**3GPP TSG- Meeting # 110-e *Draft* R2-2005768**

**Electronic, 1– 12 June 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | General changes resulting from ASN.1 review for LTE RRC REL-16 | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
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| ***Work item code:*** | TEI16 | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | REL-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | The changes included in this draft CR aim to resolve a remaining issues from ASN.1 review: S008 | | | | | | | | |
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| ***Summary of change:*** | | The CR includes several general changes resulting from ASN.1 review that were agreed during ASN.1 review for 36.331 R16 (other changes will be included in WI specific CRs)  Change for the following class 2 issues concluded during phase 1   * MIMO/ WB PRG: N018 * HST: N010 * Navic: Q601, Q602 * TerrBcast: B003   Change for the following class 0/1 issues concluded during phase 1   * Remove the redundant bullet in 5.3.12:   3> release rrc-InactiveConfig, if configured;   * Change the field from UL-DelayValueConfig to ul-DelayValueConfig in 5.5.3.1. * Add the Need code “Need OR” for for field mbsfn-AreaInfoList-r16 in SystemInformationBlockType13-r9. * Remove the suffix of smtc2-LP-r16 in the field descriptions for SystemInformationBlockType24. * Change the value *x60* to *x70* to align with ASN.1 value. * Remove the redundant IE in the heading text for UL-DelayValueConfig. * Suffix for field and IEs for irat-ParametersNR-r16 and IRAT-ParametersNR-r16 are changed to “-v16xy” and OPTIONAL on parent level is removed as IE consists of a single entry. * Add the contents of table for FailureInformation2, SidelinkUEInformationNR and UEAssistanceInformationNR in the table for A.6 Protection of RRC messages (informative). * Apply the italic for MeasurementReport and FailureInformation in the field description for ul-DCCH-MessageNR. * Add the hyphen and apply the italics for rachReport in the field description for *rach-Report.*   Other changes   * Adding SetupRelease paramterised type   Further changes introduced in r1 (R2   * Value R16 introduced for access stratum release and UE config release * Adding guidelines for SetupRelease paramterised type (S008), TP in R2-2005292 with some changes * Add the R16 extensions to the paging record (accessType, mt-EDT) by a parallel list (aspect of B100) * Capture minor issue 91 * Correctly apply SetupRelease for SoundingRS-UL-ConfigDedicatedAdd and UplinkPowerControlAddSRS-r16 * Correct need code for highSpeedEnhMeasFlagSCell-r16 to ON * For extension of CarrierFreqNR in SIB24 (size critical) use a parallel list (B101) | | | | | | | | |
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| ***Consequences if not approved:*** | | General changes resulting from ASN.1 review are not captured | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.12, 5.5.3.1, 6.2.2, 6.3.0,6.3.2, 6.3.5, 6.3.7, A.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Changes to A.6 depend on outcome of discussion on other general discussions (may need to be revised/ or better captured elsewhere)   * eMob: FailureInformation2 * V2X: SidelinkUEInformationNR, UEAssistanceInformationNR | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision of R2-2005287 | | | | | | | | |

5.3.10.3 DRB addition/ modification

The UE shall:

1> for each *drb-Identity* value included in the *drb-ToAddModList* that is not part of the current UE configuration (DRB establishment including the case when full configuration option is used):

2> if the concerned entry of *drb-ToAddModList* includes the *drb-TypeLWA* set to *TRUE* (i.e. add LWA DRB):

3> perform the LWA specific DRB addition or reconfiguration as specified in 5.3.10.3a2;

2> if the concerned entry of *drb-ToAddModList* includes the *drb-TypeLWIP* (i.e. add LWIP DRB):

3> perform LWIP specific DRB addition or reconfiguration as specified in 5.3.10.3a3;

2> else if *drb-ToAddModListSCG* is not received or does not include the *drb-Identity* value (i.e. add MCG DRB or MCG RLC bearer):

3> if *pdcp-Config* is received, establish a PDCP entity and configure it with the current MCG security configuration and in accordance with the received *pdcp-Config*;

3> if *rlc-Config* is received, establish a (primary) MCG RLC entity or entities in accordance with the received rlc-Config;

3> if *logicalChannelIdentity* and *logicalChannelConfig* are received, establish a (primary) MCG DTCH logical channel in accordance with the received *logicalChannelIdentity* and the received *logicalChannelConfig*;

3> if *rlc-BearerConfigSecondary* is received with value *setup*:

4> establish a secondary MCG RLC entity or entities and an associated DTCH logical channel in accordance with the received *rlc-BearerConfigSecondary* and associate these with the E-UTRA PDCP entity with the same value of *drb-Identity* within the current UE configuration;

3> if *pdcp-Config* is not received, after processing *nr-RadioBearerConfig1* and *nr-RadioBearerConfig2* if present in the *RRCConnectionReconfiguration* message which triggered the execution of the DRB addition/modification procedure, associate MCG RLC bearer with the NR PDCP entity associated with the same value of *drb-Identity* in the current UE configuration as specified in TS 38.331 [82];

2> if the UE is a NB-IoT UE connected to 5GC:

2> if a DRB was configured with the same *pdu-Session* (fullConfig):

3> associate the established DRB with corresponding included *pdu-Session*;

2> else if the entry of *drb-ToAddModList* includes *pdcp-config* (establishment of bearer):

3> indicate the establishment of the DRB(s) and the *pdu-Session* of the established DRB(s) to upper layers;

2> else:

3> if a DRB was configured with the same *eps-BearerIdentity* (fullConfig or change to E-UTRA PDCP):

4> associate the established DRB with corresponding included *eps-BearerIdentity*;

3> else if the entry of *drb-ToAddModList* includes *pdcp-config* (establishment of bearer with E-UTRA PDCP):

4> indicate the establishment of the DRB(s) and the *eps-BearerIdentity* of the established DRB(s) to upper layers;

1> for each *drb-Identity* value included in the *drb-ToAddModList* that is part of the current UE configuration (DRB reconfiguration):

2> if the DRB indicated by *drb-Identity* is an LWA DRB (i.e. LWA to LTE only or reconfigure LWA DRB):

3> perform the LWA specific DRB reconfiguration as specified in 5.3.10.3a2;

2> else if the concerned entry of *drb-ToAddModList* includes the *drb-TypeLWA* set to *TRUE* (i.e. LTE only to LWA DRB):

3> perform the LWA specific DRB reconfiguration as specified in 5.3.10.3a2;

2> if the concerned entry of *drb-ToAddModList* includes the *drb-TypeLWIP* (i.e. add or reconfigure LWIP DRB):

3> perform LWIP specific DRB addition or reconfiguration as specified in 5.3.10.3a3;

2> if *drb-ToAddModListSCG* is not received or does not include the *drb-Identity* value:

3> if the DRB indicated by *drb-Identity* is an MCG DRB or configured with MCG RLC bearer (reconfigure MCG RLC bearer or reconfigure MCG DRB):

4> if the *pdcp-Config* is included:

5> reconfigure the PDCP entity in accordance with the received *pdcp-Config*;

4> if the *rlc-Config* is included:

5> if *reestablishRLC* is received:

6> re-establish the primary RLC entity of this DRB;

6> if the *logicalChannelIdentity* is included and the DRB indicated by *drb-Identity* is configured with MCG RLC bearer (reconfigure logical channel identity of MCG RLC bearer):

7> reconfigure the primary DTCH logical channel identity in accordance with the received *logicalChannelIdentity*;

5> reconfigure the primary RLC entity or entities in accordance with the received *rlc-Config*;

4> if the *logicalChannelConfig* is included:

5> reconfigure the primary DTCH logical channel in accordance with the received *logicalChannelConfig*;

4> if *rlc-BearerConfigSecondary* is included with value *release*:

5> release the secondary MCG RLC entity or entities as well as the associated DTCH logical channel;

4> if *rlc-BearerConfigSecondary* is included with value *setup*;

5> if the current DRB configuration does not include a secondary RLC bearer:

6> establish a secondary MCG RLC entity or entities and an associated DTCH logical channel in accordance with the received *rlc-BearerConfigSecondary* and associate these with the E-UTRA PDCP entity with the same value of *srb-Identity* within the current UE configuration;

5> else:

6> reconfigure the secondary MCG RLC entity or entities and the associated DTCH logical channel in accordance with the received *rlc-BearerConfigSecondary*;

NOTE 1: Removal and addition of DRB with *pdcp-Config* with the same *drb-Identity* in a single *radioResourceConfigDedicated* is not supported. In case *drb-Identity* is removed and added due to handover or re-establishment with the full configuration option, the eNB can use the same value of *drb-Identity*.

NOTE 2: In case of DRB reconfiguration at a DAPS HO, the reconfiguration is applied to the entities/resources for the target PCell.

### 5.3.12 UE actions upon leaving RRC\_CONNECTED or RRC\_INACTIVE

Upon leaving RRC\_CONNECTED or RRC\_INACTIVE, the UE shall:

1> reset MAC;

1> if leaving RRC\_INACTIVE was not triggered by the reception of *RRCConnectionRelease* including *idleModeMobilityControlInfo*:

2> stop the timer T320, if running;

2> if stored, discard the cell reselection priority information provided by the *idleModeMobilityControlInfo*;

1> if entering RRC\_IDLE was triggered by reception of the *RRCConnectionRelease* message including a *waitTime*:

2> start timer T302, with the timer value set according to the *waitTime*;

2> inform the upper layer that access barring is applicable for all access categories except categories '0' and '2';

1> else if T302 is running:

2> stop timer T302;

2> if the UE is connected to 5GC:

3> perform the actions as specified in 5.3.16.4;

1> if T309 is running:

2> stop timer T309 for all access categories;

2> perform the actions as specified in 5.3.16.4.

1> stop all timers that are running except T302, T320, T322, T325, T330, T331;

1> release *crs-ChEstMPDCCH-ConfigDedicated*, if configured;

1> if leaving RRC\_CONNECTED was triggered by suspension of the RRC:

2> re-establish RLC entities for all SRBs and DRBs, including RBs configured with NR PDCP;

2> store the UE AS Context including the current RRC configuration, the current security context, the PDCP state including ROHC state, C-RNTI used in the source PCell, the *cellIdentity* and the physical cell identity of the source PCell;

2> store the following information provided by E-UTRAN:

3> the *resumeIdentity*;

3> the *nextHopChainingCount*, if present. Otherwise discard any stored *nextHopChainingCount* that does not correspond to stored key KRRCint;

3> the *drb-ContinueROHC*, if present. Otherwise discard any stored *drb-ContinueROHC*;

2> suspend all SRB(s) and DRB(s), including RBs configured with NR PDCP, except SRB0;

2> if the UE connected to 5GC is a BL UE or UE in CE, indicate PDCP suspend to lower layers of all DRBs;

2> indicate the suspension of the RRC connection to upper layers;

2> configure lower layers to suspend integrity protection and ciphering;

NOTE 1: Except when resuming an RRC connection after early security reactivation in accordance with conditions in 5.3.3.18, ciphering is not applied for the subsequent *RRCConnectionResume* message used to resume the connection and an integrity check is performed by lower layers, but merely upon request from RRC.

1> else:

2> upon leaving RRC\_INACTIVE:

3> discard the UE Inactive AS context;

3> discard the KeNB, the KRRCenc key, the KRRCint and the KUPenc key;

2> release *rrc-InactiveConfig*, if configured;

2> remove all entries within *VarConditionalReconfiguration*, if any;

2> for each *measId*, that is part of the current UE configuration in *VarMeasConfig,* if the associated *reportConfig* has *condReconfigurationTriggerEUTRA* configured:

3> remove the entry with the matching *reportConfigId* from the *reportConfigList* within the *VarMeasConfig*;

3> if the associated *measObjectId* is only associated with *condReconfigurationTriggerEUTRA*:

4> remove the entry with the matching *measObjectId* from the *measObjectList* within the *VarMeasConfig*;

3> remove the entry with the matching *measId* from the *measIdList* within the *VarMeasConfig*;

2> release all radio resources, including release of the MAC configuration, the RLC entity and the associated PDCP entity and SDAP (if any) for all established RBs;

2> indicate the release of the RRC connection to upper layers together with the release cause;

1> if leaving RRC\_CONNECTED was triggered neither by reception of the *MobilityFromEUTRACommand* message nor by selecting an inter-RAT cell while T311 was running; or

1> if leaving RRC\_INACTIVE was not triggered by the inter-RAT cell reselection:

2> if timer T350 is configured:

3> start timer T350;

3> apply *rclwi-Configuration* if configured, otherwise apply the *wlan-Id-List* corresponding to the RPLMN included in *SystemInformationBlockType17*;

2> else:

3> release the *wlan-OffloadConfigDedicated*, if received;

3> if the *wlan-OffloadConfigCommon* corresponding to the RPLMN is broadcast by the cell:

4> apply the *wlan-OffloadConfigCommon* corresponding to the RPLMN included in *SystemInformationBlockType17*;

4> apply *steerToWLAN* if configured, otherwise apply the *wlan-Id-List* corresponding to the RPLMN included in *SystemInformationBlockType17*;

2> enter RRC\_IDLE and perform procedures as specified in TS 36.304 [4], clause 5.2.7;

1> else:

2> release the *wlan-OffloadConfigDedicated*, if received;

NOTE 2: BL UEs or UEs in CE verifies validity of SI when released to RRC\_IDLE.

1> release the LWA configuration, if configured, as described in 5.6.14.3;

1> release the LWIP configuration, if configured, as described in 5.6.17.3;

5.5.3 Performing measurements

>Next modified section

5.5.3.1 General

For all measurements, except for UE Rx–Tx time difference measurements, RSSI, UL PDCP Packet Delay per QCI measurement, channel occupancy measurements, CBR measurement, sensing measurement and except for WLAN measurements of Band, Carrier Info, Available Admission Capacity, Backhaul Bandwidth, Channel Utilization, and Station Count, the UE applies the layer 3 filtering as specified in 5.5.3.2, before using the measured results for evaluation of reporting criteria, for measurement reporting or for evaluation of fulfilment of the criteria to trigger conditional reconfiguration execution. When performing measurements on NR carriers, the UE derives the cell quality as specified in 5.5.3.3 and the beam quality as specified in 5.5.3.4.

The UE shall:

1> whenever the UE has a *measConfig*, perform RSRP and RSRQ measurements for each serving cell as follows:

2> for the PCell, apply the time domain measurement resource restriction in accordance with *measSubframePatternPCell,* if configured;

2> if the UE supports CRS based discovery signals measurement:

3> for each SCell in deactivated state, apply the discovery signals measurement timing configuration in accordance with *measDS-Config*, if configured within the *measObject* corresponding to the frequency of the SCell;

1> if the UE has a *measConfig* with *rs-sinr-Config* configured, perform RS-SINR (as indicated in the associated *reportConfig*) measurements as follows:

2> perform the corresponding measurements on the frequency indicated in the associated *measObject* using available idle periods or using autonomous gaps as necessary;

1> for each *measId* included in the *measIdList* within *VarMeasConfig*:

2> if the *purpose* for the associated *reportConfig* is set to *reportCGI*:

3> if the RAT indicated in the associated *measObject* is not NR:

4> if *si-RequestForHO* is configured for the associated *reportConfig*:

5> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using autonomous gaps as necessary;

4> else:

5> perform the corresponding measurements on the frequency and RAT indicated in the associated *measObject* using available idle periods or using autonomous gaps as necessary;

3> else:

4> if *useAutonomousGapsNR* is configured for the associated *reportConfig*:

5> perform the corresponding measurements on the NR frequency indicated in the associated *measObject* using autonomous gaps as necessary;

4> else:

5> perform the corresponding measurements on the NR frequency indicated in the associated *measObject* using available idle periods;

NOTE 1: If autonomous gaps are used to perform measurements, the UE is allowed to temporarily abort communication with all serving cell(s), i.e. create autonomous gaps to perform the corresponding measurements within the limits specified in TS 36.133 [16]. Otherwise, the UE only supports the measurements with the purpose set to *reportCGI* only if E-UTRAN has provided sufficient idle periods.

3> try to acquire the global cell identity of the cell indicated by the *cellForWhichToReportCGI* in the associated *measObject* by acquiring the relevant system information from the concerned cell;

3> if an entry in the *cellAccessRelatedInfoList* includes the selected PLMN, acquire the relevant system information from the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is an E-UTRAN cell:

4> try to acquire the CSG identity, if the CSG identity is broadcast in the concerned cell;

4> try to acquire the *trackingAreaCode* in the concerned cell;

4> try to acquire the list of additional PLMN Identities, as included in the *plmn-IdentityList*, if multiple PLMN identities are broadcast in the concerned cell;

4> if *cellAccessRelatedInfoList* is included, use *trackingAreaCode* and *plmn-IdentityList* from the entry of *cellAccessRelatedInfoList* containing the selected PLMN;

4> if the *includeMultiBandInfo* is configured:

5> try to acquire the *freqBandIndicator* in the *SystemInformationBlockType1*of the concerned cell;

5> try to acquire the list of additional frequency band indicators, as included in the *multiBandInfoList*, if multiple frequency band indicators are included in the *SystemInformationBlockType1*of the concerned cell;

5> try to acquire the *freqBandIndicatorPriority*, if the *freqBandIndicatorPriority* is included in the *SystemInformationBlockType1*of the concerned cell;

4> if *cellAccessRelatedInfoList-5GC* is broadcast in the concerned cell and the UE is E-UTRA/5GC capable:

5> try to acquire the *cellAccessRelatedInfoList-5GC*;

NOTE 2: The 'primary' PLMN is part of the global cell identity.

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a UTRAN cell:

4> try to acquire the LAC, the RAC and the list of additional PLMN Identities, if multiple PLMN identities are broadcast in the concerned cell;

4> try to acquire the CSG identity, if the CSG identity is broadcast in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a GERAN cell:

4> try to acquire the RAC in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a CDMA2000 cell and the *cdma2000-Type* included in the *measObject* is *typeHRPD*:

4> try to acquire the Sector ID in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *measObject* is a CDMA2000 cell and the *cdma2000-Type* included in the *measObject* is *type1XRTT*:

4> try to acquire the BASE ID, SID and NID in the concerned cell;

3> if the cell indicated by the *cellForWhichToReportCGI* included in the associated *MeasObject* is an NR cell:

4> if the indicated cell is broadcasting *SIB1* (see TS 38.213 [88], clause 13):

5> try to acquire the plmn-IdentityInfoList including plmn-IdentityList, trackingAreaCode (if available), ran-AreaCode (if available) and cellIdentity for each entry of the plmn-IdentityInfoList;

5> try to acquire the frequencyBandList, if multiple frequency bands are broadcasted in the concerned cell;

2> if the *ul-DelayConfig* is configured for the associated *reportConfig*:

3> ignore the *measObject*;

3> configure the PDCP layer to perform UL PDCP Packet Delay per QCI measurement;

2> if the *ul-DelayValueConfig* is configured for the associated *reportConfig*:

3> ignore the *measObject*;

3> configure the PDCP layer to perform UL PDCP Packet Delay value per DRB measurement;

2> else:

3> if a measurement gap configuration is setup; or

3> if the UE does not require measurement gaps to perform the concerned measurements:

4> if *s-Measure* is not configured; or

4> if the UE is not in NE-DC and the PCell RSRP, after layer 3 filtering, is lower than *s-Measure*; or

4> if the UE is in NE-DC and the PSCell RSRP, after layer 3 filtering, is lower than *s-Measure*; or

4> if the associated *measObject* concerns NR; or

4> if *measDS-Config* is configured in the associated *measObject*:

5> if the UE supports CSI-RS based discovery signals measurement; and

5> if the *eventId* in the associated *reportConfig* is set to *eventC1* or *eventC2*, or if *reportStrongestCSI-RSs* is set to *true* in the associated *reportConfig*:

6> perform the corresponding measurements of CSI-RS resources on the frequency indicated in the concerned *measObject*, applying the discovery signals measurement timing configuration in accordance with *measDS-Config* in the concerned *measObject*;

6> if *reportCRS-Meas* is set to *true* in the associated *reportConfig,* perform the corresponding measurements of neighbouring cells on the frequencies indicated in the concerned *measObject* as follows:

7> for neighbouring cells on the primary frequency, apply the time domain measurement resource restriction in accordance with *measSubframePatternConfigNeigh,* if configured in the concerned *measObject*;

7> apply the discovery signals measurement timing configuration in accordance with *measDS-Config* in the concerned *measObject*;

5> else:

6> perform the corresponding measurements of neighbouring cells on the frequencies and RATs indicated in the concerned *measObject* as follows:

7> for neighbouring cells on the primary frequency, apply the time domain measurement resource restriction in accordance with *measSubframePatternConfigNeigh,* if configured in the concerned *measObject*;

7> if the UE supports CRS based discovery signals measurement, apply the discovery signals measurement timing configuration in accordance with *measDS-Config*, if configured in the concerned *measObject*;

4> if the *ue-RxTxTimeDiffPeriodical* is configured in the associated *reportConfig*:

5> perform the UE Rx–Tx time difference measurements on the PCell;

4> if the *reportSSTD-Meas* is set to *true* or *pSCell* in the associated *reportConfig*:

5> perform SSTD measurements between the PCell and the PSCell;

4> if the *reportSFTD-Meas* is set to *pSCell* in the associated *reportConfig*:

5> perform SFTD measurements between the PCell and the NR PSCell;

4> if the *reportSFTD-Meas* is set to *neighborCells* in the associated *reportConfig*:

5> perform SFTD measurements between the PCell and NR cell(s) on the frequency indicated in the associated *measObject*;

4> if the *measRSSI-ReportConfig* is configured in the associated *reportConfig*:

5> perform the RSSI and channel occupancy measurements on the frequency indicated in the associated *measObject*;

2> perform the evaluation of reporting criteria as specified in 5.5.4, except if *reportConfig* is *condReconfigurationTrigger*;

The UE capable of CBR measurement when configured to transmit non-P2X related V2X sidelink communication shall:

1> if in coverage on the frequency used for V2X sidelink communication transmission as defined in TS 36.304 [4], clause 11.4; or

1> if the concerned frequency is included in *v2x-InterFreqInfoList* in *RRCConnectionReconfiguration* or in *v2x-InterFreqInfoList* within *SystemInformationBlockType21* or *SystemInformationBlockType26*:

2> if the UE is in RRC\_IDLE:

3> if the concerned frequency is the camped frequency:

4> perform CBR measurement on the pools in *v2x-CommTxPoolNormalCommon* and *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21*;

3> else if *v2x-CommTxPoolNormal* or *v2x-CommTxPoolExceptional* is included in *v2x-InterFreqInfoList* forthe concerned frequency within *SystemInformationBlockType21* or *SystemInformationBlockType26*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormal* and *v2x-CommTxPoolExceptional* in *v2x-InterFreqInfoList* for the concerned frequency in *SystemInformationBlockType21* or *SystemInformationBlockType26*;

3> else if the concerned frequency broadcasts *SystemInformationBlockType21*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormalCommon* and *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21* broadcast on the concerned frequency;

2> if the UE is in RRC\_CONNECTED:

3> if *tx-ResourcePoolToAddList* is included in *VarMeasConfig*:

4> perform CBR measurements on each resource pool indicated in *tx-ResourcePoolToAddList*;

3> if the concerned frequency is the PCell's frequency:

4> perform CBR measurement on the pools in *v2x-CommTxPoolNormalDedicated* or *v2x-SchedulingPool* if included in *RRCConnectionReconfiguration*, *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21* for the concerned frequency and *v2x-CommTxPoolExceptional* if included in *mobilityControlInfoV2X*;

3> else if *v2x-CommTxPoolNormal*, *v2x-SchedulingPool* or *v2x-CommTxPoolExceptional* is included in *v2x-InterFreqInfoList* forthe concerned frequency within *RRCConnectionReconfiguration*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormal, v2x-SchedulingPool,* and *v2x-CommTxPoolExceptional* if included in *v2x-InterFreqInfoList* for the concerned frequency in *RRCConnectionReconfiguration*;

3> else if the concerned frequency broadcasts *SystemInformationBlockType21*:

4> perform CBR measurement on pools in *v2x-CommTxPoolNormalCommon* and *v2x-CommTxPoolExceptional* if included in *SystemInformationBlockType21* for the concerned frequency;

1> else:

2> perform CBR measurement on pools in *v2x-CommTxPoolList* in *SL-V2X-Preconfiguration* for the concerned frequency;

The UE capable of sensing measurement, with *commTxResources* set to *scheduled*, shall:

1> for each *measId* included in the *measIdList* within *VarMeasConfig*:

2> if *measSensing-Config* is configured in the associated *measObject*

3> perform the sensing measurement in accordance with TS 36.213 [23] on the pools of *v2x-SchedulingPool* and also indicated in *tx-ResourcePoolToAddList* in the associated *measObject*, using *sensingSubchannelNumber*, *sensingPeriodicity*, *sensingReselectionCounter* and *sensingPriority*.

If a UE that is configured by upper layers to transmit NR sidelink communication is configured with transmission resource pool(s) in *SystemInformationBlockType28* or *sl-ConfigDedicatedNR* and the measurement objects concerning NR sidelink communication (i.e. *measObjectNR-SL*) by EUTRA, it shall perform CBR measurement as specified in subclause 5.5.3 of TS 38.331 [82], based on the transmission resource pool(s) in *SystemInformationBlockType28* or *sl-ConfigDedicatedNR* and the measurement object(s) concerning NR sidelink communication configured by EUTRA.

NOTE 2a: *SIBX* specified in subclause 5.5.3 of TS 38.331 is provided in *SystemInformationBlockType28*.

NOTE 3: The *s-Measure* defines when the UE is required to perform measurements. The UE is however allowed to perform measurements also when the PCell RSRP (or PSCell RSRP, if the UE is in NE-DC) exceeds *s-Measure*, e.g., to measure cells broadcasting a CSG identity following use of the autonomous search function as defined in TS 36.304 [4].

NOTE 4: The UE may not perform the WLAN measurements it is configured with e.g. due to connection to another WLAN based on user preferences as specified in TS 23.402 [75] or due to turning off WLAN.

6.2.2 Message definitions

>Next modified section

*– InDeviceCoexIndication*

The *InDeviceCoexIndication* message is used to inform E-UTRAN about IDC problems which can not be solved by the UE itself, as well as to provide information that may assist E-UTRAN when resolving these problems.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

***InDeviceCoexIndication message***

-- ASN1START

InDeviceCoexIndication-r11 ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE {

inDeviceCoexIndication-r11 InDeviceCoexIndication-r11-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

InDeviceCoexIndication-r11-IEs ::= SEQUENCE {

affectedCarrierFreqList-r11 AffectedCarrierFreqList-r11 OPTIONAL,

tdm-AssistanceInfo-r11 TDM-AssistanceInfo-r11 OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension InDeviceCoexIndication-v11d0-IEs OPTIONAL

}

InDeviceCoexIndication-v11d0-IEs ::= SEQUENCE {

ul-CA-AssistanceInfo-r11 SEQUENCE {

affectedCarrierFreqCombList-r11 AffectedCarrierFreqCombList-r11 OPTIONAL,

victimSystemType-r11 VictimSystemType-r11

} OPTIONAL,

nonCriticalExtension InDeviceCoexIndication-v1310-IEs OPTIONAL

}

InDeviceCoexIndication-v1310-IEs ::= SEQUENCE {

affectedCarrierFreqList-v1310 AffectedCarrierFreqList-v1310 OPTIONAL,

affectedCarrierFreqCombList-r13 AffectedCarrierFreqCombList-r13 OPTIONAL,

nonCriticalExtension InDeviceCoexIndication-v1360-IEs OPTIONAL

}

InDeviceCoexIndication-v1360-IEs ::= SEQUENCE {

hardwareSharingProblem-r13 ENUMERATED {true} OPTIONAL,

nonCriticalExtension InDeviceCoexIndication-v1530-IEs OPTIONAL

}

InDeviceCoexIndication-v1530-IEs ::= SEQUENCE {

mrdc-AssistanceInfo-r15 MRDC-AssistanceInfo-r15 OPTIONAL,

nonCriticalExtension InDeviceCoexIndication-v16xy-IEs OPTIONAL

}

InDeviceCoexIndication-v16xy-IEs::= SEQUENCE {

victimSystemType-v16xy VictimSystemType-v16xy OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

AffectedCarrierFreqList-r11 ::= SEQUENCE (SIZE (1..maxFreqIDC-r11)) OF AffectedCarrierFreq-r11

AffectedCarrierFreqList-v1310 ::= SEQUENCE (SIZE (1..maxFreqIDC-r11)) OF AffectedCarrierFreq-v1310

AffectedCarrierFreq-r11 ::= SEQUENCE {

carrierFreq-r11 MeasObjectId,

interferenceDirection-r11 ENUMERATED {eutra, other, both, spare}

}

AffectedCarrierFreq-v1310 ::= SEQUENCE {

carrierFreq-v1310 MeasObjectId-v1310 OPTIONAL

}

AffectedCarrierFreqCombList-r11 ::= SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqComb-r11

AffectedCarrierFreqCombList-r13 ::= SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqComb-r13

AffectedCarrierFreqComb-r11 ::= SEQUENCE (SIZE (2..maxServCell-r10)) OF MeasObjectId

AffectedCarrierFreqComb-r13 ::= SEQUENCE (SIZE (2..maxServCell-r13)) OF MeasObjectId-r13

TDM-AssistanceInfo-r11 ::= CHOICE {

drx-AssistanceInfo-r11 SEQUENCE {

drx-CycleLength-r11 ENUMERATED {sf40, sf64, sf80, sf128, sf160,

sf256, spare2, spare1},

drx-Offset-r11 INTEGER (0..255) OPTIONAL,

drx-ActiveTime-r11 ENUMERATED {sf20, sf30, sf40, sf60, sf80,

sf100, spare2, spare1}

},

idc-SubframePatternList-r11 IDC-SubframePatternList-r11,

...

}

IDC-SubframePatternList-r11 ::= SEQUENCE (SIZE (1..maxSubframePatternIDC-r11)) OF IDC-SubframePattern-r11

IDC-SubframePattern-r11 ::= CHOICE {

subframePatternFDD-r11 BIT STRING (SIZE (4)),

subframePatternTDD-r11 CHOICE {

subframeConfig0-r11 BIT STRING (SIZE (70)),

subframeConfig1-5-r11 BIT STRING (SIZE (10)),

subframeConfig6-r11 BIT STRING (SIZE (60))

},

...

}

VictimSystemType-r11 ::= SEQUENCE {

gps-r11 ENUMERATED {true} OPTIONAL,

glonass-r11 ENUMERATED {true} OPTIONAL,

bds-r11 ENUMERATED {true} OPTIONAL,

galileo-r11 ENUMERATED {true} OPTIONAL,

wlan-r11 ENUMERATED {true} OPTIONAL,

bluetooth-r11 ENUMERATED {true} OPTIONAL

}

VictimSystemType-v16xy ::= SEQUENCE {

navic-r16 ENUMERATED {true} OPTIONAL

}

MRDC-AssistanceInfo-r15 ::= SEQUENCE {

affectedCarrierFreqCombInfoListMRDC-r15 SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqCombInfoMRDC-r15,

...,

[[ affectedCarrierFreqCombInfoListMRDC-v16xy SEQUENCE (SIZE (1..maxCombIDC-r11)) OF VictimSystemType-v16xy OPTIONAL

]]

}

AffectedCarrierFreqCombInfoMRDC-r15 ::= SEQUENCE {

victimSystemType-r15 VictimSystemType-r11,

interferenceDirectionMRDC-r15 ENUMERATED {eutra-nr, nr, other, eutra-nr-other,

nr-other, spare3, spare2, spare1},

affectedCarrierFreqCombMRDC-r15 SEQUENCE {

affectedCarrierFreqCombEUTRA-r15 AffectedCarrierFreqComb-r15 OPTIONAL,

affectedCarrierFreqCombNR-r15 AffectedCarrierFreqCombNR-r15

} OPTIONAL

}

AffectedCarrierFreqComb-r15 ::= SEQUENCE (SIZE (1..maxServCell-r13)) OF MeasObjectId-r13

AffectedCarrierFreqCombNR-r15 ::= SEQUENCE (SIZE (1..maxServCellNR-r15)) OF ARFCN-ValueNR-r15

-- ASN1STOP

| ***InDeviceCoexIndication* field descriptions** |
| --- |
| ***AffectedCarrierFreq***  If *carrierFreq-v1310* is included, *carrierFreq-r11* is ignored by eNB. |
| ***affectedCarrierFreqCombList***  Indicates a list of E-UTRA carrier frequencies that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from E-UTRA when configured with UL CA. *affectedCarrierFreqCombList-r13* is used when more than 5 serving cells are configured or affected combinations contain *MeasObjectId* larger than 32. If *affectedCarrierFreqCombList-r13* is included, *affectedCarrierFreqCombList-r11* shall not be included. |
| ***affectedCarrierFreqCombMRDC***  Indicates a set of at least one NR carrier frequency and optionally one or more E-UTRA carrier frequency that is affected by IDC problems due to Inter-Modulation Distortion and harmonics when configured with MR-DC. |
| ***affectedCarrierFreqList***  List of E-UTRA carrier frequencies affected by IDC problems. If E-UTRAN includes *affectedCarrierFreqList-v1310* it includes the same number of entries, and listed in the same order, as in *affectedCarrierFreqList-r11*. |
| ***drx-ActiveTime***  Indicates the desired active time that the E-UTRAN is recommended to configure. Value in number of subframes. Value sf20 corresponds to 20 subframes, sf30 corresponds to 30 subframes and so on. |
| ***drx-CycleLength***  Indicates the desired DRX cycle length that the E-UTRAN is recommended to configure. Value in number of subframes. Value sf40 corresponds to 40 subframes, sf64 corresponds to 64 subframes and so on. |
| ***drx-Offset***  Indicates the desired DRX starting offset that the E-UTRAN is recommended to configure. The UE shall set the value of drx-Offset smaller than the value of *drx-CycleLength*. The starting frame and subframe satisfy the relation: [(SFN \* 10) + subframe number] modulo (*drx-CycleLength*) = *drx-Offset*. |
| ***hardwareSharingProblem***  Indicates whether the UE has hardware sharing problems that the UE cannot solve by itself. The field is present (i.e. value *true*), if the UE has such hardware sharing problems. Otherwise the field is absent. |
| ***idc-SubframePatternList***  A list of one or more subframe patterns indicating which HARQ process E-UTRAN is requested to abstain from using. Value 0 indicates that E-UTRAN is requested to abstain from using the subframe. For FDD, the radio frame in which the pattern starts (i.e. the radio frame in which the first/leftmost bit of the *subframePatternFDD* corresponds to subframe #0) occurs when SFN mod 2 = 0. For TDD, the first/leftmost bit corresponds to the subframe #0 of the radio frame satisfying SFN mod x = 0, where x is the size of the bit string divided by 10. The UE shall indicate a subframe pattern that follows HARQ time line, as specified in TS 36.213 [23], i.e, if a subframe is set to 1 in the subframe pattern, also the corresponding subframes carrying the potential UL grant, as specified in TS 36.213 [23], clause 8.0, the UL HARQ retransmission, as specified in TS 36.213 [23], clause 8.0, and the DL/UL HARQ feedback, as specified in TS 36.213 [23], clauses 7.3, 8.3 and 9.1.2, shall be set to 1. |
| ***interferenceDirection***  Indicates the direction of IDC interference. Value *eutra* indicates that only E-UTRA is victim of IDC interference, value *other* indicates that only another radio is victim of IDC interference and value *both* indicates that both E-UTRA and another radio are victims of IDC interference. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [63]). |
| ***interferenceDirectionMRDC***  Indicates the direction of IDC interference. Value *eutra-nr* indicates E-UTRA and NR is victim, value *nr* indicates NR, value *other* indicates other radio system and so on. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [63]). |
| ***victimSystemType***  Indicate the list of victim system types to which IDC interference is caused from E-UTRA when configured with UL CA or from E-UTRA and NR when configured with MR-DC. *gps*, *glonass*, *bds,* *galileo, and navic* indicate the type of GNSS. Value *wlan* indicates WLAN and value *bluetooth* indicates Bluetooth. |

– *Paging*

The *Paging* message is used for the notification of one or more UEs.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channel: PCCH

Direction: E‑UTRAN to UE

***Paging* message**

-- ASN1START

Paging ::= SEQUENCE {

pagingRecordList PagingRecordList OPTIONAL, -- Need ON

systemInfoModification ENUMERATED {true} OPTIONAL, -- Need ON

etws-Indication ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v890-IEs OPTIONAL

}

Paging-v890-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension Paging-v920-IEs OPTIONAL

}

Paging-v920-IEs ::= SEQUENCE {

cmas-Indication-r9 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v1130-IEs OPTIONAL

}

Paging-v1130-IEs ::= SEQUENCE {

eab-ParamModification-r11 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v1310-IEs OPTIONAL

}

Paging-v1310-IEs ::= SEQUENCE {

redistributionIndication-r13 ENUMERATED {true} OPTIONAL, -- Need ON

systemInfoModification-eDRX-r13 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v1530-IEs OPTIONAL

}

Paging-v1530-IEs ::= SEQUENCE {

accessType ENUMERATED {non3GPP} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v16xy-IEs OPTIONAL

}

Paging-v16xy-IEs ::= SEQUENCE {

pagingRecordList-v16xy PagingRecordList-v16xy OPTIONAL, -- Need ON

uac-ParamModification-r16 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension SEQUENCE {} OPTIONAL

}

PagingRecordList ::= SEQUENCE (SIZE (1..maxPageRec)) OF PagingRecord

PagingRecordList-v16xy ::= SEQUENCE (SIZE (1..maxPageRec)) OF PagingRecord-v16xy

PagingRecord ::= SEQUENCE {

ue-Identity PagingUE-Identity,

cn-Domain ENUMERATED {ps, cs},

...

}

PagingRecord-v16xy ::= SEQUENCE {

accessType-r16 ENUMERATED {non3GPP} OPTIONAL, -- Need ON

mt-EDT-r16 ENUMERATED {true} OPTIONAL -- Need ON

}

PagingUE-Identity ::= CHOICE {

s-TMSI S-TMSI,

imsi IMSI,

...,

ng-5G-S-TMSI-r15 NG-5G-S-TMSI-r15,

fullI-RNTI-r15 I-RNTI-r15

}

IMSI ::= SEQUENCE (SIZE (6..21)) OF IMSI-Digit

IMSI-Digit ::= INTEGER (0..9)

-- ASN1STOP

| ***Paging* field descriptions** |
| --- |
| ***accessType***  It indicates whether Paging is originated due to the PDU sessions from the non-3GPP access when E-UTRA is connected to 5GC. E-UTRAN does not include both *accessType* (i.e., without suffix) and *accessType-r16* in a single paging message. |
| ***cmas-Indication***  If present: indication of a CMAS notification. |
| ***cn-Domain***  Indicates the origin of paging. |
| ***eab-ParamModification***  If present: indication of an EAB parameters (SIB14) modification. |
| ***etws-Indication***  If present: indication of an ETWS primary notification and/ or ETWS secondary notification. |
| ***imsi***  The International Mobile Subscriber Identity, a globally unique permanent subscriber identity, see TS 23.003 [27]. The first element contains the first IMSI digit, the second element contains the second IMSI digit and so on. |
| ***mt-EDT***  Indication of mobile terminating EDT. |
| ***pagingRecordList***  If E-UTRAN includes *pagingRecordList-v16xy*,it includes the same number of entries, and listed in the same order, as in *pagingRecordList* (i.e. without suffix). |
| ***redistributionIndication***  If present: indication to trigger E-UTRAN inter-frequency redistribution procedure as specified in TS 36.304 [4], clause 5.2.4.10. |
| ***systemInfoModification***  If present: indication of a BCCH modification other than SIB10, SIB11, SIB12 and SIB14. This indication does not apply to UEs using eDRX cycle longer than the BCCH modification period. |
| ***systemInfoModification-eDRX***  If present: indication of a BCCH modification other than SIB10, SIB11, SIB12 and SIB14. This indication applies only to UEs using eDRX cycle longer than the BCCH modification period. |
| ***uac-ParamModification***  If present: indication of UAC parameters (SIB25) modification. | |
| ***ue-Identity***  Provides the NAS identity of the UE that is being paged. The IMSI is not applicable for E-UTRA/5GC. |

#### – *ULInformationTransferMRDC*

The *ULInformationTransferMRDC* message is used for the uplink transfer of MR DC information (i.e. for the case the SCG employs another RAT e.g. for transferring the NR RRC Measurement Report message).

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

*ULInformationTransferMRDC message*

-- ASN1START

ULInformationTransferMRDC-r15 ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE {

ulInformationTransferMRDC-r15 ULInformationTransferMRDC-r15-IEs,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

ULInformationTransferMRDC-r15-IEs ::= SEQUENCE {

ul-DCCH-MessageNR-r15 OCTET STRING OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *ULInformationTransferMRDC* field descriptions |
| --- |
| ***ul-DCCH-MessageNR***  Includes the *UL-DCCH-Message* as defined in TS 38.331 [82]. In this version of the specification, the field is only used to transfer the NR RRC *MeasurementReport* and the NR RRC *FailureInformation* messages. |

6.3.0 Parameterized types

– *SetupRelease*

*SetupRelease* allows the *ElementTypeParam* to be used as the referenced data type for the setup and release entries. See A.3.8 for guidelines.

-- ASN1START

SetupRelease { ElementTypeParam } ::= CHOICE {

release NULL,

setup ElementTypeParam

}

-- ASN1STOP

### 6.3.1 System information blocks

>Next modified section

– *SystemInformationBlockType13*

The IE *SystemInformationBlockType13* contains the information required to acquire the MBMS control information associated with one or more MBSFN areas.

***SystemInformationBlockType13* information element**

-- ASN1START

SystemInformationBlockType13-r9 ::= SEQUENCE {

mbsfn-AreaInfoList-r9 MBSFN-AreaInfoList-r9,

notificationConfig-r9 MBMS-NotificationConfig-r9,

lateNonCriticalExtension OCTET STRING OPTIONAL,

...,

[[

notificationConfig-v1430 MBMS-NotificationConfig-v1430 OPTIONAL

]],

[[

mbsfn-AreaInfoList-r16 MBSFN-AreaInfoList-r16 OPTIONAL -- Need OR

]]

}

-- ASN1STOP

| ***SystemInformationBlockType13* field descriptions** |
| --- |
| ***notificationConfig***  Indicates the MBMS notification related configuration parameters. The UE shall ignore this field when *dl-Bandwidth* included in *MasterInformationBlock* is set to n6. |

#### – *SystemInformationBlockType24*

The IE *SystemInformationBlockType24* contains information relevant only for inter-RAT cell re-selection i.e. information about NR frequencies and NR neighbouring cells relevant for cell re-selection. The IE includes cell re-selection parameters common for a frequency.

*SystemInformationBlockType24* information element

-- ASN1START

SystemInformationBlockType24-r15 ::= SEQUENCE {

carrierFreqListNR-r15 CarrierFreqListNR-r15 OPTIONAL, -- Need OR

t-ReselectionNR-r15 T-Reselection,

t-ReselectionNR-SF-r15 SpeedStateScaleFactors OPTIONAL, -- Need OR

lateNonCriticalExtension OCTET STRING OPTIONAL,

...,

[[ carrierFreqListNR-v16xy CarrierFreqListNR-v16xy OPTIONAL -- Need OR

}}

}

CarrierFreqListNR-r15 ::= SEQUENCE (SIZE (1..maxFreq)) OF CarrierFreqNR-r15

CarrierFreqListNR-v16xy ::= SEQUENCE (SIZE (1..maxFreq)) OF CarrierFreqNR-v16xy

CarrierFreqNR-r15 ::= SEQUENCE {

carrierFreq-r15 ARFCN-ValueNR-r15,

multiBandInfoList-r15 MultiFrequencyBandListNR-r15 OPTIONAL, -- Need OR

multiBandInfoListSUL-r15 MultiFrequencyBandListNR-r15 OPTIONAL, -- Need OR

measTimingConfig-r15 MTC-SSB-NR-r15 OPTIONAL, -- Need OR

subcarrierSpacingSSB-r15 ENUMERATED {kHz15, kHz30, kHz120, kHz240},

ss-RSSI-Measurement-r15 SS-RSSI-Measurement-r15 OPTIONAL, -- Cond RSRQ2

cellReselectionPriority-r15 CellReselectionPriority OPTIONAL, -- Need OP

cellReselectionSubPriority-r15 CellReselectionSubPriority-r13 OPTIONAL, -- Need OR

threshX-High-r15 ReselectionThreshold,

threshX-Low-r15 ReselectionThreshold,

threshX-Q-r15 SEQUENCE {

threshX-HighQ-r15 ReselectionThresholdQ-r9,

threshX-LowQ-r15 ReselectionThresholdQ-r9

} OPTIONAL, -- Cond RSRQ

q-RxLevMin-r15 INTEGER (-70..-22),

q-RxLevMinSUL-r15 INTEGER (-70..-22) OPTIONAL, -- Need OR

p-MaxNR-r15 P-MaxNR-r15,

ns-PmaxListNR-r15 NS-PmaxListNR-r15 OPTIONAL, -- Need OR

q-QualMin-r15 INTEGER (-43..-12) OPTIONAL, -- Need OP

deriveSSB-IndexFromCell-r15 BOOLEAN,

maxRS-IndexCellQual-r15 MaxRS-IndexCellQualNR-r15 OPTIONAL, -- Need OR

threshRS-Index-r15 ThresholdListNR-r15 OPTIONAL, -- Need OR

...,

[[ multiBandNsPmaxListNR-v1550 MultiBandNsPmaxListNR-1-v1550 OPTIONAL, -- Need OR

multiBandNsPmaxListNR-SUL-v1550 MultiBandNsPmaxListNR-v1550 OPTIONAL, -- Need OR

ssb-ToMeasure-r15 SSB-ToMeasure-r15 OPTIONAL -- Need OR

]]

}

CarrierFreqNR-v16xy ::= SEQUENCE {

smtc2-LP-r16 MTC-SSB2-LP-NR-r16 OPTIONAL -- Need OR

}

MultiBandNsPmaxListNR-1-v1550 ::= SEQUENCE (SIZE (1.. maxMultiBandsNR-1-r15)) OF NS-PmaxListNR-r15

MultiBandNsPmaxListNR-v1550 ::= SEQUENCE (SIZE (1.. maxMultiBandsNR-r15)) OF NS-PmaxListNR-r15

-- ASN1STOP

| *SystemInformationBlockType24* field descriptions |
| --- |
| ***carrierFreqListNR***  List of carrier frequencies of NR carriers. These frequencies correspond to GSCN values as specified in TS 38.101 [85]. |
| ***cellReselectionPriority***  The field concerns the absolute priority of the concerned carrier frequency as used by the cell reselection procedure. Corresponds with parameter "priority" in TS 36.304 [4]. |
| ***deriveSSB-IndexFromCell***  The field indicates whether the UE may use, to derive the SSB index of a cell on the indicated SSB frequency and subcarrier spacing, the timing of any detected cell with the same SSB frequency and subcarrier spacing. If this field is set to TRUE, the UE assumes SFN and frame boundary alignment across cells on the same NR carrier frequency as specified in TS 36.133 [16]. |
| ***maxRS-IndexCellQual***  Number of SS blocks to average for cell measurement derivation. Corresponds to the parameter *nrofSS-BlocksToAverage* in TS 38.304 [92]. |
| ***measTimingConfig***  Used to configure measurement timing configurations, i.e., timing occasions at which the UE measures SSBs. If the field is absent, the UE assumes that SSB periodicity is 5ms in this frequency. |
| ***multiBandInfoList***  Indicates the list of frequency bands for which the NR cell reselection parameters apply. The UE shall select the first listed band which it supports in the *multiBandInfoList* field to represent the NR neighbour carrier frequency. The network always includes this field. |
| ***multiBandInfoListSUL***  Indicates the list of frequency bands for which the NR cell reselection parameters apply. The UE shall select the first listed band which it supports in the *multiBandInfoListSUL* field to represent the NR neighbour carrier frequency. |
| ***multiBandNsPmaxListNR***  Indicates the *NS-PmaxListNR* configuration for the NR frequency band(s) listed in *multiBandInfoList*. The first entry corresponds to the second listed band in *multiBandInfoList*, and second entry corresponds to the third listed band in *multiBandInfoList*, and so on. |
| ***multiBandNsPmaxListNR-SUL***  Indicates the *NS-PmaxListNR* configuration for the NR SUL frequency band(s) listed in *multiBandInfoListSUL*. The first entry corresponds to the first listed band in *multiBandInfoListSUL*, and second entry corresponds to the second listed band in *multiBandInfoListSUL*, and so on. |
| ***ns-PmaxListNR***  Indicates a list of *additionalPmax* and *additionalSpectrumEmission*, corresponds to the first listed band in the *multiBandInfoList*. |
| ***p-MaxNR***  Indicates the maximum power for NR (see TS 38.104 [91]) the UE can use in NR SCG. |
| ***q-QualMin***  Parameter "Qqualmin" in TS 36.304 [4], applicable for NR neighbour cells. If the field is not present, the UE applies the (default) value of negative infinity for Qqualmin. |
| ***q-RxLevMin***  Parameter "Qrxlevmin" in TS 36.304 [4], applicable for NR neighbour cells. |
| ***q-RxLevMinSUL***  Parameter "QrxlevminSUL" in TS 38.304 [92], applicable for NR neighbouring cells. |
| ***smtc2-LP***  Measurement timing configuration for inter-RAT neighbour cells in NR with a Long Periodicity (LP) indicated by periodicity in *smtc2-LP*. The timing offset and duration are equal to the offset and duration indicated in *measTimingConfig* in *CarrierFreqNR*. The periodicity in *smtc2-LP* can only be set to a value strictly larger than the periodicity in *measTimingConfig* in *CarrierFreqNR* (e.g. if *measTimingConfig* indicates sf20 the Long Periodicity can only be set to sf40, sf80 or sf160, if *measTimingConfig* indicates sf160, *smtc2-LP* cannot be configured). The *pci-List*, if present, includes the physical cell identities of the inter-RAT neighbour cells with Long Periodicity. If *smtc2-LP* is absent, the UE assumes that there are no inter-RAT neighbour cells with a Long Periodicity. |
| ***ssb-ToMeasure***  The set of SS blocks to be measured within the SMTC measurement duration (see TS 38.215 [89]). When the field is absent the UE measures on all SS-blocks. |
| ***ss-RSSI-Measurements***  Indicates the SSB-based RSSI measurement configuration. If the field is absent, the UE behaviour is defined in TS 38.215 [89], clause 5.1.3. |
| ***threshRS-Index***  List of thresholds for consolidation of L1 measurements per RS index. Corresponds to the parameter *absThreshSS-BlocksConsolidation* in TS 38.304 [92]. |
| ***threshX-High***  Parameter "ThreshX, HighP" in TS 36.304 [4]. |
| ***threshX-HighQ***  Parameter "ThreshX, HighQ" in TS 36.304 [4]. |
| ***threshX-Low***  Parameter "ThreshX, LowP" in TS 36.304 [4]. |
| ***threshX-LowQ***  Parameter "ThreshX, LowQ" in TS 36.304 [4]. |
| ***t-ReselectionNR***  Parameter "TreselectionNR" in TS 36.304 [4]. |
| ***t-ReselectionNR-SF***  Parameter "Speed dependent ScalingFactor for TreselectionNR" in TS 36.304 [4]. If the field is not present, the UE behaviour is specified in TS 36.304 [4]. |

| Conditional presence | Explanation |
| --- | --- |
| *RSRQ* | The field is mandatory present if the *threshServingLowQ* is present in *systemInformationBlockType3*; otherwise it is not present. |
| *RSRQ2* | The field is optional Need OP if the *threshServingLowQ* is present in *systemInformationBlockType3*; otherwise it is not present. |

6.3.2 Radio resource control information elements

>Next modified section

#### – *LogicalChannelConfig*

The IE *LogicalChannelConfig* is used to configure the logical channel parameters.

