



TEST REPORT

For

SST Wireless Inc.

#103-7088 Venture Street
Delta, British Columbia
V4G 1H5, Canada

Date: February 15, 2013
Report No.: 11239-1E
Revision No.: 0
Project No.: 11239
Equipment: Commercial Bus Tire Pressure Sensor
Model No.: CBTPSEN01

ONE STOP GLOBAL CERTIFICATION SOLUTIONS



3133-20800 Westminster Hwy, Richmond, BC
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TABLE OF CONTENTS

TEST REPORT	3
General product information:	5
Frequencies	5
List of ancillary and/or support equipment provided by the applicant	5
Description of Interface Cables for Testing	5
Software and Firmware	6
Worst-case configuration and mode of operation during testing	6
Modifications Required for Compliance	6
Test Equipment Verified for function	6
Measurement Uncertainty	6
Markings	7
Test Summary	8
AC Power Line Conducted Emission	9
Test Limits	9
Test Results	9
Summary of the operation of RF Transmission	10
Test Limits	10
Reviewed Results:	10
Field Strength of Fundamental – Intentional Radiator	13
Test Limits	13
Test Setup	14
Setup Block Diagram	14
Test Setup in Chamber	14
Test Results:	15
Field Strength of Spurious Emissios	17
Test Limits	17
Test Setup	18
Test Results:	18
Radiated Emission; Intentional Radiators	26
Test Limits	26
Test Results:	27
The Bandwidth of the emission	37
Test Limits	37
Test Setup	37
Test Results:	37
APPENDIX A: Test Equipment Used	40
APPENDIX B: EUT photos	41
APPENDIX C: Test setup photos	46
APPENDIX D: ISO 17025:2005 Accreditation Certificate	51

Prepared by: LabTest Certification Inc.
Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

TEST REPORT	
FCC15 and RSS-210	
Report reference No.....	11239-1E
Report Revision History:	✓ Rev. 0: Feb. 15, 2013
Tested by (printed name and signature)	Jeremy Lee 
Approved by (printed name and signature)	Kavinder Dhillon, Eng.L 
Date of issue	February 15, 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
Test Location Name	LabTest Certification Inc.
Address	3133 – 20800 Westminster Hwy, Richmond, B.C. V6V 2W3
Applicant's Name	SST Wireless Inc.
Address	#103-7088 Venture Street, Delta, B.C., V4G 1H5 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	Feb. 07, 2013
Date(s) of performance of test	Feb. 12 to 14, 2013
Test item description	
Trademark	N/A
Model and/or type reference	CBTPSEN01
FCC & IC ID.....	FCC ID: RQ6- CBTPSEN-01, IC ID: 10853A-CBTPSEN-01
Serial numbers	N/A
Electrical Rating(s)	One 3.6VDC Li/SOCI2 battery

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

Product descriptions	
Application for	433MHz Data Transceiver Module
Operating Frequency	434.375 MHz
Equipment mobility	Yes
Modulation	ASK/OOK
Number of Channels	1
Data Rate	100kBps
Transmission Interval	12 seconds
Transmission Period.....	4.5msec
Nominal Voltages for	☒ _X_ stand-alone equipment ☐ combined (or host) equipment ☐ test jig
Supply Voltage	_____ AC _____ Amps _____ Hz ☐ 3.6V ☐ DC _____ Amps
If DC Power	☐ Internal Power Supply ☐ Host system is supplied the DC power ☒ _X_ Battery ☐ Nickel Cadmium ☒ Nickel-Metal Hydride ☐ Alkaline ☐ Lithium-Ion ☐ Lead Acid (Vehicle regulated) ☐ Other
Size of equipment(H X D X W, inches)	1.5 X 2.0 X 3/4
Mass of equipment (g).....	70, with Battery
Operating Temperature Range	- 35 °C to + 90 °C
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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Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

General remarks

"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate."

The test result presented in this report relate only to the object(s) tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

☐ Throughout this report a comma is used as the decimal separator.

☒ Throughout this report a period is used as the decimal separator.

General product information:

The EUT is a Commercial Bus Tire Pressure Sensor. An "interactive" wireless sensor that attaches to the wheel rim (nylon strap), to measure the contained air temperature and pressure in real time

The installation of the product must be reduced to a minimum while ensuring 24/7 operation over the life of the tire. SST wireless rim sensor is packaged to provide efficient user friendly installation and designed to overcome all the environmental challenges presented.

The wireless rim sensor while incorporating the latest in technology is formed into a simple low profile package that is attached or secured to the rim offering maximum validity and integrity of data captured and processed. The low profile of the package along with the positioning of the sensor allows for the use of standard tire install procedures and equipment.

Frequencies

Module	Description	Frequencies
Y1	Crystal	26.0MHz

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

Model No.	Description	Manufacturer	Approvals/Standards
Tire1	12R22.5 Tire with Steel Wheel, which was installed with the EUT inside of Wheel	Michelin	N/A
Tire2	G316LHT with Aluminum Wheel, which was installed with the EUT inside of Wheel	Goodyear	N/A
Tire3	G316LHT with Steel Wheel, which was installed with the EUT inside of Wheel	Goodyear	N/A

Description of Interface Cables for Testing

Description	Cable Type	Cable length	Ferrite
None			

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Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

ARRANGEMENT OF INTERFACE CABLES: All interface cables were positioned for worst-case maximum emissions within the manner assumed to be a typical operation condition (please reference photographs).

Software and Firmware

Description	Version
Sensor7	N/A

Worst-case configuration and mode of operation during testing

For the testing, the device was modified to continuously turning on the signal every one second. The EUT was installed inside of two kinds of Commercial Bus Tires, Michelin and Goodyear, with two different Wheels, Aluminum and Steel. Three different configurations were pre-installed as described above, which was followed by the response to Inquiry to FCC, **Tracking Number 359242**. The tires was set up on Ground plane as same to be installed into BUS. The each side of tires, installed EUT, was heading to top.

Modifications Required for Compliance

None

Test Equipment Verified for function

Model #	Description	Checked Function	Results
E7405	Spectrum Analyzer	Frequency and Amplitude	Connected 50MHz and -20dBm Cal_siganl and checked OK.
PA-103	Pre-Amplifier, 1 to 1,000MHz	Gain at 30 and 1,000Mhz	Gains are normal.
8449B	Pre-Amplifier, 1 to 26.5GHz	Gain at 1 to 26.5GHz	Gains were normal.
JB1	Anatenna, 30 to 1000MHz	Checked structure	Normal – no damage.
SAS-571	Anatenna, 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 18GHz	4.65

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

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Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

Markings



You should refer to the clause of FCC Part 2 Section 2.295 & 2.296 and FCC Part 15 Section 15.19 for information to be contained on the label as well as information about the label. Any other statements or labelling requirements may appear on a separate label at the option of the applicant/grantee. The label has to be including FCC IC/IC ID, Product Number and Manufacturer Info.

According to FCC Section 2.925(a),

(a) Each equipment covered in an application for equipment authorization shall bear a nameplate or label listing the following:

(1) FCC Identifier consisting of the two elements in the exact order specified in §2.926. The FCC Identifier shall be preceded by the term *FCC ID* in capital letters on a single line, and shall be a type size large enough to be legible without the aid of magnification.

Example: FCC ID XXX123. XXX-Grantee Code 123-Equipment Product Code"

According to FCC Section 15.19(a)(3),

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".

Prepared by: LabTest Certification Inc.
Date Issued: February 15, 2013
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Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

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.

Prepared by: LabTest Certification Inc.
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Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

AC Power Line Conducted Emission

Test Date	Feb. 15, 2013
Sample Number	1131687, 1131688, & 1131689
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 μ 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 μ 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.

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 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

Summary of the operation of RF Transmission

Regulation	FCC15.231:2010
Intentional Radiating Frequency	434.375MHz
Sample Number	1131687, 1131688, & 1131689
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:

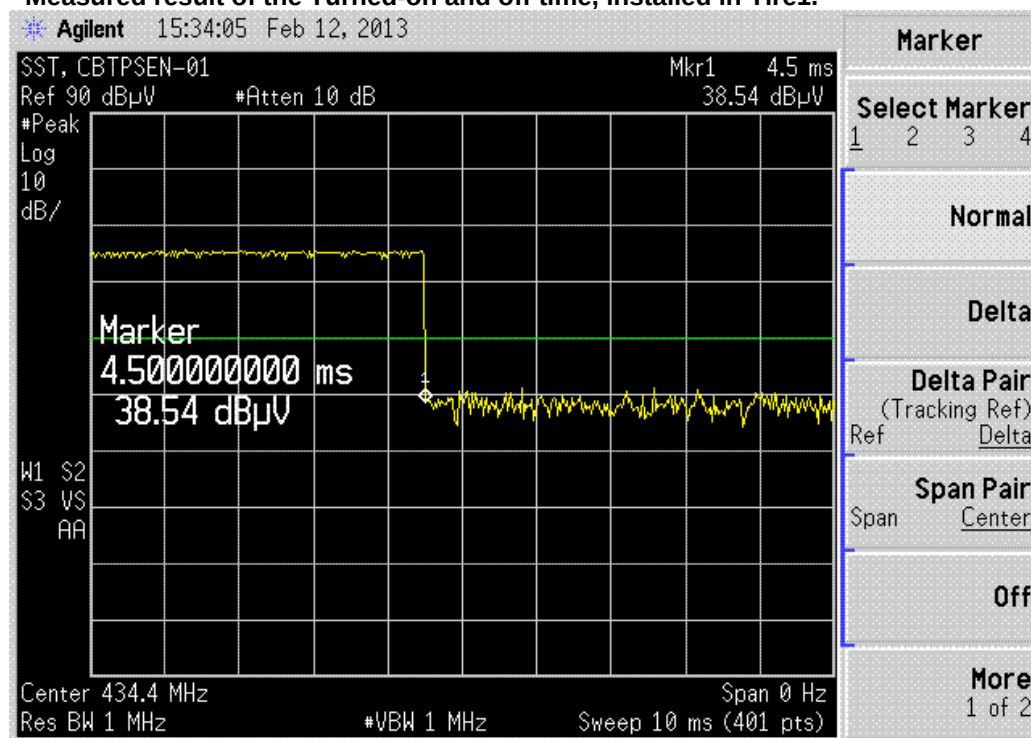
X **Pass** **Fail** **N/A**

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
Pt 15.231(a)(2)	Automatically operated	X		
	Deactivate within 5 seconds after activation	X		

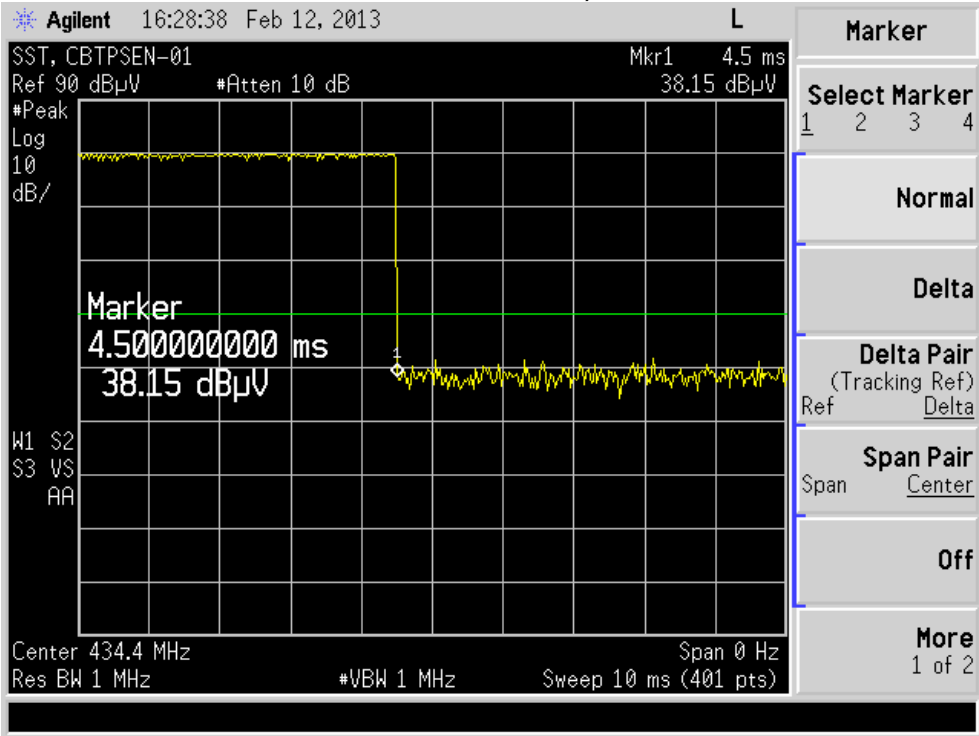
Prepared by:	LabTest Certification Inc.	Client:	SST Wireless Inc.
Date Issued:	February 15, 2013	Report No.:	11239-1E
Project No:	11239	Revision No.:	0

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	

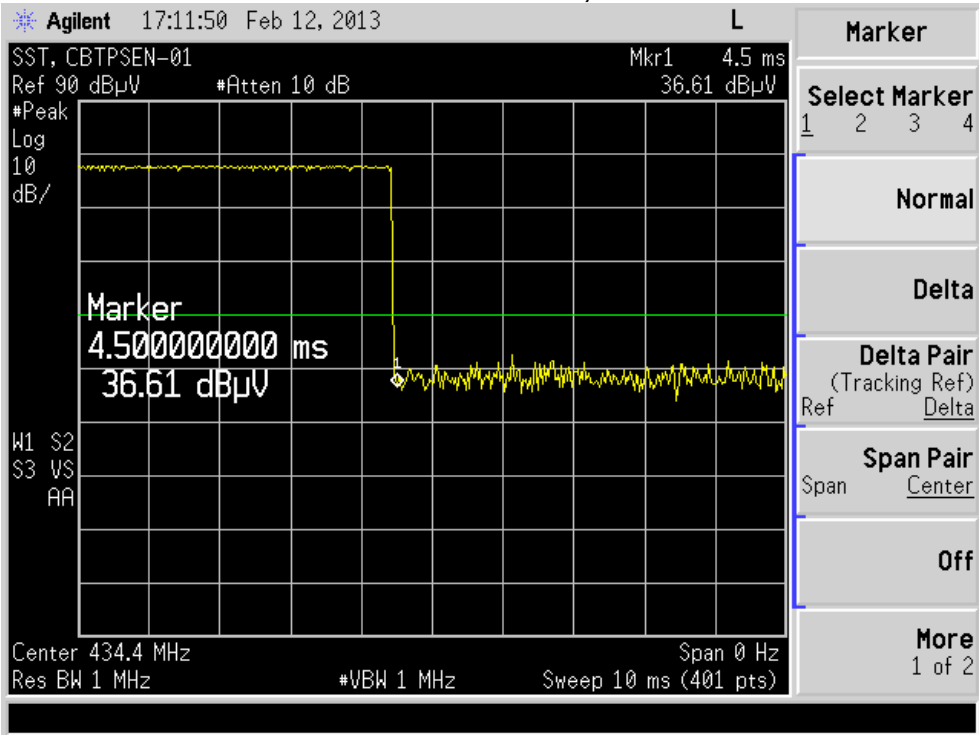
- Measured result of the Turned-on and off time, installed in Tire1.



