



# REPORT

For

## Guard RFID Solutions Inc.

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

Date: January 11, 2016  
Report No.: 13191-1E  
Revision No.: 0  
Project No.: 13191  
Equipment: RFID Tag  
FCC ID: VZKUT  
IC ID.: 9937A-UT



### ONE STOP GLOBAL CERTIFICATION SOLUTIONS



3133-20800 Westminster Hwy, Richmond, BC  
V6V 2W3, Canada  
Phone: 604-247-0444  
Fax: 604-247-0442  
[www.labtestcert.com](http://www.labtestcert.com)

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<b>FCC Part 15: 2015/RSS-210, Issue 8</b>	
<b>Report reference No.</b> .....	13191-1E
<b>Report Revision History:</b>	➤ Rev. 0: January 11, 2016
<b>Tested by</b> (printed name and signature) .....	Jeremy LEE 
<b>Approved by</b> (printed name and signature) .....	Kavinder Dhillon, Eng.L. 
<b>Date of issue</b> .....	January 11, 2016
<b>Note: By signing this report, both the Testing Technician and the Reviewer hereby declare to abide by the applicable LabTest policies:</b>	
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).	
<b>FCC Site Registration No.:</b>	373387
<b>IC Site Registration No.:</b>	5970A-2
<b>Test Site Location Name</b> .....	LabTest Certification Inc.
<b>Address</b> .....	3133 – 20800 Westminster Hwy, Richmond, B.C. V6V-2W3
<b>Applicant's Name</b> .....	Guard RFID Solutions Inc.
<b>Address</b> .....	#140-766 Cliveden Place, Delta, BC, V3M 6C7, Canada
<b>Manufacture's Name</b> .....	Same as Applicant
<b>Address</b> .....	Same as Applicant
<b>Test specification</b>	
<b>Standards</b> .....	FCC15.231:2015 / RSS-210, Issue 8, December 2010
<b>Date Test sample received</b> .....	December 17, 2016
<b>Date of Testing</b> .....	December 22 to 30, 2016
<b>Test item description</b>	
<b>Model number</b> .....	UT-1BLF
<b>Serial number</b> .....	006890 without Modification 006866 modified as turned on every 1 Second.
<b>FCC ID</b> .....	VZKUT
<b>IC ID</b> .....	9937A-UT
<b>Rating(s)</b> .....	Internal Battery

## Device Under Test Description

<b>Particulars: test item vs. test requirements</b>	
Application for .....	RFIDTAG
Operating Transmit Frequency .....	433.92MHz
Operating Receive Frequency .....	125kHz
Beacon Interval .....	10 Seconds
Equipment mobility .....	Yes
Operating condition.....	-10 to +50 °C
Mass of equipment (g) .....	6
Dimension	28 mm X 19.8 mm
<b>Nominal Voltages for:</b>	<input checked="" type="checkbox"/> stand-alone equipment <input type="checkbox"/> combined (or host) equipment <input type="checkbox"/> test jig
<b>Supply Voltage:</b>	_____ AC _____ Amps ___3V___ DC _____ Amps
If DC Power:	<input type="checkbox"/> Internal Power Supply <input type="checkbox"/> External Power Supply or AC/DC adapter <input checked="" type="checkbox"/> Battery <ul style="list-style-type: none"> <li><input type="checkbox"/> Nickel Cadmium</li> <li><input type="checkbox"/> Alkaline</li> <li><input type="checkbox"/> Nickel-Metal Hydride</li> <li><input checked="" type="checkbox"/> Lithium-Ion</li> <li><input type="checkbox"/> Lead Acid (Vehicle regulated)</li> <li><input type="checkbox"/> Other</li> </ul>
<b>Test case verdicts</b>	
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 UT-1BLF, UT-2BLFD and UT-2BLF3 are Umbilical Tags for Infant Security applications, designed to be mounted on an umbilical clamp. The Tags are applied immediately after the birth of an infant, at the time when an umbilical clamp is attached to the newborn’s umbilicus. This ensures that the newborn is protected immediately after birth.

All three tags have beacon capability, and also contain a Low Frequency Receiver to be able to detect signals from GuardRFID’s Tag Exciters. This combination enables the Tag to be tracked and located in real time, as well as allowing for instant detection of the Tag at egress points in order to enable GuardRFID’s system to control doors and protect a tagged infant from leaving the perimeter.

The UT-2BLFD is disposable, and is discarded after use, eliminating the need for decontamination and disinfection of the Tag, and reducing the potential for cross infection between infants. The UT-1BLF and UT-2BLF3 have combined shelf and service lives of 12 months and 3 months respectively, and can therefore be used for multiple applications before being discarded.

**SPECIFICATIONS:**

	UT-1BLF	UT-2BLF3	UT-2BLFD
Part Number	61-10007	61-10003	61-10002
Battery Life	12 months	3 months	Single use
Weight	6 gm	4.6 gm	4.6 gm
Transmit Frequency	433 MHz		
Receive Frequency	125 KHz		
Beacon Interval	10 seconds		
Dimensions	1.1" x 0.78" (28 x 19.8 mm) including stem		
Operating Temperature	14° F to 122°F (-10°C to 50°C)		
Humidity	0 – 100%, Waterproof		
Regulatory	FCC, IC, CE, UL-294		
Warranty	12 months pro-rated	3 months pro-rated	DOA

## Frequencies

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

## List of ancillary and/or support equipment provided by the applicant

Model No.	Description	Manufacturer	Approvals/Standards
N/A			

## Description of Interface Cables for Testing

Connected port	Cable Type	Cable length	Ferrite
N/A			

## 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 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.
8447D	Pre-Amplifier, 30 to 2,000MHz	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.
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

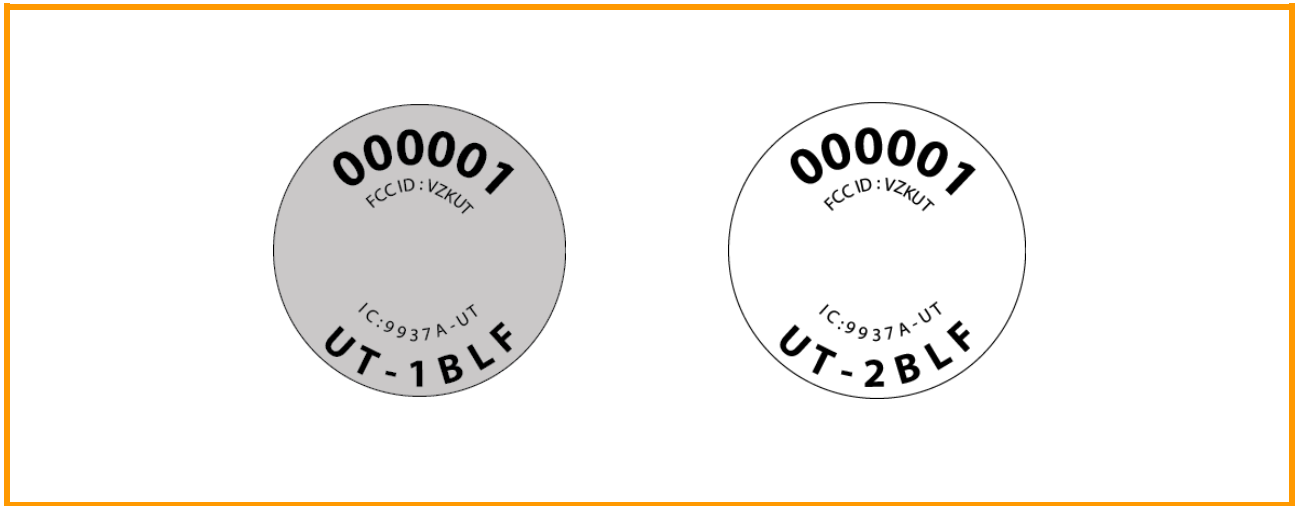
## Measurement Uncertainty

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

Parameter	Uncertainty(dB)
Conducted Measurements, 0.15 to 30MHz	± 3.46 dB
Radiated Measurements, 9kHz to 1,000MHz	± 4.91 dB

