####

**3GPP TSG-WG2 Meeting #127 *R2-240xxxx***

**Maastricht, Netherlands, August 19 – 23, 2024**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.331** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **18.2.0** |  |
|  |
| *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)*.* |
|  |

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

|  |
| --- |
|  |
| ***Title:***  | Correction to Parallel Tx capabilities |
|  |  |
| ***Source to WG:*** | Ericsson, Qualcomm Incorporated |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_newRAT-Core  |  | ***Date:*** | 2024-08-23  |
|  |  |  |  |  |
| ***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 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:*** | In RAN2#127, it was agreed to limit the Parallel Tx capabilities to the FR1 only, which are currently applicable to both FR1 and FR2. Consequently, new capabilities will be added for the FR2 support from Rel-18. |
|  |  |
| ***Summary of change:*** | Update the parallel Tx capabilities in CA-ParametersNR to be applicable to FR1 but not FR2.Include support for parallel Tx capabilities for FR2 (in Rel-18 only).This CR needs to be supported by the UE and the Network to implement this feature (Parallel Tx).**Impact analysis**Impacted 5G architecture options: Standalone, EN-DC, NGEN-DC, NE-DC, NR-DC  Impacted functionality: Parallel Tx capabilities   Inter-operability: If the network implements the CR and the UE does not, there is no interoperability issue. The UE may support a parallel Tx capability for both FR1 and FR2 (when including the existing capabilities), but the network will only configure the feature for FR1.If the UE implements the CR and the network does not, the network may configure a parallel Tx feature for FR2 while the UE may support it only for FR1. |
|  |  |
| ***Consequences if not approved:*** | The parallel Tx capabilities will remain applicable to both FR1 and FR2 and thus UEs may be forced to refrain from reporting those capabilities in case such UEs could support these features only for FR1. |
|  |  |
| ***Clauses affected:*** | 6.3.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **x** |  |  Other core specifications  | TS/TR 38.306 CR ...  |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

START OF FIRST CHANGE

#### – *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-v1790 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v1790

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

BandCombinationList-v18xy ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-v18xy

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-v1790 ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v1790

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

BandCombinationList-UplinkTxSwitch-v18xy ::= SEQUENCE (SIZE (1..maxBandComb)) OF BandCombination-UplinkTxSwitch-v18xy

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-v1790 ::= SEQUENCE {

 supportedIntraENDC-BandCombinationList-r17 SEQUENCE (SIZE (1..maxNrofIntraEndc-Components-r17)) OF SupportedIntraENDC-BandCombination-r17 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-v18xy ::= SEQUENCE {

 ca-ParametersNR-v18xy CA-ParametersNR-v18xy OPTIONAL,

 ca-ParametersNRDC-v18xy CA-ParametersNRDC-v18xy 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-v1790 ::= SEQUENCE {

 bandCombination-v1790 BandCombination-v1790 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 38-4: Switching Period for unaffected Band for Dual UL

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

 UplinkTxSwitchingAdditionalPeriodDualUL-r18 OPTIONAL,

 -- R4 38-6: Switching period restriction for fallback band combination

 switchingPeriodRestriction-r18 ENUMERATED {true} OPTIONAL

}

BandCombination-UplinkTxSwitch-v18xy ::= SEQUENCE {

 bandCombination-v18xy BandCombination-v18xy 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 38-5: 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)

 }

 },

 -- R4 38-4: Additional switching Period for switching case across three or four bands 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))

SupportedIntraENDC-BandCombination-r17 ::= SEQUENCE {

 supportedBandwidthCombinationSetIntraENDC-v1790 BIT STRING (SIZE (1..32)) OPTIONAL,

 mrdc-Parameters-v1790 MRDC-Parameters-v1790 OPTIONAL

}

-- 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-v1790, BandCombinationList-v1800, BandCombinationList-v18xy***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-v1790, BandCombinationList-UplinkTxSwitch-v1800, BandCombinationList-UplinkTxSwitch-v18xy***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. |
| ***supportedIntraENDC-BandCombinationList***Indicates BCS and/or spectrum contiguity capability for each entry in a list of intra-band (NG)EN-DC components in an inter-band (NG)EN-DC band combination. The UE shall include the entries in the order corresponding to the order of NR band entries of the intra-band (NG)EN-DC components in the *bandList* in the inter-band (NG)EN-DC band combination (i.e., *BandCombination* without suffix). |
| ***uplinkTxSwitchingBandParametersList-v1700***Indicates a list of per band per band combination capabilities for UL Tx switching. |

END OF FIRST CHANGE

START OF SECOND CHANGE

#### – *CA-ParametersNR*

The IE *CA-ParametersNR* contains carrier aggregation and inter-frequency DAPS handover related capabilities that are defined per band combination.

*CA-ParametersNR* information element

-- ASN1START

-- TAG-CA-PARAMETERSNR-START

CA-ParametersNR ::= SEQUENCE {

 dummy ENUMERATED {supported} OPTIONAL,

 parallelTxSRS-PUCCH-PUSCH ENUMERATED {supported} OPTIONAL,

 parallelTxPRACH-SRS-PUCCH-PUSCH ENUMERATED {supported} OPTIONAL,

 simultaneousRxTxInterBandCA ENUMERATED {supported} OPTIONAL,

 simultaneousRxTxSUL ENUMERATED {supported} OPTIONAL,

 diffNumerologyAcrossPUCCH-Group ENUMERATED {supported} OPTIONAL,

 diffNumerologyWithinPUCCH-GroupSmallerSCS ENUMERATED {supported} OPTIONAL,

 supportedNumberTAG ENUMERATED {n2, n3, n4} OPTIONAL,

 ...

}

CA-ParametersNR-v1540 ::= SEQUENCE {

 simultaneousSRS-AssocCSI-RS-AllCC INTEGER (5..32) OPTIONAL,

 csi-RS-IM-ReceptionForFeedbackPerBandComb SEQUENCE {

 maxNumberSimultaneousNZP-CSI-RS-ActBWP-AllCC INTEGER (1..64) OPTIONAL,

 totalNumberPortsSimultaneousNZP-CSI-RS-ActBWP-AllCC INTEGER (2..256) OPTIONAL

 } OPTIONAL,

 simultaneousCSI-ReportsAllCC INTEGER (5..32) OPTIONAL,

 dualPA-Architecture ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1550 ::= SEQUENCE {

 dummy ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1560 ::= SEQUENCE {

 diffNumerologyWithinPUCCH-GroupLargerSCS ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v15g0 ::= SEQUENCE {

 simultaneousRxTxInterBandCAPerBandPair SimultaneousRxTxPerBandPair OPTIONAL,

 simultaneousRxTxSULPerBandPair SimultaneousRxTxPerBandPair OPTIONAL

}

CA-ParametersNR-v1610 ::= SEQUENCE {

 -- R1 9-3: Parallel MsgA and SRS/PUCCH/PUSCH transmissions across CCs in inter-band CA

 parallelTxMsgA-SRS-PUCCH-PUSCH-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 9-4: MsgA operation in a band combination including SUL

 msgA-SUL-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 10-9c: Joint search space group switching across multiple cells

 jointSearchSpaceSwitchAcrossCells-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 14-5: Half-duplex UE behaviour in TDD CA for same SCS

 half-DuplexTDD-CA-SameSCS-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-4: SCell dormancy within active time

 scellDormancyWithinActiveTime-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-4a: SCell dormancy outside active time

 scellDormancyOutsideActiveTime-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-6: Cross-carrier A-CSI RS triggering with different SCS

 crossCarrierA-CSI-trigDiffSCS-r16 ENUMERATED {higherA-CSI-SCS,lowerA-CSI-SCS,both} OPTIONAL,

