**3GPP TSG-RAN4 Meeting #111 *R4-2409310***

**Fukuoka City, Fukuoka, Japan, 20th May 2024 - 24th May 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-1** | **CR** | **2335** | **rev** | **-** | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Big CR on Introduction of completed SUL band combinations into TS 38.101-1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_SUL\_combos\_R18-Core | | | | |  | ***Date:*** | | | 2024-05-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | There is no MSD issue for SUL\_n79A-n83A. Thus, it’s proposed to introduce SUL\_n79A-n83A with BCS4&5 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Based on the endorsed CR R4-2406646, it’s proposed to introduce SUL\_n79A-n83A with BCS4&5 and test configurations in 7.3C.2 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Current specification can’t support SUL\_n79A-n83A with BCS4&5. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.5C, 7.3C.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## **<<Start of Change>>**

## 5.5C Configurations for SUL

The configuration tables for SUL describe Bandwidth Combination Sets. Bandwidth Combination Set 4 and 5 contains all possible defined channel bandwidths for each band in the combination. The fact that BCS4 and BCS5 contains all channel bandwidths for each band does not alter if a bandwidth is mandatory or optional for a given band. Bandwidths that are identified as optional in Table 5.3.5-1 for a given release are still optional for UEs that support BCS4 or BCS5. , where the bandwidths the UE supports for each band, the maximum bandwidth and/or minimum bandwidth for the band in the band combination are indicated in the UE capabilities. The minimum bandwidth per CC and aggregated FDD, TDD and total bandwidth per band combination may be indicated only for BCS5 as described in 38.306 [15] and BCS5 shall not be indicated together with BCS4 for a SUL configuration. For SUL band combinations including FR1 intra-band CA and with BCS4 or BCS5, the Bandwidth Combination Sets for the FR1 intra-band CA are BCS4 or BCS5.

For the NR SUL band configurations with inter-band CA in sub-clause 5.5C, when the capability [*BandCombination-UplinkTxSwitch-r18*] is present, three or four bands can be configured in the uplink with simultaneous uplink transmission on up to two bands, and the corresponding requirements for SUL band configurations with inter-band CA and with uplink assigned to one or two bands shall apply. For each uplink band pair in the NR SUL band configurations with inter-band CA, according to the capability [*uplinkTxSwitchingOptionForBandPair*],

– if *switchedUL* is supported, uplink transmission on any one band of the band pair in the band combination shall be supported according to the scheduling commands, and the corresponding requirements for SUL band configuration with inter-band CA and with uplink assigned to one band on band X or band Y apply;

– if *dualUL* is supported, simultaneous uplink transmission on the two NR UL bands from the band pair for which *dualUL* is declared in the band combination shall be supported according to the scheduling commands, and the corresponding requirements for SUL band configuration with inter-band CA and with uplink CA between the two uplink bands apply.

For SUL band configuration with inter-band CA, band pair(s) of two non-SUL bands with *switchedUL* or *dualUL* by the parameter [*uplinkTxSwitchingOption*] is supported, and any other band pair(s) including SUL with *switchedUL* is supported, in release 18.

