**3GPP TSG-RAN4 WG4 Meeting #112 *rev1\_***

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| *CR-Form-v12.3* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-1** | **CR** |  | **rev** | **1** | **Current version:** | **18.6.0** |  |
|  | | | | | | | | |
| *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:*** | CR to TS 38.101-1 Rel-18 Dual-UL IMD corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Skyworks Solutions, Inc. | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_CADC\_R18\_2BDL\_xBUL-Core  HPUE\_FR1\_TDD\_NR\_CADC\_SUL\_R18 | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***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 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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In the PC3 table, some typos need to be corrected and a test point is missing for CA\_n18-n41. A test point is specified for PC2.  In the PC2 table, typos correction is needed and   * for CA\_n8\_n77: two test points are specified with contradictory MSD requirements. * for CA\_n41-n77: band n77 IMD9 MSD is missing | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | PC3 Table 7.3A.5-1:   * Entry for CA\_n3-n20: replaced “3” with “n3” and “20” with “n20”, * Entry for CA\_n12-n78: replaced “12” with “n12” * Added PC3 test point for CA\_n18-n41 with   + Constituent bands’ UL/DL configurations copied from the agreed CA\_n18-n41 PC2 test point,   + Band n18 MSD copied from CA\_n5-n41. * CA\_n41-n77: changed band n77 type from “FDD” to “TDD”.   PC2 Table 7.3A.5-1a:   * Entry for CA\_n12-n77: replaced “12” with “n12” * CA\_n8-n77: Duplicated test point is removed and band n8 15.5dB MSD is kept based on agreement for CA\_n8-n78. * CA\_n41-n77:   + introduced [2.7]dB MSD for band n77 10MHz IMD9 assuming that UE band n41 emissions levels are the same than PC3 due to SEM requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Errors remain on the dual-UL IMD MSD tables. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3A.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.521 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | This is a revision of R4-2413060. | | | | | | | | |

**---Start of changes****---**

7.3A.5 Reference sensitivity exceptions due to intermodulation interference due to 2UL CA

For inter-band carrier aggregation with uplink assigned to two NR bands given in Table 7.3A.5-1, Table 7.3A.5-1a, Table 7.3A.5-2 and Table 7.3A.5-2a the reference sensitivity is defined only for the specific uplink and downlink test points specified in Table 7.3A.5-1, Table 7.3A.5-1a, Table 7.3A.5-2 and Table 7.3A.5-2a. For these test points the reference sensitivity requirement specified in Table 7.3.2-1a, Table 7.3.2-1b, Table 7.3.2-2 and Table 7.3.2-2a are relaxed by the amount of the corresponding parameter MSD given in Table 7.3A.5-1, Table 7.3A.5-1a, Table 7.3A.5-2 and Table 7.3A.5-2a.

**Table 7.3A.5-1: 2DL/2UL inter-band Reference sensitivity QPSK PREFSENS and uplink/downlink configurations for PC3 CA**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Band / Channel bandwidth / NRB / Duplex mode** | | | | | | | | **Source of IMD** |
| **NR CA band combination** | **NR band** | **UL Fc  (MHz)** | **UL/DL BW  (MHz)** | **UL  LCRB** | **DL Fc (MHz)** | **MSD  (dB)** | **Duplex mode** |  |
| CA\_n1-n3 | n1 | 1950 | 5 | 25 | 2140 | 23 | FDD | IMD3 |
|  | n3 | 1760 | 5 | 25 | 1855 | N/A | TDD | N/A |
| CA\_n1-n8 | n1 | 1965 | 5 | 25 | 2155 | 6.0 | FDD | IMD4 |
|  | n8 | 887.5 | 5 | 25 | 932.5 | N/A | FDD | N/A |
| CA\_n1-n46 | n1 | 1950 | 5 | 25 | 2140 | 5 | FDD | IMD5 |
|  | n46 | 5660 | 20 | 100 | 5660 | N/A | TDD | N/A |
| CA\_n1-n77 | n1 | 1950 | 5 | 25 | 2140 | 29.8 | FDD | IMD24 |
|  | n77 | 4090 | 10 | 50 | 4090 | N/A | TDD | N/A |
|  | n1 | 1950 | 5 | 25 | 2140 | 8.0 | FDD | IMD44 |
|  | n77 | 3710 | 10 | 50 | 3710 | N/A | TDD | N/A |
|  | n1 | N/A | 5 | N/A | 2130 | 17 | FDD | IMD516 |
|  | n7712 | 3310 | 10 | 1 (RBSTART=25) | 3310 | N/A | TDD | N/A |
|  |  | 3900 | 10 | 1 (RBSTART=25) | 3900 | N/A | TDD | N/A |
| CA\_n1-n78 | n1 | 1950 | 5 | 25 | 2140 | 8.0 | FDD | IMD4 |
|  | n78 | 3710 | 10 | 50 | 3710 | N/A | TDD | N/A |
|  | n1 | N/A | 5 | N/A | 2167.5 | 1.7 | FDD | IMD717 |
|  | n7812 | 3305 | 10 | 1 (RBSTART=0) | 3305 | N/A | TDD | N/A |
|  |  | 3675 | 10 | 1 (RBSTART=44) | 3675 |  |  |  |
