

*FCC 15.231
TEST REPORT*

for

DIRECTV RC66RBX 2012

MODEL: URC-3015BC0-X-R

Prepared for

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BREA, CALIFORNIA 92823
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DATE: FEBRUARY 13, 2013

	REPORT BODY	APPENDICES					TOTAL
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1	Plot Map And Layout of Radiated Site

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 endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: DirecTV RC66RBX 2012
Model: URC-3015BC0-X-R
S/N: N/A

Product Description: The EUT is a remote control used with DirecTV systems.

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

Manufacturer: Gemstar Technology Co. LTD
Gemstar Industrial Park,
Shi Guang road NO. 45,
Zhongcun Town, Panyu,
Guangdong province, China 511495

Test Dates: December 21, 2012; and February 8, 2013

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209 and 15.231

Test Procedure: ANSI C63.4

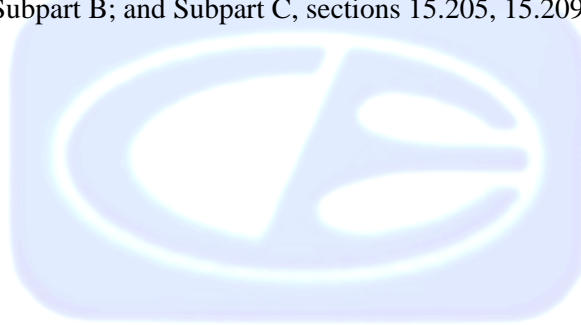
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	This test was not performed because the EUT is battery powered only and does not connect to the AC public mains.
2	Radiated RF Emissions, 10 kHz – 4400 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.

1. PURPOSE

This document is a qualification test report based on the emission tests performed on the DirecTV RC66RBX 2012, Model: URC-3015BC0-X-R. The emission 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 15.231.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI 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.

Alex Benitez Test Technician
Kyle Fujimoto Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of this test report.

2.5 Disposition of the Test Sample

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

2.6 Abbreviations and Acronyms

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

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI 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

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The DirecTV RC66RBX 2012, Model: URC-3015BC0-X-R (EUT) was tested as a stand alone unit and continuously transmitting. The EUT's antenna is a PCB style antenna and is on the PCB itself. The EUT was tested in three orthogonal axis.

The EUT ceases to transmit immediately after any button is released during normal operation.

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

4.1.1 Cable Construction and Termination

There are 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
DIRECTV RC66RBX 2012 (EUT)	GEMSTAR TECHNOLOGY CO. LTD	URC-3015BC0-X-R	N/A	MG33015



5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION CYCLE
GENERAL TEST EQUIPMENT USED IN LAB B					
Computer	Compaq	CQ5210F	CNX9360CF9	N/A	N/A
Monitor	Hewlett Packard	HPs2031a	3CQ046N3MD	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	2 Year
GENERAL TEST EQUIPMENT USED IN LAB D					
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
Monitor	Hewlett Packard	HPs2031a	3CQ046N3MG	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8568B	2517A01563	May 30, 2012	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A15285	May 30, 2012	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 30, 2012	1 Year
RF RADIATED EMISSIONS TEST EQUIPMENT					
Biconical Antenna	Com Power	AB-900	43028	May 24, 2012	1 Year
Log Periodic Antenna	Com Power	AL-100	16252	May 24, 2012	1 Year
Preamplifier	Com-Power	CPPA-102	1017	December 27, 2012	1 Year
Preamplifier	Com-Power	PA-118	181656	December 28, 2011	1 Year
Loop Antenna	Com-Power	AL-130	17089	January 29, 2013	2 Years
Horn Antenna	Com-Power	AH-118	071175	February 29, 2012	2 Years
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

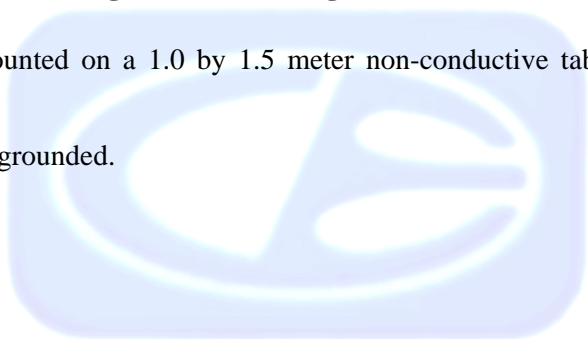
6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 and 7.1 of this report for EMI 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 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as a measuring meter along with the spectrum analyzer. Amplifiers were used to increase the sensitivity of the instrument. The Com-Power Preamplifier Model: CPPA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-118 was used for frequencies from 1 GHz to 4.4 GHz. The EMI Receiver and spectrum analyzer were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver and spectrum analyzer record the highest measured reading over all the sweeps.

