

M7719 SERIES

SINGLE-OUTPUT, 200W DC TO DC BASEPLATE COOLED POWER SUPPLY

The M7719 is a series of mechanically robust, base-plate cooled, high performance, power supplies, designed for Ground Mobile (MIL-STD-1275), Airborne (MIL-STD-704) and other Hi-Reliability applications where 28VDC has to be converted to a tightly regulated, filtered and protected DC output.



M7719 Series– DC/DC Power Supply

Standard Models List (for other voltages – consult factory)

Part Number	Output Voltage	Max Output Current	Minimum Efficiency
M7719-101	12 V _{DC}	10 A	87%
M7719-102	15 V _{DC}	10 A	89%
M7719-103	24 V _{DC}	8 A	90%
M7719-104	28 V _{DC}	7.14 A	90%

- Additional standard configurations available. **Contact factory for more details.**

THE MAIN FEATURES OF THE M7719 ARE:

- DC/DC Single output power supply up to 200W
- 18 to 50VDC Standard Input version
- For standard Input version No damage due to abnormal transients IAW MIL-STD-1275 (100 V / 50 ms) and MIL-STD-704 (80 V / 0.1 s)
- For extended input version for 15V output - **Please contact factory for more details**
- High efficiency – up to 90% (depending on output voltage).
- Full galvanic isolation between Input, Chassis and Output
- External Inhibit (On/Off)
- Fixed switching freq. (290 kHz)
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage protection
- Over temperature shutdown with auto-recovery
- High density
- Conduction cooled via the baseplate

M7719 Series– DC/DC Power Supply

SPECIFICATIONS:

DC Input	Type	28V _{DC} per MIL-STD-704E
	Voltage Range	Steady state: 18 to 50 V _{DC}
	Transients	No damage when expose to the following transients IAW MIL-STD-1275E: 12V, 1sec 16V, 30sec 100V, 50msec No damage when expose to the following transients IAW MIL-STD-704A: 70V, 20 msec 80V, 0.5msec
	Transients Optional	Optional: Operation through 70V, 20 msec IAW MIL-STD-704A Please contact factory for more details
	Isolation	Input to Output: 200 VDC Input to Case: 200 VDC
	Input Reverse Polarity	Protection for unlimited time
	Under-Voltage Lock-Out	The unit shuts down below 16V ± 1V.
	Over-Voltage Lock-Out	The unit shuts down above 52V ± 1V.
DC Output	Rating	See table on page 7
	Voltage Regulation	Better than or equal to ±1% (low to high line voltage, no load to full load, –55 °C to +85 °C at baseplate).
	Ripple	150-300 mVp-p, typical (max. 1% of output voltage)
	Isolation	Output to Case: 100 VDC
	Overvoltage Protection	Passive Over-Voltage Protection: Zener diode installed on output terminals, selected at 120% ± 10% of nominal voltage.
	Efficiency	Typical: 90%

M7719 Series– DC/DC Power Supply

	<i>Current Limit & Overload</i>	Output voltage turns off and on periodically with low duty cycle (hiccup) to protect system conductors and converter from short circuit
	<i>Over Temp. Protection</i>	Output shuts down if base plate temperature exceeds $+105^{\circ}\text{C} \pm 5^{\circ}\text{C}$. Automatic recovery when baseplate temperature returns to below $+95^{\circ}\text{C} \pm 5^{\circ}\text{C}$.

M7719 Series– DC/DC Power Supply

Specifications (Cont.):

