***FCC PART 15 SUBPART B & SUBPART C SECTION 15.249***
***TEST REPORT***

*for*

# Z-WAVE HONEYCOMB SHADES
# Models: QMHCS-908-6 & QMHCS-908-4

Prepared for

Q MOTION
3400 COPTER RD.
PENSACOLA, FL 32514

Prepared by:_____

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DATE: APRIL 27th, 2016

| | REPORT BODY | APPENDICES | | | | | TOTAL |
|---|---|---|---|---|---|---|---|
| | | ***A*** | ***B*** | ***C*** | ***D*** | ***E*** | |
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| 1 | Plot Map And Layout of Test Site Below 1GHz |
| 2 | Plot Map And Layout of Test Site Above 1GHz |

# 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 in any form unless done so in full with the written permission of Compatible Electronics.

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

| | |
|---|---|
| Devices Tested: | Z-Wave Honeycomb Shades<br>Models: QMHCS-908-6 & QMHCS-908-4<br>S/N: None |
| Product Description: | The QMHCS-908 from Q Motion is a Z-Wave Controlled Honeycomb Window Shade. This Z-Wave controlled roller window shade allows an end user to install, configure and control their window coverings using their Z-Wave network which may even extend to an app on their smart phone. |
| Modifications: | The EUTS were not modified in order to comply with specifications. |
| Manufacturer: | Q Motion<br>3400 Copter Rd.<br>Pensacola, FL 32514 |
| Test Date: | February 22nd, 23rd, & 24th, 2016 |
| Test Specifications: | EMI requirements<br><br>CFR Title 47, Part 15 Subpart B Sections 15.107, 15.109, Subpart C Sections 15.205, 15.207, 15.209 and 15.249 |
| Test Procedure: | ANSI C63.4 & C63.10 |

# SUMMARY OF TEST RESULTS

| TEST | DESCRIPTION | RESULTS |
|---|---|---|
| 1 | Conducted RF Emissions, 150 kHz - 30 MHz. | The EUTs are battery operated devices; therefore this test was deemed unnecessary and thus was not performed. |
| 2 | Radiated RF Emissions & Harmonics, 9 kHz – 10,000 MHz. | Complies with the limits of CFR Title 47 Part 15 Subpart B Section 15.109 & Subpart C Section 15.205, 15.209, & 15.249 |
| 3 | Fundamental Field Strength | Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.249 |
| 4 | Emissions Radiated Outside of the Fundamental Frequency Band | Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.205, 15.209, & 15.249 |

# 1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Z-Wave Honeycomb Shades Models: QMHCS-908-6 & QMHCS-908-4. The EMI measurements were performed according to the measurement procedure described in ANSI. 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, 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 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

Q Motion

David Ayer

Nortek Security & Control LLC

| | |
|---|---|
| Josh Hansen | Regulatory Engineer |

Compatible Electronics, Inc.

| | |
|---|---|
| Torey Oliver | Test Technician |
| Matt Harrison | Lab Manager |

## 2.4 Date Test Sample was Received

The test sample was received on December 8, 2015.

## 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 |
| NVLAP | National Voluntary Laboratory Accreditation Program |
| CFR | Code of Federal Regulations |
| PCB | Printed Circuit Board |
| TX | Transmit |
| RX | Receive |

## 3. APPLICABLE DOCUMENTS

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

| SPEC | TITLE |
|---|---|
| CFR Title 47, Part 15 | FCC Rules – Radio frequency devices (including digital devices) |
| ANSI C63.4 2014 | Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz. |
| ANSI C63.10: 2013 | American National Standard for Testing Unlicensed Wireless Devices |

# 4. DESCRIPTION OF TEST CONFIGURATION

## 4.1 Description of Test Configuration

The Z-Wave Honeycomb Shades Model: QMHCS-908-6 & QMHCS-908-4 (EUTs) was setup on a test fixture to simulate a real life scenario use. A laptop was used to program the EUTs intermittently for the testing. For the models listed (QMHCS-908-X) the X represents the number of batteries the EUT uses. The EUTs were only checked in one axis because this would be the only orientation in a real life scenario. The EUTs were continuously transmitting a data stream during transmit tests. The EUTs were set to constantly receive commands for the receive tests.

The EUTs were tested with new batteries.

It was determined that the emissions were at their highest level when the EUTs were transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

### 4.1.1 Photograph Test Configuration

### 4.1.2 Cable Construction and Termination

**The EUTs had no interconnecting cables.**

# 5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

## 5.1 EUTs and Accessory List

| # | EQUIPMENT TYPE | MANU-FACTURER | MODEL | SERIAL NUMBER |
|---|---|---|---|---|
| 1 | Z-WAVE HONEYCOMB SHADE (EUT) | Q MOTION | QMHCS-908-6 | None |
| 2 | Z-WAVE HONEYCOMB SHADE (EUT) | Q MOTION | QMHCS-908-4 | None |
| 3 | BATTERIES (X6 & X4) | RAYOVAC | D | None |
| 5 | LAPTOP | LENOVO | W530 | R9-WRFYR 13/01 |
| 6 | LAPTOP POWER SUPPLY | LENOVO | 45N0113 | 11S45M0113Z1ZHX82CB1M9 |

## 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 | 100219 | 09/03/2015 | 09/03/2016 |
| Antenna, Loop | Com Power | AL-130 | 121049 | 12/06/2014 | 12/06/2016 |
| Antenna, CombiLog | Com Power | AC-220 | 25857 | 05/21/2014 | 05/21/2016 |
| Antenna, Horn 1-18GHz | Com Power | AH-118 | 071250 | 07/01/2014 | 07/01/2016 |
| Pre-Amp, 1-18GHz | Com Power | PAM-118 | 551034 | 04/24/2014 | 04/24/2016 |
| Notch Filter | AMTI Microwave Circuits | N03019-01 | 3709-01 DC0415 | 01/06/2015 | 01/06/2017 |
| 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 |
| LISN | Com-Power | LI-150 | 191935 | 3/17/2014 | 3/17/2016 |

# 6. TEST SITE DESCRIPTION

## 6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

## 6.2 EUT Mounting, Bonding and Grounding

The EUTs were mounted on a tripod, which was placed on the ground plane. The height was adjusted according the testing which was placed 0.8 meters below 1 GHz and 1.5 meter for testing done above 1 GHz.

The EUTs were not grounded.

## 6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

# 7. CHARACTERISTICS OF THE TRANSMITTER

## 7.1 Channel Number and Frequencies

There 2 operating channels and the EUT uses 2-key FSK/GFSK modulation schemes. The 908.4MHz channel uses the FSK modulation with a 40kbps or a 9kbps data rate. The 40kbps data rate was used for all testing since it was found to be the worst case. The 916MHz channel uses GFSK at a data rate of 100kbps. The gain settings were preset for all units.

1 == 908.4 MHz
2 == 916.0 MHz

## 7.2 Antenna

The antenna is made up of a wire connected to the PCB.

# 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 EUT is a battery operated device; therefore this test was deemed unnecessary and thus was not performed. If this test had been applicable it would have been performed as below.*

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. The final qualification data is located in Appendix E.

### 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. Amplifiers were used to increase the sensitivity of the instrument. There was one Preamplifier used for frequencies above 1 GHz.

For the fundamental and spurious emissions the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

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

| FREQUENCY RANGE (MHz) | TRANSDUCER | EFFECTIVE MEASUREMENT BANDWIDTH |
|---|---|---|
| 0.009 to .150 | Active Loop Antenna | 200 Hz |
| 0.150 to 30 | Active Loop Antenna | 9 kHz |
| 30 to 1000 | Combilog Antenna | 100 kHz (120kHz for Quasi-Peak Measurements) |
| 1000 to 10000 | 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. 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 EUTs complies with the limits of CFR Title 47 Part 15 Subpart B section 15.109, & Part 15 Subpart C sections 15.205, 15.209 and 15.249.

