Keysight Technologies
Propsim FS8 Channel Emulator 2.7 GHz

Data Sheet

Compact and Scalable
RF Channel Emulator

KEYSIGHT
TECHNOLOGIES

Unlocking Measurement Insights

2TEST

Anite is now part of **Keysight Technologies**

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
– Perform special VHF and UHF and mobile ad-hoc network radio testing

Protect your investment with Propsim FS8 2.7 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
– 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 40 MHz wide

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
– 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 Propsim products test automation interfaces, enabling smooth and convenient transfer or share of test automation scripts between teams

Supports industry leading channel modeling tools

– Propsim 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
– Propsim field-to-lab Virtual Drive Testing Modeling Tool enables advanced troubleshooting of field issues, bench-marking, 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
– Propsim MIMO OTA modeling tools are compatible with CTIA/3GPP/CCSA test plans and enable simple benchmark-ing of off-the-self devices in anechoic chamber installations

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

Specifications

RF interface channel configurations	2, 4, 6 or 8
MIMO emulation	2x2, 4x2, 4x4, 8x2, 8x4
MANET emulation	up to 8 radios in chain, and 5 radios in full mesh network topology
RF interface channel frequency range	30 to 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 all independently controllable via GUI 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 µs
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	– 50 - +20 dBm (CF 10 dB, SNR >35 dB) – 30 - +20 dBm (CF 10 dB, SNR >60 dB, full range)
RF output level range	– 120 to – 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
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

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

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