*FCC PART 15, SUBPART B & C*
*CLASS B TEST REPORT*
*TEST METHOD: ANSI C63.4 & ANSI C63.10*

*For*
RPU
Model: 924-GED1900-RPU

Prepared for

KWIKSET CORP.
19701 DAVINCI
LAKE FOREST, CA 92630

Prepared by:_____

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DATE: JULY 7, 2014

| | REPORT | APPENDICES | | | | | TOTAL |
|---|---|---|---|---|---|---|---|
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# GENERAL REPORT SUMMARY

This electromagnetic emission 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 in any form except in full, without the written permission of Compatible Electronics.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: RPU
Model: 924-GED1900-RPU
S/N: None

Product Description: The EUT is a RPU for operating a wireless door lock via Bluetooth 4.0 Low Energy technology.

Modifications: The EUT was modified in order to comply with specifications. Please see the list of modifications in Appendix B.

Manufacturer: Kwikset Corp.
19701 DaVinci
Lake Forest, Ca 92630

Test Date: July 3 & 7, 2014 and April 2, August 24, 2015

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart C Sections 15.205, 15.207, 15.209 and 15.249
FCC Part 15 Subpart B sections 15.107 and 15.109
Test Procedure: ANSI C63.10 and ANSI C63.4

# SUMMARY OF TEST RESULTS

| TEST | DESCRIPTION | RESULTS |
|---|---|---|
| 1 | Conducted RF Emissions,<br>150 kHz - 30 MHz. | Complies with the limits of CFR Title 47 Part 15 Subpart B section 15.107 and Subpart C Section 15.207. |
| 2 | Radiated RF Emissions & Harmonics,<br>9 kHz – 24,800 MHz | Complies with the limits of CFR Title 47 Part 15 Subpart B section 15.109 and Subpart C Sections 15.205 and 15.209. |
| 3 | Fundamental Field Strength | Complies with CFR Title 47 Part 15 Subpart C Section 15.249(a) |
| 4 | Emissions Radiated Outside of the Fundamental Frequency Band | Complies with CFR Title 47 Part 15 Subpart C Section 15.249(d) and 15.205 |

## 1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the RPU Model: 924-GED1900-RPU. The EMI 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 (equipment under test) hereafter, are within the specification limits defined by the Code of Federal Regulations Title 47, Part 15 subpart B sections 15.107 and 15.109, Part 15 Subpart C sections 15.205, 15.207, 15.209 and 15.249.

# 2. ADMINISTRATIVE DATA

## 2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

## 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

Kwikset Corp.

| | |
|---|---|
| Troy Brown | Sr. Systems Engineer |

Compatible Electronics, Inc.

| | |
|---|---|
| Matt Harrison | Test Technician |
| Jeff Klinger | Director of EMC |

## 2.4 Date Test Sample was Received

The test sample was received on July 3, 2014.

## 2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc 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 |

## 3. APPLICABLE DOCUMENTS

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

| SPEC | TITLE |
|---|---|
| CFR Title 47, Part 15 | FCC Rules – Radio frequency devices (including digital devices) |
| 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. |
| ANSI C63.10: 2009 | American National Standard for Testing Unlicensed Wireless Devices |

# 4. DESCRIPTION OF TEST CONFIGURATION

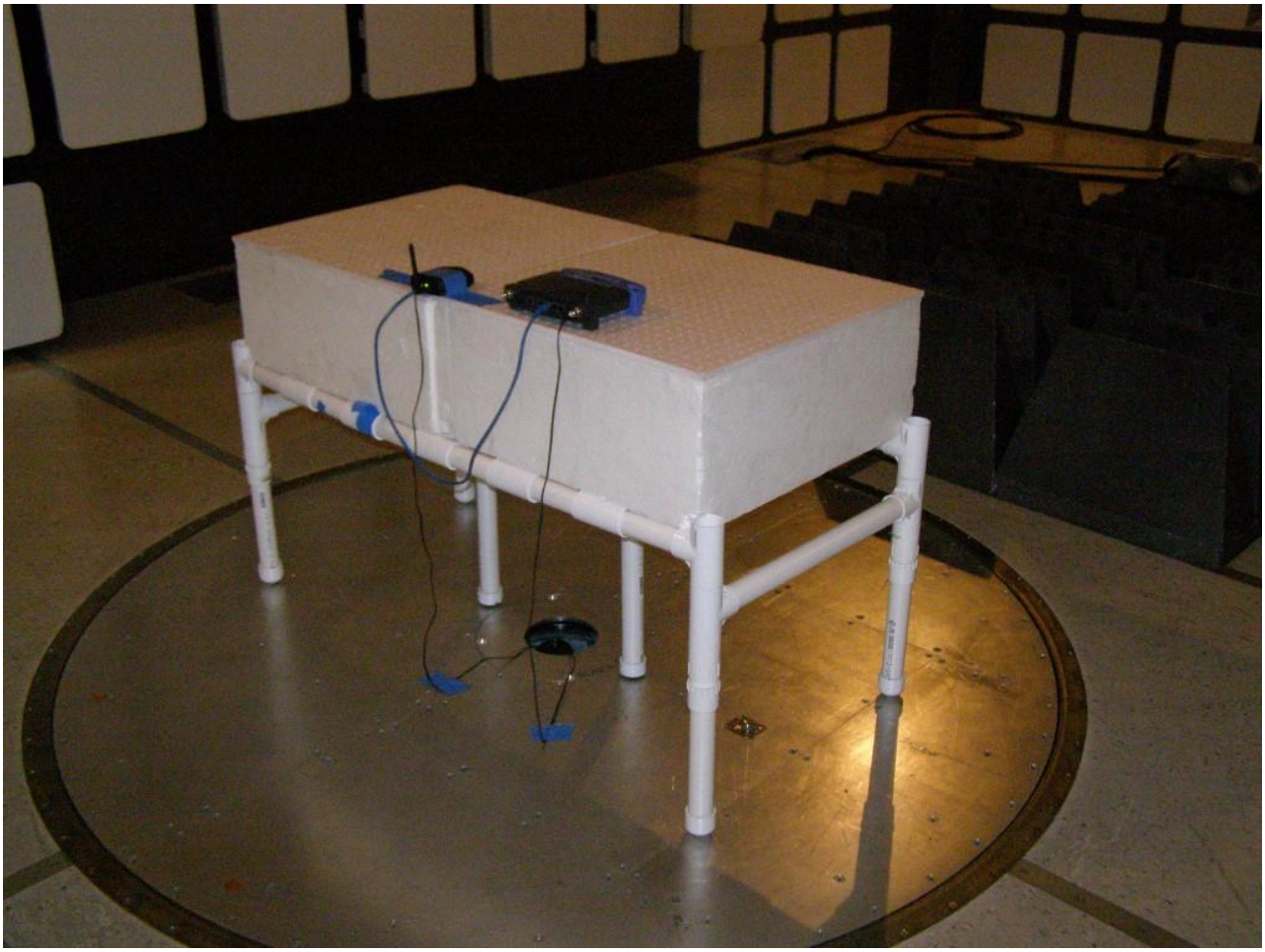
## 4.1 Description of Test Configuration - EMI

The RPU Model: 924-GED1900-RPU (EUT) was set up in a table top configuration. The EUT was connected to the Power Supply and Router via its Power Port and Ethernet port respectively. The EUT was explored in 3 orthogonal axes (X-axis (Flat), Y-axis (On end) and Z-axis (on side edge)).

The voltage was varied from ± 15% and the Amplitude and Frequency did not vary.

It was determined that the X-axis produced the worst case emissions for all testing. The EUT was continuously transmitting in hopping mode with normal operation duty cycle throughout the spurious emissions tests and in single channel transmit mode with normal operation duty cycle for all other tests. The customer placed the EUT in a worst case representative duty cycle configuration. All initial investigations were performed with the EMI Receiver in manual mode scanning the frequency range continuously. Please see Appendix E for the data sheets.

### 4.1.1 Photograph of Test Configuration - EMI



### 4.1.2 Cable Construction and Termination

**Cable 1**

This is a 2 meter, un-shielded, round cable that connects the EUT to the Power Supply. The cable has a USB Type A Connector at the Power Supply end and has a barrel connector at the EUT end. The cable was not bundled.

**Cable 2**

This is a 1 meter, un-shielded, Ethernet cable that connects the EUT to the Router. The cable has RJ45 Connectors at both ends of the cable. The cable was not bundled.

**Cable 3**

This is a 2 meter, un-shielded, round cable that connects the Router to the Router Power Supply. The cable is hardwired into the Router Power Supply and has a barrel connector at the Router end. The cable was not bundled.

# 5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

## 5.1 EUT and Accessory List

| # | EQUIPMENT TYPE | MANUFACTURER | MODEL | SERIAL NUMBER |
|---|---|---|---|---|
| 1 | RPU (EUT) | KWIKSET CORP. | 924-GED1900-RPU | NONE |
| 2 | POWER SUPPLY (EUT) | RAYOVAC | AC ADAPTER | NONE |
| 3 | ROUTER | LINKSYS | BEFW11S4 | C2760C8A1639 |
| 4 | POWER SUPPLY (ROUTER) | NETGEAR | PWR-090-151 | NONE |

## 5.2 EMI Test Equipment

| EQUIPMENT TYPE | MANUFACTURER | MODEL NUMBER | SERIAL NUMBER | CAL. DATE | CAL. DUE DATE |
|---|---|---|---|---|---|
| Computer | Compatible Electronics | NONE | NONE | N/A | N/A |
| EMI Receiver | Rohde & Schwarz | ESIB40 | 100172 | 09/19/2013 | 09/19/2014 |
| EMI Receiver | Rohde & Schwarz | ESIB40 | 100172 | 09/15/2014 | 09/15/2015 |
| Antenna, Loop | Com Power | AL-130 | 121049 | 12/06/2013 | 12/06/2015 |
| Antenna, CombiLog | Com Power | AC-220 | 25857 | 5/21/2014 | 5/21/2016 |
| Antenna, Horn 1-18GHz | Com Power | AH-118 | 071250 | 7/1/2014 | 7/1/2016 |
| Antenna, Horn 18-26 GHz | Com Power | AH-826 | 081033 | NCR | NCR |
| Pre-Amp, 1-18GHz | Com Power | PAM-118 | 443013 | 4/24/2014 | 4/24/2016 |
| Pre-Amp, 1-18GHz | Com Power | PAM-118 | 443011 | 4/24/2014 | 4/24/2016 |
| Pre-Amp, 18-40GHz | Com Power | PA-840 | 181289 | 6/16/2014 | 6/16/2016 |
| LISN | Com Power | LI-215 | 191935 | 3/17/2014 | 3/17/2015 |
| High Pass Filter | AMTI Microwave Circuits | H3G020G4 | 481230 | 6/4/2014 | 6/4/2016 |
| Mast, Antenna Positioner | Sunol Science Corporation | TWR 95-4 | 020808-3 | N/A | N/A |
| Antenna Mast | Sunol Science Corporation | TWR 95-4 | 020808-3 | N/A | N/A |
| Turntable | Sunol Science Corporation | FM 2001 | N/A | N/A | N/A |
| Mast and Turntable Controller | Sunol Science Corporation | SC104V | 020808-1 | N/A | N/A |

# 6. TEST SITE DESCRIPTION

## 6.1 Test Facility Description

Please refer to section 2.1 of this report for EMI 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 not grounded.

