**3GPP TSG-WG2 Meeting #102AH *R2-1810934***

**Montreal, Canada, 2nd – 6th of July 2018**

|  |
| --- |
| *CR-Form-v11.2* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** |  | **rev** |  | **Current version:** | **15.2.1** |  |
|  |
| *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:***  |

|  |
| --- |
| Power class and P-max |
|  |

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|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | n.a. |
|  |  |
| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2018-07-04 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-15 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | **1) RRCConnectionReconfiguration: new p-Max value:**RAN4 requested adding another transmit power restriction applicable to all serving cells operated on FR1. The field is currently missing. |
|  |  |
| ***Summary of change:*** | **1) RRCConnectionReconfiguration: new p-Max value:**Add the field p-MaxUE-FR1 with a corresponding field description which also explains that the field may only be present if EN-DC (nr-Config-r15) has been configured. **Impact Analysis**Impacted functionality:UE UL Power control in EN-DCInter-operability:If the NW implements the change but the UE does not, the UE cannot comprehend the received RRCConnectionReconfiguration containing the newly added p-MaxUE-FR1 value. If the UE implements the change but the UE does not, there is no interoperability issue.  |
|  |  |
| ***Consequences if not approved:*** | The NW cannot configure a total UE transmit power when operating in EN-DC.  |
|  |  |
| ***Clauses affected:*** |  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **X** |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |

#### – *RRCConnectionReconfiguration*

The *RRCConnectionReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, radio resource configuration (including RBs, MAC main configuration and physical channel configuration) including any associated dedicated NAS information and security configuration.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E‑UTRAN to UE

*RRCConnectionReconfiguration message*

-- ASN1START

RRCConnectionReconfiguration ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 c1 CHOICE{

 rrcConnectionReconfiguration-r8 RRCConnectionReconfiguration-r8-IEs,

 spare7 NULL,

 spare6 NULL, spare5 NULL, spare4 NULL,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCConnectionReconfiguration-r8-IEs ::= SEQUENCE {

 measConfig MeasConfig OPTIONAL, -- Need ON

 mobilityControlInfo MobilityControlInfo OPTIONAL, -- Cond HO

 dedicatedInfoNASList SEQUENCE (SIZE(1..maxDRB)) OF

 DedicatedInfoNAS OPTIONAL, -- Cond nonHO

 radioResourceConfigDedicated RadioResourceConfigDedicated OPTIONAL, -- Cond HO-toEUTRA

 securityConfigHO SecurityConfigHO OPTIONAL, -- Cond HO

 nonCriticalExtension RRCConnectionReconfiguration-v890-IEs OPTIONAL

}

RRCConnectionReconfiguration-v890-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING (CONTAINING RRCConnectionReconfiguration-v8m0-IEs) OPTIONAL,

 nonCriticalExtension RRCConnectionReconfiguration-v920-IEs OPTIONAL

}

-- Late non-critical extensions:

RRCConnectionReconfiguration-v8m0-IEs ::= SEQUENCE {

 -- Following field is only for pre REL-10 late non-critical extensions

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCConnectionReconfiguration-v10i0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v10i0-IEs ::= SEQUENCE {

 antennaInfoDedicatedPCell-v10i0 AntennaInfoDedicated-v10i0 OPTIONAL, -- Need ON

 nonCriticalExtension RRCConnectionReconfiguration-v10l0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v10l0-IEs ::= SEQUENCE {

 mobilityControlInfo-v10l0 MobilityControlInfo-v10l0 OPTIONAL,

 sCellToAddModList-v10l0 SCellToAddModList-v10l0 OPTIONAL, -- Need ON

 -- Following field is only for late non-critical extensions from REL-10 to REL-11

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCConnectionReconfiguration-v12f0-IEs OPTIONAL

}

RRCConnectionReconfiguration-v12f0-IEs ::= SEQUENCE {

 scg-Configuration-v12f0 SCG-Configuration-v12f0 OPTIONAL, -- Cond nonFullConfig

 -- Following field is only for late non-critical extensions from REL-12

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCConnectionReconfiguration-v1370-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1370-IEs ::= SEQUENCE {

 radioResourceConfigDedicated-v1370 RadioResourceConfigDedicated-v1370 OPTIONAL, -- Need ON

 sCellToAddModListExt-v1370 SCellToAddModListExt-v1370 OPTIONAL, -- Need ON

 -- Following field is only for late non-critical extensions from REL-13 onwards

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non-critical extensions:

