



VSQ 3000 / 3002 REFERENCE RADIATION SOURCE 800 MHZ / 30 MHZ - 3 GHZ



VSQ 3002, assembled for the frequency range 30 to 1000 MHz

- Radiation source up to 3 GHz
- Comb generator 1 MHz to 6 GHz
- Switchable spectrum with 1, 5 or 10 MHz
- High stability for frequency and level
- Changeable accumulator set
- Earth free operation



VSQ 3002, assembled for the frequency range 800 to 3000 MHz

The VSQ 3000 (VSQ 3002) is a radiation source for the frequency range from 800 MHz (30 MHz) to 3 GHz. It consists of a battery operated comb generator RSG 3000 and biconical broadband antennas DPA 4000A and/or DPA 3000, dependent on the wanted frequency range 30 MHz to 1 GHz and/or 800 MHz to 3 GHz. The comb generator is supplied by a high stable temperature compensated crystal oscillator (TCXO) and generates a frequency spectrum with a line spacing of 1 MHz, 5 MHz or 10 MHz. Combined with an antenna the generator represents a precise radiation source.

Comparison measurements

The VSQ 3000 / 3002 is suitable for various comparison measurements. It provides a radiation reference for comparing different test sites (e.g. OATS, anechoic chambers and GTEM cells) and set-ups. It may be used for the verification purpose as well as for quick checks of antennas and test set-ups.

Attenuation measurement

The VSQ 3000 / 3002 can be used to measure the attenuation of absorbing material or the shielding effectiveness of screening materials. A simple method, using the RSG 3000, allows the measurement of the attenuation of coaxial cables or attenuators without using a network analyzer.

Simulated tracking generator

All the components of the VSQ 3000 / 3002, the RSG 3000 and the antennas, can be used independently. The comb generator, being broadband, can give the same effect as a tracking generator when monitored by a test receiver or spectrum analyzer. With its high level stability, the generator is suitable for the fast calibration of measuring receivers level accuracy.

Emission measurements

Also the antennas can be used separately for different EMC-measurements. They may be used as receiving antennas for emission measurements and restricted as transmitting antennas for susceptibility measurements.

Technical specifications of VSQ 3000

Frequency range:	800 MHz to 3 GHz
Field strength at 3 m distance (quasi free space):	>55 dB μ V/m
Dimension of the storage case (B x H x T) in cm:	93 x 52 x 24
Weight:	approx. 13.7 kg

Technical specifications of VSQ 3002

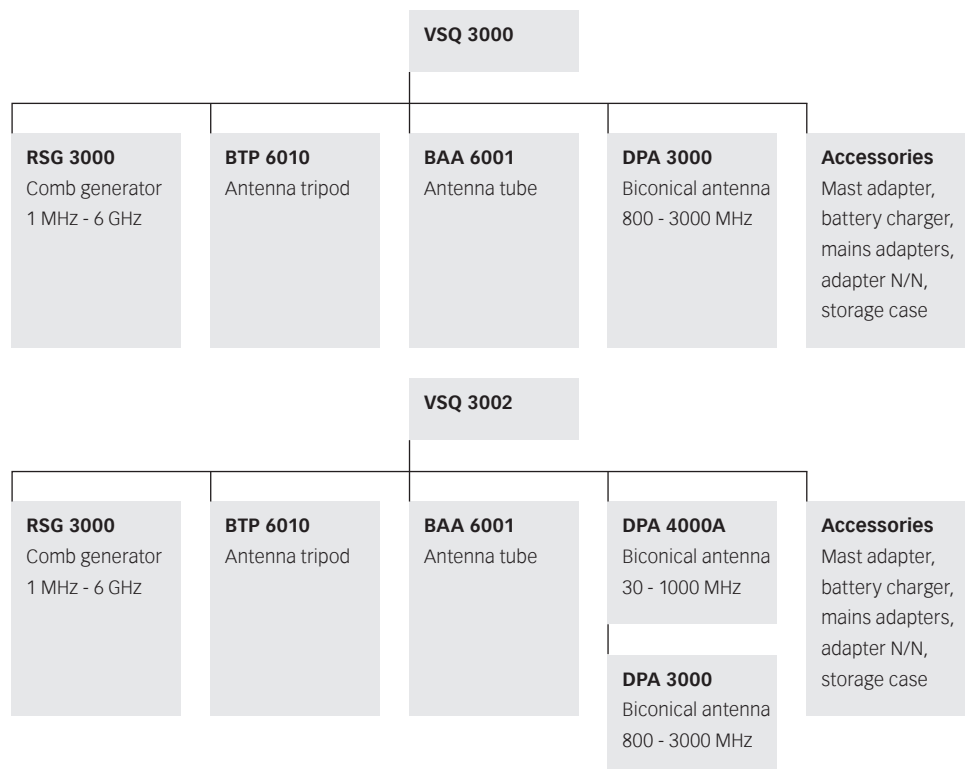
Frequency range:	30 MHz to 3 GHz
Field strength at 3 m distance (quasi free space):	>50 dB μ V/m
Dimension of the storage case (B x H x T) in cm:	93 x 52 x 24
Weight:	approx. 14.4 kg

