6.3.3 UE capability information elements

*–* *BandCombinationList*

The IE *BandCombinationList* contains a list of NR CA and/or MR-DC band combinations.

***BandCombinationList* information element**

-- ASN1START

-- TAG-BAND-COMBINATION-LIST-START

BandCombinationList ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination

BandCombination ::= SEQUENCE {

bandAndDL-ParametersList BandAndDL-ParametersList,

bandCombinationsUL BIT STRING (SIZE (1.. maxBandCombUL)) OPTIONAL,

bandCombinationParametersList SEQUENCE (SIZE (1..maxBandCombUL)) OF BandCombinationParameters

}

-- Bands and DL band parameters

BandAndDL-ParametersList ::= SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandAndDL-Parameters

BandAndDL-Parameters ::= CHOICE {

bandAndDL-ParametersEUTRA BandAndDL-ParametersEUTRA,

bandAndDL-ParametersNR BandAndDL-ParametersNR

}

BandCombinationParameters ::= SEQUENCE {

ca-ParametersNR CA-ParametersNR OPTIONAL,

mrdc-Parameters MRDC-Parameters OPTIONAL

}

CA-ParametersNR ::= SEQUENCE {

multipleTimingAdvances ENUMERATED {supported} OPTIONAL,

-- R4 2-5: Simultaneous reception and transmission for inter band CA (TDD-TDD or TDD-FDD)

simultaneousRxTxInterBandCA ENUMERATED {supported} OPTIONAL,

-- BCS related to R4 2-1 and Updated CA BW class in R4-1803374

supportedBandwidthCombinationSet BIT STRING (SIZE (1..32)) OPTIONAL

}

MRDC-Parameters ::= SEQUENCE {

singleUL-Transmission ENUMERATED {supported} OPTIONAL,

-- R4 1-10: Support of EN-DC with LTE-NR coexistence in UL sharing from UE perspective

ul-SharingEUTRA-NR ENUMERATED {supported} OPTIONAL,

-- R4 1-11: Switching time between LTE UL and NR UL for EN-DC with LTE-NR coexistence in UL sharing from UE perspective

ul-SwitchingTimeEUTRA-NR ENUMERATED {type1, type2} OPTIONAL,

-- R4 2-4: Simultaneous reception and transmission for inter-band EN-DC (TDD-TDD or TDD-FDD)

simultaneousRxTxInterBandENDC ENUMERATED {supported} OPTIONAL,

-- R4 2-6: Asynchronous FDD-FDD intra-band EN-DC

asyncIntraBandENDC ENUMERATED {supported} OPTIONAL

}

-- Others

BandAndDL-ParametersEUTRA ::= SEQUENCE {

bandEUTRA FreqBandIndicatorEUTRA,

ca-BandwidthClassDL-EUTRA CA-BandwidthClassEUTRA

}

BandAndDL-ParametersNR ::= SEQUENCE {

bandNR FreqBandIndicator,

ca-BandwidthClassDL CA-BandwidthClass,

scalingFactor0dot75 ENUMERATED {supported} OPTIONAL, -- FFS dependent on RAN1 confirmation

-- R4 2-3: Non-contiguous intra-band CA frequency separation class for FR2 as in the RAN4 LS R4-1803363

intraBandFreqSeparationDL FreqSeparationClass OPTIONAL,

intraBandContiguousCC-InfoDL-List SEQUENCE (SIZE (1..maxServCell)) OF IntraBandContiguousCC-InfoDL

}

IntraBandContiguousCC-InfoDL ::= SEQUENCE {

-- Related to RAN4 LS R2-1804078

maxNumberMIMO-LayersPDSCH ENUMERATED {twoLayers, fourLayers, eightLayers} OPTIONAL

}

-- TAG-BAND-COMBINATION-LIST-STOP

-- ASN1STOP

|  |
| --- |
|  |
|  |

*– BandCombinationParametersUL-List*

The IE *BandCombinationParametersUL-List* is used to contain list of NR and/or E-UTRA frequency UL band parameters combination for the supported NR CA and/or MR-DC band combinations included in supportedBandCombination in RF-Parameters and/or RF-Parameters-MRDC.

-- ASN1START

-- TAG-BAND-COMBINATION-PARAMETERS-UL-LIST-START

BandCombinationParametersUL-List ::= SEQUENCE (SIZE (1..maxBandCombUL)) OF BandCombinationParametersUL

BandCombinationParametersUL ::= SEQUENCE (SIZE (1.. maxSimultaneousBands)) OF BandParametersUL

BandParametersUL ::= CHOICE {

bandParametersUL-EUTRA BandParametersUL-EUTRA,

bandParametersUL-NR BandParametersUL-NR

}

BandParametersUL-EUTRA ::= SEQUENCE {

ca-BandwidthClassUL-EUTRA CA-BandwidthClassEUTRA

}

BandParametersUL-NR ::= SEQUENCE {

ca-BandwidthClassUL CA-BandwidthClass,

scalingFactor0dot75 ENUMERATED {supported} OPTIONAL, -- FFS dependent on RAN1 confirmation

-- R4 2-3: Non-contiguous intra-band CA frequency separation class for FR2 as in the RAN4 LS R4-1803363

intraBandFreqSeparationUL FreqSeparationClass OPTIONAL,

intraBandContiguousCC-InfoUL-List SEQUENCE (SIZE (1..maxServCell)) OF IntraBandContiguousCC-InfoUL

}

IntraBandContiguousCC-InfoUL ::= SEQUENCE {

-- Related to RAN4 LS R2-1804078

maxNumberMIMO-LayersCB-PUSCH ENUMERATED {oneLayer, twoLayers, fourLayers} OPTIONAL,

maxNumberMIMO-LayersNonCB-PUSCH ENUMERATED {oneLayer, twoLayers, fourLayers} OPTIONAL,

}

-- TAG-BAND-COMBINATION-PARAMETERS-UL-LIST-STOP

-- ASN1STOP

*– FreqBandList*

The IE *FreqBandList* is used to contain list of NR and/or E-UTRA frequency bands for which the UE is requested to provide its supported NR CA and/or MR-DC band combinations (i.e. within the UE capability containers for NR and MR-DC, as requested by E-UTRA).

