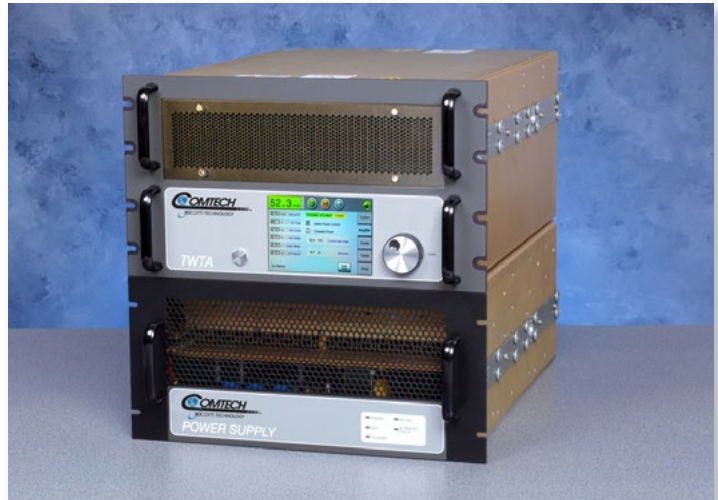


# 2000 Watt C-Band High Efficiency Rack Mount High Power Amplifier



## FEATURES

- *Touch screen interface*
- *Built-in redundancy controller*
- *Ethernet interface, remote diagnostics*
- *Parameter trend analysis*
- *Optional integrated linearizer*
- *Optional BUC*

**XTRT-2000CHE** and **XTRT-2000C** digital rack-mount amplifiers are designed for Linear Power applications and occupy only 11 rack units while providing 2250 Watts of Peak TWT Power and 1000 Watts of Linear Power. These high efficiency traveling wave tube amplifiers include RF gain control, a solid state pre-amplifier and integrated C-Band Linearizer, RF filters, cooling, and monitor & control (M&C) systems.

The dual-drawer amplifier conserves rack space and occupies only 19.25 inches (11 rack units) of a standard 19 inch rack cabinet. A complete 1:1 or 1:2 redundant TWTA system, including a redundant controller, can be mounted in a single rack.

The **XTRT-2000CHE/C** are 2250W C-band amplifiers with a touch screen front panel for easy customer interface. The display shows HPA status, parameter trend analysis and event logs, and remote diagnostics can be easily performed via the Ethernet interface. Also, because the display can show and control waveguide switches or a combiner, the need for separate external controllers is eliminated for common architectures.

The units incorporate high efficiency, multi-stage depressed collector TWTs. Reliability is enhanced because both prime power consumption and internal operating temperatures are reduced for the linear and saturated modes of operation. By using a separate power supply design, sparing and logistics are simplified and individual box weight is minimized.

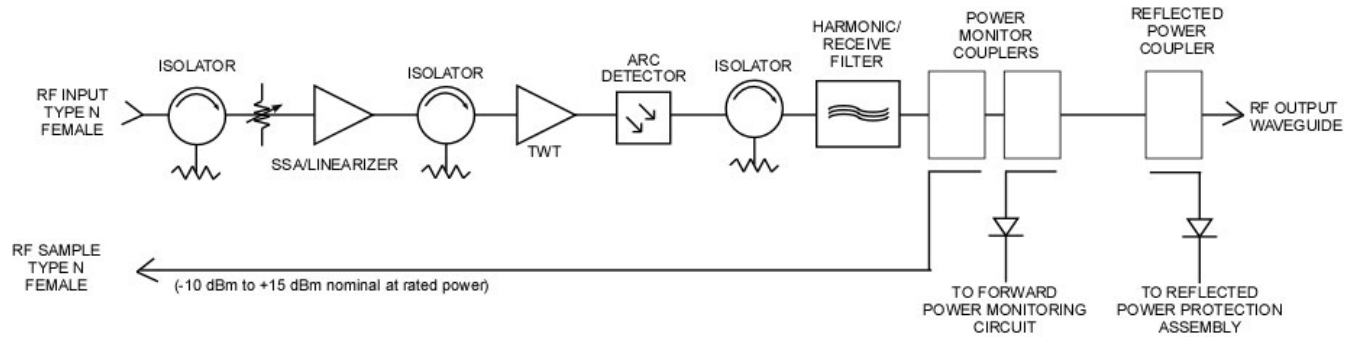
Depending upon user requirements, the high power amplifiers can be configured for single-thread, redundant, or phase combined operation.