The readings were averaged by a "duty cycle correction factor", derived from $20 \log$ (dwell time / one pulse train with blanking interval).

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	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 4.4 GHz	1 MHz	Horn Antenna

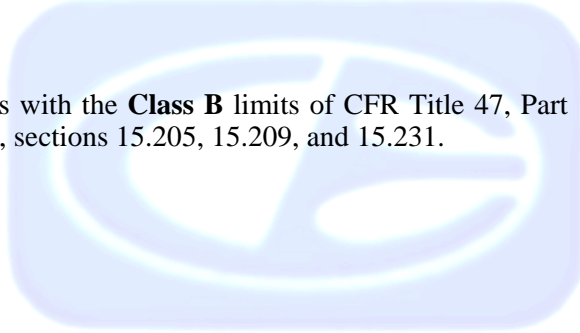
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor.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

7.2 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 to obtain final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231.



7.3 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the EUT. Plots of the -20 dB bandwidth are located in Appendix E.

Test Results:

The EUT complies with the limits CFR Title 47, Part 15, Subpart C, section 15.231[c].



8. CONCLUSIONS

The DirecTV RC66RBX 2012, Model: URC-3015BC0-X-R meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.





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) <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 15.231 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.





APPENDIX C

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

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

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

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

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

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

DirecTV RC66RBX 2012
Model: URC-3015BC0-X-R
S/N: N/A

There were no additional models covered under this report.

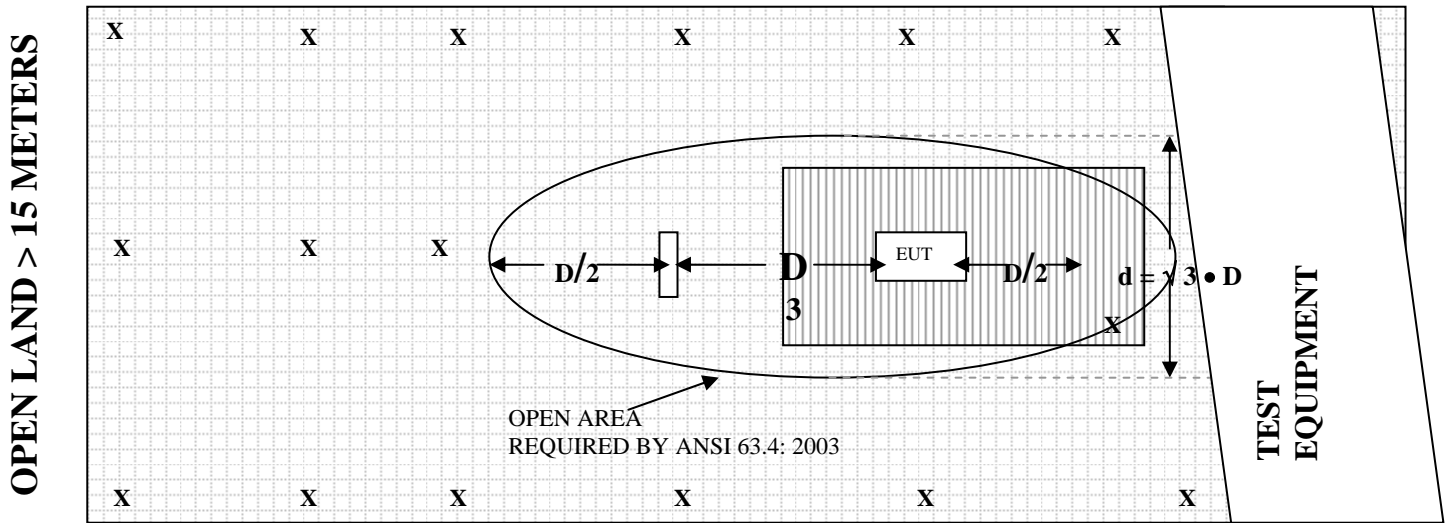


APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

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 |

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 43028

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.80	120	13.20
35	11.20	125	13.30
40	11.90	140	11.60
45	10.70	150	11.80
50	11.40	160	12.70
60	10.30	175	14.80
70	7.60	180	15.70
80	5.70	200	15.80
90	7.90	250	14.80
100	10.70	300	19.80

