**3GPP RAN WG2 Meeting #126 R2-2405754**

**Fukuoka, Japan, May 20th – 25th, 2024**

**Agenda Item: 7.7.1**

**Source: InterDigital**

**Title: [DRAFT] Report of [AT126][304][NR NTN Enh] MAC CR**

**Document for: Discussion, Decision**

1. Introduction

This document is a report of the following email discussion:

* [AT126][304][NR NTN Enh] MAC CR (InterDigital)

 Scope: Discuss how to clarify / restructure the change in R2-2405374

 Intended outcome: agreeable MAC CR

 Deadline for rapporteur's CR (in R2-2405754): Friday 2024-05-24 08:00

# MAC CR Restructuring

Agreements from RAN2#125bis are currently captured in R2-2405374 as follows:

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| 1> if an indication of uplink synchronization loss is received from upper layers (see clause 5.2.2.6 TS 38.331 [5]):2> flush all HARQ buffers;2> not perform any uplink transmission on the Serving Cell.1> if an indication of uplink synchronization loss due to satellite switch with re-synchronization is received from upper layers (see clause 5.7.19 of TS 38.331 [5]):2> not perform any uplink transmission on the Serving Cell. |

In online session, concerns were raised that “uplink synchronization loss” is a general term and may include uplink synchronization loss due to satellite switch with re-synchronization as a subcase, causing the UE to incorrectly flush the HARQ buffers based on the first clause.

A revised text proposal is provided below to more explicitly highlight the different cases and behaviour:

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| 1> if an indication of uplink synchronization loss or uplink synchronization loss due to satellite switch with re-synchronization is received from upper layers (see clause 5.2.2.6 and 5.7.19 of TS 38.331 [5]):2> if uplink synchronization loss is due to satellite switch with re-synchronization (see clause 5.7.19 of TS 38.331 [5]):3> not perform any uplink transmission on the Serving Cell.2> else:3> flush all HARQ buffers;3> not perform any uplink transmission on the Serving Cell. |

**1) Companies are invited to comment below only if there are strong concerns with the revised text proposal. If a company does not comment it is assumed agreeable.**

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| **Company** | **Additional comments**  |
| TCL | We prefer to modify the text as given below :1> if an indication of uplink synchronization loss ~~or uplink synchronization loss due to satellite switch with re-synchronization~~ is received from upper layers (see clause 5.2.2.6 and 5.7.19 of TS 38.331 [5]):2> if uplink synchronization loss is due to satellite switch with re-synchronization (see clause 5.7.19 of TS 38.331 [5]): |
| Huawei, HiSilicon | To be more concise, we suggest:The MAC entity shall for each Serving Cell:…1> if an indication of uplink synchronization loss is received from upper layers (see clause 5.2.2.6 and 5.7.19 of TS 38.331 [5]):2> not perform any uplink transmission on the Serving Cell;2> if uplink synchronization loss is not due to satellite switch with re-synchronization (see clause 5.7.19 of TS 38.331 [5]):3> flush all HARQ buffers. |
| Samsung | Prefer HW’s suggestion |
| ZTE | Huawei’s revision is cleaner |
| Fujitsu | Prefer HW’s revision |
| OPPO | Prefer HW’s suggestion |
| Ericsson | We prefer the rapporteurs suggested changes with one small improvement (and using non-breaking spaces “ ” for the reference to TS 38.331): 1> if an indication of uplink synchronization loss is received from upper layers (see clause 5.2.2.6 and 5.7.19 of TS 38.331 [5]):2> if uplink synchronization loss is due to satellite switch with re-synchronization (see clause 5.7.19 of TS 38.331 [5]):3> not perform any uplink transmission on the Serving Cell.2> else:3> flush all HARQ buffers;3> not perform any uplink transmission on the Serving Cell.This uses two more line compared to Huawei proposed changes. The reason this is better than the Huwei proposed changes is that 1) we do not use a negation in the condition wich decrease possibility of reader missunderstandings and 2) it is easier to maintain in the future, if there are more reasons for ul sync loss added. Alternatively, we can modify the Huawei proposal to use the positive case, maybe like:1> if an indication of uplink synchronization loss is received from upper layers (see clause 5.2.2.6 and 5.7.19 of TS 38.331 [5]):2> not perform any uplink transmission on the Serving Cell;2> if uplink synchronization loss is due to clause 5.7.19 of TS 38.331 [5]:3> flush all HARQ buffers. |
| Qualcomm | We are ok with Rappoteur’s suggested text, we see no issue with that. |
| Apple | Prefer Ericsson’s suggestion based on HW’s version. 1> if an indication of uplink synchronization loss is received from upper layers (see clause 5.2.2.6 and 5.7.19 of TS 38.331 [5]):2> not perform any uplink transmission on the Serving Cell;2> if uplink synchronization loss is due to clause 5.7.19 of TS 38.331 [5]:3> flush all HARQ buffers. |
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Furthermore, it was noted offline that the latest version of the RRC CR has updated the parameter names for NTN coverage enhancements as follows:



A text proposal is provided below to update the parameters names in MAC as well:

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| **Table 6.2.1-2c: Values of LCID for UL-SCH when the LX field is set to 1**

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| **Codepoint** | **Index** | **LCID values** |
| 0 | (216 + 320) | CCCH of size 48 bits for an eRedCap UE  |
| 1 | (216 + 321) | CCCH of size 64 bits for an eRedCap UE |
| 2 | (216 + 322) | CCCH of size 48 bits for PUCCH repetition of Msg4 HARQ-ACK, except for an (e)RedCap UE |
| 3 | (216 + 323) | CCCH of size 64 bits for PUCCH repetition of Msg4 HARQ-ACK, except for an (e)RedCap UE |
| 4 | (216 + 324) | CCCH of size 48 bits for PUCCH repetition of Msg4 HARQ-ACK of a RedCap UE |
| 5 | (216 + 325) | CCCH of size 64 bits for PUCCH repetition of Msg4 HARQ-ACK of a RedCap UE |
| 6 | (216 + 326) | CCCH of size 48 bits for PUCCH repetition of Msg4 HARQ-ACK of an eRedCap UE |
| 7 | (216 + 327) | CCCH of size 64 bits for PUCCH repetition of Msg4 HARQ-ACK of an eRedCap UE |
| 8 to 63 | (216 + 328) to (216 + 383) | Reserved |
| NOTE 1: The MAC entity may use the code point corresponding to a given feature or feature combination in Table 6.2.1-2c only if network indicates support for the corresponding feature or feature combination.NOTE 2: CCCH of size 48 bits and CCCH of size 64 bits are referred to as CCCH and CCCH1, respectively, in TS 38.331 [5].NOTE 3: For UE capable of PUCCH repetition of Msg4 HARQ-ACK, the MAC entity uses the code points corresponding to PUCCH repetition of Msg4 HARQ-ACK if *numberOfMsg4HARQ-ACK-Repetitions* is configured, and if *rsrp-ThresholdMsg4HARQ-ACK* is configured, the RSRP of the downlink pathloss reference is less than *rsrp-ThresholdMsg4HARQ-ACK.* |

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**2) Do you agree with the above text proposal?**

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| **Company** | **Agree/Disagree** | **Additional comments**  |
| Xiaomi | Yes |  |
| TCL  | Agree  |  |
| vivo | Agree | Alignment with RRC spec is needed.  |
| Huawei, HiSilicon | Yes |  |
| Samsung | Agree |  |
| ZTE | Agree |  |
| Fujitsu | Agree |  |
| OPPO | Agree |  |
| Ericsson | Agree |  |
| Apple | Agree |  |
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