

**FCC PART 15, SUBPART B and C  
TEST REPORT***for***MIMO RADIO****MODEL: SC4210-245-BB**

Prepared for

**SILVUS TECHNOLOGIES**  
10990 WILSHIRE BLVD., SUITE #1500  
LOS ANGELES, CALIFORNIA 90024

Prepared by: \_\_\_\_\_

**KYLE FUJIMOTO**

Approved by: \_\_\_\_\_

**MICHAEL CHRISTENSEN****COMPATIBLE ELECTRONICS INC.**  
114 OLINDA DRIVE  
BREA, CALIFORNIA 92823  
(714) 579-0500

DATE: AUGUST 28, 2016

	REPORT BODY	APPENDICES					TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
PAGES	20	2	2	2	19	65	<b>110</b>

This report shall not be reproduced, except in full, without the written approval of  
Compatible Electronics.



**TABLE OF CONTENTS**

<b>Section / Title</b>	<b>PAGE</b>
<b>GENERAL REPORT SUMMARY</b>	<b>4</b>
<b>SUMMARY OF TEST RESULTS</b>	<b>5</b>
<b>1. PURPOSE</b>	<b>6</b>
<b>2. ADMINISTRATIVE DATA</b>	<b>7</b>
2.1 Location of Testing	7
2.2 Traceability Statement	7
2.3 Cognizant Personnel	7
2.4 Date Test Sample was Received	7
2.5 Disposition of the Test Sample	7
2.6 Abbreviations and Acronyms	7
<b>3. APPLICABLE DOCUMENTS</b>	<b>8</b>
<b>4. DESCRIPTION OF TEST CONFIGURATION</b>	<b>9</b>
4.1 Description of Test Configuration – Emissions	9
4.1.1 Cable Construction and Termination	10
<b>5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT</b>	<b>11</b>
5.1 EUT and Accessory List	11
5.2 Emissions Test Equipment	12
<b>6. TEST SITE DESCRIPTION</b>	<b>13</b>
6.1 Test Facility Description	13
6.2 EUT Mounting, Bonding and Grounding	13
<b>7. CHARACTERISTICS OF THE TRANSMITTER</b>	<b>13</b>
7.1 Channel Description and Frequencies	13
7.2 Antenna Gain	13
<b>8. TEST PROCEDURES</b>	<b>14</b>
8.1 RF Emissions	14
8.1.1 Conducted Emissions Test	14
8.1.2 Radiated Emissions (Spurious and Harmonics) Test	15
8.1.3 RF Emissions Test Results	16
8.2 DTS Bandwidth	17
8.3 Peak Output Power	17
8.4 Emissions in Non-Restricted Bands	18
8.5 RF Band Edges	18
8.6 Spectral Density Test	19
<b>9. CONCLUSIONS</b>	<b>20</b>

**LIST OF APPENDICES**

<b>APPENDIX</b>	<b>TITLE</b>
A	Laboratory Accreditations and Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams, Charts, and Photos <ul style="list-style-type: none"><li>• Test Setup Diagrams</li><li>• Radiated and Conducted Emissions Photos</li><li>• Antenna and Effective Gain Factors</li></ul>
E	Data Sheets

**LIST OF FIGURES**

<b>FIGURE</b>	<b>TITLE</b>
1	Layout of the Semi-Anechoic Test Chamber
2	Conducted Emissions Test Setup

**LIST OF TABLES**

<b>TABLE</b>	<b>TITLE</b>
1	Conducted Emissions Test Results
2	Radiated Emissions Test Results

## GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government.

Device Tested: MIMO Radio  
Model: SC4210-245-BB  
S/N: N/A

Product Description: The EUT is a stand-alone IP based MIMO coded OFDM radio.

Modifications: The EUT was not modified during the testing.

Customer: Silvus Technologies  
10990 Wilshire Blvd., Suite #1500  
Los Angeles, California 90024

Test Dates: July 25, 26, and 27, 2016; and September 15, 2016

Test Specifications covered by accreditation:



Emissions requirements  
CFR Title 47, Part 15, Subpart B; and  
Subpart C, sections 15.205, 15.207, 15.209, and 15.247

Test Procedure: ANSI C63.4 and ANSI C63.10

**SUMMARY OF TEST RESULTS**

<b>TEST</b>	<b>DESCRIPTION</b>	<b>RESULTS</b>
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart B; and Section C, section 15.207
2	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart B; and Subpart C, section 15.247(d)
3	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
4	DTS Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2)
5	Maximum Conducted Output Power	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3)
6	Emissions in Non-Restricted Bands	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d)
7	Peak Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

**1. PURPOSE**

This document is a qualification test report based on the emissions tests performed on the MIMO Radio, Model: SC4210-245-BB. The emissions measurements were performed according to the measurement procedure described in ANSI C63.10 and ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

## 2. ADMINISTRATIVE DATA

### 2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

### 2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

### 2.3 Cognizant Personnel

Silvus Technologies

Grant Denoon                      Senior RF Engineer

Compatible Electronics Inc.

Kyle Fujimoto                      Test Engineer

Michael Christensen              Lab Manager

### 2.4 Date Test Sample was Received

The test sample was received on July 25, 2016.

### 2.5 Disposition of the Test Sample

The test sample returned to Silvus Technologies on July 27, 2016.

### 2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable

### 3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emissions Test Report.

<b>SPEC</b>	<b>TITLE</b>
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
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
ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
558074 D01 DTS Meas Guidance v03r05	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating under 15.247



#### 4. DESCRIPTION OF TEST CONFIGURATION

##### 4.1 Description of Test Configuration – Emissions

**AC Power Mode:** The MIMO OFDM Radio, Model: SC4210-245-BB(EUT) was connected to a laptop, push to talk audio accessory, and power supply via its USB and ethernet; audio, and power ports, respectively. The laptop was also connected to an AC power supply.

**Battery Mode:** The MIMO OFDM Radio, Model: SC4210-245-BB(EUT) was connected to a laptop and push to talk audio accessory, via its USB and ethernet; and audio ports, respectively. The laptop was also connected to an AC power supply.

During the testing, the EUT was communicating with the laptop utilizing the UNIX client software. All commands and data were sent over the ethernet port.

Operation of the EUT during the testing:

**For the intentional radiator portion of the test:** The laptop had a program that locked one channel at a time so that the low and high channels could be tested. The EUT was tested in three orthogonal axis. The carrier was modulated in the same way it would be when the EUT was in its normal operating mode. The laptop was pinging the EUT on a continuous basis via its Ethernet port.

**For the unintentional radiator and conducted emission portion of the test:** The laptop used a program that allowed the EUT to function as normal. The laptop was also pinging the EUT on a continuous basis via its Ethernet port.

The EUT was tested in the X, Y and Z axis. The X orientation is when the EUT is parallel to the ground. The Y orientation is when the EUT is perpendicular to the ground mounted vertically. The Z orientation is when the EUT is perpendicular to the ground mounted horizontally.

It was determined that the emissions were at their highest level when the EUT was operating in the above configurations. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

#### **4.1.1 Cable Construction and Termination**

##### **Cable 1 (For AC Mode Only)**

This is a 2-meter unshielded cable connecting the power supply to the EUT. The cable is hard wired at the power supply end and has a US Army 3-pin radio battery connector at the EUT end. The cable was bundled to a length of 1-meter. The cable has a molded ferrite at the power supply end.

**Cable 2** This is a 1-meter unshielded cable connecting the push to talk audio accessory to the EUT. The cable has a Hirose 6-pin circular connector at the EUT end and is hard wired into the push to talk audio accessory.

**Cable 3** This a 1-meter braid and foil shielded cable connecting the EUT to the laptop. The cable has a metallic RJ-45 connector at the laptop end and a Hirsoe 12-pin circular connector at the EUT end. The shield of the cable was grounded to the chassis via the connectors.

**Cable 4** This a 1-meter foil shielded cable connecting the EUT to the laptop. The cable has a metallic USB type 'A' connector at the laptop end and a Hirose 12-pin circular connector at the EUT end. The shield of the cable was grounded to the chassis via the connectors.

**Cable 5** This is a 2-meter unshielded cable connecting the laptop to the AC Adapter. The cable has a one-pin power connector at the laptop end and is hared wired into the AC Adapter. The cable was bundled to a length of 1-meter.

**5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT****5.1 EUT and Accessory List**

<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>FCC ID</b>
MIMO RADIO (EUT)	SILVUS TECHNOLOGIES	SC4210-245-BB	N/A	N2S-SC42-245
SWITCH-MODE POWER SUPPLY FOR EUT (12 Volt DC output)	V-INFINITY	3A-621DN12	P/N: ETS120500UTC-P5RP-SZ	N/A
LAPTOP	DELL	PP04X	CN-OHN341-48643-87H-2372	QD5-BRCM1028
BATTERY	MULTIPOWER	NSN-6140-01-600-7665	MP2053-1-2311	N/A
PUSH TO TALK AUDIO ACCESSORY	IMPACT	S1820	NA	N/A
AC ADAPTER FOR LAPTOP	DELL	LA90PS0-00	CN-0DF266-71615-02C-2346	N/A
(2) HALF WAVE DIPOLE ANTENNAS	SOUTHWEST ANTENNAS	N/A	P/N: 1001-071	N/A

## 5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
<b>RF EMISSIONS TEST EQUIPMENT</b>					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
EMI Receiver, 20 Hz – 26.5 GHz	Keysight	N9038A	MY51210150	December 29, 2015	1 Year
CombiLog Antenna	Com-Power	AC-220	61060	September 3, 2015	1 Year
Preamplifier	Com-Power	PAM-118A	551024	May 12, 2016	1 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2016	2 Year
Loop Antenna	Com-Power	AL-130	17089	February 6, 2015	2 Year
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A
Horn Antenna	Com-Power	AH-118	071175	February 26, 2016	2 Year
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A
LISN (EUT)	Com-Power	LI-215A	191951	June 9, 2015	2 Year
Transient Limiter	Com-Power	252A910	N/A	October 14, 2015	1 Year
RF Peak Power Meter	Boonton Electronics	4500A	1282	December 2, 2014	2 Year
Peak Power Sensor	Boonton Electronics	57318	3723	December 2, 2014	2 Year

## 6. TEST SITE DESCRIPTION

### 6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for emissions test location.

### 6.2 EUT Mounting, Bonding and Grounding

**For frequencies 1 GHz and below:** The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

**For frequencies above 1 GHz:** The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 1.5 meters above the ground plane.

The EUT was not grounded.

## 7. CHARACTERISTICS OF THE TRANSMITTER

### 7.1 Channel Description and Frequencies

The EUT operates on two channels. The low channel is 2430 MHz and the high channel is 2440 MHz.

### 7.2 Antenna Gain

The EUT utilizes two half wave dipole antennas with 2.15 dBi gain.

## 8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

### 8.1 RF Emissions

#### 8.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the TDK TestLab conducted emissions software in several overlapping sweeps by running the EMI Receiver at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

#### **Test Results:**

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.207 for conducted emissions. Please see Appendix E for the data sheets.

### 8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as the measuring meter. Preamplifiers were used to increase the sensitivity of the instrument. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged by using the RMS average detector function on the EMI Receiver.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	Combilog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

#### Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.

**8.1.3 RF Emissions Test Results**Table 1.0 CONDUCTED EMISSION RESULTS  
MIMO Radio, Model: SC4210-245-BB

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.32 (Black Lead)	40.79 (Average)	49.66	-8.87
0.45 (Black Lead)	37.24 (Average)	46.86	-9.63
0.322 (White Lead)	39.86 (Average)	49.63	-9.77
0.186 (White Lead)	43.97 (Average)	53.90	-9.93
0.198 (White Lead)	43.93 (Average)	53.89	-9.97
0.190 (Black Lead)	43.94 (Average)	53.97	-10.03

Table 2.0 RADIATED EMISSION RESULTS  
MIMO Radio, Model: SC4210-245-BB

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
2390 (H)(X-Axis)(AC Mode)	53.90 (Average)	53.97	-0.07
2483.5 (V)(X-Axis)(AC Mode)	53.87 (Average)	53.97	-0.10
2390 (H)(X-Axis)(Battery)	53.82 (Average)	53.97	-0.15
4860 (H)(Y-Axis)(AC Mode)	53.42 (Average)	53.97	-0.55
2390 (V)(X-Axis)(AC Mode)	53.38 (Average)	53.97	-0.59
2483.5 (V)(X-Axis)(Battery)	53.30 (Average)	53.97	-0.67

Notes:

- \* The complete emissions data is given in Appendix E of this report.  
H Horizontal Polarization          V Vertical Polarization



## 8.2 DTS Bandwidth

The DTS Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The following steps were performed for measuring the DTS Bandwidth.

1. Set RBW = 100 kHz
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep = Auto Couple
6. Allow the trace to stabilize
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Both the AC and battery modes were investigated to determine the configuration that is the worst case. The AC mode was determined to be the worst case.

### Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(2).

## 8.3 Maximum Conducted Output Power

The Conducted Average Output Power was measured using the Power Meter. The average output power was measured using the average power measurement procedure described in section 9.2.3.1 of KDB 558074 v03r05. The Maximum Conducted Output Power was then taken.

### Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(3).

## 8.4 Emissions in Non-Restricted Bands

The emissions in Non-Restricted Bands were measured using the EMI Receiver. The emissions were measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The reference level was established by setting the instrument center frequency to DTS channel center frequency. A peak detector was used with sweep set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20 dB below that was the reference level. For emission level measurement, the center frequency and span were set to encompass the frequency range to be measured. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than the span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Both the AC and battery modes were investigated to determine the configuration that is the worst case. The AC mode was determined to be the worst case.

### Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d).

## 8.5 RF Band Edges

The RF band edges were taken at 2390 MHz when the EUT was on the low channel and 2483.5 MHz when the EUT was on the high channel using the EMI Receiver. A preamplifier was used to boost the signal level, with the plots being taken at a 3 meter test distance. The radiated emissions test procedure as describe in section 8.1.2 of this test report was used to maximize the emission.

### Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the restricted bands closest to the band edges at 2390 MHz and 2483.5 MHz also meet the limits of section 15.209. Please see the data sheets located in Appendix E.

## 8.6 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

1. Set analyzer center frequency to DTS channel center frequency
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to 3 kHz  $\leq$  RBW  $\leq$  100 kHz
4. Set the VBW  $\geq$  3 X RBW
5. Detector = power averaging (RMS)
6. Ensure that the number of measurement points in the sweep  $\geq$  2 x span/RBW
7. Sweep time = auto couple
8. Use the peak marker function to determine the maximum amplitude level within the RBW
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Both the AC and battery modes were investigated to determine the configuration that is the worst case. The AC mode was determined to be the worst case.

### Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (e).

**9. CONCLUSIONS**

The MIMO Radio, Model: SC4210-245-BB, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B, and Subpart C, sections 15.205, 15.209, 15.207, and 15.247.





**APPENDIX A**

***LABORATORY ACCREDITATIONS AND RECOGNITIONS***

---

**Brea Division**  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

**Agoura Division**  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

**Silverado Division**  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

**Lake Forest Division**  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400

## LABORATORY ACCREDITATIONS AND RECOGNITIONS



NVLAP LAB CODE 200528-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.

**For the most up-to-date version of our scopes and certificates please visit**

**<http://celectronics.com/quality/scope/>**

Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfillment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."



**APPENDIX B**

***MODIFICATIONS TO THE EUT***

## **MODIFICATIONS TO THE EUT**

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

The EUT was not modified during the testing.







**APPENDIX C**

***ADDITIONAL MODELS COVERED  
UNDER THIS REPORT***

---

**Brea Division**  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

**Agoura Division**  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

**Silverado Division**  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

**Lake Forest Division**  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400

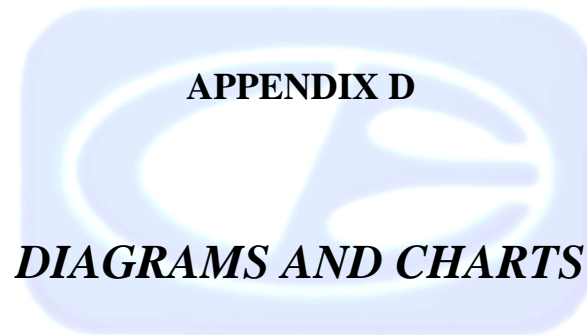
## **ADDITIONAL MODELS COVERED UNDER THIS REPORT**

USED FOR THE PRIMARY TEST

MIMO Radio  
Model: SC4210-245-BB  
S/N: N/A

There were no additional models covered under this report.

