


**CLASS II PERMISSIVE CHANGE
TEST REPORT***for***DIRECTV RC 65RX CG 2010 REMOTE CONTROL
MODEL: URC-2990BC0-X-R (IR/RF/XMP)**

Prepared for

UNIVERSAL ELECTRONICS, INC.
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CYPRESS, CALIFORNIA 90630-4841Prepared by:  _____

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114 OLINDA DRIVE
BREA, CALIFORNIA 92823
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DATE: SEPTEMBER 16, 2010

	REPORT BODY	APPENDICES						TOTAL
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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 endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: DirecTV RC 65RX CG 2010 Remote Control
Model: URC-2990BC0-X-R (IR/RF/XMP)
RC65RX
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: Universal Electronics, Inc.
6101 Gateway Drive
Cypress, California 90630-4841

Test Date: September 9, 2010

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. Highest reading in relation to spec limit: 57.75 (Avg) dBuV @ 3037.4 MHz (*U = 4.22 dB)

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the DirectTV RC 65RX CG 2010 Remote Control, Model: URC-2990BC0-X-R (IR/RF/XMP). The EMI 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.

The EUT was granted under the FCC ID: MG32993. The EUT is a Class II Permissive Change because the highest reading is greater than ± 3 dB from the data take in the Compatible Electronics, Inc. Test Report: **B00720D1**.

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.

Kyle Fujimoto Test Engineer
James Ross Test Engineer
Michael Christensen Lab Manager, Brea Division

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 sample has not been returned to Universal Electronics, Inc. as of the date of this 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 2003	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 - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The DirecTV RC 65RX CG 2010 Remote Control, Model: URC-2990BC0-X-R (IR/RF/XMP) (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 transmits only when any button is pressed. The EUT stops transmitting immediately after the button is released.

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 RC 65RX CG 2010 REMOTE CONTROL (EUT)	COMPUTIME LIMITED	URC-2990BC0-X-R (IR/RF/XMP)	N/A	MG32993



5.2 EMI 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	3638A08768	September 16, 2009	Sept. 16, 2010
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	September 16, 2009	Sept. 16, 2010
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	September 17, 2009	Sept. 17, 2010
EMI Receiver	Rohde & Schwarz	ESIB40	100194	September 17, 2008	Sept. 17, 2010
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Biconical Antenna	Com Power	AB-900	15250	February 16, 2010	Feb. 16, 2011
Log Periodic Antenna	Com Power	AL-100	16060	June 9, 2010	June 9, 2011
Preamplifier	Com-Power	PA-102	1017	January 6, 2010	Jan. 6, 2011
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	Sept. 29, 2010
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Microwave Preamplifier	Com Power	PA-122	181921	March 10, 2010	March 10, 2011
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

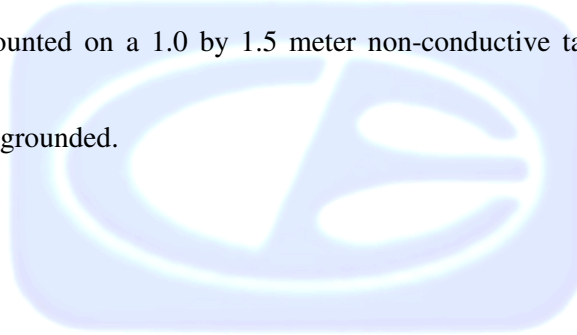
6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

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: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 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

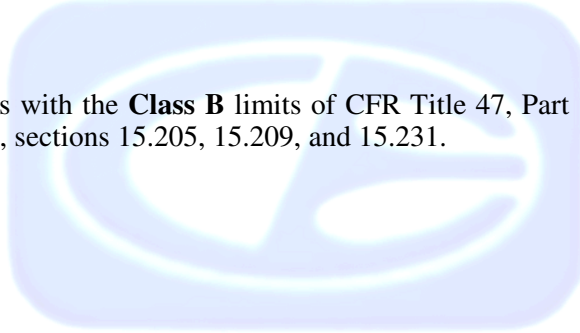
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. 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.

