RWS-230097

Views on Rel-19 MIMO Enhancement

Agenda Item: 5
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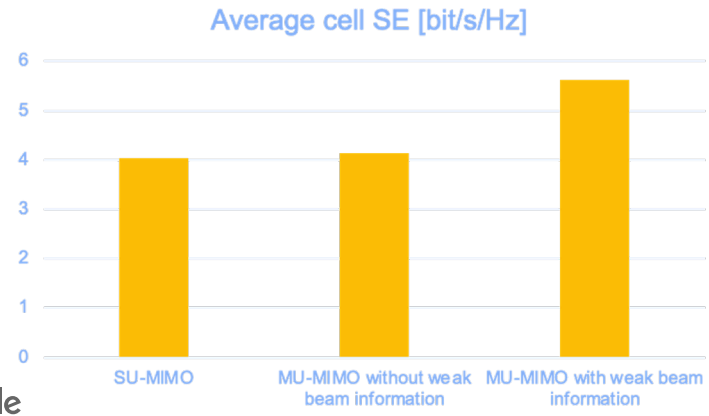
Beam management

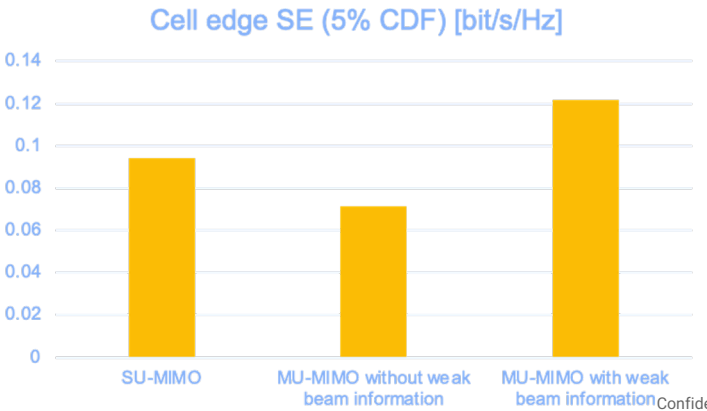
Motivation

- Rel-17/Rel-18 spent a lot of effort in beam indication enhancement, which reduced the signaling overhead for beam indication, but the beam indication enhancement cannot increase the spectrum efficiency significantly
- MU-MIMO is still one of the most effective tools to improve the spectrum efficiency

Proposal

- Specify beam report enhancement to identify ”weak” beams for UL/DL MU-MIMO UE pairing





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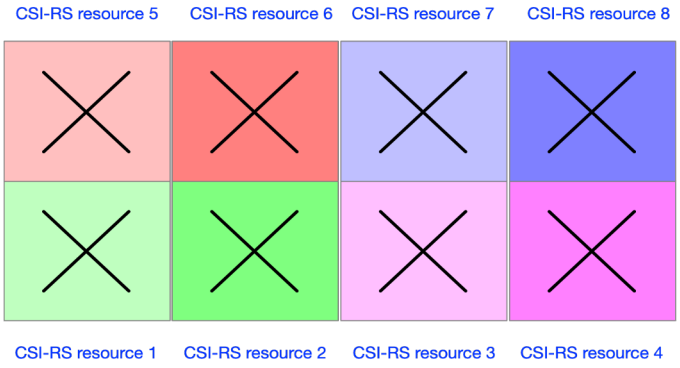
CSI-RS and CSI feedback

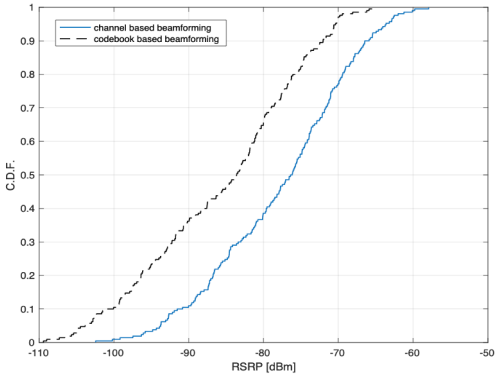
Motivation

- A lot of enhancement on CSI feedback has been introduced for digital precoder selection
- To extend the CSI feedback mechanism to facilitate analog beamforming can help improve the performance

Proposal

- Specify CSI feedback to facilitate the channel based beamforming
- Specify CSI-RS with antenna switching for CSI feedback for the UE to identify the raw channel for beamforming weight selection





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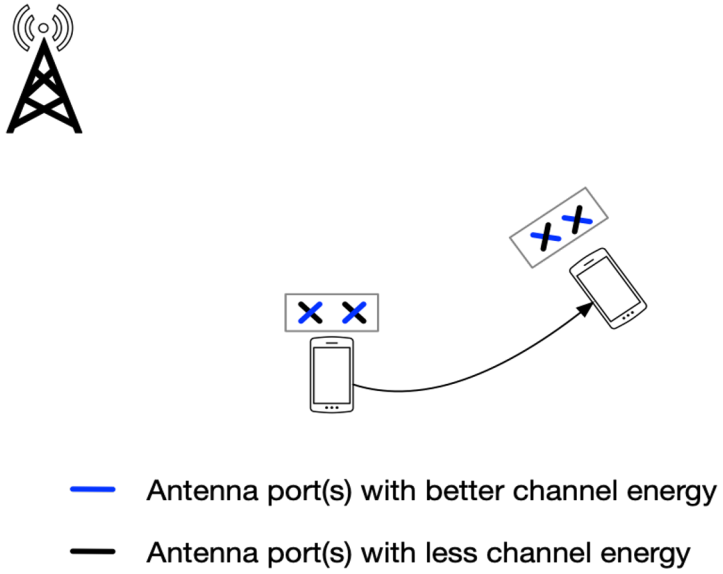
UL transmission scheme

Motivation

- DL open-loop MIMO has been supported since Rel-15
- UL open-loop MIMO is not well supported
- UL open-loop MIMO becomes important as the number of Tx antennas increases

Proposal

- Specify UL open-loop MIMO transmission scheme with antenna port cycling
- Study, if needed, specify UL open-loop MIMO transmission scheme with precoder cycling



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Conclusion

- Proposal 1: Specify beam report enhancement to identify ”weak” beams for UL/DL MU-MIMO UE pairing
- Proposal 2: Specify CSI feedback to facilitate the channel based beamforming
  - Specify CSI-RS with antenna switching for CSI feedback for the UE to identify the raw channel for beamforming weight selection
- Proposal 3: Specify UL open-loop MIMO transmission scheme with antenna port cycling
  - Study if needed, specify UL open-loop MIMO transmission scheme with precoder cycling

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