**3GPP TSG RAN WG1 #100bis-e** **R1-200XXXX**

**e-meeting, April 20-30, 2020**

**Agenda item: 7.2.2.2.1**

**Source: Moderator (Nokia)**

**Title: TPs related to the email discussion [100b-e-NR-unlic-NRU-ChAcc-02]**

**Document for: Discussion and Decision**

# 1 Introduction

This document captures the text proposals in the following RAN1#100bis-e email thread:

[100b-e-NR-unlic-NRU-ChAcc-02] Email discussion/approval on clarifications to UL to DL COT sharing by 4/24; if necessary, followed by endorsing the corresponding TPs by 4/29 – Timo (Nokia)

During the preparation phase it was identified that the following TDocs and proposals relate to corrections and clarifications to UL to DL COT sharing:

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

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| --- | --- |
| Clarifications to UL to DL COT sharing | R1-2001652 (2.2)  R1-2001705 (2.1)  R1-2001759 (2.3, 2.4)  R1-2001935 (p5, p6)  R1-2002247 (p1)  R1-2002530 (p3)  R1-2002632 (p1)  R1-2002684 (p1, p2, p3) |

This contribution provides text proposals for some of the related aspects.

# 2. TPs

## 2.3 Clarification of the max duration of a UL-DL shared COT

From the agreement in [100b-e-NR-unlic-NRU-ChAcc-02]:

Further discussion on TPs for Sections 4.2.1 and 4.1.3 of 37.213 based on the inputs until 4/29

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| **TS 37.213**  --- Beginning of Text proposal #1 ----  4.2.1 Channel access procedures for uplink transmission(s)  <unchanged text omitted>  A UE shall use Type 1 channel access procedure for transmissions related to random access procedure that initiate a channel occupancy with UL channel access priority class in Table 4.2.1.  A UE shall not transmit on a channel for a *Channel Occupancy Time* that exceeds where the channel access procedures are performed based on a channel access priority class associated with the UE transmissions, as given in Table 4.2.1-1.  The total duration of autonomous uplink transmission(s) obtained by the channel access procedure in this clause, including the following DL transmission if the UE sets 'COT sharing indication' in AUL-UCI to '1' in a subframe within the autonomous uplink transmission(s) as described in Subclause 4.1.3, shall not exceed , where is given in Table 4.2.1-1.  <unchanged text omitted>  --- End of the Text proposal #1 ---- |
| **TS 37.213**  --- Beginning of Text proposal #2 ---- 4.1.3 DL channel access procedures in a shared channel occupancy <unchanged text omitted>  If a gNB shares a channel occupancy initiated by a UE using the channel access procedures described in clause 4.2.1.1 on a channel, the gNB may transmit a transmission that follows a UL transmission on scheduled resources or a PUSCH transmission on configured resources by the UE after a gap as follows:  <unchanged text omitted>  --- End of the Text proposal #2 ---- |

Companies are asked to provide their views on the TPs using the Table below:

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| --- | --- |
| **Company / Org.** | **View on FL proposal #4** |
| Huawei, HiSilicon | Agree with TP1 with the following editorial  A UE shall not transmit on a channel for a *Channel Occupancy Time* that exceeds where the channel access procedures are performed based on a channel access priority class associated with the UE transmissions, as given in Table 4.2.1-1.  We think that this TP2 belongs to Section 2.6 |
| Intel | Agree with this TP, and the editorial provided by HW. Furthermore, given that the specific length of the MCOT depends on the specific priority class used by the UE, and since this is unique for a given transmission within a COT, we should change the sentence from plural to singular as follows:  A UE shall not transmit on a channel for a *Channel Occupancy Time* that exceeds where the channel access procedure is performed based on the channel access priority class associated with the UE transmissions, as given in Table 4.2.1-1. |
| ZTE, Sanechips | Support TP1 and TP2.  For TP1, agree with the modification from HW and Intel.  For TP2, it is repeated with TP#4 in Section 2.6. |
| Broadcom | Agree in principle to TP1. In this context and as noted earlier, the Channel Occupancy Time consists of all gaps <= 25us. This is also specified in the definition of a Channel Occupancy Time in Section 4.0 of 37.213. However, the following sentence specifies “*total duration of autonomous uplink transmission(s) obtained by the channel access procedure in this clause, including the following DL transmission*”. For the sake of clarity, “duration” should be substituted by “Channel Occupancy Time” as in:  “The total Channel Occupancy Time of autonomous uplink transmission(s) obtained by the channel access procedure in this clause, including the following DL transmission if the UE sets 'COT sharing indication' in AUL-UCI to '1' in a subframe within the autonomous uplink transmission(s) as described in Subclause 4.1.3, shall not exceed , where is given in Table 4.2.1-1.”  Agree to TP2 |
| Samsung | Agree with TP1.  Opinion to TP2 is captured in Section 2.6 |
| Ericsson | Agree with TP1 and updates made by HW, Intel, Broadcom  Agree with TP2 (same view in 2.6). |
| LG | Agree with TP1 modified by Huawei.  Agree with TP2. |
| Nokia, NSB | Support the TPs based on modifications by Huawei, Intel, and Broadcom. I’m copying below the updated version as a whole:  <unchanged text omitted>  A UE shall use Type 1 channel access procedure for transmissions related to random access procedure that initiate a channel occupancy with UL channel access priority class in Table 4.2.1.  A UE shall not transmit on a channel for a *Channel Occupancy Time* that exceeds where the channel access procedure is performed based on a channel access priority class associated with the UE transmissions, as given in Table 4.2.1-1.  The total Channel Occupancy Time of autonomous uplink transmission(s) obtained by the channel access procedure in this clause, including the following DL transmission if the UE sets 'COT sharing indication' in AUL-UCI to '1' in a subframe within the autonomous uplink transmission(s) as described in Subclause 4.1.3, shall not exceed , where is given in Table 4.2.1-1.  <unchanged text omitted> |
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## 2.4 COT sharing indication in CG-UCI

