FCC PART 15 SUBPART C SECTION 15.247
TEST REPORT

for

WIRELESS MODULE

Model: ATWINC1500B

Prepared for

ATMEL CORPORATION
1 SPECTRUM POINTE DR., SUITE 225
LAKE FOREST, CA 92630

Prepared by:_____

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DATE: APRIL 29 , 2015

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full with the written permission of Compatible Electronics.

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 Module Model: ATWINC1500B S/N: None
Product Description:	The EUT is an 802.11b, g, and n Wireless Shielded Module.
Modifications:	The EUT was not modified in order to comply with specifications.
Manufacturer:	Atmel Corporation 1 Spectrum Pointe Dr., Suite 225 Lake Forest, CA 92630
Test Dates:	April 16, 21, & 29 2015 June 8 & 9, 2015 August 21, 2015
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart C Sections 15.205, 15.207, 15.209, & 15.247.
Test Procedure:	ANSI C63.10, and KDB 558074 D01 v03r03.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart C Section 15.207
2	Radiated RF Emissions & Harmonics, 9 kHz – 25,000 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart C Sections 15.205, 15.209
3	DTS Bandwidth	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
4	Maximum Peak Conducted Output Power	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
5	Maximum Peak Power Spectral Density Level In The Fundamental Emission	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
6	Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth)	Complies with CFR Title 47 Part 15 Subpart C Section 15.247
7	Emissions in the Restricted Bands	Complies with CFR Title 47 Part 15 Subpart C Section 15.205

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Wireless Module Model: ATWINC1500B. The EMI measurements were performed according to the measurement procedure described in ANSI C63.10. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by the Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.207, 15.205, 15.209 and 15.247.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

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

Atmel Corporation

Igor Radutnuy	Staff Applications Engineer

Compatible Electronics Inc.

Torey Oliver	Test Technician
Matt Harrison	Test Technician
Jeff Klinger	Director of Engineering

2.4 Date Test Sample was Received

The test sample was received on April 16, 2015.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics as of the date of this test report.

2.6 Abbreviations and Acronyms

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

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.10: 2009	American National Standard for Testing Unlicensed Wireless Devices
KDB 558074 D01 v03r03	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The Wireless Module Model: ATWINC1500B (EUT) was setup in a tabletop configuration. The EUT was powered by a DC Supply (for Conducted Emissions the EUT was connected to a USB Power Adapter). The EUT was continuously transmitting a data stream. The EUT was checked in all axes and the X-Axis was found to be the worst case.

The voltage was varied ± 15% and the transmitting signal amplitude and frequency did not vary.

It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

4.1.1 Photograph Test Configuration

4.1.2 Cable Construction and Termination

Cable 1

This is a 2 meter, un-shielded, round cable that connects the EUT to the DC Power Supply. The cable is hardwired into the EUT and has a banana connector at the DC Supply end. The cable was not bundled.

Cable 2

This is a 10 centimeter, un-shielded, round cables that connect the EUT to the EUT Control Board. The cable is hardwired into both ends of the cable. The cable was not bundled.

Cable 3

This is a 1 meter, foil shielded, USB cable that connect the EUT to the USB Power Adapter. The cable is hardwired into both ends of the cable. The cable was not bundled. The shield of the cable was terminated at the connectors.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	WIRELESS MODULE(EUT)	ATMEL CORPORATION	ATWINC1500B	N/A
2	DC SUPPLY	MPJA	0-30V / 0-5A	017687
3	EUT CONTROL BOARD	ATMEL CORPORATION	NONE	NONE
4	USB POWER ADAPTER (CONDUCTED EMISSIONS)	BELKIN	F8J052	NONE

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100172	9/5/2014	9/5/2015
Antenna, Loop	Com Power	AL-130	121049	12/06/2013	12/06/2015
Antenna, CombiLog	Com Power	AC-220	25857	5/21/2014	5/21/2016
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	7/1/2014	7/1/2016
Antenna, Horn 18-26 GHz	Com Power	AH-826	081033	NCR	NCR
Pre-Amp, 1-18GHz	Com Power	PAM-118	443013	4/24/2015	4/24/2016
Pre-Amp, 1-18GHz	Com Power	PAM-118	443011	4/24/2015	4/24/2016
Pre-Amp, 18-40GHz	Com Power	PA-840	181289	6/16/2014	6/16/2015
LISN	Com Power	LI-215	191935	4/3/2015	4/3/2016
RF Peak Power Meter/Analyzer	Boonton	4500A	1282	12/2/2014	12/2/2015
Peak Power Sensor	Boonton	57318	3723	12/2/2014	12/2/2015
High Pass Filter	AMTI Microwave Circuits	H3G020G4	481230	6/4/2015	6/4/2016
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 by 0.8 meter high non-conductive table, which was placed on the ground plane.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

There are a total of 11 channels. The low channel is at 2412.0 MHz and the high channel is at 2462.0 MHz. There is approximately 5 MHz separation between channels and the EUT uses DSSS modulation. Below are the channels and power settings:

	b Mode	g Mode	n Mode
1 == 2412 MHz DigGain=	-10	-11	-12
2 == 2417 MHz DigGain=	-7	-4	-4
3 == 2422 MHz DigGain=	-7	-4	-4
4 == 2427 MHz DigGain=	-7	-4	-4
5 == 2432 MHz DigGain=	-7	-4	-4
6 == 2437 MHz DigGain=	-7	-4	-4
7 == 2442 MHz DigGain=	-7	-4	-4
8 == 2447 MHz DigGain=	-7	-4	-4
9 == 2452 MHz DigGain=	-7	-4	-4
10 == 2457 MHz DigGain=	-7	-4	-4
11 == 2462 MHz DigGain=	-10	-9	-10

7.2 Antenna

The antenna is made up of a PCB Trace located on the module.

