**3GPP TSG RAN WG1 Meeting #106bis-e R1-2110422**

**e-Meeting, October 11th – 19th, 2021**

**Agenda Item: 8.1.4**

**Source: Huawei, HiSilicon (Moderator)**

**Title: Summary of CSI enhancements for MTRP and FDD (Round 2)**

**Document for: Discussion and Decision**

# Introduction

# Summary of CSI enhancement for FDD

# Summary of CSI enhancement for MTRP

***Proposal 18:*** For CSI measurement associated with a *CSI-ReportingConfig* for NCJT,

* Alt 1: **UE is expected that** two CMRs within the same CMR pair configured for NCJT measurement hypothesis are **~~restricted~~** within the same CDRX active time.

**Alt 1:** MediaTek, OPPO, Futurewei, Spreadtrum, Qualcomm, NTT DOCOMO, Samsung, Intel, vivo, Apple

**Alt 2:** ZTE, Nokia

**Proposal 19:**

***Conclusion (updated):***

For a NCJT measurement hypothesis, the *powerControlOffset* (“Pc”) ratio associated with a CMR within a CMR pair configured for the NCJT measurement hypothesis, is defined as 10log10(P\_PDSCH/P\_CSIRS)  dB

Where

* P\_PDSCH is the energy of PDSCH ports, which is associated with the CMR, multiplexed on one subcarrier of one OFDM symbol
* P\_CSIRS is the energy of all CSI-RS ports of the CMR multiplexed on one subcarrier of one OFDM symbol

Note that whether/how to capture above conclusion is up to the editor.

**Conclusion only: Oppo, Futurewei, Spreadtrum, ZTE, DOCOMO, Samsung, Intel, Vivo, LGE, CMCC, NEC, Fraunhofer**

**Alt 1: MTK, QC, Nokia**

**Alt 2: MTK, QC**

***Proposal 22-2:* For a CSI report associated with a Multi-TRP/panel NCJT measurement hypothesis configured by single CSI reporting setting, down-select one alternative from the following:**

* **Alt 1: One RI restriction is configured per CodebookConfig, whereas the RI restriction is applied to both Single-TRP and NCJT measurement hypotheses.** 
  + **If rank restriction of X is configured, reported rank is X for a Single-TRP measurement hypothesis and sum of two reported ranks is X for a Multi-TRP measurement hypothesis.**
* **Alt 4: Two RI restrictions can be configured per CodebookConfig, whereas one RI restriction is applied to all Single-TRP measurement hypotheses, and another one is applied to all NCJT measurement hypotheses.** 
  + **If rank restriction of (X, Y) is configured, reported rank is X for all single-TRP measurement hypotheses and reported rank (1 out of 4 possible rank combinations) is Y for all NCJT measurement hypotheses.**

**Alt 1: Oppo, ZTE, DOCOMO, CMCC, Motorola, Intel**

**Alt 4: MTK, Futurewei, Spreadtrum, Motorola, Qualcomm, Samsung, Intel, Vivo, NEC, Nokia**

***Proposal 23-1:*** For a CSI report associated with a Multi-TRP/panel NCJT measurement hypothesis configured by single CSI reporting setting,

* Alt 1: CBSR is supported and can be applied for both single-TRP and Multi-TRP measurement hypotheses.
  + FFS detailed CBSR signalling configured ~~as legacy or with dedicated RRC signing~~ for Multi-TRP

**Alt 1: Motorola, ZTE (2), DoCoMo, Samsung, Intel, Vivo, CMCC, NEC, Fraunhofer**

**Alt 2: MTK, ZTE (1)**