

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

*for*

**AT&T VRC81 DFW REMOTE 2016**

**Model: URC-5602BC0-X-R**

Prepared for

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DATE: OCTOBER 26, 2017

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	17	2	2	2	12	40	75

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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  
201 East Sandpointe Avauue, 8<sup>th</sup> Floor  
Santa Ana California, 92707

Test Dates: October 18, 2017; and November 1 and 2, 2017

Test Specifications covered by accreditation:

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



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


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**SUMMARY OF TEST RESULTS**

<b>TEST</b>	<b>DESCRIPTION</b>	<b>RESULTS</b>
1	Spurious Radiated RF Emissions, 9 kHz –25000MHz	Complies with the <b>Class B</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 52.39 (Avg) dBuV/m @ 2370.10 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

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 prior to the date of this report.

### **2.5 Disposition of the Test Sample**

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

**3. APPLICABLE DOCUMENTS**

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

<b>SPEC</b>	<b>TITLE</b>
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**

<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>FCC ID</b>
AT&T VRC81 DFW REMOTE 2016 (EUT)	UNIVERSAL ELECTRONICS	URC-5602BC0-X-R	N/A	MG3-5602B
LAPTOP*	HEWLETT PACKARD	HP PROBOOK 450 G2	CND50454JC	PD93160H
AC ADAPTER FOR LAPTOP*	HEWLETT PACKARD	HSTNN-DA40	WDWRT0AA R8Q66A	N/A
TEST PROGRAMMING FIRMWARE	UNIVERSAL ELECTRONICS	PTC_UE878NME_CFG_A_DIF	N/A	N/A

\*Used to program the EUT only and was removed prior to the testing

## 5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
<b>GENERAL TEST EQUIPMENT USED IN LAB D</b>					
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
EMI Receiver 20 Hz – 40 GHz	Rohde & Schwarz	ESIB40	100194	September 26, 2017	1 Year
EMI Receiver, 20 Hz – 26.5 GHz	Agilent Technologies	N9038A	MY51100115	December 29, 2015	2 Year
<b>RF RADIATED EMISSIONS TEST EQUIPMENT</b>					
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 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, band edges, and harmonics above 1 GHz were averaged using a duty cycle correction factor.

The all other frequencies above 1 GHz 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:

<b>FREQUENCY RANGE</b>	<b>EFFECTIVE MEASUREMENT BANDWIDTH</b>	<b>TRANSDUCER</b>
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
2369.92 (H) (X-Axis)	52.39	53.97	-1.58
2370.12 (V) (Y-Axis)	51.74	53.97	-2.23
2400 (H) (X-Axis)	47.66	53.97	-6.31
2400 (V) (Y-Axis)	46.34	53.97	-7.63
2480 (H) (X-Axis)	85.63	53.97	-8.34
2402 (H) (X-Axis)	84.60	53.97	-9.37

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

$$\delta(\text{dB}) = 20 \log \left[ \frac{\sum (nt_1 + mt_2 + \dots + \xi t_x)}{T} \right]$$

$n$  is the number of pulses of duration  $t_1$

$m$  is the number of pulses of duration  $t_2$

$\xi$  is the number of pulses of duration  $t_x$

$T$  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 = 380 us

Total On Time = 380 us

The time between pulses is 45.0 ms.

Duty Cycle = 380 us / 45.0 mS = 0.0084 = 0.84%

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***

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114 Olinda Drive  
Brea, CA 92823  
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(805) 480-4044

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

## LABORATORY ACCREDITATIONS AND RECOGNITIONS



NVLAP LAB CODE 200528-0

Quote from ISO-ILAC-IAF Communiqué on 17025:

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



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/>



**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.



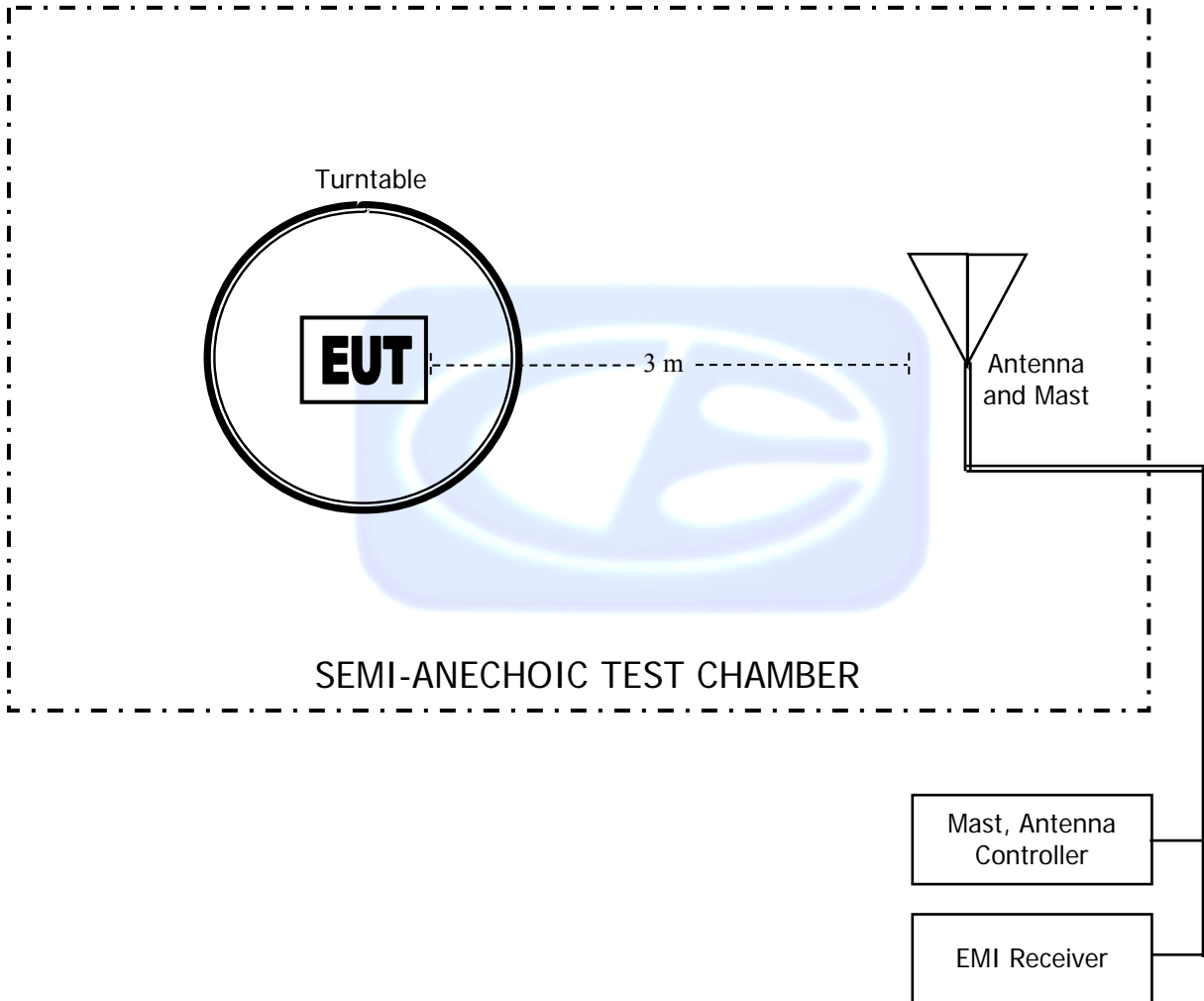


**APPENDIX D**

***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

<b>FREQUENCY (MHz)</b>	<b>MAGNETIC (dB/m)</b>	<b>ELECTRIC (dB/m)</b>
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

<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>
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

<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
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

<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
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

