# (normative) Data types

IEEE802191DataType DEFINITIONS AUTOMATIC TAGS ::= BEGIN

**-----------------------------------------------------------**

**--Exported data types**

**-----------------------------------------------------------**

--Exported data types

EXPORTS

--Coexistence protocol entity ID

CxID,

--Status

Status,

--CxMedia status

CxMediaStatus,

--Coexistence service

CoexistenceService,

--Subscribed service

SubscribedService,

--Network technology

NetworkTechnology,

--Network type

NetworkType,

--Discovery information

DiscoveryInformation,

--Geolocation

Geolocation,

--Coverage area

CoverageArea,

--Installation parameters

InstallationParameters,

--Frequency range

FrequencyRange,

--List of available frequencies

ListOfAvailableFrequencies,

--List of operating frequencies

ListOfOperatingFrequencies,

--List of available channel numbers

ListOfAvailableChNumbers,

--List of operating channel numbers

ListOfOperatingChNumbers,

--List of supported frequencies

ListOfSupportedFrequencies,

--Required resource RequiredResource,

--Operation code for registration

OperationCode,

--Measurement capability

MeasurementCapability,

--List of available frequencies of the subject WSO

ListOfSubjectWSOAvailableFrequencies,

--Transmission schedule

TxSchedule,

--CM registration

CMRegistration,

--CE registration

CERegistration,

--Coexistence report

CoexistenceReport,

--Channel priority

ChannelPriority,

--List of subject CEs

ListOfSubjectCEs,

--List of neighbor CMs transport information

ListOfNeighborCMsTransport,

--List of neighbor CM

ListOfNeighborCM,

--List of neighbor CM WSOs

ListOfNeighborCMWSOs,

--List of CEs for reconfiguration

ReconfigListOfCEs,

--Channel classification information

ChClassInfo,

--Channel classification information list

ChClassInfoList,

--Failed parameters

FailedParameters,

--Event parameters

EventParams,

--Required information description

ReqInfoDescr,

-- Requested information value

ReqInfoValue,

-- Negotiation status

NegotiationStatus,

-- Negotiation information

NegotiationInformation

-- Winner CM ID list

ListOfWinnerCMID,

-- Slot time position list

ListOfSlotTimePosition

--Measurement description

MeasurementDescription,

--Measurement result

MeasurementResult,

--Mobility Information

MobilityInformation,

--Entity profile

EntityProfile;

**-----------------------------------------------------------**

**--Coexistence protocol entity ID**

**-----------------------------------------------------------**

--Coexistence protocol entity type

CxType ::= ENUMERATED {

--Coexistence enabler

ce,

--Coexistence manager

cm,

--Coexistence discovery and information server

cdis}

--Coexistence protocol entity ID

CxID ::= SEQUENCE {

--Entity type

type CxType,

--Entity ID

id OCTET STRING}

**-----------------------------------------------------------**

**--Status**

**-----------------------------------------------------------**

--Status

Status ::= ENUMERATED {

--Primitive/message is successfully processed

noError,

--Primitive/message is rejected due to security reasons

rejected,

--Primitive/message cannot be successfully processed because according to the current entity status different primitive/message is expected

invalidEntityStatus,

--Primitive/message cannot be successfully processed because of invalid values of parameters

invalidArgument,

--Primitive/message cannot be successfully processed because of the process error in the receiving entity

processFailure,

--Primitive/message cannot be successfully processed because of the connection error

networkFailure}

--CxMedia status

CxMediaStatus ::= ENUMERATED {

noErrorAccepted,

noErrorRejected,

errorInvalidEntityStatus,

errorInvalidArgument,

errorProcessFailure,

errorNetworkFailure,

errorUnknown

}

**-----------------------------------------------------------**

**--Coexistence service**

**-----------------------------------------------------------**

--Coexistence service

CoexistenceService ::= ENUMERATED {

--Information service

information,

--Management service

management,

--No service

noService}

SubscribedService::= ENUMERATED {

information,

management,

interCMCoexistenceSetElementsNeighbors,

allCoexistenceSetElementsNeighbors

}

**-----------------------------------------------------------**

**--Network technology**

**-----------------------------------------------------------**

NetworkTechnology ::= ENUMERATED {

--IEEE 802.11af

ieee802dot11af,

--IEEE 802.22

ieee802dot22,

--Radio microphone

radioMic,

--Area broadcast

areaBroadcast,

--ECMA 392

ecma392}

**-----------------------------------------------------------**

**--Network type**

**-----------------------------------------------------------**

NetworkType ::= ENUMERATED {

fixed,

mode1,

mode2,

…

}

**-----------------------------------------------------------**

**--Discovery information**

**-----------------------------------------------------------**

DiscoveryInformation ::= SEQUENCE {

--Latitude [degree]

coordinateX REAL,

--Longitude [degree]

coordinateY REAL,

--Altitude [m]

coordinateZ REAL,

--Maximum transmit power [dBm]

maxTxPower REAL,

--Receiver sensitivity [dBm]

rxSensitivity REAL,

--Antenna gain [dBi]

antennaGain REAL,

--Minimum required SNR [dB]

minReqSNR REAL,

--Antenna height above ground [m]

antennaHeight REAL,

…

}

**-----------------------------------------------------------**

**--Location**

**-----------------------------------------------------------**

--Location

Geolocation ::= CHOICE {

--Place name or ID

placeID OCTET STRING,

--Coordinates of the master station

coordinates SEQUENCE {

--Latitude [degree]

latitude REAL,

--Longitude [degree]

longitude REAL,

--Altitude [m]

altitude REAL OPTIONAL}}

**-----------------------------------------------------------**

**--Coverage area**

**-----------------------------------------------------------**

--Coverage area

CoverageArea ::= SEQUENCE {

--Coverage radius [m]

radius REAL,

--Reference central frequency [MHz]

refFrequency REAL,

--Reference height of master station [m]

refMasterHeight REAL,

--Reference height of slave station [m]

refSlaveHeight REAL,

--Reference transmission power [dBm]

refTxPower REAL}

**-----------------------------------------------------------**

**--Installation parameters**

**-----------------------------------------------------------**

--Installation parameters

InstallationParameters ::= SEQUENCE {

--Operating height of master station [m]

opMasterHeight REAL OPTIONAL,

--Operating height of slave station [m]

opSlaveHeight REAL OPTIONAL,

--Operating transmission power [dBm]

opTxPower REAL OPTIONAL,

--Adjacent channel selectivity of the WSO [dB]

aCS REAL OPTIONAL,

--Adjacent channel leakage ratio of the WSO [dB]

aCLR REAL OPTIONAL,

--Guaranteed QoS of backhaul connection of the WSO

guaranteedQoSOfBackhaulConnection GuaranteedQoSOfBackhaulConnection OPTIONAL}

**-----------------------------------------------------------**

**--Guaranteed QoS of backhaul connection related data types**

**----------------------------------------------------------**

GuaranteedQoSOfWiredConnection ::= SEQUENCE{

--Backhaul type ID

backhaulTypeID ENUMERATED{

xDSL,

opticalFibre,

…},

--Guaranteed minimum bit rates of backhaul connection [Mb/s]

