FCC PART 15, SUBPART B and C
TEST REPORT

for

RING SMOKE/CO LISTENER

Part Number: 4SS1S80EN0

Prepared for

ECOLINK INTELLIGENT TECHNOLOGY, INC.
2055 CORTE DEL NOGAL
CARLSBAD, CALIFORNIA 92011

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

JAMES ROSS

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

DATE: MAY 1, 2018

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
PAGES	17	2	2	2	11	36	**70**

NVLAP® TESTING
NVLAP LAB CODE 200528-0

ilac-MRA

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

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 Smoke/CO Listener Part Number: 4SS1S80EN0 S/N: N/A
Product Description:	The EUT is a battery-powered device for to detect smoke and carbon monoxide.
Modifications:	The EUT was not modified in order to meet the specifications.
Customer:	Ecolink Intelligent Technology, Inc. 2055 Corte Del Nogal Carlsbad, California 92011
Test Dates:	April 2 and 3, 2018

Test Specifications covered by accreditation:

CFR Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.209, and 15.249

NVLAP® TESTING
NVLAP LAB CODE 200528-0

ilac-MRA

Test Procedures: ANSI C63.4: 2014 and ANSI C63.10: 2013

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 9 kHz – 9300 MHz (Transmitter 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 Highest reading in relation to spec limit 93.52 dBuV/m @ 908.42 MHz (*U = 4.54 dB)
2	Conducted RF Emissions, 150 kHz to 30 MHz	This test was not performed because the EUT does not connect to the AC mains

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Ring Smoke/CO Listener, Part Number: 4SS1S80EN0. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.

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, Inc.

Keyoor Gosalia	Principal RF Engineer
Anna Poltoratska	Project Manager

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
James Ross	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on prior to the intial date of testing.

2.5 Disposition of the Test Sample

The test sample has not been returned to Ecolink Intelligent Technology, 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
ASK	Amplitude Shift Key
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
N/A	Not Applicable
Tx	Transmit
Rx	Receive
PIR	Pyroelectric (“Passive”) Infrared
Inc.	Incorporated

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules – Radio frequency devices (including digital devices) – Intentional Radiators
FCC Title 47, Part 15 Subpart B	FCC Rules – Radio frequency devices (including digital devices) – Unintentional Radiators
ANSI C63.4 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 Smoke/CO Listener, Part Number: 4SS1S80EN0 (EUT) was setup in a stand-alone configuration. The EUT was investigated in all three orthogonal axis. During the testing, the EUT was continuously transmitting or receiving at the low channel of 908.42 MHz and high channel of 916 MHz.

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 programmed to be able to continuously transmit or receive at the low and high channels. Fresh batteries were installed inside the EUT prior to the testing. The EUT was preset via internal firmware to continuously transmit or receive at the low or high, respectively.

The firmware is stored in one of the network drives in the company's server.

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

4.1.1 Cable Construction and Termination

The EUT had no external cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
RING SMOKE/CO LISTENER (EUT)	ECOLINK INTELLIGENT TECHNOLOGY, INC.	P/N: 4SS1S80EN0	N/A	XQCBHASL001
FIRMWARE FOR EUT*	ECOLINK INTELLIGENT TECHNOLOGY, INC.	1.0	N/A	N/A

*Located inside the EUT to allow the EUT to transmit on a continuous basis.

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
RF RADIATED EMISSIONS TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
EMI Receiver, 20 Hz – 26.5 GHz	Keysight Technologies	N9038A	MY5120150	December 6, 2017	1 Year
CombiLog Antenna	Com-Power	AC-220	61060	July 27, 2017	1 Year
Loop Antenna	Com-Power	AL-130R	121090	February 9, 2017	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
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
Horn Antenna	Com-Power	AH-118	071175	February 22, 2018	2 Year
Preamplifier	Com-Power	PAM-118A	551024	May 12, 2016	2 Year

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

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

6.2 EUT Mounting, Bonding and Grounding

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

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

The EUT was not grounded.

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	4.54 dB
RADIATED EMISSIONS	3-METER CHAMBER, HORN ANTENNA	3.70 dB
AC LINE CONDUCTED EMISSIONS	3-METER CHAMBER, COM-POWER LISN	2.88 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 transient limiter 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 device is battery powered and does not connect to the AC public mains, thus this test was not performed.

7.1.2 Radiated Emissions Test

The EMI Receiver was used as the measuring meter. A built-in, internal preamplifier was used to increase the sensitivity of the instrument. The EMI Receiver was initially used 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 (200 Hz for 9 kHz to 150 kHz, 9 kHz for 150 kHz to 30 MHz, 120 kHz for 30 MHz to 1 GHz and 1 MHz for 1 GHz to 9.3 GHz).

The frequencies above 1 GHz were averaged using a duty cycle correction factor as explained in section 7.1.4 of this test report.

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

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

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 **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 1.0 RADIATED EMISSION RESULTS
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Frequency MHz	Quasi-Peak EMI Reading (dBuV/m)	Quasi-Peak Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) dB)
908.42 (V) (Z-Axis)	93.52	93.97	-0.45
916.00 (H) (Z-Axis)	93.37	93.97	-0.60
916.00 (V) (Z-Axis)	93.30	93.97	-0.67
908.42 (H) (Z-Axis)	92.53	93.97	-1.44
916.00 (H) (Y-Axis)	92.46	93.97	-1.51
916.00 (H) (X-Axis)	92.45	93.97	-1.52

Notes:
* The complete emissions data is given in Appendix E of this report.
(V) Vertical
(H) Horizontal

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 attempting to communicate just after inserting the battery:

Duty Cycle Correction Factor = -6.74 dB

Pulse = 46.0 ms

Worst Case Between Pulses = 2.005 s

46.0 ms / 100.00 ms = 0.46

20 log (0.46) = -6.74 dB correction factor

8. CONCLUSIONS

The Ring Smoke/CO Listener, Part Number: 4SS1S80EN0, as tested, meets all of the **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."

Test Site Number for Innovation, Science and Economic Development Canada: 2154A-3

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 Smoke/CO Listener
Part Number: 4SS1S80EN0
S/N: N/A

There are no additional Models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

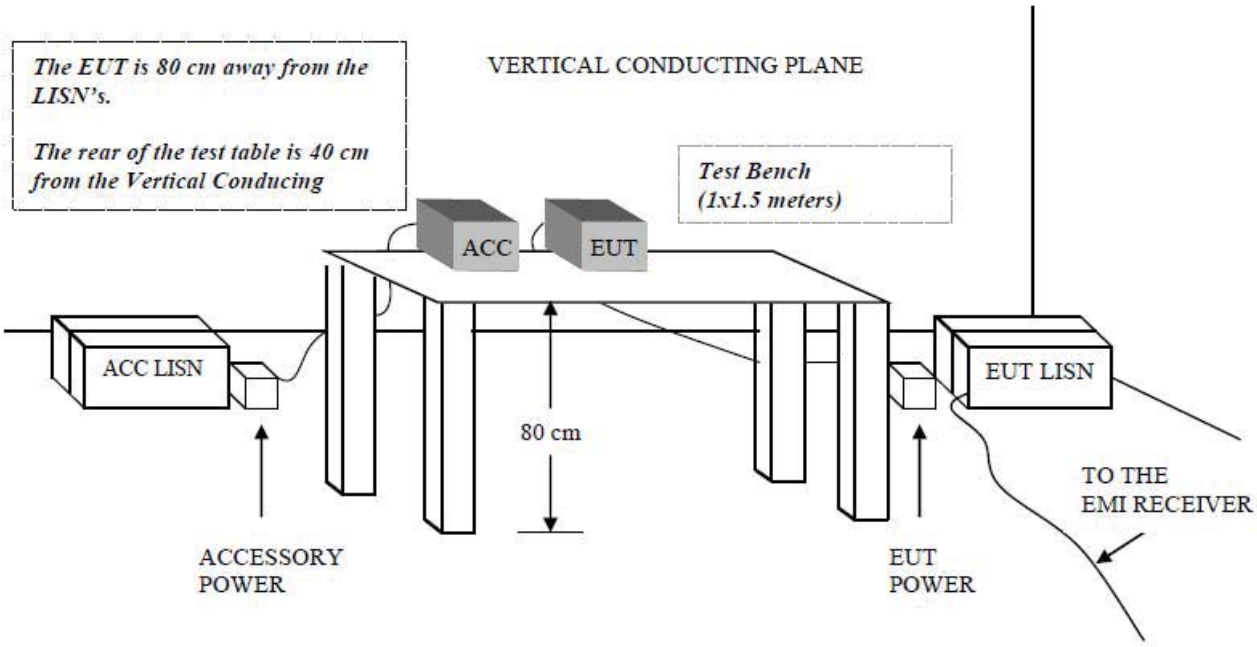
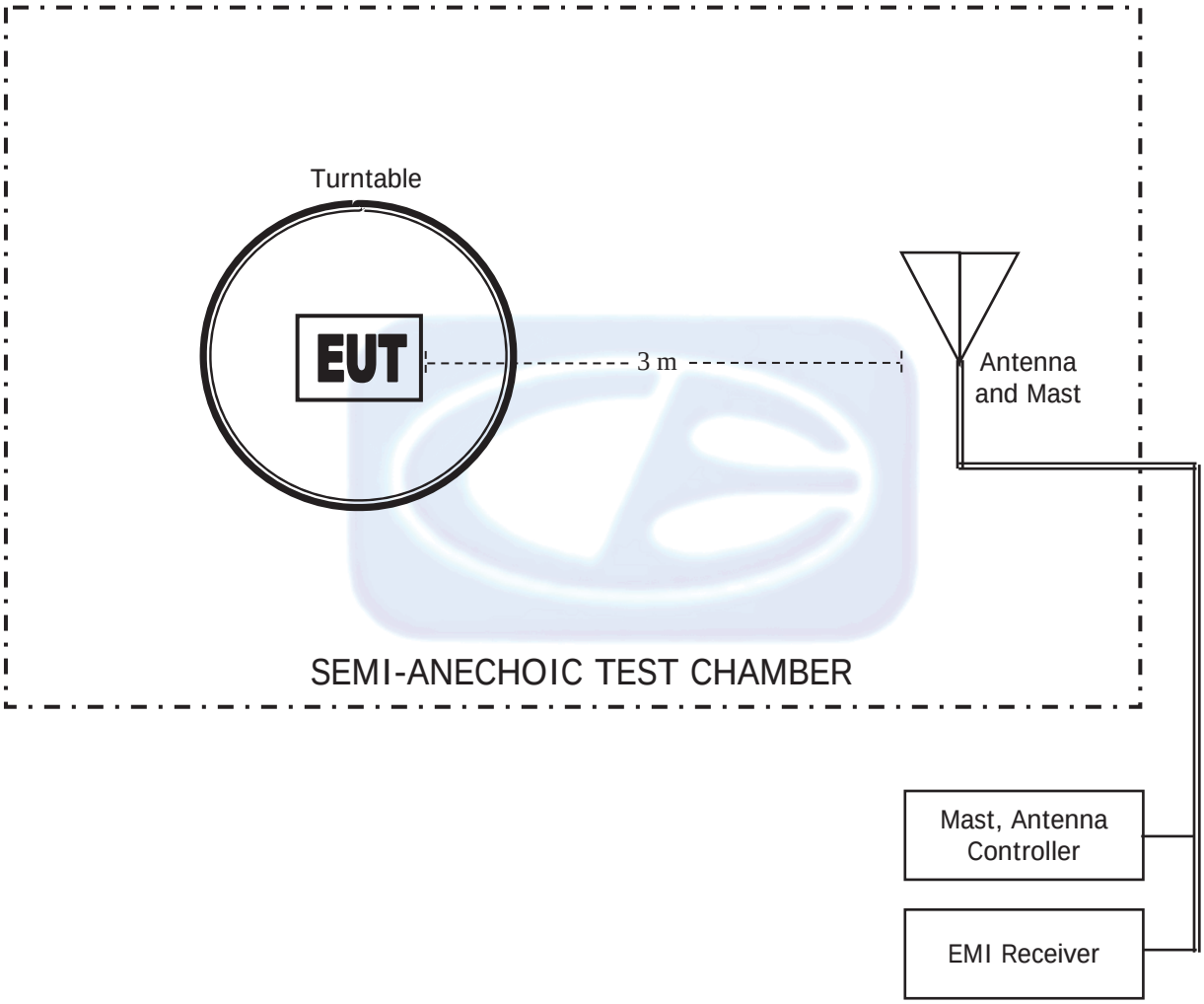