### 8.1.3 Fundamental Field Strength

The Peak Transmit Radiated Field Strength was measured at a 3-meter test distance. The EMI Receiver was used to obtain the final test data. The final qualification data sheets are located in Appendix E.

**Test Results:**

The EUTs 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 lower and upper channels were tuned during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

**Test Results:**

The EUTs complies with Part 15 Subpart C, Section 15.205 & 15.249.

## 9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

## 10. CONCLUSIONS

The Z-Wave Honeycomb Shades Models: QMHCS-908-6 & QMHCS-908-4 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart B section 15.107, 15.109, & Subpart C sections 15.205, 15.207, 15.209 and 15.249.

# 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, 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.

**NVLAP listing links**
Agoura Division - http://ts.nist.gov/Standards/scopes/2000630.htm
Brea Division - http://ts.nist.gov/Standards/scopes/2005280.htm
Silverado/Lake Forest Division - http://ts.nist.gov/Standards/scopes/2005270.htm

**ANSI listing**
CETCB
https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4

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

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).

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

**VCCI Listing, from VCCI site**
Enter "Compatible" in search form http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html

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

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

# APPENDIX B

## *MODIFICATIONS TO THE EUTS*

# MODIFICATIONS TO THE EUT

There were no modifications were made during testing.

# APPENDIX C

## *ADDITIONAL MODELS COVERED UNDER THIS REPORT*

# ADDITIONAL MODELS COVERED UNDER THIS REPORT

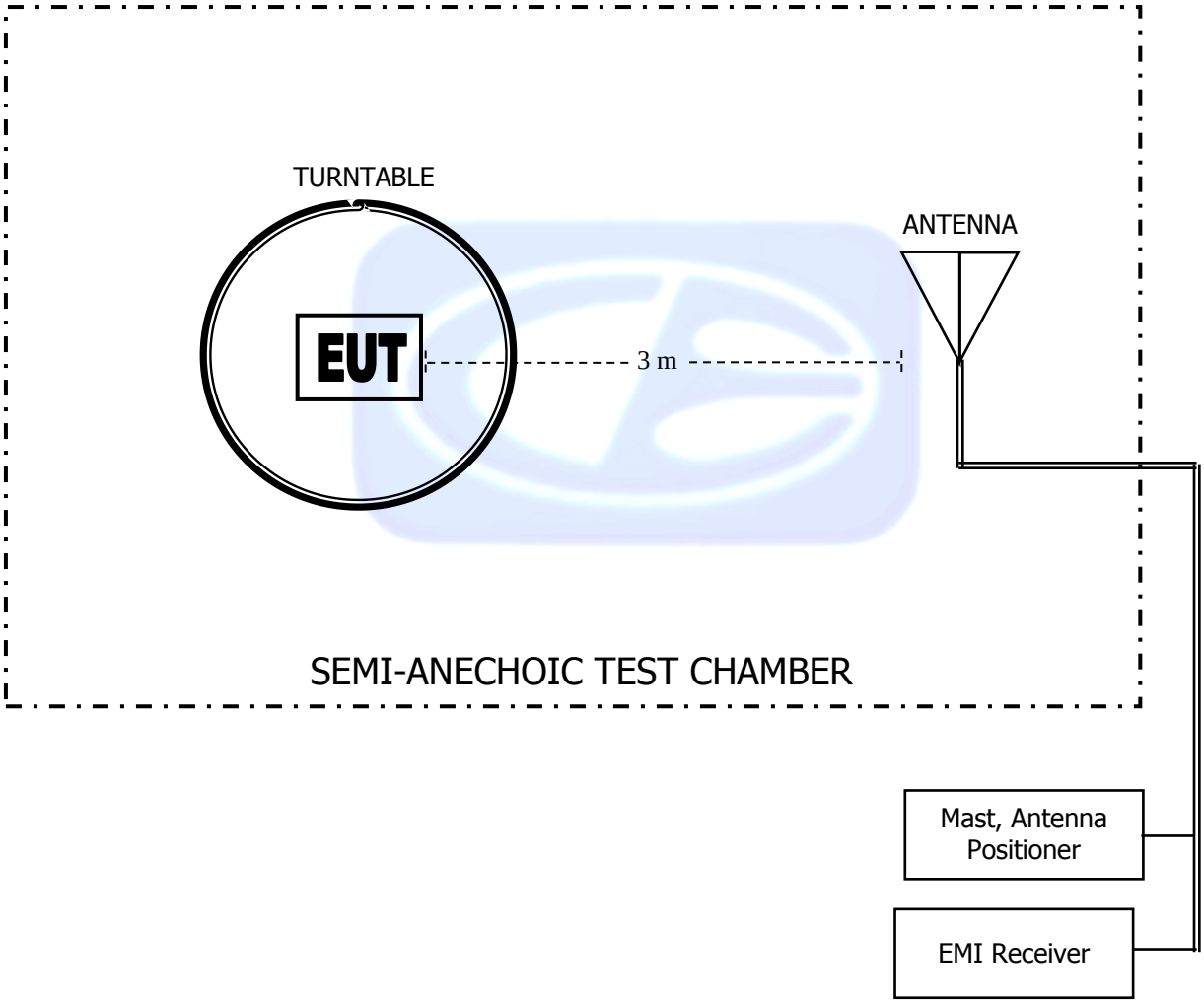
| | |
|---|---|
| USED FOR THE PRIMARY TEST | Z-WAVE HONEYCOMB SHADES<br>Models: QMHCS-908-6 & QMHCS-908-4<br>S/N: None |

