

Amplifiers

Model 100U1000A

Features:

- 100 W CW, 10 kHz – 1000 MHz
- Class A design
- 100% mismatch tolerant
- Built-in fault monitoring, logging and protection
- Touch screen display
- Remote control: Ethernet, USB, GPIB, fiber-optic serial, RS-232
- Modular design for easy maintenance and service
- Low acoustical noise
- 3 Year Warranty

Applications:

- EMC (military, aviation, automotive, commercial)
- Radiated and conducted EMC testing
- General purpose, antenna, and component testing
- 4G LTE, 5G NR (FR1/FR2), OFDM, PSK/QAM, Wi-Fi etc.

To view our full amplifier portfolio visit: www.ar.ametek-cts.com

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ISO 9001: 2015 Certified
ISO 17025 :2017 Accredited



The Model 100U1000A is a self-contained, air-cooled, solid-state Class A broadband power amplifier designed for applications demanding wide bandwidth coverage, high gain, and linear performance. It delivers a minimum of 100 W over a frequency range of 10 kHz to 1000 MHz. The unit includes safeguards against input overdrive beyond 0 dBm, as well as various fault conditions such as excessive temperature and power supply issues.

A scalable, module-based design combined with advanced forced air cooling ensures reliable operation and long-term performance in demanding test environments. A clear front panel display provides immediate visibility of operating status and fault conditions, enabling fast setup and confident operation. For maximum flexibility, all control and monitoring functions can be accessed either locally via the front panel or remotely through a wide range of standard interfaces, including GPIB/IEEE 488, RS 232, fiber optic serial, USB, and Ethernet.

This Class A amplifier is engineered for EMC immunity, communications, and aerospace & defense testing, delivering exceptional stability and linearity under demanding load conditions, including high VSWR, open, or short circuits. Low spurious emissions, high spectral purity, and wideband performance make it ideal for modern wireless and 5G applications.

Export classification for this device is EAR99. These goods, technologies, or software are regulated under U.S. Export Administration Regulations, and unauthorized diversion is prohibited by U.S. law.

Electrical Specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Rated Power Output	PSAT	100	120	>130	W
Input for Rated Output	Pin			1.0	mW
				0	dBm
Power Output @ 3 dB Compression (0.01 - 600 MHz)	P3dB	90	120	>130	W
Power Output @ 3 dB Compression (600 - 1000 MHz)	P3dB	80	100	>110	W
Power Output @ 1 dB Compression (0.01 - 0.50 MHz)	P1dB	75	90	>100	W
Power Output @ 1 dB Compression (0.50 - 1000 MHz)	P1dB	75	80	>90	W
Operating Frequency	BW	0.01		1000	MHz
Gain (Small Signal)		52	54	56	dB
Gain Reduction Adjustment (when below compression)		20	22	25	dB
Flatness	ΔG		±1.5	±2.0	dB
Input Impedance	Z in		50		Ohm
			1.5:1	2.0:1	VSWR
Output Impedance	Z out		50		Ohm
3rd Order Intercept	IP3		+60		dBm
Noise Figure	NF		8		dB
Harmonic Distortion @ 100 W for entire band except 0.01 - 0.50 MHz and 250 – 400 MHz	H2, H3		-25	-20	dBc
Harmonic Distortion @ 100 W for 0.01 - 0.50 MHz	H2, H3		-22	-18	dBc
Harmonic Distortion @ 100 W for 250 - 400 MHz	H2, H3		-22	-18	dBc
Spurious			-73		dBc
Power Consumption	PD			450	W

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		0	+13	dBm
RF Load		1:1	∞	VSWR
RF Load Reflected Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry.			100	%
AC Power (single phase)	100		240	VAC
AC Power	47	60	63	Hz
Ambient Temperature	+5	+25	+40	°C
Storage Temperature	-20		+50	°C
Altitude			2000	m
Shock/Vibration	MIL-STD-810G Method 514 and 516			

