FCC PART 15, SUBPART B and C
TEST REPORT

for

WIRELESS AUDIO TRANSMITTER

MODEL: WTX-10

Prepared for

KUBU, INC.
991 EL CAJON WAY
PALO ALTO, CALIFORNIA 94303

Prepared by:_____

KYLE FUJIMOTO

Approved by:_____

JAMES ROSS

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DATE: MARCH 24, 2014

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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.

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:	Wireless Audio Transmitter Model: WTX-10 S/N: N/A
Product Description:	See Expository Statement.
Modifications:	The EUT was not modified during the testing.
Customer:	Kubu, Inc. 991 El Cajon Way Palo Alto, California 94303
Test Dates:	March 6, 10, and 11, 2014
Test Specifications:	EMI requirements CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247
Test Procedure:	ANSI C63.4, ANSI C63.10, and KDB 558074
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	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 15.209
3	Spurious Radiated RF Emissions, 10 kHz – 30 MHz and 1000 MHz – 25000 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
5	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
6	DTS Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(2)
7	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3)
8	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d)
9	Peak Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Wireless Audio Transmitter, Model: WTX-10. The emission measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Kubu, Inc.

Ned Cavasian Engineer

Compatible Electronics Inc.

James Ross Test Engineer
Kyle Fujimoto Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

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

2.6 Abbreviations and Acronyms

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

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

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
KDB 558074	Guidance for Performing Compliance Measurements on Digital Transmissions Systems (DTS) Operating Under 15.247
ANSI C63.10 2009	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The Wireless Audio Transmitter, Model: WTX-10 (EUT) was connected to an iPod Switch and AC Adapter via its audio out and DC in ports, respectively.

The EUT had a special program that allowed the EUT to continuously transmit on a continuous basis at the low, middle, and high channels at the worst data rate. The program was controlled by the laptop which had a wireless communication to the EUT.

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

4.1.1 Cable Construction and Termination

Cable 1 This is a 1-meter unshielded cable connecting the EUT to the iPod Shuffle. The cable has a 1/8 inch stereo connector at each end. The cable has 2 molded ferrites at the EUT end.

Cable 2 This is a 2-meter unshielded cable connecting the EUT to the AC Adapter. The cable has a 1/8 inch power connector at the EUT end and is hard wired into the AC Adapter.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WIRELESS AUDIO TRANSMITTER (EUT)	KUBU, INC.	WTX-10	N/A	2AAMM581711
ITE POWER SUPPLY	CSEC	CS12B120100FU	N/A	N/A
iPOD SWITCH	APPLE	N/A	N/A	N/A
LAPTOP	HEWLETT PACKARD	hp G60	2CE927RF3Q	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
GENERAL TEST EQUIPMENT USED IN LAB B					
Computer	Compaq	CQ5210F	CNX9360CF9	N/A	N/A
Monitor	Hewlett Packard	HPs2031a	3CQ046N3MD	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	2 Year
GENERAL TEST EQUIPMENT USED IN LAB A					
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	2648A15455	May 30, 2013	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2937A06129	May 30, 2013	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	May 30, 2013	1 Year
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
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	Rohde & Schwarz	ESIB40	100194	November 19, 2012	2 Year
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com-Power	AC-220	61060	May 29, 2013	1 Year
Preamplifier	Com-Power	PA-118	181656	January 13, 2014	1 Year
Loop Antenna	Com-Power	AL-130	17089	January 29, 2014	2 Year
Preamplifier	Com-Power	PA-840	711013	May 17, 2012	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 26, 2014	2 Year
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Horn Antenna	Com-Power	AH-826	0071957	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

EMI Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
CONDUCTED EMISSIONS TEST EQUIPMENT					
ShieldRoom Test	Compatible Electronics	11CD	N/A	N/A	N/A
LISN	Com-Power	LI-215	12082	June 17, 2013	1 Year
LISN	Com-Power	LI-215	12090	June 17, 2013	1 Year
Transient Limiter	Com-Power	252A910	1	October 8, 2013	1 Year
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A
PEAK POWER OUTPUT TEST EQUIPMENT					
Power Measuring Analyzer	Boonton Electronics	4500A-01	1282	June 26, 2013	1 Year
Peak Power Sensor	Boonton Electronics	57318	3724	June 26, 2013	1 Year

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

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

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Transmitter Power

Transmit power is herein defined as the power delivered to a 50 ohm load at the RF output of the EUT.

Power	Frequency
26.04 dBm	2412 MHz
26.36 dBm	2437 MHz
26.63 dBm	2462 MHz

7.2 Channel Number and Frequencies

There are a total of 11 channels for 802.11 n.

2412 MHz (Channel 1)	2417 (Channel 2)
2422 MHz (Channel 3)	2427 (Channel 4)
2432 MHz (Channel 5)	2437 (Channel 6)
2442 MHz (Channel 7)	2447 (Channel 8)
2452 MHz (Channel 9)	2457 (Channel 10)
2462 MHz (Channel 11)	

7.3 Antenna Gain

The maximum gain of the antenna is 5 dBi.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2009. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207 for conducted emissions. Please see Appendix E for the data sheets.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test – Lab B

The EMI Receiver was used as a measuring meter. A preamplifier was used to increase the sensitivity of the instrument. The Com Power Microwave Preamplifier Model: PA-118 was used for frequencies from 1 GHz to 18 GHz, and the Model: PA-840 was used for frequencies above 18 GHz. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

The frequencies above 1 GHz were averaged by using the RMS average detector function on the EMI Receiver.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
1 GHz to 25 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test -- Lab B (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 1 GHz to 25 GHz to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 for radiated emissions. Please see Appendix E for the data sheets.

8.1.3 Radiated Emissions (Spurious and Harmonics) Test – Lab D

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

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT.

The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength).

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna

The EUT was tested at a 3 meter test distance. The six highest emissions are listed in Table 2.0.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.

8.1.4 RF Emissions Test Results

Table 1.0 CONDCUTED EMISSION RESULTS
Wireless Audio Transmitter, Model: WTX-10

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.494 (Black Lead)	41.54	46.09	-4.55
0.513 (Black Lead)	41.24	46.00	-4.76
0.518 (White Lead)	41.24	46.00	-4.76
0.486 (Black Lead)	41.05	46.23	-5.18
0.476 (Black Lead)	41.15	46.40	-5.25
0.449 (Black Lead)	41.27	46.89	-5.62

Table 2.0 RADIATED EMISSION RESULTS
Wireless Audio Transmitter, Model: WTX-10

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
2390 (V) (X-Axis)	51.75	54.00	-2.25
2483.5 (V) (X-Axis)	51.45	54.00	-2.55
2483.5 (H) (X-Axis)	49.27	54.00	-4.73
746.70 (V) (X-Axis)	40.57 (QP)	46.00	-5.43
960.00 (H) (X-Axis)	38.92 (QP)	46.00	-7.08
4874 (V) (X-Axis)	46.67 (A)	54.00	-7.33

Notes:

*	The complete emissions data is given in Appendix E of this report.		
QP	Quasi-Peak Reading	V	Vertical Polarization
A	Average Reading	H	Horizontal Polarization

8.2 DTS Bandwidth

The DTS Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The following steps were performed for measuring the DTS Bandwidth.

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep = Auto Couple
6. Allow the trace to stabilize
7. Measure the maximum width of the emissions that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(2). The 6 dB bandwidth is greater than 500 kHz. Please see the data sheets located in Appendix E.

8.3 Peak Output Power

The Peak Output Power was taken using the power meter and power sensor. The EUT was directly connected to the power sensor, which was directly connected to the power meter. The Peak Output Power was then taken. The worst case data rate was used.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3). Please see the data sheets located in Appendix E.

8.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (d). Please see the data sheets located in Appendix E.

8.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (2400 MHz when the EUT was on the low channel and 2483.5 MHz when the EUT was on the high channel) using the EMI Receiver. A preamplifier was used to boost the signal level, with the plots being taken at a 3 meter test distance. The radiated emissions test procedure as describe in section 8.1.2 of this test report was used to maximize the emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the restricted bands closest to the band edges at 2390 MHz and 2483.5 MHz meet the limits of section 15.209. Please see the data sheets located in Appendix E.

8.6 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

1. Set the RBW to 3 kHz <= RBW <= 100 kHz
2. Set the VBW >= 3 X RBW.
3. Set the span to 1.5 times the DTS bandwidth
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Allow trace to fully stabilize
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (e).

9. CONCLUSIONS

The Wireless Audio Transmitter, Model: WTX-10 meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0, 200528-0, 200527-0

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

NVLAP listing links

Agoura Division / **Brea Division** / **Silverado/Lake Forest Division**

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

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

ANSI listing CETCB

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

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

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

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

FCC Listing, from FCC OET site
FCC test lab search https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm

Compatible Electronics IC listing can be found at:
http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home

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 15.247 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 MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Wireless Audio Transmitter Model: WTX-10 S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

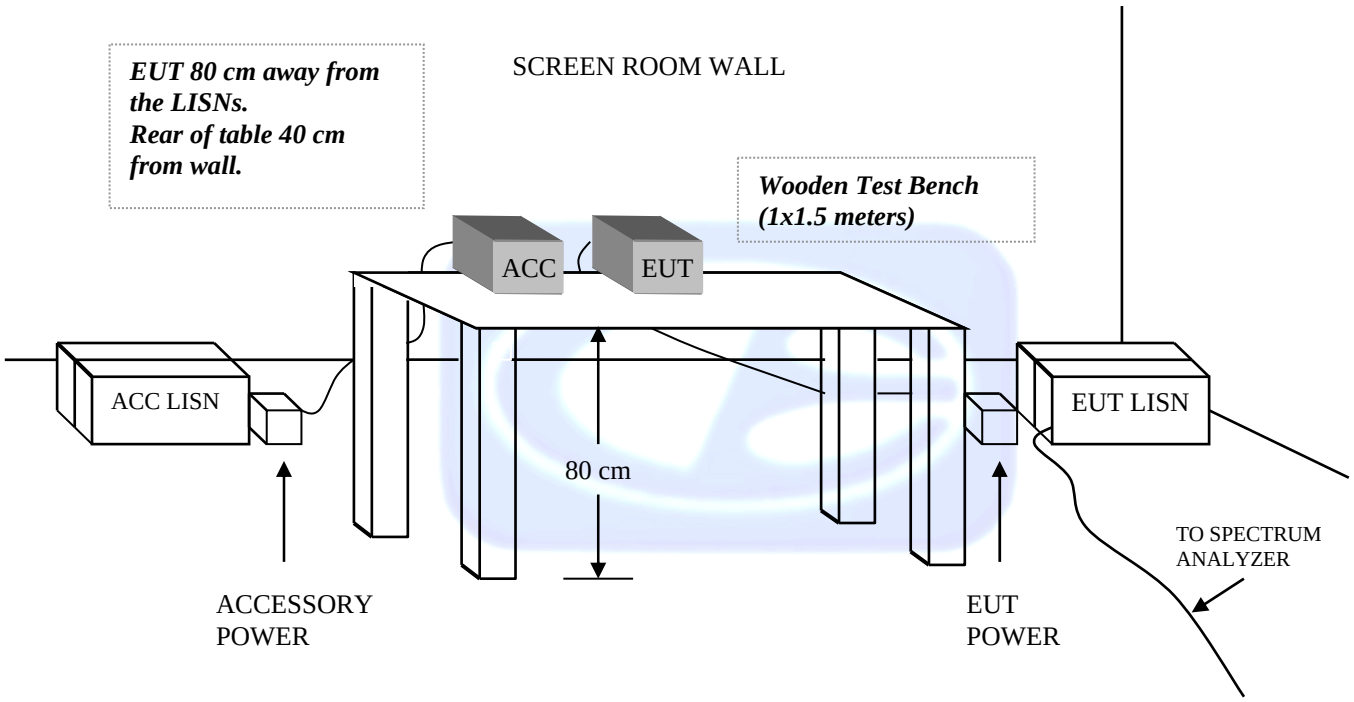
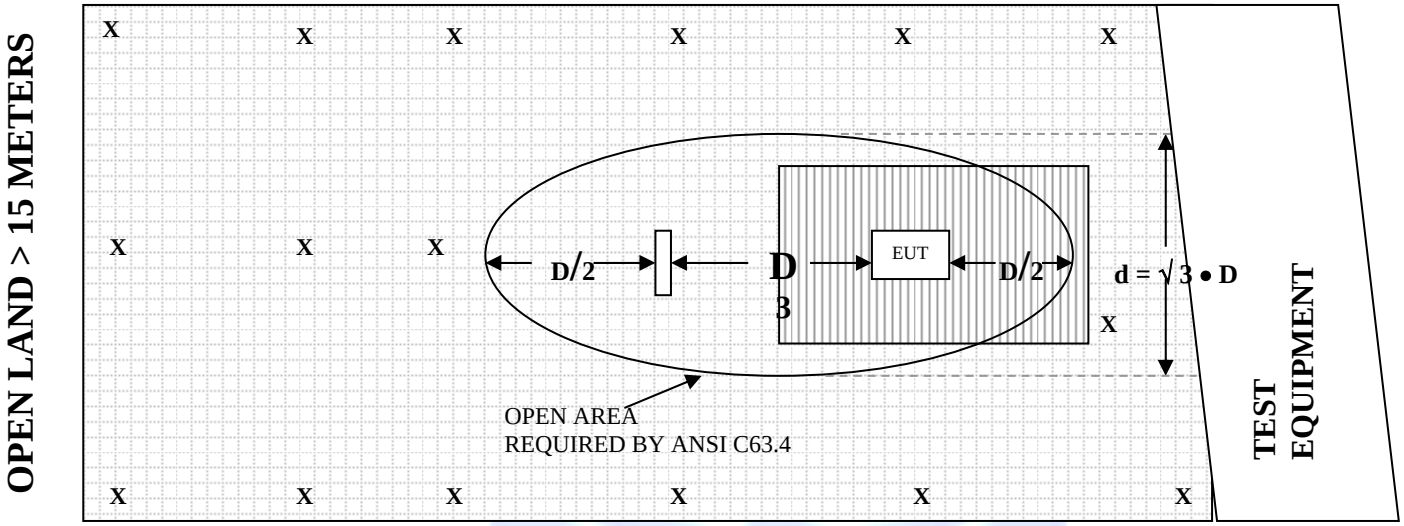


