

TEST REPORT

Report Number: 3119206MPK-002

Project Number: 3119206

Report Date: April 6, 2007

**Testing performed on the
Tire Pressure Stem Handheld Reader
Model #: 83-005-01**

FCC ID: U7C-83005001

IC: 7045A-83005001

to

FCC Part 15.209 and RSS-210 (sec 2.6)

for

Eldec Corporation



A2LA Certificate Number: 1755-01

Test Performed by:

Intertek Testing Services NA, Inc
1365 Adams Court
Menlo Park, CA 94025

Test Authorized by:

Eldec Corporation
16700 13th Ave West
Lynnwood, WA 98046-9727

Prepared by:

David Chernomordik
David Chernomordik, EMC Technical Manager

Date: April 6, 2007

Reviewed by:

Ollie Moyrong
Ollie Moyrong, EMC Operation Manager

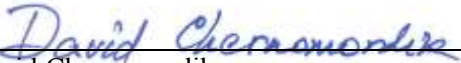
Date: April 6, 2007

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Report No. 3119206MPK-002

Equipment Under Test:	Tire Pressure Stem Handheld Reader with RFID and Bluetooth modules
Trade Name:	Eldec Corporation
Model No.:	83-005-01
Part No.:	83-005001-01
FCC ID:	U7C-83005001
IC ID:	7045A-83005001
Applicant:	Eldec Corporation
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Applicable Regulation:	FCC Part 15, Subpart C RSS-210 sec. 2.6
Test Site Location:	ITS – Site 1 1365 Adams Drive Menlo Park, CA 94025
Date of Test:	March 14 – April 4, 2006

We attest to the accuracy of this report:



David Chernomordik
EMC Technical Manager



Ollie Moyrong
Operations Manager

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1.0 Introduction

The Equipment Under Test (EUT) is a Tire Pressure Stem Handheld Reader (TPS HHR). The TPS HHR is a Radio Frequency Identification (RFID) transponder reader. It is used in tandem with a Personal Digital Assistant (PDA) to collect pressure and temperature calibration and identification data from a Tire Pressure Stem (TPS).

The TPS HHR consists of two transceiver systems, a RFID operating at 134.2 kHz and a Bluetooth module operating at 2.4 GHz.

This report documents the compliance of the RFID module with the FCC Part 15.209 and RSS-210 requirements.

1.1 Summary of Tests

TEST	REFERENCE FCC Subpart C	REFERENCE RSS-210	RESULTS
Field Strength	15.209	2.6	Complies
AC Conducted Emission	15.207	RSS-Gen	Not Applicable *
Antenna Requirement	15.203	RSS-Gen	Complies

* The EUT is battery powered

2.0 General Description

2.1 Product Description

Overview of the RFID module

Frequency Range	134.2 kHz
Rated RF Output	N/A
Number of Channel(s)	1
Modulation Type	Pulse
Data Rate	5.1 kbps
Antenna(s) type & Gain	Loop (coil) antenna

A production version of the sample was received on March 9, 2006 in good condition. As declared by the Applicant, it is identical to production units.

Test start date: March 14, 2006

Test end date: April 4, 2006

2.2 Related Submittal(s) Grants

The EUT is a composite device which consists of two radios.
The application for Part 15.247 is filed under the same FCC ID.

2.3 Test Methodology

Radiated emissions measurements were performed according to the procedures in ANSI C63.4 (2003). Radiated tests were performed at an antenna to EUT distance of 10 meters, unless stated otherwise in the **"Data Sheet"** of this Application.

2.4 Test Facility

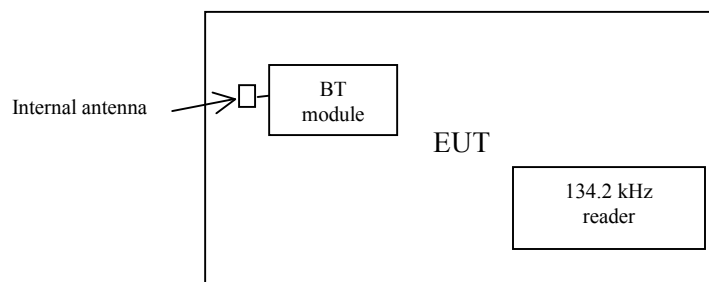
Then radiated emission test site and conducted measurement facility used to collect the data is site 1 located in Menlo Park, California. This test facility and site measurement data have been fully placed on file with the FCC.