Mechanical Specifications		
Parameters	**Typical**	**Unit**
Dimensions (With Cabinet) (W x H x D)	51.0 x 17.0 x 65.3	cm
	20.1 x 6.7 x 25.7	in
Dimensions (No Cabinet) (W x H x D) – 3U for 19" Rack	48.3 x 13.4 x 65.3	cm
	19.0 x 5.3 x 25.7	in
Weight (With Cabinet)	26.5	kg
	58.5	lb
Weight (No Cabinet)	15.8	Kg
	34.75	lb
Cooling	Forced air (self-contained fans)	
Acoustic Noise Measured @ 1 Meter	56	dBA

Connector Interfaces	
Function	**Type**
RF Input	N, female, rear (50 Ω) (option front)
RF Output	N, female, rear (50 Ω) (option front)
IEEE-488	24-pin
RS-232	9 pin subminiature D
Ethernet	RJ-45
RS-232 (fiber optic)	ST
USB 2.0	Type B
Interlock	15-pin subminiature D

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

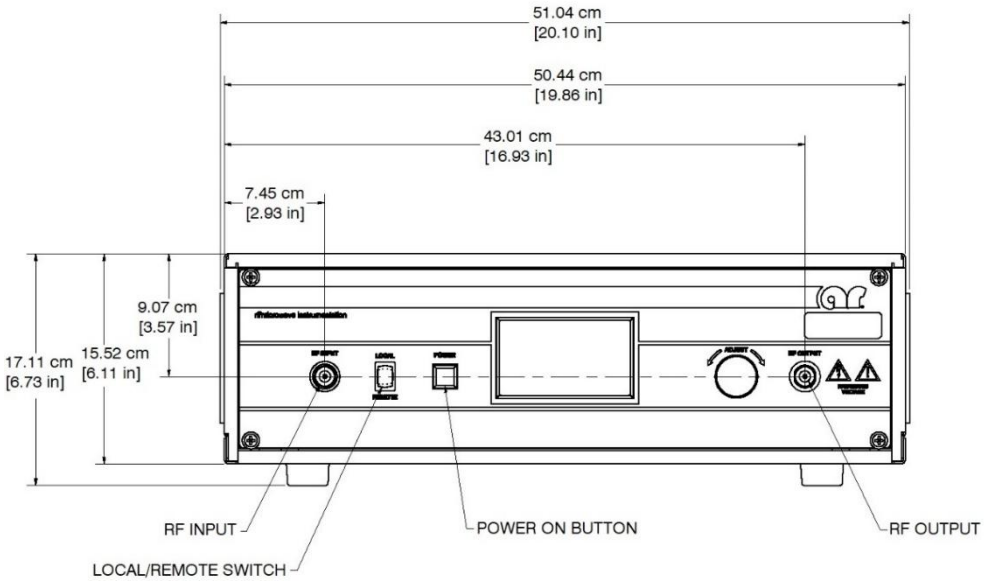
Ordering Options

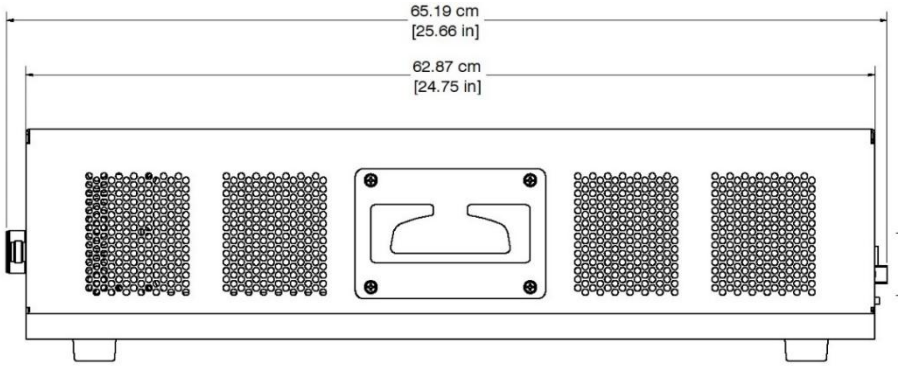
100U1000A	-		-	N	-		-	N	-	
Model		**RF IN Conn Location, Type**				**RF OUT Conn Location, Type**				**Enclosure No Enclosure**

