**3GPP TSG-RAN WG4 Meeting #95-e R4-2008553**

**Electronic Meeting, 25 May – 5 June, 2020**

**Source: ZTE**

**Title: Analysis of missing NR-U sections for TS 38.133**

**Agenda item: 6.1.5.1**

**Document for: Approval**

1 Introduction

In RAN4 92-bis, a document [1] outlining specification structure for TS 38.133 for NR-U operations was approved. In this document we analyze which sections will be missing after RAN4 95e based on [1] and justify if a CR [2] to add all planned sections to TS 38.133 is necessary.

2 CR Status for NR-U related clauses

In RAN4 95e, a total of 25 available CRs were submitted to add content for NR-U related operations to TS 38.133. The list of all submitted CRs are shown below.

|  |  |  |  |
| --- | --- | --- | --- |
| **[R4-2006010](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006010.zip)** | CR for spec structure to address NR-U in 38.133 v3 | ZTE Corporation | CR |
| **[R4-2006175](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006175.zip)** | Introduction of activation and deactivation delay requirements for SCells operating with CCA | Qualcomm Incorporated | CR |
| **[R4-2006183](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006183.zip)** | CR on UE measurements capability and reporting criteria for NR-U | Apple | CR |
| **[R4-2006563](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006563.zip)** | CR to TS 38.133: RRC re-establishment with CCA | Intel Corporation | CR |
| **[R4-2006863](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006863.zip)** | CR for timing requirement for NR-U | MediaTek inc. | CR |
| **[R4-2006977](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006977.zip)** | Updates to general section for NR-U in 38.133 | Ericsson | CR |
| **[R4-2007097](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007097.zip)** | Draft CR on UE transmit timing accuracy and timing reference cell under DL LBT failure | Ericsson | draftCR |
| **[R4-2007260](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007260.zip)** | CR to TS 38.133: adding NR-U Handover. | Nokia, Nokia Shanghai Bell | CR |
| **[R4-2007261](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007261.zip)** | CR to TS 38.133: adding NR-U inter-frequency measurements | Nokia, Nokia Shanghai Bell | CR |
| **[R4-2007263](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007263.zip)** | CR to 38.133: clarification of RLM requirements | Nokia, Nokia Shanghai Bell | CR |
| **[R4-2007388](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007388.zip)** | CR: Introduction of link recovery requirements with CCA | Ericsson | CR |
| **[R4-2007390](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007390.zip)** | CR: Introduction of L1-RSRP measurement requirements with CCA | Ericsson | CR |
| **[R4-2007692](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007692.zip)** | CR on introduction of intra-frequency measurements requirements for NR-U | Huawei, Hisilicon | CR |
| **[R4-2007693](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007693.zip)** | CR on introduction of Active BWP switching delay requirements for NR-U | Huawei, Hisilicon | CR |
| **[R4-2007694](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007694.zip)** | CR on introduction of Active TCI state switching delay with CCA Requirements for NR-U | Huawei, Hisilicon | CR |
| **[R4-2007695](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007695.zip)** | CR on introduction of reporting criteria for NR-U | Huawei, Hisilicon | CR |
| **[R4-2007696](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007696.zip)** | CR on introduction of RRC\_IDLE state moblity requirements for NR-U | Huawei, Hisilicon | CR |
| **[R4-2007697](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007697.zip)** | CR on introduction of RRC\_INACTIVE state moblity requirements for NR-U | Huawei, Hisilicon | CR |
| **[R4-2007698](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007698.zip)** | CR on removing candidate in RLM requirements in Rel-15 | Huawei, Hisilicon | CR |
| **[R4-2007699](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007699.zip)** | CR on removing candidate in RLM requirements in Rel-16 | Huawei, Hisilicon | CR |
| **[R4-2007971](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007971.zip)** | Introduction of RLM requirements for NR-U | Ericsson | CR |
| **[R4-2007978](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007978.zip)** | UE behaviour after measurement failure due to LBT for RRC\_IDLE state moblity requirements for NR-U | Ericsson | draftCR |
| **[R4-2007980](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007980.zip)** | Removal of Editor’s note in NR-U handover requirements | Ericsson | draftCR |
| **[R4-2007984](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007984.zip)** | BWP switching interruption requirement due to consistent UL failure in 38.133 | Ericsson | CR |
| **[R4-2007988](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007988.zip)** | RRC release with redirection requirements in NR-U in 38.133 | Ericsson | draftCR |

