FCC PART 15, SUBPART C
TEST REPORT

for

REMOTE TRANSMITTER
Model: KTXW303C
FCC ID: QY4KTXW303

Prepared for

APPLIED WIRELESS, INC.
1250 AVENIDA ACASO, UNIT F
CAMARILLO, CA 93012

Prepared by: _____

REYNALD O. RAMIREZ

Approved by: _____

RUBY A. HALL

COMPATIBLE ELECTRONICS INC.
2337 TROUTDALE DRIVE
AGOURA, CALIFORNIA 91301
(818) 597-0600

DATE: NOVEMBER 21, 2014

	REPORT BODY	APPENDICES					TOTAL
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GENERAL REPORT SUMMARY

This electromagnetic emission 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 in any form except in full, without the written permission of Compatible Electronics.

This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Device Tested: Remote Transmitter
Model: KTXW303C
S/N: None

Product Description: This is a battery powered, remote control transmitter, used in various applications requiring short range remote control of on/off functions.

Modifications: The EUT was not modified during the testing.

Manufacturer: Applied Wireless, Inc.
1250 Avenida Acaso, Unit F
Camarillo, CA 93012

Test Date: November 21, 2014

Test Specifications: EMI requirements
FCC CFR Title 47, Part 15 Subpart C, sections 15.205, 15.209 and 15.231
Test Procedure: ANSI C63.4: 2009.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Radiated RF Emissions, 9 kHz to 4 GHz	Complies with the limits of FCC CFR Title 47, Part 15 Subpart C 15.205, 15.209, 15.231 and the requirements of 15.31.
2	Conducted Emissions 150 KHz to 30 MHz	The EUT is battery powered therefore, this test was deemed unnecessary.
3	-20dB Bandwidth of the Fundamental	The EUT complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.231 [c].

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Remote Transmitter Model: **KTXW303C**. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2009. 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 specification limits and requirements defined in FCC CFR Title 47, Part 15 Subpart A (15.31), Subpart B and Subpart C (15.205, 15.209 and 15.231).

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 2337 Troutdale Drive, Agoura, California 91301.

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

Applied Wireless, Inc.

David Nichols	President
Mark Simon	V. P. of Engineering

Compatible Electronics Inc.

Reynald O. Ramirez	Sr. Test Engineer
Ruby A. Hall	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on November 21, 2014.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc.

2.6 Abbreviations and Acronyms

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

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

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
FCC CFR Title 47, Part 15 Subpart A	FCC Rules – General
FCC CFR Title 47, Part 15 Subpart B	FCC Rules – Unintentional Radiators
FCC CFR Title 47, Part 15 Subpart C	FCC Rules – Intentional Radiators.
CISPR 16-1-4 2008	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-4 radio disturbance and immunity measuring apparatus – Ancillary Equipment – Radiated Disturbances
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.

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The EUT was set-up in a tabletop configuration. One of the six buttons was kept pressed to activate the transmitter. The EUT was continuously transmitting throughout the test.

The highest emissions were found when the EUT was running in the above configuration. The final radiated data was taken in this mode of operation. All initial investigations were performed with the EMI Receiver in manual mode scanning the frequency range continuously. The EUT was setup as shown in the photographs in Appendix D.

4.1.1 Photograph of Test Configuration – Emissions

4.1.2 Cable Construction and Termination

The EUT has no cables connected.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
1	REMOTE TRANSMITTER (EUT)	APPLIED WIRELESS, INC.	KTXW303C	FCC ID: QY4KTXW303

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
EMI Receiver	Rohde & Schwarz	ESIB-40	100218	Apr. 02, 2014	Apr. 02, 2015
Preamplifier	Com Power	PA-103A	1619	Sep. 29, 2014	Sep. 29, 2015
Biconical Antenna	Com Power	AB-900	43061	May 22, 2014	May 22, 2015
Log Periodic Antenna	Com Power	AL-100	351049	May 20, 2014	May 20, 2015
Horn Antenna	A.R.A.	DRG-118/A	1015	Jul. 01, 2014	Jul. 01, 2016
Microwave Amplifier	Com Power	PAM-118A	551015	Feb 17, 2014	Feb 17, 2015
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TTW-595	N/A	N/A	N/A
Computer	Hewlett Packard	Pavilion 4530	US91912022	N/A	N/A
Printer	Hewlett Packard	C6427B	MY066160TW	N/A	N/A
EMI Application Software	Rohde & Schwarz	ESIB-K1	1.20	N/A	N/A
Loop Antenna	Com Power	AL-130	17067	Jan. 29, 2013	Jan. 29, 2015
Oscilloscope	Tektronix	TDS 510A	B011138	Jun. 13, 2013	Jun. 13, 2016

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 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. 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 Conducted Emissions Test

Test Results:

The EUT is battery powered therefore, this test was deemed unnecessary.

The EMI Receiver was used as a measuring meter. The data was collected with the EMI Receiver in the peak detect mode with the "Max Hold" feature activated. The quasi-peak or average was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the EMI Receiver input stage, and the EMI Receiver offset was adjusted accordingly to read the actual data measured. The EMI Receiver read the LISN output. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for the conducted emissions 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. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 1.6 MHz, 1.6 MHz to 5 MHz and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the EMI Receiver span adjusted to 1 MHz.

The final data was collected under program control by the computer in several overlapping sweeps by running the EMI Receiver at a minimum scan rate of 10 seconds per octave.

7.1.2 Radiated Emissions Test

The EMI Receiver was used as a measuring meter. A preamplifier was used to increase the sensitivity of the instrument. 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. This final reading is then recorded automatically by the computer's automated data recording program, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The quasi-peak was used only for those readings, which are marked accordingly on the data sheets. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured (200 Hz for 10kHz-150kHz, 9 kHz for 0.150kHz-30MHz, 120 kHz for 30-1000MHz and 1 MHz for 1000 MHz and above).

For ASK Modulation: For the fundamental, 2nd harmonic, and frequencies above 1 GHz, the readings were averaged by a "duty cycle correction factor", derived from 20 log (dwell time/ one pulse train including blanking interval). This duty cycle correction factor was then subtracted from the peak reading.

For FSK Modulation: For the fundamental, 2nd harmonic, and frequencies above 1 GHz, by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the EMI receiver to keep the amplitude reading calibrated.

Broadband loop, biconical, log periodic and horn antennas were used as transducers during the measurement. The loop antenna was used from 9 kHz to 30 MHz, the biconical antenna was used from 30 MHz to 300 MHz, the log periodic antenna was used from 300 MHz to 1 GHz and the horn antenna was used above 1 GHz. The final data was taken with a frequency span of 1 MHz. Furthermore, the frequency span was reduced during the preliminary investigations as deemed necessary.

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. 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 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 test distance of 3 meters to obtain final test data. The test data is located in Appendix E.

Preliminary Testing and Monitoring:

Preliminary testing was done at a distance of 1 meter instead of 3 meters to determine the predominant harmonics and spurious emission frequencies. An open field test site was used for the preliminary investigations. Broadband antennas were used to scan large frequency bands while manipulating the X, Y and Z azimuth of the unit. All significant frequencies were further examined carefully at a frequency span on the EMI Receiver while changing the antenna height and EUT orientation. The EUT was tested again at a test distance of 3 meters to obtain the final test data. The bandwidth of the EMI Receiver was varied to ensure that pulse desensitization did not occur.

7.1.3 Radiated Emissions Test (continued)

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active loop Antenna
30 MHz to 1 GHz	120 kHz	Biconical and Log Periodic Antennas
1 GHz to 4 GHz	1 MHz	Horn Antenna

7.1.4 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
REMOTE TRANSMITTER
MODEL: KTXW303C

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
303.80	71.4	74.9	-3.5
1519.00	47.3**A**	54.0	-6.7
2126.00	49.8	54.9	-5.1
2430.00	51.0	54.9	-3.9
2734.20	50.7	54.0	-3.3
3038.00	51.5	54.9	-3.4

Notes:

* The complete emissions data is given in Appendix E of this report.

