

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

for

ECHOSTAR SAGE ZHA REMOTE 2014

MODEL: URC-2001BC0-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: FEBURARY 18, 2015

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	16	2	2	2	13	37	72

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government.

Device Tested: EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R
EchoStar model number: 36.0
EchoStar PN: 205227
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: January 30, 2015 and February 13, 2015

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

Test Procedure: ANSI C63.4

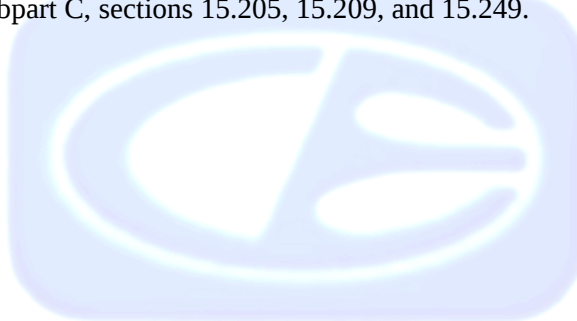
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 10 kHz – 25,000 MHz (Transmitter and Digital portion)	Complies with the Class B limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.249
2	Conducted RF Emissions, 150 kHz to 30 MHz	This test was not performed because the EUT operates on battery power and does not connect to the AC mains.

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the EchoStar Sage ZHA Remote 2014, Model: URC-2001BC0-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.

Kyle Fujimoto

Test Engineer

James Ross

Test Engineer

Kenneth Lee

Test Technician

2.4 Date Test Sample was Received

The test sample was received on January 30, 2015.

2.5 Disposition of the Test Sample

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

2.6 Abbreviations and Acronyms

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

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

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
EN 50147-2: 1997	Anechoic chambers. Alternative test site suitability with respect to site attenuation
CISPR 22: 2008	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement

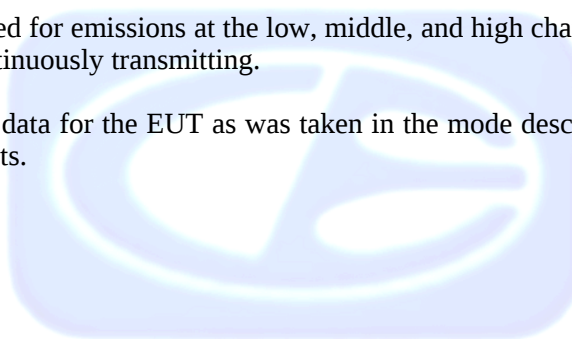
4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The EchoStar Sage ZHA Remote 2014, Model: URC-2001BC0-R (EUT) is a remote control that is powered by two AA 1.5 VDC batteries.

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

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



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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
ECHOSTAR SAGE ZHA REMOTE 2014	UNIVERSAL ELECTRONICS, INC.	URC-2001BC0-R ECHOSTAR MODEL NUMBER 36.0	P/N: 205227	MG3-2001A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	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	December 4, 2014	1 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 15, 2015	1 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2014	2 Year
Loop Antenna	Com-Power	AL-130	17089	February 6, 2015	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 26, 2014	2 Year
Horn Antenna	Com-Power	AH-826	0071957	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A

6. TEST SITE DESCRIPTION

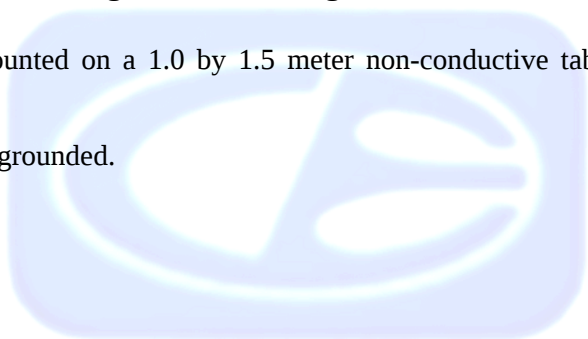
6.1 Test Facility Description

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

6.2 EUT Mounting, Bonding and Grounding

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 and the PA 840 for frequencies above 18 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 $20 \log(\text{dwell time} / 100 \text{ ms})$. This duty cycle correction factor was then subtracted from the peak reading.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
1 GHz to 18 GHz	1 MHz	Horn Antenna
18 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 (con't)

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.

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 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 with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

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, EN 50147-2 and CISPR 22. 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

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
EchoStar Sage ZHA Remote 2014, Model: URC-2001BC0-R

Frequency MHz	Average Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
4820 (H) (Z-Axis) (Low Channel)	53.53	54	-0.47
4820 (V) (Y-Axis) (Low Channel)	53.39	54	-0.61
4820 (H) (X-Axis) (Low Channel)	52.45	54	-1.55
4900 (V) (Y-Axis) (Middle Channel)	51.91	54	-2.09
4900 (H) (Z-Axis) (Middle Channel)	51.79	54	-2.21
4960 (V) (Y-Axis) (High Channel)	51.64	54	-2.36

Notes:

(H) Horizontal

(V) Vertical

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

8. CONCLUSIONS

The EchoStar Sage ZHA Remote 2014, Model: URC-2001BC0-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



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

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

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

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



ANSI listing [CETCB](#)



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

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



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

APEC MRA list [NIST MRA site](#)

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



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



FCC Listing, from FCC OET site

[FCC test lab search](#) <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***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R
S/N: N/A

There were no additional models covered under this report.