| CA\_n1-n102 | n1 | 1922.5 | 5 | 25 | 2112.5 | 13 | FDD | IMD3 |
|  | n102 | 5957.5 | 20 | 100 | 5957.5 | N/A | TDD | N/A |
| CA\_n1-n105 | n1 | 1958 | 5 | 25 | 2148 | N/A | FDD | N/A |
|  | n105 | 673 | 5 | 25 | 622 | 15.1 | FDD | IMD3 |
| CA\_n2-n48 | n2 | 1852.5 | 5 | 25 | 1932.5 | 12 | FDD | IMD4 |
|  | n48 | 3625 | 20 | 100 | 3625 | N/A | TDD | N/A |
| CA\_n2-n66 | n2 | 1855 | 5 | 25 | 1935 | 20 | FDD | IMD3 |
|  | n66 | 1775 | 5 | 25 | 2175 | N/A | FDD | N/A |
|  | n2 | 1883.3 | 5 | 25 | 1963.3 | N/A | FDD | N/A |
|  | n66 | 1750 | 5 | 25 | 2150 | 4 | FDD | IMD5 |
| CA\_n2-n77 | n2 | 1855 | 5 | 25 | 1935 | 26 | FDD | IMD2 |
|  | n77 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n2 | 1900 | 5 | 25 | 1980 | 8.0 | FDD | IMD4 |
|  | n77 | 3720 | 10 | 50 | 3720 | N/A | TDD | N/A |
|  | n2 | 1885 | 5 | 25 | 1965 | 5 | FDD | IMD5 |
|  | n77 | 3810 | 10 | 50 | 3810 | N/A | TDD | N/A |
|  | n2 | N/A | 5 | N/A | 1987.5 | 2.7 | FDD | IMD7 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=10) | 3455 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBSTART=0) | 3945 |  |  |  |
| CA\_n2-n78 | n2 | 1855 | 5 | 25 | 1935 | 26 | FDD | IMD24 |
|  | n78 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
| CA\_n3-n5 | n3 | 1771 | 10 | 50 | 1866 | 4 | FDD | IMD4 |
|  | n5 | 838 | 5 | 25 | 883 | N/A | FDD | N/A |
|  | n3 | 1721 | 10 | 50 | 1816 | N/A | FDD | N/A |
|  | n5 | 838 | 5 | 25 | 883 | 24 | FDD | IMD23 |
| CA\_n3-n7 | n3 | 1730 | 5 | 25 | 1825 | N/A | FDD | N/A |
|  | n7 | 2535 | 10 | 50 | 2655 | 10.2 | FDD | IMD4 |
| CA\_n3-n8 | n3 | 1755 | 10 | 50 | 1850 | N/A | FDD | N/A |
|  | n8 | 900 | 5 | 25 | 945 | 8 | FDD | IMD44 |
|  | n3 | 1747.5 | 10 | 50 | 1842.5 | 6.4 | FDD | IMD5 |
|  | n8 | 897.5 | 5 | 25 | 942.5 | N/A | FDD | N/A |
| CA\_n3-n18 | n18 | 818 | 5 | 25 | 863 | N/A | FDD | N/A |
|  | n3 | 1731 | 5 | 25 | 1826 | 4 | FDD | IMD4 |
| CA\_n3-n26 | n3 | 1771 | 5 | 25 | 1866 | 4 | FDD | IMD4 |
|  | n26 | 838 | 5 | 25 | 883 | N/A | FDD | N/A |
|  | n3 | 1721 | 5 | 25 | 1816 | N/A | FDD | N/A |
|  | n26 | 838 | 5 | 25 | 883 | 26 | FDD | IMD24 |
| CA\_n3-n20 | n3 | 1775 | 5 | 25 | 1870 | 4 | FDD | IMD4 |
|  | n20 | 840 | 5 | 25 | 799 | N/A | FDD | N/A |
|  | n3 | 1735 | 5 | 25 | 1830 | N/A | FDD | N/A |
|  | n20 | 847 | 5 | 25 | 806 | 9 | FDD | IMD4 |
| CA\_n3-n38 | n3 | 1713 | 5 | 25 | 1808 | 8.2 | FDD | IMD4 |
| n38 | 2617 | 5 | 25 | 2617 | N/A | TDD | N/A |
| CA\_n3-n41 | n3 | 1740 | 5 | 25 | 1835 | 8.2 | FDD | IMD4 |
|  | n41 | 2657.5 | 10 | 50 | 2657.5 | N/A | TDD | N/A |
|  | n3 | N/A | 5 | N/A | 1877.5 | N/A | FDD | IMD914 |
|  | n41 | 2545 | 60 | 1 (RBSTART= 0) | 2545 | N/A | TDD | N/A |
|  |  | 2625 | 100 | 1 (RBSTART= 272) | 2625 |  |  |  |
|  | n3 | 1747.5 | 5 | 25 (RBSTART= 0) | 1842.5 | 15.3 | FDD | IMD3 |
|  | n41 | 2560 | 60 | 1 (RBSTART= 30) | 2560 | N/A | TDD | N/A |
|  |  | 2620 | 60 | 1 (RBSTART= 127) | 2620 |  |  |  |
| CA\_n3-n77 | n3 | 1740 | 5 | 25 | 1835 | 26 | FDD | IMD24 |
|  | n77 | 3575 | 10 | 50 | 3575 | N/A | TDD | N/A |
|  | n3 | 1765 | 5 | 25 | 1860 | 8.0 | FDD | IMD44 |
|  | n77 | 3435 | 10 | 50 | 3435 | N/A | TDD | N/A |
|  | n3 | N/A | N/A | N/A | N/A | N/A | FDD | IMD57 |
|  | n7712 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
|  | n3 | N/A | 5 | N/A | 1877.5 | [2.2] | FDD | IMD7 |
|  | n7712 | 3427.5 | 10 | 1 (RBSTART=10) | 3427.5 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBSTART=0) | 3945 |  |  |  |
| CA\_n3-n78 | n3 | 1740 | 5 | 25 | 1835 | 26 | FDD | IMD24 |
|  | n78 | 3575 | 10 | 25 | 3575 | N/A | TDD | N/A |
|  | n3 | 1765 | 5 | 25 | 1860 | 8.0 | FDD | IMD44 |
|  | n78 | 3435 | 10 | 25 | 3435 | N/A | TDD | N/A |
|  | n3 | N/A | 5 | N/A | 1877.5 | 2.2 | FDD | IMD7 |
|  | n7812 | 3305 | 10 | 1 (RBSTART=3) | 3305 | N/A | TDD | N/A |
|  |  | 3780 | 10 | 1 (RBSTART=0) | 3780 |  |  |  |
| CA\_n5-n7 | n5 | 834 | 5 | 25 | 879 | 12 | FDD | IMD34 |
|  | n7 | 2547 | 10 | 50 | 2667 | N/A | FDD | N/A |
| CA\_n5-n12 | n5 | 829 | 10 | 10 (RBSTART=0) | 874 | N/A18 | FDD | N/A |
|  |  | 838.9 | 10 | 10 (RBSTART=36) | 883.9 |  |  |  |
|  | n12 | N/A | 5 | N/A | 743.5 | 20.8 | FDD | IMD11 |
| CA\_n5-n13 | n5 | 828 | 5 | 25 | 873 | 25 | FDD | IMD3 |
|  | n13 | 783 | 5 | 25 | 752 | N/A | FDD | N/A |
| CA\_n5-n14 | n5 | 836 | 5 | 25 | 881 | 25 | FDD | IMD34 |
|  | n14 | 791 | 5 | 25 | 761 | N/A | FDD | N/A |
|  | n5 | 826.5 | 5 | 25 | 871.5 | N/A | FDD | N/A |
