**3GPP TSG-RAN WG2 Meeting #121R2-2302171**

**Athens, Greece, Feb 27th - Mar 3rd, 2023**

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| *CR-Form-v12.2* |
| **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:***  | SDT CP corrections |
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| ***Source to WG:*** | ZTE Corporation, Sanechips, Huawei, HiSilicon |
| ***Source to TSG:*** | RAN2 |
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| ***Work item code:*** | NR\_SmallData\_INACTIVE-Core |  | ***Date:*** | 2023-02-14 |
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| ***Category:*** |  |  | ***Release:*** |  |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | 1. It was agreed by RAN2 that while SDT procedure is ongoing, the UE may need to acquire the System Information, e.g. due to SI update. RAN2 also agreed that SI request is not supported during the SDT procedure. However, the agreement was captured in the specifications incorrectly and the specifications currently suggest that SI acquisition during SDT is not supported while SI request is supported.
2. Field descriptions on CG-SDT-ConfigLCH-Restriction IEs below are missing:

- logicalChannelIdentity-r17- configuredGrantType1Allowed-r17- allowedCG-List-r17 |
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| ***Summary of change:*** | 1. The text related to UE actions during RRC\_INACTIVE state is corrected to capture that SI acquisition during SDT is supported while SI request is not.
2. Add the missing field descriptions on *CG-SDT-ConfigLCH-Restriction* IEs.

**Impact analysis**Impacted 5G architecture options:SAImpacted functionality:SDT, SI acquisition and Field description of LCH restriction for CG-SDTInter-operability: **For change 1)*** If the network is implemented according to the CR and the UE is not, the network and the UE may have a misaligned SI configuration. The UE may also try to request an SI during SDT which is unexpected by the network.
* If the UE is implemented according to the CR and the network is not, the network and the UE may assume different SI configuration.

**For Change 2)*** If the UE is implemented according to this CR while the network is not, or the network is implemented according to this CR while the UE is not, there is no interoperability issue since this is only adding a missing field description.
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| ***Consequences if not approved:*** | 1. The UE may store and use out-dated System Information during an SDT procedure. The UE may try to request an SI during SDT which is unexpected by the network.
2. The field descriptions for *CG-SDT-ConfigLCH-Restriction* will be missing.
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| ***Clauses affected:*** | 4.2.1, 6.2.2 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **N** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **N** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **N** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

### 4.2.1 UE states and state transitions including inter RAT

A UE is either in RRC\_CONNECTED state or in RRC\_INACTIVE state when an RRC connection has been established. If this is not the case, i.e. no RRC connection is established, the UE is in RRC\_IDLE state. The RRC states can further be characterised as follows:

**- RRC\_IDLE**:

- A UE specific DRX may be configured by upper layers;

- At lower layers, the UE may be configured with a DRX for PTM transmission of MBS broadcast;

- UE controlled mobility based on network configuration;

- The UE:

- Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5);

- Monitors a Paging channel for CN paging using 5G-S-TMSI, except if the UE is acting as a L2 U2N Remote UE;

- If configured by upper layers for MBS multicast reception, monitors a Paging channel for CN paging using TMGI;

- Performs neighbouring cell measurements and cell (re-)selection;

- Acquires system information and can send SI request (if configured);

- Performs logging of available measurements together with location and time for logged measurement configured UEs;

- Performs idle/inactive measurements for idle/inactive measurement configured UEs;

- If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data.

**- RRC\_INACTIVE**:

- A UE specific DRX may be configured by upper layers or by RRC layer;

- At lower layers, the UE may be configured with a DRX for PTM transmission of MBS broadcast;

- UE controlled mobility based on network configuration;

- The UE stores the UE Inactive AS context;

- A RAN-based notification area is configured by RRC layer;

- Transfer of unicast data and/or signalling to/from UE over radio bearers configured for SDT.