** The factors for the antenna and preamplifier gain are attached in Appendix D of this report.

\# Quasi-Peak Reading

A Average Reading

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, sections 15.205 and 15.209 and 15.231(b) for radiated emissions. Please see Appendix E for the data sheets.

7.1.5 Bandwidth of the Fundamental

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

Test Results:

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

7.1.6 Sample Calculations

A correction factor for the antenna, cable and a distance factor (if any) must be applied to the meter reading before a true field strength reading can be obtained. For greater efficiency and convenience, instead of using these correction factors for each meter reading, the specification limit was modified to reflect these correction factors at each frequency, so that the meter readings can be compared directly to the modified specification limit, referred to henceforth as the corrected meter reading limit (CML).

The equation can be derived in the following manner:

Specification limit (μV/m) log x 20 = Specification Limit in dBuV

(Specification distance / test distance) log x 40 = distance factor

(Specification Limit dBuV + distance factor) + Antenna factor – effective gain = Corrected Meter Limit

Note: When using an Active Antenna, the Antenna factor shall be subtracted due to the combination of the internal amplification and antenna loss. At lower frequencies the cable loss is negligible.

OR

Corrected Meter Reading = meter reading + F – A + C

where: F = antenna factor
A= amplifier gain
C = cable loss

Therefore, the equation for determining the corrected meter reading is:

CMR = spec. limit - F - A + C

A table of corrected meter reading limits was used to permit immediate comparison of the meter reading and determine if the emission level exceeded the specification limit at that frequency. The correction factors for the antenna and the amplifier gain are attached in Appendix D of this report. The data sheets are attached in Appendix E.

The distance factor D is 0 when the test is performed at the required specification distance.

8. TEST PROCEDURE DEVIATIONS

There were no deviations from the test procedures.

9. CONCLUSIONS

The Remote Transmitter Model: **KTXW303C** meets all of the requirements of the FCC CFR, Title 47, Part 15, Subpart A, B and C (15.205, 15.207, 15.209, 15.231 and 15.31).

APPENDIX A

LABORATORY ACCREDITATIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

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

For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

NVLAP listing links
Agoura Division - http://ts.nist.gov/Standards/scopes/2000630.htm
Brea Division - http://ts.nist.gov/Standards/scopes/2005280.htm
Silverado/Lake Forest Division - http://ts.nist.gov/Standards/scopes/2005270.htm

"This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué)"

See: https://www.ilac.org/documents/17025_joint_communique.pdf

ANSI listing
CETCB https://www.ansica.org/wwwversion2/outside/ALLdirectoryDetails.asp?menuID=1&prgID=3&orgID=123&status=4

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

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).

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

VCCI Listing, from VCCI site
Enter "Compatible" in search form http://www.vcci.or.jp/vcci_e/activity/registration/setsubi.html

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

There were no modifications made to the EUT during the test.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	REMOTE TRANSMITTER Model: KTXW303C

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP (LAB F)