***FreqBandList* information element**

-- ASN1START

-- TAG-FREQ-BAND-LIST-START

FreqBandList ::= SEQUENCE (SIZE (1..maxRequestedBands)) OF FreqBandInformation

FreqBandInformation ::= CHOICE {

bandEUTRA FreqBandIndicatorEUTRA,

bandNR FreqBandIndicator

}

-- TAG-FREQ-BAND-LIST-STOP

-- ASN1STOP

*– FreqSeparationClass*

The IE FreqSeparationClass is used for an intra-band non-contiguous CA band combination to indicate frequency separation between lower edge of lowest CC and upper edge of highest CC in a frequency band.

***FrequencySeparationClass* information element**

-- ASN1START

-- TAG-RAT-TYPE-START

FreqSeparationClass ::= ENUMERATED {c1, c2, c3, ...}

-- TAG-RAT-TYPE-STOP

-- ASN1STOP

*– RAT-Type*

The IE *RAT-Type* is used to indicate the radio access technology (RAT), including NR, of the requested/transferred UE capabilities.

***RAT-Type* information element**

-- ASN1START

-- TAG-RAT-TYPE-START

RAT-Type ::= ENUMERATED {nr, eutra-nr, spare2, spare1, ...}

-- TAG-RAT-TYPE-STOP

-- ASN1STOP

*– SupportedBasebandProcessingCombination*

-- ASN1START

-- TAG-SUPPORTED-BASEBAND-PROCESSING-COMBINATION-START

SupportedBasebandProcessingCombination ::= SEQUENCE (SIZE (1..maxBasebandProcComb)) OF BasebandProcessingCombination

BasebandProcessingCombination ::= SEQUENCE {

basebandParametersPerBand SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BasebandParametersPerBand

-- FFS on other parameters

}

BasebandParametersPerBand ::= SEQUENCE {

ca-BandwidthClassDL CA-BandwidthClass OPTIONAL,

ca-BandwidthClassUL CA-BandwidthClass OPTIONAL,

basebandParametersPerCC SEQUENCE (SIZE (1..maxNrofCC)) OF BasebandParametersPerCC,

-- FFS on other parameters

}

BasebandParametersPerCC ::= SEQUENCE {

-- R4 2-2: Simultaneous reception or transmission with same or different numerologies in CA

-- It is expressed by the combination of SCS whether simultaneous RxTx is supported or not.

supportedSubcarrierSpacing SubcarrierSpacing,

-- R1 2-2: PDSCH beam switching

timeDurationForQCL SEQUENCE {

scs-60kHz ENUMERATED {s7, s14, s28} OPTIONAL,

sch-120kHz ENUMERATED {s14, s28} OPTIONAL

} OPTIONAL,

-- R1 1-10: Support of SCell without SS/PBCH block

scellWithoutSSB ENUMERATED {supported} OPTIONAL,

-- R1 1-11: Support of CSI-RS RRM measurement for SCell without SS/PBCH block

csi-RS-MeasSCellWithoutSSB ENUMERATED {supported} OPTIONAL,

-- R1 2-3: PDSCH MIMO layers. Absence of this field implies support of one layer.

maxNumberMIMO-LayersPDSCH ENUMERATED {twoLayers, fourLayers, eightLayers} OPTIONAL,

-- R1 2-14: Codebook based PUSCH MIMO transmission. Absence of this field implies that CB-based PUSCH is not supported.

maxNumberMIMO-LayersCB-PUSCH ENUMERATED {oneLayer, twoLayers, fourLayers} OPTIONAL,

-- R1 2-15: Non-codebook based PUSCH MIMO transmission. Absence of this field implies that Non-CB-based PUSCH is not supported.

maxNumberMIMO-LayersNonCB-PUSCH ENUMERATED {oneLayer, twoLayers, fourLayers} OPTIONAL,

-- R1 2-15a: Association between CSI-RS and SRS

srs-AssocCSI-RS ENUMERATED {supported} OPTIONAL,

-- R1 2-53: SRS resources

supportedSRS-Resources SRS-Resources OPTIONAL,

-- R1 2-55: SRS Tx switch

srs-TxSwitch SRS-TxSwitch OPTIONAL,

-- R1 2-55: SRS Tx switch

srs-TxSwitch SRS-TxSwitch OPTIONAL,

-- R1 2-57: Support low latency CSI feedback

lowLatencyCSI-Feedback ENUMERATED {supported} OPTIONAL,

-- R1 3-1a: For type 1 CSS with dedicated RRC configuration and for type 3 CSS, UE specific SS, CORESET resource allocation of 6RB bit-map and duration 3 OFDM symbols for FR2

type1-3-CSS ENUMERATED {supported} OPTIONAL,

-- R1 3-5 & 3-5a: For type 1 with dedicated RRC configuration, type 3, and UE-SS,, monitoring occasion can be any OFDM symbol(s) of a slot for Case 2 (with a DCI gap)

pdcchMonitoringAnyOccasions ENUMERATED {withoutDCI-gap, withDCI-gap} OPTIONAL,

-- R1 5-1a: UE specific RRC configure UL/DL assignment

ue-SpecificUL-DL-Assignment ENUMERATED {supported} OPTIONAL,

-- R1 5-11 & 5-11a: Up to 2/7 unicast PDSCHs per slot for different TBs

pdsch-DifferentTB-PerSlot SEQUENCE {

scs-15kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-30kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-60kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-120kHz ENUMERATED {upto2, upto7} OPTIONAL

} OPTIONAL,

-- R1 5-12 & 5-12a: Up to 2/7 PUSCHs per slot for different TBs

pusch-DifferentTB-PerSlot SEQUENCE {

scs-15kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-30kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-60kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-120kHz ENUMERATED {upto2, upto7} OPTIONAL

} OPTIONAL,

-- R1 6-7: Two PUCCH group

twoPUCCH-Group ENUMERATED {supported} OPTIONAL,

-- R1 6-8: Different numerology across PUCCH groups

diffNumerologyAcrossPUCCH-Group ENUMERATED {supported} OPTIONAL,

-- R1 6-9: Different numerologies across carriers within the same PUCCH group

diffNumerologyWithinPUCCH-Group ENUMERATED {supported} OPTIONAL,

-- R1 6-10: Cross carrier scheduling

crossCarrierScheduling ENUMERATED {supported} OPTIONAL,

-- R1 6-11: Number of supported TAGs

supportedNumberTAG ENUMERATED {n2, n3, n4} OPTIONAL,

-- R1 6-18: Supplemental uplink with dynamic switch

dynamicSwitchSUL ENUMERATED {supported} OPTIONAL,

-- R1 6-19: Simultaneous transmission of SRS on an SUL/non-SUL carrier and PUSCH/PUCCH/SRS/PRACH on the other UL carrier in the same cell

-- Details on the channel/signal combination are to be described in TS 38.306

simultaneousTxSUL-NonSUL ENUMERATED {supported} OPTIONAL,

-- R1 6-21 & 6-22: DL/UL search space sharing for CA

searchSpaceSharingCA BIT STRING (SIZE (2)) OPTIONAL

}

-- Updated based on R4-1803374

CA-BandwidthClass ::= ENUMERATED {a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, ...}

-- TAG-SUPPORTED-BASEBAND-PROCESSING-COMBINATION-STOP

-- ASN1STOP

*–* *UE-CapabilityRAT-ContainerList*

The IE *UE-CapabilityRAT-ContainerList* contains a list of containers, one for each RAT for which UE capabilities are transferred, if any.