 -- R1 18-6a: Default QCL assumption for cross-carrier A-CSI-RS triggering

 defaultQCL-CrossCarrierA-CSI-Trig-r16 ENUMERATED {diffOnly, both} OPTIONAL,

 -- R1 18-7: CA with non-aligned frame boundaries for inter-band CA

 interCA-NonAlignedFrame-r16 ENUMERATED {supported} OPTIONAL,

 simul-SRS-Trans-BC-r16 ENUMERATED {n2} OPTIONAL,

 interFreqDAPS-r16 SEQUENCE {

 interFreqAsyncDAPS-r16 ENUMERATED {supported} OPTIONAL,

 interFreqDiffSCS-DAPS-r16 ENUMERATED {supported} OPTIONAL,

 interFreqMultiUL-TransmissionDAPS-r16 ENUMERATED {supported} OPTIONAL,

 interFreqSemiStaticPowerSharingDAPS-Mode1-r16 ENUMERATED {supported} OPTIONAL,

 interFreqSemiStaticPowerSharingDAPS-Mode2-r16 ENUMERATED {supported} OPTIONAL,

 interFreqDynamicPowerSharingDAPS-r16 ENUMERATED {short, long} OPTIONAL,

 interFreqUL-TransCancellationDAPS-r16 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 codebookParametersPerBC-r16 CodebookParameters-v1610 OPTIONAL,

 -- R1 16-2a-10 Value of R for BD/CCE

 blindDetectFactor-r16 INTEGER (1..2) OPTIONAL,

 -- R1 11-2a: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs per span when configured

 -- with DL CA with Rel-16 PDCCH monitoring capability on all the serving cells

 pdcch-MonitoringCA-r16 SEQUENCE {

 maxNumberOfMonitoringCC-r16 INTEGER (2..16),

 supportedSpanArrangement-r16 ENUMERATED {alignedOnly, alignedAndNonAligned}

 } OPTIONAL,

 -- R1 11-2c: Number of carriers for CCE/BD scaling with DL CA with mix of Rel. 16 and Rel. 15 PDCCH monitoring capabilities on

 -- different carriers

 pdcch-BlindDetectionCA-Mixed-r16 SEQUENCE {

 pdcch-BlindDetectionCA1-r16 INTEGER (1..15),

 pdcch-BlindDetectionCA2-r16 INTEGER (1..15),

 supportedSpanArrangement-r16 ENUMERATED {alignedOnly, alignedAndNonAligned}

 } OPTIONAL,

 -- R1 11-2d: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs per span for MCG and for

 -- SCG when configured for NR-DC operation with Rel-16 PDCCH monitoring capability on all the serving cells

 pdcch-BlindDetectionMCG-UE-r16 INTEGER (1..14) OPTIONAL,

 pdcch-BlindDetectionSCG-UE-r16 INTEGER (1..14) OPTIONAL,

 -- R1 11-2e: Number of carriers for CCE/BD scaling for MCG and for SCG when configured for NR-DC operation with mix of Rel. 16 and

 -- Rel. 15 PDCCH monitoring capabilities on different carriers

 pdcch-BlindDetectionMCG-UE-Mixed-r16 SEQUENCE {

 pdcch-BlindDetectionMCG-UE1-r16 INTEGER (0..15),

 pdcch-BlindDetectionMCG-UE2-r16 INTEGER (0..15)

 } OPTIONAL,

 pdcch-BlindDetectionSCG-UE-Mixed-r16 SEQUENCE {

 pdcch-BlindDetectionSCG-UE1-r16 INTEGER (0..15),

 pdcch-BlindDetectionSCG-UE2-r16 INTEGER (0..15)

 } OPTIONAL,

 -- R1 18-5 cross-carrier scheduling with different SCS in DL CA

 crossCarrierSchedulingDL-DiffSCS-r16 ENUMERATED {low-to-high, high-to-low, both} OPTIONAL,

 -- R1 18-5a Default QCL assumption for cross-carrier scheduling

 crossCarrierSchedulingDefaultQCL-r16 ENUMERATED {diff-only, both} OPTIONAL,

 -- R1 18-5b cross-carrier scheduling with different SCS in UL CA

 crossCarrierSchedulingUL-DiffSCS-r16 ENUMERATED {low-to-high, high-to-low, both} OPTIONAL,

 -- R1 13.19a Simultaneous positioning SRS and MIMO SRS transmission for a given BC

 simul-SRS-MIMO-Trans-BC-r16 ENUMERATED {n2} OPTIONAL,

 -- R1 16-3a, 16-3a-1, 16-3b, 16-3b-1: New Individual Codebook

 codebookParametersAdditionPerBC-r16 CodebookParametersAdditionPerBC-r16 OPTIONAL,

 -- R1 16-8: Mixed codebook

 codebookComboParametersAdditionPerBC-r16 CodebookComboParametersAdditionPerBC-r16 OPTIONAL

}

CA-ParametersNR-v1630 ::= SEQUENCE {

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

 -- R1 22-5d: Simultaneous transmission of SRS for antenna switching for inter-band UL CA

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

 -- R4 8-5: supported beam management type for inter-band CA

 beamManagementType-r16 ENUMERATED {ibm, dummy} OPTIONAL,

 -- R4 7-3a: UL frequency separation class with aggregate BW and Gap BW

 intraBandFreqSeparationUL-AggBW-GapBW-r16 ENUMERATED {classI, classII, classIII} OPTIONAL,

 -- RAN 89: Case B in case of Inter-band CA with non-aligned frame boundaries

 interCA-NonAlignedFrame-B-r16 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1640 ::= SEQUENCE {

 -- R4 7-5: Support of reporting UL Tx DC locations for uplink intra-band CA.

 uplinkTxDC-TwoCarrierReport-r16 ENUMERATED {supported} OPTIONAL,

 -- RAN 22-6: Support of up to 3 different numerologies in the same NR PUCCH group for NR part of EN-DC, NGEN-DC, NE-DC and NR-CA

 -- where UE is not configured with two NR PUCCH groups

 maxUpTo3Diff-NumerologiesConfigSinglePUCCH-grp-r16 PUCCH-Grp-CarrierTypes-r16 OPTIONAL,

 -- RAN 22-6a: Support of up to 4 different numerologies in the same NR PUCCH group for NR part of EN-DC, NGEN-DC, NE-DC and NR-CA

 -- where UE is not configured with two NR PUCCH groups

 maxUpTo4Diff-NumerologiesConfigSinglePUCCH-grp-r16 PUCCH-Grp-CarrierTypes-r16 OPTIONAL,

 -- RAN 22-7: Support two PUCCH groups for NR-CA with 3 or more bands with at least two carrier types

 twoPUCCH-Grp-ConfigurationsList-r16 SEQUENCE (SIZE (1..maxTwoPUCCH-Grp-ConfigList-r16)) OF TwoPUCCH-Grp-Configurations-r16 OPTIONAL,

 -- R1 22-7a: Different numerology across NR PUCCH groups

 diffNumerologyAcrossPUCCH-Group-CarrierTypes-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 22-7b: Different numerologies across NR carriers within the same NR PUCCH group, with PUCCH on a carrier of smaller SCS

 diffNumerologyWithinPUCCH-GroupSmallerSCS-CarrierTypes-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 22-7c: Different numerologies across NR carriers within the same NR PUCCH group, with PUCCH on a carrier of larger SCS

 diffNumerologyWithinPUCCH-GroupLargerSCS-CarrierTypes-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 11-2f: add the replicated FGs of 11-2a/c with restriction for non-aligned span case