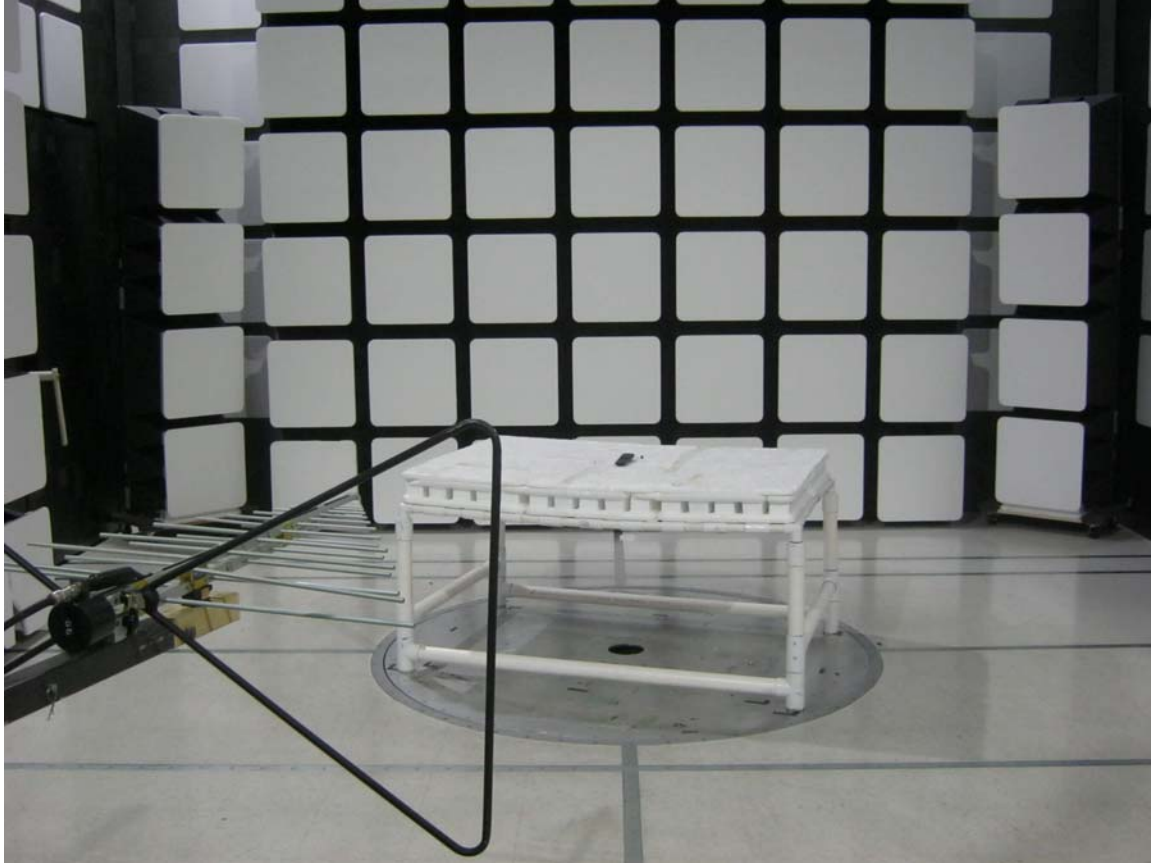
<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

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

S/N: 711013

CALIBRATION DATE: MAY 13, 2016

<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (GHz)</b>	<b>FACTOR (dB)</b>
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  
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  
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  
AT&T VRC81 DFW REMOTE 2016  
MODEL: URC-5602BC0-X-R  
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

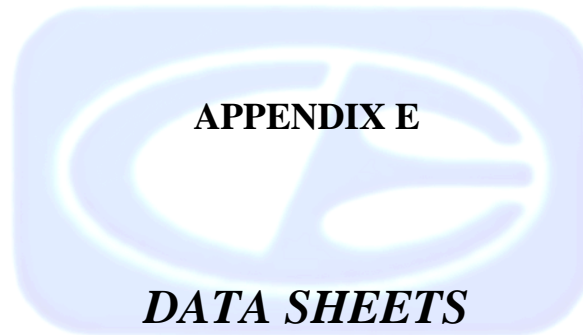
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**REAR VIEW**

UNIVERSAL ELECTRONICS  
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**

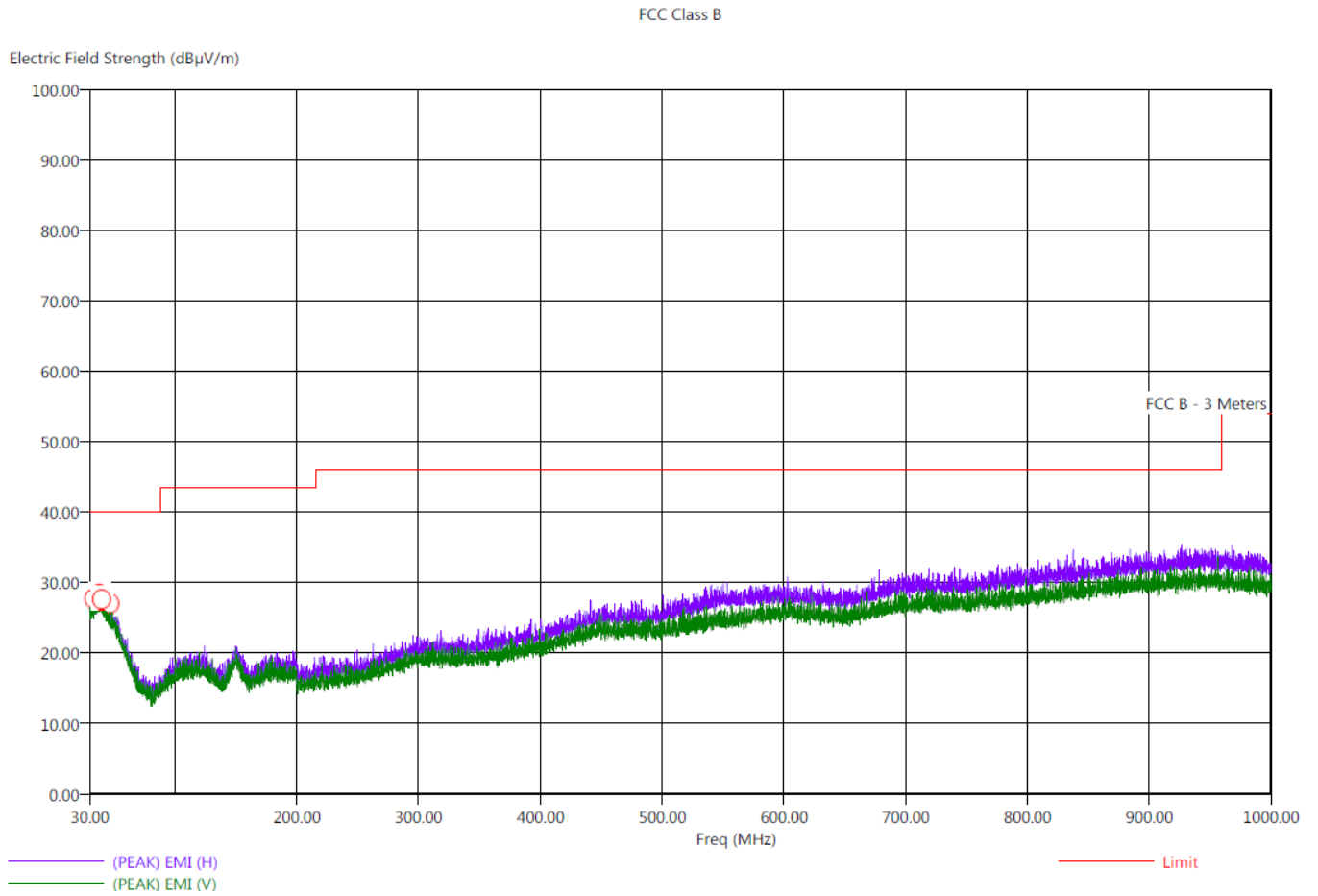




***RADIATED EMISSIONS  
DATA SHEETS***

Title: Pre-Scan - FCC Class B  
 File: Rohde & Schwarz - Pre-Scan - RF - FCC Class B - 30 MHz to 1000 MHz.set  
 Operator: Kyle Haag  
 EUT Type: AT&T VRC81 DFW Remote 2016  
 EUT Condition: The EUT was continuously transmitting in RF mode - X - Axis - Worst Case  
 Company: Universal Electronics  
 Model: URC-5602BC0-X-R  
 S/N: N/A

