**3GPP TSG-RAN WG2 Meeting #128 *Updated-*R2-2409753**

**Orlando, Florida, USA, November 18-22 2024**

|  |
| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.306** | **CR** | **1203** | **rev** | **1** | **Current version:** | **18.3.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

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

|  |
| --- |
|  |
| ***Title:***  | Introduction of network signalling of maximum number of UL segments [Max-RRC-SegUL] |
|  |  |
| ***Source to WG:*** | Qualcomm Incorporated |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2024-11-29 |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** | Rel-18 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | It is understood that the network may not always support the reception of *UECapabilityInformation* message with the maximum number of UL RRC segments (i.e. 16) as supported by the current standard. |
|  |  |
| ***Summary of change:*** | The following procedure is introduced.1. The UE indicates its support for the network-requested maximum number of UL segments, in *RRCSetupComplete* message.
2. The network indicates the maximum number of UL segments the UE is allowed to use.
3. The UE generates *UECapabilityInformation* ensuring the total size of the message does not exceed the maximum allowed size according to the maximum number of UL segments the UE is allowed to use.
4. The UE also indicates its support for the network-requested maximum number of UL segments in *UECapabilityInformation* message.

This CR introduces the UE capability parameter which is indicated in *RRCSetupComplete* and *UECapabilityInformation* above.***Implementation of this CR by a Release 16 UE will not cause compatibility issues.*****Impact analysis**Impacted 5G architecture options:NR SA, NE-DC, NR-DCImpacted functionality:UE capability enquiry procedure.Inter-operability:* If the network is implemented according to the CR and the UE is not; there is no inter-operability problem.
* If the UE is implemented according to the CR and the network is not; there is no inter-operability problem.
 |
|  |  |
| ***Consequences if not approved:*** | UL RRC segmentation for UECapabilityInformation message can be utilized only if the network supports the maximum number of UL segments as supported by the current standard. |
|  |  |
| ***Clauses affected:*** | 4.2.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **x** | **x** |  Other core specifications  | TS38.331 CR5113r1 |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

### 4.2.2 General parameters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Definitions for parameters | Per | M | FDD-TDD DIFF | **FR1-FR2**DIFF |
| ***accessStratumRelease***Indicates the access stratum release the UE supports as specified in TS 38.331 [9]. | UE | Yes | No | No |
| ***airToGroundNetwork-r18***Indicates whether the UE supports air to ground network access. If the UE indicates this capability the UE shall support the following ATG essential features, e.g., acquiring ATG cell specific SIB22 and ATG cell specific P-Max. | UE | No | No | FR1 only |
| ***crossCarrierSchedulingConfigurationRelease-r17***Indicates whether the UE supports using *crossCarrierSchedulingConfigRelease* to release the configurations configured by *crossCarrierSchedulingConfig*. | UE | No | No | No |
| ***delayBudgetReporting***Indicates whether the UE supports delay budget reporting as specified in TS 38.331 [9]. | UE | No | No | No |
| ***dl-DedicatedMessageSegmentation-r16***Indicates whether the UE supports reception of segmented DL RRC messages. | UE | No | No | No |
| ***drx-Preference-r16***Indicates whether the UE supports providing its preference of a cell group on DRX parameters for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***gNB-SideRTT-BasedPDC-r17***Indicates whether the UE supports gNB-side RTT-based PDC, as specified in TS 38.300 [28]. A UE supporting this feature shall also support *rtt-BasedPDC-CSI-RS-ForTracking-r17* and/or *rtt-BasedPDC-PRS-r17*. | UE | No | No | No |
| ***hardSatelliteSwitchResyncNTN-r18***Indicates whether UE supports hard satellite switch with re-sync, as specified in TS 38.331 [9].A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*.When UE supports this feature and does not support *softSatelliteSwitchResyncNTN-r18*, this UE is able to perform hard satellite switch with re-sync in a network supporting soft satellite switch with re-sync, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***inactiveState***Indicates whether the UE supports RRC\_INACTIVE as specified in TS 38.331 [9]. This capability is not applicable to NCR-MT. | UE | Yes | No | No |
| ***inactiveStateNTN-r17***Indicates whether the UE supports RRC\_INACTIVE in NTN as specified in TS 38.331 [9]. It is mandated if the UE indicates the support of *nonTerrestrialNetwork-r17*. | UE | CY | No | No |
