

## Description

The PW-1204 is a solid state linear power amplifier that is designed for wireless applications in the 2500 to 2700 MHz frequency range. The amplifier utilizes state of the art LDMOS device technology and is well suited for WiMAX or LTE applications, as well as general laboratory use. The typical output power of the PW1204 is 100 Watts, at the 1 dB compression point, with a typical gain of 35 dB. The amplifier has been optimized for maximum linearity with either a WiMAX or LTE modulated carrier and can be used with an external Digital Pre-Distortion (DPD) system to achieve maximum output power and efficiency. The PW1204 features an integral feedback coupler in order to provide a sample of the output signal for use with an external DPD system, but can also be used without external linearization if desired.



**PW-1204 RF Power Amplifier**

The PW-1204 also supports other input waveform types in addition to WiMAX and LTE signals. The output power capability of the amplifier will vary based on the peak to average ratio and bandwidth of the input signal, as well as the required spectrum emission levels. Please contact Prescient Wireless for further information regarding your specific needs.

## Features

The PW-1204 linear power amplifier offers the following standard features:

- Rugged LDMOS Design
- Optimized for use with DPD
- 50 Ohm Input/Output impedance
- Integral Output Isolator
- Single Power Supply
- Over Voltage Protection
- Over Temperature Indicator
- Over Current Indicator
- Compact and Lightweight
- Shielded Enclosure

Customization to meet your specific program requirements is available. Please contact Prescient Wireless for further information.

## Typical Performance

Parameter	Value
Frequency Range	2500 to 2700 MHz
Pout (P1dB)	100 Watts
Peak Power (12us pulse, 10% duty cycle)	260 Watts
Pout (avg) 10MHz WiMAX Carrier with DPD (see Figure 3)	30W
Pout (avg) 20MHz LTE Carrier with DPD (see Figure 1)	50W
Gain	35 dB
DC Input Voltage	28 V
DC Input Current	14 Amps
Size (mm)	269 x 210 x 29
Base plate operating temperature range	0 to 55 °C

### Typical WiMAX Performance

The test signal for WiMAX operation is a 60% duty cycle, 10 MHz wide TDD WiMAX carrier modulated with 64-QAM exhibiting a 0.01% CCDF point of 8.4 dB with a frame length of 5 ms. The PW-1204 produces an output power of 30 Watts during the transmit portion of the TDD frame with this WiMAX test signal while maintaining an emission level of 0 dBm measured in a 1 MHz bandwidth at an offset of 6.5 MHz from the center of the carrier. When used in conjunction with an appropriate external DPD system, the emission levels can meet the FCC requirement of a maximum level of -13 dBm in a 1 MHz bandwidth (Figure 3). If an external DPD system is not utilized, the PW-1204 can meet this emission level for an output level of approximately 2.5 Watts (Figure 4).

### Typical LTE Performance

The test signal for LTE operation is a 100% duty cycle, 20 MHz wide FDD LTE carrier modulated with 64-QAM exhibiting a 0.01% CCDF point of 7.1 dB. The PW-1204 produces an output power of 50 Watts with this LTE test signal while maintaining an emission level of 0 dBm measured in a 1 MHz bandwidth at an offset of 11.5 MHz from the center of the carrier. When used in conjunction with an appropriate external DPD system, the emission levels meet the FCC requirement for a maximum level of -13 dBm in a 1 MHz bandwidth at an offset greater than 11.5 MHz from the center of the carrier (Figure 1). If an external DPD system is not utilized, the PW-1204 can meet this emission level for an output level of approximately 4 Watts (Figure 2).

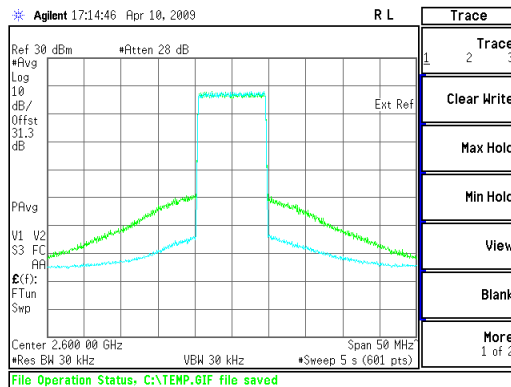


Figure 1: Spectrum Emissions of 10 MHz wide WiMAX carrier at 30 Watt average output power

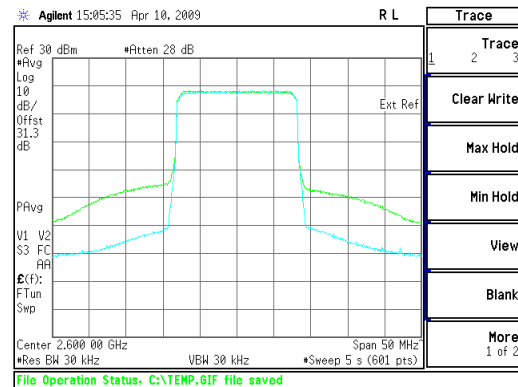


Figure 3: Spectrum Emissions of 20 MHz wide LTE carrier at 50 Watt average output power

