

**FCC PART 15 SUBPART B and C
TEST REPORT***for***COMCAST XR2 RF4CE 2 DEVCICE****MODEL: XR2****URC: URC-4268BC0-XXXX-R**

Prepared for

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DATE: FEBRUARY 07, 2012

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	16	2	2	2	13	53	88

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1	Conducted Emissions Test Setup
2	Plot Map And Layout of Radiated Test Site – 3 Meters

GENERAL REPORT SUMMARY

Compatible Electronics Inc. generates this electromagnetic emission test report, 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 endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: Comcast XR2 RF4CE 2 Device
Model: XR2
URC #: URC-4268BC0-XXXX-R
S/N: N/A

Product Description: See Expository Statement

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

Customer: Universal Electronics, Inc.
6101 Gateway Drive
Cypress, California 90630

Manufacturer: Gemstar Technology China
Shiguang Road
Zhongcun Town
Panyu Guangzhou, China 511495

Test Date(s): January 11-13 and 19, 2012

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	Conducted RF Emissions 150 kHz to 30 MHz	This test was not performed because the EUT operates on battery power only and cannot be plugged into the AC public mains.
2	Radiated RF Emissions 10 kHz to 25000 MHz (Transmitter and Digital Portion)	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.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Comcast XR2 RF4CE 2 Device, Model: XR2. 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 for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.



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.

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 Core Electrical Engineer

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer
David Tran Test Technician

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 yet been returned as of the date of this report.

2.6 Abbreviations and Acronyms

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

FCC	Federal Communications Commission
RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
N/A	Not Applicable
Ltd.	Limited
Inc.	Incorporated
NCR	No Calibration Required
R&D	Research and Development
Rx	Receive / Receiver
Tx	Transmit / Transmitter

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4: 2009	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

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Comcast XR2 RF4CE 2 Device, Model: XR2 (EUT) was tested as a stand alone unit. The EUT was continuously transmitting. The EUT had a special program that allowed the low, middle, or high channels to be tested by preselecting the channel and amplitude to be tested. The EUT was tested in three orthogonal axis.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

There were no external cables connected to the EUT.

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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
COMCAST XR2 RF4CE 2 DEVICE (EUT)	UNIVERSAL ELECTRONICS	XR2	N/A	MG3-4268

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 27, 2011	May 27, 2012
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 27, 2011	May 27, 2012
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 27, 2011	May 27, 2012
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2010	November 19, 2012
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Loop Antenna	Com-Power	AL-130	17089	January 21, 2011	January 21, 2013
Biconical Antenna	Com Power	AB-900	15250	June 8, 2011	June 8, 2012
Log Periodic Antenna	Com Power	AL-100	16252	June 8, 2011	June 8, 2012
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Horn Antenna	Com-Power	AH826	0071957	N/A	N/A
Preamplifier	Com-Power	PA-102	1017	December 28, 2011	December 28, 2012
Microwave Preamplifier	Com-Power	PA-118	181656	December 28, 2011	December 28, 2012
Microwave Preamplifier	Com-Power	PA-840	711919	March 11, 2010	March 11, 2012
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 and 7.1.2 of this report for Emissions test location.

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 not grounded.

6.3 Facility Environmental Characteristics

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

7. 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 measurement receiver was used as a measuring meter. The data was collected with the measurement receiver in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the measurement receiver's input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the measurement 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 C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

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

7.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer, along with the quasi-peak adapter, and EMI Receiver were used as a measuring meter. Amplifiers were used to increase the sensitivity of the instrument. The Com-Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, the Com-Power Microwave Preamplifier Model: PA-118 was used for frequencies from 1 GHz to 18 GHz, and the Com-Power Microwave Preamplifier Model: PA-840 were used for frequencies above 18 GHz. The spectrum analyzer and EMI Receiver were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer and EMI receiver records the highest measured reading over the sweeps.

The quasi-peak function was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

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 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antennas

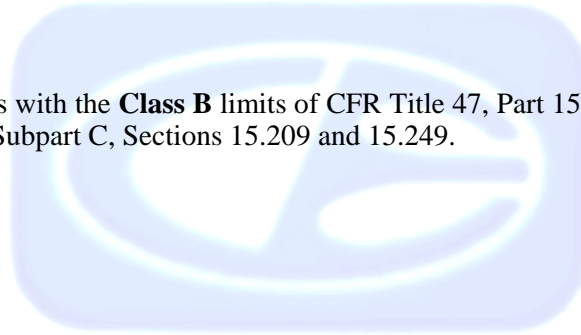
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. 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 gun sight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (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 30 MHz to 25 GHz and at a 10-meter distance from 10 kHz to 30 MHz 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.



7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
 Comcast XR2 RF4CE 2 Device, Model: XR2

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
2450 (H) (X-Axis)	91.49 (A)	94.00	-2.51
2475 (H) (X-Axis)	91.34 (A)	94.00	-2.66
2450 (V) (Y-Axis)	91.34 (A)	94.00	-2.66
2475 (V) (Y-Axis)	90.51 (A)	94.00	-3.49
2425 (V) (Y-Axis)	90.17 (A)	94.00	-3.83
2450 (H) (Z-Axis)	88.91 (A)	94.00	-5.09

Notes:

- * The complete emissions data is given in Appendix E of this report.
- A** Average Reading
- V** Vertical
- H** Horizontal

8. CONCLUSIONS

The Comcast XR2 RF4CE 2 Device, Model: XR2 (EUT), as tested, meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.





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. 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 fulfillment 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](https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <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>

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 and/or FCC **Class B** 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 XR2 RF4CE 2 Device
Model: XR2
URC #: URC-4268BC0-XXXX-R
S/N: N/A

ALSO APPROVED UNDER THIS REPORT:

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

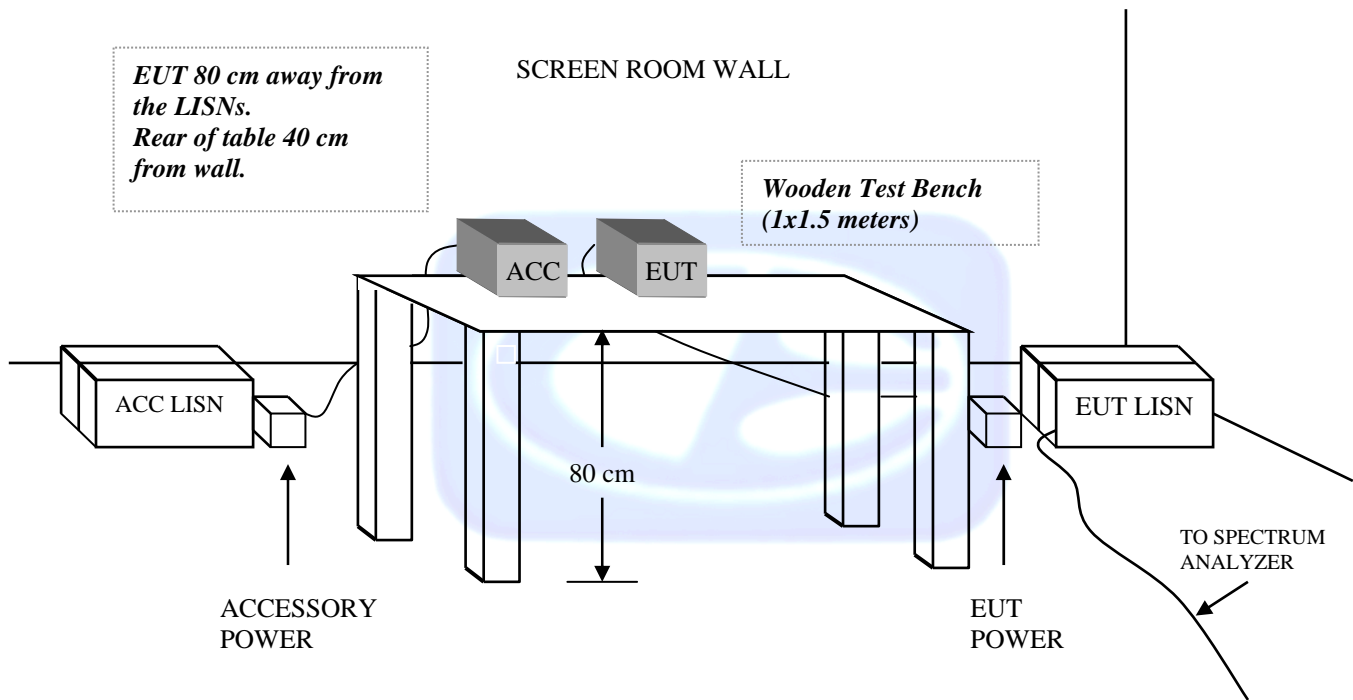
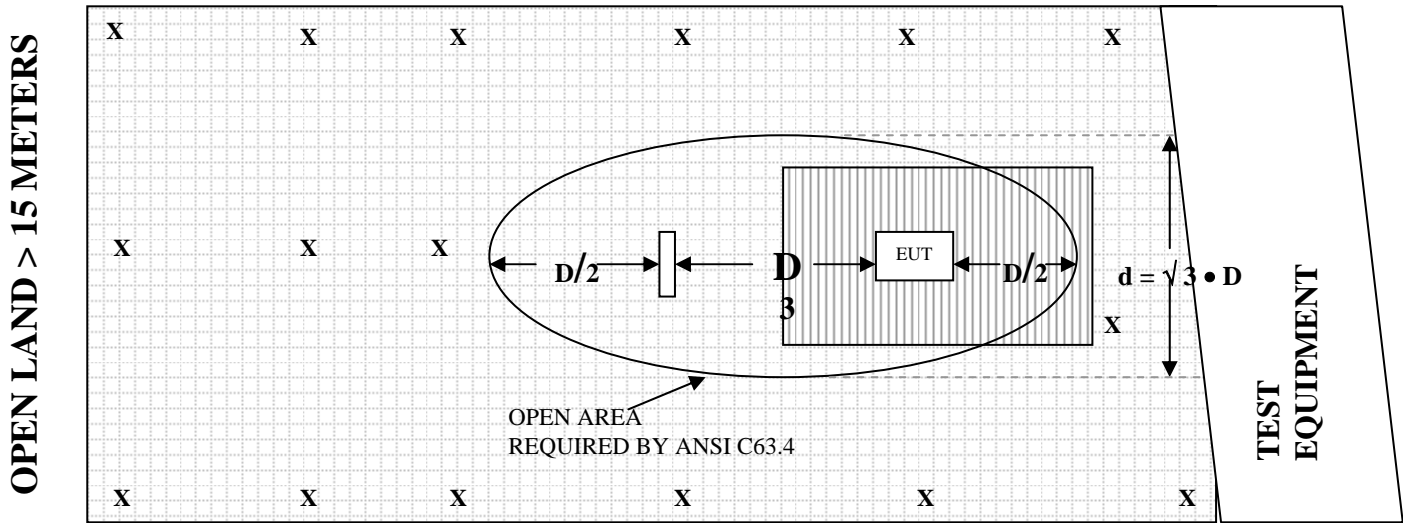