RRCConnectionReconfiguration-v920-IEs ::= SEQUENCE {

 otherConfig-r9 OtherConfig-r9 OPTIONAL, -- Need ON

 fullConfig-r9 ENUMERATED {true} OPTIONAL, -- Cond HO-Reestab

 nonCriticalExtension RRCConnectionReconfiguration-v1020-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1020-IEs ::= SEQUENCE {

 sCellToReleaseList-r10 SCellToReleaseList-r10 OPTIONAL, -- Need ON

 sCellToAddModList-r10 SCellToAddModList-r10 OPTIONAL, -- Need ON

 nonCriticalExtension RRCConnectionReconfiguration-v1130-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1130-IEs ::= SEQUENCE {

 systemInformationBlockType1Dedicated-r11 OCTET STRING (CONTAINING SystemInformationBlockType1) OPTIONAL, -- Need ON

 nonCriticalExtension RRCConnectionReconfiguration-v1250-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1250-IEs ::= SEQUENCE {

 wlan-OffloadInfo-r12 CHOICE {

 release NULL,

 setup SEQUENCE {

 wlan-OffloadConfigDedicated-r12 WLAN-OffloadConfig-r12,

 t350-r12 ENUMERATED {min5, min10, min20, min30, min60,

 min120, min180, spare1} OPTIONAL -- Need OR

 }

 } OPTIONAL, -- Need ON

 scg-Configuration-r12 SCG-Configuration-r12 OPTIONAL, -- Cond nonFullConfig

 sl-SyncTxControl-r12 SL-SyncTxControl-r12 OPTIONAL, -- Need ON

 sl-DiscConfig-r12 SL-DiscConfig-r12 OPTIONAL, -- Need ON

 sl-CommConfig-r12 SL-CommConfig-r12 OPTIONAL, -- Need ON

 nonCriticalExtension RRCConnectionReconfiguration-v1310-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1310-IEs ::= SEQUENCE {

 sCellToReleaseListExt-r13 SCellToReleaseListExt-r13 OPTIONAL, -- Need ON

 sCellToAddModListExt-r13 SCellToAddModListExt-r13 OPTIONAL, -- Need ON

 lwa-Configuration-r13 LWA-Configuration-r13 OPTIONAL, -- Need ON

 lwip-Configuration-r13 LWIP-Configuration-r13 OPTIONAL, -- Need ON

 rclwi-Configuration-r13 RCLWI-Configuration-r13 OPTIONAL, -- Need ON

 nonCriticalExtension RRCConnectionReconfiguration-v1430-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1430-IEs ::= SEQUENCE {

 sl-V2X-ConfigDedicated-r14 SL-V2X-ConfigDedicated-r14 OPTIONAL, -- Need ON

 sCellToAddModListExt-v1430 SCellToAddModListExt-v1430 OPTIONAL, -- Need ON

 perCC-GapIndicationRequest-r14 ENUMERATED{true} OPTIONAL, -- Need ON

 systemInformationBlockType2Dedicated-r14 OCTET STRING (CONTAINING SystemInformationBlockType2) OPTIONAL, -- Cond nonHO

 nonCriticalExtension RRCConnectionReconfiguration-v1510-IEs OPTIONAL

}

RRCConnectionReconfiguration-v1510-IEs ::= SEQUENCE {

 nr-Config-r15 CHOICE {

 release NULL,

 setup SEQUENCE {

 endc-ReleaseAndAdd-r15 BOOLEAN,

 nr-SecondaryCellGroupConfig-r15 OCTET STRING OPTIONAL, -- Need ON

 p-MaxEUTRA-r15 P-Max OPTIONAL -- Need ON

 }

 } OPTIONAL, -- Need ON

 sk-Counter-r15 INTEGER (0.. 65535) OPTIONAL, -- Need ON

 nr-RadioBearerConfig1-r15 OCTET STRING OPTIONAL, -- Need ON

 nr-RadioBearerConfig2-r15 OCTET STRING OPTIONAL, -- Need ON

 tdm-PatternConfig-r15 CHOICE {

 release NULL,

 setup SEQUENCE {

 subframeAssignment-r15 SubframeAssignment-r15,

 harq-Offset-r15 INTEGER (0.. 9)