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

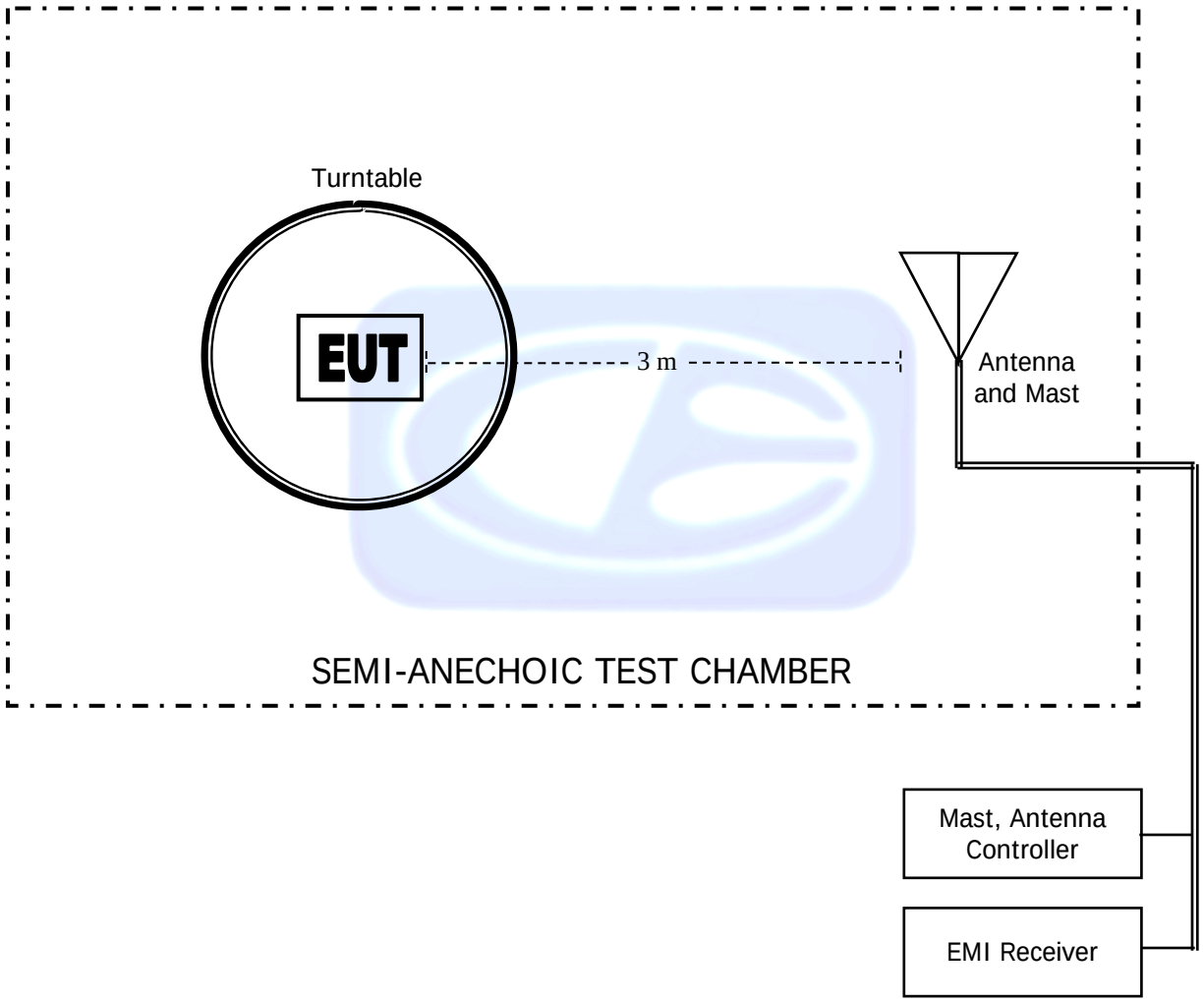
OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

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

FIGURE 3: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER



COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: JANUARY 29, 2014

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

COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61060

CALIBRATION DATE: MAY 29, 2013

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	19.40	200	9.10
35	19.10	250	11.40
40	19.70	300	11.90
45	18.00	350	14.20
50	16.80	400	15.20
60	12.50	450	16.50
70	7.30	500	17.10
80	4.40	550	16.20
90	8.00	600	17.70
100	8.80	650	19.10
120	10.50	700	20.00
125	10.60	750	21.50
140	8.60	800	21.50
150	11.20	850	21.70
160	8.90	900	22.70
175	9.60	950	22.10
180	8.50	1000	22.90

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 26, 2014

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.23	10.0	38.43
1.5	25.84	10.5	40.19
2.0	28.14	11.0	40.49
2.5	29.51	11.5	41.39
3.0	31.20	12.0	42.02
3.5	32.17	12.5	43.30
4.0	31.40	13.0	42.77
4.5	31.86	13.5	40.18
5.0	34.82	14.0	42.59
5.5	34.38	14.5	41.74
6.0	36.31	15.0	41.84
6.5	34.81	15.5	38.48
7.0	37.48	16.0	39.52
7.5	36.98	16.5	37.85
8.0	36.66	17.0	41.33
8.5	38.47	17.5	44.96
9.0	37.22	18.0	48.50
9.5	37.86		

COM-POWER PA-118

PREAMPLIFIER

S/N: 181656

CALIBRATION DATE: JANUARY 13, 2014

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.90	6.0	25.40
1.1	25.30	6.5	25.20
1.2	26.00	7.0	24.40
1.3	26.20	7.5	24.00
1.4	26.30	8.0	23.90
1.5	26.40	8.5	24.50
1.6	26.50	9.0	25.20
1.7	26.60	9.5	24.80
1.8	26.50	10.0	24.90
1.9	26.60	11.0	25.40
2.0	26.70	12.0	24.50
2.5	26.90	13.0	24.30
3.0	27.00	14.0	25.20
3.5	27.10	15.0	25.90
4.0	26.60	16.0	25.60
4.5	26.10	17.0	23.70
5.0	26.40	18.0	25.80
5.5	25.80		

COM-POWER AH826

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

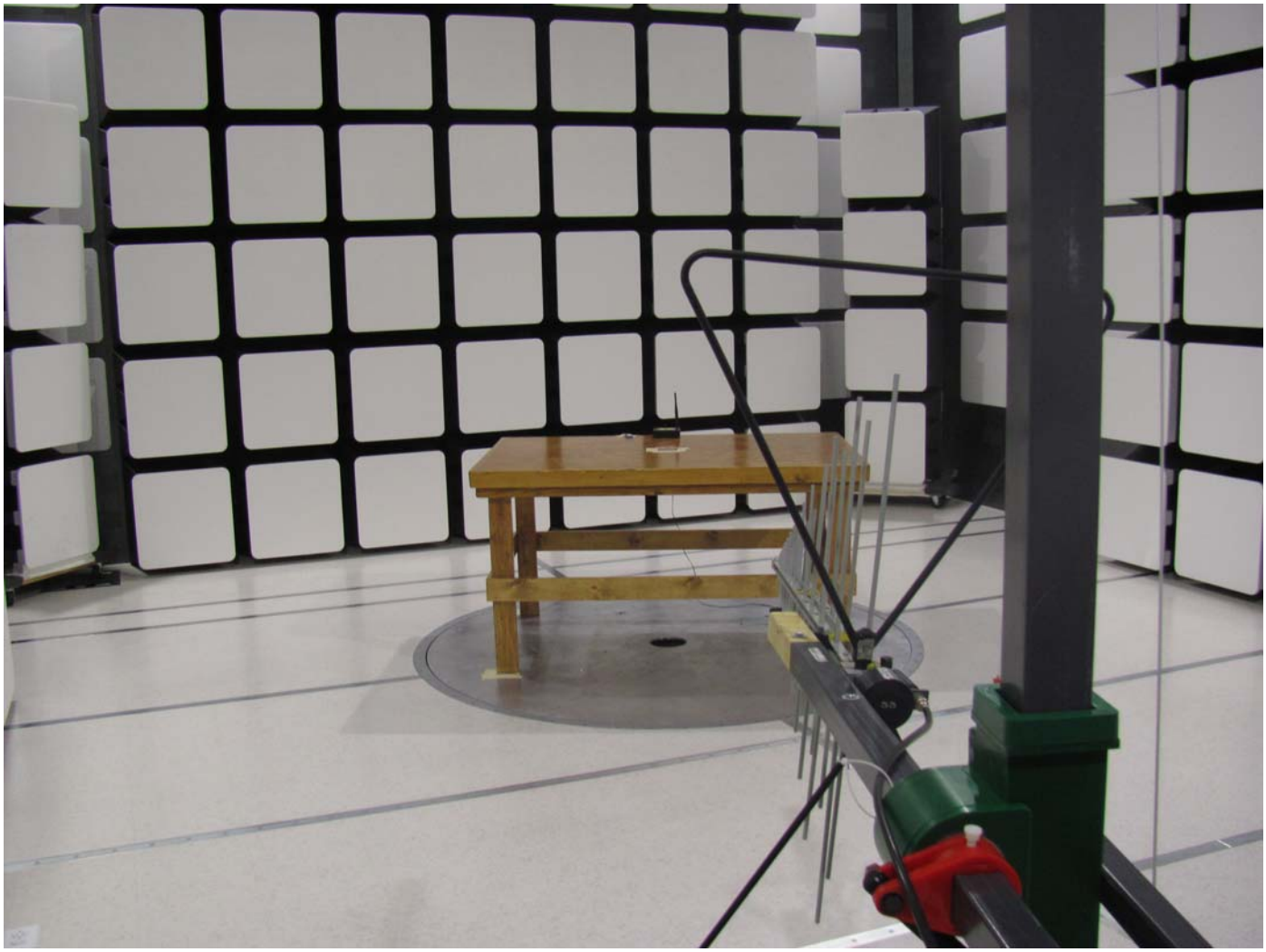
COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MAY 17, 2012

