Amplifiers

Model 486

Features:

- 6500 W typical pulse, 6 – 18 GHz
- Pulsed Class A design
- 100% mismatch tolerant up to 1800W
- Built-in fault monitoring and protection
- Touch screen display
- Forward and reverse power monitoring
- Remote control: Ethernet, USB, GPIB, fiber-optic serial, RS-232
- Modular design for easy maintenance and service
- Degradation mode feature
- High PRF

Applications:

- EMC Test applications
- EW Communication/Test/Jamming
- RADAR
- Science

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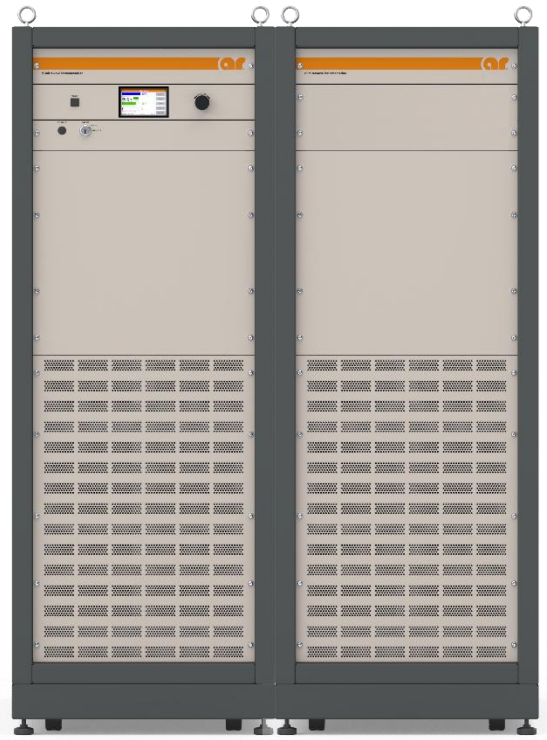
ISO 9001:2015 Certified
ISO 17025 :2017 Accredited

Model 486 is a solid-state, pulsed A class design, self-contained, air-cooled, broadband power amplifier designed for pulse applications at low duty factors where instantaneous bandwidth and high gain are required. It will provide a minimum of 6200 Watts across its operating bandwidth.

Protection from input overdrive beyond 0 dBm is provided as well as protection from various failure conditions including over-temperature and power supply faults.

A front panel display indicates the operational status and fault conditions. All amplifier control functions, and status indications are available remotely using GPIB/IEEE-488, RS-232, fiber-optic serial, USB, or Ethernet. Interface connectors are located on the back panel. Local and remote operation is managed by a switch on the front panel.

The export classification for this equipment is 3A999.d. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.



Electrical Specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Frequency	BW	6		18	GHz
Rated Power Output (6.0 - 12.0 GHz)	PSAT	7800	10000	20000	W
Rated Power Output (12.0 – 18 GHz)	PSAT	6200	6500	15000	W
P1 dBc (6.0 - 12.0 GHz)	P1dBc	-	7300	-	W
P1 dBc (12.0 - 18.0 GHz)	P1dBc	-	4700	-	W
Pulse Droop – 100 µs pulse @ rated power				<0.8	dB
Input for Rated Output	Pin			1	mW
				0	dBm
Gain (Small Signal)		72	74	77	dB
Gain Reduction Adjustment (when below compression)		20			dB
Flatness	ΔG		±1.5	±2.5	dB
Input Impedance	Z in		50		Ohm
			2.0:1	≤2.5:1	VSWR
Output Impedance	Z out		50		Ohm
Noise Figure	NF	8	10	≤12	dB
Harmonic Distortion @ rated output power	H2, H3	-	- 20	≤-17	dBc
Spurious			≤-60		dBc
Power Consumption at 6% - 10 kHz -rated power	PD		11	12	kVA