GuaranteedMinimumBitRates REAL OPTIONAL,

…}

**-----------------------------------------------------------**

**--Frequency range related data types**

**-----------------------------------------------------------**

--Frequency range

FrequencyRange ::= SEQUENCE {

--Start frequency [MHz]

startFreq REAL,

--Stop frequency [MHz]

stopFreq REAL}

--List of available frequencies

ListOfAvailableFrequencies ::= SEQUENCE OF SEQUENCE {

--Frequency range

frequencyRange FrequencyRange,

--Transmission power limit [dBm]

txPowerLimit REAL OPTIONAL,

--Start time when this frequency range is available

availableStartTime GeneralizedTime OPTIONAL,

--Duration during which this frequency range is available [s]

availableDuration REAL OPTIONAL,

--Aggregated interference control parameters

aggInterfCtrolParam   
AggregatedInterferenceControlParameters OPTIONAL}

--Aggregated interference control parameters

AggregatedInterferferenceControlParameters ::= SEQUENCE{

--Reference point ID to be protected in controlling

--aggregated interference from the other WSO(s)

referencePointID INTEGER,

--Geolocation information of the reference point ID

geolocation Geolocation,

--Adjacent channel selectivity of the WSO [dB]

aCS REAL,

--Adjacent channel leakage ratio of the WSO [dB]

aCLR REAL,

--Potential antenna height of the reception to be protected

--in the reference point [m]

antennaHeight REAL,

--Potential antenna gain of the reception to be protected

--in the reference point [dBi]

antennaGain REAL,

--Protection ratio of the reception to be protected

--at the reference point for the frequency [dB]

protectionRatio REAL,

…}

--List of supported frequencies

ListOfSupportedFrequencies ::= SEQUENCE OF SEQUENCE {

-- The frequency borders of each possible sub band or channel

supportedFrequency FrequencyRange,

-- Extra channel configuration

-- (subchannelization or channel aggregation) supported or not

extrachannelizationIsSupported BOOLEAN,

-- Extra channel configuration description

extrachannelizationDescription   
ExtraChannelizationDescription OPTIONAL}

extraChannelizationDescription ::= SEQUENCE{

--Maximum number of non-contiguous channels

--supported in channel aggregation

maxNuNonconCH INTEGER,

--Maximum number of contiguous channels

--supported in channel bonding

maxNuConCH INTEGER,

--Min channel raster for fine tuning of frequency [MHz]

minChRaster REAL OPTIONAL,

--Maximum supported bandwidth per channel [MHz]

maxCHBW REAL,

--Minimum supported bandwidth per channel [MHz]

minCHBW REAL,

--Resolution for additional channel bandwidth

--between minCHBW and maxCHBW [MHz]

resolutionSBW REAL,

--Minimum bandwidth within either maxCHBW or minCHBW [MHz].

--Any number or location, which fits within

--either maxCHBW or minCHBW is allowed.

minUnderlayBW REAL,

--Offset of the start frequency in the case of maxCHBW [MHz]

offsetFreqMaxCHBW REAL,

--Offset of the start frequency in the case of minCHBW [MHz]

offsetFreqMinCHBW REAL,

--Offset always based on the Primary Channelization or not

OffsetPerPrimaryChannelization BOOLEAN}

--List of operating frequencies

ListOfOperatingFrequencies ::= SEQUENCE OF SEQUENCE {

--Frequency range

frequencyRange FrequencyRange,

--Occupancy if known [fractional value between 0 and 1]

occupancy REAL OPTIONAL}

**-----------------------------------------------------------**

**--Available channel numbers**

**-----------------------------------------------------------**

ConstOfChUseID :: = ENUMERATED {

regulationMaxTxPower,

regulationMaxAntGain,

regulationMaxAntHeight,

regulationTVDBUpdateTime,

outOfBandEmissionLimit,

…

}

ConstOfChUseValue ::= CHOICE {

--Maximum transmit power allowed by regulations [dBm]

regulationMaxTxPower REAL,

--Maximum antenna gain allowed by regulation [dBi]

regulationMaxAntMaxGain REAL,

--Maximum antenna height above ground allowed by regulation [m]

regulationAntMaxHeight REAL,

--WSO location update time required by regulation [s]

regulationTVDBUpdateTime REAL,

--Out of band emission power density limit [dBm/MHz]

outOfBandEmissionLimit REAL,

…

}

ConstOfChUses ::= SEQUENCE OF SEQUENCE {

constOfChUseID ConstOfChUseID,

constOfChUseValue ConstOfChUseValue

}

ListOfAvailableChNumbers ::= SEQUENCE OF SEQUENCE {

chNumber INTEGER,

availableStartTime GeneralizedTime,

--Duration of availability [s]

availableDuration REAL,

constOfChUses ConstOfChUses

}

**-----------------------------------------------------------**

**--Operating channel numbers**

**-----------------------------------------------------------**

ListOfOperatingChNumbers ::= SEQUENCE OF SEQUENCE {

chNumber INTEGER,

--Occupancy [fractional value between 0 and 1]

occupancy REAL

}

**-----------------------------------------------------------**

**--Required resource**

**-----------------------------------------------------------**

--Required resource

RequiredResource ::= SEQUENCE OF SEQUENCE {

--Required bandwidth [MHz]

requiredBandwidth REAL,

--Expected occupancy if known [fractional value between 0 and 1]

occupancy REAL OPTIONAL}

**-----------------------------------------------------------**

**--Operation code for registration**

**-----------------------------------------------------------**

--Operation code for registration

OperationCode ::= ENUMERATED {

--New registration

new,

--Update of registration information

update,

--Deregistration

delete}

**-----------------------------------------------------------**

**--Measurement capability**

**-----------------------------------------------------------**

MeasurementCapability ::= ENUMERATED {

energyDetection,

featureDetection,

…

}

**-----------------------------------------------------------**

**--Reconfiguration related data types**

**-----------------------------------------------------------**

--Transmission schedule

TxSchedule ::= SEQUENCE {

--Schedule start time

scheduleStartTime GeneralizedTime,

--Schedule frame duration [s]

scheduleFrameDuration REAL,

--Number of schedule frames

numberOfFrames INTEGER,

--Transmission start time within a schedule frame [s]

transmissionStartTime REAL,

--Transmission duration within a schedule frame [s]

transmissionDuration REAL}

**-----------------------------------------------------------**

**--CM registration**

**-----------------------------------------------------------**

--CM registration

CMRegistration ::= SEQUENCE {

--CM IP address

ipAddress OCTET STRING,

--CM port number

portNumber INTEGER}

--List of WSO for registration

ListOfWSORegistrations ::= SEQUENCE OF SEQUENCE {

--New registration, registration update or deregistration

operationCode OperationCode,

--WSO ID

wsoID OCTET STRING,

--Network technology

networkTechnology NetworkTechnology OPTIONAL,

--Location

geolocation Geolocation OPTIONAL,

--Coverage area

coverageArea CoverageArea OPTIONAL,

-- Mobility information

mobilityInformation MobilityInformation OPTIONAL,

--Installation parameters

installationParameters InstallationParameters OPTIONAL,

--List of available frequencies

listOfAvailableFrequencies ListOfAvailableFrequencies OPTIONAL,

--Maximum number of controllable WSO

maximumNumberOfControllableWSO INTEGER OPTIONAL}

--CE registration

CERegistration ::= SEQUENCE OF SEQUENCE{

--CE ID

ceID CxID,

-- List of WSO registration

listOfWSORegistration ListOfWSORegistrations}

**-----------------------------------------------------------**

**--Coexistence report**

**-----------------------------------------------------------**

CoexistenceReport ::= SEQUENCE OF SEQUENCE {

networkID OCTET STRING,

networkTechnology NetworkTechnology,

listOfOperatingChNumbers ListOfOperatingChNumbers

}

ChannelPriority ::= SEQUENCE OF SEQUENCE {

channelNumber INTEGER,

priority INTEGER

}

**-----------------------------------------------------------**

**--Coexistence set information related data types**

**-----------------------------------------------------------**

--Interference direction

InterferenceDirection ::= ENUMERATED {

--Subject WSO creates interference to neighbor WSO

source,

--Neighbor WSO creates interference to subject WSO

victim,

--Both subject WSO and neighbor WSO create interference to each other

mutual}

--Network geometry class

NetworkGeometryClass ::= ENUMERATED {

--Class#1 network geometry

class1,

--Class#2 network geometry

class2,

--Class#3 network geometry

class3,

--Class#4 network geometry

class4}

--List of neighbor WSOs

ListOfNeighborWSOs ::= SEQUENCE OF SEQUENCE {

--Neighbor WSO ID

wsoID OCTET STRING,

--Neighbor WSO network technology

networkTechnology NetworkTechnology,

--Interference direction

interferenceDirection InterferenceDirection,

--Network geometry classification

networkGeometryClass NetworkGeometryClass OPTIONAL,

--Distance to subject WSO [m]

