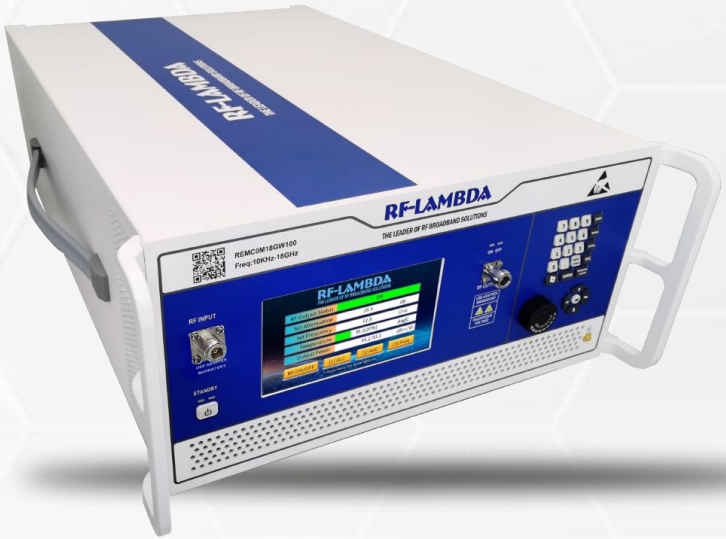
RF-LAMBDA

THE LEADER OF RF BROADBAND SOLUTIONS

100W Wideband EMC Benchtop Power Amplifier 10KHz - 18GHz

REMCOM18GW100

Band 1: 10KHz-100MHz
Band 2: 0.1GHz-0.7GHz
Band 3: 0.7GHz-6GHz
Band 4: 6GHz-18GHz



Sales: sales@rflambda.com
Technical: support@rflambda.com

Rev 4. 02-27-2026 | Subject to change without notice

PRODUCT SUMMARY

PRODUCT OVERVIEW

GENERAL DESCRIPTION

REMC0M18GW100 is a quad-band configurable benchtop EMC power amplifier with a total frequency range of 10KHz to 18GHz.

The power output of this amplifier is 50dBm typical. The typical small signal gain is 55dB with a flatness of ±5dB. This performance is achieved through the use of GaN devices. The power amplifier's input connector is N-Female and Output connector is N-Female. This product has a calibration feature which enables customer to obtain great performance through time and temperature changes. The operating temperature of this product is within 0°C to +50°C.

FEATURES

- Wide band EMC Solid State Power Amplifier
- Small Signal Gain 55dB Typical
- Output Saturation Power 50dBm Typical
- Supply Voltage 110/220 VAC
- 50 Ohm Matched Input / Output
- Fast RF Blanking
- Real Time VSWR measurement
- Internal Signal Generator – Optional
- Over temperature Protection
- Over current Protection
- Over voltage Protection
- Auto Calibration

TYPICAL APPLICATIONS

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

QUALITY STANDARDS

ESD Policy

https://rflambda.com/pdf/rflambda_esd_control.pdf

Random Vibration Test Standard

https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Connector Torque Specifications

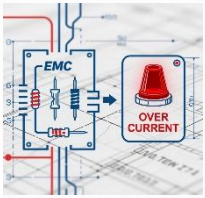
https://www.rflambda.com/pdf/Torque_Specifications.pdf

Parameter	Description
Operational Temperature	0°C to +50°C (Ambient Temperature)
Thermal Shock	0°C to +50°C (5 Cycles / 10 hours, Only internal modules tested prior to final assembly)
*Random Vibration	MIL-STD-202G, Table 214-I, Test Condition Letter C, 1.5 Hours Per Axis
High Temperature Burn In	Temperature +50°C for 72 Hours
Storage Temperature	-40°C to +85°C

*For vibration testing details please see additional information section.

RF-Lambda is ISO: 9000 certified with 25,000 ft² combined R&D and production space, including an ISO7 10K Clean Room to meet ISO-14644-1.

PRODUCT FUNCTIONS



1 EMC Functions

- Output Power Lock
- Automatic Calibration

2 Mode Selections

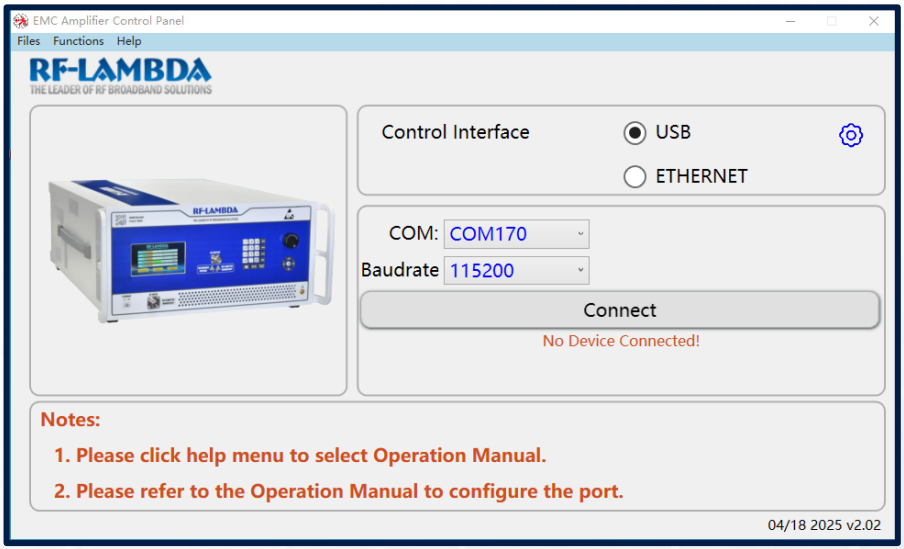
- Local
- Remote Control

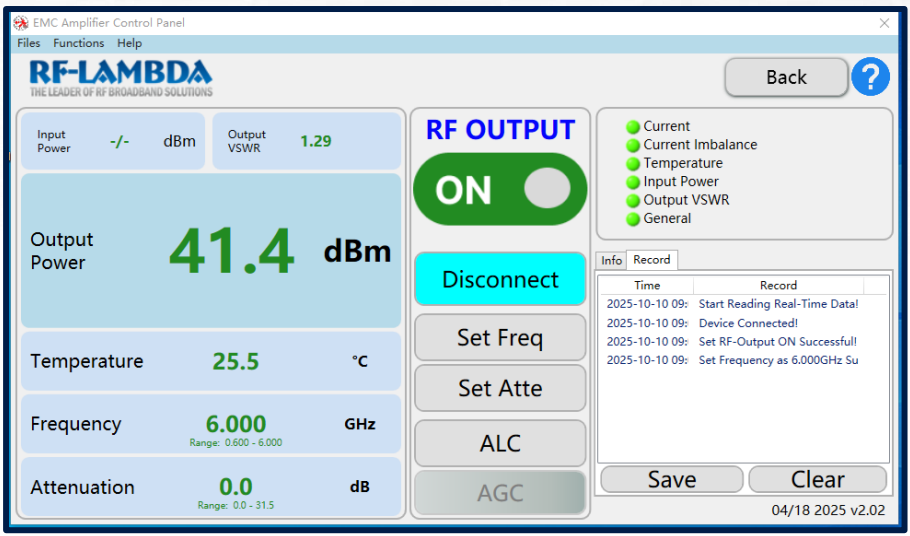
3 Product Safety Interlock

- Input Power Overload Protection
- Output Mismatch Protection
- Over Temperature Protection
- Over Current Protection
- Cooling System Anomaly Protection

