**3GPP TSG-RAN WG2 Meeting #126 *R2-24xxxxx***

**Fukuoka, Japan, 20 – 24 May 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.331** | **CR** | **abc** | **rev** | **-** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | RACH-less handover (38.331) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | RAN2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ,  NR\_NTN\_enh-Core | | | | |  | ***Date:*** | | | 2024-04-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of a generalized RACH-less HO Rel-18 UE capability framework (one capability for DG and one capability for CG), replacing the existing RACH-less HO capability specific to NTN UEs. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The change implements the following agreements made at RAN2#125-bis:  **Agreements on UE capabilities**  1     Total of two RACH-less HO capabilities are introduced in R18 (and previously agreed NTN RACH-less HO capability is removed) (NOTE: This is not for LTM):  -      per-band DG RACH-less HO.  This is for the SpCell.  -      per-band CG RACH-less HO.  This is for the SpCell.  2     RACH-less CHO capability is not considered/introduced for non-NTN R18 UEs.  3     No additional RACH-less timebased CHO capability is introduced. If a UE indicates the support of both timebased CHO and RACH-less, it means the UE supports RACH-less CHO. If a UE does not support either CHO or RACH-less, it means RACH-less CHO cannot be supported.  4     RAN2 to confirm that the capabilities of P1 – P3 will not have any FDD/TDD or FR1/FR2 differentiation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | RACH-less HO not supported for non-NTN UEs. Only a single capability supported, as opposed to the agreed two (CG and DG). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS/TR 38.306 CR xyz | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

– *RF-Parameters*

The IE *RF-Parameters* is used to convey RF-related capabilities for NR operation.

***RF-Parameters* information element**

-- ASN1START

-- TAG-RF-PARAMETERS-START

RF-Parameters ::= SEQUENCE {

supportedBandListNR SEQUENCE (SIZE (1..maxBands)) OF BandNR,

supportedBandCombinationList BandCombinationList OPTIONAL,

appliedFreqBandListFilter FreqBandList OPTIONAL,

...,

[[

supportedBandCombinationList-v1540 BandCombinationList-v1540 OPTIONAL,

srs-SwitchingTimeRequested ENUMERATED {true} OPTIONAL

]],

[[

supportedBandCombinationList-v1550 BandCombinationList-v1550 OPTIONAL

]],

[[

supportedBandCombinationList-v1560 BandCombinationList-v1560 OPTIONAL

]],

[[

supportedBandCombinationList-v1610 BandCombinationList-v1610 OPTIONAL,

supportedBandCombinationListSidelinkEUTRA-NR-r16 BandCombinationListSidelinkEUTRA-NR-r16 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-r16 BandCombinationList-UplinkTxSwitch-r16 OPTIONAL

]],

[[

supportedBandCombinationList-v1630 BandCombinationList-v1630 OPTIONAL,

supportedBandCombinationListSidelinkEUTRA-NR-v1630 BandCombinationListSidelinkEUTRA-NR-v1630 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1630 BandCombinationList-UplinkTxSwitch-v1630 OPTIONAL

]],

[[

supportedBandCombinationList-v1640 BandCombinationList-v1640 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1640 BandCombinationList-UplinkTxSwitch-v1640 OPTIONAL

]],

[[

supportedBandCombinationList-v1650 BandCombinationList-v1650 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1650 BandCombinationList-UplinkTxSwitch-v1650 OPTIONAL

]],

[[

extendedBand-n77-r16 ENUMERATED {supported} OPTIONAL

]],

[[

supportedBandCombinationList-UplinkTxSwitch-v1670 BandCombinationList-UplinkTxSwitch-v1670 OPTIONAL

]],

[[

supportedBandCombinationList-v1680 BandCombinationList-v1680 OPTIONAL

]],

[[

supportedBandCombinationList-v1690 BandCombinationList-v1690 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1690 BandCombinationList-UplinkTxSwitch-v1690 OPTIONAL

]],

[[

supportedBandCombinationList-v1700 BandCombinationList-v1700 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1700 BandCombinationList-UplinkTxSwitch-v1700 OPTIONAL,

supportedBandCombinationListSL-RelayDiscovery-r17 OCTET STRING OPTIONAL, -- Contains PC5 BandCombinationListSidelinkNR-r16

supportedBandCombinationListSL-NonRelayDiscovery-r17 OCTET STRING OPTIONAL, -- Contains PC5 BandCombinationListSidelinkNR-r16

supportedBandCombinationListSidelinkEUTRA-NR-v1710 BandCombinationListSidelinkEUTRA-NR-v1710 OPTIONAL,

sidelinkRequested-r17 ENUMERATED {true} OPTIONAL,

extendedBand-n77-2-r17 ENUMERATED {supported} OPTIONAL

]],

[[

supportedBandCombinationList-v1720 BandCombinationList-v1720 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1720 BandCombinationList-UplinkTxSwitch-v1720 OPTIONAL

]],

[[

supportedBandCombinationList-v1730 BandCombinationList-v1730 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1730 BandCombinationList-UplinkTxSwitch-v1730 OPTIONAL,

supportedBandCombinationListSL-RelayDiscovery-v1730 BandCombinationListSL-Discovery-r17 OPTIONAL,

supportedBandCombinationListSL-NonRelayDiscovery-v1730 BandCombinationListSL-Discovery-r17 OPTIONAL

]],

[[

supportedBandCombinationList-v1740 BandCombinationList-v1740 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1740 BandCombinationList-UplinkTxSwitch-v1740 OPTIONAL

]],

[[

supportedBandCombinationList-v1760 BandCombinationList-v1760 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1760 BandCombinationList-UplinkTxSwitch-v1760 OPTIONAL

]],

[[

dummy1 BandCombinationList-v1770 OPTIONAL,

dummy2 BandCombinationList-UplinkTxSwitch-v1770 OPTIONAL

]],

[[

supportedBandCombinationList-v1780 BandCombinationList-v1780 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1780 BandCombinationList-UplinkTxSwitch-v1780 OPTIONAL

]],

[[

supportedBandCombinationList-v1800 BandCombinationList-v1800 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v1800 BandCombinationList-UplinkTxSwitch-v1800 OPTIONAL,

supportedBandCombinationListSL-U2U-Relay-r18 SEQUENCE {

supportedBandCombinationListSL-U2U-RelayDiscovery-r18 OCTET STRING OPTIONAL, -- Contains PC5

-- BandCombinationListSidelinkNR-r16

supportedBandCombinationListSL-U2U-DiscoveryExt BandCombinationListSL-Discovery-r17 OPTIONAL

} OPTIONAL

]]

}

RF-Parameters-v15g0 ::= SEQUENCE {

supportedBandCombinationList-v15g0 BandCombinationList-v15g0 OPTIONAL

}

RF-Parameters-v16a0 ::= SEQUENCE {

supportedBandCombinationList-v16a0 BandCombinationList-v16a0 OPTIONAL,

supportedBandCombinationList-UplinkTxSwitch-v16a0 BandCombinationList-UplinkTxSwitch-v16a0 OPTIONAL

