REPORT

For

Guard RFID Solutions Inc.

#140 – 766 Cliveden Place
Delta, British Columbia
V3M 6C7, Canada

Date:	Oct. 16, 2012
Report No.:	10979-1E
Revision No.:	0
Project No.:	10979
Equipment:	RFID TAG
Model No.:	PPT-1BLF
FCC ID:	VZKPPT
IC ID:	9937A-PPT

ONE STOP GLOBAL CERTIFICATION SOLUTIONS

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TEST REPORT		
FCC Part 15.231/IC RSS 210		
Report reference No.....:	10979-1E	
Report Revision History:	✓ Rev. 0: Oct. 16, 2012	
Tested by (printed name and signature) .....:	Jeremy Lee	
Approved by (printed name and signature) .....:	Kavinder Dhillon, Eng.L	
Date of issue .....:	Oct. 16, 2012	
Note: By signing this report, both the Testing Technician and the Reviewer hereby declare to abide by the applicable LabTest policies: **1.) Statement of Independence # 3014 (LabTest Employees),** **2.) Independence, Impartiality, and Integrity #1039, clause 11 (Engineering Service Subcontractors), or** **3.) Independence, Impartiality, and Integrity #1019, clause 3.5 (Testing Subcontractors).**		
Testing Laboratory Name .....:	LabTest Certification Inc.	
Address .....:	3133 – 20800 Westminster Hwy, Richmond, B.C. V6V 2W3	
FCC Site Registration No......:	373387	
IC Site Registration No. .....:	5970A-2	
OATS Test Location Name .....:	LabTest Certification Inc.	
Address .....:	3133 – 20800 Westminster Hwy, Richmond, B.C. V6V 2W3	
Applicant's Name .....:	Guard RFID Solutions Inc.	
Address .....:	#140 – 766 Cliveden Place, Delta, B.C. V3M 6C7, Canada	
Manufacturer's Name .....:	Same as Applicant	
Address .....:	Same as Applicant	
Test specification		
Standards .....:	➢ FCC 15:2010 ➢ RSS-210, Issue 8, Dec. 2010	
Testing		
Date of receipt of test item .....:	Sep. 17, 2012	
Date(s) of performance of test .....:	Sep. 17 to Oct. 15, 2012	
Test item description .....:	EMC	
Trademark .....:	None	
Model and/or type reference .....:	PPT-1BLF	
FCC & IC ID.....:	FCC ID: VZKPPT, IC ID: 9937A-PPT	
Serial numbers .....:	000019	

Electrical Rating(s) ..... :	3.0VDC Internal battery

Particulars: test item vs. test requirements	
Application for .....:	RFID TAG
Operating Transmit Frequency .....:	433.92 MHz
Operating Receive Frequency .....:	125 kHz
Beacon Interval .....:	12 seconds
Equipment mobility .....:	Yes
Operating condition.....:	- 10 to + 50 °C
Mass of equipment (g) .....:	6.7
Dimension(Diameter X Height)	33.5 mm X 11.4 mm
Nominal Voltages for:	_X_ stand-alone equipment ___ combined (or host) equipment ___ test jig
Supply Voltage:	_____ AC _____ Amps __3.0 V___ DC _____Amps
If DC Power:	____ Internal Power Supply ____ External Power Supply or AC/DC adapter _X__ Battery □ Nickel Cadmium □ Alkaline □ Nickel-Metal Hydride ■ Lithium-Ion □ Lead Acid (Vehicle regulated) □ Other
Test case verdicts	
Test case does not apply to the test object :	N/A
Test item does meet the requirement .....:	Pass
Test item does not meet the requirement ...:	Fail

General product information:

The EUT, PPT-1BLF is a battery powered wireless device used to track assets within a Guard RFID Solutions System. The EUT is powered by a pair of small lithium batteries and consists of a Motion Sensor, an Accelerometer, a Low Frequency Receiver, a Microcontroller with integrated UHF Transceiver, and various I/O Peripherals.

Frequencies

Module	Signal	Frequencies (MHz)
CC1150	Transmitter RF	433.92
Y2	Clock for CC1150	26.0
Y1	Clock for U6	0.032768

List of auxiliary and/or support equipment provided by the applicant

Equipment	Model No.	Serial No.	Manufacturer	Data Cable	Power Cord	Approvals/ Standards
N/A						

ARRANGEMENT OF INTERFACE CABLES*: All the above equipment/interface cables were placed in worst case positions to maximize emission signals during emission test. (please reference photographs).*

Grounding: *Groundings was in accordance with the manufacturer's requirements and conditions for the intended use.*

Software and Firmware

Description	Version
N/A	

Worst-case configuration and mode of operation during testing

The EUT was modified to transmit the RF signal every 1 second for FCC testing. Regularly, the RF will be turned on every 12 seconds.

Modifications Required for Compliance

None.

Test Equipment Verified for function

Model #	Description	Checked Function	Results
E7405A	Spectrum Analyzer	Frequency and Amplitude	Connected 50MHz and -20 dBm Ref_siganl and checked OK.
PA-103	Pre-Amplifier, 30 to 1,000MHz	Gain at 30 and 1,000MHz	Gains were normal.
8449B	Pre-Amplifier, 1 to	Gain at 1 to 4GHz	Gains were normal.

	26.5GHz		
JB1	Anatenna, 30 to 2000MHz	Checked structure	Normal – no damage.
AL-130	Antenna, 9kHz to 30MHz	Checked structure and Power status	Normal – no damage.
SAS-571	Antenna, 1 to 18GHz	Checked structure	Normal – no damage.
Onset HOBO	Humidity/ Temperature Logger	Compared room Temp. and Hum. with another data logger	Working normally

Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests:

Parameter	Uncertainty(dB)
Radiated Emission, 32 kHzto 30MHz	4.63
Radiated Emission, 30 to 1,000MHz	4.67
Radiated Emission, 1 to 18GHz	4.65

Uncertainty figures are valid to a confidence level of 95%.

Markings

You should refer to the clause of FCC Part 2 Section 2.295 and FCC Part 15 Section 15.19 for information to be contained on the label as well as information about the label. Any other statements or labelling requirements may appear on a separate label at the option of the applicant/grantee.

According to FCC Section 2.925(a),
"(a)Each equipment covered in an application for equipment authorization shall bear a nameplate or label listing the following:
(1) FCC Identifier consisting of the two elements in the exact order specified in §2.926. The FCC Identifier shall be preceded by the term *FCC ID* in capital letters on a single line, and shall be a type size large enough to be legible without the aid of magnification.
Example: FCC ID XXX123. XXX-Grantee Code 123-Equipment Product Code"

According to FCC Section 15.19(a)(3), the following statement must be include on the identification label: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: **Some jurisdictions in Canada require Cautions and Warnings to also be in French. It is the responsibility of the Customer to provide bilingual marking, where applicable, in accordance with the requirements of the local regulatory authorities. It is the responsibility of the Customer to determine this requirement and have bilingual wording added to the "Markings".**

Test Summary

Test Type	Regulation	Measurement Method	Result
AC Power Line Conducted Emission	15.207(a) RSS-Gen	ANSI C63.4:2009 & ANSI C63.10:2009, Clause 6.2	N/A[1)]
Field Strength of Fundamental - Intentional radiator	15.231 and RSS-210	ANSI C63.10:2009	PASS
Field Strength of Spurious Emissions -Intentional radiator	15.231, 15.205, 15.209 and RSS-210	ANSI C63.10:2009	PASS
Radiated Emissions-Intentional radiators	15.209 and RSS-210	ANSI C63.10:2009	PASS
Radiated Emissions-Unintentional radiators	15.109, Class B and RSS-210	ANSI C63.10:2009	PASS
The Bandwidth of the emission	15.231 and RSS-210	ANSI C63.10:2009	PASS

Note1): The EUT is operated by internal battery. This test was exempted by no connection to AC Power Line.

AC Power Line Conducted Emission

Test Date	Oct. 02, 2012
Sample Number	1042398
Tested By	Jeremy Lee

Test Limits

FCC 15.207(a):
Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases with the logarithm of the frequency.

Test Results

The test was exempted because there is no public utility (AC) power line connection.

Summary of the operation of RF Transmission

Regulation	FCC15.231:2010
Intentional Radiating Frequency	433.92MHz
Sample Number	1042398
Reviewed By	Jeremy LEE

Test Limits

Section 15.231 Periodic operation in the band 40.66 - 40.70 MHz and above 70 MHz.

(a) The provisions of this Section are restricted to periodic operation within the band 40.66 - 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

Reviewed Results:

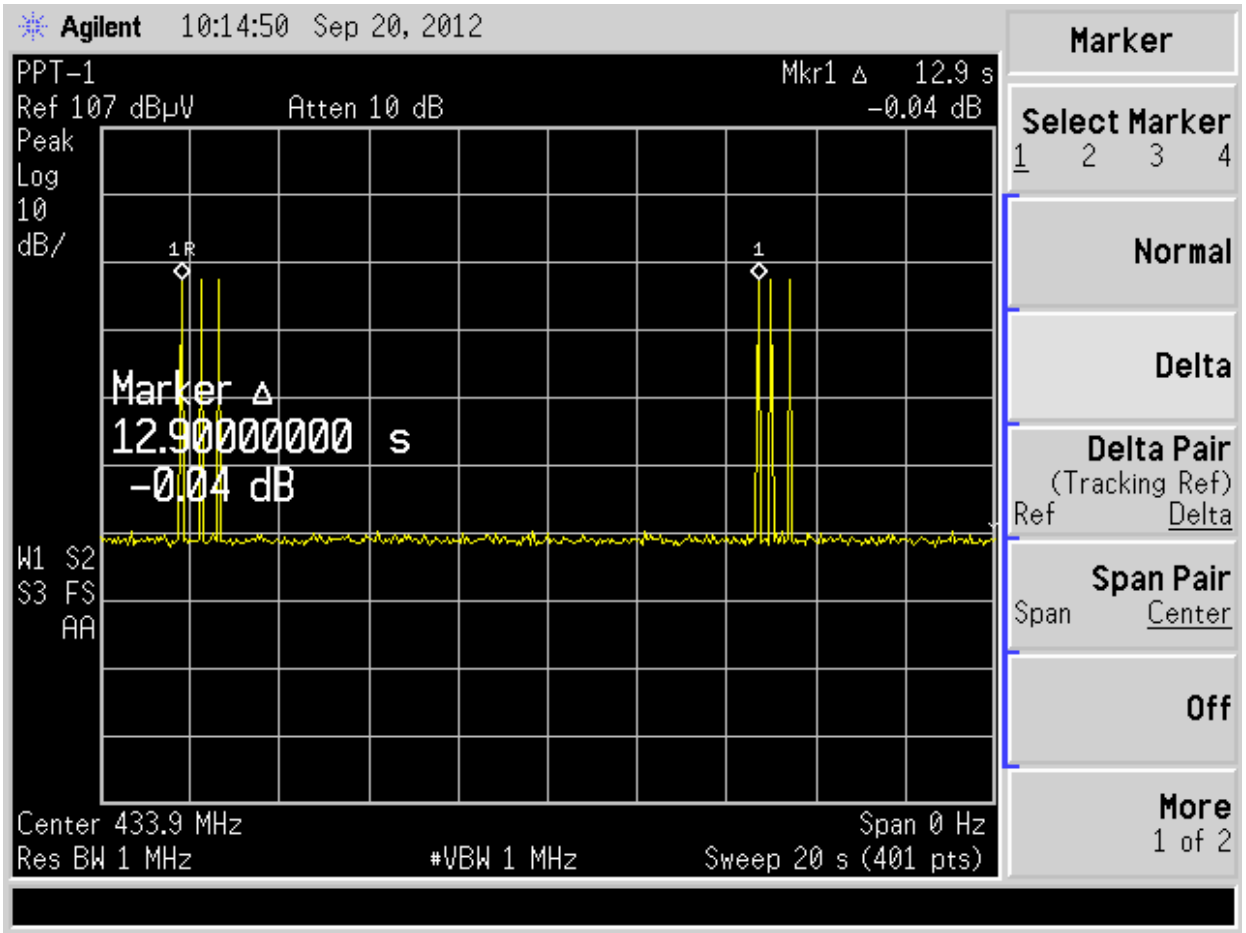
X Pass Fail N/A

Rule Part No.	Description of Rule	Yes	No	N/A
Pt 15.231(a)	Continuous transmission		X	
Pt 15.231(a)	Control Signals		X	
Pt 15.231(a)	Data transmission with control signal	X		
Pt 15.231(a)(1)	Manually operated		X	
	Automatically deactivate within 5 seconds of being released			X
15.231(a)(2)	Automatically operated	X		
	Deactivate within 5 seconds after activation		X	