distance REAL

--List of operating frequencies

--Not used in CoexistenceSetInformationAnnouncement

--Used in CoexistenceReportAnnouncement and CxMediaCoexistenceReportIndication

listOfOperatingFrequencies ListOfOperatingFrequencies OPTIONAL}

--List of neighbor CEs

ListOfNeighborCEs ::= SEQUENCE OF SEQUENCE {

--Neihgbor CE ID

ceID CxID,

--List of neighbor WSOs

listOfNeighborWSOs ListOfNeighborWSOs}

--List of neighbor CMs

ListOfNeighborCMs ::= SEQUENCE OF SEQUENCE {

--Neighbor CM ID

cmID CxID,

--List of neighbor CEs

listOfNeighborCEs ListOfNeighborCEs}

--List of available frequencies of the subject WSO

ListOfSubjectWSOAvailableFrequencies ::= SEQUENCE OF SEQUENCE {

--Frequency range

frequencyRange FrequencyRange,

--List of neighbor CMs

listOfNeighborCMs ListOfNeighborCMs}

--List of subject WSOs

ListOfSubjectWSOs ::= SEQUENCE OF SEQUENCE {

--Subject WSO ID

wsoID OCTET STRING,

--List of available frequencies of the subject WSO

listOfSubjectWSOAvailableFrequencies ListOfSubjectWSOAvailableFrequencies}

--List of subject CEs

ListOfSubjectCEs ::= SEQUENCE OF SEQUENCE {

--Subject CE ID

ceID CxID,

--List of subject WSOs

listOfSubjectWSOs ListOfSubjectWSOs}

--List of neighbor CMs transport information

ListOfNeighborCMsTransport ::= SEQUENCE OF SEQUENCE {

--Neighbor CM ID

cmID CxID,

--Neighbor CM profile

cmProfile EntityProfile,

-- Neighbor CM IP address

ipAddress OCTET STRING,

-- Neighbor CM port number

portNumber INTEGER}

**-----------------------------------------------------------**

**--Coexistence set information**

**-----------------------------------------------------------**

ListOfCoexSetElement ::= SEQUENCE OF SEQUENCE {

networkID OCTET STRING,

networkTechnology NetworkTechnology

}

ListOfNeighborCM ::= SEQUENCE OF SEQUENCE {

neighborCMID CxID,

--Neighbor CM profile

cmProfile EntityProfile,

listOfCoexSetElement ListOfCoexSetElement

}

**-----------------------------------------------------------**

**--Coexistence set element information related data types**

**-----------------------------------------------------------**

--List of neighbor CM WSOs

ListOfNeighborCMWSOs ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING,

--List of available frequencies

listOfAvailableFrequencies ListOfAvailableFrequencies OPTIONAL,

--List of operating frequencies

listOfOperatingFrequencies ListOfOperatingFrequencies OPTIONAL,

--Network geometry classification

networkGeometryClass NetworkGeometryClass OPTIONAL

}

**-----------------------------------------------------------**

**--Coexistence set element reconfiguration related data types**

**-----------------------------------------------------------**

--List of WSOs

ReconfigListOfWSOs ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING,

--Potential new operating frequency

newOperatingFrequency FrequencyRange,

--Additionally operable network technology

addNetworkTechnology NetworkTechnology OPTIONAL

}

--List of CEs

ReconfigListOfCEs ::= SEQUENCE OF SEQUENCE {

--CE ID

ceID CxID,

--List of WSOs

reconfigListOfWSOs ReconfigListOfWSOs

}

**-----------------------------------------------------------**

**--Channel classification**

**-----------------------------------------------------------**

OperatingChannelInfo ::= SEQUENCE {

operatingChannelNumber INTEGER,

listOfNetworkID SEQUENCE OF OCTET STRING,

…

}

ChClassInfo ::= SEQUENCE {

availableChannelList SEQUENCE OF INTEGER,

restrictedChannelList SEQUENCE OF INTEGER,

protectedChannelList SEQUENCE OF INTEGER,

unclassifiedChannelList SEQUENCE OF INTEGER,

operatingChannelList SEQUENCE OF OperatingChannelInfo,

coexistenceChannelList SEQUENCE OF OperatingChannelInfo,

…

}

ChClassInfoList ::= SEQUENCE OF SEQUENCE {

networkID OCTET STRING,

chClassInfo ChClassInfo

}

**-----------------------------------------------------------**

**--Failed parameters**

**-----------------------------------------------------------**

FailedParameterID ::= ENUMERATED {

listOfoperatingChNumber,

txPowerLimit,

channelIsShared,

txSchedule

}

FailedParameterValue ::= CHOICE {

listOfoperatingChNumber SEQUENCE OF INTEGER,

--Transmit power limit [dBm]

txPowerLimit REAL,

channelIsShared BOOLEAN,

txSchedule TxSchedule

}

FailedParameters ::= SEQUENCE OF SEQUENCE {

failedParameterID FailedParameterID,

failedParameterValue FailedParameterValue

}

**-----------------------------------------------------------**

**--Event indication**

**-----------------------------------------------------------**

EventDescr ::= ENUMERATED{

sinrThresholdReached,

qosDegradation,

…

}

EventParams ::= SEQUENCE {

eventDescr EventDescr

}

**-----------------------------------------------------------**

**--Information Acquiring**

**-----------------------------------------------------------**

ReqInfoDescr ::= SEQUENCE OF ENUMERATED {

sinr,

desiredBandwidth,

desiredOccupancy,

desiredQoS,

desiredCoverage,

channelNumber,

subscribedService,

interferenceLevel,

fairness,

threshold,

mobilityInformation,

...

}

ReqInfoValue ::= SEQUENCE OF SEQUENCE {

reqInfoDescr ReqInfoDescr,

reqInfoValue CHOICE {

--SINR value [dB]

sinrValue REAL,

--Desired bandwidth value [MHz]

desiredBandwidthValue REAL,

--Desired occupancy value [fractional value between 0 and 1]

desiredOccupancyValue REAL,

--Desired QoS value [fractional value between 0 and 1]

desiredQoSValue REAL,

--Desired coverage value [m]

desiredCoverageValue REAL,

channelNumberValue REAL,

subscribedServiceValue SubscribedService

--Interference level value [dBm]

interferenceLevelValue REAL,

--Fairness value [fractional value between 0 and 1]

fairnessValue REAL,

--Threshold value [factional value between 0 to 1]

thresholdValue REAL,

mobilityInformation MobilityInformation,

otherValue ANY

}

}

**-----------------------------------------------------------**

**--Negotiation**

**-----------------------------------------------------------**

NegotiationStatus :: = SEQUENCE {

negotiationSuccess BOOLEAN,

negotiationFailure BOOLEAN,

underNegotiation BOOLEAN,

…

}

StartEndTime :: = SEQUENCE {

--Start time [s]

startTime REAL,

--End time [s]

endTime REAL

}

TimeSharingUnitInfo ::= SEQUENCE {

referenceTime GeneralizedTime,

windowTime StartEndTime,

slotTime StartEndTime,

…

}

NegotiationInformation :: = SEQUENCE {

mode BOOLEAN,

listOfChNumber SEQUENCE OF INTEGER,

timeSharingUnitInfo TimeSharingUnitInfo,

slotTimePosition StartEndTime,

numberOfSlots INTEGER,

disallowedSlotTimePosition StartEndTime,

--List of contention numbers [factional value between 0 to 1]

listOfContentionNumbers SEQUENCE OF REAL,

…

}

ListOfWinnerCMID ::= SEQUENCE OF CxID

--List of slot time position [s]

ListOfSlotTimePosition ::= SEQUENCE OF REAL

**-----------------------------------------------------------**

**--Measurement**

**-----------------------------------------------------------**

MeasurementSchedule ::= SEQUENCE {

measStartTime GeneralizedTime,

numberOfMeasurements INTEGER,

--Time between measurements [s]

timeBetweenMeasurements REAL

}

MeasurementFreq ::= SEQUENCE OF INTEGER

MeasurementType ::= ENUMERATED {

interferenceLevel

}

MeasurementDescription ::= SEQUENCE {

measType MeasurementType,

measSchedule MeasurementSchedule,

measFreq MeasurementFreq

}

MeasurementReport ::= CHOICE {

--Interference level value [dBm]

interferenceLevelValue REAL,

…

}

MeasurementResult ::= SEQUENCE OF SEQUENCE {

measurementDescription MeasurementDescription,

measurementReport MeasurementReport

}

-----------------------------------------------------------

--Mobility Information

-----------------------------------------------------------

MobilityInformation :: = CHOICE {

--Maximum speed [km/h]

maxSpeed REAL,

speedInformation SpeedInformation,

routeInformation RouteInformation

}

SpeedInformation ::= SEQUENCE {

--WSO speed [km/h]

WSOSpeed REAL,

--WSO direction [degree]

WSODirection REAL

}

RouteInformation ::= SEQUENCE {

PlannedRoute SEQUENCE of Geolocation,

PlannedTime SEQUENCE of GeneralizedTime

}

**-----------------------------------------------------------**

**--Entity profile**

**-----------------------------------------------------------**

--Entity profile

EntityProfile ::= ENUMERATED {

--Profile 1

profile1,

--Profile 2

profile2,

--Profile 3

profile3}

END

# (normative) Primitives

## Transport SAP

IEEE80219TRSAPPrimitive DEFINITIONS AUTOMATIC TAGS::= BEGIN

**-----------------------------------------------------------**

**--Imported data types**

**-----------------------------------------------------------**

--Imported data types

IMPORTS

--Coexistence protocol entity ID

CxID,

--Status

Status

FROM IEEE802191DataType;

**-----------------------------------------------------------**

**--Transport service configuration**

**-----------------------------------------------------------**

--Transport service configuration request

TrConfigurationRequest ::= SEQUENCE {

--Source ID

sourceID CxID,

--Destination ID

destinationID CxID,

--Destination IP address

destinationIPAddress OCTET STRING,

--Destination port number

destinationPortNumber INTEGER}

--Transport service configuration response

TrConfigurationResponse ::= SEQUENCE {

--Destination ID

destinationID CxID,

--Configuration status

status Status}

**-----------------------------------------------------------**

**--Connection establishment**

**-----------------------------------------------------------**

--Request for connection

TrConnectionRequest ::= SEQUENCE {

--Source ID

sourceID CxID,

--Destination ID

destinationID CxID}

--Indication of the received connection request

TrConnectionIndication ::= SEQUENCE {

--Source ID

sourceID CxID}

--Response to the received connection request

TrConnectionResponse ::= SEQUENCE {

--Destination ID

destinationID CxID,

--Connection status

status Status}

--Confirmation to the connection request

TrConnectionConfirm ::= SEQUENCE {

--Source ID

sourceID CxID,

--Connection status

status Status}

**-----------------------------------------------------------**

**--Connection termination**

**-----------------------------------------------------------**

--Connection termination request

TrDisconnectionRequest ::= SEQUENCE {

--Destination ID

destinationID CxID}

--Connection termination indication

TrDisconnectionIndication ::= SEQUENCE {

--Source ID

sourceID CxID}

**-----------------------------------------------------------**

**--Sending a coexistence protocol message**

**-----------------------------------------------------------**

--Request to send coexistence protocol message

TrSendRequest ::= SEQUENCE {

--Destination ID

destinationID CxID,

--Encoded coexistence protocol message

cxMessage OCTET STRING}

--Confirmation of sending coexistence protocol message

TrSendConfirm ::= SEQUENCE {

--Destination ID

destinationID CxID,

--Status of sending coexistence protocol message

status Status}

**-----------------------------------------------------------**

**--Receiving a coexistence protocol message**

**-----------------------------------------------------------**

--Indication of received coexistence protocol message

TrReceiveIndication ::= SEQUENCE {

--Source ID

sourceID CxID,

--Encoded coexistence protocol message

cxMessage OCTET STRING}

END

## Coexistence Media SAP

IEEE80219MEDIASAPPrimitive DEFINITIONS AUTOMATIC TAGS::= BEGIN

**-----------------------------------------------------------**

**--Imported data types**

**-----------------------------------------------------------**

--Imported data types

IMPORTS

--Status

Status,

--CxMedia status

CxMediaStatus,

--Coexistence service

CoexistenceService,

--Subscribed service

SubscribedService,

--Network technology

NetworkTechnology,

--Network type

NetworkType,

--Geolocation

Geolocation,

--Discovery information

DiscoveryInformation,

--Coverage area

CoverageArea,

--Installation parameters

InstallationParameters,

--List of available frequencies

ListOfAvailableFrequencies,

--List of operating frequencies

ListOfOperatingFrequencies,

--List of available channel numbers

ListOfAvailableChNumbers,

--List of operating channel numbers

ListOfOperatingChNumbers,

--List of supported frequencies

ListOfSupportedFrequencies,

--Required resource

RequiredResource,

--List of subject WSO available frequencies

ListOfSubjectWSOAvailableFrequencies,

--Transmission schedule

TxSchedule,

--Coexistence protocol entity ID

CxID,

--Frequency range

FrequencyRange,

--Coexistence report

CoexistenceReport,

--Channel priority

ChannelPriority,

--Measurement capability

MeasurementCapability,

-- Operation code

OperationCode,

--Failed parameters

FailedParameters,

--Channel classification information list

ChClassInfoList,

--Event parameters

EventParams,

--Measurement description

MeasurementDescription,

--Measurement result

MeasurementResult,

--Mobility Information

MobilityInformation,

--Entity profile

EntityProfile

FROM IEEE802191DataType;

**-----------------------------------------------------------**

**--WSO subscription**

**-----------------------------------------------------------**

--Request for subscription information

CxMediaSubscriptionRequest ::= SEQUENCE {}

--Subscription information

CxMediaSubscriptionResponse ::= SEQUENCE {

--WSO subscription ID

clientID IA5String OPTIONAL,

--WSO subscription password

clientPassword IA5String OPTIONAL,

--List of serving CMs

listOfCMs SEQUENCE OF SEQUENCE {

--CM ID

cmID CxID,

--CM IP address

cmIPAddress OCTET STRING,

--CM port number

cmPortNumber INTEGER,

--CM subscription ID

serverID IA5String,

--CM subscription password

serverPassword IA5String} OPTIONAL,

--Coexistence service to which WSO is subscribed

coexistenceService CoexistenceService OPTIONAL,

--Coexistence service to which WSO is subscribed

subscribedService SubscribedService OPTIONAL,

--Status

status CxMediaStatus OPTIONAL}

--Request to change subscription

CxMediaSubscriptionIndication ::= SEQUENCE {

--Coexistence service to which WSO is subscribed

coexistenceService CoexistenceService OPTIONAL,

--Coexistence service to which WSO is subscribed

subscribedService SubscribedService OPTIONAL}

--Subscription status

CxMediaSubscriptionConfirm ::= SEQUENCE {

--Subscription status

--noError means subscription is confirmed

--rejected means subscription is not confirmed

status Status OPTIONAL,

--Status

cxMediaStatus CxMediaStatus OPTIONAL}

--Request to change subscription

CxMediaChangeSubscriptionRequest ::= SEQUENCE {

--Coexistence service to which WSO is subscribed

subscribedService SubscribedService}

--Response for subscription change

CxMediaChangeSubscriptionResponse :: = SEQUENCE {

--Status

Status CxMediaStatus}

**-----------------------------------------------------------**

**--WSO registration**

**-----------------------------------------------------------**

--Request for registration information

CxMediaRegistrationRequest ::= SEQUENCE {}

--Registration information

CxMediaRegistrationResponse ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--Network ID

networkID OCTET STRING,

--Network technology

networkTechnology NetworkTechnology,

--Network type

networkType NetworkType OPTIONAL,

--Geolocation

geolocation Geolocation OPTIONAL,

--Discovery information

discoveryInformation DiscoveryInformation OPTIONAL,

--Coverage area

coverageArea CoverageArea OPTIONAL,

--Installation parameters

installationParameters InstallationParameters OPTIONAL,

--List of available frequencies

listOfAvailableFrequencies ListOfAvailableFrequencies OPTIONAL,

--List of operating frequencies

listOfOperatingFrequencies ListOfOperatingFrequencies OPTIONAL,

--List of available channel number

listOfAvailableChNumbers ListOfAvailableChNumbers OPTIONAL,

--List of supported channel number

listOfSupportedChNumbers SEQUENCE OF INTEGER OPTIONAL,

-- List of supported frequencies

listOfSuppFrequencies ListOfSupportedFrequencies OPTIONAL,

--List of operating channel number

listOfOperatingChNumbers ListOfOperatingChNumbers OPTIONAL,

--Transmission schedule is supported or not

txScheduleSupported BOOLEAN OPTIONAL,

--Measurement capability

measurementCapability MeasurementCapability OPTIONAL,

--Required resource

requiredResource RequiredResource,

--Mobility Information

mobilityInformation MobilityInformation OPTIONAL

}

--Updated registration information

CxMediaRegistrationIndication ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--Network ID

networkID OCTET STRING OPTIONAL,

--Network technology

networkTechnology NetworkTechnology OPTIONAL,

--Network type

networkType NetworkType OPTIONAL,

--Indication of WSO stop operation

wsoStopOperation BOOLEAN OPTIONAL,

--List of available frequencies

listOfAvailableFrequencies ListOfAvailableFrequencies OPTIONAL,

--List of operating frequencies

listOfOperatingFrequencies ListOfOperatingFrequencies OPTIONAL,

--Required resource

requiredResource RequiredResource OPTIONAL,

--Discovery information

discoveryInformation DiscoveryInformation OPTIONAL,

--Transmission schedule is supported or not

txScheduleSupported BOOLEAN OPTIONAL,

--List of available channel number

listOfAvailableChNumbers ListOfAvailableChNumbers OPTIONAL,

--List of supported channel number

listOfSupportedChNumbers SEQUENCE OF INTEGER OPTIONAL,

-- List of supported frequencies

listOfSuppFrequencies ListOfSupportedFrequencies OPTIONAL,

--List of operating channel number

listOfOperatingChNumbers ListOfOperatingChNumbers OPTIONAL,

--Measurement capability

measurementCapability MeasurementCapability OPTIONAL,

--Mobility information

mobilityInformation MobilityInformation OPTIONAL

}

--Registration confirmation

CxMediaRegistrationConfirm ::= SEQUENCE {

--Registration status

status Status OPTIONAL,

--CxMedis status

cxMediastatus CxMediaStatus OPTIONAL}

**-----------------------------------------------------------**

**--WSO reconfiguration**

**-----------------------------------------------------------**

--Reconfiguration request

CxMediaReconfigurationRequest ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--Operating frequency

operatingFrequency FrequencyRange OPTIONAL,

--List of operating channel number

listOfOperatingChNumber SEQUENCE OF INTEGER OPTIONAL,

--Transmission power limit [dBm]

txPowerLimit REAL OPTIONAL,

--Indication whether the channel is shared

channelIsShared BOOLEAN,

--Transmission schedule

txSchedule TxSchedule OPTIONAL,

-- Channel classification information

chClassInfo ChClassInfo OPTIONAL,

--Additionally operable network technology

addNetworkTechnology NetworkTechnology OPTIONAL}

--Reconfiguration response

CxMediaReconfigurationResponse ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--Reconfiguration status

status Status OPTIONAL,

--CxMedia status

cxMediaStatus CxMediaStatus OPTIONAL,

--Failed parameters

failedParameters FailedParameters OPTIONAL}

**-----------------------------------------------------------**

**--CM stop operation**

**-----------------------------------------------------------**

--Stop operation indication

CxMediaStopOperationIndication ::= SEQUENCE {}

--Stop operation confirm

CxMediaStopOperationConfirm ::= SEQUENCE {

--Stop operation status

status Status}

**-----------------------------------------------------------**

**--Coexistence report**

**-----------------------------------------------------------**

-- Coexistence report indication

CxMediaCoexistenceReportAnnouncement ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--List of subject WSO available frequencies

listOfSubjectWSOAvailableFrequencies ListOfSubjectWSOAvailableFrequencies}

-- Coexistence report confirm

CxMediaCoexistenceReportConfirm ::= SEQUENCE {

--Coexistence report status

status Status}

--Request for coexistence report

CxMediaCoexistenceReportRequest ::= SEQUENCE {}

--Response for coexistence report

CxMediaCoexistenceReportResponse ::= SEQUENCE {

--Coexistence report information

coexistenceReport CoexistenceReport,

--Channel priority information

channelPriority ChannelPriority}

**-----------------------------------------------------------**

**--Channel classification requested by CE**

**-----------------------------------------------------------**

--Channel classification request

CxMediaChannelClassificationRequest ::= SEQUENCE {

-- List of network ID

listOfNetworkID SEQUENCE OF OCTET STRING}

-- Channel classification response

CxMediaChannelClassificationResponse ::= SEQUENCE {

--List of channel classification information

chClassInfoList ChClassInfoList}

**-----------------------------------------------------------**

**--Channel classification update**

**-----------------------------------------------------------**

--Channel classification update

CxMediaChannelClassificationIndication ::= SEQUENCE {

--List of channel classification information

chClassInfoList ChClassInfoList}

**-----------------------------------------------------------**

**--Available channel list from WSO**

**-----------------------------------------------------------**

-- Available channel List request

CxMediaAvailableChannelListRequest ::= SEQUENCE {}

-- Available channel list response

CxMediaAvailableChannelListResponse ::= SEQUENCE {

--Available channel list information

listOfAvailableChNumbers ListOfAvailableChNumbers}

**-----------------------------------------------------------**

**--Event indication**

**-----------------------------------------------------------**

-- Event indication

CxMediaEventIndication ::= SEQUENCE {

-- Event indication information

eventParams EventParams}

**-----------------------------------------------------------**

**--Measurement Request**

**-----------------------------------------------------------**

-- Measurement request

CxMediaGetMeasurementRequest ::= SEQUENCE {

-- Measurement request information

measurementDescription MeasurementDescription}

**-----------------------------------------------------------**

**-- Measurement results**

**-----------------------------------------------------------**

-- Measurement response

CxMediaGetMeasurementResponse ::= SEQUENCE OF SEQUENCE{

-- Measurement results

measurementResult MeasurementResult}

**-----------------------------------------------------------**

**-- WSO Deregistration**

**-----------------------------------------------------------**

--Deregistration request

CxMediaPerformDeregistrationRequest ::= SEQUENCE {

--List of operating channel number

wsoDeregistration BOOLEAN}

-- Deregistration response

CxMediaPerformReconfigurationResponse ::= SEQUENCE {

--CxMedia status

cxMediaStatus CxMediaStatus}

END

# (normative) Messages

IEEE802191Message DEFINITIONS AUTOMATIC TAGS ::= BEGIN

**-----------------------------------------------------------**

**--Imported data types**

**-----------------------------------------------------------**

--Imported data types

IMPORTS

--Coexistence protocol entity ID

CxID,

--Status

Status,

--CxMedia status

CxMediaStatus,

--Coexistence service

CoexistenceService,

--Subscribed service

SubscribedService,

--Network technology

NetworkTechnology,

--Network type

NetworkType,

--Location

Geolocation,

--Discovery information

DiscoveryInformation,

--Coverage area

CoverageArea,

--Installation parameters

InstallationParameters,

--List of available frequencies

ListOfAvailableFrequencies,

--List of operating frequencies

ListOfOperatingFrequencies,

--List of available channel numbers

ListOfAvailableChNumbers,

--List of operating channel numbers

ListOfOperatingChNumbers,

--List of supported frequencies

ListOfSupportedFrequencies,

--Required resource

RequiredResource,

--Operation code for registration

OperationCode,

--List of available frequencies of the subject WSO

ListOfSubjectWSOAvailableFrequencies,

--Transmission schedule

TxSchedule,

--Frequency range

FrequencyRange,

--CM registration

CMRegistration,

--CE registration

CERegistration,

--List of subject CEs

ListOfSubjectCEs,

--List of neighbor CMs transport information

ListOfNeighborCMsTransport,

--List of neighbor CM WSOs

ListOfNeighborCMWSOs,

--List of CEs for reconfiguration

ReconfigListOfCEs

--Coexistence report

CoexistenceReport,

--Channel priority

ChannelPriority,

--Measurement capability

MeasurementCapability,

--List of neighbor CM

ListOfNeighborCM,

--Failed parameters

FailedParameters,

--Channel classification information

ChClassInfo,

--Required information description

ReqInfoDescr,

--Requested information value

ReqInfoValue,

--Event parameters

EventParams,

--Negotiation status

NegotiationStatus,

--Negotiation information

NegotiationInformation

--Winner CM ID list

ListOfWinnerCMID,

-- Slot time position list

ListOfSlotTimePosition

--Measurement description

MeasurementDescription,

--Measurement result

MeasurementResult,

--Mobility Information

MobilityInformation,

--Entity profile

EntityProfile

FROM IEEE802191DataType;

**-----------------------------------------------------------**

**--Message structure, header structure, and payload types**

**-----------------------------------------------------------**

--Message structure

CxMessage ::= SEQUENCE {

-- Message header

header CxHeader,

-- Message payload

payload CxPayload}

--Header

CxHeader ::= CHOICE {

--For announcement

none NULL,

--For request or single response

requestID INTEGER (0..2147483647),

--For multiple responses

multipleResponse SEQUENCE {

--Original request ID

requestID INTEGER (0..2147483647),

--Response number

sequenceNumber INTEGER (0..2147483647),

--True is the response is last

isLastResponse BOOLEAN}}

--Payload types

CxPayload ::= CHOICE {

--WSO subscription request

subscriptionRequest SubscriptionRequest,

--WSO subscription response

subscriptionResponse SubscriptionResponse,

--WSO subscription change request

subscriptionChangeRequest SubscriptionChangeRequest,

--WSO subscription change response

subscriptionChangeResponse SubscriptionChangeResponse,

--CE registration request

ceRegistrationRequest CERegistrationRequest,

--Registration response

registrationResponse RegistrationResponse,

--Reconfiguration request

reconfigurationRequest ReconfigurationRequest,

--Reconfiguration response

reconfigurationResponse ReconfigurationResponse,

--Stop operation announcement

stopOperationAnnouncement StopOperationAnnouncement,

--Stop operation confirm

stopOperationConfirm StopOperationConfirm,

--Coexistence report announcement

coexistenceReportAnnouncement CoexistenceReportAnnouncement,

--Coexistence report confirm

coexistenceReportConfirm CoexistenceReportConfirm,

--Coexistence report request

coexistenceReportRequest CoexistenceReportRequest,

--Coexistence report response

coexistenceReportResponse CoexistenceReportResponse,

--CM registration request

cmRegistrationRequest CMRegistrationRequest,

--Coexistence set information announcement

coexistenceSetInformationAnnouncement CoexistenceSetInformationAnnouncement,

--Coexistence set information confirm

coexistenceSetInformationConfirm CoexistenceSetInformationAnnouncement,

--Coexistence set information request

coexistenceSetInformationRequest CoexistenceSetInformationRequest,

--Coexistence set information response

coexistenceSetInformationResponse CoexistenceSetInformationResponse,

--Coexistence set element information announcement

coexistenceSetElementInformationAnnouncement CoexistenceSetElementInformationAnnouncement,

--Coexistence set element information confirm

coexistenceSetElementInformationConfirm CoexistenceSetElementInformationConfirm,

--Coexistence set element information request

coexistenceSetElementInformationRequest CoexistenceSetElementInformationRequest,

--Coexistence set element information response

coexistenceSetElementInformationResponse CoexistenceSetElementInformationResponse,

--Coexistence set element reconfiguration request

coexistenceSetElementReconfigurationRequest CoexistenceSetElementReconfigurationRequest,

--Coexistence set element reconfiguration response

coexistenceSetElementReconfigurationResponse CoexistenceSetElementReconfigurationResponse,

--CM Reconfiguration request

cmReconfigurationRequest CMReconfigurationRequest,

--CM Reconfiguration response

cmReconfigurationResponse CMReconfigurationResponse,

--WSO channel classification request

channelClassificationRequest ChannelClassificationRequest,

-- WSO channel classification response

channelClassificationResponse ChannelClassificationResponse,

--CM channel classification request

cmChannelClassificationRequest CMChannelClassificationRequest,

-- CM channel classification response

cmChannelClassificationResponse CMChannelClassificationResponse,

-- WSO channel classification update

channelClassificationAnnouncement ChannelClassificationAnnouncement,

--Available channel list request from WSO

availableChannelsRequest AvailableChannelsRequest,

-- Available channel list response from WSO

availableChannelsResponse AvailableChannelsResponse,

--Information acquiring request

infoAcquiringRequest InforAcquiringRequest,

--Information acquiring response

infoAcquiringResponse InforAcquiringResponse,

-- Event indication

eventIndication EventIndication,

-- Event confirm

eventConfirm EventConfirm,

--WSO measurement request

measurementRequest MeasurementRequest,

--WSO measurement response

measurementResponse MeasurementResponse,

--WSO measurement confirm

measurementConfirm MeasurementConfirm,

--Master/Slave CM request

masterCMRequest MasterCMRequest,

--Master/Slave CM response

masterCMResponse MasterCMResponse,

--Master/Slave CM configuration request

masterSlaveCMconfigurationRequest MasterSlaveCMconfigurationRequest,

--Master/Slave CM configuration response

masterSlaveCMconfigurationResponse MasterSlaveCMconfigurationResponse,

--Negotiation request

negotiationRequest NegotiationRequest,

--Negotiation announcement

negotiationAnnouncement NegotiationAnnouncement,

--Deregistration request

wsoDeregistrationRequest WsoDeregistrationRequest,

-- Deregistration response

wsoDeregistrationResponse WsoDeregistrationResponse,

--Inter-CM information announcement

interCMInformationAnnouncement InterCMInformationAnnouncement,

--Inter-CM information confirm

interCMInformationCOnfirm InterCMInformationConfirm,

--Inter-CM information request

interCMInformationRequest InterCMInformationRequest,

--Inter-CM information response

interCMInformationResponse InterCMInformationResponse

}

**-----------------------------------------------------------**

**--WSO and CM subscription**

**-----------------------------------------------------------**

--WSO subscription request

SubscriptionRequest ::= SEQUENCE {

--WSO subscription ID

clientID IA5String OPTIONAL,

--WSO subscription password

clientPassword IA5String OPTIONAL,

--Coexistence service to which WSO is subscribed

coexistenceService CoexistenceService OPTIONAL,

--Coexistence service to which WSO is subscribed

subscribedService SubscribedService OPTIONAL}

--WSO subscription response

SubscriptionResponse ::= SEQUENCE {

--CM subscription ID

serverID IA5String OPTIONAL,

--CM subscription password

serverPassword IA5String OPTIONAL,

--Subscription status

--noError means subscription is confirmed

--rejected means subscription is not confirmed

status Status OPTIONAL,

--Status

status CxMediaStatus OPTIONAL}

**-----------------------------------------------------------**

**--WSO subscription change**

**-----------------------------------------------------------**

--Request to change subscription

SubscriptionChangeRequest ::= SEQUENCE {

--Coexistence service to which WSO is subscribed

subscribedService SubscribedService}

--Response for subscription change

SubscriptionChangeResponse :: = SEQUENCE {

--Status

status CxMediaStatus}

**-----------------------------------------------------------**

**--WSO registration**

**-----------------------------------------------------------**

CERegistrationRequest ::= SEQUENCE OF SEQUENCE {

--New registration, registration update or deregistration

operationCode OperationCode,

--WSO ID

wsoID OCTET STRING,

--Network ID

networkID OCTET STRING OPTIONAL,

--Network technology

networkTechnology NetworkTechnology OPTIONAL,

--Network type

networkType NetworkType OPTIONAL,

--Location

geolocation Geolocation OPTIONAL,

--Discovery information

discoveryInformation DiscoveryInformation OPTIONAL,

--Coverage area

coverageArea CoverageArea OPTIONAL,

-- Mobility information

mobilityInformation MobilityInformation OPTIONAL,

--Installation parameters

installationParameters InstallationParameters OPTIONAL,

--List of available frequencies

listOfAvailableFrequencies ListOfAvailableFrequencies OPTIONAL,

--Transmission schedule is supported or not

txScheduleSupported BOOLEAN OPTIONAL,

--List of operating frequencies

listOfOperatingFrequencies ListOfOperatingFrequencies OPTIONAL,

--List of available channel number

listOfAvailableChNumbers ListOfAvailableChNumbers OPTIONAL,

--List of supported channel number

listOfSupportedChNumbers SEQUENCE OF INTEGER OPTIONAL,

-- List of supported frequencies

listOfSuppFrequencies ListOfSupportedFrequencies OPTIONAL,

--List of operating channel number

listOfOperatingChNumbers ListOfOperatingChNumbers OPTIONAL,

--Required resource

requiredResource RequiredResource OPTIONAL,

--Measurement capability

measurementCapability MeasurementCapability OPTIONAL}

--Registration response

RegistrationResponse ::= SEQUENCE {

--Registration status

status Status OPTIONAL}

**-----------------------------------------------------------**

**--WSO reconfiguration**

**-----------------------------------------------------------**

--Reconfiguration request

ReconfigurationRequest ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--Operating frequency

operatingFrequency FrequencyRange OPTIONAL,

--List of operating channel number

listOfOperatingChNumber SEQUENCE OF INTEGER OPTIONAL,

--Transmission power limit [dBm]

txPowerLimit REAL OPTIONAL,

--Indication whether the channel is shared

channelIsShared BOOLEAN OPTIONAL,

--Transmission schedule

txSchedule TxSchedule OPTIONAL,

-- Channel classification information

chClassInfo ChClassInfo OPTIONAL,

-- Mobility information

mobilityInformation MobilityInformation OPTIONAL,

--Additionally operable network technology

addNetworkTechnology NetworkTechnology OPTIONAL}

--Reconfiguration response

ReconfigurationResponse ::= SEQUENCE OF SEQUENCE {

--WSO ID

wsoID OCTET STRING OPTIONAL,

--Reconfiguration status

status Status OPTIONAL,

--Status

status BOOLEAN OPTIONAL,

--Failed parameters

failedParameters FailedParameters OPTIONAL}

**-----------------------------------------------------------**

**--Stop operation**

**-----------------------------------------------------------**

--Stop operation announcement

StopOperationAnnouncement ::= SEQUENCE {}

--Stop operation confirm

StopOperationConfirm ::= SEQUENCE {

--Stop operation status

status Status}

**-----------------------------------------------------------**

**--Coexistence report**

**-----------------------------------------------------------**

--Coexistence report announcement

CoexistenceReportAnnouncement ::= SEQUENCE OF SEQUENCE {

--Subject WSO ID

wsoID OCTET STRING OPTIONAL,

--List of subject WSO available frequencies

listOfSubjectWSOAvailableFrequencies ListOfSubjectWSOAvailableFrequencies}

--Coexistence report confirm

CoexistenceReportConfirm ::= SEQUENCE {

--Coexistence report status

status Status}

--Request for coexistence report

CoexistenceReportRequest ::= SEQUENCE {}

--Response for coexistence report

CoexistenceReportResponse ::= SEQUENCE {

--Coexistence report information

coexistenceReport CoexistenceReport,

--Channel priority information

channelPriority ChannelPriority}

**-----------------------------------------------------------**

**--CM registration**

**-----------------------------------------------------------**

--CM registration request

CMRegistrationRequest ::= SEQUENCE {

--CM profile

cmProfile EntityProfile OPTIONAL,

--CM registration

cmRegistration CMRegistration OPTIONAL,

--CE registration

ceRegistration CERegistration OPTIONAL,

--Operationg code

operationCode OperationCode OPTIONAL,

--CE ID

ceID CxID OPTIONAL,

--Network ID

networkID OCTET STRING OPTIONAL,

--Network technology

networkTechnology NetworkTechnology OPTIONAL,

--Network type

networkType NetworkType OPTIONAL,

--Discovery information

discoveryInformation DiscoveryInformation OPTIONAL,

--List of supported channel number

listOfSupportedChNumbers SEQUENCE OF INTEGER OPTIONAL,

-- List of supported frequencies

listOfSuppFrequencies ListOfSupportedFrequencies OPTIONAL,

--Maximum number of controllable WSO

maximumNumberOfControllableWSO INTEGER OPTIONAL

}

**-----------------------------------------------------------**

**--Coexistence set information**

**-----------------------------------------------------------**

--Coexistence set information announcement

CoexistenceSetInformationAnnouncement ::= SEQUENCE {

--List of subject CEs

listOfSubjectCEs ListOfSubjectCEs,

--List of neighbor CMs transport information mentioned inside the list of subject CEs

listOfNeighborCMsTransport ListOfNeighborCMsTransport}

--Coexistence set information confirm

CoexistenceSetInformationConfirm ::= SEQUENCE {

--Coexistence set information status

status Status}

--Request for coexistence set information

CoexistenceSetInformationRequest ::= SEQUENCE {

listOfNetworkID SEQUENCE OF OCTET STRING}

--Response for coexistence set information

CoexistenceSetInformationResponse ::= SEQUENCE {

--Network ID

coexistenceReport CoexistenceReport,

--List of neighbor CM

listOfneighborCM ListOfneighborCM}

**-----------------------------------------------------------**

**--Coexistence set element information**

**-----------------------------------------------------------**

--Coexistence set element information announcement

CoexistenceSetElementInformationAnnouncement ::= SEQUENCE OF SEQUENCE{

--CE ID

ceID CxID,

--Coexistence service

coexistenceService CoexistenceService OPTIONAL,

--List of neighbor CM WSOs

listOfNeighborCMWSOs ListOfNeighborCMWSOs OPTIONAL

}

--Coexistence set element information confirm

CoexistenceSetElementInformationConfirm ::= SEQUENCE {

--Coexistence set element information status

status Status}

--Coexistence set element information request

CoexistenceSetElementInformationRequest ::= SEQUENCE OF SEQUENCE{

--CE ID

ceID CxID,

--List of neighbor CM WSOs

listOfNeighborCMWSOs ListOfNeighborCMWSOs

}

--Coexistence set element information response

CoexistenceSetElementInformationResponse ::= SEQUENCE OF SEQUENCE{

--CE ID

ceID CxID,

--Coexistence service

coexistenceService CoexistenceService,

--List of neighbor CM WSOs

listOfNeighborCMWSOs ListOfNeighborCMWSOs

}

**-----------------------------------------------------------**

**--Coexistence set element reconfiguration**

**-----------------------------------------------------------**

--Coexistence set element reconfiguration request

CoexistenceSetElementReconfigurationRequest ::= SEQUENCE{

--List of subject CEs

reconfigListOfSubjectCEs ReconfigListOfCEs,

--List of neighbor CEs

reconfigListOfNeighborCEs ReconfigListOfCEs

}

--Coexistence set element reconfiguration response

CoexistenceSetElementReconfigurationResponse ::= SEQUENCE{

--Indicates whether the suggested reconfiguration is accepted or not

requestIsAccepted BOOLEAN

}

**-----------------------------------------------------------**

**--WSO reconfiguration for another CM**

**-----------------------------------------------------------**

--Reconfiguration request

CMReconfigurationRequest ::= SEQUENCE {

--Indication for CE to be reconfigured

reconfigTarget CxID,

--List of operating channel number

listOfOperatingChNumber SEQUENCE OF INTEGER,

--Transmission power limitation [dBm]