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 EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. 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 received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63.4. 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 computer software. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart C section 15.207.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The R&S receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. Amplifiers were used to increase the sensitivity of the instrument. There were two Microwave Preamplifier used for frequencies above 1 GHz.

For spurious emissions the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

For the radiated Harmonic emissions and Band Edges a linear average detector was used.

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

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz
1000 to 25000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4, EN 50147-2, and CISPR 22. 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 in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart C sections 15.205, 15.209 and 15.247.

8.1.3 DTS Bandwidth

The DTS Bandwidth was measured directly connected to the EMI Receiver using a RBW of 100 kHz and a VBW of 300 kHz. A peak detector and a max hold trace were used with auto sweep time. The trace was allowed to fully maximize. We measured the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. The automatic bandwidth measurement capability of the EMI Receiver was employed using the n dB bandwidth mode with n set to 6 dB. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247.

8.1.4 Maximum Peak Conducted Output Power

The maximum peak conducted output power was measured using a Peak Power Meter. The Peak Power Meter used a resolution bandwidth that is greater than the DTS bandwidth and a video bandwidth greater than 3 x RBW. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.247.

8.1.5 Maximum Peak Power Spectral Density Level In The Fundamental Emission

The Maximum Peak Power Spectral Density Level in the Fundamental Emission was measured directly connected to the EMI Receiver. Tuned to the center frequency of the DTS channel and set the span to 1.5 times the DTS bandwidth. RBW was set to 3 kHz and VBW 10 kHz. A peak detector was used with the sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level within the RBW. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247.

8.1.6 Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth)

The Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth) measurements were performed using the EMI Receiver directly connected to the EUT. A reference level was established by setting the instrument center frequency to DTS channel center frequency. The span was set to ≥ 1.5 times the DTS bandwidth. The RBW was 100 kHz and VBW 300 kHz. A peak detector was used with a sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20dB below that was the reference level. For Emission Level Measurement the center frequency and span were set to encompass the frequency range to be measured. RBW was set to 100 kHz and VBW to 300 kHz. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247.

8.1.7 Emissions in the Restricted Bands (Radiated)

The Emissions in the Restricted Bands measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.205.

8.1.8 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. The low and high channels were tuned to during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.247.

9. TEST PROCEDURE DEVIATIONS

The test procedures were not deviated from throughout all tests.

10. CONCLUSIONS

The Wireless Module Model: ATWINC1500B meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.205, 15.207, 15.209 and 15.247.

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, 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

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

Industry Canada Industrie Canada

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 during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Wireless Module Model: ATWINC1500B S/N: None

No additional models were tested.

