------------------------|
| 10P | 10-pack. |
| 1BF | 100 Board Feet. |
| 1FC | 20 Foot Container. |
| 1GR | Gram/Cubic Centimeter. |
| 1GT | 10,000 Gallon Tankcar. |
| 1KB | 25 Kilogram Bulk Bag. |
| 1KD | 10 Kilogram Drum. |
| 1KP | 1000-pack. |
| 1PA | 20-Pack. |
| 1PB | 50 Pound Bag. |
| 1PD | 100 Pound Drum. |
| 2FC | 40 Foot Container. |
| 2GR | Gram/square meter. |
| 2GT | 20,000 Gallon Tankcar. |
| 2KB | 300 Kilogram Bulk Bag. |
| 2KD | 15 Kilogram Drum. |
| 2PA | 100-Pack. |
| 3GR | Grams Per 100 Centimeters. |
| 3KB | 500 Kilogram Bulk Bag. |
| 3KD | 55 Gallon Drum. |
| 4GR | Grams Per 100 Grams. |
| 4KD | 115 Kilogram Drum. |
| 50P | 50-pack. |
| 5GR | Grams Per Cubic Centimeter. |
| 6GR | Grams Per Square Centimeter. |
| 7GR | Grams Per Square Meter. |
| ACR | Acre. |
| ACT | Actual Pounds. |
| ALU | Aluminum Pounds Only. |
| AMP | Ampere. |
| ASM | Angstrom. |
| BAB | Base Box. |
| BAC | Batch. |

| | |
|-----|--|
| BAE | Bale. |
| BAG | Bag. |
| BAL | Ball. |
| BAN | Band. |
| BAP | Batting Pound. |
| BAR | Bar. |
| BAS | Basket. |
| BAT | Batt. |
| BAW | Base Weight. |
| BEA | Beam. |
| BEC | Becquerel/kilogram. |
| BEL | Belt. |
| BIL | Billet. |
| BIN | Bin. |
| BIT | Bit. |
| BKC | Bulk Car Load. |
| BLO | Block. |
| BOA | Board. |
| BOF | Board Feet. |
| BOL | Bolt. |
| BOT | Bottle. |
| BOX | Box. |
| BRD | Barrels Per Day. |
| BRE | Barrel. |
| BRI | Barrel (Imperial). |
| BRM | Barrels Per Minute. |
| BTF | British Thermal Units (BTUs) Per Cubic Foot. |
| BTP | British Thermal Units (BTUs) Per Pound. |
| BTU | British Thermal Unit (BTU). |
| BUC | Bucket. |
| BUD | Bushel, Dry Imperial. |
| BUK | Bunks. |
| BUL | Bulk. |
| BUN | Bundle. |
| BUP | Bulk Pack. |
| BUS | Bushel. |
| BYT | Bytes. |
| CAA | Carat. |
| CAB | Carboy. |
| CAC | Card. |
| CAD | Candela. |
| CAG | Cartridge. |
| CAK | Cask. |
| CAL | Calorie. |
| CAN | Can. |
| CAO | Carload. |
| CAR | Car. |
| CAS | Case. |
| CAT | Canister. |
| CAW | Catchweight. |

| | |
|-----|--|
| CEL | Cell. |
| CEM | Centimeter. |
| CEP | Centipoise (CPS). |
| CET | Centiliter. |
| CGM | Centigram. |
| CHA | Chains (Land Survey). |
| CHE | Chest. |
| CNN | Connector. |
| COG | Coil Group. |
| COI | Coil. |
| COL | Coulomb. |
| COM | Composite Product Pounds (Total Weight). |
| CON | Cone. |
| COT | Container. |
| COV | Cover. |
| CRA | Crate. |
| CRT | Carton. |
| CSE | Cassette. |
| CUB | Cubic centimeter. |
| CUC | Cubic centimeter/second. |
| CUF | Cubic Foot. |
| CUI | Cubic inch. |
| CUM | Cubicmeter. |
| CUP | Cup. |
| CUY | Cubic yard. |
| CYC | Cycles. |
| CYL | Cylinder. |
| DAY | Day. |
| DCB | Decibels. |
| DCG | Decagram. |
| DCL | Deciliter. |
| DEA | Deal. |
| DEC | Decimeter. |
| DEF | Degree Fahrenheit. |
| DEG | Degree Celsius. |
| DEP | Dep. Factor. |
| DGM | Decigram. |
| DIE | Die. |
| DIL | Display. |
| DIP | Dispenser. |
| DOZ | Dozen. |
| DRA | Dram. |
| DRU | Drum. |
| DRY | Dry Pounds. |
| EAC | Each. |
| ELE | Electrical Capacitance. |
| FAR | Farads. |
| FFA | Femtofarad. |
| FLO | Fluid Ounce. |
| FOI | Fluid Ounce (Imperial). |

