*FCC PART 15, SUBPART B and C*
*TEST REPORT*

*for*

# 900 MHz FHSS TRANSCEIVER

# MODEL: STORMX

Prepared for

UPTIME SOLUTIONS
2000 MOUTAINVIEW ROAD
AUSTIN, TX 78703

Prepared by:_____

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DATE: FEBRUARY 18, 2015

| | REPORT BODY | APPENDICES | | | | | TOTAL |
|---|---|---|---|---|---|---|---|
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# 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: | 900 MHz FHSS Transceiver<br>Model: Stormx<br>S/N: N/A |
| Product Description: | See Expository Statement. |
| Modifications: | The EUT was not modified during the testing. |
| Customer: | Uptime Solutions<br>2000 Mountainview Rd.<br>Austin, TX 78703 |
| Test Dates: | November 18, 20, 21 and 24, 2014; and February 17, 2015 |
| Test Specifications: | Emissions requirements<br>CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247 |
| Test Procedure: | ANSI C63.4 |
| Test Deviations: | The test procedure was not deviated from during the testing. |

# SUMMARY OF TEST RESULTS

| TEST | DESCRIPTION | RESULTS |
|---|---|---|
| 1 | Conducted RF Emissions, 150 kHz - 30 MHz. | 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, section 15.207. |
| 2 | Radiated RF Emissions, 10 kHz – 9300 MHz | 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, 15.209 and 15.247 (d) |
| 3 | 20 dB Bandwidth | Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i) |
| 4 | Peak Power Output | Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(2) |
| 5 | RF Conducted Antenna Test | Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d) |
| 6 | Carrier Frequency Separation | Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1) |
| 7 | Average Time of Occupancy | Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i) |
| 8 | Peak Power Spectral Density from the International Radiator to the Antenna | This test was not performed because the EUT is a frequency hopper. |

## 1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the 900 MHz FHSS Transceiver, Model: Stormx. The emissions measurements were performed according to the measurement procedure described in 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, 15.209, 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

Uptime Solutions

| | |
|---|---|
| Jim Girardeau | CTO |

Compatible Electronics Inc.

| | |
|---|---|
| Kyle Fujimoto | Test Engineer |
| James Ross | Test Engineer |
| Kenneth Lee | Test Technician |

## 2.4 Date Test Sample was Received

The test sample was received on November 17, 2014.

## 2.5 Disposition of the Test Sample

The test sample has not been returned to Uptime Solutions as of the date of this test report.

## 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.

| SPEC | TITLE |
|---|---|
| FCC Title 47, Part 15 Subpart C | FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators |
| FCC Title 47, Part 15 Subpart B | FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators |
| ANSI C63.4 2009 | Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz |
| DA 00-705: 2000 | Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems |
| EN 50147-2 1997 | Anechoic chambers. Alternative test site suitability with respect to site attenuation. |

# 4. DESCRIPTION OF TEST CONFIGURATION

## 4.1 Description of Test Configuration - Emissions

The 900 MHz FHSS Transceiver, Model: Stormx (EUT) is powered by a battery pack with three 3.6 VDC batteries, or an external AC power supply in conjunction with the battery pack.

The EUT was tested for emissions at the low, middle, and high channels while in the X and Y axis, while in both battery and external AC power modes. The EUT was continuously transmitting.

The final radiated data for the EUT as was taken in the mode described above. Please see Appendix E for the data sheets.

## 4.2 Cable Construction and Termination

**Cable 1** This is a two meter, foil shielded cable that connects to EUT to the AC adaptor. It has an eight pin power connector at the EUT end and is hardwired to the AC adaptor.

# 5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

## 5.1 EUT and Accessory List

| EQUIPMENT | MANUFACTURER | MODEL NUMBER | SERIAL NUMBER | FCC ID |
|---|---|---|---|---|
| 900 MHz FHSS Transceiver | UPTIME SOLUTIONS | STORMX | N/A | 2ADT3-BA1000 |
| AC Adaptor | MEAN WELL | ELN-30-5 | HB34280041 | N/A |

## 5.2 Emissions Test Equipment

| EQUIPMENT TYPE | MANU-FACTURER | MODEL NUMBER | SERIAL NUMBER | CALIBRATION DATE | CAL. CYCLE |
|---|---|---|---|---|---|
| **GENERAL TEST EQUIPMENT USED IN LAB B** | | | | | |
| Computer | Compaq | CQ5210F | CNX9360CF9 | N/A | N/A |
| Monitor | Hewlett Packard | HPs2031a | 3CQ046N3MD | N/A | N/A |
| EMI Receiver | Rohde & Schwarz | ESIB40 | 100194 | December 4, 2014 | 1 Year |
| EMI Receiver, 20 Hz – 26.5 GHz | Agilent Technologies | N9038A | MY51100115 | March 6, 2014 | 2 Year |
| **GENERAL TEST EQUIPMENT USED IN LAB D** | | | | | |
| 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 | Agilent Technologies | N9038A | MY51100115 | March 6, 2014 | 2 Year |
| **RF RADIATED EMISSIONS TEST EQUIPMENT** | | | | | |
| CombiLog Antenna | Com-Power | AC-220 | 61060 | May 20, 2014 | 1 Year |
| Preamplifier | Com-Power | PA-118 | 181656 | January 13, 2014 | 1 Year |
| Loop Antenna | Com-Power | AL-130 | 17089 | January 29, 2013 | 2 Year |
| Horn Antenna | Com-Power | AH-118 | 071175 | February 26, 2014 | 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 |

**Emissions test equipment continued**

| EQUIPMENT TYPE | MANU-FACTURER | MODEL NUMBER | SERIAL NUMBER | CALIBRATION DATE | CAL. CYCLE |
|---|---|---|---|---|---|
| **RF CONDUCTED EMISSIONS TEST EQUIPMENT** | | | | | |
| Shield Room Test | Compatible Electronics | 11CD | N/A | N/A | N/A |
| LISN | Com-Power | LI-215 | 12082 | June 12, 2014 | 1 Year |
| LISN | Com-Power | LI-215 | 12090 | June 12, 2014 | 1 Year |
| Transient Limiter | Com-Power | 252A910 | 1 | October 10, 2014 | 1 Year |
| Monitor | Hewlett Packard | D5258A | TW74500641 | N/A | N/A |
| Computer | Hewlett Packard | 4530 | US91912319 | N/A | N/A |
| Spectrum Analyzer – Main Section | Hewlett Packard | 8566B | 3638A08784 | May 20, 2014 | 1 Year |
| Spectrum Analyzer – Display Section | Hewlett Packard | 85662A | 2648A14530 | May 20, 2014 | 1 Year |
| Quasi-Peak Adapter | Hewlett Packard | 85650A | 2811A01363 | May 20, 2014 | 1 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

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was grounded via the third wire saftey ground in the AC power cable during external power testing. The EUT was not grounded during the internal battery mode testing.

# 7. TEST PROCEDURES

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

## 7.1 RF Emissions

### 7.1.1 Radiated Emissions (Spurious and Harmonics) Test – Lab B

The EMI Receiver was used as a measuring meter. A preamplifier was used to increase the sensitivity of the instrument. The Com Power Microwave Preamplifier Model: PA-118 was used for frequencies above 1 GHz. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

For frequencies above 1 GHz, the readings were averaged by a “duty cycle correction factor”, derived from 20 log (dwell time / 100 ms). This duty cycle correction factor was then subtracted from the peak reading.

The measurement bandwidth and transducer used for the radiated emissions test were:

| FREQUENCY RANGE | EFFECTIVE MEASUREMENT BANDWIDTH | TRANSDUCER |
|---|---|---|
| 1 GHz to 9.3 GHz | 1 MHz | Horn Antenna |

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. 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 by the Radiated Emission Manual Test software. 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.

## Radiated Emissions (Spurious and Harmonics) Test -- Lab B (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 1 GHz to 9.3 GHz to obtain the final test data.

**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.

### 7.1.2 Radiated Emissions (Spurious and Harmonics) Test – Lab D

The EMI Receiver was used as the measuring meter. A built-in, internal preamplifier was used to increase the sensitivity of the instrument. The EMI Receiver was initially used in 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 EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4, EN 50147-2 and CISPR 22. 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 measurement bandwidths and transducers used for the radiated emissions test were:

| FREQUENCY RANGE | EFFECTIVE MEASUREMENT BANDWIDTH | TRANSDUCER |
|---|---|---|
| 10 kHz to 150 kHz | 200 Hz | Active Loop Antenna |
| 150 kHz to 30 MHz | 9 kHz | Active Loop Antenna |
| 30 MHz to 1 GHz | 120 kHz | CombiLog Antenna |

The EUT was tested at a 3 meter test distance. The six highest emissions are listed in Table 1.0.

**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.

### 7.1.3 Conducted Emissions Test

The spectrum analyzer 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 spectrum analyzer. 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 Compatible Electronics software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The six highest emissions are listed in Table 2.0. 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, section 15.207 for conducted emissions.

### 7.1.4 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
900 MHz FHSS Transceiver, Model: Stormx

| Frequency MHz | Average Corrected Reading* dBuV | Specification Limit dBuV | Delta (Cor. Reading – Spec. Limit) dB |
|---|---|---|---|
| 37.20 (H) (X-Axis) (High Channel) (Battery Mode) | 31.42 (A) | 40.00 | -8.58 |
| 32.10 (H) (Y-Axis) (High Channel) (Battery Mode) | 31.01 (A) | 40.00 | -8.99 |
| 2778.83 (V) (Y-Axis) (High Channel) (External AC Mode) | 42.82 (A) | 54.00 | -11.18 |
| 2445.00 (V) (Y-Axis) (Middle Channel) (External AC Mode) | 42.39 (A) | 54.00 | -11.61 |
| 2778.83 (V) (X-Axis) (High Channel) (External AC Mode) | 42.02 (A) | 54.00 | -11.98 |
| 2745 (V) (Y-Axis) (Middle Channel) (Battery Mode) | 41.79 (A) | 54.00 | -12.21 |

Notes:

| | |
|---|---|
| * | The complete emissions data is given in Appendix E of this report. |
| (H) | Horizontal |
| (V) | Vertical |
| (A) | Average Reading |

## RF Emissions Test Results (Continued)

Table 2.0 CONDUCTED EMISSION RESULTS
900 MHz FHSS Transceiver, Model: Stormx

| Frequency MHz | Average Emission Level* dBuV | Average Specification Limit dBuV | Delta (Emission – Spec. Limit) dB |
|---|---|---|---|
| 0.637 (WL) | 38.34 | 46.00 | -7.66 |
| 0.641 (BL) | 37.84 | 46.00 | -8.16 |
| 0.831 (BL) | 37.54 | 46.00 | -8.46 |
| 0.634 (BL) | 37.34 | 46.00 | -8.66 |
| 1.763 (BL) | 37.32 | 46.00 | -8.68 |
| 0.895 (BL) | 37.04 | 46.00 | -8.96 |
| 0.831 (WL) | 37.04 | 46.00 | -8.96 |

Notes:

* The complete emissions data is given in Appendix E of this report.
(BL) Black Lead
(WL) White Lead

## 7.2 20 dB Bandwidth

The 20 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 5.1 kHz and the video bandwidth was 20 kHz.

**Test Results:**

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The 20 dB bandwidth is less than the separation between channels. Please see the data sheets located in Appendix E.

## 7.3 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The peak output power was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 3 MHz and the video bandwidth was 8 MHz. The cable loss was also added back into the reading using the reference level offset.

**Test Results:**

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(2). The maximum peak output power is less than 250 mW. Please see the data sheets located in Appendix E.

## 7.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 510 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

**Test Results:**

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. Please see the radiated emission data sheets located in Appendix E.

## 7.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the EMI Receiver. The RBW was set to 100 kHz and the VBW was set to 510 kHz. Plots of the fundamental were taken to ensure the amplitude at the band edges were at least 20 dB down from the peak of the fundamental 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 band edges at 902 MHz and 928 MHz meet the requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

## 7.6 Carrier Frequency Separation

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was 30 kHz, and the video bandwidth 100 kHz. The frequency span was wide enough to include the peaks of two adjacent channels.

**Test Results:**

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix E.

## 7.7 Number of Hopping Frequencies

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The frequency span was wide enough to include all of the peaks in the frequency band of operation.

**Test Results:**

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The number of hopping frequencies is 26. Please see the data sheets located in Appendix E.

## 7.8 Average Time of Occupancy Test

The Average Time of Occupancy Test was measured using the EMI Receiver. The EUT was operating in normal operating mode. The frequency span was taken to 0 Hz to determine the time for each transmission.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 10 seconds.

The sweep time was then changed to 1 second and the number of pulses taken. The number of pulses was then multiplied by 10 to determine the number of pulses in a 10 second period. The number of pulses in a 10 second period was then multiplied by the time for each pulse to determine the average time of occupancy.

**Test Results:**

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The EUT does not transmit for more than 400 msec in a 10 second period on any frequency. Please see the data sheets located in Appendix E.

## 7.9 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 resolution bandwidth 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

**Test Results:**

This test was not performed because the EUT is a frequency hopper.

## 8. CONCLUSIONS

The 900 MHz FHSS Transceiver, Model: Stormx, 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, and 15.247.

# APPENDIX A

# *LABORATORY ACCREDITATIONS AND RECOGNITIONS*

# LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0, 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

**NVLAP listing links**

**Agoura Division** / **Brea Division** / **Silverado/Lake Forest Division**

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment 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."

**ANSI listing** CETCB

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).
**US/EU MRA list** NIST MRA site

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).
**APEC MRA list** NIST MRA site

We are also listed for IT products by the following country/agency:

**VCCI Support member: Please visit http://www.vcci.jp/vcci_e/**

**FCC Listing, from FCC OET site**
FCC test lab search https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm

Compatible Electronics IC listing can be found at:
http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home

# 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*

# ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

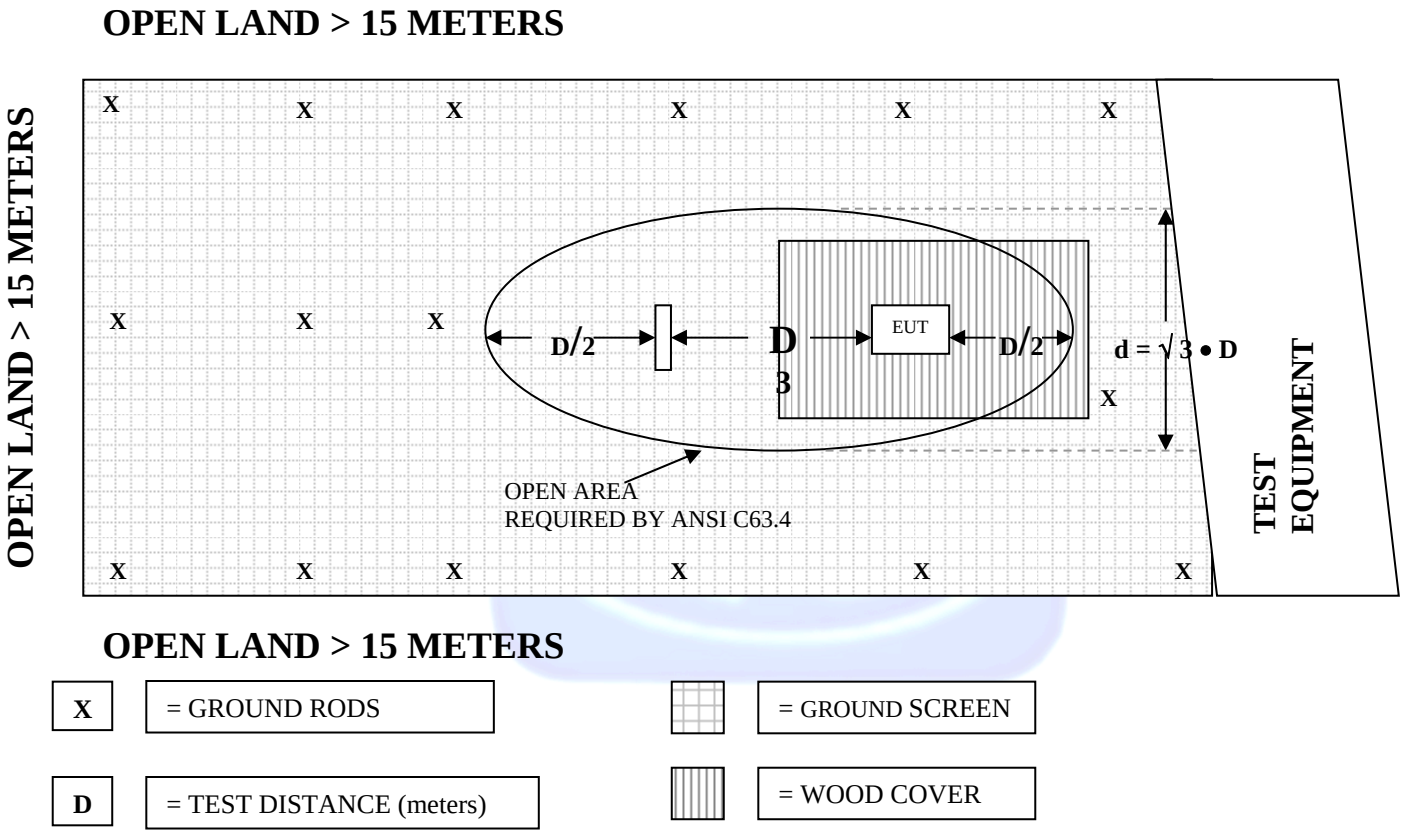
900 MHz FHSS Transceiver
Model: Stormx
S/N: N/A

There were no additional models covered under this report.

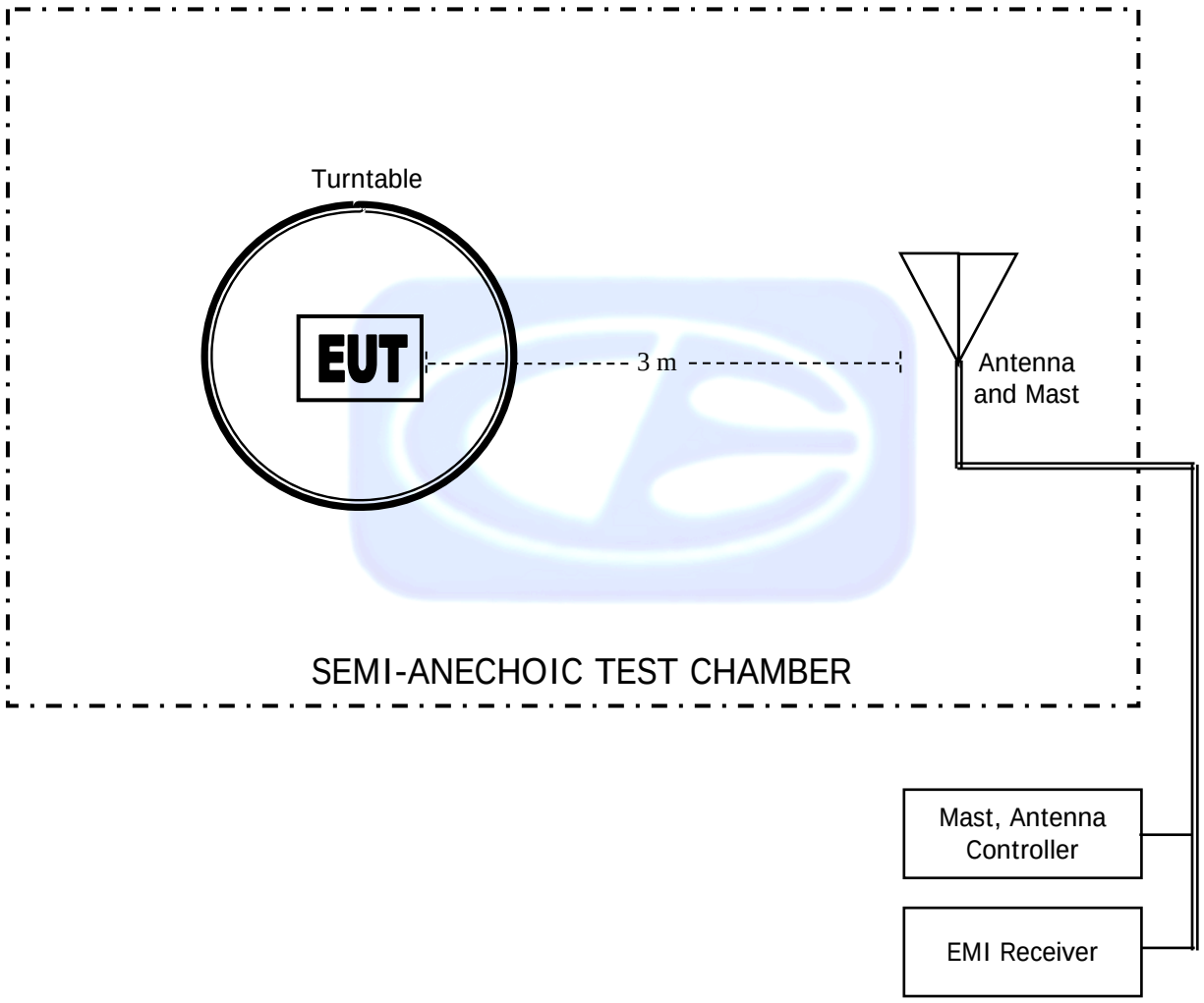
# APPENDIX D

# *DIAGRAMS AND CHARTS*

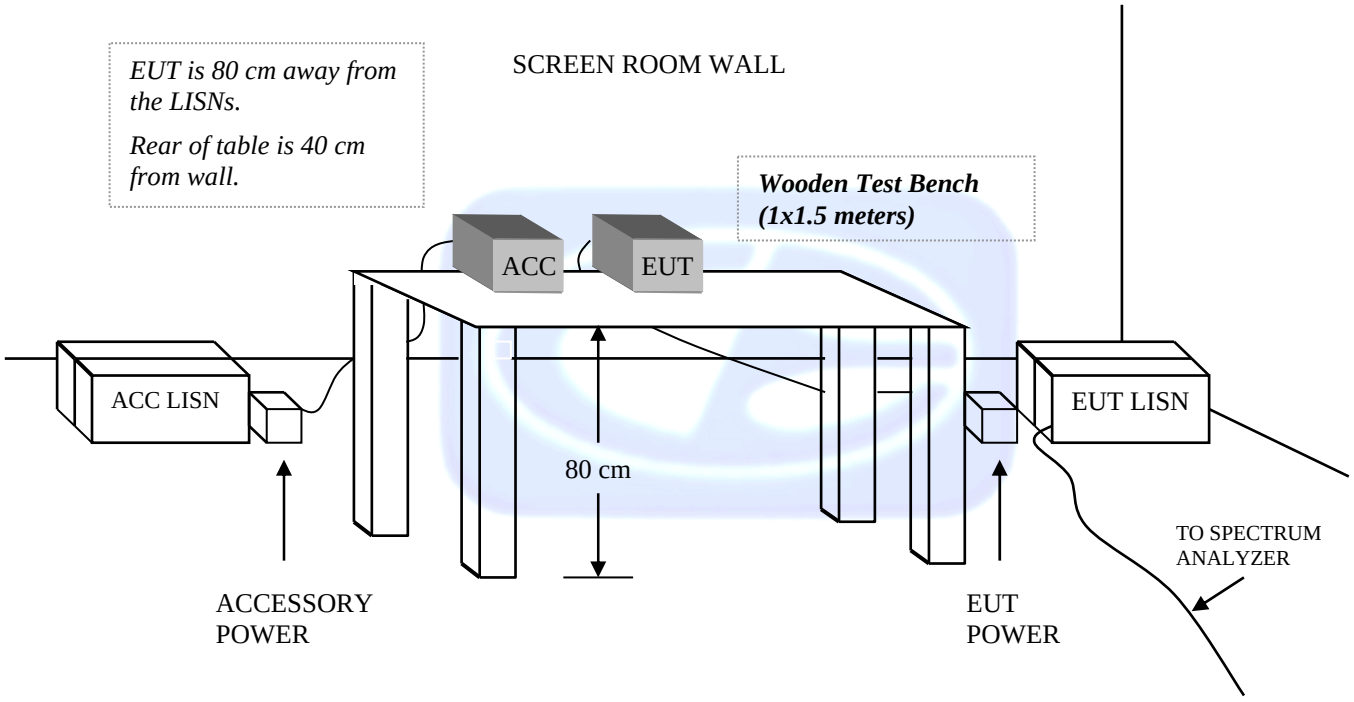
# *FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE*



# *FIGURE 2: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER*



# *FIGURE 3: CONDUCTED EMISSIONS TEST SETUP*



# COM-POWER AL-130

# LOOP ANTENNA

# S/N: 17089

# CALIBRATION DATE: JANUARY 29, 2013

| FREQUENCY (MHz) | MAGNETIC (dB/m) | ELECTRIC (dB/m) |
|---|---|---|
| 0.009 | -42.5 | 9 |
| 0.01 | -42.3 | 9.2 |
| 0.02 | -42.1 | 9.4 |
| 0.03 | -41.4 | 10.1 |
| 0.04 | -41.8 | 9.7 |
| 0.05 | -42.4 | 9.1 |
| 0.06 | -42.3 | 9.2 |
| 0.07 | -42.5 | 9 |
| 0.08 | -42.4 | 9.1 |
| 0.09 | -42.5 | 9 |
| 0.1 | -42.5 | 9 |
| 0.2 | -42.7 | 8.8 |
| 0.3 | -42.6 | 8.9 |
| 0.4 | -42.5 | 9 |
| 0.5 | -42.7 | 8.8 |
| 0.6 | -42.7 | 8.8 |
| 0.7 | -42.5 | 9 |
| 0.8 | -42.3 | 9.2 |
| 0.9 | -42.2 | 9.3 |
| 1 | -42.2 | 9.3 |
| 2 | -41.8 | 9.7 |
| 3 | -41.7 | 9.8 |
| 4 | -41.7 | 9.8 |
| 5 | -41.5 | 10 |
| 6 | -41.6 | 9.9 |
| 7 | -41.4 | 10.1 |
| 8 | -41 | 10.5 |
| 9 | -40.8 | 10.7 |
| 10 | -41.3 | 10.2 |
| 15 | -41.4 | 10.1 |
| 20 | -41.2 | 10.3 |
| 25 | -42.6 | 8.9 |
| 30 | -41.7 | 9.8 |