*LogicalChannelConfig* information element

-- ASN1START

LogicalChannelConfig ::= SEQUENCE {

ul-SpecificParameters SEQUENCE {

priority INTEGER (1..16),

prioritisedBitRate ENUMERATED {

kBps0, kBps8, kBps16, kBps32, kBps64, kBps128,

kBps256, infinity, kBps512-v1020, kBps1024-v1020,

kBps2048-v1020, spare5, spare4, spare3, spare2,

spare1},

bucketSizeDuration ENUMERATED {

ms50, ms100, ms150, ms300, ms500, ms1000, spare2,

spare1},

logicalChannelGroup INTEGER (0..3) OPTIONAL -- Need OR

} OPTIONAL, -- Cond UL

...,

[[ logicalChannelSR-Mask-r9 ENUMERATED {setup} OPTIONAL -- Cond SRmask

]],

[[ logicalChannelSR-Prohibit-r12 BOOLEAN OPTIONAL -- Need ON

]],

[[ laa-UL-Allowed-r14 BOOLEAN OPTIONAL, -- Need ON

bitRateQueryProhibitTimer-r14 ENUMERATED {

s0, s0dot4, s0dot8, s1dot6, s3, s6, s12,

s30} OPTIONAL --Need OR

]],

[[ allowedTTI-Lengths-r15 CHOICE {

release NULL,

setup SEQUENCE {

shortTTI-r15 BOOLEAN,

subframeTTI-r15 BOOLEAN

}

} OPTIONAL, -- Need ON

logicalChannelSR-Restriction-r15 CHOICE {

release NULL,

setup ENUMERATED {spucch, pucch}

} OPTIONAL, -- Need ON

channelAccessPriority-r15 CHOICE {

release NULL,

setup INTEGER (1..4)

} OPTIONAL, -- Need ON

lch-CellRestriction-r15 BIT STRING (SIZE (maxServCell-r13)) OPTIONAL -- Need ON

]],

[[

bitRateMultiplier-r16 ENUMERATED {x40, x70, x100, x200} OPTIONAL -- Need OR

]]

}

-- ASN1STOP

| *LogicalChannelConfig* field descriptions |
| --- |
| ***allowedTTI-Lengths***  Indicates the allowed TTI lengths for the logical channel. If not configured, the UE is allowed to transmit the logical channel using any TTI length. |
| ***bitRateMultiplier***  Bit rate multiplier for recommended bit rate MAC CE as specified in TS 36.321 [6]. Value *x40* indicates bit rate multiplier 40, value *x70* indicates bit rate multiplier 70 and so on. |
| ***bitRateQueryProhibitTimer***  The timer is used for bit rate recommendation query in TS 36.321 [6], clause 5.18, in seconds. Value s0 means 0s, s0dot4 means 0.4s and so on. |
| ***bucketSizeDuration***  Bucket Size Duration for logical channel prioritization in TS 36.321 [6]. Value in milliseconds. Value ms50 corresponds to 50 ms, ms100 corresponds to 100 ms and so on. |
| ***channelAccessPriority***  Indicates the channel access priority class for the logical channel. UE shall select the lowest channel access priority class (i.e. highest signalled value) of the logical channel with MAC SDU multiplexed into the MAC PDU. MAC CEs except padding BSR apply the highest channel access priority class (i.e. lowest signalled value) , as defined in TS 36.300 [9]. |
| ***laa-UL-Allowed***  Indicates whether the data of a logical channel is allowed to be transmitted via UL of LAA SCells. Value *TRUE* indicates that the logical channel is allowed to be sent via UL of LAA SCells. Value *FALSE* indicates that the logical channel is not allowed to be sent via UL of LAA SCells. |
| ***lch-CellRestriction***  Indicates cells which are restricted for the logical channel, The bit is set to 1 if the cell is restricted and to 0 if the cell is not restricted, for each cell. The least significant bit corresponds to the serving cell with index 0, the next bit corresponds to the serving cell with index 1, and so on. If the cell is restricted for the logical channel, then data for the logical channel is not allowed to be sent using that cell. If the field is not included, no cells are restricted. See also TS 36.321 [6], clause 5.4.3.1. The restriction is only active when PDCP duplication using CA is activated. |
| ***logicalChannelGroup***  Mapping of logical channel to logical channel group for BSR reporting in TS 36.321 [6]. |
| ***logicalChannelSR-Mask***  Controlling SR triggering on a logical channel basis when an uplink grant is configured. See TS 36.321 [6]. |
| ***logicalChannelSR-Prohibit***  Value *TRUE* indicates that the *logicalChannelSR-ProhibitTimer* is enabled for the logical channel. E-UTRAN only (optionally) configures the field (i.e. indicates value *TRUE*) if *logicalChannelSR-ProhibitTimer* is configured. See TS 36.321 [6]. |
| ***logicalChannelSR-Restriction***  Defines the restricted SR configuration for the logical channel. Value spucch indicates that the SR cannot be sent on SPUCCH and value pucch indicates that the SR cannot be sent on PUCCH. If not configured, the UE is allowed to transmit the SR on any SR resource. |
| ***prioritisedBitRate***  Prioritized Bit Rate for logical channel prioritization in TS 36.321 [6]. Value in kilobytes/second. Value kBps0 corresponds to 0 kB/second, kBps8 corresponds to 8 kB/second, kBps16 corresponds to 16 kB/second and so on. Infinity is the only applicable value for SRB1 and SRB2 |
| ***priority***  Logical channel priority in TS 36.321 [6]. Value is an integer. |
| ***shortTTI, subframeTTI***  For short TTIs and subframe TTIs respectively: Value TRUE indicates that the UE is allowed to transmit using this TTI length for the logical channel and the value FALSE indicates that the UE is not allowed to transmit using this TTI length for the logical channel. If not configured for a TTI length, then the UE is allowed to transmit this logical channel using this TTI length. |

| Conditional presence | Explanation |
| --- | --- |
| *SRmask* | The field is optionally present if *ul-SpecificParameters* is present, need OR; otherwise it is not present. |
| *UL* | The field is mandatory present for UL logical channels; otherwise it is not present. |

– *PhysicalConfigDedicated*

The IE *PhysicalConfigDedicated* is used to specify the UE specific physical channel configuration.

***PhysicalConfigDedicated* information element**

-- ASN1START

PhysicalConfigDedicated ::= SEQUENCE {

pdsch-ConfigDedicated PDSCH-ConfigDedicated OPTIONAL, -- Need ON

pucch-ConfigDedicated PUCCH-ConfigDedicated OPTIONAL, -- Need ON

pusch-ConfigDedicated PUSCH-ConfigDedicated OPTIONAL, -- Need ON

uplinkPowerControlDedicated UplinkPowerControlDedicated OPTIONAL, -- Need ON

tpc-PDCCH-ConfigPUCCH TPC-PDCCH-Config OPTIONAL, -- Need ON

tpc-PDCCH-ConfigPUSCH TPC-PDCCH-Config OPTIONAL, -- Need ON

cqi-ReportConfig CQI-ReportConfig OPTIONAL, -- Cond CQI-r8

soundingRS-UL-ConfigDedicated SoundingRS-UL-ConfigDedicated OPTIONAL, -- Need ON

antennaInfo CHOICE {

explicitValue AntennaInfoDedicated,

defaultValue NULL

} OPTIONAL, -- Cond AI-r8

schedulingRequestConfig SchedulingRequestConfig OPTIONAL, -- Need ON

...,

[[ cqi-ReportConfig-v920 CQI-ReportConfig-v920 OPTIONAL, -- Cond CQI-r8

antennaInfo-v920 AntennaInfoDedicated-v920 OPTIONAL -- Cond AI-r8

]],

[[ antennaInfo-r10 CHOICE {

explicitValue-r10 AntennaInfoDedicated-r10,

defaultValue NULL

} OPTIONAL, -- Cond AI-r10

antennaInfoUL-r10 AntennaInfoUL-r10 OPTIONAL, -- Need ON

cif-Presence-r10 BOOLEAN OPTIONAL, -- Need ON

cqi-ReportConfig-r10 CQI-ReportConfig-r10 OPTIONAL, -- Cond CQI-r10

csi-RS-Config-r10 CSI-RS-Config-r10 OPTIONAL, -- Need ON

pucch-ConfigDedicated-v1020 PUCCH-ConfigDedicated-v1020 OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1020 PUSCH-ConfigDedicated-v1020 OPTIONAL, -- Need ON

schedulingRequestConfig-v1020 SchedulingRequestConfig-v1020 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicated-v1020

SoundingRS-UL-ConfigDedicated-v1020 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedAperiodic-r10

SoundingRS-UL-ConfigDedicatedAperiodic-r10 OPTIONAL, -- Need ON

uplinkPowerControlDedicated-v1020

UplinkPowerControlDedicated-v1020 OPTIONAL -- Need ON

]],

[[ additionalSpectrumEmissionCA-r10 CHOICE {

release NULL,

setup SEQUENCE {

additionalSpectrumEmissionPCell-r10 AdditionalSpectrumEmission

}

} OPTIONAL -- Need ON

]],

[[ -- DL configuration as well as configuration applicable for DL and UL

csi-RS-ConfigNZPToReleaseList-r11

CSI-RS-ConfigNZPToReleaseList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToAddModList-r11

CSI-RS-ConfigNZPToAddModList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigZPToReleaseList-r11

CSI-RS-ConfigZPToReleaseList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigZPToAddModList-r11 CSI-RS-ConfigZPToAddModList-r11 OPTIONAL, -- Need ON

epdcch-Config-r11 EPDCCH-Config-r11 OPTIONAL, -- Need ON

pdsch-ConfigDedicated-v1130 PDSCH-ConfigDedicated-v1130 OPTIONAL, -- Need ON

-- UL configuration

cqi-ReportConfig-v1130 CQI-ReportConfig-v1130 OPTIONAL, -- Need ON

pucch-ConfigDedicated-v1130 PUCCH-ConfigDedicated-v1130 OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1130 PUSCH-ConfigDedicated-v1130 OPTIONAL, -- Need ON

uplinkPowerControlDedicated-v1130

UplinkPowerControlDedicated-v1130 OPTIONAL -- Need ON

]],

[[ antennaInfo-v1250 AntennaInfoDedicated-v1250 OPTIONAL, -- Cond AI-r10

eimta-MainConfig-r12 EIMTA-MainConfig-r12 OPTIONAL, -- Need ON

eimta-MainConfigPCell-r12 EIMTA-MainConfigServCell-r12 OPTIONAL, -- Need ON

pucch-ConfigDedicated-v1250 PUCCH-ConfigDedicated-v1250 OPTIONAL, -- Need ON

cqi-ReportConfigPCell-v1250 CQI-ReportConfig-v1250 OPTIONAL, -- Need ON

uplinkPowerControlDedicated-v1250

UplinkPowerControlDedicated-v1250 OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1250 PUSCH-ConfigDedicated-v1250 OPTIONAL, -- Need ON

csi-RS-Config-v1250 CSI-RS-Config-v1250 OPTIONAL -- Need ON

]],

[[ pdsch-ConfigDedicated-v1280 PDSCH-ConfigDedicated-v1280 OPTIONAL -- Need ON

]],

[[ pdsch-ConfigDedicated-v1310 PDSCH-ConfigDedicated-v1310 OPTIONAL, -- Need ON

pucch-ConfigDedicated-r13 PUCCH-ConfigDedicated-r13 OPTIONAL, -- Need ON

pusch-ConfigDedicated-r13 PUSCH-ConfigDedicated-r13 OPTIONAL, -- Need ON

pdcch-CandidateReductions-r13

PDCCH-CandidateReductions-r13 OPTIONAL, -- Need ON

cqi-ReportConfig-v1310 CQI-ReportConfig-v1310 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicated-v1310

SoundingRS-UL-ConfigDedicated-v1310 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedUpPTsExt-r13

SoundingRS-UL-ConfigDedicatedUpPTsExt-r13 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedAperiodic-v1310

SoundingRS-UL-ConfigDedicatedAperiodic-v1310 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13

SoundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13 OPTIONAL, -- Need ON

csi-RS-Config-v1310 CSI-RS-Config-v1310 OPTIONAL, -- Need ON

ce-Mode-r13 CHOICE {

release NULL,

setup ENUMERATED {ce-ModeA,ce-ModeB}

} OPTIONAL, -- Need ON

csi-RS-ConfigNZPToAddModListExt-r13 CSI-RS-ConfigNZPToAddModListExt-r13 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToReleaseListExt-r13 CSI-RS-ConfigNZPToReleaseListExt-r13 OPTIONAL -- Need ON

]],

[[ cqi-ReportConfig-v1320 CQI-ReportConfig-v1320 OPTIONAL -- Need ON

]],

[[ typeA-SRS-TPC-PDCCH-Group-r14 CHOICE {

release NULL,

setup SEQUENCE (SIZE (1..32)) OF SRS-TPC-PDCCH-Config-r14

} OPTIONAL, -- Need ON

must-Config-r14 CHOICE{

release NULL,

setup SEQUENCE {

k-max-r14 ENUMERATED {l1, l3},

p-a-must-r14 ENUMERATED {

dB-6, dB-4dot77, dB-3, dB-1dot77,

dB0, dB1, dB2, dB3} OPTIONAL -- Need ON

}

} OPTIONAL, -- Need ON

pusch-EnhancementsConfig-r14 PUSCH-EnhancementsConfig-r14 OPTIONAL, -- Need ON

ce-pdsch-pusch-EnhancementConfig-r14 ENUMERATED {on} OPTIONAL, -- Need OR

antennaInfo-v1430 AntennaInfoDedicated-v1430 OPTIONAL, -- Need ON

pucch-ConfigDedicated-v1430 PUCCH-ConfigDedicated-v1430 OPTIONAL, -- Need ON

pdsch-ConfigDedicated-v1430 PDSCH-ConfigDedicated-v1430 OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1430 PUSCH-ConfigDedicated-v1430 OPTIONAL, -- Need ON

soundingRS-UL-PeriodicConfigDedicatedList-r14 SEQUENCE (SIZE (1..2)) OF SoundingRS-UL-ConfigDedicated OPTIONAL, -- Cond PeriodicSRSPCell

soundingRS-UL-PeriodicConfigDedicatedUpPTsExtList-r14 SEQUENCE (SIZE (1..4)) OF SoundingRS-UL-ConfigDedicatedUpPTsExt-r13 OPTIONAL, -- Cond PeriodicSRSExt

soundingRS-UL-AperiodicConfigDedicatedList-r14 SEQUENCE (SIZE (1..2)) OF SoundingRS-UL-ConfigDedicatedAperiodic-r10 OPTIONAL, -- Cond AperiodicSRS

soundingRS-UL-ConfigDedicatedApUpPTsExtList-r14 SEQUENCE (SIZE (1..4)) OF SoundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13 OPTIONAL, -- Cond AperiodicSRSExt

csi-RS-Config-v1430 CSI-RS-Config-v1430 OPTIONAL, -- Need ON

csi-RS-ConfigZP-ApList-r14 CSI-RS-ConfigZP-ApList-r14 OPTIONAL, -- Need ON

cqi-ReportConfig-v1430 CQI-ReportConfig-v1430 OPTIONAL, -- Need ON

semiOpenLoop-r14 BOOLEAN OPTIONAL -- Need ON

]],

[[ csi-RS-Config-v1480 CSI-RS-Config-v1480 OPTIONAL -- Need ON

]],

[[ physicalConfigDedicatedSTTI-r15 PhysicalConfigDedicatedSTTI-r15 OPTIONAL,-- Need ON

pdsch-ConfigDedicated-v1530 PDSCH-ConfigDedicated-v1530 OPTIONAL,-- Need ON

pusch-ConfigDedicated-v1530 PUSCH-ConfigDedicated-v1530 OPTIONAL,-- Need ON

cqi-ReportConfig-v1530 CQI-ReportConfig-v1530 OPTIONAL,-- Need ON

antennaInfo-v1530 AntennaInfoDedicated-v1530 OPTIONAL,-- Need ON

csi-RS-Config-v1530 CSI-RS-Config-v1530 OPTIONAL,-- Need ON

uplinkPowerControlDedicated-v1530

UplinkPowerControlDedicated-v1530 OPTIONAL, -- Need ON

semiStaticCFI-Config-r15 CHOICE{

release NULL,

setup CHOICE{

cfi-Config-r15 CFI-Config-r15,

cfi-PatternConfig-r15 CFI-PatternConfig-r15

}

} OPTIONAL, -- Need ON

blindPDSCH-Repetition-Config-r15 CHOICE{

release NULL,

setup SEQUENCE {

blindSubframePDSCH-Repetitions-r15 BOOLEAN,

blindSlotSubslotPDSCH-Repetitions-r15 BOOLEAN,

maxNumber-SubframePDSCH-Repetitions-r15 ENUMERATED {n4,n6} OPTIONAL, -- Need ON

maxNumber-SlotSubslotPDSCH-Repetitions-r15 ENUMERATED {n4,n6} OPTIONAL, -- Need ON

rv-SubframePDSCH-Repetitions-r15 ENUMERATED {dlrvseq1, dlrvseq2} OPTIONAL, -- Need ON

rv-SlotsublotPDSCH-Repetitions-r15 ENUMERATED {dlrvseq1, dlrvseq2} OPTIONAL, -- Need ON

numberOfProcesses-SubframePDSCH-Repetitions-r15 INTEGER(1..16) OPTIONAL, -- Need ON

numberOfProcesses-SlotSubslotPDSCH-Repetitions-r15 INTEGER(1..16) OPTIONAL, -- Need ON

mcs-restrictionSubframePDSCH-Repetitions-r15 ENUMERATED {n0, n1} OPTIONAL, -- Need ON

mcs-restrictionSlotSubslotPDSCH-Repetitions-r15 ENUMERATED {n0, n1} OPTIONAL -- Need ON

}

} OPTIONAL -- Need ON

]],

[[ spucch-Config-v1550 SPUCCH-Config-v1550 OPTIONAL -- Need ON

]],

[[ pdsch-ConfigDedicated-v16xy PDSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

pusch-ConfigDedicated-v16xy PUSCH-ConfigDedicated-v16xy OPTIONAL, -- Need ON

ce-CSI-RS-Feedback-r16 ENUMERATED {enabled} OPTIONAL, -- Need OR

-- Editor's Note: NR resource allocation for eMTC coexistence with NR is not captured in this version of the specification.

soundingRS-UL-ConfigDedicatedAdd-r16 SetupRelease {SoundingRS-UL-ConfigDedicatedAdd-r16}

OPTIONAL, -- Need ON

uplinkPowerControlAddSRS-r16 SetupRelease {UplinkPowerControlAddSRS-r16} OPTIONAL, -- Need ON

soundingRS-VirtualCellID-r16 SetupRelease {SoundingRS-VirtualCellID-r16} OPTIONAL, -- Need ON

widebandPRG-r16 SetupRelease {WidebandPRG-r16} OPTIONAL -- Need ON

]]

}

PhysicalConfigDedicated-v1370 ::= SEQUENCE {

pucch-ConfigDedicated-v1370 PUCCH-ConfigDedicated-v1370 OPTIONAL -- Cond PUCCH-Format4or5

}

PhysicalConfigDedicated-v13c0 ::= SEQUENCE {

pucch-ConfigDedicated-v13c0 PUCCH-ConfigDedicated-v13c0

}

PhysicalConfigDedicatedSCell-r10 ::= SEQUENCE {

-- DL configuration as well as configuration applicable for DL and UL

nonUL-Configuration-r10 SEQUENCE {

antennaInfo-r10

AntennaInfoDedicated-r10 OPTIONAL, -- Need ON

crossCarrierSchedulingConfig-r10

CrossCarrierSchedulingConfig-r10 OPTIONAL, -- Need ON

csi-RS-Config-r10 CSI-RS-Config-r10 OPTIONAL, -- Need ON

pdsch-ConfigDedicated-r10 PDSCH-ConfigDedicated OPTIONAL -- Need ON

} OPTIONAL, -- Cond SCellAdd

-- UL configuration

ul-Configuration-r10 SEQUENCE {

antennaInfoUL-r10 AntennaInfoUL-r10 OPTIONAL, -- Need ON

pusch-ConfigDedicatedSCell-r10

PUSCH-ConfigDedicatedSCell-r10 OPTIONAL, -- Cond PUSCH-SCell1

uplinkPowerControlDedicatedSCell-r10

UplinkPowerControlDedicatedSCell-r10 OPTIONAL, -- Need ON

cqi-ReportConfigSCell-r10 CQI-ReportConfigSCell-r10 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicated-r10

SoundingRS-UL-ConfigDedicated OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicated-v1020

SoundingRS-UL-ConfigDedicated-v1020 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedAperiodic-r10

SoundingRS-UL-ConfigDedicatedAperiodic-r10 OPTIONAL -- Need ON

} OPTIONAL, -- Cond CommonUL

...,

[[ -- DL configuration as well as configuration applicable for DL and UL

csi-RS-ConfigNZPToReleaseList-r11

CSI-RS-ConfigNZPToReleaseList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToAddModList-r11

CSI-RS-ConfigNZPToAddModList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigZPToReleaseList-r11

CSI-RS-ConfigZPToReleaseList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigZPToAddModList-r11

CSI-RS-ConfigZPToAddModList-r11 OPTIONAL, -- Need ON

epdcch-Config-r11 EPDCCH-Config-r11 OPTIONAL, -- Need ON

pdsch-ConfigDedicated-v1130 PDSCH-ConfigDedicated-v1130 OPTIONAL, -- Need ON

-- UL configuration

cqi-ReportConfig-v1130 CQI-ReportConfig-v1130 OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1130

PUSCH-ConfigDedicated-v1130 OPTIONAL, -- Cond PUSCH-SCell1

uplinkPowerControlDedicatedSCell-v1130

UplinkPowerControlDedicated-v1130 OPTIONAL -- Need ON

]],

[[ antennaInfo-v1250 AntennaInfoDedicated-v1250 OPTIONAL, -- Need ON

eimta-MainConfigSCell-r12

EIMTA-MainConfigServCell-r12 OPTIONAL, -- Need ON

cqi-ReportConfigSCell-v1250 CQI-ReportConfig-v1250 OPTIONAL, -- Need ON

uplinkPowerControlDedicatedSCell-v1250

UplinkPowerControlDedicated-v1250 OPTIONAL, -- Need ON

csi-RS-Config-v1250 CSI-RS-Config-v1250 OPTIONAL -- Need ON

]],

[[ pdsch-ConfigDedicated-v1280 PDSCH-ConfigDedicated-v1280 OPTIONAL -- Need ON

]],

[[ pucch-Cell-r13 ENUMERATED {true} OPTIONAL, -- Cond PUCCH-SCell1

pucch-SCell CHOICE{

release NULL,

setup SEQUENCE {

pucch-ConfigDedicated-r13

PUCCH-ConfigDedicated-r13 OPTIONAL, -- Need ON

schedulingRequestConfig-r13

SchedulingRequestConfigSCell-r13 OPTIONAL, -- Need ON

tpc-PDCCH-ConfigPUCCH-SCell-r13

TPC-PDCCH-ConfigSCell-r13 OPTIONAL, -- Need ON

pusch-ConfigDedicated-r13

PUSCH-ConfigDedicated-r13 OPTIONAL, -- Cond PUSCH-SCell

uplinkPowerControlDedicated-r13

UplinkPowerControlDedicatedSCell-v1310 OPTIONAL -- Need ON

}

} OPTIONAL, -- Need ON

crossCarrierSchedulingConfig-r13

CrossCarrierSchedulingConfig-r13 OPTIONAL, -- Cond Cross-Carrier-Config

pdcch-ConfigSCell-r13 PDCCH-ConfigSCell-r13 OPTIONAL, -- Need ON

cqi-ReportConfig-v1310 CQI-ReportConfig-v1310 OPTIONAL, -- Need ON

pdsch-ConfigDedicated-v1310 PDSCH-ConfigDedicated-v1310 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicated-v1310

SoundingRS-UL-ConfigDedicated-v1310 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedUpPTsExt-r13

SoundingRS-UL-ConfigDedicatedUpPTsExt-r13 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedAperiodic-v1310

SoundingRS-UL-ConfigDedicatedAperiodic-v1310 OPTIONAL, -- Need ON

soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13

SoundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13 OPTIONAL, -- Need ON

csi-RS-Config-v1310 CSI-RS-Config-v1310 OPTIONAL, -- Need ON

laa-SCellConfiguration-r13 LAA-SCellConfiguration-r13 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToAddModListExt-r13 CSI-RS-ConfigNZPToAddModListExt-r13 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToReleaseListExt-r13 CSI-RS-ConfigNZPToReleaseListExt-r13 OPTIONAL -- Need ON

]],

[[ cqi-ReportConfig-v1320 CQI-ReportConfig-v1320 OPTIONAL -- Need ON

]],

[[ laa-SCellConfiguration-v1430 LAA-SCellConfiguration-v1430

OPTIONAL, -- Need ON

typeB-SRS-TPC-PDCCH-Config-r14 SRS-TPC-PDCCH-Config-r14 OPTIONAL, -- Need ON

uplinkPUSCH-LessPowerControlDedicated-v1430 UplinkPUSCH-LessPowerControlDedicated-v1430 OPTIONAL, -- Need ON

soundingRS-UL-PeriodicConfigDedicatedList-r14 SEQUENCE (SIZE (1..2)) OF SoundingRS-UL-ConfigDedicated OPTIONAL, -- Cond PeriodicSRS

soundingRS-UL-PeriodicConfigDedicatedUpPTsExtList-r14 SEQUENCE (SIZE (1..4)) OF SoundingRS-UL-ConfigDedicatedUpPTsExt-r13 OPTIONAL, -- Cond PeriodicSRSExt

soundingRS-UL-AperiodicConfigDedicatedList-r14 SEQUENCE (SIZE (1..2)) OF SoundingRS-AperiodicSet-r14 OPTIONAL, -- Cond AperiodicSRS

soundingRS-UL-ConfigDedicatedApUpPTsExtList-r14 SEQUENCE (SIZE (1..4)) OF SoundingRS-AperiodicSetUpPTsExt-r14 OPTIONAL, -- Cond AperiodicSRSExt

must-Config-r14 CHOICE{

release NULL,

setup SEQUENCE {

k-max-r14 ENUMERATED {l1, l3},

p-a-must-r14 ENUMERATED {

dB-6, dB-4dot77, dB-3, dB-1dot77,

dB0, dB1, dB2, dB3} OPTIONAL -- Need ON

}

} OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1430 PUSCH-ConfigDedicatedSCell-v1430 OPTIONAL, -- Need ON

csi-RS-Config-v1430 CSI-RS-Config-v1430 OPTIONAL, -- Need ON

csi-RS-ConfigZP-ApList-r14 CSI-RS-ConfigZP-ApList-r14 OPTIONAL, -- Need ON

cqi-ReportConfig-v1430 CQI-ReportConfig-v1430 OPTIONAL, -- Need ON

semiOpenLoop-r14 BOOLEAN OPTIONAL, -- Need ON

pdsch-ConfigDedicatedSCell-v1430 PDSCH-ConfigDedicatedSCell-v1430 OPTIONAL -- Need ON

]],

[[ csi-RS-Config-v1480 CSI-RS-Config-v1480 OPTIONAL -- Need ON

]],

[[ physicalConfigDedicatedSTTI-r15 PhysicalConfigDedicatedSTTI-r15 OPTIONAL, -- Need ON

pdsch-ConfigDedicated-v1530 PDSCH-ConfigDedicated-v1530 OPTIONAL, -- Need ON

dummy CQI-ReportConfig-v1530 OPTIONAL, -- Need ON

cqi-ReportConfigSCell-r15 CQI-ReportConfigSCell-r15 OPTIONAL, -- Need ON

cqi-ShortConfigSCell-r15 CQI-ShortConfigSCell-r15 OPTIONAL, -- Need ON

csi-RS-Config-v1530 CSI-RS-Config-v1530 OPTIONAL, -- Need ON

uplinkPowerControlDedicatedSCell-v1530

UplinkPowerControlDedicated-v1530 OPTIONAL, -- Need ON

laa-SCellConfiguration-v1530 LAA-SCellConfiguration-v1530 OPTIONAL, -- Need ON

pusch-ConfigDedicated-v1530 PUSCH-ConfigDedicatedScell-v1530 OPTIONAL, -- Cond AUL

semiStaticCFI-Config-r15 CHOICE{

release NULL,

setup CHOICE{

cfi-Config-r15 CFI-Config-r15,

cfi-PatternConfig-r15 CFI-PatternConfig-r15

}

} OPTIONAL, -- Need ON

blindPDSCH-Repetition-Config-r15 CHOICE{

release NULL,

setup SEQUENCE {

blindSubframePDSCH-Repetitions-r15 BOOLEAN,

blindSlotSubslotPDSCH-Repetitions-r15 BOOLEAN,

maxNumber-SubframePDSCH-Repetitions-r15 ENUMERATED {n4,n6} OPTIONAL, -- Need ON

maxNumber-SlotSubslotPDSCH-Repetitions-r15 ENUMERATED {n4,n6} OPTIONAL, -- Need ON

rv-SubframePDSCH-Repetitions-r15 ENUMERATED {dlrvseq1, dlrvseq2} OPTIONAL, -- Need ON

rv-SlotsublotPDSCH-Repetitions-r15 ENUMERATED {dlrvseq1, dlrvseq2} OPTIONAL, -- Need ON

numberOfProcesses-SubframePDSCH-Repetitions-r15 INTEGER(1..16) OPTIONAL, -- Need ON

numberOfProcesses-SlotSubslotPDSCH-Repetitions-r15 INTEGER(1..16) OPTIONAL, -- Need ON

mcs-restrictionSubframePDSCH-Repetitions-r15 ENUMERATED {n0, n1} OPTIONAL, -- Need ON

mcs-restrictionSlotSubslotPDSCH-Repetitions-r15 ENUMERATED {n0, n1} OPTIONAL -- Need ON

}

} OPTIONAL -- Need ON

]],

[[ spucch-Config-v1550 SPUCCH-Config-v1550 OPTIONAL -- Need ON

]],

[[ soundingRS-UL-ConfigDedicatedAdd-r16 SetupRelease {SoundingRS-UL-ConfigDedicatedAdd-r16}

OPTIONAL, -- Need ON

uplinkPowerControlAddSRS-r16 UplinkPowerControlAddSRS-r16

OPTIONAL, -- Need ON

soundingRS-VirtualCellID-r16 SoundingRS-VirtualCellID-r16

OPTIONAL, -- Need ON

widebandPRG-r16 WidebandPRG-r16 OPTIONAL -- Need ON

]]

}

PhysicalConfigDedicatedSCell-v1370 ::= SEQUENCE {

pucch-SCell-v1370 CHOICE{

release NULL,

setup SEQUENCE {

pucch-ConfigDedicated-v1370 PUCCH-ConfigDedicated-v1370 OPTIONAL -- Cond PUCCH-Format4or5

}

}

}

PhysicalConfigDedicatedSCell-v13c0 ::= SEQUENCE {

pucch-SCell-v13c0 CHOICE{

release NULL,

setup SEQUENCE {

pucch-ConfigDedicated-v13c0 PUCCH-ConfigDedicated-v13c0

}

}

}

CFI-Config-r15 ::= SEQUENCE {

cfi-SubframeNonMBSFN-r15 INTEGER (1..4) OPTIONAL, -- Need ON

cfi-SlotSubslotNonMBSFN-r15 INTEGER (1..3) OPTIONAL, -- Need ON

cfi-SubframeMBSFN-r15 INTEGER (1..2) OPTIONAL, -- Need ON

cfi-SlotSubslotMBSFN-r15 INTEGER (1..2) OPTIONAL -- Need ON

}

CFI-PatternConfig-r15 ::= SEQUENCE {

cfi-PatternSubframe-r15 SEQUENCE (SIZE(10)) OF INTEGER (1..4) OPTIONAL, -- Need ON

cfi-PatternSlotSubslot-r15 SEQUENCE (SIZE(10)) OF INTEGER (1..3) OPTIONAL -- Need ON

}

LAA-SCellConfiguration-r13 ::= SEQUENCE {

subframeStartPosition-r13 ENUMERATED {s0, s07},

laa-SCellSubframeConfig-r13 BIT STRING (SIZE(8))

}

LAA-SCellConfiguration-v1430 ::= SEQUENCE {

crossCarrierSchedulingConfig-UL-r14 CHOICE {

release NULL,

setup SEQUENCE {

crossCarrierSchedulingConfigLAA-UL-r14 CrossCarrierSchedulingConfigLAA-UL-r14

}

} OPTIONAL, -- Cond Cross-Carrier-ConfigUL

lbt-Config-r14 LBT-Config-r14 OPTIONAL, -- Need ON

pdcch-ConfigLAA-r14 PDCCH-ConfigLAA-r14 OPTIONAL, -- Need ON

absenceOfAnyOtherTechnology-r14 ENUMERATED {true} OPTIONAL, -- Need OR

soundingRS-UL-ConfigDedicatedAperiodic-v1430

SoundingRS-UL-ConfigDedicatedAperiodic-v1430 OPTIONAL -- Need ON

}

LAA-SCellConfiguration-v1530 ::= SEQUENCE {

aul-Config-r15 AUL-Config-r15 OPTIONAL, -- Need ON

pusch-ModeConfigLAA-r15 PUSCH-ModeConfigLAA-r15 OPTIONAL -- Need OR

}

PUSCH-ModeConfigLAA-r15 ::= SEQUENCE {

laa-PUSCH-Mode1 BOOLEAN,

laa-PUSCH-Mode2 BOOLEAN,

laa-PUSCH-Mode3 BOOLEAN

}

LBT-Config-r14 ::= CHOICE{

maxEnergyDetectionThreshold-r14 INTEGER(-85..-52),

energyDetectionThresholdOffset-r14 INTEGER(-13..20)

}

CSI-RS-ConfigNZPToAddModList-r11 ::= SEQUENCE (SIZE (1..maxCSI-RS-NZP-r11)) OF CSI-RS-ConfigNZP-r11

CSI-RS-ConfigNZPToAddModListExt-r13 ::= SEQUENCE (SIZE (1..maxCSI-RS-NZP-v1310)) OF CSI-RS-ConfigNZP-r11

CSI-RS-ConfigNZPToAddModList-r15 ::= SEQUENCE (SIZE (1..maxCSI-RS-NZP-r13)) OF CSI-RS-ConfigNZP-r11

CSI-RS-ConfigNZPToReleaseList-r11 ::= SEQUENCE (SIZE (1..maxCSI-RS-NZP-r11)) OF CSI-RS-ConfigNZPId-r11

CSI-RS-ConfigNZPToReleaseListExt-r13 ::= SEQUENCE (SIZE (1..maxCSI-RS-NZP-v1310)) OF CSI-RS-ConfigNZPId-v1310

CSI-RS-ConfigNZPToReleaseList-r15 ::= SEQUENCE (SIZE (1..maxCSI-RS-NZP-r13)) OF CSI-RS-ConfigNZPId-r13

CSI-RS-ConfigZPToAddModList-r11 ::= SEQUENCE (SIZE (1..maxCSI-RS-ZP-r11)) OF CSI-RS-ConfigZP-r11

CSI-RS-ConfigZPToReleaseList-r11 ::= SEQUENCE (SIZE (1..maxCSI-RS-ZP-r11)) OF CSI-RS-ConfigZPId-r11

PhysicalConfigDedicatedSTTI-r15 ::= CHOICE {

release NULL,

setup SEQUENCE {

antennaInfoDedicatedSTTI-r15 AntennaInfoDedicatedSTTI-r15 OPTIONAL, -- Need ON

antennaInfoUL-STTI-r15 AntennaInfoUL-STTI-r15 OPTIONAL, -- Need ON

pucch-ConfigDedicated-v1530 PUCCH-ConfigDedicated-v1530 OPTIONAL, -- Need ON

schedulingRequestConfig-v1530 SchedulingRequestConfig-v1530 OPTIONAL, -- Need ON

uplinkPowerControlDedicatedSTTI-r15 UplinkPowerControlDedicatedSTTI-r15 OPTIONAL, --Need ON

cqi-ReportConfig-r15 CQI-ReportConfig-r15 OPTIONAL, -- Need ON

csi-RS-Config-r15 CSI-RS-Config-r15 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToReleaseList-r15 CSI-RS-ConfigNZPToReleaseList-r15 OPTIONAL, -- Need ON

csi-RS-ConfigNZPToAddModList-r15 CSI-RS-ConfigNZPToAddModList-r15 OPTIONAL, -- Need ON

csi-RS-ConfigZPToReleaseList-r15 CSI-RS-ConfigZPToReleaseList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigZPToAddModList-r11 CSI-RS-ConfigZPToAddModList-r11 OPTIONAL, -- Need ON

csi-RS-ConfigZP-ApList-r15 CSI-RS-ConfigZP-ApList-r14 OPTIONAL, -- Need ON

eimta-MainConfig-r12 EIMTA-MainConfig-r12 OPTIONAL, -- Need ON

eimta-MainConfigServCell-r15 EIMTA-MainConfigServCell-r12 OPTIONAL, -- Need ON

semiOpenLoopSTTI-r15 BOOLEAN,

slotOrSubslotPDSCH-Config-r15 SlotOrSubslotPDSCH-Config-r15 OPTIONAL, -- Need ON

slotOrSubslotPUSCH-Config-r15 SlotOrSubslotPUSCH-Config-r15 OPTIONAL, -- Need ON

spdcch-Config-r15 SPDCCH-Config-r15 OPTIONAL, -- Need ON

spucch-Config-r15 SPUCCH-Config-r15 OPTIONAL, -- Need ON

srs-DCI7-TriggeringConfig-r15 BOOLEAN,

shortProcessingTime-r15 BOOLEAN,

shortTTI-r15 ShortTTI-r15 OPTIONAL -- Need ON

}

}

SoundingRS-AperiodicSet-r14 ::= SEQUENCE{

srs-CC-SetIndexList-r14

SEQUENCE (SIZE (1..4)) OF SRS-CC-SetIndex-r14

OPTIONAL, -- Cond SRS-Trigger-TypeA

soundingRS-UL-ConfigDedicatedAperiodic-r14

SoundingRS-UL-ConfigDedicatedAperiodic-r10

}

SoundingRS-AperiodicSetUpPTsExt-r14 ::= SEQUENCE{

srs-CC-SetIndexList-r14

SEQUENCE (SIZE (1..4)) OF SRS-CC-SetIndex-r14

OPTIONAL, -- Cond SRS-Trigger-TypeA

soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r14

SoundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13

}

ShortTTI-r15 ::= SEQUENCE {

dl-STTI-Length-r15 ShortTTI-Length-r15 OPTIONAL, -- Need OR

ul-STTI-Length-r15 ShortTTI-Length-r15 OPTIONAL -- Need OR

}

ShortTTI-Length-r15 ::= ENUMERATED {slot, subslot}

SoundingRS-VirtualCellID-r16 ::= SEQUENCE {

srs-VirtualCellID-r16 INTEGER (0..503),

srs-VirtualCellID-AllSRS-r16 BOOLEAN

}

WidebandPRG-r16 ::= SEQUENCE {

widebandPRG-Subframe-r16 BOOLEAN,

widebandPRG-SlotSubslot-r16 BOOLEAN

}

-- ASN1STOP

| ***PhysicalConfigDedicated* field descriptions** |
| --- |
| ***absenceOfAnyOtherTechnology***  Presence of this field indicates absence on a long term basis (e.g. by level of regulation) of any other technology sharing the carrier; absence of this field indicates the potential presence of any other technology sharing the carrier, as specified in TS 37.213 [94]. |
| ***additionalSpectrumEmissionPCell***  E-UTRAN does not configure this field in this release of the specification. |
| ***antennaInfo***  A choice is used to indicate whether the *antennaInfo* is signalled explicitly or set to the default antenna configuration as specified in clause 9.2.4. |
| ***blindSlotSubslotPDSCH-Repetitions***  Enables HARQ-less/blind slot or subslot PDSCH repetitions for a UE in a given cell, i.e. back to back slot/subslot PDSCH transmissions for the same transport block. The number of slot/subslot PDSCH transmissions is indicated in the DCI. |
| ***blindSubframePDSCH-Repetitions***  Enables HARQ-less/blind subframe PDSCH repetitions for a UE in a given cell, i.e. back to back PDSCH transmissions for the same transport block. The number of PDSCH transmissions is indicated in the DCI. |
| ***ce-CSI-RS-Feedback***  Indicates whether CSI-RS-based CSI feedback is enabled for non-BL UE in CE mode A, see TS 36.213 [23], clause 7.2.2. | |
| ***ce-Mode***  Indicates the CE mode as specified in TS 36.213 [23]. |
| ***ce-pdsch-pusch-Enhancement-Config***  Activation of new numbers of repetitions for PUSCH and modulation restrictions for PDSCH/PUSCH in CE mode A, see TS 36.212 [22] and TS 36.213 [23]. |
| ***cqi-ShortConfigSCell***  Indicates whether the CSI (CQI/PMI/RI/PTI/CRI) reporting resource configured by *cqi-ShortConfigSCell* is available upon receiving the SCell activation command for this SCell. E-UTRAN only configures this field when transmission mode 1-8 is configured for the serving cell on this carrier frequency. |
| ***csi-RS-Config***  For a serving frequency E-UTRAN does not configure *csi-RS-Config* (includes *zeroTxPowerCSI-RS*) when transmission mode 10 is configured for the serving cell on this carrier frequency. |
| ***csi-RS-ConfigNZPToAddModList***  For a serving frequency E-UTRAN configures one or more *CSI-RS-ConfigNZP* only when transmission mode 9 or 10 is configured for the serving cell on this carrier frequency. For a serving frequency, EUTRAN configures a maximum number of *CSI-RS-ConfigNZP* in accordance with transmission mode (including CSI processes), eMIMO (including class) and associated UE capabilities (e.g. k-Max, n-MaxList). |
| ***csi-RS-ConfigZP-ApList***  The aperiodic ZP CSI-RS for PDSCH rate matching. The field *subframeConfig* is applicable to semi-persistent CSI RS reporting. In other cases, the UE shall ignore field *subframeConfig*. |
| ***csi-RS-ConfigZPToAddModList***  For a serving frequency E-UTRAN configures one or more *CSI-RS-ConfigZP* only when transmission mode 10 is configured for the serving cell on this carrier frequency. |
| ***dl-STTI-Length, ul-STTI-Length***  Indicates the DL and UL short TTI lengths. Value slot corresponds to 7 OFDM symbols and value subslot corresponds to 2 or 3 OFDM symbols. E-UTRAN configures the same value for all serving cells sending PUCCH feedback on the same cell. If one SCell is configured with short TTI in the group of cells configured to send PUCCH on the same cell, the cell carrying PUCCH shall be configured with short TTI. E-UTRAN can configure different value of *dl-STTI-Length* and *ul-STTI-Length* for serving cells sending PUCCH feedback on different cells. E-UTRAN does not configure the combination {slot,subslot} for {DL,UL}. |
| ***dummy***  This field is not used in the specification. If received it shall be ignored by the UE. |
| ***eimta-MainConfigPCell, eimta-MainConfigSCell***  If E-UTRAN configures *eimta-MainConfigPCell* or *eimta-MainConfigSCell* for one serving cell in a frequency band, E-UTRAN configures *eimta-MainConfigPCell* or *eimta-MainConfigSCell* for all serving cells residing on the frequency band. E-UTRAN configures *eimta-MainConfigPCell* or *eimta-MainConfigSCell* only if *eimta-MainConfig* is configured. |
| ***energyDetectionThresholdOffset***  Indicates the offset to the default maximum energy detection threshold value. Unit in dB. Value -13 corresponds to -13dB, value -12 corresponds to -12dB, and so on (i.e. in steps of 1dB) as specified in TS 37.213 [94]. |
| ***epdcch-Config***  indicates the *EPDCCH-Config* for the cell. E-UTRAN does not configure *EPDCCH-Config* for an SCell that is configured with value *other* for *schedulingCellInfo* in *CrossCarrierSchedulingConfig*. |
| ***k-max***  Indicates the maximum number of interfering spatial layers signaled in the assistance information for MUST. Value l1 corresponds to 1 layer, Value l3 corresponds to 3 layers. |
| ***laa-PUSCH-Mode1, laa-PUSCH-Mode2, laa-PUSCH-Mode3***  Indicates whether LAA PUSCH mode 1, 2 and/or 3 is configured as specified in TS 36.212 [22], clause 5.3.3.1. |
| ***laa-SCellSubframeConfig***  A bit-map indicating LAA SCell subframe configuration, "1" denotes that the corresponding subframe is allocated as MBSFN subframe. The bitmap is interpreted as follows:  Starting from the first/leftmost bit in the bitmap, the allocation applies to subframes #1, #2, #3, #4, #6, #7, #8, and #9. |
| ***maxEnergyDetectionThreshold***  Indicates the absolute maximum energy detection threshold value. Unit in dBm. Value -85 corresponds to -85 dBm, value -84 corresponds to -84 dBm, and so on (i.e. in steps of 1dBm) as specified in TS 36.213 [23]. If the field is not configured, the UE shall use a default maximum energy detection threshold value as specified in TS 37.213 [94]. |
| ***maxNumber-SlotSubslotPDSCH-Repetitions***  Indicates the maximum number of PDSCH transmissions for slot or subslot PDSCH repetitions. |
| ***maxNumber-SubframePDSCH-Repetitions***  Indicates the maximum number of PDSCH transmissions for subframe PDSCH repetitions. |
| ***mcs-restrictionSlotSubslotPDSCH-Repetitions***  Indicates the MCS restriction in terms of number of non-addressable MSB in the MCS bit-field for slot or subslot PDSCH repetition applicable when k > 1. |
| ***mcs-restrictionSubframePDSCH-Repetitions***  Indicates MCS restriction in terms of number of non-addressable MSB in the MCS bit-field for subframe PDSCH repetition applicable when k > 1. |
| ***numberOfProcesses-SlotSubslotPDSCH-Repetitions***  Indicates the number of HARQ processes for slot/subslot PDSCH repetition applicable when k > 1 configured per serving cell. |
| ***numberOfProcesses-SubframePDSCH-Repetitions***  Indicates the number of HARQ processes for subframe PDSCH repetition applicable when k > 1 configured per serving cell. |
| ***p-a-must***  Parameter: , see TS 36.213 [23], clause 5.2. Value dB-6 corresponds to -6 dB, dB-4dot77 corresponds to -4.77 dB etc. |
| ***pdsch-ConfigDedicated-v1130***  For a serving frequency, E-UTRAN configures *pdsch-ConfigDedicated-v1130* only when transmission mode 10 is configured for the serving cell on this carrier frequency. |
| ***pdsch-ConfigDedicated-v1280***  For a serving frequency, E-UTRAN configures *pdsch-ConfigDedicated-v1280* only when transmission mode 9 or 10 is configured for the serving cell on this carrier frequency. |
| ***pucch-Cell***  If present, PUCCH feedback of this SCell is sent on the PUCCH SCell. If absent, PUCCH feedback of this SCell is sent on PCell or PSCell, or if the cell concerns the PUCCH SCell, on the concerned cell. If this field is not modified upon change of PUCCH SCell, the UE shall always send the PUCCH feedback of the concerned SCell using the configured PUCCH SCell. |
| ***pucch-ConfigDedicated***  E-UTRAN configures *pucch-ConfigDedicated-r13* only if *pucch-ConfigDedicated* (i.e., without suffix) is not configured. UE shall ignore *pucch-ConfigDedicated-v1020* when *pucch-ConfigDedicated-r13* is configured. |
| ***pucch-SCell***  If present, the concerned SCell is the PUCCH SCell. E-UTRAN only configures this field upon SCell addition i.e. this field is only released when the SCell is released. The field is not applicable for an LAA SCell in this release. |
| ***pusch-ConfigDedicated-r13***  E-UTRAN configures *pusch-ConfigDedicated-r13* only if *pusch-ConfigDedicated* is not configured. |
| ***pusch-ConfigDedicated-v1250***  E-UTRAN configures *pusch-ConfigDedicated-v1250* only if *tpc-SubframeSet* is configured. |
| ***pusch-EnhancementsConfig***  Indicates that the UE shall transmit in the PUSCH enhancement mode if *pusch-EnhancementsConfig* is set to *setup*, see TS 36.211 [21] and TS 36.213 [23]. |
| ***rv-SlotsublotPDSCH-Repetitions***  Indicates the RV cycling sequence for slot or subslot PDSCH repetition. Value dlrvseq1 = {0, 0, 0, 0} and value dlrvseq2 = {0, 2, 3, 1}. |
| ***rv-SubframePDSCH-Repetitions***  Indicates the RV cycling sequence for subframe PDSCH repetition. Value dlrvseq1 = {0, 0, 0, 0} and value dlrvseq2 = {0, 2, 3, 1}. |
| ***semiOpenLoop, semiOpenLoopSTTI***  Value TRUE indicates that semi-open-loop transmission is used for deriving CSI reporting and corresponding PDSCH transmission (DMRS). |
| ***semiStaticCFI-SlotSubslotNonMBSFN***  Indicates the semi-static control format indicator for slot/subslot operation in non-MBSFN subframes. |
| ***semiStaticCFI-SlotSubslotMBSFN***  Indicates the semi-static control format indicator for slot/subslot operation in MBSFN subframes. |
| ***semiStaticCFI-SubframeMBSFN***  Indicates the semi-static control format indicator for subframe operation in MBSFN subframes. |
| ***semiStaticCFI-SubframeNonMBSFN***  Indicates the semi-static control format indicator for subframe operation in non-MBSFN subframes. |
| ***shortProcessingTime***  Indicates whether short processing time is configured as specific in TS 36.321 [6]. An SCell can only be configured with short processing if the cell carrying PUCCH for that SCell is configured with short processing time. |
| ***soundingRS-UL-PeriodicConfigDedicatedList***  Indicates periodic soundingRS configuration except for the extension sounding symbols of the UpPTs subframe. E-UTRAN configures this field in *PhysicalConfigDedicated* only for the UE indicating support of *ce-SRS-Enhancement-r14* or *ce-SRS-EnhancementWithoutComb4-r14*. E-UTRAN configures this field in *PhysicalConfigDedicatedSCell-r10* only for the UE indicating support of *srs-UpPTS-6sym-r14*. |
| ***soundingRS-UL-PeriodicConfigDedicatedUpPTsExtList***  Indicates periodic soundingRS configuration in extension sounding symbols of the UpPTs subframe. E-UTRAN configures this field in *PhysicalConfigDedicated* only for the UE indicating support of *ce-SRS-Enhancement-r14* or *ce-SRS-EnhancementWithoutComb4-r14*. E-UTRAN configures this field in *PhysicalConfigDedicatedSCell-r10* only for the UE indicating support of *srs-UpPTS-6sym-r14*. |
| ***soundingRS-UL-AperiodicConfigDedicatedList***  Indicates aperiodic soundingRS configuration except for the extension sounding symbols of the UpPTs subframe. E-UTRAN configures this field in *PhysicalConfigDedicated* only for the UE indicating support of *ce-SRS-Enhancement-r14* or *ce-SRS-EnhancementWithoutComb4-r14*. E-UTRAN configures this field in *PhysicalConfigDedicatedSCell-r10* only for the UE indicating support of *srs-UpPTS-6sym-r14*. |
| ***soundingRS-UL-DedicatedApUpPTsExtList***  Indicates aperiodic soundingRS configuration in extension sounding symbols of the UpPTs subframe. E-UTRAN configures this field in *PhysicalConfigDedicated* only for the UE indicating support of *ce-SRS-Enhancement-r14* or *ce-SRS-EnhancementWithoutComb4-r14*. E-UTRAN configures this field in *PhysicalConfigDedicatedSCell-r10* only for the UE indicating support of *srs-UpPTS-6sym-r14*. |
| ***srs-CC-SetIndexList***  Indicates the *srs-CC-SetIndex* list which the *soundingRS-UL-ConfigDedicatedAperiodic* and*soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt* belongs to. |
| ***srs-DCI7-TriggeringConfig***  Indicates whether SRS triggering via DCI7 is configured. |
| ***srs-VirtualCellID***  Indicates the virtual cell ID for SRS. |
| ***srs-VirtualCellID-AllSRS***  Value TRUE indicates the configured virtual cell ID is applied to all SRS symbols. Value FALSE indicates the configured virtual cell ID is applied only to additional SRS symbols. |
| ***subframeStartPosition***  Indicates possible starting positions of transmission in the first subframe of the DL transmission burst, see TS 36.211 [21]. Value *s0* means the starting position is subframe boundary, *s07* means the starting position is either subframe boundary or slot boundary. |
| ***tpc-PDCCH-ConfigPUCCH***  PDCCH configuration for power control of PUCCH using format 3/3A, see TS 36.212 [22]. |
| ***tpc-PDCCH-ConfigPUSCH***  PDCCH configuration for power control of PUSCH using format 3/3A, see TS 36.212 [22]. |
| ***typeA-SRS-TPC-PDCCH-Group***  Indicates Type A trigger configuration for SRS transmission on a PUSCH-less SCell. E-UTRAN configures the UE with either *typeA-SRS-TPC-PDCCH-Group* or *typeB-SRS-TPC-PDCCH-Group*, if any. |
| ***uplinkPowerControlDedicated***  E-UTRAN configures *uplinkPowerControlDedicated-v1130* only if *uplinkPowerControlDedicated* (without suffix) is configured. |
| ***uplinkPowerControlDedicatedSCell***  E-UTRAN configures *uplinkPowerControlDedicatedSCell-v1130* only if *uplinkPowerControlDedicatedSCell-r10* is configured for this serving cell. |
| ***widebandPRG-SlotSubslot***  Indicates whether the precoding resource block group size is the whole scheduled bandwidth for slot or subslot PDSCH operation as specified in TS 36.213 [23]. |
| ***widebandPRG-Subframe***  Indicates whether the precoding resource block group size is the whole scheduled bandwidth for subframe PDSCH operation as specified in TS 36.213 [23]. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *AI-r8* | The field is optionally present, need ON, if *antennaInfoDedicated-r10* is absent. Otherwise the field is not present |
| *AI-r10* | The field is optionally present, need ON, if *antennaInfoDedicated* is absent. Otherwise the field is not present |
| *AperiodicSRS* | If *soundingRS-UL-ConfigDedicatedAperiodic-r10* is absent, the field is optional, Need ON. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *AperiodicSRSExt* | If *soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13* is absent, the field is optional, Need ON. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *AUL* | The field is optionally present, need ON, if *aul-config-r15* is present. Otherwise the field is not present. |
| *CommonUL* | The field is mandatory present if *ul-Configuration* of *RadioResourceConfigCommonSCell-r10* is present; otherwise it is optional, need ON. |
| *CQI-r8* | The field is optionally present, need ON, if *cqi-ReportConfig-r10* is absent. Otherwise the field is not present |
| *CQI-r10* | The field is optionally present, need ON, if *cqi-ReportConfig* is absent. Otherwise the field is not present |
| *Cross-Carrier-Config* | The field is optionally present, need ON, if *crossCarrierSchedulingConfig-r10* is absent. Otherwise the field is not present |
| *Cross-Carrier-ConfigUL* | The field is optionally present, need ON, if *crossCarrierSchedulingConfig-r10* and *crossCarrierSchedulingConfig-r13* are absent or *schedulingCellInfo* is set to 'own'. Otherwise the field is not present. |
| *PeriodicSRS* | If *soundingRS-UL-ConfigDedicated-r10* is absent, the field is optional, Need ON. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *PeriodicSRSPCell* | If *soundingRS-UL-ConfigDedicated* is absent, the field is optional, Need ON. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *PeriodicSRSExt* | If *soundingRS-UL-ConfigDedicatedUpPTsExt-r13* is absent, the field is optional, Need ON. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *PUCCH-Format4or5* | The field is mandatory present with *pucch-Format-v1370* set to *setup* if *pucch-ConfigDedicated-r13* is configured and *pucch-ConfigDedicated-r13* indicates PUCCH format 4 or PUCCH format 5; otherwise it is not present and the UE shall delete any existing value for this field. |
| *PUCCH-SCell1* | The field is optionally present, need OR, for SCell not configured with *pucch-configDedicated-r13*. Otherwise it is not present. |
| *PUSCH-SCell* | The field is optionally present, need ON, if *pusch-ConfigDedicatedSCell-r10 and pusch-ConfigDedicated-v1130* are absent. Otherwise the field is not present |
| *PUSCH-SCell1* | The field is optionally present, need ON, for SCell not configured with *pucch-configDedicated-r13*. Otherwise it is not present. |
| *SCellAdd* | The field is mandatory present if *cellIdentification* is present; otherwise it is optional, need ON. |
| *SRS-Trigger-TypeA* | The field is mandatory present if *typeA-SRS-TPC-PDCCH-Group-r14* is present. Otherwise the field is not present and the UE shall delete any existing value for this field. |

NOTE 1: During handover, the UE performs a MAC reset, which involves reverting to the default CQI/ SRS/ SR configuration in accordance with clause 5.3.13 and TS 36.321 [6], clauses 5.9 and 5.2. Hence, for these parts of the dedicated radio resource configuration, the default configuration (rather than the configuration used in the source PCell) is used as the basis for the delta signalling that is included in the message used to perform handover.