| | |
|-----|----------------------------|
| FOO | Foot. |
| FOU | Fluid Ounce US. |
| FUU | Fuel Usage (Gallons). |
| GAL | Gallon. |
| GAS | Gage Systems. |
| GIH | Gigahertz. |
| GIJ | Gigajoules. |
| GIL | Gill (Imperial). |
| GOB | Gross Barrels. |
| GOG | Gross Gallons. |
| GOK | Gross Kilogram. |
| GOT | Gross Ton. |
| GOY | Gross Yard. |
| GRA | Gram. |
| GRG | Great Gross (Dozen Gross). |
| GRK | Grams Per Kilogram. |
| GRL | Grams Per Liter. |
| GRM | Grams Per Milliliter. |
| GRN | Grain. |
| GRO | Gross. |
| GRP | Group. |
| HAG | Half Gallon. |
| HAH | Half Hour. |
| HAL | Half Liter. |
| HAN | Hank. |
| HEA | Heat lots. |
| HEC | Hectare. |
| HEL | Hectoliter. |
| HEP | Hectopascal. |
| HER | Hertz. |
| HNY | Henry. |
| HOS | Hours. |
| HOU | Hour. |
| HUA | Hundredth of a Carat. |
| HUB | Hundred Boxes. |
| HUC | Hundred Count. |
| HUS | Hundred Sheets. |
| IMG | Imperial Gallons. |
| INC | Inch. |
| JAR | Jar. |
| JOI | Joint. |
| JOU | Joule. |
| KBY | Kilobyte. |
| KEG | Keg. |
| KEL | Kelvin. |
| KHO | Kilometer/hour. |
| KIC | Kilogram per cubic meter. |
| KIE | Kilometer. |
| KIG | Kilogram. |
| KIH | Kilohertz. |

| | |
|-----|-----------------------------|
| KIK | Kilobecquerel/Kilogram. |
| KIL | Kiloampere. |
| KIM | Kilogram/square meter. |
| KIO | Kilohm. |
| KIS | Kilogramm pro Sekunde. |
| KIT | Kit. |
| KIV | Kilovolt. |
| KIW | Kilowatt. |
| KJL | Kilojoule. |
| KKG | Kilogram/Kilogram. |
| KUD | Kubikdezimeter. |
| KUM | Kubikmeter pro Sekunde. |
| KWH | Kilowatt-hour. |
| LIF | Lifts. |
| LIM | Link. |
| LIQ | Liquid Pounds. |
| LIT | Liter. |
| LOA | Load. |
| LOT | Lot. |
| LUG | Lug. |
| MAM | Milliamps/mm. |
| MAT | Mat. |
| MBY | Megabyte. |
| MCG | Microgram. |
| MCM | Milligrams Per Cubic Meter. |
| MCR | Micron. |
| MEG | Megagram. |
| MEH | Megahertz. |
| MEP | Megapascal. |
| MET | Meter. |
| MEW | Megawatt. |
| MGM | Milligram. |
| MIB | Million BTU's. |
| MIC | Mikrogram/cubic meter. |
| MIG | Micrograms Per Cubic Meter. |
| MIL | Mile. |
| MIM | Micrometer. |
| MIN | Minute. |
| MIP | Millipascal seconds. |
| MIS | Microsecond. |
| MIT | Miter. |
| MIV | Millivolt. |
| MIW | Milliwatt. |
| MJO | Millijoule. |
| MLA | Milliampere. |
| MLB | Millibar. |
| MLC | Milligram/cubic meter. |
| MLI | Milliliter. |
| MLK | Milligram/kilogram. |
| MLL | Milligram/Liter. |

| | |
|-----|--|
| MLS | Miles. |
| MME | Millimeter. |
| MMH | Millimeter H2O. |
| MMK | Millimol/kilogram. |
| MMO | Millimol. |
| MOK | Mol/kilogram. |
| MOL | Mol. |
| MON | Month. |
| MPH | Megagrams Per Hour. |
| MSC | Millisecond. |
| MSM | Milligrams Per Square Meter. |
| MTA | Millitesla. |
| MTQ | Meter pro Quadratsekunde. |
| MTS | Meters per second. |
| MUL | Multichip - When 2 or more dies (chips) are merged into one package. |
| MVS | Millivolts. |
| MVT | Millivolt. |
| NAA | Nanoamps. |
| NAM | Nanometer. |
| NAS | Nanosecond. |
| NEB | Net Barrels. |
| NEG | Net Gallons. |
| NEI | Net Imperial Gallons. |
| NEL | Net Liters. |
| NEW | Newton. |
| OCT | Ohm/ct. |
| OHM | Ohm. |
| OMM | Ohm/mm. |
| ONE | One. |
| OSQ | Ohm/sq. |
| OTP | One Thousand Pieces. |
| OUN | Ounce. |
| OVI | Ohm/via. |
| PAC | Parcel. |
| PAD | Pad. |
| PAG | Package. |
| PAI | Pail. |
| PAK | Pack (PAK). |
| PAL | Pallet. |
| PAN | Panel. |
| PAR | Pair. |
| PAS | Pascal. |
| PAT | Packet. |
| PEC | Percent. |
| PEG | Percentage. |
| PEH | Percent Per 1000 Hours. |
| PEN | Pennyweight. |
| PER | Per Hundred Pieces. |
| PEW | Percent Weight. |