Category	Function	Included	Optional (Licensing)	Optional (Hardware)	NOT Applicable
Product Safety Interlock	Input Overload Protection	☑	☐	☐	☐
	Output VSWR Protection	☑	☐	☐	☐
	Current Overload Protection	☑	☐	☐	☐
	Temperature Protection	☑	☐	☐	☐
	Current Imbalance Protection	☑	☐	☐	☐
	Overvoltage and Undervoltage Protection	☑	☐	☐	☐
	AC Power Abnormality Protection	☑	☐	☐	☐
	Fan Abnormality Protection	☑	☐	☐	☐
User Operation Functions	USB, LAN Communication	☑	☐	☐	☐
	DB Interface	☑	☐	☐	☐
	Self-Calibration Function	☑	☐	☐	☐
	Gain Compensation Over Temperature	☑	☐	☐	☐
	Current Compensation Over Temperature	☑	☐	☐	☐
	TDD Control - RF Switch Enable	☑	☐	☐	☐
	TDD Control - Positive Voltage Enable	☑	☐	☐	☐
	TDD Control - Negative Voltage Enable	☑	☐	☐	☐
	GUI Interface	☑	☐	☐	☐
	Parameter Setting	☑	☐	☐	☐
	Gain Calibration Each Stage	☑	☐	☐	☐
	Software ON/OFF Function	☑	☐	☐	☐
	Modularized System Integration	☑	☐	☐	☐
	Remote Software Control ON/OFF	☑	☐	☐	☐
EMC Functions	Rotary Gain Adjustment	☑	☐	☐	☐
	Screen Protection Function	☑	☐	☐	☐
	Touch Screen Display	☑	☐	☐	☐
	Developer Interface	☑	☐	☐	☐
User Customization Functions	System Log Recording	☑	☑	☐	☐
	Output VSWR Measurement	☑	☑	☐	☐
	Input Power Measurement	☑	☑	☐	☐
	ALC - Automatic Loop Control Gain	☑	☑	☐	☐
	AGC - Automatic Gain Control Function	☐	☑	☐	☐
	Input Circulator Protection (Internal Load)	☐	☐	☑	☐
	Output Circulator Protection (Internal Load)	☐	☐	☑	☐
	Waveguide Adapter (E-H)	☐	☐	☑	☐
	Fast RF Blanking	☑	☐	☐	☐
Internal Signal Generator	Single Frequency Output	☐	☑	☐	☐
	Frequency Auto Sweeping	☐	☑	☐	☐
	Frequency Hopping	☐	☑	☐	☐
	External Signal	☐	☑	☐	☐

REMOTE CONTROL





TECHNICAL DATA SPECIFICATIONS

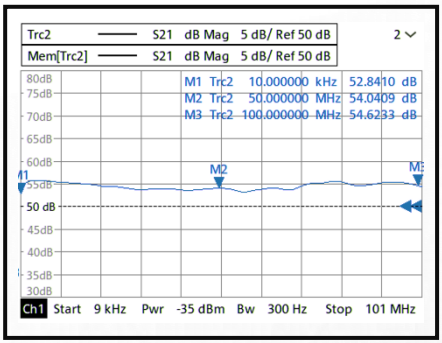
Parameter		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Band [1]			Band1			Band2			Band3			Band4		
Frequency Range		0.00001		0.1	0.1		0.7	0.7		6	6		18	GHz
Small Signal Gain		50	55		50	55		50	55		50	55		dB
Gain Flatness			±3			±2			±4			±5		dB
Gain Variation Over Temperature (0°C to +50°C)			±3			±3			±3			±3		dB
Input VSWR			1.3			1.3			1.3			1.5		:1
Output 1dB Compression Point (P1dB)			47			47			46			46		dBm
Saturated Output Power (Psat)		49	50		49	50		49	50		47	50		dBm
Supply Current(220V AC)			6			6			8			10		A
Power Added Efficiency (PAE)			20			20			10			10		%
IM3			-28			-28			-28			-28		dBc
Turn On/Off Speed (Switch Disable)	ON		200			200			200			200		ns
	OFF		200			200			200			200		ns
Turn On/Off Speed (Drain Disable)	ON		500			500			500			500		us
	OFF		200			200			200			200		us
Turn On/Off Speed (Gate Disable)	ON		2000			2000			2000			2000		us
	OFF		200			200			200			200		us
RF Fast Blanking Speed (Optional)	ON		/			/			/			/		us
(Mute RF Output signal and noise)	OFF		/			/			/			/		us
Weight						121.4 Max.								lbs.
Impedance						50								Ohms
Package						5U Rack-mount/Tabletop Chassis								
Cooling System						**Forced air (Self-contained fan)**								
Supply Voltage						90 to 264								VAC
Supply Frequency						47 to 63								Hz
Supply Power						1000								W

Note: (1)When the EMC power amplifier is on operation , only one frequency band could be selected. That is , the EMC power amplifier works on Band1、Band2、Band3 or Band4.

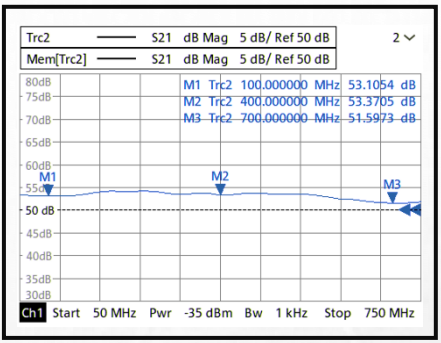
*Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.

