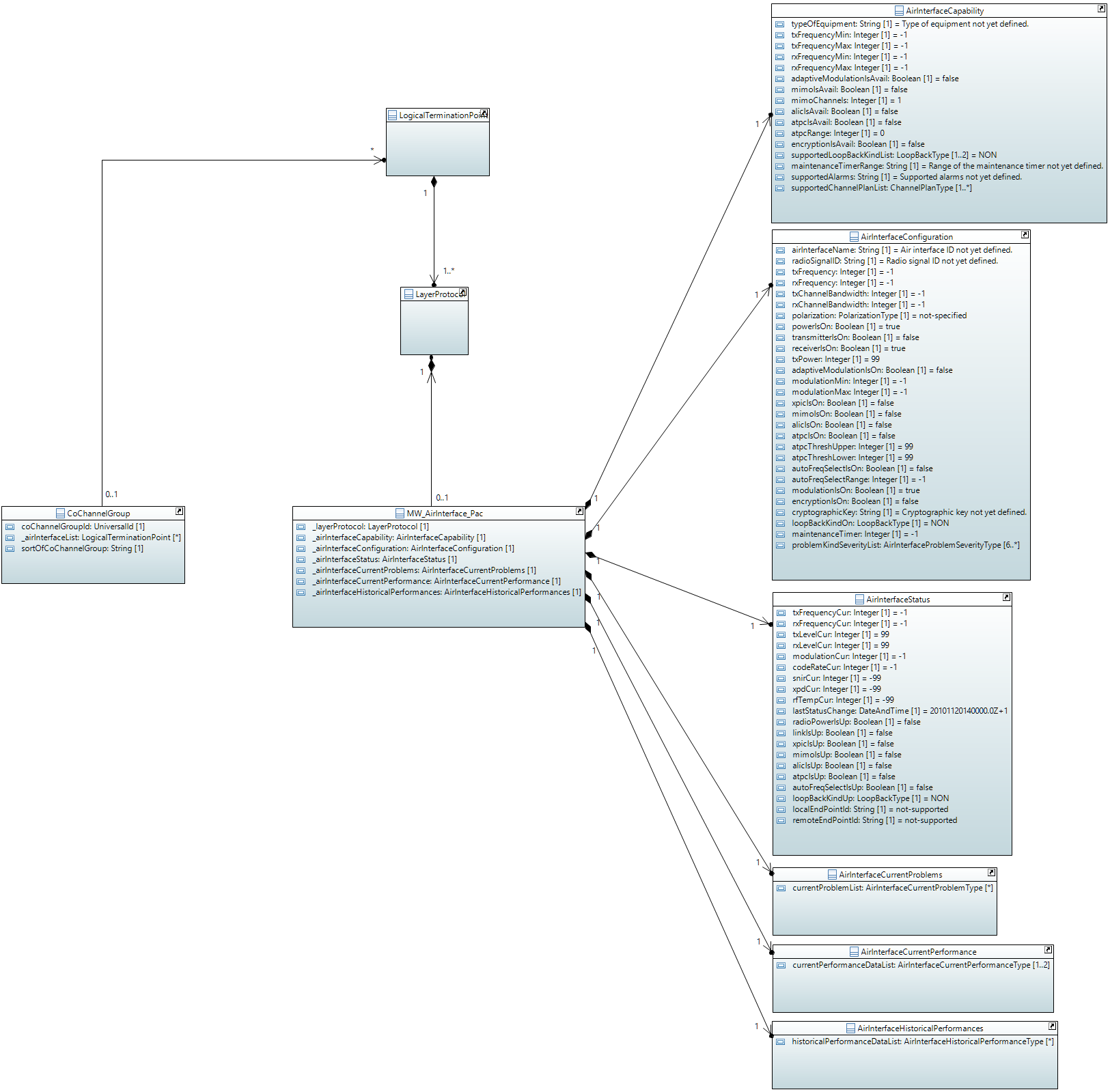
# AirInterface\_Pac and CoChannelGroup



## MW\_AirInterface\_Pac

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::MW\_AirInterface\_Pac

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES
* support: MANDATORY

Table 1: Attributes for MW\_AirInterface\_Pac

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| \_layerProtocol | LayerProtocol  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | CoreModel-CoreNetworkModule-ObjectClasses:NetworkElement/\_ltpRefList/\_lpList/uuid |
| \_airInterfaceCapability | AirInterfaceCapability  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceConfiguration | AirInterfaceConfiguration  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceStatus | AirInterfaceStatus  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceCurrentProblems | AirInterfaceCurrentProblems  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceCurrentPerformance | AirInterfaceCurrentPerformance  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceHistoricalPerformances | AirInterfaceHistoricalPerformances  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |

## AirInterfaceCapability

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::AirInterfaceCapability

Describes the 'analog' capabilities of modem and transmitter of the microwave device. Value ranges of attributes are not independently (e.g. min. and max. transmit power depends on modulation). Legal combinations of values are expressed in transmissionModeTypes.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 2: Attributes for AirInterfaceCapability

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| typeOfEquipment | String  Type of equipment not yet defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | This parameter indicates the equipment type. Instead of uploading the complete set of capabilities, capabilities of the same equipment type could be reused. Should be unique for a combination of modem, radio and their respective firmware. |
| txFrequencyMin | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Value of the minimum transmit frequency tunable at the air interface. |
| txFrequencyMax | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Value of the maximum transmit frequency tunable at the air interface. |
| rxFrequencyMin | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Value of the minimum receive frequency tunable at the air interface. |
| rxFrequencyMax | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Value of the maximum receive frequency tunable at the air interface. |
| adaptiveModulationIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | In case the device is capable of adaptive modulation, this field shall contain a 'true'. |
| mimoIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | In case the device is capable of MIMO, this field shall contain a 'true'. |
| mimoChannels | Integer  1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: channels * support: MANDATORY | Maximum number (n) of spatial multiplexing streams that can be conveyed by an n x n MIMO configuration. |
| alicIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | In case the microwave radio is capable of Adjacent Link Interference Cancelation (canceling of interference cause by transmitters located at the same site), this field shall contain a 'true'. |
| atpcIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | In case the microwave radio is capable of ATPC, this field shall contain a 'true'. |
| atpcRange | Integer  0 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Extent of the ATPC range. |
| encryptionIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Shall be marked 'true', if payload encryption is available. |
| supportedLoopBackKindList | LoopBackType  NON | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | List of supported kinds of looping back of header information to the remote site. |
| maintenanceTimerRange | String  Range of the maintenance timer not yet defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: s * support: MANDATORY | Available time periods for maintenance configurations (e.g. the loop back of microwave header information) to be described. Concrete values shall be separated by commas (e.g. '10, 60, 360'). Ranges shall be expressed as two values separated by a minus (e.g. '10-360'). |
| supportedAlarms | String  Supported alarms not yet defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Available alarms to be listed. Mandatory:'signalIsLost','rslIsExceeded','temperatureIsExceeded','modemIsFaulty','radioIsFaulty' and 'modulationIsDownShifted'. Further alarms might be added by the device. Names are to be separated by commas. |
| supportedChannelPlanList | ChannelPlanType  ./. | 1..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | List of channel spacing that are supported by the device. |

