**3GPP TSG-WG4 Meeting #113 *R4-2419878***

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.115-2** | **CR** | **0030** | **rev** | **1** | **Current version:** | **18.2.0** |  |
|  | | | | | | | | |
| *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:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_netcon\_repeater-Perf | | | | |  | ***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 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:*** | | For simultaneous NCR-Fwd and NCR-MT transmission cases, ACLR requirements may not be specified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add NOTEs in the ACLR limit tables to make the nominal channel bandwidth to be the possible widest channel bandwidth of the NCR-Fwd carrier for the simultaneous NCR-Fwd and NCR-MT transmission case. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | ACLR requirements may remain not be specified for simultaneous NCR-Fwd and NCR-MT transmission case. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.5.2.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS 38.106 ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 38.115-1 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Updated the text in the note for the case NCR-MT is adjacent to the passband. | | | | | | | | |

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

#### 6.5.2.5 Test requirements

The OTA ACLR limit for *repeater type 2-O* and *NCR-Fwd type 2-O* is specified in table 6.5.2.5-1 for DL and UL for Wide Area class and DL for Local Area class.

The OTA ACLR limit for *repeater type 2-O* and *NCR-Fwd type 2-O* is specified in table 6.5.2.5-1a for UL for Local Area class.

The OTA ACLR absolute limitfor *repeater type 2-O* and *NCR-Fwd type 2-O* is specified in table 6.5.2.5-2.

The OTA ACLR (CACLR) absolute limit for *repeater type 2-O* and *NCR-Fwd type 2-O* in table 6.5.2.5-2 or 6.5.2.5-5 or the ACLR (CACLR) limit in table 6.5.2.5-1, 6.5.2.5-3 or 6.5.2.5-4, whichever is less stringent, shall apply.

For a RIB operating in *non-contiguous spectrum*, the OTA ACLR requirement for *repeater type 2-O* and *NCR-Fwd type 2-O* in table 6.5.2.5-3 shall apply in *gaps between passbands* for the frequency ranges defined in the table, while the OTA CACLR requirement for *repeater type 2-O* and *NCR-Fwd type 2-O* in table 6.5.2.5-4 shall apply in *gaps between passbands* for the frequency ranges defined in the table.

The CACLR in a *gap between passbands* is the ratio of:

a) the sum of the filtered mean power centred on the assigned channel frequencies for the two carriers adjacent to each side of the *gap between passbands*, and

b) the filtered mean power centred on a frequency channel adjacent to one of the respective passband edges.

The assumed filter for the adjacent channel frequency is defined in table 6.5.2.5-4 and the filters on the assigned channels are defined in table 6.5.2.5-6.

For operation in *non-contiguous spectrum*, the CACLR for NR carriers located on either side of the *gap between passbands* shall be higher than the value specified in table 6.5.2.5-4.

Table 6.5.2.5-1: *Repeater type 2-O* and *NCR-Fwd type 2-O* ACLR limit for DL and UL for WA class and DL for LA class

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Repeater nominal channel bandwidth  BWNominal (MHz) | Repeater adjacent channel centre frequency offset below or above passband edge | Assumed adjacent channel carrier | Filter on the adjacent channel frequency and corresponding filter bandwidth | ACLR limit  (dB) |
| 50, 100, 200, 400 | BWNominal/2 | NR of same BW (Note 2) | Square (BWConfig) | 25.7 (Note 3)  23.4 (Note 4)  23.2 (Note 5) |
| NOTE 1: BWNominal is the *nominal channel bandwidth.*BWConfigis the *transmission bandwidth configuration* assumed for the adjacent channel..  NOTE 2: With SCS that provides the largest *transmission bandwidth configuration* (BWConfig).  NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.25 – 33.4 GHz  NOTE 4: Applicable to bands defined within the frequency spectrum range of 37 – 43.5 GHz  NOTE 5: Applicable to bands defined within the frequency spectrum range of 43.5 – 48.2 GHz  NOTE 6: For simultaneous NCR-Fwd and NCR-MT transmission, if the NCR-MT carrier is within the passband then the nominal channel bandwidth shall be calculated based on the the bandwidth between the lower edge of the passband and the lower edge of the NCR-MT carrier for lower side, or between the upper edge of the passband and the upper edge of the NCR-MT carrier for upper side. If the NCT-MT carrier is adjacent to the passband then ACLR requirement for NCR-MT based on NCR-MT channel bandwidth shall be applied for the NCR-MT carrier side and the nominal channel bandwidth calculated with the passband bandwidth shall be used for the passband side. If the NCR-MT carrier is not adjacent to the passband then CACLR shall be applied in the gap between the passband and the NCR-MT carrier. | | | | |

