**3GPP TSG-RAN WG2 Meeting #126 *R2-240xxxx***

 **Fukuoka, Japan, May 20th - May 24th**

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| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** |  DraftCR | **rev** | **-** | **Current version:** | **R2-244528** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Updated to UE FeMob LTM capabilities |
|  |  |
| ***Source to WG:*** | Intel Corporation |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_Mob\_enh2-Core,  |  | ***Date:*** | 2024-04-25 |
|  |  |  |  |  |
| ***Category:*** | - |  | ***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 canbe 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:*** | Capture the agreements from R2-126 on LTM related capabilities * RAN2 assumes that the target band for RACH transmission is any supported band within or outside the band combination. This can be revisited if RAN1 or RAN4 indicates otherwise in the future
* RAN2 pursues signalling solution where the target bands for RACH transmission are signalled per feature set, and further discuss how the target bands are indicated, by pointing to *appliedFreqBandList*.
* Remove LTM capability from current TS
 |
|  |  |
| ***Summary of change:*** |  1. Move the following capabilities to FS DL:pdcch-RACH-AffectedBandsList-r18pdcch-RACH-PrepTimeList-r18pdcch-RACH-SwitchingTimeList-r18 Move the following capabilities to FS UL:rach-EarlyTA-BandList-r18 2. Update the target band for RACH transmission to be supported bands filtered (filtered to *frequencyBandListFilter* is captured in 306) 3. Deleted the LTM RAN2 capabilities |
|  |  |
| ***Consequences if not approved:*** | Agreements in R2-126 will not be captured in specifications |
|  |  |
| ***Clauses affected:*** | 6.3.3  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS38.306 CR ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

***1st Modified section***

## 6.3 RRC information elements

### 6.3.3 UE capability information elements

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| --- |
| \*\*\*\*Unchanged sections deleted\*\*\*\* |

#### – *BandCombinationList*

The IE *BandCombinationList* contains a list of NR CA, NR non-CA and/or MR-DC band combinations (also including DL only or UL only band).

*BandCombinationList* information element

-- ASN1START

-- TAG-BANDCOMBINATIONLIST-START

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

BandCombinationList-v1540 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1540

BandCombinationList-v1550 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1550

BandCombinationList-v1560 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1560

BandCombinationList-v1570 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1570

BandCombinationList-v1580 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1580

BandCombinationList-v1590 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1590

BandCombinationList-v15g0 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v15g0

BandCombinationList-v15n0 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v15n0

BandCombinationList-v1610 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1610

BandCombinationList-v1630 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1630

BandCombinationList-v1640 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1640

BandCombinationList-v1650 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1650

BandCombinationList-v1680 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1680

BandCombinationList-v1690 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1690

BandCombinationList-v16a0 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v16a0

BandCombinationList-v1700 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1700

BandCombinationList-v1720 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1720

BandCombinationList-v1730 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1730

BandCombinationList-v1740 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1740

BandCombinationList-v1760 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1760

BandCombinationList-v1770 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1770

BandCombinationList-v1780 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1780

BandCombinationList-v1800 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1800

BandCombinationList-UplinkTxSwitch-r16 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-r16

BandCombinationList-UplinkTxSwitch-v1630 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1630

BandCombinationList-UplinkTxSwitch-v1640 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1640

BandCombinationList-UplinkTxSwitch-v1650 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1650

BandCombinationList-UplinkTxSwitch-v1670 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1670

BandCombinationList-UplinkTxSwitch-v1690 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1690

BandCombinationList-UplinkTxSwitch-v16a0 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v16a0

BandCombinationList-UplinkTxSwitch-v16e0 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v16e0

BandCombinationList-UplinkTxSwitch-v1700 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1700

BandCombinationList-UplinkTxSwitch-v1720 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1720

BandCombinationList-UplinkTxSwitch-v1730 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1730

BandCombinationList-UplinkTxSwitch-v1740 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1740

BandCombinationList-UplinkTxSwitch-v1760 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1760

BandCombinationList-UplinkTxSwitch-v1770 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1770

BandCombinationList-UplinkTxSwitch-v1780 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1780

BandCombinationList-UplinkTxSwitch-v1800 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1800

BandCombination ::= SEQUENCE {

 bandList SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters,

 featureSetCombination FeatureSetCombinationId,

 ca-ParametersEUTRA CA-ParametersEUTRA OPTIONAL,

 ca-ParametersNR CA-ParametersNR OPTIONAL,

 mrdc-Parameters MRDC-Parameters OPTIONAL,

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

 powerClass-v1530 ENUMERATED {pc2} OPTIONAL

}

BandCombination-v1540::= SEQUENCE {

 bandList-v1540 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1540,

 ca-ParametersNR-v1540 CA-ParametersNR-v1540 OPTIONAL

}

BandCombination-v1550 ::= SEQUENCE {

 ca-ParametersNR-v1550 CA-ParametersNR-v1550

}

BandCombination-v1560::= SEQUENCE {

 ne-DC-BC ENUMERATED {supported} OPTIONAL,

 ca-ParametersNRDC CA-ParametersNRDC OPTIONAL,

 ca-ParametersEUTRA-v1560 CA-ParametersEUTRA-v1560 OPTIONAL,

 ca-ParametersNR-v1560 CA-ParametersNR-v1560 OPTIONAL

}

BandCombination-v1570 ::= SEQUENCE {

 ca-ParametersEUTRA-v1570 CA-ParametersEUTRA-v1570

}

BandCombination-v1580 ::= SEQUENCE {

 mrdc-Parameters-v1580 MRDC-Parameters-v1580

}

BandCombination-v1590::= SEQUENCE {

 supportedBandwidthCombinationSetIntraENDC BIT STRING (SIZE (1..32)) OPTIONAL,

 mrdc-Parameters-v1590 MRDC-Parameters-v1590

}

BandCombination-v15g0::= SEQUENCE {

 ca-ParametersNR-v15g0 CA-ParametersNR-v15g0 OPTIONAL,

 ca-ParametersNRDC-v15g0 CA-ParametersNRDC-v15g0 OPTIONAL,

 mrdc-Parameters-v15g0 MRDC-Parameters-v15g0 OPTIONAL

}

BandCombination-v15n0::= SEQUENCE {

 mrdc-Parameters-v15n0 MRDC-Parameters-v15n0

}

BandCombination-v1610 ::= SEQUENCE {

 bandList-v1610 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1610 OPTIONAL,

 ca-ParametersNR-v1610 CA-ParametersNR-v1610 OPTIONAL,

 ca-ParametersNRDC-v1610 CA-ParametersNRDC-v1610 OPTIONAL,

 powerClass-v1610 ENUMERATED {pc1dot5} OPTIONAL,

 powerClassNRPart-r16 ENUMERATED {pc1, pc2, pc3, pc5} OPTIONAL,

 featureSetCombinationDAPS-r16 FeatureSetCombinationId OPTIONAL,

 mrdc-Parameters-v1620 MRDC-Parameters-v1620 OPTIONAL

}

BandCombination-v1630 ::= SEQUENCE {

 ca-ParametersNR-v1630 CA-ParametersNR-v1630 OPTIONAL,

 ca-ParametersNRDC-v1630 CA-ParametersNRDC-v1630 OPTIONAL,

 mrdc-Parameters-v1630 MRDC-Parameters-v1630 OPTIONAL,

 supportedTxBandCombListPerBC-Sidelink-r16 BIT STRING (SIZE (1..maxBandComb)) OPTIONAL,

 supportedRxBandCombListPerBC-Sidelink-r16 BIT STRING (SIZE (1..maxBandComb)) OPTIONAL,

 scalingFactorTxSidelink-r16 SEQUENCE (SIZE (1..maxBandComb)) OF ScalingFactorSidelink-r16 OPTIONAL,

 scalingFactorRxSidelink-r16 SEQUENCE (SIZE (1..maxBandComb)) OF ScalingFactorSidelink-r16 OPTIONAL

}

BandCombination-v1640 ::= SEQUENCE {

 ca-ParametersNR-v1640 CA-ParametersNR-v1640 OPTIONAL,

 ca-ParametersNRDC-v1640 CA-ParametersNRDC-v1640 OPTIONAL

}

BandCombination-v1650 ::= SEQUENCE {

 ca-ParametersNRDC-v1650 CA-ParametersNRDC-v1650 OPTIONAL

}

BandCombination-v1680 ::= SEQUENCE {

 intrabandConcurrentOperationPowerClass-r16 SEQUENCE (SIZE (1..maxBandComb)) OF IntraBandPowerClass-r16 OPTIONAL

}

BandCombination-v1690 ::= SEQUENCE {

 ca-ParametersNR-v1690 CA-ParametersNR-v1690 OPTIONAL

}

BandCombination-v16a0 ::= SEQUENCE {

 ca-ParametersNR-v16a0 CA-ParametersNR-v16a0 OPTIONAL,

 ca-ParametersNRDC-v16a0 CA-ParametersNRDC-v16a0 OPTIONAL

}

BandCombination-v1700 ::= SEQUENCE {

 ca-ParametersNR-v1700 CA-ParametersNR-v1700 OPTIONAL,

 ca-ParametersNRDC-v1700 CA-ParametersNRDC-v1700 OPTIONAL,

 mrdc-Parameters-v1700 MRDC-Parameters-v1700 OPTIONAL,

 bandList-v1710 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1710 OPTIONAL,

 supportedBandCombListPerBC-SL-RelayDiscovery-r17 BIT STRING (SIZE (1..maxBandComb)) OPTIONAL,

 supportedBandCombListPerBC-SL-NonRelayDiscovery-r17 BIT STRING (SIZE (1..maxBandComb)) OPTIONAL

}

BandCombination-v1720 ::= SEQUENCE {

 ca-ParametersNR-v1720 CA-ParametersNR-v1720 OPTIONAL,

 ca-ParametersNRDC-v1720 CA-ParametersNRDC-v1720 OPTIONAL

}

BandCombination-v1730 ::= SEQUENCE {

 ca-ParametersNR-v1730 CA-ParametersNR-v1730 OPTIONAL,

 ca-ParametersNRDC-v1730 CA-ParametersNRDC-v1730 OPTIONAL,

 bandList-v1730 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1730 OPTIONAL

}

BandCombination-v1740 ::= SEQUENCE {

 ca-ParametersNR-v1740 CA-ParametersNR-v1740 OPTIONAL

}

BandCombination-v1760 ::= SEQUENCE {

 ca-ParametersNR-v1760 CA-ParametersNR-v1760,

 ca-ParametersNRDC-v1760 CA-ParametersNRDC-v1760

}

BandCombination-v1770::= SEQUENCE {

 bandList-v1770 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1770,

 mrdc-Parameters-v1770 MRDC-Parameters-v1770 OPTIONAL,

 ca-ParametersNR-v1770 CA-ParametersNR-v1770 OPTIONAL

}

BandCombination-v1780 ::= SEQUENCE {

 ca-ParametersNR-v1780 CA-ParametersNR-v1780 OPTIONAL,

 ca-ParametersNRDC-v1780 CA-ParametersNRDC-v1780 OPTIONAL,

 bandList-v1780 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1780 OPTIONAL,

 mrdc-Parameters-v1780 MRDC-Parameters-v1770 OPTIONAL

}

BandCombination-v1800 ::= SEQUENCE {

 ca-ParametersNR-v1800 CA-ParametersNR-v1800 OPTIONAL,

 ca-ParametersNRDC-v1800 CA-ParametersNRDC-v1800 OPTIONAL,

 supportedBandCombListPerBC-SL-U2U-RelayDiscovery-r18 BIT STRING (SIZE (1..maxBandComb)) OPTIONAL,

 bandList-v1810 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF BandParameters-v1810 OPTIONAL