 -- with DL CA with Rel-16 PDCCH monitoring capability on all the serving cells

 pdcch-MonitoringCA-NonAlignedSpan-r16 INTEGER (2..16) OPTIONAL,

 -- R1 11-2g: add the replicated FGs of 11-2a/c with restriction for non-aligned span case

 pdcch-BlindDetectionCA-Mixed-NonAlignedSpan-r16 SEQUENCE {

 pdcch-BlindDetectionCA1-r16 INTEGER (1..15),

 pdcch-BlindDetectionCA2-r16 INTEGER (1..15)

 } OPTIONAL

}

CA-ParametersNR-v1690 ::= SEQUENCE {

 csi-ReportingCrossPUCCH-Grp-r16 SEQUENCE {

 computationTimeForA-CSI-r16 ENUMERATED {sameAsNoCross, relaxed},

 additionalSymbols-r16 SEQUENCE {

 scs-15kHz-additionalSymbols-r16 ENUMERATED {s14, s28} OPTIONAL,

 scs-30kHz-additionalSymbols-r16 ENUMERATED {s14, s28} OPTIONAL,

 scs-60kHz-additionalSymbols-r16 ENUMERATED {s14, s28, s56} OPTIONAL,

 scs-120kHz-additionalSymbols-r16 ENUMERATED {s14, s28, s56} OPTIONAL

 } OPTIONAL,

 sp-CSI-ReportingOnPUCCH-r16 ENUMERATED {supported} OPTIONAL,

 sp-CSI-ReportingOnPUSCH-r16 ENUMERATED {supported} OPTIONAL,

 carrierTypePairList-r16 SEQUENCE (SIZE (1..maxCarrierTypePairList-r16)) OF CarrierTypePair-r16

 } OPTIONAL

}

CA-ParametersNR-v16a0 ::= SEQUENCE {

 pdcch-BlindDetectionMixedList-r16 SEQUENCE(SIZE(1..maxNrofPdcch-BlindDetectionMixed-1-r16)) OF PDCCH-BlindDetectionMixedList-r16

}

CA-ParametersNR-v1700 ::= SEQUENCE {

 -- R1 23-9-1: Basic Features of Further Enhanced Port-Selection Type II Codebook (FeType-II) per band combination information

 codebookParametersfetype2PerBC-r17 CodebookParametersfetype2PerBC-r17 OPTIONAL,

 -- R4 18-4: Support of enhanced Demodulation requirements for CA in HST SFN FR1

 demodulationEnhancementCA-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 20-1: Maximum uplink duty cycle for NR inter-band CA power class 2

 maxUplinkDutyCycle-interBandCA-PC2-r17 ENUMERATED {n50, n60, n70, n80, n90, n100} OPTIONAL,

 -- R4 20-2: Maximum uplink duty cycle for NR SUL combination power class 2

 maxUplinkDutyCycle-SULcombination-PC2-r17 ENUMERATED {n50, n60, n70, n80, n90, n100} OPTIONAL,

 beamManagementType-CBM-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-18: Parallel PUCCH and PUSCH transmission across CCs in inter-band CA

 parallelTxPUCCH-PUSCH-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 23-9-5 Active CSI-RS resources and ports for mixed codebook types in any slot per band combination

 codebookComboParameterMixedTypePerBC-r17 CodebookComboParameterMixedTypePerBC-r17 OPTIONAL,

 -- R1 23-7-1 Basic Features of CSI Enhancement for Multi-TRP

 mTRP-CSI-EnhancementPerBC-r17 SEQUENCE {

 maxNumNZP-CSI-RS-r17 INTEGER (2..8),

 cSI-Report-mode-r17 ENUMERATED {mode1, mode2, both},

 supportedComboAcrossCCs-r17 SEQUENCE (SIZE (1..16)) OF CSI-MultiTRP-SupportedCombinations-r17,

 codebookMode-NCJT-r17 ENUMERATED{mode1,mode1And2}

 } OPTIONAL,

 -- R1 23-7-1b Active CSI-RS resources and ports in the presence of multi-TRP CSI

 codebookComboParameterMultiTRP-PerBC-r17 CodebookComboParameterMultiTRP-PerBC-r17 OPTIONAL,

 -- R1 24-8b: 32 DL HARQ processes for FR 2-2 - maximum number of component carriers

 maxCC-32-DL-HARQ-ProcessFR2-2-r17 ENUMERATED {n1, n2, n3, n4, n6, n8, n16, n32} OPTIONAL,

 -- R1 24-9b: 32 UL HARQ processes for FR 2-2 - maximum number of component carriers

 maxCC-32-UL-HARQ-ProcessFR2-2-r17 ENUMERATED {n1, n2, n3, n4, n5, n8, n16, n32} OPTIONAL,

 -- R1 34-2: Cross-carrier scheduling from SCell to PCell/PSCell (Type B)

 crossCarrierSchedulingSCell-SpCellTypeB-r17 CrossCarrierSchedulingSCell-SpCell-r17 OPTIONAL,

-- R1 34-1: Cross-carrier scheduling from SCell to PCell/PSCell with search space restrictions (Type A)

 crossCarrierSchedulingSCell-SpCellTypeA-r17 CrossCarrierSchedulingSCell-SpCell-r17 OPTIONAL,

 -- R1 34-1a: DCI formats on PCell/PSCell USS set(s) support

 dci-FormatsPCellPSCellUSS-Sets-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 34-3: Disabling scaling factor alpha when sSCell is deactivated

 disablingScalingFactorDeactSCell-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 34-4: Disabling scaling factor alpha when sSCell is deactivated

 disablingScalingFactorDormantSCell-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 34-5: Non-aligned frame boundaries between PCell/PSCell and sSCell

 non-AlignedFrameBoundaries-r17 SEQUENCE {

 scs15kHz-15kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs15kHz-30kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs15kHz-60kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs30kHz-30kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs30kHz-60kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs60kHz-60kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL

 } OPTIONAL

}

CA-ParametersNR-v1720 ::= SEQUENCE {

 -- R1 39-1: Parallel SRS and PUCCH/PUSCH transmission across CCs in intra-band non-contiguous CA

 parallelTxSRS-PUCCH-PUSCH-intraBand-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 39-2: Parallel PRACH and SRS/PUCCH/PUSCH transmissions across CCs in intra-band non-contiguous CA

 parallelTxPRACH-SRS-PUCCH-PUSCH-intraBand-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 25-9: Semi-static PUCCH cell switching for a single PUCCH group only

 semiStaticPUCCH-CellSwitchSingleGroup-r17 SEQUENCE {

 pucch-Group-r17 ENUMERATED {primaryGroupOnly, secondaryGroupOnly, eitherPrimaryOrSecondaryGroup},

 pucch-Group-Config-r17 PUCCH-Group-Config-r17

 } OPTIONAL,

 -- R1 25-9a: Semi-static PUCCH cell switching for two PUCCH groups

 semiStaticPUCCH-CellSwitchTwoGroups-r17 SEQUENCE (SIZE (1..maxTwoPUCCH-Grp-ConfigList-r17)) OF TwoPUCCH-Grp-Configurations-r17 OPTIONAL,

 -- R1 25-10: PUCCH cell switching based on dynamic indication for same length of overlapping PUCCH slots/sub-slots for a single

 -- PUCCH group only

 dynamicPUCCH-CellSwitchSameLengthSingleGroup-r17 SEQUENCE {

 pucch-Group-r17 ENUMERATED {primaryGroupOnly, secondaryGroupOnly, eitherPrimaryOrSecondaryGroup},

 pucch-Group-Config-r17 PUCCH-Group-Config-r17

 } OPTIONAL,

 -- R1 25-10a: PUCCH cell switching based on dynamic indication for different length of overlapping PUCCH slots/sub-slots

