**3GPP TSG RAN WG1 #100bis-e R1-20xxxxx**

e-Meeting, April 20th – 30th, 2020

Source: NTT DOCOMO, INC.

Title: Summary on Email discussion [100b-e-NR-TEIs-01]

Agenda Item: 7.2.12

**Document for:** **Discussion and Decision**

# **Introduction**

This contribution summarizes the NR Rel-16 TEI related and CLI/RIM related discussions and proposals in AI 7.2.12.

[100b-e-NR-TEIs-01]: Email discussion/approval of TPs on remaining issues for CLI measurement and reporting

* Whether/how to capture agreed UE behavior on SRS-RSRP measurement in TS38.214
	+ TPs in [R1-2001589](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_100b%5CDocs%5CR1-2001589.zip) and [R1-2001957](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_100b%5CDocs%5CR1-2001957.zip) are starting points for the discussion
* Whether/how to capture agreed UE behavior on CLI-RSSI measurement in TS38.331
	+ TP in [R1-2001957](file:///C%3A%5CUsers%5Cwanshic%5COneDrive%20-%20Qualcomm%5CDocuments%5CStandards%5C3GPP%20Standards%5CMeeting%20Documents%5CTSGR1_100b%5CDocs%5CR1-2001957.zip) is a starting point for the discussion

till 4/23, and if LS is necessary (for the 2nd sub-bullet), LS approval till 4/28 (DCM, Hiroki)

# **Remaining issue for CLI measurement and reporting**

In [1], the following remaining issue regarding CLI measurement and reporting is identified.

* The RAN1#100-e agreement of UE measurement behavior corresponding to SRS-RSRP measurement resource configuration should be captured in 38.214.

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| In our opinion, the agreement of UE measurement behaviour corresponding to SRS-RSRP measurement resource configuration should also be captured in 38.214. The following TP in TS 38.214 are proposed to capture the assumption on SRS-RSRP measurement.**Proposal 1: Adopt the following text proposal.**------------------------------------------- < Start of text proposal for 38.214 [1]> ----------------------------------------------5.1.6.4 SRS reception procedure for CLIThe SRS resources defined in Clause 6.4.1.4 of [4, TS 38.211] may be configured for SRS-RSRP measurement for CLI, as defined in Clause 5.1.19 of [7, TS 38.215]. The UE is not expected to measure SRS-RSRP with a subcarrier spacing other than the one configured for the active BWP confining the SRS resource. The UE is not expected to measure SRS-RSRP using the SRS-RSRP measurement resource which is not fully confined within BW of DL active BWP. The UE is not expected to measure more than 32 SRS resources, and the UE is not expected to receive more than 8 SRS resources in a slot.-------------------------------------------------- < End of text proposal> ----------------------------------------------------- |

In [2], the following remaining issues regarding CLI measurement and reporting are identified.

* The RAN1#100-e agreement of UE measurement behavior corresponding to CLI-RSSI measurement resource configuration should be captured in 38.331. RAN1 should send LS to RAN2 for updating the description of Reference-Subcarrier-Spacing for CLI-RSSI measurement.
* The RAN1#100-e agreement of UE measurement behavior corresponding to SRS-RSRP measurement resource configuration should be captured in 38.214.

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| In addition, it seems necessity to capture UE behavior for CLI-RSSI measurement and SRS-RSRP measurement. UE assumption for CLI-RSSI measurement can be captured in the description of Reference-Subcarrier-Spacing for CLI-RSSI measurement resource in RRC parameter. Also, UE behavior for SRS-RSRP measurement can be reflected in TS38.214.***Proposal 1:*** * Capture UE behavior for CLI-RSSI measurement in the description of RRC parameter (i.e., Reference-Subcarrier-Spacing for CLI-RSSI measurement resource) in TS38.331. Send LS to RAN2 for updating the description of Reference-Subcarrier-Spacing for CLI-RSSI measurement.

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| **Parameter name in text** | **Description** |
| Reference-Subcarrier-Spacing | Reference subcarrier spacing for CLI-RSSI measurementUE performs CLI-RSSI measurement with the SCS of the active bandwidth part within the configured CLI-RSSI resource in the active BWP regardless of the reference SCS of the measurement resource. |

***Proposal 2:**** Capture UE behavior for SRS-RSRP measurement in TS38.214

============ Start of Text Proposal for TS38.214 [3] ==================**5.1.6.4 SRS reception procedure for CLI**The SRS resources defined in Clause 6.4.1.4 of [4, TS 38.211] may be configured for SRS-RSRP measurement for CLI, as defined in Clause 5.1.19 of [7, TS 38.215]. The UE is not expected to measure SRS-RSRP with a subcarrier spacing other than the one configured for the active BWP confining the SRS resource. The UE is not expected to measure more than 32 SRS resources, and the UE is not expected to receive more than 8 SRS resources in a slot. When SRS-RSRP measurement resource is fully confined within BW of DL active BWP, UE operates SRS-RSRP measurement using the SRS-RSRP measurement resource. Otherwise the UE does not operate SRS-RSRP measurement using the SRS-RSRP measurement resource.============ End of Text Proposal for TS38.214 ================== |

Based on above, following remaining issues for CLI measurement and reporting should be discussed in RAN1#100bis-e meeting.

