**3GPP TSG-RAN4 Meeting #97-e *R4-2017649***

**Online, , 2nd Nov 2020 - 13th Nov 2020**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **37.145-2** | **CR** | **0246** | **rev** | **1** | **Current version:** | **13.12.0** |  |
|  | | | | | | | | |
| *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:*** | CR to TS 37.145-2: correction of manufacturer's declarations for test signal configurations, Rel-13 | | | | | | | | | |
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| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AAS\_BS\_LTE\_UTRA-Perf, TEI13 | | | | |  | ***Date:*** | | | 2020-10-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-13 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It was observed that there are still undefined terms "DUID" and “AUTC” mistakenly used instead of proper manufacturer's declaration and test signal confugration numbers in the test signal configuration sections. | | | | | | | | |
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| ***Summary of change:*** | | * 4.11.2.1.2: ATCR1a test signal configuration name corrected * 4.11.2.8.1.2: incorrect DUID terms corrected * 4.11.2.8.2.2: mistaken term AUTC corrected * 4.11.2.9.4: declaration numbers corrected   Other editorial corrections. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Mistaken test signal configuration terms would be used. Undefined terms would be used in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.11.2.1.2, 4.11.2.1.3, 4.11.2.2.2, 4.11.2.3.1, 4.11.2.5.1, 4.11.2.5.4, 4.11.2.6.1, 4.11.2.6.3, 4.11.2.8.1.2, 4.11.2.8.2.2, 4.11.2.9.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **x** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*------------------------------ Modified section ------------------------------*

##### 4.11.2.1.2 ATCR1a generation

ATCR1a should be constructed using the following method:

- The *Base Station RF Bandwidth* shall be the declared maximum radiated *Base Station RF Bandwidth* for contiguous operation (see table 4.10-1, D9.18).

- Place one UTRA FDD carrier adjacent to the upper *Base Station RF Bandwidth edge* and one UTRA FDD carrier adjacent to the lower *Base Station RF Bandwidth edge*. The specified FOffset shall apply.

- For transmitter tests, alternately place a UTRA FDD carrier adjacent to the already placed carriers at the low and high *Base Station RF Bandwidth edges* until there is no more space to fit a carrier or the beam does not support more carriers. The nominal carrier spacing defined in subclause 4.6 shall apply.

- The carrier(s) may be shifted maximum 100 kHz towards lower frequencies for BRFBW and MRFBW and towards higher frequencies for TRFBW to align with the channel raster.

##### 4.11.2.1.3 ATCR1b generation

ATCR1b is constructed using the following method:

- The *Base Station RF Bandwidth* shall be the declared maximum radiated *Base Station RF Bandwidth* for contiguous operation (see table 4.10-1, D6.20).

- Place one UTRA TDD carrier adjacent to the upper *Base Station RF Bandwidth edge* and one UTRA TDD carrier adjacent to the lower *Base Station RF Bandwidth* *edge*. The specified FOffset shall apply.

- For transmitter tests, alternately place a UTRA TDD carrier adjacent to the already placed carriers at the low and high *Base Station RF Bandwidth edges* until there is no more space to fit a carrier or the beam does not support more carriers. The nominal carrier spacing defined in subclause 4.6 shall apply.

*------------------------------ Next modified section ------------------------------*

#### 4.11.2.2 ANTCR1: UTRA FDD multicarrier non-contiguous operation

##### 4.11.2.2.1 General

The purpose of ANTCR1 is to test UTRA FDD multicarrier non-contiguous aspects.

##### 4.11.2.2.2 ANTCR1 generation

ANTCR1 is constructed as NTC1a in 3GPP TS 37.141 [13], subclause 4.8.1a.1.

ANTCR1 is constructed using the following method:

- The *Base Station RF Bandwidth* of each supported operating band shall be the declared maximum radiated *Base Station RF Bandwidth* for non-contiguous operation (see table 4.10-1, D6.21). The *Base* *Station RF Bandwidth* consists of one sub-block gap and two sub-blocks located at the edges of the declared maximum *Base Station RF Bandwidth* for non-contiguous operation.

- For transmitter tests, place one UTRA carrier adjacent to the upper *Base Station RF Bandwidth edge* and one UTRA carrier adjacent to the lower *Base Station RF Bandwidth edge*. The specified FOffset-RAT shall apply.

- For receiver tests, place one UTRA carrier adjacent to the upper *Base Station RF Bandwidth edge* and one UTRA carrier adjacent to the lower *Base Station RF Bandwidth edge*. For single-band operation, if the maximum *Base Station RF Bandwidth* for non-contiguous operation is at least 35 MHz and the beam supports at least 4 UTRA FDD carriers, place a UTRA FDD carrier adjacent to each already placed carrier for each sub-block. The nominal carrier spacing defined in subclause 4.6 shall apply.

- The sub-block edges adjacent to the sub-block gap shall be determined using the specified FOffset-RAT for the carrier adjacent to the sub-block gap.

