

# Amplifiers

## Model 100U1000A

### Features:

- 100 Watts CW, 0.01 - 1000 MHz
- Class A design
- 100% mismatch tolerant
- Built-in fault monitoring and protection
- Remote control: Ethernet, USB, GPIB, fiber-optic serial, RS-232
- Modular design for easy maintenance and service
- Low acoustical noise

### Applications:

- EMC (military, aviation, automotive, commercial)
- Radiated and conducted EMC testing
- General purpose, antenna, and component testing

To view our full amplifier portfolio visit:  
[www.arworld.us/amplifiers](http://www.arworld.us/amplifiers)

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ISO 9001:2015 Certified  
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The Model 100U1000A is a solid-state, Class A design, self-contained, air-cooled, broadband power amplifier designed for applications where instantaneous bandwidth, high gain and linearity are required. It will provide a minimum of 100 W 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.

This is a multiple purpose amplifier. The low level of spurious signals and linearity make it ideal for use as a driver in testing wireless and communication components and subsystems. By covering such a wide bandwidth, it is suitable for 5G testing applications.

Due to the Class A design, it is also suitable for EMC Test applications where continued operation into high VSWR loads including open and short circuits is required.

The export classification for this equipment is EAR99. 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.

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- 100 W
- 0.01 - 1000 MHz

<b>Electrical Specifications</b>					
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Rated Power Output	PSAT	100	120	>150	W
Input for Rated Output	P <sub>in</sub>			1.0	mW
				0	dBm
Power Output @ 3 dB Compression (0.01 - 600 MHz)	P3dB	90	120	>160	W
Power Output @ 3 dB Compression (600 - 1000 MHz)	P3dB	80	100	>120	W
Power Output @ 1 dB Compression (0.01 - 0.50 MHz)	P1dB	35	45	>160	W
Power Output @ 1 dB Compression (0.50 - 1000 MHz)	P1dB	75	90	>100	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 <sub>in</sub>		50		Ohm
			1.5:1	2.0:1	VSWR
Output Impedance	Z <sub>out</sub>		50		Ohm
3 <sup>rd</sup> 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
Modulation Capability	AM, FM or Pulse				

<b>Absolute Maximum Rating</b>				
Exceeding any of the limits here may result in permanent damage to the device.				
Parameter	Minimum	Typical	Maximum	Unit
RF Drive		0	+13	dBm
RF Load		1:1	∞	VSWR
AC Power (single phase)	100		240	VAC
AC Power	47		63	Hz
Ambient Temperature	+5	+25	+40	°C
Storage Temperature	-20		+50	°C
Altitude			2000	m
Shock/Vibration	Normal Truck Transport			



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Mechanical Specifications		
Parameters	Nominal	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) - 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) Side inlets / rear outlet $\Delta t = +7^{\circ}\text{C}$ (typical)	
Acoustical Noise (Measured @ 1 meter from the front)	56 (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	EAR99

Connector interfaces	
Function	Type
RF input	N female (50 $\Omega$ )
RF output	N female (50 $\Omega$ )
IEEE-488	24-pin female
RS-232	9-pin subminiature D female
RS-232 (fiber optic)	ST
USB 2.0	Type B
Ethernet	RJ-45
Interlock	15-pin subminiature D female
AC	C14

