**3GPP TSG-RAN4 Meeting #100-e *R4-2115826***

 **Electronic Meeting, August 16 – 27, 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **36.104** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **16.10.0** |  |
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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 |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Big CR for TS 36.104 Maintenance (Rel-16, CAT A) |
|  |  |
| ***Source to WG:*** | MCC, Samsung |
| ***Source to TSG:*** | RAN4 |
|  |  |
| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2021-08-31 |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** | Rel-16 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | This big CR merges endorsed draf CR to TS36.104 in RAN4#100-e. The reason for change in endorsed draft CR is copied below:R4-2112295 Draft CR to 36.104: Correction In-band blocking for multi-band Base Stations:The definition of multi-band and the related blocking requirements were corrected in 2016 through a CR (CR0795r1 in RP-161140). This was done in the same meeting cycle as the introduction of NB-IoT (CR0800 in RP-161126), which resulted in that the updates to the blocking requirement were never done for the new NB-IoT blocking tables.When further corrections to the In-band blocking for multi-band Base Stations were done at RAN#99e (CR4938r1 in RP-211083), the NB-IoT tables were overlooked again, and the table notes remain unchanged. |
|  |  |
| ***Summary of change:*** | The summary of change in endorsed draft CR is copied below.R4-2112295 Draft CR to 36.104: Correction In-band blocking for multi-band Base Stations:The table notes in the In-band blocking tables for E-UTRA with NB-IoT in-band/guard band operation are updated to include both the missing update from 2016 and the recent clarification from RAN4#99e. |
|  |  |
| ***Consequences if not approved:*** | The consequences if not approved for endorsed draft CR are coppied below.R4-2112295 Draft CR to 36.104: Correction In-band blocking for multi-band Base Stations:The in-band blocking requirement would remain incorrect for NB-IoT in-band/guard band operation in case of multi-band base stations. |
|  |  |
| ***Clauses affected:*** | 7.6.1.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **X** |  |  Test specifications | TS36.141 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | This CR is mirror CR of R4-2115825. |
|  |  |
| ***This CR's revision history:*** |  |

***<Start of change>***

## 7.6 Blocking

### 7.6.1 General blocking requirement

The blocking characteristics is a measure of the receiver ability to receive a wanted signal at its assigned channel in the presence of an unwanted interferer, which are either a 1.4MHz, 3MHz or 5MHz E-UTRA signal for in-band blocking or a CW signal for out-of-band blocking. The interfering signal shall be an E-UTRA signal as specified in Annex C.

#### 7.6.1.1 Minimum requirement

For E-UTRA, the throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with a wanted and an interfering signal coupled to BS antenna input using the parameters in Tables 7.6.1.1-1, 7.6.1.1-1a, 7.6.1.1-1b, 7.6.1.1-1c and 7.6.1.1-2. The reference measurement channel for the wanted signal is identified in Table 7.2.1-1, 7.2.1-2, 7.2.1-3 and 7.2.1-4 for each channel bandwidth and further specified in Annex A.

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

For a BS operating in non-contiguous spectrum within any operating band, the blocking requirement applies in addition inside any sub-block gap, in case the sub-block gap size is at least as wide as twice the interfering signal minimum offset in Table 7.6.1.1-2. The interfering signal offset is defined relative to the sub-block edges inside the sub-block gap.

For a BS capable of multi-band operation, the requirement in the in-band blocking frequency ranges applies for each supported operating band. The requirement applies in addition inside any Inter RF Bandwidth gap, in case the Inter RF Bandwidth gap size is at least as wide as twice the interfering signal minimum offset in Table 7.6.1.1-2.

For a BS capable of multi-band operation, the requirement in the out-of-band blocking frequency ranges apply for each operating band, with the exception that the in-band blocking frequency ranges of all supported operating bands according to Tables 7.6.1.1-1, 7.6.1.1-1a and 7.6.1.1-1c shall be excluded from the out-of-band blocking requirement.

