FCC PART 15, SUBPART B and C; RSS-210, RSS GEN
TEST REPORT

for

RING RETROFIT ALARM KIT

Part Number: 4AW1SZ-0EN0

Prepared for

ECOLINK INTELLIGENT TECHNOLOGY
2055 CORTE DEL NOGAL
CARLSBAD, CALIFORNIA 92011

Prepared by:___

HARVEY SAMACO

Approved by:_____

KYLE FUJIMOTO

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BREA, CALIFORNIA 92823
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DATE: SEPTEMBER 16, 2019

	REPORT BODY	APPENDICES					TOTAL
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NVLAP TESTING
NVLAP LAB CODE 200528-0

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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:	Ring Retrofit Alarm Kit Part Number: 4AW1SZ-0EN0 S/N: N/A
Product Description:	The equipment under test is an alarm sensor.
Modifications:	The EUT was not modified to meet the specifications.
Customer:	Ecolink Intelligent Technology 2055 Corte Del Nogal Carlsbad, California 92011
Test Dates:	September 13 and September 16, 2019

Test Specifications covered by accreditation:

Test Specifications:	Emissions requirements CFR Title 47, Part 15, Subpart B; and Subpart C, Sections 15.205, 15.209, and 15.249; RSS-210 Issue 9 (2017), and RSS-Gen Issue 5 (2018)

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Test Procedures:	ANSI C63.4: 2014 and ANSI C63.10: 2013
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 9 kHz – 9300 MHz (Transmitter, Receiver, and Digital portion)	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 15.205, 15.209 and 15.249; RSS-210 and RSS-Gen Highest reading in relation to spec limit 93.71 dBuV/m (QP) @ 916.00 MHz (*U = 3.67 dB)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Ring Retrofit Alarm Kit, Part Number: 4AW1SZ-0EN0. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. The tests were performed 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 Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.107, 15.109; and Part 15 Subpart C sections 15.205, 15.209 and 15.249; RSS-210 and RSS-Gen.

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

Ecolink Intelligent Technology

Anna Poltoratska Program Manager

Compatible Electronics Inc.

Harvey Samaco Test Technician
Kyle Fujimoto Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of this report.

2.5 Disposition of the Test Sample

The test sample has not been returned to Ecolink Intelligent Technology as of the date of this test report.

2.6 Abbreviations and Acronyms

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

EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
DoC	Declaration of Conformity
N/A	Not Applicable
Tx	Transmit
Rx	Receive
Inc.	Incorporated
RF	Radio Frequency
BLE	Bluetooth Low Energy
IoT	Internet of Things
CEO	Chief Executive Officer
N/A	Not Applicable
DC	Direct Current

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emission 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
RSS-210 Issue 9: 2017	License-exempt Radio Apparatus: Category I Equipment
RSS Gen Issue 5: 2018	General Requirements for Compliance of Radio Apparatus
ANSI C63.4: 2014	American National Standard for 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 of procedure for compliance testing of unlicensed wireless devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Ring Retrofit Alarm Kit, Part Number: 4AW1SZ-0EN0 (EUT) was connected to a switches. During the testing, the EUT was continuously transmitting or receiving.

The EUT was tested for emissions at the low, middle, and high channels while in the X, Y and Z axis. The X orientation is when the EUT is parallel to the ground. The Y orientation is when the EUT is perpendicular to the ground mounted vertically. The Z orientation is when the EUT is perpendicular to the ground mounted horizontally.

The EUT was tested with a new battery.

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

4.1.1 Cable Construction and Termination

Cable 1-8 These are 1-meter unshielded cables connecting the EUT to the switches. The cables are hard wired at each end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	PART NUMBER	FCC ID
RING RETROFIT ALARM KIT (EUT)	ECOLINK INTELLIGENT TECHNOLOGY	N/A	4AW1SZ-0EN0	XQCBHAWT001 IC: 9863B-BHAWT001
SWITCHES	N/A	N/A	N/A	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
RADIATED AND CONDUCTED EMISSIONS TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
EMI Receiver, 20 Hz – 26.5 GHz	Keysight Technologies	N9038A	MY5120150	August 23, 2019	1 Year
CombiLog Antenna	Com-Power	AC-220	061093	June 5, 2019	2 Year
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
Turntable	Com-Power	TT-100	N/A	N/A	N/A
Antenna-Mast	Com-Power	AM-100	N/A	N/A	N/A
Horn Antenna	Com-Power	AH-118	071175	February 22, 2018	2 Year
Preamplifier	Com-Power	PA-118	181653	January 25, 2019	1 Year
Preamplifier	Com-Power	PA-840	711013	May 10, 2018	2 Year
Horn Antenna	Com-Power	AH-118	071302	N/A	N/A
Loop Antenna	Com-Power	AL-130R	121090	February 5, 2019	2 Year

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

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

6.2 EUT Mounting, Bonding and Grounding

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

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

The EUT was not grounded.

6.3 Measurement Uncertainty

The uncertainty values are in the table below.

The uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level, using a coverage factor of k=2

MEASUREMENT TYPE	PARTICULAR CONFIGURATION	UNCERTAINTY VALUES
RADIATED EMISSIONS	3-METER CHAMBER, COMBILOG ANTENNA	3.26 dB (Vertical) 3.19 dB (Horizontal)
RADIATED EMISSIONS	3-METER CHAMBER, HORN ANTENNA	3.67 dB (Both Vertical and Horizontal)
AC LINE CONDUCTED EMISSIONS	3-METER CHAMBER, COM-POWER LISN	2.72 dB

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 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. A 10 dB attenuator was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 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 computer software. The final qualification data is located in Appendix E.

Test Results:

This test was not performed because the EUT operates on battery power only and cannot be connected to the AC public mains.

7.1.2 Radiated Emissions Test

The EMI Receiver was used as the measuring meter. Preamplifiers were used to increase the sensitivity of the instrument. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured.

The frequencies below 1 GHz were quasi-peaked using the quasi-peak detector of the EMI Receiver.

The harmonic frequencies above 1 GHz were averaged using the duty cycle correction calculation.

All other frequencies above 1 GHz were averaged using the average detector of the EMI Receiver.

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

The EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 1.

Radiated Emissions Test (Continued)

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

Test Results:

The EUT complies with the **Class B** limits of RSS-210, RSS-Gen, **CFR** Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.209 and 15.249 for radiated emissions.

7.1.3 RF Emissions Test Results

Table 1 RADIATED EMISSION RESULTS
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Frequency (MHz)	EMI Reading (dBuV/m)	Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) (dB)
916.00 (H) (X-Axis) (High Channel)	93.71 (QP)	93.97	-0.26
916.00 (V) (Y-Axis) (High Channel)	93.33 (QP)	93.97	-0.64
908.42 (V) (Y-Axis) (Low Channel)	93.26 (QP)	93.97	-0.71
908.42 (H) (X-Axis) (Low Channel)	92.64 (QP)	93.97	-1.33
916.00 (H) (Y-Axis) (High Channel)	90.61 (QP)	93.97	-3.36
908.42 (H) (Y-Axis) (Low Channel)	90.31 (QP)	93.97	-3.66

Notes:

* The complete emissions data is given in Appendix E of this report.
(V) Vertical Polarization
(H) Horizontal Polarization
(AV) Average Reading
(QP) Quasi-Peak Reading

7.1.4 Duty Cycle Calculation

The fundamental and harmonics were 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.

Where

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

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

The worst case was when the EUT was in node frame mode

Duty Cycle Correction Factor = -6.37 dB

Time of One Pulse = 48.00 ms

Total On Time = 48.00 ms

The time between pulses is greater than 100 ms

Duty Cycle = 48.00 ms / 100 ms = 0.4800 = 48.00%

7.1.5 99% Bandwidth

The 99% Bandwidth was measured using an EMI Receiver and was taken after maximizing the worst case fundamental emission for both channels per section 7.1.

The following steps were performed for measuring the 99% bandwidth.per RSS-GEN, Issue 5, clause 6.7.

1. Set RBW to 1% to 5% of the actual occupied bandwidth.
2. Set VBW to greater than 3 times the RBW.
3. Set the EMI Receiver to the Occupied Bandwidth Function set at 99%
4. Set the peak detector to max hold.
5. Set the sweep time to auto
6. Allow the trace to stabilize.

Please note that this was only used to determine the emission bandwidth and that there are no limits or pass/fail criteria for this test. Please see the data sheets located in Appendix E.

8. CONCLUSIONS

The Ring Retrofit Alarm Kit, Part Number: 4AW1SZ-0EN0 (EUT), as tested, meets all of the specification limits defined in the RSS-210, RSS-Gen, **Class B** specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209 and 15.249.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200528-0

ilac-MRA

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.
For the most up-to-date version of our scopes and certificates please visit http://celectronics.com/quality/scope/

Quote from ISO-ILAC-IAF Communiqué on 17025:
"A laboratory's 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."

Innovation, Science and Economic Development Canada
Lab Code 2154A

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 15.249 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.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODEL COVERED UNDER THIS REPORT

ADDITIONAL MODEL COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0
S/N: N/A

There are no additional models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

