



RF Exposure Evaluation

Report Prepared for: Aarcomm Systems Inc.
#112 – 17 Fawcett Road
Coquitlam, BC V3K 6V2

Equipment Under Test (EUT): RM1-900MRTR

FCC ID: 2AAXW900MRM1


IC Certification number: 11295A-900MRM1

Model Number(s): RM1-900MRTR

FCC Rule Part(s): Part 15B, 15C

Industry Canada Rule Part(s): RSS-210

Tested by: Island Compliance Services Inc.
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Date: 8th October 2013

FCC OATS registration number: 386117

Industry Canada OATS registration number: 9578B-1

1.1 RF EXPOSURE EVALUATION

FCC 1.1310 states the criteria listed in the table below shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Section 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Section 2.1093. Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation".

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (s)
(A) Limits for Occupational/Control Exposures				
300-1500	-	-	F/300	6
1500-100,000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposures				
300-1500	-	-	F/1500	30
1500-100,000	-	-	1	30

TABLE 1 - POWER DENSITY LIMITS

1.2 EUT OPERATING CONDITION

The EUT has two possible antenna options:

1. Larsen Q900 (2.14dBi) monopole antenna
2. Larsen NMOSPEC900 (5.4dBi) ¼ wave antenna

1.3 RF EXPOSURE EVALUATION DISTANCE CALCULATION (2.14 dBi ANTENNA)

Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	Max EIRP (mW)	Power Density Limit (mW/cm ²)	R (cm)
902.25	29.5	2.14	1460	1	10.8
915.10	29.1	2.14	1320	1	10.3
927.80	28.0	2.14	1030	1	9.1

TABLE 2 - DISTANCE CALCULATIONS

1.4 RF EXPOSURE EVALUATION DISTANCE CALCULATION (5.4 dBi ANTENNA)

Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	Max EIRP (mW)	Power Density Limit (mW/cm ²)	R (cm)
902.25	29.5	5.4	3090	1	15.7
915.10	29.1	5.4	2820	1	15.0
927.80	28.0	5.4	2190	1	13.2

TABLE 3 - DISTANCE CALCULATIONS

where: S = Allowable Power density Limit (mW/cm²)
 EIRP = Equivalent (or effective) isotropically radiated power (mW)
 R = Distance to the center of radiation of the antenna (cm)

$$R = \sqrt{\frac{EIRP}{4 \cdot \pi \cdot S}}$$

As shown above, the minimum distance where the MPE limit is reached is 10.8 cm from the EUT with a 2.14 dBi antenna.

The minimum distance where the MPE limit is reached is 15.7 cm from the EUT with a 5.4 dBi antenna.