3GPP TSG-RAN WG4 Meeting #111 revision of R4-2409531

Fukuoka City, Fukuoka, Japan, 20th – 24th May, 2024

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.104** | **CR** | **0639** | **rev** | **1** | **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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | CR to TS 38.104: Alignment with UE specification for n30 and n77 notes in Table 5.2-1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core, NR\_n30-Core | | | | |  | ***Date:*** | | | 2024-05-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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:*** | | It was observed that NR operating bands table content in TS 38.101-1 and TS 38.104 is not aligned when it comes to the n30 and n77 notes. Those specific notes are considered to be valid for the BS specification.  It shall be noted, that there are also other notes in UE specification which are not reflected in the BS specification, as those are found to be not applicable to the BS.  Please note that content of related Rel-16 CR is different due to n77 note content update in Rel-17.  In this CR we introduce new Notes in Table 5.2-1 for band n30 and band n77, aligned with TS 38.101-1 Rel-17. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Note 5 and 6 added in Table 5.2-1. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment among TS 38.101-1 and TS 38.104 would remain. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*------------------------------ Modified section ------------------------------*

## 5.2 *Operating bands*

NR is designed to operate in the *operating bands* defined in table 5.2-1 and 5.2-2.

NR operating band n1, which is defined in Table 5.2-1, can be applied for HAPS operation.

NB-IoT is designed to operate in the NR operating bands n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n41, n65, n66, n70, n71, n74, n85, n90 which are defined in Table 5.2-1.