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

## Markings



## 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, issue 4	ANSI C63.4:2014 & ANSI C63.10:2013, Clause 6.2	N/A <sup>1)</sup>
Field Strength of Fundamental -Intentional radiator	15.231, 15.205, 15.209 & RSS-210	ANSI C63.4:2014 & ANSI C63.10:2013, Clause 6.5 & 6.6	PASS
Field Strength of Spurious Emissions -Intentional radiator	15.231, 15.205, 15.209 & RSS-210	ANSI C63.4:2014 & ANSI C63.10:2013, Clause 6.5 & 6.6	PASS
Radiated Emissions-Intentional radiators	15.209 and RSS-210	ANSI C63.4:2014 & ANSI C63.10:2013, Clause 6.5	PASS
The Bandwidth of the emission	15.231 and RSS-210	ANSI C63.10:2013, Clause 6.9	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	December 20, 2015
Sample Number	3932
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  $\mu$ H/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 (dB $\mu$ V)	
	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	FCC15.231:2015
Intentional Radiating Frequency	433.92MHz
Sample Number	3931 & 3932
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

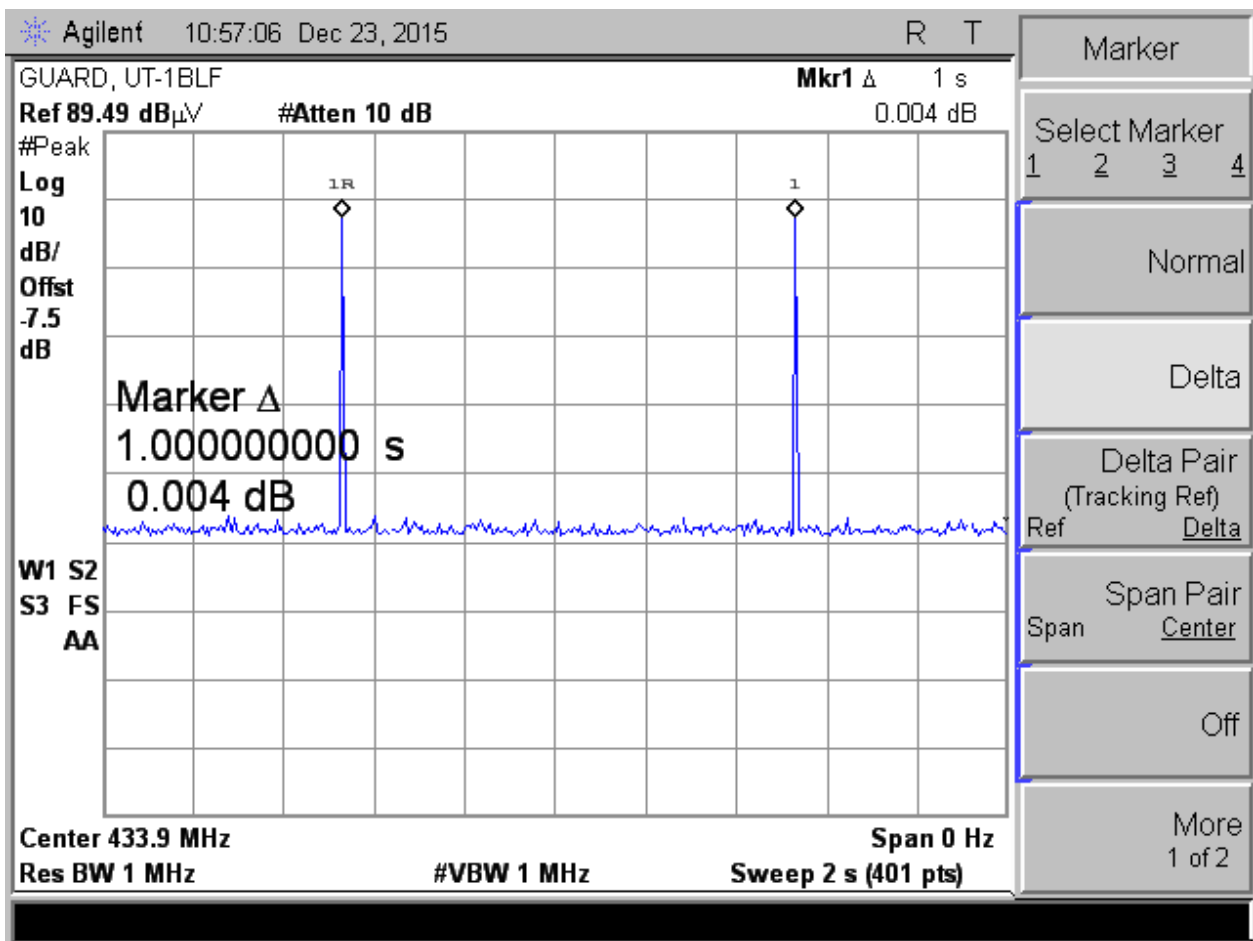
**X**    **Pass**                      **Fail**                      **N/A**

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*		

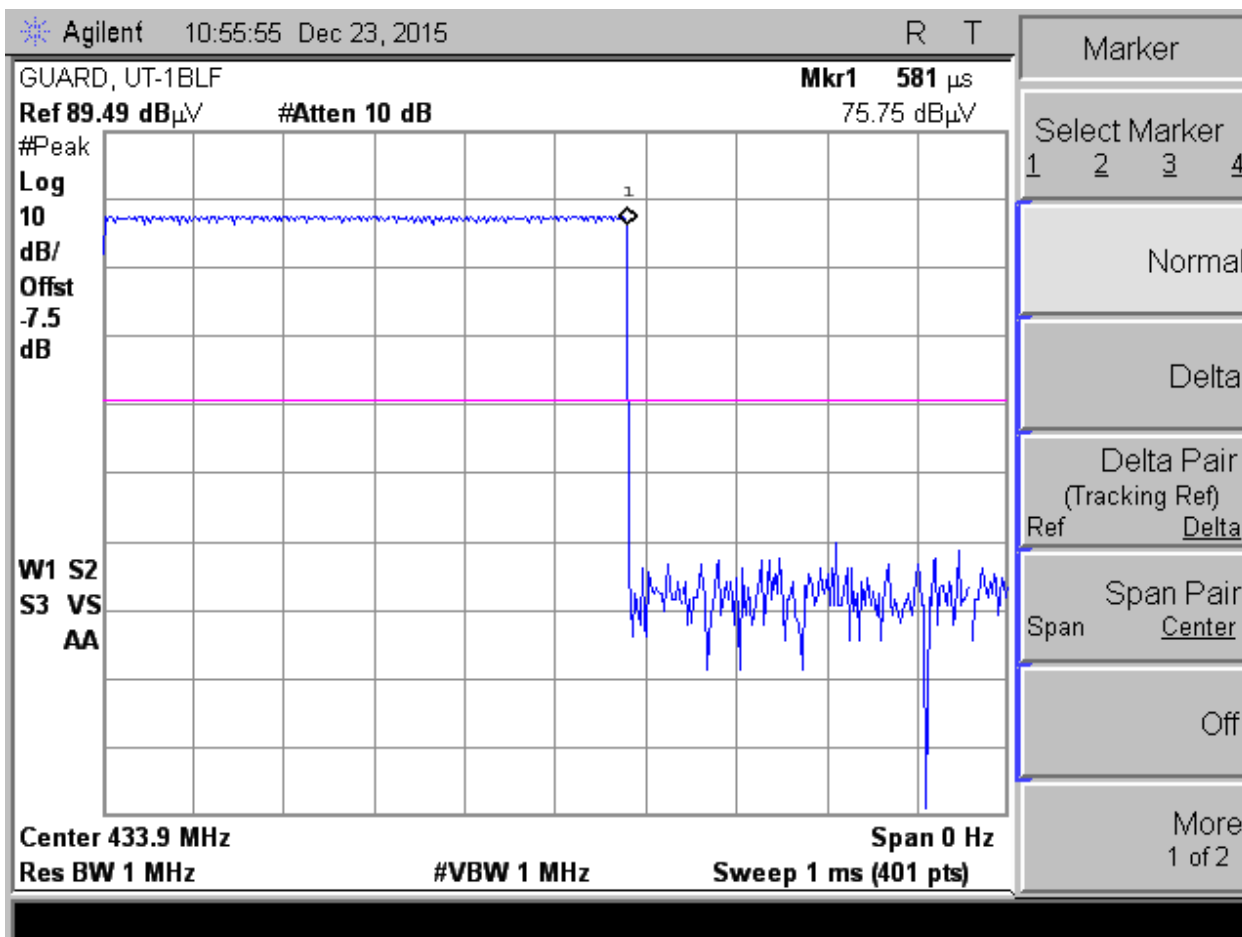
	Polling or supervision transmission, including data, to determine system integrity or transmitters used in security or safety applications requires no total duration of transmission not exceeding 2s/hr.		X	
Pt 15.231(a)(4)	Operation involving fire, security, or safety of life, when activated to signal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

