

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

for

COMCAST XFINITY HOME CONTACT SENSOR 2015

MODEL: URC-4460BC0-X-R

Prepared for

UNIVERSAL ELECTRONICS, INC.
201 EAST SANDPOINTE AVE., 8TH FLOOR
SANTA ANA, CA 92707

Prepared by: _____

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DATE: FEBRUARY 19, 2016

	REPORT	APPENDICES					TOTAL
	BODY	A	B	C	D	E	
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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: Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R
S/N: N/A

Product Description: The EUT is wireless door/window sensor.

Modifications: The EUT was not modified in order to meet the specifications.

Customer: Universal Electronics, Inc.
201 East Sandpointe Ave., 8TH Floor
Santa Ana California, 92707

Test Dates: December 8 and 9, 2015

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249

Test Procedure: ANSI C63.4, ANSI C63.10

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 10 kHz – 25,000 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
2	Conducted RF Emissions, 150 kHz to 30 MHz	This test was not performed because the EUT operates on battery power and does not connect to the AC mains.

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Comcast Xfinity Home Contact Sensor 2015, Model: URC-4460BC0-X-R. 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

Universal Electronics, Inc.

Jesse Mendez

Senior Electrical Core Engineer

Compatible Electronics Inc.

Kyle Fujimoto

Test Engineer

James Ross

Test Engineer

2.4 Date Test Sample was Received

The test sample was received on December 8, 2015.

2.5 Disposition of the Test Sample

The test sample has not been returned to Universal Electronics, Inc. as of the date of this test report.

2.6 Abbreviations and Acronyms

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

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable
DNF	Do Not Fit
URC	Universal Remote Control

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 for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The Comcast Xfinity Home Contact Sensor 2015, Model: URC-4460BC0-X-R (EUT) is a wireless door/window sensor that is powered by a CR2450 3 Vdc battery.

The EUT was tested for emissions at the low, middle, and high channels while in the X, Y and Z axis. During the testing, the EUT was continuously transmitting.

The EUT was tested with a new battery.

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

4.1.1 Cable Construction and Termination

The EUT has no cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
COMCAST XFINITY HOME CONTACT SENSOR 2015	UNIVERSAL ELECTRONICS, INC.	URC-4460BC0-X-R	N/A	MG3-4460

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
GENERAL TEST EQUIPMENT USED IN LAB D					
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	Agilent Technologies	N9038A	MY51100115	April 3, 2015	1 Year
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com-Power	AC-220	61060	September 3, 2015	1 Year
Preamplifier	Com-Power	PA-118	551024	March 6, 2015	1 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2014	2 Year
Loop Antenna	Com-Power	AL-130	17089	February 6, 2015	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 26, 2014	2 Year
Horn Antenna	Com-Power	AH-826	0071957	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A

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.

7. TEST PROCEDURES

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

7.1 RF Emissions

7.1.1 Radiated Emissions 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. A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

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

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 25 GHz	1 MHz	Horn Antenna

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.

Radiated Emissions Test (Continued)

The EUT was tested at a 3-meter test distance from 10 kHz to 25 GHz.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249 for radiated emissions. Please see Appendix E for the data sheets.



7.1.3 RF Emissions Test ResultsTable 1.0 RADIATED EMISSION RESULTS
Comcast Xfinity Home Contact Sensor 2015, Model: URC-4460BC0-X-R

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
4960 (H) (Z-Axis)	50.19 (Avg)	54.00	-3.81
4960 (V) (Z-Axis)	48.22 (Avg)	54.00	-5.78
7215 (H) (Y-Axis)	48.20 (Avg)	54.00	-5.80
7215 (H) (Z-Axis)	48.12 (Avg)	54.00	-5.88
4880 (H) (X-Axis)	47.97 (Avg)	54.00	-6.03
7215 (H) (X-Axis)	47.93 (Avg)	54.00	-6.07

Notes:

(H) Horizontal

(V) Vertical

(Avg) Averaged Reading

* The complete emissions data is given in Appendix E of this report.

8. CONCLUSIONS

The Comcast Xfinity Home Contact Sensor 2015, Model: URC-4460BC0-X-R, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS



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

NVLAP listing links

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

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

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."



ANSI listing [CETCB](#)



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

US/EU MRA list [NIST MRA site](#)



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

APEC MRA list [NIST MRA site](#)

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



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



FCC Listing, from FCC OET site

[FCC test lab search](http://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <http://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

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 MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R
S/N: N/A

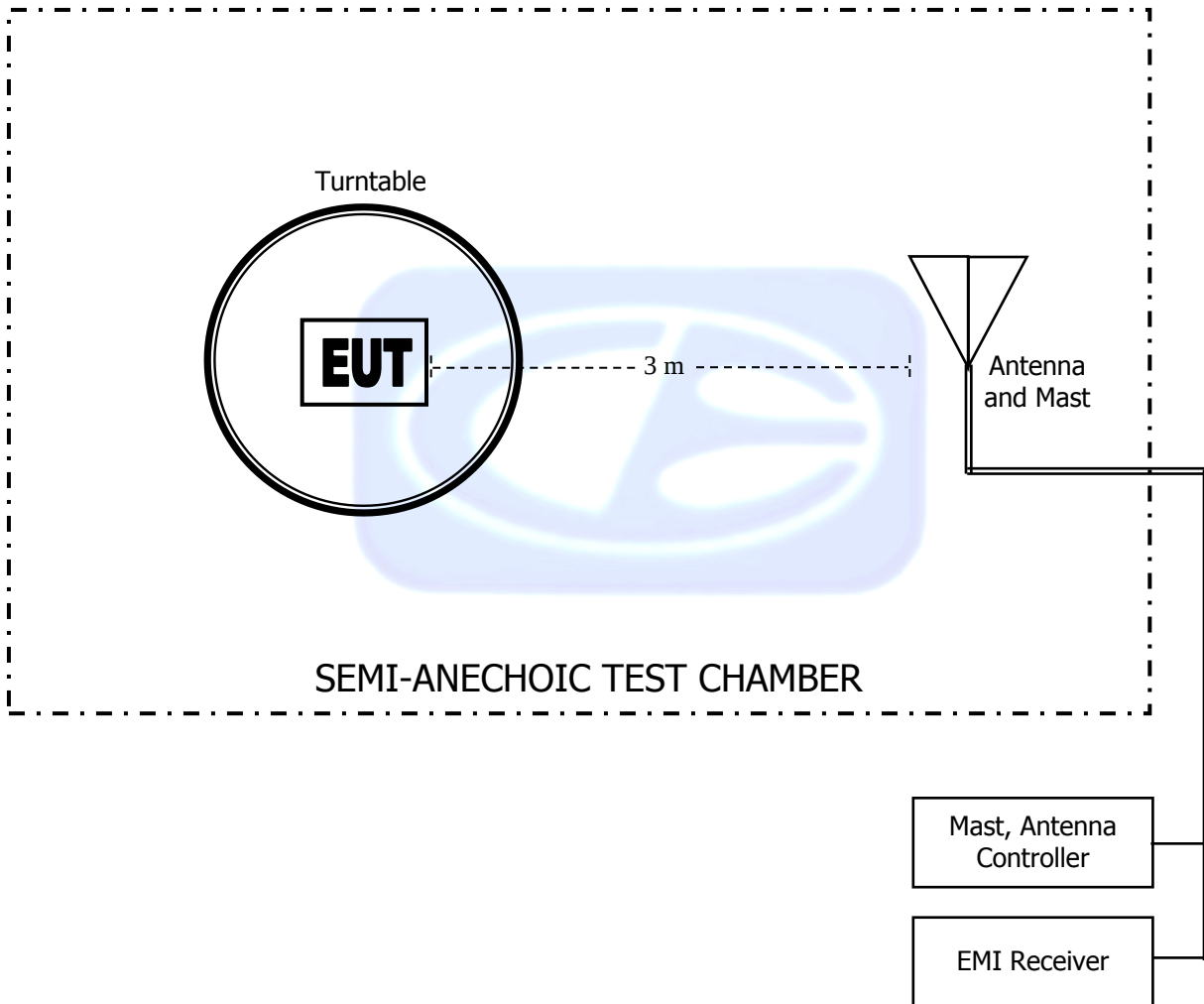
There were no additional models covered under this report.



APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER



COM-POWER AL-130**LOOP ANTENNA****S/N: 17089****CALIBRATION DATE: FEBRUARY 6, 2015**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-33.18	18.32
0.01	-34.10	17.40
0.02	-38.65	12.85
0.03	-39.28	12.22
0.04	-40.09	11.41
0.05	-40.85	10.65
0.06	-40.88	10.62
0.07	-41.07	10.43
0.08	-41.04	10.46
0.09	-41.19	10.31
0.1	-41.20	10.30
0.2	-41.52	9.98
0.3	-41.53	9.97
0.4	-41.42	10.08
0.5	-41.53	9.97
0.6	-41.53	9.97
0.7	-41.43	10.07
0.8	-41.23	10.27
0.9	-41.13	10.37
1	-41.14	10.36
2	-40.80	10.70
3	-40.66	10.84
4	-40.61	10.89
5	-40.33	11.17
6	-40.53	10.97
7	-40.47	11.03
8	-40.48	11.02
9	-39.93	11.57
10	-39.81	11.69
15	-43.35	8.15
20	-39.16	12.34
25	-40.24	11.26
30	-43.18	8.32

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: SEPTEMBER 3, 2015**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	24.00	200	13.00
35	24.30	250	15.30
40	25.40	300	18.20
45	21.50	350	17.90
50	22.50	400	18.60
60	15.40	450	19.80
70	12.70	500	21.60
80	11.10	550	22.40
90	13.40	600	23.70
100	13.80	650	24.30
120	15.40	700	24.00
125	15.40	750	24.50
140	13.10	800	24.30
150	17.20	850	26.30
160	13.20	900	26.90
175	14.20	950	26.00
180	14.30	1000	25.60

COM POWER AH-118**HORN ANTENNA****S/N: 071175****CALIBRATION DATE: FEBRUARY 26, 2014**

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

COM-POWER PA-118**PREAMPLIFIER****S/N: 551024****CALIBRATION DATE: MARCH 6, 2015**

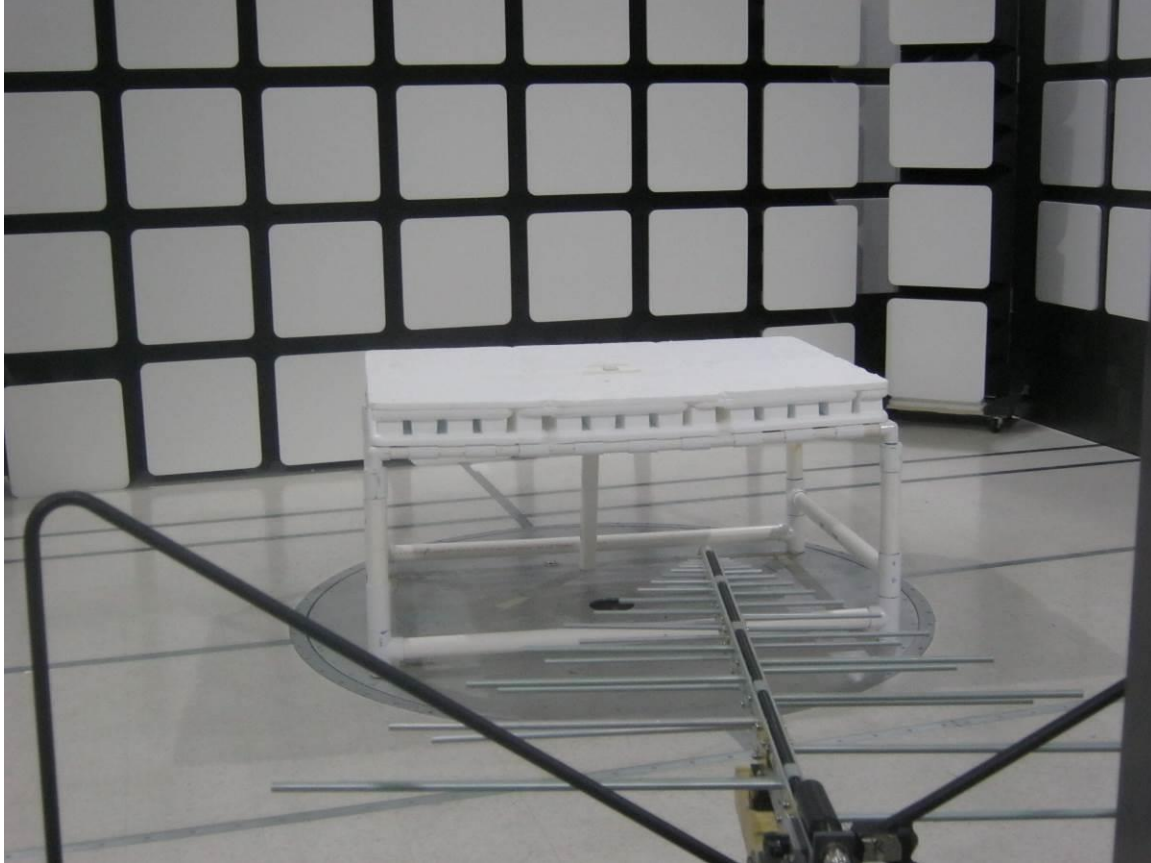
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	39.76	6.0	38.77
1.1	40.46	6.5	38.46
1.2	40.05	7.0	38.27
1.3	40.58	7.5	38.77
1.4	39.50	8.0	39.25
1.5	39.92	8.5	38.63
1.6	40.40	9.0	39.58
1.7	40.10	9.5	42.12
1.8	40.49	10.0	38.53
1.9	38.86	11.0	40.21
2.0	41.53	12.0	41.15
2.5	41.05	13.0	40.51
3.0	40.29	14.0	40.32
3.5	40.82	15.0	39.47
4.0	40.88	16.0	39.88
4.5	41.37	17.0	39.79
5.0	40.73	18.0	40.61
5.5	39.05		

