**3GPP TSG-RAN WG4 Meeting # 112 R4-2413419**

**Maastricht, Netherlands, 19th – 23rd August, 2024**

**Agenda item:** 5.11.5

**Source:** Moderator (Nokia)

**Title:** Topic summary for [112][319] NR\_FR1\_lessthan\_5MHz\_BW\_demod

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.*

RAN4#111 was the final meeting to discuss the demodulation performance requirements for Rel-18 **NR\_FR1\_lessthan\_5MHz\_BW WI**. At RAN4#112, this topic is already at the **maintenance phase**.

The WI description can be found in [RP-230186](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_99/Docs/RP-230186.zip).

This summary provides the overview and captures the open issues based on the TDoc submitted to RAN4#110 meeting into the following AIs**:**

* 5.11.4 Demodulation performance requirements
  + 5.11.4.1 UE demodulation performance and CSI requirements
  + 5.11.4.2 BS demodulation performance requirements

The previous agreements and open issues are captured in **the following WFs**:

* [R4-2406044](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_110bis/Docs/R4-2406044.zip), Way Forward for [110bis][323] NR\_FR1\_lessthan\_5MHz\_BW\_demod, RAN4#110-bis, Changsha, China, 15 April –19 April 2024.
* [R4-2402863](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_110/Docs/R4-2402863.zip), WF on [110][318] NR\_FR1\_lessthan\_5MHz\_BW\_demod, Nokia, Nokia Shanghai Bell, RAN4#110, Athens, Greece, February 26 – March 1, 2024.
* [R4-2321064](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2321064.zip), WF on [109][322] NR\_FR1\_lessthan\_5MHz\_BW\_demod, Nokia, Nokia Shanghai Bell, RAN4#109, Chicago, USA, November 13 – November 17, 2023.
* [R4-2316924](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_108bis/Docs/R4-2316924.zip), WF on NR\_FR1\_lessthan\_5MHz\_BW\_demod, Nokia. Nokia Shanghai Bell, RAN4#108bis, Xiamen, China, October 09 – October 13, 2023.

The following **bigCRs were agreed** at RAN4#111 meeting:

* UE Demod:
  + [R4-2409843](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409843.zip), BigCR for 38.101-4 on Lessthan5MHz UE demod perf and CSI requirements, Nokia, RAN4#111.
* BS Demod:
  + [R4-2409841](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409841.zip), [NR\_FR1\_lessthan\_5MHz\_BW-Perf] BigCR on Demodulation requirements for less than 5MHz for TS 38.104, Nokia, RAN4#111.
  + [R4-2409851](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409851.zip), Big CR for 38.141-1 NR 3MHz PUCCH demodulation requirement, Ericsson, RAN4#111.
  + [R4-2409845](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409845.zip), Big CR on performance requirements for PUCCH format 2 for TS 38.141-2, Samsung, RAN4#111.

**Simulation alignment results** from RAN4#111:

* UE Demod:
  + [R4-2407753](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407753.zip), Simulation results alignment for UE Demod, Nokia, RAN4#111.
* BS Demod:
  + [R4-2407128](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407128.zip), Simulation Summary for Less Than 5 MHz BS Demod, Nokia, RAN4#111.

# Topic #1: UE Demod

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

### Discussion papers and simulations results

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| NONE | | |

### CRs

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **Moderator’s comment** |
| [R4-2412752](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Docs/R4-2412752.zip) | Huawei, HiSilicon | CR for 38.101-4 Corrections on less than 5MHz PDCCH demodulation requirements | A revision can be expected because Table A.3.3.1.1-3 is already present in TS 38.101-4. |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

No discussion papers were submitted, therefore, the discussion can go directly for the CR.

# Topic #2: BS Demod

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

### Discussion papers and simulation results

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| NONE. | | |

### CRs

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **Moderator’s comment** |
| [R4-2411041](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Docs/R4-2411041.zip) | Nokia | (NR\_FR1\_lessthan\_5MHz\_BW-Perf) CR for 38.104, update to PUCCH requirements | Removal of square brackets in the requirements to be confirmed during the meeting. |
| [R4-2412318](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Docs/R4-2412318.zip) | Ericsson | (NR\_FR1\_lessthan\_5MHz\_BW-Perf) CR for 38.141-1 PUCCH format 2 for 3MHz | Removal of square brackets in the requirements to be confirmed during the meeting. |
| [R4-2413443](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Docs/R4-2413443.zip) | Samsung | CR on performance requirements for PUCCH format 2 for TS 38.141-2 | Seems that the CR from the previous meeting was not implemented fully. |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

No discussion papers were submitted, therefore, the discussion can go directly for the CR.