\*Tag transmits one 581µs pulse every 10 seconds.

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



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



## Field Strength of Fundamental

Regulation	FCC15.231:2015
Intentional Radiating Frequency	433.92MHz
Temperature	20.0 TO 21.0 °C
Relative Humidity	41.0 TO 41.3 %
Barometric Pressure:	99.5 TO 99.8 kPa
Test Date	December 22 & 23, 2015
Sample Number	3931
Calibrated Test Equipment (ID)	266, 272, 371, 516
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 ....	<sup>1</sup> 1,250 to 3,750 .....	<sup>1</sup> 125 to 375
174–260 ....	3,750 .....	375
260–470 ....	<sup>1</sup> 3,750 to 12,500 .....	<sup>1</sup> 375 to 1,250
Above 470	12,500 .....	1,250

<sup>1</sup> 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.

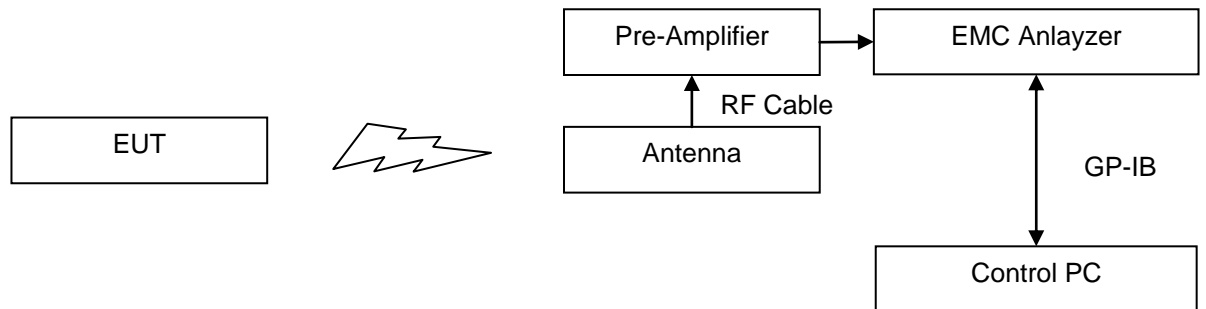
## Test Setup

The test was performed in accordance with **FCC 15.31, 15.33, 15.35 and ANSI C63.10, 2013.**

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

- a) The EUT was placed on non-conductive platform, 0.8meter high.
- 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

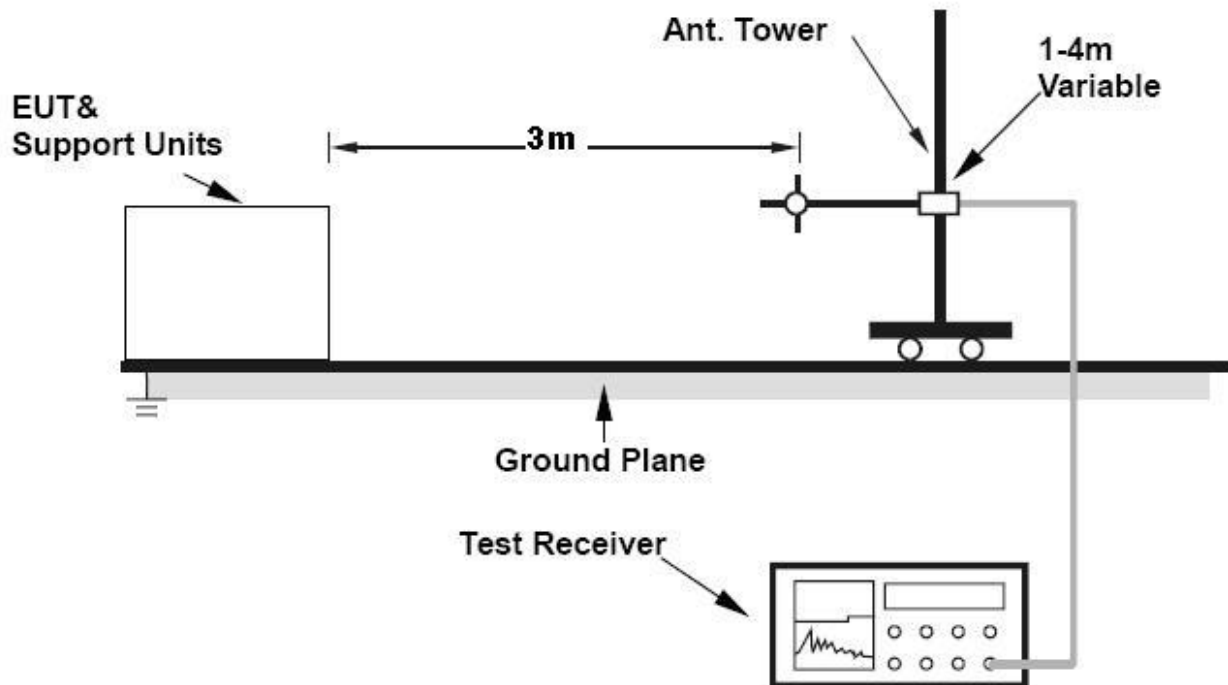


Figure – 1 Test setup for Radiated emissions in Chamber

### 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	Pol.	Results
433.92	80.83	63.97	16.86	Y	H	PASS
		58.81	22.02	X	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

10:33:09 PM, Tuesday, December 22, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFIDSolutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
433.920 MHz	69.96	17.00	-24.51	62.45	80.83	18.38	296.5	229.6	H
T.: 20.0 C, H.: 41.0 %, B.P.:99.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

LabTest Certification Inc.  
 Field Strength of Fundamental  
 FCC 15.231, 3 meters, Orthogonal X\_Vertical

Operator: Jeremy Lee

10:33:09 PM, Tuesday, December 22, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFIDSolutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
433.920 MHz	66.65	16.68	-24.51	58.81	80.83	22.02	59.5	110.2	V
T.: 20.0 C, H.: 41.0 %, B.P.:99.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

**- 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

Contact: Dalibor Pokrajac  
 Company: Guard RFIDSolutions Inc.

09:54:16 AM, Wednesday, December 23, 2015

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
433.920 MHz	71.48	17.00	-24.51	63.97	80.83	16.86	45.3	205.1	H
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

LabTest Certification Inc.  
 Field Strength of Fundamental  
 FCC 15.231, 3 meters, Orthogonal Y\_Vertical

Operator: Jeremy Lee

Contact: Dalibor Pokrajac  
 Company: Guard RFIDSolutions Inc.

09:35:40 AM, Wednesday, December 23, 2015

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
433.920 MHz	65.06	16.68	-24.51	57.22	80.83	23.61	272.8	136.1	V
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									



**- 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

Contact: Dalibor Pokrajac  
 Company: Guard RFIDSolutions Inc.

