



## 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 RF radiation has been set to  $1.0 \text{ mW/cm}^2$  for the Truck-Coder II equipment (OET Bulletin 65).

Truck-Coder II is a non-broadcast transmitter and without an antenna it will not create RF exposure (power density) exceeding the  $1.0 \text{ W/cm}^2$  FCC limit. However a high-gain antenna such as a parabolic dish will greatly enhance the Truck-Coder II output power density beyond the MPE limit of  $1.0 \text{ mW/cm}^2$ .

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 Truck-Coder II based on the formula mentioned in OET Bulletin 56.

The calculations have been done for different commonly used antenna in Electronic New Gathering (ENG) systems.

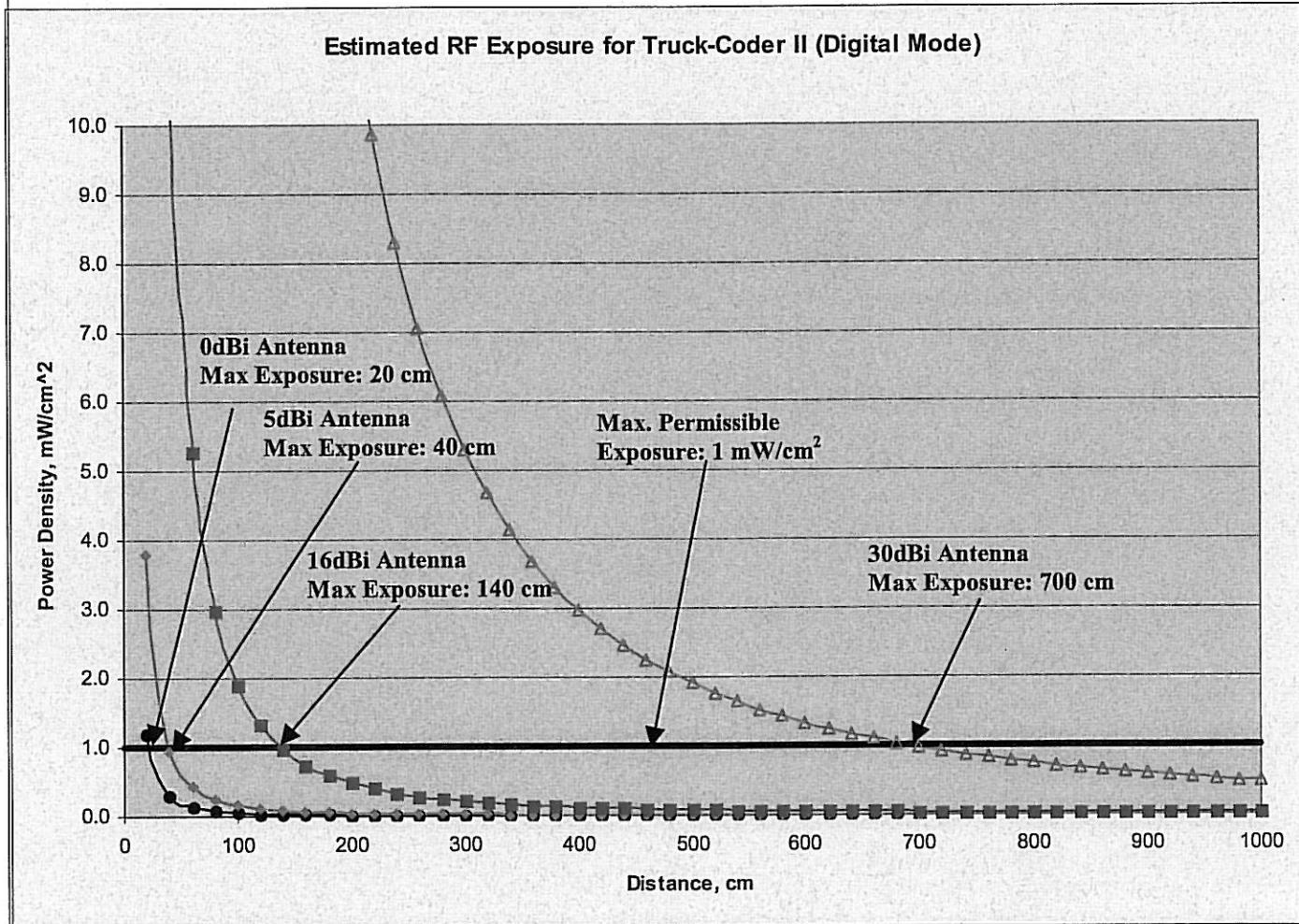
### **Digital Transmission**

Figure 1 shows the plot of the minimum exposure distance for 0dBi, 5dBi, 16dBi, and 30dBi antennas. The Truck-Coder II transmitter has been in digital mode with an average power of 6 Watts. 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.  $1 \text{ W/cm}^2$ ). 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.