TYPICAL PERFORMANCE PLOTS

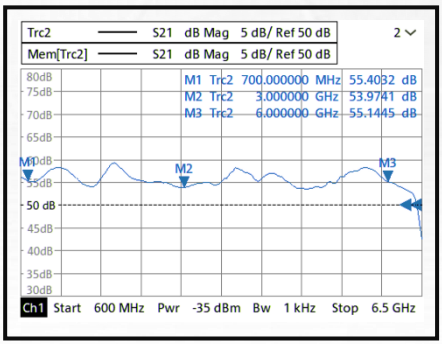
Gain @+25℃ (10KHz-0.1GHz)



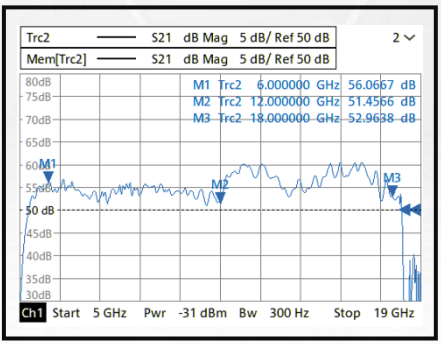
Gain @+25℃ (0.1-0.7GHz)



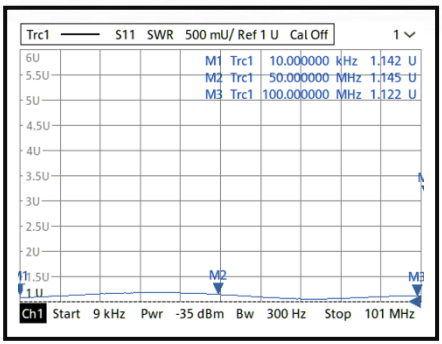
Gain @+25℃ (0.7-6GHz)



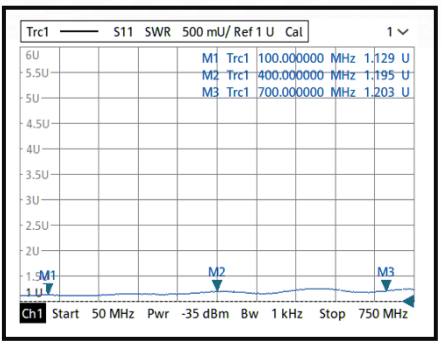
Gain @+25℃ (6-18GHz)



Input VSWR @+25℃ (10KHz-0.1GHz)



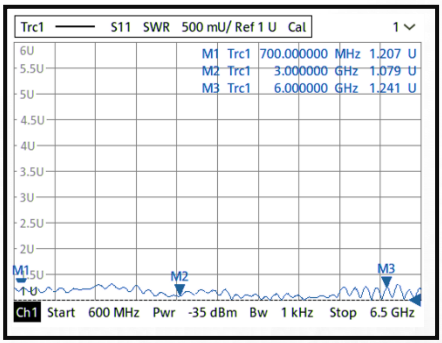
Input VSWR @+25℃ (0.1-0.7GHz)



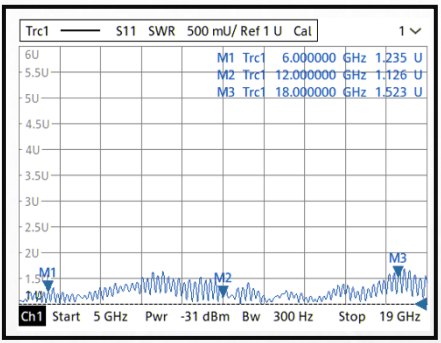
Note: Small signal VNA measurements include attenuators to protect equipment

TYPICAL PERFORMANCE PLOTS

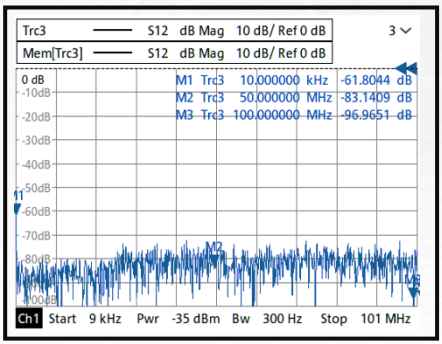
Input VSWR @+25℃ (0.7-6GHz)



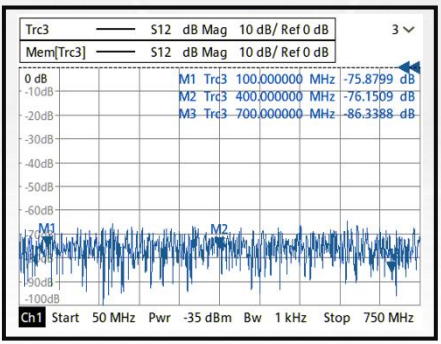
Input VSWR @+25℃ (6-18GHz)



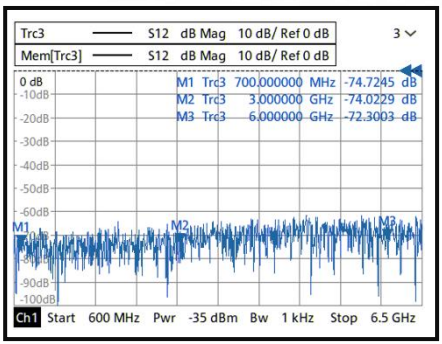
Isolation @+25℃ (10KHz-0.1GHz)



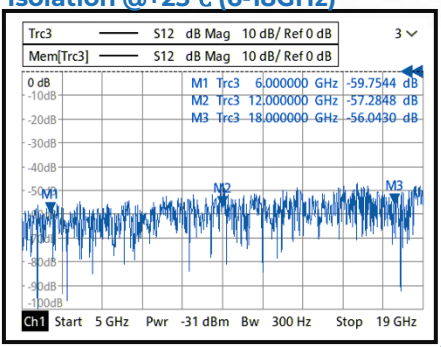
Isolation @+25℃ (0.1-0.7GHz)



Isolation @+25℃ (0.7-6GHz)



Isolation @+25℃ (6-18GHz)



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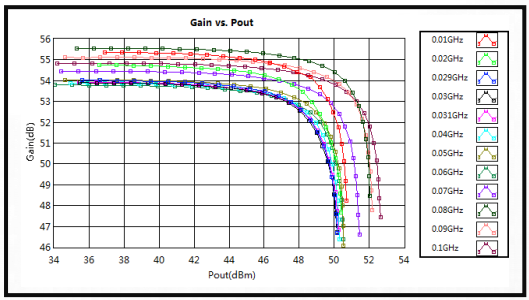
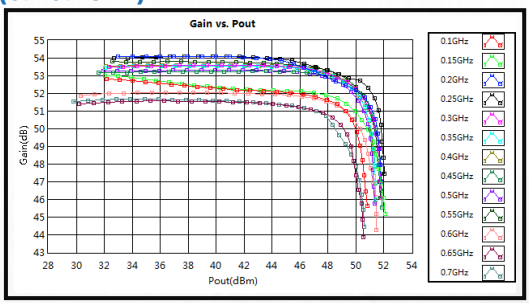
TYPICAL PERFORMANCE PLOTS

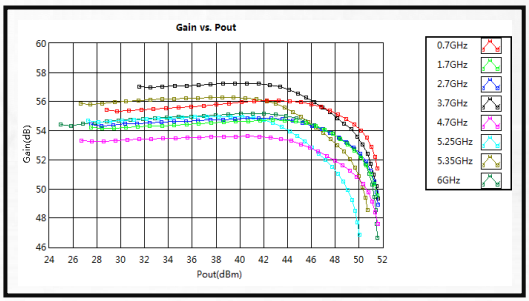
Gain vs. Output Power CW (10KHz-0.1GHz)