| | |
|-----|------------------------------|
| PFR | Picofarad. |
| PID | Pint U.S. Dry. |
| PIE | Piece. |
| PIL | Pint - US liquid. |
| PLA | Plate. |
| PLL | Pallet (Lift). |
| PLT | Pallete. |
| PLU | Pallet/Unit Load. |
| POF | Pounds Per Foot. |
| POG | Pounds Per Gallon. |
| PON | Pound. |
| POP | Pounds Per Piece of Product. |
| POS | Pounds Per 1000 Square Feet. |
| POT | Pounds Per Thousand. |
| PPB | Parts per billion (US). |
| PPM | Parts per million. |
| PPP | Pounds Per Pound of Product. |
| PSC | Picosecond. |
| PSS | Pascal second. |
| QUA | Quart - US liquid. |
| RAC | Rack. |
| REA | Ream of 500 Sheets. |
| REE | Reel. |
| RIN | Ring. |
| ROD | Rod. |
| ROL | Roll. |
| SAC | Sack. |
| SBB | Super Bulk Bag. |
| SEC | Second. |
| SET | Set. |
| SHE | Sheet. |
| SHI | Shipment. |
| SHM | Sheet - Metric measure. |
| SHO | Shot. |
| SID | Disk (Disc). |
| SKE | Skein. |
| SKI | Skid. |
| SLE | Sleeve. |
| SLI | Slip Sheet. |
| SMI | Square mile. |
| SMM | Square millimeter. |
| SPO | Spool. |
| SQF | Square foot. |
| SQI | Square inch. |
| SQK | Square kilometer. |
| SQM | Square meter. |
| SQS | Square meter/second. |
| SQU | Square. |
| SQY | Square Yard. |
| STI | Stick. |

| | |
|-----|------------------------------|
| STM | Statute Mile. |
| STR | Strip. |
| TAB | Tablet. |
| TAN | Tank. |
| TAT | Tank Truck. |
| TES | Tesla. |
| THO | Thousand. |
| TNN | Tonne. |
| TON | Ton. |
| TOR | Torr. |
| TOT | Tote. |
| TRA | Train. |
| TRF | Track Foot. |
| TRL | Trailer. |
| TRO | Troy. |
| TRU | Truckload. |
| TRY | Tray. |
| TRZ | Troy OZ. |
| TUB | Tube. |
| ULU | Unitless Unit of Measure. |
| UNT | Unit. |
| USG | US gallon. |
| USP | US pound. |
| UST | US ton. |
| VIA | Vial. |
| VOL | Volt. |
| VTA | Volts (Alternating Current). |
| VTD | Volts (Direct Current). |
| VTM | Volts Per Meter. |
| WAF | Wafer. |
| WAR | Watt. |
| WEE | Week. |
| WRA | Wrap. |
| YAR | Yard. |
| YEA | Year. |

5. System Structure

5.1 BusinessProcessIdentifier

A Business Process Identifier to uniquely define the TPIR-PIP 'role' within a Business Scenario at a company or MNC level. The identifier **MUST** be composed of alphanumeric characters only and its length **MUST** be between one and twelve characters.

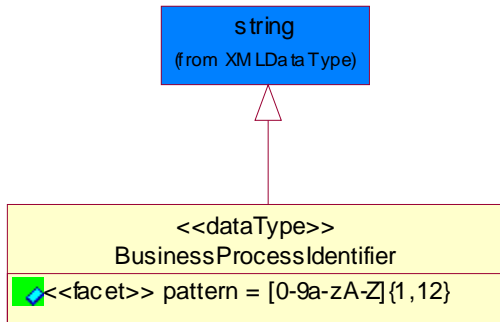


Figure 5-1 BusinessProcessIdentifier

| Attribute | Type | Documentation |
|-----------|------|-------------------|
| pattern | | [0-9a-zA-Z]{1,12} |

5.2 BusinessServiceInformation

The object allows the specification of the business service utilized within the partner company. This may or may not be the same as the information sent by the RNIF.

