**3GPP TSG RAN WG1 #122bis R1-25xxxx**

**Prague, Czech, Oct 13th – 17th, 2025**

Agenda Item: 8.7.1

Source: Moderator (Thales)

Title: FL Summary #1 - Impact from RAN4-led work items

Document for: Discussion, Decision

## Introduction

This feature lead summary (FLS) document aims to collect and align on company views on the potential impacts from RAN4-led work items.

During RAN1# 122, an initial discussion on those impacts resulted in the following conclusion:

|  |
| --- |
| **Conclusion**  TP1 is postponed to RAN1#122bis for further checking. |

The following topics are for discussion and decision in this meeting:

* RAN1 impacts from 3 MHz CBW
* RAN1 impacts from Ku-band for NR-NTN WI

# Topic#1 RAN1 impact from 3 MHz CBW

## Companies’ contributions summary

|  |  |
| --- | --- |
| **Companies** | **Proposals** |
| Ericsson | **Observation 5** For the support of the 3 MHz CBW in NR-NTN scenarios, Tables 5.4.3.1-2 and Table 5.4.3.3-1a have been added to TS 38.101-5. Thus, TS 38.211 clause 7.3.2.2, TS 38.214 clause 5.1, and TS 38.213 clause 13 must be updated to reflect the support of the 3 MHz CBW for NR-NTN.  **Proposal 8** For the support of the 3 MHz CBW for NR-NTN, adopt the TP-1A, TP-1B, and TP-C included in this T-doc which add citations to Tables in TS 38.101-5 to reflect the support of the 3 MHz CBW for NR-NTN.  **TP-1A: TS 38.211**   |  | | --- | | ---------------------------------------------------------------------------- Text Starts -------------------------------------------------------------------------------------- 7.3.2.2 Control-resource set (CORESET) A control-resource set consists of resource blocks in the frequency domain and symbols in the time domain.  -------------------------------------------------------------------------- Text Omitted -------------------------------------------------------------------------------------  For CORESET 0 on a carrier where the SS/PBCH block is detected at sync raster points defined in Tables 5.4.3.1-2 or 5.4.3.1-3 of [14, TS 38.101-1] or Table 5.4.3.1-2 of [16, TS 38.101-5] and configured by the *ControlResourceSetZero* IE:  - and are defined by Table 13-0 in clause 13 of [5, TS 38.213];  - if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with ;  - if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with or non-interleaved mapping as defined by clause 13 of [5, TS 38.213], followed by puncturing the 9 highest-numbered resource blocks to obtain the 15 resource blocks forming CORESET 0;  - if on a carrier with a channel bandwidth of 5 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with , followed by puncturing the 4 highest-numbered resource blocks to obtain the 20 resource blocks forming CORESET 0;  - ;  - ;  - the UE may assume normal cyclic prefix when CORESET 0 is configured by MIB or SIB1;  - the UE may assume the same precoding being used within a REG bundle.  ------------------------------------------------------------------------------ Text Ends ------------------------------------------------------------------------------------- |   **TP-1B: TS 38.214**   |  | | --- | | ---------------------------------------------------------------------------- Text Starts --------------------------------------------------------------------------------------  5.1 UE procedure for receiving the physical downlink shared channel  For downlink, a maximum of 16 HARQ processes per cell are supported by the UE, or subject to UE capability, a maximum of 32 HARQ processes per cell as defined in [13, TS 38.306]. The number of processes the UE may assume will at most be used for the downlink is configured to the UE for each cell separately by higher layer parameter *nrofHARQ-ProcessesForPDSCH* or *nrofHARQ-ProcessesForPDSCH-v1700*, and when no configuration is provided the UE may assume a default number of 8 processes.  -------------------------------------------------------------------------- Text Omitted -------------------------------------------------------------------------------------  For a cell detected in cell search procedure with synchronization raster defined in Table 5.4.3.1-2 or Table 5.4.3.1-3 of [8, TS 38.101-1] or Table 5.4.3.1-2 of [11, TS 38.101-5], the size of CORESET 0 for the cell in this clause refers to the size of punctured CORESET 0 as defined in clause 7.3.2.2 of [4, TS 38.211] if any.  ------------------------------------------------------------------------------ Text Ends ------------------------------------------------------------------------------------- |   **TP-1C: TS 38.213**   |  | | --- | | ---------------------------------------------------------------------------- Text Starts --------------------------------------------------------------------------------------  13 UE procedure for monitoring Type0-PDCCH CSS sets  If during cell search a UE determines from *MIB* that a CORESET for Type0-PDCCH CSS set is present, as described in clause 4.1, the UE determines a number of consecutive resource blocks and a number of consecutive symbols for the CORESET of the Type0-PDCCH CSS set from *controlResourceSetZero* in *pdcch-ConfigSIB1*, as described in Tables 13-0 through 13-10, for operation without shared spectrum channel access in FR1, FR2-1 and FR2-NTN, or as described in Tables 13-1A and 13-4A for operation with shared spectrum channel access in FR1, or as described in Table 13-10A for FR2-2, and determines PDCCH monitoring occasions from *searchSpaceZero* in *pdcch-ConfigSIB1*, included in *MIB*, as described in Tables 13-11 through 13-15A. and are the SFN and slot index within a frame of the CORESET based on SCS of the CORESET and and are the SFN and slot index based on SCS of the CORESET, respectively, where the SS/PBCH block with index overlaps in time with system frame and slot . The symbols of the CORESET associated with *pdcch-ConfigSIB1* in *MIB* or with *searchSpaceSIB1* in *PDCCH-ConfigCommon* have normal cyclic prefix. In Table 13-0, configurations with index 0 to 9 are applicable when an associated SS/PBCH block is located according to Table 5.4.3.3-2 in [8-1, TS 38.101-1] or Table 5.4.3.3-1a in [8-5, 3GPP TS 38.101-5], configurations with index 10 to 11 are applicable when an associated SS/PBCH block is located according to NOTE 12 of Table 5.4.3.3-1 in [8-1, TS 38.101-1], and non-interleaved CCE-to-REG mapping applies for configurations with index 6 to 9. In Table 13-1, the associated SS/PBCH block is not located according to NOTE 12 of Table 5.4.3.3-1 in [8-1, TS 38.101-1].  ------------------------------------------------------------------------------ Text Ends ------------------------------------------------------------------------------------- | |
| vivo | **Proposal 1.** Adopt TP#1 for 38.211 to support 3MHz CBW for NTN.  **Reason for change:** Reference to sync raster points for NTN with 3MHz CBW is missing.  **Summary of change:** Add reference to sync raster points for NTN with 3MHz CBW defined in 38.101-5.  **Consequences if not approved:** CORESET0 for FR1-NTN with 3MHz CBW is not supported.  **TP#1 for 38.211** 7.3.2.2 Control-resource set (CORESET) ==omitted==  For CORESET 0 on a carrier where the SS/PBCH block is detected at sync raster points defined in Tables 5.4.3.1-2 or 5.4.3.1-3 of [14, TS 38.101-1] or Table 5.4.3.1-2 of [16, TS 38.101-5], and configured by the *ControlResourceSetZero* IE:  - and are defined by Table 13-0 in clause 13 of [5, TS 38.213];  - if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with ;  - except for NTN, if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with or non-interleaved mapping as defined by clause 13 of [5, TS 38.213], followed by puncturing the 9 highest-numbered resource blocks to obtain the 15 resource blocks forming CORESET 0;  - if on a carrier with a channel bandwidth of 5 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with , followed by puncturing the 4 highest-numbered resource blocks to obtain the 20 resource blocks forming CORESET 0;  - ;  - ;  - the UE may assume normal cyclic prefix when CORESET 0 is configured by MIB or SIB1;  - the UE may assume the same precoding being used within a REG bundle.  **Proposal 2.** Adopt TP#2 for 38.213 to support 3MHz CBW for NTN.  **Reason for change:** Reference to applicable SS raster entries per operating band for FR1 NTN with 3 MHz channel bandwidth is missing.  **Summary of change:** Add reference to applicable SS raster entries per operating band for FR1-NTN with 3MHz CBW defined in 38.101-5.  **Consequences if not approved:** CORESET0 and search space 0 for FR1-NTN with 3MHz CBW are not supported.  **TP#2 for 38.213** 13 UE procedure for monitoring Type0-PDCCH CSS sets If during cell search a UE determines from *MIB* that a CORESET for Type0-PDCCH CSS set is present, as described in clause 4.1, the UE determines a number of consecutive resource blocks and a number of consecutive symbols for the CORESET of the Type0-PDCCH CSS set from *controlResourceSetZero* in *pdcch-ConfigSIB1*, as described in Tables 13-0 through 13-10, for operation without shared spectrum channel access in FR1, FR2-1 and FR2-NTN, or as described in Tables 13-1A and 13-4A for operation with shared spectrum channel access in FR1, or as described in Table 13-10A for FR2-2, and determines PDCCH monitoring occasions from *searchSpaceZero* in *pdcch-ConfigSIB1*, included in *MIB*, as described in Tables 13-11 through 13-15A. and are the SFN and slot index within a frame of the CORESET based on SCS of the CORESET and and are the SFN and slot index based on SCS of the CORESET, respectively, where the SS/PBCH block with index overlaps in time with system frame and slot . The symbols of the CORESET associated with *pdcch-ConfigSIB1* in *MIB* or with *searchSpaceSIB1* in *PDCCH-ConfigCommon* have normal cyclic prefix. In Table 13-0, configurations with index 0 to 9 are applicable when an associated SS/PBCH block is located according to Table 5.4.3.3-2 in [8-1, TS 38.101-1] or Table 5.4.3.3-1a of [16, TS 38.101-5], configurations with index 10 to 11 are applicable when an associated SS/PBCH block is located according to NOTE 12 of Table 5.4.3.3-1 in [8-1, TS 38.101-1], and non-interleaved CCE-to-REG mapping applies for configurations with index 6 to 9. In Table 13-1, the associated SS/PBCH block is not located according to NOTE 12 of Table 5.4.3.3-1 in [8-1, TS 38.101-1].  **Proposal 3.** Adopt TP#3 for 38.214 to support 3MHz CBW for NTN.  **Reason for change:** Reference to sync raster points for NTN with 3MHz CBW is missing.  **Summary of change:** Add reference to sync raster points for NTN with 3MHz CBW defined in 38.101-5.  **Consequences if not approved:** Description of the cell search procedure on a FR1-NTN cell with 3MHz CBW is missing.  **TP#3 for 38.214** 5.1 UE procedure for receiving the physical downlink shared channel ==omitted==  For a cell detected in cell search procedure with synchronization raster defined in Table 5.4.3.1-2 or Table 5.4.3.1-3 of [8, TS 38.101-1], or Table 5.4.3.1-2 of [16, TS 38.101-5], the size of CORESET 0 for the cell in this clause refers to the size of punctured CORESET 0 as defined in clause 7.3.2.2 of [4, TS 38.211] if any. |
| Huawei | **Proposal 2: Capture TP#2 in clause 5.1 in TS 38.214.**   |  | | --- | | -------------------- Start of TP#2 for 38.214 -------------------- 5.1 UE procedure for receiving the physical downlink shared channel For downlink, a maximum of 16 HARQ processes per cell are supported by the UE, or subject to UE capability, a maximum of 32 HARQ processes per cell as defined in [13, TS 38.306]. The number of processes the UE may assume will at most be used for the downlink is configured to the UE for each cell separately by higher layer parameter *nrofHARQ-ProcessesForPDSCH* or *nrofHARQ-ProcessesForPDSCH-v1700*, and when no configuration is provided the UE may assume a default number of 8 processes.  \*\*\* Unchanged parts are omitted \*\*\*  For a cell detected in cell search procedure with synchronization raster defined in Table 5.4.3.1-2 or Table 5.4.3.1-3 of [8, TS 38.101-1] or Table 5.4.3.1-2 of [22, TS 38.101-5], the size of CORESET 0 for the cell in this clause refers to the size of punctured CORESET 0 as defined in clause 7.3.2.2 of [4, TS 38.211] if any.  \*\*\* Unchanged parts are omitted \*\*\*  -------------------- End of TP#2 for 38.214 -------------------- |   ***Proposal 3: Capture TP#3 in clause 7.3.1 in TS 38.212.***   |  | | --- | | -------------------- Start of TP#3 for 38.212 --------------------  \*\*\* Unchanged parts are omitted \*\*\* 2 References The following documents contain provisions which, through reference in this text, constitute provisions of the present document.  - References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.  - For a specific reference, subsequent revisions do not apply.  - For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.  [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".  [2] void.  [3] void.  [4] 3GPP TS 38.211: "NR; Physical channels and modulation".  [5] 3GPP TS 38.213: "NR; Physical layer procedures for control".  [6] 3GPP TS 38.214: "NR; Physical layer procedures for data".  [7] void.  [8] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".  [9] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".  [10] 3GPP TS 38.473: "NG-RAN; F1 Application Protocol (F1AP)".  [11] 3GPP TS 36.212: "Evolved Universal Terrestrial Radio Access (E-UTRA); Multiplexing and channel coding".  [12] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle‑to‑Everything (V2X) services".  [13] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".  [14] 3GPP TS 37.213: "Physical layer procedures for shared spectrum channel access".  [15] 3GPP TS 38.101-5: "NR; User Equipment (UE) radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance requirements"  \*\*\* Unchanged parts are omitted \*\*\* 7.3.1 DCI formats \*\*\* Unchanged parts are omitted \*\*\*  If a UE is configured with *pdsch-HARQ-ACK-CodebookListMulticast-r17*, *pdsch-HARQ-ACK-Codebook* is replaced by the relevant entry in *pdsch-HARQ-ACK-CodebookListMulticast-r17* in this clause.  For a cell detected in cell search procedure with synchronization raster defined in Table 5.4.3.1-2 or Table 5.4.3.1-3 of [13, TS 38.101-1] or Table 5.4.3.1-2 of [15, TS 38.101-5], the size of CORESET 0 for the cell in this clause refers to the size of punctured CORESET 0 as defined in clause 7.3.2.2 of [4, TS 38.211] if any.  \*\*\* Unchanged parts are omitted \*\*\*  -------------------- End of TP#3 for 38.212 -------------------- | |
| NTT DOCOMO | **Proposal 8:**   * No action is necessary in RAN1 unless 3 MHz CBW support is specified for NTN in RAN4 spec. |