}

RF-Parameters-v16c0 ::= SEQUENCE {

supportedBandListNR-v16c0 SEQUENCE (SIZE (1..maxBands)) OF BandNR-v16c0

}

BandNR ::= SEQUENCE {

bandNR FreqBandIndicatorNR,

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

mimo-ParametersPerBand MIMO-ParametersPerBand OPTIONAL,

extendedCP ENUMERATED {supported} OPTIONAL,

multipleTCI ENUMERATED {supported} OPTIONAL,

bwp-WithoutRestriction ENUMERATED {supported} OPTIONAL,

bwp-SameNumerology ENUMERATED {upto2, upto4} OPTIONAL,

bwp-DiffNumerology ENUMERATED {upto4} OPTIONAL,

crossCarrierScheduling-SameSCS ENUMERATED {supported} OPTIONAL,

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

pusch-256QAM ENUMERATED {supported} OPTIONAL,

ue-PowerClass ENUMERATED {pc1, pc2, pc3, pc4} OPTIONAL,

rateMatchingLTE-CRS ENUMERATED {supported} OPTIONAL,

channelBWs-DL CHOICE {

fr1 SEQUENCE {

scs-15kHz BIT STRING (SIZE (10)) OPTIONAL,

scs-30kHz BIT STRING (SIZE (10)) OPTIONAL,

scs-60kHz BIT STRING (SIZE (10)) OPTIONAL

},

fr2 SEQUENCE {

scs-60kHz BIT STRING (SIZE (3)) OPTIONAL,

scs-120kHz BIT STRING (SIZE (3)) OPTIONAL

}

} OPTIONAL,

channelBWs-UL CHOICE {

fr1 SEQUENCE {

scs-15kHz BIT STRING (SIZE (10)) OPTIONAL,

scs-30kHz BIT STRING (SIZE (10)) OPTIONAL,

scs-60kHz BIT STRING (SIZE (10)) OPTIONAL

},

fr2 SEQUENCE {

scs-60kHz BIT STRING (SIZE (3)) OPTIONAL,

scs-120kHz BIT STRING (SIZE (3)) OPTIONAL

}

} OPTIONAL,

...,

[[

maxUplinkDutyCycle-PC2-FR1 ENUMERATED {n60, n70, n80, n90, n100} OPTIONAL

]],

[[

pucch-SpatialRelInfoMAC-CE ENUMERATED {supported} OPTIONAL,

powerBoosting-pi2BPSK ENUMERATED {supported} OPTIONAL

]],

[[

maxUplinkDutyCycle-FR2 ENUMERATED {n15, n20, n25, n30, n40, n50, n60, n70, n80, n90, n100} OPTIONAL

]],

[[

channelBWs-DL-v1590 CHOICE {

fr1 SEQUENCE {

scs-15kHz BIT STRING (SIZE (16)) OPTIONAL,

scs-30kHz BIT STRING (SIZE (16)) OPTIONAL,

scs-60kHz BIT STRING (SIZE (16)) OPTIONAL

},

fr2 SEQUENCE {

scs-60kHz BIT STRING (SIZE (8)) OPTIONAL,

scs-120kHz BIT STRING (SIZE (8)) OPTIONAL

}

} OPTIONAL,

channelBWs-UL-v1590 CHOICE {

fr1 SEQUENCE {

scs-15kHz BIT STRING (SIZE (16)) OPTIONAL,

scs-30kHz BIT STRING (SIZE (16)) OPTIONAL,

scs-60kHz BIT STRING (SIZE (16)) OPTIONAL

},

fr2 SEQUENCE {

scs-60kHz BIT STRING (SIZE (8)) OPTIONAL,

scs-120kHz BIT STRING (SIZE (8)) OPTIONAL

}

} OPTIONAL

]],

[[

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

]],

[[

-- R1 10: NR-unlicensed

sharedSpectrumChAccessParamsPerBand-r16 SharedSpectrumChAccessParamsPerBand-r16 OPTIONAL,

-- R1 11-7b: Independent cancellation of the overlapping PUSCHs in an intra-band UL CA

cancelOverlappingPUSCH-r16 ENUMERATED {supported} OPTIONAL,

-- R1 14-1: Multiple LTE-CRS rate matching patterns

multipleRateMatchingEUTRA-CRS-r16 SEQUENCE {

maxNumberPatterns-r16 INTEGER (2..6),

maxNumberNon-OverlapPatterns-r16 INTEGER (1..3)

} OPTIONAL,

-- R1 14-1a: Two LTE-CRS overlapping rate matching patterns within a part of NR carrier using 15 kHz overlapping with a LTE carrier

overlapRateMatchingEUTRA-CRS-r16 ENUMERATED {supported} OPTIONAL,

-- R1 14-2: PDSCH Type B mapping of length 9 and 10 OFDM symbols

pdsch-MappingTypeB-Alt-r16 ENUMERATED {supported} OPTIONAL,

-- R1 14-3: One slot periodic TRS configuration for FR1

oneSlotPeriodicTRS-r16 ENUMERATED {supported} OPTIONAL,

olpc-SRS-Pos-r16 OLPC-SRS-Pos-r16 OPTIONAL,

spatialRelationsSRS-Pos-r16 SpatialRelationsSRS-Pos-r16 OPTIONAL,

simulSRS-MIMO-TransWithinBand-r16 ENUMERATED {n2} OPTIONAL,

channelBW-DL-IAB-r16 CHOICE {

fr1-100mhz SEQUENCE {

scs-15kHz ENUMERATED {supported} OPTIONAL,

scs-30kHz ENUMERATED {supported} OPTIONAL,

scs-60kHz ENUMERATED {supported} OPTIONAL

},

fr2-200mhz SEQUENCE {

scs-60kHz ENUMERATED {supported} OPTIONAL,

scs-120kHz ENUMERATED {supported} OPTIONAL

}

} OPTIONAL,

channelBW-UL-IAB-r16 CHOICE {

fr1-100mhz SEQUENCE {

scs-15kHz ENUMERATED {supported} OPTIONAL,

scs-30kHz ENUMERATED {supported} OPTIONAL,

scs-60kHz ENUMERATED {supported} OPTIONAL

},

fr2-200mhz SEQUENCE {

scs-60kHz ENUMERATED {supported} OPTIONAL,

scs-120kHz ENUMERATED {supported} OPTIONAL

}

} OPTIONAL,

rasterShift7dot5-IAB-r16 ENUMERATED {supported} OPTIONAL,

ue-PowerClass-v1610 ENUMERATED {pc1dot5} OPTIONAL,

condHandover-r16 ENUMERATED {supported} OPTIONAL,

condHandoverFailure-r16 ENUMERATED {supported} OPTIONAL,

condHandoverTwoTriggerEvents-r16 ENUMERATED {supported} OPTIONAL,

condPSCellChange-r16 ENUMERATED {supported} OPTIONAL,

condPSCellChangeTwoTriggerEvents-r16 ENUMERATED {supported} OPTIONAL,

mpr-PowerBoost-FR2-r16 ENUMERATED {supported} OPTIONAL,

-- R1 11-9: Multiple active configured grant configurations for a BWP of a serving cell

activeConfiguredGrant-r16 SEQUENCE {

maxNumberConfigsPerBWP-r16 ENUMERATED {n1, n2, n4, n8, n12},

maxNumberConfigsAllCC-r16 INTEGER (2..32)

