FCC PART 15, SUBPART B and C
TEST REPORT

for

AT&T VRC81 DFW REMOTE 2016

Model: URC-5602BC0-X-R

Prepared for

UNIVERSAL ELECTRONICS, INC.
201 EAST SANDPOINTE AVANUE, 8TH FLOOR
SANTA ANA CALIFORNIA, 92707

Prepared by:_____

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DATE: OCTOBER 26, 2017

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
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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: AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R
S/N: N/A

Product Description: The AT&T VRC81 DFW Remote 2016 (EUT) is a custom two device universal remote control. The device supports SAT, Audio and TV.

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

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

Test Dates: October 17, 18 and 26, 2017

Test Specifications covered by accreditation:

CFR Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.209, and 15.249

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Test Procedures: ANSI C63.4: 2014 and ANSI C63.10: 2013

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 9 kHz –25000MHz	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 Highest reading in relation to spec limit 85.08 (Avg) dBuV/m @ 2480 MHz (*U = 3.70 dB)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the AT&T VRC81 DFW Remote 2016, Model: URC-5602BC0-X-R. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. 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	Staff Engineer, Electrical

Compatible Electronics Inc.

Kyle Haag	Test Technician
Kyle Fujimoto	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on October 17, 2017.

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
ASK	Amplitude Shift Key
ITE	Information Technology Equipment
N/A	Not Applicable
Tx	Transmit
Rx	Receive
PIR	Pyroelectric (“Passive”) Infrared
IR	Infrared
Inc.	Incorporated

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 2014	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 25 GHz
ANSI C63.10 2013	American National Standard of procedure for compliance testing of unlicensed wireless devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

RF Mode: The AT&T VRC81 DFW Remote 2016, Model: URC-5602BC0-X-R (EUT) was setup in a stand-alone configuration. The EUT was investigated in all three orthogonal axis. During the testing, the EUT was continuously transmitting at 2402 MHz, 2442 MHz and 2480 MHz. The EUT was tested from 9 kHz to 25 GHz.

The EUT was programmed to be able to continuously transmit at the low, middle and high channels. Fresh batteries were installed inside the EUT prior to the testing. The EUT was set via the PTC_UE878NME_CFG_A_DIF.hex firmware to continuously transmit at the low, middle or high channels respectively.

The firmware is stored in one of the network drives in the company's server.

IR Mode: The AT&T VRC81 DFW Remote 2016, Model: URC-5602BC0-X-R (EUT) was setup in a stand-alone configuration. The EUT was investigated in all three orthogonal axis. During the testing, the EUT was continuously transmitting IR. Fresh batteries were installed inside the EUT prior to the testing. The EUT was tested from 30 MHz to 1000 MHz.

The X orientation is when the EUT is parallel to the ground. The Y orientation is when the EUT is perpendicular to the ground mounted vertically. The Z orientation is when the EUT is perpendicular to the ground mounted horizontally.

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

4.1.1 Cable Construction and Termination

The EUT had no external cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
AT&T VRC81 DFW REMOTE 2016 (EUT)	UNIVERSAL ELECTRONICS, INC.	URC-5602BC0-X-R	N/A	MG3-5602

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
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	December 29, 2015	2 Year
RF RADIATED EMISSIONS TEST EQUIPMENT					
Loop Antenna	Com-Power	AL-130R	121090	February 9, 2017	2 Year
CombiLog Antenna	Com-Power	AC-220	61060	July 27, 2017	2 Year
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
Horn Antenna	Com-Power	AH-118	071175	February 26, 2016	2 Year
Preamplifier	Com-Power	PAM-118A	551024	May 12, 2016	2 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2016	2 Year
Horn Antenna	Com-Power	AH-826	71957	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

For frequencies 1 GHz and below: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

For frequencies above 1 GHz: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 1.5 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 Test

The EMI Receiver was used as the measuring meter. Preamplifiers were 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. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured.

The frequencies below 1 GHz were quasi-peaked using the quasi-peak detector of the EMI Receiver.

The frequencies for the fundamental and harmonics above 1 GHz were averaged using a duty cycle correction factor.

The frequencies for the band edges were averaged using the RMS detector of the EMI Receiver.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with 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 EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 1.0.

Radiated Emissions Test (Continued)

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	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.209 and 15.249 for radiated emissions.

7.1.2 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Frequency MHz	Average EMI Reading (dBuV/m)	Average Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) dB)
2480 (H) (X-Axis)	85.08	93.97	-8.89
2442 (H) (X-Axis)	84.60	93.97	-9.38
2402 (H) (X-Axis)	84.23	93.97	-9.74
2480 (V) (Y-Axis)	84.05	93.97	-9.92
2442 (V) (Y-Axis)	83.91	93.97	-10.06
2442 (H) (X-Axis)	83.68	93.97	-10.29

Notes:
* The complete emissions data is given in Appendix E of this report.
(V) Vertical
(H) Horizontal

7.1.3 Duty Cycle Calculation

The fundamental and harmonics were measured at a 3-meter test distance. The EMI Receiver was used to obtain the final test data. The final qualification data sheets are located in Appendix E.

Where

$$\delta(\mathrm{dB}) = 20\log\left[\sum\left(nt_1 + mt_2 + \ldots + \xi t_x\right)/T\right]$$

n is the number of pulses of duration *t*1
m is the number of pulses of duration *t*2
ξ is the number of pulses of duration *tx*
T is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

The worst case was when the EUT was in advertising mode

Duty Cycle Correction Factor = -20.00 dB

Total of One Pulse = 700 us

Total On Time = 700 us

The time between pulses is 45.2 ms.

Duty Cycle = 700 us / 45.2 mS = 0.0155 = 1.55%

The duty cycle is less than 10%, so the maximum Peak to Average ratio of -20 dB can be utilized.

8. CONCLUSIONS

The AT&T VRC81 DFW Remote 2016, Model: URC-5602BC0-X-R, as tested, meets all of the **Class B** specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209 and 15.249.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200528-0

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For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.
For the most up-to-date version of our scopes and certificates please visit http://celectronics.com/quality/scope/

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."

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.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODEL COVERED UNDER THIS REPORT

ADDITIONAL MODEL COVERED UNDER THIS REPORT

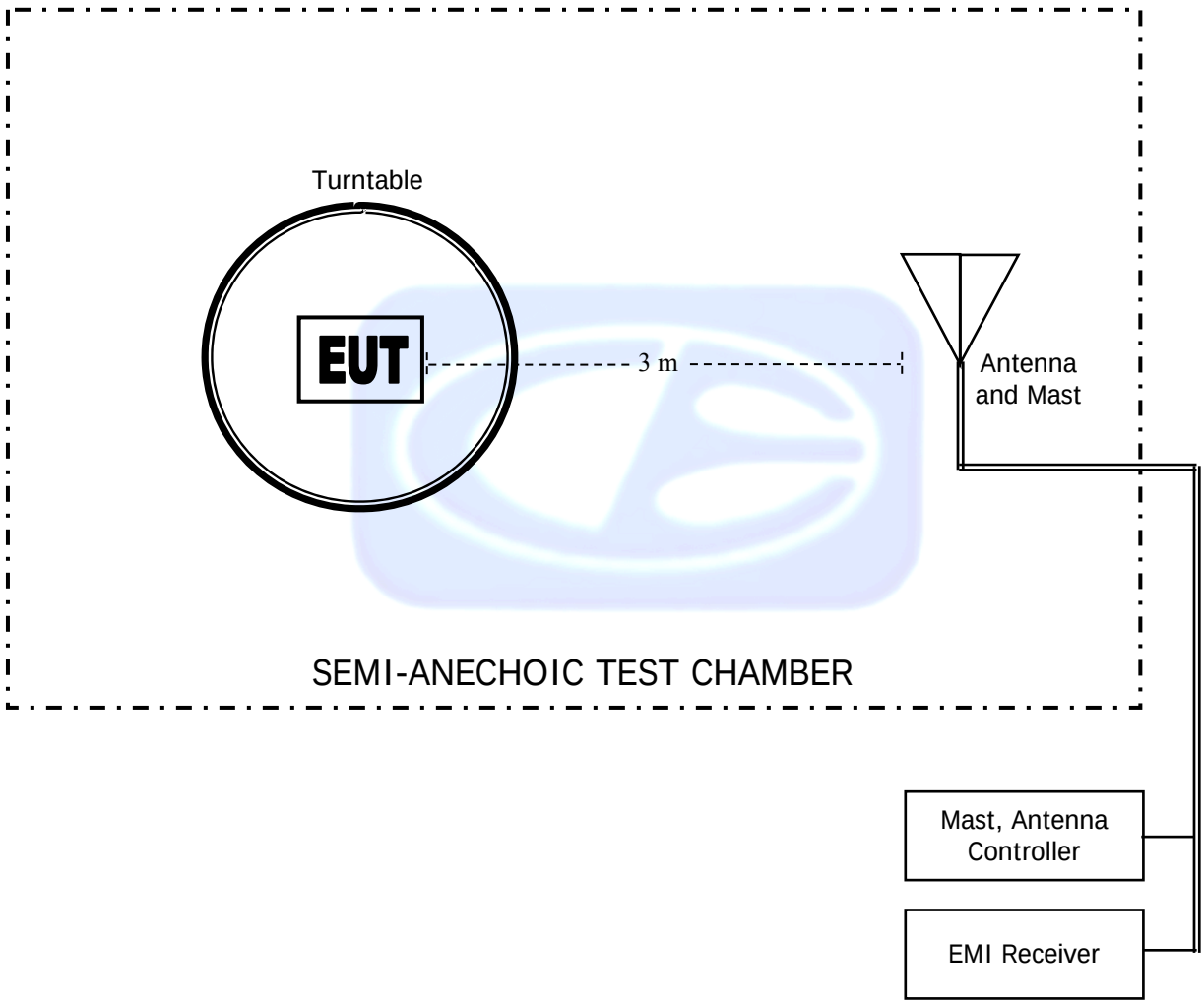
USED FOR THE PRIMARY TEST	AT&T VRC81 DFW Remote 2016 Model: URC-5602BC0-X-R S/N: N/A

There are no additional Models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: LAYOUT OF THE SEMI -ANECHOIC TEST CHAMBER



COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 9, 2017

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-36.17	15.33
0.01	-35.86	15.64
0.02	-37.30	14.20
0.03	-36.58	14.92
0.04	-36.99	14.51
0.05	-37.66	13.84
0.06	-37.53	13.97
0.07	-37.64	13.86
0.08	-37.52	13.98
0.09	-37.62	13.88
0.1	-37.59	13.91
0.2	-37.79	13.71
0.3	-37.80	13.70
0.4	-37.70	13.80
0.5	-37.79	13.71
0.6	-37.79	13.71
0.7	-37.69	13.81
0.8	-37.49	14.01
0.9	-37.39	14.11
1	-37.39	14.11
2	-37.09	14.41
3	-37.09	14.41
4	-37.19	14.31
5	-36.98	14.52
6	-37.17	14.33
7	-37.05	14.45
8	-36.85	14.65
9	-36.84	14.66
10	-36.75	14.75
15	-37.16	14.34
20	-36.44	15.06
25	-37.88	13.62
30	-39.14	12.36