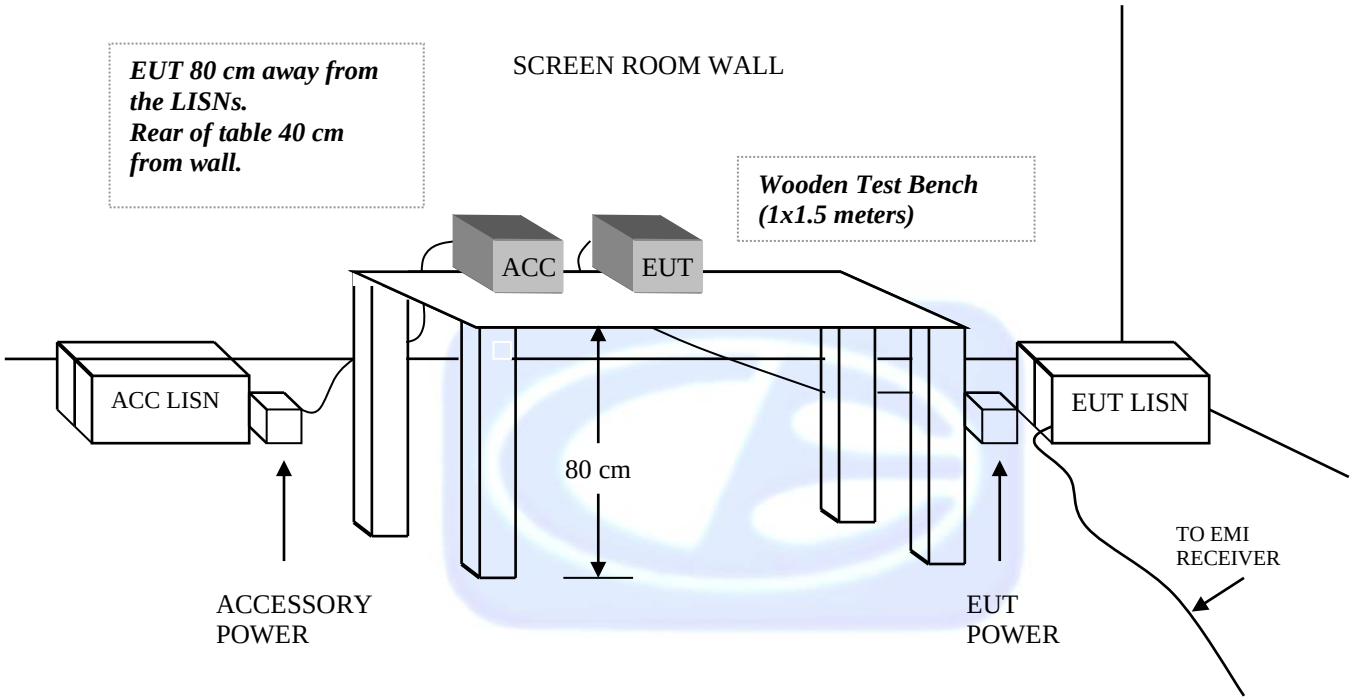
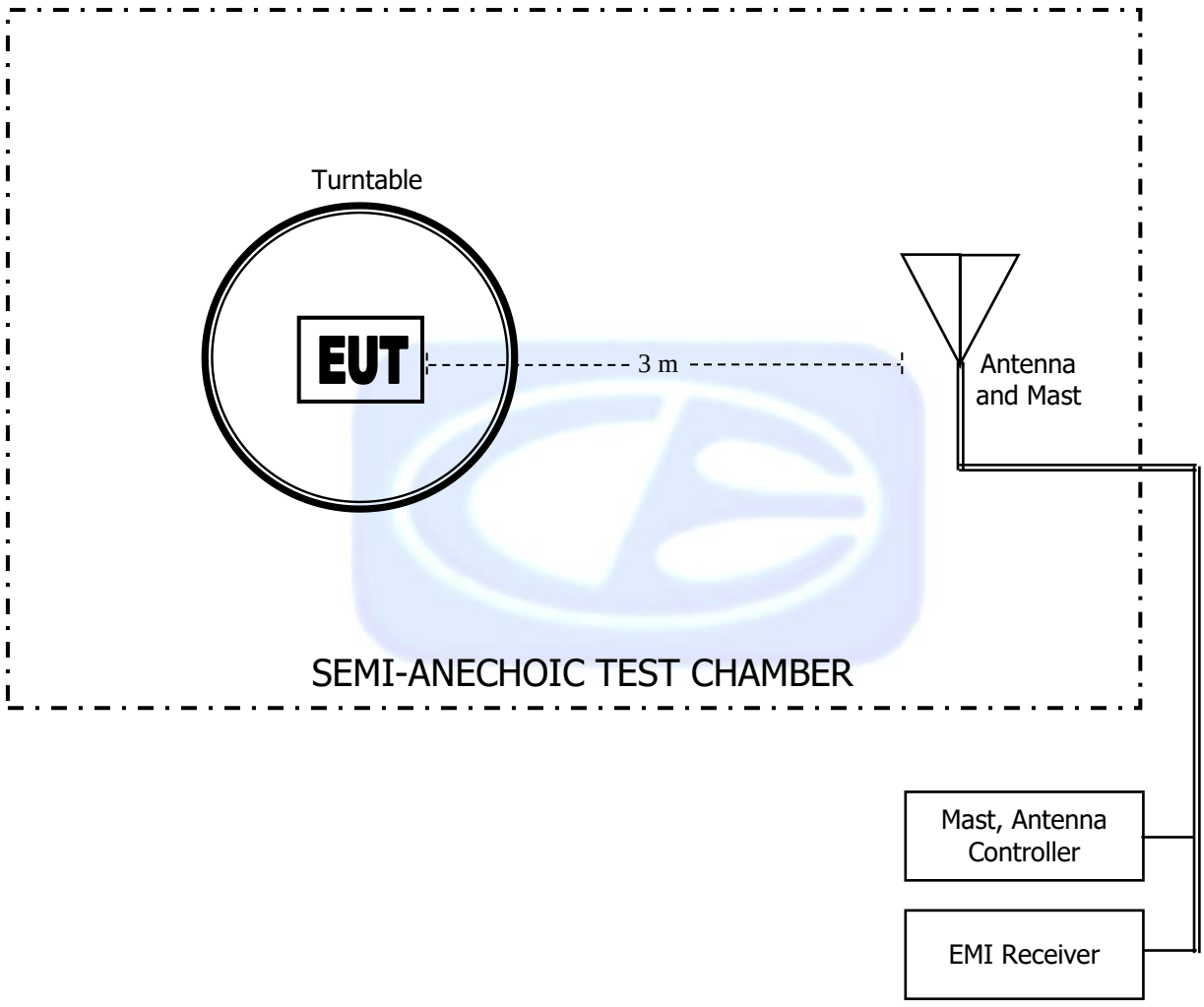


FIGURE 2: LAYOUT OF THE SEMI -ANECHOIC TEST CHAMBER



COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 5, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.01	15.6	-35.9
0.02	14.8	-36.7
0.03	15.6	-35.9
0.04	15.1	-36.4
0.05	14.4	-37.0
0.06	14.6	-36.9
0.07	14.4	-37.1
0.08	14.3	-37.1
0.09	14.5	-36.9
0.10	14.1	-37.3
0.20	14.1	-37.3
0.30	14.0	-37.4
0.40	14.0	-37.4
0.50	14.2	-37.2
0.60	14.2	-37.2
0.70	14.2	-37.2
0.80	14.2	-37.3
0.90	14.3	-37.2
1.00	14.5	-37.0
2.00	14.5	-36.9
3.00	14.5	-36.9
4.00	14.7	-36.8
5.00	14.6	-36.9
6.00	14.6	-36.9
7.00	14.6	-36.9
8.00	14.6	-36.9
9.00	14.6	-36.9
10.00	14.8	-36.6
11.00	14.9	-36.6
12.00	14.8	-36.6
13.00	14.8	-36.7
14.00	14.6	-36.8
15.00	14.5	-36.9
16.00	14.5	-37.0
17.00	14.6	-36.9
18.00	14.7	-36.7
19.00	14.8	-36.6
20.00	14.9	-36.6
21.00	14.6	-36.8
22.00	14.2	-37.2
23.00	13.7	-37.7
24.00	13.3	-38.2
25.00	13.0	-38.5
26.00	12.9	-38.6
27.00	13.0	-38.5
28.00	13.1	-38.4
29.00	13.1	-38.4
30.00	12.9	-38.5

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61093

CALIBRATION DATE: JUNE 5, 2019

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.10	200	15.30
35	20.90	250	16.80
40	20.10	300	19.00
45	19.40	350	19.60
50	18.40	400	21.70
60	15.10	450	21.60
70	12.00	500	22.20
80	11.60	550	22.70
90	13.50	600	24.20
100	14.70	650	24.40
120	15.90	700	24.50
125	15.90	750	25.40
140	14.80	800	26.30
150	15.50	850	26.70
160	19.80	900	27.50
175	15.20	950	27.80
180	14.90	1000	27.90

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 22, 2018

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.71	10.0	40.08
1.5	25.46	10.5	40.75
2.0	29.26	11.0	41.78
2.5	27.95	11.5	41.02
3.0	29.03	12.0	40.32
3.5	29.70	12.5	40.96
4.0	30.71	13.0	40.29
4.5	31.62	13.5	39.48
5.0	33.23	14.0	39.89
5.5	35.07	14.5	42.75
6.0	34.43	15.0	40.98
6.5	34.98	15.5	38.54
7.0	36.75	16.0	39.40
7.5	37.10	16.5	39.40
8.0	37.66	17.0	41.74
8.5	39.29	17.5	42.58
9.0	37.75	18.0	44.68
9.5	38.23		

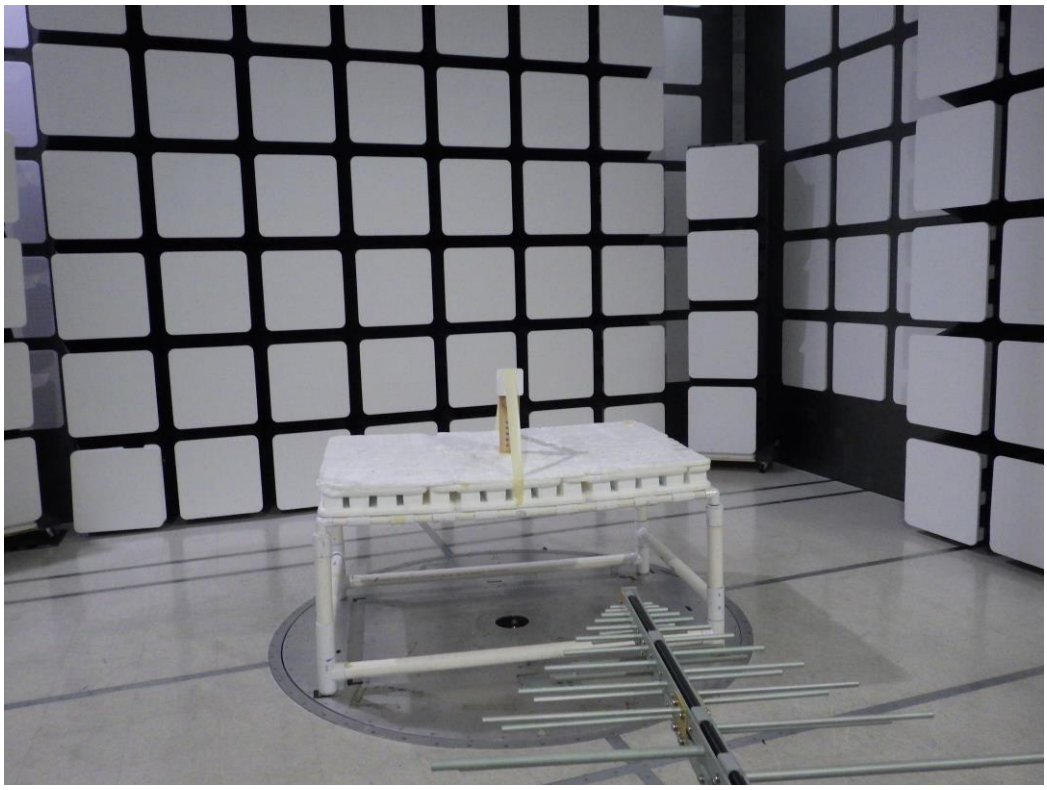
COM-POWER PA-118

PREAMPLIFIER

S/N: 181653

CALIBRATION DATE: JANUARY 25, 2019

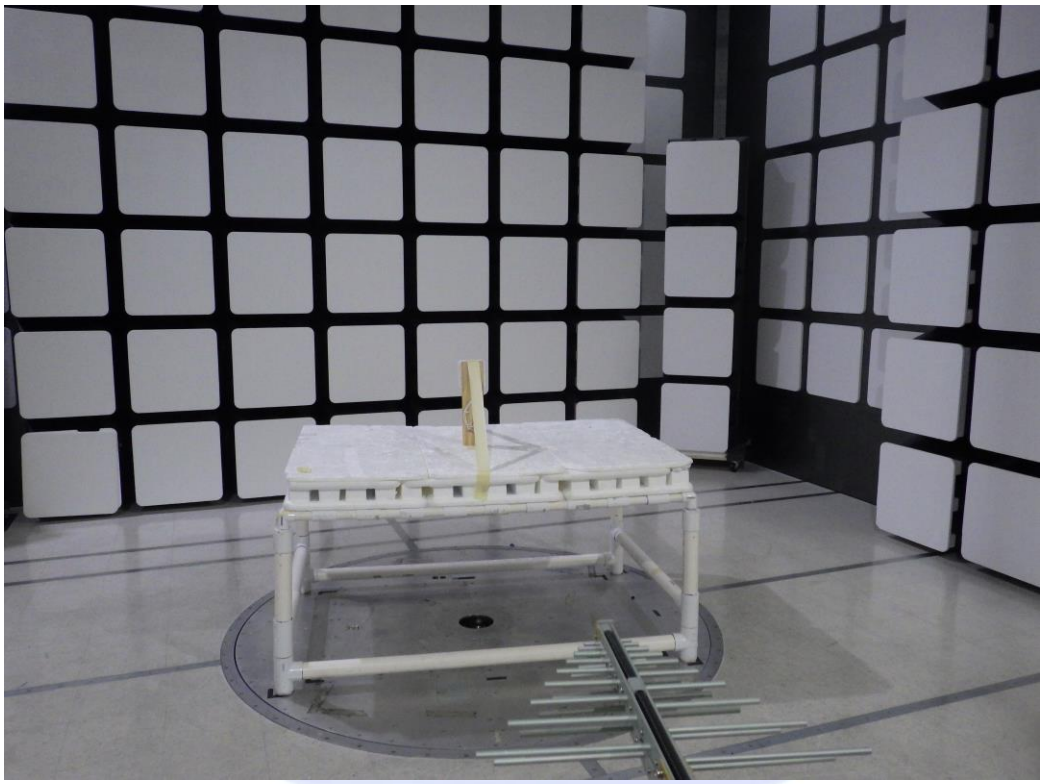
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	40.10	6.0	40.60
1.1	40.10	6.5	39.50
1.2	40.00	7.0	39.40
1.3	39.70	7.5	39.30
1.4	39.60	8.0	39.20
1.5	39.90	8.5	40.50
1.6	40.00	9.0	39.60
1.7	39.70	9.5	39.50
1.8	39.50	10.0	38.80
1.9	39.60	11.0	38.70
2.0	39.90	12.0	42.20
2.5	40.10	13.0	40.00
3.0	40.80	14.0	40.30
3.5	40.60	15.0	40.20
4.0	40.50	16.0	41.00
4.5	41.60	17.0	39.70
5.0	39.20	18.0	40.90
5.5	40.00		