} OPTIONAL,

-- R1 11-9a: Joint release in a DCI for two or more configured grant Type 2 configurations for a given BWP of a serving cell

jointReleaseConfiguredGrantType2-r16 ENUMERATED {supported} OPTIONAL,

-- R1 12-2: Multiple SPS configurations

sps-r16 SEQUENCE {

maxNumberConfigsPerBWP-r16 INTEGER (1..8),

maxNumberConfigsAllCC-r16 INTEGER (2..32)

} OPTIONAL,

-- R1 12-2a: Joint release in a DCI for two or more SPS configurations for a given BWP of a serving cell

jointReleaseSPS-r16 ENUMERATED {supported} OPTIONAL,

-- R1 13-19: Simultaneous positioning SRS and MIMO SRS transmission within a band across multiple CCs

simulSRS-TransWithinBand-r16 ENUMERATED {n2} OPTIONAL,

trs-AdditionalBandwidth-r16 ENUMERATED {trs-AddBW-Set1, trs-AddBW-Set2} OPTIONAL,

handoverIntraF-IAB-r16 ENUMERATED {supported} OPTIONAL

]],

[[

-- R1 22-5a: Simultaneous transmission of SRS for antenna switching and SRS for CB/NCB /BM for intra-band UL CA

-- R1 22-5c: Simultaneous transmission of SRS for antenna switching and SRS for antenna switching for intra-band UL CA

simulTX-SRS-AntSwitchingIntraBandUL-CA-r16 SimulSRS-ForAntennaSwitching-r16 OPTIONAL,

-- R1 10: NR-unlicensed

sharedSpectrumChAccessParamsPerBand-v1630 SharedSpectrumChAccessParamsPerBand-v1630 OPTIONAL

]],

[[

handoverUTRA-FDD-r16 ENUMERATED {supported} OPTIONAL,

-- R4 7-4: Report the shorter transient capability supported by the UE: 2, 4 or 7us

enhancedUL-TransientPeriod-r16 ENUMERATED {us2, us4, us7} OPTIONAL,

sharedSpectrumChAccessParamsPerBand-v1640 SharedSpectrumChAccessParamsPerBand-v1640 OPTIONAL

]],

[[

type1-PUSCH-RepetitionMultiSlots-v1650 ENUMERATED {supported} OPTIONAL,

type2-PUSCH-RepetitionMultiSlots-v1650 ENUMERATED {supported} OPTIONAL,

pusch-RepetitionMultiSlots-v1650 ENUMERATED {supported} OPTIONAL,

configuredUL-GrantType1-v1650 ENUMERATED {supported} OPTIONAL,

configuredUL-GrantType2-v1650 ENUMERATED {supported} OPTIONAL,

sharedSpectrumChAccessParamsPerBand-v1650 SharedSpectrumChAccessParamsPerBand-v1650 OPTIONAL

]],

[[

enhancedSkipUplinkTxConfigured-v1660 ENUMERATED {supported} OPTIONAL,

enhancedSkipUplinkTxDynamic-v1660 ENUMERATED {supported} OPTIONAL

]],

[[

maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16 ENUMERATED {n10, n15, n20, n25, n30, n40, n50, n60, n70, n80, n90, n100} OPTIONAL,

txDiversity-r16 ENUMERATED {supported} OPTIONAL

]],

[[

-- R1 36-1: Support of 1024QAM for PDSCH for FR1

pdsch-1024QAM-FR1-r17 ENUMERATED {supported} OPTIONAL,

-- R4 22-1 support of FR2 HST operation

ue-PowerClass-v1700 ENUMERATED {pc5, pc6, pc7} OPTIONAL,

-- R1 24: NR extension to 71GHz (FR2-2)

fr2-2-AccessParamsPerBand-r17 FR2-2-AccessParamsPerBand-r17 OPTIONAL,

rlm-Relaxation-r17 ENUMERATED {supported} OPTIONAL,

bfd-Relaxation-r17 ENUMERATED {supported} OPTIONAL,

cg-SDT-r17 ENUMERATED {supported} OPTIONAL,

locationBasedCondHandover-r17 ENUMERATED {supported} OPTIONAL,

timeBasedCondHandover-r17 ENUMERATED {supported} OPTIONAL,

eventA4BasedCondHandover-r17 ENUMERATED {supported} OPTIONAL,

mn-InitiatedCondPSCellChangeNRDC-r17 ENUMERATED {supported} OPTIONAL,

sn-InitiatedCondPSCellChangeNRDC-r17 ENUMERATED {supported} OPTIONAL,

-- R1 29-3a: PDCCH skipping

pdcch-SkippingWithoutSSSG-r17 ENUMERATED {supported} OPTIONAL,

-- R1 29-3b: 2 search space sets group switching

sssg-Switching-1BitInd-r17 ENUMERATED {supported} OPTIONAL,

-- R1 29-3c: 3 search space sets group switching

sssg-Switching-2BitInd-r17 ENUMERATED {supported} OPTIONAL,

-- R1 29-3d: 2 search space sets group switching with PDCCH skipping

pdcch-SkippingWithSSSG-r17 ENUMERATED {supported} OPTIONAL,

-- R1 29-3e: Support Search space set group switching capability 2 for FR1

searchSpaceSetGrp-switchCap2-r17 ENUMERATED {supported} OPTIONAL,

-- R1 26-1: Uplink Time and Frequency pre-compensation and timing relationship enhancements