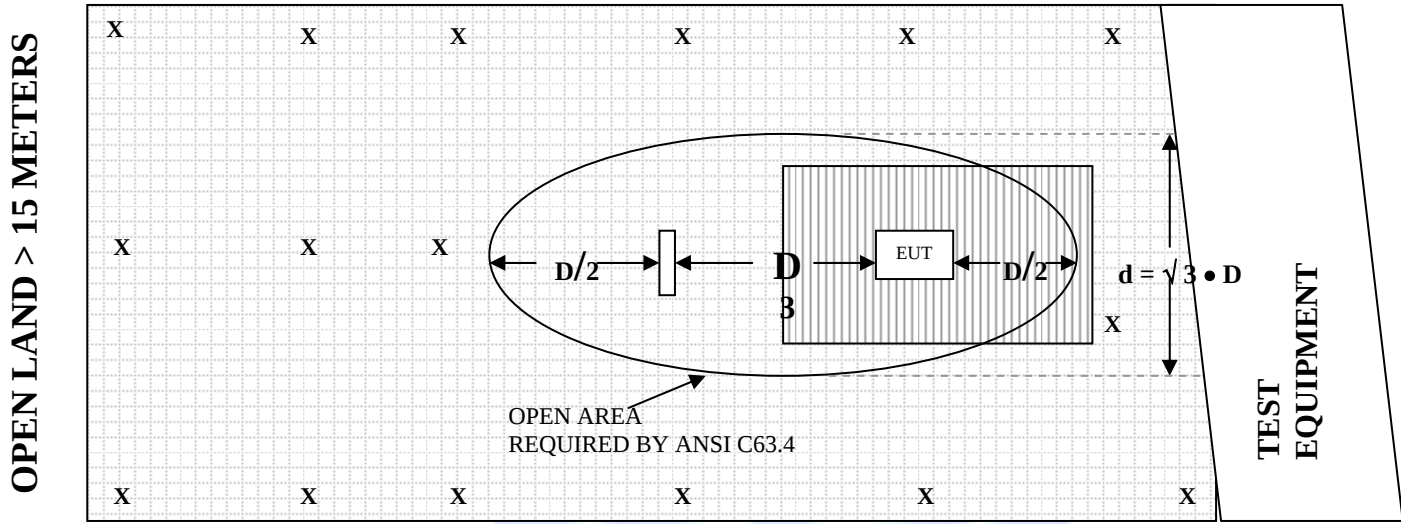


APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE

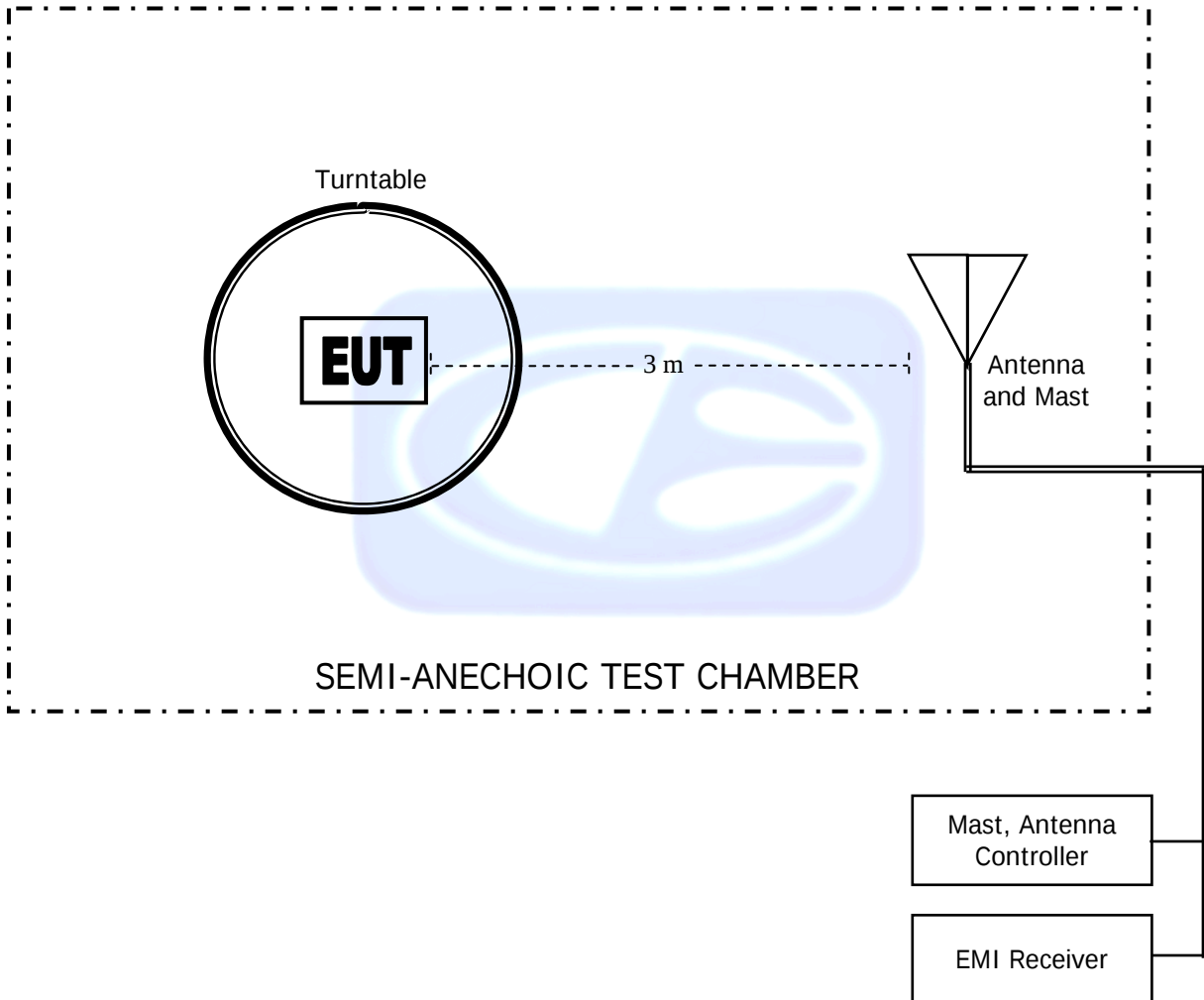
OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

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

FIGURE 2: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER



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

S/N: 17089

CALIBRATION DATE: FEBRUARY 6, 2015

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

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: 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 15, 2015

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.59	6.0	26.64
1.1	24.17	6.5	25.03
1.2	26.36	7.0	24.15
1.3	24.14	7.5	25.65
1.4	26.08	8.0	23.53
1.5	26.71	8.5	26.54
1.6	24.73	9.0	23.55
1.7	27.34	9.5	22.57
1.8	26.09	10.0	25.89
1.9	27.11	11.0	24.05
2.0	27.43	12.0	28.19
2.5	27.43	13.0	23.62
3.0	27.92	14.0	24.85
3.5	27.86	15.0	25.94
4.0	27.59	16.0	24.68
4.5	27.41	17.0	23.67
5.0	26.18	18.0	27.48
5.5	26.30		

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**

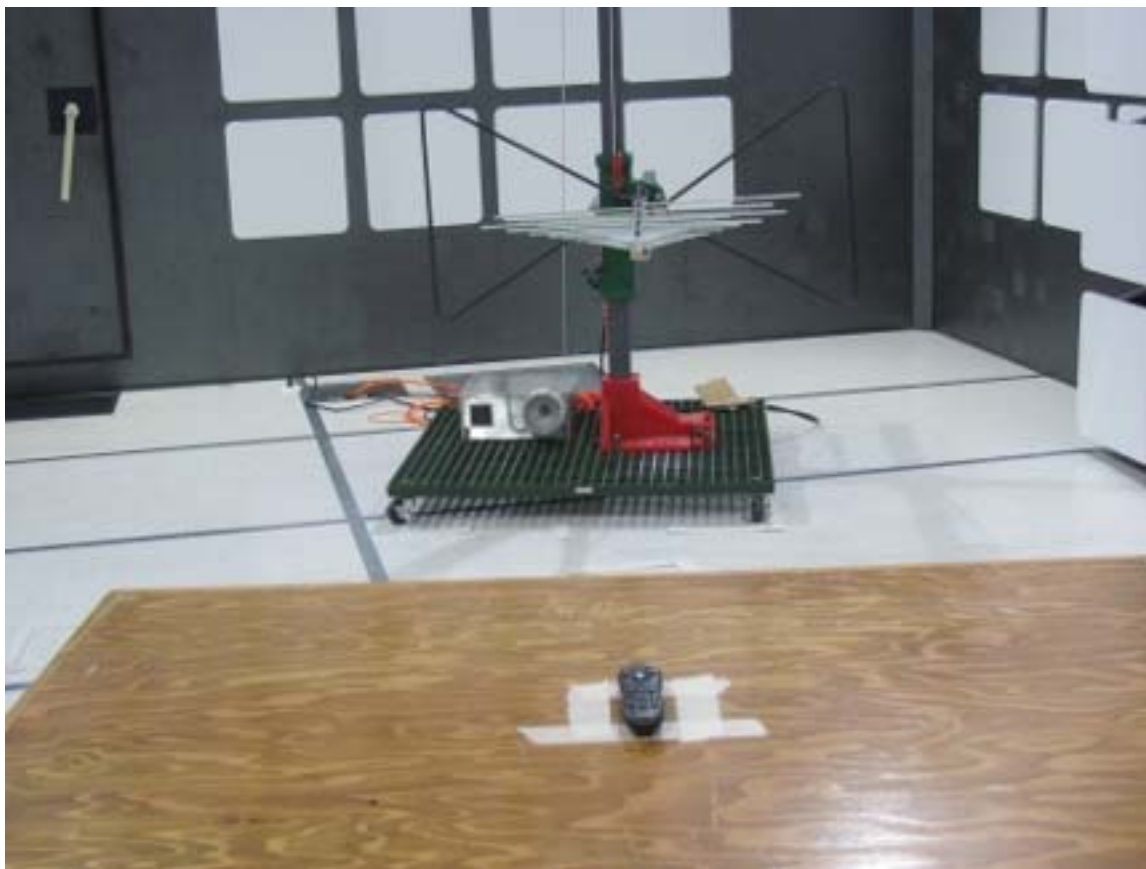
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	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.
ECHOSTAR SAGE ZHA REMOTE 2014
MODEL: URC-2001BC0-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
ECHOSTAR SAGE ZHA REMOTE 2014
MODEL: URC-2001BC0-R

