**3GPP TSG-RAN WG2 Meeting#109 electronic draft R2-20xxxxx**

**e-meeting, 24th February - 6th March, 2020**

**Source: Intel Corporation**

**Title: Email discussion of Idle mode mobility for non-BL UE**

**Agenda item:** **7.1.8.1**

**Document for:** **Discussion and Decision**

# Introduction

In RAN2#107 meeting, following agreement was made.

FFS if, from Rel-16, it should be possible for a non-BL UE that fullfills S criteria for normal coverage to camp in a “normal” cell, i.e. not standalone, in enhanced coverage.

In the following, we discuss whether a Rel-16 non-BL UE is allowed to camp in enhanced coverage when S criterion for normal coverage is fulfilled and whether network control is not be supported. This discussion considers all the related details provided in RAN2#109-e contributions summarized in [1].

# Is a Rel-16 non-BL UE allowed to camp in a cell (non-standalone case) on enhanced coverage mode when S criteria for normal coverage is fulfilled?

Please include your company view below a Rel-16 non-BL UE allowed to camp in a cell (non-standalone case) on enhanced coverage mode when S criteria for normal coverage is fulfilled:

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| --- | --- | --- |
| **Company** | **Yes/No** | **Any further comments** |
| Intel | Yes | We are OK keeping legacy operation also for Rel-16 UE i.e. it is up to UE implementation to decide whether a UE can camp in a cell (non-standalone case) on enhanced coverage mode when S criteria for normal coverage is fulfilled. Note that when eMTC topic was specified in Rel-13, there was understanding then some UE vendors may use non-BL UE for MTC deployments and therefore, it would be possible for a non-BL UE in RRC\_IDLE to decide whether it requires operating in WB or BR when S criteria for normal coverage is fulfilled. However we understand current concerns from network vendors and could also be ok to allow this restriction under network control. |
| Qualcomm | No | We don’t agree a non-BL UE fulfilling normal S criteria should switch to using BR channels. This behaviour confuses the definition of *UE in CE*. 36.300 section 23.7b does says “*A UE in enhanced coverage is a UE that requires the use of enhanced coverage functionality to access the cell*” and a UE fulfilling normal S criteria does not require the use of enhanced coverage functionality to access the cell.  Furthermore, a non-BL UE should apply cell suitability in the order defined in 36.304, i.e. normal criteria first, then CE and then CE1. |
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# Whether network control is needed to allow non-BL UE to camp on a cell in CE mode when S criteria for normal coverage is fulfilled

Please include your company view below on whether network control should be allow or not a Rel-16 non-BL UE of camping in a cell (non-standalone case) on enhanced coverage mode when S criteria for normal coverage is fulfilled. If supported, provide details on the desirable mechanism for providing the network control:

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| --- | --- | --- |
| **Company** | **Yes/No** | **Mechanism for network control and any further comments** |
| Intel |  | Understanding that legacy operation allows non-BL UEs to camp in a cell (non-standalone case) on enhanced coverage mode when S criteria for normal coverage is fulfilled, we have slight preference for using a new broadcast network indication to barred R16 non-BL UEs of camping in a cell (non-standalone case) on enhanced coverage mode when S criteria for normal coverage is fulfilled (i.e. therefore when this new indication is not sent, Rel-16 non-BL UE would behave same as legacy UEs). |
| Qualcomm |  | The implications of UE in normal coverage *pretending* to be in enhance coverage have not been fully evaluated (e.g. power saving advantage vs impact on specification and impact no UEs that can only use BR channels). |
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# Miscellaneous proposals

There are also further proposals suggested by [2] and [3].

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| Thales  (0251) | **Proposal 3:** The network may indicate whether the fulfillment of the S-criterion for CE mode is required for all non-BL devices or whether it only applies for the non-BL UEs trying to newly camp (select or re-select) to said cell. |

Please include your company view on the definition of the network control indication described in previous section 3 if network control indication is broadcast:

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| --- | --- | --- |
| **Company** | **Yes/No/FFS** | **Any further comments** |
| Intel | FFS | It is not clear whether this differentiation is strictly needed |
| Qualcomm | FFS | RAN2 needs to first decide whether non-BL UE in normal coverage be allowed to camp on a cell in CE mode. Only RAN2 agree then we can discuss network control of this behaviour. |

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| --- | --- |
| Huawei  (1067) | **Proposal3: Absolute priorities rather than ranking applies for non-BL UEs using enhanced coverage when S criteria for normal coverage is fulfilled.** |

Please include your company view on whether absolute priorities rather than ranking should be applied for Rel-16 non-BL UEs camping in a cell (non-standalone case) on enhanced coverage when S criteria for normal coverage is fulfilled.

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| **Company** | **Yes/No/FFS** | **Any further comments** |
| Intel | FFS |  |
| Qualcomm | FFS | Same comment as for previous question. |

# Conclusions and Potential proposals

TBA

# References

[1] R2-2001864 Summary of contributions on Idle mode mobility Intel Corportation

[2] R2-2001067   Enhancements to idle mode mobility for non-BL UEs   Huawei, HiSilicon

[3] R2-2000251   Clarification to idle mode mobility for non-BL UEs   THALES