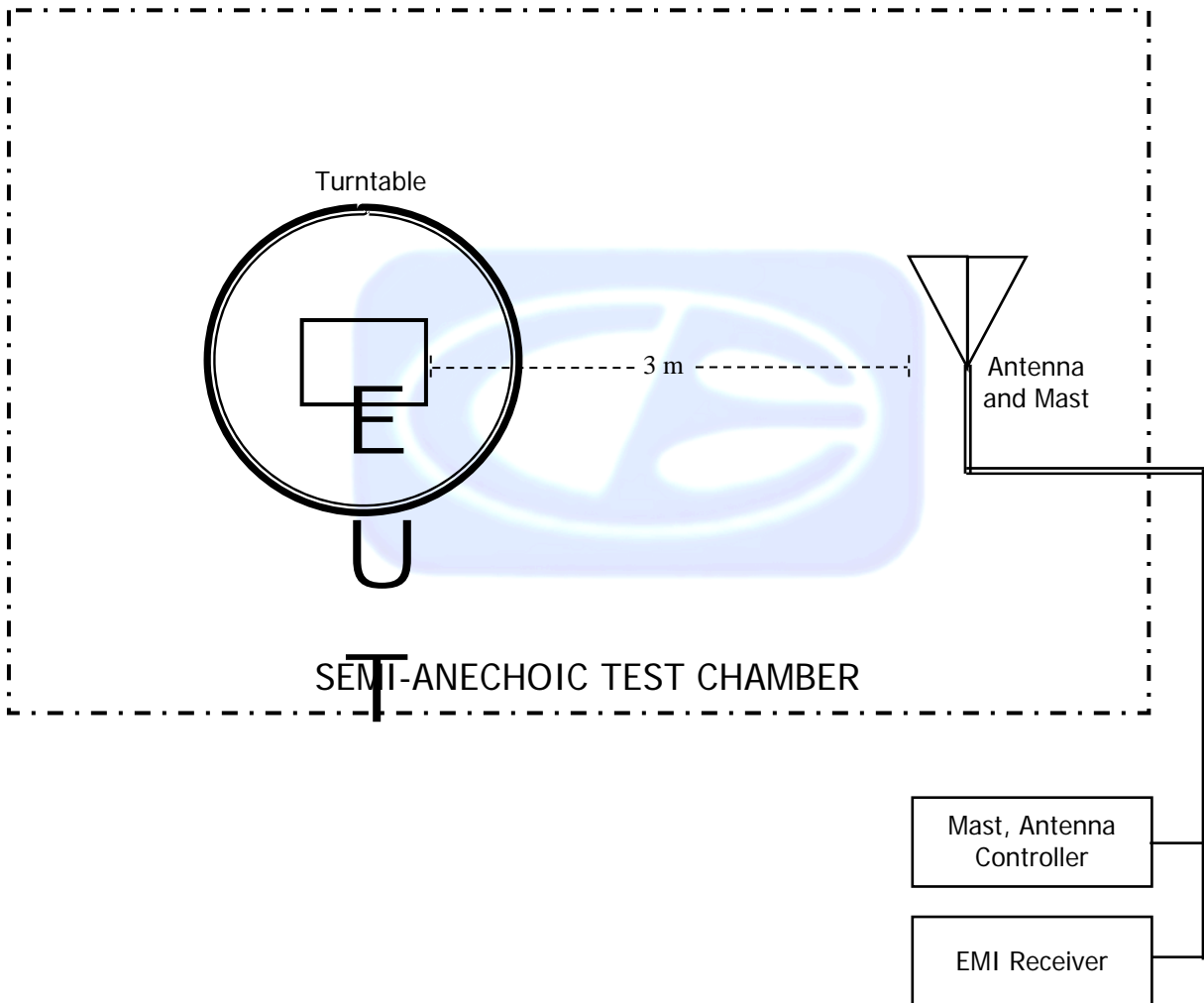




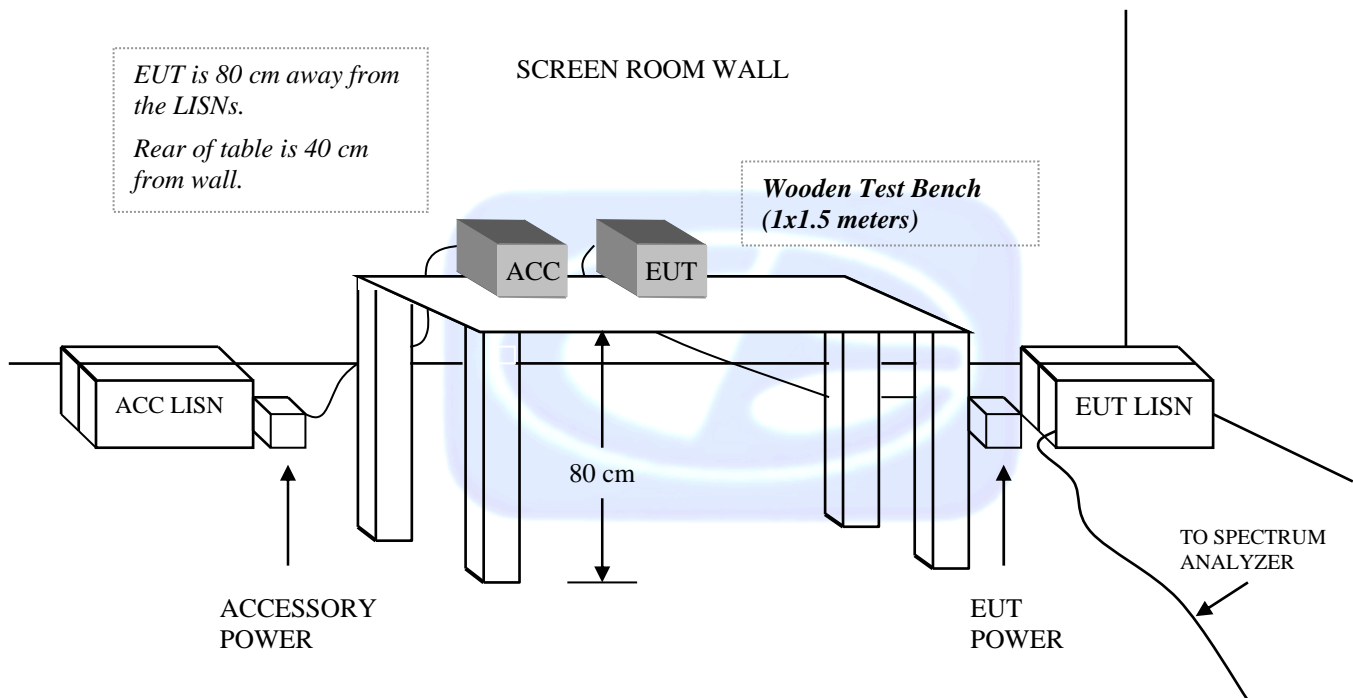
**APPENDIX D**

***DIAGRAMS AND CHARTS***

**FIGURE 1: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER**



**FIGURE 2: CONDUCTED EMISSIONS TEST SETUP**



**COM-POWER AL-130****LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: FEBRUARY 6, 2015

<b>FREQUENCY (MHz)</b>	<b>MAGNETIC (dB/m)</b>	<b>ELECTRIC (dB/m)</b>
0.009	-33.18	18.32
0.01	-34.10	17.40
0.02	-38.65	12.85
0.03	-39.28	12.22
0.04	-40.09	11.41
0.05	-40.85	10.65
0.06	-40.88	10.62
0.07	-41.07	10.43
0.08	-41.04	10.46
0.09	-41.19	10.31
0.1	-41.20	10.30
0.2	-41.52	9.98
0.3	-41.53	9.97
0.4	-41.42	10.08
0.5	-41.53	9.97
0.6	-41.53	9.97
0.7	-41.43	10.07
0.8	-41.23	10.27
0.9	-41.13	10.37
1	-41.14	10.36
2	-40.80	10.70
3	-40.66	10.84
4	-40.61	10.89
5	-40.33	11.17
6	-40.53	10.97
7	-40.47	11.03
8	-40.48	11.02
9	-39.93	11.57
10	-39.81	11.69
15	-43.35	8.15
20	-39.16	12.34
25	-40.24	11.26
30	-43.18	8.32

**COM-POWER AC-220****COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: SEPTEMBER 3, 2015**

<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>
30	24.00	200	13.00
35	24.30	250	15.30
40	25.40	300	18.20
45	21.50	350	17.90
50	22.50	400	18.60
60	15.40	450	19.80
70	12.70	500	21.60
80	11.10	550	22.40
90	13.40	600	23.70
100	13.80	650	24.30
120	15.40	700	24.00
125	15.40	750	24.50
140	13.10	800	24.30
150	17.20	850	26.30
160	13.20	900	26.90
175	14.20	950	26.00
180	14.30	1000	25.60

**COM POWER AH-118****HORN ANTENNA**

S/N: 071175

CALIBRATION DATE: FEBRUARY 26, 2016

<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
1.0	23.93	10.0	39.33
1.5	25.54	10.5	39.64
2.0	28.09	11.0	41.04
2.5	30.21	11.5	44.29
3.0	30.15	12.0	41.22
3.5	30.17	12.5	41.50
4.0	31.90	13.0	41.62
4.5	33.51	13.5	40.63
5.0	33.87	14.0	39.94
5.5	35.08	14.5	41.84
6.0	34.81	15.0	42.69
6.5	34.26	15.5	39.03
7.0	36.33	16.0	39.07
7.5	37.03	16.5	41.40
8.0	37.56	17.0	43.18
8.5	40.07	17.5	47.01
9.0	38.92	18.0	46.48
9.5	38.21		



**COM-POWER PA-118****PREAMPLIFIER**

S/N: 551024

CALIBRATION DATE: MAY 12, 2016

<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
1.0	39.84	6.0	39.05
1.1	39.40	6.5	38.94
1.2	39.58	7.0	39.25
1.3	39.68	7.5	39.09
1.4	39.91	8.0	39.01
1.5	39.78	8.5	38.60
1.6	39.50	9.0	38.64
1.7	39.81	9.5	39.67
1.8	39.89	10.0	39.30
1.9	39.94	11.0	39.15
2.0	39.57	12.0	39.24
2.5	40.39	13.0	39.49
3.0	40.63	14.0	39.44
3.5	40.80	15.0	39.94
4.0	40.86	16.0	40.09
4.5	39.94	17.0	40.06
5.0	34.47	18.0	39.76
5.5	39.32		

**COM-POWER AH-826****HORN ANTENNA**

S/N: 71957

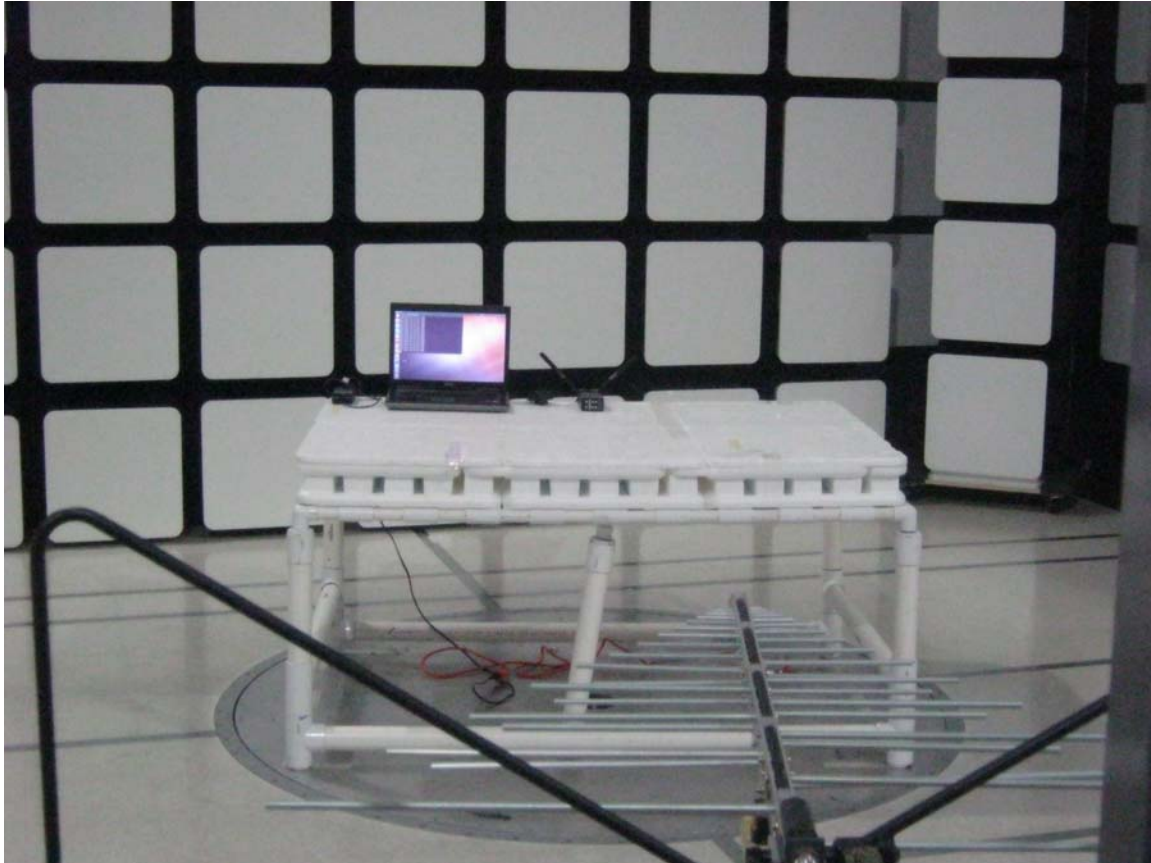
<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

**COM-POWER PA-840****MICROWAVE PREAMPLIFIER**

S/N: 711013

CALIBRATION DATE: MAY 13, 2016

<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	25.33	36.5	23.71
28.0	24.49	37.0	26.35
28.5	24.74	37.5	23.49
29.0	25.93	38.0	25.42
29.5	26.28	38.5	24.87
30.0	26.17	39.0	22.60
30.5	26.11	39.5	20.57
		40.0	19.15