# 7. CHARACTERISTICS OF THE TRANSMITTER

## 7.1 Channel Number and Frequencies

There are a total of 40 channels. The low channel is at 2402.0 MHz and the high channel is at 2480.0 MHz. There is approximately a 2 MHz separation between each channel.

1 = 2402 MHz
2 = 2404 MHZ
3 = 2406 MHz
4 = 2408 MHz
5 = …

## 7.2 Antenna

The antenna is an external antenna with a reverse SMA connector.

# 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. A quasi-peak and/or average reading was taken only where indicated in the data sheets. 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 received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63.4. 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 computer software.

**Test Results:**

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.107, Subpart C section 15.207.

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

The EMI receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Preamplifiers were used to increase the sensitivity of the instrument. There were two Microwave Preamplifiers used for frequencies above 1 GHz, and one Microwave Preamplifier was used for frequencies above 18 GHz.

The quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

A duty cycle correction factor was used to average fundamental and harmonic emissions.

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

| FREQUENCY RANGE (MHz) | TRANSDUCER | EFFECTIVE MEASUREMENT BANDWIDTH |
|---|---|---|
| 0.009 to 0.150 | Active Loop Antenna | 200 kHz |
| 0.150 to 30 | Active Loop Antenna | 9 kHz |
| 30 to 1000 | Combilog Antenna | 100 kHz |
| 1000 to 24800 | Horn Antenna | 1 MHz |

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI 63.10 and 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 in both vertical and horizontal polarizations (for E field radiated field strength).

**Test Results:**

The EUT complies with the limits of CFR Title 47 Part 15 Subpart B section 15.109, Subpart C sections 15.205, 15.209 and 15.249.

### 8.1.3 Fundamental Field Strength

The Peak Transmit EMI was measured using the EMI Receiver at a 3-meter test distance to obtain the final test data. The low, mid and high channels were measured. The final qualification data sheets are located in Appendix E.

**Test Results:**

The EUT complies with Part 15 Subpart C Section 15.249.

### 8.1.4 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was measured using the EMI Receiver at a 3-meter test distance to obtain the final test data. The low and high channels were tuned during the low and high band edge tests respectively. The final qualification data sheets are located in Appendix E.

**Test Results:**

The EUT complies with Part 15 Subpart C, Section 15.205 and 15.249.

### 8.1.5 Duty Cycle

Duty Cycle Correction Factor = -20dB

$$\delta(\mathrm{dB}) = 20\log\left[\sum\left(nt_1 + mt_2 + \ldots + \xi t_x\right)/T\right]$$

*where*

*n* is the number of pulses of duration *t*1
*m* is the number of pulses of duration *t*2
ξ is the number of pulses of duration *tx*
*T* is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

192.384770us * 1 = 0.19238477 ms
0.19238477ms / 100ms = 0.0019238477
20 log (0.0019238477) = -54.31 dB **(Maximum correction factor allowed = -20dB)**

## 9. TEST PROCEDURE DEVIATIONS

There were no deviations from the test procedures.

## 10. CONCLUSIONS

The RPU Model: 924-GED1900-RPU meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 subpart B sections 15.107 and 15.109 Subpart C sections 15.205, 15.207, 15.209 and 15.249.

# APPENDIX A

# *LABORATORY ACCREDITATIONS*

# LABORATORY ACCREDITATIONS AND RECOGNITIONS

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

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

Silverado/Lake Forest Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005270.htm
Brea Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005280.htm
Agoura Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2000630.htm

Compatible Electronics has been accredited by ANSI and appointed by the FCC to serve as a Telecommunications Certification Body (TCB). Compatible Electronics ANSI TCB listing can be found at: http://www.ansi.org/public/ca/ansi_cp.html

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/EU CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/emc-cabs-mar02.pdf

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). Compatible Electronics NIST US/APEC CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/apec/bsmi-cabs-may02.pdf

World Wide Market Access with Nemko

Compatible Electronics has been validated by NEMKO against ISO/IEC 17025 under the NEMKO EMC Laboratory Authorization (ELA) program to all EN standards required by the European Union (EU) EMC Directive 89/336/EEC. Please follow the link to the Compatible Electronics' web site for each of our facilities NEMKO ELA certificate and scope of accreditation. http://www.celectronics.com/certs.htm

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

Compatible Electronics VCCI listing can be found at:
http://www.vcci.or.jp/vcci_e/member/tekigo/setsubi_index_id.html

Just type "Compatible Electronics" into the Keyword search box.

Compatible Electronics FCC listing can be found at:
https://gullfoss2.fcc.gov/prod/oet/index_ie.html

Just type "Compatible Electronics" into the Test Firms search box.

Industry Canada Industrie Canada

Compatible Electronics IC listing can be found at:
http://spectrum.ic.gc.ca/~cert/labs/oats_lab_c_e.html

# APPENDIX B

# *MODIFICATIONS TO THE EUT*

# MODIFICATIONS TO THE EUT

The following modifications were made to the EUT during the test in order to comply with FCC 15.249 limits. The modifications were made in such a way that they could be reproduced during manufacturing.

1. The low channel power was set to -8 dB.

# APPENDIX C

## *ADDITIONAL MODELS COVERED UNDER THIS REPORT*

# ADDITIONAL MODELS COVERED UNDER THIS REPORT

| | |
|---|---|
| USED FOR THE PRIMARY TEST | RPU<br>Model: 924-GED1900-RPU<br>S/N: None |

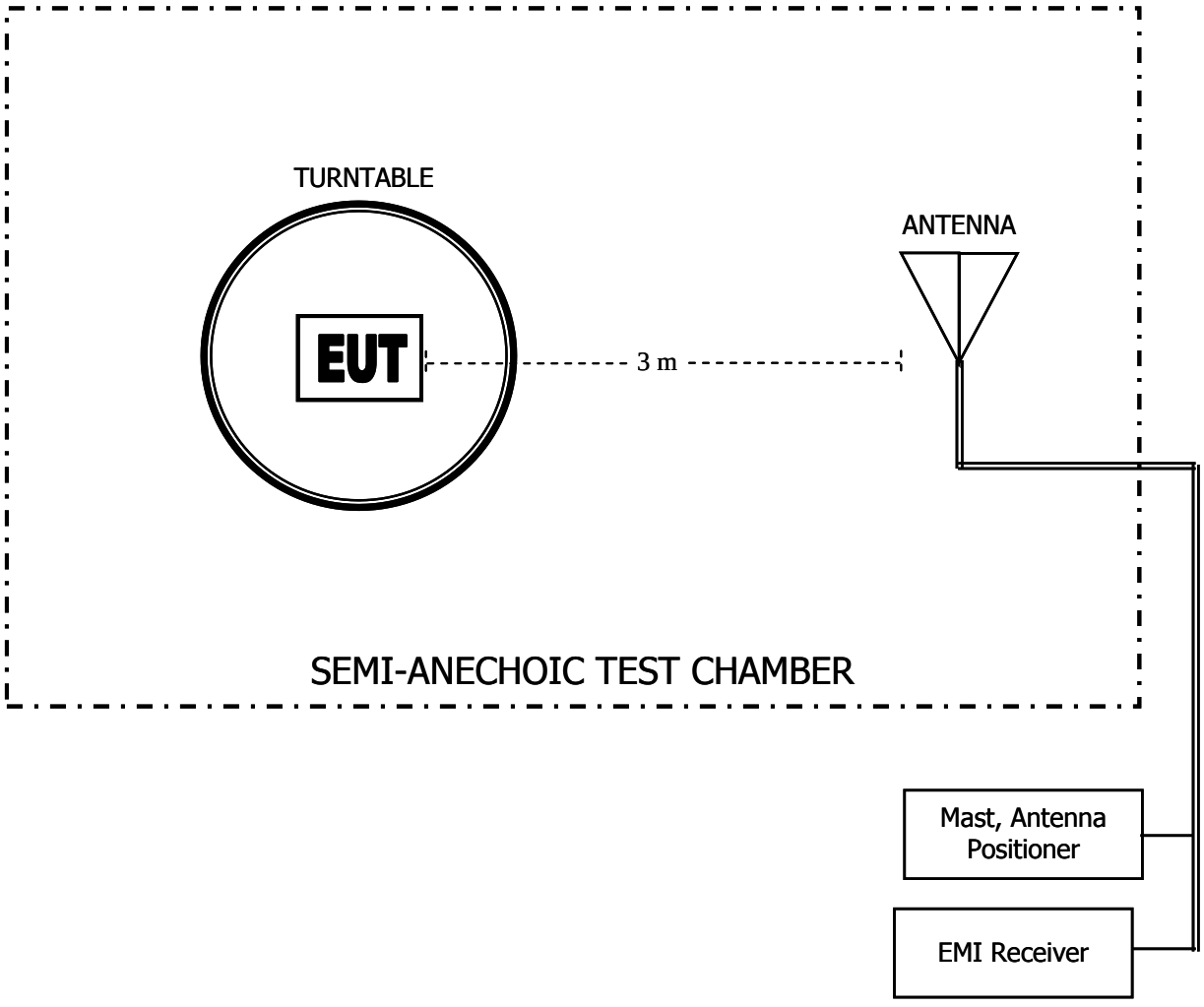
There were no additional models covered under this report.

.