10:36:24 AM, Wednesday, December 23, 2015

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
433.920 MHz	61.17	17.00	-24.51	53.66	80.83	27.17	36.8	204.3	H
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

LabTest Certification Inc.  
 Field Strength of Fundamental  
 FCC 15.231, 3 meters, Orthogonal Z\_Vertical

Operator: Jeremy Lee

Contact: Dalibor Pokrajac  
 Company: Guard RFIDSolutions Inc.

11:09:15 AM, Wednesday, December 23, 2015

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
433.920 MHz	63.23	16.68	-24.51	55.39	80.83	25.44	299.8	111.9	V
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

## Field Strength of Spurious Emissions

Regulation	FCC15.231:2015
Intentional Radiating Frequency	433.92MHz
Temperature	20.4 TO 21.4 °C
Relative Humidity	35.0 to 38.0 %
Barometric Pressure:	102.3 to 102.7 kPa
Test Date	December 22 to 24, 2015
Sample Number	3931
Calibrated Test Equipment (ID)	266, 227-3, 272, 273, 371
Reference Equipment (ID) (Calibration not required)	374, 516
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 ....	<sup>1</sup> 1,250 to 3,750 .....	<sup>1</sup> 125 to 375
174–260 ....	3,750 .....	375
260–470 ....	<sup>1</sup> 3,750 to 12,500 .....	<sup>1</sup> 375 to 1,250
Above 470	12,500 .....	1,250

<sup>1</sup> 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, 15.209:2015 and ANSI C63.10: 2013.**

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

- a) The EUT was placed on non-conductive platform, 0.8meter for under 1GHz and 1.5 meter high for over 1GHz.
- 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	23.96	36.87	X	V	PASS
1301.76	Peak	73.98	47.46	26.52	Y	V	PASS
	Averaging	53.98	22.93	31.05	Z	H	PASS
1735.68	Peak	80.83	40.27	40.56	Y	H	PASS
	Averaging	60.83	24.28	36.55	Z	H	PASS
2169.60	Peak	80.83	59.85	20.98	X	H	PASS
	Averaging	60.83	24.95	35.88	X	H	PASS
2606.25	Peak	80.83	47.36	33.47	Z	V	PASS
	Averaging	60.83	28.54	32.29	Z	H	PASS
3037.44	Peak	80.83	67.17	13.66	Y	V	PASS
	Averaging	60.83	30.54	30.29	Z	H	PASS
3471.36	Peak	80.83	61.30	19.53	Z	H	PASS
	Averaging	60.83	30.75	30.08	Z	H	PASS
3905.28	Peak	73.98	68.38	5.60	Y	V	PASS
	Averaging	53.98	31.81	22.17	Z	H	PASS

4339.20	Peak	73.98	58.16	15.82	Y	V	PASS
	Averaging	53.98	31.43	22.55	Z	H	PASS

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

LabTest Certification Inc.  
 Field Strength of 2nd Harmonic  
 FCC 15.231, 3 meters, Orthogonal X\_Horizontal

Operator: Jeremy Lee

10:20:05 PM, Tuesday, December 22, 2015

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	
867.840000 MHz	24.44	22.50	-26.19	20.75	60.83	40.08	359.8	229.9	H
T.: 20.0 C, H.: 41.0 %, B.P.:99.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

LabTest Certification Inc.  
 Field Strength of 2nd Harmonic  
 FCC 15.231, 3 meters, Orthogonal X\_Vertical

Operator: Jeremy Lee

10:26:48 PM, Tuesday, December 22, 2015

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	
867.840000 MHz	26.91	21.80	-26.19	23.96	60.83	36.87	110.0	130.0	V
T.: 20.0 C, H.: 41.0 %, B.P.:99.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

LabTest Certification Inc.  
 Field Strength of 2nd Harmonic  
 FCC 15.231, 3 meters, Orthogonal Y\_Horizontal

Operator: Jeremy Lee

09:46:30 AM, Wednesday, December 23, 2015

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	
867.840000 MHz	27.23	22.50	-26.19	23.54	60.83	37.29	268.5	100.2	H
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

LabTest Certification Inc.  
 Field Strength of 2nd Harmonic  
 FCC 15.231, 3 meters, Orthogonal Y\_Vertical

Operator: Jeremy Lee

09:41:03 AM, Wednesday, December 23, 2015

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	
867.840000 MHz	24.44	21.80	-26.19	20.05	60.83	40.78	122.8	101.9	V
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

LabTest Certification Inc.  
 Field Strength of 2nd Harmonic  
 FCC 15.231, 3 meters, Orthogonal Z\_Horizontal

Operator: Jeremy Lee

10:47:04 AM, Wednesday, December 23, 2015

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	
867.840000 MHz	19.97	22.50	-26.19	16.28	60.83	44.55	312.8	101.0	H
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

LabTest Certification Inc.  
 Field Strength of 2nd Harmonic  
 FCC 15.231, 3 meters, Orthogonal Z\_Vertical

Operator: Jeremy Lee

10:51:40 AM, Wednesday, December 23, 2015

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	
867.840000 MHz	16.79	21.80	-26.19	12.40	60.83	48.43	5.3	138.8	V
T.: 20.1 C, H.: 41.3 %, B.P.:99.8 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

**- 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

12:09:08 PM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	42.75	24.76	-32.02	35.49	73.98	38.49	137.3	100.0	H
1.735680 GHz	43.34	26.26	-31.68	37.92	80.83	42.91	0.0	100.0	H
2.169600 GHz	62.83	28.21	-31.19	59.85	80.83	20.98	56.5	100.0	H
2.603520 GHz	44.38	29.99	-29.71	44.65	80.83	36.18	97.3	100.0	H
3.037440 GHz	63.32	31.20	-30.50	64.02	80.83	16.81	0.0	100.0	H
3.471360 GHz	51.72	31.00	-30.16	52.56	80.83	28.27	23.0	137.2	H
3.905280 GHz	65.17	32.48	-29.49	68.16	73.98	5.82	0.0	100.0	H
4.339200 GHz	54.33	32.47	-28.97	57.83	73.98	16.15	0.0	100.0	H
T.: 21.5 C, H.: 42.5 %, B.P.:100.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									

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

Operator: Jeremy Lee

12:46:18 PM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	48.46	24.78	-32.02	41.22	73.98	32.76	80.0	100.0	V
1.735680 GHz	43.86	26.19	-31.68	38.38	80.83	42.45	360.0	100.0	V
2.169600 GHz	56.71	28.18	-31.19	53.70	80.83	27.13	76.5	100.0	V
2.603520 GHz	42.56	30.03	-29.71	42.87	80.83	37.96	0.0	100.0	V
3.037440 GHz	66.07	31.22	-30.50	66.79	80.83	14.04	83.3	103.0	V
3.471360 GHz	56.83	30.98	-30.16	57.65	80.83	23.18	75.5	118.3	V
3.905280 GHz	63.07	32.50	-29.49	66.08	73.98	7.90	105.0	100.0	V
4.339200 GHz	51.27	32.47	-28.97	54.77	73.98	19.21	70.3	142.7	V
T.: 21.5 C, H.: 42.5 %, B.P.:100.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

**- 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

12:09:08 PM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	degree	Tower cm	Pol
1.301760 GHz	29.50	24.76	-32.02	22.24	53.98	31.74	137.3	100.0	H
1.735680 GHz	29.51	26.26	-31.68	24.09	60.83	36.74	0.0	100.0	H
2.169600 GHz	27.93	28.21	-31.19	24.95	60.83	35.88	56.5	100.0	H
2.603520 GHz	28.26	29.99	-29.71	28.53	60.83	32.30	97.3	100.0	H
3.037440 GHz	29.13	31.20	-30.50	29.83	60.83	31.00	0.0	100.0	H
3.471360 GHz	28.42	31.00	-30.16	29.26	60.83	31.57	23.0	137.2	H
3.905280 GHz	28.40	32.48	-29.49	31.39	53.98	22.59	0.0	100.0	H
4.339200 GHz	27.32	32.47	-28.97	30.82	53.98	23.16	0.0	100.0	H
T.: 21.5 C, H.: 42.5 %, B.P.:100.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