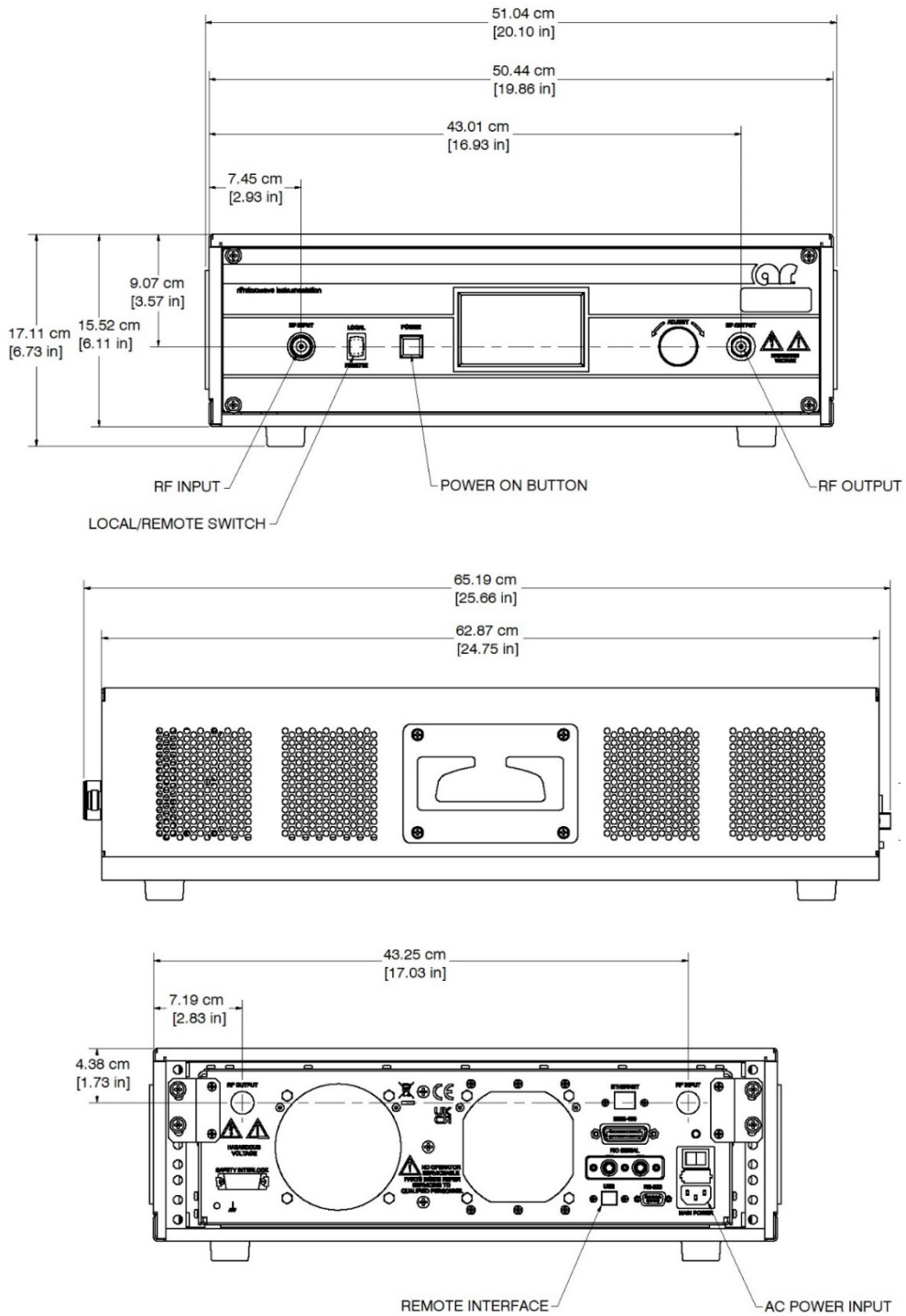




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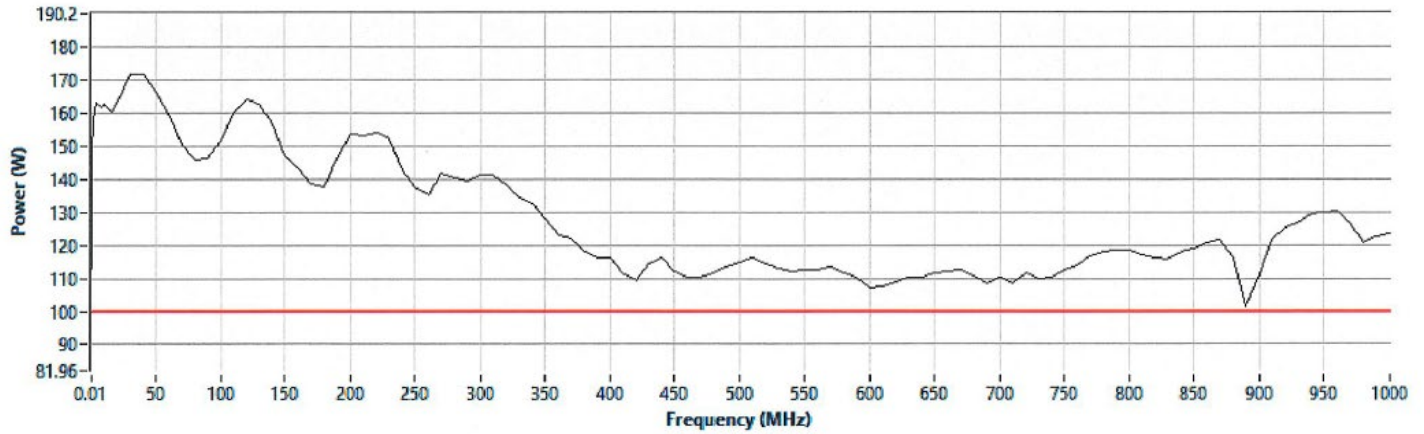
Envelope Drawing