FRONT VIEW

ECOLINK INTELLIGENT TECHNOLOGY
RING RETROFIT ALARM KIT
PART NUMBER: 4AW1SZ-0EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

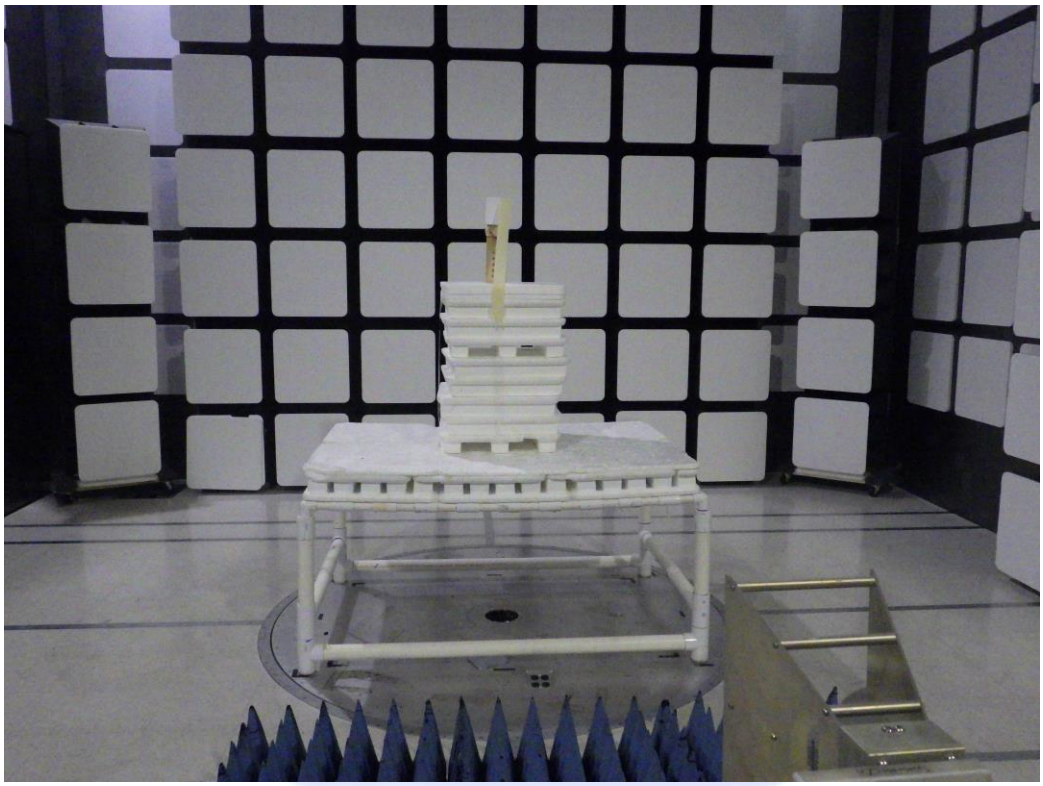
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

ECOLINK INTELLIGENT TECHNOLOGY
RING RETROFIT ALARM KIT
PART NUMBER: 4AW1SZ-0EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

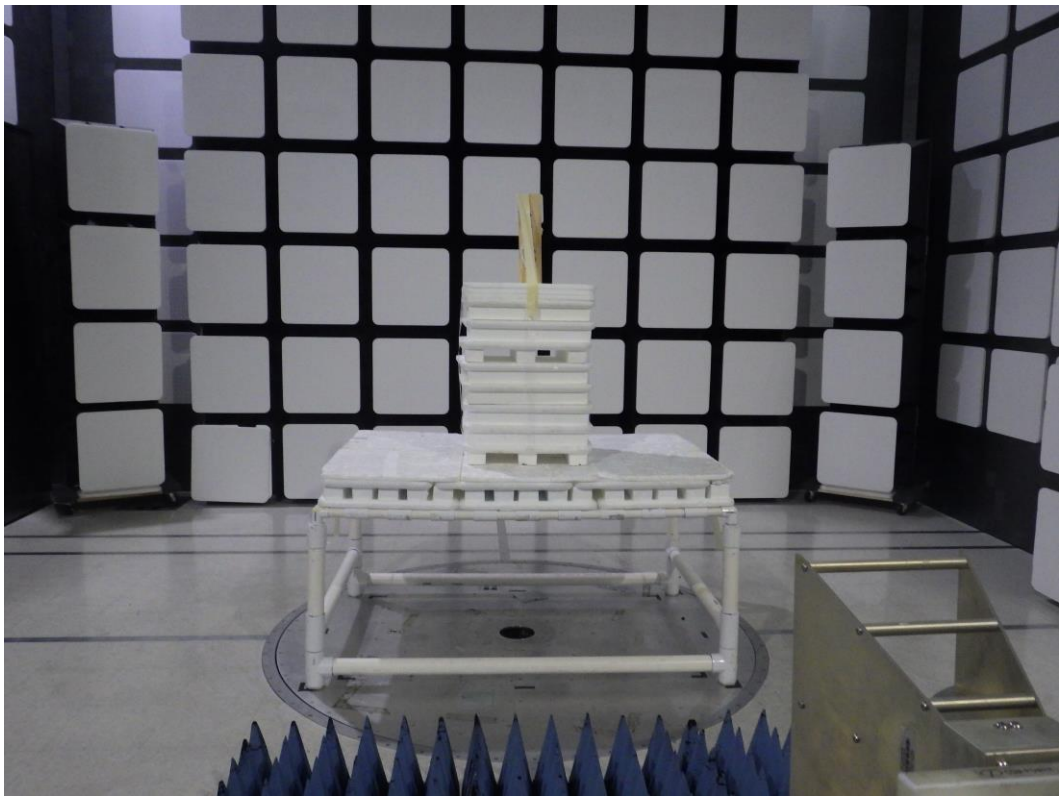
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

ECOLINK INTELLIGENT TECHNOLOGY
RING RETROFIT ALARM KIT
PART NUMBER: 4AW1SZ-0EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

ECOLINK INTELLIGENT TECHNOLOGY
RING RETROFIT ALARM KIT
PART NUMBER: 4AW1SZ-0EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs

APPENDIX E

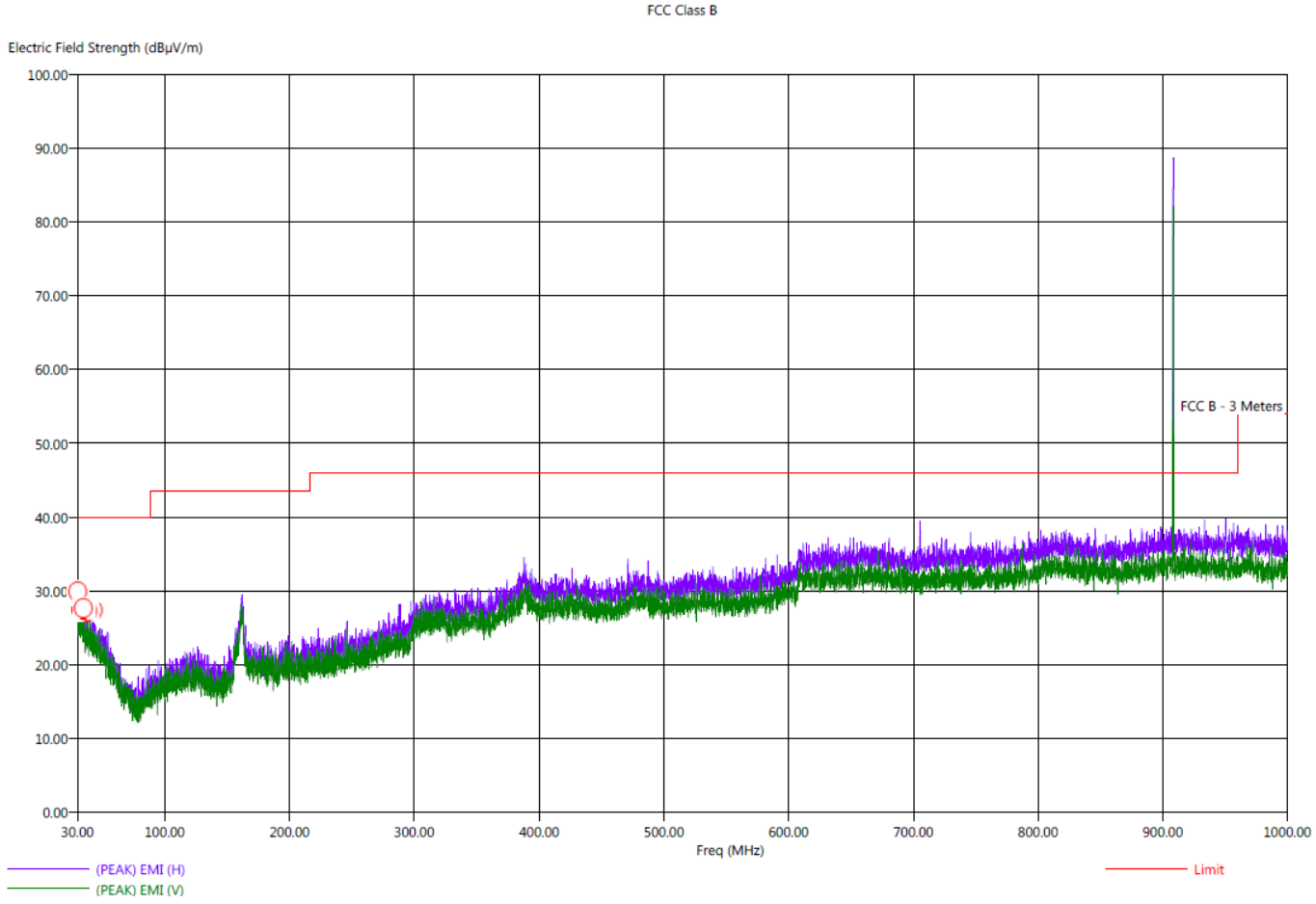
DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

Title: Pre-Scan - FCC Class B
File: 1 - Agilent - Pre-Scan - FCC Class B - 30 MHz to 1000 MHz - Low Ch - X-axis.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously transmitting at 908.42 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
Low Channel, X-axis
Note: The emission at 908.42 MHz is from the intentional radiator and subject to the rules of FCC 15.249 instead.

9/16/2019 10:35:40 AM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: 1 - Agilent - Final Scan - FCC Class B - 30 MHz to 1000 MHz - Low Ch - X-axis.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously transmitting at 908.42 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
Low Channel, X-axis (Worst case)