**No additional models were tested.**

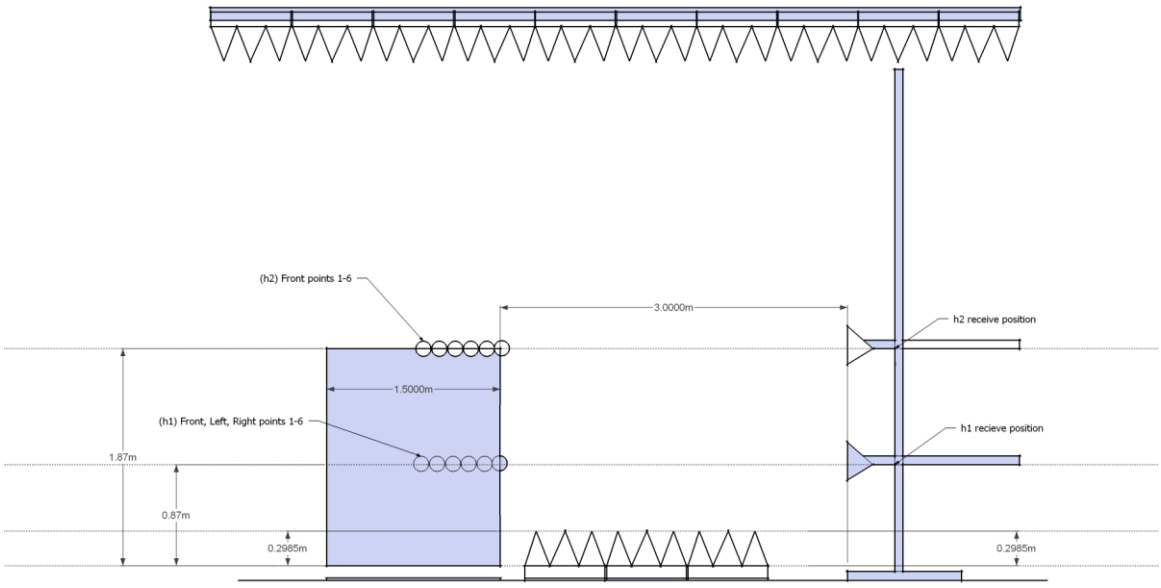
# APPENDIX D

## *DIAGRAMS, CHARTS, AND PHOTOS*

# *FIGURE 1:* PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ



# *FIGURE 2:* PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



# COM-POWER AL-130

# LOOP ANTENNA

# S/N: 121049

# CALIBRATION DUE: DECEMBER 6, 2016

| 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: 551034

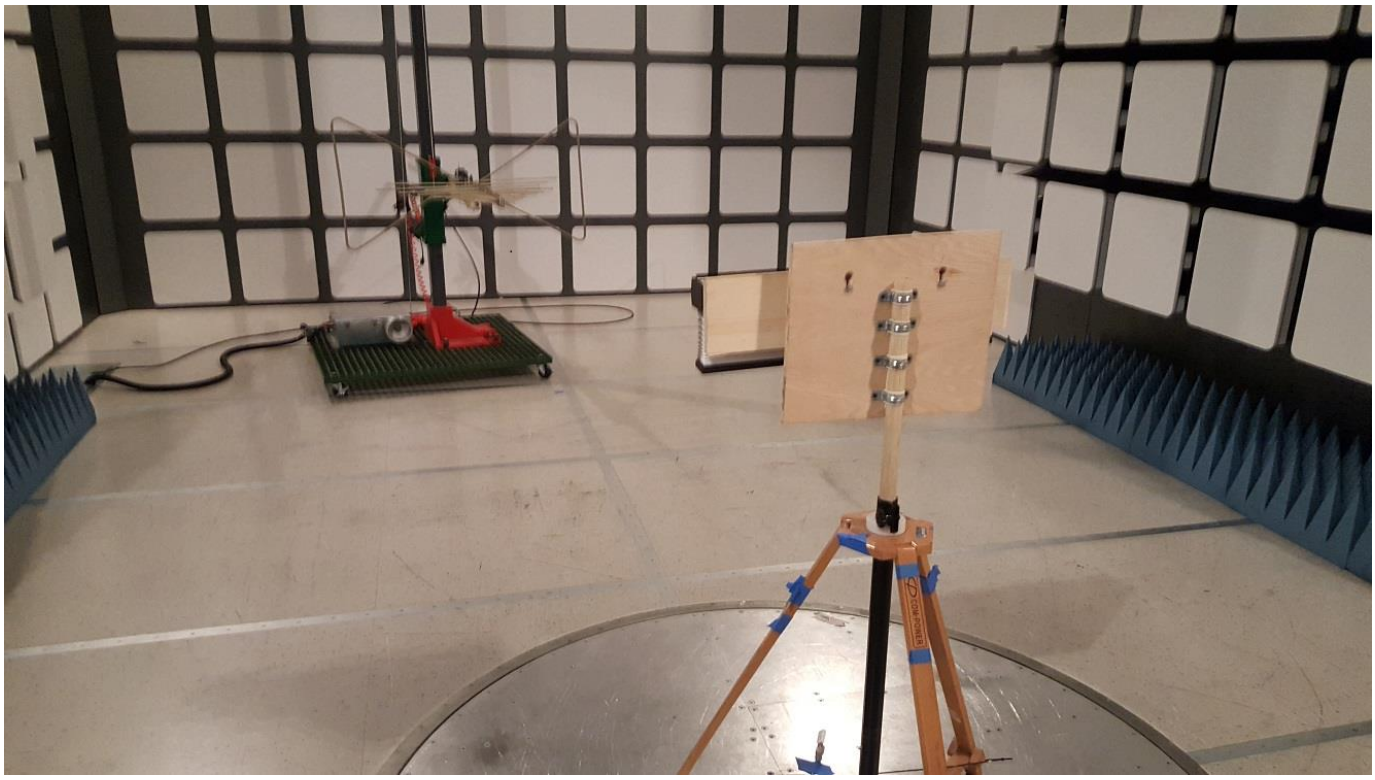
# CALIBRATION DUE: APRIL 24, 2016

| 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 |

**FRONT VIEW**

Q MOTION
Z-WAVE HONEYCOMB SHADES
MODELS: QMHCS-908-6 & QMHCS-908-4
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

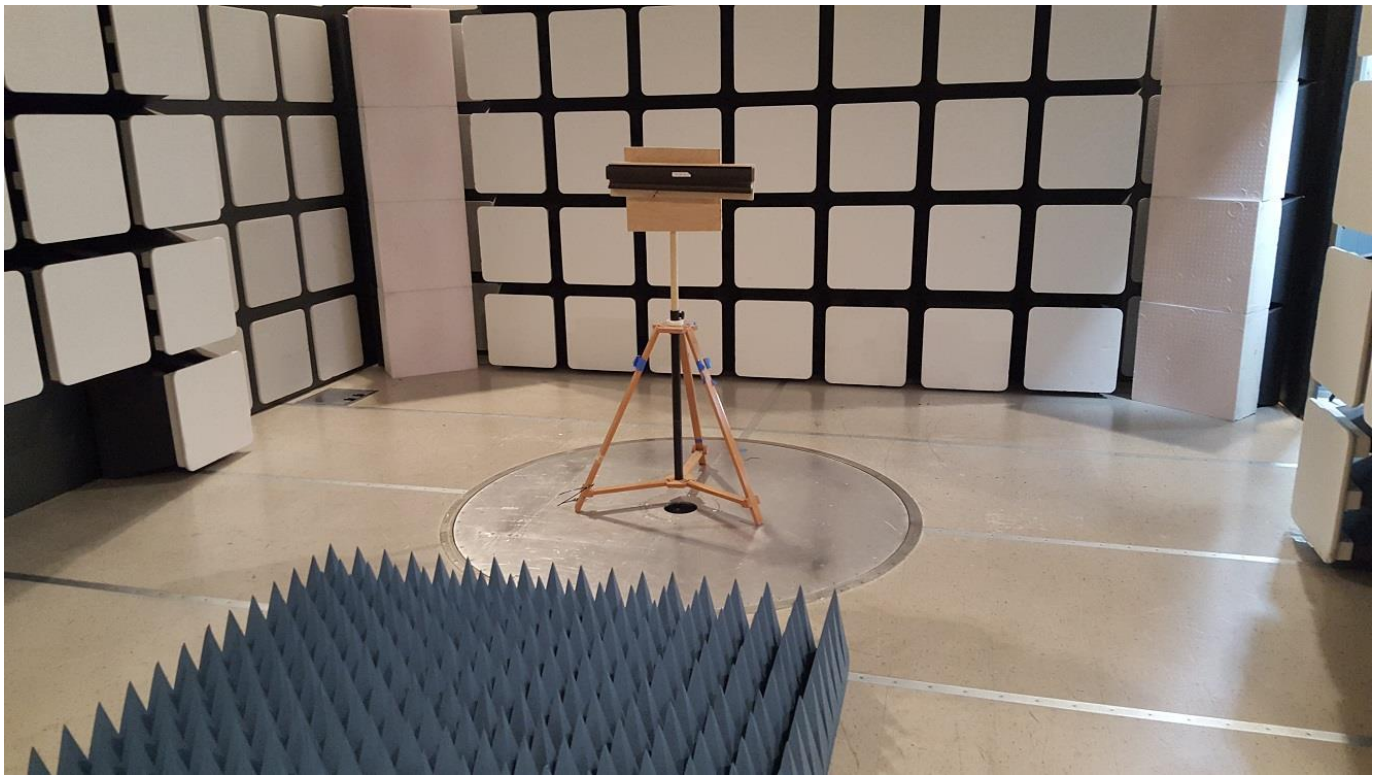
## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



