The 2116-222 Block Downconverter converts 21.35 - 22.35 GHz to 2.5 - 3.5 GHz with a local oscillator at 18.85 GHz. Front panel LEDs provide indication of DC power, external 10 MHz, and PLL alarm. The RF In to RF Out gain is +20 dB. Connectors are SMA female for the RF In and BNC female for the RF Out 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, 10 MHz 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.

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**EQUIPMENT SPECIFICATIONS**

**Input Characteristics**
- Impedance/Return Loss: 50Ω/10 dB
- Frequency: 21.35 - 22.35 GHz
- Noise Figure, Max.: 20 dB max gain
- Input Level range: -45 to -25 dBm
- Input 1 dB compression: -15 dBm

**Output Characteristics**
- Impedance/Return Loss: 50 Ω /10 dB
- Frequency: 2.5 - 3.5 GHz
- Output Level Range: -25 to -5 dBm
- Output 1 dB compression: +5 dBm

**Channel Characteristics**
- Gain: +20 dB ±2 dB
- Image Rejection: > 55 dB, min
- Spurious, Inband: SIGNAL RELATED <-50 dBC in band, -5 dBm out; SIGNAL INDEPENDENT, <-60 dBm
- Spurious, Out of band: <-50 dBC
- Intermodulation: <-50 dBC for two carriers each at -10 dBm out
- Frequency Response: ±2.0 dB, 2.5 - 3.5 GHz out; ± 1.0 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: 18.85 GHz
- Frequency Accuracy: ± 0.01 ppm max over temp internal reference; ext. ref. input

<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>-55</td>
<td>-70</td>
<td>-80</td>
<td>-100</td>
<td>-110</td>
</tr>
</tbody>
</table>

10 MHz level: +3 dBm, ± 3 dB, 75 ohms, External In or Internal out

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

**Available Connector Options**
- SN - 50Ω SMA (RF In), 50Ω N-type (RF Out)
- SS - 50Ω SMA (RF In), 50Ω SMA (RF Out)

**Available Connector Options**
- RF In Connector: SMA (female), 50Ω
- RF Out Connector: BNC (female), 50Ω
- 10 MHz connectors: BNC (female), 75Ω connector; Works for 50Ω/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.

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

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