**FRONT VIEW**

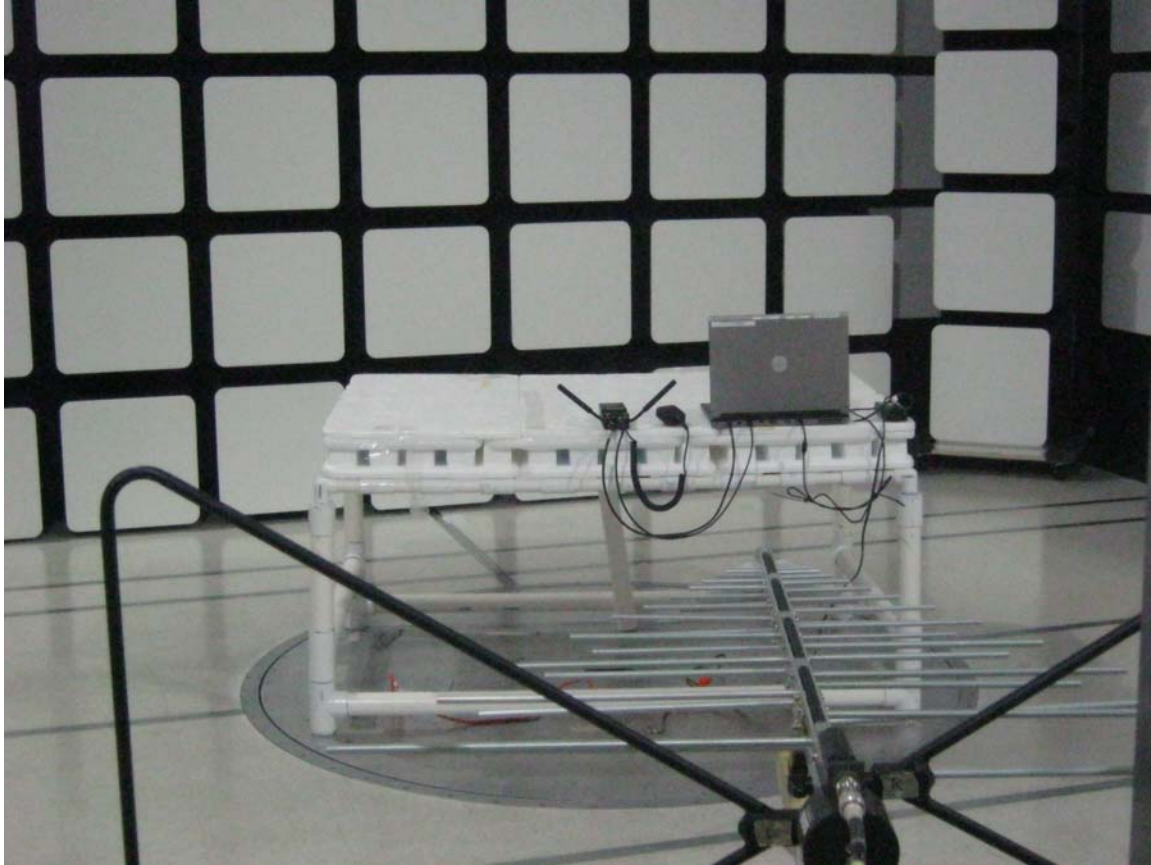
**SILVUS TECHNOLOGIES**

**MIMO RADIO**

**MODEL: SC4210-245-BB**

**FCC SUBPART B AND C – RADIATED EMISSIONS – BATTERY MODE – BELOW 1 GHz**

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**REAR VIEW**

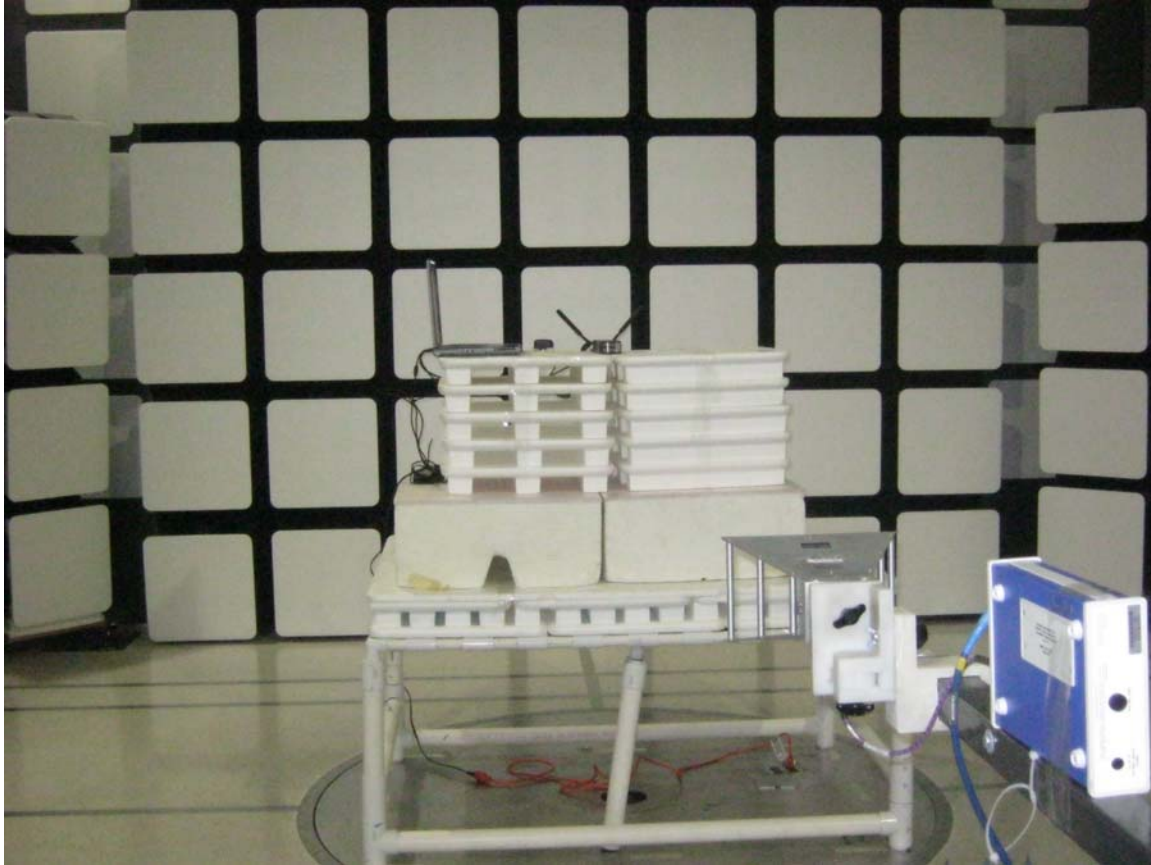
**SILVUS TECHNOLOGIES**

**MIMO RADIO**

**MODEL: SC4210-245-BB**

**FCC SUBPART B AND C – RADIATED EMISSIONS – BATTERY MODE – BELOW 1 GHz**

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**FRONT VIEW**

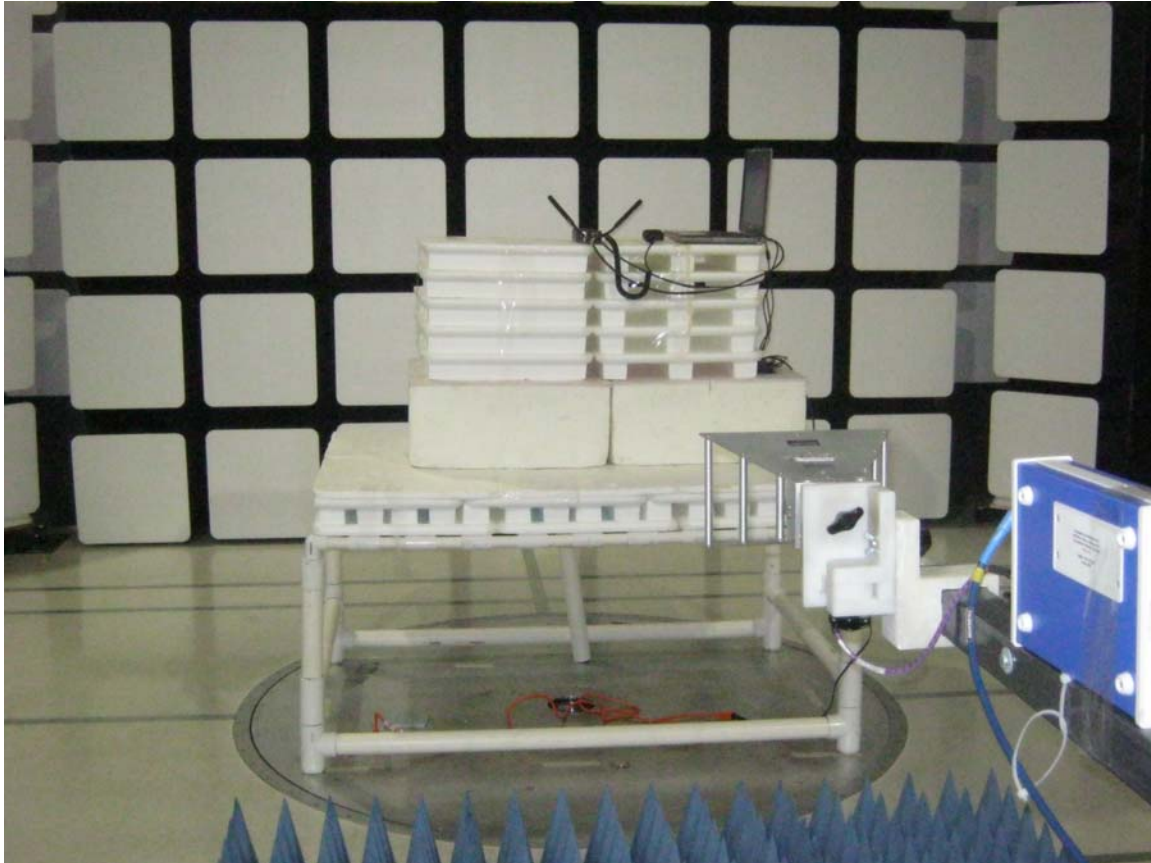
SILVUS TECHNOLOGIES

MIMO RADIO

MODEL: SC4210-245-BB

FCC SUBPART B AND C – RADIATED EMISSIONS – BATTERY MODE – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

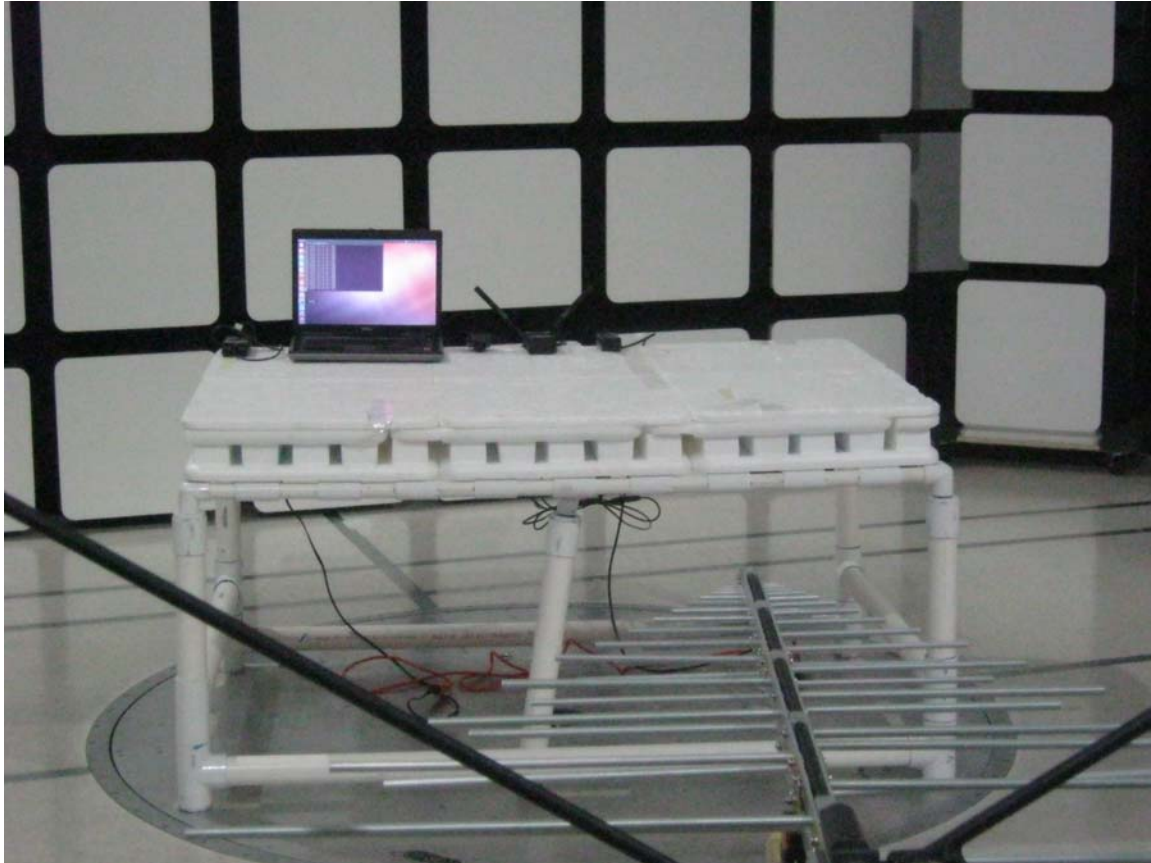


**REAR VIEW**

SILVUS TECHNOLOGIES  
MIMO RADIO  
MODEL: SC4210-245-BB

FCC SUBPART B AND C – RADIATED EMISSIONS – BATTERY MODE – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**FRONT VIEW**

SILVUS TECHNOLOGIES

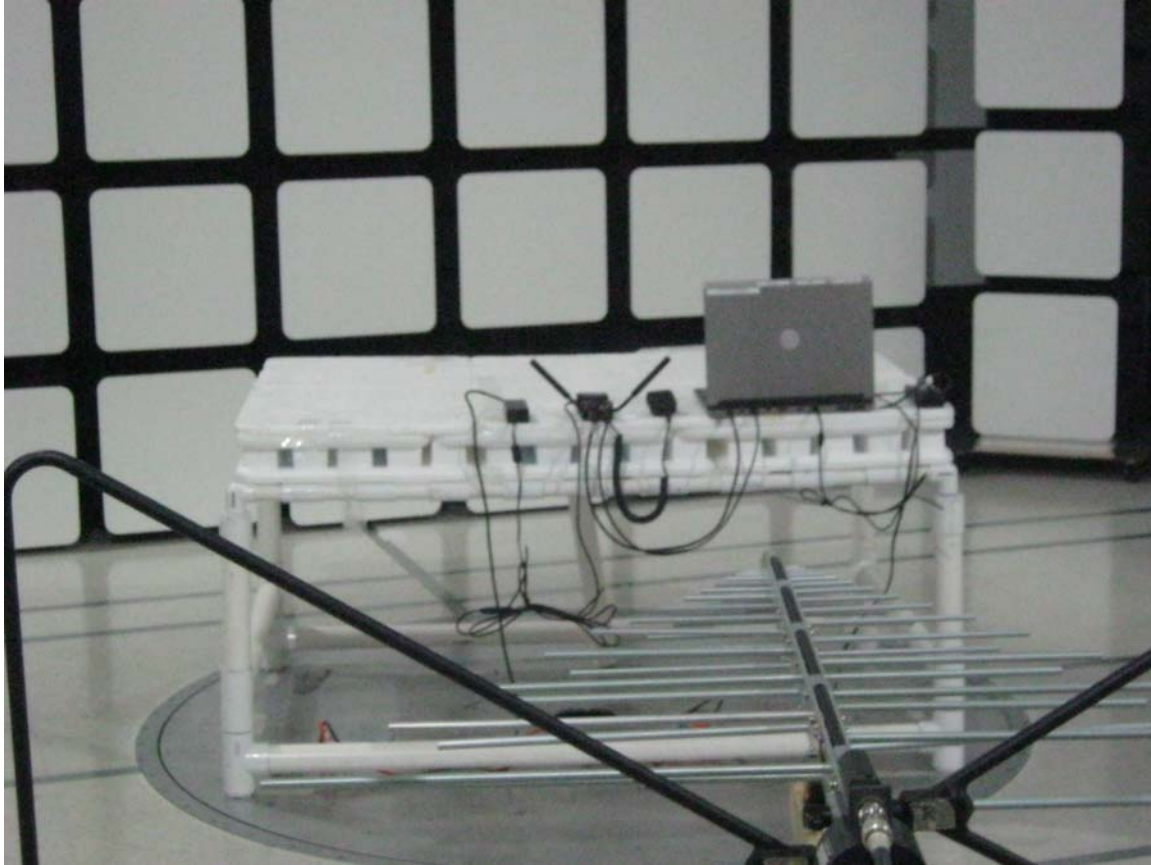
MIMO RADIO

MODEL: SC4210-245-BB

FCC SUBPART B AND C – RADIATED EMISSIONS – AC MODE – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**





**REAR VIEW**

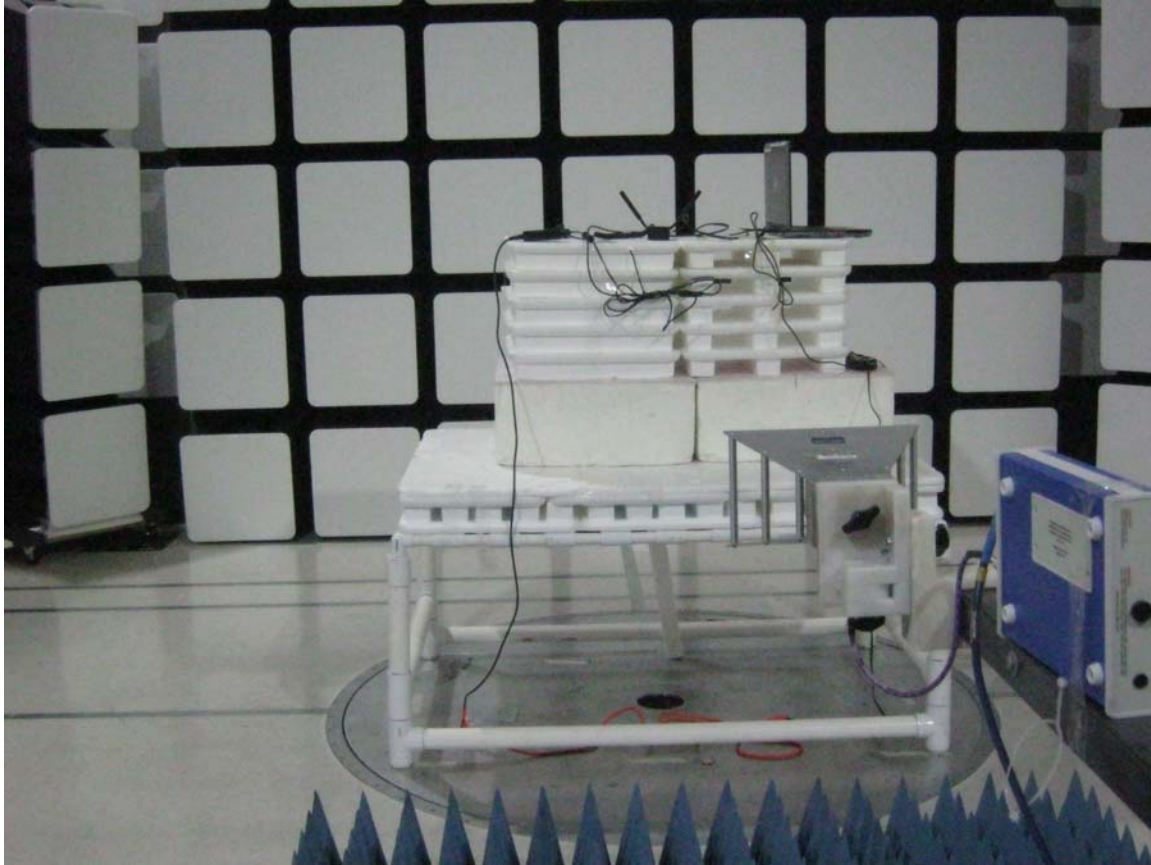
SILVUS TECHNOLOGIES

MIMO RADIO

MODEL: SC4210-245-BB

FCC SUBPART B AND C – RADIATED EMISSIONS – AC MODE – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**FRONT VIEW**

SILVUS TECHNOLOGIES

MIMO RADIO

MODEL: SC4210-245-BB

FCC SUBPART B AND C – RADIATED EMISSIONS – AC MODE – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**REAR VIEW**

**SILVUS TECHNOLOGIES  
MIMO RADIO  
MODEL: SC4210-245-BB**

**FCC SUBPART B AND C – RADIATED EMISSIONS – AC MODE – ABOVE 1 GHz**

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**FRONT VIEW**

SILVUS TECHNOLOGIES  
MIMO RADIO  
MODEL: SC4210-245-BB  
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

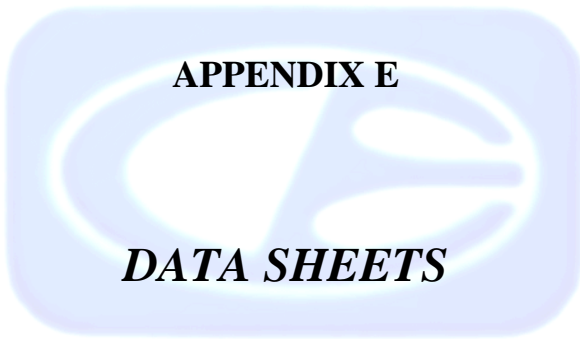


**REAR VIEW**

SILVUS TECHNOLOGIES  
MIMO RADIO  
MODEL: SC4210-245-BB  
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

**APPENDIX E**



***DATA SHEETS***



***RADIATED EMISSIONS  
DATA SHEETS***

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/25/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - Battery Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	64.08	V	73.97	-9.89	Peak	210.00	143.79	
4860	52.47	V	53.97	-1.50	Avg	210.00	143.79	
7290	56.69	V	73.97	-17.28	Peak	226.75	191.01	
7290	44.19	V	53.97	-9.78	Avg	226.75	191.01	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected



**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/25/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - Battery Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	59.98	H	73.97	-13.99	Peak	111.00	110.89	
4860	48.89	H	53.97	-5.08	Avg	111.00	110.89	
7290	55.60	H	73.97	-18.37	Peak	353.50	111.19	
7290	42.92	H	53.97	-11.05	Avg	353.50	111.19	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - Battery Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	57.94	V	73.97	-16.03	Peak	92.00	126.83	
4860	47.33	V	53.97	-6.64	Avg	92.00	126.83	
7290	56.15	V	73.97	-17.82	Peak	139.00	110.83	
7290	43.33	V	53.97	-10.64	Avg	139.00	110.83	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - Battery Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	63.26	H	73.97	-10.71	Peak	163.75	142.89	
4860	51.17	H	53.97	-2.80	Avg	163.75	142.89	
7290	56.37	H	73.97	-17.60	Peak	89.25	206.89	
7290	44.43	H	53.97	-9.54	Avg	89.25	206.89	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - Battery Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	55.25	V	73.97	-18.72	Peak	178.25	158.77	
4860	43.76	V	53.97	-10.21	Avg	178.25	158.77	
7290	47.77	V	73.97	-26.20	Peak	162.75	251.79	
7290	36.24	V	53.97	-17.73	Avg	162.75	251.79	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - Battery Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	61.81	H	73.97	-12.16	Peak	355.00	143.01	
4860	51.08	H	53.97	-2.89	Avg	355.00	143.01	
7290	55.70	H	73.97	-18.27	Peak	160.75	174.83	
7290	43.48	H	53.97	-10.49	Avg	160.75	174.83	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - Battery Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	64.89	V	73.97	-9.08	Peak	54.25	174.89	
4880	52.54	V	53.97	-1.43	Avg	54.25	174.89	
7320	54.44	V	73.97	-19.53	Peak	56.50	142.65	
7320	43.33	V	53.97	-10.64	Avg	56.50	142.65	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - Battery Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	61.37	H	73.97	-12.60	Peak	161.50	144.44	
4880	50.15	H	53.97	-3.82	Avg	161.50	144.44	
7320	51.33	H	73.97	-22.64	Peak	301.25	206.95	
7320	38.46	H	53.97	-15.51	Avg	301.25	206.95	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - Battery Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	60.08	V	73.97	-13.89	Peak	85.25	158.71	
4880	48.74	V	53.97	-5.23	Avg	85.25	158.71	
7320	52.96	V	73.97	-21.01	Peak	85.25	126.95	
7320	40.44	V	53.97	-13.53	Avg	85.25	126.95	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected



**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - Battery Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	60.84	H	73.97	-13.13	Peak	126.00	142.95	
4880	49.66	H	53.97	-4.31	Avg	126.00	142.95	
7320	49.67	H	73.97	-24.30	Peak	174.50	158.77	
7320	37.89	H	53.97	-16.08	Avg	174.50	158.77	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - Battery Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	59.46	V	73.97	-14.51	Peak	177.25	110.11	
4880	44.15	V	53.97	-9.82	Avg	177.25	110.11	
7320	57.98	V	73.97	-15.99	Peak	159.75	110.83	
7320	41.69	V	53.97	-12.28	Avg	159.75	110.83	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - Battery Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	62.95	H	73.97	-11.02	Peak	359.75	142.95	
4880	50.87	H	53.97	-3.10	Avg	359.75	142.95	
7320	54.58	H	73.97	-19.39	Peak	183.25	238.89	
7320	42.70	H	53.97	-11.27	Avg	183.25	238.89	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247 and FCC Class B**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**Battery Mode**

**Non Harmonic Emissions from the Tx and Digital Portion - 10 kHz to 30 MHz**

**Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the Digital Portion from 10 kHz to 30 MHz for both Vertical and Horizontal Polarizations
								No Non Harmonic Emissions Found for the Tx Mode from 10 kHz to 30 MHz for both Vertical and Horizontal Polarizations
								Investigated in the X-Axis, Y-Axis, and Z-Axis
								No Emissions Found for the Digital Portion from 1 GHz to 25 GHz for both Vertical and Horizontal Polarizations
								No Non Harmonic Emissions Found for the Tx Mode from 1 GHz to 25 GHz for both Vertical and Horizontal Polarizations
								Investigated in the X-Axis, Y-Axis, and Z-Axis

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/25/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - AC Power Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	63.26	V	73.97	-10.71	Peak	77.00	158.89	
4860	51.79	V	53.97	-2.19	Avg	77.00	158.89	
7290	63.18	V	73.97	-10.79	Peak	88.50	250.00	
7290	46.18	V	53.97	-7.79	Avg	88.50	250.00	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/25/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - AC Power Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	57.05	H	73.97	-16.92	Peak	168.00	111.25	
4860	44.78	H	53.97	-9.19	Avg	168.00	111.25	
7290	52.51	H	73.97	-21.46	Peak	314.00	110.71	
7290	39.77	H	53.97	-14.20	Avg	314.00	110.71	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/25/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - AC Power Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	58.70	V	73.97	-15.27	Peak	169.75	110.95	
4860	47.37	V	53.97	-6.60	Avg	169.75	110.95	
7290	53.99	V	73.97	-19.98	Peak	132.75	175.01	
7290	42.07	V	53.97	-11.90	Avg	132.75	175.01	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/25/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - AC Power Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	63.61	H	73.97	-10.36	Peak	169.50	175.85	
4860	53.42	H	53.97	-0.55	Avg	169.50	175.85	
7290	54.95	H	73.97	-19.02	Peak	87.25	250.10	
7290	42.68	H	53.97	-11.29	Avg	87.25	250.10	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected



**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - AC Power Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	56.25	V	73.97	-17.72	Peak	149.00	110.89	
4860	44.45	V	53.97	-9.52	Avg	149.00	110.89	
7290	57.09	V	73.97	-16.88	Peak	223.00	250.00	
7290	40.46	V	53.97	-13.51	Avg	223.00	250.00	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2430 MHz Fundamental - AC Power Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430								N/A
2430								Done Via Conducted
4860	61.92	H	73.97	-12.05	Peak	178.25	143.55	
4860	50.08	H	53.97	-3.89	Avg	178.25	143.55	
7290	53.48	H	73.97	-20.49	Peak	154.25	174.71	
7290	40.86	H	53.97	-13.11	Avg	154.25	174.71	
9720								Not in Restricted Band
9720								Not in Restricted Band
12150								No Emission
12150								Detected
14580								No Emission
14580								Detected
17010								No Emission
17010								Detected
19440								No Emission
19440								Detected
21870								No Emission
21870								Detected
24300								No Emission
24300								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - AC Power Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	64.12	V	73.97	-9.85	Peak	52.25	158.83	
4880	52.98	V	53.97	-0.99	Avg	52.25	158.83	
7320	55.67	V	73.97	-18.30	Peak	89.50	206.59	
7320	41.33	V	53.97	-12.64	Avg	89.50	206.59	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - AC Power Mode  
 Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	61.67	H	73.97	-12.30	Peak	151.00	110.95	
4880	50.39	H	53.97	-3.58	Avg	151.00	110.95	
7320	51.49	H	73.97	-22.48	Peak	284.00	110.89	
7320	37.76	H	53.97	-16.21	Avg	284.00	110.89	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - AC Power Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	60.03	V	73.97	-13.94	Peak	202.00	239.37	
4880	46.48	V	53.97	-7.49	Avg	202.00	239.37	
7320	47.81	V	73.97	-26.16	Peak	221.00	222.83	
7320	34.61	V	53.97	-19.36	Avg	221.00	222.83	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - AC Power Mode  
 Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	63.11	H	73.97	-10.86	Peak	163.00	126.95	
4880	51.49	H	53.97	-2.49	Avg	163.00	126.95	
7320	54.63	H	73.97	-19.34	Peak	82.25	189.88	
7320	41.79	H	53.97	-12.18	Avg	82.25	189.88	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - AC Power Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	55.54	V	73.97	-18.43	Peak	224.00	207.79	
4880	44.08	V	53.97	-9.89	Avg	224.00	207.79	
7320	62.39	V	73.97	-11.58	Peak	234.00	250.00	
7320	44.45	V	53.97	-9.52	Avg	234.00	250.00	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**2440 MHz Fundamental - AC Power Mode  
 Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440								N/A
2440								Done Via Conducted
4880	63.92	H	73.97	-10.05	Peak	176.50	110.77	
4880	51.38	H	53.97	-2.60	Avg	176.50	110.77	
7320	55.26	H	73.97	-18.71	Peak	162.75	158.95	
7320	42.75	H	53.97	-11.22	Avg	162.75	158.95	
9760								Not in Restricted Band
9760								Not in Restricted Band
12200								No Emission
12200								Detected
14640								No Emission
14640								Detected
17080								No Emission
17080								Detected
19520								No Emission
19520								Detected
21960								No Emission
21960								Detected
24400								No Emission
24400								Detected



**FCC 15.247 and FCC Class B**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**AC Power Mode**

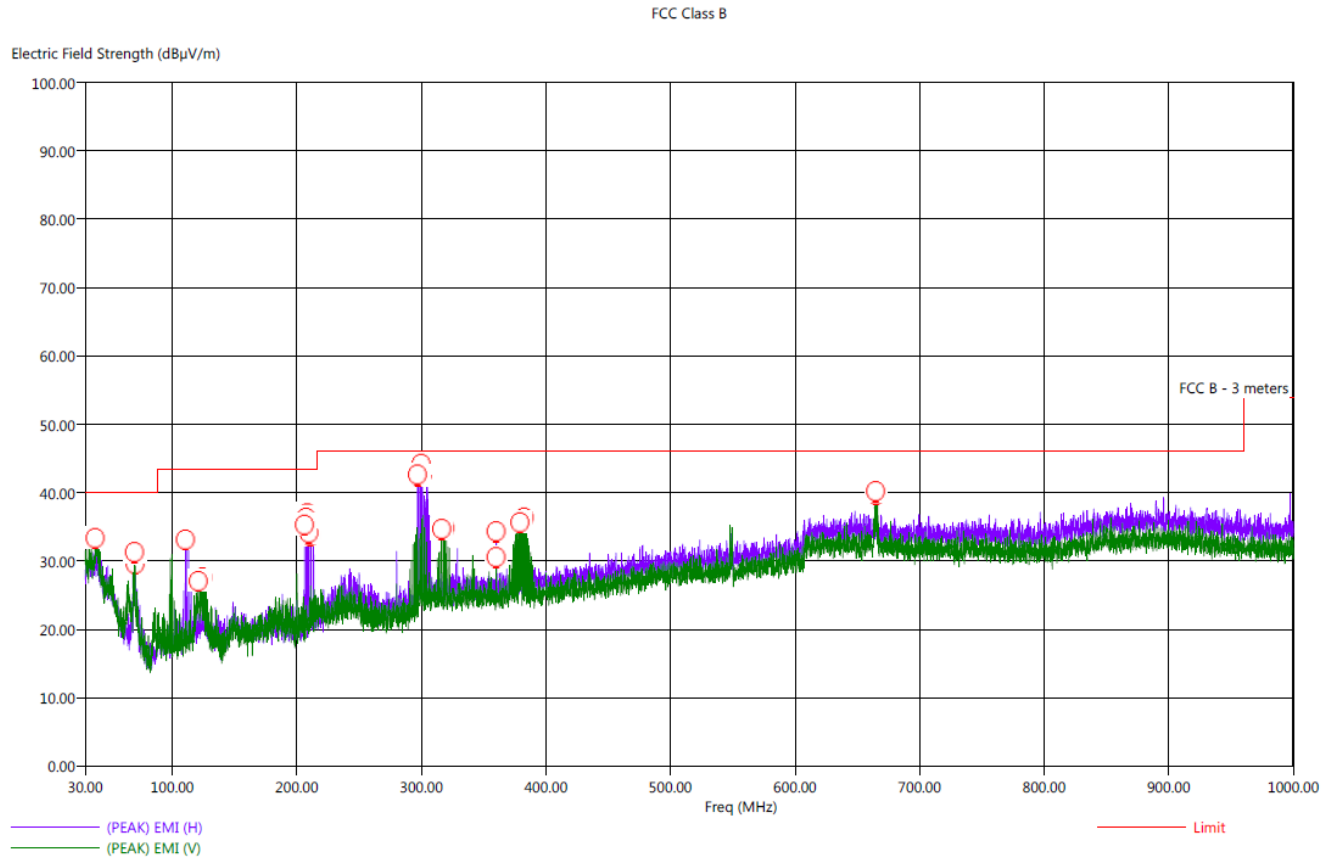
**Non Harmonic Emissions from the Tx and Digital Portion - 10 kHz to 30 MHz**

**Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Found for the Digital Portion from 10 kHz to 30 MHz for both Vertical and Horizontal Polarizations
								No Non Harmonic Emissions Found for the Tx Mode from 10 kHz to 30 MHz for both Vertical and Horizontal Polarizations
								Investigated in the X-Axis, Y-Axis, and Z-Axis
								No Emissions Found for the Digital Portion from 1 GHz to 25 GHz for both Vertical and Horizontal Polarizations
								No Non Harmonic Emissions Found for the Tx Mode from 1 GHz to 25 GHz for both Vertical and Horizontal Polarizations
								Investigated in the X-Axis, Y-Axis, and Z-Axis

Title: Pre-Scan - FCC Class B  
File: 2 - Agilent - Pre-Scan - Battery - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
Operator: Kyle Fujimoto  
EUT Type: MIMO Radio  
EUT Condition: The EUT is continuously transmitting at 2430 MHz  
Comments: Company: Silvus Technologies  
Model: SC4210-245-BB  
Battery Mode  
S/N: N/A

7/25/2016 9:27:02 AM  
Sequence: Preliminary Scan



Note: This is the worst case channel.

Title: Radiated Final - FCC Class B

File: 2 - Agilent - Final Scan - Battery - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set

Operator: Kyle Fujimoto

EUT Type: MIMO Radio

EUT Condition: The EUT is continuously transmitting at 2430 MHz

Comments: Company: Silvus Technologies

Model: SC4210-245-BB

Battery Mode

S/N: N/A

7/25/2016 9:38:01 AM

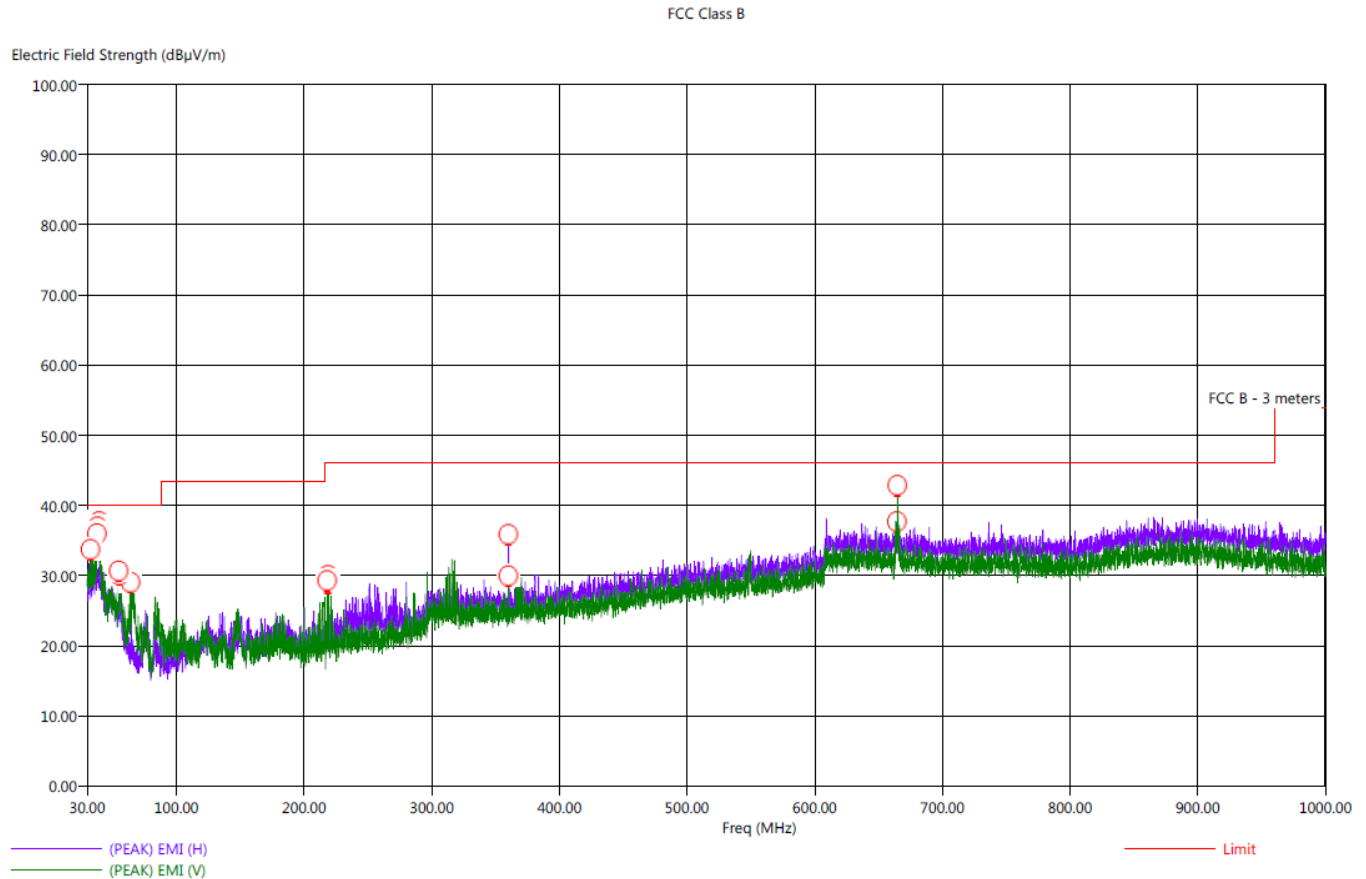
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(OP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	TtBl AqI (deg)	Twr Ht (cm)
38.00	V	33.55	27.89	-6.45	-12.11	40.00	24.95	0.38	55.00	367.55
39.00	V	35.80	30.01	-4.20	-9.99	40.00	25.15	0.39	262.00	159.31
69.60	H	34.25	29.10	-5.75	-10.90	40.00	12.76	0.61	191.75	239.37
70.20	H	34.87	30.84	-5.13	-9.16	40.00	12.67	0.61	200.75	287.49
110.50	H	33.04	21.25	-10.46	-22.25	43.50	14.68	0.80	280.75	271.55
111.70	H	33.86	23.86	-9.64	-19.64	43.50	14.75	0.80	309.00	383.85
120.80	V	27.47	20.69	-16.03	-22.81	43.50	15.40	0.81	213.50	144.86
122.50	V	26.28	19.66	-17.22	-23.84	43.50	15.40	0.81	271.25	143.19
124.20	V	25.84	17.74	-17.66	-25.76	43.50	15.40	0.81	174.50	239.31
206.10	H	37.77	26.10	-5.73	-17.40	43.50	13.30	1.12	198.25	111.19
207.30	H	34.43	21.05	-9.07	-22.45	43.50	13.37	1.12	154.25	191.13
208.50	H	26.50	21.86	-17.00	-21.64	43.50	13.42	1.13	213.50	158.95
209.70	H	38.02	25.71	-5.48	-17.79	43.50	13.48	1.13	189.75	207.19
210.90	H	24.28	17.99	-19.22	-25.51	43.50	13.55	1.14	185.25	367.67
296.90	H	29.78	24.13	-16.22	-21.87	46.00	18.03	1.36	122.25	175.31
297.40	H	51.59	37.93	5.59	-8.07	46.00	18.07	1.36	207.25	127.25
298.60	H	30.09	24.43	-15.91	-21.57	46.00	18.12	1.37	228.25	111.13
299.80	H	28.84	24.42	-17.16	-21.58	46.00	18.20	1.37	306.25	239.43
300.70	H	36.11	24.49	-9.89	-21.51	46.00	18.20	1.37	93.00	397.46
316.40	V	28.86	23.68	-17.14	-22.32	46.00	18.10	1.40	210.00	271.67
318.80	V	29.91	23.70	-16.09	-22.30	46.00	18.08	1.41	232.75	287.61
360.00	H	39.37	35.11	-6.63	-10.89	46.00	18.05	1.48	92.25	112.74
360.00	V	29.22	23.65	-16.78	-22.35	46.00	18.04	1.48	298.50	367.85
379.10	V	28.61	23.92	-17.39	-22.08	46.00	18.32	1.52	297.50	303.97
382.50	V	29.44	24.09	-16.56	-21.91	46.00	18.36	1.53	64.25	207.07
664.70	V	41.62	34.27	-4.38	-11.73	46.00	24.21	2.12	200.25	175.25
665.10	V	41.79	33.56	-4.21	-12.44	46.00	24.21	2.12	211.50	159.19

Title: Pre-Scan - FCC Class B  
 File: 1 - Agilent - Pre-Scan - AC Mode - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
 Operator: Kyle Fujimoto  
 EUT Type: MIMO Radio  
 EUT Condition: The EUT is continuously transmitting at 2430 MHz  
 Comments: Company: Silvus Technologies  
 Model: SC4210-245-BB  
 AC Power Mode  
 S/N: N/A

7/25/2016 8:26:52 AM  
 Sequence: Preliminary Scan



Note: This is the worst case channel.

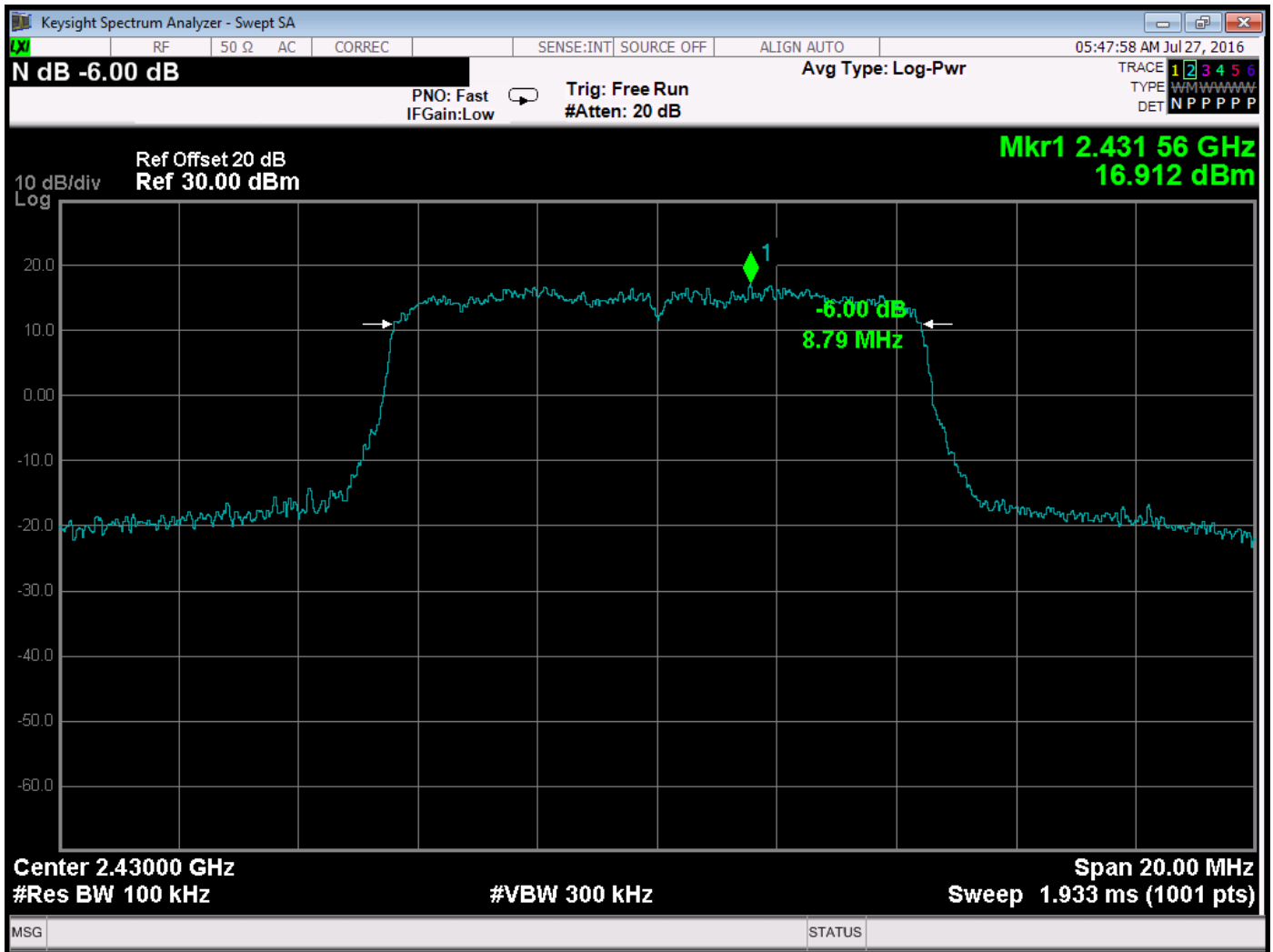
Title: Radiated Final - FCC Class B  
 File: 1 - Agilent - Final Scan - AC Mode - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
 Operator: Kyle Fujimoto  
 EUT Type: MIMO Radio  
 EUT Condition: The EUT is continuously transmitting at 2430 MHz  
 Comments: Company: Silvus Technologies  
 Model: SC4210-245-BB  
 Baseline Configuration  
 AC Power Mode  
 S/N: N/A

