3GPP TSG-RAN WG4 Meeting # 100-e R4-21xxxx

Electronic Meeting, August 16-27, 2021

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.104** | **CR** |  | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](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 38.104 on introduction of UL 7.5KHz frequency shift for n34 and n39 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CMCC | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | DSS\_LTE\_B34\_NR\_Bn34\_LTE\_B39\_NR\_Bn39-Core | | | | |  | ***Date:*** | | | 2021-08-02 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Introduction of UL 7.5KHz frequency shfit for n34 and n39 in order to support LTE/NR dynamic spectrum sharing on these two bands. | | | | | | | | |
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| ***Summary of change:*** | | Introduction of UL 7.5KHz frequency shift for n34 and n39 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | LTE/NR dynamic spectrum sharing cannot be supported on n34 and n39. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 CR's revision history:*** | |  | | | | | | | | |

## **<Start of Changes>**

5.4.2 Channel raster

5.4.2.1 NR-ARFCN and channel raster

The global frequency raster defines a set of *RF reference frequencies* FREF. The *RF reference frequency* is used in signalling to identify the position of RF channels, SS blocks and other elements. The global frequency raster is defined for all frequencies from 0 to 100 GHz. The granularity of the global frequency raster is ΔFGlobal.

*RF reference frequencies* are designated by an NR Absolute Radio Frequency Channel Number (NR-ARFCN) in the range [0…3279165] on the global frequency raster. The relation between the NR-ARFCN and the *RF reference frequency* FREF in MHz is given by the following equation, where FREF-Offs and NRef-Offs are given in table 5.4.2.1-1 and NREF is the NR-ARFCN.

FREF = FREF-Offs + ΔFGlobal (NREF – NREF-Offs)

**Table 5.4.2.1-1: NR-ARFCN parameters for the global frequency raster**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Range of frequencies (MHz)** | **ΔFGlobal (kHz)** | **FREF-Offs (MHz)** | **NREF-Offs** | **Range of NREF** |
| 0 – 3000 | 5 | 0 | 0 | 0 – 599999 |
| 3000 – 24250 | 15 | 3000 | 600000 | 600000 – 2016666 |
| 24250 – 100000 | 60 | 24250.08 | 2016667 | 2016667 – 3279165 |

The *channel raster* defines a subset of *RF reference frequencies* that can be used to identify the RF channel position in the uplink and downlink. The *RF reference frequency* for an RF channel maps to a resource element on the carrier. For each *operating band*, a subset of frequencies from the global frequency raster are applicable for that band and forms a channel raster with a granularity ΔFRaster, which may be equal to or larger than ΔFGlobal.

For SUL bands except n95, n97, n98 and for the uplink of all FDD bands defined in table 5.2-1, for TDD bands n34, n38, n39, n48, n90, and n40,

FREF,shift = FREF + Δshift, where Δshift = 0 kHz or 7.5 kHz

where Δshift is signalled by the network in higher layer parameter *frequencyShift7p5khz* as defined in TS 38.331 [11]. For bands n34, n38, n39, n48 and n40, FREF, shift is only applicable to uplink transmissions using a 15 kHz SCS.

The mapping between the *channel raster* and corresponding resource element is given in clause 5.4.2.2. The applicable entries for each *operating band* are defined in clause 5.4.2.3.

## **<End of Changes>**