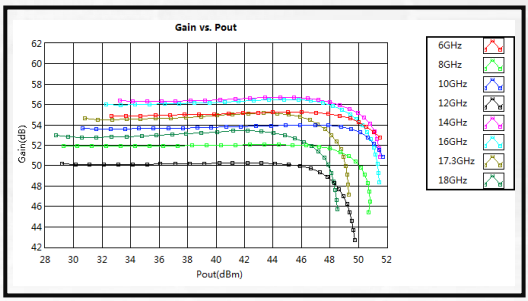
Gain vs. Output Power CW (0.1-0.7GHz)



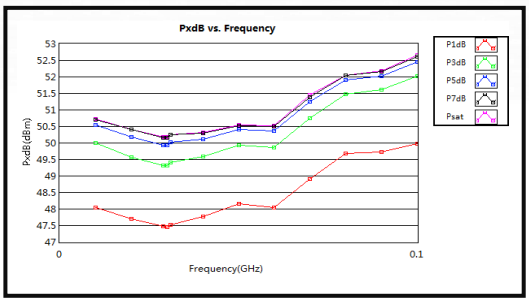
Gain vs. Output Power CW (0.7-6GHz)



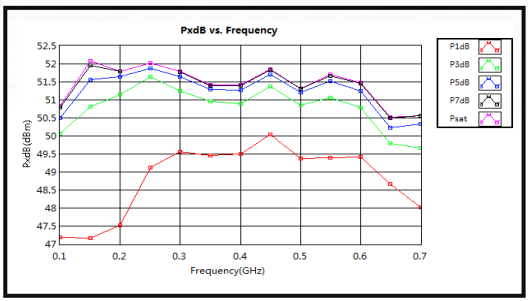
Gain vs. Output Power CW (6-18GHz)



PndB vs. Frequency CW (10KHz-0.1GHz)

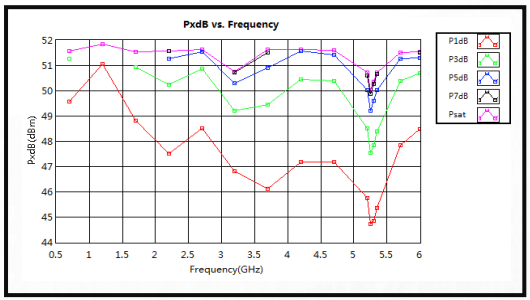


PndB vs. Frequency CW (0.1-0.7GHz)

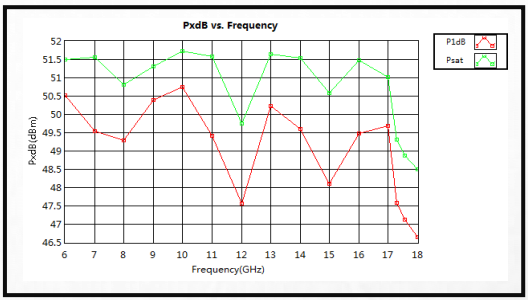


TYPICAL PERFORMANCE PLOTS

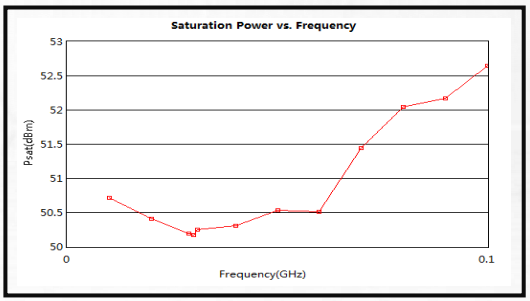
PndB vs. Frequency CW (0.7-6GHz)



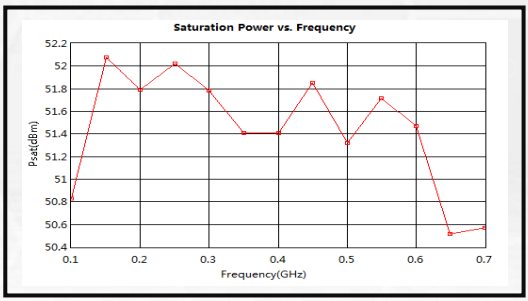
PndB vs. Frequency CW (6-18GHz)



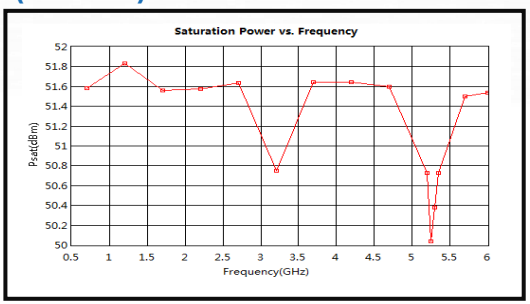
Saturation Power vs. Frequency CW (10KHz-0.1GHz)



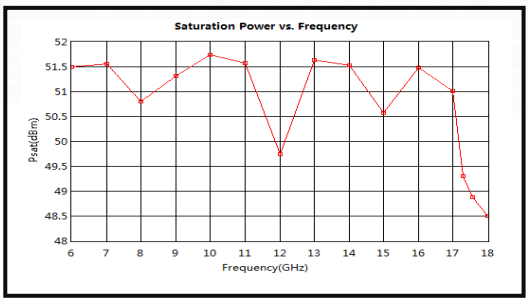
Saturation Power vs. Frequency CW (0.1-0.7GHz)



Saturation Power vs. Frequency CW (0.7-6GHz)

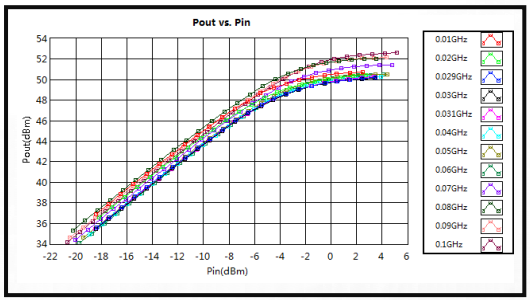


Saturation Power vs. Frequency CW (6-18GHz)

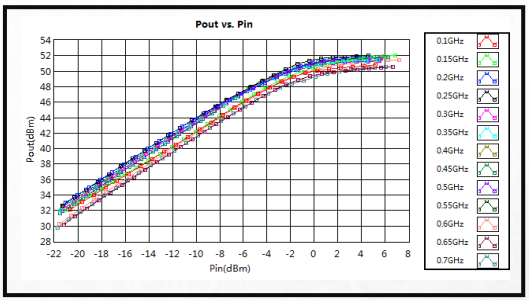


TYPICAL PERFORMANCE PLOTS

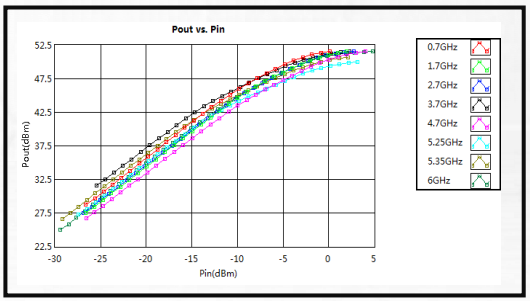
Pout vs. Pin CW (10KHz-0.1GHz)