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

S/N: 16252

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.00	700	20.30
350	13.20	750	20.80
400	14.50	800	21.00
450	15.40	850	23.30
500	15.80	900	21.70
550	16.60	950	24.20
600	18.90	1000	24.30
650	19.10		

COM POWER AH-118**HORN ANTENNA**

S/N: 071175

CALIBRATION DATE: FEBRUARY 29, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.6	10.0	37.7
1.5	22.0	10.5	38.4
2.0	28.7	11.0	38.0
2.5	29.3	11.5	38.2
3.0	30.6	12.0	39.0
3.5	30.4	12.5	42.4
4.0	31.1	13.0	40.8
4.5	33.4	13.5	40.0
5.0	35.3	14.0	39.7
5.5	35.1	14.5	43.5
6.0	36.9	15.0	42.7
6.5	37.4	15.5	39.7
7.0	37.6	16.0	39.2
7.5	36.2	16.5	39.7
8.0	38.4	17.0	42.2
8.5	39.3	17.5	47.6
9.0	37.4	18.0	51.2
9.5	38.0		

COM-POWER CPPA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: DECEMBER 27, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1	36.9	225	38.14
3	38.1	250	38.15
5	38.1	275	38.14
8	38.2	300	38.18
10	38.3	350	38.22
20	38.2	400	38.26
30	38.3	450	37.53
40	38.2	500	38.24
50	38.5	550	38.53
60	38.5	600	38.69
70	38.4	650	38.66
80	38.4	700	38.58
90	38.5	750	38.37
100	38.4	800	38.23
125	38.6	850	37.68
150	38.4	900	37.38
175	38.5	950	36.82
200	38.5	1000	36.14

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 AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: JANUARY 29, 2013

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



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
DIRECTV RC66RBX 2012
MODEL: URC-3015BC0-X-R
FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS

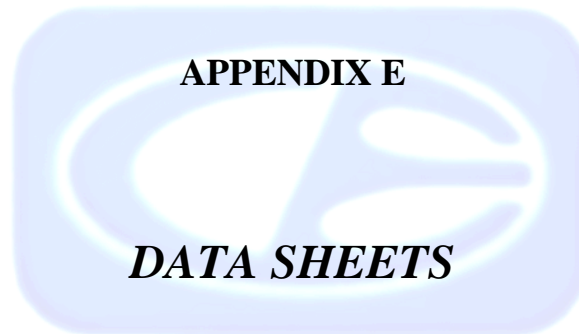
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
DIRECTV RC66RBX 2012
MODEL: URC-3015BC0-X-R
FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS

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



RADIATED EMISSIONS

DATA SHEETS

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC66RBX 2012
 Model: URC-3015BC0-X-R

Date: 12/21/12
 Labs: B and D
 Tested By: Alex Benitez

X-Axis

Duty Cycle: 44.55%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	68.69	V	100.8	-32.11	Peak	1	30	
433.92	61.667	V	80.8	-19.133	Avg	1	30	
867.84	62.73	V	80.8	-18.07	Peak	1.5	130	
867.84	55.707	V	60.8	-5.093	Avg	1.5	130	
1301.76	44.68	V	74	-29.32	Peak	1.25	60	
1301.76	37.657	V	54	-16.343	Avg	1.25	60	
1735.68	44.56	V	80.8	-36.24	Peak	1.25	70	
1735.68	37.537	V	60.8	-23.263	Avg	1.25	70	
2169.6	55.48	V	80.8	-25.32	Peak	1.5	40	
2169.6	48.457	V	60.8	-12.343	Avg	1.5	40	
2603.5	59.76	V	80.8	-21.04	Peak	1.5	70	
2603.5	52.737	V	60.8	-8.063	Avg	1.5	70	
3037.4	56.38	V	80.8	-24.42	Peak	1.5	290	
3037.4	49.357	V	60.8	-11.443	Avg	1.5	290	
3471.3	48.15	V	80.8	-32.65	Peak	1.5	250	
3471.3	41.127	V	60.8	-19.673	Avg	1.5	250	
3905.3	47.54	V	74	-26.46	Peak	1.5	70	
3905.3	40.517	V	54	-13.483	Avg	1.5	70	
4339.2	46.7	V	74	-27.3	Peak	1.5	130	
4339.2	39.677	V	54	-14.323	Avg	1.5	130	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC66RBX 2012
 Model: URC-3015BC0-X-R