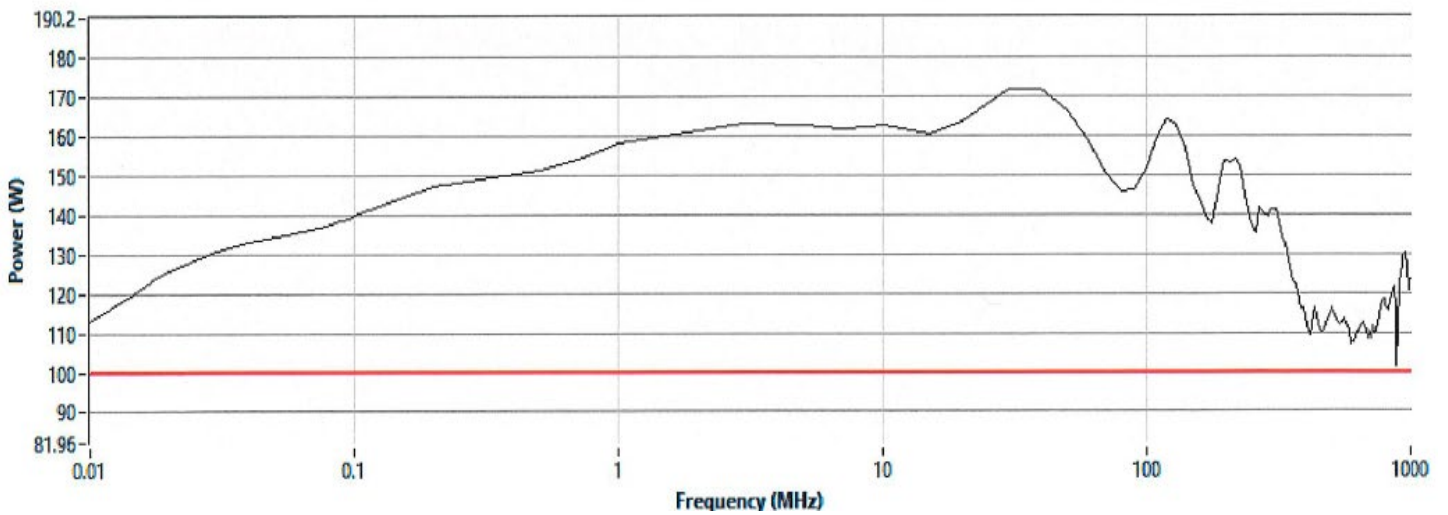
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TYPICAL PSAT POWER @ 0 dBm INPUT (Linear Scale)



TYPICAL PSAT POWER @ 0 dBm INPUT (Log Scale)

