**3GPP TSG-RAN5 Meeting #94-e *R5-22????***

**Electronic Meeting, 21st Feb – 04th Mar. 2022**

**Title:** LS on Additional RF requirements for NS\_03U, NS\_05U and NS\_43U

**Response to:**

**Release:** Release 15

**Work Item:** 5GS\_NR\_LTE-UEConTest

**Source:** TSG RAN WG5

**To:** TSG RAN WG4

**Cc:** N/A

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**Attachments:**

**1. Overall Description:**

In TS 38.101-1 clause 6.2.3, UE shall meet additional emission requirements on specific NR bands if NS\_03U, NS\_05U, NS\_43U are indicated by RRC signaling. But the specific additional emission requirements for these network signaling values are actually absent in current specification.

Taking NS\_05U as an example. According to TS 38.101-1 clause 6.2.3.1, UE should meet the additional emission requirement specified in clause 6.5.3.3.4 for NR band n1, n65 and n84 when NS\_05U is indicated in the field *additionalSpectrumEmission*. But in clause 6.5.3.3.4, there’s only additional requirements for NS\_05 specified. Additional requirements for NS\_05U are not included. And no instructions can be found throughout specification whether the requirements in table 6.5.3.3.4-1 can be applied for NS\_05U or not.

**Table 6.2.3.1-1: Additional maximum power reduction (A-MPR)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Network signalling label** | **Requirements (clause)** | **NR Band** | **Channel bandwidth (MHz)** | **Resources blocks (*N*RB)** | **A-MPR (dB)** |
| NS\_01 |  | Table 5.2-1 | 5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | Table 5.3.2-1 | N/A |
| NS\_03 | 6.5.2.3.3 | n2, n25, n66,  n70, n86 |  |  | Clause 6.2.3.7 |
| NS\_03U | 6.5.2.3.3, 6.5.2.4.2 | n2, n25, n66, n86 |  |  | Clause 6.2.3.7 |
| NS\_04 | 6.5.2.3.2, 6.5.3.3.1 | n41 | 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100 |  | Clause 6.2.3.2 |
| NS\_05 | 6.5.3.3.4 | n1, n65, n84 | 5, 10, 15, 20(NOTE 2) |  | Clause 6.2.3.4 |
| NS\_05U | 6.5.3.3.4, 6.5.2.4.2 | n1, n65, n84 | 5, 10, 15, 20 |  | Clause 6.2.3.4 |

6.5.3.3.4 Requirement for network signalling value "NS\_05"

When "NS\_05" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.3.3.4-1. This requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.

**Table 6.5.3.3.4-1: Additional requirements for "NS\_05"**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency band**  **(MHz)** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |  |
|  | **5, 10, 15, 20** |  |  |
| 1884.5 f 1915.7 | -41 | 300 kHz |  |

Similar issues also exist for NS\_03U and NS\_43U. The additional requirements in clause 6.5.2.3.3 for NS\_03U and 6.5.3.3.5 for NS\_43U are absent in TS 38.101-1.

The additional emission requirements for NS\_03U, NS\_05U and NS\_43U need to be clarified in TS 38.101-1. RAN5 respectfully suggest RAN4 to update TS 38.101-1 subclause 6.5.2.3.3, 6.5.3.3.4 and 6.5.3.3.5 like below:

6.5.2.3.3 Requirements for network signalling value "NS\_03", NS\_03U and "NS\_21"

Additional spectrum emission requirements are signalled by the network to indicate that the UE shall meet an additional requirement for a specific deployment scenario as part of the cell handover/broadcast message.

When "NS\_03" or "NS\_21", is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.2.3.3-1.

**Table 6.5.2.3.3-1: Additional requirements for "NS\_03", NS\_03U and "NS\_21"**

|  |  |  |  |
| --- | --- | --- | --- |
| **ΔfOOB  MHz** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | | **Measurement bandwidth** |
|  | **5** | **10, 15, 20, 25, 30, 35, 40, 45** |  |
| ± 0-1 | -13 | -13 | 1 % of channel BW |
| ± 1-6 | -13 |  | 1 MHz |
| ± 6-10 | -25 |  |
| ± 1-BWChannel |  | -13 |
| ± BWChannel-(BWChannel+5) |  | -25 |

6.5.3.3.4 Requirement for network signalling value "NS\_05" and “NS\_05U”

When "NS\_05" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.3.3.4-1. This requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.

**Table 6.5.3.3.4-1: Additional requirements for "NS\_05" and ‘NS\_05U’**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency band**  **(MHz)** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |  |
|  | **5, 10, 15, 20** |  |  |
| 1884.5 f 1915.7 | -41 | 300 kHz |  |

6.5.3.3.5 Requirement for network signalling value "NS\_43" and “NS\_43U”

When "NS 43" is indicated in the cell, the power of any UE emission shall not exceed the levels specified in Table 6.5.3.3.5-1. This requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.5.3.1-1 from the edge of the channel bandwidth.

**Table 6.5.3.3.5-1: Additional requirement for "NS\_43"** **and “NS\_43U”**

|  |  |  |
| --- | --- | --- |
| **Frequency range**  **(MHz)** | **Channel bandwidth (MHz) / Spectrum emission limit (dBm)** | **Measurement bandwidth** |
|  | 5, 10, 15 |  |
| 860 ≤ f ≤ 890 | -40 | 1 MHz |
| NOTE 1: Applicable for 5 MHz and 15 MHz channel BW confined between 900 MHz and 915 MHz and for 10 MHz channel BW confined between 905 MHz and 915 MHz | | |

**2. Actions:**

**To RAN4 group.**

**ACTION:** RAN5 respectfully requesting RAN4 group to update TS 38.101-1 subclause 6.5.2.3.3, 6.5.3.3.4 and 6.5.3.3.5 for NS\_03U, NS\_05U and NS\_43U.

**3. Date of Next TSG-RAN WG5 Meetings:**

TSG-RAN5 Meeting#95e 16rd – 27th May 2022 Electronic Meeting

TSG-RAN5 Meeting#96 22nd – 26th August 2022 Toulouse, FR

References

1. R4-1811246, NS numbering for NR, Qualcomm Incorporated
2. R4-1811457, NS numbering, TS 38.101-1, Qualcomm Incorporated