**3GPP TSG RAN WG1 Meeting #106-e R1-210xxxx**

**August 16th – 27th, 2021**

**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

Issues may need technical discussion:

|  |  |  |  |
| --- | --- | --- | --- |
| Issue ID | Brief summary | Summary document | Supporting document |
| T1 | 5GHz channel access update for MIIT | [22] | Discussion paper: [2]  CR for 37.213: [1]  CR for 38.212: [5] |
| T2 | Corrections on CG-UCI multiplexing in TS38.212 | [24] | CR for 38.212: [6] |
| T3 | CORESET configuration for wideband operation | [25] | [9], [17] |
| T4 | Enhanced type-2 HARQ codebook NFI toggling and PUCCH | [23] | CR for 38.213: [10] |
| T5 | Correction related to search space set group switching | [21] | Discussion and TP: [15] |
| T6 | On frequency hopping for multi-PUSCH scheduling with single DCI | [24], [23] | CR for 38.214: [16]  Discussion: [18] |

Issues more editorial in nature:

|  |  |  |  |
| --- | --- | --- | --- |
| Issue ID | Brief summary | Summary document | Supporting document |
| E1 | Correction on RRC parameter name of HARQ-ACK codebook in TS 38.213 | [23] | CR for 38.213: [3] |
| E2 | Correction on DFI flag in DCI format 0-1 in TS38.212 | [24] | CR for 38.212: [4] |
| E3 | Editorial correction on the channel access for type-2 random access | [22] | CR for 38.213: [7] |
| E4 | Alignment CR on the parameter name of discovery burst window length |  | CR for 38.213: [8] |
| E5 | Clarification on the usage of cg-minDFI-Delay | [24] | CR for 38.213: [11] |
| E6 | Clarification on OCC for PUCCH format 1 | [26] | CR for 38.213: [12] |
| E7 | PDSCH-to-HARQ feedback timing indicator field values | [23] | CR for 38.213: [13] |
| E8 | Clarification on the definition of a channel for LBT | [22] | CR for 37.213: [14] |
| E9 | Correction on channel access type and CP extension indication | [22] | CR for 38.212: [19]  CR for 38.213: [20] |

# Discussion on which CR to treat

Please provide your view below. “Y” to discuss.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Company | T1 | T2 | T3 | T4 | T5 | T6 |
| Samsung |  |  | Y |  |  | Y |
| Sharp |  |  | Y | N |  | N |
| Ericsson |  |  | Y |  |  | Y |
| LG |  | Y | Y |  |  | Y |
| Intel | Y | Y | Y |  |  | Y |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Company | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 | E9 |
| Samsung | Y | Y | Y | Y |  |  | Y |  | Y |
| Sharp | Y | Y | Y | Y |  |  | Y |  |  |
| Ericsson |  |  |  | Y |  | Y |  |  |  |
| LG | Y | Y | Y | Y |  | Y | Y | Y | Y (only CR for 38.213) |
| Intel | Y | Y | Y | Y |  | Y | Y | Y | Y - Requires discussion – not all changes are agreeable and editorials |

|  |  |
| --- | --- |
| Company | Comments |
| Samsung | * For T1, seems not update of the status of the regulation, so we prefer to delay the discussion. * For T2, we didn’t see an essential issue with current wording in the specification. * For T4, no need for the specification change. gNB can ensure a proper scheduling by implementation. * For T5, the TP is not essential, and didn’t see a difference of UE behaviour with/without the TP. * For E5, seems all timelines in current specification didn’t use the wording “at least”, and it should be ok to keep current wording. * For E6, the TP is correct, but may not be that essential. It can be understood as a general description in the beginning, and an exception in the later paragraph. Even with current wording, UE will not implement in an alternative way. * For E8, the TP is not essential, and may not be beneficial for future compatibility. |
| Ericsson | * T5: We also do not see the need for the spec change as we don't see an ambiguity; it seems the behavior would be the same (without ambiguity) both with and without the CR. * E6: I believe the spec would benefit from clarification to avoid ambiguity on which OCC index is applied (0 or 1) |

# Reference

1. R1-2106441, Changes of channel access procedure in TS 37.213, Huawei, HiSilicon
2. R1-2106507, Discussion on the impact of MIIT consultation to channel access procedure, Huawei, HiSilicon
3. R1-2106508, Correction on RRC parameter name of HARQ-ACK codebook in TS37.213, Huawei, HiSilicon
4. R1-2106509, Correction on DFI flag in DCI format 0-1 in TS38.212, Huawei, HiSilicon
5. R1-2106510, Changes of channel access procedure according to MIIT regulation in TS 38.212, Huawei, HiSilicon
6. R1-2106518, Corrections on CG-UCI multiplexing in TS38.212, Huawei, HiSilicon
7. R1-2107010, Editorial correction on the channel access for type-2 random access, ZTE, Sanechips
8. R1-2107012, Alignment CR on the parameter name of discovery burst window length, ZTE, Sanechips
9. R1-2107049, Correction related to wideband operation, Ericsson
10. R1-2107232, Draft CR on e-type 2 HARQ codebook, OPPO
11. R1-2107233, Draft CR on HARQ-ACK for PUSCH, OPPO
12. R1-2107234, Draft CR on PUCCH resource determination, OPPO
13. R1-2107235, Draft CR on PDSCH-to-HARQ feedback timing indicator field values, OPPO
14. R1-2107236, Draft CR on LBT bandwidth, OPPO
15. R1-2107484, Correction related to search space set group switching, MediaTek Inc.
16. R1-2107695, Correction on frequency hopping for multi-PUSCH scheduling with single DCI, Ericsson Inc.
17. R1-2107712, Correction on Wideband Operation for NRU, Apple
18. R1-2107976, Discussion on frequency hopping for multi-PUSCH scheduling, vivo
19. R1-2108049, Correction on channel access type and CP extension indictaion, ASUSTeK
20. R1-2108051, Correction on ChannelAccess-CPext field in RAR, ASUSTeK
21. R1-21xxxxx, Feature lead summary for NR-U DL Signals and Channels, Moderator(Lenovo)
22. R1-21xxxxx, Feature lead summary for NR-U channel access, Moderator(Nokia)
23. R1-21xxxxx, Feature lead summary for HARQ enhancements, Moderator(HW)
24. R1-21xxxxx, FL summary for NR-U configured grant, Moderator(vivo)
25. R1-21xxxxx, Feature lead summary for NR-U wideband operations, Moderator(LGE)
26. R1-21xxxxx, Feature lead summary for Maintenance of UL Signals and Channels, Moderator(Ericsson)