Operator: Jeremy Lee

12:46:18 PM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	degree	Tower cm	Pol
1.301760 GHz	29.76	24.78	-32.02	22.52	53.98	31.46	80.0	100.0	V
1.735680 GHz	29.31	26.19	-31.68	23.83	60.83	37.00	360.0	100.0	V
2.169600 GHz	27.71	28.18	-31.19	24.70	60.83	36.13	76.5	100.0	V
2.603520 GHz	28.06	30.03	-29.71	28.37	60.83	32.46	0.0	100.0	V
3.037440 GHz	29.00	31.22	-30.50	29.72	60.83	31.11	83.3	103.0	V
3.471360 GHz	29.58	30.98	-30.16	30.40	60.83	30.43	75.5	118.3	V
3.905280 GHz	28.21	32.50	-29.49	31.22	53.98	22.76	105.0	100.0	V
4.339200 GHz	27.33	32.47	-28.97	30.83	53.98	23.15	70.3	142.7	V
T.: 21.5 C, H.: 42.5 %, B.P.:100.5 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									



**- Field Strengt 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

11:36:56 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	52.42	24.76	-32.02	45.16	73.98	28.82	278.3	100.0	H
1.735680 GHz	45.69	26.26	-31.68	40.27	80.83	40.56	330.0	182.6	H
2.169600 GHz	53.43	28.21	-31.19	50.45	80.83	30.38	45.3	100.0	H
2.603520 GHz	44.29	29.99	-29.71	44.56	80.83	36.27	273.8	100.0	H
3.037440 GHz	57.51	31.20	-30.50	58.21	80.83	22.62	0.0	166.9	H
3.471360 GHz	48.85	31.00	-30.16	49.69	80.83	31.14	0.0	167.0	H
3.905280 GHz	59.53	32.48	-29.49	62.52	73.98	11.46	187.0	100.0	H
4.339200 GHz	46.17	32.47	-28.97	49.67	73.98	24.31	194.0	100.0	H
T.: 21.0 C, H.: 43.0 %, B.P.:100.4 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

Operator: Jeremy Lee

11:10:33 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_Peak dBuV/m	Margin_PK dB	T/T degree	Tower cm	Pol
1.301760 GHz	54.70	24.78	-32.02	47.46	73.98	26.52	136.5	100.0	V
1.735680 GHz	45.00	26.19	-31.68	39.52	80.83	41.31	102.5	127.6	V
2.169600 GHz	59.84	28.18	-31.19	56.83	80.83	24.00	178.5	141.5	V
2.603520 GHz	44.84	30.03	-29.71	45.15	80.83	35.68	331.0	149.2	V
3.037440 GHz	66.45	31.22	-30.50	67.17	80.83	13.66	324.0	124.4	V
3.471360 GHz	58.27	30.98	-30.16	59.09	80.83	21.74	303.0	111.9	V
3.905280 GHz	65.37	32.50	-29.49	68.38	73.98	5.60	0.0	141.1	V
4.339200 GHz	54.66	32.47	-28.97	58.16	73.98	15.82	0.0	100.0	V
T.: 21.0 C, H.: 43.0 %, B.P.:100.4 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									



**- 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

11:36:56 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVGT/T dB	degree	Tower cm	Pol
1.301760 GHz	29.45	24.76	-32.02	22.19	53.98	31.79	278.3	100.0	H
1.735680 GHz	29.45	26.26	-31.68	24.03	60.83	36.80	330.0	182.6	H
2.169600 GHz	27.90	28.21	-31.19	24.92	60.83	35.91	45.3	100.0	H
2.603520 GHz	27.98	29.99	-29.71	28.25	60.83	32.58	273.8	100.0	H
3.037440 GHz	29.10	31.20	-30.50	29.80	60.83	31.03	0.0	166.9	H
3.471360 GHz	29.37	31.00	-30.16	30.21	60.83	30.62	0.0	167.0	H
3.905280 GHz	28.31	32.48	-29.49	31.30	53.98	22.68	187.0	100.0	H
4.339200 GHz	27.43	32.47	-28.97	30.93	53.98	23.05	194.0	100.0	H
T.: 21.0 C, H.: 43.0 %, B.P.:100.4 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

Operator: Jeremy Lee

11:10:33 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVGT/T dB	degree	Tower cm	Pol
1.301760 GHz	30.15	24.78	-32.02	22.91	53.98	31.07	136.5	100.0	V
1.735680 GHz	29.57	26.19	-31.68	24.09	60.83	36.74	102.5	127.6	V
2.169600 GHz	27.50	28.18	-31.19	24.49	60.83	36.34	178.5	141.5	V
2.603520 GHz	27.96	30.03	-29.71	28.27	60.83	32.56	331.0	149.2	V
3.037440 GHz	29.22	31.22	-30.50	29.94	60.83	30.89	324.0	124.4	V
3.471360 GHz	29.47	30.98	-30.16	30.29	60.83	30.54	303.0	111.9	V
3.905280 GHz	28.33	32.50	-29.49	31.34	53.98	22.64	0.0	141.1	V
4.339200 GHz	27.51	32.47	-28.97	31.01	53.98	22.97	0.0	100.0	V
T.: 21.0 C, H.: 43.0 %, B.P.:100.4 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

**- Field Strengt 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

09:53:10 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit_Peak	Margin_PK	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
1.301760 GHz	54.39	24.76	-32.02	47.13	73.98	26.85	181.3	100.0	H
1.735680 GHz	46.33	26.26	-31.68	40.91	80.83	39.92	288.7	100.0	H
2.169600 GHz	55.95	28.21	-31.19	52.97	80.83	27.86	182.5	100.0	H
2.603520 GHz	45.95	29.99	-29.71	46.22	80.83	34.61	276.0	135.5	H
3.037440 GHz	64.73	31.20	-30.50	65.43	80.83	15.40	326.3	100.0	H
3.471360 GHz	60.46	31.00	-30.16	61.30	80.83	19.53	324.7	100.0	H
3.905280 GHz	61.79	32.48	-29.49	64.78	73.98	9.20	320.7	112.8	H
4.339200 GHz	52.19	32.47	-28.97	55.69	73.98	18.29	287.0	100.0	H
T.: 20.5 C, H.: 44.2 %, B.P.:100.3 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

Operator: Jeremy Lee

10:27:29 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit_Peak	Margin_PK	T/T	Tower	Pol
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	degree	cm	
1.301760 GHz	52.96	24.78	-32.02	45.72	73.98	28.26	293.0	134.1	V
1.735680 GHz	45.68	26.19	-31.68	40.20	80.83	40.63	1.8	172.6	V
2.169600 GHz	61.44	28.18	-31.19	58.43	80.83	22.40	278.8	100.0	V
2.603520 GHz	47.05	30.03	-29.71	47.36	80.83	33.47	269.8	112.8	V
3.037440 GHz	63.45	31.22	-30.50	64.17	80.83	16.66	259.3	100.0	V
3.471360 GHz	51.72	30.98	-30.16	52.54	80.83	28.29	100.0	279.8	V
3.905280 GHz	61.82	32.50	-29.49	64.83	73.98	9.15	304.8	100.0	V
4.339200 GHz	51.44	32.47	-28.97	54.94	73.98	19.04	63.0	135.5	V
T.: 20.5 C, H.: 44.2 %, B.P.:100.3 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

