**3GPP TSG-RAN2 Meeting #116-e R2-21xxxxx**

**Online, November 1st – 12th, 2021**

**Agenda Item: 9.1.2**

**Source: Huawei**

**Title: Summary of [301] RLF measurements (Huawei)**

**Document for: Discussion and decision**

# Introduction

This document is the report of the offline discussion “[Post115-e][301][NBIOT/eMTC R17] RLF measurements (Huawei)” as below:

* [Post115-e][301][NBIOT/eMTC R17] RLF measurements (Huawei)

 Scope: Progress the FFSs

 Intended outcome: Report to next meeting

 Deadline for comments: October 14th, 0900 UTC

 Deadline for summary: October 21st, 0900 UTC

The agreements of RAN2#115-e [1] are summarised below and the remaining FFSs highlighted.

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| --- |
| RAN2#115-e agreements: * The configuration of the criteria for starting the measurements include a serving cell NRSRP threshold. FSS how to address variance (as agreed last meeting)
* It is useful to have a shorter T310 timer for UEs supporting this enhancement, but FFS whether this is best achieved with the existing dedicated signalling or based on a new condition.
* Prioritisation of carriers/cells to measure is left to the UE implementation.
* FFS: whether to provide a separate criteria for inter-frequency measurements (i.e. needing re-tuning) considering that they will take longer and should start earlier.
* Legacy relaxed monitoring criteria is reused to address the variance part of the criteria to start the measurements.
	+ - FFS: Whether it is enabled by the provision of separate SSearchDeltaP and TSearchDeltaP parameters from RRC\_IDLE.
* The conditions where the UE is required to perform measurements are specified. No requirement on when to stop measurements is needed.
* The configuration of the criteria for starting the measurements is provided via broadcast signalling.
* Provision of information regarding which cells/carriers to be considered is not supported. It is up to UE implementation to choose and prioritize carrier/cell list for measurement.
* Report of the cells measured in RRC\_IDLE to assist measurement configuration is not supported.
* Report of information about connected measurements during the RRC Connection re-establishment procedure for network optimisation is not supported.
* There is no need to specify which subframes can be used for measurements beyond them not being needed for PDCCH monitoring or data transmission / reception.
* Support for connected mode measurement is optional with capability signalling.
* FFS: Whether to support an indication from the UE that it starts/ stops performing measurement
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This is the continuation of [AT115-e][301][NBIOT/eMTC R17] RLF measurements (Huawei) [2].

# Discussion

## Separate criteria for inter-frequency measurements

At RAN2#115-e, it has been agreed that prioritisation of carriers/cells to measure is left to the UE implementation and a FFS was raised whether to provide a separate criteria for inter-frequency measurements (i.e. needing re-tuning) considering that they will take longer and should start earlier.

**Discussion point 1:** Do you support having a separate criteria for inter-frequency measurements (i.e. needing re-tuning) considering that they will they will take longer and should start earlier. Please justify.

Companies’ inputs

|  |  |  |
| --- | --- | --- |
| **Company** | **yes/no**  | **Detailed comments** |
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## Enabling of relaxed monitoring enabled in RRC\_CONNECTED

At RAN2#115-e, it has been agreed that legacy relaxed monitoring criteria is reused to address the variance part of the criteria to start the measurements and a FFS was raised whether it is enabled by the provision of separate SSearchDeltaP and TSearchDeltaP parameters from RRC\_IDLE.

In RRC\_IDLE, relaxed monitoring is enabled by the provision of *s-SearchDeltaP* in SIB3-NB:

CellReselectionInfoCommon-NB-v1450 ::= SEQUENCE {

 s-SearchDeltaP-r14 ENUMERATED {dB6, dB9, dB12, dB15}

}

And 36.304 specifies that TSearchDeltaP = 5 minutes or the eDRX cycle length if eDRX is configured and the eDRX cycle length is longer than 5 minutes.

During the email discussion at RAN2#115 [2], most companies indicated that the parameters could be different from RRC\_IDLE.

**Discussion point 2-1:** Is relaxed monitoring in RRC\_CONNECTED enabled/disabled by the network ?

Companies’ inputs

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| --- | --- | --- |
| **Company** | **yes/no**  | **Detailed comments** |
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**Discussion point 2-2:** Can the values of *s-SearchDeltaP* and *TSearchDeltaP* be different in RRC\_CONNECTED and RRC\_IDLE? if yes, how are they provided?

Companies’ inputs

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| --- | --- | --- |
| **Company** | **yes/no**  | **Detailed comments** |
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## UE indication that it starts/stops measurements

At RAN2#115-e, it has been discussed and left FFS whether to support an indication from the UE that it starts/ stops performing measurements.

**Discussion point 3:** Do you support having an indication that the UE starts measurement, please justify? If yes, how is it reported?

Companies’ inputs

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| **Company** | **Yes/No** | **Detailed comments** |
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## Shorter T310 timer

At RAN2#115-e, it was agreed ‘It is useful to have a shorter T310 timer for UEs supporting this enhancement, but FFS whether this is best achieved with the existing dedicated signalling or based on a new condition”. This was further discussed in offline [310] without conclusion [2].

Based on the previous discussions, the two options are clarified as below:

1. Existing signalling: eNB configures a shorter value of *t310-r13* in *rlf-TimersAndConstants-r13.* T310 timer is handled as per legacy, no impact on the specification.
2. New condition: New timer, e.g. *t310bis-r16*, configured by the eNB, which value the UE uses when starting T310 if the condition is fulfilled. Further handling of T310 timer is as per legacy. Signalling of the timer to be discussed.

**Discussion point 4-1:** Is the support of connected mode measurement a sufficient condition for a shorter T310? If no, clarify what additional condition is needed.

Companies’ inputs

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| **Company** | **yes/no** | **Detailed comments** |
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**Discussion point 4-2:** If the answer to discussion 4-1 is no, does the NW need to know the additional condition is fulfilled for option a)? Please clarify.

Companies’ inputs

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| --- | --- | --- |
| **Company** | **yes/no** | **Detailed comments** |
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**Discussion point 4-3:** If the answer to discussion 4-1 is no, does the NW need to know the additional condition is fulfilled for option a)? Please clarify.

Companies’ inputs

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| --- | --- | --- |
| **Company** | **yes/no** | **Detailed comments** |
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**Discussion point 4-4:** If option b) is selected, how is the new timer provided, via dedicated signalling only, via broadcast signalling only, via one and/or the other (same as existing t310-r13)? Please justify.

Companies’ inputs

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| --- | --- | --- |
| **Company** | **Dedicated/broadcast / both** | **Detailed comments** |
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## Other

Please indicate here any other issue that you would like to raise in the email discussion.

Companies’ inputs

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| --- | --- |
| **Company** | **Comments** |
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# Conclusion

TBC

# References

1. R2-2108974 RAN2 agreements for Rel-17 NB-IoT and LTE-MTC Ericsson RAN2#115-e August 2021
2. R2-21089 Summary of [301] RLF measurements (Huawei) Huawei RAN2#115-e August 2021