}

BandCombination-UplinkTxSwitch-r16 ::= SEQUENCE {

 bandCombination-r16 BandCombination,

 bandCombination-v1540 BandCombination-v1540 OPTIONAL,

 bandCombination-v1560 BandCombination-v1560 OPTIONAL,

 bandCombination-v1570 BandCombination-v1570 OPTIONAL,

 bandCombination-v1580 BandCombination-v1580 OPTIONAL,

 bandCombination-v1590 BandCombination-v1590 OPTIONAL,

 bandCombination-v1610 BandCombination-v1610 OPTIONAL,

 supportedBandPairListNR-r16 SEQUENCE (SIZE (1..maxULTxSwitchingBandPairs)) OF ULTxSwitchingBandPair-r16,

 uplinkTxSwitching-OptionSupport-r16 ENUMERATED {switchedUL, dualUL, both} OPTIONAL,

 uplinkTxSwitching-PowerBoosting-r16 ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 -- R4 16-5 UL-MIMO coherence capability for dynamic Tx switching between 3CC 1Tx-2Tx switching

 uplinkTxSwitching-PUSCH-TransCoherence-r16 ENUMERATED {nonCoherent, fullCoherent} OPTIONAL

 ]]

}

BandCombination-UplinkTxSwitch-v1630 ::= SEQUENCE {

 bandCombination-v1630 BandCombination-v1630 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1640 ::= SEQUENCE {

 bandCombination-v1640 BandCombination-v1640 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1650 ::= SEQUENCE {

 bandCombination-v1650 BandCombination-v1650 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1670 ::= SEQUENCE {

 bandCombination-v15g0 BandCombination-v15g0 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1690 ::= SEQUENCE {

 bandCombination-v1690 BandCombination-v1690 OPTIONAL

}

BandCombination-UplinkTxSwitch-v16a0 ::= SEQUENCE {

 bandCombination-v16a0 BandCombination-v16a0 OPTIONAL

}

BandCombination-UplinkTxSwitch-v16e0 ::= SEQUENCE {

 bandCombination-v15n0 BandCombination-v15n0 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1700 ::= SEQUENCE {

 bandCombination-v1700 BandCombination-v1700 OPTIONAL,

 -- R4 16-1/16-2/16-3 Dynamic Tx switching between 2CC/3CC 2Tx-2Tx/1Tx-2Tx switching

 supportedBandPairListNR-v1700 SEQUENCE (SIZE (1..maxULTxSwitchingBandPairs)) OF ULTxSwitchingBandPair-v1700 OPTIONAL,

 -- R4 16-6: UL-MIMO coherence capability for dynamic Tx switching between 2Tx-2Tx switching

 uplinkTxSwitchingBandParametersList-v1700 SEQUENCE (SIZE (1.. maxSimultaneousBands)) OF UplinkTxSwitchingBandParameters-v1700 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1720 ::= SEQUENCE {

 bandCombination-v1720 BandCombination-v1720 OPTIONAL,

 uplinkTxSwitching-OptionSupport2T2T-r17 ENUMERATED {switchedUL, dualUL, both} OPTIONAL

}

BandCombination-UplinkTxSwitch-v1730 ::= SEQUENCE {

 bandCombination-v1730 BandCombination-v1730 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1740 ::= SEQUENCE {

 bandCombination-v1740 BandCombination-v1740 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1760 ::= SEQUENCE {

 bandCombination-v1760 BandCombination-v1760 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1770 ::= SEQUENCE {

 bandCombination-v1770 BandCombination-v1770 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1780 ::= SEQUENCE {

 bandCombination-v1780 BandCombination-v1780 OPTIONAL

}

BandCombination-UplinkTxSwitch-v1800 ::= SEQUENCE {

 bandCombination-v1800 BandCombination-v1800 OPTIONAL,

 supportedBandPairListNR-r18 SEQUENCE (SIZE (1..maxULTxSwitchingBandPairs)) OF ULTxSwitchingBandPair-r18 OPTIONAL,

 -- R1 49-Y: Minimum separation time for two uplink switching on more than 2 bands within any two consecutive reference slots

 uplinkTxSwitchingMinimumSeparationTime-r18 ENUMERATED {n0us, n500us} OPTIONAL,

 -- R4 38-3: Switching Period for unaffected Band for Dual UL

 uplinkTxSwitchingAdditionalPeriodDualUL-List-r18 SEQUENCE (SIZE (1..maxULTxSwitchingBetweenBandPairs-r18)) OF

 UplinkTxSwitchingAdditionalPeriodDualUL-r18 OPTIONAL,

 -- R4: 38-7: Switching period restriction for fallback band combination

 switchingPeriodRestriction-r18 ENUMERATED {true} OPTIONAL

}

ULTxSwitchingBandPair-r16 ::= SEQUENCE {

 bandIndexUL1-r16 INTEGER(1..maxSimultaneousBands),

 bandIndexUL2-r16 INTEGER(1..maxSimultaneousBands),

 uplinkTxSwitchingPeriod-r16 ENUMERATED {n35us, n140us, n210us},

 uplinkTxSwitching-DL-Interruption-r16 BIT STRING (SIZE(1..maxSimultaneousBands)) OPTIONAL

}

ULTxSwitchingBandPair-v1700 ::= SEQUENCE {

 uplinkTxSwitchingPeriod2T2T-r17 ENUMERATED {n35us, n140us, n210us} OPTIONAL

}

ULTxSwitchingBandPair-r18 ::= SEQUENCE {

 bandIndexUL1-r18 INTEGER(1..maxSimultaneousBands),

 bandIndexUL2-r18 INTEGER(1..maxSimultaneousBands),

 -- R1 49-X: Supported switching option for each band pair in the band combination for UL Tx switching across more than 2 bands

 uplinkTxSwitchingOptionForBandPair-r18 ENUMERATED {switchedUL, dualUL, both},

 -- R4 38-1: Switching period for dynamic UL Tx switching across up to 4 bands in case of inter-band CA, SUL up to two TAGs

 uplinkTxSwitchingPeriodForBandPair-r18 SEQUENCE {

 switchingPeriodFor2T-r18 ENUMERATED {n35us, n140us, n210us} OPTIONAL,

 switchingPeriodFor1T-r18 ENUMERATED {n35us, n140us, n210us}

 },

 -- R4 38-2: Application of DL interruptions due to dynamic UL Tx switching

 uplinkTxSwitching-DL-Interruption-r18 BIT STRING (SIZE(1..maxSimultaneousBands)) OPTIONAL,

 -- R4 38-3: Switching Period for unaffected Band for Dual UL

 uplinkTxSwitchingPeriodUnaffectedBandDualUL-List-r18 SEQUENCE (SIZE (1..maxSimultaneousBands-2-r18)) OF

 SwitchingPeriodUnaffectedBandDualUL-r18 OPTIONAL

}

UplinkTxSwitchingBandParameters-v1700 ::= SEQUENCE {

 bandIndex-r17 INTEGER(1..maxSimultaneousBands),

 -- R4 38-6: UL-MIMO coherence capability for dynamic Tx switching between 2Tx-2Tx switching among up to 4 bands

 uplinkTxSwitching2T2T-PUSCH-TransCoherence-r17 ENUMERATED {nonCoherent, fullCoherent} OPTIONAL

}

UplinkTxSwitchingAdditionalPeriodDualUL-r18::= SEQUENCE {

 uplinkTxSwitchingBetweenBandPairs-r18 SEQUENCE {

 bandPairIndex1-r18 INTEGER(1.. maxULTxSwitchingBandPairs),

 anotherBandPairOrBand-r18 CHOICE {

 bandPairIndex2-r18 INTEGER(1.. maxULTxSwitchingBandPairs),

 bandIndex-r18 INTEGER(1..maxSimultaneousBands)

 }

 },

 -- 38-4: Additional switching Period for Dual UL

 switchingAdditionalPeriodDualUL-r18 ENUMERATED {n35us, n140us, n210us}

}

SwitchingPeriodUnaffectedBandDualUL-r18::= SEQUENCE {

 bandIndexUnaffected-r18 INTEGER(1..maxSimultaneousBands),

 periodUnaffectedBandDualUL-r18 CHOICE {

 maintainedUL-Trans-r18 NULL,

 periodOnULBands-r18 ENUMERATED {n35us, n140us, n210us}

 }

}

BandParameters ::= CHOICE {

 eutra SEQUENCE {

 bandEUTRA FreqBandIndicatorEUTRA,

 ca-BandwidthClassDL-EUTRA CA-BandwidthClassEUTRA OPTIONAL,

 ca-BandwidthClassUL-EUTRA CA-BandwidthClassEUTRA OPTIONAL

 },

 nr SEQUENCE {

 bandNR FreqBandIndicatorNR,

 ca-BandwidthClassDL-NR CA-BandwidthClassNR OPTIONAL,

 ca-BandwidthClassUL-NR CA-BandwidthClassNR OPTIONAL

 }

}

BandParameters-v1540 ::= SEQUENCE {

 srs-CarrierSwitch CHOICE {

 nr SEQUENCE {

 srs-SwitchingTimesListNR SEQUENCE (SIZE (1..maxSimultaneousBands)) OF SRS-SwitchingTimeNR

 },

 eutra SEQUENCE {

 srs-SwitchingTimesListEUTRA SEQUENCE (SIZE (1..maxSimultaneousBands)) OF SRS-SwitchingTimeEUTRA

 }

 } OPTIONAL,

 srs-TxSwitch SEQUENCE {

 supportedSRS-TxPortSwitch ENUMERATED {t1r2, t1r4, t2r4, t1r4-t2r4, t1r1, t2r2, t4r4, notSupported},

 txSwitchImpactToRx INTEGER (1..32) OPTIONAL,

 txSwitchWithAnotherBand INTEGER (1..32) OPTIONAL

 } OPTIONAL

}

BandParameters-v1610 ::= SEQUENCE {

 srs-TxSwitch-v1610 SEQUENCE {

 supportedSRS-TxPortSwitch-v1610 ENUMERATED {t1r1-t1r2, t1r1-t1r2-t1r4, t1r1-t1r2-t2r2-t2r4, t1r1-t1r2-t2r2-t1r4-t2r4,

 t1r1-t2r2, t1r1-t2r2-t4r4}

 } OPTIONAL

}

BandParameters-v1710 ::= SEQUENCE {

 -- R1 23-8-3 SRS Antenna switching for >4Rx

 srs-AntennaSwitchingBeyond4RX-r17 SEQUENCE {

 -- 1. Support of SRS antenna switching xTyR with y>4

 supportedSRS-TxPortSwitchBeyond4Rx-r17 BIT STRING (SIZE (11)),

 -- 2. Report the entry number of the first-listed band with UL in the band combination that affects this DL

 entryNumberAffectBeyond4Rx-r17 INTEGER (1..32) OPTIONAL,

 -- 3. Report the entry number of the first-listed band with UL in the band combination that switches together with this UL

 entryNumberSwitchBeyond4Rx-r17 INTEGER (1..32) OPTIONAL

 } OPTIONAL

}

BandParameters-v1730 ::= SEQUENCE {

 -- R1 39-3-2 Affected bands for inter-band CA during SRS carrier switching

 srs-SwitchingAffectedBandsListNR-r17 SEQUENCE (SIZE (1..maxSimultaneousBands)) OF SRS-SwitchingAffectedBandsNR-r17

}

BandParameters-v1770 ::= SEQUENCE {

 ca-BandwidthClassDL-NR-r17 CA-BandwidthClassNR-r17 OPTIONAL,

 ca-BandwidthClassUL-NR-r17 CA-BandwidthClassNR-r17 OPTIONAL

}

BandParameters-v1780 ::= SEQUENCE {

 ca-BandwidthClassDL-NR-r17 CA-BandwidthClassNR-r17 OPTIONAL,

 ca-BandwidthClassUL-NR-r17 CA-BandwidthClassNR-r17 OPTIONAL,

 supportedAggBW-FR2-r17 SEQUENCE {

 supportedAggBW-DL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 supportedAggBW-UL-r17 SupportedAggBandwidth-r17 OPTIONAL

 } OPTIONAL

}

BandParameters-v1810 ::= SEQUENCE {

 -- R1 40-5-4: SRS 8 Tx ports—antenna switching

 srs-AntennaSwitching8T8R-r18 SEQUENCE {

 antennaSwitch8T8R-r18 ENUMERATED {noTdm, tdmAndNoTdm} OPTIONAL,

 downgradeConfig-r18 CHOICE {

 empty-r18 NULL,

 downgrade-r18 BIT STRING (SIZE (11))