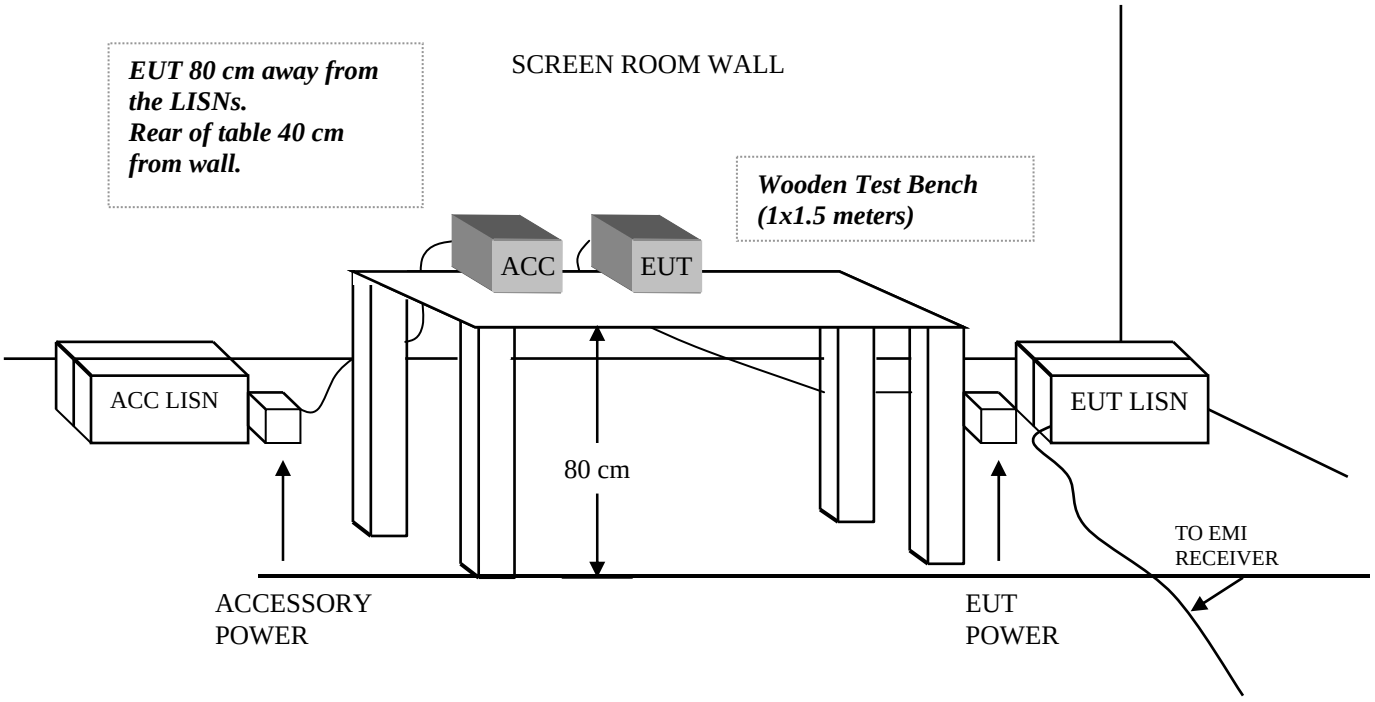


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE

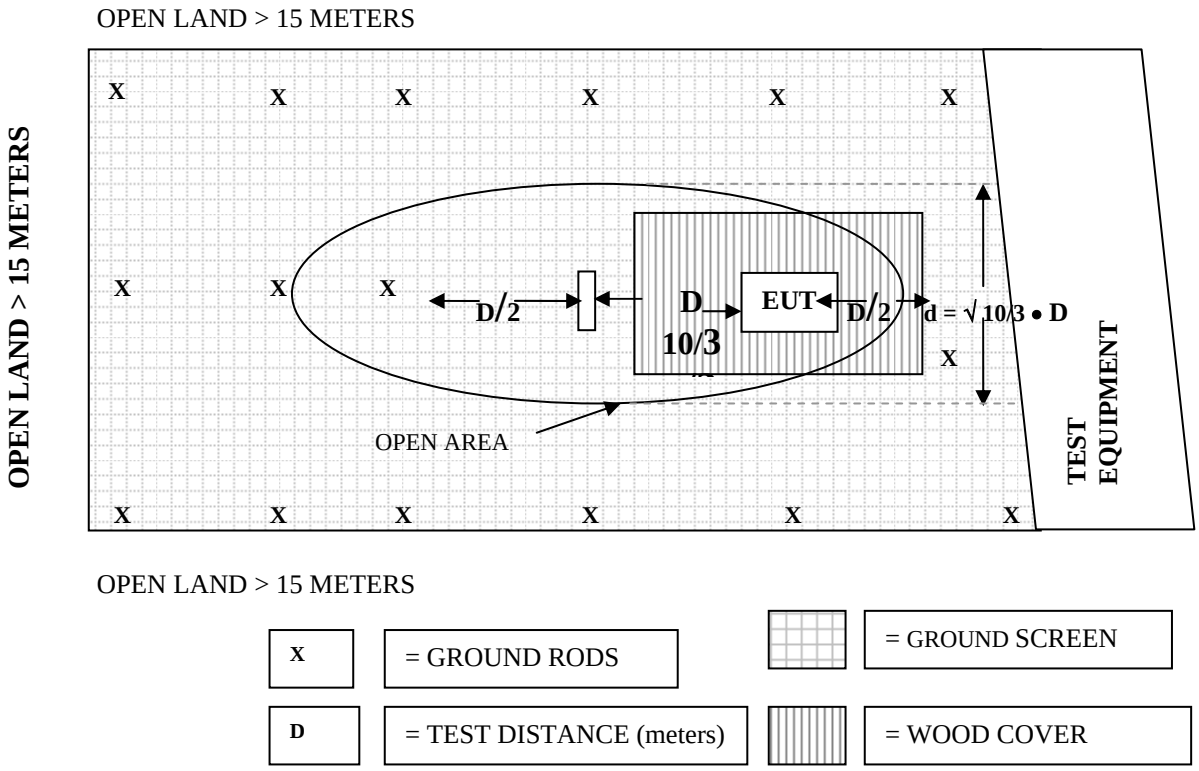
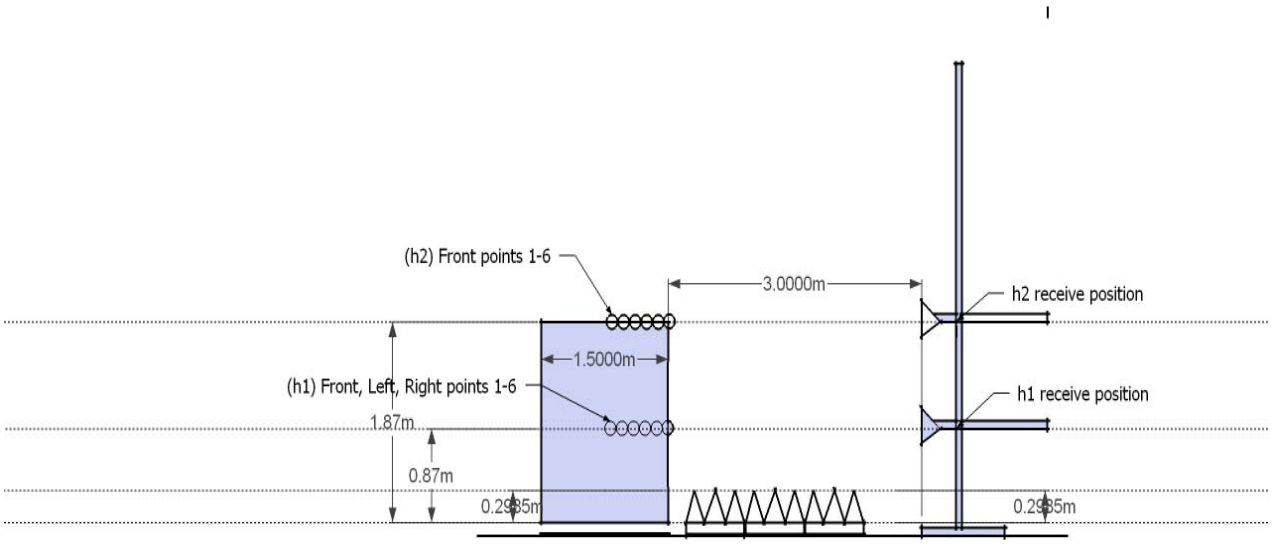


FIGURE 3: HIGH FREQUENCY TEST VOLUME



COM-POWER AL-130

ACTIVE LOOP ANTENNA

S/N: 17067

CALIBRATION DATE: JANUARY 29, 2013

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
0.009	9.9	1	10.0
0.01	10.1	2	10.3
0.02	10.1	3	10.4
0.03	10.8	4	10.5
0.04	10.4	5	10.7
0.05	9.8	6	10.6
0.06	10.0	7	10.7
0.07	9.8	8	11.2
0.08	9.8	9	11.3
0.09	9.7	10	10.7
0.1	9.7	15	10.6
0.2	9.5	20	10.4
0.3	9.5	25	9.8
0.4	9.7	30	10.6
0.5	9.5		
0.6	9.5		
0.7	9.6		
0.8	9.8		
0.9	10.0		

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 43061

CALIBRATION DATE: MAY 22, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	17.00	140	17.90
40	16.90	150	17.40
50	17.20	160	17.60
60	15.70	175	19.80
70	13.70	180	20.60
80	12.10	200	21.60
90	13.00	250	20.50
100	15.80	300	24.80
120	18.80		
125	19.40		

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 351049

CALIBRATION DATE: MAY 20, 2014

FREQUENCY (MHz)	FACTOR (dB)
300	12.3
350	13.5
400	15.9
450	14.8
500	15.7
550	16.7
600	17.8
650	17.3
700	18.2
750	20.4
800	20.4
850	21.3
900	20.7
950	21.7
1000	20.6

COM-POWER PA-103

PREAMPLIFIER

S/N: 1619

CALIBRATION DATE: SEP. 29, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	32.7	300	32.3
40	32.8	350	32.0
50	32.7	400	32.2
60	32.6	450	32.0
70	32.7	500	31.6
80	32.6	550	31.6
90	32.6	600	31.8
100	32.5	650	31.4
125	32.6	700	31.8
150	32.6	750	32.0
175	32.5	800	30.7
200	32.3	850	31.3
225	32.6	900	31.0
250	32.5	950	31.0
275	32.3	1000	30.5

COM-POWER PAM-118A

PREAMPLIFIER

S/N: 551015

CALIBRATION DATE: FEB. 17, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	38.0	6000	40.3
1100	37.8	6500	38.9
1200	38.7	7000	36.7
1300	39.7	7500	36.5
1400	38.9	8000	35.6
1500	38.4	8500	37.5
1600	39.8	9000	36.2
1700	40.5	9500	36.4
1800	39.4	10000	38.7
1900	39.4	11000	37.4
2000	39.9	12000	37.6
2500	41.2	13000	34.0
3000	41.6	14000	32.7
3500	42.5	15000	37.0
4000	40.1	16000	37.7
4500	40.1	17000	34.9
5000	39.5	18000	32.6
5500	38.1		

DRG-118/A

DOUBLE RIDGE HORN ANTENNA

S/N: 1015

CALIBRATION DATE: JULY 1, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	30.1	10000	43.4
1500	29.2	10500	44.6
2000	31.6	11000	45.1
2500	35.5	11500	45.7
3000	33.7	12000	46.2
3500	36.0	12500	45.4
4000	35.4	13000	44.8
4500	35.5	13500	46.7
5000	40.1	14000	47.8
5500	37.8	14500	46.4
6000	39.0	15000	47.2
6500	39.9	15500	45.5
7000	40.4	16000	45.0
7500	44.4	16500	44.5
8000	44.1	17000	47.0
8500	43.1	17500	47.8
9000	43.0	18000	50.6
9500	44.2		