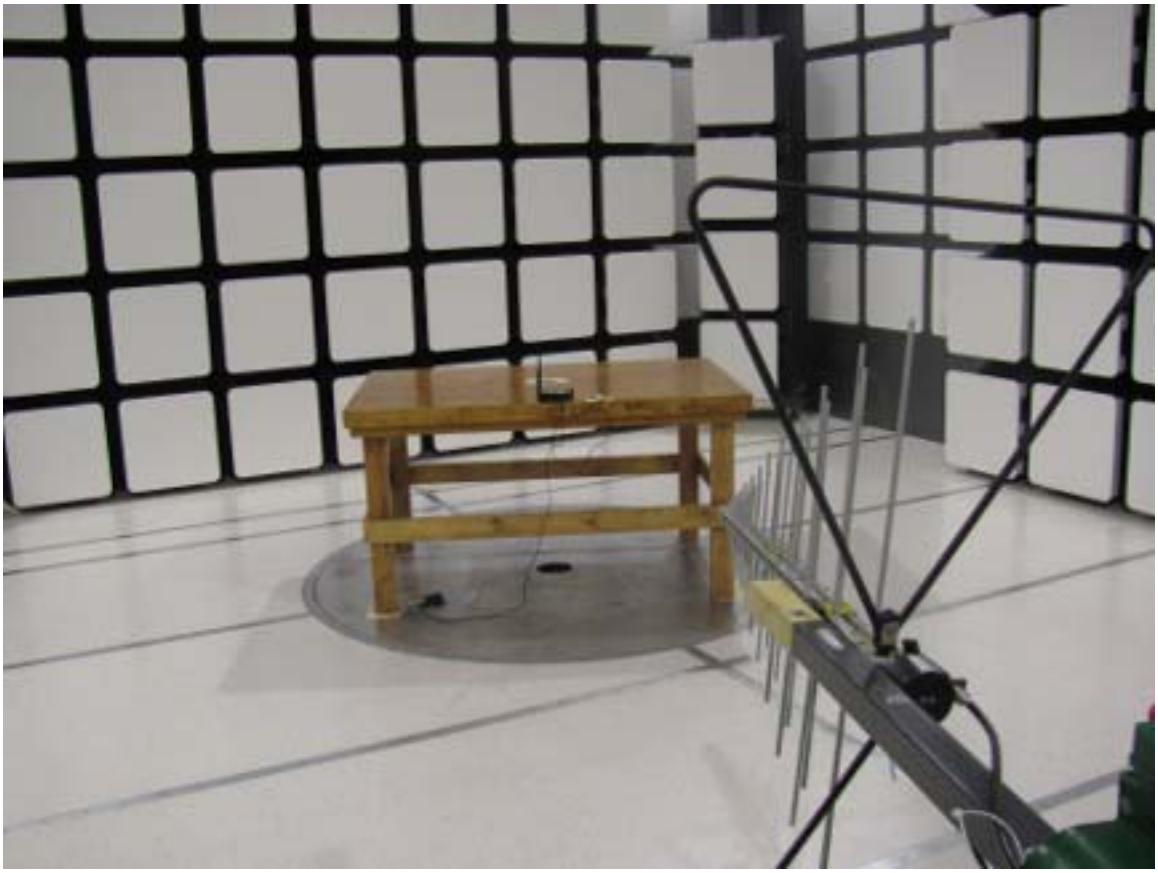
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.81	31.0	25.77
19.0	24.57	31.5	25.36
20.0	23.46	32.0	25.15
21.0	22.51	32.5	25.13
22.0	23.85	33.0	25.52
23.0	23.31	33.5	25.24
24.0	24.44	34.0	25.08
25.0	25.42	34.5	25.27
26.0	25.71	35.0	23.99
26.5	25.66	35.5	24.67
27.0	25.84	36.5	24.80
27.5	25.29	37.0	26.27
28.0	25.46	37.5	24.86
28.5	25.58	38.0	24.64
29.0	26.16	38.5	23.46
29.5	26.14	39.0	21.29
30.0	26.01	39.5	20.83
30.5	25.67	40.0	19.96



FRONT VIEW

KUBU, INC.
WIRELESS AUDIO TRANSMITTER
MODEL: WTX-10
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

KUBU, INC.
WIRELESS AUDIO TRANSMITTER
MODEL: WTX-10
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

KUBU, INC.
WIRELESS AUDIO TRANSMITTER
MODEL: WTX-10
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

KUBU, INC.
WIRELESS AUDIO TRANSMITTER
MODEL: WTX-10
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

KUBU, INC.
WIRELESS AUDIO TRANSMITTER
MODEL: WTX-10
FCC SUBPART B AND C – CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

KUBU, INC.
WIRELESS AUDIO TRANSMITTER
MODEL: WTX-10
FCC SUBPART B AND C – CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 1 - 802.11 n Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412								**N/A**
2412								**Done Via Conducted**
4824	48.57	V	74	-25.43	Peak	1.25	155	
4824	43.74	V	54	-10.26	Avg	1.25	155	
7236	48.14	V	74	-25.86	Peak	1.35	165	
7236	41.45	V	54	-12.55	Avg	1.35	165	
9648								**No Emission**
9648								**Detected**
12060								**No Emission**
12060								**Detected**
14472								**No Emission**
14472								**Detected**
16884								**No Emission**
16884								**Detected**
19296								**No Emission**
19296								**Detected**
21708								**No Emission**
21708								**Detected**
24120								**No Emission**
24120								**Detected**

FCC 15.247
Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 1 - 802.11 n Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412								**N/A**
2412								**Done Via Conducted**
4824	44.43	H	74	-29.57	Peak	1.25	155	
4824	34.01	H	54	-19.99	Avg	1.25	155	
7236	49.46	H	74	-24.54	Peak	1.35	165	
7236	42.12	H	54	-11.88	Avg	1.35	165	
9648								**No Emission**
9648								**Detected**
12060								**No Emission**
12060								**Detected**
14472								**No Emission**
14472								**Detected**
16884								**No Emission**
16884								**Detected**
19296								**No Emission**
19296								**Detected**
21708								**No Emission**
21708								**Detected**
24120								**No Emission**
24120								**Detected**

FCC 15.247
Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 1 - 802.11 n Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412								**N/A**
2412								**Done Via Conducted**
4824	42.43	V	74	-31.57	Peak	1.25	155	
4824	37.36	V	54	-16.64	Avg	1.25	155	
7236	48.99	V	74	-25.01	Peak	1.25	135	
7236	41.81	V	54	-12.19	Avg	1.25	135	
9648								**No Emission**
9648								**Detected**
12060								**No Emission**
12060								**Detected**
14472								**No Emission**
14472								**Detected**
16884								**No Emission**
16884								**Detected**
19296								**No Emission**
19296								**Detected**
21708								**No Emission**
21708								**Detected**
24120								**No Emission**
24120								**Detected**

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 1 - 802.11 n Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412								**N/A**
2412								**Done Via Conducted**
4824	42.58	H	74	-31.42	Peak	1.25	165	
4824	33.85	H	54	-20.15	Avg	1.25	165	
7236	48.01	H	74	-25.99	Peak	1.35	175	
7236	37.91	H	54	-16.09	Avg	1.35	175	
9648								**No Emission**
9648								**Detected**
12060								**No Emission**
12060								**Detected**
14472								**No Emission**
14472								**Detected**
16884								**No Emission**
16884								**Detected**
19296								**No Emission**
19296								**Detected**
21708								**No Emission**
21708								**Detected**
24120								**No Emission**
24120								**Detected**

FCC 15.247
Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 6 - 802.11 n Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2437								**N/A**
2437								**Done Via Conducted**
4874	49.46	V	74	-24.54	Peak	1.25	180	
4874	46.67	V	54	-7.33	Avg	1.25	180	
7311	50.21	V	74	-23.79	Peak	1.25	315	
7311	42.08	V	54	-11.92	Avg	1.25	315	
9748								**No Emission**
9748								**Detected**
12185								**No Emission**
12185								**Detected**
14622								**No Emission**
14622								**Detected**
17059								**No Emission**
17059								**Detected**
19496								**No Emission**
19496								**Detected**
21933								**No Emission**
21933								**Detected**
24370								**No Emission**
24370								**Detected**

FCC 15.247
Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 6 - 802.11 n Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2437								**N/A**
2437								**Done Via Conducted**
4874	42.86	H	74	-31.14	Peak	1.25	135	
4874	34.74	H	54	-19.26	Avg	1.25	135	
7311	46.51	H	74	-27.49	Peak	1.25	125	
7311	35.21	H	54	-18.79	Avg	1.25	125	
9748								**No Emission**
9748								**Detected**
12185								**No Emission**
12185								**Detected**
14622								**No Emission**
14622								**Detected**
17059								**No Emission**
17059								**Detected**
19496								**No Emission**
19496								**Detected**
21933								**No Emission**
21933								**Detected**
24370								**No Emission**
24370								**Detected**

FCC 15.247
Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 6 - 802.11 n Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2437								**N/A**
2437								**Done Via Conducted**
4874	46.23	V	74	-27.77	Peak	1.25	135	
4874	34.84	V	54	-19.16	Avg	1.25	135	
7311	50.94	V	74	-23.06	Peak	1.25	90	
7311	42.41	V	54	-11.59	Avg	1.25	90	
9748								**No Emission**
9748								**Detected**
12185								**No Emission**
12185								**Detected**
14622								**No Emission**
14622								**Detected**
17059								**No Emission**
17059								**Detected**
19496								**No Emission**
19496								**Detected**
21933								**No Emission**
21933								**Detected**
24370								**No Emission**
24370								**Detected**

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 6 - 802.11 n Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2437								**N/A**
2437								**Done Via Conducted**
4874	45.56	H	74	-28.44	Peak	1.25	135	
4874	35.48	H	54	-18.52	Avg	1.25	135	
7311	50.81	H	74	-23.19	Peak	1.15	0	
7311	42.08	H	54	-11.92	Avg	1.15	0	
9748								**No Emission**
9748								**Detected**
12185								**No Emission**
12185								**Detected**
14622								**No Emission**
14622								**Detected**
17059								**No Emission**
17059								**Detected**
19496								**No Emission**
19496								**Detected**
21933								**No Emission**
21933								**Detected**
24370								**No Emission**
24370								**Detected**

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 11 - 802.11 n Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2462								**N/A**
2462								**Done Via Conducted**
4924	48.99	V	74	-25.01	Peak	1.25	225	
4924	45.93	V	54	-8.07	Avg	1.25	225	
7386	47.62	V	74	-26.38	Peak	1.25	135	
7386	42.42	V	54	-11.58	Avg	1.25	135	
9848								**No Emission**
9848								**Detected**
12310								**No Emission**
12310								**Detected**
14772								**No Emission**
14772								**Detected**
17234								**No Emission**
17234								**Detected**
19696								**No Emission**
19696								**Detected**
22158								**No Emission**
22158								**Detected**
24620								**No Emission**
24620								**Detected**

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 11 - 802.11 n Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2462								**N/A**
2462								**Done Via Conducted**
4924	33.88	H	74	-40.12	Peak	1.25	180	
4924	21.54	H	54	-32.46	Avg	1.25	180	
7386	31.92	H	74	-42.08	Peak	1.25	180	
7386	25.38	H	54	-28.62	Avg	1.25	180	
9848								**No Emission**
9848								**Detected**
12310								**No Emission**
12310								**Detected**
14772								**No Emission**
14772								**Detected**
17234								**No Emission**
17234								**Detected**
19696								**No Emission**
19696								**Detected**
22158								**No Emission**
22158								**Detected**
24620								**No Emission**
24620								**Detected**

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 11 - 802.11 n Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2462								**N/A**
2462								**Done Via Conducted**
4924	47.82	V	74	-26.18	Peak	1.25	0	
4924	38.83	V	54	-15.17	Avg	1.25	0	
7386	48.31	V	74	-25.69	Peak	1.25	0	
7386	43.33	V	54	-10.67	Avg	1.25	0	
9848								**No Emission**
9848								**Detected**
12310								**No Emission**
12310								**Detected**
14772								**No Emission**
14772								**Detected**
17234								**No Emission**
17234								**Detected**
19696								**No Emission**
19696								**Detected**
22158								**No Emission**
22158								**Detected**
24620								**No Emission**
24620								**Detected**

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Channel 11 - 802.11 n Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2462								**N/A**
2462								**Done Via Conducted**
4924	41.25	H	74	-32.75	Peak	1.25	315	
4924	32.28	H	54	-21.72	Avg	1.25	315	
7386	47.99	H	74	-26.01	Peak	1.35	145	
7386	43.04	H	54	-10.96	Avg	1.35	145	
9848								**No Emission**
9848								**Detected**
12310								**No Emission**
12310								**Detected**
14772								**No Emission**
14772								**Detected**
17234								**No Emission**
17234								**Detected**
19696								**No Emission**
19696								**Detected**
22158								**No Emission**
22158								**Detected**
24620								**No Emission**
24620								**Detected**