 } OPTIONAL,

 entryNumberAffect-r18 INTEGER (1..32) OPTIONAL,

 entryNumberSwitch-r18 INTEGER (1..32) OPTIONAL

 } OPTIONAL

}

ScalingFactorSidelink-r16 ::= ENUMERATED {f0p4, f0p75, f0p8, f1}

IntraBandPowerClass-r16 ::= ENUMERATED {pc2, pc3, spare6, spare5, spare4, spare3, spare2, spare1}

SRS-SwitchingAffectedBandsNR-r17 ::= BIT STRING (SIZE (1..maxSimultaneousBands))

-- TAG-BANDCOMBINATIONLIST-STOP

-- ASN1STOP

|  |
| --- |
| *BandCombination* field descriptions |
| ***BandCombinationList-v1540, BandCombinationList-v1550, BandCombinationList-v1560, BandCombinationList-v1570, BandCombinationList-v1580, BandCombinationList-v1590, BandCombinationList-v15g0, BandCombinationList-v15n0, BandCombinationList-v1610*, *BandCombinationList-v1630*, *BandCombinationList-v1640*, *BandCombinationList-v1650, BandCombinationList-v1680, BandCombinationList-v1690, BandCombinationList-v16a0, BandCombinationList-v1700, BandCombinationList-v1720, BandCombinationList-v1730, BandCombinationList-v1760, BandCombinationList-v1780, BandCombinationList-v1800***The UE shall include the same number of entries, and listed in the same order, as in *BandCombinationList* (without suffix). If the field is included in *supportedBandCombinationListNEDC-Only-v1610*, the UE shall include the same number of entries, and listed in the same order, as in *BandCombinationList* of *supportedBandCombinationListNEDC-Only* (without suffix) field.If the field is included in *supportedBandCombinationListNEDC-Only-v15a0*, the UE shall include the same number of entries, and listed in the same order, as in *BandCombinationList* (without suffix) of *supportedBandCombinationListNEDC-Only* (without suffix) field. |
| ***BandCombinationList-UplinkTxSwitch-r16, BandCombinationList-UplinkTxSwitch-v1630, BandCombinationList-UplinkTxSwitch-v1640, BandCombinationList-UplinkTxSwitch-v1650, BandCombinationList-UplinkTxSwitch-v1690, BandCombinationList-UplinkTxSwitch-v16a0, BandCombinationList-UplinkTxSwitch-v16e0, BandCombinationList-UplinkTxSwitch-v1700, BandCombinationList-UplinkTxSwitch-v1720, BandCombinationList-UplinkTxSwitch-v1730, BandCombinationList-UplinkTxSwitch-v1760, BandCombinationList-UplinkTxSwitch-v1780, BandCombinationList-UplinkTxSwitch-v1800***The UE shall include the same number of entries, and listed in the same order, as in *BandCombinationList-UplinkTxSwitch-r16*.For the field of *supportedBandCombinationList-UplinkTxSwitch-v1700*, if the UE does not support 2Tx-2Tx switching for a given band combination, the field of *supportedBandPairListNR-v1700* in the corresponding entry is absent. |
| ***ca-ParametersNRDC***If the field (without suffix) is included for a band combination in the NR capability container, the field (without suffix) indicates support of NR-DC. Otherwise, the field is absent. If a version of the field (with suffix) is absent for a band combination, *ca-ParametersNR* field version in *BandCombination* corresponding to the *ca-ParametersNR-ForDC* field version in the field (with suffix) is applicable to the UE configured with NR-DC for the band combination. |
| ***featureSetCombinationDAPS***If this field is present for a band combination, it reports the feature set combination supported for the band combination when any DAPS bearer is configured. |
| ***ne-DC-BC***If the field is included for a band combination in the MR-DC capability container, the field indicates support of NE-DC. Otherwise, the field is absent. |
|  |
|  |
|  |
|  |
| ***supportedBandPairListNR-r16, supportedBandPairListNR-v1700***Indicates a list of band pair supporting UL Tx switching as defined in TS 38.101-1 [15] for a given band combination.A UE supporting 2Tx-2Tx switching should include both of *supportedBandPairListNR-r16* and *supportedBandPairListNR-v1700*. And the UE shall include the same number of entries listed in the same order as in *supportedBandPairListNR-r16*.If the UE does not support 2Tx-2Tx switching for a given band pair, the field of *uplinkTxSwitchingPeriod2T2T* in the corresponding entry is absent. |
| ***supportedBandPairListNR-r18***Indicates a list of band pair supporting UL Tx switching up to 4 bands as defined in TS 38.101-1 [15] for a given band combination. The UE shall include all the possible band pairs.For a band pair only supporting 1Tx-1Tx switching, the UE should include *switchingPeriodFor1T* in *ULTxSwitchingBandPair-r18*.For a band pair supporting 1Tx-2Tx switching, the UE always supports 1Tx-1Tx switching, and the UE should include *switchingPeriodFor1T* in *ULTxSwitchingBandPair-r18*.For a band pair supporting 2Tx-2Tx switching, the UE always supports 1Tx-2Tx switching and 1Tx-1Tx switching, the UE should include *switchingPeriodFor2T* as well as *switchingPeriodFor1T* in *ULTxSwitchingBandPair-r18*. |
| ***srs-SwitchingTimesListNR***Indicates, for a particular pair of NR bands, the RF retuning time when switching between a NR carrier corresponding to this band entry and another (PUSCH-less) NR carrier corresponding to the band entry in the order indicated below:- For the first NR band, the UE shall include the same number of entries for NR bands as in *bandList*, i.e. first entry corresponds to first NR band in *bandList* and so on,- For the second NR band, the UE shall include one entry less, i.e. first entry corresponds to the second NR band in *bandList* and so on- And so on |
| ***srs-SwitchingTimesListEUTRA***Indicates, for a particular pair of E-UTRA bands, the RF retuning time when switching between an E-UTRA carrier corresponding to this band entry and another (PUSCH-less) E-UTRA carrier corresponding to the band entry in the order indicated below:- For the first E-UTRA band, the UE shall include the same number of entries for E-UTRA bands as in *bandList,* i.e. first entry corresponds to first E-UTRA band in *bandList* and so on,- For the second E-UTRA band, the UE shall include one entry less, i.e. first entry corresponds to the second E-UTRA band in *bandList* and so on - And so on |
| ***srs-TxSwitch***Indicates supported SRS antenna switch capability for the associated band. If the UE indicates support of *SRS-SwitchingTimeNR*, the UE is allowed to set this field for a band with associated *FeatureSetUplinkId* set to 0 for SRS carrier switching. |
| ***uplinkTxSwitchingBandParametersList-v1700***Indicates a list of per band per band combination capabilities for UL Tx switching. |

|  |
| --- |
| \*\*\*\*Unchanged sections deleted\*\*\*\* |

#### – *FeatureSetDownlink*

The IE *FeatureSetDownlink* indicates a set of features that the UE supports on the carriers corresponding to one band entry in a band combination.

*FeatureSetDownlink* information element

-- ASN1START

-- TAG-FEATURESETDOWNLINK-START

FeatureSetDownlink ::= SEQUENCE {

 featureSetListPerDownlinkCC SEQUENCE (SIZE (1..maxNrofServingCells)) OF FeatureSetDownlinkPerCC-Id,

 intraBandFreqSeparationDL FreqSeparationClass OPTIONAL,

 scalingFactor ENUMERATED {f0p4, f0p75, f0p8} OPTIONAL,

 dummy8 ENUMERATED {supported} OPTIONAL,

 scellWithoutSSB ENUMERATED {supported} OPTIONAL,

 csi-RS-MeasSCellWithoutSSB ENUMERATED {supported} OPTIONAL,

 dummy1 ENUMERATED {supported} OPTIONAL,

 type1-3-CSS ENUMERATED {supported} OPTIONAL,

 pdcch-MonitoringAnyOccasions ENUMERATED {withoutDCI-Gap, withDCI-Gap} OPTIONAL,

 dummy2 ENUMERATED {supported} OPTIONAL,

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

 searchSpaceSharingCA-DL ENUMERATED {supported} OPTIONAL,

 timeDurationForQCL SEQUENCE {

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

 scs-120kHz ENUMERATED {s14, s28} OPTIONAL

 } OPTIONAL,

 pdsch-ProcessingType1-DifferentTB-PerSlot SEQUENCE {

 scs-15kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL,

 scs-30kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL,

 scs-60kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL,

 scs-120kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL

 } OPTIONAL,

 dummy3 DummyA OPTIONAL,

 dummy4 SEQUENCE (SIZE (1.. maxNrofCodebooks)) OF DummyB OPTIONAL,

 dummy5 SEQUENCE (SIZE (1.. maxNrofCodebooks)) OF DummyC OPTIONAL,

 dummy6 SEQUENCE (SIZE (1.. maxNrofCodebooks)) OF DummyD OPTIONAL,

 dummy7 SEQUENCE (SIZE (1.. maxNrofCodebooks)) OF DummyE OPTIONAL

}

FeatureSetDownlink-v1540 ::= SEQUENCE {

 oneFL-DMRS-TwoAdditionalDMRS-DL ENUMERATED {supported} OPTIONAL,

 additionalDMRS-DL-Alt ENUMERATED {supported} OPTIONAL,

 twoFL-DMRS-TwoAdditionalDMRS-DL ENUMERATED {supported} OPTIONAL,

 oneFL-DMRS-ThreeAdditionalDMRS-DL ENUMERATED {supported} OPTIONAL,

 pdcch-MonitoringAnyOccasionsWithSpanGap SEQUENCE {

 scs-15kHz ENUMERATED {set1, set2, set3} OPTIONAL,

 scs-30kHz ENUMERATED {set1, set2, set3} OPTIONAL,

 scs-60kHz ENUMERATED {set1, set2, set3} OPTIONAL,

 scs-120kHz ENUMERATED {set1, set2, set3} OPTIONAL

 } OPTIONAL,

 pdsch-SeparationWithGap ENUMERATED {supported} OPTIONAL,

 pdsch-ProcessingType2 SEQUENCE {

 scs-15kHz ProcessingParameters OPTIONAL,

 scs-30kHz ProcessingParameters OPTIONAL,

 scs-60kHz ProcessingParameters OPTIONAL

 } OPTIONAL,

 pdsch-ProcessingType2-Limited SEQUENCE {

 differentTB-PerSlot-SCS-30kHz ENUMERATED {upto1, upto2, upto4, upto7}

 } OPTIONAL,

 dl-MCS-TableAlt-DynamicIndication ENUMERATED {supported} OPTIONAL

}

FeatureSetDownlink-v15a0 ::= SEQUENCE {

 supportedSRS-Resources SRS-Resources OPTIONAL

}

FeatureSetDownlink-v1610 ::= SEQUENCE {

 -- R1 22-4e/4f/4g/4h: CBG based reception for DL with unicast PDSCH(s) per slot per CC with UE processing time Capability 1

 cbgPDSCH-ProcessingType1-DifferentTB-PerSlot-r16 SEQUENCE {

 scs-15kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL,

 scs-30kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL,

 scs-60kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL,

 scs-120kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL

 } OPTIONAL,

 -- R1 22-3e/3f/3g/3h: CBG based reception for DL with unicast PDSCH(s) per slot per CC with UE processing time Capability 2

 cbgPDSCH-ProcessingType2-DifferentTB-PerSlot-r16 SEQUENCE {

 scs-15kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL,

 scs-30kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL,

 scs-60kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL,

 scs-120kHz-r16 ENUMERATED {one, upto2, upto4, upto7} OPTIONAL

 } OPTIONAL,

 intraFreqDAPS-r16 SEQUENCE {

 intraFreqDiffSCS-DAPS-r16 ENUMERATED {supported} OPTIONAL,

 intraFreqAsyncDAPS-r16 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 intraBandFreqSeparationDL-v1620 FreqSeparationClassDL-v1620 OPTIONAL,