11/2/2017 10:50:11 AM  
 Sequence: Preliminary Scan



Note #1: A manual scan was taken from 9 kHz to 30 MHz and no emissions were detected.  
 Note #2: A manual scan was taken from 1 GHz to 25 GHz and no non-harmonic emissions were detected

Title: Radiated Final - FCC Class B  
 File: Rohde & Schwarz - Final Scan - RF - FCC Class B - 30 MHz to 1000 MHz.set  
 Operator: Kyle Haag  
 EUT Type: AT&T VRC81 DFW Remote 2016  
 EUT Condition: The EUT was continuously transmitting in RF mode - X - Axis - Worst Case  
 Company: Universal Electronics  
 Model: URC-5602BC0-X-R  
 S/N: N/A

11/2/2017 11:16:28 AM  
 Sequence: Final Measurements

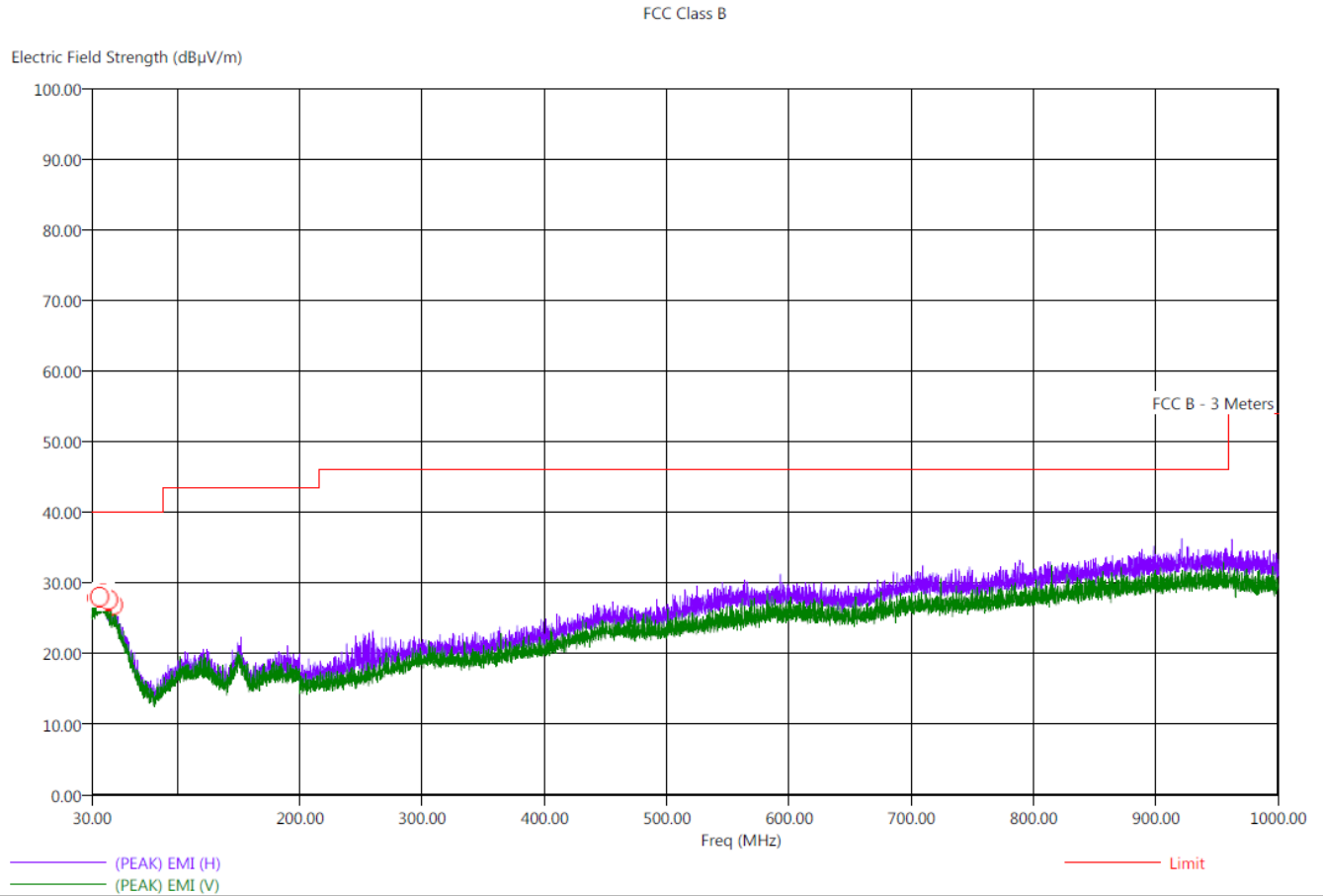
FCC Class B										
Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deo)	Twr Ht (cm)
33.60	H	28.00	21.81	-12.00	-18.19	40.00	23.94	0.45	173.25	308.41
37.40	H	27.26	22.48	-12.74	-17.52	40.00	24.34	0.48	77.00	177.25
38.10	H	27.74	22.52	-12.26	-17.48	40.00	24.44	0.48	229.25	160.65
40.00	V	27.59	22.79	-12.41	-17.21	40.00	24.64	0.49	321.00	375.70
40.10	H	28.79	22.80	-11.21	-17.20	40.00	24.64	0.49	311.25	177.19
46.80	H	25.66	20.99	-14.34	-19.01	40.00	22.61	0.54	133.75	292.29

Note #1: A manual scan was taken from 9 kHz to 30 MHz and no emissions were detected.  
 Note #2: A manual scan was taken from 1 GHz to 25 GHz and no non-harmonic emissions were detected



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

11/2/2017 12:57:56 PM  
Sequence: Preliminary Scan



Note #1: A manual scan was taken from 9 kHz to 30 MHz and no emissions were detected.

Note #2: A manual scan was taken from 1 GHz to 25 GHz and no emissions were detected



Title: Radiated Final - FCC Class B  
 File: Rohde & Schwarz - Final Scan - IR - FCC Class B - 30 MHz to 1000 MHz.set  
 Operator: Kyle Haag  
 EUT Type: AT&T VRC81 DFW Remote 2016  
 EUT Condition: The EUT was continuously transmitting in IR mode X - Axis - Worst Case  
 Comments: Universal Electronics  
 Model: URC-5602BC0-X-R  
 S/N: N/A

11/2/2017 1:21:38 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 Aql (dca)	Twr Ht (cm)
34.20	H	27.65	21.92	-12.35	-18.08	40.00	23.98	0.46	115.00	373.85
36.50	V	27.41	22.32	-12.59	-17.68	40.00	24.24	0.47	165.75	390.86
38.00	H	28.54	22.56	-11.46	-17.44	40.00	24.42	0.48	262.75	242.74
39.30	H	27.87	22.74	-12.13	-17.26	40.00	24.59	0.49	292.50	111.40
43.80	V	27.82	21.68	-12.18	-18.32	40.00	23.38	0.52	331.50	177.37
47.70	H	25.67	20.85	-14.33	-19.15	40.00	22.47	0.54	122.00	341.61

Note #1: A manual scan was taken from 9 kHz to 30 MHz and no emissions were detected.  
 Note #2: A manual scan was taken from 1 GHz to 25 GHz and no emissions were detected