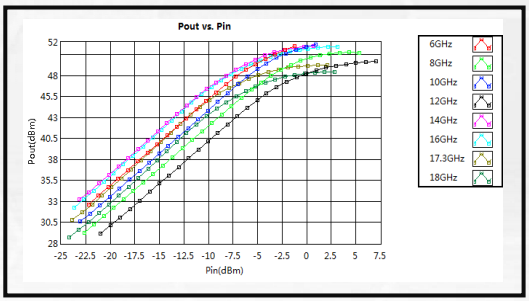
Pout vs. Pin CW (0.1-0.7GHz)



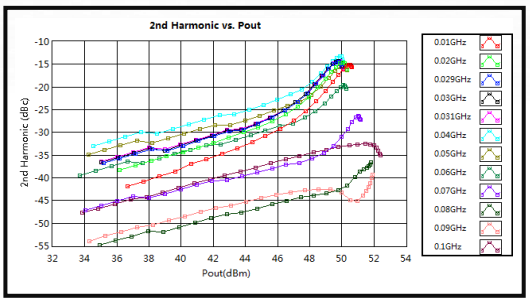
Pout vs. Pin CW (0.7-6GHz)



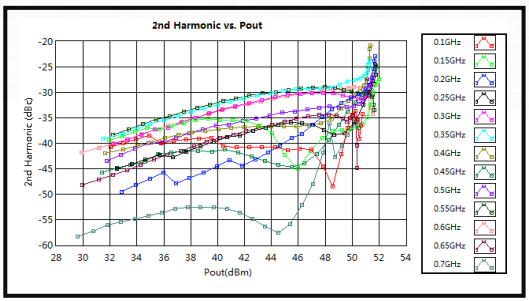
Pout vs. Pin CW (6-18GHz)



2nd Harmonics (10KHz-0.1GHz)

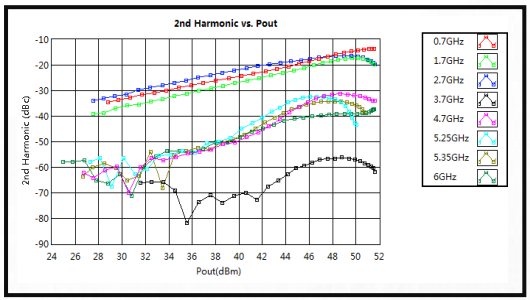


2nd Harmonics (0.1-0.7GHz)

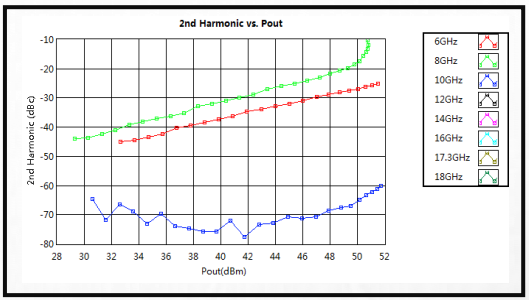


TYPICAL PERFORMANCE PLOTS

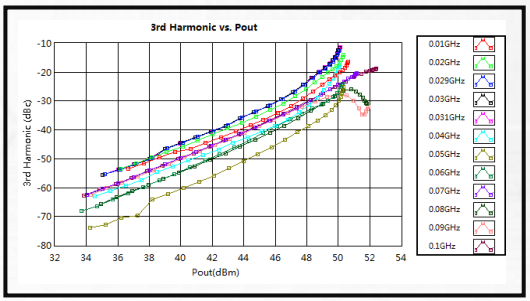
2nd Harmonics (0.7-6GHz)



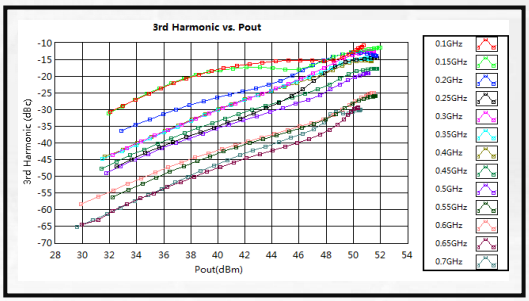
2nd Harmonics (6-18GHz)



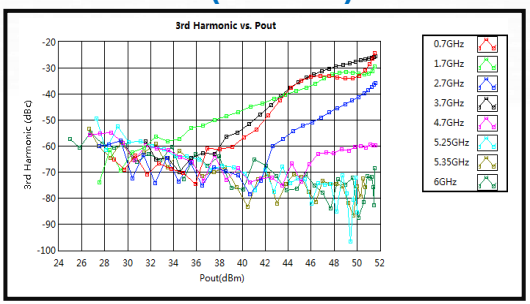
3rd Harmonics (10KHz-0.1GHz)



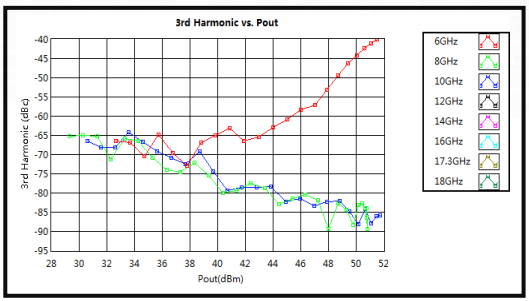
3rd Harmonics (0.1-0.7GHz)



3rd Harmonics (0.7-6GHz)

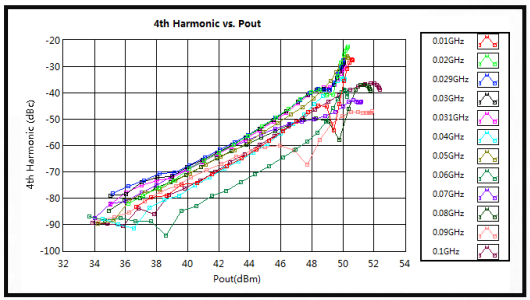


3rd Harmonics (6-18GHz)

