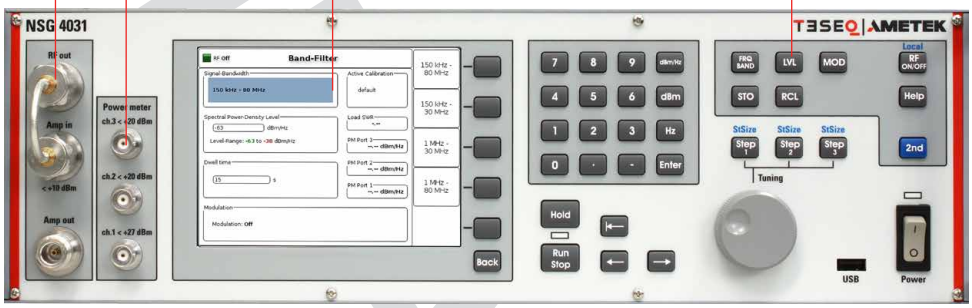
PRELIMINARY

NSG 4031
BROADBAND IMMUNITY TEST SYSTEM FOR IEC / EN 61000-4-31

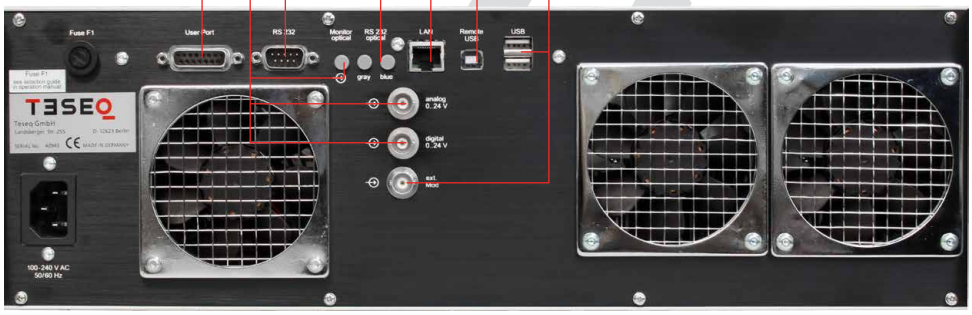
- **Designed for IEC / EN 61000-4-31**
- **Integrated white noise generator 150 kHz to 80 MHz**
- **3 power meter inputs 9 kHz to 1 GHz**
- **Integrated class A power amplifier with >80 W, 150 kHz to 80 MHz**
- **5,7" TFT color display**
- **Internal, menu-based control software**

The broadband immunity test system NSG 4031 has been designed for testing in accordance with IEC / EN 61000-4-31. It contains a white noise generator with four different band filters to allow band limited testing as may be required in future product standards. The internal power meter are capable to show the forward power as well as the VSWR of the connected setup. The three front panel inputs allow an easy test level setting procedure. The internal power amplifier with more than 80 Watts output power allows test levels 1 to 3 as given in table 1 of IEC / EN 61000-4-31 also including an optional 2 dB attenuator which can be used in case of severe EUT mismatch. Due to the powerful and easy to use firmware, the NSG 4031 is independent from an external PC and control software.

- External access to noise generator output or power amplifier input and output
- 3 power meter inputs
- 5.7" color display, easy to use firmware
- Hard keys for important functions



- User port for 4 TTL inputs and 4 TTL outputs and supply voltages for individual monitoring and control applications
- Analog, digital and optical monitoring inputs
- Remote control via optical RS232, RS232, LAN or USB
- 2x USB, external input for pulse modulation



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Technical specifications

White noise generator

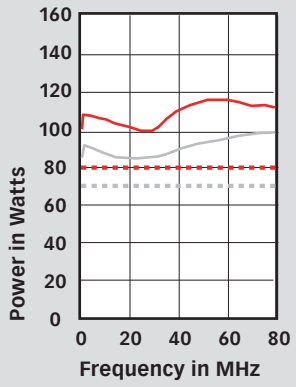
Frequency bands:	150 kHz to 80 MHz, 150 kHz to 30 MHz, 1 MHz to 30 MHz, 1 MHz to 80 MHz
RF Level	
Level range:	min -60 dBm/Hz to -40 dBm/Hz
Broadband signal flatness:	< ±3 dB (150 kHz to 80 MHz)
Out of band attenuation:	> 20 dB (100 MHz)
Pulse modulation	
Rise / fall time (10% / 90%):	< 1 µs
Modulation frequency range:	1 Hz to 10 Hz
Frequency resolution:	1 Hz
Duty cycle:	10% to 90%