**FCC 15.249**

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

Date: 11/1/2017  
 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	95.15	V	113.97	-18.82	Peak	192.00	233.07	X-Axis
2402.00	75.15	V	93.97	-18.82	Avg	192.00	233.07	Vertical Polarization
2402.00	103.96	V	113.97	-10.01	Peak	147.50	175.70	Y-Axis
2402.00	83.96	V	93.97	-10.01	Avg	147.50	175.70	Vertical Polarization
2402.00	101.69	V	113.97	-12.28	Peak	141.50	229.49	Z-Axis
2402.00	81.69	V	93.97	-12.28	Avg	141.50	229.49	Vertical Polarization
2402.00	104.60	H	113.97	-9.37	Peak	147.50	175.70	X-Axis
2402.00	84.60	H	93.97	-9.37	Avg	147.50	175.70	Horizontal Polarization
2402.00	91.09	H	113.97	-22.88	Peak	219.75	194.26	Y-Axis
2402.00	71.09	H	93.97	-22.88	Avg	219.75	194.26	Horizontal Polarization
2402.00	103.18	H	113.97	-10.79	Peak	85.50	176.65	Z-Axis
2402.00	83.18	H	93.97	-10.79	Avg	85.50	176.65	Horizontal Polarization

**FCC 15.249**

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

Date: 11/1/2017  
 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	92.26	V	113.97	-21.71	Peak	205.23	229.13	X-Axis
2442.00	72.26	V	93.97	-21.71	Avg	205.23	229.13	Vertical Polarization
2442.00	99.74	V	113.97	-14.23	Peak	260.75	149.49	Y-Axis
2442.00	79.74	V	93.97	-14.23	Avg	260.75	149.49	Vertical Polarization
2442.00	96.59	V	113.97	-17.38	Peak	143.25	234.08	Z-Axis
2442.00	76.59	V	93.97	-17.38	Avg	143.25	234.08	Vertical Polarization
2442.00	101.76	H	113.97	-12.21	Peak	150.00	163.52	X-Axis
2442.00	81.76	H	93.97	-12.21	Avg	150.00	163.52	Horizontal Polarization
2442.00	87.83	H	113.97	-26.14	Peak	322.00	179.82	Y-Axis
2442.00	67.83	H	93.97	-26.14	Avg	322.00	179.82	Horizontal Polarization
2442.00	100.40	H	113.97	-13.57	Peak	224.00	177.13	Z-Axis
2442.00	80.40	H	93.97	-13.57	Avg	224.00	177.13	Horizontal Polarization

**FCC 15.249**

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

Date: 11/1/2017  
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	95.82	V	113.97	-18.15	Peak	201.00	232.53	X-Axis
2480.00	75.82	V	93.97	-18.15	Avg	201.00	232.53	Vertical Polarization
2480.00	103.51	V	113.97	-10.46	Peak	320.75	137.37	Y-Axis
2480.00	83.51	V	93.97	-10.46	Avg	320.75	137.37	Vertical Polarization
2480.00	101.30	V	113.97	-12.67	Peak	216.75	219.94	Z-Axis
2480.00	81.30	V	93.97	-12.67	Avg	216.75	219.94	Vertical Polarization
2480.00	105.63	H	113.97	-8.34	Peak	150.75	166.26	X-Axis
2480.00	85.63	H	93.97	-8.34	Avg	150.75	166.26	Horizontal Polarization
2480.00	94.26	H	113.97	-19.71	Peak	146.25	152.21	Y-Axis
2480.00	74.26	H	93.97	-19.71	Avg	146.25	152.21	Horizontal Polarization
2480.00	104.11	H	113.97	-9.86	Peak	223.25	171.40	Z-Axis
2480.00	84.11	H	93.97	-9.86	Avg	223.25	171.40	Horizontal Polarization

**FCC 15.249**

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

 Date: 11/1/2017  
 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	52.95	V	73.97	-21.02	Peak	192.00	243.64	
4804.00	32.95	V	53.97	-21.02	Avg	192.00	243.64	
7206.00	51.44	V	73.97	-22.53	Peak	252.25	135.88	
7206.00	31.44	V	53.97	-22.53	Avg	252.25	135.88	
9608.00	59.61	V	73.97	-14.36	Peak	110.25	125.07	
9608.00	39.61	V	53.97	-14.36	Avg	110.25	125.07	
12010.00								No Emission Detected
12010.00								Detected
14412.00								No Emission Detected
14412.00								Detected
16814.00								No Emission Detected
16814.00								Detected
19216.00								No Emission Detected
19216.00								Detected
21618.00								No Emission Detected
21618.00								Detected
24020.00								No Emission Detected
24020.00								Detected

**FCC 15.249**

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

 Date: 11/1/2017  
 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	56.27	V	73.97	-17.70	Peak	123.50	202.08	
4804.00	36.27	V	53.97	-17.70	Avg	123.50	202.08	
7206.00	53.41	V	73.97	-20.56	Peak	209.50	157.07	
7206.00	33.41	V	53.97	-20.56	Avg	209.50	157.07	
9608.00	61.36	V	73.97	-12.61	Peak	264.50	125.19	
9608.00	41.36	V	53.97	-12.61	Avg	264.50	125.19	
12010.00								No Emission Detected
12010.00								
14412.00								No Emission Detected
14412.00								
16814.00								No Emission Detected
16814.00								
19216.00								No Emission Detected
19216.00								
21618.00								No Emission Detected
21618.00								
24020.00								No Emission Detected
24020.00								

**FCC 15.249**

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

 Date: 11/1/2017  
 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	58.49	V	73.97	-15.48	Peak	184.25	193.25	
4804.00	38.49	V	53.97	-15.48	Avg	184.25	193.25	
7206.00	52.25	V	73.97	-21.72	Peak	221.75	109.67	
7206.00	32.25	V	53.97	-21.72	Avg	221.75	109.67	
9608.00	59.24	V	73.97	-14.73	Peak	114.25	233.85	
9608.00	39.24	V	53.97	-14.73	Avg	114.25	233.85	
12010.00								No Emission Detected
12010.00								
14412.00								No Emission Detected
14412.00								
16814.00								No Emission Detected
16814.00								
19216.00								No Emission Detected
19216.00								
21618.00								No Emission Detected
21618.00								
24020.00								No Emission Detected
24020.00								

**FCC 15.249**

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

Date: 11/1/2017  
 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	58.97	H	73.97	-15.00	Peak	176.75	169.61	
4804.00	38.97	H	53.97	-15.00	Avg	176.75	169.61	
7206.00	54.09	H	73.97	-19.88	Peak	97.25	102.32	
7206.00	34.09	H	53.97	-19.88	Avg	97.25	102.32	
9608.00	62.02	H	73.97	-11.95	Peak	139.75	101.32	
9608.00	42.02	H	53.97	-11.95	Avg	139.75	101.32	
12010.00								No Emission Detected
12010.00								
14412.00								No Emission Detected
14412.00								
16814.00								No Emission Detected
16814.00								
19216.00								No Emission Detected
19216.00								
21618.00								No Emission Detected
21618.00								
24020.00								No Emission Detected
24020.00								



**FCC 15.249**

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

 Date: 11/1/2017  
 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	50.37	H	73.97	-23.60	Peak	308.00	141.31	
4804.00	30.37	H	53.97	-23.60	Avg	308.00	141.31	
7206.00	51.58	H	73.97	-22.39	Peak	167.25	145.73	
7206.00	31.58	H	53.97	-22.39	Avg	167.25	145.73	
9608.00	59.49	H	73.97	-14.48	Peak	308.00	116.95	
9608.00	39.49	H	53.97	-14.48	Avg	308.00	116.95	
12010.00								No Emission Detected
12010.00								
14412.00								No Emission Detected
14412.00								
16814.00								No Emission Detected
16814.00								
19216.00								No Emission Detected
19216.00								
21618.00								No Emission Detected
21618.00								
24020.00								No Emission Detected
24020.00								

**FCC 15.249**

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

Date: 11/1/2017  
 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	56.27	H	73.97	-17.70	Peak	48.75	160.11	
4804.00	36.27	H	53.97	-17.70	Avg	48.75	160.11	
7206.00	52.55	H	73.97	-21.42	Peak	288.00	127.94	
7206.00	32.55	H	53.97	-21.42	Avg	288.00	127.94	
9608.00	60.45	H	73.97	-13.52	Peak	66.25	168.23	
9608.00	40.45	H	53.97	-13.52	Avg	66.25	168.23	
12010.00								No Emission Detected
12010.00								
14412.00								No Emission Detected
14412.00								
16814.00								No Emission Detected
16814.00								
19216.00								No Emission Detected
19216.00								
21618.00								No Emission Detected
21618.00								
24020.00								No Emission Detected
24020.00								