- Measured result of the Turned-on and off time, installed in Tire2.



- Measured result of the Turned-on and off time, installed in Tire3.



Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

Field Strength of Fundamental – Intentional Radiator

Regulation	FCC15.231:2010
Intentional Radiating Frequency	434.375MHz
Detecting Method	Quasi Peak Detector
IF Bandwidth	120kHz
Temperature	22.4 to 23.0 °C
Relative Humidity	37.0 %
Barometric Pressure:	102.6 to 102.7 kPa
Test Date	Feb. 12, 2013
Sample Number	1131687, 1131688, & 1131689
Calibrated Test Equipment (ID)	266, 272, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	3.6 VDC, 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.

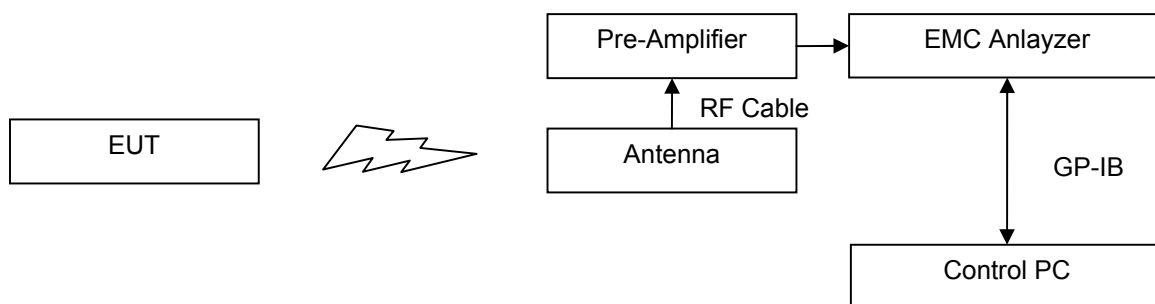
Test Setup

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.

- The EUT was placed on a wooden supporter, 10cm and it was put on the turning ground plate.
- 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.
- The EUT was continually on its RF Transmitter. It was modified to transmit in 1000ms intervals for this testing.
- It was measured with a receiver - Spectrum analyzer, was software controlled.

Setup Block Diagram



Test Setup in Chamber

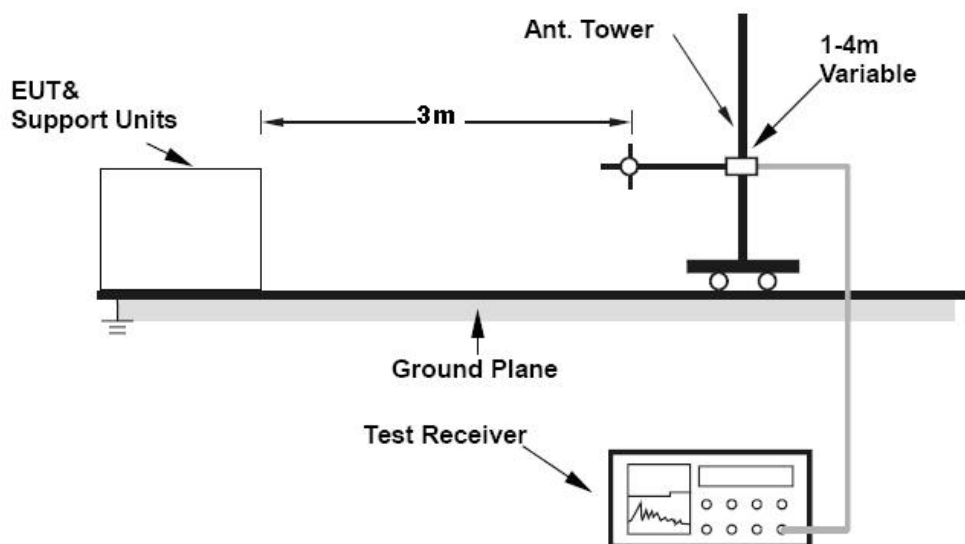


Figure – 1 Test setup for Radiated emissions in Chamber

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

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)	Pol.	Results
Tire 1					
434.375	80.17	43.78	36.39	H	PASS
		39.83	40.34	V	PASS
Tire 2					
434.375	80.17	58.25	21.92	H	PASS
		55.72	24.45	V	PASS
Tire 3					
434.375	80.17	56.03	24.14	H	PASS
		52.18	27.99	V	PASS

- Table of Field Strength of Fundamental; Quasi Peak Detecting, Antenna was used a JB1, EUT was installed in Tire 1.

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Horizontal

Operator: Jeremy Lee
 03:25:13 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.3897000 MHz	57.29	16.99	-30.50	43.78	80.17	36.39	49.0	100.8	H
868.7593000 MHz	37.19	22.50	-28.78	30.91	60.84	29.93	320.3	100.8	H
Project #: 11239, Sample #: 1131687									
Temp.: 22.4 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Vertical

Operator: Jeremy Lee
 03:25:13 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.3912000 MHz	53.84	16.49	-30.50	39.83	80.17	40.34	115.0	241.6	V
868.7443000 MHz	32.84	21.80	-28.78	25.86	60.84	34.98	359.0	180.0	V
Project #: 11239, Sample #: 1131687									
Temp.: 22.4 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

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 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

- Table of Field Strength of Fundamental; Quasi Peak Detecting, Antenna was used a JB1 , EUT was installed in Tire 2.

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Horizontal

Operator: Jeremy Lee

04:27:32 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.4728000 MHz	71.76	16.99	-30.50	58.25	80.17	21.92	245.0	179.8	H
868.7782000 MHz	38.12	22.50	-28.78	31.84	60.84	29.00	180.3	100.7	H
Project # : 11239, Sample #: 1131688									
Temp.: 22.7 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Vertical

Operator: Jeremy Lee

04:27:32 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.4158000 MHz	69.73	16.49	-30.50	55.72	80.17	24.45	145.0	118.5	V
868.7110000 MHz	31.40	21.80	-28.78	24.42	60.84	36.42	194.8	101.8	V
Project # : 11239, Sample #: 1131688									
Temp.: 22.7 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

- Table of Field Strength of Fundamental; Quasi Peak Detecting, Antenna was used a JB1, EUT was installed in Tire 3.

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Horizontal

Operator: Jeremy Lee

05:11:44 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.3813000 MHz	69.54	16.99	-30.50	56.03	80.17	24.14	0.0	101.9	H
868.7995000 MHz	39.81	22.50	-28.78	33.53	60.84	27.31	180.0	100.1	H
Project # : 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 37.0 %									
Barometer Pres.: 102.6 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Vertical

Operator: Jeremy Lee

05:11:44 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.4650000 MHz	66.19	16.49	-30.50	52.18	80.17	27.99	300.0	111.2	V
868.6993000 MHz	30.68	21.80	-28.78	23.70	60.84	37.14	0.5	121.1	V
Project # : 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 37.0 %									
Barometer Pres.: 102.6 kPa									

Prepared by: LabTest Certification Inc.
Date Issued: February 15, 2013
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Revision No.:

SST Wireless Inc.
11239-1E
0

Field Strength of Spurious Emissions

Regulation	FCC15.231: 2010
Intentional Radiating Frequency	434.375MHz
Detecting Method	Average and Quasi-Peak Detector
IF Bandwidth	1MHz and 120kHz
Temperature	22.4 to 23.3°C
Relative Humidity	33.0 to 37.0 %
Barometric Pressure:	102.6 to 103.1 kPa
Test Date	Feb. 12 & 13, 2013
Sample Number	1131687, 1131688, & 1131689
Calibrated Test Equipment (ID)	266, 227-3, 272, 273, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	3.6VDC, 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.

Prepared by: LabTest Certification Inc.
Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

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

FCC 15.205:

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

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

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

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

Test Setup

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

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

- a) The EUT was placed on a wooden supporter, 10cm and it was put on the turning ground plate.
b) The EUT was set up on 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna supporter.
c) The EUT was continually on its RF Transmitter. It was modified to transmit in 1000ms intervals for this testing.
d) It was measured with a receiver - spectrum analyzer, was software controlled.

Test Results:

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

X Pass Fail N/A

Harmonic Frequency (MHz)	Detector	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Pol.	Results
Tire 1						
868.750	Quasi-Peak	60.84	30.91	29.93	H	PASS
1303.125	Peak	73.98	60.10	13.88	H	PASS
	Averaging	53.98	27.95	26.03	H	PASS
1737.500	Peak	80.84	48.51	32.33	V	PASS
	Averaging	60.84	30.17	30.67	V	PASS
2171.875	Peak	80.84	62.25	18.59	H	PASS

Page 18 of 54

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DCN: 1034, Rev 4

Prepared by: LabTest Certification Inc.
Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

	Averaging	60.84	32.61	28.23	H	PASS
2606.250	Peak	80.84	48.50	32.34	V	PASS
	Averaging	60.84	33.66	27.18	V	PASS
3040.625	Peak	80.84	57.95	22.89	H	PASS
	Averaging	60.84	36.42	24.42	H	PASS
3475.000	Peak	80.84	55.82	25.02	V	PASS
	Averaging	60.84	36.72	24.12	V	PASS
3909.375	Peak	73.98	56.73	17.25	V	PASS
	Averaging	53.98	37.76	16.22	V	PASS
4343.750	Peak	73.98	51.93	22.05	V	PASS
	Averaging	53.98	38.58	15.40	V	PASS
Tire 2						
868.750	Quasi-Peak	60.84	31.84	29.00	H	PASS
1303.125	Peak	73.98	56.09	17.89	V	PASS
	Averaging	53.98	27.47	26.51	V	PASS
1737.500	Peak	80.84	46.32	34.52	V	PASS
	Averaging	60.84	30.21	30.63	V	PASS
2171.875	Peak	80.84	57.52	23.32	V	PASS
	Averaging	60.84	32.07	28.77	H	PASS
2606.250	Peak	80.84	52.49	28.35	V	PASS
	Averaging	60.84	33.73	27.11	V	PASS
3040.625	Peak	80.84	52.36	28.48	H	PASS
	Averaging	60.84	35.87	24.97	H	PASS
3475.000	Peak	80.84	52.19	28.65	H	PASS
	Averaging	60.84	36.55	24.29	V	PASS
3909.375	Peak	73.98	54.49	19.49	H	PASS
	Averaging	53.98	37.29	16.69	H	PASS
4343.750	Peak	73.98	56.47	17.51	H	PASS
	Averaging	53.98	38.44	15.54	V	PASS
Tire 3						
868.750	Quasi-Peak	60.84	33.53	27.31	H	PASS
1303.125	Peak	73.98	58.29	15.69	V	PASS
	Averaging	53.98	27.88	26.10	V	PASS
1737.500	Peak	80.84	48.06	32.78	H	PASS
	Averaging	60.84	30.09	30.75	V	PASS
2171.875	Peak	80.84	59.90	20.94	H	PASS
	Averaging	60.84	32.06	28.78	H	PASS
2606.250	Peak	80.84	50.49	30.35	V	PASS
	Averaging	60.84	33.75	27.09	V	PASS
3040.625	Peak	80.84	53.89	26.95	H	PASS
	Averaging	60.84	35.93	24.91	V	PASS
3475.000	Peak	80.84	54.80	26.04	V	PASS
	Averaging	60.84	36.36	24.48	V	PASS
3909.375	Peak	73.98	52.53	21.45	V	PASS
	Averaging	53.98	37.16	16.82	V	PASS
4343.750	Peak	73.98	55.11	18.87	V	PASS
	Averaging	53.98	38.42	15.56	V	PASS

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

- Field Strength of Spurious Emission; 2nd harmonic, Quasi-peak Detecting, Antenna was used JB1, EUT was installed in Tire 1.

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Horizontal

Operator: Jeremy Lee

03:25:13 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.3897000 MHz	57.29	16.99	-30.50	43.78	80.17	36.39	49.0	100.8	H
868.7593000 MHz	37.19	22.50	-28.78	30.91	60.84	29.93	320.3	100.8	H
Project #: 11239, Sample #: 1131687									
Temp.: 22.4 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Vertical

Operator: Jeremy Lee

03:25:13 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.3912000 MHz	53.84	16.49	-30.50	39.83	80.17	40.34	115.0	241.6	V
868.7443000 MHz	32.84	21.80	-28.78	25.86	60.84	34.98	359.0	180.0	V
Project #: 11239, Sample #: 1131687									
Temp.: 22.4 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

- Field Strength of Spurious Emission; 2nd harmonic, Quasi-peak Detecting, Antenna was used , EUT was installed in Tire 2.

