

kJ5000 - Jitter Noise Generators



Applications Include:

- Receiver Jitter Tolerance Testing
- Phase Noise Measurements
- PAM-4 Stressed Eye Testing
- PLL Tuning
- SNR Margin Testing
- CDR Stress Testing

kTB Jitter Noise Generators

Designed specifically for the test and development of high speed serial data systems, the kJ5000 Series of Jitter Noise Generators produce Additive White Gaussian Noise with a minimum crest factor of 18dB in order to simulate real world jitter caused by thermal noise. Precise levels of noise at the frequency bands of interest can be injected into a system in order to evaluate its performance and locate problem components.

Due to ever increasing data rates and more complex modulation schemes in today's digital communication systems, there is a growing need for design engineers to ensure that signal edges synchronise as accurately as possible with the system's reference clock. The failure to do so results in a phenomenon known as random jitter (Rj), creating timing errors where signal edges arrive too early or too late in the time domain. In the frequency domain this effect is termed phase noise, whereby fluctuations in the phase of the carrier frequency spread the signal's power into nearby frequencies.

IEEE Std 2414-2020 is the general standard which provides precise rules, definitions and parameters for the measurement of jitter and phase noise across all high speed telecommunications systems.

Below are examples of serial data technologies, including their appropriate standards, and the kJ5000 model used for testing:

kJ5006	10GBASE-KR Ethernet	IEEE Standard 802.3ap
kJ5013	25GBASE-SR Ethernet	IEEE Standard 802.3by
kJ5030	NDR Infiniband 400GB/s	Infiniband Architecture Specification V 1 Release 1.5
kJ5060	PCI Express 7.0	PCI Express Base Specification Revision 7.0

General Specifications

- Output White Gaussian Noise
- Minimum 18dB Crest Factor
- Power 115/240VAC, 50/60HZ
- Ethernet
- Touch Screen Display
- 3U High Enclosure
- Operating Temperature:-10 to +65°C

Options

- kJ-C Signal Combiner
- kJ-SE Single Ended
- kJ-SFB Switched Filter Bank

Specifications

Model	Connector	Frequency	Power	Flatness	Spectral Power
kJ5006	SMA Female	10MHz to 6GHz	- 3 dBm	+/- 2.5 dB	-100 dBm/Hz
kJ5013	SMA Female	1GHz to 13GHz	- 3 dBm	+/- 3 dB	-107 dBm/Hz
kJ5030	2.92mm	1GHz to 30GHz	- 3 dBm	+/- 4 dB	-100 dBm/Hz
kJ5060	1.85mm	1GHz to 60GHz	- 8 dBm	+/- 5 dB	-110 dBm/Hz