FCC 15.247 and FCC Class B

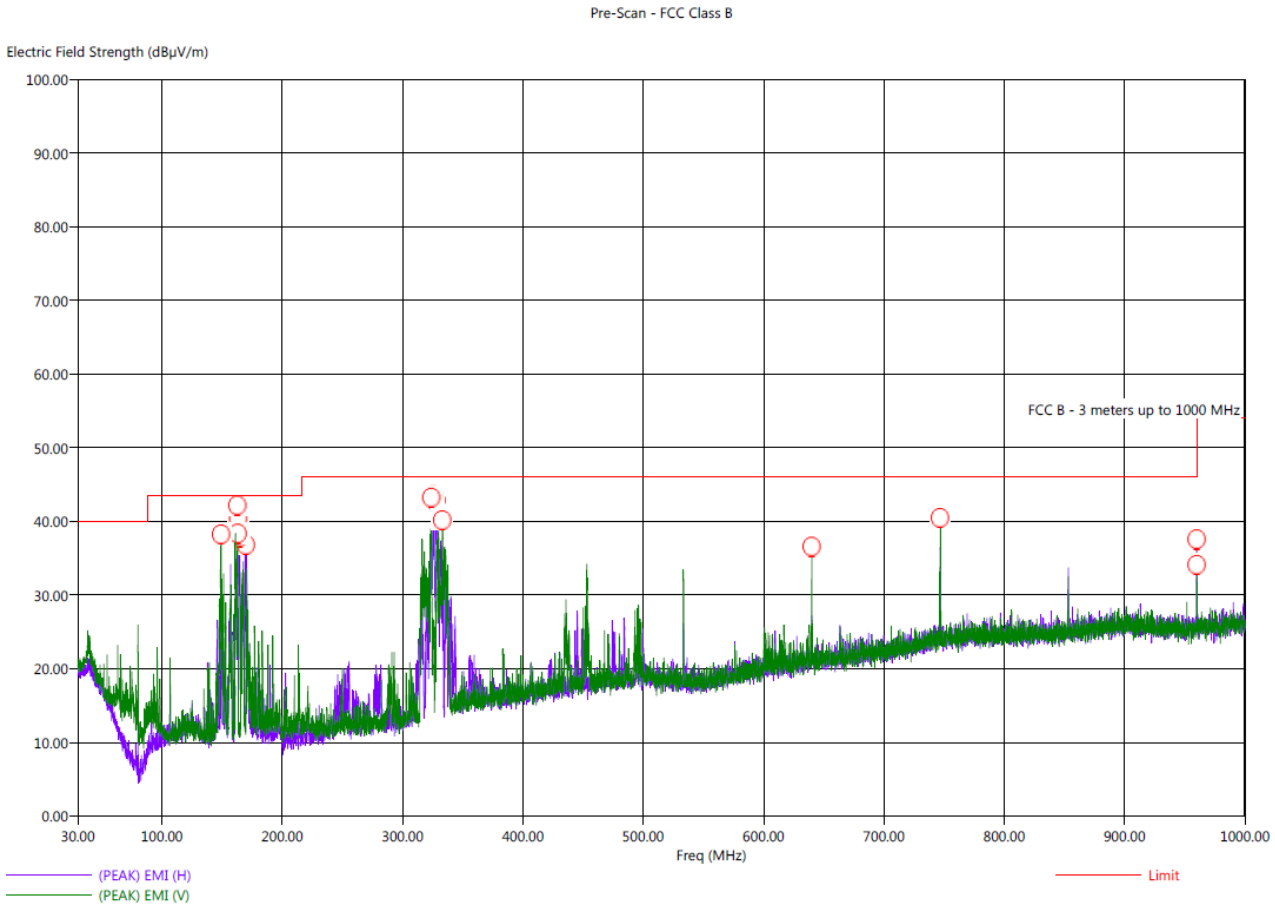
Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/10/2014
Lab: B
Tested By: Kyle Fujimoto

Non-Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz
Vertical and Horizontal Polarizations

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Detected from
								the Digital Portion of the EUT
								from 1 GHz to 25 GHz
								No Emissions Detected from
								the Non-Harmonic Emissions
								from the Tx from
								1 GHz to 25 GHz
								Tested in the X-Axis and
								Y-Axis

```
Title: Pre-Scan - FCC Class B                                   3/6/2014 9:20:36 AM
File: Radiated Pre-Scan - FCC Class B - Audio Configuration - 03-06-2014.set
Operator: Kyle Fujimoto                                    Sequence: Preliminary Scan
EUT Type: Wireless Audio Transmitter
EUT Condition: Audio Configuration
Comments: Company Name: Kubu, Inc.
Model: WTX-10
Audio port terminated, Ethernet ports not terminated
No Emissions from 10 kHz to 30 MHz
```



Title: Final Scan - FCC Class B
File: Radiated Final - FCC Class B - Audio Configuration - 03-06-2014.set
Operator: Kyle Fujimoto
EUT Type: Wireless Audio Transmitter
EUT Condition: Audio Configuration
Comments: Company Name: Kubu, Inc.
Model: WTX-10
Audio port terminated, Ethernet ports not terminated
No Emissions from 10 kHz to 30 MHz

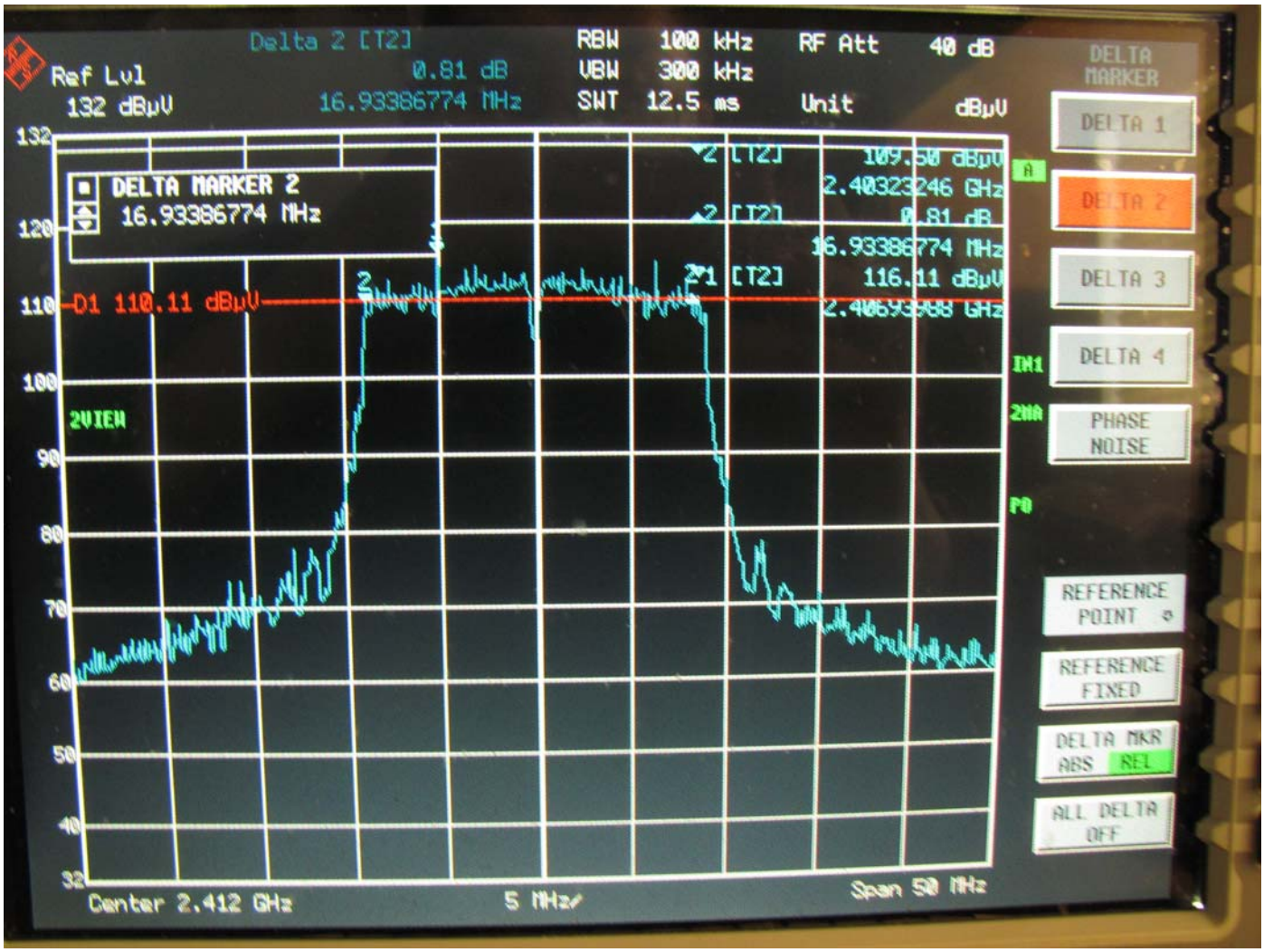
3/6/2014 10:02:25 AM
Sequence: Final Measurements

Table3

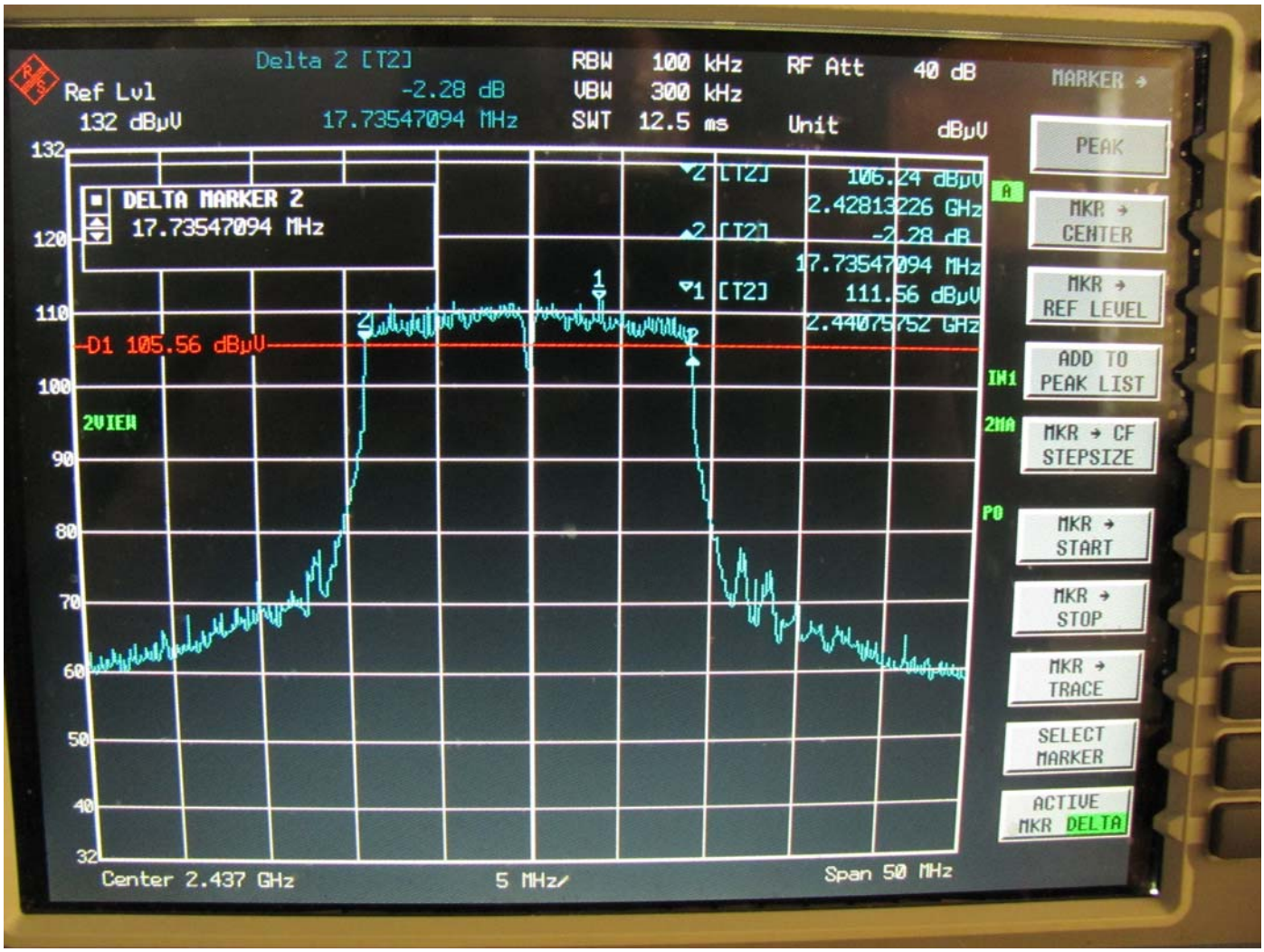
Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deg)	Twr Ht (cm)
149.10	V	40.39	29.45	-3.11	-14.05	43.50	10.98	0.78	72.25	110.14
162.60	H	45.04	35.60	1.54	-7.90	43.50	9.04	0.88	275.25	134.74
162.90	H	44.36	34.87	0.86	-8.63	43.50	9.04	0.88	272.75	143.88
163.40	H	44.97	35.07	1.47	-8.43	43.50	9.06	0.88	250.75	201.97
163.80	H	44.84	35.16	1.34	-8.34	43.50	9.09	0.88	256.75	156.53
164.50	H	46.37	34.47	2.87	-9.03	43.50	9.12	0.89	229.50	220.23
169.80	H	42.04	30.51	-1.46	-12.99	43.50	9.36	0.92	223.25	243.76
323.80	V	43.71	33.16	-2.29	-12.84	46.00	13.04	1.07	306.75	143.04
325.40	H	47.93	38.13	1.93	-7.87	46.00	13.12	1.08	45.25	102.32
326.10	H	45.98	36.40	-0.02	-9.60	46.00	13.15	1.08	23.50	118.80
328.20	H	46.49	36.17	0.49	-9.83	46.00	13.23	1.08	13.50	101.13
328.90	H	45.26	34.73	-0.74	-11.27	46.00	13.28	1.09	50.00	120.77
332.90	V	43.98	32.99	-2.02	-13.01	46.00	13.45	1.09	306.25	130.20
640.00	V	38.18	28.53	-7.82	-17.47	46.00	18.83	1.58	290.00	172.17
746.70	V	41.58	40.57	-4.42	-5.43	46.00	21.40	1.88	174.50	100.05
960.00	H	40.43	38.92	-5.57	-7.08	46.00	22.26	2.20	9.00	105.37
960.00	V	38.43	36.77	-7.57	-9.23	46.00	22.26	2.20	166.25	118.32