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE – 3 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

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

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

S/N: 17089

CALIBRATION DATE: JANUARY 21, 2011

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.9	9.6
0.01	-41.79	9.71
0.02	-41.43	10.07
0.05	-41.53	9.97
0.07	-41.47	10.03
0.1	-41.44	10.06
0.2	-41.61	9.89
0.3	-41.62	9.88
0.5	-41.66	9.84
0.7	-41.48	10.02
1	-41.13	10.37
2	-40.89	10.61
3	-41.00	10.50
4	-41.14	10.36
5	-41.02	10.48
10	-40.69	10.82
15	-40.41	11.09
20	-41.07	10.43
25	-42.10	9.40
30	-41.15	10.35

COM-POWER AB-900**BICONICAL ANTENNA**

S/N: 15250

CALIBRATION DATE: JUNE 8, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	10.90	100	9.50
35	11.00	120	12.10
40	11.80	140	11.40
45	11.60	160	12.40
50	11.40	180	15.70
60	9.80	200	16.20
70	7.00	250	16.10
80	5.70	300	19.00
90	7.00		

COM-POWER AL-100**LOG PERIODIC ANTENNA**

S/N: 16252

CALIBRATION DATE: JUNE 8, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.30	700	20.40
400	15.50	800	20.60
500	15.80	900	20.10
600	20.20	1000	22.80

COM POWER AH-118**HORN ANTENNA**

S/N: 071175

CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

COM-POWER AH826**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-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: DECEMBER 28, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.1	300	38.1
40	38.2	350	38.0
50	38.2	400	37.9
60	38.2	450	37.7
70	38.2	500	37.6
80	38.2	550	37.9
90	38.2	600	37.9
100	38.1	650	37.7
125	38.2	700	37.9
150	38.2	750	37.5
175	38.2	800	37.6
200	38.2	850	37.6
225	38.2	900	37.0
250	38.2	950	37.2
275	38.2	1000	36.8

COM-POWER PA-118**PREAMPLIFIER**

S/N: 181656

CALIBRATION DATE: DECEMBER 28, 2011

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.22	10.0	24.66
1.5	26.31	10.5	25.22
2.0	27.40	11.0	25.17
2.5	26.52	11.5	24.47
3.0	27.35	12.0	25.29
3.5	29.02	12.5	26.03
4.0	28.51	13.0	24.11
4.5	26.62	13.5	24.28
5.0	27.13	14.0	25.81
5.5	27.29	14.5	25.45
6.0	26.72	15.0	25.36
6.5	25.62	15.5	26.76
7.0	25.25	16.0	28.09
7.5	24.23	16.5	23.23
8.0	23.72	17.0	26.58
8.5	24.91	17.5	27.45
9.0	25.73	18.0	27.53
9.5	24.79		

COM-POWER PA-840**MICROWAVE PREAMPLIFIER**

S/N: 711919

CALIBRATION DATE: MARCH 11, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	28.05	29.5	23.78
18.5	28.35	30.0	21.88
19.0	28.27	30.5	23.42
19.5	28.62	31.0	21.24
20.0	28.67	31.5	22.69
20.5	27.96	32.0	21.59
21.0	27.76	32.5	21.09
21.5	26.91	33.0	21.22
22.0	27.19	33.5	21.38
22.5	26.90	34.0	20.21
23.0	26.90	34.5	20.89
23.5	26.43	35.0	20.18
24.0	26.75	35.5	21.23
24.5	24.96	36.0	20.99
25.0	26.56	36.5	21.09
25.5	24.75	37.0	14.63
26.0	25.13	37.5	16.74
26.5	24.79	38.0	22.62
27.0	24.54	38.5	24.14
27.5	23.72	39.0	25.97
28.0	24.34	39.5	27.40
28.5	24.01	40.0	22.69
29.0	24.96		



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XR2 RF4CE 2 DEVICE
MODEL: XR2
FCC SUBPART B AND C – RADIATED EMISSIONS

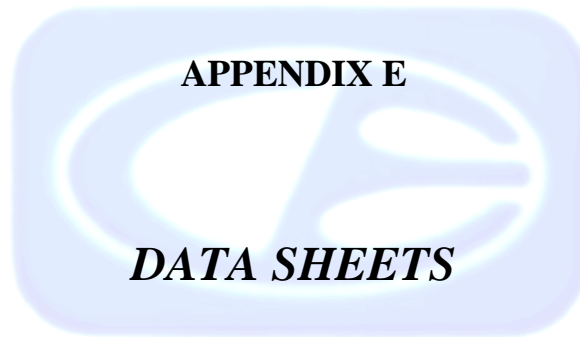
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
COMCAST XR2 RF4CE 2 DEVICE
MODEL: XR2
FCC SUBPART B AND C – RADIATED EMISSIONS

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



RADIATED EMISSIONS

DATA SHEETS

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

X-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	85.14	V	114	-28.86	Peak	1.25	155	
2425	78.99	V	94	-15.01	Avg	1.25	155	
4850	47.79	V	74	-26.21	Peak	1.25	165	
4850	37.51	V	54	-16.49	Avg	1.25	165	
7275	48.84	V	74	-25.16	Peak	1.35	175	
7275	36.09	V	54	-17.91	Avg	1.35	175	
9800								No Emission
9800								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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

X-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	89.47	H	114	-24.53	Peak	1.25	155	
2425	85.34	H	94	-8.66	Avg	1.25	155	
4850	50.94	H	74	-23.06	Peak	1.25	135	
4850	37.16	H	54	-16.84	Avg	1.25	135	
7275	52.72	H	74	-21.28	Peak	1.35	165	
7275	37.56	H	54	-16.44	Avg	1.35	165	
9800								No Emission
9800								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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Y-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	88.88	V	114	-25.12	Peak	1.25	135	
2425	84.51	V	94	-9.49	Avg	1.25	135	
4850	49.97	V	74	-24.03	Peak	1.25	155	
4850	39.61	V	54	-14.39	Avg	1.25	155	
7275	50.23	V	74	-23.77	Peak	1.25	165	
7275	36.54	V	54	-17.46	Avg	1.25	165	
9800								No Emission
9800								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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Y-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	81.19	H	114	-32.81	Peak	1.25	155	
2425	76.91	H	94	-17.09	Avg	1.25	155	
4850	48.66	H	74	-25.34	Peak	1.25	135	
4850	37.31	H	54	-16.69	Avg	1.25	135	
7275	51.39	H	74	-22.61	Peak	1.35	145	
7275	37.11	H	54	-16.89	Avg	1.35	145	
9800								No Emission Detected
9800								
12125								No Emission Detected
12125								
14550								No Emission Detected
14550								
16975								No Emission Detected
16975								
19400								No Emission Detected
19400								
21825								No Emission Detected
21825								
24250								No Emission Detected
24250								