uplinkPreCompensation-r17 ENUMERATED {supported} OPTIONAL,

-- R1 26-4: UE reporting of information related to TA pre-compensation

uplink-TA-Reporting-r17 ENUMERATED {supported} OPTIONAL,

-- R1 26-5: Increasing the number of HARQ processes

max-HARQ-ProcessNumber-r17 ENUMERATED {u16d32, u32d16, u32d32} OPTIONAL,

-- R1 26-6: Type-2 HARQ codebook enhancement

type2-HARQ-Codebook-r17 ENUMERATED {supported} OPTIONAL,

-- R1 26-6a: Type-1 HARQ codebook enhancement

type1-HARQ-Codebook-r17 ENUMERATED {supported} OPTIONAL,

-- R1 26-6b: Type-3 HARQ codebook enhancement

type3-HARQ-Codebook-r17 ENUMERATED {supported} OPTIONAL,

-- R1 26-9: UE-specific K\_offset

ue-specific-K-Offset-r17 ENUMERATED {supported} OPTIONAL,

-- R1 24-1f: Multiple PDSCH scheduling by single DCI for 120kHz in FR2-1

multiPDSCH-SingleDCI-FR2-1-SCS-120kHz-r17 ENUMERATED {supported} OPTIONAL,

-- R1 24-1g: Multiple PUSCH scheduling by single DCI for 120kHz in FR2-1

multiPUSCH-SingleDCI-FR2-1-SCS-120kHz-r17 ENUMERATED {supported} OPTIONAL,

-- R4 14-4: Parallel PRS measurements in RRC\_INACTIVE state, FR1/FR2 diff

parallelPRS-MeasRRC-Inactive-r17 ENUMERATED {supported} OPTIONAL,

-- R1 27-1-2: Support of UE-TxTEGs for UL TDOA

nr-UE-TxTEG-ID-MaxSupport-r17 ENUMERATED {n1, n2, n3, n4, n6, n8} OPTIONAL,

-- R1 27-17: PRS processing in RRC\_INACTIVE

prs-ProcessingRRC-Inactive-r17 ENUMERATED {supported} OPTIONAL,

-- R1 27-3-2: DL PRS measurement outside MG and in a PRS processing window

prs-ProcessingWindowType1A-r17 ENUMERATED {option1, option2, option3} OPTIONAL,

prs-ProcessingWindowType1B-r17 ENUMERATED {option1, option2, option3} OPTIONAL,

prs-ProcessingWindowType2-r17 ENUMERATED {option1, option2, option3} OPTIONAL,

-- R1 27-15: Positioning SRS transmission in RRC\_INACTIVE state for initial UL BWP

srs-AllPosResourcesRRC-Inactive-r17 SRS-AllPosResourcesRRC-Inactive-r17 OPTIONAL,

-- R1 27-16: OLPC for positioning SRS in RRC\_INACTIVE state - gNB

olpc-SRS-PosRRC-Inactive-r17 OLPC-SRS-Pos-r16 OPTIONAL,

-- R1 27-19: Spatial relation for positioning SRS in RRC\_INACTIVE state - gNB

spatialRelationsSRS-PosRRC-Inactive-r17 SpatialRelationsSRS-Pos-r16 OPTIONAL,

-- R1 30-1: Increased maximum number of PUSCH Type A repetitions

maxNumberPUSCH-TypeA-Repetition-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-2: PUSCH Type A repetitions based on available slots

puschTypeA-RepetitionsAvailSlot-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-3: TB processing over multi-slot PUSCH

tb-ProcessingMultiSlotPUSCH-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-3a: Repetition of TB processing over multi-slot PUSCH

tb-ProcessingRepMultiSlotPUSCH-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4: The maximum duration for DM-RS bundling

maxDurationDMRS-Bundling-r17 SEQUENCE {

fdd-r17 ENUMERATED {n4, n8, n16, n32} OPTIONAL,

tdd-r17 ENUMERATED {n2, n4, n8, n16} OPTIONAL

} OPTIONAL,

-- R1 30-6: Repetition of PUSCH transmission scheduled by RAR UL grant and DCI format 0\_0 with CRC scrambled by TC-RNTI

pusch-RepetitionMsg3-r17 ENUMERATED {supported} OPTIONAL,

sharedSpectrumChAccessParamsPerBand-v1710 SharedSpectrumChAccessParamsPerBand-v1710 OPTIONAL,

-- R4 25-2: Parallel measurements on cells belonging to a different NGSO satellite than a serving satellite without scheduling restrictions

-- on normal operations with the serving cell

parallelMeasurementWithoutRestriction-r17 ENUMERATED {supported} OPTIONAL,

-- R4 25-5: Parallel measurements on multiple NGSO satellites within a SMTC

maxNumber-NGSO-SatellitesWithinOneSMTC-r17 ENUMERATED {n1, n2, n3, n4} OPTIONAL,

-- R1 26-10: K1 range extension

k1-RangeExtension-r17 ENUMERATED {supported} OPTIONAL,

-- R1 35-1: Aperiodic CSI-RS for tracking for fast SCell activation

aperiodicCSI-RS-FastScellActivation-r17 SEQUENCE {

maxNumberAperiodicCSI-RS-PerCC-r17 ENUMERATED {n8, n16, n32, n48, n64, n128, n255},

maxNumberAperiodicCSI-RS-AcrossCCs-r17 ENUMERATED {n8, n16, n32, n64, n128, n256, n512, n1024}

} OPTIONAL,

-- R1 35-2: Aperiodic CSI-RS bandwidth for tracking for fast SCell activation for 10MHz UE channel bandwidth

aperiodicCSI-RS-AdditionalBandwidth-r17 ENUMERATED {addBW-Set1, addBW-Set2} OPTIONAL,

-- R1 28-1a: RRC-configured DL BWP without CD-SSB or NCD-SSB

bwp-WithoutCD-SSB-OrNCD-SSB-RedCap-r17 ENUMERATED {supported} OPTIONAL,

-- R1 28-3: Half-duplex FDD operation type A for (e)RedCap UE

halfDuplexFDD-TypeA-RedCap-r17 ENUMERATED {supported} OPTIONAL,

-- R1 27-15b: Positioning SRS transmission in RRC\_INACTIVE state configured outside initial UL BWP

posSRS-RRC-Inactive-OutsideInitialUL-BWP-r17 PosSRS-RRC-Inactive-OutsideInitialUL-BWP-r17 OPTIONAL,

-- R4 15-3 UE support of CBW for 480kHz SCS

channelBWs-DL-SCS-480kHz-FR2-2-r17 BIT STRING (SIZE (8)) OPTIONAL,

channelBWs-UL-SCS-480kHz-FR2-2-r17 BIT STRING (SIZE (8)) OPTIONAL,

-- R4 15-4 UE support of CBW for 960kHz SCS

channelBWs-DL-SCS-960kHz-FR2-2-r17 BIT STRING (SIZE (8)) OPTIONAL,

channelBWs-UL-SCS-960kHz-FR2-2-r17 BIT STRING (SIZE (8)) OPTIONAL,

-- R4 17-1 UL gap for Tx power management

ul-GapFR2-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-4: One-shot HARQ ACK feedback triggered by DCI format 1\_2

oneShotHARQ-feedbackTriggeredByDCI-1-2-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-5: PHY priority handling for one-shot HARQ ACK feedback

oneShotHARQ-feedbackPhy-Priority-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-6: Enhanced type 3 HARQ-ACK codebook feedback

enhancedType3-HARQ-CodebookFeedback-r17 SEQUENCE {

enhancedType3-HARQ-Codebooks-r17 ENUMERATED {n1, n2, n4, n8},

maxNumberPUCCH-Transmissions-r17 ENUMERATED {n1, n2, n3, n4, n5, n6, n7}

} OPTIONAL,

-- R1 25-7: Triggered HARQ-ACK codebook re-transmission

triggeredHARQ-CodebookRetx-r17 SEQUENCE {

minHARQ-Retx-Offset-r17 ENUMERATED {n-7, n-5, n-3, n-1, n1},

maxHARQ-Retx-Offset-r17 ENUMERATED {n4, n6, n8, n10, n12, n14, n16, n18, n20, n22, n24}