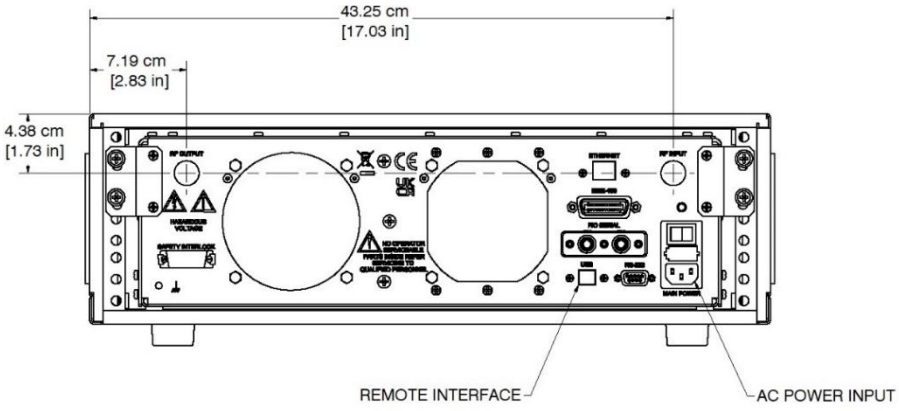
N-Connector	
Front	F
Rear	R

Enclosure	
Enclosure	E
No Enclosure	NE

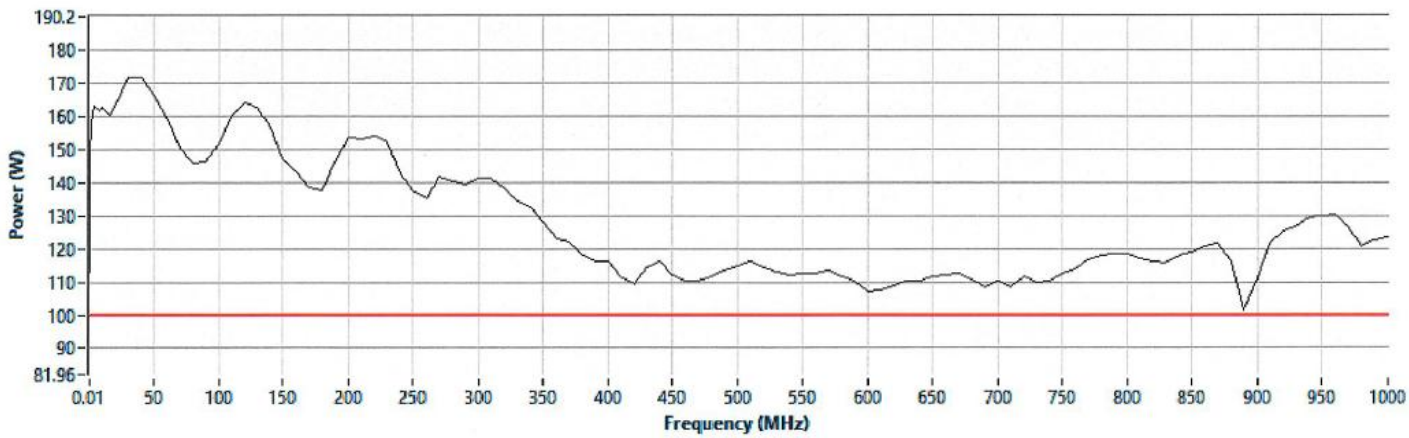