# COM-POWER AC-220

# COMBILOG ANTENNA

# S/N: 61060

# CALIBRATION DATE: MAY 20, 2014

| FREQUENCY (MHz) | FACTOR (dB) | FREQUENCY (MHz) | FACTOR (dB) |
|---|---|---|---|
| 30 | 23.40 | 200 | 14.40 |
| 35 | 23.70 | 250 | 16.40 |
| 40 | 24.20 | 300 | 17.90 |
| 45 | 22.60 | 350 | 15.60 |
| 50 | 22.10 | 400 | 19.90 |
| 60 | 17.90 | 450 | 20.40 |
| 70 | 12.70 | 500 | 21.60 |
| 80 | 11.60 | 550 | 21.50 |
| 90 | 12.20 | 600 | 22.30 |
| 100 | 13.20 | 650 | 23.50 |
| 120 | 15.70 | 700 | 23.70 |
| 125 | 15.80 | 750 | 25.90 |
| 140 | 13.60 | 800 | 25.90 |
| 150 | 16.90 | 850 | 26.40 |
| 160 | 14.20 | 900 | 27.00 |
| 175 | 14.90 | 950 | 27.70 |
| 180 | 15.00 | 1000 | 27.50 |

# COM POWER AH-118

# HORN ANTENNA

# S/N: 071175

# CALIBRATION DATE: FEBRUARY 26, 2014

| FREQUENCY (GHz) | FACTOR (dB) | FREQUENCY (GHz) | FACTOR (dB) |
|---|---|---|---|
| 1.0 | 24.23 | 10.0 | 38.43 |
| 1.5 | 25.84 | 10.5 | 40.19 |
| 2.0 | 28.14 | 11.0 | 40.49 |
| 2.5 | 29.51 | 11.5 | 41.39 |
| 3.0 | 31.20 | 12.0 | 42.02 |
| 3.5 | 32.17 | 12.5 | 43.30 |
| 4.0 | 31.40 | 13.0 | 42.77 |
| 4.5 | 31.86 | 13.5 | 40.18 |
| 5.0 | 34.82 | 14.0 | 42.59 |
| 5.5 | 34.38 | 14.5 | 41.74 |
| 6.0 | 36.31 | 15.0 | 41.84 |
| 6.5 | 34.81 | 15.5 | 38.48 |
| 7.0 | 37.48 | 16.0 | 39.52 |
| 7.5 | 36.98 | 16.5 | 37.85 |
| 8.0 | 36.66 | 17.0 | 41.33 |
| 8.5 | 38.47 | 17.5 | 44.96 |
| 9.0 | 37.22 | 18.0 | 48.50 |
| 9.5 | 37.86 | | |

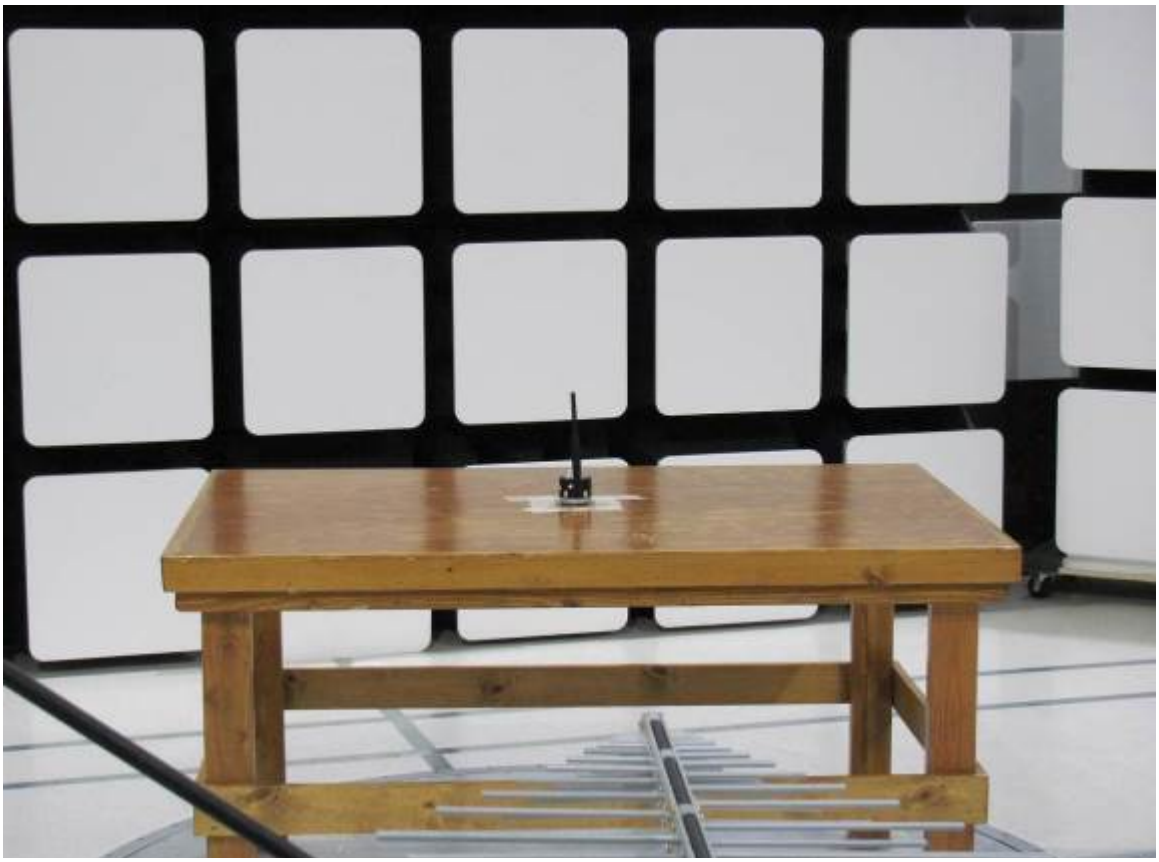
# COM-POWER PA-118

# PREAMPLIFIER

# S/N: 181656

# CALIBRATION DATE: JANUARY 13, 2014

| FREQUENCY (GHz) | FACTOR (dB) | FREQUENCY (GHz) | FACTOR (dB) |
|---|---|---|---|
| 1.0 | 24.90 | 6.0 | 25.40 |
| 1.1 | 25.30 | 6.5 | 25.20 |
| 1.2 | 26.00 | 7.0 | 24.40 |
| 1.3 | 26.20 | 7.5 | 24.00 |
| 1.4 | 26.30 | 8.0 | 23.90 |
| 1.5 | 26.40 | 8.5 | 24.50 |
| 1.6 | 26.50 | 9.0 | 25.20 |
| 1.7 | 26.60 | 9.5 | 24.80 |
| 1.8 | 26.50 | 10.0 | 24.90 |
| 1.9 | 26.60 | 11.0 | 25.40 |
| 2.0 | 26.70 | 12.0 | 24.50 |
| 2.5 | 26.90 | 13.0 | 24.30 |
| 3.0 | 27.00 | 14.0 | 25.20 |
| 3.5 | 27.10 | 15.0 | 25.90 |
| 4.0 | 26.60 | 16.0 | 25.60 |
| 4.5 | 26.10 | 17.0 | 23.70 |
| 5.0 | 26.40 | 18.0 | 25.80 |
| 5.5 | 25.80 | | |



**FRONT VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
BATTERY MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**REAR VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
BATTERY MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**FRONT VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
EXTERNAL MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**REAR VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
EXTERNAL MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**FRONT VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
BATTERY MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**REAR VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
BATTERY MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**FRONT VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
EXTERNAL MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**REAR VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
EXTERNAL MODE
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**FRONT VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
FCC SUBPART B AND C – CONDUCTED EMISSIONS

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**REAR VIEW**

UPTIME SOLUTIONS
900 MHz FHSS TRANSCEIVER
MODEL: STORMX
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**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/18/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Low Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 59.75 | V | 74 | -14.25 | Peak | 1.5 | 135 | |
| 2708.91 | 39.75 | V | 54 | -14.25 | Avg | 1.5 | 135 | |
| | | | | | | | | |
| 3611.88 | 44.06 | V | 74 | -29.94 | Peak | 2.25 | 135 | |
| 3611.88 | 24.06 | V | 54 | -29.94 | Avg | 2.25 | 135 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Low Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 59.05 | V | 74 | -14.95 | Peak | 1.5 | 135 | |
| 2708.91 | 39.05 | V | 54 | -14.95 | Avg | 1.5 | 135 | |
| | | | | | | | | |
| 3611.88 | 43.36 | V | 74 | -30.64 | Peak | 1.5 | 225 | |
| 3611.88 | 23.36 | V | 54 | -30.64 | Avg | 1.5 | 225 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/18/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Low Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 47.46 | H | 74 | -26.54 | Peak | 1.25 | 90 | |
| 2708.91 | 27.46 | H | 54 | -26.54 | Avg | 1.25 | 90 | |
| | | | | | | | | |
| 3611.88 | 43.06 | H | 74 | -30.94 | Peak | 12.5 | 135 | |
| 3611.88 | 23.06 | H | 54 | -30.94 | Avg | 1.25 | 135 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Low Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 47.16 | H | 74 | -26.84 | Peak | 1.5 | 225 | |
| 2708.91 | 27.16 | H | 54 | -26.84 | Avg | 1.5 | 225 | |
| | | | | | | | | |
| 3611.88 | 42.96 | H | 74 | -31.04 | Peak | 1.5 | 225 | |
| 3611.88 | 22.96 | H | 54 | -31.04 | Avg | 1.5 | 225 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Middle Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 60.79 | V | 74 | -13.21 | Peak | 1.25 | 155 | |
| 2745 | 40.79 | V | 54 | -13.21 | Avg | 1.25 | 155 | |
| | | | | | | | | |
| 3660 | 46.35 | V | 74 | -27.65 | Peak | 1.35 | 165 | |
| 3660 | 26.35 | V | 54 | -27.65 | Avg | 1.35 | 165 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Middle Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 61.79 | V | 74 | -12.21 | Peak | 1.5 | 225 | |
| 2745 | 41.79 | V | 54 | -12.21 | Avg | 1.5 | 225 | |
| | | | | | | | | |
| 3660 | 46.25 | V | 74 | -27.75 | Peak | 1.5 | 225 | |
| 3660 | 26.25 | V | 54 | -27.75 | Avg | 1.5 | 225 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Middle Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 49.79 | H | 74 | -24.21 | Peak | 1.25 | 155 | |
| 2745 | 29.79 | H | 54 | -24.21 | Avg | 1.25 | 155 | |
| | | | | | | | | |
| 3660 | 45.35 | H | 74 | -28.65 | Peak | 1.35 | 145 | |
| 3660 | 25.35 | H | 54 | -28.65 | Avg | 1.35 | 145 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**Middle Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 51.59 | H | 74 | -22.41 | Peak | 1.25 | 155 | |
| 2745 | 31.59 | H | 54 | -22.41 | Avg | 1.25 | 155 | |
| | | | | | | | | |
| 3660 | 39.85 | H | 74 | -34.15 | Peak | 1.25 | 45 | |
| 3660 | 19.85 | H | 54 | -34.15 | Avg | 1.25 | 45 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**High Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 61.42 | V | 74 | -12.58 | Peak | 1.25 | 155 | |
| 2778.83 | 41.42 | V | 54 | -12.58 | Avg | 1.25 | 155 | |
| | | | | | | | | |
| 3705.11 | 44.73 | V | 74 | -29.27 | Peak | 1.55 | 225 | |
| 3705.11 | 24.73 | V | 54 | -29.27 | Avg | 1.55 | 225 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**High Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 61.52 | V | 74 | -12.48 | Peak | 1.25 | 155 | |
| 2778.83 | 41.52 | V | 54 | -12.48 | Avg | 1.25 | 155 | |
| | | | | | | | | |
| 3705.11 | 45.03 | V | 74 | -28.97 | Peak | 1.35 | 165 | |
| 3705.11 | 25.03 | V | 54 | -28.97 | Avg | 1.35 | 165 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**High Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 55.2 | H | 74 | -18.8 | Peak | 1.25 | 225 | |
| 2778.83 | 35.2 | H | 54 | -18.8 | Avg | 1.25 | 225 | |
| | | | | | | | | |
| 3705.11 | 43.13 | H | 74 | -30.87 | Peak | 1.35 | 265 | |
| 3705.11 | 23.13 | H | 54 | -30.87 | Avg | 1.35 | 265 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Internal Battery Mode**
**High Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 55.02 | H | 74 | -18.98 | Peak | 1.25 | 155 | |
| 2778.83 | 35.02 | H | 54 | -18.98 | Avg | 1.25 | 155 | |
| | | | | | | | | |
| 3705.11 | 44.43 | H | 74 | -29.57 | Peak | 1.35 | 165 | |
| 3705.11 | 24.43 | H | 54 | -29.57 | Avg | 1.35 | 165 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247 and FCC Class B**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/21/2014
Lab: D
Tested By: Kenneth Lee

**Non Harmonic Emissions from the Tx and Digital Portion -- 10 kHz to 9300 MHz**
**Battery Power Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 37.2 | 35.56 | H | 40 | -4.44 | Peak | 3.99 | 0 | |
| 37.2 | 31.42 | H | 40 | -8.58 | QP | 3.99 | 0 | No Other Emissions Found for the |
| | | | | | | | | Digital Portion |
| 960.1 | 43.56 | V | 54 | -10.44 | Peak | 3.84 | 204 | from 10 kHz to 9300 MHz |
| 960.1 | 39.53 | V | 54 | -14.47 | QP | 3.84 | 204 | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| 960.1 | 44.38 | H | 54 | -9.62 | Peak | 3.04 | 80 | |
| 960.1 | 39.49 | H | 54 | -14.51 | QP | 3.04 | 80 | No Other Non Harmonic Emissions |
| | | | | | | | | Found for the Tx Mode |
| | | | | | | | | from 10 kHz to 9300 MHz |
| | | | | | | | | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| | | | | | | | | |
| 901.4 | | | | | | | | Done Via Conducted |
| | | | | | | | | Not in Restricted Band* |
| | | | | | | | | |
| 901.4 | | | | | | | | Done Via Conducted |
| | | | | | | | | Not in Restricted Band* |
| | | | | | | | | |
| 934.9 | | | | | | | | Done Via Conducted |
| | | | | | | | | Not in Restricted Band* |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

* **The frequencies at 901.4 and 934.9 MHz were determined to be part of the radio frequency power that is being produced. Per FCC 15.247 (d), attenuation below the general limits specified in 15.209 (a) is not required as these frequencies are not in the restricted bands defined by 15.205 (a)**

**FCC 15.247 and FCC Class B**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/21/2014
Lab: D
Tested By: Kenneth Lee

**Non Harmonic Emissions from the Tx and Digital Portion -- 10 kHz to 9300 MHz**
**Battery Power Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 32.1 | 35.49 | H | 40 | -4.51 | Peak | 3.99 | 263.01 | |
| 32.1 | 31.01 | H | 40 | -8.99 | QP | 3.99 | 263.01 | No Other Emissions Found for the |
| | | | | | | | | Digital Portion |
| 960.2 | 44.18 | V | 54 | -9.82 | Peak | 1.59 | 171 | from 10 kHz to 9300 MHz |
| 960.2 | 39.55 | V | 54 | -14.45 | QP | 1.59 | 171 | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| 960.3 | 44.07 | H | 54 | -9.93 | Peak | 3.01 | 287.97 | |
| 960.3 | 39.56 | H | 54 | -14.44 | QP | 3.01 | 287.97 | No Other Non Harmonic Emissions |
| | | | | | | | | Found for the Tx Mode |
| | | | | | | | | from 10 kHz to 9300 MHz |
| | | | | | | | | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| | | | | | | | | |
| 901.4 | | | | | | | | **Done Via Conducted** |
| | | | | | | | | **Not in Restricted Band*** |
| | | | | | | | | |
| 901.5 | | | | | | | | **Done Via Conducted** |
| | | | | | | | | **Not in Restricted Band*** |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

*** The frequencies at 901.4 and 901.5 MHz were determined to be part of the radio frequency power that is being produced. Per FCC 15.247 (d), attenuation below the general limits specified in 15.209 (a) is not required as these frequencies are not in the restricted bands defined by 15.205 (a)**

**RSS-210 and FCC Class B**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Receive Mode**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | No Emissions Found for the |
| | | | | | | | | Receive Mode |
| | | | | | | | | from 10 kHz to 9300 MHz |
| | | | | | | | | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| | | | | | | | | |
| | | | | | | | | Investigated in the X-Axis |
| | | | | | | | | and Y-Axis |
| | | | | | | | | |
| | | | | | | | | Investigated at the Low, |
| | | | | | | | | Middle, and High Channels |
| | | | | | | | | |
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**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/18/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Low Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 59.95 | V | 74 | -14.05 | Peak | 1.1 | 190 | |
| 2708.91 | 39.95 | V | 54 | -14.05 | Avg | 1.1 | 190 | |
| | | | | | | | | |
| 3611.88 | 45.56 | V | 74 | -28.44 | Peak | 1 | 350 | |
| 3611.88 | 25.56 | V | 54 | -28.44 | Avg | 1 | 350 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Low Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 60.75 | V | 74 | -13.25 | Peak | 1 | 180 | |
| 2708.91 | 40.75 | V | 54 | -13.25 | Avg | 1 | 180 | |
| | | | | | | | | |
| 3611.88 | 47.06 | V | 74 | -26.94 | Peak | 1.25 | 160 | |
| 3611.88 | 27.06 | V | 54 | -26.94 | Avg | 1.25 | 160 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/18/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Low Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 53.86 | H | 74 | -20.14 | Peak | 1.25 | 250 | |
| 2708.91 | 33.86 | H | 54 | -20.14 | Avg | 1.25 | 250 | |
| | | | | | | | | |
| 3611.88 | 45.66 | H | 74 | -28.34 | Peak | 1 | 270 | |
| 3611.88 | 25.66 | H | 54 | -28.34 | Avg | 1 | 270 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Low Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1805.94 | | | | | | | | Done Via Conducted |
| 1805.94 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2708.91 | 55.75 | H | 74 | -18.25 | Peak | 1 | 100 | |
| 2708.91 | 35.75 | H | 54 | -18.25 | Avg | 1 | 100 | |
| | | | | | | | | |
| 3611.88 | 45.26 | H | 74 | -28.74 | Peak | 1 | 300 | |
| 3611.88 | 25.26 | H | 54 | -28.74 | Avg | 1 | 300 | |
| | | | | | | | | |
| 4514.86 | | | | | | | | No Emissions |
| 4514.86 | | | | | | | | Detected |
| | | | | | | | | |
| 5417.83 | | | | | | | | No Emissions |
| 5417.83 | | | | | | | | Detected |
| | | | | | | | | |
| 6320.8 | | | | | | | | No Emissions |
| 6320.8 | | | | | | | | Detected |
| | | | | | | | | |
| 7223.77 | | | | | | | | No Emissions |
| 7223.77 | | | | | | | | Detected |
| | | | | | | | | |
| 8126.74 | | | | | | | | No Emissions |
| 8126.74 | | | | | | | | Detected |
| | | | | | | | | |
| 9029.71 | | | | | | | | No Emissions |
| 9029.71 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Middle Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 61.49 | V | 74 | -12.51 | Peak | 1 | 160 | |
| 2745 | 41.49 | V | 54 | -12.51 | Avg | 1 | 160 | |
| | | | | | | | | |
| 3660 | 46.05 | V | 74 | -27.95 | Peak | 1.75 | 45 | |
| 3660 | 26.05 | V | 54 | -27.95 | Avg | 1.75 | 45 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Middle Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 62.39 | V | 74 | -11.61 | Peak | 1 | 190 | |
| 2745 | 42.39 | V | 54 | -11.61 | Avg | 1 | 190 | |
| | | | | | | | | |
| 3660 | 47.15 | V | 74 | -26.85 | Peak | 1 | 180 | |
| 3660 | 27.15 | V | 54 | -26.85 | Avg | 1 | 180 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Middle Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 53.79 | H | 74 | -20.21 | Peak | 1.25 | 45 | |
| 2745 | 33.79 | H | 54 | -20.21 | Avg | 1.25 | 45 | |
| | | | | | | | | |
| 3660 | 46.75 | H | 74 | -27.25 | Peak | 1.1 | 90 | |
| 3660 | 26.75 | H | 54 | -27.25 | Avg | 1.1 | 90 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**Middle Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1830 | | | | | | | | Done Via Conducted |
| 1830 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2745 | 55.69 | H | 74 | -18.31 | Peak | 1.1 | 250 | |
| 2745 | 35.69 | H | 54 | -18.31 | Avg | 1.1 | 250 | |
| | | | | | | | | |
| 3660 | 45.55 | H | 74 | -28.45 | Peak | 1.5 | 90 | |
| 3660 | 25.55 | H | 54 | -28.45 | Avg | 1.5 | 90 | |
| | | | | | | | | |
| 4575 | | | | | | | | No Emissions |
| 4575 | | | | | | | | Detected |
| | | | | | | | | |
| 5490 | | | | | | | | No Emissions |
| 5490 | | | | | | | | Detected |
| | | | | | | | | |
| 6405 | | | | | | | | No Emissions |
| 6405 | | | | | | | | Detected |
| | | | | | | | | |
| 7320 | | | | | | | | No Emissions |
| 7320 | | | | | | | | Detected |
| | | | | | | | | |
| 8235 | | | | | | | | No Emissions |
| 8235 | | | | | | | | Detected |
| | | | | | | | | |
| 9150 | | | | | | | | No Emissions |
| 9150 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**High Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 62.02 | V | 74 | -11.98 | Peak | 1 | 160 | |
| 2778.83 | 42.02 | V | 54 | -11.98 | Avg | 1 | 160 | |
| | | | | | | | | |
| 3705.11 | 45.53 | V | 74 | -28.47 | Peak | 1.25 | 240 | |
| 3705.11 | 25.53 | V | 54 | -28.47 | Avg | 1.25 | 240 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**High Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 62.82 | V | 74 | -11.18 | Peak | 1 | 200 | |
| 2778.83 | 42.82 | V | 54 | -11.18 | Avg | 1 | 200 | |
| | | | | | | | | |
| 3705.11 | 45.83 | V | 74 | -28.17 | Peak | 1 | 180 | |
| 3705.11 | 25.83 | V | 54 | -28.17 | Avg | 1 | 180 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**High Channel**
**Transmit Mode - X-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 53.72 | H | 74 | -20.28 | Peak | 1 | 145 | |
| 2778.83 | 33.72 | H | 54 | -20.28 | Avg | 1 | 145 | |
| | | | | | | | | |
| 3705.11 | 45.13 | H | 74 | -28.87 | Peak | 1 | 190 | |
| 3705.11 | 25.13 | H | 54 | -28.87 | Avg | 1 | 190 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**External AC Mode**
**High Channel**
**Transmit Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1852.55 | | | | | | | | Done Via Conducted |
| 1852.55 | | | | | | | | Not in Restricted Band |
| | | | | | | | | |
| 2778.83 | 54.42 | H | 74 | -19.58 | Peak | 1 | 240 | |
| 2778.83 | 34.42 | H | 54 | -19.58 | Avg | 1 | 240 | |
| | | | | | | | | |
| 3705.11 | 45.73 | H | 74 | -28.27 | Peak | 1 | 270 | |
| 3705.11 | 25.73 | H | 54 | -28.27 | Avg | 1 | 270 | |
| | | | | | | | | |
| 4631.39 | | | | | | | | No Emissions |
| 4631.39 | | | | | | | | Detected |
| | | | | | | | | |
| 5557.66 | | | | | | | | No Emissions |
| 5557.66 | | | | | | | | Detected |
| | | | | | | | | |
| 6483.94 | | | | | | | | No Emissions |
| 6483.94 | | | | | | | | Detected |
| | | | | | | | | |
| 7410.22 | | | | | | | | No Emissions |
| 7410.22 | | | | | | | | Detected |
| | | | | | | | | |
| 8336.49 | | | | | | | | No Emissions |
| 8336.49 | | | | | | | | Detected |
| | | | | | | | | |
| 9262.77 | | | | | | | | No Emissions |
| 9262.77 | | | | | | | | Detected |
| | | | | | | | | |

**FCC 15.247 and FCC Class B**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/21/2014
Lab: D
Tested By: Kenneth Lee

**Non Harmonic Emissions from the Tx and Digital Portion -- 10 kHz to 9300 MHz**
**Battery Power Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 37.2 | 35.56 | H | 40 | -4.44 | Peak | 3.99 | 0 | |
| 37.2 | 31.42 | H | 40 | -8.58 | QP | 3.99 | 0 | No Other Emissions Found for the |
| | | | | | | | | Digital Portion |
| 960.1 | 43.56 | V | 54 | -10.44 | Peak | 3.84 | 204 | from 10 kHz to 9300 MHz |
| 960.1 | 39.53 | V | 54 | -14.47 | QP | 3.84 | 204 | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| 960.1 | 44.38 | H | 54 | -9.62 | Peak | 3.04 | 80 | |
| 960.1 | 39.49 | H | 54 | -14.51 | QP | 3.04 | 80 | No Other Non Harmonic Emissions |
| | | | | | | | | Found for the Tx Mode |
| | | | | | | | | from 10 kHz to 9300 MHz |
| | | | | | | | | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| | | | | | | | | |
| 901.4 | | | | | | | | **Done Via Conducted** |
| | | | | | | | | **Not in Restricted Band*** |
| | | | | | | | | |
| 934.9 | | | | | | | | **Done Via Conducted** |
| | | | | | | | | **Not in Restricted Band*** |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*** The frequencies at 901.4 and 934.9 MHz were determined to be part of the radio frequency power that is being produced. Per FCC 15.247 (d), attenuation below the general limits specified in 15.209 (a) is not required as these frequencies are not in the restricted bands defined by 15.205 (a)**

