

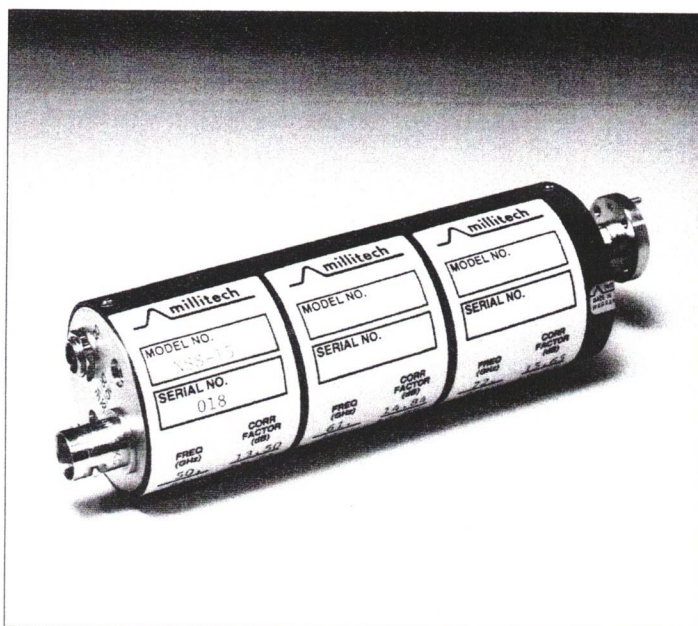
Solid-State Noise Sources

Features

- Low power consumption ♦
- ENR 15 dB nominal ♦
- No high voltage supply required ♦
- Rugged construction ♦

Applications

- Noise figure measurement ♦
- Testing and instrumentation ♦
- Calibration ♦



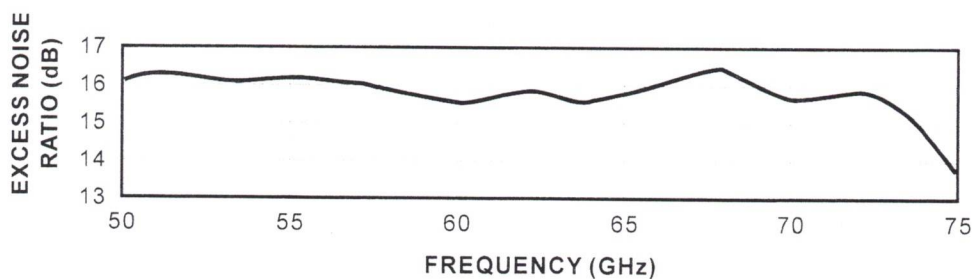
Description

Millitech series **NSS** solid-state millimeter wave noise sources are available in six waveguide bands covering 18 to 100 GHz. They offer a nominal 15 dB ENR, low VSWR and a flat output response over full waveguide bandwidths in WR-42 through WR-15, and 10 GHz of bandwidth in WR-10. These small, lightweight sources employ silicon diodes operating in a specially designed cavity/waveguide assembly. Low DC power requirements eliminate the need for complex high voltage supplies. Each source includes an integral current regulator that offers high operational stability as a function of time and temperature. Each unit is supplied with a calibration data sheet of ENR vs. frequency.

These sources operate directly from the noise source drive output (+28 V pulsed) available from commercial noise figure meters. An additional low-voltage solid-state power supply is required for units operating in WR-15 and WR-10 frequency bands since the noise figure meter does not supply adequate current to operate the sources.

These noise sources provide a unique capability not previously available for receiver and amplifier noise figure measurements at millimeter wave frequencies. They can also be used as calibration sources for radiometers and related passive sensors. Other ENR values are available upon request.

Typical Performance



Solid-State Noise Sources

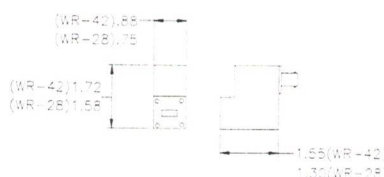
Electrical Specifications

| MODEL NUMBER | NSS-42 | NSS-28 | NSS-22 | NSS-19 | NSS-15 | NSS-10 |
|---|---|---------------|------------|------------|------------|-------------|
| Frequency Band and Range, GHz | K 18-26.5 | Ka 26.5-40 | Q 33-50 | U 40-60 | V 50-75 | W 75-110 |
| Bandwidth, GHz (min) ^① | Full | Full | Full | Full | Full | 10 GHz |
| ENR, dB (nom) ^② | 15.5 | 15.5 | 15.5 | 15 | 15 | 15 |
| Flatness, ± dB (max) | 1.0 | 1.0 | 1.5 | 1.5 | 2.5 | 2.0 |
| VSWR (typ) | 1.3:1 | 1.3:1 | 1.3:1 | 1.25:1 | 1.4:1 | 1.4:1 |
| Stability, dB/°C, dB (typ) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Stability/Day, dB (typ) | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Noise Source Drive Input (+28 V pulsed) | From "Noise Drive Output" of noise figure meter | | | | | |
| Noise Drive Input Connector | BNC (female) | | | | | |
| AC Power Requirements | --- | --- | --- | --- | 110/220 | 110/220 |

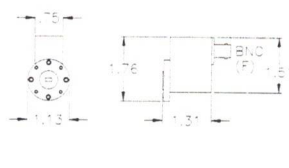
① Narrower frequency ranges available.

② Other ENR values available from 5 to 26 dB depending upon the frequency band.

Outline Drawings



Series NSS-42/28



Series NSS-22

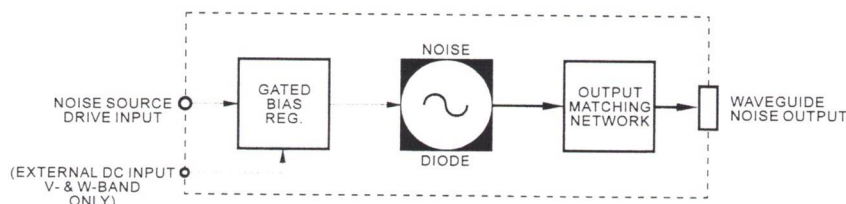


Series NSS-19



Series NSS-15/10

Typical Application



How to Order

Specify Model Number **NSS-XX-ABBC0**

XX = waveguide band (WR-Number)

A = flange type

R = round

S = square (WR-42 and WR-28 only)

C = AC voltage power supply options

1 = 110 VAC power supply (WR-15 and WR-10 only)

2 = 220 VAC power supply (WR-15 and WR-10 only)

BB = ENR options (ENR in dB)

(Consult Millitech for ENR higher than 15 dB)

Examples: 05 = 5 dB 15 = 15 dB

10 = 10 dB