NOTE 2: Since delta signalling is not supported for the common SCell configuration, E-UTRAN can only add or release the uplink of an SCell by releasing and adding the concerned SCell.

>Next modified section

– *RadioResourceConfigCommon*

The IE *RadioResourceConfigCommonSIB* and IE *RadioResourceConfigCommon* are used to specify common radio resource configurations in the system information and in the mobility control information, respectively, e.g., the random access parameters and the static physical layer parameters.

***RadioResourceConfigCommon* information element**

-- ASN1START

RadioResourceConfigCommonSIB ::= SEQUENCE {

rach-ConfigCommon RACH-ConfigCommon,

bcch-Config BCCH-Config,

pcch-Config PCCH-Config,

prach-Config PRACH-ConfigSIB,

pdsch-ConfigCommon PDSCH-ConfigCommon,

pusch-ConfigCommon PUSCH-ConfigCommon,

pucch-ConfigCommon PUCCH-ConfigCommon,

soundingRS-UL-ConfigCommon SoundingRS-UL-ConfigCommon,

uplinkPowerControlCommon UplinkPowerControlCommon,

ul-CyclicPrefixLength UL-CyclicPrefixLength,

...,

[[ uplinkPowerControlCommon-v1020 UplinkPowerControlCommon-v1020 OPTIONAL -- Need OR

]],

[[ rach-ConfigCommon-v1250 RACH-ConfigCommon-v1250 OPTIONAL -- Need OR

]],

[[ pusch-ConfigCommon-v1270 PUSCH-ConfigCommon-v1270 OPTIONAL -- Need OR

]],

[[ bcch-Config-v1310 BCCH-Config-v1310 OPTIONAL, -- Need OR

pcch-Config-v1310 PCCH-Config-v1310 OPTIONAL, -- Need OR

freqHoppingParameters-r13 FreqHoppingParameters-r13 OPTIONAL, -- Need OR

pdsch-ConfigCommon-v1310 PDSCH-ConfigCommon-v1310 OPTIONAL, -- Need OR

pusch-ConfigCommon-v1310 PUSCH-ConfigCommon-v1310 OPTIONAL, -- Need OR

prach-ConfigCommon-v1310 PRACH-ConfigSIB-v1310 OPTIONAL, -- Need OR

pucch-ConfigCommon-v1310 PUCCH-ConfigCommon-v1310 OPTIONAL -- Need OR

]],

[[ highSpeedConfig-r14 HighSpeedConfig-r14 OPTIONAL, -- Need OR

prach-Config-v1430 PRACH-Config-v1430 OPTIONAL, -- Need OR

pucch-ConfigCommon-v1430 PUCCH-ConfigCommon-v1430 OPTIONAL -- Need OR

]],

[[ prach-Config-v1530 PRACH-ConfigSIB-v1530 OPTIONAL, -- Cond EDT

ce-RSS-Config-r15 RSS-Config-r15 OPTIONAL, -- Need OR

wus-Config-r15 WUS-Config-r15 OPTIONAL, -- Need OR

highSpeedConfig-v1530 HighSpeedConfig-v1530 OPTIONAL -- Need OR

]],

[[ uplinkPowerControlCommon-v1540 UplinkPowerControlCommon-v1530 OPTIONAL -- Need OR

]],

[[ wus-Config-v1560 WUS-Config-v1560 OPTIONAL -- Need OR

]],

[[

highSpeedConfig-v16xy HighSpeedConfig-v16xy OPTIONAL, -- Need OR

crs-ChEstMPDCCH-ConfigCommon-r16 CRS-ChEstMPDCCH-ConfigCommon-r16 OPTIONAL, -- Need OR

wus-Config-v16xy WUS-Config-v16xy OPTIONAL, -- Need OR

gwus-Config-r16 GWUS-Config-r16 OPTIONAL, -- Need OR

uplinkPowerControlCommon-v16xy UplinkPowerControlCommon-v16xy OPTIONAL -- Need OR

]]

}

RadioResourceConfigCommon ::= SEQUENCE {

rach-ConfigCommon RACH-ConfigCommon OPTIONAL, -- Need ON

prach-Config PRACH-Config,

pdsch-ConfigCommon PDSCH-ConfigCommon OPTIONAL, -- Need ON

pusch-ConfigCommon PUSCH-ConfigCommon,

phich-Config PHICH-Config OPTIONAL, -- Need ON

pucch-ConfigCommon PUCCH-ConfigCommon OPTIONAL, -- Need ON

soundingRS-UL-ConfigCommon SoundingRS-UL-ConfigCommon OPTIONAL, -- Need ON

uplinkPowerControlCommon UplinkPowerControlCommon OPTIONAL, -- Need ON

antennaInfoCommon AntennaInfoCommon OPTIONAL, -- Need ON

p-Max P-Max OPTIONAL, -- Need OP

tdd-Config TDD-Config OPTIONAL, -- Cond TDD

ul-CyclicPrefixLength UL-CyclicPrefixLength,

...,

[[ uplinkPowerControlCommon-v1020 UplinkPowerControlCommon-v1020 OPTIONAL -- Need ON

]],

[[ tdd-Config-v1130 TDD-Config-v1130 OPTIONAL -- Cond TDD3

]],

[[ pusch-ConfigCommon-v1270 PUSCH-ConfigCommon-v1270 OPTIONAL -- Need OR

]],

[[

prach-Config-v1310 PRACH-Config-v1310 OPTIONAL, -- Need ON

freqHoppingParameters-r13 FreqHoppingParameters-r13 OPTIONAL, -- Need ON

pdsch-ConfigCommon-v1310 PDSCH-ConfigCommon-v1310 OPTIONAL, -- Need ON

pucch-ConfigCommon-v1310 PUCCH-ConfigCommon-v1310 OPTIONAL, -- Need ON

pusch-ConfigCommon-v1310 PUSCH-ConfigCommon-v1310 OPTIONAL, -- Need ON

uplinkPowerControlCommon-v1310 UplinkPowerControlCommon-v1310 OPTIONAL -- Need ON

]],

[[ highSpeedConfig-r14 HighSpeedConfig-r14 OPTIONAL, -- Need OR

prach-Config-v1430 PRACH-Config-v1430 OPTIONAL, -- Need OR

pucch-ConfigCommon-v1430 PUCCH-ConfigCommon-v1430 OPTIONAL, -- Need OR

tdd-Config-v1430 TDD-Config-v1430 OPTIONAL -- Cond TDD3

]],

[[

tdd-Config-v1450 TDD-Config-v1450 OPTIONAL -- Cond TDD3

]],

[[ uplinkPowerControlCommon-v1530 UplinkPowerControlCommon-v1530 OPTIONAL, -- Need ON

highSpeedConfig-v1530 HighSpeedConfig-v1530 OPTIONAL -- Need OR

]],

[[

highSpeedConfig-v16xy HighSpeedConfig-v16xy OPTIONAL, -- Need OR

uplinkPowerControlCommon-v16xy UplinkPowerControlCommon-v16xy OPTIONAL -- Need OR

]]

}

RadioResourceConfigCommonPSCell-r12 ::= SEQUENCE {

basicFields-r12 RadioResourceConfigCommonSCell-r10,

pucch-ConfigCommon-r12 PUCCH-ConfigCommon,

rach-ConfigCommon-r12 RACH-ConfigCommon,

uplinkPowerControlCommonPSCell-r12 UplinkPowerControlCommonPSCell-r12,

...,

[[ uplinkPowerControlCommonPSCell-v1310

UplinkPowerControlCommon-v1310 OPTIONAL -- Need ON

]],

[[ uplinkPowerControlCommonPSCell-v1530

UplinkPowerControlCommon-v1530 OPTIONAL -- Need ON

]]

}

RadioResourceConfigCommonPSCell-v12f0 ::= SEQUENCE {

basicFields-v12f0 RadioResourceConfigCommonSCell-v10l0

}

RadioResourceConfigCommonPSCell-v1440 ::= SEQUENCE {

basicFields-v1440 RadioResourceConfigCommonSCell-v1440

}

RadioResourceConfigCommonSCell-r10 ::= SEQUENCE {

-- DL configuration as well as configuration applicable for DL and UL

nonUL-Configuration-r10 SEQUENCE {

-- 1: Cell characteristics

dl-Bandwidth-r10 ENUMERATED {n6, n15, n25, n50, n75, n100},

-- 2: Physical configuration, general

antennaInfoCommon-r10 AntennaInfoCommon,

mbsfn-SubframeConfigList-r10 MBSFN-SubframeConfigList OPTIONAL, -- Need OR

-- 3: Physical configuration, control

phich-Config-r10 PHICH-Config,

-- 4: Physical configuration, physical channels

pdsch-ConfigCommon-r10 PDSCH-ConfigCommon,

tdd-Config-r10 TDD-Config OPTIONAL -- Cond TDDSCell

},

-- UL configuration

ul-Configuration-r10 SEQUENCE {

ul-FreqInfo-r10 SEQUENCE {

ul-CarrierFreq-r10 ARFCN-ValueEUTRA OPTIONAL, -- Need OP

ul-Bandwidth-r10 ENUMERATED {n6, n15,

n25, n50, n75, n100} OPTIONAL, -- Need OP

additionalSpectrumEmissionSCell-r10 AdditionalSpectrumEmission

},

p-Max-r10 P-Max OPTIONAL, -- Need OP

uplinkPowerControlCommonSCell-r10 UplinkPowerControlCommonSCell-r10,

-- A special version of IE UplinkPowerControlCommon may be introduced

-- 3: Physical configuration, control

soundingRS-UL-ConfigCommon-r10 SoundingRS-UL-ConfigCommon,

ul-CyclicPrefixLength-r10 UL-CyclicPrefixLength,

-- 4: Physical configuration, physical channels

prach-ConfigSCell-r10 PRACH-ConfigSCell-r10 OPTIONAL, -- Cond TDD-OR-NoR11

pusch-ConfigCommon-r10 PUSCH-ConfigCommon

} OPTIONAL, -- Need OR

...,

[[ ul-CarrierFreq-v1090 ARFCN-ValueEUTRA-v9e0 OPTIONAL -- Need OP

]],

[[ rach-ConfigCommonSCell-r11 RACH-ConfigCommonSCell-r11 OPTIONAL, -- Cond ULSCell

prach-ConfigSCell-r11 PRACH-Config OPTIONAL, -- Cond UL

tdd-Config-v1130 TDD-Config-v1130 OPTIONAL, -- Cond TDD2

uplinkPowerControlCommonSCell-v1130

UplinkPowerControlCommonSCell-v1130 OPTIONAL -- Cond UL

]],

[[ pusch-ConfigCommon-v1270 PUSCH-ConfigCommon-v1270 OPTIONAL -- Need OR

]],

[[ pucch-ConfigCommon-r13 PUCCH-ConfigCommon OPTIONAL, -- Cond UL

uplinkPowerControlCommonSCell-v1310

UplinkPowerControlCommonSCell-v1310 OPTIONAL -- Cond UL

]],

[[ highSpeedConfigSCell-r14 HighSpeedConfigSCell-r14 OPTIONAL, -- Need OR

prach-Config-v1430 PRACH-Config-v1430 OPTIONAL, -- Cond UL

ul-Configuration-r14 SEQUENCE {

ul-FreqInfo-r14 SEQUENCE {

ul-CarrierFreq-r14 ARFCN-ValueEUTRA-r9 OPTIONAL, -- Need OP

ul-Bandwidth-r14 ENUMERATED {n6, n15,

n25, n50, n75, n100} OPTIONAL, -- Need OP

additionalSpectrumEmissionSCell-r14 AdditionalSpectrumEmission

},

p-Max-r14 P-Max OPTIONAL, -- Need OP

soundingRS-UL-ConfigCommon-r14 SoundingRS-UL-ConfigCommon,

ul-CyclicPrefixLength-r14 UL-CyclicPrefixLength,

prach-ConfigSCell-r14 PRACH-ConfigSCell-r10 OPTIONAL, -- Cond TDD-OR-NoR11

uplinkPowerControlCommonPUSCH-LessCell-v1430

UplinkPowerControlCommonPUSCH-LessCell-v1430 OPTIONAL -- Need OR

} OPTIONAL, -- Cond ULSRS

harq-ReferenceConfig-r14 ENUMERATED {sa2,sa4,sa5} OPTIONAL, -- Need OR

soundingRS-FlexibleTiming-r14 ENUMERATED {true} OPTIONAL -- Need OR

]],

[[ mbsfn-SubframeConfigList-v1430 MBSFN-SubframeConfigList-v1430 OPTIONAL -- Need ON

]],

[[ uplinkPowerControlCommonSCell-v1530 UplinkPowerControlCommon-v1530 OPTIONAL -- Need ON

]],

[[ highSpeedEnhMeasFlagSCell-r16 BOOLEAN OPTIONAL -- Need ON

]]

}

RadioResourceConfigCommonSCell-v10l0 ::= SEQUENCE {

-- UL configuration

ul-Configuration-v10l0 SEQUENCE {

additionalSpectrumEmissionSCell-v10l0 AdditionalSpectrumEmission-v10l0

}

}

RadioResourceConfigCommonSCell-v1440 ::= SEQUENCE {

ul-Configuration-v1440 SEQUENCE {

ul-FreqInfo-v1440 SEQUENCE {

additionalSpectrumEmissionSCell-v1440 AdditionalSpectrumEmission-v10l0

}

}

}

BCCH-Config ::= SEQUENCE {

modificationPeriodCoeff ENUMERATED {n2, n4, n8, n16}

}

BCCH-Config-v1310 ::= SEQUENCE {

modificationPeriodCoeff-v1310 ENUMERATED {n64}

}

FreqHoppingParameters-r13 ::= SEQUENCE {

dummy ENUMERATED {nb2, nb4} OPTIONAL,

dummy2 CHOICE {

interval-FDD-r13 ENUMERATED {int1, int2, int4, int8},

interval-TDD-r13 ENUMERATED {int1, int5, int10, int20}

} OPTIONAL,

dummy3 CHOICE {

interval-FDD-r13 ENUMERATED {int2, int4, int8, int16},

interval-TDD-r13 ENUMERATED { int5, int10, int20, int40}

} OPTIONAL,

interval-ULHoppingConfigCommonModeA-r13 CHOICE {

interval-FDD-r13 ENUMERATED {int1, int2, int4, int8},

interval-TDD-r13 ENUMERATED {int1, int5, int10, int20}

} OPTIONAL, -- Cond MP-A

interval-ULHoppingConfigCommonModeB-r13 CHOICE {

interval-FDD-r13 ENUMERATED {int2, int4, int8, int16},

interval-TDD-r13 ENUMERATED { int5, int10, int20, int40}

} OPTIONAL, -- Cond MP-B

dummy4 INTEGER (1..maxAvailNarrowBands-r13) OPTIONAL

}

PCCH-Config ::= SEQUENCE {

defaultPagingCycle ENUMERATED {

rf32, rf64, rf128, rf256},

nB ENUMERATED {

fourT, twoT, oneT, halfT, quarterT, oneEighthT,

oneSixteenthT, oneThirtySecondT}

}

PCCH-Config-v1310 ::= SEQUENCE {

paging-narrowBands-r13 INTEGER (1..maxAvailNarrowBands-r13),

mpdcch-NumRepetition-Paging-r13 ENUMERATED {r1, r2, r4, r8, r16, r32, r64, r128, r256},

nB-v1310 ENUMERATED {one64thT, one128thT, one256thT}

OPTIONAL -- Need OR

}

UL-CyclicPrefixLength ::= ENUMERATED {len1, len2}

HighSpeedConfig-r14 ::= SEQUENCE {

highSpeedEnhancedMeasFlag-r14 ENUMERATED {true} OPTIONAL, -- Need OR

highSpeedEnhancedDemodulationFlag-r14 ENUMERATED {true} OPTIONAL -- Need OR

}

HighSpeedConfig-v1530 ::= SEQUENCE {

highSpeedMeasGapCE-ModeA-r15 ENUMERATED {true}

}

HighSpeedConfigSCell-r14 ::= SEQUENCE {

highSpeedEnhancedDemodulationFlag-r14 ENUMERATED {true} OPTIONAL -- Need OR

}

HighSpeedConfig-v16xy ::= SEQUENCE {

highSpeedEnhMeasFlag2-r16 ENUMERATED {true} OPTIONAL, -- Need OR

highSpeedEnhDemodFlag2-r16 ENUMERATED {true} OPTIONAL -- Need OR

}

-- ASN1STOP

| ***RadioResourceConfigCommon* field descriptions** |
| --- |
| ***additionalSpectrumEmissionSCell***  The UE requirements related to *additionalSpectrumEmissionSCell* are defined in TS 36.101 [42]. E-UTRAN configures the same value in *additionalSpectrumEmissionSCell* for all SCell(s) of the same band with UL configured. The *additionalSpectrumEmissionSCell* is applicable for all serving cells (including PCell) of the same band with UL configured. |
| ***crs-ChEstMPDCCH-ConfigCommon***  Presence of this field indicates use of CRS for improving channel estimation on MPDCCH is enabled in RRC\_IDLE and RRC\_CONNECTED mode for UEs indicating support of *ce-CRS-ChannelEstMPDCCH*. |
| ***defaultPagingCycle***  Default paging cycle, used to derive 'T' in TS 36.304 [4]. Value rf32 corresponds to 32 radio frames, rf64 corresponds to 64 radio frames and so on. |
| ***dummy***  This field is not used in the specification. If received it shall be ignored by the UE. |
| ***harq-ReferenceConfig***  Indicates UL/ DL configuration used as the DL HARQ reference configuration for this serving cell. Value sa2 corresponds to Configuration2, sa4 to Configuration4 etc, as specified in TS 36.211 [21], table 4.2-2. E-UTRAN configures the same value for all serving cells residing on same frequency band. |
| ***highSpeedEnhancedMeasFlag***  If the field is present, the UE shall apply the high speed (350 km/h) measurement enhancements as specified in TS 36.133 [16]. If *highSpeedEnhMeasFlag2* is present, the UE indicating *measurementEnhancements2* shall ignore this field. |
| ***highSpeedEnhancedDemodulationFlag***  If the field is present, the UE shall apply the advanced receiver in SFN scenario (350 km/h) as specified in TS 36.101 [42]. If this field is included in *HighSpeedConfig* and *highSpeedEnhDemodFlag2* is present, the UE indicating *demodulationEnhancements2* shall ignore this field in *HighSpeedConfig*. |
| ***highSpeedEnhDemodFlag2***  If the field is present, the UE shall apply the further enhanced receiver in HST-SFN scenario (500 km/h) as specified in TS 36.101 [42]. |
| ***highSpeedEnhMeasFlag2***  If the field is present, the UE shall apply the high speed (500 km/h) measurement enhancements as specified in TS 36.133 [16]. |
| ***highSpeedEnhMeasFlagSCell***  If configured with value TRUE, the UE shall apply the high speed (350 km/h) SCell measurement enhancements as specified in TS 36.133 [16]. |
| ***highSpeedMeasGapCE-ModeA***  If the field is present, the UE in CE mode A shall apply the measurement gap sharing table associated with high-velocity scenario for measurements, as specified in TS 36.133 [16]. |
| ***interval-DLHoppingConfigCommonModeX***  Number of consecutive absolute subframes over which MPDCCH or PDSCH for CE mode X stays at the same narrowband before hopping to another narrowband. For interval-FDD, int1 corresponds to 1 subframe, int2 corresponds to 2 subframes, and so on. For interval-TDD, int1 corresponds to 1 subframe, int5 corresponds to 5 subframes, and so on. |
| ***interval-ULHoppingConfigCommonModeX***  Number of consecutive absolute subframes over which PUCCH or PUSCH for CE mode X stays at the same narrowband before hopping to another narrowband. For interval-FDD, int1 corresponds to 1 subframe, int2 corresponds to 2 subframes, and so on. For interval-TDD, int1 corresponds to 1 subframe, int5 corresponds to 5 subframes, and so on. |
| ***modificationPeriodCoeff***  Actual modification period, expressed in number of radio frames= *modificationPeriodCoeff* \* *defaultPagingCycle*. n2 corresponds to value 2, n4 corresponds to value 4, n8 corresponds to value 8, n16 corresponds to value 16, and n64 corresponds to value 64. |
| ***mpdcch-NumRepetition-Paging***  Maximum number of repetitions for MPDCCH common search space (CSS) for paging, see TS 36.211 [21]. |
| ***mpdcch-pdsch-HoppingOffset***  Parameter: cid:image020.png@01D1F4C1.16D3F4B0, see TS 36.211 [21], clause 6.4.1. |
| ***mpdcch-pdsch-HoppingNB***  The number of narrowbands for MPDCCH/PDSCH frequency hopping. Value nb2 corresponds to 2 narrowbands and value nb4 corresponds to 4 narrowbands. |
| ***nB***  Parameter: nB is used as one of parameters to derive the Paging Frame and Paging Occasion according to TS 36.304 [4]. Value in multiples of 'T' as defined in TS 36.304 [4]. A value of fourT corresponds to 4 \* T, a value of twoT corresponds to 2 \* T and so on. In case *nB-v1310* is signalled, the UE shall ignore *nB* (i.e. without suffix). EUTRAN configures *nB-v1310* only in the BR version of SI message. |
| ***paging-narrowBands***  Number of narrowbands used for paging, see TS 36.304 [4], TS 36.212 [22] and TS 36.213 [23]. |
| ***p-Max***  Pmax to be used in the target cell. If absent, for the band used in the target cell, the UE applies the maximum power according to its capability as specified in 36.101 [42], clause 6.2.2. In case the UE is configured with uplink intra-band contiguous CA and the UE indicates *ue-CA-PowerClass-N* in that band combination, then the *p-Max* in *RadioResourceConfigCommonSCell* for that SCell, if present, also applies for that band combination whenever that SCell is activated. |
| ***prach-ConfigSCell***  Indicates a PRACH configuration for an SCell. The field is not applicable for an LAA SCell in this release. |
| ***rach-ConfigCommonSCell***  Indicates a RACH configuration for an SCell. The field is not applicable for an LAA SCell in this release. |
| ***soundingRS-FlexibleTiming***  Indicates the SRS flexible timing (if configured) for aperiodic SRS triggered by DL grant. If the SRS transmission is collided with ACK/NACK, postpone once to the next configured SRS transmission opportunity. |
| ***ul-Bandwidth***  Parameter: transmission bandwidth configuration, NRB, in uplink, see TS 36.101 [42], table 5.6-1. Value n6 corresponds to 6 resource blocks, n15 to 15 resource blocks and so on. If for FDD this parameter is absent, the uplink bandwidth is equal to the downlink bandwidth. For TDD this parameter is absent and it is equal to the downlink bandwidth. |
| ***ul-CarrierFreq***  For FDD: If absent, the (default) value determined from the default TX-RX frequency separation defined in TS 36.101 [42], table 5.7.3-1, applies.  For TDD: This parameter is absent and it is equal to the downlink frequency. |
| ***ul-CyclicPrefixLength***  Parameter: Uplink cyclic prefix length see TS 36.211 [21], clause 5.2.1, where len1 corresponds to normal cyclic prefix and len2 corresponds to extended cyclic prefix. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *EDT* | The field is optionally present, Need OR, if *edt-Parameters* is present; otherwise the field is not present and the UE shall delete any existing value for this field. |
| *MP-A* | The field is mandatory present for CE mode A. Otherwise the field is optional, Need OR. |
| *MP-B* | The field is mandatory present for CE mode B. Otherwise the field is optional, Need OR. |
| *TDD* | The field is optional for TDD, Need ON; it is not present for FDD and the UE shall delete any existing value for this field. |
| *TDD2* | If *tdd-Config-r10* is present, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *TDD3* | If *tdd-Config* is present, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *TDD-OR-NoR11* | If *prach-ConfigSCell-r11* is absent, the field is optional for TDD, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *TDDSCell* | This field is mandatory present for TDD; it is not present for FDD and LAA SCell, and the UE shall delete any existing value for this field. |
| *UL* | If the SCell is part of the STAG or concerns the PSCell or PUCCH SCell and if *ul-Configuration* is included, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *ULSCell* | For the PSCell (IE is included in *RadioResourceConfigCommonPSCell*) the field is absent. Otherwise, if the SCell is part of the STAG and if *ul-Configuration* is included, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |
| *ULSRS* | If *ul-Configuration-r10* is absent, the field is optional, Need OR. Otherwise the field is not present and the UE shall delete any existing value for this field. |

>Next modified section

– *SoundingRS-UL-Config*

The IE *SoundingRS-UL-Config* is used to specify the uplink Sounding RS configuration for periodic and aperiodic sounding.

***SoundingRS-UL-Config* information element**

-- ASN1START

SoundingRS-UL-ConfigCommon ::= CHOICE {

release NULL,

setup SEQUENCE {

srs-BandwidthConfig ENUMERATED {bw0, bw1, bw2, bw3, bw4, bw5, bw6, bw7},

srs-SubframeConfig ENUMERATED {

sc0, sc1, sc2, sc3, sc4, sc5, sc6, sc7,

sc8, sc9, sc10, sc11, sc12, sc13, sc14, sc15},

ackNackSRS-SimultaneousTransmission BOOLEAN,

srs-MaxUpPts ENUMERATED {true} OPTIONAL -- Cond TDD

}

}

SoundingRS-UL-ConfigDedicated ::= CHOICE{

release NULL,

setup SEQUENCE {

srs-Bandwidth ENUMERATED {bw0, bw1, bw2, bw3},

srs-HoppingBandwidth ENUMERATED {hbw0, hbw1, hbw2, hbw3},

freqDomainPosition INTEGER (0..23),

duration BOOLEAN,

srs-ConfigIndex INTEGER (0..1023),

transmissionComb INTEGER (0..1),

cyclicShift ENUMERATED {cs0, cs1, cs2, cs3, cs4, cs5, cs6, cs7}

}

}

SoundingRS-UL-ConfigDedicated-v1020 ::= SEQUENCE {

srs-AntennaPort-r10 SRS-AntennaPort

}

SoundingRS-UL-ConfigDedicated-v1310 ::= CHOICE{

release NULL,

setup SEQUENCE {

transmissionComb-v1310 INTEGER (2..3) OPTIONAL, -- Need OR

cyclicShift-v1310 ENUMERATED {cs8, cs9, cs10, cs11} OPTIONAL, -- Need OR

transmissionCombNum-r13 ENUMERATED {n2, n4} OPTIONAL -- Need OR

}

}

SoundingRS-UL-ConfigDedicatedUpPTsExt-r13 ::= CHOICE{

release NULL,

setup SEQUENCE {

srs-UpPtsAdd-r13 ENUMERATED {sym2, sym4},

srs-Bandwidth-r13 ENUMERATED {bw0, bw1, bw2, bw3},

srs-HoppingBandwidth-r13 ENUMERATED {hbw0, hbw1, hbw2, hbw3},

freqDomainPosition-r13 INTEGER (0..23),

duration-r13 BOOLEAN,

srs-ConfigIndex-r13 INTEGER (0..1023),

transmissionComb-r13 INTEGER (0..3),

cyclicShift-r13 ENUMERATED {cs0, cs1, cs2, cs3, cs4, cs5, cs6, cs7,

cs8, cs9, cs10, cs11},

srs-AntennaPort-r13 SRS-AntennaPort,

transmissionCombNum-r13 ENUMERATED {n2, n4}

}

}

SoundingRS-UL-ConfigDedicatedAperiodic-r10 ::= CHOICE{

release NULL,

setup SEQUENCE {

srs-ConfigIndexAp-r10 INTEGER (0..31),

srs-ConfigApDCI-Format4-r10 SEQUENCE (SIZE (1..3)) OF SRS-ConfigAp-r10 OPTIONAL,--Need ON

srs-ActivateAp-r10 CHOICE {

release NULL,

setup SEQUENCE {

srs-ConfigApDCI-Format0-r10 SRS-ConfigAp-r10,

srs-ConfigApDCI-Format1a2b2c-r10 SRS-ConfigAp-r10,

...

}

} OPTIONAL -- Need ON

}

}

SoundingRS-UL-ConfigDedicatedAperiodic-v1310 ::= CHOICE{

release NULL,

setup SEQUENCE {

srs-ConfigApDCI-Format4-v1310 SEQUENCE (SIZE (1..3)) OF SRS-ConfigAp-v1310 OPTIONAL,--Need ON

srs-ActivateAp-v1310 CHOICE {

release NULL,

setup SEQUENCE {

srs-ConfigApDCI-Format0-v1310 SRS-ConfigAp-v1310 OPTIONAL, -- Need ON

srs-ConfigApDCI-Format1a2b2c-v1310 SRS-ConfigAp-v1310 OPTIONAL -- Need ON

}

} OPTIONAL -- Need ON

}

}

SoundingRS-UL-ConfigDedicatedAperiodicUpPTsExt-r13 ::= CHOICE{

release NULL,

setup SEQUENCE {

srs-UpPtsAdd-r13 ENUMERATED {sym2, sym4},

srs-ConfigIndexAp-r13 INTEGER (0..31),

srs-ConfigApDCI-Format4-r13 SEQUENCE (SIZE (1..3)) OF SRS-ConfigAp-r13 OPTIONAL,--Need ON

srs-ActivateAp-r13 CHOICE {

release NULL,

setup SEQUENCE {

srs-ConfigApDCI-Format0-r13 SRS-ConfigAp-r13,

srs-ConfigApDCI-Format1a2b2c-r13 SRS-ConfigAp-r13

}

} OPTIONAL -- Need ON

}

}

SoundingRS-UL-ConfigDedicatedAperiodic-v1430 ::= CHOICE{

release NULL,

setup SEQUENCE {

srs-SubframeIndication-r14 INTEGER (1..4) OPTIONAL -- Need ON

}

}

SoundingRS-UL-ConfigDedicatedAdd-r16 ::= SEQUENCE {

srs-ConfigIndexAp-r16 INTEGER (0..31),

srs-ConfigApDCI-Format4-r16 SEQUENCE (SIZE (1..3)) OF SRS-ConfigAdd-r16

OPTIONAL, --Need ON

srs-ActivateAp-r13 CHOICE {

release NULL,

setup SEQUENCE {

srs-ConfigApDCI-Format0-r16 SRS-ConfigAdd-r16,

srs-ConfigApDCI-Format1a2b2c-r16 SRS-ConfigAdd-r16

}

} OPTIONAL --Need ON

}

SRS-ConfigAp-r10 ::= SEQUENCE {

srs-AntennaPortAp-r10 SRS-AntennaPort,

srs-BandwidthAp-r10 ENUMERATED {bw0, bw1, bw2, bw3},

freqDomainPositionAp-r10 INTEGER (0..23),

transmissionCombAp-r10 INTEGER (0..1),

cyclicShiftAp-r10 ENUMERATED {cs0, cs1, cs2, cs3, cs4, cs5, cs6, cs7}

}

SRS-ConfigAp-v1310 ::= SEQUENCE {

transmissionCombAp-v1310 INTEGER (2..3) OPTIONAL, -- Need OR

cyclicShiftAp-v1310 ENUMERATED {cs8, cs9, cs10, cs11} OPTIONAL, -- Need OR

transmissionCombNum-r13 ENUMERATED {n2, n4} OPTIONAL -- Need OR

}

SRS-ConfigAp-r13 ::= SEQUENCE {

srs-AntennaPortAp-r13 SRS-AntennaPort,

srs-BandwidthAp-r13 ENUMERATED {bw0, bw1, bw2, bw3},

freqDomainPositionAp-r13 INTEGER (0..23),

transmissionCombAp-r13 INTEGER (0..3),

cyclicShiftAp-r13 ENUMERATED {cs0, cs1, cs2, cs3, cs4, cs5, cs6, cs7,

cs8, cs9, cs10, cs11},

transmissionCombNum-r13 ENUMERATED {n2, n4}

}

SRS-AntennaPort ::= ENUMERATED {an1, an2, an4, spare1}

SRS-ConfigAdd-r16 ::= SEQUENCE {

srs-RepNumAdd-r16 ENUMERATED {n1, n2, n3, n4, n6, n7, n8, n9, n12, n13},

srs-BandwidthAdd-r16 ENUMERATED {bw0, bw1, bw2, bw3},

srs-HoppingBandwidthAdd-r16 ENUMERATED {hbw0, hbw1, hbw2, hbw3},

srs-FreqDomainPosAdd-r16 INTEGER (0..23),

srs-AntennaPortAdd-r16 SRS-AntennaPort,

srs-CyclicShiftAdd-r16 ENUMERATED {cs0, cs1, cs2, cs3, cs4, cs5, cs6, cs7,

cs8, cs9, cs10, cs11},

srs-TransmissionCombNumAdd-r16 ENUMERATED {n2, n4},

srs-TransmissionCombAdd-r16 INTEGER (0..3),

srs-StartPosAdd-r16 INTEGER (1..13),

srs-DurationAdd-r16 INTEGER (1..13),

srs-GuardSymbolAS-Add-r16 ENUMERATED {enabled} OPTIONAL, -- Need ON

srs-GuardSymbolFH-Add-r16 ENUMERATED {enabled} OPTIONAL -- Need ON

}

-- ASN1STOP

| ***SoundingRS-UL-Config* field descriptions** |
| --- |
| ***ackNackSRS-SimultaneousTransmission***  Parameter: *Simultaneous-AN-and-SRS*, see TS 36.213 [23], clause 8.2. For SCells without PUCCH configured, this field is not applicable and the UE shall ignore the value. |
| ***cyclicShift, cyclicShiftAp, srs-CyclicShiftAdd***  Parameter: n\_SRS for periodic, aperiodic and additional sounding reference signal transmission respectively except for an LAA SCell. See TS 36.211 [21], clause 5.5.3.1, where cs0 corresponds to 0 etc. |
| ***duration***  Parameter: Duration for periodic sounding reference signal transmission except for an LAA SCell. See TS 36.213 [21], clause 8.2. FALSE corresponds to "single" and value TRUE to "indefinite". |
| ***freqDomainPosition, freqDomainPositionAp, srs-FreqDomainPosAdd***  Parameter:  for periodic, aperiodic and additional sounding reference signal transmission respectively, see TS 36.211 [21], clause 5.5.3.2. |
| ***srs-AntennaPort, srs-AntennaPortAp, srs-AntennaPortAdd***  Indicates the number of antenna ports used for periodic, aperiodic and additional sounding reference signal transmission respectively, see TS 36.211 [21], clause 5.5.3. UE shall release *srs-AntennaPort* if *SoundingRS-UL-ConfigDedicated* is released. |
| ***srs-Bandwidth, srs-BandwidthAp, srs-BandwidthAdd***  Parameter:  for periodic, aperiodic and additional sounding reference signal transmission respectively, see TS 36.211 [21], tables 5.5.3.2-1, 5.5.3.2-2, 5.5.3.2-3 and 5.5.3.2-4. For LAA SCell only bw0 is applied. |
| ***srs-BandwidthConfig***  Parameter: SRS Bandwidth Configuration. See TS 36.211, [21], tables 5.5.3.2-1, 5.5.3.2-2, 5.5.3.2-3 and 5.5.3.2-4. Actual configuration depends on UL bandwidth. bw0 corresponds to value 0, bw1 to value 1 and so on. |
| ***srs-ConfigApDCI-Format0 / srs-ConfigApDCI-Format1a2b2c / srs-ConfigApDCI-Format4***  Parameters indicate the resource configurations for aperiodic sounding reference signal transmissions triggered by DCI formats 0, 1A, 2B, 2C, 4. See TS 36.213 [23], clause 8.2. |
| ***srs-ConfigIndex, srs-ConfigIndexAp***  Parameter: ISRS for periodic and aperiodic sounding reference signal transmission respectively except for an LAA SCell. See TS 36.213 [23], tables 8.2-1 and 8.2-2, for periodic and TS 36.213 [23], tables 8.2-4 an8.2-5, for aperiodic and additional SRS transmission. If both *srs-ConfigIndexAp-r10* and *srs-ConfigIndexAp-r16* are included, E-UTRAN configures the same value for both fields. |
| ***srs-DurationAdd***  Indicates the duration of the additional SRS including guard symbols within a UL subframe, see TS 36.211 [21], clause 5.5.3. E-UTRAN configures *addSRS-StartPos* and this field such that all the configured additional SRS occur within the same subframe. |
| ***srs-GuardSymbolAS-Add***  If enabled, there is a guard period of one symbol after antenna switching, see TS 36.211 [21], clause 5.5.3 and TS 36.213 [23] clause 8.2. |
| ***srs-GuardSymbolFH-Add***  If enabled, there is a guard period of one symbol after frequency hopping, see TS 36.211 [21], clause 5.5.3 and TS 36.213 [23] clause 8.2. |
| ***srs-HoppingBandwidth, srs-HoppingBandwidthAdd***  Parameter: SRS hopping bandwidth  for periodic and additional sounding reference signal transmission respectively except for an LAA SCell, see TS 36.211 [21], clause 5.5.3.2, where hbw0 corresponds to value 0, hbw1 to value 1 and so on. |
| ***srs-MaxUpPts***  Parameter: srsMaxUpPts, see TS 36.211 [21], clause 5.5.3.2. If this field is present, reconfiguration of  applies for UpPts, otherwise reconfiguration does not apply. |
| ***srs-RepNumAdd***  Parameter: R which indicates the number of the additional SRS repetitions, see TS 36.211 [21], clause 5.5.3.2 and TS 36.213 [23] clause 8.3. |
| ***srs-StartPosAdd***  Indicates the starting position of the additional SRS within a UL subframe excluding UpPTS, see TS 36.211 [21], clause 5.5.3. |
| ***srs-SubframeConfig***  Parameter: SRS SubframeConfiguration except for an LAA SCell. See TS 36.211, [21], table 5.5.3.3-1, applies for FDD whereas TS 36.211 [21], table 5.5.3.3-2, applies for TDD. sc0 corresponds to value 0, sc1 corresponds to value 1 and so on. |
| ***srs-SubframeIndication***  Parameter: SRS subframe indication in SRS parameter set configuration for aperiodic sounding reference signal transmission on an LAA SCell configured with uplink, see TS 36.213 [23]. |
| ***srs-UpPtsAdd***  The field only applies for TDD and frame structure type 3, see TS 36.211 [21]. If E-UTRAN configures both *soundingRS-UL-ConfigDedicatedUpPTsExt* and *soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt,* *srs-UpPtsAdd* in both fields is set to the same value. If E-UTRAN configures *soundingRS-UL-PeriodicConfigDedicatedUpPTsExtList-r14* with a number of *soundingRS-UL-ConfigDedicatedUpPTsExt* and/or *soundingRS-UL-AperiodicConfigDedicatedList-r14* with a number of *soundingRS-UL-ConfigDedicatedAperiodicUpPTsExt*, *srs-UpPtsAdd* in all fields are set to the same value. |
| ***transmissionComb, transmissionCombAp, srs-TransmissionCombAdd***  Parameter:  for periodic, aperiodic and additional sounding reference signal transmission respectively, see TS 36.211 [21], clause 5.5.3.2. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *TDD* | This field is optional present for TDD, need OR; it is not present for FDD and the UE shall delete any existing value for this field. |

### 6.3.5 Measurement information elements

>Next modified section

#### – *UL-DelayValueConfig*

The IE *UL-DelayValueConfig* specifies the configuration of the UL PDCP Packet Delay value per DRB measurements specified in TS 38.314 [103].

*UL-DelayValueConfig* information element

-- ASN1START

UL-DelayValueConfig-r16 ::= CHOICE {

release NULL,

setup SEQUENCE {

delay-DRBlist-r16 SEQUENCE (SIZE(1..maxDRB)) OF DRB-Identity

}

}

-- ASN1STOP

| *UL-DelayValueConfig* field descriptions |
| --- |
| ***delay-DRBlist***  Indicates the DRB IDs used by UE to provide results of UL PDCP Packet Delay value per DRB measurement as specified in TS 38.314 [103]. |

6.3.6 Other information elements

– *UE-EUTRA-Capability*

The IE *UE-EUTRA-Capability* is used to convey the E-UTRA UE Radio Access Capability Parameters, see TS 36.306 [5], and the Feature Group Indicators for mandatory features (defined in Annexes B.1 and C.1) to the network. The IE *UE-EUTRA-Capability* is transferred in E-UTRA or in another RAT.

NOTE 0: For (UE capability specific) guidelines on the use of keyword OPTIONAL, see Annex A.3.5.

***UE-EUTRA-Capability* information element**

-- ASN1START

UE-EUTRA-Capability ::= SEQUENCE {

accessStratumRelease AccessStratumRelease,

ue-Category INTEGER (1..5),

pdcp-Parameters PDCP-Parameters,

phyLayerParameters PhyLayerParameters,

rf-Parameters RF-Parameters,

measParameters MeasParameters,

featureGroupIndicators BIT STRING (SIZE (32)) OPTIONAL,

interRAT-Parameters SEQUENCE {

utraFDD IRAT-ParametersUTRA-FDD OPTIONAL,

utraTDD128 IRAT-ParametersUTRA-TDD128 OPTIONAL,

utraTDD384 IRAT-ParametersUTRA-TDD384 OPTIONAL,

utraTDD768 IRAT-ParametersUTRA-TDD768 OPTIONAL,

geran IRAT-ParametersGERAN OPTIONAL,

cdma2000-HRPD IRAT-ParametersCDMA2000-HRPD OPTIONAL,

cdma2000-1xRTT IRAT-ParametersCDMA2000-1XRTT OPTIONAL

},

nonCriticalExtension UE-EUTRA-Capability-v920-IEs OPTIONAL

}

-- Late non critical extensions

UE-EUTRA-Capability-v9a0-IEs ::= SEQUENCE {

featureGroupIndRel9Add-r9 BIT STRING (SIZE (32)) OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-r9 UE-EUTRA-CapabilityAddXDD-Mode-r9 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-r9 UE-EUTRA-CapabilityAddXDD-Mode-r9 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v9c0-IEs OPTIONAL

}

UE-EUTRA-Capability-v9c0-IEs ::= SEQUENCE {

interRAT-ParametersUTRA-v9c0 IRAT-ParametersUTRA-v9c0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v9d0-IEs OPTIONAL

}

UE-EUTRA-Capability-v9d0-IEs ::= SEQUENCE {

phyLayerParameters-v9d0 PhyLayerParameters-v9d0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v9e0-IEs OPTIONAL

}

UE-EUTRA-Capability-v9e0-IEs ::= SEQUENCE {

rf-Parameters-v9e0 RF-Parameters-v9e0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v9h0-IEs OPTIONAL

}

UE-EUTRA-Capability-v9h0-IEs ::= SEQUENCE {

interRAT-ParametersUTRA-v9h0 IRAT-ParametersUTRA-v9h0 OPTIONAL,

-- Following field is only to be used for late REL-9 extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v10c0-IEs OPTIONAL

}

UE-EUTRA-Capability-v10c0-IEs ::= SEQUENCE {

otdoa-PositioningCapabilities-r10 OTDOA-PositioningCapabilities-r10 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v10f0-IEs OPTIONAL

}

UE-EUTRA-Capability-v10f0-IEs ::= SEQUENCE {

rf-Parameters-v10f0 RF-Parameters-v10f0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v10i0-IEs OPTIONAL

}

UE-EUTRA-Capability-v10i0-IEs ::= SEQUENCE {

rf-Parameters-v10i0 RF-Parameters-v10i0 OPTIONAL,

-- Following field is only to be used for late REL-10 extensions

lateNonCriticalExtension OCTET STRING (CONTAINING UE-EUTRA-Capability-v10j0-IEs) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v11d0-IEs OPTIONAL

}

UE-EUTRA-Capability-v10j0-IEs ::= SEQUENCE {

rf-Parameters-v10j0 RF-Parameters-v10j0 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

UE-EUTRA-Capability-v11d0-IEs ::= SEQUENCE {

rf-Parameters-v11d0 RF-Parameters-v11d0 OPTIONAL,

otherParameters-v11d0 Other-Parameters-v11d0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v11x0-IEs OPTIONAL

}

UE-EUTRA-Capability-v11x0-IEs ::= SEQUENCE {

-- Following field is only to be used for late REL-11 extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v12b0-IEs OPTIONAL

}

UE-EUTRA-Capability-v12b0-IEs ::= SEQUENCE {

rf-Parameters-v12b0 RF-Parameters-v12b0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v12x0-IEs OPTIONAL

}

UE-EUTRA-Capability-v12x0-IEs ::= SEQUENCE {

-- Following field is only to be used for late REL-12 extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1370-IEs OPTIONAL

}

UE-EUTRA-Capability-v1370-IEs ::= SEQUENCE {

ce-Parameters-v1370 CE-Parameters-v1370 OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1370 UE-EUTRA-CapabilityAddXDD-Mode-v1370 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1370 UE-EUTRA-CapabilityAddXDD-Mode-v1370 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1380-IEs OPTIONAL

}

UE-EUTRA-Capability-v1380-IEs ::= SEQUENCE {

rf-Parameters-v1380 RF-Parameters-v1380 OPTIONAL,

ce-Parameters-v1380 CE-Parameters-v1380,

fdd-Add-UE-EUTRA-Capabilities-v1380 UE-EUTRA-CapabilityAddXDD-Mode-v1380,

tdd-Add-UE-EUTRA-Capabilities-v1380 UE-EUTRA-CapabilityAddXDD-Mode-v1380,

nonCriticalExtension UE-EUTRA-Capability-v1390-IEs OPTIONAL

}

UE-EUTRA-Capability-v1390-IEs ::= SEQUENCE {

rf-Parameters-v1390 RF-Parameters-v1390 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v13e0a-IEs OPTIONAL

}

UE-EUTRA-Capability-v13e0a-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING UE-EUTRA-Capability-v13e0b-IEs) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1470-IEs OPTIONAL

}

UE-EUTRA-Capability-v13e0b-IEs ::= SEQUENCE {

phyLayerParameters-v13e0 PhyLayerParameters-v13e0,

-- Following field is only to be used for late REL-13 extensions

nonCriticalExtension SEQUENCE {} OPTIONAL

}

UE-EUTRA-Capability-v1470-IEs ::= SEQUENCE {

mbms-Parameters-v1470 MBMS-Parameters-v1470 OPTIONAL,

phyLayerParameters-v1470 PhyLayerParameters-v1470 OPTIONAL,

rf-Parameters-v1470 RF-Parameters-v1470 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v14a0-IEs OPTIONAL

}

UE-EUTRA-Capability-v14a0-IEs ::= SEQUENCE {

phyLayerParameters-v14a0 PhyLayerParameters-v14a0,

-- Following field is only to be used for late REL-14 extensions

nonCriticalExtension UE-EUTRA-Capability-v14b0-IEs OPTIONAL

}

UE-EUTRA-Capability-v14b0-IEs ::= SEQUENCE {

rf-Parameters-v14b0 RF-Parameters-v14b0 OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non critical extensions

UE-EUTRA-Capability-v920-IEs ::= SEQUENCE {

phyLayerParameters-v920 PhyLayerParameters-v920,

interRAT-ParametersGERAN-v920 IRAT-ParametersGERAN-v920,

interRAT-ParametersUTRA-v920 IRAT-ParametersUTRA-v920 OPTIONAL,

interRAT-ParametersCDMA2000-v920 IRAT-ParametersCDMA2000-1XRTT-v920 OPTIONAL,

deviceType-r9 ENUMERATED {noBenFromBatConsumpOpt} OPTIONAL,

csg-ProximityIndicationParameters-r9 CSG-ProximityIndicationParameters-r9,

neighCellSI-AcquisitionParameters-r9 NeighCellSI-AcquisitionParameters-r9,

son-Parameters-r9 SON-Parameters-r9,

nonCriticalExtension UE-EUTRA-Capability-v940-IEs OPTIONAL

}

UE-EUTRA-Capability-v940-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING UE-EUTRA-Capability-v9a0-IEs) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1020-IEs OPTIONAL

}

UE-EUTRA-Capability-v1020-IEs ::= SEQUENCE {

ue-Category-v1020 INTEGER (6..8) OPTIONAL,

phyLayerParameters-v1020 PhyLayerParameters-v1020 OPTIONAL,

rf-Parameters-v1020 RF-Parameters-v1020 OPTIONAL,

measParameters-v1020 MeasParameters-v1020 OPTIONAL,

featureGroupIndRel10-r10 BIT STRING (SIZE (32)) OPTIONAL,

interRAT-ParametersCDMA2000-v1020 IRAT-ParametersCDMA2000-1XRTT-v1020 OPTIONAL,

ue-BasedNetwPerfMeasParameters-r10 UE-BasedNetwPerfMeasParameters-r10 OPTIONAL,

interRAT-ParametersUTRA-TDD-v1020 IRAT-ParametersUTRA-TDD-v1020 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1060-IEs OPTIONAL

