**3GPP TSG RAN WG1 Meeting #100b-e                     R1-200xxxx**

**eMeeting, April 20 - 30, 2020**

**Agenda Item: 7.2.2.2.2**

**Source: Moderator (Charter Communications)**

**Title: Draft [100b-e-NR-unlic-NRU-InitAccessProc-01]**

**Document for: Discussion and Decision**

# Introduction

Three email discussions have been sanctioned in RAN1#100b-e on initial access procedures for NR-U. This first discussion that aims to converge by 4/24 has the following scope:

[100b-e-NR-unlic-NRU-InitAccessProc-01] Email discussion/approval on following issues related to SS/PBCH blocks by 4/24; if necessary, followed by endorsing the corresponding TPs by 4/29 – Amitav (Charter)

* Finalize remaining details of parameter Q signalling and interpretation
* Correct the citation of TS 38.104 in TS 38.213 Subclause 4.1 in relation to the definition of L\_max

These issues have been selected based on the preparatory discussion summarized in [14].

# Company views

## Signaling of Q in MIB based on RAN2 LS response

The issue is summarized in [14] with the following proposal:

**Proposal.** Based on LS response from RAN2, the UE interprets ~~ssb~~SubcarrierSpacingCommon (1 bit) and LSB of ssb-SubcarrierOffset (1 bit) of the Rel-15 MIB for providing the value of ssbPositionQCL-Relationship-r16. These changes are reflected in TS 38.213 Clause 4.1.

For example, TP for section 4.1 in 38.213:

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| Table 4-1: Mapping between the combination of subCarrierSpacingCommon and LSB of ssb-SubcarrierOffset to $N\_{SSB}^{QCL}$

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| *subCarrierSpacingCommon* | LSB of *ssb-SubcarrierOffset* | $$N\_{SSB}^{QCL}$$ |
| scs15or60 | 0 | 1 |
| scs15or60 | 1 | 2 |
| scs30or120 | 0 | 4 |
| scs30or120 | 1 | 8 |

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| **Company** | **Views** |
| Samsung | Support the TP.  |
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## Whether configuration of Q for RRM measurements and SCell/SCG (re)config is mandatory, or a default value of Q=8 can be assumed by UE.

Summary: For RRM measurement configuration from *MeasObjectNR* and *SIB2/SIB4*, down-select one of the following:

* Option 1: Network always provides a common Q value (*ssb-PositionQCL-Common-r16*) per frequency to UE.
* Option 2: If no Q value is provided, UE assumes Q=8.

For SCell addition, SCG addition, and reconfiguration with sync, down-select one of the following:

* Option 1: The Q value of the cell to be added is always provided to UE via dedicated RRC signaling, i.e. ssb-PositionQCL-r16 in *ServingCellConfigCommon*.
* Option 2: If no Q value is provided, UE assumes Q=8.

FL proposal is to discuss the principle before bringing in a TP.

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| **Company** | **Views** |
| Samsung | For both questions, prefer Option 1. No matter which option is agreed, an LS to RAN2 is needed. If we remember correctly, this issue was discussed offline before, and several companies mentioned Option 1 such that RAN1/RAN2 don’t need to discuss the default RRC parameter value.  |
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## Whether the number of candidate SS/PBCH blocks from the first transmitted SS/PBCH block to the last transmitted SS/PBCH block should not be greater than Q.

Detailed discussion is given in Sec. 4 of [12].

FL proposal is to discuss the principle before bringing in a TP.

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| **Company** | **Views** |
| Samsung | We are OK with the proposal as a clarification.  |
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## Correct the citation of TS 38.104 in TS 38.213 Subclause 4.1 in relation to the definition of L\_max

**Summary**: Correct the citation of TS 38.104 in TS 38.213 Subclause 4.1 in relation to the definition of $L\_{max}$ (applies to both licensed and shared spectrum operation)

Alt. 1: Remove citation

Alt. 2: Point to TS 38.133 instead and notify RAN4 that the word “candidate” should be removed in the paragraph above Table 8.1.1-2 in 38.133 to be consistent with Rel-16 notation.

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| **Company** | **Views** |
| Samsung | Alt 1. TS 38.133 has no intention to define L\_max in our understanding. It even refers back to TS 38.213 for the value of L\_max, so we don’t think Alt 2 could work. However, in deed the word “candidate” should be removed in TS 38.133.  |
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# References

1. R1-2001535 Maintainance on the initial access procedures Huawei, HiSilicon
2. R1-2001653 Remaining issues on initial access procedure for NR-U vivo
3. R1-2001706 Remaining issues on the initial access procedure for NR-U ZTE, Sanechips
4. R1-2001760 Discussion on the remaining issues of enhancements to initial access procedure OPPO
5. R1-2001936 Remaining issues of initial access and mobility for NR-U LG Electronics
6. R1-2001988 Enhancements to initial access and mobility for NR-unlicensed Intel Corporation
7. R1-2002032 Enhancements to initial access procedures Ericsson
8. R1-2002118 Initial access procedures for NR-U Samsung
9. R1-2002248 Remaining issues on initial access procedure for NR-U ETRI
10. R1-2002263 Remaining issues on initial access procedure Spreadtrum Communications
11. R1-2002278 On Enhancements to Initial Access Procedures for NR-U Nokia, Nokia Shanghai Bell
12. R1-2002407 Remaining issues on initial access procedure for NR-U operation MediaTek Inc.
13. R1-2002531 TP for Initial access and mobility procedures for NR-U Qualcomm Incorporated
14. R1-2001701 FL summary 72222 NRU Charter Communications