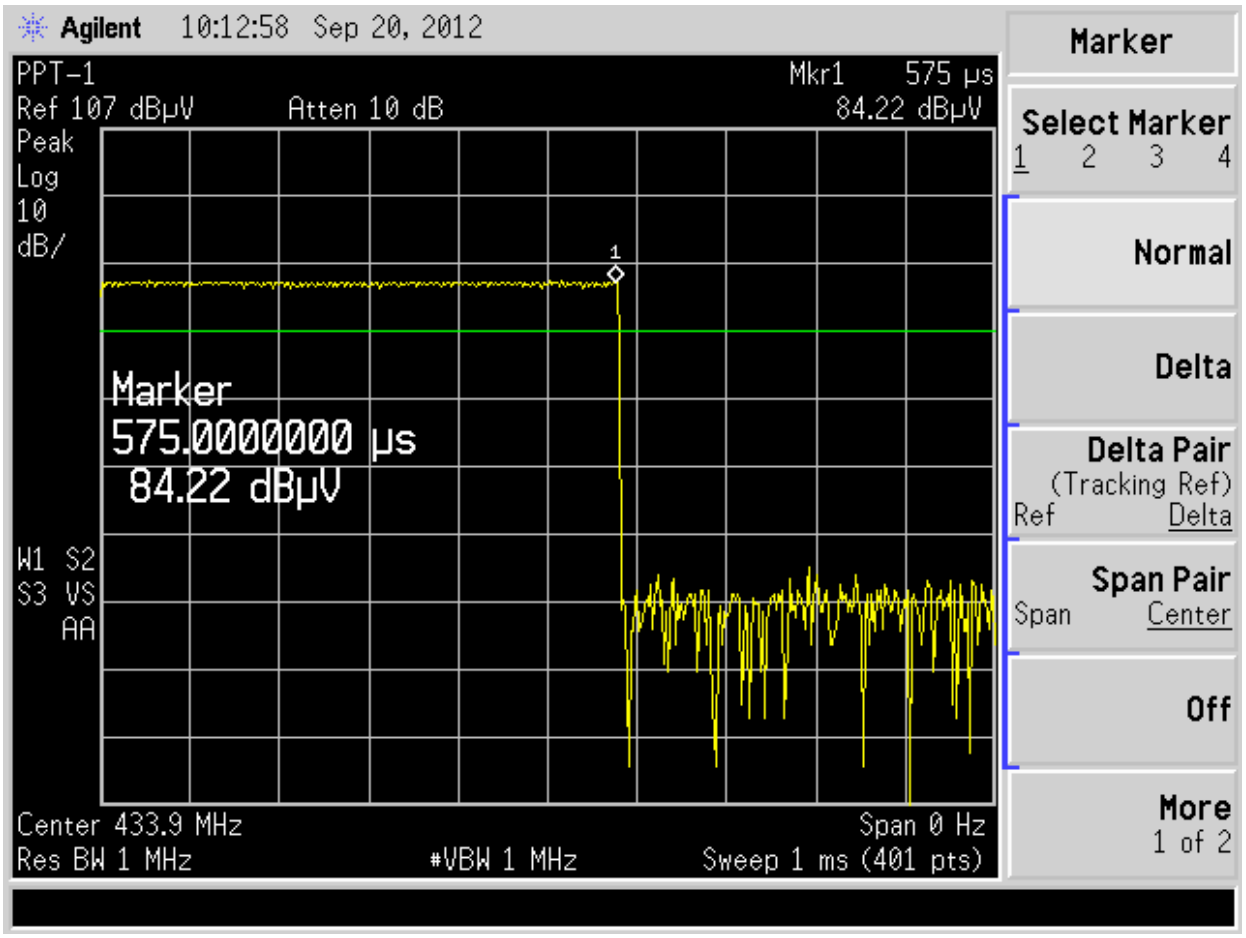
Pt 15.231(a)(3)	Periodic transmission at regular predetermined intervals	X*		
	Polling or supervision transmission, including data, to determine system integrity or transmitters used in security or safety applications requires no total duration of transmission not exceeding 2s/hr.	X		
Pt 15.231(a)(4)	Operation involving fire, security, or safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.		X	

*Tag transmits one 575µs pulse every 12.9 sec..

- **Measured result of the Automatic Turned-on and off time.**



- **Measured result of the period for Automatic Turned-on time.**



Field Strength of Fundamental – Intentional Radiator

Regulation	FCC15.231:2010
Intentional Radiating Frequency	433.92MHz
Detecting Method	Quasi Peak Detector
IF Bandwidth	120kHz
Temperature	22.0 to 22.3 °C
Relative Humidity	53.0 to 54.0 %
Barometric Pressure:	101.5 kPa
Test Date	Sep. 28, 2012
Sample Number	1042398
Calibrated Test Equipment (ID)	266, 272, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	Internal battery
Tested By	Jeremy LEE

Use the barometric pressure reported at: http://www.theweathernetwork.com/weather/cabc0248

Test Limits

FCC 15.231:
(b) In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66–40.70.	2,250	225
70–130	1,250	125
130–174	[1] 1,250 to 3,750	[1] 125 to 375
174–260	3,750	375
260–470	[1] 3,750 to 12,500	[1] 375 to 1,250
Above 470	12,500	1,250

[1] Linear interpolations.

(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.
(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in § 15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of § 15.205 shall be demonstrated using the measurement instrumentation specified in that section.

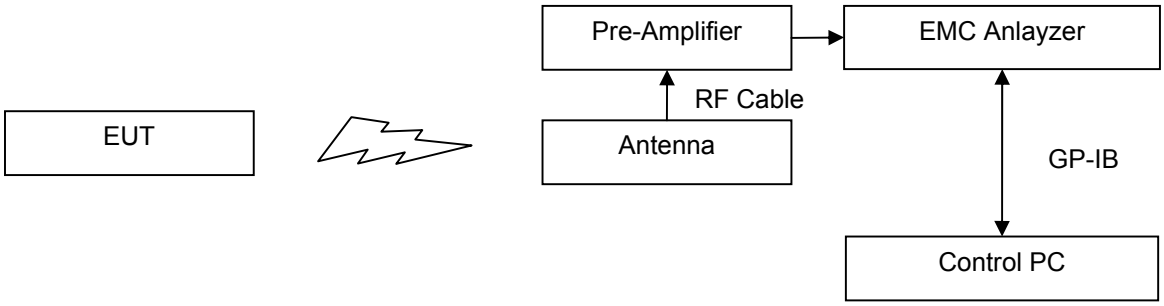
Test Setup

The test was performed in accordance with **FCC 15.31, 15.33, 15.35 and ANSI C63.10, 2009.**

The test setup for Field Strength of Fundamental was shown in Figure - 1.

a) The EUT was placed on a wooden table, and it was put on the turning ground plate.
b) The EUT was set up on 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter.
c) The EUT was continually on its RF Transmitter. It was modified to transmit in 1000ms intervals for this testing.
d) It was measured with a receiver - Spectrum analyzer, was software controlled.
e) The test was preformed three different orthogonal planes, X, Y and Z, the photos were attached in Appendix C.

Setup Block Diagram



Test Setup in Chamber

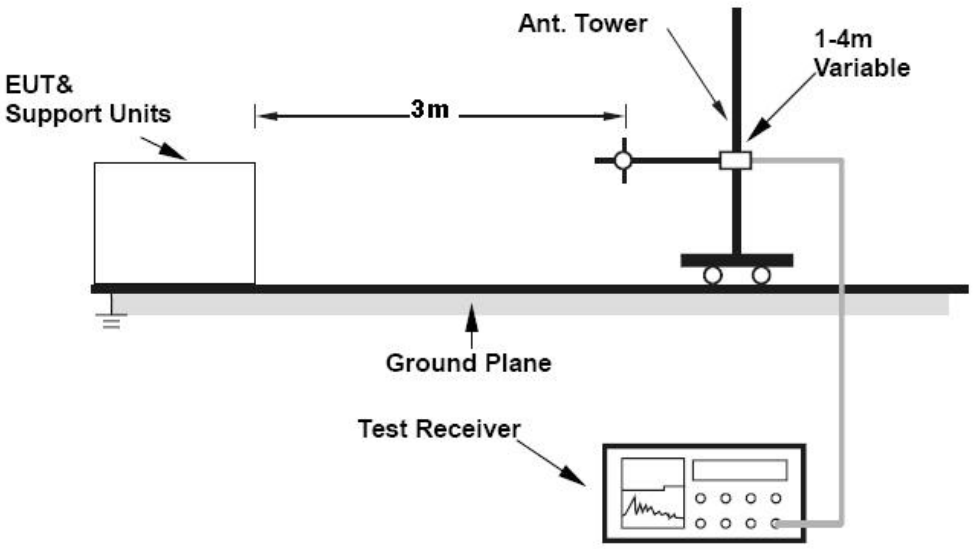


Figure – 1 Test setup for Radiated emissions in Chamber

Test Results:

Measured level (dBuV/m) = Quasi-Peak detected level (dBuV) + Cable Loss(dB)
+ Antenna Factor (dB/m) - Pre-amplifier's Gain (dB)

X Pass Fail N/A

Fundamental Frequency (MHz)	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Orthogonal Plane	Pol.	Results
433.92	80.14	65.13	15.01	X	H	PASS
		66.22	13.92		V	PASS
		69.09	11.05	Y	H	PASS
		63.33	16.81		V	PASS
		70.75	9.39	Z	H	PASS
		63.04	17.10		V	PASS

- Table of Field Strength of Fundamental; Quasi Peak Detecting, Antenna was used a JB1, Orthogonal X

LabTest Certification Inc.
Intentional Radiated Emission_Fundamental
FCC15.231, 205 & 209, 3 meters, X-Direction_Horizontal

Operator: Jeremy Lee
02:14:37 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
433.9803000 MHz	78.15	16.98	-30.00	65.13	80.15	15.02	229.8	100.5	H

Project # : 10979, Sample #: 1042398
Temp.: 22.3 C, Hum.: 53.0 %
Barometer Pres.:101.5 kPa

LabTest Certification Inc.
Intentional Radiated Emission_Fundamental
FCC15.231, 205 & 209, 3 meters, X-Direction_Vertical

Operator: Jeremy Lee
02:14:37 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
433.8948000 MHz	79.75	16.48	-30.00	66.22	80.14	13.92	60.0	126.1	V

Project # : 10979, Sample #: 1042398
Temp.: 22.3 C, Hum.: 53.0 %
Barometer Pres.:101.5 kPa

- Table of Field Strength of Fundamental; Quasi Peak Detecting, Antenna was used a JB1 , Orthogonal Y

Lablest Certification Inc.
Intentional Radiated Emission_Fundamental
FCC15.231, 205 & 209, 3 meters, Y-Direction_Horizontal

Operator: Jeremy Lee
02:06:51 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
433.9143000 MHz	82.12	16.98	-30.00	69.09	80.14	11.05	49.5	101.2	H

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 54.0 %
Barometer Pres.:101.5 kPa

LabTest Certification Inc.
Intentional Radiated Emission_Fundamental
FCC15.231, 205 & 209, 3 meters, Y-Direction_Vertical

Operator: Jeremy Lee

02:06:51 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
433.8684000 MHz	76.86	16.48	-30.00	63.33	80.14	16.81	52.0	119.5	V

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 54.0 %
Barometer Pres.:101.5 kPa

- Table of Field Strength of Fundamental; Quasi Peak Detecting, Antenna was used a JB1 , Orthogonal Z

LabTest Certification Inc.
Intentional Radiated Emission_Fundamental
FCC15.231, 205 & 209, 3 meters, Z-Direction_Horizontal

Operator: Jeremy Lee

01:50:37 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
433.9254000 MHz	83.78	16.98	-30.00	70.75	80.14	9.39	319.8	101.0	H

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 54.0 %
Barometer Pres.:101.5 kPa

LabTest Certification Inc.
Intentional Radiated Emission_Fundamental
FCC15.231, 205 & 209, 3 meters, Z-Direction_Vertical

Operator: Jeremy Lee

01:50:37 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
433.9434000 MHz	76.56	16.48	-30.00	63.04	80.14	17.11	220.0	118.5	V

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 54.0 %
Barometer Pres.:101.5 kPa

Field Strength of Spurious Emission

Regulation	FCC15.231: 2010
Intentional Radiating Frequency	433.92MHz
Detecting Method	Peak, Average and Quasi-Peak Detector
IF Bandwidth	1MHz and 120kHz
Temperature	21.8 to 22.2 °C
Relative Humidity	50.0 to 53.0 %
Barometric Pressure:	101.6 to 102.6 kPa
Test Date	Sep. 28 and Oct. 01, 2012
Sample Number	1042398
Calibrated Test Equipment (ID)	266, 227-3, 272, 273, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	Internal battery
Tested By	Jeremy LEE

Use the barometric pressure reported at: http://www.theweathernetwork.com/weather/cabc0248

Test Limits

FCC 15.231:
(b) In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66–40.70.	2,250	225
70–130	1,250	125
130–174	[1] 1,250 to 3,750	[1] 125 to 375
174–260	3,750	375
260–470	[1] 3,750 to 12,500	[1] 375 to 1,250
Above 470	12,500	1,250

[1] Linear interpolations.

(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.
(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in § 15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of § 15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in § 15.209, whichever limit permits a higher field strength.

FCC 15.205:
(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
2 Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e), regardless of the field strength limits specified elsewhere in this Subpart, the provisions of this Section apply to emissions from any intentional radiator.

Test Setup

The test was performed in accordance with **FCC 15.31, 15.33, 15.35, 15.205, 15.209:2010 and ANSI C63.10: 2009.**

The test setup for Field Strength of Fundamental is shown in Figure - 1.

a) The EUT was placed on a wooden table, and it was put on the turning ground plate.
b) The EUT was set up on 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter.
c) The EUT was continually on its RF Transmitter. It was modified to transmit in 1000ms intervals for this testing.
d) It was measured with a receiver - spectrum analyzer, was software controlled.
e) The test was preformed three different orthogonal planes, X, Y and Z, the photos were attached in Appendix C.