***UE-CapabilityRAT-ContainerList* information element**

-- ASN1START

-- TAG-UE-CAPABILITY-RAT-CONTAINER-LIST-START

UE-CapabilityRAT-ContainerList ::=SEQUENCE (SIZE (0.. maxRAT-CapabilityContainers)) OF UE-CapabilityRAT-Container

UE-CapabilityRAT-Container ::= SEQUENCE {

rat-Type RAT-Type,

ue-CapabilityRAT-Container OCTET STRING

}

-- TAG-UE-CAPABILITY-RAT-CONTAINER-LIST-STOP

-- ASN1STOP

|  |
| --- |
| ***UE-CapabilityRAT-ContainerList field descriptions*** |
| ***ue-CapabilityRAT-Container***  Container for the UE capabilities of the indicated RAT. The encoding is defined in the specification of each RAT:  For NR: the encoding of UE capabilities is defined in UE-NR-Capability.  For EUTRA-NR: the encoding of UE capabilities is defined in UE-MRDC-Capability |

*– UE-MRDC-Capability*

The IE *UE-MRDC-Capability* is used to convey the UE Radio Access Capability Parameters for MR-DC, see TS 38.306 [yy].

***UE-MRDC-Capability* information element**

-- ASN1START

-- TAG-UE-MRDC-CAPABILITY-START

UE-MRDC-Capability ::= SEQUENCE {

measParameters-MRDC MeasParameters-MRDC,

rf-Parameters-MRDC RF-Parameters-MRDC,

phy-Parameters-MRDC Phy-Parameters-MRDC OPTIONAL, -- FFS dependent on other parameters (e.g. L1 feature list)

generalParameters-MRDC GeneralParameters-MRDC-XDD-Diff OPTIONAL,

fdd-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddXDD-Mode OPTIONAL,

tdd-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddXDD-Mode OPTIONAL,

fr1-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddFRX-Mode OPTIONAL,

fr2-Add-UE-MRDC-Capabilities UE-MRDC-CapabilityAddFRX-Mode OPTIONAL

-- FFS on other parameters

}

UE-MRDC-CapabilityAddXDD-Mode ::= SEQUENCE {

phy-Parameters-MRDC-XDD-Diff Phy-Parameters-MRDC-XDD-Diff OPTIONAL,

measParameters-MRDC-XDD-Diff MeasParameters-MRDC-XDD-Diff OPTIONAL,

generalParameters-MRDC-XDD-Diff GeneralParameters-MRDC-XDD-Diff OPTIONAL

}

UE-MRDC-CapabilityAddFRX-Mode ::= SEQUENCE {

phy-Parameters-MRDC-FRX-Diff Phy-Parameters-MRDC-FRX-Diff OPTIONAL

}

RF-Parameters-MRDC ::= SEQUENCE {

supportedBandCombination BandCombinationList,

bandCombinationParametersUL-List BandCombinationParametersUL-List,

-- FFS on other parameters

}

Phy-Parameters-MRDC ::= SEQUENCE {

phy-Parameters-MRDC-Common Phy-Parameters-MRDC-Common,

phy-Parameters-MRDC-XDD-Diff Phy-Parameters-MRDC-XDD-Diff OPTIONAL,

phy-Parameters-MRDC-FRX-Diff Phy-Parameters-MRDC-FRX-Diff OPTIONAL

}

Phy-Parameters-MRDC-Common ::= SEQUENCE {

supportedBasebandProcessingCombination-MRDC BasebandProcessingCombination-MRDC OPTIONAL

}

Phy-Parameters-MRDC-XDD-Diff ::= SEQUENCE {

}

Phy-Parameters-MRDC-FRX-Diff ::= SEQUENCE {

dynamicPowerSharing ENUMERATED {supported} OPTIONAL,

tdm-Pattern ENUMERATED {supported} OPTIONAL

}

BasebandProcessingCombination-MRDC ::= SEQUENCE (SIZE (1..maxBasebandProcComb)) OF LinkedBasebandProcessingCombination

LinkedBasebandProcessingCombination ::= SEQUENCE {

basebandProcessingCombinationIndexMN BasebandProcessingCombinationIndex,

basebandProcessingCombinationLinkedIndexSN SEQUENCE (SIZE (1..maxBasebandProcComb)) OF BasebandProcessingCombinationIndex

}

BasebandProcessingCombinationIndex ::= INTEGER (1..maxBasebandProcComb)

MeasParameters-MRDC ::= SEQUENCE {

measParameters-MRDC-Common MeasParameters-MRDC-Common,

measParameters-MRDC-XDD-Diff MeasParameters-MRDC-XDD-Diff OPTIONAL

}

MeasParameters-MRDC-Common ::= SEQUENCE {

-- R4 3-1: Independent measurement gap configurations for FR1 and FR2

}

MeasParameters-MRDC-XDD-Diff ::= SEQUENCE {

intraCarrierConcurrentMeas ENUMERATED {supported} OPTIONAL,

sstd-Meas-DC ENUMERATED {supported} OPTIONAL,

-- R4 3-2: Simultaneous reception of data and SS block with different numerologies when UE conducts the serving cell measurement or intra-frequency measurement

simultaneousRxDataSSB-DiffNumerology ENUMERATED {supported} OPTIONAL

}

GeneralParameters-MRDC-XDD-Diff ::= SEQUENCE {

splitSRB-WithOneUL-Path ENUMERATED {supported} OPTIONAL,

splitDRB-withUL-Both-MCG-SCG ENUMERATED {supported} OPTIONAL,

srb3 ENUMERATED {supported} OPTIONAL

}

-- TAG-UE-MRDC-CAPABILITY-STOP

-- ASN1STOP

*– UE-NR-Capability*

The IE *UE-NR-Capability* is used to convey the NR UE Radio Access Capability Parameters, see TS 38.306 [yy].

