**3GPP TSG- Meeting #100**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0905** | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 0 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Add following channel BWs support:   * 25, 30 and 40 MHz in band n2. * 25 MHz in band n5. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Updated the channel bandwidth, reference sensitivity and uplink configurations for 25, 30, and 40MHz CBW for Band n2.  Updated the channel bandwidth, reference sensitivity and uplink configurations for 25MHz CBW for Band n5. Added asymmetric channel BW combination set for 25MHz CBW for Band n5. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The new channel bandwidths won’t be supported in those bands. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.5, 5.3.6, 7.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This version is consolidating all endorsed draft CRs in RAN4#100-e meeting:  R4-2111745 and R4-2114916 | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*<Start of the change>*

### 5.3.5 UE channel bandwidth per operating band

The requirements in this specification apply to the combination of channel bandwidths, SCS and operating bands shown in Table 5.3.5-1. The transmission bandwidth configuration in Table 5.3.2-1 shall be supported for each of the specified channel bandwidths. The channel bandwidths are specified for both the TX and RX path.

Table 5.3.5-1 Channel bandwidths for each NR band

| NR Band | SCS (kHz) | UE Channel bandwidth (MHz) | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| n1 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
| n2 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
| n3 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
| n5 | 15 | 5 | 10 | 15 | 20 | 253 |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 253 |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n7 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
| n8 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n12 | 15 | 5 | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n13 | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n14 | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n18 | 15 | 5 | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n20 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n24 | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
| n25 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
| n26 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
| n28 | 15 | 5 | 10 | 15 | 207 |  | 307 |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 207 |  | 307 |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n29 | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n30 | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n34 | 15 | 5 | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
| n38 | 15 | 5 | 1010 | 15 | 2010 | 25 | 3010 | 4010 |  |  |  |  |  |  |
|  | 30 |  | 1010 | 15 | 2010 | 25 | 3010 | 4010 |  |  |  |  |  |  |
|  | 60 |  | 1010 | 15 | 2010 | 25 | 3010 | 4010 |  |  |  |  |  |  |
| n39 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
| n40 | 15 | 59 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |  | 80 | 90 | 100 |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |  | 80 | 90 | 100 |
| n41 | 15 |  | 10 | 15 | 20 |  | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|  | 60 |  | 10 | 15 | 20 |  | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| n46 | 15 |  | 105 |  | 20 |  |  | 40 |  |  |  |  |  |  |
|  | 30 |  | 105 |  | 20 |  |  | 40 |  | 60 |  | 80 |  |  |
|  | 60 |  | 105 |  | 20 |  |  | 40 |  | 60 |  | 80 |  |  |
| n47 | 15 |  | 1010 |  | 2010 |  | 3010 | 4010 |  |  |  |  |  |  |
|  | 30 |  | 1010 |  | 2010 |  | 3010 | 4010 |  |  |  |  |  |  |
|  | 60 |  | 1010 |  | 2010 |  | 3010 | 4010 |  |  |  |  |  |  |
| n48 | 15 | 55 | 10 | 15 | 20 |  | 30 | 40 | 506 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  | 30 | 40 | 506 | 606 | 706 | 806 | 906,4 | 1006 |
|  | 60 |  | 10 | 15 | 20 |  | 30 | 40 | 506 | 606 | 706 | 806 | 906,4 | 1006 |
| n50 | 15 | 59 | 10 | 15 | 20 |  | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  | 30 | 40 | 50 | 60 |  | 803 |  |  |
|  | 60 |  | 10 | 15 | 20 |  | 30 | 40 | 50 | 60 |  | 803 |  |  |
| n51 | 15 | 5 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n53 | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
| n65 | 15 | 5 | 10 | 15 | 20 |  |  |  | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  | 50 |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 |  |  |  | 50 |  |  |  |  |  |
