**3GPP TSG-RAN4 WG4 Meeting #** **100-e *R4-2115833***

**Electronic meeting, August 16- 27, 2021**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **37.105** | **CR** | xxxx | **rev** | **-** | **Current version:** | **15.13.0** |  |
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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 | **x** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Big CR for TS 37.105 Maintenance(Rel-15, CAT F) | | | | | | | | | |
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| ***Source to WG:*** | MCC, Huawei | | | | | | | | | |
| ***Source to TSG*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AASenh\_BS\_LTE\_UTRA-Core,  NR\_newRAT-Perf | | | | |  | ***Date:*** | | | 2021-08-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | This big CRs merge the mutile endorsed draf CRs. The reason for change in each endorsed draft CR is copied below.  **R4-2115654 OTA transmitter intermodulation 37.105 R15**  <Reason for change>  On OTA tranmitter intermodulation, very high power Prated,t,TRP is not feasible for the test chamber. And the power transmitted in closest column could be far below the power Prated,t,TRP since AAS always use multi-column antenna. For co-location blocking requirements, 46 dBm is adopted in terms of TRP. The same interferer level as used for co-location blocking should be re-used  **R4-2115658 TS 37.105: Correction of additional spurious emission limits for bands 50, 51, 75, 76**  <Reason for change>  The current emission limit of -33 dBm/27 MHz is not in line with the ECC Dec 17(06) specifying -72 dBW/27MHz. Following the discussion in R4-2110922 and approved CR in R4-2108498 we proposed to set the limit to -42 dBm/27 MHz. This requirements are also applicable in spurious emissions domain. | | | | | | | | |
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| ***Summary of change:*** | | The summary of change in each each endorsed draft CR is copied below.  **R4-2115654 OTA transmitter intermodulation 37.105 R15**  <Summary of change>  The max interfereing power is defined as 46 dBm which is the same as co-location blocking for Macro BS  **R4-2115658 TS 37.105: Correction of additional spurious emission limits for bands 50, 51, 75, 76**  <Summary of change>  Added a statement in the spurius emissions general section  Change the limit to -42 dBm/27MHz.  Change table titles. Remove “declared”  Limits as EIRP in line with spectrum decision | | | | | | | | |
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| ***Consequences if not approved:*** | | The consequences if not approved for each endorsed draft CR are coppied below.  **R4-2115654 OTA transmitter intermodulation 37.105 R15**  <Consequences if not approved>  OTA tranmitter intermodulation can not be tested in the test chamber.  **R4-2115658 TS 37.105: Correction of additional spurious emission limits for bands 50, 51, 75, 76**  <Consequences if not approved>  Wrong value for unwanted emissions limit and lack of compliance with a European spectrum decision. | | | | | | | | |
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| ***Clauses affected:*** | | **R4-2115654 OTA transmitter intermodulation 37.105 R15**  <Clauses affected>  9.8  **R4-2115658 TS 37.105: Correction of additional spurious emission limits for bands 50, 51, 75, 76**  <Clauses affected>  9.7.5.1, 9.7.5.2.4.7, 9.7.6.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR … CR … | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 37.145-2 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR … CR … | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |

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| ***This CR’s revision history:*** |  |

***<Start of change1>***

### 9.7.5 OTA Operating band unwanted emission

#### 9.7.5.1 General

Unless otherwise stated, for E-UTRA single band and MSR the operating band unwanted emission limits are defined from ΔfOBUE below the lowest frequency of each supported *downlink operating band* to the lower *Base Station RF Bandwidth edge* located at FBW RF,low and from the upper *Base Station RF Bandwidth edge* located at FBW RF,high up to ΔfOBUE above the highest frequency of each supported *downlink operating band*. The values of ΔfOBUE are defined in table 9.7.1-1.

The requirements shall apply whatever the type of transmitter considered and for all transmission modes foreseen by the manufacturer's specification.

The operating band unwanted emissions minimum requirements are quoted as TRP per *RIB* unless otherwise stated.