7/25/2016 8:39:48 AM  
 Sequence: Final Measurements

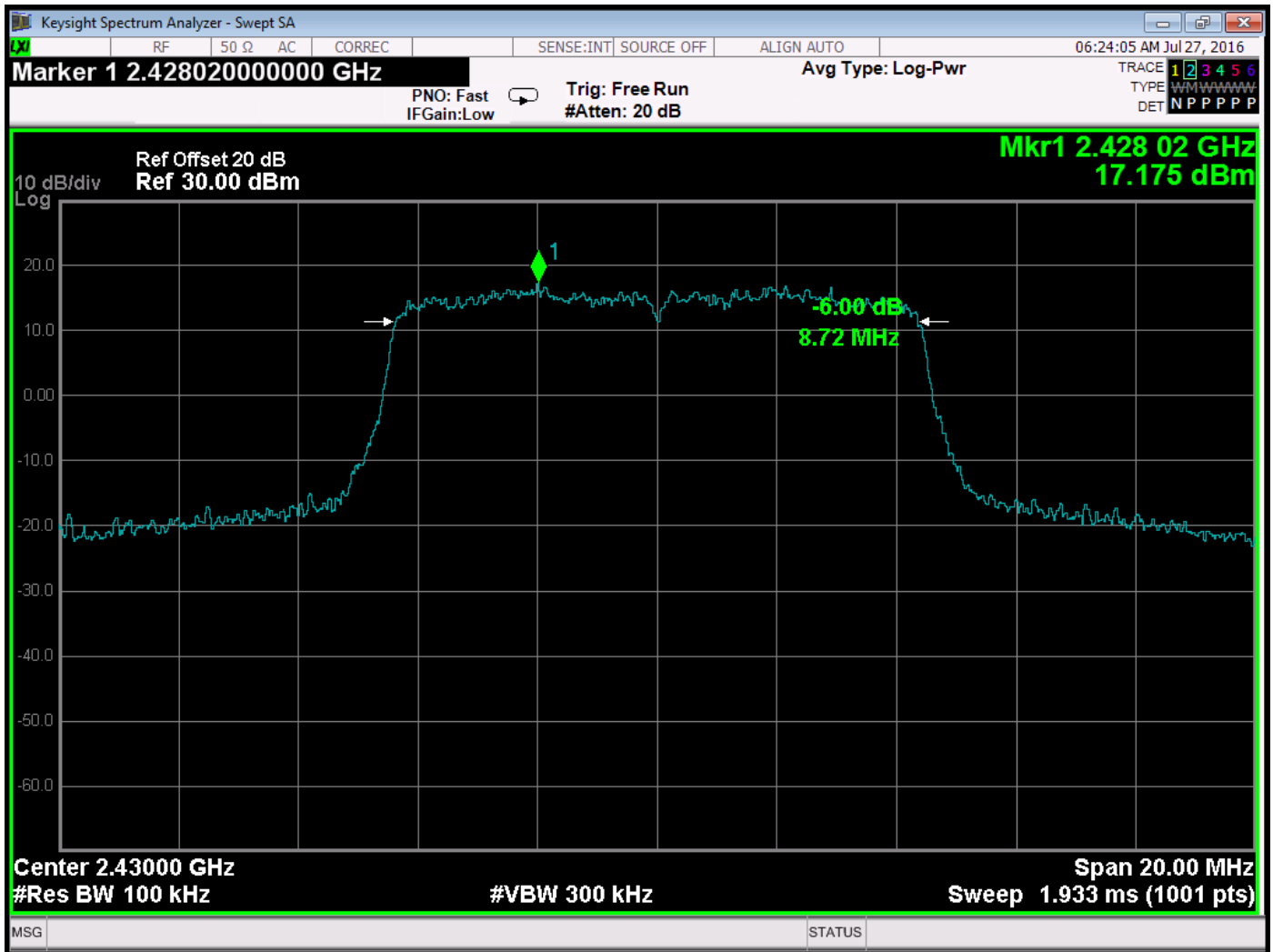
FCC Class B										
Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deg)	Twr Ht (cm)
32.70	V	33.16	28.06	-6.84	-11.94	40.00	24.17	0.36	140.00	239.61
37.80	V	38.00	32.86	-2.00	-7.14	40.00	24.94	0.38	171.00	127.31
38.30	V	40.34	34.48	0.34	-5.52	40.00	25.05	0.38	154.75	127.19
39.40	V	39.21	34.17	-0.79	-5.83	40.00	25.32	0.39	104.25	111.31
54.70	V	29.53	23.99	-10.47	-16.01	40.00	18.88	0.49	267.50	111.13
55.40	V	31.86	26.59	-8.14	-13.41	40.00	18.54	0.49	233.00	127.37
64.10	V	33.33	24.96	-6.67	-15.04	40.00	14.26	0.58	209.25	175.19
218.10	V	23.65	18.64	-22.35	-27.36	46.00	13.91	1.17	227.75	303.73
218.60	V	37.03	19.88	-8.97	-26.12	46.00	13.92	1.17	250.25	159.25
218.80	V	29.52	21.07	-16.48	-24.93	46.00	13.93	1.17	157.00	190.59
360.00	H	40.13	35.06	-5.87	-10.94	46.00	18.05	1.48	82.00	111.07
360.00	V	36.12	32.08	-9.88	-13.92	46.00	18.05	1.48	204.25	207.43
664.40	H	44.34	38.04	-1.66	-7.96	46.00	24.21	2.12	229.25	111.49
664.80	V	40.53	35.42	-5.47	-10.58	46.00	24.21	2.12	205.50	159.67





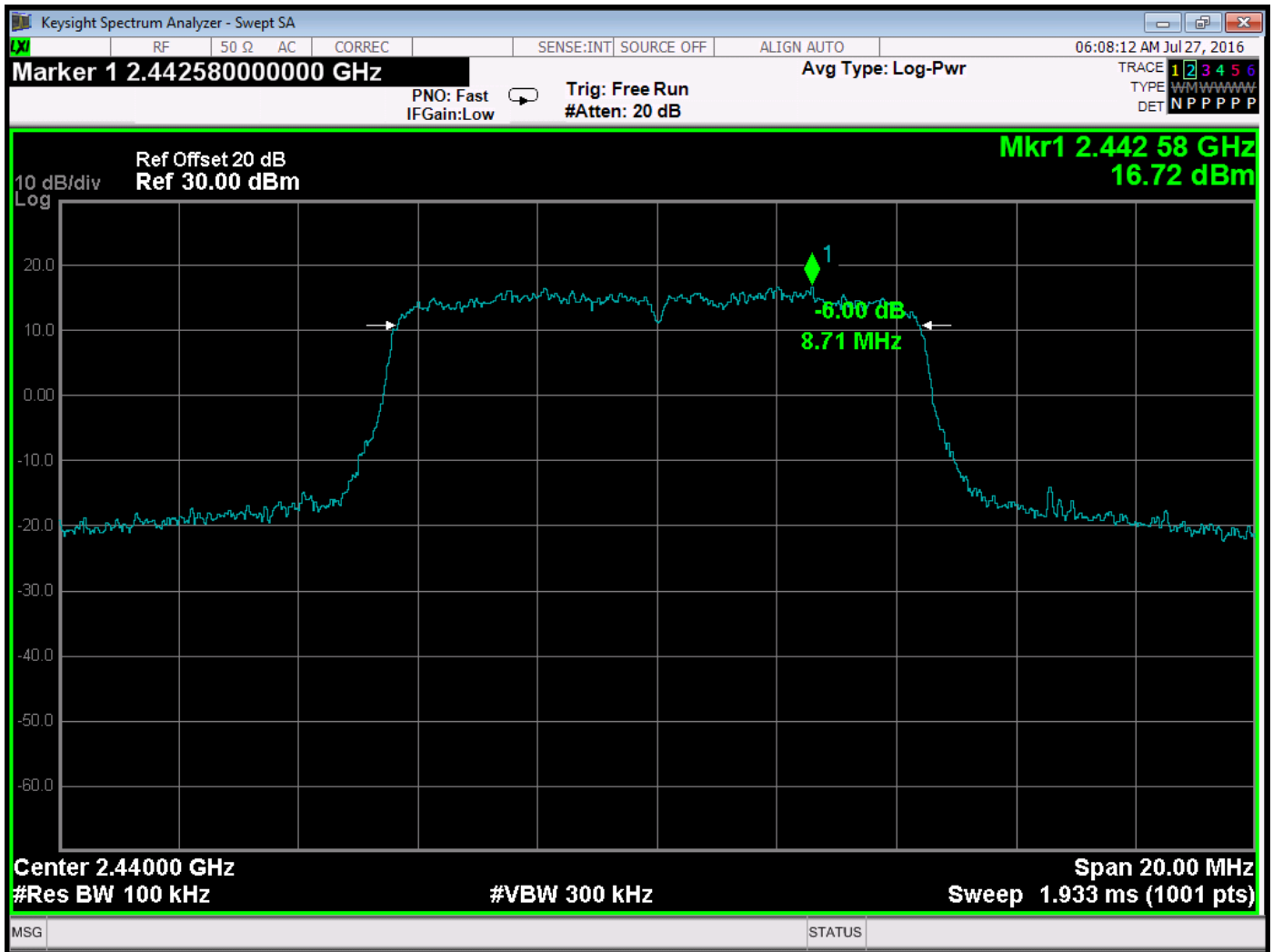


-6 dB Bandwidth – Low Channel – Antenna #1

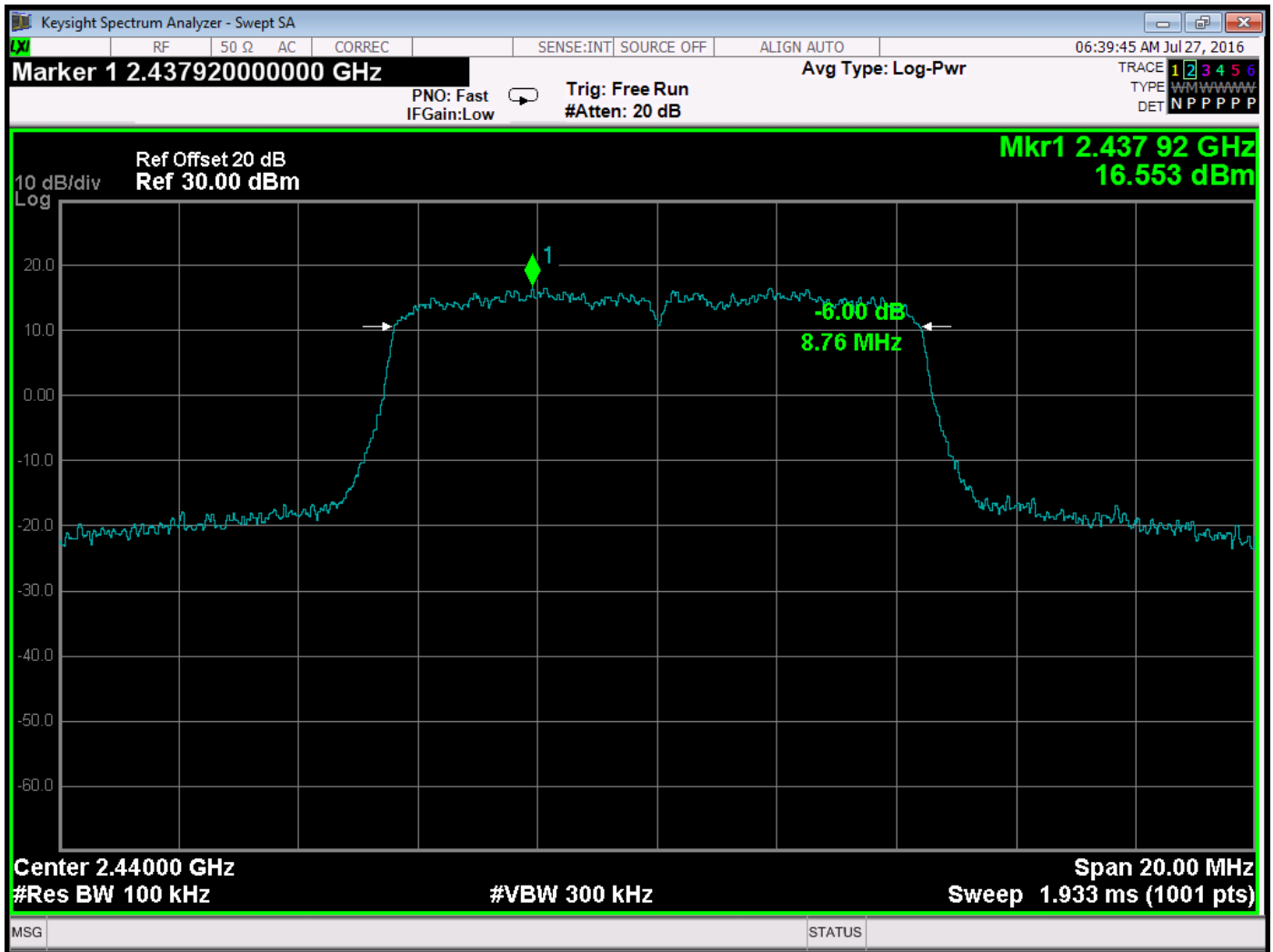


-6 dB Bandwidth – Low Channel – Antenna #2





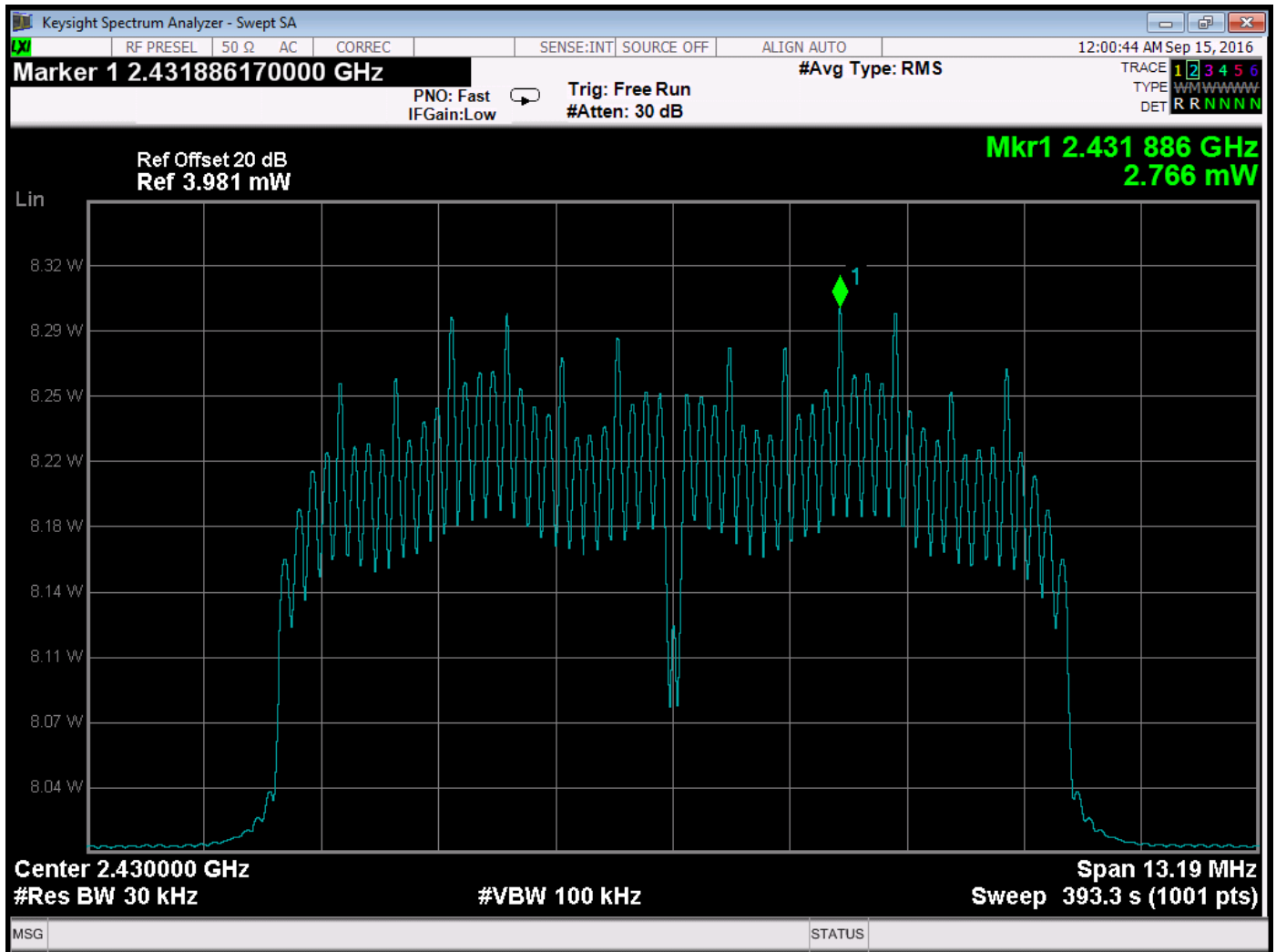
-6 dB Bandwidth – High Channel – Antenna #1



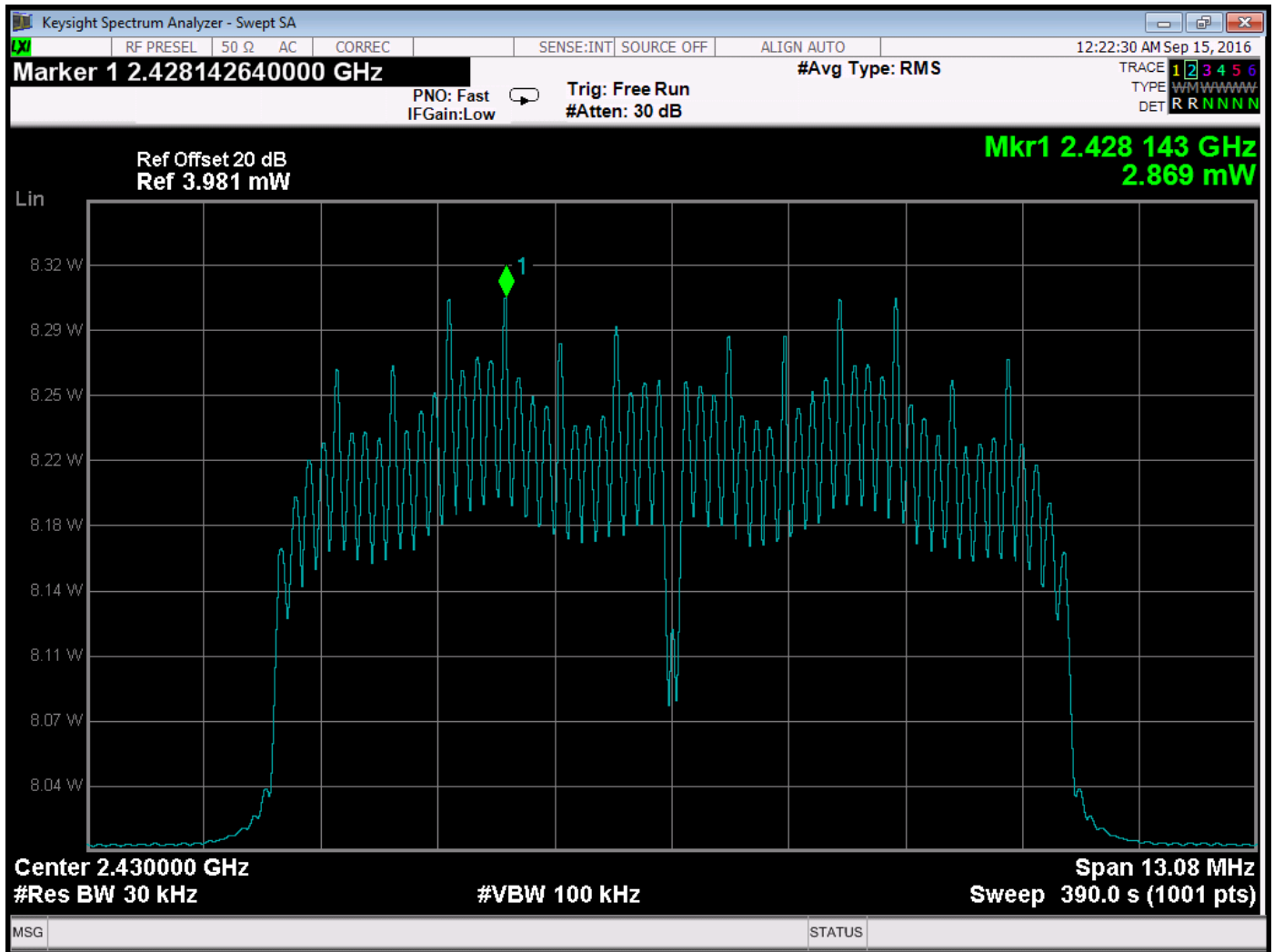
-6 dB Bandwidth – High Channel – Antenna #2