3.0 System Test Configuration

3.1 Support Equipment

Item #	Description	Model No.	S/N
1	PDA	IPAQ, X11-21204	2CK6250BLV

3.2 Block Diagram of Test Setup



3.3 Software Exercise Program

During radiated testing, the test software provided by the applicant was used to exercise the various system components in a manner similar to a typical use.

3.4 Mode of Operation During Test

The EUT transmits at 134.2 kHz every 2 seconds.

3.5 Modifications Required for Compliance

No modifications were installed by Intertek Testing Services during compliance testing in order to bring the product into compliance (Please note that this list does not include changes made specifically by Topcon prior to compliance testing).

4.0 Measurement Results

4.1 Requirement

The emissions shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	$2400/F(\text{kHz})$	300
0.490–1.705	$24000/F(\text{kHz})$	30
1.705–30.0	30	30
30–88	100	3
88–216	150	3
216–960	200	3
Above 960	500	3

The level of any unwanted emissions shall not exceed the level of the fundamental emission.

4.2 Procedure

For radiated emission measurements the EUT is placed on a non-conductive table. The signal is maximized through rotation and placement in the three orthogonal axes.

The EUT is attached to peripherals and they are connected and operational (as typical as possible). The EUT is wired to transmit full power. During testing, all cables are manipulated to produce worst-case emissions.

For measurements below 30 MHz, a loop antenna is placed at 1 m height above the ground plane. For measurements above 30 MHz, the antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations. When performing measurements at a closer distance than specified, the results are extrapolated to the specified distance using the square of an inverse linear distance extrapolation factor (40 dB/decade).

At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified. When performing measurements at a distance other than that specified, the results are extrapolated to the specified distance using the inverse linear distance extrapolation factor (20 dB/decade).

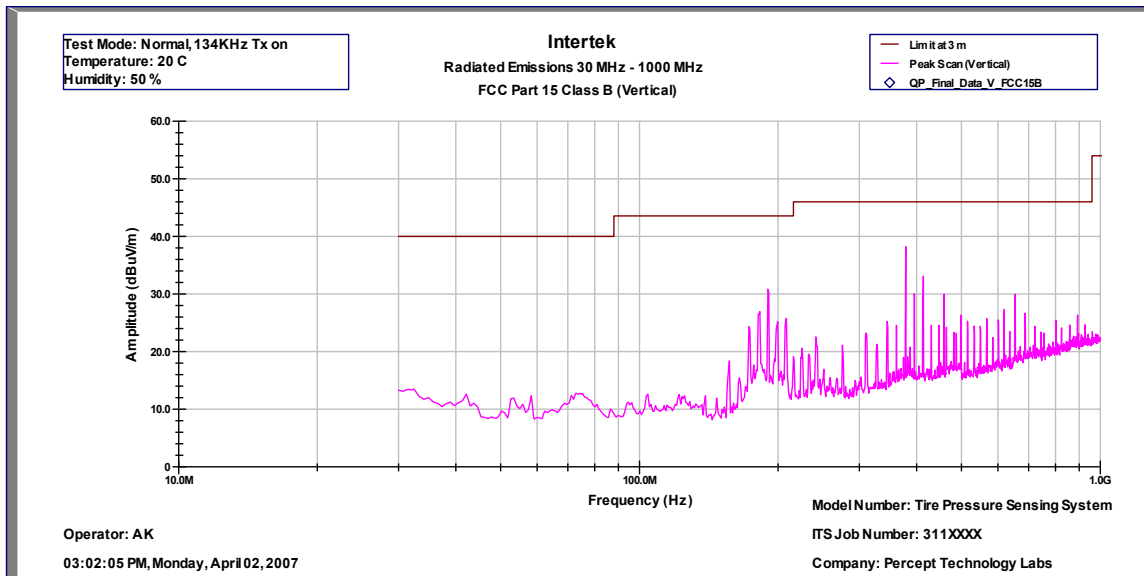
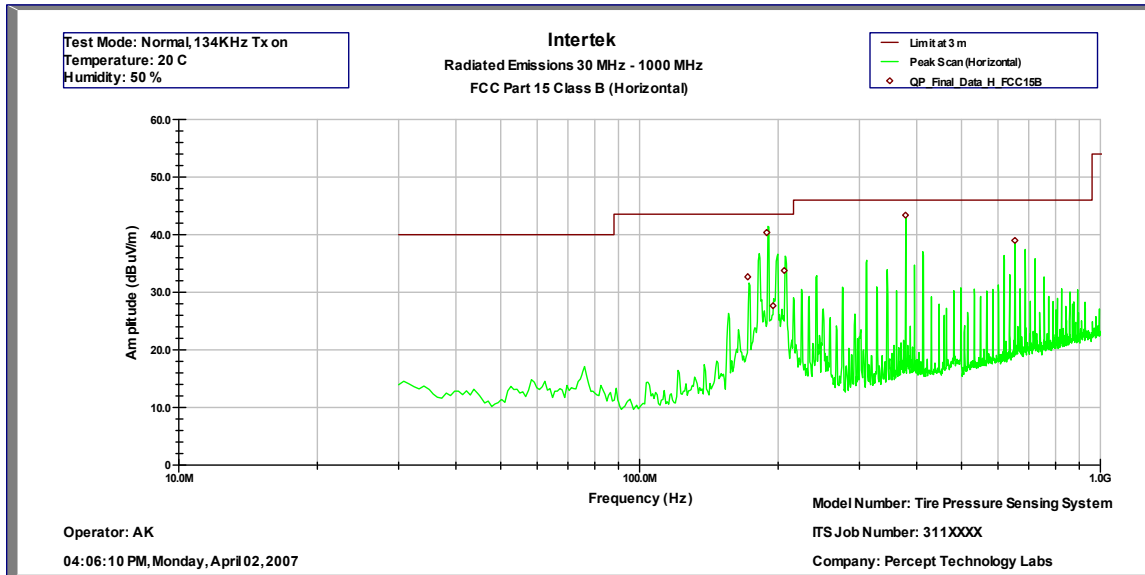
4.3 Test Result