- The UE:

- Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5);

- During SDT procedure, monitors control channels associated with the shared data channel to determine if data is scheduled for it;

- While SDT procedure is not ongoing, monitors a Paging channel for CN paging using 5G-S-TMSI and RAN paging using fullI-RNTI, except if the UE is acting as a L2 U2N Remote UE;

- If configured by upper layers for MBS multicast reception, while SDT procedure is not ongoing, monitors a Paging channel for paging using TMGI;

- Performs neighbouring cell measurements and cell (re-)selection;

- Performs RAN-based notification area updates periodically and when moving outside the configured RAN-based notification area;

- Acquires system information and, while SDT procedure is not ongoing, can send SI request (if configured);

- While SDT procedure is not ongoing, performs logging of available measurements together with location and time for logged measurement configured UEs;

- While SDT procedure is not ongoing, performs idle/inactive measurements for idle/inactive measurement configured UEs;

- If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data;

- Transmits SRS for Positioning.

**- RRC\_CONNECTED:**

- The UE stores the AS context;

- Transfer of unicast data to/from UE;

- Transfer of MBS multicast data to UE;

- At lower layers, the UE may be configured with a UE specific DRX;

- At lower layers, the UE may be configured with a DRX for PTM transmission of MBS broadcast and/or a DRX for MBS multicast;

- For UEs supporting CA, use of one or more SCells, aggregated with the SpCell, for increased bandwidth;

- For UEs supporting DC, use of one SCG, aggregated with the MCG, for increased bandwidth;

- Network controlled mobility within NR, to/from E-UTRA, and to UTRA-FDD;

- Network controlled mobility (path switch) between a serving cell and a L2 U2N Relay UE, or vice versa.

- The UE:

- Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5), if configured;

- Monitors control channels associated with the shared data channel to determine if data is scheduled for it;

- Provides channel quality and feedback information;

- Performs neighbouring cell measurements and measurement reporting;

- Acquires system information;

- Performs immediate MDT measurement together with available location reporting;

- If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data.

Figure 4.2.1-1 illustrates an overview of UE RRC state machine and state transitions in NR. A UE has only one RRC state in NR at one time.

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**Figure 4.2.1-1: UE state machine and state transitions in NR**

Figure 4.2.1-2 illustrates an overview of UE state machine and state transitions in NR as well as the mobility procedures supported between NR/5GC, E-UTRA/EPC and E-UTRA/5GC.

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**Figure 4.2.1-2: UE state machine and state transitions between NR/5GC, E-UTRA/EPC and E-UTRA/5GC**

Figure 4.2.1-3 illustrates the mobility procedure supported between NR/5GC and UTRA-FDD.

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**Figure 4.2.1-3: Mobility procedure supported between NR/5GC and UTRA-FDD**

*START OF CHANGE*

6.2.2 Message definitions

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#### – *RRCRelease*

The *RRCRelease* message is used to command the release of an RRC connection or the suspension of the RRC connection.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

*RRCRelease* message

-- ASN1START

-- TAG-RRCRELEASE-START

RRCRelease ::= SEQUENCE {

 rrc-TransactionIdentifier RRC-TransactionIdentifier,

 criticalExtensions CHOICE {

 rrcRelease RRCRelease-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

RRCRelease-IEs ::= SEQUENCE {

 redirectedCarrierInfo RedirectedCarrierInfo OPTIONAL, -- Need N

 cellReselectionPriorities CellReselectionPriorities OPTIONAL, -- Need R

 suspendConfig SuspendConfig OPTIONAL, -- Need R

 deprioritisationReq SEQUENCE {

 deprioritisationType ENUMERATED {frequency, nr},

 deprioritisationTimer ENUMERATED {min5, min10, min15, min30}

 } OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension RRCRelease-v1540-IEs OPTIONAL