}

UE-EUTRA-Capability-v1060-IEs ::= SEQUENCE {

fdd-Add-UE-EUTRA-Capabilities-v1060 UE-EUTRA-CapabilityAddXDD-Mode-v1060 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1060 UE-EUTRA-CapabilityAddXDD-Mode-v1060 OPTIONAL,

rf-Parameters-v1060 RF-Parameters-v1060 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1090-IEs OPTIONAL

}

UE-EUTRA-Capability-v1090-IEs ::= SEQUENCE {

rf-Parameters-v1090 RF-Parameters-v1090 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1130-IEs OPTIONAL

}

UE-EUTRA-Capability-v1130-IEs ::= SEQUENCE {

pdcp-Parameters-v1130 PDCP-Parameters-v1130,

phyLayerParameters-v1130 PhyLayerParameters-v1130 OPTIONAL,

rf-Parameters-v1130 RF-Parameters-v1130,

measParameters-v1130 MeasParameters-v1130,

interRAT-ParametersCDMA2000-v1130 IRAT-ParametersCDMA2000-v1130,

otherParameters-r11 Other-Parameters-r11,

fdd-Add-UE-EUTRA-Capabilities-v1130 UE-EUTRA-CapabilityAddXDD-Mode-v1130 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1130 UE-EUTRA-CapabilityAddXDD-Mode-v1130 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1170-IEs OPTIONAL

}

UE-EUTRA-Capability-v1170-IEs ::= SEQUENCE {

phyLayerParameters-v1170 PhyLayerParameters-v1170 OPTIONAL,

ue-Category-v1170 INTEGER (9..10) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1180-IEs OPTIONAL

}

UE-EUTRA-Capability-v1180-IEs ::= SEQUENCE {

rf-Parameters-v1180 RF-Parameters-v1180 OPTIONAL,

mbms-Parameters-r11 MBMS-Parameters-r11 OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1180 UE-EUTRA-CapabilityAddXDD-Mode-v1180 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1180 UE-EUTRA-CapabilityAddXDD-Mode-v1180 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v11a0-IEs OPTIONAL

}

UE-EUTRA-Capability-v11a0-IEs ::= SEQUENCE {

ue-Category-v11a0 INTEGER (11..12) OPTIONAL,

measParameters-v11a0 MeasParameters-v11a0 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1250-IEs OPTIONAL

}

UE-EUTRA-Capability-v1250-IEs ::= SEQUENCE {

phyLayerParameters-v1250 PhyLayerParameters-v1250 OPTIONAL,

rf-Parameters-v1250 RF-Parameters-v1250 OPTIONAL,

rlc-Parameters-r12 RLC-Parameters-r12 OPTIONAL,

ue-BasedNetwPerfMeasParameters-v1250 UE-BasedNetwPerfMeasParameters-v1250 OPTIONAL,

ue-CategoryDL-r12 INTEGER (0..14) OPTIONAL,

ue-CategoryUL-r12 INTEGER (0..13) OPTIONAL,

wlan-IW-Parameters-r12 WLAN-IW-Parameters-r12 OPTIONAL,

measParameters-v1250 MeasParameters-v1250 OPTIONAL,

dc-Parameters-r12 DC-Parameters-r12 OPTIONAL,

mbms-Parameters-v1250 MBMS-Parameters-v1250 OPTIONAL,

mac-Parameters-r12 MAC-Parameters-r12 OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1250 UE-EUTRA-CapabilityAddXDD-Mode-v1250 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1250 UE-EUTRA-CapabilityAddXDD-Mode-v1250 OPTIONAL,

sl-Parameters-r12 SL-Parameters-r12 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1260-IEs OPTIONAL

}

UE-EUTRA-Capability-v1260-IEs ::= SEQUENCE {

ue-CategoryDL-v1260 INTEGER (15..16) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1270-IEs OPTIONAL

}

UE-EUTRA-Capability-v1270-IEs ::= SEQUENCE {

rf-Parameters-v1270 RF-Parameters-v1270 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1280-IEs OPTIONAL

}

UE-EUTRA-Capability-v1280-IEs ::= SEQUENCE {

phyLayerParameters-v1280 PhyLayerParameters-v1280 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1310-IEs OPTIONAL

}

UE-EUTRA-Capability-v1310-IEs ::= SEQUENCE {

ue-CategoryDL-v1310 ENUMERATED {n17, m1} OPTIONAL,

ue-CategoryUL-v1310 ENUMERATED {n14, m1} OPTIONAL,

pdcp-Parameters-v1310 PDCP-Parameters-v1310,

rlc-Parameters-v1310 RLC-Parameters-v1310,

mac-Parameters-v1310 MAC-Parameters-v1310 OPTIONAL,

phyLayerParameters-v1310 PhyLayerParameters-v1310 OPTIONAL,

rf-Parameters-v1310 RF-Parameters-v1310 OPTIONAL,

measParameters-v1310 MeasParameters-v1310 OPTIONAL,

dc-Parameters-v1310 DC-Parameters-v1310 OPTIONAL,

sl-Parameters-v1310 SL-Parameters-v1310 OPTIONAL,

scptm-Parameters-r13 SCPTM-Parameters-r13 OPTIONAL,

ce-Parameters-r13 CE-Parameters-r13 OPTIONAL,

interRAT-ParametersWLAN-r13IRAT-ParametersWLAN-r13,

laa-Parameters-r13 LAA-Parameters-r13 OPTIONAL,

lwa-Parameters-r13 LWA-Parameters-r13 OPTIONAL,

wlan-IW-Parameters-v1310 WLAN-IW-Parameters-v1310,

lwip-Parameters-r13 LWIP-Parameters-r13,

fdd-Add-UE-EUTRA-Capabilities-v1310 UE-EUTRA-CapabilityAddXDD-Mode-v1310 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1310 UE-EUTRA-CapabilityAddXDD-Mode-v1310 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1320-IEs OPTIONAL

}

UE-EUTRA-Capability-v1320-IEs ::= SEQUENCE {

ce-Parameters-v1320 CE-Parameters-v1320 OPTIONAL,

phyLayerParameters-v1320 PhyLayerParameters-v1320 OPTIONAL,

rf-Parameters-v1320 RF-Parameters-v1320 OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1320 UE-EUTRA-CapabilityAddXDD-Mode-v1320 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1320 UE-EUTRA-CapabilityAddXDD-Mode-v1320 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1330-IEs OPTIONAL

}

UE-EUTRA-Capability-v1330-IEs ::= SEQUENCE {

ue-CategoryDL-v1330 INTEGER (18..19) OPTIONAL,

phyLayerParameters-v1330 PhyLayerParameters-v1330 OPTIONAL,

ue-CE-NeedULGaps-r13 ENUMERATED {true} OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1340-IEs OPTIONAL

}

UE-EUTRA-Capability-v1340-IEs ::= SEQUENCE {

ue-CategoryUL-v1340 INTEGER (15) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1350-IEs OPTIONAL

}

UE-EUTRA-Capability-v1350-IEs ::= SEQUENCE {

ue-CategoryDL-v1350 ENUMERATED {oneBis} OPTIONAL,

ue-CategoryUL-v1350 ENUMERATED {oneBis} OPTIONAL,

ce-Parameters-v1350 CE-Parameters-v1350,

nonCriticalExtension UE-EUTRA-Capability-v1360-IEs OPTIONAL

}

UE-EUTRA-Capability-v1360-IEs ::= SEQUENCE {

other-Parameters-v1360 Other-Parameters-v1360 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1430-IEs OPTIONAL

}

UE-EUTRA-Capability-v1430-IEs ::= SEQUENCE {

phyLayerParameters-v1430 PhyLayerParameters-v1430,

ue-CategoryDL-v1430 ENUMERATED {m2} OPTIONAL,

ue-CategoryUL-v1430 ENUMERATED {n16, n17, n18, n19, n20, m2} OPTIONAL,

ue-CategoryUL-v1430b ENUMERATED {n21} OPTIONAL,

mac-Parameters-v1430 MAC-Parameters-v1430 OPTIONAL,

measParameters-v1430 MeasParameters-v1430 OPTIONAL,

pdcp-Parameters-v1430 PDCP-Parameters-v1430 OPTIONAL,

rlc-Parameters-v1430 RLC-Parameters-v1430,

rf-Parameters-v1430 RF-Parameters-v1430 OPTIONAL,

laa-Parameters-v1430 LAA-Parameters-v1430 OPTIONAL,

lwa-Parameters-v1430 LWA-Parameters-v1430 OPTIONAL,

lwip-Parameters-v1430 LWIP-Parameters-v1430 OPTIONAL,

otherParameters-v1430 Other-Parameters-v1430,

mmtel-Parameters-r14 MMTEL-Parameters-r14 OPTIONAL,

mobilityParameters-r14 MobilityParameters-r14 OPTIONAL,

ce-Parameters-v1430 CE-Parameters-v1430,

fdd-Add-UE-EUTRA-Capabilities-v1430 UE-EUTRA-CapabilityAddXDD-Mode-v1430 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1430 UE-EUTRA-CapabilityAddXDD-Mode-v1430 OPTIONAL,

mbms-Parameters-v1430 MBMS-Parameters-v1430 OPTIONAL,

sl-Parameters-v1430 SL-Parameters-v1430 OPTIONAL,

ue-BasedNetwPerfMeasParameters-v1430 UE-BasedNetwPerfMeasParameters-v1430 OPTIONAL,

highSpeedEnhParameters-r14 HighSpeedEnhParameters-r14 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1440-IEs OPTIONAL

}

UE-EUTRA-Capability-v1440-IEs ::= SEQUENCE {

lwa-Parameters-v1440 LWA-Parameters-v1440,

mac-Parameters-v1440 MAC-Parameters-v1440,

nonCriticalExtension UE-EUTRA-Capability-v1450-IEs OPTIONAL

}

UE-EUTRA-Capability-v1450-IEs ::= SEQUENCE {

phyLayerParameters-v1450 PhyLayerParameters-v1450 OPTIONAL,

rf-Parameters-v1450 RF-Parameters-v1450 OPTIONAL,

otherParameters-v1450 OtherParameters-v1450,

ue-CategoryDL-v1450 INTEGER (20) OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1460-IEs OPTIONAL

}

UE-EUTRA-Capability-v1460-IEs ::= SEQUENCE {

ue-CategoryDL-v1460 INTEGER (21) OPTIONAL,

otherParameters-v1460 Other-Parameters-v1460,

nonCriticalExtension UE-EUTRA-Capability-v1510-IEs OPTIONAL

}

UE-EUTRA-Capability-v1510-IEs ::= SEQUENCE {

irat-ParametersNR-r15 IRAT-ParametersNR-r15 OPTIONAL,

featureSetsEUTRA-r15 FeatureSetsEUTRA-r15 OPTIONAL,

pdcp-ParametersNR-r15 PDCP-ParametersNR-r15 OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1510 UE-EUTRA-CapabilityAddXDD-Mode-v1510 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1510 UE-EUTRA-CapabilityAddXDD-Mode-v1510 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1520-IEs OPTIONAL

}

UE-EUTRA-Capability-v1520-IEs ::= SEQUENCE {

measParameters-v1520 MeasParameters-v1520,

nonCriticalExtension UE-EUTRA-Capability-v1530-IEs OPTIONAL

}

UE-EUTRA-Capability-v1530-IEs ::= SEQUENCE {

measParameters-v1530 MeasParameters-v1530 OPTIONAL,

otherParameters-v1530 Other-Parameters-v1530 OPTIONAL,

neighCellSI-AcquisitionParameters-v1530 NeighCellSI-AcquisitionParameters-v1530 OPTIONAL,

mac-Parameters-v1530 MAC-Parameters-v1530 OPTIONAL,

phyLayerParameters-v1530 PhyLayerParameters-v1530 OPTIONAL,

rf-Parameters-v1530 RF-Parameters-v1530 OPTIONAL,

pdcp-Parameters-v1530 PDCP-Parameters-v1530 OPTIONAL,

ue-CategoryDL-v1530 INTEGER (22..26) OPTIONAL,

ue-BasedNetwPerfMeasParameters-v1530 UE-BasedNetwPerfMeasParameters-v1530 OPTIONAL,

rlc-Parameters-v1530 RLC-Parameters-v1530 OPTIONAL,

sl-Parameters-v1530 SL-Parameters-v1530 OPTIONAL,

extendedNumberOfDRBs-r15 ENUMERATED {supported} OPTIONAL,

reducedCP-Latency-r15 ENUMERATED {supported} OPTIONAL,

laa-Parameters-v1530 LAA-Parameters-v1530 OPTIONAL,

ue-CategoryUL-v1530 INTEGER (22..26) OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1530 UE-EUTRA-CapabilityAddXDD-Mode-v1530 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1530 UE-EUTRA-CapabilityAddXDD-Mode-v1530 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1540-IEs OPTIONAL

}

UE-EUTRA-Capability-v1540-IEs ::= SEQUENCE {

phyLayerParameters-v1540 PhyLayerParameters-v1540 OPTIONAL,

otherParameters-v1540 Other-Parameters-v1540,

fdd-Add-UE-EUTRA-Capabilities-v1540 UE-EUTRA-CapabilityAddXDD-Mode-v1540 OPTIONAL,

tdd-Add-UE-EUTRA-Capabilities-v1540 UE-EUTRA-CapabilityAddXDD-Mode-v1540 OPTIONAL,

sl-Parameters-v1540 SL-Parameters-v1540 OPTIONAL,

irat-ParametersNR-v1540 IRAT-ParametersNR-v1540 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v1550-IEs OPTIONAL

}

UE-EUTRA-Capability-v1550-IEs ::= SEQUENCE {

neighCellSI-AcquisitionParameters-v1550 NeighCellSI-AcquisitionParameters-v1550 OPTIONAL,

phyLayerParameters-v1550 PhyLayerParameters-v1550,

mac-Parameters-v1550 MAC-Parameters-v1550,

fdd-Add-UE-EUTRA-Capabilities-v1550 UE-EUTRA-CapabilityAddXDD-Mode-v1550,

tdd-Add-UE-EUTRA-Capabilities-v1550 UE-EUTRA-CapabilityAddXDD-Mode-v1550,

nonCriticalExtension UE-EUTRA-Capability-v1560-IEs OPTIONAL

}

UE-EUTRA-Capability-v1560-IEs ::= SEQUENCE {

pdcp-ParametersNR-v1560 PDCP-ParametersNR-v1560,

irat-ParametersNR-v1560 IRAT-ParametersNR-v1560,

appliedCapabilityFilterCommon-r15 OCTET STRING OPTIONAL,

fdd-Add-UE-EUTRA-Capabilities-v1560 UE-EUTRA-CapabilityAddXDD-Mode-v1560,

tdd-Add-UE-EUTRA-Capabilities-v1560 UE-EUTRA-CapabilityAddXDD-Mode-v1560,

nonCriticalExtension UE-EUTRA-Capability-v1570-IEs OPTIONAL

}

UE-EUTRA-Capability-v1570-IEs ::= SEQUENCE {

rf-Parameters-v1570 RF-Parameters-v1570 OPTIONAL,

irat-ParametersNR-v1570 IRAT-ParametersNR-v1570 OPTIONAL,

nonCriticalExtension UE-EUTRA-Capability-v16xy-IEs OPTIONAL

}

UE-EUTRA-Capability-v16xy-IEs ::= SEQUENCE {

highSpeedEnhParameters-v16xy HighSpeedEnhParameters-v16xy OPTIONAL,

neighCellSI-AcquisitionParameters-v16xy NeighCellSI-AcquisitionParameters-v16xy OPTIONAL,

mbms-Parameters-v16xy MBMS-Parameters-v16xy OPTIONAL,

mac-Parameters-v16xy MAC-Parameters-v16xy OPTIONAL,

phyLayerParameters-v16xy PhyLayerParameters-v16xy OPTIONAL,

otherParameters-v16xy Other-Parameters-v16xy,

dl-DedicatedMessageSegmentation-r16 ENUMERATED {supported} OPTIONAL,

mmtel-Parameters-v16xy MMTEL-Parameters-v16xy,

irat-ParametersNR-v16xy IRAT-ParametersNR-v16xy,

fdd-Add-UE-EUTRA-Capabilities-v16xy UE-EUTRA-CapabilityAddXDD-Mode-v16xy,

tdd-Add-UE-EUTRA-Capabilities-v16xy UE-EUTRA-CapabilityAddXDD-Mode-v16xy,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-r9 ::= SEQUENCE {

phyLayerParameters-r9 PhyLayerParameters OPTIONAL,

featureGroupIndicators-r9 BIT STRING (SIZE (32)) OPTIONAL,

featureGroupIndRel9Add-r9 BIT STRING (SIZE (32)) OPTIONAL,

interRAT-ParametersGERAN-r9 IRAT-ParametersGERAN OPTIONAL,

interRAT-ParametersUTRA-r9 IRAT-ParametersUTRA-v920 OPTIONAL,

interRAT-ParametersCDMA2000-r9 IRAT-ParametersCDMA2000-1XRTT-v920 OPTIONAL,

neighCellSI-AcquisitionParameters-r9 NeighCellSI-AcquisitionParameters-r9 OPTIONAL,

...

}

UE-EUTRA-CapabilityAddXDD-Mode-v1060 ::= SEQUENCE {

phyLayerParameters-v1060 PhyLayerParameters-v1020 OPTIONAL,

featureGroupIndRel10-v1060 BIT STRING (SIZE (32)) OPTIONAL,

interRAT-ParametersCDMA2000-v1060 IRAT-ParametersCDMA2000-1XRTT-v1020 OPTIONAL,

interRAT-ParametersUTRA-TDD-v1060 IRAT-ParametersUTRA-TDD-v1020 OPTIONAL,

...,

[[ otdoa-PositioningCapabilities-r10 OTDOA-PositioningCapabilities-r10 OPTIONAL

]]

}

UE-EUTRA-CapabilityAddXDD-Mode-v1130 ::= SEQUENCE {

phyLayerParameters-v1130 PhyLayerParameters-v1130 OPTIONAL,

measParameters-v1130 MeasParameters-v1130 OPTIONAL,

otherParameters-r11 Other-Parameters-r11 OPTIONAL,

...

}

UE-EUTRA-CapabilityAddXDD-Mode-v1180 ::= SEQUENCE {

mbms-Parameters-r11 MBMS-Parameters-r11

}

UE-EUTRA-CapabilityAddXDD-Mode-v1250 ::= SEQUENCE {

phyLayerParameters-v1250 PhyLayerParameters-v1250 OPTIONAL,

measParameters-v1250 MeasParameters-v1250 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1310 ::= SEQUENCE {

phyLayerParameters-v1310 PhyLayerParameters-v1310 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1320 ::= SEQUENCE {

phyLayerParameters-v1320 PhyLayerParameters-v1320 OPTIONAL,

scptm-Parameters-r13 SCPTM-Parameters-r13 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1370 ::= SEQUENCE {

ce-Parameters-v1370 CE-Parameters-v1370 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1380 ::= SEQUENCE {

ce-Parameters-v1380 CE-Parameters-v1380

}

UE-EUTRA-CapabilityAddXDD-Mode-v1430 ::= SEQUENCE {

phyLayerParameters-v1430 PhyLayerParameters-v1430 OPTIONAL,

mmtel-Parameters-r14 MMTEL-Parameters-r14 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1510 ::= SEQUENCE {

pdcp-ParametersNR-r15 PDCP-ParametersNR-r15 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1530 ::= SEQUENCE {

neighCellSI-AcquisitionParameters-v1530 NeighCellSI-AcquisitionParameters-v1530 OPTIONAL,

reducedCP-Latency-r15 ENUMERATED {supported} OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1540 ::= SEQUENCE {

eutra-5GC-Parameters-r15 EUTRA-5GC-Parameters-r15 OPTIONAL,

irat-ParametersNR-v1540 IRAT-ParametersNR-v1540 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1550 ::= SEQUENCE {

neighCellSI-AcquisitionParameters-v1550 NeighCellSI-AcquisitionParameters-v1550 OPTIONAL

}

UE-EUTRA-CapabilityAddXDD-Mode-v1560 ::= SEQUENCE {

pdcp-ParametersNR-v1560 PDCP-ParametersNR-v1560

}

UE-EUTRA-CapabilityAddXDD-Mode-v16xy ::= SEQUENCE {

neighCellSI-AcquisitionParameters-v16xy NeighCellSI-AcquisitionParameters-v16xy OPTIONAL

}

AccessStratumRelease ::= ENUMERATED {

rel8, rel9, rel10, rel11, rel12, rel13,

rel14, rel15, ..., rel16}

FeatureSetsEUTRA-r15 ::= SEQUENCE {

featureSetsDL-r15 SEQUENCE (SIZE (1..maxFeatureSets-r15)) OF FeatureSetDL-r15 OPTIONAL,

featureSetsDL-PerCC-r15 SEQUENCE (SIZE (1..maxPerCC-FeatureSets-r15)) OF FeatureSetDL-PerCC-r15 OPTIONAL,

featureSetsUL-r15 SEQUENCE (SIZE (1..maxFeatureSets-r15)) OF FeatureSetUL-r15 OPTIONAL,

featureSetsUL-PerCC-r15 SEQUENCE (SIZE (1..maxPerCC-FeatureSets-r15)) OF FeatureSetUL-PerCC-r15 OPTIONAL,

...,

[[ featureSetsDL-v1550 SEQUENCE (SIZE (1..maxFeatureSets-r15)) OF FeatureSetDL-v1550 OPTIONAL

]]

}

MobilityParameters-r14 ::= SEQUENCE {

makeBeforeBreak-r14 ENUMERATED {supported} OPTIONAL,

rach-Less-r14 ENUMERATED {supported} OPTIONAL

}

DC-Parameters-r12 ::= SEQUENCE {

drb-TypeSplit-r12 ENUMERATED {supported} OPTIONAL,

drb-TypeSCG-r12 ENUMERATED {supported} OPTIONAL

}

DC-Parameters-v1310 ::= SEQUENCE {

pdcp-TransferSplitUL-r13 ENUMERATED {supported} OPTIONAL,

ue-SSTD-Meas-r13 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-r12 ::= SEQUENCE {

logicalChannelSR-ProhibitTimer-r12 ENUMERATED {supported} OPTIONAL,

longDRX-Command-r12 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-v1310 ::= SEQUENCE {

extendedMAC-LengthField-r13 ENUMERATED {supported} OPTIONAL,

extendedLongDRX-r13 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-v1430 ::= SEQUENCE {

shortSPS-IntervalFDD-r14 ENUMERATED {supported} OPTIONAL,

shortSPS-IntervalTDD-r14 ENUMERATED {supported} OPTIONAL,

skipUplinkDynamic-r14 ENUMERATED {supported} OPTIONAL,

skipUplinkSPS-r14 ENUMERATED {supported} OPTIONAL,

multipleUplinkSPS-r14 ENUMERATED {supported} OPTIONAL,

dataInactMon-r14 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-v1440 ::= SEQUENCE {

rai-Support-r14 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-v1530 ::= SEQUENCE {

min-Proc-TimelineSubslot-r15 SEQUENCE (SIZE(1..3)) OF ProcessingTimelineSet-r15 OPTIONAL,

skipSubframeProcessing-r15 SkipSubframeProcessing-r15 OPTIONAL,

earlyData-UP-r15 ENUMERATED {supported} OPTIONAL,

dormantSCellState-r15 ENUMERATED {supported} OPTIONAL,

directSCellActivation-r15 ENUMERATED {supported} OPTIONAL,

directSCellHibernation-r15 ENUMERATED {supported} OPTIONAL,

extendedLCID-Duplication-r15 ENUMERATED {supported} OPTIONAL,

sps-ServingCell-r15 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-v1550 ::= SEQUENCE {

eLCID-Support-r15 ENUMERATED {supported} OPTIONAL

}

MAC-Parameters-v16xy ::= SEQUENCE {

earlyData-UP-5GC-r16 ENUMERATED {supported} OPTIONAL,

pur-CP-5GC-r16 ENUMERATED {supported} OPTIONAL,

pur-UP-5GC-r16 ENUMERATED {supported} OPTIONAL,

pur-CP-EPC-r16 ENUMERATED {supported} OPTIONAL,

pur-UP-EPC-r16 ENUMERATED {supported} OPTIONAL,

rai-SupportEnh-r16 ENUMERATED {supported} OPTIONAL

}

ProcessingTimelineSet-r15 ::= ENUMERATED {set1, set2}

RLC-Parameters-r12 ::= SEQUENCE {

extended-RLC-LI-Field-r12 ENUMERATED {supported}

}

RLC-Parameters-v1310 ::= SEQUENCE {

extendedRLC-SN-SO-Field-r13 ENUMERATED {supported} OPTIONAL

}

RLC-Parameters-v1430 ::= SEQUENCE {

extendedPollByte-r14 ENUMERATED {supported} OPTIONAL

}

RLC-Parameters-v1530 ::= SEQUENCE {

flexibleUM-AM-Combinations-r15 ENUMERATED {supported} OPTIONAL,

rlc-AM-Ooo-Delivery-r15 ENUMERATED {supported} OPTIONAL,

rlc-UM-Ooo-Delivery-r15 ENUMERATED {supported} OPTIONAL

}

PDCP-Parameters ::= SEQUENCE {

supportedROHC-Profiles ROHC-ProfileSupportList-r15,

maxNumberROHC-ContextSessions ENUMERATED {

cs2, cs4, cs8, cs12, cs16, cs24, cs32,

cs48, cs64, cs128, cs256, cs512, cs1024,

cs16384, spare2, spare1} DEFAULT cs16,

...

}

PDCP-Parameters-v1130 ::= SEQUENCE {

pdcp-SN-Extension-r11 ENUMERATED {supported} OPTIONAL,

supportRohcContextContinue-r11 ENUMERATED {supported} OPTIONAL

}

PDCP-Parameters-v1310 ::= SEQUENCE {

pdcp-SN-Extension-18bits-r13 ENUMERATED {supported} OPTIONAL

}

PDCP-Parameters-v1430 ::= SEQUENCE {

supportedUplinkOnlyROHC-Profiles-r14 SEQUENCE {

profile0x0006-r14 BOOLEAN

},

maxNumberROHC-ContextSessions-r14 ENUMERATED {

cs2, cs4, cs8, cs12, cs16, cs24, cs32,

cs48, cs64, cs128, cs256, cs512, cs1024,

cs16384, spare2, spare1} DEFAULT cs16

}

PDCP-Parameters-v1530 ::= SEQUENCE {

supportedUDC-r15 SupportedUDC-r15 OPTIONAL,

pdcp-Duplication-r15 ENUMERATED {supported} OPTIONAL

}

SupportedUDC-r15 ::= SEQUENCE {

supportedStandardDic-r15 ENUMERATED {supported} OPTIONAL,

supportedOperatorDic-r15 SupportedOperatorDic-r15 OPTIONAL

}

SupportedOperatorDic-r15 ::= SEQUENCE {

versionOfDictionary-r15 INTEGER (0..15),

associatedPLMN-ID-r15 PLMN-Identity

}

PhyLayerParameters ::= SEQUENCE {

ue-TxAntennaSelectionSupported BOOLEAN,

ue-SpecificRefSigsSupported BOOLEAN

}

PhyLayerParameters-v920 ::= SEQUENCE {

enhancedDualLayerFDD-r9 ENUMERATED {supported} OPTIONAL,

enhancedDualLayerTDD-r9 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v9d0 ::= SEQUENCE {

tm5-FDD-r9 ENUMERATED {supported} OPTIONAL,

tm5-TDD-r9 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1020 ::= SEQUENCE {

twoAntennaPortsForPUCCH-r10 ENUMERATED {supported} OPTIONAL,

tm9-With-8Tx-FDD-r10 ENUMERATED {supported} OPTIONAL,

pmi-Disabling-r10 ENUMERATED {supported} OPTIONAL,

crossCarrierScheduling-r10 ENUMERATED {supported} OPTIONAL,

simultaneousPUCCH-PUSCH-r10 ENUMERATED {supported} OPTIONAL,

multiClusterPUSCH-WithinCC-r10 ENUMERATED {supported} OPTIONAL,

nonContiguousUL-RA-WithinCC-List-r10 NonContiguousUL-RA-WithinCC-List-r10 OPTIONAL

}

PhyLayerParameters-v1130 ::= SEQUENCE {

crs-InterfHandl-r11 ENUMERATED {supported} OPTIONAL,

ePDCCH-r11 ENUMERATED {supported} OPTIONAL,

multiACK-CSI-Reporting-r11 ENUMERATED {supported} OPTIONAL,

ss-CCH-InterfHandl-r11 ENUMERATED {supported} OPTIONAL,

tdd-SpecialSubframe-r11 ENUMERATED {supported} OPTIONAL,

txDiv-PUCCH1b-ChSelect-r11 ENUMERATED {supported} OPTIONAL,

ul-CoMP-r11 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1170 ::= SEQUENCE {

interBandTDD-CA-WithDifferentConfig-r11 BIT STRING (SIZE (2)) OPTIONAL

}

PhyLayerParameters-v1250 ::= SEQUENCE {

e-HARQ-Pattern-FDD-r12 ENUMERATED {supported} OPTIONAL,

enhanced-4TxCodebook-r12 ENUMERATED {supported} OPTIONAL,

tdd-FDD-CA-PCellDuplex-r12 BIT STRING (SIZE (2)) OPTIONAL,

phy-TDD-ReConfig-TDD-PCell-r12 ENUMERATED {supported} OPTIONAL,

phy-TDD-ReConfig-FDD-PCell-r12 ENUMERATED {supported} OPTIONAL,

pusch-FeedbackMode-r12 ENUMERATED {supported} OPTIONAL,

pusch-SRS-PowerControl-SubframeSet-r12 ENUMERATED {supported} OPTIONAL,

csi-SubframeSet-r12 ENUMERATED {supported} OPTIONAL,

noResourceRestrictionForTTIBundling-r12 ENUMERATED {supported} OPTIONAL,

discoverySignalsInDeactSCell-r12 ENUMERATED {supported} OPTIONAL,

naics-Capability-List-r12 NAICS-Capability-List-r12 OPTIONAL

}

PhyLayerParameters-v1280 ::= SEQUENCE {

alternativeTBS-Indices-r12 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1310 ::= SEQUENCE {

aperiodicCSI-Reporting-r13 BIT STRING (SIZE (2)) OPTIONAL,

codebook-HARQ-ACK-r13 BIT STRING (SIZE (2)) OPTIONAL,

crossCarrierScheduling-B5C-r13 ENUMERATED {supported} OPTIONAL,

fdd-HARQ-TimingTDD-r13 ENUMERATED {supported} OPTIONAL,

maxNumberUpdatedCSI-Proc-r13 INTEGER(5..32) OPTIONAL,

pucch-Format4-r13 ENUMERATED {supported} OPTIONAL,

pucch-Format5-r13 ENUMERATED {supported} OPTIONAL,

pucch-SCell-r13 ENUMERATED {supported} OPTIONAL,

spatialBundling-HARQ-ACK-r13 ENUMERATED {supported} OPTIONAL,

supportedBlindDecoding-r13 SEQUENCE {

maxNumberDecoding-r13 INTEGER(1..32) OPTIONAL,

pdcch-CandidateReductions-r13 ENUMERATED {supported} OPTIONAL,

skipMonitoringDCI-Format0-1A-r13 ENUMERATED {supported} OPTIONAL

} OPTIONAL,

uci-PUSCH-Ext-r13 ENUMERATED {supported} OPTIONAL,

crs-InterfMitigationTM10-r13 ENUMERATED {supported} OPTIONAL,

pdsch-CollisionHandling-r13 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1320 ::= SEQUENCE {

mimo-UE-Parameters-r13 MIMO-UE-Parameters-r13 OPTIONAL

}

PhyLayerParameters-v1330 ::= SEQUENCE {

cch-InterfMitigation-RefRecTypeA-r13 ENUMERATED {supported} OPTIONAL,

cch-InterfMitigation-RefRecTypeB-r13 ENUMERATED {supported} OPTIONAL,

cch-InterfMitigation-MaxNumCCs-r13 INTEGER (1.. maxServCell-r13) OPTIONAL,

crs-InterfMitigationTM1toTM9-r13 INTEGER (1.. maxServCell-r13) OPTIONAL

}

PhyLayerParameters-v13e0 ::= SEQUENCE {

mimo-UE-Parameters-v13e0 MIMO-UE-Parameters-v13e0

}

PhyLayerParameters-v1430 ::= SEQUENCE {

ce-PUSCH-NB-MaxTBS-r14 ENUMERATED {supported} OPTIONAL,

ce-PDSCH-PUSCH-MaxBandwidth-r14 ENUMERATED {bw5, bw20} OPTIONAL,

ce-HARQ-AckBundling-r14 ENUMERATED {supported} OPTIONAL,

ce-PDSCH-TenProcesses-r14 ENUMERATED {supported} OPTIONAL,

ce-RetuningSymbols-r14 ENUMERATED {n0, n1} OPTIONAL,

ce-PDSCH-PUSCH-Enhancement-r14 ENUMERATED {supported} OPTIONAL,

ce-SchedulingEnhancement-r14 ENUMERATED {supported} OPTIONAL,

ce-SRS-Enhancement-r14 ENUMERATED {supported} OPTIONAL,

ce-PUCCH-Enhancement-r14 ENUMERATED {supported} OPTIONAL,

ce-ClosedLoopTxAntennaSelection-r14 ENUMERATED {supported} OPTIONAL,

tdd-SpecialSubframe-r14 ENUMERATED {supported} OPTIONAL,

tdd-TTI-Bundling-r14 ENUMERATED {supported} OPTIONAL,

dmrs-LessUpPTS-r14 ENUMERATED {supported} OPTIONAL,

mimo-UE-Parameters-v1430 MIMO-UE-Parameters-v1430 OPTIONAL,

alternativeTBS-Index-r14 ENUMERATED {supported} OPTIONAL,

feMBMS-Unicast-Parameters-r14 FeMBMS-Unicast-Parameters-r14 OPTIONAL

}

PhyLayerParameters-v1450 ::= SEQUENCE {

ce-SRS-EnhancementWithoutComb4-r14 ENUMERATED {supported} OPTIONAL,

crs-LessDwPTS-r14 ENUMERATED {supported} OPTIONAL}

PhyLayerParameters-v1470 ::= SEQUENCE {

mimo-UE-Parameters-v1470 MIMO-UE-Parameters-v1470 OPTIONAL,

srs-UpPTS-6sym-r14 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v14a0 ::= SEQUENCE {

ssp10-TDD-Only-r14 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1530 ::= SEQUENCE {

stti-SPT-Capabilities-r15 SEQUENCE {

aperiodicCsi-ReportingSTTI-r15 ENUMERATED {supported} OPTIONAL,

dmrs-BasedSPDCCH-MBSFN-r15 ENUMERATED {supported} OPTIONAL,

dmrs-BasedSPDCCH-nonMBSFN-r15 ENUMERATED {supported} OPTIONAL,

dmrs-PositionPattern-r15 ENUMERATED {supported} OPTIONAL,

dmrs-SharingSubslotPDSCH-r15 ENUMERATED {supported} OPTIONAL,

dmrs-RepetitionSubslotPDSCH-r15 ENUMERATED {supported} OPTIONAL,

epdcch-SPT-differentCells-r15 ENUMERATED {supported} OPTIONAL,

epdcch-STTI-differentCells-r15 ENUMERATED {supported} OPTIONAL,

maxLayersSlotOrSubslotPUSCH-r15 ENUMERATED {oneLayer,twoLayers,fourLayers}

OPTIONAL,

maxNumberUpdatedCSI-Proc-SPT-r15 INTEGER(5..32) OPTIONAL,

maxNumberUpdatedCSI-Proc-STTI-Comb77-r15 INTEGER(1..32) OPTIONAL,

maxNumberUpdatedCSI-Proc-STTI-Comb27-r15 INTEGER(1..32) OPTIONAL,

maxNumberUpdatedCSI-Proc-STTI-Comb22-Set1-r15 INTEGER(1..32) OPTIONAL,

maxNumberUpdatedCSI-Proc-STTI-Comb22-Set2-r15 INTEGER(1..32) OPTIONAL,

mimo-UE-ParametersSTTI-r15 MIMO-UE-Parameters-r13 OPTIONAL,

mimo-UE-ParametersSTTI-v1530 MIMO-UE-Parameters-v1430 OPTIONAL,

numberOfBlindDecodesUSS-r15 INTEGER(4..32) OPTIONAL,

pdsch-SlotSubslotPDSCH-Decoding-r15 ENUMERATED {supported} OPTIONAL,

powerUCI-SlotPUSCH ENUMERATED {supported} OPTIONAL,

powerUCI-SubslotPUSCH ENUMERATED {supported} OPTIONAL,

slotPDSCH-TxDiv-TM9and10 ENUMERATED {supported} OPTIONAL,

subslotPDSCH-TxDiv-TM9and10 ENUMERATED {supported} OPTIONAL,

spdcch-differentRS-types-r15 ENUMERATED {supported} OPTIONAL,

srs-DCI7-TriggeringFS2-r15 ENUMERATED {supported} OPTIONAL,

sps-cyclicShift-r15 ENUMERATED {supported} OPTIONAL,

spdcch-Reuse-r15 ENUMERATED {supported} OPTIONAL,

sps-STTI-r15 ENUMERATED {slot, subslot, slotAndSubslot}

OPTIONAL,

tm8-slotPDSCH-r15 ENUMERATED {supported} OPTIONAL,

tm9-slotSubslot-r15 ENUMERATED {supported} OPTIONAL,

tm9-slotSubslotMBSFN-r15 ENUMERATED {supported} OPTIONAL,

tm10-slotSubslot-r15 ENUMERATED {supported} OPTIONAL,

tm10-slotSubslotMBSFN-r15 ENUMERATED {supported} OPTIONAL,

txDiv-SPUCCH-r15 ENUMERATED {supported} OPTIONAL,

ul-AsyncHarqSharingDiff-TTI-Lengths-r15 ENUMERATED {supported} OPTIONAL

} OPTIONAL,

ce-Capabilities-r15 SEQUENCE {

ce-CRS-IntfMitig-r15 ENUMERATED {supported} OPTIONAL,

ce-CQI-AlternativeTable-r15 ENUMERATED {supported} OPTIONAL,

ce-PDSCH-FlexibleStartPRB-CE-ModeA-r15 ENUMERATED {supported} OPTIONAL,

ce-PDSCH-FlexibleStartPRB-CE-ModeB-r15 ENUMERATED {supported} OPTIONAL,

ce-PDSCH-64QAM-r15 ENUMERATED {supported} OPTIONAL,

ce-PUSCH-FlexibleStartPRB-CE-ModeA-r15 ENUMERATED {supported} OPTIONAL,

ce-PUSCH-FlexibleStartPRB-CE-ModeB-r15 ENUMERATED {supported} OPTIONAL,

ce-PUSCH-SubPRB-Allocation-r15 ENUMERATED {supported} OPTIONAL,

ce-UL-HARQ-ACK-Feedback-r15 ENUMERATED {supported} OPTIONAL

} OPTIONAL,

shortCQI-ForSCellActivation-r15 ENUMERATED {supported} OPTIONAL,

mimo-CBSR-AdvancedCSI-r15 ENUMERATED {supported} OPTIONAL,

crs-IntfMitig-r15 ENUMERATED {supported} OPTIONAL,

ul-PowerControlEnhancements-r15 ENUMERATED {supported} OPTIONAL,

urllc-Capabilities-r15 SEQUENCE {

pdsch-RepSubframe-r15 ENUMERATED {supported} OPTIONAL,

pdsch-RepSlot-r15 ENUMERATED {supported} OPTIONAL,

pdsch-RepSubslot-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-MultiConfigSubframe-r15 INTEGER (0..6) OPTIONAL,

pusch-SPS-MaxConfigSubframe-r15 INTEGER (0..31) OPTIONAL,

pusch-SPS-MultiConfigSlot-r15 INTEGER (0..6) OPTIONAL,

pusch-SPS-MaxConfigSlot-r15 INTEGER (0..31) OPTIONAL,

pusch-SPS-MultiConfigSubslot-r15 INTEGER (0..6) OPTIONAL,

pusch-SPS-MaxConfigSubslot-r15 INTEGER (0..31) OPTIONAL,

pusch-SPS-SlotRepPCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SlotRepPSCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SlotRepSCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SubframeRepPCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SubframeRepPSCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SubframeRepSCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SubslotRepPCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SubslotRepPSCell-r15 ENUMERATED {supported} OPTIONAL,

pusch-SPS-SubslotRepSCell-r15 ENUMERATED {supported} OPTIONAL,

semiStaticCFI-r15 ENUMERATED {supported} OPTIONAL,

semiStaticCFI-Pattern-r15 ENUMERATED {supported} OPTIONAL

} OPTIONAL,

altMCS-Table-r15 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1540 ::= SEQUENCE {

stti-SPT-Capabilities-v1540 SEQUENCE {

slotPDSCH-TxDiv-TM8-r15 ENUMERATED {supported}

} OPTIONAL,

crs-IM-TM1-toTM9-OneRX-Port-v1540 ENUMERATED {supported} OPTIONAL,

cch-IM-RefRecTypeA-OneRX-Port-v1540 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v1550 ::= SEQUENCE {

dmrs-OverheadReduction-r15 ENUMERATED {supported} OPTIONAL

}

PhyLayerParameters-v16xy ::= SEQUENCE {

ce-Capabilities-v16xy SEQUENCE {

ce-CRS-ChannelEstMPDCCH-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeA-CSI-RS-Feedback-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeA-PDSCH-MultiTB-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeA-PUSCH-MultiTB-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeB-PDSCH-MultiTB-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeB-PUSCH-MultiTB-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeA-ETWS-CMAS-RxInConn-r16 ENUMERATED {supported} OPTIONAL,

ce-ModeB-ETWS-CMAS-RxInConn-r16 ENUMERATED {supported} OPTIONAL,

ce-RxInLTE-ControlRegion-r16 ENUMERATED {supported} OPTIONAL,

dl-ChannelQualityReporting-r16 ENUMERATED {supported} OPTIONAL

} OPTIONAL,

widebandPRG-Slot-r16 ENUMERATED {supported} OPTIONAL,

widebandPRG-Subslot-r16 ENUMERATED {supported} OPTIONAL,

widebandPRG-Subframe-r16 ENUMERATED {supported} OPTIONAL

}

MIMO-UE-Parameters-r13 ::= SEQUENCE {

parametersTM9-r13 MIMO-UE-ParametersPerTM-r13 OPTIONAL,

parametersTM10-r13 MIMO-UE-ParametersPerTM-r13 OPTIONAL,

srs-EnhancementsTDD-r13 ENUMERATED {supported} OPTIONAL,

srs-Enhancements-r13 ENUMERATED {supported} OPTIONAL,

interferenceMeasRestriction-r13 ENUMERATED {supported} OPTIONAL

}

MIMO-UE-Parameters-v13e0 ::= SEQUENCE {

mimo-WeightedLayersCapabilities-r13 MIMO-WeightedLayersCapabilities-r13 OPTIONAL

}

MIMO-UE-Parameters-v1430 ::= SEQUENCE {

parametersTM9-v1430 MIMO-UE-ParametersPerTM-v1430 OPTIONAL,

parametersTM10-v1430 MIMO-UE-ParametersPerTM-v1430 OPTIONAL

}

MIMO-UE-Parameters-v1470 ::= SEQUENCE {

parametersTM9-v1470 MIMO-UE-ParametersPerTM-v1470,

parametersTM10-v1470 MIMO-UE-ParametersPerTM-v1470

}

MIMO-UE-ParametersPerTM-r13 ::= SEQUENCE {

nonPrecoded-r13 MIMO-NonPrecodedCapabilities-r13 OPTIONAL,

beamformed-r13 MIMO-UE-BeamformedCapabilities-r13 OPTIONAL,

channelMeasRestriction-r13 ENUMERATED {supported} OPTIONAL,

dmrs-Enhancements-r13 ENUMERATED {supported} OPTIONAL,

csi-RS-EnhancementsTDD-r13 ENUMERATED {supported} OPTIONAL

}

MIMO-UE-ParametersPerTM-v1430 ::= SEQUENCE {

nzp-CSI-RS-AperiodicInfo-r14 SEQUENCE {

nMaxProc-r14 INTEGER(5..32),

nMaxResource-r14 ENUMERATED {ffs1, ffs2, ffs3, ffs4}

} OPTIONAL,

nzp-CSI-RS-PeriodicInfo-r14 SEQUENCE {

nMaxResource-r14 ENUMERATED {ffs1, ffs2, ffs3, ffs4}

} OPTIONAL,

zp-CSI-RS-AperiodicInfo-r14 ENUMERATED {supported} OPTIONAL,

ul-dmrs-Enhancements-r14 ENUMERATED {supported} OPTIONAL,

densityReductionNP-r14 ENUMERATED {supported} OPTIONAL,

densityReductionBF-r14 ENUMERATED {supported} OPTIONAL,

hybridCSI-r14 ENUMERATED {supported} OPTIONAL,

semiOL-r14 ENUMERATED {supported} OPTIONAL,

csi-ReportingNP-r14 ENUMERATED {supported} OPTIONAL,

csi-ReportingAdvanced-r14 ENUMERATED {supported} OPTIONAL

}

MIMO-UE-ParametersPerTM-v1470 ::= SEQUENCE {

csi-ReportingAdvancedMaxPorts-r14 ENUMERATED {n8, n12, n16, n20, n24, n28} OPTIONAL

}

MIMO-CA-ParametersPerBoBC-r13 ::= SEQUENCE {

parametersTM9-r13 MIMO-CA-ParametersPerBoBCPerTM-r13 OPTIONAL,

parametersTM10-r13 MIMO-CA-ParametersPerBoBCPerTM-r13 OPTIONAL

}

MIMO-CA-ParametersPerBoBC-r15 ::= SEQUENCE {

parametersTM9-r15 MIMO-CA-ParametersPerBoBCPerTM-r15 OPTIONAL,

parametersTM10-r15 MIMO-CA-ParametersPerBoBCPerTM-r15 OPTIONAL

}

MIMO-CA-ParametersPerBoBC-v1430 ::= SEQUENCE {

parametersTM9-v1430 MIMO-CA-ParametersPerBoBCPerTM-v1430 OPTIONAL,

parametersTM10-v1430 MIMO-CA-ParametersPerBoBCPerTM-v1430 OPTIONAL

}

MIMO-CA-ParametersPerBoBC-v1470 ::= SEQUENCE {

parametersTM9-v1470 MIMO-CA-ParametersPerBoBCPerTM-v1470,

parametersTM10-v1470 MIMO-CA-ParametersPerBoBCPerTM-v1470

}

MIMO-CA-ParametersPerBoBCPerTM-r13 ::= SEQUENCE {

nonPrecoded-r13 MIMO-NonPrecodedCapabilities-r13 OPTIONAL,

beamformed-r13 MIMO-BeamformedCapabilityList-r13 OPTIONAL,

dmrs-Enhancements-r13 ENUMERATED {different} OPTIONAL

}

MIMO-CA-ParametersPerBoBCPerTM-v1430 ::= SEQUENCE {

csi-ReportingNP-r14 ENUMERATED {different} OPTIONAL,

csi-ReportingAdvanced-r14 ENUMERATED {different} OPTIONAL

}

MIMO-CA-ParametersPerBoBCPerTM-v1470 ::= SEQUENCE {

csi-ReportingAdvancedMaxPorts-r14 ENUMERATED {n8, n12, n16, n20, n24, n28} OPTIONAL

}

MIMO-CA-ParametersPerBoBCPerTM-r15 ::= SEQUENCE {

nonPrecoded-r13 MIMO-NonPrecodedCapabilities-r13 OPTIONAL,

beamformed-r13 MIMO-BeamformedCapabilityList-r13 OPTIONAL,

dmrs-Enhancements-r13 ENUMERATED {different} OPTIONAL,

csi-ReportingNP-r14 ENUMERATED {different} OPTIONAL,

csi-ReportingAdvanced-r14 ENUMERATED {different} OPTIONAL

}

MIMO-NonPrecodedCapabilities-r13 ::= SEQUENCE {

config1-r13 ENUMERATED {supported} OPTIONAL,

config2-r13 ENUMERATED {supported} OPTIONAL,

config3-r13 ENUMERATED {supported} OPTIONAL,

config4-r13 ENUMERATED {supported} OPTIONAL

}

MIMO-UE-BeamformedCapabilities-r13 ::= SEQUENCE {

altCodebook-r13 ENUMERATED {supported} OPTIONAL,

mimo-BeamformedCapabilities-r13 MIMO-BeamformedCapabilityList-r13

}

MIMO-BeamformedCapabilityList-r13 ::= SEQUENCE (SIZE (1..maxCSI-Proc-r11)) OF MIMO-BeamformedCapabilities-r13

MIMO-BeamformedCapabilities-r13 ::= SEQUENCE {

k-Max-r13 INTEGER (1..8),

n-MaxList-r13 BIT STRING (SIZE (1..7)) OPTIONAL

}

MIMO-WeightedLayersCapabilities-r13 ::= SEQUENCE {

relWeightTwoLayers-r13 ENUMERATED {v1, v1dot25, v1dot5, v1dot75, v2, v2dot5, v3, v4},

relWeightFourLayers-r13 ENUMERATED {v1, v1dot25, v1dot5, v1dot75, v2, v2dot5, v3, v4} OPTIONAL,

relWeightEightLayers-r13 ENUMERATED {v1, v1dot25, v1dot5, v1dot75, v2, v2dot5, v3, v4} OPTIONAL,

totalWeightedLayers-r13 INTEGER (2..128)

}

NonContiguousUL-RA-WithinCC-List-r10 ::= SEQUENCE (SIZE (1..maxBands)) OF NonContiguousUL-RA-WithinCC-r10

NonContiguousUL-RA-WithinCC-r10 ::= SEQUENCE {

nonContiguousUL-RA-WithinCC-Info-r10 ENUMERATED {supported} OPTIONAL

}

RF-Parameters ::= SEQUENCE {

supportedBandListEUTRA SupportedBandListEUTRA

}

RF-Parameters-v9e0 ::= SEQUENCE {

supportedBandListEUTRA-v9e0 SupportedBandListEUTRA-v9e0 OPTIONAL

}

RF-Parameters-v1020 ::= SEQUENCE {

supportedBandCombination-r10 SupportedBandCombination-r10

}

RF-Parameters-v1060 ::= SEQUENCE {

supportedBandCombinationExt-r10 SupportedBandCombinationExt-r10

}

RF-Parameters-v1090 ::= SEQUENCE {

supportedBandCombination-v1090 SupportedBandCombination-v1090 OPTIONAL

}

RF-Parameters-v10f0 ::= SEQUENCE {

modifiedMPR-Behavior-r10 BIT STRING (SIZE (32)) OPTIONAL

}

RF-Parameters-v10i0 ::= SEQUENCE {

supportedBandCombination-v10i0 SupportedBandCombination-v10i0 OPTIONAL

}

RF-Parameters-v10j0 ::= SEQUENCE {

multiNS-Pmax-r10 ENUMERATED {supported} OPTIONAL

}

RF-Parameters-v1130 ::= SEQUENCE {

supportedBandCombination-v1130 SupportedBandCombination-v1130 OPTIONAL

}

RF-Parameters-v1180 ::= SEQUENCE {

freqBandRetrieval-r11 ENUMERATED {supported} OPTIONAL,

requestedBands-r11 SEQUENCE (SIZE (1.. maxBands)) OF FreqBandIndicator-r11 OPTIONAL,

supportedBandCombinationAdd-r11 SupportedBandCombinationAdd-r11 OPTIONAL

}

RF-Parameters-v11d0 ::= SEQUENCE {

supportedBandCombinationAdd-v11d0 SupportedBandCombinationAdd-v11d0 OPTIONAL

}

RF-Parameters-v1250 ::= SEQUENCE {

supportedBandListEUTRA-v1250 SupportedBandListEUTRA-v1250 OPTIONAL,

supportedBandCombination-v1250 SupportedBandCombination-v1250 OPTIONAL,

supportedBandCombinationAdd-v1250 SupportedBandCombinationAdd-v1250 OPTIONAL,

freqBandPriorityAdjustment-r12 ENUMERATED {supported} OPTIONAL

}

RF-Parameters-v1270 ::= SEQUENCE {

supportedBandCombination-v1270 SupportedBandCombination-v1270 OPTIONAL,

supportedBandCombinationAdd-v1270 SupportedBandCombinationAdd-v1270 OPTIONAL

}

RF-Parameters-v1310 ::= SEQUENCE {

eNB-RequestedParameters-r13 SEQUENCE {

reducedIntNonContCombRequested-r13 ENUMERATED {true} OPTIONAL,

requestedCCsDL-r13 INTEGER (2..32) OPTIONAL,

requestedCCsUL-r13 INTEGER (2..32) OPTIONAL,

skipFallbackCombRequested-r13 ENUMERATED {true} OPTIONAL

} OPTIONAL,

maximumCCsRetrieval-r13 ENUMERATED {supported} OPTIONAL,

skipFallbackCombinations-r13 ENUMERATED {supported} OPTIONAL,

reducedIntNonContComb-r13 ENUMERATED {supported} OPTIONAL,

supportedBandListEUTRA-v1310 SupportedBandListEUTRA-v1310 OPTIONAL,

supportedBandCombinationReduced-r13 SupportedBandCombinationReduced-r13 OPTIONAL

}

RF-Parameters-v1320 ::= SEQUENCE {

supportedBandListEUTRA-v1320 SupportedBandListEUTRA-v1320 OPTIONAL,

supportedBandCombination-v1320 SupportedBandCombination-v1320 OPTIONAL,

supportedBandCombinationAdd-v1320 SupportedBandCombinationAdd-v1320 OPTIONAL,

supportedBandCombinationReduced-v1320 SupportedBandCombinationReduced-v1320 OPTIONAL

}

RF-Parameters-v1380 ::= SEQUENCE {

supportedBandCombination-v1380 SupportedBandCombination-v1380 OPTIONAL,

supportedBandCombinationAdd-v1380 SupportedBandCombinationAdd-v1380 OPTIONAL,

supportedBandCombinationReduced-v1380 SupportedBandCombinationReduced-v1380 OPTIONAL

}

RF-Parameters-v1390 ::= SEQUENCE {

supportedBandCombination-v1390 SupportedBandCombination-v1390 OPTIONAL,

supportedBandCombinationAdd-v1390 SupportedBandCombinationAdd-v1390 OPTIONAL,

supportedBandCombinationReduced-v1390 SupportedBandCombinationReduced-v1390 OPTIONAL

}

RF-Parameters-v12b0 ::= SEQUENCE {

maxLayersMIMO-Indication-r12 ENUMERATED {supported} OPTIONAL

}

RF-Parameters-v1430 ::= SEQUENCE {

supportedBandCombination-v1430 SupportedBandCombination-v1430 OPTIONAL,

supportedBandCombinationAdd-v1430 SupportedBandCombinationAdd-v1430 OPTIONAL,

supportedBandCombinationReduced-v1430 SupportedBandCombinationReduced-v1430 OPTIONAL,

eNB-RequestedParameters-v1430 SEQUENCE {

requestedDiffFallbackCombList-r14 BandCombinationList-r14

} OPTIONAL,

diffFallbackCombReport-r14 ENUMERATED {supported} OPTIONAL

}

RF-Parameters-v1450 ::= SEQUENCE {

supportedBandCombination-v1450 SupportedBandCombination-v1450 OPTIONAL,

supportedBandCombinationAdd-v1450 SupportedBandCombinationAdd-v1450 OPTIONAL,

supportedBandCombinationReduced-v1450 SupportedBandCombinationReduced-v1450 OPTIONAL

}

RF-Parameters-v1470 ::= SEQUENCE {

supportedBandCombination-v1470 SupportedBandCombination-v1470 OPTIONAL,

supportedBandCombinationAdd-v1470 SupportedBandCombinationAdd-v1470 OPTIONAL,

supportedBandCombinationReduced-v1470 SupportedBandCombinationReduced-v1470 OPTIONAL

}

RF-Parameters-v14b0 ::= SEQUENCE {

supportedBandCombination-v14b0 SupportedBandCombination-v14b0 OPTIONAL,

supportedBandCombinationAdd-v14b0 SupportedBandCombinationAdd-v14b0 OPTIONAL,

supportedBandCombinationReduced-v14b0 SupportedBandCombinationReduced-v14b0 OPTIONAL

}

RF-Parameters-v1530 ::= SEQUENCE {

sTTI-SPT-Supported-r15 ENUMERATED {supported} OPTIONAL,

supportedBandCombination-v1530 SupportedBandCombination-v1530 OPTIONAL,

supportedBandCombinationAdd-v1530 SupportedBandCombinationAdd-v1530 OPTIONAL,

supportedBandCombinationReduced-v1530 SupportedBandCombinationReduced-v1530 OPTIONAL,

powerClass-14dBm-r15 ENUMERATED {supported} OPTIONAL

}

RF-Parameters-v1570 ::= SEQUENCE {

dl-1024QAM-ScalingFactor-r15 ENUMERATED {v1, v1dot2, v1dot25},

dl-1024QAM-TotalWeightedLayers-r15 INTEGER (0..10)

}

SkipSubframeProcessing-r15 ::= SEQUENCE {

skipProcessingDL-Slot-r15 INTEGER (0..3) OPTIONAL,

skipProcessingDL-SubSlot-r15 INTEGER (0..3) OPTIONAL,

skipProcessingUL-Slot-r15 INTEGER (0..3) OPTIONAL,

skipProcessingUL-SubSlot-r15 INTEGER (0..3) OPTIONAL

}

SPT-Parameters-r15 ::= SEQUENCE {

frameStructureType-SPT-r15 BIT STRING (SIZE (3)) OPTIONAL,

maxNumberCCs-SPT-r15 INTEGER (1..32) OPTIONAL

}

STTI-SPT-BandParameters-r15 ::= SEQUENCE {

dl-1024QAM-Slot-r15 ENUMERATED {supported} OPTIONAL,

dl-1024QAM-SubslotTA-1-r15 ENUMERATED {supported} OPTIONAL,

dl-1024QAM-SubslotTA-2-r15 ENUMERATED {supported} OPTIONAL,

simultaneousTx-differentTx-duration-r15 ENUMERATED {supported} OPTIONAL,

sTTI-CA-MIMO-ParametersDL-r15 CA-MIMO-ParametersDL-r15 OPTIONAL,

sTTI-CA-MIMO-ParametersUL-r15 CA-MIMO-ParametersUL-r15,

sTTI-FD-MIMO-Coexistence ENUMERATED {supported} OPTIONAL,

sTTI-MIMO-CA-ParametersPerBoBCs-r15 MIMO-CA-ParametersPerBoBC-r13 OPTIONAL,

sTTI-MIMO-CA-ParametersPerBoBCs-v1530 MIMO-CA-ParametersPerBoBC-v1430 OPTIONAL,

sTTI-SupportedCombinations-r15 STTI-SupportedCombinations-r15 OPTIONAL,

sTTI-SupportedCSI-Proc-r15 ENUMERATED {n1, n3, n4} OPTIONAL,

ul-256QAM-Slot-r15 ENUMERATED {supported} OPTIONAL,

ul-256QAM-Subslot-r15 ENUMERATED {supported} OPTIONAL,

...