Date: 12/21/12
 Labs: B and D
 Tested By: Alex Benitez

X-Axis

Duty Cycle: 44.55%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	79.59	H	100.8	-21.21	Peak	1	45	
433.92	72.567	H	80.8	-8.233	Avg	1	45	
867.84	60.04	H	80.8	-20.76	Peak	1	45	
867.84	53.017	H	60.8	-7.783	Avg	1	45	
1301.76	46.42	H	74	-27.58	Peak	1	130	
1301.76	39.397	H	54	-14.603	Avg	1	130	
1735.68	45.3	H	80.8	-35.5	Peak	1.5	140	
1735.68	38.277	H	60.8	-22.523	Avg	1.5	140	
2169.6	54.4	H	80.8	-26.4	Peak	1.5	60	
2169.6	47.377	H	60.8	-13.423	Avg	1.5	60	
2603.5	57.61	H	80.8	-23.19	Peak	1.5	210	
2603.5	50.587	H	60.8	-10.213	Avg	1.5	210	
3037.4	58.42	H	80.8	-22.38	Peak	1.5	70	
3037.4	51.397	H	60.8	-9.403	Avg	1.5	70	
3471.3	55	H	80.8	-25.8	Peak	1	70	
3471.3	47.977	H	60.8	-12.823	Avg	1	70	
3905.3	54.39	H	74	-19.61	Peak	1.25	70	
3905.3	47.367	H	54	-6.633	Avg	1.25	70	
4339.2	50.61	H	74	-23.39	Peak	1.25	220	
4339.2	43.587	H	54	-10.413	Avg	1.25	220	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC66RBX 2012
 Model: URC-3015BC0-X-R

Date: 12/21/12
 Labs: B and D
 Tested By: Alex Benitez

Y-Axis

Duty Cycle: 44.55%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	76.89	V	100.8	-23.91	Peak	1.25	135	
433.92	69.867	V	80.8	-10.933	Avg	1.25	135	
867.84	59.44	V	80.8	-21.36	Peak	1.5	45	
867.84	52.417	V	60.8	-8.383	Avg	1.5	45	
1301.76	43.03	V	74	-30.97	Peak	1.5	130	
1301.76	36.007	V	54	-17.993	Avg	1.5	130	
1735.68	44.39	V	80.8	-36.41	Peak	1.25	340	
1735.68	37.367	V	60.8	-23.433	Avg	1.25	340	
2169.6	56.84	V	80.8	-23.96	Peak	1	0	
2169.6	49.817	V	60.8	-10.983	Avg	1	0	
2603.5	62.96	V	80.8	-17.84	Peak	1	0	
2603.5	55.937	V	60.8	-4.863	Avg	1	0	
3037.4	65.05	V	80.8	-15.75	Peak	1.75	0	
3037.4	58.027	V	60.8	-2.773	Avg	1.75	0	
3471.3	60.67	V	80.8	-20.13	Peak	1.5	0	
3471.3	53.647	V	60.8	-7.153	Avg	1.5	0	
3905.3	55.54	V	74	-18.46	Peak	1.5	0	
3905.3	48.517	V	54	-5.483	Avg	1.5	0	
4339.2	49.71	V	74	-24.29	Peak	1.5	20	
4339.2	42.687	V	54	-11.313	Avg	1.5	20	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC66RBX 2012
 Model: URC-3015BC0-X-R