}

RRCRelease-v1540-IEs ::= SEQUENCE {

 waitTime RejectWaitTime OPTIONAL, -- Need N

 nonCriticalExtension RRCRelease-v1610-IEs OPTIONAL

}

RRCRelease-v1610-IEs ::= SEQUENCE {

 voiceFallbackIndication-r16 ENUMERATED {true} OPTIONAL, -- Need N

 measIdleConfig-r16 SetupRelease {MeasIdleConfigDedicated-r16} OPTIONAL, -- Need M

 nonCriticalExtension RRCRelease-v1650-IEs OPTIONAL

}

RRCRelease-v1650-IEs ::= SEQUENCE {

 mpsPriorityIndication-r16 ENUMERATED {true} OPTIONAL, -- Cond Redirection2

 nonCriticalExtension RRCRelease-v1710-IEs OPTIONAL

}

RRCRelease-v1710-IEs ::= SEQUENCE {

 noLastCellUpdate-r17 ENUMERATED {true} OPTIONAL, -- Need S

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

RedirectedCarrierInfo ::= CHOICE {

 nr CarrierInfoNR,

 eutra RedirectedCarrierInfo-EUTRA,

 ...

}

RedirectedCarrierInfo-EUTRA ::= SEQUENCE {

 eutraFrequency ARFCN-ValueEUTRA,

 cnType ENUMERATED {epc,fiveGC} OPTIONAL -- Need N

}

CarrierInfoNR ::= SEQUENCE {

 carrierFreq ARFCN-ValueNR,

 ssbSubcarrierSpacing SubcarrierSpacing,

 smtc SSB-MTC OPTIONAL, -- Need S

 ...

}

SuspendConfig ::= SEQUENCE {

 fullI-RNTI I-RNTI-Value,

 shortI-RNTI ShortI-RNTI-Value,

 ran-PagingCycle PagingCycle,

 ran-NotificationAreaInfo RAN-NotificationAreaInfo OPTIONAL, -- Need M

 t380 PeriodicRNAU-TimerValue OPTIONAL, -- Need R

 nextHopChainingCount NextHopChainingCount,

 ...,

 [[

 sl-UEIdentityRemote-r17 RNTI-Value OPTIONAL, -- Cond L2RemoteUE

 sdt-Config-r17 SetupRelease { SDT-Config-r17 } OPTIONAL, -- Need M

 srs-PosRRC-Inactive-r17 SetupRelease { SRS-PosRRC-Inactive-r17 } OPTIONAL, -- Need M

 ran-ExtendedPagingCycle-r17 ExtendedPagingCycle-r17 OPTIONAL -- Cond RANPaging

 ]]

}

PeriodicRNAU-TimerValue ::= ENUMERATED { min5, min10, min20, min30, min60, min120, min360, min720}

CellReselectionPriorities ::= SEQUENCE {

 freqPriorityListEUTRA FreqPriorityListEUTRA OPTIONAL, -- Need M

 freqPriorityListNR FreqPriorityListNR OPTIONAL, -- Need M

 t320 ENUMERATED {min5, min10, min20, min30, min60, min120, min180, spare1} OPTIONAL, -- Need R

 ...,

 [[

 freqPriorityListDedicatedSlicing-r17 FreqPriorityListDedicatedSlicing-r17 OPTIONAL -- Need M

 ]]

}

PagingCycle ::= ENUMERATED {rf32, rf64, rf128, rf256}

ExtendedPagingCycle-r17 ::= ENUMERATED {rf256, rf512, rf1024, spare1}

FreqPriorityListEUTRA ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityEUTRA

FreqPriorityListNR ::= SEQUENCE (SIZE (1..maxFreq)) OF FreqPriorityNR

FreqPriorityEUTRA ::= SEQUENCE {

 carrierFreq ARFCN-ValueEUTRA,

 cellReselectionPriority CellReselectionPriority,

 cellReselectionSubPriority CellReselectionSubPriority OPTIONAL -- Need R

}

FreqPriorityNR ::= SEQUENCE {

 carrierFreq ARFCN-ValueNR,

 cellReselectionPriority CellReselectionPriority,

 cellReselectionSubPriority CellReselectionSubPriority OPTIONAL -- Need R

}

RAN-NotificationAreaInfo ::= CHOICE {

 cellList PLMN-RAN-AreaCellList,

 ran-AreaConfigList PLMN-RAN-AreaConfigList,

 ...