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

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



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
ECHOSTAR SAGE ZHA REMOTE 2014
MODEL: URC-2001BC0-R
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
ECHOSTAR SAGE ZHA REMOTE 2014
MODEL: URC-2001BC0-R
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2405 MHz - 0 dBm Setting
X-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	84.96	V	114	-29.04	Peak	1.75	180	
2405	70.54	V	94	-23.46	Avg	1.75	180	
4810	63.67	V	74	-10.33	Peak	1.25	135	
4810	49.25	V	54	-4.75	Avg	1.25	135	
7215	51.34	V	74	-22.66	Peak	1.25	90	
7215	36.92	V	54	-17.08	Avg	1.25	90	
9620								NO EMISSIONS
9620								DETECTED
12025								NO EMISSIONS
12025								DETECTED
14430								NO EMISSIONS
14430								DETECTED
16835								NO EMISSIONS
16835								DETECTED
19240								NO EMISSIONS
19240								DETECTED
21645								NO EMISSIONS
21645								DETECTED
24050								NO EMISSIONS
24050								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2405 MHz - 0 dBm Setting
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	93.14	H	114	-20.86	Peak	1	90	
2405	78.72	H	94	-15.28	Avg	1	90	
4810	64.67	H	74	-9.33	Peak	1.25	135	
4810	50.25	H	54	-3.75	Avg	1.25	135	
7215	52.31	H	74	-21.69	Peak	1.5	135	
7215	37.89	H	54	-16.11	Avg	1.5	135	
9620								NO EMISSIONS
9620								DETECTED
12025								NO EMISSIONS
12025								DETECTED
14430								NO EMISSIONS
14430								DETECTED
16835								NO EMISSIONS
16835								DETECTED
19240								NO EMISSIONS
19240								DETECTED
21645								NO EMISSIONS
21645								DETECTED
24050								NO EMISSIONS
24050								DETECTED

FCC 15.249Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-RDate: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto**Low Channel @ 2405 MHz - 0 dBm Setting**
Y-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	92.99	V	114	-21.01	Peak	1.35	45	
2405	78.57	V	94	-15.43	Avg	1.35	45	
4810	64.37	V	74	-9.63	Peak	1.25	315	
4810	49.95	V	54	-4.05	Avg	1.25	315	
7215	54.02	V	74	-19.98	Peak	1.5	315	
7215	39.6	V	54	-14.4	Avg	1.5	315	
9620								NO EMISSIONS DETECTED
9620								
12025								NO EMISSIONS DETECTED
12025								
14430								NO EMISSIONS DETECTED
14430								
16835								NO EMISSIONS DETECTED
16835								
19240								NO EMISSIONS DETECTED
19240								
21645								NO EMISSIONS DETECTED
21645								
24050								NO EMISSIONS DETECTED
24050								

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2405 MHz - 0 dBm Setting
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	90.4	H	114	-23.6	Peak	1.25	180	
2405	75.98	H	94	-18.02	Avg	1.25	180	
4810	61.75	H	74	-12.25	Peak	1.25	0	
4810	47.33	H	54	-6.67	Avg	1.25	0	
7215	52.41	H	74	-21.59	Peak	1.35	315	
7215	37.99	H	54	-16.01	Avg	1.35	315	
9620								NO EMISSIONS
9620								DETECTED
12025								NO EMISSIONS
12025								DETECTED
14430								NO EMISSIONS
14430								DETECTED
16835								NO EMISSIONS
16835								DETECTED
19240								NO EMISSIONS
19240								DETECTED
21645								NO EMISSIONS
21645								DETECTED
24050								NO EMISSIONS
24050								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015

Lab: B

Tested By: Kyle Fujimoto

Low Channel @ 2405 MHz - 0 dBm Setting
Z-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	88.91	V	114	-25.09	Peak	1.25	155	
2405	74.49	V	94	-19.51	Avg	1.25	155	
4810	59.85	V	74	-14.15	Peak	1.25	225	
4810	45.43	V	54	-8.57	Avg	1.25	225	
7215	51.13	V	74	-22.87	Peak	1.25	45	
7215	36.71	V	54	-17.29	Avg	1.25	45	
9620								NO EMISSIONS DETECTED
12025								NO EMISSIONS DETECTED
14430								NO EMISSIONS DETECTED
16835								NO EMISSIONS DETECTED
19240								NO EMISSIONS DETECTED
21645								NO EMISSIONS DETECTED
24050								NO EMISSIONS DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2405 MHz - 0 dBm Setting
Z-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	91.37	H	114	-22.63	Peak	1.25	90	
2405	76.95	H	94	-17.05	Avg	1.25	90	
4810	65.57	H	74	-8.43	Peak	1.25	135	
4810	51.15	H	54	-2.85	Avg	1.25	135	
7215	53.24	H	74	-20.76	Peak	1.25	225	
7215	38.82	H	54	-15.18	Avg	1.25	225	
9620								NO EMISSIONS
9620								DETECTED
12025								NO EMISSIONS
12025								DETECTED
14430								NO EMISSIONS
14430								DETECTED
16835								NO EMISSIONS
16835								DETECTED
19240								NO EMISSIONS
19240								DETECTED
21645								NO EMISSIONS
21645								DETECTED
24050								NO EMISSIONS
24050								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2410 MHz - 3 dBm Setting
X-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	88.94	V	114	-25.06	Peak	1.25	135	
2410	74.52	V	94	-19.48	Avg	1.25	135	
4820	64.25	V	74	-9.75	Peak	1.25	0	
4820	49.83	V	54	-4.17	Avg	1.25	0	
7230	52.27	V	74	-21.73	Peak	1	0	
7230	37.85	V	54	-16.15	Avg	1	0	
9640								NO EMISSIONS
9640								DETECTED
12050								NO EMISSIONS
12050								DETECTED
14460								NO EMISSIONS
14460								DETECTED
16870								NO EMISSIONS
16870								DETECTED
19280								NO EMISSIONS
19280								DETECTED
21690								NO EMISSIONS
21690								DETECTED
24100								NO EMISSIONS
24100								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2410 MHz - 3 dBm Setting
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	95.86	H	114	-18.14	Peak	1	90	
2410	81.44	H	94	-12.56	Avg	1	90	
4820	66.87	H	74	-7.13	Peak	1.25	135	
4820	52.45	H	54	-1.55	Avg	1.25	135	
7230	54.61	H	74	-19.39	Peak	1.5	135	
7230	40.19	H	54	-13.81	Avg	1.5	135	
9640								NO EMISSIONS DETECTED
12050								NO EMISSIONS DETECTED
14460								NO EMISSIONS DETECTED
16870								NO EMISSIONS DETECTED
19280								NO EMISSIONS DETECTED
21690								NO EMISSIONS DETECTED
24100								NO EMISSIONS DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2410 MHz - 3 dBm Setting
Y-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	95.66	V	114	-18.34	Peak	1.5	45	
2410	81.24	V	94	-12.76	Avg	1.5	45	
4820	67.81	V	74	-6.19	Peak	1.75	315	
4820	53.39	V	54	-0.61	Avg	1.75	315	
7230	55.67	V	74	-18.33	Peak	1.5	45	
7230	41.25	V	54	-12.75	Avg	1.5	45	
9640								NO EMISSIONS DETECTED
9640								
12050								NO EMISSIONS DETECTED
12050								
14460								NO EMISSIONS DETECTED
14460								
16870								NO EMISSIONS DETECTED
16870								
19280								NO EMISSIONS DETECTED
19280								
21690								NO EMISSIONS DETECTED
21690								
24100								NO EMISSIONS DETECTED
24100								