 }

 } OPTIONAL, -- Cond FDD-PCell

 nonCriticalExtension RRCConnectionReconfiguration-v15xy-IEs OPTIONAL

}

RRCConnectionReconfiguration-v15xy-IEs ::= SEQUENCE {

 p-MaxUE-FR1 P-Max OPTIONAL, -- Cond nrConfig

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

SL-SyncTxControl-r12 ::= SEQUENCE {

 networkControlledSyncTx-r12 ENUMERATED {on, off} OPTIONAL -- Need OP

}

PSCellToAddMod-r12 ::= SEQUENCE {

 sCellIndex-r12 SCellIndex-r10,

 cellIdentification-r12 SEQUENCE {

 physCellId-r12 PhysCellId,

 dl-CarrierFreq-r12 ARFCN-ValueEUTRA-r9

 } OPTIONAL, -- Cond SCellAdd

 radioResourceConfigCommonPSCell-r12 RadioResourceConfigCommonPSCell-r12 OPTIONAL, -- Cond SCellAdd

 radioResourceConfigDedicatedPSCell-r12 RadioResourceConfigDedicatedPSCell-r12 OPTIONAL, -- Cond SCellAdd2

 ...,

 [[ antennaInfoDedicatedPSCell-v1280 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

 ]],

 [[ sCellIndex-r13 SCellIndex-r13 OPTIONAL -- Need ON

 ]],

 [[ radioResourceConfigDedicatedPSCell-v1370 RadioResourceConfigDedicatedPSCell-v1370 OPTIONAL -- Need ON

 ]]

}

PSCellToAddMod-v12f0 ::= SEQUENCE {

 radioResourceConfigCommonPSCell-r12 RadioResourceConfigCommonPSCell-v12f0 OPTIONAL

}

PSCellToAddMod-v1440 ::= SEQUENCE {

 radioResourceConfigCommonPSCell-r14 RadioResourceConfigCommonPSCell-v1440 OPTIONAL

}

PowerCoordinationInfo-r12 ::= SEQUENCE {

 p-MeNB-r12 INTEGER (1..16),

 p-SeNB-r12 INTEGER (1..16),

 powerControlMode-r12 INTEGER (1..2)

}

SCellToAddModList-r10 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellToAddMod-r10

SCellToAddModList-v10l0 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellToAddMod-v10l0

SCellToAddModListExt-r13 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddModExt-r13

SCellToAddModListExt-v1370 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddModExt-v1370

SCellToAddModListExt-v1430 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellToAddModExt-v1430

SCellToAddMod-r10 ::= SEQUENCE {

 sCellIndex-r10 SCellIndex-r10,

 cellIdentification-r10 SEQUENCE {

 physCellId-r10 PhysCellId,

 dl-CarrierFreq-r10 ARFCN-ValueEUTRA

 } OPTIONAL, -- Cond SCellAdd

 radioResourceConfigCommonSCell-r10 RadioResourceConfigCommonSCell-r10 OPTIONAL, -- Cond SCellAdd

 radioResourceConfigDedicatedSCell-r10 RadioResourceConfigDedicatedSCell-r10 OPTIONAL, -- Cond SCellAdd2

 ...,

 [[ dl-CarrierFreq-v1090 ARFCN-ValueEUTRA-v9e0 OPTIONAL -- Cond EARFCN-max

 ]],

 [[ antennaInfoDedicatedSCell-v10i0 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

 ]],

 [[ srs-SwitchFromServCellIndex-r14 INTEGER (0.. 31) OPTIONAL -- Need ON

 ]]

}

SCellToAddMod-v10l0 ::= SEQUENCE {

 radioResourceConfigCommonSCell-v10l0 RadioResourceConfigCommonSCell-v10l0 OPTIONAL

}

SCellToAddModExt-r13 ::= SEQUENCE {

 sCellIndex-r13 SCellIndex-r13,

 cellIdentification-r13 SEQUENCE {

 physCellId-r13 PhysCellId,

 dl-CarrierFreq-r13 ARFCN-ValueEUTRA-r9

 } OPTIONAL, -- Cond SCellAdd

 radioResourceConfigCommonSCell-r13 RadioResourceConfigCommonSCell-r10 OPTIONAL, -- Cond SCellAdd

 radioResourceConfigDedicatedSCell-r13 RadioResourceConfigDedicatedSCell-r10 OPTIONAL, -- Cond SCellAdd2

 antennaInfoDedicatedSCell-r13 AntennaInfoDedicated-v10i0 OPTIONAL -- Need ON

}

SCellToAddModExt-v1370 ::= SEQUENCE {

 radioResourceConfigCommonSCell-v1370 RadioResourceConfigCommonSCell-v10l0 OPTIONAL

}

SCellToAddModExt-v1430 ::= SEQUENCE {

 srs-SwitchFromServCellIndex-r14 INTEGER (0.. 31) OPTIONAL, -- Need ON

 ...