}

PLMN-RAN-AreaCellList ::= SEQUENCE (SIZE (1.. maxPLMNIdentities)) OF PLMN-RAN-AreaCell

PLMN-RAN-AreaCell ::= SEQUENCE {

 plmn-Identity PLMN-Identity OPTIONAL, -- Need S

 ran-AreaCells SEQUENCE (SIZE (1..32)) OF CellIdentity

}

PLMN-RAN-AreaConfigList ::= SEQUENCE (SIZE (1..maxPLMNIdentities)) OF PLMN-RAN-AreaConfig

PLMN-RAN-AreaConfig ::= SEQUENCE {

 plmn-Identity PLMN-Identity OPTIONAL, -- Need S

 ran-Area SEQUENCE (SIZE (1..16)) OF RAN-AreaConfig

}

RAN-AreaConfig ::= SEQUENCE {

 trackingAreaCode TrackingAreaCode,

 ran-AreaCodeList SEQUENCE (SIZE (1..32)) OF RAN-AreaCode OPTIONAL -- Need R

}

SDT-Config-r17 ::= SEQUENCE {

 sdt-DRB-List-r17 SEQUENCE (SIZE (0..maxDRB)) OF DRB-Identity OPTIONAL, -- Need M

 sdt-SRB2-Indication-r17 ENUMERATED {allowed} OPTIONAL, -- Need R

 sdt-MAC-PHY-CG-Config-r17 SetupRelease {SDT-CG-Config-r17} OPTIONAL, -- Need M

 sdt-DRB-ContinueROHC-r17 ENUMERATED { cell, rna } OPTIONAL -- Need S

}

SDT-CG-Config-r17 ::= OCTET STRING (CONTAINING SDT-MAC-PHY-CG-Config-r17)

SDT-MAC-PHY-CG-Config-r17 ::= SEQUENCE {

 -- CG-SDT specific configuration

 cg-SDT-ConfigLCH-RestrictionToAddModList-r17 SEQUENCE (SIZE(1..maxLC-ID)) OF CG-SDT-ConfigLCH-Restriction-r17 OPTIONAL, -- Need N

 cg-SDT-ConfigLCH-RestrictionToReleaseList-r17 SEQUENCE (SIZE(1..maxLC-ID)) OF LogicalChannelIdentity OPTIONAL, -- Need N

 cg-SDT-ConfigInitialBWP-NUL-r17 SetupRelease {BWP-UplinkDedicatedSDT-r17} OPTIONAL, -- Need M

 cg-SDT-ConfigInitialBWP-SUL-r17 SetupRelease {BWP-UplinkDedicatedSDT-r17} OPTIONAL, -- Need M

 cg-SDT-ConfigInitialBWP-DL-r17 BWP-DownlinkDedicatedSDT-r17 OPTIONAL, -- Need M

 cg-SDT-TimeAlignmentTimer-r17 TimeAlignmentTimer OPTIONAL, -- Need M

 cg-SDT-RSRP-ThresholdSSB-r17 RSRP-Range OPTIONAL, -- Need M

 cg-SDT-TA-ValidationConfig-r17 SetupRelease { CG-SDT-TA-ValidationConfig-r17 } OPTIONAL, -- Need M

 cg-SDT-CS-RNTI-r17 RNTI-Value OPTIONAL, -- Need M

 ...

