SOLID STATE NOISE GENERATORS


MT7618N


MT7618E

MT7626A

MT7600 SERIES

- Stable, Accurately Calibrated Noise Sources
- Broadband or Abbreviated Frequency Ranges
- Nominal 15 dB and 6 dB ENR [1]
- Type N or SMA Connectors

Description

The Maury MT7600 series noise generators provide the calibrated noise levels required for evaluation of the noise performance of receivers, amplifiers and other linear transducers.

Fast on-off switching along with stable repeatable noise output and low power requirements makes the MT7600 series ideal companions to direct reading noise figure meters such as the MT7300 series, described on the preceding pages.

The Maury line offers a range of band coverages allowing you to select the most economical unit for your application. Two high isolation units with 6 dB nominal ENR are available for applications sensitive to changing mismatch, and units are offered with either type N or SMA output connectors.

The chart below outlines the available models.

Specifications

Frequency Range, Nominal ENR, and Output Connector ..... See the chart on this page

Calibration Frequencies, Calibration Accuracy, and Dimensions ..... See the charts on the next page

Input Connector ..... BNC female

Input Power ..... +28 volts at <30mA

ENR Variation with Temperature ...0.01 dB/°C (maximum)

ENR Variation with Voltage .....0.1 dB/% ΔV (maximum)

Switching Time ..... <5 microseconds

Model	Frequency Range (GHz)	Nominal ENR (dB)	Output Connector	Maximum VSWR (GHz)
MT7615A	0.01 — 1.5	15.5	Type N male	1.20
MT7619A	0.01 — 3.0	15.0	Type N male	
MT7619B			SMA male	
MT7616A	1.00 — 12.4		Type N male	1.40
MT7618E	0.01 — 18.0		SMA male	1.2 [2], 0.01 — 12.4 1.3 [3], 12.40 — 18.0
MT7618F			SMA female	
MT7618L			SMA male	
MT7618N			Type N male	
MT7620A			7mm	
MT7618M		6.0	Type N male	
MT7626A	0.01 — 26.5	15.0, 0.01 — 12.4 GHz 14.0, 12.4 — 26.5 GHz	SMA male	1.10 + 0.02f (GHz) 1.25 maximum

[1] Excess Noise Ratio (ENR) is defined as $10\text{Log}_{10}[(T_h/290)-1]$ where T_h is the equivalent hot noise temperature of the generator.

[2] 1.4 for the MT7618N.

[3] 1.46 for the MT7618N.

SOLID STATE NOISE GENERATORS

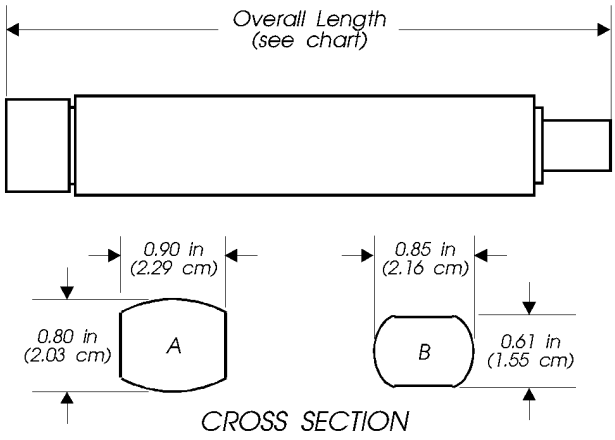
MT7600 SERIES (continued)

Calibration Frequencies

The following table shows the frequencies at which the individual noise generators in the MT7600 series are calibrated.

Model	Calibration Frequencies (GHz)
MT7615A	0.01, 0.03, 0.3, 1.0, 1.5
MT7619A/B	0.01, 0.03, 0.3, 1.0, 2.0, 3.0
MT7616A	1.0, 2.0, 3.95, 8.2, 9.0, 9.8, 12.4
MT7618x [1]	0.01, 0.03, 0.3, 1.0 plus every GHz through 18.0
MT7620A	
MT7626A	0.01, 0.03, 0.3, 1.0 plus every GHz through 26.5

Outline Dimensions



Model	Cross Section	Overall Length inches	(cm)
MT7615A	A	4.6	(11.7)
MT7619A	A	4.6	(11.7)
MT7619B	A	4.5	(11.4)
MT7616A	A	4.6	(11.7)
MT7618E	A	4.5	(11.4)
MT7618F	A	4.4	(11.2)
MT7618L	A	4.5	(11.4)
MT7618M	A	4.5	(11.4)
MT7620A	A	4.5	(11.4)
MT7618N	A	4.5	(11.4)
MT7626A	B	3.5	(8.9)

Calibration Accuracy

The major contributor to measurement uncertainty in most noise performance measurements at RF and microwave frequencies is the calibration uncertainty of the noise generator ENR [2]. All Maury noise generators are shipped with an individual calibration data sheet showing the ENR at each calibration frequency. All ENR calibrations are traceable to a national standards laboratory or a natural physical standard.

The chart below shows the worst case and RSS (Root-Sum-Squares) uncertainty and the traceability at all Maury ENR calibration frequencies.

Frequency (GHz)	RSS Uncertainty (dB)	Worst Case Uncertainty (dB)	Traceability [3]
0.01	0.14	0.30	H/C
0.03	0.14	0.30	EQD
0.3	0.14	0.30	EQD
1.0	0.14	0.30	EQD
2.0	0.14	0.30	EQD
3.0	0.13	0.28	NIST
4.0	0.13	0.28	NIST
5.0	0.14	0.30	H/C
6.0	0.14	0.30	EQD
7.0	0.14	0.30	EQD
8.2	0.10	0.25	NIST
9.0	0.10	0.25	NIST
10.0	0.11	0.25	NIST
11.0	0.11	0.25	NIST
12.0	0.11	0.25	NIST
13.0	0.11	0.25	NIST
14.0	0.11	0.25	NIST
15.0	0.11	0.25	NIST
16.0	0.11	0.25	NIST
17.0	0.12	0.25	NIST
18.0	0.12	0.25	NIST
19.0	0.13	0.40	G
20.0	0.13	0.40	G
21.0	0.13	0.40	G
22.0	0.14	0.40	G
23.0	0.14	0.40	G
24.0	0.14	0.40	G
25.0	0.14	0.40	G
26.0	0.14	0.40	G

[1] Includes all generators in the MT7618 model series.

[2] Excess Noise Ratio (ENR) is defined as $10Log_{10}[(T_h/290)-1]$ where T_h is the equivalent hot noise temperature of the generator.

[3] Traceability: H/C, Hot/Cold Thermal Standard; EQD, Electronic Quality Assurance Directorate, UK; NIST, National Institute of Standards and Technology; G, Internal Gas Standard.