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61060

CALIBRATION DATE: JULY 27, 2017

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.80	200	14.10
35	24.00	250	15.30
40	24.70	300	17.70
45	22.90	350	17.70
50	22.10	400	19.00
60	17.60	450	21.30
70	12.70	500	21.00
80	11.20	550	22.30
90	13.10	600	23.40
100	14.40	650	22.90
120	15.30	700	24.60
125	15.00	750	24.50
140	12.80	800	25.40
150	16.50	850	26.40
160	12.90	900	27.20
175	14.30	950	27.80
180	14.50	1000	26.80

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 26, 2016

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.93	10.0	39.33
1.5	25.54	10.5	39.64
2.0	28.09	11.0	41.04
2.5	30.21	11.5	44.29
3.0	30.15	12.0	41.22
3.5	30.17	12.5	41.50
4.0	31.90	13.0	41.62
4.5	33.51	13.5	40.63
5.0	33.87	14.0	39.94
5.5	35.08	14.5	41.84
6.0	34.81	15.0	42.69
6.5	34.26	15.5	39.03
7.0	36.33	16.0	39.07
7.5	37.03	16.5	41.40
8.0	37.56	17.0	43.18
8.5	40.07	17.5	47.01
9.0	38.92	18.0	46.48
9.5	38.21		

COM-POWER PAM-118A

PREAMPLIFIER

S/N: 551024

CALIBRATION DATE: MAY 12, 2016

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	39.84	6.0	39.05
1.1	39.40	6.5	38.94
1.2	39.58	7.0	39.25
1.3	39.68	7.5	39.09
1.4	39.91	8.0	39.01
1.5	39.78	8.5	38.60
1.6	39.50	9.0	38.64
1.7	39.81	9.5	39.67
1.8	39.89	10.0	39.30
1.9	39.94	11.0	39.15
2.0	39.57	12.0	39.24
2.5	40.39	13.0	39.49
3.0	40.63	14.0	39.44
3.5	40.80	15.0	39.94
4.0	40.86	16.0	40.09
4.5	39.94	17.0	40.06
5.0	34.47	18.0	39.76
5.5	39.32		

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

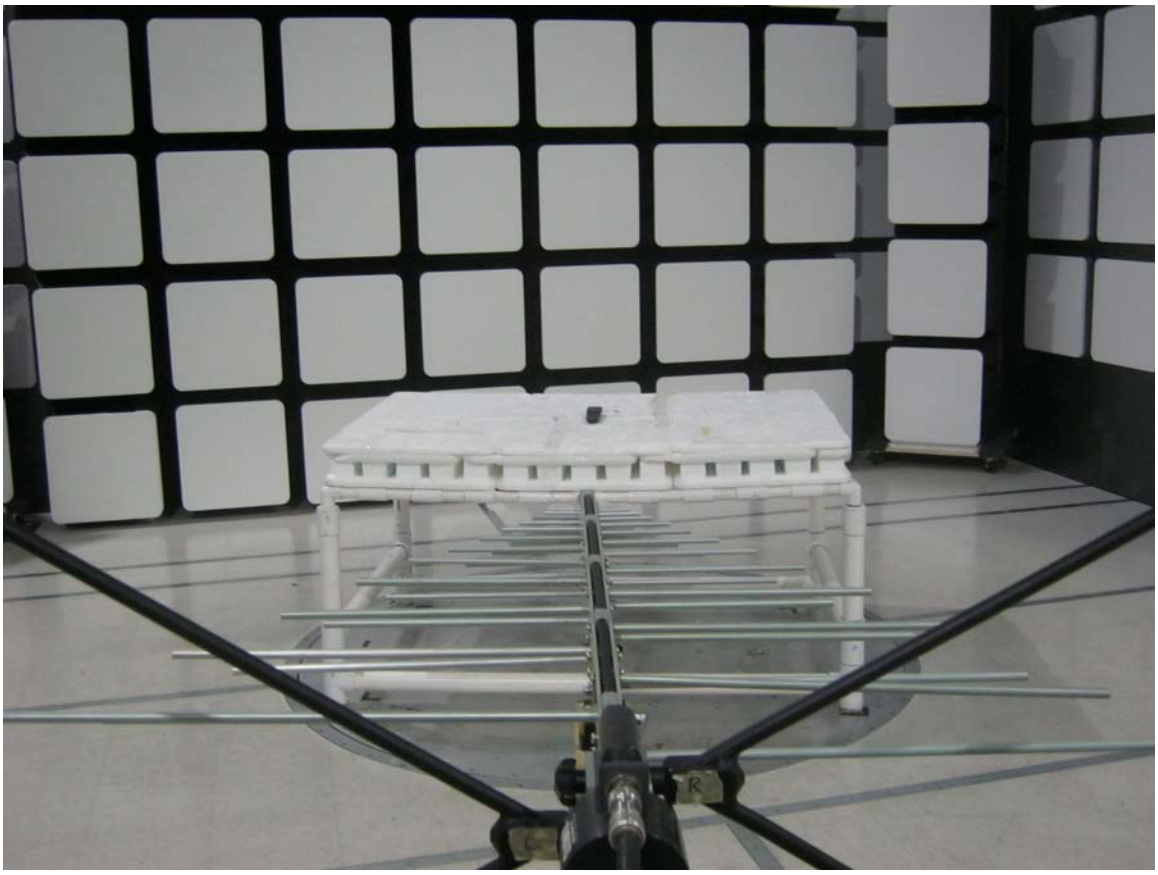
COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MAY 13, 2016

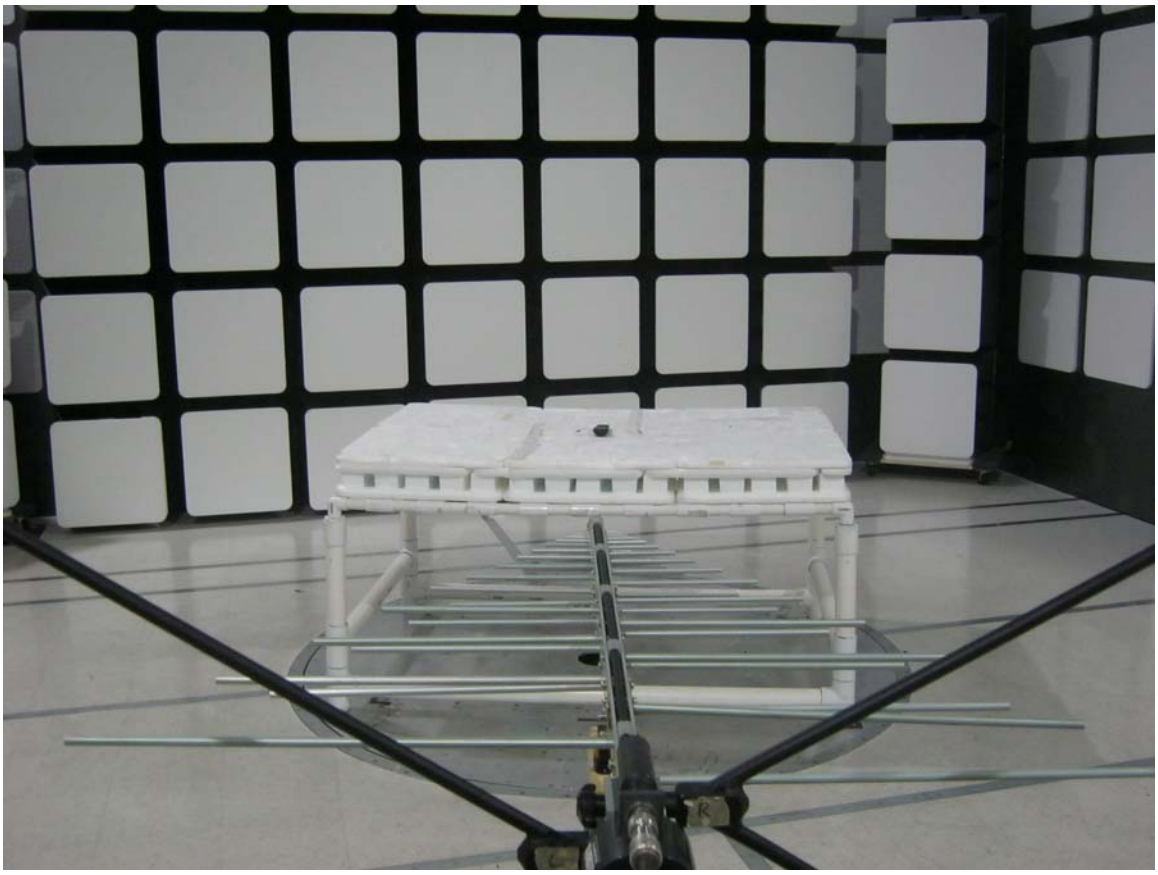
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	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.
AT&T VRC81 DFW REMOTE 2016
MODEL: URC-5602BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

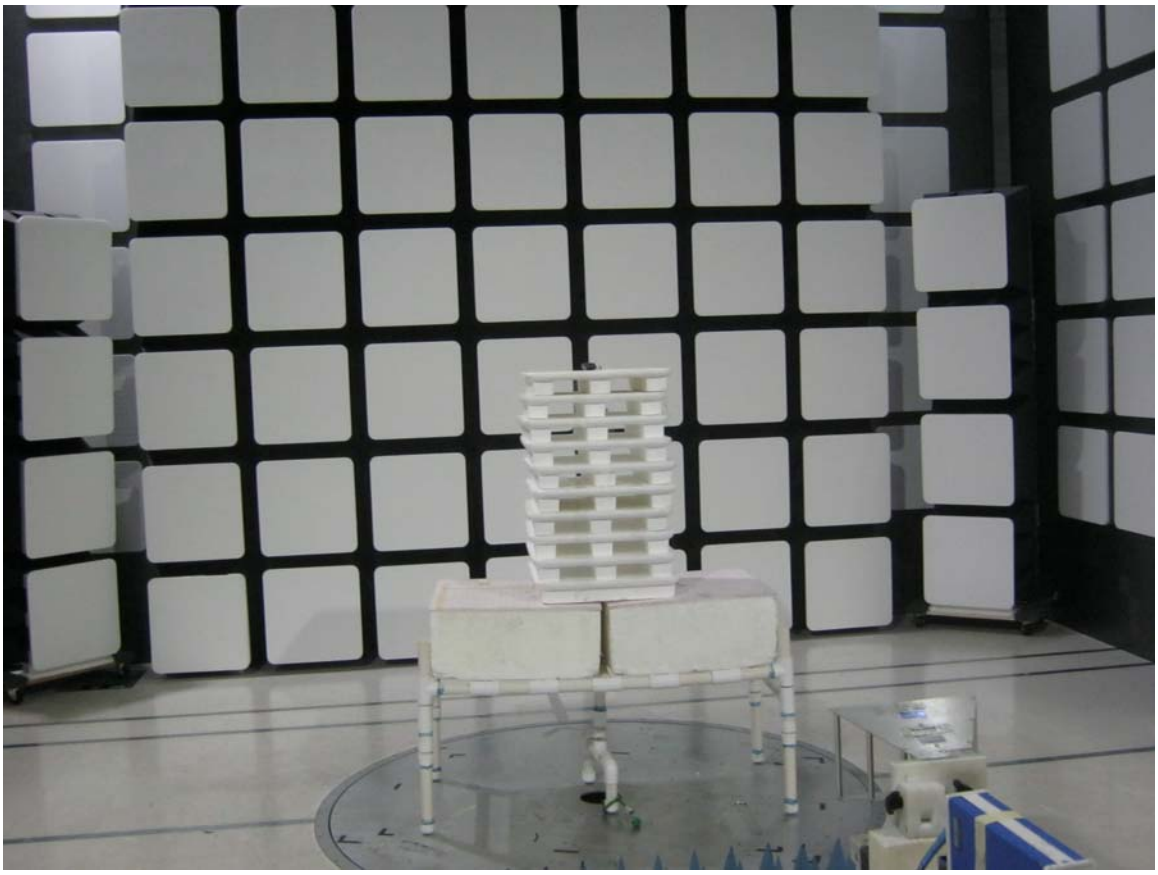
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
AT&T VRC81 DFW REMOTE 2016
MODEL: URC-5602BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