Table 7.6.1.1-1: Blocking performance requirement for Wide Area BS for E-UTRA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-7, 9-11, 13, 14, 18,19, 21-23, 24, 27, 30, 33-45, 48, 50, 52, 65, 66, 68, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 73, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-1.Note 2: For a BS capable of multiband operation, in case of interfering signal that is not in the in-band blocking frequency range of the operating band where the wanted signal is present, and not in the in-band blocking frequency range of an adjacent or overlapping operating band, the wanted signal mean power is equal to PREFSENS + 1.4 dB. |

NOTE: Table 7.6.1.1-1 assumes that two operating bands, where the downlink operating band (see Table 5.5-1) of one band would be within the in-band blocking region of the other band, are not deployed in the same geographical area.

Table 7.6.1.1-1a: Blocking performance requirement for Local Area BS for E-UTRA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-7, 9-11, 13-14, 18,19, 21-23, 24, 27, 30, 33-45, 48-53, 65, 66, 68, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1. 1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1. 1-2 | See table 7.6.1.1-2 |
| 1 | to | (FUL\_low -11)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| (FUL\_high +20) | to |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1. 1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 73, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 46 | (FUL\_low -20) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| (FUL\_low -500)(FUL\_high +20) | toto | (FUL\_low -20)(FUL\_high +500) | -35 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 1(FUL\_high +500) | toto | (FUL\_low -500)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1. 1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-2Note 2: For a BS capable of multiband operation, in case of interfering signal that is not in the in-band blocking frequency range of the operating band where the wanted signal is present, and not in the in-band blocking frequency range of an adjacent or overlapping operating band, the wanted signal mean power is equal to PREFSENS + 1.4 dB.. |

NOTE: Table 7.6.1.1-1a assumes that two operating bands, where the downlink operating band (see Table 5.5-1) of one band would be within the in-band blocking region of the other band, are not deployed in the same geographical area.

Table 7.6.1.1-1b: Blocking performance requirement for Home BS for E-UTRA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the channel edge of the wanted signal [MHz] | Type of Interfering Signal |
| 1-7, 9-11, 13, 14, 18, 19, 21-23, 24, 27, 30, 33-44, 48, 50-52, 65, 66, 68, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| 74 | (FUL\_low -20) | to | (FUL\_high +5) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-3. |

NOTE: Table 7.6.1.1-1b assumes that two operating bands, where the downlink operating band (see Table 5.5-1) of one band would be within the in-band blocking region of the other band, are not deployed in the same geographical area.

Table 7.6.1.1-1c: Blocking performance requirement for Medium Range BS for E-UTRA

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset to the lower/higher Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-7, 9-11, 13, 14, 18,19, 21-23, 24, 27, 30, 33-45, 48, 50, 52-53, 65, 66, 68, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 73, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 46 | (FUL\_low -20) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| (FUL\_low -500)(FUL\_high +20) | toto | (FUL\_low -20)(FUL\_high +500) | -35 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 1(FUL\_high +500) | toto | (FUL\_low -500)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-2 | See table 7.6.1.1-2 |
| 1(FUL\_high +12) | to | (FUL\_low -20)12750 | -15 | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-4.Note 2: For a BS capable of multiband operation, in case of interfering signal that is not in the in-band blocking frequency range of the operating band where the wanted signal is present, and not in the in-band blocking frequency range of an adjacent or overlapping operating band, the wanted signal mean power is equal to PREFSENS + 1.4 dB. |

NOTE: Table 7.6.1.1-1c assumes that two operating bands, where the downlink operating band (see Table 5.5-1) of one band would be within the in-band blocking region of the other band, are not deployed in the same geographical area.

Table 7.6.1.1-2: Interfering signals for blocking performance requirement

|  |  |  |
| --- | --- | --- |
| E-UTRAchannel BW of the lowest/highest carrier received [MHz] | Interfering signal centre frequency minimum offset to the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of interfering signal |
| 1.4 | ±2.1 | 1.4 MHz E-UTRA signal |
| 3 | ±4.5 | 3 MHz E-UTRA signal |
| 5 | ±7.5 | 5 MHz E-UTRA signal |
| 10 | ±7.5 | 5 MHz E-UTRA signal |
| 15 | ±7.5 | 5 MHz E-UTRA signal |
| 20 | ±7.5 | 5 MHz E-UTRA signal (Note 1) |
| 20 | ±30 | 20 MHz E-UTRA signal (Note 2) |
| Note 1: This type of interfering signal is not applied for Band 46.Note 2: This type of interfering signal is only applied for Band 46. |

For NB-IoT standalone operation, the throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with a wanted and an interfering signal coupled to BS antenna input using the parameters in Tables 7.6.1.1-3, 7.6.1.1-3a, 7.6.1.1-3b, 7.6.1.1-3c and 7.6.1.1-4. The reference measurement channel for the wanted signal is identified in Table 7.2.1-5, 7.2.1-5a, 7.2.1-5b and 7.2.1-5c and further specified in Annex A.