}

SCellToReleaseList-r10 ::= SEQUENCE (SIZE (1..maxSCell-r10)) OF SCellIndex-r10

SCellToReleaseListExt-r13 ::= SEQUENCE (SIZE (1..maxSCell-r13)) OF SCellIndex-r13

SCG-Configuration-r12 ::= CHOICE {

 release NULL,

 setup SEQUENCE {

 scg-ConfigPartMCG-r12 SEQUENCE {

 scg-Counter-r12 INTEGER (0.. 65535) OPTIONAL, -- Need ON

 powerCoordinationInfo-r12 PowerCoordinationInfo-r12 OPTIONAL, -- Need ON

 ...

 } OPTIONAL, -- Need ON

 scg-ConfigPartSCG-r12 SCG-ConfigPartSCG-r12 OPTIONAL -- Need ON

 }

}

SCG-Configuration-v12f0 ::= CHOICE {

 release NULL,

 setup SEQUENCE {

 scg-ConfigPartSCG-v12f0 SCG-ConfigPartSCG-v12f0 OPTIONAL -- Need ON

 }

}

SCG-ConfigPartSCG-r12 ::= SEQUENCE {

 radioResourceConfigDedicatedSCG-r12 RadioResourceConfigDedicatedSCG-r12 OPTIONAL, -- Need ON

 sCellToReleaseListSCG-r12 SCellToReleaseList-r10 OPTIONAL, -- Need ON

 pSCellToAddMod-r12 PSCellToAddMod-r12 OPTIONAL, -- Need ON

 sCellToAddModListSCG-r12 SCellToAddModList-r10 OPTIONAL, -- Need ON

 mobilityControlInfoSCG-r12 MobilityControlInfoSCG-r12 OPTIONAL, -- Need ON

 ...,

 [[

 sCellToReleaseListSCG-Ext-r13 SCellToReleaseListExt-r13 OPTIONAL, -- Need ON

 sCellToAddModListSCG-Ext-r13 SCellToAddModListExt-r13 OPTIONAL -- Need ON

 ]],

 [[

 sCellToAddModListSCG-Ext-v1370 SCellToAddModListExt-v1370 OPTIONAL -- Need ON

 ]],

 [[

 pSCellToAddMod-v1440 PSCellToAddMod-v1440 OPTIONAL -- Need ON

 ]]

}

SCG-ConfigPartSCG-v12f0 ::= SEQUENCE {

 pSCellToAddMod-v12f0 PSCellToAddMod-v12f0 OPTIONAL, -- Need ON

 sCellToAddModListSCG-v12f0 SCellToAddModList-v10l0 OPTIONAL -- Need ON

}

SecurityConfigHO ::= SEQUENCE {

 handoverType CHOICE {

 intraLTE SEQUENCE {

 securityAlgorithmConfig SecurityAlgorithmConfig OPTIONAL, -- Cond fullConfig

 keyChangeIndicator BOOLEAN,

 nextHopChainingCount NextHopChainingCount

 },

 interRAT SEQUENCE {

 securityAlgorithmConfig SecurityAlgorithmConfig,

 nas-SecurityParamToEUTRA OCTET STRING (SIZE(6))

 }

 },

 ...

