

Radio Frequency Hazard Information

As per Section 1.1310 mobile transmitters are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with OST/OET Bulletin Number 65.

In accordance with this section and also Section 2.1091, this device has been classified as a mobile device.

In accordance with Section 1.1310 the Maximum Permissible Exposure (MPE) limit for the General Population / Uncontrolled Exposure of 0.53 mW/cm² (f/1500 = 806 MHz/1500) has been applied.

This mobile transceiver will typically be used at emergency incidents requiring temporary extended range communications.

A minimum safe distance has been calculated using the above MPE , a transmit power of 3 watts and a typical antenna gain of 1 (0 dBi):

$$E(\text{V/m}) = (\sqrt{30 * P * G}) / D$$

$$\text{Power density, mW/m}^2 = E^2/3770$$

$$\text{MPE} = E^2/3770$$

$$\text{MPE} = ((\sqrt{30 * P * G}) / d)^2/3770$$

$$\begin{aligned} D &= (\sqrt{30 * P * G}) / (\sqrt{\text{MPE} * 3770}) \\ &= (\sqrt{30 * 3 * 1}) / (\sqrt{0.53 * 3770}) \\ &= 9.48 / 44.70 \end{aligned}$$

$$\underline{D = 21.2 \text{ cm}}$$

Typically this mobile transceiver would operate in a push to talk mode and therefore a duty cycle of 50% could be expected.

$$\begin{aligned} D &= (\sqrt{30 * P * G * 0.5}) / (\sqrt{\text{MPE} * 3770}) \\ &= (\sqrt{30 * 3 * 1 * 0.5}) / (\sqrt{0.53 * 3770}) \\ &= 6.71 / 44.70 \end{aligned}$$

$$\underline{D = 15.0 \text{ cm}}$$

In order to comply with the General Population / Uncontrolled Exposure limits this mobile will need to be installed with a minimum safe distance of 21.2 cm.

The equipment manual for this device will need to be noted accordingly.

As this equipment can be used in the SMR channels detailed in section 90.617(d) and as the ERP exceeds 1.5 watts MPE tests have been carried out.

Tests were carried out using an isotropic field probe when the transmitter was transmitting continuously with a whip antenna, with 0 dBi gain, attached to the output.

The Maximum Permissible Exposure (MPE) limit for the General Population / Uncontrolled Exposure of 0.53 mW/cm^2 ($f/1500 = 806 \text{ MHz}/1500$) has been applied.

The isotropic probe measures field strength in V/m.

The probe was moved around the device to determine the location where the MPE limit was the furthest from the antenna.

The MPE limit of 0.53 mW/cm^2 was converted to a field strength using the formula:

$$\text{Power density, mW/m}^2 = E^2/3770$$

$$\begin{aligned} E &= (\sqrt{\text{MPE} * 3770}) \\ &= (\sqrt{0.53 * 3770}) \\ &= \underline{45.0 \text{ V/m}} \end{aligned}$$

Measurements showed that the minimum safe distance where 45 V/m was observed using the isotropic probe was at a distance of 26 cm from the antenna when the transmitter was operated continuously.

This compares favourable with the calculated value of 21.2 cm.

Result: Complies