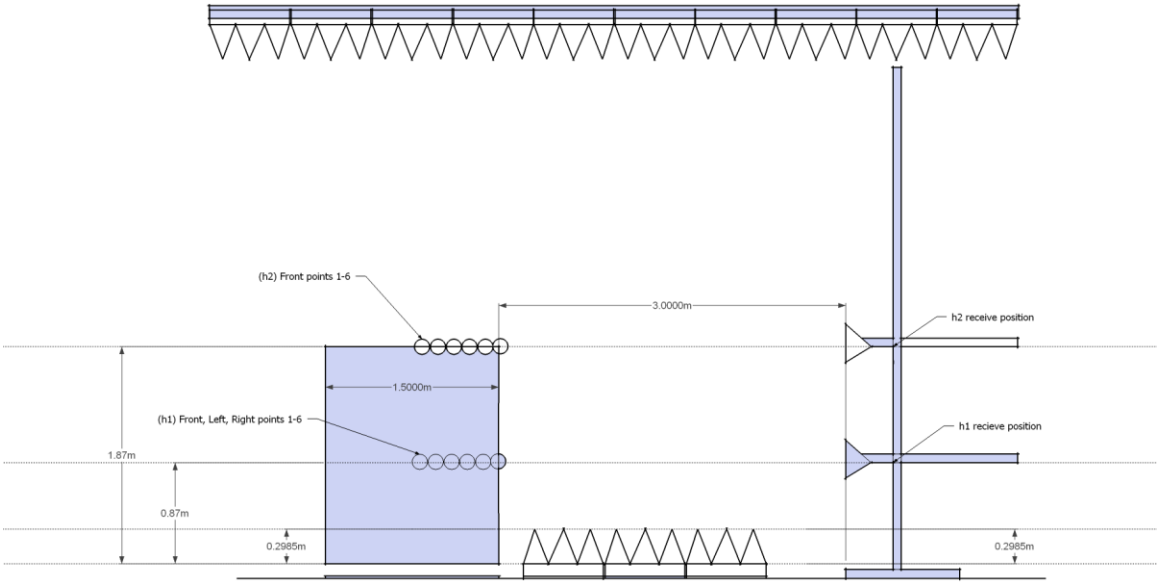
# APPENDIX D

# *DIAGRAMS, CHARTS AND PHOTOS*

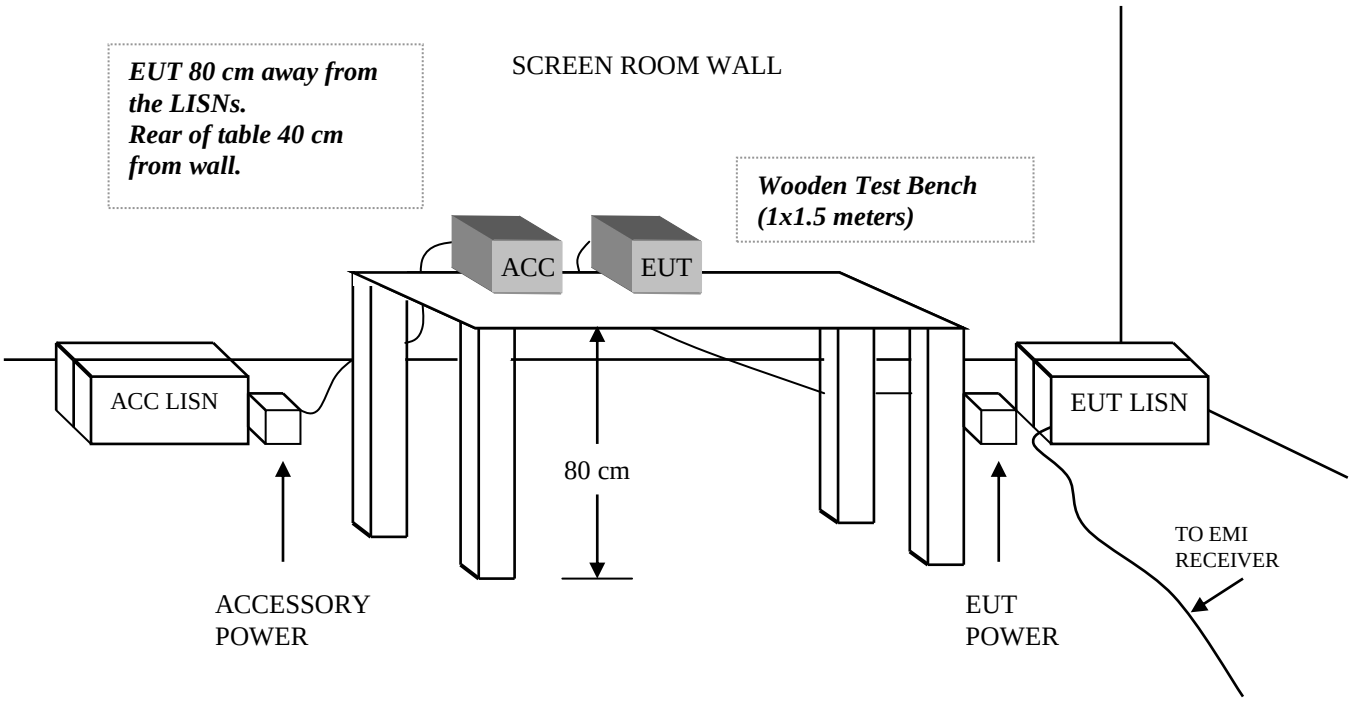
# *FIGURE 1: RADIATED EMISSIONS 3-METER SEMI-*ANECHOIC *TEST CHAMBER BELOW 1GHz*



# *FIGURE 2: RADIATED EMISSIONS 3-METER SEMI-*ANECHOIC *TEST CHAMBER ABOVE 1 GHz*



# *FIGURE 3: CONDUCTED EMISSIONS TEST SETUP*



# COM-POWER AL-130

# LOOP ANTENNA

# S/N: 121049

# CALIBRATION DUE: DECEMBER 6, 2015

| FREQUENCY (MHz) | MAGNETIC (dB/m) | ELECTRIC (dB/m) | FREQUENCY (MHz) | MAGNETIC (dB/m) | ELECTRIC (dB/m) |
|---|---|---|---|---|---|
| **0.009** | -34.64 | 16.86 | **0.8** | -36.32 | 15.18 |
| **0.01** | -34.78 | 16.72 | **0.9** | -36.22 | 15.28 |
| **0.02** | -35.91 | 15.59 | **1.0** | -36.22 | 15.28 |
| **0.03** | -35.48 | 16.02 | **2.0** | -35.91 | 15.59 |
| **0.04** | -35.82 | 15.68 | **3.0** | -35.91 | 15.59 |
| **0.05** | -36.49 | 15.01 | **4.0** | -36.01 | 15.49 |
| **0.06** | -36.30 | 15.20 | **5.0** | -35.80 | 15.70 |
| **0.07** | -36.43 | 15.07 | **6.0** | -36.00 | 15.50 |
| **0.08** | -36.30 | 15.20 | **7.0** | -35.90 | 15.60 |
| **0.09** | -36.39 | 15.11 | **8.0** | -35.70 | 15.80 |
| **0.1** | -36.41 | 15.09 | **9.0** | -35.70 | 15.80 |
| **0.2** | -36.61 | 14.89 | **10.0** | -35.60 | 15.90 |
| **0.3** | -36.63 | 14.87 | **15.0** | -36.52 | 14.98 |
| **0.4** | -36.52 | 14.99 | **20.0** | -35.75 | 15.75 |
| **0.5** | -36.63 | 14.87 | **25.0** | -37.78 | 13.72 |
| **0.6** | -36.62 | 14.88 | **30.0** | -38.62 | 12.88 |
| **0.7** | -36.53 | 14.97 | | | |

# COM-POWER AC-220

# LAB R - COMBILOG ANTENNA

# S/N: 25857

# CALIBRATION DUE: MAY 21, 2016

| FREQUENCY (MHz) | FACTOR (dB) | FREQUENCY (MHz) | FACTOR (dB) |
|---|---|---|---|
| **30** | 22.5 | **160** | 13.3 |
| **35** | 22.5 | **180** | 15.0 |
| **40** | 23.0 | **200** | 14.6 |
| **45** | 21.5 | **250** | 16.5 |
| **50** | 21.3 | **300** | 18.1 |
| **60** | 18.2 | **400** | 19.4 |
| **70** | 13.2 | **500** | 21.4 |
| **80** | 11.6 | **600** | 21.6 |
| **90** | 11.9 | **700** | 23.7 |
| **100** | 12.6 | **800** | 26.0 |
| **120** | 15.1 | **900** | 26.6 |
| **140** | 13.6 | **1000** | 28.5 |

# COM-POWER AH-118

# HORN ANTENNA

# S/N: 071250

# CALIBRATION DUE: JULY 1, 2016

| FREQUENCY (MHz) | FACTOR (dB) | FREQUENCY (MHz) | FACTOR (dB) |
|---|---|---|---|
| **1000** | 30.1 | **9500** | 44.2 |
| **1500** | 29.2 | **10000** | 43.4 |
| **2000** | 31.6 | **10500** | 44.6 |
| **2500** | 35.5 | **11000** | 45.1 |
| **3000** | 33.7 | **11500** | 45.7 |
| **3500** | 36.0 | **12000** | 46.2 |
| **4000** | 35.4 | **12500** | 45.4 |
| **4500** | 35.5 | **13000** | 44.8 |
| **5000** | 40.1 | **13500** | 46.7 |
| **5500** | 37.8 | **14000** | 47.8 |
| **6000** | 39.0 | **14500** | 46.4 |
| **6500** | 39.9 | **15000** | 47.2 |
| **7000** | 40.4 | **15500** | 45.5 |
| **7500** | 44.4 | **16000** | 45.0 |
| **8000** | 44.1 | **16500** | 44.5 |
| **8500** | 43.1 | **17000** | 47.0 |
| **9000** | 43.0 | **17500** | 47.8 |
| | | **18000** | 44.2 |

# COM-POWER PAM-118

# 1-18GHz - PREAMPLIFIER

# S/N: 443013

# CALIBRATION DUE: APRIL 24, 2016

| FREQUENCY (MHz) | FACTOR (dB) | FREQUENCY (MHz) | FACTOR (dB) |
|---|---|---|---|
| **500** | 26.2 | **5500** | 25.3 |
| **1000** | 25.6 | **6000** | 25.0 |
| **1100** | 25.9 | **6500** | 24.7 |
| **1200** | 25.9 | **7000** | 23.6 |
| **1300** | 26.3 | **7500** | 23.3 |
| **1400** | 26.5 | **8000** | 23.7 |
| **1500** | 26.3 | **8500** | 24.0 |
| **1600** | 26.1 | **9000** | 24.3 |
| **1700** | 26.2 | **9500** | 24.1 |
| **1800** | 26.3 | **10000** | 23.7 |
| **1900** | 25.8 | **11000** | 24.2 |
| **2000** | 26.0 | **12000** | 23.2 |
| **2500** | 26.0 | **13000** | 22.8 |
| **3000** | 25.8 | **14000** | 22.6 |
| **3500** | 25.9 | **15000** | 22.9 |
| **4000** | 26.4 | **16000** | 22.3 |
| **4500** | 26.0 | **17000** | 22.6 |
| **5000** | 25.6 | **18000** | 23.9 |