APPENDIX D

DIAGRAMS, FACTORS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ

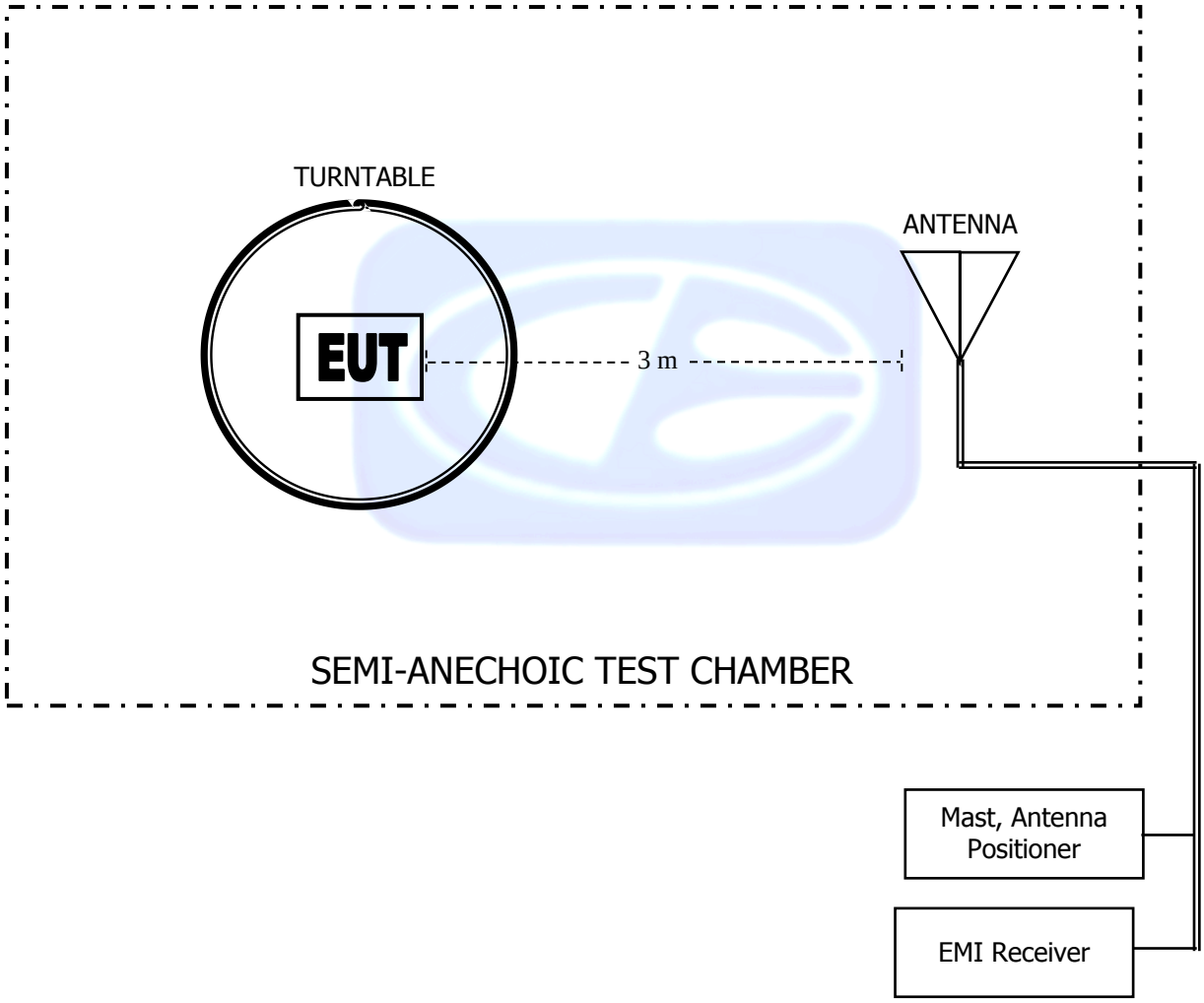


FIGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ

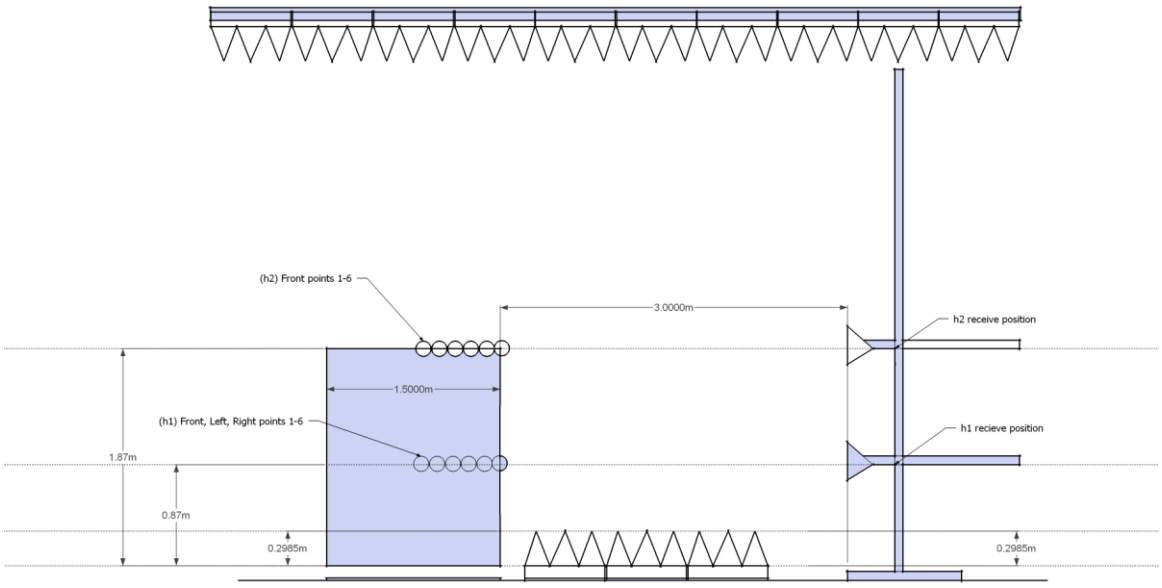
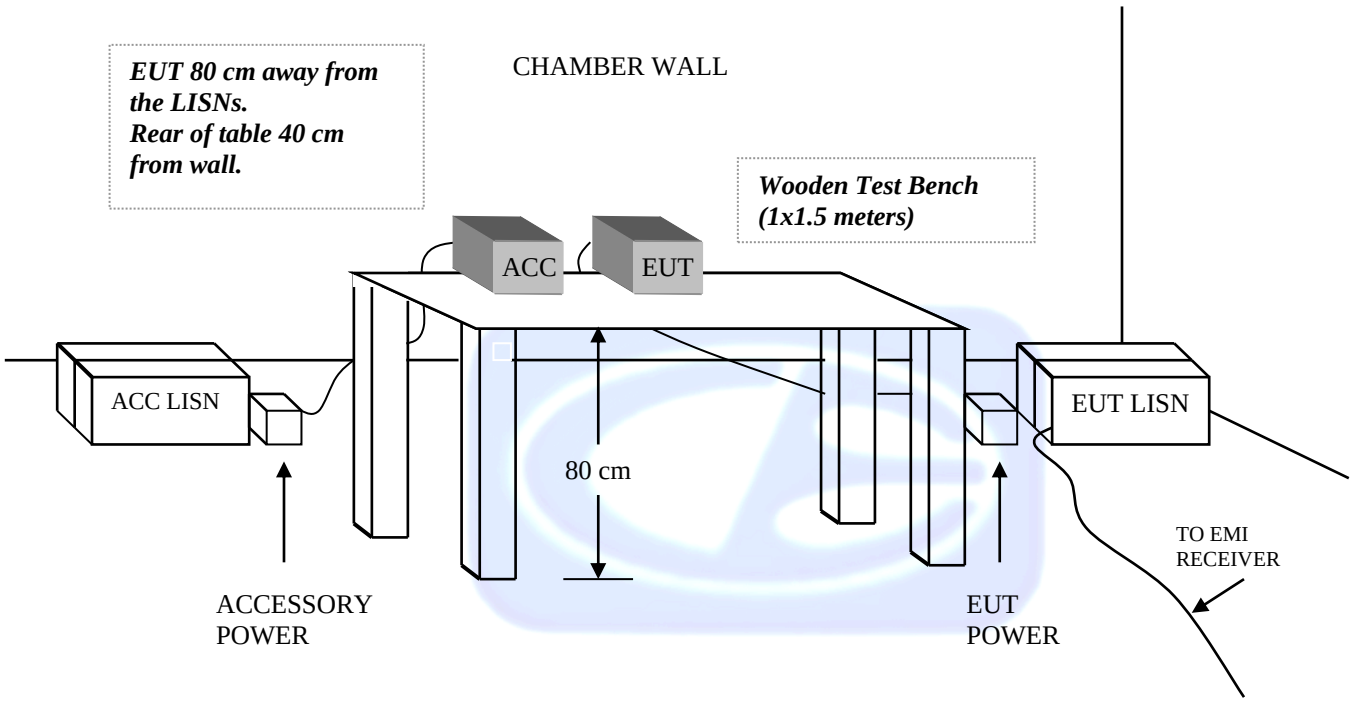


FIGURE 3: CONDUCTED EMISSIONS TEST SETUP



COM-POWER AL-130

LOOP ANTENNA

S/N: 121049

CALIBRATION DUE: DECEMBER 6, 2015

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.64	16.86	**0.8**	-36.32	15.18
0.01	-34.78	16.72	**0.9**	-36.22	15.28
0.02	-35.91	15.59	**1.0**	-36.22	15.28
0.03	-35.48	16.02	**2.0**	-35.91	15.59
0.04	-35.82	15.68	**3.0**	-35.91	15.59
0.05	-36.49	15.01	**4.0**	-36.01	15.49
0.06	-36.30	15.20	**5.0**	-35.80	15.70
0.07	-36.43	15.07	**6.0**	-36.00	15.50
0.08	-36.30	15.20	**7.0**	-35.90	15.60
0.09	-36.39	15.11	**8.0**	-35.70	15.80
0.1	-36.41	15.09	**9.0**	-35.70	15.80
0.2	-36.61	14.89	**10.0**	-35.60	15.90
0.3	-36.63	14.87	**15.0**	-36.52	14.98
0.4	-36.52	14.99	**20.0**	-35.75	15.75
0.5	-36.63	14.87	**25.0**	-37.78	13.72
0.6	-36.62	14.88	**30.0**	-38.62	12.88
0.7	-36.53	14.97			

COM-POWER AC-220

LAB R - COMBILOG ANTENNA

S/N: 25857

CALIBRATION DUE: MAY 21, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.5	**160**	13.8
35	22.5	**180**	14.5
40	23.0	**200**	15.0
45	21.5	**250**	14.6
50	21.3	**300**	18.1
60	18.2	**400**	15.6
70	13.2	**500**	21.4
80	11.6	**600**	21.6
90	11.9	**700**	23.7
100	12.6	**800**	26.0
120	15.2	**900**	26.6
140	13.6	**1000**	28.5

COM-POWER AH-118

HORN ANTENNA

S/N: 071250

CALIBRATION DUE: JULY 1, 2016

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

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 443013

CALIBRATION DUE: APRIL 24, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	26.2	**5500**	25.3
1000	25.6	**6000**	25.0
1100	25.9	**6500**	24.7
1200	25.9	**7000**	23.6
1300	26.3	**7500**	23.3
1400	26.5	**8000**	23.7
1500	26.3	**8500**	24.0
1600	26.1	**9000**	24.3
1700	26.2	**9500**	24.1
1800	26.3	**10000**	23.7
1900	25.8	**11000**	24.2
2000	26.0	**12000**	23.2
2500	26.0	**13000**	22.8
3000	25.8	**14000**	22.6
3500	25.9	**15000**	22.9
4000	26.4	**16000**	22.3
4500	26.0	**17000**	22.6
5000	25.6	**18000**	23.9

COM-POWER PAM-118

1-18GHz - PREAMPLIFIER

S/N: 443011

CALIBRATION DUE: April 24, 2016

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
0.500	27.2	**7.000**	23.8
1.000	26.6	**7.500**	23.9
1.500	27.0	**8.000**	24.4
2.000	27.0	**8.500**	25.2
2.500	27.4	**9.500**	26.2
3.000	27.6	**10.000**	25.8
3.500	27.5	**11.000**	25.5
4.000	27.3	**12.000**	25.4
4.500	27.3	**13.000**	25.1
5.000	27.5	**14.000**	24.6
5.500	26.3	**15.000**	24.1
6.000	26.1	**16.000**	25.1
6.500	25.4	**17.000**	25.2
		18.000	24.4