} OPTIONAL

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-- R4 22-2 support of one shot large UL timing adjustment

ue-OneShotUL-TimingAdj-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-2: Repetitions for PUCCH format 0, and 2 over multiple slots with K = 2, 4, 8

pucch-Repetition-F0-2-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-11a: 4-bits subband CQI for NTN and unlicensed

cqi-4-BitsSubbandNTN-SharedSpectrumChAccess-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-16: HARQ-ACK with different priorities multiplexing on a PUCCH/PUSCH

mux-HARQ-ACK-DiffPriorities-r17 ENUMERATED {supported} OPTIONAL,

-- R1 25-20a: Propagation delay compensation based on Rel-15 TA procedure for NTN and unlicensed

ta-BasedPDC-NTN-SharedSpectrumChAccess-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-2b: DCI-based enabling/disabling ACK/NACK-based feedback for dynamic scheduling for multicast

ack-NACK-FeedbackForMulticastWithDCI-Enabler-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-2e: Multiple G-RNTIs for group-common PDSCHs

maxNumberG-RNTI-r17 INTEGER (2..8) OPTIONAL,

-- R1 33-2f: Dynamic multicast with DCI format 4\_2

dynamicMulticastDCI-Format4-2-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-2i: Supported maximal modulation order for multicast PDSCH

maxModulationOrderForMulticast-r17 CHOICE {

fr1-r17 ENUMERATED {qam256, qam1024},

fr2-r17 ENUMERATED {qam64, qam256}

} OPTIONAL,

-- R1 33-3-1: Dynamic Slot-level repetition for group-common PDSCH for TN and licensed

dynamicSlotRepetitionMulticastTN-NonSharedSpectrumChAccess-r17 ENUMERATED {n8, n16} OPTIONAL,

-- R1 33-3-1a: Dynamic Slot-level repetition for group-common PDSCH for NTN and unlicensed

dynamicSlotRepetitionMulticastNTN-SharedSpectrumChAccess-r17 ENUMERATED {n8, n16} OPTIONAL,

-- R1 33-4-1: DCI-based enabling/disabling NACK-only based feedback for dynamic scheduling for multicast

nack-OnlyFeedbackForMulticastWithDCI-Enabler-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-5-1b: DCI-based enabling/disabling ACK/NACK-based feedback for dynamic scheduling for multicast

ack-NACK-FeedbackForSPS-MulticastWithDCI-Enabler-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-5-1h: Multiple G-CS-RNTIs for SPS group-common PDSCHs

maxNumberG-CS-RNTI-r17 INTEGER (2..8) OPTIONAL,

-- R1 33-10: Support group-common PDSCH RE-level rate matching for multicast

re-LevelRateMatchingForMulticast-r17 ENUMERATED {supported} OPTIONAL,

-- R1 36-1a: Support of 1024QAM for PDSCH with maximum 2 MIMO layers for FR1

pdsch-1024QAM-2MIMO-FR1-r17 ENUMERATED {supported} OPTIONAL,

-- R4 14-3 PRS measurement without MG

prs-MeasurementWithoutMG-r17 ENUMERATED {cpLength, quarterSymbol, halfSymbol, halfSlot} OPTIONAL,

-- R4 25-7: The number of target LEO satellites the UE can monitor per carrier

maxNumber-LEO-SatellitesPerCarrier-r17 INTEGER (3..4) OPTIONAL,

-- R1 27-3-3 DL PRS Processing Capability outside MG - buffering capability

prs-ProcessingCapabilityOutsideMGinPPW-r17 SEQUENCE (SIZE(1..3)) OF PRS-ProcessingCapabilityOutsideMGinPPWperType-r17 OPTIONAL,

-- R1 27-15a: Positioning SRS transmission in RRC\_INACTIVE state for initial UL BWP with semi-persistent SRS

srs-SemiPersistent-PosResourcesRRC-Inactive-r17 SEQUENCE {

maxNumOfSemiPersistentSRSposResources-r17 ENUMERATED {n1, n2, n4, n8, n16, n32, n64},

maxNumOfSemiPersistentSRSposResourcesPerSlot-r17 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14}

} OPTIONAL,

-- R2: UE support of CBW for 120kHz SCS

channelBWs-DL-SCS-120kHz-FR2-2-r17 BIT STRING (SIZE (8)) OPTIONAL,

channelBWs-UL-SCS-120kHz-FR2-2-r17 BIT STRING (SIZE (8)) OPTIONAL

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-- R1 30-4a: DM-RS bundling for PUSCH repetition type A

dmrs-BundlingPUSCH-RepTypeA-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4b: DM-RS bundling for PUSCH repetition type B

dmrs-BundlingPUSCH-RepTypeB-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4c: DM-RS bundling for TB processing over multi-slot PUSCH

dmrs-BundlingPUSCH-multiSlot-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4d: DMRS bundling for PUCCH repetitions

dmrs-BundlingPUCCH-Rep-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4e: Enhanced inter-slot frequency hopping with inter-slot bundling for PUSCH

interSlotFreqHopInterSlotBundlingPUSCH-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4f: Enhanced inter-slot frequency hopping for PUCCH repetitions with DMRS bundling

interSlotFreqHopPUCCH-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4g: Restart DM-RS bundling

dmrs-BundlingRestart-r17 ENUMERATED {supported} OPTIONAL,

-- R1 30-4h: DM-RS bundling for non-back-to-back transmission

dmrs-BundlingNonBackToBackTX-r17 ENUMERATED {supported} OPTIONAL

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-- R1 33-5-1e: Dynamic Slot-level repetition for SPS group-common PDSCH for multicast

maxDynamicSlotRepetitionForSPS-Multicast-r17 ENUMERATED {n8, n16} OPTIONAL,

-- R1 33-5-1g: DCI-based enabling/disabling NACK-only based feedback for SPS group-common PDSCH for multicast

nack-OnlyFeedbackForSPS-MulticastWithDCI-Enabler-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-5-1i: Multicast SPS scheduling with DCI format 4\_2

sps-MulticastDCI-Format4-2-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-5-2: Multiple SPS group-common PDSCH configuration on PCell

sps-MulticastMultiConfig-r17 INTEGER (1..8) OPTIONAL,

-- R1 33-6-1: DL priority indication for multicast in DCI

priorityIndicatorInDCI-Multicast-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-6-1a: DL priority configuration for SPS multicast

priorityIndicatorInDCI-SPS-Multicast-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-6-2: Two HARQ-ACK codebooks simultaneously constructed for supporting HARQ-ACK codebooks with different priorities

