3GPP TSG-RAN WG1 Meeting #103-e R1-20xxxxx

e-Meeting, October 26th – November 13th, 2020

Agenda Item: 6.2.1

Source: Moderator (Ericsson)

Title: FL summary for Multi-TB issues for Rel-16 LTE-MTC

Document for: Discussion, Decision

# 1 Introduction

This document provides a summary of the following RAN1 email discussion.

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| [103-e-LTE-eMTC5-02] Multi-TB issues – Johan (Ericsson)   * Issue #1: Feedback for early termination ([R1-2007713](https://protect2.fireeye.com/v1/url?k=fbbf041c-a66d1315-fbbe8f53-0cc47a31cdf8-08bc37774253a8a3&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2007713.zip), [R1-2008340](https://protect2.fireeye.com/v1/url?k=02a0ce1c-5f72d915-02a14553-0cc47a31cdf8-83884e3e55dfbb5f&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008340.zip), [R1-2008522](https://protect2.fireeye.com/v1/url?k=eb9e1a78-b64c0d71-eb9f9137-0cc47a31cdf8-9909d12c299f1100&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008522.zip), [R1-2008692](https://protect2.fireeye.com/v1/url?k=9658bcd0-cb8aabd9-9659379f-0cc47a31cdf8-68b7e8d31759f7e2&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008692.zip)) * Issue #2: TPC command issue ([R1-2007713](https://protect2.fireeye.com/v1/url?k=0d193228-50cb2521-0d18b967-0cc47a31cdf8-78e740afab1c8600&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2007713.zip)) * Issue #3: Multicast procedure text indentation issue ([R1-2008692](https://protect2.fireeye.com/v1/url?k=fa511a25-a7830d2c-fa50916a-0cc47a31cdf8-4f261cb551e2cba6&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008692.zip)) * Discussion and decision by 10/29, TPs by 11/5 |

# 2 Feedback for early termination

Contributions [1][2][3][4] discuss the aspects listed in the following conclusion made in RAN1#102-e:

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| RAN1 concludes that the current specification for early termination needs correcting. Continue discussion in RAN1#103-e based on the following points:   * Whether explicit feedback should apply to all TBs or a subset of the TBs. * Whether implicit feedback is supported for multi-TB and, if so, whether it applies to all TBs or a subset of the TBs. |

The contributions can be briefly summarized as follows. For detailed discussion and proposals, please refer to the contributions.

* Contribution [1] proposes that explicit feedback applies to individual TBs and that further discussion is needed regarding implicit feedback.
* Contribution [2] proposes that explicit feedback applies to a subset of the TBs and that implicit feedback applies to all TBs.
* Contribution [3] proposes that explicit feedback applies to all TBs and that implicit feedback is supported and to discuss further whether the implicit feedback applies to all TBs or a subset of the TBs.
* Contribution [4] proposes that explicit feedback applies to all TBs and that implicit feedback is not supported.

**Question: Companies are invited to comment below on the explicit and implicit feedback for early termination of uplink multi-TB transmission.**

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| **Company** | **Comments** |
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# 3 TPC command issue

Contribution [1] notes that the following RAN1#95 agreement may not be captured in the specification.

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| For the UL unicast, when multiple TBs are scheduled by one DCI, the following parameter values are the same across all the TBs:   * Frequency-hopping flag, TPC command * FFS: MCS, RV, Resource assignment, Repetition number, Downlink assignment index (TDD-specific) |

**Question: Can the 36.213 TP on the TPC command issue below be adopted?**

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| **Company** | **Comments** |
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**TP for 36.213:**

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| 5.1.1.1 UE behaviour ------------------------------------------------- Text omitted -----------------------------------------  For a BL/CE UE configured with CEModeA, if the PUSCH transmission(s), scheduled by one DCI, is transmitted in more than one subframe *i0*, *i1*, …, *iN-1* where *i0*< *i1*< …< *iN-1*, the PUSCH transmit power in subframe *ik* , *k*=0, 1, …, *N*-1, is determined by    For a BL/CE UE configured with CEModeB, the PUSCH transmit power in subframe *ik* is determined by    ------------------------------------------------- Text omitted ----------------------------------------- |

# 4 Multicast procedure text indentation issue

Contribution [4] notes that there seems to be an indentation error in the multicast procedure text in 36.213.

