**3GPP TSG-RAN5 Meeting #92-e *R5-21????***

**Electronic Meeting, 16th Aug– 27th Aug 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.523-1** | **CR** | **????** | **rev** | **-** | **Current version:** | **16.8.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Correction to NR TC 7.1.1.3.2b-Logical channel prioritization handling with Mapping restrictions | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GS\_NR\_LTE-UEConTest | | | | |  | ***Date:*** | | | 2021-08-17 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1, In TTCN implementation, function f\_TC\_7\_1\_1\_3\_2\_Step3 are used for step 3, 8, 12, and calculated based on 320bytes data packet. However, unlike step 1 and 11 where 320bytes was used, step 6 use 160 bytes, so we need to change it to 320bytes.  2, According to 38.212 Table 6.1.2.1-1,   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | PUSCH mapping type | Normal cyclic prefix | | | Extended cyclic prefix | | | | *S* | *L* | *S+L* | *S* | *L* | *S+L* | | Type A | 0 | {4,…,14} | {4,…,14} | 0 | {4,…,12} | {4,…,12} | | Type B | {0,…,13} | {1,…,14} | {1,…,14} | {0,…,12} | {1,…,12} | {1,…,12} |   startSymbolAndLength = 52 which means Start symbol(S) =10, Length(L) = 4 should be mapped with typeB. In addition, cs\_NR\_PUSCH\_TimeDomainResourceAllocationList\_71142x is not only used in this test case but also in test case 7.1.1.4.2.X, which is set as able 7.1.1.4.2.0-1 in 38.523-1. So refer from the configuration of test case 7.1.1.4.2.X modify 7.1.1.3.2b.3.1-2a which is associated with R5s210863 chagne1 point4. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1, Recalculate the data and grant times for step6 and modify table 7.1.1.3.2b.3.2-3.  2, Modify step 6 of Table 7.1.1.3.2b.3.2-1 160 to 320.  3, Modify table 7.1.1.3.2b.3.1-2a. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | A Conformant UE may fail the TC. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.1.1.3.2b | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**<Start of modified section 1>**

##### 7.1.1.3.2b Logical channel prioritization handling with Mapping restrictions

7.1.1.3.2b.1 Test Purpose (TP)

(1)

**with** {UE in RRC\_CONNECTED state with allowedSCS-List configured }

**ensure that** {

**when** { UE is sending data on the uplink }

**then** { UE serves the logical channels according to their priority and configured PBR and respecting allowedSCS-List }

}

(2)

**with** {UE in RRC\_CONNECTED state with maxPUSCH-Duration configured }

**ensure that** {

**when** { UE is sending data on the uplink }

**then** { UE serves the logical channels according to their priority and configured PBR and respecting maxPUSCH-Duration }

}

(3)

**with** { UE in RRC\_CONNECTED state with configuredGrantType1Allowed configured and supporting Type 1 PUSCH transmissions with configured grant }

**ensure that** {

**when** { UE is sending data on the uplink }

**then** { UE serves the logical channels according to their priority and configured PBR and respecting configuredGrantType1Allowed }

}

7.1.1.3.2b.2 Conformance requirements

References: The conformance requirements covered in the present TC are specified in: TS 38.321, clause 5.4.3.1.1, 5.4.3.1.2, 5.4.3.1.3. Unless otherwise stated these are Rel-15 requirements.

[TS 38.321, clause 5.4.3.1.1]

The Logical Channel Prioritization (LCP) procedure is applied whenever a new transmission is performed.

RRC controls the scheduling of uplink data by signalling for each logical channel per MAC entity:

- *priority* where an increasing priority value indicates a lower priority level;

- *prioritisedBitRate* which sets the Prioritized Bit Rate (PBR);

- *bucketSizeDuration* which sets the Bucket Size Duration (BSD).

RRC additionally controls the LCP procedure by configuring mapping restrictions for each logical channel:

- *allowedSCS-List* which sets the allowed Subcarrier Spacing(s) for transmission;

- *maxPUSCH-Duration* which sets the maximum PUSCH duration allowed for transmission;

- *configuredGrantType1Allowed* which sets whether a configured grant Type 1 can be used for transmission;

- *allowedServingCells* which sets the allowed cell(s) for transmission.