-- for unicast and multicast at a UE

twoHARQ-ACK-CodebookForUnicastAndMulticast-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-6-3: More than one PUCCH for HARQ-ACK transmission for multicast or for unicast and multicast within a slot

multiPUCCH-HARQ-ACK-ForMulticastUnicast-r17 ENUMERATED {supported} OPTIONAL,

-- R1 33-9: Supporting unicast PDCCH to release SPS group-common PDSCH

releaseSPS-MulticastWithCS-RNTI-r17 ENUMERATED {supported} OPTIONAL

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-- R1 41-3-1a UE automomous TA adjustment when cell-reselection happens

posUE-TA-AutoAdjustment-r18 ENUMERATED {supported} OPTIONAL,

-- R1 41-3-1: SRS for positioning configuration in multiple cells for UEs in RRC\_INACTIVE state for initial UL BWP

posSRS-ValidityAreaRRC-InactiveInitialUL-BWP-r18 ENUMERATED {supported} OPTIONAL,

-- R1 41-3-2: SRS for positioning configuration in multiple cells for UEs in RRC\_INACTIVE state for configured outside

-- initial UL BWP

posSRS-ValidityAreaRRC-InactiveOutsideInitialUL-BWP-r18 ENUMERATED {supported} OPTIONAL,

-- R1 41-5-1:PRS measurement with Rx frequency hopping within a MG and measurement reporting RRC\_CONNECTED for RedCap UEs

dl-PRS-MeasurementWithRxFH-RRC-ConnectedForRedCap-r18 DL-PRS-MeasurementWithRxFH-RRC-Connected-r18 OPTIONAL,

-- R1 41-5-2: Support of positioning SRS with Tx frequency hopping in RRC\_CONNECTED for RedCap UEs

posSRS-TxFH-RRC-ConnectedForRedCap-r18 PosSRS-TxFrequencyHoppingRRC-Connected-r18 OPTIONAL,

-- R1 41-5-2a: Support of positioning SRS with Tx frequency hopping in RRC\_INACTIVE for RedCap UEs

posSRS-TxFH-RRC-InactiveForRedCap-r18 PosSRS-TxFrequencyHoppingRRC-Inactive-r18 OPTIONAL,

-- R1 41-4-8: Support of Positioning SRS bandwidth aggregation in RRC\_INACTIVE

posSRS-BWA-RRC-Inactive-r18 PosSRS-BWA-RRC-Inactive-r18 OPTIONAL,

-- R1 41-4-6a support a Rel-17 single DCI scheduling positioning SRS resource sets across the linked carriers

-- for SRS bandwidth aggregation in RRC\_CONNECTED state

posJointTriggerBySingleDCI-RRC-Connected-r18 ENUMERATED {supported} OPTIONAL,

-- R1 41-5-1a PRS measurement with Rx frequency hopping in RRC\_INACTIVE for RedCap UEs

dl-PRS-MeasurementWithRxFH-RRC-InactiveforRedCap-r18 ENUMERATED {supported} OPTIONAL,

-- R1 41-5-1b PRS measurement with Rx frequency hopping in RRC\_IDLE for RedCap UEs

dl-PRS-MeasurementWithRxFH-RRC-IdleforRedCap-r18 ENUMERATED {supported} OPTIONAL,

-- R1 42-1: Spatial domain adaptation with CSI feedback based on CSI report sub-configuration(s) for periodic CSI reporting

spatialAdaptation-CSI-Feedback-r18 SEQUENCE {

csiFeedbackType-r18 ENUMERATED {sdType1, sdType2, both},

maxNumberLmax-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 SEQUENCE {

sdType1-Resource-r18 INTEGER (1..32),

sdType2-Resource-r18 INTEGER (1..32)

},

maxNumberTotalCSI-ResourcePerCC-r18 SEQUENCE {

sdType1-Resource-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

sdType2-Resource-r18 ENUMERATED {n8, n16, n24, n32, n64, n128}

},

totalNumberCSI-Reporting-r18 INTEGER (2..4)

} OPTIONAL,

-- R1 42-1a: Spatial domain adaptation with CSI feedback based on CSI report sub-configuration(s) for periodic CSI

-- reporting on PUSCH

spatialAdaptation-CSI-FeedbackPUSCH-r18 SEQUENCE {

csiFeedbackType-r18 ENUMERATED {sdType1, sdType2, both},

maxNumberLmax-r18 INTEGER (2..8),

subReportCSI-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 INTEGER (1..32),

maxNumberTotalCSI-ResourcePerCC-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

totalNumberCSI-Reporting-r18 INTEGER (2..12)

} OPTIONAL,

-- R1 42-1b: Spatial domain adaptation with CSI feedback based on CSI report sub-configuration(s) for aperiodic CSI reporting

spatialAdaptation-CSI-FeedbackAperiodic-r18 SEQUENCE {

csiFeedbackType-r18 ENUMERATED {sdType1, sdType2, both},

maxNumberLmax-r18 INTEGER (2..8),

subReportCSI-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 SEQUENCE {

sdType1-Resource-r18 INTEGER (1..32),

sdType2-Resource-r18 INTEGER (1..32)

},

maxNumberTotalCSI-ResourcePerCC-r18 SEQUENCE {

sdType1-Resource-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

sdType2-Resource-r18 ENUMERATED {n8, n16, n24, n32, n64, n128}

},

totalNumberCSI-Reporting-r18 INTEGER (2..12)

} OPTIONAL,

-- R1 42-1c: Spatial domain adaptation with CSI feedback based on CSI report sub-configuration(s) for semi-persistent

-- CSI reporting on PUCCH

spatialAdaptation-CSI-FeedbackPUCCH-r18 SEQUENCE {

csiFeedbackType-r18 ENUMERATED {sdType1, sdType2, both},

maxNumberLmax-r18 INTEGER (2..4),

subReportCSI-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 INTEGER (1..32),

maxNumberTotalCSI-ResourcePerCC-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

totalNumberCSI-Reporting-r18 INTEGER (2..4)

} OPTIONAL,

-- R1 42-2: Power domain adaptation with CSI feedback based on CSI report sub-configuration(s) for periodic CSI reporting

powerAdaptation-CSI-Feedback-r18 SEQUENCE {

maxNumberLmax-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 INTEGER (1..32),

maxNumberTotalCSI-ResourcePerCC-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

totalNumberCSI-Reporting-r18 INTEGER (2..4)

} OPTIONAL,

-- R1 42-2a: Power domain adaptation with CSI feedback based on CSI report sub-configuration(s) for semi-persistent CSI

-- reporting on PUSCH

powerAdaptation-CSI-FeedbackPUSCH-r18 SEQUENCE {

maxNumberLmax-r18 INTEGER (2..8),

subReportCSI-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 INTEGER (1..32),

maxNumberTotalCSI-ResourcePerCC-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

totalNumberCSI-Reporting-r18 INTEGER (2..12)

} OPTIONAL,

-- R1 42-2b: Power domain adaptation with CSI feedback based on CSI report sub-configuration(s) for aperiodic CSI reporting

powerAdaptation-CSI-FeedbackAperiodic-r18 SEQUENCE {

maxNumberLmax-r18 INTEGER (2..8),

subReportCSI-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 INTEGER (1..32),

maxNumberTotalCSI-ResourcePerCC-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

totalNumberCSI-Reporting-r18 INTEGER (2..12)