# COM-POWER PAM-118

# 1-18GHz - PREAMPLIFIER

# S/N: 443011

# CALIBRATION DUE: April 24, 2016

| FREQUENCY (MHz) | FACTOR (dB) | FREQUENCY (GHz) | FACTOR (dB) |
|---|---|---|---|
| **0.500** | 27.2 | **7.000** | 23.8 |
| **1.000** | 26.6 | **7.500** | 23.9 |
| **1.500** | 27.0 | **8.000** | 24.4 |
| **2.000** | 27.0 | **8.500** | 25.2 |
| **2.500** | 27.4 | **9.500** | 26.2 |
| **3.000** | 27.6 | **10.000** | 25.8 |
| **3.500** | 27.5 | **11.000** | 25.5 |
| **4.000** | 27.3 | **12.000** | 25.4 |
| **4.500** | 27.3 | **13.000** | 25.1 |
| **5.000** | 27.5 | **14.000** | 24.6 |
| **5.500** | 26.3 | **15.000** | 24.1 |
| **6.000** | 26.1 | **16.000** | 25.1 |
| **6.500** | 25.4 | **17.000** | 25.2 |
| | | **18.000** | 24.4 |

# COM-POWER PA-840

# 18-40 GHz PREAMPLIFIER

# S/N: 181289

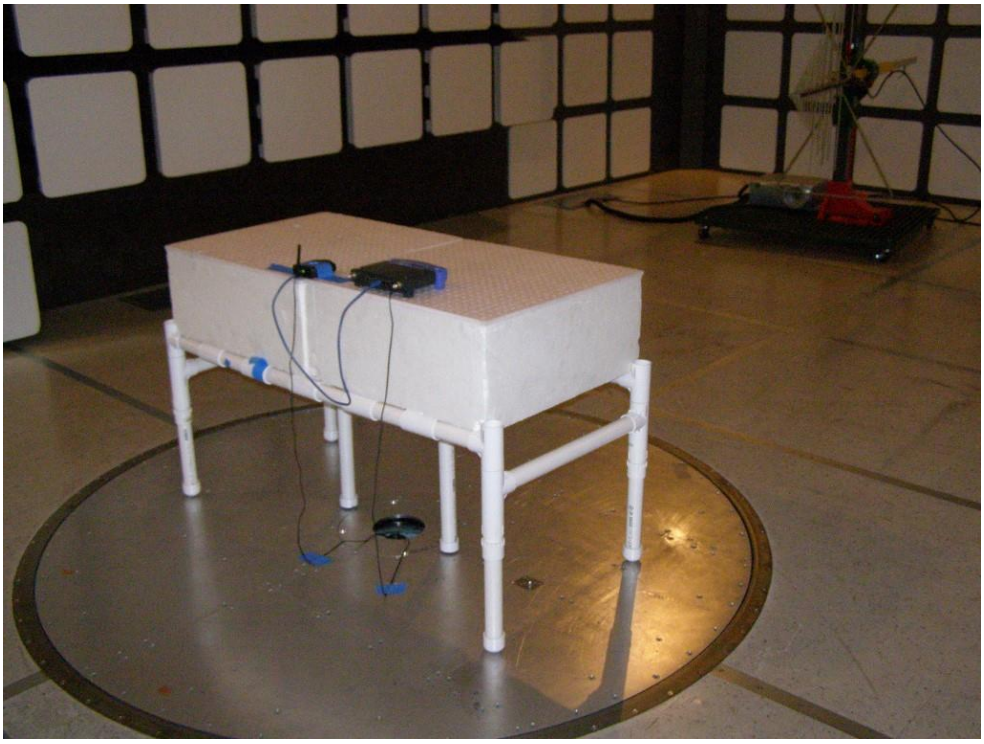
# CALIBRATION DUE: JUNE 16, 2016

| FREQUENCY (MHz) | FACTOR (dB) | FREQUENCY (MHz) | FACTOR (dB) |
|---|---|---|---|
| **18000** | 29.4 | **31500** | 28.2 |
| **19000** | 28.8 | **32000** | 28.6 |
| **20000** | 30.5 | **32500** | 28.8 |
| **21000** | 31.4 | **33000** | 28.2 |
| **22000** | 31.2 | **33500** | 27.7 |
| **23000** | 30.1 | **34000** | 27.2 |
| **24000** | 30.3 | **34500** | 28.2 |
| **25000** | 29.8 | **35000** | 27.3 |
| **26000** | 30.5 | **35500** | 27.2 |
| **26500** | 30.7 | **36000** | 27.2 |
| **27000** | 30.8 | **36500** | 27.5 |
| **27500** | 30.2 | **37000** | 27.0 |
| **28000** | 30.1 | **37500** | 26.7 |
| **28500** | 30.2 | **38000** | 26.2 |
| **29000** | 30.1 | **38500** | 26.5 |
| **29500** | 29.8 | **39000** | 26.3 |
| **30000** | 29.2 | **39500** | 26.9 |
| **30500** | 28.4 | **40000** | 27.6 |
| **31000** | 29.8 | | |

**FRONT VIEW**

KWIKSET CORP.
RPU
Model: 924-GED1900-RPU (X-AXIS)
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS 30-1000MHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



**REAR VIEW**

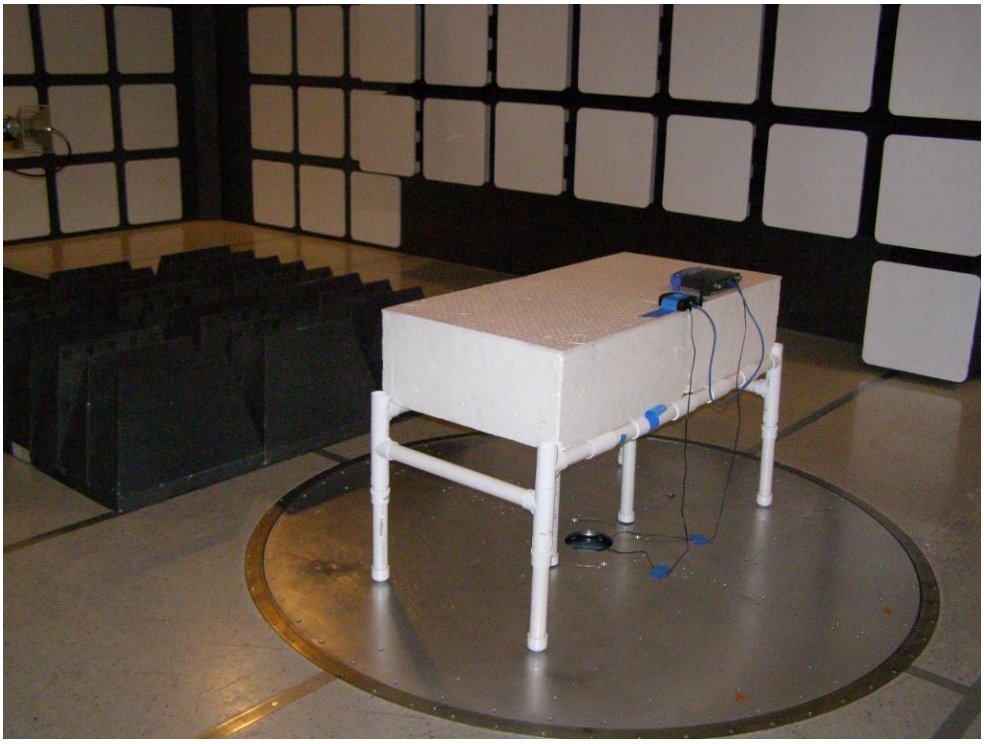
KWIKSET CORP.
RPU
Model: 924-GED1900-RPU (X-AXIS)
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS 30-1000MHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**FRONT VIEW**

KWIKSET CORP.
RPU
Model: 924-GED1900-RPU (X-AXIS)
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS ABOVE 1GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



**REAR VIEW**

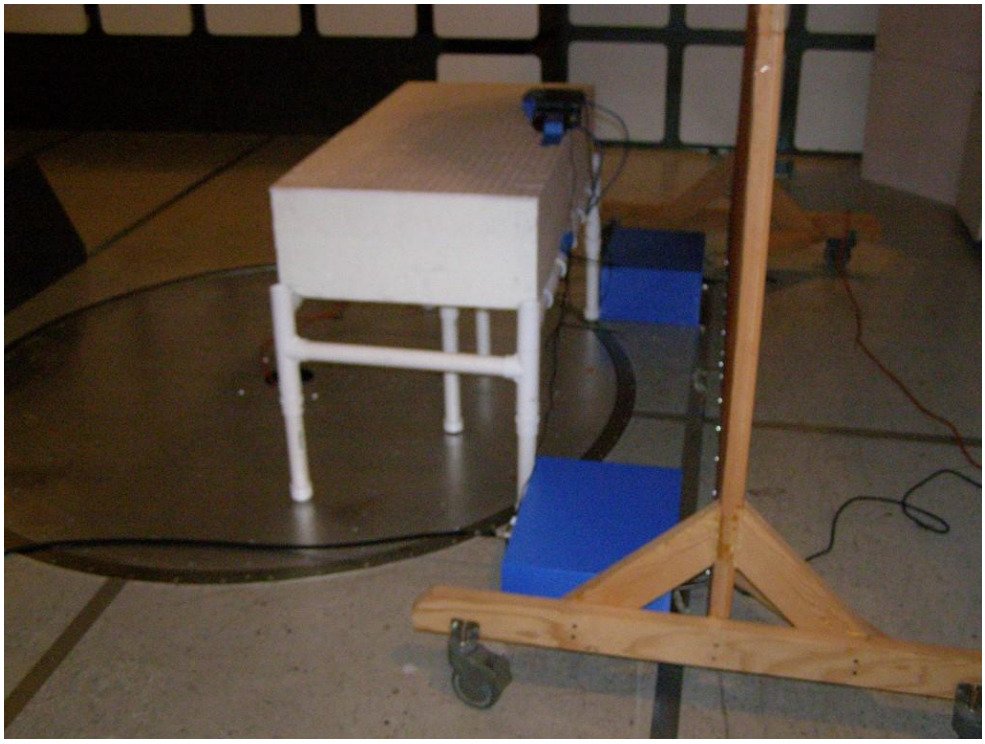
KWIKSET CORP.
RPU
Model: 924-GED1900-RPU (X-AXIS)
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS ABOVE 1GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

