

Technical Information



Noise Generator SFL-N

Option for TV Test Transmitter SFL

When testing receivers, it is also necessary to simulate real transmitting and receiving conditions. With the aid of the noise generator, an additive white Gaussian noise (AWGN) signal can be superimposed on the output signal of the SFL. The ratio of carrier power to noise power (C/N) can be varied with a high resolution over a wide range. This allows, for instance, precise sensitivity measurement of receiver circuits with defined C/N.

Digital signal processing in the baseband (I and Q signals) is used for the generation of the AWGN signal. This ensures high accuracy and excellent repeatability of measurements.

- Superimposed noise signals (AWGN)
- C/N ratio variable with high resolution over wide range
- Broad noise bandwidth (16MHz)

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Real test signals

A TV test transmitter is normally used to generate as near as possible ideal signals. For testing receivers, it is however also necessary to simulate real transmitting and receiving conditions. This is exactly what option SFL-N has been designed for.

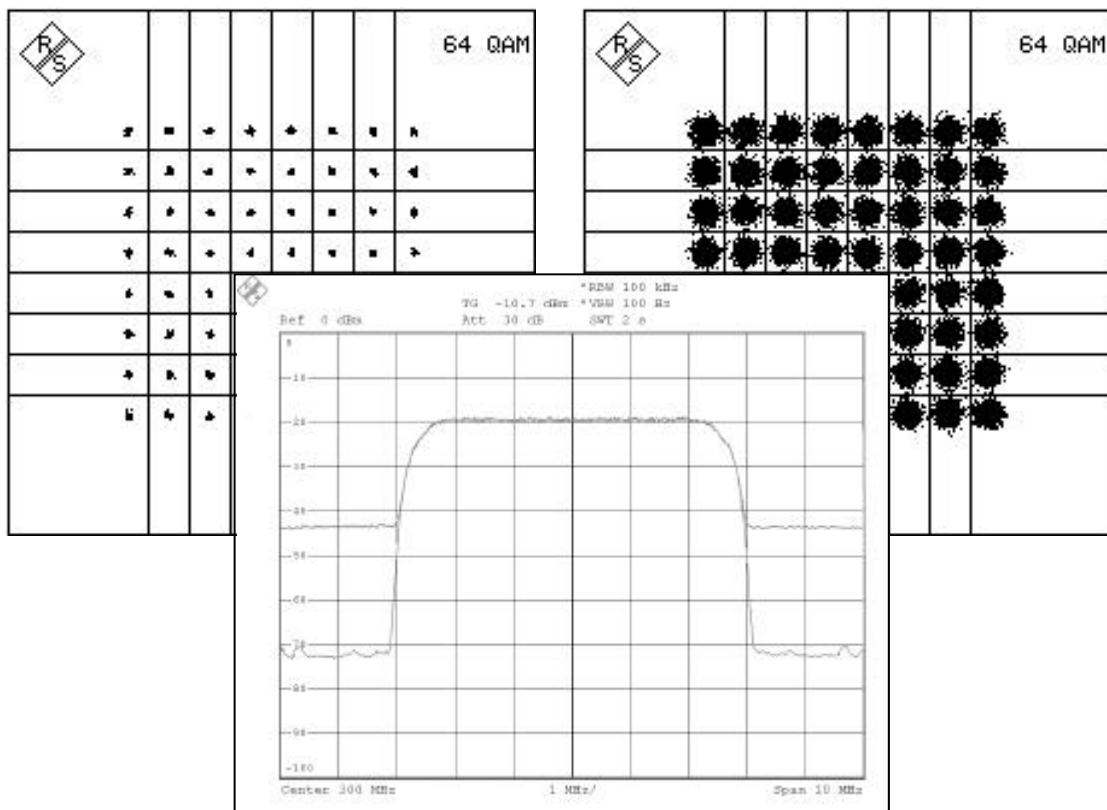
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Applications

- Simulation of a noisy receive signal, eg weak satellite signal
- Simulation of noise of a receiver input stage
- Sensitivity measurements on digital receivers by determining the BER at defined C/N

Characteristics

Digital signal processing in the baseband (I and Q signals) is used for the generation of the AWGN signal. This ensures high accuracy and excellent reproducibility of measurements. The noise bandwidth can be varied in a wide range.



Specifications

Noise Characteristic

Distribution density	Gaussian, statistically independent for I and Q
Crest factor	14 dB

Bandwidth

Receiver bandwidth	0.1 MHz ... 10 MHz (selectable)
RF Noise bandwidth (-1dB)	16MHz

C/N Settings

Variation range	60 dB
Minimum selectable C/N	0 dB (carrier bandwidth \geq 6MHz)
Resolution	0,1 dB
C/N Shift	+1 dB (selectable)

C/N Error

Absolute error	< 0,3 dB after calibration typical 0,2 dB
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RF Characteristics

Additional frequency response up to 5MHz offset from carrier at RF output	< 0.4dB
Reduction of maximum SFL RF-output level	>0...18 dB (in steps of 6 dB)
Carrier leakage	typ. -50dBc
RF frequency range	> 15MHz

General data:

Rated temperature range:	+5°C to +45°C
Operating temperature range:	0°C to +50°C
Storage temperature range:	-40°C to +70°C
Mechanical resistance	
Vibration, sinusoidal:	5Hz to 150Hz, max 2g at 55Hz, 55Hz to 150Hz, 0,5g const. meets IEC68-2-6, IEC1010-1 and MIL-T-28800D, class 5
Vibration, random	10Hz to 300Hz, acceleration 1.2g (rms)
Shock	40g shock spectrum, meets MIL-STD-810D and MIL-T-28800D, class 3/5
Climatic resistance	
Damp heat	95% rel. Humidity, cyclic test at +25°C/+40°C, meets IEC68-2-3
Electromagnetic compatibility	EN50081-1, EN50082-2 (EMC Directive of EU)
Immunity to RFI	10V/m
Electrical safety	EN61010-1, IEC1010-1, UL3111-1, CSA-C22.2 No.1010.1



Power Supply	
Input voltage	100 ... 240VAC (continuous range)
Input frequency	50 ... 60 Hz
Rated Power	60 VA
Dimensions (W x H x D)	427 mm x 55 mm x 450 mm
Weight	5 kg

Ordering designation:

SFL-N Noise Generator R&S SFL-N 2084.4040.02