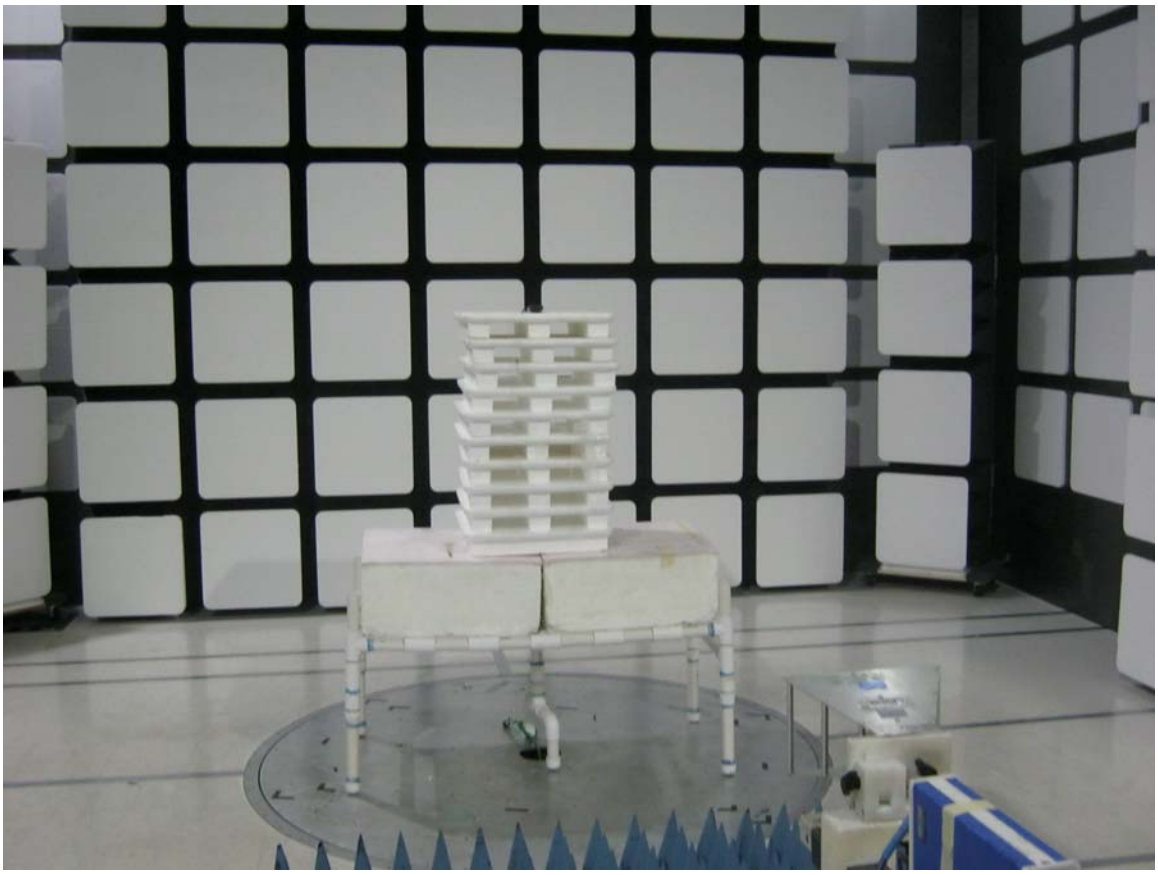
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
AT&T VRC81 DFW REMOTE 2016
MODEL: URC-5602BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
AT&T VRC81 DFW REMOTE 2016
MODEL: URC-5602BC0-X-R
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs

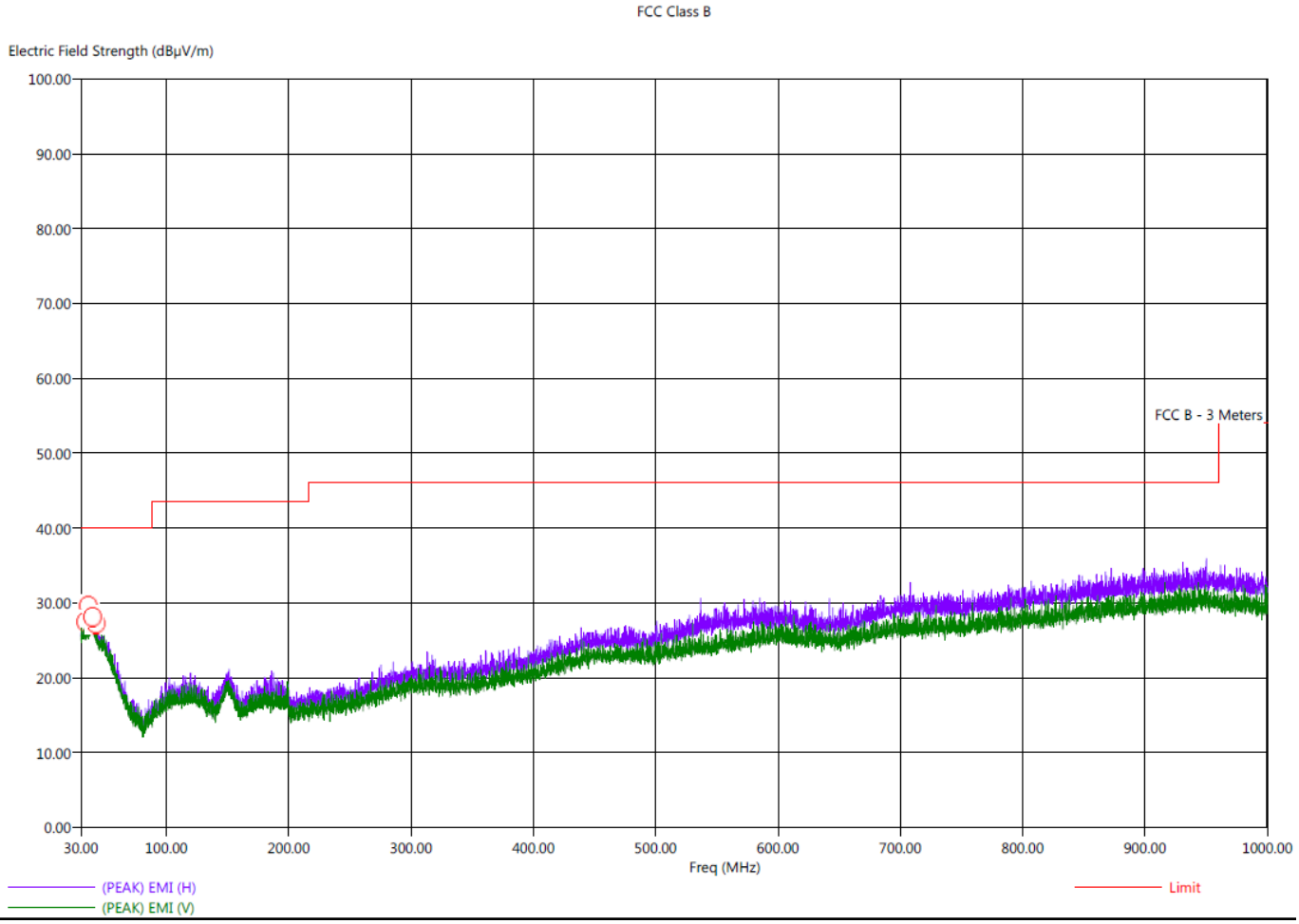
APPENDIX E

DATA SHEETS

RADIATED EMISSIONS DATA SHEETS

Title: Pre-Scan - FCC Class B
File: Rohde & Schwarz - Pre-Scan - TX - Mode - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Kyle Haag
EUT Type: AT&T VRC81 DFW Remote 2016
EUT Condition: The EUT is continuously transmitting TX Mode X-Axis
Company: Universal Electronics
Model: URC-5602BC0-X-R

10/26/2017 2:13:45 PM
Sequence: Preliminary Scan



RF Mode – X-Axis Worst Case

This test complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B, section 15.109; and Subpart C sections 15.209 and 15.249.

Title: Radiated Final - FCC Class B
File: Rohde & Schwarz - Final Scan - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Kyle Haag
EUT Type: AT&T VRC81 DFW Remote 2016
EUT Condition: The EUT is continuously transmitting TX Mode X-Axis
Company: Universal Electronics
Model: URC-5602BC0-X-R