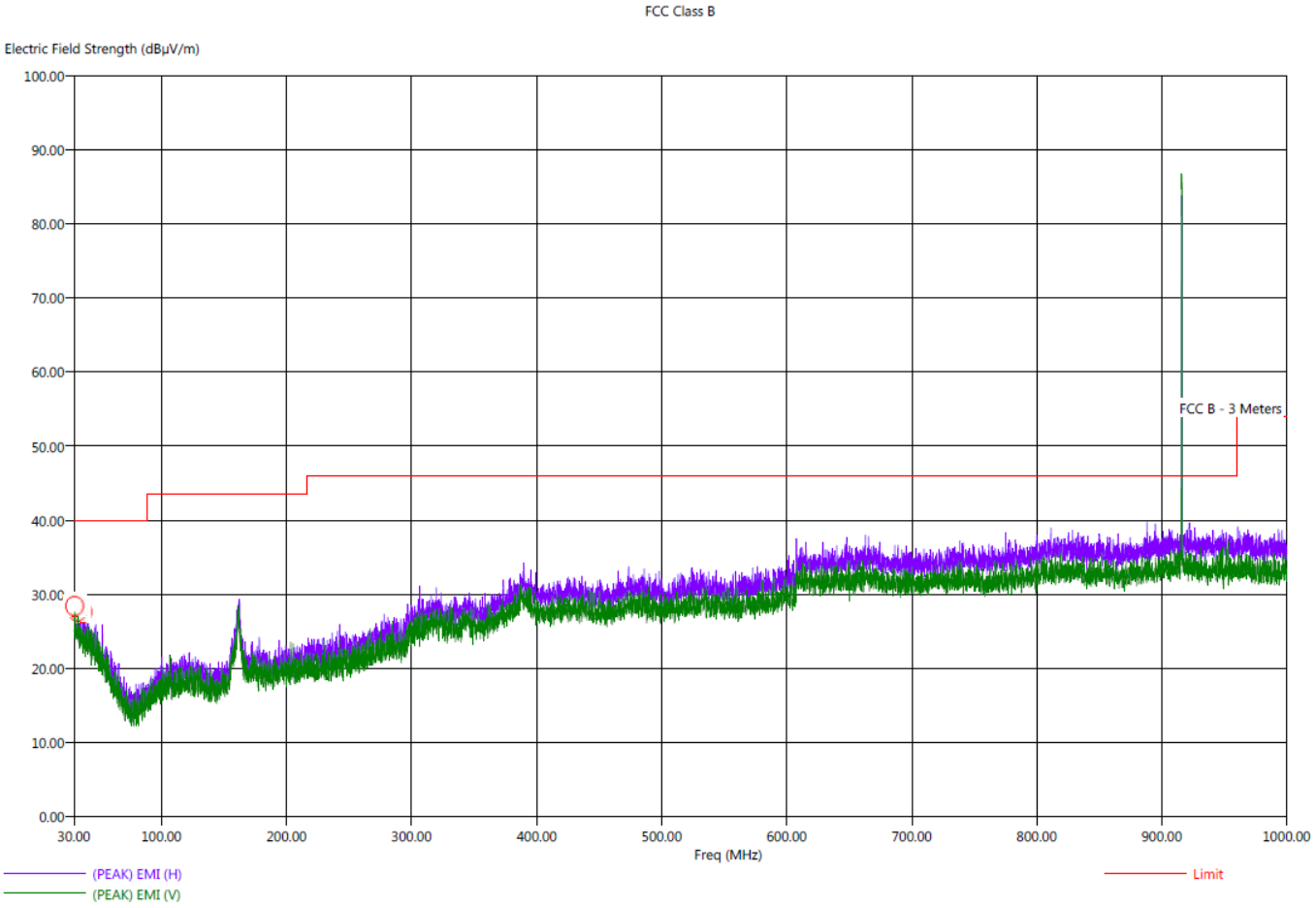
9/16/2019 10:45:30 AM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
30.20	H	30.49	24.77	-9.51	-15.23	40.00	22.01	0.80	223.50	111.44
32.60	H	29.36	24.04	-10.64	-15.96	40.00	21.47	0.83	172.00	174.67
34.60	H	29.38	23.58	-10.62	-16.42	40.00	21.03	0.85	313.00	285.77
34.70	V	29.09	23.55	-10.91	-16.45	40.00	20.96	0.85	308.50	334.61
38.20	V	28.29	22.72	-11.71	-17.28	40.00	20.28	0.88	152.50	302.79
42.70	H	27.24	21.90	-12.76	-18.10	40.00	19.68	0.90	150.50	334.55

Title: Pre-Scan - FCC Class B
File: 1 - Agilent - Pre-Scan - FCC Class B - 30 MHz to 1000 MHz - High Ch - Y-axis.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously transmitting at 916 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
High Channel, Y-axis
Note: The emission at 908.42 MHz is from the intentional radiator and subject to the rules of FCC 15.249 instead.

9/16/2019 9:20:45 AM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: 1 - Agilent - Final Scan - FCC Class B - 30 MHz to 1000 MHz - High Ch - Y-axis.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously transmitting at 916 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
High Channel, Y-axis (Worst case)

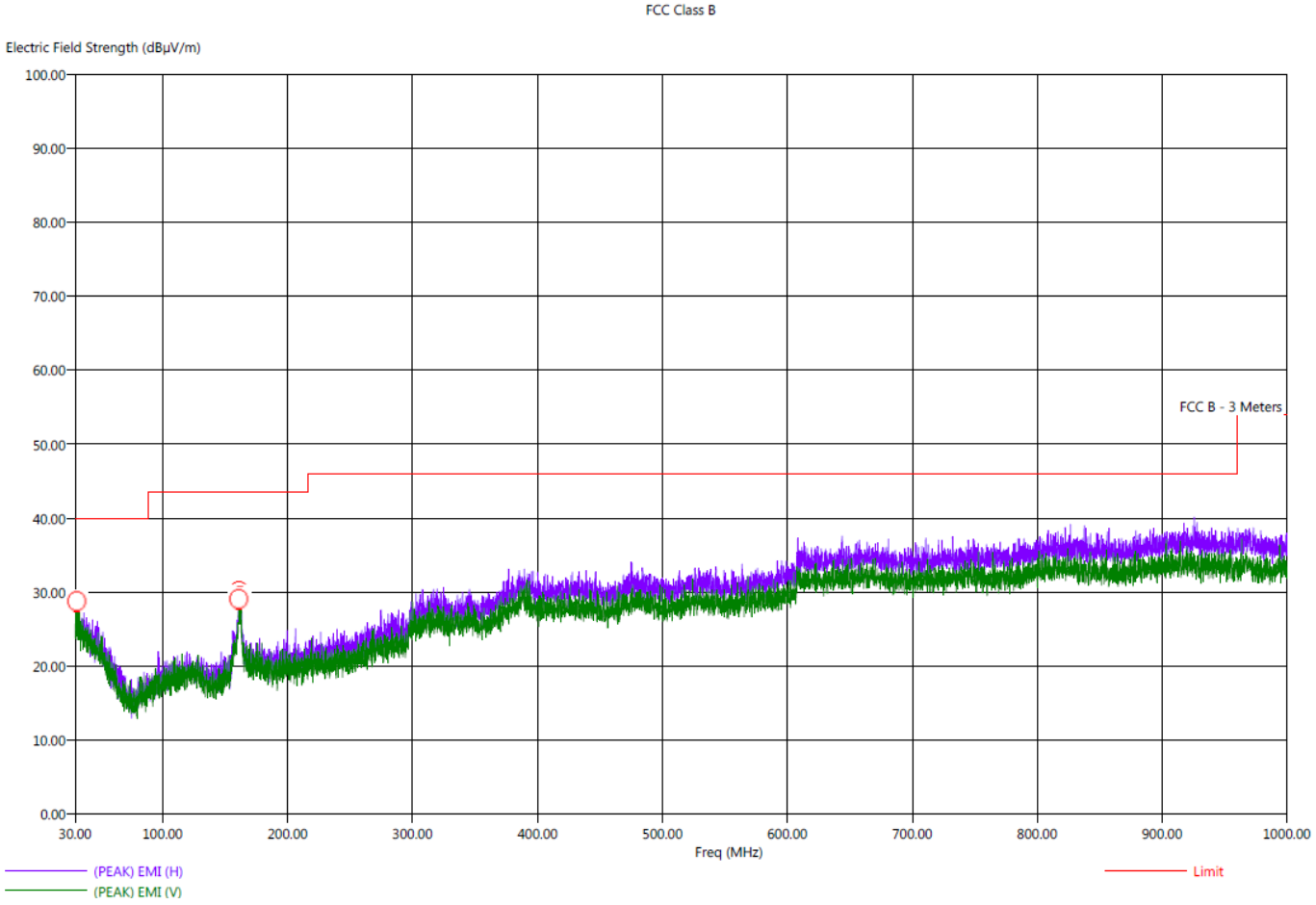
9/16/2019 9:56:40 AM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
30.60	H	29.46	24.61	-10.54	-15.39	40.00	21.85	0.81	226.00	350.79
31.30	H	29.07	24.42	-10.93	-15.58	40.00	21.69	0.81	20.50	238.43
32.80	H	30.21	24.13	-9.79	-15.87	40.00	21.49	0.83	340.50	174.85
33.20	H	29.52	24.00	-10.48	-16.00	40.00	21.36	0.83	121.50	302.49
34.00	H	28.67	23.71	-11.33	-16.29	40.00	21.09	0.84	223.00	238.37
37.10	H	28.32	23.02	-11.68	-16.98	40.00	20.51	0.87	248.25	382.01

Title: Pre-Scan - FCC Class B
File: 1 - Agilent - Pre-Scan - FCC Class B - 30 MHz to 1000 MHz - Receiver Mode - 908.42 MHz.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously receiving at 908.42 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
Receiver Mode, Y-axis Worst Case

10/4/2019 1:45:17 PM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: 1 - Agilent - Final Scan - FCC Class B - 30 MHz to 1000 MHz - Receiver Mode - 908.42 MHz.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously receiving at 908.42 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
Receiver Mode, Y-Axis Worst Case

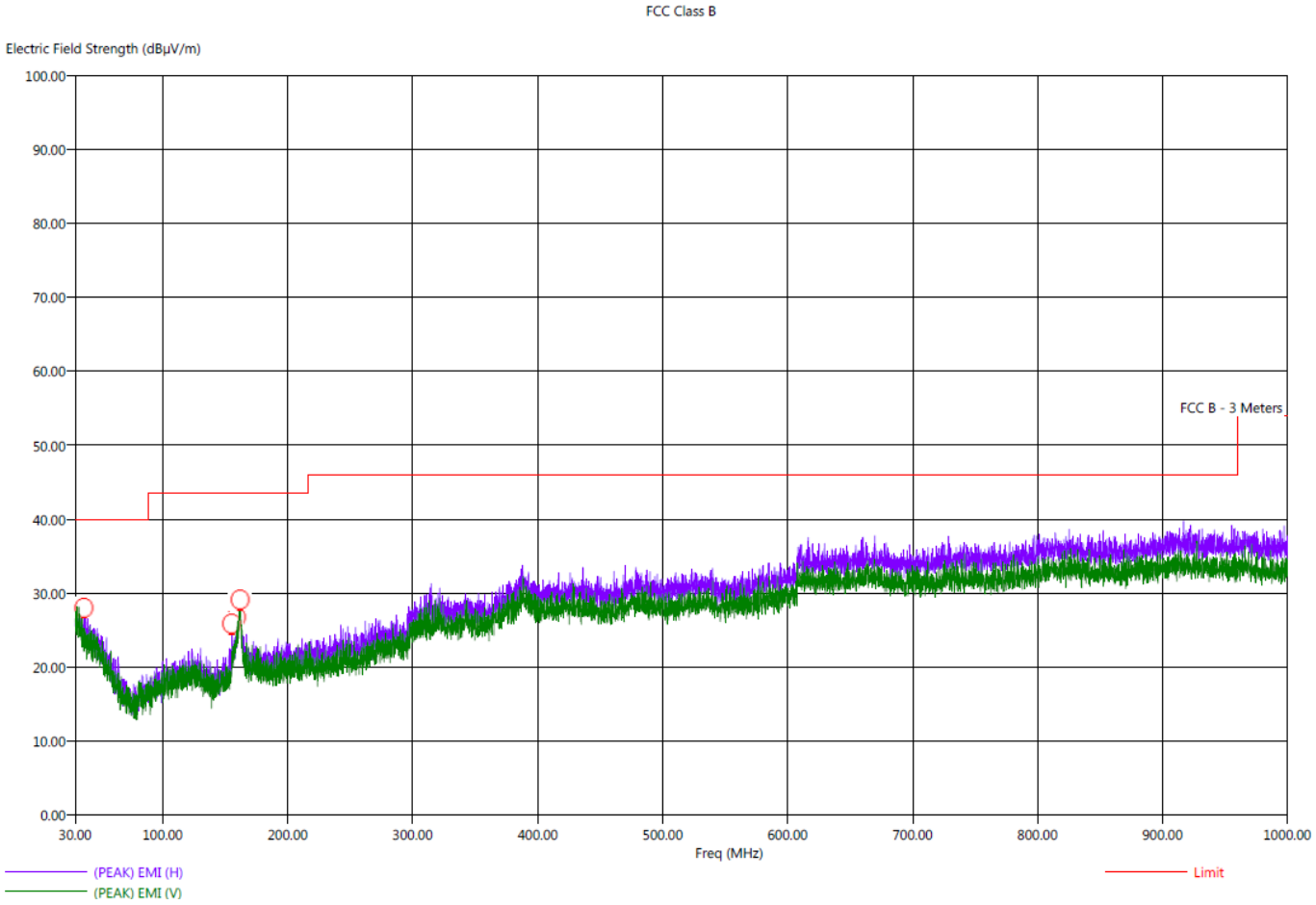
10/4/2019 1:54:15 PM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
31.20	V	30.29	24.52	-9.71	-15.48	40.00	21.68	0.81	174.25	398.61
160.80	H	30.67	25.45	-12.83	-18.05	43.50	21.55	1.30	262.00	143.26
160.80	V	31.83	25.95	-11.67	-17.55	43.50	21.64	1.30	225.25	223.32
161.10	H	32.03	25.99	-11.47	-17.51	43.50	22.00	1.30	88.50	398.19
161.90	V	31.83	26.37	-11.67	-17.13	43.50	22.09	1.30	98.50	283.50
162.10	H	30.78	25.35	-12.72	-18.15	43.50	21.48	1.30	185.75	111.62