**FRONT VIEW**

KWIKSET CORP.
RPU
Model: 924-GED1900-RPU (X-AXIS)
FCC PART 15 SUBPART B & C - CONDUCTED EMISSIONS

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



**REAR VIEW**

KWIKSET CORP.
RPU
Model: 924-GED1900-RPU (X-AXIS)
FCC PART 15 SUBPART B & C - CONDUCTED EMISSIONS

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

# APPENDIX E

# *DATASHEETS*

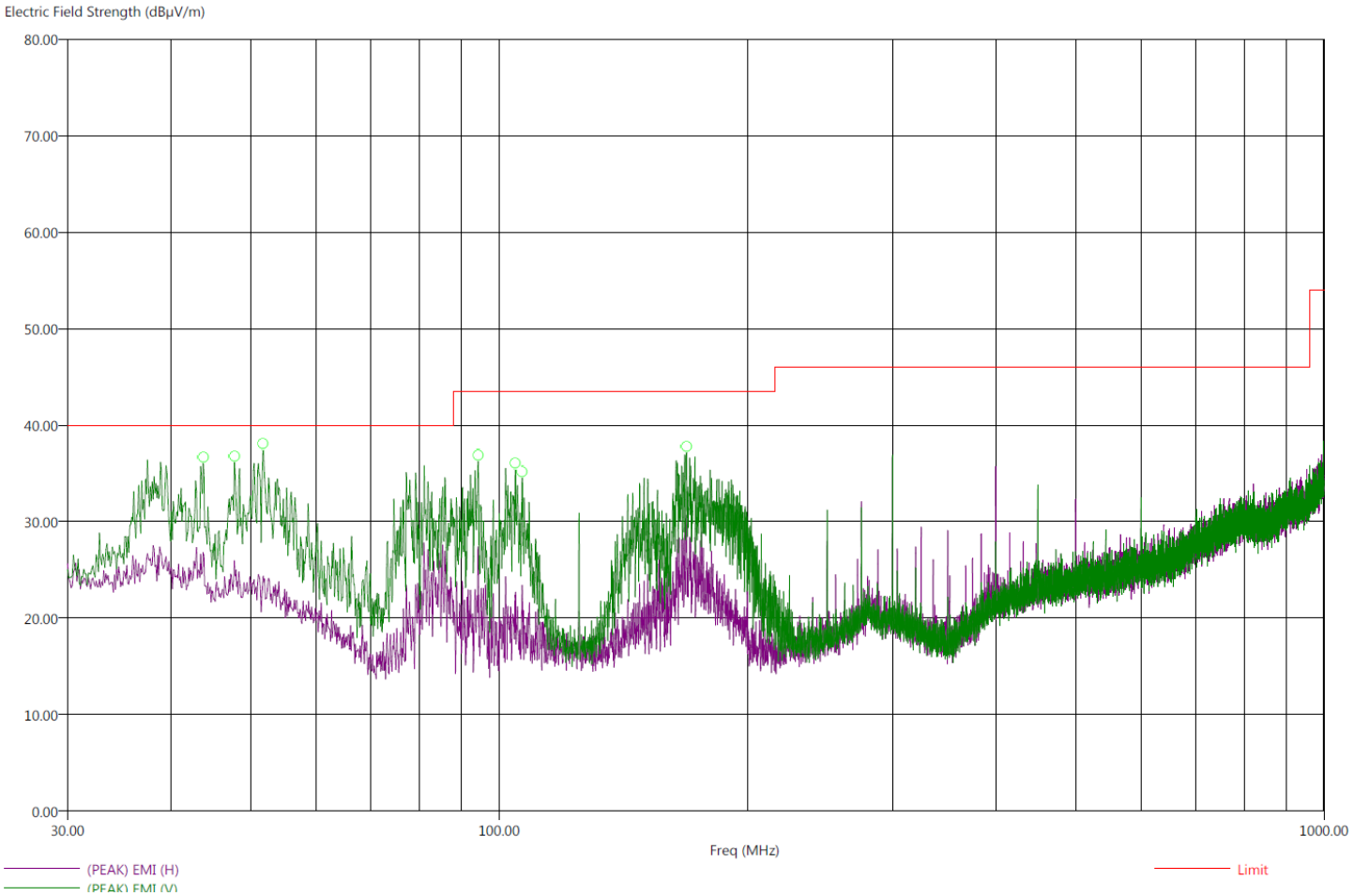
# *RADIATED SPURIOUS EMISSIONS*

# TRANSMITTER RADIATED SPURIOUS EMISSIONS

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: KEVO Bluetooth to Ethernet Hub.
EUT Condition: Transmitting High Channel.
Comments: Connected to PSU and Router.
Temp: 73f
Hum: 44%
120V 60Hz

8/24/2015 9:08:31 AM
Sequence: Preliminary Scan

**Compatible Electronics, Inc. FAC-3 (Lab R)**




***There were no spurious radiated emissions other than harmonics found below 30 MHz or above 1GHz***
***Worst case channel***

Title: FCC 15.209
File: Radiated Final 30-1000Mhz.set
Operator: Matt Harrison
EUT Type: KEVO Bluetooth to Ethernet Hub.
EUT Condition: Transmitting High Channel.
Comments: Connected to PSU and Router.
Temp: 73f
Hum: 44%
120V 60Hz

8/24/2015 9:14:15 AM
Sequence: Final Measurements

**Compatible Electronics, Inc. FAC-3 (Lab R)**

| Freq (MHz) | (QP) Margin (dB) | (QP) EMI (dBµV/m) | (PEAK) EMI (dBµV/m) | Limit (dBµV/m) | Pol | Ttbl Agl (deg) | Twr Ht (cm) | Transducer (dB) | Cable(dB) |
|---|---|---|---|---|---|---|---|---|---|
| 43.80 | -4.85 | 35.15 | 37.94 | 40.00 | V | 171.00 | 107.38 | 21.84 | 0.81 |
| 47.80 | -4.99 | 35.01 | 37.79 | 40.00 | V | 12.50 | 113.41 | 21.39 | 0.34 |
| 51.80 | -5.90 | 34.10 | 37.91 | 40.00 | V | 264.75 | 107.86 | 20.69 | 0.28 |
| 94.40 | -7.14 | 36.38 | 39.26 | 43.52 | V | 46.00 | 106.85 | 12.21 | 0.71 |
| 104.70 | -7.91 | 35.61 | 38.77 | 43.52 | V | 69.75 | 125.29 | 13.24 | 0.66 |
| 106.70 | -8.36 | 35.16 | 38.37 | 43.52 | V | 44.25 | 105.05 | 13.49 | 0.69 |
| 168.80 | -5.98 | 37.54 | 39.27 | 43.52 | V | 94.25 | 100.94 | 14.02 | 1.08 |

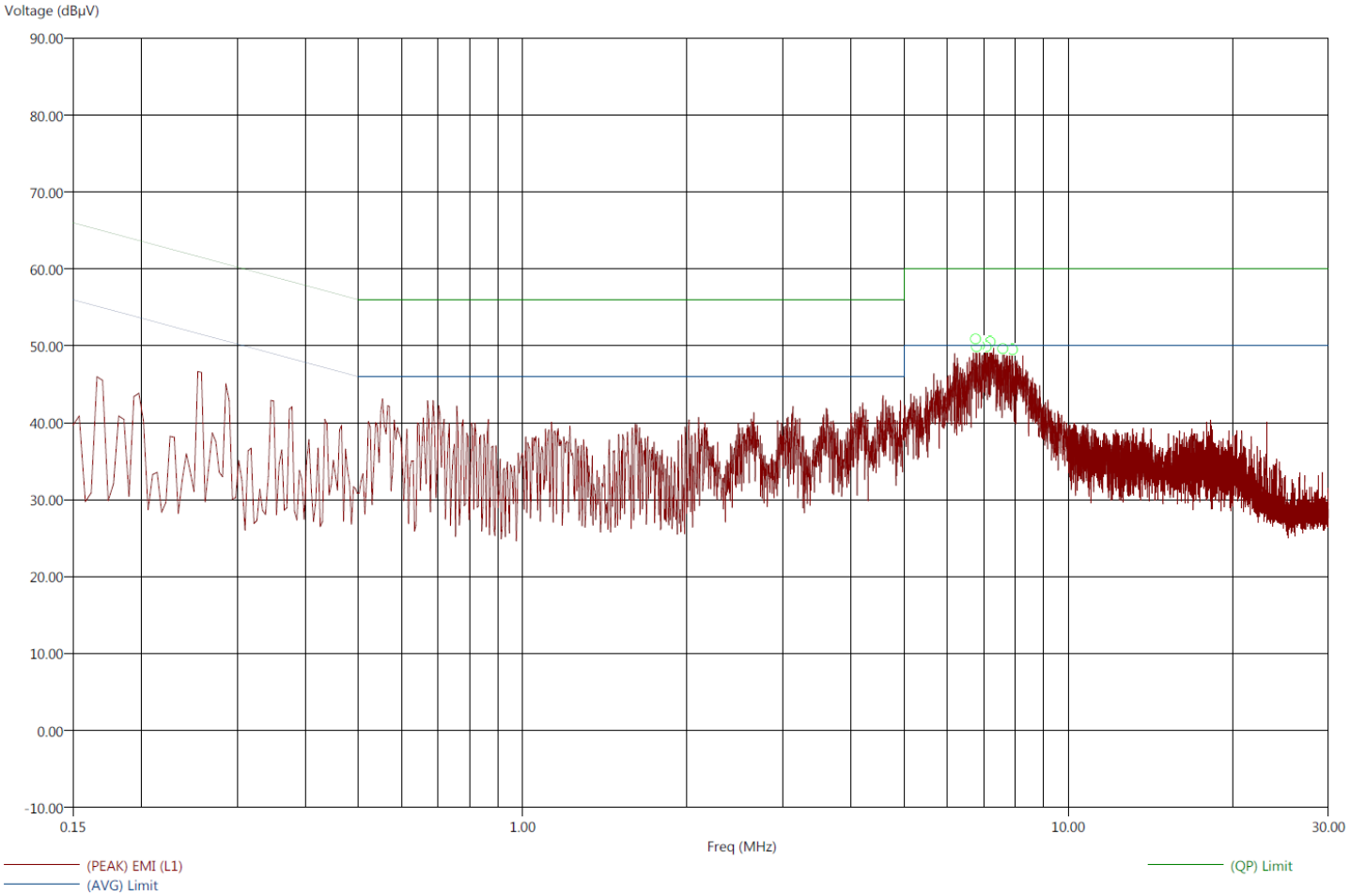
***There were no spurious radiated emissions other than harmonics found below 30 MHz or above 1GHz***
***Worst case channel***

# *CONDUCTED SPURIOUS EMISSIONS*

# TRANSMITTER CONDUCTED EMISSIONS

Title: FCC 15.207 7/3/2014 8:46:07 AM
File: Conducted Pre-Line.set Sequence: Preliminary Scan
Operator: Matt Harrison
EUT Type: RPU.
EUT Condition: Transmitting High Channel.
Comments: Connected to PSU and Router.
Temp: 73f
Hum: 44%
120V 60Hz
*Worst case channel*

**Compatible Electronics, Inc. FAC-3 (LAB R)**



Title: FCC 15.207
File: Conducted Final-Line.set
Operator: Matt Harrison
EUT Type: RPU.
EUT Condition: Transmitting High Channel.
Comments: Connected to PSU and Router.
Temp: 73f
Hum: 44%
120V 60Hz
*Worst case channel*