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Z-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	83.41	V	114	-30.59	Peak	1.25	155	
2425	79.26	V	94	-14.74	Avg	1.25	155	
4850	48.49	V	74	-25.51	Peak	1.25	155	
4850	37.83	V	54	-16.17	Avg	1.25	155	
7275	51.41	V	74	-22.59	Peak	1.25	165	
7275	36.67	V	54	-17.33	Avg	1.25	165	
9800								No Emission Detected
9800								
12125								No Emission Detected
12125								
14550								No Emission Detected
14550								
16975								No Emission Detected
16975								
19400								No Emission Detected
19400								
21825								No Emission Detected
21825								
24250								No Emission Detected
24250								

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Z-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	87.86	H	114	-26.14	Peak	1.25	225	
2425	83.63	H	94	-10.37	Avg	1.25	225	
4850	47.95	H	74	-26.05	Peak	1.35	135	
4850	36.69	H	54	-17.31	Avg	1.35	135	
7275	48.44	H	74	-25.56	Peak	1.25	155	
7275	36.14	H	54	-17.86	Avg	1.25	155	
9800								No Emission
9800								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

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Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Middle Channel
X-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	83.07	V	114	-30.93	Peak	1.25	155	
2450	78.74	V	94	-15.26	Avg	1.25	155	
4900	47.13	V	74	-26.87	Peak	1.35	165	
4900	36.71	V	54	-17.29	Avg	1.35	165	
7350	53.81	V	74	-20.19	Peak	1.25	145	
7350	41.32	V	54	-12.68	Avg	1.25	145	
9800								No Emission Detected
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

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Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Middle Channel
X-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	89.85	H	114	-24.15	Peak	1.25	155	
2450	85.41	H	94	-8.59	Avg	1.25	155	
4900	48.2	H	74	-25.8	Peak	1.25	240	
4900	36.74	H	54	-17.26	Avg	1.25	240	
7350	53.29	H	74	-20.71	Peak	1.2	140	
7350	41.85	H	54	-12.15	Avg	1.2	140	
9800								No Emission
9800								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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Middle Channel
Y-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	87.85	V	114	-26.15	Peak	1.25	155	
2450	83.27	V	94	-10.73	Avg	1.25	155	
4900	50.25	V	74	-23.75	Peak	2	60	
4900	38.66	V	54	-15.34	Avg	2	60	
7350	53.92	V	74	-20.08	Peak	1.2	60	
7350	41.29	V	54	-12.71	Avg	1.2	60	
9800	55.61	V	74	-18.39	Peak	1.2	60	
9800	41.83	V	54	-12.17	Avg	1.2	60	
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Middle Channel
Y-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	82.83	H	114	-31.17	Peak	1.25	155	
2450	78.13	H	94	-15.87	Avg	1.25	155	
4900	48.36	H	74	-25.64	Peak	1.2	230	
4900	36.92	H	54	-17.08	Avg	1.2	230	
7350	52.36	H	74	-21.64	Peak	1.1	100	
7350	39.14	H	54	-14.86	Avg	1.1	100	
9800	55.21	H	74	-18.79	Peak	1.2	230	
9800	41.36	H	54	-12.64	Avg	1.2	230	
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Z-Axis – RF1 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	84.29	V	114	-29.71	Peak	1.25	225	
2450	79.77	V	94	-14.23	Avg	1.25	225	
4900	48.39	V	74	-25.61	Peak	1.25	140	
4900	37.19	V	54	-16.81	Avg	1.25	140	
7350	53	V	74	-21	Peak	1.15	270	
7350	40.68	V	54	-13.32	Avg	1.15	270	
9800	55.36	V	74	-18.64	Peak	1.3	190	
9800	41.77	V	54	-12.23	Avg	1.3	190	
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Z-Axis – RF1 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	89.22	H	114	-24.78	Peak	1.25	135	
2450	84.67	H	94	-9.33	Avg	1.25	135	
4900	46.78	H	74	-27.22	Peak	1.2	90	
4900	34.53	H	54	-19.47	Avg	1.2	90	
7350	51.08	H	74	-22.92	Peak	1.2	5	
7350	38.9	H	54	-15.1	Avg	1.2	5	
9800	55.08	H	74	-18.92	Peak	1.2	90	
9800	41.14	H	54	-12.86	Avg	1.2	90	
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

X-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	84.45	V	114	-29.55	Peak	2.25	180	
2475	79.76	V	94	-14.24	Avg	2.25	180	
4950	48.78	V	74	-25.22	Peak	1.15	0	
4950	38.06	V	54	-15.94	Avg	1.15	0	
7425	54.39	V	74	-19.61	Peak	1.25	210	
7425	42.42	V	54	-11.58	Avg	1.25	210	
9900								No Emission Detected
9900								
12125								No Emission Detected
12125								
14550								No Emission Detected
14550								
16975								No Emission Detected
16975								
19400								No Emission Detected
19400								
21825								No Emission Detected
21825								
24250								No Emission Detected
24250								

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

X-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	90.42	H	114	-23.58	Peak	1.25	155	
2475	85.58	H	94	-8.42	Avg	1.25	155	
4950	49.57	H	74	-24.43	Peak	1.1	0	
4950	39.32	H	54	-14.68	Avg	1.1	0	
7425	54.19	H	74	-19.81	Peak	1.1	180	
7425	43.17	H	54	-10.83	Avg	1.1	180	
9900	55.45	H	74	-18.55	Peak	1.3	180	
9900	42.18	H	54	-11.82	Avg	1.3	180	
12125								No Emission Detected
12125								
14550								No Emission Detected
14550								
16975								No Emission Detected
16975								
19400								No Emission Detected
19400								
21825								No Emission Detected
21825								
24250								No Emission Detected
24250								

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

Y-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	88.37	V	114	-25.63	Peak	1.25	135	
2475	83.82	V	94	-10.18	Avg	1.25	135	
4950	49.02	V	74	-24.98	Peak	1.3	140	
4950	37.81	V	54	-16.19	Avg	1.3	140	
7425	53.91	V	74	-20.09	Peak	1.25	280	
7425	42.02	V	54	-11.98	Avg	1.25	280	
9900								No Emission Detected
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

Y-Axis – RF1 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	83.24	H	114	-30.76	Peak	1.25	155	
2475	78.74	H	94	-15.26	Avg	1.25	155	
4950	48.5	H	74	-25.5	Peak	1.15	5	
4950	37.44	H	54	-16.56	Avg	1.15	5	
7425	53.39	H	74	-20.61	Peak	1.2	210	
7425	39.87	H	54	-14.13	Avg	1.2	210	
9900								No Emission Detected
9900								
12125								No Emission Detected
12125								
14550								No Emission Detected
14550								
16975								No Emission Detected
16975								
19400								No Emission Detected
19400								
21825								No Emission Detected
21825								
24250								No Emission Detected
24250								

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Z-Axis – RF1 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	85.51	V	114	-28.49	Peak	1.25	155	
2475	80.87	V	94	-13.13	Avg	1.25	155	
4950	49.38	V	74	-24.62	Peak	1.05	180	
4950	38.26	V	54	-15.74	Avg	1.05	180	
7425	53.61	V	74	-20.39	Peak	1.1	180	
7425	41.77	V	54	-12.23	Avg	1.1	180	
9900	54.26	V	74	-19.74	Peak	1.15	180	
9900	41.62	V	54	-12.38	Avg	1.15	180	
12125								No Emission Detected
14550								No Emission Detected
16975								No Emission Detected
19400								No Emission Detected
21825								No Emission Detected
24250								No Emission Detected

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Z-Axis – RF1 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	89.69	H	114	-24.31	Peak	1.25	155	
2475	85.03	H	94	-8.97	Avg	1.25	155	
4950	48.05	H	74	-25.95	Peak	1.15	15	
4950	36.96	H	54	-17.04	Avg	1.15	15	
7425	55.62	H	74	-18.38	Peak	1.15	330	
7425	43.89	H	54	-10.11	Avg	1.15	330	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/12/2012
 Lab: B & D
 Tested By: David Tran

**Radiated Emissions 10 kHz to 25
 GHz
 RF1 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Comments
						No Emissions Detected
						from 10 kHz to 25 GHz
						for the Non-Harmonic
						Emissions from the
						EUT for both the Vertical and
						Horizontal Polarizations.

