**3GPP TSG-RAN WG4 Meeting #116bis R4-2513771**

**Prague, Czech Republic, Oct 13 – 17, 2025**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.104** | **CR** | **draftCR** | **rev** | **-** | **Current version:** | **19.2.0** |  |
|  |
| *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:***  | Draft CR to TS 38.104 correcction on SBFD BS blocking |
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| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_BS\_RF\_req\_evo |  | ***Date:*** | 2025-10-02 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-19 |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | The offset between OTA blocking requirement and conducted blocking requirement is not correctly implemented for In-channel adjacent subband blocking for FR1. The detailed explanation can be found in R4-2513770. |
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| ***Summary of change:*** | Offset ΔOTAREFSENS is added for FR1 |
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| ***Consequences if not approved:*** | The OTA blocking requirements are not correct. |
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| ***Clauses affected:*** | 12.6.5.2, 12.6.9.2 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** | 19.2.0 is not available, this CR is based on the CR R4-2511255 |
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| ***This CR's revision history:*** |  |

<Start of changes>

12.6.5.2 OTA in-band blocking for SBFD

12.6.5.2.1 General

The OTA in-band blocking characteristics is a measure of the receiver's ability to receive an OTA wanted signal at its assigned channel in the presence of an unwanted OTA interferer, which is an NR signal for general blocking or an NR signal with one RB for narrowband blocking.

NOTE 1: For FR1 WA BS, the in-band blocking requirements are derived based on the simulation assumption of 4GHz with 288 meters minimum distance coming from 100% grid shift between SBFD-capable BSs and neighbouring adjacent-channel TDD BSs. This NOTE shall not be interpreted as part of RF requirements.

NOTE 2: For FR1 MR BS, the in-band blocking requirements are derived based on the simulation assumption of 4GHz outdoor deployment with 167 meters minimum distance coming from 100% grid shift between SBFD-capable BSs and neighbouring adjacent-channel TDD BSs. This NOTE shall not be interpreted as part of RF requirements or in the context of indoor.

NOTE 3: SBFD UL subband is not configured adjacent to the *Radio Bandwidth* edge where cross link interference from adjacent channel may appear.

12.6.5.2.2 Minimum requirement for SBFD capable BS *type 1-O*

The requirement shall apply at the RIB when the AoA of the incident wave of a received signal and the interfering signal are from the same direction, i.e. when the wanted signal is based on EISREFSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *OTA REFSENS RoAoA.*

The wanted and interfering signals apply to each supported polarization, under the assumption of *polarization match*.

The throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with OTA wanted and OTA interfering signal specified in tables 12.6.5.2.2-1 for general OTA blocking requirements. The reference measurement channel for the OTA wanted signal is further specified in annex A.1. The characteristics of the interfering signal is further specified in annex D.

The OTA in-band blocking requirements apply 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 12.6.5.2.2-1: General OTA blocking requirement for *BS type 1-O for SBFD***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***BS channel bandwidth* of the *lowest/highest carrier* received****(MHz)** | **Wanted signal mean power (dBm) (Note 1)** | **Interfering signal mean power (dBm)** | **Interfering signal centre frequency minimum offset from the lower/upper *Base Station RF Bandwidth edge* or *sub-block* edge inside a *sub-block gap* (MHz)** | **Type of interfering signal** |
| 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 | EISREFSENS + 6 dB | Wide Area BS: -25 - ΔOTAREFSENSMedium Range BS: -32 - ΔOTAREFSENSLocal Area BS: -35 - ΔOTAREFSENS | ±30 | 20 MHz CP-OFDM NR signal30 kHz SCS, 51 RBs |
| NOTE 1: EISREFSENS is given in clause 12.6.3.NOTE 2: For lowest/highest carrier is configured in DU/UD SBFD operation, the interference only applies when DL subband is adjacent to Base Station RF Bandwidth edge. |

<Next changes>

12.6.9.2 Minimum requirement for SBFD-capable *BS type 1-O*

The requirement shall apply at the RIB when the AoA of the incident wave of a received signal and the interfering signal are from the same direction, i.e. when the wanted signal is based on EISREFSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *OTA REFSENS RoAoA.*

The wanted and interfering signals apply to each supported polarization, under the assumption o*f polarization match*.

The throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with an OTA wanted signal and OTA interfering signal(s) using the parameters specified in table 12.6.9.2-1. The reference measurement channel for the wanted signal is identified in clause 10.3.2 for each *SBFD UL subband bandwidth* and are further specified in annex A.1. The characteristic of the interfering signal(s) is further specified in annex D.

The OTA in-channel adjacent subband blocking requirement shall apply to *SBFD UL subband bandwidth*. The interfering signal(s) shall be positioned at the centre frequency of the *SBFD DL subband bandwidth(s)*.

Table 12.6.9.2-1: In-channel adjacent subband blocking requirement for *SBFD-capable BS type 1-O*

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| --- | --- | --- | --- | --- | --- |
| SBFD UL subband bandwidth (MHz) | Wanted signal mean power (dBm) (NOTE 1) | Interfering signal mean power (dBm)(NOTE 5) | SBFD UD/UD or DUD case | Interfering signal centre frequency/frequencies | Type of interfering signal(s)（NOTE 2, 3, 4） |
| 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90 | EISREFSENS + 6 dB | Wide Area BS: -28 - ΔOTAREFSENSMedium Range BS: -32 - ΔOTAREFSENSLocal Area BS: -34 - ΔOTAREFSENS | DU or UD | FC,SBFD,DL | CP-OFDM NR signal30 kHz SCS, BW = X (in the unit of RB) |
| DUD | FC,SBFD,DL,1FC,SBFD,DL,2 | CP-OFDM NR signal30 kHz SCS, BW1 = X1 and BW2 = X2 (in the unit of RB) |
| NOTE 1: PREFSENS depends on the SBFD UL subband bandwidth as specified in clause 12.3.2. NOTE 2:   For DU or UD case, interfering signal is placed at FC,SBFD,DL. For DUD case, two interfering signals are placed at FC,SBFD,DL,1 and FC,SBFD,DL,2, respectively.NOTE 3: For DU or UD case, X is the largest transmission bandwidth configuration as specified in table 5.3.2-1 that is not larger than NRB, SBFD, DL. For DUD case, X1 is the largest transmission bandwidth configuration as specified in table 5.3.2-1 that is not larger than NRB, SBFD, DL,1 and X2 is the largest transmission bandwidth configuration as specified in table 5.3.2-1 that is not larger than NRB, SBFD, DL,2.NOTE 4: In case the SBFD BS is configured with intra-band carrier aggregation, the set of interfering signals consists of the interfering signal(s) in this table and the signals from other intra-band contiguous carrier(s) operated in non-SBFD operation. The power spectral density of each interfering signal is set to be the same level.NOTE 5: For FR1 WA BS, in-channel adjacent subband blocking requirement assumes 80 dBc coupling loss between interfering BS transmitter and SBFD BS receiver. |

<End of changes>