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Horizontal

Operator: Jeremy Lee

04:27:32 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.4728000 MHz	71.76	16.99	-30.50	58.25	80.17	21.92	245.0	179.8	H
868.7782000 MHz	38.12	22.50	-28.78	31.84	60.84	29.00	180.3	100.7	H
Project #: 11239, Sample #: 1131688									
Temp.: 22.7 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Vertical

Operator: Jeremy Lee

04:27:32 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency MHz	Measured dBuV	AntFactor dB/m	PathLoss dB	Emission dBuV/m	Limit dBuV/m	Margin dB	T/T Degree	Tower cm	POL
434.4158000 MHz	69.73	16.49	-30.50	55.72	80.17	24.45	145.0	118.5	V
868.7110000 MHz	31.40	21.80	-28.78	24.42	60.84	36.42	194.8	101.8	V
Project #: 11239, Sample #: 1131688									
Temp.: 22.7 C, Hum.: 37.0 %									
Barometer Pres.: 102.7 kPa									

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

- Field Strength of Spurious Emission; 2nd harmonic, Quasi-peak Detecting, Antenna was used JB1, EUT was installed in Tire 3.

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Horizontal

Operator: Jeremy Lee

05:11:44 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
434.3813000 MHz	69.54	16.99	-30.50	56.03	80.17	24.14	0.0	101.9	H
868.7995000 MHz	39.81	22.50	-28.78	33.53	60.84	27.31	180.0	100.1	H
Project #: 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 37.0 %									
Barometer Pres.: 102.6 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions
 FCC15.231, 205 & 209, 3 meters, Vertical

Operator: Jeremy Lee

05:11:44 PM, Tuesday, February 12, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency	Measured	AntFactor	PathLoss	Emission	Limit	Margin	T/T	Tower	POL
MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
434.4650000 MHz	66.19	16.49	-30.50	52.18	80.17	27.99	300.0	111.2	V
868.6993000 MHz	30.68	21.80	-28.78	23.70	60.84	37.14	0.5	121.1	V
Project #: 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 37.0 %									
Barometer Pres.: 102.6 kPa									

- Field Strength of Spurious Emissions; 3rd to 10th harmonics, Peak Detecting, Antenna was used SAS-571, EUT was installed in Tire 1.

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Peak Detector_ Horizontal

Operator: Jeremy Lee

06:24:54 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency	Measured_PK	AntFactor	PathLoss	Emission_PK	Limit_PK	Margin_PK	T/T	Tower	POL
Hz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	Degree	cm	
1.3031250 GHz	64.49	24.51	-28.90	60.10	73.98	13.88	30.0	110.0	H
1.7375000 GHz	47.87	25.68	-27.54	46.01	80.84	34.83	30.0	110.0	H
2.1718750 GHz	60.77	27.64	-26.16	62.25	80.84	18.59	30.0	110.0	H
2.6062500 GHz	44.01	29.53	-25.75	47.79	80.84	33.05	30.0	110.0	H
3.0406250 GHz	52.26	30.53	-24.84	57.95	80.84	22.89	30.0	110.0	H
3.4750000 GHz	48.03	30.31	-24.31	54.03	80.84	26.81	30.0	110.0	H
3.9093750 GHz	43.81	31.61	-23.59	51.82	73.98	22.16	30.0	110.0	H
4.3437500 GHz	41.45	31.48	-21.49	51.44	73.98	22.54	30.0	110.0	H
Project #: 11239, Sample #: 1131687									
Temp.: 23.3 C, Hum.: 33.0 %									
Barometer Pres.: 103.1 kPa									

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Peak Detector_Vertical

Operator: Jeremy Lee

06:24:54 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01

Contact: Vladimir Borisenko

Company: SST Wireless Inc.

Frequency Hz	Measured_PK dBuV	AntFactor dB/m	PathLoss dB	Emission_PK dBuV/m	Limit_PK dBuV/m	Margin_PK dB	T/T Degree	Tower cm	POL
1.3031250 GHz	64.08	24.54	-28.90	59.72	73.98	14.26	155.0	110.0	V
1.7375000 GHz	50.31	25.74	-27.54	48.51	80.84	32.33	155.0	110.0	V
2.1718750 GHz	57.11	27.72	-26.16	58.67	80.84	22.17	155.0	110.0	V
2.6062500 GHz	44.68	29.57	-25.75	48.50	80.84	32.34	155.0	110.0	V
3.0406250 GHz	44.90	30.68	-24.84	50.74	80.84	30.10	155.0	110.0	V
3.4750000 GHz	49.73	30.40	-24.31	55.82	80.84	25.02	155.0	110.0	V
3.9093750 GHz	48.68	31.64	-23.59	56.73	73.98	17.25	155.0	110.0	V
4.3437500 GHz	41.88	31.54	-21.49	51.93	73.98	22.05	155.0	110.0	V
Project #: 11239, Sample #: 1131687									
Temp.: 23.3 C, Hum.: 33.0 %									
Barometer Pres.: 103.1 kPa									

- Field Strength of Spurious Emissions; 3rd to 10th harmonics, Average Detecting, Antenna was used SAS-571, EUT was installed in Tire 1.

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Averaging Detector_Horizontal

Operator: Jeremy Lee

06:24:54 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01

Contact: Vladimir Borisenko

Company: SST Wireless Inc.

Frequency Hz	Measured_AVG dBuV	AntFactor dB/m	PathLoss dB	Emission_AVG dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T Degree	Tower cm	POL
1.3031250 GHz	32.34	24.51	-28.90	27.95	53.98	26.03	30.0	110.0	H
1.7375000 GHz	31.95	25.68	-27.54	30.09	60.84	30.75	30.0	110.0	H
2.1718750 GHz	31.13	27.64	-26.16	32.61	60.84	28.23	30.0	110.0	H
2.6062500 GHz	29.74	29.53	-25.75	33.52	60.84	27.32	30.0	110.0	H
3.0406250 GHz	30.73	30.53	-24.84	36.42	60.84	24.42	30.0	110.0	H
3.4750000 GHz	30.65	30.31	-24.31	36.65	60.84	24.19	30.0	110.0	H
3.9093750 GHz	29.10	31.61	-23.59	37.11	53.98	16.87	30.0	110.0	H
4.3437500 GHz	28.27	31.48	-21.49	38.26	53.98	15.72	30.0	110.0	H
Project #: 11239, Sample #: 1131687									
Temp.: 23.3 C, Hum.: 33.0 %									
Barometer Pres.: 103.1 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Averaging Detector_Vertical

Operator: Jeremy Lee

06:24:54 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01

Contact: Vladimir Borisenko

Company: SST Wireless Inc.

Frequency Hz	Measured+AVG dBuV	AntFactor dB/m	PathLoss dB	Emission_AVG dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T Degree	Tower cm	POL
1.3031250 GHz	31.77	24.54	-28.90	27.41	53.98	26.57	155.0	110.0	V
1.7375000 GHz	31.97	25.74	-27.54	30.17	60.84	30.67	155.0	110.0	V
2.1718750 GHz	30.37	27.72	-26.16	31.93	60.84	28.91	155.0	110.0	V
2.6062500 GHz	29.84	29.57	-25.75	33.66	60.84	27.18	155.0	110.0	V
3.0406250 GHz	29.90	30.68	-24.84	35.74	60.84	25.10	155.0	110.0	V
3.4750000 GHz	30.63	30.40	-24.31	36.72	60.84	24.12	155.0	110.0	V
3.9093750 GHz	29.71	31.64	-23.59	37.76	53.98	16.22	155.0	110.0	V
4.3437500 GHz	28.53	31.54	-21.49	38.58	53.98	15.40	155.0	110.0	V
Project #: 11239, Sample #: 1131687									
Temp.: 23.3 C, Hum.: 33.0 %									
Barometer Pres.: 103.1 kPa									

Prepared by: LabTest Certification Inc.
Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- Field Strength of Spurious Emissions; 3rd to 10th harmonics, Peak Detecting, Antenna was used SAS-571, EUT was installed in Tire 2.

LabTest Certification Inc.
Intentional Radiated Emissions-Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_Horizontal

Operator: Jeremy Lee

06:31:26 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01
Contact: Vladimir Borisenko
Company: SST Wireless Inc.

Frequency Hz	Measured_PK dBuV	AntFactor dB/m	PathLoss dB	Emission_PK dBuV/m	Limit_PK dBuV/m	Margin_PK dB	T/T Degree	Tower cm	POL
1.3031250 GHz	57.95	24.51	-28.90	53.56	73.98	20.42	320.0	110.0	H
1.7375000 GHz	48.01	25.68	-27.54	46.15	80.84	34.69	320.0	110.0	H
2.1718750 GHz	55.19	27.64	-26.16	56.67	80.84	24.17	320.0	110.0	H
2.6062500 GHz	45.30	29.53	-25.75	49.08	80.84	31.76	320.0	110.0	H
3.0406250 GHz	46.67	30.53	-24.84	52.36	80.84	28.48	320.0	110.0	H
3.4750000 GHz	46.19	30.31	-24.31	52.19	80.84	28.65	320.0	110.0	H
3.9093750 GHz	46.48	31.61	-23.59	54.49	73.98	19.49	320.0	110.0	H
4.3437500 GHz	46.48	31.48	-21.49	56.47	73.98	17.51	320.0	110.0	H
Project #: 11239, Sample #: 1131688									
Temp.: 23.1 C, Hum.: 34.0 %									
Barometer Pres.: 103.0 kPa									

LabTest Certification Inc.
Intentional Radiated Emissions-Harmonics
FCC15.231, 205 & 209, 3 meters, Peak Detector_Vertical

Operator: Jeremy Lee

06:31:26 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01
Contact: Vladimir Borisenko
Company: SST Wireless Inc.

Frequency Hz	Measured_PK dBuV	AntFactor dB/m	PathLoss dB	Emission_PK dBuV/m	Limit_PK dBuV/m	Margin_PK dB	T/T Degree	Tower cm	POL
1.3031250 GHz	60.45	24.54	-28.90	56.09	73.98	17.89	175.0	110.0	V
1.7375000 GHz	48.12	25.74	-27.54	46.32	80.84	34.52	175.0	110.0	V
2.1718750 GHz	55.96	27.72	-26.16	57.52	80.84	23.32	175.0	110.0	V
2.6062500 GHz	48.67	29.57	-25.75	52.49	80.84	28.35	175.0	110.0	V
3.0406250 GHz	45.46	30.68	-24.84	51.30	80.84	29.54	175.0	110.0	V
3.4750000 GHz	45.35	30.40	-24.31	51.44	80.84	29.40	175.0	110.0	V
3.9093750 GHz	43.82	31.64	-23.59	51.87	73.98	22.11	175.0	110.0	V
4.3437500 GHz	46.04	31.54	-21.49	56.09	73.98	17.89	175.0	110.0	V
Project #: 11239, Sample #: 1131688									
Temp.: 23.1 C, Hum.: 34.0 %									
Barometer Pres.: 103.0 kPa									

- Field Strength of Spurious Emissions; 3rd to 10th harmonics, Average Detecting, Antenna was used SAS-571, EUT was installed in Tire 2.

LabTest Certification Inc.
Intentional Radiated Emissions-Harmonics
FCC15.231, 205 & 209, 3 meters, Averaging Detector_Horizontal

Operator: Jeremy Lee

06:31:26 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01
Contact: Vladimir Borisenko
Company: SST Wireless Inc.

Frequency Hz	Measured_AVG dBuV	AntFactor dB/m	PathLoss dB	Emission_AVG dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T Degree	Tower cm	POL
1.3031250 GHz	31.81	24.51	-28.90	27.42	53.98	26.56	320.0	110.0	H
1.7375000 GHz	31.88	25.68	-27.54	30.02	60.84	30.82	320.0	110.0	H
2.1718750 GHz	30.59	27.64	-26.16	32.07	60.84	28.77	320.0	110.0	H
2.6062500 GHz	29.89	29.53	-25.75	33.67	60.84	27.17	320.0	110.0	H
3.0406250 GHz	30.18	30.53	-24.84	35.87	60.84	24.97	320.0	110.0	H
3.4750000 GHz	30.42	30.31	-24.31	36.42	60.84	24.42	320.0	110.0	H
3.9093750 GHz	29.28	31.61	-23.59	37.29	53.98	16.69	320.0	110.0	H
4.3437500 GHz	28.42	31.48	-21.49	38.41	53.98	15.57	320.0	110.0	H
Project #: 11239, Sample #: 1131688									
Temp.: 23.1 C, Hum.: 34.0 %									
Barometer Pres.: 103.0 kPa									

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
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LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Averaging Detector_Vertical

Operator: Jeremy Lee

06:31:26 PM, Wednesday, February 13, 2013

Model #: C8TPSEN-01

Contact: Vladimir Borisenko

Company: SST Wireless Inc.

Frequency Hz	Measured+AVG dBuV	AntFactor dB/m	PathLoss dB	Emission_AVG dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T Degree	Tower cm	POL
1.3031250 GHz	31.83	24.54	-28.90	27.47	53.98	26.51	175.0	110.0	V
1.7375000 GHz	32.01	25.74	-27.54	30.21	60.84	30.63	175.0	110.0	V
2.1718750 GHz	30.43	27.72	-26.16	31.99	60.84	28.85	175.0	110.0	V
2.6062500 GHz	29.91	29.57	-25.75	33.73	60.84	27.11	175.0	110.0	V
3.0406250 GHz	29.82	30.68	-24.84	35.66	60.84	25.18	175.0	110.0	V
3.4750000 GHz	30.46	30.40	-24.31	36.55	60.84	24.29	175.0	110.0	V
3.9093750 GHz	29.19	31.64	-23.59	37.24	53.98	16.74	175.0	110.0	V
4.3437500 GHz	28.39	31.54	-21.49	38.44	53.98	15.54	175.0	110.0	V
Project #: 11239, Sample #: 1131688									
Temp.: 23.1 C, Hum.: 34.0 %									
Barometer Pres.: 103.0 kPa									

- Field Strength of Spurious Emissions; 3rd to 10th harmonics, Peak Detecting, Antenna was used SAS-571, EUT was installed in Tire 3.

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Peak Detector_Horizontal

Operator: Jeremy Lee

06:37:31 PM, Wednesday, February 13, 2013

Model #: C8TPSEN-01

Contact: Vladimir Borisenko

Company: SST Wireless Inc.