Table 5.5C-1: Supported channel bandwidths per SUL band combination

| SUL configuration | NR Band | Channel bandwidth (MHz) (NOTE 1) | Bandwidth combination set |
| --- | --- | --- | --- |
| SUL\_n1A-n80A | n1 | 5, 10, 15, 20, 25, 30, 40, 50 | 0 |
|  | n80 | 5, 10, 15, 20, 25, 30 |  |
| SUL\_n1A-n81A | n1 | 5, 10, 15, 20, 25, 30, 40, 50 | 0 |
|  | n81 | 5, 10, 15, 20 |  |
| SUL\_n1A-n89A | n1 | 5, 10, 15, 20, 25, 30, 40, 50 | 0 |
|  | n89 | 5, 10, 15, 20 |  |
| SUL\_n3A-n84A | n3 | 5, 10, 15, 20, 25, 30, 40 | 0 |
|  | n84 | 5, 10, 15, 20 |  |
| SUL\_n5A-n84A | n5 | 5, 10, 15, 20 | 0 |
|  | n84 | 5, 10, 15, 20 |  |
| SUL\_n8A-n84A | n8 | 5, 10, 15, 20 | 0 |
|  | n84 | 5, 10, 15, 20 |  |
| SUL\_n24A-n99A | n24 | 5, 10 | 0 |
|  | n99 | 5, 10 |  |
| SUL\_n41A-n80A | n41 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n80 | 5, 10, 15, 20, 25, 30 |  |
|  | n41 | 10, 15, 20, 30, 40, 50, 60, 80, 90, 100 | 1 |
|  | n80 | 5, 10, 15, 20, 25, 30, 40 |  |
| SUL\_n41A-n81A | n41 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n81 | 5, 10, 15, 20 |  |
| SUL\_n41A-n83A | n41 | 10, 15, 20, 30, 40, 50, 60, 80, 90, 100 | 0 |
|  | n83 | 5, 10, 15, 20, 30 |  |
| SUL\_n41A-n95A | n41 | 10, 15, 20, 30, 40, 50, 60, 80, 90, 100 | 0 |
|  | n95 | 5, 10, 15 |  |
| SUL\_n41A-n97A | n41 | 10, 15, 20, 30, 40, 50, 60, 80, 90, 100 | 0 |
|  | n97 | 5, 10, 15, 20, 25, 30, 40, 50, 60, 80 |  |
|  | n41 | 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100 | 1 |
|  | n97 | 5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
| SUL\_n41A-n98A | n41 | 10, 15, 20, 30, 40, 50, 60, 80, 90, 100 | 0 |
|  | n98 | 5, 10, 15, 20, 25, 30, 40 |  |
| SUL\_n41A-n99A | n41 | 10, 15, 20, 30, 40, 50, 60, 80, 90, 100 | 0 |
|  | n99 | 5, 10 |  |
| SUL\_n48A-n99A | n48 | 5, 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n99 | 5, 10 |  |
| SUL\_n77A-n80A | n77 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n80 | 5, 10, 15, 20, 25, 30 |  |
| SUL\_n77A-n84A | n77 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n84 | 5, 10, 15, 20 |  |
| SUL\_n77A-n99A | n77 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n99 | 5, 10 |  |
| SUL\_n78A-n80A | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n80 | 5, 10, 15, 20, 25, 30 |  |
|  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 1 |
|  | n80 | 5, 10, 15, 20, 25, 30, 40 |  |
| SUL\_n78A-n81A | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n81 | 5, 10, 15, 20 |  |
|  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 1 |
|  | n81 | 5, 10, 15, 20 |  |
| SUL\_n78A-n82A | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n82 | 5, 10, 15, 20 |  |
| SUL\_n78A-n83A | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n83 | 5, 10, 15, 20 |  |
|  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 1 |
|  | n83 | 5, 10, 15, 20, 30 |  |
| SUL\_n78A-n84A | n78 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 0 |
|  | n84 | 5, 10, 15, 20 |  |
|  | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 1 |
|  | n84 | 5, 10, 15, 20, 25, 30, 40, 50 |  |
| SUL\_n78A-n86A | n78 | 10, 15, 20, 40, 50, 60, 70, 80, 90, 100 | 0 |
|  | n86 | 5, 10, 15, 20 |  |
| SUL\_n78A-n89A | n78 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 0 |
|  | n89 | 5, 10, 15, 20 |  |
| SUL\_n79A-n80A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n80 | 5, 10, 15, 20, 25, 30 |  |
|  | n79 | 40, 50, 60, 80, 100 | 1 |
|  | n80 | 5, 10, 15, 20, 25, 30, 40 |  |
| SUL\_n79A-n81A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n81 | 5, 10, 15, 20 |  |
| SUL\_n79A-n83A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n83 | 5, 10, 15, 20, 30 |  |
|  | n79 | See n79 channel bandwidths in Table 5.3.5-1 for each carrier | 4 and 5 |
|  | n83 | See n83 channel bandwidths in Table 5.3.5-1 for each carrier |  |
| SUL\_n79A-n84A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n84 | 5, 10, 15, 20 |  |
| SUL\_n79A-n95A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n95 | 5, 10, 15 |  |
| SUL\_n79A-n97A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n97 | 5, 10, 15, 20, 25, 30, 40, 50, 60, 80 |  |
|  | n79 | 40, 50, 60, 80, 100 | 1 |
|  | n97 | 5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |
|  | n79 | See n79 channel bandwidths in Table 5.3.5-1 for each carrier | 4 and 5 |
|  | n97 | See n97 channel bandwidths in Table 5.3.5-1 for each carrier |  |
| SUL\_n79A-n98A | n79 | 40, 50, 60, 80, 100 | 0 |
|  | n98 | 5, 10, 15, 20, 25, 30, 40 |  |
| NOTE 1: The SCS of each channel bandwidth for NR band refers to Table 5.3.5-1. | | | |