}

CG-SDT-TA-ValidationConfig-r17 ::= SEQUENCE {

 cg-SDT-RSRP-ChangeThreshold-r17 ENUMERATED { dB2, dB4, dB6, dB8, dB10, dB14, dB18, dB22,

 dB26, dB30, dB34, spare5, spare4, spare3, spare2, spare1}

}

BWP-DownlinkDedicatedSDT-r17 ::= SEQUENCE {

 pdcch-Config-r17 SetupRelease { PDCCH-Config } OPTIONAL, -- Need M

 pdsch-Config-r17 SetupRelease { PDSCH-Config } OPTIONAL, -- Need M

 ...

}

BWP-UplinkDedicatedSDT-r17 ::= SEQUENCE {

 pusch-Config-r17 SetupRelease { PUSCH-Config } OPTIONAL, -- Need M

 configuredGrantConfigToAddModList-r17 ConfiguredGrantConfigToAddModList-r16 OPTIONAL, -- Need N

 configuredGrantConfigToReleaseList-r17 ConfiguredGrantConfigToReleaseList-r16 OPTIONAL, -- Need N

 ...

}

CG-SDT-ConfigLCH-Restriction-r17 ::= SEQUENCE {

 logicalChannelIdentity-r17 LogicalChannelIdentity,

 configuredGrantType1Allowed-r17 ENUMERATED {true} OPTIONAL, -- Need R

 allowedCG-List-r17 SEQUENCE (SIZE (0.. maxNrofConfiguredGrantConfigMAC-1-r16)) OF ConfiguredGrantConfigIndexMAC-r16

 OPTIONAL -- Need R

}

SRS-PosRRC-Inactive-r17 ::= OCTET STRING (CONTAINING SRS-PosRRC-InactiveConfig-r17)

SRS-PosRRC-InactiveConfig-r17 ::= SEQUENCE {

 srs-PosConfigNUL-r17 SRS-PosConfig-r17 OPTIONAL, -- Need R

 srs-PosConfigSUL-r17 SRS-PosConfig-r17 OPTIONAL, -- Need R

 bwp-NUL-r17 BWP OPTIONAL, -- Need S

 bwp-SUL-r17 BWP OPTIONAL, -- Need S

 inactivePosSRS-TimeAlignmentTimer-r17 TimeAlignmentTimer OPTIONAL, -- Need M

 inactivePosSRS-RSRP-ChangeThreshold-r17 RSRP-ChangeThreshold-r17 OPTIONAL -- Need M

}

RSRP-ChangeThreshold-r17 ::= ENUMERATED {dB4, dB6, dB8, dB10, dB14, dB18, dB22, dB26, dB30, dB34, spare6, spare5, spare4, spare3, spare2, spare1}

SRS-PosConfig-r17 ::= SEQUENCE {

 srs-PosResourceSetToReleaseList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResourceSets-r16)) OF SRS-PosResourceSetId-r16 OPTIONAL,-- Need N

 srs-PosResourceSetToAddModList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResourceSets-r16)) OF SRS-PosResourceSet-r16 OPTIONAL,-- Need N

 srs-PosResourceToReleaseList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResources-r16)) OF SRS-PosResourceId-r16 OPTIONAL,-- Need N

 srs-PosResourceToAddModList-r17 SEQUENCE (SIZE(1..maxNrofSRS-PosResources-r16)) OF SRS-PosResource-r16 OPTIONAL -- Need N