**FCC 15.249**

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

 Date: 11/1/2017  
 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	55.45	V	73.97	-18.52	Peak	179.50	175.22	
4884.00	35.45	V	53.97	-18.52	Avg	179.50	175.22	
7326.00	52.42	V	73.97	-21.55	Peak	86.50	133.43	
7326.00	32.42	V	53.97	-21.55	Avg	86.50	133.43	
9768.00	58.09	V	73.97	-15.88	Peak	255.00	163.58	
9768.00	38.09	V	53.97	-15.88	Avg	255.00	163.58	
12210.00								No Emission Detected
14652.00								No Emission Detected
17094.00								No Emission Detected
19536.00								No Emission Detected
21978.00								No Emission Detected
24420.00								No Emission Detected

**FCC 15.249**

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

Date: 11/1/2017  
 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	52.31	V	73.97	-21.66	Peak	82.50	218.92	
4884.00	32.31	V	53.97	-21.66	Avg	82.50	218.92	
7326.00	51.89	V	73.97	-22.08	Peak	184.75	139.34	
7326.00	31.89	V	53.97	-22.08	Avg	184.75	139.34	
9768.00	59.79	V	73.97	-14.18	Peak	274.00	131.16	
9768.00	39.79	V	53.97	-14.18	Avg	274.00	131.16	
12210.00								No Emission Detected
14652.00								No Emission Detected
17094.00								No Emission Detected
19536.00								No Emission Detected
21978.00								No Emission Detected
24420.00								No Emission Detected

**FCC 15.249**

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

Date: 11/1/2017  
 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	55.27	V	73.97	-18.70	Peak	182.75	201.01	
4884.00	35.27	V	53.97	-18.70	Avg	182.75	201.01	
7326.00	51.37	V	73.97	-22.60	Peak	223.00	168.65	
7326.00	31.37	V	53.97	-22.60	Avg	223.00	168.65	
9768.00	59.35	V	73.97	-14.62	Peak	45.00	132.95	
9768.00	39.35	V	53.97	-14.62	Avg	45.00	132.95	
12210.00								No Emission Detected
12210.00								
14652.00								No Emission Detected
14652.00								
17094.00								No Emission Detected
17094.00								
19536.00								No Emission Detected
19536.00								
21978.00								No Emission Detected
21978.00								
24420.00								No Emission Detected
24420.00								

**FCC 15.249**

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

Date: 11/1/2017  
 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	53.85	H	73.97	-20.12	Peak	157.75	142.26	
4884.00	33.85	H	53.97	-20.12	Avg	157.75	142.26	
7326.00	60.72	H	73.97	-13.25	Peak	232.00	136.65	
7326.00	40.72	H	53.97	-13.25	Avg	232.00	136.65	
9768.00	58.16	H	73.97	-15.81	Peak	254.00	172.59	
9768.00	38.16	H	53.97	-15.81	Avg	254.00	172.59	
12210.00								No Emission Detected
12210.00								
14652.00								No Emission Detected
14652.00								
17094.00								No Emission Detected
17094.00								
19536.00								No Emission Detected
19536.00								
21978.00								No Emission Detected
21978.00								
24420.00								No Emission Detected
24420.00								

**FCC 15.249**

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

Date: 11/01/2017  
 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	49.10	H	73.97	-24.87	Peak	320.00	166.74	
4884.00	29.10	H	53.97	-24.87	Avg	320.00	166.74	
7326.00	51.19	H	73.97	-22.78	Peak	235.75	118.20	
7326.00	31.19	H	53.97	-22.78	Avg	235.75	118.20	
9768.00	58.23	H	73.97	-15.74	Peak	266.00	156.65	
9768.00	38.23	H	53.97	-15.74	Avg	266.00	156.65	
12210.00								No Emission Detected
12210.00								
14652.00								No Emission Detected
14652.00								
17094.00								No Emission Detected
17094.00								
19536.00								No Emission Detected
19536.00								
21978.00								No Emission Detected
21978.00								
24420.00								No Emission Detected
24420.00								

**FCC 15.249**

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

Date: 11/1/2017  
 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	53.95	H	73.97	-20.02	Peak	75.75	155.04	
4884.00	33.95	H	53.97	-20.02	Avg	75.75	155.04	
7326.00	51.58	H	73.97	-22.39	Peak	258.00	154.92	
7326.00	31.58	H	53.97	-22.39	Avg	258.00	154.92	
9768.00	58.92	H	73.97	-15.05	Peak	64.00	174.14	
9768.00	38.92	H	53.97	-15.05	Avg	64.00	174.14	
12210.00								No Emission Detected
12210.00								
14652.00								No Emission Detected
14652.00								
17094.00								No Emission Detected
17094.00								
19536.00								No Emission Detected
19536.00								
21978.00								No Emission Detected
21978.00								
24420.00								No Emission Detected
24420.00								



**FCC 15.249**

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

 Date: 11/1/2017  
 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	54.46	V	73.97	-19.51	Peak	193.00	114.44	
4960.00	34.46	V	53.97	-19.51	Avg	193.00	114.44	
7440.00	52.27	V	73.97	-21.70	Peak	273.50	110.98	
7440.00	32.27	V	53.97	-21.70	Avg	273.50	110.98	
9920.00	57.95	V	73.97	-16.02	Peak	121.75	102.26	
9920.00	37.95	V	53.97	-16.02	Avg	273.50	110.98	
12400.00								No Emission Detected
14880.00								No Emission Detected
17360.00								No Emission Detected
19840.00								No Emission Detected
22320.00								No Emission Detected
24800.00								No Emission Detected

**FCC 15.249**

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

Date: 11/1/2017  
 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	56.46	V	73.97	-17.51	Peak	106.25	223.04	
4960.00	36.46	V	53.97	-17.51	Avg	106.25	223.04	
7440.00	54.33	V	73.97	-19.64	Peak	270.75	127.52	
7440.00	34.33	V	53.97	-19.64	Avg	270.75	127.52	
9920.00	61.85	V	73.97	-12.12	Peak	285.25	118.68	
9920.00	41.85	V	53.97	-12.12	Avg	285.25	118.68	
12400.00								No Emission Detected
14880.00								No Emission Detected
17360.00								No Emission Detected
19840.00								No Emission Detected
22320.00								No Emission Detected
24800.00								No Emission Detected

**FCC 15.249**

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

 Date: 11/1/2017  
 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	59.65	V	73.97	-14.32	Peak	185.50	187.04	
4960.00	39.65	V	53.97	-14.32	Avg	185.50	187.04	
7440.00	51.95	V	73.97	-22.02	Peak	247.25	130.32	
7440.00	31.95	V	53.97	-22.02	Avg	247.25	130.32	
9920.00	60.60	V	73.97	-13.37	Peak	64.00	132.71	
9920.00	40.60	V	53.97	-13.37	Avg	64.00	132.71	
12400.00								No Emission Detected
12400.00								
14880.00								No Emission Detected
14880.00								
17360.00								No Emission Detected
17360.00								
19840.00								No Emission Detected
19840.00								
22320.00								No Emission Detected
22320.00								
24800.00								No Emission Detected
24800.00								

**FCC 15.249**

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

 Date: 11/1/2017  
 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	59.36	H	73.97	-14.61	Peak	174.50	165.13	
4960.00	39.36	H	53.97	-14.61	Avg	174.50	165.13	
7440.00	54.12	H	73.97	-19.85	Peak	99.50	14.92	
7440.00	34.12	H	53.97	-19.85	Avg	99.50	14.92	
9920.00	63.02	H	73.97	-10.95	Peak	109.50	138.02	
9920.00	43.02	H	53.97	-10.95	Avg	109.50	138.02	
12400.00								No Emission Detected
14880.00								No Emission Detected
17360.00								No Emission Detected
19840.00								No Emission Detected
22320.00								No Emission Detected
24800.00								No Emission Detected