COM-POWER AH-826**HORN ANTENNA****S/N: 71957**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

COM-POWER PA-840**MICROWAVE PREAMPLIFIER****S/N: 711013****CALIBRATION DATE: MAY 13, 2014**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	25.33	36.5	23.71
28.0	24.49	37.0	26.35
28.5	24.74	37.5	23.49
29.0	25.93	38.0	25.42
29.5	26.28	38.5	24.87
30.0	26.17	39.0	22.60
30.5	26.11	39.5	20.57
		40.0	19.15



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XFINITY HOME CONTACT SENSOR 2015
MODEL: URC-4460BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



CLOSEUP VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XFINITY HOME CONTACT SENSOR 2015
MODEL: URC-4460BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XFINITY HOME CONTACT SENSOR 2015
MODEL: URC-4460BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



CLOSEUP VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XFINITY HOME CONTACT SENSOR 2015
MODEL: URC-4460BC0-X-R
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***

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Low Channel
X-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	89.09	V	114.00	-24.91	Peak	84.50	264.52	
2405	69.09	V	94.00	-24.91	Avg	84.50	264.52	
4810	55.74	V	74.00	-18.26	Peak	9.50	207.32	
4810	35.74	V	54.00	-18.26	Avg	9.50	207.32	
7215	57.50	V	74.00	-16.50	Peak	69.00	198.61	
7215	37.50	V	54.00	-16.50	Avg	69.00	198.61	
9620								No Emissions
9620								Detected
12025								No Emissions
12025								Detected
14430								No Emissions
14430								Detected
16835								No Emissions
16835								Detected
19240								No Emissions
19240								Detected
21645								No Emissions
21645								Detected
24050								No Emissions
24050								Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

Low Channel
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	97.87	H	114.00	-16.13	Peak	86.50	158.77	
2405	77.87	H	94.00	-16.13	Avg	86.50	158.77	
4810	60.77	H	74.00	-13.23	Peak	221.00	142.07	
4810	40.77	H	54.00	-13.23	Avg	221.00	142.07	
7215	67.93	H	74.00	-6.07	Peak	236.00	126.49	
7215	47.93	H	54.00	-6.07	Avg	236.00	126.49	
9620								No Emissions Detected
12025								No Emissions Detected
14430								No Emissions Detected
16835								No Emissions Detected
19240								No Emissions Detected
21645								No Emissions Detected
24050								No Emissions Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Low Channel
Y-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	99.45	V	114.00	-14.55	Peak	216.75	139.28	
2405	79.45	V	94.00	-14.55	Avg	216.75	139.28	
4810	59.07	V	74.00	-14.93	Peak	31.75	128.23	
4810	39.07	V	54.00	-14.93	Avg	31.75	128.23	
7215	67.58	V	74.00	-6.42	Peak	185.50	112.17	
7215	47.58	V	54.00	-6.42	Avg	185.50	112.17	
9620								No Emissions Detected
12025								No Emissions Detected
14430								No Emissions Detected
16835								No Emissions Detected
19240								No Emissions Detected
21645								No Emissions Detected
24050								No Emissions Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

Low Channel
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	95.45	H	114.00	-18.55	Peak	151.75	126.92	
2405	75.45	H	94.00	-18.55	Avg	151.75	126.92	
4810	61.34	H	74.00	-12.66	Peak	204.00	126.74	
4810	41.34	H	54.00	-12.66	Avg	204.00	126.74	
7215	68.20	H	74.00	-5.80	Peak	200.00	153.05	
7215	48.20	H	54.00	-5.80	Avg	200.00	153.05	
9620								No Emissions Detected
12025								No Emissions Detected
14430								No Emissions Detected
16835								No Emissions Detected
19240								No Emissions Detected
21645								No Emissions Detected
24050								No Emissions Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Low Channel
Z-Axis - Vertical**

