**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 |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Cat F CR to TS 38.101-1 Rel-18 REFSENS Corrections | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Skyworks Solutions, Inc. | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI18 | | | | |  | ***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:*** | | SCS60 kHz does not apply to Band n20.  Brackets should be removed for the Band n66 45MHz CBW uplink RB allocations.  Band n109 UL RB configuration requirements are mis-aligned | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | In Table 7.3.2-3,   * Removed brackets for band n66 45MHz CBW RB allocations. * Deleted text related to SCS 60kHz from NOTE 2 * Shifted the band n109 UL RB allocation to the appropriate position. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Band n66 requirements are not complete, errors remain for band n20 and band n109. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 R4-2413034. | | | | | | | | |

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

7.3.2 Reference sensitivity power level

**---Unchanged sections are skipped---**

**Table 7.3.2-3: Uplink configuration for reference sensitivity**

| **Operating band / SCS (kHz) / Channel bandwidth (MHz) / Duplex mode** | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Operating Band** | **SCS** | **3** | **5** | **10** | **15** | **20** | **25** | **30** | **35** | **40** | **45** | **50** | **60** | **70** | **80** | **90** | **100** | **Duplex Mode** |
| n1 | 15 |  | 25 | 501 | 751 | 1001 | 1281 | 1281 |  | 1281 | 1281 | 1281 |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 | 361 | 501 | 641 | 641 |  | 641 | 641 | 641 |  |  |  |  |  |  |
|  | 60 |  |  | 101 | 18 | 24 | 301 | 301 |  | 301 | 301 | 301 |  |  |  |  |  |  |
| n2 | 15 |  | 25 | 501 | 501 | 501 | 501 | 481 | 401 | 401 |  |  |  |  |  |  |  | FDD |
|  | 30 |  | 101 | 24 | 241 | 241 | 241 | 241 | 201 | 201 |  |  |  |  |  |  |  |  |
|  | 60 |  |  | 101 | 101 | 101 | 101 | 101 | 101 | 101 |  |  |  |  |  |  |  |  |
| n3 | 15 |  | 25 | 501 | 501 | 501 | 501 | 501 | 501 | 501 | 501 | 501 |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 | 241 | 241 | 241 | 241 | 241 | 241 | 241 | 241 |  |  |  |  |  |  |
|  | 60 |  |  | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |  |  |  |  |  |  |
| n5 | 15 |  | 25 | 251 | 201 | 201 | Note 5 |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 121 | 101 | 101 | Note 5 |  |  |  |  |  |  |  |  |  |  |  |
| n7 | 15 |  | 25 | 501 | 751 | 751 | 721 | 641 | 451 | 451 |  | 451 |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 | 361 | 361 | 361 | 321 | 201 | 201 |  | 201 |  |  |  |  |  |  |
|  | 60 |  |  | 101 | 18 | 181 | 181 | 161 | 101 | 101 |  | 101 |  |  |  |  |  |  |
| n8 | 15 |  | 25 | 251 | 201 | 201 | Note 5 | Note 5 | Note 5 |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 121 | 101 | 101 | Note 5 | Note 5 | Note 5 |  |  |  |  |  |  |  |  |  |
| n12 | 15 |  | 201 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n13 | 15 |  | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n14 | 15 |  | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n18 | 15 |  | 25 | 251 | 251 |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n20 | 15 |  | 25 | 201 | 202 | 202 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 102 | 102 |  |  |  |  |  |  |  |  |  |  |  |  |
| n24 | 15 |  | 25 | 50 |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  | 10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n25 | 15 |  | 25 | 501 | 501 | 501 | 501 | 481 | 401 | 401 | Note 5 |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 | 241 | 241 | 241 | 241 | 201 | 201 | Note 5 |  |  |  |  |  |  |  |
|  | 60 |  |  | 101 | 101 | 101 | 101 | 101 | 101 | 101 | Note 5 |  |  |  |  |  |  |  |
| n26 | 15 | 15 | 25 | 251 | 251 | 251 | Note 5 | Note 5 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 121 | 121 | 121 | Note 5 | Note 5 |  |  |  |  |  |  |  |  |  |  |
| n28 | 15 | 15 | 25 | 251 | 251 | 251 | 251 | 251 |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 101 | 101 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |
| n30 | 15 |  | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n31 | 15 | 58 | 58 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