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2410 MHz - 3 dBm Setting
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	92.72	H	114	-21.28	Peak	1.25	0	
2410	78.3	H	94	-15.7	Avg	1.25	0	
4820	64.9	H	74	-9.1	Peak	1.25	0	
4820	50.48	H	54	-3.52	Avg	1.25	0	
7230	51.68	H	74	-22.32	Peak	1.25	45	
7230	37.26	H	54	-16.74	Avg	1.25	45	
9640								NO EMISSIONS
9640								DETECTED
12050								NO EMISSIONS
12050								DETECTED
14460								NO EMISSIONS
14460								DETECTED
16870								NO EMISSIONS
16870								DETECTED
19280								NO EMISSIONS
19280								DETECTED
21690								NO EMISSIONS
21690								DETECTED
24100								NO EMISSIONS
24100								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2410 MHz - 3 dBm Setting
Z-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	92.02	V	114	-21.98	Peak	1.5	90	
2410	77.6	V	94	-16.4	Avg	1.5	90	
4820	63.86	V	74	-10.14	Peak	1.5	270	
4820	49.44	V	54	-4.56	Avg	1.5	270	
7230	52.34	V	74	-21.66	Peak	1.25	90	
7230	37.92	V	54	-16.08	Avg	12.5	90	
9640								NO EMISSIONS
9640								DETECTED
12050								NO EMISSIONS
12050								DETECTED
14460								NO EMISSIONS
14460								DETECTED
16870								NO EMISSIONS
16870								DETECTED
19280								NO EMISSIONS
19280								DETECTED
21690								NO EMISSIONS
21690								DETECTED
24100								NO EMISSIONS
24100								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Low Channel @ 2410 MHz - 3 dBm Setting
Z-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2410	93.35	H	114	-20.65	Peak	1.25	90	
2410	78.93	H	94	-15.07	Avg	1.25	90	
4820	67.95	H	74	-6.05	Peak	1.75	45	
4820	53.53	H	54	-0.47	Avg	1.75	45	
7230	54.04	H	74	-19.96	Peak	1.25	90	
7230	39.62	H	54	-14.38	Avg	1.25	90	
9640								NO EMISSIONS
9640								DETECTED
12050								NO EMISSIONS
12050								DETECTED
14460								NO EMISSIONS
14460								DETECTED
16870								NO EMISSIONS
16870								DETECTED
19280								NO EMISSIONS
19280								DETECTED
21690								NO EMISSIONS
21690								DETECTED
24100								NO EMISSIONS
24100								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - 2450 MHz - +3 dBm Setting
X-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	88.95	V	114	-25.05	Peak	1.25	135	
2450	74.53	V	94	-19.47	Avg	1.25	135	
4900	60.61	V	74	-13.39	Peak	1.25	0	
4900	46.19	V	54	-7.81	Avg	1.25	0	
7350	47.92	V	74	-26.08	Peak	1.35	145	
7350	33.5	V	54	-20.5	Avg	1.35	145	
9800								NO EMISSIONS
9800								DETECTED
12250								NO EMISSIONS
12250								DETECTED
14700								NO EMISSIONS
14700								DETECTED
17150								NO EMISSIONS
17150								DETECTED
19600								NO EMISSIONS
19600								DETECTED
22050								NO EMISSIONS
22050								DETECTED
24500								NO EMISSIONS
24500								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - 2450 MHz - +3 dBm Setting
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	95.79	H	114	-18.21	Peak	1.25	165	
2450	81.37	H	94	-12.63	Avg	1.25	165	
4900	65.02	H	74	-8.98	Peak	1.05	45	
4900	50.6	H	54	-3.4	Avg	1.05	45	
7350	51.07	H	74	-22.93	Peak	1.25	315	
7350	36.65	H	54	-17.35	Avg	1.25	315	
9800								NO EMISSIONS
9800								DETECTED
12250								NO EMISSIONS
12250								DETECTED
14700								NO EMISSIONS
14700								DETECTED
17150								NO EMISSIONS
17150								DETECTED
19600								NO EMISSIONS
19600								DETECTED
22050								NO EMISSIONS
22050								DETECTED
24500								NO EMISSIONS
24500								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - 2450 MHz - +3 dBm Setting
Y-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	94.94	V	114	-19.06	Peak	1.25	135	
2450	80.52	V	94	-13.48	Avg	1.25	135	
4900	66.33	V	74	-7.67	Peak	1.25	225	
4900	51.91	V	54	-2.09	Avg	1.25	225	
7350	52.47	V	74	-21.53	Peak	1.35	225	
7350	38.05	V	54	-15.95	Avg	1.35	225	
9800								NO EMISSIONS
9800								DETECTED
12250								NO EMISSIONS
12250								DETECTED
14700								NO EMISSIONS
14700								DETECTED
17150								NO EMISSIONS
17150								DETECTED
19600								NO EMISSIONS
19600								DETECTED
22050								NO EMISSIONS
22050								DETECTED
24500								NO EMISSIONS
24500								DETECTED

FCC 15.249Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-RDate: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto**Middle Channel - 2450 MHz - +3 dBm Setting**
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	93.34	H	114	-20.66	Peak	1.25	180	
2450	78.92	H	94	-15.08	Avg	1.25	180	
4900	62.77	H	74	-11.23	Peak	1.25	0	
4900	48.35	H	54	-5.65	Avg	1.25	0	
7350	52.18	H	74	-21.82	Peak	1.35	125	
7350	37.76	H	54	-16.24	Avg	1.35	125	
9800								NO EMISSIONS DETECTED
9800								
12250								NO EMISSIONS DETECTED
12250								
14700								NO EMISSIONS DETECTED
14700								
17150								NO EMISSIONS DETECTED
17150								
19600								NO EMISSIONS DETECTED
19600								
22050								NO EMISSIONS DETECTED
22050								
24500								NO EMISSIONS DETECTED
24500								

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - 2450 MHz - +3 dBm Setting
Z-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	89.39	V	114	-24.61	Peak	1.25	155	
2450	74.97	V	94	-19.03	Avg	1.25	155	
4900	61.44	V	74	-12.56	Peak	1.25	125	
4900	47.02	V	54	-6.98	Avg	1.25	125	
7350	47.65	V	74	-26.35	Peak	1.35	125	
7350	33.23	V	54	-20.77	Avg	1.35	125	
9800								NO EMISSIONS
9800								DETECTED
12250								NO EMISSIONS
12250								DETECTED
14700								NO EMISSIONS
14700								DETECTED
17150								NO EMISSIONS
17150								DETECTED
19600								NO EMISSIONS
19600								DETECTED
22050								NO EMISSIONS
22050								DETECTED
24500								NO EMISSIONS
24500								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - 2450 MHz - +3 dBm Setting
Z-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2450	92.39	H	114	-21.61	Peak	1.25	90	
2450	77.97	H	94	-16.03	Avg	1.25	90	
4900	66.21	H	74	-7.79	Peak	1.25	45	
4900	51.79	H	54	-2.21	Avg	1.25	45	
7350	51.79	H	74	-22.21	Peak	1.25	135	
7350	37.37	H	54	-16.63	Avg	1.25	135	
9800								NO EMISSIONS
9800								DETECTED
12250								NO EMISSIONS
12250								DETECTED
14700								NO EMISSIONS
14700								DETECTED
17150								NO EMISSIONS
17150								DETECTED
19600								NO EMISSIONS
19600								DETECTED
22050								NO EMISSIONS
22050								DETECTED
24500								NO EMISSIONS
24500								DETECTED