Freq. (MHz)	Level (dBUV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	95.96	V	114.00	-18.05	Peak	237.50	142.59	
2405	75.96	V	94.00	-18.05	Avg	237.50	142.59	
4810	61.47	V	74.00	-12.53	Peak	178.00	171.01	
4810	41.47	V	54.00	-12.53	Avg	178.00	171.01	
7215	66.49	V	74.00	-7.51	Peak	197.50	221.79	
7215	46.49	V	54.00	-7.51	Avg	197.50	221.79	
9620								No Emissions Detected
12025								No Emissions Detected
14430								No Emissions Detected
16835								No Emissions Detected
19240								No Emissions Detected
21645								No Emissions Detected
24050								No Emissions Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Low Channel
Z-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	97.29	H	114.00	-16.71	Peak	151.25	190.86	
2405	77.29	H	94.00	-16.71	Avg	151.25	190.86	
4810	64.35	H	74.00	-9.66	Peak	184.25	192.05	
4810	44.35	H	54.00	-9.66	Avg	184.25	192.05	
7215	68.12	H	74.00	-5.88	Peak	129.75	139.76	
7215	48.12	H	54.00	-5.88	Avg	129.75	139.76	
9620								No Emissions Detected
12025								No Emissions Detected
14430								No Emissions Detected
16835								No Emissions Detected
19240								No Emissions Detected
21645								No Emissions Detected
24050								No Emissions Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Middle Channel
X-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	93.01	V	114.00	-20.99	Peak	151.00	257.07	
2440	73.01	V	94.00	-20.99	Avg	151.00	257.07	
4880	61.71	V	74.00	-12.29	Peak	164.00	182.73	
4880	41.71	V	54.00	-12.29	Avg	164.00	182.73	
7320	61.37	V	74.00	-12.63	Peak	312.25	152.34	
7320	41.37	V	54.00	-12.63	Avg	312.25	152.34	
9760								No Emissions
9760								Detected
12200								No Emissions
12200								Detected
14640								No Emissions
14640								Detected
17080								No Emissions
17080								Detected
19520								No Emissions
19520								Detected
21960								No Emissions
21960								Detected
24400								No Emissions
24400								Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Middle Channel
X-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	100.05	H	114.00	-13.95	Peak	98.00	190.59	
2440	80.05	H	94.00	-13.95	Avg	98.00	190.59	
4880	67.97	H	74.00	-6.03	Peak	123.25	165.40	
4880	47.97	H	54.00	-6.03	Avg	123.25	165.40	
7320	65.02	H	74.00	-8.98	Peak	129.75	110.67	
7320	45.02	H	54.00	-8.98	Avg	129.75	110.67	
9760								No Emissions Detected
9760								
12200								No Emissions Detected
12200								
14640								No Emissions Detected
14640								
17080								No Emissions Detected
17080								
19520								No Emissions Detected
19520								
21960								No Emissions Detected
21960								
24400								No Emissions Detected
24400								

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Middle Channel
Y-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	98.86	V	114.00	-15.14	Peak	315.75	174.32	
2440	78.86	V	94.00	-15.14	Avg	315.75	174.32	
4880	64.19	V	74.00	-9.81	Peak	205.00	168.53	
4880	44.19	V	54.00	-9.81	Avg	205.00	168.53	
7320	64.40	V	74.00	-9.60	Peak	270.00	181.38	
7320	44.40	V	54.00	-9.60	Avg	270.00	181.38	
9760								No Emissions Detected
9760								
12200								No Emissions Detected
12200								
14640								No Emissions Detected
14640								
17080								No Emissions Detected
17080								
19520								No Emissions Detected
19520								
21960								No Emissions Detected
21960								
24400								No Emissions Detected
24400								

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Middle Channel
Y-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	94.78	H	114.00	-19.22	Peak	0.00	194.76	
2440	74.78	H	94.00	-19.22	Avg	0.00	194.76	
4880	66.29	H	74.00	-7.71	Peak	349.00	156.91	
4880	46.29	H	54.00	-7.71	Avg	349.00	156.91	
7320	67.92	H	74.00	-6.08	Peak	200.00	243.52	
7320	47.92	H	54.00	-6.08	Avg	200.00	243.52	
9760								No Emissions Detected
9760								
12200								No Emissions Detected
12200								
14640								No Emissions Detected
14640								
17080								No Emissions Detected
17080								
19520								No Emissions Detected
19520								
21960								No Emissions Detected
21960								
24400								No Emissions Detected
24400								

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Middle Channel
Z-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	95.95	V	114.00	-18.05	Peak	34.50	160.73	
2440	75.95	V	94.00	-18.05	Avg	34.50	160.73	
4880	63.75	V	74.00	-10.25	Peak	357.00	184.85	
4880	43.75	V	54.00	-10.25	Avg	357.00	184.85	
7320	65.70	V	74.00	-8.30	Peak	60.00	272.55	
7320	45.70	V	54.00	-8.30	Avg	60.00	272.55	
9760								No Emissions Detected
9760								
12200								No Emissions Detected
12200								
14640								No Emissions Detected
14640								
17080								No Emissions Detected
17080								
19520								No Emissions Detected
19520								
21960								No Emissions Detected
21960								
24400								No Emissions Detected
24400								

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**Middle Channel
Z-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	98.93	H	114.00	-15.07	Peak	340.00	199.41	
2440	78.93	H	94.00	-15.07	Avg	340.00	199.41	
4880	63.10	H	74.00	-10.90	Peak	100.00	160.01	
4880	43.10	H	54.00	-10.90	Avg	100.00	160.01	
7320	64.97	H	74.00	-9.03	Peak	300.25	144.19	
7320	44.97	H	54.00	-9.03	Avg	300.25	144.19	
9760								No Emissions Detected
9760								
12200								No Emissions Detected
12200								
14640								No Emissions Detected
14640								
17080								No Emissions Detected
17080								
19520								No Emissions Detected
19520								
21960								No Emissions Detected
21960								
24400								No Emissions Detected
24400								

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**High Channel
X-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	89.38	V	114.00	-24.62	Peak	338.00	100.00	
2480	69.38	V	94.00	-24.62	Avg	338.00	100.00	
4960	64.63	V	74.00	-9.37	Peak	61.00	117.70	
4960	44.63	V	54.00	-9.37	Avg	61.00	117.70	
7440	59.48	V	74.00	-14.53	Peak	238.50	198.22	
7440	39.48	V	54.00	-14.53	Avg	238.50	198.22	
9920								No Emissions
9920								Detected
12400								No Emissions
12400								Detected
14880								No Emissions
14880								Detected
17360								No Emissions
17360								Detected
19840								No Emissions
19840								Detected
22320								No Emissions
22320								Detected
24800								No Emissions
24800								Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

High Channel
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	98.15	H	114.00	-15.86	Peak	99.75	180.44	
2480	78.15	H	94.00	-15.86	Avg	99.75	180.44	
4960	67.71	H	74.00	-6.29	Peak	293.75	186.29	
4960	47.71	H	54.00	-6.29	Avg	293.75	186.29	
7440	61.74	H	74.00	-12.26	Peak	320.00	174.41	
7440	41.74	H	54.00	-12.26	Avg	320.00	174.41	
9920								No Emissions Detected
12400								No Emissions Detected
14880								No Emissions Detected
17360								No Emissions Detected
19840								No Emissions Detected
22320								No Emissions Detected
24800								No Emissions Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**High Channel
Y-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	97.47	V	114.00	-16.53	Peak	257.25	179.97	
2480	77.47	V	94.00	-16.53	Avg	257.25	179.97	
4960	67.44	V	74.00	-6.56	Peak	190.00	159.85	
4960	47.44	V	54.00	-6.56	Avg	190.00	159.85	
7440	61.16	V	74.00	-12.84	Peak	130.00	166.47	
7440	41.16	V	54.00	-12.84	Avg	130.00	166.47	
9920								No Emissions
9920								Detected
12400								No Emissions
12400								Detected
14880								No Emissions
14880								Detected
17360								No Emissions
17360								Detected
19840								No Emissions
19840								Detected
22320								No Emissions
22320								Detected
24800								No Emissions
24800								Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**High Channel
Y-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	91.93	H	114.00	-22.07	Peak	148.00	173.74	
2480	71.93	H	94.00	-22.07	Avg	148.00	173.74	
4960	65.44	H	74.00	-8.57	Peak	345.00	142.64	
4960	45.44	H	54.00	-8.57	Avg	345.00	142.64	
7440	58.20	H	74.00	-15.81	Peak	177.00	213.44	
7440	38.20	H	54.00	-15.81	Avg	177.00	213.44	
9920								No Emissions
9920								Detected
12400								No Emissions
12400								Detected
14880								No Emissions
14880								Detected
17360								No Emissions
17360								Detected
19840								No Emissions
19840								Detected
22320								No Emissions
22320								Detected
24800								No Emissions
24800								Detected