FIGURE 2: LAYOUT OF THE SEMI -ANECHOIC TEST CHAMBER



COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 9, 2017

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-36.17	15.33
0.01	-35.86	15.64
0.02	-37.30	14.20
0.03	-36.58	14.92
0.04	-36.99	14.51
0.05	-37.66	13.84
0.06	-37.53	13.97
0.07	-37.64	13.86
0.08	-37.52	13.98
0.09	-37.62	13.88
0.1	-37.59	13.91
0.2	-37.79	13.71
0.3	-37.80	13.70
0.4	-37.70	13.80
0.5	-37.79	13.71
0.6	-37.79	13.71
0.7	-37.69	13.81
0.8	-37.49	14.01
0.9	-37.39	14.11
1	-37.39	14.11
2	-37.09	14.41
3	-37.09	14.41
4	-37.19	14.31
5	-36.98	14.52
6	-37.17	14.33
7	-37.05	14.45
8	-36.85	14.65
9	-36.84	14.66
10	-36.75	14.75
15	-37.16	14.34
20	-36.44	15.06
25	-37.88	13.62
30	-39.14	12.36

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61060

CALIBRATION DATE: JULY 27, 2017

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.80	200	14.10
35	24.00	250	15.30
40	24.70	300	17.70
45	22.90	350	17.70
50	22.10	400	19.00
60	17.60	450	21.30
70	12.70	500	21.00
80	11.20	550	22.30
90	13.10	600	23.40
100	14.40	650	22.90
120	15.30	700	24.60
125	15.00	750	24.50
140	12.80	800	25.40
150	16.50	850	26.40
160	12.90	900	27.20
175	14.30	950	27.80
180	14.50	1000	26.80

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		

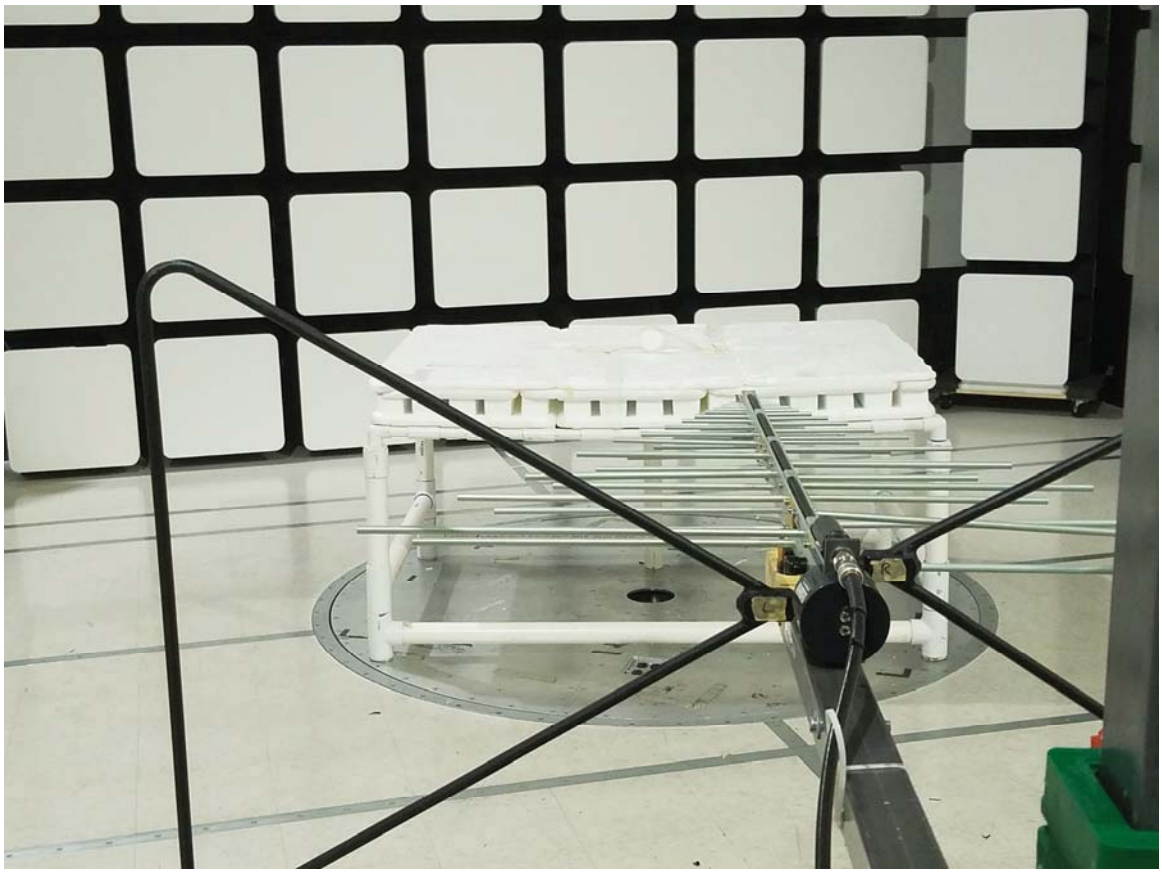
COM-POWER PAM-118A

PREAMPLIFIER

S/N: 551024

CALIBRATION DATE: MAY 12, 2016

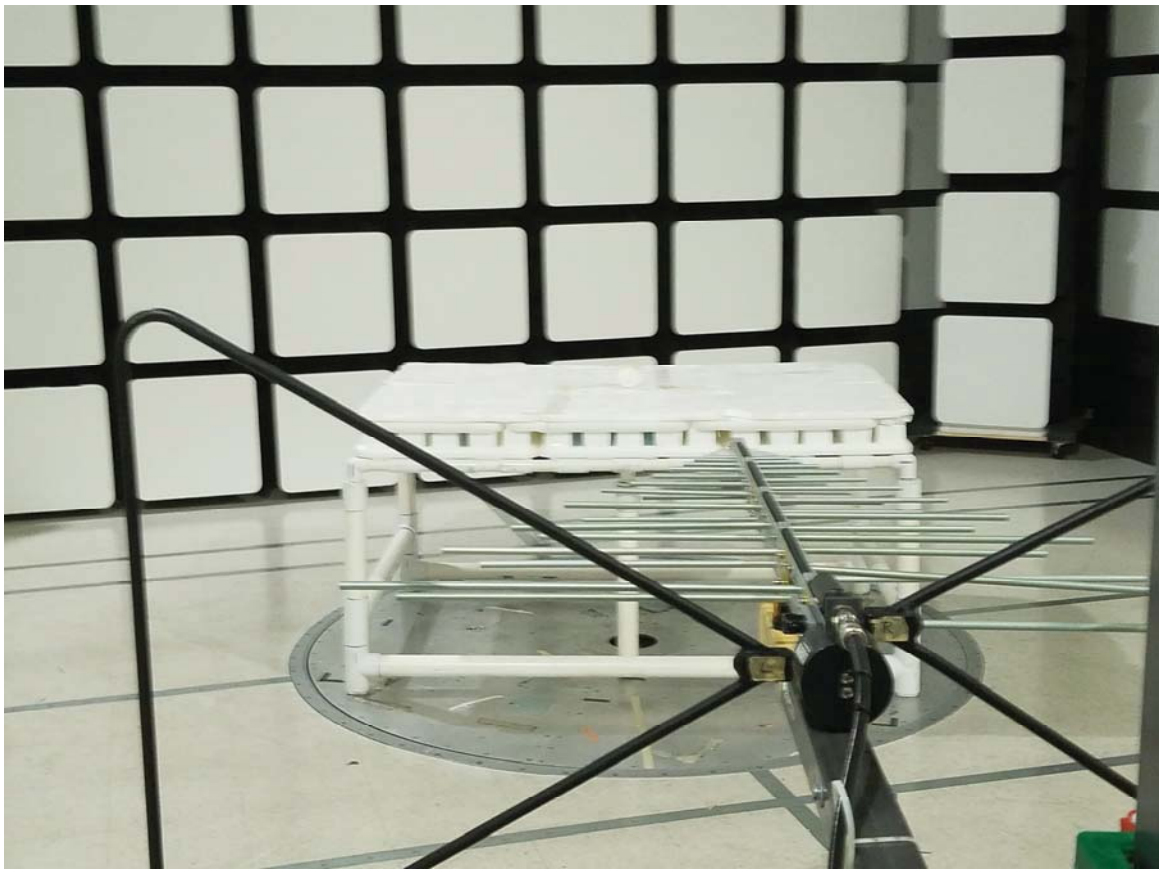
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	39.84	6.0	39.05
1.1	39.40	6.5	38.94
1.2	39.58	7.0	39.25
1.3	39.68	7.5	39.09
1.4	39.91	8.0	39.01
1.5	39.78	8.5	38.60
1.6	39.50	9.0	38.64
1.7	39.81	9.5	39.67
1.8	39.89	10.0	39.30
1.9	39.94	11.0	39.15
2.0	39.57	12.0	39.24
2.5	40.39	13.0	39.49
3.0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



FRONT VIEW

ECOLINK INTELLIGENT TECHNOLOGY, INC.
RING SMOKE/CO LISTENER
PART NUMBER: 4SS1S80EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

