Multi-panel FR2 UE requirements

Apple

Background

- During the development of Rel-15 requirements of spherical coverage EIS, RAN4 used a mixture of single-panel and multi-panel UE assumptions in the data-driven approach to define the related values
- With the NR MIMO enhancements enabling simultaneous multi-panel reception in the same frequency via a UE capability, EIS spherical coverage performance evaluation can be updated based on the multi-panel UE assumption
- Proposals to the Rel-18 RAN4 package included a discussion of work scope related to whether new spherical coverage EIS requirements on simultaneous multi-panel reception in the same frequency (and different AoAs) is feasible and, if found feasible, to specify the related requirements
- During RAN4 #101bis Apple proposed new work objectives in R4-2200276

Proposed work objectives

- Given the relative stability of the Rel-18 RAN4 package, as it is prepared for RAN Plenary fine-tuning, scoping, and eventual approval, we propose not to continue to discuss multi-panel RF requirements in Rel-17
- The following framework for EIS requirement study can be discussed as part of the Rel-18 work:
  - Study whether new spherical coverage EIS requirements on simultaneous multi-panel reception in the same frequency (i.e. with up to 2 simultaneous AoAs) is feasible
    - Evaluation of system gains
    - Reference architecture and implementation complexity
    - Possible requirement definition and study of metrics
    - Can the requirement enhancement be isolated to EIS spherical coverage only (i.e. no impact on other requirements)?
- The following framework for testability study can be discussed as part of the Rel-18 work:
  - High level requirements of the test system:
    - Emulation of up to 2 simultaneous AoAs (how much angular separation?)
    - How to determine whether emulation of V&H polarizations per AoA is needed?
    - How to quantify the quiet zone?
    - What new MU elements need to be considered?

TM and © 2022 Apple Inc. All rights reserved.