10/26/2017 2:37:16 PM
Sequence: Final Measurements

FCC Class B

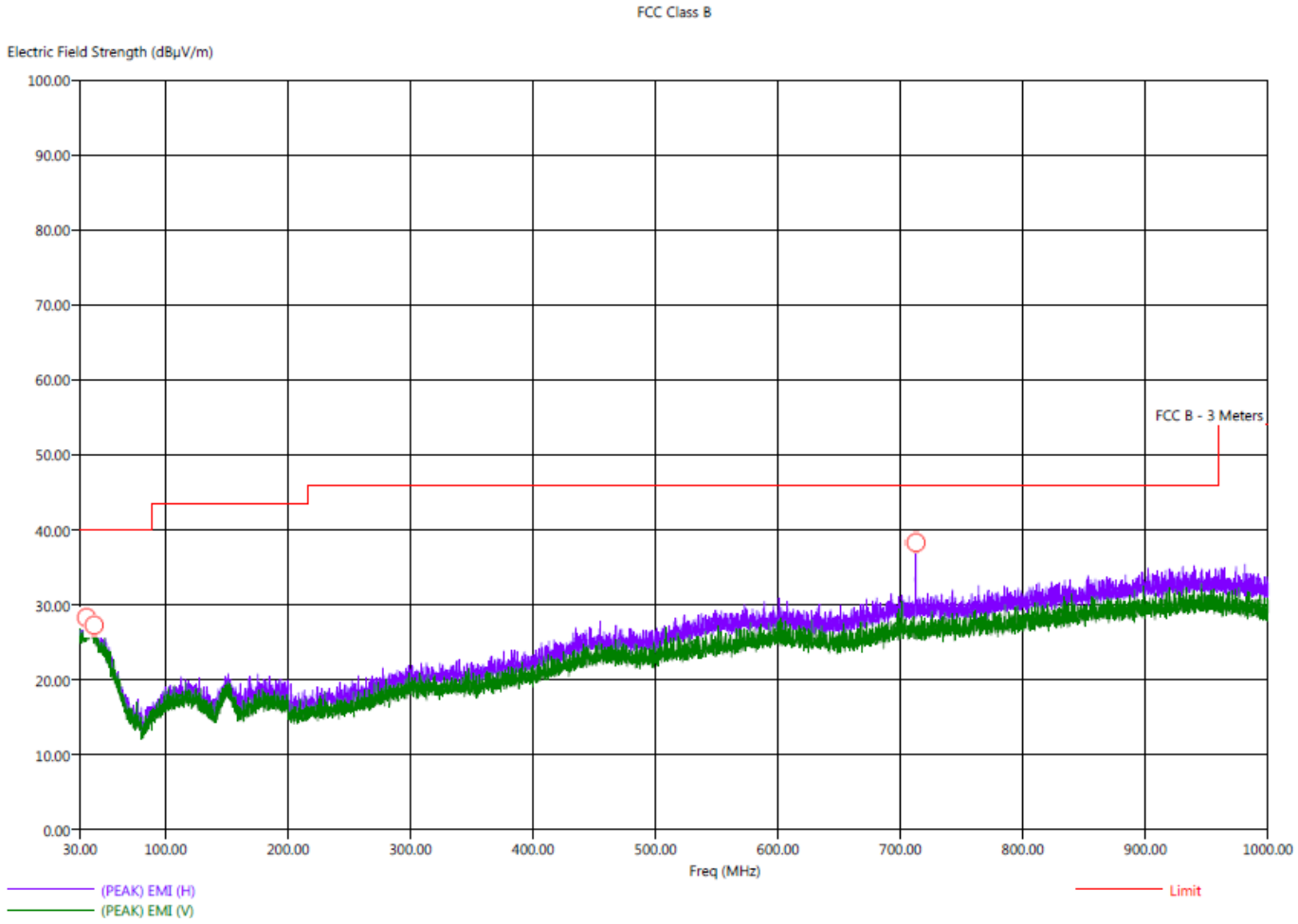
Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
34.00	H	27.88	21.58	-12.12	-18.42	40.00	23.95	0.45	141.50	225.91
36.10	H	26.77	21.87	-13.23	-18.13	40.00	24.17	0.47	308.25	258.98
39.10	H	27.35	22.44	-12.65	-17.56	40.00	24.60	0.49	235.00	357.25
39.60	V	28.17	22.59	-11.83	-17.41	40.00	24.68	0.49	59.75	209.55
39.90	H	27.74	22.53	-12.26	-17.47	40.00	24.68	0.49	248.00	209.61
42.40	V	27.57	21.68	-12.43	-18.32	40.00	23.88	0.51	79.00	400.00

RF Mode – X-Axis Worst Case

This test complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B, section 15.109; and Subpart C sections 15.209 and 15.249.

Title: Pre-Scan - FCC Class B
File: Rohde & Schwarz - Pre-Scan - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Kyle Haag
EUT Type: AT&T VRC81 DFW Remote 2016
EUT Condition: The EUT is continuously transmitting IR Mode X-Axis
Company: Universal Electronics
Model: URC-5602BC0-X-R

10/26/2017 1:22:25 PM
Sequence: Preliminary Scan



IR Mode – X-Axis Worst Case

This test complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B, section 15.109.

Title: Radiated Final - FCC Class B
File: Rohde & Schwarz - Final Scan - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Kyle Haag
EUT Type: AT&T VRC81 DFW Remote 2016
EUT Condition: The EUT is continuously transmitting IR Mode X-Axis
Company: Universal Electronics
Model: URC-5602BC0-X-R

10/26/2017 1:49:06 PM
Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
35.80	H	27.04	21.87	-12.96	-18.13	40.00	24.11	0.47	24.75	356.83
36.60	H	27.00	22.04	-13.00	-17.96	40.00	24.21	0.47	285.75	389.91
37.80	H	27.57	22.17	-12.43	-17.83	40.00	24.40	0.48	86.25	324.29
39.40	H	27.60	22.49	-12.40	-17.51	40.00	24.65	0.49	191.50	389.91
42.20	V	26.29	21.81	-13.71	-18.19	40.00	23.95	0.51	318.75	308.35
712.20	H	31.77	26.21	-14.23	-19.79	46.00	24.58	2.70	132.50	324.41

IR Mode – X-Axis Worst Case

This test complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B, section 15.109.