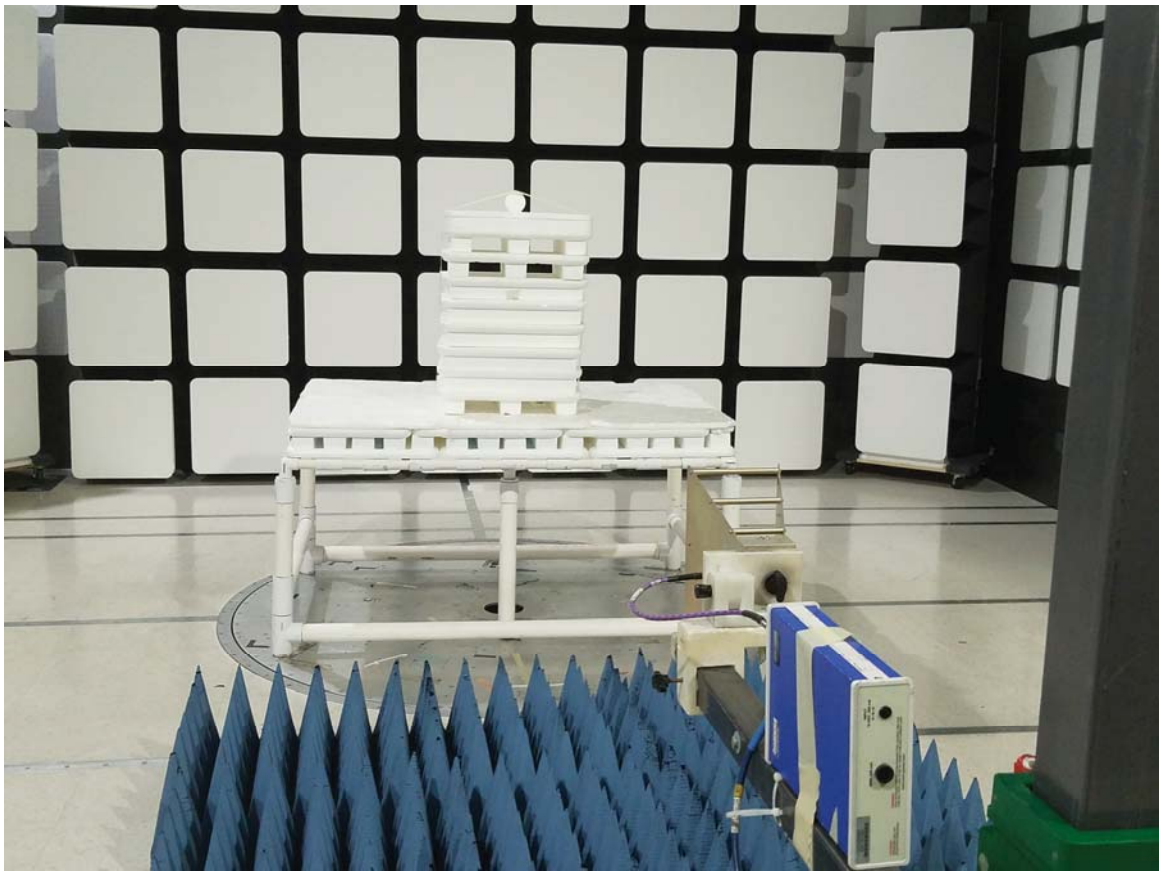
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

ECOLINK INTELLIGENT TECHNOLOGY, INC.
RING SMOKE/CO LISTENER
PART NUMBER: 4SS1S80EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

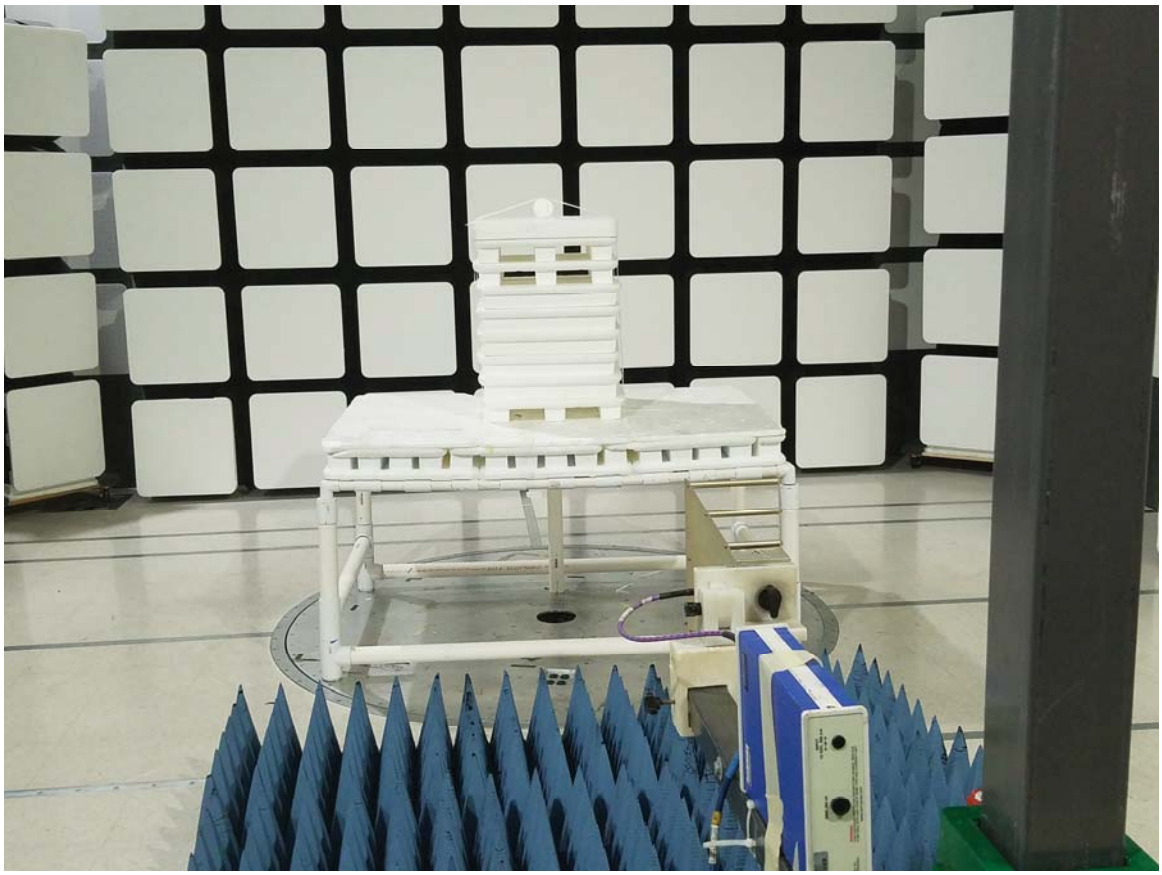
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

ECOLINK INTELLIGENT TECHNOLOGY, INC.
RING SMOKE/CO LISTENER
PART NUMBER: 4SS1S80EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

ECOLINK INTELLIGENT TECHNOLOGY, INC.
RING SMOKE/CO LISTENER
PART NUMBER: 4SS1S80EN0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs

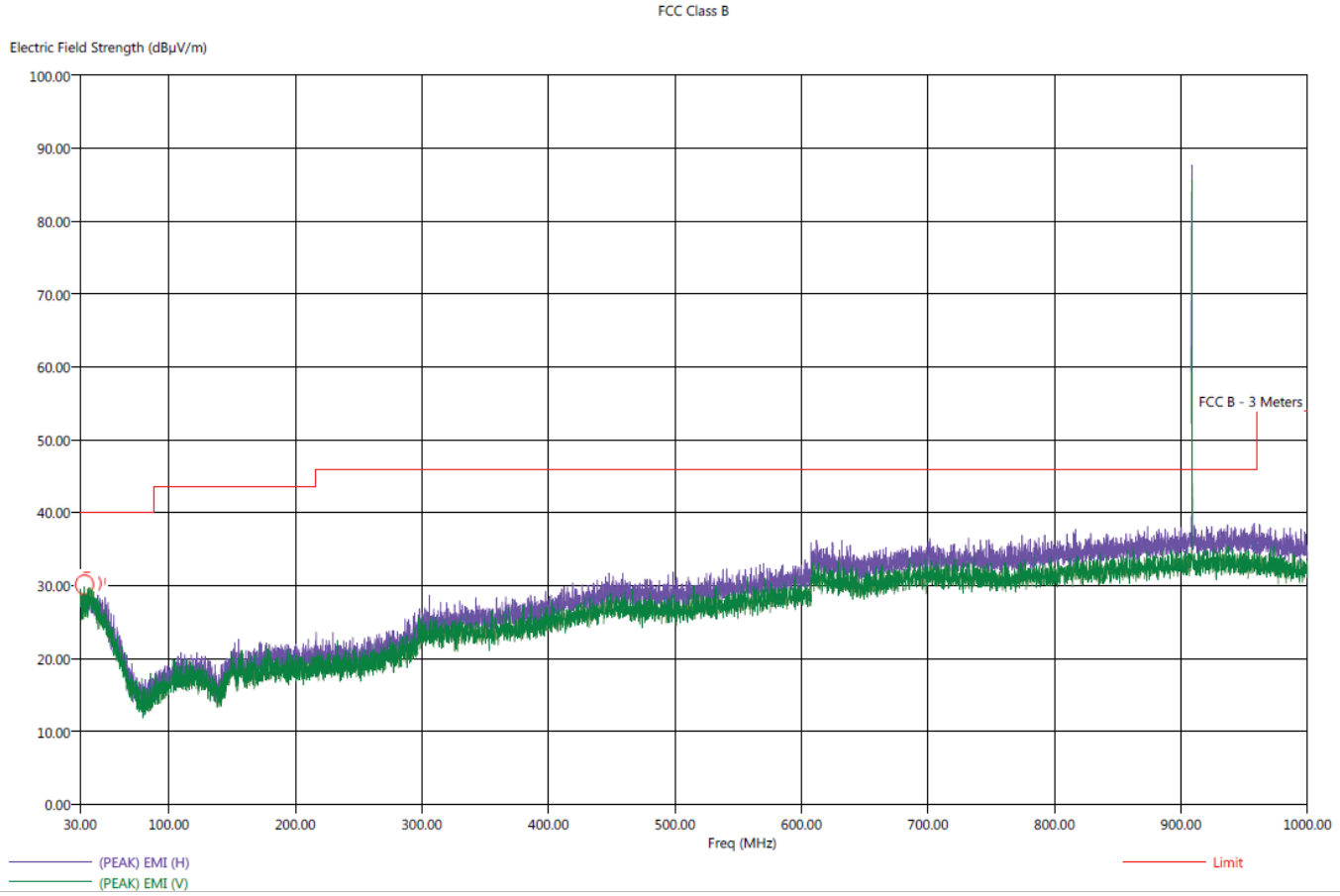
APPENDIX E

DATA SHEETS

RADIATED EMISSIONS DATA SHEETS

Title: Radiated Emissions - FCC Class B
File: Agilent - Pre-Scan - FCC Class B -Tx - 908.42 MHz - 30 MHz to 1000 MHz.set
Operator: Kyle Fujimoto
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuosuly transmitting at 908.42 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A
Note: The Frequency at 908.42 MHz is from the transmitter and is subject to the limits of FCC 15.249 instead

4/3/2018 9:26:10 AM
Sequence: Preliminary Scan



Title: Radiated Emissions - FCC Class B
File: Agilent - Final Scan - FCC Class B -Tx - 908.42 MHz - 30 MHz to 1000 MHz.set
Operator: Kyle Fujimoto
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuously transmitting at 908.42 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A

