**3GPP TSG-RAN WG2 Meeting #118-electronicR2-220xxxx**

**Online, May 9th - May 20th, 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **38.331** | **CR** | **3000** | **rev** | **1** | **Current version:** | **15.17.0** |  |
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| *For* [***HELP***](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:***  | Correction on rrc-ConfiguredUplinkGrant in Rel-15 |
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| ***Source to WG:*** | vivo |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2022-05-20 |
|  |  |  |  |  |
| ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | In the latest Rel-15 RRC specification, the field description parts for both *precodingAndNumberOfLayers* and *pathlossReferenceIndex* are missing. As a result, the usage of these two parameters is not clear from the RRC specification perspective. |
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| ***Summary of change:*** | Add the field description parts for both *precodingAndNumberOfLayers* and *pathlossReferenceIndex*. **Impact analysis**Impacted 5G architecture options: Standalone and Non-StandaloneImpacted functionality: RRC-configured uplink grantInter-operability: 1. If the UE is implemented according to this CR but the network is not, there is no inter-operability issue foreseen.
2. If the network is implemented according to this CR but the UE is not, there is no inter-operability issue foreseen.
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| ***Consequences if not approved:*** | The field description parts for *precodingAndNumberOfLayers* and *pathlossReferenceIndex* are missing. |
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| ***Clauses affected:*** | 6.3.2 |
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|  | **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 ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** |  |

**START OF THE CHANGE**

#### – *ConfiguredGrantConfig*

The IE *ConfiguredGrantConfig* is used to configure uplink transmission without dynamic grant according to two possible schemes. The actual uplink grant may either be configured via RRC (*type1*) or provided via the PDCCH (addressed to CS-RNTI) (*type2*).

*ConfiguredGrantConfig* information element

-- ASN1START

-- TAG-CONFIGUREDGRANTCONFIG-START

ConfiguredGrantConfig ::= SEQUENCE {

 frequencyHopping ENUMERATED {intraSlot, interSlot} OPTIONAL, -- Need S

 cg-DMRS-Configuration DMRS-UplinkConfig,

 mcs-Table ENUMERATED {qam256, qam64LowSE} OPTIONAL, -- Need S

 mcs-TableTransformPrecoder ENUMERATED {qam256, qam64LowSE} OPTIONAL, -- Need S

 uci-OnPUSCH SetupRelease { CG-UCI-OnPUSCH } OPTIONAL, -- Need M

 resourceAllocation ENUMERATED { resourceAllocationType0, resourceAllocationType1, dynamicSwitch },

 rbg-Size ENUMERATED {config2} OPTIONAL, -- Need S

 powerControlLoopToUse ENUMERATED {n0, n1},

 p0-PUSCH-Alpha P0-PUSCH-AlphaSetId,

 transformPrecoder ENUMERATED {enabled, disabled} OPTIONAL, -- Need S

 nrofHARQ-Processes INTEGER(1..16),

 repK ENUMERATED {n1, n2, n4, n8},

 repK-RV ENUMERATED {s1-0231, s2-0303, s3-0000} OPTIONAL, -- Need R

 periodicity ENUMERATED {

 sym2, sym7, sym1x14, sym2x14, sym4x14, sym5x14, sym8x14, sym10x14, sym16x14, sym20x14,

 sym32x14, sym40x14, sym64x14, sym80x14, sym128x14, sym160x14, sym256x14, sym320x14, sym512x14,

 sym640x14, sym1024x14, sym1280x14, sym2560x14, sym5120x14,

 sym6, sym1x12, sym2x12, sym4x12, sym5x12, sym8x12, sym10x12, sym16x12, sym20x12, sym32x12,

 sym40x12, sym64x12, sym80x12, sym128x12, sym160x12, sym256x12, sym320x12, sym512x12, sym640x12,

 sym1280x12, sym2560x12

 },

 configuredGrantTimer INTEGER (1..64) OPTIONAL, -- Need R

 rrc-ConfiguredUplinkGrant SEQUENCE {

 timeDomainOffset INTEGER (0..5119),

 timeDomainAllocation INTEGER (0..15),

 frequencyDomainAllocation BIT STRING (SIZE(18)),

 antennaPort INTEGER (0..31),

 dmrs-SeqInitialization INTEGER (0..1) OPTIONAL, -- Need R

 precodingAndNumberOfLayers INTEGER (0..63),

 srs-ResourceIndicator INTEGER (0..15) OPTIONAL, -- Need R

 mcsAndTBS INTEGER (0..31),

 frequencyHoppingOffset INTEGER (1.. maxNrofPhysicalResourceBlocks-1) OPTIONAL, -- Need R

 pathlossReferenceIndex INTEGER (0..maxNrofPUSCH-PathlossReferenceRSs-1),

 ...

 } OPTIONAL, -- Need R

 ...