FRONT VIEW

APPLIED WIRELESS, INC.
REMOTE TRANSMITTER
MODEL: KTXW303C
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 11-21-14

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

APPLIED WIRELESS, INC.
REMOTE TRANSMITTER
MODEL: KTXW303C
FCC PART 15 SUBPART C - RADIATED EMISSIONS –11-21-14

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
303.8000	54.1	A	V	2.0	0	X	LOW	12.4	2.6	0.0	0.0	0.0	**69.1**	**-5.8**	**74.9**	
303.8000	57.1	45.0 A	V	2.0	0	Y	LOW	12.4	2.6	0.0	0.0	0.0	**60.0**	**-14.9**	**74.9**	
303.8000	62.1	50.0 A	V	3.0	0	Z	LOW	12.4	2.6	0.0	0.0	0.0	**65.0**	**-9.9**	**74.9**	
303.8000	64.3	52.2 A	H	1.0	90	X	LOW	12.4	2.6	0.0	0.0	0.0	**67.2**	**-7.7**	**74.9**	
303.8000	56.4	A	H	1.0	0	Y	LOW	12.4	2.6	0.0	0.0	0.0	**71.4**	**-3.5**	**74.9**	
303.8000	62.4	50.3 A	H	1.0	270	Z	LOW	12.4	2.6	0.0	0.0	0.0	**65.3**	**-9.6**	**74.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
607.6000	57.8	A	H	1.0	90	X	LOW	17.7	3.7	31.7	0.0	0.0	**47.5**	**-7.4**	**54.9**	
607.6000	53.1	A	H	2.0	0	Y	LOW	17.7	3.7	31.7	0.0	0.0	**42.8**	**-12.1**	**54.9**	
607.6000	55.1	A	H	2.0	0	Z	LOW	17.7	3.7	31.7	0.0	0.0	**44.8**	**-10.1**	**54.9**	
607.6000	55.3	A	V	1.5	90	X	LOW	17.7	3.7	31.7	0.0	0.0	**45.1**	**-9.8**	**54.9**	
607.6000	55.7	A	V	1.5	0	Y	LOW	17.7	3.7	31.7	0.0	0.0	**45.4**	**-9.5**	**54.9**	
607.6000	54.6	A	V	1.0	0	Z	LOW	17.7	3.7	31.7	0.0	0.0	**44.3**	**-10.6**	**54.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
911.4000	51.7	A	H	1.0	180	X	LOW	20.9	4.5	31.0	0.0	0.0	**46.1**	**-8.8**	**54.9**	
911.4000	52.6	A	H	1.5	0	Y	LOW	20.9	4.5	31.0	0.0	0.0	**47.1**	**-7.8**	**54.9**	
911.4000	49.4	A	H	1.0	270	Z	LOW	20.9	4.5	31.0	0.0	0.0	**43.8**	**-11.1**	**54.9**	
911.4000	53.3	A	V	1.0	270	X	LOW	20.9	4.5	31.0	0.0	0.0	**47.7**	**-7.2**	**54.9**	
911.4000	47.8	A	V	1.0	0	Y	LOW	20.9	4.5	31.0	0.0	0.0	**42.3**	**-12.6**	**54.9**	
911.4000	48.6	A	V	1.0	270	Z	LOW	20.9	4.5	31.0	0.0	0.0	**43.1**	**-11.8**	**54.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1215.2000	59.3	47.2 A	H	1.0	90	X	LOW	29.7	4.9	38.7	0.0	0.0	**43.1**	**-10.9**	**54.0**	
1215.2000	59.8	47.7 A	H	1.0	0	Y	LOW	29.7	4.9	38.7	0.0	0.0	**43.6**	**-10.4**	**54.0**	
1215.2000	57.9	45.8 A	H	1.0	270	Z	LOW	29.7	4.9	38.7	0.0	0.0	**41.7**	**-12.3**	**54.0**	
1215.2000	60.4	48.3 A	V	1.0	0	X	LOW	29.7	4.9	38.7	0.0	0.0	**44.2**	**-9.8**	**54.0**	
1215.2000	55.1	43.0 A	V	1.0	0	Y	LOW	29.7	4.9	38.7	0.0	0.0	**38.9**	**-15.1**	**54.0**	
1215.2000	61.3	49.2 A	V	1.0	270	Z	LOW	29.7	4.9	38.7	0.0	0.0	**45.1**	**-8.9**	**54.0**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1519.0000	62.0	49.9 A	H	1.0	180	X	LOW	29.3	5.5	38.4	0.0	0.0	**46.3**	**-7.7**	**54.0**	
1519.0000	59.2	47.1 A	H	1.5	0	Y	LOW	29.3	5.5	38.4	0.0	0.0	**43.5**	**-10.5**	**54.0**	
1519.0000	61.2	49.1 A	H	1.0	270	Z	LOW	29.3	5.5	38.4	0.0	0.0	**45.5**	**-8.5**	**54.0**	
1519.0000	60.5	48.4 A	V	1.0	270	X	LOW	29.3	5.5	38.4	0.0	0.0	**44.8**	**-9.2**	**54.0**	
1519.0000	63.0	50.9 A	V	1.0	0	Y	LOW	29.3	5.5	38.4	0.0	0.0	**47.3**	**-6.7**	**54.0**	
1519.0000	62.2	50.1 A	V	1.0	0	Z	LOW	29.3	5.5	38.4	0.0	0.0	**46.5**	**-7.5**	**54.0**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1822.8000	56.9	44.8 A	H	1.0	90	X	LOW	30.7	5.7	39.4	0.0	0.0	**41.9**	**-13.0**	**54.9**	
1822.8000	54.4	42.3 A	H	3.0	270	Y	LOW	30.7	5.7	39.4	0.0	0.0	**39.4**	**-15.5**	**54.9**	
1822.8000	57.7	45.6 A	H	1.0	270	Z	LOW	30.7	5.7	39.4	0.0	0.0	**42.7**	**-12.2**	**54.9**	
1822.8000	58.9	46.8 A	V	1.0	270	X	LOW	30.7	5.7	39.4	0.0	0.0	**43.9**	**-11.0**	**54.9**	
1822.8000	58.5	46.4 A	V	1.0	0	Y	LOW	30.7	5.7	39.4	0.0	0.0	**43.5**	**-11.4**	**54.9**	
1822.8000	59.0	46.9 A	V	1.0	180	Z	LOW	30.7	5.7	39.4	0.0	0.0	**44.0**	**-10.9**	**54.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2126.6000	50.0	A	H	1.5	0	X	LOW	32.6	6.1	40.2	0.0	0.0	**48.4**	**-6.5**	**54.9**	
2126.6000	51.1	A	H	3.0	180	Y	LOW	32.6	6.1	40.2	0.0	0.0	**49.5**	**-5.4**	**54.9**	
2126.6000	51.4	A	H	3.5	90	Z	LOW	32.6	6.1	40.2	0.0	0.0	**49.8**	**-5.1**	**54.9**	
2126.6000	49.2	A	V	3.0	180	X	LOW	32.6	6.1	40.2	0.0	0.0	**47.6**	**-7.3**	**54.9**	
2126.6000	50.6	A	V	3.0	90	Y	LOW	32.6	6.1	40.2	0.0	0.0	**49.0**	**-5.9**	**54.9**	
2126.6000	48.6	A	V	2.0	270	Z	LOW	32.6	6.1	40.2	0.0	0.0	**47.0**	**-7.9**	**54.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2430.4000	50.8	A	H	1.0	0	X	LOW	35.0	6.3	41.0	0.0	0.0	**51.0**	**-3.9**	**54.9**	
2430.4000	47.3	A	H	1.0	180	Y	LOW	35.0	6.3	41.0	0.0	0.0	**47.5**	**-7.4**	**54.9**	
2430.4000	49.2	A	H	1.0	180	Z	LOW	35.0	6.3	41.0	0.0	0.0	**49.4**	**-5.5**	**54.9**	
2430.4000	44.8	A	V	1.0	180	X	LOW	35.0	6.3	41.0	0.0	0.0	**45.0**	**-9.9**	**54.9**	
2430.4000	48.2	A	V	1.0	0	Y	LOW	35.0	6.3	41.0	0.0	0.0	**48.4**	**-6.5**	**54.9**	
2430.4000	52.6	40.5 A	V	1.0	180	Z	LOW	35.0	6.3	41.0	0.0	0.0	**40.7**	**-14.2**	**54.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2734.2000	52.8	40.7 A	H	2.0	180	X	LOW	34.7	5.8	41.4	0.0	0.0	**39.8**	**-14.2**	**54.0**	
2734.2000	52.9	40.8 A	H	2.0	180	Y	LOW	34.7	5.8	41.4	0.0	0.0	**39.9**	**-14.1**	**54.0**	
2734.2000	48.2	A	H	2.0	270	Z	LOW	34.7	5.8	41.4	0.0	0.0	**47.2**	**-6.8**	**54.0**	
2734.2000	51.6	A	V	2.5	180	X	LOW	34.7	5.8	41.4	0.0	0.0	**50.7**	**-3.3**	**54.0**	
2734.2000	52.4	40.3 A	V	1.0	180	Y	LOW	34.7	5.8	41.4	0.0	0.0	**39.4**	**-14.6**	**54.0**	
2734.2000	50.1	A	V	1.0	90	Z	LOW	34.7	5.8	41.4	0.0	0.0	**49.2**	**-4.8**	**54.0**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	**Applied Wireless**	**DATE**	**11/21/2014**
EUT	**Remote Transmitter**	**DUTY CYCLE**	**24.92 %**
MODEL	**KTXW303C**	**PEAK TO AVG**	**-12.0690392 dB**
S/N	**none**	**TEST DIST.**	**3 Meters**
TEST ENGINEER	**Rey Ramirez**	**LAB**	**F**

