3GPP TSG-RAN WG3 Meeting #114bis-e R3-221101

Online, 17 – 26 January 2022

**Agenda item: 9.3.5.1**

**Source: Huawei (moderator)**

**Title: Summary of offline: frequency information for DL only or UL only cell**

**Document for: Discussion and Decision**

# 1 Introduction

This paper summarizes the following email discussion:

**CB: # 91\_DLUPOnlyCell**

**- Start with R16**

**- Check the necessity of this correction, F1 and Xn?**

(HW - moderator)

Summary of offline disc [R3-221101](https://ericsson-my.sharepoint.com/personal/angelo_centonza_ericsson_com/Documents/Local%20Documents/3GPP_ETSI/RAN3/RAN3-114bis/EmailDiscussions/CB%20%23%2091_DLUPOnlyCell/Inbox/R3-221101.zip)

# 2 For the Chair’s Notes

TBD

# 3 Discussion (Phase 1)

Based on the online discussion, the CR(s) can be started from Rel-16.

## 3.1 Xn CR on Served Cell Information NR and Neighbour Information NR

As indicated in R3-220685, for the LTE UL EARFCN in the Served Cell Information E-UTRA, it is already clearly indicated that the UL EARFCN could be ignored, when the NUL is not defined. Then for NR, the similar semantic descriptions can be included for NR UL frequency info as well, for the SDL cell.

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| --- | --- | --- | --- | --- | --- | --- |
| <excerpt from 9.2.2.12 Served Cell Information E-UTRA > | M |  | 9.2.2.4 |  | – |  |
| CHOICE *E-UTRA-Mode-Info* | M |  |  |  | – |  |
| *>FDD* |  |  |  |  | – |  |
| **>>FDD Info** |  | *1* |  |  | – |  |
| >>>UL EARFCN | M |  | E-UTRA ARFCN  9.2.2.21 | Corresponds to NUL in TS 36.104 [25] for E-UTRA operating bands for which it is defined; ignored for E-UTRA operating bands for which NUL is not defined | – |  |
| >>>DL EARFCN | M |  | E-UTRA ARFCN  9.2.2.21 | Corresponds to NDL in TS 36.104 [25] | – |  |
| >>>UL E-UTRA Transmission Bandwidth | M |  | E-UTRA Transmission Bandwidth  9.2.2.22 | Same as DL Transmission Bandwidth in this release; ignored in case UL EARFCN value is ignored | – |  |

Also there are some comments online:

* The addition of semantic descriptions for the optional IE “UL Carrier List” is not needed. The moderator removes this change (see the update below).
* The “shall” should not be used in the semantic descriptions. Though there are some examples already using the “shall” in the semantic descriptions, the moderator remove the “shall” accordingly (see the update below).

Then the updated semantic descriptions are given as follows.

#### 9.2.2.11 Served Cell Information NR

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| --- | --- | --- | --- | --- | --- | --- |
| >*FDD* |  |  |  |  |  |  |
| >>**FDD Info** |  | *1* |  |  | – |  |
| >>>UL NR Frequency Info | M |  | NR Frequency Info  9.2.2.19 | This IE is ignored for NR operating bands for which uplink range of NREF is not defined in TS 38.104 [24], section 5.4.2.3. | – |  |
| >>>DL NR Frequency Info | M |  | NR Frequency Info  9.2.2.19 |  | – |  |
| >>>UL Transmission Bandwidth | M |  | NR Transmission Bandwidth  9.2.2.20 | This IE is ignored in case the *UL NR Frequency Info* IE is ignored. | – |  |
| >>>DL Transmission Bandwidth | M |  | NR Transmission Bandwidth  9.2.2.20 |  | – |  |
| >>>UL Carrier List | O |  | NR Carrier List  9.2.2.63 | If included, the *UL Transmission Bandwidth* IE shall be ignored. | YES | ignore |