***UE-NR-Capability* information element**

-- ASN1START

-- TAG-UE-NR-CAPABILITY-START

UE-NR-Capability ::= SEQUENCE {

pdcp-Parameters PDCP-Parameters,

rlc-Parameters RLC-Parameters, -- FFS OPTIONAL

mac-Parameters MAC-Parameters, -- FFS OPTIONAL

phy-Parameters Phy-Parameters,

rf-Parameters RF-Parameters,

measParameters MeasParameters OPTIONAL,

fdd-Add-UE-NR-Capabilities UE-NR-CapabilityAddXDD-Mode OPTIONAL,

tdd-Add-UE-NR-Capabilities UE-NR-CapabilityAddXDD-Mode OPTIONAL,

fr1-Add-UE-NR-Capabilities UE-NR-CapabilityAddFRX-Mode OPTIONAL,

fr2-Add-UE-NR-Capabilities UE-NR-CapabilityAddFRX-Mode OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

UE-NR-CapabilityAddXDD-Mode ::= SEQUENCE {

phy-ParametersXDD-Diff Phy-ParametersXDD-Diff OPTIONAL,

mac-ParametersXDD-Diff MAC-ParametersXDD-Diff OPTIONAL,

measParametersXDD-Diff MeasParametersXDD-Diff OPTIONAL

}

UE-NR-CapabilityAddFRX-Mode ::= SEQUENCE {

phy-ParametersFRX-Diff Phy-ParametersFRX-Diff OPTIONAL,

measParametersFRX-Diff MeasParametersFRX-Diff OPTIONAL

}

Phy-Parameters ::= SEQUENCE {

phy-ParametersCommon Phy-ParametersCommon OPTIONAL,

phy-ParametersXDD-Diff Phy-ParametersXDD-Diff OPTIONAL,

phy-ParametersFRX-Diff Phy-ParametersFRX-Diff OPTIONAL,

phy-ParametersFR1 Phy-ParametersFR1 OPTIONAL,

phy-ParametersFR2 Phy-ParametersFR2 OPTIONAL

supportedBasebandProcessingCombination SupportedBasebandProcessingCombination

-- FFS on other parameters

}

Phy-ParametersCommon ::= SEQUENCE {

-- R1 1-9: CSI-RS based CFRA for HO

csi-RS-CFRA-ForHO ENUMERATED {supported} OPTIONAL,

-- R1 2-11: Downlink dynamic PRB bundling (DL)

dynamicPRB-BundlingDL ENUMERATED {supported} OPTIONAL,

-- R1 2-32a: Semi-persistent CSI report on PUCCH

sp-CSI-ReportPUCCH ENUMERATED {supported} OPTIONAL,

-- R1 2-32b: Semi-persistent CSI report on PUSCH

sp-CSI-ReportPUSCH ENUMERATED {supported} OPTIONAL,

-- R1 2-34: NZP-CSI-RS based interference measurement

nzp-CSI-RS-IntefMgmt ENUMERATED {supported} OPTIONAL,

-- R1 2-42: Support Type II SP-CSI feedback on long PUCCH

type2-SP-CSI-Feedback-LongPUCCH ENUMERATED {supported} OPTIONAL,

-- R1 3-3: More than one CORESET per BWP (in addition to CORESET #0)

multipleCORESET ENUMERATED {supported} OPTIONAL,

-- R1 3-6: Dynamic SFI monitoring and dynamic UL/DL determination

dynamicSFI ENUMERATED {supported} OPTIONAL,

-- R1 3-7: Precoder-granularity of CORESET size

precoderGranularityCORESET ENUMERATED {supported} OPTIONAL,

-- R1 4-10: Dynamic HARQ-ACK codebook

dynamicHARQ-ACK-Codebook ENUMERATED {supported} OPTIONAL,

-- R1 4-11: Semi-static HARQ-ACK codebook

semiStaticHARQ-ACK-Codebook ENUMERATED {supported} OPTIONAL,

-- R1 4-12: HARQ-ACK spatial bundling for PUCCH or PUSCH per PUCCH group

spatialBundlingHARQ-ACK ENUMERATED {supported} OPTIONAL,

-- R1 4-14: PUCCH transmission carrying P-CSI reporting (or piggybacked on a PUSCH)

periodicCSI-ReportingPUCCH ENUMERATED {supported} OPTIONAL,

-- R1 4-15: PUCCH transmission carrying SP-CSI reporting (or piggybacked on a PUSCH)

sp-CSI-ReportingPUCCH ENUMERATED {supported} OPTIONAL,

-- R1 4-16: PUSCH transmission carrying SP-CSI reporting

sp-CSI-ReportingPUSCH ENUMERATED {supported} OPTIONAL,

-- R1 4-17: PUSCH transmission carrying A-CSI reporting

aperiodicCSI-Reporting-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 4-18: More than one CSI reporting on one channel once per slot

multipleCSI-Reporting ENUMERATED {supported} OPTIONAL,

-- R1 4-21: Dynamic beta-offset configuration and indication for HARQ-ACK and/or CSI

dynamicBetaOffsetInd-HARQ-ACK-CSI ENUMERATED {supported} OPTIONAL,

-- R1 4-23: Repetitions for PUCCH format 1, 3,and 4 over multiple slots with K = 1, 2, 4, 8

pucch-Repetition-F1-3-4 ENUMERATED {supported} OPTIONAL,

-- R1 5-2: RA type 0 for PUSCH

ra-Type0-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-3: Dynamic switching between RA type 0 and RA type 1 for PDSCH

dynamicSwitchRA-Type0-1-PDSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-4: Dynamic switching between RA type 0 andRA type 1 for PUSCH

dynamicSwitchRA-Type0-1-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-6: PDSCH mapping type A with less than 7 OFDM symbols

pdsch-MappingTypeA ENUMERATED {supported} OPTIONAL,

-- R1 5-6a: PDSCH mapping type B

pdsch-MappingTypeB ENUMERATED {supported} OPTIONAL,

-- R1 5-7: Interleaving for VRB-to-PRB mapping for PDSCH

interleavingVRB-ToPRB-PDSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-8: Interleaving for VRB-to-PRB mapping for PUSCH