**FCC 15.249**

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

Date: 11/1/2017  
 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	53.50	H	73.97	-20.47	Peak	356.50	168.17	
4960.00	33.50	H	53.97	-20.47	Avg	356.50	168.17	
7440.00	52.37	H	73.97	-21.60	Peak	48.00	149.55	
7440.00	32.37	H	53.97	-21.60	Avg	48.00	149.55	
9920.00	60.82	H	73.97	-13.15	Peak	293.25	108.77	
9920.00	40.82	H	53.97	-13.15	Avg	293.25	108.77	
12400.00								No Emission Detected
12400.00								
14880.00								No Emission Detected
14880.00								
17360.00								No Emission Detected
17360.00								
19840.00								No Emission Detected
19840.00								
22320.00								No Emission Detected
22320.00								
24800.00								No Emission Detected
24800.00								

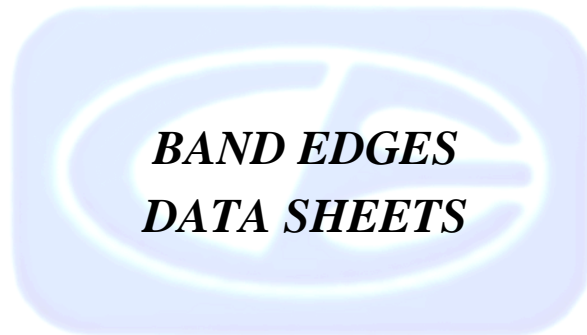
**FCC 15.249**

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

 Date: 11/1/2017  
 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	56.67	H	73.97	-17.30	Peak	81.00	157.37	
4960.00	36.67	H	53.97	-17.30	Avg	81.00	157.37	
7440.00	52.62	H	73.97	-21.35	Peak	135.50	149.73	
7440.00	32.62	H	53.97	-21.35	Avg	135.50	149.73	
9920.00	61.34	H	73.97	-12.63	Peak	295.50	140.71	
9920.00	41.34	H	53.97	-12.63	Avg	295.50	140.71	
12400.00								No Emission Detected
14880.00								No Emission Detected
17360.00								No Emission Detected
19840.00								No Emission Detected
22320.00								No Emission Detected
24800.00								No Emission Detected



**FCC 15.249**

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

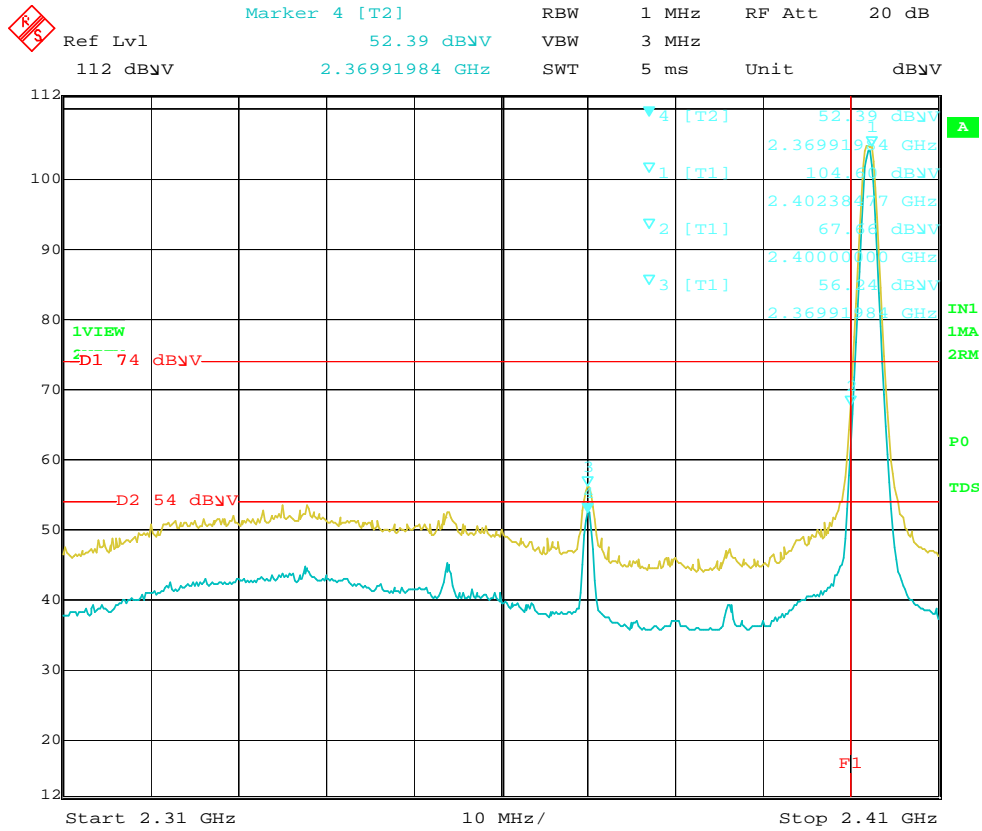
 Date: 11/1/2017  
 Lab: D  
 Tested By: Kyle Haag

**Band Edges**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.38	104.60	H	113.97	-9.37	Peak	147.50	175.70	Fundamental - Low Ch.
2402.38	84.60	H	93.97	-9.37	Avg	147.50	175.70	X-Axis - Worst Case
2400.00	67.66	H	73.97	-6.31	Peak	147.50	175.70	Band Edge
2400.00	47.66	H	53.97	-6.31	Avg	147.50	175.70	X-Axis - Worst Case
2369.92	56.24	H	73.97	-17.73	Peak	147.50	175.70	Band Edge
2369.92	52.39	H	53.97	-1.58	Avg	147.50	175.70	X-Axis - Worst Case
2402.38	103.96	V	113.97	-10.01	Peak	279.25	151.64	Fundamental - Low Ch.
2402.38	83.96	V	93.97	-10.01	Avg	279.25	151.64	Y-Axis - Worst Case
2400.00	66.34	V	73.97	-7.63	Peak	279.25	151.64	Band Edge
2400.00	46.34	V	53.97	-7.63	Avg	279.25	151.64	Y-Axis - Worst Case
2370.14	55.19	V	73.97	-18.78	Peak	279.25	151.64	Band Edge
2370.12	51.74	V	53.97	-2.23	Avg	279.25	151.64	Y-Axis - Worst Case