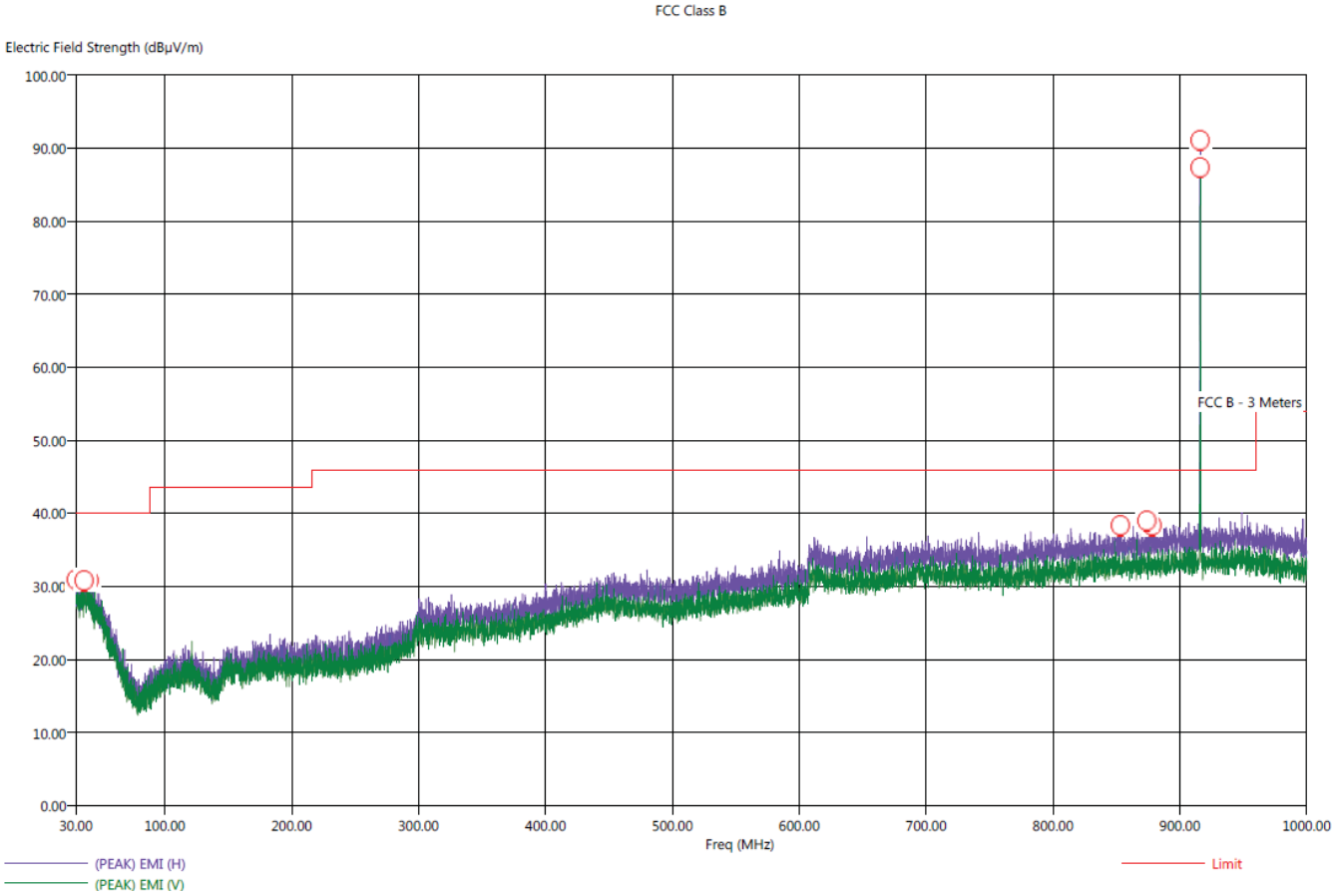
4/3/2018 11:04:30 AM
Sequence: Final Measurements

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)
33.40	H	31.58	26.43	-8.42	-13.57	40.00	23.95	0.84	302.00	335.20
33.80	H	31.98	26.36	-8.02	-13.64	40.00	23.95	0.84	306.50	287.08
35.20	H	31.46	26.36	-8.54	-13.64	40.00	24.01	0.85	257.00	367.14
39.40	H	31.48	26.94	-8.52	-13.06	40.00	24.62	0.89	216.00	335.38
39.80	H	32.15	26.92	-7.85	-13.08	40.00	24.65	0.90	11.00	400.16
42.40	H	31.33	25.81	-8.67	-14.19	40.00	23.74	0.90	88.25	111.38

Title: Radiated Emissions - FCC Class B
File: Agilent - Pre-Scan - FCC Class B -Tx - 916 MHz - 30 MHz to 1000 MHz.set
Operator: Johnny Le
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuosuly transmitting at 916 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A
Note: The Frequency at 916 MHz is from the transmitter and is subject to the limits of FCC 15.249 instead

4/2/2018 3:54:08 PM
Sequence: Preliminary Scan



Title: Radiated Emissions - FCC Class B
File: Agilent - Final Scan - FCC Class B -Tx - 916 MHz - 30 MHz to 1000 MHz.set
Operator: Johnny Le
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuosuly transmitting at 916 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A
Note: The Frequency at 916 MHz is from the transmitter and is subject to the limits of FCC 15.249 instead

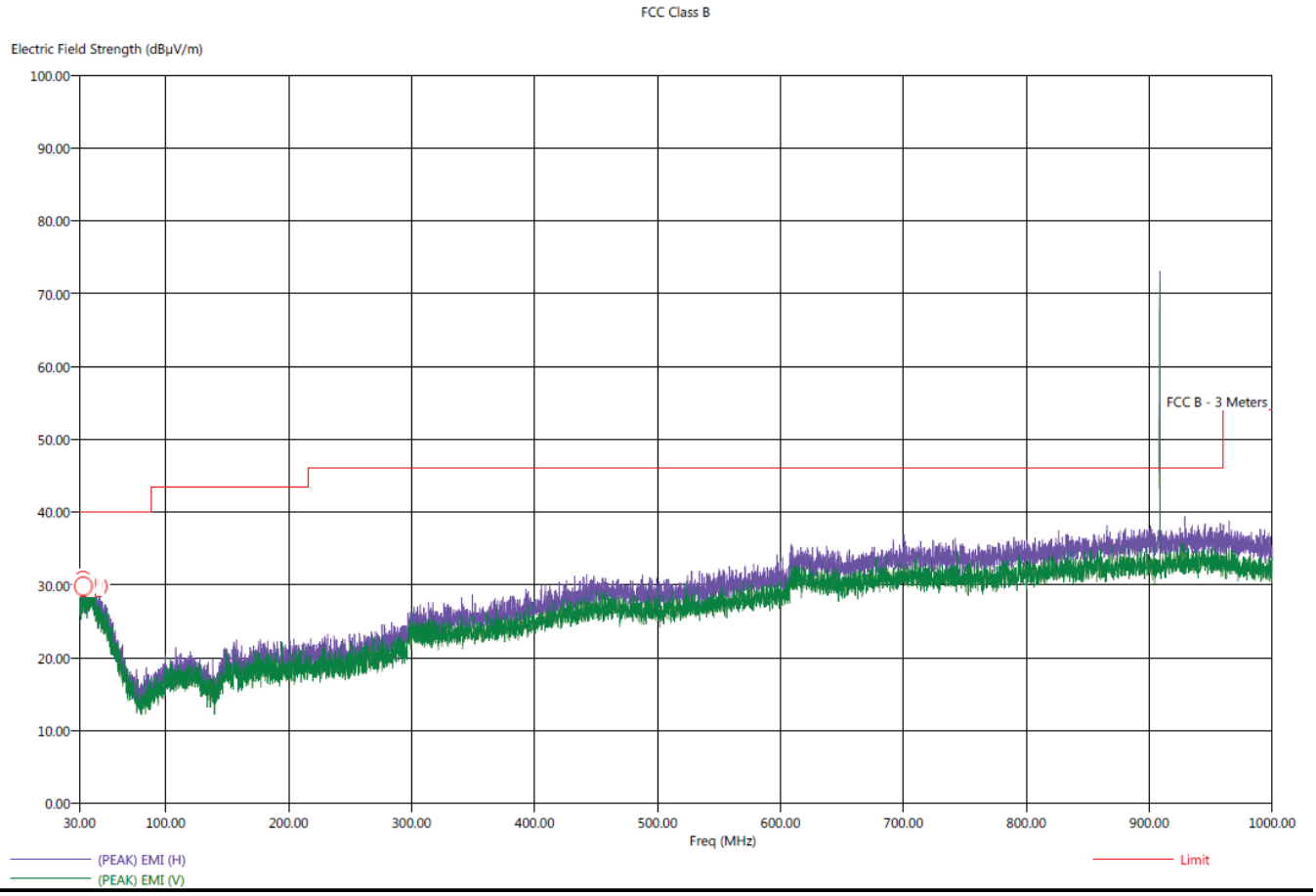
4/2/2018 4:18:04 PM
Sequence: Final Measurements

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)
30.10	H	31.77	26.81	-8.23	-13.19	40.00	23.81	0.80	238.00	238.79
36.40	V	32.67	26.86	-7.33	-13.14	40.00	24.23	0.87	46.25	143.20
40.40	H	32.62	27.25	-7.38	-12.75	40.00	24.56	0.90	0.25	191.08
853.20	H	38.74	32.99	-7.26	-13.01	46.00	26.45	2.81	117.50	350.97
873.90	H	38.17	33.22	-7.83	-12.78	46.00	26.79	2.90	337.00	175.08
878.10	H	39.62	33.31	-6.38	-12.69	46.00	26.85	2.91	149.00	143.26

Title: Radiated Emissions - FCC Class B
File: Agilent - Pre-Scan - FCC Class B - Rx - 908.42 MHz - 30 MHz to 1000 MHz.set
Operator: Kyle Fujimoto
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuosuly receiving at 908.42 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A
Note: The Frequency at 908.42 MHz is from an accessory unit (and not the EUT) that was transmitting at 908.42 MHz inside the chamber so that the EUT could receive at 908.42 MHz.