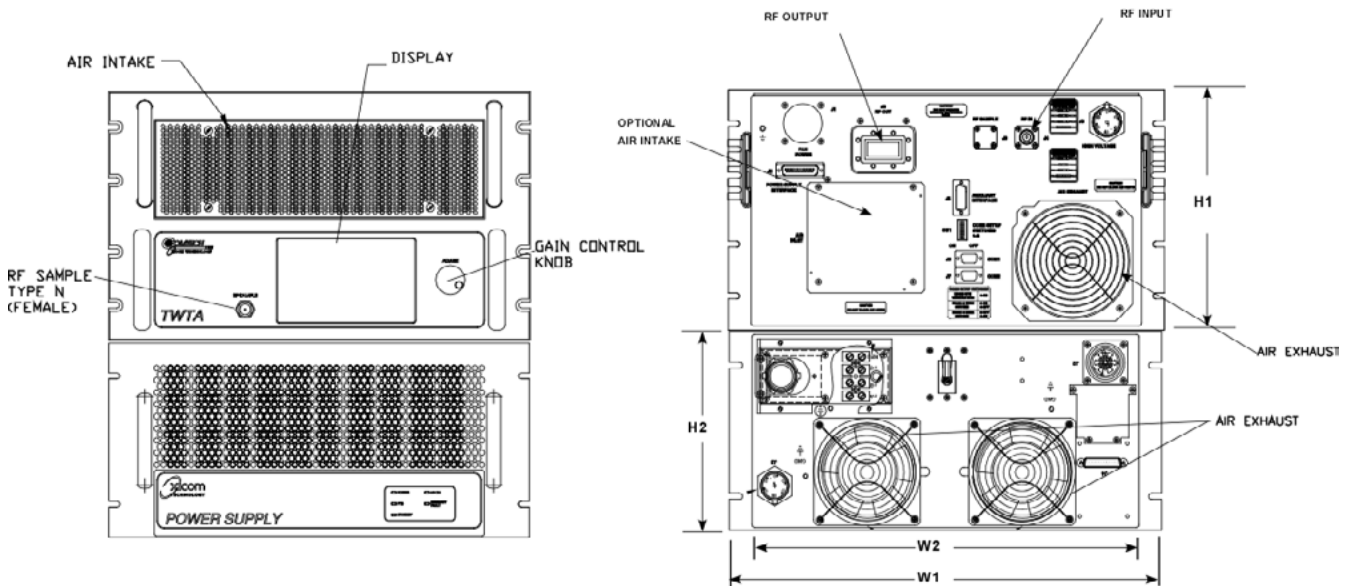
# PERFORMANCE SPECIFICATION

Parameters	XTRT-2000CHE	XTRT-2000C
FREQUENCY RANGE (extended frequency coverage available)	5.85 to 6.425 GHz (5.85 to 6.725 GHz)	
OUTPUT POWER		
Traveling Wave Tube	2250 W	
Rated Power @ Amplifier Flange (minimum)	1000 W	2000 W
GAIN		
Large Signal (minimum)	70 dB	
Small Signal (minimum)	75 dB	
Attenuator Range (continuous)	25 dB	
Maximum SSG Variation Over:		
Any Narrow Band	1.0 dB per 40 MHz	
Broad Band	2.5 dB MHz/600 MHz	
Slope (maximum)	± 0.02 dB/MHz	
Stability, 24 hr. (maximum)	± 0.25 dB	
Stability, Temperature (maximum)	± 1.0 dB over temperature range at any frequency	
INTERMODULATION (maximum) total power with two equal carriers	-18 dBc @ 4 dB backoff (-24 dBc with Linearizer option)	
HARMONIC OUTPUT (maximum)	-60 dBc	
AM/PM CONVERSION (maximum)	2.5 deg/dB at 6 dB below rated power	
NOISE POWER (maximum)		
Transmit Band	-70 dBW/4 kHz	
Receive Band	-150 dBW/4 kHz 3.7 to 4.2 GHz	
GROUP DELAY (maximum)		
Bandwidth	Any 40 MHz	
Linear	0.01 nS/MHz	
Parabolic	0.001 nS/MH <sup>2</sup>	
Ripple	0.5 nS/Pk-Pk	
RESIDUAL AM NOISE (maximum)	-50 dBc to 10 kHz -20 (1.5 + logf) dBc to 500 kHz -85 dBc above 500 kHz	
PHASE NOISE (maximum)	12 dB below IESS-308/309 phase noise profile AC fundamental -50 dBc Sum of all spurs -47 dBc	
VSWR		
Input (maximum)	1.3:1	
Output (maximum)	1.3:1	

# BLOCK DIAGRAM



# OUTLINE DRAWING



DIMENSIONS				
	INCHES	CENTIMETERS	INCHES	CENTIMETERS
W1	19.00	48.27	H1	10.09 25.63
W2	17.00	43.18	H2	8.72 22.15
RF OUTPUT: CPR-137G			NOMINAL WEIGHT = 180 lb (81.65 kg)	