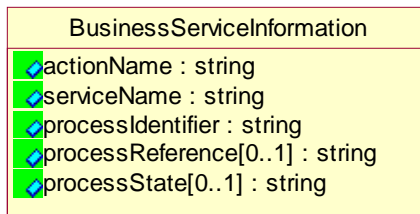


Figure 5-2 BusinessServiceInformation

| Attribute | Type | Documentation |
|-------------------|--------|--|
| actionName | string | The name of Action. For RosettaNet usually any of Request/Confirm/Notify/Query/Response. |
| serviceName | string | The name of the Business Activity with the "Request/Confirm" part removed. E.g., for the Activity "Request Purchase Order" ==> "Purchase Order". |
| processIdentifier | string | The name of the PIP e.g. Notify of Forecast Reply. |

| | | |
|------------------------|--------|---|
| processReference[0..1] | string | The URN for the PIP that includes Cluster/Segment/Process pattern used to identify the interface process (such as PIP3A4) |
| processState[0..1] | string | The business process (or service) state of the sender of a document. When a service receives this document, the receiver may use the state as a precondition. |

5.3 ContractInformation

A block of information used to correlate a contract in an executing choreography.

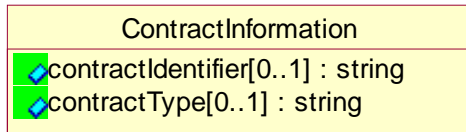


Figure 5-3 ContractInformation

| Attribute | Type | Documentation |
|--------------------------|--------|---|
| contractIdentifier[0..1] | string | Unique identification of a contract between the Sender and the Receiver |
| contractType[0..1] | string | The type of the contract: an attribute describing the type of the ContractIdentification. Valid values are URI, URN, ebXMLCPA, or other values defined by partners. |

5.4 CorrelationInformation

A block of information used to correlate a requesting document to a responding document and to the contract in an executing choreography.

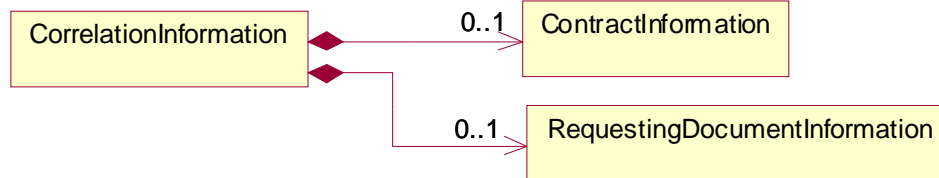


Figure 5-4 CorrelationInformation

| Composition | Cardinality | Type | Documentation |
|-------------------------------|-------------|-------------------------------|---|
| ContractInformation | 0..1 | ContractInformation | A block of information used to correlate a contract in an executing choreography. |
| RequestingDocumentInformation | 0..1 | RequestingDocumentInformation | A block of information used to correlate a requesting document to a responding document in an executing choreography. |

5.5 DocumentHeader

The object allows for the identification of the sender and receiver of the business document.

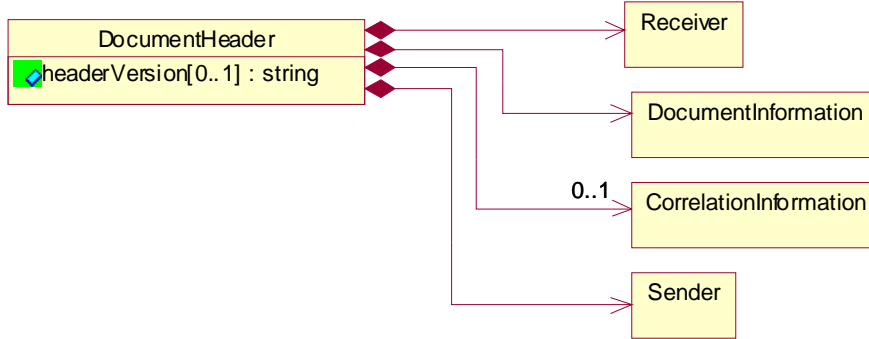


Figure 5-5 DocumentHeader

| Attribute | Type | Documentation |
|---------------------|--------|---|
| headerVersion[0..1] | string | The UN/CEFACT version of the document header. |

| Composition | Cardinality | Type | Documentation |
|------------------------|-------------|------------------------|---|
| Sender | 1 | Sender | The object allows the identification of the initiating party of the business message. |
| CorrelationInformation | 0..1 | CorrelationInformation | A block of information used to correlate a requesting document to a responding document and to the contract in an executing choreography. |
| DocumentInformation | 1 | DocumentInformation | The object specifies information to identify the business document, a summary of attachments, and information about the business document security. |
| Receiver | 1 | Receiver | The object allows the identification of the receiving party of the business message. |

5.6 DocumentIdentification

The object specifies all information necessary to identify the business document.