**REAR VIEW**

Q MOTION
Z-WAVE HONEYCOMB SHADES
MODELS: QMHCS-908-6 & QMHCS-908-4
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

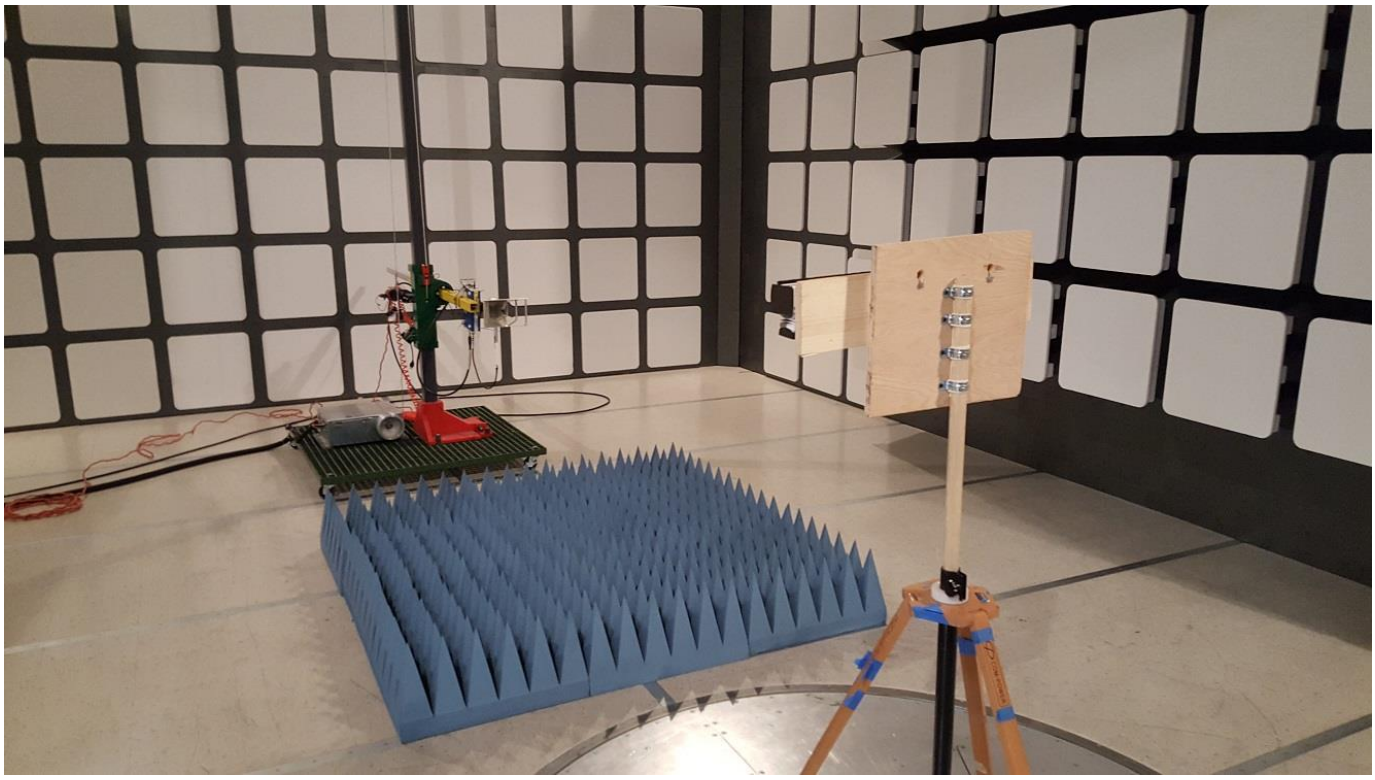
## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



**FRONT VIEW**

Q MOTION
Z-WAVE HONEYCOMB SHADES
MODELS: QMHCS-908-6 & QMHCS-908-4
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



**REAR VIEW**

Q MOTION
Z-WAVE HONEYCOMB SHADES
MODELS: QMHCS-908-6 & QMHCS-908-4
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

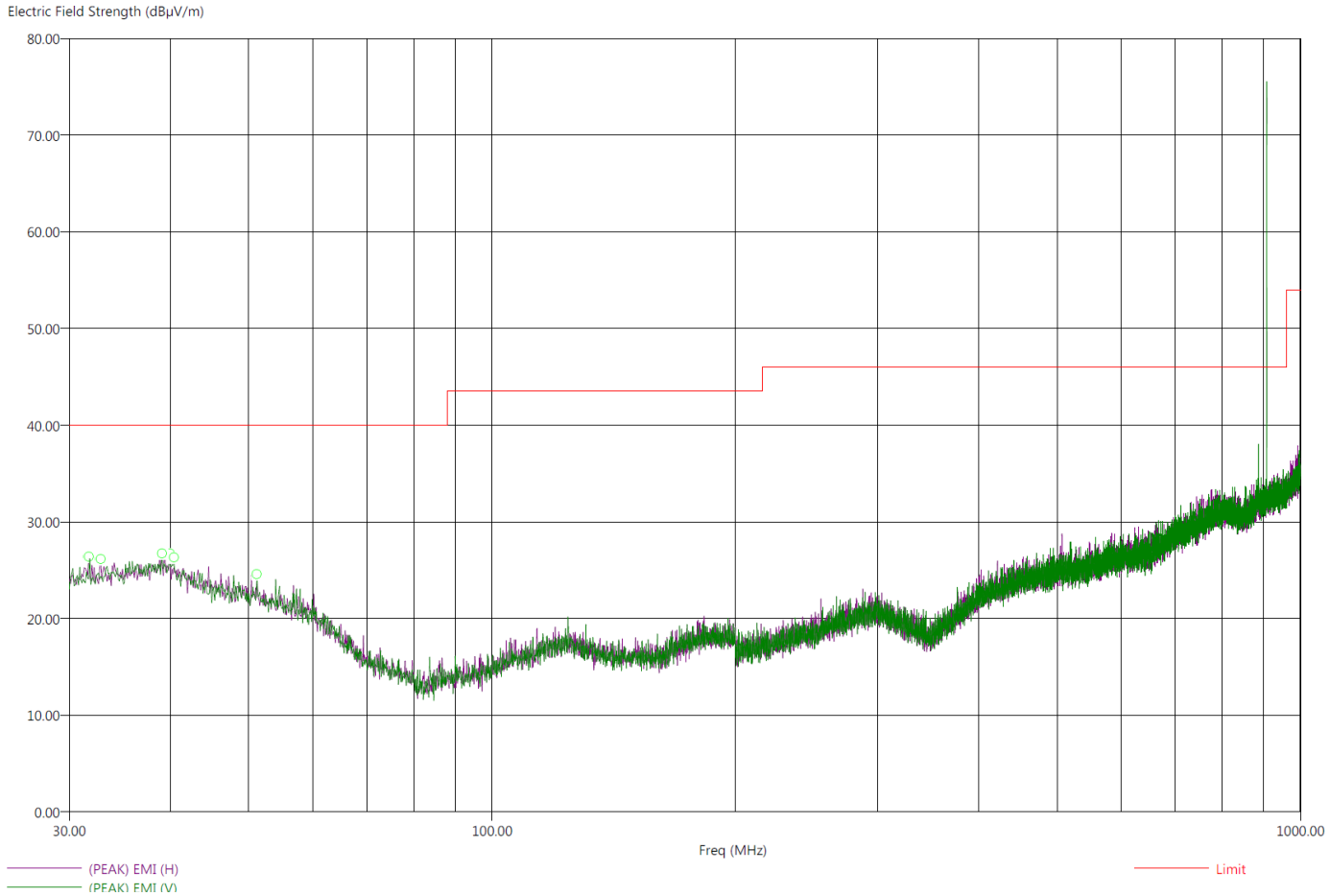
## PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

# APPENDIX E

## *RADIATED EMISSIONS DATA SHEETS*
## *QMHCS-908-6 & QMHCS-908-4*

Title: FCC 15.209 2/24/2016 8:27:39 AM
File: Radiated Pre-Scan 30-1000Mhz.set Sequence: Preliminary Scan
Operator: Torey Oliver
EUT Type: Honeycomb Shade / QMHCS-908-6
EUT Condition: The EUT is continuously receiving set commands and would transmit back an acknowledgement of the command. Transmitting at 908 MHz.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