7/3/2014 8:48:46 AM
Sequence: Final Measurements

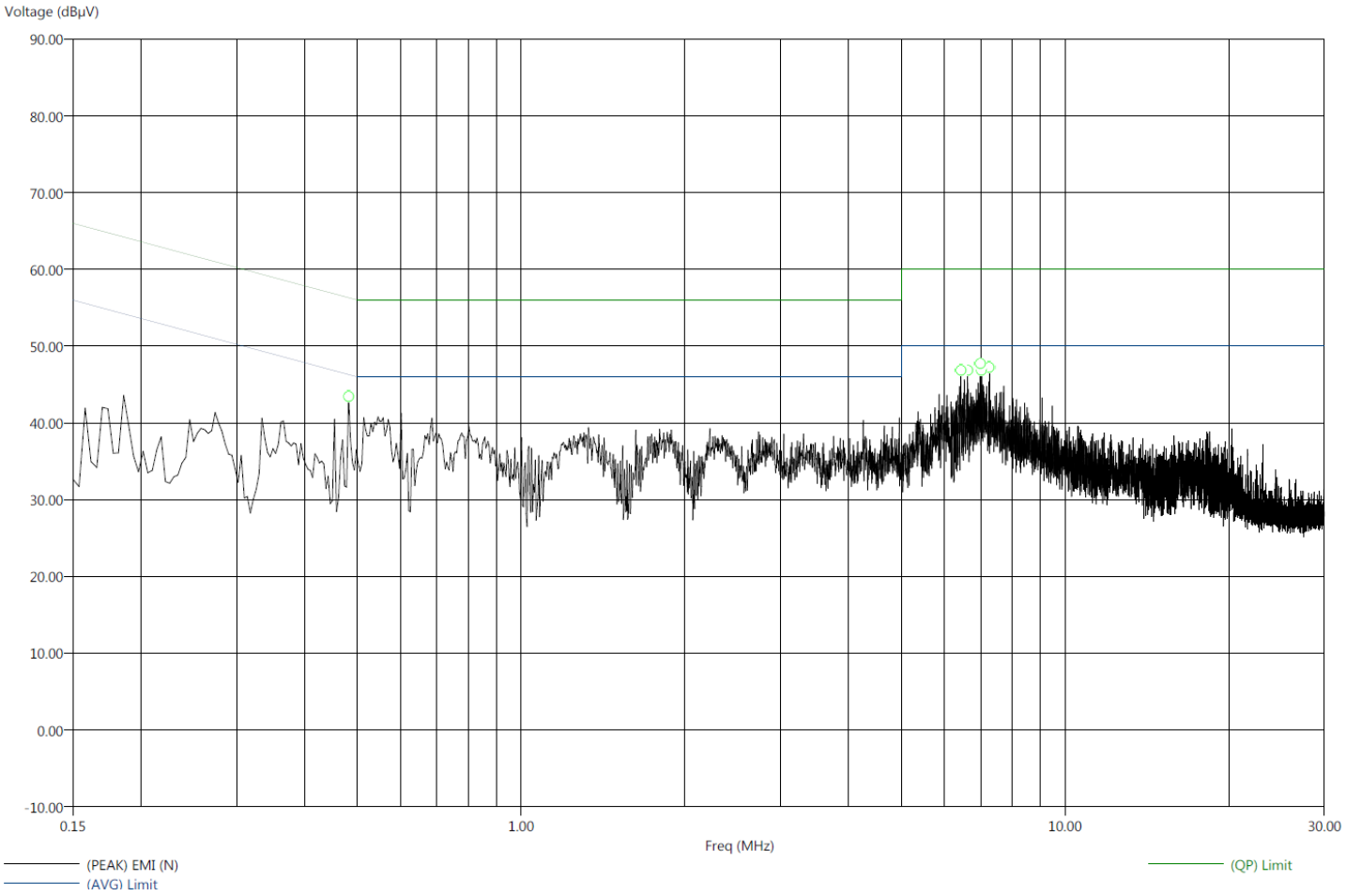
**Compatible Electronics, Inc. FAC-3 (LAB R)**

| Freq (MHz) | (AVG) Margin AVL (dB) | (QP) Margin QPL (dB) | (AVG) EMI (dBµV) | (QP) EMI (dBµV) | (PEAK) EMI (dBµV) | (AVG) Limit (dBµV) | (QP) Limit (dBµV) | Transducer (dB) | Cable (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 6.77 | -17.06 | -16.40 | 32.94 | 43.60 | 50.46 | 50.00 | 60.00 | 0.03 | 0.42 |
| 6.79 | -17.22 | -16.28 | 32.78 | 43.72 | 50.20 | 50.00 | 60.00 | 0.03 | 0.42 |
| 6.87 | -16.76 | -16.22 | 33.24 | 43.78 | 50.52 | 50.00 | 60.00 | 0.03 | 0.43 |
| 7.07 | -17.68 | -18.31 | 32.32 | 41.69 | 49.48 | 50.00 | 60.00 | 0.03 | 0.45 |
| 7.19 | -16.93 | -16.59 | 33.07 | 43.41 | 49.97 | 50.00 | 60.00 | 0.03 | 0.46 |
| 7.59 | -18.48 | -18.55 | 31.52 | 41.45 | 49.49 | 50.00 | 60.00 | 0.03 | 0.50 |
| 7.91 | -17.27 | -17.16 | 32.73 | 42.84 | 48.56 | 50.00 | 60.00 | 0.03 | 0.53 |

Title: FCC 15.207
File: Conducted Pre-Neutral.set
Operator: Matt Harrison
EUT Type: RPU.
EUT Condition: Transmitting High Channel.
Comments: Connected to PSU and Router.
Temp: 73f
Hum: 44%
120V 60Hz
*Worst case channel*

7/3/2014 8:52:25 AM
Sequence: Preliminary Scan

**Compatible Electronics, Inc. FAC-3 (LAB R)**



Title: FCC 15.207
File: Conducted Final-Neutral.set
Operator: Matt Harrison
EUT Type: RPU.
EUT Condition: Transmitting High Channel.
Comments: Connected to PSU and Router.
Temp: 73f
Hum: 44%
120V 60Hz
*Worst case channel*

7/3/2014 8:54:52 AM
Sequence: Final Measurements

**Compatible Electronics, Inc. FAC-3 (LAB R)**

| Freq (MHz) | (AVG) Margin AVL (dB) | (QP) Margin QPL (dB) | (AVG) EMI (dBµV) | (QP) EMI (dBµV) | (PEAK) EMI (dBµV) | (AVG) Limit (dBµV) | (QP) Limit (dBµV) | Transducer (dB) | Cable (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 0.48 | -20.51 | -21.71 | 25.79 | 34.60 | 42.55 | 46.30 | 56.30 | 0.05 | 0.01 |
| 6.43 | -22.05 | -22.39 | 27.95 | 37.61 | 45.95 | 50.00 | 60.00 | 0.05 | 0.38 |
| 6.62 | -22.41 | -22.39 | 27.59 | 37.61 | 48.08 | 50.00 | 60.00 | 0.05 | 0.40 |
| 6.99 | -20.13 | -22.37 | 29.87 | 37.63 | 47.33 | 50.00 | 60.00 | 0.05 | 0.44 |
| 7.03 | -20.97 | -22.49 | 29.03 | 37.51 | 47.30 | 50.00 | 60.00 | 0.05 | 0.45 |
| 7.27 | -21.60 | -24.05 | 28.40 | 35.95 | 46.00 | 50.00 | 60.00 | 0.04 | 0.47 |

# *FUNDAMENTAL & HARMONICS*

# *DATASHEETS*

# RADIATED FUNDAMENTAL EMISSIONS

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/17/15, 4/2/15
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBµV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 2402 | 84.72 | H | 113.97 | -29.25 | Peak | 1.00 | 320 | -8dB Power Level |
| 2402 | 64.72 | H | 93.97 | -29.25 | AVG | 1.00 | 320 | -8dB Power Level |
| 2402 | 94.43 | V | 113.97 | -19.54 | Peak | 1.06 | 190 | -8dB Power Level |
| 2402 | 74.43 | V | 93.97 | -19.54 | AVG | 1.06 | 190 | -8dB Power Level |
| 2440 | 107.52 | H | 113.97 | -6.45 | Peak | 2.00 | 325 | |
| 2440 | 87.52 | H | 93.97 | -6.45 | AVG | 2.00 | 325 | |
| 2440 | 112.17 | V | 113.97 | -1.80 | Peak | 1.11 | 235 | |
| 2440 | 92.17 | V | 93.97 | -1.80 | AVG | 1.11 | 235 | |
| 2480 | 107.82 | H | 113.97 | -6.15 | Peak | 1.00 | 315 | |
| 2480 | 87.82 | H | 93.97 | -6.15 | AVG | 1.00 | 315 | |
| 2480 | 112.18 | V | 113.97 | -1.79 | Peak | 1.11 | 240 | |
| 2480 | 92.18 | V | 93.97 | -1.79 | AVG | 1.11 | 240 | |

Test distance
3 meter

# HARMONIC EMISSIONS LOW CHANNEL

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/17/2015
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 4804.00 | 44.19 | H | 73.98 | -29.79 | Peak | 1.36 | 106 | |
| 4804.00 | 24.19 | H | 53.98 | -29.79 | Avg | 1.36 | 106 | |
| | | | | | | | | |
| 7206.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 7206.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 9608.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 9608.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 12010.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 12010.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 14412.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 14412.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 16814.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 16814.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 19216.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 19216.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 21618.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 21618.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 24020.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 24020.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS LOW CHANNEL

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/17/2015
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 4804.00 | 45.31 | V | 73.98 | -28.67 | Peak | 1.07 | 230 | |
| 4804.00 | 25.31 | V | 53.98 | -28.67 | Avg | 1.07 | 230 | |
| | | | | | | | | |
| 7206.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 7206.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 9608.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 9608.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 12010.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 12010.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 14412.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 14412.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 16814.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 16814.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 19216.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 19216.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 21618.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 21618.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 24020.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 24020.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS MID CHANNEL

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/7/2014
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBµV) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 4880.00 | 61.13 | H | 73.98 | -12.85 | Peak | 1.02 | 238 | |
| 4880.00 | 41.13 | H | 53.98 | -12.85 | Avg | 1.02 | 238 | |
| | | | | | | | | |
| 7320.00 | 70.77 | H | 73.98 | -3.21 | Peak | 1.35 | 228 | |
| 7320.00 | 50.77 | H | 53.98 | -3.21 | Avg | 1.35 | 228 | |
| | | | | | | | | |
| 9760.00 | 58.25 | H | 73.98 | -15.73 | Peak | 1.55 | 112 | |
| 9760.00 | 38.25 | H | 53.98 | -15.73 | Avg | 1.55 | 112 | |
| | | | | | | | | |
| 12200.00 | 57.33 | H | 73.98 | -16.65 | Peak | 1.40 | 177 | |
| 12200.00 | 37.33 | H | 53.98 | -16.65 | Avg | 1.40 | 177 | |
| | | | | | | | | |
| 14640.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 14640.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 17080.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 17080.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 19520.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 19520.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 21960.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 21960.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 24400.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 24400.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS MID CHANNEL