- The UTRA FDD carrier in the lower sub-block may be shifted maximum 100 kHz towards lower frequencies and the UTRA FDD carrier in the upper sub-block may be shifted maximum 100 kHz towards higher frequencies to align with the channel raster.

*------------------------------ Next modified section ------------------------------*

#### 4.11.2.3 ATCR2: E-UTRA multicarrier operation

##### 4.11.2.3.1 General

The purpose of ATCR2a is to test E-UTRA multi-carrier aspects excluding CA occupied bandwidth.

The purpose of ATCR2b is to test E-UTRA contiguous CA occupied bandwidth.

*------------------------------ Next modified section ------------------------------*

#### 4.11.2.5 ATCR3: UTRA and E-UTRA multi-RAT operation

##### 4.11.2.5.1 General

The purpose of ATCR3 is to test UTRA and E-UTRA multi-RAT aspects.

If the maximum EIRP and total number of supported carriers at maximum EIRP are not simultaneously supported in multi-RAT operations, two instances of ATCR3 shall be generated using the following values for rated total output power and the total number of supported carriers:

1) The maximum EIRP and the reduced number of supported carriers at the maximum EIRP in multi-RAT operations.

2) The reduced maximum EIRP at the total number of supported carriers in multi-RAT operations and the total number of supported carriers.

Tests that use ATCR3 shall be performed using both instances 1) and 2) of ATCR3.

*------------------------------ Next modified section ------------------------------*

##### 4.11.2.5.4 ATCR3 EIRP allocation

For ATCR3a set the number of carriers to the reduced number of carriers at maximum EIRP in multi-RAT operations (see table 4.10-1, D9.23) and set each carrier to maximum EIRP (see table 4.10-1, D9.11) for the tested *beam direction pair*.

For ATCR3b set the number of carriers to the reduced number of carriers at maximum EIRP (see table 4.10-1, D9.14) and set each carrier to the reduced maximum EIRP at the total number of supported carriers in multi-RAT operations (see table 4.10-1, D9.24).

#### 4.11.2.6 ANTCR3: UTRA and E-UTRA multi-RAT non-contiguous operation

##### 4.11.2.6.1 General

The purpose of ANTCR3 is to test UTRA and E-UTRA multi-RAT non-contiguous aspects.

If the maximum EIRP and total number of supported carriers at maximum EIRP are not simultaneously supported in multi-RAT operations, two instances of ANTCR3 shall be generated using the following values for rated total output power and the total number of supported carriers:

1) The maximum EIRP and the reduced number of supported carriers at the maximum EIRP in multi-RAT operations.

2) The reduced maximum EIRP at the total number of supported carriers in multi-RAT operations and the total number of supported carriers.

If the reduced number of supported carriers is 4 or more, only instance 1) of ANTCR3 shall be used in the tests, otherwise both instances 1) and 2) of ANTCR3 shall be used in the tests.

*------------------------------ Next modified section ------------------------------*

##### 4.11.2.6.3 ANTCR3 EIRP allocation

For case (1) in subclause 4.11.2.6.1 set the number of carriers to the reduced number of carriers at maximum EIRP in multi-RAT operations (see table 4.10-1, D9.23) and set each carrier to maximum EIRP (see table 4.10-1, D9.11) for the tested *beam direction pair*.

For case (2) in subclause 4.11.2.6.1 set the number of carriers to the reduced number of carriers at maximum EIRP (see table 4.10-1, D9.14) and set each carrier to the reduced maximum EIRP at the total number of supported carriers in multi-RAT operations (see table 4.10-1, D9.24) for the tested *beam direction pair*.

*------------------------------ Next modified section ------------------------------*

4.11.2.8.1.2 ATCR5a generation

ATCR5a is based on re-using the existing test configurations applicable per band on beams generated using multi-band transceiver units and hence have declared multi-band dependencies (see table 4.10-1, D9.16). ATCR5a is constructed using the following method:

- The *Base Station RF Bandwidth* of each supported operating band shall be the declared maximum radiated *Base Station RF Bandwidth* (see table 4.10-1, D9.17).

- The number of carriers of each supported operating band shall be the declared maximum number of supported carriers by the multi-band dependencies in each band (see table 4.10-1, D9.16).Carriers shall first be placed at the outermost edges of the declared maximum radiated *Radio Bandwidth* (see table 4.10-1, D9.17). Additional carriers shall next be placed at the edges of the *Base Station RF Bandwidths,* if possible.

- The allocated *Base Station RF Bandwidth* of the outermost bands shall be located at the outermost edges of the declared maximum radiated *Radio Bandwidth* (see table 4.10-1, D9.17).

- Each concerned band shall be considered as an independent band and the corresponding test configuration shall be generated in each band. The mirror image of the single band test configuration shall be used in the highest band being tested for the beam.

- Band category and declared per band capability set (see table 4.10-1, D9.25) shall be used to generate per band RAT/carrier allocation according to table 4.11.2.8.1.2-1 for each band category and radiated capability set. If an operating band with multi-band dependencies supports three carriers only, two carriers shall be placed in one band according to the relevant test configuration while the remaining carrier shall be placed at the edge of the maximum *Radio Bandwidth* (see table 4.10-1, D9.17) in the other band.

