

Keysight Technologies

Propsim FS8 Channel Emulator 6 GHz

Data Sheet



Compact and Scalable
RF Channel Emulator

Compact RF channel emulator for advanced performance testing

- Used by major mobile operators for reverberation chamber based supplementary MIMO OTA testing
- Ideal for single cluster anechoic chamber based MIMO Over-The-Air device performance evaluation
- Enhance multi-mode chipset and device testing with one box testers or real base stations during all development phases from R&D to conformance
- 3GPP cellular, WLAN and Automotive V2X testing

Protect your investment with Prosim FS8 6 GHz

- Scalable channel emulator platform for present and future testing requirements
- The market's most compact RF channel emulator in terms of size and weight, supporting up to 8 RF and 32 digital channels up to 8x4 MIMO emulation
- Compact 6U height hardware design for easy rack installation or bench top use
- Multi-unit setups supported (up to 6)
- LTE - CA MIMO support. Single unit supports up to 4CC bands each 40MHz wide
- Seamless frequency coverage up to 350 - 6000MHz

Easy operation across a vast range of functions via GUI or Automation API

- Includes wizard with guided steps for simple test scenario creation and editing
- Enables bi- and uni-directional operation of RF ports
- Offers built-in input power measurement
- Widest signal dynamic range and highest RF power output levels allows
- easy implementation of Over-The-Air or conductive (RF cabled) test set-ups for device(s) under test
- Provides fully automated phase and amplitude calibration without a vector network analyzer
- Automated 24/7 testing and ATE remote control interface for GPIB and LAN enable unattended, cost-effective and quick test case execution
- Compatible with other Prosim products test automation interfaces, enabling smooth and convenient transfer or share of test automation scripts between teams

Supports industry leading channel modeling tools

- Prosim Geometric Channel Modeling Tool (GCM) enables easy multi-link test scenario definition based on SCME, WINNER models to test MU-MIMO, beamforming, smart antennas, CoMP, Carrier Aggregation, HetNet and multi-RAT performance and interoperability testing of real devices with real base stations
- Prosim field-to-lab Virtual Drive Testing Modeling Tool enables advanced troubleshooting of field issues, benchmarking, interoperability and regression testing by importing field measurement data from a live network captured by drive test tools such as Nemo Outdoor and Nemo Handy
- Prosim MIMO OTA modeling tools are compatible with CTIA/3GPP/CCSA test plans and enable simple benchmarking of off-the-self devices in anechoic chamber installations
- Prosim WLAN Tool for design and verification of MIMO performance and interoperability of WLAN products

Ready test scenario packs include:

- MIMO OTA performance test scenarios for major mobile operator test plans in North America
- CTIA/3GPP MIMO OTA test scenarios
- FAST-OTA capability for up to 12x faster device MIMO OTA testing compared to conventional test methods
- MANET radio testing
- Automotive 802.11p V2X radio testing

Specifications

RF interface channel configurations	2, 4, 6 or 8
MIMO emulation	2x2, 4x2, 4x4, 8x2, 8x4
MANET, V2X, Device to Device link emulation	up to 8 radios in chain, and 5 radios in full mesh network topology
RF interface channel frequency range	up to 350 - 6000 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 all independently controllable for fading, Doppler, path amplitude and path phase offset
Internal interference generators	LTE fully configurable and synchronous. AWGN and CW
Excess delay range	up to 3000 μ s
Number of integrated RF local oscillators	up to 4 internal
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 RF connector settings simplify switching between test case in automated tests	
ATE control interface for effortless test case automation	
Integrated phase and amplitude calibration (no need for VNA)	
Fully automatic phase and amplitude calibration with Keysight Technologies ACU external hardware unit (no need for VNA)	

RF Performance

RF input level range	350...4200MHz -50dBm...+25dBm RMS 4200...6000MHz -40dBm...+25dBm RMS
RF output level range	350...4200MHz -4dBm...-120dBm RMS 4200...6000MHz -14dBm...-120dBm RMS
Peak output level	max. +16dBm 350...4200MHz max. +6dBm 4200...6000MHz
RF output level setting resolution	0.1 dB
Digital fading channel dynamics	60 dB
Number of fading paths per fading channel	up to 48
Noise floor	- 165 dBm/Hz typical (output RMS level < -40 dBm)
EVM	OFDMA 20 MHz BW < -45 dB typical

Channel Modeling

Standard channel models	3GPP LTE, WCDMA, GSM, 3GPP2 (IS-54, IS 95), TETRA, ITU 3G, WLAN, DVB-T/H
Optional channel models	LTE Advanced evaluation models, IMT-Advanced models, SCM and SCME models, WINNER, WINNER+, TD-LTE Sounder measured high speed train channel models
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 separately controlled for each fading channel separately
Channel modeling tool for user-defined channel models	
Emulation of dynamic impulse response data	
Flexible control of pre-defined shadowing profiles or user-defined path loss profiles; control of up to 128 channels independently	
Emulation of 2D and 3D beamforming channels, single and multi-user scenarios, measured	
Emulation of high-speed train scenarios; measured with channel sounder or defined with channel modeling tools	
Field to lab virtual drive testing modeling tool for C2K/GSM/WCDMA/ LTE device and base station testing in the lab; use measured radio channel data captured with scanners, test terminals or receivers from the field; seamless operation with Keysight Nemo drive test tools	
MIMO OTA modeling tool for CTIA/3GPP/CCSA MIMO OTA testing supports the latest CTIA and 3GPP compliant test scenarios and channel model validations; optional tools for LTE-CA inter- and intraband MIMO (DL), Uplink-MIMO, Bi-directional and 3D MIMO OTA testing	
Geometric channel modeling tool for user-defined Multi-link MIMO, beamforming and smart antenna scenarios testing; includes dynamic spatial models, user-defined antenna patterns, 3D modeling and IMTA, WINNER and SCME models	
WLAN Tool for design and verification of MIMO performance and interoperability of WLAN products	
Custom channel modeling tool kit for external PC	
Maximize your investment: hardware platform extensions and additional features can be purchased and installed at any time after the initial delivery of an emulator platform	

Evolving

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