Date: 12/21/12
 Labs: B and D
 Tested By: Alex Benitez

Y-Axis

Duty Cycle: 44.55%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	70.69	H	100.8	-30.11	Peak	1	50	
433.92	63.667	H	80.8	-17.133	Avg	1	50	
867.84	54.03	H	80.8	-26.77	Peak	1.5	70	
867.84	47.007	H	60.8	-13.793	Avg	1.5	70	
1301.76	42.55	H	74	-31.45	Peak	1.25	170	
1301.76	35.527	H	54	-18.473	Avg	1.25	170	
1735.68	43.33	H	80.8	-37.47	Peak	1.25	40	
1735.68	36.307	H	60.8	-24.493	Avg	1.25	40	
2169.6	56.42	H	80.8	-24.38	Peak	1	50	
2169.6	49.397	H	60.8	-11.403	Avg	1	50	
2603.5	59.56	H	80.8	-21.24	Peak	1.5	310	
2603.5	52.537	H	60.8	-8.263	Avg	1.5	310	
3037.4	58.63	H	80.8	-22.17	Peak	1.5	310	
3037.4	51.607	H	60.8	-9.193	Avg	1.5	310	
3471.3	54.03	H	80.8	-26.77	Peak	1.5	350	
3471.3	47.007	H	60.8	-13.793	Avg	1.5	350	
3905.3	57.19	H	74	-16.81	Peak	1.5	0	
3905.3	50.167	H	54	-3.833	Avg	1.5	0	
4339.2	53.8	H	74	-20.2	Peak	1	0	
4339.2	46.777	H	54	-7.223	Avg	1	0	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC66RBX 2012
 Model: URC-3015BC0-X-R

Date: 12/21/12
 Labs: B and D
 Tested By: Alex Benitez

Z-Axis

Duty Cycle: 44.55%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	76.79	V	100.8	-24.01	Peak	1.5	340	
433.92	69.767	V	80.8	-11.033	Avg	1.5	340	
867.84	59.44	V	80.8	-21.36	Peak	1.5	340	
867.84	52.417	V	60.8	-8.383	Avg	1.5	340	
1301.76	43.71	V	74	-30.29	Peak	2	90	
1301.76	36.687	V	54	-17.313	Avg	2	90	
1735.68	45.05	V	80.8	-35.75	Peak	2	110	
1735.68	38.027	V	60.8	-22.773	Avg	2	110	
2169.6	54.38	V	80.8	-26.42	Peak	1.75	50	
2169.6	47.357	V	60.8	-13.443	Avg	1.75	50	
2603.5	57.94	V	80.8	-22.86	Peak	1.25	300	
2603.5	50.917	V	60.8	-9.883	Avg	1.25	300	
3037.4	58.79	V	80.8	-22.01	Peak	1.25	340	
3037.4	51.767	V	60.8	-9.033	Avg	1.25	340	
3471.3	52.14	V	80.8	-28.66	Peak	1	90	
3471.3	45.117	V	60.8	-15.683	Avg	1	90	
3905.3	55.28	V	74	-18.72	Peak	1.5	90	
3905.3	48.257	V	54	-5.743	Avg	1.5	90	
4339.2	53.45	V	74	-20.55	Peak	1	90	
4339.2	46.427	V	54	-7.573	Avg	1	90	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC66RBX 2012
 Model: URC-3015BC0-X-R

