**3GPP TSG-RAN4 Meeting #111 *R4-2409951***

**Fukuaka, Japan, 20th May 2024 – 24th May 2024**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  |
| *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 | **X** | Core Network |  |

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| ***Title:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** |  |
|  | *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 co-location OTA Tx intermodulation requirements for FR1, interfering type and interfering signal positions are defined with the minimum BWChannel (with 15 kHz SCS of the band defined in TS38.104 clause 5.3.5.). In rel-17, 10MHz BW was added in n79. On the other hand, in japanese regulation, the interfering signal of OTA Tx intermodulation is specified with specific BW 40MHz. This requirements are not match japanese regulation. |
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| ***Summary of change:*** | Added requirements 6.8.5.2 for BS type 1-O OTA Tx intermodulation regional requirements for Band n79. |
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| ***Consequences if not approved:*** | BS OTA Tx intermodulation requirements are not match japanese regulation. |
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| ***Clauses affected:*** | 4.4, 6.8.5 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS38.104 |
| ***affected:*** | **X** |  |  Test specifications | TS38.141-1 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This’CR's revision history:*** | This is the revision of R4-2409677 |

**--------------Start of text proposal-------------**

## 4.4 Regional requirements

Some requirements in the present document may only apply in certain regions either as optional requirements, or set by local and regional regulation as mandatory requirements. It is normally not stated in the 3GPP specifications under what exact circumstances that the requirements apply, since this is defined by local or regional regulation.

Table 4.4-1 lists all requirements in the present specification that may be applied differently in different regions.

Table 4.4-1: List of regional requirements

|  |  |  |
| --- | --- | --- |
| Clause  | Requirement | Comments |
| 5 | Operating bands | Some NR operating bands may be applied regionally. |
| 6.3.1 | OTA base station output power | Additional output power limits may be applied regionally. |
| 6.7.2 | OTA occupied bandwidth | The requirement may be applied regionally. There may also be regional requirements to declare the occupied bandwidth according to the definition in present specification. |
| 6.7.4 | OTA operating band unwanted emissions | Category A or Category B operating band unwanted emission limits may be applied regionally. |
| 6.7.4.5.1.6.1 | OTA operating band unwanted emissions Limits in FCC Title 47 | The BS may have to comply with the applicable emission limits established by FCC Title 47, when deployed in regions where those limits are applied, and under the conditions declared by the manufacturer. |
| 6.7.4.5.1.6.2 | OTA operating band unwanted emissions Protection of DTT | The BS operating in Band n20 may have to comply with the additional requirements for protection of DTT, when deployed in certain regions. |
| 6.7.4.5.1.6.3 | Operating band unwanted emissionsAdditional requirements for n24 | The BS operating in Band n24 may have to comply with the additional requirements when deployed in regions where FCC regulation applies. |
| 6.7.5.2 | General OTA transmitter spurious emissions | Category A or Category B spurious emission limits, as defined in ITU-R Recommendation SM.329 [5], may apply regionally.The emission limits for BS type 1-O specified as the *basic limit* + X (dB) are applicable, unless stated differently in regional regulation. |
| 6.7.5.4 | Additional OTA transmitter spurious emissions | These requirements may be applied for the protection of system operating in frequency ranges other than the BS operating band. |
| 6.8.5.1 | OTA transmitter intermodulation | Interfering signal positions that are partially or completely outside of any downlink *operating band* of the base station are not excluded from the requirement in Japan in Band n77, n78, n79. |
| 6.8.5.2 | Additional OTA transmitter intermodulation | For Band n79 operation in Japan, the BS shall comply with the additional requirements. |
| 7.7.5 | OTA receiver spurious emissions | The emission limits for BS type 1-O specified as the *basic limit* + X (dB) are applicable, unless stated differently in regional regulation. Additional limits for *BS type 2-O* may apply regionally. |

**--------------Next change-------------**

### 6.8.5 Test requirements

#### 6.8.5.1 Requirement for BS type 1-O

The transmitter intermodulation level shall not exceed the TRP unwanted emission limits specified for OTA transmitter spurious emission in clause 6.7.5 (except co-location with other base stations), OTA out-of-band emissions in clause 6.7.4 and OTA ACLR in clause 6.7.3 in the presence of a wanted signal and an interfering signal, defined in table 6.8.5.1-1.

The requirement is applicable outside the *Base Station RF Bandwidth edges*. The interfering signal offset is defined relative to the *Base Station RF Bandwidth* *edges* or *Radio Bandwidth* edges.

For RIBs supporting operation in *non-contiguous spectrum*, the requirement is also applicable inside a *sub-block gap* for interfering signal offsets where the interfering signal falls completely within the *sub-block gap*. The interfering signal offset is defined relative to the *sub-block* edges.

For RIBs supporting operation in multiple *operating bands*, the requirement shall apply relative to the *Base Station RF Bandwidth* *edges* of each *operating band*. In case the inter *RF Bandwidth* gap is less than 3\*BWChannel MHz (where BWChannel is the minimal *BS channel bandwidth* of the band), the requirement in the gap shall apply only for interfering signal offsets where the interfering signal falls completely within the inter *RF Bandwidth* gap.

Table 6.8.5.1-1: Interfering and wanted signals for the OTA transmitter intermodulation requirement

| Parameter | Value |
| --- | --- |
| Wanted signal | NR single or multi-carrier, or multiple intra-band contiguously or non-contiguously aggregated carriers |
| Interfering signal type | NR signal, the minimum *BS channel bandwidth* (BWChannel) with 15 kHz SCS of the band defined in clause 5.3.5 of TS 38.104 [2] |
| Interfering signal power level | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from the lower (upper) edge of the wanted signal or edge of *sub-block* inside a gap | , for n=1, 2 and 3 |
| NOTE 1: Interfering signal positions that are partially or completely outside of any downlink *operating band* of the BS are excluded from the requirement, unless the interfering signal positions fall within the frequency range of adjacent downlink *operating bands* in the same geographical area.NOTE 2: In Japan, note 1 is not applied in Band n77, n78, n79.NOTE 3: For *BS type 1-O* supporting dual polarization, the interfering signal power shall be equally divided between supported polarizations at the CLTA interfaces. |

#### 6.8.5.2 Additional requirements (regional)

Table 6.8.5.2-1: Void

For Band n79 operation in Japan, the transmitter intermodulation level shall not exceed the TRP unwanted emission limits specified for OTA transmitter spurious emission in clause 6.7.5 (except co-location with other base stations), OTA out-of-band emissions in clause 6.7.4 and OTA ACLR in clause 6.7.3 in the presence of a wanted signal and an interfering signal, defined in table 6.8.5.2-2.

Table 6.8.5.2-2: Interfering and wanted signals for
the OTA transmitter intermodulation requirement for n79

| Parameter | Value |
| --- | --- |
| Wanted signal | NR single carrier |
| Interfering signal type | NR signal of 40 MHz *channel bandwidth* |
| Interfering signal power level | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from the lower (upper) edge of the wanted signal | ± 20 MHz± 60 MHz± 100 MHz |

**--------------End of text proposal-------------**