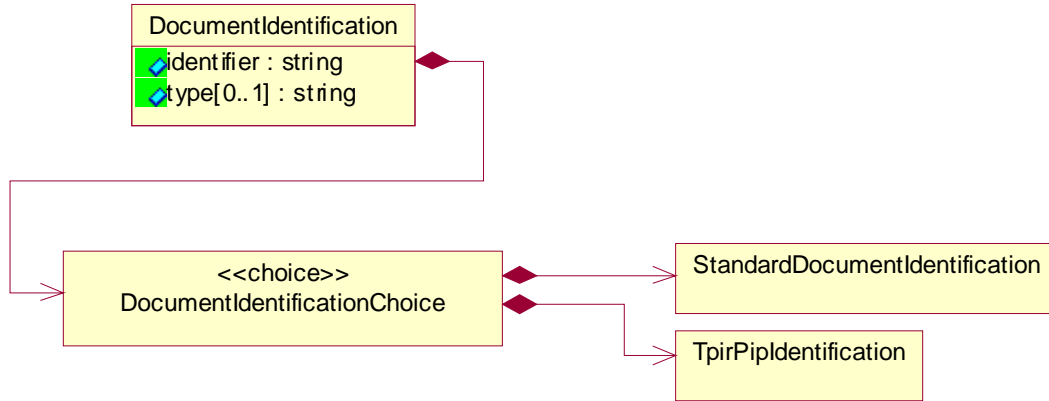


Figure 5-6 DocumentIdentification

| Attribute | Type | Documentation |
|------------|--------|--|
| identifier | string | The unique identifier for the document being sent. |
| type[0..1] | string | Name of the Action Message |

| Composition | Cardinality | Type | Documentation |
|------------------------------|-------------|------------------------------|---------------|
| DocumentIdentificationChoice | 1 | DocumentIdentificationChoice | |

5.7 DocumentIdentificationChoice

| Composition | Cardinality | Type | Documentation |
|--------------------------------|-------------|--------------------------------|---|
| StandardDocumentIdentification | 1 | StandardDocumentIdentification | The object specifies additional information necessary to identify the standard business document. |
| TpirPipIdentification | 1 | TpirPipIdentification | The object specifies all information necessary to uniquely identify a TPIR-PIP within a Registry or trading partner repository. |

5.8 DocumentInformation

The object specifies information to identify the business document, a summary of attachments, and information about the business document security.

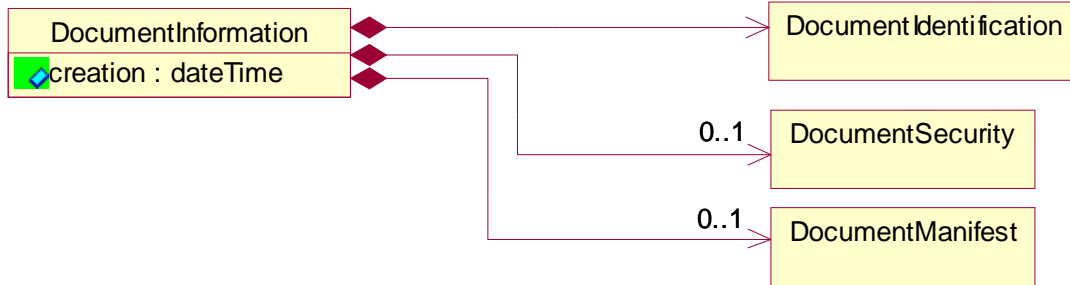


Figure 5-7 DocumentInformation

| Attribute | Type | Documentation |
|-----------|----------|---|
| creation | dateTime | The creation date and time of the specified Business Document (i.e. the Purchase Order date). |

| Composition | Cardinality | Type | Documentation |
|------------------------|-------------|------------------------|--|
| DocumentIdentification | 1 | DocumentIdentification | The object specifies all information necessary to identify the business document. |
| DocumentSecurity | 0..1 | DocumentSecurity | The object provides additional granularity in specifying business document security (this is in addition to the specified PIP security). |
| DocumentManifest | 0..1 | DocumentManifest | The block provides a brief summary of attachments and Service Content. |

5.9 DocumentManifest

The block provides a brief summary of attachments and Service Content.

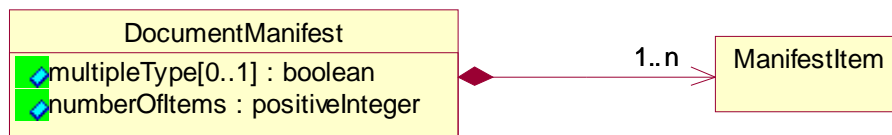


Figure 5-8 DocumentManifest

| Attribute | Type | Documentation |
|--------------------|---------|---|
| multipleType[0..1] | boolean | Indicates whether the manifest contains documents of multiple types. True if yes, |

| | | |
|---------------|-----------------|--|
| | | and False if no. |
| numberOfItems | positiveInteger | Total number of documents in the message. The physical count of the attachments in the payload plus the RosettaNet Business Message (for Service Content). The value of this field will be at least 1. |

| Composition | Cardinality | Type | Documentation |
|--------------|-------------|--------------|---|
| ManifestItem | 1..n | ManifestItem | The object provides details about the specific attachment(s). |

5.10 DocumentSecurity

The object provides additional granularity in specifying business document security (this is in addition to the specified PIP security).

