3GPP TSG RAN Meeting #102
Edinburgh, Scotland, December 11 – 15, 2023

RP-233473

Scope on channel model for 7 - 24 GHz

Agenda: 9.1.1.8
Document for: Discussion and decision
Source: Samsung

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Background

From RAN#101, the followings are summarized from moderator in RP-232617

RAN1-led study objectives to:

- validate using measurements the channel model of TR38.901 for 7-24 GHz, and
- to adapt/extend as necessary the channel model of 38.901 for at least 7-24 GHz, including at least the following aspects for applicable scenarios:
  - Near-field propagation;
  - Spatial non-stationarity.

Note that continuity of the channel model in the frequency domain shall be ensured.
Note that mathematical and/or theoretical aspects (if any) may be studied before results of measurement campaigns are available.
Study of measurement results is likely to be able to start in Q3 2024.

This documents discuss views on 7 -24 GHz channel model study.

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Discussion points on 7 – 24 GHz channel model study

1. Continuity between near-field and far-field model

   For channel model study, it is important to identify key use cases from the RAN perspective among the various use cases organized by SA. For more effective discussion from the perspective of project management, it is suggested phased approach to discuss the use cases, scenario, and spectrum in phase 1 in RAN1 rather than SI in RAN, and to measure, develop, and validate models in phase 2.

2. Continuity of the channel model in the frequency domain

   In the end, the development of the channel model is to be used in simulation work, which means that it is important to develop a methodology for this purpose. Basically, TR38.901 is based on a stocastical model, so it is difficult to define an explicit sensing object, but the explicit method such as ray tracing is highly complex. Solutions to solve these problems are required and objective should be included.

3. How to study spatial non-stationary model

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Objectives

Based on our observations, we propose the following objectives

- Validate using measurements the channel model of TR38.901 for 7-24 GHz [RAN1]
  - Validation of the channel models may include, but not limited to:
    - Pathloss model at least for various BS to UE distance and BS height
    - Frequency-dependency correlation parameters at least the mean and standard variation of delay and angle spread, and cluster delay and angle spread
    - Other special conditions including diffraction, foliage loss, and antenna correlations

- Adapt/extend the channel model of TR38.901 at least for 7-24 GHz, including at least the following aspects for applicable scenarios, if necessary [RAN1]:
  - Near-field propagation with continuity of the far-field
  - Spatial non-stationarity

- Note 1: Continuity of the channel model in the frequency domain shall be ensured.

- Note 2: Mathematical and/or theoretical aspects (if any) may be studied before results of measurement campaigns are available. While measurement results may be available and submitted at any time, the study of measurement results may start later (e.g., Q3 2024).

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