**- 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

09:53:10 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	degree	Tower cm	Pol
1.301760 GHz	30.19	24.76	-32.02	22.93	53.98	31.05	181.3	100.0	H
1.735680 GHz	29.70	26.26	-31.68	24.28	60.83	36.55	288.7	100.0	H
2.169600 GHz	27.65	28.21	-31.19	24.67	60.83	36.16	182.5	100.0	H
2.603520 GHz	28.27	29.99	-29.71	28.54	60.83	32.29	276.0	135.5	H
3.037440 GHz	29.84	31.20	-30.50	30.54	60.83	30.29	326.3	100.0	H
3.471360 GHz	29.91	31.00	-30.16	30.75	60.83	30.08	324.7	100.0	H
3.905280 GHz	28.82	32.48	-29.49	31.81	53.98	22.17	320.7	112.8	H
4.339200 GHz	27.93	32.47	-28.97	31.43	53.98	22.55	287.0	100.0	H
T.: 20.5 C, H.: 44.2 %, B.P.:100.3 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

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

Operator: Jeremy Lee

10:27:29 AM, Thursday, December 24, 2015

Contact: Dalibor Pokrajac  
 Company: Guard RFID Solutions Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit_AVG dBuV/m	Margin_AVG/T dB	degree	Tower cm	Pol
1.301760 GHz	30.17	24.78	-32.02	22.93	53.98	31.05	293.0	134.1	V
1.735680 GHz	29.46	26.19	-31.68	23.98	60.83	36.85	1.8	172.6	V
2.169600 GHz	27.67	28.18	-31.19	24.66	60.83	36.17	278.8	100.0	V
2.603520 GHz	28.05	30.03	-29.71	28.36	60.83	32.47	269.8	112.8	V
3.037440 GHz	29.25	31.22	-30.50	29.97	60.83	30.86	259.3	100.0	V
3.471360 GHz	29.31	30.98	-30.16	30.13	60.83	30.70	100.0	279.8	V
3.905280 GHz	28.40	32.50	-29.49	31.41	53.98	22.57	304.8	100.0	V
4.339200 GHz	27.48	32.47	-28.97	30.98	53.98	23.00	63.0	135.5	V
T.: 20.5 C, H.: 44.2 %, B.P.:100.3 kPa									
Project # - 13191									
Model # - UT-1BLF									
Serial # - 006888									
Sample # - 3931									
- Modified turned on time to 1Sec.									

## Radiated Emission; Intentional Radiators

Regulation	FCC15.209:2015
Intentional Radiating Frequency	433.92MHz
Temperature	21.8 to 22.33 °C
Relative Humidity	40.0 to 42.0 %
Barometric Pressure:	102.3 to 103.3 kPa
Test Date	December 29 & 30
Sample Number	3932
Calibrated Test Equipment (ID)	241, 266, 272, 371
Reference Equipment (ID) (Calibration not required)	374, 516
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)	Measure- ment dis- tance (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 Setup

The test was performed in accordance with **FCC 15.109, FCC 15.31, FCC 15.33, FCC 15.35, and ANSI C63.4, 2014.**

Test procedure is based on the FCC15.31(a)(3) - Other intentional and unintentional radiators are to be measured for compliance using the following procedure excluding sections 4.1.5.2, 5.7, 9 and 14: ANSI C63.4–2014: “Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz” (incorporated by reference, see § 15.38). This

incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51.

NOTE to Paragraph (a)(3): Digital devices tested to show compliance with the provisions of §§ 15.107(e) and 15.109(g) must be tested following the ANSI C63.4 procedure described in paragraph (a)(3) of this section.[As stated in the adopting R&O, ANSI C63.4 is not used for measurements below 30 MHz.]

The EUT was placed on a 0.8-meter high nonconductive platform that was placed directly onto a flush mounted turntable in EMC Shielded Enclosure. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter. It was measured with a receiver – EMC analyzer, which was controlled by special EMC software, TILE4. The antennas were balanced dipoles. For frequencies of 80 MHz or above, the antennas were resonant in length, and for frequencies below 80 MHz it had a length equal to the 80 MHz resonant length.

Tests were performed to determine the worst orientation of the EUT. With the EUT positioned in worst case of operation, emissions from the unit were maximized by manipulating the cables, and by adjusting the polarization and height of the receive antenna and rotating the EUT on the turntable.

- The EUT was set up as per the test configuration to simulate typical actual usage per the user's manual.
- The EUT was set on the maximum operating; the EUT was setup to continuing operating as a worst case.
- The following measurements were made with
  - Span = wide enough to fully capture the emission being measured.
  - RBW = 9kHz(150kHz to 30MHz) and 120kHz(30 to 1,000MHz)
  - VBW ≥ RBW
  - Sweep = Auto
  - Detecting Method = Peak Detector

## Test Results

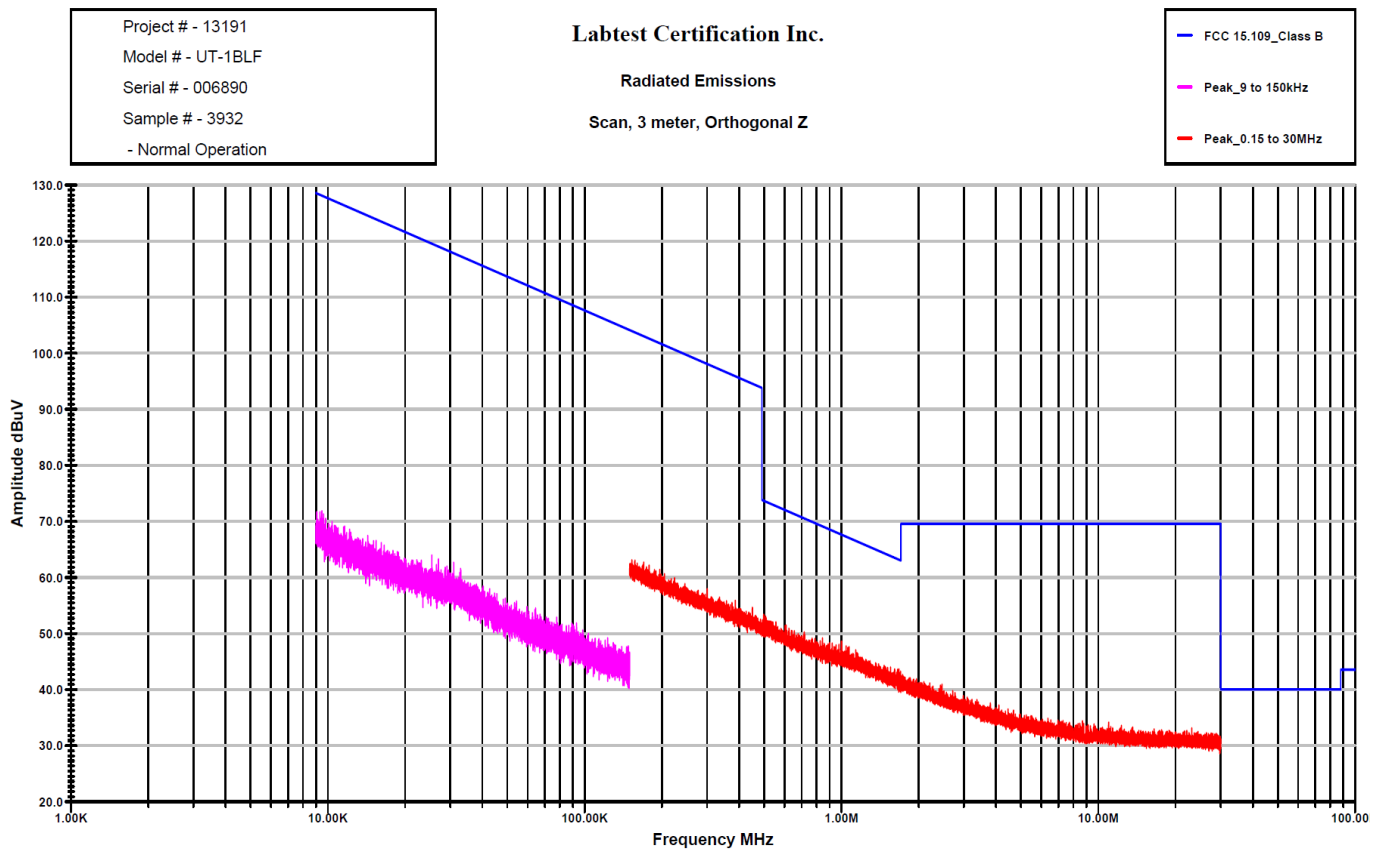
Emission level (dBuV/m) = Quasi-Peak detected level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m)

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

Frequency (MHz)	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Pol. Of Antenna	Results
867.7364	46.0	31.35	14.65	H	PASS

Note \*) All measuerd levels were detected by Peak Detector.