***SPECTRAL DENSITY OUTPUT***

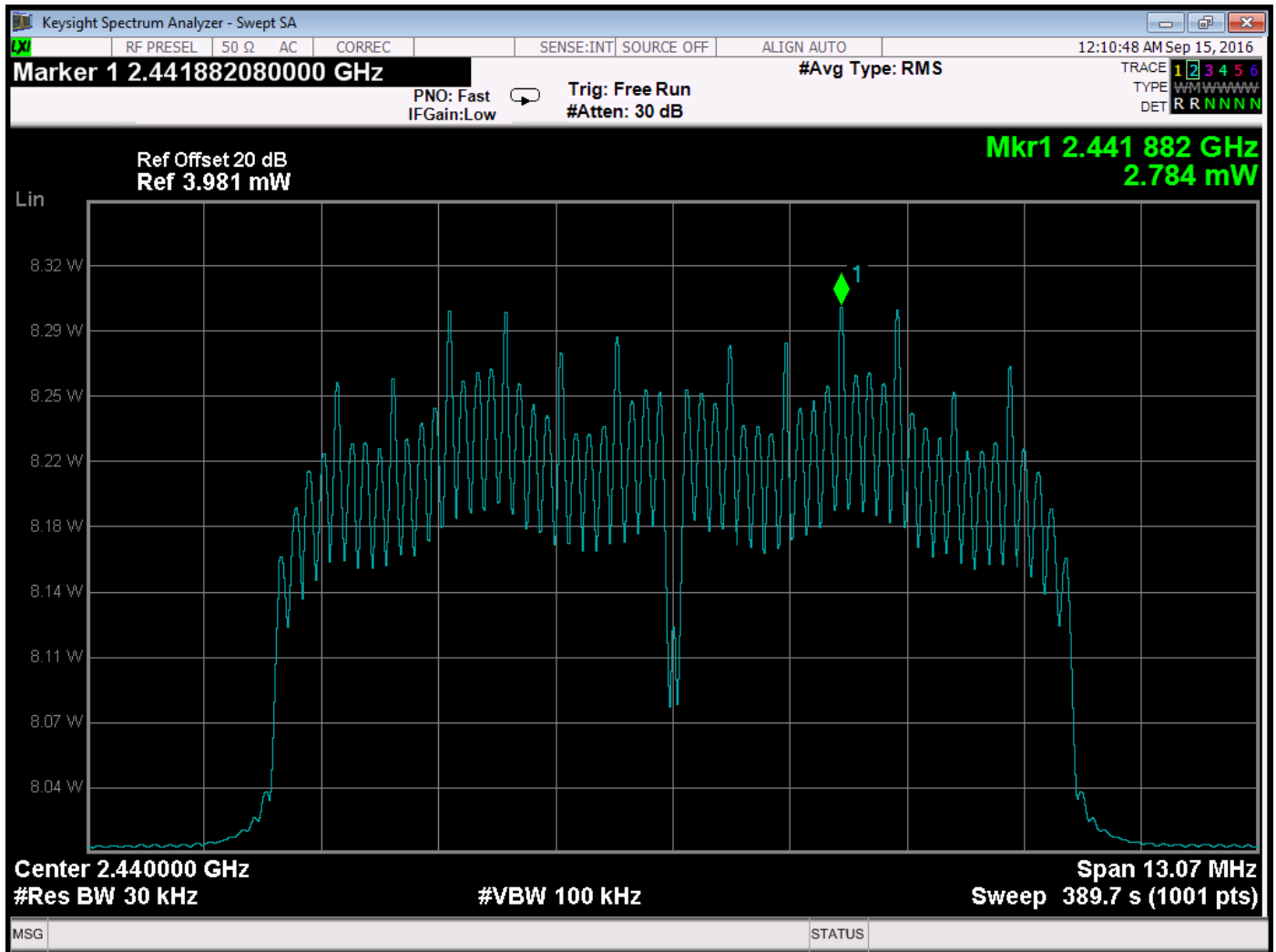
***DATA SHEETS***



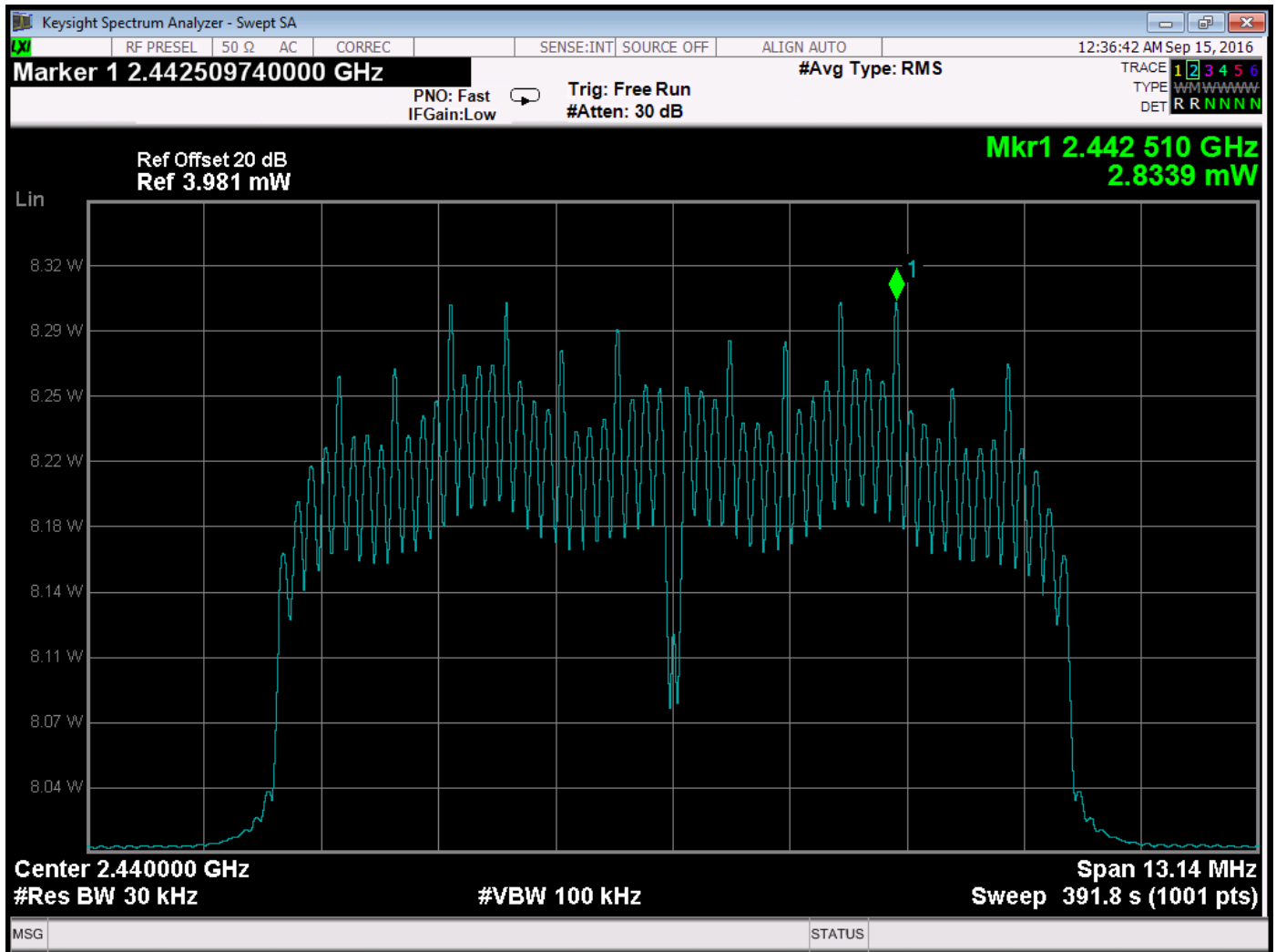
Spectral Density – Low Channel – Antenna #1  
 2.766 mW



Spectral Density – Low Channel – Antenna #2  
 2.869 mW  
 Total Spectral Density = 2.766 mW + 2.869 mW = 5.635 mW = 7.51 dBm  
 Limit = 8 dBm



Spectral Density – High Channel – Antenna #1  
 2.784 mW



Spectral Density – High Channel – Antenna #2  
 2.834 mW  
 Total Spectral Density = 2.784 mW + 2.8339 mW = 5.6169 mW = 7.50 dBm  
 Limit = 8 dBm

***MAXIMUM CONDUCTED OUTPUT POWER***

***DATA SHEETS***



**MAXIMUM CONDUCTED OUTPUT POWER**

MIMO OFDM Radio  
Model: SC4210-245-BB  
AC POWER MODE

Limit = 30.00 dBm

**2430 MHz**

ANTENNA PORT	MEASURED VALUE (dBm)	MEASURED VALUE (mW)
1	26.01	399.02
2	26.14	411.15
Total Power:	29.09	810.17

**2440 MHz**

ANTENNA PORT	MEASURED VALUE (dBm)	MEASURED VALUE (mW)
1	26.01	399.02
2	25.98	396.28
Total Power:	29.01	795.30

**MAXIMUM CONDUCTED OUTPUT POWER**

MIMO OFDM Radio  
Model: SC4210-245-BB  
BATTERY MODE

Limit = 30.00 dBm

**2430 MHz**

ANTENNA PORT	MEASURED VALUE (dBm)	MEASURED VALUE (mW)
1	25.64	366.44
2	25.73	374.11
Total Power:	28.70	740.55

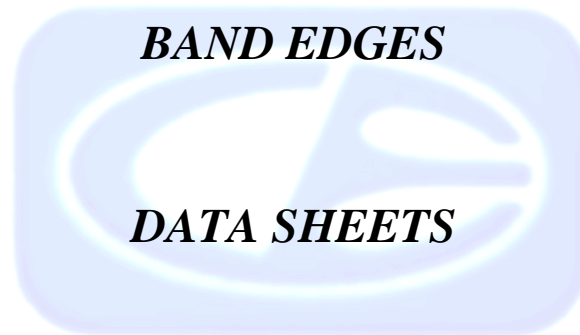
**2440 MHz**

ANTENNA PORT	MEASURED VALUE (dBm)	MEASURED VALUE (mW)
1	26.01	399.02
2	25.94	392.64
Total Power:	28.99	791.66

***HARMONIC EMISSIONS IN NON-RESTRICTED  
FREQUENCY BANDS  
DATA SHEETS***

**EMISSIONS IN NON-RESTRICTED BANDS  
 HIGHEST EMISSIONS TO THE LIMIT**

Freq. (MHz)	Level (dBm)	Limit	Margin	Comments
2430	16.684	--	--	Reference Level Antenna #1
				2430 MHz
2400	-39.730	-13.316	-26.414	Highest Non-Restricted Frequencies
9722	-39.527	-13.316	-26.211	Antenna #1 – 2430 MHz
24880	-38.412	-13.316	-25.096	2430 MHz Fundamental Frequency
2430	17.239	--	--	Reference Level Antenna #2
				2430 MHz
2400	-35.230	-12.761	-22.469	Highest Non-Restricted Frequencies
9720	-48.120	-12.761	-35.359	Antenna #2 – 2430 MHz
24835	-37.470	-12.761	-24.709	2430 MHz Fundamental Frequency
2440	16.55	--	--	Reference Level Antenna #1
				2440 MHz
2400	-43.893	-13.450	-30.443	Highest Non-Restricted Frequencies
9759	-38.412	-13.450	-24.962	Antenna #1
24880	-36.900	-13.450	-23.450	2440 MHz Fundamental Frequency
2440	16.30	--	--	Reference Level Antenna #2
				2440 MHz
2400	-46.520	-13.700	-32.820	Highest Non-Restricted Frequencies
9760	-48.120	-13.700	-34.420	Antenna #2
24805	-37.560	-13.700	-23.860	2440 MHz Fundamental Frequency



**FCC 15.247**

 Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

 Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**Band Edges - Low Channel**  
**AC Power Mode - X-Axis Worst Case**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430	108.94	V	--	--	Peak	183.25	111.21	<b>Fundamental</b> <b>2430 MHz</b>
2390	67.94	V	73.97	-6.03	Peak	183.25	111.20	<b>Band Edge</b>
2390	53.38	V	53.97	-0.59	Avg	183.25	111.21	<b>Low Channel</b>
2430	108.33	H	--	--	Peak	168.75	109.88	<b>Fundamental</b> <b>2430 MHz</b>
2390	69.37	H	73.97	-4.60	Peak	108.75	109.88	<b>Band Edge</b>
2390	53.90	H	53.97	-0.07	Avg	108.75	109.88	<b>Low Channel</b>

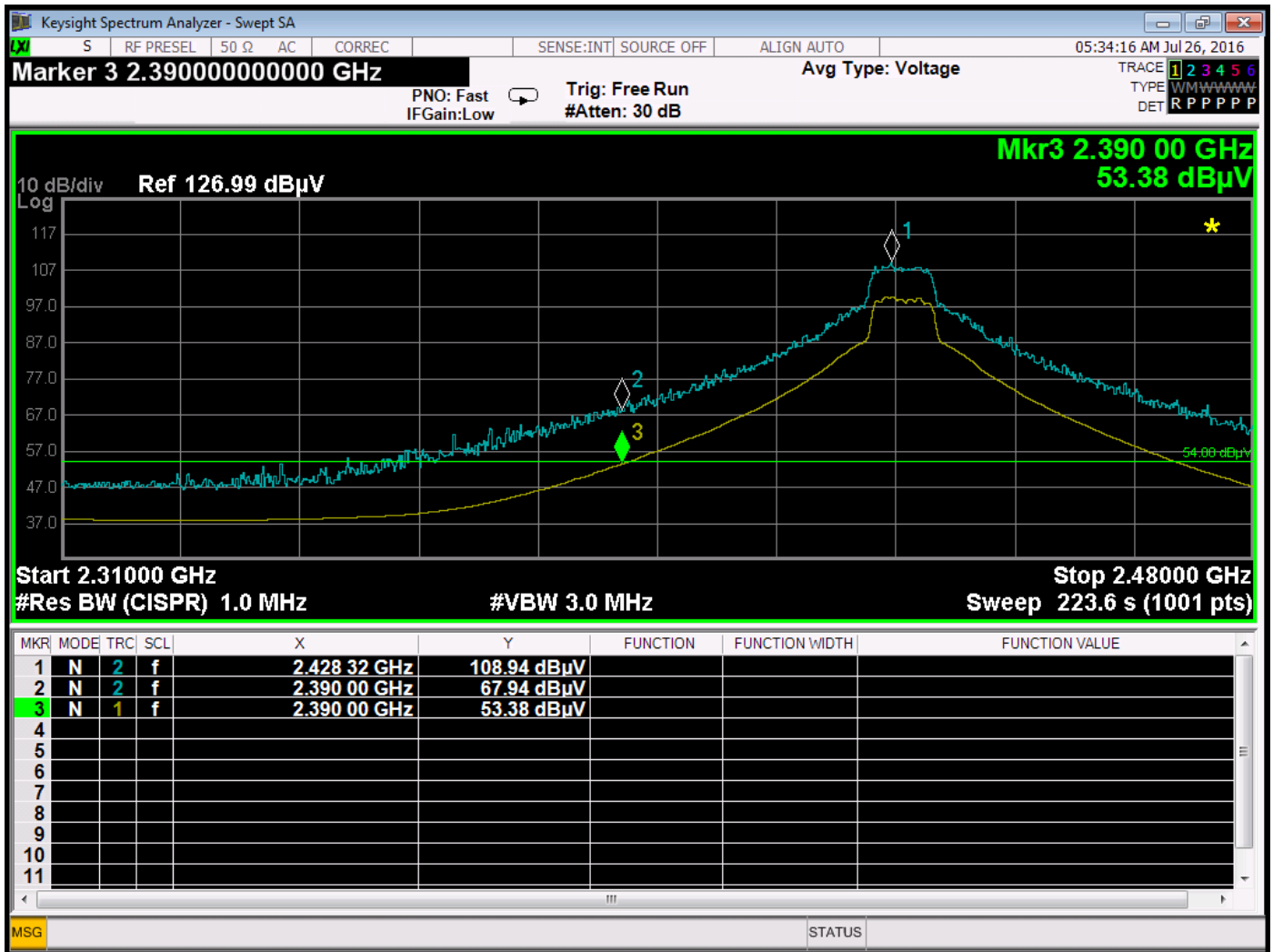
**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

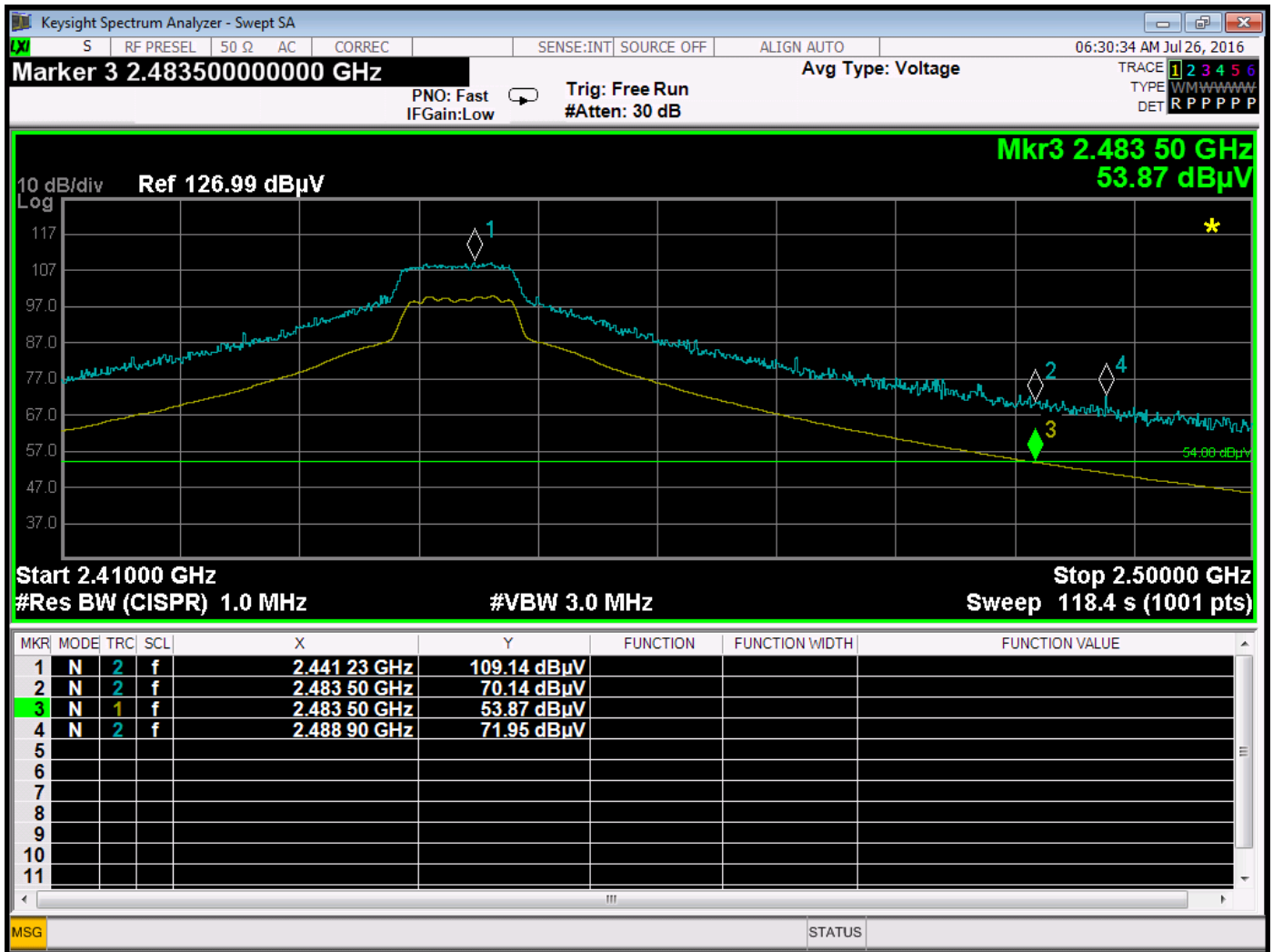
**Band Edges - High Channel**  
**AC Power Mode - X-Axis Worst Case**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	109.14	V	--	--	Peak	206.50	202.24	Fundamental
								2430 MHz
2483.5	70.14	V	73.97	-3.83	Peak	206.50	202.24	Band Edge
2483.5	53.87	V	53.97	-0.10	Avg	206.50	202.24	High Channel
2440	109.14	H	--	--	Peak	192.25	145.24	Fundamental
								2430 MHz
2483.5	66.97	H	73.97	-7.00	Peak	192.25	145.24	Band Edge
2483.5	50.23	H	53.97	-3.74	Avg	192.25	145.24	High Channel