-6 dB BANDWIDTH

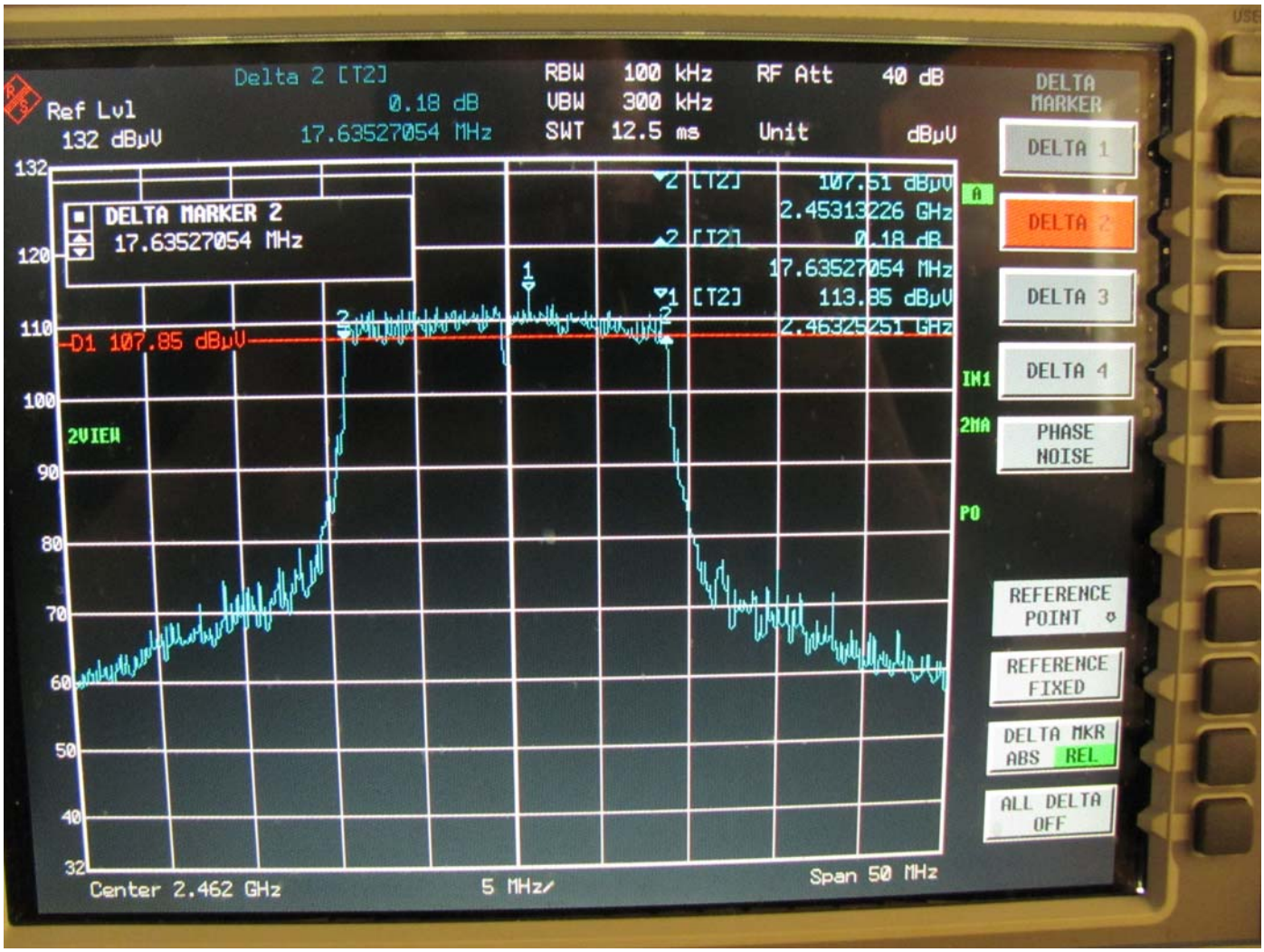
DATA SHEETS



Bandwidth 6 dB – Channel 1



Bandwidth 6 dB – Channel 6



Bandwidth 6 dB – Channel 11

PEAK POWER OUTPUT

DATA SHEETS

PEAK OUTPUT POWER

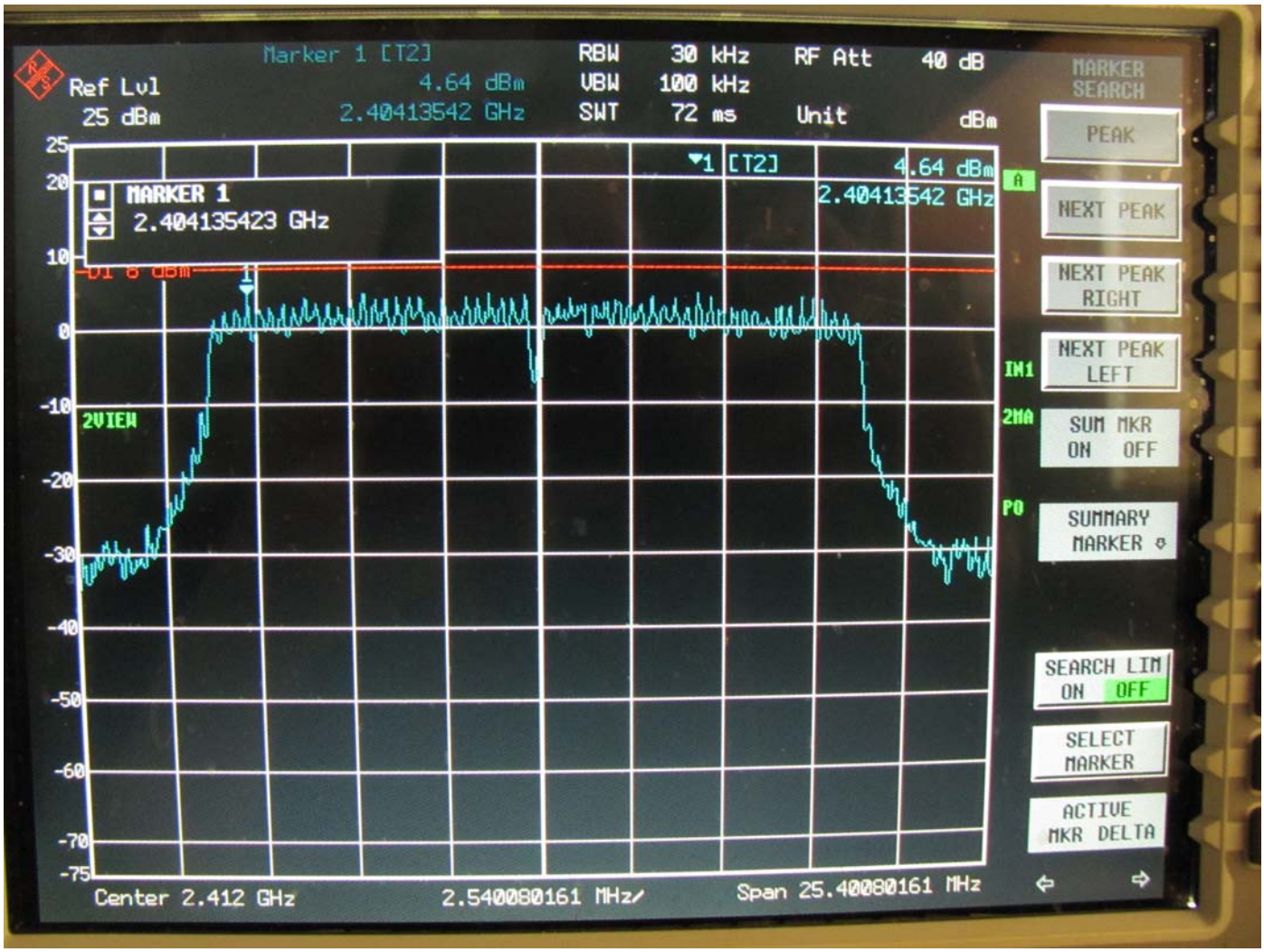
WIRELESS AUDIO TRANSMITTER

MODEL: WTX-10

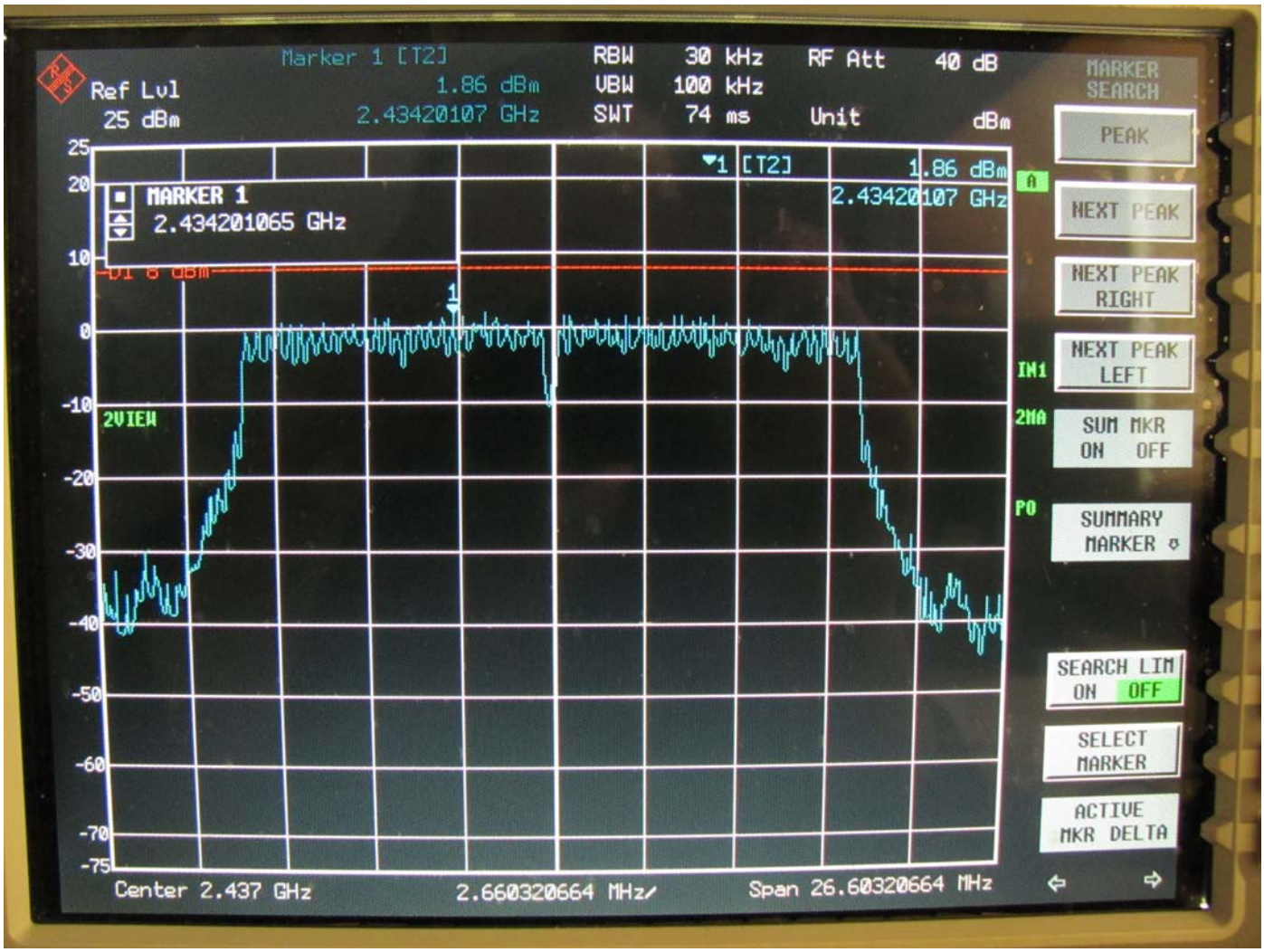
CHANNEL	Peak Power (dBm)
1 (2412 MHz)	26.04
6 (2437 MHz)	26.36
11 (2462 MHz)	26.63