interleavingVRB-ToPRB-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-10: Inter-slot frequency hopping for PUSCH

interSlotFreqHopping-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-13: Type 1 configured PUSCH repetitions within a slot

type1-PUSCH-RepetitionOneSlot ENUMERATED {supported} OPTIONAL,

-- R1 5-14: Type 1 configured PUSCH repetitions over multiple slots

type1-PUSCH-RepettitionMultiSlots ENUMERATED {supported} OPTIONAL,

-- R1 5-15: Type 2 configured PUSCH repetitions within a slot

type2-PUSCH-RepetitionOneSlot ENUMERATED {supported} OPTIONAL,

-- R1 5-16: Type 2 configured PUSCH repetitions over multiple slots

type1-PUSCH-RepettitionMultiSlots ENUMERATED {supported} OPTIONAL,

-- R1 5-17: PUSCH repetitions over multiple slots

pusch-RepetitionMultiSlots ENUMERATED {supported} OPTIONAL,

-- R1 5-17a: PDSCH repetitions over multiple slots

pdsch-RepetitionMultiSlots ENUMERATED {supported} OPTIONAL,

-- R1 5-18: DL SPS

downlinkSPS ENUMERATED {supported} OPTIONAL,

-- R1 5-19: Type 1 Configured UL grant

configuredUL-GrantType1 ENUMERATED {supported} OPTIONAL,

-- R1 5-20: Type 2 Configured UL grant

configuredUL-GrantType2 ENUMERATED {supported} OPTIONAL,

-- R1 5-21: Pre-emption indication for DL

pre-EmptIndication-DL ENUMERATED {supported} OPTIONAL,

-- R1 5-22 & 5-25: CBG-based re-transmission for DL/UL using CBGTI

cbg-TransIndication BIT STRING (SIZE (2)) OPTIONAL,

-- R1 5-23: CBGFI for CBG-based re-transmission for DL

cbg-FlushIndication-DL ENUMERATED {supported} OPTIONAL,

-- R1 5-24: Dynamic HARQ-ACK codebook using sub-codebooks for CBG-based re-transmission for DL

dynamicHARQ-ACK-CodeB-CBG-Retx-DL ENUMERATED {supported} OPTIONAL,

-- R1 5-26: Semi-static rate-matching resource set configuration for DL

rateMatchingResrcSetSemi-Static ENUMERATED {supported} OPTIONAL,

-- R1 5-27: Dynamic rate-matching resource set configuration for DL

rateMatchingResrcSetDynamic ENUMERATED {supported} OPTIONAL,

-- R1 5-28: Rate-matching around LTE CRS

rateMatchingLTE-CRS ENUMERATED {supported} OPTIONAL,

-- R4 1-8: BWP switching delay

bwp-SwitchingDelay ENUMERATED {type1, type2} OPTIONAL

}

Phy-ParametersXDD-Diff ::= SEQUENCE {

-- R1 4-2: 2 PUCCH of format 0 or 2 in consecutive symbols

twoPUCCH-F0-2-ConsecSymbols ENUMERATED {supported} OPTIONAL,

-- R1 8-7: UL power control with 2 PUSCH closed loops

twoDifferentTPC-Loop-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 8-8: UL power control with 2 PUCCH closed loops

twoDifferentTPC-Loop-PUCCH ENUMERATED {supported} OPTIONAL

}

Phy-ParametersFRX-Diff ::= SEQUENCE {

-- R1 2-6 & 2-16b: Support 1+2 DMRS (DL/UL)

oneFL-DMRS-TwoAdditionalDMRS BIT STRING (SIZE (2)) OPTIONAL,

-- R1 2-7 & 2-18: Supported 2 symbols front-loaded DMRS(DL/UL)

twoFL-DMRS BIT STRING (SIZE (2)) OPTIONAL,

-- R1 2-8 & 2-18a: Supported 2 symbols front-loaded +2 symbols additional DMRS(DL/UL)

twoFL-DMRS-TwoAdditionalDMRS BIT STRING (SIZE (2)) OPTIONAL,

-- R1 2-9 & 2-19: Support 1+3 DMRS (DL/UL)

oneFL-DMRS-ThreeAdditionalDMRS BIT STRING (SIZE (2)) OPTIONAL,

-- R1 2-10: Support DMRS type (DL)

supportedDMRS-TypeDL ENUMERATED {type1, type2} OPTIONAL,

-- R1 2-17: Support DMRS type (UL)

supportedDMRS-TypeUL ENUMERATED {type1, type2} OPTIONAL,

-- R1 2-37: Support Semi-open loop CSI

semiOpenLoopCSI ENUMERATED {supported} OPTIONAL,

-- R1 2-38: CSI report without PMI

csi-ReportWithoutPMI ENUMERATED {supported} OPTIONAL,

-- R1 2-39: CSI report with CRI

csi-ReportWithCRI ENUMERATED {supported} OPTIONAL,

-- R1 2-39a: CSI report without CQI

csi-ReportWithoutCQI ENUMERATED {supported} OPTIONAL,

-- R1 2-44 & 2-47: 1 port of DL/UL PTRS

onePortsPTRS BIT STRING (SIZE (2)) OPTIONAL,

-- R1 4-2: 2 PUCCH of format 0 or 2 in consecutive symbols

twoPUCCH-F0-2-ConsecSymbols ENUMERATED {supported} OPTIONAL,

-- R1 4-3: PUCCH format 2 over 1 – 2 OFDM symbols once per slot with FH

pucch-F2-WithFH ENUMERATED {supported} OPTIONAL,

-- R1 4-4: PUCCH format 3 over 4 – 14 OFDM symbols once per slot with FH

pucch-F3-WithFH ENUMERATED {supported} OPTIONAL,

-- R1 4-5: PUCCH format 4 over 4 – 14 OFDM symbols once per slot with FH

pucch-F4-WithFH ENUMERATED {supported} OPTIONAL,

-- R1 4-6: Non-frequency hopping for PUCCH formats 0 and 2

freqHoppingPUCCH-F0-2 ENUMERATED {notSupported} OPTIONAL,

-- R1 4-7: Non-frequency hopping for PUCCH format 1, 3, and 4

freqHoppingPUCCH-F1-3-4 ENUMERATED {notSupported} OPTIONAL,

-- R1 4-19: SR/HARQ-ACK/CSI multiplexing once per slot using a PUCCH (or piggybacked on a PUSCH)