}

STTI-SupportedCombinations-r15 ::= SEQUENCE {

combination-22-r15 DL-UL-CCs-r15 OPTIONAL,

combination-77-r15 DL-UL-CCs-r15 OPTIONAL,

combination-27-r15 DL-UL-CCs-r15 OPTIONAL,

combination-22-27-r15 SEQUENCE (SIZE (1..2)) OF DL-UL-CCs-r15 OPTIONAL,

combination-77-22-r15 SEQUENCE (SIZE (1..2)) OF DL-UL-CCs-r15 OPTIONAL,

combination-77-27-r15 SEQUENCE (SIZE (1..2)) OF DL-UL-CCs-r15 OPTIONAL

}

DL-UL-CCs-r15 ::= SEQUENCE {

maxNumberDL-CCs-r15 INTEGER (1..32) OPTIONAL,

maxNumberUL-CCs-r15 INTEGER (1..32) OPTIONAL

}

SupportedBandCombination-r10 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-r10

SupportedBandCombinationExt-r10 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParametersExt-r10

SupportedBandCombination-v1090 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1090

SupportedBandCombination-v10i0 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v10i0

SupportedBandCombination-v1130 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1130

SupportedBandCombination-v1250 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1250

SupportedBandCombination-v1270 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1270

SupportedBandCombination-v1320 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1320

SupportedBandCombination-v1380 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1380

SupportedBandCombination-v1390 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1390

SupportedBandCombination-v1430 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1430

SupportedBandCombination-v1450 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1450

SupportedBandCombination-v1470 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1470

SupportedBandCombination-v14b0 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v14b0

SupportedBandCombination-v1530 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandCombinationParameters-v1530

SupportedBandCombinationAdd-r11 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-r11

SupportedBandCombinationAdd-v11d0 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v10i0

SupportedBandCombinationAdd-v1250 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1250

SupportedBandCombinationAdd-v1270 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1270

SupportedBandCombinationAdd-v1320 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1320

SupportedBandCombinationAdd-v1380 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1380

SupportedBandCombinationAdd-v1390 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1390

SupportedBandCombinationAdd-v1430 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1430

SupportedBandCombinationAdd-v1450 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1450

SupportedBandCombinationAdd-v1470 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1470

SupportedBandCombinationAdd-v14b0 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v14b0

SupportedBandCombinationAdd-v1530 ::= SEQUENCE (SIZE (1..maxBandComb-r11)) OF BandCombinationParameters-v1530

SupportedBandCombinationReduced-r13 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-r13

SupportedBandCombinationReduced-v1320 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1320

SupportedBandCombinationReduced-v1380 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1380

SupportedBandCombinationReduced-v1390 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1390

SupportedBandCombinationReduced-v1430 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1430

SupportedBandCombinationReduced-v1450 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1450

SupportedBandCombinationReduced-v1470 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1470

SupportedBandCombinationReduced-v14b0 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v14b0

SupportedBandCombinationReduced-v1530 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF BandCombinationParameters-v1530

BandCombinationParameters-r10 ::= SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF BandParameters-r10

BandCombinationParametersExt-r10 ::= SEQUENCE {

supportedBandwidthCombinationSet-r10 SupportedBandwidthCombinationSet-r10 OPTIONAL

}

BandCombinationParameters-v1090 ::= SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF BandParameters-v1090

BandCombinationParameters-v10i0::= SEQUENCE {

bandParameterList-v10i0 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v10i0 OPTIONAL

}

BandCombinationParameters-v1130 ::= SEQUENCE {

multipleTimingAdvance-r11 ENUMERATED {supported} OPTIONAL,

simultaneousRx-Tx-r11 ENUMERATED {supported} OPTIONAL,

bandParameterList-r11 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF BandParameters-v1130 OPTIONAL,

...

}

BandCombinationParameters-r11 ::= SEQUENCE {

bandParameterList-r11 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-r11,

supportedBandwidthCombinationSet-r11 SupportedBandwidthCombinationSet-r10 OPTIONAL,

multipleTimingAdvance-r11 ENUMERATED {supported} OPTIONAL,

simultaneousRx-Tx-r11 ENUMERATED {supported} OPTIONAL,

bandInfoEUTRA-r11 BandInfoEUTRA,

...

}

BandCombinationParameters-v1250::= SEQUENCE {

dc-Support-r12 SEQUENCE {

asynchronous-r12 ENUMERATED {supported} OPTIONAL,

supportedCellGrouping-r12 CHOICE {

threeEntries-r12 BIT STRING (SIZE(3)),

fourEntries-r12 BIT STRING (SIZE(7)),

fiveEntries-r12 BIT STRING (SIZE(15))

} OPTIONAL

} OPTIONAL,

supportedNAICS-2CRS-AP-r12 BIT STRING (SIZE (1..maxNAICS-Entries-r12)) OPTIONAL,

commSupportedBandsPerBC-r12 BIT STRING (SIZE (1.. maxBands)) OPTIONAL,

...

}

BandCombinationParameters-v1270 ::= SEQUENCE {

bandParameterList-v1270 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v1270 OPTIONAL

}

BandCombinationParameters-r13 ::= SEQUENCE {

differentFallbackSupported-r13 ENUMERATED {true} OPTIONAL,

bandParameterList-r13 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF BandParameters-r13,

supportedBandwidthCombinationSet-r13 SupportedBandwidthCombinationSet-r10 OPTIONAL,

multipleTimingAdvance-r13 ENUMERATED {supported} OPTIONAL,

simultaneousRx-Tx-r13 ENUMERATED {supported} OPTIONAL,

bandInfoEUTRA-r13 BandInfoEUTRA,

dc-Support-r13 SEQUENCE {

asynchronous-r13 ENUMERATED {supported} OPTIONAL,

supportedCellGrouping-r13 CHOICE {

threeEntries-r13 BIT STRING (SIZE(3)),

fourEntries-r13 BIT STRING (SIZE(7)),

fiveEntries-r13 BIT STRING (SIZE(15))

} OPTIONAL

} OPTIONAL,

supportedNAICS-2CRS-AP-r13 BIT STRING (SIZE (1..maxNAICS-Entries-r12)) OPTIONAL,

commSupportedBandsPerBC-r13 BIT STRING (SIZE (1.. maxBands)) OPTIONAL

}

BandCombinationParameters-v1320 ::= SEQUENCE {

bandParameterList-v1320 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v1320 OPTIONAL,

additionalRx-Tx-PerformanceReq-r13 ENUMERATED {supported} OPTIONAL

}

BandCombinationParameters-v1380 ::= SEQUENCE {

bandParameterList-v1380 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v1380 OPTIONAL

}

BandCombinationParameters-v1390 ::= SEQUENCE {

ue-CA-PowerClass-N-r13 ENUMERATED {class2} OPTIONAL

}

BandCombinationParameters-v1430 ::= SEQUENCE {

bandParameterList-v1430 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v1430 OPTIONAL,

v2x-SupportedTxBandCombListPerBC-r14 BIT STRING (SIZE (1.. maxBandComb-r13)) OPTIONAL,

v2x-SupportedRxBandCombListPerBC-r14 BIT STRING (SIZE (1.. maxBandComb-r13)) OPTIONAL

}

BandCombinationParameters-v1450 ::= SEQUENCE {

bandParameterList-v1450 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v1450 OPTIONAL

}

BandCombinationParameters-v1470 ::= SEQUENCE {

bandParameterList-v1470 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v1470 OPTIONAL,

srs-MaxSimultaneousCCs-r14 INTEGER (1..31) OPTIONAL

}

BandCombinationParameters-v14b0 ::= SEQUENCE {

bandParameterList-v14b0 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

BandParameters-v14b0 OPTIONAL

}

BandCombinationParameters-v1530 ::= SEQUENCE {

bandParameterList-v1530 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF BandParameters-v1530 OPTIONAL,

spt-Parameters-r15 SPT-Parameters-r15 OPTIONAL

}

-- If an additional band combination parameter is defined, which is supported for MR-DC,

-- it shall be defined in the IE CA-ParametersEUTRA in TS 38.331 [82].

SupportedBandwidthCombinationSet-r10 ::= BIT STRING (SIZE (1..maxBandwidthCombSet-r10))

BandParameters-r10 ::= SEQUENCE {

bandEUTRA-r10 FreqBandIndicator,

bandParametersUL-r10 BandParametersUL-r10 OPTIONAL,

bandParametersDL-r10 BandParametersDL-r10 OPTIONAL

}

BandParameters-v1090 ::= SEQUENCE {

bandEUTRA-v1090 FreqBandIndicator-v9e0 OPTIONAL,

...

}

BandParameters-v10i0::= SEQUENCE {

bandParametersDL-v10i0 SEQUENCE (SIZE (1..maxBandwidthClass-r10)) OF CA-MIMO-ParametersDL-v10i0

}

BandParameters-v1130 ::= SEQUENCE {

supportedCSI-Proc-r11 ENUMERATED {n1, n3, n4}

}

BandParameters-r11 ::= SEQUENCE {

bandEUTRA-r11 FreqBandIndicator-r11,

bandParametersUL-r11 BandParametersUL-r10 OPTIONAL,

bandParametersDL-r11 BandParametersDL-r10 OPTIONAL,

supportedCSI-Proc-r11 ENUMERATED {n1, n3, n4} OPTIONAL

}

BandParameters-v1270 ::= SEQUENCE {

bandParametersDL-v1270 SEQUENCE (SIZE (1..maxBandwidthClass-r10)) OF CA-MIMO-ParametersDL-v1270

}

BandParameters-r13 ::= SEQUENCE {

bandEUTRA-r13 FreqBandIndicator-r11,

bandParametersUL-r13 BandParametersUL-r13 OPTIONAL,

bandParametersDL-r13 BandParametersDL-r13 OPTIONAL,

supportedCSI-Proc-r13 ENUMERATED {n1, n3, n4} OPTIONAL

}

BandParameters-v1320 ::= SEQUENCE {

bandParametersDL-v1320 MIMO-CA-ParametersPerBoBC-r13

}

BandParameters-v1380 ::= SEQUENCE {

txAntennaSwitchDL-r13 INTEGER (1..32) OPTIONAL,

txAntennaSwitchUL-r13 INTEGER (1..32) OPTIONAL

}

BandParameters-v1430 ::= SEQUENCE {

bandParametersDL-v1430 MIMO-CA-ParametersPerBoBC-v1430 OPTIONAL,

ul-256QAM-r14 ENUMERATED {supported} OPTIONAL,

ul-256QAM-perCC-InfoList-r14 SEQUENCE (SIZE (2..maxServCell-r13)) OF UL-256QAM-perCC-Info-r14 OPTIONAL,

srs-CapabilityPerBandPairList-r14 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF

SRS-CapabilityPerBandPair-r14 OPTIONAL

}

BandParameters-v1450 ::= SEQUENCE {

must-CapabilityPerBand-r14 MUST-Parameters-r14 OPTIONAL

}

BandParameters-v1470 ::= SEQUENCE {

bandParametersDL-v1470 MIMO-CA-ParametersPerBoBC-v1470 OPTIONAL

}

BandParameters-v14b0 ::= SEQUENCE {

srs-CapabilityPerBandPairList-v14b0 SEQUENCE (SIZE (1..maxSimultaneousBands-r10)) OF SRS-CapabilityPerBandPair-v14b0 OPTIONAL

}

BandParameters-v1530 ::= SEQUENCE {

ue-TxAntennaSelection-SRS-1T4R-r15 ENUMERATED {supported} OPTIONAL,

ue-TxAntennaSelection-SRS-2T4R-2Pairs-r15 ENUMERATED {supported} OPTIONAL,

ue-TxAntennaSelection-SRS-2T4R-3Pairs-r15 ENUMERATED {supported} OPTIONAL,

dl-1024QAM-r15 ENUMERATED {supported} OPTIONAL,

qcl-TypeC-Operation-r15 ENUMERATED {supported} OPTIONAL,

qcl-CRI-BasedCSI-Reporting-r15 ENUMERATED {supported} OPTIONAL,

stti-SPT-BandParameters-r15 STTI-SPT-BandParameters-r15 OPTIONAL

}

V2X-BandParameters-r14 ::= SEQUENCE {

v2x-FreqBandEUTRA-r14 FreqBandIndicator-r11,

bandParametersTxSL-r14 BandParametersTxSL-r14 OPTIONAL,

bandParametersRxSL-r14 BandParametersRxSL-r14 OPTIONAL

}

V2X-BandParameters-v1530 ::= SEQUENCE {

v2x-EnhancedHighReception-r15 ENUMERATED {supported} OPTIONAL

}

BandParametersTxSL-r14 ::= SEQUENCE {

v2x-BandwidthClassTxSL-r14 V2X-BandwidthClassSL-r14,

v2x-eNB-Scheduled-r14 ENUMERATED {supported} OPTIONAL,

v2x-HighPower-r14 ENUMERATED {supported} OPTIONAL

}

BandParametersRxSL-r14 ::= SEQUENCE {

v2x-BandwidthClassRxSL-r14 V2X-BandwidthClassSL-r14,

v2x-HighReception-r14 ENUMERATED {supported} OPTIONAL

}

V2X-BandwidthClassSL-r14 ::= SEQUENCE (SIZE (1..maxBandwidthClass-r10)) OF V2X-BandwidthClass-r14

UL-256QAM-perCC-Info-r14 ::= SEQUENCE {

ul-256QAM-perCC-r14 ENUMERATED {supported} OPTIONAL

}

FeatureSetDL-r15 ::= SEQUENCE {

mimo-CA-ParametersPerBoBC-r15 MIMO-CA-ParametersPerBoBC-r15 OPTIONAL,

featureSetPerCC-ListDL-r15 SEQUENCE (SIZE (1..maxServCell-r13)) OF FeatureSetDL-PerCC-Id-r15

}

FeatureSetDL-v1550 ::= SEQUENCE {

dl-1024QAM-r15 ENUMERATED {supported} OPTIONAL

}

FeatureSetDL-PerCC-r15 ::= SEQUENCE {

fourLayerTM3-TM4-r15 ENUMERATED {supported} OPTIONAL,

supportedMIMO-CapabilityDL-MRDC-r15 MIMO-CapabilityDL-r10 OPTIONAL,

supportedCSI-Proc-r15 ENUMERATED {n1, n3, n4} OPTIONAL

}

FeatureSetUL-r15 ::= SEQUENCE {

featureSetPerCC-ListUL-r15 SEQUENCE (SIZE(1..maxServCell-r13)) OF FeatureSetUL-PerCC-Id-r15

}

FeatureSetUL-PerCC-r15 ::= SEQUENCE {

supportedMIMO-CapabilityUL-r15 MIMO-CapabilityUL-r10 OPTIONAL,

ul-256QAM-r15 ENUMERATED {supported} OPTIONAL

}

FeatureSetDL-PerCC-Id-r15 ::= INTEGER (0..maxPerCC-FeatureSets-r15)

FeatureSetUL-PerCC-Id-r15 ::= INTEGER (0..maxPerCC-FeatureSets-r15)

BandParametersUL-r10 ::= SEQUENCE (SIZE (1..maxBandwidthClass-r10)) OF CA-MIMO-ParametersUL-r10

BandParametersUL-r13 ::= CA-MIMO-ParametersUL-r10

CA-MIMO-ParametersUL-r10 ::= SEQUENCE {

ca-BandwidthClassUL-r10 CA-BandwidthClass-r10,

supportedMIMO-CapabilityUL-r10 MIMO-CapabilityUL-r10 OPTIONAL

}

CA-MIMO-ParametersUL-r15 ::= SEQUENCE {

supportedMIMO-CapabilityUL-r15 MIMO-CapabilityUL-r10 OPTIONAL

}

BandParametersDL-r10 ::= SEQUENCE (SIZE (1..maxBandwidthClass-r10)) OF CA-MIMO-ParametersDL-r10

BandParametersDL-r13 ::= CA-MIMO-ParametersDL-r13

CA-MIMO-ParametersDL-r10 ::= SEQUENCE {

ca-BandwidthClassDL-r10 CA-BandwidthClass-r10,

supportedMIMO-CapabilityDL-r10 MIMO-CapabilityDL-r10 OPTIONAL

}

CA-MIMO-ParametersDL-v10i0 ::= SEQUENCE {

fourLayerTM3-TM4-r10 ENUMERATED {supported} OPTIONAL

}

CA-MIMO-ParametersDL-v1270 ::= SEQUENCE {

intraBandContiguousCC-InfoList-r12 SEQUENCE (SIZE (1..maxServCell-r10)) OF IntraBandContiguousCC-Info-r12

}

CA-MIMO-ParametersDL-r13 ::= SEQUENCE {

ca-BandwidthClassDL-r13 CA-BandwidthClass-r10,

supportedMIMO-CapabilityDL-r13 MIMO-CapabilityDL-r10 OPTIONAL,

fourLayerTM3-TM4-r13 ENUMERATED {supported} OPTIONAL,

intraBandContiguousCC-InfoList-r13 SEQUENCE (SIZE (1..maxServCell-r13)) OF IntraBandContiguousCC-Info-r12

}

CA-MIMO-ParametersDL-r15 ::= SEQUENCE {

supportedMIMO-CapabilityDL-r15 MIMO-CapabilityDL-r10 OPTIONAL,

fourLayerTM3-TM4-r15 ENUMERATED {supported} OPTIONAL,

intraBandContiguousCC-InfoList-r15 SEQUENCE (SIZE (1..maxServCell-r13)) OF

IntraBandContiguousCC-Info-r12 OPTIONAL

}

IntraBandContiguousCC-Info-r12 ::= SEQUENCE {

fourLayerTM3-TM4-perCC-r12 ENUMERATED {supported} OPTIONAL,

supportedMIMO-CapabilityDL-r12 MIMO-CapabilityDL-r10 OPTIONAL,

supportedCSI-Proc-r12 ENUMERATED {n1, n3, n4} OPTIONAL

}

CA-BandwidthClass-r10 ::= ENUMERATED {a, b, c, d, e, f, ...}

V2X-BandwidthClass-r14 ::= ENUMERATED {a, b, c, d, e, f, ..., c1-v1530}

MIMO-CapabilityUL-r10 ::= ENUMERATED {twoLayers, fourLayers}

MIMO-CapabilityDL-r10 ::= ENUMERATED {twoLayers, fourLayers, eightLayers}

MUST-Parameters-r14 ::= SEQUENCE {

must-TM234-UpTo2Tx-r14 ENUMERATED {supported} OPTIONAL,

must-TM89-UpToOneInterferingLayer-r14 ENUMERATED {supported} OPTIONAL,

must-TM10-UpToOneInterferingLayer-r14 ENUMERATED {supported} OPTIONAL,

must-TM89-UpToThreeInterferingLayers-r14 ENUMERATED {supported} OPTIONAL,

must-TM10-UpToThreeInterferingLayers-r14 ENUMERATED {supported} OPTIONAL

}

SupportedBandListEUTRA ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandEUTRA

SupportedBandListEUTRA-v9e0::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandEUTRA-v9e0

SupportedBandListEUTRA-v1250 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandEUTRA-v1250

SupportedBandListEUTRA-v1310 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandEUTRA-v1310

SupportedBandListEUTRA-v1320 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandEUTRA-v1320

SupportedBandEUTRA ::= SEQUENCE {

bandEUTRA FreqBandIndicator,

halfDuplex BOOLEAN

}

SupportedBandEUTRA-v9e0 ::= SEQUENCE {

bandEUTRA-v9e0 FreqBandIndicator-v9e0 OPTIONAL

}

SupportedBandEUTRA-v1250 ::= SEQUENCE {

dl-256QAM-r12 ENUMERATED {supported} OPTIONAL,

ul-64QAM-r12 ENUMERATED {supported} OPTIONAL

}

SupportedBandEUTRA-v1310 ::= SEQUENCE {

ue-PowerClass-5-r13 ENUMERATED {supported} OPTIONAL

}

SupportedBandEUTRA-v1320 ::= SEQUENCE {

intraFreq-CE-NeedForGaps-r13 ENUMERATED {supported} OPTIONAL,

ue-PowerClass-N-r13 ENUMERATED {class1, class2, class4} OPTIONAL

}

MeasParameters ::= SEQUENCE {

bandListEUTRA BandListEUTRA

}

MeasParameters-v1020 ::= SEQUENCE {

bandCombinationListEUTRA-r10 BandCombinationListEUTRA-r10

}

MeasParameters-v1130 ::= SEQUENCE {

rsrqMeasWideband-r11 ENUMERATED {supported} OPTIONAL

}

MeasParameters-v11a0 ::= SEQUENCE {

benefitsFromInterruption-r11 ENUMERATED {true} OPTIONAL

}

MeasParameters-v1250 ::= SEQUENCE {

timerT312-r12 ENUMERATED {supported} OPTIONAL,

alternativeTimeToTrigger-r12 ENUMERATED {supported} OPTIONAL,

incMonEUTRA-r12 ENUMERATED {supported} OPTIONAL,

incMonUTRA-r12 ENUMERATED {supported} OPTIONAL,

extendedMaxMeasId-r12 ENUMERATED {supported} OPTIONAL,

extendedRSRQ-LowerRange-r12 ENUMERATED {supported} OPTIONAL,

rsrq-OnAllSymbols-r12 ENUMERATED {supported} OPTIONAL,

crs-DiscoverySignalsMeas-r12 ENUMERATED {supported} OPTIONAL,

csi-RS-DiscoverySignalsMeas-r12 ENUMERATED {supported} OPTIONAL

}

MeasParameters-v1310 ::= SEQUENCE {

rs-SINR-Meas-r13 ENUMERATED {supported} OPTIONAL,

whiteCellList-r13 ENUMERATED {supported} OPTIONAL,

extendedMaxObjectId-r13 ENUMERATED {supported} OPTIONAL,

ul-PDCP-Delay-r13 ENUMERATED {supported} OPTIONAL,

extendedFreqPriorities-r13 ENUMERATED {supported} OPTIONAL,

multiBandInfoReport-r13 ENUMERATED {supported} OPTIONAL,

rssi-AndChannelOccupancyReporting-r13 ENUMERATED {supported} OPTIONAL

}

MeasParameters-v1430 ::= SEQUENCE {

ceMeasurements-r14 ENUMERATED {supported} OPTIONAL,

ncsg-r14 ENUMERATED {supported} OPTIONAL,

shortMeasurementGap-r14 ENUMERATED {supported} OPTIONAL,

perServingCellMeasurementGap-r14 ENUMERATED {supported} OPTIONAL,

nonUniformGap-r14 ENUMERATED {supported} OPTIONAL

}

MeasParameters-v1520 ::= SEQUENCE {

measGapPatterns-r15 BIT STRING (SIZE (8)) OPTIONAL

}

MeasParameters-v1530 ::= SEQUENCE {

qoe-MeasReport-r15 ENUMERATED {supported} OPTIONAL,

qoe-MTSI-MeasReport-r15 ENUMERATED {supported} OPTIONAL,

ca-IdleModeMeasurements-r15 ENUMERATED {supported} OPTIONAL,

ca-IdleModeValidityArea-r15 ENUMERATED {supported} OPTIONAL,

heightMeas-r15 ENUMERATED {supported} OPTIONAL,

multipleCellsMeasExtension-r15 ENUMERATED {supported} OPTIONAL

}

BandListEUTRA ::= SEQUENCE (SIZE (1..maxBands)) OF BandInfoEUTRA

BandCombinationListEUTRA-r10 ::= SEQUENCE (SIZE (1..maxBandComb-r10)) OF BandInfoEUTRA

BandInfoEUTRA ::= SEQUENCE {

interFreqBandList InterFreqBandList,

interRAT-BandList InterRAT-BandList OPTIONAL

}

InterFreqBandList ::= SEQUENCE (SIZE (1..maxBands)) OF InterFreqBandInfo

InterFreqBandInfo ::= SEQUENCE {

interFreqNeedForGaps BOOLEAN

}

InterRAT-BandList ::= SEQUENCE (SIZE (1..maxBands)) OF InterRAT-BandInfo

InterRAT-BandInfo ::= SEQUENCE {

interRAT-NeedForGaps BOOLEAN

}

IRAT-ParametersNR-r15 ::= SEQUENCE {

en-DC-r15 ENUMERATED {supported} OPTIONAL,

eventB2-r15 ENUMERATED {supported} OPTIONAL,

supportedBandListEN-DC-r15 SupportedBandListNR-r15 OPTIONAL

}

IRAT-ParametersNR-v1540 ::= SEQUENCE {

eutra-5GC-HO-ToNR-FDD-FR1-r15 ENUMERATED {supported} OPTIONAL,

eutra-5GC-HO-ToNR-TDD-FR1-r15 ENUMERATED {supported} OPTIONAL,

eutra-5GC-HO-ToNR-FDD-FR2-r15 ENUMERATED {supported} OPTIONAL,

eutra-5GC-HO-ToNR-TDD-FR2-r15 ENUMERATED {supported} OPTIONAL,

eutra-EPC-HO-ToNR-FDD-FR1-r15 ENUMERATED {supported} OPTIONAL,

eutra-EPC-HO-ToNR-TDD-FR1-r15 ENUMERATED {supported} OPTIONAL,

eutra-EPC-HO-ToNR-FDD-FR2-r15 ENUMERATED {supported} OPTIONAL,

eutra-EPC-HO-ToNR-TDD-FR2-r15 ENUMERATED {supported} OPTIONAL,

ims-VoiceOverNR-FR1-r15 ENUMERATED {supported} OPTIONAL,

ims-VoiceOverNR-FR2-r15 ENUMERATED {supported} OPTIONAL,

sa-NR-r15 ENUMERATED {supported} OPTIONAL,

supportedBandListNR-SA-r15 SupportedBandListNR-r15 OPTIONAL

}

IRAT-ParametersNR-v1560 ::= SEQUENCE {

ng-EN-DC-r15 ENUMERATED {supported} OPTIONAL

}

IRAT-ParametersNR-v1570 ::= SEQUENCE {

ss-SINR-Meas-NR-FR1-r15 ENUMERATED {supported} OPTIONAL,

ss-SINR-Meas-NR-FR2-r15 ENUMERATED {supported} OPTIONAL

}

IRAT-ParametersNR-v16xy ::= SEQUENCE {

nr-HO-ToEN-DC-r16 ENUMERATED {supported} OPTIONAL

}

EUTRA-5GC-Parameters-r15 ::= SEQUENCE {

eutra-5GC-r15 ENUMERATED {supported} OPTIONAL,

eutra-EPC-HO-EUTRA-5GC-r15 ENUMERATED {supported} OPTIONAL,

ho-EUTRA-5GC-FDD-TDD-r15 ENUMERATED {supported} OPTIONAL,

ho-InterfreqEUTRA-5GC-r15 ENUMERATED {supported} OPTIONAL,

ims-VoiceOverMCG-BearerEUTRA-5GC-r15 ENUMERATED {supported} OPTIONAL,

inactiveState-r15 ENUMERATED {supported} OPTIONAL,

reflectiveQoS-r15 ENUMERATED {supported} OPTIONAL

}

PDCP-ParametersNR-r15 ::= SEQUENCE {

rohc-Profiles-r15 ROHC-ProfileSupportList-r15,

rohc-ContextMaxSessions-r15 ENUMERATED {

cs2, cs4, cs8, cs12, cs16, cs24, cs32,

cs48, cs64, cs128, cs256, cs512, cs1024,

cs16384, spare2, spare1} DEFAULT cs16,

rohc-ProfilesUL-Only-r15 SEQUENCE {

profile0x0006-r15 BOOLEAN

},

rohc-ContextContinue-r15 ENUMERATED {supported} OPTIONAL,

outOfOrderDelivery-r15 ENUMERATED {supported} OPTIONAL,

sn-SizeLo-r15 ENUMERATED {supported} OPTIONAL,

ims-VoiceOverNR-PDCP-MCG-Bearer-r15 ENUMERATED {supported} OPTIONAL,

ims-VoiceOverNR-PDCP-SCG-Bearer-r15 ENUMERATED {supported} OPTIONAL

}

PDCP-ParametersNR-v1560 ::= SEQUENCE {

ims-VoNR-PDCP-SCG-NGENDC-r15 ENUMERATED {supported} OPTIONAL

}

ROHC-ProfileSupportList-r15 ::= SEQUENCE {

profile0x0001-r15 BOOLEAN,

profile0x0002-r15 BOOLEAN,

profile0x0003-r15 BOOLEAN,

profile0x0004-r15 BOOLEAN,

profile0x0006-r15 BOOLEAN,

profile0x0101-r15 BOOLEAN,

profile0x0102-r15 BOOLEAN,

profile0x0103-r15 BOOLEAN,

profile0x0104-r15 BOOLEAN

}

SupportedBandListNR-r15 ::= SEQUENCE (SIZE (1..maxBandsNR-r15)) OF SupportedBandNR-r15

SupportedBandNR-r15 ::= SEQUENCE {

bandNR-r15 FreqBandIndicatorNR-r15

}

IRAT-ParametersUTRA-FDD ::= SEQUENCE {

supportedBandListUTRA-FDD SupportedBandListUTRA-FDD

}

IRAT-ParametersUTRA-v920 ::= SEQUENCE {

e-RedirectionUTRA-r9 ENUMERATED {supported}

}

IRAT-ParametersUTRA-v9c0 ::= SEQUENCE {

voiceOverPS-HS-UTRA-FDD-r9 ENUMERATED {supported} OPTIONAL,

voiceOverPS-HS-UTRA-TDD128-r9 ENUMERATED {supported} OPTIONAL,

srvcc-FromUTRA-FDD-ToUTRA-FDD-r9 ENUMERATED {supported} OPTIONAL,

srvcc-FromUTRA-FDD-ToGERAN-r9 ENUMERATED {supported} OPTIONAL,

srvcc-FromUTRA-TDD128-ToUTRA-TDD128-r9 ENUMERATED {supported} OPTIONAL,

srvcc-FromUTRA-TDD128-ToGERAN-r9 ENUMERATED {supported} OPTIONAL

}

IRAT-ParametersUTRA-v9h0 ::= SEQUENCE {

mfbi-UTRA-r9 ENUMERATED {supported}

}

SupportedBandListUTRA-FDD ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandUTRA-FDD

SupportedBandUTRA-FDD ::= ENUMERATED {

bandI, bandII, bandIII, bandIV, bandV, bandVI,

bandVII, bandVIII, bandIX, bandX, bandXI,

bandXII, bandXIII, bandXIV, bandXV, bandXVI, ...,

bandXVII-8a0, bandXVIII-8a0, bandXIX-8a0, bandXX-8a0,

bandXXI-8a0, bandXXII-8a0, bandXXIII-8a0, bandXXIV-8a0,

bandXXV-8a0, bandXXVI-8a0, bandXXVII-8a0, bandXXVIII-8a0,

bandXXIX-8a0, bandXXX-8a0, bandXXXI-8a0, bandXXXII-8a0}

IRAT-ParametersUTRA-TDD128 ::= SEQUENCE {

supportedBandListUTRA-TDD128 SupportedBandListUTRA-TDD128

}

SupportedBandListUTRA-TDD128 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandUTRA-TDD128

SupportedBandUTRA-TDD128 ::= ENUMERATED {

a, b, c, d, e, f, g, h, i, j, k, l, m, n,

o, p, ...}

IRAT-ParametersUTRA-TDD384 ::= SEQUENCE {

supportedBandListUTRA-TDD384 SupportedBandListUTRA-TDD384

}

SupportedBandListUTRA-TDD384 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandUTRA-TDD384

SupportedBandUTRA-TDD384 ::= ENUMERATED {

a, b, c, d, e, f, g, h, i, j, k, l, m, n,

o, p, ...}

IRAT-ParametersUTRA-TDD768 ::= SEQUENCE {

supportedBandListUTRA-TDD768 SupportedBandListUTRA-TDD768

}

SupportedBandListUTRA-TDD768 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandUTRA-TDD768

SupportedBandUTRA-TDD768 ::= ENUMERATED {

a, b, c, d, e, f, g, h, i, j, k, l, m, n,

o, p, ...}

IRAT-ParametersUTRA-TDD-v1020 ::= SEQUENCE {

e-RedirectionUTRA-TDD-r10 ENUMERATED {supported}

}

IRAT-ParametersGERAN ::= SEQUENCE {

supportedBandListGERAN SupportedBandListGERAN,

interRAT-PS-HO-ToGERAN BOOLEAN

}

IRAT-ParametersGERAN-v920 ::= SEQUENCE {

dtm-r9 ENUMERATED {supported} OPTIONAL,

e-RedirectionGERAN-r9 ENUMERATED {supported} OPTIONAL

}

SupportedBandListGERAN ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandGERAN

SupportedBandGERAN ::= ENUMERATED {

gsm450, gsm480, gsm710, gsm750, gsm810, gsm850,

gsm900P, gsm900E, gsm900R, gsm1800, gsm1900,

spare5, spare4, spare3, spare2, spare1, ...}

IRAT-ParametersCDMA2000-HRPD ::= SEQUENCE {

supportedBandListHRPD SupportedBandListHRPD,

tx-ConfigHRPD ENUMERATED {single, dual},

rx-ConfigHRPD ENUMERATED {single, dual}

}

SupportedBandListHRPD ::= SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF BandclassCDMA2000

IRAT-ParametersCDMA2000-1XRTT ::= SEQUENCE {

supportedBandList1XRTT SupportedBandList1XRTT,

tx-Config1XRTT ENUMERATED {single, dual},

rx-Config1XRTT ENUMERATED {single, dual}

}

IRAT-ParametersCDMA2000-1XRTT-v920 ::= SEQUENCE {

e-CSFB-1XRTT-r9 ENUMERATED {supported},

e-CSFB-ConcPS-Mob1XRTT-r9 ENUMERATED {supported} OPTIONAL

}

IRAT-ParametersCDMA2000-1XRTT-v1020 ::= SEQUENCE {

e-CSFB-dual-1XRTT-r10 ENUMERATED {supported}

}

IRAT-ParametersCDMA2000-v1130 ::= SEQUENCE {

cdma2000-NW-Sharing-r11 ENUMERATED {supported} OPTIONAL

}

SupportedBandList1XRTT ::= SEQUENCE (SIZE (1..maxCDMA-BandClass)) OF BandclassCDMA2000

IRAT-ParametersWLAN-r13 ::= SEQUENCE {

supportedBandListWLAN-r13 SEQUENCE (SIZE (1..maxWLAN-Bands-r13)) OF WLAN-BandIndicator-r13 OPTIONAL

}

CSG-ProximityIndicationParameters-r9 ::= SEQUENCE {

intraFreqProximityIndication-r9 ENUMERATED {supported} OPTIONAL,

interFreqProximityIndication-r9 ENUMERATED {supported} OPTIONAL,

utran-ProximityIndication-r9 ENUMERATED {supported} OPTIONAL

}

NeighCellSI-AcquisitionParameters-r9 ::= SEQUENCE {

intraFreqSI-AcquisitionForHO-r9 ENUMERATED {supported} OPTIONAL,

interFreqSI-AcquisitionForHO-r9 ENUMERATED {supported} OPTIONAL,

utran-SI-AcquisitionForHO-r9 ENUMERATED {supported} OPTIONAL

}

NeighCellSI-AcquisitionParameters-v1530 ::= SEQUENCE {

reportCGI-NR-EN-DC-r15 ENUMERATED {supported} OPTIONAL,

reportCGI-NR-NoEN-DC-r15 ENUMERATED {supported} OPTIONAL

}

NeighCellSI-AcquisitionParameters-v1550 ::= SEQUENCE {

eutra-CGI-Reporting-ENDC-r15 ENUMERATED {supported} OPTIONAL,

utra-GERAN-CGI-Reporting-ENDC-r15 ENUMERATED {supported} OPTIONAL

}

NeighCellSI-AcquisitionParameters-v16xy ::= SEQUENCE {

eutra-SI-AcquisitionForHO-ENDC-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-ENDC-FR1-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-ENDC-FR2-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-FR1-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-FR2-r16 ENUMERATED {supported} OPTIONAL

}

SON-Parameters-r9 ::= SEQUENCE {

rach-Report-r9 ENUMERATED {supported} OPTIONAL

}

UE-BasedNetwPerfMeasParameters-r10 ::= SEQUENCE {

loggedMeasurementsIdle-r10 ENUMERATED {supported} OPTIONAL,

standaloneGNSS-Location-r10 ENUMERATED {supported} OPTIONAL

}

UE-BasedNetwPerfMeasParameters-v1250 ::= SEQUENCE {

loggedMBSFNMeasurements-r12 ENUMERATED {supported}

}

UE-BasedNetwPerfMeasParameters-v1430 ::= SEQUENCE {

locationReport-r14 ENUMERATED {supported} OPTIONAL

}

UE-BasedNetwPerfMeasParameters-v1530 ::= SEQUENCE {

loggedMeasBT-r15 ENUMERATED {supported} OPTIONAL,

loggedMeasWLAN-r15 ENUMERATED {supported} OPTIONAL,

immMeasBT-r15 ENUMERATED {supported} OPTIONAL,

immMeasWLAN-r15 ENUMERATED {supported} OPTIONAL

}

OTDOA-PositioningCapabilities-r10 ::= SEQUENCE {

otdoa-UE-Assisted-r10 ENUMERATED {supported},

interFreqRSTD-Measurement-r10 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-r11 ::= SEQUENCE {

inDeviceCoexInd-r11 ENUMERATED {supported} OPTIONAL,

powerPrefInd-r11 ENUMERATED {supported} OPTIONAL,

ue-Rx-TxTimeDiffMeasurements-r11 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v11d0 ::= SEQUENCE {

inDeviceCoexInd-UL-CA-r11 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v1360 ::= SEQUENCE {

inDeviceCoexInd-HardwareSharingInd-r13 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v1430 ::= SEQUENCE {

bwPrefInd-r14 ENUMERATED {supported} OPTIONAL,

rlm-ReportSupport-r14 ENUMERATED {supported} OPTIONAL

}

OtherParameters-v1450 ::= SEQUENCE {

overheatingInd-r14 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v1460 ::= SEQUENCE {

nonCSG-SI-Reporting-r14 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v1530 ::= SEQUENCE {

assistInfoBitForLC-r15 ENUMERATED {supported} OPTIONAL,

timeReferenceProvision-r15 ENUMERATED {supported} OPTIONAL,

flightPathPlan-r15 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v1540 ::= SEQUENCE {

inDeviceCoexInd-ENDC-r15 ENUMERATED {supported} OPTIONAL

}

Other-Parameters-v16xy ::= SEQUENCE {

ce-RRC-INACTIVE-r16 ENUMERATED {supported} OPTIONAL

}

MBMS-Parameters-r11 ::= SEQUENCE {

mbms-SCell-r11 ENUMERATED {supported} OPTIONAL,

mbms-NonServingCell-r11 ENUMERATED {supported} OPTIONAL

}

MBMS-Parameters-v1250 ::= SEQUENCE {

mbms-AsyncDC-r12 ENUMERATED {supported} OPTIONAL

}

MBMS-Parameters-v1430 ::= SEQUENCE {

fembmsDedicatedCell-r14 ENUMERATED {supported} OPTIONAL,

fembmsMixedCell-r14 ENUMERATED {supported} OPTIONAL,

subcarrierSpacingMBMS-khz7dot5-r14 ENUMERATED {supported} OPTIONAL,

subcarrierSpacingMBMS-khz1dot25-r14 ENUMERATED {supported} OPTIONAL

}

MBMS-Parameters-v1470 ::= SEQUENCE {

mbms-MaxBW-r14 CHOICE {

implicitValue NULL,

explicitValue INTEGER(2..20)

},

mbms-ScalingFactor1dot25-r14 ENUMERATED {n3, n6, n9, n12} OPTIONAL,

mbms-ScalingFactor7dot5-r14 ENUMERATED {n1, n2, n3, n4} OPTIONAL

}

MBMS-Parameters-v16xy ::= SEQUENCE {

mbms-ScalingFactor2dot5-r16 ENUMERATED {n2, n4, n6, n8} OPTIONAL,

mbms-Parameters0dot37-r16 SEQUENCE {

mbms-ScalingFactor0dot37-r16 ENUMERATED {n12, n24, ffs1, ffs2},

timeSeparationSlot2-r16 ENUMERATED {supported} OPTIONAL,

timeSeparationSlot4-r16 ENUMERATED {supported} OPTIONAL

} OPTIONAL

}

FeMBMS-Unicast-Parameters-r14 ::= SEQUENCE {

unicast-fembmsMixedSCell-r14 ENUMERATED {supported} OPTIONAL,

emptyUnicastRegion-r14 ENUMERATED {supported} OPTIONAL

}

SCPTM-Parameters-r13 ::= SEQUENCE {

scptm-ParallelReception-r13 ENUMERATED {supported} OPTIONAL,

scptm-SCell-r13 ENUMERATED {supported} OPTIONAL,

scptm-NonServingCell-r13 ENUMERATED {supported} OPTIONAL,

scptm-AsyncDC-r13 ENUMERATED {supported} OPTIONAL

}

CE-Parameters-r13 ::= SEQUENCE {

ce-ModeA-r13 ENUMERATED {supported} OPTIONAL,

ce-ModeB-r13 ENUMERATED {supported} OPTIONAL

}

CE-Parameters-v1320 ::= SEQUENCE {

intraFreqA3-CE-ModeA-r13 ENUMERATED {supported} OPTIONAL,

intraFreqA3-CE-ModeB-r13 ENUMERATED {supported} OPTIONAL,

intraFreqHO-CE-ModeA-r13 ENUMERATED {supported} OPTIONAL,

intraFreqHO-CE-ModeB-r13 ENUMERATED {supported} OPTIONAL

}

CE-Parameters-v1350 ::= SEQUENCE {

unicastFrequencyHopping-r13 ENUMERATED {supported} OPTIONAL

}

CE-Parameters-v1370 ::= SEQUENCE {

tm9-CE-ModeA-r13 ENUMERATED {supported} OPTIONAL,

tm9-CE-ModeB-r13 ENUMERATED {supported} OPTIONAL

}

CE-Parameters-v1380 ::= SEQUENCE {

tm6-CE-ModeA-r13 ENUMERATED {supported} OPTIONAL

}

CE-Parameters-v1430 ::= SEQUENCE {

ce-SwitchWithoutHO-r14 ENUMERATED {supported} OPTIONAL

}

LAA-Parameters-r13 ::= SEQUENCE {

crossCarrierSchedulingLAA-DL-r13 ENUMERATED {supported} OPTIONAL,

csi-RS-DRS-RRM-MeasurementsLAA-r13 ENUMERATED {supported} OPTIONAL,

downlinkLAA-r13 ENUMERATED {supported} OPTIONAL,

endingDwPTS-r13 ENUMERATED {supported} OPTIONAL,

secondSlotStartingPosition-r13 ENUMERATED {supported} OPTIONAL,

tm9-LAA-r13 ENUMERATED {supported} OPTIONAL,

tm10-LAA-r13 ENUMERATED {supported} OPTIONAL

}

LAA-Parameters-v1430 ::= SEQUENCE {

crossCarrierSchedulingLAA-UL-r14 ENUMERATED {supported} OPTIONAL,

uplinkLAA-r14 ENUMERATED {supported} OPTIONAL,

twoStepSchedulingTimingInfo-r14 ENUMERATED {nPlus1, nPlus2, nPlus3} OPTIONAL,

uss-BlindDecodingAdjustment-r14 ENUMERATED {supported} OPTIONAL,

uss-BlindDecodingReduction-r14 ENUMERATED {supported} OPTIONAL,

outOfSequenceGrantHandling-r14 ENUMERATED {supported} OPTIONAL

}

LAA-Parameters-v1530 ::= SEQUENCE {

aul-r15 ENUMERATED {supported} OPTIONAL,

laa-PUSCH-Mode1-r15 ENUMERATED {supported} OPTIONAL,

laa-PUSCH-Mode2-r15 ENUMERATED {supported} OPTIONAL,

laa-PUSCH-Mode3-r15 ENUMERATED {supported} OPTIONAL

}

WLAN-IW-Parameters-r12 ::= SEQUENCE {

wlan-IW-RAN-Rules-r12 ENUMERATED {supported} OPTIONAL,

wlan-IW-ANDSF-Policies-r12 ENUMERATED {supported} OPTIONAL

}

LWA-Parameters-r13 ::= SEQUENCE {

lwa-r13 ENUMERATED {supported} OPTIONAL,

lwa-SplitBearer-r13 ENUMERATED {supported} OPTIONAL,

wlan-MAC-Address-r13 OCTET STRING (SIZE (6)) OPTIONAL,

lwa-BufferSize-r13 ENUMERATED {supported} OPTIONAL

}

LWA-Parameters-v1430 ::= SEQUENCE {

lwa-HO-WithoutWT-Change-r14 ENUMERATED {supported} OPTIONAL,

lwa-UL-r14 ENUMERATED {supported} OPTIONAL,

wlan-PeriodicMeas-r14 ENUMERATED {supported} OPTIONAL,

wlan-ReportAnyWLAN-r14 ENUMERATED {supported} OPTIONAL,

wlan-SupportedDataRate-r14 INTEGER (1..2048) OPTIONAL

}

LWA-Parameters-v1440 ::= SEQUENCE {

lwa-RLC-UM-r14 ENUMERATED {supported} OPTIONAL

}

WLAN-IW-Parameters-v1310 ::= SEQUENCE {

rclwi-r13 ENUMERATED {supported} OPTIONAL

}

LWIP-Parameters-r13 ::= SEQUENCE {

lwip-r13 ENUMERATED {supported} OPTIONAL

}

LWIP-Parameters-v1430 ::= SEQUENCE {

lwip-Aggregation-DL-r14 ENUMERATED {supported} OPTIONAL,

lwip-Aggregation-UL-r14 ENUMERATED {supported} OPTIONAL

}

NAICS-Capability-List-r12 ::= SEQUENCE (SIZE (1..maxNAICS-Entries-r12)) OF NAICS-Capability-Entry-r12

NAICS-Capability-Entry-r12 ::= SEQUENCE {

numberOfNAICS-CapableCC-r12 INTEGER(1..5),

numberOfAggregatedPRB-r12 ENUMERATED {

n50, n75, n100, n125, n150, n175,

n200, n225, n250, n275, n300, n350,

n400, n450, n500, spare},

...