 -- for a single PUCCH group only

 dynamicPUCCH-CellSwitchDiffLengthSingleGroup-r17 SEQUENCE {

 pucch-Group-r17 ENUMERATED {primaryGroupOnly, secondaryGroupOnly, eitherPrimaryOrSecondaryGroup},

 pucch-Group-Config-r17 PUCCH-Group-Config-r17

 } OPTIONAL,

 -- R1 25-10b: PUCCH cell switching based on dynamic indication for same length of overlapping PUCCH slots/sub-slots for two PUCCH

 -- groups

 dynamicPUCCH-CellSwitchSameLengthTwoGroups-r17 SEQUENCE (SIZE (1..maxTwoPUCCH-Grp-ConfigList-r17)) OF TwoPUCCH-Grp-Configurations-r17

 OPTIONAL,

 -- R1 25-10c: PUCCH cell switching based on dynamic indication for different length of overlapping PUCCH slots/sub-slots for two

 -- PUCCH groups

 dynamicPUCCH-CellSwitchDiffLengthTwoGroups-r17 SEQUENCE (SIZE (1..maxTwoPUCCH-Grp-ConfigList-r17)) OF TwoPUCCH-Grp-Configurations-r17

 OPTIONAL,

 -- R1 33-2a: ACK/NACK based HARQ-ACK feedback and RRC-based enabling/disabling ACK/NACK-based

 -- feedback for dynamic scheduling for multicast

 ack-NACK-FeedbackForMulticast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-2d: PTP retransmission for multicast dynamic scheduling

 ptp-Retx-Multicast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-4: NACK-only based HARQ-ACK feedback for RRC-based enabling/disabling multicast with ACK/NACK transforming

 nack-OnlyFeedbackForMulticast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-4a: NACK-only based HARQ-ACK feedback for multicast corresponding to a specific sequence or a PUCCH transmission

 nack-OnlyFeedbackSpecificResourceForMulticast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-5-1a: ACK/NACK based HARQ-ACK feedback and RRC-based enabling/disabling ACK/NACK-based feedback

 -- for SPS group-common PDSCH for multicast

 ack-NACK-FeedbackForSPS-Multicast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-5-1d: PTP retransmission for SPS group-common PDSCH for multicast

 ptp-Retx-SPS-Multicast-r17 ENUMERATED {supported} OPTIONAL,

 -- R4 26-1: Higher Power Limit CA DC

 higherPowerLimit-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 39-4: Parallel MsgA and SRS/PUCCH/PUSCH transmissions across CCs in intra-band non-contiguous CA

 parallelTxMsgA-SRS-PUCCH-PUSCH-intraBand-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 24-11a: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs per span when

 -- configured with DL CA with Rel-17 PDCCH monitoring capability on all the serving cells

 pdcch-MonitoringCA-r17 INTEGER (4..16) OPTIONAL,

 -- R1 24-11f: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs for MCG and for SCG

 -- when configured for NR-DC operation with Rel-17 PDCCH monitoring capability on all the serving cells

 pdcch-BlindDetectionMCG-SCG-List-r17 SEQUENCE(SIZE(1..maxNrofPdcch-BlindDetection-r17)) OF PDCCH-BlindDetectionMCG-SCG-r17

 OPTIONAL,

 -- R1 24-11c: Number of carriers for CCE/BD scaling with DL CA with mix of Rel. 17 and Rel. 15 PDCCH monitoring capabilities on

 -- different Carriers

 -- R1 24-11g: Number of carriers for CCE/BD scaling for MCG and for SCG when configured for NR-DC operation with mix of Rel. 17 and

 -- Rel. 15 PDCCH monitoring capabilities on different carriers

 pdcch-BlindDetectionMixedList1-r17 SEQUENCE(SIZE(1..maxNrofPdcch-BlindDetection-r17)) OF PDCCH-BlindDetectionMixed-r17

 OPTIONAL,

 -- R1 24-11d: Number of carriers for CCE/BD scaling with DL CA with mix of Rel. 17 and Rel. 16 PDCCH monitoring capabilities on

 -- different Carriers

 -- R1 24-11h: Number of carriers for CCE/BD scaling for MCG and for SCG when configured for NR-DC operation with mix of Rel. 17 and

 -- Rel. 16 PDCCH monitoring capabilities on different carriers

 pdcch-BlindDetectionMixedList2-r17 SEQUENCE(SIZE(1..maxNrofPdcch-BlindDetection-r17)) OF PDCCH-BlindDetectionMixed-r17

 OPTIONAL,

 -- R1 24-11e: Number of carriers for CCE/BD scaling with DL CA with mix of Rel. 17, Rel. 16 and Rel. 15 PDCCH monitoring

 -- capabilities on different carriers

 -- R1 24-11i: Number of carriers for CCE/BD scaling for MCG and for SCG when configured for NR-DC operation with mix of Rel. 17,

 -- Rel. 16 and Rel. 15 PDCCH monitoring capabilities on different carriers

 pdcch-BlindDetectionMixedList3-r17 SEQUENCE(SIZE(1..maxNrofPdcch-BlindDetection-r17)) OF PDCCH-BlindDetectionMixed1-r17

 OPTIONAL

}

CA-ParametersNR-v1730 ::= SEQUENCE {

 -- R1 30-4a: DM-RS bundling for PUSCH repetition type A (per BC)

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

 -- R1 30-4b: DM-RS bundling for PUSCH repetition type B(per BC)

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

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

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

 -- R1 30-4d: DMRS bundling for PUCCH repetitions(per BC)

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

 -- R1 30-4g: Restart DM-RS bundling (per BC)

 dmrs-BundlingRestartPerBC-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 30-4h: DM-RS bundling for non-back-to-back transmission (per BC)

 dmrs-BundlingNonBackToBackTX-PerBC-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 39-3-1: Stay on the target CC for SRS carrier switching

 stayOnTargetCC-SRS-CarrierSwitch-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-3-3a: FDM-ed Type-1 and Type-2 HARQ-ACK codebooks for multiplexing HARQ-ACK for unicast and HARQ-ACK for multicast

 fdm-CodebookForMux-UnicastMulticastHARQ-ACK-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-3-3b: Mode 2 TDM-ed Type-1 and Type-2 HARQ-ACK codebook for multiplexing HARQ-ACK for unicast and HARQ-ACK for multicast

 mode2-TDM-CodebookForMux-UnicastMulticastHARQ-ACK-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-3-4: Mode 1 for type1 codebook generation

 mode1-ForType1-CodebookGeneration-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-5-1j: NACK-only based HARQ-ACK feedback for multicast corresponding to a specific sequence or a PUCCH transmission

 -- for SPS group-commmon PDSCH for multicast

 nack-OnlyFeedbackSpecificResourceForSPS-Multicast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-8-2: Up to 2 PUCCH resources configuration for multicast feedback for dynamically scheduled multicast

 multiPUCCH-ConfigForMulticast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-8-3: PUCCH resource configuration for multicast feedback for SPS GC-PDSCH

 pucch-ConfigForSPS-Multicast-r17 ENUMERATED {supported} OPTIONAL,

 -- The following parameter is associated with R1 33-2a, R1 33-3-3a, and R1 33-3-3b, and is not a RAN1 FG.

 maxNumberG-RNTI-HARQ-ACK-Codebook-r17 INTEGER (1..4) OPTIONAL,

 -- R1 33-3-5: Feedback multiplexing for unicast PDSCH and group-common PDSCH for multicast with same priority and different codebook

 -- type

 mux-HARQ-ACK-UnicastMulticast-r17 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1740 ::= SEQUENCE {