Envelope Drawing



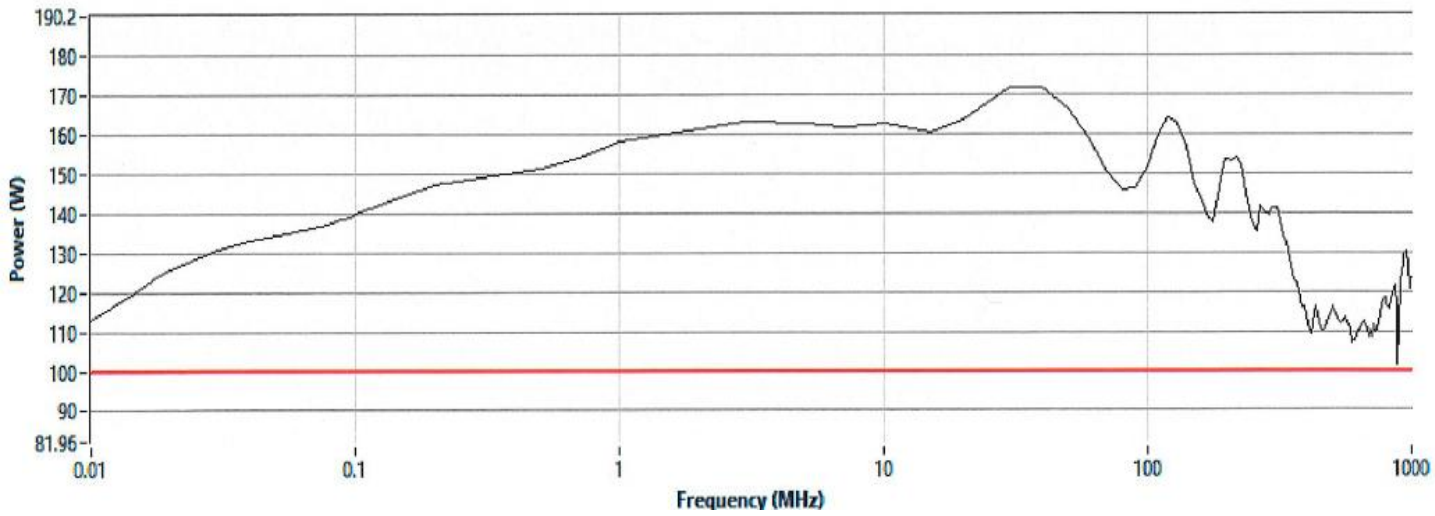




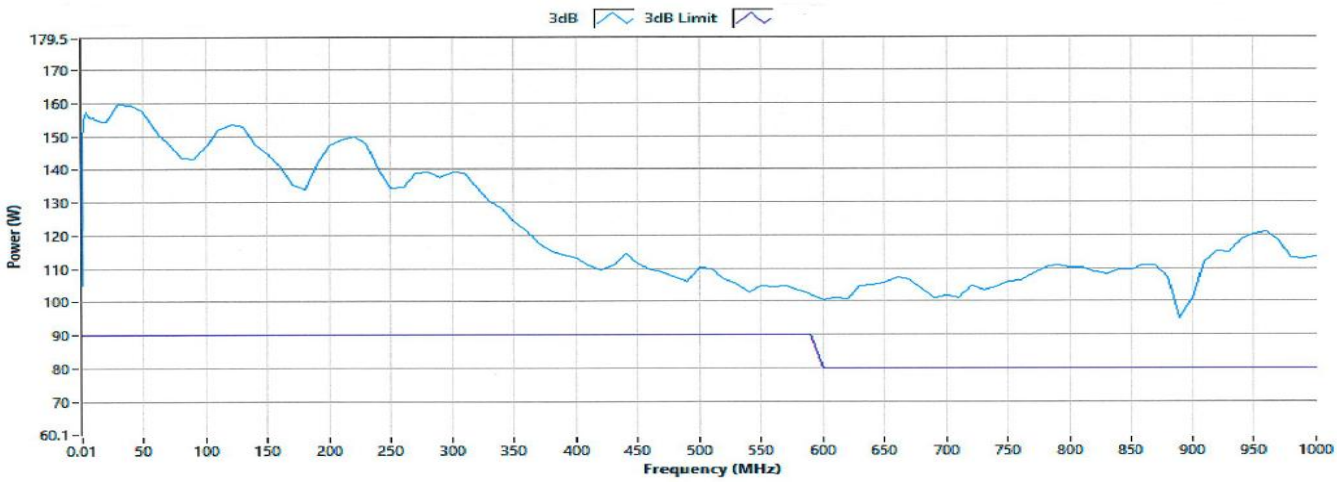
TYPICAL PSAT POWER @ 0 dBm INPUT (Linear Scale)