Test Results:

Emission level (dBuV/m) = Average detected level (dBuV) + Cable Loss(dB)
+ Antenna Factor (dB/m) - Pre-amplifier's Gain (dB)

X Pass Fail N/A

Harmonic Frequency (MHz)	Detector	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Orthogonal Plane	Pol.	Results
867.84	Quasi-Peak	61.94	39.13	22.81	Y	H	PASS
1301.76	Peak	74.00	57.46	16.54	X	V	PASS
	Averaging	54.00	30.98	23.02	X	H	PASS
1735.68	Peak	81.94	53.36	28.58	Z	H	PASS
	Averaging	61.94	33.79	28.15	Y	H	PASS

2169.60	Peak	81.94	66.25	15.69	Y	H	PASS
	Averaging	61.94	37.14	24.80	Z	V	PASS
2603.52	Peak	81.94	58.08	23.86	Z	V	PASS
	Averaging	61.94	38.24	23.70	Z	V	PASS
3037.44	Peak	81.94	77.22	4.72	Z	V	PASS
	Averaging	61.94	39.96	21.98	X	V	PASS
3471.36	Peak	81.94	70.34	11.60	Z	H	PASS
	Averaging	61.94	42.25	19.69	Z	V	PASS
3905.28	Peak	74.00	73.34	0.66	Y	V	PASS
	Averaging	54.00	46.43	7.57	Y	H	PASS
4339.20	Peak	74.00	66.81	7.19	Y	H	PASS
	Averaging	54.00	42.73	11.27	X	H	PASS

- Field Strengt of Spurious Emission; 2nd harmonic, Quasi-peak Detecting, Antenna was used JB1, Orthogonal X

LabTest Certification Inc.
Intentional Radiated Emission_2nd Harmonic
FCC15.231, 205 & 209, 3 meters, X-Direction_Horizontal

Operator: Jeremy Lee

03:23:43 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
867.7425000 MHz	39.79	22.50	-28.50	33.79	61.94	28.15	130.0	103.0	H

Project # : 10979, Sample #: 1042398
Temp.: 22.2 C, Hum.: 53.0 %
Barometer Pres.:101.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission_2nd Harmonic
FCC15.231, 205 & 209, 3 meters, X-Direction_Vertical

Operator: Jeremy Lee

03:23:43 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
867.7742000 MHz	39.53	21.80	-28.50	32.83	61.94	29.11	270.0	129.8	V

Project # : 10979, Sample #: 1042398
Temp.: 22.2 C, Hum.: 53.0 %
Barometer Pres.:101.6 kPa

- Field Strengt of Spurious Emission; 2nd harmonic, Quasi-peak Detecting, Antenna was used JB1 , Orthogonal Y

LabTest Certification Inc.
Intentional Radiated Emission_2nd Harmonic
FCC15.231, 205 & 209, 3 meters, Y-Direction_Horizontal

Operator: Jeremy Lee

03:06:41 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
868.0846000 MHz	45.13	22.50	-28.50	39.13	61.94	22.81	60.0	104.8	H

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission_2nd Harmonic
FCC15.231, 205 & 209, 3 meters, Y-Direction_Vertical

Operator: Jeremy Lee

03:06:41 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
867.7367000 MHz	38.01	21.80	-28.50	31.31	61.94	30.63	270.0	140.1	V

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

- Field Strengt of Spurious Emission; 2nd harmonic, Quasi-peak Detecting, Antenna was used JB1, Orthogonal Z

LabTest Certification Inc.
Intentional Radiated Emission_2nd Harmonic
FCC15.231, 205 & 209, 3 meters, Z-Direction_Horizontal

Operator: Jeremy Lee

02:53:28 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
868.0113000 MHz	44.67	22.50	-28.50	38.67	61.94	23.27	300.0	108.3	H

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission_2nd Harmonic
FCC15.231, 205 & 209, 3 meters, Z-Direction_Vertical

Operator: Jeremy Lee

02:53:28 PM, Friday, September 28, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
867.7448000 MHz	36.38	21.80	-28.50	29.68	61.94	32.26	90.3	130.1	V

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Peak Detecting, Antenna was used SAS-571, Orthogonal X

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_ X-Direction_Horizontal

Operator: Jeremy Lee

03:56:18 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3025675 GHz	52.82	24.51	-25.16	52.17	74.00	21.83	105.0	100.3	H
1.7356225 GHz	44.42	25.67	-22.91	47.19	81.94	34.75	73.8	100.3	H
2.1690975 GHz	56.07	27.64	-21.38	62.33	81.94	19.61	9.8	109.9	H
2.6042175 GHz	47.34	29.54	-21.87	55.02	81.94	26.92	150.0	109.9	H
3.0368475 GHz	56.45	30.50	-20.76	66.19	81.94	15.75	201.8	109.7	H
3.4715225 GHz	51.98	30.33	-18.60	63.71	81.94	18.23	99.8	104.7	H
3.9059225 GHz	51.94	31.60	-14.71	68.83	74.00	5.17	100.0	103.9	H
4.3396250 GHz	49.93	31.47	-17.82	63.58	74.00	10.42	359.5	103.9	H

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_ X-Direction_Vertical

Operator: Jeremy Lee

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

03:56:18 PM, Monday, October 01, 2012

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3014125 GHz	58.09	24.54	-25.17	57.46	74.00	16.54	173.5	106.1	V
1.7357650 GHz	47.54	25.73	-22.90	50.37	81.94	31.57	42.0	100.3	V
2.1700300 GHz	57.37	27.72	-21.37	63.72	81.94	18.22	134.0	169.4	V
2.6034225 GHz	46.12	29.59	-21.87	53.84	81.94	28.10	189.8	151.3	V
3.0371500 GHz	59.39	30.65	-20.76	69.28	81.94	12.66	47.3	119.8	V
3.4717625 GHz	54.82	30.42	-18.59	66.64	81.94	15.30	90.0	157.5	V
3.9059205 GHz	56.28	31.63	-14.71	73.20	74.00	0.80	250.5	106.9	V
4.3393300 GHz	49.30	31.52	-17.82	63.00	74.00	11.00	149.0	217.8	V

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Average Detecting, Antenna was used SAS-571, Orthogonal X

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meterseters, Averaging Detector_ X-Direction_Horizontal

Operator: Jeremy Lee

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

03:56:18 PM, Monday, October 01, 2012

Frequency	Measured_AVG	AntFactor	PathLoss	Emission_AVG	Limit_AVG	Margin_AVG	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3025675 GHz	31.63	24.51	-25.16	30.98	54.00	23.02	105.0	100.3	H
1.7356225 GHz	31.01	25.67	-22.91	33.78	61.94	28.16	73.8	100.3	H
2.1690975 GHz	30.64	27.64	-21.38	36.90	61.94	25.04	9.8	109.9	H
2.6042175 GHz	30.36	29.54	-21.87	38.04	61.94	23.90	150.0	109.9	H
3.0368475 GHz	30.15	30.50	-20.76	39.89	61.94	22.05	201.8	109.7	H
3.4715225 GHz	30.49	30.33	-18.60	42.22	61.94	19.72	99.8	104.7	H
3.9059225 GHz	29.47	31.60	-14.71	46.36	54.00	7.64	100.0	103.9	H
4.3396250 GHz	29.08	31.47	-17.82	42.73	54.00	11.27	359.5	103.9	H

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Averaging Detector_ X-Direction_Vertical

Operator: Jeremy Lee

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

03:56:18 PM, Monday, October 01, 2012

Frequency	Measured+AVG	AntFactor	PathLoss	Emission_AVG	Limit_AVG	Margin_AVG	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3014125 GHz	31.28	24.54	-25.17	30.65	54.00	23.35	173.5	106.1	V
1.7357650 GHz	30.88	25.73	-22.90	33.71	61.94	28.23	42.0	100.3	V
2.1700300 GHz	30.74	27.72	-21.37	37.09	61.94	24.85	134.0	169.4	V
2.6034225 GHz	30.24	29.59	-21.87	37.96	61.94	23.98	189.8	151.3	V
3.0371500 GHz	30.07	30.65	-20.76	39.96	61.94	21.98	47.3	119.8	V
3.4717625 GHz	30.25	30.42	-18.59	42.07	61.94	19.87	90.0	157.5	V
3.9059205 GHz	29.27	31.63	-14.71	46.19	54.00	7.81	250.5	106.9	V
4.3393300 GHz	28.83	31.52	-17.82	42.53	54.00	11.47	149.0	217.8	V

Project # : 10979, Sample #: 1042398
Temp.: 22.1 C, Hum.: 52.0 %
Barometer Pres.:101.6 kPa

- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Peak Detecting, Antenna was used SAS-571, Orthogonal Y

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_ Y-Direction_Horizontal

Operator: Jeremy Lee

03:10:09 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3019700 GHz	54.38	24.51	-25.17	53.73	74.00	20.27	359.5	120.0	H
1.7357725 GHz	50.06	25.68	-22.90	52.83	81.94	29.11	160.0	100.8	H
2.1692775 GHz	59.99	27.64	-21.38	66.25	81.94	15.69	190.0	100.9	H
2.6036675 GHz	48.15	29.55	-21.87	55.83	81.94	26.11	0.0	108.5	H
3.0375975 GHz	66.16	30.50	-20.76	75.91	81.94	6.03	189.8	151.2	H
3.4717425 GHz	51.67	30.32	-18.59	63.40	81.94	18.54	121.5	189.9	H
3.9055675 GHz	53.58	31.60	-14.71	70.47	74.00	3.53	210.0	121.2	H
4.3395775 GHz	53.16	31.47	-17.82	66.81	74.00	7.19	246.5	120.1	H

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 50.0 %
Barometer Pres.:102.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_ Y-Direction_Vertical

Operator: Jeremy Lee

03:10:09 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3021325 GHz	57.60	24.54	-25.17	56.98	74.00	17.02	179.8	110.1	V
1.7365750 GHz	47.25	25.74	-22.90	50.09	81.94	31.85	189.8	101.0	V
2.1698275 GHz	54.05	27.72	-21.37	60.40	81.94	21.54	194.0	100.5	V
2.6036625 GHz	45.35	29.59	-21.87	53.07	81.94	28.87	190.0	146.2	V
3.0377725 GHz	42.86	30.66	-20.76	52.76	81.94	29.18	104.3	220.7	V
3.4711350 GHz	43.58	30.42	-18.60	55.40	81.94	26.54	51.5	210.1	V
3.9048450 GHz	56.42	31.63	-14.71	73.34	74.00	0.66	14.8	181.8	V
4.3390900 GHz	49.82	31.52	-17.82	63.52	74.00	10.48	90.0	189.9	V

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 50.0 %
Barometer Pres.:102.6 kPa

- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Average Detecting, Antenna was used SAS-571, Orthogonal Y

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Averaging Detector_Y-Direction_Horizontal

Operator: Jeremy Lee

03:10:09 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_AVG	AntFactor	PathLoss	Emission_AVG	Limit_AVG	Margin_AVG	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3019700 GHz	31.51	24.51	-25.17	30.86	54.00	23.14	359.5	120.0	H
1.7357725 GHz	31.02	25.68	-22.90	33.79	61.94	28.15	160.0	100.8	H
2.1692775 GHz	30.73	27.64	-21.38	36.99	61.94	24.95	190.0	100.9	H
2.6036675 GHz	30.43	29.55	-21.87	38.11	61.94	23.83	0.0	108.5	H
3.0375975 GHz	30.11	30.50	-20.76	39.86	61.94	22.08	189.8	151.2	H
3.4717425 GHz	30.38	30.32	-18.59	42.11	61.94	19.83	121.5	189.9	H
3.9055675 GHz	29.54	31.60	-14.71	46.43	54.00	7.57	210.0	121.2	H
4.3395775 GHz	28.99	31.47	-17.82	42.64	54.00	11.36	246.5	120.1	H

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 50.0 %
Barometer Pres.:102.6 kPa

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Averaging Detector_Y-Direction_Vertical

Operator: Jeremy Lee

03:10:09 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured+AVG	AntFactor	PathLoss	Emission_AVG	Limit_AVG	Margin_AVG	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3021325 GHz	31.41	24.54	-25.17	30.79	54.00	23.21	179.8	110.1	V
1.7365750 GHz	30.84	25.74	-22.90	33.68	61.94	28.26	189.8	101.0	V
2.1698275 GHz	30.63	27.72	-21.37	36.98	61.94	24.96	194.0	100.5	V
2.6036625 GHz	30.25	29.59	-21.87	37.97	61.94	23.97	190.0	146.2	V
3.0377725 GHz	30.06	30.66	-20.76	39.96	61.94	21.98	104.3	220.7	V
3.4711350 GHz	30.23	30.42	-18.60	42.05	61.94	19.89	51.5	210.1	V
3.9048450 GHz	29.15	31.63	-14.71	46.07	54.00	7.93	14.8	181.8	V
4.3390900 GHz	28.96	31.52	-17.82	42.66	54.00	11.34	90.0	189.9	V

Project # : 10979, Sample #: 1042398
Temp.: 22.0 C, Hum.: 50.0 %
Barometer Pres.:102.6 kPa

- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Peak Detecting, Antenna was used SAS-571, Orthogonal Z