Control & Indication	<i>INHIBIT Signal</i>	The INHIBIT signal is used to turn the power supply ON and OFF. To turn the power supply OFF, apply a TTL “0” signal or SHORT to VIN RTN. To turn the power supply ON, apply a TTL “1” signal or leave this pin OPEN. If not used (always ON), leave this pin OPEN. This signal is referenced to VIN RTN. ENABLE Signal - Optional - Please consult factory. To turn the power supply OFF, apply a TTL “1” signal or leave this pin OPEN. To turn the power supply ON, apply a TTL “0” signal or SHORT to SIGNAL RTN.
Environment Designed to meet MIL-STD-810F	<i>Temperature</i>	Methods 501.4 & 502.4 Operating: –55 °C to +85 °C (at baseplate) Storage: –55 °C to +125 °C (ambient)
	<i>Humidity</i>	Method 507.4 Up to 95% RH
	<i>Salt-fog</i>	Method 509.4
	<i>Altitude</i>	Method 500.4 Procedures I – Storage/Air transport: up to 70,000 ft. (non-operational) Procedure II – Operation/Air Carriage: up to 70,000 ft. (operational)
	<i>Mechanical Shock</i>	Method 516.5 Procedure I 20 g / 11 ms terminal peak half-sine shock pulse
	<i>Vibration</i>	Category 24: Minimum integrity, IAW figure E-3, 7.7 grams, 1 hour per axis.
	<i>Fungus</i>	Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4-
EMI	<i>MIL-STD-461F</i>	Designed to meet* MIL-STD-461F CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103 *EMI Compliance achieved with 5µH LISN, shielded harness and static resistive load.
Reliability	150,000 hours, calculated per MIL-HDBK-217F Notice 2 at +85 °C baseplate, Ground Fix conditions.	
Cooling Requirements	The M7719 is a baseplate cooled unit. The base of the M7719 should be thermally attached to a suitable heatsink that maintains it below +85 °C.	

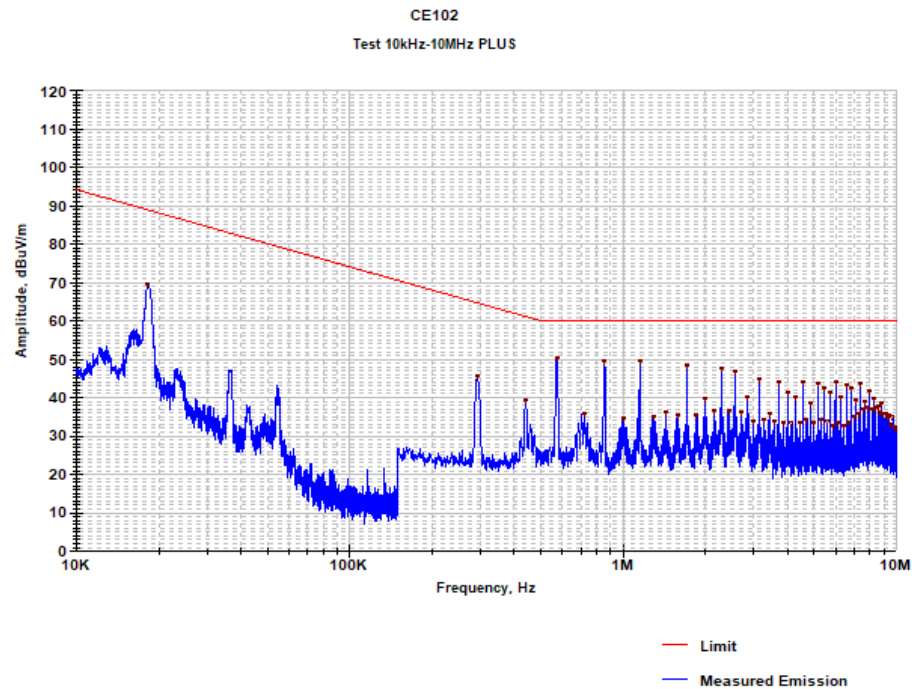
M7719 Series– DC/DC Power Supply

Form factor	1.83" wide, 0.72" high and 3.26" deep. For detailed dimensions and tolerances see Drawing: M7719001.
Weight	160g Typical
Connectors	Connector: M24308/24-38F or eq. Mates with: M24308/2-2F or eq.

