The 2116-37 Downconverter converts 3.7 - 4.2 GHz to 0.95 - 1.45 GHz with low phase noise and flat frequency response. Frequency translation is via a 5.15 GHz local oscillator. Front panel LEDs provide indication of DC Power, External 10 MHz, and PLL Alarm. The gain is +35 dB. Connectors are Type N female for the RF and BNC female for the L-Band and external reference input and reference output. A three-way switch controls which 10 MHz reference is being used. In the INT position, the internal reference is used, in the EXT position, the external reference is used, and in the AUTO position, the internal reference is used unless a 3 dBm ± 3 dB, 10MHz reference signal is connected to the external reference input. The 2116 is powered by a 100-240 ± 10% VAC power supply, and mounted in a 1 3/4" X 19" X 14" rack mount chassis.

**EQUIPMENT SPECIFICATIONS**

**Input Characteristics (RF)**
- Impedance/Return Loss: 50Ω/18 dB
- Frequency: 3.7 to 4.2 GHz
- Noise Figure, Max.: 12 dB max gain
- Input level range: -55 to -35 dBm
- Input 1 dB compression: -25 dBm

**Output Characteristics (L-Band)**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 0.95 to 1.45 GHz
- Output Level Range: -20 to 0 dBm
- Output 1 dB compression: +10 dBm

**Channel Characteristics**
- Gain: +35 dB ±2 dB
- Image Rejection: > 60 dB, min
- Spurious, In Band: SIGNAL RELATED,<60 dBC in band, 0 dBm out; SIGNAL INDEPENDENT,<60 dBm
- Spurious, Out of Band: <50 dBm
- Intermodulation: <55 dBc for two carriers each at -10 dBm out
- Frequency Response: ±1.5 dB, 950 -1750 MHz out; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Inverting

**LO Characteristics**
- LO Frequency: 5.15 GHz
- Frequency Accuracy: ± 0.01 ppm max over temp internal reference; ext. ref. input
- 10 MHz In/Out Level: 3 dBm, ± 3 dB

**Phase Noise @ F (Hz)**

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Phase Noise (dBc/Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>-70</td>
</tr>
<tr>
<td>1K</td>
<td>-80</td>
</tr>
<tr>
<td>10K</td>
<td>-85</td>
</tr>
<tr>
<td>100K</td>
<td>-100</td>
</tr>
<tr>
<td>1M</td>
<td>-110</td>
</tr>
</tbody>
</table>

**Controls, Indicators**
- Ext 10 MHz: Yellow LED, indicates external 10 MHz reference selected (rear panel DPDT switch)
- Power: Green LED
- PLL Alarm: Red LED, External contact closure

**Available Options**
- Connectors/Impedance: FN - 50Ω N-type (RF), 75Ω F-type (L-Band)
- RF Connector: N-type (female), 50Ω
- L-Band Connector: BNC (female), 50Ω
- 10 MHz Connectors: BNC (female), 50Ω/75Ω
- Alarm Connector: DB9 - NO or NC contact closure on Alarm
- Size: 19 inch standard chassis 1.45" high X 14.0" deep
- Power: 100-240 ± 10% VAC, 47 - 63 Hz, 45 watts max.