The following UE variable is used for the Logical channel prioritization procedure:

- *Bj* which is maintained for each logical channel *j*.

The MAC entity shall initialize *Bj* of the logical channel to zero when the logical channel is established.

For each logical channel *j*, the MAC entity shall:

1> increment *Bj* by the product PBR × T before every instance of the LCP procedure, where T is the time elapsed since *Bj* was last incremented;

1> if the value of *Bj* is greater than the bucket size (i.e. PBR × BSD):

2> set *Bj* to the bucket size.

NOTE: The exact moment(s) when the UE updates *Bj* between LCP procedures is up to UE implementation, as long as *Bj* is up to date at the time when a grant is processed by LCP.

[TS 38.321, clause 5.4.3.1.2]

The MAC entity shall, when a new transmission is performed:

1> select the logical channels for each UL grant that satisfy all the following conditions:

2> the set of allowed Subcarrier Spacing index values in *allowedSCS-List*, if configured, includes the Subcarrier Spacing index associated to the UL grant; and

2> *maxPUSCH-Duration*, if configured, is larger than or equal to the PUSCH transmission duration associated to the UL grant; and

2> *configuredGrantType1Allowed*, if configured, is set to *true* in case the UL grant is a Configured Grant Type 1; and

2> *allowedServingCells*, if configured, includes the Cell information associated to the UL grant. Does not apply to logical channels associated with a DRB configured with PDCP duplication within the same MAC entity (i.e. CA duplication) for which PDCP duplication is deactivated.

NOTE: The Subcarrier Spacing index, PUSCH transmission duration and Cell information are included in Uplink transmission information received from lower layers for the corresponding scheduled uplink transmission.

[TS 38.321, clause 5.4.3.1.3]

The MAC entity shall, when a new transmission is performed:

1> allocate resources to the logical channels as follows:

2> logical channels selected in subclause 5.4.3.1.2 for the UL grant with *Bj* > 0 are allocated resources in a decreasing priority order. If the PBR of a logical channel is set to *infinity*, the MAC entity shall allocate resources for all the data that is available for transmission on the logical channel before meeting the PBR of the lower priority logical channel(s);

2> decrement *Bj* by the total size of MAC SDUs served to logical channel *j* above;

2> if any resources remain, all the logical channels selected in subclause 5.4.3.1.2 are served in a strict decreasing priority order (regardless of the value of *Bj*) until either the data for that logical channel or the UL grant is exhausted, whichever comes first. Logical channels configured with equal priority should be served equally.

NOTE: The value of *Bj* can be negative.

If the MAC entity is requested to simultaneously transmit multiple MAC PDUs, or if the MAC entity receives the multiple UL grants within one or more coinciding PDCCH occasions (i.e. on different Serving Cells), it is up to UE implementation in which order the grants are processed.

The UE shall also follow the rules below during the scheduling procedures above:

- the UE should not segment an RLC SDU (or partially transmitted SDU or retransmitted RLC PDU) if the whole SDU (or partially transmitted SDU or retransmitted RLC PDU) fits into the remaining resources of the associated MAC entity;

- if the UE segments an RLC SDU from the logical channel, it shall maximize the size of the segment to fill the grant of the associated MAC entity as much as possible;

- the UE should maximise the transmission of data;

- if the MAC entity is given a UL grant size that is equal to or larger than 8 bytes while having data available and allowed (according to subclause 5.4.3.1) for transmission, the MAC entity shall not transmit only padding BSR and/or padding.

The MAC entity shall not generate a MAC PDU for the HARQ entity if the following conditions are satisfied:

- the MAC entity is configured with *skipUplinkTxDynamic* with value *true* and the grant indicated to the HARQ entity was addressed to a C-RNTI, or the grant indicated to the HARQ entity is a configured uplink grant; and

- there is no aperiodic CSI requested for this PUSCH transmission as specified in TS 38.212 [9]; and

- the MAC PDU includes zero MAC SDUs; and

- the MAC PDU includes only the periodic BSR and there is no data available for any LCG, or the MAC PDU includes only the padding BSR.