**Question: Can the 36.213 TP on the multicast procedure text indentation issue below be adopted?**

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| **Company** | **Comments** |
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**TP for 36.213:**

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| 7.1.11 PDSCH subframe assignment for BL/CE UE A BL/CE UE shall upon detection of a MPDCCH with DCI format 6-1A/6-1B/6-2 intended for the UE, decode the corresponding PDSCH in subframe(s) *n+ki* with *i = 0, 1, …, NTBN-1* according to the MPDCCH, where  - subframe *n* is the last subframe in which the MPDCCH is transmitted and is determined from the starting subframe of MPDCCH transmission and the DCI subframe repetition number field in the corresponding DCI;  - the value of is the number of scheduled TB determined in the corresponding DCI if present, otherwise;  - subframe(s) *ni* = *n+ki* with *i=0,1,…, NTBN-1* are *NTBN* consecutive BL/CE DL subframe(s) where,  , the value of  is determined by the repetition number field in the corresponding DCI, where  are given in Table 7.1.11-1, Table 7.1.11-2 and Table 7.1.11-3, respectively and subframe *n+x* is the second BL/CE DL subframe after subframe *n*.  - for ,  - if the UE is configured with higher layer parameter *interleaving* in *ce-PDSCH-MultiTB-Config*, and PDSCH corresponding to a MPDCCH with DCI CRC scrambled by C-RNTI and where  for BL/CE UE configured with CEModeA,  for BL/CE UE configured with CEModeB,  - BL/CE DL subframes  with  are associated with TB*r+*1 ,  - otherwise,  - BL/CE DL subframes  with  are associated with TB*r+*1 ,,  - for  and PDSCH corresponding to an MPDCCH with DCI CRC scrambled by G-RNTI,  - if higher layer parameter *multiTB-Gap* is configured*,* a scheduling gap with a length equal to the indicated value of *multiTB-Gap* is inserted between TB*r* and TB*r+*1, *r=*0,1,2.*..,NTB*-2.  For BL/CE UEs, and for a PDSCH transmission starting in subframe *n+k0* without a corresponding MPDCCH, the UE shall decode the PDSCH transmission in subframe(s) *n+ki* with *i = 0, 1, …, N-1,* where  - subframe(s) *n+ki* with *i=0,1,…,N-1* are *N* consecutive BL/CE DL subframe(s), where *0≤k0<k1<…,kN-1* and the value of  is determined by the repetition number field in the activation DCI, where  are given in Table 7.1.11-1, Table 7.1.11-2 and Table 7.1.11-3, respectively.  ------------------------------------------------- Text omitted ----------------------------------------- |

# References

1. [R1-2007713](https://protect2.fireeye.com/v1/url?k=fbbf041c-a66d1315-fbbe8f53-0cc47a31cdf8-08bc37774253a8a3&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2007713.zip), “Remaining issues on scheduling enhancement for MTC”, ZTE

1. [R1-2008340](https://protect2.fireeye.com/v1/url?k=02a0ce1c-5f72d915-02a14553-0cc47a31cdf8-83884e3e55dfbb5f&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008340.zip), “Corrections on multi-TB scheduling for eMTC”, Huawei, HiSilicon

1. [R1-2008522](https://protect2.fireeye.com/v1/url?k=eb9e1a78-b64c0d71-eb9f9137-0cc47a31cdf8-9909d12c299f1100&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008522.zip), “Maintenance on multi-TB scheduling”, Qualcomm Incorporated

1. [R1-2008692](https://protect2.fireeye.com/v1/url?k=abdb829b-f6099592-abda09d4-0cc47a31cdf8-d90f6da453b3c190&q=1&e=31cac414-d755-4f05-8fc7-d03d4bb99eda&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2Ftsg_ran%2FWG1_RL1%2FTSGR1_103-e%2FDocs%2FR1-2008692.zip), “Multi-TB and resource reservation maintenance issues for Rel-16 LTE-MTC”, Ericsson