}

-- TAG-RRCRELEASE-STOP

-- ASN1STOP

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| *RRCRelease-IEs* field descriptions |
| ***cellReselectionPriorities***Dedicated priorities to be used for cell reselection as specified in TS 38.304 [20]*.* The maximum number of NR carrier frequencies that the network can configure through *FreqPriorityListNR* and *FreqPriorityListDedicatedSlicing* together is eight. If the same frequency is configured in both *FreqPriorityListNR* and *FreqPriorityListDedicatedSlicing*, the frequency is only counted once. |
| ***cnType***Indicate that the UE is redirected to EPC or 5GC. |
| ***deprioritisationReq***Indicates whether the current frequency or RAT is to be de-prioritised. |
| ***deprioritisationTimer***Indicates the period for which either the current carrier frequency or NR is deprioritised. Value *minN* corresponds to N minutes. |
| ***measIdleConfig***Indicates measurement configuration to be stored and used by the UE while in RRC\_IDLE or RRC\_INACTIVE. |
| ***mpsPriorityIndication***Indicates the UE can set the establishment cause to mps-PriorityAccess for a new connection following a redirect to NR. If the target RAT is E-UTRA, see TS 36.331 [10]. The gNB sets the indication only for UEs authorized to receive MPS treatment as indicated by ARP and/or QoS characteristics at the gNB, and it is applicable only for this instance of release with redirection to carrier/RAT included in the *redirectedCarrierInfo* field in the *RRCRelease* message. |
| ***noLastCellUpdate***Presence of the field indicates that the last used cell for PEI shall not be updated. When the field is absent, the PEI-capable UE shall update its last used cell with the current cell. The UE shall not update its last used cell with the current cell if the AS security is not activated. |
| ***srs-PosRRC-InactiveConfig***SRS for positioning configuration during RRC\_INACTIVE state. |
| ***suspendConfig***Indicates configuration for the RRC\_INACTIVE state. The network does not configure *suspendConfig* when the network redirect the UE to an inter-RAT carrier frequency or if the UE is configured with a DAPS bearer. |
| ***redirectedCarrierInfo***Indicates a carrier frequency (downlink for FDD) and is used to redirect the UE to an NR or an inter-RAT carrier frequency, by means of cell selection at transition to RRC\_IDLE or RRC\_INACTIVE as specified in TS 38.304 [20]. Based on UE capability, the network may include *redirectedCarrierInfo* in *RRCRelease* message with *suspendConfig* if this message is sent in response to an *RRCResumeRequest* or an *RRCResumeRequest1* which is triggered by the NAS layer (see 5.3.1.4 in TS 24.501 [23]). |
| ***voiceFallbackIndication***Indicates the RRC release is triggered by EPS fallback for IMS voice as specified in TS 23.502 [43]. |

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| *CarrierInfoNR* field descriptions |
| ***carrierFreq***Indicates the redirected NR frequency. |
| ***ssbSubcarrierSpacing***Subcarrier spacing of SSB in the redirected SSB frequency.Only the following values are applicable depending on the used frequency:FR1: 15 or 30 kHzFR2-1: 120 or 240 kHzFR2-2: 120, 480, or 960 kHz |
| ***smtc***The SSB periodicity/offset/duration configuration for the redirected SSB frequency. It is based on timing reference of PCell. If the field is absent, the UE uses the SMTC configured in the measObjectNR having the same SSB frequency and subcarrier spacing. |

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| *RAN-NotificationAreaInfo* field descriptions |
| ***cellList***A list of cells configured as RAN area. |
| ***ran-AreaConfigList***A list of RAN area codes or RA code(s) as RAN area. |

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| *PLMN-RAN-AreaConfig* field descriptions |
| ***plmn-Identity***PLMN Identity to which the cells in *ran-Area* belong. If the field is absent the UE not in SNPN access mode uses the ID of the registered PLMN. This field is not included for UE in SNPN access mode (for UE in SNPN access mode the *ran-Area* always belongs to the registered SNPN). |
| ***ran-AreaCodeList***The total number of RAN-AreaCodes of all PLMNs does not exceed 32. |
| ***ran-Area***Indicates whether TA code(s) or RAN area code(s) are used for the RAN notification area. The network uses only TA code(s) or both TA code(s) and RAN area code(s) to configure a UE. The total number of TACs across all PLMNs does not exceed 16. |

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| *PLMN-RAN-AreaCell* field descriptions |
| ***plmn-Identity***PLMN Identity to which the cells in *ran-AreaCells* belong. If the field is absent the UE not in SNPN access mode uses the ID of the registered PLMN. This field is not included for UE in SNPN access mode (for UE in SNPN access mode the *ran-AreaCells* always belongs to the registered SNPN). |
| ***ran-AreaCells***The total number of cells of all PLMNs does not exceed 32. |