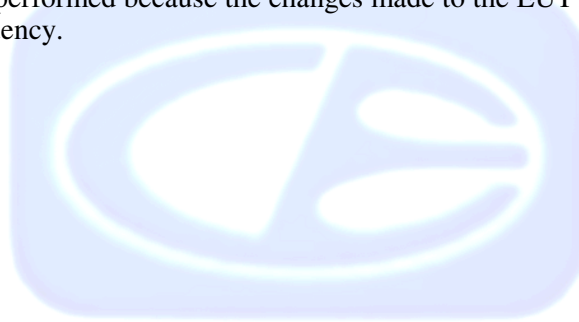


7.3 Bandwidth of the Fundamental

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:

This test was not performed because the changes made to the EUT do not affect the bandwidth of the fundamental frequency.



8. CONCLUSIONS

The DirecTV RC 65RX CG 2010 Remote Control, Model: URC-2990BC0-X-R (IR/RF/XMP), as tested, 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 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 RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada



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***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

DirecTV RC 65RX CG 2010 Remote Control
Model: URC-2990BC0-X-R (IR/RF/XMP)
S/N: N/A

There were no additional models covered under this report.

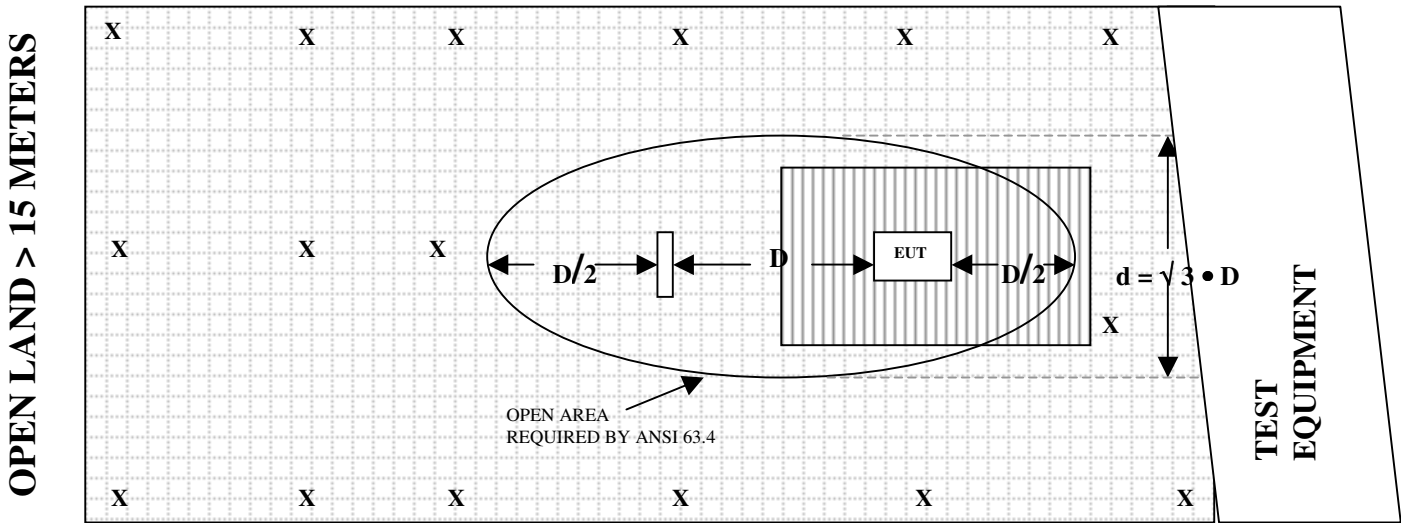


APPENDIX D



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: 15250

CALIBRATION DATE: FEBRUARY 16, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	13.5	100	11.1
35	10.4	120	13.1
40	10.3	140	12.2
45	9.8	160	13.6
50	10.6	180	15.9
60	9.5	200	16.4
70	8.4	250	15.1
80	5.5	275	17.7
90	7.3	300	19.5

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

S/N: 16060

CALIBRATION DATE: JUNE 9, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	15.5	700	20.4
400	17.9	800	21.5
500	18.5	900	21.7
600	20.3	1000	23.0

