



EMC Test Data

Client:	GE MDS LLC	PR Number:	PR099808
Model:	SDM4-1	T-Log Number:	TL099808-RA
Contact:	Dennis McCarthy	Project Manager:	Christine Krebill
Standard:	FCC parts 22 & 90, RSS-119	Project Engineer:	David Bare
		Class:	N/A

Maximum Permissible Exposure / SAR Exclusion

Specific Details

Objective: Evaluate the RF Exposure requirements per FCC 1.1310, 2.1091, 2.1093 and RSS-102.

Date of Test: 8/12/2019
Test Engineer: David Bare

General Test Configuration

Calculation uses the free space transmission formula:

$$S = (PG)/(4 \pi d^2)$$

Where: S is power density (W/m^2), P is output power (W), G is antenna gain relative to isotropic, d is separation distance from the transmitting antenna (m).

SAR exclusion calculation formula is from FCC KDB 447498 D01 section 4.3:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{GHz}}}]$$

Where: f_{GHz} is the RF transmit channel frequency

Summary of Results

Device complies with Power Density requirements at 20cm separation:	Yes/No
If not, required separation distance (in cm):	484

Deviations From The Standard

No deviations were made from the requirements of the standard.



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FCC MPE Calculation

Use: General

Antenna: 16.5 dBi

GE MDS stated that the output power is the maximum power given manufacturing tolerances/tune-up procedures.

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
406.1	40.2	10471.3	0	16.5	40.2	467735.14	93.053	0.271
406.1	40.2	10471.3	0	10	40.2	104712.85	20.832	0.271
406.1	40.2	10471.3	0	5	40.2	33113.11	6.588	0.271

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S <= MPE Limit cm
406.1	93.053	0.271	370.8
406.1	20.832	0.271	175.4
406.1	6.588	0.271	98.7

Industry Canada MPE Calculation

Use: General or Controlled??

Antenna:

USE THIS FOR 300-6000 MHz single transmitters (General use)

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
406.1	40.2	10471.3	0	16.5	40.2	467735.14	93.053	0.159
406.1	40.2	10471.3	0	10	40.2	104712.85	20.832	0.159
406.1	40.2	10471.3	0	5	40.2	33113.11	6.588	0.159

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S <= MPE Limit cm
406.1	93.053	0.159	484.1
406.1	20.832	0.159	229.1
406.1	6.588	0.159	128.8

As all channels have the same power and antenna gain, the lowest frequency channel requires the greatest RF safety distance.