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

X-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	82.27	V	114	-31.73	Peak	1.25	135	
2425	77.67	V	94	-16.33	Avg	1.25	135	
4850	46.59	V	74	-27.41	Peak	1.25	155	
4850	34.41	V	54	-19.59	Avg	1.25	155	
7275	46.91	V	74	-27.09	Peak	1.25	135	
7275	36.28	V	54	-17.72	Avg	1.25	135	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

X-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	90.92	H	114	-23.08	Peak	1.25	155	
2425	86.48	H	94	-7.52	Avg	1.25	155	
4850	49.36	H	74	-24.64	Peak	1.35	165	
4850	38.52	H	54	-15.48	Avg	1.35	165	
7275	51.74	H	74	-22.26	Peak	1.25	175	
7275	36.99	H	54	-17.01	Avg	1.25	175	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Y-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	94.35	V	114	-19.65	Peak	1	45	
2425	90.17	V	94	-3.83	Avg	1	45	
4850	47.54	V	74	-26.46	Peak	1.25	155	
4850	35.72	V	54	-18.28	Avg	1.25	155	
7275	49.06	V	74	-24.94	Peak	1.25	135	
7275	36.16	V	54	-17.84	Avg	1.25	135	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Y-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	86.56	H	114	-27.44	Peak	1.25	135	
2425	82.16	H	94	-11.84	Avg	1.25	135	
4850	47.65	H	74	-26.35	Peak	1.25	155	
4850	37.82	H	54	-16.18	Avg	1.25	155	
7275	52.19	H	74	-21.81	Peak	1.35	165	
7275	37.93	H	54	-16.07	Avg	1.35	165	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

Low Channel

Z-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	90.31	V	114	-23.69	Peak	1.25	45	
2425	86.08	V	94	-7.92	Avg	1.25	45	
4850	49.09	V	74	-24.91	Peak	1.25	135	
4850	38.52	V	54	-15.48	Avg	1.25	135	
7275	52.61	V	74	-21.39	Peak	1.35	145	
7275	38.51	V	54	-15.49	Avg	1.35	145	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Low Channel
 Z-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2425	91.38	H	114	-22.62	Peak	1.25	0	
2425	87	H	94	-7	Avg	1.25	0	
4850	46.65	H	74	-27.35	Peak	1.25	135	
4850	36.17	H	54	-17.83	Avg	1.25	135	
7275	48.19	H	74	-25.81	Peak	1.35	165	
7275	36.18	H	54	-17.82	Avg	1.35	165	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 X-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	81.15	V	114	-32.85	Peak	2	155	
2450	76.75	V	94	-17.25	Avg	2	155	
4900	46.29	V	74	-27.71	Peak	1.25	155	
4900	34.24	V	54	-19.76	Avg	1.25	155	
7350	53.93	V	74	-20.07	Peak	1.35	165	
7350	40.42	V	54	-13.58	Avg	1.35	165	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 X-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	95.75	H	114	-18.25	Peak	1.25	135	
2450	91.49	H	94	-2.51	Avg	1.25	135	
4900	46.01	H	74	-27.99	Peak	1.25	165	
4900	35.52	H	54	-18.48	Avg	1.25	165	
7350	48.52	H	74	-25.48	Peak	1.35	175	
7350	36.66	H	54	-17.34	Avg	1.35	175	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Y-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	95.48	V	114	-18.52	Peak	1	45	
2450	91.34	V	94	-2.66	Avg	1	45	
4900	45.35	V	74	-28.65	Peak	1.25	135	
4900	32.57	V	54	-21.43	Avg	1.25	135	
7350	48.26	V	74	-25.74	Peak	1.35	155	
7350	36.66	V	54	-17.34	Avg	1.35	155	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Y-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	86.63	H	114	-27.37	Peak	1.25	155	
2450	82.12	H	94	-11.88	Avg	1.25	155	
4900	44.59	H	74	-29.41	Peak	1.25	165	
4900	33.06	H	54	-20.94	Avg	1.25	165	
7350	48.23	H	74	-25.77	Peak	1.35	175	
7350	36.58	H	54	-17.42	Avg	1.35	175	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Z-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	90.63	V	114	-23.37	Peak	1.25	45	
2450	86.47	V	94	-7.53	Avg	1.25	45	
4900	47.31	V	74	-26.69	Peak	1.35	165	
4900	35.27	V	54	-18.73	Avg	1.35	165	
7350	49.11	V	74	-24.89	Peak	1.25	175	
7350	36.42	V	54	-17.58	Avg	1.22	175	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**Middle Channel
 Z-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	93.22	H	114	-20.78	Peak	1.25	155	
2450	88.91	H	94	-5.09	Avg	1.25	155	
4900	45.62	H	74	-28.38	Peak	1.25	135	
4900	34.21	H	54	-19.79	Avg	1.25	135	
7350	48.46	H	74	-25.54	Peak	1.35	165	
7350	37.69	H	54	-16.31	Avg	1.35	165	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

X-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	82.44	V	114	-31.56	Peak	1.25	155	
2475	74.43	V	94	-19.57	Avg	1.25	155	
4950	47.34	V	74	-26.66	Peak	1.25	165	
4950	36.39	V	54	-17.61	Avg	1.25	165	
7425	52.28	V	74	-21.72	Peak	1.25	135	
7425	38.26	V	54	-15.74	Avg	1.25	135	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

X-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	95.65	H	114	-18.35	Peak	1	135	
2475	91.34	H	94	-2.66	Avg	1	135	
4950	45.58	H	74	-28.42	Peak	1.25	155	
4950	34.63	H	54	-19.37	Avg	1.25	155	
7425	51.97	H	74	-22.03	Peak	1.35	165	
7425	37.66	H	54	-16.34	Avg	1.35	165	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

Y-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	94.88	V	114	-19.12	Peak	1.25	135	
2475	90.51	V	94	-3.49	Avg	1.25	135	
4950	46.68	V	74	-27.32	Peak	1.35	125	
4950	35.18	V	54	-18.82	Avg	1.35	125	
7425	48.76	V	74	-25.24	Peak	1.25	155	
7425	36.81	V	54	-17.19	Avg	1.25	155	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

High Channel

Y-Axis - RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	84.46	H	114	-29.54	Peak	1.35	165	
2475	80.34	H	94	-13.66	Avg	1.35	165	
4950	45.49	H	74	-28.51	Peak	1.25	165	
4950	32.52	H	54	-21.48	Avg	1.25	165	
7425	49.25	H	74	-24.75	Peak	1.35	175	
7425	36.74	H	54	-17.26	Avg	1.35	175	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Z-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	90.54	V	114	-23.46	Peak	1	225	
2475	85.71	V	94	-8.29	Avg	1	225	
4950	46.28	V	74	-27.72	Peak	1.25	155	
4950	34.87	V	54	-19.13	Avg	1.25	155	
7425	49.57	V	74	-24.43	Peak	1.35	165	
7425	36.72	V	54	-17.28	Avg	1.35	165	
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.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

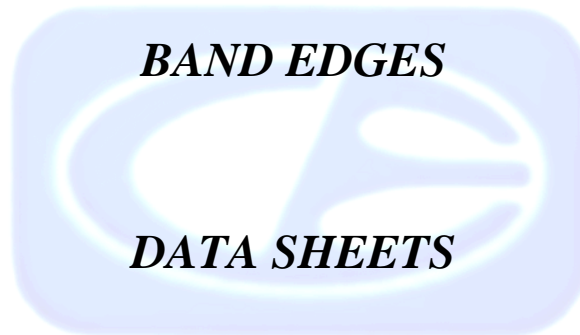
Date: 01/11/2012
 Lab: B
 Tested By: Kyle Fujimoto

**High Channel
 Z-Axis - RF2 - 0 dBm**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475	90.11	H	114	-23.89	Peak	1.25	155	
2475	85.94	H	94	-8.06	Avg	1.25	155	
4950	44.84	H	74	-29.16	Peak	1.25	155	
4950	34.58	H	54	-19.42	Avg	1.25	155	
7425	48.74	H	74	-25.26	Peak	1.35	165	
7425	36.78	H	54	-17.22	Avg	1.35	165	
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 15.249Universal Electronics, Inc.
Comcast XR2 RF4CE 2 Device
Model: XR2Date: 01/12/2012
Lab: B & D
Tested By: David Tran**Radiated Emissions 10 kHz to 25 GHz**
RF2 - 0 dBm

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Comments
						No Emissions Detected
						from 10 kHz to 25 GHz
						for the Non-Harmonic
						Emissions from the
						EUT for both the Vertical and
						Horizontal Polarizations.



FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/19/2012
 Lab: B
 Tested By: David Tran

**Band Edge – Vertical Polarization
 RF1 - 0 dBm**

Axis of EUT	Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
Y-AXIS	2425	88.85	V	114	-25.15	Peak	1.25	135	Fundamental of
Y-AXIS	2425	84.38	V	94	-9.62	Avg	1.25	135	Low Channel @ 3 Meters
	2400	36.94	V	74	-37.06	Peak	1.25	135	Band Edge of
	2400	26.10	V	54	-27.90	Avg	1.25	135	Low Channel @ 3 Meters
Y-AXIS	2475	88.35	V	114	-25.65	Peak	1.25	135	Fundamental of
Y-AXIS	2475	83.83	V	94	-10.17	Avg	1.25	135	High Channel @ 3 Meters
	2483.5	42.93	V	74	-31.07	Peak	1.25	135	Band Edge of
	2483.5	30.81	V	54	-23.19	Avg	1.25	135	High Channel @ 3 Meters

FCC 15.249

Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

Date: 01/19/2012
 Lab: B
 Tested By: David Tran

**Band Edge – Horizontal Polarization
 RF1 - 0 dBm**

Axis of EUT	Freq. (MHz)	Level (dBUV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
X-AXIS	2425	89.39	H	114	-24.61	Peak	1.25	155	Fundamental of
X-AXIS	2425	85.29	H	94	-8.71	Avg	1.25	155	Low Channel @ 3 Meters
	2400	36.88	H	74	-37.12	Peak	1.25	155	Band Edge of
	2400	26.47	H	54	-27.53	Avg	1.25	155	Low Channel @ 3 Meters
X-AXIS	2475	90.39	H	114	-23.61	Peak	1.25	155	Fundamental of
X-AXIS	2475	85.58	H	94	-8.42	Avg	1.25	155	High Channel @ 3 Meters
	2483.5	45.11	H	74	-28.89	Peak	1.25	155	Band Edge of
	2483.5	32.13	H	54	-21.87	Avg	1.25	155	High Channel @ 3 Meters

FCC 15.249

Universal Electronics, Inc.
Comcast XR2 RF4CE 2 Device
Model: XR2

Date: 01/19/2012
Lab: B
Tested By: David Tran

**Band Edge – Vertical Polarization
RF2 - 0 dBm**

Axis of EUT	Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
Y-AXIS	2425	94.17	V	114	-19.83	Peak	1	45	Fundamental of
Y-AXIS	2425	90.18	V	94	-3.82	Avg	1	45	Low Channel @ 3 Meters
	2400	37.74	V	74	-36.26	Peak	1	45	Band Edge of
	2400	26.57	V	54	-27.43	Avg	1	45	Low Channel @ 3 Meters
Y-AXIS	2475	94.88	V	114	-19.12	Peak	1.25	135	Fundamental of
Y-AXIS	2475	90.46	V	94	-3.54	Avg	1.25	135	High Channel @ 3 Meters
	2483.5	47.91	V	74	-26.09	Peak	1.25	135	Band Edge of
	2483.5	35.91	V	54	-18.09	Avg	1.25	135	High Channel @ 3 Meters

FCC 15.249

 Universal Electronics, Inc.
 Comcast XR2 RF4CE 2 Device
 Model: XR2

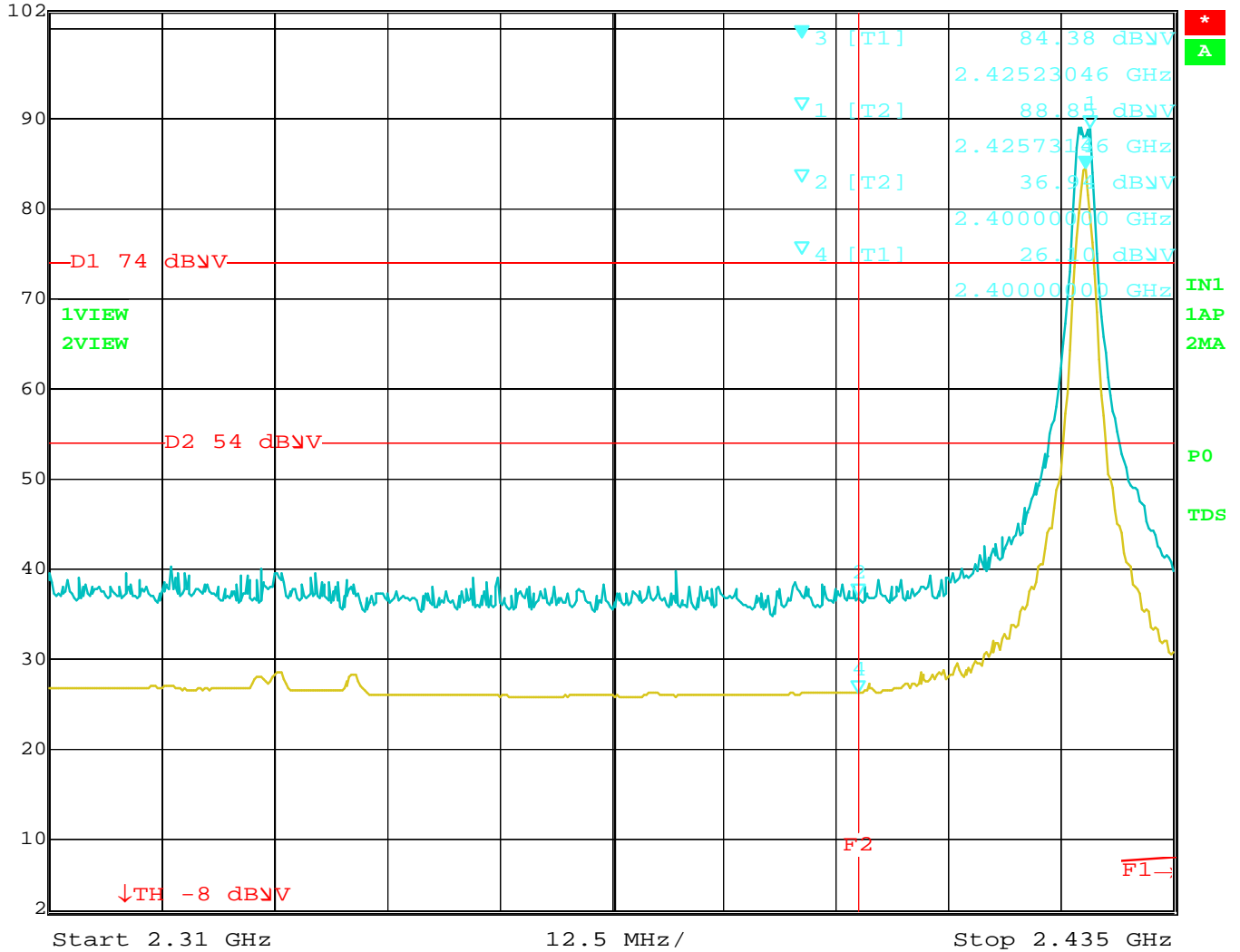
 Date: 01/19/2012
 Lab: B
 Tested By: David Tran

**Band Edge – Horizontal Polarization
 RF2 - 0 dBm**

Axis of EUT	Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
Z-AXIS	2425	91.34	H	114	-22.66	Peak	1.25	0	Fundamental of
Z-AXIS	2425	87.04	H	94	-6.96	Avg	1.25	0	Low Channel @ 3 Meters
	2400	35.62	H	74	-38.38	Peak	1.25	0	Band Edge of
	2400	26.43	H	54	-27.57	Avg	1.25	0	Low Channel @ 3 Meters
X-AXIS	2475	95.58	H	114	-18.42	Peak	1	135	Fundamental of
X-AXIS	2475	91.21	H	94	-2.79	Avg	1	135	High Channel @ 3 Meters
	2483.5	47.89	H	74	-26.11	Peak	1	135	Band Edge of
	2483.5	35.72	H	54	-18.28	Avg	1	135	High Channel @ 3 Meters



Marker 3 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 84.38 dBV VBW 10 Hz
 102 dBV 2.42523046 GHz SWT 32 s Unit dBV