#### 9.2.2.13 Neighbour Information NR

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| --- | --- | --- | --- | --- |
| *>>FDD* |  |  |  |  |
| **>>>FDD Info** |  | *1* |  |  |
| >>>>UL NR FreqInfo | M |  | NR Frequency Info  9.2.2.19 | This IE is ignored for NR operating bands for which uplink range of NREF is not defined in TS 38.104 [24], section 5.4.2.3. |
| >>>>DL NR FreqInfo | M |  | NR Frequency Info  9.2.2.19 |  |

**Question 1: Do you agree the change above? Or further comments, e.g. if any further update is needed:**

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| --- | --- |
| **Company** | **Comments** |
| HW | Yes. |
| Ericsson | These changes are not needed. Honestly, if there was a problem with these missed semantics, the problem would have been solved by now so we do not see these changes as essential.  Also, we should not repeat errors from LTE. It is clear that stating that an IE is ignore if another IE is ignored creates a strange condition that surely cannot be tested. We therefore would not reuse that semantics formulation from LTE. |
| Nokia | We support the CR. We believe it has some merit in terms of adding clarification to the stage 3. |
| ZTE | Fine with the CR. |
| Samsung | It is no harm to have such clarification. |
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| Moderator Summary:   * Majority companies are fine to have some clarification. One company think it is not needed, and has concern about the descriptions. * The moderator think we can have clarification. The detailed semantic descriptions can be revisited at the second round. * See the proposal in the second round. | |

## 3.2 F1AP CR on the Served Cell Information

There are some online comments whether the F1AP CR is critical, and what errors may happen etc. As the proponent, we see at least the following benefit:

* If we have the F1AP CR, then the DU can freely generate the mandatory frequency information for UL only or DL only cell (SDL or SUL), since it clearly knows that the CU will ignore this frequency information.

Another point is that the *Cell Direction* IE is an optional IE indicating UL only, DL only. On the other hand, the Frequency band information can also indicate the SUL, or SDL. Hence there are two possible ways to clarify the mandatory frequency information in the served cell information.

* **Option 1: not associated with the Cell Direction IE**

#### 9.3.1.10 Served Cell Information

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| *>FDD* |  |  |  |  | - |  |
| **>>FDD Info** |  | *1* |  |  | - |  |
| >>>UL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE is ignored for NR operating bands for which uplink range of NREF is not defined in TS 38.104 [17], section 5.4.2.3. | - |  |
| >>>DL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE is ignored for NR operating bands for which downlink range of NREF is not defined in TS 38.104 [17], section 5.4.2.3. | - |  |
| >>>UL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE is ignored if the *UL FreqInfo* IE is ignored. | - |  |
| >>>DL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE is ignored if the *DL FreqInfo* IE is ignored. | - |  |
| >>>UL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the UL Transmission Bandwidth IE shall be ignored. | YES | ignore |
| >>>DL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the *DL Transmission Bandwidth* IE shall be ignored. | YES | ignore |

* **Option 2: as proposed in** [**R3-220687**](file:///D:\My_work\TSGR1-108-eMeeting-20220110\RAN3-114bis\Docs\R3-220687.zip)**.**

#### 9.3.1.10 Served Cell Information

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| --- | --- | --- | --- | --- | --- | --- |
| *>FDD* |  |  |  |  | - |  |
| **>>FDD Info** |  | *1* |  |  | - |  |
| >>>UL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE shall be ignored if the *Cell Direction* IE set to “dl-only” is included. | - |  |
| >>>DL FreqInfo | M |  | NR Frequency Info  9.3.1.17 | This IE shall be ignored if the *Cell Direction* IE set to “ul-only” is included. | - |  |
| >>>UL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE shall be ignored if the *UL FreqInfo* IE is ignored. | - |  |
| >>>DL Transmission Bandwidth | M |  | Transmission Bandwidth  9.3.1.15 | This IE shall be ignored if the *DL FreqInfo* IE is ignored. | - |  |
| >>>UL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the UL Transmission Bandwidth IE shall be ignored. | YES | ignore |
| >>>DL Carrier List | O |  | NR Carrier List  9.3.1.137 | If included, the *DL Transmission Bandwidth* IE shall be ignored. | YES | ignore |