**FCC 15.247 and FCC Class B**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: D
Tested By: Kenneth Lee

**Non Harmonic Emissions from the Tx and Digital Portion -- 10 kHz to 9300 MHz**
**External AC Mode - Y-Axis**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 960.2 | 45.25 | H | 54 | -8.75 | Peak | 1.63 | 207.67 | |
| 960.2 | 40.29 | H | 54 | -13.71 | QP | 1.63 | 207.67 | No Other Emissions Found for the |
| | | | | | | | | Digital Portion |
| 960.3 | 44.07 | V | 54 | -9.93 | Peak | 2.24 | 64.5 | from 10 kHz to 9300 MHz |
| 960.3 | 40.13 | V | 54 | -13.87 | QP | 2.24 | 64.5 | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| 996.3 | 44.58 | H | 54 | -9.42 | Peak | 1.43 | 106.75 | |
| 996.3 | 40.43 | H | 54 | -13.57 | QP | 1.43 | 106.75 | No Other Non Harmonic Emissions |
| | | | | | | | | Found for the Tx Mode |
| 996.4 | 44.73 | V | 54 | -9.27 | Peak | 2.55 | 232 | from 10 kHz to 9300 MHz |
| 996.4 | 40.13 | V | 54 | -13.87 | QP | 2.55 | 232 | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| | | | | | | | | |
| 901.4 | | | | | | | | Done Via Conducted |
| | | | | | | | | Not in Restricted Band* |
| | | | | | | | | |
| 901.5 | | | | | | | | Done Via Conducted |
| | | | | | | | | Not in Restricted Band* |
| | | | | | | | | |
| 934.8 | | | | | | | | Done Via Conducted |
| | | | | | | | | Not in Restricted Band* |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*** The frequencies at 901.4, 901.5, and 934.8 MHz were determined to be part of the radio frequency power that is being produced. Per FCC 15.247 (d), attenuation below the general limits specified in 15.209 (a) is not required as these frequencies are not in the restricted bands defined by 15.205 (a)**

**RSS-210 and FCC Class B**
Uptime Solutions
900 MHz FHSS Transceiver
Model: Stormx

Date: 11/20/2014
Lab: B
Tested By: Kyle Fujimoto

**Receive Mode**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | No Emissions Found for the |
| | | | | | | | | Receive Mode |
| | | | | | | | | from 10 kHz to 9300 MHz |
| | | | | | | | | for both Vertical and Horizontal |
| | | | | | | | | Polarizations |
| | | | | | | | | |
| | | | | | | | | Investigated in the X-Axis |
| | | | | | | | | and Y-Axis |
| | | | | | | | | |
| | | | | | | | | Investigated at the Low, |
| | | | | | | | | Middle, and High Channels |
| | | | | | | | | |
| | | | | | | | | |
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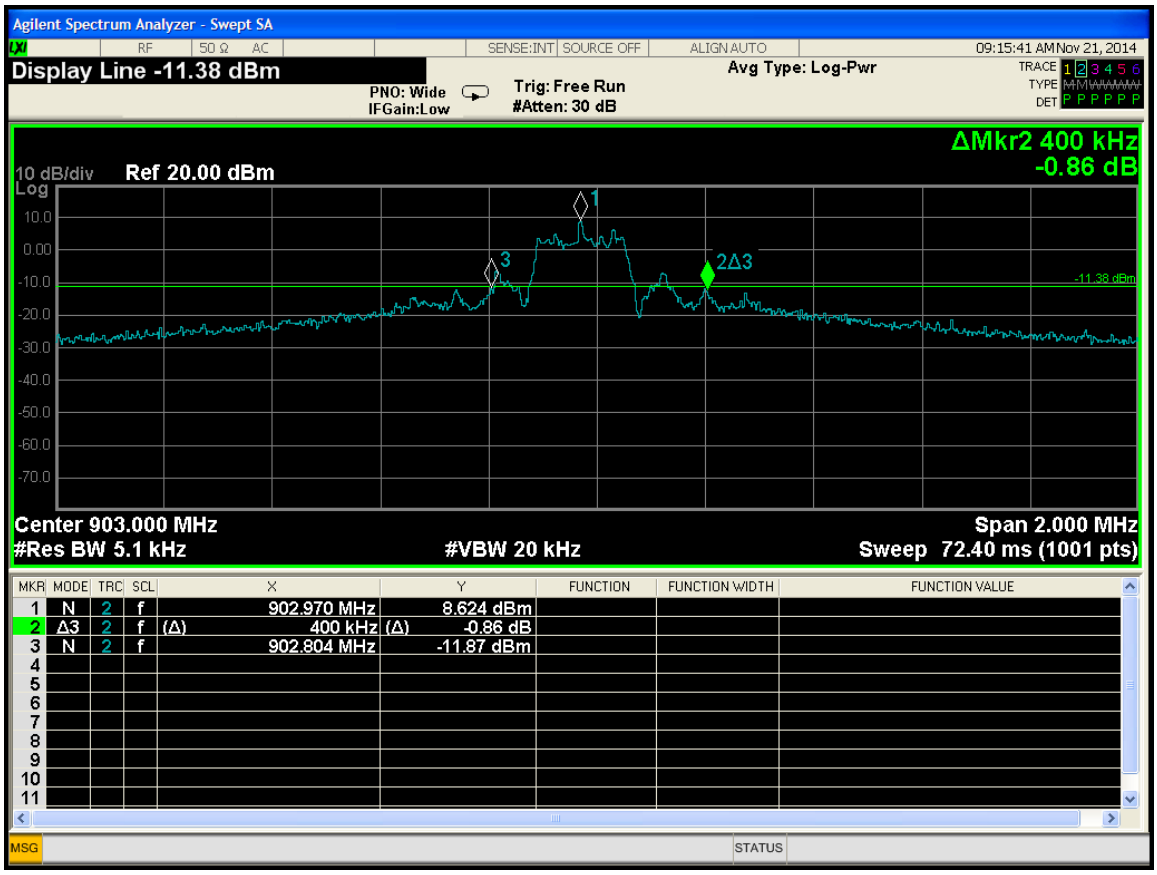
| | | | | | | | | |