| n66 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
| n67 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n70 | 15 | 5 | 10 | 15 | 203 | 253 |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 203 | 253 |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 203 | 253 |  |  |  |  |  |  |  |  |
| n71 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n74 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
| n75 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
| n76 | 15 | 5 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 704 | 80 | 904 | 100 |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 704 | 80 | 904 | 100 |
| n78 | 15 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 704 | 80 | 90 | 100 |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 704 | 80 | 90 | 100 |
| n79 | 15 |  |  |  |  |  |  | 40 | 50 |  |  |  |  |  |
|  | 30 |  |  |  |  |  |  | 40 | 50 | 60 |  | 80 |  | 100 |
|  | 60 |  |  |  |  |  |  | 40 | 50 | 60 |  | 80 |  | 100 |
| n80 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
| n81 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n82 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n83 | 15 | 5 | 10 | 15 | 20 |  | 307 |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  | 307 |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n84 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
| n85 | 15 | 5 | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n86 | 15 | 5 | 10 | 15 | 20 |  |  | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 |  |  | 40 |  |  |  |  |  |  |
| n89 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n90 | 15 |  | 10 | 15 | 20 |  | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  | 30 | 40 | 50 | 60 |  | 80 | 90 | 100 |
|  | 60 |  | 10 | 15 | 20 |  | 30 | 40 | 50 | 60 |  | 80 | 90 | 100 |
| n91 | 15 | 5 | 108 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n92 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n93 | 15 | 5 | 108 |  |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n94 | 15 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n95 | 15 | 5 | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 |  |  |  |  |  |  |  |  |  |  |
| n96 | 15 |  |  |  | 20 |  |  | 40 |  |  |  |  |  |  |
|  | 30 |  |  |  | 20 |  |  | 40 |  | 60 |  | 80 |  |  |
|  | 60 |  |  |  | 20 |  |  | 40 |  | 60 |  | 80 |  |  |
| n97 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |  | 80 |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |  | 80 |  |  |
| n98 | 15 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 30 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 60 |  | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |
|  | 15 | 5 | 10 |  |  |  |  |  |  |  |  |  |  |  |
| n99 | 30 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |
| NOTE 1: Void.  NOTE 2: Void.  NOTE 3: This UE channel bandwidth is applicable only to downlink.  NOTE 4: This UE channel bandwidth is optional in this release of the specification.  NOTE 5: For this bandwidth, the minimum requirements are restricted to operation when carrier is configured as an SCell part of DC or CA configuration.  NOTE 6: For this bandwidth, the minimum requirements are restricted to operation when carrier is configured as a downlink SCell part of CA configuration.  NOTE 7: For the 20 MHz bandwidth, the minimum requirements are specified for NR UL carrier frequencies confined to either 713-723 MHz or 728-738 MHz. For the 30MHz bandwidth, the minimum requirements are specified for NR UL transmission bandwidth configuration confined to either 703-733 or 718-748 MHz.  NOTE 8: This UE channel bandwidth is applicable only to uplink.  NOTE 9: For this bandwidth, the minimum requirements are restricted to operation when carrier is configured as an SCell part of DC or CA configuration.  NOTE 10: These UE channel bandwidths are applicable to sidelink operation. | | | | | | | | | | | | | | |

### 5.3.6 Asymmetric channel bandwidths

The UE channel bandwidth can be asymmetric in downlink and uplink. In asymmetric channel bandwidth operation, the narrower carrier shall be confined within the frequency range of the wider channel bandwidth.

In FDD, the confinement is defined as a maximum deviation to the Tx-Rx carrier center frequency separation (defined in table 5.4.4-1) as following:

ΔFTX-RX = | (BWDL – BWUL)/2 |

The operating bands and supported asymmetric channel bandwidth combinations are defined in table 5.3.6-1.