|  | n14 | 795.5 | 5 | 25 | 765.5 | 25 | FDD | IMD3 |
|  | n5 | 829 | 10 | 10 (RBSTART=0) | 874 | N/A18 | FDD | N/A |
|  |  | 838.9 | 10 | 10 (RBSTART=28) | 883.9 |  |  |  |
|  | n14 | N/A | 5 | N/A | 765.5 | 26.2 | FDD | IMD9 |
| CA\_n5-n29 | n5 | 829 | 10 | 10 (RBSTART=0) | 874 | N/A18 | FDD | N/A |
|  |  | 838.9 | 10 | 10 (RBSTART=36) | 883.9 |  |  |  |
|  | n29 | N/A | 5 | N/A | 725.5 | 16.0 | FDD | IMD13 |
| CA\_n5\_n41 | n5 | 839 | 5 | 25 | 884 | 15.6 | FDD | IMD33 |
|  | n41 | 2562 | 10 | 50 | 2562 | N/A | TDD | N/A |
| CA\_n5-n66 | n5 | 838 | 5 | 25 | 883 | 30 | FDD | IMD24 |
|  | n66 | 1721 | 5 | 25 | 2121 | N/A | FDD | N/A |
| CA\_n5-n77 | n5 | N/A | N/A | N/A | N/A | N/A | FDD | IMD27 |
|  | n7712 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
|  | n5 | 844 | 5 | 25 | 889 | 8.3 | FDD | IMD413 |
|  | n77 | 3421 | 10 | 50 | 3421 | N/A | TDD | N/A |
|  | n5 | 829 | 5 | 25 | 874 | 5.5 | FDD | IMD513 |
|  | n77 | 4190 | 10 | 50 | 4190 | N/A | TDD | N/A |
|  | n5 | N/A | 5 | N/A | 880 | 8.6 | FDD | IMD4 |
|  | n7712 | 3410 | 10 | 1 (RBSTART=25) | 3410 | N/A | TDD | N/A |
|  |  | 3850 | 10 | 1 (RBSTART=25) | 3850 |  |  |  |
| CA\_n5-n78 | n5 | 844 | 5 | 25 | 889 | 8.3 | FDD | IMD4 |
|  | n78 | 3421 | 10 | 50 | 3421 | N/A | TDD | N/A |
|  | n5 | N/A | 5 | N/A | 880 | 8.6 | FDD | IMD417 |
|  | n7812 | 3340 | 10 | 1 (RBSTART=25) | 3340 | N/A | TDD | N/A |
|  |  | 3780 | 10 | 1 (RBSTART=25) | 3780 |  |  |  |
| CA\_n7-n26 | n7 | 2556 | 5 | 25 | 2676 | N/A | FDD | N/A |
|  | n26 | 837 | 5 | 25 | 882 | 16.0 | FDD | IMD34 |
|  | n7 | 2567.5 | 5 | 25 | 2687.5 | 2.5 | FDD | IMD5 |
|  | n26 | 816.5 | 5 | 25 | 861.5 | N/A | FDD | N/A |
| CA\_n7-n40 | n7 | 2510 | 5 | 25 | 2630 | 23 | FDD | IMD3 |
|  | n40 | 2390 | 5 | 25 | 2390 | N/A | TDD | N/A |
| CA\_n7-n46 | n7 | 2550 | 10 | 50 | 2670 | 26.8 | FDD | IMD24 |
|  | n46 | 5220 | 20 | 100 | 5220 | N/A | TDD | N/A |
| CA\_n7-n66 | n7 | 2535 | 10 | 50 | 2655 | 15 | FDD | IMD4 |
|  | n66 | 1730 | 5 | 25 | 2130 | N/A | FDD | N/A |
| CA\_n7-n77 | n7 | 2540 | 5 | 25 | 2660 | 7.1 | FDD | IMD4 |
|  | n77 | 3870 | 10 | 50 | 3870 | N/A | TDD | N/A |
|  | n7 | N/A | 5 | N/A | 2687.5 | 15 | FDD | IMD5 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=0) | 3455 | N/A | TDD | N/A |
|  |  | 3835 | 10 | 1 (RBSTART=7) | 3835 |  |  |  |
| CA\_n7-n78 | n7 | N/A | 5 | N/A | 2650 | 15 | FDD | IMD5 |
|  | n7812 | 3350 | 10 | 1 (RBSTART=25) | 3350 | N/A | TDD | N/A |
|  |  | 3700 | 10 | 1 (RBSTART=25) | 3700 |  |  |  |
| CA\_n8-n20 | n8 | 892.5 | 5 | 25 | 937.5 | 25 | FDD | IMD3 |
|  | n20 | 849.5 | 5 | 25 | 808.5 | 25 | FDD | IMD3 |
| CA\_n8-n41 | n8 | 882.5 | 5 | 25 | 927.5 | 12.1 | FDD | IMD34 |
|  | n41 | 2685 | 10 | 50 | 2685 | N/A | TDD | N/A |
| CA\_n8-n78 | n8 | 897.5 | 5 | 25 | 942.5 | 8.3 | FDD | IMD4 |
|  | n78 | 3635 | 10 | 50 | 3635 | N/A | TDD | N/A |
| CA\_n8-n79 | n8 | 897.5 | 5 | 25 | 942.5 | 4.8 | FDD | IMD5 |
|  | n79 | 4532.5 | 40 | 216 | 4532.5 | N/A | TDD | N/A |
| CA\_n12-n66 | n12 | 707.5 | 5 | 25 | 737.5 | N/A | FDD | N/A |
|  | n66 | 1765 | 5 | 25 | 2115 | 5.0 | FDD | IMD4 |
| CA\_n12-n77 | n12 | 702 | 5 | 20 | 732 | 5.5 | FDD | IMD5 |
|  | n77 | 3540 | 10 | 50 | 3540 | N/A | TDD | N/A |
| CA\_n12-n78 | n12 | 710 | 5 | 25 | 740 | 5.5 | FDD | IMD5 |
|  | n78 | 3580 | 10 | 50 | 3580 | N/A | TDD | N/A |
| CA\_n13-n77 | n13 | 782 | 5 | 20 | 751 | 5.5 | FDD | IMD5 |
|  | n77 | 3880 | 10 | 50 | 3880 | N/A | TDD | N/A |
| CA\_n14-n77 | n14 | 793 | 5 | 20 | 763 | 5.5 | FDD | IMD5 |
|  | n77 | 3935 | 10 | 50 | 3935 | N/A | TDD | N/A |
| CA\_n18-n41 | n18 | 820 | 5 | 25 | 865 | 15.6 | FDD | IMD3 |
|  | n41 | 2505 | 5 | 25 | 2505 | N/A | TDD | N/A |
| CA\_n18-n77 | n18 | 827.5 | 5 | 25 | 872.5 | 8.4 | FDD | IMD48 |
|  | n77 | 3355 | 10 | 50 | 3355 | N/A | TDD | N/A |
|  | n18 | 817.5 | 5 | 25 | 862.5 | 4.5 | FDD | IMD58 |
|  | n77 | 4130 | 10 | 50 | 4130 | N/A | TDD | N/A |
| CA\_n18-n78 | n18 | 827.5 | 5 | 25 | 872.5 | 8.3 | FDD | IMD49 |
|  | n78 | 3355 | 10 | 50 | 3355 | N/A | TDD | N/A |
| CA\_n20-n78 | n20 | 850 | 5 | 25 | 809 | 11 | FDD | IMD4 |
|  | n78 | 3359 | 10 | 50 | 3359 | N/A | TDD | N/A |
| CA\_n24-n77 | n24 | N/A | N/A | N/A | N/A | N/A | FDD | IMD410 |
|  | n77 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
| CA\_n25-n41 | n25 | N/A | 5 | N/A | 1992.5 | 8.5 | FDD | IMD7 |
|  | n41 | 2545 | 90 | 1 (RBSTART=0) | 2545 | N/A | TDD | N/A |
