

MPE evaluation for Midway Plumbing Model NTX900.

Description of device and typical operating conditions.

The RF transmitter is a frequency hopping 900 MHz device. This device is used to instrument an utility meter for remote reading.

It has an RF conducted output power of 252 mW and an antenna gain of -2.67 dB.

This device has a plastic cover over it that keeps the antenna a minimum distance of 1 cm away from everything.

The operation cycle of this device worst case is 15 msec. ON followed by 2 seconds OFF repeated 15 times on initial startup and then one 15 msec.ON transmission every 30 minutes. This makes for a worst case ON time in 30 minutes of 240 msec..

MPE calculation based on a 20 cm separation are shown below for a 100% ON time.

$$GdB := -2.67 \quad \text{gain of ant in dB}$$

$$G := 10^{\frac{GdB}{10}}$$

$$G = 0.541 \quad \text{gain of antenna}$$

$$P := 252 \quad R1 := 20 \quad P \text{ is power in mW} \quad R1 \text{ is distance in cm}$$

$$S1 := \frac{P \cdot G}{4 \pi \cdot R1^2} \quad M := P \cdot G$$
$$M = 136.27$$

$$S1 = 0.027 \quad \text{Power density in mW/cm}^2$$

From Table 1 in OET 65 (page67) the general population/uncontrolled exposure limits for a 915 MHz device is 915/1500 or 0.61 mW/cm².