Table 5.3.6-1: FDD asymmetric UL and DL channel bandwidth combinations

|  |  |  |  |
| --- | --- | --- | --- |
| NR Band | Channel bandwidths for UL (MHz) | Channel bandwidths for DL (MHz) | Asymmetric channel bandwidth combination set |
| n5 | 20 | 25 | 0 |
| n66 | 5, 10 | 20, 40 | 0 |
|  | 20 | 40 |  |
|  | 5, 10 | 20, 25, 30, 40 | 1 |
|  | 20, 25, 30 | 40 |  |
| n70 | 5, 10 | 15 | 0 |
|  | 5, 10, 15 | 20, 25 |  |
| n71 | 5 | 10 | 0 |
|  | 10 | 15 |  |
|  | 15 | 20 |  |
| n911 | 10 | 5 | 0 |
| n921 | 5 | 10, 15, 20 | 0 |
|  | 10 | 15, 20 |  |
| n931 | 10 | 5 | 0 |
| n941 | 5 | 10, 15, 20 | 0 |
|  | 10 | 15, 20 |  |
| NOTE 1: The assignment of the paired UL and DL channels are subject to a TX-RX separation as specified in clause 5.4.4. | | | |

In TDD, the operating bands and supported asymmetric channel bandwidth combinations are defined in table 5.3.6-2.

Table 5.3.6-2: TDD asymmetric UL and DL channel bandwidth combinations

|  |  |  |
| --- | --- | --- |
| NR Band | Channel bandwidths for UL (MHz) | Channel bandwidths for DL (MHz) |
| n50 | 60 | 80 |
| NOTE 1: Both centre frequency and BWP-ID shall match between DL and UL carriers as defined in TS 38.331 [7] cl. 6.3.2 and TS 38.213 [8] clause 12.  NOTE 2: In a case a UE is configured with a full width of BWP within both UL/ DL channels, the centre frequency of UL/ DL channels shall be same.  NOTE 3: A position of Point A is common between UL and DL carriers as defined in TS 38.331 [7] cl. 6.3.2. | | |

*<End of the change>*

*<Start of the change>*

### 7.3.2 Reference sensitivity power level

The throughput shall be ≥ 95 % of the maximum throughput of the reference measurement channels as specified in Annexes A.2.2.2, A3.2 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) with parameters specified in Table 7.3.2-1 and Table 7.3.2-2.