Table 5.2-1: NR *operating bands* in FR1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NR *operating band* | Uplink (UL) *operating band* BS receive / UE transmit  FUL,low – FUL,high  (MHz) | Downlink (DL) *operating band* BS transmit / UE receive  FDL,low – FDL,high  (MHz) | Duplex mode | Notes |
| n1 | 1920 – 1980 | 2110 – 2170 | FDD |  |
| n2 | 1850 – 1910 | 1930 – 1990 | FDD |  |
| n3 | 1710 – 1785 | 1805 – 1880 | FDD |  |
| n5 | 824 – 849 | 869 – 894 | FDD |  |
| n7 | 2500 – 2570 | 2620 – 2690 | FDD |  |
| n8 | 880 – 915 | 925 – 960 | FDD |  |
| n12 | 699 – 716 | 729 – 746 | FDD |  |
| n13 | 777 – 787 | 746 – 756 | FDD |  |
| n14 | 788 – 798 | 758 – 768 | FDD |  |
| n18 | 815 – 830 | 860 – 875 | FDD |  |
| n20 | 832 – 862 | 791 – 821 | FDD |  |
| n24 | 1626.5 – 1660.5 | 1525 – 1559 | FDD | Note 7 |
| n25 | 1850 – 1915 | 1930 – 1995 | FDD |  |
| n26 | 814 – 849 | 859 – 894 | FDD |  |
| n28 | 703 – 748 | 758 – 803 | FDD |  |
| n29 | N/A | 717 – 728 | SDL |  |
| n30 | 2305 – 2315 | 2350 – 2360 | FDD | Note 9 |
| n34 | 2010 – 2025 | 2010 – 2025 | TDD |  |
| n38 | 2570 – 2620 | 2570 – 2620 | TDD |  |
| n39 | 1880 – 1920 | 1880 – 1920 | TDD |  |
| n40 | 2300 – 2400 | 2300 – 2400 | TDD |  |
| n41 | 2496 – 2690 | 2496 – 2690 | TDD |  |
| n46 | 5150 – 5925 | 5150 – 5925 | TDD | Note 3 |
| n48 | 3550 – 3700 | 3550 – 3700 | TDD |  |
| n50 | 1432 – 1517 | 1432 – 1517 | TDD |  |
| n51 | 1427 – 1432 | 1427 – 1432 | TDD |  |
| n53 | 2483.5 – 2495 | 2483.5 – 2495 | TDD |  |
| n65 | 1920 – 2010 | 2110 – 2200 | FDD |  |
| n66 | 1710 – 1780 | 2110 – 2200 | FDD |  |
| n67 | N/A | 738 – 758 | SDL |  |
| n70 | 1695 – 1710 | 1995 – 2020 | FDD |  |
| n71 | 663 – 698 | 617 – 652 | FDD |  |
| n74 | 1427 – 1470 | 1475 – 1518 | FDD |  |
| n75 | N/A | 1432 – 1517 | SDL |  |
| n76 | N/A | 1427 – 1432 | SDL |  |
| n77 | 3300 – 4200 | 3300 – 4200 | TDD | Note 10 |
| n78 | 3300 – 3800 | 3300 – 3800 | TDD |  |
| n79 | 4400 – 5000 | 4400 – 5000 | TDD |  |
| n80 | 1710 – 1785 | N/A | SUL |  |
| n81 | 880 – 915 | N/A | SUL |  |
| n82 | 832 – 862 | N/A | SUL |  |
| n83 | 703 – 748 | N/A | SUL |  |
| n84 | 1920 – 1980 | N/A | SUL |  |
| n85 | 698 – 716 | 728 – 746 | FDD |  |
| n86 | 1710 – 1780 | N/A | SUL |  |
| n89 | 824 – 849 | N/A | SUL |  |
| n90 | 2496 – 2690 | 2496 – 2690 | TDD |  |
| n91 | 832 – 862 | 1427 – 1432 | FDD | Note 2 |
| n92 | 832 – 862 | 1432 – 1517 | FDD | Note 2 |
| n93 | 880 – 915 | 1427 – 1432 | FDD | Note 2 |
| n94 | 880 – 915 | 1432 – 1517 | FDD | Note 2 |
| n95 | 2010 – 2025 | N/A | SUL | Note 1 |
| n96 | 5925 – 7125 | 5925 – 7125 | TDD | Note 3, Note 4 |
| n97 | 2300 – 2400 | N/A | SUL | Note 5 |
| n98 | 1880 – 1920 | N/A | SUL | Note 5 |
| n99 | 1626.5 – 1660.5 | N/A | SUL | Note 6 |
| n100 | 874.4 – 880 | 919.4 – 925 | FDD |  |
| n101 | 1900 – 1910 | 1900 – 1910 | TDD |  |
| n102 | 5925 – 6425 | 5925 – 6425 | TDD | Note 3, Note 4 |
| n104 | 6425 – 7125 | 6425 – 7125 | TDD | Note 8 |
| NOTE 1: This band is applicable in China only.  NOTE 2: Variable duplex operation does not enable dynamic variable duplex configuration by the network, and is used such that DL and UL frequency ranges are supported independently in any valid frequency range for the band.  NOTE 3: This band is restricted to operation with shared spectrum channel access as defined in TS 37.213 [20].  NOTE 4: This band is applicable only in countries/regions designating this band for shared-spectrum access use subject to country-specific conditions.  NOTE 5: The requirements for this band are applicable only where no other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area. For scenarios where other NR or E-UTRA TDD operating band(s) are used within the frequency range of this band in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications.  NOTE 6: UL operation is restricted to 1627.5 – 1637.5 MHz and 1646.5 – 1656.5 MHz per FCC Order DA 20-48.  NOTE 7: DL operation is restricted to 1526-1536 MHz frequency range. UL operation is restricted to 1627.5 – 1637.5 MHz and 1646.5 – 1656.5 MHz per FCC Order 20-51 [24].  NOTE 8: This band is applicable only in countries/regions designating this band for IMT licensed operation subject to country-specific conditions.  NOTE 9: In the USA this band is restricted to 3450 – 3550 MHz and 3700 – 3980 MHz. In Canada this band is restricted to 3450 – 3650 MHz and 3650 – 3980 MHz. | | | | |

*------------------------------ End of modified section -------------------------*