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




***There were no spurious emissions other than harmonics found below 30 MHz or above 1GHz.***
***This is the worst case operating mode.***

Title: FCC 15.209 2/24/2016 8:50:34 AM
File: Radiated Final 30-1000Mhz.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: Honeycomb Shade / QMHCS-908-6
EUT Condition: The EUT is continuously receiving set commands and would transmit back an acknowledgement of the command. Transmitting at 908 MHz.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

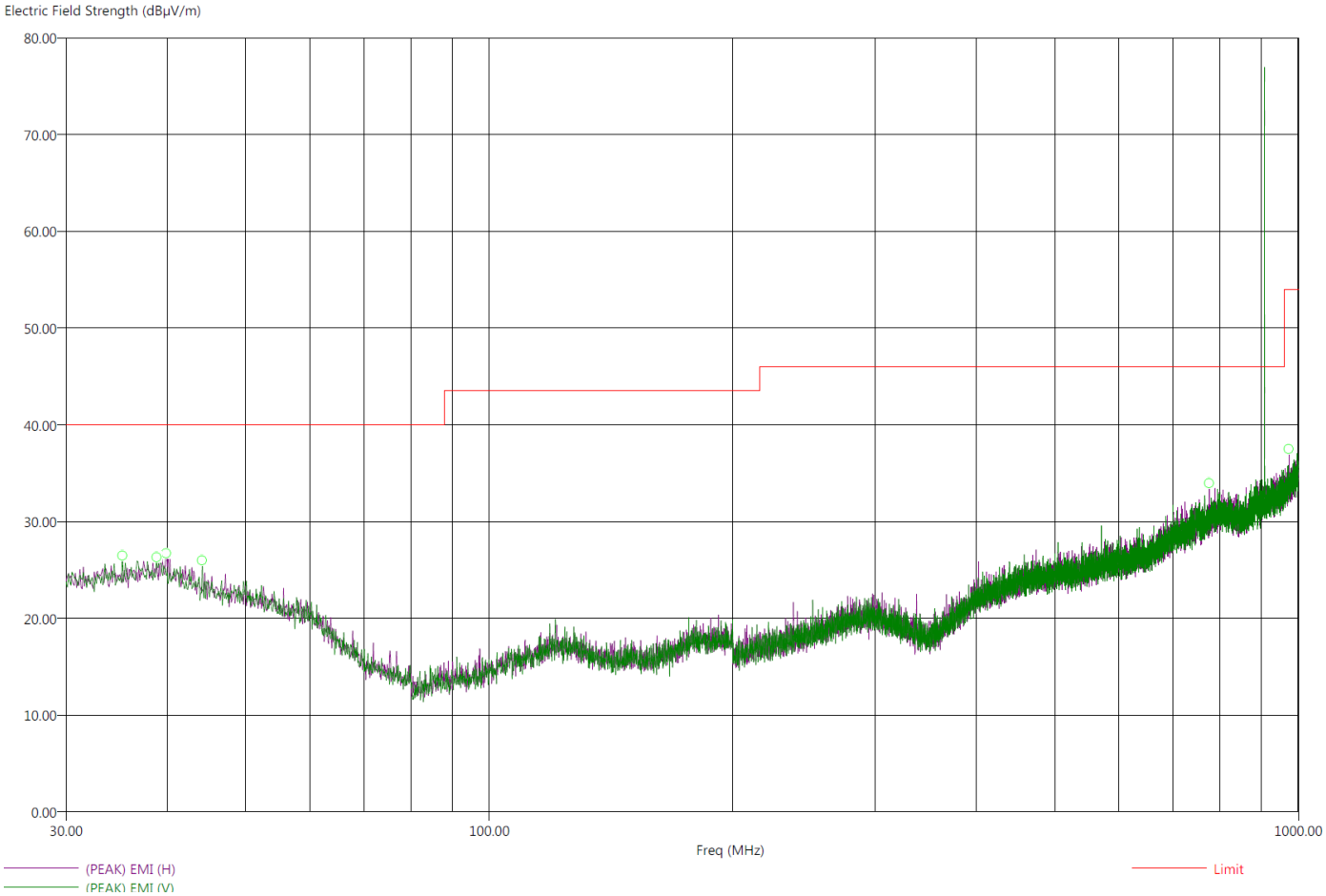
**Compatible Electronics, Inc. FAC-3 (Lab R)**

| 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) |
|---|---|---|---|---|---|---|---|---|---|
| 31.70 | -20.31 | 19.69 | 25.26 | 40.00 | H | 77.00 | 151.34 | 22.50 | 0.82 |
| 32.80 | -20.17 | 19.83 | 25.51 | 40.00 | H | 332.00 | 318.80 | 22.50 | 0.89 |
| 39.10 | -19.19 | 20.81 | 27.25 | 40.00 | V | 360.00 | 368.47 | 22.91 | 1.25 |
| 40.00 | -19.08 | 20.92 | 26.31 | 40.00 | H | 309.25 | 382.68 | 22.98 | 1.29 |
| 40.40 | -19.18 | 20.82 | 26.37 | 40.00 | V | 360.00 | 378.02 | 22.87 | 1.24 |
| 51.20 | -21.76 | 18.24 | 24.26 | 40.00 | V | 131.50 | 120.89 | 20.92 | 0.21 |

***There were no spurious emissions other than harmonics found below 30 MHz or above 1GHz.***
***This is the worst case operating mode.***

Title: FCC 15.209 2/23/2016 4:44:18 PM
File: Radiated Pre-Scan 30-1000Mhz.set Sequence: Preliminary Scan
Operator: Torey Oliver
EUT Type: Honeycomb Shade / QMHCS-908-4
EUT Condition: The EUT is continuously receiving set commands and would transmit back an acknowledgement of the command.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

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




***There were no spurious emissions other than harmonics found below 30 MHz or above 1GHz.***
***This is the worst case operating mode.***

Title: FCC 15.209 2/24/2016 8:03:29 AM
File: Radiated Final 30-1000Mhz.set Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: Honeycomb Shade / QMHCS-908-4
EUT Condition: The EUT is continuously receiving set commands and would transmit back an acknowledgement of the command.
Comments: Temp: 74f
Hum: 33%
120V 60Hz

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 35.20 | -19.10 | 20.90 | 26.05 | 40.00 | V | 178.50 | 267.88 | 22.51 | 1.03 |
| 38.80 | -18.47 | 21.53 | 27.01 | 40.00 | V | 359.25 | 393.67 | 22.88 | 1.23 |
| 39.90 | -18.41 | 21.59 | 27.01 | 40.00 | H | 260.75 | 271.94 | 23.00 | 1.30 |
| 44.20 | -20.06 | 19.94 | 26.25 | 40.00 | V | 128.50 | 231.04 | 21.75 | 0.77 |
| 775.70 | -18.02 | 27.98 | 33.70 | 46.00 | H | 143.25 | 400.71 | 25.47 | 3.16 |
| 973.60 | -23.04 | 30.94 | 36.23 | 53.98 | H | 43.75 | 345.55 | 27.66 | 3.83 |

***There were no spurious emissions other than harmonics found below 30 MHz or above 1GHz.***
***This is the worst case operating mode.***

# *FUNDAMENTAL DATA SHEETS*

## *QMHCS-908-6 & QMHCS-908-4*

# FUNDAMENTAL FIELD STRENGTH

**FCC 15.249**

| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Z-Wave Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-6 | Tested By: | Torey Oliver |

