

Nemko Test Report: 127441-1TRFWL

Applicant: PerSen Tech
Suite 560, 167 Lombard Avenue
Winnipeg, MB
R3B 0V3

Apparatus: OttoView Driver Tracking System

FCC ID: XFE-OTTORFID-125

In Accordance With: FCC Part 15 Subpart C, 15.207 and 15.209
Intentional Radiators

Authorized By: 
Sim Jagpal, Production Manager

Date: May 29, 2009

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Section 1 : Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C. Radiated tests were conducted in accordance with ANSI C63.4-2003.

The assessment summary is as follows:

Apparatus Assessed:	OttoView Driver Tracking System
Specification:	FCC Part 15 Subpart C, 15.207 and 15.209
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release
Test Location:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Registration Number:	176392 (3m Semi-Anechoic Chamber)
Tests Performed By:	Jason Nixon, Wireless/Telecom Specialist
Test Dates:	May 13 to 15, 2009

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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Section 2 : Equipment Under Test

2.1 Identification of Equipment Under Test (EUT)

The following information identifies the EUT under test:

Type of Equipment:	RFID reader
Brand Name:	PreSen Tech
Model Name or Number:	OttoView-CD
Serial Number:	None
Nemko Sample Number:	1
FCC ID:	XFE-OTTORFID-125
Date of Receipt:	May 13, 2009

2.2 Accessories

The following information identifies accessories used to exercise the EUT during testing:

Description:	RFID Antenna
Model Name or Number:	None
Serial Number:	None
Nemko Sample Number:	1
Connection Port:	RFID antenna port
Cable Length and Type:	0.5m

Description:	GPS Antenna
Model Name or Number:	BR-355
Serial Number:	BR82105
Nemko Sample Number:	1
Connection Port:	GPS antenna port
Cable Length and Type:	1.5m

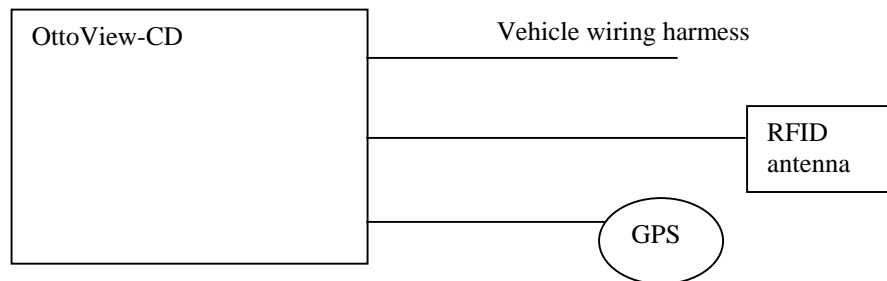
2.3 EUT Description

The EUT is an RFID reader that communicates with the vehicle through the wiring harness of the vehicle. It monitors the information on the driver by reading a passive tag the driver carries.

2.4 Technical Specifications of the EUT

Operating Frequency:	125kHz
Modulation:	CW
Occupied Bandwidth:	2.60kHz
Emission Designator:	2K60N0N
Power Supply Requirements:	12VDC supplied by the vehicle

2.5 EUT Setup diagram



2.6 Operation of the EUT during testing

The EUT was running test software which was emulating the communications with the host vehicle.

2.7 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

Section 3 : Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.207 and 15.209
Intentional Radiators

3.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15 – 30 °C
Humidity range	:	20 - 75 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

3.4 Measurement Uncertainty

Nemko Canada measurement uncertainty has been calculated using guidance of UKAS LAB 34:2003 and TIA-603-B Nov 7, 2002. All calculations have been performed to provide a confidence level of 95% and can be found in Nemko Canada document MU-003.

