**3GPP TSG RAN WG1 #102-e R1- 200XXXX**

**e-Meeting, August 17th – August 28th, 2020**

**Agenda item: 7.2.2.2.1**

**Source: Moderator (Nokia)**

**Title: Feature Lead Summary on Channel Access Procedures for NR-U**

**Document for: Discussion and Decision**

# 1 Introduction

This document summarizes the main issues brought forward in the contributions submitted to AI 7.2.2.2.1, Channel Access Procedures. Earlier agreements reached during the Study Item are captured in TR 38.889.

This document summarizes the findings on open issues and necessary corrections identified during the preparation phase (5/18-5/22). From August 17th onwards, one email thread will be started to finalize the set of critical issues from those listed in this document.

# 2. Issues identified in the contributions

To organize the email discussion, the issues have been grouped according to the chairman’s guidance.

**Issue #1** Indication of LBT type, CP extension and CAPC; N1 timeline for UL transmissions with CP extension

|  |  |
| --- | --- |
| LBT type for non-contiguous SRS and PUSCH/PUCCH | R1-2006020 (p3)R1-2006095 (p5)R1-2006301 (p1, p2)R1- 2006370 (p2) |
| CP extension and LBT type for semi-static channel access | R1-2005600 (p1)R1-2006763 (section 3) |
| other CP extension related | R1-2006301 (p5) |
| CAPC of fallback UL grants | R1-2006763 (section 2)R1-2005600 (p7) |

**Issue #2** Clarifications to LBT with consecutive UL transmissions

|  |  |
| --- | --- |
| Clarifications to LBT with consecutive UL transmissions | R1-2006881 (p4) |

**Issue #3** Clarifications to UL to DL COT sharing

|  |  |
| --- | --- |
| Clarifications to UL to DL COT sharing | R1-2005600 (p2)R1-2006020 (p1)R1-2006301 (p4)R1-2006881 (p1) |

**Issue #4** Clarifications to channel access for semi-static channel occupancy

|  |  |
| --- | --- |
| Clarifications to channel access for semi-static channel occupancy | R1-2005600 (p3, p4, p5, p6)R1-2005809 (p10)R1-2005914 (p1)R1-2006351 (p1, p2, p3, p4, p5)R1- 2006370 (p1) |

**Issue #5:** DL and UL Channel Access related

|  |  |
| --- | --- |
| Clarifications to restrictions for Type 1 DL channel access / DRS | R1-2006095 (p1)R1-2006351 (p6) |
| Clarifications to DL CWS adjustment | R1-2005809 (p1)R1-2006881 (p2, p3) |
| Clarifications to UL CWS adjustment | R1-2005809 (p2, p3, p4)R1-2006095 (p2, p3, p4)R1-2006301 (p6, p8) |
| CWS for channels without explicit feedback | R1-2006301 (p7) |

**Issue #6:** Multi-channel Channel Access:

|  |  |
| --- | --- |
| Clarifications to DL Multi-channel access procedures | R1-2005809 (p5) |
| Clarifications to UL Multi-channel access procedures | R1-2005809 (p6, p7, p8, p9)R1-2006301 (p3) |

**Issue #7:** RACH related

|  |  |
| --- | --- |
| Channel access for 2-step RACH | R1-2006020 (p2) |

**Issue #8:** Clarifications to LBT with multiple switching points

|  |  |
| --- | --- |
| Clarifications to LBT with multiple switching points  | R1- 2005333 (p1) |

**Editorial Issues:**

|  |  |  |
| --- | --- | --- |
| #1 | order of ChannelAccess-CPext field in DCI 0\_0 | R1- 2005333 (p2) |