 intraBandFreqSeparationDL-Only-r16 FreqSeparationClassDL-Only-r16 OPTIONAL,

 -- R1 11-2: Rel-16 PDCCH monitoring capability

 pdcch-Monitoring-r16 SEQUENCE {

 pdsch-ProcessingType1-r16 SEQUENCE {

 scs-15kHz-r16 PDCCH-MonitoringOccasions-r16 OPTIONAL,

 scs-30kHz-r16 PDCCH-MonitoringOccasions-r16 OPTIONAL

 } OPTIONAL,

 pdsch-ProcessingType2-r16 SEQUENCE {

 scs-15kHz-r16 PDCCH-MonitoringOccasions-r16 OPTIONAL,

 scs-30kHz-r16 PDCCH-MonitoringOccasions-r16 OPTIONAL

 } OPTIONAL

 } OPTIONAL,

 -- R1 11-2b: Mix of Rel. 16 PDCCH monitoring capability and Rel. 15 PDCCH monitoring capability on different carriers

 pdcch-MonitoringMixed-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-5c: Processing up to X unicast DCI scheduling for DL per scheduled CC

 crossCarrierSchedulingProcessing-DiffSCS-r16 SEQUENCE {

 scs-15kHz-120kHz-r16 ENUMERATED {n1,n2,n4} OPTIONAL,

 scs-15kHz-60kHz-r16 ENUMERATED {n1,n2,n4} OPTIONAL,

 scs-30kHz-120kHz-r16 ENUMERATED {n1,n2,n4} OPTIONAL,

 scs-15kHz-30kHz-r16 ENUMERATED {n2} OPTIONAL,

 scs-30kHz-60kHz-r16 ENUMERATED {n2} OPTIONAL,

 scs-60kHz-120kHz-r16 ENUMERATED {n2} OPTIONAL

 } OPTIONAL,

 -- R1 16-2b-1: Support of single-DCI based SDM scheme

 singleDCI-SDM-scheme-r16 ENUMERATED {supported} OPTIONAL

}

FeatureSetDownlink-v1700 ::= SEQUENCE {

 -- R1 36-2: Scaling factor to be applied to 1024QAM for FR1

 scalingFactor-1024QAM-FR1-r17 ENUMERATED {f0p4, f0p75, f0p8} OPTIONAL,

 -- R1 24 feature for existing UE cap to include new SCS

 timeDurationForQCL-v1710 SEQUENCE {

 scs-480kHz ENUMERATED {s56, s112} OPTIONAL,

 scs-960kHz ENUMERATED {s112, s224} OPTIONAL

 } OPTIONAL,

 -- R1 23-6-1 SFN scheme A (scheme 1) for PDSCH and PDCCH

 sfn-SchemeA-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-6-1-1 SFN scheme A (scheme 1) for PDCCH only

 sfn-SchemeA-PDCCH-only-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-6-1a Dynamic switching - scheme A

 sfn-SchemeA-DynamicSwitching-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-6-1b SFN scheme A (scheme 1) for PDSCH only

 sfn-SchemeA-PDSCH-only-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-6-2 SFN scheme B (TRP based pre-compensation) for PDSCH and PDCCH

 sfn-SchemeB-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-6-2a Dynamic switching - scheme B

 sfn-SchemeB-DynamicSwitching-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-6-2b SFN scheme B (TRP based pre-compensation) for PDSCH only

 sfn-SchemeB-PDSCH-only-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-2-1d PDCCH repetition for Case 2 PDCCH monitoring with a span gap

 mTRP-PDCCH-Case2-1SpanGap-r17 SEQUENCE {

 scs-15kHz-r17 PDCCH-RepetitionParameters-r17 OPTIONAL,

 scs-30kHz-r17 PDCCH-RepetitionParameters-r17 OPTIONAL,

 scs-60kHz-r17 PDCCH-RepetitionParameters-r17 OPTIONAL,

 scs-120kHz-r17 PDCCH-RepetitionParameters-r17 OPTIONAL

 } OPTIONAL,

 -- R1 23-2-1e PDCCH repetition for Rel-16 PDCCH monitoring

 mTRP-PDCCH-legacyMonitoring-r17 SEQUENCE {

 scs-15kHz-r17 PDCCH-RepetitionParameters-r17 OPTIONAL,

 scs-30kHz-r17 PDCCH-RepetitionParameters-r17 OPTIONAL

 } OPTIONAL,

 -- R1 23-2-4 Simultaneous configuration of PDCCH repetition and multi-DCI based multi-TRP

 mTRP-PDCCH-multiDCI-multiTRP-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-2: Dynamic scheduling for multicast for PCell

 dynamicMulticastPCell-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-2-1 PDCCH repetition

 mTRP-PDCCH-Repetition-r17 SEQUENCE {

 numBD-twoPDCCH-r17 INTEGER (2..3),

 maxNumOverlaps-r17 ENUMERATED {n1,n2,n3,n5,n10,n20,n40}

 } OPTIONAL

}

FeatureSetDownlink-v1720 ::= SEQUENCE {

 -- R1 25-19: RTT-based Propagation delay compensation based on CSI-RS for tracking and SRS

 rtt-BasedPDC-CSI-RS-ForTracking-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-19a: RTT-based Propagation delay compensation based on DL PRS for RTT-based PDC and SRS

 rtt-BasedPDC-PRS-r17 SEQUENCE {

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

 maxNumberPRS-ResourceProcessedPerSlot-r17 SEQUENCE {

 scs-15kHz-r17 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL,

 scs-30kHz-r17 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL,

 scs-60kHz-r17 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL,

 scs-120kHz-r17 ENUMERATED {n1, n2, n4, n6, n8, n12, n16, n24, n32, n48, n64} OPTIONAL

 }

 } OPTIONAL,

 -- R1 33-5-1: SPS group-common PDSCH for multicast on PCell

 sps-Multicast-r17 ENUMERATED {supported} OPTIONAL

}

FeatureSetDownlink-v1730 ::= SEQUENCE {

 -- R1 25-19b: Support of PRS as spatial relation RS for SRS

 prs-AsSpatialRelationRS-For-SRS-r17 ENUMERATED {supported} OPTIONAL

}

FeatureSetDownlink-v1800 ::= SEQUENCE {

 -- R1 40-1-14a: Dynamic switching - scheme A

 dynamicSwitchingA-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-1-14b: Dynamic switching – scheme B

 dynamicSwitchingB-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-3-2-11: Aperiodic CSI report timing relaxation for doppler codebook based on Type-II codebook

 aperiodicCSI-TimeRelaxation-r18 SEQUENCE {

 valueW-r18 SEQUENCE{

 scs-15kHz ENUMERATED {value1, value2} OPTIONAL,

 scs-30kHz ENUMERATED {value1, value2} OPTIONAL,

 scs-60kHz ENUMERATED {value1, value2} OPTIONAL,

 scs-120kHz ENUMERATED {value1, value2} OPTIONAL

 }

 timeRelaxation-r18 ENUMERATED {cap1, cap2}

 } OPTIONAL,

 -- R1 40-4-1: Basic feature of Rel.18 enhanced DMRS ports for PDSCH for scheduling of mapping type A

 pdsch-TypeA-DMRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1a: Basic feature of Rel.18 enhanced DMRS ports for PDSCH for scheduling of mapping type B

 pdsch-TypeB-DMRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1b: 1 symbol FL DMRS and 2 additional DMRS symbols for more than one port for Rel.18 enhanced DMRS ports for PDSCH

 pdsch-1SymbolFL-DMRS-Addition2Symbol-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1c: Alternative additional DMRS position for co-existence with LTE CRS for Rel.18 enhanced DMRS ports for PDSCH

 pdsch-AlternativeDMRS-Coexistence-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1d: 2 symbols FL-DMRS for Rel.18 enhanced DMRS ports for PDSCH

 pdsch-2SymbolFL-DMRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1e: 2-symbol FL DMRS + one additional 2-symbols DMRS for Rel.18 enhanced DMRS ports for PDSCH

 pdsch-2SymbolFL-DMRS-Addition2Symbol-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1f: 1 symbol FL DMRS and 3 additional DMRS symbols for Rel.18 enhanced DMRS ports for PDSCH

 pdsch-1SymbolFL-DMRS-Addition3Symbol-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1g: DMRS type for Rel.18 enhanced DMRS ports for PDSCH

 pdsch-DMRS-Type-r18 ENUMERATED {etype1, etype1And2} OPTIONAL,

 -- R1 40-4-1h: 1 port DL PTRS for Rel.18 enhanced DMRS ports for PDSCH with rank 1-8

 pdsch-1PortDL-PTRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1i: 2 port DL PTRS for Rel.18 enhanced DMRS ports for PDSCH with rank 1-8

 pdsch-2PortDL-PTRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-1j: Support 1 symbol FL DMRS and 2 additional DMRS symbols for at least one port for scheduling of mapping type A

 mappingTypeA-1SymbolFL-DMRS-Addition2Symbol-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-2: Capability on the maximum number of configured DMRS types for PDSCH across all DL DCI formats per cell

 maxNumberDMRS-AcrossAllDL-DCI-r18 INTEGER (2..4) OPTIONAL,

 -- R1 40-4-4: Reception of PDSCH without the scheduling restriction for Rel.18 eType1 DMRS ports

 pdsch-ReceptionWithoutSchedulingRestriction-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-4a: Reception of PDSCH without the scheduling restriction for Rel.18 eType1 DMRS ports for PDSCH with fdmSchemeA

 pdsch-ReceptionSchemeA-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-4b: Reception of PDSCH without the scheduling restriction for Rel.18 eType1 DMRS ports for PDSCH with fdmSchemeB

 pdsch-ReceptionSchemeB-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-5: Rel-18 DL DMRS with single DCI based M-TRP

 dmrs-MultiTRP-SingleDCI-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-5a: Additional row(s) for antenna ports (0,2,3) for Rel.18 DL DMRS ports for single-DCI based M-TRP

 dmrs-MultiTRP-AdditionRows-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-7: Rel-18 DL DMRS with M-DCI based M-TRP

 dmrs-MultiTRP-MultiDCI-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-12: Support of Rel-18 DMRS and PDSCH processing capability 2 simultaneously

 simulDMRS-PDSCH-r18 SEQUENCE {

 scs-15kHz-r18 INTEGER (0..4) OPTIONAL,

 scs-30kHz-r18 INTEGER (0..5) OPTIONAL,

 scs-60kHz-r18 INTEGER (0..7) OPTIONAL

 } OPTIONAL,

 -- R1 53-1: Support RLM/BM/BFD and gapless L3 intra-frequency measurements based on CD-SSB outside active BWP without interruptions

 bwpOperationMeasWithoutInterrupt-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 55-6: (2, 2) span-based PDCCH monitoring with additional restriction(s)

 pdcch-MonitoringSpan2-2-r18 SEQUENCE{

 pdsch-ProcessingType1-r18 SEQUENCE{

 scs-15kHz-r18 ENUMERATED {supported} OPTIONAL,

 scs-30kHz-r18 ENUMERATED {supported} OPTIONAL

 },

 pdsch-ProcessingType2-r18 SEQUENCE{

 scs-15kHz-r18 ENUMERATED {supported} OPTIONAL,

 scs-30kHz-r18 ENUMERATED {supported} OPTIONAL

 }

 } OPTIONAL,

 -- R1 55-6b: Mix of Rel-16 PDCCH monitoring capability and Rel. 15 PDCCH monitoring capability on different carriers

 pdcch-MonitoringMixed-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 55-6h: PDCCH repetition for Rel-16 PDCCH monitoring

 mTRP-PDCCH-legacyMonitoring-r18 SEQUENCE {

 scs-15kHz-r18 PDCCH-RepetitionParameters-r17 OPTIONAL,

 scs-30kHz-r18 PDCCH-RepetitionParameters-r17 OPTIONAL

 } OPTIONAL,

 -- R4 42-1: Support of SCell without SS/PBCH block for inter-band CA

 scellWithoutSSB-InterBandCA-r18 ENUMERATED {supported} OPTIONAL,

 multicastInactive-r18 ENUMERATED {supported} OPTIONAL,

 thresholdBasedMulticastResume-r18 ENUMERATED {supported} OPTIONAL,

 pdcch-RACH-DlInfoList-r18          SEQUENCE (SIZE (1..maxBandsMRDC)) OF PDCCH-RACH-DlInfo OPTIONAL

