

RF Exposure Evaluation Report

Per 47 CFR 15.247 (b)(4), the EUT meets the requirement that it be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines (ref. CFR 1.1307, 1.130, and 2.1093. See also OET Bulletin 65, Supplement C).

The EUT is considered a portable transmitter per 47 CFR 2.1093.

The MPE estimates are as follows:

The EUT is a handheld device. 47 CFR 2.1093 defines the maximum permissible exposure (MPE) to the hands for the general population as 4W/kg as averaged over any 10 grams of tissue in the shape of a cube. This translates into a limit of 40mW for any 10 grams of tissue in the shape of a cube.

The maximum power output of the EUT is 44.7 mW. The worst-case duty factor of the transmitter is 5/6. This occurs when the following sequence is repeated:

The EUT transmits for 5 625us time slots
The EUT receives for 1 625 us time slots

The applicable duty cycle factor is 5/6.

The antenna of the EUT is located at the front topside of the bar-code scanner. Two trigger buttons are each located at a distance of 0.75 inch behind the antenna. The user's closest exposure to the antenna is with his/her finger resting on one of the triggers. The gain of the antenna in the plane parallel to the top of the EUT is 1. In the worst-case scenario the user's fingers block less than one half of the spherical wave front from the antenna.

Applying the worst-case absorption by the user of one half as well as the duty cycle factor of 5/6 to the power output of the EUT yields an absorption value of 18.625mW ($44.7\text{mW} \times 1/2 \times 5/6 = 18.625 \text{ mW}$). If all of the absorbed energy were distributed in 10 grams of tissue in the shape of a cube then resulting power density would still fall below the limit of 40 mW for any 10 grams of tissue in the shape of a cube.