The requirements shall apply whatever the type of RIBis considered (single carrier or multi-carrier) and for all transmission modes foreseen by the manufacturer's specification. In addition, for a RIB operating in *non-contiguous spectrum*, the requirements apply inside any *sub-block gap*. In addition, for a *multi-band RIB* the requirements apply inside any *Inter RF Bandwidth gap*.

The unwanted emission limits in the part of the *downlink operating band* that falls in the spurious domain are consistent with ITU-R Recommendation SM.329 [14].

Additional limits in clause 9.7.5.2.4.7 may apply outside OBUE frequency domain.

Emissions shall use the minimum requirements specified in the tables below, where:

- Δf is the separation between the channel edge frequency and the nominal -3dB point of the measuring filter closest to the carrier frequency.

- f\_offset is the separation between the channel edge frequency and the centre of the measuring filter.

- f\_offsetmax is the offset to the frequency ΔfOBUE MHz outside the *downlink operating band*.

- Δfmax is equal to f\_offsetmax minus half of the bandwidth of the measuring filter.

For a *multi-band RIB* inside any *Inter RF Bandwidth gaps* with Wgap < 2×ΔfOBUE, emissions shall not exceed the cumulative sum of the minimum requirements specified at the *Base Station RF Bandwidth edges* on each side of the *Inter RF Bandwidth gap*. The minimum requirement for *Base Station RF Bandwidth edge* is specified in the subclause 9.7.5.4.2 to 9.7.5.4.7 below, where in this case:

- Δf is the separation between the *Base Station RF Bandwidth edge* frequency and the nominal -3 dB point of the measuring filter closest to the *Base Station RF Bandwidth edge*.

- f\_offset is the separation between the *Base Station RF Bandwidth edge* frequency and the centre of the measuring filter.

- f\_offsetmax is equal to the *Inter RF Bandwidth gap* minus half of the bandwidth of the measuring filter.

- Δfmax is equal to f\_offsetmax minus half of the bandwidth of the measuring filter.

For *multi-band RIB*, the operating band unwanted emission limits apply also in a supported operating band without any carrier transmitted, in the case where there are carrier(s) transmitted in another supported operating band. In this case, no cumulative limit is applied in the *inter-band gap* between a supported *downlink operating band* with carrier(s) transmitted and a supported *downlink operating band* without any carrier transmitted and

- In case the *inter-band gap* between a supported *downlink operating band* with carrier(s) transmitted and a supported *downlink operating band* without any carrier transmitted is less than 2×ΔfOBUE, f\_offsetmax shall be the offset to the frequency ΔfOBUE MHz outside the outermost edges of the two supported *downlink operating band*s and the operating band unwanted emission limit of the band where there are carriers transmitted, as defined in the tables of the present subclause, shall apply across both downlink bands.

- In other cases, the operating band unwanted emission limit of the band where there are carriers transmitted, as defined in the tables of the present subclause for the largest frequency offset (Δfmax), shall apply from ΔfOBUE MHz below the lowest frequency, up to ΔfOBUE MHz above the highest frequency of the supported *downlink operating band* without any carrier transmitted.

For a multicarrier E-UTRA RIB or a RIB configured for intra-band contiguous or non-contiguous *carrier aggregation* the definitions above apply to the lower edge of the carrier transmitted at the lowest carrier frequency and the upper edge of the carrier transmitted at the highest carrier frequency within a specified frequency band.

In addition, inside any *sub-block gap* for a RIB operating in *non-contiguous spectrum*, emissions shall not exceed the cumulative sum of the minimum requirements specified for the adjacent sub blocks on each side of the *sub-block gap*. The minimum requirement for each sub block is specified in the tables sub-cluase 9.7.5.4.2 to 9.7.5.4.7 below, where in this case:

- Δf is the separation between the sub block edge frequency and the nominal -3 dB point of the measuring filter closest to the sub block edge.

- f\_offset is the separation between the sub block edge frequency and the centre of the measuring filter.

- f\_offsetmax is equal to the *sub-block gap* bandwidth minus half of the bandwidth of the measuring filter.