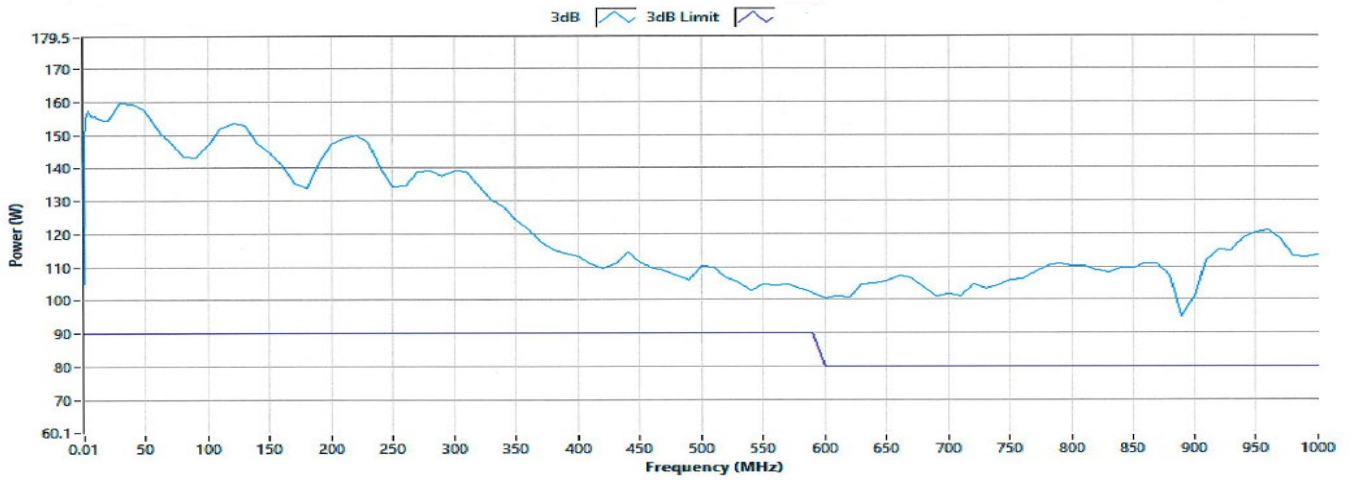




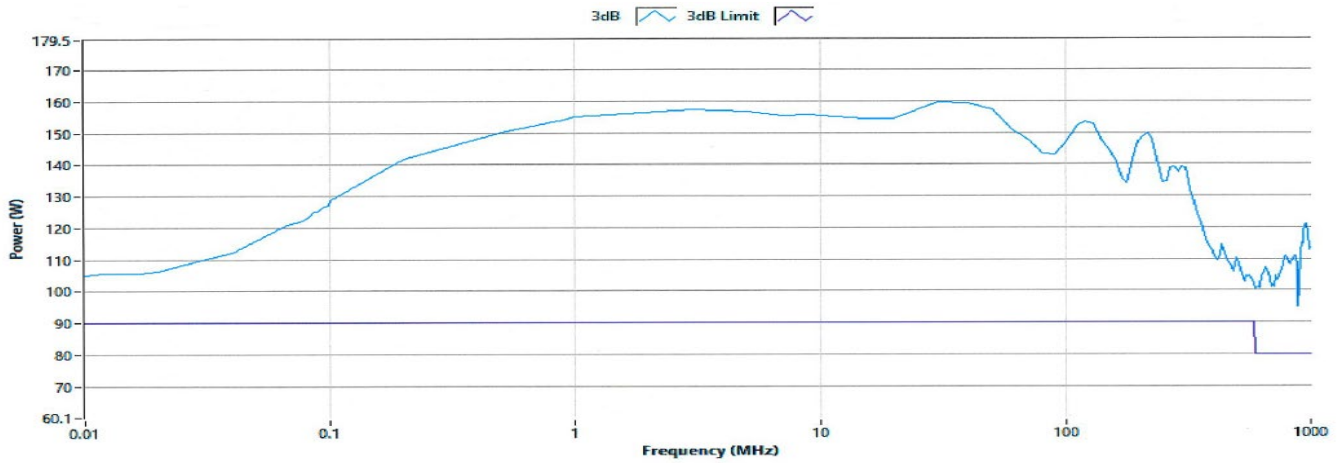
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### TYPICAL POWER @ P3 dB COMPRESSION (Linear Scale)