**Compatible Electronics, Inc. FAC-3**

| Freq. (MHz) | Level (dBuV/m) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Table | Tower | Comments |
|---|---|---|---|---|---|---|---|---|
| 908.42 | 85.12 | H | 113.97 | -28.85 | Peak | 86 | 2.15 | |
| 908.42 | 83.95 | H | 93.97 | -10.02 | QP | 86 | 2.15 | |
| 908.42 | 84.98 | V | 113.97 | -28.99 | Peak | 309 | 1.88 | |
| 908.42 | 83.30 | V | 93.97 | -10.67 | QP | 309 | 1.88 | |
| 916.00 | 87.38 | H | 113.97 | -26.59 | Peak | 84 | 1.00 | |
| 916.00 | 86.51 | H | 93.97 | -7.46 | QP | 84 | 1.00 | |
| 916.00 | 79.78 | V | 113.97 | -34.19 | Peak | 307 | 1.72 | |
| 916.00 | 75.87 | V | 93.97 | -18.10 | QP | 307 | 1.72 | |

Test Distance 3 Meters

# FUNDAMENTAL FIELD STRENGTH

**FCC 15.249**

| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Z-Wave Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-4 | Tested By: | Torey Oliver |

**Compatible Electronics, Inc. FAC-3**

| Freq. (MHz) | Level (dBuV/m) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Table | Tower | Comments |
|---|---|---|---|---|---|---|---|---|
| 908.42 | 84.73 | H | 113.97 | -29.24 | Peak | 78 | 2.93 | |
| 908.42 | 83.76 | H | 93.97 | -10.21 | QP | 78 | 2.93 | |
| 908.42 | 84.24 | V | 113.97 | -29.73 | Peak | 248 | 1.35 | |
| 908.42 | 83.18 | V | 93.97 | -10.79 | QP | 248 | 1.35 | |
| 916.00 | 82.46 | H | 113.97 | -31.51 | Peak | 79 | 2.65 | |
| 916.00 | 80.44 | H | 93.97 | -13.53 | QP | 79 | 2.65 | |
| 916.00 | 85.47 | V | 113.97 | -28.50 | Peak | 243 | 1.54 | |
| 916.00 | 84.02 | V | 93.97 | -9.95 | QP | 243 | 1.54 | |

Test Distance 3 Meters

# *HARMONIC*
# *DATA SHEETS*

## *QMHCS-908-6 & QMHCS-908-4*

# HARMONIC EMISSIONS LOW CHANNEL HORIZONTAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-6

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1816.8 | | H | 73.98 | | Peak | | | |
| 1816.8 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 2725.3 | | H | 73.98 | | Peak | | | |
| 2725.3 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 3633.7 | | H | 73.98 | | Peak | | | |
| 3633.7 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 4542.1 | | H | 73.98 | | Peak | | | |
| 4542.1 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 5450.5 | | H | 73.98 | | Peak | | | |
| 5450.5 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 6358.9 | | H | 73.98 | | Peak | | | |
| 6358.9 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 7267.4 | | H | 73.98 | | Peak | | | |
| 7267.4 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 8175.8 | | H | 73.98 | | Peak | | | |
| 8175.8 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 9084.2 | | H | 73.98 | | Peak | | | |
| 9084.2 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS LOW CHANNEL VERTICAL

**FCC 15.249**

| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-6 | Tested By: | Torey Oliver |

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1816.8 | | V | 73.98 | | Peak | | | |
| 1816.8 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 2725.3 | | V | 73.98 | | Peak | | | |
| 2725.3 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 3633.7 | | V | 73.98 | | Peak | | | |
| 3633.7 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 4542.1 | | V | 73.98 | | Peak | | | |
| 4542.1 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 5450.5 | | V | 73.98 | | Peak | | | |
| 5450.5 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 6358.9 | | V | 73.98 | | Peak | | | |
| 6358.9 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 7267.4 | | V | 73.98 | | Peak | | | |
| 7267.4 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 8175.8 | | V | 73.98 | | Peak | | | |
| 8175.8 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 9084.2 | | V | 73.98 | | Peak | | | |
| 9084.2 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS HIGH CHANNEL HORIZONTAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-6

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1832.0 | | H | 73.98 | | Peak | | | |
| 1832.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 2748.0 | | H | 73.98 | | Peak | | | |
| 2748.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 3664.0 | | H | 73.98 | | Peak | | | |
| 3664.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 4580.0 | | H | 73.98 | | Peak | | | |
| 4580.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 5496.0 | | H | 73.98 | | Peak | | | |
| 5496.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 6412.0 | | H | 73.98 | | Peak | | | |
| 6412.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 7328.0 | | H | 73.98 | | Peak | | | |
| 7328.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 8244.0 | | H | 73.98 | | Peak | | | |
| 8244.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 9160.0 | | H | 73.98 | | Peak | | | |
| 9160.0 | | H | 53.98 | | Avg | | | No Emissions Found |

Test distance
3 meter

# HARMONIC EMISSIONS HIGH CHANNEL VERTICAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-6

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1832.0 | | V | 73.98 | | Peak | | | |
| 1832.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 2748.0 | | V | 73.98 | | Peak | | | |
| 2748.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 3664.0 | | V | 73.98 | | Peak | | | |
| 3664.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 4580.0 | | V | 73.98 | | Peak | | | |
| 4580.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 5496.0 | | V | 73.98 | | Peak | | | |
| 5496.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 6412.0 | | V | 73.98 | | Peak | | | |
| 6412.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 7328.0 | | V | 73.98 | | Peak | | | |
| 7328.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 8244.0 | | V | 73.98 | | Peak | | | |
| 8244.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 9160.0 | | V | 73.98 | | Peak | | | |
| 9160.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS LOW CHANNEL HORIZONTAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-4

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1816.8 | | H | 73.98 | | Peak | | | |
| 1816.8 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 2725.3 | | H | 73.98 | | Peak | | | |
| 2725.3 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 3633.7 | | H | 73.98 | | Peak | | | |
| 3633.7 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 4542.1 | | H | 73.98 | | Peak | | | |
| 4542.1 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 5450.5 | | H | 73.98 | | Peak | | | |
| 5450.5 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 6358.9 | | H | 73.98 | | Peak | | | |
| 6358.9 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 7267.4 | | H | 73.98 | | Peak | | | |
| 7267.4 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 8175.8 | | H | 73.98 | | Peak | | | |
| 8175.8 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 9084.2 | | H | 73.98 | | Peak | | | |
| 9084.2 | | H | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |

Test distance
3 meter

# HARMONIC EMISSIONS LOW CHANNEL VERTICAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-4

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1816.8 | | V | 73.98 | | Peak | | | |
| 1816.8 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 2725.3 | | V | 73.98 | | Peak | | | |
| 2725.3 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 3633.7 | | V | 73.98 | | Peak | | | |
| 3633.7 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 4542.1 | | V | 73.98 | | Peak | | | |
| 4542.1 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 5450.5 | | V | 73.98 | | Peak | | | |
| 5450.5 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 6358.9 | | V | 73.98 | | Peak | | | |
| 6358.9 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 7267.4 | | V | 73.98 | | Peak | | | |
| 7267.4 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 8175.8 | | V | 73.98 | | Peak | | | |
| 8175.8 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |
| 9084.2 | | V | 73.98 | | Peak | | | |
| 9084.2 | | V | 53.98 | | Avg | | | No emissions found |
| | | | | | | | | |

Test distance 3 meter

# HARMONIC EMISSIONS HIGH CHANNEL HORIZONTAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-4

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1832.0 | | H | 73.98 | | Peak | | | |
| 1832.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 2748.0 | | H | 73.98 | | Peak | | | |
| 2748.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 3664.0 | | H | 73.98 | | Peak | | | |
| 3664.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 4580.0 | | H | 73.98 | | Peak | | | |
| 4580.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 5496.0 | | H | 73.98 | | Peak | | | |
| 5496.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 6412.0 | | H | 73.98 | | Peak | | | |
| 6412.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 7328.0 | | H | 73.98 | | Peak | | | |
| 7328.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 8244.0 | | H | 73.98 | | Peak | | | |
| 8244.0 | | H | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 9160.0 | | H | 73.98 | | Peak | | | |
| 9160.0 | | H | 53.98 | | Avg | | | No Emissions Found |