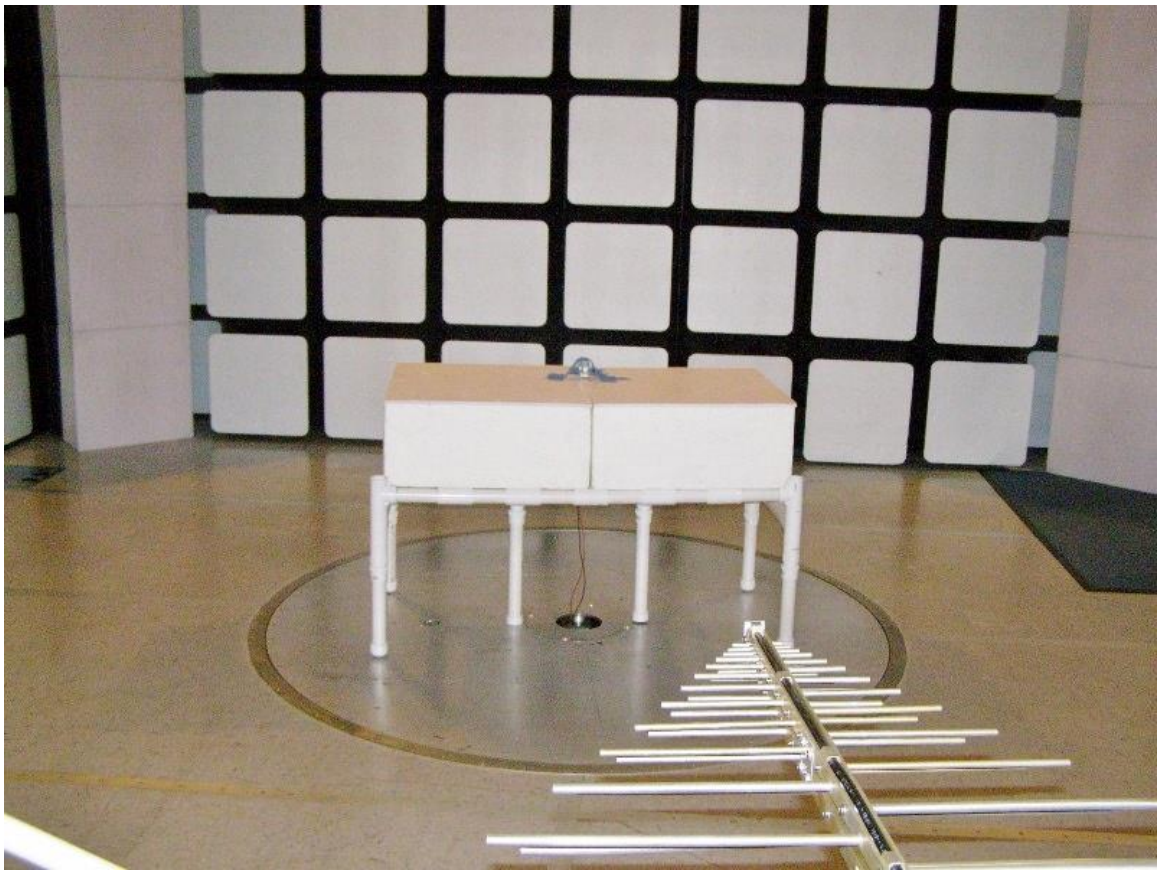
COM-POWER PA-840

18-40 GHz PREAMPLIFIER

S/N: 181289

CALIBRATION DUE: JUNE 16, 2015

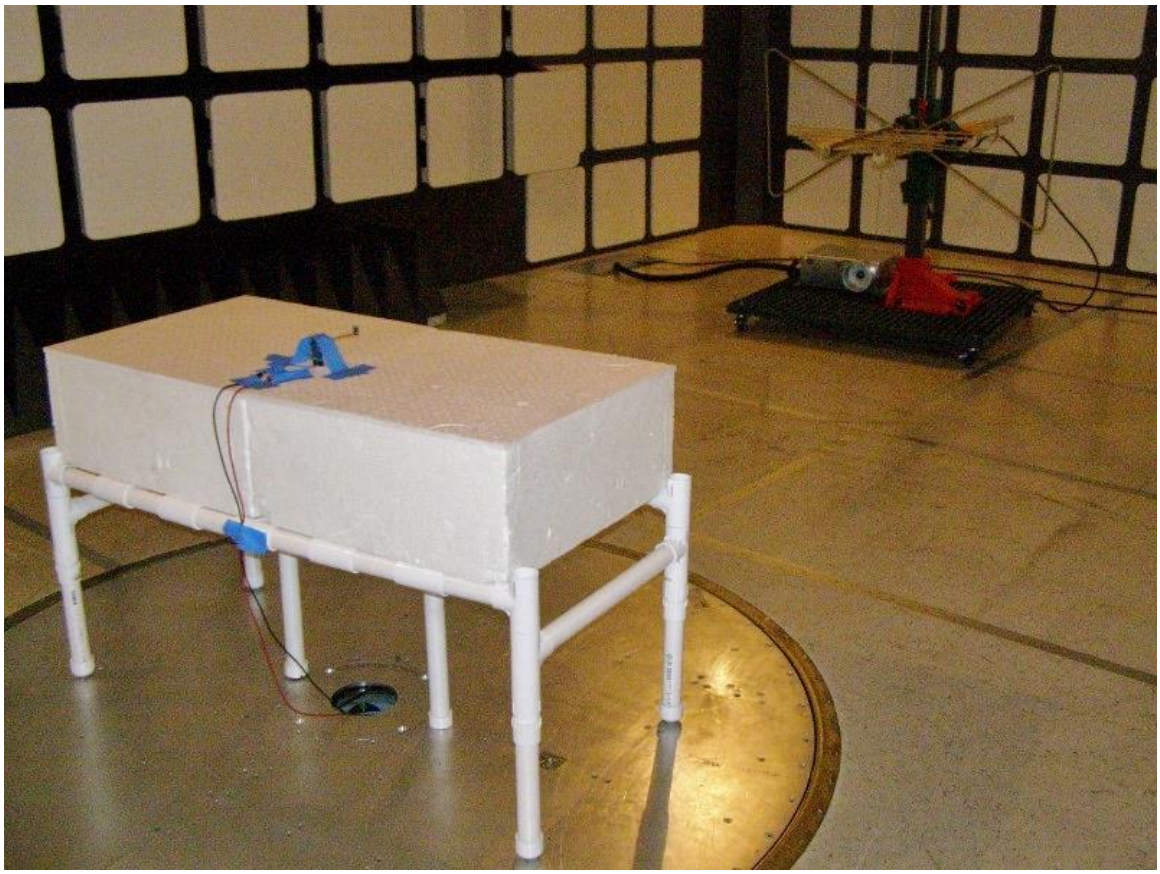
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
18000	29.4	**31500**	28.2
19000	28.8	**32000**	28.6
20000	30.5	**32500**	28.8
21000	31.4	**33000**	28.2
22000	31.2	**33500**	27.7
23000	30.1	**34000**	27.2
24000	30.3	**34500**	28.2
25000	29.8	**35000**	27.3
26000	30.5	**35500**	27.2
26500	30.7	**36000**	27.2
27000	30.8	**36500**	27.5
27500	30.2	**37000**	27.0
28000	30.1	**37500**	26.7
28500	30.2	**38000**	26.2
29000	30.1	**38500**	26.5
29500	29.8	**39000**	26.3
30000	29.2	**39500**	26.9
30500	28.4	**40000**	27.6
31000	29.8		



FRONT VIEW

ATMEL CORPORATION
WIRELESS MODULE
Model: ATWINC1500B
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

