**3GPP TSG-RAN WG4 Meeting # 104Bis-e R4-2217739**

**Electronic Meeting, October 10 ‒ 19, 2022**

**Title: [DRAFT]** WF on expanded and improved NR positioning – UE RF aspects

**Agenda Item:** 6.18.5

**Source: Intel Corporation**

**Document for:** Approval

# Accuracy improvement study based on PRS/SRS bandwidth aggregation

## RF architecture

**Agreement:**

* Prioritize the single RF chain (Tx/Rx) for BS and UE in the study.

## PRS/SRS bandwidth aggregation scenario

**Agreements:**

* Prioritize intra-band contiguous CA with simultaneous PRS/SRS transmission for the RF and RRM impacts study.
* CA configurations with 2, 3 and 4 CCs should be investigated and the configuration with 2 CCs should be prioritized over 3 and 4 CCs.
* The TAE and group delay need be studied. In addition, phase noise needs be studied for FR2.

## RF impairment model and assessment

**Tentative Agreement:**

* Proposal 1: RAN4 to evaluate the impact of group delay on the performance of PRS/SRS aggregation covering PRS/SRS resources with both same PRS bandwidth and different bandwidths

**For further discussion in GTW:**

* 1. Incorporating the RRM agreement (R4-2217257) on aggregation of PFLs with different bandwidths to Proposal 1
		+ *PRS resources to be aggregated for MC positioning measurements from different PFLs can have different bandwidths (i.e., different number of PRS RBs)*
	2. Studying TAE for single RF chain architecture
		+ For single RF chain architecture TAE between PFLs/carriers transmitted from same antenna is negligible and therefore no need to define TAE requirement
		+ For single RF chain architecture TAE between PFLs/carriers transmitted from different antennas is FFS
		+ Confirm whether no additional study of relative timing error or frequency errors between signals/carriers is needed

## Achievable accuracy gain study for intra-band contiguous CA

**For further discussion in GTW:**

* Whether to study non-coherent aggregation as a second priority

**Agreement/WF:**

* TBD

## Baseline assumption for FFT processing

**Agreement:**

* The FFT assumption should be discussed in RRM part.

## Notifying RAN1 of UE transmit power limitation

**Agreement:**

* Notifying RAN1 on UE transmit power limitation due to prioritization of PCell over SCell is not needed at this point in time.

# Accuracy improvement study based on carrier phase measurements

## RAN4 study on RF requirement

**Agreement:**

* RAN4 shall wait for conclusion from RAN1 evaluation of impact of different error sources on carrier phase measurement before starting study on RF requirement for NR carrier phase measurement.

## Scope of RAN4 study

**Agreement:**

* No further discussion is needed in RAN4 at this time

# References

1. R4-2217790, “Email discussion summary for [104-bis-e][138] FS\_NR\_pos\_UERF,” Moderator (Intel Corporation), RAN4 #104Bis-e, October 2022