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/7/2014
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBµV) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 4880.00 | 65.62 | V | 73.98 | -8.36 | Peak | 1.2 | 109 | |
| 4880.00 | 45.62 | V | 53.98 | -8.36 | Avg | 1.2 | 109 | |
| | | | | | | | | |
| 7320.00 | 71.63 | V | 73.98 | -2.35 | Peak | 1.02 | 182 | |
| 7320.00 | 51.63 | V | 53.98 | -2.35 | Avg | 1.02 | 182 | |
| | | | | | | | | |
| 9760.00 | 60.43 | V | 73.98 | -13.55 | Peak | 1.68 | 7 | |
| 9760.00 | 40.43 | V | 53.98 | -13.55 | Avg | 1.68 | 7 | |
| | | | | | | | | |
| 12200.00 | 59.69 | V | 73.98 | -14.29 | Peak | 1.73 | 237 | |
| 12200.00 | 39.69 | V | 53.98 | -14.29 | Avg | 1.73 | 237 | |
| | | | | | | | | |
| 14640.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 14640.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 17080.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 17080.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 19520.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 19520.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 21960.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 21960.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 24400.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 24400.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS HIGH CHANNEL

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/7/2014
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBµV) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 4960.00 | 57.54 | H | 73.98 | -16.44 | Peak | 1 | 242 | |
| 4960.00 | 37.54 | H | 53.98 | -16.44 | Avg | 1 | 242 | |
| | | | | | | | | |
| 7440.00 | 70.42 | H | 73.98 | -3.56 | Peak | 1.04 | 218 | |
| 7440.00 | 50.42 | H | 53.98 | -3.56 | Avg | 1.04 | 218 | |
| | | | | | | | | |
| 9920.00 | 58.28 | H | 73.98 | -15.70 | Peak | 1.5 | 107 | |
| 9920.00 | 38.28 | H | 53.98 | -15.70 | Avg | 1.5 | 107 | |
| | | | | | | | | |
| 12400.00 | 59.85 | H | 73.98 | -14.13 | Peak | 1.47 | 174 | |
| 12400.00 | 39.85 | H | 53.98 | -14.13 | Avg | 1.47 | 174 | |
| | | | | | | | | |
| 14880.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 14880.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 17360.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 17360.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 19840.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 19840.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 22320.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 22320.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 24800.00 | | H | -- | -- | Peak | | | **No Emission Found** |
| 24800.00 | | H | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS HIGH CHANNEL

**FCC 15.249**

Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Date: 7/7/2014
Lab: R
Test ENG: Matt Harrison

**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBµV) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 4960.00 | 61.33 | V | 73.98 | -12.65 | Peak | 1.49 | 106 | |
| 4960.00 | 41.33 | V | 53.98 | -12.65 | Avg | 1.49 | 106 | |
| | | | | | | | | |
| 7440.00 | 71.30 | V | 73.98 | -2.68 | Peak | 1.4 | 174 | |
| 7440.00 | 51.30 | V | 53.98 | -2.68 | Avg | 1.4 | 174 | |
| | | | | | | | | |
| 9920.00 | 57.07 | V | 73.98 | -16.91 | Peak | 1.47 | 342 | |
| 9920.00 | 37.07 | V | 53.98 | -16.91 | Avg | 1.47 | 342 | |
| | | | | | | | | |
| 12400.00 | 60.23 | V | 73.98 | -13.75 | Peak | 1.4 | 237 | |
| 12400.00 | 40.23 | V | 53.98 | -13.75 | Avg | 1.4 | 237 | |
| | | | | | | | | |
| 14880.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 14880.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 17360.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 17360.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 19840.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 19840.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 22320.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 22320.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |
| 24800.00 | | V | -- | -- | Peak | | | **No Emission Found** |
| 24800.00 | | V | -- | -- | Avg | | | **No Emission Found** |
| | | | | | | | | |

Test distance
3 meter

# *EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND*

# *DATA SHEETS*

# BAND EDGES- HORIZONTAL

**FCC 15.249**

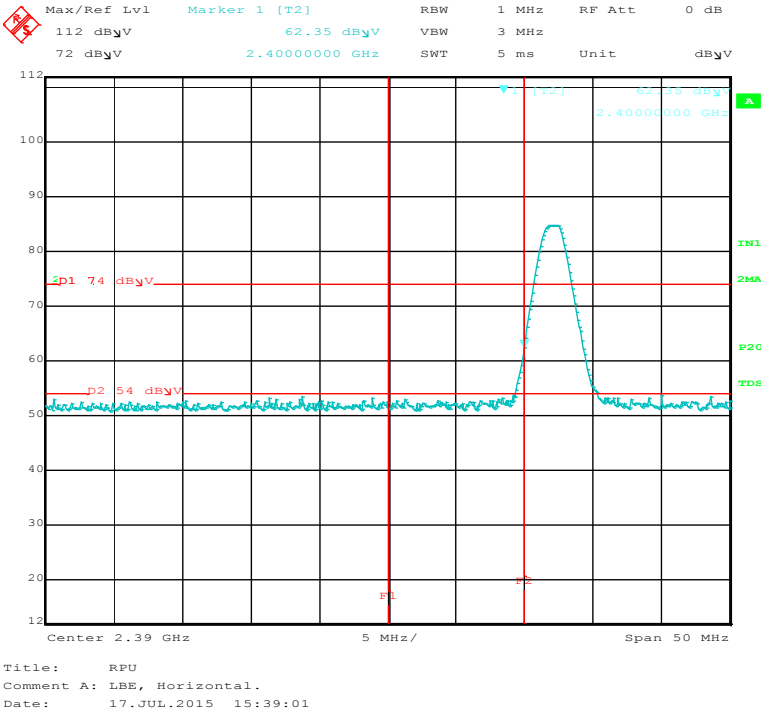
Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Dates: 7/17/2015, 7/7/14
Lab: R
Test ENG: Matt Harrison

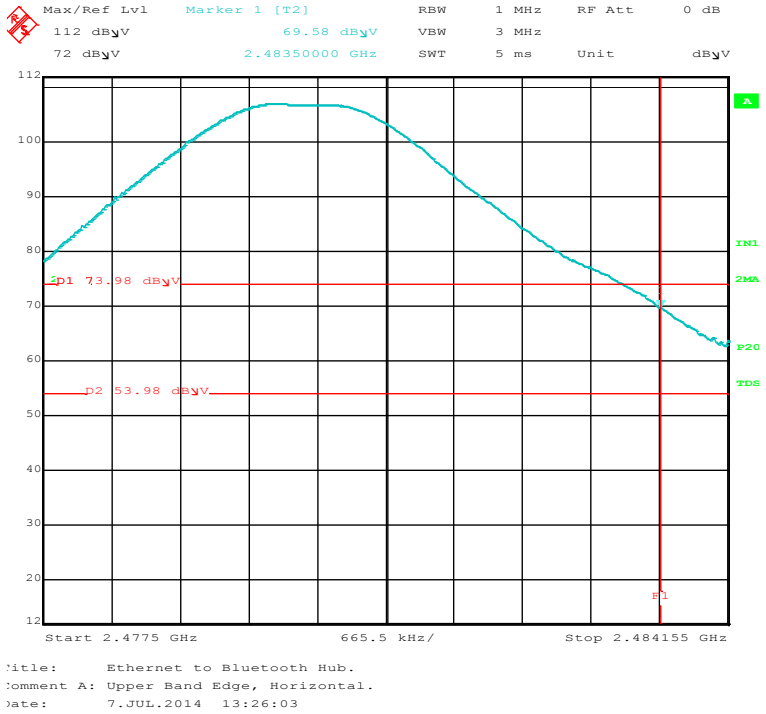
**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 2400.00 | 62.35 | H | 73.98 | -11.63 | Peak | 1 | 320 | **No** Marker Delta |
| 2400.00 | 42.35 | H | 53.98 | -11.63 | Avg | 1 | 320 | Method Used |
| | | | | | | | | |
| | | | | | | | | |
| 2483.5 | 69.58 | H | 73.98 | -4.40 | Peak | 1 | 315 | **No** Marker Delta |
| 2483.5 | 49.58 | H | 53.98 | -4.40 | Avg | 1 | 315 | Method Used |
| | | | | | | | | |

Test distance
3 meter




Title: RPU
Comment A: LBE, Horizontal.
Date: 17.JUL.2015 15:39:01




Title: Ethernet to Bluetooth Hub.
Comment A: Upper Band Edge, Horizontal.
Date: 7.JUL.2014 13:26:03

# BAND EDGES- VERTICAL

**FCC 15.249**

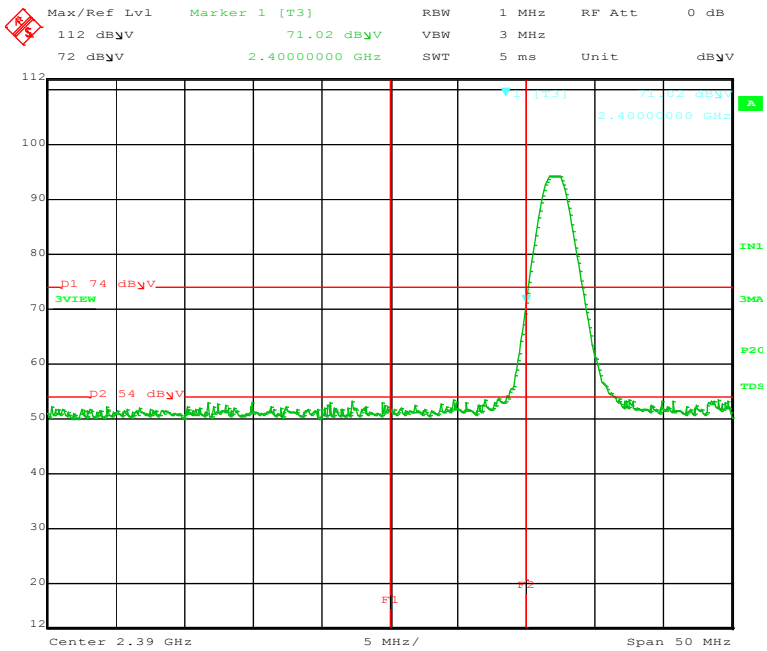
Company: Kwikset
EUT: Router Plugin Unit
Model: 924-GED1900-RPU
Duty Cycle Correction Factor: 20.00