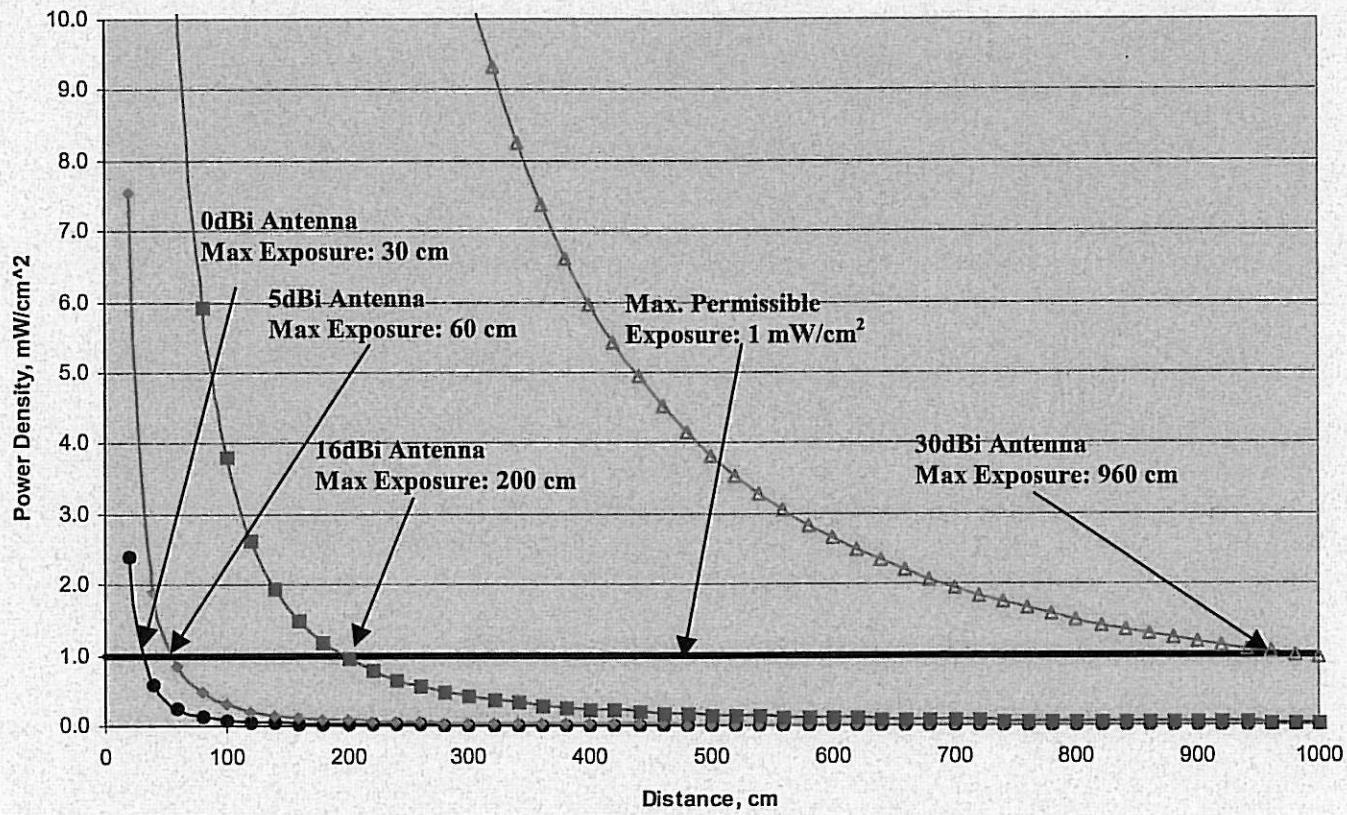
### **Analog transmission**

By switching the Transmitter mode to Analog, the output power will increase to 12 Watts average. This will change the required exposure distance. Figure 2, shows the plots of minimum exposure distances for 0dBi, 5dBi, 16dBi, and 30dBi antennas in Analog

mode.



**Figure 1**

**Estimated RF Exposure for Truck-Coder II (Analog Mode)**

**Figure 2**

### 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, and 2 can be summarized in the following table:

Antenna Gain (dBi)	Minimum permissible distance from antenna (cm)	
	Digital Mode (6W)	Analog Mode (12W)
0	20	30
5	40	60
16	140	200
30	700	960

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