Title: Pre-Scan - FCC Class B
File: 1 - Agilent - Pre-Scan - FCC Class B - 30 MHz to 1000 MHz - Receiver Mode - 916 MHz.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously receiving at 916 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
Receiver Mode, Y-axis Worst Case

10/4/2019 2:09:30 PM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: 1 - Agilent - Final Scan - FCC Class B - 30 MHz to 1000 MHz - Receiver Mode - 916 MHz.set
Operator: Harvey Samaco
EUT Type: Ring Retrofit Alarm Kit
EUT Condition: The EUT was continuously receiving at 916 MHz
Company: Ecolink Intelligent Technology, Inc.
P/N: 4AW1SZ-0EN0
Receiver Mode, Y-Axis Worst Case

10/4/2019 2:17:57 PM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
36.90	H	28.24	23.08	-11.76	-16.92	40.00	20.53	0.87	49.50	206.85
155.20	H	23.81	18.02	-19.69	-25.48	43.50	16.26	1.30	355.75	302.13
158.90	H	27.51	21.89	-15.99	-21.61	43.50	18.02	1.30	169.00	159.32
160.60	H	29.81	24.77	-13.69	-18.73	43.50	20.92	1.30	192.75	127.26
161.60	H	31.57	26.03	-11.93	-17.47	43.50	22.07	1.30	293.00	366.01
162.00	V	32.13	25.85	-11.37	-17.65	43.50	21.68	1.30	92.50	206.79

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number:4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - Unit R1
Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
908.42	81.94	V	93.97	-12.03	Peak	2.25	159.56	**X-Axis**
908.42	81.41	V	93.97	-12.56	QP	2.25	159.56	**Vertical Polarization**
908.42	93.48	V	93.97	-0.51	Peak	287.50	129.65	**Y-Axis**
908.42	93.33	V	93.97	-0.71	QP	287.50	129.65	**Vertical Polarization**
908.42	85.97	V	93.97	-8.00	Peak	76.50	105.00	**Z-Axis**
908.42	85.37	V	93.97	-8.60	QP	76.50	105.00	**Vertical Polarization**
908.42	92.79	H	93.97	-1.18	Peak	267.75	147.20	**X-Axis**
908.42	92.64	H	93.97	-1.33	QP	267.75	147.20	**Horizontal Polarization**
908.42	90.69	H	93.97	-3.28	Peak	287.50	129.65	**Y-Axis**
908.42	90.31	H	93.97	-3.66	QP	287.50	129.65	**Horizontal Polarization**
908.42	88.28	H	93.97	-5.69	Peak	341.00	178.13	**Z-Axis**
908.42	87.62	H	93.97	-6.35	QP	341.00	178.13	**Horizontal Polarization**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number:4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Unit R1
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	37.15	V	73.97	-36.83	Peak	36.00	169.00	
1816.84	30.78	V	53.97	-23.20	Avg	36.00	169.00	
2725.26	40.14	V	73.97	-33.83	Peak	21.25	178.73	
2725.26	33.77	V	53.97	-20.20	Avg	21.25	178.73	
3633.68	41.37	V	73.97	-32.60	Peak	48.00	180.40	
3633.68	35.00	V	53.97	-18.97	Avg	48.00	180.40	
4542.10	40.52	V	73.97	-33.45	Peak	170.75	149.17	
4542.10	34.15	V	53.97	-19.82	Avg	170.75	149.17	
5450.52	43.41	V	73.97	-30.56	Peak	191.75	169.71	
5450.52	37.04	V	53.97	-16.93	Avg	191.75	169.71	
6358.94								**No Emission**
6358.94								**Detected**
7267.36								**No Emission**
7267.36								**Detected**
8175.78								**No Emission**
8175.78								**Detected**
9084.20								**No Emission**
9084.20								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number:4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Unit R1
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	37.52	V	73.97	-36.45	Peak	205.00	131.22	
1816.84	31.15	V	53.97	-22.82	Avg	205.00	131.22	
2725.26	39.92	V	73.97	-34.05	Peak	46.00	112.58	
2725.26	33.55	V	53.97	-20.42	Avg	46.00	112.58	
3633.68	41.27	V	73.97	-32.71	Peak	16.50	123.92	
3633.68	34.90	V	53.97	-19.08	Avg	16.50	123.92	
4542.10	39.11	V	73.97	-34.86	Peak	344.50	183.56	
4542.10	32.74	V	53.97	-21.23	Avg	344.50	183.56	
5450.52	43.54	V	73.97	-30.43	Peak	165.25	100.00	
5450.52	37.17	V	53.97	-16.80	Avg	165.25	100.00	
6358.94								**No Emission**
6358.94								**Detected**
7267.36								**No Emission**
7267.36								**Detected**
8175.78								**No Emission**
8175.78								**Detected**
9084.20								**No Emission**
9084.20								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number:4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Unit R1
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	37.05	V	73.97	-36.92	Peak	344.00	112.00	
1816.84	30.68	V	53.97	-23.29	Avg	344.00	112.00	
2725.26	40.38	V	73.97	-33.59	Peak	331.40	108.10	
2725.26	34.01	V	53.97	-19.96	Avg	331.40	108.10	
3633.68	40.86	V	73.97	-33.11	Peak	346.80	104.00	
3633.68	34.49	V	53.97	-19.48	Avg	346.80	104.00	
4542.10	39.45	V	73.97	-34.52	Peak	329.00	100.82	
4542.10	33.08	V	53.97	-20.89	Avg	329.00	100.82	
5450.52	43.20	V	73.97	-30.77	Peak	167.25	117.41	
5450.52	36.83	V	53.97	-17.14	Avg	167.25	117.41	
6358.94								**No Emission**
6358.94								**Detected**
7267.36								**No Emission**
7267.36								**Detected**
8175.78								**No Emission**
8175.78								**Detected**
9084.20								**No Emission**
9084.20								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number:4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Unit R1
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	36.61	H	73.97	-37.36	Peak	62.00	100.00	
1816.84	30.24	H	53.97	-23.73	Avg	62.00	100.00	
2725.26	40.35	H	73.97	-33.62	Peak	60.00	100.00	
2725.26	33.98	H	53.97	-19.99	Avg	60.00	100.00	
3633.68	40.84	H	73.97	-33.13	Peak	47.00	100.00	
3633.68	34.47	H	53.97	-19.50	Avg	47.00	100.00	
4542.10	40.64	H	73.97	-33.33	Peak	125.50	196.76	
4542.10	34.27	H	53.97	-19.70	Avg	125.50	196.76	
5450.52	42.97	H	73.97	-31.01	Peak	145.75	100.00	
5450.52	36.60	H	53.97	-17.38	Avg	145.75	100.00	
6358.94								**No Emission**
6358.94								**Detected**
7267.36								**No Emission**
7267.36								**Detected**
8175.78								**No Emission**
8175.78								**Detected**
9084.20								**No Emission**
9084.20								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Unit R1
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	37.40	H	73.97	-36.58	Peak	200.00	132.25	
1816.84	31.03	H	53.97	-22.95	Avg	200.00	132.25	
2725.26	40.11	H	73.97	-33.86	Peak	201.00	131.50	
2725.26	33.74	H	53.97	-20.23	Avg	201.00	131.50	
3633.68	42.08	H	73.97	-31.89	Peak	297.75	114.25	
3633.68	35.71	H	53.97	-18.26	Avg	297.75	114.25	
4542.10	40.24	H	73.97	-33.73	Peak	0.25	143.50	
4542.10	33.87	H	53.97	-20.10	Avg	0.25	143.50	
5450.52	42.87	H	73.97	-31.10	Peak	198.75	128.40	
5450.52	36.50	H	53.97	-17.47	Avg	198.75	128.40	
6358.94								**No Emission**
6358.94								**Detected**
7267.36								**No Emission**
7267.36								**Detected**
8175.78								**No Emission**
8175.78								**Detected**
9084.20								**No Emission**
9084.20								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Unit R1
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	37.36	H	73.97	-36.61	Peak	41.00	105.00	
1816.84	30.99	H	53.97	-22.98	Avg	41.00	105.00	
2725.26	39.65	H	73.97	-34.32	Peak	34.00	100.00	
2725.26	33.28	H	53.97	-20.69	Avg	34.00	100.00	
3633.68	41.22	H	73.97	-32.75	Peak	35.00	103.20	
3633.68	34.85	H	53.97	-19.12	Avg	35.00	103.20	
4542.10	39.78	H	73.97	-34.19	Peak	23.50	100.00	
4542.10	33.41	H	53.97	-20.56	Avg	23.50	100.00	
5450.52	42.98	H	73.97	-30.99	Peak	25.80	100.00	
5450.52	36.61	H	53.97	-17.36	Avg	25.80	100.00	
6358.94								**No Emission**
6358.94								**Detected**
7267.36								**No Emission**
7267.36								**Detected**
8175.78								**No Emission**
8175.78								**Detected**
9084.20								**No Emission**
9084.20								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number:4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - Unit R2
High Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
916.00	84.59	V	93.97	-9.38	Peak	10.00	165.77	**X-Axis**
916.00	84.43	V	93.97	-9.54	QP	10.00	165.77	**Vertical Polarization**
916.00	93.49	V	93.97	-0.48	Peak	277.00	131.38	**Y-Axis**
916.00	93.33	V	93.97	-0.64	QP	277.00	131.38	**Vertical Polarization**
916.00	90.02	V	93.97	-3.95	Peak	259.50	107.92	**Z-Axis**
916.00	89.94	V	93.97	-4.03	QP	259.50	107.92	**Vertical Polarization**
916.00	93.93	H	93.97	-0.04	Peak	189.00	144.70	**X-Axis**
916.00	93.71	H	93.97	-0.26	QP	189.00	144.70	**Horizontal Polarization**
916.00	90.79	H	93.97	-3.18	Peak	202.50	113.35	**Y-Axis**
916.00	90.61	H	93.97	-3.36	QP	202.50	113.35	**Horizontal Polarization**
916.00	90.30	H	93.97	-3.67	Peak	187.50	166.85	**Z-Axis**
916.00	89.56	H	93.97	-4.41	QP	187.50	166.85	**Horizontal Polarization**

FCC 15.249
Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Unit R2
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	37.48	V	73.97	-36.49	Peak	231.00	164.00	
1832.00	31.11	V	53.97	-22.86	Avg	231.00	164.00	
2748.00	40.72	V	73.97	-33.25	Peak	236.75	163.25	
2748.00	34.35	V	53.97	-19.62	Avg	236.75	163.25	
3664.00	40.27	V	73.97	-33.71	Peak	235.00	162.00	
3664.00	33.90	V	53.97	-20.08	Avg	235.00	162.00	
4580.00	40.72	V	73.97	-33.25	Peak	241.00	164.16	
4580.00	34.35	V	53.97	-19.62	Avg	241.00	164.16	
5496.00	43.02	V	73.97	-30.95	Peak	237.00	164.75	
5496.00	36.65	V	53.97	-17.32	Avg	237.00	164.75	
6412.00								**No Emission**
6412.00								**Detected**
7328.00								**No Emission**
7328.00								**Detected**
8244.00								**No Emission**
8244.00								**Detected**
9160.00								**No Emission**
9160.00								**Detected**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Unit R2
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	37.68	V	73.97	-36.29	Peak	12.00	184.75	
1832.00	31.31	V	53.97	-22.66	Avg	12.00	184.75	
2748.00	40.27	V	73.97	-33.71	Peak	5.25	190.00	
2748.00	33.90	V	53.97	-20.08	Avg	5.25	190.00	
3664.00	40.96	V	73.97	-33.02	Peak	0.00	186.50	
3664.00	34.59	V	53.97	-19.39	Avg	0.00	186.50	
4580.00	39.94	V	73.97	-34.03	Peak	0.00	191.80	
4580.00	33.57	V	53.97	-20.40	Avg	0.00	191.80	
5496.00	42.93	V	73.97	-31.04	Peak	2.75	190.00	
5496.00	36.56	V	53.97	-17.41	Avg	2.75	190.00	
6412.00								**No Emission**
6412.00								**Detected**
7328.00								**No Emission**
7328.00								**Detected**
8244.00								**No Emission**
8244.00								**Detected**
9160.00								**No Emission**
9160.00								**Detected**