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3038.0000	53.6	41.5 A	H	1.0	180	X	LOW	33.9	7.2	41.6	0.0	0.0	**41.0**	**-13.9**	**54.9**	
3038.0000	52.0	A	H	1.5	0	Y	LOW	33.9	7.2	41.6	0.0	0.0	**51.5**	**-3.4**	**54.9**	
3038.0000	54.1	42.0 A	H	1.0	0	Z	LOW	33.9	7.2	41.6	0.0	0.0	**41.5**	**-13.4**	**54.9**	
3038.0000	54.1	42.0 A	V	1.5	0	X	LOW	33.9	7.2	41.6	0.0	0.0	**41.5**	**-13.4**	**54.9**	
3038.0000	51.7	A	V	2.0	0	Y	LOW	33.9	7.2	41.6	0.0	0.0	**51.1**	**-3.8**	**54.9**	
3038.0000	53.9	41.8 A	V	2.0	180	Z	LOW	33.9	7.2	41.6	0.0	0.0	**41.3**	**-13.6**	**54.9**	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA =CORRECTED READING-SPEC LIMIT

COMPATIBLE ELECTRONICS

FCC Class B

Applied Wireless
Remote
KTXW303C

Date: 11/21/2014
Lab: F
Tested By: R. Ramirez
Test Distance 3 meters

Configuration: Spurious emissions

Temp: 60F Humidity: 75%

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Comments
33.01	30.18	V	40.00	-9.82	Peak	
65.03	26.33	V	40.00	-13.67	Peak	
113.00	19.34	V	43.52	-24.18	Peak	
200.00	33.27	V	43.52	-10.25	Peak	
225.00	24.32	V	46.02	-21.70	Peak	
240.00	19.30	V	46.02	-26.72	Peak	
33.01	23.23	H	40.00	-16.77	Peak	
65.00	24.50	H	40.00	-15.50	Peak	
113.00	24.23	H	43.52	-19.29	Peak	
200.00	33.46	H	43.52	-10.06	Peak	
225.00	30.53	H	46.02	-15.49	Peak	
240.00	23.49	H	46.02	-22.53	Peak	
305.37	34.50	V	46.02	-11.52	Peak	
310.06	23.84	V	46.02	-22.18	Peak	
608.00	21.95	V	46.02	-24.07	Peak	
305.38	48.94	H	46.02	**2.92**	Peak	
305.38	37.38	H	46.02	-8.64	QP	
309.60	35.99	H	46.02	-10.03	Peak	
608.00	21.29	H	46.02	-24.73	Peak	
						No frequencies found from 9 KHz-30MHz