|  |  | 2640 | 100 | 1 (RBSTART=221) | 2640 |  |  |  |
| CA\_n25-n48 | n25 | 1852.5 | 5 | 25 | 1932.5 | 12 | FDD | IMD4 |
|  | n48 | 3625 | 20 | 100 | 3625 | N/A | TDD | N/A |
| CA\_n25-n66 | n66 | 1775 | 5 | 25 | 2175 | N/A | FDD | N/A |
|  | n25 | 1855 | 5 | 25 | 1935 | 20 | FDD | IMD3 |
|  | n66 | 1712.5 | 5 | 25 | 2112.5 | 23 | FDD | IMD3 |
|  | n25 | 1912.5 | 5 | 25 | 1992.5 | N/A | FDD | N/A |
|  | n66 | 1750 | 5 | 25 | 2150 | 4 | FDD | IMD5 |
|  | n25 | 1883.3 | 5 | 25 | 1963.3 | N/A | FDD | N/A |
| CA\_n25-n77 | n25 | 1855 | 5 | 25 | 1935 | 26 | FDD | IMD2 |
|  | n77 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n25 | 1900 | 5 | 25 | 1980 | 8.0 | FDD | IMD4 |
|  | n77 | 3690 | 10 | 50 | 3690 | N/A | TDD | N/A |
|  | n25 | 1885 | 5 | 25 | 1965 | 5 | FDD | IMD5 |
|  | n77 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n25 | N/A | 5 | N/A | 1987.5 | 2.7 | FDD | IMD7 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=10) | 3455 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBSTART=0) | 3945 |  |  |  |
| CA\_n25-n78 | n25 | 1855 | 5 | 25 | 1935 | 26 | FDD | IMD24 |
|  | n78 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n25 | N/A | 5 | N/A | 1980 | 2.7 | FDD | IMD7 |
|  | n7812 | 3315 | 10 | 1 (RBSTART=7) | 3315 | N/A | TDD | N/A |
|  |  | 3760 | 10 | 1 (RBSTART=0) | 3760 |  |  |  |
| CA\_n26-n66 | n26 | 838 | 5 | 25 | 883 | 30 | FDD | IMD24 |
|  | n66 | 1721 | 5 | 25 | 2121 | N/A | FDD | N/A |
| CA\_n26-n70 | n26 | 831 | 5 | 25 | 876 | 30 | FDD | IMD24 |
|  | n70 | 1707.5 | 5 | 25 | 2007.5 | N/A | FDD | N/A |
| CA\_n26-n77 | n26 | N/A | N/A | N/A | N/A | N/A | FDD | IMD413 |
|  | n77 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
|  | n26 | N/A | N/A | N/A | N/A | N/A | FDD | IMD513 |
|  | n77 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
| CA\_n26-n78 | n26 | 836.5 | 5 | 25 | 881.5 | 11.1 | FDD | IMD4 |
|  | n78 | 3391 | 10 | 50 | 3391 | N/A | TDD | N/A |
|  | n78 | N/A | 10 | N/A | 3336 | 11.1 | FDD | IMD4 |
|  | n26 | 824 | 5 | 12 (RBSTART=0) | 869 | N/A | TDD | N/A |
|  |  | 839 | 5 | 12 (RBSTART=0) | 884 |  |  |  |
| CA\_n28-n50 | n28 | 730 | 10 | 50 | 775 | 15.3 | FDD | IMD2 |
|  | n50 | 1500 | 10 | 50 | 1500 | N/A | TDD | N/A |
|  | n28 | 740 | 10 | 50 | 785 | 6.0 | FDD | IMD44 |
|  | n50 | 1500 | 10 | 50 | 1500 | N/A | TDD | N/A |
| CA\_n28-n74 | n28 | 705.5 | 5 | 25 | 760.5 | 24.6 | FDD | IMD2 |
|  | n74 | 1466 | 5 | 25 | 1514 | N/A | FDD | N/A |
|  | n28 | 743 | 5 | 25 | 798 | 11.3 | FDD | IMD44 |
|  | n74 | 1431 | 5 | 25 | 1479 | N/A | FDD | N/A |
|  | n28 | 709 | 5 | 25 | 764 | N/A | FDD | N/A |
|  | n74 | 1466 | 5 | 25 | 1514 | 14.6 | FDD | IMD4 |
|  | n28 | 735.5 | 5 | 25 | 790.5 | N/A | FDD | N/A |
|  | n74 | 1450.4 | 5 | 25 | 1498.4 | 2.5 | FDD | IMD5 |
| CA\_n28-n77 | n28 | N/A | N/A | N/A | N/A | N/A | FDD | IMD27 |
|  | n7712 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
|  | n28 | 705.5 | 5 | 25 | 760.5 | 5.5 | FDD | IMD5 |
|  | n77 | 3582.5 | 10 | 50 | 3582.5 | N/A | TDD | N/A |
|  | n28 | N/A | 5 | N/A | 780 | 8.5 | FDD | IMD415 |
|  | n7712 | 3510 | 10 | 1 (RBSTART=25) | 3510 | N/A | TDD | N/A |
|  |  | 3900 | 10 | 1 (RBSTART=25) | 3900 | N/A | TDD | N/A |
|  | n28 | N/A | 5 | N/A | 705.5 | [8.6] | FDD | IMD4 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=17) | 3455 | N/A | TDD | N/A |
|  |  | 3805 | 10 | 1 (RBSTART=0) | 3805 |  |  |  |
| CA\_n28-n78 | n28 | 705.5 | 5 | 25 | 760.5 | 5.5 | FDD | IMD5 |
|  | n78 | 3582.5 | 10 | 50 | 3582.5 | N/A | TDD | N/A |
| CA\_n30-n77 | n30 | 2310 | 5 | 25 | 2355 | 8.0 | FDD | IMD4 |
|  | n77 | 3487.5 | 10 | 50 | 3487.5 | N/A | TDD | N/A |
|  | n30 | N/A | 5 | N/A | 2352.5 | 3.2 | FDD | IMD7 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=17) | 3455 | N/A | TDD | N/A |
|  |  | 3825 | 10 | 1 (RBSTART=0) | 3825 |  |  |  |
| CA\_n41-n66 | n41 | 2545 | 90 | 1 (RBSTART=0) | 2545 | N/A | TDD | N/A |
|  |  | 2640 | 100 | 1 (RBSTART=171) | 2640 |  |  |  |
|  | n66 | N/A | 5 | N/A | 2197.5 | 32.5 | FDD | IMD5 |
| CA\_n41-n71 | n41 | 2614 | 5 | 25 | 2614 | N/A | TDD | N/A |
|  | n71 | 665 | 5 | 25 | 619 | 11 | FDD | IMD4 |
| CA\_n41-n77 | n41 | 2545 | 60 | 1 (RBSTART=0) | 2545 | N/A | TDD | N/A |
|  |  | 2625 | 100 | 1 (RBSTART=272) | 2625 |  |  |  |
|  | n77 | N/A | 10 | N/A | 3305 | 2.7 | TDD | IMD9 |
|  | n41 | N/A | 10 | N/A | 2565 | 17 | TDD | IMD516 |
