

To: Joe Dichoso
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FCC Application Processing Branch

From: Dave Fry
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Regulatory Engineer

Date: June 21, 2002

Re: FCC ID EHA-RM91501X04

Applicant: Intermec Technologies Corporation

Correspondence Reference Number: 22745

731 Confirmation Number: EA475343

Reply is in bold Italics.

EMC questions ...

- 1) Figure 7 of the test report indicates 24 dBm output power. You requested 1 W. Please retest at 1 W and provide new data.
The original report forgot to mention a 6-dB attenuator in the measurement path. The TX power was retested and a report amendment generated. The amended report has been transferred to the FCC EAS system.
- 2) The frequency range will be changed from 902.6-927.4. Please verify.
Please revise as stated above. The actual operation range of the radio is 902.6 – 927.4 MHz
- 3) The device appears to have multiple antenna ports. Can they transmit simultaneously. What is the output power of all ports? Which port was tested? Additional information may be requested.
The transmitter may have up to 4 antennas connected. The operation of the radio only enables one antenna port at a time. Multiple antennas are used to provide angular diversity to read RFID tags of unknown orientation or to support multiple entryways to read RFID tagged items. The transmitter is controlled by logic and software to only enable a single antenna port, the board lay out to each port produces the same path loss through the port switches between the antenna connectors and the power amplifier, therefore the power output of all ports is identical.
- 4) The Identifier's in the label exhibit do not agree with what was requested. Please submit new label exhibit with correct identifier.
The label information has been revised and has been transferred to the FCC EAS system.
- 5) Antenna photo's and antenna gain. See also RF safety question # 4 below.
Photographs of the tested antennas as well as statements for the gain of each has been have transferred to the FCC EAS systems. All antennas will be supplied from Intermec with antenna connectors comply the unique connector regulations under FCC 15.203. Antenna offerings will include longer cables to accommodate various installation needs, however no antennas will include antenna connectors that may be field terminated.

RF safety questions

1. Need complete users manual to evaluate installation and normal use conditions.
The Quick Start Guide showing typical installations and antenna usage warnings has been transferred to the FCC EAS systems.
2. FCC rules do not allow estimation of SAR. For various reasons the submitted analysis is not valid, e.g., body tissue absorption was not included. This RF exposure analysis will not be considered in compliance evaluation.
The calculations for RF exposure have been revised to show MPE. The statements for safe operation have been revised to reflect these calculations. The revised RF exposure statements have been transferred to the FCC EAS systems.
3. Depending on installation conditions, device may fall within mobile classification, meaning labeling and MPE estimation or test may be needed. Devices that meet the categorical exclusion power levels of 2.1091 can use MPE estimation rather than testing to evaluate compliance. FCC does accept analogous calculations for SAR. If persons will normally be closer than 20 cm, SAR testing may be needed. Please see Suppl C 01 01 Sec 3 Table 1. If 20 cm spacing is the normal use condition, please revise RF exposure exhibit in terms of MPE only, not SAR.
See the reply above. The radio and installation reflect operation as a mobile transmitter. The user installation and warnings reflect operation distances from the antennas of 23-cm (9.1 inches). Please see revised details of statements and MPE calculations for the two antennas specified for use with this radio.
4. Please submit antenna photos and specs. 3 dBi antenna gives $2\text{W EIRP} = 1.22\text{ ERP}$. For $\text{ERP} > 1.5\text{W}$, MPE test is needed.
The antenna photographs and specifications have been transferred to the FCC EAS systems.