**3GPP TSG-RAN WG4 Meeting #96-e  *R4-201xxxx***

**Online, August 17th – 28th, 2020**

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| *CR-Form-v11.4* |
| **CHANGE REQUEST** |
|  |
|  | **38.101-3** | **CR** | 0322 | **rev** | 1 | **Current version:** | **15.10.0** |  |
|  |
| *For* ***HE******LP*** *on using this form: comprehensive instructions can be found at 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:***  | CR for TS 38.101-3: FR1 inter-band EN-DC out-of-band blocking UL configuration |
|  |  |
| ***Source to WG:*** | Apple Inc. |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_newRAT-Core |  | ***Date:*** | 2020-08-03 |
|  |  |  |  |  |
| ***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 canbe found in 3GPP TR 21.900. | *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:*** | The current FR1 inter-band EN-DC/NE-DC UL power configuration for out-of-band blocking requirements has triggered a testability issue due to the ADC dyanmic range limitation on the tester.  |
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| ***Summary of change:*** | Change UL power setting for the lower UL power carrier (either E-UTRA or NR) from minimum output power to 29 dB below PCMAX\_L.  |
|  |  |
| ***Consequences if not approved:*** | The FR1 inter-band EN-DC/NE-DC out-of-band blocking requirements cannot be tested. |
|  |  |
| ***Clauses affected:*** | 7.6B.3.3, 7.6B.3.3a |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** | **X** |  |  Test specifications | TS 38.521-3 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |

## <<< Start of changed sections>>>

#### 7.6B.3.3 Inter-band EN-DC within FR1

Out-of band blocking requirements for E-UTRA single carrier and CA operation specified in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [4] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] apply for lowest level EN-DC fallbacks (two bands) in clause 5.2.B.4.1 with following conditions

one E-UTRA uplink carrier with the output power set to 4 dB below PCMAX\_L,c and the NR band whose downlink is being tested has its uplink carrier output power set to 29 dB below PCMAX\_L,f,c.

one NR uplink carrier with the output power set to 4 dB below PCMAX\_L,f,c on the NR band with both E-UTRA and NR downlinks being tested with E-UTRA output power set to 29 dB below PCMAX\_L,c.

If CW interferer falls in a gap between FDL\_high of the E-UTRA or NR band and FDL\_low of the NR or EUTRA band, where the corresponding OOB ranges 1 and 2 overlap, then the lower level interferer limit of the overlapping OOB ranges applies.

If FDL\_high of the lower E-UTRA or NR band is greater than or equal to the FDL\_low of the upper NR or E-UTRA band as in overlapping RX frequency ranges, then the OOB range shall start from the FDL\_low of the lower E-UTRA or NR band, and from the FDL\_high of the upper NR or E-UTRA band.

For EN‑DC combination listed in Table 7.6B.3.3-1 under the first test condition above, exceptions to the requirement specified in Table 7.6B.3.3-2 are allowed when the second order intermodulation product of the lower frequency band UL carrier and the CW interfering signal fully or partially overlaps with the higher frequency band DL carrier.

Table 7.6B.3.3-1: EN‑DC combination with exceptions allowed

|  |
| --- |
| EN-DC combination |
| DC\_5\_n78 |
| DC\_8\_n77 |
| DC\_8\_n78 |
| DC\_8\_n79 |
| DC\_11\_n77 |
| DC\_18\_n77 |
| DC\_18\_n78 |
| DC\_18\_n79 |
| DC\_19\_n77 |
| DC\_19\_n78 |
| DC\_19\_n79 |
| DC\_20\_n77 |
| DC\_20\_n78 |
| DC\_21\_n77 |
| DC\_26\_n77 |
| DC\_26\_n78 |
| DC\_26\_n79 |
| DC\_28\_n77 |
| DC\_28\_n78 |
| DC\_28\_n79 |

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Level |
| PInterferer (CW) | dBm | -441 |
| NOTE 1: The requirement applies when $\left|f\_{Interferer}\pm f\_{UL}^{LB}- f\_{DL}^{HB}\right|\leq (BW\_{UL}^{LB}+ BW\_{DL}^{HB})/2$, where $f\_{UL}^{LB}$ and $f\_{DL}^{HB}$ are the carrier frequencies for lower frequency band UL and higher frequency band DL, respectively. $BW\_{UL}^{LB}$ and $BW\_{DL}^{HB}$ are the channel bandwidths configured for lower frequency band UL carrier and higher frequency band DL carrier in MHz, respectively. |

For each of the two test cases in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [4] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] for all interferer frequency ranges a maximum of



exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a step size of  MHz with *NRB* the number of resource blocks in the downlink transmission bandwidth configuration, *CBW* the bandwidth of the frequency channel in MHz and n = 1, 2, 3 for SCS = 15, 30, 60 kHz, respectively. For these exceptions, the requirements in clause 7.7 apply.

#### 7.6B.3.3a Inter-band NE-DC within FR1

Out-of band blocking requirements for E-UTRA single carrier and CA operation specified in clauses 7.6.2.1 and 7.6.2.1A of TS 36.101 [4] and for NR single carrier and CA operation specified in clauses 7.6.3 and 7.6A.3 of TS 38.101-1 [2] apply for lowest level NE-DC fallbacks (two bands) in clause 5.5.B.4a.1 with following conditions

one E-UTRA uplink carrier with the output power set to 4 dB below PCMAX\_L,c and the NR band whose downlink is being tested has its uplink carrier output power set to 29 dB below PCMAX\_L,f,c.

one NR uplink carrier with the output power set to 4 dB below PCMAX\_L,f,c on the NR band with both E-UTRA and NR downlinks being tested with E-UTRA output power set to 29 dB below PCMAX\_L,c.

<<< End of changed sections>>>