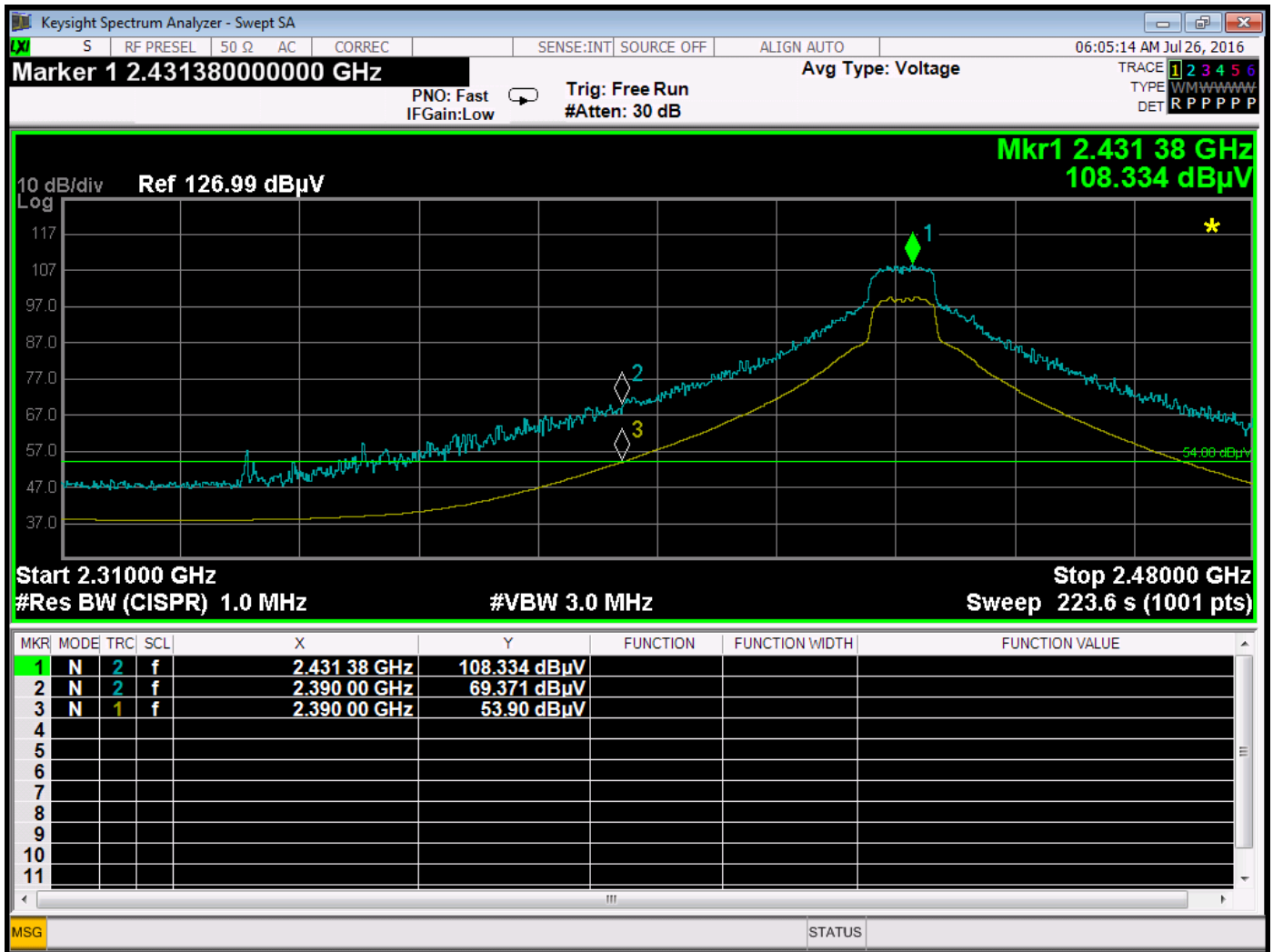


Band Edge – Low Channel – Vertical – X-Axis – Worst Case – AC Power Mode

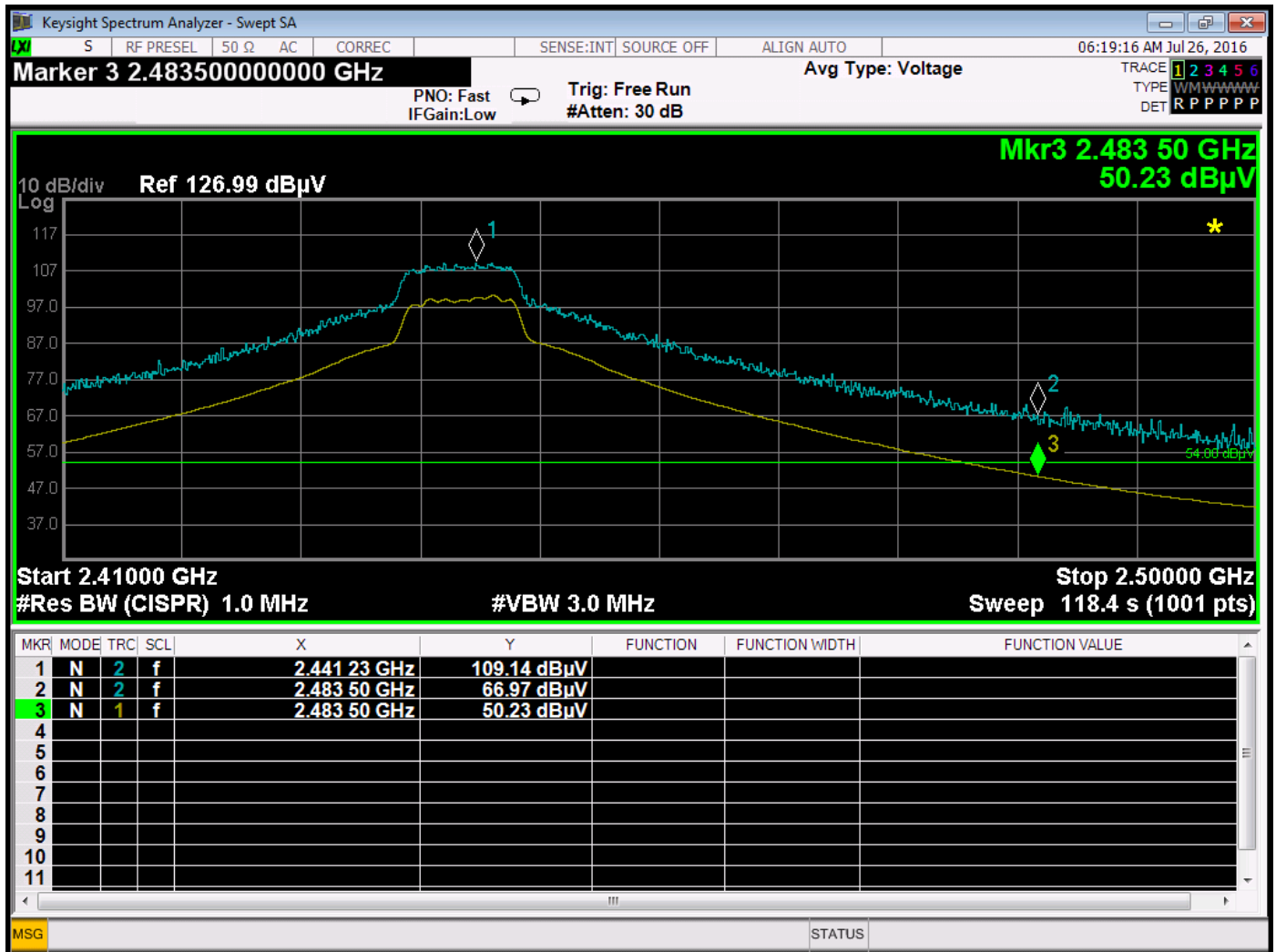




Band Edge – High Channel – Vertical – X-Axis – Worst Case – AC Power Mode



Band Edge – Low Channel – Horizontal – X-Axis – Worst Case – AC Power Mode



Band Edge – High Channel – Horizontal – X-Axis – Worst Case – AC Power Mode

**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

Date: 07/26/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**Band Edges - Low Channel  
 Battery Mode - X-Axis Worst Case**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2430	108.76	V	--	--	Peak	225.50	214.28	Fundamental 2430 MHz
2390	65.90	V	73.97	-8.07	Peak	225.50	214.28	Band Edge
2390	47.74	V	53.97	-6.23	Avg	225.50	214.28	Low Channel
2430	108.37	H	--	--	Peak	312.25	215.25	Fundamental 2430 MHz
2390	72.05	H	73.97	-1.92	Peak	312.25	215.25	Band Edge
2390	53.82	H	53.97	-0.15	Avg	312.25	215.25	Low Channel

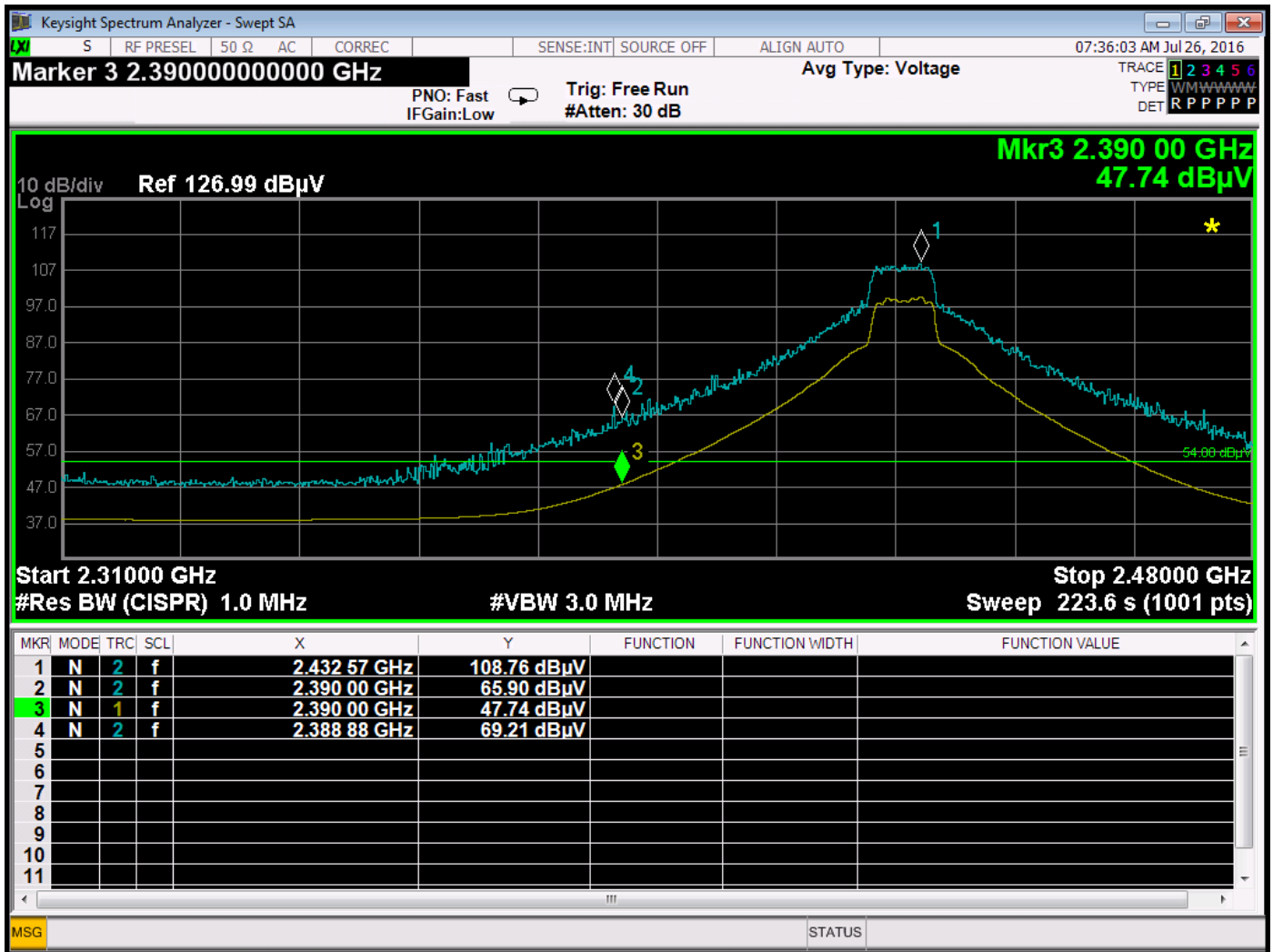
**FCC 15.247**

Silvus Technologies  
 MIMO Radio  
 Model: SC4210-245-BB

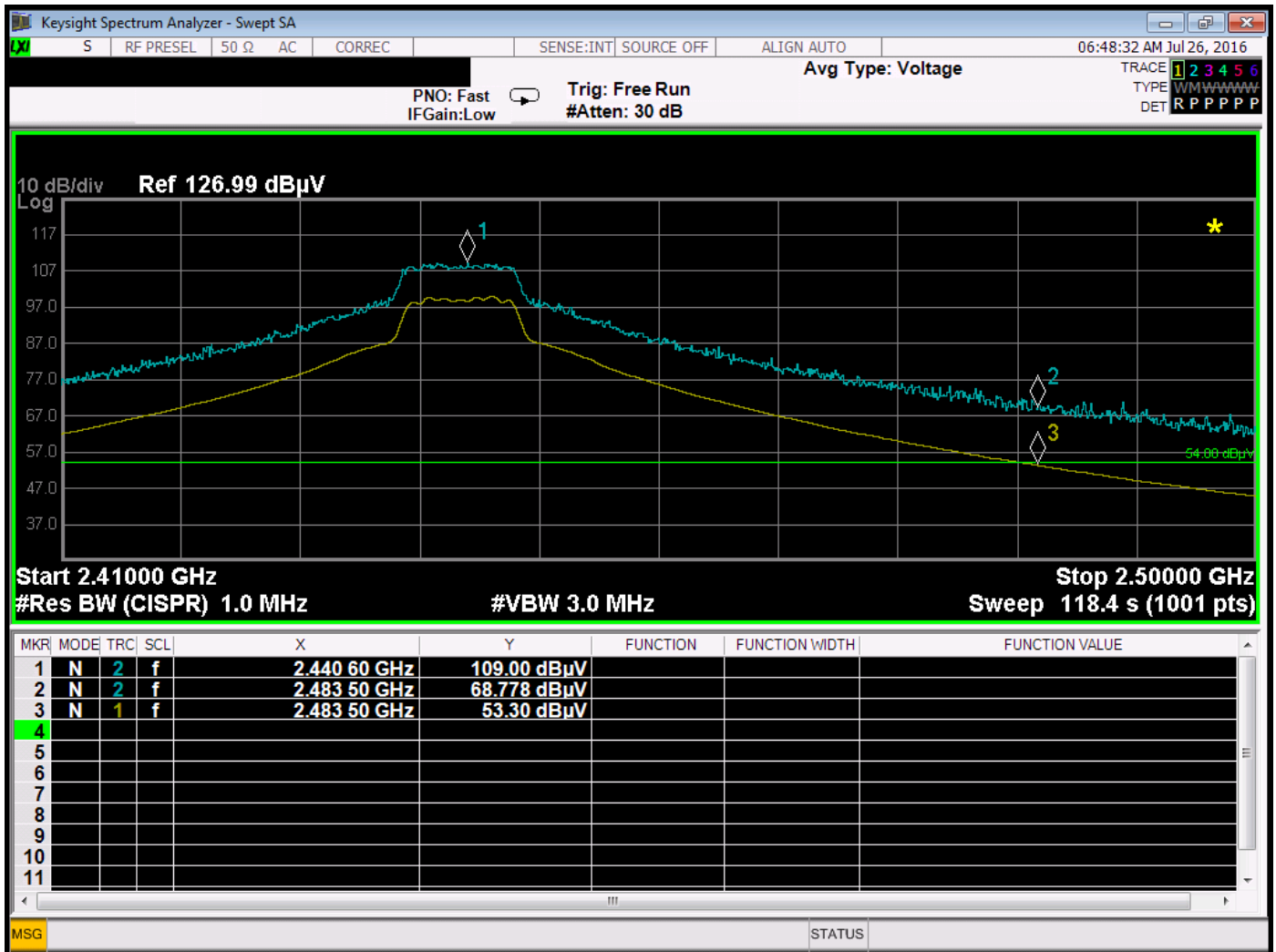
Date: 06/06/2016  
 Lab: D  
 Tested By: Kyle Fujimoto