In this document, we will first check if the CRs are formal CRs which will be likely be agreed and then list all sections which will be added for sure after RAN4 95e meeting. If the submitted CR is a formal CR of a previously endorsed draft CR then it’s treated as “will be agreed”. If some CRs are not receiving any objections from companies then they are also treated as “will be agreed”. This document is prepared before the deadline of 2nd round discussion to try to capture the latest status of all CRs.

Note that some of the CRs are revised to a new TDoc yet we still use their old TDoc number in this document. No new CRs are allocated during this meeting to add sections to TS 38.133 so we only need to count the CRs submitted before the meeting.

In the following table, the clauses added by every CR is listed. The low-level sections are given in square brackets. The CRs which are already agreed are highlighted in green. Those are very likely to be agreed at the end of this meeting are marked as light blue. The CRs which are still under tense discussions are marked yellow. For the purposes of this analysis, we consider the impacts that would arise to the specification structure if these CRs were not agreed. CRs already postponed or not pursued as highlighted in red. Note that this document doesn’t have decision power on the mentioned CRs. The possible results for those CRs are predicted based on ongoing discussions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TDoc | Title | Source | Type | Clauses added |
| **[R4-2006010](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006010.zip)** | CR for spec structure to address NR-U in 38.133 v3 | ZTE Corporation | CR | N/A |
| **[R4-2006175](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006175.zip)** | Introduction of activation and deactivation delay requirements for SCells operating with CCA | Qualcomm Incorporated | CR | 8.3A (8.3A.1, 8.3A.2, 8.3A.3) |
| **[R4-2006183](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006183.zip)** | CR on UE measurements capability and reporting criteria for NR-U | Apple | CR | 9.1A.3.2 (9.1A.3.2a) |
| **[R4-2006563](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006563.zip)** | CR to TS 38.133: RRC re-establishment with CCA | Intel Corporation | CR | 6.2.1A (6.2.1A.1, 6.2.1A.2, 6.2.1A.2.1) |
| **[R4-2006863](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006863.zip)** | CR for timing requirement for NR-U | MediaTek inc. | CR | No new clause added |
| **[R4-2006977](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2006977.zip)** | Updates to general section for NR-U in 38.133 | Ericsson | CR | No new clause added |
| **[R4-2007097](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007097.zip)** | Draft CR on UE transmit timing accuracy and timing reference cell under DL LBT failure | Ericsson | draftCR | No new clause added |
| **[R4-2007260](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007260.zip)** | CR to TS 38.133: adding NR-U Handover. | Nokia, Nokia Shanghai Bell | CR | 6.1A (6.1A.1, 6.1A.1.1, 6.1A.1.2, 6.1A.1.2.1, 6.1A.1.2.2) |
| **[R4-2007261](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007261.zip)** | CR to TS 38.133: adding NR-U inter-frequency measurements | Nokia, Nokia Shanghai Bell | CR | 9.3A (9.3A.1, 9.3A.2, 9.3A.3, 9.3A.3.1, 9.3A.4, 9.3A.5, 9.3A.6, 9.3A.6.1, 9.3A.6.2, 9.3A.6.3) |
| **[R4-2007263](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007263.zip)** | CR to 38.133: clarification of RLM requirements | Nokia, Nokia Shanghai Bell | CR | No new clause added |