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 PA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 6, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
20	38.0	300	38.2
30	38.3	350	38.1
40	38.4	400	38.5
50	38.2	450	38.0
60	38.2	500	37.9
70	38.3	550	38.2
80	38.1	600	38.2
90	38.2	650	37.7
100	38.3	700	38.3
125	38.2	750	38.3
150	38.3	800	37.4
175	38.3	850	37.5
200	38.1	900	37.6
225	38.2	950	37.4
250	38.3	1000	37.3
275	38.2		

COM-POWER PA-122**PREAMPLIFIER**

S/N: 181921

CALIBRATION DATE: MARCH 10, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	35.53	10.0	34.78
1.5	34.92	10.5	34.36
2.0	34.63	11.0	33.14
2.5	34.42	11.5	34.42
3.0	34.40	12.0	34.24
3.5	34.36	12.5	34.95
4.0	34.11	13.0	34.62
4.5	33.61	13.5	35.24
5.0	33.83	14.0	35.40
5.5	34.53	14.5	36.66
6.0	35.09	15.0	35.98
6.5	35.58	15.5	35.94
7.0	36.50	16.0	35.80
7.5	34.83	16.5	34.98
8.0	34.08	17.0	35.00
8.5	33.57	17.5	34.25
9.0	34.68	18.0	33.51
9.5	35.84	18.5	32.88

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

S/N: 17089

CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
DIRECTV RC 65RX CG 2010 REMOTE CONTROL
MODEL: URC-2990BC0-X-R (IR/RF/XMP)
FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS – 09/09/10

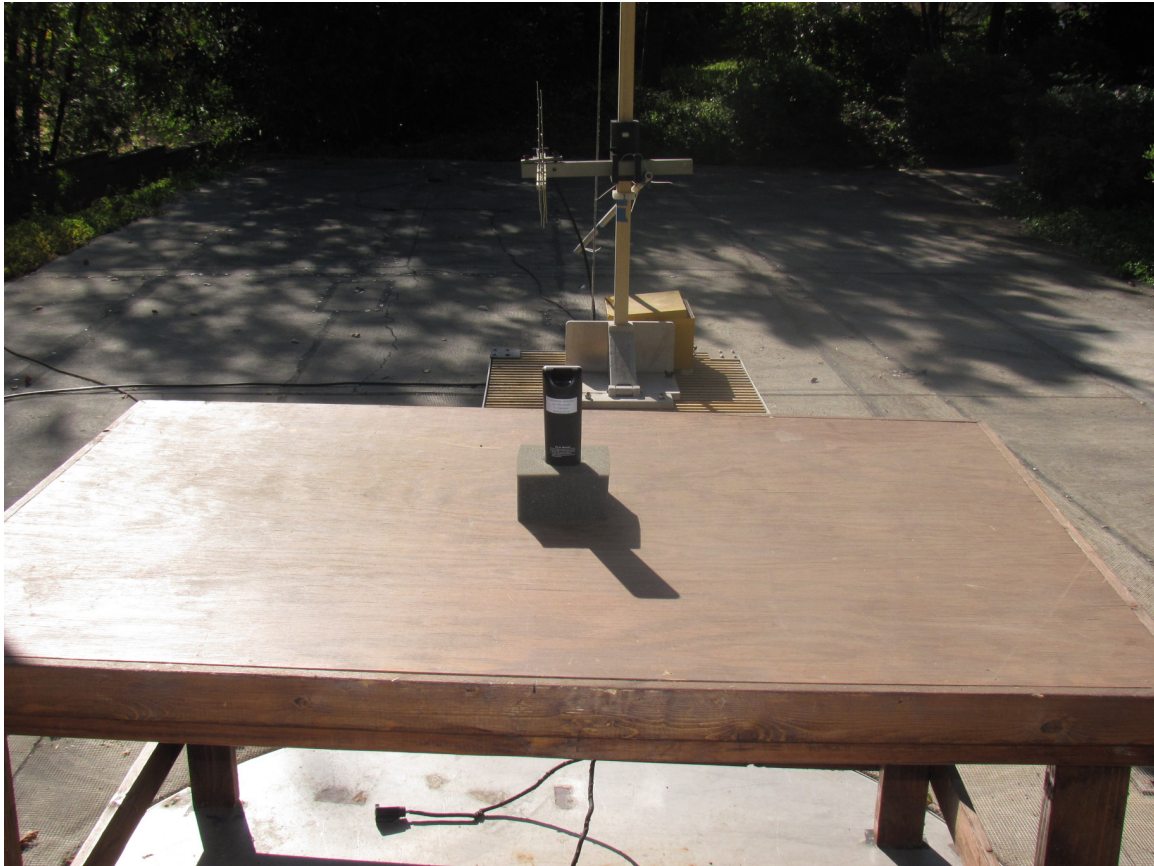
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
DIRECTV RC 65RX CG 2010 REMOTE CONTROL
MODEL: URC-2990BC0-X-R (IR/RF/XMP)
FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS – 09/09/10