mux-SR-HARQ-ACK-CSI-PUCCH ENUMERATED {supported} OPTIONAL,

-- R1 4-20: UCI code-block segmentation

uci-CodeBlockSegmentation ENUMERATED {supported} OPTIONAL,

-- R1 4-22: 1 long PUCCH format and 1 short PUCCH format in the same slot

onePUCCH-LongAndShortFormat ENUMERATED {supported} OPTIONAL,

-- R1 4-22a: 2 PUCCH transmissions in the same slot which are not covered by 4-22 and 4-2

twoPUCCH-AnyOthersInSlot ENUMERATED {supported} OPTIONAL,

-- R1 5-9: Intra-slot frequency-hopping for PUSCH except for PUSCH scheduled by Type 1 before RRC connection

intraSlotFreqHopping-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 5-25: LBRM for PUSCH

pusch-LBRM ENUMERATED {supported} OPTIONAL,

-- R1 6-5a: PDCCH blind detection capability for CA

pdcch-BlindDetectionCA ENUMERATED {supported} OPTIONAL,

-- R1 8-3: TPC-PUSCH-RNTI

tpc-PUSCH-RNTI ENUMERATED {supported} OPTIONAL,

-- R1 8-4: TPC-PUCCH-RNTI

tpc-PUCCH-RNTI ENUMERATED {supported} OPTIONAL,

-- R1 8-5: TPC-SRS-RNTI

tpc-SRS-RNTI ENUMERATED {supported} OPTIONAL,

-- R1 8-6: Absolute TPC command mode

absoluteTPC-Command ENUMERATED {supported} OPTIONAL

-- R1 8-7: UL power control with 2 PUSCH closed loops

twoDifferentTPC-Loop-PUSCH ENUMERATED {supported} OPTIONAL,

-- R1 8-8: UL power control with 2 PUCCH closed loops

twoDifferentTPC-Loop-PUCCH ENUMERATED {supported} OPTIONAL,

-- R4 1-6: pi/2-BPSK for PUSCH

pusch-HalfPi-BPSK ENUMERATED {supported} OPTIONAL,

-- R4 1-7: pi/2-BPSK for PUCCH format 3/4

pucch-F3-4-HalfPi-BPSK ENUMERATED {supported} OPTIONAL,

-- R4 1-9: 1-symbol GP in unpaired spectrum

oneSymbolGP-TDD ENUMERATED {supported} OPTIONAL,

-- R4 2-7: Almost contiguous UL CP-OFDM

almostContiguousCP-OFDM-UL ENUMERATED {supported} OPTIONAL

}

Phy-ParametersFR1 ::= SEQUENCE {

-- R1 3-2: Unicast PDCCH monitoring following Case 1-2

pdcchMonitoringSingleOccasion ENUMERATED {supported} OPTIONAL,

-- R4 1-1: 60kHz of subcarrier spacing for FR1

scs-60kHz ENUMERATED {supported} OPTIONAL,

-- R4 1-4: 256QAM for PDSCH in FR1

pdsch-256QAM-FR1 ENUMERATED {supported} OPTIONAL

}

Phy-ParametersFR2 ::= SEQUENCE {

-- R4 2-8: PA calibration gap

calibrationGapPA ENUMERATED {supported} OPTIONAL

}

RF-Parameters ::= SEQUENCE {

supportedBandListNR SupportedBandListNR,

supportedBandCombination BandCombinationList,

bandCombinationParametersUL-List BandCombinationParametersUL-List

}

SupportedBandListNR ::= SEQUENCE (SIZE (1..maxBands)) OF BandNR

BandNR ::= SEQUENCE {

bandNR FreqBandIndicator,

-- Modified MPR behaviour as in RAN4 LS R2-1804077, which is needed for NSA as well as SA

modifiedMPR-Behaviour BIT STRING (SIZE (8)) OPTIONAL,

-- R4 2-1: Maximum channel bandwidth supported in each band for DL and UL separately and for each SCS that UE supports within a single CC

-- RAN4 agreed that 400 MHz is optional for FR2. The other values defined for FR1/fR2 in TS 38.101 are mandatory w/o capability bit.

maxChannelBW-PerCC ENUMERATED {mhz400} OPTIONAL,

mimo-ParametersPerBand MIMO-ParametersPerBand OPTIONAL,

-- R1 0-10: Extended CP

extendedCP ENUMERATED {supported} OPTIONAL,

-- R1 0-13: Phase coherence across non-contiguous UL symbols in slot in the transmission of one channel

phaseCoherenceUL ENUMERATED {supported} OPTIONAL,

-- R1 1-10: Support of SCell without SS/PBCH block

scellWithoutSSB ENUMERATED {supported} OPTIONAL,

-- R1 1-11: Support of CSI-RS RRM measurement for SCell without SS/PBCH block

csi-RS-MeasSCellWithoutSSB ENUMERATED {supported} OPTIONAL,

-- R1 2-15a: Association between CSI-RS and SRS

srs-AssocCSI-RS ENUMERATED {supported} OPTIONAL,

-- R1 3-1a: For type 1 CSS with dedicated RRC configuration and for type 3 CSS, UE specific SS, CORESET resource allocation of 6RB bit-map and duration 3 OFDM symbols for FR2

type1-3-CSS ENUMERATED {supported} OPTIONAL,

-- R1 3-4: More than one TCI state configurations per CORESET

multipleTCI ENUMERATED {supported} OPTIONAL,

-- R1 3-5 & 3-5a: For type 1 with dedicated RRC configuration, type 3, and UE-SS,, monitoring occasion can be any OFDM symbol(s) of a slot for Case 2 (with a DCI gap)

pdcchMonitoringAnyOccasions ENUMERATED {withoutDCI-gap, withDCI-gap} OPTIONAL,

-- R1 5-1a: UE specific RRC configure UL/DL assignment

ue-SpecificUL-DL-Assignment ENUMERATED {supported} OPTIONAL,

-- R1 5-11 & 5-11a: Up to 2/7 unicast PDSCHs per slot for different TBs

pdsch-DifferentTB-PerSlot SEQUENCE {

scs-15kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-30kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-60kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-120kHz ENUMERATED {upto2, upto7} OPTIONAL,