### TYPICAL LOG POWER @ P3 dB COMPRESSION (Log Scale)



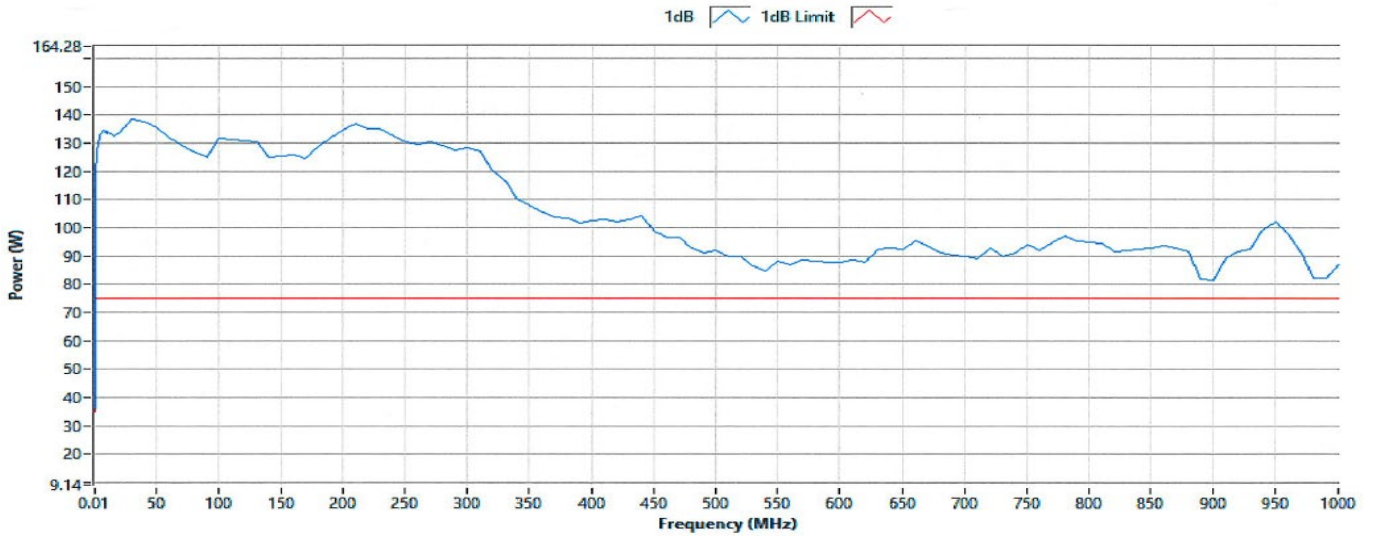
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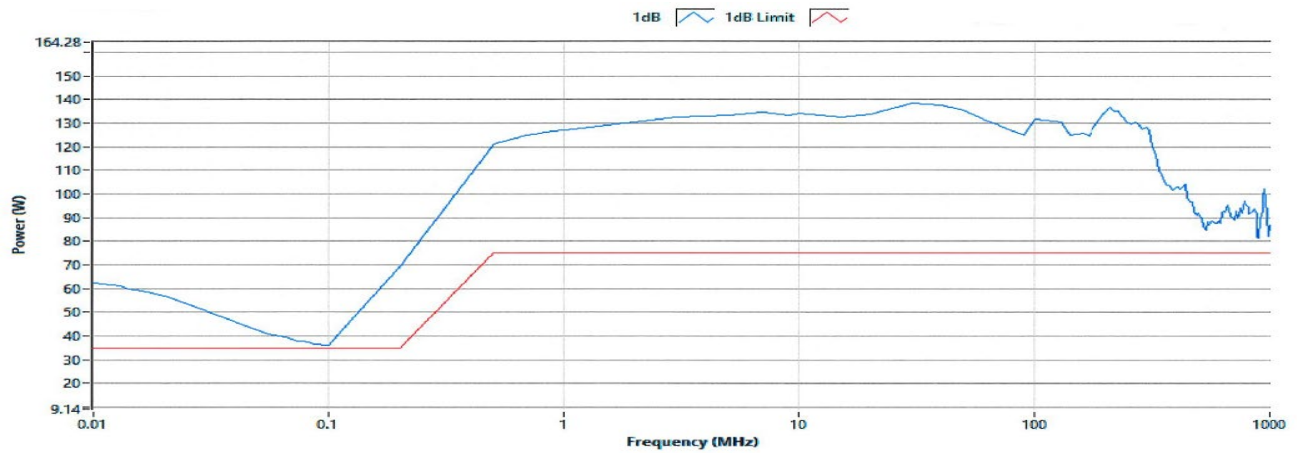
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### TYPICAL POWER @ P1dB COMPRESSION (Linear Scale)