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

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 E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.231

Universal Electronics, Inc.
 DirectTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

X-Axis

Duty Cycle: 32.32%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	79.37	V	100.8	-21.43	Peak	1.5	0	
433.92	69.56	V	80.8	-11.24	Avg	1.5	0	
867.84	59	V	80.8	-21.8	Peak	1.5	0	
867.84	49.19	V	60.8	-11.61	Avg	1.5	0	
1301.76	47.85	V	74	-26.15	Peak	1	270	
1301.76	38.04	V	54	-15.96	Avg	1	270	
1735.68	42.64	V	80.8	-38.16	Peak	1	225	
1735.68	32.83	V	60.8	-27.97	Avg	1	225	
2169.6	57.15	V	80.8	-23.65	Peak	1	270	
2169.6	47.34	V	60.8	-13.46	Avg	1	270	
2603.5	54.16	V	80.8	-26.64	Peak	1.1	270	
2603.5	44.35	V	60.8	-16.45	Avg	1.1	270	
3037.4	61.4	V	80.8	-19.4	Peak	1	0	
3037.4	51.59	V	60.8	-9.21	Avg	1	0	
3471.3	59.7	V	80.8	-21.1	Peak	1.1	0	
3471.3	49.89	V	60.8	-10.91	Avg	1.1	0	
3905.3	51.18	V	74	-22.82	Peak	1	15	
3905.3	41.37	V	54	-12.63	Avg	1	15	
4339.2	49.71	V	74	-24.29	Peak	2.5	270	
4339.2	39.9	V	54	-14.1	Avg	2.5	270	

FCC 15.231

Universal Electronics, Inc.
 DirectTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

X-Axis

Duty Cycle: 32.32%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	86.87	H	100.8	-13.93	Peak	1	270	
433.92	77.06	H	80.8	-3.74	Avg	1	270	
867.84	62.6	H	80.8	-18.2	Peak	1	225	
867.84	52.79	H	60.8	-8.01	Avg	1	225	
1301.76	50.02	H	74	-23.98	Peak	1	225	
1301.76	40.21	H	54	-13.79	Avg	1	225	
1735.68	43.9	H	80.8	-36.9	Peak	1.05	80	
1735.68	34.09	H	60.8	-26.71	Avg	1.05	80	
2169.6	49.47	H	80.8	-31.33	Peak	1.1	190	
2169.6	39.66	H	60.8	-21.14	Avg	1.1	190	
2603.5	50.82	H	80.8	-29.98	Peak	2.7	280	
2603.5	41.01	H	60.8	-19.79	Avg	2.7	280	
3037.4	55.41	H	80.8	-25.39	Peak	2.7	45	
3037.4	45.6	H	60.8	-15.2	Avg	2.7	45	
3471.3	54.87	H	80.8	-25.93	Peak	2.8	70	
3471.3	45.06	H	60.8	-15.74	Avg	2.8	70	
3905.3	52.54	H	74	-21.46	Peak	1.2	80	
3905.3	42.73	H	54	-11.27	Avg	1.2	80	
4339.2	49.85	H	74	-24.15	Peak	2.3	45	
4339.2	40.04	H	54	-13.96	Avg	2.3	45	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

