3GPP TSG-RAN2 #109-e R2-200xxxx

Electronic Meeting, February 24th – March 6th 2020

Agenda Item: 7.1.13 Other

Source: NTT DOCOMO Inc. (offline email discussion rapporteur)

Title: Report of [AT109e][410][eMTC] CE Mode Threshold Adjustments for non-BL and BL UE (DoCoMo)

Document for: Decision

# Scope of the offline email discussion

This document contains the responses and summary of the offline email discussion [AT109e][410][eMTC] CE Mode Threshold Adjustments for non-BL and BL UE (DoCoMo). The scope is outlined below.

* [AT109e][410][eMTC] CE Mode Threshold Adjustments for non-BL and BL UE (DoCoMo)

 Intended outcome: To check whether there is support, and, if so, list of proposals that are easily agreeable, almost agreeable and need further discussion. The outcome can be provided in R2-2001875

 Deadline: Wednesday, Feb. 26th 18:00 CET

 Schedule: Thursday, Feb. 27th 13:30 - 15:30 CET

# Offline email discussion

## Is there support to resolve the issues?

Companies are requested to provide input to the table below based on the Tdoc in [1].

|  |  |  |
| --- | --- | --- |
| **Company** | **Do you agree that the issues described in Section 2.2 of the discussion paper can occur and should be resolved?** | **Comments** |
| **Sierra Wireless** | **Yes** |  |

## Evaluating the options

We proposed three potential options for resolving the issues, as excerpted below.

|  |  |
| --- | --- |
| **Option 1:** Separate Thresholds Based on non-BL or BL | **Pros:*** Among the three options, resolves the issue in the simplest way.
* When considering impact to existing UE, BL UE may continue to read the legacy parameters. From Rel-16 onwards, non-BL UE would read the newly introduced parameters.
* Among the three options, impact to broadcasted system information is lowest.
* Among the three options, overall impact to the specification is lowest.
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| **Cons:*** Existing non-BL UE that support CE Mode would need to have their implementations modified in order to read the newly introduced parameter.
* Low granularity for future fine-tuning by operators.
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| **Option 2:** Separate Thresholds Based on UE Category | **Pros:*** Finer granularity is possible compared to Option 1.
* Existing devices whose category is not listed in the above extensions may continue to read the legacy parameters with no impact.
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| **Cons:*** The above proposed ASN.1 resolves the issue for lower category UE, but if operators want to have complete control over each category, a separate field would need to be introduced for each category.
* The impact to existing UE that support CE Mode would be dependent on the number of fields introduced, as UE would need to utilize a different field depending on their own category. In the above proposal, there may be implementation impact to existing Cat1/Cat1bis/CatM devices since they would need to read the newly introduced fields.
* Among the three options, moderate impact to broadcast system information.
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| **Option 3:** Separate Thresholds based on Power Class | **Pros:*** Finer granularity is possible compared to Option 1 and 2
* Existing devices whose power class is not listed in the above extensions may continue to read the legacy parameters with no impact.
 |
| **Cons:*** Similar to Option 2, a separate IE may be needed for each power class.
* Similar to Option 2, the impact to existing UE that support CE mode would be dependent on the number of fields introduced, as UE would need to utilize a different field depending on their power class. In the above proposal, there may be implementation impact to existing power class 3/5/6 devices since they would need to read the newly introduced fields.
* Among the three options, moderate impact to broadcast system information.
 |

Companies are requested to provide input to the table below based on the Tdoc in [1].

|  |  |  |
| --- | --- | --- |
| **Company** | **Which option is preferable for resolving this issue?** | **Comments** |
| **Sierra Wireless** | **Option 1** | **It is a Pro is that the legacy BL-UEs do not need to be updated, which may not be practical. Whereas Non-BL UEs are typically more capable of receiving and applying updates.** |

# Conclusion

If there is support to resolve the issue based on responses to 2.1, proposals will be drafted based on company preferences indicated in 2.2.

To be updated further at the end of the discussion.

# References

[1] [R2-2000515](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_109_e/Docs/R2-2000515.zip) CE Mode Threshold Adjustments for non-BL and BL-UE, NTT DOCOMO Inc., February 2020.