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Fundamental
Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	97.18	V	113.97	-16.79	Peak	186.75	248.34	**X-Axis**
2402.00	77.18	V	93.97	-16.79	Avg	186.75	248.34	**Vertical Polarization**
2402.00	103.41	V	113.97	-10.56	Peak	239.50	164.64	**Y-Axis**
2402.00	83.41	V	93.97	-10.56	Avg	239.50	164.64	**Vertical Polarization**
2402.00	95.47	V	113.97	-18.50	Peak	219.75	242.73	**Z-Axis**
2402.00	75.47	V	93.97	-18.50	Avg	219.75	242.73	**Vertical Polarization**
2402.00	104.23	H	113.97	-9.74	Peak	149.25	184.46	**X-Axis**
2402.00	84.23	H	93.97	-9.74	Avg	149.25	184.46	**Horizontal Polarization**
2402.00	90.51	H	113.97	-23.46	Peak	204.50	188.70	**Y-Axis**
2402.00	70.51	H	93.97	-23.46	Avg	204.50	188.70	**Horizontal Polarization**
2402.00	102.65	H	113.97	-11.32	Peak	224.50	190.13	**Z-Axis**
2402.00	82.65	H	93.97	-11.32	Avg	224.50	190.13	**Horizontal Polarization**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Fundamental
Middle Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2442.00	97.21	V	113.97	-16.76	Peak	184.25	242.55	**X-Axis**
2442.00	77.21	V	93.97	-16.76	Avg	184.25	242.55	**Vertical Polarization**
2442.00	103.91	V	113.97	-10.06	Peak	256.75	183.62	**Y-Axis**
2442.00	83.91	V	93.97	-10.06	Avg	256.75	183.62	**Vertical Polarization**
2442.00	98.26	V	113.97	-15.71	Peak	331.50	210.73	**Z-Axis**
2442.00	78.26	V	93.97	-15.71	Avg	331.50	210.73	**Vertical Polarization**
2442.00	104.60	H	113.97	-9.38	Peak	140.75	179.32	**X-Axis**
2442.00	84.60	H	93.97	-9.38	Avg	140.75	179.32	**Horizontal Polarization**
2442.00	92.62	H	113.97	-21.35	Peak	317.75	204.28	**Y-Axis**
2442.00	72.62	H	93.97	-21.35	Avg	317.75	204.28	**Horizontal Polarization**
2442.00	103.68	H	113.97	-10.29	Peak	222.75	191.80	**Z-Axis**
2442.00	83.68	H	93.97	-10.29	Avg	222.75	191.80	**Horizontal Polarization**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Fundamental
High Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480.00	97.30	V	113.97	-16.67	Peak	181.50	263.08	**X-Axis**
2480.00	77.30	V	93.97	-16.67	Avg	181.50	263.08	**Vertical Polarization**
2480.00	104.05	V	113.97	-9.92	Peak	220.50	159.02	**Y-Axis**
2480.00	84.05	V	93.97	-9.92	Avg	220.50	159.02	**Vertical Polarization**
2480.00	97.87	V	113.97	-16.10	Peak	335.75	199.50	**Z-Axis**
2480.00	77.87	V	93.97	-16.10	Avg	335.75	199.50	**Vertical Polarization**
2480.00	105.08	H	113.97	-8.89	Peak	155.50	192.04	**X-Axis**
2480.00	85.08	H	93.97	-8.89	Avg	155.50	192.04	**Horizontal Polarization**
2480.00	93.58	H	113.97	-20.39	Peak	330.25	222.25	**Y-Axis**
2480.00	73.58	H	93.97	-20.39	Avg	330.25	222.25	**Horizontal Polarization**
2480.00	102.60	H	113.97	-11.37	Peak	222.00	188.52	**Z-Axis**
2480.00	82.60	H	93.97	-11.37	Avg	222.00	188.52	**Horizontal Polarization**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Low Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	45.08	V	73.97	-28.89	Peak	220.00	149.23	
4804.00	25.08	V	53.97	-28.89	Avg	220.00	149.23	
7206.00	50.20	V	73.97	-23.77	Peak	135.75	231.26	
7206.00	30.20	V	53.97	-23.77	Avg	135.75	231.26	
9608.00	52.86	V	73.97	-21.11	Peak	116.50	140.58	
9608.00	32.86	V	53.97	-21.11	Avg	116.50	140.58	
12010.00								**No Emission**
12010.00								**Detected**
14412.00								**No Emission**
14412.00								**Detected**
16814.00								**No Emission**
16814.00								**Detected**
19216.00								**No Emission**
19216.00								**Detected**
21618.00								**No Emission**
21618.00								**Detected**
24020.00								**No Emission**
24020.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Low Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	46.85	V	73.97	-27.12	Peak	71.50	222.07	
4804.00	26.85	V	53.97	-27.12	Avg	71.50	222.07	
7206.00	55.57	V	73.97	-18.40	Peak	183.00	177.89	
7206.00	35.57	V	53.97	-18.40	Avg	183.00	177.89	
9608.00	54.70	V	73.97	-19.27	Peak	287.00	134.97	
9608.00	34.70	V	53.97	-19.27	Avg	287.00	134.97	
12010.00								**No Emission**
12010.00								**Detected**
14412.00								**No Emission**
14412.00								**Detected**
16814.00								**No Emission**
16814.00								**Detected**
19216.00								**No Emission**
19216.00								**Detected**
21618.00								**No Emission**
21618.00								**Detected**
24020.00								**No Emission**
24020.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Low Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	46.95	V	73.97	-27.02	Peak	170.25	178.85	
4804.00	26.95	V	53.97	-27.02	Avg	170.25	178.85	
7206.00	52.14	V	73.97	-21.83	Peak	263.50	100.34	
7206.00	32.14	V	53.97	-21.83	Avg	263.50	100.34	
9608.00	53.37	V	73.97	-20.60	Peak	173.00	211.14	
9608.00	33.37	V	53.97	-20.60	Avg	173.00	211.14	
12010.00								**No Emission**
12010.00								**Detected**
14412.00								**No Emission**
14412.00								**Detected**
16814.00								**No Emission**
16814.00								**Detected**
19216.00								**No Emission**
19216.00								**Detected**
21618.00								**No Emission**
21618.00								**Detected**
24020.00								**No Emission**
24020.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Low Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	47.61	H	73.97	-26.37	Peak	44.00	166.73	
4804.00	27.61	H	53.97	-26.37	Avg	44.00	166.73	
7206.00	58.14	H	73.97	-15.83	Peak	90.25	110.25	
7206.00	38.14	H	53.97	-15.83	Avg	90.25	110.25	
9608.00	56.00	H	73.97	-17.97	Peak	129.00	159.08	
9608.00	36.00	H	53.97	-17.97	Avg	129.00	159.08	
12010.00								**No Emission**
12010.00								**Detected**
14412.00								**No Emission**
14412.00								**Detected**
16814.00								**No Emission**
16814.00								**Detected**
19216.00								**No Emission**
19216.00								**Detected**
21618.00								**No Emission**
21618.00								**Detected**
24020.00								**No Emission**
24020.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Low Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	43.41	H	73.97	-30.56	Peak	50.50	207.98	
4804.00	23.41	H	53.97	-30.56	Avg	50.50	207.98	
7206.00	52.22	H	73.97	-21.75	Peak	172.75	138.43	
7206.00	32.22	H	53.97	-21.75	Avg	172.75	138.43	
9608.00	52.76	H	73.97	-21.22	Peak	200.50	171.26	
9608.00	32.76	H	53.97	-21.22	Avg	200.50	171.26	
12010.00								**No Emission**
12010.00								**Detected**
14412.00								**No Emission**
14412.00								**Detected**
16814.00								**No Emission**
16814.00								**Detected**
19216.00								**No Emission**
19216.00								**Detected**
21618.00								**No Emission**
21618.00								**Detected**
24020.00								**No Emission**
24020.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Low Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	47.99	H	73.97	-25.99	Peak	315.00	145.71	
4804.00	27.99	H	53.97	-25.99	Avg	315.00	145.71	
7206.00	54.69	H	73.97	-19.28	Peak	261.75	127.20	
7206.00	34.69	H	53.97	-19.28	Avg	261.75	127.20	
9608.00	53.89	H	73.97	-20.09	Peak	298.00	111.02	
9608.00	33.89	H	53.97	-20.09	Avg	298.00	111.02	
12010.00								**No Emission**
12010.00								**Detected**
14412.00								**No Emission**
14412.00								**Detected**
16814.00								**No Emission**
16814.00								**Detected**
19216.00								**No Emission**
19216.00								**Detected**
21618.00								**No Emission**
21618.00								**Detected**
24020.00								**No Emission**
24020.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Middle Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4884.00	46.55	V	73.97	-27.42	Peak	9.00	221.59	
4884.00	26.55	V	53.97	-27.42	Avg	9.00	221.59	
7326.00	50.94	V	73.97	-23.03	Peak	108.75	235.32	
7326.00	30.94	V	53.97	-23.03	Avg	108.75	235.32	
9768.00	53.33	V	73.97	-20.64	Peak	139.00	149.41	
9768.00	33.33	V	53.97	-20.64	Avg	139.00	149.41	
12210.00								**No Emission**
12210.00								**Detected**
14652.00								**No Emission**
14652.00								**Detected**
17094.00								**No Emission**
17094.00								**Detected**
19536.00								**No Emission**
19536.00								**Detected**
21978.00								**No Emission**
21978.00								**Detected**
24420.00								**No Emission**
24420.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Middle Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4884.00	48.69	V	73.97	-25.28	Peak	133.75	195.08	
4884.00	28.69	V	53.97	-25.28	Avg	133.75	195.08	
7326.00	56.81	V	73.97	-17.16	Peak	213.00	131.56	
7326.00	36.81	V	53.97	-17.16	Avg	213.00	131.56	
9768.00	56.49	V	73.97	-17.48	Peak	271.75	120.52	
9768.00	36.49	V	53.97	-17.48	Avg	271.75	120.52	
12210.00								**No Emission**
12210.00								**Detected**
14652.00								**No Emission**
14652.00								**Detected**
17094.00								**No Emission**
17094.00								**Detected**
19536.00								**No Emission**
19536.00								**Detected**
21978.00								**No Emission**
21978.00								**Detected**
24420.00								**No Emission**
24420.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Middle Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4884.00	48.23	V	73.97	-25.74	Peak	171.25	187.56	
4884.00	28.23	V	53.97	-25.74	Avg	171.25	187.56	
7326.00	52.71	V	73.97	-21.26	Peak	280.50	215.08	
7326.00	32.71	V	53.97	-21.26	Avg	280.50	215.08	
9768.00	53.62	V	73.97	-20.35	Peak	42.50	145.77	
9768.00	33.62	V	53.97	-20.35	Avg	42.50	145.77	
12210.00								**No Emission**
12210.00								**Detected**
14652.00								**No Emission**
14652.00								**Detected**
17094.00								**No Emission**
17094.00								**Detected**
19536.00								**No Emission**
19536.00								**Detected**
21978.00								**No Emission**
21978.00								**Detected**
24420.00								**No Emission**
24420.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Middle Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4884.00	47.52	H	73.97	-26.45	Peak	306.50	154.79	
4884.00	27.52	H	53.97	-26.45	Avg	306.50	154.79	
7326.00	56.60	H	73.97	-17.37	Peak	76.50	137.00	
7326.00	36.60	H	53.97	-17.37	Avg	76.50	137.00	
9768.00	57.49	H	73.97	-16.48	Peak	105.75	130.79	
9768.00	37.49	H	53.97	-16.48	Avg	105.75	130.79	
12210.00								**No Emission**
12210.00								**Detected**
14652.00								**No Emission**
14652.00								**Detected**
17094.00								**No Emission**
17094.00								**Detected**
19536.00								**No Emission**
19536.00								**Detected**
21978.00								**No Emission**
21978.00								**Detected**
24420.00								**No Emission**
24420.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Middle Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4884.00	44.88	H	73.97	-29.09	Peak	248.00	148.76	
4884.00	24.88	H	53.97	-29.09	Avg	248.00	148.76	
7326.00	51.46	H	73.97	-22.51	Peak	315.75	157.41	
7326.00	31.46	H	53.97	-22.51	Avg	315.75	157.41	
9768.00	53.51	H	73.97	-20.46	Peak	193.25	121.11	
9768.00	33.51	H	53.97	-20.46	Avg	193.25	121.11	
12210.00								**No Emission**
12210.00								**Detected**
14652.00								**No Emission**
14652.00								**Detected**
17094.00								**No Emission**
17094.00								**Detected**
19536.00								**No Emission**
19536.00								**Detected**
21978.00								**No Emission**
21978.00								**Detected**
24420.00								**No Emission**
24420.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - Middle Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4884.00	48.37	H	73.97	-25.60	Peak	50.50	180.34	
4884.00	28.37	H	53.97	-25.60	Avg	50.50	180.34	
7326.00	55.50	H	73.97	-18.47	Peak	98.00	224.40	
7326.00	35.50	H	53.97	-18.47	Avg	98.00	224.40	
9768.00	55.83	H	73.97	-18.14	Peak	286.25	136.76	
9768.00	35.83	H	53.97	-18.14	Avg	286.25	136.76	
12210.00								**No Emission**
12210.00								**Detected**
14652.00								**No Emission**
14652.00								**Detected**
17094.00								**No Emission**
17094.00								**Detected**
19536.00								**No Emission**
19536.00								**Detected**
21978.00								**No Emission**
21978.00								**Detected**
24420.00								**No Emission**
24420.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - High Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	44.17	V	73.97	-29.80	Peak	277.00	163.86	
4960.00	24.17	V	53.97	-29.80	Avg	277.00	163.86	
7440.00	50.30	V	73.97	-23.67	Peak	113.50	188.28	
7440.00	30.30	V	53.97	-23.67	Avg	113.50	188.28	
9920.00	53.24	V	73.97	-20.73	Peak	206.25	123.74	
9920.00	33.24	V	53.97	-20.73	Avg	206.25	123.74	
12400.00								**No Emission**
12400.00								**Detected**
14880.00								**No Emission**
14880.00								**Detected**
17360.00								**No Emission**
17360.00								**Detected**
19840.00								**No Emission**
19840.00								**Detected**
22320.00								**No Emission**
22320.00								**Detected**
24800.00								**No Emission**
24800.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - High Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.18	V	73.97	-26.79	Peak	98.50	169.83	
4960.00	27.18	V	53.97	-26.79	Avg	98.50	169.83	
7440.00	56.59	V	73.97	-17.38	Peak	204.75	160.58	
7440.00	36.59	V	53.97	-17.38	Avg	204.75	160.58	
9920.00	56.14	V	73.97	-17.83	Peak	273.00	128.76	
9920.00	36.14	V	53.97	-17.83	Avg	273.00	128.76	
12400.00								**No Emission**
12400.00								**Detected**
14880.00								**No Emission**
14880.00								**Detected**
17360.00								**No Emission**
17360.00								**Detected**
19840.00								**No Emission**
19840.00								**Detected**
22320.00								**No Emission**
22320.00								**Detected**
24800.00								**No Emission**
24800.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - High Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	46.63	V	73.97	-27.34	Peak	0.00	148.83	
4960.00	26.63	V	53.97	-27.34	Avg	0.00	148.83	
7440.00	53.56	V	73.97	-20.41	Peak	302.00	240.28	
7440.00	33.56	V	53.97	-20.41	Avg	302.00	240.28	
9920.00	53.32	V	73.97	-20.65	Peak	48.25	154.43	
9920.00	33.32	V	53.97	-20.65	Avg	48.25	154.43	
12400.00								**No Emission**
12400.00								**Detected**
14880.00								**No Emission**
14880.00								**Detected**
17360.00								**No Emission**
17360.00								**Detected**
19840.00								**No Emission**
19840.00								**Detected**
22320.00								**No Emission**
22320.00								**Detected**
24800.00								**No Emission**
24800.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - High Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.42	H	73.97	-26.55	Peak	184.50	164.52	
4960.00	27.42	H	53.97	-26.55	Avg	184.50	164.52	
7440.00	58.00	H	73.97	-15.97	Peak	84.75	129.95	
7440.00	38.00	H	53.97	-15.97	Avg	84.75	129.95	
9920.00	55.47	H	73.97	-18.51	Peak	121.75	148.40	
9920.00	35.47	H	53.97	-18.51	Avg	121.75	148.40	
12400.00								**No Emission**
12400.00								**Detected**
14880.00								**No Emission**
14880.00								**Detected**
17360.00								**No Emission**
17360.00								**Detected**
19840.00								**No Emission**
19840.00								**Detected**
22320.00								**No Emission**
22320.00								**Detected**
24800.00								**No Emission**
24800.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - High Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	44.93	H	73.97	-29.05	Peak	108.00	193.71	
4960.00	24.93	H	53.97	-29.05	Avg	108.00	193.71	
7440.00	53.06	H	73.97	-20.91	Peak	327.00	164.64	
7440.00	33.06	H	53.97	-20.91	Avg	327.00	164.64	
9920.00	52.76	H	73.97	-21.21	Peak	0.00	107.08	
9920.00	32.76	H	53.97	-21.21	Avg	0.00	107.08	
12400.00								**No Emission**
12400.00								**Detected**
14880.00								**No Emission**
14880.00								**Detected**
17360.00								**No Emission**
17360.00								**Detected**
19840.00								**No Emission**
19840.00								**Detected**
22320.00								**No Emission**
22320.00								**Detected**
24800.00								**No Emission**
24800.00								**Detected**

FCC 15.249
Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Harmonics - High Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.41	H	73.97	-26.56	Peak	81.25	114.73	
4960.00	27.41	H	53.97	-26.56	Avg	81.25	114.73	
7440.00	56.63	H	73.97	-17.34	Peak	89.75	217.11	
7440.00	36.63	H	53.97	-17.34	Avg	89.75	217.11	
9920.00	54.53	H	73.97	-19.44	Peak	287.25	135.98	
9920.00	34.53	H	53.97	-19.44	Avg	287.25	135.98	
12400.00								**No Emission**
12400.00								**Detected**
14880.00								**No Emission**
14880.00								**Detected**
17360.00								**No Emission**
17360.00								**Detected**
19840.00								**No Emission**
19840.00								**Detected**
22320.00								**No Emission**
22320.00								**Detected**
24800.00								**No Emission**
24800.00								**Detected**