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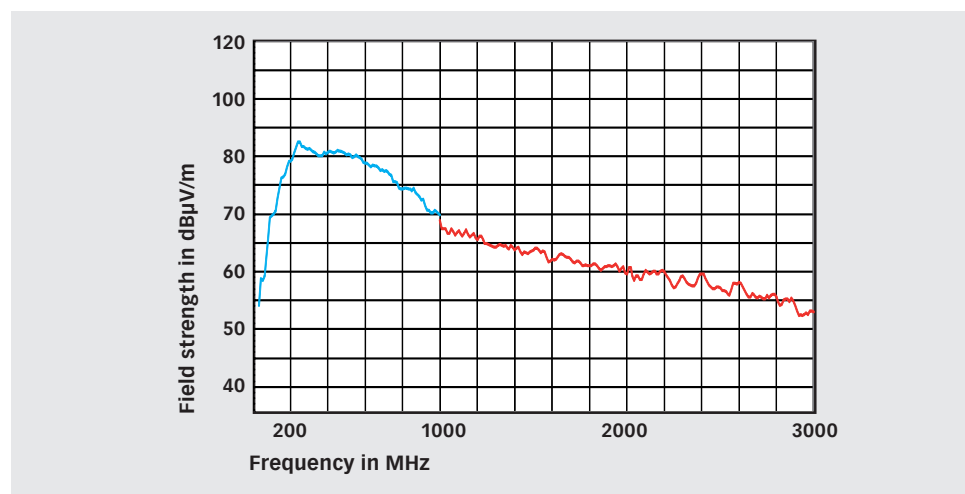


VSQ 3000*/ 3002 in storage case

*) VSQ 3000 supplied without
DPA 4000A



Typical field strength in 3 m distance, quasi free space, 10 MHz spectrum,
— DPA 4000A, — DPA 3000



VSQ 3000 / 3002

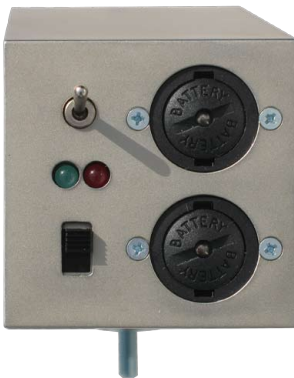
REFERENCE RADIATION SOURCE 800 MHz / 30 MHz - 3 GHz



RSG 3000



RSG 3000, view to the N connector

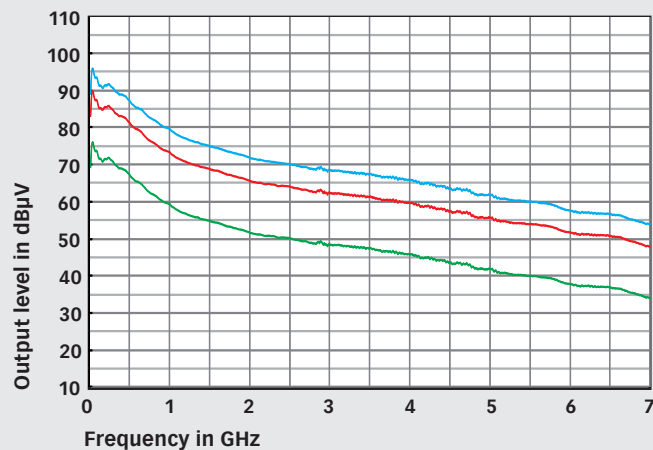


RSG 3000, view to the on/off switch, battery slots, comb spacing switch and LEDs

Technical specifications of RSG 3000

Frequency range:	1 MHz – 6 GHz (typical 7 GHz)
Comb spacing:	10 MHz, 5 MHz, 1 MHz
Frequency stability (TCXO, 100 MHz):	< 1 ppm (0°C to +50°C)
Aging:	< 1 ppm / year
Frequency correction (internal):	< 5 ppm
Signal stability:	< 0.3 dB (20°C const.) < 0.5 dB (+5°C to +40°C)
Output level, 50 Ω, typical (10 MHz spacing):	90 dBμV @ 10 MHz, 55 dBμV @ 6 GHz
Connector (RF- output):	N, female, 50 Ohm
Power supply (rechargeable batteries, changeable):	4 x 1.2 V, NiMH, Mignon, type AA, condition controlled, LowBat- LED, automatic switch-off, working time approx. 16 h with 2100 mAh
Operating temperature:	+5° C to +40° C
Storage and transport temperature (with batteries):	-20° C to +35° C
(without batteries):	-40° C to +70° C
Class of protection:	IP X0
Relative humidity:	0% to 80% without condensation
Condensation:	Not permissible during use
Altitude:	< 2000 m above sea level
Storage and transport:	< 12000 m above sea level
Dimensions (W x H x D) in mm:	60 x 60 x 175
Weight:	approx. 580 g