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**High Channel
Z-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	94.20	V	114.00	-19.80	Peak	297.50	137.56	
2480	74.20	V	94.00	-19.80	Avg	297.50	137.56	
4960	68.22	V	74.00	-5.78	Peak	150.00	152.07	
4960	48.22	V	54.00	-5.78	Avg	150.00	152.07	
7440	61.38	V	74.00	-12.62	Peak	86.75	121.01	
7440	41.38	V	54.00	-12.62	Avg	86.75	121.01	
9920								No Emissions Detected
9920								
12400								No Emissions Detected
12400								
14880								No Emissions Detected
14880								
17360								No Emissions Detected
17360								
19840								No Emissions Detected
19840								
22320								No Emissions Detected
22320								
24800								No Emissions Detected
24800								

FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

**High Channel
Z-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	96.48	H	114.00	-17.52	Peak	297.50	187.73	
2480	76.48	H	94.00	-17.52	Avg	297.50	187.73	
4960	70.19	H	74.00	-3.81	Peak	200.00	164.97	
4960	50.19	H	54.00	-3.81	Avg	200.00	164.97	
7440	61.38	H	74.00	-12.62	Peak	339.25	184.73	
7440	41.38	H	54.00	-12.62	Avg	339.25	184.73	
9920								No Emissions
9920								Detected
12400								No Emissions
12400								Detected
14880								No Emissions
14880								Detected
17360								No Emissions
17360								Detected
19840								No Emissions
19840								Detected
22320								No Emissions
22320								Detected
24800								No Emissions
24800								Detected

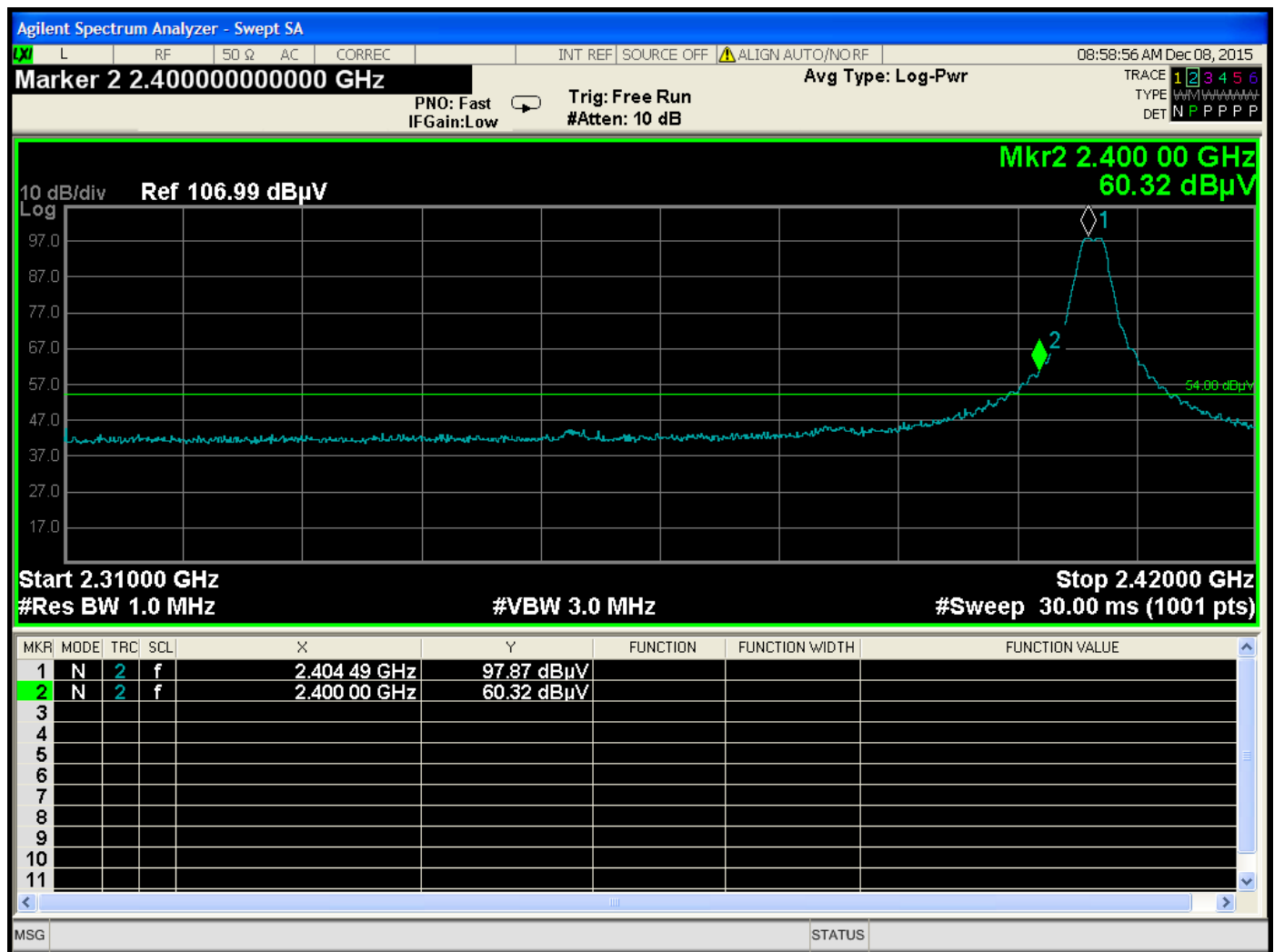
FCC 15.249

Universal Electronics, Inc.
Comcast Xfinity Home Contact Sensor 2015
Model: URC-4460BC0-X-R