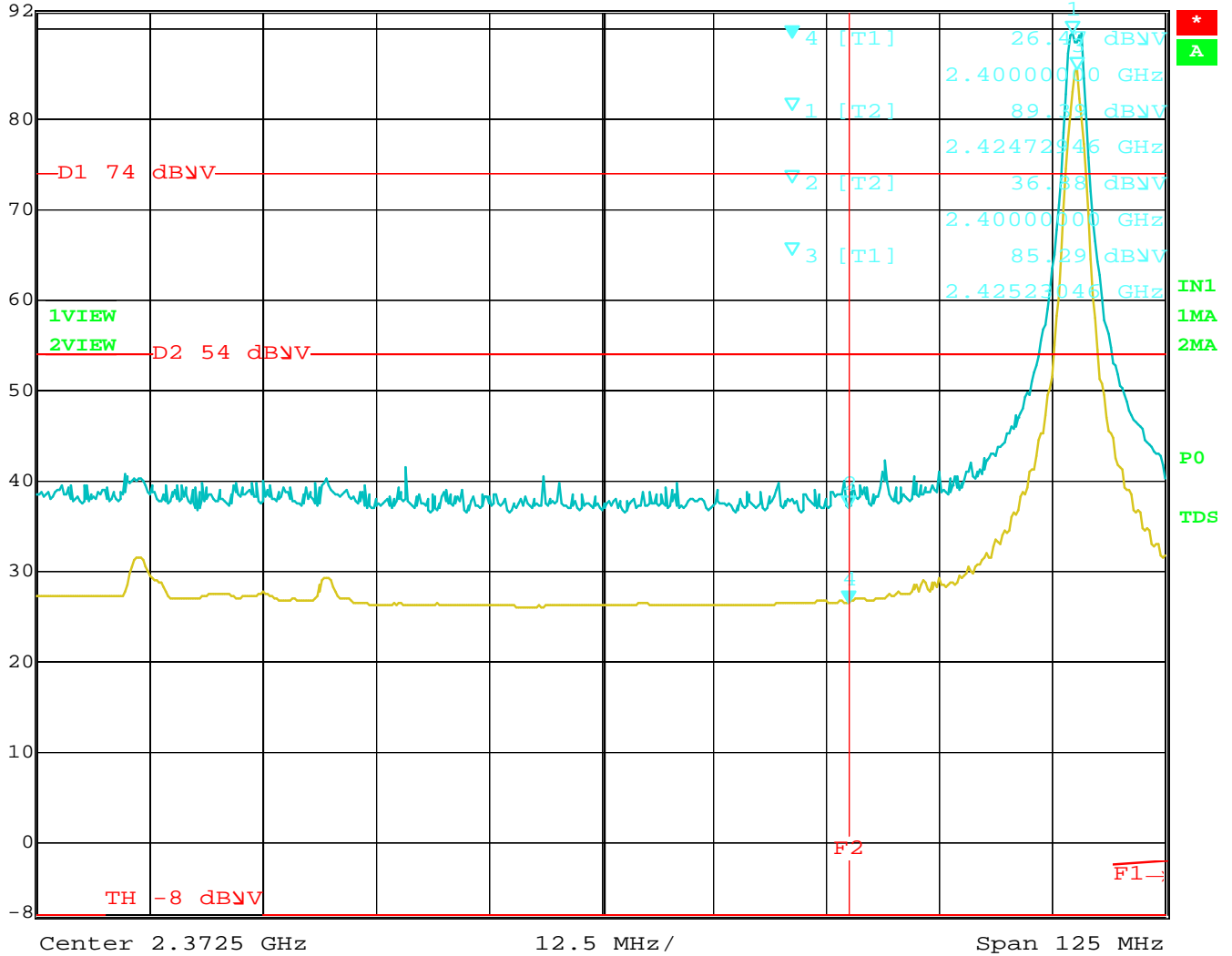


Date: 19.JAN.2012 12:30:42

RF1 - Band Edge - Low Channel - Vertical Polarization - Y-Axis Worst Case



Marker 4 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 26.47 dBV VBW 10 Hz
 92 dBV 2.4000000 GHz SWT 32 s Unit dBV

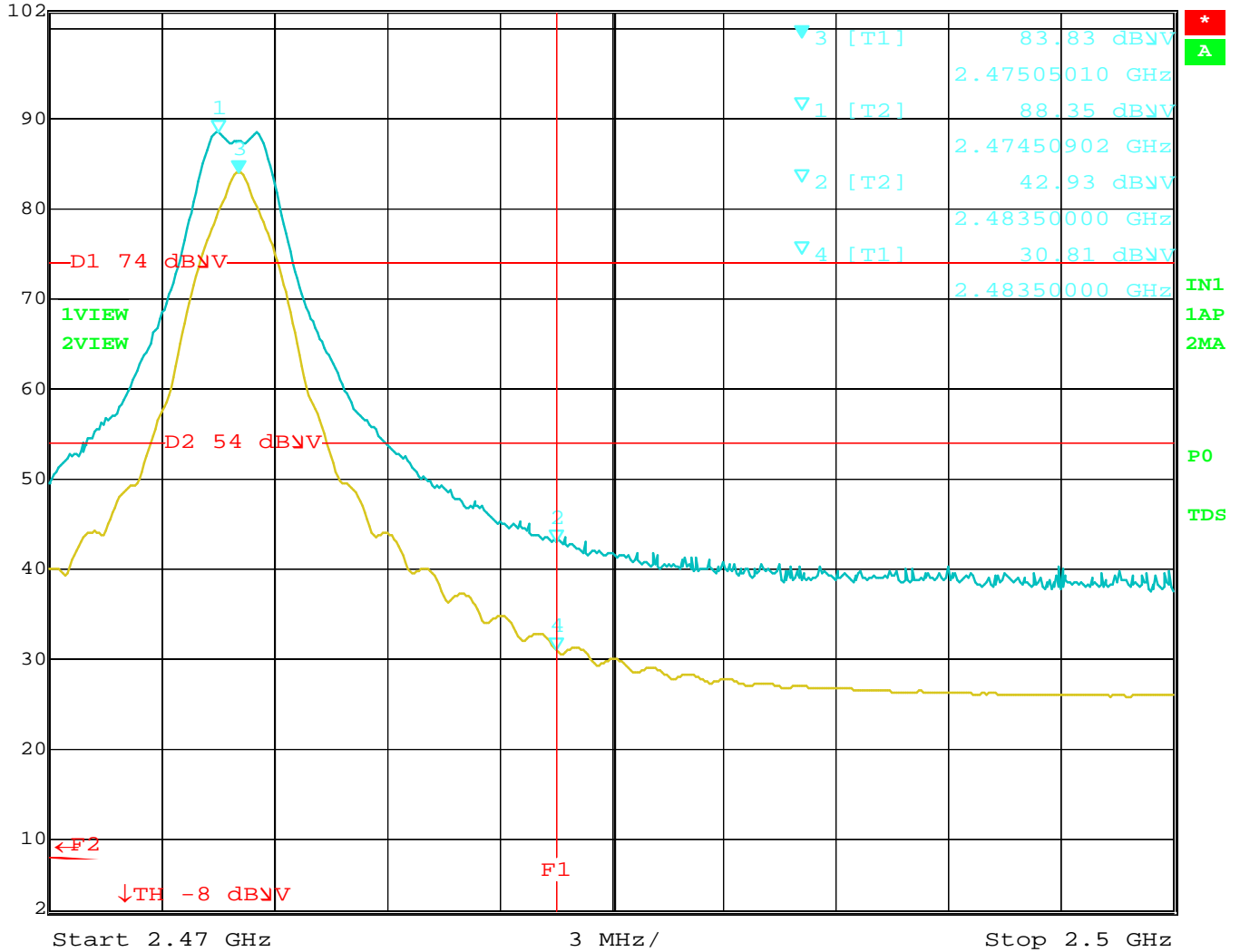


Date: 19.JAN.2012 10:52:56

RF1 - Band Edge - Low Channel - Horizontal Polarization - X-Axis Worst Case

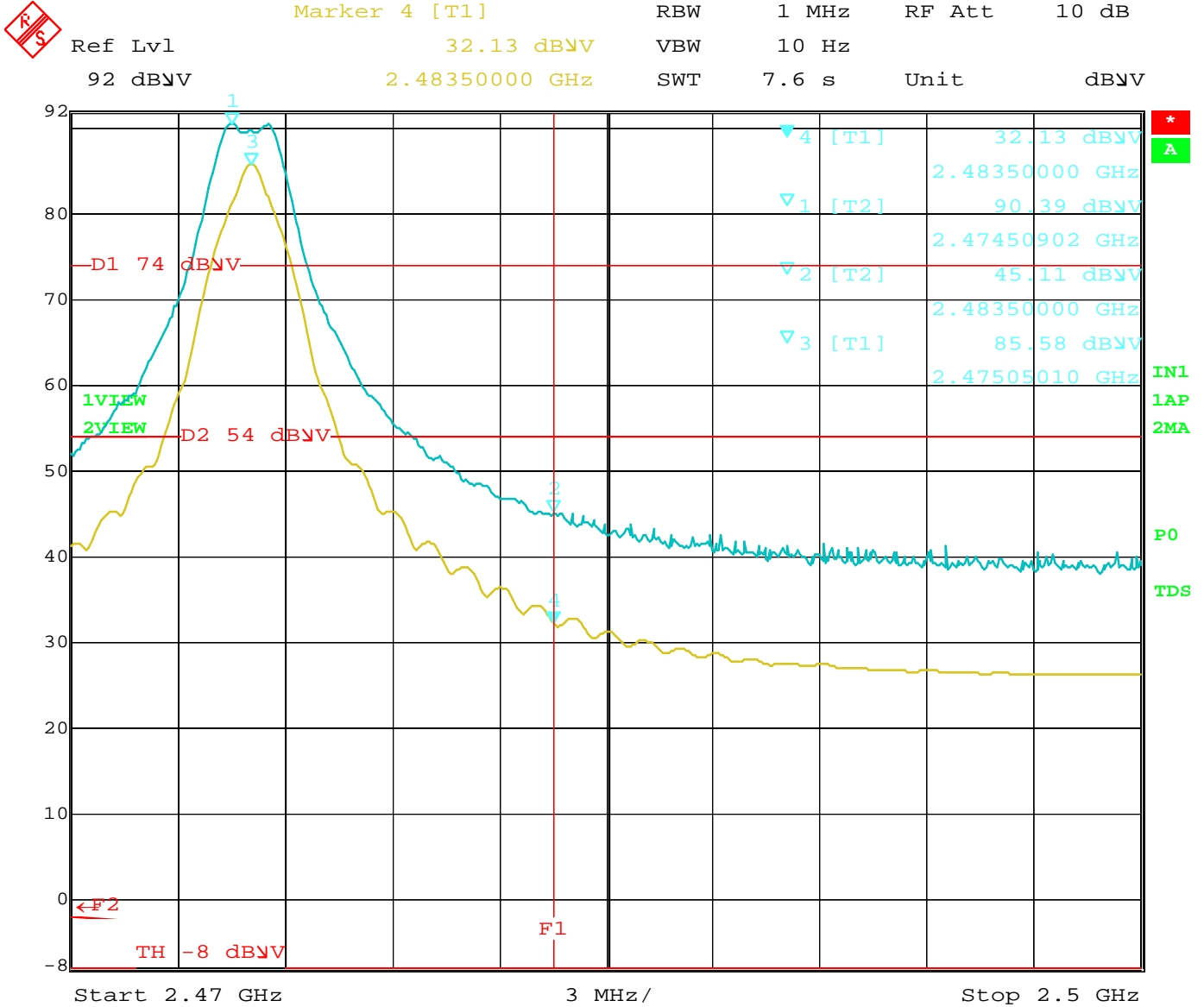


Marker 3 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 83.83 dBV VBW 10 Hz
 102 dBV 2.47505010 GHz SWT 7.6 s Unit dBV