- Δfmax is equal to f\_offsetmax minus half of the bandwidth of the measuring filter.

ΔfOBUE is defined in clause 6.6.1.

***<End of change1>***

***<Start of change2>***

###### 9.7.5.2.4.7 Additional band 32, 50, 51, 74, 75 and 76 unwanted emissions

In certain regions, the following requirements may apply to BS operating in Band 32 within 1452-1492 MHz, in Band 75 within 1432-1517 MHz and in Band 76 within 1427-1432 MHz. The maximum level of operating band unwanted emissions, measured as EIRP, on centre frequencies f\_offset with filter bandwidth, according to table 9.7.5.2.4.7-1, shall not exceed the EIRP limits indicated in the table.

For Band 32, this requirement applies in the frequency range 1452-1492 MHz when non-Mobile/Fixed Communications Network (MFCN) services are deployed in adjacent frequency ranges, while it applies also within 1427-1452 MHz and/or 1492-1517 MHz when MFCN services are deployed in such frequency ranges, even though part of the ranges falls in the spurious domain. For Band 75, this requirement applies in the frequency range 1427-1517 MHz. For Band 76, this requirement applies in the frequency range 1432-1517 MHz even though part of the range falls in the spurious domain.

Table 9.7.5.2.4.7-1: Unwanted emission limits within 1427-1517 MHz

|  |  |  |
| --- | --- | --- |
| Frequency offset of measurement filter centre frequency, f\_offset | EIRP limit [dBm] | Measurement bandwidth |
| 2.5 MHz | 16.3 | 5 MHz |
| 7.5 MHz | 11 | 5 MHz |
| 12.5 MHz ≤ f\_offset ≤ f\_offsetmax | 9 | 5 MHz |
| NOTE: For Band 32, when non-MFCN services are deployed in the adjacent bands, f\_offsetmax denotes the frequency difference between the lower Base Station RF Bandwidth edge and 1454.5 MHz, and the frequency difference between the upper Base Station RF Bandwidthl edge and 1489.5 MHz for the set channel position. For Band 32, when MFCN services are deployed in the adjacent frequencies, Band 75 and Band 76, f\_offsetmax denotes the frequency difference between the lower Base Station RF Bandwidth edge and 1429.5 MHz, and the frequency difference between the upper Base Station RF Bandwidth edge and 1514.5 MHz for the set channel position. | | |

In certain regions, the following requirement may apply to BS operating in Band 32 within 1452-1492MHz for the protection of non-MFCN services in spectrum adjacent to the frequency range 1452-1492 MHz. The maximum level of emissions, measured as EIRP, on centre frequencies Ffilter with filter bandwidth according to Table 9.7.5.2.4.7-2, shall not exceed the EIRP limits indicated in the table. This requirement applies in the frequency range 1429-1518 MHz even though part of the range falls in the spurious domain.

Table 9.7.5.2.4.7-2: Unwanted emission limits outside 1452-1492 MHz

|  |  |  |
| --- | --- | --- |
| Filter centre frequency, Ffilter | EIRP limit [dBm] | Measurement bandwidth |
| 1429.5 MHz ≤ Ffilter ≤ 1448.5 MHz | 20 | 1 MHz |
| Ffilter = 1450.5 MHz | 14 | 3 MHz |
| Ffilter = 1493.5 MHz | 14 | 3 MHz |
| 1495.5 MHz ≤ Ffilter ≤ 1517.5 MHz | 20 | 1 MHz |

In certain regions, the following requirement may apply to BS operating in Band 50 and Band 75 within 1492-1517 MHz and in Band 74 within 1492-1518 MHz. The maximum level of emissions, measured as EIRP, on centre frequencies Ffilter with filter bandwidth according to table 9.7.5.2.4.7-3, shall not exceed the EIRP limits limits indicated in the table.