FCC Class B and FCC 15.249

Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis
								Investigated in the
								RF Mode

BAND EDGES DATA SHEETS

FCC 15.249

Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

Band Edges

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	104.23	H	113.97	-9.74	Peak	149.25	184.46	**Fundamental - Low Ch.**
2402.00	84.23	H	93.97	-9.74	Avg	149.25	184.46	**X-Axis - Worst Case**
2400.00	57.03	H	73.97	-16.94	Peak	149.25	184.46	**Band Edge**
2400.00	46.90	H	53.97	-7.07	Avg	149.25	184.46	**X-Axis - Worst Case**
2369.94	57.66	H	73.97	-16.31	Peak	149.25	184.46	**Band Edge**
2369.94	53.23	H	53.97	-0.74	Avg	149.25	184.46	**X-Axis - Worst Case**
2402.00	103.41	V	113.97	-10.56	Peak	239.50	164.64	**Fundamental - Low Ch.**
2402.00	83.41	V	93.97	-10.56	Avg	239.50	164.64	**Y-Axis - Worst Case**
2400.00	56.61	V	73.97	-17.36	Peak	239.50	164.64	**Band Edge**
2400.00	46.27	V	53.97	-7.70	Avg	239.50	164.64	**Y-Axis - Worst Case**
2369.94	56.70	V	73.97	-17.27	Peak	239.50	164.64	**Band Edge**
2369.94	52.27	V	53.97	-1.70	Avg	239.50	164.64	**Y-Axis - Worst Case**

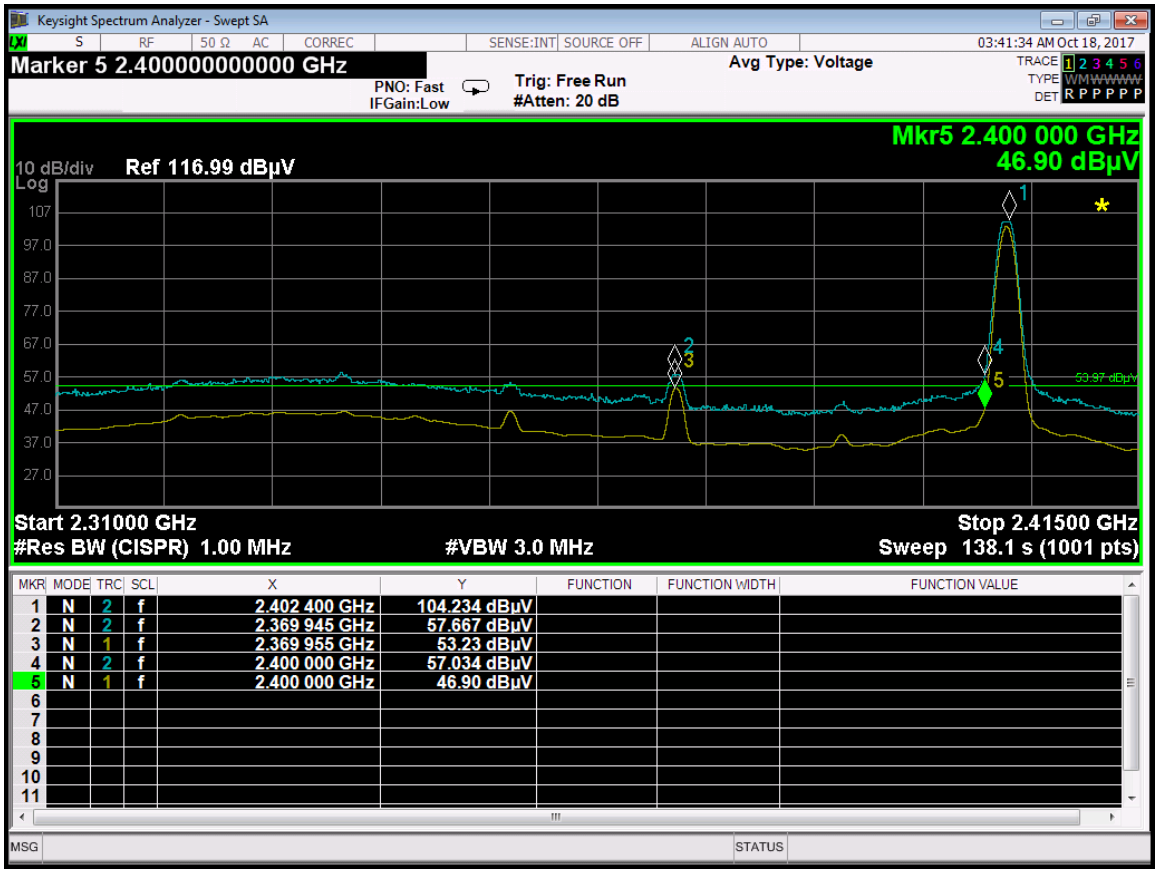
FCC 15.249

Universal Electronics, Inc.
AT&T VRC81 DFW Remote 2016
Model: URC-5602BC0-X-R

Date: 10/17/2017
Lab: D
Tested By: Kyle Haag

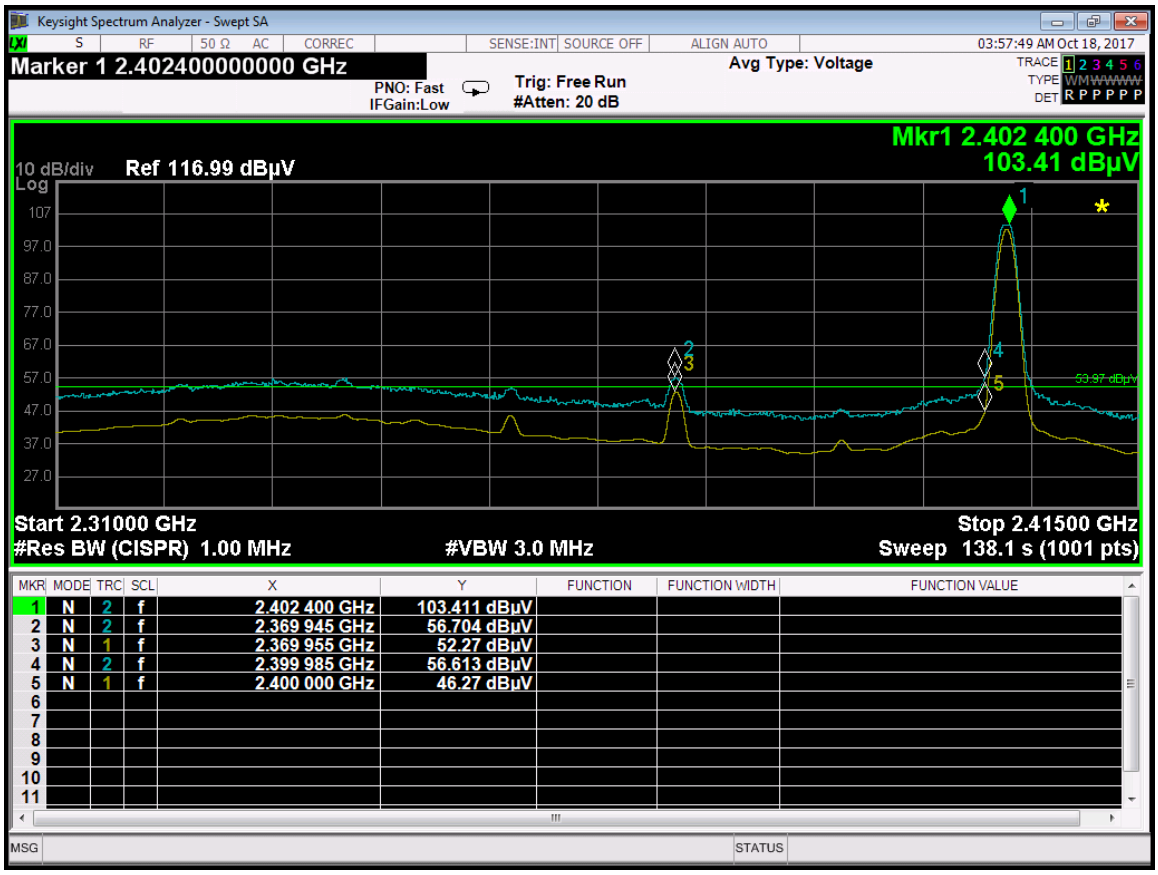
Band Edges

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480.00	105.08	H	113.97	-8.89	Peak	155.50	192.04	**Fundamental - High Ch.**
2480.00	85.08	H	93.97	-8.89	Avg	155.50	192.04	**X-Axis - Worst Case**
2483.50	51.82	H	73.97	-22.15	Peak	155.50	192.04	**Band Edge**
2483.50	42.75	H	53.97	-11.22	Avg	155.50	192.04	**X-Axis - Worst Case**
2480.00	104.05	V	113.97	-9.92	Peak	220.50	159.02	**Fundamental - High Ch.**
2480.00	84.05	V	93.97	-9.92	Avg	220.50	159.02	**Y-Axis - Worst Case**
2483.50	51.57	V	73.70	-22.13	Peak	220.50	159.02	**Band Edge**
2483.50	41.61	V	53.97	-12.36	Avg	220.50	159.02	**Y-Axis - Worst Case**