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_ Z-Direction_Horizontal

Operator: Jeremy Lee

02:31:14 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3011575 GHz	44.02	24.51	-25.17	43.36	74.00	30.64	272.3	139.9	H
1.7355500 GHz	50.59	25.67	-22.91	53.36	81.94	28.58	172.5	101.9	H
2.1698175 GHz	43.68	27.64	-21.37	49.95	81.94	31.99	205.0	100.5	H
2.6039525 GHz	46.43	29.54	-21.87	54.11	81.94	27.83	80.3	100.5	H
3.0377075 GHz	65.94	30.51	-20.76	75.69	81.94	6.25	189.8	100.6	H
3.4716875 GHz	58.61	30.32	-18.59	70.34	81.94	11.60	160.0	106.2	H
3.9051075 GHz	55.68	31.60	-14.71	72.57	74.00	1.43	202.5	103.5	H
4.3395975 GHz	52.09	31.47	-17.82	65.74	74.00	8.26	155.3	102.2	H

Project # : 10979, Sample #: 1042398
Temp.: 21.8 C, Hum.: 50.0 %
Barometer Pres.:102.3 kPa

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_ Z-Direction_Vertical

Operator: Jeremy Lee

02:31:14 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3020225 GHz	44.55	24.54	-25.17	43.93	74.00	30.07	344.0	102.3	V
1.7357000 GHz	46.66	25.73	-22.90	49.49	81.94	32.45	190.0	101.9	V
2.1700900 GHz	53.71	27.72	-21.37	60.06	81.94	21.88	171.3	101.2	V
2.6037325 GHz	50.36	29.59	-21.87	58.08	81.94	23.86	182.8	147.3	V
3.0378175 GHz	67.32	30.66	-20.76	77.22	81.94	4.72	130.3	220.1	V
3.4714975 GHz	55.88	30.42	-18.60	67.70	81.94	14.24	207.0	179.3	V
3.9052425 GHz	55.36	31.63	-14.71	72.28	74.00	1.72	337.3	117.5	V
4.3389500 GHz	42.35	31.52	-17.82	56.05	74.00	17.95	205.3	161.7	V

Project # : 10979, Sample #: 1042398
Temp.: 21.8 C, Hum.: 50.0 %
Barometer Pres.:102.3 kPa

- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Average Detecting, Antenna was used SAS-571, Orthogonal Z

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Averaging Detector_Z-Direction_Horizontal

Operator: Jeremy Lee

02:31:14 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured_AVG	AntFactor	PathLoss	Emission_AVG	Limit_AVG	Margin_AVG	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3011575 GHz	31.35	24.51	-25.17	30.69	54.00	23.31	272.3	139.9	H
1.7355500 GHz	30.91	25.67	-22.91	33.68	61.94	28.26	172.5	101.9	H
2.1698175 GHz	30.75	27.64	-21.37	37.02	61.94	24.92	205.0	100.5	H
2.6039525 GHz	30.32	29.54	-21.87	38.00	61.94	23.94	80.3	100.5	H
3.0377075 GHz	30.14	30.51	-20.76	39.89	61.94	22.05	189.8	100.6	H
3.4716875 GHz	30.44	30.32	-18.59	42.17	61.94	19.77	160.0	106.2	H
3.9051075 GHz	29.36	31.60	-14.71	46.25	54.00	7.75	202.5	103.5	H
4.3395975 GHz	28.96	31.47	-17.82	42.61	54.00	11.39	155.3	102.2	H

Project # : 10979, Sample #: 1042398
Temp.: 21.8 C, Hum.: 50.0 %
Barometer Pres.:102.3 kPa

LabTest Certification Inc.
Intentional Radiated Emission-Other Harmonics
FCC15.231, 205 & 209, 3 meters, Averaging Detector_Z-Direction_Vertical

Operator: Jeremy Lee

02:31:14 PM, Monday, October 01, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency	Measured+AVG	AntFactor	PathLoss	Emission_AVG	Limit_AVG	Margin_AVG	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3020225 GHz	31.31	24.54	-25.17	30.69	54.00	23.31	344.0	102.3	V
1.7357000 GHz	30.88	25.73	-22.90	33.71	61.94	28.23	190.0	101.9	V
2.1700900 GHz	30.79	27.72	-21.37	37.14	61.94	24.80	171.3	101.2	V
2.6037325 GHz	30.52	29.59	-21.87	38.24	61.94	23.70	182.8	147.3	V
3.0378175 GHz	29.97	30.66	-20.76	39.87	61.94	22.07	130.3	220.1	V
3.4714975 GHz	30.43	30.42	-18.60	42.25	61.94	19.69	207.0	179.3	V
3.9052425 GHz	29.37	31.63	-14.71	46.29	54.00	7.71	337.3	117.5	V
4.3389500 GHz	28.83	31.52	-17.82	42.53	54.00	11.47	205.3	161.7	V

Project # : 10979, Sample #: 1042398
Temp.: 21.8 C, Hum.: 50.0 %
Barometer Pres.:102.3 kPa

Radiated Emission; Intentional Radiators

Regulation	FCC15.209:2010
Detecting Method	Peak and Quasi-Peak Detector
IF Bandwidth	120kHz
Temperature	19.7 to 25.3 °C
Relative Humidity	44.0 to 57.0 %
Barometric Pressure:	100.7 to 102.3 kPa
Test Date	Oct. 01, 02 and 15, 2012
Sample Number	1042398
Calibrated Test Equipment (ID)	241, 266, 272, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	Internal battery
Tested By	Jeremy LEE

Use the barometric pressure reported at: http://www.theweathernetwork.com/weather/cabc0248

Test Limits

FCC 15.209:
(a) 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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Test Results:

Emission level (dBuV/m) = Quasi-Peak detected level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m)

X Pass **Fail** **N/A**

Frequency (MHz)	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Orthogonal Plane	Pol.	Results
44.9052	40.46	7.06	33.40	Z	V	PASS
46.5570		3.61	36.85	Z	V	PASS
52.3581		2.19	38.27	Z	V	PASS

- Table of Intentional Radiated Emissions: 30 to 1,000MHz, Quasi-peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Vertical, Orthogonal Z

LabTest Certification Inc.
Intentional Radiated Emissions
FCC15.209, 3 meters, Vertical

Operator: Jeremy Lee

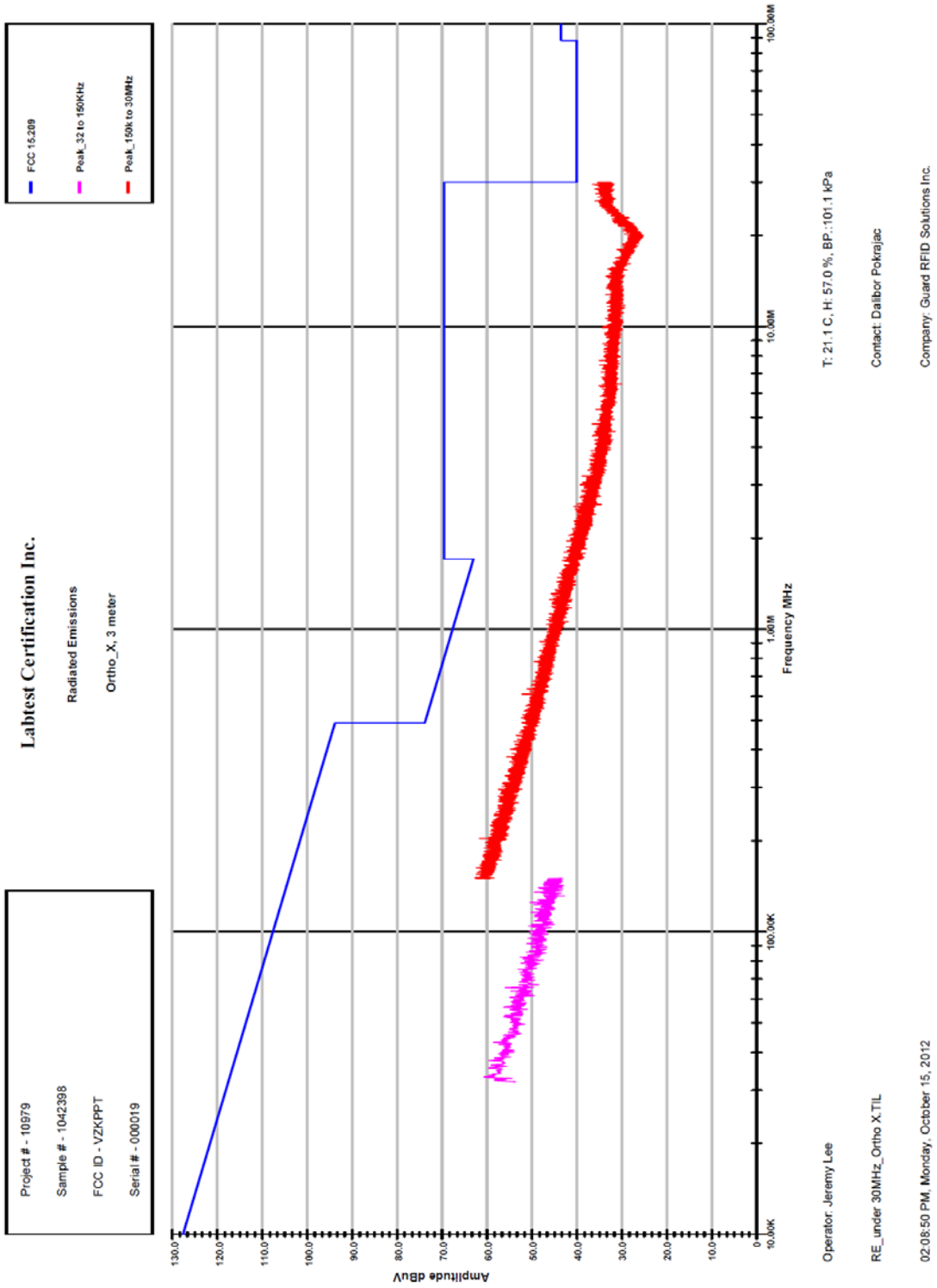
12:18:56 PM, Tuesday, October 02, 2012

Model #: PPT-1
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

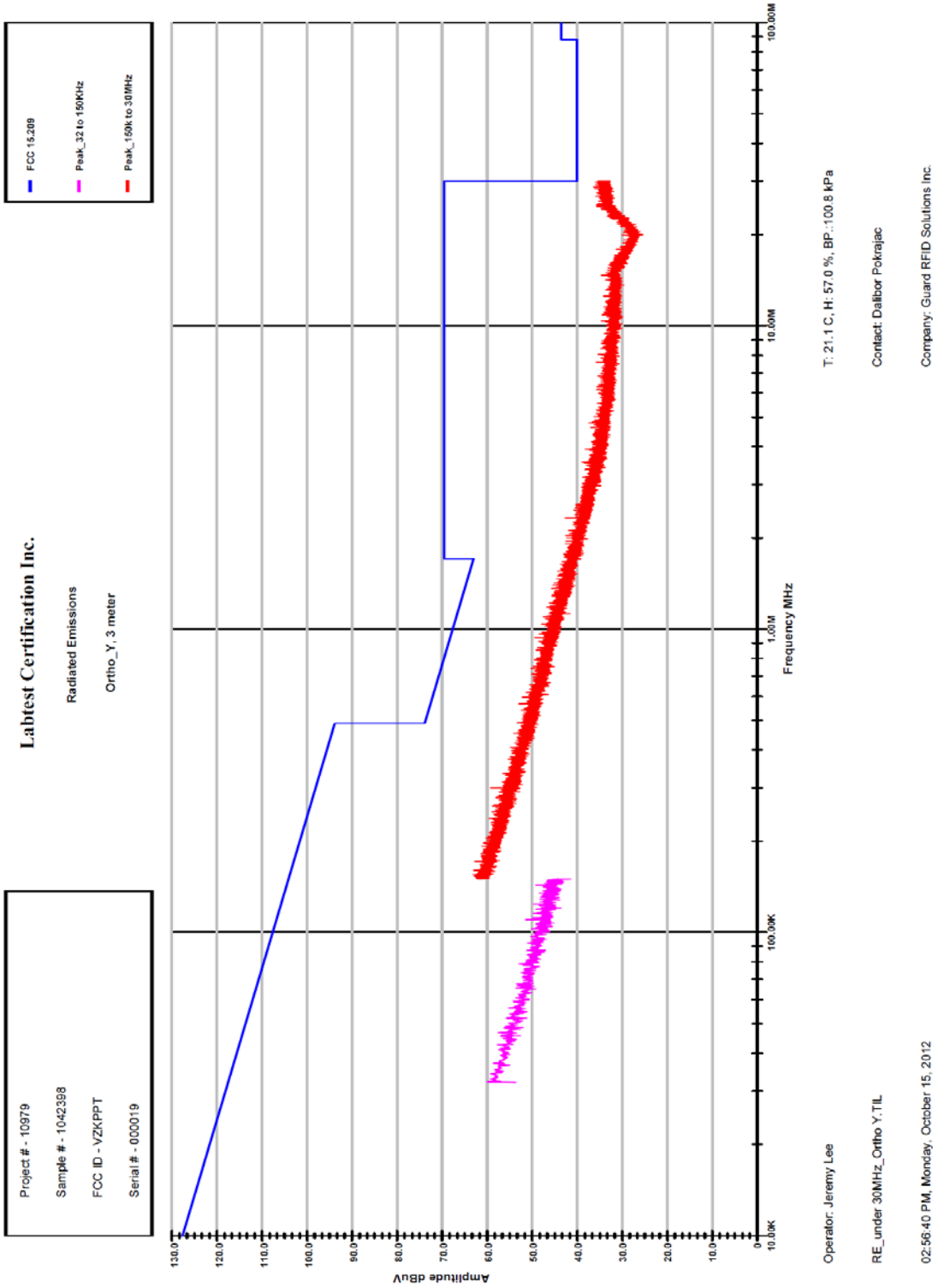
Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
44.9052 MHz	30.11	9.67	-32.72	7.06	40.46	33.40	86.8	101.1	V
46.5570 MHz	27.32	9.01	-32.71	3.61	40.46	36.85	305.5	101.7	V
52.3581 MHz	27.46	7.42	-32.69	2.19	40.46	38.27	350.8	100.6	V