Frequency Hz	Measured_PK dBuV	AntFactor dB/m	PathLoss dB	Emission_PK dBuV/m	Limit_PK dBuV/m	Margin_PK dB	T/T Degree	Tower cm	POL
1.3031250 GHz	57.00	24.51	-28.90	52.61	73.98	21.37	300.0	110.0	H
1.7375000 GHz	49.92	25.68	-27.54	48.06	80.84	32.78	300.0	110.0	H
2.1718750 GHz	58.42	27.64	-26.16	59.90	80.84	20.94	300.0	110.0	H
2.6062500 GHz	44.22	29.53	-25.75	48.00	80.84	32.84	300.0	110.0	H
3.0406250 GHz	48.20	30.53	-24.84	53.89	80.84	26.95	300.0	110.0	H
3.4750000 GHz	45.40	30.31	-24.31	51.40	80.84	29.44	300.0	110.0	H
3.9093750 GHz	42.68	31.61	-23.59	50.69	73.98	23.29	300.0	110.0	H
4.3437500 GHz	41.52	31.48	-21.49	51.51	73.98	22.47	300.0	110.0	H
Project #: 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 33.0 %									
Barometer Pres.: 103.0 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Peak Detector_Vertical

Operator: Jeremy Lee

06:37:31 PM, Wednesday, February 13, 2013

Model #: C8TPSEN-01

Contact: Vladimir Borisenko

Company: SST Wireless Inc.

Frequency Hz	Measured_PK dBuV	AntFactor dB/m	PathLoss dB	Emission_PK dBuV/m	Limit_PK dBuV/m	Margin_PK dB	T/T Degree	Tower cm	POL
1.3031250 GHz	62.65	24.54	-28.90	58.29	73.98	15.69	10.0	110.0	V
1.7375000 GHz	45.17	25.74	-27.54	43.37	80.84	37.47	10.0	110.0	V
2.1718750 GHz	54.67	27.72	-26.16	56.23	80.84	24.61	10.0	110.0	V
2.6062500 GHz	46.67	29.57	-25.75	50.49	80.84	30.35	10.0	110.0	V
3.0406250 GHz	47.24	30.68	-24.84	53.08	80.84	27.76	10.0	110.0	V
3.4750000 GHz	48.71	30.40	-24.31	54.80	80.84	26.04	10.0	110.0	V
3.9093750 GHz	44.48	31.64	-23.59	52.53	73.98	21.45	10.0	110.0	V
4.3437500 GHz	45.06	31.54	-21.49	55.11	73.98	18.87	10.0	110.0	V
Project #: 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 33.0 %									
Barometer Pres.: 103.0 kPa									

Prepared by: LabTest Certification Inc.
 Date Issued: February 15, 2013
 Project No: 11239

Client:
 Report No.:
 Revision No.:

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- Field Strengt of Spurious Emissions; 3rd to 10th harmonics, Average Detecting, Antenna was used SAS-571, EUT was installed in Tire 3.

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Averaging Detector_Horizontal

Operator: Jeremy Lee

06:37:31 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency Hz	Measured_AVG dBuV	AntFactor dB/m	PathLoss dB	Emission_AVG dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T Degree	Tower cm	POL
1.3031250 GHz	31.72	24.51	-28.90	27.33	53.98	26.65	300.0	110.0	H
1.7375000 GHz	31.74	25.68	-27.54	29.88	60.84	30.96	300.0	110.0	H
2.1718750 GHz	30.58	27.64	-26.16	32.06	60.84	28.78	300.0	110.0	H
2.6062500 GHz	29.86	29.53	-25.75	33.64	60.84	27.20	300.0	110.0	H
3.0406250 GHz	30.18	30.53	-24.84	35.87	60.84	24.97	300.0	110.0	H
3.4750000 GHz	30.21	30.31	-24.31	36.21	60.84	24.63	300.0	110.0	H
3.9093750 GHz	28.98	31.61	-23.59	36.99	53.98	16.99	300.0	110.0	H
4.3437500 GHz	28.17	31.48	-21.49	38.16	53.98	15.82	300.0	110.0	H
Project # : 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 33.0 %									
Barometer Pres.: 103.0 kPa									

LabTest Certification Inc.
 Intentional Radiated Emissions-Harmonics
 FCC15.231, 205 & 209, 3 meters, Averaging Detector_Vertical

Operator: Jeremy Lee

06:37:31 PM, Wednesday, February 13, 2013

Model #: CBTPSEN-01
 Contact: Vladimir Borisenko
 Company: SST Wireless Inc.

Frequency Hz	Measured+AVG dBuV	AntFactor dB/m	PathLoss dB	Emission_AVG dBuV/m	Limit_AVG dBuV/m	Margin_AVG dB	T/T Degree	Tower cm	POL
1.3031250 GHz	32.24	24.54	-28.90	27.88	53.98	26.10	10.0	110.0	V
1.7375000 GHz	31.89	25.74	-27.54	30.09	60.84	30.75	10.0	110.0	V
2.1718750 GHz	30.31	27.72	-26.16	31.87	60.84	28.97	10.0	110.0	V
2.6062500 GHz	29.93	29.57	-25.75	33.75	60.84	27.09	10.0	110.0	V
3.0406250 GHz	30.09	30.68	-24.84	35.93	60.84	24.91	10.0	110.0	V
3.4750000 GHz	30.27	30.40	-24.31	36.36	60.84	24.48	10.0	110.0	V
3.9093750 GHz	29.11	31.64	-23.59	37.16	53.98	16.82	10.0	110.0	V
4.3437500 GHz	28.37	31.54	-21.49	38.42	53.98	15.56	10.0	110.0	V
Project # : 11239, Sample #: 1131689									
Temp.: 23.0 C, Hum.: 33.0 %									
Barometer Pres.: 103.0 kPa									

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 Report No.:
 Revision No.:

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 0

Radiated Emission; Intentional Radiators

Regulation	FCC15.209:2010
Intentional Radiating Frequency	434.375MHz
Detecting Method	Quasi Peak Detector
IF Bandwidth	9kHz(under 30MHz) and 120kHz(30 to 1,000MHz)
Temperature	23.0 to 23.5 °C
Relative Humidity	33.0 to 37.0 %
Barometric Pressure:	102.6 to 103.1 kPa
Test Date	Feb. 12 & 13, 2013
Sample Number	1131687, 1131688, & 1131689
Calibrated Test Equipment (ID)	266, 272, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	3.6VDC, 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.

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Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

Test Results:

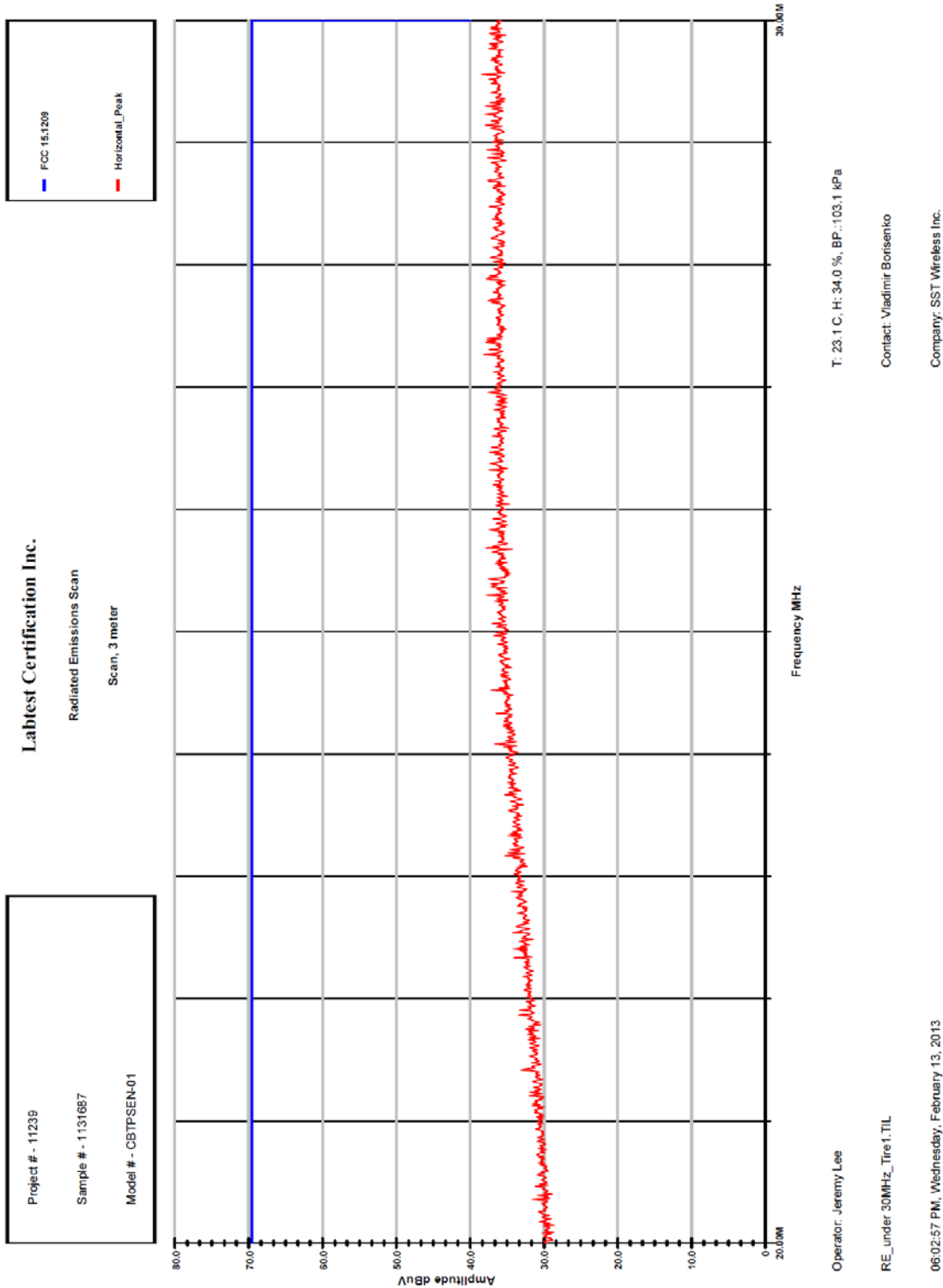
Emission level (dBuV/m) = Quasi-Peak detected level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m)

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

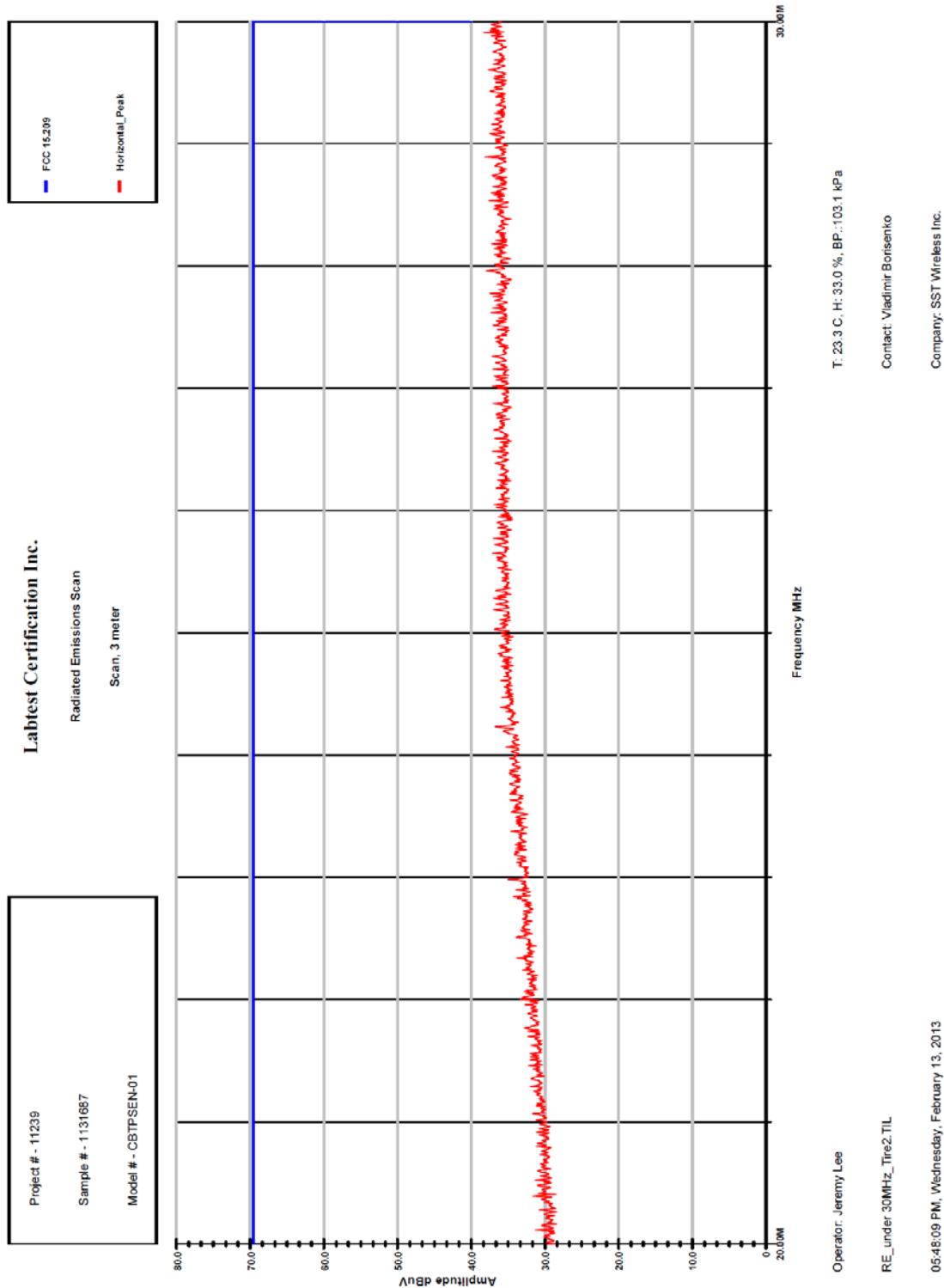
Frequency (MHz)	Limit (dBuV/m)	Measured (dBuV/m)	Margin (dB)	Pol. Of Antenna	Results
Tire1					
51.21875	40.0	+16.695	23.305	H	PASS
65.26354	40.0	+20.064	19.936	V	PASS
Tire 2					
55.4625	40.0	+20.2885	19.7115	H	PASS
Tire 3					
62.53542	40.0	+22.0221	19.9779	H	PASS
50.81458	40.0	+17.5251	22.4749	V	PASS