## Initial proposal

Based on the above discussion the following initial proposal is made

### Proposal 1-1

**Proposal 1-1-v0**

**Adopt the following TP for 38.211 to support 3MHz CBW for NTN.**

**Reason for change:** Reference to sync raster points for NTN with 3MHz CBW is missing.

**Summary of change:** Add reference to sync raster points for NTN with 3MHz CBW defined in 38.101-5.

**Consequences if not approved:** CORESET0 for FR1-NTN with 3MHz CBW is not supported.

|  |
| --- |
| 7.3.2.2 Control-resource set (CORESET) ==omitted==  For CORESET 0 on a carrier where the SS/PBCH block is detected at sync raster points defined in Tables 5.4.3.1-2 or 5.4.3.1-3 of [14, TS 38.101-1] or Table 5.4.3.1-2 of [16, TS 38.101-5], and configured by the *ControlResourceSetZero* IE:  - and are defined by Table 13-0 in clause 13 of [5, TS 38.213];  - if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with ;  - except for NTN, if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with or non-interleaved mapping as defined by clause 13 of [5, TS 38.213], followed by puncturing the 9 highest-numbered resource blocks to obtain the 15 resource blocks forming CORESET 0;  - if on a carrier with a channel bandwidth of 5 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with , followed by puncturing the 4 highest-numbered resource blocks to obtain the 20 resource blocks forming CORESET 0;  - ;  - ;  - the UE may assume normal cyclic prefix when CORESET 0 is configured by MIB or SIB1;  - the UE may assume the same precoding being used within a REG bundle. |