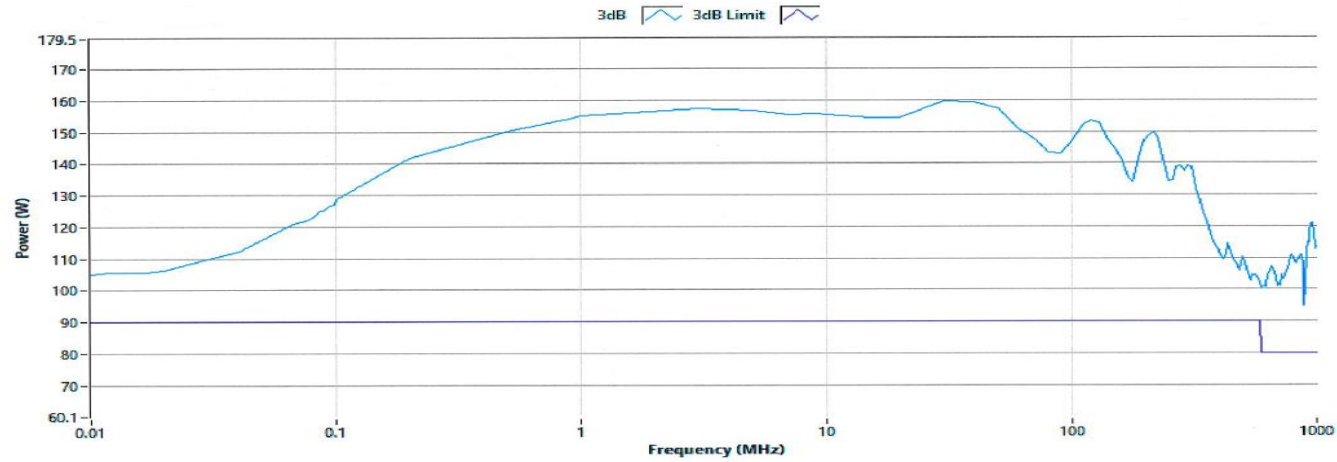
TYPICAL PSAT POWER @ 0 dBm INPUT (Log Scale)



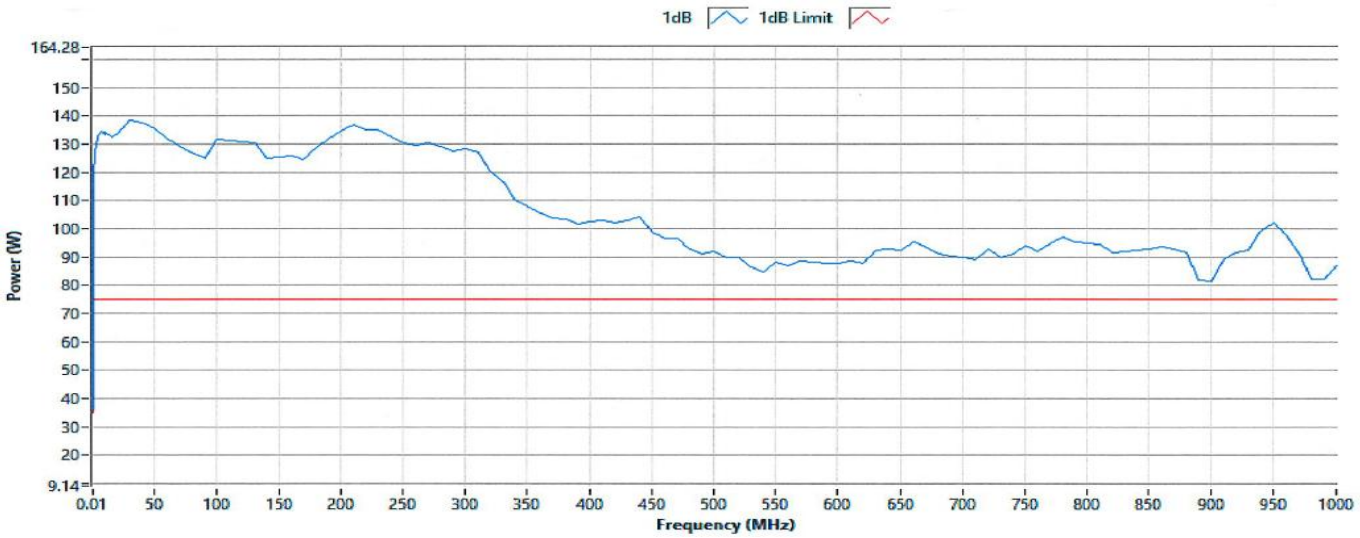
TYPICAL POWER @ P3 dB COMPRESSION (Linear Scale)