}

PDCCH-MonitoringOccasions-r16 ::= SEQUENCE {

 period7span3-r16 ENUMERATED {supported} OPTIONAL,

 period4span3-r16 ENUMERATED {supported} OPTIONAL,

 period2span2-r16 ENUMERATED {supported} OPTIONAL

}

PDCCH-RepetitionParameters-r17 ::= SEQUENCE {

 supportedMode-r17 ENUMERATED {intra-span, inter-span, both},

 limitX-PerCC-r17 ENUMERATED {n4, n8, n16, n32, n44, n64, nolimit} OPTIONAL,

 limitX-AcrossCC-r17 ENUMERATED {n4, n8, n16, n32, n44, n64, n128, n256, n512, nolimit} OPTIONAL

}

DummyA ::= SEQUENCE {

 maxNumberNZP-CSI-RS-PerCC INTEGER (1..32),

 maxNumberPortsAcrossNZP-CSI-RS-PerCC ENUMERATED {p2, p4, p8, p12, p16, p24, p32, p40, p48, p56, p64, p72, p80,

 p88, p96, p104, p112, p120, p128, p136, p144, p152, p160, p168,

 p176, p184, p192, p200, p208, p216, p224, p232, p240, p248, p256},

 maxNumberCS-IM-PerCC ENUMERATED {n1, n2, n4, n8, n16, n32},

 maxNumberSimultaneousCSI-RS-ActBWP-AllCC ENUMERATED {n5, n6, n7, n8, n9, n10, n12, n14, n16, n18, n20, n22, n24, n26,

 n28, n30, n32, n34, n36, n38, n40, n42, n44, n46, n48, n50, n52,

 n54, n56, n58, n60, n62, n64},

 totalNumberPortsSimultaneousCSI-RS-ActBWP-AllCC ENUMERATED {p8, p12, p16, p24, p32, p40, p48, p56, p64, p72, p80,

 p88, p96, p104, p112, p120, p128, p136, p144, p152, p160, p168,

 p176, p184, p192, p200, p208, p216, p224, p232, p240, p248, p256}

}

DummyB ::= SEQUENCE {

 maxNumberTxPortsPerResource ENUMERATED {p2, p4, p8, p12, p16, p24, p32},

 maxNumberResources INTEGER (1..64),

 totalNumberTxPorts INTEGER (2..256),

 supportedCodebookMode ENUMERATED {mode1, mode1AndMode2},

 maxNumberCSI-RS-PerResourceSet INTEGER (1..8)

}

DummyC ::= SEQUENCE {

 maxNumberTxPortsPerResource ENUMERATED {p8, p16, p32},

 maxNumberResources INTEGER (1..64),

 totalNumberTxPorts INTEGER (2..256),

 supportedCodebookMode ENUMERATED {mode1, mode2, both},

 supportedNumberPanels ENUMERATED {n2, n4},

 maxNumberCSI-RS-PerResourceSet INTEGER (1..8)

}

DummyD ::= SEQUENCE {

 maxNumberTxPortsPerResource ENUMERATED {p4, p8, p12, p16, p24, p32},

 maxNumberResources INTEGER (1..64),

 totalNumberTxPorts INTEGER (2..256),

 parameterLx INTEGER (2..4),

 amplitudeScalingType ENUMERATED {wideband, widebandAndSubband},

 amplitudeSubsetRestriction ENUMERATED {supported} OPTIONAL,

 maxNumberCSI-RS-PerResourceSet INTEGER (1..8)

}

DummyE ::= SEQUENCE {

 maxNumberTxPortsPerResource ENUMERATED {p4, p8, p12, p16, p24, p32},

 maxNumberResources INTEGER (1..64),

 totalNumberTxPorts INTEGER (2..256),

 parameterLx INTEGER (2..4),

 amplitudeScalingType ENUMERATED {wideband, widebandAndSubband},

 maxNumberCSI-RS-PerResourceSet INTEGER (1..8)

}

-- TAG-FEATURESETDOWNLINK-STOP

-- ASN1STOP

|  |
| --- |
| *FeatureSetDownlink* field descriptions |
| ***featureSetListPerDownlinkCC***Indicates which features the UE supports on the individual DL carriers of the feature set (and hence of a band entry that refer to the feature set). The UE shall hence include at least as many *FeatureSetDownlinkPerCC-Id* in this list as the number of carriers it supports according to the *ca-BandwidthClassDL*, except if indicating additional functionality by reducing the number of *FeatureSetDownlinkPerCC-Id* in the feature set (see NOTE 1 in *FeatureSetCombination* IE description). The order of the elements in this list is not relevant, i.e., the network may configure any of the carriers in accordance with any of the *FeatureSetDownlinkPerCC-Id* in this list. |
| ***supportedSRS-Resources***Indicates supported SRS resources for SRS carrier switching to the band associated with this *FeatureSetDownlink*. The UE is only allowed to set this field for a band with associated *FeatureSetUplinkId* set to 0. |

|  |
| --- |
| \*\*\*\*Unchanged sections deleted\*\*\*\* |

#### – *FeatureSetUplink*

The IE *FeatureSetUplink* is used to indicate the features that the UE supports on the carriers corresponding to one band entry in a band combination.

*FeatureSetUplink* information element

-- ASN1START

-- TAG-FEATURESETUPLINK-START

FeatureSetUplink ::= SEQUENCE {

 featureSetListPerUplinkCC SEQUENCE (SIZE (1.. maxNrofServingCells)) OF FeatureSetUplinkPerCC-Id,

 scalingFactor ENUMERATED {f0p4, f0p75, f0p8} OPTIONAL,

 dummy3 ENUMERATED {supported} OPTIONAL,

 intraBandFreqSeparationUL FreqSeparationClass OPTIONAL,

 searchSpaceSharingCA-UL ENUMERATED {supported} OPTIONAL,

 dummy1 DummyI OPTIONAL,

 supportedSRS-Resources SRS-Resources OPTIONAL,

 twoPUCCH-Group ENUMERATED {supported} OPTIONAL,

 dynamicSwitchSUL ENUMERATED {supported} OPTIONAL,

 simultaneousTxSUL-NonSUL ENUMERATED {supported} OPTIONAL,

 pusch-ProcessingType1-DifferentTB-PerSlot SEQUENCE {

 scs-15kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL,

 scs-30kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL,

 scs-60kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL,

 scs-120kHz ENUMERATED {upto2, upto4, upto7} OPTIONAL

 } OPTIONAL,

 dummy2 DummyF OPTIONAL

}

FeatureSetUplink-v1540 ::= SEQUENCE {

 zeroSlotOffsetAperiodicSRS ENUMERATED {supported} OPTIONAL,

 pa-PhaseDiscontinuityImpacts ENUMERATED {supported} OPTIONAL,

 pusch-SeparationWithGap ENUMERATED {supported} OPTIONAL,

 pusch-ProcessingType2 SEQUENCE {

 scs-15kHz ProcessingParameters OPTIONAL,

 scs-30kHz ProcessingParameters OPTIONAL,

 scs-60kHz ProcessingParameters OPTIONAL

 } OPTIONAL,

 ul-MCS-TableAlt-DynamicIndication ENUMERATED {supported} OPTIONAL

}

FeatureSetUplink-v1610 ::= SEQUENCE {

 -- R1 11-5: PUsCH repetition Type B

 pusch-RepetitionTypeB-r16 SEQUENCE {

 maxNumberPUSCH-Tx-r16 ENUMERATED {n2, n3, n4, n7, n8, n12},

 hoppingScheme-r16 ENUMERATED {interSlotHopping, interRepetitionHopping, both}

 } OPTIONAL,

 -- R1 11-7: UL cancelation scheme for self-carrier

 ul-CancellationSelfCarrier-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-7a: UL cancelation scheme for cross-carrier

 ul-CancellationCrossCarrier-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 16-5c: The maximum number of SRS resources in one SRS resource set with usage set to 'codebook' for Mode 2

 ul-FullPwrMode2-MaxSRS-ResInSet-r16 ENUMERATED {n1, n2, n4} OPTIONAL,

 -- R1 22-4a/4b/4c/4d: CBG based transmission for UL with unicast PUSCH(s) per slot per CC with UE processing time Capability 1

 cbgPUSCH-ProcessingType1-DifferentTB-PerSlot-r16 SEQUENCE {

 scs-15kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL,

 scs-30kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL,

 scs-60kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL,

 scs-120kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL

 } OPTIONAL,

 -- R1 22-3a/3b/3c/3d: CBG based transmission for UL with unicast PUSCH(s) per slot per CC with UE processing time Capability 2

 cbgPUSCH-ProcessingType2-DifferentTB-PerSlot-r16 SEQUENCE {

 scs-15kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL,

 scs-30kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL,

 scs-60kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL,

 scs-120kHz-r16 ENUMERATED {one-pusch, upto2, upto4, upto7} OPTIONAL

 } OPTIONAL,

 supportedSRS-PosResources-r16 SRS-AllPosResources-r16 OPTIONAL,

 intraFreqDAPS-UL-r16 SEQUENCE {

 dummy ENUMERATED {supported} OPTIONAL,

 intraFreqTwoTAGs-DAPS-r16 ENUMERATED {supported} OPTIONAL,

 dummy1 ENUMERATED {supported} OPTIONAL,

 dummy2 ENUMERATED {supported} OPTIONAL,

 dummy3 ENUMERATED {short, long} OPTIONAL

 } OPTIONAL,

 intraBandFreqSeparationUL-v1620 FreqSeparationClassUL-v1620 OPTIONAL,

 -- R1 11-3: More than one PUCCH for HARQ-ACK transmission within a slot

 multiPUCCH-r16 SEQUENCE {

 sub-SlotConfig-NCP-r16 ENUMERATED {set1, set2} OPTIONAL,

 sub-SlotConfig-ECP-r16 ENUMERATED {set1, set2} OPTIONAL

 } OPTIONAL,

 -- R1 11-3c: 2 PUCCH of format 0 or 2 for a single 7\*2-symbol subslot based HARQ-ACK codebook

 twoPUCCH-Type1-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-3d: 2 PUCCH of format 0 or 2 for a single 2\*7-symbol subslot based HARQ-ACK codebook

 twoPUCCH-Type2-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-3e: 1 PUCCH format 0 or 2 and 1 PUCCH format 1, 3 or 4 in the same subslot for a single 2\*7-symbol HARQ-ACK codebooks

 twoPUCCH-Type3-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-3f: 2 PUCCH transmissions in the same subslot for a single 2\*7-symbol HARQ-ACK codebooks which are not covered by 11-3d and

 -- 11-3e

 twoPUCCH-Type4-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-3g: SR/HARQ-ACK multiplexing once per subslot using a PUCCH (or HARQ-ACK piggybacked on a PUSCH) when SR/HARQ-ACK

 -- are supposed to be sent with different starting symbols in a subslot

 mux-SR-HARQ-ACK-r16 ENUMERATED {supported} OPTIONAL,

 dummy1 ENUMERATED {supported} OPTIONAL,

 dummy2 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4c: 2 PUCCH of format 0 or 2 for two HARQ-ACK codebooks with one 7\*2-symbol sub-slot based HARQ-ACK codebook

 twoPUCCH-Type5-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4d: 2 PUCCH of format 0 or 2 in consecutive symbols for two HARQ-ACK codebooks with one 2\*7-symbol sub-slot based HARQ-ACK

 -- codebook

 twoPUCCH-Type6-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4e: 2 PUCCH of format 0 or 2 for two subslot based HARQ-ACK codebooks

 twoPUCCH-Type7-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4f: 1 PUCCH format 0 or 2 and 1 PUCCH format 1, 3 or 4 in the same subslot for HARQ-ACK codebooks with one 2\*7-symbol

 -- subslot based HARQ-ACK codebook

 twoPUCCH-Type8-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4g: 1 PUCCH format 0 or 2 and 1 PUCCH format 1, 3 or 4 in the same subslot for two subslot based HARQ-ACK codebooks

 twoPUCCH-Type9-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4h: 2 PUCCH transmissions in the same subslot for two HARQ-ACK codebooks with one 2\*7-symbol subslot which are not covered

 -- by 11-4c and 11-4e

 twoPUCCH-Type10-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-4i: 2 PUCCH transmissions in the same subslot for two subslot based HARQ-ACK codebooks which are not covered by 11-4d and