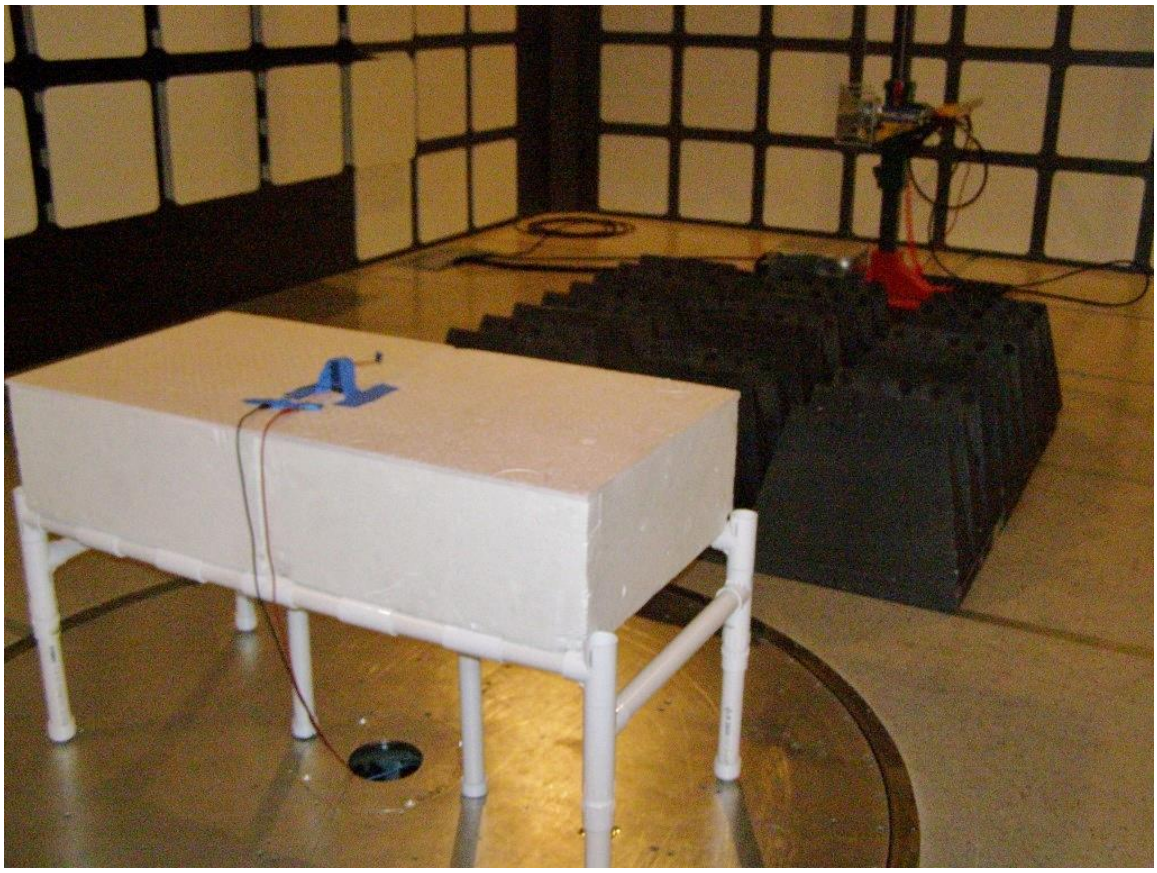
ATMEL CORPORATION
WIRELESS MODULE
Model: ATWINC1500B
FCC SUBPART B & C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

ATMEL CORPORATION
WIRELESS MODULE
Model: ATWINC1500B
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

ATMEL CORPORATION
WIRELESS MODULE
Model: ATWINC1500B
FCC SUBPART B & C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

ATMEL CORPORATION
WIRELESS MODULE
Model: ATWINC1500B
FCC SUBPART B & C - CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

ATMEL CORPORATION
WIRELESS MODULE
Model: ATWINC1500B
FCC SUBPART B & C - CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

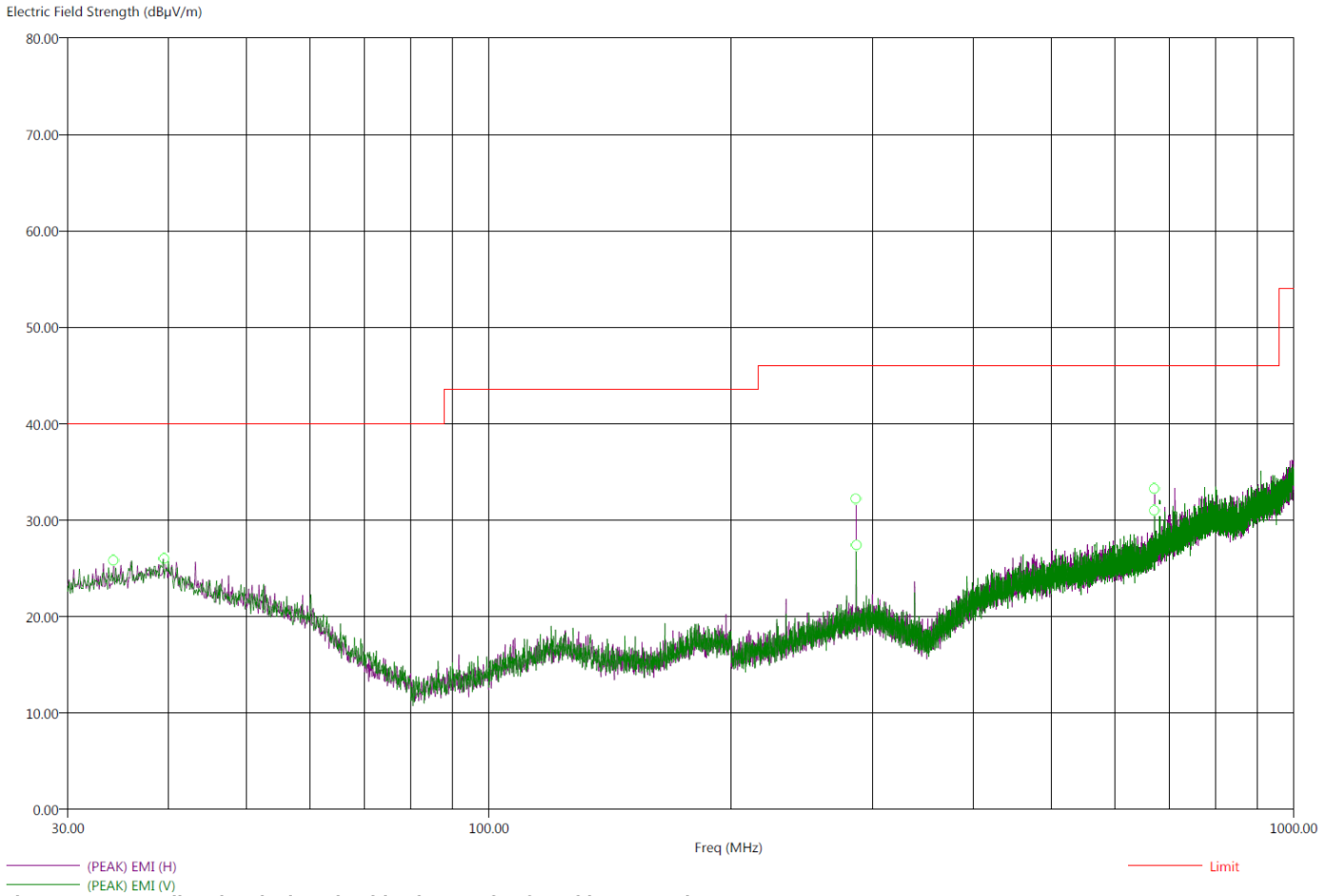
RADIATED EMISSIONS DATA SHEETS

802.11b MODE

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz_b.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11b, 2442 MHz
Comments: Temp: 73f
Hum: 43%
3.3VDC

4/29/2015 9:05:24 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab R)



There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.

Title: FCC 15.209
File: Radiated Final 30-1000Mhz_b.set
Operator: Matt Harrison
EUT Type: ATWINC1500B
EUT Condition: Transmitting @ 802.11b, 2442 MHz
Comments: Temp: 73f
Hum: 43%
3.3VDC

4/29/2015 9:21:55 AM
Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable(dB)
34.20	-20.66	19.34	24.56	40.00	H	31.25	388.40	22.50	0.97
39.50	-19.75	20.25	25.68	40.00	H	312.75	323.38	22.96	1.28
286.00	-13.84	32.16	33.88	46.00	H	113.50	104.70	17.68	2.05
286.10	-19.04	26.96	29.48	46.00	V	13.00	106.49	17.68	2.06
671.50	-12.42	33.58	37.08	46.00	V	67.50	107.74	23.48	2.82
671.60	-8.15	37.85	40.18	46.00	H	112.50	120.52	23.48	2.82

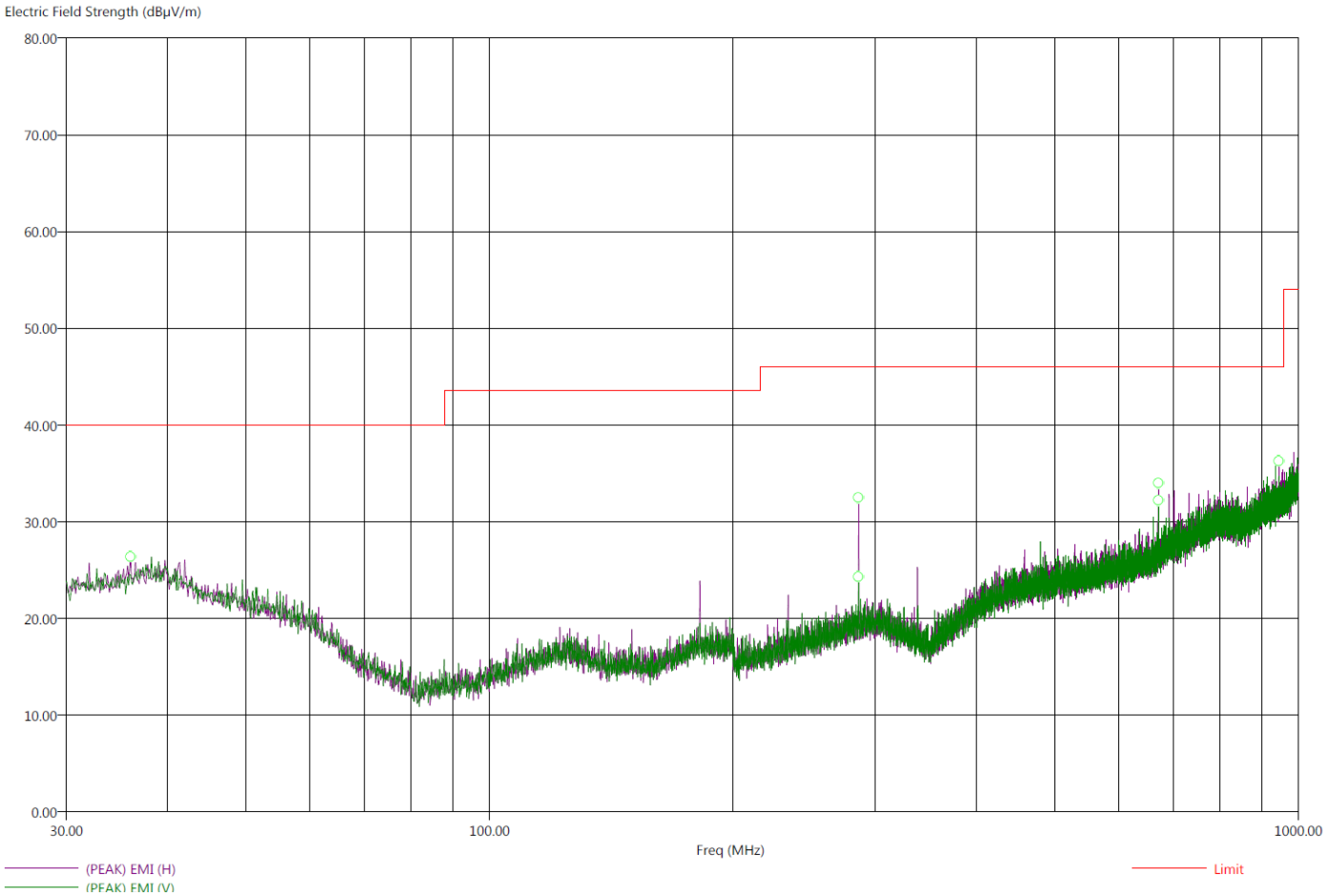
There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.