## AirInterfaceConfiguration

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::AirInterfaceConfiguration

Configuration of the radio link.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 3: Attributes for AirInterfaceConfiguration

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| airInterfaceName | String  Air interface ID not yet defined. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Operator specific microwave link ID (often used for coding area, type of element and sequential number). |
| radioSignalID | String  Radio signal ID not yet defined. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The radioSignalId is transmitted on the air interface so the remote site of the link synchronizes on the correct transmitter. The local radio MUST NOT synchronize on a radio signal with a different radioSignalId. The link ID is neither an ID necessary to span the model nor an ID referencing external data. It is just some sort of name of the link transmitted so the correct remote site can be identified in an interference situation. The value zero might be used to make the microwave to disable the link ID check. |
| txFrequency | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Center frequency of the transmit channel. The values to be configured have to exactly match the values listed in the international agreement referenced in channelPlanID. In case of automated selection of the transmit frequency this field shall describe the lowest center frequency selectable. |
| rxFrequency | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Center frequency of the receive channel. |
| txChannelBandwidth | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Bandwidth of the transmit channel. The value shall be expressed explicitly (means in kHz) not as a reference to an international agreement. The values shall be chosen from the following \_list: 3.500, 7.000, 14.000, 27.500, 28.000, 29.000, 29.650, 30.000, 40.000, 50.000, 55.000, 56.000, 59.300, 60.000, 80.000, 100.000, 112.000, 120.000, 150.000, 200.000, 250.000, 500.000, 750.000, 1.000.000, 1.250.000, 1.500.000, 1.750.000, 2.000.000; |
| rxChannelBandwidth | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Bandwidth of the receive channel. The value shall be expressed explicitly (means in kHz) not as a reference to an international agreement. The values shall be chosen from the following \_list: 3.500, 7.000, 14.000, 27.500, 28.000, 29.000, 29.650, 30.000, 40.000, 50.000, 55.000, 56.000, 59.300, 60.000, 80.000, 100.000, 112.000, 120.000, 150.000, 200.000, 250.000, 500.000, 750.000, 1.000.000, 1.250.000, 1.500.000, 1.750.000, 2.000.000; |
| polarization | PolarizationType  NOT\_SPECIFIED | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Allows documenting the polarization of the air interface. |
| powerIsOn | Boolean  true | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Power ON. Activation of the entire radio in a split mount configuration shall be expressed as a 'true'. |
| transmitterIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Activation of the transmitter inside the radio shall be expressed as a 'true'. |
| receiverIsOn | Boolean  true | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Maintenance Feature. Activation of the receiver inside the radio shall be expressed as a 'true'. Attribute shall also be used for RX main and RX diversity squelches in case of diversity configurations. |
| txPower | Integer  99 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Transmit power to be configured on the microwave link. Signed Byte is required. The actually operated transmit power might be lower depending on adaptive modulation and ATPC. |
| adaptiveModulationIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Adaptive Modulation. Activation of adaptive modulation shall be expressed as a 'true'. |
| modulationMin | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: symbols * support: MANDATORY | Minimum modulation to be configured (in case adaptive modulation is not used, this value represents also the fixed modulation). The modulation scheme shall be described by the number of states in the phase diagram (e.g. BPSK->'2' or 256QAM->'256'). Allowed values are defined in TypeDefinitions::transmissionModeType::modulationScheme. |
| modulationMax | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: symbols * support: MANDATORY | Maximum modulation to be configured. The value of this field is only relevant, if Adaptive Modulation has been activated. The modulation scheme shall be described by the number of states in the phase diagram (e.g. BPSK->'2' or 256QAM->'256'). Allowed values are defined in TypeDefinitions::transmissionModeType::modulationScheme. |
| xpicIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Activation of Cross Polarization Interference Cancelation shall be expressed as a 'true'. In case XPIC is not available for the current combination of channel bandwidth and modulation or the hardware in general, this parameter shall always be set to 'false'. |
| mimoIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Activation of Multiple Input Multiple Output (MIMO) shall be expressed as a 'true'. |
| alicIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Activation of Adjacent Link Interference Cancelation (ALIC) shall be expressed as a 'true'. |
| atpcIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | ATPC. Activation of Automated Transmit Power Control shall be expressed as a 'true'. |
| atpcThreshUpper | Integer  99 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: dBm * support: MANDATORY | If the receive level is higher than the upper threshold value, the transmitter is notified to decrease transmit power. |
| atpcThreshLower | Integer  99 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: dBm * support: MANDATORY | If the receive level is lower than the lower threshold value, the transmitter is notified to increase transmit power. |
| autoFreqSelectIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Activation of automatically selecting the transmit frequency in unlicensed bands shall be expressed as a 'true'. |
| autoFreqSelectRange | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: channels * support: MANDATORY | Number of transmit channels (starting at the center frequency defined in txFrequency and with channel bandwidth according to txChannelBandwidth) that define the range within the transmit frequency can automatically been chosen. |
| modulationIsOn | Boolean  true | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Maintenance Feature. De-activation of the modulation of the carrier signal for fault management shall be expressed as a 'false'. |
| encryptionIsOn | Boolean  false | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Activates encryption of the payload. |
| cryptographicKey | String  Cryptographic key not yet defined. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Key for transforming plaintext into ciphertext data. |
| loopBackKindOn | LoopBackType  NON | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Maintenance Feature. The currently configured type of looping back of the air interface header shall be expressed here. The received header is returned to the remote site. |
| maintenanceTimer | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Time of existence of any maintenance configuration (e.g. the loop back of microwave header information). Valid values are defined in AirInterface::AirInterfaceCapability::maintenanceTimerRange. |
| problemKindSeverityList | AirInterfaceProblemSeverityType  ./. | 6..\* | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Severity of the problem to be configured. |

