**3GPP TSG RAN WG2 #119-e *draft R2-2208758***

**Online, 17 - 29 Aug, 2022**

**Source:** Ericsson

**Title:** Report of [AT119-e][107][IoT-NTN] Idle mode corrections (Ericsson)

**Agenda Item:** 7.2.4

**Document for:** Discussion and decision

# Introduction

This document serves as a report of the following offline discussion:

* [AT119-e][107][IoT-NTN] Idle mode corrections (Ericsson)

Initial scope: Discuss idle mode corrections

Initial intended outcome: Summary of the offline discussion with e.g.:

* List of proposals for agreement (if any)
* List of proposals that require online discussions
* List of proposals that should not be pursued (if any)

Initial deadline (for companies' feedback): Monday 2022-08-22 1200 UTC

Initial deadline (for rapporteur's summary in R2-2208758): Monday 2022-08-22 2000 UTC

1. Contact Information

To make it easier to find the contact delegate for potential follow-up questions, delegates are encouraged to provide their contact information in the following table:

|  |  |  |
| --- | --- | --- |
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# Discussion

## Measurement rules for cell reselection

RAN2 introduced support of timing-based measurement initiation for cell re-selection for IoT NTN access. This was captured in the specification as follows:

--------- 36.304 ---------

#### 5.2.4.2 Measurement rules for cell re-selection

For NB-IoT measurement rules for cell re-selection is defined in clause 5.2.4.2.a.

When evaluating Srxlev and Squal of non-serving cells for reselection purposes, the UE shall use parameters provided by the serving cell.

Following rules are used by the UE to limit needed measurements:

[text omitted]

If *t-Service* is present in *SystemInformationBlockType3* of the serving cell, UE shall perform intra-frequency, inter-frequency or inter-RAT measurements, before the time *t-Service* regardless whether the serving cell fulfils Srxlev> SIntraSearchP and Squal > SIntraSearchQ, or Srxlev > SnonIntraSearchP and Squal > SnonIntraSearchQ and the exact time to start measurements before *t-Service* is up to UE implementation. UE shall perform measurements of higher priority inter-frequencies or inter-RAT frequencies regardless of the remaining service time of the serving cell.

--------- 36.304 ---------

Given that a UE must measure for a duration of TselectionRAT before performing cell reselection, [1] proposes to include a new requirement in cell reselection measurement initiation so that the UE measures for a duration of TselectionRAT before the expiration of *t-service*.

**Q1.1: Do you agree with the intention of the changes proposed in R2-2208138?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| MediaTek | No |  |
| Lenovo | No | In current spec the TreselectionRAT is associated to RSRP/RSRQ evaluation but is not associated to *t-Service*. So we think UE implementation is OK. |
| Samsung  | Yes | Since all the UE implementations need to perform measurements for TreselectionRAT before *t-Service*, we need to include the changes in specification. |
| Turkcell | Yes |  |
| OPPO | No | Up to UE implementation is sufficient. Note that the same change is also being discussed in NR-NTN. The solution for both NR-NTN and IoT NTN should be aligned since we do not see the difference. |
| Qualcomm | No | The current text added is for measurement trigger not for reselection. For reselection, existing rule should apply. So no change is expected. |
| Xiaomi | No | We think the Treselection duration is used when UE determines which cells will be reselected. But the location and time based are only for triggering UE to perform neibhour cell measurement.  |
| Huawei, HiSilicon | No | It can be left to UE implementation. |
| CATT | No | Have the same view with OPPO. |
| Nokia | No | When to trigger the measurements prior to T-service should be left to UE implementation.  |

**Q1.2 If you agree with the intention, do you have any other suggestion for the wording different to the formulation presented in R2-2208138?**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| MediaTek | Before the satellite stops providing coverage(t-Service), the R criteria will not be fulfilled. The requirement of Treselection measurement before t-Service is not necessary. It can be left to UE implementationSamsung reply: Please note that without the TreselectionRAT criteria, even when the R criteria is fulfilled, the UE cannot move to the new cell. That is, if there is no measurement performed considering TreselectionRAT, cell reselection will not happen in any case. |
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**Summary – Q1**

TBD

1. ???

## List of PLMNs not allowed to operate at the present UE location

In RAN2#118-e, the following was agreed for NR NTN:

* **Indicate the impact of the new list in 4.2 of 38.304 (Functional division between AS and NAS in RRC\_IDLE state and RRC\_INACTIVE state).**

This responds to an LS from CT1 [3] which notified the introduction of a new concept to support PLMN selection for satellite access. This is a list of “PLMNs not allowed to operate at the present UE location”, which contains information whether the PLMN is allowed to operate in certain areas

In [2], it has been proposed to adopt this agreement for IoT NTN. Given that the introduction of this new list does not require any change in AS, [2] proposed to update the table 4.2 in 36.304, that describes de functional division between AS and NAS for the Idle mode, adding the sentence “PLMNs not allowed to operate at the present UE location” in various places for the sake of clarity.

**Q2.1: Do you agree with the intention of introducing** **“PLMNs not allowed to operate at the present UE location” in table 4.2 (AS/NAS functional division) in TS 36.304?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| MediaTek | Yes |  |
| Lenovo | Yes | Align to TS38.304 |
| Samsung  | Yes |  |
| Turkcell | Yes |  |
| OPPO | Yes | Note that for NR-NTN the same change is agreed to include the TP for 38304 in the last meeting. For IoT NTN, this also applies.  |
| Qualcomm | Yes |  |
| Xiaomi | Yes |  |
| Huawei, HiSilicon | Yes |  |
| CATT | Yes |  |
| Nokia | Yes |  |

**Q2.2: If you agree with the intention, do you have any other suggestion for the wording different to the formulation presented in R2-2208669?**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| MediaTek | Fine to go with the proposed text |
| Lenovo | OK with the text. |
| Samsung  | OK |
| Turkcell | OK |
| OPPO | Accept the wording. |
| Huawei, HiSilicon | OK |
| CATT | Ok |
| Nokia | OK |

**Summary – Q2**

TBD

1. ???

# Conclusion

To be completed

# References

1. [R2-2208138](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208138.zip), [Correction on Measurement rules for cell re-selection for IoT NTN](file:///c%3A%5C3GPP_RAN1%5CRAN2_119e_e%5C7.2.4%5CR2-2208138%20Samsung%20Correction%20on%20Measurement%20rules%20for%20cell%20re-selection%20for%20IoT%20NTN.docx), Samsung R&D Institute UK, RAN2#119e, e, August 2022

1. [R2-2208669](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208669.zip), [R17 IoT NTN Idle mode issues](file:///c%3A%5C3GPP_RAN1%5CRAN2_119e_e%5C7.2.4%5CR2-2208669%20Ericsson%20R17%20IoT%20NTN%20Idle%20mode%20issues.docx), Ericsson, RAN2#119e, e, August 2022
2. R2-2204450, LS on introducing the list of PLMNs not allowed to operate at the present UE location, CT1, CT1#134-e, February 2022.