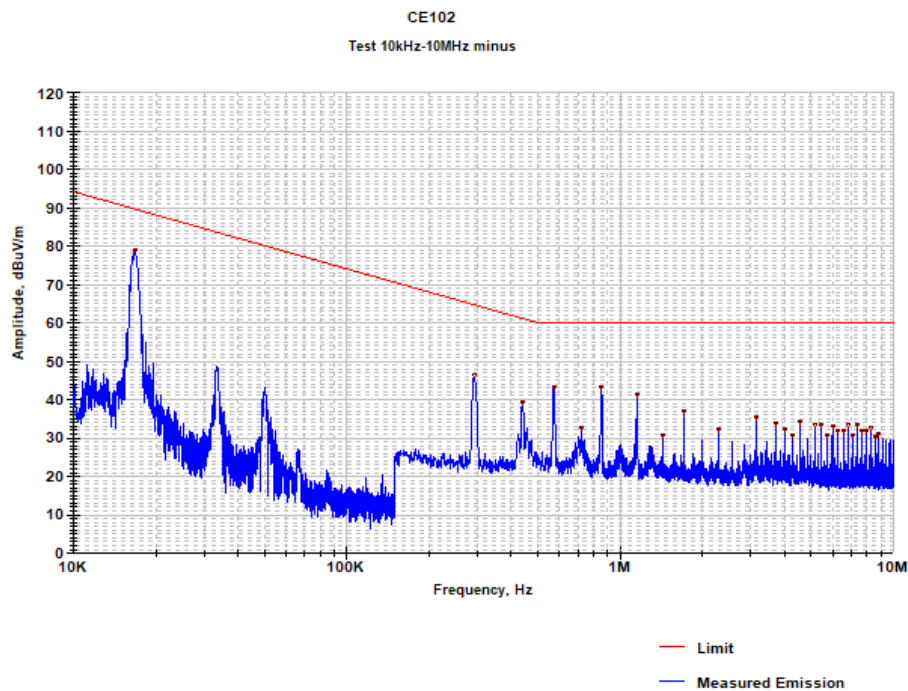
M7719 Series– DC/DC Power Supply

Test Results

1. 28V Vout 200W plus

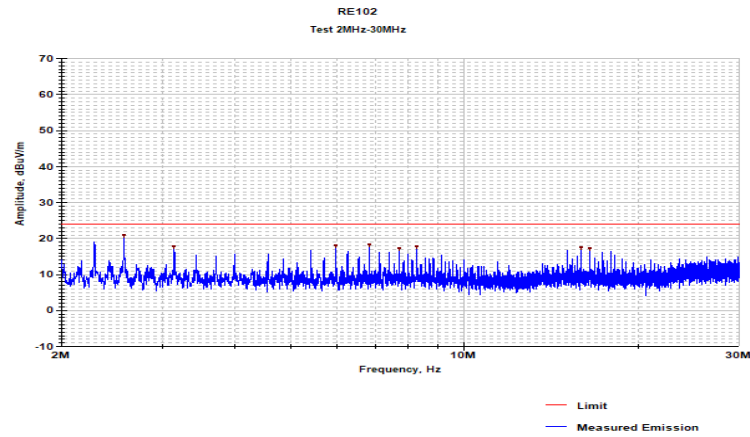


2. 28V Vout 200W minus



M7719 Series– DC/DC Power Supply

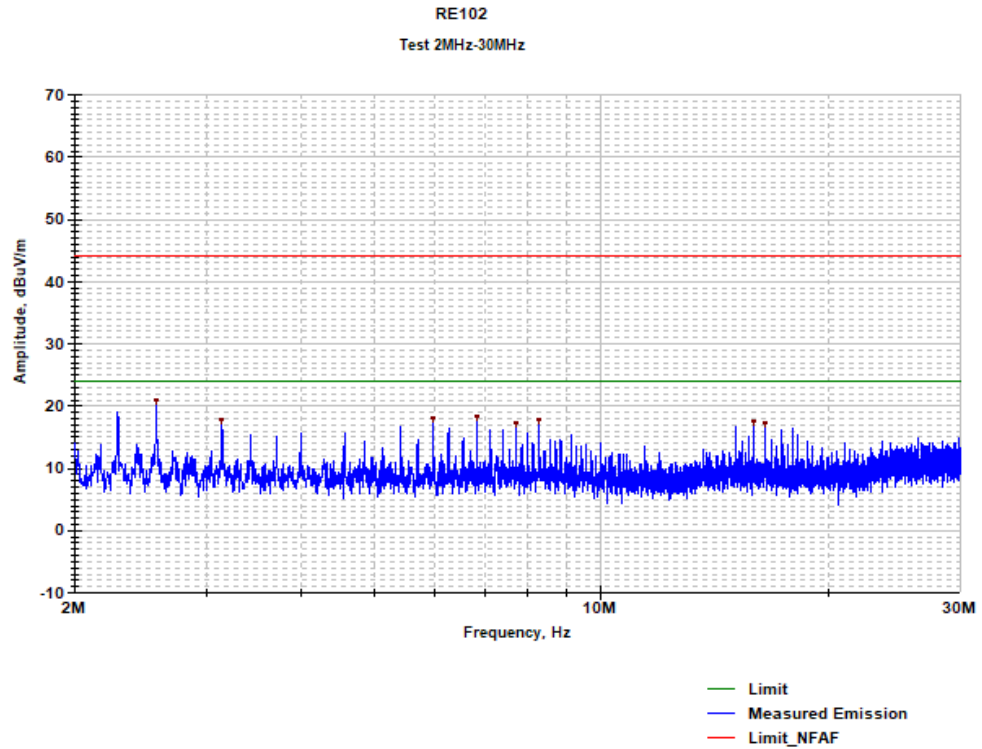
3. 28V Vout 200W minus (Vertical)