Logical channels shall be prioritised in accordance with the following order (highest priority listed first):

- C-RNTI MAC CE or data from UL-CCCH;

- Configured Grant Confirmation MAC CE;

- MAC CE for BSR, with exception of BSR included for padding;

- Single Entry PHR MAC CE or Multiple Entry PHR MAC CE;

- data from any Logical Channel, except data from UL-CCCH;

- MAC CE for Recommended bit rate query;

- MAC CE for BSR included for padding.

7.1.1.3.2b.3 Test description

7.1.1.3.2b.3.1 Pre-test conditions

Same Pre-test conditions as in clause 7.1.1.0 with the exception of 3 UM NR DRBs configured according to Table 7.1.1.3.2b.3.1-1.

Table 7.1.1.3.2b.3.1-1: Priority, PBR, Bucket Delay allowed-SCSList settings

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| DRB | priority | prioritizedBitRate (kbytes/s) | bucketSizeDuration (ms) | allowed-SCSList | |
| FR1 | FR2 |
| DRB1 | 6 | 8 | 100 | {15KHz, 30KHz} | {60KHz, 120KHz} |
| DRB2 | 7 | 16 | 100 | {60KHz} | {60KHz} |
| DRB3 | 8 | 32 | 100 | {15KHz, 30KHz,60KHz} | {120KHz} |

Table 7.1.1.3.2b.3.1-2: allowed-SCSList and maxPUSCH-Duration settings

|  |  |  |
| --- | --- | --- |
| DRB | allowed-SCSList | maxPUSCH-Duration |
| DRB1 | Not Present | ms0p02 |
| DRB2 | Not Present | ms0p5 |
| DRB3 | Not Present | ms0p5 |

Table 7.1.1.3.2b.3.1-2a: PUSCH-TimeDomainResourceAllocationList

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: TS 38.508-1 [4], table 4.6.3-122 | | | |
| Information Element | Value/remark | Comment | Condition |
| PUSCH-TimeDomainResourceAllocationList ::= SEQUENCE (SIZE(1..maxNrofUL-Allocations)) OF PUSCH-TimeDomainResourceAllocation { | 2 entry |  |  |
| PUSCH-TimeDomainResourceAllocation[1] SEQUENCE { |  | entry 1 |  |
| k2 | 2 |  | FR1 |
|  | 4 |  | FR2 |
| mappingType | typeB |  |  |
| startSymbolAndLength | 52 | Start symbol(S)=10, Length(L)=4 | FR1 |
| startSymbolAndLength | 42 | Start symbol(S)=0, Length(L)=4 | FR2 |
| } |  |  |  |
| PUSCH-TimeDomainResourceAllocation[2] SEQUENCE { |  | entry 2 |  |
| k2 | 2 |  | FR1 |
|  | 4 |  | FR2 |
| mappingType | typeB |  |  |
| startSymbolAndLength | 27 | Start symbol(S)=0, Length(L)=14 |  |
| } |  |  |  |
| } |  |  |  |

Table 7.1.1.3.2b.3.1-3: maxPUSCH-Duration and configuredGrantType1Allowed settings

|  |  |  |
| --- | --- | --- |
| DRB | maxPUSCH-Duration | configuredGrantType1Allowed |
| DRB1 | Not Present | true |
| DRB2 | Not Present | false |
| DRB3 | Not Present | true |

