

# MAIS

Massive-MIMO Air Interface Simulator

## Real-time Multi-cell / Multi-UE Massive-MIMO Air Interface Simulator

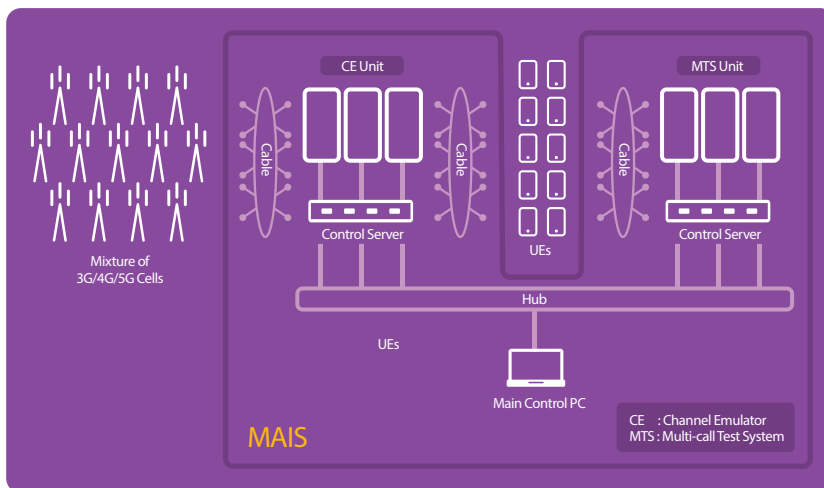
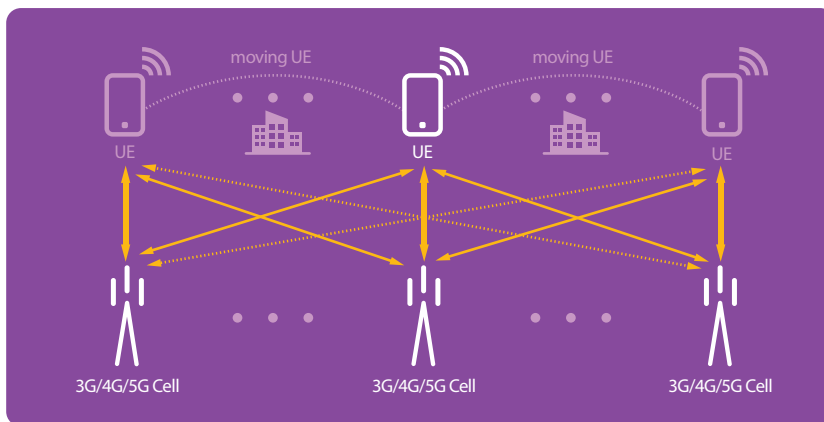
MAIS (Massive-MIMO Air Interface Simulator) is a real-time versatile system simulator, consisting of 3G/4G/5G channel emulator and logging/analysis tools that enables system engineers to verify system performance with 3G/4G/5G cells and UEs by generating various field environment consistently and repeatedly in the lab.

### Use MAIS to

- Perform 3G/4G/5G channel emulation in your lab
- Measure cell performance
- Compare cell performance under your specific criteria
- Algorithm verification such as multi-UE scheduler, FFR, CoMP, IRC, ICIC/eICIC
- System capacity verification in multi-cell/multi-UE, cell edge, moving UE environment
- Package verification prior to customer release
- Troubleshooting with quick reproduction of problems
- Logging and analysis of SINR, RSRP, RSSI, Transmit Power, RB/MCS, Throughput CDF, etc.
- System parameter optimization of RRC, MAC, PHY

### Benefits

- Bring 3G/4G/5G drive test into your lab
- Reduce cost & time for drive test & post-analysis
- Modify test condition by simple clicks and run tests
- Run multiple scenarios of different test conditions in user-defined order
- Support for remote testing facility without signal degradation
- Fast calibration time and long lasting calibrated state
- Expand system up to your requirement
- Effectively use your crucial resources



### Major Features

- 1 Automated self-calibration for CR satisfaction (5G)
- 2 User-adjustable amp/phase
- 3 Monitor BS/UE inputs & outputs at each RF port
- 4 User-defined scenarios and associated channels
- 5 Automatic/manual call set up
- 6 Selectable KPI logging and in-depth Analyzer
- 7 Easy & simple system expansion by adding slot cards

# MAIS

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## General H/W Specification (Channel Emulator)

### Specification

Channel Bandwidth: up to 100MHz with CA support

A single 10U chassis can be equipped with up to 64 RF ports

Frequency Range: 300 ~ 6,000MHz

External calibration hardware for 5G (channel reciprocity)

#### Calibration tolerances

- $|Amplitude| < 0.35dB$ ,  $|phase| < 3$  degree from any BS port to any UE port
- Stays calibrated up to 72 hours

Supports DL 256QAM, UL 256 QAM (< 4GHz)

Channel Models : ITU Ped. A/B, Veh. A/B, EPA, EVA, ETU, 2D/3D SCM, HST, User-defined

# of multi-path: 8 (expandable)

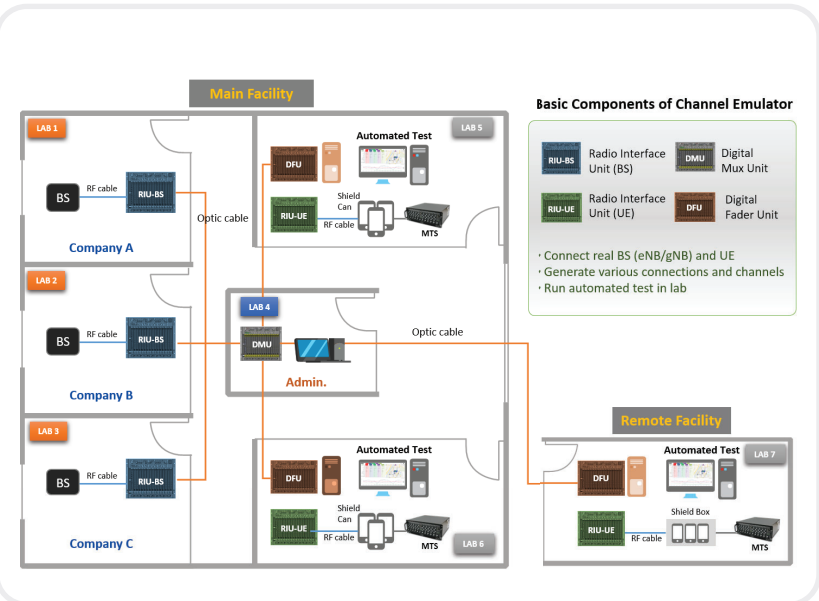
Doppler Frequency: Up to 1350Hz (560km/h@2.6GHz)

AWGN: built-in at each RF port

## CE Unit



## Conceptual Lab Layout



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