}

SL-Parameters-r12 ::= SEQUENCE {

commSimultaneousTx-r12 ENUMERATED {supported} OPTIONAL,

commSupportedBands-r12 FreqBandIndicatorListEUTRA-r12 OPTIONAL,

discSupportedBands-r12 SupportedBandInfoList-r12 OPTIONAL,

discScheduledResourceAlloc-r12 ENUMERATED {supported} OPTIONAL,

disc-UE-SelectedResourceAlloc-r12 ENUMERATED {supported} OPTIONAL,

disc-SLSS-r12 ENUMERATED {supported} OPTIONAL,

discSupportedProc-r12 ENUMERATED {n50, n400} OPTIONAL

}

SL-Parameters-v1310 ::= SEQUENCE {

discSysInfoReporting-r13 ENUMERATED {supported} OPTIONAL,

commMultipleTx-r13 ENUMERATED {supported} OPTIONAL,

discInterFreqTx-r13 ENUMERATED {supported} OPTIONAL,

discPeriodicSLSS-r13 ENUMERATED {supported} OPTIONAL

}

SL-Parameters-v1430 ::= SEQUENCE {

zoneBasedPoolSelection-r14 ENUMERATED {supported} OPTIONAL,

ue-AutonomousWithFullSensing-r14 ENUMERATED {supported} OPTIONAL,

ue-AutonomousWithPartialSensing-r14 ENUMERATED {supported} OPTIONAL,

sl-CongestionControl-r14 ENUMERATED {supported} OPTIONAL,

v2x-TxWithShortResvInterval-r14 ENUMERATED {supported} OPTIONAL,

v2x-numberTxRxTiming-r14 INTEGER(1..16) OPTIONAL,

v2x-nonAdjacentPSCCH-PSSCH-r14 ENUMERATED {supported} OPTIONAL,

slss-TxRx-r14 ENUMERATED {supported} OPTIONAL,

v2x-SupportedBandCombinationList-r14 V2X-SupportedBandCombination-r14 OPTIONAL

}

SL-Parameters-v1530 ::= SEQUENCE {

slss-SupportedTxFreq-r15 ENUMERATED {single, multiple} OPTIONAL,

sl-64QAM-Tx-r15 ENUMERATED {supported} OPTIONAL,

sl-TxDiversity-r15 ENUMERATED {supported} OPTIONAL,

ue-CategorySL-r15 UE-CategorySL-r15 OPTIONAL,

v2x-SupportedBandCombinationList-v1530 V2X-SupportedBandCombination-v1530 OPTIONAL

}

SL-Parameters-v1540 ::= SEQUENCE {

sl-64QAM-Rx-r15 ENUMERATED {supported} OPTIONAL,

sl-RateMatchingTBSScaling-r15 ENUMERATED {supported} OPTIONAL,

sl-LowT2min-r15 ENUMERATED {supported} OPTIONAL,

v2x-SensingReportingMode3-r15 ENUMERATED {supported} OPTIONAL

}

UE-CategorySL-r15 ::= SEQUENCE {

ue-CategorySL-C-TX-r15 INTEGER(1..5),

ue-CategorySL-C-RX-r15 INTEGER(1..4)

}

V2X-SupportedBandCombination-r14 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF V2X-BandCombinationParameters-r14

V2X-SupportedBandCombination-v1530 ::= SEQUENCE (SIZE (1..maxBandComb-r13)) OF V2X-BandCombinationParameters-v1530

V2X-BandCombinationParameters-r14 ::= SEQUENCE (SIZE (1.. maxSimultaneousBands-r10)) OF V2X-BandParameters-r14

V2X-BandCombinationParameters-v1530 ::= SEQUENCE (SIZE (1.. maxSimultaneousBands-r10)) OF V2X-BandParameters-v1530

SupportedBandInfoList-r12 ::= SEQUENCE (SIZE (1..maxBands)) OF SupportedBandInfo-r12

SupportedBandInfo-r12 ::= SEQUENCE {

support-r12 ENUMERATED {supported} OPTIONAL

}

FreqBandIndicatorListEUTRA-r12 ::= SEQUENCE (SIZE (1..maxBands)) OF FreqBandIndicator-r11