| ***inactiveStatePO-Determination-r17***Indicates whether the UE supports to use the same i\_s to determine PO in RRC\_INACTIVE state as in RRC\_IDLE state. | UE | No | No | No |
| ***inDeviceCoexInd-r16***Indicates whether the UE supports reporting of affected NR carrier frequencies in IDC assistance information as specified in TS 38.331 [9]. | UE | No | No | No |
| ***inDeviceCoexIndAutonomousDenial-r18***Indicates whether the UE supports IDC autonomous denial as specified in TS 38.331 [9]. A UE supporting this feature shall also support *inDeviceCoexInd-r16*. | UE | No | No | No |
| ***inDeviceCoexIndFDM-r18***Indicates whether the UE supports reporting of affected NR carrier frequency ranges in IDC assistance information as specified in TS 38.331 [9]. A UE supporting this feature shall also support *inDeviceCoexInd-r16*. | UE | No | No | No |
| ***inDeviceCoexIndTDM-r18***Indicates whether the UE supports reporting of IDC TDM assistance information as specified in TS 38.331 [9]. A UE supporting this feature shall also support *inDeviceCoexInd-r16*. | UE | No | No | No |
| ***maxBW-Preference-r16, maxBW-Preference-r17***Indicates whether the UE supports providing its preference of a cell group on the maximum aggregated bandwidth for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | Yes(Incl FR2-2 DIFF) |
| ***maxCC-Preference-r16***Indicates whether the UE supports providing its preference of a cell group on the maximum number of secondary component carriers for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***maxMIMO-LayerPreference-r16, maxMIMO-LayerPreference-r17***Indicates whether the UE supports providing its preference of a cell group on the maximum number of MIMO layers for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | Yes(Incl FR2-2 DIFF) |
| ***maxMRB-Add-r17***Indicates the additional maximum number of MRBs that the UE supports for MBS multicast reception in RRC\_CONNECTED as specified in TS 38.331 [9].For the UE indicating support of *multicastInactive-r18*, this capability is also applicable to multicast reception in RRC\_INACTIVE, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***mcgRLF-RecoveryViaSCG-r16***Indicates whether the UE supports recovery from MCG RLF via split SRB1 (if supported) and via SRB3 (if supported) as specified in TS 38.331[9]. | UE | No | No | No |
| ***minSchedulingOffsetPreference-r16***Indicates whether the UE supports providing its preference on the minimum scheduling offset for cross-slot scheduling of the cell group for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***mpsPriorityIndication-r16***Indicates whether the UE supports *mpsPriorityIndication* on RRC release with redirect as defined in TS 38.331 [9]. | UE | No | No | No |
| ***mt-SDT-r18***Indicates whether the UE supports initiating MT-SDT procedure via random access procedure with 4-step RA type and if UE supports *twoStepRACH-r16*, with 2-step RA type, in response to the reception of MT-SDT indication in paging message, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***mt-SDT-NTN-r18***Indicates whether the UE supports initiating MT-SDT procedure in NTN via random access procedure with 4-step RA type and if UE supports *twoStepRACH-r16* for NTN, with 2-step RA type, in response to the reception of MT-SDT indication in paging message, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***musim-CapabilityRestriction-r18***Indicates whether the UE supports providing MUSIM assistance information with temporary capability restriction and capability restriction indication (i.e., *musim-CapRestrictionInd*), as defined in TS 38.331 [9]. For a UE supporting *nr-NeedForGap-Reporting-r16*, this field also indicates UE supports providing *musim-NeedForGapsInfoNR-r18* with temporary capability restriction as defined in TS 38.331 [9]. | UE | No | No | No |
| ***musim-GapPreference-r17***Indicates whether the UE supports providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration, as defined in TS 38.331 [9]. UE supporting this feature supports 3 periodic gaps and 1 aperiodic gap. | UE | No | No | No |
| ***musim-GapPriorityPreference-r18***Indicates whether the UE supports providing MUSIM assistance information with periodic MUSIM gap priority preference and related periodic MUSIM gap priority configuration, and its preference of keeping all collided MUSIM gaps, as defined in TS 38.331 [9]. A UE supporting this feature shall support *musim-GapPreference-r17.* | UE | No | No | No |
| ***musimLeaveConnected-r17***Indicates whether the UE supports providing MUSIM assistance information with indication of leaving RRC\_CONNECTED state as defined in TS 38.331 [9]. | UE | No | No | No |