Table 9.7.5.2.4.7-3: Operating band 50, 74 and 75 emission test limits above 1518 MHz

|  |  |  |
| --- | --- | --- |
|  |  |  |
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|  |  |  |
| --- | --- | --- |
| Filter centre frequency, Ffilter | EIRP limit (dBm) | Measurement bandwidth |
| 1518.5 MHz ≤ Ffilter ≤ 1519.5 MHz | -0.8 | 1 MHz |
| 1520.5 MHz ≤ Ffilter ≤ 1558.5 MHz | -30 | 1 MHz |

In certain regions, the following requirement may apply to E-UTRA BS operating in Band 50 and Band 75 within 1432-1452 MHz, and in Band 51 and Band 76. Emissions shall not exceed the maximum levels specified in table 9.7.5.2.4.7-4.

Table 9.7.5.2.4.7-4: Additional emission limits for BS operating in Band 50 and 75 within 1432-1452 MHz, and in Band 51 and 76

|  |  |  |
| --- | --- | --- |
| Filter centre frequency, Ffilter | Maximum Level [dBm] | Measurement Bandwidth |
| Ffilter = 1413.5 MHz | -42 | 27 MHz |

###### 9.7.5.2.4.8 Additional requirements for band 45

In certain regions the following requirement may apply to E-UTRA BS operating in Band 45. Emissions shall not exceed the maximum levels specified in table 9.7.5.2.4.8-1.

Table 9.7.5.2.4.8-1: Emissions limits for protection of adjacent band services

|  |  |  |  |
| --- | --- | --- | --- |
| **Operating Band** | **Filter centre frequency, Ffilter** | **Maximum Level [dBm]** | **Measurement Bandwidth** |
| 45 | Ffilter = 1467.5 | -11 | 1 MHz |
| Ffilter = 1468.5 | -14 | 1 MHz |
| Ffilter = 1469.5 | -17 | 1 MHz |
| Ffilter = 1470.5 | -24 | 1 MHz |
| Ffilter = 1471.5 | -31 | 1 MHz |
| 1472.5 MHz ≤ Ffilter ≤ 1491.5 MHz | -38 | 1 MHz |

***<End of change2>***

***<Start of change3>***

### 9.7.6 OTA Spurious emission

#### 9.7.6.1 General

The OTA spurious emissions limits are specified as TRP per *RIB* unless otherwise specified.

The OTA transmitter spurious emission limits apply from 30 MHz to 12.75 GHz, excluding the following RAT-specific frequency ranges:

- UTRA FDD BS as specified in TS 25.104 [2]: from 12.5MHz below the lowest carrier frequency used up to 12.5MHz above the highest carrier frequency used.

- E-UTRA BS as specified in TS 36.104 [4]: from ΔfOBUE below the lowest frequency of the *downlink operating band* up to ΔfOBUE above the highest frequency of the *downlink operating band*, where ΔfOBUE is defined in subclause 9.7.1.

- MSR BS as specified in TS 37.104 [5]: from ΔfOBUE below the lowest frequency of the *downlink operating band* up to ΔfOBUE above the highest frequency of the *downlink operating band*, where ΔfOBUE is defined in subclause 9.7.1.

For some operating bands the upper frequency limit is higher than 12.75 GHz in order to comply with the 5th harmonic limit of the *downlink operating band*, as specified in ITU-R recommendation SM.329 [14]. In some exceptional cases, requirements apply also closer than ΔfOBUE MHz from the *downlink operating band*; these cases are highlighted in the requirement tables in respective referenced UTRA, E-UTRA or MSR specifications. For operating bands supported by *multi-band RIB* each supported band including the ΔfOBUE around the band are excluded from the spurious emissions requirements.

The requirements applies for both *single band* *RIBs* and *multi-band* *RIBs* (except for frequencies at which exclusion bands or other multi-band provisions apply) and for all transmission modes foreseen by the manufacturer's specification. Unless otherwise stated, all requirements are measured as mean power.

For operation in Region 2, where the FCC guidance for MIMO systems in [18] is applicable, the emissions limits are the same regardless of the number of transceiver units so the limits are equivalent to those for a single transceiver unit as specified in the as the corresponding applicable *non-AAS BS* per transmitter requirement specified in 3GPP TS 25.104 [2], 3GPP TS 25.105 [3], 3GPP TS 36.104 [4] or 3GPP TS 37.104 [5]. For E-UTRA the limits will be 9dB lower and for UTRA FDD the limits will be 6 dB lower, unless stated differently in regional regulation.