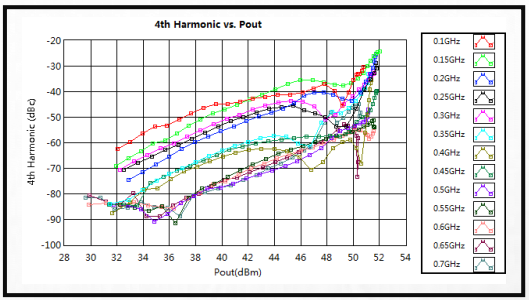


TYPICAL PERFORMANCE PLOTS

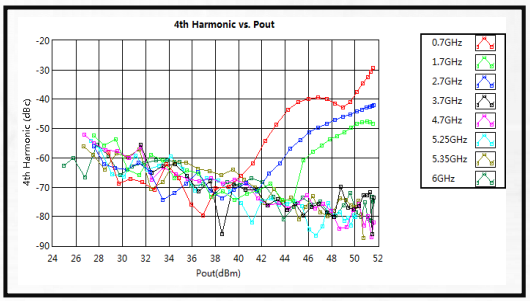
4th Harmonics (10KHz-0.1GHz)



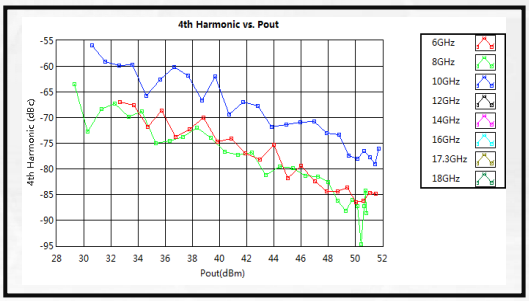
4th Harmonics (0.1-0.7GHz)



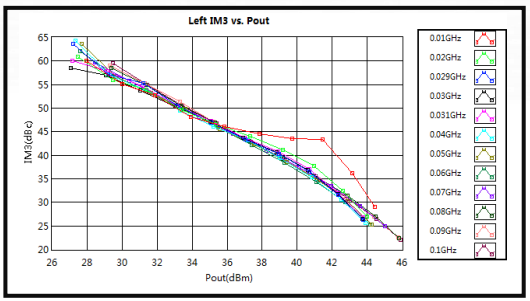
4th Harmonics (0.7-6GHz)



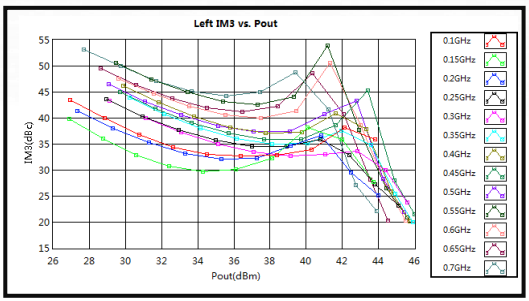
4th Harmonics (6-18GHz)



Left IM3 vs. Pout CW (10KHz-0.1GHz)



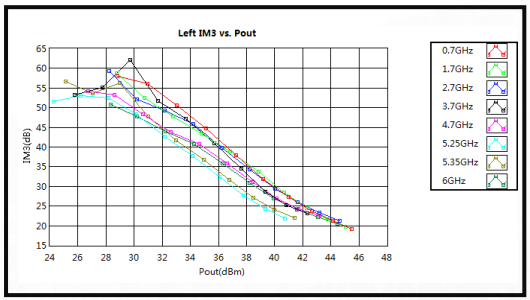
Left IM3 vs. Pout CW (0.1-0.7GHz)



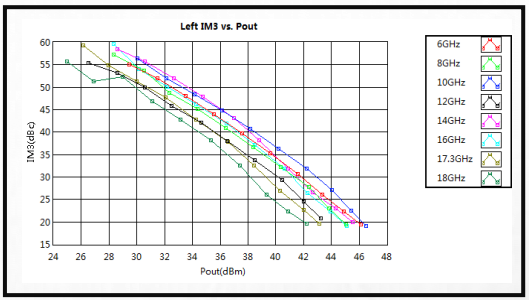
Note: IM3 test performed with 1 MHz tone spacing

TYPICAL PERFORMANCE PLOTS

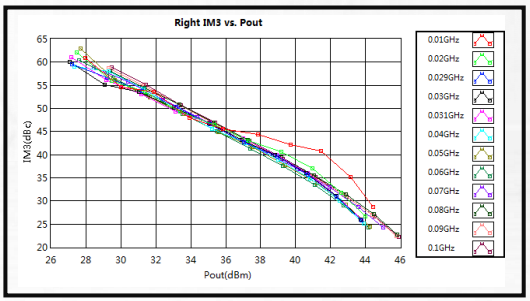
Left IM3 vs. Pout CW (0.7-6GHz)



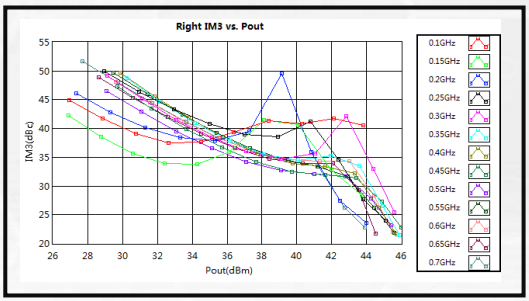
Left IM3 vs. Pout CW (6-18GHz)



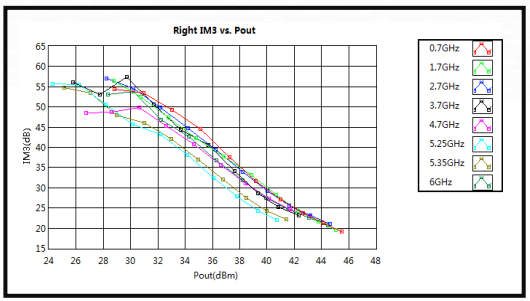
Right IM3 vs. Pout CW (10KHz-0.1GHz)



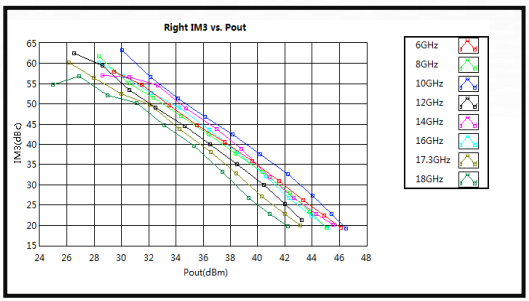
Right IM3 vs. Pout CW (0.1-0.7GHz)



Right IM3 vs. Pout CW (0.7-6GHz)



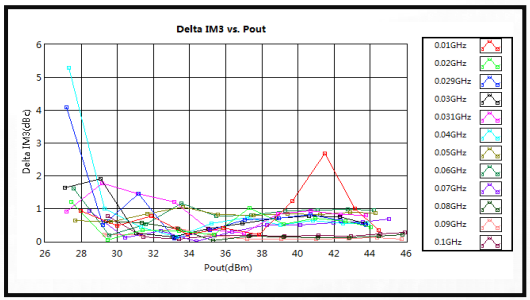
Right IM3 vs. Pout CW (6-18GHz)