Project # : 10979, Sample #: 1042398
Temp.: 19.8 C, Hum.: 44.0 %
Barometer Pres.: 102.3 kPa

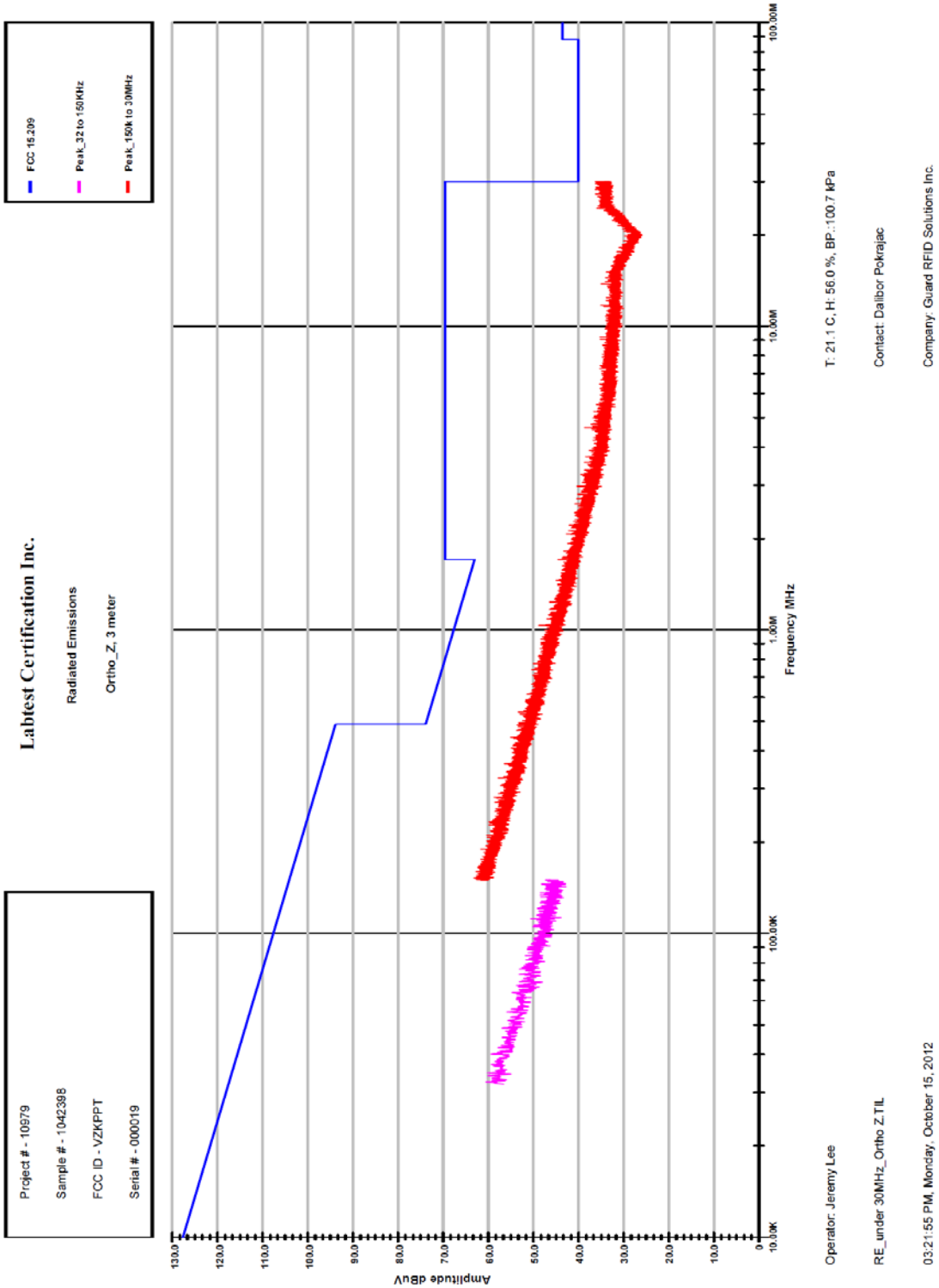
- Graph of Radiated Emissions: 32kHz to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130, Orthogonal X.



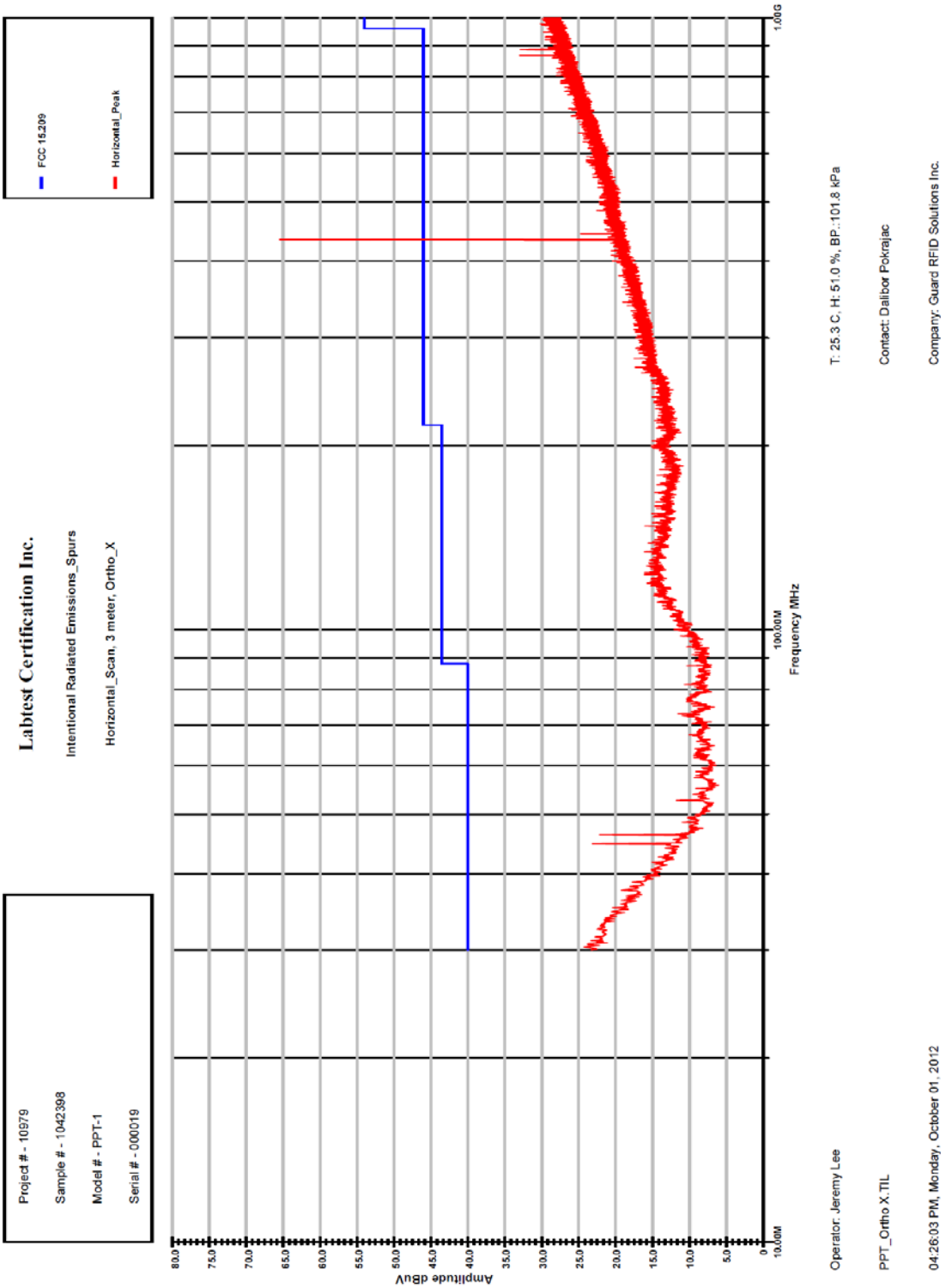
- Graph of Radiated Emissions: 32kHz to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130, Orthogonal Y.



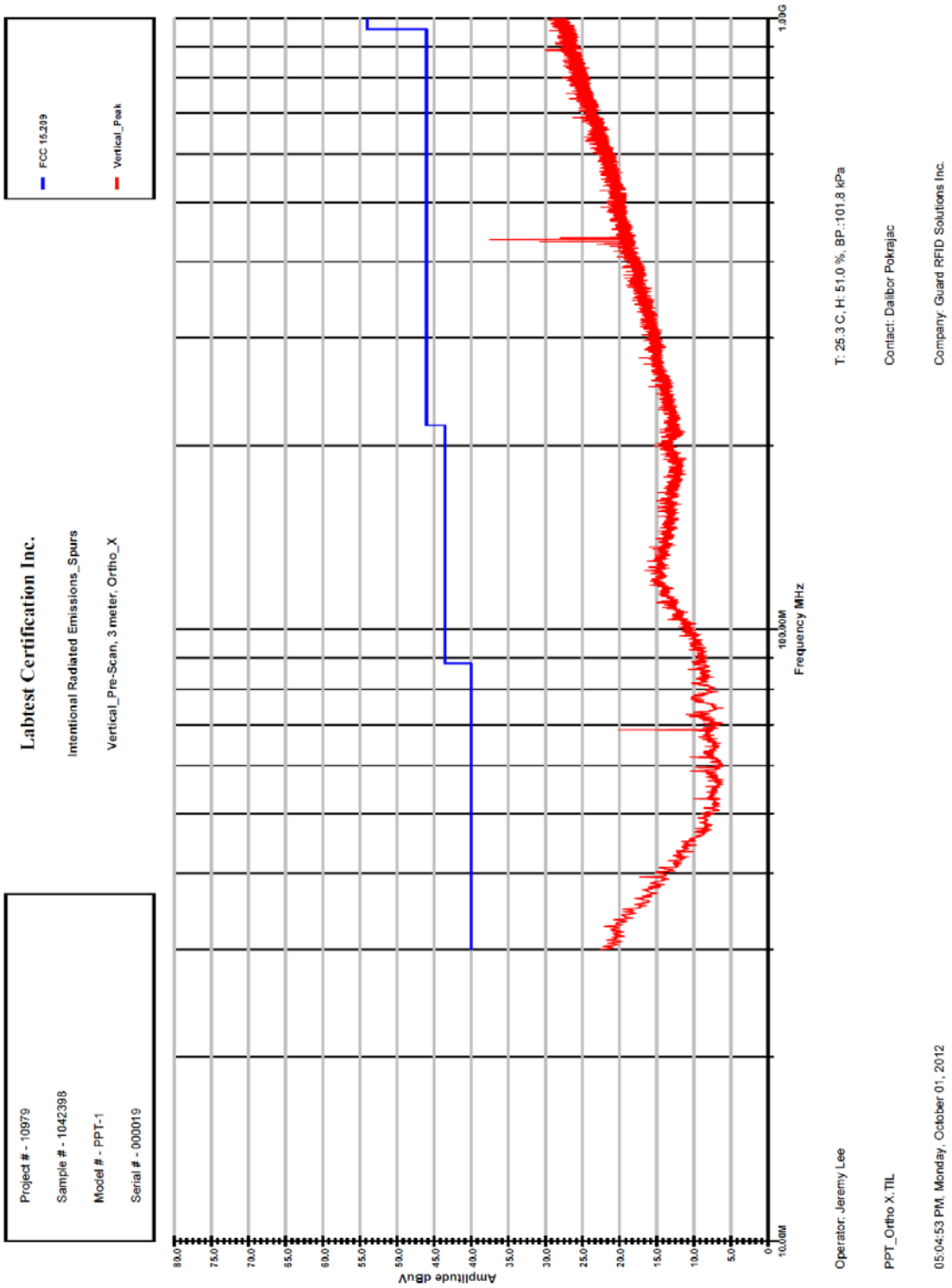
- Graph of Radiated Emissions: 32kHz to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130, Orthogonal Z.