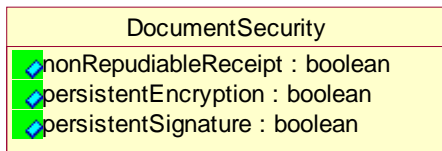


Figure 5-9 DocumentSecurity

| Attribute | Type | Documentation |
|----------------------|---------|--|
| nonRepudiableReceipt | boolean | The value "true" will indicate that a signed acknowledgement for the business document is necessary. |
| persistentEncryption | boolean | The value "true" will indicate that the Business Document (including the header) needs to be encrypted when stored or transported. |
| persistentSignature | boolean | The value "true" will indicate that a signature is required to be stored with the document while stored or transported. |

5.11 ManifestItem

The object provides details about the specific attachment(s).

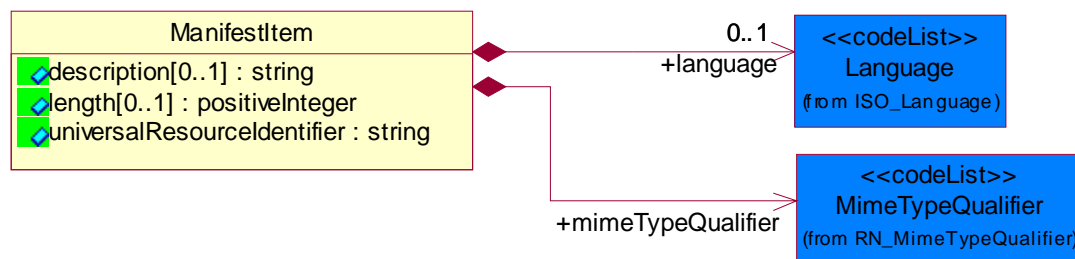


Figure 5-10 ManifestItem

| Attribute | Type | Documentation |
|-----------------------------|-----------------|--|
| description[0..1] | string | A description of the attachment. |
| length[0..1] | positiveInteger | The size of the attachment in bytes (i.e. 1 000 000 bytes) |
| universalResourceIdentifier | string | The generic set of all names/addresses that are short strings that refer to resources. |

| Composition | Cardinality | Type | Documentation |
|-------------------|-------------|-------------------|---|
| mimeTypeQualifier | 1 | MimeTypeQualifier | The MIME type as defined by IANA. Please refer to http://www.iana.org/assignments/media-types/ for a list of types. |
| language | 0..1 | Language | For representation of Language name RosettaNet has adopted ISO 639-2; 1998. Refer to the following web page to get the latest version of the standard: http://www.loc.gov/standards/iso639-2/iso639jac.html If you need more information about the ISO standard please contact ISO for more details. |

5.12 PipIdentifier

PIP Identification. [i.e. PIP3A4]

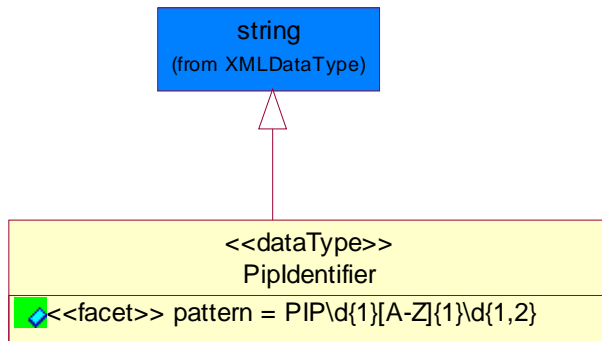


Figure 5-11 PipIdentifier

| Attribute | Type | Documentation |
|-----------|------|-------------------------|
| pattern | | PIP\d{1}[A-Z]{1}\d{1,2} |

5.13 PipVersion

Pip version number (i.e. 02.02.00).

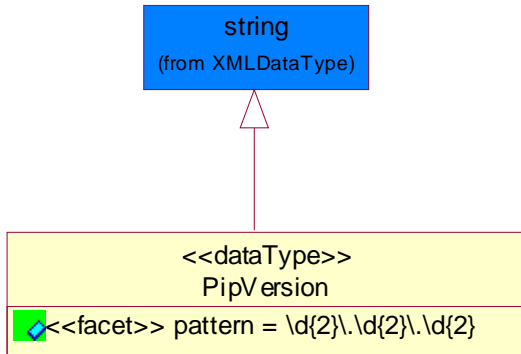


Figure 5-12 PipVersion

| Attribute | Type | Documentation |
|-----------|------|---------------------|
| pattern | | \d{2}\.\d{2}\.\d{2} |

5.14 Receiver

The object allows the identification of the receiving party of the business message.