The AAS BS requirements for spurious emissions limits which are specified for Band 46 or for Band 49 in 3GPP TS 37.104 [5], are applicable for AAS BS.

#### For BS operating in bands n50, n51, n74, n75 and n76 additional emission limits that might be applicable in the spurious emissions frequency domain are specified in clause 9.7.5.2.4.7.9.7.6.2 MSR operation

9.7.6.2.1 Minimum requirement for MSR operation

***<End of change3>***

***<Start of change4>***

## 9.8 OTA Transmitter intermodulation

### 9.8.1 General

The OTA transmitter intermodulation requirement is a measure of the capability of the transmitter unit to inhibit the generation of signals in its non-linear elements caused by presence of the wanted signal and an interfering signal reaching the transmitter unit via the RDN and antenna array from a co-located base station. The requirement applies during the *transmitter ON period* and the *transmitter transient period*.

The requirement applies at each RIB supporting transmission in the operating band.

The transmitter intermodulation level is the *total radiated power* of the intermodulation products when an interfering signal is injected into the *co-location reference antenna*.

### 9.8.2 Minimum requirement for MSR operation

#### 9.8.2.1 General minimum requirement

The transmitter intermodulation level shall not exceed the unwanted emission limits specified for OTA transmitter spurious emission in subclause 9.7.6.1, 9.7.6.2.1 and 9.7.6.2.3, OTA operating band unwanted emission in subclause 9.7.5 and OTA ACLR in subclause 9.7.3 in the presence of a wanted signal and an interfering signal according to table 9.8.2.1‑1 for *OTA AAS BS* operation in BC1, BC2 and BC3.

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

For RIB*s* supporting operation in *non-contiguous spectrum*, the requirement is also applicable inside a *sub-block gap* for interfering signal offsets where the interfering signal falls completely within the *sub-block gap*. The interfering signal offset is defined relative to the *sub-block* edges.

For *multi-band RIBs*, the requirement applies relative to the *Base Station RF Bandwidth* *edges* of each operating band. In case the inter *Base Station RF Bandwidth* gap is less than 15 MHz, the requirement in the gap applies only for interfering signal offsets where the interfering signal falls completely within the inter *Base Station RF Bandwidth* gap.

Table 9.8.2.1-1: Interfering signal for the OTA transmitter intermodulation requirement

| Parameter | Value |
| --- | --- |
| Wanted signal type | E-UTRA or NR signal |
| Interfering signal type | E-UTRA signal of *channel bandwidth* 5 MHz |
| Interfering signal level applied to the *co-location reference antenna* | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from *Base Station RF Bandwidth* edge or edge of *sub-block* inside a gap | ±2.5 MHz  ±7.5 MHz  ±12.5 MHz |
| NOTE 1: Interfering signal positions that are partially or completely outside of any *downlink operating band* of the RIB is excluded from the requirement, unless the interfering signal positions fall within the frequency range of adjacent *downlink operating band*s in the same geographical area. In case that none of the interfering signal positions fall completely within the frequency range of the *downlink operating band*, 3GPP TS 37.141 [19] provides further guidance regarding appropriate test requirements.  NOTE 2: In certain regions, NOTE 1 is not applied in Band 1, 3, 8, 9, 11, 18, 19, 21, 28, 32 operating within 1 475.9 MHz to 1 495.9 MHz, 34.  NOTE 3: The Prated,t,TRP is split between polarizations at the *co-location reference antenna*. | |

#### 9.8.2.2 Additional minimum requirement (BC1 and BC2)

The transmitter intermodulation level shall not exceed the unwanted emission limits specified for transmitter spurious emission in subclause 9.7.6.1, 9.7.6.2.1 and 9.7.6.2.3 operating band unwanted emission in subclause 9.7.5 and ACLR in subclause 9.7.3 in the presence of a wanted signal and an interfering signal according to table 9.8.2.2-1 for BS operation in BC2.