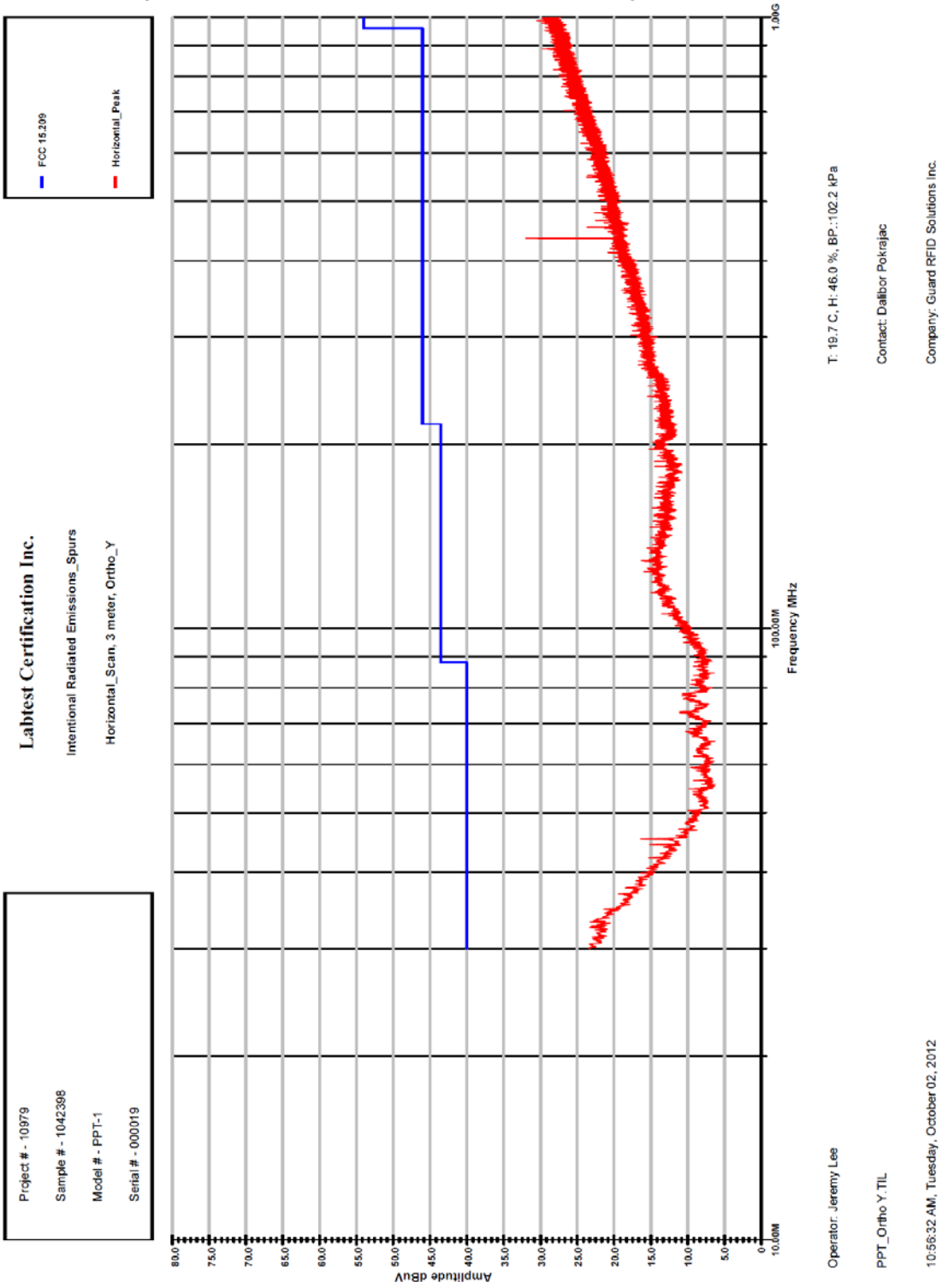
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Horizontal, Orthogonal X.



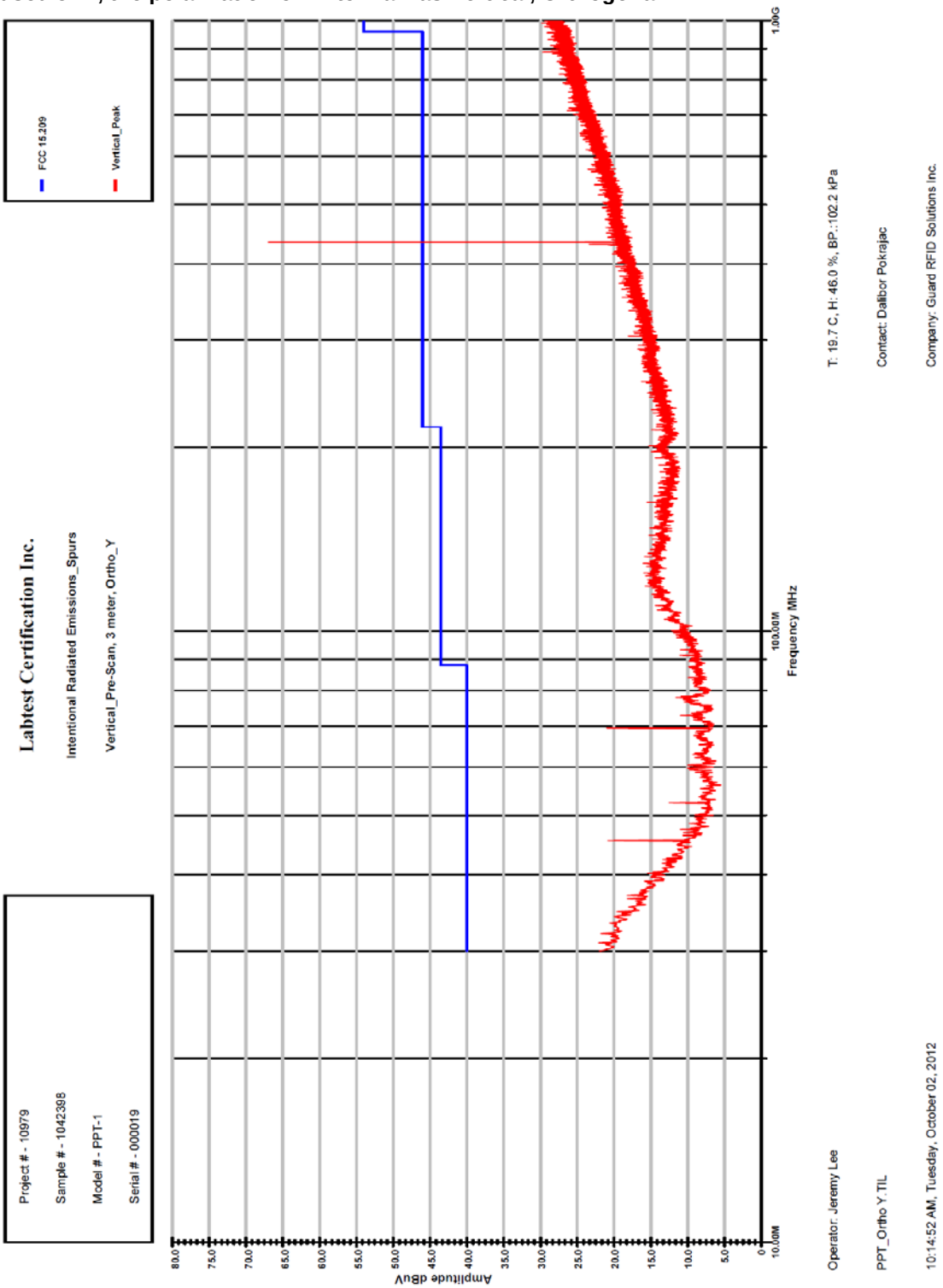
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Vertical, Orthogonal X.



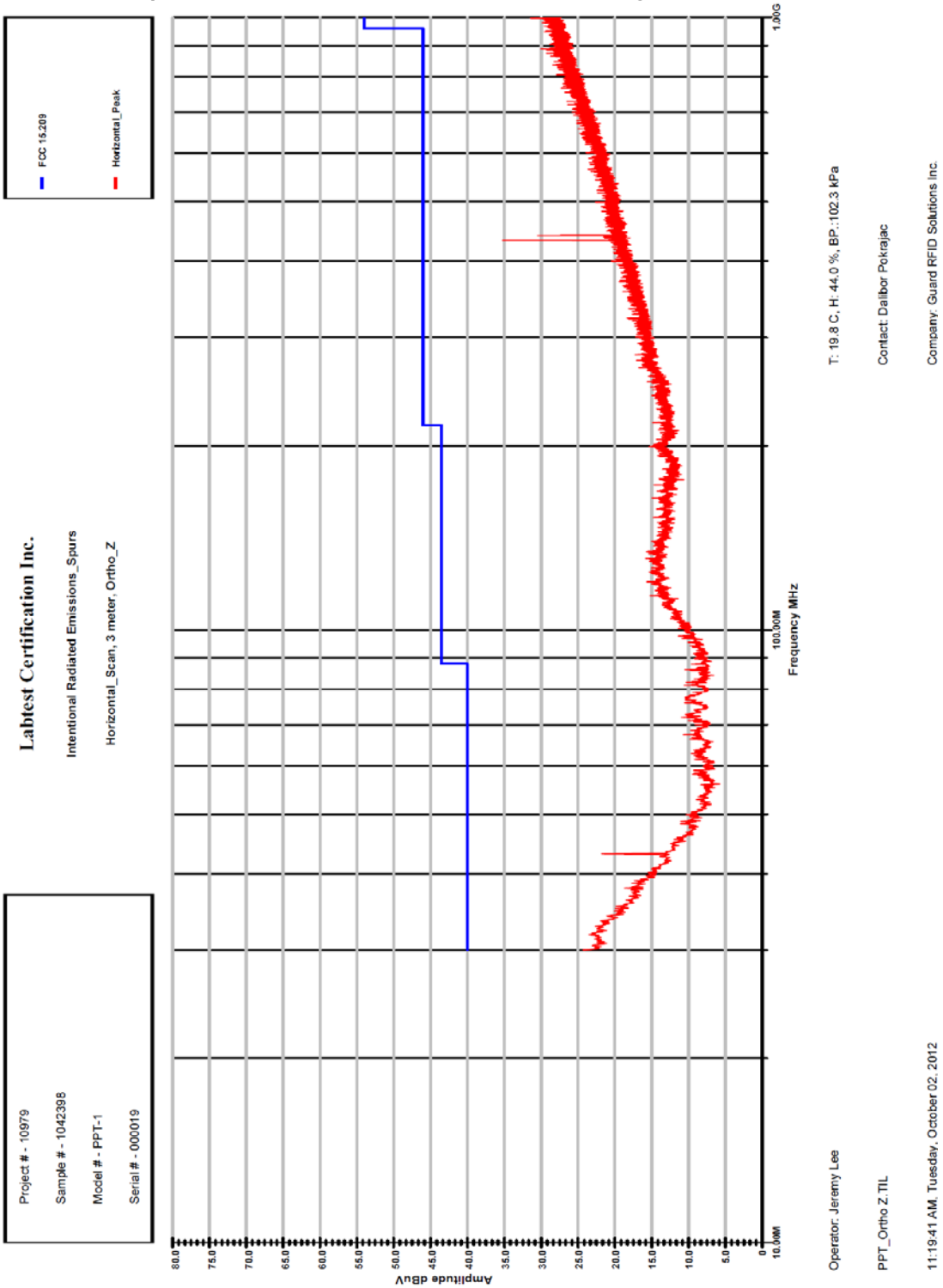
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Horizontal, Orthogonal Y.



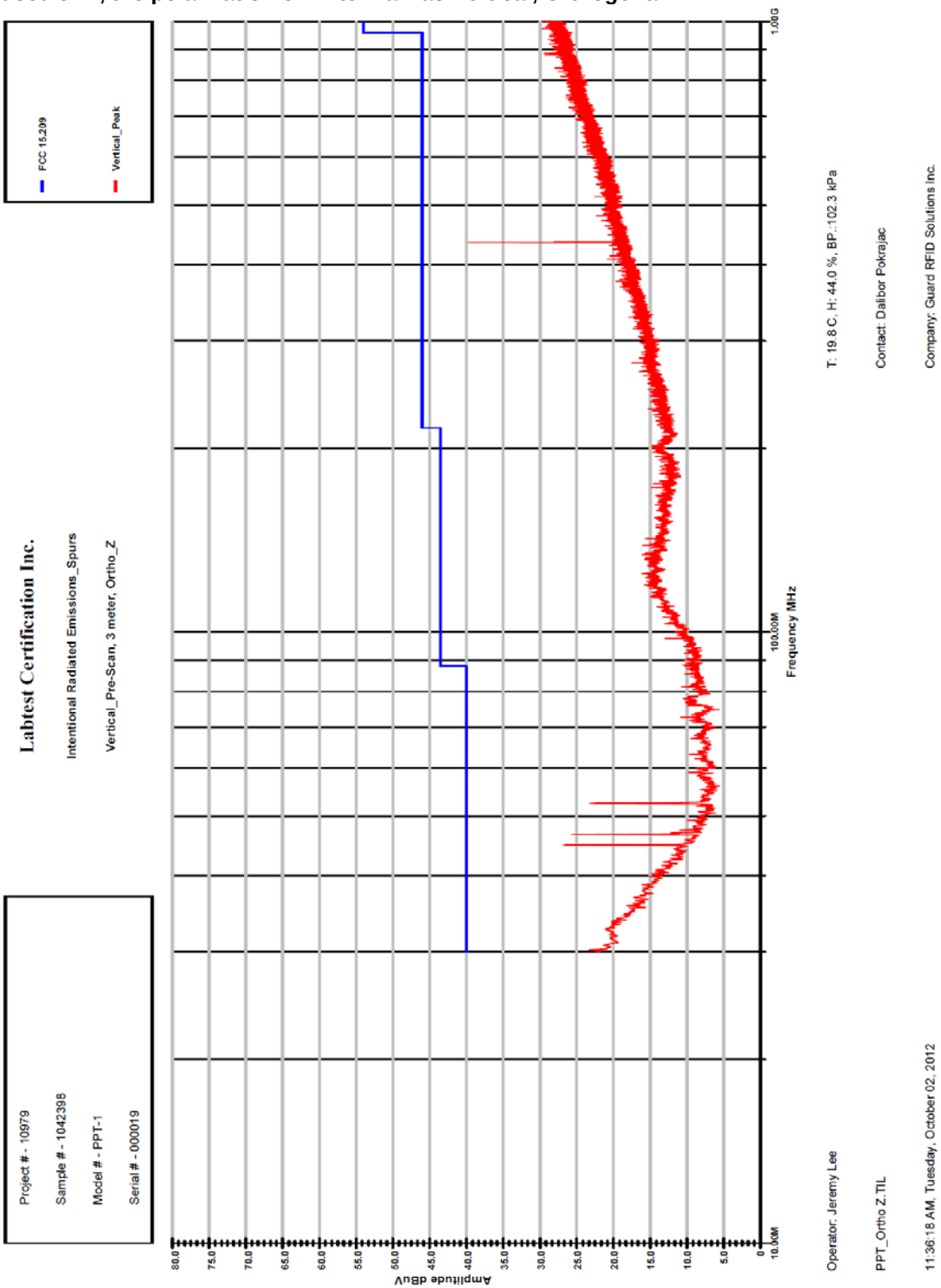
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Vertical, Orthogonal Y.



- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Horizontal, Orthogonal Z.



- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, the polarization of Antenna was Vertical, Orthogonal Z.



The Bandwidth of the emission

Regulation	FCC15.231: 2010
Temperature	22.2 °C
Relative Humidity	50.0 %
Barometric Pressure:	101.9 kPa
Test Date	Sep. 24, 2012
Sample Number	1042398
Calibrated Test Equipment (ID)	266, 272, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	Internal battery
Tested By	Jeremy LEE

Use the barometric pressure reported at: http://www.theweathernetwork.com/weather/cabc0248

Test Limits

FCC 15.231:
(c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20dB down from the modulated carrier.

Test Setup

The test was performed in accordance with **ANSI C63.10: 2009.**

The setup for Bandwidth of the emission measurements is shown in Figure - 1.

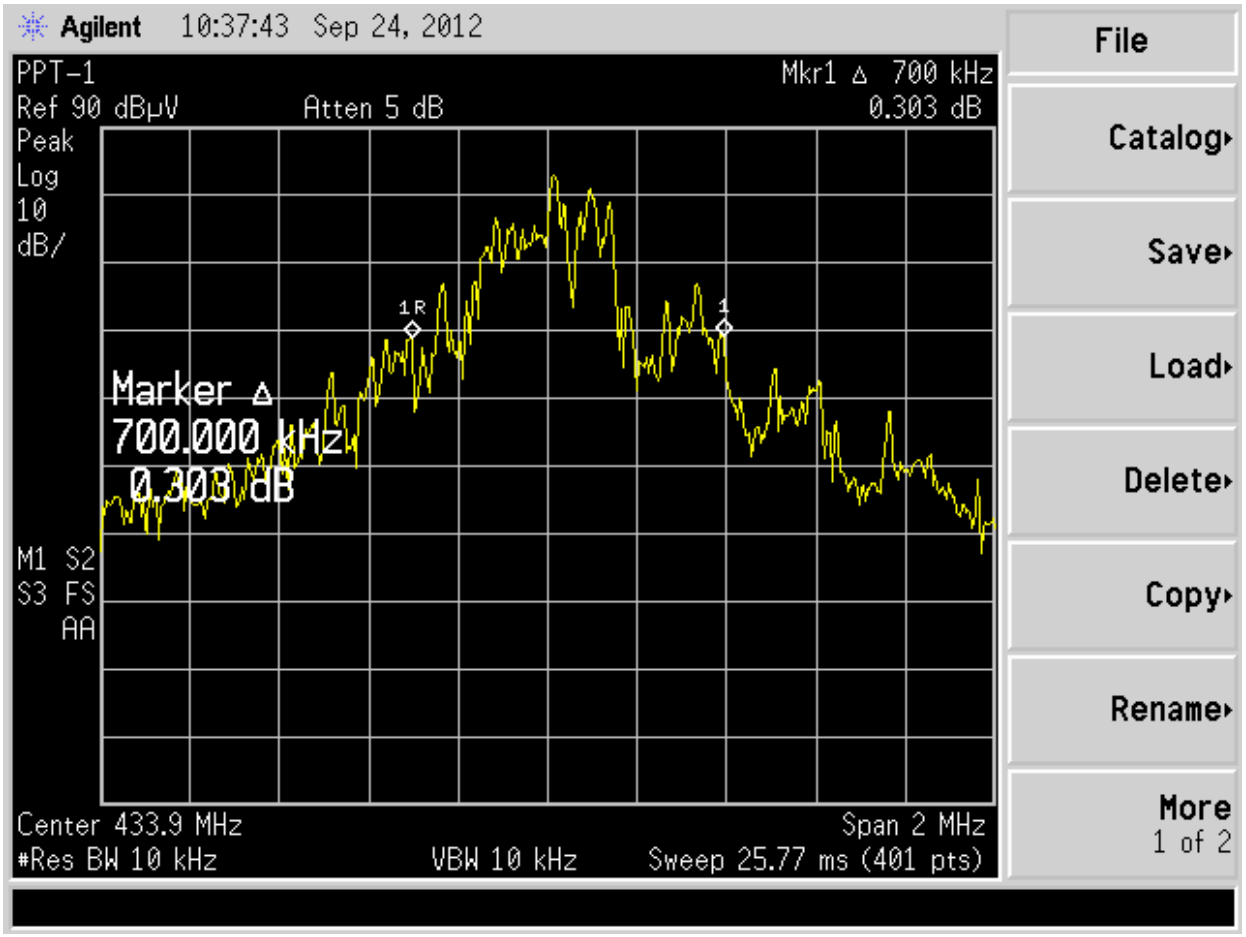
a) The EUT was placed on a wooden table.
b) It was measured with a receiver - spectrum analyzer.

Test Results:

X Pass **Fail** **N/A**

Center Frequency (MHz)	Limit(<0.25%, kHz)	Measured(kHz)	Results
433.92	1084.8	700	PASS

- **Measured result of the Bandwidth of the emission(20dBc method).**



APPENDIX A: Test equipments used for tests

ID No.	Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due Date	Calibration Certificate No:	Calibration Laboratory
124	Pre-Amplifier	Com-Power	PA-103	161118	N/A	N/A	N/A	N/A
227-3	Horn Antenna	A.H. Systems	SAS-571	936	12-Jul-2012	12-Jul-2013	2012062215	Liberty Labs
241	Active Loop Antenna	AL-130	Com-Power	17075	01-Nov-2011	01-Nov-2012	071075A	Com-Power
266	Humidity/ Temperature Logger	Onset HOBO	U14-001	2436907	19-Dec-2011	19-Dec-2012	327420	Wescan
272	EMC Analyzer	Agilent	E7405A	US41110263	11-May-2012	11-May-2013	1-4321111743-1	Agilent
273	RF Preamplifier	Agilent	8449B	3008A02264	28-Mar-2012	28-Mar-2013	2008120104207	Micro Precision
371	EMC Broadband Antenna	Sunol	JB1	A022012	07-Mar-2012	07-Mar-2013	2012022808	Liberty Labs
374	EMC Shielded Enclosure	USC	USC-26	111811	N/A	N/A	N/A	N/A

APPENDIX B: Photos

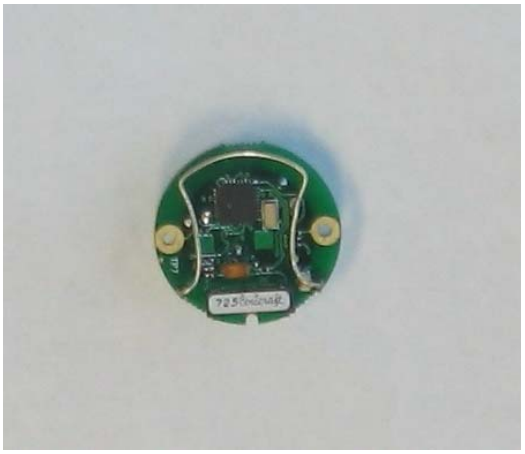
- EUT: Top View

- EUT: Bottom View

- EUT: Side View

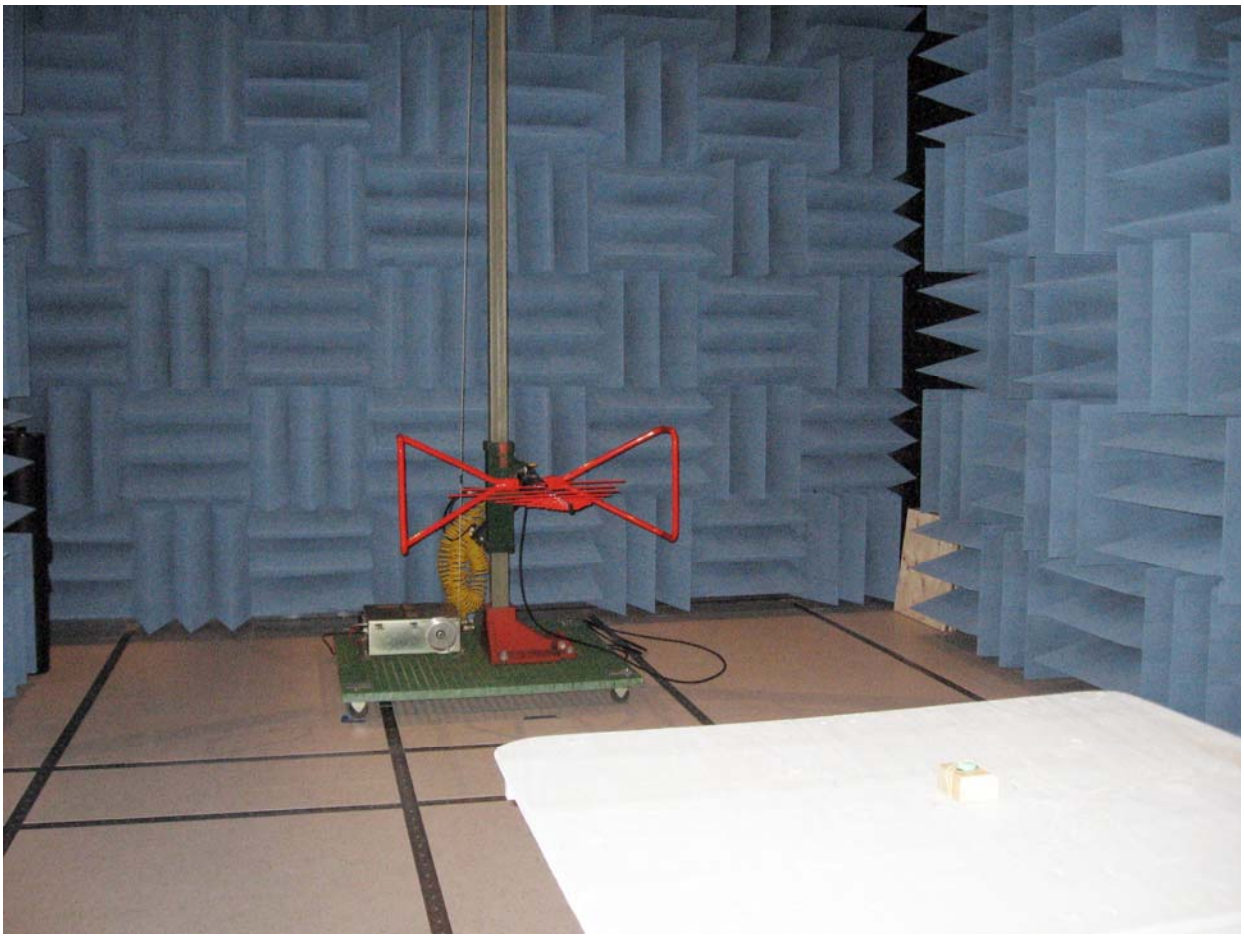
- EUT: Internal View _Top

- EUT: Internal View _Bottom



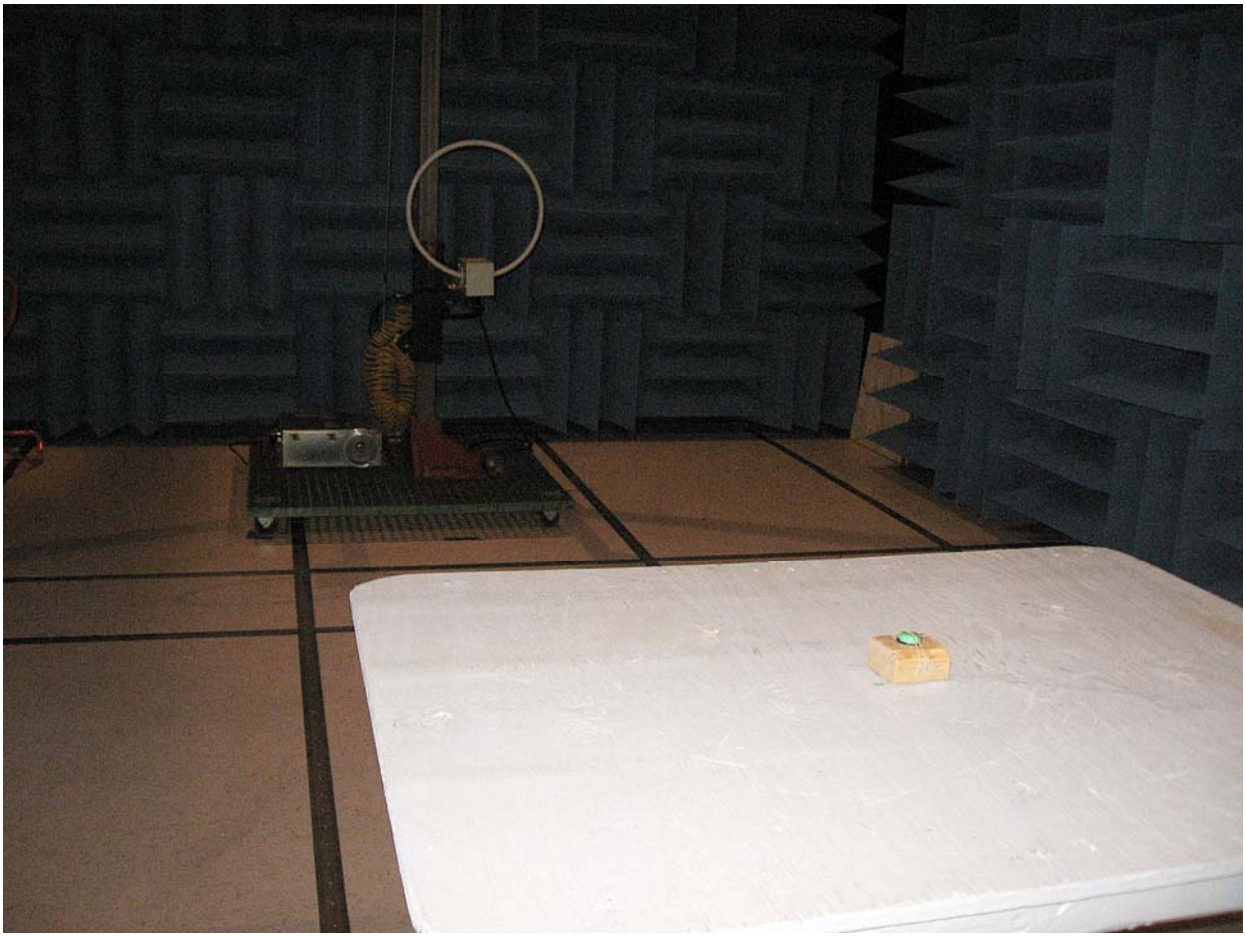
APPENDIX C: Test setup photos

- Test configuration for Field Strength measurement #1, with JB1 Antenna

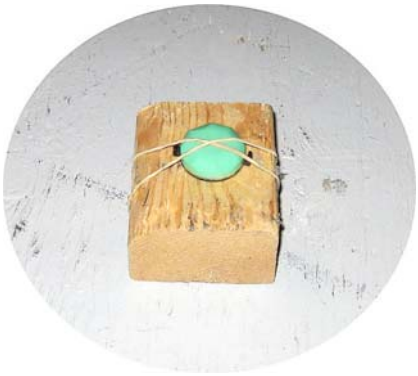


- Test configuration for Field Strength measurement #2, with SAS-571 Antenna

- Test configuration for Field Strength measurement #3, with AL-130 Antenna

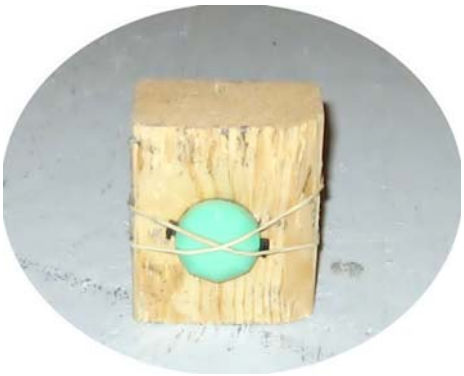


- Set-up for Orthogonal X



- Set-up for Orthogonal Y

- Set-up for Orthogonal Z



APPENDIX D: ISO 17025:2005 Accreditation Certificate

International Accreditation Service

CERTIFICATE OF ACCREDITATION

This is to signify that

LABTEST CERTIFICATION, INC.
3133-20800 WESTMINSTER HIGHWAY
RICHMOND, BRITISH COLUMBIA V6V 2W3
CANADA

Testing Laboratory TL-367
(Revised May 9, 2012)

has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with ANS/ISO/IEC Standard 17025:2005, *General requirements for the competence of testing and calibration laboratories*, and has been accredited, commencing May 5, 2011, for the test methods listed in the approved scope of accreditation.

Patrick V. McCullen
Vice President

C. P. Ramani, P.E.
President

ACCREDITED

(see attached scope of accreditation for fields of testing and accredited test methods)

Print Date: 05/23/2012

Page 1 of 4

This accreditation certificate supersedes any IAS accreditation certificate bearing an earlier date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See the IAS Accreditation Listings on the web at www.iasonline.org for current accreditation information, or contact IAS directly at (562) 364-8201.

11-04577

International Accreditation Service

SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
(Revised May 9, 2012)

LabTest Certification, Inc.
3133-20800 Westminster Hwy.
Richmond, British Columbia V6V 2W3
Canada

Kavinder Dhillon
QMS Manager
(604) 247-0444

FIELDS OF TESTING	ACCREDITED TEST METHODS
Gas and Plumbing	ANSI Standards Z21.1, Z21.15, Z21.19/1.6, Z21 50, Z21.57, Z21.58. Z21.97 and Z21.89/CGA1.18; CSA Standards B45 Series, B125, B140.0, B140.1, B140.3, B140.4, B140.8 and B140.9.3; CGA 1.16; AS 4551/Ag101, AS 4553/AG 103, AS 4563 and AS 2658; EN Standards 30-1-1, 30-1-2, 30-1-3, 30-1-4, 30-2-1 and 30-2-2
Electrical, EMC and Electro-mechanical	AS 4268.1, 4268.2; AS/NZS 1044, 1053, 2064, 3548, 3652, 4051, 4251.1, 4251.2, 62040.2; 60335.1; AS/NZS 60598.1, AS/NZS 60950.1, AS/NZS 60745.1, AS/NZS 60730.1; CISPR 11 / EN55011; CISPR 14 / EN55014, CISPR 15 / EN55015, CISPR 22 / EN55022, CISPR 24 / EN55024, EN 12895, 301 489, 300 386, 50083-2, 50090-2-2, 50091-2, 50121-1, 50121-2, 50121-3-1, 50121-3-2, 50121-4, 50121-5, 50130-4, 50263, 50270, 50293, 50295, 50370-1, 50370-2, 50428, 50470-1, 55012, 55013, 55103-1, 55103-1, 55103-2, 55103-2, 60204-31, 60439-1, 60669-2-1, 60669-2-1, 60669-2-2, 60669-2-3, 60730-1, 60730-2-11, 60730-2-13, 60730-2-14, 60730-2-18, 60730-2-5, 60730-2-6, 60730-2-7, 60730-2-8, 60730-2-9, 60870-2-1, 60945, 61204-3, 61326, 61347-1 Part 1, 61543, 61547, 61547, 617:2001, 618, 619, 620 and 62040-2; FCC Part 15, 18; GB 13837 (CISPR 13); GB 4943, 9254, 7000.1, 7000.10, 7000.11, 7000.12, 2313, 8898, 15143, 14045, 17743, 13836 and 13837; GB/T 9383; GB/T 17618; GB 17625.1, 2; GB/T 17626.2 and 17626.4 and 17626.5

May 5, 2011
Commencement Date

ACCREDITED

C. P. Ramani, P.E.
President

Print Date: 05/23/2012

Page 2 of 4

This accreditation certificate supersedes any IAS accreditation certificate bearing an earlier date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See the IAS Accreditation Listings on the web at www.iasonline.org for current accreditation information, or contact IAS directly at (562) 364-8201.

11-04680

International Accreditation Service

SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
(Revised May 9, 2012)

FIELDS OF TESTING	ACCREDITED TEST METHODS
Electrical, EMC and Electro-mechanical (cont)	GB/T 176262.6, 176262.8, 176262.11; GB 4343.1 (CISPR 14.1), 4343.2 (CISPR 14.2), GB 4824; HKTA 1001, 1005, 1007 and 1022; ICES-001, 003; JIS T 0601-1-2; IEC/EN/AS/KN: 60601-1-2; IEC/EN/AS/KN/JIS C: 61000-3-2, 61000-3-3, 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-8, 61000-4-9, 61000-4-11, 61000-4-12, 61000-4-13, 61000-6-1, 61000-6-2, 61000-6-3 and 61000-6-4; IEC/EN/AS/KN: 61326; RSS-130, 136, 138, 182, 187, 210, 213, 215, 243 and 310; MIL-STD-461E; MIL-STD-462D; KN60601-1-2; KN301 489; KN22, 24; YD 1032; YD/T 965, 968, 993, 1103; CSA Standards C22.2 No. 0, .1, .17, .4, 6, 8, 9, 10, 12, 14, 15, 18, 24, 36, 37, 40, 43, 53, 61, 66-1-06, 63, 64, 66.1, 66.2, 66.3, 68, 71.1, 71.2, 72, 73, 81, 85, 89, 94, 99, 100, 101, 104, 107.1, 107.2, 108, 109, 110, 112, 113, 114, 117, 122, 125, 139, 141, 147, 148, 149, 156, 157, 158, 164, 166, 167, 168, 169, 173, 177, 184, 187, 191, 195, 205, 207, 213, 217, 218.1, 218.2, 223, 224, 225, 231, 234, 236, 243, 247, 250 and 60065; CSA Standards E60079-0, -1 (except Explosión Proof Test), -6, -11, -15, E60335-1, -2, E60730-1, -2, E60745-1, -2, E61010-1, -2, E742, Z240 RV Series 08; IEC/EN Standards 60335-1, -2, 60730-1, -2, 60745-1, -2; 61010-1, -2, 60601-1, -2, 60065, 60079-0, -6, -11, -15 and 60950-1, -2; IEC/EN 60529; 60945, 60598-1, -2, 61347-1; UL Standards 48, 50, 73, 197, 499, 507, 508, 508A, 676, 745-1, 751, 763, 778, 858, 867, 875, 924, 935, 982, 987, 998, 1004, 1012, 1026, 1261, 1310, 1431, 1472, 5085-2_1; 5085-3; 1563, 1564, 1585, 1598, 1647, 1795, 1993, 1995, UL/CSA 5085-1_1

May 5, 2011
Commencement Date

ACCREDITED

C. P. Ramani, P.E.
President

Print Date: 05/23/2012

Page 3 of 4

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11-04680

International Accreditation Service

SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
(Revised May 9, 2012)

FIELDS OF TESTING	ACCREDITED TEST METHODS
Electrical, EMC and Electro-mechanical (cont)	6500, 8750, 2388; 60079-0, 60079-1, 60079-6, 60079-11, 60079-15, 60335-1, 60335-2, 60601-1, 60601-2, 60730-1, 60730-2, 60745-1, 60745-2, 60950-1, 61010-1 and 61010-2; ISO EN Standards 60601-1-2 Part 1-2, 61000-3-2 (Equipment input current less than or equal to 16 Amps/Phase) and 61000-4-3; ANSI Standards C63.4 and C63.7 (only to 26.5GHz)
Environmental and Energy	IEC/EN Standards 60068-2-1, 2-2, 2-6, 2-30, 2-27, 2-14, 2-64, 60092-101, 60695-2-2; MIL-STD-810: Method 500.4, 501.4, 502.4, 503.4, 506.4, 507.4, 510.4, 512.4 and 514.5; RTCA-DO-160E: Section 4, 5, 6, 7.2, 8, 10, 12, 16, 17 and 25; CSA Standard P4; CAN/CSA Standards C-300 and C-814; Qualification Criteria for Bottled Water Cooler Version 1.1 - May 2004; Qualification Criteria for Compact Fluorescent Lamps Version 3.0 - October 2003; Qualification Criteria for Decorative Light Strings Version 1.3 - March 9, 2007; Qualification Criteria for Residential Light Fixtures Version 4.0; Qualification Criteria for Home Audio and DVD Equipment; ISO Standards 9806-1, 9806-2 and 9806-3; SRCC 100-08, SRCC TM-1, SRCC-150; CSA Standards F378 and F379, EN Standards 12975-1 and 12975-2
Maritime	ABYC Standards A-3, A-7, A-26, A-27, A-28, A-30, A-31, E-2, E-11, H-2, P-14, P-17, P-18, P-21, P-22, P-24 and P-27; EN Standards 28846, 28848, 28849, 29775, 60092-507; EN ISO 10133, 12216, 13297, 13929, 14895, 15083, 8847, 8849, 10239, 10240, 10592: 1995/A1, 11105, 11192 and 9097:1994/A1; IACS E1 – E21; 21005; DNV 2.4, BV: Rules for Classification of Steel Ships – Part C, Chapter 3, Section 6.2 Type Approval; ABS Part 4, Chapter 9, Section 7, Lloyds Type Approval Systems – Test Specification Number 1; GL VI-Part 7 Section 3 – Section – B Test Requirements, Chapter 2
Appliances	CSA Standard B 140.0-3

May 5, 2011
Commencement Date

ACCREDITED

C. P. Ramani, P.E.
President

Print Date: 05/23/2012

Page 4 of 4

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END OF REPORT