 -- 11-4f

 twoPUCCH-Type11-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 12-1: UL intra-UE multiplexing/prioritization of overlapping channel/signals with two priority levels in physical layer

 ul-IntraUE-Mux-r16 SEQUENCE {

 pusch-PreparationLowPriority-r16 ENUMERATED {sym0, sym1, sym2},

 pusch-PreparationHighPriority-r16 ENUMERATED {sym0, sym1, sym2}

 } OPTIONAL,

 -- R1 16-5a: Supported UL full power transmission mode of fullpower

 ul-FullPwrMode-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-5d: Processing up to X unicast DCI scheduling for UL per scheduled CC

 crossCarrierSchedulingProcessing-DiffSCS-r16 SEQUENCE {

 scs-15kHz-120kHz-r16 ENUMERATED {n1,n2,n4} OPTIONAL,

 scs-15kHz-60kHz-r16 ENUMERATED {n1,n2,n4} OPTIONAL,

 scs-30kHz-120kHz-r16 ENUMERATED {n1,n2,n4} OPTIONAL,

 scs-15kHz-30kHz-r16 ENUMERATED {n2} OPTIONAL,

 scs-30kHz-60kHz-r16 ENUMERATED {n2} OPTIONAL,

 scs-60kHz-120kHz-r16 ENUMERATED {n2} OPTIONAL

 } OPTIONAL,

 -- R1 16-5b: Supported UL full power transmission mode of fullpowerMode1

 ul-FullPwrMode1-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 16-5c-2: Ports configuration for Mode 2

 ul-FullPwrMode2-SRSConfig-diffNumSRSPorts-r16 ENUMERATED {p1-2, p1-4, p1-2-4} OPTIONAL,

 -- R1 16-5c-3: TPMI group for Mode 2

 ul-FullPwrMode2-TPMIGroup-r16 SEQUENCE {

 twoPorts-r16 BIT STRING(SIZE(2)) OPTIONAL,

 fourPortsNonCoherent-r16 ENUMERATED{g0, g1, g2, g3} OPTIONAL,

 fourPortsPartialCoherent-r16 ENUMERATED{g0, g1, g2, g3, g4, g5, g6} OPTIONAL

 } OPTIONAL

}

FeatureSetUplink-v1630 ::= SEQUENCE {

 -- R1 22-8: For SRS for CB PUSCH and antenna switching on FR1 with symbol level offset for aperiodic SRS transmission

 offsetSRS-CB-PUSCH-Ant-Switch-fr1-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 22-8a: PDCCH monitoring on any span of up to 3 consecutive OFDM symbols of a slot and constrained timeline for SRS for CB

 -- PUSCH and antenna switching on FR1

 offsetSRS-CB-PUSCH-PDCCH-MonitorSingleOcc-fr1-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 22-8b: For type 1 CSS with dedicated RRC configuration, type 3 CSS, and UE-SS, monitoring occasion can be any OFDM symbol(s)

 -- of a slot for Case 2 and constrained timeline for SRS for CB PUSCH and antenna switching on FR1

 offsetSRS-CB-PUSCH-PDCCH-MonitorAnyOccWithoutGap-fr1-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 22-8c: For type 1 CSS with dedicated RRC configuration, type 3 CSS, and UE-SS, monitoring occasion can be any OFDM symbol(s)

 -- of a slot for Case 2 with a DCI gap and constrained timeline for SRS for CB PUSCH and antenna switching on FR1

 offsetSRS-CB-PUSCH-PDCCH-MonitorAnyOccWithGap-fr1-r16 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 -- R1 22-9: Cancellation of PUCCH, PUSCH or PRACH with a DCI scheduling a PDSCH or CSI-RS or a DCI format 2\_0 for SFI

 partialCancellationPUCCH-PUSCH-PRACH-TX-r16 ENUMERATED {supported} OPTIONAL

}

FeatureSetUplink-v1640 ::= SEQUENCE {

 -- R1 11-4: Two HARQ-ACK codebooks with up to one sub-slot based HARQ-ACK codebook (i.e. slot-based + slot-based, or slot-based +

 -- sub-slot based) simultaneously constructed for supporting HARQ-ACK codebooks with different priorities at a UE

 twoHARQ-ACK-Codebook-type1-r16 SubSlot-Config-r16 OPTIONAL,

 -- R1 11-4a: Two sub-slot based HARQ-ACK codebooks simultaneously constructed for supporting HARQ-ACK codebooks with different

 -- priorities at a UE

 twoHARQ-ACK-Codebook-type2-r16 SubSlot-Config-r16 OPTIONAL,

 -- R1 22-8d: All PDCCH monitoring occasion can be any OFDM symbol(s) of a slot for Case 2 with a span gap and constrained timeline

 -- for SRS for CB PUSCH and antenna switching on FR1

 offsetSRS-CB-PUSCH-PDCCH-MonitorAnyOccWithSpanGap-fr1-r16 SEQUENCE {

 scs-15kHz-r16 ENUMERATED {set1, set2, set3} OPTIONAL,

 scs-30kHz-r16 ENUMERATED {set1, set2, set3} OPTIONAL,

 scs-60kHz-r16 ENUMERATED {set1, set2, set3} OPTIONAL

 } OPTIONAL

}

FeatureSetUplink-v16d0 ::= SEQUENCE {

 pusch-RepetitionTypeB-v16d0 SEQUENCE {

 maxNumberPUSCH-Tx-Cap1-r16 ENUMERATED {n2, n3, n4, n7, n8, n12},

 maxNumberPUSCH-Tx-Cap2-r16 ENUMERATED {n2, n3, n4, n7, n8, n12}

 } OPTIONAL

}

FeatureSetUplink-v1710 ::= SEQUENCE {

 -- R1 23-3-1 Multi-TRP PUSCH repetition (type A) -codebook based

 mTRP-PUSCH-TypeA-CB-r17 ENUMERATED {n1,n2,n4} OPTIONAL,

 -- R1 23-3-1-2 Multi-TRP PUSCH repetition (type A) - non-codebook based

 mTRP-PUSCH-RepetitionTypeA-r17 ENUMERATED {n1,n2,n3,n4} OPTIONAL,

 -- R1 23-3-3 Multi-TRP PUCCH repetition-intra-slot

 mTRP-PUCCH-IntraSlot-r17 ENUMERATED {pf0-2, pf1-3-4, pf0-4} OPTIONAL,

 -- R1 23-8-4 Maximum 2 SP and 1 periodic SRS sets for antenna switching

 srs-AntennaSwitching2SP-1Periodic-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-8-9 Extension of aperiodic SRS configuration for 1T4R, 1T2R and 2T4R

 srs-ExtensionAperiodicSRS-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-8-10 1 aperiodic SRS resource set for 1T4R

 srs-OneAP-SRS-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 16-8 UE power class per band per band combination

 ue-PowerClassPerBandPerBC-r17 ENUMERATED {pc1dot5, pc2, pc3} OPTIONAL,

 -- R4 17-8 UL transmission in FR2 bands within an UL gap when the UL gap is activated

 tx-Support-UL-GapFR2-r17 ENUMERATED {supported} OPTIONAL

}

FeatureSetUplink-v1720 ::= SEQUENCE {

 -- R1 25-3: Repetitions for PUCCH format 0, 1, 2, 3 and 4 over multiple PUCCH subslots with configured K = 2, 4, 8

 pucch-Repetition-F0-1-2-3-4-RRC-Config-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-3a: Repetitions for PUCCH format 0, 1, 2, 3 and 4 over multiple PUCCH subslots using dynamic repetition indication

 pucch-Repetition-F0-1-2-3-4-DynamicIndication-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-3b: Inter-subslot frequency hopping for PUCCH repetitions

 interSubslotFreqHopping-PUCCH-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-8: Semi-static HARQ-ACK codebook for sub-slot PUCCH

 semiStaticHARQ-ACK-CodebookSub-SlotPUCCH-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-14: PHY prioritization of overlapping low-priority DG-PUSCH and high-priority CG-PUSCH

 phy-PrioritizationLowPriorityDG-HighPriorityCG-r17 INTEGER(1..16) OPTIONAL,

 -- R1 25-15: PHY prioritization of overlapping high-priority DG-PUSCH and low-priority CG-PUSCH

 phy-PrioritizationHighPriorityDG-LowPriorityCG-r17 SEQUENCE {

 pusch-PreparationLowPriority-r17 ENUMERATED{sym0, sym1, sym2},

 additionalCancellationTime-r17 SEQUENCE {

 scs-15kHz-r17 ENUMERATED{sym0, sym1, sym2} OPTIONAL,

 scs-30kHz-r17 ENUMERATED{sym0, sym1, sym2, sym3, sym4} OPTIONAL,

 scs-60kHz-r17 ENUMERATED{sym0, sym1, sym2, sym3, sym4, sym5, sym6, sym7, sym8} OPTIONAL,

 scs-120kHz-r17 ENUMERATED{sym0, sym1, sym2, sym3, sym4, sym5, sym6, sym7, sym8, sym9,

 sym10, sym11, sym12, sym13, sym14, sym15, sym16} OPTIONAL

 },

 maxNumberCarriers-r17 INTEGER(1..16)

 } OPTIONAL,

 -- R4 17-5 Support of UL DC location(s) report

 extendedDC-LocationReport-r17 ENUMERATED {supported} OPTIONAL

}

FeatureSetUplink-v1800 ::= SEQUENCE {

 -- R1 40-3-3-1a: Supported maximum delay value larger than D\_basic

 maxDelayValueBeyondD-Basic-r18 ENUMERATED {sl2,sl3,sl4,sl5,sl6,sl10} OPTIONAL,

 -- R1 40-3-3-2: Number of delay values

 tdcp-NumberDelayValue-r18 INTEGER (2..4) OPTIONAL,

 -- R1 40-3-3-4: Phase report

 phaseReportMoreThanOne-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-3-3-6: Maximum number of TRS resource sets in a report configuration

 maxNumberTRS-ResourceSet-r18 INTEGER (2..3) OPTIONAL,

 -- R1 40-3-3-7: Maximum number of TDCP report settings per-BWP

 maxNumberTDCP-PerBWP-r18 INTEGER (1..4) OPTIONAL,

 -- R1 40-4-6c: DMRS type for Rel.18 enhanced DMRS ports for PUSCH

 pusch-DMRS-TypeEnh-r18 SEQUENCE {

 dmrs-Type-r18 ENUMERATED {etype1, both},

 pusch-TypeA-DMRS-r18 SEQUENCE {

 -- R1 40-4-6: Basic feature of Rel.18 enhanced DMRS ports for PUSCH for scheduling mapping of type A for Rel.18 enhanced DMRS ports

 dmrs-TypeA-r18 ENUMERATED {supported},

 -- R1 40-4-6d: 2 symbols front-loaded DMRS (uplink) for Rel.18 enhanced DMRS ports for PUSCH

 pusch-2SymbolFL-DMRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6e: 2-symbol FL DMRS + one additional 2-symbols DMRS for Rel.18 enhanced DMRS ports for PUSCH

 pusch-2SymbolFL-DMRS-Addition2Symbol-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6f: 1 symbol FL DMRS and 3 additional DMRS symbols for Rel.18 enhanced DMRS ports for PUSCH

 pusch-1SymbolFL-DMRS-Addition3Symbol-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6k: 1 symbol FL DMRS and 2 additional DMRS symbols for more than one port for Rel.18 enhanced DMRS ports for PUSCH

 pusch-1SymbolFL-DMRS-BeyondOnePort-r18 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 -- R1 40-4-10: DMRS port configuration for PUSCH with 8Tx

 pusch-DMRS8Tx-r18 ENUMERATED {rel15, both} OPTIONAL,

 -- R1 40-4-6a: Basic feature of Rel.18 enhanced DMRS ports for PUSCH for scheduling mapping of type B for Rel.18 enhanced DMRS ports

 pusch-TypeB-DMRS-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6g: 1 port UL PTRS for Rel.18 enhanced DMRS ports for PUSCH with rank 1-4

 pusch-rank-1-4-1Port-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6h: 1 port UL PTRS for Rel.18 enhanced DMRS ports for PUSCH with rank 5-8

 pusch-rank-5-8-1Port-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6i: 2 port UL PTRS for Rel.18 enhanced DMRS ports for PUSCH with rank 1-4

 pusch-rank-1-4-2Port-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-6j: 2 port UL PTRS for Rel.18 enhanced DMRS ports for PUSCH with rank 5-8

 pusch-rank-5-8-2Port-r18 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 -- R1 40-4-13: Support Rel-18 UL DMRS with single-DCI based M-TRP

 ul-DMRS-SingleDCI-M-TRP-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-4-14: Support Rel-18 UL DMRS with M-DCI based M-TRP

 ul-DMRS-M-DCI-M-TRP-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-5-5: Maximum 2 SP and 1 periodic SRS sets for 8T8R antenna switching

 srs-AntennaSwitching8T8R2SP-1Periodic-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 40-6-4: Single-DCI based STx2P SFN scheme for PUCCH

 pucch-SingleDCI-STx2P-SFN-r18 ENUMERATED {pf0-2, pf1-3-4, pf0-4} OPTIONAL,

 -- R1 41-4-6: Positioning SRS bandwidth aggregation in RRC\_CONNECTED

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

 -- R1 41-4-7: Positioning SRS bandwidth aggregation independent from UL communication CA in RRC\_CONNECTED

 posSRS-BWA-IndependentCA-RRC-Connected-r18 PosSRS-BWA-IndependentCA-RRC-Connected-r18 OPTIONAL,