COMPATIBLE ELECTRONICS

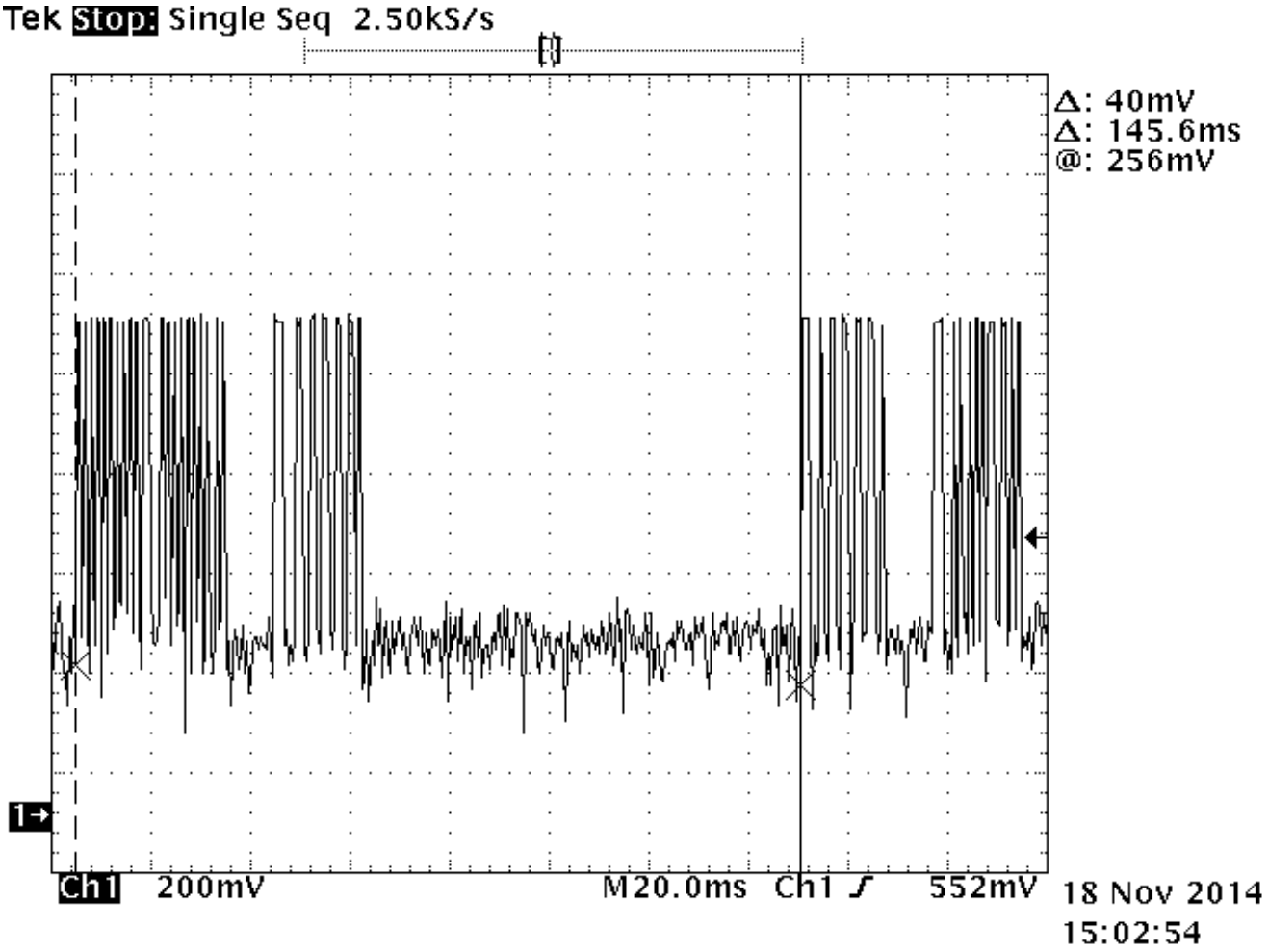
FCC Class B

Applied Wireless
Remote
KTXW303C

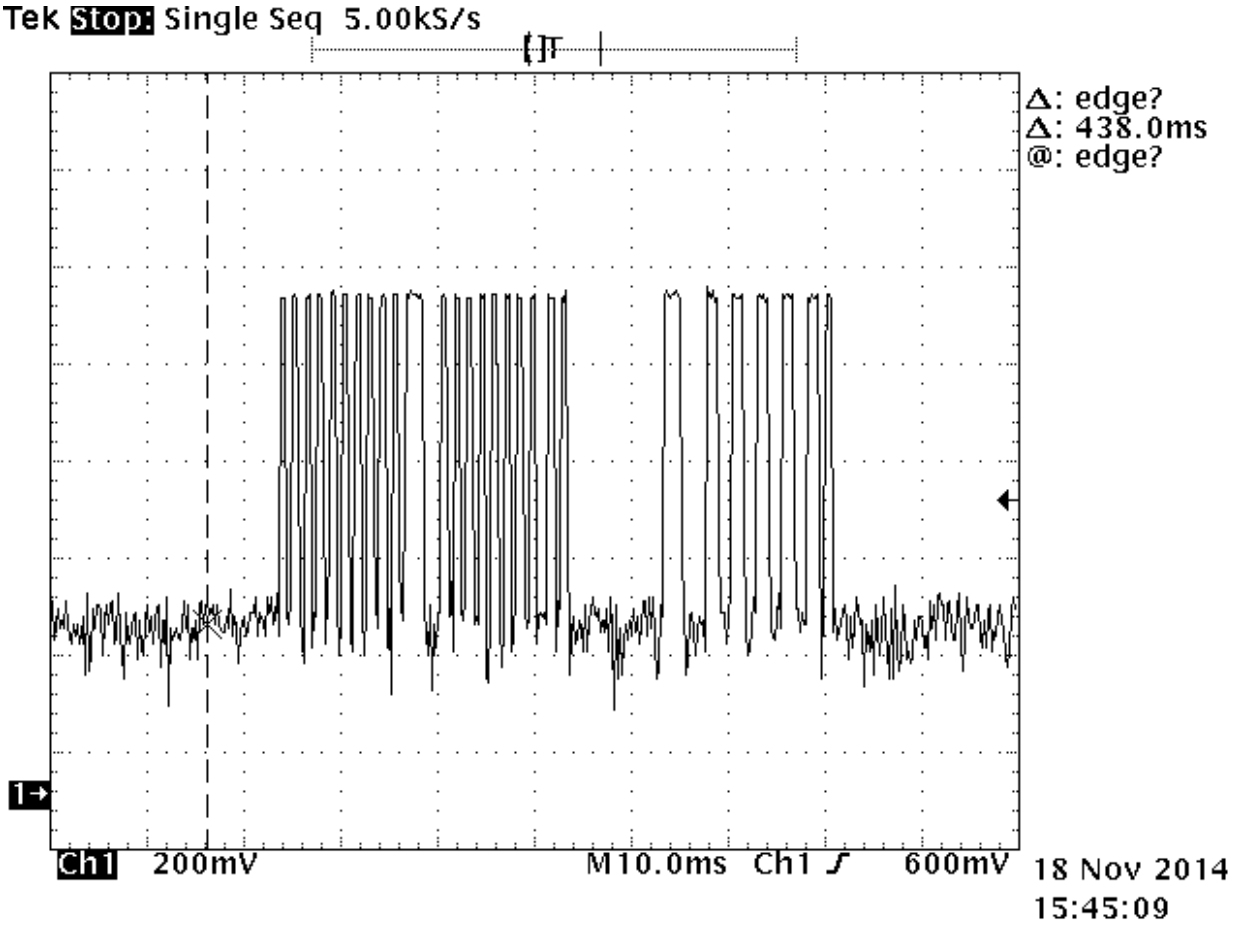
Date: 11/20/2014
Lab: F
Tested By: R. Ramirez
Test Distance 3 meters

Configuration:

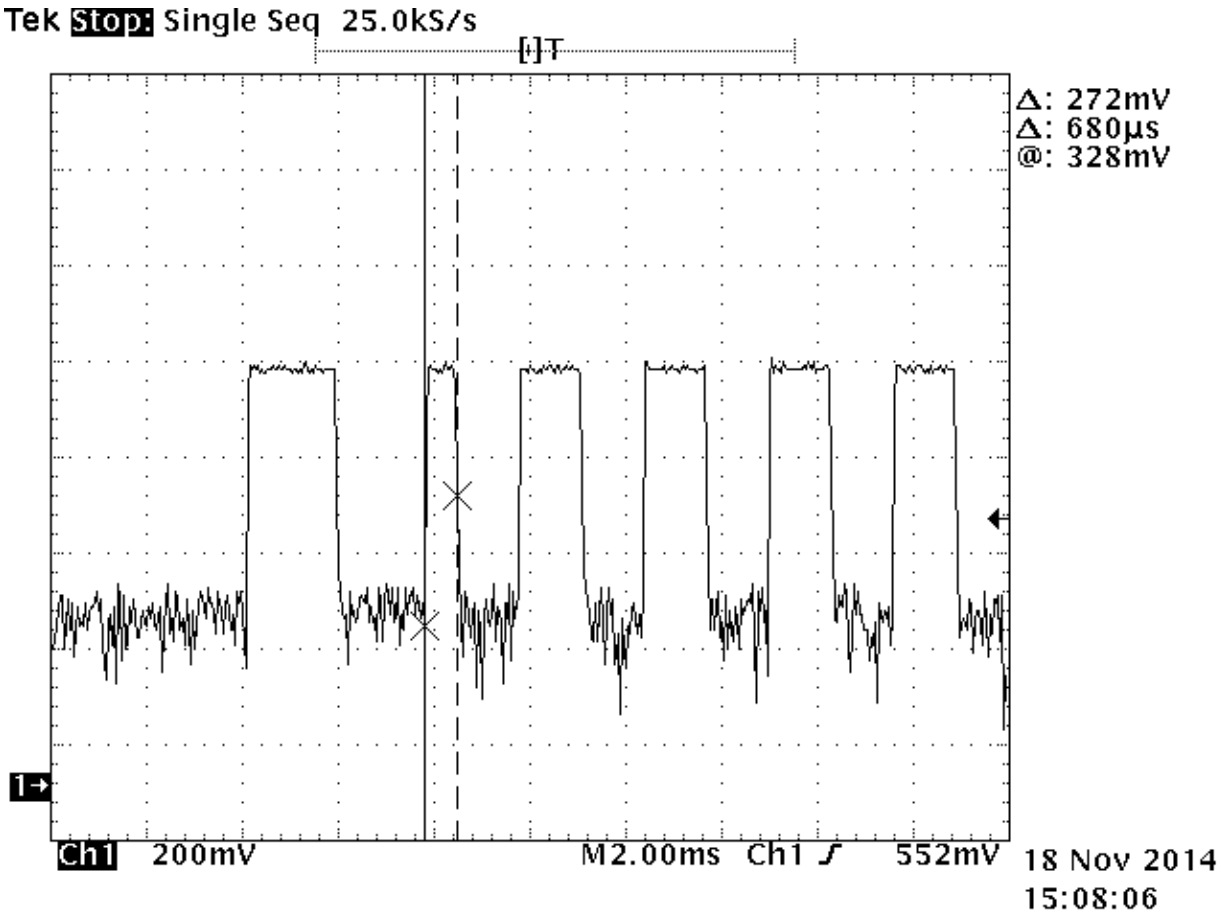
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Comments
1425.00	36.24	V	53.98	-17.74	Peak	**Tested from 1-4GHz**
1820.00	37.84	V	53.98	-16.14	Peak	
1425.00	32.68	H	53.98	-21.30	Peak	
1820.00	38.48	H	53.98	-15.50	Peak	



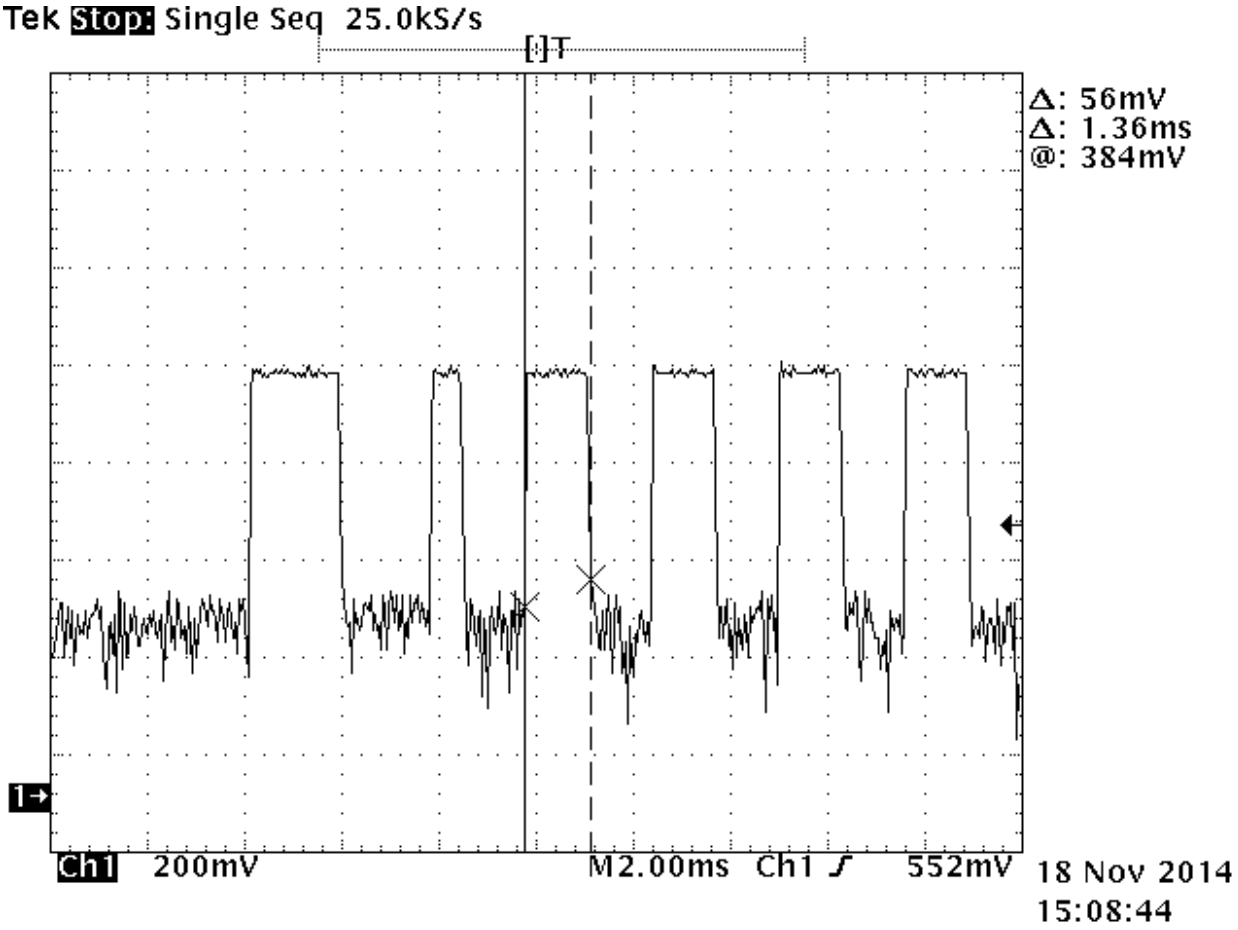
Pulse Train with Blanking Interval = 145.6 ms
Applied Wireless