# *-20 dB BANDWIDTH*

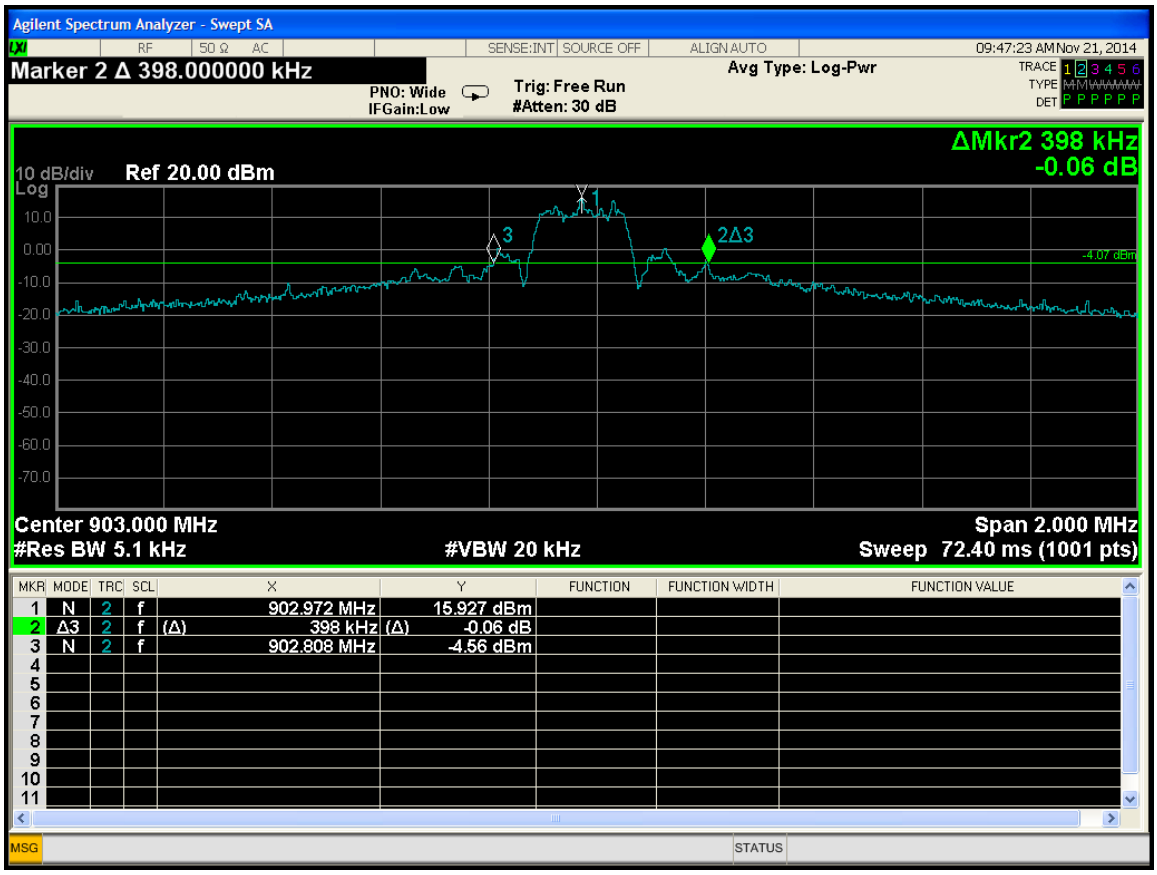
# *DATA SHEETS*



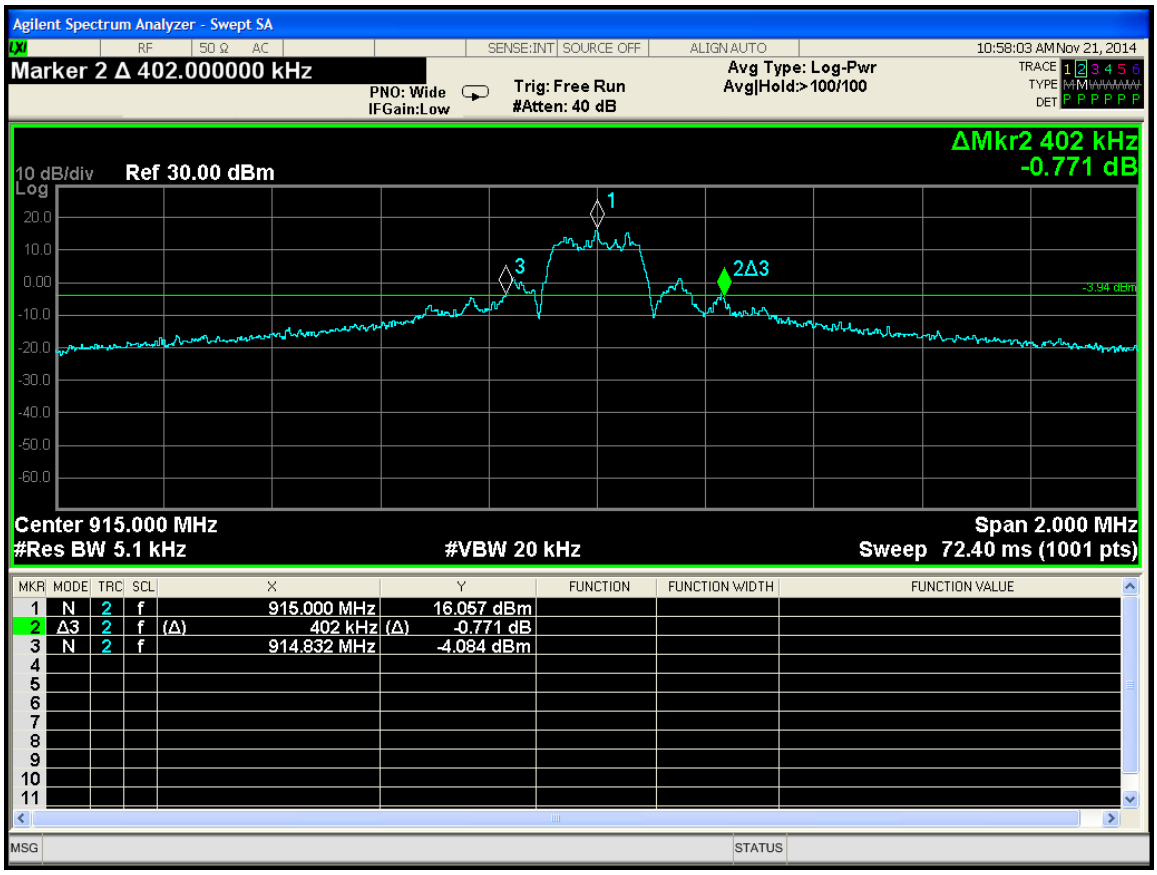

-20 dB Bandwidth Low Channel Battery Mode


-20 dB Bandwidth Mid Channel Battery Mode

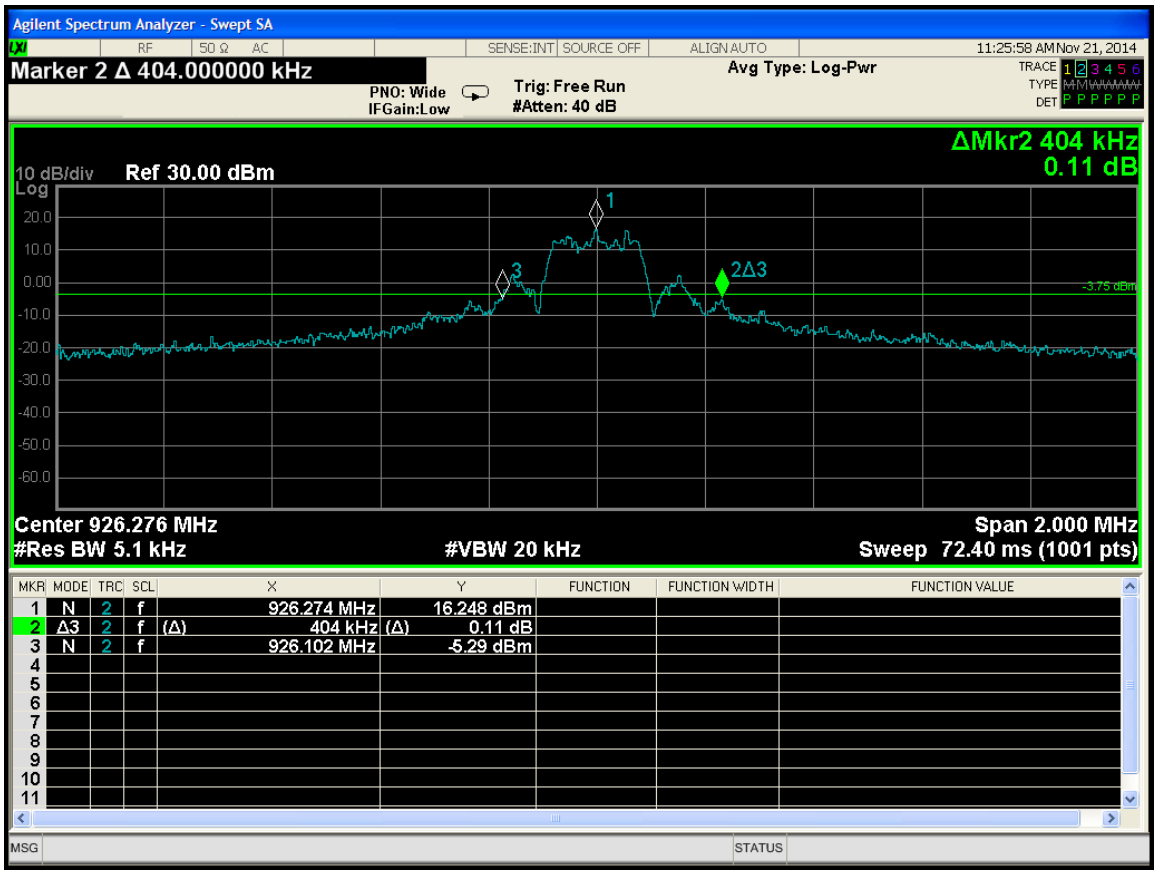

-20 dB Bandwidth High Channel Battery Mode




-20 dB Bandwidth Low Channel External AC Mode



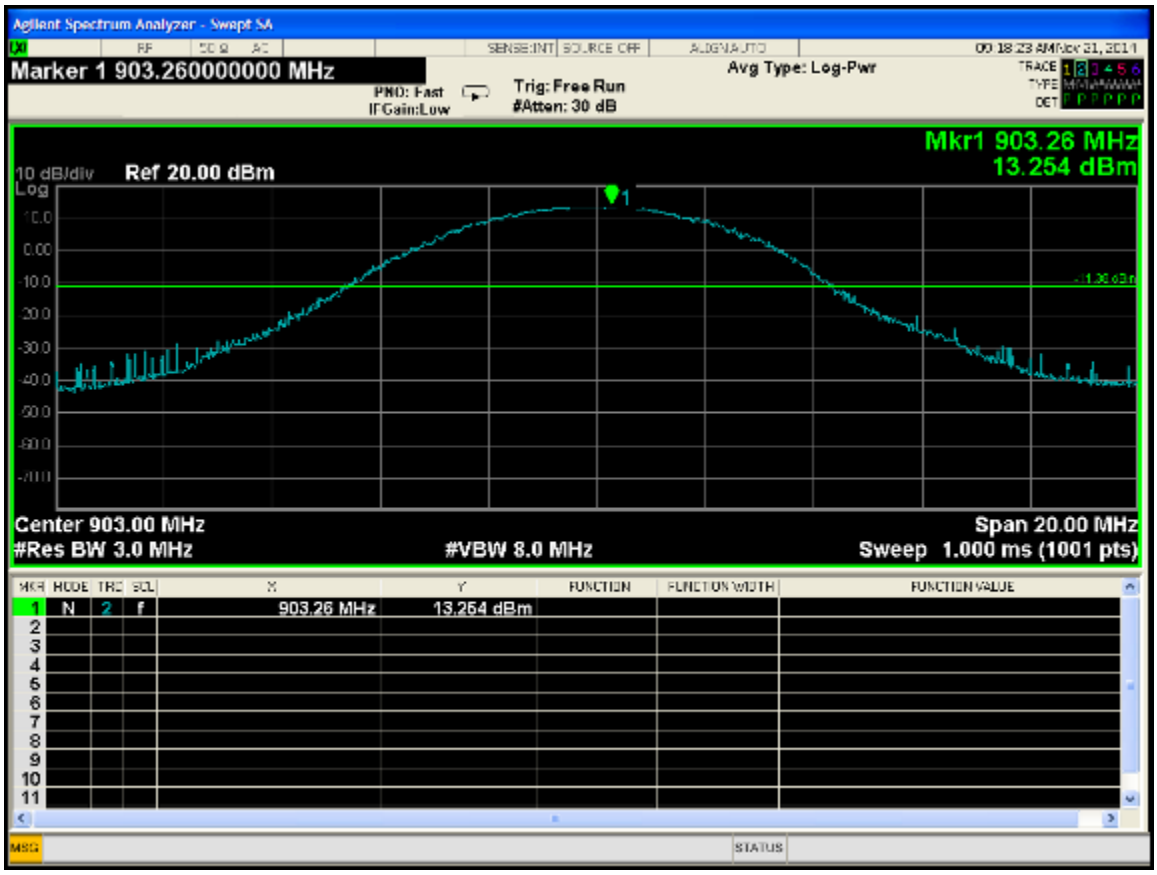

-20 dB Bandwidth Mid Channel External AC Mode



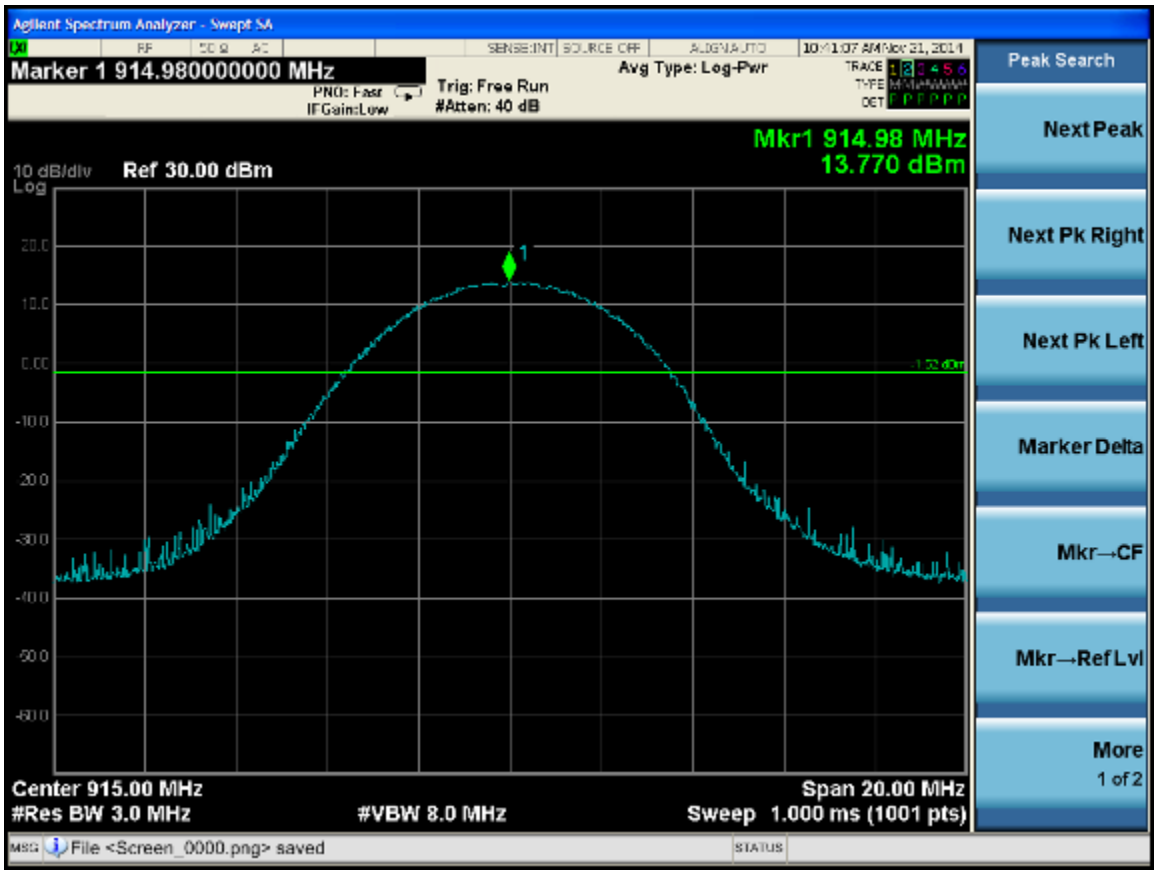

-20 dB Bandwidth High Channel External AC Mode

# *PEAK POWER*

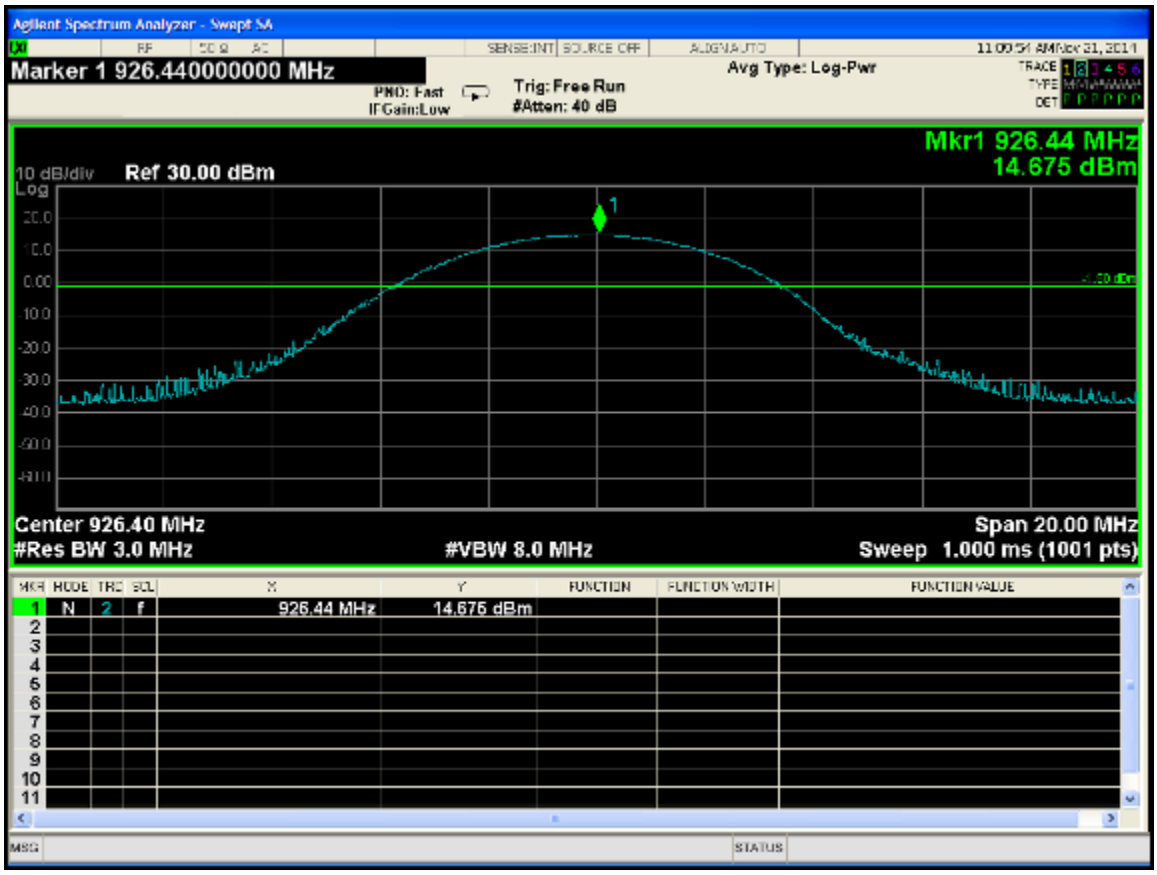
# *DATA SHEETS*



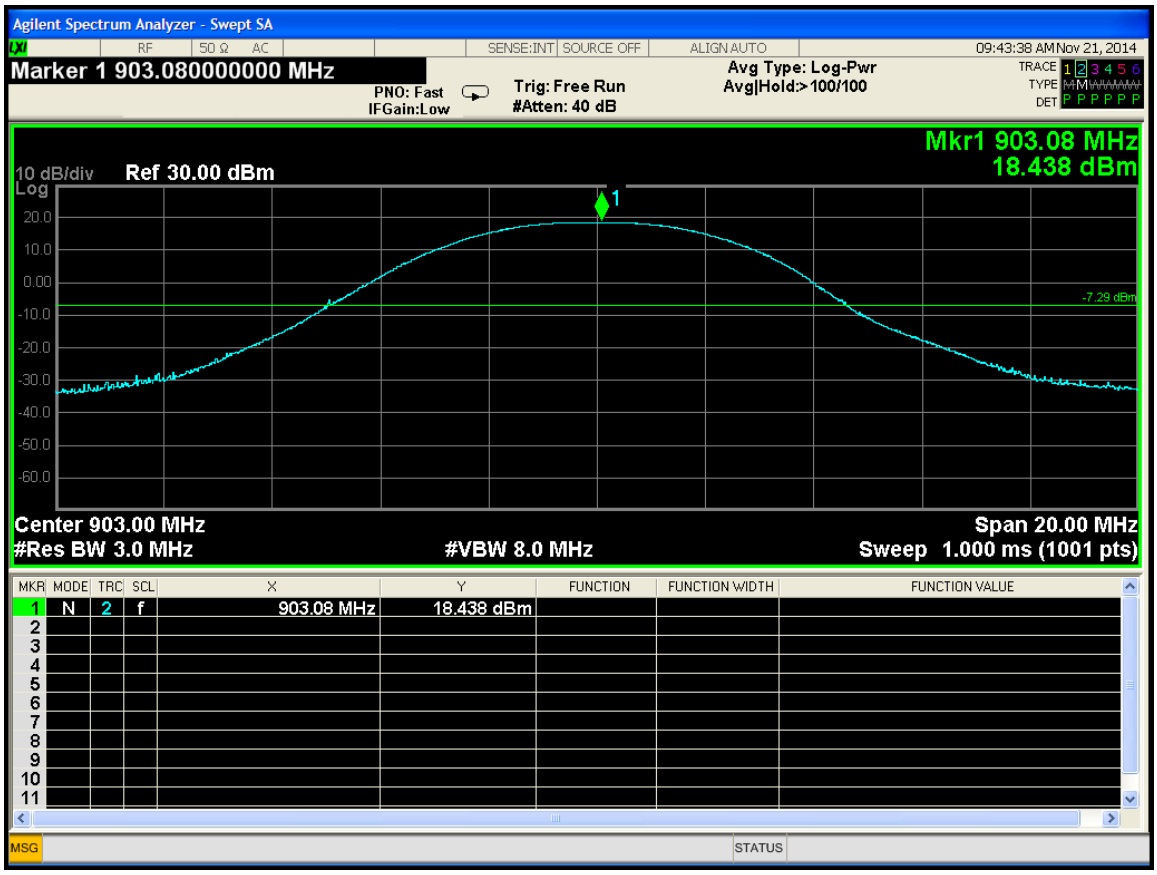

Peak Power Output Low Channel Battery Mode




Peak Power Output Mid Channel Battery Mode

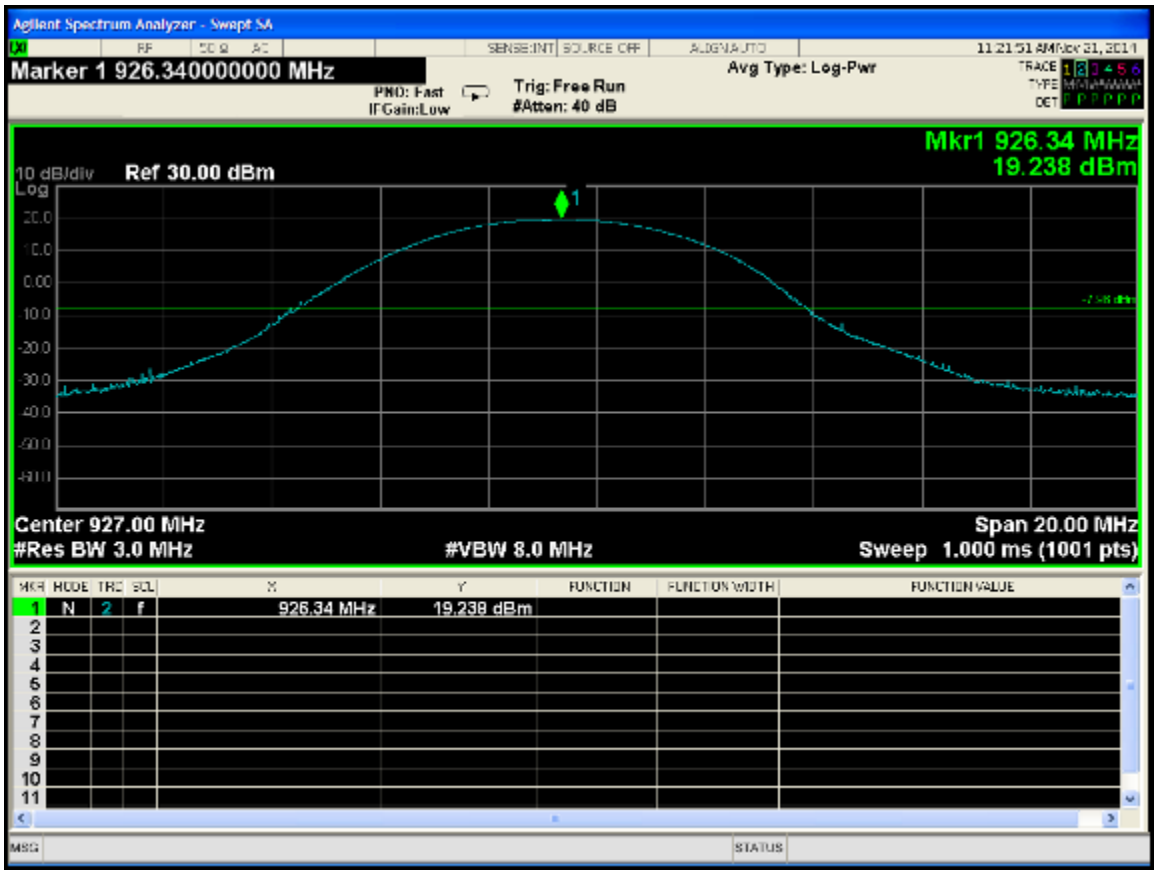



Peak Power Output High Channel Battery Mode




Peak Power Output Low Channel External AC Mode

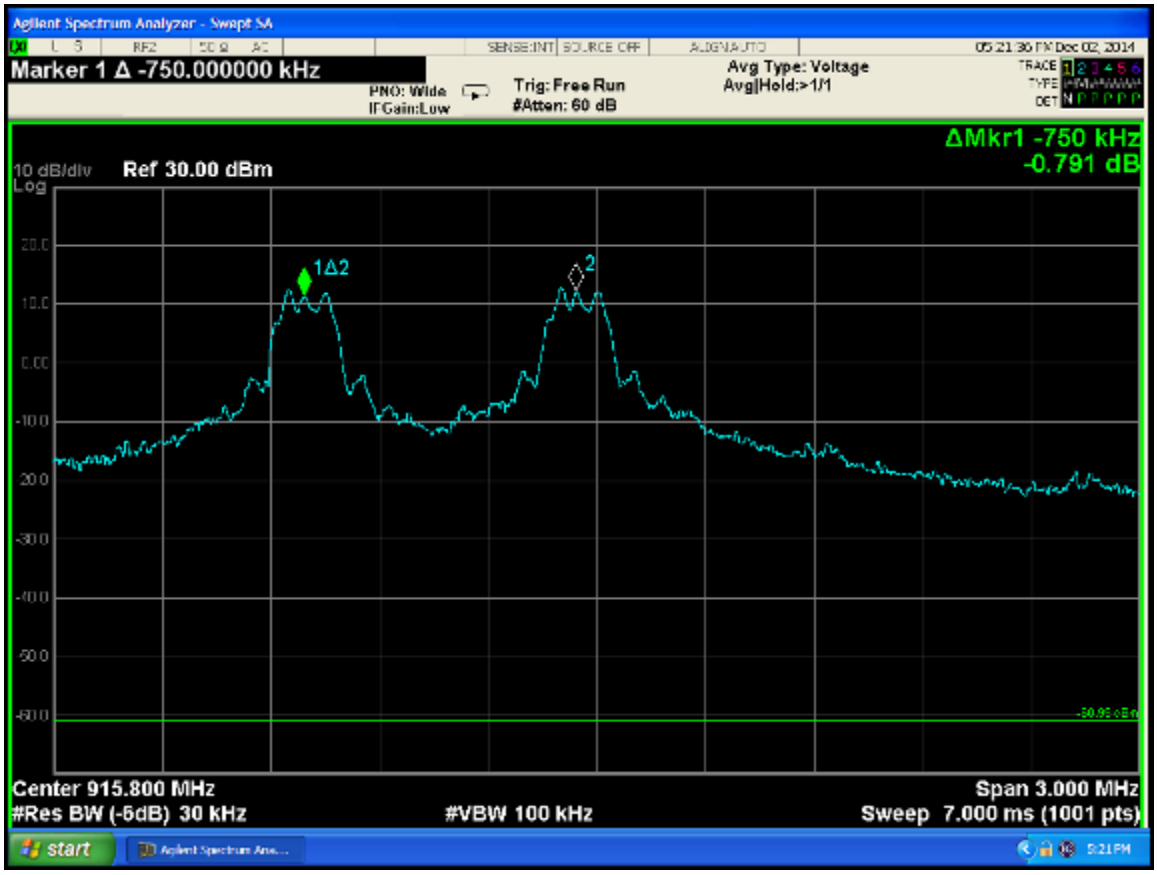

Peak Power Output Mid Channel External AC Mode




Peak Power Output High Channel External AC Mode

# *CHANNEL SEPARATION TEST*

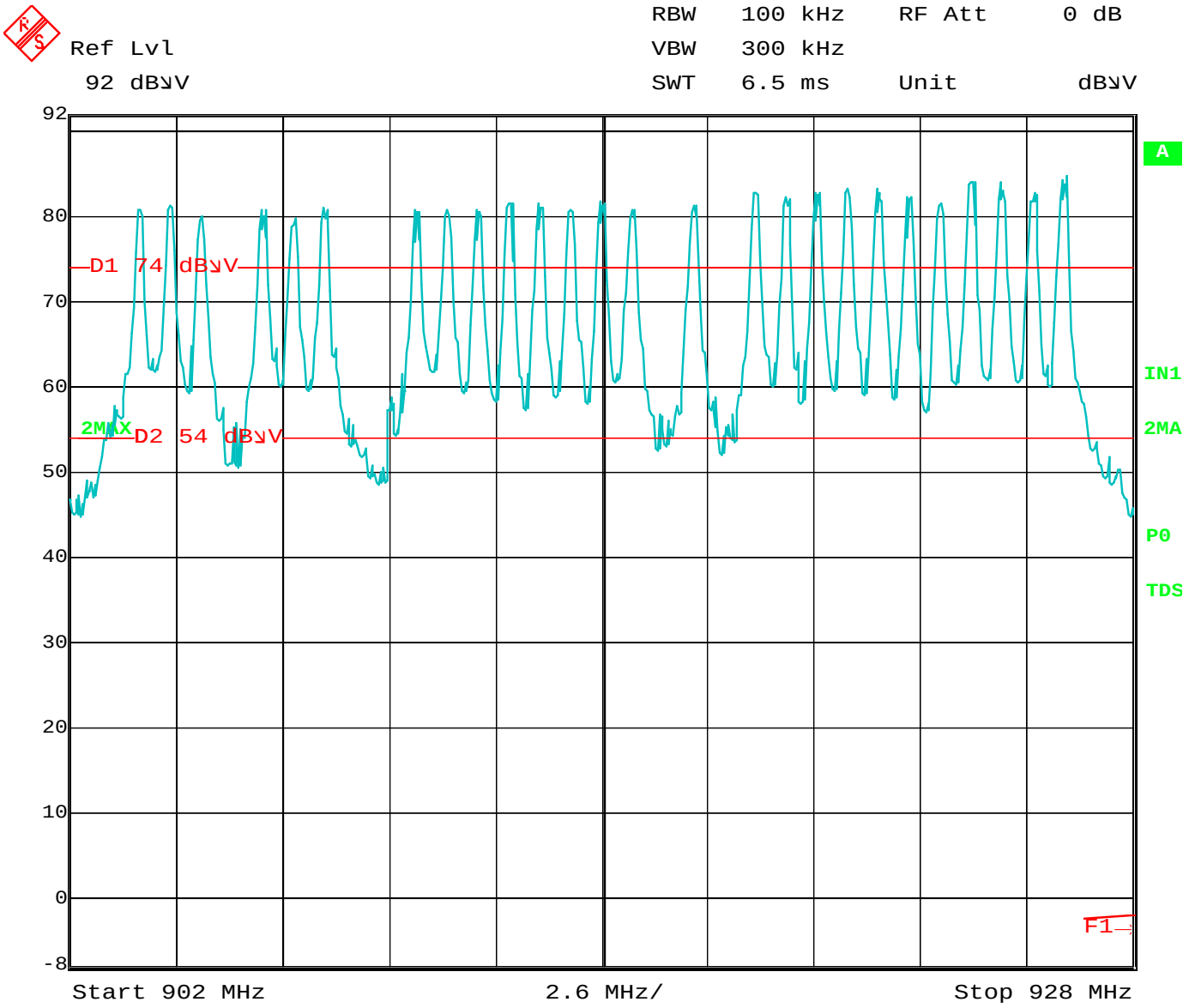
# *DATA SHEET*




Channel Separation Test

# *NUMBER OF FREQUENCIES*

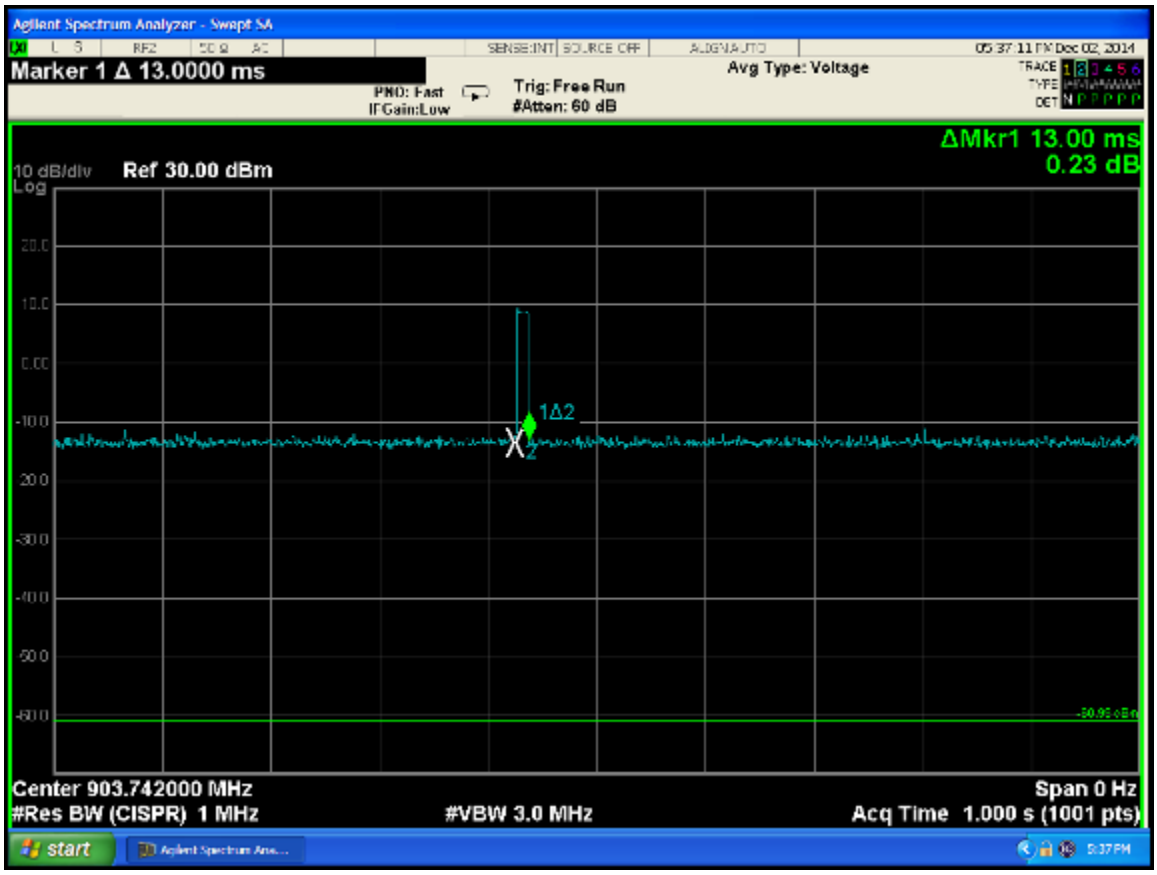
# *DATA SHEETS*




Number of Hopping Frequencies is 26

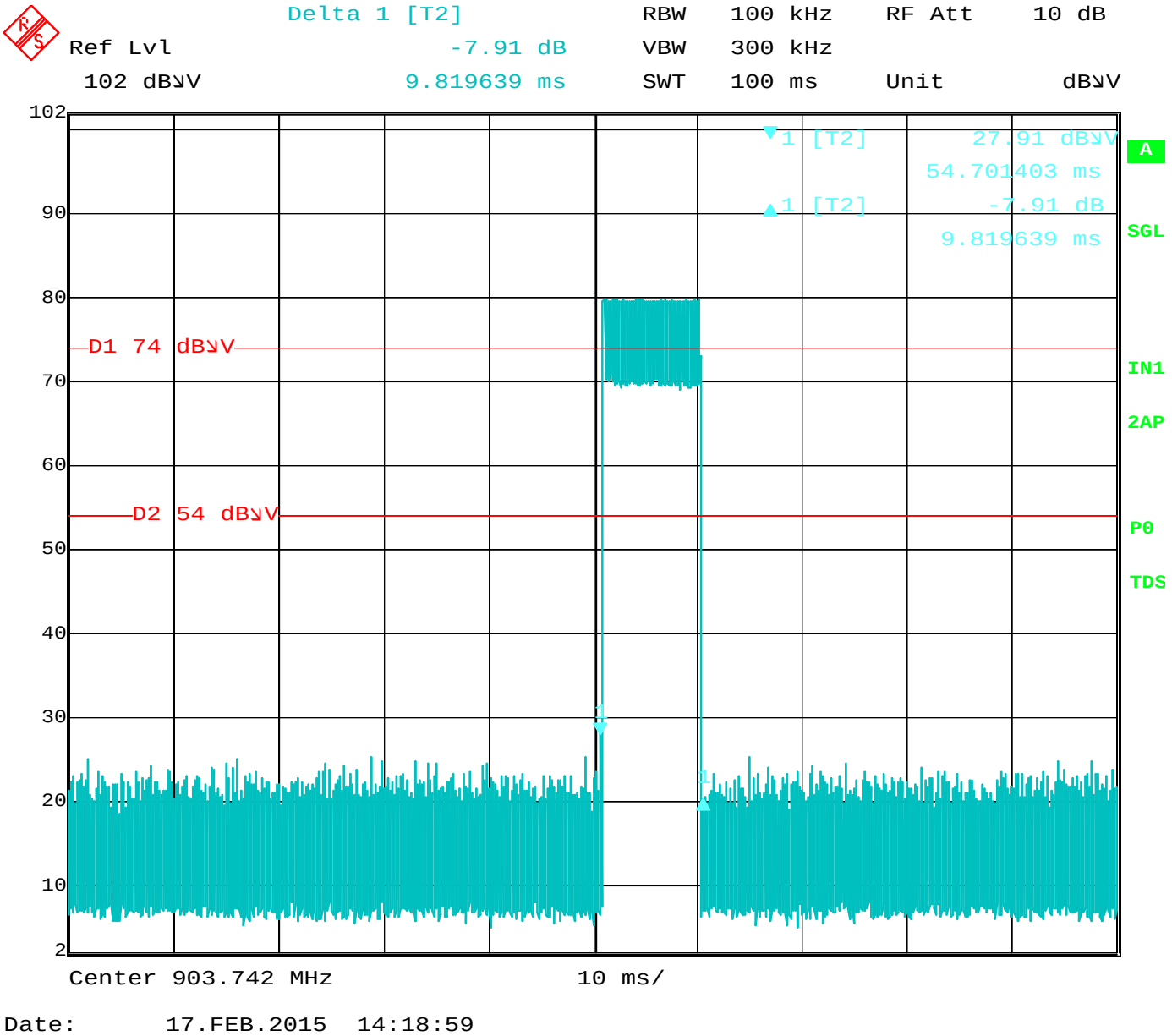
# *TIME OF OCCUPANCY*

# *DATA SHEETS*




Number of Pulses over 1 Second

Number of Pulses over 10 Seconds is 10.



