**3GPP TSG-RAN WG4 Meeting #116 R4-25**

**Bengaluru, India, August 25th – 29th, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.104** | **CR** | **draftCR** | **rev** | **1** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *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 38.104 on in-band selectivity and blocking for SBFD | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_duplex\_evo-Core | | | | |  | ***Date:*** | | | 2025-05-19 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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 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:*** | | Introduction of in-band selectivity and blocking requirements for SBFD-capable BS to TS 38.104 for package 9 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Changes is made in  12.3.4 In-band selectivity and blocking for SBFD  12.6.5 OTA in-band selectivity and blocking for SBFD | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | in-band selectivity and blocking requirements for SBFD is not defined | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of changes>

### 12.3.4 In-band selectivity and blocking for SBFD

12.3.4.1 Adjacent Channel Selectivity (ACS) for SBFD

##### 12.3.4.1.1 General

Adjacent channel selectivity (ACS) is a measure of the receiver’s ability to receive a wanted signal at its assigned channel frequency at the *TAB connector* for *BS type 1-H* in the presence of an adjacent channel signal with a specified centre frequency offset of the interfering signal to the band edge of a victim system.

##### 12.3.4.1.2 Minimum requirement for SBFD capable BS type 1-H

For SBFD 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 type 1‑H* *TAB connector* using the parameters in table 12.3.4.1.2-1 for ACS. The reference measurement channel for the wanted signal is further specified in annex A.1. The characteristics of the interfering signal is further specified in annex D.

The ACS 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 12.3.4.1.2-1: Base station ACS requirement 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 | PREFSENS + 6 dB | Wide Area SBFD-capable BS: -28  Medium Range BS: -32  Local Area BS: -35 | ±10 | 20 MHz CP-OFDM NR signal  30 kHz SCS, 51 RBs |
| NOTE 1: PREFSENS for SBFD UL subband bandwidth depends on the *BS channel bandwidth* as specified in clause 7.2.2.  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.  NOTE x: Requirements assumption is to be discussed in Issue 2-1-4 | | | | |

12.3.4.2 In-band blocking for SBFD

##### 12.3.4.2.1 General

The in-band blocking characteristics is a measure of the receiver's ability to receive a wanted signal at its assigned channel at the *TAB connector* for *BS type 1-H* in the presence of an unwanted interferer, which is an NR signal for general blocking.

##### 12.3.4.2.2 Minimum requirement for SBFD capable BS type 1-H

The throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel, with a wanted and an interfering signal coupled to *BS type 1‑H* *TAB connector* using the parameters in table 12.3.4.2.2-1 for general blocking for SBFD. The reference measurement channel for the wanted signal is further specified in annex A.1. The characteristics of the interfering signal is further specified in annex D.

The 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.

Minimum conducted requirement is defined at the *TAB connector* for *BS type 1-H.*

Table 12.3.4.2.2-1: Base station general blocking requirement



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***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 | PREFSENS + 6 dB | Wide Area SBFD-capable BS: -25  Medium Range BS: -32  Local Area BS: -35 | ±30 | 20 MHz CP-OFDM NR signal  30 kHz SCS, 51 RBs |
| NOTE 1: PREFSENS for SBFD UL subband bandwidth depends on the *BS channel bandwidth* as specified in clause 7.2.2.  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.  NOTE x: Requirements assumption is to be discussed in Issue 2-1-4 | | | | |

<The next change>

### 12.6.5 OTA in-band selectivity and blocking for SBFD

12.6.5.1 OTA Adjacent Channel Selectivity for SBFD

##### 12.6.5.1.1 General

OTA Adjacent channel selectivity (ACS) is a measure of the receiver's ability to receive an OTA wanted signal at its assigned channel frequency in the presence of an OTA adjacent channel signal with a specified centre frequency offset of the interfering signal to the band edge of a victim system.

##### 12.6.5.1.2 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 and are within the *minSENS 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.

For SBFD operation, the OTA wanted and the interfering signal are specified in table 12.6.5.1.2-1 for OTA ACS. 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 ACS requirement is applicable outside the *Base Station RF Bandwidth* or *Radio Bandwidth*. The OTA interfering signal offset is defined relative to the *Base station RF Bandwidth edges* or *Radio Bandwidth edges*.

Table 12.6.5.1.2-1: OTA ACS 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 + 6.7 dB | Wide Area BS: -28 - ΔOTAREFSENS  Medium Range BS: -32 - ΔOTAREFSENS  Local Area BS: -35 - ΔOTAREFSENS | | ±10 | | 20 MHz CP-OFDM NR signal  30 kHz SCS, 51 RBs | |
| NOTE 1: 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. | | | | | | | |

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.

##### 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, and:

- 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.*

- when the wanted signal is based on EISminSENS: the AoA of the incident wave of a received signal and the interfering signal are within the *minSENS 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 + 6.7 dB | Wide Area BS: -25 - ΔOTAREFSENS  Medium Range BS: -32 - ΔOTAREFSENS  Local Area BS: -35 - ΔOTAREFSENS | ±30 | 20 MHz CP-OFDM NR signal  30 kHz SCS, 51 RBs |
| NOTE 1: 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. | | | | |

##### 12.6.5.2.2 Minimum requirement for SBFD capable BS type 2-O

The general minimum requirements are the same as those specified in clause 10.5.2.3, except for EISREFSENS. The EISREFSENS depends on the SBFD capable BS class and the SBFD UL subband, and it is specified in clause 12.6.3.

<End of changes>