RSG 3000, typical output level at 50 Ω, — 10 MHz, — 5 MHz and — 1 MHz



T3SEQ

Advanced Test Solutions for EMC



VSQ 3000 / 3002 REFERENCE RADIATION SOURCE 800 MHz / 30 MHz - 3 GHz



DPA 4000A

Technical specifications of DPA 4000A

Antenna type:	biconical dipole antenna
Polarisation:	linear
Frequency range:	(30 MHz)* 200 MHz to 1000 MHz
Antenna factor, typ.:	20 dB/m to 32 dB/m
Isotropic gain, typ.:	-3.5 dB to +1.5 dB
VSWR, typ.:	≤ 2.0 (350 MHz to 1000 MHz)
Symmetry, typ.:	≤ 0.2 dB
Cross-polar response:	> 20 dB
Output impedance:	50 Ω , nominal
Connector:	N female
Max. power (cw):	5 W
Size (L x W x H):	185 mm x 400 mm x 155 mm
Support length:	155 mm
Weight:	690 g
*) with VSQ 1000/3002	



DPA 3000

Technical specifications of DPA 3000

Antenna type:	biconical dipole antenna
Polarisation:	linear
Frequency range:	800 MHz to 2800 (3000 MHz)*
Antenna factor, typ.:	30 dB/m to 38 dB/m (0.8 GHz to 2.5 GHz)
Isotropic gain, typ.:	-2.0 dB to +1.5 dB (0.8 GHz to 2.5 GHz)
VSWR, typ.:	≤ 2.5 (1.0 GHz to 2.5 GHz)
Symmetry, typ.:	≤ 0.2 dB
Cross-polar response:	> 20 dB
Output impedance:	50 Ω , nominal
Connector:	N female
Max. power (cw):	10 W
Size (L x W x H):	155 mm x 155 mm x 75 mm
Support length:	95 mm
Weight:	180 g
*) with VSQ 3000/3002	



BAA 6001, antenna tube

Technical specifications of BAA 6001

Insertion loss:	up to 0.8dB @ 3GHz
Connector:	N female / N male
Diameter / length / weight:	22 mm / 82 cm / 850 g

TESEO

Advanced Test Solutions for EMC

VSQ 3000 / 3002 REFERENCE RADIATION SOURCE 800 MHZ / 30 MHZ - 3 GHZ



BTP 6010, antenna tripod

Technical specifications of antenna tripod BTP 6010

Antenna height range in cm:	53 to 112
Floor space:	typ. Ø 60 cm, max. Ø 105 cm
Thread:	M6 female
Dimensions for transport in cm:	50 x 16 x 16
Weight in kg:	2.2

Model No. and options

Part number	Description
244525	VSQ 3000 Reference radiation source 800 MHz - 3 GHz (RSG 3000 + DPA 3000 + Tripod + storage case)
97-2445265	VSQ 3000- FAR-TC Traceable calibration (ISO17025) of VSQ 3000, 1 GHz -3 GHz, 10 MHz step, FAR, 3 m distance
244527	VSQ 3002 Reference radiation source 30 MHz - 3 GHz (RSG 3000 + DPA 4000/3000 + Tripod + storage case)
97-244526	VSQ 3002-GTEM-FAR-TC Traceable calibration (ISO17025) of VSQ 3002, 30 MHz - 1 GHz GTEM, 1 - 3 GHz FAR, 3 m distance
97-244527	VSQ 3002-SAC-FAR-TC Traceable calibration (ISO17025) of VSQ 3002, 30 MHz - 1 GHz SAC, 1 - 3 GHz FAR, 3 m distance
97-244550	RSG 3000-TC Traceable calibration (ISO 17025) of RSG 3000, order only with the device
97-244570	Ant Cert-TC Traceable calibration (ISO17025), order only with the antenna, free space calibration (horizontal), other calibrations on request



VSQ 3002, alternative setup below
1 GHz: DPA 4000A mounted direct on
RSG 3000

Teseq GmbH
Landsberger Str. 255 - 12623 Berlin - Germany
T +49 30 56 59 88 35 F +49 30 56 59 88 34
desales@teseq.com www.teseq.com

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