**3GPP T****SG-RAN WG4 Meeting#109 R4-2319800**

**Chicago Meeting, November 13th – November 17th, 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.101-1** | **CR** |  | **rev** | **-** | **Current version:** | **18.3.0** |  |
|  |
| *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 | **x** | Radio Access Network |  | Core Network |  |

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|  |
| ***Title:***  | Draft CR 38.101-1 to add missed harmonic mixing MSD  |
|  |  |
| ***Source to WG:*** | Nokia |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_CADC\_R18\_2BDL\_xBUL |  | ***Date:*** | 2023-01-11 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-18 |
|  | *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](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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* *Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | Additions of missed MSD values CA\_n5-n79 (Uses CA\_n8-n79)CA\_n7-n77 (UL2/DL3 uses CA\_n41-n77)CA\_n12-n48 (Uses CA\_n12-n77)CA\_n28-n77 (Uses CA\_n14-n77 and is also defined for PC2 and PC1.5)CA\_n28-n78 (Uses CA\_n14-n77 and is also defined for PC2) |
|  |  |
| ***Summary of change:*** | Inserted MSD values |
|  |  |
| ***Consequences if not approved:*** | Missed the test |
|  |  |
| ***Clauses affected:*** | **7.3A.4** |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ... |
| ***affected:*** | **X** |  |  Test specifications | TS 38.521-1 |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Table 7.3A.4-4: Reference sensitivity exceptions and uplink/downlink configurations due to harmonic mixing from a PC3 aggressor NR UL band for DL NR CA FR1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL BW | SCS of UL band | UL RB Allocation | DL BW | MSD | UL/DL fc condition | UL/DL harmonic order |
| (MHz) | (kHz) | LCRB | (MHz) | (dB) |
| n1 | n1053 | 5 | 15 | 25 (RBstart=0) | 5 | 26.8 | NOTE 4 | UL1/DL3 |
| n2 | n713 | 5 | 15 | 25 (RBstart=0) | 5 | 26.5 | NOTE 4 | UL1/DL3 |
| n2 | n713 | 20 | 15 | 100 (RBstart=0) | 20 | 15.3 | NOTE 4 | UL1/DL3 |
| n3 | n26 | 5 | 15 | 25 (RBstart=0) | 5 | 3.7 | NOTE 1  | UL1/DL2 |
| n7 | n263 | 25 | 15 | 25 (RBstart=104) | 5 | 2.0 | NOTE 10 | UL1/DL3Near miss |
| n7 | n71 | 5 | 15 | 25 (RBstart=0) | 5 | 5.7 | NOTE 8 | UL1/ DL4 |
| n25 | n713 | 5 | 15 | 25 (RBstart=0) | 5 | 26.5 | NOTE 4 | UL1/DL3 |
| n25 | n713 | 20 | 15 | 100 (RBstart=0) | 20 | 15.3 | NOTE 4 | UL1/DL3 |
| n39 | n41 | 5 | 15 | 25 (RBstart=0) | 5 | [8.1] | NOTE 11 | UL4/DL3 |
| n39 | n41 | 5 | 15 | 25 (RBstart=0) | 100 | [3.3] | NOTE 11 | UL4/DL3 |
| n40 | n20 | 5 | 15 | 25 (RBstart=0) | 5 | 27.8 | NOTE 4 | UL1/DL3 |
| n40 | n20 | 20 | 15 | 100 (RBstart=0) | 20 | 20.3 | NOTE 4 | UL1/DL3 |
| n40 | n28 | 5 | 15 | 25 (RBstart=0) | 5 | 37.8 | NOTE 4 | UL1/DL3 |
| n40 | n28 | 20 | 15 | 100 (RBstart=0) | 20 | 30.3 | NOTE 4 | UL1/DL3 |
| n41 | n5 | 10 | 15 | 25 (RBstart=0) | 5 | 24.3 | NOTE 4 | UL1/DL3 |
| n41 | n183 | 5 | 15 | 25 (RBstart=0) | 5 | 24.3 | NOTE 4 | UL1/DL3 |
| n41 | n183 | 10 | 15 | 25 (RBstart=0) | 5 | 24.3 | NOTE 4 | UL1/DL3 |
| n41 | n39 | 10 | 15 | 25 (RBstart=0) | 5 | 4.3 | NOTE 12 | UL3/DL4 |
| n41 | n39 | 10 | 15 | 25 (RBstart=0) | 40 | 0.8 | NOTE 12 | UL3/DL4 |
| n41 | n48 | 10 | 30 | 24 (RBstart=0) | 10 | 8.3 | NOTE 9 | UL4/DL3 |
| n41 | n48 | 10 | 30 | 24 (RBstart=0) | 100 | 0.4 | NOTE 9 | UL4/DL3 |
| n46 | n7 | 5 | 15 | 12 (RBstart=0) | 5 | 8.3 | NOTE 7 | UL1/DL2 |
| n46 | n7 | 5 | 15 | 24 (RBstart=0) | 50 | 0.6 | NOTE 7 | UL1/DL2 |
| n46 | n48 | 5 | 15 | 12 (RBstart=0) | 5 | 22.6 | NOTE 2 | UL2/DL3 |
| n46 | n48 | 20 | 15 | 100 (RBstart=0) | 100 | 12 | NOTE 2 | UL2/DL3 |
| n46 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 19.5 | NOTE 2 | UL2/DL3 |
| n46 | n77 | 20 | 15 | 100 (RBstart=0) | 100 | 12 | NOTE 2 | UL2/DL3 |
| n46 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 19.5 | NOTE 2 | UL2/DL3 |
| n46 | n78 | 20 | 15 | 100 (RBstart=0) | 100 | 12 | NOTE 2 | UL2/DL3 |
| n48 | n12 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n48 | n12 | 15 | 15 | 75 (RBstart=0) | 15 | 26.2 | NOTE 5 | UL1/DL5 |
| n48 | n26 | 10 | 15 | 25 (RBstart=0) | 5 | 5.7 | NOTE 8 | UL1/DL4 |
| n48 | n26 | 20 | 15 | 100 (RBstart=0) | 20 | 2.7 | NOTE 8 | UL1/DL4 |
| n48 | n29 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n48 | n29 | 10 | 15 | 50 (RBstart=0) | 10 | 28 | NOTE 5 | UL1/DL5 |
| n77 | n2 | 10 | 15 | 25 (RBstart=0) | 5 | 6.7 | NOTE 7 | UL1/DL2 |
| n77 | n2 | 20 | 15 | 100 (RBstart=0) | 20 | 3,7 | NOTE 7 | UL1/DL2 |
| n77 | n5 | 10  | 15 | 25 (RBstart=0) | 5 | [5.7] | NOTE 8 | UL1/DL4 |
| n77 | n5 | 20 | 15 | 100 (RBstart=0) | 20 | [2.7] | NOTE 8 | UL1/DL4 |
| n77 | n7 | 20 | 30 | 50 (RBstart=0) | 10 | 10.4 | NOTE 2 | UL2/DL3 |
| n77 | n7 | 20 | 30 | 50 (RBstart=0) | 100 | 6.3 | NOTE 2 | UL2/DL3 |
| n77 | n8 | 10 | 15 | 100 (RBstart=0) | 20 | [5.7] | NOTE 8 | UL1/DL4 |
| n77 | n8 | 20 | 15 | 100 (RBstart=0) | 20 | [2.7] | NOTE 8 | UL1/DL4 |
| n77 | n12 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n77 | n12 | 15 | 15 | 75 (RBstart=0) | 15 | 26.2 | NOTE 5 | UL1/DL5 |
| n77 | n13 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n77 | n13 | 10 | 15 | 50 (RBstart=0) | 10 | 28 | NOTE 5 | UL1/DL5 |
| n77 | n14 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n77 | n14 | 10 | 15 | 50 (RBstart=0) | 10 | 28 | NOTE 5 | UL1/DL5 |
| n77 | n25 | 10 | 15 | 25 (RBstart=0) | 5 | 6.7 | NOTE 7 | UL1/DL2 |
| n77 | n25 | 20 | 15 | 100 (RBstart=0) | 40 | 1.1 | NOTE 7 | UL1/DL2 |
| n77 | n26 | 10 | 15 | 25 (RBstart=0) | 5 | 5.2 | NOTE 8 | UL1/DL4 |
| n77 | n28 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n77 | n28 | 10 | 15 | 50 (RBstart=0) | 10 | 28 | NOTE 5 | UL1/DL5 |
| n776 | n29 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n776 | n29 | 10 | 15 | 50 (RBstart=0) | 10 | 28 | NOTE 5 | UL1/DL5 |
| n77 | n30 | 10 | 15 | 12 (RBstart=0) | 5 | 10.4 | NOTE 2 | UL2/DL3 |
| n77 | n30 | 10 | 15 | 24 (RBstart=0) | 10 | 8.0 | NOTE 2 | UL2/DL3 |
| n77 | n40 | 20 | 30 | 50 (RBstart=0) | 10 | 10.4 | NOTE 2 | UL2/DL3 |
| n77 | n40 | 20 | 30 | 50 (RBstart=0) | 100 | 0.9 | NOTE 2 | UL2/DL3 |
| n77 | n41 | 20 | 30 | 50 (RBstart=0) | 10 | 10.4 | NOTE 2 | UL2/DL3 |
| n77 | n41 | 20 | 30 | 50 (RBstart=0) | 100 | 6.3 | NOTE 2 | UL2/DL3 |
| n776 | n70 | N/A | N/A | N/A | N/A | N/A | NOTE 7 | UL1/DL2 |
| n77 | n85 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n77 | n85 | 15 | 15 | 75 (RBstart=0) | 15 | 26.2 | NOTE 5 | UL1/DL5 |
| n78 | n5 | 10 | 15 | 25 (RBstart=0) | 5 | [5.7] | NOTE 8 | UL1/DL4 |
| n78 | n8 | 10 | 15 | 25 (RBstart=0) | 5 | [5.7] | NOTE 8 | UL1/DL4 |
| n78 | n12 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n78 | n28 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n78 | n26 | 10 | 15 | 25 (RBstart=0) | 5 | 5.2 | NOTE 8 | UL1/DL4 |
| n78 | n40 | 20 | 30 | 50 (RBstart=0) | 5 | 10.4 | NOTE 2 | UL2/DL3 |
