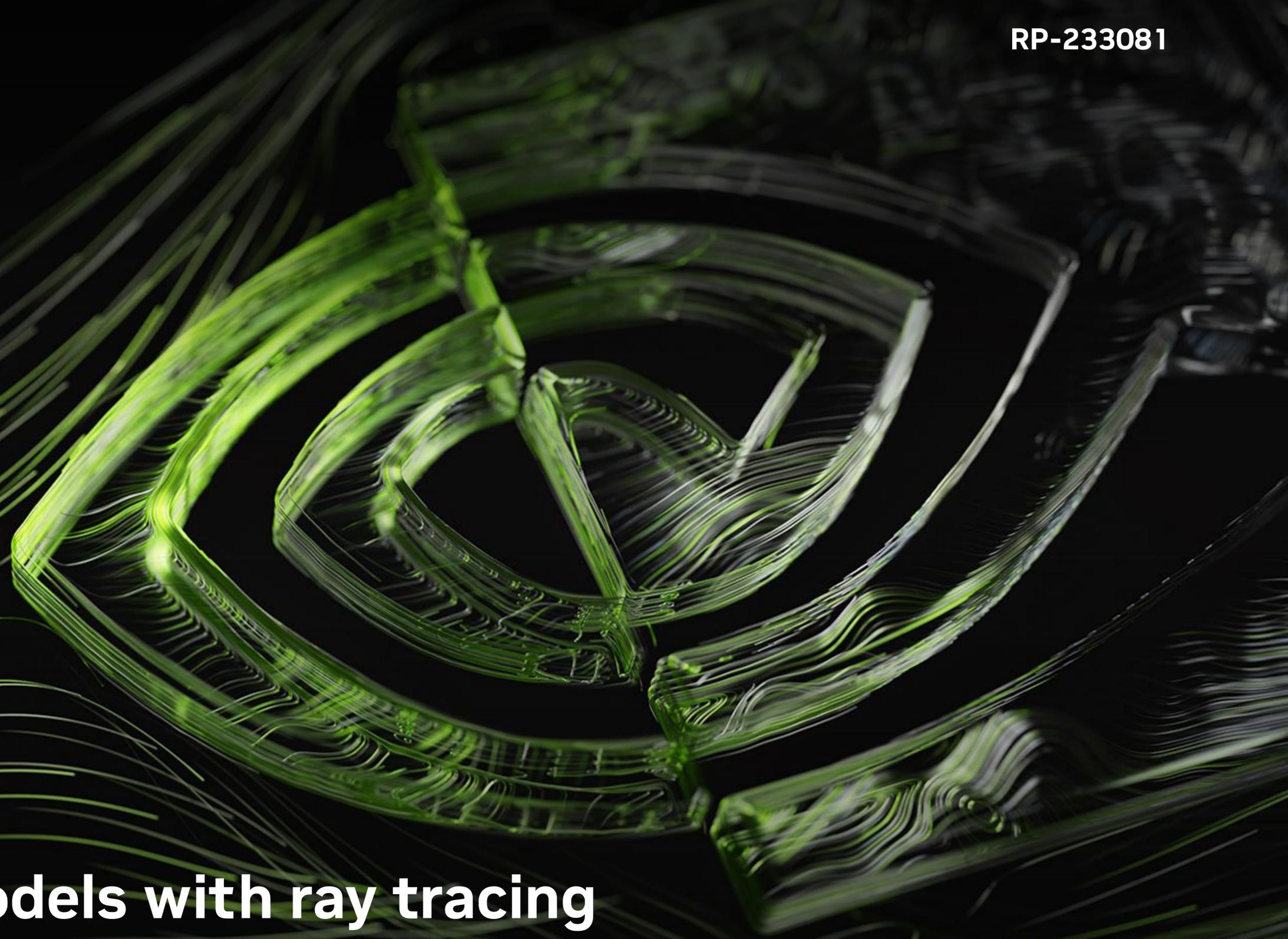


Agenda: 9.1.1.8
Source: NVIDIA



Study on channel models with ray tracing for 7-24 GHz spectrum

NVIDIA

Motivation

- Though the widely used stochastic channel models in 3GPP TR 38.901 are well suited to capture the behavior of a certain class of environment, they cannot be used for any application that requires the simulation of a specific environment.
- Many key topics for 5G-Advanced evolution and 6G require the simulation of a specific radio environment in a physically based manner which cannot be done with stochastic channel models.
- The use of ray tracing-based channel models is critical for the 3GPP study and standardization of the following topics on the path to 6G:
 - Integrated sensing and communication (e.g., radar-based sensing and localization, computer vision-aided wireless communications)
 - Reconfigurable intelligent surfaces (RIS) (e.g., optimal configuration of a particular RIS)
 - (Sub-)terahertz (THz) communication
 - Digital twins
 - Semantic communications
- **Therefore, timely development of ray tracing-based channel models is essential for the evolution of 5G-Advanced and 6G standardization in 3GPP.**

Proposal

- **Establish a channel model study in Release 19, including the development of ray tracing-based channel models, for 7-24 GHz spectrum.**
- Depending on the scope and outcome of the Release-19 channel model study, a follow-up study on channel models with ray tracing can be further carried out in Release 20.