4/3/2018 8:52:24 AM
Sequence: Preliminary Scan



Title: Radiated Emissions - FCC Class B
File: Agilent - Final Scan - FCC Class B - Rx - 908.42 MHz - 30 MHz to 1000 MHz.set
Operator: Kyle Fujimoto
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuously receiving at 904.82 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A

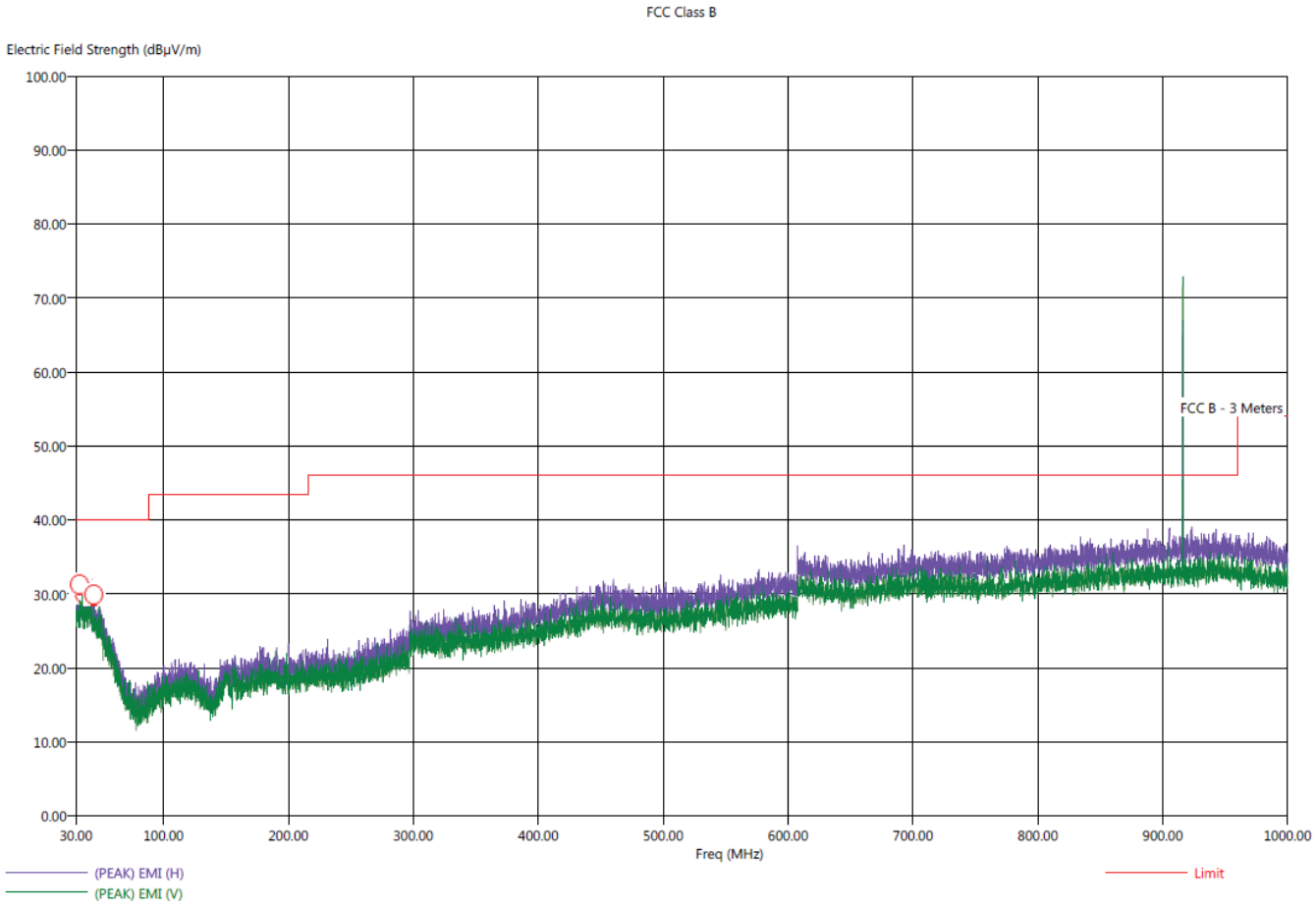
4/3/2018 9:01:07 AM
Sequence: Final Measurements

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)
32.80	H	31.84	26.39	-8.16	-13.61	40.00	23.92	0.83	77.75	350.37
33.20	V	31.56	26.41	-8.44	-13.59	40.00	23.94	0.84	172.25	239.08
35.90	H	31.57	26.44	-8.43	-13.56	40.00	24.14	0.86	140.25	302.61
37.60	H	31.64	26.59	-8.36	-13.41	40.00	24.34	0.88	107.75	319.08
39.00	H	31.98	26.84	-8.02	-13.16	40.00	24.59	0.89	238.25	286.85
40.60	H	32.13	26.75	-7.87	-13.25	40.00	24.42	0.90	281.50	398.79
45.30	H	30.07	25.03	-9.93	-14.97	40.00	22.88	0.90	163.00	175.38

Title: Radiated Emissions - FCC Class B
File: Agilent - Pre-Scan - FCC Class B - Rx - 916 MHz - 30 MHz to 1000 MHz.set
Operator: Kyle Fujimoto
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuosuly receiving at 916 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A
Note: The Frequency at 916 MHz is from an accessory unit (and not the EUT) that was transmitting at 916 MHz inside the chamber so that the EUT could receive at 916 MHz.

4/3/2018 8:19:53 AM
Sequence: Preliminary Scan



Title: Radiated Emissions - FCC Class B
File: Agilent - Final Scan - FCC Class B - Rx - 916 MHz - 30 MHz to 1000 MHz.set
Operator: Kyle Fujimoto
EUT Type: Ring Smoke/CO Listener
EUT Condition: The EUT is continuously receiving at 916 MHz - Z-Axis Worst Case
Comments: Company: Ecolink Intelligent Technology, Inc.
P/N: 4SS1S80EN0
S/N: N/A

4/3/2018 8:29:38 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)
32.70	H	31.18	26.38	-8.82	-13.62	40.00	23.92	0.83	255.25	286.67
36.60	H	32.10	26.54	-7.90	-13.46	40.00	24.24	0.87	128.00	127.44
37.70	H	31.97	26.69	-8.03	-13.31	40.00	24.40	0.88	114.00	159.14
39.30	H	32.24	26.88	-7.76	-13.12	40.00	24.60	0.89	304.25	143.38
41.40	H	32.24	26.72	-7.76	-13.28	40.00	24.22	0.90	230.50	366.91
44.20	V	30.33	25.30	-9.67	-14.70	40.00	23.23	0.90	272.00	287.26

FCC 15.249
Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Fundamental
Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
908.42	91.28	V	93.97	-2.69	Peak	81.00	121.77	**X-Axis**
908.42	90.92	V	93.97	-3.05	QP	81.00	121.77	**Vertical Polarization**
908.42	91.89	V	93.97	-2.08	Peak	117.50	113.83	**Y-Axis**
908.42	91.78	V	93.97	-2.19	QP	117.50	113.83	**Vertical Polarization**
908.42	93.69	V	93.97	-0.28	Peak	300.00	104.88	**Z-Axis**
908.42	93.52	V	93.97	-0.45	QP	300.00	104.88	**Vertical Polarization**
908.42	92.42	H	93.97	-1.55	Peak	155.00	100.00	**X-Axis**
908.42	92.21	H	93.97	-1.76	QP	155.00	100.00	**Horizontal Polarization**
908.42	90.46	H	93.97	-3.51	Peak	360.00	175.62	**Y-Axis**
908.42	90.38	H	93.97	-3.60	QP	360.00	175.62	**Horizontal Polarization**
908.42	92.70	H	93.97	-1.27	Peak	37.50	100.86	**Z-Axis**
908.42	92.53	H	93.97	-1.44	QP	37.50	100.86	**Horizontal Polarization**

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Fundamental
High Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
916.00	91.83	V	93.97	-2.14	Peak	84.75	118.97	**X-Axis**
916.00	91.59	V	93.97	-2.38	QP	84.75	118.97	**Vertical Polarization**
916.00	92.12	V	93.97	-1.85	Peak	301.25	107.68	**Y-Axis**
916.00	92.03	V	93.97	-1.94	QP	301.25	107.68	**Vertical Polarization**
916.00	93.56	V	93.97	-0.41	Peak	316.00	107.80	**Z-Axis**
916.00	93.30	V	93.97	-0.67	QP	316.00	107.80	**Vertical Polarization**
916.00	92.78	H	93.97	-1.19	Peak	320.00	100.00	**X-Axis**
916.00	92.45	H	93.97	-1.52	QP	320.00	100.00	**Horizontal Polarization**
916.00	92.67	H	93.97	-1.30	Peak	365.25	154.25	**Y-Axis**
916.00	92.46	H	93.97	-1.51	QP	365.25	154.25	**Horizontal Polarization**
916.00	93.60	H	93.97	-0.37	Peak	212.00	154.07	**Z-Axis**
916.00	93.37	H	93.97	-0.60	QP	212.00	154.07	**Horizontal Polarization**

