**3GPP TSG-RAN Meeting #97-e *RP-22xxxx***

**Online, , 12th Sep 2022 - 16th Sep 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.101-1** | **CR** | 1197 | **rev** | 1 | **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 |  | Core Network |  |

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| ***Title:*** | Extension of operation in the n77 frequency range in Canada | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | Nokia, Nokia Shanghai Bell | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17 | | | | |  | ***Date:*** | | | 2022-09-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Requirements for intra-band contiguous CA in n77 where NS\_01 for an uplink component carrier in the range 3450-3650 MHz and NS\_01 or NS\_57 for another uplink component carrier in the range 3650-3980 MHz are indicated in *FrequencyInfoUL-SIB* are ambiguous. | | | | | | | | |
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| ***Summary of change:*** | | In 6.2A.3.1.1, texts are inserted to clarify that for UEs configured with intra-band contiguous CA in n77 and if NS\_01 is indicated for an uplink component carrier in the range 3450-3650 MHz and NS\_01 or NS\_57 for another uplink component carrier in the range 3650-3980 MHz, the allowed additional spurious emission and maximum output power reduction requirements are according to CA\_NS\_01. The additional RF conformance tests are not required.  It’s noted that the above changes follow the agreed RAN2 CR of R2-2209139. | | | | | | | | |
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| ***Consequences if not approved:*** | | UE behaviours that support *extendedBand-n77-2-r17* may not be correctly implemented | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2A.3.1.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-1 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | | **Isolated impact analysis**:  1. If the network is implemented according to the CR and the UE is not, the UE may reject the configuration and trigger re-establishment, since UE does not expect different NS values for UL carriers of the same band.  2. If the UE is implemented according to the CR and the network is not, there are no interoperability problems. However, the network may still not configure UL CA for n77 in some case. | | | | | | | | |
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| ***This CR's revision history:*** | | This CR is a revision of RP-222353. | | | | | | | | |

*<Start of changes>*

#### 6.2A.3.1.1 UE additional maximum output power reduction for Intra-band contiguous CA

Additional emission requirements can be signalled by the network. Each additional emission requirement is associated with a unique network signalling (NS) value indicated in RRC signalling by an NR frequency band number of the applicable operating band and an associated value in the field *additionalSpectrumEmission.* Throughout this specification, the notion of indication or signalling of an NS value refers to the corresponding indication of an NR frequency band number of the applicable operating band, the IE field *freqBandIndicatorNR* and an associated value of *additionalSpectrumEmission* in the relevant RRC information elements [7]*.* Relation between NR CA band and NR frequency band is specified in Table 5.2A.1-1.

To meet the additional requirements, additional maximum power reduction (A-MPR) is allowed for the maximum output power as specified in Table 6.2A.1.5-1. Unless stated otherwise, the total reduction to UE maximum output power is max(MPR, A-MPR) where MPR is defined in clause 6.2A.2.4. In absense of modulation and waveform types the A-MPR applies to all modulation and waveform types.

Table 6.2A.3.1.1-1 specifies the additional requirements with their associated network signalling values and the allowed A-MPR and applicable CA band(s) for each CA\_NS value. The mapping of NR CA band numbers and values of the *additionalSpectrumEmission* to network signalling labels is specified in Table 6.2.3.1.1-2.

Table 6.2A.3.1.1-1: Additional maximum power reduction (A-MPR)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Network signalling label | Requirements (clause) | NR CA Band | Aggregated channel bandwidth (MHz) | Resources blocks (*N*RB) | A-MPR (dB) |
| CA\_NS\_01 |  | Table 5.2A.1-1 | All applicaple NR CA bands | All applicaple NR CA configurations | N/A |
| CA\_NS\_04 | 6.5A.2.3.1.1  6.5A.3.3.1.1 | CA\_n41 | Table 5.5A.1-1 | 6.2A.3.1.1.1 | 6.2A.3.1.1.1 |
| CA\_NS\_27 | 6.5A.2.3.1.2  6.5A.3.3.1.2 | CA\_n48 | Table 5.5A.1-1 | 6.2A.3.1.1.2 | 6.2A.3.1.1.2 |
| CA\_NS\_46 | 6.5A.3.3.1.3 | CA\_n7 | Table 5.5A.1-1 | 6.2A.3.1.1.3 | 6.2A.3.1.1.3 |
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[The CA\_NS\_01 label with the field *additionalPmax* [7] absent is default for all NR bands.]

For UEs configured with intra-band contiguous CA in n77 and if NS\_01 is indicated for an uplink component carrier in the range 3450-3650 MHz and NS\_01 or NS\_57 for another uplink component carrier in the range 3650-3980 MHz, the allowed additional spurious emission and maximum output power reduction requirements are according to CA\_NS\_01. The additional RF conformance tests are not required.

Table 6.2.3.1.1-2: Mapping of network signaling label

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA band | Value of additionalSpectrumEmission | | | | | | | |
|  | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| CA\_n41 | CA\_NS\_01 | CA\_NS\_04 |  |  |  |  |  |  |
| CA\_n48 | CA\_NS\_01 | CA\_NS\_27 |  |  |  |  |  |  |
| CA\_n7 | CA\_NS\_01 | CA\_NS\_46 |  |  |  |  |  |  |
| NOTE: *additionalSpectrumEmission* corresponds to an information element of the same name defined in clause 6.3.2 of TS 38.331 [7]. | | | | | | | | |

*< End of changes >*