|  | n7712 | 3485 | 10 | 1 (RBSTART=25) | 3485 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBSTART=25) | 3945 |  |  |  |
| CA\_n46-n77 | n46 | N/A | 20 | N/A | 5155 | N/A | TDD | IMD5 |
|  | n7712 | 3385 | 10 | 1 (RBSTART= 25) | 3385 | N/A | TDD | N/A |
|  |  | 3975 | 10 | 1 (RBSTART= 25) | 3975 |  |  |  |
|  | n46 | N/A | 20 | N/A | 5660 | N/A | TDD | IMD6 |
|  | n7712 | 3310 | 10 | 1 (RBSTART= 25) | 3310 | N/A | TDD | N/A |
|  |  | 3790 | 10 | 1 (RBSTART= 25) | 3790 |  |  |  |
|  | n46 | N/A | 20 | N/A | 5230 | N/A | TDD | IMD7 |
|  | n7712 | 3310 | 10 | 1 (RBSTART= 25) | 3310 | N/A | TDD | N/A |
|  |  | 3790 | 10 | 1 (RBSTART= 25) | 3790 |  |  |  |
| CA\_n46-n78 | n46 | N/A | 20 | N/A | 5660 | N/A | TDD | IMD6 |
|  | n7812 | 3310 | 10 | 1 (RBSTART= 25) | 3310 | N/A | TDD | N/A |
|  |  | 3790 | 10 | 1 (RBSTART= 25) | 3790 |  |  |  |
|  | n46 | N/A | 20 | N/A | 5230 | N/A | TDD | IMD7 |
|  | n7812 | 3310 | 10 | 1 (RBSTART= 25) | 3310 | N/A | TDD | N/A |
|  |  | 3790 | 10 | 1 (RBSTART= 25) | 3790 |  |  |  |
| CA\_n48-n66 | n48 | 3660 | 5 | 25 | 3660 | N/A | TDD | N/A |
|  | n66 | 1730 | 5 | 25 | 2130 | 5.0 | FDD | IMD5 |
| CA\_n48-n70 | n70 | 1697.5 | 25/15 | 25 | 1997.5 | 26 | FDD | IMD24 |
|  | n48 | 3695 | 10 | 50 | 3695 | N/A | TDD | N/A |
| CA\_n66-n71 | n66 | 1750 | 5 | 25 | 2150 | 5 | FDD | IMD4 |
|  | n71 | 675 | 5 | 25 | 629 | N/A | FDD | N/A |
| CA\_n66-n77 | n66 | 1775 | 5 | 25 | 2175 | 31 | FDD | IMD2 |
|  | n77 | 3950 | 10 | 50 | 3950 | N/A | TDD | N/A |
|  | n66 | 1760 | 5 | 25 | 2160 | 5.0 | FDD | IMD5 |
|  | n77 | 3720 | 10 | 50 | 3720 | N/A | TDD | N/A |
|  | n66 | N/A | 5 | N/A | 2197.5 | 15 | FDD | IMD513 |
|  | n7712 | 3305 | 10 | 1 (RBSTART=0) | 3305 | N/A | TDD | N/A |
|  |  | 3855 | 10 | 1 (RBSTART=8) | 3855 |  |  |  |
|  | n66 | 1730 | 5 | 25 | 2130 | 1.7 | FDD | IMD7 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=10) | 3455 | N/A | TDD | N/A |
|  |  | 3875 | 10 | 1 (RBSTART=0) | 3875 |  |  |  |
| CA\_n66-n78 | n66 | 1730 | 5 | 25 | 2130 | 5.0 | FDD | IMD5 |
|  | n78 | 3660 | 10 | 50 | 3660 | N/A | TDD | N/A |
|  | n66 | N/A | 5 | 25 | 2150 | 1.7 | FDD | IMD7 |
|  | n7812 | 3350 | 10 | 1 (RBSTART=7) | 3350 | N/A | TDD | N/A |
|  |  | 3750 | 10 | 1 (RBSTART=0) | 3750 |  |  |  |
| CA\_n66-n85 | n66 | 1770 | 5 | 25 | 2138 | 5 | FDD | IMD4 |
|  | n85 | 701 | 5 | 25 | 731 | N/A | FDD | N/A |
| CA\_n67-n78 | n67 | N/A | 5 | N/A | 748 | 8.6 | SDL | IMD415 |
|  | n7812 | 3376 | 10 | 1 (RBSTART=25) | 3376 | N/A | TDD | N/A |
|  |  | 3750 | 10 | 1 (RBSTART=25) | 3750 |  |  |  |
| CA\_n70-n71 | n70 | 1697.5 | 5 | 25 | 1997.5 | 5 | FDD | IMD4 |
|  | n71 | 695.5 | 5 | 25 | 649.5 | N/A | FDD | N/A |
| CA\_n70-n77 | n70 | 1702.5 | 5 | 25 | 2002.5 | 31 | FDD | IMD2 |
|  | n77 | 3705 | 10 | 50 | 3705 | N/A | TDD | N/A |
|  | n70 | 1697.5 | 5 | 25 | 1997.5 | 5.0 | FDD | IMD5 |
|  | n77 | 3545 | 10 | 50 | 3545 | N/A | TDD | N/A |
| CA\_n70-n78 | n70 | 1705 | 5 | 25 | 2005 | 31 | FDD | IMD2 |
|  | n78 | 3710 | 10 | 50 | 3710 | N/A | TDD | N/A |
|  | n70 | 1705 | 5 | 25 | 2005 | 5.0 | FDD | IMD5 |
|  | n78 | 3560 | 10 | 50 | 3560 | N/A | TDD | N/A |
| CA\_n71-n77 | n71 | 671 | 5 | 25 | 625 | 5.5 | FDD | IMD513 |
|  | n77 | 3309 | 10 | 50 | 3309 | N/A | TDD | N/A |
|  | n71 | N/A | 5 | N/A | 640 | 8.6 | FDD | IMD4 |
|  | n7712 | 3480 | 10 | 1 (RBSTART=25) | 3480 | N/A | TDD | N/A |
|  |  | 3800 | 10 | 1 (RBSTART=25) | 3800 |  |  |  |
| CA\_n71-n78 | n71 | 681.5 | 5 | 25 | 635.5 | 5.5 | FDD | IMD5 |
|  | n78 | 3361.5 | 10 | 50 | 3361.5 | N/A | TDD | N/A |
| CA\_n77-n85 | n77 | 3590 | 10 | 25 | 3590 | N/A | TDD | N/A |
|  | n85 | 712 | 5 | 25 | 742 | 5.5 | FDD | IMD5 |
| CA\_n78-n102 | n7812 | 3320 | 10 | 1 (RBSTART=25) | 3320 | N/A | TDD | N/A |
|  |  | 3680 | 10 | 1 (RBSTART=25) | 3680 |  |  |  |
|  | n102 | 6280 | 20 | 100 | 6280 | N/A | TDD | IMD44 |
| CA\_n78-n105 | n78 | 3361.5 | 10 | 50 | 3361.5 | N/A | TDD | N/A |
|  | n105 | 682.5 | 5 | 25 | 631.5 | 5.5 | FDD | IMD5 |
