

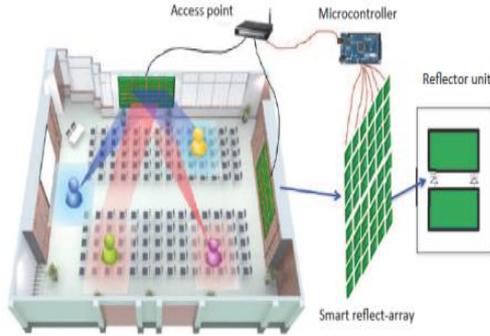
Source: ZTE, Sanechips
Agenda: 9.13

Support of Reconfigurable Intelligent Surface for 5G Advanced

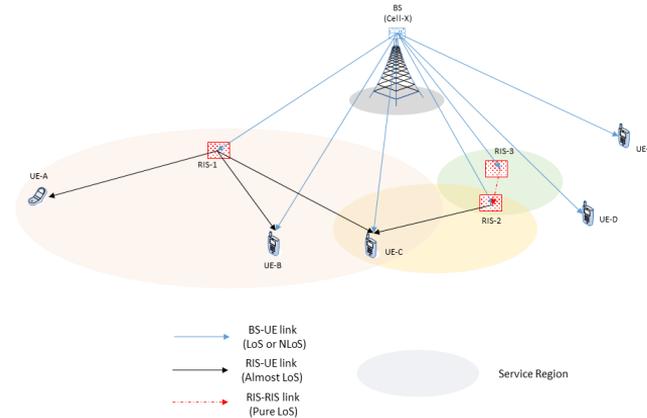


Ubiquitous antennas - Reconfigurable Intelligent Surface (RIS)

- RIS is beneficial for coverage/throughput/energy efficiency with following intrinsic features
 - Nearly passive with very low power consumption
 - Contiguous surface to shape the radio wave
 - Signal quality improvement (e.g., SINR) without D-A/A-D and PA
- It can be easily deployed in various scenarios, e.g. indoor, outdoor and O2I



RIS deployment



Objectives to support RIS: channel modeling methodology

- Methodology for channel modeling
 - Identification of deployment scenarios
 - e.g., indoor, dense urban, etc.
 - RIS component modeling
 - Topology/Type (e.g., active/passive)
 - Element response pattern
 - Channel component for study:
 - BS-RIS, RIS-RIS, RIS-UE, e.g., cascading transmission
 - Features for improvement, e.g., LoS/NLoS, delay relationship for multiple paths, polarization, etc
 - Principle for modeling:
 - Hybrid channel model: RIS is taken as one entity in the propagation environment
 - Statistic channel model: Updated procedure and parameter sets

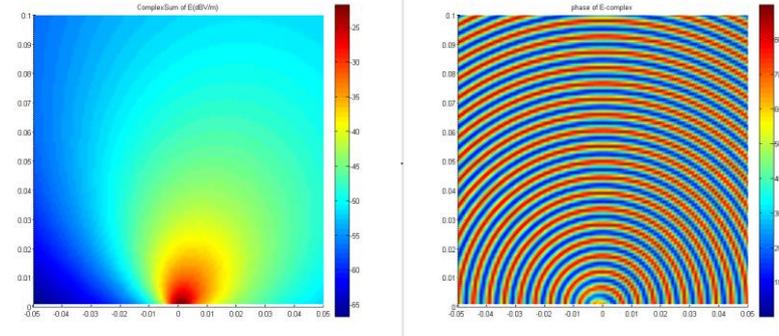


Illustration on exemplified patterns

- Hybrid model
 - Realistic modelling of scenario
 - Realistic calculation for each component, e.g., ray-tracing
 - Accurate model of properties

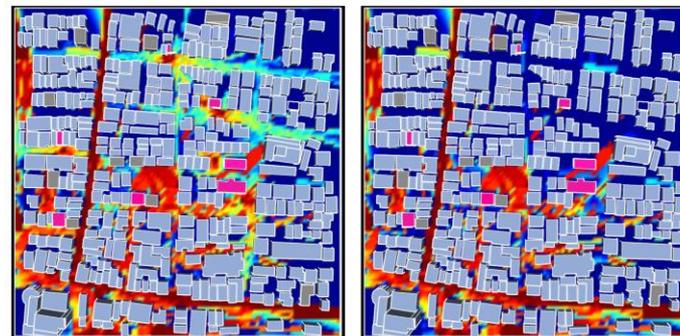
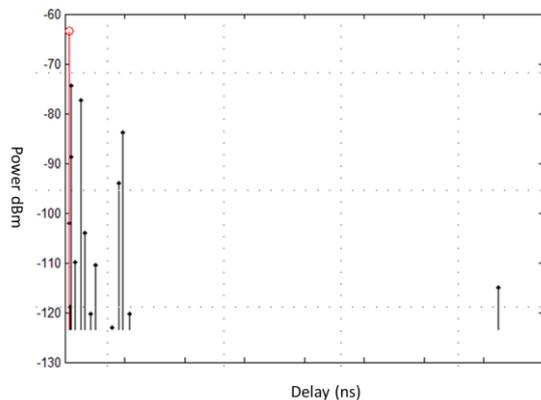
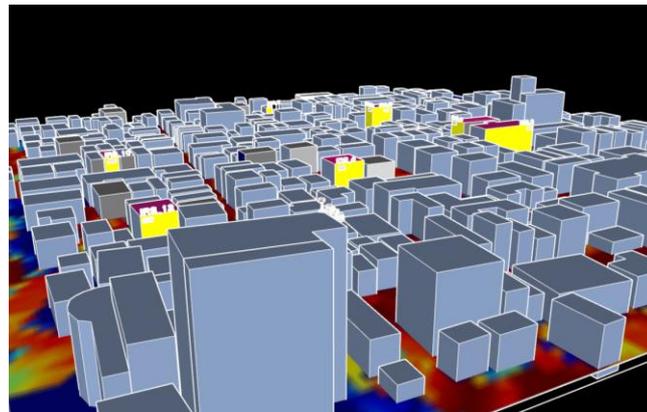


Illustration of synthetic channel realization based on Hybrid model

Objectives to support RIS: technical enhancements

- Potential impacts on following aspects:
 - Initial access procedure
 - Transmission enhancement
 - Beam management
 - CSI feedback
 - Demodulation
 - Interference coordination

Others aspects for generic channel Model

- Based on the legacy channel model (in TR 38.901), the following additional scope for generic channel model can be considered to fulfill the needs on evolution:
 - Antenna Modeling
 - New antenna topology, e.g., circular antenna, more closely spaced antennas
 - New antenna polarization assumption: circular polarization
 - Consideration on various frequency ranges

Thanks



Tomorrow never waits