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

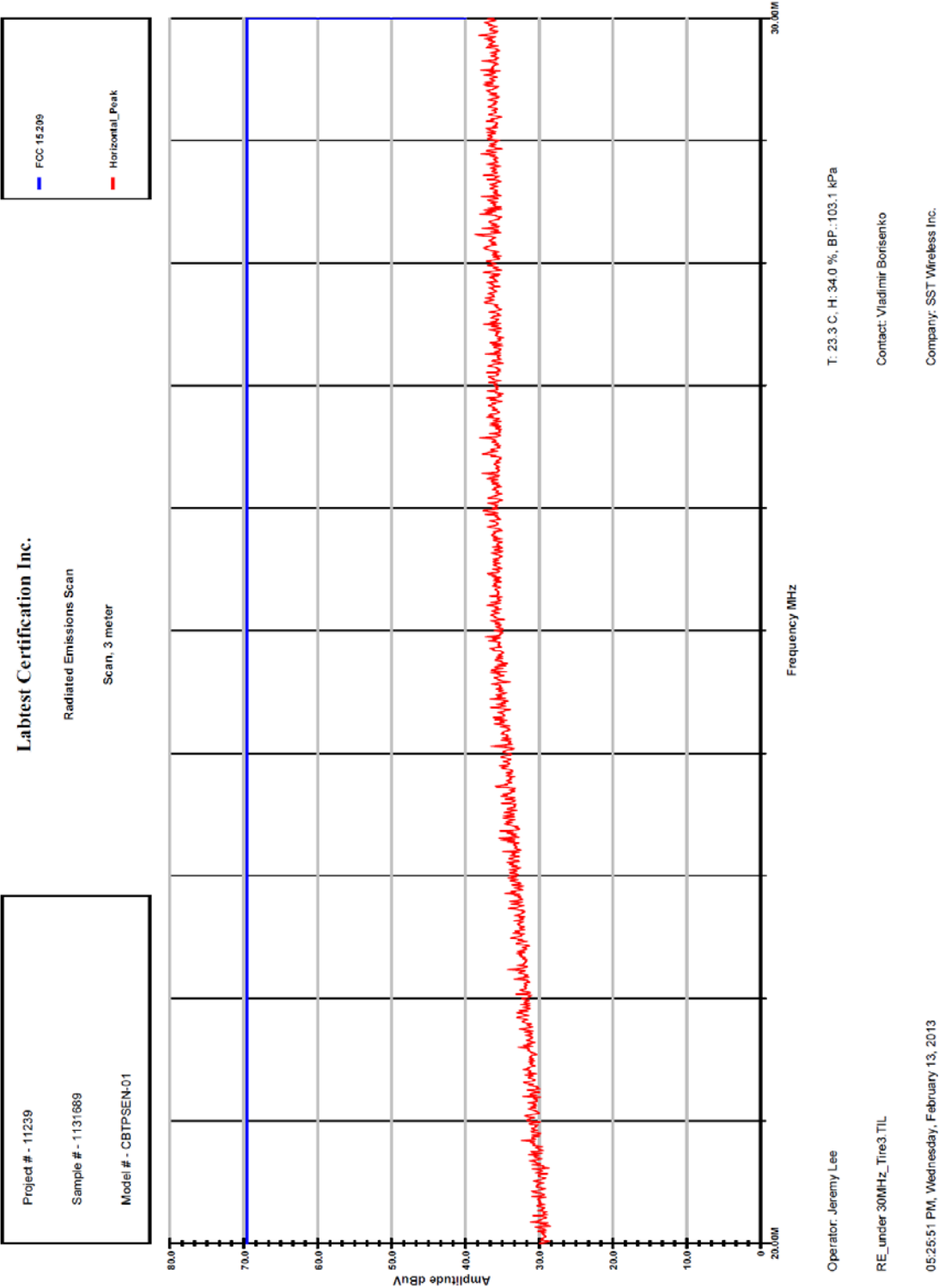
- Graph of Radiated Emissions: 20 to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130, EUT was installed in Tire 1.



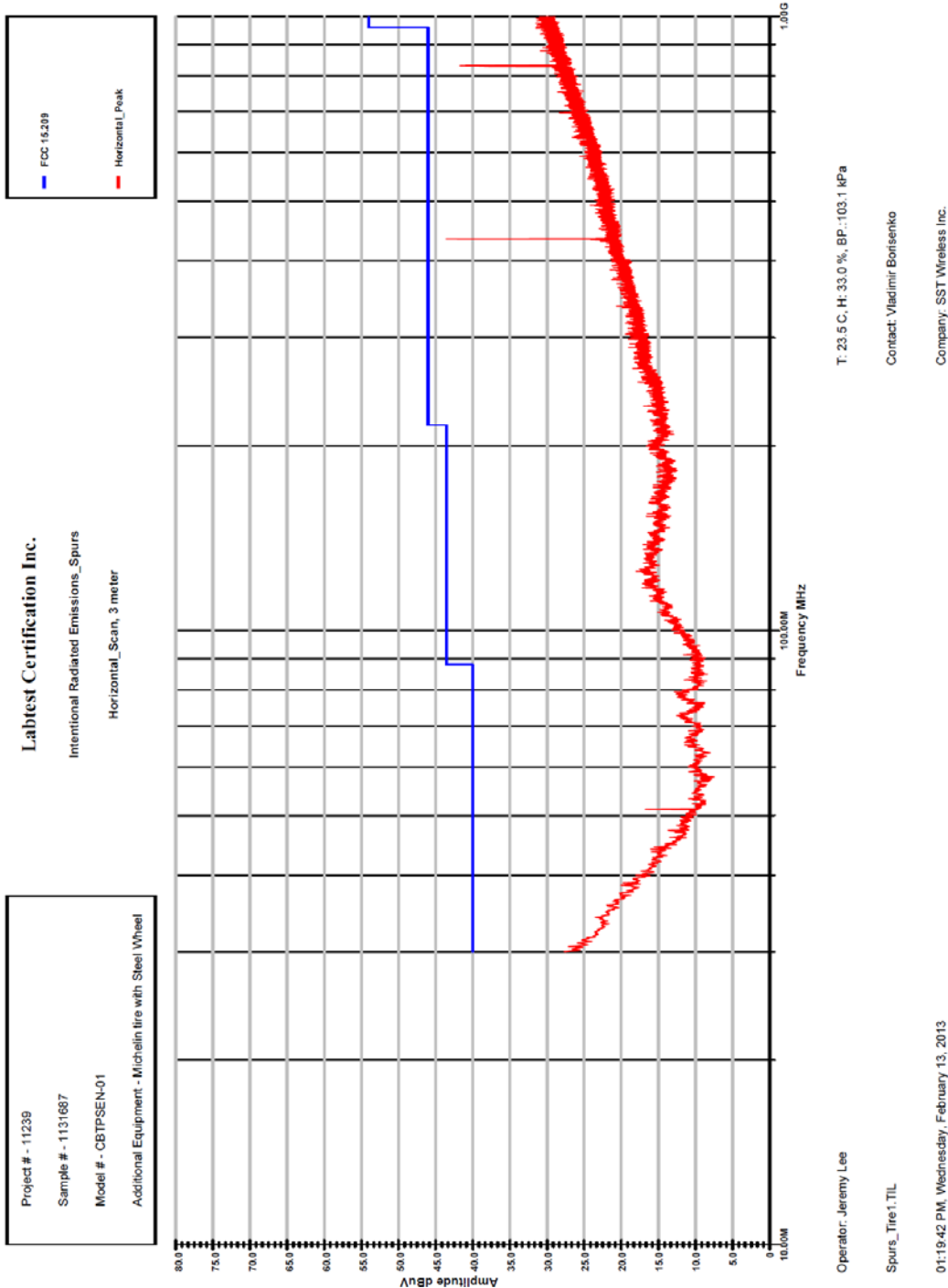
- Graph of Radiated Emissions: 20 to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130, EUT was installed in Tire 2.



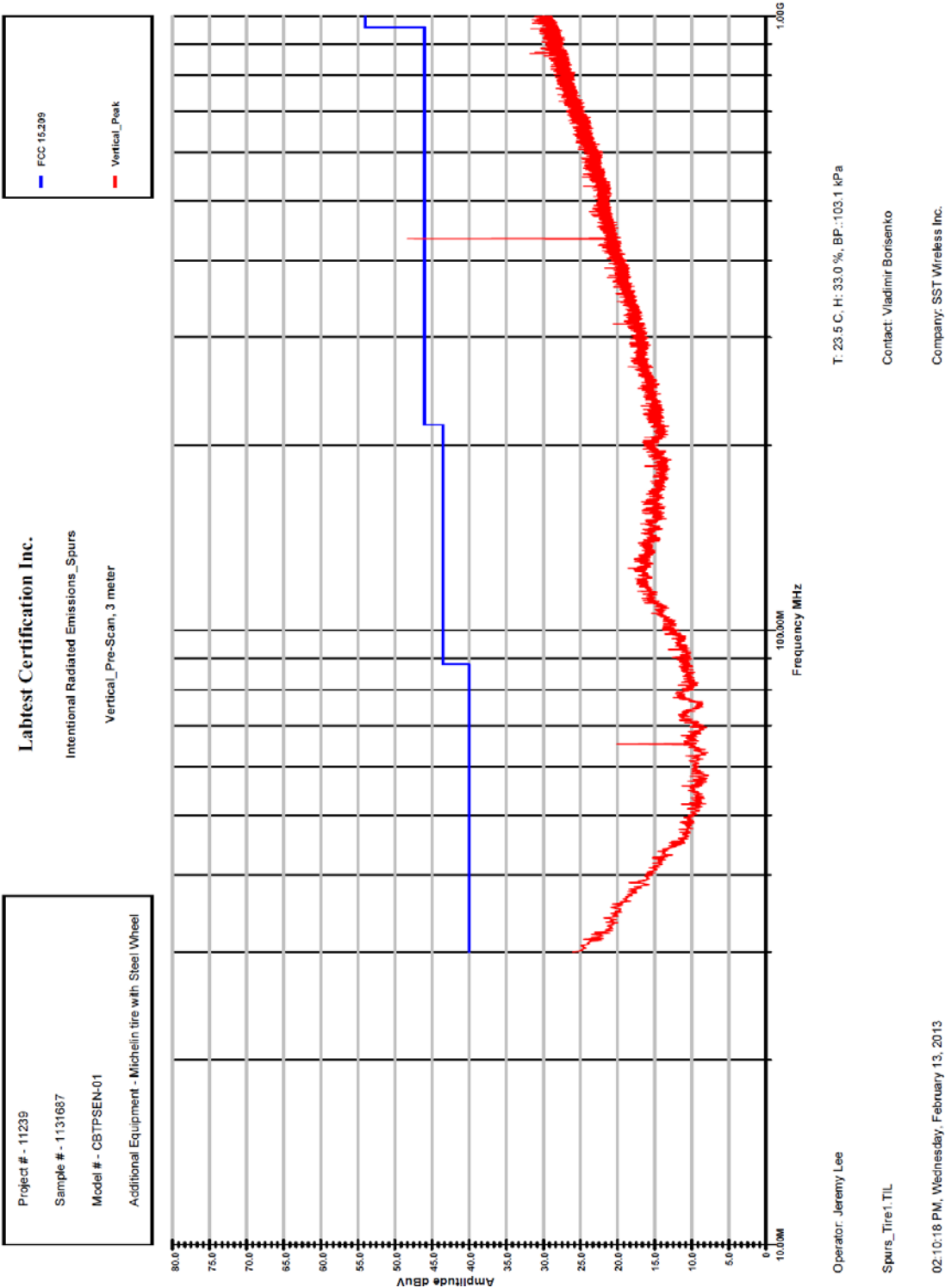
- Graph of Radiated Emissions: 20 to 30MHz, Peak detecting, On RF Transmitter, Antenna was used AL-130, EUT was installed in Tire 3.



