**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-02**

**Document for: Discussion and Decision**

# Introduction

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

[100b-e-NR-unlic-NRU-InitAccessProc-02] Email discussion/approval on following issues related to RA procedure by 4/24; if necessary, followed by endorsing the corresponding TPs by 4/29 – Amitav (Charter)

* MsgA PRACH-PUSCH gap for NR-U
* Remaining details of RACH occasion validation for FBE access

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

# Company views

## MsgA PRACH-PUSCH gap for NR-U

Proposal 1: Apply the same PRACH-PUSCH gap defined in R16 to msgA PRACH for NR-U.

Proposal 2: Apply CP extension to PUSCH to enable no-gap msgA.

Proposal 3: Support a zero symbol gap (N = 0) between the PRACH and PUSCH parts of MsgA

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| **Company** | **Views** |
| ZTE | Among the 3 proposals, we prefer Proposal 3. We agree that symbol gap N=0 is beneficial to NRU LBT, but we think this has already been supported in 38.213, i.e. N should be 2 or 4 for licensed band, and it can be derived that N could be 0 or any other value for NRU, thus we don’t need to make any further modifications. I don’t think we should limit N=0 for NRU to decrease the configuration flexibility.As for proposal 1, it’s against the agreement made in 2-step RACH WI.Proposal 2 is an optimization issue.In 38.213:For a Type-2 random access procedure, a UE transmits a PUSCH, when applicable, after transmitting a PRACH. The UE encodes a transport block provided for the PUSCH transmission using redundancy version number 0. If *useInterlacePUSCH-Common* is not provided, the PUSCH transmission is after the PRACH transmission by at least $N$ symbols where $N=2$ for $μ=0$ or $μ=1$, $N=4$ for $μ=2$ or $μ=3$, and $μ$ is the SCS configuration for the active UL BWP. |
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## RACH occasion validation for FBE access #1

Proposal: To accommodate DL processing time at UE, a PRACH resource is considered invalid if it overlaps with the first X symbols at the front of each FFP when FBE operation is indicated, where X could be configured or fixed in spec.

FL suggestion is to first discuss the above proposal before moving to potential TP.

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| **Company** | **Views** |
| ZTE | We don’t agree with this proposal, it’s not reasonable to define a ‘X’ to indicate the possible SSB or other DL signal position which shouldn’t be limited at the front of a FFP.  |
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## RACH occasion validation for FBE access #2

Update TS 38.213 for RACH occasion validation in FBE mode when UE is not provided tdd-UL-DL-ConfigurationCommon, and for Type-2 RA procedure.

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| **Company** | **Views** |
| ZTE | Support. We suggest to adopt the TP7 in [3]. |
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**Proposal**: A PRACH resource in the channel occupancy of a Fixed Frame Period is valid only if a UE detects any DL transmission in the serving cell before the PRACH resource in the same FFP.

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| **Company** | **Views** |
| ZTE  | Support.  |
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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