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 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 EUT is a RFID radio module, FCC ID: EHARFID915PCC-6.

The RFID radio module (EUT) is a Spread Spectrum radio module installed inside Intermec's Model IP3. The IP3 is an optional pistol grip accessory that attaches externally to the bottom of Intermec's 700C. The 700C is a handheld computer that contains three co-located radio modules (CDMA (or GSM), 802.11(b) and Bluetooth). All radios have been previously certified for portable, co-located use in the 700C (FCC ID: HN22011B-2 (802.11b), HN2ABTM3-3 (Bluetooth), HN2SB555-2 (CDMA) or EHA700C-SMC45-1 (GSM)). Please note that the CDMA and GSM radios are never installed in the same 700C. Each radio transmits through its own antenna

The attached MPE Estimates demonstrate compliance with FCC requirements while the RFID radio is co-located with a new CDMA module installed inside the 700C, FCC ID: EHAEM3420. In this configuration, the 700C cannot be used in any body-worn configurations (holsters, belt clips, lanyards, etc). Also, it cannot be used as a cell phone near the head. In this configuration the CDMA radio, is for wide area network (WAN) data transmission only.

Since the IP3 uses the same IRDA interface port as the Bluetooth radio, the Bluetooth and RFID radios cannot transmit simultaneously. All other radios can transmit simultaneously. Each radio transmits through its own antenna.

Due to transmit frequency, output power, and mobile configuration, the EUT is categorically excluded from routine environmental evaluation per 47 CFR 2.1091(c).

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population. 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^2)
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 densities 20 cm from the transmitting antennas are summarized in the following tables:

MPE Estimates for Self Co-located Device

FCC ID: EHAEM3420

CDMA Radio

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)	Ratio of Power Density to the Exposure Limit
Dipole	805-606-204	1850	447	4	0	0.223	1	0.223
Dipole	805-606-102	824	480	3	0	0.191	0.55	0.347
Dipole	805-606-102	1850	447	3	0	0.177	1	0.177

Worst Case Ratio of Power Density to the Exposure Limit = 0.347

FCC ID: HN22011B-2

802.11 (b) Radio

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)	Ratio of Power Density to the Exposure Limit
Folded Dipole	805-608	2400	89	-2	0	0.011	1	0.011

Worst Case Ratio of Power Density to the Exposure Limit = 0.011

FCC ID: EHARFID915PCC-6

RFID Radio

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)	Ratio of Power Density to the Exposure Limit
Panel	805-616-001	902	1000	0	0	0.199	0.601333333	0.331

Worst Case Ratio of Power Density to the Exposure Limit = 0.331

Worst Case Co-located Exposure Condition

Per Note 24 shown below, the Sum of Worst Case Power Ratios cannot exceed 1.0

CDMA Radio Worst Case Ratio of Power Density to the Exposure Limit	**802.11b Radio** Worst Case Ratio of Power Density to the Exposure Limit	**RFID Radio** Worst Case Ratio of Power Density to the Exposure Limit		**Sum of Worst Case Ratios (Power Density to the Exposure Limit)**	**FCC Limit for Sum of Worst Case Ratios**	
0.34684	0.01117	0.33084		0.68885	1.0	PASS

The results shown in the above table are equivalent to the Sum of the EIRP of the Two Co-located Transmitters (EIRP TX1 + EIRP TX2) compared to the exposure limit. The benefit of this method, is that accounts for transmitters operating at different frequencies against different exposure limits.

Please note that EIRP = ERP x 1.64, so EIRP is worst case. However, because some parties would prefer to see the calculation as the Sum of the ERP of the Two Co-located Transmitters, the table below shows compliance with ERP TX1 + ERP TX2

CDMA Radio Worst Case ERP	**802.11b Radio** Worst Case ERP	**RFID Radio** Worst Case ERP		**Sum of Worst Case ERPs**	**Power Density @ 20 cm**	**General Population Exposure Limit from 1.1310**	
(mW)	**(mW)**	**(mW)**		**(mW)**	**(mW/cm^2)**	**(mW/cm^2)**	
684.6422164	34.24097784	609.7560976		1328.64	0.26432	1.0	PASS

Excerpts from TCB Training, April 3, 2002, "Mobile Transmitters", Slide 6:

"Devices operating in multiple frequency bands

- *When RF exposure evaluation is required for TCB approval*
  - *Separate antennas – estimated minimum separation distances may be considered for the frequency bands that do not require evaluation or TCB approval, however, the estimated distance should take into account the effect of co-located transmitters. (Note 24)*

    Note 24 According to multiple frequency exposure criteria, the ratio of field strength or power density to the applicable exposure limit at the exposure location should be determined for each transmitter and the sum of these ratios must not exceed 1.0 for the location to be compliant."

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