MAXIMUM PERMISSIBLE EXPOSURE REPORT

FOR THE

ESSENTIAL INSIGHT.MESH MANAGER GATEWAY,
185510-01 & 185511-01/179168-01

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Report No.: E09-025A-R

Purpose of Test:

To demonstrate compliance with United States and Canada RF Exposure requirements for Mobile Equipment (devices used >20cm from the body), where Maximum Permissible Exposure (MPE) Calculations apply.

United States MPE Limits in accordance with 1.1310:

Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1	6
300-1500	---	---	f/300	6
1500-100,000	---	---	5	6

General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	---	---	f/1500	30
1500-100,000	---	---	1	30

Note: Limit is calculated based on the mid-band frequency used in the operating frequency range.

Canadian MPE Limits in accordance with RSS-102:

Occupational / Controlled Exposure:

Frequency Range (MHz)	Electric Field (V/M rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Time Averaging (min)
0.003-1	600	4.9	-	6
1-10	$600 / f$	$4.9 / f$	-	6
10-30	60	$4.9 / f$	-	6
30-300	60	0.163	10^*	6
300-1500	$3.54\, f^{0.5}$	$0.0094\, f^{0.5}$	$f / 30$	6
1500-15000	137	0.364	50	6
15000-150000	137	0.364	50	$616000 / f^{1.2}$
150000-300000	$0.354\, f^{0.5}$	$9.4 \times 10^{-4}\, f^{0.5}$	$3.33 \times 10^{-4}\, f$	$616000 / f^{1.2}$

General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field (V/M rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Time Averaging (min)
0.003-1	280	2.19	-	6
1-10	$280 / f$	$2.19 / f$	-	6
10-30	28	$2.19 / f$	-	6
30-300	28	0.073	2^*	6
300-1 500	$1.585\, f^{0.5}$	$0.0042\, f^{0.5}$	$f / 150$	6
1 500-15 000	61.4	0.163	10	6
15 000-150 000	61.4	0.163	10	$616000/ f^{1.2}$
150 000-300 000	$0.158\, f^{0.5}$	$4.21 \times 10^{-4}\, f^{0.5}$	$6.67 \times 10^{-5}\, f$	$616000 / f^{1.2}$

Note: f is frequency in MHz
* Power density limit is applicable at frequencies greater than 100 MHz

Equipment operational details:

Operating Frequency (MHz)	Measured Output Power (dBm)	Maximum Mobile Antenna Gain (dBi)	Maximum EIRP (dBm)
2400-2483.5	18.0	2.0	20

Measurements based from EMC Test Report: CKC Laboratories, Inc., test report #: FC09-025A

Device and Antenna Operating Configuration:
Device operating at maximum output power with continuous transmission of modulated data.

Test Procedure:
This equipment is evaluated in accordance with the guidelines set forth in OET Guide 65 & ANSI C95.1 for the US and Health Canada Safety Code 6 & RSS 102 for Canada.

Other Considerations:
None

MPE Calculations:

Limit used:

Occupational / Controlled Exposure

X   General Population / Uncontrolled Exposure

MPE Limit =   1 (mW/cm^2)

$$PowerDensity(mW/cm^2) = \frac{EIRP}{4\pi d^2}$$ Given: **EIRP** in *mW* and **d** in *cm*

EIRP (mW)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Power Density (W/m^2)	Limit (W/m^2)
100	20	0.020	1.000	0.20	10

Statement of Compliance:

This device demonstrates compliance under the operating conditions specified in this document. Under normal operating conditions, the antenna is designed to be installed in accordance with the manufacturer's instructions in such a manor to maintain the minimum separation distance. The MPE calculations shown above demonstrate compliance to the provisions of US and Canadian requirements.

As can be seen from the MPE results, this device passes the specified limits at a distance of 20cm at the maximum output power under normal operating conditions.