| 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 | 180 | 216 |  |  |  |  |  |  |  | TDD |
|  | 30 |  |  | 24 | 36 | 50 | 64 | 75 | 90 | 100 |  |  |  |  |  |  |  |  |
|  | 60 |  |  | 10 | 18 | 24 | 30 | 36 | 40 | 50 |  |  |  |  |  |  |  |  |
| n40 | 15 |  | 25 | 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 |  |
| n41, n90 | 15 |  | 25 | 50 | 75 | 100 | 128 | 160 | 180 | 216 | 240 | 270 |  |  |  |  |  | TDD |
|  | 30 |  |  | 24 | 36 | 50 | 64 | 75 | 90 | 100 | 108 | 128 | 162 | 180 | 216 | 243 | 270 |  |
|  | 60 |  |  | 10 | 18 | 24 | 30 | 36 | 40 | 50 | 54 | 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 |
| n53 | 15 |  | 25 | 50 |  |  |  |  |  |  |  |  |  |  |  |  |  | TDD |
|  | 30 |  |  | 24 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 60 |  |  | 10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n54 | 15 |  | 25 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | TDD |
| 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 | 1801 | 216 | 2401 |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 | 361 | 501 | 641 | 751 | 901 | 1001 | 1081 |  |  |  |  |  |  |  |
|  | 60 |  |  | 101 | 18 | 24 | 301 | 361 | 401 | 501 | 541 |  |  |  |  |  |  |  |
| 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 | 201,6 | 201,6 | 201,6 |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 121 | 101 | 101 | 101,6 | 101,6 | 101,6 |  |  |  |  |  |  |  |  |  |
| n72 | 15 | 58 | 58 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
| 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 |  |  | 50 |  | 100 |  | 160 |  | 216 |  | 270 |  |  |  |  |  | TDD |
|  | 30 |  |  | 24 |  | 50 |  | 75 |  | 100 |  | 128 | 162 | 180 | 216 | 243 | 270 |  |
|  | 60 |  |  | 10 |  | 24 |  | 36 |  | 50 |  | 64 | 75 | 90 | 100 | 120 | 135 |  |
| n85 | 15 | 15 | 201 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n91 | 15 |  | 254 | 201,4 |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
| n92 | 15 |  | 25 | 201 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |  |
| n93 | 15 |  | 254 | 251,4 |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
| n94 | 15 |  | 25 | 251 | 201 | 201 |  |  |  |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 121 | 101 | 101 |  |  |  |  |  |  |  |  |  |  |  |  |
| n100 | 15 | 15 | 25 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | FDD |
| n101 | 15 |  | 25 | 50 |  |  |  |  |  |  |  |  |  |  |  |  |  | TDD |
|  | 30 |  |  | 24 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n104 | 15 |  |  |  |  | 100 |  |  |  | 216 |  | 270 |  |  |  |  |  | TDD |
|  | 30 |  |  |  |  | 50 |  |  |  | 100 |  | 128 | 162 | 180 | 216 | 243 | 270 |  |
|  | 60 |  |  |  |  | 24 |  |  |  | 50 |  | 64 | 75 | 90 | 100 | 120 | 135 |  |
| n105 | 15 |  | 25 | 251 | 201 | 201 | Note 5 | Note 5 | Note 5 |  |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 121 | 101 | 101 | Note 5 | Note 5 | Note 5 |  |  |  |  |  |  |  |  |  |
| n106 | 15 | 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n109 | 15 |  | 25 | Note 7 | Note 7 | Note 7 | Note 7 | Note 7 |  | Note 7 |  | Note 7 |  |  |  |  |  | FDD |
|  | 30 |  |  | 24 | Note 7 | Note 7 | Note 7 | Note 7 |  | Note 7 |  | Note 7 |  |  |  |  |  |  |
| 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 n20; 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;  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 nominal Tx-Rx frequency separation specified in Table 5.4.4-1 shall be used, i.e. ΔFTX-RX as defined in clause 5.3.6 does not apply.  Note 6: UEs supporting the optional symmetrical UL/DL bandwidths shall use this UL configuration. For UEs not supporting this uplink channel bandwidth, the UL configuration of the 20MHz UL channel bandwidth and the nominal Tx-Rx frequency separation specified in Table 5.4.4-1 shall be used, i.e. ΔFTX-RX as defined in clause 5.3.6 does not apply.  Note 7: For this DL channel bandwidth, the UL configuration of 5MHz for 15kHz SCS and 10MHz for 30kHz shall be used.  Note 8: In the case of 3 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 9 and in the case of 5 MHz channel bandwidth, the UL resource blocks shall be located at RBstart 10. | | | | | | | | | | | | | | | | | | |

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

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