Table 7.3.2-1: Two antenna port reference sensitivity QPSK PREFSENS

| Operating band / SCS / Channel bandwidth / Duplex-mode | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operating Band | SCS kHz | 5  MHz (dBm) | 10  MHz (dBm) | 15  MHz (dBm) | 20  MHz (dBm) | 25  MHz (dBm) | 30 MHz (dBm) | 40  MHz (dBm) | 50  MHz (dBm) | 60  MHz (dBm) | 70  MHz (dBm) | 80  MHz (dBm) | 90  MHz (dBm) | 100 MHz (dBm) | Duplex Mode | |
| n1 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | -92.7 | -91.9 | -90.6 | -89.6 |  |  |  |  |  | FDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 | -92.8 | -92.0 | -90.7 | -89.7 |  |  |  |  |  |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 | -93.0 | -92.1 | -90.9 | -89.7 |  |  |  |  |  |  | |
| n2 | 15 | -98.0 | -94.8 | -93.0 | -91.8 | -90.7 | -84.1 | -81.5 |  |  |  |  |  |  | FDD | |
|  | 30 |  | -95.1 | -93.1 | -92.0 | -90.8 | -84.2 | -81.6 |  |  |  |  |  |  |  | |
|  | 60 |  | -95.5 | -93.4 | -92.2 | -90.9 | -84.3 | -81.7 |  |  |  |  |  |  |  | |
| n3 | 15 | -97.0 | -93.8 | -92.0 | -90.8 | -89.7 | -88.9 | -82.3 | -79.7 |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 | -92.1 | -91.0 | -89.8 | -89.0 | -82.4 | -79.8 |  |  |  |  |  |  | |
|  | 60 |  | -94.5 | -92.4 | -91.2 | -90.0 | -89.1 | -82.6 | -79.9 |  |  |  |  |  |  | |
| n5 | 15 | -98.0 | -94.8 | -93.0 | -86.8 | -84.8 |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -95.1 | -93.1 | -88.6 | -84.9 |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n71 | 15 | -98.0 | -94.8 | -93.0 | -91.8 | -90.7 | -89.9 | -88.6 | -81.5 |  |  |  |  |  | FDD | |
|  | 30 |  | -95.1 | -93.1 | -92.0 | -90.8 | -90.0 | -88.7 | -81.5 |  |  |  |  |  |  | |
|  | 60 |  | -95.5 | -93.4 | -92.2 | -91.0 | -90.1 | -88.9 | -81.5 |  |  |  |  |  |  | |
| n8 | 15 | -97.0 | -93.8 | -91.4 | -85.8 |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 | -91.7 | -87.2 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n12 | 15 | -97.0 | -93.8 | -84.0 |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 | -84.1 |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n13 | 15 | -97.0 | -93.8 |  |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n14 | 15 | -97.0 | -93.8 |  |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n18 | 15 | -100.0 | -96.8 | -95.0 |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -97.1 | -95.1 |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n20 | 15 | -97.0 | -93.8 | -91.0 | -89.8 |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 | -91.1 | -90.0 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n24 | 15 | -100.0 | -96.8 |  |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -97.1 |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  | -97.5 |  |  |  |  |  |  |  |  |  |  |  |  | |
| n25 | 15 | -96.5 | -93.3 | -91.5 | -90.3 | -89.3 | -82.2 | -79.5 |  |  |  |  |  |  | FDD | |
|  | 30 |  | -93.6 | -91.6 | -90.5 | -89.4 | -82.3 | -79.6 |  |  |  |  |  |  |  | |
|  | 60 |  | -94.0 | -91.9 | -90.7 | -89.6 | -82.4 | -79.7 |  |  |  |  |  |  |  | |
| n26 | 15 | -97.56 | -94.56 | -92.76 | -87.6 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | -94.86 | -92.76 | -87.7 |  |  |  |  |  |  |  |  |  |  |
| n28 | 15 | -98.5 | -95.5 | -93.5 | -90.8 |  | -78.5 |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -95.6 | -93.6 | -91.0 |  | -78.6 |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n29x | 15 | -97.0 | -93.8 |  |  |  |  |  |  |  |  |  |  |  | SDL | |