| NOTE 1: Both of the transmitters shall be set min(+20 dBm, PCMAX\_L,f,c) as defined in clause 6.2A.4  NOTE 2: RBSTART = 0, 15 kHz SCS is assumed.  NOTE 3: No requirements apply when there is at least one individual RE within the intermodulation generated by the dual uplink is within the downlink transmission bandwidth of the FDD band. The reference sensitivity should only be verified when this is not the case (the requirements specified in clause 7.3 apply).  NOTE 4: This band is subject to IMD5 also which MSD is not specified.  NOTE 5: Void.  NOTE 6: Void.  NOTE 7: In current release the maximum separation bandwidth class is 600MHz, therefore, no IMD MSD requirement apply for this CA configuration when two uplink sub blocks are assigned within CA\_77(2A).  NOTE8: For a UE which supports this band combination only when the Band n77 frequency range restriction of 3400 – 4100 MHz applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.  NOTE 9: For a UE which supports this band combination only when the Band n78 frequency range restriction of 3400 – 3800 MHz, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.  NOTE 10: There is no IMD4 product in band n24 downlink for n77 operating in 3450 – 3980 MHz and n24 uplink restricted to between 1627.5 – 1637.5 MHz and between 1646.5 – 1656.5 MHz.  NOTE 11: Void.  NOTE 12: This band supports intra-band non-contiguous uplink configuration.  NOTE 13: 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 14: Applicable when n41 spectrum is restricted to 2515-2675MHz  NOTE 15: This band is subject to IMD6 also which MSD is not specified  NOTE 16: This band is subject to IMD7 also which MSD is not specified.  NOTE 17: For a UE which supports this band combination only when the Band n78 frequency range restriction of 3400 – 3800 MHz or 3300 – 3600 MHz applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.  NOTE 18: This component carrier is affected by IMD due to CA\_n5B for which the MSD is not specified. | | | | | | | | |

**Table 7.3A.5-1a: 2DL/2UL inter-band Reference sensitivity QPSK PREFSENS and uplink/downlink configurations for PC2 CA**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Band / Channel bandwidth / NRB / Duplex mode** | | | | | | | | **Source of IMD** |
| **NR CA**  **Configuration** | **NR band** | **UL Fc  (MHz)** | **UL/DL BW  (MHz)** | **UL  LCRB** | **DL Fc (MHz)** | **MSD  (dB)** | **Duplex mode** |  |
| CA\_n1-n774 | n1 | 1950 | 5 | 25 | 2140 | 35.8 | FDD | IMD2 |
|  | n77 | 4090 | 10 | 50 | 4090 | N/A | TDD | N/A |
|  | n1 | 1950 | 5 | 25 | 2140 | 17.8 | FDD | IMD4 |
|  | n77 | 3710 | 10 | 50 | 3710 | N/A | TDD | N/A |
|  | n1 | N/A | 5 | N/A | 2130 | 31 | FDD | IMD515 |
|  | n7712 | 3310 | 10 | 1 (RBSTART=25) | 3310 | N/A | TDD | N/A |
|  |  | 3900 | 10 | 1 (RBSTART=25) | 3900 | N/A | TDD | N/A |
| CA\_n1-n78 | n1 | 1950 | 5 | 25 | 2140 | 17.8 | FDD | IMD4 |
|  | n78 | 3710 | 10 | 50 | 3710 | N/A | TDD | N/A |
|  | n1 | N/A | 5 | N/A | 2140 | 13.6 | FDD | IMD7 |
|  | n7812 | 3305 | 10 | 1 (RBSTART=0) | 3305 | N/A | TDD | N/A |
|  |  | 3675 | 10 | 1 (RBSTART=44) | 3675 |  |  |  |
| CA\_n2-n77 | n2 | 1855 | 5 | 25 | 1935 | 32.10 | FDD | IMD2 |
|  | n77 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n2 | 1885 | 5 | 25 | 1965 | 20.0 | FDD | IMD5 |
|  | n77 | 3810 | 10 | 50 | 3810 | N/A | TDD | N/A |
|  | n2 | 1900 | 5 | 25 | 1980 | 19.10 | FDD | IMD4 |
|  | n77 | 3720 | 10 | 50 | 3720 | N/A | TDD | N/A |
| CA\_n3-n41 | n3 | 1740 | 5 | 25 | 1835 | 18.4 | FDD | IMD4 |
|  | n41 | 2657.5 | 10 | 50 | 2657.5 | N/A | TDD | N/A |
|  | n3 | 1747.5 | 5 | 25 (RBSTART= 0) | 1842.5 | 23.3 | FDD | IMD3 |
|  | n41 | 2560 | 60 | 1 (RBSTART= 30) | 2560 | N/A | TDD | N/A |
|  |  | 2620 | 60 | 1 (RBSTART= 127) | 2620 |  |  |  |
|  | n3 | N/A | 5 | N/A | 1877.5 | N/A17 | FDD | IMD9 |
|  | n41 | 2545 | 60 | 1 (RBSTART= 0) | 2545 | N/A | TDD | N/A |
|  |  | 2625 | 100 | 1 (RBSTART= 272) | 2625 |  |  |  |
| CA\_n3-n774 | n3 | 1740 | 5 | 25 | 1835 | 31.9 | FDD | IMD2 |
|  | n77 | 3575 | 10 | 50 | 3575 | N/A | TDD | N/A |
|  | n3 | 1765 | 5 | 25 | 1860 | 18.5 | FDD | IMD4 |
|  | n77 | 3435 | 10 | 50 | 3435 | N/A | TDD | N/A |
|  | n3 | N/A | N/A | N/A | N/A | N/A6 | FDD | IMD5 |
|  | n77 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
|  | n3 | N/A | 5 | N/A | 1877.5 | 13.6 | FDD | IMD7 |
|  | n7712 | 3427.5 | 10 | 1 (RBstart=10) | 3427.5 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBstart=0) | 3945 | N/A | TDD | N/A |
| CA\_n3-n78 | n3 | 1740 | 5 | 25 | 1835 | 31.9 | FDD | IMD2 |
|  | n78 | 3575 | 10 | 50 | 3575 | N/A | TDD | N/A |
|  | n3 | 1765 | 5 | 25 | 1860 | 18.5 | FDD | IMD4 |
|  | n78 | 3435 | 10 | 50 | 3435 | N/A | TDD | N/A |
|  | n3 | N/A | 5 | N/A | 1877.5 | 13.6 | FDD | IMD7 |
|  | n7812 | 3305 | 10 | 1 (RBSTART=3) | 3305 | N/A | TDD | N/A |
|  |  | 3780 | 10 | 1 (RBSTART=0) | 3780 |  |  |  |