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Unit R2
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	37.14	V	73.97	-36.83	Peak	164.00	147.25	
1832.00	30.77	V	53.97	-23.20	Avg	164.00	147.25	
2748.00	40.38	V	73.97	-33.59	Peak	171.25	148.50	
2748.00	34.01	V	53.97	-19.96	Avg	171.25	148.50	
3664.00	40.69	V	73.97	-33.28	Peak	168.00	147.00	
3664.00	34.32	V	53.97	-19.65	Avg	168.00	147.00	
4580.00	41.49	V	73.97	-32.48	Peak	177.50	151.62	
4580.00	35.12	V	53.97	-18.85	Avg	177.50	151.62	
5496.00	42.87	V	73.97	-31.10	Peak	175.00	152.00	
5496.00	36.50	V	53.97	-17.47	Avg	175.00	152.00	
6412.00								**No Emission**
6412.00								**Detected**
7328.00								**No Emission**
7328.00								**Detected**
8244.00								**No Emission**
8244.00								**Detected**
9160.00								**No Emission**
9160.00								**Detected**

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Unit R2
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	37.10	H	73.97	-36.87	Peak	115.44	179.85	
1832.00	30.73	H	53.97	-23.24	Avg	115.44	179.85	
2748.00	39.81	H	73.97	-34.17	Peak	121.10	182.25	
2748.00	33.44	H	53.97	-20.54	Avg	121.10	182.25	
3664.00	40.99	H	73.97	-32.98	Peak	104.75	175.44	
3664.00	34.62	H	53.97	-19.35	Avg	104.75	175.44	
4580.00	41.59	H	73.97	-32.38	Peak	118.00	180.94	
4580.00	35.22	H	53.97	-18.75	Avg	118.00	180.94	
5496.00	42.17	H	73.97	-31.80	Peak	122.00	188.00	
5496.00	35.80	H	53.97	-18.17	Avg	122.00	188.00	
6412.00								**No Emission**
6412.00								**Detected**
7328.00								**No Emission**
7328.00								**Detected**
8244.00								**No Emission**
8244.00								**Detected**
9160.00								**No Emission**
9160.00								**Detected**

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Unit R2
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	36.79	H	73.97	-37.18	Peak	347.00	144.11	
1832.00	30.42	H	53.97	-23.55	Avg	347.00	144.11	
2748.00	40.18	H	73.97	-33.79	Peak	341.88	146.00	
2748.00	33.81	H	53.97	-20.16	Avg	341.88	146.00	
3664.00	41.07	H	73.97	-32.90	Peak	350.00	146.75	
3664.00	34.70	H	53.97	-19.27	Avg	350.00	146.75	
4580.00	41.54	H	73.97	-32.43	Peak	348.75	147.26	
4580.00	35.17	H	53.97	-18.80	Avg	348.75	147.26	
5496.00	42.16	H	73.97	-31.81	Peak	349.24	146.08	
5496.00	35.79	H	53.97	-18.18	Avg	349.24	146.08	
6412.00								**No Emission**
6412.00								**Detected**
7328.00								**No Emission**
7328.00								**Detected**
8244.00								**No Emission**
8244.00								**Detected**
9160.00								**No Emission**
9160.00								**Detected**

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Unit R2
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	36.97	H	73.97	-37.00	Peak	32.00	148.25	
1832.00	30.60	H	53.97	-23.37	Avg	32.00	148.25	
2748.00	40.17	H	73.97	-33.80	Peak	18.44	146.75	
2748.00	33.80	H	53.97	-20.17	Avg	18.44	146.75	
3664.00	40.56	H	73.97	-33.41	Peak	25.00	144.58	
3664.00	34.19	H	53.97	-19.78	Avg	25.00	144.58	
4580.00	41.09	H	73.97	-32.88	Peak	23.75	146.01	
4580.00	34.72	H	53.97	-19.25	Avg	23.75	146.01	
5496.00	42.48	H	73.97	-31.49	Peak	24.00	145.50	
5496.00	36.11	H	53.97	-17.86	Avg	24.00	145.50	
6412.00								**No Emission**
6412.00								**Detected**
7328.00								**No Emission**
7328.00								**Detected**
8244.00								**No Emission**
8244.00								**Detected**
9160.00								**No Emission**
9160.00								**Detected**

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D

Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 1 GHz to 9.3 GHz
								for the digital portion
								of the EUT
								from 9 kHz to 30 MHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								No Emissions Detected
								from 1 GHz to 9.3 GHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis
								Investigated at both Low
								channel and High channel

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D

Tested By: Kyle Fujimoto

Receive Mode - 1 GHz to 9.3 GHz

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 1 GHz to 9.3 GHz
								for the Receive Mode
								of the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis
								Investigated at both Low
								channel and High channel

BAND EDGES

DATA SHEETS

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Unit R1

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
908.42	93.48	V	93.97	-0.49	Peak	277.00	131.38	**Fundamental - Low Ch.**
908.42	93.33	V	93.97	-0.64	QP	277.00	131.38	**Y-Axis - Worst Case**
901.23	35.65	V	46.00	-10.35	Peak	277.00	131.38	**Band Edge**
901.23	31.94	V	46.00	-14.06	QP	277.00	131.38	**Y-Axis - Worst Case**
908.42	92.79	H	93.97	-1.18	Peak	267.75	147.20	**Fundamental - Low Ch.**
908.42	92.64	H	93.97	-1.33	QP	267.75	147.20	**X-Axis - Worst Case**
901.22	33.73	H	46.00	-12.27	Peak	267.75	147.20	**Band Edge**
901.22	30.36	H	46.00	-15.64	QP	267.75	147.20	**X-Axis - Worst Case**

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Ecolink Intelligent Technology, Inc.
Ring Retrofit Alarm Kit
Part Number: 4AW1SZ-0EN0

Date: 09/13/2019
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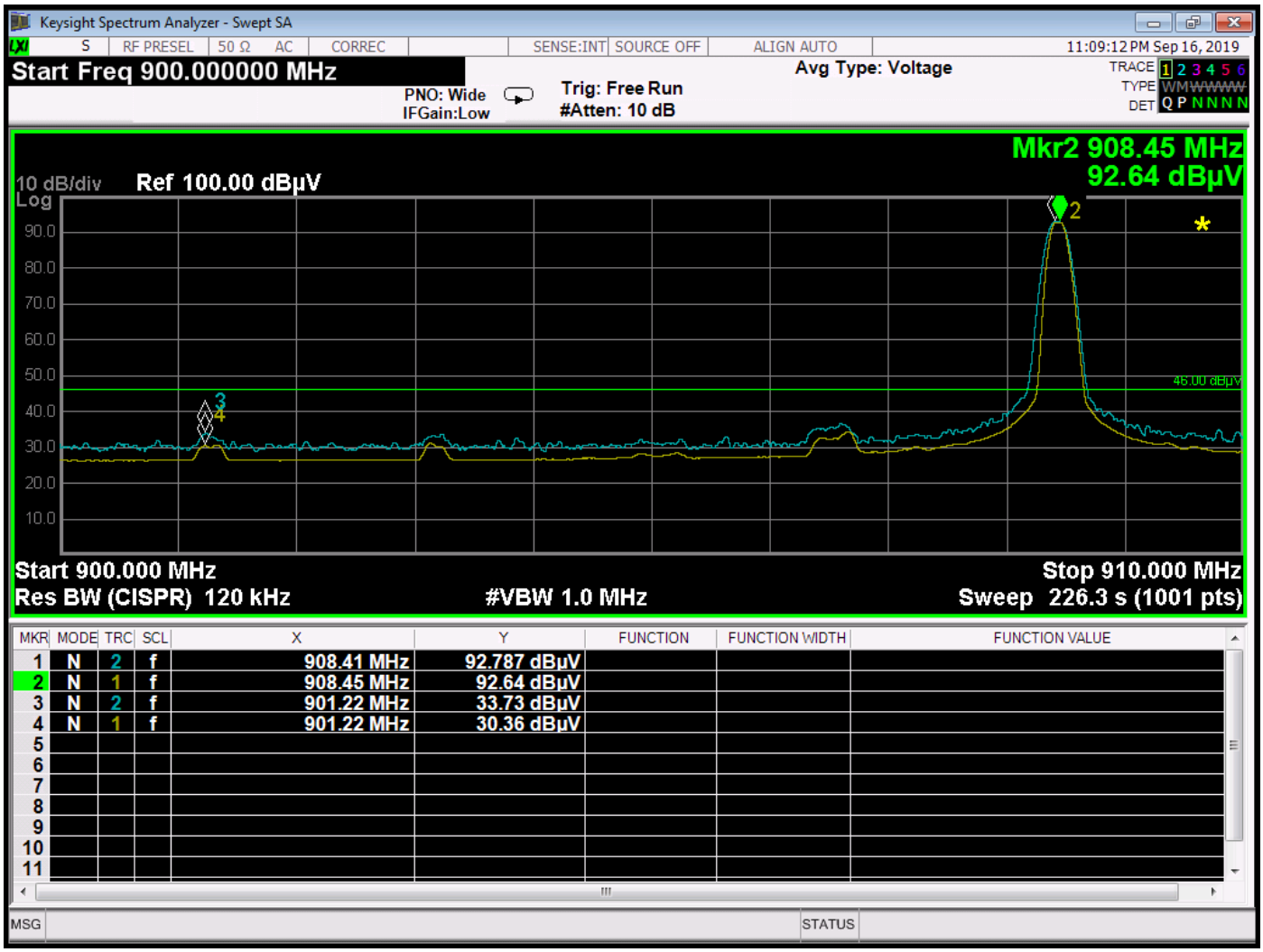
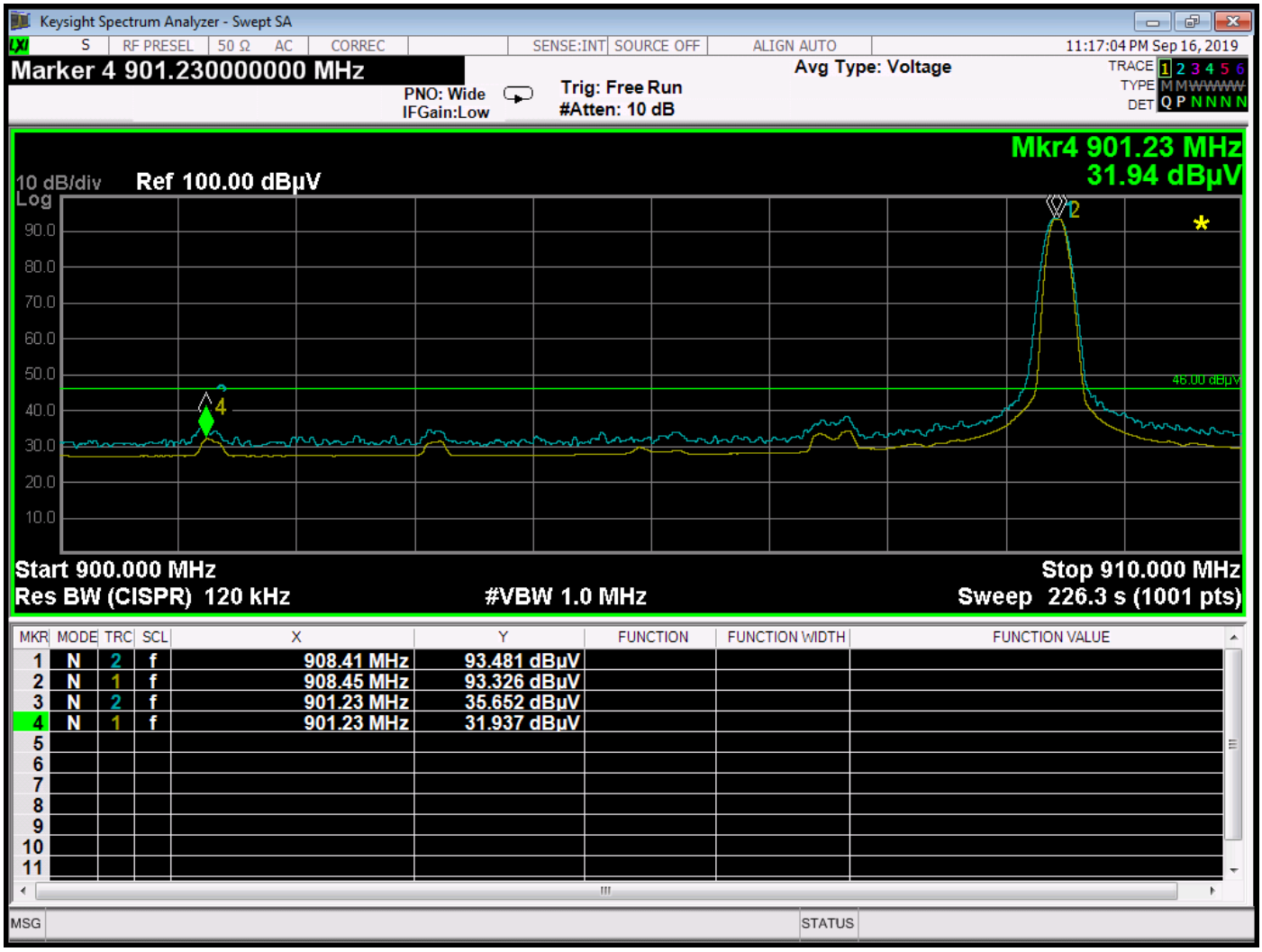
Tested By: Kyle Fujimoto