}, OPTIONAL,

-- R1 5-12 & 5-12a: Up to 2/7 PUSCHs per slot for different TBs

pusch-DifferentTB-PerSlot SEQUENCE {

scs-15kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-30kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-60kHz ENUMERATED {upto2, upto7} OPTIONAL,

scs-120kHz ENUMERATED {upto2, upto7} OPTIONAL,

}, OPTIONAL,

-- R1 6-2 & 6-3: Type A/B BWP adaptation (up to 2/4 BWPs) with same numerology

bwp-SameNumerology ENUMERATED {upto2, upto4} OPTIONAL,

-- R1 6-4: BWP adaptation (up to 4 BWPs) with different numerologies

bwp-DiffNumerology ENUMERATED {upto4} OPTIONAL,

-- R1 6-7: Two PUCCH group

twoPUCCH-Group ENUMERATED {supported} OPTIONAL,

-- R1 6-8: Different numerology across PUCCH groups

diffNumerologyAcrossPUCCH-Group ENUMERATED {supported} OPTIONAL,

-- R1 6-9: Different numerologies across carriers within the same PUCCH group

diffNumerologyWithinPUCCH-Group ENUMERATED {supported} OPTIONAL,

-- R1 6-10: Cross carrier scheduling

crossCarrierScheduling ENUMERATED {supported} OPTIONAL,

-- R1 6-11: Number of supported TAGs

supportedNumberTAG ENUMERATED {n2, n3, n4} OPTIONAL,

-- R1 6-19: Simultaneous transmission of SRS on an SUL/non-SUL carrier and PUSCH/PUCCH/SRS/PRACH on the other UL carrier in the same cell

-- Details on the channel/signal combination are to be described in TS 38.306

simultaneousTxSUL-NonSUL ENUMERATED {supported} OPTIONAL,

-- R1 6-21 & 6-22: DL/UL search space sharing for CA

searchSpaceSharingCA BIT STRING (SIZE (2)) OPTIONAL

-- R4 1-4: 256QAM for PDSCH in FR2

pdsch-256QAM-FR2 ENUMERATED {supported} OPTIONAL,

-- R4 1-5: 256QAM for PUSCH

pusch-256QAM ENUMERATED {supported} OPTIONAL

}

MIMO-ParametersPerBand ::= SEQUENCE {

-- R1 2-2: PDSCH beam switching

timeDurationForQCL SEQUENCE {

scs-60kHz ENUMERATED {s7, s14, s28} OPTIONAL,

sch-120kHz ENUMERATED {s14, s28} OPTIONAL

} OPTIONAL,

-- R1 2-3: PDSCH MIMO layers. Absence of this field implies support of one layer.

maxNumberMIMO-LayersPDSCH ENUMERATED {twoLayers, fourLayers, eightLayers} OPTIONAL,

-- R1 2-14: Codebook based PUSCH MIMO transmission. Absence of this field implies that CB-based PUSCH is not supported.

maxNumberMIMO-LayersCB-PUSCH ENUMERATED {oneLayer, twoLayers, fourLayers} OPTIONAL,

-- R1 2-15: Non-codebook based PUSCH MIMO transmission. Absence of this field implies that Non-CB-based PUSCH is not supported.

maxNumberMIMO-LayersNonCB-PUSCH ENUMERATED {oneLayer, twoLayers, fourLayers} OPTIONAL,

-- R1 2-4: TCI states for PDSCH

maxNumberConfiguredTCIstates ENUMERATED {n4, n8, n16, n32, n64} OPTIONAL,

maxNumberActiveTCI-PerCC ENUMERATED {n1, n2, n4, n8} OPTIONAL,

-- R1 2-13: PUSCH transmission coherence

pusch-TransCoherence ENUMERATED {nonCoherent, partialNonCoherent, fullCoherent} OPTIONAL,

-- R1 2-20: Beam correspondence

beamCorrespondence ENUMERATED {supported} OPTIONAL,

-- R1 2-21: Periodic beam report on PUCCH

periodicBeamReport ENUMERATED {supported} OPTIONAL,

-- R1 2-22: Aperiodic beam report on PUSCH

apeioricBeamReport ENUMERATED {supported} OPTIONAL,

-- R1 2-23: Semi-persistent beam report on PUCCH

sp-BeamReportPUCCH ENUMERATED {supported} OPTIONAL,

-- R1 2-23a: Semi-persistent beam report on PUSCH

sp-BeamReportPUSCH ENUMERATED {supported} OPTIONAL,

-- R1 2-24: SSB/CSI-RS for beam management

beamManagementSSB-CSI-RS BeamManagementSSB-CSI-RS OPTIONAL,

-- R1 2-26: Receiving beam selection using CSI-RS resource repetition “ON”

maxNumberRxBeam INTEGER (2..8) OPTIONAL,

-- R1 2-27: Beam switching (including SSB and CSI-RS)

maxNumberRxTxBeamSwitchDL SEQUENCE {

scs-15kHz ENUMERATED {n4, n7, n14} OPTIONAL,

scs-30kHz ENUMERATED {n4, n7, n14} OPTIONAL,

scs-60kHz ENUMERATED {n4, n7, n14} OPTIONAL,

scs-120kHz ENUMERATED {n4, n7, n14} OPTIONAL,

scs-240kHz ENUMERATED {n4, n7, n14} OPTIONAL

} OPTIONAL,

-- R1 2-29: Non-group based beam reporting

maxNumberNonGroupBeamReporting ENUMERATED {n1, n2, n4} OPTIONAL,

-- R1 2-29a: Group based beam reporting

groupBeamReporting ENUMERATED {supported} OPTIONAL,

-- R1 2-30: UL beam management

uplinkBeamManagement SEQUENCE {

maxNumberSRS-ResourcePerSet ENUMERATED {n8, n16, n32},

maxNumberSRS-ResourceSet INTEGER (1..8)