Table 6.5.2.5-1a: *Repeater type 2-O* and *NCR-Fwd type 2-O* ACLR limit for UL LA class

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Repeater nominal channel bandwidth BWNominal (MHz) | Repeater adjacent channel centre frequency offset below or above passband edge | Assumed adjacent channel carrier | Filter on the adjacent channel frequency and corresponding filter bandwidth | ACLR limit  (dB) |
| 50, 100, 200, 400 | BWNominal/2 | NR of same BW (Note 2) | Square (BWConfig) | 14.7 (Note 3)  13.4 (Note 4)  13.2 (Note 5) |
| NOTE 1: BWNominal is the *nominal channel bandwidth.*BWConfigis the *transmission bandwidth configuration* assumed for the adjacent channel.  NOTE 2: With SCS that provides the largest *transmission bandwidth configuration* (BWConfig).  NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.25 – 33.4 GHz  NOTE 4: Applicable to bands defined within the frequency spectrum range of 37 – 43.5 GHz  NOTE 5: Applicable to bands defined within the frequency spectrum range of 43.5 – 48.2 GHz  NOTE 6: For simultaneous NCR-Fwd and NCR-MT transmission, if the NCR-MT carrier is within the passband then the nominal channel bandwidth shall be calculated based on the the bandwidth between the lower edge of the passband and the lower edge of the NCR-MT carrier for lower side, or between the upper edge of the passband and the upper edge of the NCR-MT carrier for upper side. If the NCT-MT carrier is adjacent to the passband then ACLR requirement for NCR-MT based on NCR-MT channel bandwidth shall be applied for the NCR-MT carrier side and the nominal channel bandwidth calculated with the passband bandwidth shall be used for the passband side. If the NCR-MT carrier is not adjacent to the passband then CACLR shall be applied in the gap between the passband and the NCR-MT carrier. | | | | |

Table 6.5.2.5-2: *Repeater type 2-O* and *NCR-Fwd type 2-O* ACLR absolute limit

|  |  |  |
| --- | --- | --- |
| Repeater class | ACLR absolute limit (Note 1) | ACLR absolute limit (Note 2) |
| Wide-area DL and UL | -10.3 dBm/MHz | -10.1 dBm/MHz |
| Medium-range DL | -17.3 dBm/MHz | -17.1 dBm/MHz |
| Local-area DL | -17.3 dBm/MHz | -17.1 dBm/MHz |
| NOTE 1: Applicable to bands defined within the frequency spectrum range of 24.25 – 43.5 GHz  NOTE 2: Applicable to bands defined within the frequency spectrum range of 43.5 – 48.2 GHz | | |

