



TEST REPORT

For

Guard RFID Solutions Inc.

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

Date: November 27, 2013
Report No.: 11765-1E
Revision No.: 0
Project No.: 11765
Equipment: RFID TAG
Model No.: AT-4BLF
FCC ID: VZKAT4
IC ID: 9937A-AT4

ONE STOP GLOBAL CERTIFICATION SOLUTIONS



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Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765



Client: Guard RFID Solutions Inc.
Report No.: 11765-1E
Revision No.: 0

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TEST REPORT	
FCC15.231:2010 / RSS-210, Issue 8	
Report reference No. :	11765-1E
Report Revision History:	✓ Rev. 0: November 27, 2013
Tested by (printed name and signature)	Jeremy Lee 
Approved by (printed name and signature)	Kavinder Dhillon, Eng.L 
Date of issue	November 27, 2013
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	17325-48Ave., Surrey, BC, Canada
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	FCC15.231:2010 / RSS-210, Issue 8, December 2010
Testing	
Date of receipt of test item	November 21, 2013
Date(s) of performance of test	November 25 to 26, 2013
Test item description	
Trademark	N/A
Model and/or type reference	AT-4BLF
Serial numbers	000104 & 000115
Electrical Rating(s)	Internal Battery

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Particulars: test item vs. test requirements	
Application for	RFIDTAG
Operating Transmit Frequency	433.92MHz
Operating Receive Frequency	125kHz
Blink Interval	10 minutes static, 12 sec. during motion
Equipment mobility	Yes
Operating condition	-30 to +50 °C
Mass of equipment (g)	8
Dimension	28 mm X 12.2 mm
Nominal Voltages for:	<input checked="" type="checkbox"/> stand-alone equipment <input type="checkbox"/> combined (or host) equipment <input type="checkbox"/> test jig
Supply Voltage:	_____ AC _____ Amps <input checked="" type="checkbox"/> 3V _____ DC _____ Amps
If DC Power:	_____ Internal Power Supply _____ External Power Supply or AC/DC adapter <input checked="" type="checkbox"/> Battery <ul style="list-style-type: none"> <input type="checkbox"/> Nickel Cadmium <input type="checkbox"/> Alkaline <input type="checkbox"/> Nickel-Metal Hydride <input checked="" type="checkbox"/> Lithium-Ion <input type="checkbox"/> Lead Acid (Vehicle regulated) <input type="checkbox"/> 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

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General product information:

The EUT, AT-4BLF, is an active RFID tag for tracking, locating, and protecting equipment and other assets that require a low profile tag with a small footprint.

The tags have Ultra-High Frequency (UHF) Beacon message capability for presence-detection and long-range location using Guard RFID's Tag Readers. They also include a Low Frequency (LF) Receiver that instantly detects entry into critical security zones or other locations of interest that are equipped with Guard RFID's Tag Exciters. This proximity location technology can instantly secure doors to protect a tagged article from leaving the perimeter, and can support numerous applications where better granularity of tag location is required.

The Tag has an integrated motion sensor that can be used to alarm on movement, and which increases the Beacon rate when the tag is in motion. A temperature sensor allows monitoring of ambient temperature between -10° to +60° Celcius with accuracy of ±2° after stabilization has been achieved.

Guard RFID's industry-leading tag communication protocol allows hundreds of tags to be detected simultaneously at security or detection points and enables a high density of tags within the system coverage. The Article Tag can be directly applied to an object using an extremely strong peel-and-stick adhesive label at the back of the tag.

SPECIFICATIONS:

AT-4BLF	
Part Number	61-10500
Transmit Frequency	433 MHz
Receive Frequency	125 KHz
Battery Life	12 months nominal based on 60% motion 24 months nominal based on 5% motion
Beacon Interval	10 minutes static, 12 seconds while in motion
Sensors	Motion, Temperature (-10° to +60° C with ±2° C accuracy)
Dimensions	1.56" x 1.26" x 0.23" (40mm x 32 mm x 6mm)
Weight	6 gm
Operating Temperature	-4° F to 122°F (-20°C to 50°C)
Humidity	0 – 95% RH non-condensing

Tag Replacement Warranty – Prorated up to a maximum term of 12 months

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Frequencies

Module	Signal	Frequencies (MHz)
CC1150	Transmitter RF	433.92
Y2	Clock	26.0
Y1	Clock	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 10 minutes without movement and 12 sec with movement.

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_signal and checked OK.
PAM-0202	Pre-Amplifier, 30 to 1,000MHz	Gain at 30 and 1,000MHz	Gains were normal.
8449B	Pre-Amplifier, 1 to 26.5GHz	Gain at 1 to 26.5GHz	Gains were normal.
JB1	Anatenna, 30 to 2000MHz	Checked structure	Normal – no damage.

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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, 30 to 1,000MHz	4.67
Radiated Emission, 1 to 26.5GHz	4.65

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

Markings



According to FCC Section 15.19(a)(3), This device shall bear the following statement in a conspicuous location on the device: 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".

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Test Summary

When configured and operated as specified in this report, the product was found to comply with the requirements as indicated below.

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, 15.205, 15.209 & RSS-210	ANSI C63.4:2009 & ANSI C63.10:2009, Clause 6.5 & 6.6	PASS
Field Strength of Spurious Emissions -Intentional radiator	15.231, 15.205, 15.209 & RSS-210	ANSI C63.4:2009 & ANSI C63.10:2009, Clause 6.5 & 6.6	PASS
Radiated Emissions-Intentional radiators	15.209 and RSS-210	ANSI C63.4:2009 & ANSI C63.10:2009, Clause 6.5	PASS
The Bandwidth of the emission	15.231 and RSS-210	ANSI C63.10:2009, Clause 6.9	PASS

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

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AC Power Line Conducted Emission

Test Date	Aug. 09, 2013
Sample Number	1151212
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.

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Summary of the operation of RF Transmission

Regulation	FCC15.231:2010
Intentional Radiating Frequency	433.92MHz
Sample Number	1175544 & 1175545
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		

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Date Issued:
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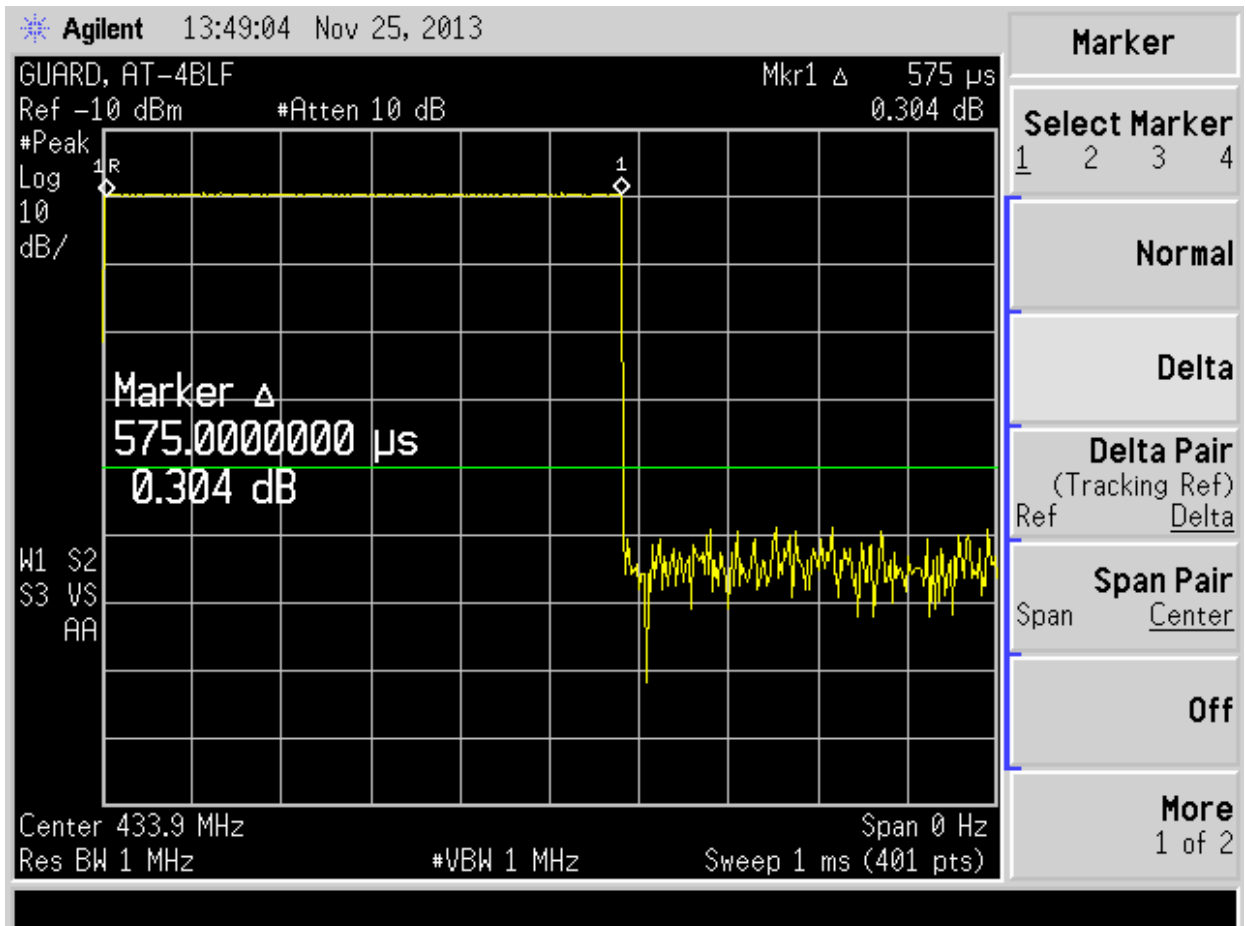
Client:
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	Deactivate within 5 seconds after activation	X		
Pt 15.231(a)(3)	Periodic transmission at regular predetermined intervals	X*		
	Polling or supervision transmission, including data, to determine system integrity or transmitters used in security 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 10 minutes in static or every 12sec. in during motion.

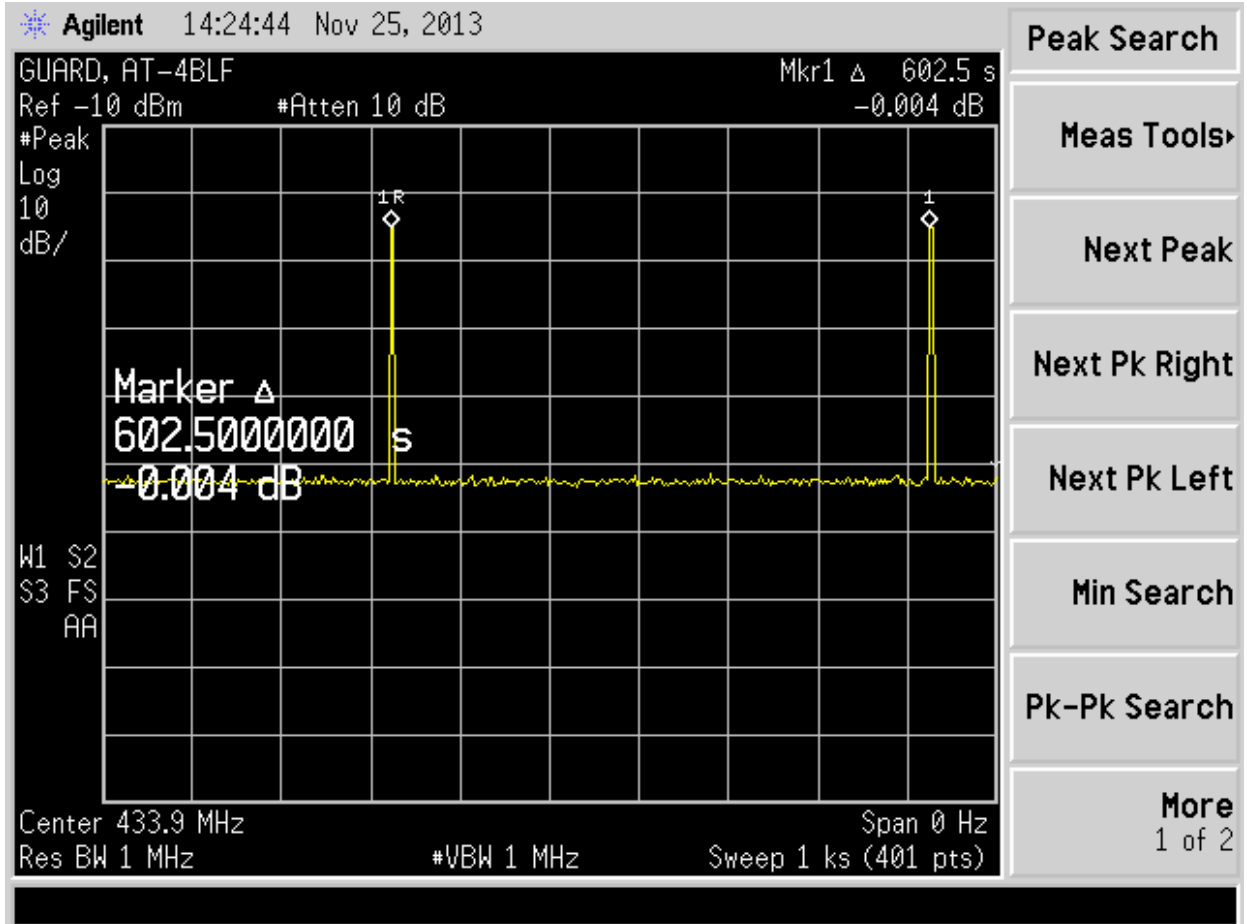
- Measured result of the Automatic Turned-on and off time.



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- Measured result of the period for Automatic Turned-on time, in Static.



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Field Strength of Fundamental

Regulation	FCC15.231:2010
Intentional Radiating Frequency	433.92MHz
Detecting Method	Quasi Peak Detector
IF Bandwidth	120kHz
Temperature	21.0 to 21.4 °C
Relative Humidity	35.0 %
Barometric Pressure:	102.7 kPa
Test Date	November 25, 2013
Sample Number	1175544
Calibrated Test Equipment (ID)	266, 272, 371, 408
Reference Equipment (ID) (Calibration not required)	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:

Funda- mental fre- quency (MHz)	Field strength of funda- mental (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.

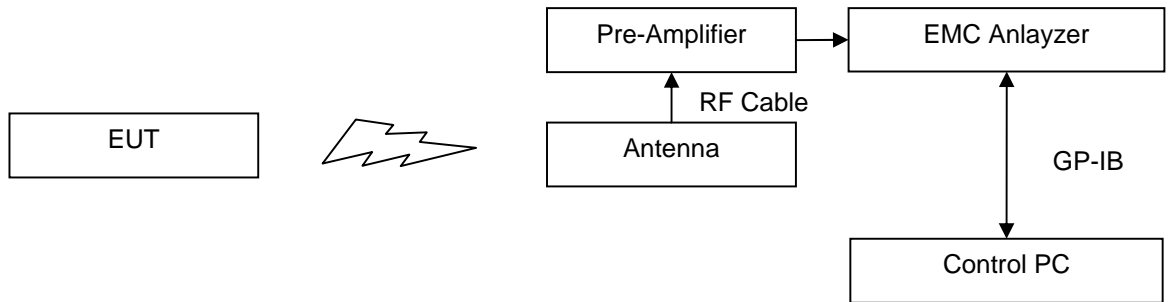
Test Setup

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 wooden table.
- 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.

Setup Block Diagram



Test Setup in Chamber

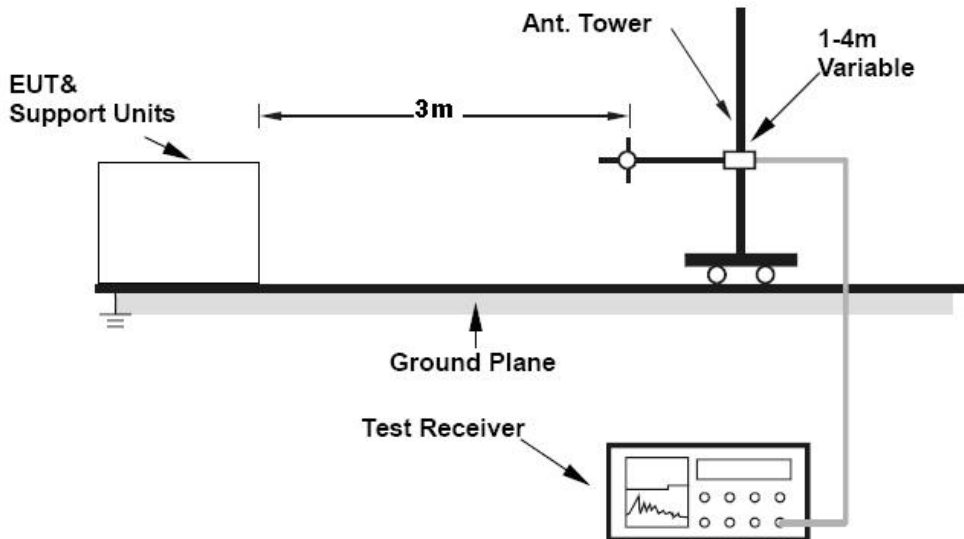


Figure – 1 Test setup for Radiated emissions in Chamber

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Test Results:

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

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

Fundamental Frequency (MHz)	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Orthogonal	Pol.	Results
433.92	80.83	75.15	5.68	X	H	PASS
		74.05	6.78	Y	V	PASS

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

LabTest Certification Inc.
Field Strength of Fundamental
FCC 15.231, 3 meters, Orthogonal X_Horizontal

Operator: Jeremy Lee
02:22:20 PM, Monday, November 25, 2013

Model #: AT-4BLF
Contact: Dalibor Pokrajac
Company: Guard RFIDSolutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
433.947000 MHz	86.03	16.98	0.00	-27.86	75.15	80.83	5.68	360.3	179.6	H
Project # : 11765, Sample #: 1175544										
Temp.: 21.0 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

LabTest Certification Inc.
Field Strength of Fundamental
FCC 15.231, 3 meters, Orthogonal X_Vertical

Operator: Jeremy Lee
02:22:20 PM, Monday, November 25, 2013

Model #: AT-4BLF
Contact: Dalibor Pokrajac
Company: Guard RFIDSolutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
433.869300 MHz	80.03	16.48	0.00	-27.86	68.65	80.83	12.18	300.0	120.0	V
Project # : 11765, Sample #: 1175544										
Temp.: 21.0 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

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

LabTest Certification Inc.
Field Strength of Fundamental
FCC 15.231, 3 meters, Orthogonal Y_Horizontal

Operator: Jeremy Lee
03:02:44 PM, Monday, November 25, 2013

Model #: AT-4BLF
Contact: Dalibor Pokrajac
Company: Guard RFIDSolutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
433.945500 MHz	79.94	16.98	0.00	-27.86	69.06	80.83	11.77	320.0	100.5	H
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

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LabTest Certification Inc.
 Field Strength of Fundamental
 FCC 15.231, 3 meters, Orthogonal V_Vertical

Operator: Jeremy Lee

03:02:44 PM, Monday, November 25, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFIDSolutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
433.903500	85.43	16.48	0.00	-27.86	74.05	80.83	6.78	270.0	120.3	V
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

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

LabTest Certification Inc.
 Field Strength of Fundamental
 FCC 15.231, 3 meters, Orthogonal Z_Horizontal

Operator: Jeremy Lee

03:34:18 PM, Monday, November 25, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFIDSolutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
433.893900	85.35	16.98	0.00	-27.86	74.47	80.83	6.36	300.0	220.1	H
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

LabTest Certification Inc.
 Field Strength of Fundamental
 FCC 15.231, 3 meters, Orthogonal Z_Vertical

Operator: Jeremy Lee

03:34:18 PM, Monday, November 25, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFIDSolutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
433.903500	83.23	16.48	0.00	-27.86	71.85	80.83	8.98	69.8	119.6	V
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

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Field Strength of Spurious Emissions

Regulation	FCC15.231: 2010
Intentional Radiating Frequency	433.92MHz
Detecting Method	PEAK, Quasi-Peak and Averaging Detector
IF Bandwidth	120kHz(under 1GHz) and 1MHz(over 1GHz)
Temperature	20.4 TO 21.4 °C
Relative Humidity	35.0 to 38.0 %
Barometric Pressure:	102.3 to 102.7 kPa
Test Date	November 25 & 26, 2013
Sample Number	1175544
Calibrated Test Equipment (ID)	266, 227-3, 272, 273, 371, 408
Reference Equipment (ID) (Calibration not required)	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:

Funda-mental fre-quency (MHz)	Field strength of funda-mental (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

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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 Spurious is shown in Figure - 1.

- a) The EUT was placed on wooden table.
- 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.

Test Results:

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

X Pass Fail N/A

Harmonic Frequency (MHz)	Detector	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Orthogonal	Pol.	Results
867.84	Quasi-Peak	60.83	26.64	34.19	X	H	PASS
1301.76	Peak	73.98	56.93	17.05	X	H	PASS
	Averaging	53.98	26.71	27.27	X	H	PASS
1735.68	Peak	80.83	51.26	29.57	Z	H	PASS
	Averaging	60.83	26.90	33.93	X	H	PASS
2169.60	Peak	80.83	60.57	20.26	X	V	PASS
	Averaging	60.83	29.69	31.14	Z	V	PASS
2606.25	Peak	80.83	42.94	37.89	X	H	PASS

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

3037.44	Averaging	60.83	29.69	31.14	X	H	PASS
	Peak	80.83	67.93	12.90	X	V	PASS
3471.36	Averaging	60.83	31.49	29.34	X	H	PASS
	Peak	80.83	52.79	28.04	X	V	PASS
3905.28	Averaging	60.83	31.30	29.53	X	V	PASS
	Peak	73.98	59.44	14.54	X	H	PASS
4339.20	Averaging	53.98	31.10	21.88	Y	H	PASS
	Peak	73.98	49.29	24.69	Z	H	PASS
	Averaging	53.98	30.70	23.28	X	H	PASS
	Peak						

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

LabTest Certification Inc.
Field Strength of Spurious
FCC 15.231, 3 meters, Orthogonal X_Horizontal

Operator: Jeremy Lee
02:17:20 PM, Monday, November 25, 2013

Model #: AT-4BLF
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
867.949200	30.33	22.50	0.00	-26.19	26.64	60.83	34.19	152.8	100.2	H
Project #: 11765, Sample #: 1175544 Temp.: 21.3 C, Hum.: 38.0 % Barometer Pres.: 102.6 kPa										

LabTest Certification Inc.
Field Strength of Spurious
FCC 15.231, 3 meters, Orthogonal X_Vertical

Operator: Jeremy Lee
02:17:20 PM, Monday, November 25, 2013

Model #: AT-4BLF
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
867.919200	27.66	21.80	0.00	-26.19	23.27	60.83	37.56	65.3	100.2	V
Project #: 11765, Sample #: 1175544 Temp.: 21.3 C, Hum.: 38.0 % Barometer Pres.: 102.6 kPa										

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

LabTest Certification Inc.
Field Strength of Spurious
FCC 15.231, 3 meters, Orthogonal Y_Horizontal

Operator: Jeremy Lee
02:56:50 PM, Monday, November 25, 2013

Model #: AT-4BLF
Contact: Dalibor Pokrajac
Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
867.915000	27.81	22.50	0.00	-26.19	24.12	60.83	36.71	57.3	100.5	H
Project #: 11765, Sample #: 1175544 Temp.: 21.4 C, Hum.: 35.0 % Barometer Pres.: 102.7 kPa										

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

LabTest Certification Inc.
 Field Strength of Spurious
 FCC 15.231, 3 meters, Orthogonal Y_Vertical

Operator: Jeremy Lee

02:56:50 PM, Monday, November 25, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
867.926700 MHz	27.61	21.80	0.00	-26.19	23.22	60.83	37.61	176.8	100.2	V
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.7 kPa										

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

LabTest Certification Inc.
 Field Strength of Spurious
 FCC 15.231, 3 meters, Orthogonal Z_Horizontal

Operator: Jeremy Lee

03:22:48 PM, Monday, November 25, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
867.949200 MHz	27.63	22.50	0.00	-26.19	23.94	60.83	36.89	274.3	101.1	H
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.6 kPa										

LabTest Certification Inc.
 Field Strength of Spurious
 FCC 15.231, 3 meters, Orthogonal Z_Vertical

Operator: Jeremy Lee

03:22:48 PM, Monday, November 25, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T degree	Tower cm	Pol
867.833100 MHz	27.67	21.80	0.00	-26.19	23.28	60.83	37.55	11.5	105.8	V
Project # : 11765, Sample #: 1175544										
Temp.: 21.4 C, Hum.: 35.0 %										
Barometer Pres.: 102.6 kPa										

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

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

LabTest Certification Inc.
 Field Strength of Spurious, Peak Detector
 FCC 15.231, 3 meters, Orthogonal X, Horizontal

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:26:00 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	61.30	24.51	1.12	-30.00	56.93	73.98	17.05	270.0	110.0	H
1.735680 GHz	42.75	25.67	1.25	-30.00	39.67	80.83	41.16	270.0	110.0	H
2.169600 GHz	46.38	27.64	1.33	-30.00	45.35	80.83	35.48	270.0	110.0	H
2.603520 GHz	41.97	29.55	1.42	-30.00	42.94	80.83	37.89	270.0	110.0	H
3.037440 GHz	51.41	30.50	1.51	-30.00	53.42	80.83	27.41	270.0	110.0	H
3.471360 GHz	48.40	30.33	1.59	-30.00	50.32	80.83	30.51	270.0	110.0	H
3.905280 GHz	56.16	31.60	1.68	-30.00	59.44	73.98	14.54	270.0	110.0	H
4.339200 GHz	44.24	31.47	1.77	-30.00	47.48	73.98	26.50	270.0	110.0	H

Project # : 11765, Sample #: 1175544
 Temp.: 20.4 C, Hum.: 35.0 %
 Barometer Pres.: 102.5 kPa

LabTest Certification Inc.
 Field Strength of Spurious, Peak Detector
 FCC 15.231, 3 meters, Orthogonal X, Vertical

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:26:00 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	58.04	24.54	1.12	-30.00	53.70	73.98	20.28	0.0	101.0	V
1.735680 GHz	49.52	25.73	1.25	-30.00	46.50	80.83	34.33	0.0	101.0	V
2.169600 GHz	61.51	27.72	1.33	-30.00	60.57	80.83	20.26	0.0	101.0	V
2.603520 GHz	41.17	29.59	1.42	-30.00	42.18	80.83	38.65	0.0	101.0	V
3.037440 GHz	65.77	30.65	1.51	-30.00	67.93	80.83	12.90	0.0	101.0	V
3.471360 GHz	50.78	30.42	1.59	-30.00	52.79	80.83	28.04	0.0	101.0	V
3.905280 GHz	50.82	31.63	1.68	-30.00	54.13	73.98	19.85	0.0	101.0	V
4.339200 GHz	42.13	31.52	1.77	-30.00	45.42	73.98	28.56	0.0	101.0	V

Project # : 11765, Sample #: 1175544
 Temp.: 20.4 C, Hum.: 35.0 %
 Barometer Pres.: 102.5 kPa

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

LabTest Certification Inc.
 Field Strength of Spurious, AVG Detector
 FCC 15.231, 3 meters, Orthogonal X, Horizontal

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:26:00 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T degree	Tower cm	Pol
1.301760 GHz	31.08	24.51	1.12	-30.00	26.71	53.98	27.27	270.0	110.0	H
1.735680 GHz	29.98	25.67	1.25	-30.00	26.90	80.83	33.93	270.0	110.0	H
2.169600 GHz	30.64	27.64	1.33	-30.00	29.61	80.83	31.22	270.0	110.0	H
2.603520 GHz	28.72	29.55	1.42	-30.00	29.69	80.83	31.14	270.0	110.0	H
3.037440 GHz	29.48	30.50	1.51	-30.00	31.49	80.83	29.34	270.0	110.0	H
3.471360 GHz	29.25	30.33	1.59	-30.00	31.17	80.83	29.66	270.0	110.0	H
3.905280 GHz	28.79	31.60	1.68	-30.00	32.07	53.98	21.91	270.0	110.0	H
4.339200 GHz	27.46	31.47	1.77	-30.00	30.70	53.98	23.28	270.0	110.0	H

Project # : 11765, Sample #: 1175544
 Temp.: 20.4 C, Hum.: 35.0 %
 Barometer Pres.: 102.5 kPa

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

LabTest Certification Inc.
 Field Strength of Spurious, AVG Detector
 FCC 15.231, 3 meters, Orthogonal X, Vertical

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:26:00 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	T/T degree	Tower cm	Pol
1.301760 GHz	30.47	24.54	1.121	-30.00	26.13	53.98	27.85	0.0	101.0	V
1.735680 GHz	29.63	25.73	1.247	-30.00	26.61	60.83	34.22	0.0	101.0	V
2.169600 GHz	30.37	27.72	1.334	-30.00	29.43	60.83	31.40	0.0	101.0	V
2.603520 GHz	28.50	29.59	1.421	-30.00	29.51	60.83	31.32	0.0	101.0	V
3.037440 GHz	29.11	30.65	1.507	-30.00	31.27	60.83	29.56	0.0	101.0	V
3.471360 GHz	29.29	30.42	1.594	-30.00	31.30	60.83	29.53	0.0	101.0	V
3.905280 GHz	28.71	31.63	1.681	-30.00	32.02	53.98	21.96	0.0	101.0	V
4.339200 GHz	27.22	31.52	1.768	-30.00	30.51	53.98	23.47	0.0	101.0	V

Project #: 11765, Sample #: 1175544
 Temp.: 20.4 C, Hum.: 35.0 %
 Barometer Pres.: 102.5 kPa

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

LabTest Certification Inc.
 Field Strength of Spurious, Peak Detector
 FCC 15.231, 3 meters, Orthogonal Y, Horizontal

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:41:08 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	60.83	24.51	1.12	-30.00	56.46	73.98	17.52	15.0	100.0	H
1.735680 GHz	43.12	25.67	1.25	-30.00	40.04	80.83	40.79	15.0	100.0	H
2.169600 GHz	59.39	27.64	1.33	-30.00	58.36	80.83	22.47	15.0	100.0	H
2.603520 GHz	41.41	29.55	1.42	-30.00	42.38	80.83	38.45	15.0	100.0	H
3.037440 GHz	63.48	30.50	1.51	-30.00	65.49	80.83	15.34	15.0	100.0	H
3.471360 GHz	46.71	30.33	1.59	-30.00	48.63	80.83	32.20	15.0	100.0	H
3.905280 GHz	50.30	31.60	1.68	-30.00	53.58	73.98	20.40	15.0	100.0	H
4.339200 GHz	40.26	31.47	1.77	-30.00	43.50	73.98	30.48	15.0	100.0	H

Project #: 11765, Sample #: 1175544
 Temp.: 20.7 C, Hum.: 35.0 %
 Barometer Pres.: 102.3 kPa

LabTest Certification Inc.
 Field Strength of Spurious, Peak Detector
 FCC 15.231, 3 meters, Orthogonal Y, Vertical

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:41:08 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	57.52	24.54	1.12	-30.00	53.18	73.98	20.80	310.0	100.0	V
1.735680 GHz	44.32	25.73	1.25	-30.00	41.30	80.83	39.53	310.0	100.0	V
2.169600 GHz	43.62	27.72	1.33	-30.00	42.68	80.83	38.15	310.0	100.0	V
2.603520 GHz	41.32	29.59	1.42	-30.00	42.33	80.83	38.50	310.0	100.0	V
3.037440 GHz	43.12	30.65	1.51	-30.00	45.28	80.83	35.55	310.0	100.0	V
3.471360 GHz	43.27	30.42	1.59	-30.00	45.28	80.83	35.55	310.0	100.0	V
3.905280 GHz	43.65	31.63	1.68	-30.00	46.96	73.98	27.02	310.0	100.0	V
4.339200 GHz	42.81	31.52	1.77	-30.00	46.10	73.98	27.88	310.0	100.0	V

Project #: 11765, Sample #: 1175544
 Temp.: 20.7 C, Hum.: 35.0 %
 Barometer Pres.: 102.3 kPa

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

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

LabTest Certification Inc.
 Field Strength of Spurious, AVG Detector
 FCC 15.231, 3 meters, Orthogonal Y, Horizontal

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:41:08 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	T/T degree	Tower cm	Pol
1.301760 GHz	30.78	24.51	1.12	-30.00	26.41	53.98	27.57	15.0	100.0	H
1.735680 GHz	29.64	25.67	1.25	-30.00	26.56	60.83	34.27	15.0	100.0	H
2.169600 GHz	30.25	27.64	1.33	-30.00	29.22	60.83	31.61	15.0	100.0	H
2.603520 GHz	28.46	29.55	1.42	-30.00	29.43	60.83	31.40	15.0	100.0	H
3.037440 GHz	28.96	30.50	1.51	-30.00	30.97	60.83	29.86	15.0	100.0	H
3.471360 GHz	29.26	30.33	1.59	-30.00	31.18	60.83	29.85	15.0	100.0	H
3.905280 GHz	28.82	31.60	1.68	-30.00	32.10	53.98	21.88	15.0	100.0	H
4.339200 GHz	27.30	31.47	1.77	-30.00	30.54	53.98	23.44	15.0	100.0	H

Project #: 11765, Sample #: 1175544
 Temp.: 20.7 C, Hum.: 35.0 %
 Barometer Pres.: 102.3 kPa

LabTest Certification Inc.
 Field Strength of Spurious, AVG Detector
 FCC 15.231, 3 meters, Orthogonal Y, Vertical

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

01:41:08 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	T/T degree	Tower cm	Pol
1.301760 GHz	30.64	24.54	1.121	-30.00	26.30	53.98	27.68	310.0	100.0	V
1.735680 GHz	29.59	25.73	1.247	-30.00	26.57	60.83	34.26	310.0	100.0	V
2.169600 GHz	30.14	27.72	1.334	-30.00	29.20	60.83	31.63	310.0	100.0	V
2.603520 GHz	28.43	29.59	1.421	-30.00	29.44	60.83	31.39	310.0	100.0	V
3.037440 GHz	28.83	30.65	1.507	-30.00	30.99	60.83	29.84	310.0	100.0	V
3.471360 GHz	29.19	30.42	1.594	-30.00	31.20	60.83	29.83	310.0	100.0	V
3.905280 GHz	28.67	31.63	1.681	-30.00	31.98	53.98	22.00	310.0	100.0	V
4.339200 GHz	27.30	31.52	1.768	-30.00	30.59	53.98	23.39	310.0	100.0	V

Project #: 11765, Sample #: 1175544
 Temp.: 20.7 C, Hum.: 35.0 %
 Barometer Pres.: 102.3 kPa

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

LabTest Certification Inc.
 Field Strength of Spurious, Peak Detector
 FCC 15.231, 3 meters, Orthogonal Z, Horizontal

Operator: Jeremy Lee

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

02:03:29 PM, Tuesday, November 26, 2013

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	56.71	24.51	1.12	-30.00	52.34	73.98	21.64	260.0	120.0	H
1.735680 GHz	54.34	25.67	1.25	-30.00	51.26	80.83	29.57	260.0	120.0	H
2.169600 GHz	53.77	27.64	1.33	-30.00	52.74	80.83	28.09	260.0	120.0	H
2.603520 GHz	41.52	29.55	1.42	-30.00	42.49	80.83	38.34	260.0	120.0	H
3.037440 GHz	52.43	30.50	1.51	-30.00	54.44	80.83	26.39	260.0	120.0	H
3.471360 GHz	44.65	30.33	1.59	-30.00	46.57	80.83	34.26	260.0	120.0	H
3.905280 GHz	53.52	31.60	1.68	-30.00	56.80	73.98	17.18	260.0	120.0	H
4.339200 GHz	46.05	31.47	1.77	-30.00	49.29	73.98	24.69	260.0	120.0	H

Project #: 11765, Sample #: 1175544
 Temp.: 20.8 C, Hum.: 36.0 %
 Barometer Pres.: 102.3 kPa

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

LabTest Certification Inc.
 Field Strength of Spurious, Peak Detector
 FCC 15.231, 3 meters, Orthogonal Z, Vertical

Operator: Jeremy Lee

02:03:29 PM, Tuesday, November 26, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_Pk dB	T/T degree	Tower cm	Pol
1.301760 GHz	61.06	24.54	1.12	-30.00	56.72	73.98	17.26	310.0	100.0	V
1.735680 GHz	42.18	25.73	1.25	-30.00	39.16	80.83	41.67	310.0	100.0	V
2.169600 GHz	55.65	27.72	1.33	-30.00	54.71	80.83	26.12	310.0	100.0	V
2.603520 GHz	41.26	29.59	1.42	-30.00	42.27	80.83	38.56	310.0	100.0	V
3.037440 GHz	55.25	30.65	1.51	-30.00	57.41	80.83	23.42	310.0	100.0	V
3.471360 GHz	47.38	30.42	1.59	-30.00	49.39	80.83	31.44	310.0	100.0	V
3.905280 GHz	45.38	31.63	1.68	-30.00	48.69	73.98	25.29	310.0	100.0	V
4.339200 GHz	40.11	31.52	1.77	-30.00	43.40	73.98	30.58	310.0	100.0	V
Project #: 11765, Sample #: 1175544										
Temp.: 20.8 C, Hum.: 36.0 %										
Barometer Pres.: 102.3 kPa										

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

LabTest Certification Inc.
 Field Strength of Spurious, AVG Detector
 FCC 15.231, 3 meters, Orthogonal Z, Horizontal

Operator: Jeremy Lee

02:03:29 PM, Tuesday, November 26, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T degree	Tower cm	Pol
1.301760 GHz	30.86	24.51	1.12	-30.00	26.49	53.98	27.49	260.0	120.0	H
1.735680 GHz	29.89	25.67	1.25	-30.00	26.81	60.83	34.02	260.0	120.0	H
2.169600 GHz	30.38	27.64	1.33	-30.00	29.35	60.83	31.48	260.0	120.0	H
2.603520 GHz	28.60	29.55	1.42	-30.00	29.57	60.83	31.26	260.0	120.0	H
3.037440 GHz	29.08	30.50	1.51	-30.00	31.07	60.83	29.76	260.0	120.0	H
3.471360 GHz	29.28	30.33	1.59	-30.00	31.20	60.83	29.63	260.0	120.0	H
3.905280 GHz	28.81	31.60	1.68	-30.00	32.09	53.98	21.89	260.0	120.0	H
4.339200 GHz	27.45	31.47	1.77	-30.00	30.69	53.98	23.29	260.0	120.0	H
Project #: 11765, Sample #: 1175544										
Temp.: 20.8 C, Hum.: 36.0 %										
Barometer Pres.: 102.3 kPa										

LabTest Certification Inc.
 Field Strength of Spurious, AVG Detector
 FCC 15.231, 3 meters, Orthogonal Z, Vertical

Operator: Jeremy Lee

02:03:29 PM, Tuesday, November 26, 2013

Model #: AT-4BLF
 Contact: Dalibor Pokrajac
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	CableLoss dB	Preamp dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T degree	Tower cm	Pol
1.301760 GHz	30.61	24.54	1.12	-30.00	26.27	53.98	27.71	310.0	100.0	V
1.735680 GHz	29.70	25.73	1.247	-30.00	26.68	60.83	34.15	310.0	100.0	V
2.169600 GHz	30.63	27.72	1.334	-30.00	29.69	60.83	31.14	310.0	100.0	V
2.603520 GHz	28.57	29.59	1.421	-30.00	29.58	60.83	31.25	310.0	100.0	V
3.037440 GHz	28.93	30.65	1.507	-30.00	31.09	60.83	29.74	310.0	100.0	V
3.471360 GHz	29.25	30.42	1.594	-30.00	31.26	60.83	29.57	310.0	100.0	V
3.905280 GHz	28.76	31.63	1.681	-30.00	32.07	53.98	21.91	310.0	100.0	V
4.339200 GHz	27.33	31.52	1.768	-30.00	30.62	53.98	23.36	310.0	100.0	V
Project #: 11765, Sample #: 1175544										
Temp.: 20.8 C, Hum.: 36.0 %										
Barometer Pres.: 102.3 kPa										

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

Radiated Emission; Intentional Radiators

Regulation	FCC15.209:2010
Intentional Radiating Frequency	433.92MHz
Detecting Method	Quasi Peak Detector
IF Bandwidth	9kHz(under 30MHz) and 120kHz(30 to 1,000MHz)
Temperature	21.3 °C
Relative Humidity	34.0 %
Barometric Pressure:	102.5 to 102.8 kPa
Test Date	November 25 & 26, 2013
Sample Number	1175545
Calibrated Test Equipment (ID)	266, 272, 371, 408
Reference Equipment (ID) (Calibration not required)	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)

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

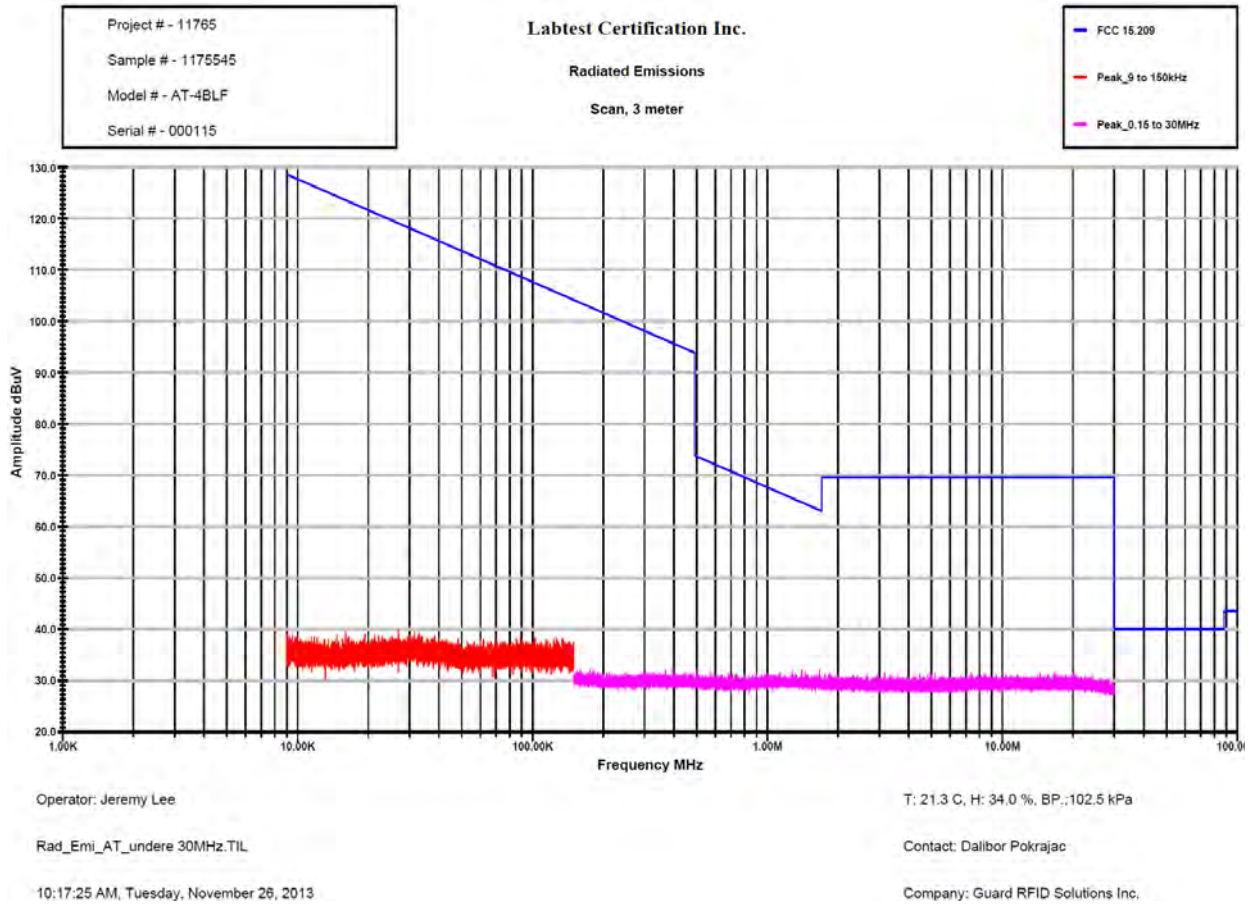
Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

X Pass Fail N/A

Frequency (MHz)	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Pol. Of Antenna	Results
1.403997	64.66	32.03*	32.63	H	PASS
731.4312	46.0	29.62*	16.38	H	PASS

Note *) All measured levels were detected by Peak Detector.

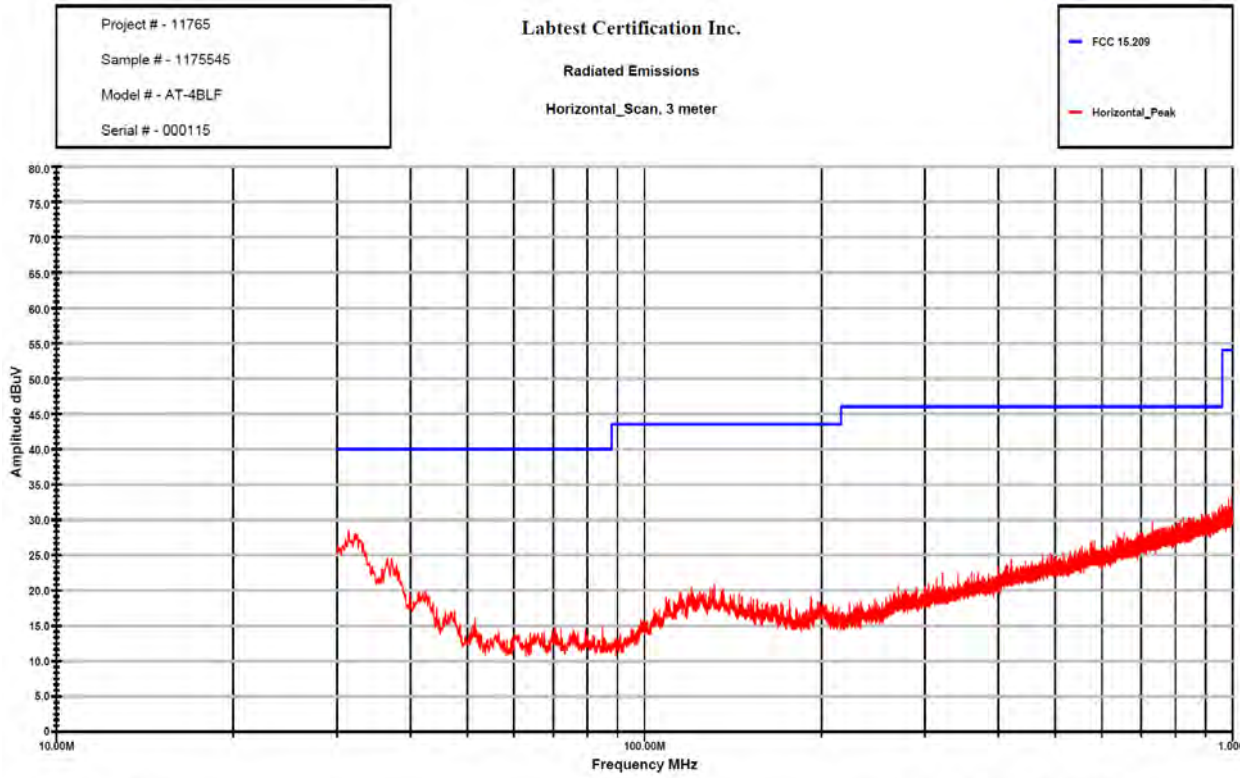
- Graph of Radiated Emissions: 20 to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130.



Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765

Client: Guard RFID Solutions Inc.
Report No.: 11765-1E
Revision No.: 0

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



Operator: Jeremy Lee

T: 21.3 C, H: 34.0 %, BP.:102.8 kPa

Rad_Emi_AT_Ortho X.TIL

Contact: Dalibor Pokrajac

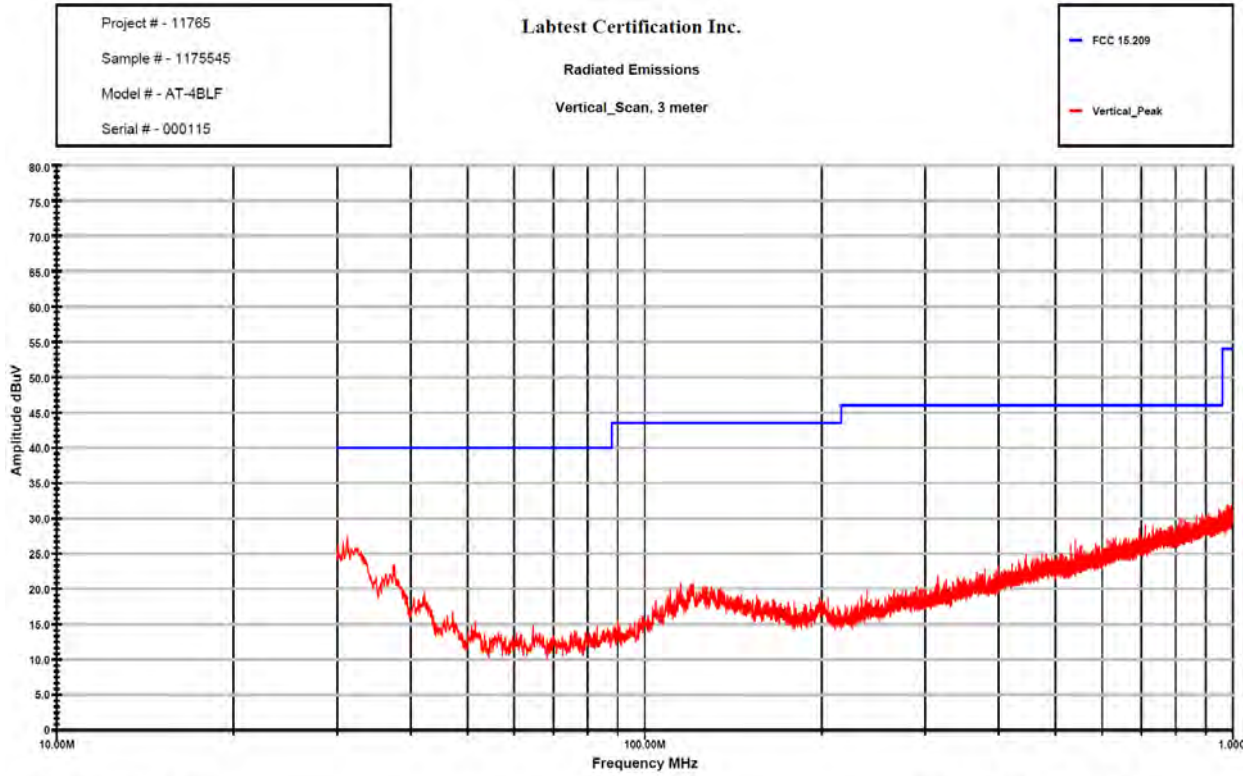
10:26:12 AM, Monday, November 25, 2013

Company: Guard RFID Solutions Inc.

Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765

Client: Guard RFID Solutions Inc.
Report No.: 11765-1E
Revision No.: 0

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



Operator: Jeremy Lee

T: 21.3 C, H: 34.0 %, BP: 102.8 kPa

Rad_Emi_AT_Ortho X.TIL

Contact: Dalibor Pokrajac

11:02:37 AM, Monday, November 25, 2013

Company: Guard RFID Solutions Inc.

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

The Bandwidth of the emission

Regulation	FCC15.231: 2010
Temperature	20.8 °C
Relative Humidity	34.0 %
Barometric Pressure:	102.8 kPa
Test Date	November 25, 2013
Sample Number	1175544
Calibrated Test Equipment (ID)	266, 272, 371, 408
Reference Equipment (ID) (Calibration not required)	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 wooden table.
- b) It was measured with a receiver - spectrum analyzer.

Test Results:

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

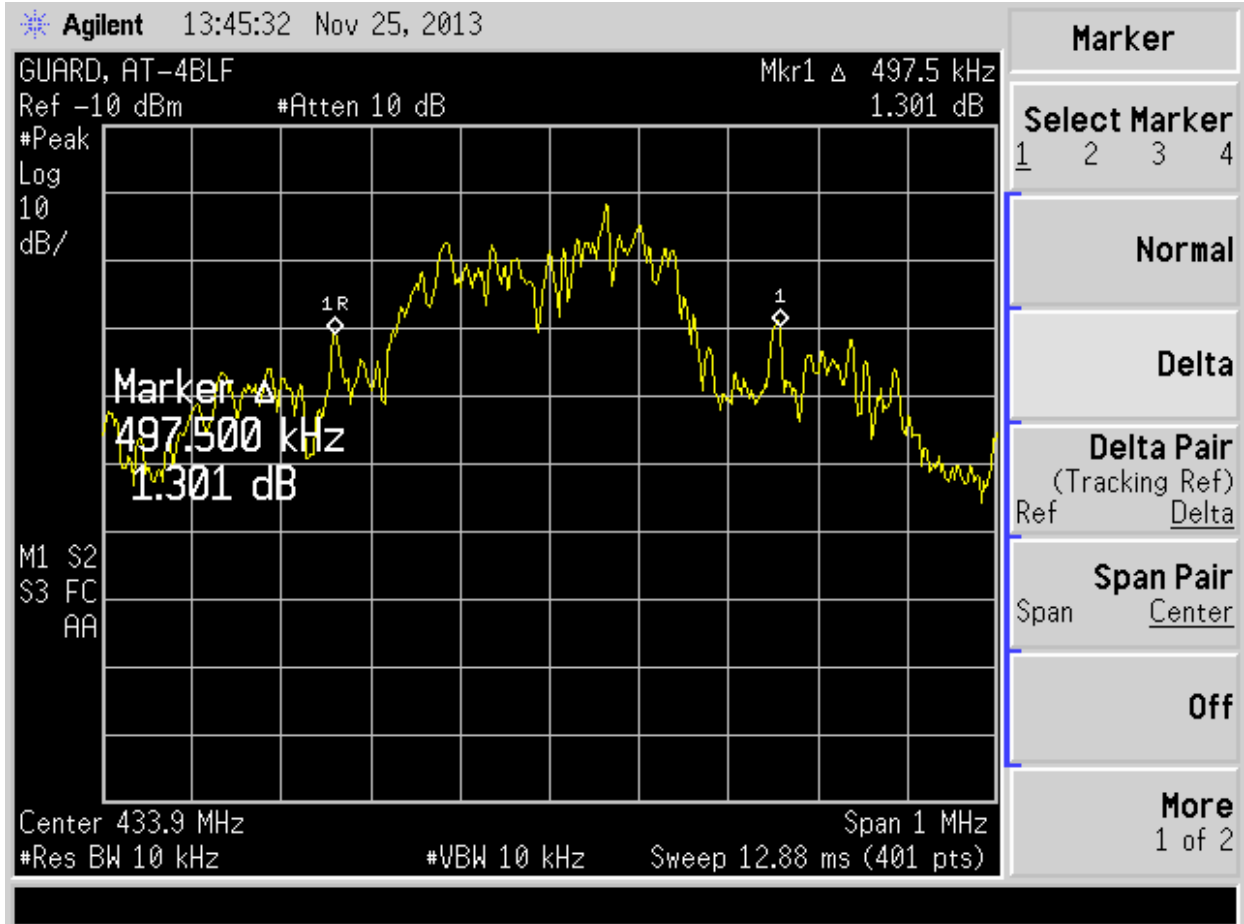
Center Frequency (MHz)	Limit(<0.25%, kHz)	Measured(kHz)	Results
433.92	< 1084.8	497.5	PASS

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Project No: 11765

Client:
Report No.:
Revision No.:

Guard RFID Solutions Inc.
11765-1E
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- Measured result of the Bandwidth of the emission(20dBc method).



Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

APPENDIX A: Test Equipment Used

ID No.	Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due Date	Calibration Certificate No:	Calibration Laboratory
227-3	Horn Antenna	A.H. Systems	SAS-571	936	12-Jul-2012	12-Jul-2014	2012062215	Liberty Labs
241	Active Loop Antenna	AL-130	Com-Power	17075	09-Oct-2013	09-Oct-2015	1310070101	Liberty Labs
266	Humidity/ Temperature Logger	Onset HOBO	U14-001	2436907	02-Jan-2013	02-Jan-2014	345135	Wescan
272	EMC Analyzer	Agilent	E7405A	US41110263	06-May-2013	06-May-2014	1-5114979997-1	Agilent
273	RF Preamplifier	Agilent	8449B	3008A02264	01-May-2013	01-May-2014	2200812126698	Micro Precision
371	EMC Broadband Antenna	Sunol	JB1	A022012	07-Mar-2012	07-Mar-2014	2012022808	Liberty Labs
374	EMC Shielded Enclosure	USC	USC-26	111811	N/A	N/A	N/A	N/A
408	Pre-Amplifier	A.H.Systems	PAM-0202	337	10-Apr-2013	10-Apr-2014	1304-1383EA	A.H.Systems

Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765

Client: Guard RFID Solutions Inc.
Report No.: 11765-1E
Revision No.: 0

APPENDIX B: Photos

- EUT: Top View



- EUT: Borrom View



- EUT: Top of Inside



- EUT: Bottom of Inside



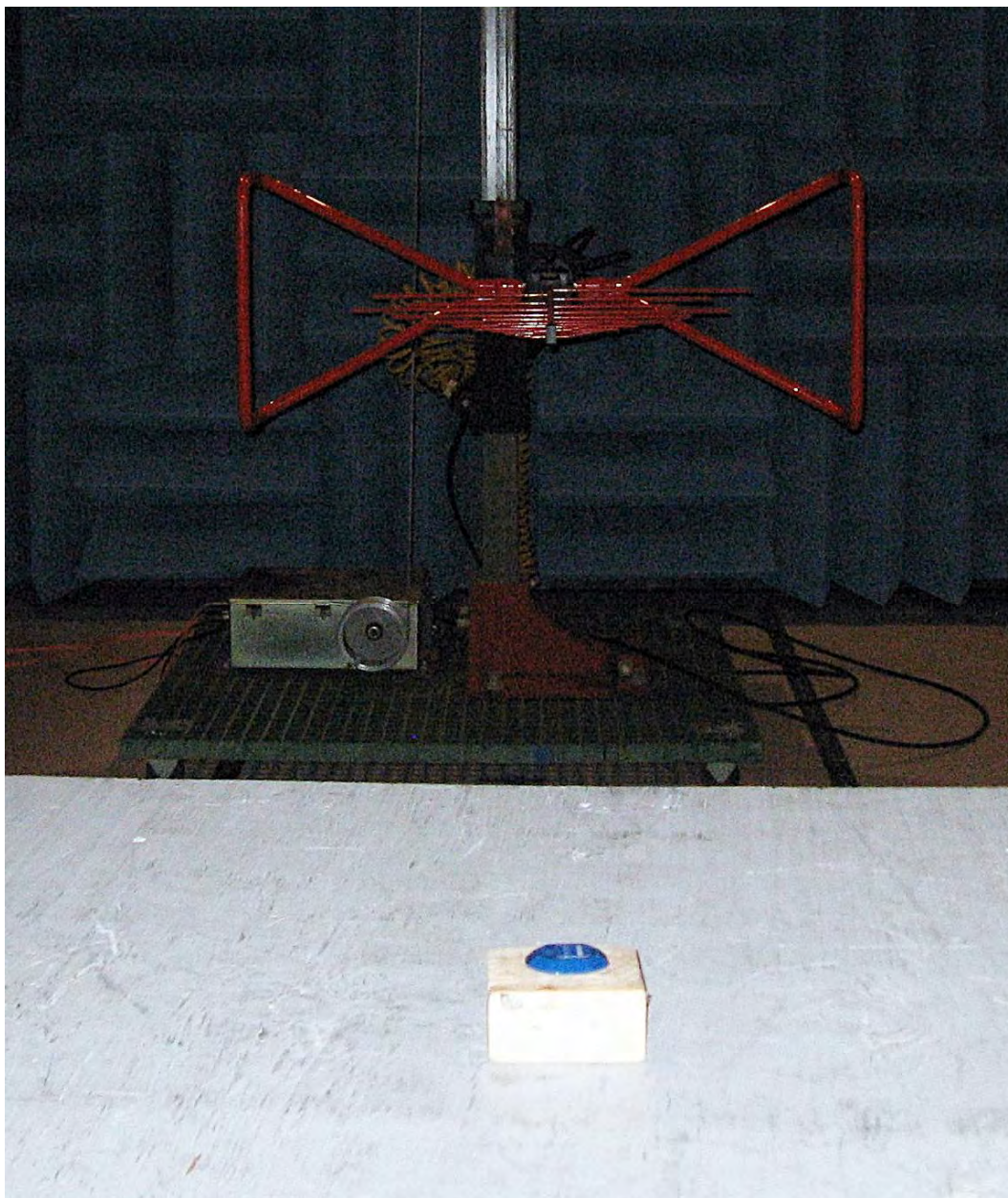
Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765

Client:
Report No.:
Revision No.:

Guard RFID Solutions Inc.
11765-1E
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APPENDIX C: Test setup photos

- Test configuration for Field Strength measurement

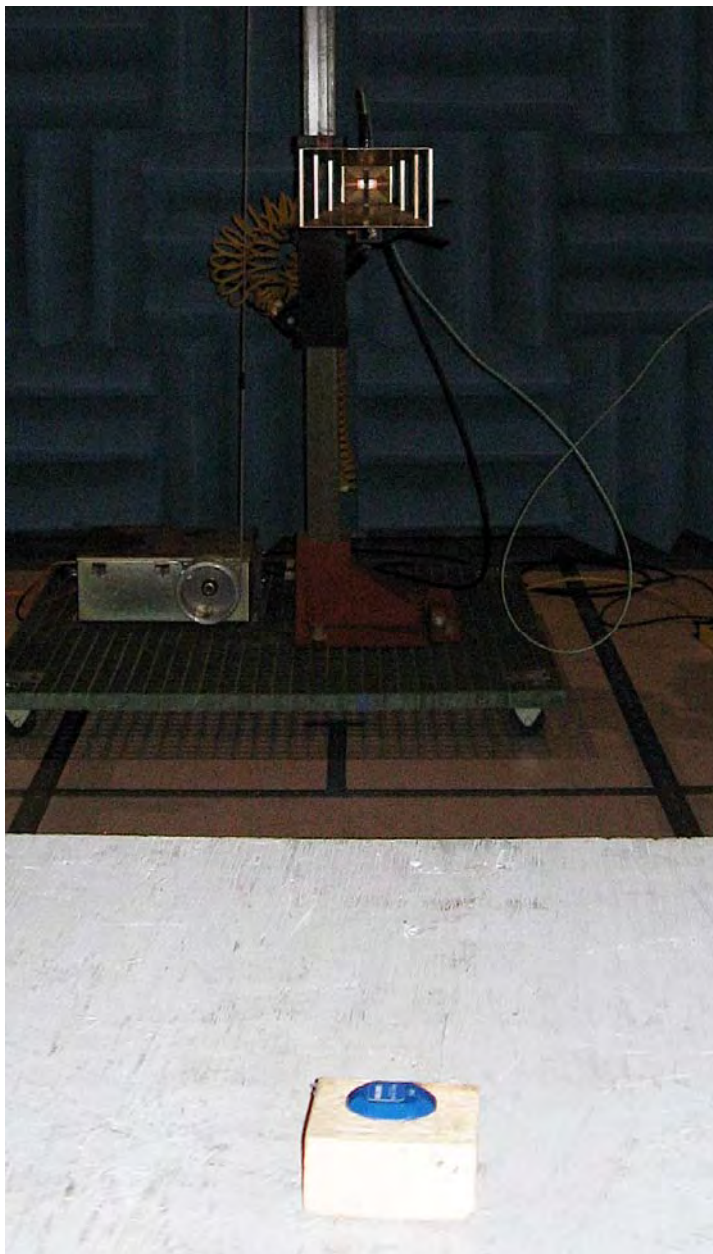


Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765

Client:
Report No.:
Revision No.:

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- Test configuration for Harmonic measurement



Prepared by: LabTest Certification Inc.
Date Issued: November 27, 2013
Project No: 11765

Client:
Report No.:
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- Test configuration for Unintentional measurement below 30MHz



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Project No: 11765

Client: Guard RFID Solutions Inc.
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Revision No.: 0

- Set-up for Orthogonal X



- Set-up for Orthogonal Y



- Set-up for Orthogonal Z



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Date Issued: November 27, 2013
Project No: 11765

Client:
Report No.:
Revision No.:

Guard RFID Solutions Inc.
11765-1E
0

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 March 21, 2013)

has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with 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



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

Print Date: 04/25/2013
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.

Page 1 of 5

11-04577

Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

International Accreditation Service
SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
 (Revised March 21, 2013)

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, Z21.8, Z21.10.1, Z21.13/CSA 4.9, Z21.15, Z21.17/CSA 2.7, Z21.19/1.6, Z21.20/C22.2 NO. 199, Z21.42, Z21.50, Z21.57, Z21.58, Z21.63/CSA 11.3, Z21.72/CSA 11.2, Z21.76, Z21.86/CSA 2.32, Z21.91, Z21.97 and Z21.89/CSA 1.18, Z83.7/CSA 2.14, Z83.11/CSA 1.8, Z83.26/CSA 2.37; CAN1-1.1, CAN1-2.15, CAN1-2.21, CSA Standards B45 Series, B125, B140.0, B140.1, B140.2.1, B140.2.2, B140.3, B140.4, B140.7-05, B140.8, B140.9.3, B140.9.4-10, B140.12-03, B212-00, B366.1-1.1, B415.1-10; CGA 1.3, CGA 1.16, CGA 2.17; CSA/CSA-3.4; 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, ASME A112 Series; UL Standards 296, 372, and 795
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,

C. P. Ramani
 C. P. Ramani, P.E.
 President



May 5, 2011
 Commencement Date

Print Date: 04/25/2013
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11-04680

International Accreditation Service

SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
 (Revised March 21, 2013)

FIELDS OF TESTING	ACCREDITED TEST METHODS
Electrical, EMC and Electro-mechanical (continued)	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, 55103-2, 55103-3, 60204-31, 60439-1, 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, 6172001, 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; 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, 29, 33, 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, 88, 89, 94, 99, 100, 101, 103, 104, 105, 107.1, 107.2, 107.3, 108, 109, 110, 112, 113, 114, 115, 117, 122, 125,

May 5, 2011
 Commencement Date

C. P. Ramani
 C. P. Ramani, P.E.
 President



Print Date: 04/25/2013
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International Accreditation Service
SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
 (Revised March 21, 2013)

FIELDS OF TESTING	ACCREDITED TEST METHODS
Electrical, EMC and Electro-mechanical (continued)	139, 141, 147, 148, 149, 150, 156, 157, 158, 164, 165, 166, 167, 168, 169, 173, 177, 183.1, 183.2, 184, 187, 191, 195, 205, 207, 213, 217, 218.1, 218.2, 223, 224, 225, 231, 234, 236, 243, 247, 250, 60065, 60947-1; 60947-4-1, 60950-22, 60950-23, 62368-1, 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 5085-16500, 8750, 2388; 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); UL Standards 1778, 60947-1, 60947-4-1, 60950-22, 60950-23, and 62368-1
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; 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



C. P. Ramani
 C. P. Ramani, P. E.
 President

May 5, 2011
 Commencement Date

Print Date: 04/25/2013
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Prepared by: LabTest Certification Inc.
 Date Issued: November 27, 2013
 Project No: 11765

Client: Guard RFID Solutions Inc.
 Report No.: 11765-1E
 Revision No.: 0

International Accreditation Service
SCOPE OF ACCREDITATION

LabTest Certification, Inc. TL-367
 (Revised March 21, 2013)

FIELDS OF TESTING	ACCREDITED TEST METHODS
ENERGY STAR Program Requirements Maritime	Product Specification for Water Coolers Eligibility Criteria 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, 7840, 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
Lighting	CAN/CSA C22.2 NO. 1993/JUL 1993/NMX-J-578/1-ANCE), C22.2 NO. 206, C22.2 NO. 250.7, C22.2 NO. 256/JUL 1786), C22.2 NO. 250.13, E61347-1, E61347-2-3
Hazardous Locations	CAN/CSA C22.2 NO. 25, 30, 137, 157, 213; CAN/CSA C22.2, EN, IEC and UL 60079-0, 60079-1, 60079-2, 60079-6, 60079-11, 60079-15, 60079-18, 60079-31; IEC/EN 13463-1, 13463-3, 13463-5, 13463-8; ISA 12.12.01; UL 913



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 President

May 5, 2011
 Commencement Date

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