**3GPP TSG RAN WG1 Meeting #105-e R1-210xxxx**

**May 10th – May 27th, 2020**

**Agenda item: 7.2.2**

**Source: Moderator (Qualcomm Incorporated)**

**Title: Preparation phase email discussion for NR-U**

**Document for: Discussion and Decision**

# Introduction

The paper summarizes the preparation phase email discussion for contribution submitted to 7.2.2 on NR-U CR.

# Issues identified

## 2.1 Initial access signals and channels

## 2.2 DL signals and channels

For DL signals and channels [2], the following issues have been identified

|  |  |  |
| --- | --- | --- |
| Issue # | Issue summary | # Contributions |
| DL-A1 | Correction on joint search space set group switching across multiple cells | 1 |
| DL-B1 | Action time when UE receive MAC CE for (de)activation of Scell/CSI-RS/TCI state/SRS | 1 |
| DL-B2 | Measurement during SCell activation | RAN4 LS |
| DL-C1 | Front-loaded/Additional DMRS symbols for PDSCH mapping type B when collide with CORESET | 1 |
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FL recommendations:

## 2.3 UL signals and channels

For UL signals and channels [3], the following issues have been identified

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| **Issue #** | **Issue summary** | **# Contribution(s)** |
| UL-01 | Clarification of size of initial UL BWP | 1 |
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FL recommendations (see further details in [3]): Already discussed multiple times and no consensus to change.

## 2.4 Channel access

For channel access [4], the following issues have been identified

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| Issue # | Issue summary | # Contributions |
| CA-1 | China-specific aspects related to CCA time and gaps | 2 |
|  |  |  |

FL recommendations:

## 2.5 Initial access procedures

For initial access procedures [5], the following issues have been identified

|  |  |  |
| --- | --- | --- |
| Issue # | Issue summary | # Contributions |
| IA 2-1 | Corrections for SS/PBCH block | 1 |
| IA 3-1 | Corrections for RACH | 1 |
| IA 4-1 | Corrections for RRM/RLM | 3 |

## 2.6 HARQ enhancements

For HARQ enhancements [6], the following issues have been identified

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| --- | --- | --- |
| Issue # | Issue summary | # Contributions |
| HARQ-1 | text in TS38.300 limits re-transmission of HARQ-ACK feedback with enhanced type-2 codebook and type-3 codebook to shared spectrum access, whereas FGs 10-15/10-16 are applicable to licensed bands as well | 1 |
| HARQ-2 | enhanced dynamic HARQ-ACK codebook cannot be configured by pdsch-HARQ-ACK-Codebook-secondaryPUCCHgroup-r16 | 1 |
| HARQ-3 | potential inconsistency between RAN1 and RAN2 specifications about when a UE is expected to monitor a DCI scheduling re-transmission for a PDSCH that was scheduled with a NNK1 value | 2 |
| HARQ-4 | Enhanced dynamic codebook issues | 1 |
| HARQ-5 | correct the use of a RRC parameter in TS38.212 | 1 |
| HARQ-6 | correct the use of a RRC parameter in in TS38.213 | 1 |

FL recommendations:

## 2.7 CG enhancements

For CG enhancements [7], the following issues have been identified

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| --- | --- | --- |
| Issue # | Issue summary | # Contributions |
| CG-1 | Frequency hopping for NR-U CG | 1 |
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FL recommendations:

## 2.8 Wideband operation

On wideband operation enhancements, no issue identified.

# Preparation phase discussion

We have identified many issues and we have limited email thread to discuss them. In the next tables, please provide your view on issues with the following notations

* “Y” if you believe the issue is important and needs email discussion
* “E” if you believe the issue is agreeable but editorial in nature. Potentially we can take all the editorial issues out for a separate fast track email approval.
* Empty if you believe the issue is not necessary to fix or low priority

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| Company | DL-A1 | DL-B1 | DL-B2 | DL-C1 | UL-01 | CA-1 | IA 2-1 | IA 3-1 | IA 4-1 |
| Sharp |  |  |  |  | Y |  |  | Y | Y |
| ZTE, Sanechips |  |  | Y |  | Y | Y |  |  | Y |
| Ericsson |  |  | Do not agree to discuss in NR-U (see comment) |  | Y |  |  |  | Y |
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| Company | HARQ-1 | HARQ-2 | HARQ-3 | HARQ-4 | HARQ-5 | HARQ-6 | CG-1 |
| Sharp | E |  |  |  | E | E |  |
| ZTE, Sanechips | E |  |  |  | E | E |  |
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Please provide additional company views below

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| --- | --- |
| **Company** | **View** |
| Sharp | **UL01**We are fine to discuss FL’s modified proposal, although the original proposal in the draft CR should be well aligned with the agreement.**IA3-1**Although we believe the CR is not necessary, companies understanding seemed divergent at the last meeting. Therefore, we think it should be discussed. |
| ZTE, Sanechips | **For DL-B2,** if there is still no any consensus or progress at this meeting, we hope to have at least a clear guidance on how to deal with this issue in the future.**For UL-01,** we agree to clarify this issue but specific wording used for CR can be further discussed and polished.**For CA-1,** we think regional limitation on channel access for China should be also considered to be reflected in the existing spec, just like Japan’s regional limitation on channel occupancy time that have been captured in TS 37.213. |
| Ericsson | **For DL-B2**, this issue has been extensively discussed in the last 2 meetings. Consensus has not been achieved due to differing views on some fundamental aspects of UE behavior that touch on Rel-15 carrier aggregation implementations. It is very hard to make progress in NR-U until these are resolved. As we indicated in the last meeting, the fundamental UE behavior aspects need to be discussed in Rel-15 maintenance first. Once discussion has occured there, then further progress can be made in NR-U. Unless/until that discussion happens in Rel-15 maintenance, we will object to sending an LS reply back to RAN4 as we did in the last meeting. |
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# Reference

[1]. Reserved

[2]. R1-20xxxxx, FL summary for DL signals and channels, Lenovo

[3]. R1-20xxxxx, FL summary for UL signals and channels, Ericsson

[4]. R1-20xxxxx, FL summary for channel access procedures for NR-U, Nokia

[5]. R1-20xxxxx, FL summary for initial access procedure enhancements, Charter Communications

[6]. R1-20xxxxx, FL summary on NR-U HARQ maintenance, Huawei

[7]. R1-20xxxxx, FL summary for on NRU configured grant enhancement, Vivo

[8]. Reserved