RF Exposure Evaluation

Report Prepared for: Exegin Technologies Limited
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Port Coquitlam BC,
V3C 6N2, Canada

Equipment Under Test (EUT): Model: Q58-3

Trade Name: Q58-3

FCC ID: **VD458Q3**
IC Certification number: **7162A-58Q3**

FCC Rule Part(s): Part 15B, 15C
Industry Canada Rule Part(s) RSS-210

Tested by: Island Compliance Services Inc.
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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 (minutes)
(A) Limits for Occupational/Control Exposures				
300-1500	-	-	F/300	6
1500-100,000	-	-	5.0	6
(B) Limits for General Population/Uncontrolled Exposures				
300-1500	-	-	F/1500	30
1500-100,000	-	-	1.0	30

TABLE 1 - POWER DENSITY LIMITS

1.2 EUT Operating Condition

Maximum antenna gain = 4 dBi

TE Connectivity. P/N: 2118059-1
2300–3800 MHz Single Band Antenna

The RF module contains two identical transmitter implementations that both use the transmitter outlined above. As such, the RF exposure calculations are the same for both transmitters.

1.3 RF Exposure Evaluation Distance Calculation

Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	Max EIRP (mW)	Power Density Limit (mW/cm^2)	R (cm)
2.405	22.3	4.0	427	1.0	5.8
2.440	22.2	4.0	417	1.0	5.8
2.475	-11.3	4.0	0.2	1.0	0.1

TABLE 2 - DISTANCE CALCULATIONS

where: S = Allowable Power density Limit (mW/cm^2)
EIRP = Equivalent (or effective) isotropically radiated power (mW)
R = Distance to the center of radiation of the antenna (cm)

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

As shown above, the minimum distance where the MPE limit is reached is 5.8 cm from the EUT with a 4.0 dBi antenna.