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

**E-Meeting, April 20 – 30, 2020**

**Agenda Item: 6.2.2.4**

**Source: Huawei**

**Title: TP on clarification of NPUSCH and DMRS with resource reservation**

**Document for: Discussion and Decision**

# Introduction

This document provides the text proposal as the outcome of following email discussion [1].

[100b-e-LTE-NB\_IoTenh3-Coex-NR-02] Transmission of DMRS in resource reservation and corresponding TP (if any) by 4/30 – Yubo (Huawei)

* Issues #2 in R1-2002700

# Discussion

**Reason for changes:**

Following the spec, the DMRS will be dropped in a fully reserved slot even the subframe is fully reserved, where the DMRS should be postponed.

For subcarrier spacing of 3.75kHz, if the slot is overlapping with any fully reserved subframe, NPUSCH and DMRS should be postponed to next slot which is not overlapping with any fully reserved subframe.

“NPUSCH transmission format 1” is not a correct term.

**Summary of changes:**

For subcarrier spacing of 3.75kHz, the DMRS and NPUSCH are postponed if the slot is overlapping with any fully reserved subframe.

For subcarrier spacing of 15kHz, the DMRS and NPUSCH are postponed for a fully reserved subframe.

“NPUSCH transmission format 1” is changed to “NPUSCH format 1 transmission”.

**Specs/sections impacted:**

Sections of 36.211: 10.1.3.6, 10.1.4.2

**Consequences if not approved:**

The DMRS will be dropped in a fully reserved slot even the subframe is fully reserved.

For subcarrier spacing of 3.75kHz, the parts of the DMRS and NPUSCH in a slot overlapping with different subframes may be processed in different ways (puncturing or postponing).

==========================Stat of text proposal to TS 36.211=========================

10.1.3.6 Mapping to physical resources

**<Unchanged parts are omitted>**

If higher layer parameter *valid-subframe-config-UL* or *slot-reserved-resource-config-UL* is configured, then in case of NPUSCH format 1 transmission associated with C-RNTI or SPS C-RNTI using UE-specific NPDCCH search space with the Resource reservation field in the DCI set to 1, or in case of NPUSCH format 2 transmission associated with C-RNTI using UE-specific NPDCCH search space,

* In a subframe for  or a slot for that is overlapping with any fully reserved uplink subframe,

- for , the NPUSCH transmission is postponed until the next NB-IoT uplink subframe that is not fully reserved.

- for , the NPUSCH transmission in the slot is postponed until the next slot spanning over two contiguous uplink subframes not overlapping with any uplink subframe that is fully reserved.

* In a subframe for  or a slot for that is not overlapping with any fully reserved uplink subframe, the SC-FDMA symbols overlapping with reserved symbols shall be counted in the NPUSCH mapping but not used for transmission of the NPUSCH.

**<Unchanged parts are omitted>**

10.1.4.2 Mapping to physical resources

**<Unchanged parts are omitted>**

If higher layer parameter *valid-subframe-config-UL* or *slot-reserved-resource-config-UL* is configured, then in case of NPUSCH format 1 transmission associated with C-RNTI or SPS C-RNTI using UE-specific NPDCCH search space and the Resource reservation field in the DCI is set to 1, or in case of NPUSCH format 2 transmission associated with C-RNTI using UE-specific NPDCCH search space,

- In a subframe for or a slot for that is overlapping with any fully reserved uplink subframe,

- for , the demodulation reference signal transmission is postponed until the next NB-IoT uplink subframe that is not fully reserved.

- for , the demodulation reference signal transmission in the slot is postponed until the next slot spanning over two contiguous uplink subframes not overlapping with any uplink subframe that is fully reserved.

- In a subframe for or a slot for  that is not overlapping with any fully reserved uplink subframe, the demodulation reference signal transmission in SC-FDMA symbol(s) overlapping with reserved symbol(s) is dropped.

**<Unchanged parts are omitted>**

==========================End of text proposal to TS 36.211=========================

# References

1. R1-200xxxx Feature lead summary #1 on 100b-e-LTE-NB\_IoTenh3-Coex-NR-02 Moderator(Huawei)