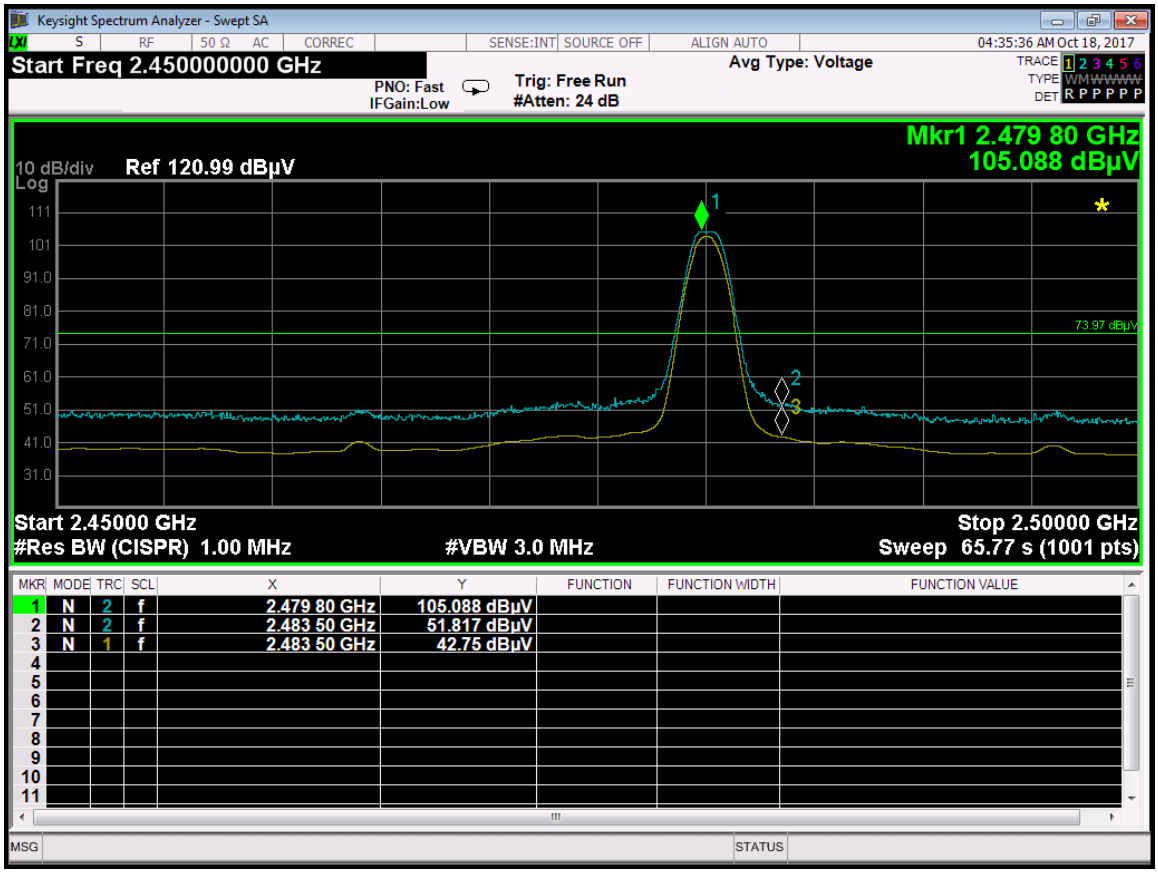
Band Edge - 2402 MHz - Horizontal - X-Axis - Worst Case

Note: A scan was also taken of the Band Edges while the EUT was in frequency hopping mode and it was determined that the EUT's worst case was in continuous transmit mode.



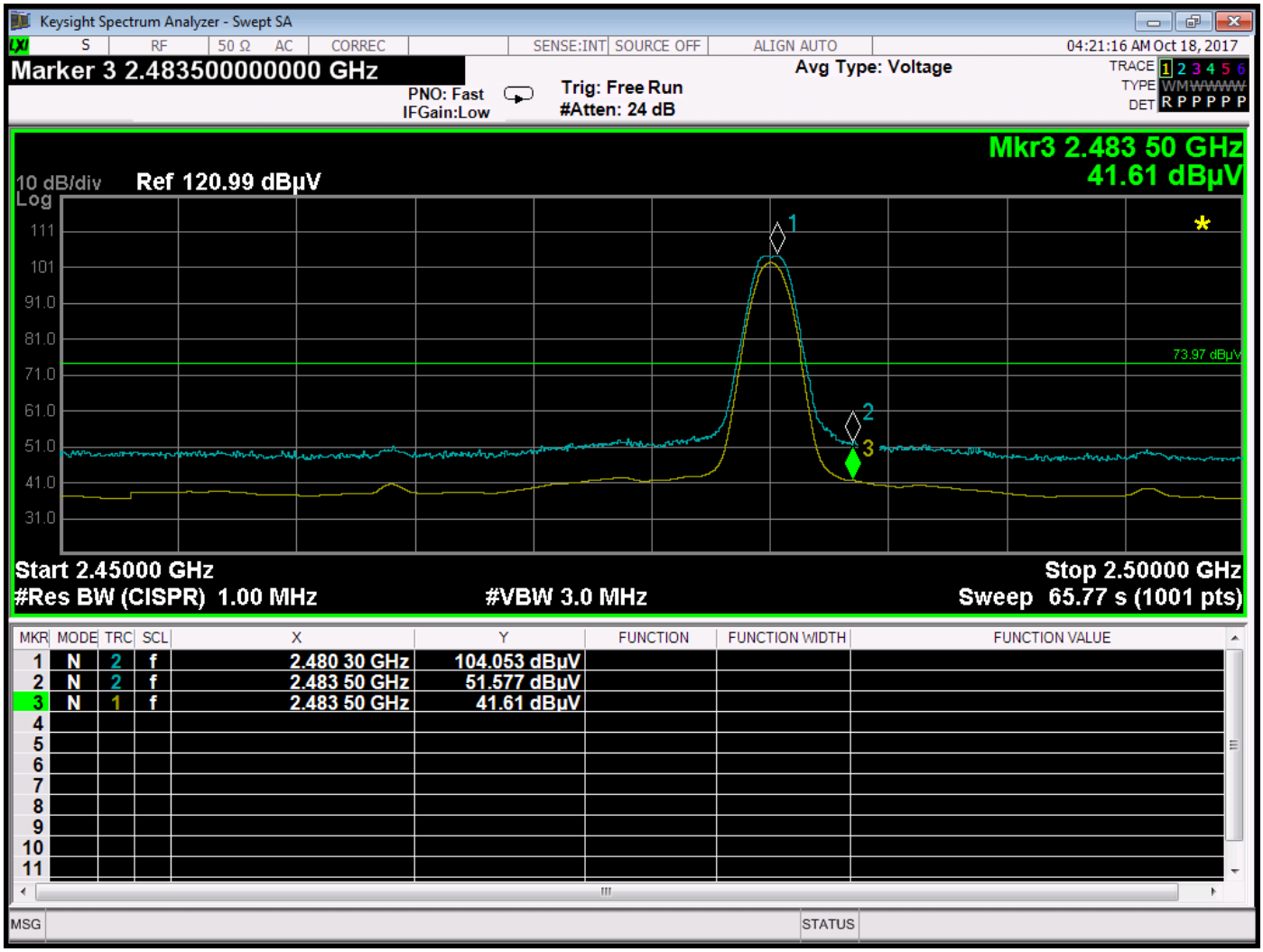
Band Edge - 2402 MHz - Vertical - Y-Axis - Worst Case

Note: A scan was also taken of the Band Edges while the EUT was in frequency hopping mode and it was determined that the EUT's worst case was in continuous transmit mode.



Band Edge - 2480 MHz - Horizontal - X-Axis - Worst Case

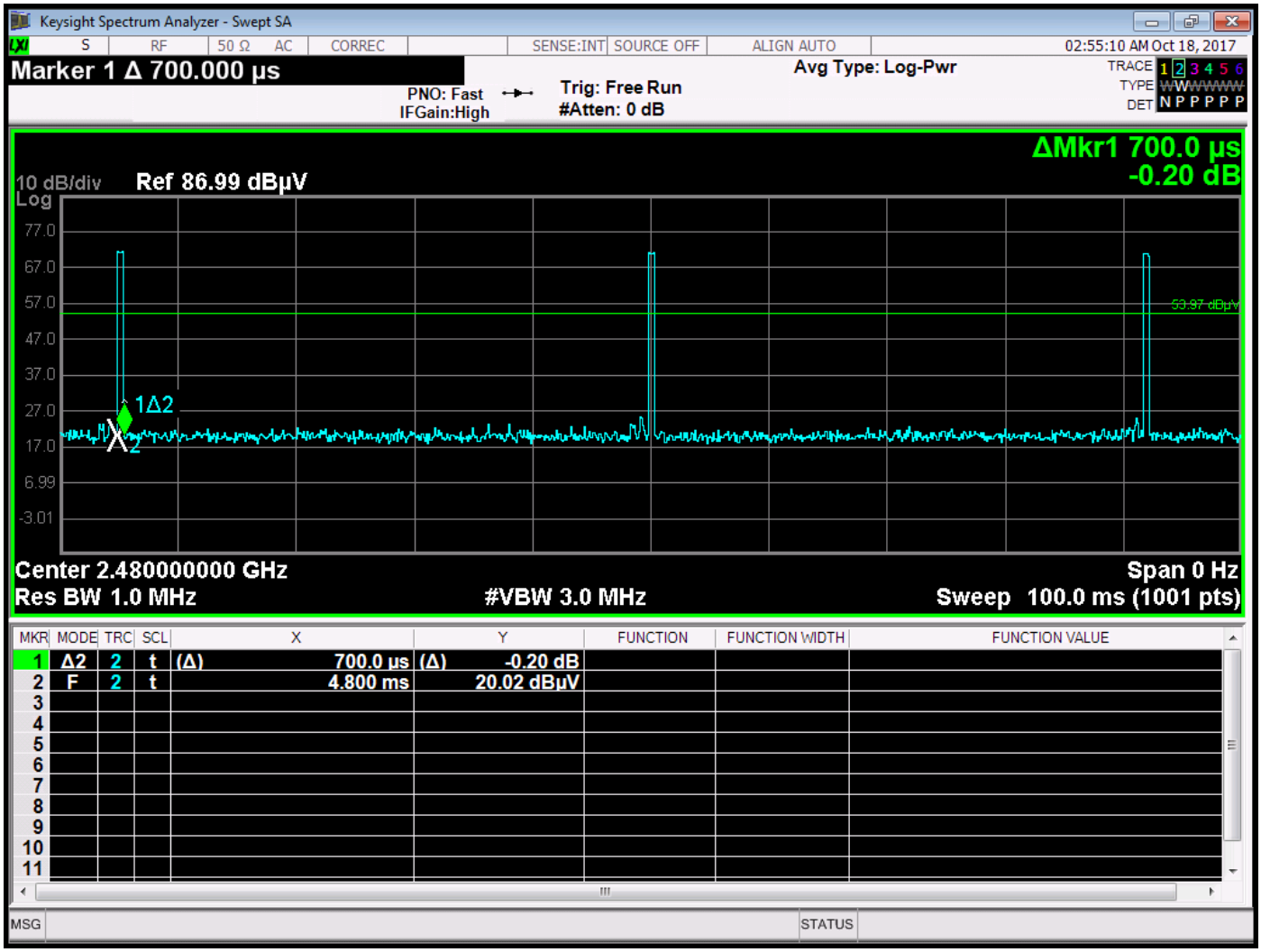
Note: A scan was also taken of the Band Edges while the EUT was in frequency hopping mode and it was determined that the EUT's worst case was in continuous transmit mode.



