RAN-R18-WS-eMBB-ETRI - Version 0.0.6
RAN

3GPP TSG RAN Rel-18 workshop **RWS-210521**

Electronic Meeting, June 28 - July 2, 2021

Agenda Item: 4.1

Source: ETRI

Title: Email discussion summary for [RAN-R18-WS-eMBB-ETRI]

1 Introduction

This email discussion summary covers the following documents:

RWS-210264 Enhanced multi-TRP transmission for Rel-18 ETRI

2 Comments to the RWS-210264

2.1 Round 1 - General Comments

Feedback Form 1: Round 1 - General Comments

1 – LG Electronics Inc. On the proposed enhanced BM for simultaneous receptions from multi-TRPs, is this intended for STxMP(simultaneous transmission across multiple panels)?
2 – Beijing Xiaomi Mobile Software Q1: To support more than 2 TRPs needs great spec change, more discussion is needed.
3 – HuaWei Technologies Co. We share the similar view that coherent joint transmission is an important direction to be enhanced, especially for C-RAN structure. What is your detailed thoughts regarding to ”Focus on data transmission (PDSCH) for CJT”, does that include DMRS and SRS enhancement for CJT case?
4 – Beijing Lenovo Software Ltd. Q1: For “Non co-located multi-TRPs up to N TRPs”, how many TRP are assumed for one transmission/reception and/or for interference computation?

Q2: For “control signalling enhancements”, what’s the actual function/goal for introducing enhanced control signalling?

2.2 Round 1 - Responses

Feedback Form 2: Round 1 - Responses

1 – ETRI

LG

Yes. We mainly focus on the DL CJT first. However, we also consider the UL enhancements on MIMO, and enhanced BM for simultaneous receptions from multi-TRPs is one of them. STxMP is not directly intended, but it can be considered in the enhanced BM for simultaneous receptions from multi-TRPs.

2 – ETRI

Xiaomi

Q1: Yes, we think so. Up to 64 TRPs is very challenging issue. However, 4 TRPs can be a starting point for further enhancements.

3 – ETRI

Huawei

In CJT, focusing on data transmission (PDSCH) literally means that we first focus on CJT of PDSCH rather than PDCCH, PUSCH, or PUCCH. The CJT of PDSCH includes the network coordination schemes for CJT, coherent data transmission from multi-TRPs, coherent data reception of the UE, beam management for simultaneous transmission from multi-TRPs, and measurement configuration/report for CJT. We think the enhancements on reference signals (e.g. DMRS and SRS) for CJT should also be included in the spec perspective.

4 – ETRI

Lenovo

Q1: We think 4 TRPs is the starting point to discuss the enhancement.

Q2: The purpose of enhanced control signaling in PDCCH or MAC-CE is to enable CJT of PDSCH in multi-TRP deployments which cannot be supported by the control signaling of current specification, if necessary.

2.3 Round 2 - General Comments

Feedback Form 3: Round 2 - General Comments

1 – Qualcomm CDMA Technologies

On mTRP enhancements, regarding increased number of TRPs (e.g. 4-64), given the clarification that this is indeed intended for CJT, we have the following follow-up question:

Q1: Is the time alignment error (TAE) across TRPs envisioned to be the same as existing RAN4 requirements for MIMO (i.e., 65ns)? How this can be achieved?

Q2: Are you envisioning that the distributed TRPs share the same clock / PLL? If not, what are the phase drift requirements for CJT to work in practice?

2.4 Round 2 - Responses

Feedback Form 4: Round 2 - Responses

1 – ETRI

Qualcomm

Q1: It is expected to be the same, but the detailed requirements should be discussed if needed. Although the requirement for time alignment error (TAE) across TRPs is technically achievable, cost can be an issue when considering the practical deployments.

Q2: Yes, we think that the distributed TRPs can share the same clock/PLL.

3 Questions to the RWS-210264

3.1 Round 1 - Questions

Feedback Form 5: Round 1 - Questions

1 – Intel Corporation (UK) Ltd

Do you have evaluation results to justify benefits of coherent JT over other multi-TRP transmission schemes taking into account synch impairments?

2 – Qualcomm communications-France

On mTRP enhancements, regarding increased number of TRPs (e.g. 4-64), are you considering CJT or NCJT schemes? Is this in the context of single-DCI or multi-DCI multi-TRP?

3.2 Round 1 - Answers

Feedback Form 6: Round 1 - Answers

1 – ETRI

Intel

We know the importance of synchronization in CJT from a performance point of view. Actually, we don't have any evaluation results to justify the benefits of CJT over other multi-TRP transmission schemes considering synch impairments yet. However, a number of demonstrations and studies have shown that the accurate synchronization can be achieved by a high-precision clock via optical fiber Ethernet according to IEEE-1588 v2 precision time protocol (PTP). Therefore, we hope that Rel-18 will consider the feasibility study of CJT including the synchronization requirements.

2 – ETRI

Qualcomm

We are mainly considering CJT schemes in the context of single-DCI multi-TRP without precluding NCJT schemes and multi-DCI multi-TRP.

3.3 Round 2 - Questions

Feedback Form 7: Round 2 - Questions

3.4 Round 2 - Answers

Feedback Form 8: Round 2 - Answers