Y-Axis

Duty Cycle: 32.32%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	86.87	V	100.8	-13.93	Peak	1.25	45	
433.92	77.06	V	80.8	-3.74	Avg	1.25	45	
867.84	55.8	V	80.8	-25	Peak	1.25	45	
867.84	45.99	V	60.8	-14.81	Avg	1.25	45	
1301.76	47.94	V	74	-26.06	Peak	3	0	
1301.76	38.13	V	54	-15.87	Avg	3	0	
1735.68	45.39	V	80.8	-35.41	Peak	2.2	80	
1735.68	35.58	V	60.8	-25.22	Avg	2.2	80	
2169.6	52.39	V	80.8	-28.41	Peak	2	0	
2169.6	42.58	V	60.8	-18.22	Avg	2	0	
2603.5	57.55	V	80.8	-23.25	Peak	2.5	180	
2603.5	47.74	V	60.8	-13.06	Avg	2.5	180	
3037.4	58.55	V	80.8	-22.25	Peak	2.75	350	
3037.4	48.74	V	60.8	-12.06	Avg	2.75	350	
3471.3	55.2	V	80.8	-25.6	Peak	3.6	0	
3471.3	45.39	V	60.8	-15.41	Avg	3.6	0	
3905.3	57.11	V	74	-16.89	Peak	2	85	
3905.3	47.3	V	54	-6.7	Avg	2	85	
4339.2	55.64	V	74	-18.36	Peak	2.1	90	
4339.2	45.83	V	54	-8.17	Avg	2.1	90	

FCC 15.231

Universal Electronics, Inc.
 DirectTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

Y-Axis

Duty Cycle: 32.32%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	77.07	H	100.8	-23.73	Peak	1	270	
433.92	67.26	H	80.8	-13.54	Avg	1	270	
867.84	58.4	H	80.8	-22.4	Peak	2	0	
867.84	48.59	H	60.8	-12.21	Avg	2	0	
1301.76	46.1	H	74	-27.9	Peak	3	0	
1301.76	36.29	H	54	-17.71	Avg	3	0	
1735.68	44.23	H	80.8	-36.57	Peak	1.5	0	
1735.68	34.42	H	60.8	-26.38	Avg	1.5	0	
2169.6	58.02	H	80.8	-22.78	Peak	1.5	280	
2169.6	48.21	H	60.8	-12.59	Avg	1.5	280	
2603.5	57.82	H	80.8	-22.98	Peak	1.2	270	
2603.5	48.01	H	60.8	-12.79	Avg	1.2	270	
3037.4	59.47	H	80.8	-21.33	Peak	1.2	90	
3037.4	49.66	H	60.8	-11.14	Avg	1.2	90	
3471.3	59.19	H	80.8	-21.61	Peak	1	0	
3471.3	49.38	H	60.8	-11.42	Avg	1	0	
3905.3	60.03	H	74	-13.97	Peak	1.4	0	
3905.3	50.22	H	54	-3.78	Avg	1.4	0	
4339.2	56.65	H	74	-17.35	Peak	1.5	0	
4339.2	46.84	H	54	-7.16	Avg	1.5	0	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

Z-Axis

Duty Cycle: 32.32%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	78.56	V	100.8	-22.24	Peak	1.5	135	
433.92	68.75	V	80.8	-12.05	Avg	1.5	135	
867.84	59	V	80.8	-21.8	Peak	1.5	135	
867.84	49.19	V	60.8	-11.61	Avg	1.5	135	
1301.76	52.41	V	74	-21.59	Peak	3	180	
1301.76	42.6	V	54	-11.4	Avg	3	180	
1735.68	48.34	V	80.8	-32.46	Peak	1.8	190	
1735.68	38.53	V	60.8	-22.27	Avg	1.8	190	
2169.6	56.86	V	80.8	-23.94	Peak	1.8	265	
2169.6	47.05	V	60.8	-13.75	Avg	1.8	265	
2603.5	62.03	V	80.8	-18.77	Peak	1.05	170	
2603.5	52.22	V	60.8	-8.58	Avg	1.05	170	
3037.4	67.56	V	80.8	-13.24	Peak	1.05	185	
3037.4	57.75	V	60.8	-3.05	Avg	1.05	185	
3471.3	65.55	V	80.8	-15.25	Peak	1.1	185	
3471.3	55.74	V	60.8	-5.06	Avg	1.1	185	
3905.3	59.25	V	74	-14.75	Peak	1.55	180	
3905.3	49.44	V	54	-4.56	Avg	1.55	180	
4339.2	52.39	V	74	-21.61	Peak	2.4	195	
4339.2	42.58	V	54	-11.42	Avg	2.4	195	