From the agreement in [100b-e-NR-unlic-NRU-ChAcc-02]:

Finalize TP for the editorial corrections for COT sharing indication in CG-UCI until 4/29

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| **TS 37.213**  --- Beginning of Text proposal #3 ----  4.1.3 DL channel access procedures in a shared channel occupancy  <unchanged text omitted>  For the case where a gNB shares a channel occupancy initiated by a UE with configured grant PUSCH transmission, the gNB may transmit a transmission that follows the configured grant PUSCH transmission by the UE as follows:  - If the higher layer parameter *ul-toDL-CO-SharingED-Threshold-r16* is provided, the UE is configured by *cg-COT-SharingList-r16* where *cg-COT-SharingList-r16* provides a table configured by higher layer. Each row of the table provides a channel occupancy sharing information given by higher layer parameter *CG-COT-Sharing-r16*. One row of the table is configured for indicating that the channel occupancy sharing is not available.  <unchanged text omitted>  --- End of the Text proposal #3 ---- |

Companies are asked to provide their views on the TP using the Table below:

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| --- | --- |
| **Company / Org.** | **View on FL proposal #4** |
| Huawei, HiSilicon | Agree with TP |
| Intel | We support this TP. |
| ZTE, Sanechips | Agree with this TP, but there is a typo, suggest changing RRC parameter from “*ul-toDL-CO-SharingED-Threshold-r16*” to “*ul-toDL-COT-SharingED-Threshold-r16”* |
| Broadcom | Agree |
| Samsung | Agree with the TP |
| Ericsson | Agree with TP |
| LG | Agree with the TP. |
| Nokia, NSB | Agree with the TP. |
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## 2.6 Clarifications

From the agreement in [100b-e-NR-unlic-NRU-ChAcc-02]:

Further discussion on TPs based on TP1 in R1-2002247 and the comments in the email discussion until 4/29

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| **TS 37.213**  --- Beginning of Text proposal #4 ----  4.1.3 DL channel access procedures in a shared channel occupancy  <unchanged text omitted>  If a gNB shares a channel occupancy initiated by a UE using the channel access procedures described in clause 4.2.1.1 on a channel, the gNB may transmit a transmission that follows a UL transmission on scheduled resources or a PUSCH transmission on configured resources by the UE after a gap as follows:  <unchanged text omitted>  --- End of the Text proposal #4 ---- |

Companies are asked to provide their views on the TP using the Table below:

|  |  |
| --- | --- |
| **Company / Org.** | **View on FL proposal #4** |
| Huawei, HiSilicon | Agree with TP |
| Intel | We support this TP. |
| ZTE, Sanechips | Agree with this TP. |
| Broadcom | Agree |
| Samsung | OK with the clarification |
| Ericsson | Agree with TP |
| LG | Agree with the TP. |
| Nokia, NSB | Agree with the TP. This is indeed the same as TP2, so actually this could be deleted from the final version. Apologies for the confusion. |
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# 3. Conclusions

TBA

# References

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| 1 | [**R1-2001534**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2001534.zip) | Maintainance on the channel access procedure | Huawei, HiSilicon |
| 2 | [**R1-2001652**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2001652.zip) | Remaining issues on the channel access procedures | vivo |
| 3 | [**R1-2001705**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2001705.zip) | Remaining issues on the channel access procedure for NR-U | ZTE, Sanechips |
| 4 | [**R1-2001759**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2001759.zip) | Discussion on the remaining issues of channel access procedure | OPPO |
| 5 | [**R1-2001935**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2001935.zip) | Remaining issues of channel access procedure for NR-U | LG Electronics |
| 6 | [**R1-2001987**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2001987.zip) | Channel access mechanism for NR-unlicensed | Intel Corporation |
| 7 | [**R1-2002031**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002031.zip) | Channel access procedures | Ericsson |
| 8 | [**R1-2002117**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002117.zip) | Channel access procedures for NR-U | Samsung |
| 9 | [**R1-2002193**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002193.zip) | Remaining Issues on Channel Access Procedures for NR-U | Nokia, Nokia Shanghai Bell |
| 10 | [**R1-2002247**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002247.zip) | Remaining issues on channel access procedures for NR-U | ETRI |
| 11 | [**R1-2002383**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002383.zip) | Remaining issues and corrections on channel access procedure for NR-U | Sharp |
| 12 | [**R1-2002405**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002405.zip) | Remaining issues on channel access for NR-U operation | MediaTek Inc. |
| 13 | [**R1-2002434**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002434.zip) | Remaining issues on channel access procedures for NR-U | NTT DOCOMO, INC. |
| 14 | [**R1-2002465**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002465.zip) | TP on shared spectrum in NR-U | NEC |
| 15 | [**R1-2002530**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002530.zip) | TP for Channel access procedures for NR unlicensed | Qualcomm Incorporated |
| 16 | [**R1-2002632**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002632.zip) | Remaining issues on channel access procedure for NR-U | WILUS Inc. |
| 17 | [**R1-2002684**](http://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_100b_e/Docs/R1-2002684.zip) | COT sharing information in CG-UCI | Lenovo, Motorola Mobility |