} OPTIONAL,

-- R1 42-2c: Power domain adaptation with CSI feedback based on CSI report sub-configuration(s) for semi-persistent CSI

-- reporting on PUCCH

powerAdaptation-CSI-FeedbackPUCCH-r18 SEQUENCE {

maxNumberLmax-r18 INTEGER (2..4),

subReportCSI-r18 INTEGER (2..4),

maxNumberCSI-ResourcePerCC-r18 INTEGER (1..32),

maxNumberTotalCSI-ResourcePerCC-r18 ENUMERATED {n8, n16, n24, n32, n64, n128},

totalNumberCSI-Reporting-r18 INTEGER (2..4)

} OPTIONAL,

-- R1 42-4: Cell DTX and/or DRX operation based on RRC configuration

nes-CellDTX-DRX-r18 ENUMERATED {cellDTXonly, cellDRXonly, both} OPTIONAL,

-- R1 42-5: Cell DTX/DRX operation triggered by DCI format 2\_9

nes-CellDTX-DRX-DCI2-9-r18 ENUMERATED {supported} OPTIONAL,

-- R1 42-7: Mixed codebook combination for spatial domain adaptation with CSI feedback based on CSI report sub-configuration(s),

-- each containing one port subset configuration

mixCodeBookSpatialAdaptation-r18 ENUMERATED {supported} OPTIONAL,

-- R1 44-2: NTN DMRS bundling enhancement for PUSCH in NGSO scenarios

ntn-DMRS-BundlingNGSO-r18 ENUMERATED {n4, n8, n16, n32} OPTIONAL,

-- R1 45-3: Beam indication with joint DL/UL LTM TCI states

ltm-BeamIndicationJointTCI-r18 SEQUENCE {

maxNumberJointTCI-PerCell-r18 ENUMERATED {n8,n12,n16,n24,n32,n48,n64,n128},

qcl-Resource-r18 ENUMERATED {srs, trs, both},

maxNumberJointTCI-AcrossCells-r18 INTEGER (1..128),

maxNumberCells-r18 INTEGER (1..8)

} OPTIONAL,

-- R1 45-3a: MAC-CE activated joint LTM TCI states

ltm-MAC-CE-JointTCI-r18 SEQUENCE {

qcl-Resource-r18 ENUMERATED {srs, trs, both},

maxNumberJointTCI-PerCell-r18 INTEGER (1..16),

maxNumberJointTCI-AcrossCells-r18 ENUMERATED {n1,n2,n3,n4,n8,n16,n32}

} OPTIONAL,

-- R1 45-4: Beam indication with separate DL/UL LTM TCI states

ltm-BeamIndicationSeparateTCI-r18 SEQUENCE {

maxNumberDL-TCI-PerCell-r18 ENUMERATED {n4,n8,n12,n16,n24,n32,n48,n64,n128},

maxNumberUL-TCI-PerCell-r18 ENUMERATED {n4,n8,n12,n16,n24,n32,n48,n64},

qcl-Resource-r18 ENUMERATED {srs, trs, both},

maxNumberDL-TCI-AcrossCells-r18 INTEGER (1..128),

maxNumberUL-TCI-AcrossCells-r18 INTEGER (1..64),

maxNumberCells-r18 INTEGER (1..8)

} OPTIONAL,

-- R1 45-4a: MAC-CE activated DL/UL LTM TCI states

ltm-MAC-CE-SeparateTCI-r18 SEQUENCE {

qcl-Resource-r18 ENUMERATED {srs, trs, both},

maxNumberDL-TCI-PerCell-r18 INTEGER (1..8),

maxNumberUL-TCI-PerCell-r18 INTEGER (1..8),

maxNumberDL-TCI-AcrossCells-r18 ENUMERATED {n1,n2,n4,n8,n16},

maxNumberUL-TCI-AcrossCells-r18 ENUMERATED {n1,n2,n4,n8,n16}

} OPTIONAL,

-- R1 45-5: RACH-based early TA acquisition

rach-EarlyTA-Measurement-r18 INTEGER (1..8) OPTIONAL,

-- R1 45-6: UE-based TA measurement

ue-TA-Measurement-r18 INTEGER (1..8) OPTIONAL,

-- R1 45-7: TA indication in cell switch command

ta-IndicationCellSwitch-r18 ENUMERATED {supported} OPTIONAL,

-- R1 50-1: Multi-PUSCHs for Configured Grant

multiPUSCH-CG-r18 ENUMERATED {n16, n32} OPTIONAL,

-- R1 50-1a: Multiple active multi-PUSCHs configured grant configurations for a BWP of a serving cell

multiPUSCH-ActiveConfiguredGrant-r18 SEQUENCE {

maxNumberConfigsPerBWP ENUMERATED {n1, n2, n4, n8, n12},

maxNumberConfigsAllCC-FR1 INTEGER (2..32),

maxNumberConfigsAllCC-FR2 INTEGER (2..32)

} OPTIONAL,

-- R1 50-1b: Joint release in a DCI for two or more configured grant Type 2 configurations, including multi-PUSCH CG

-- configuration(s), for a given BWP of a serving cell

jointReleaseDCI-r18 ENUMERATED {supported} OPTIONAL,

-- R1 50-2: UCI indication of unused CG-PUSCH transmission occasions

cg-PUSCH-UTO-UCI-Ind-r18 ENUMERATED {supported} OPTIONAL,

-- R1 50-3: PDCCH monitoring resumption after UL NACK

pdcch-MonitoringResumptionAfterUL-NACK-r18 ENUMERATED {supported} OPTIONAL,

-- R1 51-1: support for 3MHz channel bandwidth

support-3MHz-ChannelBW-r18 ENUMERATED {supported} OPTIONAL,

-- R1 51-2: support 12 PRB CORESET0

support-12PRB-CORESET0-r18 ENUMERATED {supported} OPTIONAL,

-- R1 52-1: Reception of NR PDCCH candidates overlapping with LTE CRS REs

nr-PDCCH-OverlapLTE-CRS-RE-r18 SEQUENCE {

overlapInRE-r18 ENUMERATED {oneSymbolNoOverlap, someOrAllSymOverlap},

overlapInSymbol-r18 ENUMERATED {symbol2,symbol1And2}

} OPTIONAL,

-- Editor's Note: someOrAllSymOverlap considers to be supported in overlapInRE-r18 only if RAN4 performance requirements for

-- someOrAllSymOverlap are not defined

-- R1 52-1a: Reception of NR PDCCH candidates overlapping with LTE CRS REs with multiple non-overlapping CRS rate matching patterns

nr-PDCCH-OverlapLTE-CRS-RE-MultiPatterns-r18 ENUMERATED {supported} OPTIONAL,

-- R1 52-1b: NR PDCCH reception that overlaps with LTE CRS within a single span of 3 consecutive OFDM symbols that is within the