Measurement results for frequencies below 30 MHz

Freq.	SA Reading	Distance	E AF	Amplifier Gain	E Field	Distance correction Factor	E Field at specified distance	Limit at specified distance	Margin
kHz	dB(uV)	m	dB(1/m)	dB	dB(uV/m)	dB	dB(uV/m)	dB(uV/m)	dB
134.2	54.0	10	49.7	31.2	72.5	-59.1	13.4	25.1	-11.7
268.4	37.0	10	49.0	31.2	54.8	-59.1	-4.3	19.0	-23.3
402.6	37.0	10	48.6	31.2	54.4	-59.1	-4.7	15.5	-20.2
536.8	39.2	3	48.5	31.2	56.5	-40.0	16.5	33.0	-16.5
671.0	37.1	3	48.5	31.2	54.4	-40.0	14.4	31.1	-16.7
805.2	35.2	3	48.5	31.2	52.5	-40.0	12.5	29.5	-17.0
939.4	33.8	3	48.5	31.2	51.1	-40.0	11.1	28.2	-18.1
1073.6	32.3	3	48.5	31.2	49.6	-40.0	9.6	27.0	-17.4
1207.8	31.0	3	48.5	31.2	48.3	-40.0	8.3	26.0	-17.7
1342.0	30.1	3	48.5	31.2	47.4	-40.0	7.4	25.1	-17.7

E AF is E-field Antenna Factor

Measurement result for frequencies above 30 MHz



Intertek
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP-Horizontal)

Operator: AK

Model Number: Tire Pressure Sensing System

04:06:08 PM, Monday, April 02, 2007

Company: Percept Technology Labs

Frequency	Quasi Pk FS	Limit@3m	Margin	RA	AG	CF	AF	Atten
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
171.79	32.6	43.5	-10.9	49.5	31.2	1.8	9.6	3
188.97	40.3	43.5	-3.2	56.1	31.2	1.9	10.5	3
195.00	27.6	43.5	-15.9	43.0	31.2	2.0	10.9	3
206.15	33.8	43.5	-9.7	49.0	31.2	2.0	10.9	3
377.94	43.4	46.0	-2.6	52.8	31.2	2.9	15.8	3
652.80	39.0	46.0	-7.0	43.2	31.2	4.0	20.0	3

Test Mode: Normal, 134kHz Tx and BT ON

Temperature: 20 C

Humidity: 50 %

Results:	Complies by 2.6 dB
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5.0 List of test equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	9/11/07
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	9/11/07
BI-Log Antenna	ARA Inc.	LPB-2513/A	1154	12	8/29/07
Pre-Amplifier	Sonoma Inst.	310	185634	12	8/11/07
Loop Antenna	EMCO	6511	1023	12	3/9/08

6.0 Document History

Revision/ Job Number	Writer Initials	Date	Change
1.0 / 3119206	DC	April 6, 2007	Original document