FCC 15.249Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-RDate: 01/30/2015
Lab: B
Tested By: Kyle FujimotoHigh Channel - 2480 MHz - +3 dBm Setting
X-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	92.65	V	114	-21.35	Peak	1.25	315	
2480	78.23	V	94	-15.77	Avg	1.25	315	
4960	61.04	V	74	-12.96	Peak	1.25	155	
4960	46.62	V	54	-7.38	Avg	1.25	155	
7440	50.19	V	74	-23.81	Peak	1.35	145	
7440	35.77	V	54	-18.23	Avg	1.35	145	
9920								NO EMISSIONS DETECTED
9920								
12400								NO EMISSIONS DETECTED
12400								
14880								NO EMISSIONS DETECTED
14880								
17360								NO EMISSIONS DETECTED
17360								
19840								NO EMISSIONS DETECTED
19840								
22320								NO EMISSIONS DETECTED
22320								
24800								NO EMISSIONS DETECTED
24800								

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

High Channel - 2480 MHz - +3 dBm Setting
X-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	96.46	H	114	-17.54	Peak	1	90	
2480	82.04	H	94	-11.96	Avg	1	90	
4960	65.06	H	74	-8.94	Peak	1.25	135	
4960	50.64	H	54	-3.36	Avg	1.25	135	
7440	47.27	H	74	-26.73	Peak	1.35	165	
7440	32.85	H	54	-21.15	Avg	1.35	165	
9920								NO EMISSIONS
9920								DETECTED
12400								NO EMISSIONS
12400								DETECTED
14880								NO EMISSIONS
14880								DETECTED
17360								NO EMISSIONS
17360								DETECTED
19840								NO EMISSIONS
19840								DETECTED
22320								NO EMISSIONS
22320								DETECTED
24800								NO EMISSIONS
24800								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

High Channel - 2480 MHz - +3 dBm Setting
Y-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	96.09	V	114	-17.91	Peak	1.25	225	
2480	81.67	V	94	-12.33	Avg	1.25	225	
4960	66.06	V	74	-7.94	Peak	1.25	225	
4960	51.64	V	54	-2.36	Avg	1.25	225	
7440	50.39	V	74	-23.61	Peak	1.35	145	
7440	35.97	V	54	-18.03	Avg	1.35	145	
9920								NO EMISSIONS
9920								DETECTED
12400								NO EMISSIONS
12400								DETECTED
14880								NO EMISSIONS
14880								DETECTED
17360								NO EMISSIONS
17360								DETECTED
19840								NO EMISSIONS
19840								DETECTED
22320								NO EMISSIONS
22320								DETECTED
24800								NO EMISSIONS
24800								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

High Channel - 2480 MHz - +3 dBm Setting
Y-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	91.69	H	114	-22.31	Peak	1.25	145	
2480	77.27	H	94	-16.73	Avg	1.25	145	
4960	62.76	H	74	-11.24	Peak	1.25	180	
4960	48.34	H	54	-5.66	Avg	1.25	180	
7440	50.79	H	74	-23.21	Peak	1.35	180	
7440	36.37	H	54	-17.63	Avg	1.35	180	
9920								NO EMISSIONS
9920								DETECTED
12400								NO EMISSIONS
12400								DETECTED
14880								NO EMISSIONS
14880								DETECTED
17360								NO EMISSIONS
17360								DETECTED
19840								NO EMISSIONS
19840								DETECTED
22320								NO EMISSIONS
22320								DETECTED
24800								NO EMISSIONS
24800								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

High Channel - 2480 MHz - +3 dBm Setting
Z-Axis - Vertical

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	90.39	V	114	-23.61	Peak	1.25	90	
2480	75.97	V	94	-18.03	Avg	1.25	90	
4960	61.03	V	74	-12.97	Peak	1.25	155	
4960	46.61	V	54	-7.39	Avg	1.25	155	
7440	48.08	V	74	-25.92	Peak	1.35	145	
7440	33.66	V	54	-20.34	Avg	1.35	145	
9920								NO EMISSIONS
9920								DETECTED
12400								NO EMISSIONS
12400								DETECTED
14880								NO EMISSIONS
14880								DETECTED
17360								NO EMISSIONS
17360								DETECTED
19840								NO EMISSIONS
19840								DETECTED
22320								NO EMISSIONS
22320								DETECTED
24800								NO EMISSIONS
24800								DETECTED

FCC 15.249

Universal Electronics, Inc.
EchoStar Sage ZHA Remote 2014
Model: URC-2001BC0-R

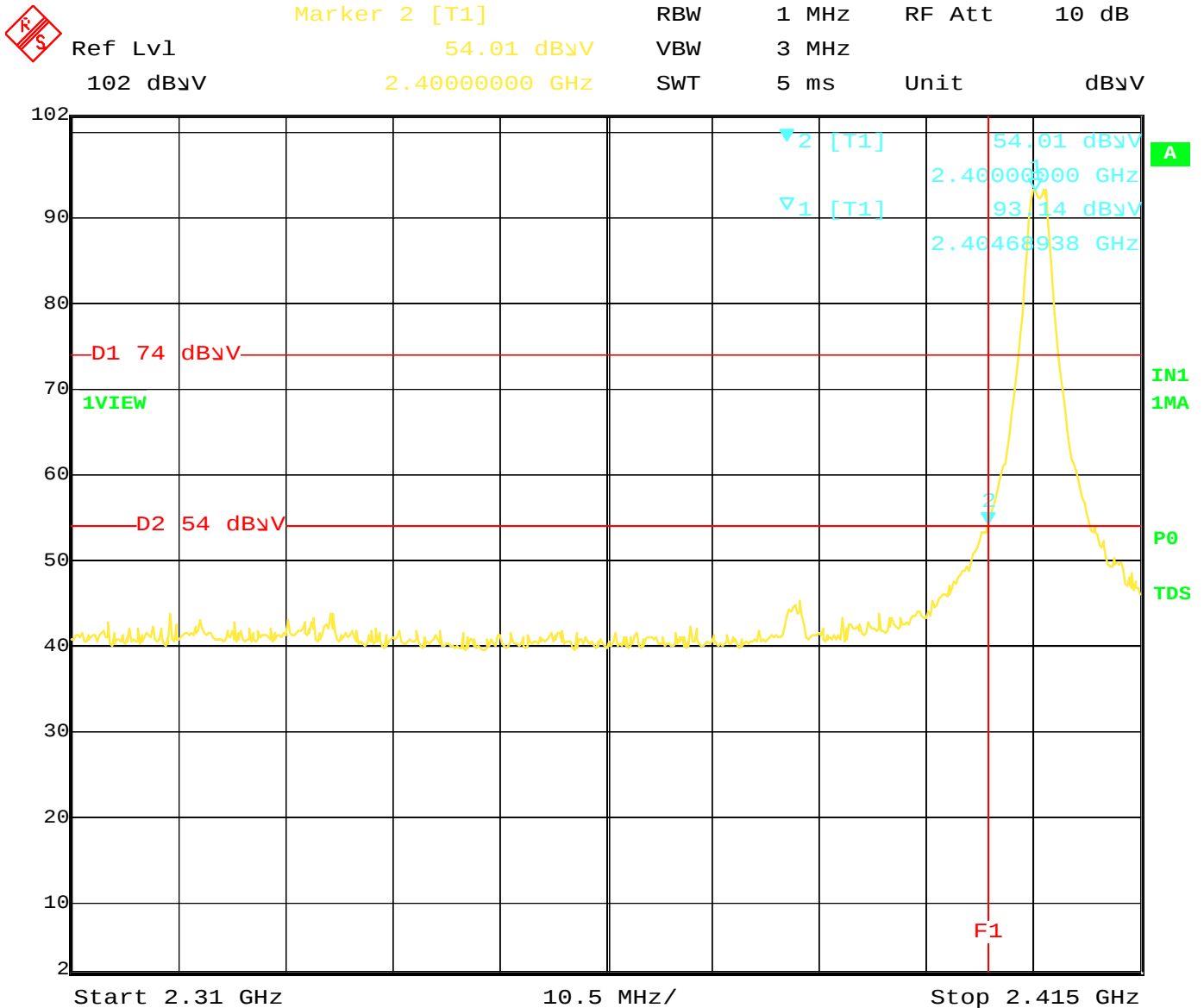
Date: 01/30/2015
Lab: B
Tested By: Kyle Fujimoto