Power meter

Frequency range:	9 kHz to 1 GHz
Linear measurement range	
channel 1:	-35 dBm to +27 dBm
channel 2,3:	-45 dBm to +20 dBm
Max. input / no damage	
channel 1-3:	+28 dBm
Noise level:	>5 dB below the measurement range
Input return loss:	>20 dB (below 500 MHz), >17 dB (500 MHz to 1 GHz)
Connector:	BNC socket, 50 Ω
Accuracy 10 to 30°C:	<0.5 dB, typ. <0.3 dB

Power amplifier

Output power:	see curve
Frequency range:	150 kHz to 80 MHz
Input impedance:	50 Ω
Output impedance:	50 Ω
Input return loss:	min. 10 dB
Output return loss:	nominal min. 9.5 dB, 0 dB without damage
Gain:	min. 50 dB
Gain flatness:	max. +/- 3 dB
Saturated output power:	min. 49 dBm



Output power
- typical saturated power,
- typical linear power,
- specification saturated power,
- specification linear power

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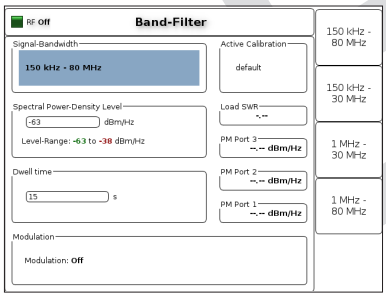
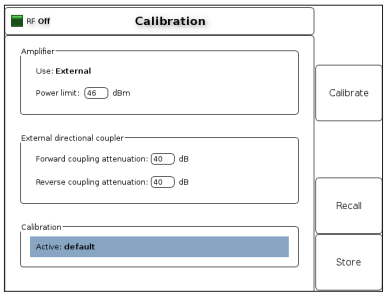
PREVIEW

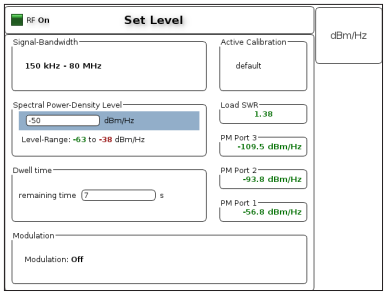
NSG 4031
BROADBAND IMMUNITY TEST SYSTEM FOR IEC / EN 61000-4-31



Firmware: Band filter settings



Firmware: Test level setting procedure



Firmware: Test level change

Power amplifier (continued)

Linear output power:	min. 48 dBm
Max. input power without damage:	max. +10 dBm
Harmonic distortion at linear output power: typ. < -20 dBc	

Analog ports

Front panel	
Generator output:	N socket 50 Ω,
Power amplifier input:	N socket 50 Ω, max. +10 dBm
Power amplifier output:	N socket 50 Ω
Power meter channel 1 to 3:	as defined in chapter “Power meter“
Back panel	
Monitoring input analog:	BNC socket, 0 to 24 V Ri=15 kΩ, 6 mV resolution
External modulation input:	BNC socket, impedance >10 kΩ

Digital ports

Front panel	
USB:	USB host connector for USB stick, keyboard, mouse
Back panel	
User port:	D-Sub 15 pole with 4 TTL inputs, 4 TTL outputs, +12 V / 800 mA, -12 V / 200 mA and +5 V / 800 mA power supply
Monitoring digital input:	BNC socket 0 to 24 V via optical coupler Ri=1.5 kΩ, switching threshold approx. 2 to 3 V
Monitoring optical input:	LWL (Light wave connector), HP versatile link HFBR0501 series 40 kBd, (avoid scattered light on the back panel)
Trigger input:	BNC socket, TTL for external triggering, max. frequency 100 Hz, trigger delay <10 ms
RS232:	D-Sub 9 pole, up to 115200 Bd
RS232 optical:	Connector 2 x HFBRx523 socket for 1 mm fiber optic cable with length between 5 m and 30 m with 115200 Bd, for other distances 38400 Bd, max. 50 m
2x USB:	USB host connector for USB stick, keyboard, mouse
USB device connector:	For remote control
Network:	RJ45, Ethernet 10 / 100 BASE-T