3.5 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Cal. Date	Next Cal.
3 m EMI Test Chamber	TDK	SAC-3	FA002047	May 06/09	May 06/10
Bilog	Sunol	JB3	FA002108	Jan. 27/09	Jan. 27/10
Flush Mount Turntable	Sunol	FM2022	FA002082	NCR	NCR
Controller	Sunol	SC104V	FA002060	NCR	NCR
Mast	Sunol	TLT2	FA002061	NCR	NCR
International Power Supply	California Inst.	3001i	FA001021	Jan. 13/09	Jan. 13/10
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 26	FA002043	Dec. 16/08	Dec. 16/09
50 Coax cable	HUBER + SUHNER	None	FA002015	Aug. 05/08	Aug. 05/09
Active Loop Antenna	EMCO	6502	FA001686	July 23/08	July 23/09
Spectrum Analyzer	Rohde & Schwarz	FSU46	FA001877	Aug 28/08	Aug 28/09

COU – Calibrate on Use

NCR – No Calibration Required

Section 4 : Results Summary

This section contains the following:

FCC Part 15 Subpart C : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No : not applicable / not relevant.

Y Yes : Mandatory i.e. the apparatus shall conform to these tests.

N/T Not Tested, mandatory but not assessed. (See Report Summary)

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.31(e)	Variation of power supply	Y	PASS
15.215(c)	20dB Bandwidth	Y	PASS
15.207(a)	Conducted Emissions	N	
15.209(a)	Radiated Emissions, general requirements	Y	PASS

Notes:

Appendix A : Test Results

Clause 15.209(a) Radiated Emissions, General Limits

Except as provided elsewhere in this subpart, the emissions from an intentional radiator 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 (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Results: Pass

Additional Observations:

The Spectrum was searched from 9kHz to the 10th Harmonic.

The EUT was measured on three orthogonal axis. The EUT power input was varied +/-15% and there was no change in the output field strength.

Measurement equipment setup was 10kHz Quasi-Peak Detector below 30MHz, 120kHz Quasi-peak detector for measurements between 30MHz and 1GHz and 1MHz RBW/VBW peak detector above 1GHz.

All Measurements were performed at 3 meters and a distance correction was added to the measurements using the formula $40\log(\text{measurement distance}/\text{limit distance})$.

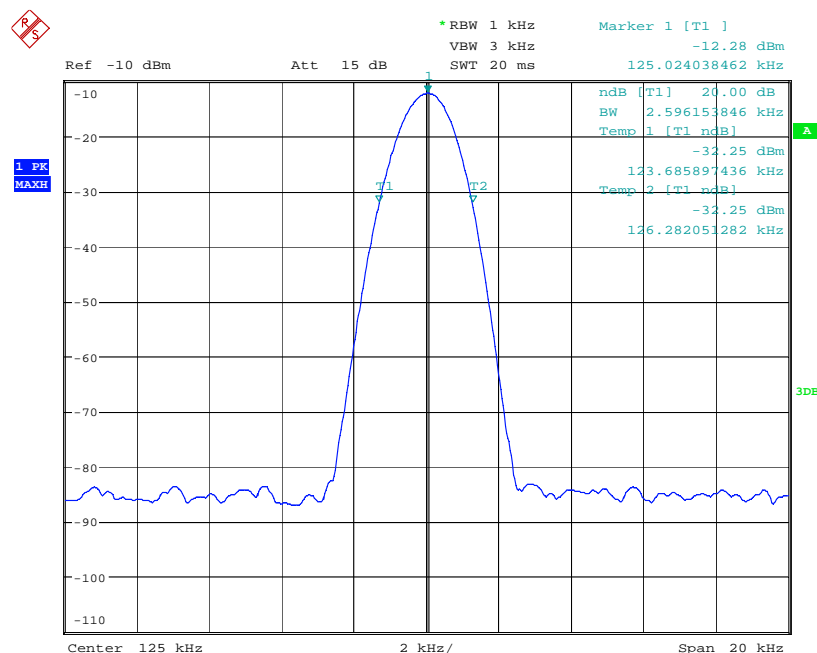
Freq. (MHz)	RCVD Signal (dBμV)	Ant. Factor (dB)	Cable Loss (dB)	Distance Corr. (dB)	Level (dBμV)	Limit (dBμV)	Margin (dB)
0.125	69.74	12.5	0.1	-80	2.34	25.67	23.33
0.375	41.49	12.1	0.1	-80	-26.31	16.12	42.43

Clause 15.215(c) 20dB Bandwidth

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Test Results: Pass

20dB Bandwidth:



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Appendix B : Setup Photographs

Spurious Emissions Setup:



Appendix C : Block Diagram of Test Setups

Radiated Emissions below 30MHz Test Site