Frequency (MHz)	Measured Emission (dBuV/m)	Limit (dBuV/m)	Delta (dB)
2.566	20.8	24.0	-3.2
3.137	17.8	24.0	-6.2
5.987	17.9	24.0	-6.1
6.844	18.2	24.0	-5.8
7.701	17.2	24.0	-6.8
8.272	17.6	24.0	-6.4
15.966	17.4	24.0	-6.6
16.532	17.1	24.0	-6.9

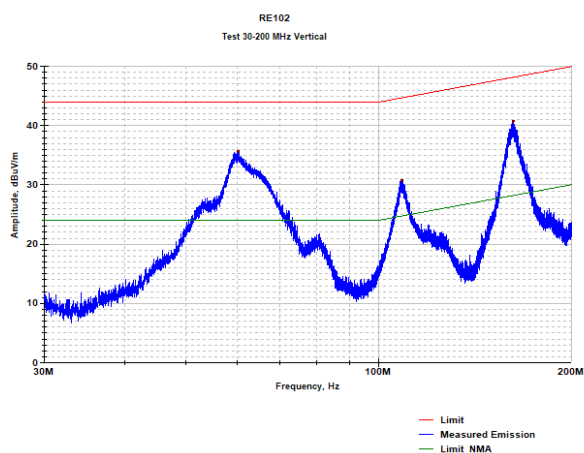
M7719 Series– DC/DC Power Supply

- a. Same measurement with 44 limit on display



M7719 Series– DC/DC Power Supply

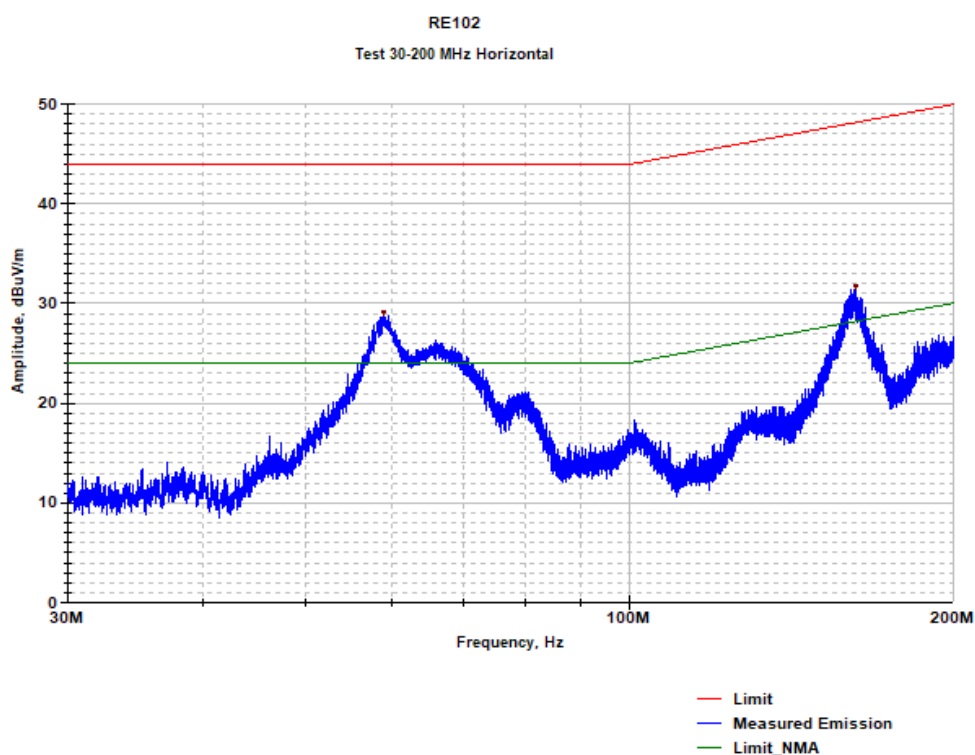
4. Vertical, 200W:



Frequency (MHz)	Measured Emission (dBuV/m)	Limit (dBuV/m)	Delta (dB)
60.209	35.60	44.00	-8.40
108.744	30.78	44.73	-13.95
162.039	40.64	48.18	-7.55

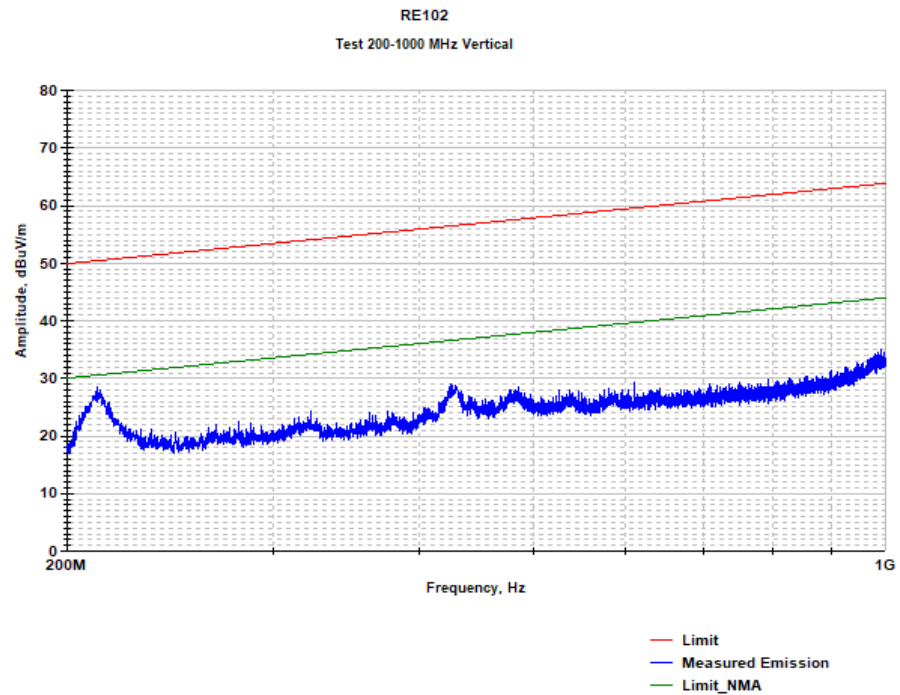
M7719 Series– DC/DC Power Supply

5. Horizontal

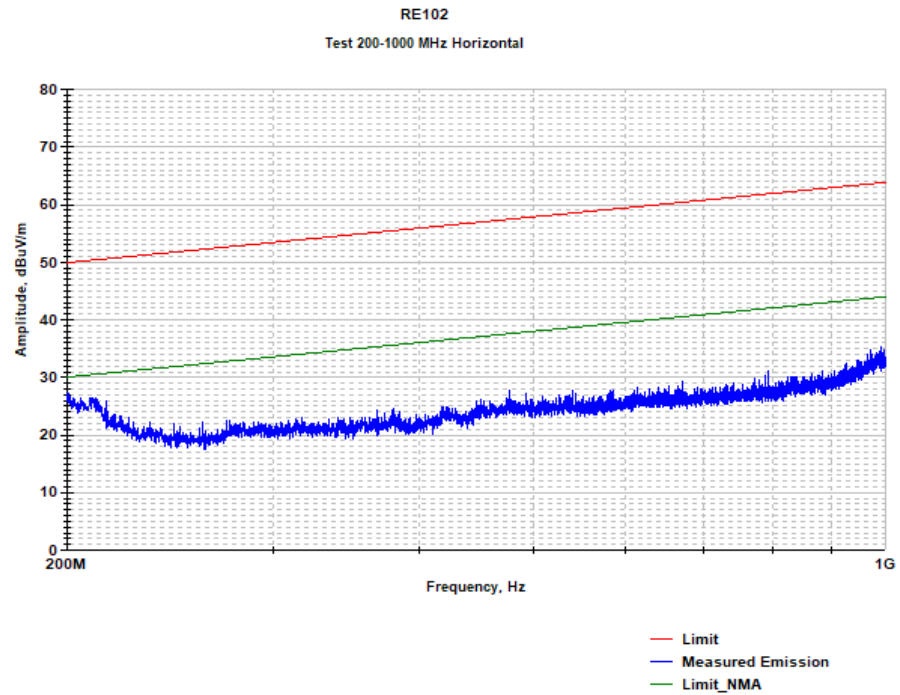


Frequency (MHz)	Measured Emission (dBuV/m)	Limit (dBuV/m)	Delta (dB)
59.019	29.1	44.0	-14.9
162.192	31.6	48.2	-16.6