Test distance
3 meter

# HARMONIC EMISSIONS HIGH CHANNEL VERTICAL

**FCC 15.249**

Company: Q Motion
EUT: Honeycomb Shade
Model: QMHCS-908-4

Date: 2/22/2016
Lab: R
Tested By: Torey Oliver

| Freq. (MHz) | Level (dBuV) | Pol (v/h) | Limit | Margin | Peak / QP / Avg | Ant. Height (m) | Table Angle (deg) | Comments |
|---|---|---|---|---|---|---|---|---|
| 1832.0 | | V | 73.98 | | Peak | | | |
| 1832.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 2748.0 | | V | 73.98 | | Peak | | | |
| 2748.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 3664.0 | | V | 73.98 | | Peak | | | |
| 3664.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 4580.0 | | V | 73.98 | | Peak | | | |
| 4580.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 5496.0 | | V | 73.98 | | Peak | | | |
| 5496.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 6412.0 | | V | 73.98 | | Peak | | | |
| 6412.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 7328.0 | | V | 73.98 | | Peak | | | |
| 7328.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 8244.0 | | V | 73.98 | | Peak | | | |
| 8244.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |
| 9160.0 | | V | 73.98 | | Peak | | | |
| 9160.0 | | V | 53.98 | | Avg | | | No Emissions Found |
| | | | | | | | | |

Test distance
3 meter

# *EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND*

## *QMHCS-908-6 & QMHCS-908-4*

## *DATA SHEETS*

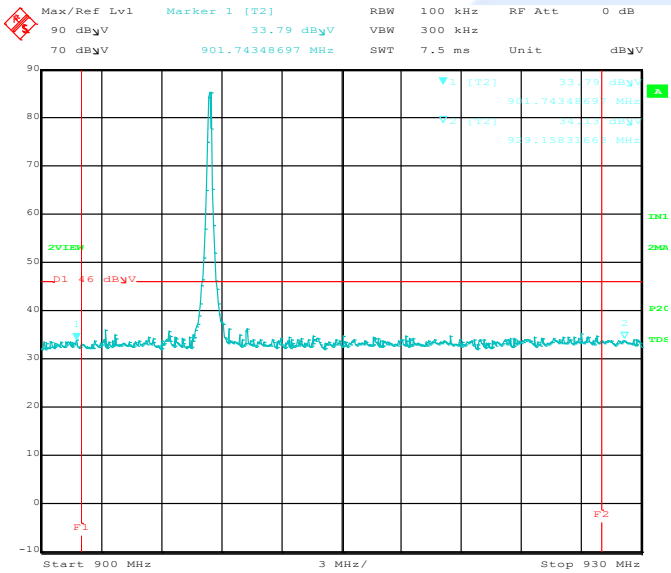
# BAND EDGES LOW CHANNEL

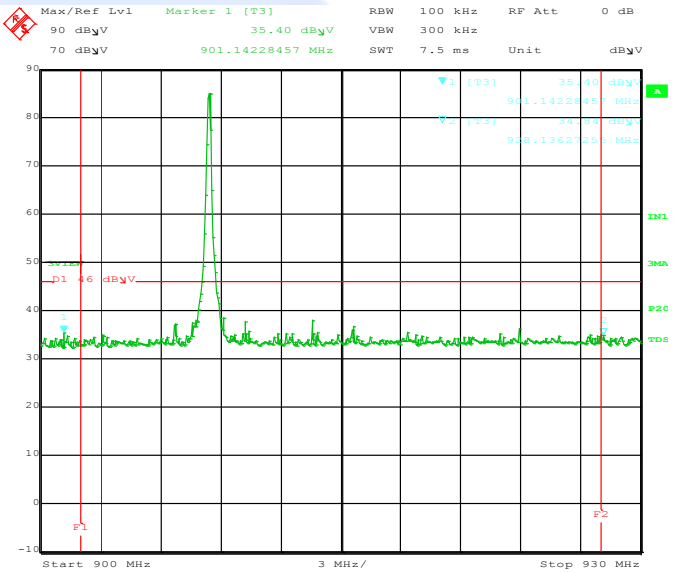
**FCC 15.249**

| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Z-Wave Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-6 | Test ENG: | Torey Oliver |

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

| Freq. (MHz) | Level (dBµV/m) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Table Angle (Deg) | Tower Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|
| 901.74 | 33.79 | H | 46.00 | -12.21 | Peak | 86 | 2.15 | |
| 929.16 | 34.13 | H | 46.00 | -11.87 | Peak | 86 | 2.15 | |
| | | | | | | | | |
| 901.14 | 35.40 | V | 46.00 | -10.60 | Peak | 309 | 1.86 | |
| 928.14 | 34.84 | V | 46.00 | -11.16 | Peak | 309 | 1.86 | |



# BAND EDGES HIGH CHANNEL

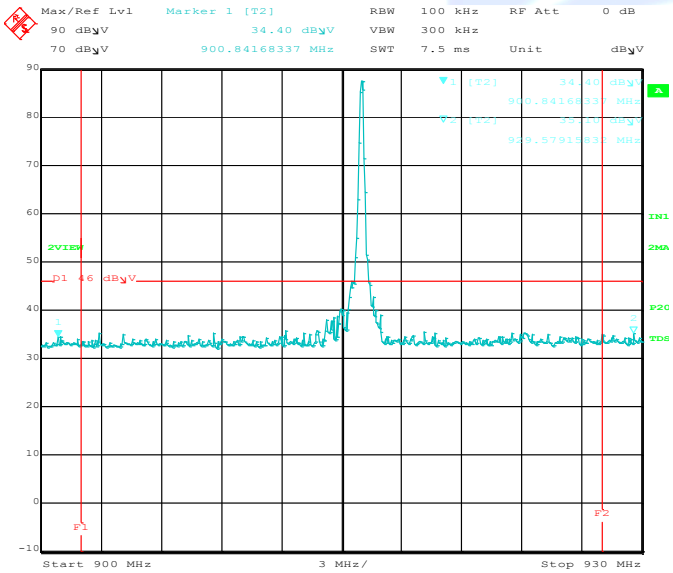
**FCC 15.249**

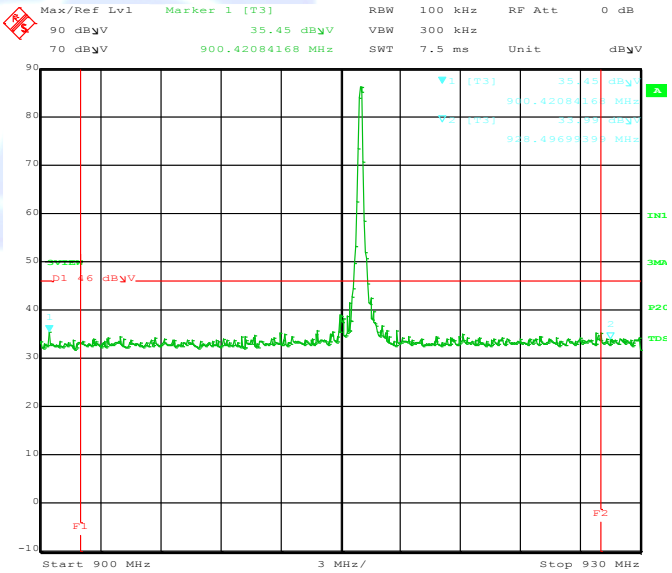
| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Z-Wave Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-6 | Test ENG: | Torey Oliver |

