**3GPP T****SG-RAN WG4 Meeting #111 R4-240xxxx**

**Fukuoka, Japan, May 20 – May 24, 2024**

**Agenda item:** 7.2.3

**Source:** Moderator (Nokia)

**Title:** Topic summary for [109][318] NR\_RF\_FR2\_req\_Ph3\_Demod

**Document for:** Information

# Introduction

This contribution summarises some open issues raised for NR\_RF\_FR2\_req\_Ph3\_Demod under AI 7.2.3 at RAN4#111.

This topic was introduced in RAN4 demodulation at RAN4#108 with a completion by RAN#103 in March 2024.

During RAN#103 the bigCRs for TS 38.104 and TS 38.141-2 were agreed as per R4-2400705 and R4-2402030 whereas R4-2401411 was requested to be resubmitted as a revision during RAN4#111 due to cover sheet errors.

Although these CRs have been submitted already, 5 CRs have been submitted during RAN4#111 which highlight some potential open issues regarding FRC numbering and finalisation of PUSCH Requirements.

Therefore, three topics are captured in this summary for discussion:

* Topic #1: PUSCH Requirements
* Topic #2: FRC Numbering
* Topic #3: CR Approach during RAN4#111

# Topic #1: PUSCH Requirements

## Companies’ contributions summary (inferred from CR)

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2409084 | ZTE Corporation, Sanechips | **(Inferred) Proposal 1** Remove square brackets on PUSCH Requirements |

## Open issues summary

### Sub-topic 1-1: Removal of Square Brackets on PUSCH Requirements

**Issue 1-1: Removal of Square Brackets on PUSCH Requirements**

* Proposals:
* Option 1: Remove Square Brackets on Requirements as they are stable. (ZTE, Sanechips)
* Option 2: Do not remove square brackets.
* Recommended WF
* For discussion at meeting

# Topic #2: FRC Numbering

## Companies’ contributions summary (inferred from CR)

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2408188 | NEC | **(Inferred) Proposal 1:** Move FRCs from A.12 to A.9 (for TS 38.104) |
| R4-2408189 | NEC | **(Inferred) Proposal 1:** Delete new clause A.12 from TS 38.141-1 |
| R4-2408190 | NEC | **(Inferred) Proposal 1:** Move FRCs from A.12 to A.9 (for TS 38.141-2) |
| R4-2409084 | ZTE Corporation, Sanechips | **(Inferred) Proposal 1:** Change FRC numbering from A.X to A.12 (for TS 38.141-2)**(Inferred) Proposal 2:** Update references in Annex J.2 for TDL-D channel model |

## Open issues summary

### Sub-topic 2-1: Moving of 256 QAM FRCs to A.9

**Issue 2-1: Moving of 256 QAM R=682.5/1024 FRCs to Annex A.9 (TS 38.104))**

* Proposals:
* Option 1: Move 256 QAM R=682.5/1024 FRCs to Annex A.9 (NEC)
* Recommended WF
* Move 256 QAM R=682.5/1024 FRCs to Annex A.9
* For discussion at meeting

**Issue 2-2: Moving of 256 QAM R=682.5/1024 FRCs to Annex A.9 or A.12 (TS 38.141-2)**

* Proposals:
* Option 1: Move 256 QAM R=682.5/1024 FRCs to Annex A.9 (NEC)
* Option 1: Move 256 QAM R=682.5/1024 FRCs to Annex A.12 (ZTE)
* Recommended WF
* For discussion at meeting

*Note: During meeting, issue 2-1 will be discussed first, and the agreement there will be applied to all specifications*.

**Issue 2-3: Removal of Annex A.12 from TS 38.141-1**

* Proposals:
* Option 1: As there is no requirement for A.12 in TS 38.141-1, void this annex (NEC)
* Recommended WF
* Do not insert A.12 into TS 38.141-1
* For discussion at meeting

*Note: During meeting, issue 2-1 will be discussed first, and the agreement there will be applied to all specifications*

*Note: If the recommended WF is agreed, as the bigCR for TS 38.141-1 (R4-2401411) was not accepted during RAN#103, then the CRs for TS 38.141-1 from RAN4#111 should not be pursued meaning that A.12 will not be introduced to TS 38.141-1.*

### Sub-topic 2-2: Updating References in Annex J of TS 38.104

**Issue 2-4: Updating References in J.2 of TS 38.104**

* Proposals:
* Option 1: Update the final sentence of J.2 to “Initial channel matrix for LOS component of TDL-D channel model is equal to channel matrix of Static propagation conditions in Clause B.1 in TS 38.101-4.” Removing the [xx] reference
* Recommended WF
* Option 1, for discussion at meeting if alternatives found

# Topic #3: CR approach during RAN4#111

## Background

NR\_RF\_FR2\_req\_Ph3\_Demod has undergone the bigCR approach, whereby the following companies have been responsible for the bigCRs for the relevant specifications with potential impact from the Work Item.

|  |
| --- |
| CR Split |
| Specification | Company |
| 38.104 | Nokia |
| 38.141-1 | Ericsson |
| 38.141-2 | ZTE |

## Submitted CRs for RAN4#111

Below is the CRs that have been received during RAN4#111, note only one of these is part of the bigCR process.

|  |  |  |  |
| --- | --- | --- | --- |
| TDoc Number | Specification | Content part | Company |
| R4-2408188 | 38.104 | FRC Numbering | NEC |
| R4-2408189 | 38.141-1 | FRC Numbering | NEC |
| R4-2408190 | 38.141-2 | FRC Numbering | NEC |
| R4-2409084 | 38.141-2 | FRC Numbering and removal of square brackets | ZTE Corporation, Sanechips |
| R4-2408338 | 38.141-1 | Void FRC Annex | Ericsson |

## Moderator Proposal

To avoid sending several CRs for each specification to Plenary it is proposed that companies can combine their contributions based on the open issues to be discussed at the meeting and a series of revised CRs are submitted as follows.

These CRs would act as ‘bigCRs’ for each specification incorporating the existing bigCRs, as well as the CRs received during RAN4#111.

*Note: Depending on Issue 2-3 it is possible no bigCR will be submitted for TS 38.141-1.*

|  |  |  |  |
| --- | --- | --- | --- |
| TDoc Number | Revision of  | Specification | Company |
|  | R4-2408188 | 38.104 | Nokia, NEC |
| *(If Required)* | R4-2408338 | 38.141-1 | Ericsson, NEC |
|  | R4-2408190 | 38.141-2 | ZTE Corporation, NEC, Sanechips |

# Disposition of TDocs

|  |  |  |
| --- | --- | --- |
| T-doc number | Suggested Status | Comments (Optional) |
| R4-2408188 | Revised | *FRC Numbering* |
| R4-2408189 | Merged (with R4-2408338) /Not Pursued | *FRC Numbering* |
| R4-2408190 | Revised | *FRC Numbering* |
| R4-2409084 | Merged (with R4-2408190) | *FRC Numbering and removal of square brackets* |
| R4-2408338 | Revised/Not Pursued | *Void FRC Annex*Potentially R4-2408338 and R4-2408189 will be not pursued |