| n78 | n40 | 20 | 30 | 50 (RBstart=0) | 80 | 4.5 | NOTE 2 | UL2/DL3 |
| n78 | n41 | 20 | 30 | 50 (RBstart=0) | 10 | 10.4 | NOTE 2 | UL2/DL3 |
| n78 | n41 | 20 | 30 | 50 (RBstart=0) | 100 | 6.3 | NOTE 2 | UL2/DL3 |
| n78 | n67 | 10 | 15 | 25 (RBstart=0) | 5 | 31 | NOTE 5 | UL1/DL5 |
| n78 | n67 | 10 | 15 | 50 (RBstart=0) | 10 | 28 | NOTE 5 | UL1/DL5 |
| n79 | n5 | 10 | 15 | 25 (RBstart=0) | 5 | 25 | NOTE 5 | UL1/DL5 |
| n79 | n8 | 10 | 15 | 25 (RBstart=0) | 5 | 25 | NOTE 5 | UL1/DL5 |
| n96 | n48 | 5 | 15 | 25 (RBstart=0) | 5 | 5.8 | NOTE 2 | UL2/DL3 |
| n96 | n48 | 20 | 15 | 100 (RBstart=0) | 100 | 0.5 | NOTE 2 | UL2/DL3 |
| n102 | n1 | 20 | 15 | 100 (RBstart=0) | 5 | 13.5 | NOTE 4 | UL1/DL3 |
| NOTE 1: Void.NOTE 2: The requirements should be verified for UL NR-ARFCN of the aggressor (lower) band (superscript LB) such that in MHz and  with carrier frequency in the victim (higher) band in MHz and  the channel bandwidth configured in the lower band.NOTE 3: These requirements apply when there is at least one individual RE within the downlink transmission bandwidth of the victim (lower) band for which the 3rd harmonic is within the uplink transmission bandwidth or the uplink adjacent channel's transmission bandwidth of an aggressor (higher) band.NOTE 4: The requirements should be verified for UL NR-ARFCN of the aggressor (higher) band (superscript HB) such that  in MHz and  with  the carrier frequency in the victim (lower) band and  the channel bandwidth configured in the higher band.NOTE 5: The requirements should be verified for DL NR-ARFCN of the victim (lower) band (superscript LB) such that  with  the DL carrier frequency in the lower band and $f\_{UL}^{HB}$ the UL carrier frequency in the higher band, both in MHz.NOTE 6: For a UE which supports this band combination only when the Band n77 frequency range restriction defined in NOTE 12 of Table 5.2-1 applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.NOTE 7: The requirements should be verified for UL NR-ARFCN of the aggressor (higher) band (superscript HB) such that  in MHz and  with  the carrier frequency in the victim (lower) band and  the channel bandwidth configured in the higher band.NOTE 8: The requirements should be verified for UL NR-ARFCN of the aggressor (higher) band (superscript HB) such that  in MHz and  with  the carrier frequency in the victim (lower) band and  the channel bandwidth configured in the higher band.NOTE 9: The requirements should be verified for DL NR-ARFCN of the victim (higher) band (superscript HB) such that $f\_{DL}^{HB}=\left⌊f\_{UL}^{LB}/0.75\right⌋$ with $f\_{DL}^{HB}$ the DL carrier frequency in the higher band and $f\_{UL}^{LB}$ the UL carrier frequency in the lower band, both in MHz.NOTE 10: The requirements should be verified for the lowest NR ARFCN of the affected DL (lower) band and for the highest NR ARFCN of the UL (higher) bandNOTE 11: The requirements should be verified for UL NR-ARFCN of the aggressor (lower) band (superscript LB) such that in MHz and  with carrier frequency in the victim (higher) band in MHz and  the channel bandwidth configured in the lower band.NOTE 12: The requirements should be verified for UL NR-ARFCN of the aggressor (lower) band (superscript LB) such that in MHz and  with carrier frequency in the victim (higher) band in MHz and  the channel bandwidth configured in the lower band. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*