## **<<Next of Change>>**

### 7.3C.2 Reference sensitivity power level for SUL

For SUL operation, the reference receive sensitivity (REFSENS) requirement for downlink bands specified in Table 7.3.2-1a, Table 7.3.2-1b and Table 7.3.2-2 shall be met for an uplink transmission bandwidth less than or equal to that specified in Table 7.3.2-3 or supplementary uplink transmission bandwidth less than or equal to that specified in Table 7.3C.2-1 with reference measurement channels as specified in Annexes A.2.2.2, A.3.2, and A.3.3 (with one sided dynamic OCNG Pattern OP.1 FDD/TDD for the DL-signal as described in Annex A.5.1.1/A.5.2.1), unless sensitivity degradation is allowed in this clause of this specification. These exceptions also apply to any higher order CA or DC combination containing one of the exception combinations in this clause as subset.

For SUL operation with downlink CA, the reference receive sensitivity (REFSENS) requirement for downlink bands specified in clause 7.3A.2 shall be met for an uplink transmission bandwidth less than or equal to that specified in Table 7.3.2-3 or supplementary uplink transmission bandwidth less than or equal to that specified in Table 7.3C.2-1 with reference measurement channels as specified in Annexes A.2.2.2, A.3.2, and A.3.3 (with one sided dynamic OCNG Pattern OP.1 FDD/TDD for the DL-signal as described in Annex A.5.1.1/A.5.2.1), unless sensitivity degradation is allowed in this clause of this specification. These exceptions also apply to any higher order CA or DC combination containing one of the exception combinations in this clause as subset.

Table 7.3C.2-1: Supplementary uplink configuration for reference sensitivity

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR Band / SCS of SUL band / Channel bandwidth of the DL band / NRB | | | | | | | | | | | | | | | |
| DL band | SUL band | SCS of SUL band  (kHz) | 5  MHz | 10 MHz | 15 MHz | 20 MHz | 25 MHz | 30 MHz | 40 MHz | 50 MHz | 60 MHz | 70  MHz | 80 MHz | 90 MHz | 100 MHz |
| n1 | n80 | 15 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |  |  |  |  |  |  |
| n1 | n81 | 15 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |  |  |  |  |  |
| n1 | n841 | 15 | 25 | 50 | 75 | 100 | 128 | 128 | 128 | 128 |  |  |  |  |  |
| n1 | n89 | 15 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |  |  |  |  |  |
| n3 | n801 | 15 | 25 | 50 | 50 | 50 | 50 | 50 | 50 |  |  |  |  |  |  |
| n3 | n84 | 15 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |  |  |  |  |  |  |
| n5 | n84 | 15 | 100 | 100 | 100 | 100 |  |  |  |  |  |  |  |  |  |
| n8 | n84 | 15 | 100 | 100 | 100 | 100 |  |  |  |  |  |  |  |  |  |
| n8 | n811 | 15 | 25 | 25 | 20 | 20 |  |  |  |  |  |  |  |  |  |