}

-- ASN1STOP

| *RRCConnectionReconfiguration* field descriptions |
| --- |
| ***dedicatedInfoNASList***This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for each PDU in the list. |
| ***endc-ReleaseAndAdd***A one-shot field indicating whether the UE simultaneously releases and adds all the NR SCG related configuration within *nr-Config*, i.e. the configuration set by the NR *RRCReconfiguration* message (e.g. *secondaryCellGroup, SRB3* and *measConfig)*. |
| ***fullConfig***Indicates the full configuration option is applicable for the RRC Connection Reconfiguration message. |
| ***harq-Offset***Indicates a HARQ subframe offset that is applied to the subframes designated as UL in the associated subrame assignment, see TS 38.213 [88]. |
| ***keyChangeIndicator***true is used only in an intra-cell handover when a KeNB key is derived from a KASME key taken into use through the latest successful NAS SMC procedure, as described in TS 33.401 [32] for KeNB re-keying. false is used in an intra-LTE handover when the new KeNB key is obtained from the current KeNB key or from the NH as described in TS 33.401 [32]. |
| ***lwa-Configuration***This field is used to provide parameters for LWA configuration. E-UTRAN does not simultaneously configure LWA with DC, LWIP or RCLWI for a UE. |
| ***lwip-Configuration***This field is used to provide parameters for LWIP configuration. E-UTRAN does not simultaneously configure LWIP with DC, LWA or RCLWI for a UE. |
| ***nas-securityParamToEUTRA***This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for this field, although it affects activation of AS- security after inter-RAT handover to E-UTRA. The content is defined in TS 24.301. |
| ***networkControlledSyncTx***This field indicates whether the UE shall transmit synchronisation information (i.e. become synchronisation source). Value *On* indicates the UE to transmit synchronisation information while value *Off* indicates the UE to not transmit such information. |
| ***nextHopChainingCount***Parameter NCC: See TS 33.401 [32] |
| ***nr-Config***Includes the NR related configurations. This filed is used to configure EN-DC configuration, possibly in conjunction with fields *sk-Counter* and *nr-RadioBearerConfig1/ 2*. NOTE. |
| ***nr-RadioBearerConfig1, nr-RadioBearerConfig2***Includes the NR *RadioBearerConfig* IE as specified in TS 38.331 [82]. The field includes the configuration of RBs configured with NR PDCP. |
| ***nr-SecondaryCellGroupConfig***Includes the NR *RRCReconfiguration* message as specified in TS 38.331 [82]. In this version of the specification, the NR RRC message only includes fields *secondaryCellGroup* and/ or *measConfig*. If *nr-SecondaryCellGroupConfig* is configured, the network always includes this field upon MN handover to initiate an NR SCG reconfiguration with sync and key change. |
| ***perCC-GapIndicationRequest***Indicates that UE shall include *perCC-GapIndicationList* and *numFreqEffective* in the *RRCConnectionReconfigurationComplete* message. *numFreqEffectiveReduced* may also be included if frequencies are configured for reduced measurement performance. |
| ***p-MaxEUTRA***Indicates the maximum power available for LTE. |
| ***p-MaxUE-FR1***The maximum total transmit power to be used by the UE across all serving cells in frequency range 1 (FR1) across all cell groups. The maximum transmit power that the UE may use may be additionally limited on cell- or cell-group level. The field is optionally present, if EN-DC (nr-Config-r-15) has been configured. It is absent otherwise. |
| ***p-MeNB***Indicates the guaranteed power for the MeNB, as specified in TS 36.213 [23]. The value N corresponds to N-1 in TS 36.213 [23]. |
| ***powerControlMode***Indicates the power control mode used in DC. Value 1 corresponds to DC power control mode 1 and value 2 indicates DC power control mode 2, as specified in TS 36.213 [23]. |
| ***p-SeNB***Indicates the guaranteed power for the SeNB as specified in TS 36.213 [23, Table 5.1.4.2-1]. The value N corresponds to N-1 in TS 36.213 [23]. |
| ***rclwi-Configuration***WLAN traffic steering command as specified in 5.6.16.2. E-UTRAN does not simultaneously configure RCLWI with DC, LWA or LWIP for a UE. |
| ***sCellIndex***In case of DC, the SCellIndex is unique within the scope of the UE i.e. an SCG cell can not use the same value as used for an MCG cell. For *pSCellToAddMod*, if *sCellIndex-r13* is present the UE shall ignore *sCellIndex-r12.* *sCellIndex-r13* in *sCellToAddModListExt-r13* shall not have same values as sCellIndex-r10 in sCellToAddModList-r10. |
| ***sCellToAddModList, sCellToAddModListExt***Indicates the SCell to be added or modified. Field *sCellToAddModList* is used to add the first 4 SCells for a UE with *sCellIndex-r10* while *sCellToAddModListExt* is used to add the rest. If E-UTRAN includes *SCellToAddModListExt-v1430* it includes the same number of entries, and listed in the same order, as in *SCellToAddModListExt-r13*. If E-UTRAN includes *SCellToAddModList-v10l0* it includes the same number of entries, and listed in the same order, as in *SCellToAddModList-r10*. If E-UTRAN includes *SCellToAddModListExt-v1370* it includes the same number of entries, and listed in the same order, as in *SCellToAddModListExt-r13*. |
| ***sCellToAddModListSCG, sCellToAddModListSCG-Ext***Indicates the SCG cell to be added or modified. The field is used for SCG cells other than the PSCell (which is added/ modified by field *pSCellToAddMod*). Field *sCellToAddModListSCG* is used to add the first 4 SCells for a UE with *sCellIndex-r10* while *sCellToAddModListSCG-Ext* is used to add the rest. If E-UTRAN includes *sCellToAddModListSCG-v10l0* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListSCG-r12*. If E-UTRAN includes *sCellToAddModListSCG-Ext-v1370* it includes the same number of entries, and listed in the same order, as in *sCellToAddModListSCG-Ext-r13*. |
| ***sCellToReleaseListSCG, sCellToReleaseListSCG-Ext***Indicates the SCG cell to be released. The field is also used to release the PSCell e.g. upon change of PSCell, upon system information change for the PSCell. |
| ***scg-Counter***A counter used upon initial configuration of SCG security as well as upon refresh of S-KeNB. E-UTRAN includes the field upon SCG change when one or more SCG DRBs are configured. Otherwise E-UTRAN does not include the field. |
| ***sk-Counter***A one-shot counter used upon initial configuration of security for EN-DC as well as upon refresh of S-KgNB. E-UTRAN provides this field upon configuring EN-DC to facilitate configuration of SRB3. |
| ***sl-V2X-ConfigDedicated***Indicates sidelink configuration for non-P2X related V2X sidelink communication as well as P2X related V2X sidelink communication. |
| ***srs-SwitchFromServCellIndex***Indicates the serving cell whose UL transmission may be interrupted during SRS transmission on a PUSCH-less cell. During SRS transmission on a PUSCH-less cell, the UE may temporarily suspend the UL transmission on a serving cell with PUSCH in the same CG to allow the PUSCH-less cell to transmit SRS. The PUSCH-less cell is always a TDD cell but the serving cell with PUSCH may be either a FDD or TDD cell. |
| ***subframeAssignment***Indicates DL/UL subframe configuration where sa0 points to Configuration 0, sa1 to Configuration 1 etc. as specified in TS 36.211 [21, table 4.2-2]. |
| ***systemInformationBlockType1Dedicated***This field is used to transfer *SystemInformationBlockType1* or *SystemInformationBlockType1-BR* to the UE. |
| ***systemInformationBlockType2Dedicated***This field is used to transfer BR version of *SystemInformationBlockType2* to BL UEs or UEs in CE or *SystemInformationBlockType2* to non-BL UEs. |
| ***t350***Timer T350 as described in section 7.3. Value *minN* corresponds to N minutes. |
| ***tdm-PatternConfig***UL/DL reference configuration indicating the time during which a UE configured with EN-DC is allowed to transmit. This field is used when power control or IMD issues require single UL transmission as specified in TS38.101-3 [85] and TS 38.213 [88]. |