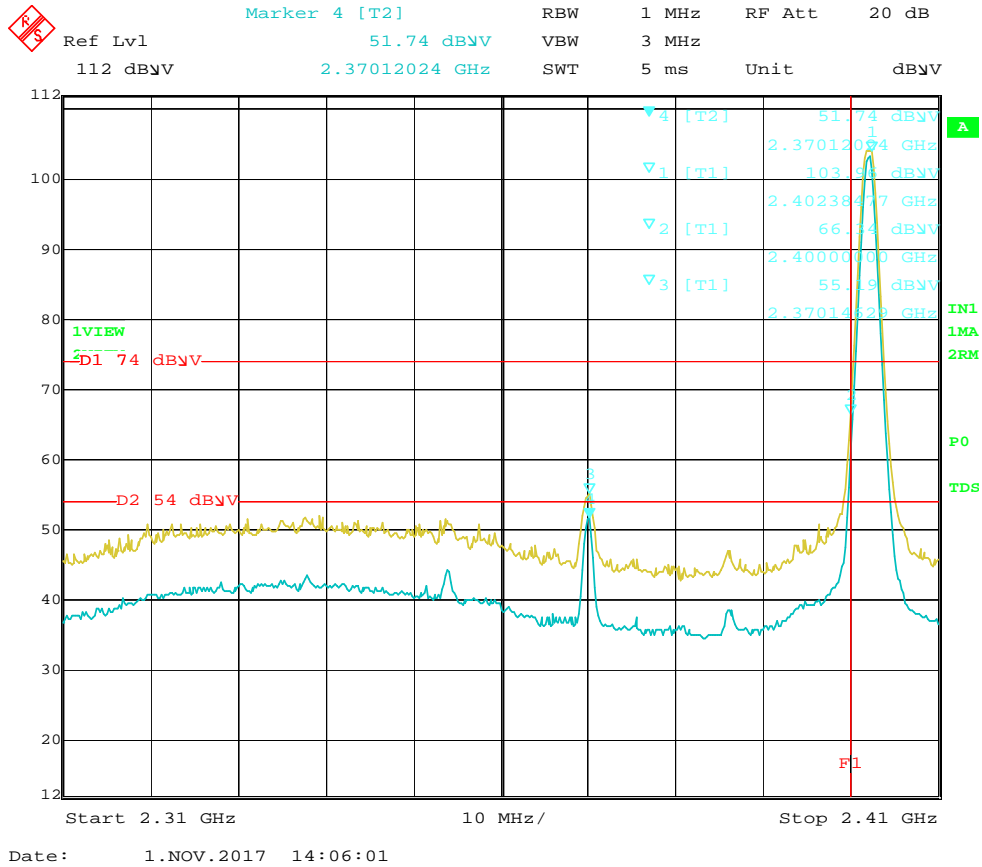




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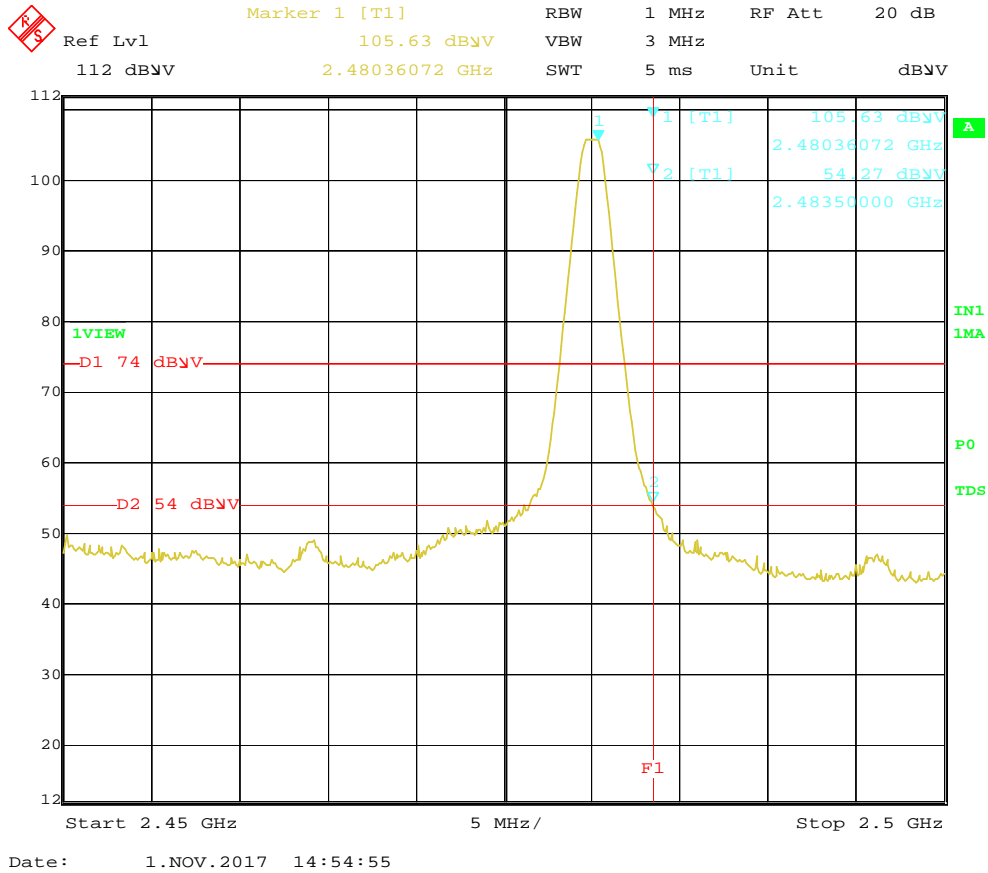
**Band Edge - 2402 MHz - Horizontal - X-Axis - Worst Case**

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



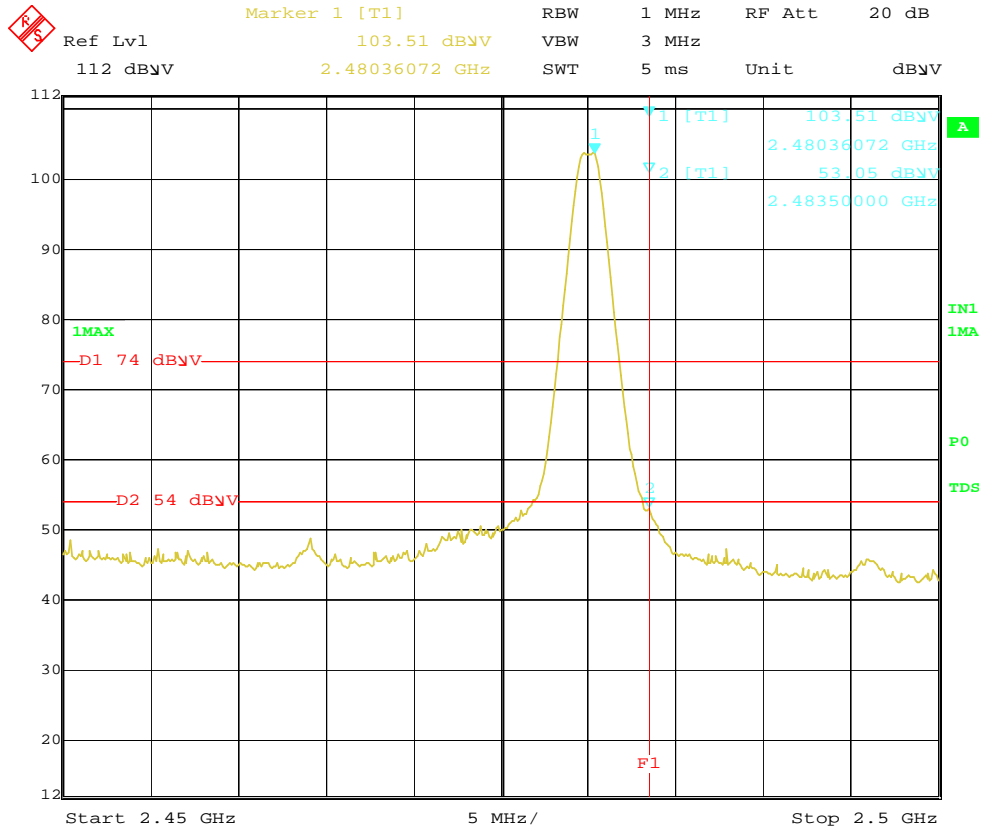
Band Edge - 2402 MHz - Vertical - Y-Axis - Worst Case

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



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

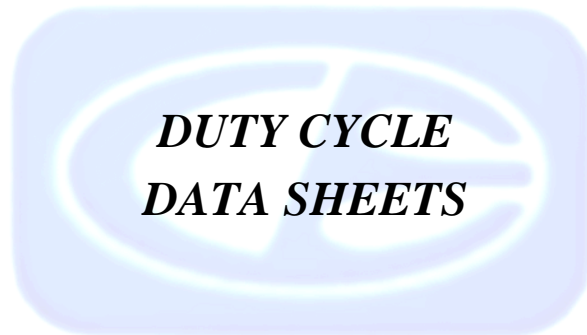
Note: A scan was taken of the Band Edges while EUT was in frequency hopping mode and it was determined that the devices worst case was in continuous transmit mode.