Band Edges - Unit R2

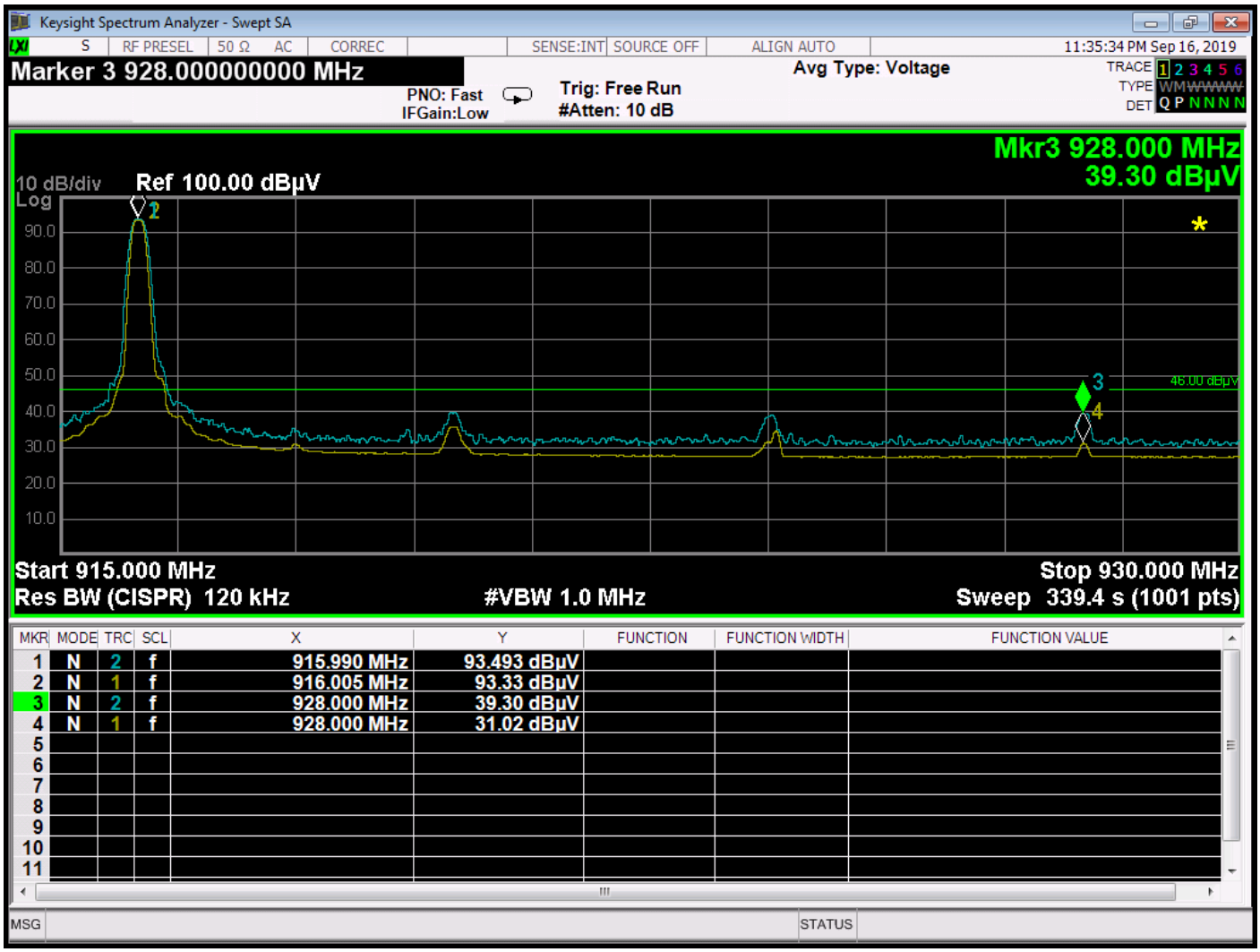
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
916.00	93.49	V	93.97	-0.48	Peak	277.00	131.38	**Fundamental - High Ch.**
916.00	93.33	V	93.97	-0.64	QP	277.00	131.38	**Y-Axis - Worst Case**
928.00	39.30	V	46.00	-6.70	Peak	277.00	131.38	**Band Edge**
928.00	31.02	V	46.00	-14.98	QP	277.00	131.38	**Y-Axis - Worst Case**
916.00	93.93	H	93.97	-0.04	Peak	189.00	144.70	**Fundamental - High Ch.**
916.00	93.71	H	93.97	-0.26	QP	189.00	144.70	**X-Axis - Worst Case**
928.00	33.08	H	46.00	-12.92	Peak	189.00	144.70	**Band Edge**
928.00	31.53	H	46.00	-14.47	QP	189.00	144.70	**X-Axis - Worst Case**