## PRIME POWER

208 VAC  $\pm$  10% Three Phase  
 47 to 63 Hz  
 XTRT-2000CHE: 5000 VA (typical)  
 XTRT-2000C: 8000 VA (typical)  
 0.95 Minimum Prime Power Factor



## ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-10°C to +50°C (2°C/1000 Feet Derating)
HUMIDITY	Up to 95% Noncondensing
ALTITUDE	10,000 Feet MSL (maximum)
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air 275 CFM (typical)

## INTERFACE

	Type	Function	
CONTROLS	LOCAL	Local/Remote AC Power On/OFF	
	LOCAL AND REMOTE	Gain	High Voltage ON/OFF
		Min/Max Power Alarm/Fault	Audio Alarm ON/OFF
		Reflected Power Alarm/Fault	Units (Watts, dBm, dBW)
		Fault Reset	Lamp Test
		Heater Standby ON/OFF	System
STATUS	FRONT PANEL LCD	Standby	Power
		Local	Remote
		Summary Fault	High Voltage ON/OFF
		Heater Time Out (FTD)	Heater Standby
		Power Out	Beam Hours
		Reflected Power	Helix Current
		TWT Temperature	Helix Voltage
		Heater Hours	Faults:
		Uplink Power (option)	High VSWR
		Event Log	High Voltage
	Trend Log	Helix Current	
System Status	TWT Temperature		
	DRY FORM-C RELAY CONTACTS (2)	Summary Fault	
COMPUTER SERIAL PORT	HARDWARE INTERFACE	Two Ports: RS-232 & RS-422/RS-485 Ethernet T10/100	
	XICOM COMMAND SET	ASCII Commands	
	RF SAMPLE PORT COUPLING	-37 dB Nominal	

## OPTIONS

- Extended Frequency Coverage
- 220/380 VAC  $\pm$  10% 3 Phase, 5 Wire, 47-63 Hz
- 240/415 VAC  $\pm$  10% 3 Phase, 5 Wire, 47-63 Hz
- 1:1, 1:2, 1:N Redundancy
- Variable Phase Combined
- Integrated Linearizer
- Integrated Block Upconverter

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