SPECTRAL DENSITY OUTPUT

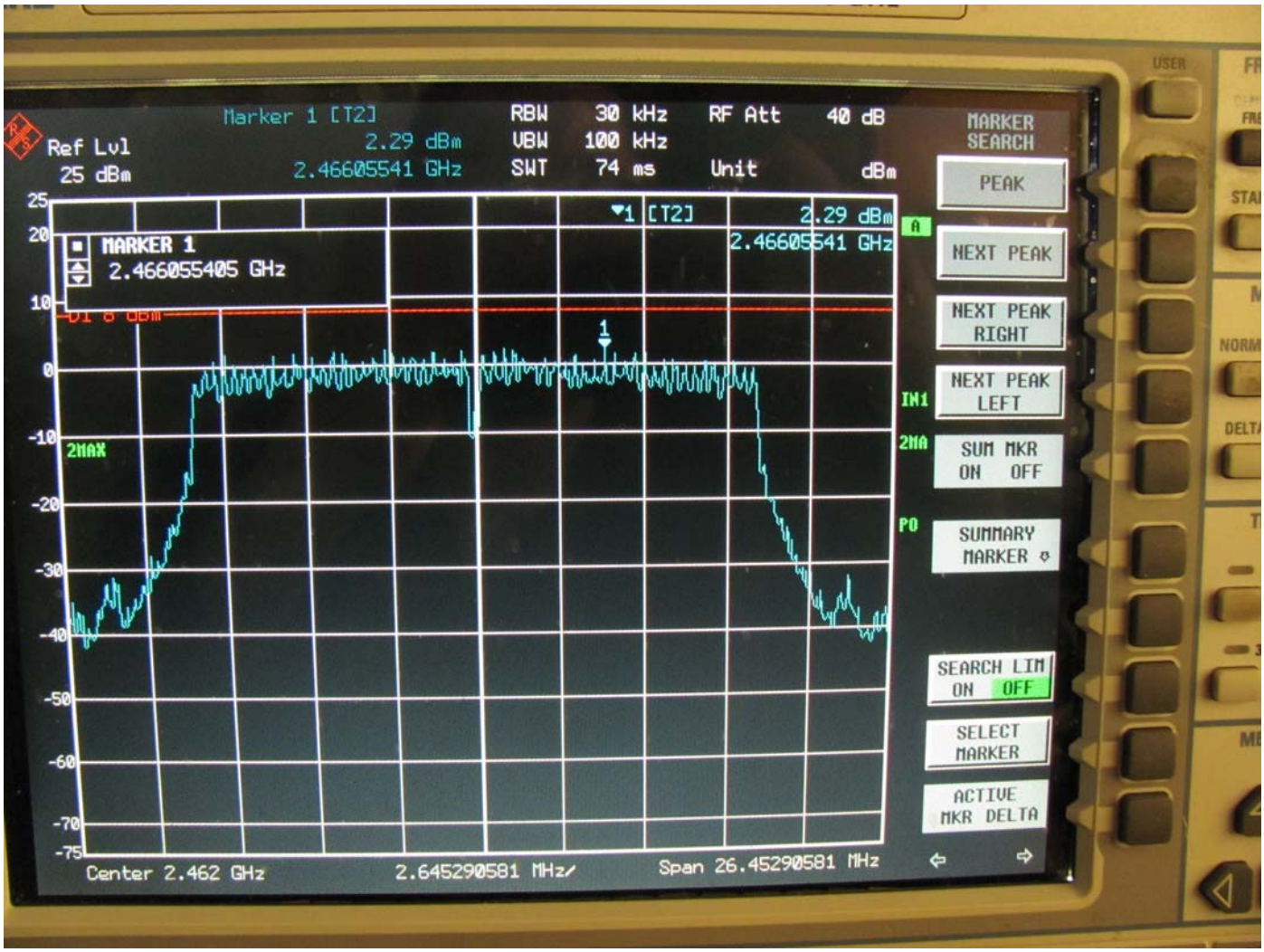
DATA SHEETS



Spectral Density Output – Channel 1



Spectral Density Output – Channel 6



Spectral Density Output – Channel 11

RF ANTENNA CONDUCTED

DATA SHEETS

RF ANTENNA CONDUCTED

WIRELESS AUDIO TRANSMITTER

MODEL: WTX-10

HIGHEST NON-RESTRICTED BAND FREQUENCIES

FREQUENCY (MHz)	Reading (dBm)	Limit (dBm)	Margin (dB)
9518.00	-40.38	-15.57	-24.81
21663.00	-40.97	-13.81	-27.16
21723.00	-41.28	-14.08	-27.20

BAND EDGES

DATA SHEETS

FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

Date: 03/06/2014
Lab: B
Tested By: Kyle Fujimoto

Band Edges - Vertical Polarization - 802.11 n Mode
Worst Case - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412	110.98	V	--	--	Peak	1.5	0	**Fundamental of**
2412	105.37	V	--	--	Avg	1.5	0	**Low Channel**
2387.46	66.88	V	74	-7.12	Peak	1.25	0	**Band Edge of Low**
2390	51.75	V	54	-2.25	Avg	1.25	0	**Channel**
2462	111.42	V	--	--	Peak	1.25	225	**Fundamental of**
2462	104.96	V	--	--	Avg	1.25	225	**High Channel**
2483.5	61.44	V	74	-12.56	Peak	1.25	225	**Band Edge of High**
2483.5	51.45	V	54	-2.55	Avg	1.25	225	**Channel**

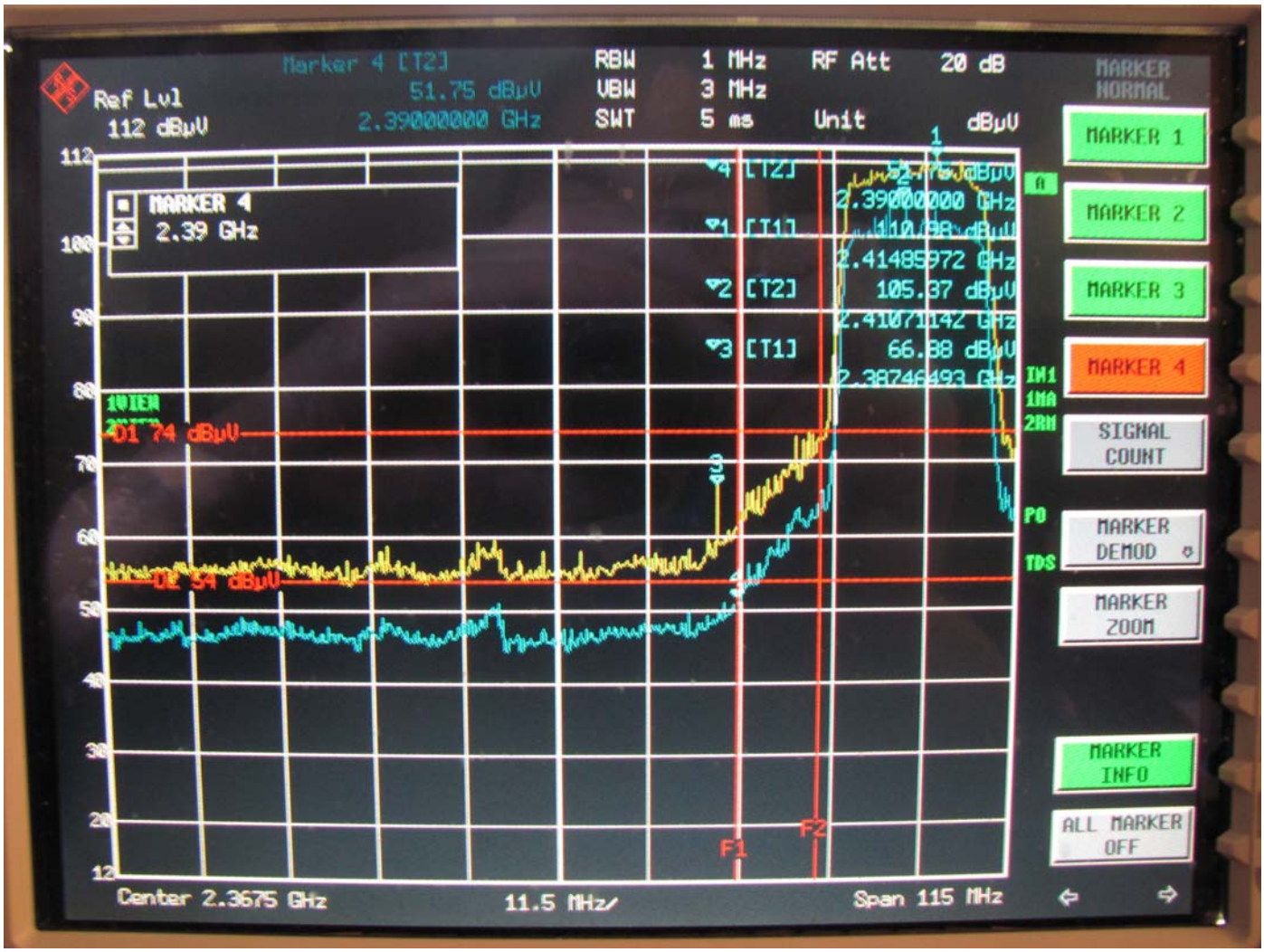
FCC 15.247

Kubu, Inc.
Wireless Audio Transmitter
Model: WTX-10

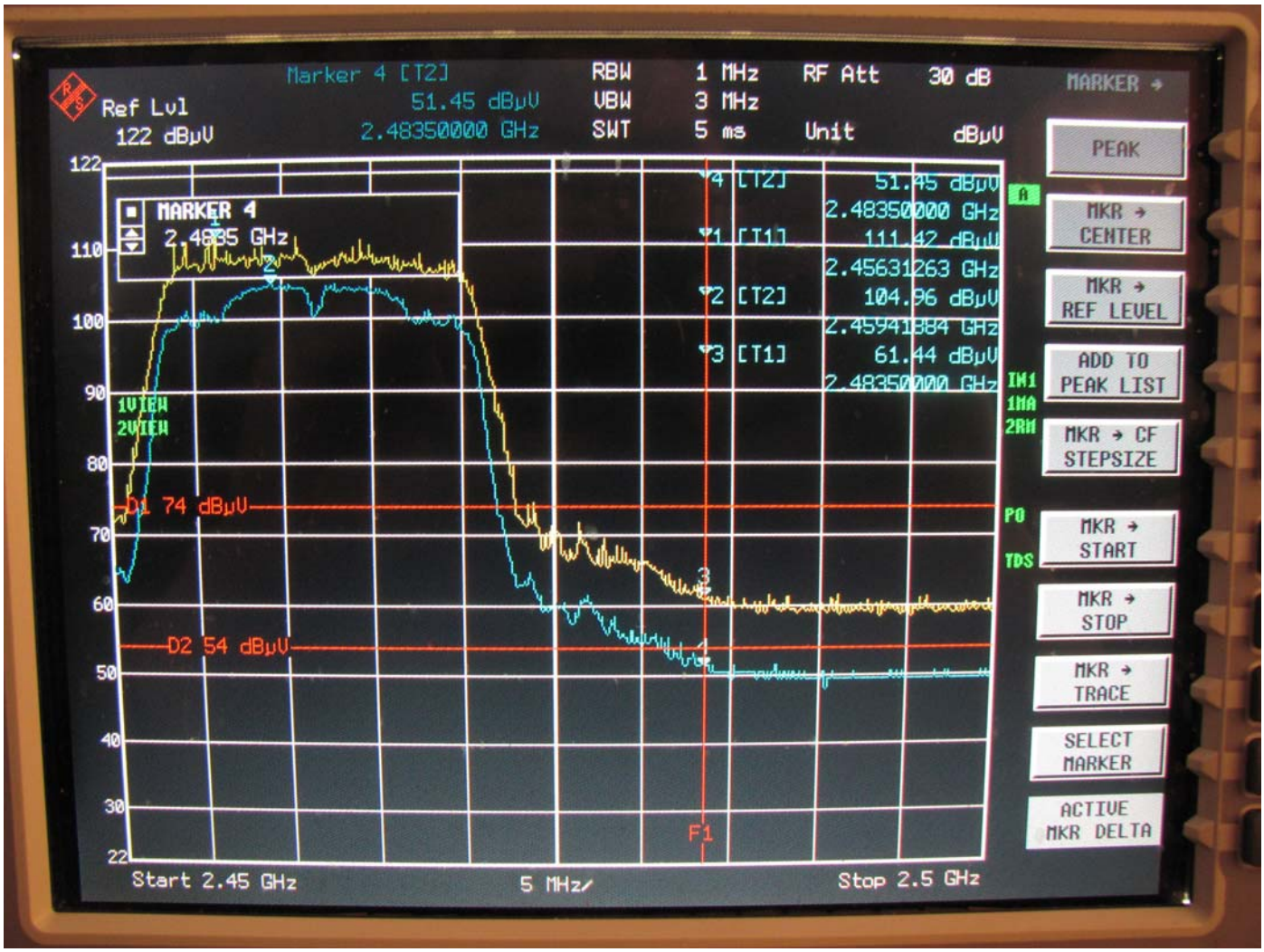
Date: 03/06/2014
Lab: B
Tested By: Kyle Fujimoto