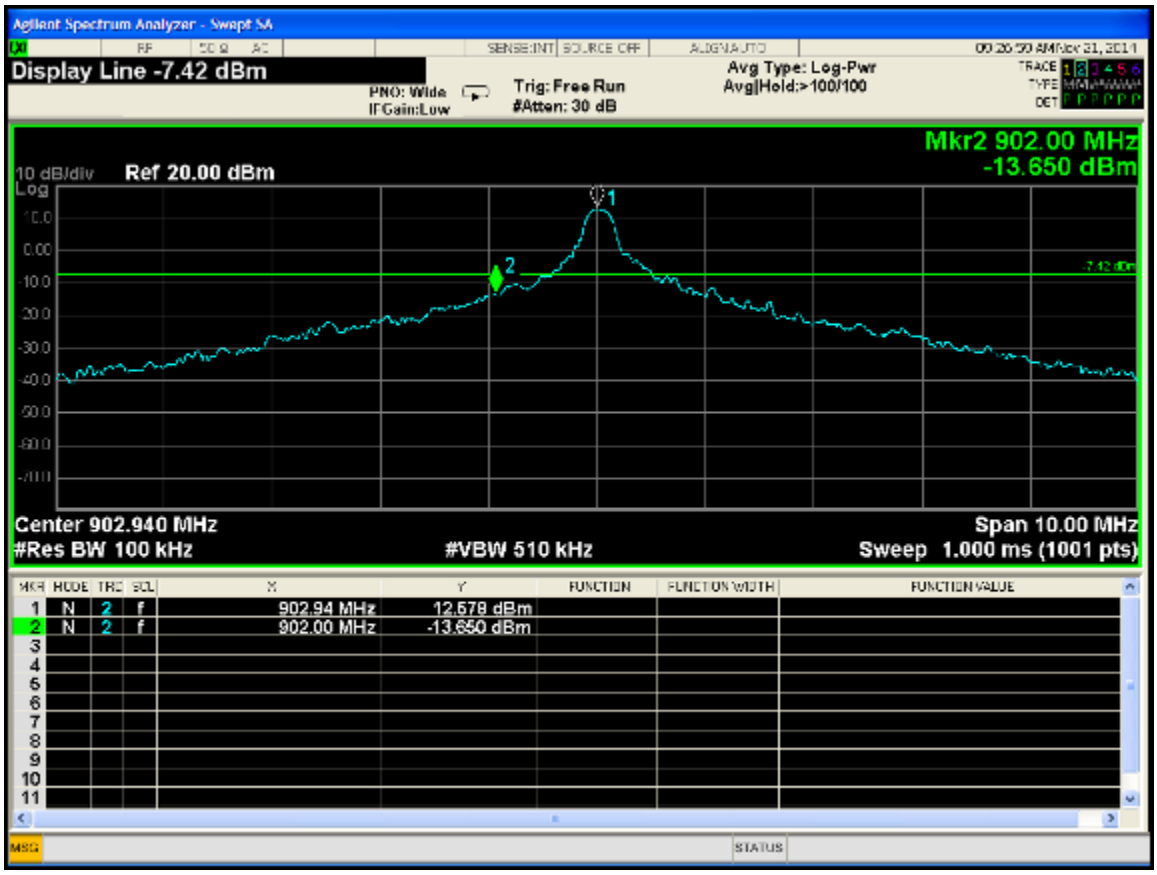

Time of One Pulse

Time of Occupancy = 9.819639 ms*10 = 98.19639 ms

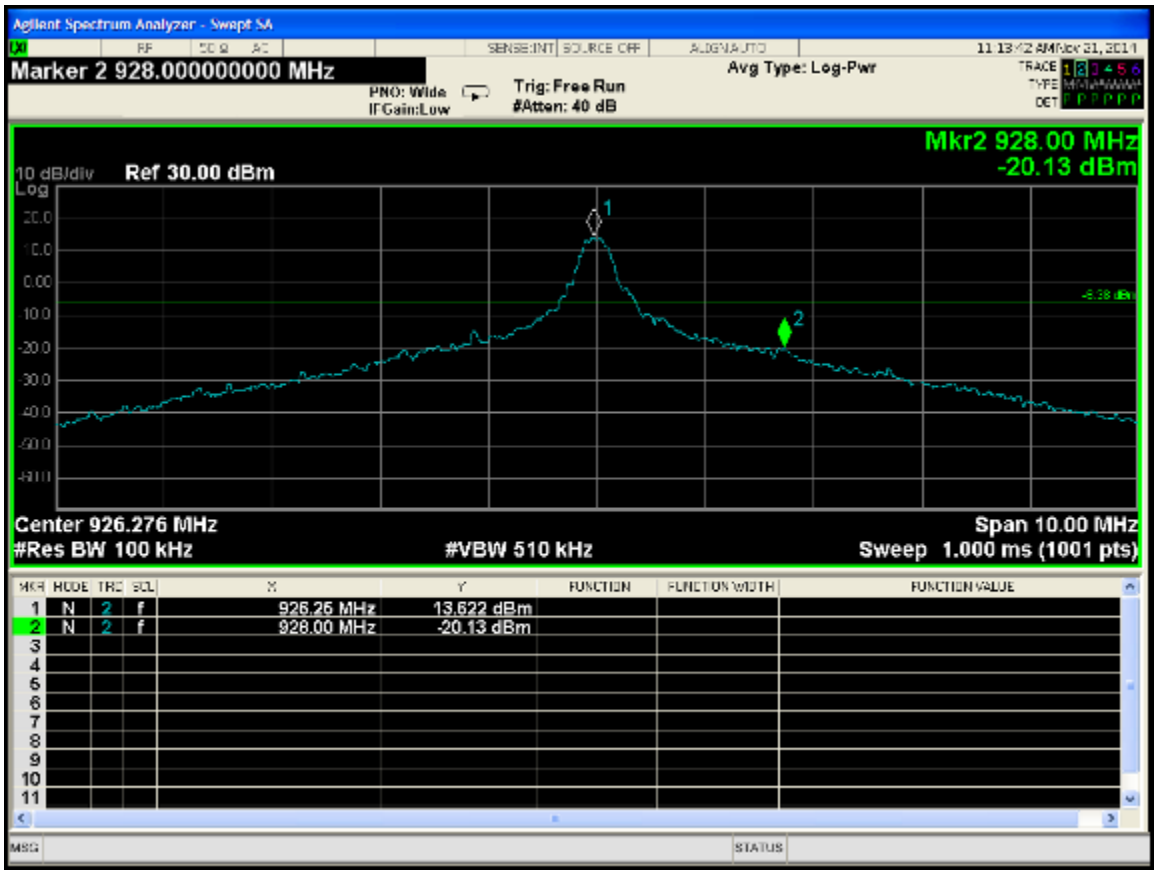
Limit = 400 ms

# *BAND EDGES*

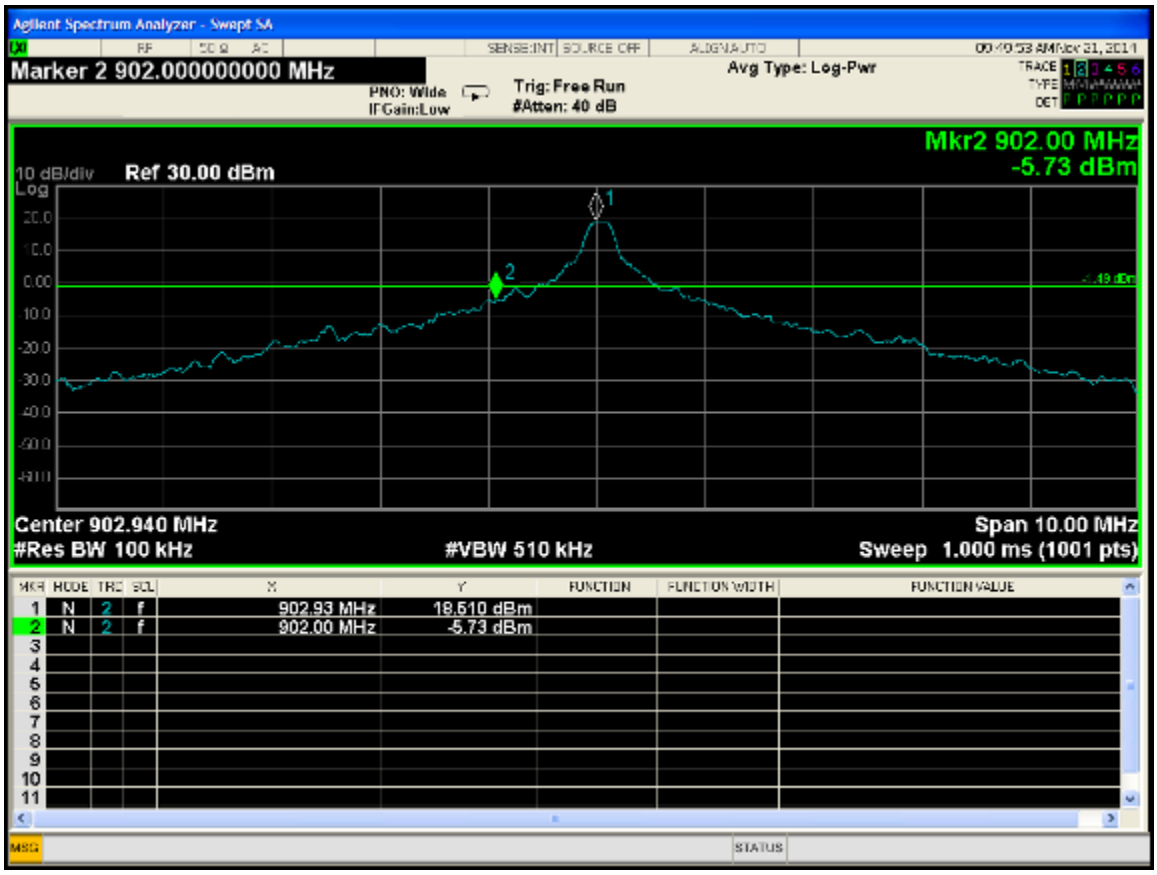
# *DATA SHEETS*



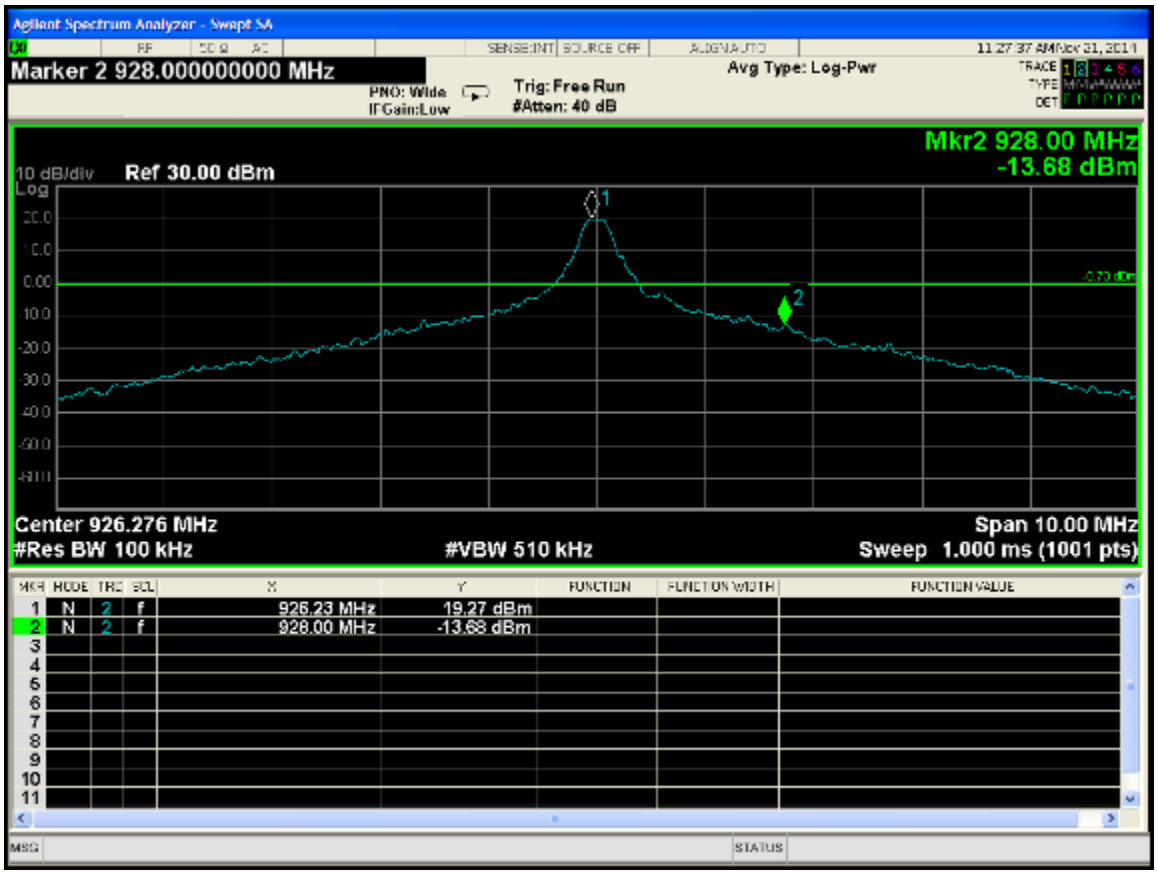

Band Edges Low Channel Battery Mode




Band Edges High Channel Battery Mode



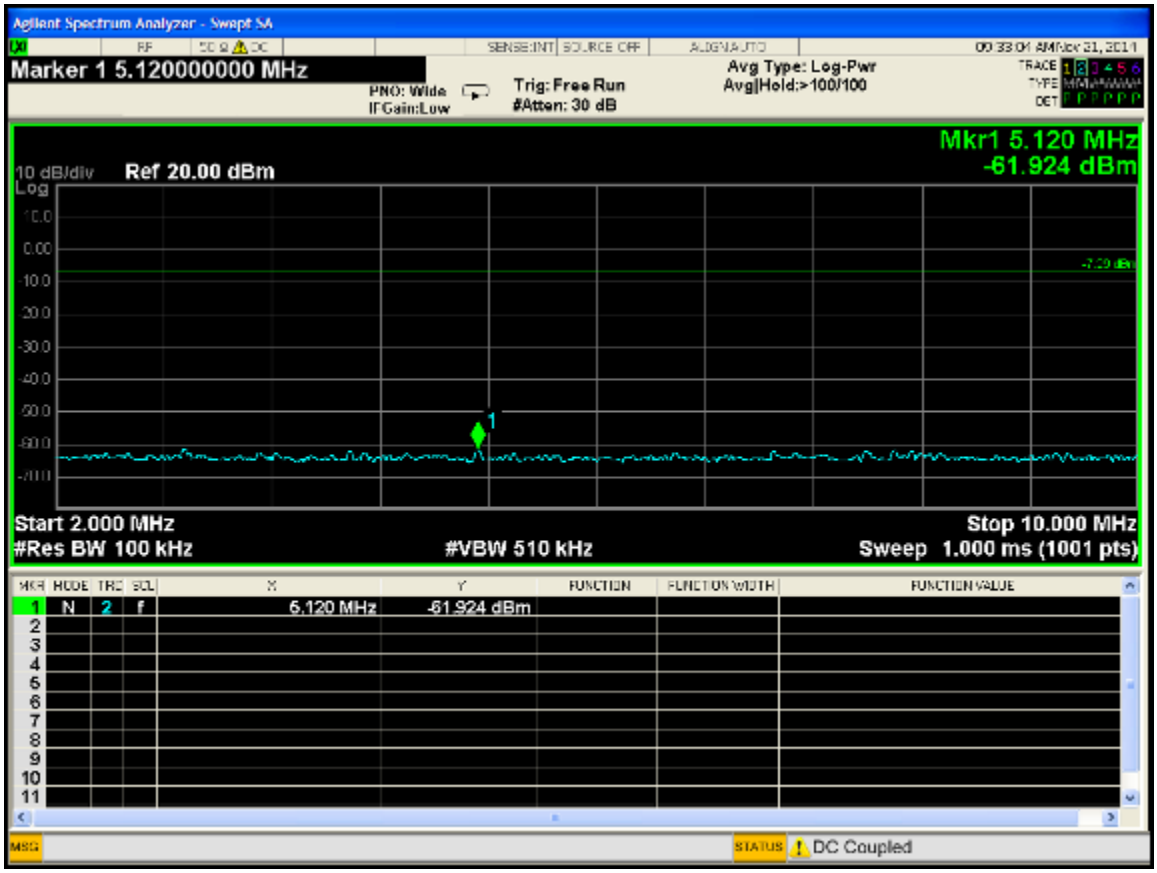

Band Edges Low Channel External AC Mode



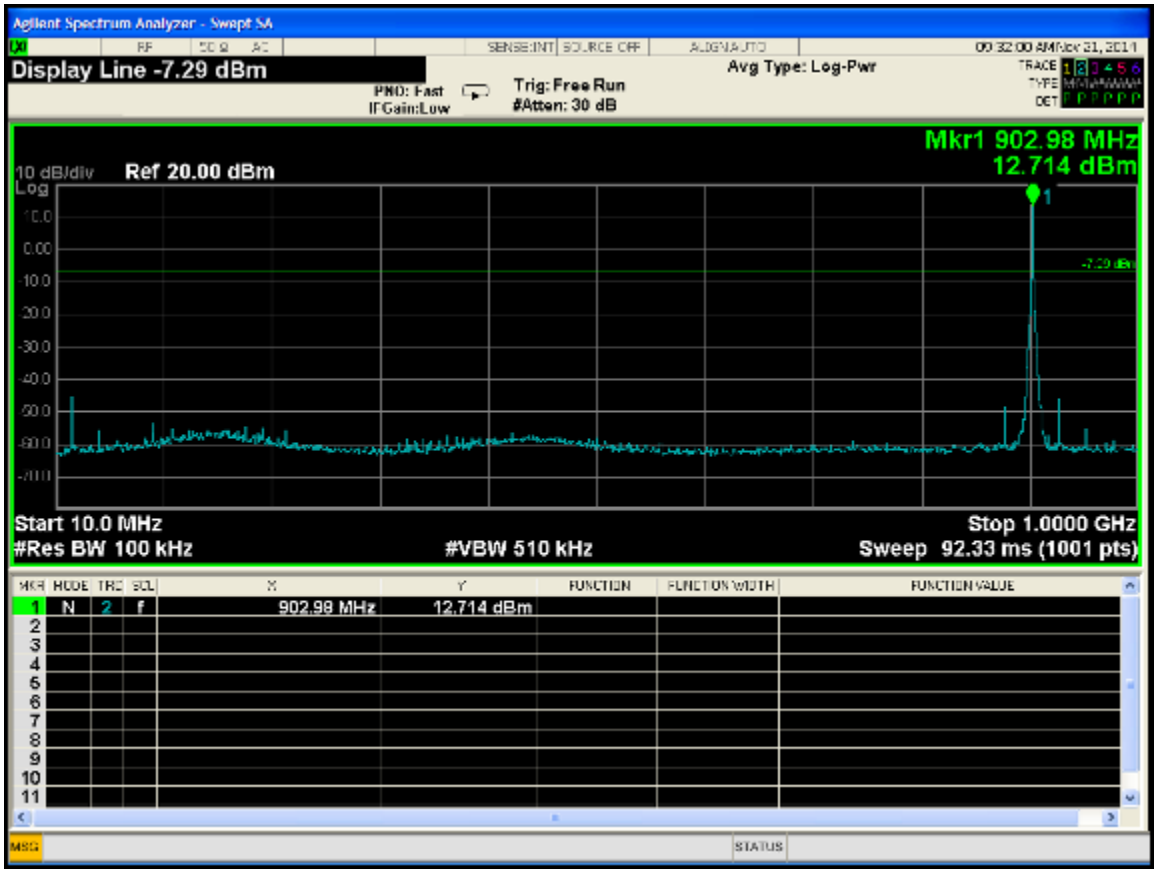

Band Edges High Channel External AC Mode

# *RF ANTENNA CONDUCTED*

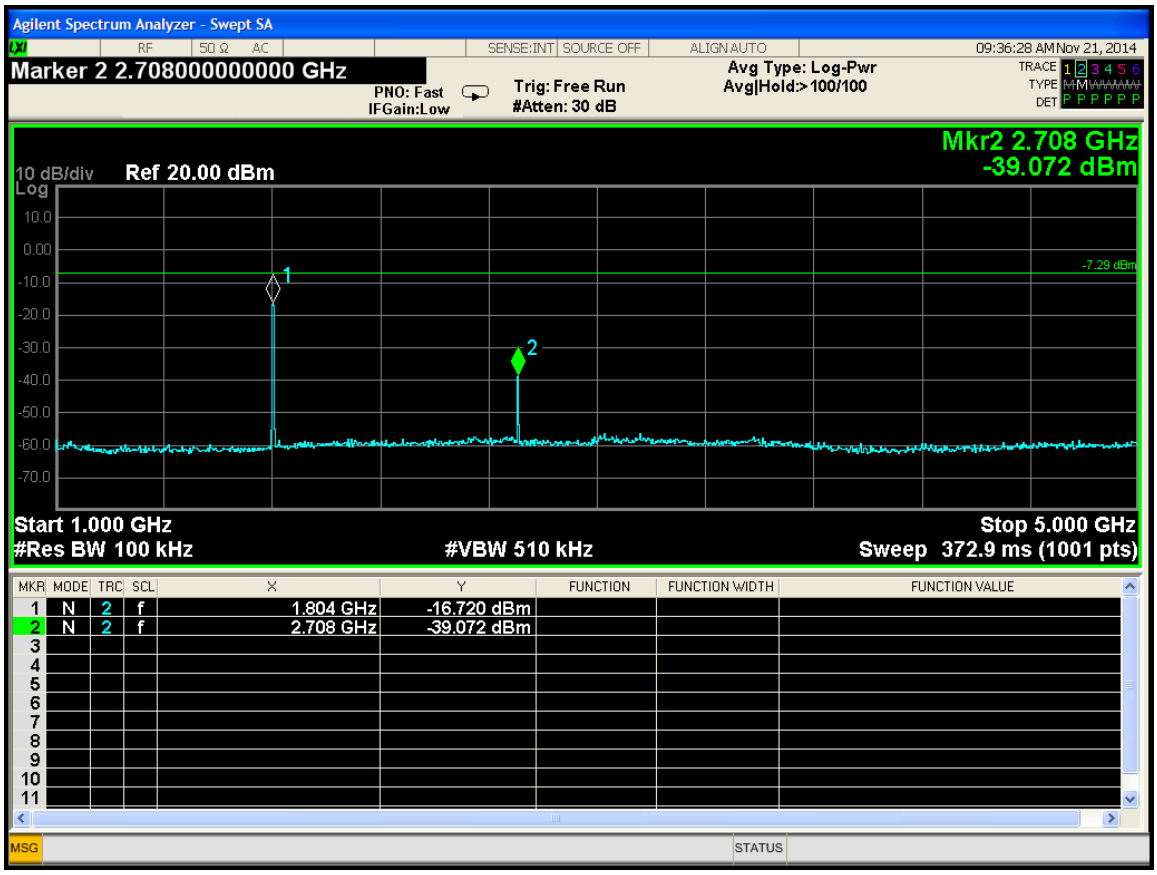
# *DATA SHEETS*



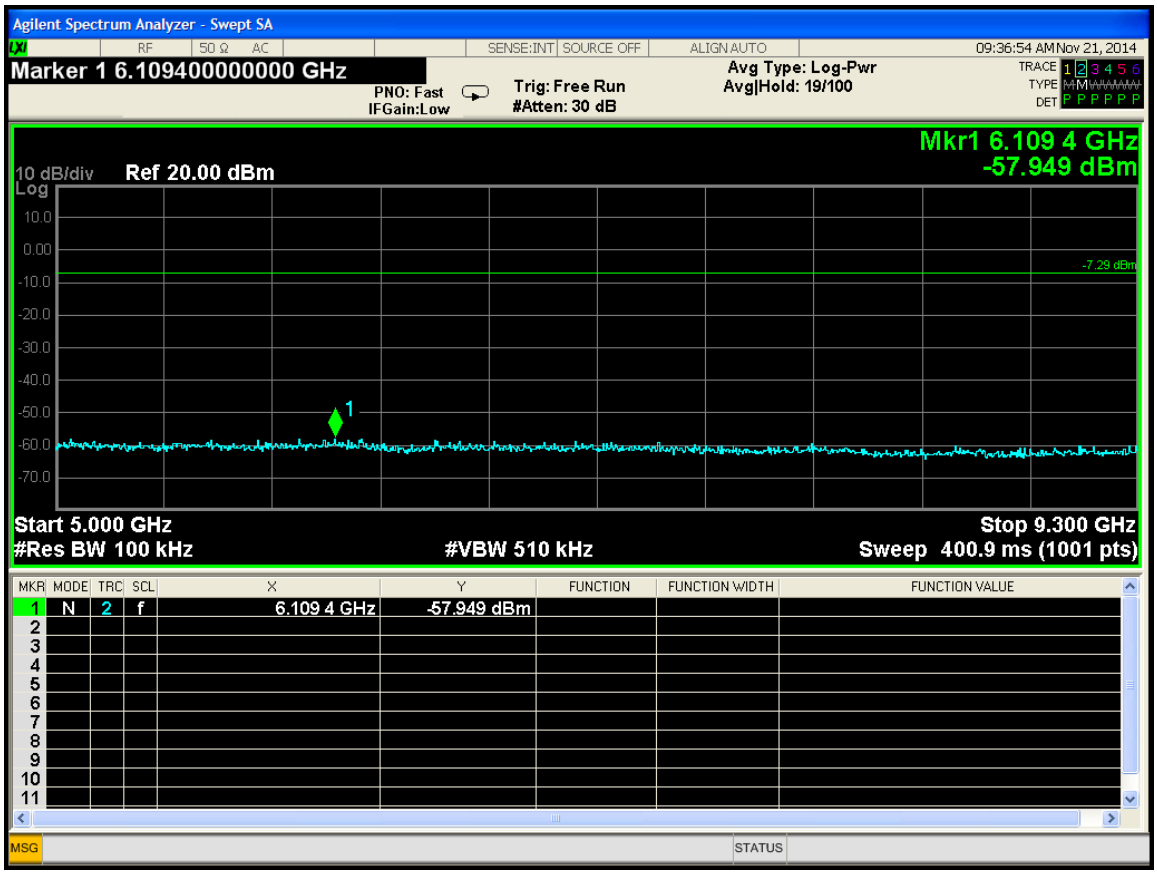

RF Antenna Conducted 2 MHz to 10 MHz Low Channel Battery Mode



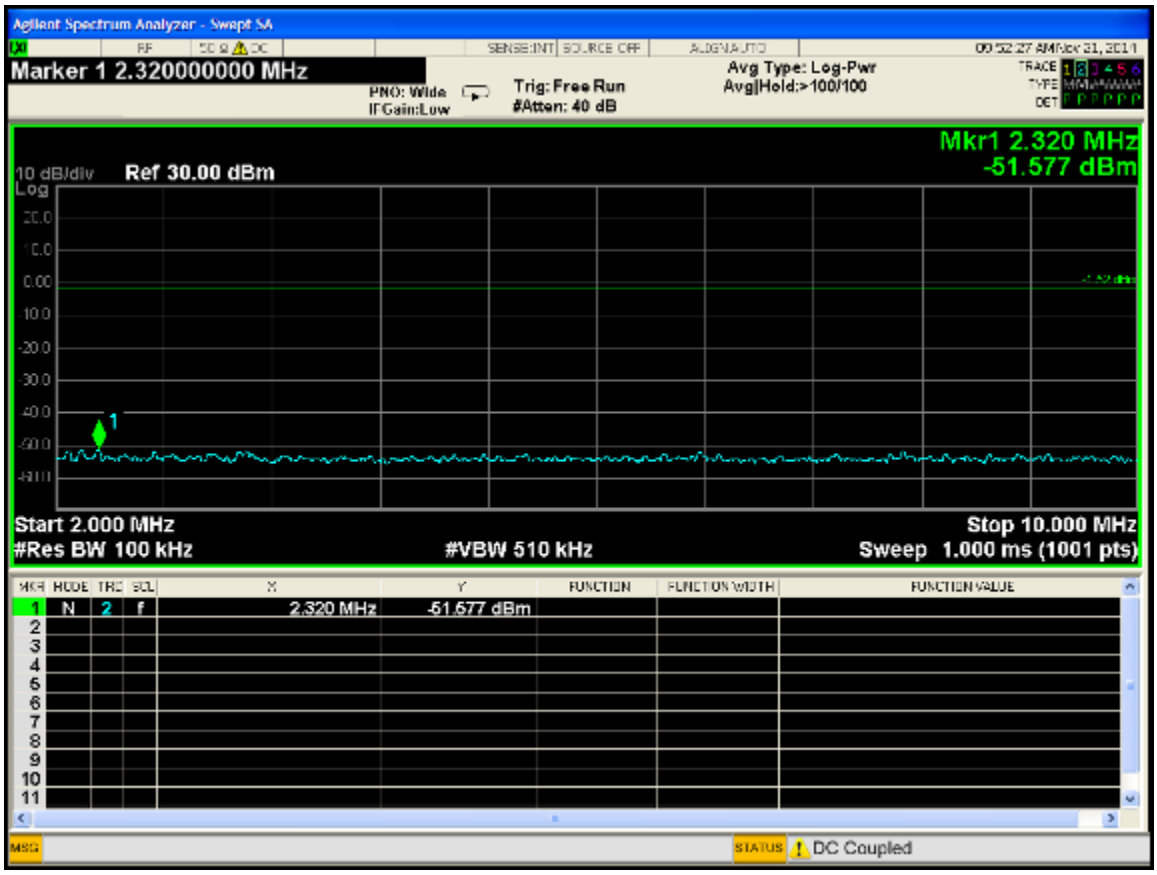

RF Antenna Conducted 10 MHz to 1 GHz Low Channel Battery Mode



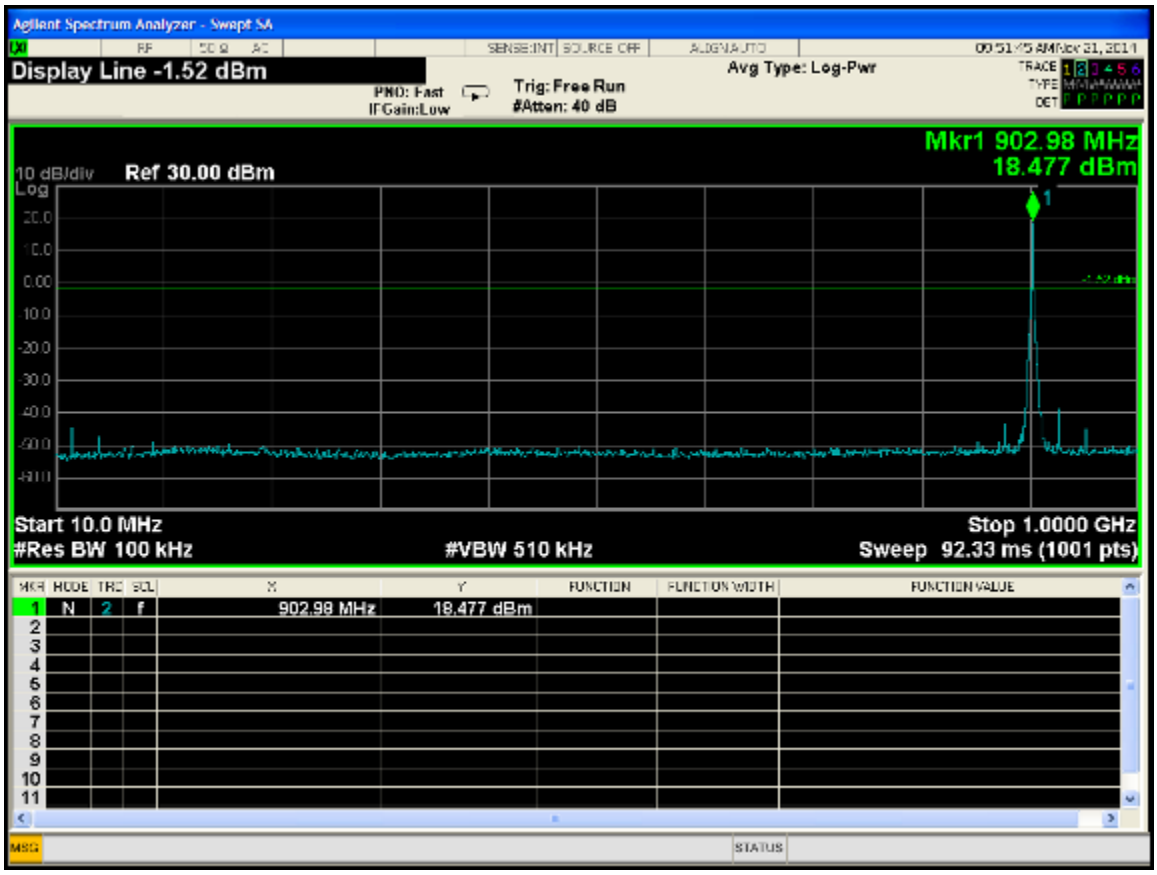

RF Antenna Conducted 1 GHz to 5 GHz Low Channel Battery Mode



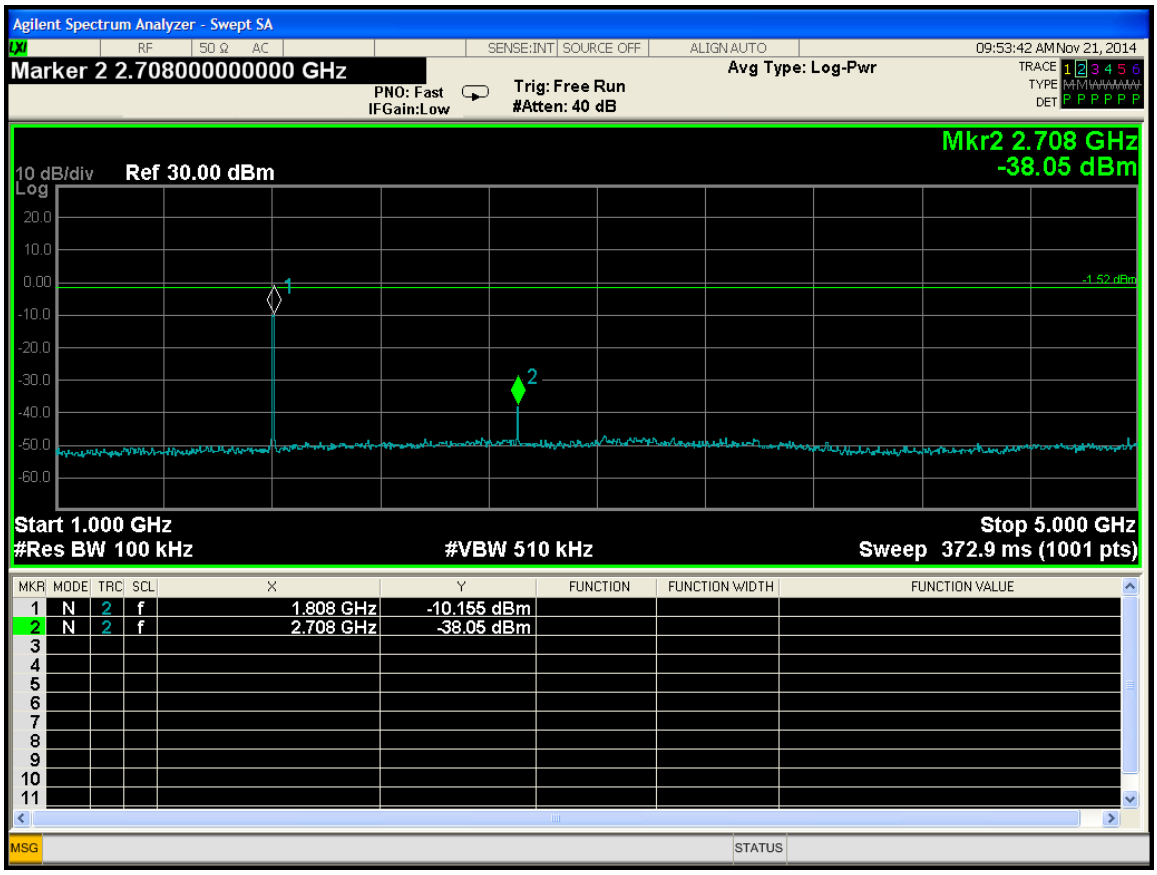

RF Antenna Conducted 5 GHz to 9.3 GHz Low Channel Battery Mode



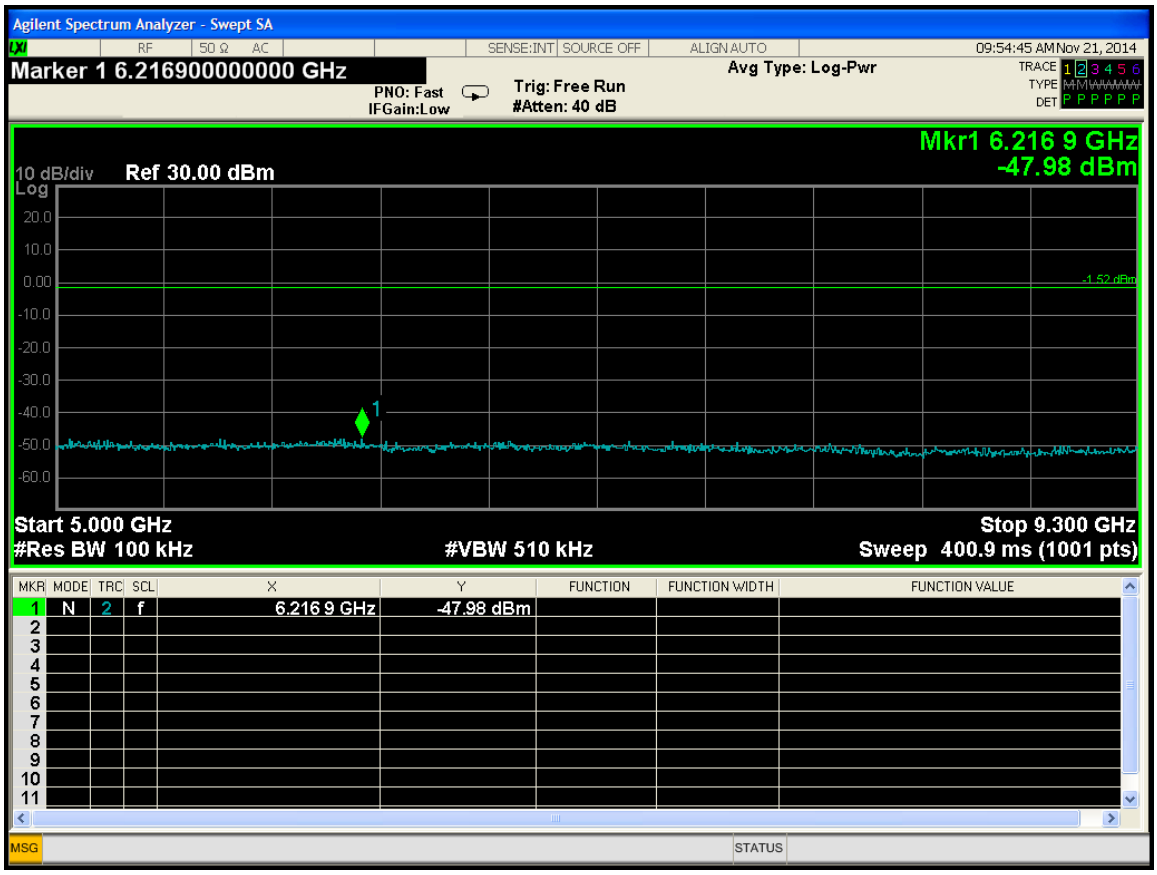

RF Antenna Conducted 2 MHz to 10 MHz Low Channel External AC Mode



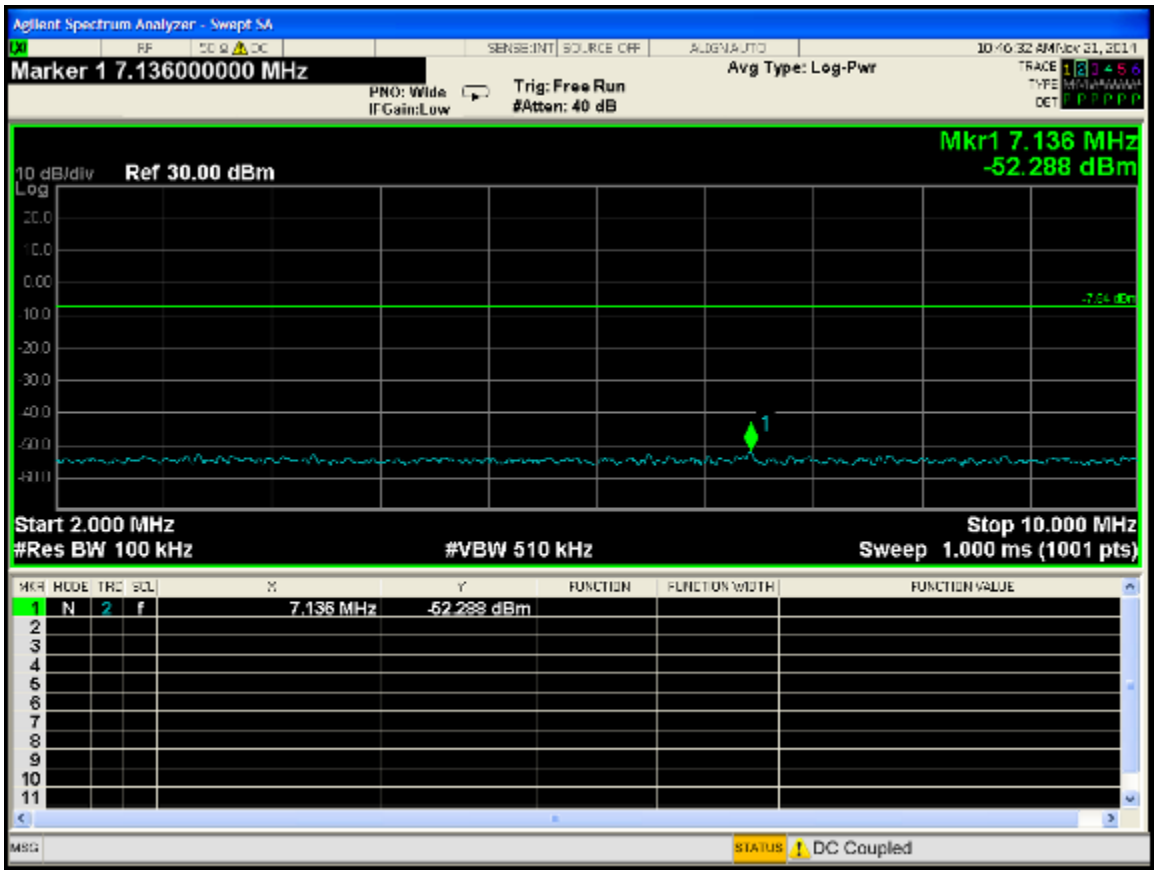

RF Antenna Conducted 10 MHz to 1 GHz Low Channel External AC Mode



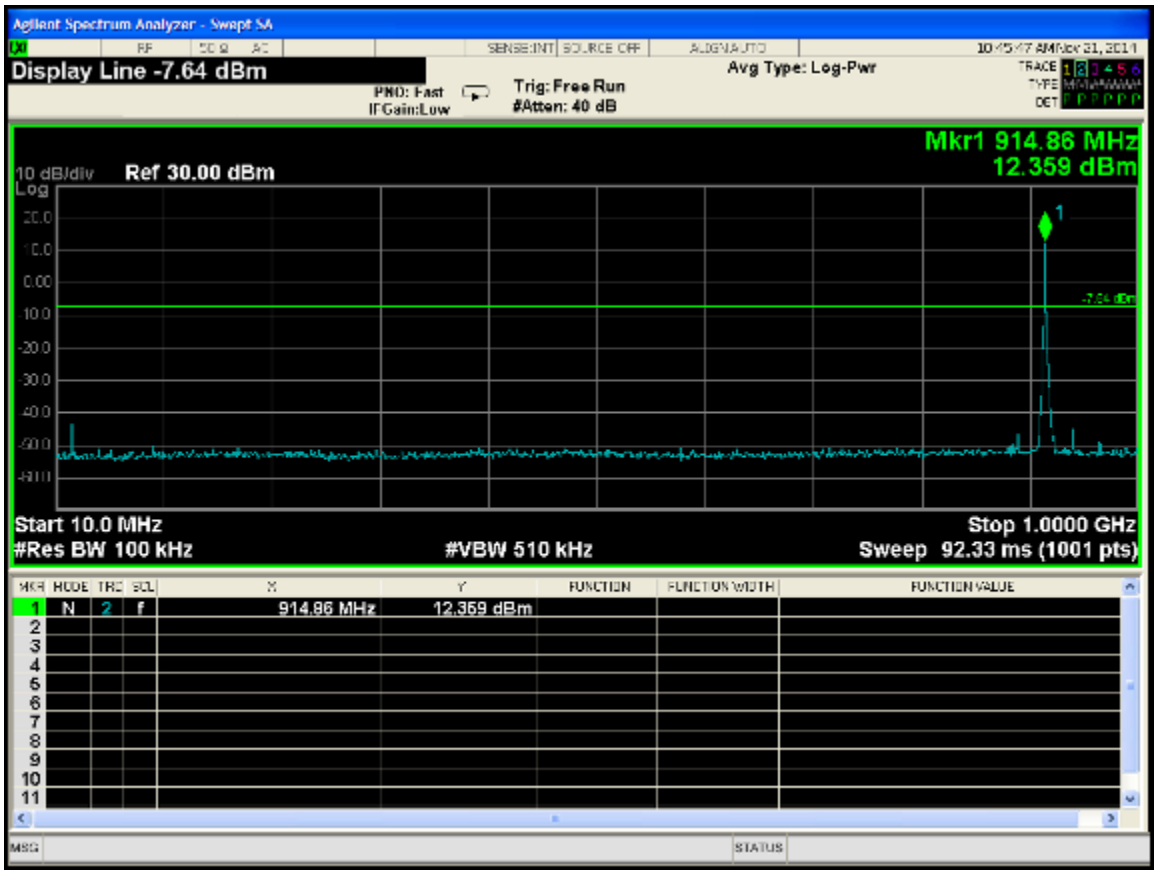

RF Antenna Conducted 1 GHz to 5 GHz Low Channel External AC Mode



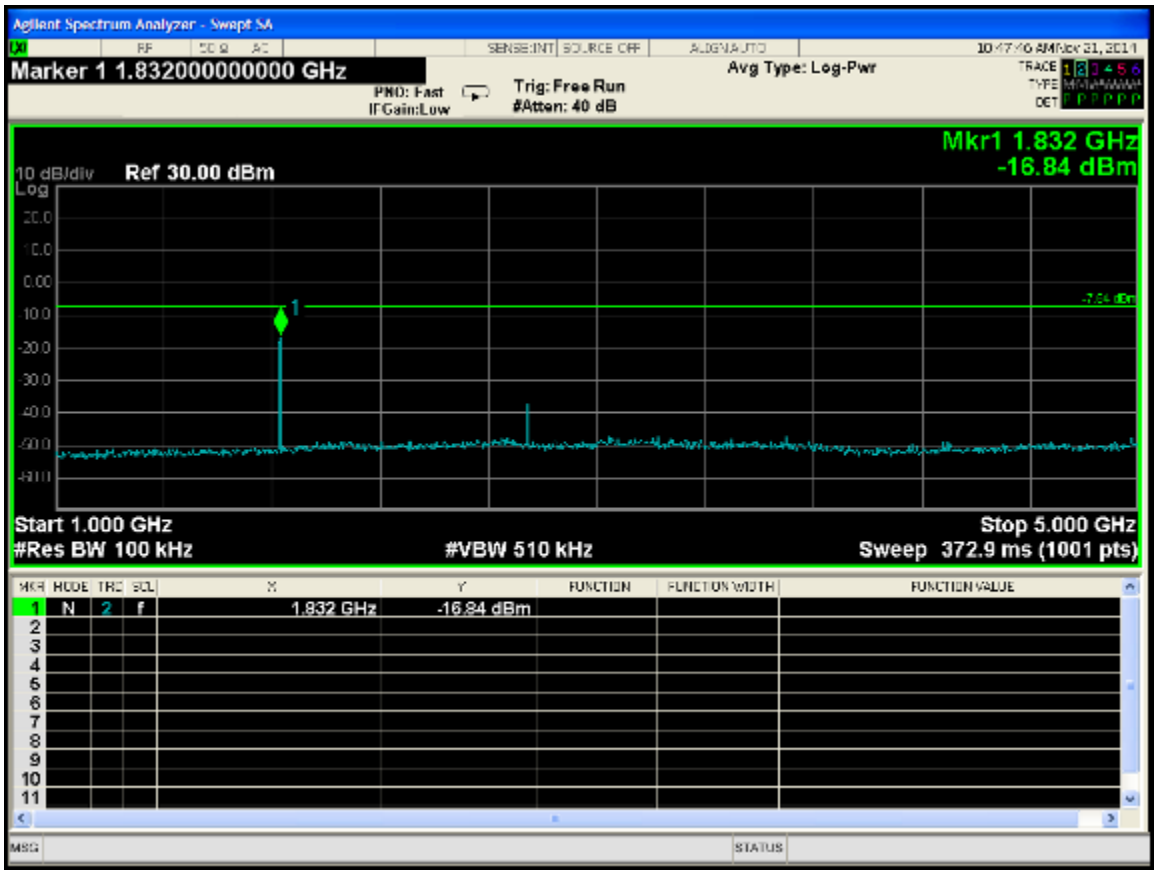

RF Antenna Conducted 5 GHz to 9.3 GHz Low Channel External AC Mode



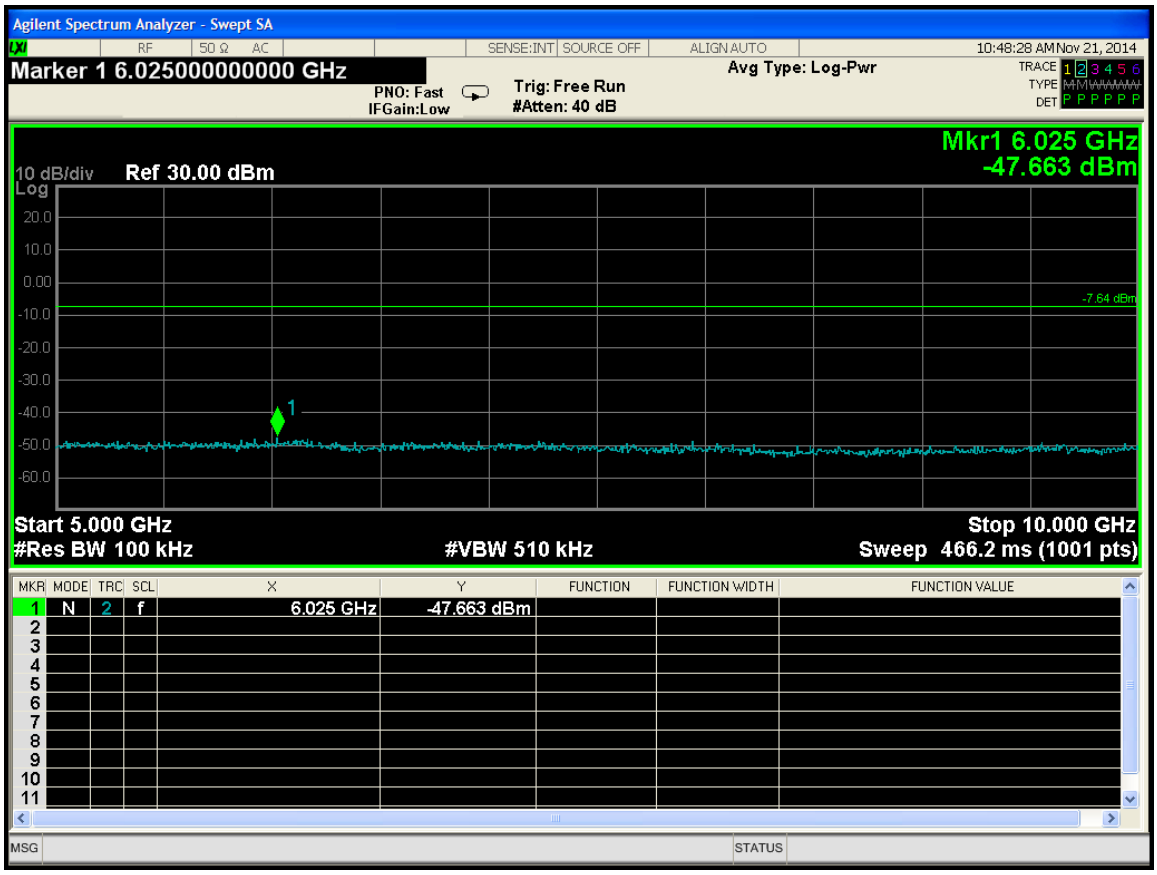

RF Antenna Conducted 2 MHz to 10 MHz Mid Channel Battery Mode



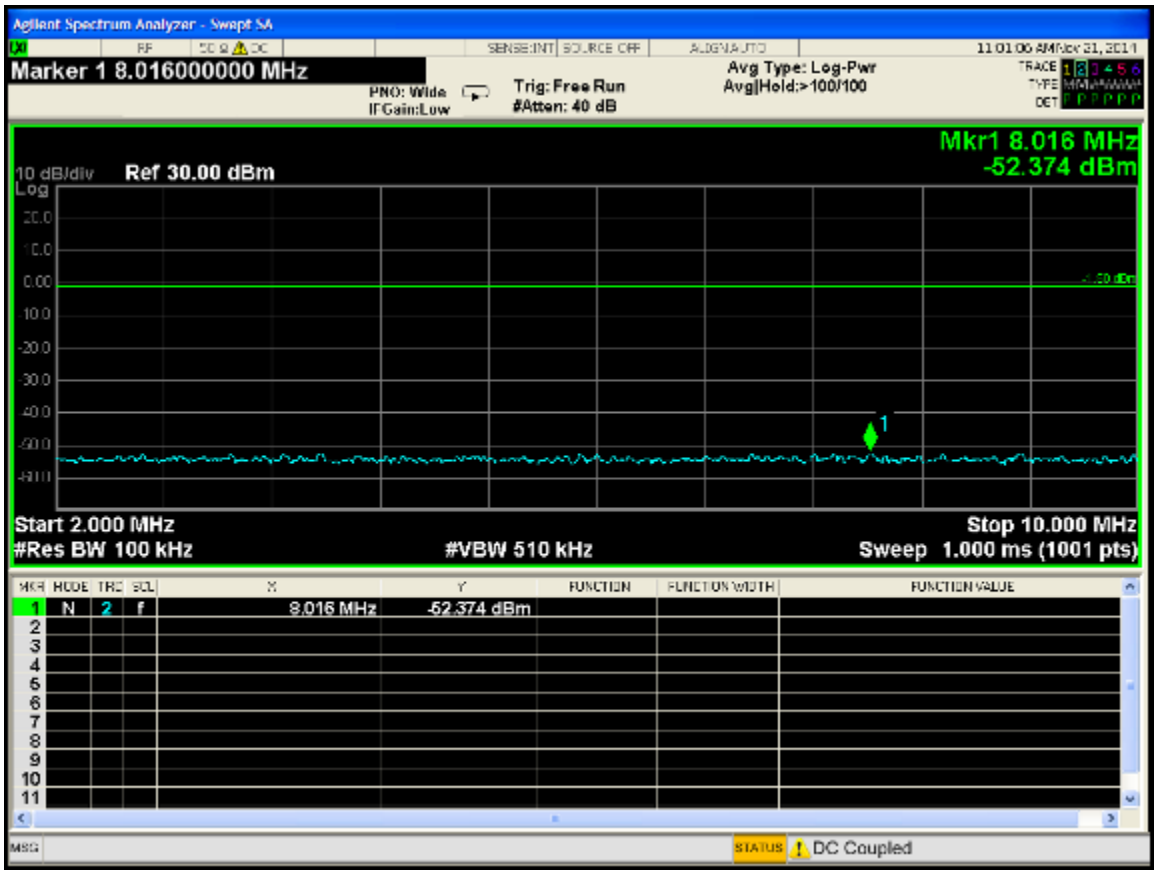

RF Antenna Conducted 10 MHz to 1 GHz Mid Channel Battery Mode



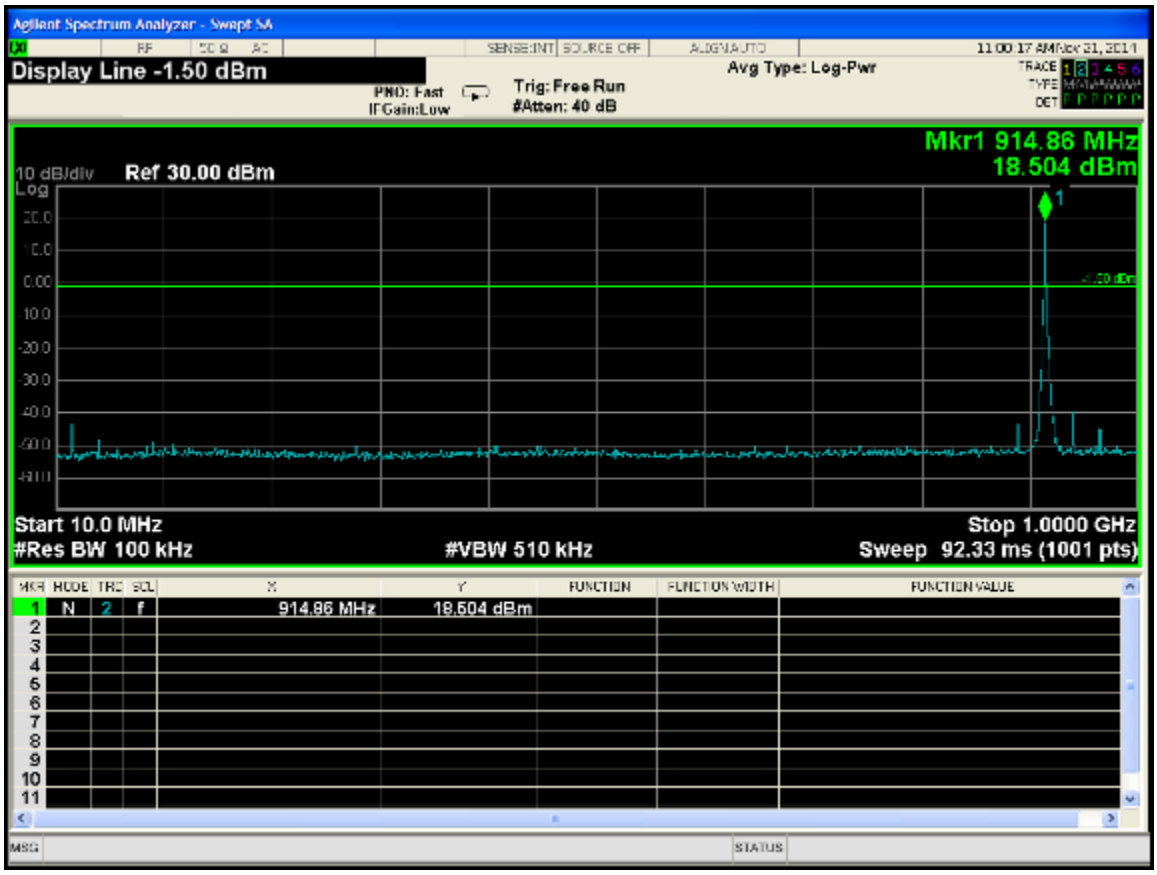