| n24 | n99 | 15 | 25 | 50 |  |  |  |  |  |  |  |  |  |  |  |
| n28 | n831 | 15 | 25 | 25 | 25 | 25 |  | 25 |  |  |  |  |  |  |  |
| n41 | n80 | 15 |  | 160 | 160 | 160 |  | 160 | 160 | 160 | 160 |  | 160 | 160 | 160 |
| n41 | n81 | 15 |  | 100 | 100 | 100 |  |  | 100 | 100 | 100 |  | 100 | 100 | 100 |
| n41 | n83 | 15 |  | 100 | 100 | 100 |  | 100 | 100 | 100 | 100 |  | 100 | 100 | 100 |
|  |  | 30 |  | 50 | 50 | 50 |  | 50 | 50 | 50 | 50 |  | 50 | 50 | 50 |
| n41 | n95 | 15 |  | 75 | 75 | 75 |  | 75 | 75 | 75 | 75 |  | 75 | 75 | 75 |
| n41 | n97 | 30 |  | 216 | 216 | 216 |  | 216 | 216 | 216 | 216 | 216 | 216 | 216 | 216 |
| n41 | n98 | 15 |  | 216 | 216 | 216 |  | 216 | 216 | 216 | 216 |  | 216 | 216 | 216 |
| n41 | n99 | 15 |  | 50 | 50 | 50 |  | 50 | 50 | 50 | 50 |  | 50 | 50 | 50 |
| n48 | n99 | 15 |  | 50 | 50 | 50 |  | 50 | 50 | 50 | 50 |  | 50 | 50 | 50 |
| n77 | n80 | 15 |  | 160 | 160 | 160 |  |  | 160 | 160 | 160 |  | 160 | 160 | 160 |
| n77 | n84 | 15 |  | 100 | 100 | 100 |  |  | 100 | 100 | 100 |  | 100 | 100 | 100 |
| n77 | n99 | 15 |  | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| n78 | n80 | 15 |  | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| n78 | n81 | 15 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| n78 | n82 | 15 |  | 100 | 100 | 100 |  |  | 100 | 100 | 100 |  | 100 | 100 | 100 |
| n78 | n83 | 15 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| n78 | n84 | 15 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| n78 | n86 | 15 |  | 216 | 216 | 216 |  |  | 216 | 216 | 216 |  | 216 | 216 | 216 |
| n78 | n89 | 15 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| n79 | n80 | 15 |  |  |  |  |  |  | 160 | 160 | 160 |  | 160 |  | 160 |
| n79 | n83 | 15 |  | 100 |  | 100 |  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
|  |  | 30 |  | 50 |  | 50 |  | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| n79 | n81 | 15 |  |  |  |  |  |  | 100 | 100 | 100 |  | 100 |  | 100 |
| n79 | n84 | 15 |  |  |  |  |  |  | 100 | 100 | 100 |  | 100 |  | 100 |
| n79 | n95 | 15 |  |  |  |  |  |  | 75 | 75 | 75 |  | 75 |  | 75 |
| n79 | n97 | 15 |  |  |  |  |  |  | 270 | 270 | 270 |  | 270 |  | 270 |
| n79 | n98 | 15 |  |  |  |  |  |  | 216 | 216 | 216 |  | 216 |  | 216 |
| NOTE 1: The Tx-Rx carrier center frequency separation between SUL band and DL band is the same as the Tx-Rx carrier center frequency separation of DL band specified in table 5.4.4-1 from TS 38.101-1. The channel bandwidth of SUL band is the same as DL band. This restriction of REFSENS configurations applies also for these carriers when applicable SUL configuration is part of a higher order configuration. | | | | | | | | | | | | | | | |