High Channel - 2480 MHz - +3 dBm Setting
Z-Axis - Horizontal

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	93.49	H	114	-20.51	Peak	1.25	0	
2480	79.07	H	94	-14.93	Avg	1.25	0	
4960	64.22	H	74	-9.78	Peak	1.25	45	
4960	49.8	H	54	-4.2	Avg	1.25	45	
7440	50.41	H	74	-23.59	Peak	1.35	165	
7440	35.99	H	54	-18.01	Avg	1.35	165	
9920								NO EMISSIONS
9920								DETECTED
12400								NO EMISSIONS
12400								DETECTED
14880								NO EMISSIONS
14880								DETECTED
17360								NO EMISSIONS
17360								DETECTED
19840								NO EMISSIONS
19840								DETECTED
22320								NO EMISSIONS
22320								DETECTED
24800								NO EMISSIONS
24800								DETECTED

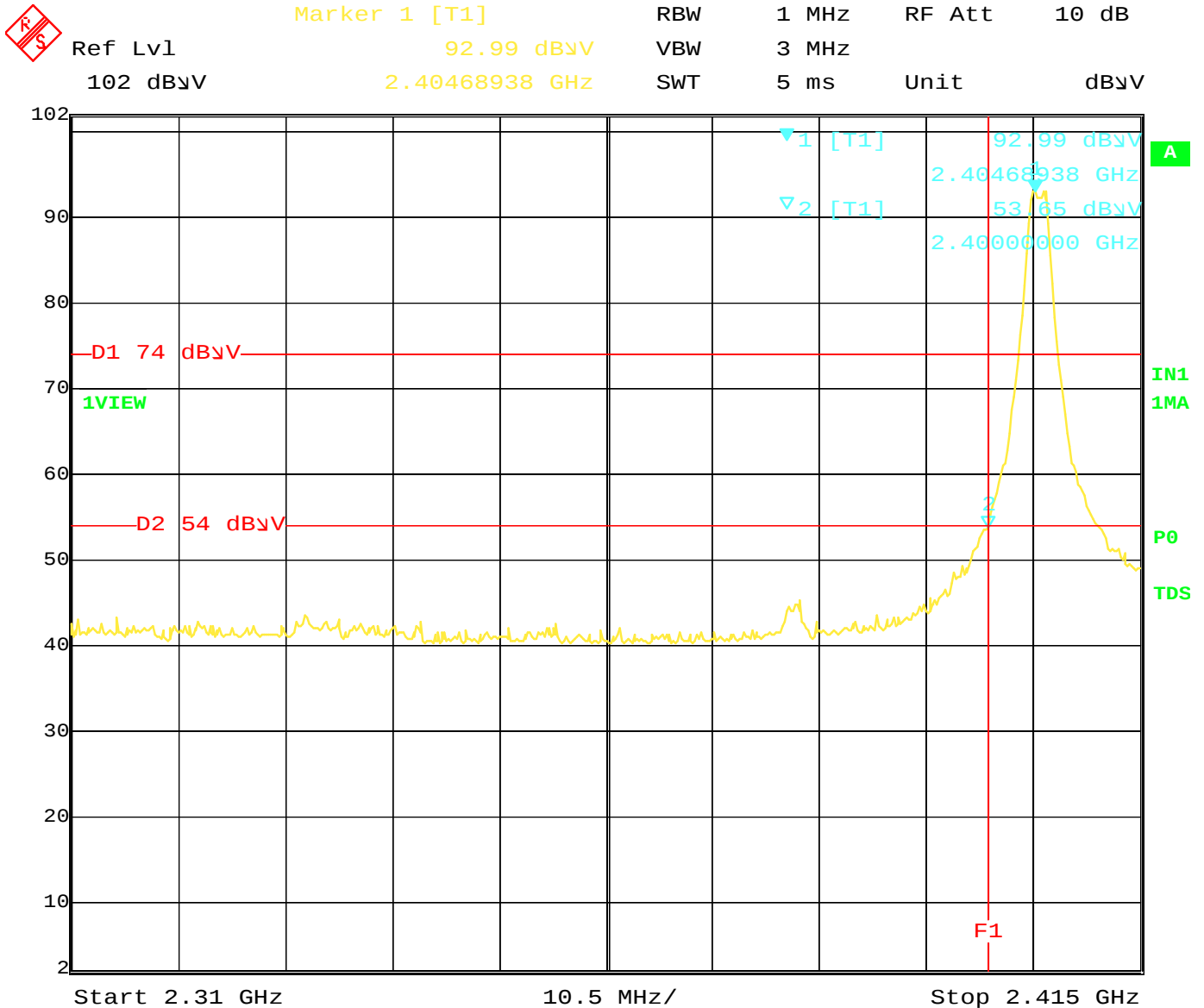
FCC 15.249

Band Edges - Low Channel @ 2410 MHz - +3 dBm



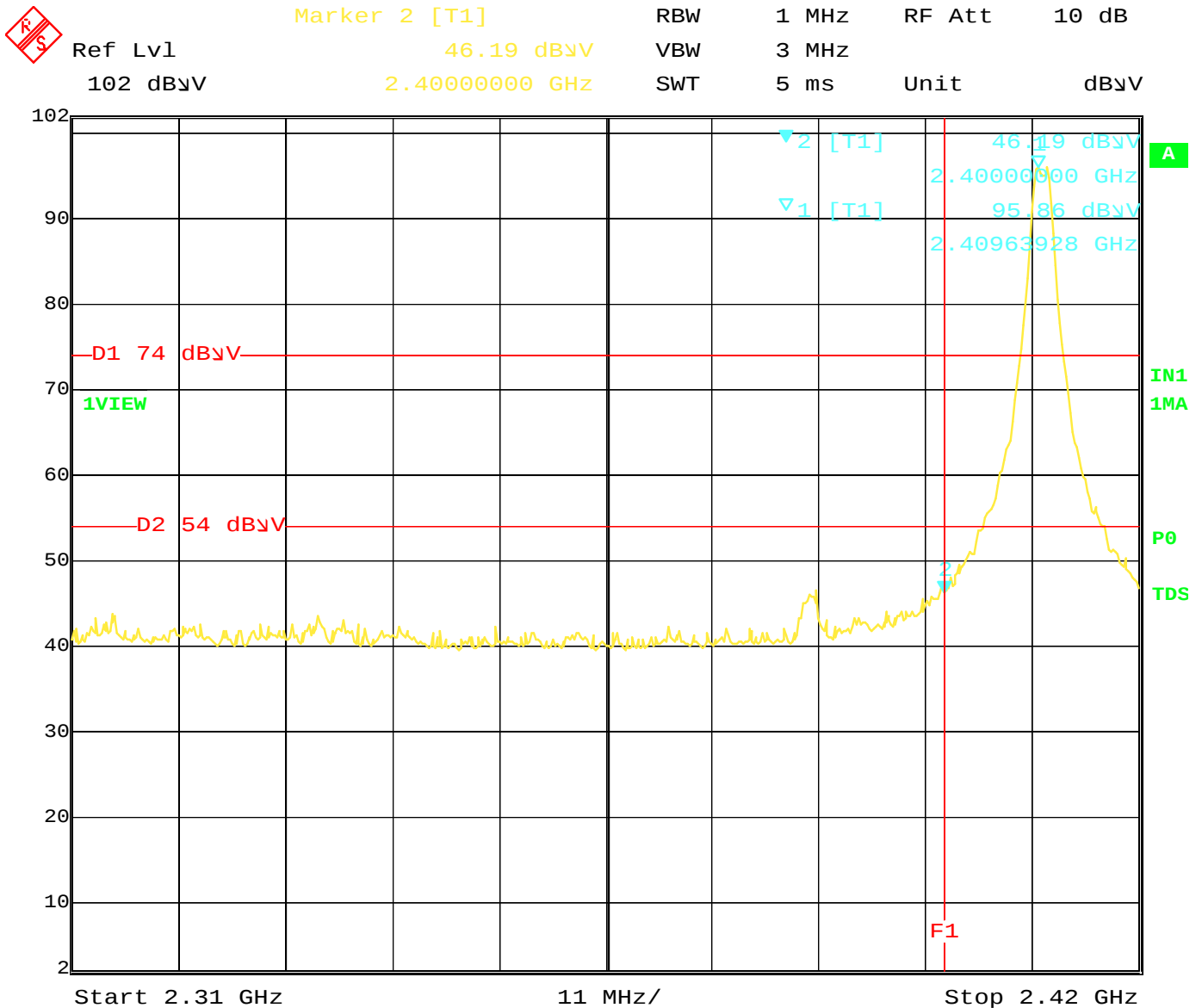
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Band Edge – 2405 MHz – 0 dBm – Horizontal Polarization – X-Axis – Worst Case