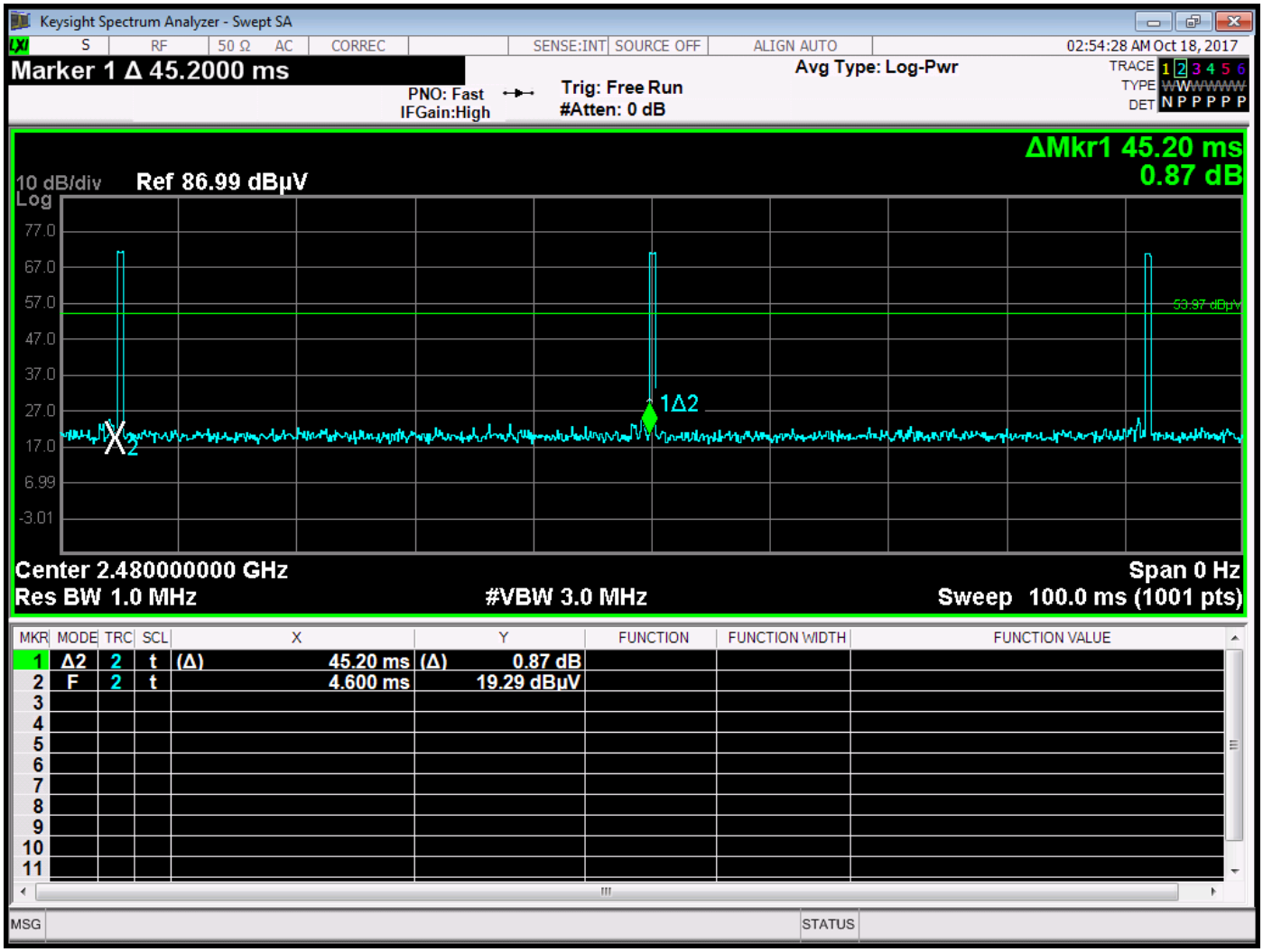
Band Edge - 2480 MHz - Vertical - Y-Axis - Worst Case

Note: A scan was also taken of the Band Edges while the EUT was in frequency hopping mode and it was determined that the EUT's worst case was in continuous transmit mode.

DUTY CYCLE DATA SHEETS



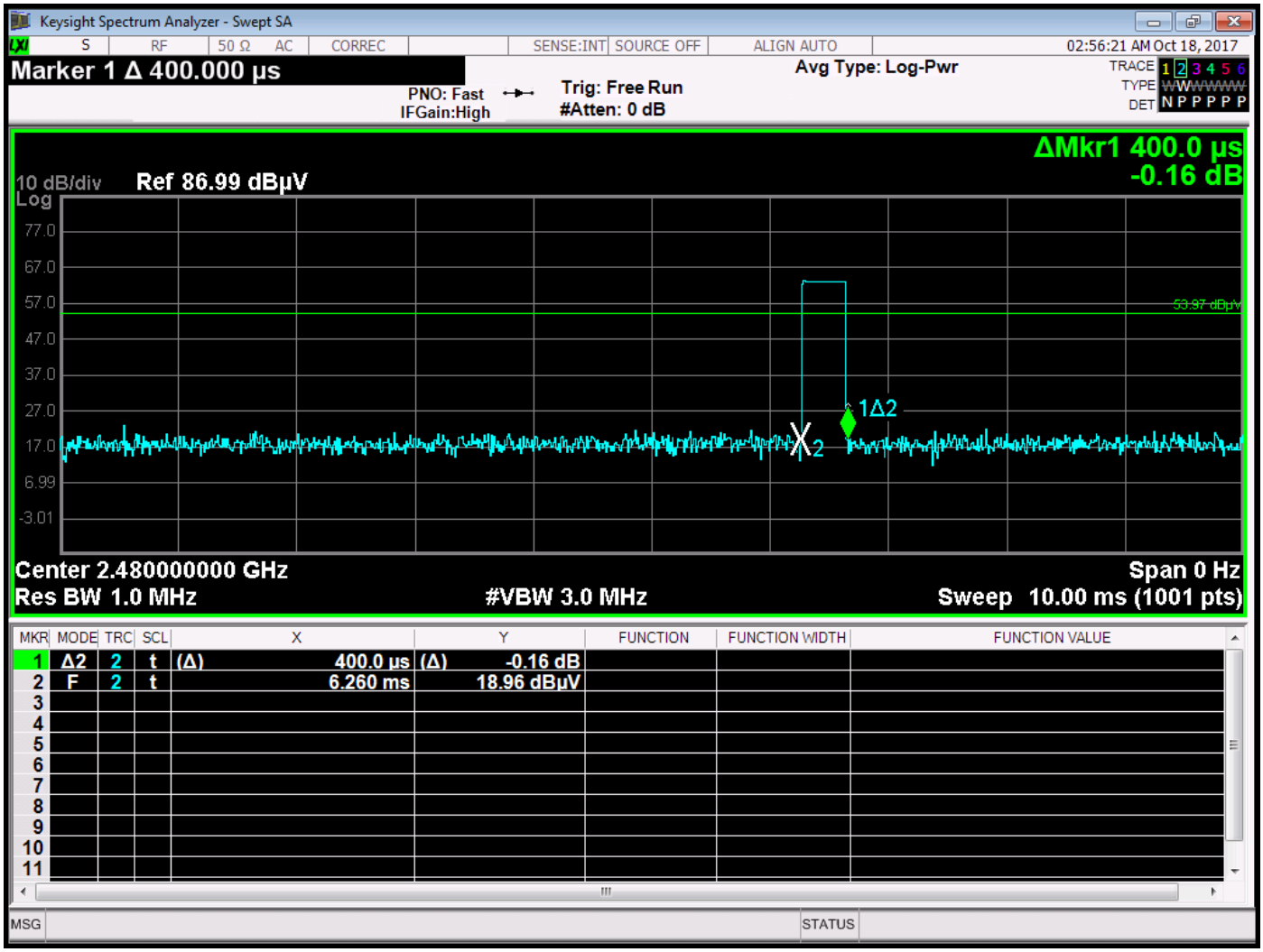
Time of Pulse = 700 us – Advertising Mode



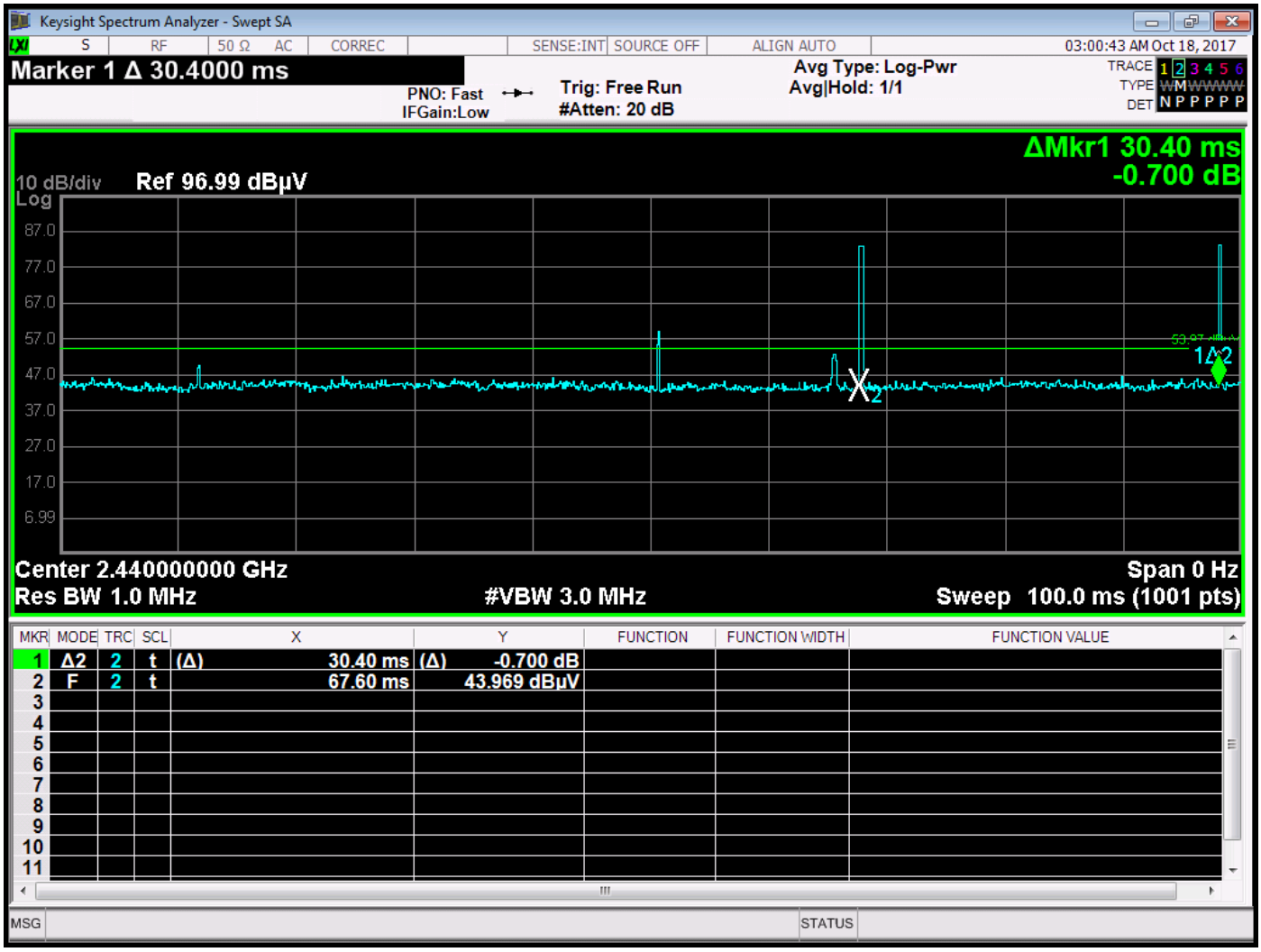
Time Between Pulses = 45.2 ms – Advertising Mode

Total Duty Cycle = 700 us / 45.2 ms = 1.55% Duty Cycle

The Maximum Peak to Average Ratio of -20 dB can be used



Time of One Pulse = 400 us – Pairing Mode



Time Between Pulses = 30.40 ms – Pairing Mode

Total Duty Cycle = 400 us / 30.4 ms = 1.32% Duty Cycle

The Maximum Peak to Average Ratio of -20 dB can be used