### TYPICAL POWER @ P1dB COMPRESSION (Log Scale)

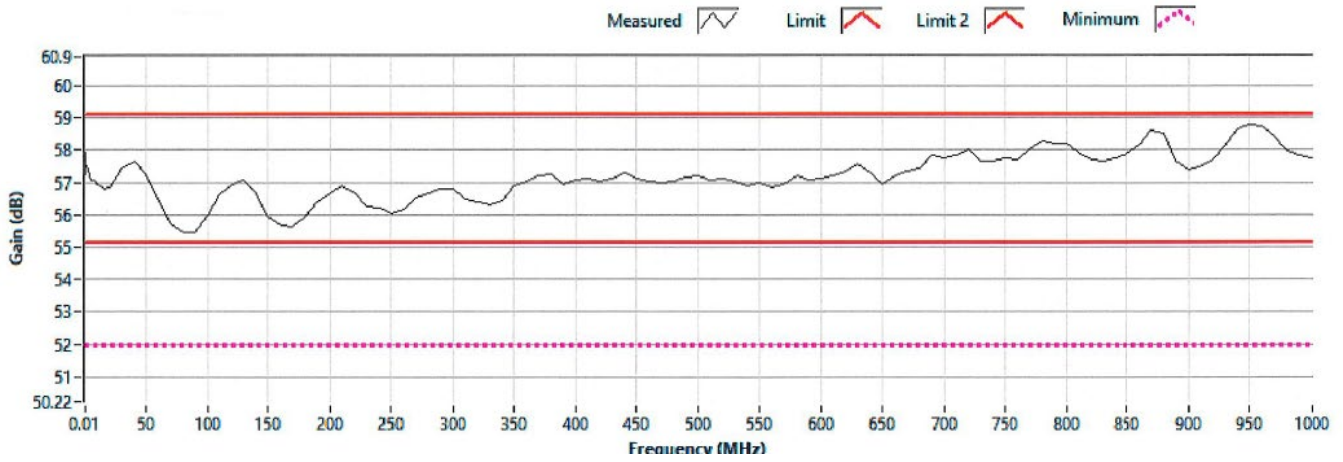




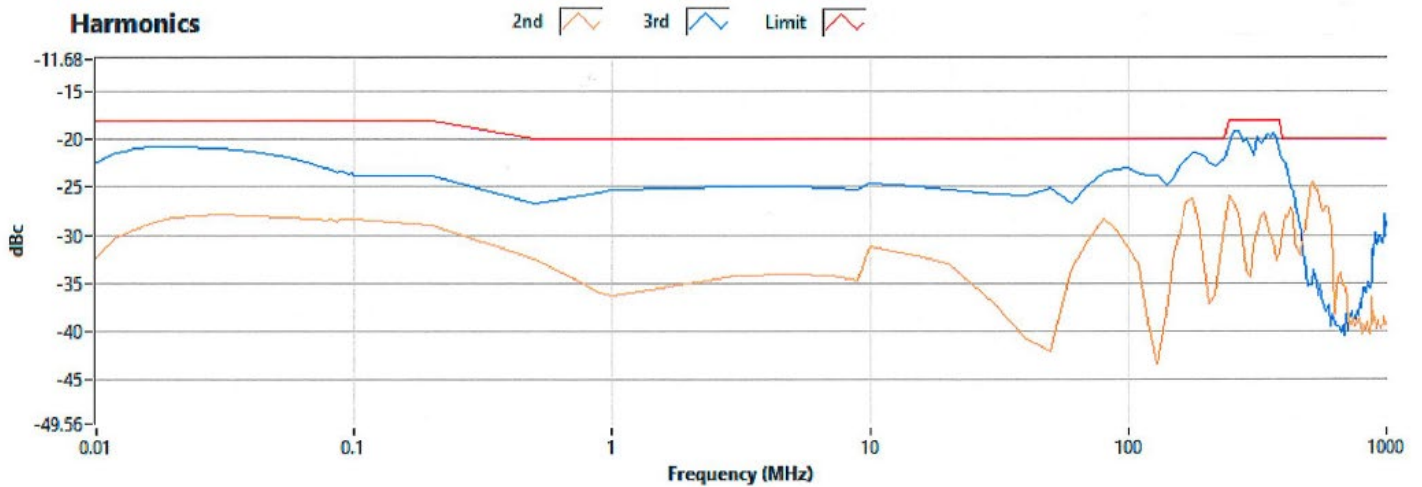
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### TYPICAL SMALL SIGNAL GAIN @ -20 dBm INPUT