Band Edges - Vertical Polarization - 802.11 n Mode
Worst Case - X-Axis

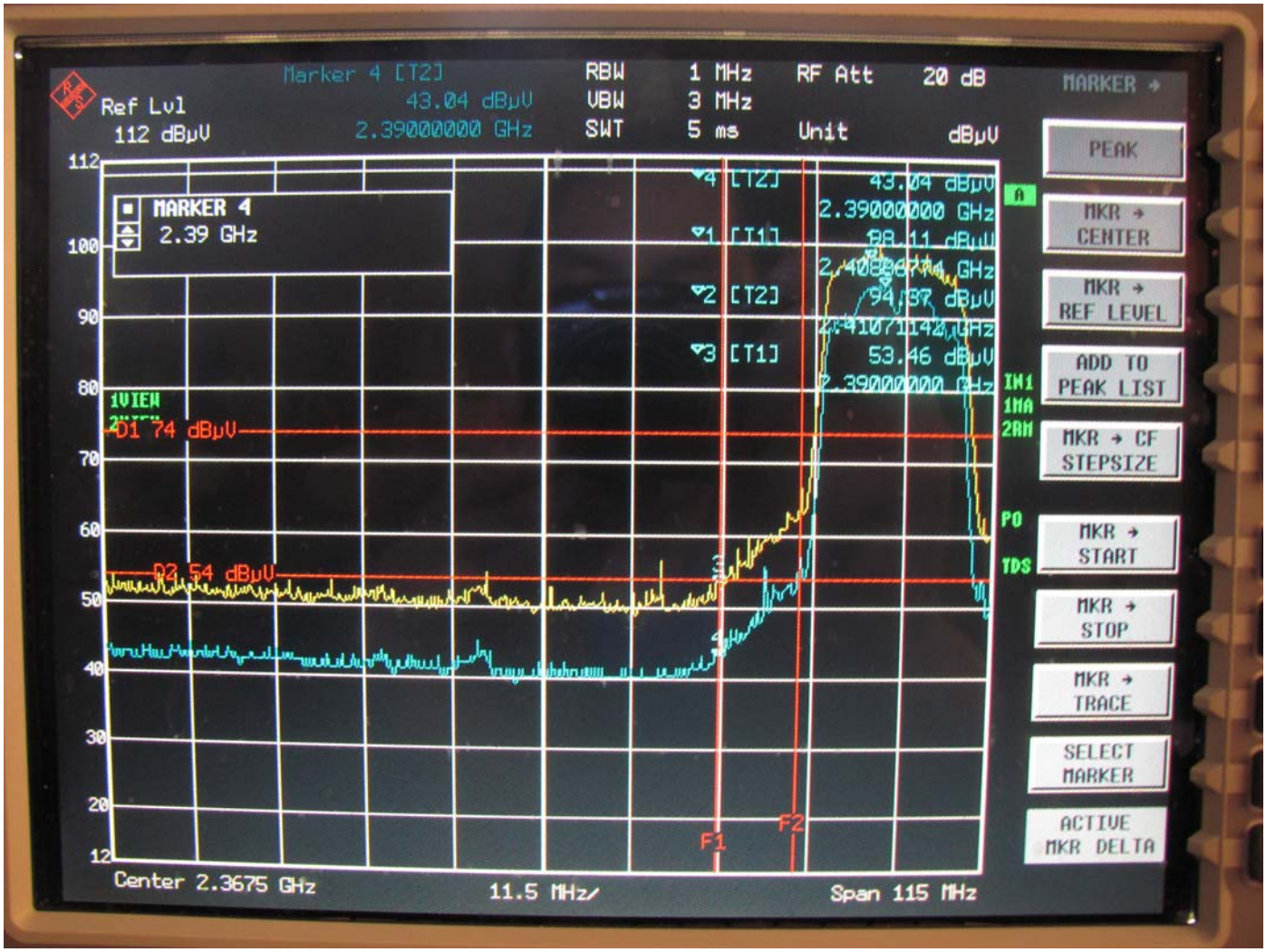
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412	98.11	H	--	--	Peak	1.5	45	**Fundamental of**
2412	94.37	H	--	--	Avg	1.5	45	**Low Channel**
2390	53.46	H	74	-20.54	Peak	1.5	45	**Band Edge of Low**
2390	43.04	H	54	-10.96	Avg	1.5	45	**Channel**
2462	95.99	H	--	--	Peak	1.25	135	**Fundamental of**
2462	91.11	H	--	--	Avg	1.25	135	**High Channel**
2483.5	59.01	H	74	-14.99	Peak	1.25	135	**Band Edge of High**
2483.5	49.27	H	54	-4.73	Avg	1.25	135	**Channel**



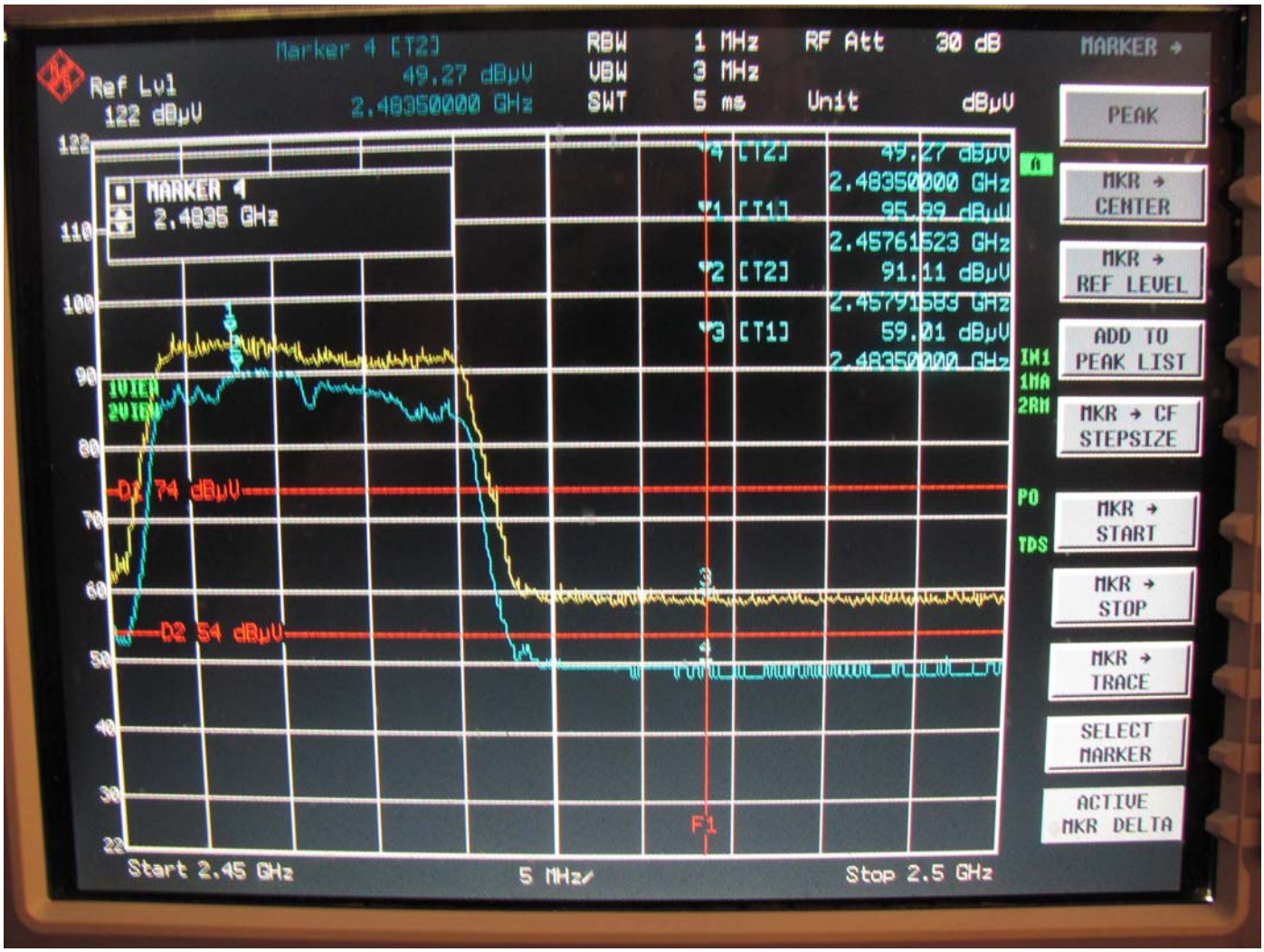
Band Edge for Channel 1 – Vertical Polarization – X-Axis (Worst Case)



Band Edge for Channel 11 – Vertical Polarization – X-Axis (Worst Case)



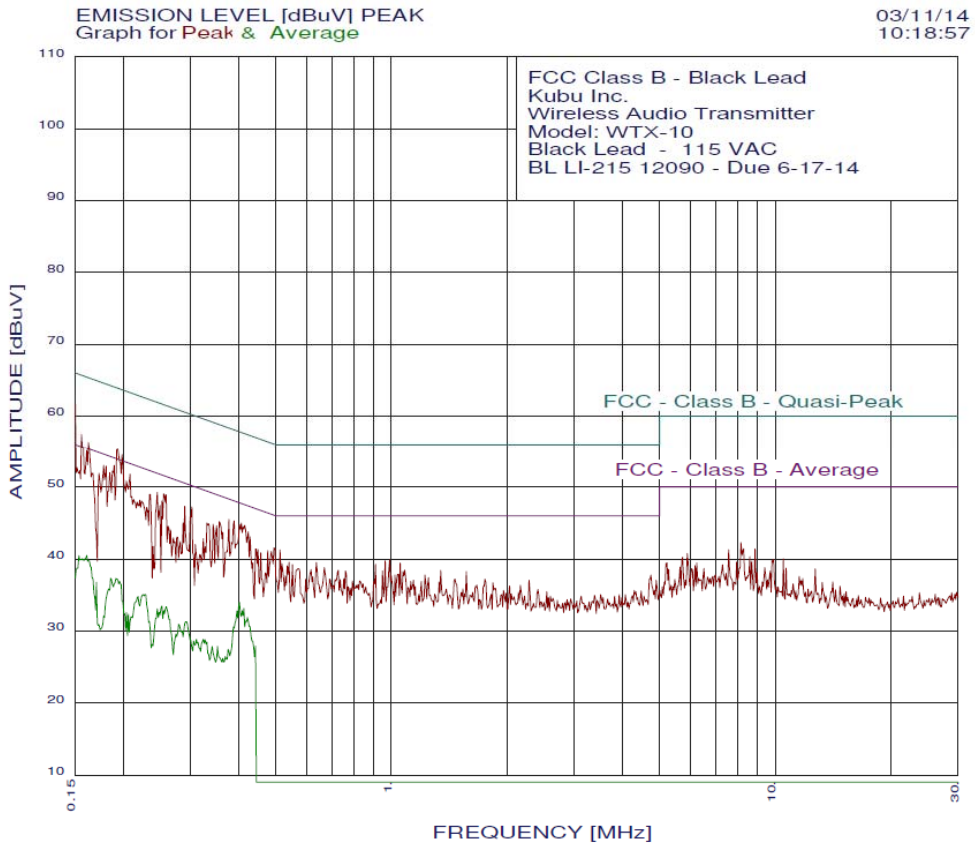
Band Edge for Channel 1 – Horizontal Polarization – X-Axis (Worst Case)