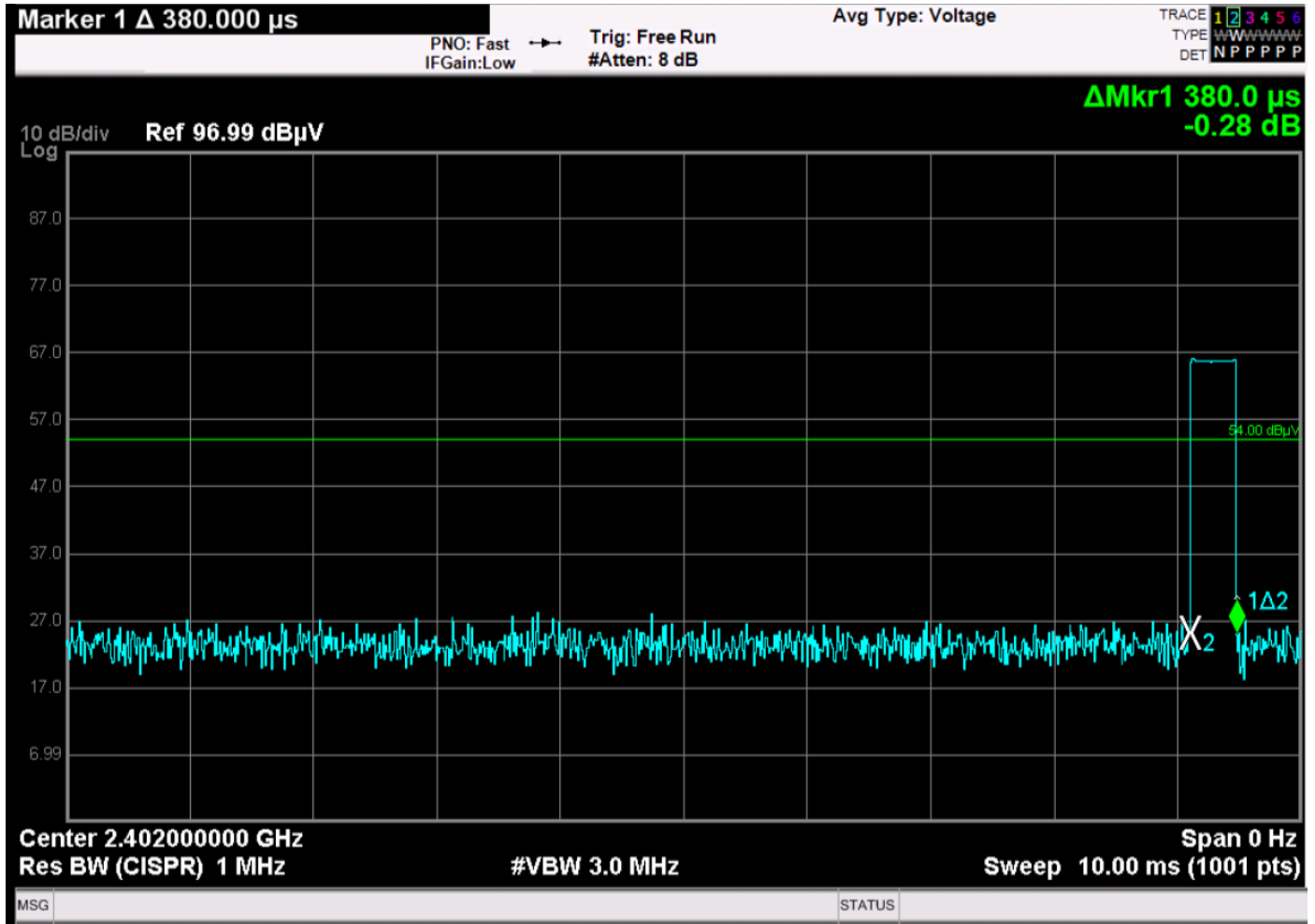


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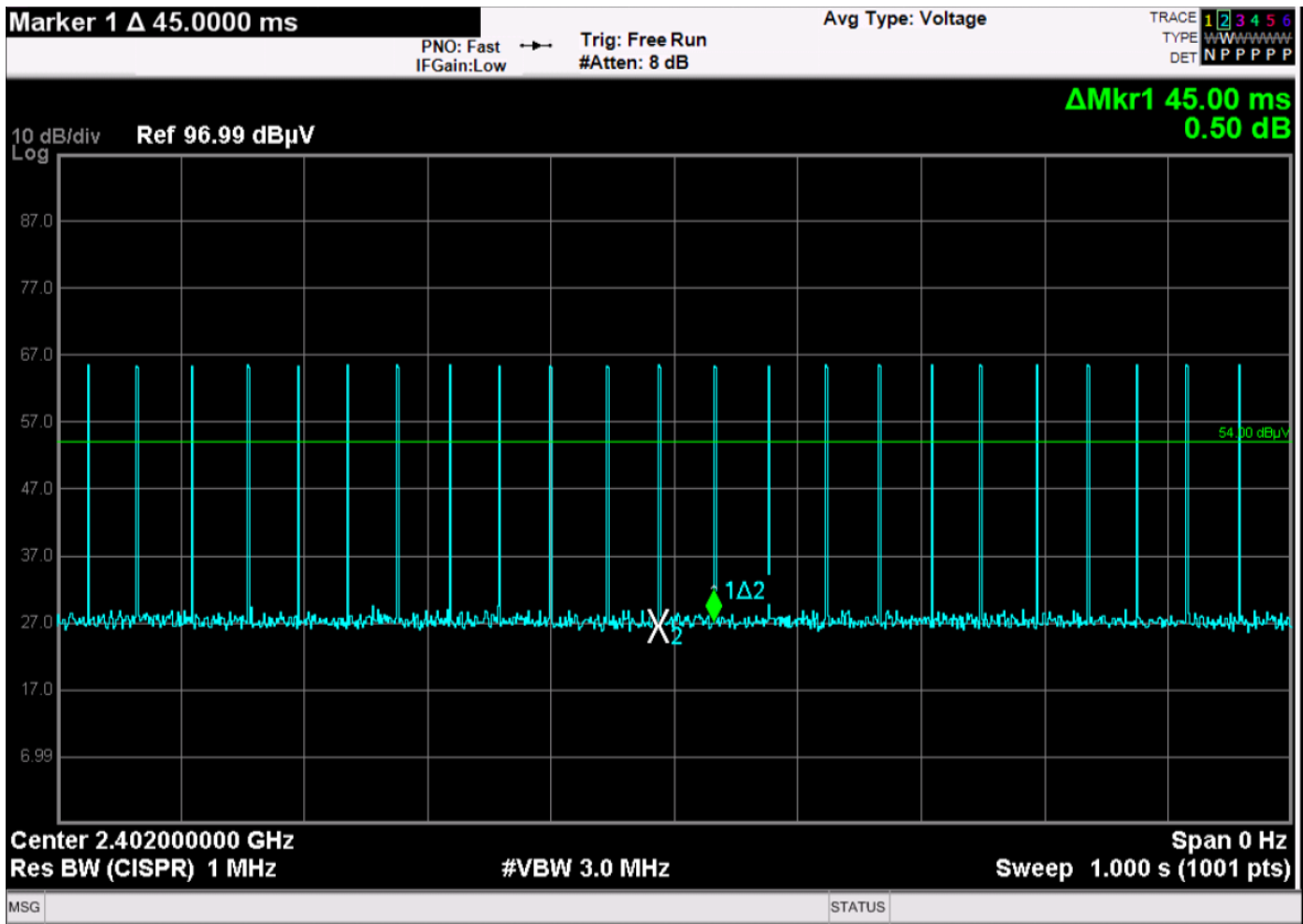
**Band Edge - 2480 MHz - Vertical - Y-Axis - Worst Case**

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





Time of Pulse = 380 us – Advertising Mode – Worst Case



Time Between Pulses = 45.0 ms – Advertising Mode – Worst Case

Total Duty Cycle = 380 us / 45.0 ms = 0.84% Duty Cycle

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

Note: The worst case is the Advertising Mode