|  |  |
| --- | --- |
| Company | Comments  |
| Samsung | If we only have one email thread, Issue #1 is the most essential one since there is obvious ambiguity of UE’s understanding in the CP extension related issues. We also agree with FL that the remaining issues are also worthy some discussion (at least to better understand the potential issue and proposals). If there is no chance for further discussion in this meeting, we suggest to trigger some early unofficial discussion in RAN1\_NR email reflector before the next meeting, to make sure at least each proposal will be treated and better understood.  |
| Qualcomm | We believe issue 4 and issue 1 should have higher priority. There are many issues identified as clarifications. We wonder if it is possible to ask the Editor to take a look first. For issues non-controversial or directly capture agreements, it is possible for Editor to handle, instead of using a separate email thread. |
| ZTE, Sanechips | We tend to discuss Issue1, 3 and 4 first. Wherein, Issue 3 can be handled in draft TP phase due to it is just an issue on how to capture agreement.Besides, I’d like to clarify that P7 from our contribution R1-2005600 is actually intended to capture a missing agreement on CAPC of fallback UL grants, which is same as the issue raised by Qualcomm R1-2006763 (section 2), but it is now classified in Issue 7, not in Issue 1. Therefore, I’d like to ask FL to put P7 from R1-2005600 in Issue 1. |
| Nokia, NSB | Essentially, we will need to discuss all the remaining issues at some point, and our preference would be to do that already in this meeting. The most urgent issues are #1, #4, #5, and #6:* for #1 there are identified open issues from the last meeting that will need to be closed.
* for #4, a related follow-up WI addressing UE-initiated FBE operation has already started, and we should have the Rel-16 baseline completed ASAP.
* #5 and #6 are somewhat interrelated, and CWS update related aspects have not been discussed yet.
 |
| LG | In our view, Issue #1, #3, and #5 are high priority and should be discussed in this meeting. Especially for issue #3 and R1-2006301 (p3) in issue #6, it seems that we can discuss using a separate email thread without consuming the budget considering the chairman’s guidance that email thread for TPs reflecting previous agreements will not be counted for email budget. |
| Ericsson | We do agree with the assessment from Nokia.* Issue#1 is clearly to be addressed as carried over from previous meeting
* Issue#4 is very important in order to have a stable baseline in Rel-16 for carrying out the work in Rel-17. Hence, FBE related issues should be resolved due to the dependency to ongoing work in Rel-17. We have similar comments with respect to open issues in DL to prioritize aspects that impact other WI.
* QC suggestion is reasonable. If there are non-controversial issues, specially missing agreements, Editor could take care of that.
 |
| Sharp | Issues #1 and #4 have higher priority. For issue #1, it is clearly a missing part, which has to be treated. For issue #4, we agree with Nokia. As Rel-17 study on FBE has started, any confusion caused by incomplete Rel-16 Specs should be avoided. |
| OPPO | Issue#1 and issue#3 are two leftovers from the previous meetings. These two need to be discussed with higher priority.  |
| Charter Communications | Our view is that issue #1, issue #4, issue #5 should be discussed further.Regarding issue #2, we think the current spec is sufficient in the case of separate UL grants. In the same tdoc, the proposal for issue#3 is already reflected in the ‘non-unicast’ portion of the sentence.Issue #7 is editorial and can be handled by the editor. |
| Intel | We agree with the FL’s assessment. From our perspective, Issue #1 and#4 should be prioritized given that they are either left over from prior meeting or proposals related to FBE which given the ongoing work in Rel-17 should be solved as soon as possible. As for Issue #5 and #6, these should be also prioritized given that so far we haven’t had time to discuss them.  |
| ETRI | Similar to other companies, we think issues #1 and #4 should be prioritized in this meeting.  |
| Huawei, HiSilicon | We agree with FL on prioritizing issues #1, #4, #5 and #6 for the same reasons.We would like to also clarify that under issue#5 our (p3, p4) in R1-2005809 are rather related to ‘CWS for channels without explicit feedback’ We are also fine with handling non-controversial issues separately with the Editor  |
| WILUS | We agree with Nokia that we will need to discuss all the remaining issues. And the most urgent issues such as #1, #4, #5 and #6 of the remaining issues should be handled in this meeting.  |

# References

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | [**R1-2005333**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005333.zip) | Remaining issues on the channel access procedures | vivo |
| 2 | [**R1-2005600**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005600.zip) | Remaining issues on the channel access procedure for NR-U | ZTE, Sanechips |
| 3 | [**R1-2005809**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005809.zip) | Maintenance on channel access procedures | Huawei, HiSilicon |
| 4 | [**R1-2005914**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2005914.zip) | Channel access procedures | Ericsson |
| 5 | [**R1-2006020**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006020.zip) | Discussion on the remaining issues of channel access procedure | OPPO |
| 6 | [**R1-2006095**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006095.zip) | Channel access procedures for NR-U | Samsung |
| 7 | [**R1-2006301**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006301.zip) | Remaining issues of channel access procedure for NR-U | LG Electronics |
| 8 | [**R1-2006351**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006351.zip) | Remaining issues on channel access procedures for NR-U | ETRI |
| 9 | **[R1-2006370](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006370.zip)** | Remaining Issues on Channel Access Procedures for NR-U | Nokia, Nokia Shanghai Bell |
| 10 | [**R1-2006763**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006763.zip) | TP for Channel access procedures for NR unlicensed | Qualcomm Incorporated |
| 11 | [**R1-2006881**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_102-e/Docs/R1-2006881.zip) | Remaining issues on channel access procedure for NR-U | WILUS Inc. |