 -- R1 41-4-9: Indicate which other bands in the band combination are affected due to the need of a guard period

 posSRS-BWA-AffectedBandList-r18 SEQUENCE (SIZE (1..maxBands)) OF FreqBandIndicatorNR OPTIONAL,

 -- R1 45-5a: RACH-based early TA acquisition with simultaneous transmission

 rach-EarlyTA-BandList-r18 SEQUENCE (SIZE (1..maxBandsMRDC)) OF RACH-EarlyTA OPTIONAL,

 -- R1 49-6: Two HARQ-ACK codebooks with up to one sub-slot based HARQ-ACK codebook simultaneously constructed for supporting

 -- HARQ-ACK codebooks with different priorities by DCI format 1\_3

 simultaneous-2-1-HARQ-ACK-CB-r18 SubSlot-Config-r16 OPTIONAL,

 -- R1 49-6a: Two HARQ-ACK codebooks with two sub-slot based HARQ-ACK codebook simultaneously constructed for supporting

 -- HARQ-ACK codebooks with different priorities by DCI format 1\_3

 simultaneous-2-2-HARQ-ACK-CB-r18 SubSlot-Config-r16 OPTIONAL,

 -- R1 49-7: UL intra-UE multiplexing/prioritization of overlapping channel/signals with two priority levels in physical

 -- layer for DCI format 1\_3/0\_3

 ul-IntraUE-MuxEnh-r18 SEQUENCE {

 pusch-PreparationLowPriority-r18 ENUMERATED {sym0, sym1, sym2},

 pusch-PreparationHighPriority-r18 ENUMERATED {sym0, sym1, sym2}

 } OPTIONAL,

 -- R4 27-1 TxDiversity for 4Tx

 txDiversity4Tx-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 41-2: Power boosting for DFT-s-OFDM pi/2 BPSK and QPSK transmissions without modified spectrum flatness requirement

 powerBoosting-pi2BPSK-QPSK-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 41-3: Power boosting for DFT-s-OFDM pi/2 BPSK and QPSK transmissions with modified spectrum flatness requirement shaping

 powerBoosting-pi2BPSK-QPSK-Modified-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 44-1 TxDiversity for 2Tx

 txDiversity2Tx-r18 ENUMERATED {supported} OPTIONAL,

 ue-PowerClassPerBandPerBC-v18xy ENUMERATED {pc5} OPTIONAL,

}

SubSlot-Config-r16 ::= SEQUENCE {

 sub-SlotConfig-NCP-r16 ENUMERATED {n4,n5,n6,n7} OPTIONAL,

 sub-SlotConfig-ECP-r16 ENUMERATED {n4,n5,n6} OPTIONAL

}

SRS-AllPosResources-r16 ::= SEQUENCE {

 srs-PosResources-r16 SRS-PosResources-r16,

 srs-PosResourceAP-r16 SRS-PosResourceAP-r16 OPTIONAL,

 srs-PosResourceSP-r16 SRS-PosResourceSP-r16 OPTIONAL

}

SRS-PosResources-r16 ::= SEQUENCE {

 maxNumberSRS-PosResourceSetPerBWP-r16 ENUMERATED {n1, n2, n4, n8, n12, n16},

 maxNumberSRS-PosResourcesPerBWP-r16 ENUMERATED {n1, n2, n4, n8, n16, n32, n64},

 maxNumberSRS-ResourcesPerBWP-PerSlot-r16 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14},

 maxNumberPeriodicSRS-PosResourcesPerBWP-r16 ENUMERATED {n1, n2, n4, n8, n16, n32, n64},

 maxNumberPeriodicSRS-PosResourcesPerBWP-PerSlot-r16 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14}

}

SRS-PosResourceAP-r16 ::= SEQUENCE {

 maxNumberAP-SRS-PosResourcesPerBWP-r16 ENUMERATED {n1, n2, n4, n8, n16, n32, n64},

 maxNumberAP-SRS-PosResourcesPerBWP-PerSlot-r16 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14}

}

SRS-PosResourceSP-r16 ::= SEQUENCE {

 maxNumberSP-SRS-PosResourcesPerBWP-r16 ENUMERATED {n1, n2, n4, n8, n16, n32, n64},

 maxNumberSP-SRS-PosResourcesPerBWP-PerSlot-r16 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14}

}

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),

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

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

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

}

DummyF ::= SEQUENCE {

 maxNumberPeriodicCSI-ReportPerBWP INTEGER (1..4),

 maxNumberAperiodicCSI-ReportPerBWP INTEGER (1..4),

 maxNumberSemiPersistentCSI-ReportPerBWP INTEGER (0..4),

 simultaneousCSI-ReportsAllCC INTEGER (5..32)

}

PosSRS-BWA-RRC-Connected-r18 ::= SEQUENCE {

 numOfCarriersIntraBandContiguous-r18 ENUMERATED {two, three, twoandthree} OPTIONAL,

 maximumAggregatedBW-TwoCarriersFR1-r18 ENUMERATED {mhz80, mhz100, mhz160, mhz200} OPTIONAL,

 maximumAggregatedBW-TwoCarriersFR2-r18 ENUMERATED {mhz50, mhz100, mhz200, mhz400, mhz600, mhz800} OPTIONAL,

 maximumAggregatedBW-ThreeCarriersFR1-r18 ENUMERATED {mhz80, mhz100, mhz160, mhz200, mhz300} OPTIONAL,

 maximumAggregatedBW-ThreeCarriersFR2-r18 ENUMERATED {mhz50, mhz100, mhz200, mhz400, mhz600, mhz800, mhz1000, mhz1200}

 OPTIONAL,

 maximumAggregatedResourceSet-r18 ENUMERATED {n1, n2, n4, n8, n12, n16} OPTIONAL,

 maximumAggregatedResourcePeriodic-r18 ENUMERATED {n1, n2, n4, n8, n16, n32, n64} OPTIONAL,

 maximumAggregatedResourceAperiodic-r18 ENUMERATED {n0, n1, n2, n4, n8, n16, n32, n64} OPTIONAL,

 maximumAggregatedResourceSemi-r18 ENUMERATED {n0, n1, n2, n4, n8, n16, n32, n64} OPTIONAL,

 maximumAggregatedResourcePeriodicPerSlot-r18 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14} OPTIONAL,

 maximumAggregatedResourceAperiodicPerSlot-r18 ENUMERATED {n0, n1, n2, n3, n4, n5, n6, n8, n10, n12, n14} OPTIONAL,

 maximumAggregatedResourceSemiPerSlot-r18 ENUMERATED {n0, n1, n2, n3, n4, n5, n6, n8, n10, n12, n14} OPTIONAL,

 supportOfSameSRS-PowerReduction-r18 ENUMERATED {supported} OPTIONAL,

 ...

}

PosSRS-BWA-IndependentCA-RRC-Connected-r18 ::= SEQUENCE {

 numOfCarriersIntraBandContiguous-r18 ENUMERATED {two, three, twoandthree} OPTIONAL,

 maximumAggregatedBW-TwoCarriersFR1-r18 ENUMERATED {mhz80, mhz100, mhz160, mhz200} OPTIONAL,

 maximumAggregatedBW-TwoCarriersFR2-r18 ENUMERATED {mhz50, mhz100, mhz200, mhz400, mhz600, mhz800} OPTIONAL,

 maximumAggregatedBW-ThreeCarriersFR1-r18 ENUMERATED {mhz80, mhz100, mhz160, mhz200, mhz300} OPTIONAL,

 maximumAggregatedBW-ThreeCarriersFR2-r18 ENUMERATED {mhz50, mhz100, mhz200, mhz400, mhz600, mhz800, mhz1000, mhz1200}

 OPTIONAL,

 maximumAggregatedResourceSet-r18 ENUMERATED {n1, n2, n4, n8, n12, n16} OPTIONAL,

 maximumAggregatedResourcePeriodic-r18 ENUMERATED {n1, n2, n4, n8, n16, n32, n64} OPTIONAL,

 maximumAggregatedResourceAperiodic-r18 ENUMERATED {n0, n1, n2, n4, n8, n16, n32, n64} OPTIONAL,

 maximumAggregatedResourceSemi-r18 ENUMERATED {n0, n1, n2, n4, n8, n16, n32, n64} OPTIONAL,

 maximumAggregatedResourcePeriodicPerSlot-r18 ENUMERATED {n1, n2, n3, n4, n5, n6, n8, n10, n12, n14} OPTIONAL,

 maximumAggregatedResourceAperiodicPerSlot-r18 ENUMERATED {n0, n1, n2, n3, n4, n5, n6, n8, n10, n12, n14} OPTIONAL,

 maximumAggregatedResourceSemiPerSlot-r18 ENUMERATED {n0, n1, n2, n3, n4, n5, n6, n8, n10, n12, n14} OPTIONAL,

 supportOfSameSRS-PowerReduction-r18 ENUMERATED {supported} OPTIONAL,

 guardPeriod-r18 ENUMERATED {ms0, ms30, ms100, ms140, ms200} OPTIONAL,

 ...

}

-- TAG-FEATURESETUPLINK-STOP

-- ASN1STOP

|  |
| --- |
| *FeatureSetUplink* field descriptions |
| ***featureSetListPerUplinkCC***Indicates which features the UE supports on the individual UL carriers of the feature set (and hence of a band entry that refers to the feature set). The UE shall hence include at least as many *FeatureSetUplinkPerCC-Id* in this list as the number of carriers it supports according to the *ca-BandwidthClassUL*, except if indicating additional functionality by reducing the number of *FeatureSetUplinkPerCC-Id* in the feature set (see NOTE 1 in *FeatureSetCombination* IE description). The order of the elements in this list is not relevant, i.e., the network may configure any of the carriers in accordance with any of the *FeatureSetUplinkPerCC-Id* in this list. |

|  |
| --- |
| \*\*\*\*Unchanged sections deleted\*\*\*\* |

#### – *MeasAndMobParameters*

The IE *MeasAndMobParameters* is used to convey UE capabilities related to measurements for radio resource management (RRM), radio link monitoring (RLM) and mobility (e.g. handover).