Companies are encouraged to provide comments on Proposal 1-1-v0

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| DCM | In high-level, we saw the latest version of the RAN4 spec we missed before the contribution deadline, and we are fine to agree something to update RAN1 based on the RAN4 spec.  For this proposal, why “except for NTN” is necessary should be clarified. |
| Vivo1 | Sorry, there is a mistake in the TP. ‘except for NTN,’should be added to the 4th bullet instead of the 3rd bullet. The reason is that 4th bullet is for TN band n100 with 5 MHz CBW consisting of 20 transmissions PRBs, which is not applicable to NTN 7.3.2.2 Control-resource set (CORESET) ==omitted==  For CORESET 0 on a carrier where the SS/PBCH block is detected at sync raster points defined in Tables 5.4.3.1-2 or 5.4.3.1-3 of [14, TS 38.101-1] or Table 5.4.3.1-2 of [16, TS 38.101-5], and configured by the *ControlResourceSetZero* IE:  - and are defined by Table 13-0 in clause 13 of [5, TS 38.213];  - if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with ;  - if on a carrier with a channel bandwidth of 3 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with or non-interleaved mapping as defined by clause 13 of [5, TS 38.213], followed by puncturing the 9 highest-numbered resource blocks to obtain the 15 resource blocks forming CORESET 0;  - except for NTN, if on a carrier with a channel bandwidth of 5 MHz, the CORESET is obtained by applying the description above assuming interleaved mapping with , followed by puncturing the 4 highest-numbered resource blocks to obtain the 20 resource blocks forming CORESET 0; |
| Ericsson | The exception is not correct. For the 3 MHz CBW, the maximum transmission bandwidth is 15 PRBs, since the smallest CORESET 0 configuration is 24 PRBs then puncturing was applied to make it fit into the maximum transmission bandwidth, that is why the third sub-bullet CAN NOT be an exception.  About the new CORESET 0 size composed by 12-PRBs, it was added because in Rel-18 there was a subcase where the transmission/reception can only span up to 12 PRBs for a special sub-case related with FRMCS. Since a new CORESET#0 size was added, then it usage was not precluded for the regular scenario, but indeed the main case is the one were CORESET 0 after puncturing turns into a 15 PRB CORESET 0 size.  Having explained the above, we only need the first change as in the Ericsson’s TP to include “or Table 5.4.3.1-2 of [16, TS 38.101-5]”.  About the update from Vivo and the 4th bullet, it is not needed since the new table being cited is only for 3 MHz CBW. |

### Proposal 1-2

**Proposal 1-2-v0**

**Adopt the following TP for 38.213 to support 3MHz CBW for NTN.**

**Reason for change:** NTN support of 3MHz CBW is missing.

**Summary of change:** Add reference to 3MHz CBW support in 38.101-5.

**Consequences if not approved:** FR1-NTN with 3MHz CBW is not supported.

|  |
| --- |
| ---------------------------------------------------------------------------- Text Starts -------------------------------------------------------------------------------------  13 UE procedure for monitoring Type0-PDCCH CSS sets  If during cell search a UE determines from *MIB* that a CORESET for Type0-PDCCH CSS set is present, as described in clause 4.1, the UE determines a number of consecutive resource blocks and a number of consecutive symbols for the CORESET of the Type0-PDCCH CSS set from *controlResourceSetZero* in *pdcch-ConfigSIB1*, as described in Tables 13-0 through 13-10, for operation without shared spectrum channel access in FR1, FR2-1 and FR2-NTN, or as described in Tables 13-1A and 13-4A for operation with shared spectrum channel access in FR1, or as described in Table 13-10A for FR2-2, and determines PDCCH monitoring occasions from *searchSpaceZero* in *pdcch-ConfigSIB1*, included in *MIB*, as described in Tables 13-11 through 13-15A. and are the SFN and slot index within a frame of the CORESET based on SCS of the CORESET and and are the SFN and slot index based on SCS of the CORESET, respectively, where the SS/PBCH block with index overlaps in time with system frame and slot . The symbols of the CORESET associated with *pdcch-ConfigSIB1* in *MIB* or with *searchSpaceSIB1* in *PDCCH-ConfigCommon* have normal cyclic prefix. In Table 13-0, configurations with index 0 to 9 are applicable when an associated SS/PBCH block is located according to Table 5.4.3.3-2 in [8-1, TS 38.101-1] or Table 5.4.3.3-1a in [8-5, 3GPP TS 38.101-5], configurations with index 10 to 11 are applicable when an associated SS/PBCH block is located according to NOTE 12 of Table 5.4.3.3-1 in [8-1, TS 38.101-1], and non-interleaved CCE-to-REG mapping applies for configurations with index 6 to 9. In Table 13-1, the associated SS/PBCH block is not located according to NOTE 12 of Table 5.4.3.3-1 in [8-1, TS 38.101-1].  ------------------------------------------------------------------------------ Text Ends ------------------------------------------------------------------------------------ |

