**3GPP TSG RAN WG1 Meeting #100bisR1-20xxxxx**

**e-Meeting, 20th – 30th April 2020**

Agenda Item: 6.2.1.3

Source: Moderator (Ericsson)

Title: TP for 36.211 on UL DMRS handling for LTE-MTC resource reservation

Document for: Discussion, Decision

# Introduction

RAN1#100bis-e discussed UL DMRS handling for Rel-16 LTE-MTC resource reservation in the email discussion “[100b-e-LTE-eMTC5-Coex-NR-01]”. For more background information, see “Issue #4” in the email discussion summary in [R1-2002797](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_100b_e/Docs/R1-2002797.zip) [not uploaded yet]. This contribution presents a 36.211 TP based on the outcome of the discussion.

|  |  |
| --- | --- |
| ***Reason for change:*** | For a BL/CE UL subframe that is fully reserved, the UL DMRS transmission should be postponed together with the PUSCH/PUCCH transmission, which is not clear from the current specification. |
|  |  |
| ***Summary of change:*** | It is clarified that the UL DMRS transmission is postponed in fully reserved BL/CE UL subframes. |
|  |  |
| ***Consequences if not approved:*** | Resource reservation may be incorrectly implemented for UL DMRS, which may cause performance degradation for PUSCH/PUCCH. |
|  |  |
| ***Clauses affected:*** | 5.5.2.1.2, 5.5.2.1A.4, 5.5.2.2.2 |

# Text proposal for 36.211

5.5.2.1.2 Mapping to physical resources

**<Unchanged parts are omitted>**

For BL/CE UEs, if higher layer parameter *ce-reserved-resource-UL-time* is configured, and the Resource reservation field in the DCI is set to 1, then in case of PUSCH transmission with  associated with C-RNTI or SPS C-RNTI using UE-specific MPDCCH search space,

- In a subframe that is fully reserved as defined in clause 8.0 in [4], the demodulation reference signal transmission is postponed until the next BL/CE uplink subframe that is not fully reserved.

- In a subframe that is partially reserved, the demodulation reference signal transmission in a SC-FDMA symbol that is reserved is dropped.

**<Unchanged parts are omitted>**

5.5.2.1A.4 Mapping to physical resources

**<Unchanged parts are omitted>**

For BL/CE UEs, if higher layer parameter *ce-reserved-resource-UL-time* is configured, and the Resource reservation field in the DCI is set to 1, then in case of PUSCH transmission with  associated with C-RNTI or SPS C-RNTI using UE-specific MPDCCH search space,

- In a subframe that is fully reserved as defined in clause 8.0 in [4], the demodulation reference signal transmission is postponed until the next BL/CE uplink subframe that is not fully reserved.

- In a subframe that is partially reserved, the demodulation reference signal transmission in a SC-FDMA symbol that is reserved is dropped.

**<Unchanged parts are omitted>**

5.5.2.2.2 Mapping to physical resources

**<Unchanged parts are omitted>**

For BL/CE UEs, if higher layer parameter *ce-reserved-resource-UL-time* is configured, then in case of PUCCH transmission with  associated with C-RNTI or SPS C-RNTI using UE-specific MPDCCH search space,

- In a subframe that is fully reserved as defined in clause 8.0 in [4], the demodulation reference signal transmission is postponed until the next BL/CE uplink subframe that is not fully reserved.

- In a subframe that is partially reserved, the demodulation reference signal transmission in a SC-FDMA symbol that is reserved is dropped.

**<Unchanged parts are omitted>**