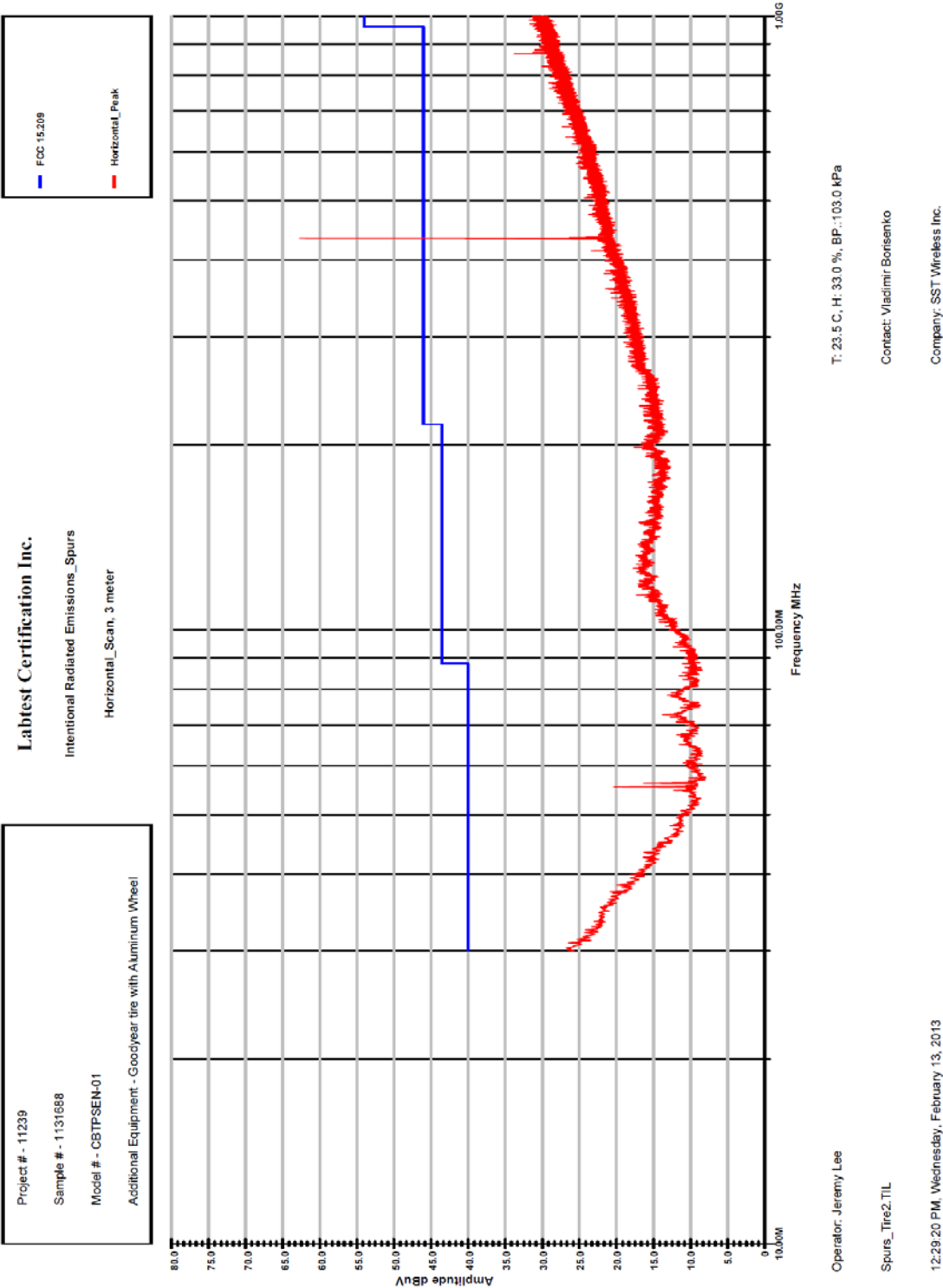
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, Horizontal, EUT was installed in Tire 1.



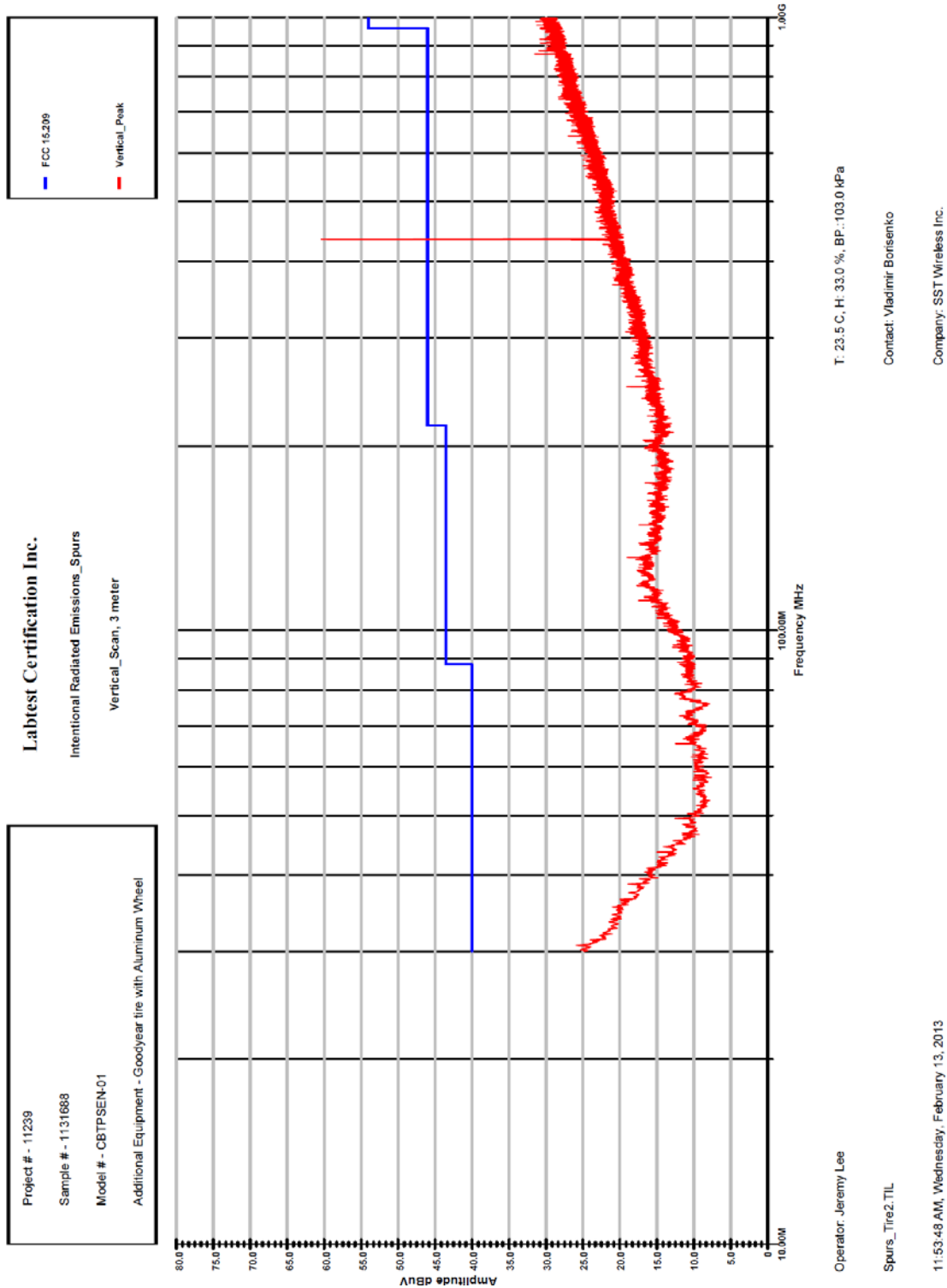
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, Vertical, EUT was installed in Tire 1.



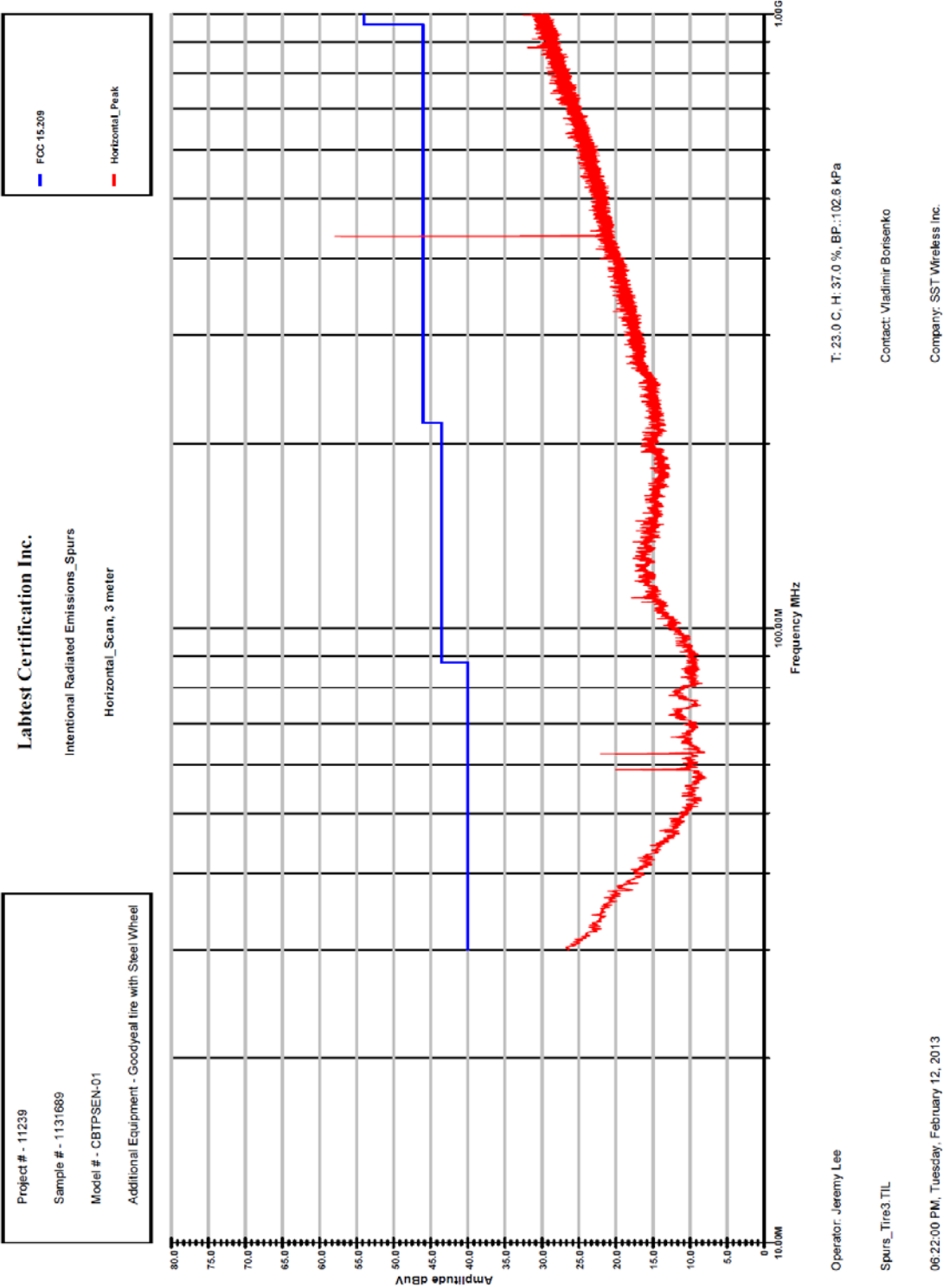
- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, Horizontal, EUT was installed in Tire 2.



- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, Vertical, EUT was installed in Tire 2.

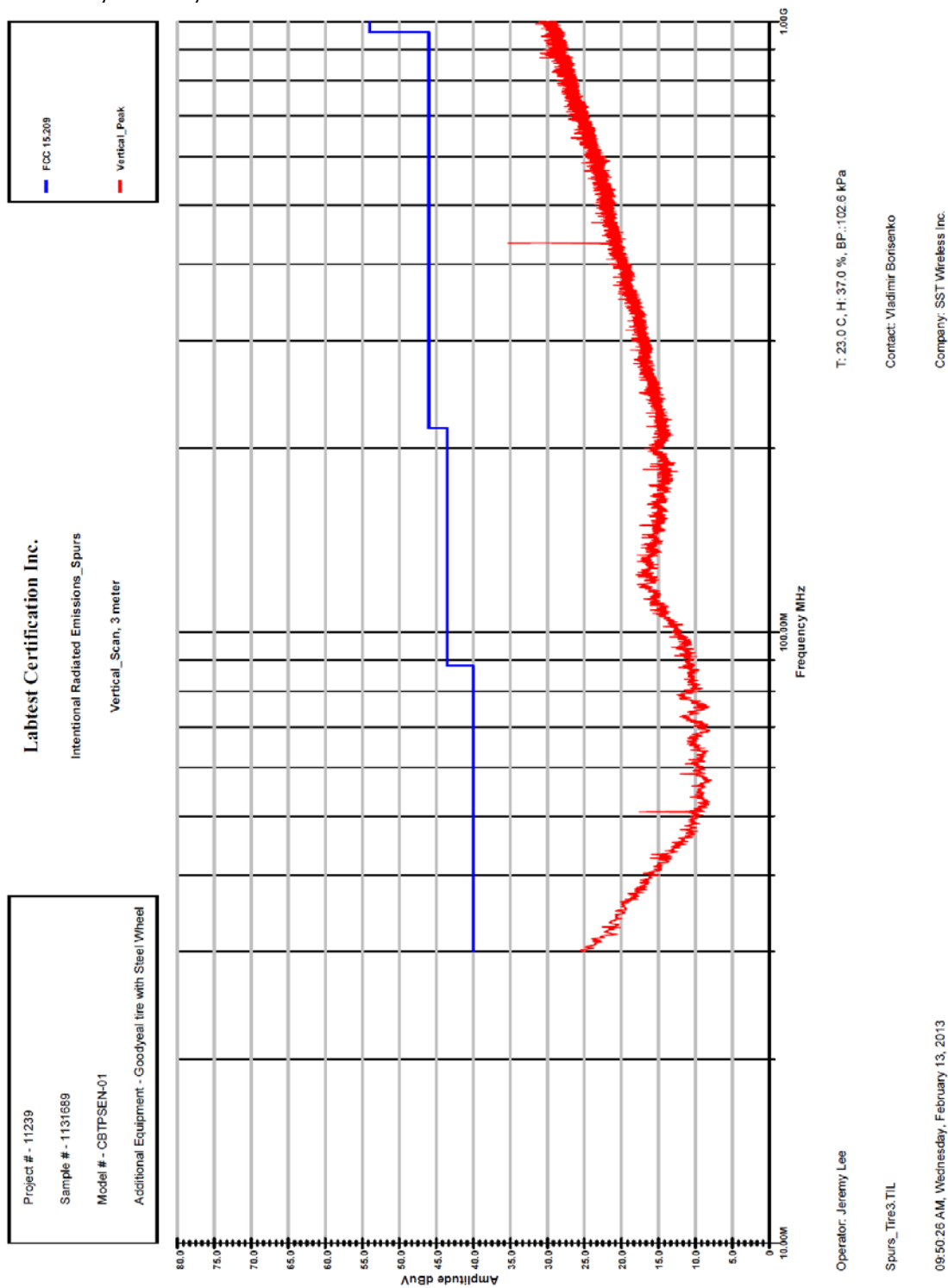


- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, Horizontal, EUT was installed in Tire 3.