## AirInterfaceStatus

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::AirInterfaceStatus

Measurements of current values on the air interface and operational status of the device.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 4: Attributes for AirInterfaceStatus

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| txFrequencyCur | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Center frequency of the currently operated transmit channel. |
| rxFrequencyCur | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Center frequency of the currently operated receive channel. |
| txLevelCur | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Current transmit level. |
| rxLevelCur | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Current receive level. |
| modulationCur | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: symbols * support: MANDATORY | Currently operated modulation on transmit path. The modulation scheme shall be described by the number of states in the phase diagram (e.g. BPSK->'2' or 256QAM->'256'). Allowed values are defined in TypeDefinitions::transmissionModeType::modulationScheme. |
| codeRateCur | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: % * support: MANDATORY | Code rate of the currently operated coding scheme (Net bit rate ≤ Gross bit rate · code rate). |
| snirCur | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Currently measured signal to (noise+interference) ratio. |
| xpdCur | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Currently measured cross polarization discrimination. |
| rfTempCur | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: Celsius * support: MANDATORY | Current temperature (in degree Celsius) of the radio module inside the outdoor unit. |
| lastStatusChange | DateAndTime  20101120140000.0Z+1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Time the Air Interface entered its current operational status. \_format:yyyyMMddhhmmss.s[Z|{+|-}HHMm]; yyyy='0000'..'9999' year; MM='01'..'12' month; dd='01'..'31' day; hh='00'..'23' hour; mm='00'..'59' minute; ss='00'..'59' second; s='.0'..'.9'tenth of second (set to '.0' if EMS or NE cannot support this granularity); Z='Z' indicates UTC (rather than local time); {+|-}='+' or '-' delta from UTC; HH='00'..'23' time zone difference in hours; Mm='00'..'59' time zone difference in minutes. |
| radioPowerIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If the radio unit has power and is switched on, this shall be expressed as a 'true'. |
| linkIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If connection is established to the remote site with the same linkID, this shall be expressed as a 'true'. |
| xpicIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If XPIC is currently actually working (not just configured), this shall be expressed as a 'true'. |
| mimoIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If MIMO is currently actually working (not just configured), this shall be expressed as a 'true'. |
| alicIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If Adjacent Link Interference Cancelation (ALIC) is currently actually working (not just configured), this shall be expressed as a 'true'. |
| atpcIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If ATPC is currently actually working (not just configured), this shall be expressed as a 'true'. |
| autoFreqSelectIsUp | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | If automated frequency selection is currently actually working (not just configured), this shall be expressed as a 'true'. |
| loopBackKindUp | LoopBackType  NON | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The currently active (not just configured) type of looping back of the air interface header shall be expressed here. The received header is returned to the remote site. |
| localEndPointId | String  not-supported | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The value of the localEndPointId is a vendor specific identifier of the air interface, used by the node to discover a microwave radio link. |
| remoteEndPointId | String  not-supported | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The value of the remoteEndPointId is a vendor specific identifier or the airinterface at the remote side, used to by the node to discover a microwave radio link. |

## AirInterfaceCurrentProblems

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::AirInterfaceCurrentProblems

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 5: Attributes for AirInterfaceCurrentProblems

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| currentProblemList | AirInterfaceCurrentProblemType  ./. | 0..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## AirInterfaceCurrentPerformance

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::AirInterfaceCurrentPerformance

Aggregated performance information of the air interface at a particular moment.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 6: Attributes for AirInterfaceCurrentPerformance

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| currentPerformanceDataList | AirInterfaceCurrentPerformanceType  ./. | 1..2 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | At least values of the counters, which are reset every 15 minutes, are to be provided. If available, the current values of the counters, which are reset every 24 hour, can be provided, too. |

## AirInterfaceHistoricalPerformances

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::AirInterfaceHistoricalPerformances

Aggregated performance information of the air interface for a pre-defined measurement interval.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 7: Attributes for AirInterfaceHistoricalPerformances

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| historicalPerformanceDataList | AirInterfaceHistoricalPerformanceType  ./. | 0..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## CoChannelGroup

Qualified Name: MicrowaveModel::ObjectClasses::AirInterface::CoChannelGroup

Required for configuring XPIC, MIMO and ALIC.

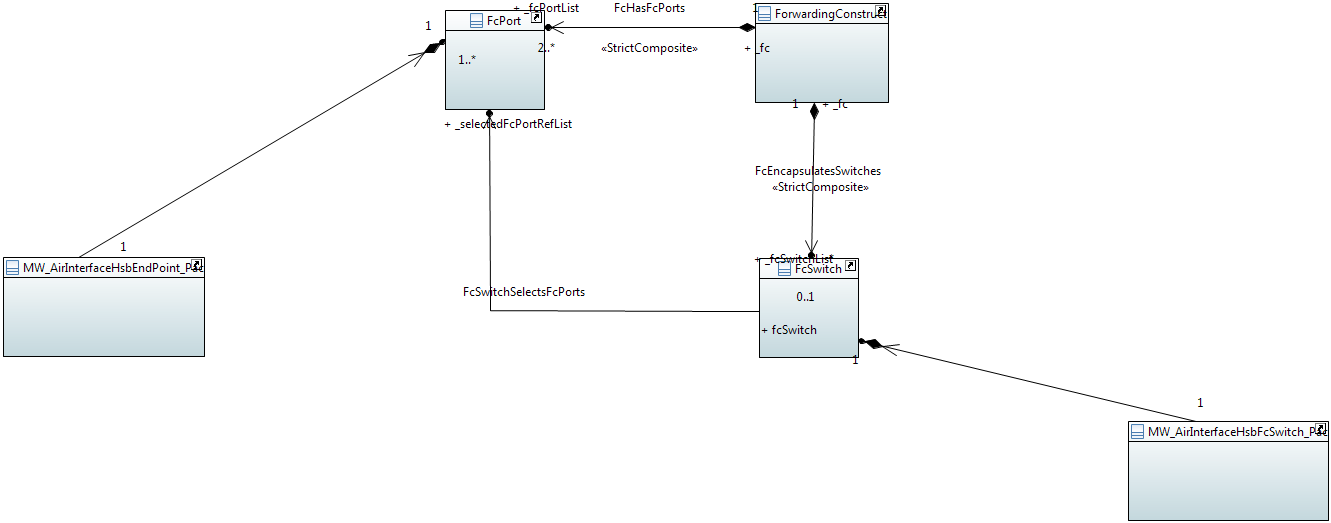
Applied stereotypes:

* OpenModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES
* support: MANDATORY

Table 8: Attributes for CoChannelGroup

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| coChannelGroupId | UniversalId  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |
| \_airInterfaceList | LogicalTerminationPoint  ./. | 0..\* | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | List of air interfaces, which are part of the co-channel (XPIC, MIMO, ALIC) group. |
| sortOfCoChannelGroup | String  Kind of co-channel group not specified. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Type of group of air interfaces with the same transmit and receive frequency. The values shall be chosen from the following \_list:'XPIC', 'MIMO', 'ALIC'; |
| \_logicalterminationpoint | LogicalTerminationPoint  ./. | 0..\* | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NA * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |

# AirInterfaceHsb



## MW\_AirInterfaceHsbFcSwitch\_Pac

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceHsb::MW\_AirInterfaceHsbFcSwitch\_Pac

Represents and defines a protection switch structure encapsulated in the forwarding construct. Essentially performs the function of Protection Group. Associates to 2 or more Endpoints each playing the role of a Protection Unit. One or more protection EndPoints (standby/backup) provide protection for one or more working (i.e. regular/main/preferred) Endpoints where either protection or working can feed one or more protected Endpoint. May be used in revertive or non-revertive (symmetric) mode. When in revertive mode may define waitToRestore time. May be used in one of several modes including source switch, destination switched, source and destination switched etc (covering cases such as 1+1 ane 1:1). May be lockout (prevented from switching), force switched or manual switched. Will indicate switch state and change of state.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES
* support: MANDATORY

Table 9: Attributes for MW\_AirInterfaceHsbFcSwitch\_Pac

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| protType | ProtectionType  HSB | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Indicates the protection scheme that is used for the ProtectionGroup. |
| airInterfaceHsbConfigurationIsFaultySeverity | SeverityType  WARNING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The level of severity of an airInterfaceHsbConfigurationIsFaulty alarm shall be chosen from an enumeration. |
| airInterfaceHsbIsPartlyDownSeverity | SeverityType  WARNING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The level of severity for one link out of the HSB configuration being down shall be chosen from an enumeration. |
| airInterfaceHsbIsDownSeverity | SeverityType  WARNING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | The level of severity of the total HSB configuration being down shall be chosen from an enumeration. |
| \_fcswitch | FcSwitch  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |

## MW\_AirInterfaceHsbEndPoint\_Pac

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceHsb::MW\_AirInterfaceHsbEndPoint\_Pac

The EndPoint (EP) object class models the access to the FC function. Each EndPoint instance has a role (e.g., working, protection, protected, hub, spoke, leaf, root, etc.) with respect to the FC function. The association of the FC to LTPs is made via EndPoints (essentially the ports of the FC) where each EndPoint (EP) of the FC has a role in the context of the FC. The traffic forwarding between the associated End PointsEPs of the FC depends upon the type of FC and may be associated with FCSwitch object instances. In cases where there is protection conveys the protecting role of the access to the FC. The EP replaces the Protection Unit of a traditional protection model. It represents a protected (resilient/reliable) point or a protecting (unreliable working or protection) point.

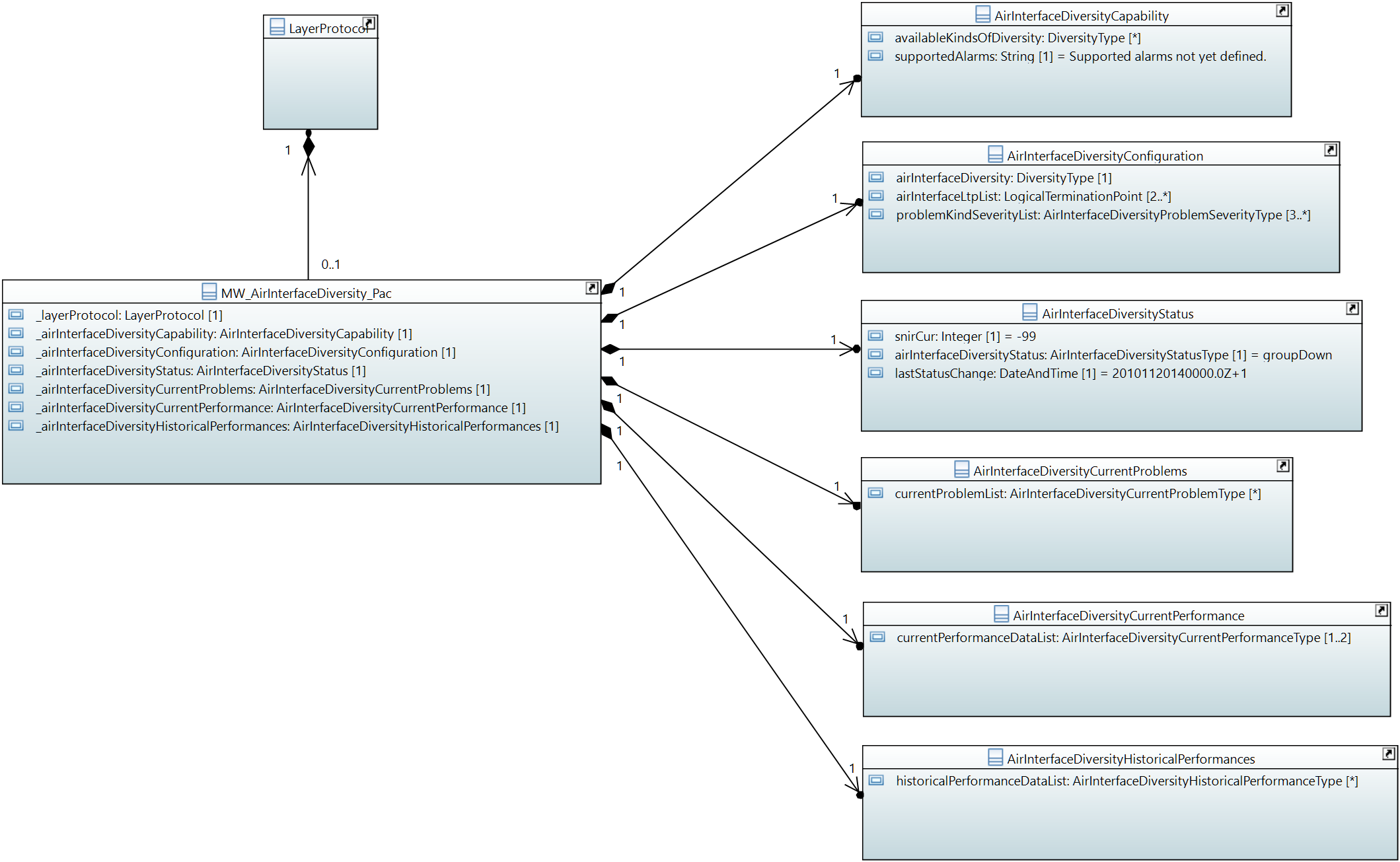
Applied stereotypes:

* OpenModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES
* support: MANDATORY

Table 10: Attributes for MW\_AirInterfaceHsbEndPoint\_Pac

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| role | RoleType  WORKING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |
| \_endpoint | FcPort  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |

# AirInterfaceDiversity\_Pac



## MW\_AirInterfaceDiversity\_Pac

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::MW\_AirInterfaceDiversity\_Pac

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES
* support: MANDATORY

Table 11: Attributes for MW\_AirInterfaceDiversity\_Pac

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| \_layerProtocol | LayerProtocol  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | CoreModel-CoreNetworkModule-ObjectClasses:NetworkElement/\_ltpRefList/\_lpList/uuid |
| \_airInterfaceDiversityCapability | AirInterfaceDiversityCapability  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceDiversityConfiguration | AirInterfaceDiversityConfiguration  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceDiversityStatus | AirInterfaceDiversityStatus  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceDiversityCurrentProblems | AirInterfaceDiversityCurrentProblems  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceDiversityCurrentPerformance | AirInterfaceDiversityCurrentPerformance  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |
| \_airInterfaceDiversityHistoricalPerformances | AirInterfaceDiversityHistoricalPerformances  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | See referenced class |

## AirInterfaceDiversityCapability

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::AirInterfaceDiversityCapability

Describes the capabilities in implementing different types of air interface diversity.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 12: Attributes for AirInterfaceDiversityCapability

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| availableKindsOfDiversity | DiversityType  ./. | 0..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Available types of diversity to be listed. |
| supportedAlarms | String  Supported alarms not yet defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Available alarms to be listed. Mandatory:'airInterfaceDiversityConfigurationIsPartlyDown' (at least one air interface is down, but not all of them) and 'airInterfaceDiversityConfigurationIsDown' (all air interfaces are down). Further alarms might be added by the device. Names are to be separated by commas. |

## AirInterfaceDiversityConfiguration

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::AirInterfaceDiversityConfiguration

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 13: Attributes for AirInterfaceDiversityConfiguration

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| airInterfaceDiversity | DiversityType  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Type of air interface diversity configured at the link. |
| \_airInterfaceLtpList | LogicalTerminationPoint  ./. | 2..\* | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | \_multiplicity:2-ThisAirInterfaceDiversity::AirInterfaceDiversityConfiguration::airInterfaceDiversity::diversityType::numberOfAirInterfacesMax |
| problemKindSeverityList | AirInterfaceDiversityProblemSeverityType  ./. | 3..\* | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Severity of the problem to be configured. |

## AirInterfaceDiversityStatus

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::AirInterfaceDiversityStatus

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 14: Attributes for AirInterfaceDiversityStatus

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| snirCur | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Currently measured signal to (noise+interference) ratio of the combined signals. |
| airInterfaceDiversityStatus | AirInterfaceDiversityStatusType  GROUP\_DOWN | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Status of the air interface bundle. |
| lastStatusChange | DateAndTime  20101120140000.0Z+1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Time the Diversity Group entered its current operational status. \_format:yyyyMMddhhmmss.s[Z|{+|-}HHMm]; yyyy='0000'..'9999' year; MM='01'..'12' month; dd='01'..'31' day; hh='00'..'23' hour; mm='00'..'59' minute; ss='00'..'59' second; s='.0'..'.9'tenth of second (set to '.0' if EMS or NE cannot support this granularity); Z='Z' indicates UTC (rather than local time); {+|-}='+' or '-' delta from UTC; HH='00'..'23' time zone difference in hours; Mm='00'..'59' time zone difference in minutes. |

## AirInterfaceDiversityCurrentProblems

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::AirInterfaceDiversityCurrentProblems

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 15: Attributes for AirInterfaceDiversityCurrentProblems

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| currentProblemList | AirInterfaceDiversityCurrentProblemType  ./. | 0..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## AirInterfaceDiversityCurrentPerformance

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::AirInterfaceDiversityCurrentPerformance

Aggregated performance information of the air interface diversity configuration at a particular moment.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 16: Attributes for AirInterfaceDiversityCurrentPerformance

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| currentPerformanceDataList | AirInterfaceDiversityCurrentPerformanceType  ./. | 1..2 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | At least values of the counters, which are reset every 15 minutes, are to be provided. If available, the current values of the counters, which are reset every 24 hour, can be provided, too. |

## AirInterfaceDiversityHistoricalPerformances

Qualified Name: MicrowaveModel::ObjectClasses::AirInterfaceDiversity::AirInterfaceDiversityHistoricalPerformances

Aggregated performance information of the air interface diversity configuration for a pre-defined measurement interval.

Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 17: Attributes for AirInterfaceDiversityHistoricalPerformances

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| historicalPerformanceDataList | AirInterfaceDiversityHistoricalPerformanceType  ./. | 0..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

# Data Types

## ChannelPlanType

Qualified Name: MicrowaveModel::TypeDefinitions::ChannelPlanType

Table 18: Attributes for ChannelPlanType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| supportedChannelPlan | String  Channel plan name not defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Unique name (e.g. ECC/REC/(01)04\_Annex 5) of a document, which describes a frequency grid that can be adjusted at the air interface. Corresponding channel plans to be delivered by the hardware vendor and to be stored by the operator in an controller/application attached database. |
| duplexDistanceIsVariable | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | To be set on 'true', if the distance between transmitted and received frequency is variable. |
| duplexDistance | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Distance between transmitted and received frequency. |
| autoFreqSelectIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | In case the microwave radio is capable of automatically selecting the transmit frequency in unlicensed bands, this field shall contain a 'true'. |
| transmissionModeList | TransmissionModeType  ./. | 1..\* | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## TransmissionModeType

Qualified Name: MicrowaveModel::TypeDefinitions::TransmissionModeType

Table 19: Attributes for TransmissionModeType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| transmissionModeId | UniversalId  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Indentifies the transmissionMode for internal reference. |
| channelBandwidth | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: kHz * support: MANDATORY | Bandwidth of the transmit channel. The value shall be expressed explicitly (means in kHz) not as a reference to an international agreement. The values shall be chosen from the following \_list: 3.500, 7.000, 14.000, 27.500, 28.000, 29.000, 29.650, 30.000, 40.000, 50.000, 55.000, 56.000, 59.300, 60.000, 80.000, 100.000, 112.000, 120.000, 150.000, 200.000, 250.000, 500.000, 750.000, 1.000.000, 1.250.000, 1.500.000, 1.750.000, 2.000.000; |
| modulationScheme | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: symbols * support: MANDATORY | Modulation scheme, which is base to the other characteristics described in the same transmissionModeType data type. The modulation scheme shall be described by the number of states in the phase diagram (e.g. BPSK->'2' or 256QAM->'256'). |
| codeRate | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: % * support: MANDATORY | Code rate of the coding scheme in % (Net bit rate ≤ Gross bit rate · code rate). |
| txPowerMin | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Value of the minimum transmit power the modem can operate in dBm. |
| txPowerMax | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Value of the maximum transmit power the modem can operate in dBm. |
| rxThreshold | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: dBm * support: MANDATORY | Value of the receive level required to decode the received signal with a Bit Error Rate of 1e-6 or less. |
| amUpshiftLevel | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Value of the receive level that has to be exceeded to shift into a higher modulation scheme. |
| amDownshiftLevel | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Value of the receive level that has to be exceeded for not shifting into a lower modulation scheme. |
| xpicIsAvail | Boolean  false | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | In case this air interface type is capable of XPIC, this field shall contain a 'true'. This information shall purely relate to capabilities of the equipment type, but not to the operational capability of a specific hardware composition on site. Means for example that this attribute might contain a 'true' statement, even if an additional cable would have been required to actually operate XPIC in a specific case. |

## AirInterfaceProblemSeverityType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceProblemSeverityType

Table 20: Attributes for AirInterfaceProblemSeverityType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| problemKindName | String  Problem kind name not defined. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NA * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Name of the alarm according to AirInterface::AirInterfaceCapability::supportedAlarms |
| problemKindSeverity | SeverityType  WARNING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Severity of this type of alarm. |

## AirInterfaceCurrentProblemType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceCurrentProblemType

Table 21: Attributes for AirInterfaceCurrentProblemType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| problemName | String  Problem name not specified. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Name of the alarm according to AirInterface::AirInterfaceCapability::supportedAlarms |

## AirInterfacePerformanceType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfacePerformanceType

Consolidated performance information of the air interface.

Table 22: Attributes for AirInterfacePerformanceType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| es | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Number of errored seconds. |
| ses | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Number of severely errored seconds. |
| cses | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Number of consecutive severely errored seconds. |
| unavailability | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Total time of unavailability in seconds. |
| txLevelMin | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Minimum transmit power. Signed integers are required. |
| txLevelMax | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Maximum transmit power. Signed integers are required. |
| txLevelAvg | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Averaged transmit power. Signed integers are required. |
| rxLevelMin | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Minimum receive level. Signed integers are required. |
| rxLevelMax | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Maximum receive level. Signed integers are required. |
| rxLevelAvg | Integer  99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dBm * support: MANDATORY | Averaged receive level. Signed integers are required. |
| time2States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Sum of all seconds the transmitter operated in e.g. BPSK. |
| time4StatesS | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time4States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time8States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time16StatesS | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time16States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time32States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time64States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time128States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time256States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time512States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time512StatesL | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time1024States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time1024StatesL | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time2048States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time2048StatesL | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time4096States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time4096StatesL | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time8192States | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| time8192StatesL | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY |  |
| snirMin | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Minimum signal to (noise+interference) ratio. |
| snirMax | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Maximum signal to (noise+interference) ratio. |
| snirAvg | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Averaged signal to (noise+interference) ratio. |
| xpdMin | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Minimum cross polarization discrimination. |
| xpdMax | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Maximum cross polarization discrimination. |
| xpdAvg | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Averaged cross polarization discrimination. |
| rfTempMin | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: C * support: MANDATORY | Lowest temperature (in degree Celsius) of the radio module inside the outdoor unit. |
| rfTempMax | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: C * support: MANDATORY | Highest temperature (in degree Celsius) of the radio module inside the outdoor unit. |
| rfTempAvg | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: C * support: MANDATORY | Averaged temperature (in degree Celsius) of the radio module inside the outdoor unit. |
| defectBlocksSum | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_16\_BIT * unit: blocks * support: MANDATORY | Total number of blocks that were defect after receiving and could not be corrected by the FEC. |
| timePeriod | Integer  -1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: s * support: MANDATORY | Total length of the measurement period. |

## AirInterfaceCurrentPerformanceType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceCurrentPerformanceType

Turns performance information into current performance information by inheriting from OTN\_CurrentData.