Table 7.1.1.3.2b.3.1-4: PDCP Settings

|  |  |
| --- | --- |
| Parameter | Value |
| Discard\_Timer | ms1500 |

7.1.1.3.2b.3.2 Test procedure sequence

Table 7.1.1.3.2b.3.2-1: Main behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U - S | Message |  |  |
| - | EXCEPTION: Steps 1 to 3 are run using the parameters specified for first run in table 7.1.1.3.2b.3.2-3. | - | - | - | - |
| 1 | The SS transmits N1 320-octet RLC SDUs on DRB1, N2 320-octet RLC SDUs on DRB2, and N3 320-octet RLC SDUs on DRB3. | <-- | (RLC SDUs) | - | - |
| - | EXCEPTION: In parallel to the event described in step 2 the events specified in Table 7.1.1.3.2b.3.2-2 shall take place. | - | - | - | - |
| 2 | The SS is configured for Uplink Grant Allocation Type 2 as defined in TS 38.523-3 [3]. 150 ms after Step 1 (Note1), for a duration of T2, the SS transmits an UL grant of D octets every T1. | <-- | (UL grants) | - | - |
| 3 | Check: Are the total number of octets of the UL RLC SDUs received at the SS for each DRB as follows:  - total number of octets received for DRB1 is D1 octets +/- 10%  - total number of octets received for DRB2 is 0  - total number of octets received for DRB3 is  D3 octets +/- 10% otherwise? | - | - | 1 | P |
| 4 | SS transmits NR *RRCReconfiguration* message to configure allowed-SCSList and maxPUSCH-Duration as per Table 7.1.1.3.2b.3.1-2. (Note 2) | <-- | (NR RRC: *RRCReconfiguration*) | - | - |
| - | EXCEPTION: In parallel to the event described in step 5 the events specified in Table 7.1.1.3.2b.3.2-2a shall take place on DRB2 | - | - | - | - |
| 5 | The UE transmits NR *RRCReconfigurationComplete* message. (Note 3) | --> | (NR RRC: *RRCReconfigurationComplete*) | - | - |
| - | EXCEPTION: Steps 6 to 8 are run using the parameters specified for second run in table 7.1.1.3.2b.3.1-2. | - | - | - | - |
| 6 | The SS transmits N1 320-octet RLC SDUs on DRB1, N2 320-octet RLC SDUs on DRB2, and N3 320-octet RLC SDUs on DRB3. | <-- | (RLC SDUs) | - | - |
| - | EXCEPTION: In parallel to the event described in step 7 the events specified in Table 7.1.1.3.2b.3.2-2 shall take place. | - | - | - | - |
| 7 | The SS is configured for Uplink Grant Allocation Type 2 as defined in TS 38.523-3 [3]. 150 ms after Step 1 (Note1), for a duration of T2, the SS transmits an UL grant of D octets every T1. | <-- | (UL grants) | - | - |
| 8 | Check: Are the total number of octets of the UL RLC SDUs received at the SS for each DRB as follows:  - total number of octets received for DRB1 are 0  - total number of octets received for DRB2 are D2 octets +/- 10%  - total number of octets received for DRB3 are D3 octets +/- 10%? | - | - | 2 | P |
| - | EXCEPTION: Steps 9 to 14 describe behaviour that depends on the UE capability. | - | - | - | - |
| 9 | IF pc\_configuredUL\_GrantType1 the SS transmits NR *RRCReconfiguration* message to configure UL configured grant type 1 with UL grant configured 150 ms after Step 11 (Note1), for a duration of T2 and an UL grant of D octets every T1. It also configures maxPUSCH-Duration and configuredGrantType1Allowed as per Table 7.1.1.3.2b.3.1-3 (Note 2) | <-- | (NR RRC: *RRCReconfiguration*) | - | - |
| - | EXCEPTION: In parallel to the event described in step 10 the events specified in Table 7.1.1.3.2b.3.2-2a shall take place on DRB1 | - | - | - | - |
| 10 | The UE transmits NR *RRCReconfigurationComplete* message. (Note 3) | --> | (NR RRC: *RRCReconfigurationComplete*) | - | - |
| - | EXCEPTION: Steps 11 to 13 are run using the parameters specified for third run in table 7.1.1.3.2b.3.1-1. | - | - | - | - |
| 11 | The SS transmits N1 320-octet RLC SDUs on DRB1, N2 320-octet RLC SDUs on DRB2, and N3 320-octet RLC SDUs on DRB3. | <-- | (RLC SDUs) | - | - |
| - | EXCEPTION: In parallel to the event described in step 9 the events specified in Table 7.1.1.3.2b.3.2-2 shall take place. | - | - | - | - |
| 12 | Check: Are the total number of octets of the UL RLC SDUs received at the SS for each DRB as follows:  - total number of octets received for DRB1 are D1 octets +/- 10%  - total number of octets received for DRB2 are 0  - total number of octets received for DRB3 are D3 octets +/- 10%? | - | - | 3 | P |
| 13 | The SS sends one Uplink Grant to send loop back PDU on DRB 2. | <-- | (UL grants) | - | - |
| 14 | The UE transmits the RLC SDU back to the SS. | --> | - | - | - |
| Note 1: This wait time will ensure that a) all octets have been completely received by the UE on all 3 DRBs before the first UL grant is received and b) the Bjs for each logical channel have reached their maximum value i.e. the bucket size of the corresponding logical channel before the first UL grant is received.  Note 2: For EN-DC the NR RRCReconfiguration message is contained in RRCConnectionReconfiguration 36.508 [7], Table 4.6.1-8 using condition EN-DC\_EmbedNR\_RRCRecon.  Note 3: For EN-DC the NR *RRCReconfigurationComplete* message is contained in *RRCConnectionReconfigurationComplete* | | | | | |