| ***nonTerrestrialNetwork-r17***Indicates whether the UE supports NR NTN access. If the UE indicates this capability the UE shall support the following NTN essential features, e.g., timer extension in MAC/RLC/PDCP layers and RACH adaptation to handle long RTT, acquiring NTN specific SIB and more than one TAC per PLMN broadcast in one cell. | UE | No | No | No |
| ***ntn-ScenarioSupport-r17***Indicates whether the UE supports the NTN features in GSO scenario or NGSO scenario. If a UE does not include this field but includes *nonTerrestrialNetwork-r17*, the UE supports the NTN features for both GSO and NGSO scenarios, and also supports mobility between GSO and NGSO scenarios. | UE | No | No | No |
| ***ntn-VSAT-AntennaType-r18***Indicates whether a VSAT UE uses electronic or mechanical steering antenna. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | FR2 only |
| ***ntn-VSAT-MobilityType-r18***Indicates whether a VSAT UE is a mobile or fixed VSAT. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | FR2 only |
| ***onDemandSIB-Connected-r16***Indicates whether the UE supports the on-demand request procedure of SIB(s) or posSIB(s) while in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***overheatingInd***Indicates whether the UE supports overheating assistance information. | UE | No | No | No |
| ***pei-SubgroupingSupportBandList-r17***Indicates whether the UE supports receiving paging early indication in DCI format 2\_7 as specified in TS 38.304 [21] for a list of frequency band. The UE shall support UEID based subgrouping for a frequency band if it indicates supporting of paging early indication reception for the frequency band. The set of OFDM symbols within a slot where UE can monitor the PEI PDCCH in Type 2A CSS is the same as the requirement for paging PDCCH in Type 2 CSS for IDLE and INACTIVE mode UEs. | UE | No | No | No |
| ***partialFR2-FallbackRX-Req***Indicates whether the UE meets only a partial set of the UE minimum receiver requirements for the eligible FR2 fallback band combinations as defined in Clause 4.2 of TS 38.101-2 [3] and Clause 4.2 of TS 38.101-3 [4]. If not indicated, the UE shall meet all the UE minimum receiver requirements for all the FR2 fallback combinations in TS 38.101-2 [3] and TS 38.101-3 [4]. The UE shall support configuration of any of the FR2 fallback band combinations regardless of the presence or the absence of this field. | UE | No | No | No |
| ***ra-InsteadCG-SDT-r18***Indicates whether the UE supports the selection of RACH resources instead of configured grant type 1 resource when triggering resume for MO-SDT or MT-SDT and next configured grant type 1 resource is too far, as specified in TS 38.331 [9].A UE supporting this feature shall also indicate the support of *cg-SDT-r17,* or *mt-CG-SDT-r18.* | UE | No | No | No |
| ***ra-SDT-r17***Indicates whether the UE supports initiating MO-SDT procedure (i.e., transmission of data and/or signalling over allowed radio bearers in RRC\_INACTIVE state) via Random Access procedure (i.e., RA-SDT) with 4-step RA type and if UE supports *twoStepRACH-r16,* with 2-step RA type, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***ra-SDT-NTN-r17***Indicates whether the UE supports initiating MO-SDT procedure (i.e., transmission of data and/or signalling over allowed radio bearers in RRC\_INACTIVE state) in NTN via Random Access procedure (i.e., RA-SDT) with 4-step RA type and if UE supports *twoStepRACH-r16* for NTN*,* with 2-step RA type, as specified in TS 38.331 [9]. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***redirectAtResumeByNAS-r16***Indicates whether the UE supports reception of *redirectedCarrierInfo* in an *RRCRelease* message in response to an *RRCResumeRequest* or *RRCResumeRequest1* which is triggered by the NAS layer, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***reducedCP-Latency***Indicates whether the UE supports reduced control plane latency as defined in TS 38.331 [9] | UE | No | No | No |
| ***referenceTimeProvision-r16***Indicates whether the UE supports provision of referenceTimeInfo in *DLInformationTransfer* message and in SIB9 and reference time information preference indication via assistance information, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***releasePreference-r16***Indicates whether the UE supports providing its preference assistance information to transition out of RRC\_CONNECTED for power saving, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***requirementTypeIndication-r18***Indicates whether the UE supports network controlled indication of the MTTD/MRTD and RF requirements by *nonCollocatedTypeMRDC-r18* for TDD-TDD inter-band EN-DC with overlapping or partially overlapping bands as specified in TS 38.331 [9]. This field is only applicable to the UE indicating *interBandMRDC-WithOverlapDL-Bands-r16*. | UE | No | No | FR1 only |