**- Graph of Radiated Emissions: 150kHz to 30MHz, Peak detecting, 10 seconds beacon, Antenna was used AL-130.**



Operator: Jeremy Lee

T: 22.3 C, H: 42.0 %, BP.:103.3 kPa

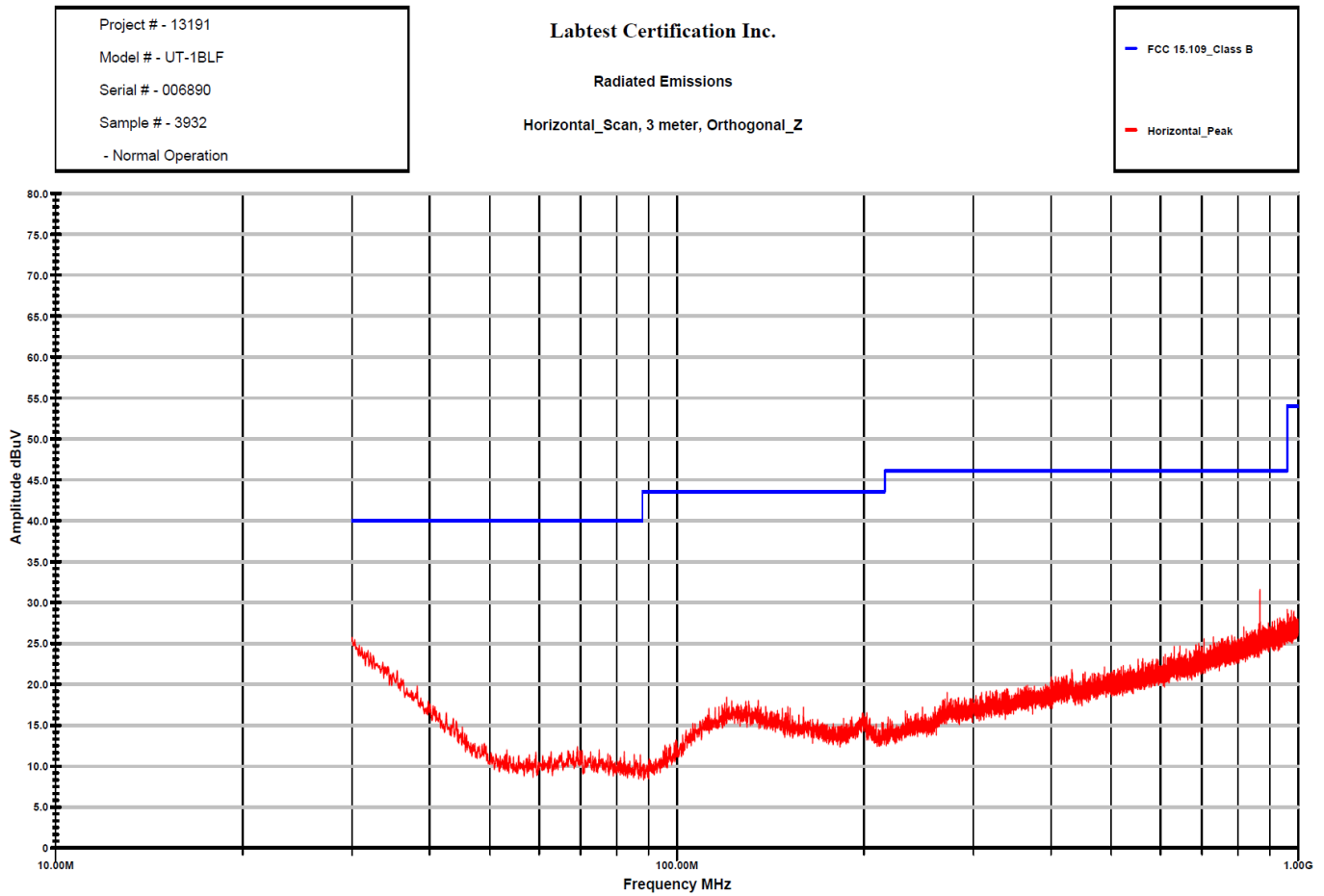
Rad\_Emi\_UT\_under 30MHz\_Ortho Z.TIL

Contact: Dalibor Pokrajac

05:05:51 PM, Wednesday, December 30, 2015

Company: Guard RFID Solutions Inc.

**- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, 10 seconds beacon, Antenna was used JB1, Horizontal.**



Project # - 13191  
Model # - UT-1BLF  
Serial # - 006890  
Sample # - 3932  
- Normal Operation

Labtest Certification Inc.  
Radiated Emissions  
Horizontal\_Scan, 3 meter, Orthogonal\_Z