txPowerLimit REAL,

--Indication whether the channel is shared

channelIsShared BOOLEAN,

--Transmission schedule

txSchedule TxSchedule ,

-- Channel classification information

chClassInfo ChClassInfo,

--Additionally operable network technology

newNetworkTechnology NetworkTechnology OPTIONAL}

--Reconfiguration response

ReconfigurationResponse ::= SEQUENCE {

--Indication for CE to be reconfigured

reconfigTarget CxID,

--Status

status BOOLEAN

--Failed parameters

failedParameters FailedParameters}

**-----------------------------------------------------------**

**--Channel classification**

**-----------------------------------------------------------**

--Channel classification request

ChannelClassificationRequest ::= SEQUENCE {

-- List of network ID

listOfNetworkID SEQUENCE OF OCTET STRING}

-- Channel classification response

ChannelClassificationResponse ::= SEQUENCE OF SEQUENCE{

-- Network ID

networkID OCTET STRING

--Channel classification information

chClassInfo ChClassInfo}

--CM Channel classification request

CMChannelClassificationRequest ::= SEQUENCE {

-- List of network ID

listOfNetworkID SEQUENCE OF OCTET STRING}

-- CM Channel classification response

CMChannelClassificationResponse ::= SEQUENCE OF SEQUENCE{

-- Network ID

networkID OCTET STRING

--Channel classification information

chClassInfo ChClassInfo}

**-----------------------------------------------------------**

**--Channel classification update**

**-----------------------------------------------------------**

--Channel classification update

ChannelClassificationAnnouncement ::= SEQUENCE OF SEQUENCE {

-- Network ID

networkID OCTET STRING

--Channel classification information

chClassInfo ChClassInfo}

**-----------------------------------------------------------**

**--Information acquiring from another CM**

**-----------------------------------------------------------**

-- Information acquiring request

InfoAcquringRequest ::= SEQUENCE {

ceID CxID,

listOfReqInfoDescr SEQUENCE OF ReqInfoDescr}

-- Information acquiring response

InfoAcquringResponse ::= SEQUENCE {

ceID CxID,

reqInfoValue ReqInfoValue}

**-----------------------------------------------------------**

**--Available channel list from WSO**

**-----------------------------------------------------------**

-- Available channel request

AvailableChannelsRequest ::= SEQUENCE {}

-- Available channel response

AvailableChannelsResponse ::= SEQUENCE {

--Available channel list information

listOfAvailableChNumbers ListOfAvailableChNumbers}

**-----------------------------------------------------------**

**--Event indication**

**-----------------------------------------------------------**

-- Event indication

EventIndication ::= SEQUENCE {

-- Event indication information

eventParams EventParams}

-- Event confirm

EventConfirm ::= SEQUENCE {}

**-----------------------------------------------------------**

**--Measurement Request**

**-----------------------------------------------------------**

-- Measurement request

MeasurementRequest ::= SEQUENCE {

-- Measurement request information

measurementDescription MeasurementDescription}

**-----------------------------------------------------------**

**-- Measurement results**

**-----------------------------------------------------------**

-- Measurement response

MeasurementResponse ::= SEQUENCE OF SEQUENCE{

-- Measurement results

measurementResult MeasurementResult}

**-----------------------------------------------------------**

**-- Negotiation**

**-----------------------------------------------------------**

-- Negotiation request

NegotiationRequest ::= SEQUENCE {

-- Negotiation status

negotiationStatus NegotiationStatus,

-- Negotiation information

negotiationInformation NegotiationInformation}

-- Negotiation announcement

NegotiationAnnouncement ::= SEQUENCE {

-- Winner CM ID list

listOfWinnerCMID ListOfWinnerCMID,

-- Slot time position list

listOfSlotTimePosition ListOfSlotTimePosition}

**-----------------------------------------------------------**

**--Master/Slave CM selection**

**-----------------------------------------------------------**

--Master/Slave CM selection request

MasterCMRequest ::= SEQUENCE {

--List of CEs managed by CM that intends to become slave CM

listOfCEs SEQUENCE OF CxID}

-- Master/Slave CM selection response

MasterCMResponse ::= SEQUENCE {

--Status

status CxMediaStatus}

**-----------------------------------------------------------**

**--Master/Slave CM configuration**

**-----------------------------------------------------------**

--Master/Slave CM configuration request

MasterSlaveCMconfigurationRequest ::= SEQUENCE {

-- List of CEs managed by CM

listOfCEs SEQUENCE OF CxID}

--Master/Slave CM configuration response

MasterSlaveCMconfigurationResponse ::= SEQUENCE {

--Operationg code

operationCode OperationCode,

--Slave CE ID

slaveCeID CxID,

--Network ID

networkID OCTET STRING,

--Network technology

networkTechnology NetworkTechnology,

--Network type

networkType NetworkType

--Discovery information

discoveryInformation DiscoveryInformation,

--Transmission schedule is supported or not

txScheduleSupported BOOLEAN,

--List of available channel number

listOfAvailableChNumbers ListOfAvailableChNumbers,

--List of supported channel number

listOfSupportedChNumbers SEQUENCE OF INTEGER,

--List of operating channel number

listOfOperatingChNumbers ListOfOperatingChNumbers,

--Required resource

requiredResource RequiredResource

--Measurement capability

measurementCapability MeasurementCapability}

**-----------------------------------------------------------**

**--WSO deregistration**

**-----------------------------------------------------------**

--Deregistration request

WsoDeregistrationRequest ::= SEQUENCE {

--Flag of wso deregistration

wsoDeregistration BOOLEAN}

--Deregistration response

WsoDeregistrationResponse ::= SEQUENCE {

--Status

status CxMediaStatus}

**-----------------------------------------------------------**

**--Inter-CM information**

**-----------------------------------------------------------**

--Inter-CM information announcement

InterCMInformationAnnouncement ::= SEQUENCE OF SEQUENCE {

--CE ID

ceID CxID,

--List of neighbor WSOs

listOfNeighborWSOs SEQUENCE OF SEQUENCE {

wsoID OCTET STRING,

operatingFrequency ListOfOperatingFrequencies OPTIONAL,

operatingChannel ListOfOperatingChNumbers OPTIONAL

}

}

--Inter-CM information confirm

InterCMInformationConfirm ::= SEQUENCE {

--Inter-CM information status

status Status

}

--Inter-CM information request

InterCMInformationRequest ::= SEQUENCE OF SEQUENCE{

--CE ID

ceID CxID,

--List of neighbor WSOs

listOfNeighborWSOs SEQUENCE OF SEQUENCE {

wsoID OCTET STRING

}

}

--Inter-CM information response

InterCMInformationResponse ::= SEQUENCE OF SEQUENCE{

--CE ID

ceID CxID,

--List of neighbor WSOs

listOfNeighborWSOs SEQUENCE OF SEQUENCE {

wsoID OCTET STRING,

operatingFrequency ListOfOperatingFrequencies OPTIONAL,

operatingChannel ListOfOperatingChNumbers OPTIONAL

}

}

END