**Band Edges - High Channel  
 Battery Mode - X-Axis Worst Case**

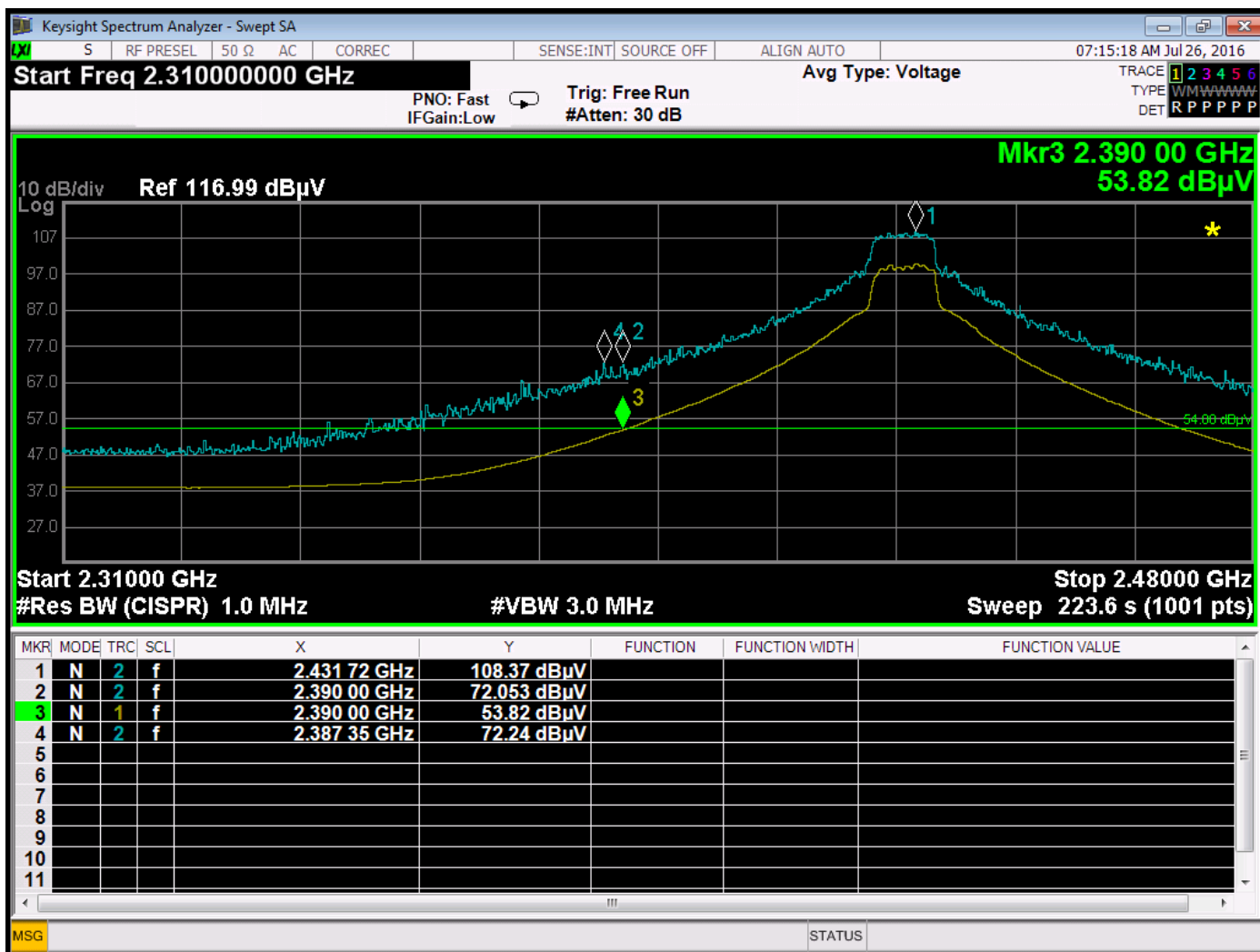
<b>Freq. (MHz)</b>	<b>Level (dBuV/m)</b>	<b>Pol (v/h)</b>	<b>Limit</b>	<b>Margin</b>	<b>Peak / QP / Avg</b>	<b>Table Angle (deg)</b>	<b>Ant. Height (cm)</b>	<b>Comments</b>
2440	109.00	V	--	--	Peak	226.24	219.25	<b>Fundamental</b>
								<b>2430 MHz</b>
2483.5	68.78	V	73.97	-5.19	Peak	226.24	219.25	<b>Band Edge</b>
2483.5	53.30	V	53.97	-0.67	Avg	226.24	219.25	<b>High Channel</b>
2440	108.87	H	--	--	Peak	335.25	152.26	<b>Fundamental</b>
								<b>2430 MHz</b>
2483.5	68.35	H	73.97	-5.63	Peak	335.25	152.26	<b>Band Edge</b>
2483.5	52.34	H	53.97	-1.63	Avg	335.25	152.26	<b>High Channel</b>



Band Edge – Low Channel – Vertical – X-Axis – Worst Case – Battery Mode

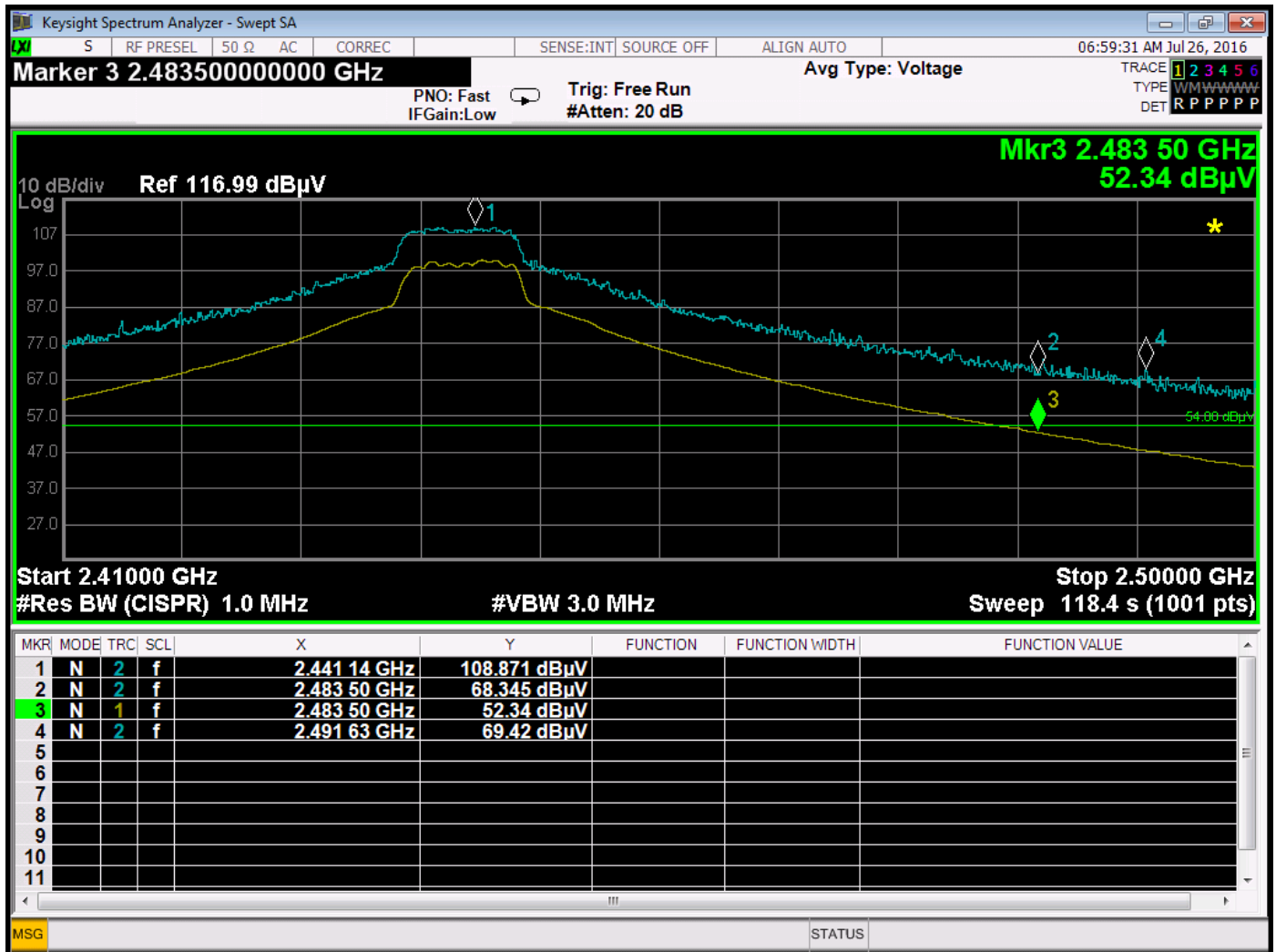


Band Edge – High Channel – Vertical – X-Axis – Worst Case – Battery Mode



Band Edge – Low Channel – Horizontal – X-Axis – Worst Case – Battery Mode





Band Edge – High Channel – Horizontal – X-Axis – Worst Case – Battery Mode

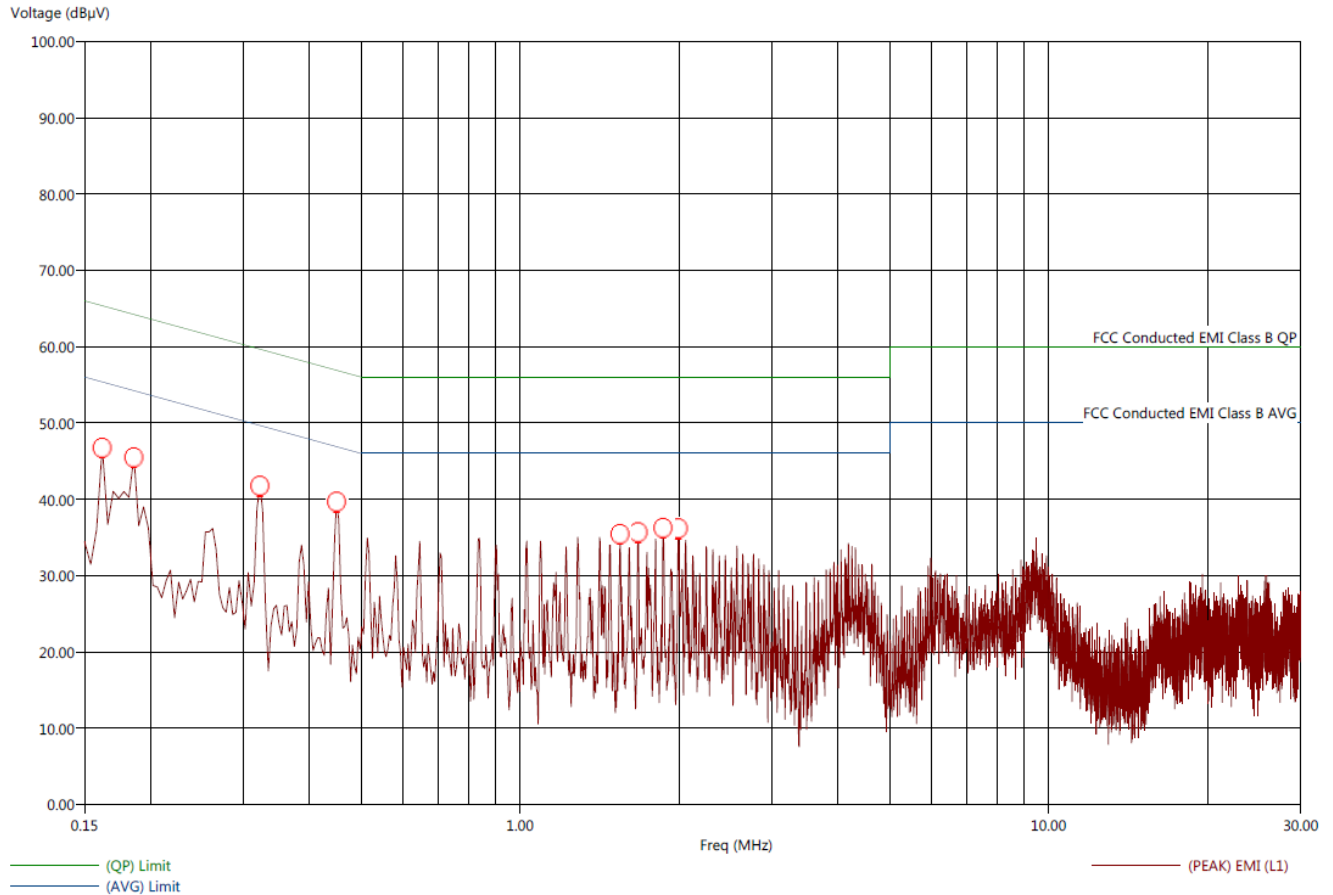
***CONDUCTED EMISSIONS***

***DATA SHEETS***

Title: FCC Class B - Conducted Emissions - Black Lead  
 File: 3 - Agilent - Pre-Scan - AC Mode - Conducted - Black Lead - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
 Operator: Kyle Fujimoto  
 EUT Type: MIMO Radio  
 EUT Condition: The EUT is continuously transmitting at 2430 MHz  
 Comments: Company: Silvus Technologies, Inc.  
 Model: SC4210-245-BB

7/26/2016 3:37:39 PM  
 Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - Black Lead



**Brea Division**  
 114 Olinda Drive  
 Brea, CA 92823  
 (714) 579-0500

**Agoura Division**  
 2337 Troutdale Drive  
 Agoura, CA 91301  
 (818) 597-0600

**Silverado Division**  
 19121 El Toro Road  
 Silverado, CA 92676  
 (949) 589-0700

**Lake Forest Division**  
 20621 Pascal Way  
 Lake Forest, CA 92630  
 (949) 587-0400

Title: FCC Class B - Conducted Emissions - Black Lead  
 File: 3 - Agilent - Final Scan - AC Mode - Condcuted - Black Lead - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
 Operator: Kyle Fujimoto  
 EUT Type: MIMO Radio  
 EUT Condition: The EUT is continuously transmitting at 2430 MHz  
 Comments: Company: Silvus Technologies, Inc.  
 Model: SC4210-245-BB

7/26/2016 3:40:10 PM  
 Sequence: Final Measurements

FCC Class B - Conducted Emissions - Black Lead

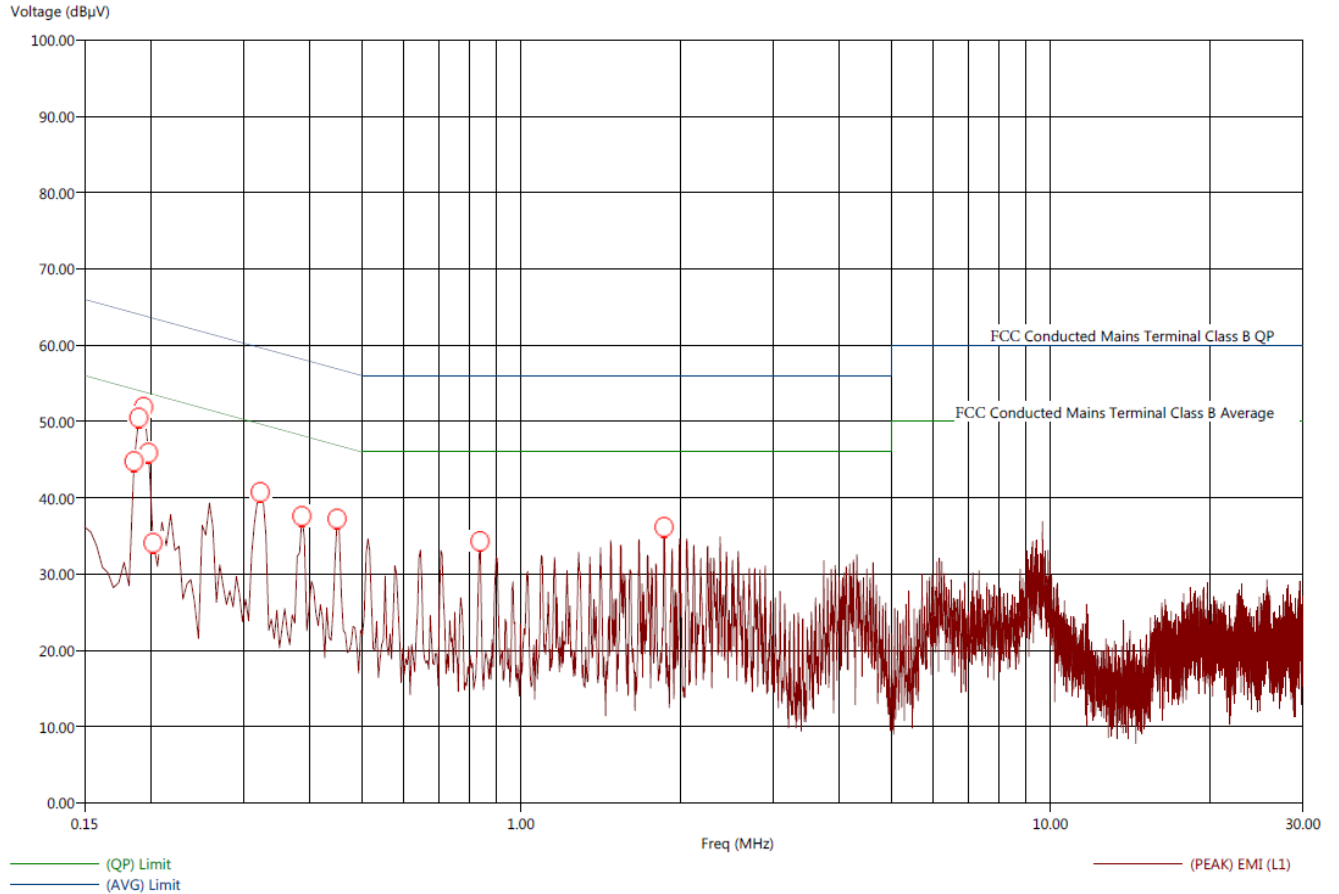
Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.16	49.75	26.70	-5.84	-28.89	55.60	0.06	0.48	9.83
0.19	52.51	43.94	-1.46	-10.03	53.97	0.08	0.38	9.83
0.32	45.35	40.79	-4.31	-8.87	49.66	0.08	0.09	9.84
0.45	41.37	37.24	-5.50	-9.63	46.86	0.08	0.05	9.84
1.55	36.45	30.49	-9.55	-15.51	46.00	0.15	0.04	9.85
1.67	36.97	33.46	-9.03	-12.54	46.00	0.15	0.04	9.85
1.87	37.07	33.29	-8.93	-12.71	46.00	0.16	0.05	9.86
1.99	37.09	31.93	-8.91	-14.07	46.00	0.17	0.05	9.86



Title: FCC Class B - Conducted Emissions - White Lead  
 File: 4 - Agilent - Pre-Scan - AC Mode - Conducted - White Lead - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
 Operator: Kyle Fujimoto  
 EUT Type: MIMO Radio  
 EUT Condition: The EUT is continuously transmitting at 2430 MHz  
 Comments: Company: Silvus Technologies, Inc.  
 Model: SC4210-245-BB

7/26/2016 3:43:46 PM  
 Sequence: Preliminary Scan

FCC Class B - Conducted Emissions - White Lead



Title: EN 55011 Class B - Conducted Emissions - White Lead  
 File: 4 - Agilent - Final Scan - AC Mode - Condcuted - White Lead - FCC Class B - 30 MHz to 1000 MHz - 07-25-2016.set  
 Operator: Kyle Fujimoto  
 EUT Type: MIMO Radio  
 EUT Condition: The EUT is continuously transmitting at 2430 MHz  
 Comments: Company: Silvus Technologies, Inc.  
 Model: SC4210-245-BB

7/26/2016 3:45:58 PM  
 Sequence: Final Measurements

FCC Class B - Conducted Emissions - White Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.186	52.42	43.97	-1.48	-9.93	53.90	0.08	0.36	9.83
0.190	52.03	43.51	-1.93	-10.45	53.96	0.08	0.36	9.83
0.194	52.18	43.63	-1.68	-10.23	53.86	0.08	0.36	9.83
0.198	52.30	43.93	-1.60	-9.97	53.89	0.08	0.36	9.83
0.202	51.40	41.41	-2.38	-12.37	53.78	0.08	0.35	9.83
0.322	44.94	39.86	-4.69	-9.77	49.63	0.08	0.07	9.84
0.386	43.41	33.31	-4.71	-14.81	48.13	0.08	0.04	9.84
0.450	40.87	36.56	-5.99	-10.30	46.86	0.08	0.03	9.84
0.838	36.52	30.54	-9.48	-15.46	46.00	0.10	0.03	9.84
1.866	36.96	31.93	-9.04	-14.07	46.00	0.16	0.05	9.86