| Conditional presence | Explanation |
| --- | --- |
| *EARFCN-max* | The field is mandatory present if *dl-CarrierFreq-r10* is included and set to *maxEARFCN*. Otherwise the field is not present. |
| *FDD-PCell* | This field is optionally present, need ON, for a FDD PCell if there is no SCell with configured uplink. Otherwise, the field is not present. |
| *fullConfig* | This field is mandatory present for handover within E-UTRA when the *fullConfig* is included; otherwise it is optionally present, Need OP.  |
| *HO* | The field is mandatory present in case of handover within E-UTRA or to E-UTRA; otherwise the field is not present. |
| *HO-Reestab* | This field is optionally present, need ON, in case of handover within E-UTRA or upon the first reconfiguration after RRC connection re-establishment; otherwise the field is not present. |
| *HO-toEUTRA* | The field is mandatory present in case of handover to E-UTRA or for reconfigurations when *fullConfig* is included; otherwise the field is optionally present, need ON. |
| *nonFullConfig* | The field is not present when the *fullConfig* is included or in case of handover to E-UTRA; otherwise it is optional present, need ON. |
| *nonHO* | The field is not present in case of handover within E-UTRA or to E-UTRA; otherwise it is optional present, need ON. |
| *SCellAdd* | The field is mandatory present upon SCell addition; otherwise it is not present. |
| *SCellAdd2* | The field is mandatory present upon SCell addition; otherwise it is optionally present, need ON. |

NOTE: Fields *sk-Counter* and *nr-RadioBearerConfig1/ 2* are placed outside *nr-Config*, as these may be configured while the UE is not configured with EN-DC.