Date: 19.JAN.2012 12:43:56

RF1 - Band Edge - High Channel - Vertical Polarization - Y-Axis Worst Case

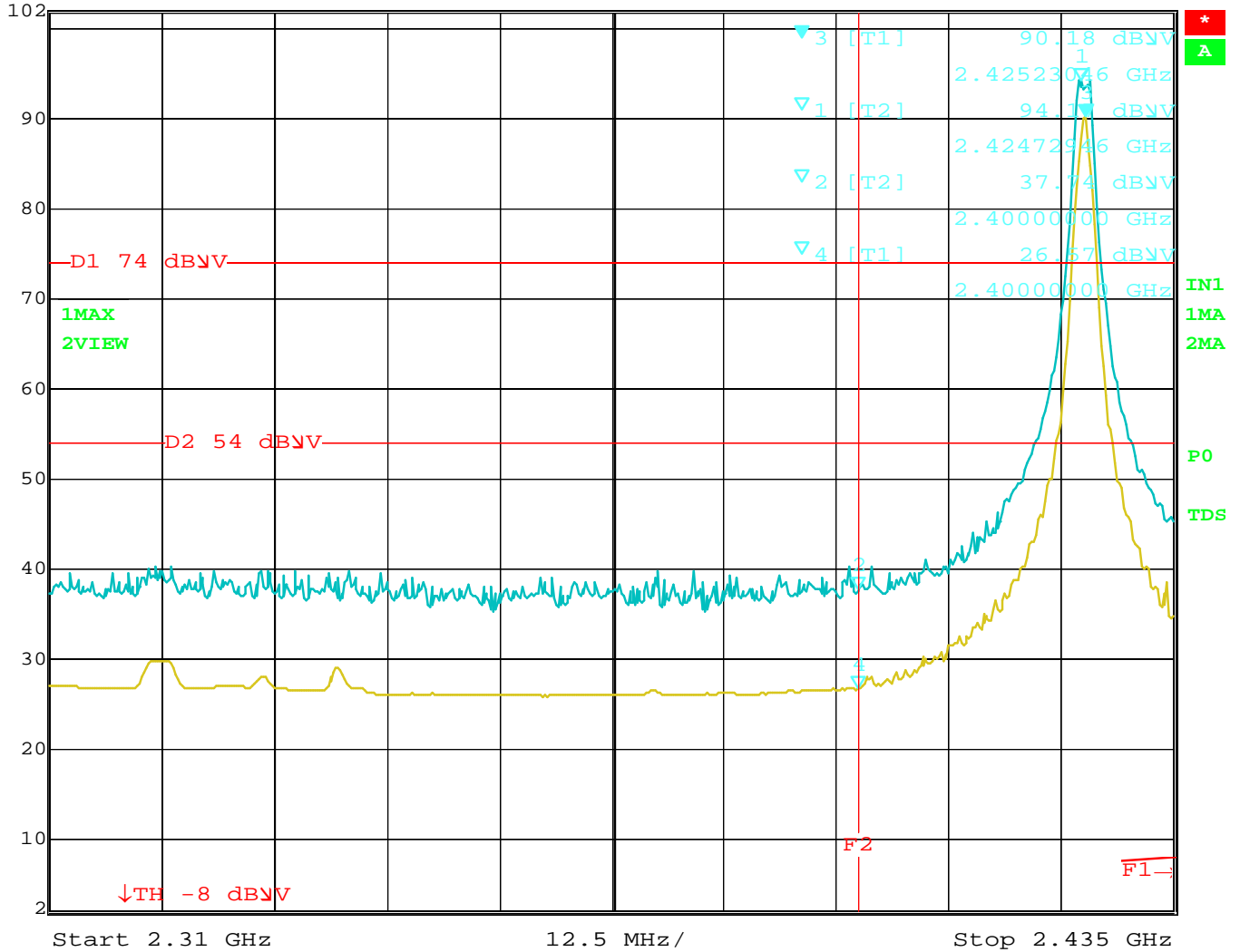


Date: 19.JAN.2012 11:08:29

RF1 - Band Edge - High Channel - Horizontal Polarization - X-Axis Worst Case



Marker 3 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 90.18 dBV VBW 10 Hz
 102 dBV 2.42523046 GHz SWT 32 s Unit dBV

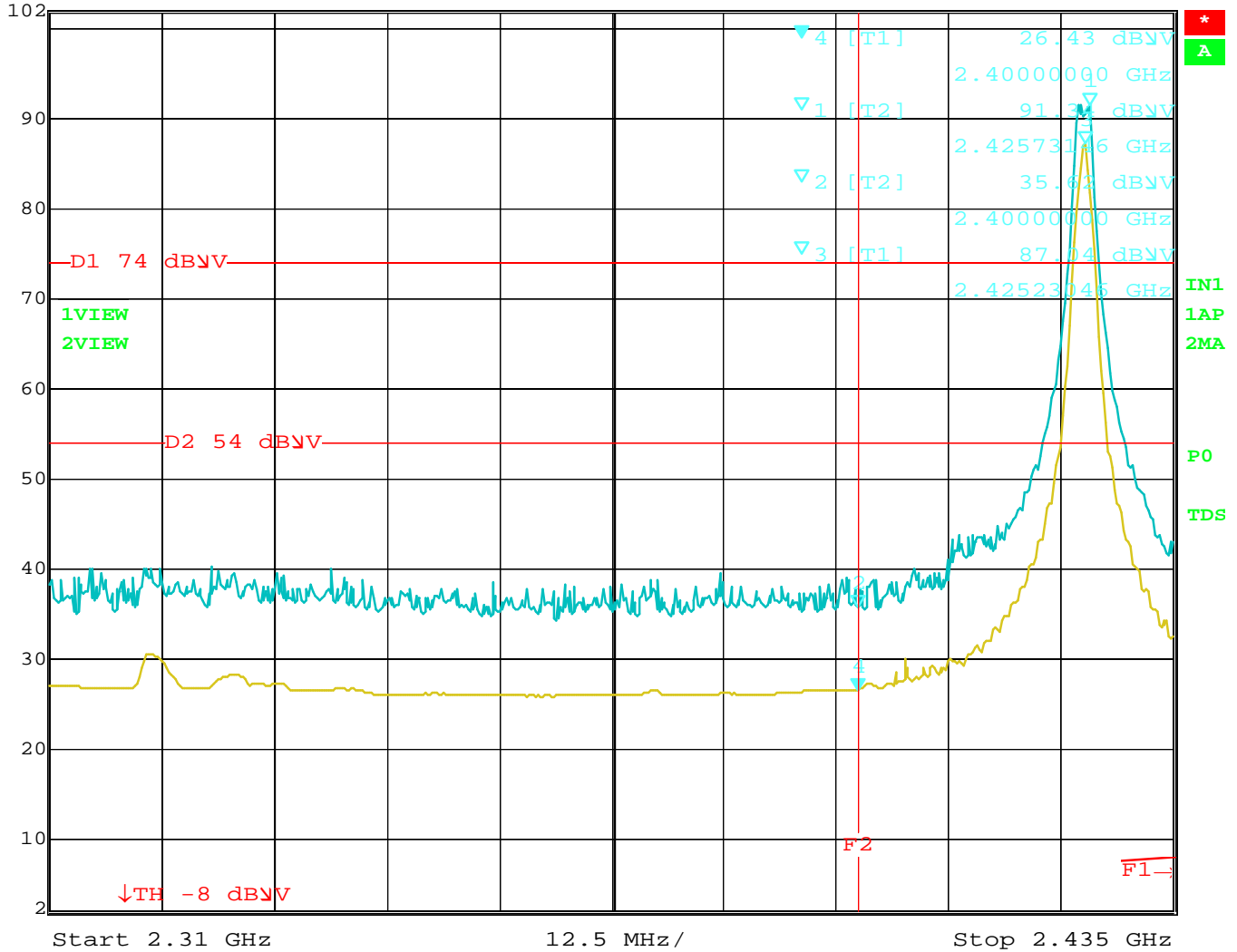


Date: 19.JAN.2012 12:17:50

RF2 - Band Edge – Low Channel – Vertical Polarization – Y-Axis Worst Case



Marker 4 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 26.43 dBV VBW 10 Hz
 102 dBV 2.4000000 GHz SWT 32 s Unit dBV