Band Edge for Channel 11 – Horizontal Polarization – X-Axis (Worst Case)

CONDUCTED EMISSIONS

DATA SHEETS


EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average
03/11/14
10:18:57
FCC Class B - Black Lead
Kubu Inc.
Wireless Audio Transmitter
Model: WTX-10
Black Lead - 115 VAC
BL LI-215 12090 - Due 6-17-14
FCC - Class B - Quasi-Peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

page 1/1

03/11/14 10:18:57

FCC Class B - Black Lead
Kubu Inc.
Wireless Audio Transmitter
Model: WTX-10
Black Lead - 115 VAC
BL LI-215 12090 - Due 6-17-14
Test Engineer : Kyle Fujimoto

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39 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.156	57.39	55.69	1.70**
2	0.194	55.28	53.88	1.40**
3	0.162	56.29	55.34	0.95**
4	0.199	54.48	53.67	0.81**
5	0.161	55.09	55.43	-0.34**
6	0.189	52.98	54.06	-1.08**
7	0.208	51.78	53.27	-1.49**
8	0.181	52.88	54.46	-1.57**
9	0.178	52.98	54.59	-1.60**
10	0.184	51.98	54.28	-2.30**
11	0.255	49.03	51.60	-2.56**
12	0.204	50.78	53.44	-2.66**
13	0.246	49.24	51.90	-2.67**
14	0.406	44.97	47.72	-2.75**
15	0.389	45.28	48.08	-2.80**
16	0.377	45.49	48.34	-2.85**
17	0.173	51.89	54.81	-2.92**
18	0.302	47.21	50.19	-2.98**
19	0.290	47.32	50.54	-3.22**
20	0.234	48.95	52.30	-3.35**
21	0.424	43.77	47.37	-3.60**
22	0.356	45.20	48.82	-3.62**
23	0.252	48.03	51.68	-3.65**
24	0.428	43.07	47.28	-4.21**
25	0.250	47.44	51.77	-4.33**
26	0.343	44.80	49.13	-4.34**
27	0.350	44.60	48.95	-4.36**
28	0.331	45.00	49.44	-4.44**
29	0.494	41.54	46.09	-4.55
30	0.221	48.16	52.78	-4.62**
31	0.513	41.24	46.00	-4.76
32	0.486	41.05	46.23	-5.18
33	0.476	41.15	46.40	-5.25
34	0.230	47.15	52.43	-5.28**
35	0.286	45.02	50.63	-5.61**
36	0.449	41.27	46.89	-5.62
37	0.442	41.37	47.02	-5.65**
38	0.457	40.86	46.76	-5.89
39	0.990	39.84	46.00	-6.16

**Please See the Average Readings on the Next Page and on the Plot

page 1/1

03/11/14 10:18:57

FCC Class B - Black Lead
Kubu Inc.
Wireless Audio Transmitter
Model: WTX-10
Black Lead - 115 VAC
BL LI-215 12090 - Due 6-17-14
Test Engineer : Kyle Fujimoto

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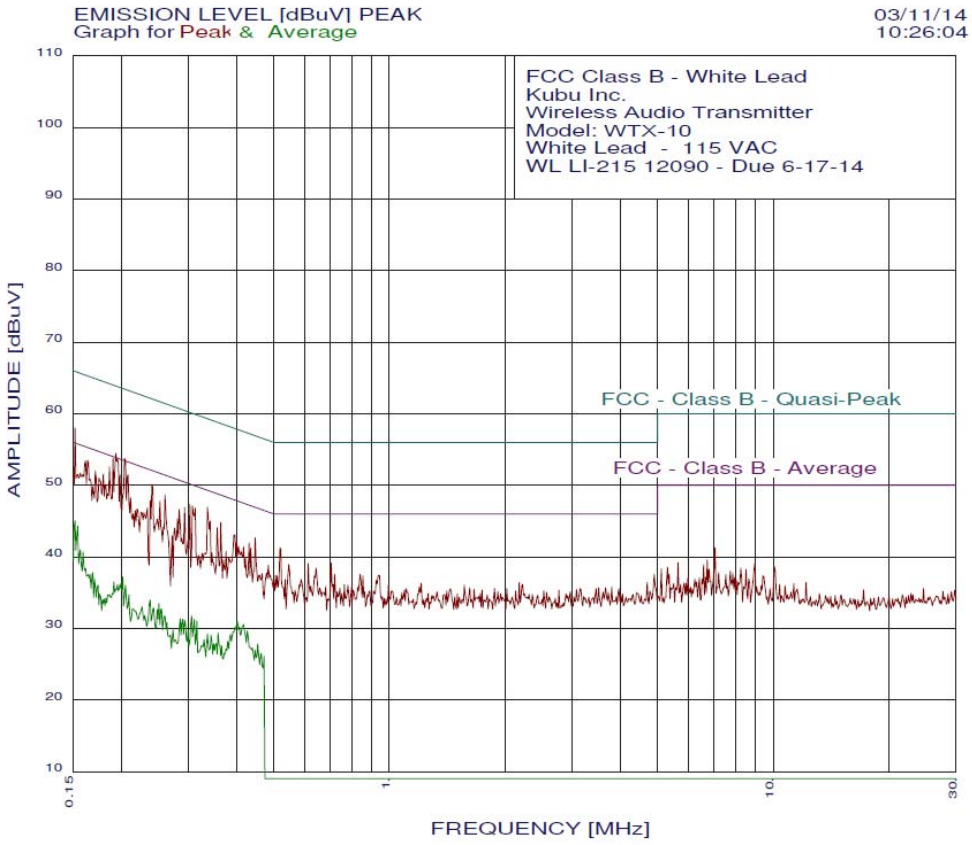
39 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.402	33.98	47.81	-13.83
2	0.413	33.14	47.59	-14.45
3	0.409	32.83	47.68	-14.84
4	0.161	40.50	55.43	-14.93
5	0.396	32.79	47.95	-15.16
6	0.153	40.46	55.82	-15.36
7	0.421	31.86	47.42	-15.56
8	0.162	39.78	55.34	-15.56
9	0.157	40.03	55.64	-15.61
10	0.155	39.97	55.73	-15.76
11	0.417	31.38	47.50	-16.12
12	0.192	37.27	53.97	-16.70
13	0.196	36.91	53.80	-16.89
14	0.185	37.32	54.24	-16.92
15	0.228	35.07	52.52	-17.45
16	0.226	35.04	52.61	-17.57
17	0.387	30.54	48.12	-17.58
18	0.219	34.79	52.87	-18.08
19	0.259	33.36	51.47	-18.11
20	0.170	36.75	54.94	-18.19
21	0.252	33.46	51.68	-18.22
22	0.183	35.83	54.33	-18.50
23	0.255	32.84	51.60	-18.75
24	0.246	33.07	51.90	-18.84
25	0.442	27.89	47.02	-19.13
26	0.293	31.29	50.45	-19.16
27	0.248	32.59	51.82	-19.23
28	0.279	30.92	50.85	-19.93
29	0.285	29.95	50.67	-20.72
30	0.327	28.79	49.53	-20.74
31	0.324	28.83	49.62	-20.79
32	0.204	32.54	53.44	-20.90
33	0.375	27.46	48.38	-20.93
34	0.331	28.47	49.44	-20.97
35	0.234	31.32	52.30	-20.98
36	0.352	27.88	48.91	-21.03
37	0.206	32.31	53.35	-21.05
38	0.310	28.84	49.97	-21.13
39	0.210	31.94	53.23	-21.28


EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average
03/11/14
10:26:04
FCC Class B - White Lead
Kubu Inc.
Wireless Audio Transmitter
Model: WTX-10
White Lead - 115 VAC
WL LI-215 12090 - Due 6-17-14
FCC - Class B - Quasi-Peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
30
FREQUENCY [MHz]

page 1/1

03/11/14 10:26:04

FCC Class B - White Lead
Kubu Inc.
Wireless Audio Transmitter
Model: WTX-10
White Lead - 115 VAC
WL LI-215 12090 - Due 6-17-14
Test Engineer : Kyle Fujimoto

39 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.152	57.99	55.91	2.08**
2	0.194	54.46	53.88	0.58**
3	0.204	53.76	53.44	0.32**
4	0.190	53.76	54.01	-0.25**
5	0.186	52.56	54.19	-1.63**
6	0.163	53.48	55.29	-1.81**
7	0.208	51.46	53.27	-1.81**
8	0.240	50.15	52.08	-1.93**
9	0.162	53.38	55.38	-2.00**
10	0.199	51.46	53.67	-2.21**
11	0.336	46.89	49.31	-2.42**
12	0.260	48.64	51.42	-2.79**
13	0.302	47.31	50.19	-2.88**
14	0.171	51.98	54.90	-2.92**
15	0.180	51.57	54.50	-2.93**
16	0.307	47.10	50.05	-2.95**
17	0.312	46.80	49.92	-3.12**
18	0.293	46.91	50.45	-3.54**
19	0.175	50.97	54.72	-3.75**
20	0.363	44.78	48.65	-3.87**
21	0.252	47.74	51.68	-3.94**
22	0.283	46.61	50.72	-4.10**
23	0.341	44.99	49.18	-4.19**
24	0.447	42.66	46.93	-4.27**
25	0.238	47.85	52.17	-4.32**
26	0.182	50.06	54.41	-4.35**
27	0.356	44.08	48.82	-4.74**
28	0.518	41.24	46.00	-4.76
29	0.212	48.26	53.14	-4.88**
30	0.393	43.07	47.99	-4.92**
31	0.169	49.78	55.03	-5.25**
32	0.431	41.96	47.24	-5.28**
33	0.234	46.85	52.30	-5.45**
34	0.280	45.32	50.81	-5.49**
35	0.400	41.97	47.86	-5.88**
36	0.435	41.26	47.15	-5.89**
37	0.417	41.37	47.50	-6.14**
38	0.220	46.65	52.83	-6.17**
39	0.404	41.47	47.77	-6.29**

**Please See the Average Readings on the Next Page and on the Plot

page 1/1

03/11/14 10:26:04

FCC Class B - White Lead
Kubu Inc.
Wireless Audio Transmitter
Model: WTX-10
White Lead - 115 VAC
WL LI-215 12090 - Due 6-17-14
Test Engineer : Kyle Fujimoto

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39 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.152	45.04	55.91	-10.87
2	0.154	44.30	55.78	-11.48
3	0.157	41.00	55.64	-14.65
4	0.159	40.70	55.51	-14.81
5	0.202	37.18	53.53	-16.35
6	0.402	30.97	47.81	-16.84
7	0.417	30.56	47.50	-16.95
8	0.162	38.35	55.38	-17.03
9	0.169	37.82	55.03	-17.21
10	0.205	36.06	53.40	-17.34
11	0.199	36.21	53.67	-17.46
12	0.192	36.48	53.97	-17.49
13	0.406	30.20	47.72	-17.52
14	0.166	37.52	55.16	-17.64
15	0.196	36.11	53.80	-17.69
16	0.426	29.61	47.33	-17.71
17	0.164	37.52	55.25	-17.73
18	0.396	30.14	47.95	-17.80
19	0.170	36.91	54.94	-18.03
20	0.238	33.95	52.17	-18.22
21	0.251	33.47	51.73	-18.25
22	0.305	31.78	50.10	-18.31
23	0.194	35.51	53.88	-18.37
24	0.210	34.69	53.23	-18.54
25	0.391	29.47	48.03	-18.56
26	0.174	36.04	54.77	-18.72
27	0.310	31.24	49.97	-18.72
28	0.315	31.03	49.84	-18.80
29	0.255	32.72	51.60	-18.87
30	0.454	27.84	46.80	-18.97
31	0.385	29.15	48.16	-19.02
32	0.243	32.86	52.00	-19.14
33	0.189	34.91	54.06	-19.15
34	0.248	32.62	51.82	-19.19
35	0.290	31.28	50.54	-19.26
36	0.285	31.34	50.67	-19.33
37	0.293	31.10	50.45	-19.35
38	0.358	29.37	48.78	-19.41
39	0.186	34.69	54.19	-19.50
