**3GPP TSG-RAN WG2 Meeting #127bis R2-2409231**

**Hefei, China, Oct 14th – 18th, 2024**

**Agenda item:** 8.9.3

**Source:** NEC

**Title:** Draft Report of [AT127bis][301][R19 IoT NTN] Working point for CB-msg3 (NEC)

**Document for:**  Discussion and decision

# Introduction

This is to discuss the following offline discussion:

* [AT127bis][301][R19 IoT NTN] Working point for CB-msg3 (NEC)

 Scope: Discuss the working point for the CB-msg3 EDT-like mechanism (i.e. which packet loss rate we need to target), e.g. based on the considerations in R2-2409170, R2-2408863 and R2-2408547

 Intended outcome: Report of the offline discussion

 F2F offline time and location: Wednesday 2024-10-16 10:30-11:00 (morning coffee break) in Brk1 room

 Deadline for rapporteur's summary (in R2-2409231): Wednesday 2024-10-16 14:00

# Discussion

R2-2409170 noted that an equivalent transport block error rate (BLER) of 0.1% is the standard target for satellite communications. For the CB-Msg3 discussion, BLER and Packet Loss Rate (PLR) are equivalent. The proposed working point is a PLR of less than 1% and 0.1% will be ideal.

For the NTN uplink coverage study, only Rel-18 covers the NR NTN evaluation and the coverage improvement target is the LEO-600 scenario, and there is no RAN1 evaluation yet on the link-level performance of the NPUSCH Msg3-EDT.

**Q1: Do you agree that achieving a 0.1% BLER is possible for both LEO and GEO scenarios and do we need further verification of the link level performance of Msg3-EDT with RAN1?**

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| Company | comments |
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R2-2409170 doesn't mention the relation between the chosen working point and the retransmission/HARQ.

R2-2408863 proposes a working point of 1% PLR with up to 2 retransmissions.

R2-2408547 proposes that the working point for SA should be lower than 50% and the working point should follow the formula below,

$PLR\leq β^{1/N}$,

where $β$ is MAC layer performance target and *N* is transmission times.

Of the companies that have provided performance comparisons between SA, DSA, and CRDSA on the CB-msg3, not all have taken retransmission into account.

**Q2: Do you agree that retransmission should be taken into account when selecting the CB-Msg3 working point? If yes, do you agree to use** $PLR\leq β^{1/N}$ **to determine the working point? And how many retransmissions will be feasible?**

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# Summary

Based on the input from companies, we have the following proposals:

TBD

# Reference

[1] [R2-2409170](file:///C%3A%5CData%5C3GPP%5CRAN2%5CDocs%5CR2-2409170.zip) Operator views on EDT enhancements and CRDSA Inmarsat, Viasat

[2] [R2-2408863](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2408863.docx) Discussion on throughput and delay performance of slotted ALOHA and diversity slotted ALOHA DLR, ESA

[3] [R2-2408547](file:///C%3A%5CData%5C3GPP%5CExtracts%5CR2-2408547.docx) Repetitions and Delay Considerations about SA and DSA ESA, Eutelsat Group, Viasat, Inmarsat, Novamint, Echostar, Sateliot, Toyota ITC