

# 750W Compact High Power Amplifier

for Satellite Communications

**DBS-Band**

## The VZU-6997AY

750 Watt TWT High Power Amplifier — high efficiency in a compact package.



### Compact

Provides 750 watts of power in a 5 rack unit package, digital ready, for wideband, single- and multi-carrier satellite service in the 17.3-18.1 GHz frequency band. Ideal for transportable and fixed earth station applications where space and prime power are at a premium.

### Efficient

Employs a high efficiency dual-depressed collector helix traveling wave tube backed by many years of field-proven experience in airborne and military applications.

### Simple to Operate

User-friendly microprocessor-controlled logic with integrated computer interface. Digital metering, pin diode attenuation and optional integrated linearizer for improved intermodulation performance.

### Global Applications

Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2004/108/EC and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements.

### Easy to Maintain

Modular design and built-in fault diagnostic capability with convenient and clearly visible indicators for easy maintainability in the field.

### Worldwide Support

Backed by over three decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes twenty regional factory service centers.

**satcom**  **products**

811 Hansen Way  
P.O. Box 51625, Palo Alto, CA 94303

**tel:** +1 (650) 846-3803

**fax:** +1 (650) 424-1744

**e-mail:** [satcommarketing@cpil.com](mailto:satcommarketing@cpil.com)  
[www.cpil.com/satcom](http://www.cpil.com/satcom)

**DBS-Band**

**750W Compact High Power Amplifier**

## OPTIONS:

- *Integral Linearizer*
- *Remote Control Panel*
- *Redundant and Power Combined Subsystems*

## SPECIFICATIONS, VZU-6997AY

### Electrical

|   |   |
|---|---|
| Frequency                                   | 17.3 to 18.1 GHz  |
| Output Power                                |   |
| TWT   | 750 W min. (58.75 dBm min.)   |
| Flange                                      | 650 W min. (58.13 dBm min.)   |
| Bandwidth                                   | 800 MHz   |
| Gain  | 70 dB min. at rated power, 88 dB max.<br>75 dB min. at small signal, 90 dB max.   |
| RF Level Adjust Range                       | 0 to 25 dB (via PIN diode attenuator)   |
| Gain Stability                              |   |
| At constant drive & temp.                   | ±0.25 dB/24hr max.<br>(after 30 min. warmup)  |
| Small Signal Gain Slope                     | ±0.02 dB/MHz max.   |
| Small Signal Gain Variation                 |   |
| Across any 80 MHz band                      | 1.0 dB pk-pk max.   |
| Across the 800 MHz band                     | 4.0 dB pk-pk max.   |
| Across the 800 MHz band,<br>with linearizer | 5.0 dB pk-pk max.   |
| Input VSWR                                  | 1.30:1 max.   |
| Output VSWR                                 | 1.30:1 max.   |
| Load VSWR                                   |   |
| Continuous operation                        | 2.0:1   |
| Full spec compliance                        | 1.2:1   |
| Operation without damage                    | Any value   |
| Phase Noise                                 |   |
| IESS-308/309                                |   |
| phase noise profile                         | -6 dB   |
| AC fundamentals related                     | -36 dBc   |
| Sum of spurs (370 Hz to 1 MHz)              | -47 dBc   |
| AM/PM Conversion                            | 2.5°/dB max. for a single-carrier at<br>8 dB below rated power  |
| Noise Density                               | <-65 dBW/4 kHz, 17.3 to 18.1 GHz<br><-150 dBW/4 kHz, 10.9 to 12.7 GHz   |
| Intermodulation                             | -24 dBc with two equal carriers at total<br>output power of level 7 dB below<br>rated single-carrier output (at 3 dB<br>backoff with optional linearizer) |

### Electrical (continued)

|                   |   |
|-------------------|---|
| Group Delay       | 0.01 ns/MHz linear max.<br>(in any 80 MHz band)             |
|                   | 0.001 ns/MHz sq. parabolic max.<br>0.5 ns pk-pk ripple max. |
| Primary Power     |   |
| Voltage           | Single phase, 208-240 VAC ±10%                              |
| Frequency         | 47-63 Hz  |
| Power Consumption | 2.3 kVA typ. (small signal)<br>2.6 kVA max.                 |
| Power Factor      | 0.95 min.   |
| Inrush Current    | 200% max.   |

### Environmental (Operating)

|                     |   |
|---------------------|---|
| Ambient Temperature | -10° to +50°C operating<br>-40° to +70°C non-operating  |
| Relative Humidity   | 95% non-condensing  |
| Altitude            | 10,000 ft. with standard adiabatic<br>derating of 2°C/1000 ft., operating;<br>50,000 ft., non-operating   |
| Shock and Vibration | Designed for normal transportation<br>environment per Section 514.4<br>MIL-STD-810E. Designed to<br>withstand 20G at 11 ms<br>(1/2 sine pulse) in non-operating<br>condition. |

### Mechanical

|                        |  |
|------------------------|--|
| Cooling (TWT)          | Forced air with integral blower<br>Rear air intake & exhaust<br>Maximum external pressure loss<br>allowable: 0.5 inches water column |
| RF Input Connection    | Type SMA female  |
| RF Output Connection   | WR-62 waveguide flange,<br>grooved, threaded UNC 2B 6-32   |
| RF Output Monitor      | Type SMA female  |
| Dimensions (W x H x D) | 19 x 8.75 x 24 in.<br>(483 x 222 x 610 mm)   |
| Weight                 | 95 lbs (43 kg) max.  |

### Heat and Acoustic

|                  |                               |
|------------------|-------------------------------|
| Heat Dissipation | 2,000 Watts max.              |
| Acoustic Noise   | 68 dBA (as measured at 3 ft.) |



For more detailed information, please refer to the corresponding CPI Technical Description.

Note: Specifications may change without notice as a result of additional data or product refinement.

Please contact CPI before using this information for system design.

