

Compliance with 47 CFR 15.247(i)

“Systems operating under the provisions of this section shall 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. See § 1.1307(b)(1) of this chapter.”

The EUT is a digital transmission system radio that operates at a single fixed frequency with only one data rate and one modulation type. The Fixed Reader transmits in the 2400-2483.5MHz band. The EUT will only be used with a separation distance of 20 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091(b). The Fixed Reader will be mounted on a pole by a GE Security Certified Installer. The EUT can use two different antennas, 8dBi gain flat panel or 14dBi gain flat panel. The EUT was tested with both antennas. The highest gain antenna tested was a HyperLink Technologies flat patch antenna, MN: HG2414P, with a gain of 14 dBi. The maximum peak conducted output power is 1.28mW.

The maximum peak power is 32.15 mW (EIRP) for FCC ID: TCZ-20101-2. The transmit frequency is 2438.8 MHz. The EUT is not subject to routine environmental evaluation per 47 CFR 2.1091(c). Per 47 CFR 1.1310, the EUT must meet the General Population/ Uncontrolled exposure limits listed in Table1.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as 1.0 mW/cm². The exposure level at a 20 cm distance from the EUT’s transmitting antenna is calculated using the general equation:

$$S = (PG)/4\pi R^2$$

Where: S = power density (mW/cm²)

P = power input to the antenna (mW)

G = numeric power gain relative to an isotropic radiator

R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)

PG = EIRP

Solving for S, the maximum power density 20 cm from the transmitting antenna is summarized in the following table:

MPE Estimate

FCC ID: TCZ-20101-2

Antenna Type	Antenna Part No.	Transmit Frequency (MHz)	Max Peak Conducted Output Power (mW)	Antenna Gain (dBi)	Minimum Antenna Cable Loss (dB)	Power Density @ 20 cm (mW/cm ²)	General Population Exposure Limit from 1.1310 (mW/cm ²)
Flat Panel	HG2414P	2438.8	1.28	14	0	0.006	1

The power density does not exceed 1 mW/cm² at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant’s radio, FCC ID: TCZ-20101-2, is compliant with the requirements of 15.247(i).