*MeasAndMobParameters* information element

-- ASN1START

-- TAG-MEASANDMOBPARAMETERS-START

MeasAndMobParameters ::= SEQUENCE {

 measAndMobParametersCommon MeasAndMobParametersCommon OPTIONAL,

 measAndMobParametersXDD-Diff MeasAndMobParametersXDD-Diff OPTIONAL,

 measAndMobParametersFRX-Diff MeasAndMobParametersFRX-Diff OPTIONAL

}

MeasAndMobParameters-v1700 ::= SEQUENCE {

 measAndMobParametersFR2-2-r17 MeasAndMobParametersFR2-2-r17 OPTIONAL

}

MeasAndMobParametersCommon ::= SEQUENCE {

 supportedGapPattern BIT STRING (SIZE (22)) OPTIONAL,

 ssb-RLM ENUMERATED {supported} OPTIONAL,

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

 ...,

 [[

 eventB-MeasAndReport ENUMERATED {supported} OPTIONAL,

 handoverFDD-TDD ENUMERATED {supported} OPTIONAL,

 eutra-CGI-Reporting ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting ENUMERATED {supported} OPTIONAL

 ]],

 [[

 independentGapConfig ENUMERATED {supported} OPTIONAL,

 periodicEUTRA-MeasAndReport ENUMERATED {supported} OPTIONAL,

 handoverFR1-FR2 ENUMERATED {supported} OPTIONAL,

 maxNumberCSI-RS-RRM-RS-SINR ENUMERATED {n4, n8, n16, n32, n64, n96} OPTIONAL

 ]],

 [[

 nr-CGI-Reporting-ENDC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 eutra-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

 eutra-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 reportAddNeighMeasForPeriodic-r16 ENUMERATED {supported} OPTIONAL,

 condHandoverParametersCommon-r16 SEQUENCE {

 condHandoverFDD-TDD-r16 ENUMERATED {supported} OPTIONAL,

 condHandoverFR1-FR2-r16 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 nr-NeedForGap-Reporting-r16 ENUMERATED {supported} OPTIONAL,

 supportedGapPattern-NRonly-r16 BIT STRING (SIZE (10)) OPTIONAL,

 supportedGapPattern-NRonly-NEDC-r16 ENUMERATED {supported} OPTIONAL,

 maxNumberCLI-RSSI-r16 ENUMERATED {n8, n16, n32, n64} OPTIONAL,

 maxNumberCLI-SRS-RSRP-r16 ENUMERATED {n4, n8, n16, n32} OPTIONAL,

 maxNumberPerSlotCLI-SRS-RSRP-r16 ENUMERATED {n2, n4, n8} OPTIONAL,

 mfbi-IAB-r16 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 nr-CGI-Reporting-NPN-r16 ENUMERATED {supported} OPTIONAL,

 idleInactiveEUTRA-MeasReport-r16 ENUMERATED {supported} OPTIONAL,

 idleInactive-ValidityArea-r16 ENUMERATED {supported} OPTIONAL,

 eutra-AutonomousGaps-r16 ENUMERATED {supported} OPTIONAL,

 eutra-AutonomousGaps-NEDC-r16 ENUMERATED {supported} OPTIONAL,

 eutra-AutonomousGaps-NRDC-r16 ENUMERATED {supported} OPTIONAL,

 pcellT312-r16 ENUMERATED {supported} OPTIONAL,

 supportedGapPattern-r16 BIT STRING (SIZE (2)) OPTIONAL

 ]],

 [[

 -- R4 19-2 Concurrent measurement gaps

 concurrentMeasGap-r17 CHOICE {

 concurrentPerUE-OnlyMeasGap-r17 ENUMERATED {supported},

 concurrentPerUE-PerFRCombMeasGap-r17 ENUMERATED {supported}

 } OPTIONAL,

 -- R4 19-1 Network controlled small gap (NCSG)

 nr-NeedForGapNCSG-Reporting-r17 ENUMERATED {supported} OPTIONAL,

 eutra-NeedForGapNCSG-Reporting-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-1-1 per FR Network controlled small gap (NCSG)

 ncsg-MeasGapPerFR-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-1-2 Network controlled small gap (NCSG) supported patterns

 ncsg-MeasGapPatterns-r17 BIT STRING (SIZE(24)) OPTIONAL,

 -- R4 19-1-3 Network controlled small gap (NCSG) supported NR-only patterns

 ncsg-MeasGapNR-Patterns-r17 BIT STRING (SIZE(24)) OPTIONAL,

 -- R4 19-3-2 pre-configured measurement gap

 preconfiguredUE-AutonomousMeasGap-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-3-1 pre-configured measurement gap

 preconfiguredNW-ControlledMeasGap-r17 ENUMERATED {supported} OPTIONAL,

 handoverFR1-FR2-2-r17 ENUMERATED {supported} OPTIONAL,

 handoverFR2-1-FR2-2-r17 ENUMERATED {supported} OPTIONAL,

 -- RAN4 14-1: per-FR MG for PRS measurement

 independentGapConfigPRS-r17 ENUMERATED {supported} OPTIONAL,

 rrm-RelaxationRRC-ConnectedRedCap-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 25-3: Parallel measurements with multiple measurement gaps

 parallelMeasurementGap-r17 ENUMERATED {n2} OPTIONAL,

 condHandoverWithSCG-NRDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-LengthReporting-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-LengthReporting-ENDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-LengthReporting-NEDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-LengthReporting-NRDC-r17 ENUMERATED {supported} OPTIONAL,

 gNB-ID-LengthReporting-NPN-r17 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 -- R4 25-1: Parallel measurements on multiple SMTC-s for a single frequency carrier

 parallelSMTC-r17 ENUMERATED {n4} OPTIONAL,

 -- R4 19-2-1 Concurrent measurement gaps for EUTRA

 concurrentMeasGapEUTRA-r17 ENUMERATED {supported} OPTIONAL,

 serviceLinkPropDelayDiffReporting-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 19-1-4 Network controlled small gap (NCSG) performing measurement based on flag deriveSSB-IndexFromCellInter

 ncsg-SymbolLevelScheduleRestrictionInter-r17 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 eventD1-MeasReportTrigger-r17 ENUMERATED {supported} OPTIONAL,

 independentGapConfig-maxCC-r17 SEQUENCE {

 fr1-Only-r17 INTEGER (1..32) OPTIONAL,

 fr2-Only-r17 INTEGER (1..32) OPTIONAL,

 fr1-AndFR2-r17 INTEGER (1..32) OPTIONAL

 } OPTIONAL

 ]],

 [[

 interSatMeas-r17 ENUMERATED {supported} OPTIONAL,

 deriveSSB-IndexFromCellInterNon-NCSG-r17 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 -- R4 31-1 Enhanced L3 measurement reporting for unknown SCell activation if the valid L3 measurement results are available

 l3-MeasUnknownSCellActivation-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 31-3 Shorter measurement interval for unknown SCell activation

 shortMeasInterval-r18 ENUMERATED {supported} OPTIONAL,

 nr-NeedForInterruptionReport-r18 ENUMERATED {supported} OPTIONAL,

 measSequenceConfig-r18 ENUMERATED {supported} OPTIONAL,

 cellIndividualOffsetPerMeasEvent-r18 ENUMERATED {supported} OPTIONAL,

 eventD2-MeasReportTrigger-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 32-1: Concurrent gaps with Pre-MG in a FR

 concurrentMeasGapsPreMG-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 32-2: Support for dynamic collisions

 dynamicCollision-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 32-3: Concurrent gaps with NCSG in a FR

 concurrentMeasGapsNCSG-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 32-4: Inter-RAT EUTRAN measurements without gap and outside active DL BWP

 eutra-NoGapMeasurementOutsideBWP-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 32-5: Inter-RAT EUTRAN measurement without gap and within active DL BWP

 eutra-NoGapMeasurementInsideBWP-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 32-6: Effective measurement window for inter-RAT EUTRAN measurements

 eutra-MeasEMW-r18 BIT STRING (SIZE(6)) OPTIONAL,

 -- R4 32-7: Simultaneous reception of NR data and EUTRAN CRS with different numerology

 concurrentMeasCRS-InsideBWP-EUTRA-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 39-2a: SSB based inter-frequency L1-RSRP measurements with measurement gaps

 ltm-InterFreqMeasGap-r18 ENUMERATED {supported} OPTIONAL,

 -- R4 39-7: Faster UE processing time during cell switch

 ltm-FastUE-Processing-r18 SEQUENCE {

 fr1-r18 ENUMERATED {ms10, ms15},

 fr2-r18 ENUMERATED {ms10, ms15},

 fr1-AndFR2-r18 ENUMERATED {ms20, ms30}

 } OPTIONAL

 ]]

}

MeasAndMobParametersXDD-Diff ::= SEQUENCE {

 intraAndInterF-MeasAndReport ENUMERATED {supported} OPTIONAL,

 eventA-MeasAndReport ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 handoverInterF ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 sftd-MeasNR-Neigh ENUMERATED {supported} OPTIONAL,

 sftd-MeasNR-Neigh-DRX ENUMERATED {supported} OPTIONAL

 ]],

 [[

 dummy ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersFRX-Diff ::= SEQUENCE {

 ss-SINR-Meas ENUMERATED {supported} OPTIONAL,

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

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

 csi-SINR-Meas ENUMERATED {supported} OPTIONAL,

 csi-RS-RLM ENUMERATED {supported} OPTIONAL,

 ...,

 [[

 handoverInterF ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC ENUMERATED {supported} OPTIONAL

 ]],

 [[

 maxNumberResource-CSI-RS-RLM ENUMERATED {n2, n4, n6, n8} OPTIONAL

 ]],

 [[

 simultaneousRxDataSSB-DiffNumerology ENUMERATED {supported} OPTIONAL

 ]],

 [[

 nr-AutonomousGaps-r16 ENUMERATED {supported} OPTIONAL,

 nr-AutonomousGaps-ENDC-r16 ENUMERATED {supported} OPTIONAL,

 nr-AutonomousGaps-NEDC-r16 ENUMERATED {supported} OPTIONAL,

 nr-AutonomousGaps-NRDC-r16 ENUMERATED {supported} OPTIONAL,

 dummy ENUMERATED {supported} OPTIONAL,

 cli-RSSI-Meas-r16 ENUMERATED {supported} OPTIONAL,

 cli-SRS-RSRP-Meas-r16 ENUMERATED {supported} OPTIONAL,

 interFrequencyMeas-NoGap-r16 ENUMERATED {supported} OPTIONAL,

 simultaneousRxDataSSB-DiffNumerology-Inter-r16 ENUMERATED {supported} OPTIONAL,

 idleInactiveNR-MeasReport-r16 ENUMERATED {supported} OPTIONAL,

 -- R4 6-2: Support of beam level Early Measurement Reporting

 idleInactiveNR-MeasBeamReport-r16 ENUMERATED {supported} OPTIONAL

 ]],

 [[

 increasedNumberofCSIRSPerMO-r16 ENUMERATED {supported} OPTIONAL

 ]]

}

MeasAndMobParametersFR2-2-r17 ::= SEQUENCE {

 handoverInterF-r17 ENUMERATED {supported} OPTIONAL,

 handoverLTE-EPC-r17 ENUMERATED {supported} OPTIONAL,

 handoverLTE-5GC-r17 ENUMERATED {supported} OPTIONAL,

 idleInactiveNR-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

...

}

-- TAG-MEASANDMOBPARAMETERS-STOP

-- ASN1STOP

|  |
| --- |
| \*\*\*\*Unchanged sections deleted\*\*\*\* |

#### – *PDCCH-RACH-DlInfo*

The IE *PDCCH-RACH-DlInfo* is used to indicate whether there is interruption, RF/BB preparation time and the switching time on the UE for one NR band pair when performing PDCCH ordered RACH.

*PDCCH-RACH-DlInfo information element*

-- ASN1START

-- TAG-PDCCH-RACH-DlInfo-START

PDCCH-RACH-DlInfo ::= CHOICE {

 notSupported NULL,

 supported SEQUENCE {

 -- R4 39-4: Interruption on DL slot(s) due to PDCCH- ordered RACH transmission

 pDCCH-RACH-AffectedBands-r18 ENUMERATED {noIntrruption, Interruption},

 -- R4 39-4a: Interruption on DL slot(s) due to PDCCH- ordered RACH transmission

 pdcch-RACH-SwitchingTimeList-r18 ENUMERATED {ms0, ms0dot25, ms0dot5 , ms1, ms2} OPTIONAL,

 -- R4 39-5: the RF/BB preparation time for PDCCH ordered RACH of which the resources are not fully contained

 -- in any of UE’s configured UL BWP(s) of active serving cells

 pDCCH-RACH-PrepTime-r18 ENUMERATED {ms1, ms3, ms5, ms10} OPTIONAL

 }

}

-- TAG-PDCCH-RACH-DlInfo-STOP

-- ASN1STOP

####