| CA\_n5-n77 | n5 | 844 | 5 | 25 | 889 | 18.6 | FDD | IMD44,13 |
|  | n77 | 3421 | 10 | 50 | 3421 | N/A | TDD | N/A |
|  | n5 | N/A | 5 | N/A | 880 | 18.5 | FDD | IMD4 |
|  | n7712 | 3410 | 10 | 1 (RBSTART=25) | 3410 | N/A | TDD | N/A |
|  |  | 3850 | 10 | 1 (RBSTART=25) | 3850 | N/A | TDD | N/A |
| CA\_n5-n78 | n5 | 844 | 5 | 25 | 889 | 18.6 | FDD | IMD4 |
|  | n78 | 3421 | 10 | 50 | 3421 | N/A | TDD | N/A |
| CA\_n5-n784 | n5 | N/A | 5 | N/A | 880 | 18.5 | FDD | IMD4 |
|  | n7812 | 3340 | 10 | 1 (RBSTART=25) | 3340 | N/A | TDD | N/A |
|  |  | 3780 | 10 | 1 (RBSTART=25) | 3780 |  |  |  |
| CA\_n7-n20 | n7 | 2512 | 10 | 50 | 2632 | N/A | FDD | N/A |
|  | n20 | 851 | 5 | 25 | 810 | 12 | FDD | IMD311 |
| CA\_n7-n77 | n7 | 2540 | 5 | 25 | 2660 | [15.8] | FDD | IMD4 |
|  | n77 | 3870 | 10 | 50 | 3870 | N/A | TDD | N/A |
|  | n7 | N/A | 5 | N/A | 2687.5 | 29.9 | FDD | IMD515 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=0) | 3455 | N/A | TDD | N/A |
|  |  | 3835 | 10 | 1 (RBSTART=7) | 3835 | N/A | TDD | N/A |
| CA\_n7-n78 | n7 | N/A | 5 | N/A | 2650 | 29.9 | FDD | IMD515 |
|  | n7812 | 3350 | 10 | 1 (RBSTART=25) | 3350 | N/A | TDD | N/A |
|  |  | 3700 | 10 | 1 (RBSTART=25) | 3700 | N/A | TDD | N/A |
| CA\_n8-n77 | n8 | 897.5 | 5 | 25 | 942.5 | 15.5 | FDD | IMD4 |
|  | n77 | 3635 | 10 | 50 | 3635 | N/A | TDD | N/A |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| CA\_n8-n78 | n8 | 897.5 | 5 | 25 | 942.5 | 15.5 | FDD | IMD4 |
|  | n78 | 3635 | 10 | 50 | 3635 | N/A | TDD | N/A |
| CA\_n8-n79 | n8 | 897.5 | 5 | 25 | 942.5 | 21.5 | FDD | IMD5 |
|  | n79 | 4532.5 | 40 | 216 | 4532.5 | N/A | TDD | N/A |
| CA\_n12-n77 | n12 | 702 | 5 | 20 | 732 | 11.7 | FDD | IMD5 |
|  | n77 | 3540 | 10 | 50 | 3540 | N/A | TDD | N/A |
| CA\_n13-n77 | n13 | N/A | 5 | N/A | 750 | 8.6 | FDD | IMD415 |
|  | n7712 | 3510 | 10 | 1 (RBSTART=25) | 3510 | N/A | TDD | N/A |
|  |  | 3885 | 10 | 1 (RBSTART=25) | 3885 |  |  |  |
|  | n13 | 781 | 5 | 25 | 750 | 18.5 | FDD | IMD414 |
|  | n7712 | 3510 | 10 | 1 (RBSTART=25) | 3510 | N/A | TDD | N/A |
|  |  | 3885 | 10 | 1 (RBSTART=25) | 3885 | N/A | TDD | N/A |
|  | n13 | 782 | 5 | 20 | 751 | 20.5 | FDD | IMD5 |
|  | n77 | 3880 | 10 | 50 | 3880 | N/A | TDD | N/A |
| CA\_n14-n77 | n14 | 795.5 | 5 | 15 | 765.5 | 11.7 | FDD | IMD5 |
|  | n77 | 3947.5 | 10 | 50 | 3947.5 | N/A | TDD | N/A |
| CA\_n18-n41 | n18 | 820 | 5 | 25 | 865 | 24.6 | FDD | IMD3 |
|  | n41 | 2505 | 5 | 25 | 2505 | N/A | TDD | N/A |
| CA\_n18-n77 | n18 | 827.5 | 5 | 25 | 872.5 | 17.5 | FDD | IMD416 |
|  | n77 | 3355 | 10 | 50 | 3355 | N/A | TDD | N/A |
|  | n18 | 817.5 | 5 | 25 | 862.5 | 10.5 | FDD | IMD516 |
|  | n77 | 4130 | 10 | 50 | 4130 | N/A | TDD | N/A |
|  | n18 | 827.5 | 5 | 25 | 872.5 | 18.4 | FDD | IMD48 |
|  | n77 | 3355 | 10 | 50 | 3355 | N/A | TDD | N/A |
|  | n18 | 817.5 | 5 | 25 | 862.5 | 11.7 | FDD | IMD58 |
|  | n77 | 4130 | 10 | 50 | 4130 | N/A | TDD | N/A |
| CA\_n20-n78 | n20 | N/A | 5 | N/A | 800 | 8.6 | FDD | IMD415 |
|  | n7812 | 3350 | 10 | 1 (RBSTART=25) | 3350 | N/A | TDD | N/A |
|  |  | 3750 | 10 | 1 (RBSTART=25) | 3750 |  |  |  |
| CA\_n25-n41 | n25 | N/A | 5 | N/A | 1992.5 | 8.5 | FDD | IMD7 |
|  | n41 | 2545 | 90 | 1 (RBstart=0) | 2545 | N/A | TDD | N/A |
|  |  | 2640 | 100 | 1 (RBstart=221) | 2640 |  |  |  |
|  | n25 | 1860 | 5 | 25 | 1940 | 15.3 | FDD | IMD3 |
|  | n41 | 2501 | 10 | 1 (RBstart = 25) | 2501 | N/A | TDD | N/A |
|  |  | 2556 | 100 | 1 (RBstart = 208) | 2556 |  |  |  |
| CA\_n25-n77 | n25 | 1855 | 5 | 25 | 1935 | 32.1 | FDD | IMD24 |
|  | n77 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n25 | 1900 | 5 | 25 | 1980 | 19.1 | FDD | IMD4 |
|  | n77 | 3720 | 10 | 50 | 3720 | N/A | TDD | N/A |
|  | n25 | N/A | 5 | N/A | 1987.5 | 13.6 | FDD | IMD7 |
|  | n7712 | 3455 | 10 | 1 (RBSTART=10) | 3455 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBSTART=0) | 3945 | N/A | TDD | N/A |
| CA\_n25-n78 | n25 | 1855 | 5 | 25 | 1935 | 32.10 | FDD | IMD24 |
|  | n78 | 3790 | 10 | 50 | 3790 | N/A | TDD | N/A |
|  | n25 | N/A | 5 | N/A | 1980 | 13.6 | FDD | IMD7 |
|  | n7812 | 3315 | 10 | 1 (RBSTART=7) | 3315 | N/A | TDD | N/A |
|  |  | 3760 | 10 | 1 (RBSTART=0) | 3760 |  |  |  |
| CA\_n26-n78 | n26 | 836.5 | 5 | 25 | 881.5 | 23.8 | FDD | IMD4 |
|  | n78 | 3391 | 10 | 50 | 3391 | N/A | TDD | N/A |
| CA\_n28-n77 | n28 | N/A | N/A | N/A | N/A | N/A | FDD | IMD27 |