FCC 15.231

Universal Electronics, Inc.
 DirecTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

Z-Axis

Duty Cycle: 32.32%

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
433.92	84.87	H	100.8	-15.93	Peak	1	45	
433.92	75.06	H	80.8	-5.74	Avg	1	45	
867.84	58.1	H	80.8	-22.7	Peak	1	0	
867.84	48.29	H	60.8	-12.51	Avg	1	0	
1301.76	49.43	H	74	-24.57	Peak	1	270	
1301.76	39.62	H	54	-14.38	Avg	1	270	
1735.68	38.84	H	80.8	-41.96	Peak	1.2	0	
1735.68	29.03	H	60.8	-31.77	Avg	1.2	0	
2169.6	57.35	H	80.8	-23.45	Peak	1.2	225	
2169.6	47.54	H	60.8	-13.26	Avg	1.2	225	
2603.5	59.98	H	80.8	-20.82	Peak	2.9	280	
2603.5	50.17	H	60.8	-10.63	Avg	2.9	280	
3037.4	63.72	H	80.8	-17.08	Peak	2.5	280	
3037.4	53.91	H	60.8	-6.89	Avg	2.5	280	
3471.3	64.44	H	80.8	-16.36	Peak	2	270	
3471.3	54.63	H	60.8	-6.17	Avg	2	270	
3905.3	59.58	H	74	-14.42	Peak	2	270	
3905.3	49.77	H	54	-4.23	Avg	2	270	
4339.2	52.07	H	74	-21.93	Peak	2	300	
4339.2	42.26	H	54	-11.74	Avg	2	300	

FCC Class B and FCC 15.231

Universal Electronics, Inc.
 DirectTV RC 65RX CG 2010 Remote Control
 Model: URC-2990BC0-X-R (IR/RF/XMP)

Date: 9/9/2010
 Labs: B and D
 Tested By: David Tran & James Ross

X-Axis (Worst Case)

Digital Portion and Non-Harmonic Emissions from the Transmitter
Vertical and Horizontal Polarizations

Freq. (MHz)		Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	
								No Emissions Detected from 10 kHz to 4400 MHz for the Digital Portion for both the Vertical and Horizontal Polarizations.
								No Emissions Detected from 10 kHz to 4400 MHz for the Non-Harmonic Emissions from the Tx for the EUT for both the Vertical and Horizontal Polarizations.

APPENDIX F

CLASS II PERMISSIVE CHANGE INFORMATION

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

CLASS II PERMISSIVE CHANGE INFORMATION

The following change(s) were made to the EUT for the Class II Permissive Change:

1. The Main PCB now has additional circuitry to support XMP-2, an (Infrared Receiver)

DELTA FROM CLASS II PERMISSIVE CHANGE TO ORIGINAL UNIT

FREQUENCY (MHz)	URC-2993RG-X (IR/RF) Worse case Reading from Test Report B00720D1 (dBuV/m)	URC-2990BC0-X-R (IR/RF/XMP) testing on September 9, 2010 (dBuV/m)	DELTA
433.92	78.07 (Avg)	77.06 (Avg)	-1.01
867.84	53.56 (Avg)	52.79 (Avg)	-0.77
1301.76	34.08 (Avg)	42.60 (Avg)	+8.52
1735.68	41.16 (Avg)	38.53 (Avg)	-2.63
2169.6	51.11 (Avg)	48.21 (Avg)	-2.90
2603.5	49.38 (Avg)	52.22 (Avg)	+2.84
3037.4	53.54 (Avg)	57.75 (Avg)	+4.21
3471.3	48.27 (Avg)	55.74 (Avg)	+7.47
3905.3	48.82 (Avg)	50.22 (Avg)	+1.40
4339.2	45.07 (Avg)	46.84 (Avg)	+1.77

The Frequencies for the new version are greater than ± 3 dB of the original unit, thus the EUT is considered a Class II Permissive Change.