-- first 4 OFDM symbols in a slot

nr-PDCCH-OverlapLTE-CRS-RE-Span-3-4-r18 ENUMERATED {supported} OPTIONAL,

-- R1 52-2: Two LTE-CRS overlapping rate matching patterns within NR 15 kHz carrier overlapping with LTE carrier (regardless of

-- support or configuration of multi-TRP)

twoRateMatchingEUTRA-CRS-patterns-3-4-r18 SEQUENCE {

maxNumberPatterns-r18 INTEGER (2..6),

maxNumberNon-OverlapPatterns-r18 INTEGER (1..3)

} OPTIONAL,

-- R1 52-2a: Two LTE-CRS overlapping rate matching patterns with two different values of coresetPoolIndex within NR 15 kHz carrier

-- overlapping with LTE carrier

overlapRateMatchingEUTRA-CRS-Patterns-3-4-Diff-CS-Pool-r18 ENUMERATED {supported} OPTIONAL,

-- R1 53-3: Support RLM/BM/BFD measurements based on NCD-SSB within active BWP

ncd-SSB-BWP-Wor-r18 ENUMERATED {supported} OPTIONAL,

-- R1 53-4: Support Support RLM/BM/BFD measurements based on CSI-RS when CD-SSB is outside active BWP

rlm-BM-BFD-CSI-RS-OutsideActiveBWP-r18 ENUMERATED {supported} OPTIONAL,

-- R1 54-1: PRACH coverage enhancements

prach-CoverageEnh-r18 ENUMERATED {supported} OPTIONAL,

-- R1 54-1a: PRACH repetitions with less than N symbols gap

prach-Repetition-r18 ENUMERATED {supported} OPTIONAL,

-- R1 54-3: Dynamic waveform switching

dynamicWaveformSwitch-r18 ENUMERATED {supported} OPTIONAL,

-- R1 54-3a: PHR enhancement for dynamic waveform switching

dynamicWaveformSwitchPHR-r18 ENUMERATED {supported} OPTIONAL,

-- R1 54-3b: Dynamic waveform switching for intra-band UL CA

dynamicWaveformSwitchIntraCA-r18 INTEGER (2..8) OPTIONAL,

-- R1 55-3: Multiple PUSCHs scheduling by single DCI for non-consecutive slots in FR1

multiPUSCH-SingleDCI-NonConsSlots-r18 ENUMERATED {supported} OPTIONAL,

-- R1 55-2d: single-symbol DL-PRS used in RTT-based Propagation delay compensation

pdc-maxNumberPRS-ResourceProcessedPerSlot-r18 SEQUENCE {

fr1-r18 SEQUENCE {

scs-15kHz-r18 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL,

scs-30kHz-r18 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL,

scs-60kHz-r18 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL

},

fr2-r18 SEQUENCE {

scs-60kHz-r18 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL,

scs-120kHz-r18 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL

}

} OPTIONAL,

-- R4 27-2: LowerMSD for inter-band NR CA and EN-DC

lowerMSD-r18 SEQUENCE (SIZE (1..maxLowerMSD-r18)) OF LowerMSD-r18 OPTIONAL,

lowerMSD-ENDC-r18 SEQUENCE (SIZE (1..maxLowerMSD-r18)) OF LowerMSD-r18 OPTIONAL,

-- R4 28-1: Enhanced channel raster

enhancedChannelRaster-r18 ENUMERATED {supported} OPTIONAL,

-- R4 31-2 Beam sweeping factor reduction for FR2 unknown SCell activation

beamSweepingFactorReduction-r18 SEQUENCE {

reduceForCellDetection ENUMERATED {n1, n2, n4, n6},

reduceForSSB-L1-RSRP-Meas INTEGER (0..7)

} OPTIONAL,

-- R4 34-1: Support of NR FR2 HST with simultaneous DL reception with two different QCL TypeD RSs

simultaneousReceptionTwoQCL-r18 ENUMERATED {supported} OPTIONAL,

-- R4 34-2: Enhanced FR2 HST RRM requirements for intra-band CA and inter-frequency measurements in connected mode

measEnhCAInterFreqFR2-r18 ENUMERATED {supported} OPTIONAL,

-- R4 34-4: Support of enhanced MAC CE for TCI state switch indication for FR2 HST

tci-StateSwitchInd-r18 ENUMERATED {supported} OPTIONAL,

-- R4 35-2: the requirements defined for ATG UE with antenna array or omni-direction antenna requirements.

antennaArrayType-r18 ENUMERATED {supported} OPTIONAL,

locationBasedCondHandoverATG-r18 ENUMERATED {supported} OPTIONAL,

-- R4 35-3: rated maximum output power value range from 23dBm to 40dBm with 1dB as granularity at maximum modulation order and full

-- PRB configurations.

maxOutputPowerATG-r18 INTEGER (1..18) OPTIONAL,

eventA4BasedCondHandoverNES-r18 ENUMERATED {supported} OPTIONAL,

nesBasedCondHandoverWithDCI-r18 ENUMERATED {supported} OPTIONAL,

rach-LessHandoverCG-r18 ENUMERATED {supported} OPTIONAL,

rach-LessHandoverDG-r18 ENUMERATED {supported} OPTIONAL,

locationBasedCondHandoverEMC-r18 ENUMERATED {supported} OPTIONAL,

mt-CG-SDT-r18 ENUMERATED {supported} OPTIONAL,

posSRS-PreconfigureRRC-InactiveInitialUL-BWP-r18 ENUMERATED {supported} OPTIONAL,

posSRS-PreconfigureRRC-InactiveOutsideInitialUL-BWP-r18 ENUMERATED {supported} OPTIONAL,

cg-SDT-PeriodicityExt-r18 ENUMERATED {supported} OPTIONAL,

-- R2: 2Rx XR UEs

supportOf2RxXR-r18 ENUMERATED {supported} OPTIONAL

]]

}

BandNR-v16c0 ::= SEQUENCE {

pusch-RepetitionTypeA-v16c0 ENUMERATED {supported} OPTIONAL,

...

}

LowerMSD-r18 ::= SEQUENCE {

aggressorband1-r18 CHOICE {

nr FreqBandIndicatorNR,

eutra FreqBandIndicatorEUTRA

},

aggressorband2-r18 FreqBandIndicatorNR OPTIONAL,

msd-Information-r18 SEQUENCE (SIZE (1..maxLowerMSDInfo-r18)) OF MSD-Information-r18

}

MSD-Information-r18 ::= SEQUENCE {

msd-Type-r18 ENUMERATED {harmonic, harmonicMixing, crossBandIsolation, imd2, imd3, imd4, imd5, all, spare8, spare7,

spare6, spare5,spare4, spare3, spare2, spare1},

msd-PowerClass-r18 ENUMERATED {pc1dot5, pc2, pc3},

msd-Class-r18 ENUMERATED {classI, classII, classIII, classIV, classV, classVI, classVII, classVIII }

}

-- TAG-RF-PARAMETERS-STOP

-- ASN1STOP