Companies are encouraged to provide comments on Proposal 1-2-v0

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| DCM | OK |
| Vivo1 | ok |
| Ericsson | OK |

### Proposal 1-3

**Proposal 1-3-v0**

**Adopt the following TP for 38.214 to support 3MHz CBW for NTN.**

**Reason for change:** NTN support of 3MHz CBW is missing.

**Summary of change:** Add reference to 3MHz CBW support in 38.101-5.

**Consequences if not approved:** FR1-NTN with 3MHz CBW is not supported.

|  |
| --- |
| ---------------------------------------------------------------------------- Text Starts -------------------------------------------------------------------------------------  5.1 UE procedure for receiving the physical downlink shared channel  For downlink, a maximum of 16 HARQ processes per cell are supported by the UE, or subject to UE capability, a maximum of 32 HARQ processes per cell as defined in [13, TS 38.306]. The number of processes the UE may assume will at most be used for the downlink is configured to the UE for each cell separately by higher layer parameter *nrofHARQ-ProcessesForPDSCH* or *nrofHARQ-ProcessesForPDSCH-v1700*, and when no configuration is provided the UE may assume a default number of 8 processes.  -------------------------------------------------------------------------- Text Omitted ------------------------------------------------------------------------------------  For a cell detected in cell search procedure with synchronization raster defined in Table 5.4.3.1-2 or Table 5.4.3.1-3 of [8, TS 38.101-1] or Table 5.4.3.1-2 of [11, TS 38.101-5], the size of CORESET 0 for the cell in this clause refers to the size of punctured CORESET 0 as defined in clause 7.3.2.2 of [4, TS 38.211] if any.  ------------------------------------------------------------------------------ Text Ends ------------------------------------------------------------------------------------ |

Companies are encouraged to share views on Proposal 1-3-v0

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| DCM | OK |
| Vivo1 | ok |
| Ericsson | OK |

