

Maximum Permissible Exposure

This document demonstrates compliance with the FCC regulations by predicting the power density from the antenna mounted on a rooftop. The guidelines suggest a maximum human exposure level of the RF radiation in frequency between 300kHz and 100GHz. Power density is the amount of the power absorbed in a unit area and is a product of the electric and magnetic field, which have a proportional relationship based on the impedance.

Objective: To ensure and follow the guidelines of precaution of a potential exposure. The following test has been conducted to measure the Radiated Power Density of the 800 MHz mobile radio for the electrical and magnetic fields.

Equipment used:

- 8657A HP signal generator
- 437B HP power meter
- 30db attenuation pad
- ASPG 3db gain antenna
- Mobile radio 800 MHz
- HI-3002 broad band exposure meter with E and H probes.

This test was conducted with a 40 Watt mobile radio with an actual reading 40.1 Watt in a bench test, after compensating the loss of 30db pad and a RG-400 cable.

The vehicle using a 3db magnetic mount antenna as it shows in figure #1 with 12 foot RG-58 A/U Belden cable mounted on the roof of the vehicle as show in figure #2.

We started our test by calculating the limits for the power density, and then measure the magnetic (H) field and electrical (E) field with respect to the broad band meter scale range as it shows below.

The limits of the general population, uncontrolled exposure measured by the power density $f/1500 \text{ mW/cm}^2$. The test frequency is 825 MHz and measurement taken for both E and H fields independently.

$$\begin{aligned}\text{The limits in } \text{mW/cm}^2 &= f/1500 \\ &= 825/1500 \\ &= 0.55\end{aligned}$$

Using the broadband meter, the magnetic full scale range for the H field $= 3.77 \text{ mW/cm}^2$. Meter indication at the maximum limits $= 0.55/3.77 = 0.15$.

Figure 2 illustrated the distance between the antenna and the probe and the direction of the measurement taken. The maximum H field that was measured at 1 meter distance from the antenna for all directions was 0.1 mW/cm^2 .

Also with broadband meter with the electrical probe installed. The electrical full scale range at $(10)^4$ for the E field = 2.65 mW/cm^2 . Meter indication at maximum limit = $0.55/2.65 = 0.21$.

The maximum E field that was measured at 1 meter distance from the antenna for all directions was 0.2 mW/cm^2 .

It is important to mention the radiation was measured from inside the vehicle and underneath the roof with no reading. The effective radiated power of the 3db-gain antenna calculated as follow:

TX power for the radio of 40 watts	+16 dBW
TX line loss	-2.1 dB
Antenna gain	+3.0 dB
ERP	+16.9 dBW
	49 Watts

Based upon the measurements made, a distance of one (1) meter from the transmitting antenna provides sufficient isolation to limit exposure to limits set forth in your Commission's attached table. The table is copied from OET bulletin 65 supplement C.

Also attached is a copy of the safety information provided with the equipment instruction manual.

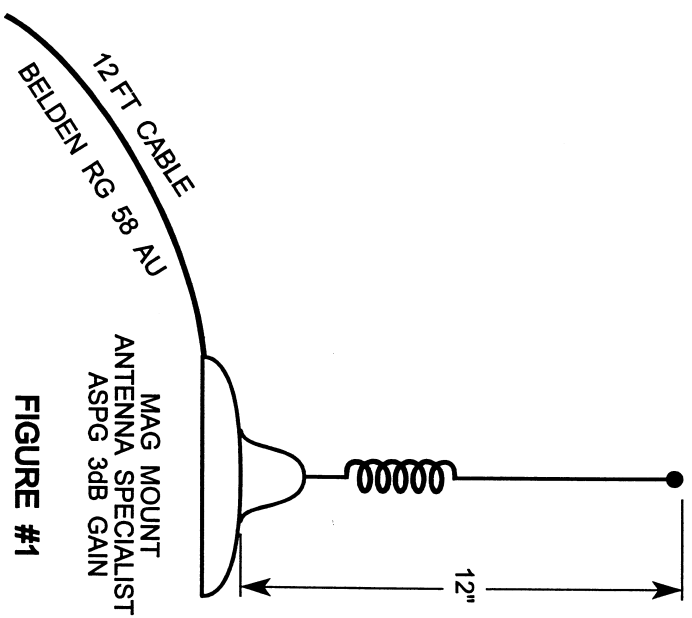
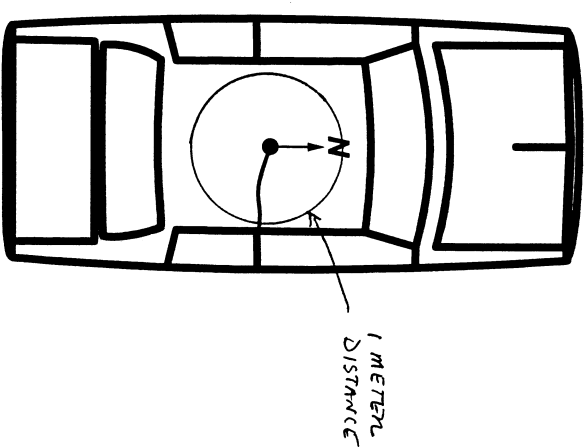


FIGURE #1



ANTENNA CENTERED ON ROOF TOP

FIGURE #2