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11239-1E
0

- Graph of Radiated Emissions: 30 to 1,000MHz, Peak detecting, On RF Transmitter, Antenna was used JB1, Vertical, EUT was installed in Tire 3.



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Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

The Bandwidth of the emission

Regulation	FCC15.231: 2010
Temperature	22.4 to 23.0 °C
Relative Humidity	37.0 %
Barometric Pressure:	102.6 to 102.7 kPa
Test Date	Feb. 12, 2013
Sample Number	1131687, 1131688, & 1131689
Calibrated Test Equipment (ID)	266, 272, 371
Reference Equipment (ID) (Calibration not required)	124, 374
Electrical Rating	3.6VDC, Internal battery
Tested By	Jeremy LEE

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

Test Limits

FCC 15.231:

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

Test Setup

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

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

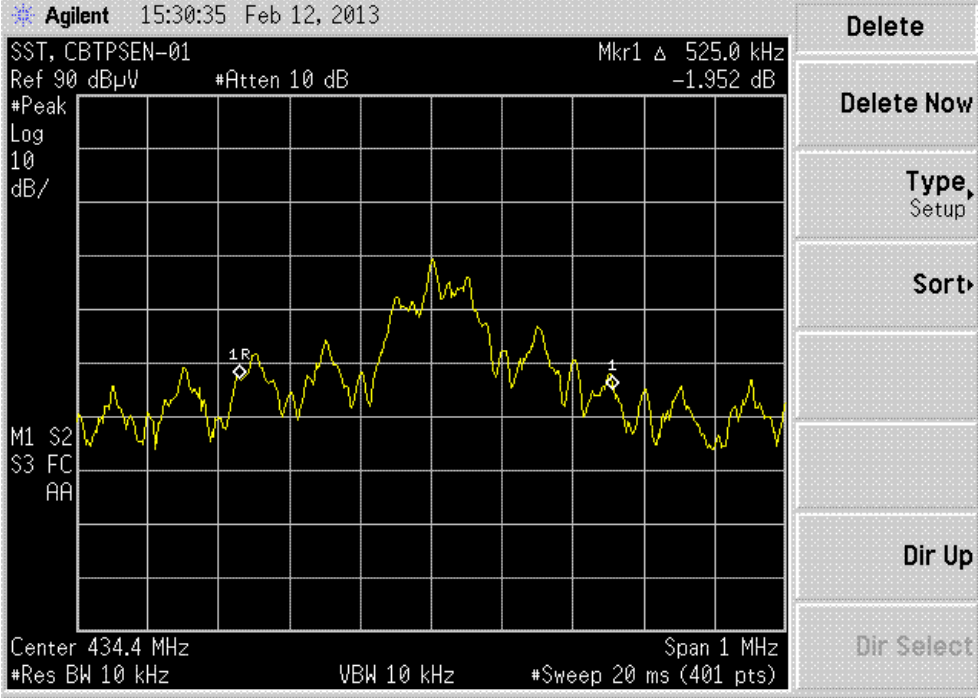
- a) The EUT was placed on a wooden supporter, 10cm and it was put on the turning ground plate.
- b) It was measured with a receiver - spectrum analyzer.

Test Results:

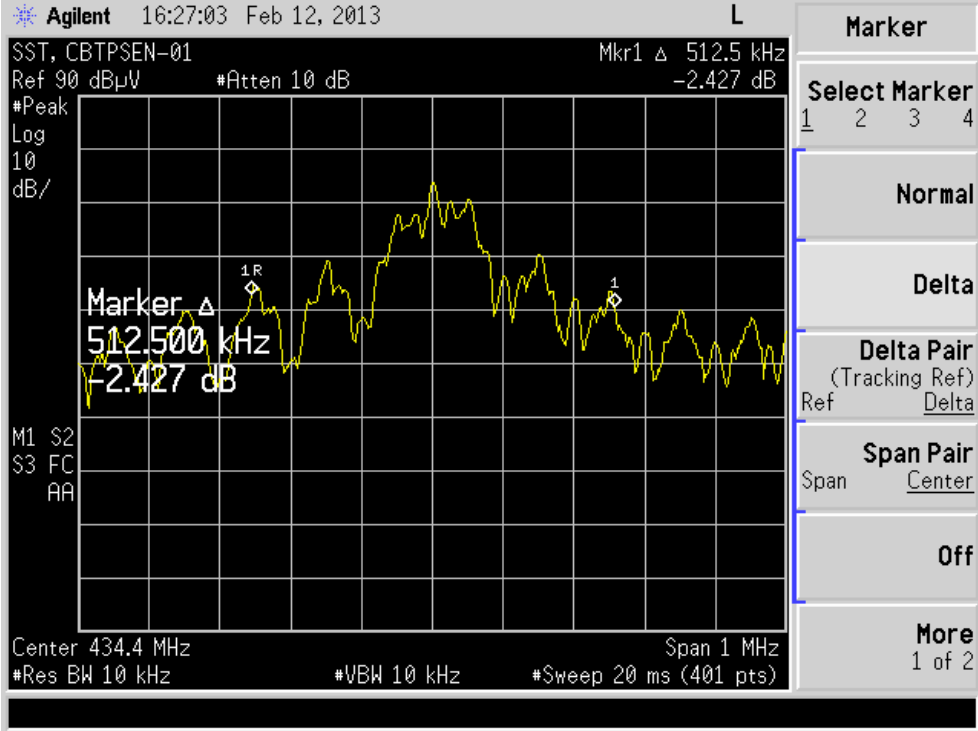
X **Pass** **Fail** **N/A**

Center Frequency (MHz)	Limit(<0.25%, kHz)	Measured(kHz)	Results
434.375	< 1085.94	525.0	PASS

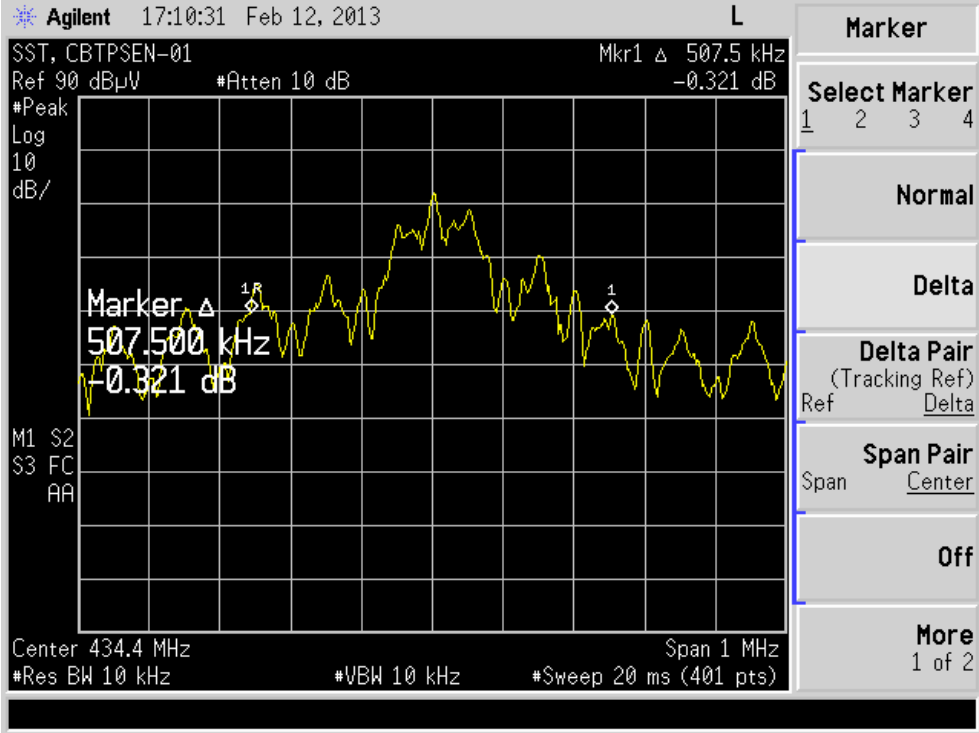
- Measured result of the Bandwidth of the emission(20dBc method), installed in Tire1.



- Measured result of the Bandwidth of the emission(20dBc method), installed in Tire2.



- Measured result of the Bandwidth of the emission(20dBc method), installed in Tire3.



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 Project No: 11239

Client:
 Report No.:
 Revision No.:

SST Wireless Inc.
 11239-1E
 0

APPENDIX A: Test Equipment Used

ID No.	Description	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due Date	Calibration Certificate No:	Calibration Laboratory
124	Pre-Amplifier	Com-Power	PA-103	161118	N/A	N/A	N/A	N/A
227-3	Horn Antenna	A.H. Systems	SAS-571	936	12-Jul-2012	12-Jul-2014	2012062215	Liberty Labs
241	Active Loop Antenna	AL-130	Com-Power	17075	01-Nov-2011	01-Nov-2013	071075A	Com-Power
266	Humidity/ Temperature Logger	Onset HOBO	U14-001	2436907	02-Jan-2013	02-Jan-2014	345135	Wescan
272	EMC Analyzer	Agilent	E7405A	US41110263	11-May-2012	11-May-2013	1-4321111743-1	Agilent
273	RF Preamplifier	Agilent	8449B	3008A02264	28-Mar-2012	28-Mar-2013	2008120104207	Micro Precision
371	EMC Broadband Antenna	Sunol	JB1	A022012	07-Mar-2012	07-Mar-2014	2012022808	Liberty Labs
374	EMC Shielded Enclosure	USC	USC-26	111811	N/A	N/A	N/A	N/A

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Project No: 11239

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Report No.:
Revision No.:

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11239-1E
0

APPENDIX B: EUT photos

- EUT: Top View



- EUT: Bottom View

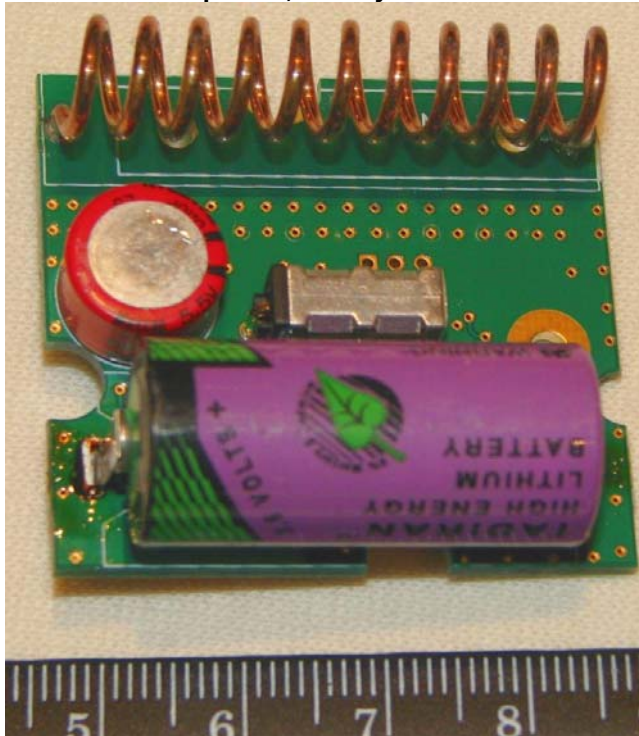


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Date Issued: February 15, 2013
Project No: 11239

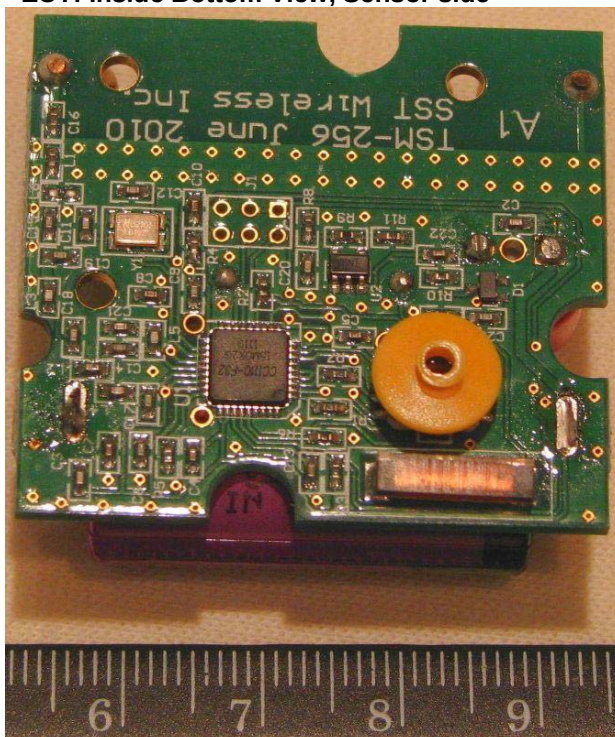
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Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- EUT: Inside Top View, Battery and Antenna side



- EUT: Inside Bottom View, Sensor side



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Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

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11239-1E
0

- EUT: installed on rim, Top View



- EUT: with strap



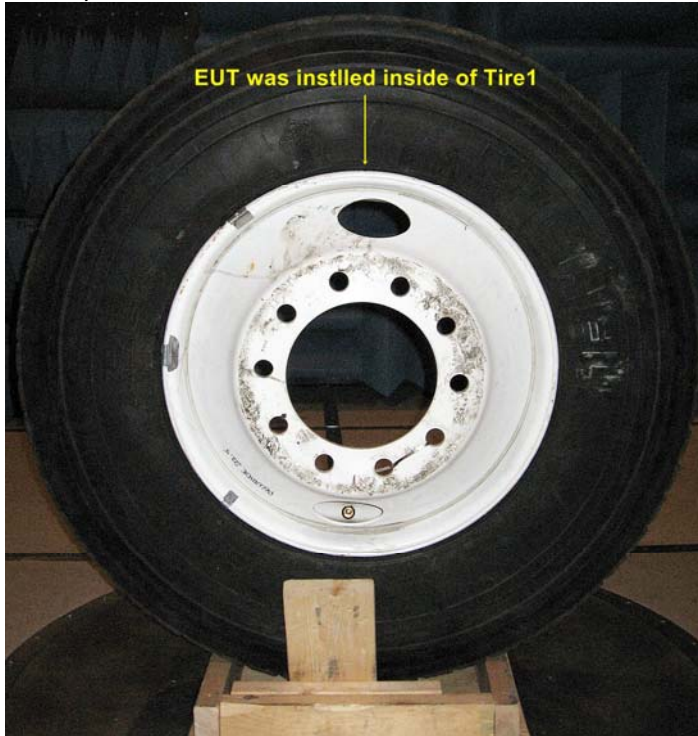
Prepared by:
Date Issued:
Project No:

LabTest Certification Inc.
February 15, 2013
11239

Client:
Report No.:
Revision No.:

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11239-1E
0

- Tire1, installed EUT inside.