FCC 15.249
Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
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	43.98	V	73.97	-29.99	Peak	93.50	191.02	
1816.84	37.24	V	53.97	-16.73	Avg	93.50	191.02	
2725.26	40.28	V	73.97	-33.69	Peak	119.00	143.26	
2725.26	33.54	V	53.97	-20.43	Avg	119.00	143.26	
3633.68	39.62	V	73.97	-34.35	Peak	126.75	207.32	
3633.68	32.88	V	53.97	-21.09	Avg	126.75	207.32	
4542.10	45.24	V	73.97	-28.73	Peak	146.75	143.44	
4542.10	38.50	V	53.97	-15.47	Avg	146.75	143.44	
5450.52	42.56	V	73.97	-31.41	Peak	320.75	223.14	
5450.52	35.82	V	53.97	-18.15	Avg	320.75	223.14	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
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	48.48	V	73.97	-25.49	Peak	306.25	143.26	
1816.84	41.74	V	53.97	-12.23	Avg	306.25	143.26	
2725.26	40.20	V	73.97	-33.77	Peak	245.50	111.38	
2725.26	33.46	V	53.97	-20.51	Avg	245.50	111.38	
3633.68	38.66	V	73.97	-35.31	Peak	252.00	222.85	
3633.68	31.92	V	53.97	-22.05	Avg	252.00	222.85	
4542.10	48.32	V	73.97	-25.65	Peak	299.00	111.44	
4542.10	41.58	V	53.97	-12.39	Avg	299.00	111.44	
5450.52	42.31	V	73.97	-31.66	Peak	4.50	238.91	
5450.52	35.57	V	53.97	-18.40	Avg	4.50	238.91	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
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	46.40	V	73.97	-27.57	Peak	264.75	175.20	
1816.84	39.66	V	53.97	-14.31	Avg	264.75	175.20	
2725.26	41.39	V	73.97	-32.58	Peak	218.50	238.97	
2725.26	34.65	V	53.97	-19.32	Avg	218.50	238.97	
3633.68	38.55	V	73.97	-35.42	Peak	106.50	249.99	
3633.68	31.81	V	53.97	-22.16	Avg	106.50	249.99	
4542.10	45.66	V	73.97	-28.31	Peak	153.75	175.14	
4542.10	38.92	V	53.97	-15.05	Avg	153.75	175.14	
5450.52	42.11	V	73.97	-31.86	Peak	260.50	223.08	
5450.52	35.37	V	53.97	-18.60	Avg	260.50	223.08	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
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	46.81	H	73.97	-27.16	Peak	252.50	111.38	
1816.84	40.07	H	53.97	-13.90	Avg	252.50	111.38	
2725.26	39.90	H	73.97	-34.07	Peak	121.75	159.02	
2725.26	33.16	H	53.97	-20.81	Avg	121.75	159.02	
3633.68	38.03	H	73.97	-35.94	Peak	236.50	175.44	
3633.68	31.29	H	53.97	-22.68	Avg	236.50	175.44	
4542.10	45.77	H	73.97	-28.20	Peak	357.75	159.23	
4542.10	39.03	H	53.97	-14.94	Avg	357.75	159.23	
5450.52	40.97	H	73.97	-33.00	Peak	249.00	127.38	
5450.52	34.23	H	53.97	-19.74	Avg	249.00	127.38	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
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	44.78	H	73.97	-29.19	Peak	232.25	207.20	
1816.84	38.04	H	53.97	-15.93	Avg	232.25	207.20	
2725.26	36.80	H	73.97	-37.17	Peak	196.00	111.50	
2725.26	30.06	H	53.97	-23.91	Avg	196.00	111.50	
3633.68	38.33	H	73.97	-35.64	Peak	75.00	207.08	
3633.68	31.59	H	53.97	-22.38	Avg	75.00	207.08	
4542.10	41.14	H	73.97	-32.83	Peak	302.25	111.38	
4542.10	34.40	H	53.97	-19.57	Avg	302.25	111.38	
5450.52	41.48	H	73.97	-32.49	Peak	256.50	191.20	
5450.52	34.74	H	53.97	-19.23	Avg	256.50	191.20	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
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	45.05	H	73.97	-28.92	Peak	72.50	159.08	
1816.84	38.31	H	53.97	-15.66	Avg	72.50	159.08	
2725.26	42.13	H	73.97	-31.84	Peak	73.50	159.14	
2725.26	35.39	H	53.97	-18.58	Avg	73.50	159.14	
3633.68	38.98	H	73.97	-34.99	Peak	200.00	190.85	
3633.68	32.24	H	53.97	-21.73	Avg	200.00	190.85	
4542.10	48.47	H	73.97	-25.50	Peak	200.00	175.14	
4542.10	41.73	H	53.97	-12.24	Avg	200.00	175.14	
5450.52	48.12	H	73.97	-25.85	Peak	251.75	222.97	
5450.52	41.38	H	53.97	-12.59	Avg	251.75	222.97	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
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	45.53	V	73.97	-28.44	Peak	87.25	127.32	
1832.00	38.79	V	53.97	-15.18	Avg	87.25	127.32	
2748.00	41.69	V	73.97	-32.28	Peak	126.50	143.32	
2748.00	34.95	V	53.97	-19.02	Avg	126.50	143.32	
3664.00	38.73	V	73.97	-35.24	Peak	33.75	174.91	
3664.00	31.99	V	53.97	-21.98	Avg	33.75	174.91	
4580.00	46.78	V	73.97	-27.19	Peak	155.25	143.32	
4580.00	40.04	V	53.97	-13.93	Avg	155.25	143.32	
5496.00	42.21	V	73.97	-31.76	Peak	0.00	236.94	
5496.00	35.47	V	53.97	-18.50	Avg	0.00	236.94	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
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	49.48	V	73.97	-24.49	Peak	60.00	238.85	
1832.00	42.74	V	53.97	-11.23	Avg	60.00	238.85	
2748.00	44.95	V	73.97	-29.02	Peak	63.75	249.13	
2748.00	38.21	V	53.97	-15.76	Avg	63.75	249.13	
3664.00	38.49	V	73.97	-35.48	Peak	8.50	239.08	
3664.00	31.75	V	53.97	-22.22	Avg	8.50	239.08	
4580.00	47.59	V	73.97	-26.38	Peak	340.00	143.26	
4580.00	40.85	V	53.97	-13.12	Avg	340.00	143.26	
5496.00	41.83	V	73.97	-32.14	Peak	204.00	127.32	
5496.00	35.09	V	53.97	-18.88	Avg	204.00	127.32	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
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	47.81	V	73.97	-26.16	Peak	34.00	127.20	
1832.00	41.07	V	53.97	-12.90	Avg	34.00	127.20	
2748.00	44.76	V	73.97	-29.21	Peak	203.75	143.38	
2748.00	38.02	V	53.97	-15.95	Avg	203.75	143.38	
3664.00	38.90	V	73.97	-35.07	Peak	230.75	159.08	
3664.00	32.16	V	53.97	-21.81	Avg	230.75	159.08	
4580.00	49.11	V	73.97	-24.86	Peak	21.75	161.25	
4580.00	42.37	V	53.97	-11.60	Avg	21.75	161.25	
5496.00	42.10	V	73.97	-31.87	Peak	210.50	111.50	
5496.00	35.36	V	53.97	-18.61	Avg	210.50	111.50	
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**

FCC 15.249
Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
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	48.67	H	73.97	-25.30	Peak	291.75	222.85	
1832.00	41.93	H	53.97	-12.04	Avg	291.75	222.85	
2748.00	44.07	H	73.97	-29.90	Peak	143.50	111.38	
2748.00	37.33	H	53.97	-16.64	Avg	143.50	111.38	
3664.00	38.24	H	73.97	-35.73	Peak	184.25	126.91	
3664.00	31.50	H	53.97	-22.47	Avg	184.25	126.91	
4580.00	47.59	H	73.97	-26.38	Peak	359.50	127.32	
4580.00	40.85	H	53.97	-13.12	Avg	359.50	127.32	
5496.00	42.01	H	73.97	-31.96	Peak	16.50	127.32	
5496.00	35.27	H	53.97	-18.70	Avg	16.50	127.32	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
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	41.55	H	73.97	-32.42	Peak	226.00	143.56	
1832.00	34.81	H	53.97	-19.16	Avg	226.00	143.56	
2748.00	38.87	H	73.97	-35.10	Peak	230.00	143.26	
2748.00	32.13	H	53.97	-21.84	Avg	230.00	143.26	
3664.00	39.27	H	73.97	-34.70	Peak	272.50	143.38	
3664.00	32.53	H	53.97	-21.44	Avg	272.50	143.38	
4580.00	46.11	H	73.97	-27.86	Peak	22.00	127.38	
4580.00	39.37	H	53.97	-14.60	Avg	22.00	127.38	
5496.00	42.25	H	73.97	-31.72	Peak	54.50	143.26	
5496.00	35.51	H	53.97	-18.46	Avg	54.50	143.26	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
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	46.31	H	73.97	-27.66	Peak	312.75	207.14	
1832.00	39.57	H	53.97	-14.40	Avg	312.75	207.14	
2748.00	41.73	H	73.97	-32.24	Peak	149.00	111.50	
2748.00	34.99	H	53.97	-18.98	Avg	149.00	111.50	
3664.00	38.62	H	73.97	-35.35	Peak	258.50	238.79	
3664.00	31.88	H	53.97	-22.09	Avg	258.50	238.79	
4580.00	45.94	H	73.97	-28.03	Peak	356.50	175.20	
4580.00	39.20	H	53.97	-14.77	Avg	356.50	175.20	
5496.00	41.13	H	73.97	-32.84	Peak	167.50	207.20	
5496.00	34.39	H	53.97	-19.58	Avg	167.50	204.20	
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 Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
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
								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 digital portion
								of 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

RSS-GEN and FCC Class B

Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Receive Mode - 1 GHz to 5 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 5 GHz
								for the Receive Mode
								of the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis

BAND EDGES DATA SHEETS

FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Band Edges–Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
908.42	93.69	V	93.97	-0.28	Peak	300.00	104.88	**Fundamental - Low Ch.**
908.42	93.52	V	93.97	-0.45	QP	300.00	104.88	**Z-Axis - Worst Case**
896.01	37.01	V	46.00	-8.99	Peak	300.00	104.88	**Band Edge**
896.01	34.70	V	46.00	-11.30	QP	300.00	104.88	**Z-Axis - Worst Case**
908.42	92.70	H	93.97	-1.27	Peak	37.50	100.86	**Fundamental - Low Ch.**
908.42	92.53	H	93.97	-1.44	QP	37.50	100.86	**Z-Axis - Worst Case**
896.01	38.23	H	46.00	-7.77	Peak	37.50	100.86	**Band Edge**
896.01	34.56	H	46.00	-11.44	QP	37.50	100.86	**Z-Axis - Worst Case**

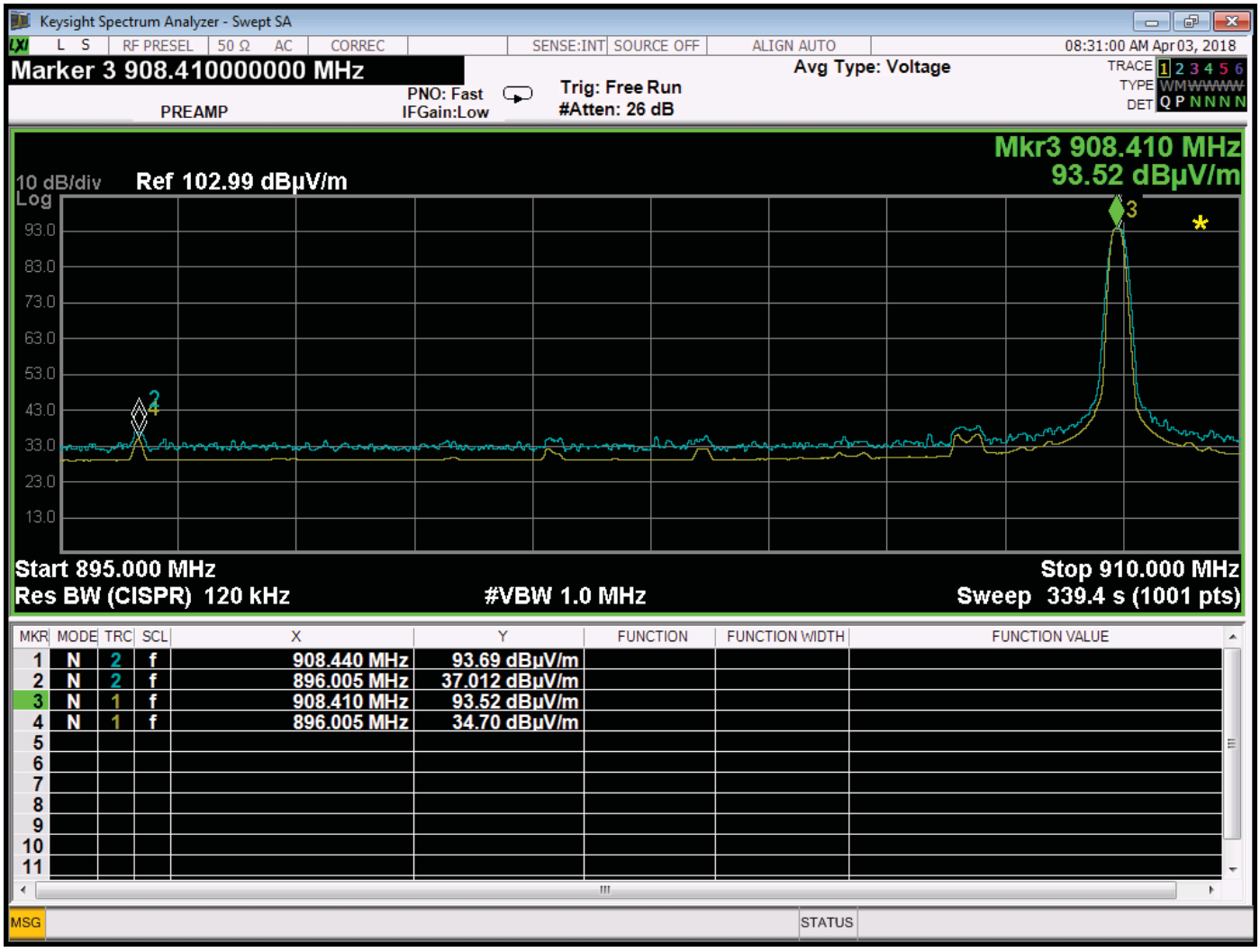
FCC 15.249

Ecolink Intelligent Technology, Inc.
Ring Smoke/CO Listener
Part Number: 4SS1S80EN0