| ***resumeAfterSDT-Release-r18***Indicates whether the UE supports immediate RRC connection resume procedure triggering after receiving *RRCRelease* message with a *resumeIndication* included during an ongoing SDT procedure, as specified in TS 38.331 [9].The UE indicating support of this feature shall also support any of *ra-SDT-r17*, *ra-SDT-NTN-r17*, *cg-SDT-r17*, *mt-SDT-r18, mt-SDT-NTN-r18* or *mt-CG-SDT-r18*. | UE | No | No | No |
| ***resumeWithStoredMCG-SCells-r16***Indicates whether the UE supports not deleting the stored MCG SCell configuration when initiating the resume procedure. | UE | No | No | No |
| ***resumeWithStoredSCG-r16***Indicates whether the UE supports not deleting the stored SCG configuration when initiating resume. The UE which indicates support for *resumeWithStoredSCG-r16* shall also indicate support for *resumeWithSCG-Config-r16*. | UE | No | No | No |
| ***resumeWithSCG-Config-r16***Indicates whether the UE supports (re-)configuration of an SCG during the resume procedure. | UE | No | No | No |
| ***sib19-Support-r18***Indicates whether the UE in RRC\_CONNECTED in a TN cell supports reception of SIB19 to acquire satellite assistance information for NTN access. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***sliceInfoforCellReselection-r17***Indicates whether the UE supports slice-based cell reselection information in SIB and on RRC release for slice-based cell reselection in RRC \_IDLE and RRC INACTIVE as defined in TS 38.304 [21]. | UE | No | No | No |
| ***splitSRB-WithOneUL-Path***Indicates whether the UE supports UL transmission via MCG path and DL reception via either MCG path or SCG path, as specified for the split SRB in TS 37.340 [7]. The UE shall not set the FDD/TDD specific fields for this capability (i.e. it shall not include this field in *UE-MRDC-CapabilityAddXDD-Mode*). | UE | No | No | No |
| ***softSatelliteSwitchResyncNTN-r18***Indicates whether UE supports soft satellite switch with re-sync, as specified in TS 38.331 [9].A UE supporting this feature shall also indicate support of *hardSatelliteSwitchResyncNTN-r18.* | UE | No | No | No |
| ***splitDRB-withUL-Both-MCG-SCG***Indicates whether the UE supports UL transmission via both MCG path and SCG path for the split DRB as specified in TS 37.340 [7]. The UE shall not set the FDD/TDD specific fields for this capability (i.e. it shall not include this field in *UE-MRDC-CapabilityAddXDD-Mode*). | UE | Yes | No | No |
| ***srb3***Indicates whether the UE supports SRB3 which is a direct SRB between the SN and the UE as specified in TS 37.340 [7]. The UE shall not set the FDD/TDD specific fields for this capability (i.e. it shall not include this field in *UE-MRDC-CapabilityAddXDD-Mode*). This field is not applied to NE-DC. | UE | Yes | No | No |
| ***srb-SDT-NTN-r17***Indicates whether the UE supports the usage of signalling radio bearer SRB2 for MO-SDT (over RA-SDT or CG-SDT) or MT-SDT (over RA or CG-SDT) in NTN, as specified in TS 38.331 [9].A UE supporting this feature shall also indicate support of *ra-SDT-NTN-r17*, *cg-SDT-r17*, *mt-SDT-NTN-r18* or *mt-CG-SDT-r18* in NTN bands. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***srb-SDT-r17***Indicates whether the UE supports the usage of signalling radio bearer SRB2 for MO-SDT (over RA-SDT or CG-SDT) or MT-SDT (over RA or CG-SDT), as specified in TS 38.331 [9].A UE supporting this feature shall also indicate support of *ra-SDT-r17 cg-SDT-r17*, *mt-SDT-r18* or *mt-CG-SDT-r18*. | UE | No | No | No |
| ***ul-GapFR2-Pattern-r17***Indicates FR2 UL gap pattern(s) supported by the UE for NR SA, for NR-DC without FR2-FR2 band combination, for NE-DC, and for (NG)EN-DC, if UE supports a band in FR2. The leading / leftmost bit (bit 0) corresponds to the FR2 UL gap pattern 0, the next bit corresponds to the FR2 UL gap pattern 1, as specified in TS 38.133 [5] and so on. The UE shall set at least one of the bits to 1 for FR2 UL gap pattern 1 and 3, if the UE indicates support for *ul-GapFR2-r17* in an FR2 band. | UE | CY | No | FR2 only |
| ***ul-RRC-MaxCapaSegments-r17***Indicates whether the UE supports uplink RRC segmentation of *UECapabilityInformation* according to the network indication *rrc-MaxCapaSegAllowed* as specified in TS 38.331 [9]. | UE | No | No | No |
| ***ul-RRC-Segmentation-r16***Indicates whether the UE supports uplink RRC segmentation of *UECapabilityInformation* according to the network indication *rrc-SegAllowed* as specified in TS 38.331 [9]. | UE | No | No | No |
| ***ul-TrafficInfo-r18***Indicates whether UE supports sending UE assistance information with UL traffic information such as jitter range, burst arrival time, data burst periodicity and PDU Set and PSI identification as specified in TS 38.331 [9]. | UE | No | No | No |