**Question 2: is the F1AP CR (for R16) agreeable, or which option is preferred?**

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| **Company** | **Comments** |
| Huawei | Both options are acceptable, Option 1 is slightly preferred. |
| Ericsson | Again, we do not see these corrections as essential because whatever problem might have occurred due to this missing text, it has been resolved by now. We would at best accept something in line with Option 2, with the following amendments:   * Remove shall statement from the semantics * Do not use the formulation “This IE shall be ignored if the *UL FreqInfo* IE is ignored.”, instead use only one formulation, i.e. something like “This IE is ignored if the Cell Direction IE set to “dl-only” is included.” |
| Nokia | We prefer option 2 with updates along this model: “This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. |
| ZTE | Prefer the Option 2 with Nokia’s modification. |
| Samsung | OK for clarification. No strong view on which option. |
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| Moderator Summary:   * All companies are fine to have the F1AP CR. Then the update can be based on Ericsson and Nokia’s comments. * See the proposal in the second round. | |

# 4 Discussion (Phase 2)

Based on the first round discussion, the moderator provides the following proposals.

**Proposal 1: Agree the Xn CR (R3-221214 revision of R3-220689), taken the received comments into account (e.g., to avoid use “an IE is ignored if another IE is ignored”).**

**Proposal 2: Agree the F1AP (R3-221213 revision of R3-220687), taken the received comments into account.**

**The draft CRs are already in the draft folder for review.**

Please provide any view / comments on this topic and the question in bold below:

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| Company | Comment |
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# 5 Conclusions, Recommendations

TBD

# References

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| [R3-220685](Docs\R3-220685.zip) | Correction of frequency information for DL only or UL only cell (Huawei, China Telecom, Deutsche Telekom) | Discussion  \*\*  E///: Critical correction? The updates in semantic description is not correct. For Xn, it should not be any “shall” description, F1 is not needed.  SS: What issue will be caused without this updates?  ZTE: Fine with the intention, for R16 CRs, the newly added semantic description for “UL/DL Carrier List” is not needed  Lenovo: If the criticality of this IE is ignore, it should be no issue  CATT: Fine with the motivation, for F1AP CR, update the semantic description of UL Transmission Bandwidth  Nok: R16 is enough?  HW: Fine to start with R16. For Xn, the correction is needed as essential  **CB: # 91\_DLUPOnlyCell**  **- Start with R16**  **- Check the necessity of this correction, F1 and Xn?**  (HW - moderator)  Summary of offline disc [R3-221101](Inbox\R3-221101.zip) |
| [R3-220686](Docs\R3-220686.zip) | Correction of frequency information for DL only or UL only cell (Huawei, China Telecom, Deutsche Telekom) | CR0853r, TS 38.473 v15.16.0, Rel-15, Cat. F  \*\* |
| [R3-220687](Docs\R3-220687.zip) | Correction of frequency information for DL only or UL only cell (Huawei, China Telecom, Deutsche Telekom) | CR0854r, TS 38.473 v16.8.0, Rel-16, Cat. A  \*\* |
| [R3-220688](Docs\R3-220688.zip) | Correction of frequency information for DL only or UL only cell (Huawei, China Telecom, Deutsche Telekom) | CR0735r, TS 38.423 v15.14.0, Rel-15, Cat. F  \*\* |
| [R3-220689](Docs\R3-220689.zip) | Correction of frequency information for DL only or UL only cell (Huawei, China Telecom, Deutsche Telekom) | CR0736r, TS 38.423 v16.8.0, Rel-16, Cat. A  \*\* |