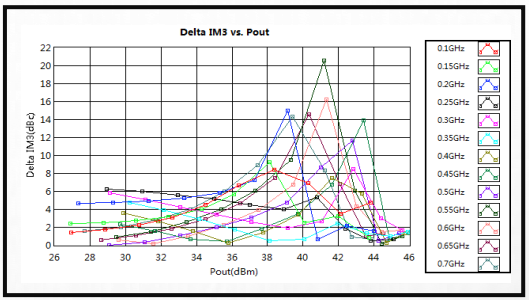
Note: IM3 test performed with 1 MHz tone spacing

TYPICAL PERFORMANCE PLOTS

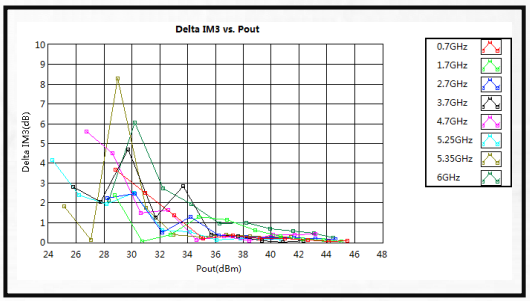
Delta IM3 vs. Pout CW (10KHz-0.1GHz)



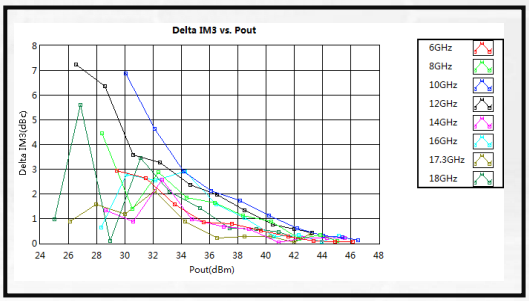
Delta IM3 vs. Pout CW (0.1-0.7GHz)



Delta IM3 vs. Pout CW (0.7-6GHz)



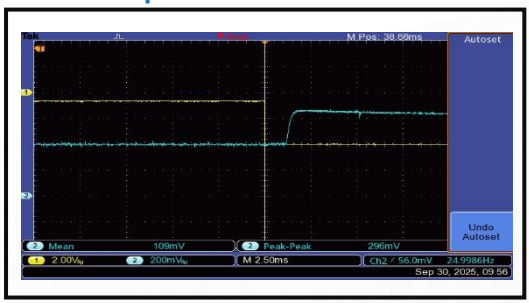
Delta IM3 vs. Pout CW (6-18GHz)



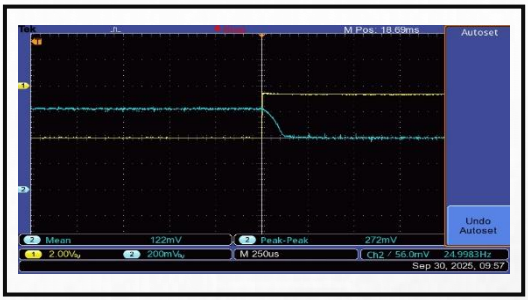
Note: IM3 test performed with 1 MHz tone spacing

TYPICAL PERFORMANCE PLOTS

The Gate Open Time is 2000 us

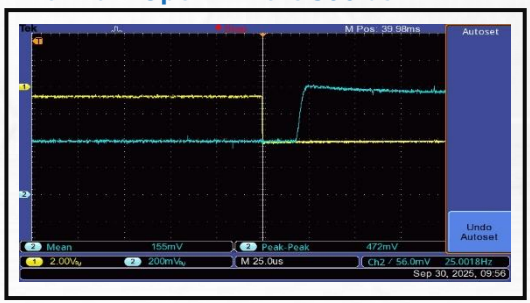


The Gate Closure Time is 200 us

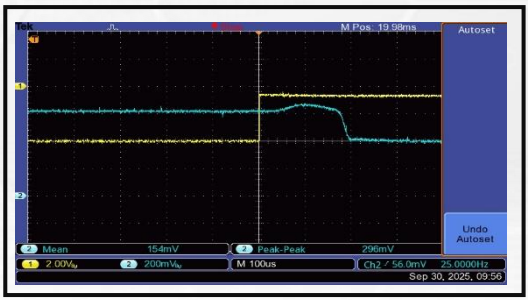


The gate control port：D-sub 15 PIN #2 (Gate Disable).
The yellow curve is the gate control signal, the blue curve is RF output envelope.

The Drain Open Time is 500 us

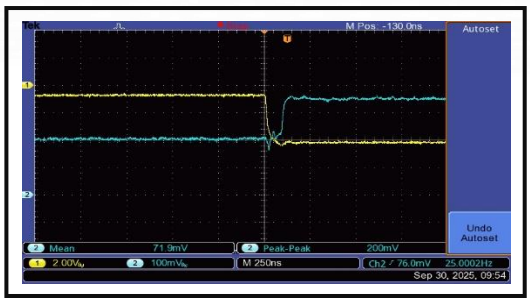


The Drain Closure Time is 200 us

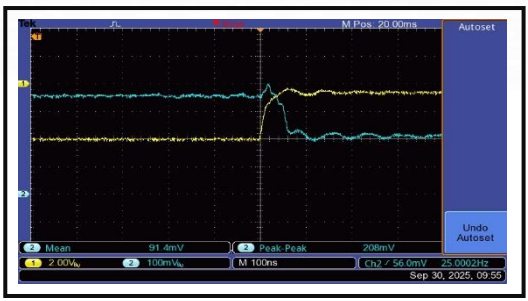


The drain control port：D-sub 15 PIN #3(Drain Disable).
The yellow curve is the drain control signal, the blue curve is RF output envelope.

The Switching On Time is 200 ns

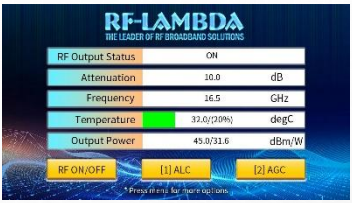


The Switching Off Time is 200 ns



Switch control port: D-sub 15 PIN #10(Switch Disable) .
The yellow curve is the switch control signal, the blue curve is RF output envelope.

INSTRUCTIONS FOR USE



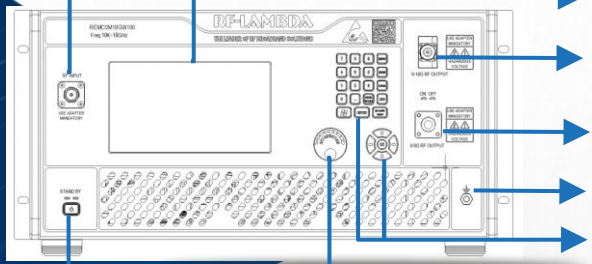
Please follow the instructions on the front panel LCD screen after switching on the power. Press "1" on keypad to continue.

Please follow the instructions.