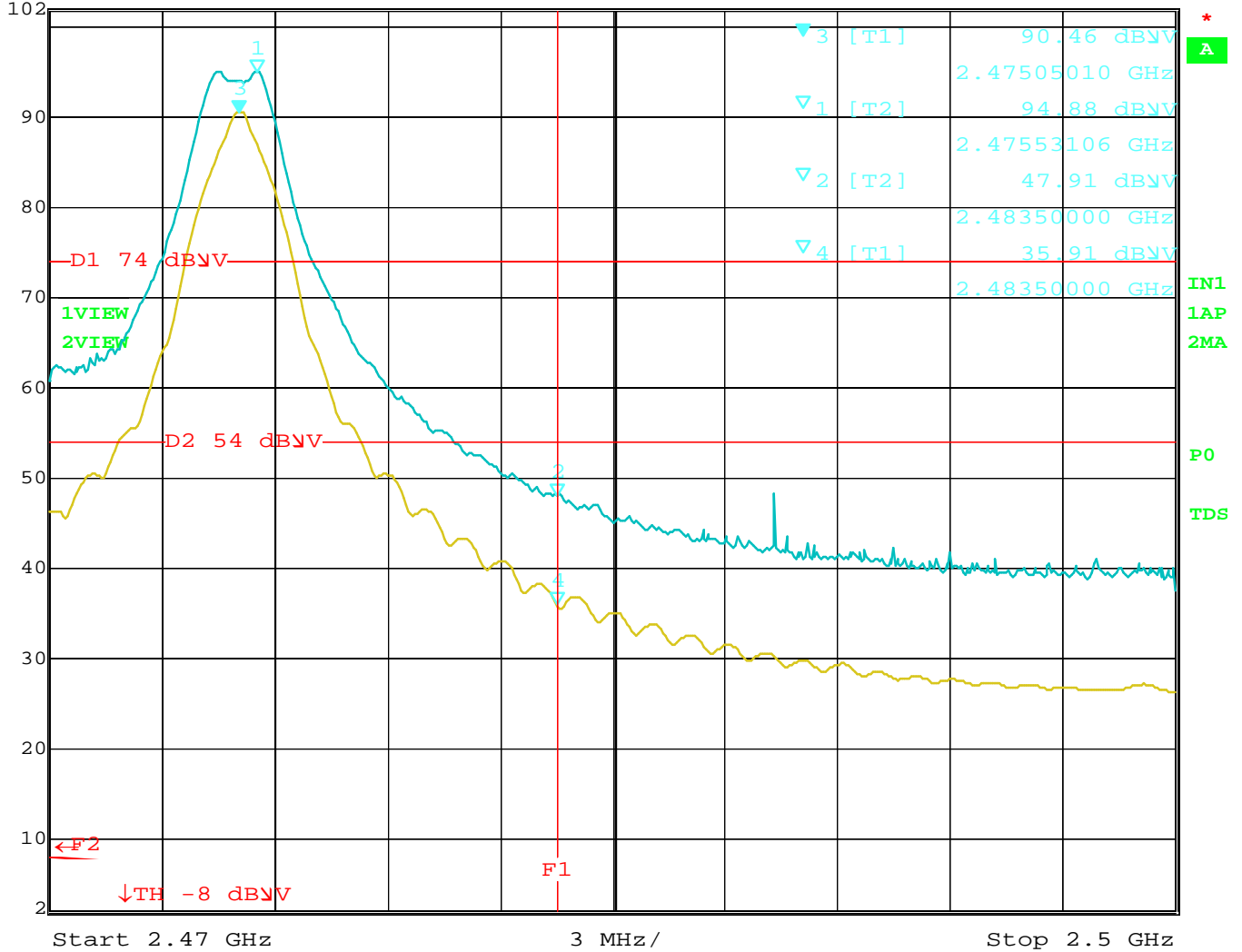


Date: 19.JAN.2012 11:38:44

RF2 - Band Edge - Low Channel - Horizontal Polarization - Z-Axis Worst Case



Marker 3 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 90.46 dBV VBW 10 Hz
 102 dBV 2.47505010 GHz SWT 7.6 s Unit dBV

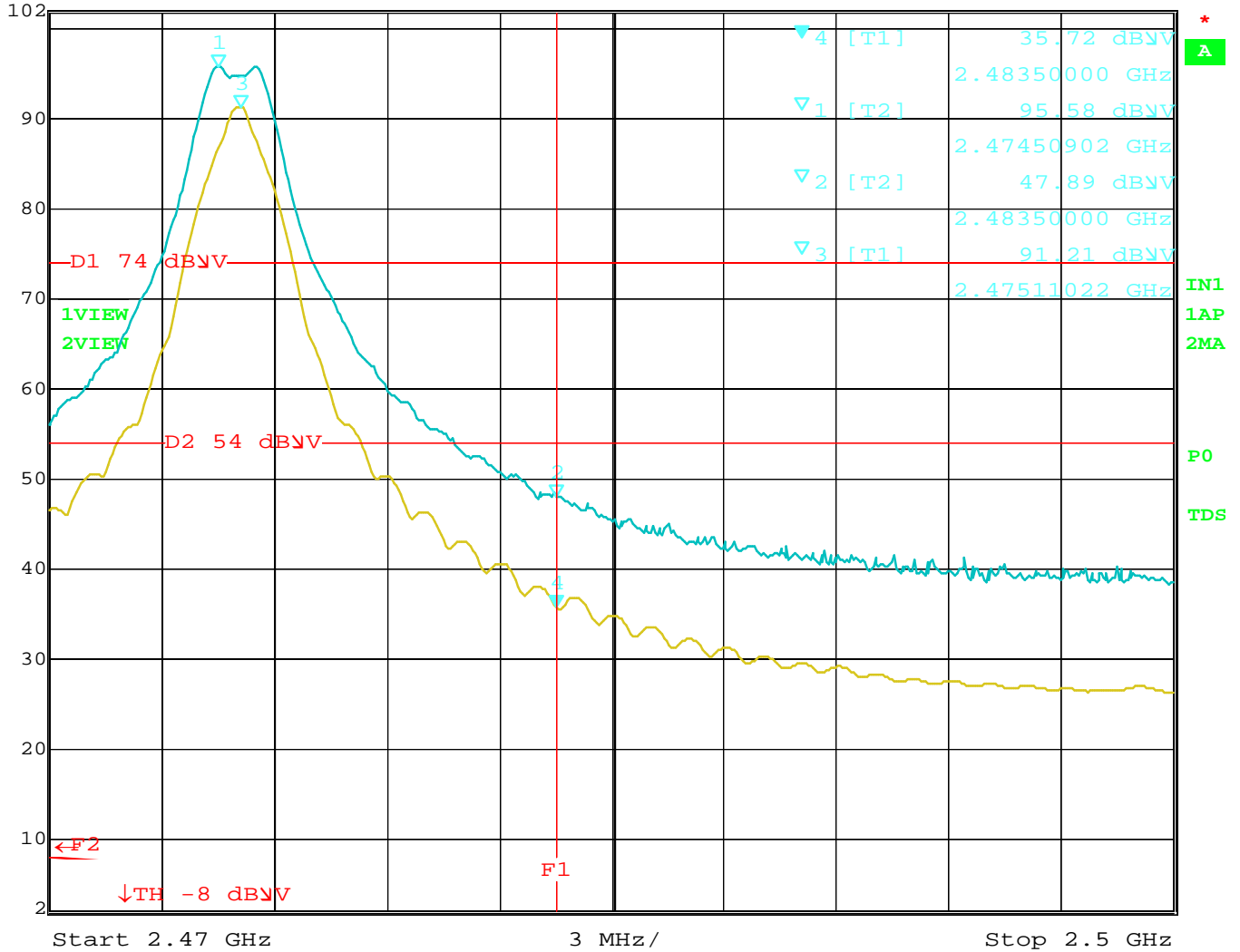


Date: 19.JAN.2012 12:51:53

RF2 - Band Edge - High Channel - Vertical Polarization - Y-Axis Worst Case



Marker 4 [T1] RBW 1 MHz RF Att 10 dB
 Ref Lvl 35.72 dBV VBW 10 Hz
 102 dBV 2.48350000 GHz SWT 7.6 s Unit dBV



Date: 19.JAN.2012 11:15:58

RF2 - Band Edge - High Channel - Horizontal Polarization - X-Axis Worst Case