3GPP TSG RAN#100
Taipai, June 12-14, 2023

RP-231042

# Discussion on checkpoint for CSI prediction

Agenda item: 9.2.5
Source: Samsung
Documents for: Discussion and decision

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# Background

**In RAN1#112bis-e, the RAN's guidance was needed on whether to address potential spec. impact for UE-side model-based CSI prediction.**

- **This is due to opposition from companies that have raised workload issues, despite the support from many companies.**

Agreement

In CSI prediction using UE-side model use case, whether to address the potential spec impact of CSI prediction depends on RAN#100 final conclusion, focusing on the following

- data collection procedure, mainly including RS configuration, measurement and report configuration, reusing as much as possible what is defined for UE side use cases
- monitoring procedure and metric for AI-based CSI prediction.
- model/functionality selection/switching and finetuning procedure.
- Note: Discussion on potential specification impact is limited to aspects which would NOT duplicate the work in Rel-18 MIMO WI.
- Note: Minimize LCM related potential specification impact discussion that follow the high-level principle of other one-sided model sub-cases.



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# Status of Rel-18 SI for AI/ML PHY

## The progress from RAN1 side is fairly acceptable, with some items requiring closure, including:

- Open-ended agreements which still contain phrases to further study the feasibility and necessity of items.
- Additional observations which facilitate spec. impact discussion and justification for future normative phase.
- Potential spec. impact discussion for CSI prediction (which is on hold).

| Item | Study scope | Study status (outcome) vs. Leftover |
|---|---|---|
| 9.2.1 Framework | AI/ML model LCM (main components, functional/ID based LCM), collaboration levels, data collection, model monitoring and vali dation. | Progress is fair: Most of items, with potential spec impact., Some items need further study on feasibility/necessity for potential spec impact |
| 9.2.2.1 Evaluation for CSI | Evaluation for general performance, generalization and aspects that may have spec impact | Progress is fair: Main observations for general performance of CSI prediction, and CSI compression including generalization performance. More observations to facilitate potential spec impact determination. |
| 9.2.2.2 Others for CSI | LCM for two side model, performance monitoring, data collecti on, CSI report configuration and UCI construction | Progress lags: CSI compression: majority of agreements are with "the necessity, appli cability and potential specification impact", CSI prediction is on hold |
| 9.2.3.1 evaluation for BM | Evaluation for general performance, generalization and aspects which may have spec. impact | Progress is good: Important observations for general performance and generalizatio ns |
| 9.2.3.2 Others for BM | LCM: KPIs and UE/NW side monitoring, data collection UE side/ NW side, data collection, model inference related | Progress lags: All agreements with "necessity, applicability, potential spec impact". |
| 9.2.4.1 Evaluation for PoS | Evaluation for general performance, generalization and aspect s which may have spec. impact | Progress is good: Important observations for general performance and generalizatio ns |
| 9.2.4.2 Others for PoS | Signaling/report/feedback, data collection/generation, LCM/m odel monitoring, model inference related | Progress is fair: good outcome in general with some agreements with "necessity, app licability, potential spec impact". |



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# Proposals for way-forward

Proposal: Considering the SI progress, RAN1 to continue discussing the spec-impact of UE-side model-based CSI prediction in RAN1#114 meeting focusing on aspects identified in RAN1#112bis-e.