Table 7.1.1.3.2b.3.2-2: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U – S | Message |  |  |
| 1 | Check: Does the UE transmit the RLC SDUs back to the SS? | --> | - | 1,2,3 | P |

Table 7.1.1.3.2b.3.2-2a: Parallel behaviour

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| St | Procedure | Message Sequence | | TP | Verdict |
|  |  | U – S | Message |  |  |
| 1 | The UE may transmit the RLC SDU back to the SS within one second. | --> | - | - | - |

Table 7.1.1.3.2b.3.2-3: Test parameter values

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | First run | Second run | Third run |
| N1 (SDUs) | 13 | 1 | 13 |
| N2 (SDUs) | 1 | 25 | 1 |
| N3 (SDUs) | 50 | 50 | 50 |
| D (octets) | 1153 | 576 | 1153 |
| T1 (ms) | 20 | 20 | 20 |
| T2 (ms) | 360 | 860 | 360 |
| D1 (octets) | 4160 | 0 | 4160 |
| D2 (octets) | 0 | 8000 | 0 |
| D3 (octets) | 16000 | 16000 | 16000 |
| Note 1: Calculated using the following equation for the case of the least header size:(D1 + D2 + D3) = (D - 6) \* T2 / T1. | | | |

7.1.1.3.2b.3.3 Specific message contents

Table 7.1.1.3.2b.3.3-1: SchedulingRequest-Config (Preamble)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation Path: 36.508 [7], Table 4.6.3-20 | | | |
| Information Element | Value/remark | Comment | Condition |
| sr-TransMax | n64 |  |  |

Table 7.1.1.3.2b.3.3-2: *RRCReconfiguration* (step 9, Table 7.1.1.3.2b.3.2-1)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Derivation path: 38.508-1 [4], Table 4.6.1-13 | | | | | | |
| Information Element | | Value/remark | | Comment | Condition | |
| RRCReconfiguration ::= SEQUENCE { | |  | |  |  | |
| criticalExtensions CHOICE { | |  | |  |  | |
| rrcReconfiguration SEQUENCE { | |  | |  |  | |
| radioBearerConfig | | Not present | |  |  | |
| secondaryCellGroup | | CellGroupConfig | | OCTET STRING (CONTAINING CellGroupConfig) | EN-DC | |
| nonCriticalExtension := SEQUENCE {} | | Not present | |  | | EN-DC |
| nonCriticalExtension := SEQUENCE{ | |  | |  | NR | |
| masterCellGroup | | CellGroupConfig | | OCTET STRING (CONTAINING CellGroupConfig) |  | |
| dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message {} | | Not present | |  |  | |
| } | |  | |  |  | |
| } | |  | |  |  | |
| } | |  | |  |  | |
| } | |  | |  |  | |