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| *SDT-Config* field descriptions |
| ***sdt-DRB-ContinueROHC***Indicates whether the PDCP entity of the radio bearers configured for SDT continues or resets the ROHC header compression protocol during PDCP re-establishment during SDT procedure, as specified in TS 38.323 [5]. Value *cell* indicates that ROHC header compression continues when the UE resumes for SDT in the same cell as the PCell when the RRCRelease message was received. Value *rna* indicates that ROHC header compression continues when the UE resumes for SDT in a cell belonging to the same RNA as the PCell where the RRCRelease message was received. If the field is absent, the UE releases any stored value for this field and the PDCP entity of the radio bearers configured for SDT always resets the ROHC header compression protocol during PDCP re-establishment when SDT procedure is initiated, as specified in TS 38.323 [5]. |
| ***sdt-DRB-List***Indicates the ID(s) of the DRB(s) that are configured for SDT. If size of the sequence is zero, then the UE assumes that none of the DRBs are configured for SDT. The network only configures MN terminated MCG bearers for SDT. |
| ***sdt-SRB2-Indication***Indiates whether SRB2 is configured for SDT or not. |

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| *SDT-MAC-PHY-CG-Config* field descriptions |
| ***cg-SDT-ConfigInitialBWP-DL***Downlink BWP configuration for CG-SDT. If a UE is a RedCap UE and if the *initialDownlinkBWP-RedCap* is configured in *downlinkConfigCommon* in *SIB1*, this field is configured for *initialDownlinkBWP-RedCap*, otherwise it is configured for *initialDownlinkBWP*. |
| ***cg-SDT-ConfigInitialBWP-NUL***UL BWP configuration for CG-SDT on NUL carrier. If a UE is a RedCap UE and if the *initialUplinkBWP-RedCap* is configured in *uplinkConfigCommon* in *SIB1*, this field is configured for *initialUplinkBWP-RedCap*, otherwise it is configured for *initialUplinkBWP* for NUL. |
| ***cg-SDT-ConfigInitialBWP-SUL***UL BWP configuration for CG-SDT on SUL carrier configured for the *initialUplinkBWP* for SUL. |
| ***cg-SDT-CS-RNTI***The CS-RNTI value for CG-SDT as specified in TS 38.321 [3]. |
| ***cg-SDT-RSRP-ThresholdSSB***An RSRP threshold configured for SSB selection for CG-SDT as specified in TS 38.321 [3]. |
| ***cg-SDT-TA-ValidationConfig***Configuration for the RSRP based TA validation. If this field is not configured, then the UE does not perform RSRP based TA validation. |
| ***cg-SDT-timeAlignmentTimer***TAT value for CG-SDT as specified in TS 38.321 [3]. The network always configures this field when *sdt-MAC-PHY-CG-Config* is configured. |

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| *CG-SDT-ConfigLCH-Restriction* field descriptions |
| ***logicalChannelIdentity***ID used commonly for the MAC logical channel and for the RLC bearer associated with a *servedRadioBearer* configured for SDT. |
| ***configuredGrantType1Allowed***If present, or if the capability *lcp-Restriction* as specified in TS 38.306 [26] is not supported, UL MAC SDUs from this logical channel can be transmitted on a configured grant type 1 for CG-SDT. Otherwise, UL MAC SDUs from this logical channel cannot be transmitted on a configured grant type 1 for CG-SDT. Corresponds to "*configuredGrantType1Allowed*" in TS 38.321 [3]. |
| ***allowedCG-List***This restriction applies only when the UL grant is a configured grant for CG-SDT. If present, UL MAC SDUs from this logical channel can only be mapped to the indicated CG-SDT configured grant configuration. If the size of the sequence is zero, then UL MAC SDUs from this logical channel cannot be mapped to any CG-SDT configured grant configurations. If the field is not present, UL MAC SDUs from this logical channel can be mapped to any CG-SDT configured grant configurations. If the field *configuredGrantType1Allowed* is present, only those CG-SDT configured grant type 1 configurations indicated in this sequence are allowed for use by this logical channel; otherwise, this sequence shall not include any CG-SDT configured grant type 1 configuration. Corresponds to "*allowedCG*-*List*" as specified in TS 38.321 [3]. |

