

Client	Kapsch TrafficCom Canada Inc	
Product	MRFM-S with External Amplifier (MRFM-SEA)	
Standard(s)	RSS-137 Issue 2:2009 / FCC Part 90 Subpart M:2015	

Maximum Permissible Exposure

Purpose

The purpose of this test is to ensure that the RF energy intentionally transmitted, in terms of power density emitted from the EUT at a stated operating distance does not exceed the limits listed below as defined in the applicable test standard, as calculated based upon readings obtained during testing. This helps protect human exposure to excessive RF fields.

Limit(s) and Method

The limits are defined in FCC 1.1310 Table 1 (B) limits for general public exposure was applied. The limit for the frequency range of 300 MHz to 1500 MHz was applied. This is a limit of 0.61 mW/cm².

Results

The distance used for calculations was 100 cm, as this is the minimum distance an operator will be from the EUT during normal operation. The antenna height state in the User Manual is 16 ft. Therefore, no operator will be less than 100 cm from the antenna.

The EUT passed the requirements. The worst case calculated power density was 0.39 mW/cm², this is under the 0.61 mW/cm² requirement.

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Calculations

Prediction of MPE limit at a given distance				
Equation from page 18 of OET Bulletin 65, Edition 97-01				
$S = \frac{PG}{4\pi R^2}$				
where:	S = power density P = power input to the antenna G = power gain of the antenna in the direction of interest relative to an isotropic radiator R = distance to the center of radiation of the antenna			
Maximum peak output power at antenna input terminal:	39.73	(dBm)	Max ERP	44.77
Maximum peak output power at antenna input terminal:	9397.233106	(mW)		
Antenna gain(typical):	7.19	(dBi)	Maximum EIRP Antenna Gain (antenna gain + cable loss)	7.19
Maximum antenna gain:	5.236004366	(numeric)		
Time Averaging:	100	(%)		
Prediction distance:	100	(cm)		
Prediction frequency:	919.5	(MHz)		
MPE limit for uncontrolled exposure at prediction frequency:	0.613	(mW/cm ²)		
Power density at prediction frequency:	0.391553	(mW/cm ²)		
Margin of compliance:	1.9	(dB)		
This equates to	3.915526215	W/m ²	PASS	
For information This equates to	38.42074157	V/m		