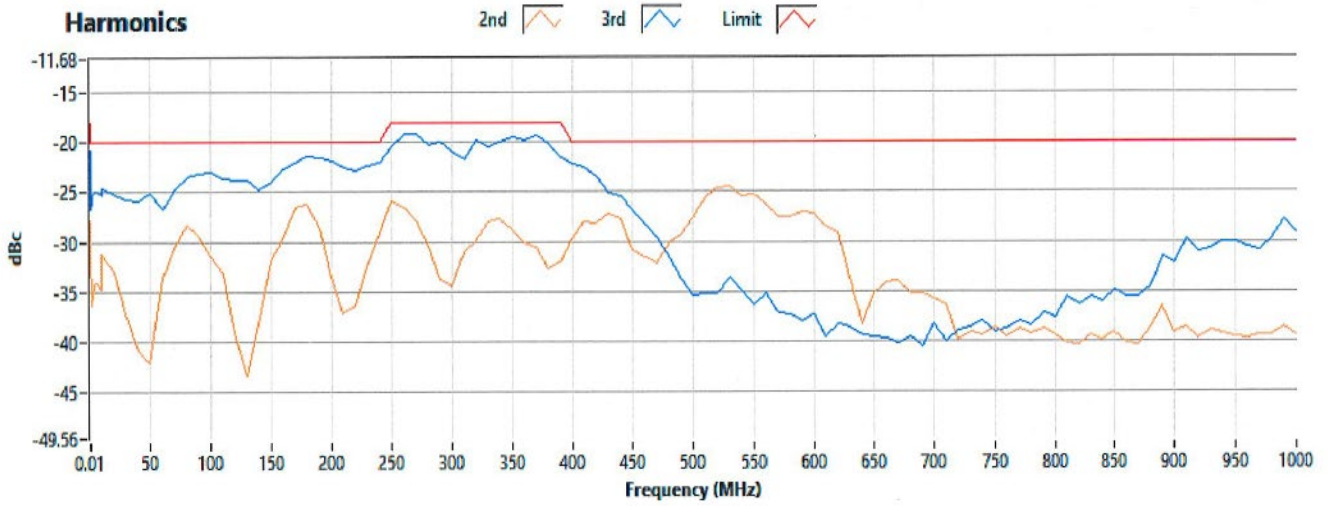
### TYPICAL 2<sup>ND</sup> and 3<sup>RD</sup> HARMONIC @ 100 W OUTPUT (Log Scale)



