Applications

Typical applications for the CNG include:

- Development, qualification, and verification testing
- Cellular, PCS, CATV and SATCOM testing
- Bit error rate/SINAD testing
- Channel impairment tests
- Manufacturing test

Features

- C/N, C/No, Eb/No, and C/I modes
- 1 or 2 independent RF channels
- Continuous input power monitoring
- Uninterrupted signal path during calibration cycle
- TCP/IP LAN and IEEE-488.2 interface are standard

Accuracy of 0.2 dB RSS

An extremely stable AWGN source, utilizing the noise of a thermal termination avoids the typical amplitude distortion errors found in noise diode implementations. This innovative design coupled with the use of an extremely precise power meter optimized for measuring high crest factor noise signals, assure excellent accuracy and repeatability in setting ratios.

The CNG automatically compensates for bit rate, signal bandwidth, duty cycle and power level settings, making measurements as simple as pressing a button. The instrument can automatically track and remove input signal variations to maintain precise ratio.
Setting Precise C/N Ratio

The input RF signal is combined with an internal Additive White Gaussian Noise source. When a ratio calibration is performed, the signal and the noise power are measured consecutively. Using the substitution method, the noise power is set very accurately relative to the signal power by offsetting the noise attenuator. This attenuator uses a proprietary thermally stabilized solid state design that compensates for variations that occur over frequency attenuation setting and ambient temperature. The noise attenuator resolution is 0.015 dB. The output attenuator is used to set the operating level at the output of the instrument.

Modular construction - Ease of Maintenance

The CNG series is totally modular in construction. Each subassembly is factory calibrated making drop-in field replacements simple. To solve the problem of attenuator accuracy and reliability, dBm has designed self-compensating attenuators that automatically correct for frequency and setting variations.

Benefits include ease of calibration and lower product support costs during the life of the product.

Optimized for ATE Applications

The CNG may be used either as a stand-alone instrument for product development/verification testing or integrated into an ATE system for production test. Solid state attenuators are used where applicable to dramatically extend the reliability and operational life of the instrument and increase its execution speed, making it ideally suited for high volume production test applications.
## Specifications

### Operating Mode
- C/N, C/No, Eb/No, C/I
- noise disabled, signal disabled

### Displayed parameters
- ratio, bit rate, duty cycle, frequency, averaging rate, averaging factor, output power, input power, delta input power

### Carrier Path
- RF input power: -50 dBm to +0 dBm
- RF output power: - 110 dBm to +0 dBm
- Input duty cycle: 1% to 100%
- Nominal gain: 0 dB (@attenuation = 0 dB)
- Gain resolution: 1 dB
- Gain flatness: < +/- 0.05 dB per 1.23 MHz bandwidth
- < +/- 0.2 dB per 40 MHz bandwidth
- Group delay: +/- 0.20 ns per 40 MHz bandwidth
- Tracking range: +/- 5 dB minimum
- Channel isolation: > 100 dB
- Residual output noise: < -149 dBm/Hz @ IF
- Impedance: 50 ohms
- VSWR: 1.5:1 maximum
- Connectors: Type N female

### Noise Output
- Power: 0 dBm to -110 dBm
- Flatness: < +/- 0.2 dB per 40 MHz
- Amplitude resolution: 0.125 dB
- Crest factor: 18 dB minimum

### Measurement
- C/N ratio accuracy: +/- 0.2 dB RSS
- Averaging factor: 10 to 9999
- Averaging rate: 5 to 999 Hz
- Absolute accuracy: +/- 0.5 dB

### Control and interface
- Local interface: Front panel keypad & display
- Remote interface: IEEE-488.2, TCP/IP LAN
- Save/Recall: 10 states

### Primary power
- Voltage: 90-264 VAC autoranging
- Frequency: 48-66 Hz
- Consumption: 100 VA, maximum
- Fuse: 2A, slow-blow

### Ambient operating temp
- 0° to 35° C

### Dimensions
- 17” W x 5.25” H x 21” D

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### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNG-1-70/140</td>
<td>Single channel</td>
<td>50 - 180 MHz</td>
</tr>
<tr>
<td>CNG-2-70/140</td>
<td>Dual channel</td>
<td>50 - 180 MHz</td>
</tr>
<tr>
<td>CNG-1-26/180</td>
<td>Single channel</td>
<td>26 - 180 MHz</td>
</tr>
<tr>
<td>CNG-2-26/180</td>
<td>Dual channel</td>
<td>26 - 180 MHz</td>
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<tr>
<td>CNG-1-800/1000</td>
<td>Single channel</td>
<td>800-1000 MHz</td>
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<tr>
<td>CNG-1-870/1750</td>
<td>Single channel</td>
<td>870-1750 MHz</td>
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<tr>
<td>CNG-1-800/2400</td>
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<td>800-2400 MHz</td>
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<tr>
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<tr>
<td>CNG-1-2200/2700</td>
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<td>2200-2700 MHz</td>
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<tr>
<td>CNG-1-800/2700</td>
<td>Single channel</td>
<td>800-2700 MHz</td>
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</tbody>
</table>

Specifications subject to change without notice.

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Contiguous frequency band, one or two channels available

Frequency tunable, 80 MHz instantaneous bandwidth