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User-friendly Emulator for MIMO Performance Testing

Propsim® FS8
Radio Channel Emulator

KEY FACTS

- Cost efficient scalable fading emulator with unrivaled RF performance for realistic air interface emulation
- Designed for wireless device, chipset and base station testing for all development phases from R&D to conformance
- Optimized solution for accurate and repeatable MIMO OTA testing
- Flexible configuration for SISO, MISO/SIMO and MIMO up to 4x4 or 8x8
- 3GPP Rel 10 and Rel 11 enhancements supported including Carrier Aggregation up to 160 MHz, multiple RF bands, CoMP and Relaying
- Cutting edge channel modeling applications for MIMO, beamforming, MU-MIMO, smart antenna and virtual drive testing
- Best choice for network operators acceptance testing of LTE devices
- Compact 6U height frame design for easy rack installation or bench top use
- Integrated uplink and downlink signal separation, no need for external duplexers. Uni-directional and Bi-directional fading modes
- Built-in input power measurement, automatic input level setting
- 3GPP standardized ready to run test models included
- Wizard with guided steps for test scenario creation and editing
- Designed for automated 24/7 testing
  - User defined antenna connections
  - ATE remote control interface for GPIB and LAN
  - Remote test scenario creation
- Compatibility within the Propsim® product family:
  - Compatible with Propsim® F8, C8 and C2 test scenarios, fading models and test automation interface enabling convenient upgrade of the existing test systems
  - Compatible with Propsim® F8 cutting edge channel modeling applications and tools (excl. Aerospace)
# Propsim® FS8 Radio Channel Emulator

## Specification
- **RF interface channel configurations**: 2, 4, 6 or 8
- **MIMO emulation**: 2x2, 4x2, 4x4, 8x2, 8x4
- **RF interface channel frequency range**: 30–2700 MHz
- **RF interface channel signal bandwidth**: 40 MHz
- **Number of fading paths per fading channel**: up to 48
- **Number of fading channels**: up to 32
- **Internal interference generators**: AWGN, CW
- **Excess delay range**: up to 3000 µs
- **Number of integrated RF local oscillators**: up to 2
- **Multi emulator synchronization**: up to 6 units
- **Input power measurement**: automatic input level setting
- **Input power meter modes**: Continuous and RF Burst-Triggering
- **Integrated duplex components for uplink and downlink separation**
- **User defined active connector setting**
- **ATE control interface for effortless test case automation**

## RF Performance
- **RF input range**: –50 – +20 dBm (CF 10 dB, SNR > 35 dB)
- **RF output level range**: –120...–20 dBm (RMS, CF 10 dB)
- **Peak output level**: max. 0 dBm
- **RF output level setting resolution**: 0.1 dB
- **Digital fading channel dynamics**: 60 dB
- **Noise floor**: –165 dBm/Hz (output RMS level < –40 dBm)
- **EVM**: OFDMA 20 MHz BW –45 dB typical

## Channel Modeling
- **Standard channel models**: LTE, WiFi, DVB-T/H, WCDMA, SCDMA deployment, WCDMA HSPA+, 3GPP2 (IS-54, IS-95), WiMAX, GSM, TETRA, ITU 3G
- **Optional channel models**: LTE Advanced evaluation models, IMT-Advanced models, SCM, SCME models, WINNER, WINNER+, TD-LTE
- **Fading profiles**: Constant, Rayleigh, Rice, Nakagami, Lognormal, Suzuki, Pure Doppler, Flat, Rounded, Gaussian, Jakes, Butterworth, User-defined profiles, Models from 3rd party simulation tools and ray-tracing applications
- **Delay profiles**: Constant, sinusoidal sliding delay, linear sliding delay, 3GPP birth-death, 3GPP Sliding delay group, user-defined, delay profiles from 3rd party simulation tools and ray-tracing applications
- **Channel configuration topologies**: Very flexible Single or multiple independent or fully synchronized MIMO, MISO, SIMO, SISO MANET/MESH Carrier aggregation, CoMP and Relaying transmission schemes
- **Run-time fading engine**: Amplitude, Delay, Doppler and Environment controllable for each fading channel separately
- **Channel modeling tool for user-defined channel models**
- **Emulation of dynamic impulse response data**
- **Emulation of shadowing, Flexible control of pre-defined and user-defined shadowing profiles**
- **Emulation of beamforming channels**
- **Emulation of high speed train scenarios**
- **Virtual drive testing application (WES) for playback emulation of measured radio channels captured with scanners, test terminals or channel sounder**
- **MIMO over-the-air (OTA) application, channel modeling tool for MIMO OTA testing**
- **Geometric Channel Modeling application for beamforming and smart antenna testing. Dynamic spatially evolving channel modeling, user-defined antenna patterns, 3D modelling and, IMTA, WINNER and SCME models included**
- **Custom channel modeling tool kit for external PC**
- **Note that the hardware platform extensions and additional features can be installed after the initial delivery of an emulator platform.**