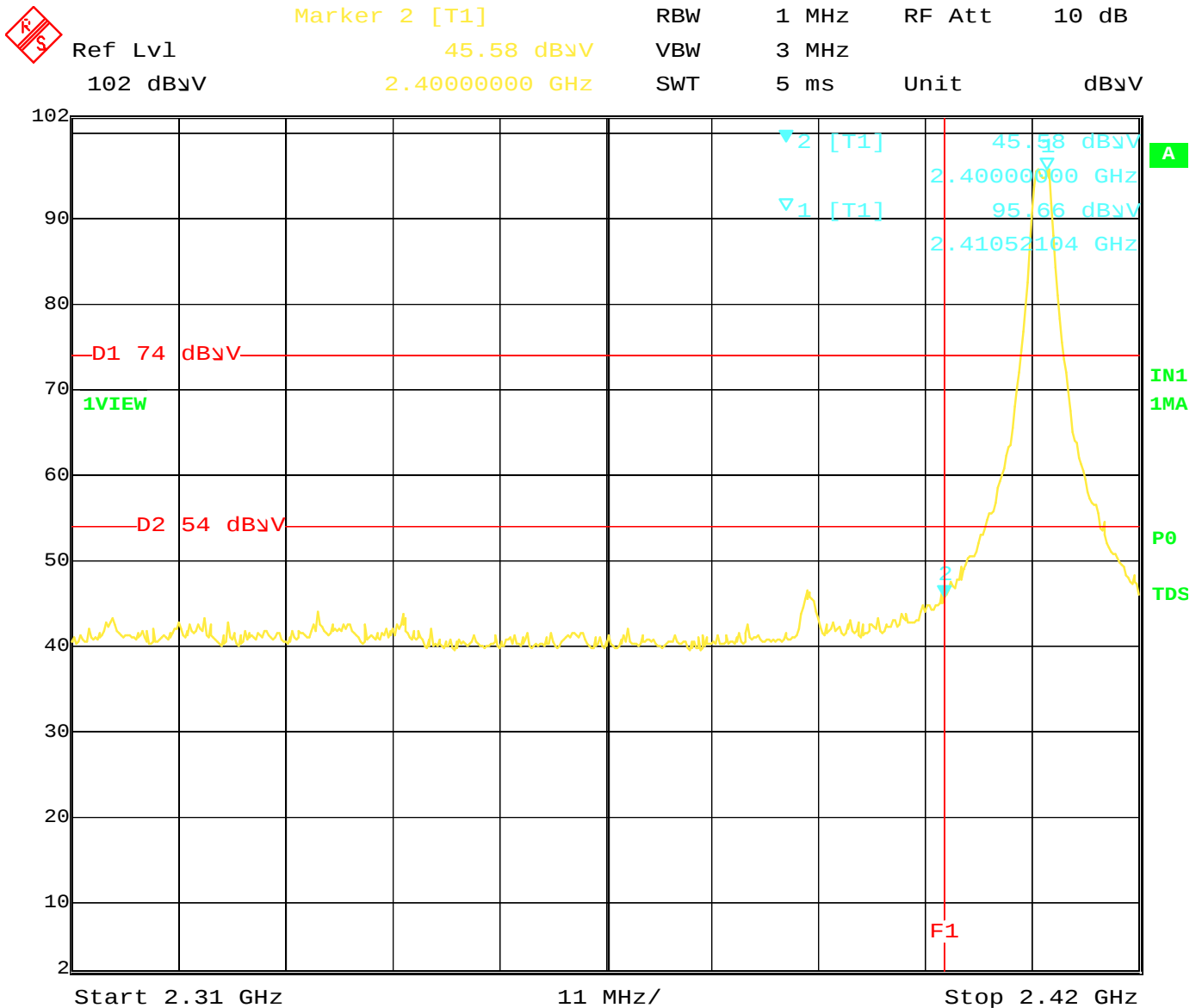
Date: 30.JAN.2015 12:23:32

Band Edge – 2405 MHz – 0 dBm – Vertical Polarization – Y-Axis – Worst Case



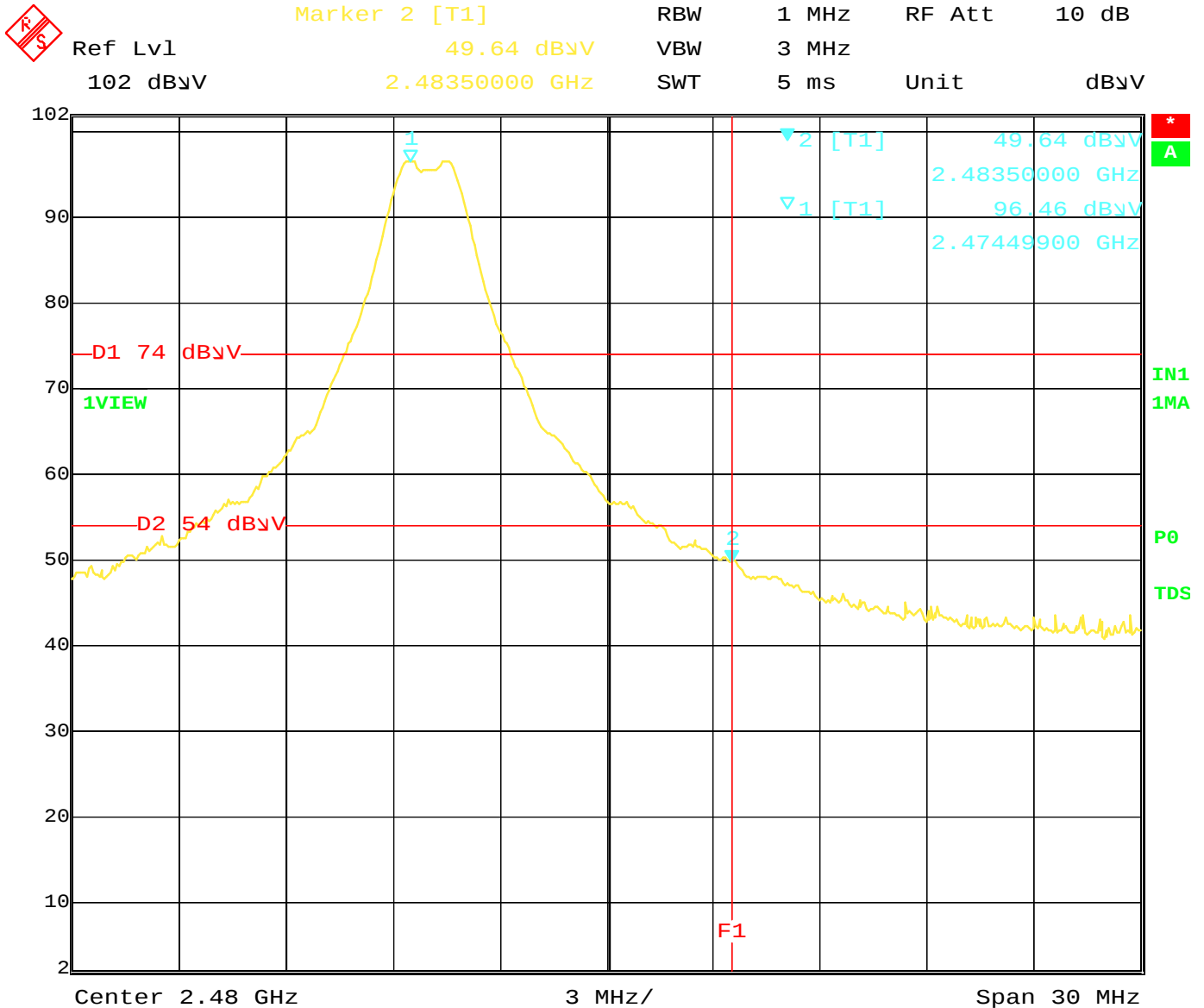
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Band Edge – 2410 MHz – 3 dBm – Horizontal Polarization – X-Axis – Worst Case



