V-BAND UPCONVERTER

**SPECIFICATION**

<table>
<thead>
<tr>
<th>RF Frequency (GHz)</th>
<th>IF Frequency (GHz)</th>
<th>Translation Frequency</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>47.2 to 48.2 (RF₁)</td>
<td>1.45 to 2.45 (IF₁)</td>
<td>45.75 (LO₁)</td>
<td>UPB4-W-49.3</td>
</tr>
<tr>
<td>48.2 to 49.2 (RF₂)</td>
<td>1.45 to 2.45 (IF₂)</td>
<td>46.75 (LO₂)</td>
<td></td>
</tr>
<tr>
<td>49.2 to 50.2 (RF₃)</td>
<td>1.45 to 2.45 (IF₃)</td>
<td>47.75 (LO₃)</td>
<td></td>
</tr>
<tr>
<td>50.4 to 51.4 (RF₄)</td>
<td>1.45 to 2.45 (IF₄)</td>
<td>48.95 (LO₄)</td>
<td></td>
</tr>
</tbody>
</table>

**FUNCTIONAL**

- **Input Characteristics**
  - Return Loss (50 ohms): 18 dB minimum

- **Output Characteristics**
  - Return Loss: 12 dB minimum
  - Power Output (P1dB): 9 dBm minimum
  - Signal Monitor: -20 dBc nominal
  - Transfer Characteristics
    - Gain: 33 dB, ±3 dB at 23°C
    - Gain Adjustment: 30 dB minimum in 0.2 dB steps
    - Gain Stability: ±0.25 dB/day maximum at constant temperature, ±3 dB/-20°C to +50°C
    - Amplitude Response: ±0.5 dB/40 MHz maximum, ±1 dB/1 GHz band
    - Image Rejection: 80 dB minimum
    - Noise Figure at Minimum Attenuation: 18.5 dB maximum each band independently at 23°C
    - Group Delay: 1.5 ns peak-to-peak maximum across any 500 MHz band
    - Intermodulation Distortion (Third-Order): With two in-band signals at 0 dBm output, third order intermodulation products are less than 34 dBc minimum at minimum attenuation
    - Spurious Outputs: 65 dBc minimum up to 0 dBm output
    - Signal-Related (In-Band): -70 dBm maximum including LO leakage
    - Signal-Independent: See table below
    - Phase Noise: See table below

<table>
<thead>
<tr>
<th>MODEL</th>
<th>10</th>
<th>100</th>
<th>1K</th>
<th>10K</th>
<th>100K</th>
<th>300K</th>
<th>1M</th>
<th>10M</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-Band</td>
<td>-33</td>
<td>-63</td>
<td>-79</td>
<td>-84</td>
<td>-85</td>
<td>-87</td>
<td>-91</td>
<td>-109</td>
</tr>
</tbody>
</table>

- **Frequency Stability**: ±5 x 10⁻⁹, -40°C to +60°C (higher stability options available), 5 x 10⁻⁷/day typical (fixed temperature after 24 hours on time)
- **Automatic Reference Configuration**: External 5 MHz or 10 MHz, +4 ± 3 dBm. If external reference is below +1 dBm nominal, the converter will lock to the internal reference.
- **Remote Interface**: 10/100 Base-T Ethernet interface providing Web-browser based configuration, SNMP 1.0 configuration, alarm reporting via SNMP trap, telnet access, password protection and selectable RS-485/RS-422. Refer to L3Harris Narda-MITEQ Multi-Channel Technical Note for details.
- **Indicator and Alarms**
  - LO Out-of-Lock: RED LED (front panel), Amber LED (for logged alarms), Summary alarm indicates: LO out-of-lock or DC voltage alarm
  - Power ON Indicator: Green LED (front panel)
  - Summary Alarm: Contact closure status for DC voltage and local oscillators, external mute input

Note: All specifications at maximum gain and 23°C unless otherwise noted.

This L3Harris Narda-MITEQ series of outdoor, antenna-mounted block upconverter is designed to cover simultaneously multiple wide bandwidth satellite transponders by accepting four independent IF inputs which are up converted into one wideband RF output.

A strong set of monitor and control functions support powerful remote control. A contact closure summary alarm is provided for fault monitoring. A continuously updated log of time-stamped records of activity is also provided.

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AVAILABLE OPTIONS

Option 1A - High-Performance Stability
Gain Stability
±0.25 dB/day maximum at constant temperature,
±2 dB peak-to-peak maximum/-40°C to +60°C
±1 dB peak-to-peak maximum/20°C to 35°C

Option 1B - High Performance Spurious Outputs
Spurious Outputs (In-Band)
Signal-Related
65 dBc minimum up to 0 dBm output
Signal-Independent
-75 dBm maximum
Noise Spectral Density
-83.5 dBm/4 kHz maximum
AM/PM Conversion (at 0 dB output)
0.265°/dB maximum

Option 1C
High Performance Phase Noise (dBc/Hz maximum)

<table>
<thead>
<tr>
<th>OFFSET (Hz)</th>
<th>MODEL 10</th>
<th>100</th>
<th>1K</th>
<th>10K</th>
<th>100K</th>
<th>300K</th>
<th>1M</th>
<th>10M</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-Band</td>
<td>-75</td>
<td>-74</td>
<td>-94</td>
<td>-105</td>
<td>-108</td>
<td>-109</td>
<td>-123</td>
<td>-130</td>
</tr>
</tbody>
</table>

PRIMARY POWER REQUIREMENTS

Voltage
100 VAC to 240 VAC (-10%, +6%)
Frequency
47 Hz to 63 Hz
Consumption
85 W typical

PHYSICAL

Weight
45 lb. [5.46 kg] nominal, 50 lb. [6.07 kg] maximum
Front Panel Connectors
L-Band
N female
External Reference Input
SMA female with termination
Status/Control Interface
MS1116F14-18S for summary alarm, RS-422/RS-485 and redundancy
Remote Interface
RJ-45 female for Ethernet, RS-422/RS-485 available on status connector
Primary Power Input
FCI clipper series CL1M1102
RF-Band
WR-22 standard
RF-Band Monitor
1.85 mm female-compatible

ENVIRONMENTAL

Enclosure Rating
IP64
Operating
Ambient Temperature
-40°C to +50°C
Atmospheric Pressure
Up to 10,000 feet
Non-Operating
Ambient Temperature
-50°C to +70°C
Atmospheric Pressure
Up to 40,000 feet
Shock and Vibration
Normal handling by commercial carriers

KEY FEATURES

> Weather resistant enclosure
> Automatic 5/10 MHz internal/external reference selection
> 10/100 Base-T Ethernet and RS-485/RS-422 remote control
> Superior phase noise below IESS-308/309 specification
> 30 dB gain control
> 32 memory locations
> High-frequency stability
> Summary alarm
> Redundant AC power supply with power factor correction
> CE mark

OPTIONS

> Option 1A – High performance stability
> Option 1B – High performance spurious outputs
> Option 1C – High performance phase noise (dBc/Hz maximum)
V-Band Upconverters

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