MMTEL-Parameters-r14 ::= SEQUENCE {

delayBudgetReporting-r14 ENUMERATED {supported} OPTIONAL,

pusch-Enhancements-r14 ENUMERATED {supported} OPTIONAL,

recommendedBitRate-r14 ENUMERATED {supported} OPTIONAL,

recommendedBitRateQuery-r14 ENUMERATED {supported} OPTIONAL

}

MMTEL-Parameters-v16xy ::= SEQUENCE {

recommendedBitRateMultiplier-r16 ENUMERATED {supported} OPTIONAL

}

SRS-CapabilityPerBandPair-r14 ::= SEQUENCE {

retuningInfo SEQUENCE {

rf-RetuningTimeDL-r14 ENUMERATED {n0, n0dot5, n1, n1dot5, n2, n2dot5, n3,

n3dot5, n4, n4dot5, n5, n5dot5, n6, n6dot5,

n7, spare1} OPTIONAL,

rf-RetuningTimeUL-r14 ENUMERATED {n0, n0dot5, n1, n1dot5, n2, n2dot5, n3,

n3dot5, n4, n4dot5, n5, n5dot5, n6, n6dot5,

n7, spare1} OPTIONAL

}

}

SRS-CapabilityPerBandPair-v14b0 ::= SEQUENCE {

srs-FlexibleTiming-r14 ENUMERATED {supported} OPTIONAL,

srs-HARQ-ReferenceConfig-r14 ENUMERATED {supported} OPTIONAL

}

HighSpeedEnhParameters-r14 ::= SEQUENCE {

measurementEnhancements-r14 ENUMERATED {supported} OPTIONAL,

demodulationEnhancements-r14 ENUMERATED {supported} OPTIONAL,

prach-Enhancements-r14 ENUMERATED {supported} OPTIONAL

}

HighSpeedEnhParameters-v16xy ::= SEQUENCE {

measurementEnhancementsSCell-r16 ENUMERATED {supported} OPTIONAL,

measurementEnhancements2-r16 ENUMERATED {supported} OPTIONAL,

demodulationEnhancements2-r16 ENUMERATED {supported} OPTIONAL

}

-- ASN1STOP

| ***UE-EUTRA-Capability* field descriptions** | | ***FDD/ TDD diff*** | |
| --- | --- | --- | --- |
| ***accessStratumRelease***  Set to rel16 in this version of the specification. NOTE 7. | | - | |
| ***additionalRx-Tx-PerformanceReq***  Indicates whether the UE supports the additional Rx and Tx performance requirement for a given band combination as specified in TS 36.101 [42]. | | - | |
| ***alternativeTBS-Indices***  Indicates whether the UE supports alternative TBS indices *I*TBS 26A and 33A as specified in TS 36.213 [23]. | | - | |
| ***alternativeTBS-Index***  Indicates whether the UE supports alternative TBS index ITBS 33B as specified in TS 36.213 [23]. | | No | |
| ***alternativeTimeToTrigger***  Indicates whether the UE supports alternativeTimeToTrigger. | | No | |
| ***altMCS-Table***  Indicates whether the UE supports the 6-bit MCS table as specified in TS 36.212 [22] and TS 36.213 [23]. | | - | |
| ***aperiodicCSI-Reporting***  Indicates whether the UE supports aperiodic CSI reporting with 3 bits of the CSI request field size as specified in TS 36.213 [23], clause 7.2.1 and/or aperiodic CSI reporting mode 1-0 and mode 1-1 as specified in TS 36.213 [23], clause 7.2.1. The first bit is set to "1" if the UE supports the aperiodic CSI reporting with 3 bits of the CSI request field size. The second bit is set to "1" if the UE supports the aperiodic CSI reporting mode 1-0 and mode 1-1. | | No | |
| ***aperiodicCsi-ReportingSTTI***  Indicates whether the UE supports aperiodic CSI reporting for short TTI as specified in TS 36.213 [23], clause 7.2.1. | | No | |
| ***appliedCapabilityFilterCommon***  Contains the filter, applied by the UE, common for all MR-DC related capability containers that are requested and as defined by *UE-CapabilityRequestFilterCommon* IE in TS 38.331 [82]. | | - | |
| ***assistInfoBitForLC***  Indicates whether the UE supports assistance information bit for local cache. | | - | |
| ***aul***  Indicates whether the UE supports AUL as specified n TS 36.321 [6]. | | - | |
| ***bandCombinationListEUTRA***  One entry corresponding to each supported band combination listed in the same order as in *supportedBandCombination.* | | - | |
| ***BandCombinationParameters-v1090, BandCombinationParameters-v10i0, BandCombinationParameters-v1270***  If included, the UE shall include the same number of entries, and listed in the same order, as in *BandCombinationParameters-r10*. | | - | |
| ***BandCombinationParameters-v1130***  The field is applicable to each supported CA bandwidth class combination (i.e. CA configuration in TS 36.101 [42], clause 5.6A.1) indicated in the corresponding band combination. If included, the UE shall include the same number of entries, and listed in the same order, as in *BandCombinationParameters-r10*. | | - | |
| ***bandEUTRA***  E‑UTRA band as defined in TS 36.101 [42]. In case the UE includes *bandEUTRA-v9e0* or *bandEUTRA-v1090*, the UE shall set the corresponding entry of *bandEUTRA* (i.e. without suffix) or *bandEUTRA-r10* respectively to *maxFBI*. | | - | |
| ***bandListEUTRA***  One entry corresponding to each supported E‑UTRA band listed in the same order as in *supportedBandListEUTRA*. | | - | |
| ***bandParameterList-v1380***  If included, the UE shall include the same number of entries listed in the same order as the band entries in the corresponding band combination. | | - | |
| ***bandParametersUL, bandParametersDL***  Indicates the supported parameters for the band. Each of *CA-MIMO-ParametersUL* and *CA-MIMO-ParametersDL* can be included only once for one band in a single band combination entry. | | - | |
| ***beamformed (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates for a particular transmission mode, the UE capabilities concerning beamformed EBF/ FD-MIMO operation (class B) applicable for the concerned band combination. | | - | |
| ***beamformed (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode, the UE capabilities concerning beamformed EBF/ FD-MIMO operation (class B) applicable for band combinations for which the concerned capabilities are not signalled. | | TBD | |
| ***benefitsFromInterruption***  Indicates whether the UE power consumption would benefit from being allowed to cause interruptions to serving cells when performing measurements of deactivated SCell carriers for *measCycleSCell* of less than 640ms, as specified in TS 36.133 [16]. | | No | |
| ***bwPrefInd***  Indicates whether the UE supports maximum PDSCH/PUSCH bandwidth preference indication. | | - | |
| ***ca-BandwidthClass***  The CA bandwidth class supported by the UE as defined in TS 36.101 [42], Table 5.6A-1.  The UE explicitly includes all the supported CA bandwidth class combinations in the band combination signalling. Support for one CA bandwidth class does not implicitly indicate support for another CA bandwidth class. | | - | |
| ***ca-IdleModeMeasurements***  Indicates whether UE supports reporting measurements performed during RRC\_IDLE. | | | - |
| ***ca-IdleModeValidityArea***  Indicates whether UE supports validity area for IDLE measurements during RRC\_IDLE. | | | - |
| ***cch-IM-RefRecTypeA-OneRX-Port***  This field defines whether the DL Category 1bis or the DL Category M2 UE supports Type A downlink control channel interference mitigation (CCH-IM) receiver "LMMSE-IRC + CRS-IC" for PDCCH/PCFICH/PHICH/EPDCCH receive processing (Enhanced downlink control channel performance requirements Type A in TS 36.101 [6]). | | - | |
| ***cch-InterfMitigation-RefRecTypeA, cch-InterfMitigation-RefRecTypeB, cch-InterfMitigation-MaxNumCCs***  The field *cch-InterfMitigation-RefRecTypeA* defines whether the UE supports Type A downlink control channel interference mitigation (CCH-IM) receiver "LMMSE-IRC + CRS-IC" for PDCCH/PCFICH/PHICH/EPDCCH receive processing (Enhanced downlink control channel performance requirements Type A in the TS 36.101 [6]). The field *cch-InterfMitigation-RefRecTypeB* defines whether the UE supports Type B downlink CCH-IM receiver "E-LMMSE-IRC + CRS-IC" for PDCCH/PCFICH/PHICH receive processing in synchronous networks (Enhanced downlink control channel performance requirements Type B in the TS 36.101 [6]). The UE supporting the capability defined by *cch-InterfMitigation-RefRecTypeB-r13* shall also support the capability defined by *cch-InterfMitigation-RefRecTypeA-r13*.  If the UE sets one or more of the fields *cch-InterfMitigation-RefRecTypeA* and *cch-InterfMitigation-RefRecTypeB* to "supported", the UE shall include the parameter *cch-InterfMitigation-MaxNumCCs* to indicate that the UE supports CCH-IM on at least one arbitrary downlink CC for up to *cch-InterfMitigation-MaxNumCCs* downlink CC CA configuration. The UE shall not include the parameter *cch-InterfMitigation-MaxNumCCs* if neither *cch-InterfMitigation-RefRecTypeA* nor *cch-InterfMitigation-RefRecTypeB* is present. The UE may not perform CCH-IM on more than 1 DL CCs. For example, the UE sets "*cch-InterfMitigation-MaxNumCCs* = 3"to indicate that UE supports CCH-IM on at least one DL CC for supported non-CA, 2DL CA and 3DL CA configurations. For CA scenarios, the CCH-IM is guaranteed to be supported on at least one arbitrary component carrier. | | - | |
| ***cdma2000-NW-Sharing***  Indicates whether the UE supports network sharing for CDMA2000. | | - | |
| ***ce-ClosedLoopTxAntennaSelection***  Indicates whether the UE supports UL closed-loop Tx antenna selection in CE mode A, as specified in TS 36.212 [22]. | | Yes | |
| ***ce-CQI-AlternativeTable***  Indicates whether the UE supports alternative CQI table in CE mode A. See TS 36.213 [22]. | | - | |
| ***ce-CRS-ChannelEstMPDCCH***  Indicates whether UE operating in CE mode supports using CRS for improving MPDCCH channel estimation. | | - | |
| ***ce-CRS-IntfMitig***  Indicates whether UE supports CRS interference mitigation, i.e., value *supported* indicates UE does not rely on the CRS outside certain PRBs and subframes as defined in TS 36.133 [16], clauses 3.6.1.2 and 3.6.1.3, and TS 36.213 [23] when operating in coverage enhancement mode. | | - | |
| ***ce-HARQ-AckBundling***  Indicates whether the UE supports HARQ-ACK bundling in half duplex FDD in CE mode A, as specified in TS 36.212 [22] and TS 36.213 [23]. | | Yes | |
| ***ce-ModeA, ce-ModeB***  Indicates whether the UE supports operation in CE mode A and/or B, as specified in TS 36.211 [21] and TS 36.213 [23]. | | - | |
| ***ce-ModeA-CSI-RS-Feedback***  Indicates whether the UE supports CSI-RS based feedback when the UE is operating in CE mode A, as specified in TS 36.213 [23]. | | - | |
| ***ce-ModeA-ETWS-CMAS-RxInConn, ce-ModeB-ETWS-CMAS-RxInConn***  Indicates whether the UE operating in CE mode A/B supports reception of ETWS/CMAS indication in RRC\_CONNECTED mode as specified in TS 36.212 [22]. | | - | |
| ***ce-ModeA-PDSCH-MultiTB, ce-ModeB-PDSCH-MultiTB,***  ***ce-ModeA-PUSCH-MultiTB, ce-ModeB-PUSCH-MultiTB***  Indicates whether the UE supports multiple TB scheduling in connected mode for PDSCH/PUSCH when operating in CE mode A/B, as specified in TS 36.211 [21] and TS 36.213 [23]. | | - | |
| ***ceMeasurements***  Indicates whether the UE supports intra-frequency RSRQ measurements and inter-frequency RSRP and RSRQ measurements in RRC\_CONNECTED, as specified in TS 36.133 [16] and TS 36.304 [4]. | | - | |
| ***ce-PDSCH-64QAM***  Indicates whether the UE supports 64QAM for non-repeated unicast PDSCH in CE mode A. | | | - |
| ***ce-PDSCH-FlexibleStartPRB-CE-ModeA*, *ce-PDSCH-FlexibleStartPRB-CE-ModeB*,**  ***ce-PUSCH-FlexibleStartPRB-CE-ModeA*, *ce-PUSCH-FlexibleStartPRB-CE-ModeB***  This field indicates whether UE supports flexible starting PRB for PDSCH/PUSCH when operating in coverage enhancement mode A/B, as specified in TS 36.211 [21] and TS 36.213 [22]. | | - | |
| ***ce-PDSCH-PUSCH-Enhancement***  Indicates whether the UE supports new numbers of repetitions for PUSCH and modulation restrictions for PDSCH/PUSCH in CE mode A as specified in TS 36.212 [22] and TS 36.213 [23]. | | No | |
| ***ce-PDSCH-PUSCH-MaxBandwidth***  Indicates the maximum supported PDSCH/PUSCH channel bandwidth in CE mode A and B, as specified in TS 36.212 [22] and TS 36.213 [23]. Value bw5 corresponds to 5 MHz and value bw20 corresponds to 20 MHz. If the field is absent the maximum PDSCH/PUSCH channel bandwidth in CE mode A and B is 1.4 MHz. If the setting of this parameter is 20 MHz, the max supported PUSCH channel bandwidth in CE mode A is 5 MHz. The maximum PUSCH channel bandwidth in CE mode B is 1.4 MHz regardless of the setting of this parameter. Parameter: transmission bandwidth configuration, see TS 36.101 [42], table 5.6-1. | | Yes | |
| ***ce-PDSCH-TenProcesses***  Indicates whether the UE supports 10 DL HARQ processes in FDD in CE mode A. | | Yes | |
| ***ce-PUCCH-Enhancement***  Indicates whether the UE supports repetition levels 64 and 128 for PUCCH in CE Mode B, as specified in TS 36.211 [21] and in TS 36.213 [23]. | | No | |
| ***ce-PUSCH-NB-MaxTBS***  Indicates whether the UE supports 2984 bits max UL TBS in 1.4 MHz in CE mode A operation, as specified in TS 36.212 [22] and TS 36.213 [23]. | | Yes | |
| ***ce-PUSCH-SubPRB-Allocation***  Indicates whether the UE supports sub-PRB resource allocation for PUSCH in CE mode A or B, as specified in TS 36.211 [21], TS 36.212 [22] and TS 36.213 [23]. | | - | |
| ***ce-RetuningSymbols***  Indicates the number of retuning symbols in CE mode A and B as specified in TS 36.211 [21]. Value n0 corresponds to 0 retuning symbols and value n1 corresponds to 1 retuning symbol. If the field is absent the number of retuning symbols in CE mode A and B is 2. | | No | |
| ***ce-RRC-INACTIVE***  Indicates whether UE operating in CE mode supports RRC\_INACTIVE when connected to 5GC. A UE including this field also supports short eDRX cycles in RRC\_INACTIVE when connected to 5GC. | | - | |
| ***ce-RxInLTE-ControlRegion***  Indicates whether UE operating in CE mode supports PDSCH or MPDCCH reception in LTE control channel region as specified in TS 36.211 [21]. | | - | |
| ***ce-SchedulingEnhancement***  Indicates whether the UE supports dynamic HARQ-ACK delay for HD-FDD in CE mode A as specified in TS 36.212 [22] and TS 36.213 [23]. | | No | |
| ***ce-SRS-Enhancement***  Indicates whether the UE supports SRS coverage enhancement in TDD with support of SRS combs 2 and 4 as specified in TS 36.213 [23]. This field can be included only if *ce-SRS-EnhancementWithoutComb4* is not included. | | Yes | |
| ***ce-SRS-EnhancementWithoutComb4***  Indicates whether the UE supports SRS coverage enhancement in TDD with support of SRS comb 2 but without support of SRS comb 4 as specified in TS 36.213 [23]. This field can be included only if *ce-SRS-Enhancement* is not included. | | - | |
| ***ce-SwitchWithoutHO***  Indicates whether the UE supports switching between normal mode and enhanced coverage mode without handover. | | - | |
| ***ce-UL-HARQ-ACK-Feedback***  This field indicates whether UE supports uplink HARQ ACK feedback when operating in coverage enhancement, as specified in TS36.213 [22]. | | - | |
| ***channelMeasRestriction***  Indicates for a particular transmission mode whether the UE supports channel measurement restriction. | | TBD | |
| ***codebook-HARQ-ACK***  Indicates whether the UE supports determining HARQ ACK codebook size based on the DAI-ased solution and/or the number of configured CCs. The first bit is set to "1" if the UE supports the DAI-based codebook size determination. The second bit is set to "1" if the UE supports the codebook determination based on the number of configured CCs. | | No | |
| ***commMultipleTx***  Indicates whether the UE supports multiple transmissions of sidelink communication to different destinations in one SC period. If *commMultipleTx-r13* is set to supported then the UE support 8 transmitting sidelink processes. | | - | |
| ***commSimultaneousTx***  Indicates whether the UE supports simultaneous transmission of EUTRA and sidelink communication (on different carriers) in all bands for which the UE indicated sidelink support in a band combination (using *commSupportedBandsPerBC*). | | - | |
| ***commSupportedBands***  Indicates the bands on which the UE supports sidelink communication, by an independent list of bands i.e. separate from the list of supported E-UTRA band, as indicated in *supportedBandListEUTRA*. | | - | |
| ***commSupportedBandsPerBC***  Indicates, for a particular band combination, the bands on which the UE supports simultaneous reception of EUTRA and sidelink communication. If the UE indicates support simultaneous transmission (using *commSimultaneousTx*), it also indicates, for a particular band combination, the bands on which the UE supports simultaneous transmission of EUTRA and sidelink communication. The first bit refers to the first band included in *commSupportedBands*, with value 1 indicating sidelink is supported. | | - | |
| ***configN (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates for a particular transmission mode whether the UE supports non-precoded EBF/ FD-MIMO (class A) related configuration N for the concerned band combination. | | - | |
| ***configN (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode whether the UE supports non-precoded EBF/ FD-MIMO (class A) related configuration N for band combinations for which the concerned capabilities are not signalled. | | TBD | |
| ***crossCarrierScheduling*** | | Yes | |
| ***crossCarrierScheduling-B5C***  Indicates whether the UE supports cross carrier scheduling beyond 5 DL CCs. | | No | |
| ***crossCarrierSchedulingLAA-DL***  Indicates whether the UE supports cross-carrier scheduling from a licensed carrier for LAA cell(s) for downlink. This field can be included only if *downlinkLAA* is included. | | - | |
| ***crossCarrierSchedulingLAA-UL***  Indicates whether the UE supports cross-carrier scheduling from a licensed carrier for LAA cell(s) for uplink. This field can be included only if *uplinkLAA* is included. | | - | |
| ***crs-DiscoverySignalsMeas***  Indicates whether the UE supports CRS based discovery signals measurement, and PDSCH/EPDCCH RE mapping with zero power CSI-RS configured for discovery signals. | | FFS | |
| ***crs-IM-TM1-toTM9-OneRX-Port***  Indicates whether the DL Cateogry 1bis UE ot the DL Category M2 UE supports CRS interference mitigation (IM) while operating in the following transmission modes (TM): TM 1, TM 2, …, TM 8 and TM 9. | | | - |
| ***crs-InterfHandl***  Indicates whether the UE supports CRS interference handling. | | Yes | |
| ***crs-InterfMitigationTM10***  The field defines whether the UE supports CRS interference mitigation in transmission mode 10. The UE supporting the *crs-InterfMitigationTM10* capability shall also support the *crs-InterfHandl* capability. | | No | |
| ***crs-InterfMitigationTM1toTM9***  Indicates whether the UE supports CRS interference mitigation (IM) while operating in the following transmission modes (TM): TM 1, TM 2, …, TM 8 and TM 9. The UE shall not include the field if it does not support CRS IM in TMs 1-9. If the field is present, the UE supports CRS-IM on at least one arbitrary downlink CC for up to *crs-InterfMitigationTM1toTM9-r13* downlink CC CA configuration. The UE signals *crs-InterfMitigationTM1toTM9-r13* value to indicate the maximum *crs-InterfMitigationTM1toTM9-r13* downlink CC CA configuration where UE may apply CRS IM. For example, the UE sets "*crs-InterfMitigationTM1toTM9-r13* = 3" to indicate that the UE supports CRS-IM on at least one DL CC for supported non-CA, 2DL CA and 3DL CA configurations. The UE supporting the *crs-InterfMitigationTM1toTM9-r13* capability shall also support the *crs-InterfHandl-r11* capability. | | - | |
| ***crs-IntfMitig***  Indicate whether the UE supports CRS interference mitigation as specified in TS 36.133 [16], clause 3.6.1.1. | | | - |
| ***crs-LessDwPTS***  Indicates whether the UE supports TDD special subframe configuration 10 without CRS transmission on the 5th symbol of DwPTS, i.e. *ssp10-CRS-LessDwPTS*, as specified in TS 36.211 [17]*.* | | - | |
| ***csi-ReportingAdvanced, csi-ReportingAdvancedMaxPorts (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates that for a particular transmission mode, the maximum number of CSI-RS ports supported by the UE for advanced CSI reporting is different in the concerned band of band combination than the value indicated by the field *csi-ReportingAdvanced* or *csi-ReportingAdvancedMaxPorts* in *MIMO-UE-ParametersPerTM*. The UE shall not include both *csi-ReportingAdvanced* and *csi-ReportingAdvancedMaxPorts* for a particular transmission mode in the concerned band of band combination. | | - | |
| ***csi-ReportingAdvanced*, *csi-ReportingAdvancedMaxPorts (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode the maximum number of CSI-RS ports supported by the UE for advanced CSI reporting. The field *csi-ReportingAdvanced* indicates 32 CSI-RS ports whereas *csi-ReportingAdvancedMaxPorts* indicates 8, 12, 16, 20, 24 or 28 CSI-RS ports. The UE shall not include both *csi-ReportingAdvanced* and *csi-ReportingAdvancedMaxPorts* for a particular transmission mode. | FFS | | |
| ***csi-ReportingNP (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, value *different* indicates that for a particular transmission mode, the CSI reporting on non-precoded CSI-RS with 20, 24, 28 or 32 antenna ports for the concerned band of band combination is different than the value indicated by field *csi-ReportingNP* in *MIMO-UE-ParametersPerTM*. | - | | |
| ***csi-ReportingNP (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode whether the UE supports CSI reporting on non-precoded CSI-RS with 20, 24, 28, or 32 antenna ports for band combinations for which the concerned capabilities are not signalled in *MIMO-CA-ParametersPerBoBCPerTM*, and the FD-MIMO processing capability condition as described in NOTE 8 is satisfied. | FFS | | |
| ***csi-RS-DiscoverySignalsMeas***  Indicates whether the UE supports CSI-RS based discovery signals measurement. If this field is included, the UE shall also include *crs-DiscoverySignalsMeas*. | | FFS | |
| ***csi-RS-DRS-RRM-MeasurementsLAA***  Indicates whether the UE supports performing RRM measurements on LAA cell(s) based on CSI-RS-based DRS. This field can be included only if *downlinkLAA* is included. | | - | |
| ***csi-RS-EnhancementsTDD***  Indicates for a particular transmission mode whether the UE supports CSI-RS enhancements applicable for TDD. | | Yes | |
| ***csi-SubframeSet***  Indicates whether the UE supports REL-12 DL CSI subframe set configuration, REL-12 DL CSI subframe set dependent CSI measurement/feedback, configuration of up to 2 CSI-IM resources for a CSI process with no more than 4 CSI-IM resources for all CSI processes of one frequency if the UE supports tm10, configuration of two ZP-CSI-RS for tm1 to tm9, PDSCH RE mapping with two ZP-CSI-RS configurations, and EPDCCH RE mapping with two ZP-CSI-RS configurations if the UE supports EPDCCH. This field is only applicable for UEs supporting TDD. | | Yes | |
| ***dataInactMon***  Indicates whether the UE supports the data inactivity monitoring as specified in TS 36.321 [6]. | | - | |
| ***dc-Support***  Including this field indicates that the UE supports synchronous DC and power control mode 1. Including this field for a band combination entry comprising of single band entry indicates that the UE supports intra-band contiguous DC. Including this field for a band combination entry comprising of two or more band entries, indicates that the UE supports DC for these bands and that the serving cells corresponding to a band entry shall belong to one cell group (i.e. MCG or SCG). Including field *asynchronous* indicates that the UE supports asynchronous DC and power control mode 2. Including this field for a TDD/FDD band combination indicates that the UE supports TDD/FDD DC for this band combination. | | - | |
| ***delayBudgetReporting***  Indicates whether the UE supports delay budget reporting. | | No | |
| ***demodulationEnhancements***  This field defines whether the UE supports advanced receiver in SFN scenario (350 km/h) as specified in TS 36.101 [42]. | | - | |
| ***demodulationEnhancements2***  This field defines whether the UE supports further enhanced receiver in HST-SFN scenario (up to 500 km/h velocity) as specified in TS 36.101 [42]. | | - | |
| ***densityReductionNP, densityReductionBF***  Indicates whether the UE supports CSI-RS density reduction with values 1, 1/2 and 1/3 for non-precoded CSI-RS and beamformed CSI-RS respectively. | | FFS | |
| ***deviceType***  UE may set the value to "*noBenFromBatConsumpOpt*" when it does not foresee to particularly benefit from NW-based battery consumption optimisation. Absence of this value means that the device does benefit from NW-based battery consumption optimisation. | | - | |
| ***diffFallbackCombReport***  Indicates that the UE supports reporting of UE radio access capabilities for the CA band combinations asked by the eNB as well as, if any, reporting of different UE radio access capabilities for their fallback band combination as specified in TS 36.306 [5]. The UE does not report fallback combinations if their UE radio access capabilities are the same as the ones for the CA band combination asked by the eNB. | | - | |
| ***differentFallbackSupported***  Indicates that the UE supports different capabilities for at least one fallback case of this band combination. | | - | |
| ***directSCellActivation***  Indicates whether the UE supports having an SCell configured in activated SCell state. | | | - |
| ***directSCellHibernation***  Indicates whether the UE supports having an SCell configured in dormant SCell state. | | | - |
| ***discInterFreqTx***  Indicates whether the UE support sidelink discovery announcements either a) on the primary frequency only or b) on other frequencies also, regardless of the UE configuration (e.g. CA, DC). The UE may set discInterFreqTx to supported when having a separate transmitter or if it can request sidelink discovery transmission gaps. | | - | |
| ***discoverySignalsInDeactSCell***  Indicates whether the UE supports the behaviour on DL signals and physical channels when SCell is deactivated and discovery signals measurement is configured as specified in TS 36.211 [21], clause 6.11A. This field is included only if UE supports carrier aggregation and includes *crs-DiscoverySignalsMeas*. | | FFS | |
| ***discPeriodicSLSS***  Indicates whether the UE supports periodic (i.e. not just one time before sidelink discovery announcement) Sidelink Synchronization Signal (SLSS) transmission and reception for sidelink discovery. | | - | |
| ***discScheduledResourceAlloc***  Indicates whether the UE supports transmission of discovery announcements based on network scheduled resource allocation. | | - | |
| ***disc-UE-SelectedResourceAlloc***  Indicates whether the UE supports transmission of discovery announcements based on UE autonomous resource selection. | | - | |
| ***disc***-***SLSS***  Indicates whether the UE supports Sidelink Synchronization Signal (SLSS) transmission and reception for sidelink discovery. | | - | |
| ***discSupportedBands***  Indicates the bands on which the UE supports sidelink discovery. One entry corresponding to each supported E-UTRA band, listed in the same order as in *supportedBandListEUTRA*. | | - | |
| ***discSupportedProc***  Indicates the number of processes supported by the UE for sidelink discovery. | | - | |
| ***discSysInfoReporting***  Indicates whether the UE supports reporting of system information for inter-frequency/PLMN sidelink discovery. | | - | |
| ***dl-256QAM***  Indicates whether the UE supports 256QAM in DL on the band. | | - | |
| ***dl-1024QAM***  Indicates whether the UE supports 1024QAM in DL on the band or on the band within the band combination. When *dl-1024QAM-ScalingFactor* and *dl-1024QAM-TotalWeightedLayers* are included, the UE supports 1024QAM in a set of CCs in a band combination if the CCs belong to bands indicated to support 1024QAM in that band combination and the 1024QAM processing capability condition as specified in equation 4.3.5.31-1 in TS 36.306 [5] is satisfied. | | - | |
| ***dl-1024QAM-ScalingFactor***  Indicates scaling factor for processing a CC configured with 1024QAM with respect to a CC not configured with 1024QAM as described in 4.3.5.31 in TS 36.306 [5]. Value *v1* indicates 1, value *v1dot2* indicates 1.2 and value *v1dot25* indicates 1.25. | | - | |
| ***dl-1024QAM-TotalWeightedLayers***  Indicates total number of weighted layers the UE can process for 1024QAM as described in 4.3.5.31 in TS 36.306 [5]. Actual value = (10 + indicated value x 2), i.e., value 0 indicates 10 layers, value 1 indicates 12 layers and so on. | | - | |
| ***dl-1024QAM-Slot***  Indicates whether the UE supports 1024QAM in DL on the band for slot TTI operation. | | - | |
| ***dl-1024QAM-SubslotTA-1***  Indicates whether the UE supports 1024QAM in DL on the band for subslot TTI operation with TA set 1. | | - | |
| ***dl-1024QAM-SubslotTA-2***  Indicates whether the UE supports 1024QAM in DL on the band for subslot TTI operation with TA set 2, dmrsBasedSPDCCH-nonMBSFN | | - | |
| ***dl-ChannelQualityReporting***  Indicates whether UE operating in CE mode supports aperiodic DL channel quality reporting in RRC\_CONNECTED. | | - | |
| ***dl-DedicatedMessageSegmentation***  Indicates whether the UE supports reception of segmented DL RRC messages. | | - | |
| ***dmrs-BasedSPDCCH-MBSFN***  Indicates whether the UE supports sDCI monitoring in DMRS based SPDCCH for MBSFN subframe. If UE supports this, it also provides the corresponding DMRS based SPDCCH capability in *min-Proc-TimelineSubslot.* | | - | |
| ***dmrs-BasedSPDCCH-nonMBSFN***  Indicates whether the UE supports sDCI monitoring in DMRS based SPDCCH for non-MBSFN subframe. If UE supports this, it also provides the corresponding DMRS based SPDCCH capability in *min-Proc-TimelineSubslot.* | | - | |
| ***dmrs-Enhancements (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates for a particular transmission mode, that for the concerned band combination the DMRS enhancements are different than the value indicated by field *dmrs-Enhancements* in *MIMO-UE-ParametersPerTM*. | | - | |
| ***dmrs-Enhancements (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode whether the UE supports DMRS enhancements for the indicated transmission mode. | | TBD | |
| ***dmrs-LessUpPTS***  Indicates whether the UE supports not to transmit DMRS for PUSCH in UpPTS. | | No | |
| ***dmrs-OverheadReduction***  Indicates whether the UE supports OCC4 for rank 3 and 4 transmission as specified in clause 5.3.3.1.5C of TS 36.212 [22]. | | - | |
| ***dmrs-PositionPattern***  Indicates whether the UE supports uplink DMRS position pattern 'D D D' in subslot #5 with application of the 1/6 as the TBS scaling factor. | | - | |
| ***dmrs-RepetitionSubslotPDSCH***  Indicates whether the UE supports back-to-back 3/4-layer DMRS reception in two consecutive subslots across subframe boundary for subslot-PDSCH. | | - | |
| ***dmrs-SharingSubslotPDSCH***  Indicates whether the UE supports DMRS sharing in two consecutive subslots across subframe boundary for subslot-PDSCH. | | - | |
| ***dormantSCellState***  Indicates whether UE supports Dormant SCell state (i.e. SCell state with CQI and RRM measurement reporting but no PDCCH monitoring). | | | - |
| ***downlinkLAA***  Presence of the field indicates that the UE supports downlink LAA operation including identification of downlink transmissions on LAA cell(s) for full downlink subframes, decoding of common downlink control signalling on LAA cell(s), CSI feedback for LAA cell(s), RRM measurements on LAA cell(s) based on CRS-based DRS. | | - | |
| ***drb-TypeSCG***  Indicates whether the UE supports SCG bearer. | | - | |
| ***drb-TypeSplit***  Indicates whether the UE supports split bearer except for PDCP data transfer in UL. | | - | |
| ***dtm***  Indicates whether the UE supports DTM in GERAN. | | - | |
| ***earlyData-UP***  Indicates whether the UE supports UP-EDT when connected to EPC. | | | - |
| ***earlyData-UP-5GC***  Indicates whether the UE supports UP-EDT when connected to 5GC. | | | - |
| ***earlySecurityReactivation***  Indicates whether the UE supports early security reactivation when resuming a suspended RRC connection. | | | - |
| ***e-CSFB-1XRTT***  Indicates whether the UE supports enhanced CS fallback to CDMA2000 1xRTT or not. | | Yes | |
| ***e-CSFB-ConcPS-Mob1XRTT***  Indicates whether the UE supports concurrent enhanced CS fallback to CDMA2000 1xRTT and PS handover/ redirection to CDMA2000 HRPD. | | Yes | |
| ***e-CSFB-dual-1XRTT***  Indicates whether the UE supports enhanced CS fallback to CDMA2000 1xRTT for dual Rx/Tx configuration. This bit can only be set to supported if *tx-Config1XRTT* and *rx-Config1XRTT* are both set to dual. | | Yes | |
| ***e-HARQ-Pattern-FDD***  Indicates whether the UE supports enhanced HARQ pattern for TTI bundling operation for FDD. | | Yes | |
| ***eLCID-Support***  Indicates whether the UE supports LCID "10000" and MAC PDU subheader containing the eLCID field as described in TS 36.321 [6]. | | - | |
| ***emptyUnicastRegion***  Indicates whether the UE supports unicast reception in subframes with empty unicast control region as described in TS 36.213 [23] clause 12. This field can be included only if *unicast-fembmsMixedSCell* and *crossCarrierScheduling* are included. | | No | |
| ***en-DC***  Indicates whether the UE supports EN-DC. | | - | |
| ***endingDwPTS***  Indicates whether the UE supports reception ending with a subframe occupied for a DwPTS-duration as described in TS 36.211 [21] and TS 36.213 [23]. This field can be included only if *downlinkLAA* is included. | | - | |
| ***Enhanced-4TxCodebook***  Indicates whether the UE supports enhanced 4Tx codebook*.* | | No | |
| ***enhancedDualLayerTDD***  Indicates whether the UE supports enhanced dual layer (PDSCH transmission mode 8) for TDD or not. | | - | |
| ***ePDCCH***  Indicates whether the UE can receive DCI on UE specific search space on Enhanced PDCCH. | | Yes | |
| ***epdcch-SPT-differentCells***  Indicates whether the UE supports EPDCCH and short processing time on different serving cells. | | - | |
| ***epdcch-STTI-differentCells***  Indicates whether the UE supports EPDCCH and sTTI on different serving cells. | | - | |
| ***e-RedirectionUTRA*** | | Yes | |
| ***e-RedirectionUTRA-TDD***  Indicates whether the UE supports enhanced redirection to UTRA TDD to multiple carrier frequencies both with and without using related SIB provided by *RRCConnectionRelease* or not. | | Yes | |
| ***eutra-5GC***  Indicates whether the UE supports E-UTRA/5GC. | | Yes | |
| ***eutra-5GC-HO-ToNR-FDD-FR1***  Indicates whether the UE supports handover from E-UTRA/5GC to NR FDD FR1. | | Yes | |
| ***eutra-5GC-HO-ToNR-TDD-FR1***  Indicates whether the UE supports handover from E-UTRA/5GC to NR TDD FR1. | | Yes | |
| ***eutra-5GC-HO-ToNR-FDD-FR2***  Indicates whether the UE supports handover from E-UTRA/5GC to NR FDD FR2. | | Yes | |
| ***eutra-5GC-HO-ToNR-TDD-FR2***  Indicates whether the UE supports handover from E-UTRA/5GC to NR TDD FR2. | | Yes | |
| ***eutra-CGI-Reporting-ENDC***  Indicates whether the UE supports Intra-RAT report CGI procedure when it is configured with (NG) EN-DC wherein either MN and SN have different DRX cycles, or on-duration configured by MN does not contain on-duration configured by SN if their DRX cycles are same. | | | Yes |
| ***eutra-EPC-HO-ToNR-FDD-FR1***  Indicates whether the UE supports handover from E-UTRA/EPC to NR FDD FR1. | | Yes | |
| ***eutra-EPC-HO-ToNR-TDD-FR1***  Indicates whether the UE supports handover from E-UTRA/EPC to NR TDD FR1. | | Yes | |
| ***eutra-EPC-HO-ToNR-FDD-FR2***  Indicates whether the UE supports handover from E-UTRA/EPC to NR FDD FR2. | | Yes | |
| ***eutra-EPC-HO-ToNR-TDD-FR2***  Indicates whether the UE supports handover from E-UTRA/EPC to NR TDD FR2. | | Yes | |
| ***eutra-EPC-HO-EUTRA-5GC***  Indicates whether the UE supports handover between E-UTRA/EPC and E-UTRA/5GC. | | Yes | |
| ***eutra-SI-AcquisitionForHO-ENDC***  Indicates whether the UE supports, upon configuration of *si-RequestForHO* by the network, acquisition of relevant information from a neighbouring E-UTRA cell by reading the SI of the neighbouring cell using autonomous gaps and reporting the acquired information to the network. | | Yes | |
| ***eventB2***  Indicates whether the UE supports event B2. A UE supporting NR SA operation shall set this bit to *supported*. | | - | |
| ***extendedFreqPriorities***  Indicates whether the UE supports extended E-UTRA frequency priorities indicated by *cellReselectionSubPriority* field. A UE supporting NR SA operation shall set this bit to *supported*. | | - | |
| ***extendedLCID-Duplication***  Indicates whether the UE supports use of extended LCIDs 32-38 for PDCP duplication. | | - | |
| ***extendedLongDRX***  Indicates whether the UE supports extended long DRX cycle values of 5.12s and 10.24s in RRC\_CONNECTED. | | - | |
| ***extendedMAC-LengthField***  Indicates whether the UE supports the MAC header with L field of size 16 bits as specified in TS 36.321 [6], clause 6.2.1. | | - | |
| ***extendedMaxMeasId***  Indicates whether the UE supports extended number of measurement identies as defined by *maxMeasId-r12*. | | No | |
| ***extendedMaxObjectId***  Indicates whether the UE supports extended number of measurement object identies as defined by *maxObjectId-r13*. | | No | |
| ***extendedNumberOfDRBs***  Indicates whether the UE supports up to 15 DRBs. The UE shall support any combination of RLC AM and RLC UM entities for the configured DRBs. | | | - |
| ***extendedPollByte***  Indicates whether the UE supports extended pollByte values as defined by *pollByte-r14*. | | - | |
| ***extended-RLC-LI-Field***  Indicates whether the UE supports 15 bit RLC length indicator. | | - | |
| ***extendedRLC-SN-SO-Field***  Indicates whether the UE supports 16 bits of RLC sequence number and segmentation offset. | | - | |
| ***extendedRSRQ-LowerRange***  Indicates whether the UE supports the extended RSRQ lower value range from -34dB to -19.5dB in measurement configuration and reporting as specified in TS 36.133 [16]. | | No | |
| ***fdd-HARQ-TimingTDD***  Indicates whether UE supports FDD HARQ timing for TDD SCell when configured with TDD PCell. | | Yes | |
| ***featureGroupIndicators, featureGroupIndRel9Add, featureGroupIndRel10***  The definitions of the bits in the bit string are described in Annex B.1 (for *featureGroupIndicators* and *featureGroupIndRel9Add*) and in Annex C.1 (for *featureGroupIndRel10*). | | Yes | |
| ***featureSetsDL-PerCC***  In MR-DC, indicates a set of features that the UE supports on one component carrier in a bandwidth class for a band in a given band combination. The UE shall hence include at least as many *FeatureSetDL-PerCC-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. 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 *FeatureSetDL-PerCC-Id* in this list. | | - | |
| ***FeatureSetDL-PerCC-Id***  In MR-DC, indicates the index position of the *FeatureSetDL-PerCC-r15* in the *featureSetsDL-PerCC-r15* list. Value 0 corresponds to the first element in the list, value 1 corresponds to the second element in the list, and so on. Value 32 is not used. | | - | |
| ***featureSetsUL-PerCC***  In MR-DC, indicates a set of features that the UE supports on one component carrier in a bandwidth class for a band in a given band combination. The UE shall hence include at least as many *FeatureSetUL-PerCC-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 *FeatureSetDownlinkPerCC-Id* in the feature set. 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 *FeatureSetUL-PerCC-Id* in this list. | | - | |
| ***FeatureSetUL-PerCC-Id***  In MR-DC, indicates the index position of the *FeatureSetUL-PerCC-r15* in the *featureSetsUL-PerCC-r15* list. Value 0 corresponds to the first element in the list, value 1 corresponds to the second element in the list, and so on. Value 32 is not used. | | - | |
| ***fembmsMixedCell***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception with 15 kHz subcarrier spacings via MBSFN from FeMBMS/Unicast mixed cells on a frequency indicated in an *MBMSInterestIndication* message. | |  | |
| ***fembmsDedicatedCell***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception with 15 kHz subcarrier spacings via MBSFN from MBMS-dedicated cells on a frequency indicated in an *MBMSInterestIndication* message. | |  | |
| ***flexibleUM-AM-Combinations***  Indicates whether the UE supports any combination of RLC UM and RLC AM bearers as long as the total number of bearers is at most 8, regardless of what FGI20 indicates. | | | - |
| ***flightPathPlan***  Indicates whether UE supports reporting of flight path plan information. | | | - |
| ***fourLayerTM3-TM4***  Indicates whether the UE supports 4-layer spatial multiplexing for TM3 and TM4. | | - | |
| ***fourLayerTM3-TM4 (in FeatureSetDL-PerCC)***  Indicates whether the UE supports 4-layer spatial multiplexing for TM3 and TM4 for MR-DC within the indicated feature set. If this field is absent, UE supports two layer MIMO for TM3/TM4. | | - | |
| ***fourLayerTM3-TM4-perCC***  Indicates whether the UE supports 4-layer spatial multiplexing for TM3 and TM4 for the component carrier. | | - | |
| ***frameStructureType-SPT***  This field indicates the supported FS-type(s) for short processing time. The UE capability is reported per band combination. The reported FS-type(s) apply to the reported *maxNumberCCs-SPT-r15* for the given band combination. | | - | |
| ***freqBandPriorityAdjustment***  Indicates whether the UE supports the prioritization of frequency bands in *multiBandInfoList* over the band in *freqBandIndicator* as defined by *freqBandIndicatorPriority-r12*. | | - | |
| ***freqBandRetrieval***  Indicates whether the UE supports reception of *requestedFrequencyBands.* | | - | |
| ***halfDuplex***  If *halfDuplex* is set to true, only half duplex operation is supported for the band, otherwise full duplex operation is supported. | | - | |
| ***heightMeas***  Indicates whether UE supports the measurement events H1/H2. | | - | |
| ***ho-EUTRA-5GC-FDD-TDD***  Indicates whether the UE supports handover between E-UTRA/5GC FDD and E-UTRA/5GC TDD. | | No | |
| ***ho-InterfreqEUTRA-5GC***  Indicates whether the UE supports inter frequency handover within E-UTRA/5GC. | | Yes | |
| ***hybridCSI***  Indicates whether the UE supports hybrid CSI transmission as described in TS 36.213 [23]. | | FFS | |
| ***immMeasBT***  Indicates whether the UE supports Bluetooth measurements in RRC connected mode. | | - | |
| ***immMeasWLAN***  Indicates whether the UE supports WLAN measurements in RRC connected mode. | | - | |
| ***ims-VoiceOverMCG-BearerEUTRA-5GC***  Indicates whether the UE supports IMS voice over NR PDCP for MCG bearer for E-UTRA/5GC. | | No | |
| ***ims-VoiceOverNR-FR1***  Indicates whether the UE supports IMS voice over NR FR1. | | No | |
| ***ims-VoiceOverNR-FR2***  Indicates whether the UE supports IMS voice over NR FR2. | | No | |
| ***inactiveState***  Indicates whether the UE supports RRC\_INACTIVE. | | No | |
| ***incMonEUTRA***  Indicates whether the UE supports increased number of E-UTRA carrier monitoring in RRC\_IDLE and RRC\_CONNECTED, as specified in TS 36.133 [16]. | | No | |
| ***incMonUTRA***  Indicates whether the UE supports increased number of UTRA carrier monitoring in RRC\_IDLE and RRC\_CONNECTED, as specified in TS 36.133 [16]. | | No | |
| ***inDeviceCoexInd***  Indicates whether the UE supports in-device coexistence indication as well as autonomous denial functionality. | | Yes | |
| ***inDeviceCoexInd-ENDC***  Indicates whether the UE supports in-device coexistence indication for (NG)EN-DC operation. This field can be included only if *inDeviceCoexInd* is included. The UE supports *inDeviceCoexInd-ENDC* in the same duplexing modes as it supports *inDeviceCoexInd*. | | - | |
| ***inDeviceCoexInd-HardwareSharingInd***  Indicates whether the UE supports indicating hardware sharing problems when sending the *InDeviceCoexIndication*, as well as omitting the TDM assistance information. A UE that supports hardware sharing indication shall also indicate support of LAA operation. | | - | |
| ***inDeviceCoexInd-UL-CA***  Indicates whether the UE supports UL CA related in-device coexistence indication. This field can be included only if *inDeviceCoexInd* is included. The UE supports *inDeviceCoexInd-UL-CA* in the same duplexing modes as it supports *inDeviceCoexInd*. | | - | |
| ***interBandTDD-CA-WithDifferentConfig***  Indicates whether the UE supports inter-band TDD carrier aggregation with different UL/DL configuration combinations. The first bit indicates UE supports the configuration combination of SCell DL subframes are a subset of PCell and PSCell by SIB1 configuration and the configuration combination of SCell DL subframes are a superset of PCell and PSCell by SIB1 configuration; the second bit indicates UE supports the configuration combination of SCell DL subframes are neither superset nor subset of PCell and PSCell by SIB1 configuration. This field is included only if UE supports inter-band TDD carrier aggregation. | | - | |
| ***interferenceMeasRestriction***  Indicates whether the UE supports interference measurement restriction. | | TBD | |
| ***interFreqBandList***  One entry corresponding to each supported E‑UTRA band listed in the same order as in *supportedBandListEUTRA*. | | - | |
| ***interFreqNeedForGaps***  Indicates need for measurement gaps when operating on the E‑UTRA band given by the entry in *bandListEUTRA* or on the E-UTRA band combination given by the entry in *bandCombinationListEUTRA* and measuring on the E‑UTRA band given by the entry in *interFreqBandList*. | | - | |
| ***interFreqProximityIndication***  Indicates whether the UE supports proximity indication for inter-frequency E-UTRAN CSG member cells*.* | | - | |
| ***interFreqRSTD-Measurement***  Indicates whether the UE supports inter-frequency RSTD measurements for OTDOA positioning, as specified in TS 36.355 [54]. | | Yes | |
| ***interFreqSI-AcquisitionForHO***  Indicates whether the UE supports, upon configuration of si-RequestForHO by the network, acquisition and reporting of relevant information using autonomous gaps by reading the SI from a neighbouring inter-frequency cell. | | Yes | |
| ***interRAT-BandList***  One entry corresponding to each supported band of another RAT listed in the same order as in the *interRAT-Parameters*. The NR bands reported in *SupportedBandListNR* are excluded from this list. | | - | |
| ***interRAT-NeedForGaps***  Indicates need for DL measurement gaps when operating on the E‑UTRA band given by the entry in *bandListEUTRA or on the E-UTRA band combination given by the entry in bandCombinationListEUTRA* and measuring on the inter-RAT band given by the entry in the *interRAT-BandList*. | | - | |
| ***interRAT-ParametersWLAN***  Indicates whether the UE supports WLAN measurements configured by *MeasObjectWLAN* with corresponding quantity and report configuration in the supported WLAN bands. | | - | |
| ***interRAT-PS-HO-ToGERAN***  Indicates whether the UE supports inter-RAT PS handover to GERAN or not. | | Yes | |
| ***intraBandContiguousCC-InfoList***  Indicates, per serving carrier of which the corresponding bandwidth class includes multiple serving carriers (i.e. bandwidth class B, C, D and so on), the maximum number of supported layers for spatial multiplexing in DL and the maximum number of CSI processes supported. The number of entries is equal to the number of component carriers in the corresponding bandwidth class. The UE shall support the setting indicated in each entry of the list regardless of the order of entries in the list.The UE shall include the field only if it supports 4-layer spatial multiplexing in transmission mode3/4 for a subset of component carriers in the corresponding bandwidth class, or if the maximum number of supported layers for at least one component carrier is higher than *supportedMIMO-CapabilityDL-r10* in the corresponding bandwidth class, or if the number of CSI processes for at least one component carrier is higher than *supportedCSI-Proc-r11* in the corresponding band.  This field may also be included for bandwidth class A but in such a case without including any sub-fields in *IntraBandContiguousCC-Info-r12* (see NOTE 6). | | - | |
| ***intraFreqA3-CE-ModeA***  Indicates whether the UE when operating in CE Mode A supports *eventA3* for intra-frequency neighbouring cells. | | - | |
| ***intraFreqA3-CE-ModeB***  Indicates whether the UE when operating in CE Mode B supports *eventA3* for intra-frequency neighbouring cells. | | - | |
| ***intraFreq-CE-NeedForGaps***  Indicates need for measurement gaps when operating in CE on the E‑UTRA band given by the entry in *supportedBandListEUTRA.* | |  | |
| ***intraFreqHO-CE-ModeA***  Indicates whether the UE when operating in CE Mode A supports intra-frequency handover. | | - | |
| ***intraFreqHO-CE-ModeB***  Indicates whether the UE when operating in CE Mode B supports intra-frequency handover. | | - | |
| ***intraFreqProximityIndication***  Indicates whether the UE supports proximity indication for intra-frequency E-UTRAN CSG member cells. | | - | |
| ***intraFreqSI-AcquisitionForHO***  Indicates whether the UE supports, upon configuration of si-RequestForHO by the network, acquisition and reporting of relevant information using autonomous gaps by reading the SI from a neighbouring intra-frequency cell. | | Yes | |
| ***k-Max (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates for a particular transmission mode the maximum number of NZP CSI RS resource configurations supported within a CSI process applicable for the concerned band combination. | | No | |
| ***k-Max (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode the maximum number of NZP CSI RS resource configurations supported within a CSI process applicable for band combinations for which the concerned capabilities are not signalled. | | TBD | |
| ***laa-PUSCH-Mode1***  Indicates whether the UE supports LAA PUSCH mode 1as defined in TS 36.213 [23]. | | - | |
| ***laa-PUSCH-Mode2***  Indicates whether the UE supports LAA PUSCH mode 2as defined in TS 36.213 [23]*.* | | - | |
| ***laa-PUSCH-Mode3***  Indicates whether the UE supports LAA PUSCH mode 3as defined in TS 36.213 [23]*.* | | - | |
| ***locationReport***  Indicates whether the UE supports reporting of its geographical location information to eNB. | | - | |
| ***loggedMBSFNMeasurements***  Indicates whether the UE supports logged measurements for MBSFN. A UE indicating support for logged measurements for MBSFN shall also indicate support for logged measurements in Idle mode. | | - | |
| ***loggedMeasBT***  Indicates whether the UE supports Bluetooth measurements in RRC idle mode. | | - | |
| ***loggedMeasurementsIdle***  Indicates whether the UE supports logged measurements in Idle mode. | | - | |
| ***loggedMeasWLAN***  Indicates whether the UE supports WLAN measurements in RRC idle mode. | | - | |
| ***logicalChannelSR-ProhibitTimer***  Indicates whether the UE supports the *logicalChannelSR-ProhibitTimer* as defined in TS 36.321 [6]. | | - | |
| ***longDRX-Command***  Indicates whether the UE supports Long DRX Command MAC Control Element. | | - | |
| ***lwa***  Indicates whether the UE supports LTE-WLAN Aggregation (LWA). The UE which supports LWA shall also indicate support of *interRAT-ParametersWLAN-r13*. | | - | |
| ***lwa-BufferSize***  Indicates whether the UE supports the layer 2 buffer sizes for "with support for split bearers" as defined in Table 4.1-3 and 4.1A-3 of TS 36.306 [5] for LWA. | | - | |
| ***lwa-HO-WithoutWT-Change***  Indicates whether the UE supports handover where LWA configuration is retained without WT change and using LWA end-marker for PDCP key change indication for LWA operation. | | - | |
| ***lwa-RLC-UM***  Indicates whether the UE supports RLC UM for LWA bearer. | | - | |
| ***lwa-SplitBearer***  Indicates whether the UE supports the split LWA bearer (as defined in TS 36.300 [9]). | | - | |
| ***lwa-UL***  Indicates whether the UE supports UL transmission over WLAN for LWA bearer. | | - | |
| ***lwip***  Indicates whether the UE supports LTE/WLAN Radio Level Integration with IPsec Tunnel (LWIP). The UE which supports LWIP shall also indicate support of *interRAT-ParametersWLAN-r13*. | | - | |
| ***lwip-Aggregation-DL, lwip-Aggregation-UL***  Indicates whether the UE supports aggregation of LTE and WLAN over DL/UL LWIP. The UE that indicates support of LWIP aggregation over DL or UL shall also indicate support of *lwip*. | | - | |
| ***makeBeforeBreak***  Indicates whether the UE supports intra-frequency Make-Before-Break handover, and whether the UE which indicates *dc-Parameters* supports intra-frequency Make-Before-Break SeNB change, as defined in TS 36.300 [9]. | | - | |
| ***maximumCCsRetrieval***  Indicates whether UE supports reception of *requestedMaxCCsDL* and *requestedMaxCCsUL*. | | - | |
| ***maxLayersMIMO-Indication***  Indicates whether the UE supports the network configuration of *maxLayersMIMO*. If the UE supports *fourLayerTM3-TM4* or *intraBandContiguousCC-InfoList* or *FeatureSetDL-PerCC* for MR-DC, UE supports the configuration of *maxLayersMIMO* for these cases regardless of indicating *maxLayersMIMO-Indication*. | | - | |
| ***maxLayersSlotOrSubslotPUSCH***  Indicates the maxiumum number of layers for slot-PUSCH or subslot-PUSCH transmission. | | - | |
| ***maxNumberCCs-SPT***  Indicates the maximum number of supported CCs for short processing time. The UE capability is reported per band combination. The reported number of carriers applies to all the FS-type(s) *frameStructureType-SPT-r15* supported in a given band combination. Absence of the field indicates that 0 number of CCs are supported for short processing time. | | - | |
| ***maxNumberDL-CCs, maxNumberUL-CCs***  Indicates for each TTI combination "sTTI-SupportedCombinations", the maximum number of supported DL CCs/UL CCs for short TTI. Absence of the field indicates that 0 number of CCs are supported for short TTI. | | - | |
| ***maxNumberDecoding***  Indicates the maximum number of blind decodes in UE-specific search space per UE in one subframe for CA with more than 5 CCs as defined in TS 36.213 [23] which is supported by the UE. The number of blind decodes supported by the UE is the field value \* 32. Only values 5 to 32 can be used in this version of the specification. | | No | |
| ***maxNumberROHC-ContextSessions***  Set to the maximum number of concurrently active ROHC contexts supported by the UE, excluding context sessions that leave all headers uncompressed. cs2 corresponds with 2 (context sessions), cs4 corresponds with 4 and so on. The network ignores this field if the UE supports none of the ROHC profiles in *supportedROHC-Profiles*. If the UE indicates both *maxNumberROHC-ContextSessions* and *maxNumberROHC-ContextSessions-r14*, same value shall be indicated. | | - | |
| ***maxNumberUpdatedCSI-Proc, maxNumberUpdatedCSI-Proc-SPT***  Indicates the maximum number of CSI processes to be updated across CCs. | | No | |
| ***maxNumberUpdatedCSI-Proc-STTI-Comb77, maxNumberUpdatedCSI-Proc-STTI-Comb27, maxNumberUpdatedCSI-Proc-STTI-Comb22-Set1, maxNumberUpdatedCSI-Proc-STTI-Comb22-Set2***  Indicates the maximum number of CSI processes to be updated across CCs. Comb77 is applicable for {slot, slot}, Comb27 for {subslot, slot}, Comb22-Set1 for  {subslot, subslot} processing timeline set 1 and the Comb22-Set2 for {subslot, subslot} processing timeline set 2. | |  | |
| ***mbms-AsyncDC***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception via MRB on a frequency indicated in an *MBMSInterestIndication* message, where (according to *supportedBandCombination*) the carriers that are or can be configured as serving cells in the MCG and the SCG are not synchronized. If this field is included, the UE shall also include *mbms-SCell* and *mbms-NonServingCell*. The field indicates that the UE supports the feature for xDD if *mbms-SCell* and *mbms-NonServingCell* are supported for xDD. | | - | |
| ***mbms-MaxBW***  Indicates maximum supported bandwidth (T) for MBMS reception, see TS 36.213 [23]. clause 11.1. If the value is set to *implicitValue*, the corresponding value of T is calculated as specified in TS 36.213 [23], clause 11.1. If the value is set to *explicitValue*, the actual value of T = *explicitValue* \* 40 MHz. | | - | |
| ***mbms-NonServingCell***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception via MRB on a frequency indicated in an *MBMSInterestIndication* message, where (according to *supportedBandCombination* and to network synchronization properties) a serving cell may be additionally configured. If this field is included, the UE shall also include the *mbms-SCell* field. | | Yes | |
| ***mbms-ScalingFactor1dot25, mbms-ScalingFactor7dot5***  Indicates parameter A(1.25 / A(7.5, i.e., scaling factor for processing one unit of bandwidth corresponding to subcarrier spacing of 1.25 kHz / 7.5 kHz, with respect to one unit of bandwidth corresponding to subcarrier spacing of 15 kHz. See TS 36.213 [23], clause 11.1. This field is included only if *subcarrierSpacingMBMS-khz1dot25 / subcarrierSpacingMBMS-khz7dot5* is included. This field shall be included if *mbms-MaxBW* and *subcarrierSpacingMBMS-khz1dot25 / subcarrierSpacingMBMS-khz7dot5* are included. | | - | |
| ***mbms-ScalingFactor0dot37, mbms-ScalingFactor2dot5***  Presence of *mbms-ScalingFactor0dot37* / *mbms-ScalingFactor2dot5* indicates that UE supports subcarrier spacing of 0.37 kHz / 2.5 kHz, for MBSFN subframes as defined in TS 36.211 [21], clause 6.12. The value of the field indicates parameter A(0.37 / A(2..5, i.e., scaling factor for processing one unit of bandwidth corresponding to subcarrier spacing of 0.37 kHz / 2.5 kHz, with respect to one unit of bandwidth corresponding to subcarrier spacing of 15 kHz. See TS 36.213 [23], clause 11.1. This field is included only if *fembmsMixedCell* or *fembmsDedicatedCell* is included. | | - | |
| ***mbms-SCell***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception via MRB on a frequency indicated in an *MBMSInterestIndication* message, when an SCell is configured on that frequency (regardless of whether the SCell is activated or deactivated). | | Yes | |
| ***measurementEnhancements***  This field defines whether UE supports measurement enhancements in high speed scenario (350 km/h) as specified in TS 36.133 [16]. | | - | |
| ***measurementEnhancements2***  This field defines whether UE supports measurement enhancements in high speed scenario (up to 500 km/h velocity) as specified in TS 36.133 [16]. | | - | |
| ***measurementEnhancementsSCell***  This field defines whether UE supports SCell measurement enhancements in high speed scenario (350 km/h) as specified in TS 36.133 [16]. | | - | |
| ***measGapPatterns***  Indicates whether the UE that supports NR supports gap patterns 4 to 11 in LTE standalone as specified in TS 36.133 [16], and for independent measurement gap configuration on FR1 and per-UE gap in (NG)EN-DC as specified in TS 38.133 [84]. The first/ leftmost bit covers pattern 4, and so on. Value 1 indicates that the UE supports the concerned gap pattern. | | - | |
| ***mfbi-UTRA***  It indicates if the UE supports the signalling requirements of multiple radio frequency bands in a UTRA FDD cell, as defined in TS 25.307 [65]. | | - | |
| ***MIMO-BeamformedCapabilityList***  A list of pairs of {k-Max, n-MaxList} values with the nth entry indicating the values that the UE supports for each CSI process in case n CSI processes would be configured. | | No | |
| ***MIMO-CapabilityDL***  The number of supported layers for spatial multiplexing in DL. The field may be absent for category 0 and category 1 UE in which case the number of supported layers is 1. | | - | |
| ***MIMO-CapabilityUL***  The number of supported layers for spatial multiplexing in UL. Absence of the field means that the number of supported layers is 1. | | - | |
| ***MIMO-CA-ParametersPerBoBC***  A set of MIMO parameters provided per band of a band combination. In case a subfield is absent, the concerned capabilities are the same as indicated at the per UE level (i.e. by MIMO-UE-ParametersPerTM). | | - | |
| ***mimo-CBSR-AdvancedCSI***  Indicates whether UE supports CBSR for advanced CSI reporting with and without amplitude restriction as defined in TS 36.213 [23], clause 7.2. | | | - |
| ***min-Proc-TimelineSubslot***  Minimum processing timeline for subslot operation. The minimum processing timeline can belong to one of two sets of associated processing and maximum TA operation. The sets supported can be different for 1os CRS-based SPDCCH, 2os CRS-based SPDCCH and DMRS-based SPDCCH. The sequence applies to:  1. 1os CRS based SPDCCH  2. 2os CRS based SPDCCH  3. DMRS based SPDCCH | | - | |
| ***modifiedMPR-Behavior***  Field encoded as a bit map, where at least one bit N is set to "1" if UE supports modified MPR/A-MPR behaviour N, see TS 36.101 [42]. All remaining bits of the field are set to "0". The leading / leftmost bit (bit 0) corresponds to modified MPR/A-MPR behaviour 0, the next bit corresponds to modified MPR/A-MPR behaviour 1 and so on.  Absence of this field means that UE does not support any modified MPR/A-MPR behaviour. | | - | |
| ***multiACK-CSI-reporting***  Indicates whether the UE supports multi-cell HARQ ACK and periodic CSI reporting and SR on PUCCH format 3. | | Yes | |
| ***multiBandInfoReport***  Indicates whether the UE supports the acquisition and reporting of multi band information for *reportCGI*. | | - | |
| ***multiClusterPUSCH-WithinCC*** | | Yes | |
| ***multiNS-Pmax***  Indicates whether the UE supports the mechanisms defined for cells broadcasting *NS-PmaxList*. | | - | |
| ***multipleCellsMeasExtension***  Indicates whether the UE supports numberOfTriggeringCells in the report configuration. | | | - |
| ***multipleTimingAdvance***  Indicates whether the UE supports multiple timing advances for each band combination listed in *supportedBandCombination*. If the band combination comprised of more than one band entry (i.e., inter-band or intra-band non-contiguous band combination), the field indicates that the same or different timing advances on different band entries are supported. If the band combination comprised of one band entry (i.e., intra-band contiguous band combination), the field indicates that the same or different timing advances across component carriers of the band entry are supported. | | - | |
| ***multipleUplinkSPS***  Indicates whether the UE supports multiple uplink SPS and reporting SPS assistance information. A UE indicating *multipleUplinkSPS* shall also support V2X communication via Uu, as defined in TS 36.300 [9]. | | - | |
| ***must-CapabilityPerBand***  Indicates that UE supports MUST, as specified in 36.212 [22], clause 5.3.3.1, on the band in the band combination. | | - | |
| ***must-TM234-UpTo2Tx-r14***  Indicates that the UE supports MUST operation for TM2/3/4 using up to 2Tx. | | - | |
| ***must-TM89-UpToOneInterferingLayer-r14***  Indicates that the UE supports MUST operation for TM8/9 with assistance information for up to 1 interfering layer. | | - | |
| ***must-TM89-UpToThreeInterferingLayers-r14***  Indicates that the UE supports MUST operation for TM8/9 with assistance information for up to 3 interfering layers. | | - | |
| ***must-TM10-UpToOneInterferingLayer-r14***  Indicates that the UE supports MUST operation for TM10 with assistance information for up to 1 interfering layer. | | - | |
| ***must-TM10-UpToThreeInterferingLayers-r14***  Indicates that the UE supports MUST operation for TM10 with assistance information for up to 3 interfering layers. | | - | |
| ***naics-Capability-List***  Indicates that UE supports NAICS, i.e. receiving assistance information from serving cell and using it to cancel or suppress interference of neighbouring cell(s) for at least one band combination. If not present, UE does not support NAICS for any band combination. The field *numberOfNAICS-CapableCC* indicates the number of component carriers where the NAICS processing is supported and the field *numberOfAggregatedPRB* indicates the maximum aggregated bandwidth across these of component carriers (expressed as a number of PRBs) with the restriction that NAICS is only supported over the full carrier bandwidth. The UE shall indicate the combination of {*numberOfNAICS-CapableCC, numberOfNAICS-CapableCC*} for every supported *numberOfNAICS-CapableCC*, e.g. if a UE supports {x CC, y PRBs} and {x-n CC, y-m PRBs} where n>=1 and m>=0, the UE shall indicate both.  - For *numberOfNAICS-CapableCC* = 1, UE signals one value for *numberOfAggregatedPRB* from the range {50, 75, 100};  - For *numberOfNAICS-CapableCC* = 2, UE signals one value for *numberOfAggregatedPRB* from the range {50, 75, 100, 125, 150, 175, 200};  - For *numberOfNAICS-CapableCC* = 3, UE signals one value for *numberOfAggregatedPRB* from the range {50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300};  - For *numberOfNAICS-CapableCC* = 4, UE signals one value for *numberOfAggregatedPRB* from the range {50, 100, 150, 200, 250, 300, 350, 400};  - For *numberOfNAICS-CapableCC* = 5, UE signals one value for *numberOfAggregatedPRB* from the range {50, 100, 150, 200, 250, 300, 350, 400, 450, 500}. | | No | |
| ***ncsg***  Indicates whether the UE supports measurement NCSG Pattern Id 0, 1, 2 and 3, as specified in TS 36.133 [16]. If this field is included and the UE supports asynchronous DC, the UE shall support NCSG Pattern Id 0, 1, 2 and 3. If this field is included but the UE does not support asynchronous DC, only NCSG Pattern Id 0 and 1 shall be supported | | No | |
| ***ng-EN-DC***  Indicates whether the UE supports NGEN-DC. | | - | |
| ***n-MaxList (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode the maximum number of NZP CSI RS ports supported within a CSI process applicable for band combinations for which the concerned capabilities are not signalled. For *k-Max* values exceeding 1, the UE shall include the field and signal *k-Max* minus 1 bits. The first bit indicates *n-Max2*, with value 0 indicating 8 and value 1 indicating 16. The second bit indicates *n-Max3*, with value 0 indicating 8 and value 1 indicating 16. The third bit indicates *n-Max4*, with value 0 indicating 8 and value 1 indicating 32. The fourth bit indicates *n-Max5*, with value 0 indicating 16 and value 1 indicating 32. The fifth bit indicates *n-Max6*, with value 0 indicating 16 and value 1 indicating 32. The sixt bit indicates *n-Max7*, with value 0 indicating 16 and value 1 indicating 32. The seventh bit indicates *n-Max8*, with value 0 indicating 16 and value 1 indicating 64. | | TBD | |
| ***n-MaxList (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates for a particular transmission mode the maximum number of NZP CSI RS ports supported within a CSI process applicable for band the concerned combination. Further details are as indicated for *n-MaxList* in *MIMO-UE-ParametersPerTM*. | | No | |
| ***NonContiguousUL-RA-WithinCC-List***  One entry corresponding to each supported E-UTRA band listed in the same order as in *supportedBandListEUTRA*. | | No | |
| ***nonPrecoded (in MIMO-UE-ParametersPerTM)***  Indicates for a particular transmission mode the UE capabilities concerning non-precoded EBF/ FD-MIMO operation (class A) for band combinations for which the concerned capabilities are not signalled in *MIMO-CA-ParametersPerBoBCPerTM*, and the FD-MIMO processing capability condition as described in NOTE 8 is satisfied. | | TBD | |
| ***nonPrecoded (in MIMO-CA-ParametersPerBoBCPerTM)***  If signalled, the field indicates for a particular transmission mode, the UE capabilities concerning non-precoded EBF/ FD-MIMO operation (class A) applicable for the concerned band combination. | | - | |
| ***nonUniformGap***  Indicates whether the UE supports measurement non uniform Pattern Id 1, 2, 3 and 4 in LTE standalone as specified in TS 36.133 [16]. | | No | |
| ***noResourceRestrictionForTTIBundling***  Indicate whether the UE supports TTI bundling operation without resource allocation restriction. | | No | |
| ***nonCSG-SI-Reporting***  Indicates whether UE will report PLMN list from non-CSG cells. | | - | |
| ***nr-AutonomousGaps-ENDC-FR1***  Indicates whether the UE supports, upon configuration of *useAutonomousGapsNR* by the network, acquisition of relevant information from a neighbouring NR cell by reading the SI of the neighbouring cell on FR1 using autonomous gaps and reporting the acquired information to the network when it is configured with (NG)EN-DC. | | Yes | |
| ***nr-AutonomousGaps-ENDC-FR2***  Indicates whether the UE supports, upon configuration of *useAutonomousGapsNR* by the network, acquisition of relevant information from a neighbouring NR cell by reading the SI of the neighbouring cell on FR2 using autonomous gaps and reporting the acquired information to the network when it is configured with (NG)EN-DC. | | Yes | |
| ***nr-AutonomousGaps-FR1***  Indicates whether the UE supports, upon configuration of *useAutonomousGapsNR* by the network, acquisition of relevant information from a neighbouring NR cell by reading the SI of the neighbouring cell on FR1 using autonomous gaps and reporting the acquired information to the network when it is not configured with (NG)EN-DC. | | Yes | |
| ***nr-AutonomousGaps-FR2***  Indicates whether the UE supports, upon configuration of *useAutonomousGapsNR* by the network, acquisition of relevant information from a neighbouring NR cell by reading the SI of the neighbouring cell on FR2 using autonomous gaps and reporting the acquired information to the network when it is not configured with (NG)EN-DC. | | Yes | |
| ***nr-HO-ToEN-DC***  Indicates whether the UE supports inter-RAT handover from NR to EN-DC while NR-DC or NE-DC is not configured. This field is mandatory present if EN-DC is supported. | | - | |
| ***numberOfBlindDecodesUSS***  Indicates the maximum number of blind decodes in UE specific search space in one subframe for CCs configured with sTTI operation supported by the UE. The number of blind decodes supported by the UE is the field value X\*68. Field value ranges from 4 to 32. | | - | |
| ***otdoa-UE-Assisted***  Indicates whether the UE supports UE-assisted OTDOA positioning, as specified in TS 36.355 [54]. | | Yes | |
| ***outOfOrderDelivery***  Same as "*outOfOrderDelivery*" defined in TS 38.306 [87]. | | No | |
| ***outOfSequenceGrantHandling***  Indicates whether the UE supports PUSCH transmissions with out of sequence UL grants as defined in TS 36.213 [23]. This field can be included only if uplinkLAA is included. | | - | |
| ***overheatingInd***  Indicates whether the UE supports overheating assistance information. | | No | |
| ***pdcch-CandidateReductions***  Indicates whether the UE supports PDCCH candidate reduction on UE specific search space as specified in TS 36.213 [23], clause 9.1.1. | | No | |
| ***pdcp-Duplication***  Indicates whether the UE supports PDCP duplication. | | - | |
| ***pdcp-SN-Extension***  Indicates whether the UE supports 15 bit length of PDCP sequence number. | | - | |
| ***pdcp-SN-Extension-18bits***  Indicates whether the UE supports 18 bit length of PDCP sequence number. | | - | |
| ***pdcp-TransferSplitUL***  Indicates whether the UE supports PDCP data transfer split in UL for the *drb-TypeSplit* as specified in TS 36.323 [8]. | | - | |
| ***pdsch-CollisionHandling***  Indicates whether the UE supports PDSCH collision handling as specified in TS 36.213 [23]. | | No | |
| ***pdsch-RepSubframe***  Indicates whether the UE supports subframe PDSCH repetition. | | - | |
| ***pdsch-RepSlot***  Indicates whether the UE supports slot PDSCH repetition. | | - | |
| ***pdsch-RepSubslot***  Indicates whether the UE supports subslot PDSCH repetition. This field is only applicable for UEs supporting FDD. | | - | |
| ***pdsch-SlotSubslotPDSCH-Decoding***  Indicates whether the UE supports decoding of PDSCH and slot-PDSCH/subslot-PDSCH assigned with C-RNTI/SPS C-RNTI in the same subframe for a given carrier. | | - | |
| ***perServingCellMeasurementGap***  Indicates whether the UE supports per serving cell measurement gap indication, as specified in TS 36.133 [16]. | | - | |
| ***phy-TDD-ReConfig-FDD-PCell***  Indicates whether the UE supports TDD UL/DL reconfiguration for TDD serving cell(s) via monitoring PDCCH with eIMTA-RNTI on a FDD PCell, and HARQ feedback according to UL and DL HARQ reference configurations. This bit can only be set to supported only if the UE supports FDD PCell and *phy-TDD-ReConfig-TDD-PCell* is set to supported. | | No | |
| ***phy-TDD-ReConfig-TDD-PCell***  Indicates whether the UE supports TDD UL/DL reconfiguration for TDD serving cell(s) via monitoring PDCCH with eIMTA-RNTI on a TDD PCell, and HARQ feedback according to UL and DL HARQ reference configurations, and PUCCH format 3. | | Yes | |
| ***pmi-Disabling*** | | Yes | |
| ***powerClass-14dBm***  Indicates whether the UE supports power class 14 dBm when operating in CE mode A or B for all the bands that are supported by the UE, as specified in TS 36.101 [42]. | | | - |
| ***powerPrefInd***  Indicates whether the UE supports power preference indication. | | No | |
| ***powerUCI-SlotPUSCH, powerUCI-SubslotPUSCH***  Indicates whether the UE supports BPRE derivation based on the actual derived O\_CQI. The parameter *uplinkPower-CSIPayload* configures the UE to derive BPRE based on either the actual value of O\_CQI or the largest value of O\_CQI across all RI values. If the UE does not support the capability, the UE will derive BPRE based on the largest value of O\_CQI across all RI values. | | - | |
| ***prach-Enhancements***  This field defines whether the UE supports random access preambles generated from restricted set type B in high speed scenoario as specified in TS 36.211 [21]. | | - | |
| ***processingTimelineSet***  Indicates, for each SPDCCH configuration, support for a set of TA values. Each set consists of two different processing timelines and associated maximum TA. Set 1 indicates support for n+4 and n+6 and set 2 indicates support for n+6 and n+8, see TS 36.211 [21], clause 8.1, The minimum processing timeline to use, out of the two options for a given set is configured by parameter *proc-Timeline*. Support of Set 1 implicitly means support of Set 2. | | - | |
| ***pucch-Format4***  Indicates whether the UE supports PUCCH format 4. | | Yes | |
| ***pucch-Format5***  Indicates whether the UE supports PUCCH format 5. | | Yes | |
| ***pucch-SCell***  Indicates whether the UE supports PUCCH on SCell. | | No | |
| ***pur-CP-EPC/ pur-CP-5GC***  Indicates whether UE supports CP transmission using PUR when connected to EPC/ 5GC. | | - | |
| ***pur-UP-EPC/ pur-UP-5GC***  Indicates whether UE supports UP transmission using PUR when connected to EPC/ 5GC. | | - | |
| ***pusch-Enhancements***  Indicates whether the UE supports the PUSCH enhancement mode as specified in TS 36.211 [21] and TS 36.213 [23]. | | Yes | |
| ***pusch-FeedbackMode***  Indicates whether the UE supports PUSCH feedback mode 3-2. | | No | |
| ***pusch-SPS-MaxConfigSlot***  Indicates the max number of SPS configurations across all cells for slot PUSCH. | | - | |
| ***pusch-SPS-MultiConfigSlot***  Indicates the number of multiple SPS configurations of slot PUSCH for each serving cell. | | - | |
| ***pusch-SPS-MaxConfigSubframe***  Indicates the max number of SPS configurations across all cells for subframe PUSCH. | | - | |
| ***pusch-SPS-MultiConfigSubframe***  Indicates the number of multiple SPS configurations of subframe PUSCH for each serving cell. | | - | |
| ***pusch-SPS-MaxConfigSubslot***  Indicates the max number of SPS configurations across all cells for subslot PUSCH. | | - | |
| ***pusch-SPS-MultiConfigSubslot***  Indicates the number of multiple SPS configurations of subslot PUSCH for each serving cell. This field is only applicable for UEs supporting FDD. | | - | |
| ***pusch-SPS-SlotRepPCell***  Indicates whether the UE supports SPS repetition for slot PUSCH for PCell. | | - | |
| ***pusch-SPS-SlotRepPSCell***  Indicates whether the UE supports SPS repetition for slot PUSCH for PSCell. | | - | |
| ***pusch-SPS-SlotRepSCell***  Indicates whether the UE supports SPS repetition for slot PUSCH for serving cells other than SpCell. | | - | |
| ***pusch-SPS-SubframeRepPCell***  Indicates whether the UE supports SPS repetition for subframe PUSCH for PCell. | | - | |
| ***pusch-SPS-SubframeRepPSCell***  Indicates whether the UE supports SPS repetition for subframe PUSCH for PSCell. | | - | |
| ***pusch-SPS-SubframeRepSCell***  Indicates whether the UE supports SPS repetition for subframe PUSCH for serving cells other than SpCell. | | - | |
| ***pusch-SPS-SubslotRepPCell***  Indicates whether the UE supports SPS repetition for subslot PUSCH for PCell. This field is only applicable for UEs supporting FDD. | | - | |
| ***pusch-SPS-SubslotRepPSCell***  Indicates whether the UE supports SPS repetition for subslot PUSCH for PSCell. This field is only applicable for UEs supporting FDD. | | - | |
| ***pusch-SPS-SubslotRepSCell***  Indicates whether the UE supports SPS repetition for subslot PUSCH for serving cells other than SpCell. This field is only applicable for UEs supporting FDD. | | - | |
| ***pusch-SRS-PowerControl-SubframeSet***  Indicates whether the UE supports subframe set dependent UL power control for PUSCH and SRS. This field is only applicable for UEs supporting TDD. | | Yes | |
| ***qcl-CRI-BasedCSI-Reporting***  Indicates whether the UE supports CRI based CSI feedback for the FeCoMP feature as specified in TS 36.213 [23], clause 7.1.10. | | - | |
| ***qcl-TypeC-Operation***  The UE uses this field to indicate the support of all of the following three features: QCL Type-C operation for FeCoMP, the capability to support separate PDSCH RE mapping for different PDSCH CWs in non-coherent joint transmission and the capability to support handling new DMRS port to MIMO layer mapping for the CWs, as specified in TS 36.213 [23], clause 7.1.10. | | - | |
| ***qoe-MeasReport***  Indicates whether the UE supports QoE Measurement Collection for streaming services. | | - | |
| ***qoe-MTSI-MeasReport***  Indicates whether the UE supports QoE Measurement Collection for MTSI services. | |  | |
| ***rach-Less***  Indicates whether the UE supports RACH-less handover, and whether the UE which indicates *dc-Parameters* supports RACH-less SeNB change, as defined in TS 36.300 [9]. | | - | |
| ***rach-Report***  Indicates whether the UE supports delivery of *rach-Report.* | | - | |
| ***rai-Support***  Defines whether the UE supports release assistance indication (RAI) as specified in TS 36.321 [6] for BL UEs. | | No | |
| ***rai-SupportEnh***  Indicates whether the UE supports 2-bit RAI when connected to EPC as specified in TS 36.321 [6]. | | - | |
| ***rclwi***  Indicates whether the UE supports RCLWI, i.e. reception of *rclwi-Configuration*. The UE which supports RLCWI shall also indicate support of *interRAT-ParametersWLAN-r13*. The UE which supports RCLWI and *wlan-IW-RAN-Rules* shall also support applying WLAN identifiers received in *rclwi-Configuration* for the access network selection and traffic steering rules when in RRC\_IDLE. | | - | |
| ***recommendedBitRate***  Indicates whether the UE supports the bit rate recommendation message from the eNB to the UE as specified in TS 36.321 [6], clause 6.1.3.13*.* | | No | |
| ***recommendedBitRateMultiplier***  Indicates whether the UE supports the bit rate multiplier for recommended bit rate MAC CE as specified in TS 36.321 [6], clause 6.1.3.13. If this field is included, the UE shall also include the *recommendedBitRate* field. | | - | |
| ***recommendedBitRateQuery***  Indicates whether the UE supports the bit rate recommendation query message from the UE to the eNB as specified in TS 36.321 [6], clause 6.1.3.13. If this field is included, the UE shall also include the *recommendedBitRate* field. | | No | |
| ***reducedCP-Latency***  Indicates whether the UE supports reduced CP latency. | | Yes | |
| ***reducedIntNonContComb***  Indicates whether the UE supports receiving *requestReducedIntNonContComb* that requests the UE to exclude supported intra-band non-contiguous CA band combinations other than included in capability signalling as specified in TS 36.306 [5], clause 4.3.5.21. | | - | |
| ***reducedIntNonContCombRequested***  Indicates that the UE excluded supported intra-band non-contiguous CA band combinations other than included in capability signalling as specified in TS 36.306 [5,] clause 4.3.5.21. | | - | |
| ***reflectiveQoS***  Indicates whether the UE supports AS reflective QoS. | | No | |
| ***relWeightTwoLayers/ relWeightFourLayers/ relWeightEightLayers***  Indicates relative weight of processing FD-MIMO with 2/ 4/ 8 layers with respect to non-FD-MIMO with the same number of layers, see NOTE 8. Value v1 corresponds to relative weight of 1, value v1dot25 corresponds to relative weight of 1.25 and so on. This field can be included only if the UE supports the corresponding number of layers (i.e., 2/ 4/ 8 layers). | | - | |
| ***reportCGI-NR-EN-DC***  Indicates whether the UE supports Inter-RAT report CGI procedure towards NR cell when it is configured with (NG)EN-DC. | | | Yes |
| ***reportCGI-NR-NoEN-DC***  Indicates whether the UE supports Inter-RAT report CGI procedure towards NR cell when it is not configured with (NG)EN-DC. | | | Yes |
| ***srs-CapabilityPerBandPairList***  Indicates, for a particular pair of bands, the SRS carrier switching parameters when switching between the band pair to transmit SRS on a PUSCH-less SCell as specified in TS 36.212 [22] and TS 36.213 [23]. If included, the UE shall include a number of entries as indicated in the following, and listed in the same order, as in *bandParameterList* for the concerned band combination:  - For the first band, the UE shall include the same number of entries as in *bandParameterList* i.e. first entry corresponds to first band in *bandParameterList* and so on,  - For the second band, the UE shall include one entry less i.e. first entry corresponds to the second band in *bandParameterList* and so on  - And so on. | | - | |
| ***requestedBands***  Indicates the frequency bands requested by E-UTRAN. | | - | |
| ***requestedCCsDL, requestedCCsUL***  Indicates the maximum number of CCs requested by E-UTRAN. | | - | |
| ***requestedDiffFallbackCombList***  Indicates the CA band combinations for which report of different UE capabilities is requested by E-UTRAN. | | - | |
| ***rf-RetuningTimeDL***  Indicates the interruption time on DL reception within a band pair during the RF retuning for switching between the band pair to transmit SRS on a PUSCH-less SCell. n0 represents 0 OFDM symbols, n0dot5 represents 0.5 OFDM symbols, n1 represents 1 OFDM symbol and so on. This field is mandatory present if switching between the band pair is supported. | | - | |
| ***rf-RetuningTimeUL***  Indicates the interruption time on UL transmission within a band pair during the RF retuning for switching between the band pair to transmit SRS on a PUSCH-less SCell. n0 represents 0 OFDM symbols, n0dot5 represents 0.5 OFDM symbols, n1 represents 1 OFDM symbol and so on. This field is mandatory present if switching between the band pair is supported. | | - | |
| ***rlc-AM-Ooo-Delivery***  Indicates whether the UE supports out-of-order delivery from RLC to PDCP for RLC AM*.* | | - | |
| ***rlc-UM-Ooo-Delivery***  Indicates whether the UE supports out-of-order delivery from RLC to PDCP for RLC UM*.* | | - | |
| ***rlm-ReportSupport***  Indicates whether the UE supports RLM event and information reporting. | | - | |
| ***rohc-ContextContinue***  Same as "*continueROHC-Context*" defined in TS 38.306 [87]. | | No | |
| ***rohc-ContextMaxSessions***  Same as "*maxNumberROHC-ContextSessions*" defined in TS 38.306 [87]. | | No | |
| ***rohc-Profiles***  Same as "*supportedROHC-Profiles*" defined in TS 38.306 [87]. | | No | |
| ***rohc-ProfilesUL-Only***  Same as "*uplinkOnlyROHC-Profiles*" defined in TS 38.306 [87]. | | No | |
| ***rsrqMeasWideband***  Indicates whether the UE can perform RSRQ measurements with wider bandwidth. | | Yes | |
| ***rsrq-OnAllSymbols***  Indicates whether the UE can perform RSRQ measurement on all OFDM symbols and also support the extended RSRQ upper value range from -3dB to 2.5dB in measurement configuration and reporting as specified in TS 36.133 [16]. | | No | |
| ***rs-SINR-Meas***  Indicates whether the UE can perform RS-SINR measurements in RRC\_CONNECTED as specified in TS 36.214 [48]. | | - | |
| ***rssi-AndChannelOccupancyReporting***  Indicates whether the UE supports performing measurements and reporting of RSSI and channel occupancy. This field can be included only if *downlinkLAA* is included. | | - | |
| ***sa-NR***  Indicates whether the UE supports standalone NR as specified in TS 38.331 [82]. | | No | |
| ***scptm-AsyncDC***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception via SC-MRB on a frequency indicated in an *MBMSInterestIndication* message, where (according to *supportedBandCombination*) the carriers that are or can be configured as serving cells in the MCG and the SCG are not synchronized. If this field is included, the UE shall also include *scptm-SCell* and *scptm-NonServingCell*. | | Yes | |
| ***scptm-NonServingCell***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception via SC-MRB on a frequency indicated in an *MBMSInterestIndication* message, where (according to *supportedBandCombination* and to network synchronization properties) a serving cell may be additionally configured. If this field is included, the UE shall also include the *scptm-SCell* field. | | Yes | |
| ***scptm-Parameters***  Presence of the field indicates that the UE supports SC-PTM reception as specified in TS 36.306 [5]. | | Yes | |
| ***scptm-SCell***  Indicates whether the UE in RRC\_CONNECTED supports MBMS reception via SC-MRB on a frequency indicated in an *MBMSInterestIndication* message, when an SCell is configured on that frequency (regardless of whether the SCell is activated or deactivated). | | Yes | |
| ***scptm-ParallelReception***  Indicates whether the UE in RRC\_CONNECTED supports parallel reception in the same subframe of DL-SCH transport blocks transmitted using C-RNTI/Semi-Persistent Scheduling C-RNTI and using SC-RNTI/G-RNTI as specified in TS 36.306 [5]. | | Yes | |
| ***secondSlotStartingPosition***  Indicates whether the UE supports reception of subframes with second slot starting position as described in TS 36.211 [21] and TS 36.213 [23]. This field can be included only if *downlinkLAA* is included. | | - | |
| ***semiOL***  Indicates whether the UE supports semi-open-loop transmission for the indicated transmission mode. | | FFS | |
| ***semiStaticCFI***  Indicates whether the UE supports the semi-static configuration of CFI for subframe/slot/sub-slot operation. | | - | |
| ***semiStaticCFI-Pattern***  Indicates whether the UE supports the semi-static configuration of CFI pattern for subframe/slot/sub-slot operation. This field is only applicable for UEs supporting TDD. | | - | |
| ***shortCQI-ForSCellActivation***  Indicates whether the UE supports additional CQI reporting periodicity after SCell activation. | | - | |
| ***shortMeasurementGap*** Indicates whether the UE supports shorter measurement gap length (i.e. *gp2* and *gp3*) in LTE standalone as specified in TS 36.133 [16], and for independent measurement gap configuration on FR1 and per-UE gap in (NG)EN-DC as specified in TS38.133 [84]. | | No | |
| ***shortSPS-IntervalFDD***  Indicates whether the UE supports uplink SPS intervals shorter than 10 subframes in FDD mode. | | - | |
| ***shortSPS-IntervalTDD***  Indicates whether the UE supports uplink SPS intervals shorter than 10 subframes in TDD mode. | | - | |
| ***simultaneousPUCCH-PUSCH***  Indicates whether the UE supports simultaneous transmission of PUSCH/PUCCH and SlotOrSubslotPUSCH/SPUCCH (if supported). | | Yes | |
| ***simultaneousRx-Tx***  Indicates whether the UE supports simultaneous reception and transmission on different bands for each band combination listed in *supportedBandCombination*. This field is only applicable for inter-band TDD band combinations. A UE indicating support of *simultaneousRx-Tx* and *dc-Support-r12* shall support different UL/DL configurations between PCell and PSCell. | | - | |
| ***simultaneousTx-DifferentTx-Duration***  Indicates whether the UE supports simultaneous transmission of different transmission durations over different carriers. The different transmission durations can be of subframe, slot or subslot duration. | | - | |
| ***skipFallbackCombinations***  Indicates whether UE supports receiving reception of *requestSkipFallbackComb* that requests UE to exclude fallback band combinations from capability signalling. | | - | |
| ***skipFallbackCombRequested***  Indicates whether *requestSkipFallbackComb* is requested by E-UTRAN. | | - | |
| ***skipMonitoringDCI-Format0-1A***  Indicates whether UE supports blind decoding reduction on UE specific search space by not monitoring DCI Format 0 and 1A as specified in TS 36.213 [23], clause 9.1.1. | | No | |
| ***skipSubframeProcessing***  This fields defines whether the UE supports aborting reception of PDSCH if the UE receives slot-PDSCH/subslot-PDSCH during an ongoing PDSCH reception and instead starts receiving the slot-PDSCH/subslot-PDSCH, as well as whether the UE supports aborting a PUSCH transmission if the UE gets a grant for a slot-PUSCH/ subslot-PUSCH transmission that overlaps with a grant received for a PUSCH transmission. The capability indicates the number of subframes that the UE may drop prior to the subframe in which it prioritizes the processing of slot/subslot PDSCH/PUSCH as described in TS 36.213 [23], clauses 7.1 and 8.0. Separate capability for UL and DL and per sTTI length in each direction*: skipProcessingDL-Slot, skipProcessingDL-Subslot, skipProcessingUL-Slot* and *skipProcessingUL-Subslot.* | | - | |
| ***skipUplinkDynamic***  Indicates whether the UE supports skipping of UL transmission for an uplink grant indicated on PDCCH if no data is available for transmission as described in TS 36.321 [6]. | | - | |
| ***skipUplinkSPS***  Indicates whether the UE supports skipping of UL transmission for a configured uplink grant if no data is available for transmission as described in TS 36.321 [6]. | | - | |
| ***sl-64QAM-Rx***  Indicates whether the UE supports 64QAM for the reception of V2X sidelink communication. | | | - |
| ***sl-64QAM-Tx***  Indicates whether the UE supports 64QAM for the transmission of V2X sidelink communication. | | | - |
| ***sl-CongestionControl***  Indicates whether the UE supports Channel Busy Ratio measurement and reporting of Channel Busy Ratio measurement results to eNB for V2X sidelink communication. | | - | |
| ***sl-LowT2min***  Indicates whether the UE supports 10ms as minimum value of T2 for resource selection procedure of V2X sidelink communication. | | - | |
| ***sl-RateMatchingTBSScaling***  Indicates whether the UE supports rate matching and TBS scalling for V2X sidelink communication. | | - | |
| ***slotPDSCH-TxDiv-TM8***  Indicates whether the UE supports TX diversity transmission using ports 7 and 8 for TM8 for slot PDSCH. | |  | |
| ***slotPDSCH-TxDiv-TM9and10***  Indicates whether the UE supports TX diversity transmission using ports 7 and 8 for TM9/10 for slot PDSCH. | |  | |
| ***slss-SupportedTxFreq***  Indicates whether the UE supports the SLSS transmission on single carrier or on multiple carriers in the case of sidelink carrier aggregation. | | | - |
| ***slss-TxRx***  Indicates whether the UE supports SLSS/PSBCH transmission and reception in UE autonomous resource selection mode and eNB scheduled mode in a band for V2X sidelink communication. | | - | |
| ***sl-TxDiversity***  Indicates whether the UE supports transmit diversity for V2X sidelink communication. See TS 36.101 [42]. | | | - |
| ***sn-SizeLo***  Same as "*shortSN*" defined in TS 38.306 [87]. | | No | |
| ***spatialBundling-HARQ-ACK***  Indicates whether UE supports HARQ-ACK spatial bundling on PUCCH or PUSCH as specified in TS 36.213 [23], clauses 7.3.1 and 7.3.2. | | No | |
| ***spdcch-differentRS-types***  Indicates whether the UE supports monitoring of sPDCCH on RB sets with different RS types within a TTI. | | - | |
| ***spdcch-Reuse***  Indicates whether the UE supports L1 based SPDCCH reuse. | | - | |
| ***sps-CyclicShift***  Indicates whether the UE supports RRC configuration of cyclic shift for DMRS for UL SPS using 1ms TTI. | | - | |
| ***sps-ServingCell***  Indicates whether the UE supports multiple UL/DL SPS configurations simultaneously active on different serving cells as specified in TS 36.321 [6]. | | - | |
| ***sps-STTI***  Indicates whether the UE supports SPS in DL and/or UL for slot or subslot based PDSCH and PUSCH, respectively. | | - | |
| ***srs-DCI7-TriggeringFS2***  Indicates whether the UE supports SRS triggerring via DCI format 7 for FS2. | | - | |
| ***srs-Enhancements***  Indicates whether the UE supports SRS enhancements. | | TBD | |
| ***srs-EnhancementsTDD***  Indicates whether the UE supports TDD specific SRS enhancements. | | Yes | |
| ***srs-FlexibleTiming***  Indicates whether the UE supports configuration of *soundingRS-FlexibleTiming-r14* for the corresponding band pair. For a TDD-TDD band pair, UE shall include at least one of *srs-FlexibleTiming* and/or *srs-HARQ-ReferenceConfig* when *rf-RetuningTimeDL* or *rf-RetuningTimeUL* corresponding to the band pair is larger than 1 OFDM symbol. | | - | |
| ***srs-HARQ-ReferenceConfig***  Indicates whether the UE supports configuration of *harq-ReferenceConfig-r14* for the corresponding band pair. For a TDD-TDD band pair, UE shall include at least one of *srs-FlexibleTiming* and/or *srs-HARQ-ReferenceConfig* when *rf-RetuningTimeDL* or *rf-RetuningTimeUL* corresponding to the band pair is larger than 1 OFDM symbol. | | - | |
| ***srs-MaxSimultaneousCCs***  Indicates the maximum number of simultaneously configurable target CCs for SRS switching (i.e., CCs for which srs-SwitchFromServCellIndex is configured) supported by the UE. | | - | |
| ***srs-UpPTS-6sym***  Indicates whether the UE supports up to 6-symbol SRS in UpPTS. | | - | |
| ***srvcc-FromUTRA-FDD-ToGERAN***  Indicates whether UE supports SRVCC handover from UTRA FDD PS HS to GERAN CS. | | - | |
| ***srvcc-FromUTRA-FDD-ToUTRA-FDD***  Indicates whether UE supports SRVCC handover from UTRA FDD PS HS to UTRA FDD CS. | | - | |
| ***srvcc-FromUTRA-TDD128-ToGERAN***  Indicates whether UE supports SRVCC handover from UTRA TDD 1.28Mcps PS HS to GERAN CS. | | - | |
| ***srvcc-FromUTRA-TDD128-ToUTRA-TDD128***  Indicates whether UE supports SRVCC handover from UTRA TDD 1.28Mcps PS HS to UTRA TDD 1.28Mcps CS. | | - | |
| ***ss-CCH-InterfHandl***  Indicates whether the UE supports synchronisation signal and common channel interference handling. | | Yes | |
| ***ss-SINR-Meas-NR-FR1, ss-SINR-Meas-NR-FR2***  Indicates whether the UE can perform NR SS-SINR measurement for a frequency range (i.e. FR1 or FR2) as specified in TS 38.215 [89]. | | - | |
| ***ssp10-TDD-Only***  Indicates the UE supports special subframe configuration 10 when operating only in TDD carriers (i.e., not in TDD/FDD CA or TDD/FS3 CA). A UE including this field shall not include *tdd-SpecialSubframe-r14*. | | - | |
| ***standaloneGNSS-Location***  Indicates whether the UE is equipped with a standalone GNSS receiver that may be used to provide detailed location information in RRC measurement report and logged measurements. | | - | |
| ***sTTI-SPT-Supported***  Indicates whether the UE supports the features STTI and/or SPT. If the UE supports STTI and/or SPT features, the UE shall report the field *sTTI-SPT-Supported* set to *supported* in capability signalling, irrespective of whether *requestSTTI-SPT-Capability* field is present or not. | | - | |
| ***sTTI-FD-MIMO-Coexistence***  Indicates whether the UE supports CSI feedback for more than 8 NZP CSI-RS ports on subframe based PUSCH in any serving cell and supporting STTI in any serving cell. | | - | |
| ***sTTI-SupportedCombinations***  Indicates the different combinations of short TTI lengths, see field description for *dl-STTI-Length* and *ul-STTI-Length*, that the UE supports in a single PUCCH group or in two PUCCH groups. A short TTI length combination is reported for DL first followed by UL. In case of two PUCCH groups the support for the primary PUCCH group is indicated first. | | - | |
| ***subcarrierSpacingMBMS-khz7dot5, subcarrierSpacingMBMS-khz1dot25***  Indicates the supported subcarrier spacings for MBSFN subframes in addition to 15 kHz subcarrier spacing. *subcarrierSpacingMBMS-khz1dot25* and *subcarrierSpacingMBMS-khz7dot5* indicates that the UE supports 1.25 and 7.5 kHz respectively for MBSFN subframes as described in TS 36.211 [21], clause 6.12. This field is included only if *fembmsMixedCell* or *fembmsDedicatedCell* is included. | | - | |
| ***subslotPDSCH-TxDiv-TM9and10***  Indicates whether the UE supports TX diversity transmission using ports 7 and 8 for TM9/10 for subslot PDSCH. | |  | |
| ***supportedBandCombination***  Includes the supported CA band combinations, if any, and may include all the supported non-CA bands. | | - | |
| ***supportedBandCombinationAdd-r11***  Includes additional supported CA band combinations in case maximum number of CA band combinations of *supportedBandCombination* is exceeded. | | - | |
| ***SupportedBandCombinationAdd-v11d0,*** ***SupportedBandCombinationAdd-v1250,*** ***SupportedBandCombinationAdd-v1270, SupportedBandCombinationAdd-v1320, SupportedBandCombinationAdd-v1380, SupportedBandCombinationAdd-v1390, SupportedBandCombinationAdd-v1430, SupportedBandCombinationAdd-v1450, SupportedBandCombinationAdd-v1470, SupportedBandCombinationAdd-v14b0, SupportedBandCombinationAdd-v1530***  If included, the UE shall include the same number of entries, and listed in the same order, as in *SupportedBandCombinationAdd-r11*. | | - | |
| ***SupportedBandCombinationExt, SupportedBandCombination-v1090, SupportedBandCombination-v10i0, SupportedBandCombination-v1130, SupportedBandCombination-v1250, SupportedBandCombination-v1270, SupportedBandCombination-v1320, SupportedBandCombination-v1380, SupportedBandCombination-v1390, SupportedBandCombination-v1430, SupportedBandCombination-v1450, SupportedBandCombination-v1470, SupportedBandCombination-v14b0, SupportedBandCombination-v1530***  If included, the UE shall include the same number of entries, and listed in the same order, as in *supportedBandCombination-r10*. | | - | |
| ***supportedBandCombinationReduced***  Includes the supported CA band combinations, and may include the fallback CA combinations specified in TS 36.101 [42], clause 4.3A. This field also indicates whether the UE supports reception of *requestReducedFormat*. | | - | |
| ***SupportedBandCombinationReduced-v1320, SupportedBandCombinationReduced-v1380, SupportedBandCombinationReduced-v1390, SupportedBandCombinationReduced-v1430, SupportedBandCombinationReduced-v1450, SupportedBandCombinationReduced-v1470, SupportedBandCombinationReduced-v14b0, SupportedBandCombinationReduced-v1530***  If included, the UE shall include the same number of entries, and listed in the same order, as in *supportedBandCombinationReduced-r13*. | | - | |
| ***SupportedBandGERAN***  GERAN band as defined in TS 45.005 [20]. | | No | |
| ***SupportedBandList1XRTT***  One entry corresponding to each supported CDMA2000 1xRTT band class. | | - | |
| ***SupportedBandListEUTRA***  Includes the supported E-UTRA bands. This field shall include all bands which are indicated in *BandCombinationParameters*. | | - | |
| ***SupportedBandListEUTRA-v9e0, SupportedBandListEUTRA-v1250, SupportedBandListEUTRA-v1310, SupportedBandListEUTRA-v1320***  If included, the UE shall include the same number of entries, and listed in the same order, as in *supportedBandListEUTRA* (i.e. without suffix). | | - | |
| ***SupportedBandListGERAN*** | | No | |
| ***SupportedBandListHRPD***  One entry corresponding to each supported CDMA2000 HRPD band class. | | - | |
| ***SupportedBandListNR-SA***  Includes the NR bands supported by the UE in NR-SA (for handover and redirection). The field is included in case the UE supports NR SA as specified in TS 38.331 [32] and not otherwise. The presence of this field also indicates that the UE can perform both NR SS-RSRP and SS-RSRQ measurement in the included NR band(s) as specified in TS 38.215 [89]. | | No | |
| ***supportedBandListEN-DC***  Includes the NR bands supported by the UE in (NG)EN-DC. The field is included in case the parameter *en-DC* or *ng-EN-DC* is present and set to *supported* and not otherwise. The presence of this field also indicates that the UE can perform both NR SS-RSRP and SS-RSRQ measurement in the included NR band(s) as specified in TS 38.215 [89]. | | - | |
| ***supportedBandListWLAN***  Indicates the supported WLAN bands by the UE. | | - | |
| ***SupportedBandUTRA-FDD***  UTRA band as defined in TS 25.101 [17]. | | - | |
| ***SupportedBandUTRA-TDD128***  UTRA band as defined in TS 25.102 [18]. | | - | |
| ***SupportedBandUTRA-TDD384***  UTRA band as defined in TS 25.102 [18]. | | - | |
| ***SupportedBandUTRA-TDD768***  UTRA band as defined in TS 25.102 [18]. | | - | |
| ***supportedBandwidthCombinationSet***  The *supportedBandwidthCombinationSet* indicated for a band combination is applicable to all bandwidth classes indicated by the UE in this band combination.  Field encoded as a bit map, where bit N is set to "1" if UE support Bandwidth Combination Set N for this band combination, see 36.101 [42]. The leading / leftmost bit (bit 0) corresponds to the Bandwidth Combination Set 0, the next bit corresponds to the Bandwidth Combination Set 1 and so on. The UE shall neither include the field for a non-CA band combination, nor for a CA band combination for which the UE only supports Bandwidth Combination Set 0. | | - | |
| ***supportedCellGrouping***  This field indicates for which mapping of serving cells to cell groups (i.e. MCG or SCG) the UE supports asynchronous DC. This field is only present for a band combination with more than two but less than six band entries where the UE supports asynchronous DC. If this field is not present but asynchronous operation is supported, the UE supports all possible mappings of serving cells to cell groups for the band combination. The bitmap size is selected based on the number of entries in the combinations, i.e., in case of three entries, the bitmap corresponding to *threeEntries* is selected and so on.  A bit in the bit string set to 1 indicates that the UE supports asynchronous DC for the cell grouping option represented by the concerned bit position. Each bit position represents a different cell grouping option, as illustrated by a table, see NOTE 5. A cell grouping option is represented by a number of bits, each representing a particular band entry in the band combination with the left-most bit referring to the band listed first in the band combination, etc. Value 0 indicates that the carriers of the corresponding band entry are mapped to a first cell group, while value 1 indicates that the carriers of the corresponding band entry are mapped to a second cell group.  It is noted that the mapping table does not include entries with all bits set to the same value (0 or 1) as this does not represent a DC scenario (i.e. indicating that the UE supports that all carriers of the corresponding band entry are in one cell group). | | - | |
| ***supportedCSI-Proc, sTTI-SupportedCSI-Proc***  Indicates the maximum number of CSI processes supported on a component carrier within a band. Value n1 corresponds to 1 CSI process, value n3 corresponds to 3 CSI processes, and value n4 corresponds to 4 CSI processes. If this field is included, the UE shall include the same number of entries listed in the same order as in *BandParameters/STTI-SPT-BandParameters*. If the UE supports at least 1 CSI process on any component carrier, then the UE shall include this field in all bands in all band combinations. | | - | |
| ***supportedCSI-Proc (in FeatureSetDL-PerCC)***  In MR-DC, indicates the number of CSI processes for the component carrier in the corresponding bandwidth class. If the UE supports at least 1 CSI process, then the UE shall include this field. | | - | |
| ***supportedMIMO-CapabilityDL-MRDC (in FeatureSetDL-PerCC)***  In MR-DC, indicates the maximum number of supported layers in TM9/10 for the component carrier in the corresponding bandwidth class. | | - | |
| ***supportedNAICS-2CRS-AP***  If included, the UE supports NAICS for the band combination. The UE shall include a bitmap of the same length, and in the same order, as in *naics-Capability-List,* to indicate 2 CRS AP NAICS capability of the band combination. The first/ leftmost bit points to the first entry of *naics-Capability-List*, the second bit points to the second entry of *naics-Capability-List*, and so on.  For band combinations with a single component carrier, UE is only allowed to indicate {*numberOfNAICS-CapableCC*, *numberOfAggregatedPRB*} = {1, 100} if NAICS is supported. | | - | |
| ***supportedOperatorDic***  Indicates whether the UE supports operator defined dictionary. If UE supports operator defined dictionary, the UE shall report *versionOfDictionary* and *associatedPLMN-ID* of the stored operator defined dictionary. This parameter is not required to be present if the UE is in VPLMN. In this release of the specification, UE can only support one operator defined dictionary. The *associatedPLMN-ID* is only associated to the operator defined dictionary which has no relationship with UE's HPLMN ID. | | - | |
| ***supportRohcContextContinue***  Indicates whether the UE supports ROHC context continuation operation where the UE does not reset the current ROHC context upon handover. | | - | |
| ***supportedROHC-Profiles***  Indicates the ROHC profiles that UE supports in both uplink and downlink. | | - | |
| ***supportedUplinkOnlyROHC-Profiles***  Indicates the ROHC profiles that UE supports in uplink and not in downlink, see TS 36.323 [8] | | - | |
| ***supportedStandardDic***  Indicates whether the UE supports standard dictionary for SIP and SDP as specified in TS 36.323 [8]. | | - | |
| ***supportedUDC***  Indicates whether the UE supports UL data compression, see TS 36.323 [8]. | | - | |
| ***tdd-SpecialSubframe***  Indicates whether the UE supports TDD special subframe defined in TS 36.211 [21]. A UE shall indicate *tdd-SpecialSubframe-r11* if it supports the TDD special subframes ssp7 and ssp9. A UE shall indicate *tdd-SpecialSubframe-r14* if it supports the TDD special subframe ssp10, except when *ssp10-TDD-Only-r14* is included. | | Yes | |
| ***tdd-FDD-CA-PCellDuplex***  The presence of this field indicates that the UE supports TDD/FDD CA in any supported band combination including at least one FDD band with *bandParametersUL* and at least one TDD band with *bandParametersUL*. The first bit is set to "1" if UE supports the TDD PCell. The second bit is set to "1" if UE supports FDD PCell. This field is included only if the UE supports band combination including at least one FDD band with *bandParametersUL* and at least one TDD band with *bandParametersUL*. If this field is included, the UE shall set at least one of the bits as "1". If this field is included with DC, then it is applicable within a CG, and the presence of this field indicates the capability of the UE to support TDD/FDD CA with at least one FDD band and at least one TDD band in the same CG, with the value indicating the support for TDD/FDD PCell (PSCell). | | No | |
| ***tdd-TTI-Bundling***  The presence of this field indicates whether the UE supporting TDD special subframe configuration 10 also supports TTI bundling for TDD configuration 2 and 3 when PUSCH transimission in UpPTS is configured, see TS 36.213 [23], clause 8.0. If this field is present, the *tdd-SpecialSubframe-r14* or *ssp10-TDD-Only-r14* shall be present. | | Yes | |
| ***timeReferenceProvision***  Indicates whether the UE supports provision of time reference in *DLInformationTransfer* message. | | - | |
| ***timeSeparationSlot2, timeSeparationSlot4***  Indicates whether the UE supports time staggering length of 2 slots (MBSFN reference signal pattern type 2) / 4 slots (MBSFN reference signal pattern type 1) for MBSFN-RS associated with PMCH with subcarrier spacing of 0.37 kHz for MBSFN subframes as described in TS 36.211 [21], clause 6.10.2.2.4. | | - | |
| ***timerT312***  Indicates whether the UE supports T312. | | No | |
| ***tm5-FDD***  Indicates whether the UE supports the PDSCH transmission mode 5 in FDD. | - | | |
| ***tm5-TDD***  Indicates whether the UE supports the PDSCH transmission mode 5 in TDD. | - | | |
| ***tm6-CE-ModeA***  Indicates whether the UE supports tm6 operation in CE mode A, see TS 36.213 [23], clause 7.2.3. This field can be included only if *ce-ModeA* is included. | | Yes | |
| ***tm8-slotPDSCH***  Indicates whether the UE supports configuration and decoding of TM8 for slot PDSCH in TDD. | | - | |
| ***tm9-CE-ModeA***  Indicates whether the UE supports tm9 operation in CE mode A, see TS 36.213 [23], clause 7.2.3. This field can be included only if *ce-ModeA* is included. | | Yes | |
| ***tm9-CE-ModeB***  Indicates whether the UE supports tm9 operation in CE mode B, see TS 36.213 [23], clause 7.2.3. This field can be included only if *ce-ModeB* is included. | | Yes | |
| ***tm9-LAA***  Indicates whether the UE supports tm9 operation on LAA cell(s). This field can be included only if *downlinkLAA* is included. | | - | |
| ***tm9-slotSubslot***  Indicates whether the UE supports configuration and decoding of TM9 for slot and/or subslot PDSCH for non-MBSFN. | | - | |
| ***tm9-slotSubslotMBSFN***  Indicates whether the UE supports configuration and decoding of TM9 for slot and/or subslot PDSCH for MBSFN. | | - | |
| ***tm9-With-8Tx-FDD***  Indicates whether the UE supports PDSCH transmission mode 9 with 8 CSI reference signal ports for FDD when not operating in CE mode. | | Yes | |
| ***tm10-LAA***  Indicates whether the UE supports tm10 operation on LAA cell(s). This field can be included only if *downlinkLAA* is included. | | - | |
| ***tm10-slotSubslot***  Indicates whether the UE supports configuration and decoding of TM10 for slot and/or subslot PDSCH for non-MBSFN. | | - | |
| ***tm10-slotSubslotMBSFN***  Indicates whether the UE supports configuration and decoding of TM10 for slot and/or subslot PDSCH for MBSFN. | | - | |
| ***totalWeightedLayers***  Indicates total number of weighted layers the UE can process for FD-MIMO. See NOTE 8. | | - | |
| ***twoAntennaPortsForPUCCH*** | | No | |
| ***twoStepSchedulingTimingInfo***  Presence of this field indicates that the UE supports uplink scheduling using PUSCH trigger A and PUSCH trigger B (as defined in TS 36.213 [23]).  This field also indicates the timing between the PUSCH trigger B and the earliest time the UE supports performing the associated UL transmission. For reception of PUSCH trigger B in subframe N, value *nPlus1* indicates that the UE supports performing the UL transmission in subframe N+1, value *nPlus2* indicates that the UE supports performing the UL transmission in subframe N+2, and so on.  This field can be included only if *uplinkLAA* is included. | | - | |
| ***txAntennaSwitchDL, txAntennaSwitchUL***  The presence of *txAntennaSwitchUL* indicates the UE supports transmit antenna selection for this UL band in the band combination as described in TS 36.213 [23], clauses 8.2 and 8.7.  The field *txAntennaSwitchDL* indicates the entry number of the first-listed band with UL in the band combination that affects this DL. The field *txAntennaSwitchUL* indicates the entry number of the first-listed band with UL in the band combination that switches together with this UL. Value 1 means first entry, value 2 means second entry and so on. All DL and UL that switch together indicate the same entry number.  For the case of carrier switching, the antenna switching capability for the target carrier configuration is indicated as follows:  For UE configured with a set of component carriers belonging to a band combination Cbaseline = {b1(1),…,bx(1),…,by(0),…}, where "1/0" denotes whether the corresponding band has an uplink, if a component carrier in bx is to be switched to a component carrier in by (according to *srs-SwitchFromServCellIndex*), the antenna switching capability is derived based on band combination Ctarget = {b1(1),…,bx(0),…,by(1),…}. | | - | |
| ***txDiv-PUCCH1b-ChSelect***  Indicates whether the UE supports transmit diversity for PUCCH format 1b with channel selection. | | Yes | |
| ***txDiv-SPUCCH***  Indicates whether the UE supports Tx diversity on SPUCCH format 1/1a/1b/3. | | - | |
| ***uci-PUSCH-Ext***  Indicates whether the UE supports an extension of UCI delivering more than 22 HARQ-ACK bits on PUSCH as specified in TS 36.212 [22], clause 5.2.2.6 and TS 36.213 [23], clause 8.6.3. | | No | |
| ***ue-AutonomousWithFullSensing***  Indicates whether the UE supports transmitting PSCCH/PSSCH using UE autonomous resource selection mode with full sensing (i.e., continuous channel monitoring) for V2X sidelink communication and the UE supports maximum transmit power associated with Power class 3 V2X UE, see TS 36.101 [42]. | | - | |
| ***ue-AutonomousWithPartialSensing***  Indicates whether the UE supports transmitting PSCCH/PSSCH using UE autonomous resource selection mode with partial sensing (i.e., channel monitoring in a limited set of subframes) for V2X sidelink communication and the UE supports maximum transmit power associated with Power class 3 V2X UE, see TS 36.101 [42]. | | - | |
| ***ue-Category***  UE category as defined in TS 36.306 [5]. Set to values 1 to 12 in this version of the specification. | | - | |
| ***ue-CategoryDL***  UE DL category as defined in TS 36.306 [5]. Value *n17* corresponds to UE category 17, value *m1* corresponds to UE category M1, value *oneBis* corresponds to UE category 1bis, value m2 corresponds to UE category M2. For ASN.1 compatibility, a UE indicating DL category 0, m1 or m2 shall also indicate any of the categories (1..5) in *ue-Category* (without suffix), which is ignored by the eNB, a UE indicating UE category oneBis shall also indicate UE category 1 in *ue-Category* (without suffix), and a UE indicating UE category m2 shall also indicate UE category m1. The field *ue-CategoryDL* is set to values 0, m1, oneBis, m2, 4, 6, 7, 9 to 16, n17, 18, 19, 20, 21, 22, 23, 24, 25, 26 in this version of the specification. | | - | |
| ***ue-CategorySL-C-TX***  UE SL category for V2X transmission as defined in TS 36.306 [5]. Set to values 1 to 5 in this version of the specification. | | | - |
| ***ue-CategorySL-C-RX***  UE SL category for V2X reception as defined in TS 36.306 [5]. Set to values 1 to 4 in this version of the specification. | | | - |
| ***ue-CategoryUL***  UE UL category as defined in TS 36.306 [5]. Value *n14* corresponds to UE category 14, value *n16* corresponds to UE category 16 and so on. Value *m1* corresponds to UE category M1, value *m2* corresponds to UE category M2, value *oneBis* corresponds to UE category 1bis. The field *ue-CategoryUL* is set to values m1, m2, 0, oneBis, 3, 5, 7, 8, 13, n14, 15, n16 to n21 or 22 to 26 in this version of the specification. | | - | |
| ***ue-CA-PowerClass-N***  Indicates whether the UE supports UE power class N in the E-UTRA band combination, see TS 36.101 [42] and TS 36.307 [78]. If *ue-CA-PowerClass-N* is not included, UE supports the default UE power class in the E-UTRA band combination, see TS 36.101 [42]. | | - | |
| ***ue-CE-NeedULGaps***  Indicates whether the UE needs uplink gaps during continuous uplink transmission in FDD as specified in TS 36.211 [21] and TS 36.306 [5]. | | - | |
| ***ue-PowerClass-N, ue-PowerClass-5***  Indicates whether the UE supports UE power class 1, 2, 4 or 5 in the E-UTRA band, see TS 36.101 [42] and TS 36.307 [79]. UE includes either *ue-PowerClass-N* or *ue-PowerClass-5*. If neither *ue-PowerClass-N* nor *ue-PowerClass-5* is included, UE supports the default UE power class in the E-UTRA band, see TS 36.101 [42]. | | - | |
| ***ue-Rx-TxTimeDiffMeasurements***  Indicates whether the UE supports Rx - Tx time difference measurements. | | No | |
| ***ue-SpecificRefSigsSupported*** | | No | |
| ***ue-SSTD-Meas***  Indicates whether the UE supports SSTD measurements between the PCell and the PSCell as specified in TS 36.214 [48] and TS 36.133 [16]. | | - | |
| ***ue-TxAntennaSelectionSupported***  Except for the supported band combinations for which *bandParameterList-v1380* is included, TRUE indicates that the UE is capable of supporting UE transmit antenna selection such that all the supported bands in the band combination are affected by transmit antenna switching, as described in TS 36.213 [23], clause 8.7. E-UTRAN ignores this field for band combinations for which *bandParameterList-v1380* is included. | | Yes | |
| ***ue-TxAntennaSelection-SRS-1T4R***  Indicates whether the UE supports selecting one antenna among four antennas to transmit SRS for the corresponding band of the band combination as described in TS 36.213 [23]. | | - | |
| ***ue-TxAntennaSelection-SRS-2T4R-2Pairs***  Indicates whether the UE supports selecting one antenna pair between two antenna pairs to transmit SRS simultaneously for the corresponding band of the band combination as described in TS 36.213 [23]. | | - | |
| ***ue-TxAntennaSelection-SRS-2T4R-3Pairs***  Indicates whether the UE supports selecting one antenna pair among three antenna pairs to transmit SRS simultaneously for the corresponding band of the band combination as described in TS 36.213 [23]. | | - | |
| ***ul-64QAM***  Indicates whether the UE supports 64QAM in UL on the band. This field is only present when the field ue*-CategoryUL* indicates UL UE category that supports UL 64QAM, see TS 36.306 [5], Table 4.1A-2. If the field is present for one band, the field shall be present for all bands including downlink only bands. | | - | |
| ***ul-256QAM***  Indicates whether the UE supports 256QAM in UL on the band in the band combination. This field is only present when the field ue*-CategoryUL* indicates UL UE category that supports 256QAM in UL, see TS 36.306 [5], Table 4.1A-2. The UE includes this field only if the field *ul-256QAM-perCC-InfoLis*t is not included. | | - | |
| ***ul-256QAM-perCC-InfoList***  Indicates, per serving carrier of which the corresponding bandwidth class includes multiple serving carriers (i.e. bandwidth class B, C, D and so on), whether the UE supports 256QAM in the band combination. The number of entries is equal to the number of component carriers in the corresponding bandwidth class. The UE shall support the setting indicated in each entry of the list regardless of the order of entries in the list. This field is only present when the field *ue-CategoryUL* indicates UL UE category that supports 256QAM in UL, see TS 36.306 [5], Table 4.1A-2. The UE includes this field only if the field *ul-256QAM* is not included. | | - | |
| ***ul-256QAM-Slot***  Indicates whether the UE supports 256QAM in UL for slot TTI operation on the band. | | - | |
| ***ul-256QAM-Subslot***  Indicates whether the UE supports 256QAM in UL for subslot TTI operation on the band. | | - | |
| ***ul-AsyncHarqSharingDiff-TTI-Lengths***  Indicates whether the UE supports UL asynchronous HARQ sharing between different TTI lengths for an UL serving cell. | | - | |
| ***ul-CoMP***  Indicates whether the UE supports UL Coordinated Multi-Point operation. | | No | |
| ***ul-dmrs-Enhancements***  Indicates whether the UE supports UL DMRS enhancements as defined in TS 36.211 [21], clause 6.10.3A. | | FFS | |
| ***ul-PDCP-Delay***  Indicates whether the UE supports UL PDCP Packet Delay per QCI measurement as specified in TS 36.314 [71]. | | - | |
| ***ul-powerControlEnhancements***  Indicates whether UE supports UplinkPowerControlDedicated. | | - | |
| ***uplinkLAA***  Presence of the field indicates that the UE supports uplink LAA operation. | | - | |
| ***uss-BlindDecodingAdjustment***  Indicates whether the UEsupports blind decoding adjustment on UE specific search space as defined in TS 36.213 [22]. This field can be included only if uplinkLAA is included. | | - | |
| ***uss-BlindDecodingReduction***  Indicates whether the UE supports blind decoding reduction on UE specific search space by not monitoring DCI format 0A/0B/4A/4B as defined in TS 36.213 [22]. This field can be included only if uplinkLAA is included. | | - | |
| ***unicastFrequencyHopping***  Indicates whether the UE supports frequency hopping for unicast MPDCCH/PDSCH (configured by *mpdcch-pdsch-HoppingConfig*) and unicast PUSCH (configured by *pusch-HoppingConfig*). | | - | |
| ***unicast-fembmsMixedSCell***  Indicates whether the UE supports unicast reception from FeMBMS/Unicast mixed cell. This field is included only if UE supports carrier aggregation. | | No | |
| ***utra-GERAN-CGI-Reporting-ENDC***  Indicates whether the UE supports Inter-RAT report CGI procedure towards GERAN/UTRA cell when it is configured with (NG)EN-DC wherein either MN and SN have different DRX cycles, or on-duration configured by MN does not contain on-duration configured by SN if their DRX cycles are same. | | | Yes |
| ***utran-ProximityIndication***  Indicates whether the UE supports proximity indication for UTRAN CSG member cells. | | - | |
| ***utran-SI-AcquisitionForHO***  Indicates whether the UE supports, upon configuration of si-RequestForHO by the network, acquisition and reporting of relevant information using autonomous gaps by reading the SI from a neighbouring UMTS cell. | | Yes | |
| ***v2x-BandwidthClassTxSL, v2x-BandwidthClassRxSL***  The bandwidth class for V2X sidelink transmission and reception supported by the UE as defined in TS 36.101 [42], Table 5.6G.1-3.  The UE explicitly includes all the supported bandwidth class combinations for V2X sidelink transmission or reception in the band combination signalling. Support for one bandwidth class does not implicitly indicate support for another bandwidth class. | | - | |
| ***v2x-eNB-Scheduled***  Indicates whether the UE supports transmitting PSCCH/PSSCH using dynamic scheduling, SPS in eNB scheduled mode for V2X sidelink communication, reporting SPS assistance information and the UE supports maximum transmit power associated with Power class 3 V2X UE, see TS 36.101 [42] in a band. | | - | |
| ***v2x-EnhancedHighReception***  Indicates whether the UE supports reception of 30 PSCCH in a subframe and decoding of 204 RBs per subframe counting both PSCCH and PSSCH in a band for V2X sidelink communication. | | | - |
| ***v2x-HighPower***  Indicates whether the UE supports maximum transmit power associated with Power class 2 V2X UE for V2X sidelink transmission in a band, see TS 36.101 [42]. | | - | |
| ***v2x-HighReception***  Indicates whether the UE supports reception of 20 PSCCH in a subframe and decoding of 136 RBs per subframe counting both PSCCH and PSSCH in a band for V2X sidelink communication. | | - | |
| ***v2x-nonAdjacentPSCCH-PSSCH***  Indicates whether the UE supports transmission and reception in the configuration of non-adjacent PSCCH and PSSCH for V2X sidelink communication. | | - | |
| ***v2x-numberTxRxTiming***  Indicates the number of multiple reference TX/RX timings counted over all the configured sidelink carriers for V2X sidelink communication. | | - | |
| ***v2x-SensingReportingMode3***  Indicates whether the UE supports sensing measurements and reporting of measurement results in eNB scheduled mode for V2X sidelink communication. | | - | |
| ***v2x-SupportedBandCombinationList***  Indicates the supported band combination list on which the UE supports simultaneous transmission and/or reception of V2X sidelink communication. | |  | |
| ***v2x-SupportedTxBandCombListPerBC, v2x-SupportedRxBandCombListPerBC***  Indicates, for a particular band combination of EUTRA, the supported band combination list among *v2x-SupportedBandCombinationList* on which the UE supports simultaneous transmission or reception of EUTRA and V2X sidelink communication respectively. The first bit refers to the first entry of *v2x-SupportedBandCombinationList*, with value 1 indicating V2X sidelink transmission/reception is supported. | | - | |
| ***v2x-TxWithShortResvInterval***  Indicates whether the UE supports 20 ms and 50 ms resource reservation periods for UE autonomous resource selection and eNB scheduled resource allocation for V2X sidelink communication. | | - | |
| ***voiceOverPS-HS-UTRA-FDD***  Indicates whether UE supports IMS voice according to GSMA IR.58 profile in UTRA FDD. | | - | |
| ***voiceOverPS-HS-UTRA-TDD128***  Indicates whether UE supports IMS voice in UTRA TDD 1.28Mcps. | | - | |
| ***ims-VoiceOverNR-PDCP-MCG-Bearer***  Indicates whether the UE supports IMS voice over NR PDCP with only MCG RLC bearer. | | Yes | |
| ***ims-VoiceOverNR-PDCP-SCG-Bearer***  Indicates whether the UE supports IMS voice over NR PDCP with only SCG RLC bearer when configured with EN-DC. | | Yes | |
| ***ims-VoNR-PDCP-SCG-NGENDC***  Indicates whether the UE supports IMS voice over NR PDCP with only SCG RLC bearer when configured with NGEN-DC. | | Yes | |
| ***whiteCellList***  Indicates whether the UE supports EUTRA white cell listing to limit the set of cells applicable for measurements. | | - | |
| ***widebandPRG-Slot, widebandPRG-Subslot, widebandPRG-Subframe***  Indicates whether the UE supports wideband precoding resource block group size for slot/subslot/subframe operation as specified in TS 36.213 [23]. | | - | |
| ***wlan-IW-RAN-Rules***  Indicates whether the UE supports RAN-assisted WLAN interworking based on access network selection and traffic steering rules. | | - | |
| ***wlan-IW-ANDSF-Policies***  Indicates whether the UE supports RAN-assisted WLAN interworking based on ANDSF policies. | | - | |
| ***wlan-MAC-Address***  Indicates the WLAN MAC address of this UE. | | - | |
| ***wlan-PeriodicMeas***  Indicates whether the UE supports periodic reporting of WLAN measurements. | | - | |
| ***wlan-ReportAnyWLAN***  Indicates whether the UE supports reporting of WLANs not listed in the *measObjectWLAN*. | | - | |
| ***wlan-SupportedDataRate***  Indicates the maximum WLAN data rate supported by the UE over all LWA bearers. Actual value of supported data rate is field value \* 10 Mbps (i.e., value 1 corresponds to 10 Mbps, value 2 corresponds to 20 Mbps and so on). | | - | |
| ***zp-CSI-RS-AperiodicInfo***  Indicates whether the UE supports aperiodic ZP-CSI-RS transmission for the indicated transmission mode. | | FFS | |

