Specifications in brief

Frequency

Range	
SMG	100 kHz to 1000 MHz
SMH	100 kHz to 2000 MHz
SMGL	9 kHz to 1000 MHz
Resolution	1 Hz
Setting time	<15 ms
Frequency drift f ≥31.25 MHz	<0.5 x 10^{-9} + error of reference

Reference frequency	standard	OCXO oscillator
Aging (after 30 days of operation)	2 x 10^{-6}/year	<1 x 10^{-9}/day
Temperature effect	2.5 x 10^{-6}/ 0 to 50°C	<2 x 10^{-9}/°C

Input/output for external/ internal reference frequency	5 or10 MHz, selectable

Level

Range	–140 to +13 dBm (SMG, SMH) –118 to +30 dBm (SMGL)
Underrange and overrange without guarantee of specs	–140 to +16 dBm (SMG, SMH) –130 to +36 dBm (SMGL)
Accuracy for levels	
>–127 dBm (SMG, SMH)	
>–118 dBm (SMGL)	±1.5 dB
Frequency response at 0 dBm output level	1 dB (typ. 0.3 dB)
Characteristic impedance	50 Ω
VSWR	<1.5 for level ≤0 dBm (SMG, SMH) <1.5 for level ≤16 dBm (SMGL)
Setting time	<25 ms
Non-interrupting level setting	0 to 20 dB
Overload protection (maximum permissible RF power)	50 W

Spectral purity

Spurious signals	
Harmonics	<–30 dBc (SMGL: level ≤27 dBm)
Subharmonics	
SMG, SMGL	none
SMH	<–40 dBc (f ≥1 GHz)
Residual AM, rms (0.03 to 20 kHz)	<0.02%
Nonharmonic spurious signals at >5 kHz from carrier	see line a in table below
Residual FM, rms 0.3 to 3 kHz (CCITT)	see line b in table below
SSB phase noise, carrier offset 20 kHz, 1 Hz bandwidth, typical	see line c in table below

f <	31.25	62.5	125	250	500	1000	2000	MHz
a <	–70	–80	–80	–80	–76	–70	–64	dBc
b <	2	1	1	1	2	4	8	Hz
c	–139	–148	–142	–136	–130	–124	–118	dBc

Amplitude modulation

Modes	INT, EXT AC, EXT DC, two-tone
Modulation depth	0 to 99%
AM distortion at 1 kHz, 0 to 30% AM	<1%
Modulation frequency	
AM EXT AC (DC)	10 Hz (DC) to 50 kHz
AM INT	40/150/300/400 Hz 1/3/6/15 kHz ±3%
AM INT with option SMG-B2	10 Hz to 100 kHz (SMG, SMH) 10 Hz to 50 kHz (SMGL)

Frequency modulation

Modes	INT, EXT AC, EXT DC, two-tone

f <	31.25	62.5	125	250	500	1000	2000	MHz
Max. dev.	200	50	100	200	400	800	1600	kHz

FM distortion at 1 kHz and 50% of maximum deviation	<0.5% (typ. 0.1%)
Modulation frequency	
FM EXT AC (DC)	10 Hz (DC) to100 kHz
FM INT	40/150/300/400 Hz/ 1/3/6/15 kHz ±3%
FM INT with option SMG-B2	10 Hz to 100 kHz
Frequency drift with FM DC, carrier frequency offset when switching on FM DC for $f_{carrier}$ ≥31.25 MHz	1% of deviation + 1 x 10^{-6} x $f_{carrier}$

Phase modulation

Modulation	INT, EXT AC, two-tone

f <	31.25	62.5	125	250	500	1000	2000	MHz
Max. dev.	20	5	10	20	40	80	160	rad

Phase modulation distortion at 1 kHz and 50% of max. deviation	<0.5% (typ. 0.1%)
Modulation frequency	
φM EXT	10 Hz to 10 kHz
φM INT	40/150/300/400 Hz/ 1/3/6 kHz ±3%
φM INT with option SMG-B2	10 Hz to 10 kHz

Pulse modulation

Mode	external
On/off ratio	>70 dB (typ. >80 dB)
Rise/fall time (10/90%)	
f_c> 200 MHz	typ. 20 ns
Pulse repetition frequency	0 to10 MHz
Modulation signal	TTL levels

AF Synthesizer (option SMG-B2)

Frequency	10 Hz to 100 kHz
Readout	3 digits
Frequency drift	<4 x 10^{-5}
Level error at 1 kHz	<3% (typ. 1%)
Distortion	<0.1% (typ. 0.03%)
Phase-continuous frequency change, response time between setting command and frequency change	<10 ms

RF sweep, AF sweep

(AF sweep with option SMG-B2)	digital start-stop sweep in discrete steps
Modes	automatic following ramp function, single-shot, manual control via spin-wheel, linear or logarithmic
Sweep range	user-selectable over entire frequency range
Step size	user-selectable
Time per step	10 ms to10 s

X output (with option SMG-B3)

X output	0 to10 V staircase ramp, max. 1000 steps

Remote control	IEC625-1 (IEEE488)

General data

Power supply	100/120/220/240 V ±10% 47 to 440 Hz
Power consumption	max. 130 VA (SMG, SMH) max. 250 VA (SMGL)
Dimensions (W x H x D)	
SMG, SMH	435 mm x 147 mm x 460 mm
SMGL	435 mm x 147 mm x 570 mm
Weight for fully equipped unit	17 kg (SMG, SMH), 22 kg (SMGL)

Ordering information

Signal Generator	SMG	0801.0001.52
	SMH	0845.4002.52
Power Signal Generator	SMGL	1020.2005.52
Options		
Reference Oscillator OCXO	SMG-B1	0802.0005.02
AF Synthesizer	SMG-B2	0802.0405.02
X Output	SMG-B3	0801.9609.02