2115-278# Block Upconverter, 0.90 - 1.90 GHz to 27.80 - 28.80 GHz

The 2115-278# Block Upconverter converts 0.90 - 1.90 GHz to 27.80 - 28.80 GHz with a local oscillator at 26.90 GHz. Front panel LEDs provide indication of DC Power, External 10 MHz, and PLL Alarm. The gain is +20 dB. Connectors are 2.92 mm female for the RF out and BNC female for the RF in (designated 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, 10 MHz reference signal is connected to the external reference input. It is powered by a 100-240 ± 10% VAC power supply, and in a 1 3/4" X 19" X 14" rack mount chassis.

**EQUIPMENT SPECIFICATIONS**

**Input Characteristics (designated L-Band)**
- Impedance/Ret. Loss: 50Ω/14 dB
- Frequency: 0.90 to 1.90 GHz
- Noise Figure, Max.: 20 dB max gain
- Input Level range: -40 to -25 dBm
- Input 1 dB compression: -15 dBm

**Output Characteristics (RF)**
- Impedance/Ret. Loss: 50Ω/14 dB
- Frequency: 27.80 to 28.80 GHz
- Output Level Range: -20 to -5 dBm
- Output 1 dB compr.: +5 dBm

**Channel Characteristics**
- Gain: +20 ±1 dB at Fc
- Image Rejection: > 60 dB, min
- Spurious, Inband: SIGNAL RELATED <-60 dBc in band, -5 dBm out; SIGNAL INDEPENDENT, <-60 dBm;
- Spurious, Inband, 2X Second harmonic of 0.90 to 0.95 GHz in, <-50 dBc, <-55 typ,
- Spurious, Out of band: <-50 dBm, 27.0-27.8 and 28.8-29.5 GHz out; LO, <-35 dBm, <-40 dBm typical
- Intermodulation: <-55 dBc for two carriers each at -10 dBm out
- Frequency Response: ±2.0 dB, 27.80 - 28.80 GHz out; ± 0.5 dB, 40 MHz BW
- Frequency Sense: Non-inverting

**LO Characteristics**
- LO Frequency: 26.90 GHz
- Frequency Accuracy: ± 0.01 ppm max over temp internal reference; ext. ref. input

<table>
<thead>
<tr>
<th>Phase Noise @ Fc (Hz)</th>
<th>dBC/Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>-70</td>
</tr>
<tr>
<td>1K</td>
<td>-75</td>
</tr>
<tr>
<td>10K</td>
<td>-80</td>
</tr>
<tr>
<td>100K</td>
<td>-90</td>
</tr>
<tr>
<td>1M</td>
<td>-110</td>
</tr>
</tbody>
</table>

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

**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

**Available Connector Options**
- 297 - 50Ω 2.92 mm (RF), 75Ω BNC (L-BAND)
- 29N - 50Ω 2.92 mm (RF), 50Ω N-type (L-BAND)
- 29S - 50Ω 2.92 mm (RF), 50Ω SMA (L-BAND)

Other:
- RF In Connector: BNC (female), 50Ω (designated L-band)
- RF Out Connector: 2.92 mm (female), 50Ω
- 10 MHz connectors: BNC (female), 75Ω connector, Works for 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