NOTE 1: The IE *UE-EUTRA-Capability* does not include AS security capability information, since these are the same as the security capabilities that are signalled by NAS. Consequently, AS need not provide "man-in-the-middle" protection for the security capabilities.

NOTE 2: The column FDD/ TDD diff indicates if the UE is allowed to signal, as part of the additional capabilities for an XDD mode i.e. within *UE-EUTRA-CapabilityAddXDD-Mode-xNM*, a different value compared to the value signalled elsewhere within *UE-EUTRA-Capability* (i.e. the common value, supported for both XDD modes). A '-' is used to indicate that it is not possible to signal different values (used for fields for which the field description is provided for other reasons). Annex E specifies for which TDD and FDD serving cells a UE supporting TDD/FDD CA shall support a capability for which it indicates support within the capability signalling.

NOTE 2a: From REL-15 onwards, the UE is not allowed to signal different values for FDD and TDD unless yes is indicated in column FDD/ TDD diff (i.e. no need to introduce field description solely for the purpose of indicate no).

NOTE 3: The *BandCombinationParameters* for the same band combination can be included more than once.

NOTE 4: UE CA and measurement capabilities indicate the combinations of frequencies that can be configured as serving frequencies.

NOTE 5: The grouping of the cells to the first and second cell group, as indicated by *supportedCellGrouping*, is shown in the table below. The leading / leftmost bit of *supportedCellGrouping* corresponds to the Bit String Position 1.

|  |  |  |  |
| --- | --- | --- | --- |
| **Nr of Band Entries:** | 5 | 4 | 3 |
| **Length of Bit-String:** | 15 | 7 | 3 |
| **Bit String Position** | **Cell grouping option (0= first cell group, 1= second cell group)** | | |
| 1 | 00001 | 0001 | 001 |
| 2 | 00010 | 0010 | 010 |
| 3 | 00011 | 0011 | 011 |
| 4 | 00100 | 0100 |  |
| 5 | 00101 | 0101 |  |
| 6 | 00110 | 0110 |  |
| 7 | 00111 | 0111 |  |
| 8 | 01000 |  |  |
| 9 | 01001 |  |  |
| 10 | 01010 |  |  |
| 11 | 01011 |  |  |
| 12 | 01100 |  |  |
| 13 | 01101 |  |  |
| 14 | 01110 |  |  |
| 15 | 01111 |  |  |

NOTE 6: UE includes the *intraBandContiguousCC-InfoList-r12* also for bandwidth class A because of the presence conditions in *BandCombinationParameters-v1270*. For example, if UE supports CA\_1A\_41D band combination, if UE includes the field *intraBandContiguousCC-InfoList-r12* for band 41, the UE includes *intraBandContiguousCC-InfoList-r12* also for band 1.

NOTE 7: For a UE that indicates release X in field *accessStratumRelease* but supports a feature specified in release X+ N (i.e. early UE implementation), the ASN.1 comprehension requirement are specified in Annex F.

NOTE 8: For a UE that does not include *mimo-WeightedLayersCapabilities-r13*, or for the case with no CC configured with FD-MIMO, the FD-MIMO processing capability condition is not applicable (i.e. considered as satisfied). For a UE that includes *mimo-WeightedLayersCapabilities-r13*, the FD-MIMO processing capability condition is satisfied if the equation 4.3.28.13-1 in TS 36.306 [5] is satisfied.

6.3.7 MBMS information elements

>Next modified section

– *MBSFN-AreaInfoList*

The IE *MBSFN-AreaInfoList* contains the information required to acquire the MBMS control information associated with one or more MBSFN areas.

***MBSFN-AreaInfoList* information element**

-- ASN1START

MBSFN-AreaInfoList-r9 ::= SEQUENCE (SIZE(1..maxMBSFN-Area)) OF MBSFN-AreaInfo-r9

MBSFN-AreaInfo-r9 ::= SEQUENCE {

mbsfn-AreaId-r9 MBSFN-AreaId-r12,

non-MBSFNregionLength ENUMERATED {s1, s2},

notificationIndicator-r9 INTEGER (0..7),

mcch-Config-r9 SEQUENCE {

mcch-RepetitionPeriod-r9 ENUMERATED {rf32, rf64, rf128, rf256},

mcch-Offset-r9 INTEGER (0..10),

mcch-ModificationPeriod-r9 ENUMERATED {rf512, rf1024},

sf-AllocInfo-r9 BIT STRING (SIZE(6)),

signallingMCS-r9 ENUMERATED {n2, n7, n13, n19}

},

...,

[[ mcch-Config-r14 SEQUENCE {

mcch-RepetitionPeriod-v1430 ENUMERATED {rf1, rf2, rf4, rf8,

rf16 } OPTIONAL, -- Need OR

mcch-ModificationPeriod-v1430 ENUMERATED {rf1, rf2, rf4, rf8, rf16, rf32, rf64, rf128,

rf256, spare7} OPTIONAL -- Need OR

} OPTIONAL, -- Need OR

subcarrierSpacingMBMS-r14 ENUMERATED {kHz7dot5, kHz1dot25} OPTIONAL -- Need OR

]]

}

MBSFN-AreaInfoList-r16 ::= SEQUENCE (SIZE(1..maxMBSFN-Area)) OF MBSFN-AreaInfo-r16

MBSFN-AreaInfo-r16 ::= SEQUENCE {

mbsfn-AreaId-r16 MBSFN-AreaId-r12,

notificationIndicator-r16 INTEGER (0..7),

mcch-Config-r16 SEQUENCE {

mcch-RepetitionPeriod-r16 ENUMERATED {rf1, rf2, rf4, rf8, rf16, rf32, rf64,

rf128, rf256, spare7, spare6, spare5,

spare4, spare3, spare2, spare1},

mcch-ModificationPeriod-r16 ENUMERATED {rf1, rf2, rf4, rf8, rf16, rf32, rf64, rf128,

rf256, rf512, rf1024, spare5, spare4,

spare3,spare2, spare1 },

mcch-Offset-r16 INTEGER (0..10),

sf-AllocInfo-r16 BIT STRING (SIZE(10)),

signallingMCS-r16 ENUMERATED {n2, n7, n13, n19}

},

subcarrierSpacingMBMS-r16 ENUMERATED {kHz7dot5, kHz2dot5, kHz1dot25, kHz0dot37,

spare4, spare3, spare2, spare1},

timeSeparation-r16 ENUMERATED {sl2, sl4} OPTIONAL, -- Need OR

...

}

-- ASN1STOP

| ***MBSFN-AreaInfoList* field descriptions** |
| --- |
| ***mcch-ModificationPeriod***  Defines periodically appearing boundaries, i.e. radio frames for which SFN mod *mcch-ModificationPeriod* = 0. The contents of different transmissions of MCCH information can only be different if there is at least one such boundary in-between them. In case *mcch-ModificationPeriod-v1430* is configured, the UE shall ignore the *mcch-ModificationPeriod-r9*. |
| ***mcch-Offset***  Indicates, together with the *mcch-RepetitionPeriod*, the radio frames in which MCCH is scheduled i.e. MCCH is scheduled in radio frames for which: SFN mod *mcch-RepetitionPeriod* = *mcch-Offset*. |
| ***mcch-RepetitionPeriod***  Defines the interval between transmissions of MCCH information, in radio frames, Value rf32 corresponds to 32 radio frames, rf64 corresponds to 64 radio frames and so on. In case *mcch-RepetitionPeriod-v1430* is configured, the UE shall ignore the *mcch-RepetitionPeriod-r9*. |
| ***non-MBSFNregionLength***  Indicates how many symbols from the beginning of the subframe constitute the non-MBSFN region. This value applies in all subframes of the MBSFN area used for PMCH transmissions as indicated in the MSI. The values s1 and s2 correspond with 1 and 2 symbols, respectively: see TS 36.211 [21], Table 6.7-1. |
| ***notificationIndicator***  Indicates which PDCCH bit is used to notify the UE about change of the MCCH applicable for this MBSFN area. Value 0 corresponds with the least significant bit as defined in TS 36.212 [22], clause 5.3.3.1 and so on. |
| ***sf-AllocInfo-r9***  Indicates the subframes of the radio frames indicated by the *mcch-RepetitionPeriod* and the *mcch-Offset*, that may carry MCCH. Value "1" indicates that the corresponding subframe is allocated. If the bitmap is set to all zeros, the corresponding MBSFN area is considered as not configured.  The following mapping applies:  FDD: The first/ leftmost bit defines the allocation for subframe #1 of the radio frame indicated by *mcch-RepetitionPeriod* and *mcch-Offset*, the second bit for #2, the third bit for #3, the fourth bit for #6, the fifth bit for #7 and the sixth bit for #8.  TDD: The first/leftmost bit defines the allocation for subframe #3 of the radio frame indicated by *mcch-RepetitionPeriod* and *mcch-Offset*, the second bit for #4, third bit for #7, fourth bit for #8, fifth bit for #9. Uplink subframes are not allocated. The last bit is not used. |
| ***sf-AllocInfo-r16***  Indicates the subframes of the radio frames indicated by the *mcch-RepetitionPeriod* and the *mcch-Offset*, that may carry MCCH. Value "1" indicates that the corresponding subframe is allocated. The first/ leftmost bit defines the allocation for subframe #0 of the radio frame indicated by *mcch-RepetitionPeriod* and *mcch-Offset*, the second bit for #1 and so on. |
| ***signallingMCS***  Indicates the MCS applicable for the subframes indicated by the field *sf-AllocInfo* and for each (P)MCH that is configured for this MBSFN area, for the first subframe allocated to the (P)MCH within each MCH scheduling period (which may contain the MCH scheduling information provided by MAC). Value n2 corresponds with the value 2 for parameter in TS 36.213 [23], Table 7.1.7.1-1, and so on. |
| ***subcarrierSpacingMBMS***  The value indicates subcarrier spacing for MBSFN subframes, kHz7dot5 refers to 7.5 kHz subcarrier spacing, kHz2dot5 refers to 2.5 kHz subcarrier spacing and so on as defined in TS 36.211 [21], clause 6.12. These subframes do not have non-MBSFN region. If *subcarrierSpacingMBMS-r14* is present, then *non-MBSFNregionLength* shall be ignored. EUTRAN configures parameter *subcarrierSpacingMBMS* only when the MBSFN subframes have subcarrier spacing other than 15 kHz. If *subcarrierSpacingMBMS* indicates 0.37 kHz subcarrier spacing, the slot as defined in TS 36.211 [21], clause 4.1 is valid only when all the corresponding subframes are configured as MBSFN subframes in this slot. |
| ***timeSeparation***  Indicates the staggering length for MBSFN-RS associated with PMCH as defined in TS 36.211 [21], clause 6.10.2.2.4. Value sl2 refers to staggering length of 2 slots (MBSFN reference signal pattern type 2) and sl4 refers to staggering length of 4 slots (MBSFN reference signal pattern type 1). E-UTRAN always configures this field when *subcarrierSpacingMBMS* indicates 0.37 kHz subcarrier spacing. Othewise the field is not configured. |

10.2.2 Message definitions

– *HandoverPreparationInformation*

This message is used to transfer the E-UTRA RRC information used by the target eNB or target ng-eNB during handover preparation or UE context retrieval, e.g. in case of resume or re-establishment, including UE capability information.

Direction: source eNB/ source RAN to target eNB or target ng-eNB

***HandoverPreparationInformation* message**

-- ASN1START

HandoverPreparationInformation ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE{

handoverPreparationInformation-r8 HandoverPreparationInformation-r8-IEs,

spare7 NULL,

spare6 NULL, spare5 NULL, spare4 NULL,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

HandoverPreparationInformation-r8-IEs ::= SEQUENCE {

ue-RadioAccessCapabilityInfo UE-CapabilityRAT-ContainerList,

as-Config AS-Config OPTIONAL, -- Cond HO

rrm-Config RRM-Config OPTIONAL,

as-Context AS-Context OPTIONAL, -- Cond HO

nonCriticalExtension HandoverPreparationInformation-v920-IEs OPTIONAL

}

HandoverPreparationInformation-v920-IEs ::= SEQUENCE {

ue-ConfigRelease-r9 ENUMERATED {

rel9, rel10, rel11, rel12, v10j0, v11e0,

v1280, rel13, ..., rel14, rel15, rel16} OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v9d0-IEs OPTIONAL

}

HandoverPreparationInformation-v9d0-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING (CONTAINING HandoverPreparationInformation-v9j0-IEs) OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v9e0-IEs OPTIONAL

}

-- Late non-critical extensions:

HandoverPreparationInformation-v9j0-IEs ::= SEQUENCE {

-- Following field is only for pre REL-10 late non-critical extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v10j0-IEs OPTIONAL

}

HandoverPreparationInformation-v10j0-IEs ::= SEQUENCE {

as-Config-v10j0 AS-Config-v10j0 OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v10x0-IEs OPTIONAL

}

HandoverPreparationInformation-v10x0-IEs ::= SEQUENCE {

-- Following field is only for late non-critical extensions from REL-10 to REL-12

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v13c0-IEs OPTIONAL

}

HandoverPreparationInformation-v13c0-IEs ::= SEQUENCE {

as-Config-v13c0 AS-Config-v13c0 OPTIONAL,

-- Following field is only for late non-critical extensions from REL-13

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical extensions:

HandoverPreparationInformation-v9e0-IEs ::= SEQUENCE {

as-Config-v9e0 AS-Config-v9e0 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1130-IEs OPTIONAL

}

HandoverPreparationInformation-v1130-IEs ::= SEQUENCE {

as-Context-v1130 AS-Context-v1130 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1250-IEs OPTIONAL

}

HandoverPreparationInformation-v1250-IEs ::= SEQUENCE {

ue-SupportedEARFCN-r12 ARFCN-ValueEUTRA-r9 OPTIONAL, -- Cond HO3

as-Config-v1250 AS-Config-v1250 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1320-IEs OPTIONAL

}

HandoverPreparationInformation-v1320-IEs ::= SEQUENCE {

as-Config-v1320 AS-Config-v1320 OPTIONAL, -- Cond HO2

as-Context-v1320 AS-Context-v1320 OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1430-IEs OPTIONAL

}

HandoverPreparationInformation-v1430-IEs ::= SEQUENCE {

as-Config-v1430 AS-Config-v1430 OPTIONAL, -- Cond HO2

makeBeforeBreakReq-r14 ENUMERATED {true} OPTIONAL, -- Cond HO2

nonCriticalExtension HandoverPreparationInformation-v1530-IEs OPTIONAL

}

HandoverPreparationInformation-v1530-IEs ::= SEQUENCE {

ran-NotificationAreaInfo-r15 RAN-NotificationAreaInfo-r15 OPTIONAL,

nonCriticalExtension HandoverPreparationInformation-v1540-IEs OPTIONAL

}

HandoverPreparationInformation-v1540-IEs ::= SEQUENCE {

sourceRB-ConfigIntra5GC-r15 OCTET STRING OPTIONAL, --Cond HO4

nonCriticalExtension HandoverPreparationInformation-v16xy-IEs OPTIONAL

}

HandoverPreparationInformation-v16xy-IEs ::= SEQUENCE {

as-Context-v16xy AS-Context-v16xy OPTIONAL, --Cond HO5

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| ***HandoverPreparationInformation* field descriptions** |
| --- |
| ***as-Config***  The radio resource configuration. Applicable in case of intra-E-UTRA handover. If the target receives an incomplete *MeasConfig* and/or *RadioResourceConfigDedicated* in the *as-Config*, the target eNB may decide to apply the full configuration option based on the *ue-ConfigRelease*. |
| ***as-Context***  Local E-UTRAN context required by the target eNB. |
| ***makeBeforeBreakReq***  To request the target eNB to add the *makeBeforeBreak* indication in the *mobilityControlInfo* in case of intra-frequency handover. |
| ***rrm-Config***  Local E-UTRAN context used depending on the target node's implementation, which is mainly used for the RRM purpose. May also be provided at inter-RAT handover from NR. |
| ***sourceRB-ConfigIntra5GC***  NR radio bearer config used at intra5GC handover, as defined by *RadioBearerConfig* IE in TS 38.331 [82]. |
| ***ue-ConfigRelease***  Indicates the RRC protocol release or version applicable for the current UE configuration. This could be used by target eNB to decide if the full configuration approach should be used. If this field is not present, the target assumes that the current UE configuration is based on the release 8 version of RRC protocol. NOTE 1. |
| ***ue-RadioAccessCapabilityInfo***  For E-UTRA radio access capabilities, it is up to E-UTRA how the backward compatibility among *supportedBandCombinationReduced*, *supportedBandCombination* and *supportedBandCombinationAdd* is ensured. If *supportedBandCombinationReduced* and *supportedBandCombination*/*supportedBandCombinationAdd* are included into *ueCapabilityRAT-Container*, it can be assumed that the value of fields, *requestedBands*, *reducedIntNonContCombRequested* and *requestedCCsXL* are consistend with all supported band combination fields. NOTE 2 |
| ***ue-SupportedEARFCN***  Includes UE supported EARFCN of the handover target E-UTRA cell if the target E-UTRA cell belongs to multiple frequency bands. |

NOTE 1: The source typically sets the *ue-ConfigRelease* to the release corresponding with the current dedicated radio configuration. The source may however also consider the common radio resource configuration e.g. in case interoperability problems would appear if the UE temporary continues extensions of this part of the configuration in a target PCell not supporting them.

NOTE 2: The following table indicates per source RAT whether RAT capabilities are included or not.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source RAT** | **E-UTRA capabilites** | **UTRA capabilities** | **GERAN capabilities** | **MR DC capabilities** | **NR capabilities** |
| UTRAN | Included | May be included, ignored by eNB if received | May be included | Excluded | Excluded |
| GERAN CS | Excluded | May be included, ignored by eNB if received | Included | Excluded | Excluded |
| GERAN PS | Excluded | May be included, ignored by eNB if received | Included | Excluded | Excluded |
| E-UTRAN | Included | May be included | May be included | May be included | May be included |
| NR | Included | Excluded | Excluded | May be included | May be included |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *HO* | The field is mandatory present in case of handover within E-UTRA; otherwise the field is not present. |
| *HO2* | The field is optional present in case of handover within E-UTRA; otherwise the field is not present. |
| *HO3* | The field is optional present in case of handover from GERAN to E-UTRA, otherwise the field is not present. |
| *HO4* | The field is mandatory present in case of handover within E-UTRA/5GC and optional present in case of handover from NR to E-UTRA/5GC; otherwise the field is not present. |
| *HO5* | The field is optional present in case of handover within E-UTRA, or handover from NR to E-UTRA; otherwise the field is not present. |

A.3.x Guidelines on use of parameterised type SetupRelease

The usage of the parameterised type *SetupRelease* is like a function call using an information element as parameter. I.e. to use it, an IE has to be defined that specifies the sequence of fields that apply for choice value *setup*. Let’s take an example.

-- /example/ ASN1START

InformationElementA ::= SEQUENCE {

field1 BOOLEAN,

field2 CHOICE {

release NULL,

setup SEQUENCE {

field2a INTEGER (0..7) OPTIONAL, -- Need OR

field2b InformationElement2b

} OPTIONAL -- Need ON

}

-- ASN1STOP

Using *SetupRelease* this example can be specified as follows:

-- /example/ ASN1START

InformationElementA ::= SEQUENCE {

field1 BOOLEAN,

field2-rX SetupRelease { InformationElement2 } OPTIONAL, -- Need ON

}

InformationElement2 ::= SEQUENCE {

field2a INTEGER (0..7) OPTIONAL, -- Need OR

field2b InformationElement2b

}

-- ASN1STOP

The two versions are equivalent in abstract syntax i.e. use of *SetupRelease* is like an editorial change.

## A.6 Protection of RRC messages (informative)

The following list provides information which messages can be sent (unprotected) prior to security activation and which messages can be sent unprotected after security activation. Those messages indicated "-" in "P" column should never be sent unprotected by eNB or UE. Further requirements are defined in the procedural text.

P…Messages that can be sent (unprotected) prior to security activation

A - I…Messages that can be sent without integrity protection after security activation

A - C…Messages that can be sent unciphered after security activation

NA… Message can never be sent after security activation

| Message | P | | A-I | A-C | Comment |
| --- | --- | --- | --- | --- | --- |
| CSFBParametersRequestCDMA2000 | **+** | | **-** | **-** |  |
| CSFBParametersResponseCDMA2000 | + | | - | - |  |
| CounterCheck | - | | - | - |  |
| CounterCheckResponse | - | | - | - |  |
| DelayBudgetReport | - | | - | - |  |
| DLDedicatedMessageSegment | NOTE 1 | | | | |
| DLInformationTransfer | + | | - | - |  |
| FailureInformation | - | | - | - |  |
| FailureInformation2 | - | | - | - |  |
| HandoverFromEUTRAPreparationRequest (CDMA2000) | - | | - | - |  |
| InDeviceCoexIndication | - | | - | - |  |
| InterFreqRSTDMeasurementIndication | - | | - | - |  |
| LoggedMeasurementsConfiguration | | - | - | - |  |
| MasterInformationBlock | + | | + | + |  |
| MasterInformationBlock-MBMS | + | | + | + |  |
| MBMSCountingRequest | + | | + | + |  |
| MBMSCountingResponse | - | | - | - |  |
| MBMSInterestIndication | + | | - | - |  |
| MBSFNAreaConfiguration | + | | + | + |  |
| MeasReportAppLayer | - | | - | - |  |
| MeasurementReport | - | | - | - | Measurement configuration may be sent prior to security activation. But: In order to protect privacy of UEs, MEASUREMENT REPORT is only sent from the UE after successful security activation. |
| MCGFailureInformation | - | | - | - |  |
| MobilityFromEUTRACommand | - | | - | - |  |
| Paging | + | | + | + |  |
| ProximityIndication | - | | - | - |  |
| PURConfigurationRequest | - | | - | - |  |
| RNReconfiguration | - | | - | - |  |
| RNReconfigurationComplete | - | | - | - |  |
| RRCConnectionReconfiguration | + | | - | - | The message shall not be sent unprotected before security activation if it is used to perform handover or to establish SRB2, SRB4 and DRBs |
| RRCConnectionReconfigurationComplete | + | | - | - | Unprotected, if sent as response to RRCConnectionReconfiguration which was sent before security activation |
| RRCConnectionReestablishment | - | | + | + | This message is not protected by PDCP operation. |
| RRCConnectionReestablishmentComplete | - | | - | - |  |
| RRCConnectionReestablishmentReject | - | | + | + | One reason to send this may be that the security context has been lost, therefore sent as unprotected. |
| RRCConnectionReestablishmentRequest | - | | - | + | This message is not protected by PDCP operation. However, a short MAC-I is included. |
| RRCConnectionReject | + | | + | + | Except for UP-EDT, A-I and A-C are NA. |
| RRCConnectionRelease | + | | - | - | Justification for P: If the RRC connection only for signalling not requiring DRBs or ciphered messages, or the signalling connection has to be released prematurely, this message is sent as unprotected.  For UP-EDT, the message is only sent after successful security activation.  *RRCConnectionRelease* message sent before security activation cannot include *rrc-InactiveConfig, redirectedCarrierInfo, idleModeMobilityControlInfo* information fields when UE is connected to 5GC. |
| RRCConnectionRequest | + | | NA | NA |  |
| RRCConnectionResume | - | | - | + | When this message is transmitted, security is activated but suspended. Integrity verification is done after the message received by RRC.  For UP-EDT, the message is only sent after successful security activation.  For RRC\_INACTIVE state or after early security reactivation, the message is protected with both integrity and ciphering. |
| RRCConnectionResumeRequest | - | | - | + | This message is not protected by PDCP operation. However, a short MAC-I is included. |
| RRCConnectionResumeComplete | - | | - | - |  |
| RRCConnectionSetup | + | | NA | NA |  |
| RRCConnectionSetupComplete | + | | NA | NA |  |
| RRCEarlyDataRequest | + | | NA | NA |  |
| RRCEarlyDataComplete | + | | NA | NA |  |
| SCGFailureInformation | - | | - | - |  |
| SCGFailureInformationNR | - | | - | - |  |
| SCPTMConfiguration | + | | + | + |  |
| SecurityModeCommand | + | | NA | NA | Integrity protection applied, but no ciphering (integrity verification done after the message received by RRC) |
| SecurityModeComplete | - | | NA | NA | Integrity protection applied, but no ciphering. Ciphering is applied after completing the procedure. |
| SecurityModeFailure | + | | NA | NA | Neither integrity protection nor ciphering applied. |
| SidelinkUEInformation | + | | - | - |  |
| SidelinkUEInformationNR | + | | - | - |  |
| SystemInformation | + | | + | + |  |
| SystemInformationBlockType1 | + | | + | + |  |
| SystemInformationBlockType1-MBMS | + | | + | + |  |
| UEAssistanceInformation | - | | - | - |  |
| UEAssistanceInformationNR | - | | - | - |  |
| UECapabilityEnquiry | + | | - | - | Except if the UE is using Control plane CIoT EPS optimisation, E-UTRAN should retrieve UE capabilities only after AS security activation. |
| UECapabilityInformation | + | | - | - |  |
| UEInformationRequest | - | | - | - |  |
| UEInformationResponse | - | | - | - | In order to protect privacy of UEs, UEInformationResponse is only sent from the UE after successful security activation |
| ULDedicatedMessageSegment | + | | - | - |  |
| ULHandoverPreparationTransfer (CDMA2000) | - | | - | - | This message should follow HandoverFromEUTRAPreparationRequest |
| ULInformationTransfer | + | | - | - |  |
| ULInformationTransferMRDC | - | | - | - |  |
| WLANConnectionStatusReport | - | | - | - |  |
| NOTE 1: This message type carries segments of other RRC messages. The protection of an instance of this message is the same as for the message which this message is carrying. | | | | | |