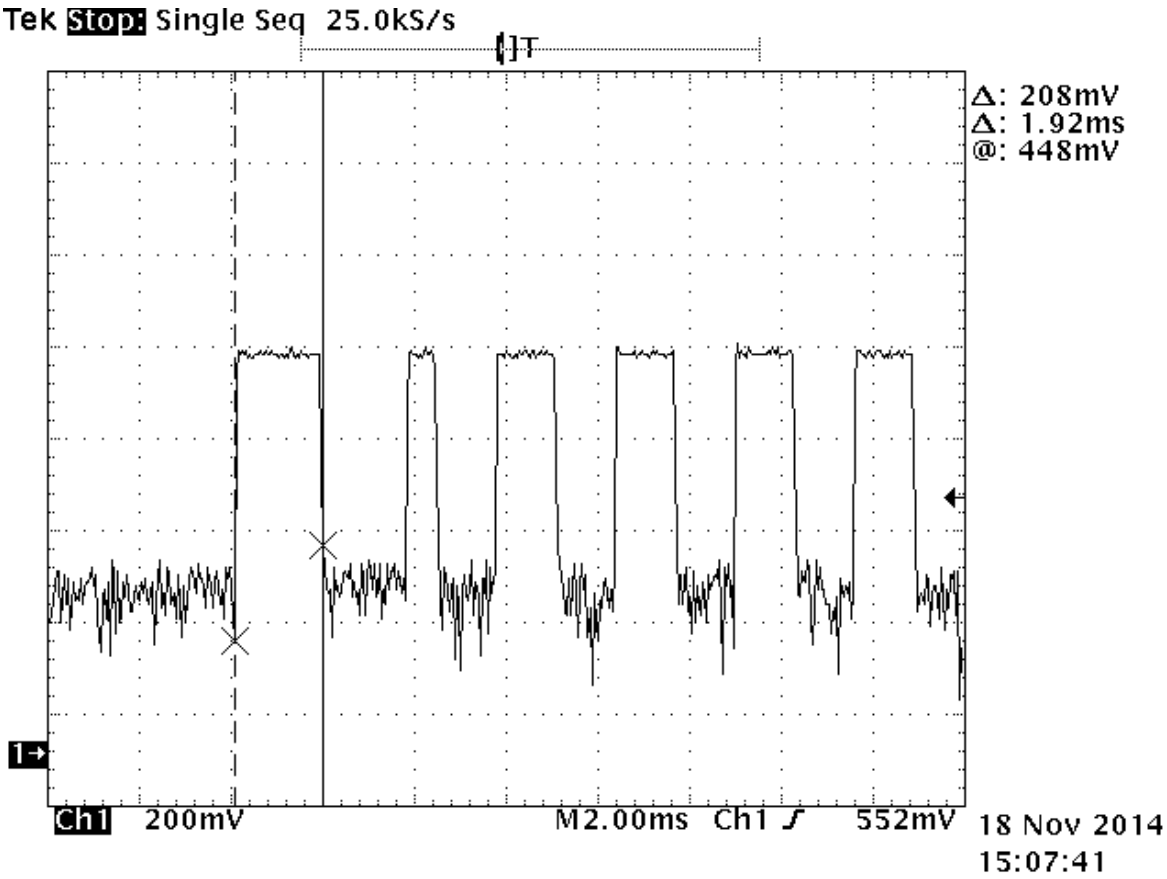
Pulse Train Close-up
Applied Wireless



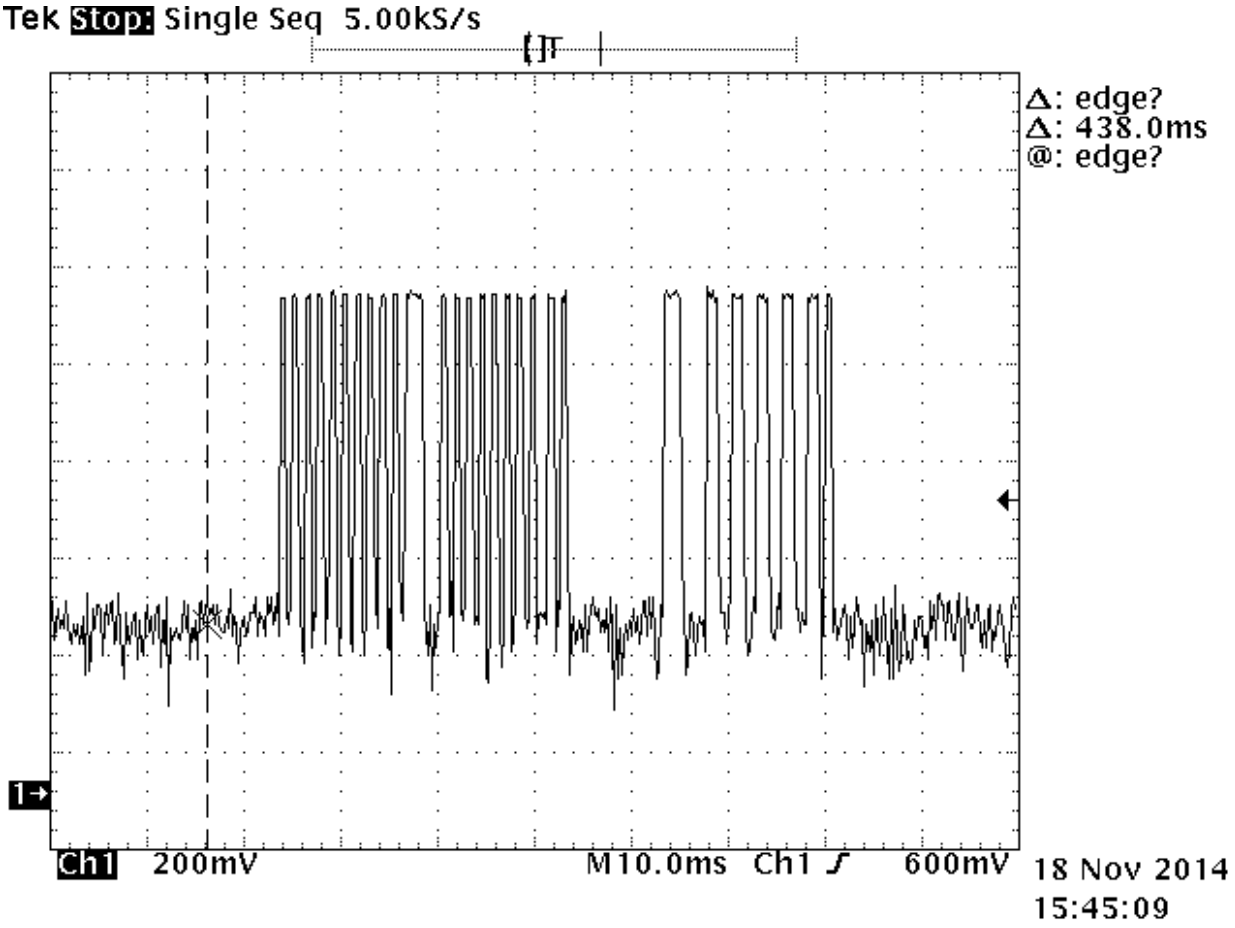
Time of Small Pulse = 680 µs
Applied Wireless



Time of Medium Pulse = 1.36 ms
Applied Wireless



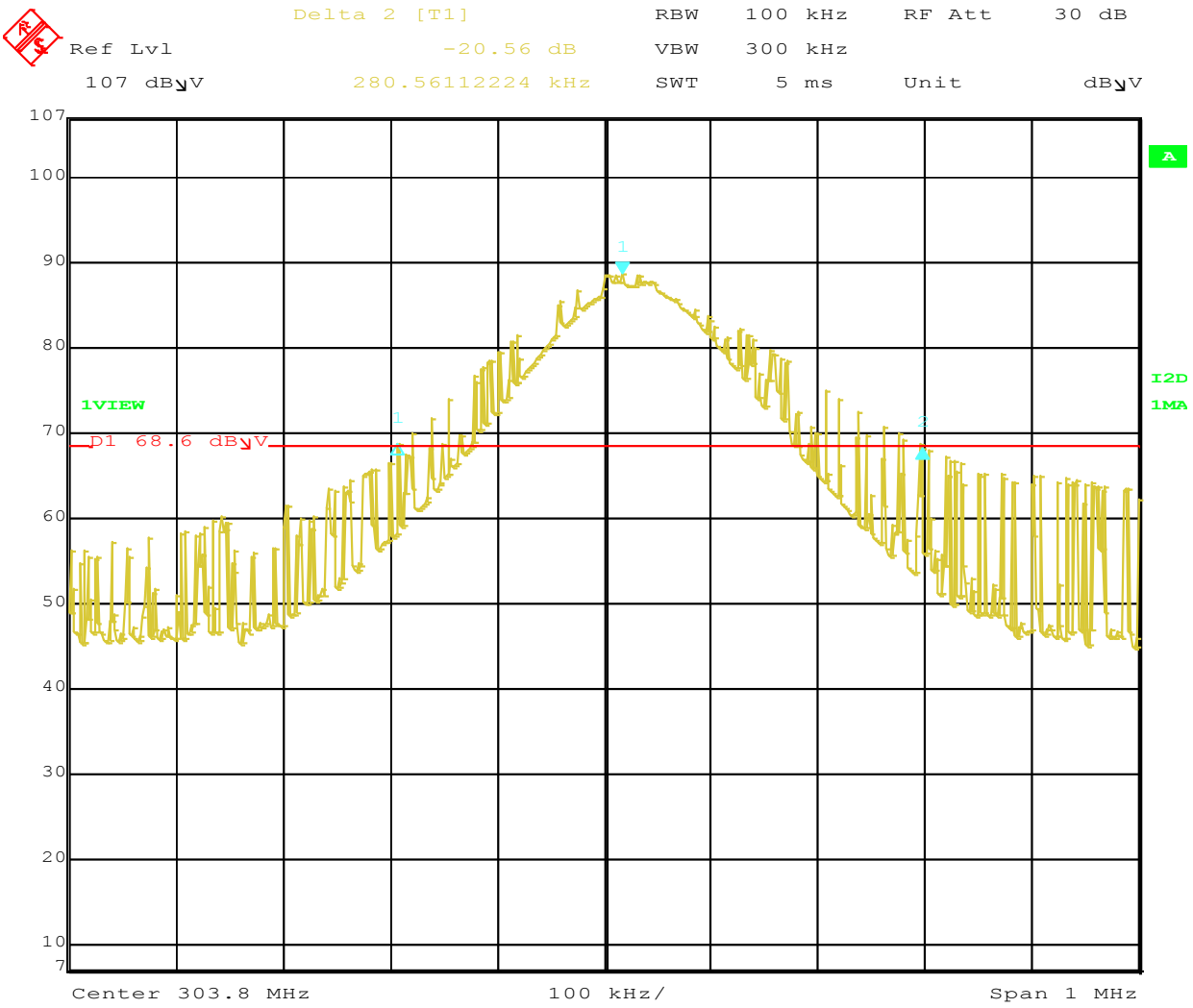
Time of Large Pulse = 1.92 ms
Applied Wireless



Number of Small Pulses = 21
Number of Medium Pulses = 5
Number of Large Pulses = 2

Time of Small Pulses = (21 * 680 µs) = 14280 µs
Time of Medium Pulses = (5 * 1.36 ms) = 6800 µs
Time of Large Pulses (2 * 1.92 ms) = 3840 µs
Total Time = 24.92 ms
Total Duty Cycle = 24.92 ms / 100 ms = 24.92%

Applied Wireless


Delta 2 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-20.56 dB
VBW 300 kHz
107 dBµV
280.56112224 kHz
SWT 5 ms
Unit dBµV
107
100
90
80
70
60
50
40
30
20
10
7
A
1VIEW
D1 68.6 dBµV
I2D
1MA
Center 303.8 MHz
100 kHz/
Span 1 MHz
Date: 21.NOV.2014 13:53:09

Bandwidth