2009-140 Downconverter, 14.0 - 14.5 GHz

The 2009-140 Downconverter converts a 14.0 - 14.5 GHz signal to 950 - 1450 MHz with a low side local oscillator (LO) (non-inverted spectrum) for loop-back applications. Featuring low phase noise and high stability, this unit is used to downconvert “clean” (having only this frequency) 14.0 - 14.5 GHz signals to 950 - 1450 MHz for test purposes. The 14.0 - 14.5 GHz input is mixed with a synthesized local oscillator (LO) signal to 950 - 1450 MHz. The mixer output is applied to the output attenuator providing a nominal gain of -20 dB.

Connectors are 75Ω type-F (female) for the 950 - 1450 MHz output and 50Ω type-N (female) for the RF input. Front panel LEDs light when DC power is applied (green) and when a PLL alarm occurs (red). DC power is provided by the LNB voltage from the receiver under test or by an external wall mount power supply (option -P or -P4). The 2009 can be mounted on an 1 3/4” X 19” rack mount panel (option -R). Option -H9 allows the 2009-140 to be operated over an extended -20°C to +60°C temperature range.

**EQUIPMENT SPECIFICATIONS**

**Input Characteristics**
- Impedance / Return Loss: 50Ω / 12 db
- Frequency: 14.0-14.5 GHz
- Level: -15 to 0 dBm
- Input 1 dB compression: +5 dBm

**Output Characteristics**
- Impedance / Return Loss: 75Ω / 12 db
- Frequency: 950 to 1450 MHz
- Level: -35 to -20 dBm

**Channel Characteristics**
- Gain at band center: -20 dB ±2 dB
- Spurious Response: < -40 dBC, 950-1450 MHz out
- Spectrum Sense: Non-inverting
- Frequency Response: ± 2 dB, 950-1450 MHz; ± 0.5 dB, any 10 MHz increment

**Synthesizer Characteristics**
- LO Frequency: 13.05 GHz
- Frequency Accuracy: ± 2.5 ppm max

**Phase Noise @ F (Hz) >**

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Phase Noise (dBc/Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100Hz</td>
<td>-60</td>
</tr>
<tr>
<td>1kHz</td>
<td>-75</td>
</tr>
<tr>
<td>10kHz</td>
<td>-85</td>
</tr>
<tr>
<td>100kHz</td>
<td>-100</td>
</tr>
<tr>
<td>1MHz</td>
<td>-110</td>
</tr>
</tbody>
</table>

**Indicators**
- DC Power: Green LED
- Alarm: Red LED

**Other**
- RF In Connector: Type-N (female), 50Ω
- IF Out Connector: Type-F (female)
- Size, Bench Top: 4.7” wide X 1.75” high X 6.5” deep
- Size, Rack Mount (-R): 19” standard chassis, 1.75” high X 7.0” deep (optional)
- Power: +15 to +18 VDC, 250 ma on RF Out (Wall mount power supply unit optional)

**Options**
- -H9: Operates over an extended -20°C to 60°C temp range
- -P: 120 VAC Wall Power Supply, +15 VDC
- -P4: 100-240 ± 10% VAC Wall Power Supply, +15 VDC
- -R: 1RU Rack Mounting
- -C: Power Supply not included. Requires Cross 2000-01 Power Supply
- -W42: Alarm Contact Terminal Strip, Dry Contact, NC-C-NO Terminations

*+10°C to +40°C; 2000 meters max elevation; 80% max humidity; Specifications subject to change without notice.*