# Topic#2 RAN1 impact from Ku-band for NR-NTN WI

## Companies’ contributions summary

|  |  |
| --- | --- |
| **Companies** | **Proposals** |
| Ericsson | **Observation 6:**  For the support of Ku-band for NR-NTN, in TS 38.213 clause 4.1, “Case D” associated with 120 kHz SCS for FR2-NTN will now also be applicable to the Ku band case. In relation with it, there is a legacy procedure used to determine “L\_max” (i.e., maximum number of transmitted SS/PBCH blocks within a half frame) encompassing “Cases A through G,” which has missed including the term “FR2-NTN”.  **Observation 7:** In relation with the previous observation, the missing term “FR2-NTN” not only impacts “Case D” for Ku-band scenarios, but also legacy “Case D” and “Case E” which are supported for “FR2-NTN”. Thus, we propose incorporating the missing term “FR2-NTN” in TS 38.213 clause 4.1.  **Observation 8:** For the approach of relying on NOTE2 in Table 5.1-1 of TS 38.101-5 the following needs to be considered:   * It needs to be confirmed that while the term FR2 encompasses both FR2-1 and FR2-2, the term FR2-NTN encompasses only FR2-1. * If clause 4.1 remains as it is, then two different approaches would be used within the same clause: On one hand the explicit usage of the term FR2-NTN, and on the other hand the omission of such a term relying on NOTE2, which breaks consistency and creates confusion while reading within the same clause.   **Proposal 9**: For the support of case D and the Ku-band in NR-NTN, adopt the TP2 included in this T-doc (recopied below) which incorporates a missing term i.e., “FR2-NTN” in clause 4.1 of TS 38.213.  **TP2:**   |  | | --- | | ------------------------------------------------------------------ Text Starts ---------------------------------------------------------------------- 4.1 Cell search Cell search is the procedure for a UE to acquire time and frequency synchronization with a cell and to detect the physical layer Cell ID of the cell.  -------------------------------------------------------------------------- Text Omitted -------------------------------------------------------------------------------------  The candidate SS/PBCH blocks in a half frame are indexed in an ascending order in time from 0 to , where is determined according to SS/PBCH block patterns for Cases A through G. is a maximum number of SS/PBCH block indexes in a cell, and the maximum number of transmitted SS/PBCH blocks within a half frame is .  - For operation without shared spectrum channel access in FR1, FR2 and FR2-NTN, and for operation with shared spectrum channel access in FR2-2,  --------------------------------------------- Text Ends ----------------------------------------------- | |
| vivo | **Observation 1.** The inconsistency indicated in [2] is due to the inclusion of FR2-NTN in Rel-18.  **Proposal 4.** Regarding the term “FR2-NTN” handling, option 1 (no spec changes) is preferred. |
| NTT DOCOMO | **Proposal 9:**   * No action is necessary in RAN1 to update “FR2” to “FR2 and FR2-NTN” for Ku-band support. |

## Initial proposal

Based on the above discussion the following initial proposal is made

### Proposal 2-1

**Proposal 2-1-v0**

**Adopt the following TP which incorporates a missing term i.e., “FR2-NTN” in clause 4.1 of TS 38.213**

|  |
| --- |
| ------------------------------------------------------------------ Text Starts ---------------------------------------------------------------------- 4.1 Cell search Cell search is the procedure for a UE to acquire time and frequency synchronization with a cell and to detect the physical layer Cell ID of the cell.  -------------------------------------------------------------------------- Text Omitted ---------------------------------------------------------------------------  The candidate SS/PBCH blocks in a half frame are indexed in an ascending order in time from 0 to , where is determined according to SS/PBCH block patterns for Cases A through G. is a maximum number of SS/PBCH block indexes in a cell, and the maximum number of transmitted SS/PBCH blocks within a half frame is .  - For operation without shared spectrum channel access in FR1, FR2 and FR2-NTN, and for operation with shared spectrum channel access in FR2-2,  --------------------------------------------- Text Ends ----------------------------------------------- |

Companies are encouraged to share views on Proposal 2-1-v0

|  |  |
| --- | --- |
| **Companies** | **Comments** |
| DCM | Not support.  We do not see the need as “FR2” includes FR2-NTN unless otherwise stated. If this understanding is incorrect, a lot of “FR2” in all RAN1 specifications must be “FR2 and FR2-NTN”, which is too large and meaningless spec efforts. |
| Vivo1 | Similar view as DCM. If FR2-NTN is going to be added, there will be a lot of changes needed for 213,214,215. With the note2 from RAN4 spec, there is no confusion. |
| Ericsson | To DCM, about ““FR2” includes FR2-NTN” are you sure about it? It seems that the term FR2 encompasses both FR2-1 and FR2-2, whereas the term FR2-NTN encompasses only FR2-1.  If clause 4.1 remains as it is, then two different approaches would be used within the same clause: On one hand the explicit usage of the term FR2-NTN, and on the other hand the omission of such a term relying on NOTE2 (Which indeed mentions “FR2-1”), which breaks consistency and creates confusion while reading within the same clause |

# Conclusion

# References

R1-2506786 Maintenance for Rel-19 NR-NTN Ericsson

R1-2506877 Maintenance on Rel-19 NR NTN vivo

R1-2506936 Maintenance for Rel-19 NR NTN Huawei, HiSilicon

R1-2507794 Maintenance of R19 NR-NTN NTT DOCOMO, INC.