For the UE that supports any of the SUL operation given in Table 7.3C.2-2, exceptions to the requirements specified in Table 7.3.2-1a and Table 7.3.2-1b are allowed for different combinations of UL configurations and DL channel bandwidths when the uplink is active in a lower frequency band and is within a specified frequency range such that transmitter harmonics fall within the downlink transmission bandwidth assigned in a higher band as noted in Table 7.3C.2-2. For these exceptions, only the listed test points in Table 7.3C.2-2 are needed to be tested.

Table 7.3C.2-2: Reference sensitivity and uplink/downlink configurations for SUL operation (exceptions due to uplink harmonic issue)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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)** |
| n80 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1  direct-hit |
| n80 | n77 | 10 | 15 | 50 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1  direct-hit |
| n80 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1  near-miss |
| n80 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1  direct-hit |
| n80 | n78 | 10 | 15 | 50 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1  direct-hit |
| n80 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1  near-miss |
| n81 | n41 | 5 | 15 | 16 (RBstart=4) | 10 | 13 | NOTE 3 | UL3/DL1  direct-hit |
| n81 | n41 | 5 | 15 | 25 (RBstart=0) | 100 | 3.5 | NOTE 3 | UL3/DL1  direct-hit |
| n81 | n78 | 5 | 15 | 16 (RBstart=4) | 10 | 10.8 | NOTE 4 | UL4/DL1  direct-hit |
| n81 | n78 | 5 | 15 | 25 (RBstart=0) | 100 | 1.4 | NOTE 4 | UL4/DL1  direct-hit |
| n81 | n79 | 5 | 15 | 25 (RBstart=0) | 40 | 6.8 | NOTE 5 | UL5/DL1  direct-hit |
| n81 | n79 | 5 | 15 | 25 (RBstart=0) | 100 | 4.4 | NOTE 5 | UL5/DL1  direct-hit |
| n82 | n78 | 5 | 15 | 16 (RBstart=4) | 10 | 10.8 | NOTE 4 | UL4/DL1  direct-hit |
| n82 | n78 | 5 | 15 | 20 (RBstart=2) | 100 | 1.0 | NOTE 4 | UL4/DL1  direct-hit |
| n83 | n78 | 5 | 15 | 10 (RBstart=8) | 10 | 10.4 | NOTE 5 | UL5/DL1  direct-hit |
| n83 | n78 | 5 | 15 | 25 (RBstart=0) | 100 | 0.7 | NOTE 5 | UL5/DL1  direct-hit |
| n84 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1  direct-hit |
| n84 | n77 | 10 | 15 | 100 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1  direct-hit |
| n84 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1  near-miss |
| n86 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1  direct-hit |
| n86 | n78 | 10 | 15 | 100 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1  direct-hit |
| n86 | n78 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1  near-miss |
| n89 | n78 | 5 | 15 | 16 (RBstart=0) | 10 | 10.5 | NOTE 4 | UL4/DL1  direct-hit |
| n89 | n78 | 20 | 15 | 25 (RBstart=0) | 100 | 1.4 | NOTE 4 | UL4/DL1  direct-hit |
| n97 | n79 | 5 | 15 | 100 (RBstart=0) | 40 | 29.4 | NOTE 2 | UL2/DL1  direct-hit |
| n97 | n79 | 5 | 15 | 270 (RBstart=0) | 100 | 25.3 | NOTE 2 | UL2/DL1  direct-hit |
| n99 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 23.9 | NOTE 2 | UL2/DL1  direct-hit |
| n99 | n77 | 10 | 15 | 100 (RBstart=0) | 100 | 13.8 | NOTE 2 | UL2/DL1  direct-hit |
| n99 | n77 | 5 | 15 | 25 (RBstart=0) | 10 | 1.1 | NOTE 6 | UL2/DL1  near-miss |
| NOTE 1: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 2nd / 3rd / 4th / 5th transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band.  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: The requirements should be verified for UL NR ARFCN of the aggressor (lower) band (superscript LB) such that  in MHz and  with the carrier frequency in the victim (higher) band in MHz and the channel bandwidth configured in the low band.  NOTE 4: The requirements should be verified for UL EARFCN 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 5: 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 6: The requirements are only applicable to channel bandwidths no larger than 20 MHz and with a carrier frequency at  MHz offset from  in the victim (higher band) with , whereandare the channel bandwidths configured in the aggressor (lower) and victim (higher) bands in MHz, respectively. | | | | | | | | |

Table 7.3C.2-3: Void

For the UE that supports any of the SUL operation given in Table 7.3C.2-4, reference sensitivity degradation is allowed for different combinations of UL configurations and DL channel bandwidths when a DL band is impacted by UL band due to cross band isolation issues. For these exceptions, only the listed test points in Table 7.3C.2-4 are needed to be tested.

Table 7.3C.2-4: Reference sensitivity and uplink/downlink configurations for SUL operation (exceptions due to cross band isolation)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| UL band | DL band | UL Fc | UL BW | SCS of UL band | UL RB Allocation | DL Fc | DL BW | MSD | X band interference source |
| (MHz) | (MHz) | (kHz) | LCRB | (MHz) | (MHz) | (dB) |
| n80 | n41 | 1765 | 40 | 15 | 50 (RBstart=166) | 2501 | 10 | 0.7 | >ACLR2 |
| n80 | n41 | 1765 | 40 | 15 | 50 (RBstart=166) | 2546 | 100 | 0.7 | >ACLR2 |
| n84 | n3 | 1945 | 50 | 15 | 128 (RBstart=0) | 1877.5 | 5 | 19.7 | ACLR1 |
| n95 | n41 | 2017.5 | 15 | 15 | 75 (RBstart=4) | 2501 | 10 | 3.2 | >ACLR2 |
| n95 | n41 | 2017.5 | 15 | 15 | 75 (RBstart=4) | 2546 | 100 | 3.2 | >ACLR2 |
| n97 | n41 | 2350 | 100 | 30 | 270 (RBstart=3) | 2501 | 10 | 28.1 | ACLR2 |
| n97 | n41 | 2360 | 80 | 30 | 216 (RBstart=1) | 2546 | 100 | 10.6 | ACLR2 |
| n98 | n41 | 1900 | 40 | 15 | 216 (RBstart=0) | 2501 | 10 | 3.3 | >ACLR2 |

Table 7.3C.2-5: Void

## **<<End of Change>>**