The 2116-114 Block Downconverter converts 11.45 - 12.25 GHz to 0.95 - 1.75 GHz with a local oscillator at 10.5 GHz. Front panel LEDs provide indication of DC Power, External 10 MHz, and PLL Alarm. The gain is +35 dB (+25 dB with Option W25). Connectors are SMA 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/14 dB
- Frequency: 11.45 to 12.25 GHz
- Noise Figure, Max.: 15 dB gain
- Level: -55 to -35 dBm (-45 to -25 dBm; OPTION W25)
- 1dB Compression: -25 dBm (-15dBm; OPTION W25)

**Output Characteristics (L-Band)**
- Impedance/Return Loss: 50Ω/14 dB
- Frequency: 0.95 to 1.75 GHz
- Level: -20 to 0 dBm
- 1dB Compression: +10 dBm

**Channel Characteristics**
- 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 dBC
- Intermodulation: <-55 dBc for two carriers each at -10 dBm out
- Frequency Response: ±1.5 dB, 0.95-1.75 MHz out; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: 10.5 GHz
- Frequency Accuracy: ± 0.01 ppm max over temp internal reference; ext. ref. input
- 10 MHz level In/Out: +3 dBm ± 3 dB

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

**Controls, Indicators**
- INT/AUTO/EXT Switch: Selects internal or external 10 MHz (rear panel DP3T switch)
- Ext 10 MHz: Yellow LED, indicates external 10 MHz reference selected
- PLL Alarm: Red LED, External contact closure
- Power: Green LED

**Other**
- RF Connector: SMA (female), standard
- IF Connector: BNC (female), 50Ω, standard
- 10 MHz Connectors: BNC (female), 75Ω connector; works with 50Ω or 75Ω
- Alarm Connector: DB9 - NO or NC contact closure on Alarm
- Size: 19 inch standard chassis 1.75" high X 14.0" deep
- Power: 100-240 ±10% VAC, 47 - 63 Hz, 25 watts max.

*+10 to +40 degrees C; Specifications subject to change without notice

**Available Options**
- W25, +25dB gain

**Connectors/Impedance**
- M - 50Ω N-type (RF), 50Ω BNC (L-BAND)
- N - 50Ω N-type (RF), 75Ω BNC (L-BAND)
- NF - 50Ω N-type (RF), 75Ω F-type (L-BAND)
- NN - 50Ω N-type (RF), 50Ω N-type (L-BAND)
- S7 - 50Ω SMA (RF), 75Ω BNC (L-BAND)
- SF - 50Ω SMA (RF), 75Ω F-type (L-BAND)
- SN - 50Ω SMA (RF), 50Ω N-type (L-BAND)
- SS - 50Ω SMA (RF), 50Ω SMA (L-BAND)