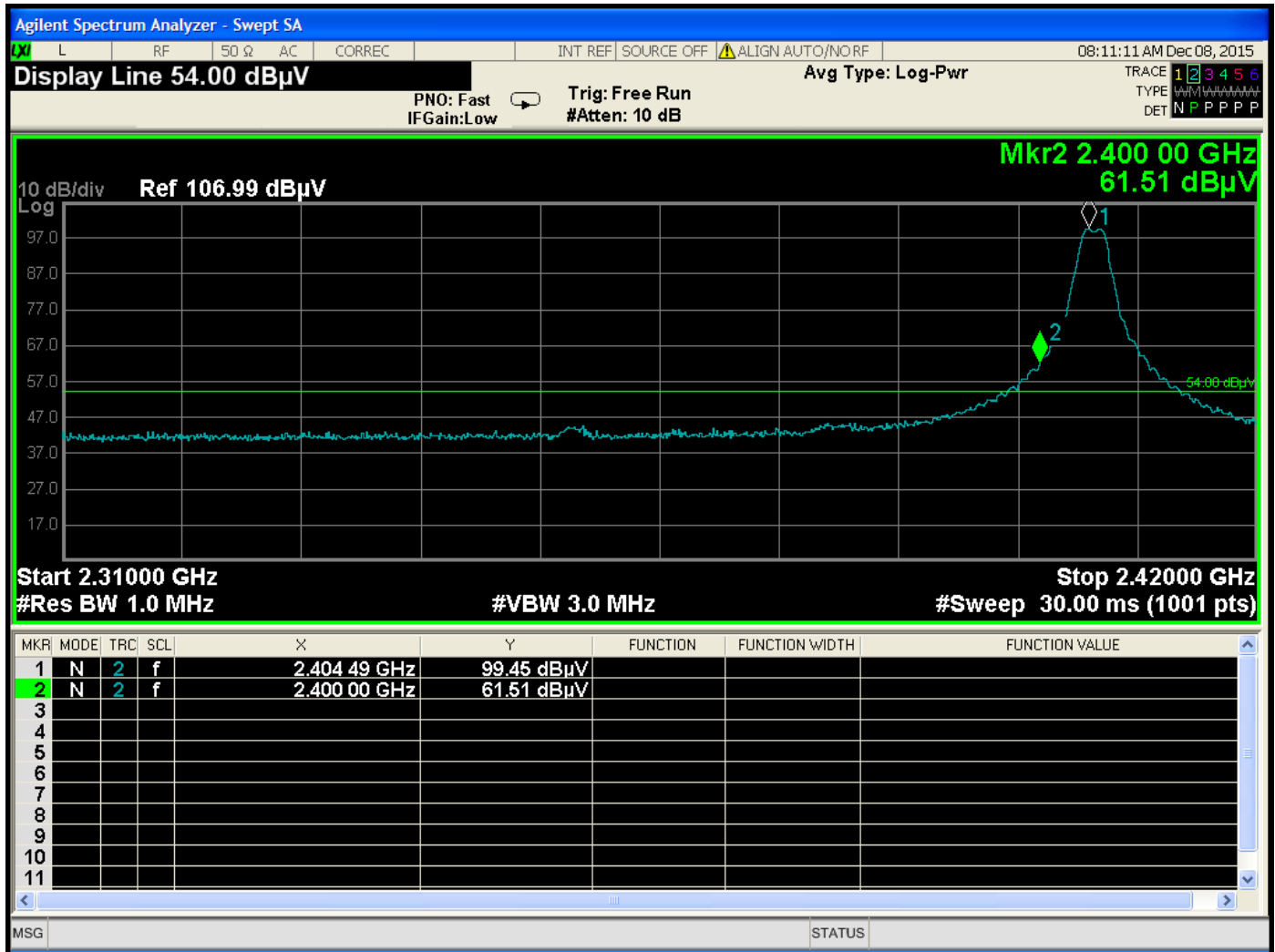
Date: 12/08/2015
Lab: D
Tested By: Kyle Fujimoto

Band Edges

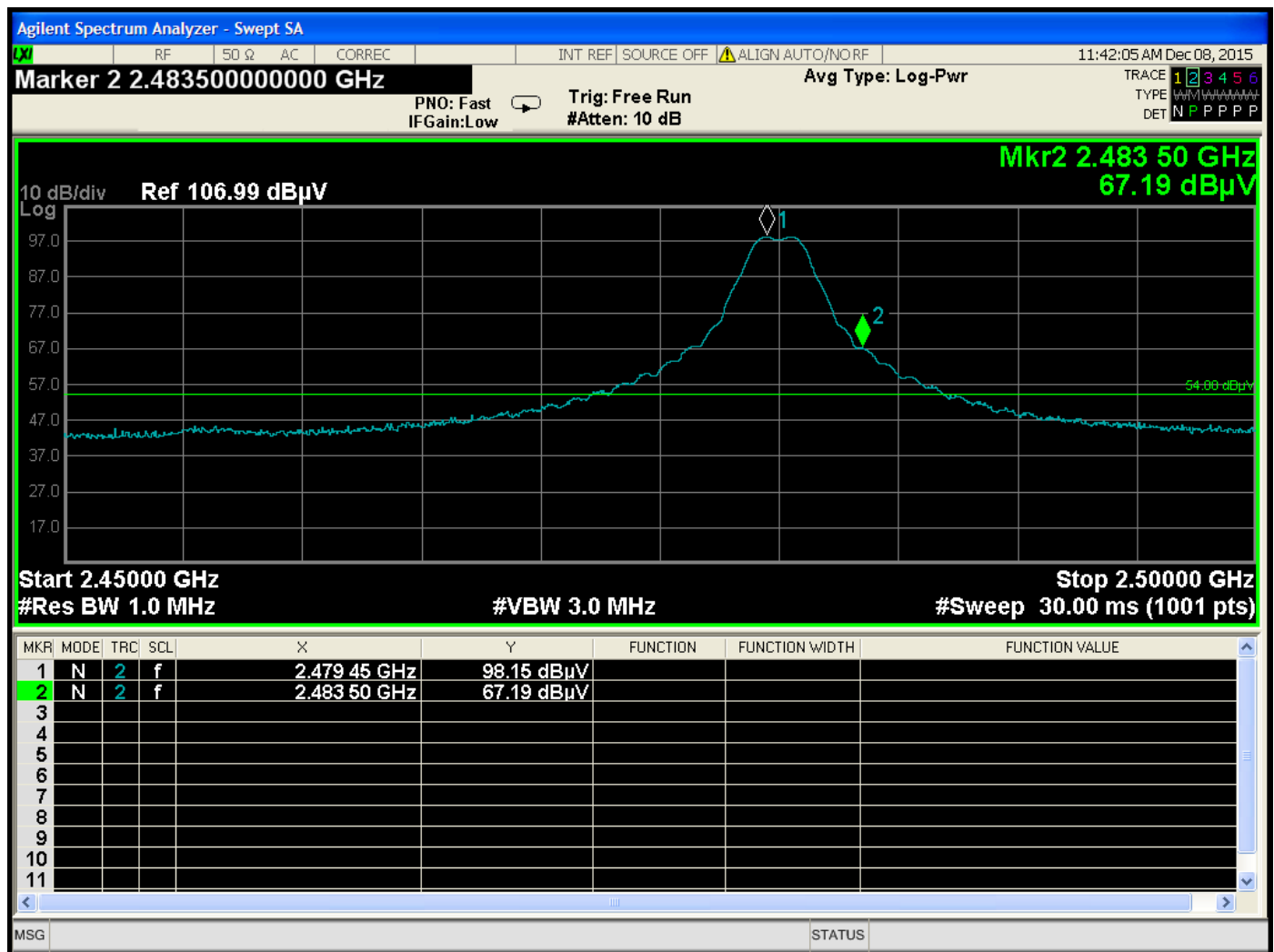
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2405	97.87	H	114.00	-16.13	Peak	86.50	158.77	Fundamental
2405	77.87	H	94.00	-16.13	Avg	86.50	158.77	of Low Channel
2400	60.32	H	74.00	-13.68	Peak	86.50	158.77	Band Edge of Low Channel
2400	40.32	H	54.00	-13.68	Avg	86.50	158.77	X-Axis Worst Case
2405	99.45	V	114.00	-14.25	Peak	216.75	139.28	Fundamental of
2405	79.45	V	94.00	-14.25	Avg	216.75	139.28	Low Channel
2400	61.51	V	74.00	-12.49	Peak	216.75	139.28	Band Edge of Low Channel
2400	41.51	V	54.00	-12.49	Avg	216.75	139.28	Y-Axis Worst Case
2480	98.15	H	114.00	-15.86	Peak	99.75	180.44	Fundamental of
2480	78.15	H	94.00	-15.86	Avg	99.75	180.44	High Channel
2483.5	67.19	H	74.00	-6.81	Peak	99.75	180.44	Band Edge of High Channel
2483.5	47.19	H	54.00	-6.81	Avg	99.75	180.44	X-Axis Worst Case
2480	97.47	V	114.00	-16.53	Peak	257.25	179.97	Fundamental of
2480	77.47	V	94.00	-16.53	Avg	257.25	179.97	High Channel
2483.5	67.08	V	74.00	-6.92	Peak	257.25	179.97	Band Edge of High Channel
2483.5	47.08	V	54.00	-6.92	Avg	257.25	179.97	Y-Axis Worst Case