|  | 30 |  | -94.1 |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n30 | 15 | -99.0 | -95.8 |  |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -96.1 |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n34 | 15 | -100.0 | -96.8 | -95.0 |  |  |  |  |  |  |  |  |  |  | TDD | |
|  | 30 |  | -97.1 | -95.1 |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  | -97.5 | -95.4 |  |  |  |  |  |  |  |  |  |  |  | |
| n381 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | -92.7 | -91.9 | -90.6 |  |  |  |  |  |  | TDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 | -92.8 | -92.0 | -90.7 |  |  |  |  |  |  |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 | -93.0 | -92.1 | -90.9 |  |  |  |  |  |  |  | |
| n39 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | -92.7 | -91.9 | -90.6 |  |  |  |  |  |  | TDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 | -92.8 | -92.0 | -90.7 |  |  |  |  |  |  |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 | -93.0 | -92.1 | -90.9 |  |  |  |  |  |  |  | |
| n40 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | -92.7 | -91.9 | -90.6 | -89.6 |  |  |  |  |  | TDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 | -92.8 | -92.0 | -90.7 | -89.7 | -88.9 |  | -87.6 | -87.1 | -86.7 |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 | -93.0 | -92.1 | -90.9 | -89.8 | -89.1 |  | -87.6 | -87.1 | -86.7 |  | |
| n411 | 15 |  | -94.8 | -93.0 | -91.8 |  | -89.9 | -88.6 | -87.6 |  |  |  |  |  | TDD | |
|  | 30 |  | -95.1 | -93.1 | -92.0 |  | -90.0 | -88.7 | -87.7 | -86.9 | -86.2 | -85.6 | -85.1 | -84.7 |  | |
|  | 60 |  | -95.5 | -93.4 | -92.2 |  | -90.1 | -88.9 | -87.8 | -87.1 | -86.3 | -85.6 | -85.1 | -84.7 |  | |
| n481 | 15 | -99 | -95.8 | -94.0 | -92.7 |  | -90.9 | -89.6 | -88.65 |  |  |  |  |  | TDD | |
|  | 30 |  | -96.1 | -94.1 | -92.9 |  | -91.0 | -89.7 | -88.75 | -87.95 | -87.25 | -86.65 | -86.15 | -85.65 |  | |
|  | 60 |  | -96.5 | -94.4 | -93.1 |  | -91.1 | -89.9 | -88.85 | -88.05 | -87.35 | -86.75 | -86.25 | -85.75 |  | |
| n50 | 15 | -100.0 | -96.8 | -95.0 | -93.8 |  | -91.9 | -90.6 | -89.6 |  |  |  |  |  | TDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 |  | -92.0 | -90.7 | -89.7 | -88.9 |  | -87.6 |  |  |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 |  | -92.1 | -90.9 | -89.8 | -89.1 |  | -87.6 |  |  |  | |
| n51 | 15 | -100.0 |  |  |  |  |  |  |  |  |  |  |  |  | TDD | |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n53 | 15 | -100.0 | -96.8 |  |  |  |  |  |  |  |  |  |  |  | TDD | |
|  | 30 |  | -97.1 |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  | -97.5 |  |  |  |  |  |  |  |  |  |  |  |  | |
| n65 | 15 | -99.5 | -96.3 | -94.5 | -93.3 |  |  |  | -89.2 |  |  |  |  |  | FDD | |
|  | 30 |  | -96.6 | -94.6 | -93.5 |  |  |  | -89.3 |  |  |  |  |  |  | |
|  | 60 |  | -97.0 | -94.9 | -93.7 |  |  |  | -89.4 |  |  |  |  |  |  | |
| n66 | 15 | -99.5 | -96.3 | -94.5 | -93.3 | -92.2 | -91.4 | -90.1 |  |  |  |  |  |  | FDD | |
|  | 30 |  | -96.6 | -94.6 | -93.5 | -92.3 | -91.5 | -90.2 |  |  |  |  |  |  |  | |
|  | 60 |  | -97.0 | -94.9 | -93.7 | -92.5 | -91.6 | -90.4 |  |  |  |  |  |  |  | |
| n67 | 15 | -100.0 | -96.8 | -95.0 | -93.8 |  |  |  |  |  |  |  |  |  | SDL | |
