

## 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 RFID radio module (FHSS) that operates in the 902-928 MHz band. The model number is IM5. The radio was previously certified under the FCC ID: EHARFID915IM5. No hardware changes have been made to the device. Intermec has made software changes that increase the data rates. The IM5 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 IM5 can use different antennas. The EUT was tested with three different types of antennas representing the highest gain of each type and the lowest gain overall. The highest gain antenna tested was the Maxrad 805-610-001 patch antenna, with a gain of 8.0dBi.

The maximum conducted output power is 990.83mW. 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 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/cm<sup>2</sup>)

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: EHARFID915IM5

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 <sup>2</sup> )	General Population Exposure Limit from 1.1310 (mW/cm <sup>2</sup> )
Patch	805-629-001	902	990.83	7	2.4	0.568	0.601333333
Patch	805-610-001	902	990.83	8	2.2	0.567	0.601333333
Log	A270001-02	902	990.83	7	2.4	0.568	0.601333333

*Note: R = 20 cm for all antennas except for the Maxrad antenna, part number 805-610-001. Intermec specifies a distance of 23 cm for this higher gain antenna.*

The power density does not exceed 0.6013 mW/cm<sup>2</sup> at 20 cm; therefore, the exposure condition is compliant with FCC rules.

The applicant's radio, FCC ID: EHARFID915PCC-6, is compliant with the requirements of 15.247(i).