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Power supply

Mains input:	100 to 240 VAC, 50/60 Hz, autoranging
Power consumption:	approx. 415 W
Recommended fuse F1	
nominal 110 V:	6.3 A (slow)
nominal 230 V:	2.5 A (slow)

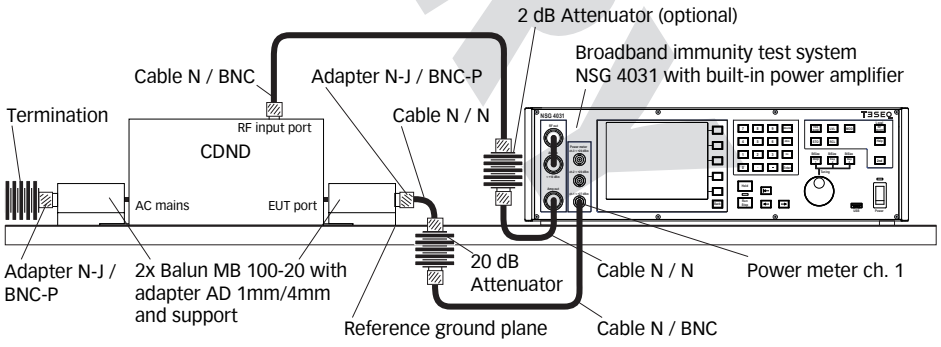
General data

Operating temperature range:	0°C to 40°C
Storage temperature range:	-20°C to 60°C
Relative humidity:	95%/30°C (no moisture condensation)
EMC:	DIN/EN 61326-1:2006
Shock:	DIN/EN 60068-2-27
Vibration:	DIN/EN 60068-2-6
Protection class:	DIN/EN 61010-1/IEC 61010-1

Mechanical specifications

Size (W x H x D) :	45 cm (19") x 15 cm (3HU) x 42.3 cm (with handle bar and foot)
Weight:	approx. 15 kg
Size of cardboard box:	80 cm x 61 cm x 34 cm
Weight of cardboard box:	approx. 8 kg (empty)

Example setup for test level setting



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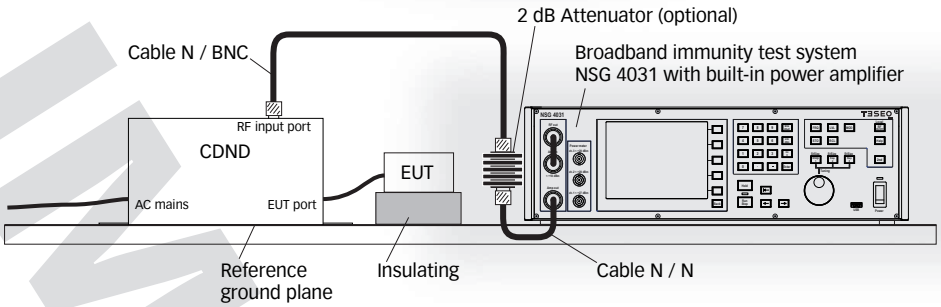
Example setup for testing



Model No. and options

Part number	Description
256150	NSG 4031 Broadband immunity test system NSG 4031 for IEC 61000-4-31, 150 kHz - 80 MHz, includes noise generator, power amplifier, power meters, directional coupler and EUT monitoring, supplied with USO 4013 (USB to serial / optical converter with 20 m optical cable), RS232 cable, LAN cable, keyboard (English), mains cable GB, CH, USA / JP, EU
97-256150	NSG 4031-TC Traceable calibration (ISO17025), order only with the unit
256151	LE 4031 Cable, attenuator, balun and termination set for level setting of NSG 4031 with CDND M316-16
97-256151	LE 4031-TC Traceable calibration (ISO17025), order only with the device
257807	CDND M316-16B Coupling Decoupling Network for differential mode according IEC 61000-4-31, type M2/M3, 16 A, banana
97-247756	CDND M316-16-TC Traceable calibration (ISO17025) for IEC 61000-4-31 requirements, order only with the unit
257802	CAS CDND31 Calibration kit for CDND M316-16, incl. 2x MB 100-20 (Balun 50 Ω/100 Ω), BMB 1000 (Balanced Measuring Bridge) and adapters, delivered in storage case, traceable calibration included

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82-256150 E03 July 2018

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