The requirement is applicable outside the *Base Station RF Bandwidth* edges for BC2. The interfering signal offset is defined relative to the *Base Station RF Bandwidth* *edges*.

For RIBs supporting operation in *non-contiguous spectrum* in BC1 or BC2, the requirement is also applicable inside a *sub-block gap* with a gap size larger than or equal to two times the interfering signal centre frequency offset. For RIBssupporting operation in *non-contiguous spectrum* in BC1, the requirement is not applicable inside a *sub-block gap* with a gap size equal to or larger than 5 MHz. The interfering signal offset is defined relative to the *sub-block* edges.

For *multi-band* *RIBs*, the requirement applies relative to the *Base Station RF Bandwidth* *edges* of a BC2 operating band. The requirement is also applicable for BC1 and BC2 inside an inter *Base Station RF Bandwidth* gap equal to or larger than two times the interfering signal centre frequency offset. For RIBs supporting operation in multiple operating bands, the requirement is not applicable for BC1 band inside an inter *Base Station RF Bandwidth* gap with a gap size equal to or larger than 5 MHz.

Table 9.8.2.2-1: Interfering and wanted signals for the OTA transmitter intermodulation requirement

| Parameter | Value |
| --- | --- |
| Wanted signal type | E-UTRA or NR or UTRA signal |
| Interfering signal type | CW |
| Interfering signal level applied to the *co-location reference antenna* | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from *Base Station RF Bandwidth* edge or edge of *sub-block* inside a gap | > abs(800) kHz for CW interferer |
| NOTE 1: Interfering signal positions that are partially or completely outside of any *downlink operating band* of the RIB are excluded from the requirement.  NOTE 2: The Prated,t,TRP is split between polarizations at the *co-location reference antenna*. | |

#### 9.8.2.3 Additional minimum requirement (BC3)

The transmitter intermodulation level shall not exceed the unwanted emission limits specified for OTA transmitter spurious emission in subclause 9.7.6.1, 9.7.6.2.1 and 9.7.6.2.3 OTA operating band unwanted emission in subclause 9.7.5 and OTA ACLR in subclause 9.7.3 in the presence of a wanted signal and an interfering signal according to table 9.8.2.3-1 for AAS BS operation in BC3.

For *multi-band RIBs*, the requirement applies relative to *the Base Station RF Bandwidth* *edges* of each operating band. In case the *Inter RF Bandwidth gap* is less than 3.2 MHz, the requirement in the gap applies only for interfering signal offsets where the interfering signal falls completely within the inter *Base Station RF Bandwidth* gap.

Table 9.8.2.3-1: Interfering and wanted signals for the OTA transmitter intermodulation requirement (BC3)

| Parameter | Value |
| --- | --- |
| Wanted signal type | E-UTRA or NR or UTRA signal |
| Interfering signal type | 1,28 Mcps UTRA TDD signal of *channel bandwidth* 1,6 MHz |
| Interfering signal level applied to the *co-location reference antenna* | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from *Base Station RF Bandwidth* edge or edge of *sub-block* inside a gap | ±0,8 MHz  ±1,6 MHz  ±2,4 MHz |
| NOTE 1: Interfering signal positions that are partially or completely outside of any *downlink operating band* of the base station are excluded from the requirement.  NOTE 2: The Prated,t,TRP is split between polarizations at the *co-location reference antenna*. | |

#### 9.8.2.4 Additional minimum requirements

### 9.8.3 Minimum requirement for single RAT UTRA operation

#### 9.8.3.1 General minimum requirement for FDD UTRA

The transmitter intermodulation level shall not exceed the OTA out of band emission or the OTA spurious emission requirements of subclause 9.7.5 and subclause 9.7.6.1, 9.7.6.3.1 and 9.7.6.3.3, in the presence of interfering signal according to table 9.8.3.1-1.