 -- R1 33-5-1f: NACK-only based HARQ-ACK feedback for multicast RRC-based enabling/disabling NACK-only based feedback

 -- for SPS group-common PDSCH for multicast

 nack-OnlyFeedbackForSPS-Multicast-r17 ENUMERATED {supported} OPTIONAL,

 -- R1 33-8-1: PUCCH resource configuration for multicast feedback for dynamically scheduled multicast

 singlePUCCH-ConfigForMulticast-r17 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1760 ::= SEQUENCE {

 prioSCellPRACH-OverSP-PeriodicSRS-Support-r17 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1770 ::= SEQUENCE {

 parallelTxPUCCH-PUSCH-SamePriority-r17 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v1780 ::= SEQUENCE {

 parallelTxPUCCH-PUSCH-SamePriority-r17 ENUMERATED {supported} OPTIONAL,

 supportedAggBW-FR1-r17 SEQUENCE {

 scalingFactorSCS-r17 ENUMERATED {true} OPTIONAL,

 supportedAggBW-FDD-DL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 supportedAggBW-FDD-UL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 supportedAggBW-TDD-DL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 supportedAggBW-TDD-UL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 supportedAggBW-TotalDL-r17 SupportedAggBandwidth-r17 OPTIONAL,

 supportedAggBW-TotalUL-r17 SupportedAggBandwidth-r17 OPTIONAL

 } OPTIONAL

}

CA-ParametersNR-v1800 ::= SEQUENCE {

 codebookParametersetype2DopplerCSI-PerBC-r18 CodebookParametersetype2DopplerCSI-r18 OPTIONAL,

 codebookParametersfetype2DopplerCSI-PerBC-r18 CodebookParametersfetype2DopplerCSI-r18 OPTIONAL,

 codebookParametersetype2CJT-PerBC-r18 CodebookParametersetype2CJT-r18 OPTIONAL,

 codebookParametersfetype2CJT-PerBC-r18 CodebookParametersfetype2CJT-r18 OPTIONAL,

 codebookComboParametersCJT-PerBC-r18 CodebookComboParametersCJT-r18 OPTIONAL,

 codebookParametersHARQ-ACK-PUSCH-PerBC-r18 CodebookParametersHARQ-ACK-PUSCH-r18 OPTIONAL,

 -- R1 40-2-8: Maximum number of TAGs across all CCs

 maxNumberTAG-AcrossCC-r18 INTEGER (2..4) OPTIONAL,

 -- R1 40-3-3-1: TDCP (Time Domain Channel Properties) report

 tdcp-ReportPerBC-r18 SEQUENCE {

 valueX-r18 INTEGER (1..2),

 maxNumberActiveResource-r18 INTEGER (2..32)

 } OPTIONAL,

 -- R1 40-3-3-5: Number of CSI-RS resources for TDCP

 tdcp-ResourcePerBC-r18 SEQUENCE {

 maxNumberConfigPerCC-r18 ENUMERATED {n2,n4,n6,n8,n10,n12},

 maxNumberConfigAcrossCC-r18 INTEGER (1..32),

 maxNumberSimultaneousPerCC-r18 ENUMERATED {n2, n4, n6, n8, n12, n16, n20, n24, n28, n32}

 } OPTIONAL,

 -- R1 40-3-1-24: Timeline for regular eType-II-CJT CSI, or for port selection FeType-II-CJT CSI

 timelineRelax-CJT-CSI-CA-r18 ENUMERATED {n0,n2} OPTIONAL,

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

 spatialAdaptation-CSI-FeedbackPerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 SEQUENCE {

 sdType1-Resource-r18 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},

 sdType2-Resource-r18 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}

 },

 maxNumberPortsAcrossCC-r18 SEQUENCE {

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

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

 }

 } OPTIONAL,

 -- R1 40-7-2a: Association between CSI-RS and SRS for non-codebook case

 nonCodebook-CSI-RS-SRS-PerBC-r18 SEQUENCE (SIZE (1.. maxNrofCSI-RS-Resources)) OF SupportedCSI-RS-Resource 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-PerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 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},

 maxNumberPortsAcrossCC-r18 INTEGER (1..32)

 } OPTIONAL,

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

 spatialAdaptation-CSI-FeedbackAperiodicPerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 SEQUENCE {

 sdType1-Resource-r18 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},

 sdType2-Resource-r18 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}

 },

 maxNumberPortsAcrossCC-r18 SEQUENCE {

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

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

 } 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-PerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 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},

 maxNumberPortsAcrossCC-r18 INTEGER (1..32)

 } OPTIONAL,

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

 powerAdaptation-CSI-FeedbackPerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 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},

 maxNumberPortsAcrossCC-r18 INTEGER (1..32)

 } OPTIONAL,

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

 powerAdaptation-CSI-FeedbackPUSCH-PerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 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},

 maxNumberPortsAcrossCC-r18 INTEGER (1..32)

 } OPTIONAL,

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

 powerAdaptation-CSI-FeedbackAperiodicPerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 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},

 maxNumberPortsAcrossCC-r18 INTEGER (1..32)

 } OPTIONAL,

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

 -- reporting on PUCCH

 powerAdaptation-CSI-FeedbackPUCCH-PerBC-r18 SEQUENCE {

 maxNumberCSI-ResourceAcrossCC-r18 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},

 maxNumberPortsAcrossCC-r18 INTEGER (1..32)

 } 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

 mixCodeBookSpatialAdaptationPerBC-r18 SEQUENCE (SIZE (1.. maxNrofCSI-RS-Resources)) OF SupportedCSI-RS-Resource OPTIONAL,

 -- R1 42-9: Indicates whether the UE supports CSI report framework and the number of CSI report(s) which the UE can

 -- simultaneously process across all CCs, and across MCG and SCG in case of NR-DC.

 simultaneousCSI-SubReportsAllCC-r18 INTEGER (5..32) OPTIONAL,

 -- R1 49-1: Multi-cell PDSCH scheduling by DCI format 1\_3 on a scheduling cell with same SCS between scheduling

 -- cell and cells in the set

 multiCell-PDSCH-DCI-1-3-SameSCS-r18 SEQUENCE {

 coScheduledCellSCS-r18 SEQUENCE {

 nonSharedSpectrum-fdd-fr1 ENUMERATED {supported} OPTIONAL,

 nonSharedSpectrum-tdd-fr1 ENUMERATED {supported} OPTIONAL,

 sharedSpectrum-tdd-fr1 ENUMERATED {supported} OPTIONAL,

 fr2-1 ENUMERATED {supported} OPTIONAL,

 fr2-2 ENUMERATED {supported} OPTIONAL

 },

 maxNumberCoScheduledCell-r18 INTEGER (2..4),

 maxNumberSetsOfCellAcrossPUCCH-Group-r18 INTEGER (1..8),

 maxNumberSetsOfCellScheduling-r18 INTEGER (1..4),

 harqFeedbackType-r18 ENUMERATED {type1, type2, type1And2},

 coScheduledCellIndicationScheme-r18 ENUMERATED {fdra,cellInd, both},

 supportOfSearchSpace-r18 ENUMERATED {supported} OPTIONAL,

 licensed-fdd-tdd-fr1-r18 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 -- R1 49-1b: Multi-cell PDSCH scheduling by DCI format 1\_3 on a scheduling cell not included in a set of cells with different

 -- SCS/carrier type between scheduling cell and cells in the set

 multiCell-PDSCH-DCI-1-3-DiffSCS-r18 SEQUENCE {

 coScheduledCellSCS-r18 ENUMERATED {lowScheduling-highScheduled, highScheduling-lowScheduled, both},

 combinationCarrierType-r18 SEQUENCE (SIZE(1..maxSchedulingBandCombination-r18)) OF