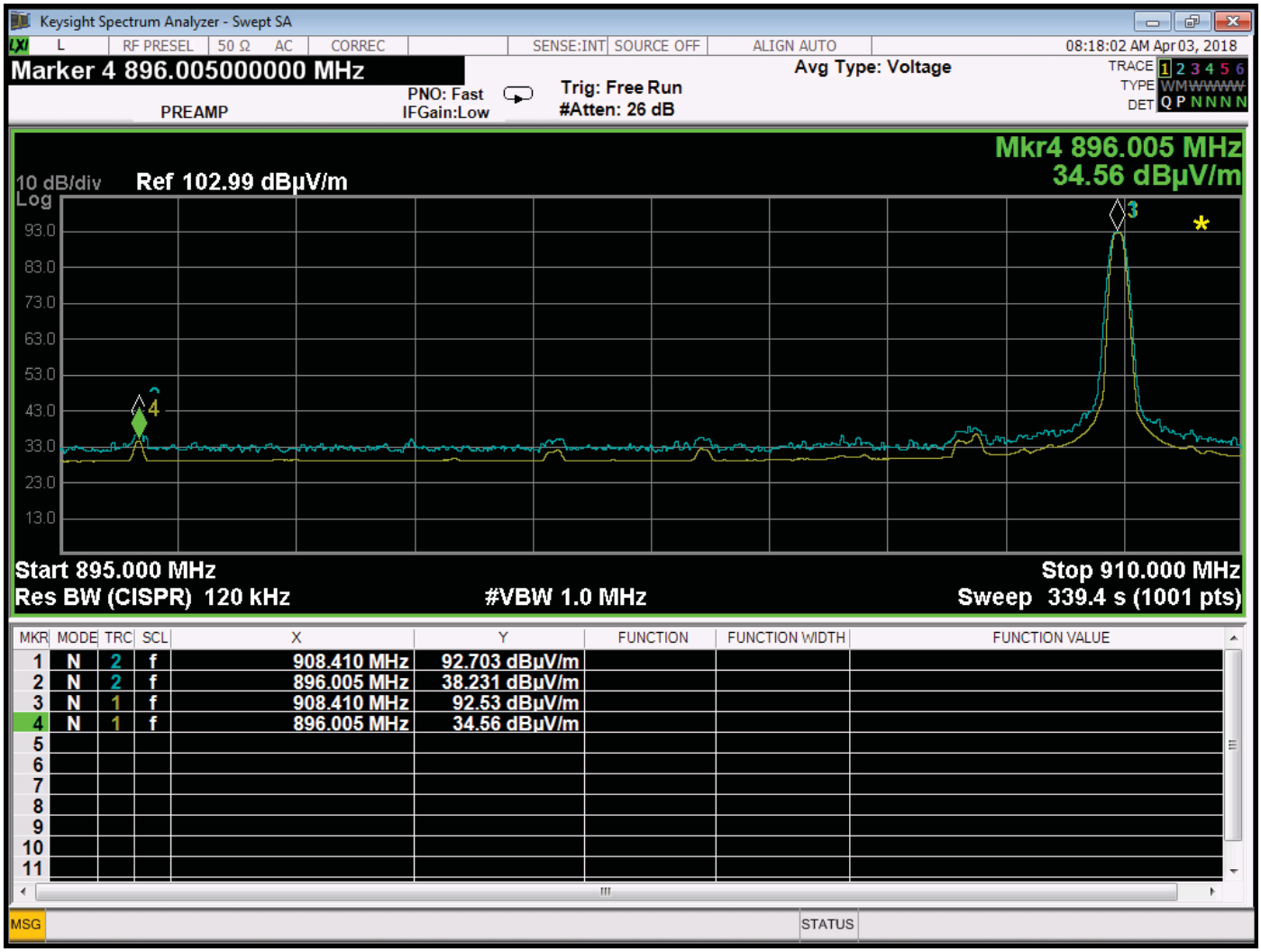
Date: 04/03/2018
Lab: D
Tested By: Kyle Fujimoto

Band Edges-High Channel

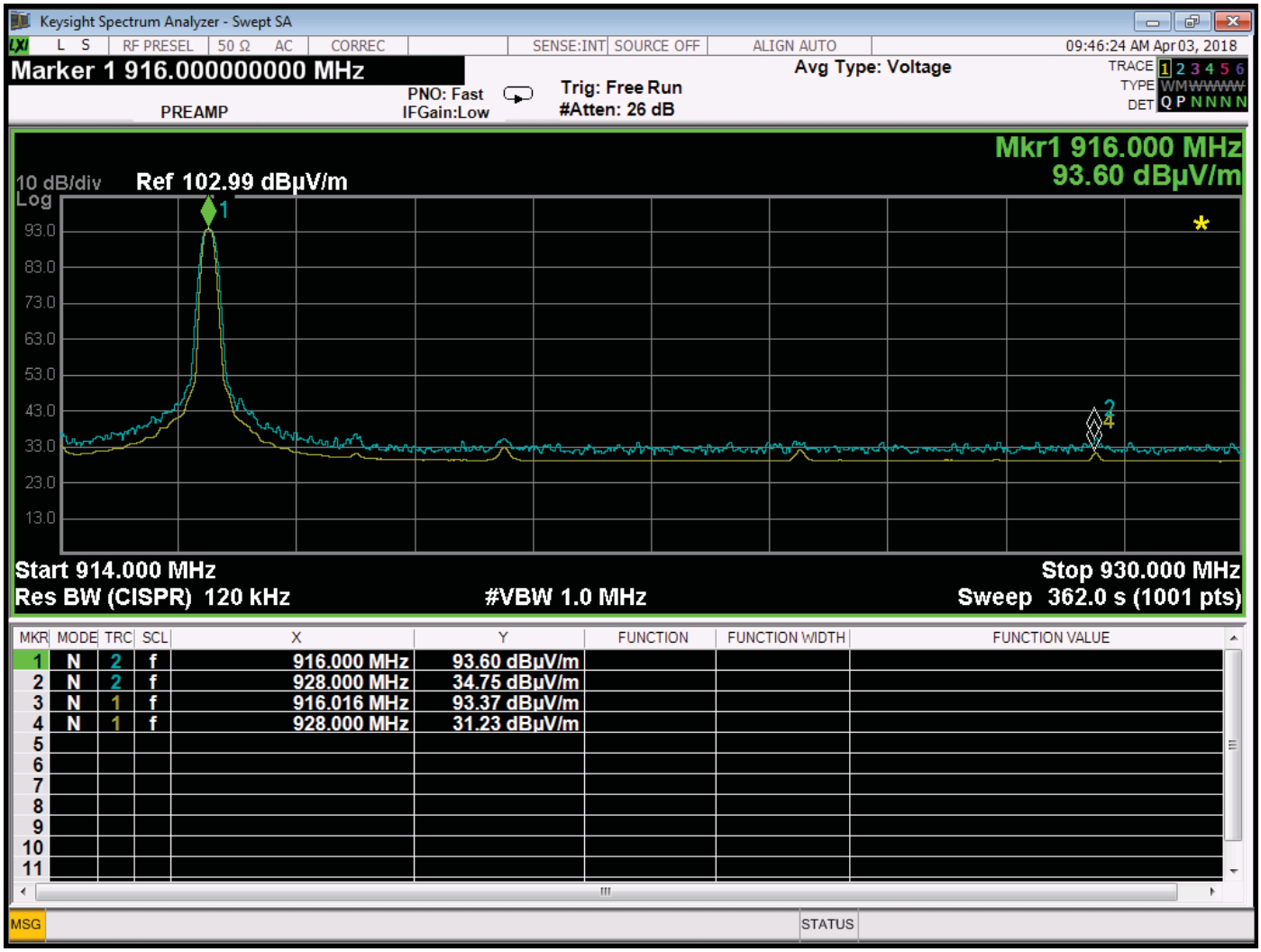
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
916.00	93.56	V	93.97	-0.41	Peak	316.00	107.80	**Fundamental - High Ch.**
916.00	93.30	V	93.97	-0.67	QP	316.00	107.80	**Z-Axis - Worst Case**
928.00	36.07	V	66.00	-29.93	Peak	316.00	107.80	**Band Edge**
928.00	30.56	V	46.00	-15.44	QP	316.00	107.80	**Z-Axis - Worst Case**
916.00	93.60	H	93.97	-0.37	Peak	212.00	154.07	**Fundamental - High Ch.**
916.00	93.37	H	93.97	-0.60	QP	212.00	154.07	**Z-Axis - Worst Case**
928.00	34.75	H	66.00	-31.25	Peak	135.50	107.62	**Band Edge**
928.00	31.23	H	46.00	-14.77	QP	135.50	107.62	**Z-Axis - Worst Case**



