FCC RF EXPOSURE REQUIREMENTS

General Information

FCC ID: G9H2-1115A   2.4GHz   (Base and Handset)

Device Category:
EUT: Base Unit: Mobile per Part 2.1091
EUT: Handset Unit: Portable per Part 2.1093

Environment: General Population/Uncontrolled Exposure

Operating Configurations and Exposure Conditions:

The EUT base unit is normally operated at least 20 cm away from the human body.

The EUT handset is operated close to the head and to the body with belt clip. The maximum Time Division Source based average was **7.38 mW** [see D(7)-3 for calculations]. Since this is less than 25mW SAR test was not conducted.

Maximum Permissible Exposure Calculation: Base Unit

The minimum separation distance, for compliance with the limit, is calculated as follows:

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad Power\ density:\ P_d(mW/cm^2) = \frac{E^2}{3770}$$

The limit for general population/uncontrolled exposure environment above 1500MHz is 1mW/cm2

Separation Distance	Antenna Gain (dBi)	
	Integral	
Time Division Source Based Average Power EIRP (mW)	(in)	(cm)
76.8 mW	**0.97**	**2.47**

BASE UNIT

RF Exposure Calculations

1. The limit for general population/uncontrolled environment above 1500 MHz is 1.0 mW/cm².

2. The Field Strength
$$E \ (V/M) = \sqrt{1.0 \times 3770} = 61.4$$

3. The distance d to achieve the 1.0 mW/cm² power density is as follows

$$d = \frac{\sqrt{30 \times P \times G}}{E}$$

$$d = \frac{\sqrt{30 \times 0.0768 \ W \times 1}}{61.4} = \frac{1.517}{61.4} = 2.47 cm$$

RF Field Strength Calculations:

1. F.S. = 118.20 dBuV/m

2. $F.S. = antilog \ \frac{118.20}{20} = antilog \ 5.91 = 0.8128 \ V/M$

3. $ERP = \frac{(0.8128)^2 \times 9}{49.2} = 120.8 \ mW$

4. EIRP = 120.8 x 1.64 = 198.1 mW

5. Time Division Source Based Average Power

$$= 198.1 \times \frac{3.88 \ mS \ (ontime \ 4 + slots)}{10 \ mS} = 198.1 \times 0.388 = \overline{76.8 \ mW}$$

Conclusion:

The device complies with the MPE requirements by providing a safe separation distance between the antenna, including any radiating structure, and any persons (human body excluding hands, wrists, ankles, and feet).

Proposed RF Exposure Safety Information to Include in User's Manual:

"RF Radiation Exposure Statement
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located in conjunction with any other antenna or transmitter."

HANDSET UNIT

RF Field Strength Calculations:

1. F.S. = 114.23 dBμVM

2. $F.S. = antilog \dfrac{114.23}{20} = antilog\ 5.71 = 0.5146\ V/M$

3. $ERP = \dfrac{(0.5146)^2\ X\ 9}{49.2} = 48.4\ mW$

4. EIRP = 48.4 x 1.64 = 79.37 mW

5. Time Division Source Based Average Power

$$= 79.37\ x\ \dfrac{0.93\ mS\ (ontime\ 1\ +\ slots)}{10\ mS} = 79.37\ x\ 0.093 = \overline{7.38\ mW}$$

Time Division Source Based Average Power is determined by multiplying the EIRP as show in 4. above by the ratio of the SLOT(s) ON TIME divided by the FRAME period. In the above example, the slot is 0.93 mS divided by Frame Time 10 mS or 0.106 or 10.6% [see B(1)-10].

Conclusion:

The device complies with the MPE requirements by virtue of the fact that it is considered to comply with SAR evaluation without testing.

Proposed RF Exposure Safety Information to Include in User's Manual:

"FCC RF Exposure Requirements
For body worn operation, this phone has been tested and meets the FCC RF exposure guidelines when used with the belt clip supplied with this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines."