

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

for

COX DTA MINI IR/RF4CE REMOTE 2014

MODEL: URC-3220BC0-R

Prepared for

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

Prepared by: _____

KENNETH LEE

Approved by: _____

JAMES ROSS

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

DATE: AUGUST 21, 2014

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	16	2	2	2	14	28	64

This report shall not be reproduced except in full, without the written approval of Compatible Electronics.

TABLE OF CONTENTS

Section / Title	PAGE
GENERAL REPORT SUMMARY	4
SUMMARY OF TEST RESULTS	5
1. PURPOSE	6
2. ADMINISTRATIVE DATA	7
2.1 Location of Testing	7
2.2 Traceability Statement	7
2.3 Cognizant Personnel	7
2.4 Date Test Sample was Received	7
2.5 Disposition of the Test Sample	7
2.6 Abbreviations and Acronyms	7
3. APPLICABLE DOCUMENTS	8
4. DESCRIPTION OF TEST CONFIGURATION	9
4.1 Description of Test Configuration - Emissions	9
5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT	10
5.1 EUT and Accessory List	10
6. TEST SITE DESCRIPTION	11
6.1 Test Facility Description	11
6.2 EUT Mounting, Bonding and Grounding	11
7. TEST PROCEDURES	12
7.1 RF Emissions	12
7.1.1 Radiated Emissions (Spurious and Harmonics) Test – Lab B	12
7.1.2 Radiated Emissions (Spurious and Harmonics) Test – Lab D	14
7.1.3 RF Emissions Test Results	15
8. CONCLUSIONS	16

LIST OF APPENDICES

APPENDIX	TITLE
A	Laboratory Accreditations and Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams and Charts • Test Setup Diagrams • Antenna and Effective Gain Factors
E	Data Sheets

LIST OF FIGURES

FIGURE	TITLE
1	Plot Map And Layout of Test Site
2	Plot Map And Layout of Radiated Site
3	Layout of the Semi-Anechoic Test Chamber

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: COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

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

Test Dates: August 19, and 20, 2014

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

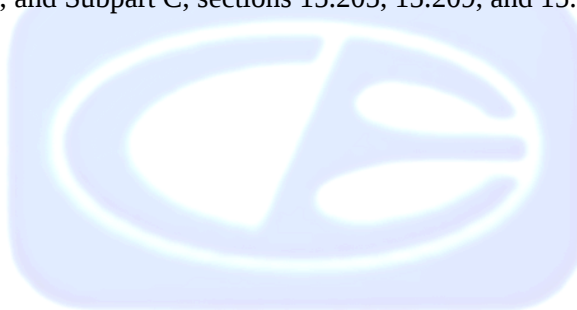
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 10 kHz – 25,000MHz (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 COX DTA Mini IR/RF4CE Remote 2014, Model: URC-3220BC0-R. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4. 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.

Kenneth Lee

Test Technician

Kyle Fujimoto

Test Engineer

2.4 Date Test Sample was Received

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

2.5 Disposition of the Test Sample

The test sample has not been returned to Universal Electronics 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

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 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz

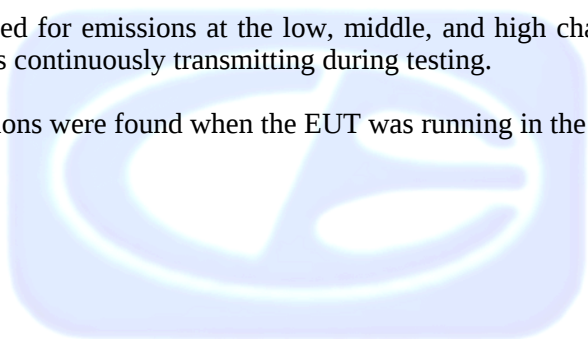
4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The COX DTA Mini IR/RF4CE Remote 2014, Model: URC-3220BC0-R (EUT) is a remote control that is powered by two AAA 1.5VDC batteries.

The EUT was tested for emissions at the low, middle, and high channels as well as the X, Y and Z axis. The EUT was continuously transmitting during testing.

The highest emissions were found when the EUT was running in the above configurations.



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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
COX DTA MINI IR/RF4CE REMOTE 2014	UNIVERSAL ELECTRONICS, INC.	URC-3220BC0-R	N/A	MG3-3220

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
GENERAL TEST EQUIPMENT USED IN LAB B					
Computer	Compaq	CQ5210F	CNX9360CF9	N/A	N/A
Monitor	Hewlett Packard	HPs2031a	3CQ046N3MD	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	2 Year
GENERAL TEST EQUIPMENT USED IN LAB D					
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	March 6, 2014	2 Year
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com-Power	AC-220	61060	May 20, 2014	1 Year
Preamplifier	Com-Power	PA-118	181656	January 13, 2014	1 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2014	2 Year
Loop Antenna	Com-Power	AL-130	17089	January 29, 2013	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

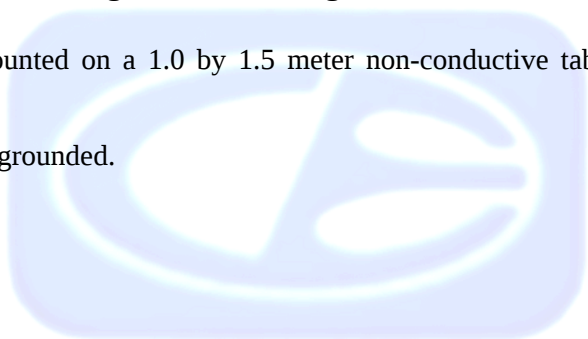
6.1 Test Facility Description

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

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.



7. 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 (Spurious and Harmonics) Test – Lab B

The EMI Receiver was used as a measuring meter. A preamplifier was used to increase the sensitivity of the instrument. The Com Power Microwave Preamplifier Model: PA-118 was used for frequencies above 1 GHz. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

For frequencies above 1 GHz, the readings were averaged by a "duty cycle correction factor", derived from 20 log (dwell time / 100 ms). This duty cycle correction factor was then subtracted from the peak reading.

The measurement bandwidth and transducer used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
1 GHz to 25 GHz	1 MHz	Horn Antenna

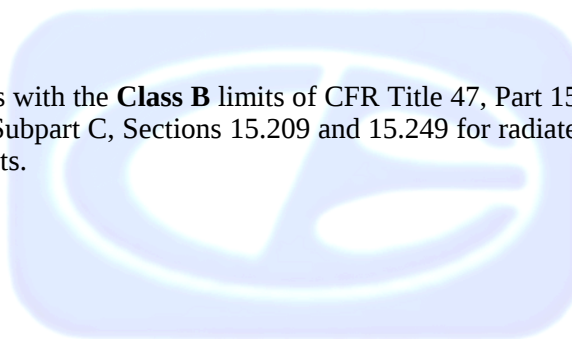
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a 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 by the Radiated Emission Manual Test software. 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 (Spurious and Harmonics) Test -- Lab B (continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 1 GHz to 25 GHz to obtain the final test data.

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.



7.1.2 Radiated Emissions (Spurious and Harmonics) Test – Lab D

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 in 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.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is set up according to ANSI C63.4: 2009. 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 measurement bandwidths and transducers used for the radiated emissions test were:

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

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

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 (d) for radiated emissions. Please see Appendix E for the data sheets.

7.1.3 RF Emissions Test ResultsTable 1.0 RADIATED EMISSION RESULTS
COX DTA Mini IR/RF4CE Remote 2014, Model: URC-3220BC0-R

Frequency MHz	Average Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
7275 (H) (X-Axis) (Low Channel)	52.72	54	-1.28
7275 (V) (Z-Axis) (Low Channel)	52.25	54	-1.75
7275 (H) (Z-Axis) (Low Channel)	52.04	54	-1.96
7275 (V) (Y-Axis) (Low Channel)	50.97	54	-3.03
7350 (H) (X-Axis) (Middle Channel)	50.52	54	-3.48
7350 (H) (Z-Axis) (Middle Channel)	50.12	54	-3.88

Notes:

(H) Horizontal

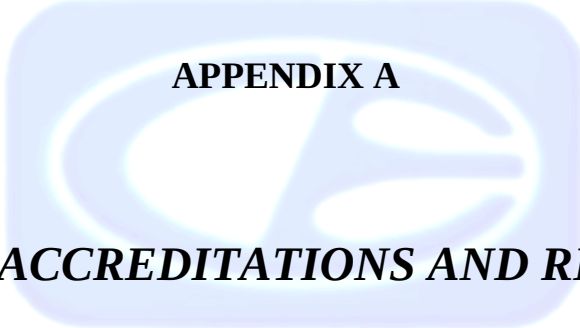
(V) Vertical

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

8. CONCLUSIONS

The COX DTA Mini IR/RF4CE Remote 2014, Model: URC-3220BC0-R, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, 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

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

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025,000. 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 17025,000:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025,000:2005 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 17025,000:2005 (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](#) <https://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.

The EUT was not modified during the testing.



APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

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

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R
S/N: N/A

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

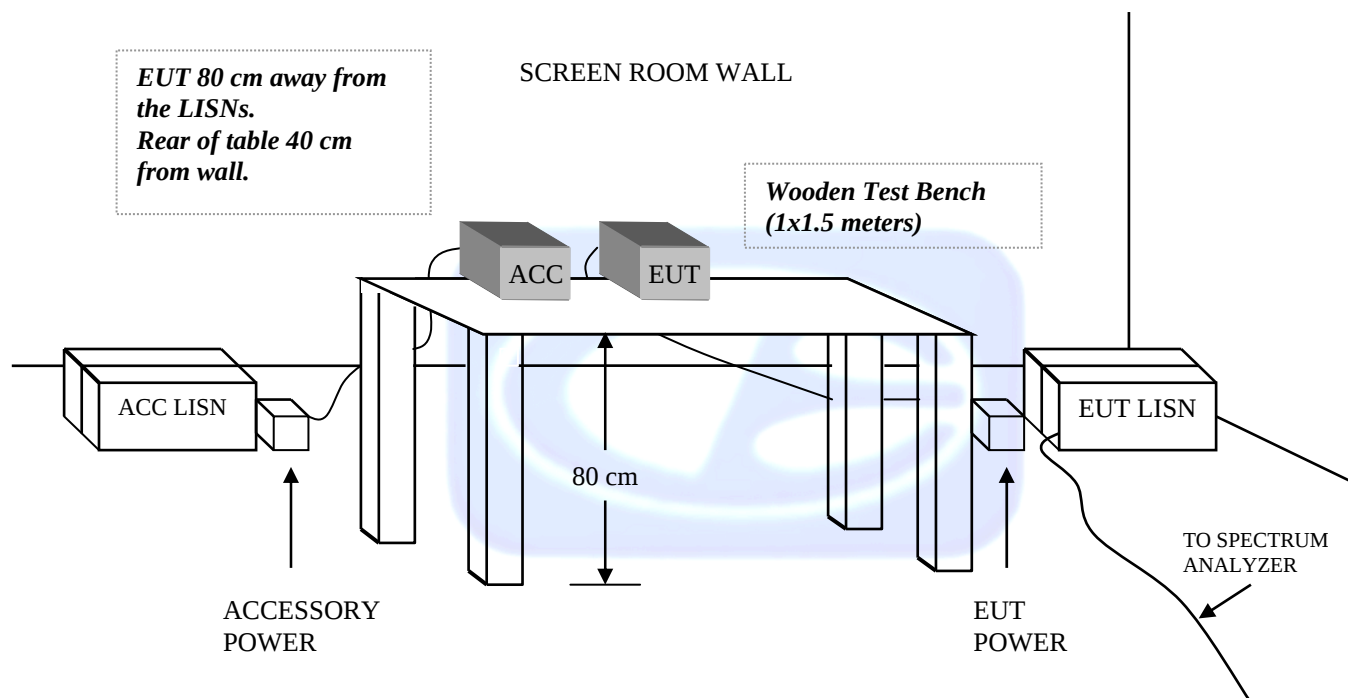
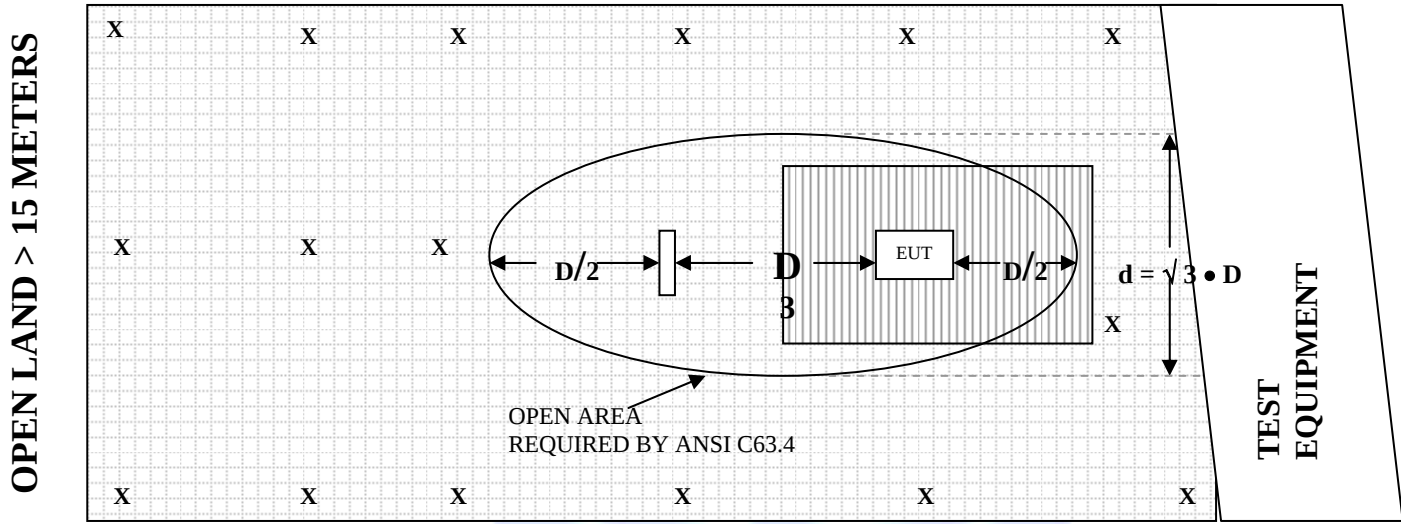


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

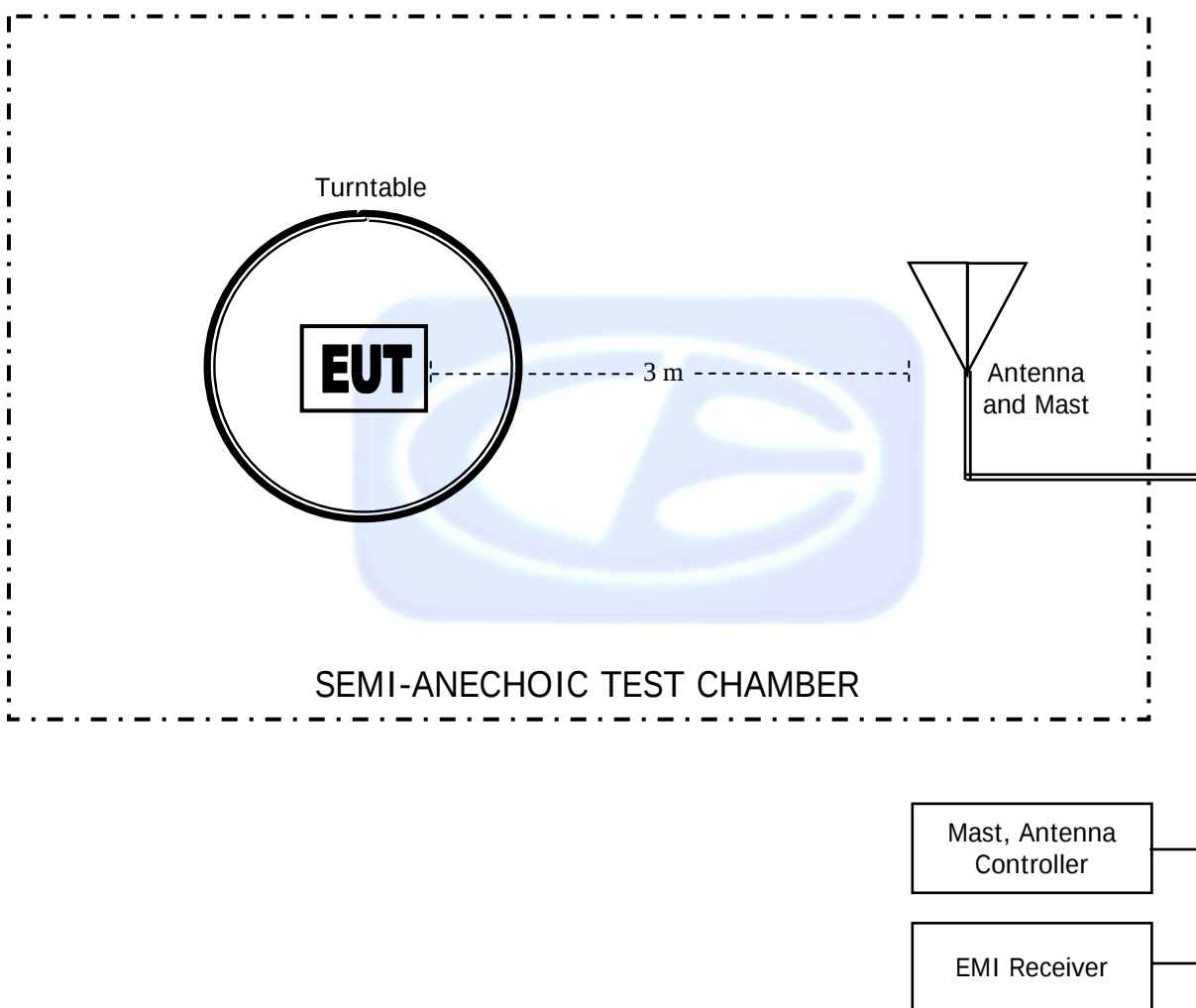
OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X	= GROUND RODS		= GROUND SCREEN
D	= TEST DISTANCE (meters)		= WOOD COVER

FIGURE 3: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER



COM-POWER AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: JANUARY 29, 2013

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-42.5	9
0.01	-42.3	9.2
0.02	-42.1	9.4
0.03	-41.4	10.1
0.04	-41.8	9.7
0.05	-42.4	9.1
0.06	-42.3	9.2
0.07	-42.5	9
0.08	-42.4	9.1
0.09	-42.5	9
0.1	-42.5	9
0.2	-42.7	8.8
0.3	-42.6	8.9
0.4	-42.5	9
0.5	-42.7	8.8
0.6	-42.7	8.8
0.7	-42.5	9
0.8	-42.3	9.2
0.9	-42.2	9.3
1	-42.2	9.3
2	-41.8	9.7
3	-41.7	9.8
4	-41.7	9.8
5	-41.5	10
6	-41.6	9.9
7	-41.4	10.1
8	-41	10.5
9	-40.8	10.7
10	-41.3	10.2
15	-41.4	10.1
20	-41.2	10.3
25	-42.6	8.9
30	-41.7	9.8

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: MAY 20, 2014**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.40	200	14.40
35	23.70	250	16.40
40	24.20	300	17.90
45	22.60	350	15.60
50	22.10	400	19.90
60	17.90	450	20.40
70	12.70	500	21.60
80	11.60	550	21.50
90	12.20	600	22.30
100	13.20	650	23.50
120	15.70	700	23.70
125	15.80	750	25.90
140	13.60	800	25.90
150	16.90	850	26.40
160	14.20	900	27.00
175	14.90	950	27.70
180	15.00	1000	27.50

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: 181656****CALIBRATION DATE: JANUARY 13, 2014**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.90	6.0	25.40
1.1	25.30	6.5	25.20
1.2	26.00	7.0	24.40
1.3	26.20	7.5	24.00
1.4	26.30	8.0	23.90
1.5	26.40	8.5	24.50
1.6	26.50	9.0	25.20
1.7	26.60	9.5	24.80
1.8	26.50	10.0	24.90
1.9	26.60	11.0	25.40
2.0	26.70	12.0	24.50
2.5	26.90	13.0	24.30
3.0	27.00	14.0	25.20
3.5	27.10	15.0	25.90
4.0	26.60	16.0	25.60
4.5	26.10	17.0	23.70
5.0	26.40	18.0	25.80
5.5	25.80		

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.
COX DTA MINI IR/RF4CE REMOTE 2014
MODEL: URC-3220BC0-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
COX DTA MINI IR/RF4CE REMOTE 2014
MODEL: URC-3220BC0-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

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



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
COX DTA MINI IR/RF4CE REMOTE 2014
MODEL: URC-3220BC0-R

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
COX DTA MINI IR/RF4CE REMOTE 2014
MODEL: URC-3220BC0-R
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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

APPENDIX E

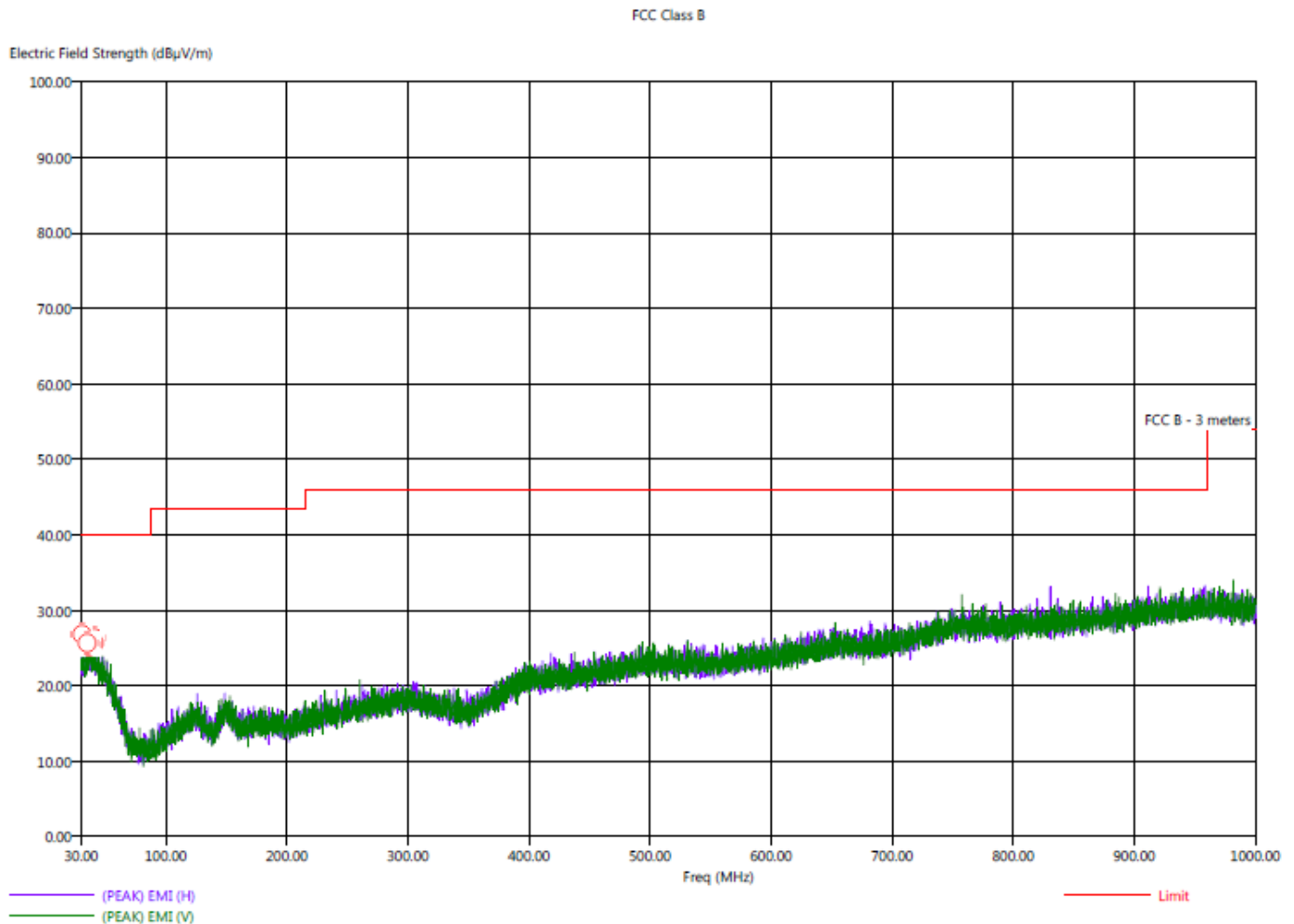
DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

Title: Pre-Scan - FCC Class B
File: Agilent - Radiated Pre-Scan 30-1000Mhz_X-Axis - FCC Class B - 08-20-2014.set
Operator: Kyle Fujimoto
EUT Type: COX DTA Mini IR/RF4CE Remote
EUT Condition: Continuously Transmitting - X-Axis - Worst Case
Comments: Customer: Universal Electronics, Inc.
M/N: URC-3220BC0-R

8/20/2014 1:01:06 PM
Sequence: Preliminary Scan



Title: Radiated Final - 30-1000 MHz X-Axis - FCC Class B
File: Agilent - Radiated Final Scan 30-1000Mhz_X-Axis - FCC Class B.set
Operator: Kyle Fujimoto
EUT Type: COX DTA Mini IR/RF4CE Remote
EUT Condition: Continuously Transmitting - X-Axis - Worst Case
Comments: Customer: Universal Electronics, Inc.
M/N: URC-3220BC0-R

8/20/2014 1:23:23 PM
Sequence: Final Measurements

Final Scan - 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)	Twr Ht (cm)	Ttbl Aql (deg)
30.20	H	25.79	21.32	-14.21	-18.68	40.00	23.41	0.35	283.58	95.00
35.60	V	26.43	21.58	-13.57	-18.42	40.00	23.77	0.40	184.00	33.75
36.90	V	26.04	21.74	-13.96	-18.26	40.00	23.88	0.41	346.26	355.25
39.30	H	26.41	22.02	-13.59	-17.98	40.00	24.14	0.43	127.10	22.00
40.10	V	26.22	22.09	-13.78	-17.91	40.00	24.19	0.43	137.61	262.00
40.70	H	26.17	21.77	-13.83	-18.23	40.00	23.93	0.44	201.01	234.00



FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

**Low Channel
X-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	94.76	V	114	-19.24	Peak	1.5	180	
2425	74.76	V	94	-19.24	Avg	1.5	180	
4850	50.65	V	74	-23.35	Peak	1.5	180	
4850	30.65	V	54	-23.35	Avg	1.5	180	
7275	69.18	V	74	-4.82	Peak	1.75	180	
7275	49.18	V	54	-4.82	Avg	1.75	180	
9700								No Emission
9700								Detected
12125								No Emission
12125								Detected
14550								No Emission
14550								Detected
16975								No Emission
16975								Detected
19400								No Emission
19400								Detected
21825								No Emission
21825								Detected
24250								No Emission
24250								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014

Lab: B

Tested By: Kyle Fujimoto

Low Channel

X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	101.95	H	114	-12.05	Peak	1.25	35	
2425	81.95	H	94	-12.05	Avg	1.25	35	
4850	53.34	H	74	-20.66	Peak	1	90	
4850	33.34	H	54	-20.66	Avg	1	90	
7275	72.72	H	74	-1.28	Peak	2	90	
7275	52.72	H	54	-1.28	Avg	2	90	
9700								No Emission
9700								Detected
12125								No Emission
12125								Detected
14550								No Emission
14550								Detected
16975								No Emission
16975								Detected
19400								No Emission
19400								Detected
21825								No Emission
21825								Detected
24250								No Emission
24250								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

Low Channel
Y-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	102.93	V	114	-11.07	Peak	1.25	100	
2425	82.93	V	94	-11.07	Avg	1.25	100	
4850	54.45	V	74	-19.55	Peak	1	90	
4850	34.45	V	54	-19.55	Avg	1	90	
7275	70.97	V	74	-3.03	Peak	1	90	
7275	50.97	V	54	-3.03	Avg	1	90	
9700								No Emission
9700								Detected
12125								No Emission
12125								Detected
14550								No Emission
14550								Detected
16975								No Emission
16975								Detected
19400								No Emission
19400								Detected
21825								No Emission
21825								Detected
24250								No Emission
24250								Detected

FCC 15.249Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-RDate: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto**Low Channel****Y-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	93.57	H	114	-20.43	Peak	2	190	
2425	73.57	H	94	-20.43	Avg	2	190	
4850	49.92	H	74	-24.08	Peak	1	45	
4850	29.92	H	54	-24.08	Avg	1	45	
7275	64.37	H	74	-9.63	Peak	2	45	
7275	44.37	H	54	-9.63	Avg	2	45	
9700								No Emission
9700								Detected
12125								No Emission
12125								Detected
14550								No Emission
14550								Detected
16975								No Emission
16975								Detected
19400								No Emission
19400								Detected
21825								No Emission
21825								Detected
24250								No Emission
24250								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

Low Channel
Z-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	99.29	V	114	-14.71	Peak	2	0	
2425	79.29	V	94	-14.71	Avg	2	0	
4850	51.34	V	74	-22.66	Peak	1.5	0	
4850	31.34	V	54	-22.66	Avg	1.5	0	
7275	72.25	V	74	-1.75	Peak	1.5	45	
7275	52.25	V	54	-1.75	Avg	1.5	45	
9700								No Emission
9700								Detected
12125								No Emission
12125								Detected
14550								No Emission
14550								Detected
16975								No Emission
16975								Detected
19400								No Emission
19400								Detected
21825								No Emission
21825								Detected
24250								No Emission
24250								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

Low Channel
Z-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	101.12	H	114	-12.88	Peak	1	270	
2425	81.12	H	94	-12.88	Avg	1	270	
4850	53.02	H	74	-20.98	Peak	1	300	
4850	33.02	H	54	-20.98	Avg	1	300	
7275	72.04	H	74	-1.96	Peak	1.5	45	
7275	52.04	H	54	-1.96	Avg	1.5	45	
9700								No Emission
9700								Detected
12125								No Emission
12125								Detected
14550								No Emission
14550								Detected
16975								No Emission
16975								Detected
19400								No Emission
19400								Detected
21825								No Emission
21825								Detected
24250								No Emission
24250								Detected

FCC 15.249Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-RDate: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto**Middle Channel
X-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	95.54	V	114	-18.46	Peak	2	180	
2450	75.54	V	94	-18.46	Avg	2	180	
4900	51.72	V	74	-22.28	Peak	1.75	170	
4900	31.72	V	54	-22.28	Avg	1.75	170	
7350	66.18	V	74	-7.82	Peak	1.75	340	
7350	46.18	V	54	-7.82	Avg	1.75	340	
9800								No Emission
9800								Detected
12250								No Emission
12250								Detected
14700								No Emission
14700								Detected
17150								No Emission
17150								Detected
19600								No Emission
19600								Detected
22050								No Emission
22050								Detected
24500								No Emission
24500								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

Middle Channel
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	103.1	H	114	-10.9	Peak	1	85	
2450	83.1	H	94	-10.9	Avg	1	85	
4900	55.36	H	74	-18.64	Peak	1	85	
4900	35.36	H	54	-18.64	Avg	1	85	
7350	70.52	H	74	-3.48	Peak	1	90	
7350	50.52	H	54	-3.48	Avg	1	90	
9800								No Emission Detected
12250								No Emission Detected
14700								No Emission Detected
17150								No Emission Detected
19600								No Emission Detected
22050								No Emission Detected
24500								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Y-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	102.58	V	114	-11.42	Peak	1.5	305	
2450	82.58	V	94	-11.42	Avg	1.5	305	
4900	52.23	V	74	-21.77	Peak	1.5	235	
4900	32.23	V	54	-21.77	Avg	1.5	235	
7350	69.28	V	74	-4.72	Peak	1	305	
7350	49.28	V	54	-4.72	Avg	1	305	
9800								No Emission
9800								Detected
12250								No Emission
12250								Detected
14700								No Emission
14700								Detected
17150								No Emission
17150								Detected
19600								No Emission
19600								Detected
22050								No Emission
22050								Detected
24500								No Emission
24500								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

Middle Channel
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	92.72	H	114	-21.28	Peak	2.5	190	
2450	72.72	H	94	-21.28	Avg	2.5	190	
4900	52.33	H	74	-21.67	Peak	1	300	
4900	32.33	H	54	-21.67	Avg	1	300	
7350	61.19	H	74	-12.81	Peak	1	85	
7350	41.19	H	54	-12.81	Avg	1	85	
9800								No Emission
9800								Detected
12250								No Emission
12250								Detected
14700								No Emission
14700								Detected
17150								No Emission
17150								Detected
19600								No Emission
19600								Detected
22050								No Emission
22050								Detected
24500								No Emission
24500								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Z-Axis - Vertical**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	98.21	V	114	-15.79	Peak	2.25	135	
2450	78.21	V	94	-15.79	Avg	2.25	135	
4900	50.12	V	74	-23.88	Peak	2	180	
4900	30.12	V	54	-23.88	Avg	2	180	
7350	69.35	V	74	-4.65	Peak	1.75	45	
7350	49.35	V	54	-4.65	Avg	1.75	45	
9800								No Emission
9800								Detected
12250								No Emission
12250								Detected
14700								No Emission
14700								Detected
17150								No Emission
17150								Detected
19600								No Emission
19600								Detected
22050								No Emission
22050								Detected
24500								No Emission
24500								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Z-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	101.11	H	114	-12.89	Peak	1	270	
2450	81.11	H	94	-12.89	Avg	1	270	
4900	52.48	H	74	-21.52	Peak	1	270	
4900	32.48	H	54	-21.52	Avg	1	270	
7350	70.12	H	74	-3.88	Peak	2	45	
7350	50.12	H	54	-3.88	Avg	2	45	
9800								No Emission
9800								Detected
12250								No Emission
12250								Detected
14700								No Emission
14700								Detected
17150								No Emission
17150								Detected
19600								No Emission
19600								Detected
22050								No Emission
22050								Detected
24500								No Emission
24500								Detected

FCC 15.249

Universal Electronics, Inc.
 COX DTA Mini IR/RF4CE Remote 2014
 Model: URC-3220BC0-R

Date: 08/19/2014
 Lab: B
 Tested By: Kyle Fujimoto

High Channel
X-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	96.45	V	114	-17.55	Peak	1.5	170	
2475	76.45	V	94	-17.55	Avg	1.5	170	
4950	52.54	V	74	-21.46	Peak	1.5	170	
4950	32.54	V	54	-21.46	Avg	1.5	170	
7425	64.99	V	74	-9.01	Peak	2.5	325	
7425	44.99	V	54	-9.01	Avg	2.5	325	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

High Channel
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	102.26	H	114	-11.74	Peak	1.15	90	
2475	82.26	H	94	-11.74	Avg	1.15	90	
4950	53.19	H	74	-20.81	Peak	1.2	95	
4950	33.19	H	54	-20.81	Avg	1.2	95	
7425	69.02	H	74	-4.98	Peak	1.5	90	
7425	49.02	H	54	-4.98	Avg	1.5	90	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

High Channel
Y-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	102.66	V	114	-11.34	Peak	1.25	275	
2475	82.66	V	94	-11.34	Avg	1.25	275	
4950	54.12	V	74	-19.88	Peak	1	225	
4950	34.12	V	54	-19.88	Avg	1	225	
7425	68.83	V	74	-5.17	Peak	1	270	
7425	48.83	V	54	-5.17	Avg	1	270	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

FCC 15.249

Universal Electronics, Inc.
COX DTA Mini IR/RF4CE Remote 2014
Model: URC-3220BC0-R

Date: 08/19/2014
Lab: B
Tested By: Kyle Fujimoto

High Channel
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	93.39	H	114	-20.61	Peak	1.5	190	
2475	73.39	H	94	-20.61	Avg	1.5	190	
4950	52.6	H	74	-21.4	Peak	1	330	
4950	32.6	H	54	-21.4	Avg	1	330	
7425	63.42	H	74	-10.58	Peak	1.5	210	
7425	43.42	H	54	-10.58	Avg	1.5	210	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

FCC 15.249

Universal Electronics, Inc.
 COX DTA Mini IR/RF4CE Remote 2014
 Model: URC-3220BC0-R

Date: 08/19/2014
 Lab: B
 Tested By: Kyle Fujimoto

High Channel Z-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	97.99	V	114	-16.01	Peak	1.75	160	
2475	77.99	V	94	-16.01	Avg	1.75	160	
4950	52.91	V	74	-21.09	Peak	1.5	170	
4950	32.91	V	54	-21.09	Avg	1.5	170	
7425	69.17	V	74	-4.83	Peak	1.5	45	
7425	49.17	V	54	-4.83	Avg	1.5	45	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

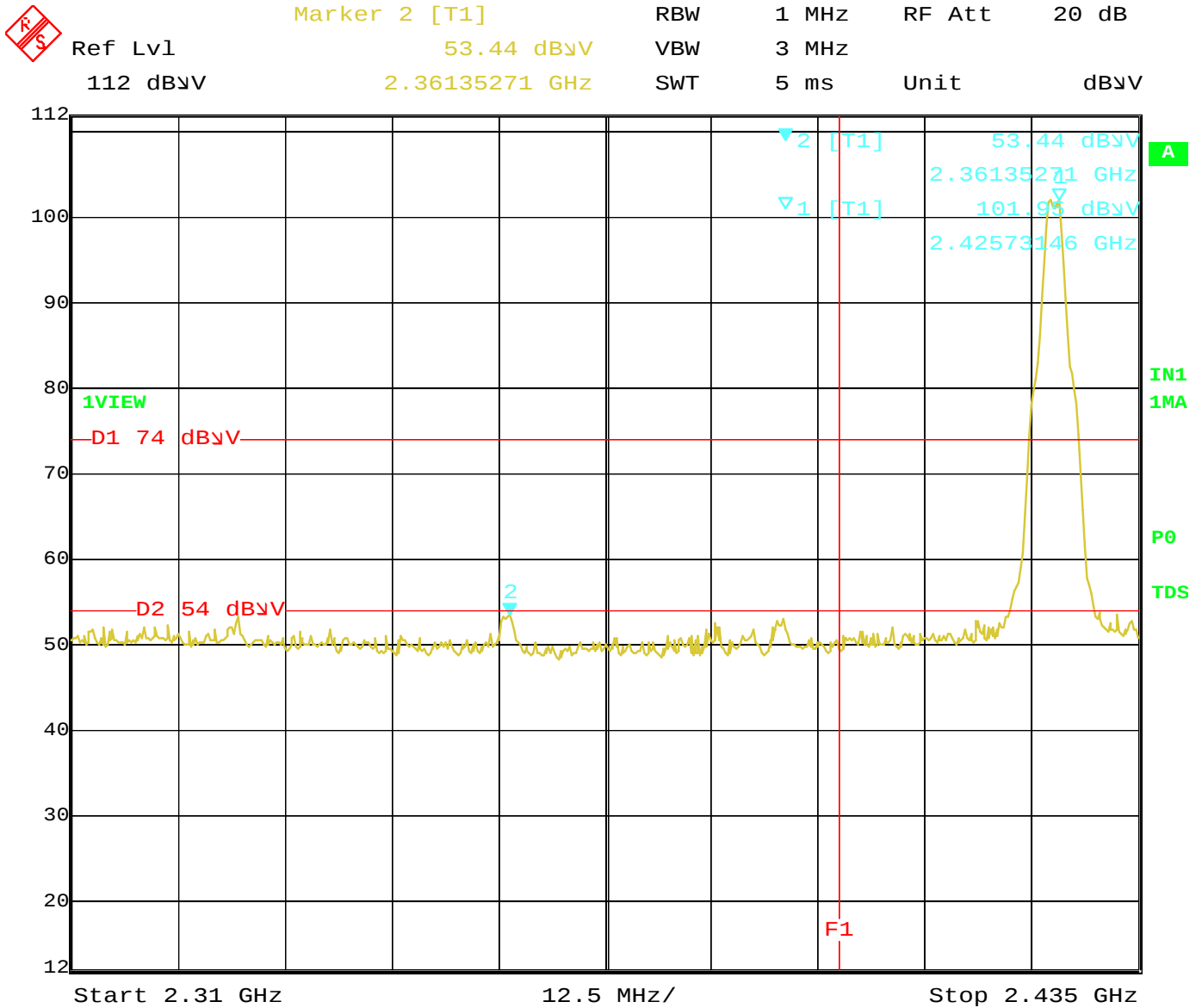
FCC 15.249

Universal Electronics, Inc.
 COX DTA Mini IR/RF4CE Remote 2014
 Model: URC4300BC0-X-R

Date: 05/22/2014
 Lab: B
 Tested By: Kyle Fujimoto

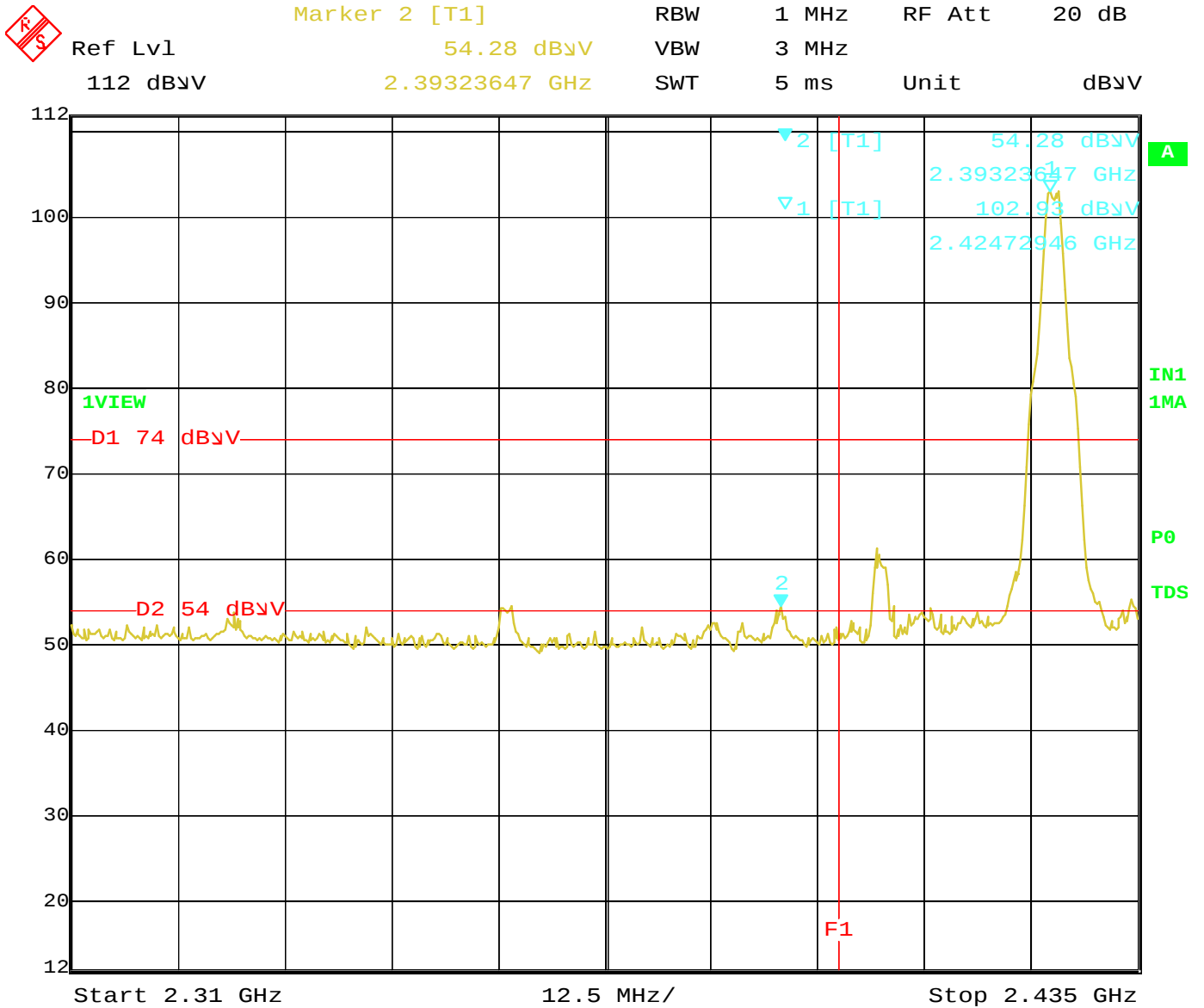
**High Channel
 Z-Axis - Horizontal**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	100.47	H	114	-13.53	Peak	1.5	270	
2475	80.47	H	94	-13.53	Avg	1.5	270	
4950	52.29	H	74	-21.71	Peak	1.25	135	
4950	32.29	H	54	-21.71	Avg	1.25	135	
7425	68.89	H	74	-5.11	Peak	1.5	270	
7425	48.89	H	54	-5.11	Avg	1.5	270	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected



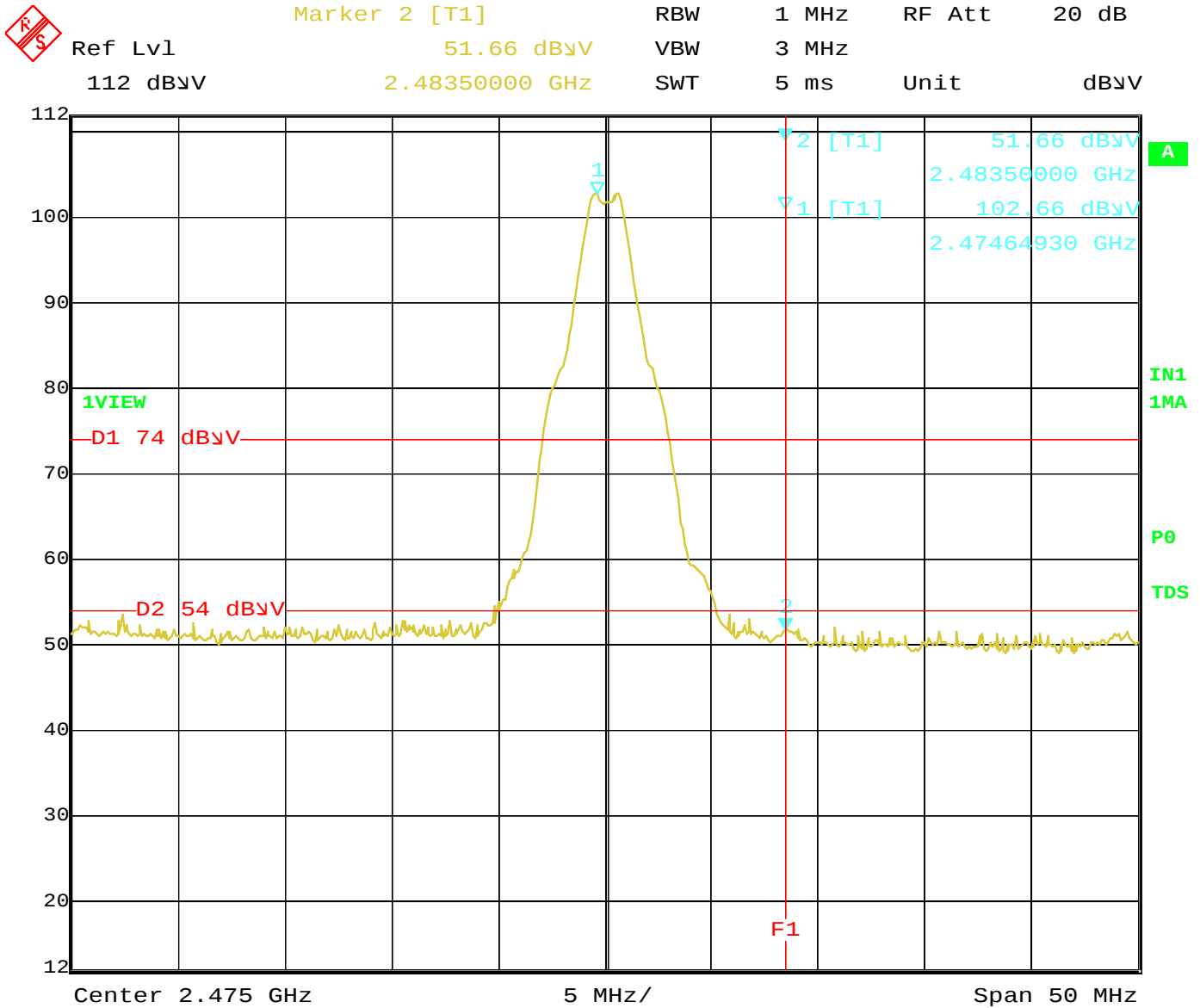
Date: 19.AUG.2014 13:36:49

Band Edge – Horizontal Polarization – Low Ch – X-Axis – Worst Case



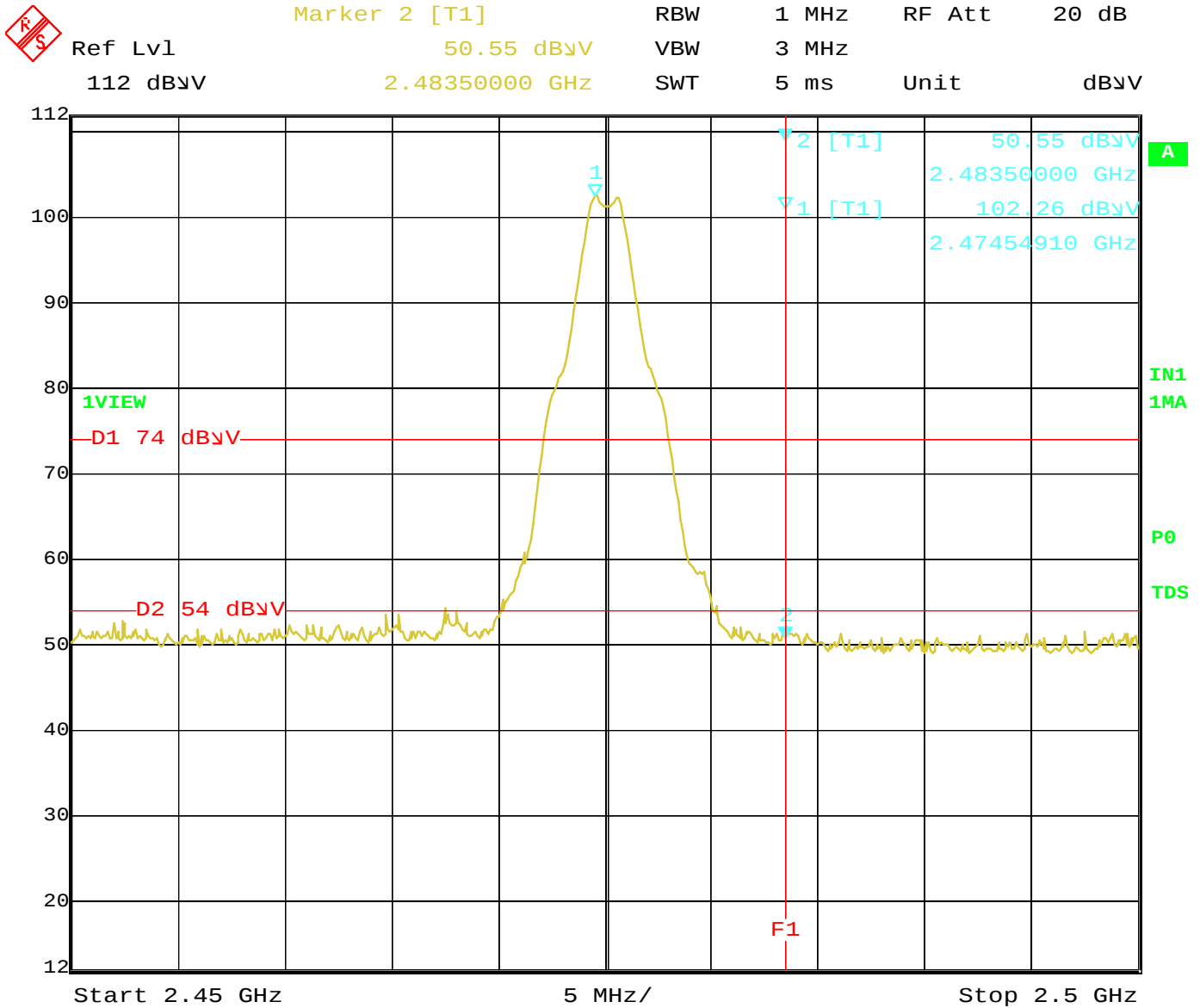
Date: 19.AUG.2014 13:23:34

Band Edge – Vertical Polarization – Low Ch – Y-Axis – Worst Case



Date: 19.AUG.2014 13:07:20

Band Edge – Vertical Polarization – High Ch – Y-Axis – Worst Case



Date: 19.AUG.2014 12:59:26

Band Edge – Horizontal Polarization – High Ch – X-Axis – Worst Case