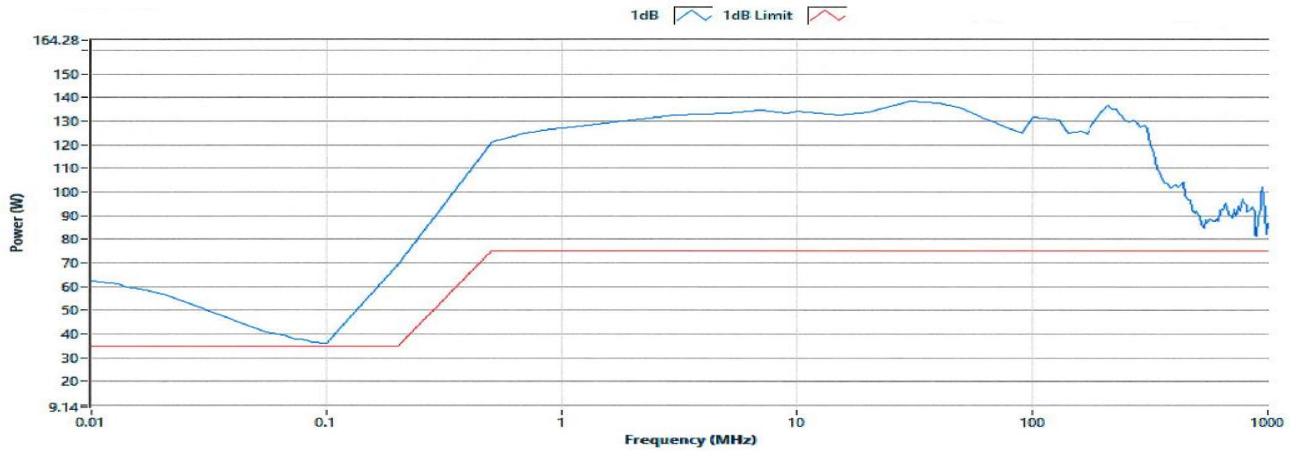
TYPICAL LOG POWER @ P3 dB COMPRESSION (Log Scale)



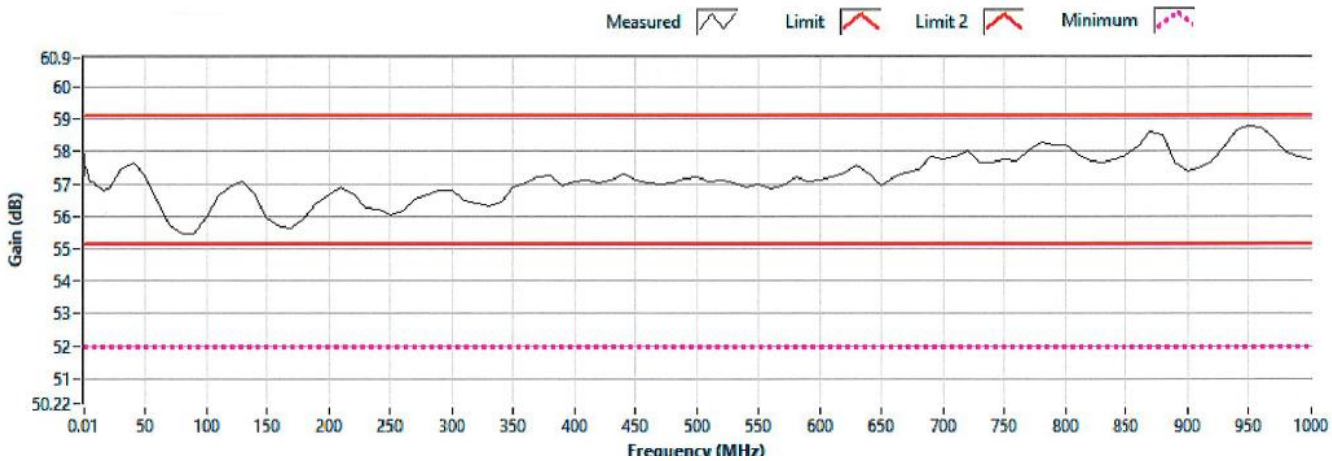
TYPICAL POWER @ P1dB COMPRESSION (Linear Scale)



