1.0 Maximum Permissible Exposure Evaluation

The results of power measurement and intended use/proximity are compared against the requirements for safety of RF exposure.

1.2 Criteria

Section Reference	Date
2.1091, OET Bulletin 65, RSS-102	July 29, 2013

1.3 Procedure

Using measurement of peak power and intended application, determine the permissible exposure level or whether additional exposure tests (SAR) are indicated. Justify conclusion for selected exposure area and separation distance.

1.4 Results

Antenna for this device is a printed circuit phased array with unidirectional characteristics. It is operated from inside a plastic enclosure through which the signal must pass. Transmission is continuous as long as power is available; power is typically from a sealed lead-acid battery. The final device is mounted, usually temporarily, to a utility/traffic pole and placed facing passing vehicles to detect motion. Data is recorded by the attached recording system until manually shut down or the battery is drained.

A separation distance of 20 cm was selected for a mobile device. Power is determine from the measured field strength at 3 meters and antenna gain applied to determine ERP. The ERP is compared to the referenced table threshold value.

For frequency range of 1.5 to 100 GHz, the general population/uncontrolled limit to exposure is 1 mW/cm^2.

Measured Field Strength	At Distance	Calculated EIRP
120.7 dBµV/m*	3 m	352.5 mW

*This is the peak measurement.

Field density is determined at 20 cm as:

$S = EIRP / (4 \pi 20^2)$ Ref. FCC Bulletin OET-65 Equation (4)

$S = 352.5 \text{ mW} / 5026.55 \text{ cm}^2$

$S = 0.070 \text{ mW/cm}^2$

The power is below the SAR Exclusion Threshold of 1 mW/ cm^2, it therefore meets the criteria for exclusion from SAR testing.

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