| **[R4-2007388](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007388.zip)** | CR: Introduction of link recovery requirements with CCA | Ericsson | CR | 8.5A (8.5A.1, 8.5A.2, 8.5A.2.1, 8.5A.2.2, 8.5A.2.3, 8.5A.3, 8.5A.3.1, 8.5A.3.2, 8.5A.3.3, 8.5A.4, 8.5A.5, 8.5A.5.1, 8.5A.5.2, 8.5A.5.3, 8.5A.6, 8.5A.6.1, 8.5A.6.2, 8.5A.6.3, 8.5A.7, 8.5A.7.1, 8.5A.7.2, 8.5A.8, 8.5A.8.1, 8.5A.8.2) |
| **[R4-2007390](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007390.zip)** | CR: Introduction of L1-RSRP measurement requirements with CCA | Ericsson | CR | 9.5.4A (9.5.4A.1, 9.5.4A.2) |
| **[R4-2007692](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007692.zip)** | CR on introduction of intra-frequency measurements requirements for NR-U | Huawei, Hisilicon | CR | 9.2A (9.2A.1, 9.2A.2, 9.2A.3, 9.2A.4, 9.2A.5, 9.2A.6) |
| **[R4-2007693](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007693.zip)** | CR on introduction of Active BWP switching delay requirements for NR-U | Huawei, Hisilicon | CR | 8.6.4 |
| **[R4-2007694](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007694.zip)** | CR on introduction of Active TCI state switching delay with CCA Requirements for NR-U | Huawei, Hisilicon | CR | 9.10A (8.10A.1 ~ 8.10A.6) |
| **[R4-2007695](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007695.zip)** | CR on introduction of reporting criteria for NR-U | Huawei, Hisilicon | CR | No new clause added |
| **[R4-2007696](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007696.zip)** | CR on introduction of RRC\_IDLE state moblity requirements for NR-U | Huawei, Hisilicon | CR | 4.2A (4.2A.1, 4.2A.2.1 ~ 4.2A.2.7) |
| **[R4-2007697](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007697.zip)** | CR on introduction of RRC\_INACTIVE state moblity requirements for NR-U | Huawei, Hisilicon | CR | 5.1A (5.1A.1, 5.1A.2.1 ~ 5.1A.2.7) |
| **[R4-2007698](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007698.zip)** | CR on removing candidate in RLM requirements in Rel-15 | Huawei, Hisilicon | CR | No new clause added |
| **[R4-2007699](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007699.zip)** | CR on removing candidate in RLM requirements in Rel-16 | Huawei, Hisilicon | CR | No new clause added |
| **[R4-2007971](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007971.zip)** | Introduction of RLM requirements for NR-U | Ericsson | CR | 8.1A (8.1A.18.1A.2, 8.1A.2.1, 8.1A.2.2, 8.1A.2.38.1A.3, 8.1A.3.1, 8.1A.3.2, 8.1A.3.38.1A.4, 8.1A.5, 8.1A.6) |
| **[R4-2007978](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007978.zip)** | UE behaviour after measurement failure due to LBT for RRC\_IDLE state moblity requirements for NR-U | Ericsson | draftCR | N/A |
| **[R4-2007980](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007980.zip)** | Removal of Editor’s note in NR-U handover requirements | Ericsson | draftCR | N/A |
| **[R4-2007984](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007984.zip)** | BWP switching interruption requirement due to consistent UL failure in 38.133 | Ericsson | CR | No new clause added |
| **[R4-2007988](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_95_e/Docs/R4-2007988.zip)** | RRC release with redirection requirements in NR-U in 38.133 | Ericsson | draftCR | N/A (it’s a draft CR) |

After checking all the formal CRs (draft CRs not included) which intend to add new sections, it’s clear that

1. the majority of formal CRs will be agreed in this meeting,
2. even if a few of them don’t get agreed, there will be no hanging sub-clause without a higher-level clause to contain it. Thus, the CR [2] to add NR-U blank sections to TS 38.133 is not necessary.

Agreement: There is no need in blank sections for TS 38.133 to complete the specification structure and thus, the CR intended to do so [2] is not necessary.

References

1. R4-1912662
2. R4-2008556