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| *CG-SDT-TA-ValidationConfig* field descriptions |
| ***cg-SDT-RSRP-ChangeThreshold***The RSRP threshold for TA validation for CG-SDT as specified in TS 38.321 [3]. Value *dB2* corresponds to 2 dB, value *dB4* corresponds to 4 dB and so on. |

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| *SRS-PosRRC-InactiveConfig* field descriptions |
| ***bwp-NUL***BWP configuration for SRS for Positioning during the RRC\_INACTIVE state in Normal Uplink Carrier. If the field is absent UE is configured with an SRS for Positioning associated with the initial UL BWP and transmitted, during the RRC\_INACTIVE state, inside the initial UL BWP with the same CP and SCS as configured for initial UL BWP. |
| ***bwp-SUL***BWP configuration for SRS for Positioning during the RRC\_INACTIVE state in Supplementary Uplink Carrier. If the field is absent UE is configured with an SRS for Positioning associated with the initial UL BWP and transmitted, during the RRC\_INACTIVE state, inside the initial UL BWP with the same CP and SCS as configured for initial UL BWP. |
| ***inactivePosSRS-RSRP-ChangeThreshold***RSRP threshold for the increase/decrease of RSRP for time alignment validation as specified in TS 38.321 [3]. |
| ***inactivePosSRS-TimeAlignmentTimer***TAT value for SRS for positioning transmission during RRC\_INACTIVE state as specified in TS 38.321 [3]. The network always configures this field when *srs-PosRRC-Inactive* is configured. |
| ***srs-PosConfigNUL***SRS for Positioning configuration in RRC\_INACTIVE state in Normal Uplink Carrier. |
| ***srs-PosConfigSUL***SRS for Positioning configuration in RRC\_INACTIVE state in Supplementary Uplink Carrier. |

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| *SuspendConfig* field descriptions |
| ***ran-ExtendedPagingCycle***The extended DRX (eDRX) cycle for RAN-initiated paging to be applied by the UE. Value *rf256* corresponds to 256 radio frames, value *rf512* corresponds to 512 radio frames and so on. Value of the field indicates an eDRX cycle which is shorter or equal to the IDLE mode eDRX cycle configured for the UE. |
| ***ran-NotificationAreaInfo***Network ensures that the UE in RRC\_INACTIVE always has a valid *ran-NotificationAreaInfo*. |
| ***ran-PagingCycle***Refers to the UE specific cycle for RAN-initiated paging. Value *rf32* corresponds to 32 radio frames, value *rf64* corresponds to 64 radio frames and so on. |
| ***sl-UEIdentityRemote***Indicates the C-RNTI to the L2 U2N Remote UE. |
| ***t380***Refers to the timer that triggers the periodic RNAU procedure in UE. Value *min5* corresponds to 5 minutes, value *min10* corresponds to 10 minutes and so on. |

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| Conditional Presence | Explanation |
| *L2RemoteUE* | The field is mandatory present for L2 U2N Remote UE's RNAU; otherwise it is absent. |
| *RANPaging* | This field is optionally present, Need R, if the UE is configured with eDRX in IDLE mode, see TS 24.501 [23]; otherwise the field is not present. |
| *Redirection2* | The field is optionally present, Need R, if *redirectedCarrierInfo* is included; otherwise the field is not present. |

/\* omit \*/

*END OF CHANGE*