



* MILITARY COMMUNICATIONS AND HIGH POWER TRANSMITTERS *

MICROWAVE SUBSYSTEMS FOR AEROSPACE AND DEFENSE SYSTEMS INTEGRATORS

Since ETM began building high power microwave amplifiers in 1985, we have shipped nearly 4,000 units.

- 10 watts to 5 MW we are not limited by *power*.
- 100 MHz to 65 GHz, we are not limited by *frequency*.
- SatCom & EW to Instrumentation & Industrial, we are not limited by *application*.
- Solid state & TWTs to klystrons & magnetrons, we are not limited by *technology*.

TAILORED MICROWAVE SUBSYSTEMS

When ETM becomes a part of our client's supply chain, we help reduce cost, lead-time and risk by providing a tailored subsystem solution specific to program requirements. With proprietary tools such as RAPiD™ and C³COM™ we are able to respond quickly to issues that arise during initial build and large-scale production. Our clients can count on consistent reliability and quality, as ETM is ISO 9001:2000 certified and operates within the requirements of AS 9100.

With a tailored approach, ETM subsystems are designed with the larger system in mind to best facilitate the successful completion of our client's mission. A fully tailored solution might include the following:



- Depot support for spares and logistics
- Rugged design for mobile applications
- MIL-STD-810 and -461 compliant
- PDR, CDR, MRR, TRR with customer participation
- Tailored FAT and ATP per program requirements
- On-Site training available as required by customer
- Detailed Operation / Technical Manual per program requirements

X-Band

2.2 kW, X-Band, SatCom Amplifier

ETM's Model 2500X is an X-Band split mount amplifier offering more than 2200 watts CW from 7.9 to 8.4 GHz. The 2500X consists of a power supply chassis and RF/control unit chassis totaling 12 rack units in height. The 2500X is qualified to MIL-STD-810E for environmental and MIL-STD-461C (EMI) for shipboard below deck operation.



7.3 kW, X-Band, SatCom Amplifier

The 7300X is an X-Band fixed ground station transmitter designed for automated satellite uplink. This system can be automatically configured as two 4 kW amplifiers in the 1:1 redundancy mode or power-combined to provide a total output flange power of 7300 watts from 7.9 to 8.4 GHz. This system is completely air cooled and is CE marked for safety and EMI/EMC.

10 kW and 20 kW, X-Band, Ground Station

ETM has many years of experience building, refurbishing and supporting deep space ground station transmitters for both NASA and ESA. Our 10 kW and 20 kW CW systems are fixed ground station Klystron power transmitters designed for automated satellite uplink.

ETM's Model 103X can deliver up to 10 kW CW in X-Band and is designed for 24/7 continuous operation. ETM's Model 203X can deliver up to 20 kW CW in X-Band. The KPA is designed to meet the low-noise requirements for deep-space communications.



ETM's main objective is to minimize the pain of your system integration process. We build our HPAs specifically with your larger system in mind so that we reduce your time, cost and frustration of integrating our system into yours. By working with you from the beginning we save you money, improve your schedule and reduce your risk.



Tri-Band



Our 400 watt tri-band ODU is designed for outdoor use. It meets MIL-STD-810F and has been certified for operation in a DSCS terminal. It is compact and light so that even a redundant configuration can fit on your hub. The separate controller is small to minimize rack space and can also be used to operate our Ka-band ODU. We offer complete RF output systems, such as filters, switches and custom waveguide designs, if necessary.

Our tri-band is also available in traditional split mount and rack mount configurations. A variety of TWTs at our disposal means that we can meet any linear power requirement out there. Extended bandwidths are also available.



Ka-Band (Quad-Band)

ETM's Ka-Band ODU is designed for outdoor use, and with our tri-band, completes our quad-band system. The quad-band system will operate with one single controller to reduce rack space. Our Ka-band meets MIL-STD-810F. The ODU is rated at 250 W and is available in commercial and military bands. We offer a standard chassis design or the capability to design a chassis specific for your antenna (as shown).



Our Ka-Band is also available in a split mount package to reduce the size and weight of the RF chassis even further. The power supply and control head are packaged in a standard 19" rack mount chassis. Standard units are available in 150 W, 250 W, 350 W and 600 W versions.



Q-Band

ETM offers 40 W and 120 W Q-Band systems in rack mount, split mount or ODU configurations. Tailored configurations are also available for specific systems or applications. Units can be compliant to environmental and EMI standards if necessary.

HIGH POWER TRANSMITTERS (> 10 kW)



ETM has built high power transmitters up to 200 kW CW and 5 MW peak pulsed. We have the Engineering experience and capability to design and build a high voltage power supply with protection and control systems around any tube available and package it in a tailored configuration specific to your application.

ETM has built high powered systems around klystrons, IOTs, IPAs, tetrodes, triodes, coupled cavity tubes, magnetrons and TWTs. We have powered these tubes with existing switch mode or linear power supply designs, depending on tube requirements.



COMMERCIAL SATCOM



Housed in rugged enclosures, ETM's SatCom HPAs are ideal for fly-away, mobile and fixed site applications. Each system is built with a modular, switching power supply allowing for easy maintenance, quick troubleshooting and minimum downtime.

ETM's SatCom amplifiers cover all uplink bands including C, Ku, DBS, K and Ka-Band from 125 W to 2.25 kW. Dual-band solutions are also available. Products are offered in standard rack mount, split mount, or ODU hub mount configurations. ETM also has a complete capability to design, develop, and build tailored configurations for specific systems or applications.

A variety of accessories are also available including filters, redundancy packages, antenna mounting plates, converting cables and a Ku-Band VPC available with our standard Ku-Band systems.

