**3GPP TSG-RAN4 WG4 Meeting # 97-e *R4-2016519***

**Electronic meeting, Nov. 2- 13, 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-2** | **CR** | 0302 | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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| ***Title:*** | CR for inter-band NC DL CA Rrefsens | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_RF\_FR2\_req\_enh-Core | | | | |  | ***Date:*** | | | 2020-10-19 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | For UE supporting CA configuration, ΔRIB is also applied for Single carrier requirement. There is no clarification in the spec. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding sentence: For a UE supporting a inter-band CA configuration, the ΔRIB applies for both SC and CA operation. | | | | | | | | |
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| ***Consequences if not approved:*** | | The spec for inter-band CA is not clear. | | | | | | | | |
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| ***Clauses affected:*** | | 7.3A.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR … CR … | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 38.521-2 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR … CR … | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |

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

***<Start of change>***

### 7.3A.2 Reference sensitivity power level for CA

***<No change part omitted>***

#### 7.3A.2.3 Inter-band CA

The inter-band requirement applies for all active component carriers. The throughput for each component carrier shall be ≥ 95 % of the maximum throughput of the reference measurement channels as specified in Annexes A.2.3.2 and A.3.3.2 (with one sided dynamic OCNG Pattern OP.1 TDD for the DL-signal as described in Annex A.5.2.1) with peak reference sensitivity for each carrier specified in section 7.3.2, and relaxation ΔRIB,P,napplied to peak reference sensitivity requirement. ΔRIB,P,nis specified in Table 7.3A.2.3-1. [The requirement on each component carrier shall be met when the power in the component carrier in the other band is set to its EIS spherical coverage requirement for inter-band CA specified in sub-clause 7.3A.3.3].

For the combination of intra-band and inter-band carrier aggregation, the intra-band CA relaxation, ΔRIB, is also applied according to the clause 7.3A.2.1 and 7.3A.2.2.

Table 7.3A.2.3-1: ΔRIB reference sensitivity relaxation for inter-band CA for power class 3

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| --- | --- | --- |
| **NR CA bands** | **NR band** | **ΔRIB,P,n (dB)** |
| CA\_n260-n261 | n260 | [3.5] |
| n261 | [3.5] |

For a UE supporting a inter-band CA configuration, the ΔRIB,P,n applies for both single carrier and CA operation.

#### 7.3A.3.3 EIS spherical coverage for inter-band CA

The inter-band CA requirement applies per operating band, for all active component carriers with UL assigned to one band and one DL component carrier per band. The requirement on each component carrier shall be met when the power in the component carrier in the other band is set to its EIS spherical coverage requirement for inter-band CA specified in this sub-clause.

The inter-band CA spherical coverage requirement will be satisfied if the intersection set of spherical coverage areas exceeds the requirement. Intersection set of spherical coverage areas is defined as a fraction of area of full sphere measured around the UE where both bands meet their defined individual EIS spherical coverage requirements.

The requirement is verified with the test metric of EIS (Link=Beam peak search grids, Meas=Link angle).

The reference measurement channels and throughput criterion shall be as specified in clause 7.3A.2.3. The requirement shall be met for an uplink transmission using QPSK DFT-s-OFDM waveforms and for uplink transmission bandwidth less than or equal to that specified in clause 7.3.2.

Unless otherwise specified, the minimum requirements for reference sensitivity shall be verified with the network signalling value NS\_200 (Table 6.2.3.1-1) configured.

The required spherical coverage EIS for each band is given in clause 7.3.4 and modified by ΔRIB,S,n. The value of ∆RIB,S,n is defined in Table 7.3A.3.3-1.

Table 7.3A.3.3-1: ΔRIB,S,n EIS spherical coverage requirement relaxation for inter-band CA for power class 3

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| **NR CA bands** | **NR band** | **ΔRIB,S,n (dB)** |
| CA\_n260-n261 | n260 | [3.5] |
| n261 | [3.5] |

For a UE supporting a inter-band CA configuration, the ΔRIB,S,n applies for both single carrier and CA operation.

***<End of change>***