**3GPP TSG-RAN WG4 Meeting # 109 R4-232xxxx**

**Chicago, US, November 13 – 17, 2023**

**Agenda item:** 9.6.7

**Source:** Moderator (MediaTek inc.)

**Title:** WF on R18 IoT NTN RRM requirements

**Document for:** Approval

# Introduction

This document is to capture all agreements in email thread [109][235] IoT\_NTN\_enh.

# Topic #1: RRM core requirements

Sub-Topic 1-1: IDLE mode measurements

Issue 1-1-1: Skipping serving cell measurement before *t-service*

No agreement

Sub-Topic 1-2: CONN mode neighbour cell measurements

Issue 1-2-1: For NB-IoT NGSO, intra-frequency inter-satellite neighbour cell measurement

Agreement:

* Define requirements for NGSO intra-frequency inter-satellite neighbour cell measurement as “inter-frequency” case
* Add condition that requirements apply provided that cell is available as indicated by t-ServiceStartNeigh if indicated.

Issue 1-2-2: For NB/eMTC, time-based triggering, the exact time for UE to start the measurement

no consensus to capture the exact time for UE to start measurement in RAN4 spec

Issue 1-2-3: For eMTC, time-based triggering and MG perspectives

Agreement:

For eMTC neighbour cell measurement, MG shall be configured as legacy TN case.

RAN4 tentatively agree that the MG is suspended till the time t-serviceStartNeigh

* Companies to check with RAN2 colleague with this RAN4 tentiave agreement in this week.
* Detailed wording to be updated, to be aligned the wording of Issue 1-2-5.

Issue 1-2-4: For eMTC, location-based triggering and MG perspectives

no consensus to introduce new conditions on when the neighbour cell measurements can be performed without gaps.

Issue 1-2-5: For eMTC, suspend MG upon *t-ServiceStarNeigh*

To resolve in CR

Issue 1-2-6: For NB/eMTC NGSO, Ksatellite in Re-establishment delay requirement

no consensus to revise Ksatellite in Re-establishment delay requirement

Sub-Topic 1-3: eMTC, CHO

Issue 1-3-1: For eMTC, CHO requirements

Agreement:

* Update Tinterrupt to include Tsearch, based on handover interruption requirementwith KSAT =1, and Nfreq=1

Sub-Topic 1-4: GNSS re-acquisition gap in connected mode

Issue 1-4-1: GNSS-MG spec impact

Agreement:

* Add generic description that the measurements are suspended when UE is performing GNSS measurement during GNSS measurement gap. Wording to be discussed directly in the CR.
* For NB-IoT, UE shall restart the cell measurement when the interval between two samples are larger than 5000 ms.
* For eMTC, the modification for the case that GNSS-MG is larger than the eDRX cycle can be further study in the maintenance phase.

Issue 1-4-2: For eMTC, GNSS-MG overlapping with MG

Agreement:

* When GNSS gap overlaps with MG, MG applies if GNSS-MG is terminated earlier than MG and after RA procedure.

Sub-Topic 1-5: Others

Issue 1-5-1: Requirement terminologies

To resolve in CR

Issue 1-5-2: Location-based triggering cell measurements – margin for distanceThresh

Postpone the margin discussion in performance part.

Issue 1-5-3: Clarification on more than two NGSO satellites on a frequency layer

No agreement

Topic #2: RRM performance requirements

Issue 2-2-1: For NB/eMTC, test cases suspended due to lack of neighbour cell assistant information

* Define test cases which are suspended due to lack of neighbour cell assistant information.
	+ Introduce inter-frequency test cases
	+ Introduce NGSO configuration for the existing intra-frequency test cases

Issue 2-2-2: For NB-IoT, neighbour cell measurement in CONNNECTED mode

* For NB-IoT, introduce test cases for neighbour cell measurement in CONNNECTED mode.

Issue 2-2-3: For NB/eMTC, test cases for time/location based triggering of cell reselection in IDLE mode

* RAN4 to define test cases for time/location based triggering of cell reselection in IDLE mode based on the following table:

|  |  |
| --- | --- |
| **Requirements**  | **NB/eMTC** |
| IDLE: Time-based measurement triggering | NB/eMTC |
| IDLE: Location-based measurement triggering | NB/eMTC |

* RAN4 to further discuss whether and how to reduce the number of test cases

Issue 2-2-4: For NB/eMTC, test cases for time/location based triggering of neighbour cell measurements in CONNECTED mode

RAN4 to discuss feasibility of defining tests for time- and location based triggering of neighbour cell measurements.

* Option 1: not to define the corresponding test cases.
* Option 2: RAN4 to define test cases for time- and location based triggering of neighbour cell measurements, based on the following table:

|  |  |
| --- | --- |
| **Requirements**  | **NB/eMTC** |
| CONN: Location-based measurement triggering [NB/eMTC] | NB/eMTC |
| CONN: Time-based measurement triggering | eMTC |

Issue 2-2-5: For eMTC, test cases for CHO

* RAN4 to define test cases for eMTC CHO based on the following table:

|  |  |
| --- | --- |
| **Requirements**  | **NB/eMTC** |
| CHO configured with condEventD1 | eMTC |
| CHO configured with condEventT1 | eMTC |

* RAN4 to further discuss whether and how to reduce the number of test cases