3GPP TSG-RAN WG1 Meeting #101-e R1-200xxxx

e-Meeting, May 25th – June 5th, 2020

Agenda Item: 6.2.2.1

Source: Ericsson

Title: Feature lead summary #1 of Group WUS for NB-IoT

Document for: Discussion, Decision

# Introduction

The summary presents one presented issue regarding Group WUS for NB-IoT. Two contributions have been presented, [1],[2], identifying a similar inconsistency in the alignment between the present versions of the specifications.

# Discussion

## Alignment of non-group WUS between specifications

In [3], the common WUS sequence is determined as follows:

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| 10.2.6B.1 Sequence generation…For a UE not configured with group NWUS, $g=0$. For a UE configured with group NWUS, $g=14\left(N\_{group}^{WUS}+1\right)$ for $0\leq N\_{group}^{WUS}\leq 7$, where $N\_{group}^{WUS}$ is determined by the UE group to which the UE is associated as determined by higher layers [10]. The common NWUS sequence shall be determined by $ g=126$ unless the resource is shared with non-group NWUS and common NWUS is configured to be non-group NWUS in which case $g=0$. |

The present GWUS IE from the most recent running CR [3] is presented below:

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| ***GWUS-Config-NB information element***-- ASN1STARTGWUS-Config-NB-r16 ::= SEQUENCE {  … commonSequence-r16 ENUMERATED {g0, g126} OPTIONAL, -- Need OR … |

It is identified in [1] that “*the terminology is not aligned, i.e., TS 36.211 uses “non-group NWUS”, and TS 36.331 uses “g0*”” whereas [2] identifies that “*the terminology is not aligned, one is “non-group NWUS” and the other is “legacyWUS”*. It is worth noting that “legacyWUS” is an earlier term for “g0” (and “groupWUS” is an earlier term for “g126”) but the inconcistency remains regardless.

Based on the above, there are three different proposals on how to proceed:

**Alt. 1:**Agree to the following TP:

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| 10.2.6B.1 Sequence generation…For a UE not configured with group NWUS, $g=0$. For a UE configured with group NWUS, $g=14\left(N\_{group}^{WUS}+1\right)$ for $0\leq N\_{group}^{WUS}\leq 7$, where $N\_{group}^{WUS}$ is determined by the UE group to which the UE is associated as determined by higher layers [10]. In resource that is not shared with non-group NWUS, the common NWUS sequence shall be determined by$ g=126$. In resource that is shared with non-group NWUS, the common NWUS sequence is determined by higher layers [9]. |

**Alt. 2:**

Agree to the following TP:

FL comment: this alternative is slightly reformulated based on RAN2 parameter changes.

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| 10.2.6B.1 Sequence generation…For a UE not configured with group NWUS, $g=0$. For a UE configured with group NWUS, $g=14\left(N\_{group}^{WUS}+1\right)$ for $0\leq N\_{group}^{WUS}\leq 7$, where $N\_{group}^{WUS}$ is determined by the UE group to which the UE is associated as determined by higher layers [10]. The common NWUS sequence shall be determined by $ g=126$ unless the resource is shared with the radio resources of *wus-Config-r15* and the higher layer parameter *gwus-CommonSequence* indicates ‘*g0’* in which case $g=0$. |

**Alt. 3:**

Maintain existing description in RAN1 (It's up to RAN2 if there is any change in higher layer specification).

## Companies’ preparatory comments

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| **Company** | **Does the above inconsistency need discussion in RAN1?** | **Comments** |
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# References

1. R1-2004164, “Corrections on UE-group wake-up signal,” Huawei, HiSilicon, RAN1 #101-e, May 2020.
2. R1-2003795, “Discussion on group WUS for NB-IoT,” ZTE, RAN1 #101-e, May 2020.
3. TS 36.211, “Physical channels and modulation,” 3GPP, V16.1.0, March 2020.
4. R2-2004040, “Miscellaneous corrections to 36.331 for Rel-16 NB-IoT,” Huawei, HiSilicon, RAN2 #109bis-e, April 2020.