Table 6.5.2.5-3: *Repeater type 2-O* and *NCR-Fwd type 2-O* ACLR limit in non-contiguous spectrum for DL and UL for WA class and DL for LA class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Repeater nominal channel bandwidth BWNominal (MHz) | Gap between passbands size (Wgap) where the limit applies (MHz) | Repeater adjacent channel centre frequency offset below or above passband edge (inside the gap) | Assumed adjacent channel carrier | Filter on the adjacent channel frequency and corresponding filter bandwidth | ACLR limit |
| 50, 100, 200, 400 | Wgap≥ 100 (Note 6)  Wgap≥ 250 (Note 7) | 25 MHz | 50 MHz NR (Note 2) | Square (BWConfig) | 25.7 (Note 3)  23.4 (Note 4)  23.2 (Note 5) |
| 50, 100, 200, 400 | Wgap≥ 400 (Note 7)  Wgap≥ 250 (Note 6) | 100 MHz | 200 MHz NR (Note 2) | Square (BWConfig) | 25.7 (Note 3)  23.4 (Note 4)  23.2 (Note 5) |
| NOTE 1: BWConfig is the *transmission bandwidth configuration* assumed for the adjacent channel..  NOTE 2: With SCS that provides the largest *transmission bandwidth configuration* (BWConfig).  NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.25 – 33.4 GHz.  NOTE 4: Applicable to bands defined within the frequency spectrum range of 37 – 43.5 GHz.  NOTE 5: Applicable to bands defined within the frequency spectrum range of 43.5 – 52.6 GHz.  NOTE 6: Applicable in case the *nominal channel bandwidth* at the other edge of the gap is ≤ 100 MHz.  NOTE 7: Applicable in case the *nominal channel bandwidth* at the other edge of the gap is > 100 MHz.  NOTE 8: For simultaneous NCR-Fwd and NCR-MT transmission, if the NCR-MT carrier is within the passband then the nominal channel bandwidth shall be calculated based on the the bandwidth between the lower edge of the passband and the lower edge of the NCR-MT carrier for lower side, or between the upper edge of the passband and the upper edge of the NCR-MT carrier for upper side. If the NCT-MT carrier is adjacent to the passband then ACLR requirement for NCR-MT based on NCR-MT channel bandwidth shall be applied for the NCR-MT carrier side and the nominal channel bandwidth calculated with the passband bandwidth shall be used for the passband side. If the NCR-MT carrier is not adjacent to the passband then CACLR shall be applied in the gap between the passband and the NCR-MT carrier. | | | | | |

Table 6.5.2.2-3a: *Repeater type 2-O* and *NCR-Fwd type 2-O* ACLR limit in non-contiguous spectrum for UL for LA class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Repeater nominal channel bandwidth BWNominal  (MHz) | Gap between passbands size (Wgap) where the limit applies (MHz) | Repeater adjacent channel centre frequency offset below or above the passband edge (inside the gap) | Assumed adjacent channel carrier | Filter on the adjacent channel frequency and corresponding filter bandwidth | ACLR limit |
| 50, 100, 200, 400 | Wgap≥ 100 (Note 6)  Wgap≥ 250 (Note 7) | 25 MHz | 50 MHz NR (Note 2) | Square (BWConfig) | 14.7 (Note 3)  13.4 (Note 4)  13.2 (Note 5) |
| 50, 100, 200, 400 | Wgap≥ 400 (Note 7)  Wgap≥ 250 (Note 6) | 100 MHz | 200 MHz NR (Note 2) | Square (BWConfig) | 14.7 (Note 3)  13.4 (Note 4)  13.2 (Note 5) |
| NOTE 1: BWConfig is the *transmission bandwidth configuration* assumed for the adjacent channel.  NOTE 2: With SCS that provides the largest *transmission bandwidth configuration* (BWConfig).  NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.25 – 33.4 GHz.  NOTE 4: Applicable to bands defined within the frequency spectrum range of 37 – 43.5 GHz.  NOTE 5: Applicable to bands defined within the frequency spectrum range of 43.5 – 52.6 GHz.  NOTE 6: Applicable in case the *nominal channel bandwidth* at the other edge of the gap is ≤ 100 MHz.  NOTE 7: Applicable in case the *nominal channel bandwidth* at the other edge of the gap is > 100 MHz.  NOTE 8: For simultaneous NCR-Fwd and NCR-MT transmission, if the NCR-MT carrier is within the passband then the nominal channel bandwidth shall be calculated based on the the bandwidth between the lower edge of the passband and the lower edge of the NCR-MT carrier for lower side, or between the upper edge of the passband and the upper edge of the NCR-MT carrier for upper side. If the NCT-MT carrier is adjacent to the passband then ACLR requirement for NCR-MT based on NCR-MT channel bandwidth shall be applied for the NCR-MT carrier side and the nominal channel bandwidth calculated with the passband bandwidth shall be used for the passband side. If the NCR-MT carrier is not adjacent to the passband then CACLR shall be applied in the gap between the passband and the NCR-MT carrier. | | | | | |

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