Table 23: Attributes for AirInterfaceCurrentPerformanceType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| performanceData | AirInterfacePerformanceType  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## AirInterfaceHistoricalPerformanceType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceHistoricalPerformanceType

Turns performance information into historical performance information by inheriting from OTN\_HistoryData.

Table 24: Attributes for AirInterfaceHistoricalPerformanceType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| performanceData | AirInterfacePerformanceType  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## DiversityType

Qualified Name: MicrowaveModel::TypeDefinitions::DiversityType

Table 25: Attributes for DiversityType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| diversityName | String  Diversity name not defined. | 1 | R | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Names to be chosen from the following list: 'spaceDiversity', 'frequencyDiversity' |
| numberOfAirInterfacesMax | Integer  1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: air interfaces * support: MANDATORY | Maximum number of air interfaces that could be part of this kind of diversity. |

## AirInterfaceDiversityProblemSeverityType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceDiversityProblemSeverityType

Table 26: Attributes for AirInterfaceDiversityProblemSeverityType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| problemKindName | String  Problem kind name not defined. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NA * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Name of the alarm according to AirInterfaceDiversity::AirInterfaceDiversityCapability::supportedAlarms |
| problemKindSeverity | SeverityType  WARNING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: YES * isInvariant: false * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Severity of this type of alarm. |

## AirInterfaceDiversityCurrentProblemType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceDiversityCurrentProblemType

Table 27: Attributes for AirInterfaceDiversityCurrentProblemType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| problemName | String  Problem name not specified. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Name of the alarm according to AirInterfaceDiversity::AirInterfaceDiversityCapability::supportedAlarms |

## AirInterfaceDiversityPerformanceType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceDiversityPerformanceType

Consolidated performance information of the air interface diversity group.

Table 28: Attributes for AirInterfaceDiversityPerformanceType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| snirMin | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Minimum signal to (noise+interference) ratio of the combined signals. |
| snirMax | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Maximum signal to (noise+interference) ratio of the combined signals. |
| snirAvg | Integer  -99 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_8\_BIT * unit: dB * support: MANDATORY | Average signal to (noise+interference) ratio of the combined signals. |

## AirInterfaceDiversityCurrentPerformanceType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceDiversityCurrentPerformanceType

Turns performance information into current performance information by inheriting from OTN\_CurrentData.

Table 29: Attributes for AirInterfaceDiversityCurrentPerformanceType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| performanceData | AirInterfaceDiversityPerformanceType  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

## AirInterfaceDiversityHistoricalPerformanceType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceDiversityHistoricalPerformanceType

Turns performance information into historical performance information by inheriting from OTN\_HistoryData.

Table 30: Attributes for AirInterfaceDiversityHistoricalPerformanceType

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| performanceData | AirInterfaceDiversityPerformanceType  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |

# Enumeration Types

## LoopBackType

Qualified Name: MicrowaveModel::TypeDefinitions::LoopBackType

Contains Enumeration Literals:

* NON:
* IF:
  + Intermediate Frequency on the interface between indoor and outdoor unit.
* RF:
  + Radio Frequency on the interface between outdoor unit and outdoor unit at the remote site.

## SeverityType

Qualified Name: MicrowaveModel::TypeDefinitions::SeverityType

According to ITU-T M.3160

Contains Enumeration Literals:

* NON\_ALARMED:
* WARNING:
* MINOR:
* MAJOR:
* CRITICAL:

## PolarizationType

Qualified Name: MicrowaveModel::TypeDefinitions::PolarizationType

Contains Enumeration Literals:

* NOT\_SPECIFIED:
* HORIZONTAL:
* VERTICAL:

## ProtectionType

Qualified Name: MicrowaveModel::TypeDefinitions::ProtectionType

Contains Enumeration Literals:

* HSB:

## RoleType

Qualified Name: MicrowaveModel::TypeDefinitions::RoleType

Contains Enumeration Literals:

* WORKING:
* PROTECTION:
* PROTECTED:

## AirInterfaceDiversityStatusType

Qualified Name: MicrowaveModel::TypeDefinitions::AirInterfaceDiversityStatusType

Contains Enumeration Literals:

* GROUP\_DOWN:
  + All air interfaces that are members of the diversity configuration are down.
* NOT\_ALL\_AI\_ACTIVE:
  + At least one, but not all of the air interfaces that are part of the diversity configuration is not working.
* ALL\_AI\_ACTIVE:
  + All air interfaces that are part of the diversity configuration are working.

# Super Classes

## MwCurrentProblem

Qualified Name: MicrowaveModel::ObjectClasses::SuperClasses::MwCurrentProblem

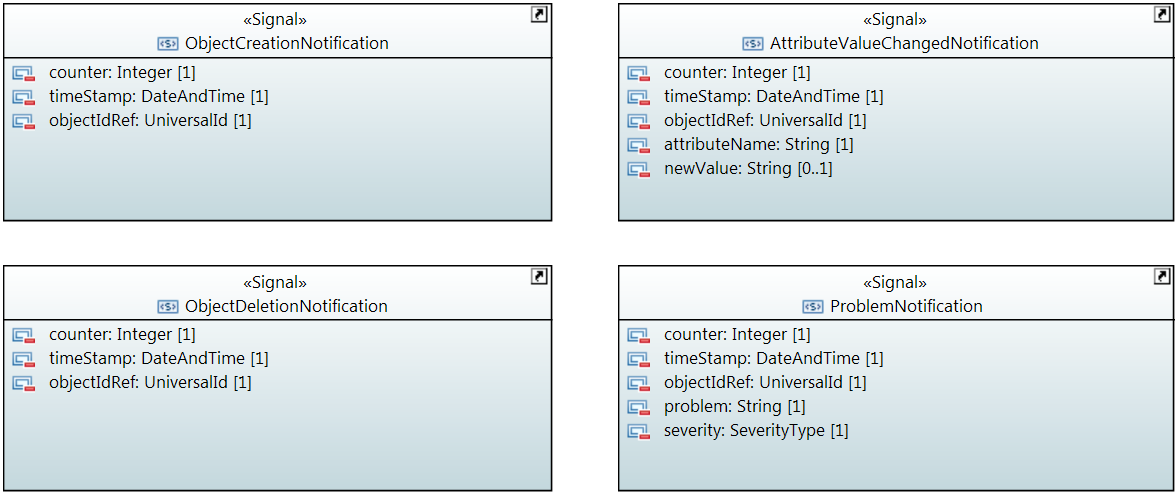
Applied stereotypes:

* OpenModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO
* support: MANDATORY

Table 31: Attributes for MwCurrentProblem

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| sequenceNumber | Integer  ./. | 1 | R | OpenModelAttribute   * partOfObjectKey: 1 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: no unit defined * support: MANDATORY | Unique sequence number of the current problem object. |
| timeStamp | DateAndTime  20101120140000.0Z+1 | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Time and date of the problem. \_format:yyyyMMddhhmmss.s[Z|{+|-}HHMm]; yyyy='0000'..'9999' year; MM='01'..'12' month; dd='01'..'31' day; hh='00'..'23' hour; mm='00'..'59' minute; ss='00'..'59' second; s='.0'..'.9'tenth of second (set to '.0' if EMS or NE cannot support this granularity); Z='Z' indicates UTC (rather than local time); {+|-}='+' or '-' delta from UTC; HH='00'..'23' time zone difference in hours; Mm='00'..'59' time zone difference in minutes. |
| problemSeverity | SeverityType  WARNING | 1 | R | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Severity of the alarm. |

# Notifications



## AttributeValueChangedNotification

Qualified Name: MicrowaveModel::Notifications::AttributeValueChangedNotification

To be sent when an attribute has changed and one or more controllers have to update their data.

Applied stereotypes:

* OpenModelNotification
* triggerConditionList: invalid
* support: MANDATORY

Table 32: Attributes for AttributeValueChangedNotification

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| counter | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: no unit defined * support: MANDATORY | Counts attribute value changed notifications. |
| timeStamp | DateAndTime  20101120140000.0Z+1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |
| objectIdRef | UniversalId  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | ID of the affected MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac. |
| attributeName | String  Attribute name not specified. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Name of the attribute that has been changed. |
| newValue | String  New value not specified. | 0..1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Attribute value converted to a string (xml, json, ...) |

## ObjectCreationNotification

Qualified Name: MicrowaveModel::Notifications::ObjectCreationNotification

To be sent when a new MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac has to be instancieted in the controller.

Applied stereotypes:

* OpenModelNotification
* triggerConditionList: invalid
* support: MANDATORY

Table 33: Attributes for ObjectCreationNotification

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| counter | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: no unit defined * support: MANDATORY | Counts object creation notifications. |
| timeStamp | DateAndTime  20101120140000.0Z+1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |
| objectIdRef | UniversalId  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | ID of the affected MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac. |
| objectType | String  Type of created object not specified. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Type of Object to be chosen from the following list of values: 'MW\_AirInterface\_Pac', 'MW\_AirInterfaceDiversity\_Pac', 'MW\_Structure\_Pac', 'MW\_PureEthernetStructure\_Pac', 'MW\_HybridMwStructure\_Pac', 'MW\_Container\_Pac', 'MW\_EthernetContainer\_Pac' or 'MW\_TdmContainer\_Pac'. |

## ObjectDeletionNotification

Qualified Name: MicrowaveModel::Notifications::ObjectDeletionNotification

To be sent when a new MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac instance has to be deleted in the controller.

Applied stereotypes:

* OpenModelNotification
* triggerConditionList: invalid
* support: MANDATORY

Table 34: Attributes for ObjectDeletionNotification

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| counter | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: no unit defined * support: MANDATORY | Counts object deletion notifications. |
| timeStamp | DateAndTime  20101120140000.0Z+1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |
| objectIdRef | UniversalId  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | ID of the affected MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac. |

## ProblemNotification

Qualified Name: MicrowaveModel::Notifications::ProblemNotification

To be sent when a problem occurs at a MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac.

Applied stereotypes:

* OpenModelNotification
* triggerConditionList: invalid
* support: MANDATORY

Table 35: Attributes for ProblemNotification

| **Attribute Name** | **Type DefaultValue** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| counter | Integer  -1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: LENGTH\_32\_BIT * unit: no unit defined * support: MANDATORY | Counts problem notifications |
| timeStamp | DateAndTime  20101120140000.0Z+1 | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY |  |
| objectIdRef | UniversalId  ./. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | ID of the affected MW\_AirInterface\_Pac, MW\_AirInterfaceDiversity\_Pac, MW\_Structure\_Pac, MW\_PureEthernetStructure\_Pac, MW\_HybridMwStructure\_Pac, MW\_Container\_Pac, MW\_EthernetContainer\_Pac or MW\_TdmContainer\_Pac. |
| problem | String  Problem name not specified. | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Name of the problem according to AirInterface::AirInterfaceCapability::supportedAlarms or AirInterfaceDiversity::AirInterfaceDiversityCapability::supportedAlarms or Structure::StructureCapability::supportedAlarms or PureEthernetStructure::PureEthernetStructureCapability::supportedAlarms or HybridMwStructure::HybridMwStructureCapability::supportedAlarms or Container::ContainerCapability::supportedAlarms or EthernetContainer::EthernetContainerCapability::supportedAlarms or TdmContainer::TdmContainerCapability::supportedAlarms. |
| severity | SeverityType  WARNING | 1 | RW | OpenModelAttribute   * partOfObjectKey: 0 * AVC: NO * isInvariant: true * valueRange: no range constraint * bitLength: NA * unit: no unit defined * support: MANDATORY | Severity of the problem according to AirInterface::AirInterfaceConfiguration::problemSeverityList, AirInterfaceDiversity::AirInterfaceDiversityConfiguration::problemSeverityList, Structure::StructureConfiguration::problemSeverityList, PureEthernetStructure::PureEthernetStructureConfiguration::problemSeverityList, HybridMwStructure::HybridMwStructureConfiguration::problemSeverityList, Container::ContainerConfiguration::problemSeverityList, EthernetContainer::EthernetContainerConfiguration::problemSeverityList or TdmContainer::TdmContainerConfiguration::problemSeverityList |