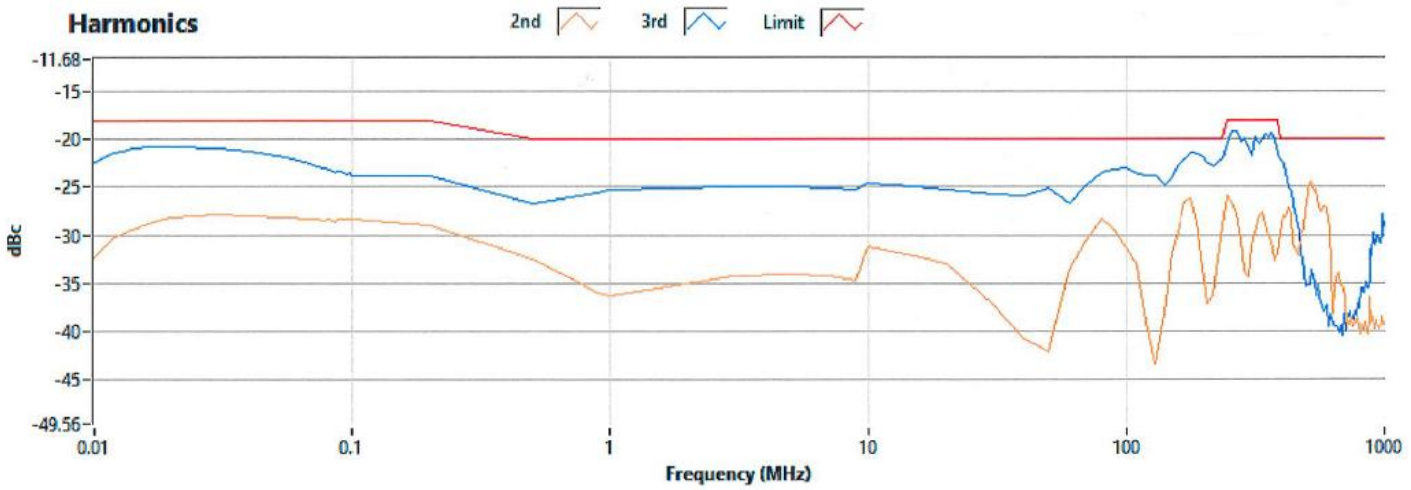
TYPICAL POWER @ P1dB COMPRESSION (Log Scale)



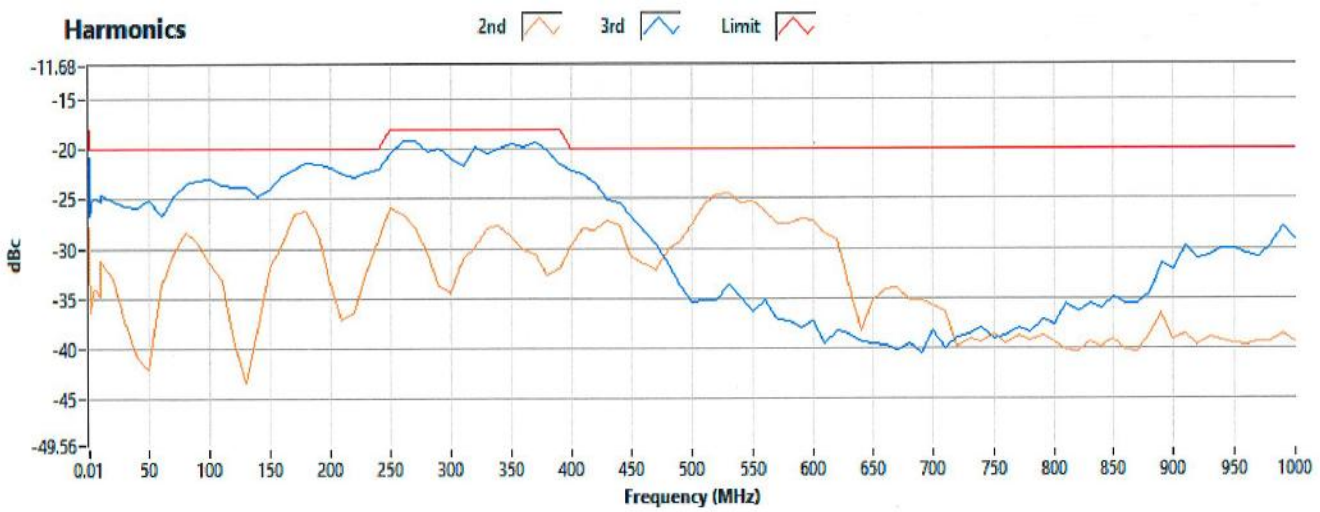
TYPICAL SMALL SIGNAL GAIN @ -20 dBm INPUT



