The **XTD-750-B1** is a series compact, self-contained, antenna mountable power amplifiers designed for low cost installation and long life. The **XTD-750-B1** design eliminates the need for an amplifier shelter as well as a long waveguide run between the amplifier and antenna feed horn. RF filters, cooling, and monitoring & control (M&C) systems are all self-contained within the High Power Amplifier (HPA). These features provide high reliability, low maintenance costs, and low replacement costs.

The **XTD-750-B1** uses high efficiency, dual-stage collector Traveling Wave Tubes (TWT). Some benefits of this type of tube are: reduced prime power consumption, lower internal operating temperatures, and reliability enhancement. These benefits are obtained for both the linear and saturated modes of operation.

The **XTD-750-B1** may be configured for single thread, redundant, phase-combined, or linearized operation. A remote external controller is available to operate the HPA from a user selected location. Mounting brackets can be supplied to mount the HPA to most popular antennas.
## PERFORMANCE SPECIFICATION

<table>
<thead>
<tr>
<th>Parameters</th>
<th>XTD-750C-B1</th>
<th>XTD-750X-B1</th>
<th>XTD-750K-B1</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCY RANGE (extended frequency coverage available)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>5.850 to 6.425 GHz</td>
<td>7.9 to 8.4 GHz</td>
<td>13.75 to 14.5 GHz</td>
</tr>
<tr>
<td>Input</td>
<td>950 to 1525 MHz</td>
<td>950 to 1450 MHz</td>
<td>950 to 1700 MHz</td>
</tr>
<tr>
<td>LO Frequency</td>
<td>4900 MHz</td>
<td>6950 MHz</td>
<td>12800 MHz</td>
</tr>
<tr>
<td>Input Level, w/o damage (maximum)</td>
<td></td>
<td></td>
<td>10 dBm</td>
</tr>
<tr>
<td>Reference Signal Frequency</td>
<td>external 10 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 MHz Power Level</td>
<td>2 dBm ± 5 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referenced Input Impedance</td>
<td></td>
<td></td>
<td>50 Ohms</td>
</tr>
</tbody>
</table>

## OUTPUT POWER

- Traveling Wave Tube: 750 Watts
- Rated Power @ Amplifier Flange (minimum): 650 Watts

## GAIN

- Large Signal (minimum): 67 dB
- Small Signal (minimum): 72 dB
- Attenuator Range (continuous): 25 dB
- Maximum SSG Variation Over:
  - Any Narrow Band: 1.0 dB per 40 MHz ± 2 dB
  - Full Band: 1.0 dB per 80 MHz
  - Slope (maximum): ± 0.04 dB/MHz
  - Stability, 24 hr. (maximum): ± 0.25 dB
  - Stability, Temperature (maximum): ± 1.0 dB over temperature range at any frequency

## INTERMODULATION (maximum)

- with two equal carriers @ 4 dB total output power backoff from rated power: -18 dBc (-26 dBc with linearizer option)

## HARMONIC OUTPUT (maximum)

- -60 dBc

## AM/PM CONVERSION (maximum)

- 2.5 deg/db at 6 dB below rated output power

## NOISE POWER (maximum)

- Transmit Band: -75 dBW/4 kHz
- Receive Band:
  - 3.7 to 4.2 GHz: -150 dBW/4 kHz
  - 7.25 to 7.75 GHz: -150 dBW/4 kHz
  - 10.95 to 12.75 GHz: -150 dBW/4 kHz

## GROUP DELAY (maximum)

- Any 40 MHz: 0.01 ns/MHz
- Linear: 0.005 ns/MHz²
- Parabolic: 0.5 ns/Pk-Pk

## RESIDUAL AM NOISE (maximum)

- -60 dB > 100 kHz from carrier
- AC fundamental: -50 dBc
- Sum of all spurs: -47 dBc

## PHASE NOISE (maximum)

- Per IESS phase noise profile
- AC fundamental: -50 dBc
- Sum of all spurs: -47 dBc