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

Table 7.6.1.1-3: Blocking performance requirement for Wide Area BS for NB-IoT standalone operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7, 11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 73, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| Note 1: PREFSENS is specified in Table 7.2.1-5.Note 2: Up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

Table 7.6.1.1-3a: Blocking performance requirement for Local Area BS for NB-IoT standalone operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7, 11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -35 | PREFSENS +6dB (Note 2) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 2) | ⎯ | CW carrier |
| 31, 72, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -35 | PREFSENS +6dB (Note 2) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 2) | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -35 | PREFSENS +6dB (Note 2) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 2) | ⎯ | CW carrier  |
| Note 1: PREFSENS is specified in Table 7.2.1-5a.Note 2: Up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

Table 7.6.1.1-3b: Blocking performance requirement for Home BS for NB-IoT standalone operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7,11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| 74 | (FUL\_low -20) | to | (FUL\_high +5) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| Note 1: PREFSENS is specified in Table 7.2.1-5b.Note 2: Up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

Table 7.6.1.1-3c: Blocking performance requirement for Medium Range BS for NB-IoT standalone operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7, 11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-4 | See table 7.6.1.1-4 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 2) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| Note 1: PREFSENS is specified in Table 7.2.1-5c.Note 2: Up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

NOTE: Tables 7.6.1.1-3, 7.6.1.1-3a, 7.6.1.1-3b and 7.6.1.1-3c assumes that two operating bands, where the downlink operating band (see Table 5.5-1) of one band would be within the in-band blocking region of the other band, are not deployed in the same geographical area.

Table 7.6.1.1-4: Interfering signals for blocking performance requirement for NB-IoT standalone operation

|  |  |  |
| --- | --- | --- |
| NB-IoT channel BW of the lowest/highest carrier received [MHz] | Interfering signal centre frequency minimum offset to the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of interfering signal |
| 0.2 | ±7.5 | 5MHz E-UTRA signal |

For E-UTRA with NB-IoT in-band/guard band operation, the throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with a wanted and an interfering signal coupled to BS antenna input using the parameters in Tables 7.6.1.1-5, 7.6.1.1-5a, 7.6.1.1-5b, 7.6.1.1-5c and 7.6.1.1-6. The reference measurement channel for the wanted signal is identified in Table 7.2.1-1, 7.2.1-2, 7.2.1-3 and 7.2.1-4 for each channel bandwidth for E-UTRA, Table 7.2.1-5, 7.2.1-5a, 7.2.1-5b and 7.2.1-5c for NB-IoT and further specified in Annex A.

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

Table 7.6.1.1-5: Blocking performance requirement for Wide Area BS for E-UTRA with NB-IoT in-band/guard band operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7,11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 73, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -43 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-1 for E-UTRA and is specified in Table 7.2.1-5 for NB-IoT.Note 2: For a BS capable of multiband operation, in case of interfering signal that is not in the in-band blocking frequency range of the operating band where the wanted signal is present, and not in the in-band blocking frequency range of an adjacent or overlapping operating band, the wanted signal mean power is equal to PREFSENS + 1.4 dB.Note 3: For NB-IoT, up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

Table 7.6.1.1-5a: Blocking performance requirement for Local Area BS for E-UTRA with NB-IoT in-band/guard band operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7, 11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -35 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-1 for E-UTRA and is specified in Table 7.2.1-5a for NB-IoT.Note 2: For a BS capable of multiband operation, in case of interfering signal that is not in the in-band blocking frequency range of the operating band where the wanted signal is present, and not in the in-band blocking frequency range of an adjacent or overlapping operating band, the wanted signal mean power is equal to PREFSENS + 1.4 dB.Note 3: For NB-IoT, up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