|  | 30 |  | -97.1 | -95.1 | -94.0 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n70 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | -92.7 |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 | -92.8 |  |  |  |  |  |  |  |  |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 | -93.0 |  |  |  |  |  |  |  |  |  | |
| n71 | 15 | -97.2 | -94.0 | -91.6 | -86.0 |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.3 | -91.9 | -87.4 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n74 | 15 | -99.53 | -96.33 | -94.53 | -89.33 |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -96.63 | -94.63 | -89.53 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  | -97.03 | -94.93 | -89.63 |  |  |  |  |  |  |  |  |  |  | |
| n757 | 15 | -100 | -96.8 | -95.0 | -93.8 | -92.7 | -91.9 | -90.6 | -89.6 |  |  |  |  |  | SDL | |
|  | 30 |  | -97.1 | -95.1 | -94.0 | -92.8 | -92.0 | -90.7 | -89.7 |  |  |  |  |  |  | |
|  | 60 |  | -97.5 | -95.4 | -94.2 | -93.0 | -92.1 | -90.9 | -89.8 |  |  |  |  |  |  | |
| n767 | 15 | -100 |  |  |  |  |  |  |  |  |  |  |  |  | SDL | |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n771,4 | 15 |  | -95.3 | -93.5 | -92.2 | -91.2 | -90.4 | -89.1 | -88.1 |  |  |  |  |  | TDD | |
|  | 30 |  | -95.6 | -93.6 | -92.4 | -91.3 | -90.5 | -89.2 | -88.2 | -87.4 | -86.7 | -86.1 | -85.6 | -85.1 |  | |
|  | 60 |  | -96.0 | -93.9 | -92.6 | -91.5 | -90.6 | -89.4 | -88.3 | -87.5 | -86.8 | -86.2 | -85.7 | -85.2 |  | |
| n781 | 15 |  | -95.8 | -94.0 | -92.7 | -91.7 | -90.9 | -89.6 | -88.6 |  |  |  |  |  | TDD | |
|  | 30 |  | -96.1 | -94.1 | -92.9 | -91.8 | -91 | -89.7 | -88.7 | -87.9 | -87.2 | -86.6 | -86.1 | -85.6 |  | |
|  | 60 |  | -96.5 | -94.4 | -93.1 | -92 | -91.1 | -89.9 | -88.8 | -88.0 | -87.3 | -86.7 | -86.2 | -85.7 |  | |
| n791 | 15 |  |  |  |  |  |  | -89.6 | -88.6 |  |  |  |  |  | TDD | |
|  | 30 |  |  |  |  |  |  | -89.7 | -88.7 | -87.9 |  | -86.6 |  | -85.6 |  | |
|  | 60 |  |  |  |  |  |  | -89.9 | -88.8 | -88.0 |  | -86.7 |  | -85.7 |  | |
| n85 | 15 | -97.0 | -93.8 | -84.0 |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -94.1 | -84.1 |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n91 | 15 | -100 |  |  |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n92 | 15 | -100 | -96.8 | -95.0 | -93.8 |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n93 | 15 | -100 |  |  |  |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| n94 | 15 | -100 | -96.8 | -95.0 | -93.8 |  |  |  |  |  |  |  |  |  | FDD | |
|  | 30 |  | -97.1 | -95.1 | -94.0 |  |  |  |  |  |  |  |  |  |  | |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| NOTE 1: Four Rx antenna ports shall be the baseline for this operating band except for two Rx vehicular UE.  NOTE 2: The transmitter shall be set to PUMAX as defined in clause 6.2.4  NOTE 3: The requirement is modified by -0.5 dB when the assigned NR channel bandwidth is confined within 1475.9 - 1510.9 MHz.  NOTE 4: The requirement is modified by -0.5 dB when the assigned UE channel bandwidth is confined within 3300 - 3800 MHz.  NOTE 5: For these bandwidths, the minimum requirements are restricted to operation when carrier is configured as a downlink carrier part of CA configuration.  NOTE 6: Values are modified by -0.5dB when carrier channel BW is between 865MHz and 894MHz.  NOTE 7: For SDL bands, the reference sensitivity requirements shall be verified by inter-band CA combinations with SDL band, which are supported by UE. | | | | | | | | | | | | | | | | |