RF Antenna Conducted 1 GHz to 5 GHz Mid Channel Battery Mode



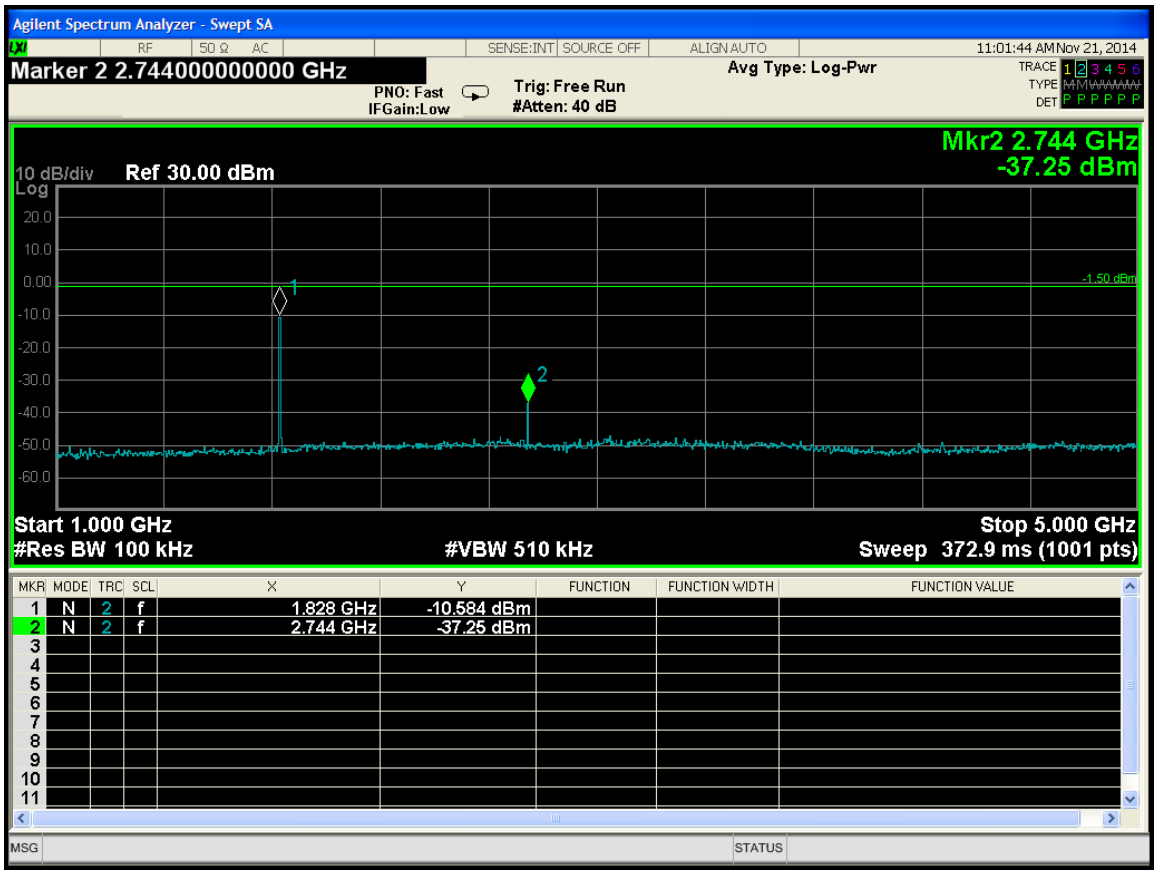

RF Antenna Conducted 5 GHz to 10 GHz Mid Channel Battery Mode



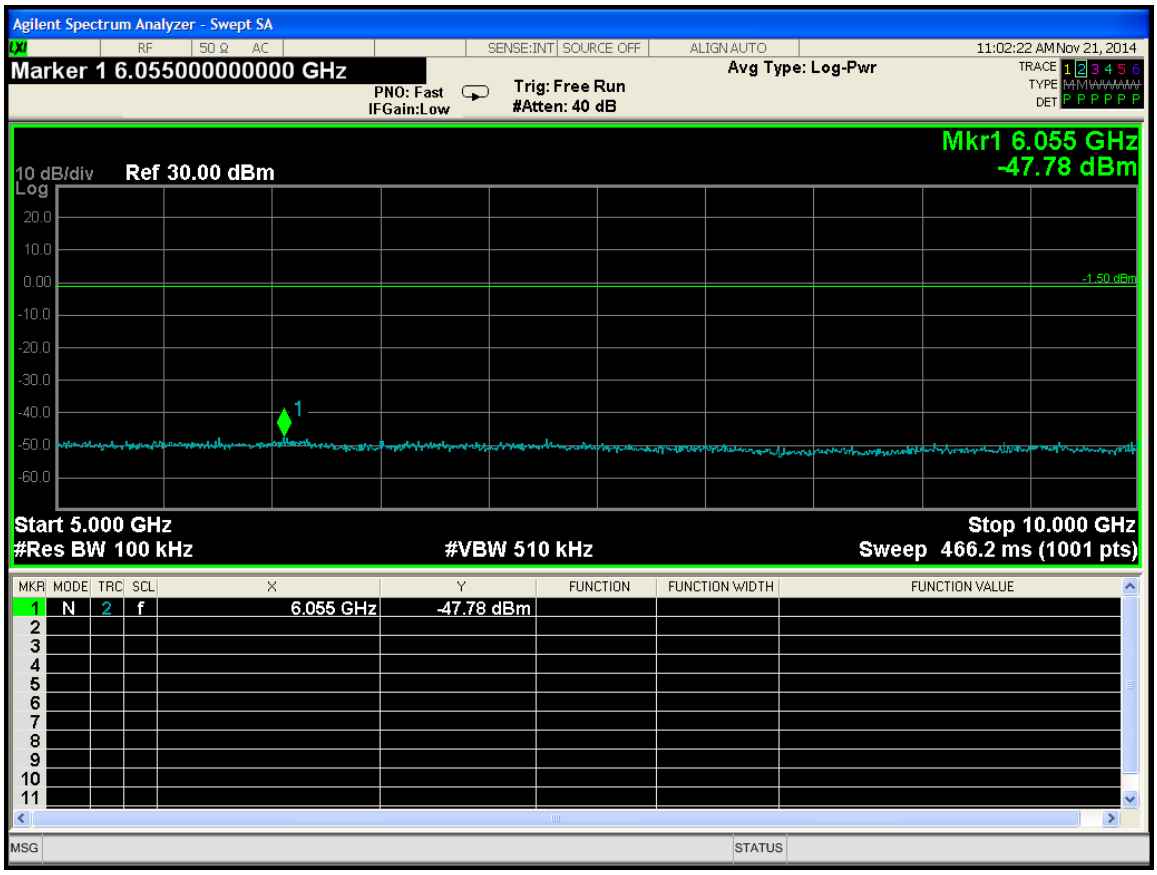

RF Antenna Conducted 2 MHz to 10 MHz Mid Channel External AC Mode



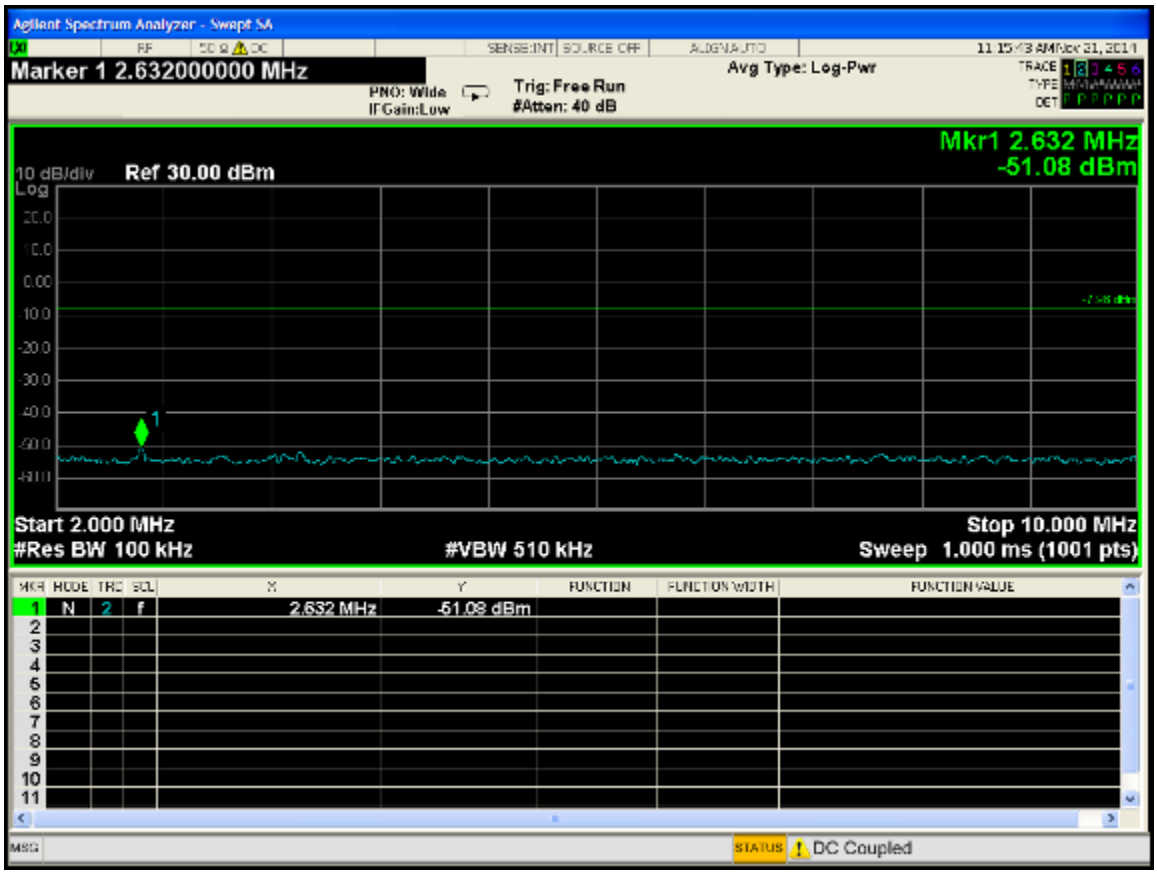

RF Antenna Conducted 10 MHz to 1 GHz Mid Channel External AC Mode



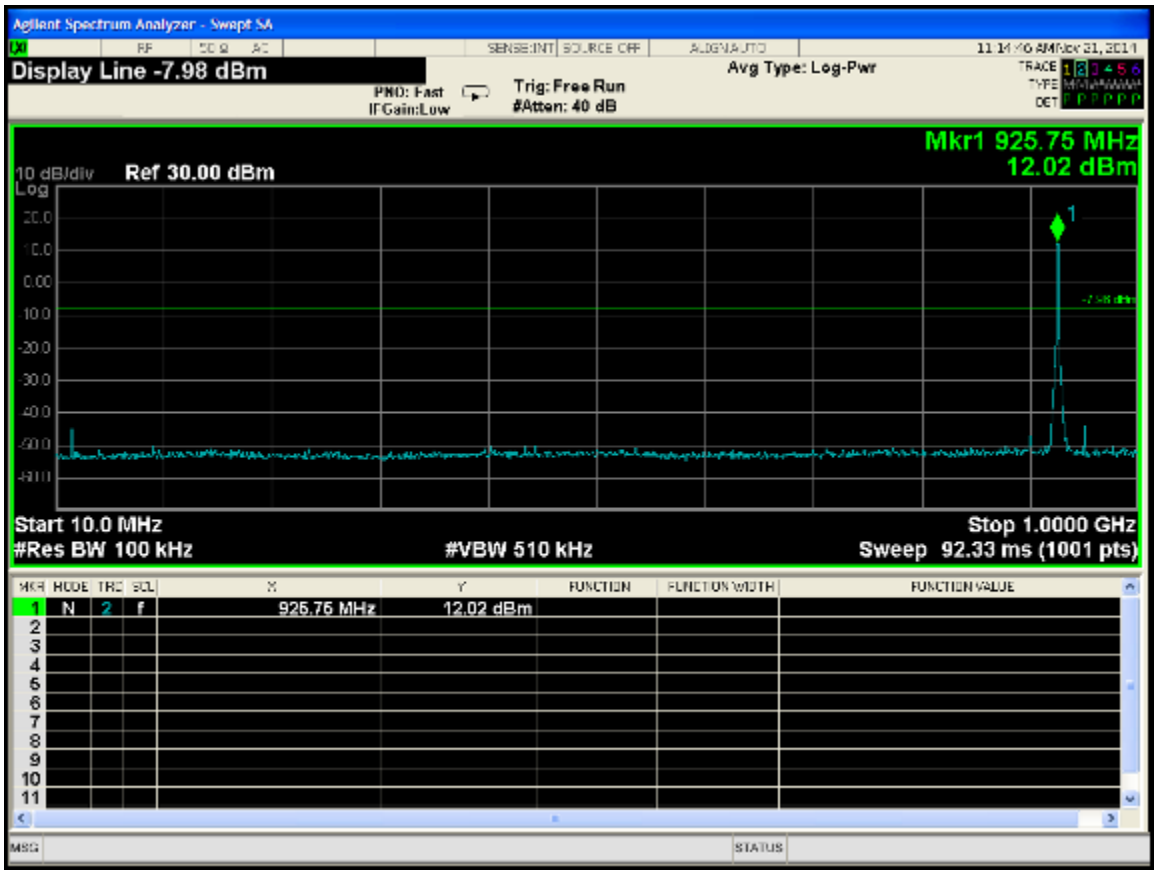

RF Antenna Conducted 1 GHz to 5 GHz Mid Channel External AC Mode



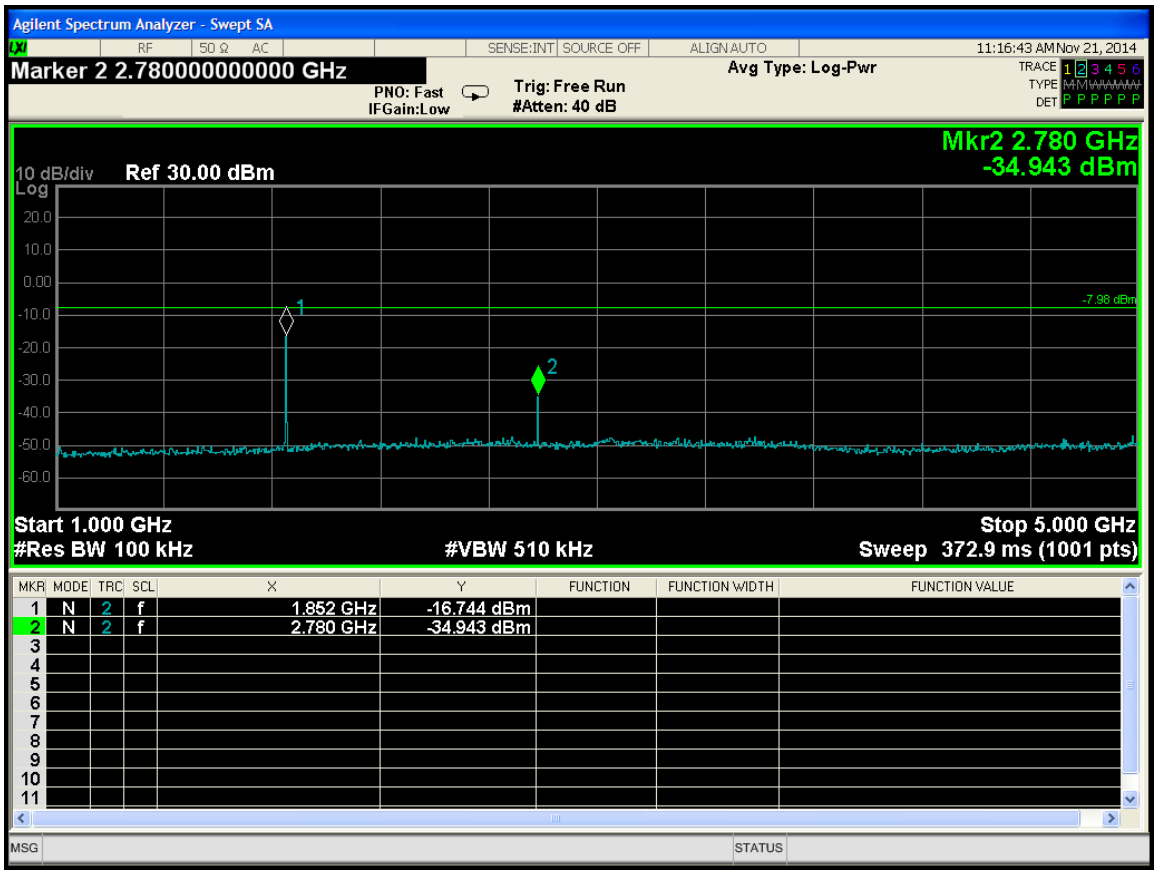

RF Antenna Conducted 5 GHz to 10 GHz Mid Channel External AC Mode



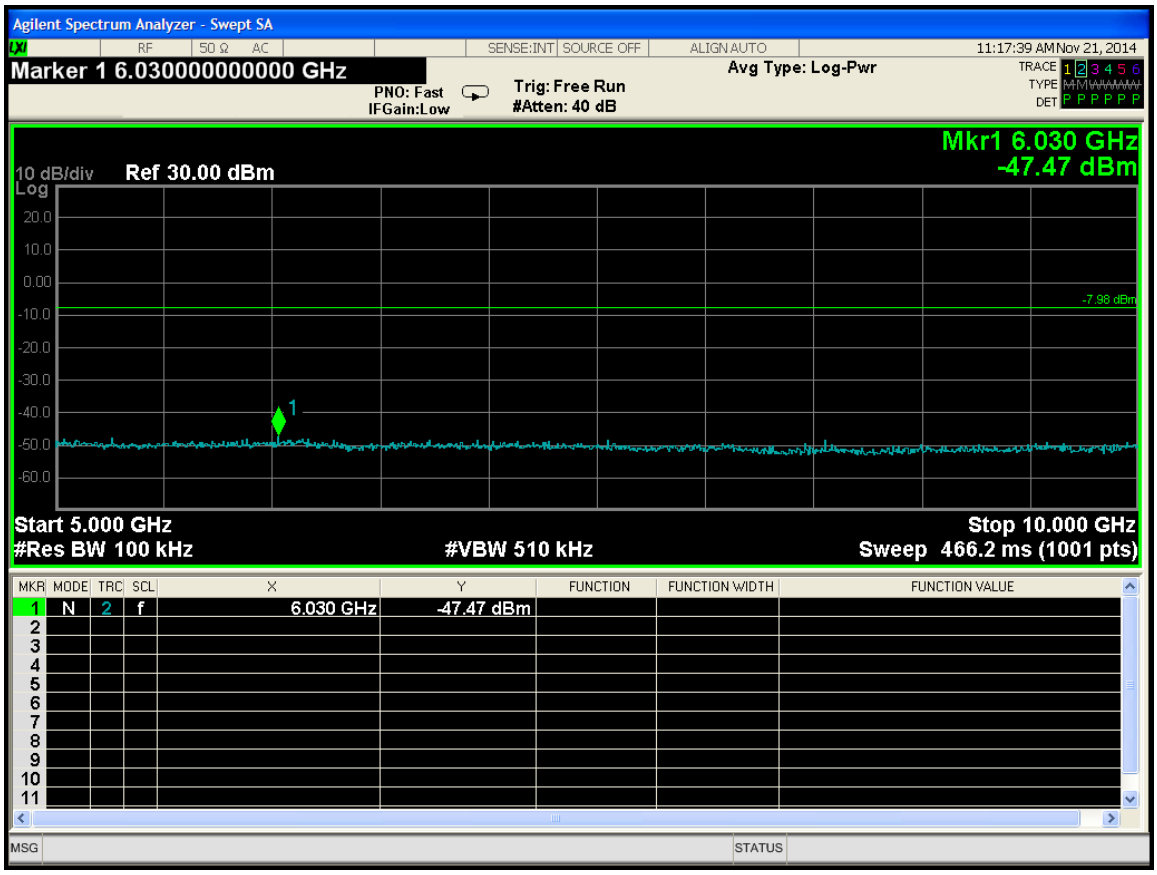

RF Antenna Conducted 2 MHz to 10 MHz High Channel Battery Mode



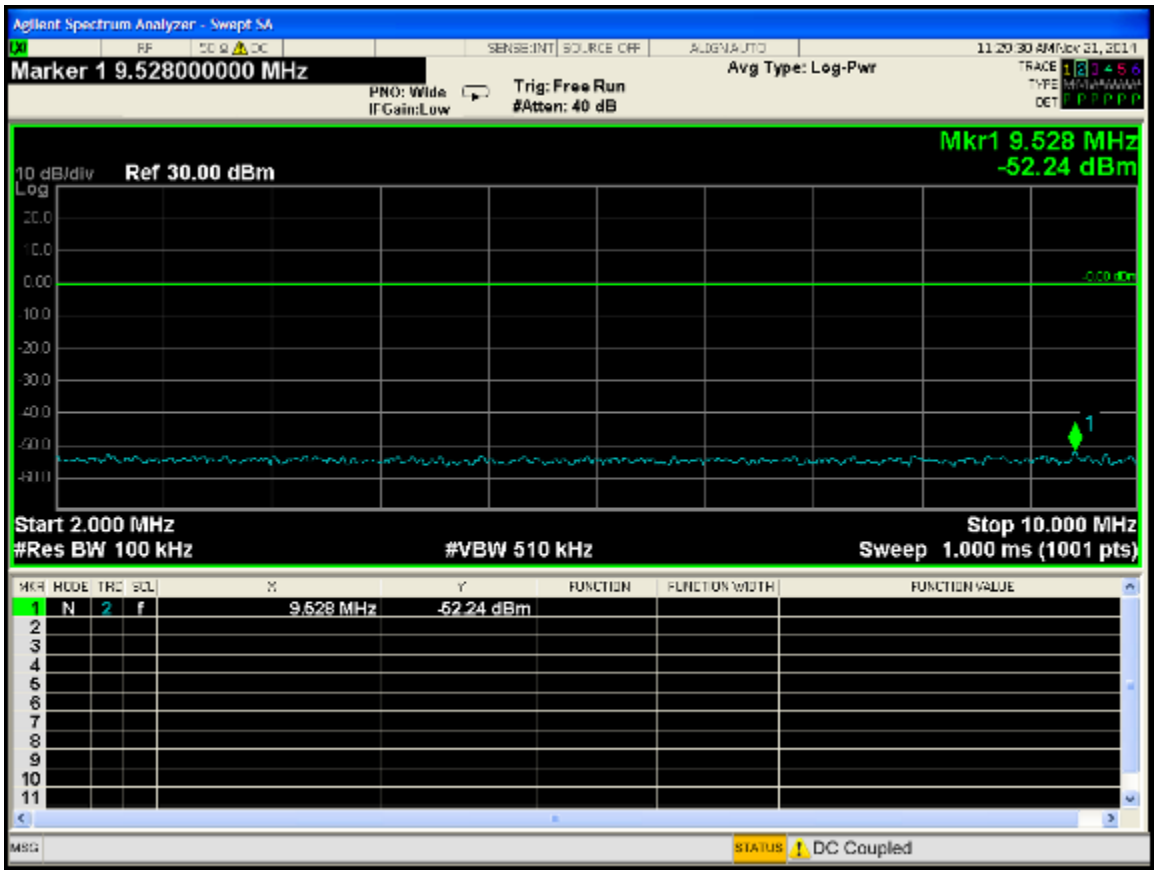

RF Antenna Conducted 10 MHz to 1 GHz High Channel Battery Mode



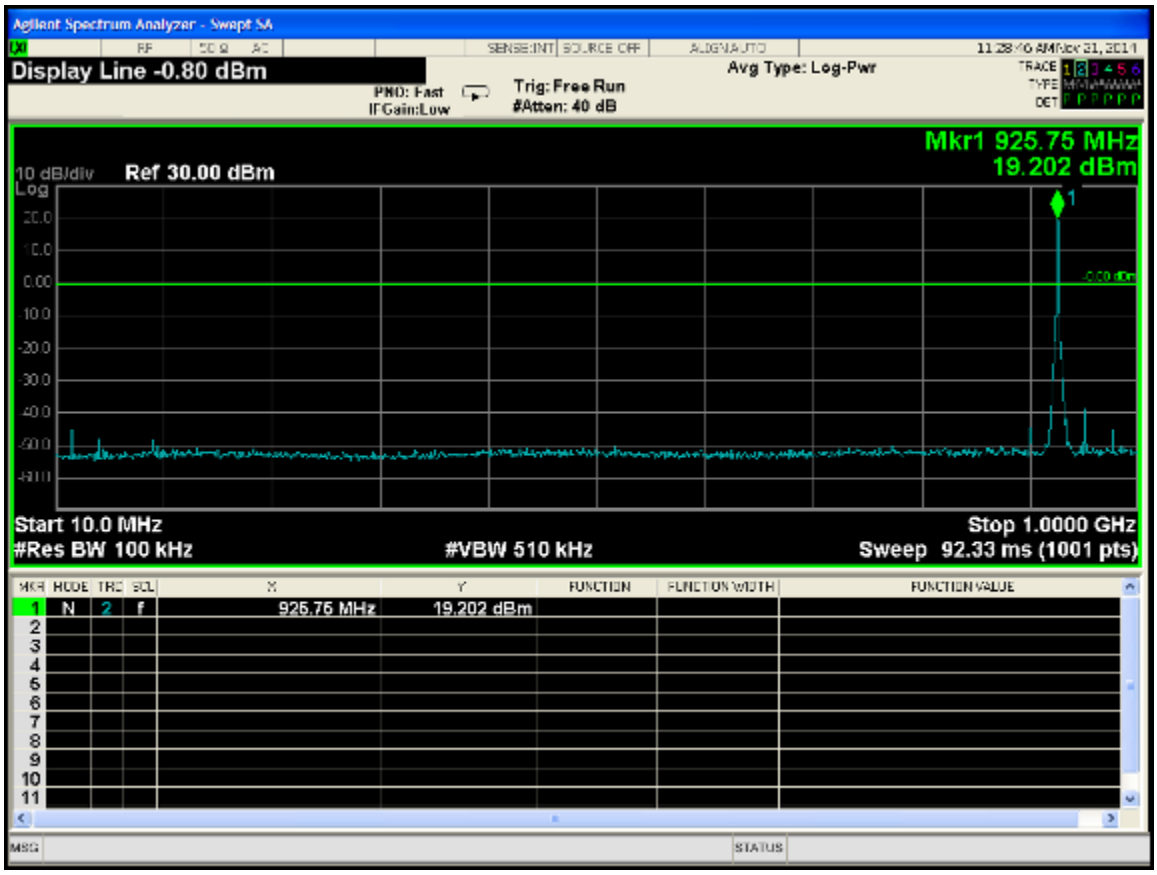

RF Antenna Conducted 1 GHz to 5 GHz High Channel Battery Mode



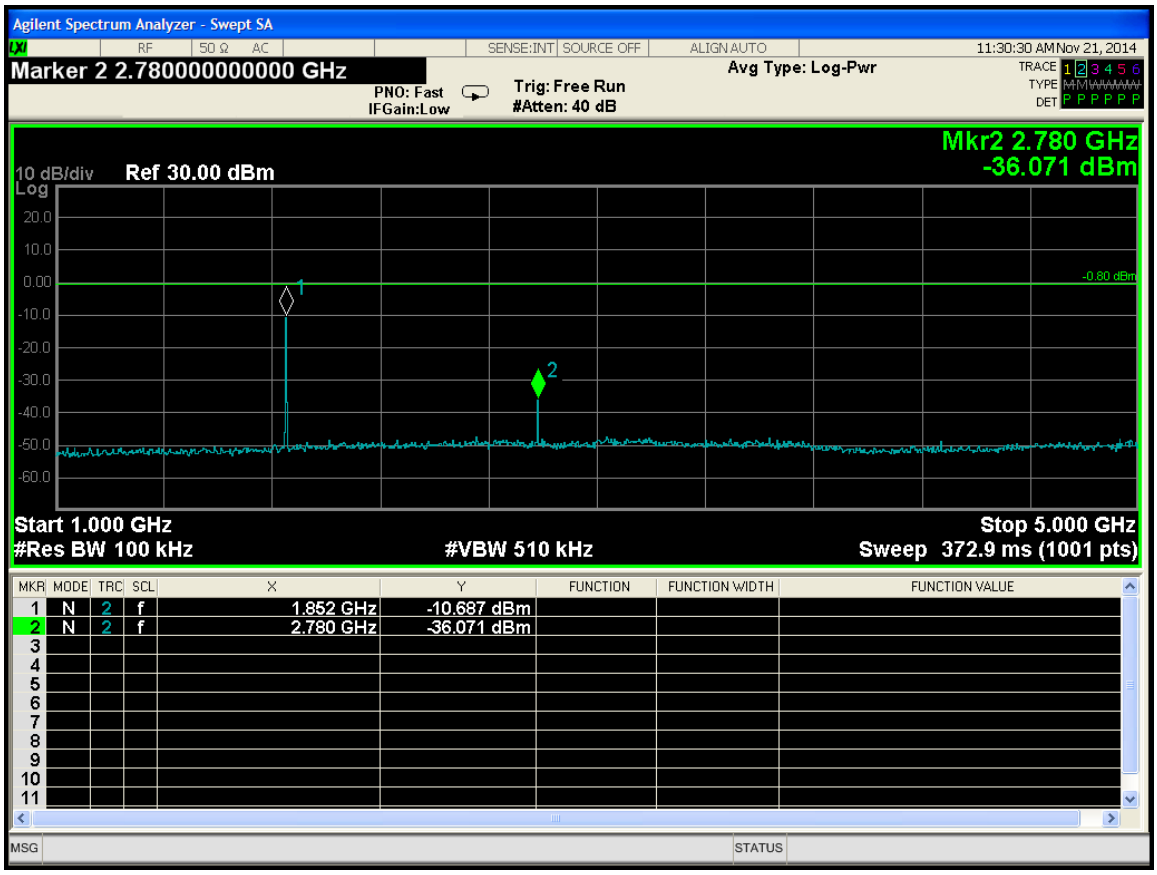

RF Antenna Conducted 5 GHz to 10 GHz High Channel Battery Mode



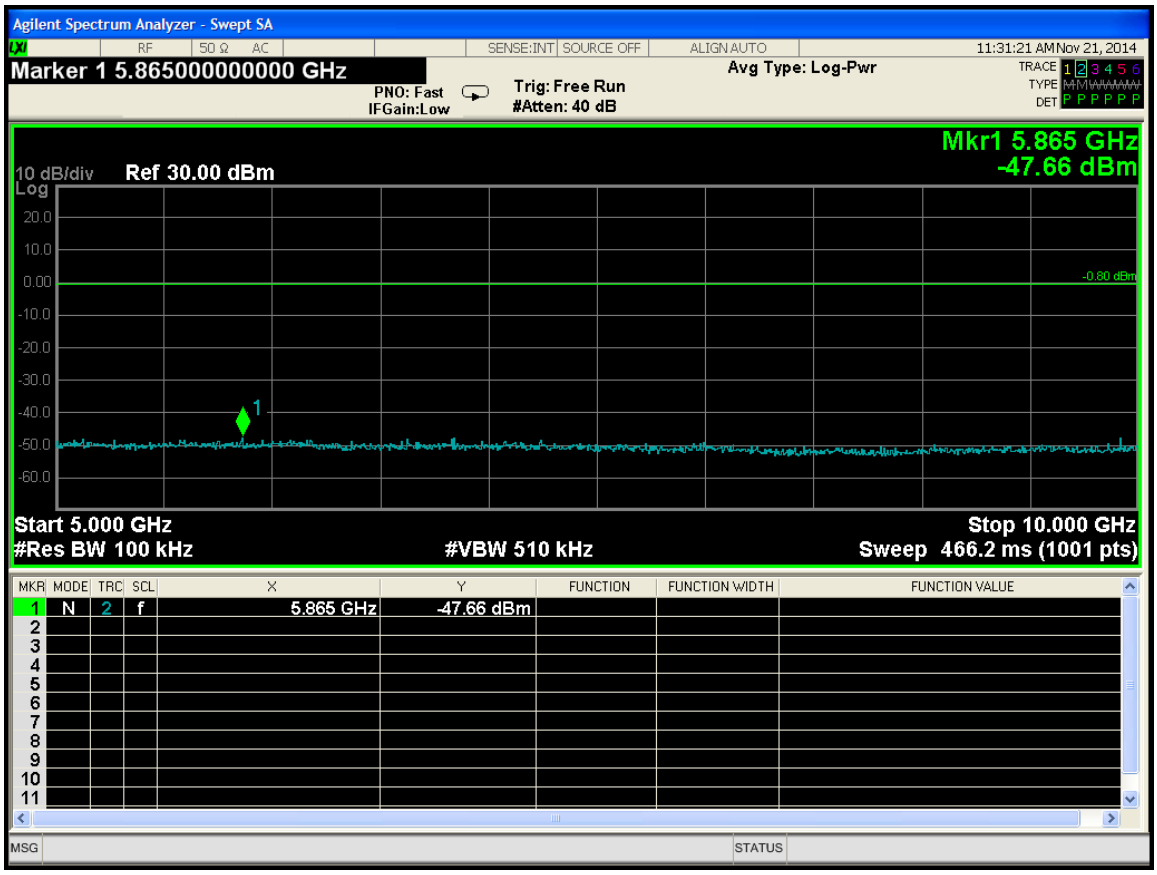

RF Antenna Conducted 2 MHz to 10 MHz High Channel External AC Mode




RF Antenna Conducted 10 MHz to 1 GHz High Channel External AC Mode



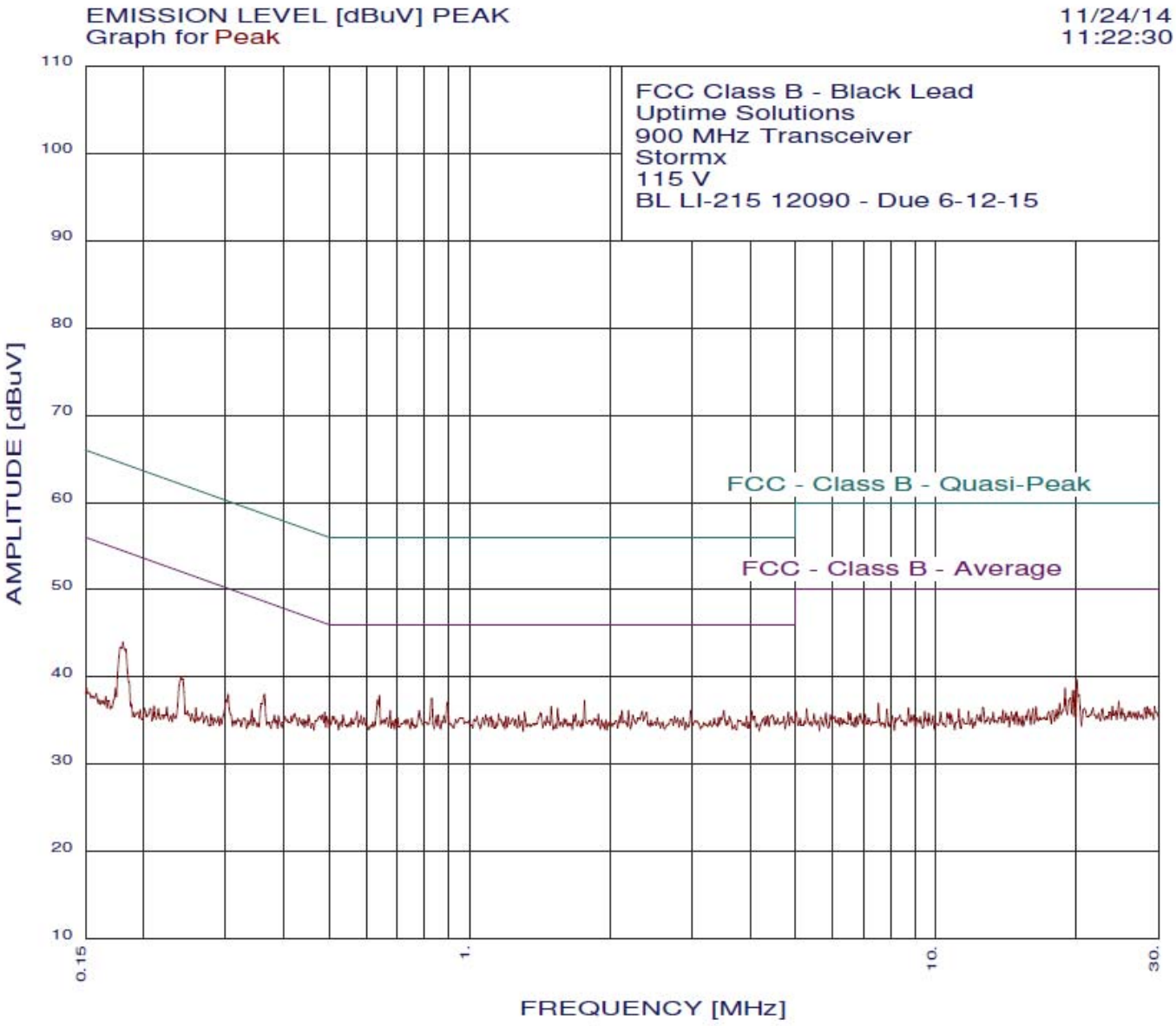

RF Antenna Conducted 1 GHz to 5 GHz High Channel External AC Mode




RF Antenna Conducted 5 GHz to 10 GHz High Channel External AC Mode

# *CONDUCTED EMISSIONS*

# *DATA SHEETS*


EMISSION LEVEL [dBuV] PEAK
Graph for Peak
11/24/14
11:22:30
FCC Class B - Black Lead
Uptime Solutions
900 MHz Transceiver
Stormx
115 V
BL LI-215 12090 - Due 6-12-15
FCC - Class B - Quasi-Peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1.
10.
30.
FREQUENCY [MHz]

page 1/1

11/24/14 11:22:30