Dates: 7/17/2015, 7/7/14
Lab: R
Test ENG: Matt Harrison

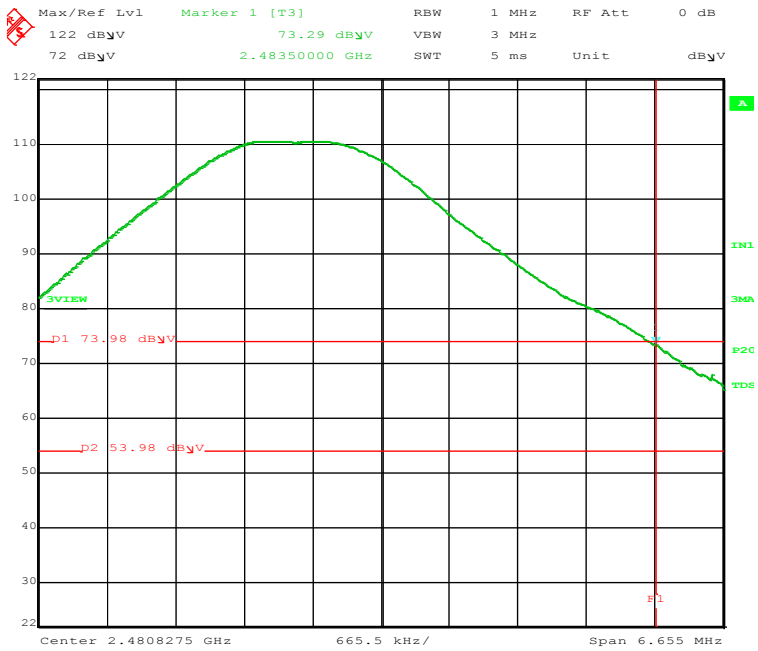
**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 2400.00 | 71.02 | V | 73.98 | -2.96 | Peak | 1.06 | 190 | **No** Marker Delta |
| 2400.00 | 51.02 | V | 53.98 | -2.96 | Avg | 1.06 | 190 | Method Used |
| | | | | | | | | |
| | | | | | | | | |
| 2483.50 | 73.29 | V | 73.98 | -0.69 | Peak | 1.11 | 240 | **No** Marker Delta |
| 2483.50 | 53.29 | V | 53.98 | -0.69 | Avg | 1.11 | 240 | Method Used |
| | | | | | | | | |

Test distance
3 meter




Title: RPU
Comment A: LBE, Vertical.
Date: 17.JUL.2015 15:37:23

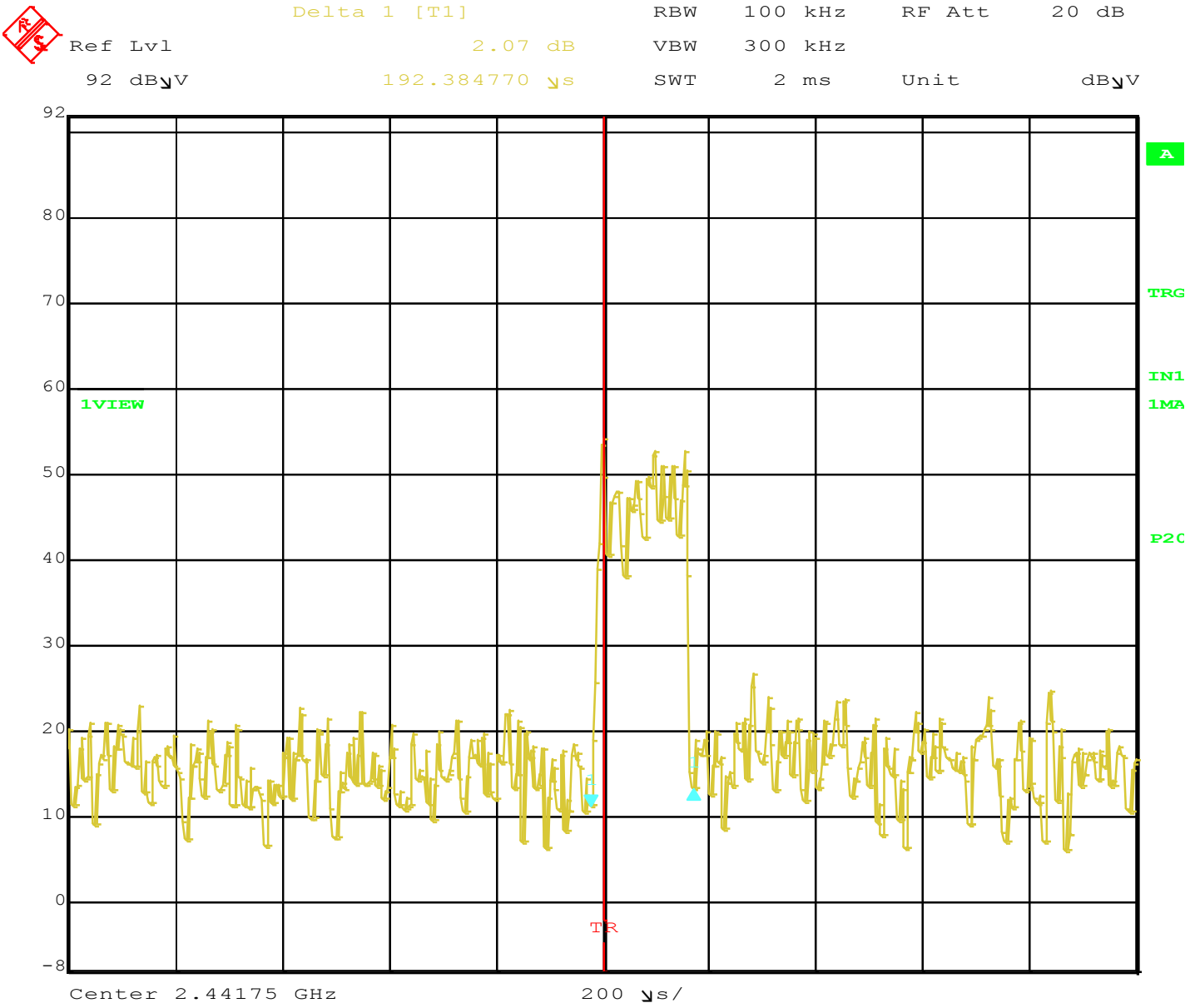



itle: Ethernet to Bluetooth Hub.
omment A: Upper Band Edge, Vertical.
ate: 7.JUL.2014 13:30:18

# *DUTY CYCLE*

# *DATA SHEETS*

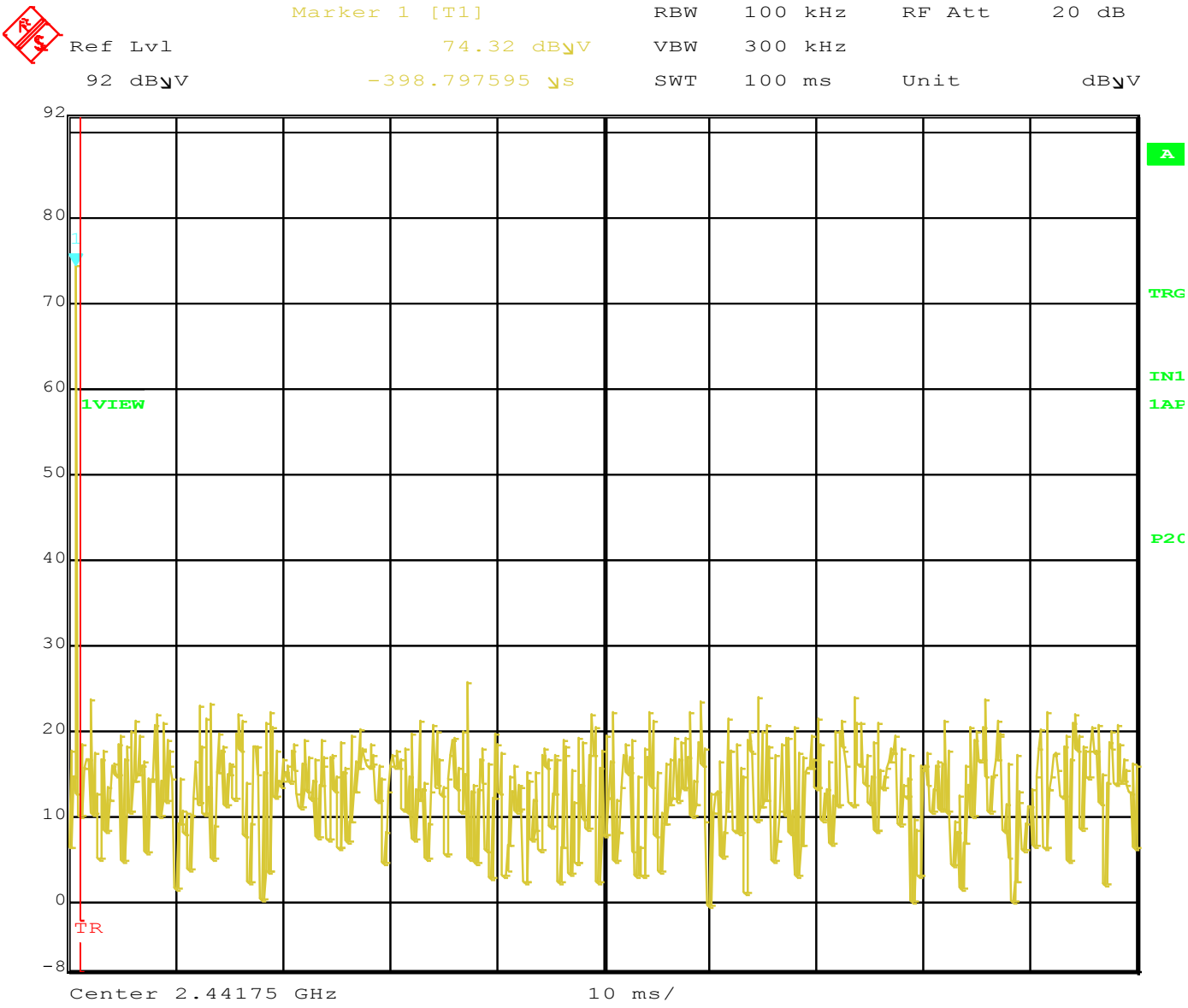
# DUTY CYCLE
## PULSE WIDTH




Title: Ethernet to Bluetooth Hub.
Comment A: DC.
Date: 7.JUL.2014 14:07:13

*Pulse width = 0.192384770ms*

# DUTY CYCLE
## PULSE TRAIN




Title: Ethernet to Bluetooth Hub.
Comment A: DC.
Date: 7.JUL.2014 14:05:51

*Number of Pulses in 100ms = 1*
*Total Pulse Time Within 100ms period = 0.192384770* 1 = 0.192384770 ms*
*Duty Cycle = 0.192384770ms / 100ms = 0.00192384770*
*Correction Factor = 20 * log 0.00192384770 = -54.32 dB*

***Maximum Correction Factor Allowed -20dB***