




***Maximum Permissible Exposure (MPE)
Test Report***

***FCC ID: LUB-P500CF-1
IC: 2529A-P500CF1***

Company Name: Socket Mobile, Inc.

Model Names: Go Wi-Fi! P500

*Requirements: MPE requirements per FCC OET Guide 65 1997, IEEE
C95.1:1999, CFR 47: 1.1310*

Verified by: 
Bob Cole
President
EMCE Engineering

*Report #2725-3
Dated: 11/14/07*



Disclaimer

EMCE Engineering, Inc., assumes no responsibility for the continuing validity of test data when the Equipment under Test is not under the continuous physical control of EMCE. The signature below attests to the fact that all measurements reported herein were performed by myself or were made under my supervision, and are correct to the best of my knowledge and belief as of the date specified. EMCE assumes full responsibility for the completeness of these measurements. Tests were conducted by qualified EMCE Engineering, Inc. personnel utilizing test equipment maintained in a “current” state of calibration with traceability to NIST.

- This report or certificate does not represent endorsement by NVLAP or any agency of the US Government.*
- This report or certificate shall not be reproduced except in full without the written approval of the issuer.*



1. Scope

The purpose of this evaluation is to determine compliance to the Maximum Exposure Limits of the Equipment Under Test (EUT). Due to the product type, a 2.4 Ghz 802.11 Wi-Fi Card in a Compact Flash format, the EUT is defined as a Mobile Device.

The maximum output power and antenna gain are used to calculate the Maximum Exposure at a distance of 20 cm, as follows:

2. RF Exposure Limits

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density



3. RF Exposure Calculations

CFR 47: 1.1310 specifies the MPE limit for uncontrolled environment as 1 mW / cm².

Power Density is calculated as:

$$PD = (P * G) / 4(\pi)R^2 \text{ where,}$$

PD = Power Density

P = Peak Power Output to Antenna

G = Antenna Gain

R = Distance Between Radiating Structure and Observation Point

Take the example of a 802.11 device operating at 2412 MHz with a maximum power output to the antenna of 50 mW and a maximum antenna gain of 1 (0 dB):

$$PD = (50 * 1) / 4(\pi) * 20^2 = .00995 \text{ mW / cm}^2$$

4. Test Results

5.

Maximum Power output per EMCE Test Report 2725-1C, dated 11/12/07:

Test Mode: 802.11g operation mode (OFDM Modulation)

Channel	Channel Frequency (MHz)	Maximum antenna gain (numeric)	Output power to antenna (mW)	Power Density (mW/cm ²)	Limit of power density (mW/cm ²)
1	2412	1	51.40	.010226	1.0

A notice has been inserted in the User's Guide as stated below:

While installing and operating this transmitter, the radio frequency exposure limit of 1 mW / cm² may be exceeded at distances close to the transmitter, therefore the user must maintain a distance of 20 cm from the device at all times.