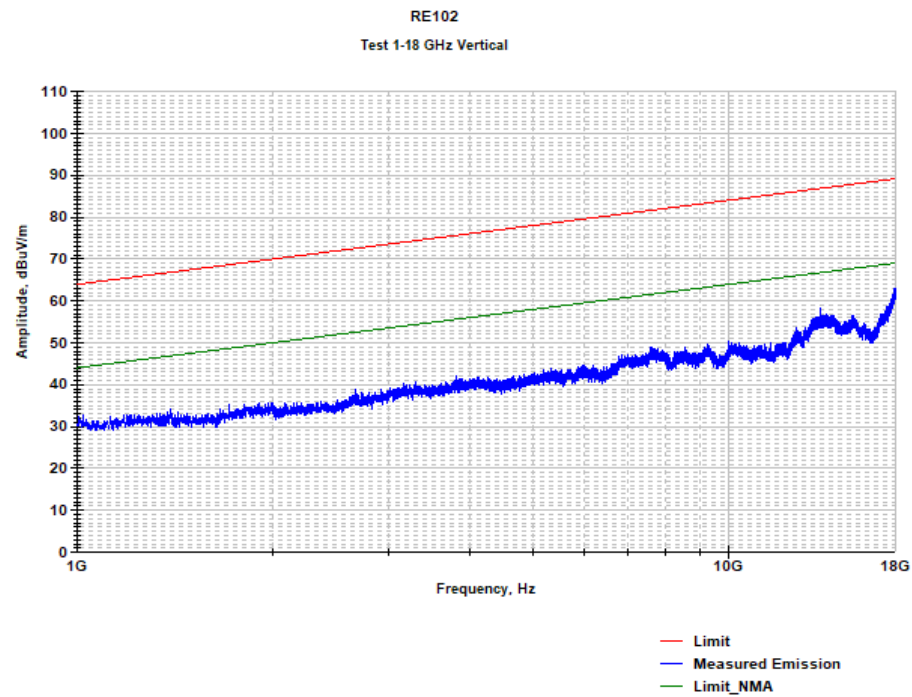
Vertical:



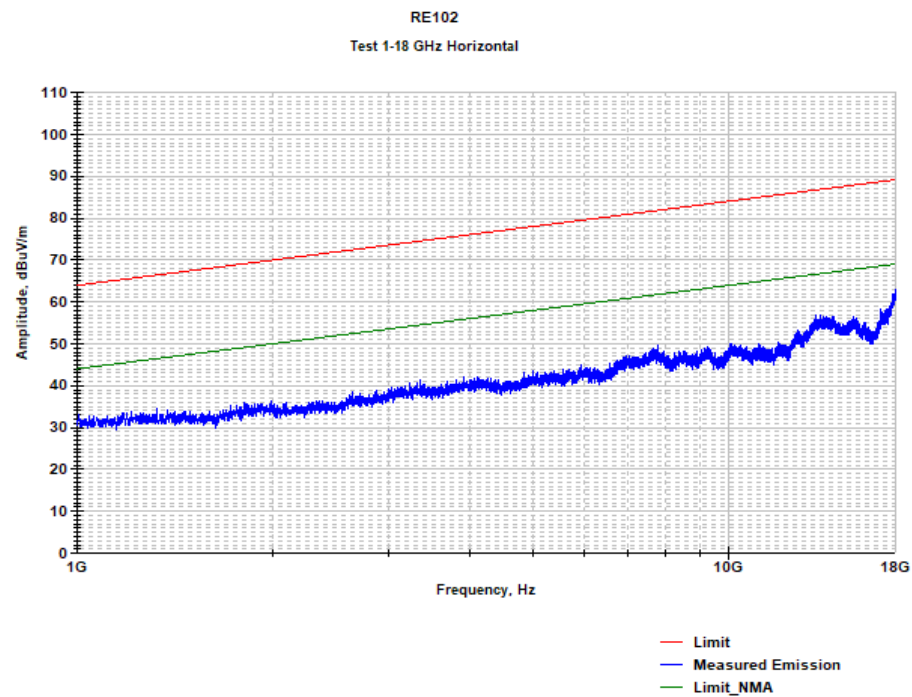
6. Horizontal



7. Vertical:

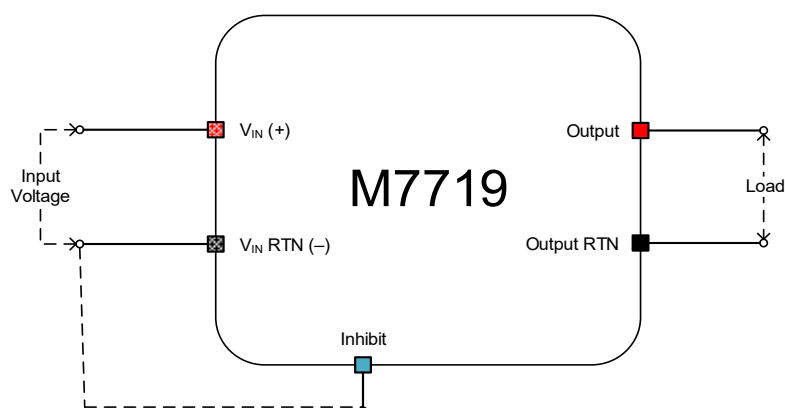


8. Horizontal



M7719 Series– DC/DC Power Supply

TYPICAL CONNECTION DIAGRAM



Outputs Range

Output #	Voltage Range	Current Range	Output Regulation	Power Range
1	12 to 28 V _{DC}	10A max	±1%	200W max

PIN ASSIGNMENT:

Connector: M24308/24-38F or eq.

Mates with: M24308/2-2F or eq.

Pin No.	Function	
1	OUTPUT	+
2	OUTPUT	+
3	OUTPUT RTN	–
4	INPUT RTN	–
5	INPUT RTN	–
6	INPUT	+
7	INPUT	+
8	INHIBIT	

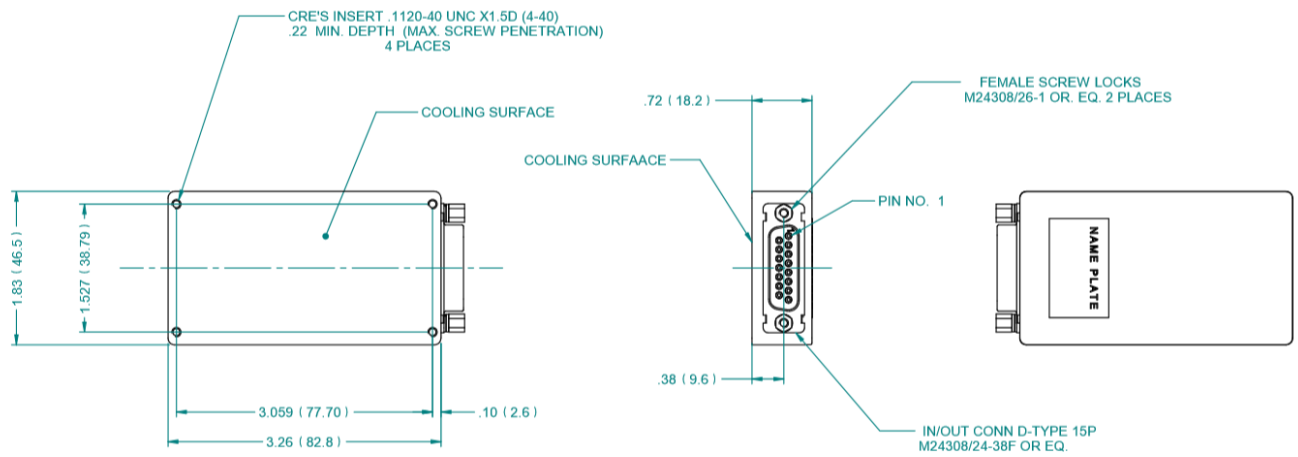
Pin No.	Function	
9	OUTPUT	+
10	OUTPUT RTN	–
11	OUTPUT RTN	–
12	INPUT RTN	–
13	INPUT RTN	–
14	INPUT	+
15	INPUT	+

Note: All pins with identical function/designation should be connected together for optimal performance.

M7719 Series– DC/DC Power Supply

OUTLINE DRAWING:

For detailed dimensions and tolerances see Drawing: M7719001



Note: Specifications are subject to change without prior notice by the manufacturer.