|  | n7712 | N/A | N/A | N/A | N/A | N/A | TDD | N/A |
|  | n28 | 705.5 | 5 | 25 | 760.5 | 19.2 | FDD | IMD5 |
|  | n77 | 3582.5 | 10 | 50 | 3582.5 | N/A | TDD | N/A |
|  | n28 | 725 | 5 | 25 | 780 | 18.5 | FDD | IMD414 |
|  | n7712 | 3510 | 10 | 1 (RBSTART=25) | 3510 | N/A | TDD | N/A |
|  |  | 3900 | 10 | 1 (RBSTART=25) | 3900 | N/A | TDD | N/A |
| CA\_n28-n78 | n28 | N/A | 5 | N/A | 780 | 18.5 | FDD | IMD414 |
|  | n7812 | 3310 | 10 | 1 (RBSTART=7) | 3310 | N/A | TDD | N/A |
|  |  | 3700 | 10 | 1 (RBSTART=0) | 3700 |  |  |  |
| CA\_n30-n77 | n30 | 2310 | 5 | 25 | 2355 | 17.6 | FDD | IMD4 |
|  | n77 | 3487.5 | 10 | 50 | 3487.5 | N/A | TDD | N/A |
| CA\_n41-n66 | n41 | 2545 | 90 | 1 (RBstart=0) | 2545 | N/A | TDD | N/A |
|  |  | 2640 | 100 | 1 (RBstart=171) | 2640 |  |  |  |
|  | n66 | N/A | 5 | N/A | 2197.5 | 32.5 | FDD | IMD5 |
| CA\_n41-n71 | n41 | 2614 | 5 | 25 | 2614 | N/A | TDD | N/A |
|  | n71 | 665 | 5 | 25 | 619 | 16.3 | FDD | IMD4 |
| CA\_n41-n77 | n41 | 2545 | 60 | 1 (RBstart=0) | 2545 | N/A | TDD | N/A |
|  |  | 2625 | 100 | 1 (RBstart=272) | 2625 |  |  |  |
|  | n77 | N/A | 10 | N/A | 3305 | [2.7] | TDD | IMD9 |
|  | n41 | N/A | 10 | N/A | 2565 | 32 | TDD | IMD516 |
|  | n7712 | 3485 | 10 | 1 (RBSTART=25) | 3485 | N/A | TDD | N/A |
|  |  | 3945 | 10 | 1 (RBSTART=25) | 3945 |  |  |  |
| CA\_n66-n77 | n66 | 1775 | 5 | 25 | 2175 | 34.33 | FDD | IMD2 |
|  | n77 | 3950 | 10 | 50 | 3950 | N/A | TDD | N/A |
|  | n66 | 1760 | 5 | 25 | 2160 | 11.27 | FDD | IMD5 |
|  | n77 | 3720 | 10 | 50 | 3720 | N/A | TDD | N/A |
|  | n66 | N/A | 5 | N/A | 2197.5 | 31 | FDD | IMD515 |
|  | n7712 | 3305 | 10 | 1 (RBstart=0) | 3305 | N/A | TDD | N/A |
|  |  | 3855 | 10 | 1 (RBstart=8) | 3855 | N/A | TDD | N/A |
| CA\_n66-n78 | n66 | 1760 | 5 | 25 | 2160 | 11.27 | FDD | IMD5 |
|  | n78 | 3720 | 10 | 50 | 3720 | N/A | TDD | N/A |
|  | n66 | N/A | 5 | 25 | 2150 | 13.6 | FDD | IMD7 |
|  | n7812 | 3350 | 10 | 1 (RBSTART=7) | 3350 | N/A | TDD | N/A |
|  |  | 3750 | 10 | 1 (RBSTART=0) | 3750 |  |  |  |
| CA\_n70-n77 | n70 | 1702.5 | 5 | 25 | 2002.5 | 37 | FDD | IMD2 |
|  | n77 | 3705 | 10 | 50 | 3705 | N/A | TDD | N/A |
|  | n70 | 1697.5 | 5 | 25 | 1997.5 | 18.4 | FDD | IMD5 |
|  | n77 | 3545 | 10 | 50 | 3545 | N/A | TDD | N/A |
| CA\_n71-n77 | n71 | 681.5 | 5 | 25 | 635.5 | 11.4 | FDD | IMD513 |
|  | n77 | 3361.5 | 10 | 50 | 3361.5 | N/A | TDD | N/A |
|  | n71 | N/A | 5 | N/A | 640 | 18.5 | FDD | IMD414 |
|  | n7712 | 3480 | 10 | 1 (RBSTART=25) | 3480 | N/A | TDD | N/A |
|  |  | 3800 | 10 | 1 (RBSTART=25) | 3800 |  |  |  |
| CA\_n71-n78 | n71 | 681.5 | 5 | 25 | 635.5 | 11.4 | FDD | IMD5 |
|  | n78 | 3361.5 | 10 | 50 | 3361.5 | N/A | TDD | N/A |
| CA\_n77-n85 | n77 | 3540 | 10 | 50 | 3540 | N/A | TDD | N/A |
|  | n85 | 702 | 5 | 20 | 732 | 11.7 | FDD | IMD5 |
| NOTE 1: Both of the transmitters shall be set min(+23 dBm, PCMAX\_L,f,c) as defined in clause 6.2A.4  NOTE 2: RBSTART = 0, 15 kHz SCS is assumed.  NOTE 3: No requirements apply when there is at least one individual RE within the intermodulation generated by the dual uplink is within the downlink transmission bandwidth of the FDD band. The reference sensitivity should only be verified when this is not the case (the requirements specified in clause 7.3 apply).  NOTE 4: This band is subject to IMD5 also which MSD is not specified.  NOTE 5: Void.  NOTE 6: Void.  NOTE 7: In current release the maximum separation bandwidth class is 600MHz, therefore, no IMD2 MSD requirement apply for this CA configuration when two uplink sub blocks are assigned within CA\_77(2A).  NOTE8: For a UE which supports this band combination only when the Band n77 frequency range restriction of 3400 – 4100 MHz applies, the MSD test point(s) cannot be verified for the band combination and the test point(s) can be skipped.  NOTE 9: Void.  NOTE 10: Void.  NOTE 11: Void.  NOTE 12: This band supports intra-band non-contiguous uplink configuration.  NOTE 13: 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 14: This band is subject to IMD6 also which MSD is not specified.  NOTE 15: This band is subject to IMD7 also which MSD is not specified.  NOTE 16: In Japan, n77 band is restricted to 3400 – 4100 MHz frequency range, and there are no valid MSD test points when using this restricted frequency range.  NOTE 17: Applicable when n41 spectrum is restricted to 2515-2675MHz | | | | | | | | |

**---End of changes---**