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Test & Measurement

Complimentary Reference Material

- 🖻 sales
- rentals
- calibration
- 🖻 repair
- disposal

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

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Specifications in brief

Frequency

| Range |
|--|
| SMG |
| SMH |
| SMGL |
| Resolution |
| Setting time |
| Frequency drift f ≥31.25 MHz |
| Reference frequency |
| Aging (after 30 days of operation) Temperature effect |
| Input/output for external/ internal reference frequency |

Level

Range

Underrange and overrange without guarantee of specs

Accuracy for levels >-127 dBm (SMG, SMH) >-118 dBm (SMGL) Frequency response at 0 dBm output level Characteristic impedance VSWR

Setting time Non-interrupting level setting Overload protection (maximum permissible RF power)

Spectral purity

Spurious signals Harmonics Subharmonics SMG, SMGL SMH Residual AM, rms (0.03 to 20 kHz) Nonharmonic spurious signals at >5 kHz from carrier Residual FM, rms 0.3 to 3 kHz (CCITT) SSB phase noise, carrier offset 20 kHz, 1 Hz bandwidth, typical

100 kHz to 2000 MHz 9 kHz to 1000 MHz 1 Hz <15 ms $<0.5 \times 10^{-9}$ + error of reference standard I OCXO oscillator 2 x 10⁻⁶/year 2.5 x 10⁻⁶/ <1 x 10⁻⁹/day 0 to 50°C <2 x 10⁻⁹/°C 5 or10 MHz, selectable -140 to +13 dBm (SMG, SMH) -118 to +30 dBm (SMGL) -140 to +16 dBm (SMG, SMH) -130 to +36 dBm (SMGL) ±1.5 dB 1 dB (typ. 0.3 dB) 50 Ω <1.5 for level ≤0 dBm (SMG, SMH) <1.5 for level ≤16 dBm (SMGL) <25 ms 0 to 20 dB 50 W <-30 dBc (SMGL: level ≤27 dBm) none <-40 dBc (f ≥1 GHz) <0.02%

100 kHz to 1000 MHz

see line a in table below

see line b in table below

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 Modulation depth AM distortion at 1 kHz, 0 to 30% AM Modulation frequency AM EXT AC (DC) AM INT

AM INT with option SMG-B2

INT, EXT AC, EXT DC, two-tone 0 to 99% <1% 10 Hz (DC) to 50 kHz 40/150/300/400 Hz 1/3/6/15 kHz ±3% 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 Modulation frequency

<0.5% (typ. 0.1%)

FM EXT AC (DC) FM INT

FM INT with option SMG-B2 Frequency drift with FM DC, carrier frequency offset when switching on FM DC for $f_{carrier} \ge 31.25$ MHz

| Phase mod Modulatio | dulation n | | | 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 mod 1 kHz and Modulatio φM EXT φM INT | <0.5% (typ. 0.1%) 10 Hz to 10 kHz 40/150/300/400 Hz/ 1/3/6 kHz ±3% | | | | | | | | | |
| Pulse mod Mode On/off rat Rise/fall ti f _c > 200 Pulse repe Modulatio | ulation tio me (10/ MHz tition free n signal | 90%) quency | , , , , | extern >70 d typ. 2 0 to 1 TTL lev | external >70 dB (typ. >80 dB) typ. 20 ns 0 to 10 MHz TTL levels | | | | | |
| AF Synthes Frequency Readout Frequency Level error Distortion Phase-cont response t command | 10 Hz to 100 kHz 3 digits <4 x 10 ⁻⁵ <3% (typ. 1%) <0.1% (typ. 0.03%) | | | | | | | | | |
| RF sweep, | AF swee | p | | | | | | | | |
| (AF sweep Modes Sweep rar Step size Time per s | digital start-stop sweep in discrete steps automatic following ramp function, single-shot, manual control via spin- wheel, linear or logarithmic user-selectable over entire frequency range user-selectable 10 ms to 10 s | | | | | | | | | |
| X output (v X output | 0 to 10 V staircase ramp, max. 1000 steps | | | | | | | | | |
| Remote co | IEC 625-1 (IEEE 488) | | | | | | | | | |
| General da Power sup Power c Dimension SMG, SMI SMGL Weight for | 100/120/220/240 V ±10% 47 to 440 Hz max. 130 VA (SMG, SMH) max. 250 VA (SMGL) 435 mm x 147 mm x 460 mm 435 mm x 147 mm x 570 mm 13 kg (SMG, SMH) 22 kg (SMGL) | | | | | | | | | |
| Orderii | ng inf(|)rmati | <u>01</u> | g (,), -2g (0.101) | | | | | | |
| Signal Ger Power Sig | SMG SMH SMGL | | 0801.0001.52 0845.4002.52 1020.2005.52 | | | | | | | |

10 Hz (DC) to 100 kHz

40/150/300/400 Hz/ 1/3/6/15 kHz ±3%

1% of deviation + 1 x 10⁻⁶ x f_{carrier}

10 Hz to 100 kHz

Options Reference Oscillator OCXO SMG-B1 AF Synthesizer SMG-B2 X Output SMG-B3

0802.0005.02 0802.0405.02 0801.9609.02