



5473A Clouds Rest Road : Mariposa, CA 95338 : Phone 209-966-5420 : Fax 209-742-6133

Maximum Permissible Exposure Calculations

Date of Report: January 9, 2002

Calculations prepared for:

IP Mobile Net

11909 East Telegraph Road
Santa Fe Springs, CA 90670

Calculations prepared by:

Dustin Oaks

CKC Laboratories, Inc.
5473A Clouds Rest Road
Mariposa, CA 95338

Model Number: IP1
FCC Identification: MI7-IPMNIP1

Fundamental Operating Frequency: 150MHz - 156MHz

Maximum Rated Output Power: 60.00 Watts
Measured Output Power: 60.25 Watts

Power Output and Operating Frequency Information used for these calculations were from:
CKC Laboratories, Test Report # FC01-064A

In accordance with 47CFR2.1093(d)(2), source based time averaging is allowed for this type of device:

$$\begin{aligned}\text{Source Based Time Averaging} &= 20\text{LOG}(\text{ON time}/\text{TOTAL time}) \\ &= 20\text{LOG}(389\text{mS}/(389+310 = 699\text{mS})) \\ &= -5.09\text{dB}\end{aligned}$$

$$\text{Therefore the Power Output} = 47.8\text{dBm (60.25W)} - 5.09\text{dB} = \mathbf{42.71\text{dBm (18.66W)}}$$

MPE Limit in accordance with 1.1310(b): Limits for general population/uncontrolled exposure

$$\text{MPE Limit} = \mathbf{0.2\text{mW}/\text{cm}^2 \text{ or } 27.5\text{V/M}}$$

Power Output (Watts)	Distance (Meters)	Power Density (mW/cm ²)	Result
18.66	1.0	0.1485	PASS
18.66	0.87	0.1962	PASS

$$\text{Power Density (W/M}^2\text{)} = (30 * P_t * G) / (d^2 * Z_o)$$

P_t = Power Delivered to the Antenna
 d = Distance in meters

G = Antenna Gain
 Z_o = Impedance of Free Space

The typical vehicle used by police was measured, and a separation distance of 1 meter was found to be an appropriate distance. Under normal operating conditions, the antenna will maintain a separation of 1 meter from all persons. As can be seen from the MPE results, this device passes the limits specified in 1.1310 at a distance of 0.87 Meters (34.25 Inches).