- If the sum of the *base Station RF bandwidths* of each of the supported operating bands is greater than the declared maximum *Radio Bandwidth* of the operating band with multi-band dependencies (see table 4.10-1, D9.26, D9.16) then repeat the steps above for test configurations where the *Base Station RF Bandwidth* of one of the operating band shall be reduced so that the declared maximum *Radio Bandwidth* is not exceeded and vice versa.

- If the sum of the maximum number of supported carrier of each supported operating bands with multi-band dependencies (see table 4.10-1, D9.16) is larger than the declared t Total number of supported carriers for operating bands with multi-band dependencies (see table 4.10-1, D9.27), repeat the steps above for test configurations where in each test configuration the number of carriers of one of the operating band shall be reduced so that the total number of supported carriers is not be exceeded and vice versa.

Table 4.11.2.8.1.2-1: The applicability of test configuration in each band

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BC | RCSA 1 | RCSA 2 | RCSA 3 | RCSA 4 | RCSA 5 |
| BC1 | ATCR1a | ATCR2a | ATCR3a | ATCR1a | ATCR2a |
| BC2 | ATCR1a | ATCR2a | ATCR3a | ATCR1a | ATCR2a |
| BC3 | ATCR1b | ATCR2a | ATCR3b | ATCR1b | ATCR2a |

*------------------------------ Next modified section ------------------------------*

4.11.2.8.2.2 ATCR5b generation

ATCR5b is based on re-using the existing test configurations applicable for operating bands using multi-band transceiver units and hence have declared multi-band dependencies (see table 4.10-1, D9.16)*.* ATCR5b is constructed using the following method:

- The *Base Station RF Bandwidth* of each supported operating band shall be the declared maximum radiated *Base Station RF Bandwidth* (see table 4.10-1, D9.17).

- The allocated *Radio Bandwidth* of the outermost bands shall be located at the outermost edges of the declared maximum *Radio Bandwidth* of the operating band with multi-band dependencies (see table 4.10-1, D9.26).

- The maximum number of carriers is limited to two per band. Carriers shall be placed at the outermost edges of the declared maximum *Radio Bandwidth* of the operating band with multi-band dependencies (see table 4.10-1, D9.26).

- Each concerned band shall be considered as an independent band and the corresponding test configuration for non-contiguous operation shall be generated in each band according to table 4.11.2.8.2.2-1. Narrowest supported E-UTRA *channel bandwidth* shall be used in the test configuration. The mirror image of the single band test configuration shall be used in the highest band being tested*.*

- For AAS BS supporting CSA4 in the band and supports three carriers only, two carriers shall be placed in one band according to ATC2 while the remaining carrier shall be placed at the edge of the maximum *Base Station RF Bandwidth* in the other band.

- If the sum of the *base Station RF bandwidths* of each of the supported operating bands is greater than the declared maximum *Radio Bandwidth* of the operating band with multi-band dependencies (see table 4.10-1, D9.26) for the declared multi-band dependencies (see table 4.10-1, D9.16) then repeat the steps above for test configurations where the *Base Station RF Bandwidth* of one of the operating band shall be reduced so that the declared maximum *Radio Bandwidth* of the operating band with multi-band dependencies (see table 4.10-1, D9.26) is not exceeded and vice versa.

Table 4.11.2.8.2.2-1: The applicability of test configuration in each band

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| BC | RCSA 1 | RCSA 2 | RCSA 3 | RCSA 4 | RCSA 5 |
| BC1 | ANTCR1a | ANTCR2 | ANTCR3a | ANTCR1 | ANTCR2 |
| BC2 | ANTCR1a | ANTCR2 | ANTCR3a | ANTCR1 | ANTCR2 |
| BC3 | ATCR1b | ANTCR2 | ANTCR3a | N/A | ANTCR2 |

*------------------------------ Next modified section ------------------------------*

#### 4.11.2.9 ATCR6: Single carrier for transmitter tests

##### 4.11.2.9.1 ATCR6a generation

ATCR6a is constructed using the following method:

- Place a single UTRA carrier at the RF channel to be tested.

##### 4.11.2.9.2 ATCR6b generation

ATCR6b is constructed using the following method:

- Place a 5 MHz E-UTRA carrier i at the RF channel to be tested. If 5 MHz carriers are not supported by the beam the narrowest supported channel BW shall be selected instead.

##### 4.11.2.9.3 ATCR6c generation

ATCR6c is constructed using the following method:

- Place a single UTRA TDD carrier at the RF channel to be tested.

##### 4.11.2.9.4 ATCR6 EIRP allocation

Set the number of carriers to 1. Set the beam parameters to those appropriate for the beam identifier of the beam under test and to the direction to be tested from the beam declarations (see table 4.10-1, D9.3 – D9.13).

*----------------------------- End of modified section ------------------------------*