For UE(s) equipped with 4 Rx antenna ports, reference sensitivity for 2Rx antenna ports in Table 7.3.2-1 shall be modified by the amount given in ΔRIB,4R in Table 7.3.2-2 for the applicable operating bands.

Table 7.3.2-2: Four antenna port reference sensitivity allowance ΔRIB,4R

|  |  |
| --- | --- |
| Operating band | ΔRIB,4R (dB) |
| n28, n71 | -2.71 |
| n1, n2, n3, n30, n40, n7, n34, n38, n39, n41, n66, n70 | -2.7 |
| n48, n77, n78, n79 | -2.2 |
| NOTE 1: 4 Rx operation is targeted for FWA form factor | |

The reference receive sensitivity (REFSENS) requirement specified in Table 7.3.2-1 and Table 7.3.2-2 shall be met with uplink transmission bandwidth less than or equal to that specified in Table 7.3.2-3.

Table 7.3.2-3: Uplink configuration for reference sensitivity

| Operating band / SCS / Channel bandwidth / Duplex mode | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operating Band | SCS 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 | Duplex Mode |
| n1 | 15 | 25 | 501 | 751 | 1001 | 1281 | 1281 | 1281 | 1281 |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 361 | 501 | 641 | 641 | 641 | 641 |  |  |  |  |  |  |
|  | 60 |  | 101 | 18 | 24 | 301 | 301 | 301 | 301 |  |  |  |  |  |  |
| n2 | 15 | 25 | 501 | 501 | 501 | 501 | 481 | 401 |  |  |  |  |  |  | FDD |
|  | 30 | 101 | 24 | 241 | 241 | 241 | 241 | 201 |  |  |  |  |  |  |  |
|  | 60 |  | 101 | 101 | 101 | 101 | 101 | 101 |  |  |  |  |  |  |  |
| n3 | 15 | 25 | 501 | 501 | 501 | 501 | 501 | 501 | 501 |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 241 | 241 | 241 | 241 | 241 | 241 |  |  |  |  |  |  |
|  | 60 |  | 101 | 101 | 101 | 101 | 101 | 101 | 101 |  |  |  |  |  |  |
| n5 | 15 | 25 | 251 | 201 | 201 | NOTE 5 |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 121 | 101 | 101 | NOTE 5 |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n7 | 15 | 25 | 501 | 751 | 751 | 721 | 641 | 451 | 451 |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 361 | 361 | 361 | 321 | 201 | 201 |  |  |  |  |  |  |
|  | 60 |  | 101 | 18 | 181 | 181 | 161 | 101 | 101 |  |  |  |  |  |  |
| n8 | 15 | 25 | 251 | 201 | 201 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 121 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n12 | 15 | 201 | 201 | 201 |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n13 | 15 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n14 | 15 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n18 | 15 | 25 | 251 | 251 |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n20 | 15 | 25 | 201 | 202 | 202 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 102 | 102 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n24 | 15 | 25 | 50 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 24 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |  |
| n25 | 15 | 25 | 501 | 501 | 501 | 501 | 481 | 401 |  |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 241 | 241 | 241 | 241 | 201 |  |  |  |  |  |  |  |
|  | 60 |  | 101 | 101 | 101 | 101 | 101 | 101 |  |  |  |  |  |  |  |
| n26 | 15 | 25 | 251 | 251 | 251 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 121 | 121 | 121 |  |  |  |  |  |  |  |  |  |  |
| n28 | 15 | 25 | 251 | 251 | 251 |  | 251 |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 101 | 101 |  | 101 |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n30 | 15 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n34 | 15 | 25 | 50 | 75 |  |  |  |  |  |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 18 |  |  |  |  |  |  |  |  |  |  |  |
| n38 | 15 | 25 | 50 | 75 | 100 | 128 | 160 | 216 |  |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 | 64 | 75 | 100 |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 18 | 24 | 30 | 36 | 50 |  |  |  |  |  |  |  |
| n39 | 15 | 25 | 50 | 75 | 100 | 128 | 160 | 216 |  |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 | 64 | 75 | 100 |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 18 | 24 | 30 | 36 | 50 |  |  |  |  |  |  |  |
| n40 | 15 | 25 | 50 | 75 | 100 | 128 | 160 | 216 | 270 |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 | 64 | 75 | 100 | 128 | 162 |  | 216 | 243 | 270 |  |
|  | 60 |  | 10 | 18 | 24 | 30 | 36 | 50 | 64 | 75 |  | 100 | 120 | 135 |  |
| n41 | 15 |  | 50 | 75 | 100 |  | 160 | 216 | 270 |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 |  | 75 | 100 | 128 | 162 | 180 | 216 | 243 | 270 |  |
|  | 60 |  | 10 | 18 | 24 |  | 36 | 50 | 64 | 75 | 90 | 100 | 120 | 135 |  |