## VSWR

- Input (maximum): 1.8:1
- Output (maximum): 1.3:1
**BLOCK DIAGRAM**

- Customer Interface (C-Band & 10 MHz Ref)
- Block Upconverter
- SSA
- Isolator
- TWT
- Harmonic Filter
- Receive Band Filter
- Power Monitor Coupler
- Reflected Power Monitor

**DIMENSIONS**

<table>
<thead>
<tr>
<th></th>
<th>INCHES</th>
<th>CENTIMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>21.50</td>
<td>54.81</td>
</tr>
<tr>
<td>H</td>
<td>12.13</td>
<td>30.81</td>
</tr>
<tr>
<td>W</td>
<td>12.75</td>
<td>32.39</td>
</tr>
</tbody>
</table>

Weight = 75 lb (34.02 kg)

**OUTLINE DRAWING**

- Redundancy Isolation
- Local Remote Switch
- HV On/Off/Reset
- Status LED
- Output Power Monitor
- Monitor & Control
- RF Input

**RF Output**

<table>
<thead>
<tr>
<th>Frequency Band</th>
<th>Waveguide</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>CPRG-137</td>
</tr>
<tr>
<td>X</td>
<td>CPRG-112</td>
</tr>
<tr>
<td>Ku</td>
<td>WR-75</td>
</tr>
</tbody>
</table>
PRIME POWER
180 to 260 VAC
47 to 63 Hz, Single Phase
2450 VA (maximum)
0.95 Minimum Prime Power Factor

ENVIRONMENT
NONOPERATING TEMPERATURE RANGE -50°C to +70°C
OPERATING TEMPERATURE RANGE -40°C to +60°C (2°C/1000 Feet Derating)
HUMIDITY Up to 100% Condensing
ALTITUDE 10,000 Feet MSL (maximum)
SHOCK AND VIBRATION Normal Transportation
COOLING Forced Air

INTERFACE

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL CONTROL</td>
<td></td>
</tr>
<tr>
<td>Prime Power ON/OFF</td>
<td>Local/Remote</td>
</tr>
<tr>
<td>Power Supply ON/OFF</td>
<td>HV ON/OFF</td>
</tr>
<tr>
<td>LOCAL STATUS</td>
<td></td>
</tr>
<tr>
<td>Tri-Color LED:</td>
<td></td>
</tr>
<tr>
<td>Fault: Red</td>
<td></td>
</tr>
<tr>
<td>HV ON: Green</td>
<td></td>
</tr>
<tr>
<td>Standby: Continuous Amber</td>
<td></td>
</tr>
<tr>
<td>FTD: Flashing Amber</td>
<td></td>
</tr>
<tr>
<td>REMOTE CONTROL</td>
<td></td>
</tr>
<tr>
<td>HV ON/OFF</td>
<td>Constant Power</td>
</tr>
<tr>
<td>Min/Max Power Alarm/Fault</td>
<td>RF Inhibit (HV OFF)</td>
</tr>
<tr>
<td>RF Attenuation (w/preamp)</td>
<td>Fault Reset</td>
</tr>
<tr>
<td>Heater Standby ON/OFF</td>
<td></td>
</tr>
<tr>
<td>REMOTE STATUS</td>
<td></td>
</tr>
<tr>
<td>RF Output Power</td>
<td>Reflected Power</td>
</tr>
<tr>
<td>Helix Current</td>
<td>Helix Voltage</td>
</tr>
<tr>
<td>Heater/Beam Hours</td>
<td>Filament Time Delay</td>
</tr>
<tr>
<td>Attenuator Setting</td>
<td>HV ON</td>
</tr>
<tr>
<td>TWT Temperature</td>
<td>Fault Identification</td>
</tr>
<tr>
<td>FORM C DRY CONTACT CLOSURE</td>
<td>Summary Fault</td>
</tr>
<tr>
<td>RF MONITOR PORT</td>
<td>-43 dB Coupling Value (approx.)</td>
</tr>
</tbody>
</table>

OPTIONS
- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Integrated Linearizer
- Extended Frequency Coverage
- Ethernet

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Note: Technical specifications are subject to change without notice. Please contact Xicom Technology before using this information for system design.