Name	Description
RF Output Status	**Indicates instrument RF output status. It will display: ON or OFF**
Attenuation	**RF output attenuation (change with adjustment knob)**
Frequency	**RF input signal frequency (For illustrative purposes only)**
Temperature	**Instrument temperature (For illustrative purposes only)**
Output Power	**Instrument RF output power (For illustrative purposes only)**
RF ON/OFF	**Switches On or Off for instrument RF output port**
ALC	**ALC mode,** Automatic Loop Control
AGC	**AGC mode,** Automatic Gain Control, **this function is invalid**

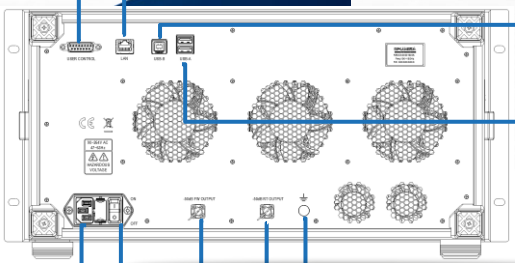
INTERFACE DESCRIPTION

FRONT PANEL



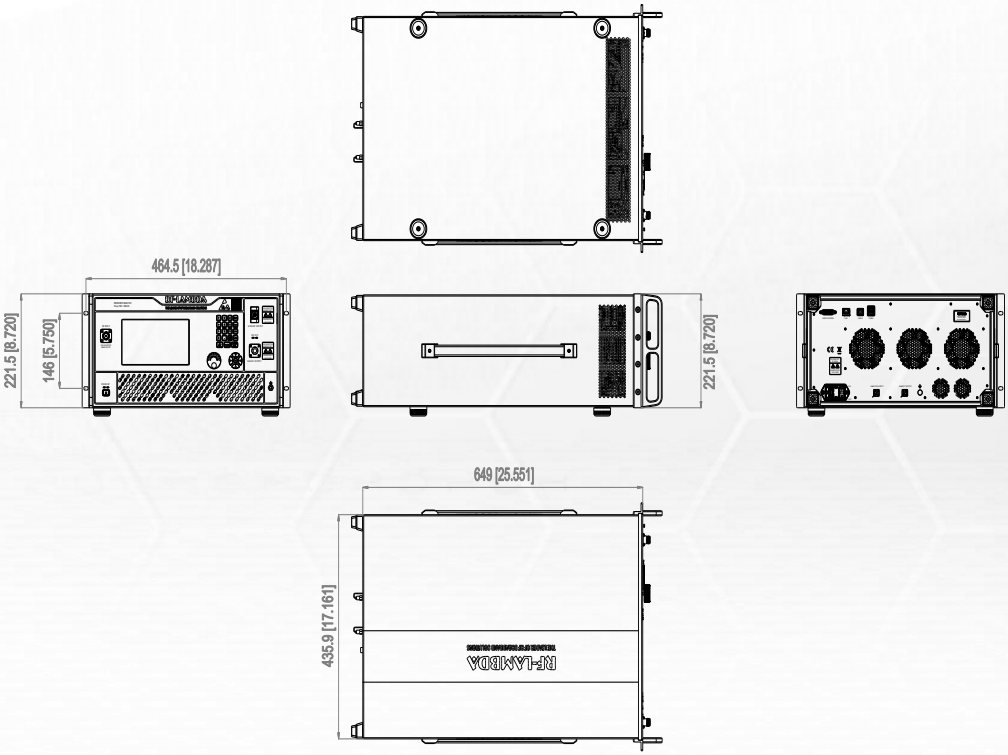
- RF Input (N-Female)
- LCD
- 6-18GHz RF Output (N-Female)
- 10KHz-6GHz RF Output (N-Female)
- GND Connector
- Keypad
- Gain Adjustment Knob
- ON/OFF switch

REAR PANEL



- USER CONTROL DB-15 Connector TTL control signals See page below for more information
- LAN Port (upon request)
- USB-B Port
- USB-A Port (work log) USB-A Port (N/A)
- GND connector
- -50dB RT Output
- -50dB FW Output
- AC power supply switch
- Main AC connector

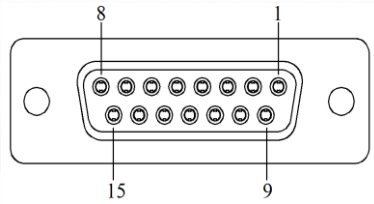
OUTLINE DRAWING



Notes:
1. Package Material: Aluminum
2. Finish: White Baking Paint
3. All dimensions are in millimeters [inches].
4. Standard torque wrench must be used to secure RF connectors.

PROTECTION CONNECTOR TABLE

Female D-Sub is on the housing
The mating male part number: 172-E15-103R001



Pin #	Name	Function	Initial State	Description	Applied
1	Reset	Control	HIGH	Resets PA when logic LOW is applied for five more seconds and released	Yes
2	Gate Disable	Control	LOW	Applying logic HIGH disable gates of amplifiers	Yes
3	Drain Disable	Control	LOW	Applying logic HIGH disable drains of amplifiers	Yes
4	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
5	Temperature Over	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
6	Current Over	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached	Yes
7	Current Imbalance	Indicator	LOW	Pin will be latched to logic HIGH when an imbalance in the drain current of the combining branches occurs	Yes
8	PA Off Alarm	Indicator	LOW	Pin will be latched to logic HIGH when any of the protection limit is reached	Yes
9	Fan Alarm	Indicator	LOW	Pin will be latched to logic HIGH when Fan limit is reached	Yes
10	RF Input Switch	Control	LOW	Applying logic HIGH turns OFF RF front-end switch to terminator	Yes
11	VSWR	Indicator	LOW	Pin will be latched to logic HIGH when output reflection is over limit	Yes
12	Fixed Attenuation 10dB	Control	LOW	Applying and holding logic HIGH to enable 10dB fixed attenuation	Yes
13	Fixed Attenuation 20dB	Control	LOW	Applying and holding logic HIGH to enable 20dB fixed attenuation	Yes
14	+5V	Power Supply	+5V	+5V DC is supplied for reference (200mA)	Yes
15	GND	Ground	GND	Ground	Yes

Notes:
- HIGH/LOW voltages are standard TTL signals 0.0V-0.8V = LOW. 2.8V-5V = HIGH. Input current is 10uA.
- Matching connector and cable will be shipped with the product.
- Applied=Yes means the feature is included. Applied=No means the feature is not included with this model.
- 5V reference supply can source 700mA.
- Indicator output signals can source 24mA.

PACKING LIST

ID	Description	QTY
1	Fig a. AC power supply line (Consulting sales)	1
2	Fig b. DB15 cable (RFCBLADB15)	1

Fig a.

Fig b.

ORDERING INFORMATION

Part Number	Modification	Description
REMC0M18GW100	Input connector N-Female and Output connector N-Female	10KHz - 18GHz Wideband EMC Benchtop Power Amplifier

AMPLIFIER USE

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

Power Supply Requirements
Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

IMPORTANT NOTICE

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