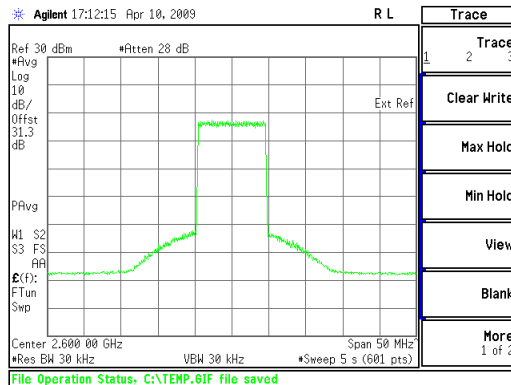


Figure 2: Spectrum Emissions of 10 MHz wide WiMAX carrier at 2.5 Watt average output power

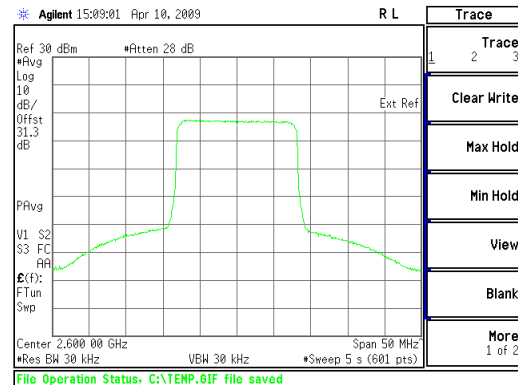
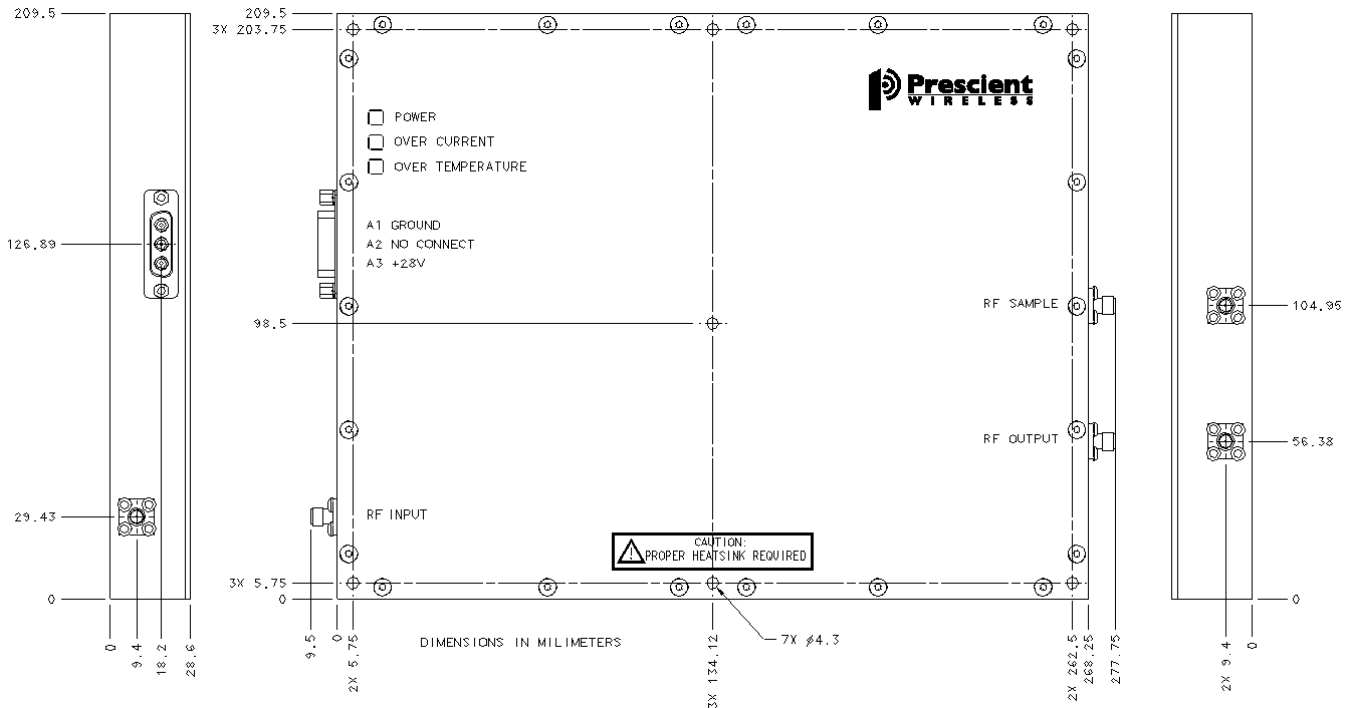


Figure 4: Spectrum Emissions of 20 MHz wide LTE carrier at 4 Watt average output power



**Note: The PW1204 must be mounted to an appropriate heat sink for proper operation. Optional integrated heat sink and cooling fans are available. Please contact Prescient Wireless for further details.**

Connector	Description	Values
Sub-D, Pin A1	Ground	N/A
Sub-D, Pin A2	No Connection	No Connection
Sub-D, Pin A3	DC Input Voltage	+28 VDC at 24 Amps (maximum)
SMA-Jack	RF Input	+15dBm (maximum)
SMA- Jack	RF Sample	-30dB to Output
SMA- Jack	RF Output	+50dBm (P1dB)

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