FCC Class B - Black Lead
Uptime Solutions
900 MHz Transceiver
Stormx
115 V
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

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30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 0.10 dB, Curve : Peak

| Peak# | Freq(MHz) | Amp(dBuV) | Limit(dB) | Delta(dB) |
|---|---|---|---|---|
| 1 | 0.641 | 37.84 | 46.00 | -8.16 |
| 2 | 0.831 | 37.54 | 46.00 | -8.46 |
| 3 | 0.634 | 37.34 | 46.00 | -8.66 |
| 4 | 1.763 | 37.32 | 46.00 | -8.68 |
| 5 | 0.895 | 37.04 | 46.00 | -8.96 |
| 6 | 1.496 | 36.59 | 46.00 | -9.41 |
| 7 | 1.544 | 36.39 | 46.00 | -9.61 |
| 8 | 3.511 | 36.14 | 46.00 | -9.86 |
| 9 | 2.979 | 36.14 | 46.00 | -9.86 |
| 10 | 0.676 | 36.14 | 46.00 | -9.86 |
| 11 | 2.190 | 36.14 | 46.00 | -9.86 |
| 12 | 2.123 | 36.14 | 46.00 | -9.86 |
| 13 | 0.779 | 36.14 | 46.00 | -9.86 |
| 14 | 4.029 | 36.05 | 46.00 | -9.95 |
| 15 | 0.573 | 36.04 | 46.00 | -9.96 |
| 16 | 2.346 | 36.04 | 46.00 | -9.96 |
| 17 | 1.311 | 35.97 | 46.00 | -10.03 |
| 18 | 4.825 | 35.95 | 46.00 | -10.05 |
| 19 | 2.397 | 35.94 | 46.00 | -10.06 |
| 20 | 1.419 | 35.88 | 46.00 | -10.12 |
| 21 | 0.489 | 35.94 | 46.18 | -10.24 |
| 22 | 1.154 | 35.75 | 46.00 | -10.25 |
| 23 | 1.889 | 35.73 | 46.00 | -10.27 |
| 24 | 1.690 | 35.71 | 46.00 | -10.29 |
| 25 | 1.083 | 35.65 | 46.00 | -10.35 |
| 26 | 4.456 | 35.65 | 46.00 | -10.35 |
| 27 | 0.535 | 35.64 | 46.00 | -10.36 |
| 28 | 2.238 | 35.64 | 46.00 | -10.36 |
| 29 | 0.858 | 35.64 | 46.00 | -10.36 |
| 30 | 20.059 | 39.64 | 50.00 | -10.36 |

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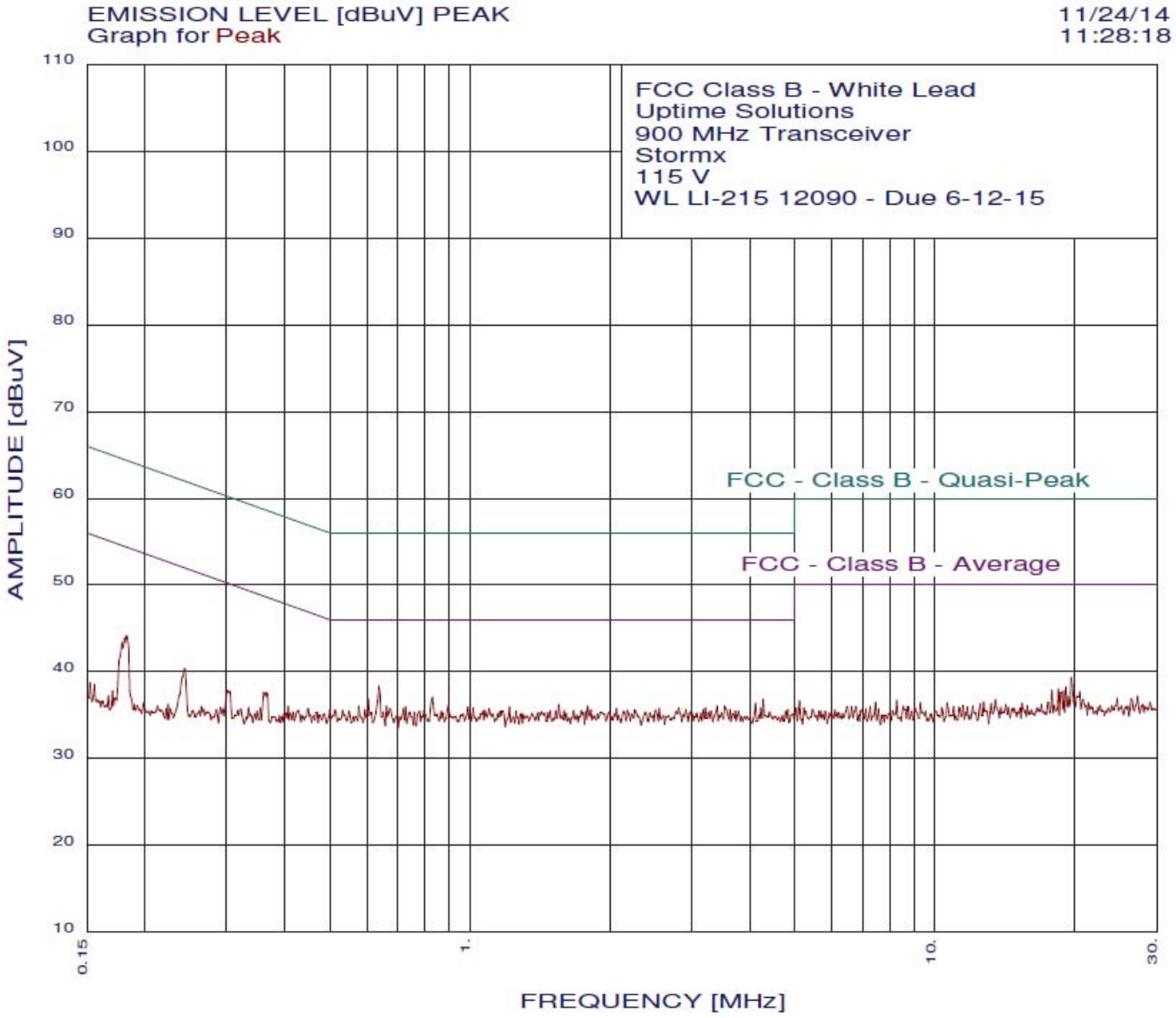
EMISSION LEVEL [dBuV] PEAK
Graph for Peak
11/24/14
11:28:18
FCC Class B - White Lead
Uptime Solutions
900 MHz Transceiver
Stormx