 CombinationCarrierType-r18,

 maxNumberCoScheduledCell-r18 INTEGER (2..4),

 maxNumberSetsOfCellAcrossPUCCH-Group-r18 INTEGER (1..8),

 maxNumberSetsOfCellScheduling-r18 INTEGER (1..4),

 harqFeedbackType-r18 ENUMERATED {type1, type2, type1And2},

 coScheduledCellIndicationScheme-r18 ENUMERATED {fdra,cellInd, both}

 } OPTIONAL,

 -- R1 49-2: Multi-cell PUSCH scheduling by DCI format 0\_3 on a scheduling cell with same SCS between scheduling cell

 -- and cells in the set

 multiCell-PUSCH-DCI-0-3-SameSCS-r18 SEQUENCE {

 coScheduledCellSCS-r18 SEQUENCE {

 nonSharedSpectrum-fdd-fr1 ENUMERATED {supported} OPTIONAL,

 nonSharedSpectrum-tdd-fr1 ENUMERATED {supported} OPTIONAL,

 sharedSpectrum-tdd-fr1 ENUMERATED {supported} OPTIONAL,

 fr2-1 ENUMERATED {supported} OPTIONAL,

 fr2-2 ENUMERATED {supported} OPTIONAL

 }, maxNumberCoScheduledCell-r18 INTEGER (2..4),

 maxNumberSetsOfCellAcrossPUCCH-Group-r18 INTEGER (1..8),

 maxNumberSetsOfCellScheduling-r18 INTEGER (1..4),

 coScheduledCellIndicationScheme-r18 ENUMERATED {fdra,cellInd, both},

 supportOfSearchSpace-r18 ENUMERATED {supported} OPTIONAL,

 licensed-fdd-tdd-fr1-r18 ENUMERATED {supported} OPTIONAL

 } OPTIONAL,

 -- R1 49-2b: Multi-cell PUSCH scheduling by DCI format 0\_3 on a scheduling cell not included in a set of cells with

 -- different SCS/carrier type between scheduling cell and cells in the set

 multiCell-PUSCH-DCI-0-3-DiffSCS-r18 SEQUENCE {

 coScheduledCellSCS-r18 ENUMERATED {lowScheduling-highScheduled, highScheduling-lowScheduled, both},

 combinationCarrierType-r18 SEQUENCE (SIZE(1..maxSchedulingBandCombination-r18)) OF

 CombinationCarrierType-r18,

 maxNumberCoScheduledCell-r18 INTEGER (2..4),

 maxNumberSetsOfCellAcrossPUCCH-Group-r18 INTEGER (1..8),

 maxNumberSetsOfCellScheduling-r18 INTEGER (1..4),

 coScheduledCellIndicationScheme-r18 ENUMERATED {fdra,cellInd, both}

 } OPTIONAL,

 -- R1 49-3x: Advanced UE capability for larger number of unicast DL DCI

 advUnicastDCI-DL-r18 SEQUENCE {

 scs-15kHz-120kHz-r18 ENUMERATED {n2, n4} OPTIONAL,

 scs-15kHz-60kHz-r18 ENUMERATED {n2, n4} OPTIONAL,

 scs-30kHz-120kHz-r18 ENUMERATED {n2, n4} OPTIONAL,

 scs-15kHz-30kHz-r18 ENUMERATED {n2} OPTIONAL,

 scs-30kHz-60kHz-r18 ENUMERATED {n2} OPTIONAL,

 scs-60kHz-120kHz-r18 ENUMERATED {n2} OPTIONAL

 } OPTIONAL,

 -- R1 49-3y: Advanced UE capability for larger number of unicast UL DCI

 advUnicastDCI-UL-r18 SEQUENCE {

 scs-15kHz-120kHz-r18 ENUMERATED {n2, n4} OPTIONAL,

 scs-15kHz-60kHz-r18 ENUMERATED {n2, n4} OPTIONAL,

 scs-30kHz-120kHz-r18 ENUMERATED {n2, n4} OPTIONAL,

 scs-15kHz-30kHz-r18 ENUMERATED {n2} OPTIONAL,

 scs-30kHz-60kHz-r18 ENUMERATED {n2} OPTIONAL,

 scs-60kHz-120kHz-r18 ENUMERATED {n2} OPTIONAL

 } OPTIONAL,

 -- R1 49-5a: Trigger Type 3 HARQ CB based feedback using DCI format 1\_3

 type3HARQ-CB-DCI-1-3-r18 ENUMERATED {supported} OPTIONAL,

 -- R1 49-5b: Trigger enhanced Type 3 HARQ CB based feedback using DCI format 1\_3

 type3EnhHARQ-CB-DCI-1-3-r18 SEQUENCE {

 numberOfCodebook-r18 ENUMERATED {n1, n2, n4, n8},

 maxNumberPUCCH-Trans-r18 INTEGER (1..7)

 } OPTIONAL,

 -- R1 49-9: SCell dormancy indication within active time in DCI format 0\_3/1\_3

 scellDormancyWithinActiveTime-DCI-0-3-And-1-3-r18 ENUMERATED {supported} OPTIONAL,

 pdcch-MonitoringCA-Ext-r18 CHOICE {

 -- R1 55-6a: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs per span when

 -- configured with DL CA with Rel-16 PDCCH monitoring capability on all the serving cells

 pdcch-MonitoringCA-r18 SEQUENCE {

 maxNumberOfMonitoringCC-r18 INTEGER (2..16),

 supportedSpanArrangement-r18 ENUMERATED {alignedOnly, alignedAndNonAligned}

 },

 -- R1 55-6f: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs per span when

 -- configured with DL CA with Rel-16 PDCCH monitoring capability on all the serving cells with restriction for non-aligned

 -- span case

 pdcch-MonitoringCA-NonAlignedSpan-r18 INTEGER (2..16)

 } OPTIONAL,

 pdcch-BlindDetectionCA-MixedExt-r18 CHOICE {

 -- R1 55-6c: Number of carriers for CCE/BD scaling with DL CA with mix of Rel. 16 and Rel. 15 PDCCH monitoring capabilities on

 -- different carriers

 pdcch-BlindDetectionCA-Mixed-r18 SEQUENCE {

 blindDetectionCA-Mixed-r18 SEQUENCE(SIZE (1..maxNrofPdcch-BlindDetectionMixed-1-r16)) OF

 PDCCH-BlindDetectionCA-MixedExt-r16,

 supportedSpanArrangement-r18 ENUMERATED{ alignedOnly, alignedAndNonAligned }

 },

 -- R1 55-6g: Number of carriers for CCE/BD scaling with DL CA with mix of Rel. 16 and Rel. 15 PDCCH monitoring capabilities on

 -- different carriers with restriction for non-aligned span case

 pdcch-BlindDetectionCA-Mixed-NonAlignedSpan-r18 SEQUENCE(SIZE (1..maxNrofPdcch-BlindDetectionMixed-1-r16)) OF

 PDCCH-BlindDetectionCA-MixedExt-r16

 } OPTIONAL,

 -- R1 55-6e: Number of carriers for CCE/BD scaling for MCG and for SCG when configured for NR-DC operation with mix of Rel. 16

 -- and Rel. 15 PDCCH monitoring capabilities on different carriers

 pdcch-BlindDetectionMCG-SCG-List-r18 SEQUENCE(SIZE (1..maxNrofPdcch-BlindDetectionMixed-1-r16)) OF

