**3GPP TSG-RAN WG2 #110-e *R2-200xxxx***

**Electronic meeting, 1st - 12th June, 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **38.306** | **CR** | **0342** | **rev** | **1** | **Current version:** | **15.9.0** |  |
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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:***  | Clarification on maximum number of supported PDSCH Resource Element mapping patterns |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R2  |
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| ***Work item code:*** | NR\_newRAT-Core  |  | ***Date:*** | 2020-05-21 |
|  |  |  |  |  |
| ***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)* |
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| ***Reason for change:*** | According to the RAN1 LS R1-2002828, it should be clarified that the absence of pdsch-RE-MappingFR1-PerSymbol/pdsch-RE-MappingFR1-PerSlot or pdsch-RE-MappingFR2-PerSymbol/pdsch-RE-MappingFR2-PerSlot imply in the support of the following values (for each corresponding field that is absent):* *pdsch-RE-MappingFR1-PerSymbol: 10*
* *pdsch-RE-MappingFR1-PerSlot: 16*
* *pdsch-RE-MappingFR2-PerSymbol: 6*
* *pdsch-RE-MappingFR2-PerSlot: 16*

Therefore, the aformentioned capabilities should be updated to take the above into account.**Impact analysis**Impacted 5G architecture options: Standalone, EN-DC, NGEN-DC, NE-DC, NR-DC  Impacted functionality: PDSCH RE mapping patterns  Inter-operability: If the network implements the CR and the UE does not, there is no inter-operability issue, since it is expected that the UE would be able to support the minimum value from the capabilities above, even if they are not reported.If the UE implements the CR and the network does not, there is no inter-operability issue as long as the network assumes that the UE support the minimum value from the capabilities above, even if they are not reported. If the network would assume that the UE supports more than the minimum the network may attempt to configure more patterns than the UE supports and the configuration would fail. |
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| ***Summary of change:*** | 4.2.7.10 Phy-ParametersClarified the minumum values that a UE shall report in the fields *pdsch-RE-MappingFR1-PerSymbol*/*pdsch-RE-MappingFR1-PerSlot* and *pdsch-RE-MappingFR2-PerSymbol*/*pdsch-RE-MappingFR2-PerSlot*;Also clarified that the NW may expect the UE to support these values in the exceptional case where the UE omits them. |
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| ***Consequences if not approved:*** | UEs may refrain from reporting capabilities for the mandatory resource element mapping functionality. It will not be specified how many PDSCH RE mapping patterns the UE can support when any of the capabilities related to this feature are not reported. |
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| ***Clauses affected:*** | 4.2.7.10 |
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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:*** | This CR was revised to align field descriptions with RAN2’s general principle to avoid mixing rules with explicit signalling in capabilities. |

#### 4.2.7.10 *Phy-Parameters*

| ***pdsch-RE-MappingFR1-PerSymbol/pdsch-RE-MappingFR1-PerSlot***Indicates the maximum number of supported PDSCH Resource Element (RE) mapping patterns for FR1, each described as a resource (including NZP/ZP CSI-RS, CRS, CORESET and SSB) or bitmap. The number of patterns coinciding in a symbol in a CC and in a slot in a CC are limited by the respective capability parameters. Value n10 means 10 RE mapping patterns and n16 means 16 RE mapping patterns, and so on. The UE shall set the fields *pdsch-RE-MappingFR1-PerSymbol* and *pdsch-RE-MappingFR1-PerSlo*t to at least n10 and n16, respectively. In the exceptional case that the UE does not include the fields, the network may anyway assume that the UE supports the required minimum values. | UE | Yes | No | FR1 only |
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| ***pdsch-RE-MappingFR2-PerSymbol/pdsch-RE-MappingFR2-PerSlot***Indicates the maximum number of supported PDSCH Resource Element (RE) mapping patterns for FR2, each described as a resource (including NZP/ZP CSI-RS, CORESET and SSB) or bitmap. The number of patterns coinciding in a symbol in a CC and in a slot in a CC are limited by the respective capability parameters. Value n6 means 6 RE mapping patterns and n16 means 16 RE mapping patterns, and so on. The UE shall set the fields *pdsch-RE-MappingFR2-PerSymbol* and *pdsch-RE-MappingFR2-PerSlo*t to at least n6 and n16, respectively. In the exceptional case that the UE does not include the fields, the network may anyway assume that the UE supports the required minimum values. | UE | Yes | No | FR2 only |
| ***precoderGranularityCORESET***Indicates whether the UE supports receiving PDCCH in CORESETs configured with CORESET-precoder-granularity equal to the size of the CORESET in the frequency domain as specified in TS 38.211 [6]. | UE | No | No | No |
| ***pre-EmptIndication-DL***Indicates whether the UE supports interrupted transmission indication for PDSCH reception based on reception of DCI format 2\_1 as defined in TS 38.213 [11]. | UE | No | No | No |
| ***pucch-F2-WithFH***Indicates whether the UE supports transmission of a PUCCH format 2 (2 OFDM symbols in total) with frequency hopping in a slot. This field shall be set to *supported*. | UE | Yes | No | Yes |
| ***pucch-F3-WithFH***Indicates whether the UE supports transmission of a PUCCH format 3 (4~14 OFDM symbols in total) with frequency hopping in a slot. This field shall be set to *supported*. | UE | Yes | No | Yes |
| ***pucch-F3-4-HalfPi-BPSK***Indicates whether the UE supports pi/2-BPSK for PUCCH format 3/4 as defined in 6.3.2.6 of TS 38.211 [6]. It is optional for FR1 and mandatory with capability signalling for FR2. | UE | CY | No | Yes |
| ***pucch-F4-WithFH***Indicates whether the UE supports transmission of a PUCCH format 4 (4~14 OFDM symbols in total) with frequency hopping in a slot. | UE | Yes | No | Yes |