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

| Freq. (MHz) | Level (dBµV/m) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Table Angle (Deg) | Tower Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|
| 900.84 | 34.40 | H | 46.00 | -11.60 | Peak | 84 | 1.00 | |
| 929.58 | 35.10 | H | 46.00 | -10.90 | Peak | 84 | 1.00 | |
| | | | | | | | | |
| 900.42 | 35.45 | V | 46.00 | -10.55 | Peak | 307 | 1.72 | |
| 928.50 | 33.99 | V | 46.00 | -12.01 | Peak | 307 | 1.72 | |

Test distance
3 meter



# BAND EDGES LOW CHANNEL

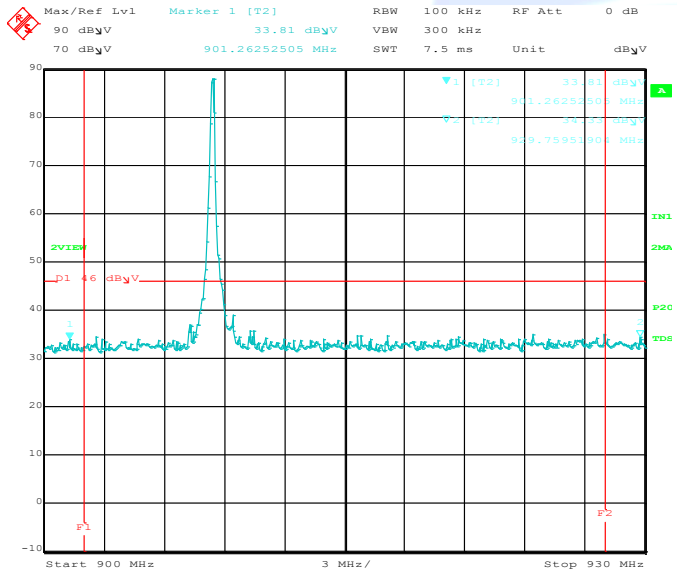
**FCC 15.249**

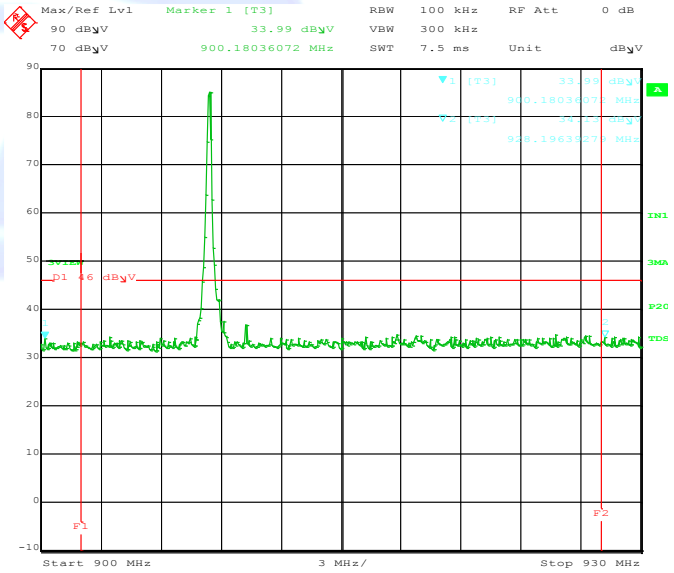
| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Z-Wave Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-4 | Test ENG: | Torey Oliver |

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

| Freq. (MHz) | Level (dBµV/m) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Table Angle (Deg) | Tower Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|
| 901.26 | 33.81 | H | 46.00 | -12.19 | Peak | 78 | 2.93 | |
| 929.76 | 34.33 | H | 46.00 | -11.67 | Peak | 78 | 2.93 | |
| | | | | | | | | |
| 900.18 | 33.99 | V | 46.00 | -12.01 | Peak | 248.00 | 1.35 | |
| 928.20 | 34.13 | V | 46.00 | -11.87 | Peak | 248.00 | 1.35 | |

Test distance
3 meter



# BAND EDGES HIGH CHANNEL

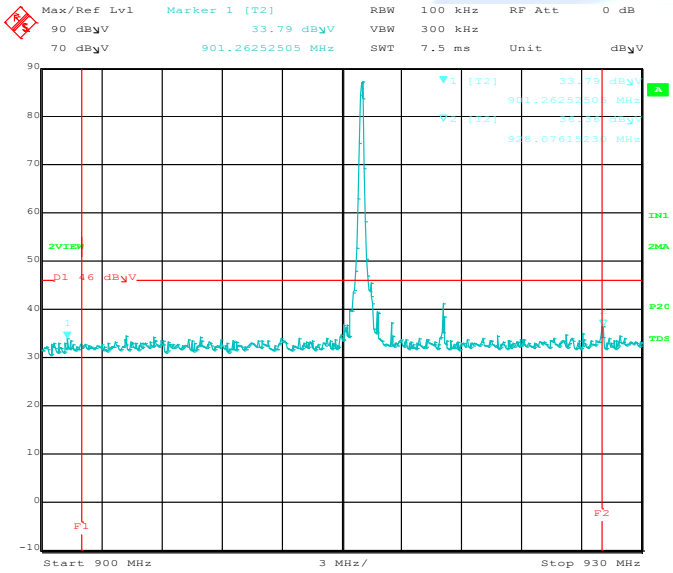
**FCC 15.249**

| | | | |
|---|---|---|---|
| Company: | Q Motion | Date: | 2/22/2016 |
| EUT: | Z-Wave Honeycomb Shade | Lab: | R |
| Model: | QMHCS-908-4 | Test ENG: | Torey Oliver |

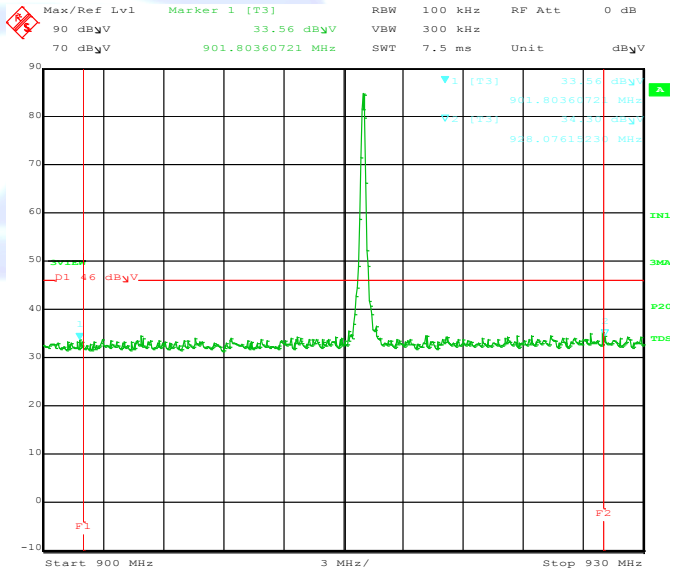
**Compatible Electronics, Inc. FAC-3 ( Lab R )**

| Freq. (MHz) | Level (dBµV/m) | Pol | Limit (dBµV) | Margin (dB) | Peak / QP / Avg | Table Angle (Deg) | Tower Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|
| 901.26 | 33.79 | H | 46.00 | -12.21 | Peak | 79 | 2.65 | |
| 928.08 | 36.36 | H | 46.00 | -9.64 | Peak | 79 | 2.65 | |
| | | | | | | | | |
| 901.80 | 33.56 | V | 46.00 | -12.44 | Peak | 243 | 1.52 | |
| 928.08 | 34.30 | V | 46.00 | -11.70 | Peak | 243 | 1.52 | |

Test distance
3 meter




Comment A: Band Edge 916 MHz Horizontal
Date: 22.FEB.2016 16:09:19




Comment A: Band Edge 916 MHz Vertical
Date: 22.FEB.2016 16:10:53