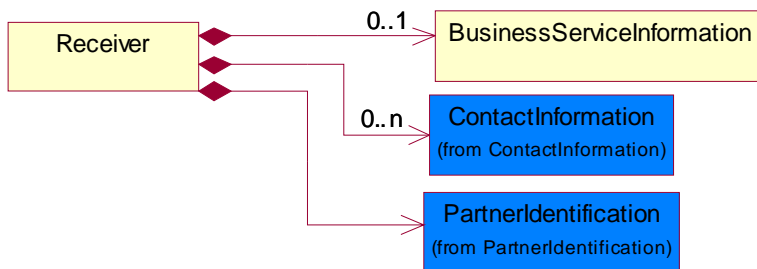


Figure 5-13 Receiver

| Composition | Cardinality | Type | Documentation |
|-----------------------------|-------------|-----------------------------|---|
| BusinessServiceIn formation | 0..1 | BusinessServiceIn formation | The object allows the specification of the business service utilized within the partner company. This may or may not be the same as the information sent by the RNIF. |
| PartnerIdentificati on | 1 | PartnerIdentificati on | The business document must allow for the identity of one or more parties to the transaction. |
| ContactInformatio n | 0..n | ContactInformatio n | The business document must allow for the identification of the name of the department, |

| | | | |
|--|--|--|---|
| | | | service or individual to be contacted regarding the context of the business document. |
|--|--|--|---|

5.15 RequestingDocumentInformation

A block of information used to correlate a requesting document to a responding document in an executing choreography.

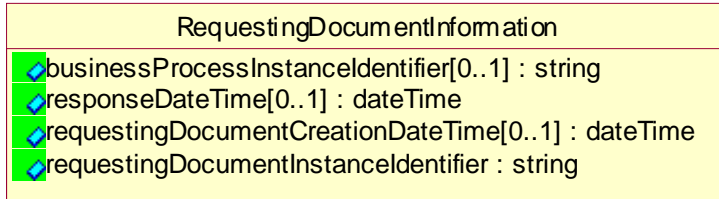


Figure 5-14 RequestingDocumentInformation

| Attribute | Type | Documentation |
|--|----------|--|
| businessProcessInstanceIdentifier[0..1] | string | The identifier for the public business process instance being sent that both the sender and receiver can identify. |
| responseDateTime[0..1] | dateTime | The expected time to receive the response. This can not be greater than the PIP TimeToPerform. |
| requestingDocumentCreationDateTime[0..1] | dateTime | The date-time of the requesting business document. |
| requestingDocumentInstanceIdentifier | string | The Business Document identification number that identifies the requesting Business Document. |

5.16 Sender

The object allows the identification of the initiating party of the business message.

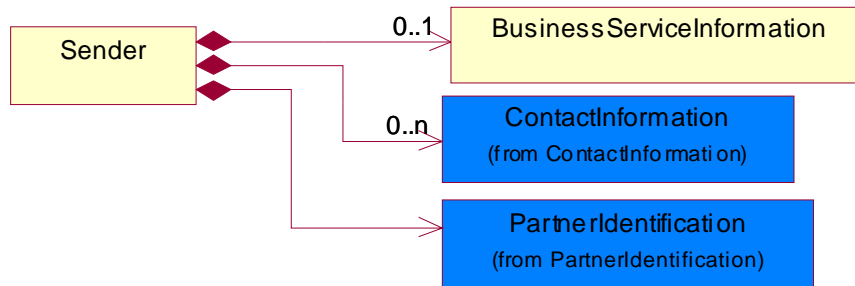


Figure 5-15 Sender

| Composition | Cardinality | Type | Documentation |
|---------------------|-------------|---------------------|----------------------------|
| PartnerIdentificati | 1 | PartnerIdentificati | The business document must |

| | | | |
|-----------------------------|------|-----------------------------|--|
| on | | on | allow for the identity of one or more parties to the transaction. |
| BusinessServiceIn formation | 0..1 | BusinessServiceIn formation | The object allows the specification of the business service utilized within the partner company. This may or may not be the same as the information sent by the RNIF. |
| ContactInformatio n | 0..n | ContactInformatio n | The business document must allow for the identification of the name of the department, service or individual to be contacted regarding the context of the business document. |

5.17 StandardDocumentIdentification

The object specifies additional information necessary to identify the standard business document.

