The 2009-138 Downconverter converts a 13.75 - 14.5 GHz signal to 950 - 1700 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 down convert “clean” (having only this frequency) 13.75 - 14.5 GHz signals to 950 - 1700 MHz for test purposes. The 13.75 - 14.5 GHz input is mixed with a synthesized local oscillator (LO) signal to 950 - 1700 MHz. The mixer output is applied to the output amplifier providing a nominal gain of +25 dB. Connectors are 75Ω type-F (female) for the 950 - 1700 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).

**EQUIPMENT SPECIFICATIONS**

**Input Characteristics**
- Impedance / Return Loss: 50Ω / 12 db
- Frequency: 13.75-14.5 GHz
- Level: -50 to -35 dBm

**Output Characteristics**
- Impedance / Return Loss: 75Ω / 12 db
- Frequency: 950 to 1700 MHz
- Level: -25 to -10 dBm
- Output 1 dB compression: 0 dBm

**Channel Characteristics**
- Gain at band center: +25 dB ±3 dB
- Spurious Response: < -40 dBC, 950-1700 MHz out
- Spectrum Sense: Non-inverting
- Frequency Response: ± 2 dB, 950-1700 MHz; ± 0.5 dB, any 10 MHz increment

**Synthesizer Characteristics**
- LO Frequency: 12.80 GHz
- Frequency Accuracy: ± 2.5ppm max

**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**
- M: Type N RF, 50Ω BNC L-band out
- 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.*

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**2009-138 Downconverter, 13.75 - 14.5 GHz**

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**2009-138 Block Diagram**

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