Table 7.6.1.1-5b: Blocking performance requirement for Home BS for E-UTRA with NB-IoT in-band/guard band operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7, 11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| 74 | (FUL\_low -20) | to | (FUL\_high +5) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1)  | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -27 | PREFSENS +14dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +14dB (Note 1) | ⎯ | CW carrier |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-1 for E-UTRA and is specified in Table 7.2.1-5b for NB-IoT.Note 2: (Void)Note 3: For NB-IoT, up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

Table 7.6.1.1-5c: Blocking performance requirement for Medium Range BS for E-UTRA with NB-IoT in-band/guard band operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operating Band | Centre Frequency of Interfering Signal [MHz] | Interfering Signal mean power [dBm] | Wanted Signal mean power [dBm] | Interfering signal centre frequency minimum frequency offset from the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of Interfering Signal |
| 1-5, 7, 11, 13-14,18,19, 21, 42, 43, 65, 66, 70 | (FUL\_low -20) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 8, 26, 28 | (FUL\_low -20) | to | (FUL\_high +10) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +10) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 12 | (FUL\_low -20) | to | (FUL\_high +13) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +13) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 17 | (FUL\_low -20) | to | (FUL\_high +18) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +18) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1)  | ⎯ | CW carrier  |
| 20, 71 | (FUL\_low -11) | to | (FUL\_high +20) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +20) | toto | (FUL\_low -11)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 25 | (FUL\_low -20) | to | (FUL\_high +15) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +15) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| 31, 72, 74, 87, 88 | (FUL\_low -20) | to | (FUL\_high +5) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +5) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier  |
| 85 | (FUL\_low -20) | to | (FUL\_high +12) | -38 | PREFSENS +6dB (Note 1) | See table 7.6.1.1-6 | See table 7.6.1.1-6 |
| 1(FUL\_high +12) | toto | (FUL\_low -20)12750 | -15 (Note 3) | PREFSENS +6dB (Note 1) | ⎯ | CW carrier |
| Note 1: PREFSENS depends on the channel bandwidth as specified in Table 7.2.1-1 for E-UTRA and is specified in Table 7.2.1-5c for NB-IoT.Note 2: For a BS capable of multiband operation, in case of interfering signal that is not in the in-band blocking frequency range of the operating band where the wanted signal is present, and not in the in-band blocking frequency range of an adjacent or overlapping operating band, the wanted signal mean power is equal to PREFSENS + 1.4 dB.Note 3: For NB-IoT, up to 24 exceptions are allowed for spurious response frequencies in each wanted signal frequency when measured using a 1MHz step size. For these exceptions the above throughput requirement shall be met when the blocking signal is set to a level of -40 dBm for 15 kHz subcarrier spacing and -46 dBm for 3.75 kHz subcarrier spacing. In addition, each group of exceptions shall not exceed three contiguous measurements using a 1MHz step size. |

NOTE: Tables 7.6.1.1-5, 7.6.1.1-5a and 7.6.1.1-5b assume that two operating bands, where the downlink operating band (see Table 5.5-1) of one band would be within the in-band blocking region of the other band, are not deployed in the same geographical area.

Table 7.6.1.1-6: Interfering signals for blocking performance requirement for E-UTRA with NB-IoT in-band/guard band operation

|  |  |  |
| --- | --- | --- |
| E-UTRAchannel BW of the lowest/highest carrier received [MHz] | Interfering signal centre frequency minimum offset to the lower/upper Base Station RF Bandwidth edge or sub-block edge inside a sub-block gap [MHz] | Type of interfering signal |
| 3(Note) | ±4.5 | 3MHz E-UTRA signal |
| 5 | ±7.5 | 5MHz E-UTRA signal |
| 10 | ±7.5 | 5MHz E-UTRA signal |
| 15 | ±7.5 | 5MHz E-UTRA signal |
| 20 | ±7.5 | 5MHz E-UTRA signal |
| Note: 3 MHz channel bandwidth is not applicable to guard band operation. |

***<End of change>***