3GPP TSG-RAN WG1 Meeting #101-e R1-200xxxx

e-Meeting, May 25th – June 5th, 2020

**Agenda Item:** **7.2.3.3**

**Source: Moderator (AT&T)**

**Title: Summary of [101-e-NR-IAB-01]: Response to RAN2 LS on IAB Guard Symbols**

**Document for:** **Discussion/Approval**

# Introduction

This contribution provides summary of email discussion [101-e-NR-IAB-01]: Response to RAN2 LS on IAB Guard Symbols.

# Response to RAN2 LS on IAB Guard Symbols

**Source**: R1-2003252, R1-2003542, R1-2004126, R1-2004133, R1-2004280, R1-2004449, R1-2004582, R1-2004618

**Background:** During RAN2#109bis-e a LS was sent to RAN1 regarding the following RAN1 and RAN2 agreements:

 RAN1#99 agreement:

 Agreements:

*Desired Guard* Symbols and *Provided Guard Symbols* are provided per cell and use 3 bits for each of the 8 transitions to indicate the number of guard symbols.

* In Rel-16, a range of 0-4 symbols are supported for each transition. Additional entries are reserved for future use
* A new parameter *GuardSymbol-SCS* is also provided which indicates the reference SCS (FR1: {15kHz, 30kHz, 60kHz}, FR2: {60kHz, 120kHz}) to be used for the guard symbols.

 RAN2#109-e agreement:

* RAN2 will design one single fixed-length Guard Symbols MAC CE, containing values (or indices mapped thereto) of all 8 parameters introduced by RAN1.

with the following action for RAN1:

RAN2 would very much appreciate it if RAN1 could inform RAN2 at their earliest convenience whether there is a requirement that Number of Guard Symbols should be applied to a specific cell, or if the Number of Guard Symbols applies across all the cells in the cell group.

**FL Observation:** During the preparation phase the following was proposal was made regarding the response to RAN2 about whether there is a requirement that Number of Guard Symbols should be applied to a specific cell, or if the Number of Guard Symbols applies across all the cells in the cell group:

**FL Proposal 2.1.2:**

**RAN1 should confirm one of the following alternatives and inform RAN2:**

**Alt. 1) The Number of Guard Symbols can be indicated for a specific MT cell and is applied across all transitions with paired DU cells within and IAB-node**

**Alt. 2) The Number of Guard Symbols can be indicated and applied for a specific (MT cell, DU cell) pair within an IAB-node**

**Additionally inform RAN2 of the following:**

**From a RAN1 perspective, the Guard Symbols MAC CE should support that [Alt 1. or Alt. 2.]. RAN1 also acknowledges that while in certain scenarios the Number of Guard Symbols could be the same for all the MT cells in the cell group, this condition is not a requirement.**

While Alt. 2 may be more aligned with the original RAN1 intention for the Guard Symbols, during the preparation phase Huawei raised the following concern: “even if the number of Guard Symbols is indicated for each (MT cell, DU cell) pair, the parent node can only apply the Guard symbols for one given MT cell at one time. The parent node does not know which DU cell the IAB node will switch from or to, it has to always assume the worst case among the (MT cell, DU cell) pairs.”

Given this ipotential issue with Alt. 2 and also the RAN2 agreement to indicate only a single set of the eight possible transition values, it appears that Alt. 1 is the most feasible option.

**Discussion:**

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| **Company**  | **Given the potential issues raised with Alt. 2, can Alt. 1 in Proposal 2.1.2 be agreed?** | **Comments**  |
| Qualcomm | Yes | In response to the concern raised with alt 2, it should be noted that the parent node is aware of the child DU configurations, hence it could in principle determine if there is a MT🡨🡪DU transition involving one cell (e.g. one DU cell is marked NA while the other is marked H at the transition) or both cells at the same time (e.g. both DU cells are configured as H at the transition).However, it is acknowledged this is probably a second order optimization, not required at the current stage of the WI, and hence, also considering the RAN2 implications of Alt 2, in this context Alt 1 is perfectly acceptable. |

# Summary

TBD