**3GPP TSG-RAN WG1 Meeting #114 *R1-23xxxxx***

**Toulouse, France, August 21 – 25, 2023**

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| *CR-Form-v12.2* |
|  **Draft CHANGE REQUEST** |
|  |
|  | **38.214** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.6.0** |  |
|  |
| *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 | **X** | Radio Access Network | **X** | Core Network |  |

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|  |
| ***Title:***  | Introduction of further NR coverage enhancements |
|  |  |
| ***Source to WG:*** | Nokia |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NR\_cov\_enh2 |  | ***Date:*** | 2023-09-08 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | Introduction of further NR coverage enhancements |
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| ***Summary of change:*** | Introduce Rel-18 feature of dynamic enabling/disabling transform precoding for PUSCH |
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| ***Consequences if not approved:*** | Specification does not support further coverage enhancements. |
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| ***Clauses affected:*** | 6.1.3 |
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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 ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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### 6.1.3 UE procedure for applying transform precoding on PUSCH

For a PUSCH scheduled by RAR UL grant, or for a PUSCH scheduled by fallbackRAR UL grant, or for a PUSCH scheduled by DCI format 0\_0 with CRC scrambled by TC-RNTI, the UE shall consider the transform precoding either 'enabled' or 'disabled' according to the higher layer configured parameter *msg3-transformPrecoder.*

For a MsgA PUSCH, the UE shall consider the transform precoding either 'enabled' or 'disabled' according to the higher layer configured parameter *msgA-TransformPrecoder.* If higher layer parameter *msgA-TransformPrecoder* is not configured, the UE shall consider the transform precoding either 'enabled' or 'disabled' according to the higher layer configured parameter *msg3-transformPrecoder.*

For PUSCH transmission scheduled by a PDCCH with CRC scrambled by CS-RNTI with NDI=1, C-RNTI, or MCS-C-RNTI or SP-CSI-RNTI:

- If the DCI with the scheduling grant was received with DCI format 0\_0, the UE shall, for this PUSCH transmission, consider the transform precoding either enabled or disabled according to the higher layer configured parameter *msg3-transformPrecoder*.

- If the DCI with the scheduling grant was not received with DCI format 0\_0

- If the DCI with the scheduling grant was received with DCI format 0\_1 or 0\_2 and if the UE is configured with a higher layer parameter [*dynamicTransformPrecoderIndicationDCI-0-1]* in *pusch-Config* for DCI format 0\_1 or [*dynamicTransformPrecoderIndicationDCI-0-2]* in *pusch-Config* for DCI format 0\_2 and the higher layer parameter is set to ‘enabled’, the UE shall, for this PUSCH transmission, consider the transform precoding either enabled or disabled according to the [Dynamic transform precoder indicator] field in the DCI with the scheduling grant.

- For *pusch-TimeDomainAllocationListForMultiPUSCH* in *pusch-Config,* the UE shall, for all PUSCH transmissions, consider the transform precoding either enabled or disabled according to [Transform precoder indication] field in the DCI format 0\_1 with the scheduling grant.

- Otherwise,

- If the UE is configured with the higher layer parameter *transformPrecoder* in *pusch-Config*, the UE shall, for this PUSCH transmission, consider the transform precoding either enabled or disabled according to this parameter.

- If the UE is not configured with the higher layer parameter *transformPrecoder* in *pusch-Config*, the UE shall, for this PUSCH transmission, consider the transform precoding either enabled or disabled according to the higher layer configured parameter *msg3-transformPrecoder*.

For PUSCH transmission with a configured grant

- If the UE is configured with the higher layer parameter *transformPrecoder* in *configuredGrantConfig*, the UE shall, for this PUSCH transmission, consider the transform precoding either enabled or disabled according to this parameter.

- If the UE is not configured with the higher layer parameter *transformPrecoder* in *configuredGrantConfig*, the UE shall, for this PUSCH transmission, consider the transform precoding either enabled or disabled according to the higher layer configured parameter *msg3-transformPrecoder*.

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