115 V
WL LI-215 12090 - Due 6-12-15
FCC - Class B - Quasi-Peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1.
10.
30.
FREQUENCY [MHz]

page 1/1

11/24/14 11:28:18

FCC Class B - White Lead
Uptime Solutions
900 MHz Transceiver
Stormx
115 V
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

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30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 0.10 dB, Curve : Peak

| Peak# | Freq(MHz) | Amp(dBuV) | Limit(dB) | Delta(dB) |
|---|---|---|---|---|
| 1 | 0.637 | 38.34 | 46.00 | -7.66 |
| 2 | 0.831 | 37.04 | 46.00 | -8.96 |
| 3 | 0.605 | 36.84 | 46.00 | -9.16 |
| 4 | 4.272 | 36.84 | 46.00 | -9.16 |
| 5 | 4.114 | 36.34 | 46.00 | -9.66 |
| 6 | 1.552 | 36.19 | 46.00 | -9.81 |
| 7 | 0.899 | 36.14 | 46.00 | -9.86 |
| 8 | 0.577 | 36.04 | 46.00 | -9.96 |
| 9 | 3.529 | 36.04 | 46.00 | -9.96 |
| 10 | 3.401 | 36.04 | 46.00 | -9.96 |
| 11 | 0.662 | 36.04 | 46.00 | -9.96 |
| 12 | 1.790 | 36.02 | 46.00 | -9.98 |
| 13 | 1.217 | 35.96 | 46.00 | -10.04 |
| 14 | 0.990 | 35.94 | 46.00 | -10.06 |
| 15 | 0.728 | 35.94 | 46.00 | -10.06 |
| 16 | 4.227 | 35.84 | 46.00 | -10.16 |
| 17 | 3.209 | 35.84 | 46.00 | -10.16 |
| 18 | 2.811 | 35.84 | 46.00 | -10.16 |
| 19 | 1.016 | 35.84 | 46.00 | -10.16 |
| 20 | 1.000 | 35.84 | 46.00 | -10.16 |
| 21 | 0.183 | 44.15 | 54.37 | -10.22 |
| 22 | 1.100 | 35.75 | 46.00 | -10.25 |
| 23 | 0.672 | 35.74 | 46.00 | -10.26 |
| 24 | 2.554 | 35.74 | 46.00 | -10.26 |
| 25 | 2.066 | 35.74 | 46.00 | -10.26 |
| 26 | 0.720 | 35.74 | 46.00 | -10.26 |
| 27 | 0.513 | 35.65 | 46.00 | -10.35 |
| 28 | 0.595 | 35.64 | 46.00 | -10.36 |
| 29 | 4.825 | 35.64 | 46.00 | -10.36 |
| 30 | 3.624 | 35.64 | 46.00 | -10.36 |

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