| n48 | 15 | 25 | 50 | 75 | 100 |  | 160 | 216 |  |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 |  | 75 | 100 |  |  |  |  |  |  |  |
|  | 60 |  | 10 | 18 | 24 |  | 36 | 50 |  |  |  |  |  |  |  |
| n50 | 15 | 25 | 50 | 75 | 100 |  | 160 | 216 | 270 |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 |  | 75 | 100 | 128 | 162 |  | NOTE 3 |  |  |  |
|  | 60 |  | 10 | 18 | 24 |  | 36 | 50 | 64 | 75 |  | NOTE 3 |  |  |  |
| n51 | 15 | 25 |  |  |  |  |  |  |  |  |  |  |  |  | TDD |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n53 | 15 | 25 | 50 |  |  |  |  |  |  |  |  |  |  |  | TDD |
|  | 30 |  | 24 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 10 |  |  |  |  |  |  |  |  |  |  |  |  |
| n65 | 15 | 25 | 501 | 751 | 1001 |  |  |  | 1281 |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 361 | 501 |  |  |  | 641 |  |  |  |  |  |  |
|  | 60 |  | 101 | 18 | 24 |  |  |  | 301 |  |  |  |  |  |  |
| n66 | 15 | 25 | 501 | 751 | 1001 | 1281 | 160 | 216 |  |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 361 | 501 | 641 | 751 | 1001 |  |  |  |  |  |  |  |
|  | 60 |  | 101 | 18 | 24 | 301 | 361 | 501 |  |  |  |  |  |  |  |
| n70 | 15 | 25 | 501 | 751 | NOTE 3 | NOTE 3 |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 24 | 361 | NOTE 3 | NOTE 3 |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 101 | 18 | NOTE 3 | NOTE 3 |  |  |  |  |  |  |  |  |  |
| n71 | 15 | 25 | 251 | 201 | 201 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 121 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n74 | 15 | 25 | 251 | 251 | 251 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  | 51 | 51 | 51 |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | 50 | 75 | 100 | 128 | 160 | 216 | 270 |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 | 64 | 75 | 100 | 128 | 162 | 180 | 216 | 243 | 270 |  |
|  | 60 |  | 10 | 18 | 24 | 30 | 36 | 50 | 64 | 75 | 90 | 100 | 120 | 135 |  |
| n78 | 15 |  | 50 | 75 | 100 | 128 | 160 | 216 | 270 |  |  |  |  |  | TDD |
|  | 30 |  | 24 | 36 | 50 | 64 | 75 | 100 | 128 | 162 | 180 | 216 | 243 | 270 |  |
|  | 60 |  | 10 | 18 | 24 | 30 | 36 | 50 | 64 | 75 | 90 | 100 | 120 | 135 |  |
| n79 | 15 |  |  |  |  |  |  | 216 | 270 |  |  |  |  |  | TDD |
|  | 30 |  |  |  |  |  |  | 100 | 128 | 162 |  | 216 |  | 270 |  |
|  | 60 |  |  |  |  |  |  | 50 | 64 | 75 |  | 100 |  | 135 |  |
| n85 | 15 | 201 | 201 | 201 |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n91 | 15 | 254 | 201,4 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n92 | 15 | 25 | 201 | 201 | 201 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n93 | 15 | 254 | 251,4 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n94 | 15 | 25 | 251 | 201 | 201 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 121 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NOTE 1: UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.3.2-1).  NOTE 2: For Band 20; for 15 kHz SCS, in the case of 15 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 11 and in the case of 20 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 16; for 30 kHz SCS, in the case of 15 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 6 and in the case of 20 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 8; for 60 kHz SCS, in the case of 15 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 3 and in the case of 20 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 4;  NOTE 3: For DL channel bandwidths that do not have symmetric UL channel bandwidth, highest valid UL configuration with lowest TX-RX separation (Table 5.4.4-1) shall be used unless otherwise specified.  NOTE 4: For band n91 and n93, largest supported UL bandwidth configuration shall be used.  NOTE 5: For this DL channel bandwidth, the UL configuration of the highest UL channel bandwidth specified in Table 5.3.6-1 and the default Tx-Rx frequency separation specified in Table 5.4.4-1 shall be used. | | | | | | | | | | | | | | | |

Unless given by Table 7.3.2-4, the minimum requirements specified in Tables 7.3.2-1 and 7.3.2-2 shall be verified with the network signalling value NS\_01 (Table 6.2.3-1) configured.

Table 7.3.2-4: Network signaling value for reference sensitivity

|  |  |
| --- | --- |
| Operating band | Network Signalling value |
| n2 | NS\_03 |
| n12 | NS\_06 |
| n13 | NS\_06 |
| n14 | NS\_06 |
| n24 | NS\_56 |
| n25 | NS\_03 |
| n30 | NS\_21 |
| n48 | NS\_27 |
| n53 | NS\_45 |
| n66 | NS\_03 |
| n70 | NS\_03 |
| n71 | NS\_35 |
| n85 | NS\_06 |

*<End of the change>*