Table 9.8.3.1-1: Interfering and wanted signal frequency offset for OTA transmitter intermodulation requirement

| Parameter | Value |
| --- | --- |
| Wanted signal type | UTRA |
| Interfering signal type | UTRA |
| Interfering signal level applied to the *co-location reference antenna* | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from the lower (upper) edge of the wanted signal or edge of *sub-block* inside a gap | -2,5 MHz  -7,5 MHz  -12,5 MHz  +2,5 MHz  +7,5 MHz  +12,5 MHz |
| NOTE 1: Interference frequencies that are outside of any allocated frequency band for UTRA-FDD downlink specified in subclause 4.6 are excluded from the requirement, unless the interfering signal positions fall within the frequency range of adjacent *downlink operating band*s in the same geographical area.  NOTE 2: NOTE 1 is not applied in Band I, III, VI, VIII, IX, XI, XIX, XXI, and XXXII operating within 1 475.9 MHz to 1 495.9MHz, in certain regions.  NOTE 3: The Prated,t,TRP is split between polarizations at the *co-location reference antenna*. | |

For RIBs supporting operation in *non-contiguous spectrum*, the requirement is also applicable inside a *sub-block gap* for interfering signal offsets where the interfering signal falls completely within the *sub-block gap*. The interfering signal offset is defined relative to the *sub-block* edges.

For *multi-band RIBs*, the requirement is also applicable inside an inter *Base Station RF Bandwidth* gap for interfering signal offsets where the interfering signal falls completely within the inter *Base Station RF Bandwidth* gap.

### 9.8.4 Minimum requirement for single RAT E-UTRA operation

#### 9.8.4.1 General minimum requirement

The transmitter intermodulation level shall not exceed the unwanted emission limits in subclauses 9.7.6.1, 9.7.6.4.1, 9.7.6.4.3, 9.7.5 and 9.7.3 in the presence of an E-UTRA interfering signal according to table 9.8.4.1‑1.

The 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 RIBs supporting operation in *non-contiguous spectrum*, the requirement is also applicable inside a *sub-block gap* for interfering signal offsets where the interfering signal falls completely within the *sub-block gap*. The interfering signal offset is defined relative to the *sub-block* edges.

For *multi-band RIBs* , the requirement applies relative to the *Base Station RF Bandwidth* *edges* of each supported operating band. In case the inter *Base Station RF Bandwidth* gap is less than 15 MHz, the requirement in the gap applies only for interfering signal offsets where the interfering signal falls completely within the inter *Base Station RF Bandwidth* gap.

The wanted signal and interfering signal centre frequency is specified in table 9.8.4.1‑1.

Table 9.8.4.1-1: Interfering and wanted signals for the OTA transmitter intermodulation requirement

| Parameter | Value |
| --- | --- |
| Wanted signal | E-UTRA single carrier, or multi-carrier, or multiple intra-band contiguously or non-contiguously aggregated carriers |
| Interfering signal type | E-UTRA signal of *channel bandwidth* 5 MHz |
| Interfering signal level applied to the *co-location reference antenna* | min(46 dBm, Prated,t,TRP) |
| Interfering signal centre frequency offset from the lower (upper) edge of the wanted signal or edge of *sub-block* inside a *sub-block gap* | ±2,5 MHz  ±7,5 MHz  ±12,5 MHz |
| NOTE 1: Interfering signal positions that are partially or completely outside of any *downlink operating band* of the base station are excluded from the requirement, unless the interfering signal positions fall within the frequency range of adjacent *downlink operating band*s in the same geographical area. In case that none of the interfering signal positions fall completely within the frequency range of the *downlink operating band*, 3GPP TS 36.141 [20] provides further guidance regarding appropriate test requirements.  NOTE 2: In certain regions, NOTE 1 is not applied in Band 1, 3, 8, 9, 11, 18, 19, 21, 28, 32 operating within 1 475.9 MHz to 1 495.9 MHz, 34, 74.  NOTE 3: The Prated,t,TRP is split between polarizations at the *co-location reference antenna*. | |

#### 9.8.4.2 Void

Table 9.8.4.2-1: Void

***<End of change4>***