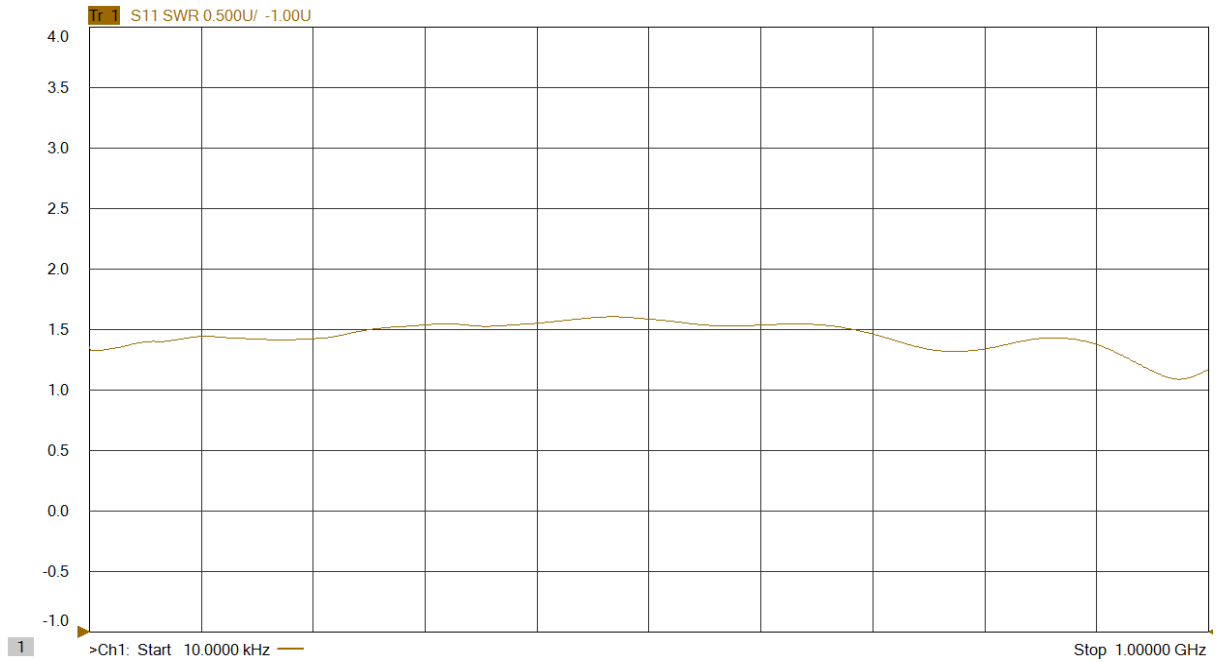
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### TYPICAL 2<sup>ND</sup> and 3<sup>rd</sup> HARMONIC @ 100 W OUTPUT (Linear Scale)



### TYPICAL INPUT VSWR

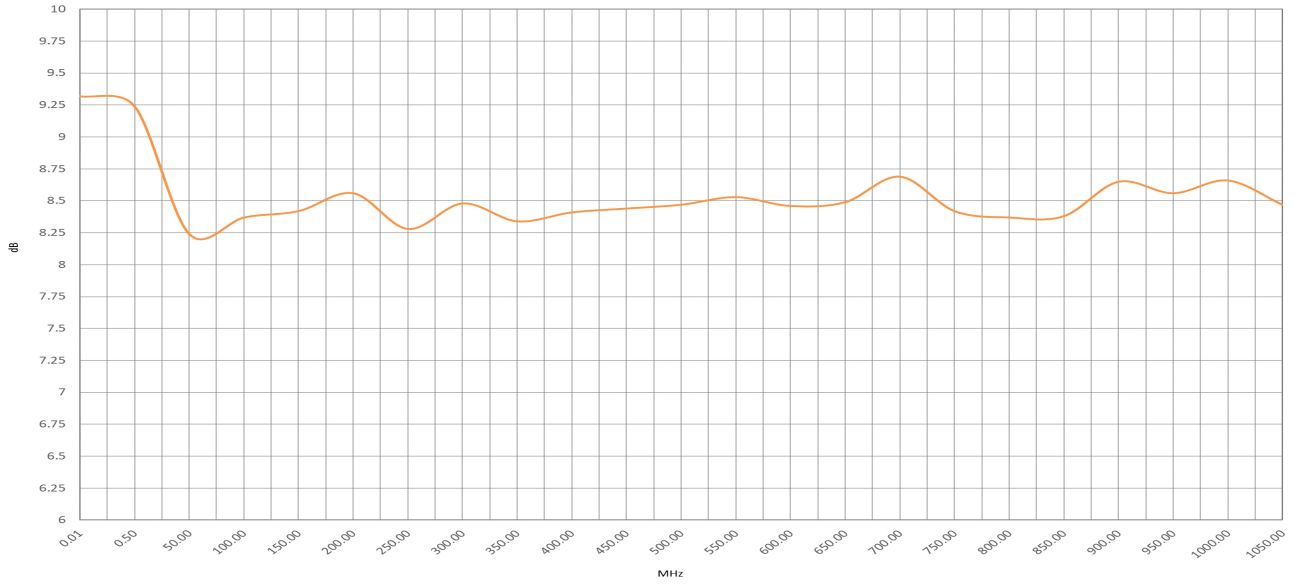


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TYPICAL NOISE FIGURE



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