} OPTIONAL,

-- R1 2-31: Beam failure recovery

maxNumberCSI-RS-BFR INTEGER (1..64) OPTIONAL,

maxNumberSSB-BFR INTEGER (1..64) OPTIONAL,

maxNumberCSI-RS-SSB-BFR INTEGER (1..256) OPTIONAL,

-- R1 2-45 & 2-48: 2 ports of DL/UL PTRS

twoPortsPTRS BIT STRING (SIZE (2)) OPTIONAL,

-- R1 2-53: SRS resources

supportedSRS-Resources SRS-Resources OPTIONAL,

-- R1 2-55: SRS Tx switch

srs-TxSwitch SRS-TxSwitch OPTIONAL,

-- R1 2-54a: Simultaneous SRS Tx

maxNumberSimultaneousSRS-PerCC INTEGER (1..4) OPTIONAL,

-- R1 2-57: Support low latency CSI feedback

lowLatencyCSI-Feedback ENUMERATED {supported} OPTIONAL

}

-- R1 2-24: SSB/CSI-RS for beam management

BeamManagementSSB-CSI-RS ::= SEQUENCE {

maxNumberSSB-CSI-RS-ResourceOneTx ENUMERATED {n8, n16, n32, n64},

maxNumberSSB-CSI-RS-ResourceTwoTx ENUMERATED {n0, n4, n8, n16, n32, n64},

supportedCSI-RS-Density ENUMERATED {one, three, oneAndThree}

}

-- R1 2-53: SRS resources

SRS-Resources ::= SEQUENCE {

maxNumberAperiodicSRS-PerBWP ENUMERATED {n1, n2, n4, n8, n16},

maxNumberAperiodicSRS-PerBWP-PerSlot INTEGER (1..6),

maxNumberPeriodicSRS-PerBWP ENUMERATED {n1, n2, n4, n8, n16},

maxNumberPeriodicSRS-PerBWP-PerSlot INTEGER (1..6),

maxNumberSemiPerssitentSRS-PerBWP ENUMERATED {n0, n1, n2, n4, n8, n16},

maxNumberSP-SRS-PerBWP-PerSlot INTEGER (0..6),

maxNumberSRS-Ports-PerResource ENUMERATED {n1, n2, n4}

}

-- R1 2-55: SRS Tx switch

SRS-TxSwitch ::= SEQUENCE {

supportedSRS-TxPortSwitch ENUMERATED {t1r2, t1r4, t2r4, t1r4-t2r4},

txSwitchImpactToRx ENUMERATED {true} OPTIONAL

}

PDCP-Parameters ::= SEQUENCE {

supportedROHC-Profiles SEQUENCE {

profile0x0000 BOOLEAN,

profile0x0001 BOOLEAN,

profile0x0002 BOOLEAN,

profile0x0003 BOOLEAN,

profile0x0004 BOOLEAN,

profile0x0006 BOOLEAN,

profile0x0101 BOOLEAN,

profile0x0102 BOOLEAN,

profile0x0103 BOOLEAN,

profile0x0104 BOOLEAN

},

maxNumberROHC-ContextSessions ENUMERATED {cs2, cs4, cs8, cs12, cs16, cs24, cs32, cs48, cs64, cs128, cs256, cs512, cs1024, cs16384, spare2, spare1},

uplinkOnlyROHC-Profiles ENUMERATED {supported} OPTIONAL,

continueROHC-Context ENUMERATED {supported} OPTIONAL,

outOfOrderDelivery ENUMERATED {supported} OPTIONAL,

shortSN ENUMERATED {supported} OPTIONAL

}

RLC-Parameters ::= SEQUENCE {

am-WithShortSN ENUMERATED {supported} OPTIONAL,

um-WithShortSN ENUMERATED {supported} OPTIONAL,

um-WIthLongSN ENUMERATED {supported} OPTIONAL

}

MAC-Parameters ::= SEQUENCE {

mac-ParametersCommon MAC-ParametersCommon, OPTIONAL,

mac-ParametersXDD-Diff MAC-ParametersXDD-Diff OPTIONAL

}

MAC-ParametersCommon ::= SEQUENCE {

-- R1 4-24: PUCCH-spatialrelationinfo indication by a MAC CE per PUCCH resource

pucch-SpatialRelInfoMAC-CE ENUMERATED {supported} OPTIONAL

}

MAC-ParametersXDD-Diff ::= SEQUENCE {

skipUplinkTxDynamic ENUMERATED {supported} OPTIONAL,

logicalChannelSR-DelayTimer ENUMERATED {supported} OPTIONAL,

longDRX-Cycle ENUMERATED {supported} OPTIONAL,

shortDRX-Cycle ENUMERATED {supported} OPTIONAL,

multipleSR-Configurations ENUMERATED {supported} OPTIONAL, --

-- If supported UE supports 8 SR configurations, otherwise 1 SR config is supported.

-- FFS Whether to align the number to what the configuration signalling can support.

multipleConfiguredGrantConfigurations ENUMERATED {supported} OPTIONAL

}

MeasParameters ::= SEQUENCE {

measParametersCommon MeasParametersCommon OPTIONAL,

measParametersXDD-Diff MeasParametersXDD-Diff OPTIONAL,

measParametersFRX-Diff MeasParametersFRX-Diff OPTIONAL

}

MeasParametersCommon ::= SEQUENCE {

-- R1 1-4: SSB based RLM

ssb-RLM ENUMERATED {supported} OPTIONAL,

-- R1 1-8: RLM based on a mix of SSB and CSI-RS

ssb-AndCSI-RS-RLM ENUMERATED {supported} OPTIONAL,

-- R1 1-12: E-UTRA RS-SINR measurement

rs-SINR-MeasEUTRA ENUMERATED {supported} OPTIONAL

}

MeasParametersXDD-Diff ::= SEQUENCE {

intraAndInterF-MeasAndReport ENUMERATED {supported} OPTIONAL,

eventA-MeasAndReport ENUMERATED {supported} OPTIONAL

-- FFS for need of capability/IOT signaling in LTE for support of the additional measurement gap configurations defined for Rel-15?}

}

MeasParametersFRX-Diff ::= SEQUENCE {

-- R1 1-3: SSB based SINR measurement

ss-SINR-Meas ENUMERATED {supported} OPTIONAL,

-- R1 1-5: CSI-RS based RRM measurement with associated SS-block

csi-RSRP-AndRSRQ-MeasWithSSB ENUMERATED {supported} OPTIONAL,

-- R1 1-5a: CSI-RS based RRM measurement without associated SS-block

csi-RSRP-AndRSRQ-MeasWithoutSSB ENUMERATED {supported} OPTIONAL,

-- R1 1-6: CSI-RS based SINR measurement

csi-SINR-Meas ENUMERATED {supported} OPTIONAL,

-- R1 1-7: CSI-RS based RLM

csi-RS-RLM ENUMERATED {supported} OPTIONAL

}

-- TAG-UE-NR-CAPABILITY-STOP

-- ASN1STOP