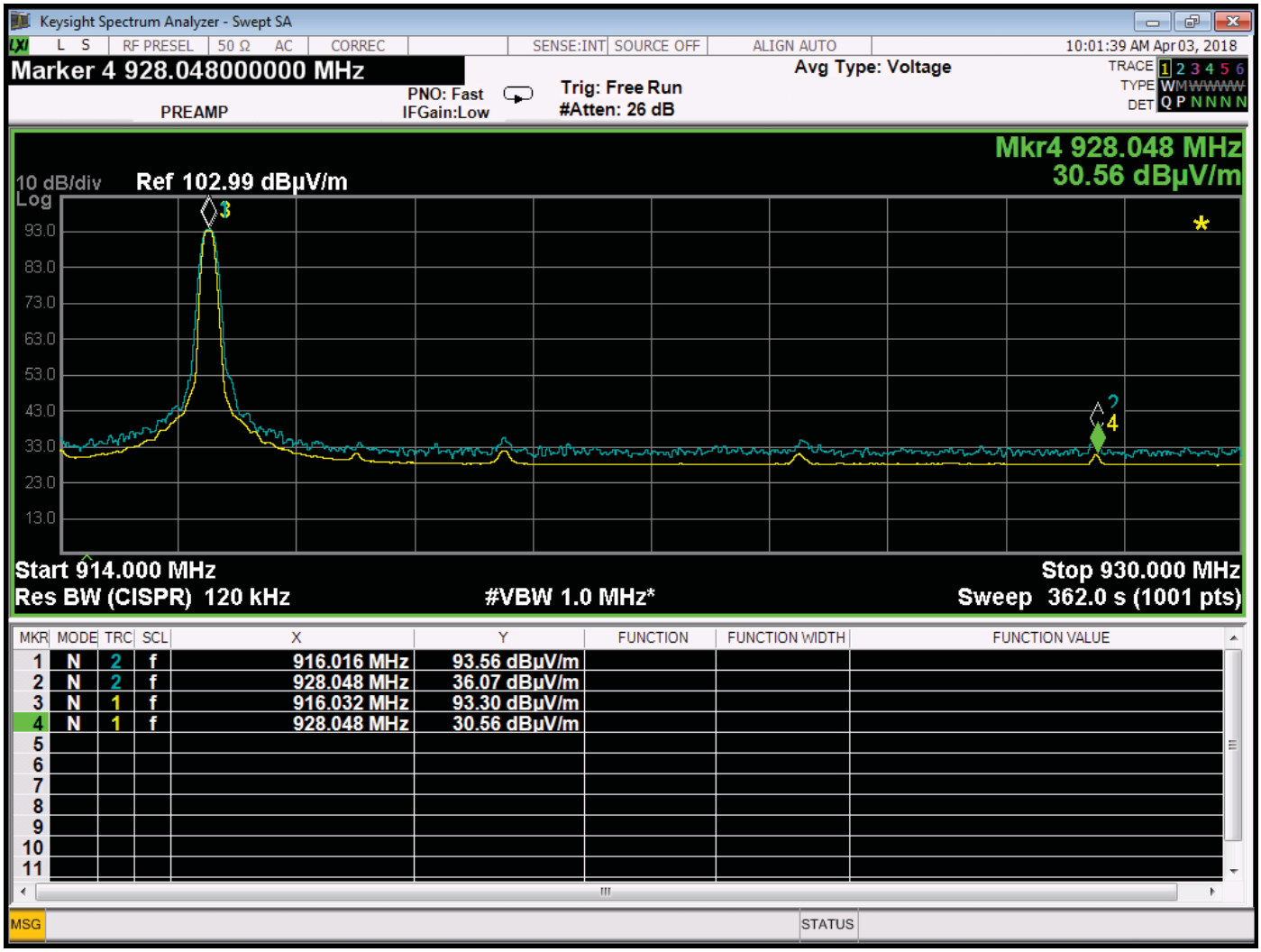
Band Edge - 908.42 MHz - Vertical - Z-Axis - Worst Case



Band Edge - 908.42 MHz - Horizontal - Z-Axis - Worst Case

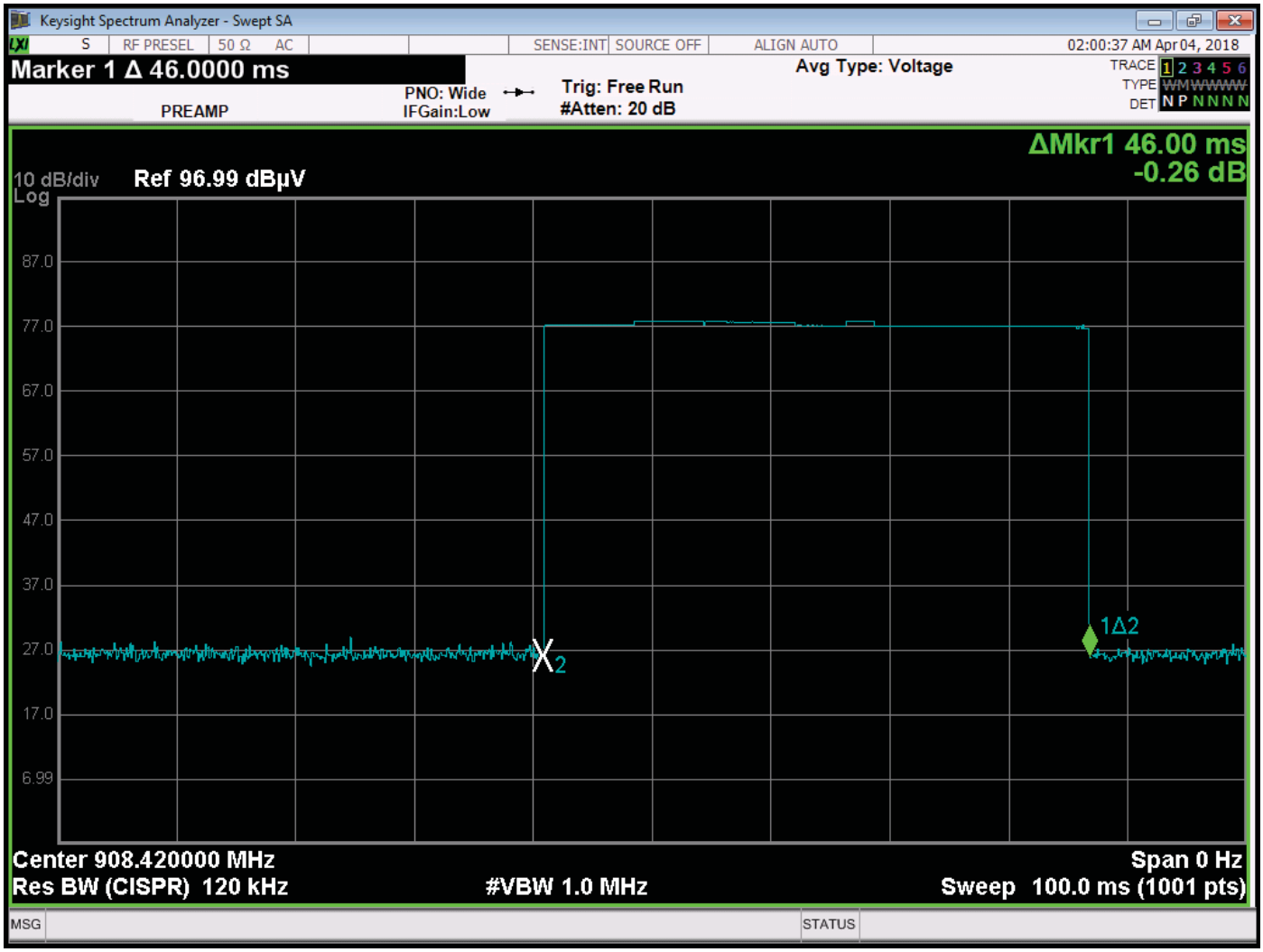


Band Edge - 916 MHz - Horizontal - Z-Axis - Worst Case

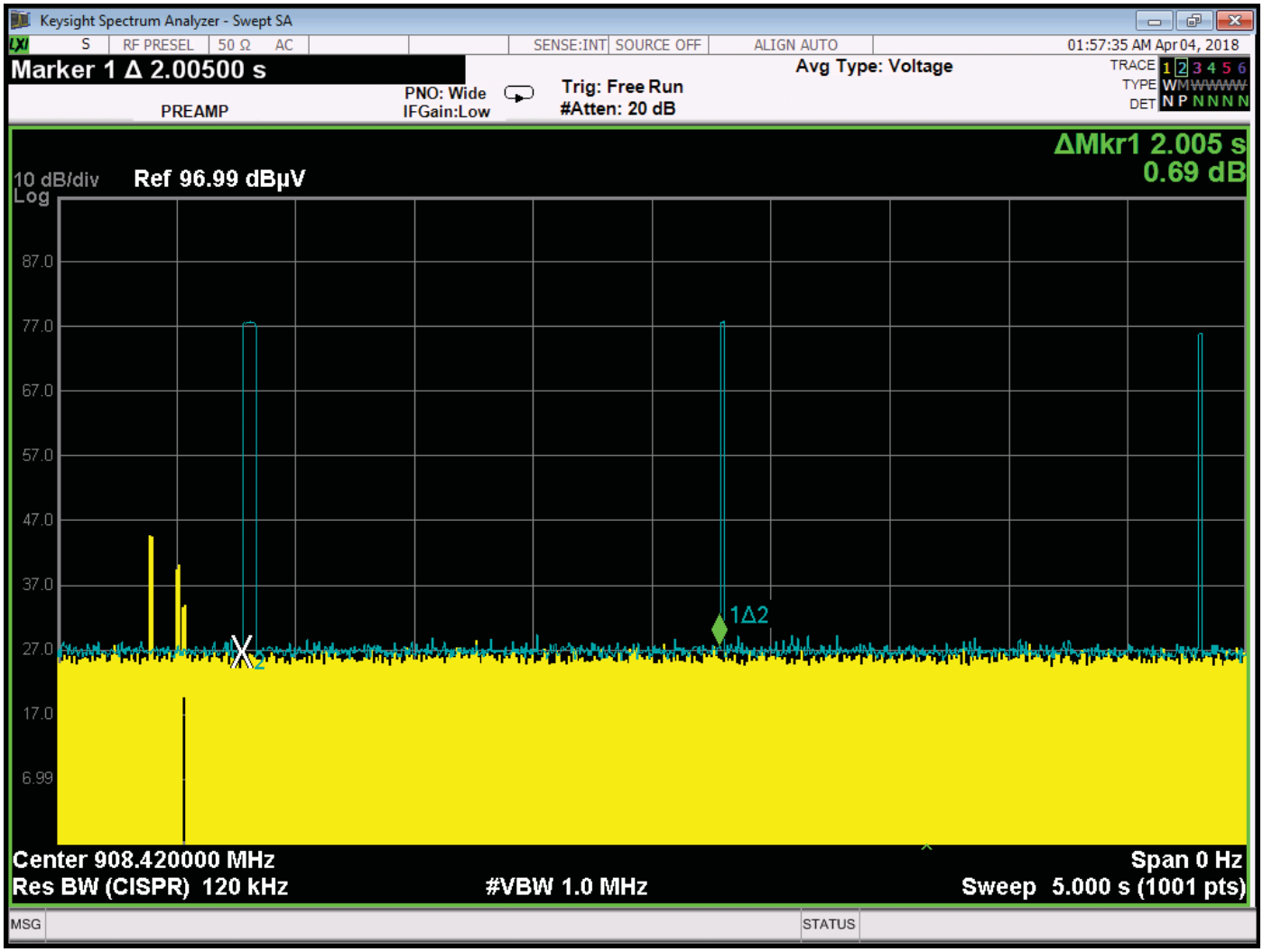


Band Edge - 916 MHz - Vertical - Z-Axis - Worst Case

DUTY CYCLE DATA SHEETS


Keysight Spectrum Analyzer - Swept SA
S
RF PRESEL
50 Ω
AC
SENSE:INT
SOURCE OFF
ALIGN AUTO
02:00:37 AM Apr 04, 2018
Marker 1 Δ 46.0000 ms
Avg Type: Voltage
TRACE 1 2 3 4 5 6
TYPE WM WWWWW
DET N P N N N N
PREAMP
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 20 dB
ΔMkr1 46.00 ms
-0.26 dB
10 dB/div
Log
Ref 96.99 dBµV
87.0
77.0
67.0
57.0
47.0
37.0
27.0
17.0
6.99
1Δ2
Center 908.420000 MHz
Res BW (CISPR) 120 kHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 100.0 ms (1001 pts)
MSG
STATUS

Pulse = 46.0 ms



Plot Showing that the pulses repeats at a worst case of 2.005 s

Total Duty Cycle = 46 ms / 100.00 ms = 46 % Duty Cycle

The Peak to Average Ratio is -6.74 dB