- Tire2, installed EUT inside.

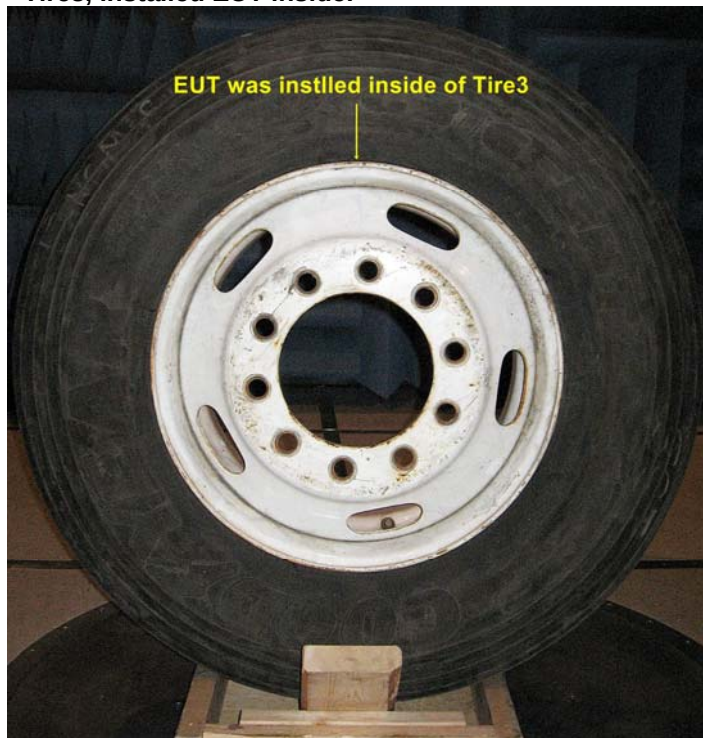


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Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- Tire3, installed EUT inside.



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Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

APPENDIX C: Test setup photos

- Test configuration for Field Strength measurement, installed in Tire1

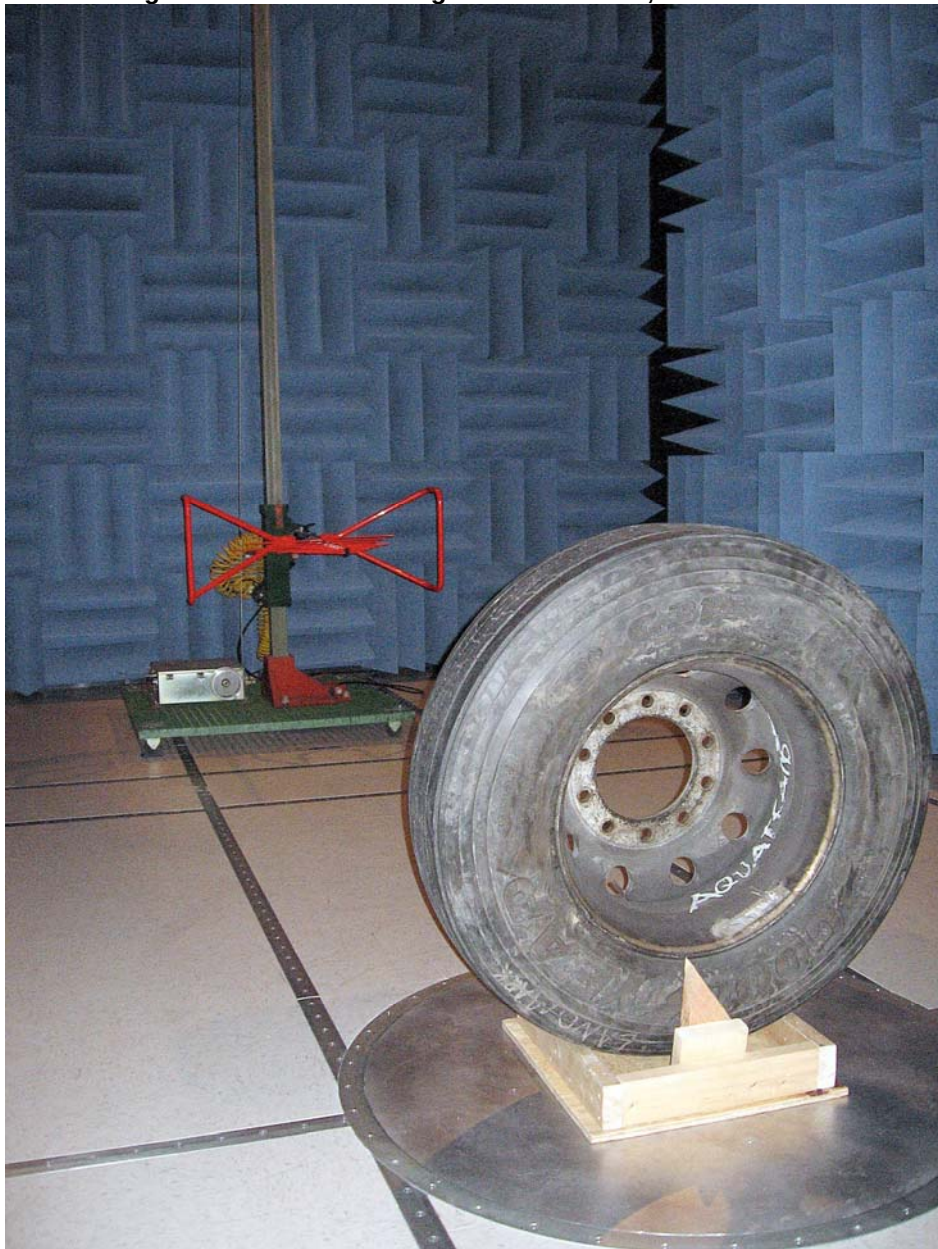


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Project No: 11239

Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- Test configuration for Field Strength measurement, installed in Tire2



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Project No: 11239

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Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- Test configuration for Field Strength measurement, installed in Tire3

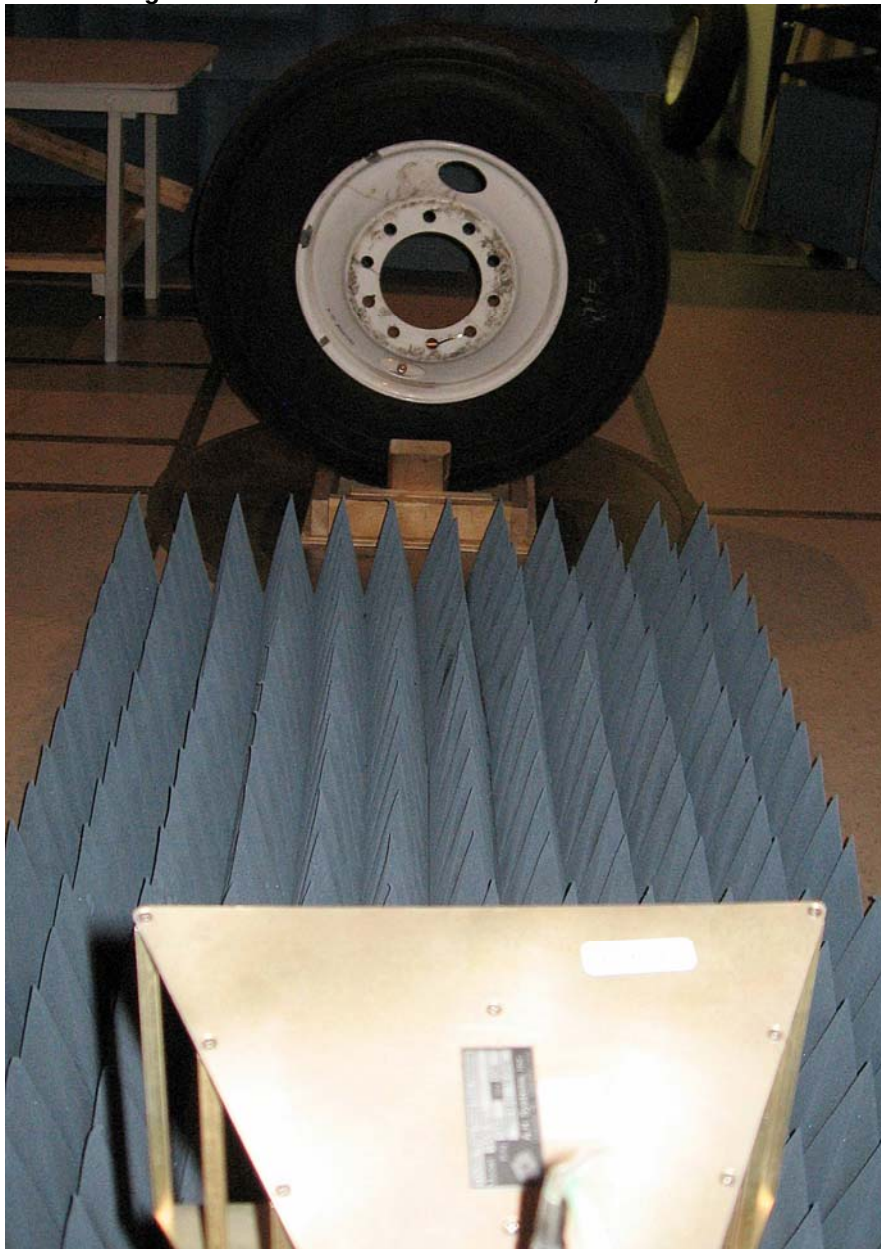


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Date Issued: February 15, 2013
Project No: 11239

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Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- Test configuration for Harmonic measurement, installed in Tire1



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Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

- Test configuration for Unintentional measurement below 30MHz, installed in Tire3

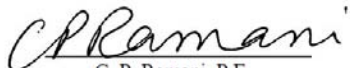


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Date Issued: February 15, 2013
Project No: 11239

Client:
Report No.:
Revision No.:

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11239-1E
0

APPENDIX D: ISO 17025:2005 Accreditation Certificate

International Accreditation Service CERTIFICATE OF ACCREDITATION <i>This is to signify that</i> LABTEST CERTIFICATION, INC. 3133-20800 WESTMINSTER HIGHWAY RICHMOND, BRITISH COLUMBIA V6V 2W3 CANADA Testing Laboratory TL-367 (Revised May 9, 2012) has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with ANS/ISO/IEC Standard 17025:2005, <i>General requirements for the competence of testing and calibration laboratories</i>, 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  Print Date: 05/23/2012 (see attached scope of accreditation for fields of testing and accredited test methods) 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.	
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11-04577

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Client:
Report No.:
Revision No.:

SST Wireless Inc.
11239-1E
0

International Accreditation Service
SCOPE OF ACCREDITATION

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

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

Kavinder Dhillon
QMS Manager
(604) 247-0444

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

May 5, 2011
Commencement Date



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

Print Date: 05/23/2012

Page 2 of 4

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Date Issued: February 15, 2013
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Electrical, EMC and Electro-mechanical (cont)	GB/T 17626.6, 17626.8, 17626.11; GB 4343.1 (CISPR 14.1), 4343.2 (CISPR 14.2), GB 4824; HKTA 1001, 1005, 1007 and 1022; ICES-001, 003; JIS T 0601-1-2; IEC/EN/AS/KN: 60601-1-2; IEC/EN/AS/KN/JIS C: 61000-3-2, 61000-3-3, 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-8, 61000-4-9, 61000-4-11, 61000-4-12, 61000-4-13, 61000-6-1, 61000-6-2, 61000-6-3 and 61000-6-4; IEC/EN/AS/KN: 61326; RSS-130, 136, 138, 182, 187, 210, 213, 215, 243 and 310; MIL-STD-461E; MIL-STD-462D; KN60601-1-2; KN301 489; KN22, 24; YD 1032; YD/T 965, 968, 993, 1103; CSA Standards C22.2 No. 0, .1, .17, .4, 6, 8, 9, 10, 12, 14, 15, 18, 24, 36, 37, 40, 43, 53, 61, 66-1-06, 63, 64, 66.1, 66.2, 66.3, 68, 71.1, 71.2, 72, 73, 81, 85, 89, 94, 99, 100, 101, 104, 107.1, 107.2, 108, 109, 110, 112, 113, 114, 117, 122, 125, 139, 141, 147, 148, 149, 156, 157, 158, 164, 166, 167, 168, 169, 173, 177, 184, 187, 191, 195, 205, 207, 213, 217, 218.1, 218.2, 223, 224, 225, 231, 234, 236, 243, 247, 250 and 60065; CSA Standards E60079-0, -1 (except Explosion Proof Test), -6, -11, -15, E60335-1, -2, E60730-1, -2, E60745-1, -2, E61010-1, -2, E742, Z240 RV Series 08; IEC/EN Standards 60335-1, -2, 60730-1, -2, 60745-1, -2, 61010-1, -2, 60601-1, -2, 60065, 60079-0, -6, -11, -15 and 60950-1, -2; IEC/EN 60529; 60945, 60598-1, -2, 61347-1; UL Standards 48, 50, 73, 197, 499, 507, 508, 508A, 676, 745-1, 751, 763, 778, 858, 867, 875, 924, 935, 982, 987, 998, 1004, 1012, 1026, 1261, 1310, 1431, 1472, 5085-2_1; 5085-3; 1563, 1564, 1585, 1598, 1647, 1795, 1993, 1995, UL/CSA 5085-1_1

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C. P. Ramani
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Page 3 of 4

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SCOPE OF ACCREDITATION

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

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