 PDCCH-BlindDetectionMixed2-r18 OPTIONAL,

 -- R4 33-1: Support of intra-band non-collocated NR CA operation

 intraBandNR-CA-non-collocated-r18 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNR-v18xy ::= SEQUENCE {

 parallelTxSRS-PUCCH-PUSCH-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxPRACH-SRS-PUCCH-PUSCH-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxMsgA-SRS-PUCCH-PUSCH-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxPUCCH-PUSCH-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxSRS-PUCCH-PUSCH-intraBand-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxPRACH-SRS-PUCCH-PUSCH-intraBand-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxMsgA-SRS-PUCCH-PUSCH-intraBand-FR2-r18 ENUMERATED {supported} OPTIONAL,

 parallelTxPUCCH-PUSCH-SamePriority-FR2-r18 ENUMERATED {supported} OPTIONAL

}

CrossCarrierSchedulingSCell-SpCell-r17 ::= SEQUENCE {

 supportedSCS-Combinations-r17 SEQUENCE {

 scs15kHz-15kHz-r17 ENUMERATED {supported} OPTIONAL,

 scs15kHz-30kHz-r17 ENUMERATED {supported} OPTIONAL,

 scs15kHz-60kHz-r17 ENUMERATED {supported} OPTIONAL,

 scs30kHz-30kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs30kHz-60kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL,

 scs60kHz-60kHz-r17 BIT STRING (SIZE (1..496)) OPTIONAL

 },

 pdcch-MonitoringOccasion-r17 ENUMERATED {val1, val2}

}

PDCCH-BlindDetectionMixedList-r16::= SEQUENCE {

 pdcch-BlindDetectionCA-MixedExt-r16 CHOICE {

 pdcch-BlindDetectionCA-Mixed-v16a0 PDCCH-BlindDetectionCA-MixedExt-r16,

 pdcch-BlindDetectionCA-Mixed-NonAlignedSpan-v16a0 PDCCH-BlindDetectionCA-MixedExt-r16

 } OPTIONAL,

 pdcch-BlindDetectionCG-UE-MixedExt-r16 SEQUENCE{

 pdcch-BlindDetectionMCG-UE-Mixed-v16a0 PDCCH-BlindDetectionCG-UE-MixedExt-r16,

 pdcch-BlindDetectionSCG-UE-Mixed-v16a0 PDCCH-BlindDetectionCG-UE-MixedExt-r16

 } OPTIONAL

}

PDCCH-BlindDetectionCA-MixedExt-r16 ::= SEQUENCE {

 pdcch-BlindDetectionCA1-r16 INTEGER (1..15),

 pdcch-BlindDetectionCA2-r16 INTEGER (1..15)

}

PDCCH-BlindDetectionCG-UE-MixedExt-r16 ::= SEQUENCE {

 pdcch-BlindDetectionCG-UE1-r16 INTEGER (0..15),

 pdcch-BlindDetectionCG-UE2-r16 INTEGER (0..15)

}

PDCCH-BlindDetectionMCG-SCG-r17 ::= SEQUENCE {

 pdcch-BlindDetectionMCG-UE-r17 INTEGER (1..15),

 pdcch-BlindDetectionSCG-UE-r17 INTEGER (1..15)

}

PDCCH-BlindDetectionMixed-r17::= SEQUENCE {

 pdcch-BlindDetectionCA-Mixed-r17 PDCCH-BlindDetectionCA-Mixed-r17 OPTIONAL,

 pdcch-BlindDetectionCG-UE-Mixed-r17 SEQUENCE{

 pdcch-BlindDetectionMCG-UE-Mixed-v17 PDCCH-BlindDetectionCG-UE-Mixed-r17,

 pdcch-BlindDetectionSCG-UE-Mixed-v17 PDCCH-BlindDetectionCG-UE-Mixed-r17

 } OPTIONAL

}

PDCCH-BlindDetectionCG-UE-Mixed-r17 ::= SEQUENCE {

 pdcch-BlindDetectionCG-UE1-r17 INTEGER (0..15),

 pdcch-BlindDetectionCG-UE2-r17 INTEGER (0..15)

}

PDCCH-BlindDetectionCA-Mixed-r17 ::= SEQUENCE {

 pdcch-BlindDetectionCA1-r17 INTEGER (1..15) OPTIONAL,

 pdcch-BlindDetectionCA2-r17 INTEGER (1..15) OPTIONAL

}

PDCCH-BlindDetectionMixed1-r17::= SEQUENCE {

 pdcch-BlindDetectionCA-Mixed1-r17 PDCCH-BlindDetectionCA-Mixed1-r17 OPTIONAL,

 pdcch-BlindDetectionCG-UE-Mixed1-r17 SEQUENCE{

 pdcch-BlindDetectionMCG-UE-Mixed1-v17 PDCCH-BlindDetectionCG-UE-Mixed1-r17,

 pdcch-BlindDetectionSCG-UE-Mixed1-v17 PDCCH-BlindDetectionCG-UE-Mixed1-r17

 } OPTIONAL

}

PDCCH-BlindDetectionCG-UE-Mixed1-r17 ::= SEQUENCE {

 pdcch-BlindDetectionCG-UE1-r17 INTEGER (0..15),

 pdcch-BlindDetectionCG-UE2-r17 INTEGER (0..15),

 pdcch-BlindDetectionCG-UE3-r17 INTEGER (0..15)

}

PDCCH-BlindDetectionCA-Mixed1-r17 ::= SEQUENCE {

 pdcch-BlindDetectionCA1-r17 INTEGER (1..15) OPTIONAL,

 pdcch-BlindDetectionCA2-r17 INTEGER (1..15) OPTIONAL,

 pdcch-BlindDetectionCA3-r17 INTEGER (1..15) OPTIONAL

}

PDCCH-BlindDetectionMixed2-r18 ::= SEQUENCE{

 pdcch-BlindDetectionMCG-UE-Mixed-r18 PDCCH-BlindDetectionCG-UE-MixedExt-r16,

 pdcch-BlindDetectionSCG-UE-Mixed-r18 PDCCH-BlindDetectionCG-UE-MixedExt-r16

}

SimulSRS-ForAntennaSwitching-r16 ::= SEQUENCE {

 supportSRS-xTyR-xLessThanY-r16 ENUMERATED {supported} OPTIONAL,

 supportSRS-xTyR-xEqualToY-r16 ENUMERATED {supported} OPTIONAL,

 supportSRS-AntennaSwitching-r16 ENUMERATED {supported} OPTIONAL

}

TwoPUCCH-Grp-Configurations-r16 ::= SEQUENCE {

 pucch-PrimaryGroupMapping-r16 TwoPUCCH-Grp-ConfigParams-r16,

 pucch-SecondaryGroupMapping-r16 TwoPUCCH-Grp-ConfigParams-r16

}

TwoPUCCH-Grp-Configurations-r17 ::= SEQUENCE {

 primaryPUCCH-GroupConfig-r17 PUCCH-Group-Config-r17,

 secondaryPUCCH-GroupConfig-r17 PUCCH-Group-Config-r17

}

TwoPUCCH-Grp-ConfigParams-r16 ::= SEQUENCE {

 pucch-GroupMapping-r16 PUCCH-Grp-CarrierTypes-r16,

 pucch-TX-r16 PUCCH-Grp-CarrierTypes-r16

}

CarrierTypePair-r16 ::= SEQUENCE {

 carrierForCSI-Measurement-r16 PUCCH-Grp-CarrierTypes-r16,

 carrierForCSI-Reporting-r16 PUCCH-Grp-CarrierTypes-r16

}

PUCCH-Grp-CarrierTypes-r16 ::= SEQUENCE {

 fr1-NonSharedTDD-r16 ENUMERATED {supported} OPTIONAL,

 fr1-SharedTDD-r16 ENUMERATED {supported} OPTIONAL,

 fr1-NonSharedFDD-r16 ENUMERATED {supported} OPTIONAL,

 fr2-r16 ENUMERATED {supported} OPTIONAL

}

PUCCH-Group-Config-r17 ::= SEQUENCE {

 fr1-FR1-NonSharedTDD-r17 ENUMERATED {supported} OPTIONAL,

 fr2-FR2-NonSharedTDD-r17 ENUMERATED {supported} OPTIONAL,

 fr1-FR2-NonSharedTDD-r17 ENUMERATED {supported} OPTIONAL

}

CombinationCarrierType-r18 ::= SEQUENCE {

 schedulingCellCarrierType-r18 ENUMERATED {licensed-fdd-fr1, licensed-tdd-fr1, unlicensed-tdd-fr1, fr2-1, fr2-2},

 scheduledCellCarrierType-r18 ENUMERATED {licensed-fdd-fr1, licensed-tdd-fr1, unlicensed-tdd-fr1, fr2-1, fr2-2}

