**3GPP TSG RAN WG1 #122 R1-2506231**

**Bengaluru, India, Aug 25th – 29th, 2025**

**Agenda Item: 9.14**

**Source: Moderator (AT&T)**

**Title: Summary of UE features for Rel-19 TEI and other relevant issues**

**Document for:** **Discussion/Decision**

# Introduction

This document presents the summary of email discussion [122-R19-UE\_features] during RAN1 #122. According to the Chair’s Notes:

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| [122-R19-UE\_features] Email discussion on Rel-19 UE features – Ralf (AT&T), Naoya (DOCOMO), Ralf (AT&T)* To be used for sharing updates on online/offline schedule, details on what is to be discussed in online/offline sessions, tdoc number of the moderator summary for online session, etc
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The following was discussed during RAN1 #122 within the scope of [122-R19-UE\_features]. All proposals are based on the latest RAN1 UE features list for Rel. 19 in [1].

# Summary of Contributions Submitted to RAN1 #122

The following is the moderator’s summary of contributions submitted to RAN1 #122 in this agenda item. All proposals are based on the latest RAN1 UE features list for Rel. 19 in [1].

## Simultaneous NZP-CSI-RS resource counting NES [SimCSI\_countNES]

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| --- | --- |
| Company | Summary |
| Samsung [2] | * Component: It can be written as what agreement mentioned.
* Pre-requisite: As agreed, it could be 42-1/1a/1b/1c, and 42-2/2a/2b/2c. But considering necessary FG first, we think that either FG 42-1 (basic feature for spatial domain adaptation introduced in Rel-18 network energy saving) or FG 42-2 (basic feature for power domain adaptation introduced in Rel-18 network energy saving) can be necessarily included, and others can be optional
* Type: It could be per band considering FG 42-1 since FG 42-1/1a/1b/1c, and 42-2/2a/2b/2c have such granularity.

**Proposal 1**. Support the following FG supporting relevant functionality for simultaneous NZP-CSI-RS resource counting based on CSI report sub-configuration(s).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X-1 | Simultaneous NZP-CSI-RS resource counting based on CSI report sub-configuration(s) | For simultaneous CSI-RS reception in UE features 42-1/1a/1b/1c, and 42-2/2a/2b/2c, CSI-RS ports within one periodic/semi-persistent CSI-RS resource, as well as the periodic/semi-persistent CSI-RS resource, are counted as one resource even if the periodic/semi-persistent CSI-RS resource is referred multiple times by one or more CSI Reporting Settings with at least one CSI Reporting Setting configured with higher layer parameter *csi-ReportSubConfigToAddModList* | 42-1 or 42-2 and {42-1a or 42-1b or 42-1c or 42-2a or 42-2b or 42-2c} | Yes | n/a | gNB would not assume that UE supports this capability. | Per band | n/a | n/a | n/a |  | Optional with capability signalling |

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| Spreadtrum/UNISOC [3] |  |
| MediaTek Inc. [4] |

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| XX. TEI19[SimCSI\_countNES] | XX-1-3 | Simultaneous NZP-CSI-RS resource counting NES | For simultaneous CSI-RS reception in Network Energy Saving UE features 42-1/1a/1b/1c, and 42-2/2a/2b/2c, for a periodic/semi-persistent CSI-RS resource referred N times by one or more CSI Reporting Settings with at least one CSI Reporting Setting configured with higher layer *csi-ReportSubConfigToAddModList*, the CSI-RS resource is counted one time by the UE and the CSI-RS ports within that CSI-RS resource, are counted as *P*, where *P* is the number of ports configured by *nrofPorts*.  | 42-1/1a/1b/1c, or 42-2/2a/2b/2c | yes | n/a | gNB would not assume that UE supports this capability | Per BC | No | No | n/a |  | Optional with capability signalling |

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| ZTE Corporation/Sanechips [5] |  |
| Huawei/HiSilicon [6] |  |

# Discussion Items during RAN1 #122

After review of contributions submitted to RAN1 #122 in this agenda item, the following topics were identified by the moderator for discussion during RAN1 #122.

**General comments**

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| Company | Comments/Questions/Suggestions |
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## Simultaneous NZP-CSI-RS resource counting NES [SimCSI\_countNES]

After review of contributions submitted to RAN1 #122 in this agenda item, the following is proposed by the moderator. Companies submitted the following views on the moderator’s proposals.

**Proposal: Introduce the following Rel. 19 UE FGs (yellow highlighting, if any, shows text that’s not yet agreed)**

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| XX. TEI19[SimCSI\_countNES] | XX-1-3 | Simultaneous NZP-CSI-RS resource counting NES | For simultaneous CSI-RS reception in Network Energy Saving UE features 42-1/1a/1b/1c, and 42-2/2a/2b/2c, for a periodic/semi-persistent CSI-RS resource referred N times by one or more CSI Reporting Settings with at least one CSI Reporting Setting configured with higher layer *csi-ReportSubConfigToAddModList*, the CSI-RS resource is counted one time by the UE and the CSI-RS ports within that CSI-RS resource, are counted as *P*, where *P* is the number of ports configured by *nrofPorts*.  | 42-1/1a/1b/1c, or 42-2/2a/2b/2c | yes | n/a | gNB would not assume that UE supports this capability | Per BC | No | No | n/a |  | Optional with capability signalling |

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| Company | Comments/Questions/Suggestions |
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# Conclusion

Agreements reached during RAN1 #122 as part of this agenda item are summarized in [ ].

# References

1. R1-2504673, Updated RAN1 UE features list for Rel-19 NR after RAN1 #121, Moderators (AT&T, NTT DOCOMO, INC.)
2. R1-2505626, UE feature for Rel-19 TEI, Samsung
3. R1-2506007, Discussion on UE feature for common PDCCH repetiton (Rel-19 NTN) for TN, Spreadtrum/UNISOC
4. R1-2506028, TEI19 UE features, MediaTek Inc.
5. R1-2506260, UE feature for Rel-19 TEI, ZTE Corporation/Sanechips
6. R1-2506388, UE features for common PDCCH repetiton (Rel-19 NTN) for TN, Huawei/HiSilicon