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

**E-Meeting, April 20 – 30, 2020**

**Agenda Item: 6.2.2.4**

**Source: Moderator (Huawei)**

**Title: TP on SIB1-NB transmission with resource reservation**

**Document for: Discussion and Decision**

# Introduction

This document provides the text proposal as outcomes of the following email discussion [1]:

[100b-e-LTE-NB\_IoTenh3-Coex-NR-01] Resource reservation for TDD NB-IoT by 4/24 and corresponding TP (if any) by 4/30 – Yubo (Huawei)

* Issues #1, #4 in R1-2002700

# Discussion

**Reason for changes:**

As the legacy, the subframes containing SIB1-NB transmission should not be considered as NB-IoT downlink subframes.

**Summary of changes:**

To determine whether a subframe is a NB-IoT downlink subframe, UE shall first determine the subframes containing NPSS/NSSS/NPBCH/SIB1-NB transmission are not assumed as NB-IoT DL subframes.

**Specs/sections impacted:**

36.213 sections 16.4

**Consequences if not approved:**

The subframes containing SIB1-NB may be considered as NB-IoT DL subframes incorrectly.

**-------------------------------------------------Start of Text Proposal to TS 36.211--------------------------------**

**<unchanged parts are omitted>**

16.4 Narrowband physical downlink shared channel related procedures

A NB-IoT UE shall determine whether a downlink subframe or a TDD special subframe configured for NB-IoT DL transmission is a NB-IoT DL subframe as follows

- If the UE determines that the subframe contains NPSS/NSSS/NPBCH/ *SystemInformationBlockType1-NB* transmission, then the subframe is not assumed as a NB-IoT subframe

- Else if higher layer parameter *valid-subframe-config-DL* or *slot-reserved-resource-config-DL* is configured

- for NPDSCH transmission associated with C-RNTI using UE-specific NPDCCH search space

- if the Resource reservation field in the DCI is set to 0, then the subframe is assumed as a NB-IoT DL subframe

- else if the Resource reservation field in the DCI is set to 1, then the subframe is assumed as a NB-IoT DL subframe if it is not fully reserved according to the higher layer parameters.

- for NPDCCH transmission associated with C-RNTI or SPS C-RNTI using UE-specific NPDCCH search space

- the subframe is assumed as a NB-IoT DL subframe if it is not fully reserved according to the higher layer parameters.

- In all other cases, a NB-IoT UE shall assume a subframe as a NB-IoT DL subframe if

- the UE determines that the subframe does not contain NPSS/NSSS/NPBCH/ *SystemInformationBlockType1-NB* transmission, and

- for a NB-IoT carrier that a UE receives higher layer parameter *operationModeInfo,* the subframe is configured as NB-IoT DL subframe or the subframe is a TDD special subframe configured for NB-IoT DL transmission after the UE has obtained *SystemInformationBlockType1-NB*.

- the subframe is configured as NB-IoT DL subframe by the higher layer parameter *downlinkBitmapNonAnchor*.

- except when the UE is configured with higher layer parameter *additionalTxSIB1-Config* set to *TRUE*, subframe #3 not containing additional *SystemInformationBlockType1-NB* transmission is assumed as a NB-IoT DL subframe if the UE monitors a NPDCCH UE-specific search space or decodes NPDSCH transmission scheduled by NPDCCH in the UE-specific search space.

For a NB-IoT UE that supports *twoHARQ-Processes-r14* or the UE is configured with higher layer parameter *multi-TB-Unicast-config*, there shall be a maximum of 2 downlink HARQ processes.

**<unchanged parts are omitted>**

## 16.5 Narrowband physical uplink shared channel related procedures

For a NB-IoT UE that supports *twoHARQ-Processes-r14* or the UE is configured with higher layer parameter *multi-TB-Unicast-config*, there shall be a maximum of 2 uplink HARQ processes.

For a NB-IoT UE and NPUSCH transmission using preconfigured uplink resource, there shall be 1 uplink HARQ process.

A NB-IoT UE shall determine whether a subframe is a NB-IoT UL subframe as follows

- If higher layer parameter *valid-subframe-config-UL* or *slot-reserved-resource-config-UL* is configured

- for NPUSCH format 1 transmission associated with C-RNTI or SPS C-RNTI using UE-specific NPDCCH search space

- if the Resource reservation field in the DCI is set to 0, then the subframe is assumed as a NB-IoT UL subframe

- else if the Resource reservation field in the DCI is set to 1, then the subframe is assumed as a NB-IoT UL subframe if it is not fully reserved according to the higher layer parameters.

- for NPUSCH format 2 transmission

- the subframe is assumed as a NB-IoT UL subframe if it is not fully reserved according to the higher layer parameters.

- In all other cases,

- for TDD, a NB-IoT UE shall assume a subframe as a NB-IoT UL subframe if, for a NB-IoT carrier, it is configured as NB-IoT UL subframe by higher layers

- for FDD, a NB-IoT UE shall always assume a subframe as a NB-IoT UL subframe.

**<unchanged parts are omitted>**

**--------------------------------------------------End of Text Proposal to TS 36.211---------------------------------**

# References

1. R1-200x Feature lead summary #1 on 100b-e-LTE-NB\_IoTenh3-Coex-NR-01 Moderator(Huawei)