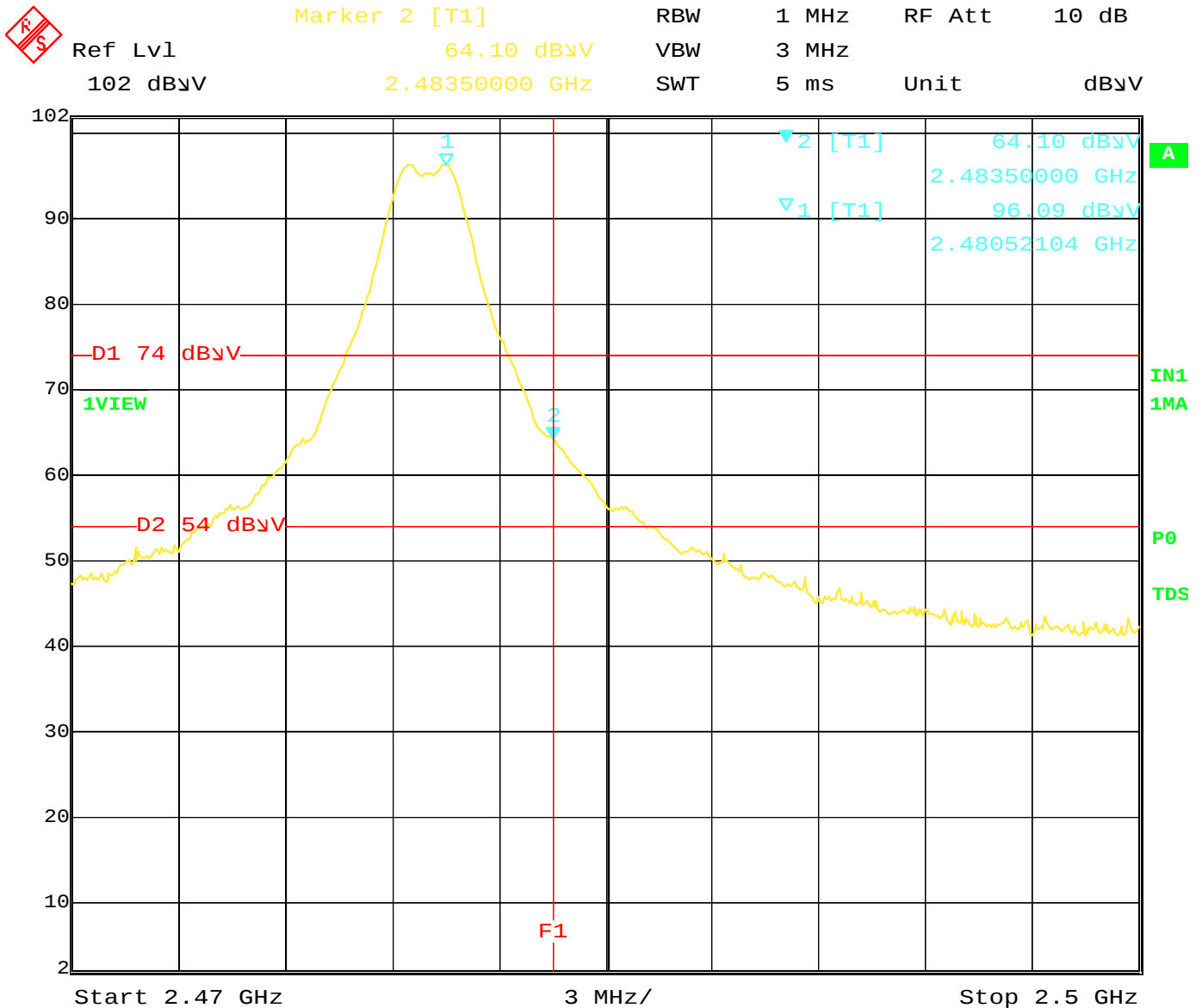
Date: 30.JAN.2015 12:46:32

Band Edge – 2410 MHz – 3 dBm – Vertical Polarization – Y-Axis – Worst Case



Date: 30.JAN.2015 13:00:25

Band Edge – 2480 MHz – 3 dBm – Horizontal Polarization – X-Axis – Worst Case



Date: 30.JAN.2015 13:12:52

Band Edge – 2480 MHz – 3 dBm – Vertical Polarization – Y-Axis – Worst Case