}

-- TAG-CA-PARAMETERSNR-STOP

-- ASN1STOP

|  |
| --- |
| *CA-ParametersNR* field description |
| ***codebookParametersPerBC***For a given supported band combination, this field indicates the alternative list of *SupportedCSI-RS-Resource* supported for each codebook type, amongst the supported CSI-RS resources included in *codebookParametersPerBand* in *MIMO-ParametersPerBand*. |

#### – *CA-ParametersNRDC*

The IE *CA-ParametersNRDC* contains dual connectivity related capabilities that are defined per band combination.

*CA-ParametersNRDC* information element

-- ASN1START

-- TAG-CA-PARAMETERS-NRDC-START

CA-ParametersNRDC ::= SEQUENCE {

 ca-ParametersNR-ForDC CA-ParametersNR OPTIONAL,

 ca-ParametersNR-ForDC-v1540 CA-ParametersNR-v1540 OPTIONAL,

 ca-ParametersNR-ForDC-v1550 CA-ParametersNR-v1550 OPTIONAL,

 ca-ParametersNR-ForDC-v1560 CA-ParametersNR-v1560 OPTIONAL,

 featureSetCombinationDC FeatureSetCombinationId OPTIONAL

}

CA-ParametersNRDC-v15g0 ::= SEQUENCE {

 ca-ParametersNR-ForDC-v15g0 CA-ParametersNR-v15g0 OPTIONAL

}

CA-ParametersNRDC-v1610 ::= SEQUENCE {

 -- R1 18-1: Semi-static power sharing mode1 between MCG and SCG cells of same FR for NR dual connectivity

 intraFR-NR-DC-PwrSharingMode1-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-1a: Semi-static power sharing mode 2 between MCG and SCG cells of same FR for NR dual connectivity

 intraFR-NR-DC-PwrSharingMode2-r16 ENUMERATED {supported} OPTIONAL,

 -- R1 18-1b: Dynamic power sharing between MCG and SCG cells of same FR for NR dual connectivity

 intraFR-NR-DC-DynamicPwrSharing-r16 ENUMERATED {short, long} OPTIONAL,

 asyncNRDC-r16 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNRDC-v1630 ::= SEQUENCE {

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

 ca-ParametersNR-ForDC-v1630 CA-ParametersNR-v1630 OPTIONAL

}

CA-ParametersNRDC-v1640 ::= SEQUENCE {

 ca-ParametersNR-ForDC-v1640 CA-ParametersNR-v1640 OPTIONAL

}

CA-ParametersNRDC-v1650 ::= SEQUENCE {

 supportedCellGrouping-r16 BIT STRING (SIZE (1..maxCellGroupings-r16)) OPTIONAL

}

CA-ParametersNRDC-v16a0 ::= SEQUENCE {

 ca-ParametersNR-ForDC-v16a0 CA-ParametersNR-v16a0 OPTIONAL

}

CA-ParametersNRDC-v1700 ::= SEQUENCE {

 -- R1 31-9: Indicates the support of simultaneous transmission and reception of an IAB-node from multiple parent nodes

 simultaneousRxTx-IAB-MultipleParents-r17 ENUMERATED {supported} OPTIONAL,

 condPSCellAdditionNRDC-r17 ENUMERATED {supported} OPTIONAL,

 scg-ActivationDeactivationNRDC-r17 ENUMERATED {supported} OPTIONAL,

 scg-ActivationDeactivationResumeNRDC-r17 ENUMERATED {supported} OPTIONAL,

 beamManagementType-CBM-r17 ENUMERATED {supported} OPTIONAL

}

CA-ParametersNRDC-v1720 ::= SEQUENCE {

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

 ca-ParametersNR-ForDC-v1720 CA-ParametersNR-v1720 OPTIONAL

}

CA-ParametersNRDC-v1730 ::= SEQUENCE {

 ca-ParametersNR-ForDC-v1730 CA-ParametersNR-v1730 OPTIONAL

}

CA-ParametersNRDC-v1760 ::= SEQUENCE {

 ca-ParametersNR-ForDC-v1760 CA-ParametersNR-v1760

}

CA-ParametersNRDC-v1780 ::= SEQUENCE {

 ca-ParametersNR-ForDC-v1780 CA-ParametersNR-v1780 OPTIONAL

}

CA-ParametersNRDC-v1800 ::= SEQUENCE {

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

 -- R1 55-6d: Capability on the number of CCs for monitoring a maximum number of BDs and non-overlapped CCEs per span for MCG and for

 -- SCG when configured for NR-DC operation with Rel-16 PDCCH monitoring on all the serving cells

 pdcch-BlindDetectionNRDC-r18 SEQUENCE(SIZE (1..maxNrofPdcch-BlindDetectionMixed-1-r16)) OF

 PDCCH-BlindDetectionMixed1-r18 OPTIONAL

}

CA-ParametersNRDC-v18xy ::= SEQUENCE {

 ca-ParametersNR-ForDC-v18xy CA-ParametersNR-v18xy OPTIONAL

}

PDCCH-BlindDetectionMixed1-r18::= SEQUENCE {

 pdcch-BlindDetectionCG-UE-Mixed-r18 SEQUENCE{

 pdcch-BlindDetectionMCG-UE-Mixed-r18 INTEGER (1..15),

 pdcch-BlindDetectionSCG-UE-Mixed-r18 INTEGER (1..15)

 }

}

-- TAG-CA-PARAMETERS-NRDC-STOP

-- ASN1STOP

|  |
| --- |
| *CA-ParametersNRDC* field descriptions |
| ***ca-ParametersNR-forDC (with and without suffix)***If this field is present for a band combination, it reports the UE capabilities when NR-DC is configured with the band combination. If a version of this field (i.e., with or without suffix) is absent for a band combination, the corresponding *ca-ParametersNR* field version in *BandCombination* is applicable to the UE configured with NR-DC for the band combination. If a version of this field (i.e., with or without suffix) is present for a band combination but does not contain any parameters, the UE does not support the corresponding field version when configured with NR-DC for the band combination. |
| ***featureSetCombinationDC***If this field is present for a band combination, it reports the feature set combination supported for the band combination when NR-DC is configured. If this field is absent for a band combination, the *featureSetCombination* in *BandCombination* (without suffix) is applicable to the UE configured with NR-DC for the band combination. |

END OF SECOND CHANGE

START OF THIRD CHANGE

#### – *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

 ]],

 [[

 supportedBandCombinationList-v18xy BandCombinationList-v18xy OPTIONAL,

 supportedBandCombinationList-UplinkTxSwitch-v18xy BandCombinationList-UplinkTxSwitch-v18xy OPTIONAL

 ]]

}

END OF THIRD CHANGE