**3GPP TSG-WG4 Meeting #111 *R4-2409801***

**Fukuoka, Japan, 20 - 24 May, 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.104** | **CR** | **0618** | **rev** | **1** | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | CR to 38.104: Correction of OBUE requirements for lessthan 5MHz BW | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | NEC | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_FR1\_lessthan\_5MHz\_BW-Core | | | | |  | ***Date:*** | | | 2024-5-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***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 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Undefined symbol, Prated,c, is used for OBUE requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Prated,c is replaced by Prated,x | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | OBUE requirements are not correctly specified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.6.4.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 38.141-1 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Prated,c for frequency range 0 MHz ≤ Δf < 3 MHz is also replaced by Prated,x | | | | | | | | |

**--------------Start of change-------------**

##### 6.6.4.2.3 *Basic limits* for Medium Range BS (Category A and B)

For Medium Range BS, *basic limits* are specified in tables 6.6.4.2.3-1, 6.6.4.2.3-1aa, 6.6.4.2.3-2, and 6.6.4.2.3-2 aa except for Band n104.

For the tables in this clause for *BS type 1-C* Prated,x = Prated,c,AC, and for *BS type 1-H* Prated,x = Prated,c,cell – 10\*log10(NTXU,countedpercell), and for *BS type 1-O* Prated,x = Prated,c,TRP – 9 dB.

Table 6.6.4.2.3-1: Medium Range BS *operating band* unwanted emission limits for above 3 MHz channel bandwidth, 31< Prated,x ≤ 38 dBm

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2) | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | Prated,x - 60dB | 100 kHz |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,x - 60dB, -25dBm) (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 10MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be Min(Prated,x -60dB, ‑25dBm)/100kHz.  NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*.  NOTE 3: The requirement is not applicable when Δfmax < 10 MHz. | | | |

Table 6.6.4.2.3-1aa: Medium Range BS operating band unwanted emission limits for 3 MHz channel bandwidth, 31 < Prated,x ≤ 38 dBm

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2) | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 3 MHz | 0.05 MHz ≤ f\_offset < 3.05 MHz | Prated,x | 100 kHz |
| 3 MHz ≤ Δf < 6 MHz | 3.05 MHz ≤ f\_offset < 6.05 MHz | Prated,x -59dB | 100 kHz |
| 6 MHz ≤ Δf ≤ Δfmax | 6.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,x -59dB, -25dBm) | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 6MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be Min(Prated,x -59dB, ‑25dBm)/100kHz.  NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*. | | | |

For *BS type 1-C* operating in Band n104, the limits are specified in Table 6.6.4.2.3-1a and Table 6.6.4.2.3-2a.

Table 6.6.4.2.3-1a. Medium Range *BS type 1-C* *operating band* unwanted emission limits for band n104, 31< Prated,x ≤ 38 dBm

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 20 MHz | 0.05 MHz ≤ f\_offset < 20.05 MHz |  | 100 kHz |
| 20 MHz ≤ Δf <  min(40 MHz, Δfmax) | 20.05 MHz ≤ f\_offset <  min(40.05 MHz, f\_offsetmax) | Prated,x - 60dB | 100 kHz |
| 40 MHz ≤ Δf ≤ Δfmax | 40.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,x - 60dB, -25dBm) (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 40MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be Min(Prated,x -60dB, ‑25dBm)/100kHz.  NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*.  NOTE 3: The requirement is not applicable when Δfmax < 40 MHz. | | | |

For *BS type 1-H* operating in Band n104, *basic limits* are specified in Table 6.6.4.2.3-1b and Table 6.6.4.2.3-2b:

Table 6.6.4.2.3-1b. Medium Range *BS type 1-H* *operating band* unwanted emission limits for band n104, 31< Prated,x ≤ 38 dBm

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 50 MHz | 0.05 MHz ≤ f\_offset < 50.05 MHz |  | 100 kHz |
| 50 MHz ≤ Δf <  min(100 MHz, Δfmax) | 50.05 MHz ≤ f\_offset <  min(100.05 MHz, f\_offsetmax) | Prated,x - 60dB | 100 kHz |
| 100 MHz ≤ Δf ≤ Δfmax | 100.05 MHz ≤ f\_offset < f\_offsetmax | Min(Prated,x - 60dB, -25dBm) (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 100MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be Min(Prated,x -60dB, ‑25dBm)/100kHz.  NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*.  NOTE 3: The requirement is not applicable when Δfmax < 100 MHz. | | | |

Table 6.6.4.2.3-2: Medium Range BS operating band unwanted emission limits for above 3 MHz channel bandwidth, Prated,x ≤ 31 dBm

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2) | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 5 MHz | 0.05 MHz ≤ f\_offset < 5.05 MHz |  | 100 kHz |
| 5 MHz ≤ Δf < min(10 MHz, Δfmax) | 5.05 MHz ≤ f\_offset < min(10.05 MHz, f\_offsetmax) | -29 dBm | 100 kHz |
| 10 MHz ≤ Δf ≤ Δfmax | 10.05 MHz ≤ f\_offset < f\_offsetmax | -29 dBm (Note 3) | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 10MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be -29dBm/100kHz.  NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*.  NOTE 3: The requirement is not applicable when Δfmax < 10 MHz. | | | |

Table 6.6.4.2.3-2aa: Medium Range BS operating band unwanted emission limits for 3 MHz channel bandwidth, Prated,x ≤ 31 dBm

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2) | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 3 MHz | 0.05 MHz ≤ f\_offset < 3.05 MHz |  | 100 kHz |
| 3 MHz ≤ Δf < 6 MHz | 3.05 MHz ≤ f\_offset < 6.05 MHz | -28 dBm | 100 kHz |
| 6 MHz ≤ Δf ≤ Δfmax | 6.05 MHz ≤ f\_offset < f\_offsetmax | -28 dBm | 100 kHz |
| NOTE 1: For a BS supporting *non-contiguous spectrum* operation within any *operating band* the emission limits within *sub-block gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* on each side of the *sub-block gap*. Exception is f ≥ 6MHz from both adjacent *sub-blocks* on each side of the *sub-block gap*, where the emission limits within *sub-block gaps* shall be -28 dBm/100kHz.  NOTE 2: For a *multi-band connector* with *Inter RF Bandwidth gap* < 2\*ΔfOBUE the emission limits within the *Inter RF Bandwidth gaps* is calculated as a cumulative sum of contributions from adjacent *sub-blocks* or RF Bandwidth on each side of the *Inter RF Bandwidth gap*. | | | |

**--------------End of change-------------**