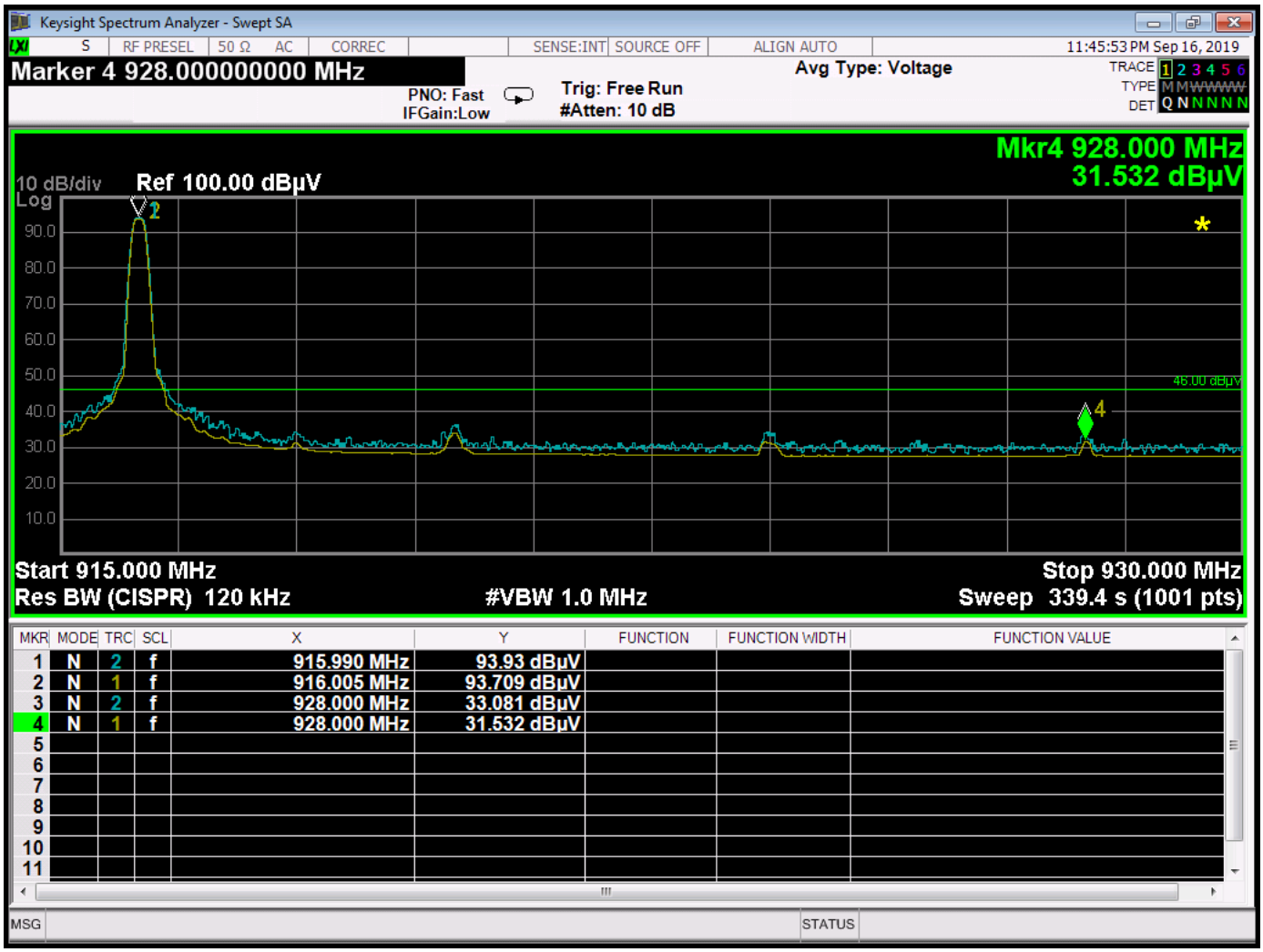
Low Band Edge – Horizontal – X-Axis



Low Band Edge – Vertical – Y-Axis

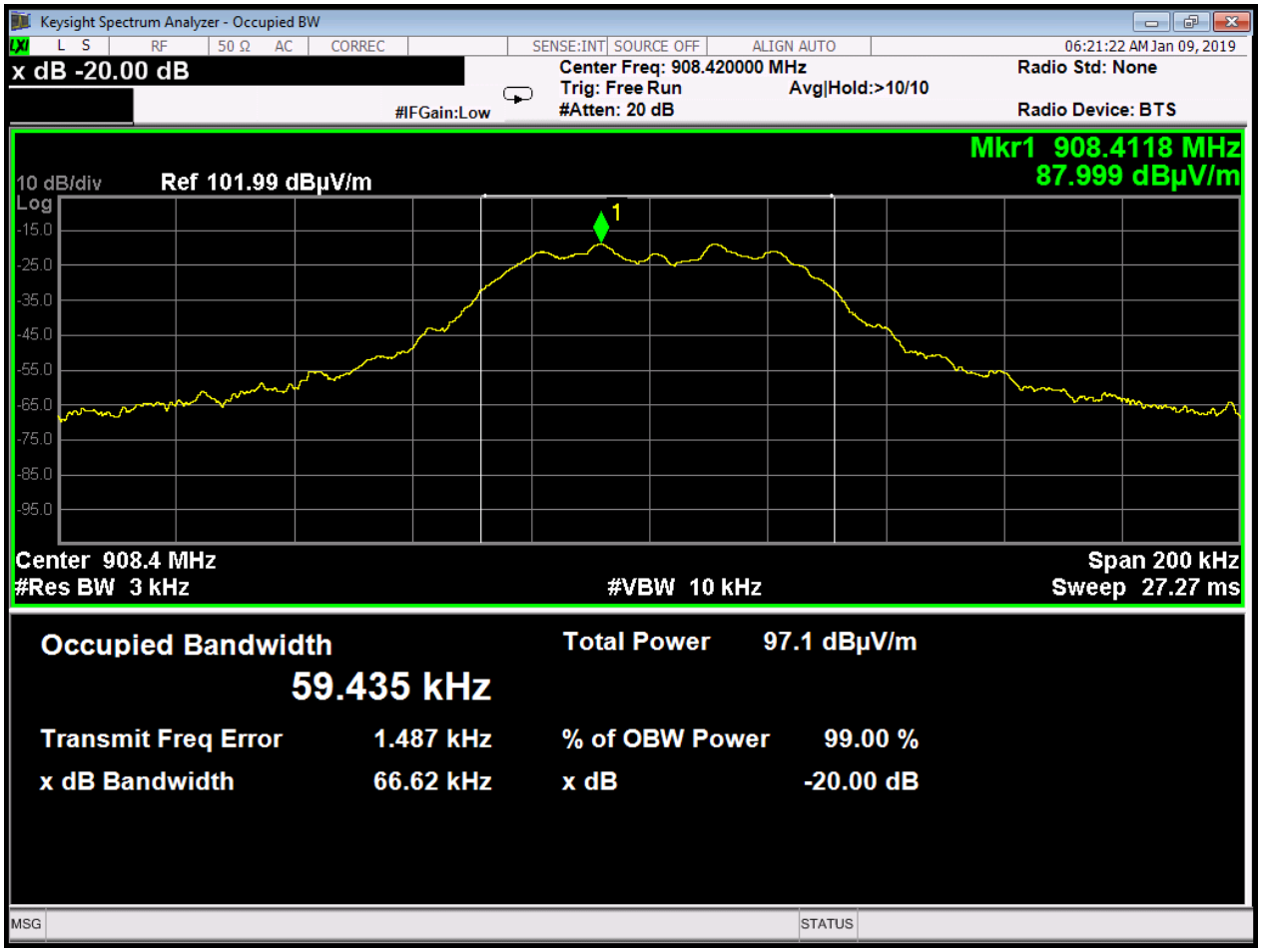


High Band Edge – Vertical – Y-Axis

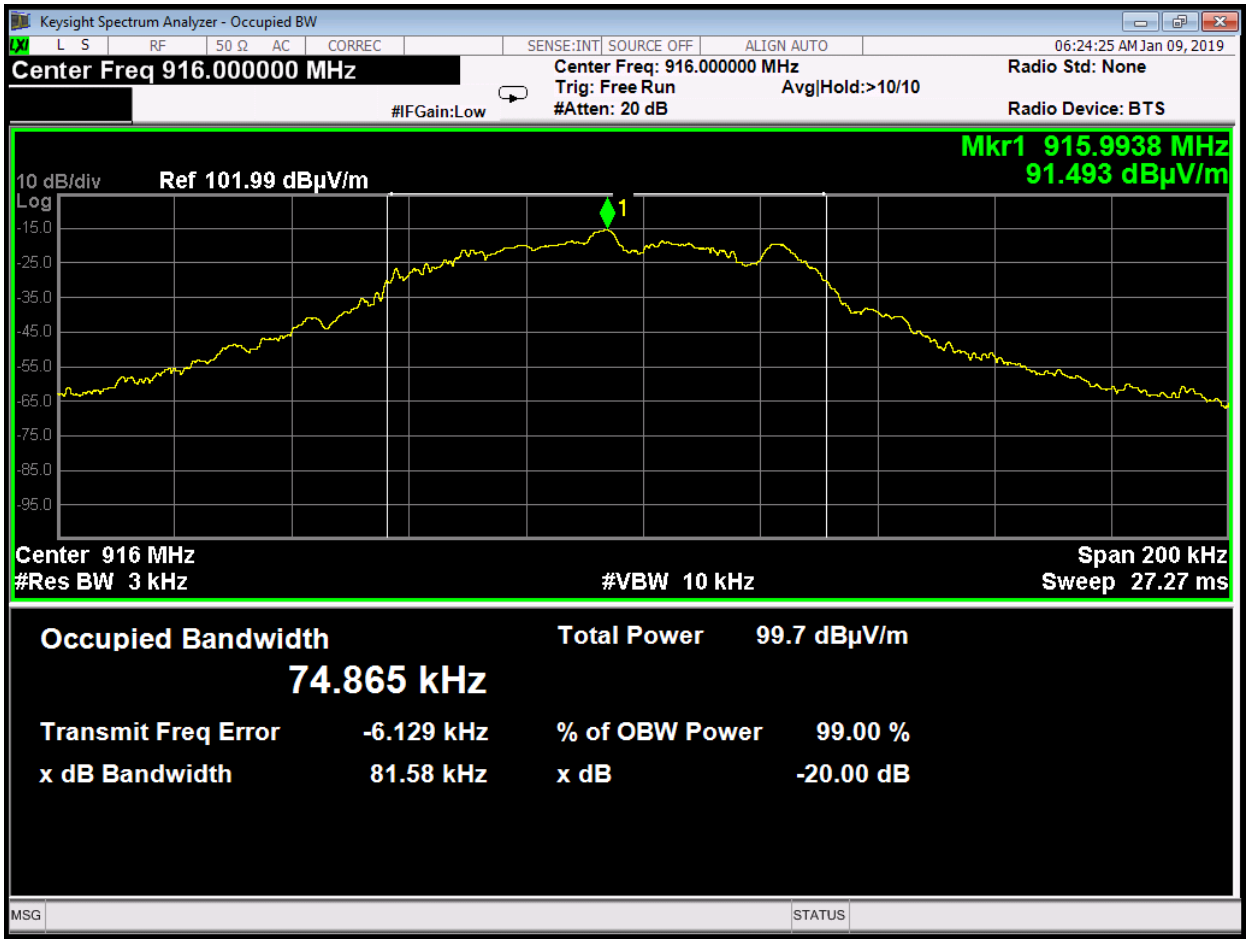


High Band Edge – Horizontal – X-Axis

99 % BANDWIDTH DATA SHEETS

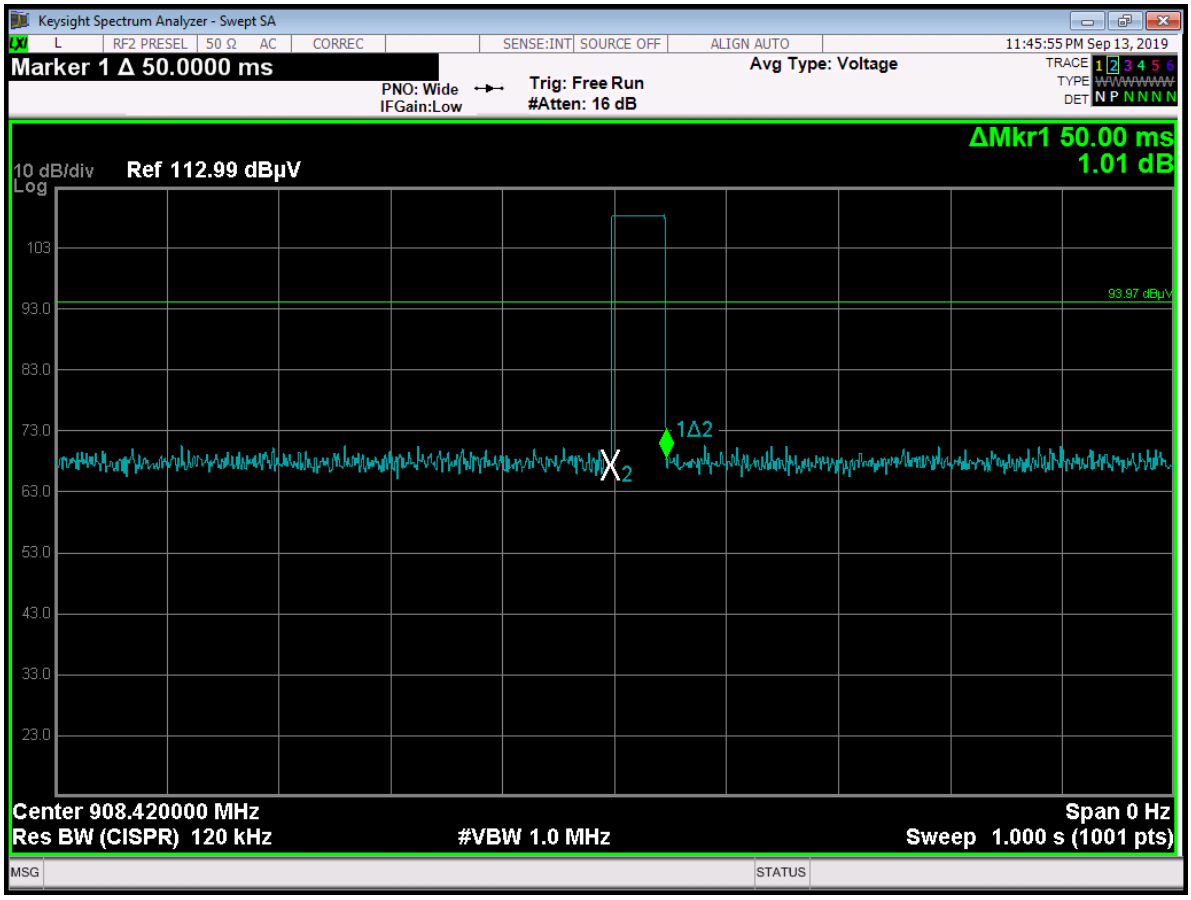


99 Percent BW – 908.42 MHz – Low channel – Total Power

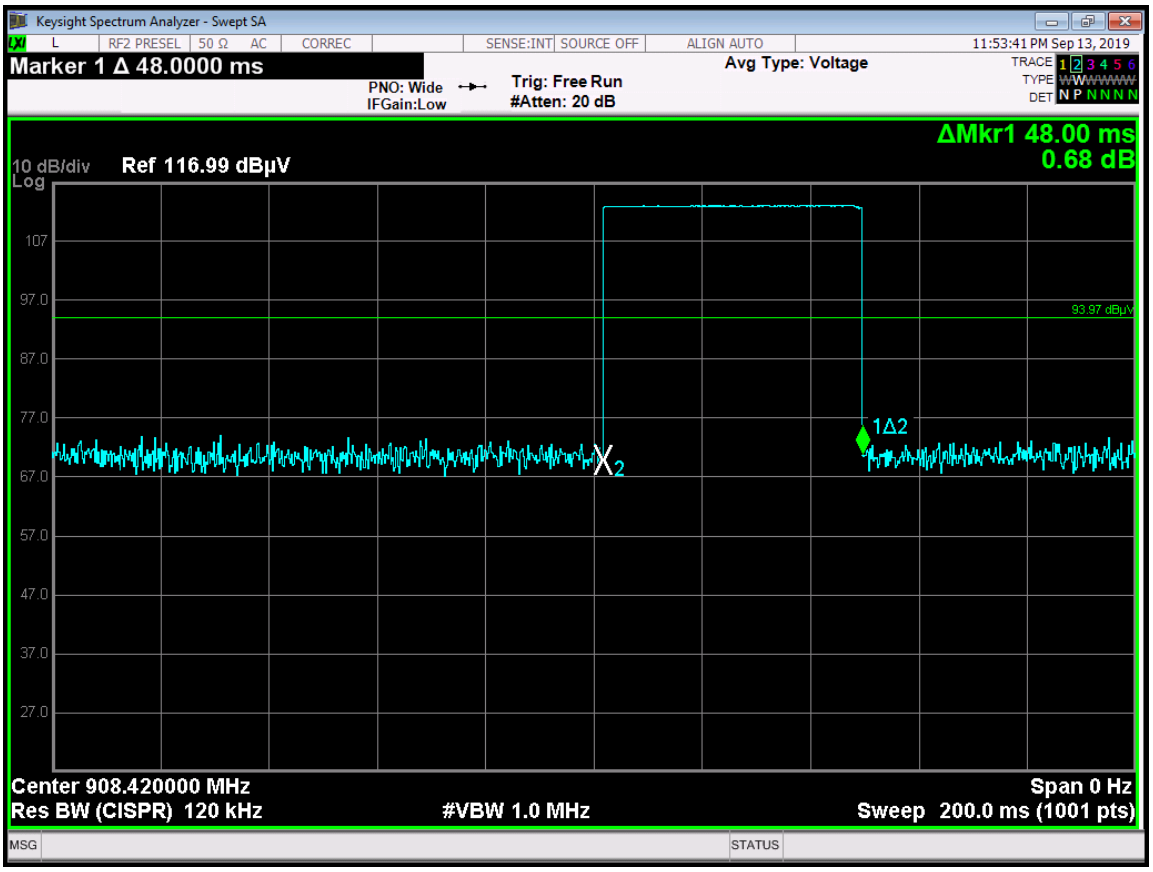


99 Percent BW – 916 MHz – High channel – Total Power

DUTY CYCLE DATA SHEETS



Duty cycle - Pulse per 100 ms



Pulse is 48 ms

Duty Cycle = 48 ms / 100 ms x 100% = 48%

Duty cycle correction = 20 log(.48) = -6.37 dB correction factor