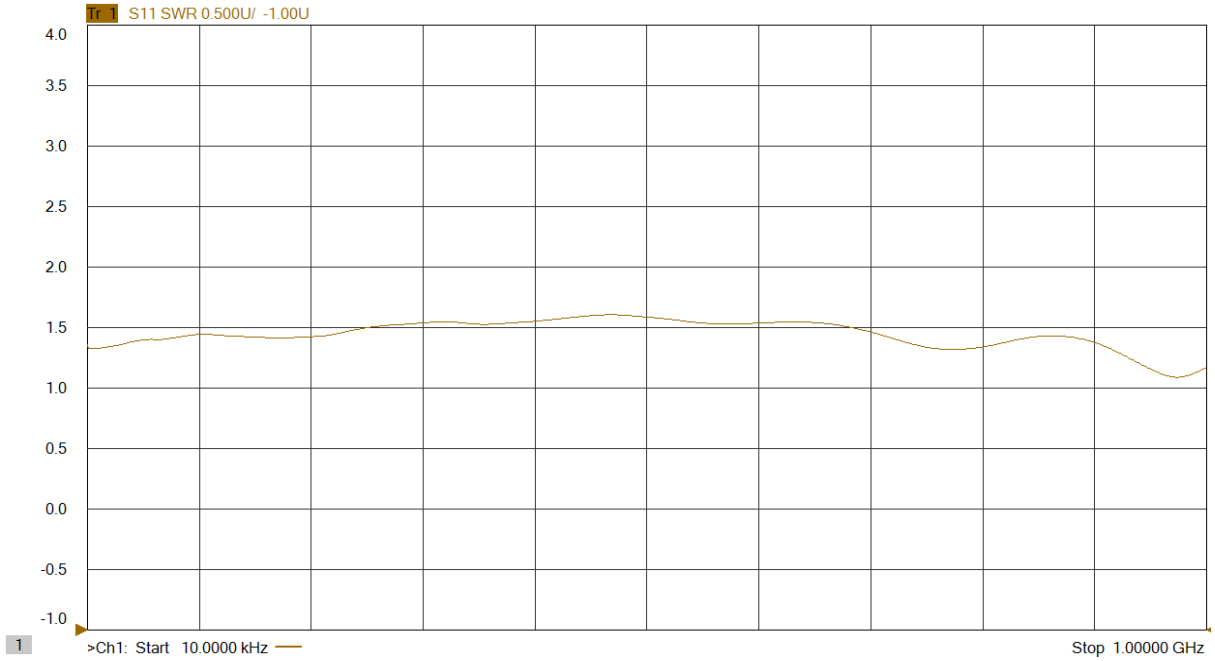
TYPICAL 2ND and 3rd HARMONIC @ 100 W OUTPUT (Log Scale)



TYPICAL 2ND and 3rd HARMONIC @ 100 W OUTPUT (Linear Scale)



TYPICAL INPUT VSWR



TYPICAL NOISE FIGURE

