

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 Type II PCMCIA Card RFID Reader (FHSS) that operates in the 902-928 MHz band. The IM4 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 IM4 can use different antennas. The IM4 was tested with 4 different types of antennas representing the highest gain of each type and the lowest gain overall. The maximum peak conducted output power is 860.99mW.

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 Table I.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the General Population / Uncontrolled environment as $(f_{\text{MHz}}/1500) \text{ mW/cm}^2$. 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:

FCC ID: EHAIM4

Antenna Type	Antenna Manufacturer	Intermec 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 / Uncontrolled Exposure Limit from 1.1310 (mW/cm ²)
Directional	Sinclair	A270001-01 or A270001-02	902	860.99	7.14	2.4	0.5102	0.6013
Ceramic Patch	AeroAntenna Technology Inc.	805-616-001	902	860.99	0	0	0.1713	0.6013
Ceramic Patch	Radial/Larsen Antenna Technologies	805-616-002	902	860.99	2.5	0	0.3046	0.6013
Directional	Kathrein Incorporated	805-626-001 or 805-626-002	902	860.99	6	2.4	0.3924	0.6013
Directional Panel	Mobile Mark Incorporated	805-629-001	902	860.99	7	2.4	0.4940	0.6013

NOTE: Both ceramic patch antennas have their cable loss measured in the gain of the antenna.

The power density is less than .6013 mW/cm² at 20 cm for all antennas; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: EHAIM4, is compliant with the requirements of 15.247(i).