Absolute Maximum Rating

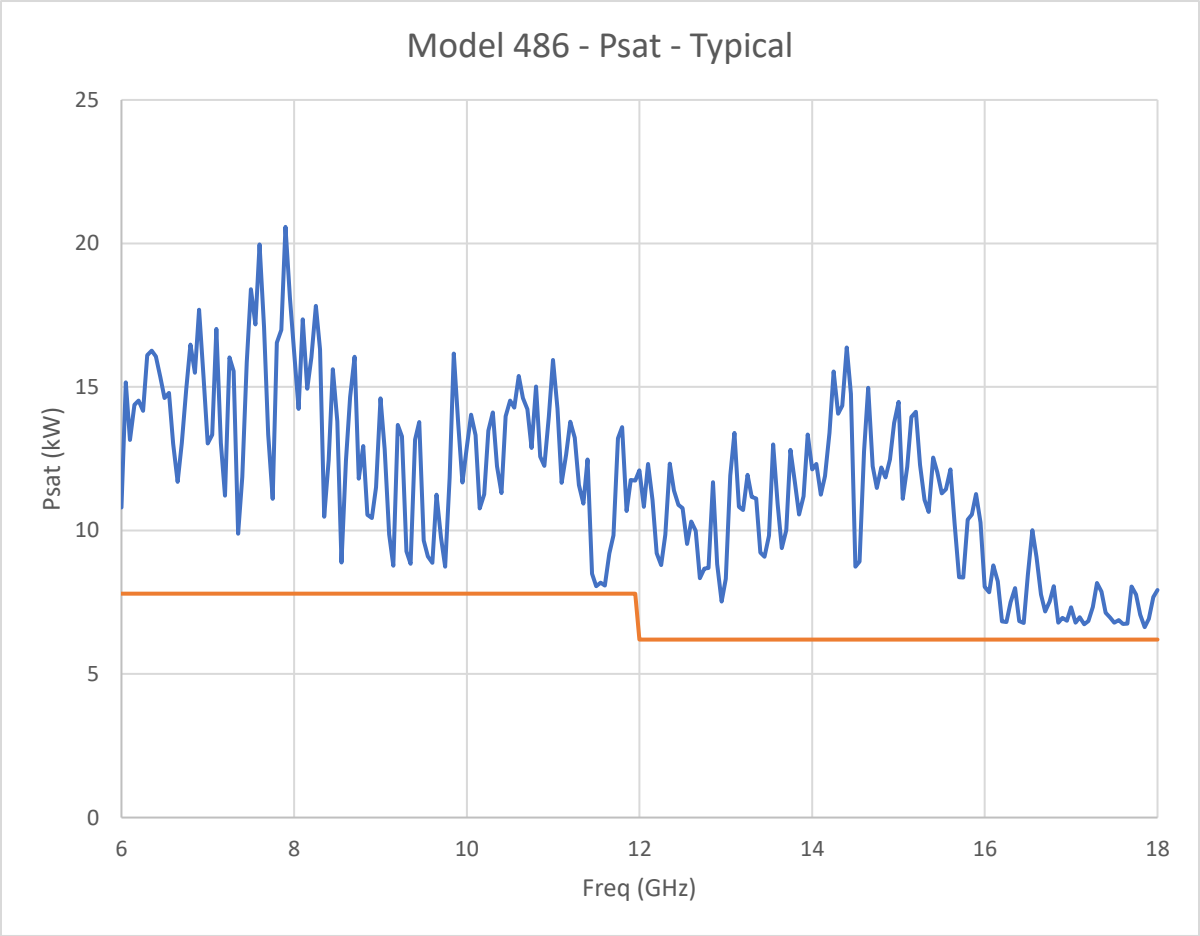
Exceeding any of the limits listed here may result in permanent damage to the device.

Parameter	Minimum	Typical	Maximum	Unit
RF Drive			+13	dBm
RF Load Mismatch up to 1500 W output power	1:0	-	10:1	VSWR
RF Load Mismatch up to rated output power	1:0	-	3:1	VSWR
Maximum admissible reflected power Will operate without damage or oscillation when connected to any load impedance. Alarm and protection above.			1800	W
AC Power (3-phase) Low voltage option	200		240	VAC
AC Power (3-phase) High voltage option	380		415	Vac
AC Power - Frequency	47		63	Hz
Ambient Temperature	+5	+25	+40	°C
Storage Temperature	-20		+50	°C
Altitude			1000	m
Shock/Vibration	Normal Truck Transport			

Pulse Capability	
Parameter	**Value**
Pulse Width	100 ns min - 100 µs maximum
RF Rise and Fall	20 ns maximum (10 - 90 %)
Delay	0.6 µs min. from pulse input to RF 90%
Pulse Width Distortion	±25 ns maximum (difference between Pulse input gate and RF pulse)
Pulse Off Isolation	35 dB minimum @ 18 GHz; 50 dB typical
Pulse trig Input	+5 V nominal / +3 to 6 V, 50 Ohm input

PRR and Duty Cycle Capability			
Duty Cycle range	**Output Power (min)**	**PRR (max)**	**Pulse width at max PRR (Duty cycle limited)**
6 % max	6200 W	10 kHz	6 us
3.5 % Max	6200 W	50 kHz	0.7 us
1.8 % max	3500 W	120 kHz	0.15 us

Mechanical Specifications		
Parameters	**Typical**	**Unit**
Amplifier Dimensions (With Rack) (W x H x D) (2x 19" X 35U)	113 x 165.1 x 95.5	cm
	45.2 x 65 x 37.6	in
System Amplifier Weight (Including racks)	900	kg
	1984	lb
System Amplifier Weight (Excluding racks)	740	kg
	1630	lb
Cooling	Forced air (self-contained fans) Side inlets / rear outlet Δt = +7°C (typical)	
Acoustical Noise (Measured @ 1 meter from the front)	75 (typical)	dBA

Regulatory Compliance	
Type	**Standard**
EMC	EN 61326-1
Safety	UL 61010-1
	CAN/CSA C22.2 #61010-1
	CENELEC EN 61010-1
RoHS	Directive 2011/65/EU
Export	3A999.d

Connector interfaces	
Function	**Type**
RF input	N female (50 Ω), front
RF output	WRD650 UG, rear
RF sample	N female (50 Ω), front (60 dB typical)
IEEE-488	24-pin, front
RS-232	9-pin subminiature D female, front
RS-232 (fiber optic)	ST, front
USB 2.0	Type B, front
Ethernet	RJ-45, front
Interlock	15-pin subminiature D female, front