Table 7.1.1.3.2b.3.3-3: *CellGroupConfig* (Table 7.1.1.3.2b.3.3-2: *RRCReconfiguration*)

|  |  |  |  |
| --- | --- | --- | --- |
| Derivation path: 38.508-1 [4], Table 4.6.3-19 | | | |
| Information Element | Value/remark | Comment | Condition |
| CellGroupConfig ::= SEQUENCE { |  |  |  |
| rlc-BearerToAddModList | Not present |  |  |
| mac-CellGroupConfig | Not present |  |  |
| physicalCellGroupConfig SEQUENCE { |  |  |  |
| cs-RNTI CHOICE { |  |  |  |
| setup SEQUENCE{ |  |  |  |
| RNTI-Value | ‘FFE0’H |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| spCellConfig SEQUENCE{ |  |  |  |
| servCellIndex | Not present |  | NR |
|  | 1 |  | EN-DC |
| reconfigurationWithSync | Not present |  |  |
| spCellConfigDedicated SEQUENCE{ |  |  |  |
| uplinkConfig SEQUENCE { |  |  |  |
| initialUplinkBWP SEQUENCE { |  |  |  |
| pucch-Config CHOICE { |  |  |  |
| setup SEQUENCE { |  |  |  |
| schedulingRequestResourceToAddModList { |  |  |  |
| schedulingRequestResourceId | 1 |  |  |
| schedulingRequestID | 0 |  |  |
| periodicityAndOffset CHOICE { |  |  |  |
| sl20 | 10 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| configuredGrantConfig CHOICE { |  |  |  |
| setup SEQUENCE { |  |  |  |
| cg-DMRS-Configuration | DMRS-UplinkConfig | Reference TS 38.508-1[4], Table 4.6.3-51 |  |
| uci-OnPUSCH CHOICE { |  |  |  |
| setup SEQUENCE { |  |  |  |
| semiStatic SEQUENCE { | BetaOffsets |  |  |
| betaOffsetACK-Index1 | 9 |  |  |
| betaOffsetACK-Index2 | 9 |  |  |
| betaOffsetACK-Index3 | 9 |  |  |
| betaOffsetCSI-Part1-Index1 | 6 |  |  |
| betaOffsetCSI-Part1-Index2 | 6 |  |  |
| betaOffsetCSI-Part2-Index1 | 6 |  |  |
| betaOffsetCSI-Part2-Index2 | 6 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |
| resourceAllocation | ResourceAllocationType1 |  |  |
| powerControlLoopToUse | n0 |  |  |
| p0-PUSCH-Alpha | 1 |  |  |
| nrofHARQ-Processes | 16 |  |  |
| repK | n1 |  |  |
| periodicity | Sym20x14 |  | 15kHz |
| periodicity | Sym40x14 |  | 30kHz |
| periodicity | Sym80x14 |  | 60kHz |
| periodicity | Sym160x14 |  | 120kHz |
| rrc-ConfiguredUplinkGrant SEQUENCE{ |  |  |  |
| timeDomainOffset | 0 |  |  |
| timeDomainAllocation | 0 | Reference TS 38.508-1 [4], Table 4.6.3-122 |  |
| frequencyDomainAllocation | BIT STRING (SIZE(18) | BIT STRING (SIZE(18), Equal to  NBWPsize \* (LRB-1) + RBstart), where  LRB = 23 PRB,  RBstart = 0,  NBWPsize is the size [PRBs] of the active carrier bandwidth part and ontained in TS.38.508-1 [4] clause 4.3.1.1. |  |
| antennaPort | 0 |  |  |
| precodingAndNumberOfLayers | 0 |  |  |
| srs-ResourceIndicator | Not present |  |  |
| mcsAndTBS | 16 |  |  |
| pathlossReferenceIndex | 0 |  |  |
| } |  |  |  |
| } |  |  |  |
| } |  |  |  |

**<End of modified section 1>**