* Whether/how to capture agreed UE behaviour on SRS-RSRP measurement in TS38.214
* Whether/how to capture agreed UE behaviour on CLI-RSSI measurement in TS38.331

## 2.1 Discussion 1

**Companies are encouraged to provide views if there is a concern or comment on the following proposals.**

**Proposal: Capture UE behavior for SRS-RSRP measurement in TS38.214**

**Alt.1: TP in [1]**

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| ------------------------------------------- < Start of text proposal for 38.214 [1]> ----------------------------------------------5.1.6.4 SRS reception procedure for CLIThe SRS resources defined in Clause 6.4.1.4 of [4, TS 38.211] may be configured for SRS-RSRP measurement for CLI, as defined in Clause 5.1.19 of [7, TS 38.215]. The UE is not expected to measure SRS-RSRP with a subcarrier spacing other than the one configured for the active BWP confining the SRS resource. The UE is not expected to measure SRS-RSRP using the SRS-RSRP measurement resource which is not fully confined within BW of DL active BWP. The UE is not expected to measure more than 32 SRS resources, and the UE is not expected to receive more than 8 SRS resources in a slot.-------------------------------------------------- < End of text proposal> ----------------------------------------------------- |

**Alt.2: TP in [2]**

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| ============ Start of Text Proposal for TS38.214 [3] ==================**5.1.6.4 SRS reception procedure for CLI**The SRS resources defined in Clause 6.4.1.4 of [4, TS 38.211] may be configured for SRS-RSRP measurement for CLI, as defined in Clause 5.1.19 of [7, TS 38.215]. The UE is not expected to measure SRS-RSRP with a subcarrier spacing other than the one configured for the active BWP confining the SRS resource. The UE is not expected to measure more than 32 SRS resources, and the UE is not expected to receive more than 8 SRS resources in a slot. When SRS-RSRP measurement resource is fully confined within BW of DL active BWP, UE operates SRS-RSRP measurement using the SRS-RSRP measurement resource. Otherwise the UE does not operate SRS-RSRP measurement using the SRS-RSRP measurement resource.============ End of Text Proposal for TS38.214 ================== |

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| Company | Comment |
| LG Electronics | We are fine with proposal.Also, both Alt.1 and Alt.2 are fine. |
| OPPO | Both proposal are ok. We slightly prefer Alt.1 |
| Qualcomm | Both Alts are correct. Alt. 1 seems a little more concise for specification. |
| Samsung | OK with capturing UE behavior for SRS-RSRP measurement in TS38.214. Fine with either Alt. |
| ZTE | Both ALTs are okay. ALT.1 is slightly preferred. |
| CATT | Alt.1 is preferred.  |
| Ericsson | Both TP are fine. |

## 2.2 Discussion 2

**Companies are encouraged to provide views if there is a concern or comment on the following proposals.**

**Proposal: Capture UE behavior for CLI-RSSI measurement in the description of RRC parameter (i.e., Reference-Subcarrier-Spacing for CLI-RSSI measurement resource) in TS38.331. Send LS to RAN2 for updating the description of Reference-Subcarrier-Spacing for CLI-RSSI measurement.**

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| **Parameter name in text** | **Description** |
| Reference-Subcarrier-Spacing | Reference subcarrier spacing for CLI-RSSI measurementUE performs CLI-RSSI measurement with the SCS of the active bandwidth part within the configured CLI-RSSI resource in the active BWP regardless of the reference SCS of the measurement resource. |

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| Company | Comment |
| LG Electronics | Fine with proposal. |
| OPPO | We are open to the proposal. Probably, one more efficient way is to submit RAN2 tdoc to update TS 38.331. |
| Qualcomm | Agree that it is better to include the additional description in TS 38.331.This description was CC’ed to RAN2 in R1-2001320. As a result, RAN2 should be aware of it. |
| Samsung | OK with capturing UE behavior for CLI-RSSI measurement in TS 36.331 and also sending the LS to RAN2. |
| ZTE | Okay with proposal. |
| CATT | Fine with the proposal. |
| Ericsson | Fine with the proposal. |

# **References**

[1] R1-2001589 Discussion on CLI and TBS ambiguity ZTE

[2] R1-2001957 Remaining details of CLI measurement and reporting at a UE LG Electronics

[3] R1-2002027 Maintenance of aperiodic CSI-RS triggering with beam switching timing of 224 and 336 Intel Corporation

[4] R1-2002074 Remaining issues of half-duplex operation in CA CATT

[5] R1-2002170 On TRS muting for NR coexistence with a narrow band system MediaTek Inc.

[6] R1-2002229 On remaining NR TEI issues Nokia, Nokia Shanghai Bell

[7] R1-2002282 Remaining issues for Rel-16 maintenance and TEI Ericsson

[8] R1-2002355 Considerations on HARQ/CSI enhancements Apple

[9] R1-2002679 Discussion on conditions of rate matching pattern overlapping with PDSCH DMRS symbols Huawei, HiSilicon

[10] R1-2001724 Discussion on UE TEI feature 14-7 vivo

[11] R1-2001834 Views on Rel-16 UE features for NR TEIs MediaTek Inc.

[12] R1-2002025 UE features for NR TEI Intel Corporation

[13] R1-2002280 UE features for TEIs Ericsson

[14] R1-2002597 Rel-16 UE features for TEIs Huawei, HiSilicon