



WARNING! RF RADIATION EXPOSURE HAZARD

This warning is provided by Broadcast Microwave Services (BMS) Inc. for safety purpose. The following information help to reduce the risk of RF exposure hazard.

FCC Limit of RF Exposure

According to Federal Communication Commission (FCC), the Maximum Permissible Exposure (MPE) for FR radiation has been set to 1.0 mW/cm^2 for the 6 GHz Power Amplifier with maximum 4 Watt output power (OET Bulletin 65).

The 6 GHz Power Amplifier (PA) may be a part of a non-broadcast transmitter and without an antenna it will not create RF exposure (power density) exceeding the 1.0 W/cm^2 FCC limit.

However a high-gain antenna such as a parabolic dish will greatly enhance the 6 GHz PA output power density beyond the MPE limit of 1.0 mW/cm^2 .

In this situation a minimum distance from the antenna needs to be calculated in order to keep the MPE always below the safety limit. The calculation has been done for 6 GHz PA based on the formula mentioned in OET Bulletin 56.

The calculations have been done for different commonly used antenna in the BAS and Public Safety/ Law enforcement applications.

Figure 1 shows the plot of the minimum exposure distance for 5dBi, 16dBi, and 30dBi antennas. The 6 GHz PA transmits the maximum power of 4 Watt. The minimum exposure distances are found from the cross points of the exposure graphs (for various antennas) with the line of maximum permissible exposure (i.e. 1 mW/cm^2). Notice that the numbers in Figure 1 predict the worse case scenario, which is straight in front of the antenna (exposing to the antenna main-lobe). Obviously the side-lobe exposures are well below these numbers as the radiation intensity dramatically reduces on the side lobes.

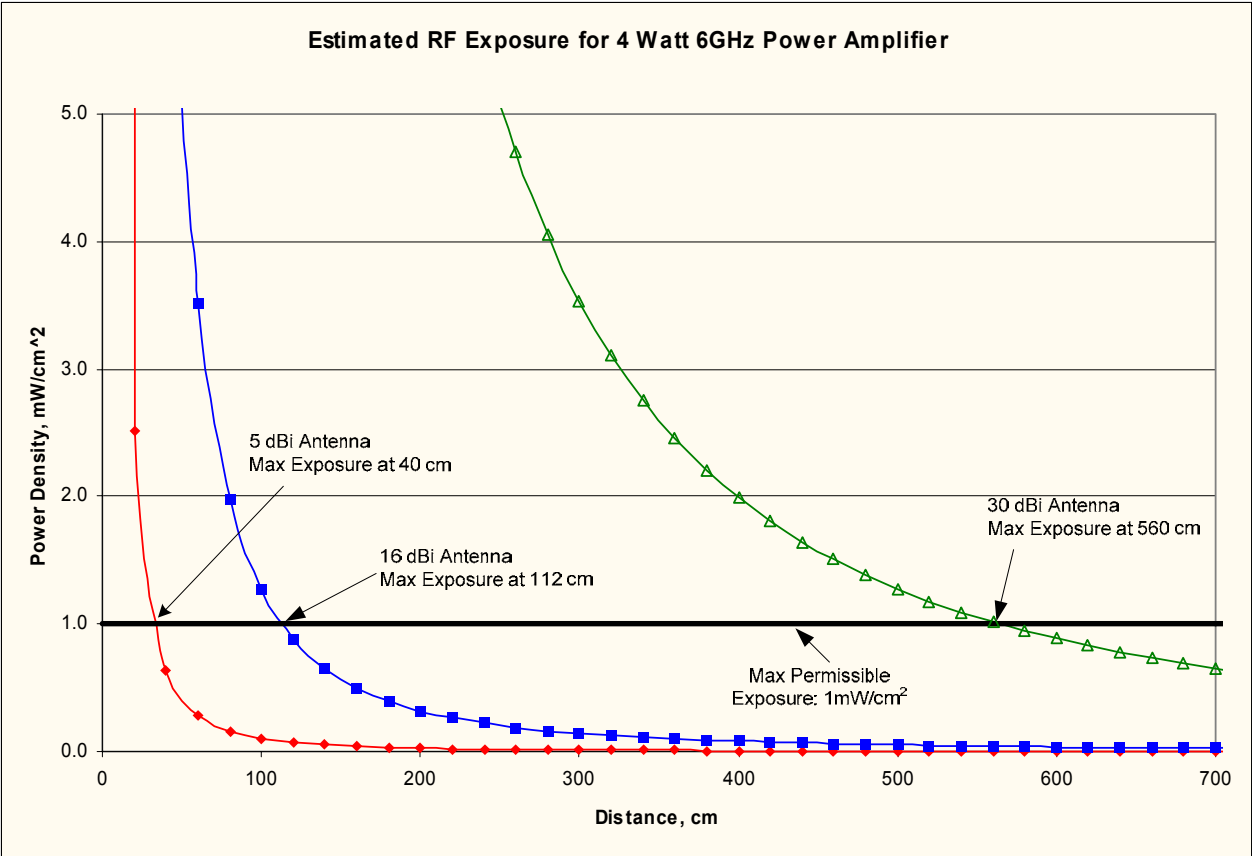


Figure 1

Summary

In order to keep the RF exposure within the FCC limit, it is necessary to maintain the safe distance from the antenna. The results shown in Figures 1 can be summarized in the following table:

Antenna Gain (dBi)	Minimum permissible distance from antenna (cm)
5	40
16	112
30	560

Notice the above table indicates worst-case situation (straight in front of the antenna).