FCC 15.109\_Class B  
Horizontal\_Peak

Operator: Jeremy Lee

T: 21.8 C, H: 40.0 %, BP.:102.3 kPa

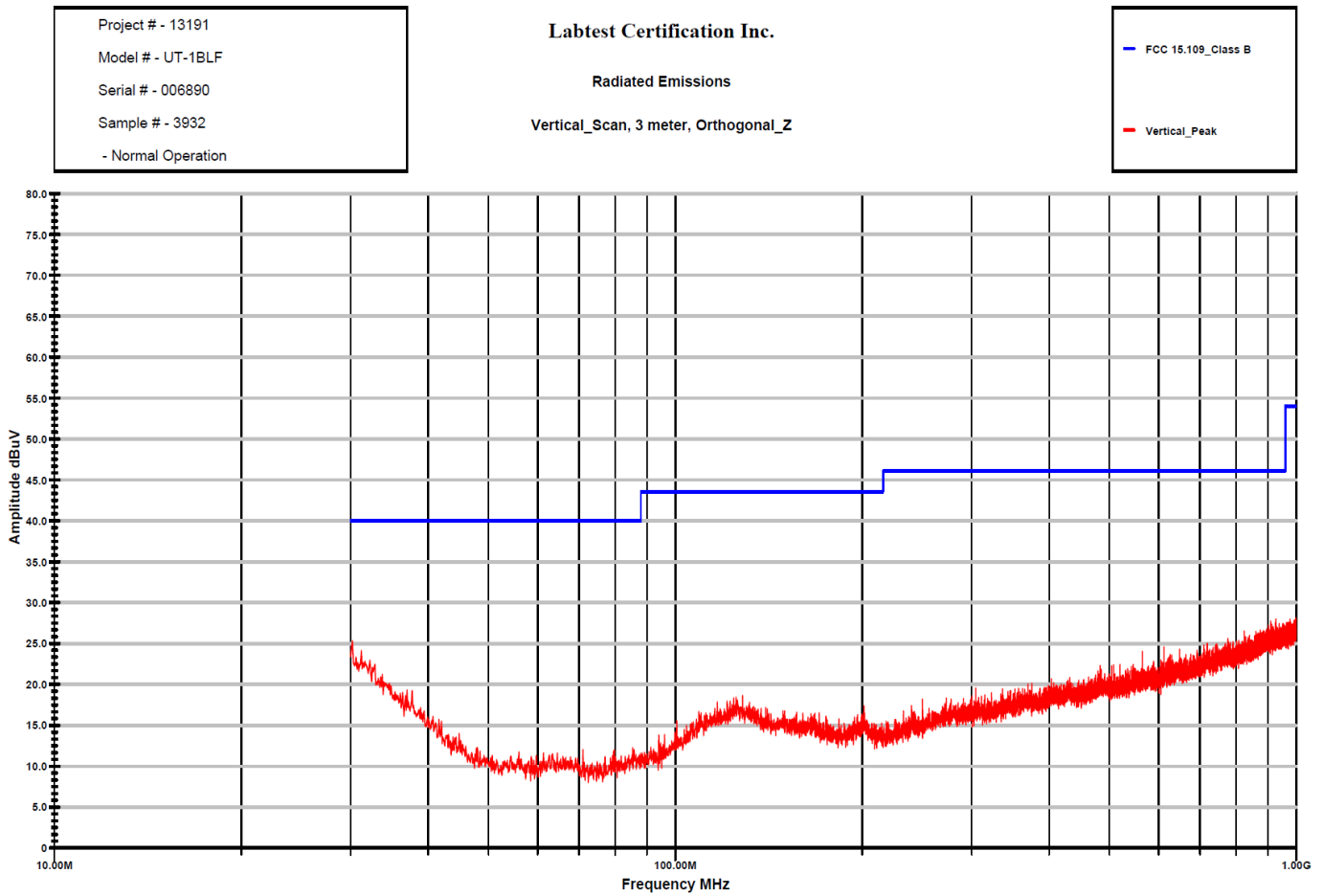
Rad\_Emi\_PT\_Ortho Z.TIL

Contact: Dalibor Pokrajac

12:55:51 PM, Tuesday, December 29, 2015

Company: Guard RFID Solutions Inc.

**- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, 10 seconds beacon, Antenna was used JB1, Vertical.**



Project # - 13191  
Model # - UT-1BLF  
Serial # - 006890  
Sample # - 3932  
- Normal Operation

Labtest Certification Inc.  
Radiated Emissions  
Vertical\_Scan, 3 meter, Orthogonal\_Z

FCC 15.109\_Class B  
Vertical\_Peak

Operator: Jeremy Lee

T: 21.8 C, H: 40.0 %, BP.:102.3 kPa

Rad\_Emi\_PT\_Ortho Z.TIL

Contact: Dalibor Pokrajac

12:40:37 PM, Tuesday, December 29, 2015

Company: Guard RFID Solutions Inc.



## The Bandwidth of the emission

Regulation	FCC15.231: 2015
Temperature	20.8 °C
Relative Humidity	34.0 %
Barometric Pressure:	102.8 kPa
Test Date	December 23, 2015
Sample Number	3931
Calibrated Test Equipment (ID)	266, 272, 371
Reference Equipment (ID) (Calibration not required)	374, 516
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: 2013**.

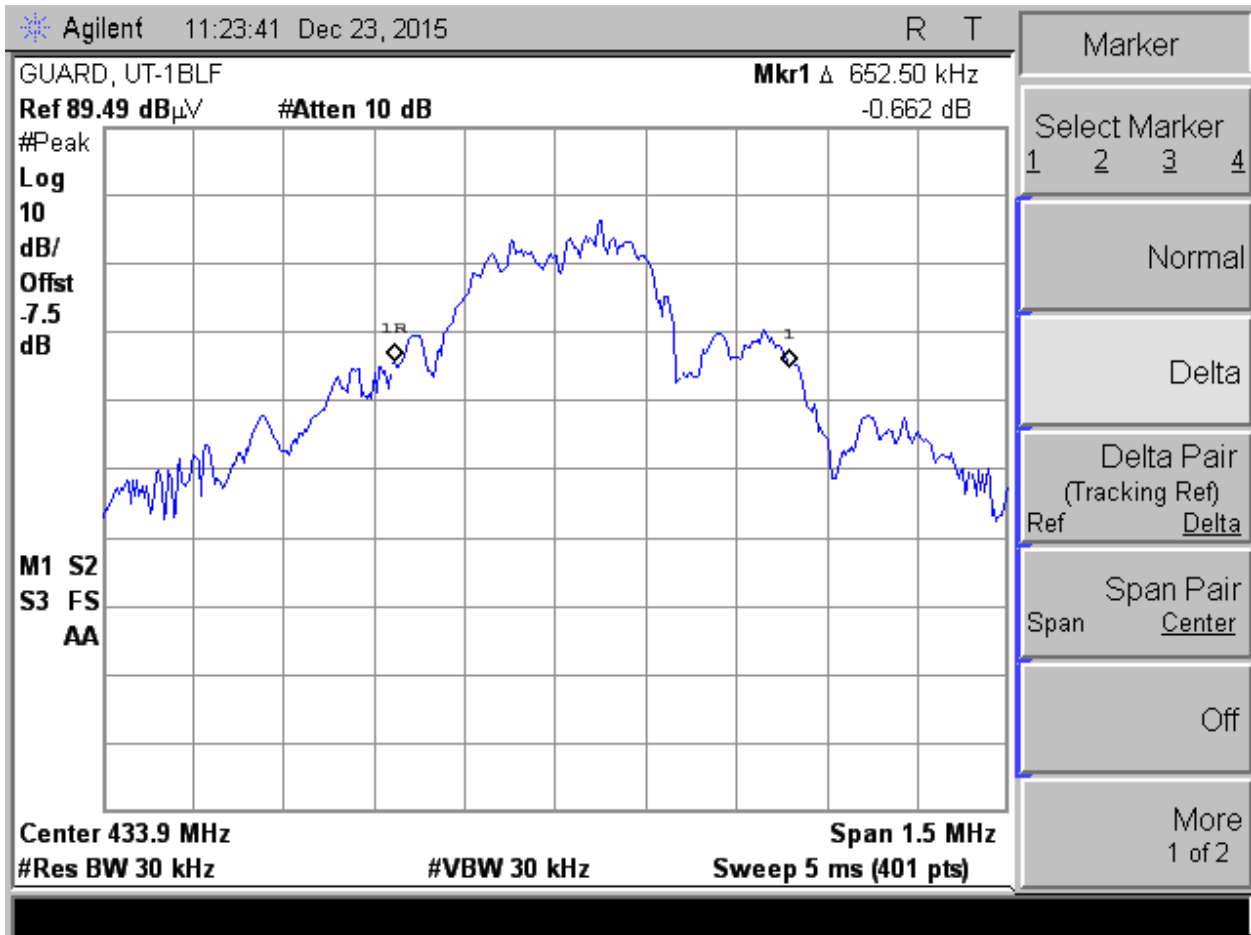
The setup for Bandwidth of the emission measurements is shown in Figure - 1.

- a) The EUT was placed on non-conducting platform.
- b) It was measured with a receiver - spectrum analyzer via Antenna.

## Test Results

X	Pass	Fail	N/A
<b>Center Frequency (MHz)</b>	<b>Limit( &lt;0.25%, kHz)</b>	<b>Measured(kHz)</b>	<b>Results</b>
433.92	< 1084.8	652.5	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
227-3	Horn Antenna	A.H. Systems	SAS-571	936	31-Jul-2014	31-Jul-2016	1407300211	Liberty Labs
241	Active Loop Antenna	AL-130	Com-Power	17075	28-Oct-2015	28-Oct-2017	151020-114249-d3931f	Liberty Labs
266	Humidity/ Temperature Logger	Onset HOBO	U14-001	2436907	23-Jan-2014	23-Jan-2016	890824060	Techmaster
272	EMC Analyzer	Agilent	E7405A	US41110263	09-Jun-2015	09-Jun-2016	1-6977926962-1	Keysight
273	RF Preamplifier	Agilent	8449B	3008A02264	N/A	N/A	N/A	N/A
371	EMC Broadband Antenna	Sunol	JB1	A022012	17-Mar-2014	17-Mar-2016	1403130381	Liberty Labs
374	EMC Shielded Enclosure	USC	USC-26	111811	N/A	N/A	N/A	N/A
516	Pre-Amplifier	Agilent	AT8447D	2944A10969	N/A	N/A	N/A	N/A

**END OF REPORT**