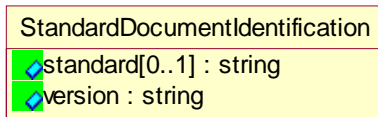


Figure 5-16 StandardDocumentIdentification

| Attribute | Type | Documentation |
|----------------|--------|--|
| standard[0..1] | string | Identifies the standard used to submit the business document. (e.g. RosettaNet). |
| version | string | PIP3A4v01.00 |

5.18 TpirPipIdentification

The object specifies all information necessary to uniquely identify a TPIR-PIP within a Registry or trading partner repository.

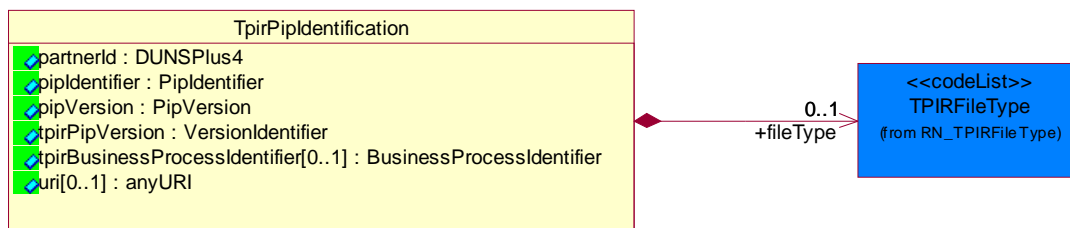


Figure 5-17 TpirPipIdentification

| Attribute | Type | Documentation |
|-------------------------------------|---------------------------|--|
| partnerId | DUNSPPlus4 | The Trading Partner Identification of MNC that is creating this TPIR PIP. |
| pipIdentifier | PipIdentifier | A TPIR PIP Identification [i.e., 3A4). |
| pipVersion | PipVersion | A TPIR PIP version number (i.e., 02.02.00) |
| tpirPipVersion | VersionIdentifier | A TPIR-PIP Version Number (i.e., major and minor version number as XX.XX). |
| tpirBusinessProcessIdentifier[0..1] | BusinessProcessIdentifier | A Business Process Identifier to uniquely define the TPIR-PIP 'role' within a Business Scenario at a company or MNC level. The identifier MUST be composed of alphanumeric characters only and its length MUST be between one and twelve characters. |
| uri[0..1] | anyURI | Describes the destination uri for the TPIR form. |

| Composition | Cardinality | Type | Documentation |
|-------------|-------------|--------------|---|
| fileType | 0..1 | TPIRFileType | Describes the file type of the TPIR form (PDF, XDP or XML). |

5.19 VersionIdentifier

Version Number (i.e., major and minor version number as XX.XX).

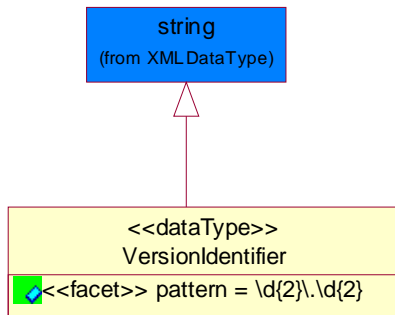


Figure 5-18 VersionIdentifier

| Attribute | Type | Documentation |
|-----------|------|---------------|
| pattern | | \d{2}\.\d{2} |

5.20 CodeList

5.20.1 TPIRFileType

A code identifying the file type of TPIR form.

| Name | Documentation |
|-------------|-----------------------------|
| PDF | Portable Document Format. |
| XDP | XML Data Package. |
| XML | eXtensible Markup Language. |

6. XML Data Type

6.1 anyURI

Represents a URI as defined by RFC 2396. An anyURI value can be absolute or relative, and may have an optional fragment identifier.

6.2 boolean

Represents Boolean values, which are either "true" or "false".

6.3 dateTime

Represents a specific instance of time.

The pattern for dateTime is CCYY-MM-DDThh:mm:ss where CC represents the century, YY the year, MM the month, and DD the day, preceded by an optional leading negative (-) character to indicate a negative number. If the negative character is omitted, positive (+) is assumed. The T is the date/time separator and hh, mm, and ss represent hour, minute, and second respectively. Additional digits can be used to increase the precision of fractional seconds if desired. For example, the format ss.ss... with any number of digits after the decimal point is supported. The fractional seconds part is optional.

This representation may be immediately followed by a "Z" to indicate Coordinated Universal Time (UTC) or to indicate the time zone. For example, the difference between the local time and Coordinated Universal Time, immediately followed by a sign, + or -, followed by the difference from UTC represented as hh:mm (minutes is required). If the time zone is included, both hours and minutes must be present.

6.4 decimal

A data type that contains decimal numbers scaled by a power of 10.

6.5 float

Represents single-precision 32-bit floating-point numbers.

6.6 integer

Represents a sequence of decimal digits with an optional leading sign (+ or -). This data type is derived from decimal.

6.7 positiveInteger

Represents an integer that is greater than zero. This data type is derived from nonNegativeInteger.

6.8 string

Represents character string.