Date: 12/21/12
 Labs: B and D
 Tested By: Alex Benitez

Z-Axis

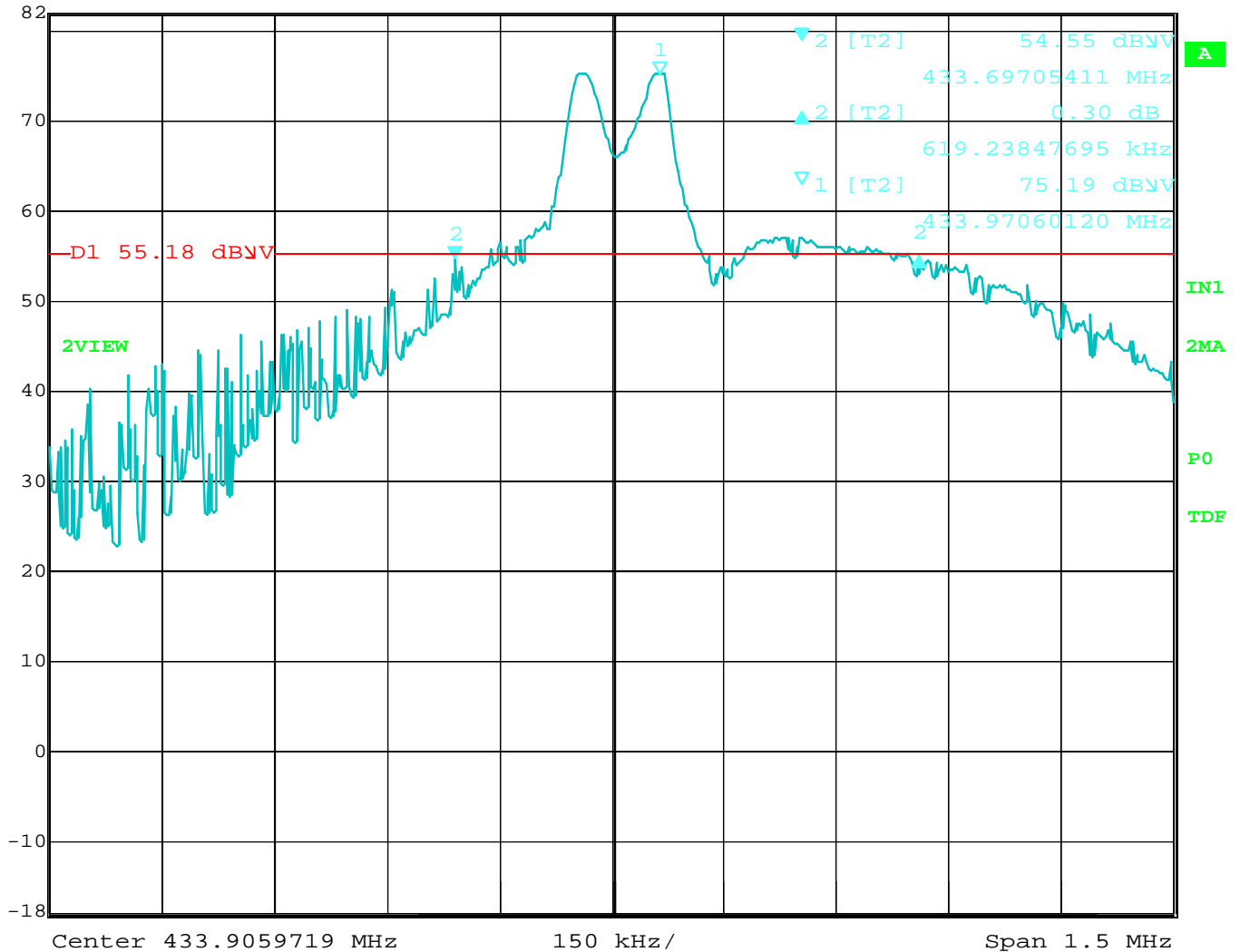
Duty Cycle: 44.55%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	73.79	H	100.8	-27.01	Peak	1	60	
433.92	66.767	H	80.8	-14.033	Avg	1	60	
867.84	64.83	H	80.8	-15.97	Peak	1	240	
867.84	57.807	H	60.8	-2.993	Avg	1	240	
1301.76	45.28	H	74	-28.72	Peak	1	60	
1301.76	38.257	H	54	-15.743	Avg	1	60	
1735.68	47.46	H	80.8	-33.34	Peak	1	60	
1735.68	40.437	H	60.8	-20.363	Avg	1	60	
2169.6	59.97	H	80.8	-20.83	Peak	1.5	70	
2169.6	52.947	H	60.8	-7.853	Avg	1.5	70	
2603.5	61.76	H	80.8	-19.04	Peak	1.5	70	
2603.5	54.737	H	60.8	-6.063	Avg	1.5	70	
3037.4	62.65	H	80.8	-18.15	Peak	1.5	70	
3037.4	55.627	H	60.8	-5.173	Avg	1.5	70	
3471.3	59.32	H	80.8	-21.48	Peak	1.5	90	
3471.3	52.297	H	60.8	-8.503	Avg	1.5	90	
3905.3	52.94	H	74	-21.06	Peak	1.25	60	
3905.3	45.917	H	54	-8.083	Avg	1.25	60	
4339.2	48.99	H	74	-25.01	Peak	1.25	130	
4339.2	41.967	H	54	-12.033	Avg	1.25	130	

-20 dB BANDWIDTH

DATA SHEETS

◆ Max/Ref Lvl Delta 2 [T2] RBW 30 kHz RF Att 10 dB
 82 dBμV 0.30 dB VBW 100 kHz
 72 dBμV 619.23847695 kHz SWT 5.5 ms Unit dBμV



Date: 8.FEB.2013 14:37:48

-20 dB Bandwidth of the Fundamental