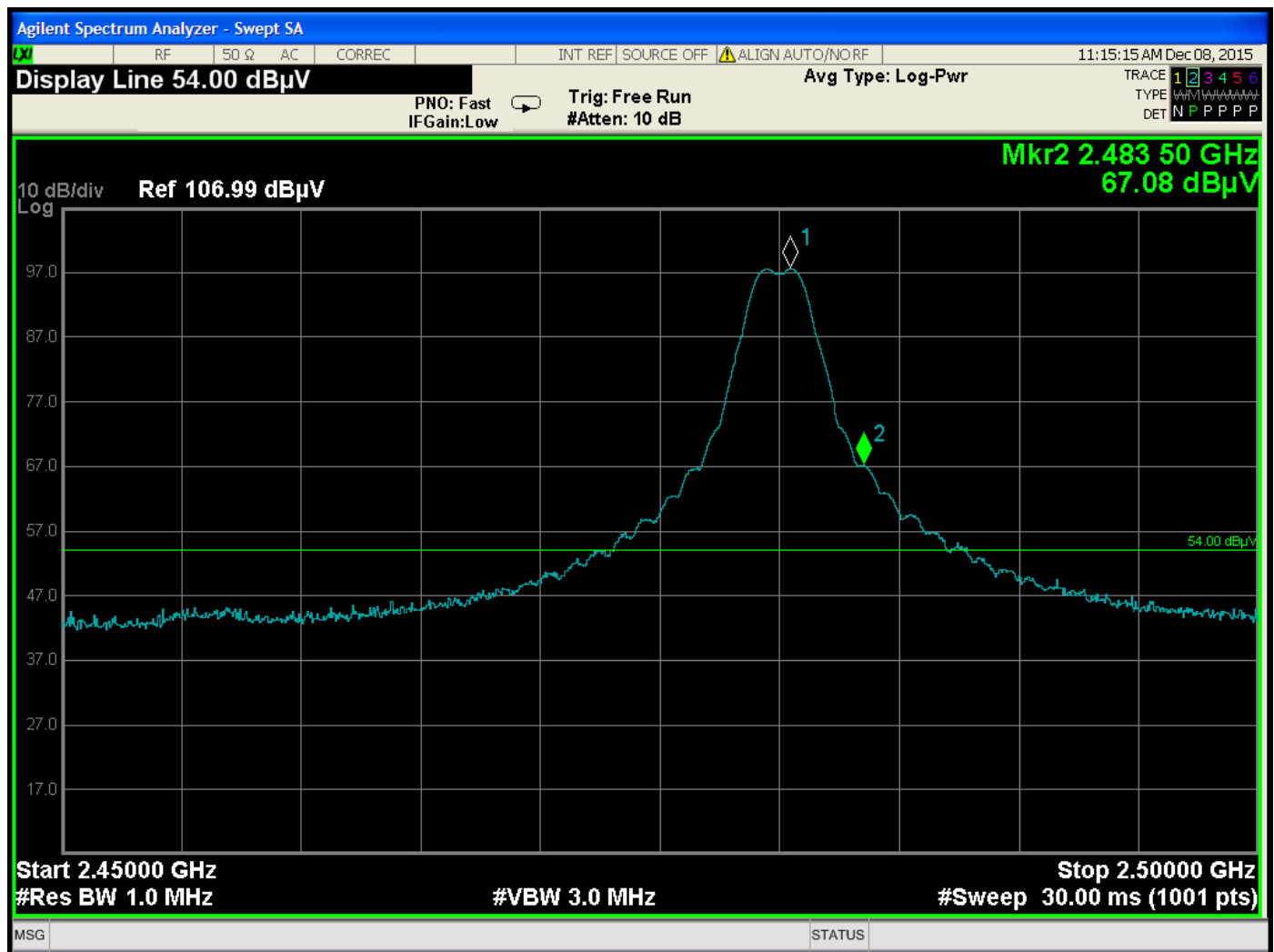
Low Band Edge – Horizontal – X-axis



Low Band Edge – Vertical – Y-axis



High Band Edge – Horizontal – X-axis

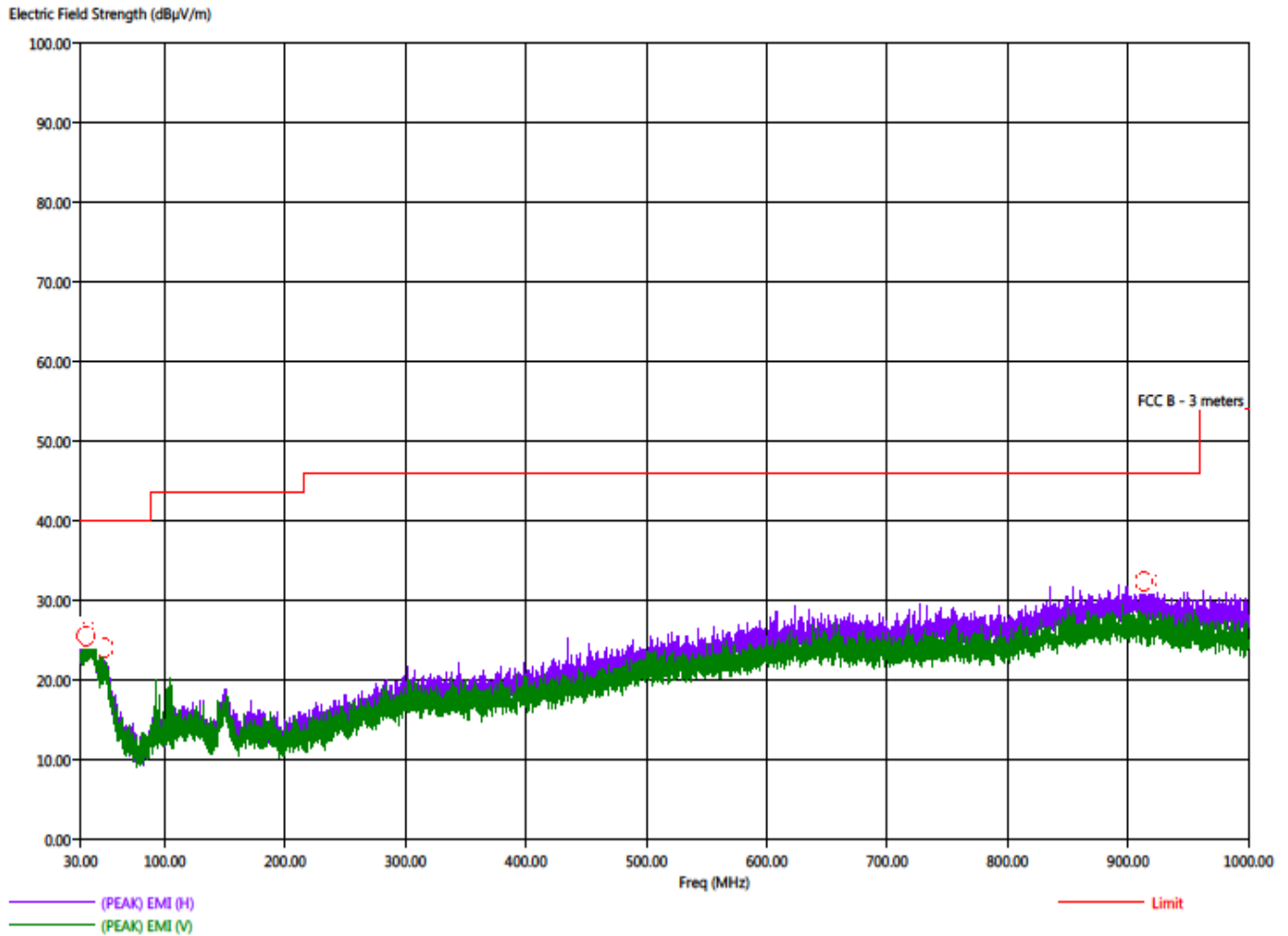


High Band Edge – Vertical – Y-axis

Title: Pre-Scan - FCC Class B
File: Pre-Scan - X-Axis - 12-08-2015.set
Operator: Kyle Fujimoto
EUT Type: Comcast Xfinity Home Contact Sensor 2015
EUT Condition: Continuously Transmitting - X-Axis
Comments: Customer: Universal Electronics, Inc.
Model: URC-4460BC0-X-R

12/8/2015 1:29:52 PM
Sequence: Preliminary Scan

Pre-Scan - FCC Class B



Worst case axis

No additional spurious emissions found between 10 kHz - 30 MHz and 1 GHz - 25 GHz

Title: Radiated Final - FCC Class B
File: Final Scan - X-Axis Worst Case - 12-09-2015.set
Operator: Kyle Fujimoto
EUT Type: Comcast Xfinity Home Contact Sensor 2015
EUT Condition: Continuously Transmitting - X-Axis - Worst Case
Comments: Customer: Universal Electronics Inc.
Model: URC-4460BC0-X-R

12/9/2015 8:27:50 AM
Sequence: Final Measurements

Final Scan - FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(OP) EMI (dBµV/m)	(PEAK) Margin (dB)	(OP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Twr Ht (cm)	Totl Aql (dec)
34.40	V	26.06	21.97	-13.94	-18.03	40.00	24.26	0.39	336.32	236.50
36.40	H	26.93	22.31	-13.07	-17.69	40.00	24.58	0.40	271.55	68.50
39.20	H	27.41	23.12	-12.59	-16.88	40.00	25.24	0.42	127.43	91.50
49.40	H	24.36	20.33	-15.64	-19.67	40.00	22.40	0.50	256.08	56.50
913.10	H	32.21	27.55	-13.79	-18.45	46.00	26.66	2.66	303.97	198.25
916.60	H	31.94	27.41	-14.06	-18.59	46.00	26.59	2.66	191.61	143.25