}

CG-UCI-OnPUSCH ::= CHOICE {

 dynamic SEQUENCE (SIZE (1..4)) OF BetaOffsets,

 semiStatic BetaOffsets

}

-- TAG-CONFIGUREDGRANTCONFIG-STOP

-- ASN1STOP

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| *ConfiguredGrantConfig* field descriptions |
| ***antennaPort***Indicates the antenna port(s) to be used for this configuration, and the maximum bitwidth is 5. See TS 38.214 [19], clause 6.1.2, and TS 38.212 [17], clause 7.3.1. |
| ***cg-DMRS-Configuration***DMRS configuration (see TS 38.214 [19], clause 6.1.2.3). |
| ***configuredGrantTimer***Indicates the initial value of the configured grant timer (see TS 38.321 [3]) in multiples of periodicity.  |
| ***dmrs-SeqInitialization***The network configures this field if *transformPrecoder* is disabled. Otherwise the field is absent. |
| ***frequencyDomainAllocation***Indicates the frequency domain resource allocation, see TS 38.214 [19], clause 6.1.2, and TS 38.212 [17], clause 7.3.1). |
| ***frequencyHopping***The value *intraSlot* enables 'Intra-slot frequency hopping' and the value *interSlot* enables 'Inter-slot frequency hopping'. If the field is absent, frequency hopping is not configured. |
| ***frequencyHoppingOffset***Frequency hopping offset used when frequency hopping is enabled (see TS 38.214 [19], clause 6.1.2 and clause 6.3). |
| ***mcs-Table***Indicates the MCS table the UE shall use for PUSCH without transform precoding. If the field is absent the UE applies the value *qam64*. |
| ***mcs-TableTransformPrecoder***Indicates the MCS table the UE shall use for PUSCH with transform precoding. If the field is absent the UE applies the value *qam64*. |
| ***mcsAndTBS***The modulation order, target code rate and TB size (see TS 38.214 [19], clause 6.1.2). The NW does not configure the values 28~31 in this version of the specification. |
| ***nrofHARQ-Processes***The number of HARQ processes configured. It applies for both Type 1 and Type 2. See TS 38.321 [3], clause 5.4.1. |
| ***p0-PUSCH-Alpha***Index of the *P0-PUSCH-AlphaSet* to be used for this configuration. |
| ***pathlossReferenceIndex***Indicates the reference signal index used as PUSCH pathloss reference (see TS 38.213 [13], clause 7.1.1). |
| ***periodicity***Periodicity for UL transmission without UL grant for type 1 and type 2 (see TS 38.321 [3], clause 5.8.2).The following periodicities are supported depending on the configured subcarrier spacing [symbols]:15 kHz: 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 320, 640}30 kHz: 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 640, 1280}60 kHz with normal CP 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1280, 2560}60 kHz with ECP: 2, 6, n\*12, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1280, 2560}120 kHz: 2, 7, n\*14, where n={1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 128, 160, 256, 320, 512, 640, 1024, 1280, 2560, 5120} |
| ***powerControlLoopToUse***Closed control loop to apply (see TS 38.213 [13], clause 7.1.1). |
| ***precodingAndNumberOfLayers***Indicates the precoding and number of layers (see TS 38.212 [17], clause 7.3.1.1.2, and TS 38.214 [19], clause 6.1.2.3). |
| ***rbg-Size***Selection between configuration 1 and configuration 2 for RBG size for PUSCH. The UE does not apply this field if *resourceAllocation* is set to *resourceAllocationType1*. Otherwise, the UE applies the value *config1* when the field is absent. Note: *rbg-Size* is used when the *transformPrecoder* parameter is disabled. |
| ***repK-RV***The redundancy version (RV) sequence to use. See TS 38.214 [19], clause 6.1.2. The network configures this field if repetitions are used, i.e., if *repK* is set to *n2*, *n4* or *n8*. Otherwise, the field is absent. |
| ***repK***Number of repetitions K, see TS 38.214 [19]. |
| ***resourceAllocation***Configuration of resource allocation type 0 and resource allocation type 1. For Type 1 UL data transmission without grant, *resourceAllocation* should be *resourceAllocationType0* or *resourceAllocationType1*. |
| ***rrc-ConfiguredUplinkGrant***Configuration for "configured grant" transmission with fully RRC-configured UL grant (Type1). If this field is absent the UE uses UL grant configured by DCI addressed to CS-RNTI (Type2). Type 1 configured grant may be configured for UL or SUL, but not for both simultaneously. |
| ***srs-ResourceIndicator***Indicates the SRS resource to be used.  |
| ***timeDomainAllocation***Indicates a combination of start symbol and length and PUSCH mapping type, see TS 38.214 [19], clause 6.1.2 and TS 38.212 [17], clause 7.3.1. |
| ***timeDomainOffset***Offset related to SFN=0, see TS 38.321 [3], clause 5.8.2. |
| ***transformPrecoder***Enables or disables transform precoding for *type1* and *type2*. If the field is absent, the UE enables or disables transform precoding in accordance with the field *msg3-transformPrecoder* in *RACH-ConfigCommon*, see TS 38.214 [19], clause 6.1.3. |
| ***uci-OnPUSCH***Selection between and configuration of dynamic and semi-static beta-offset. For Type 1 UL data transmission without grant, *uci-OnPUSCH* should be set to *semiStatic.* |

**END OF THE CHANGE**