802.11g MODE

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz_g.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11g, 2442 MHz
Comments: Temp: 73f
Hum: 43%
3.3VDC

4/29/2015 8:34:19 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab R)



There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.

Title: FCC 15.209 4/29/2015 8:45:48 AM
File: Radiated Final 30-1000Mhz_g.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11g, 2442 MHz
Comments: Temp: 73f
Hum: 43%
3.3VDC

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer(dB)	Cable(dB)
36.00	-18.02	21.98	26.58	40.00	H	214.75	337.23	22.60	1.08
286.00	-13.83	32.17	33.81	46.00	H	101.00	105.23	17.68	2.06
286.00	-17.58	28.42	31.03	46.00	V	22.25	101.35	17.68	2.06
671.60	-8.40	37.60	40.31	46.00	H	235.00	115.56	23.48	2.82
671.60	-11.11	34.89	38.08	46.00	V	78.25	99.86	23.48	2.82
946.30	-6.22	39.78	42.53	46.00	H	254.25	137.89	26.88	3.49

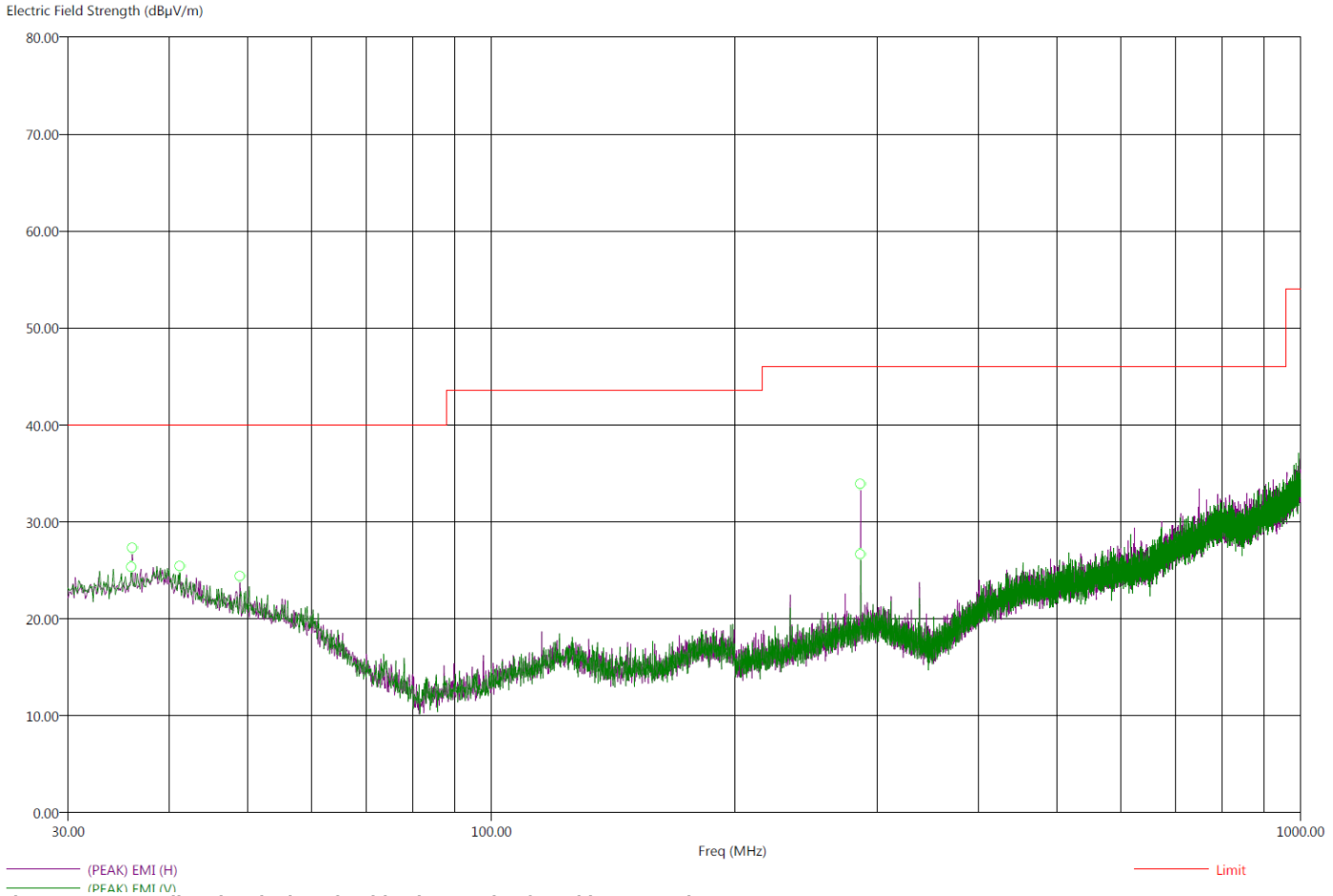
There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.

802.11n MODE

Title: FCC 15.209
File: Radiated Pre-Scan 30-1000Mhz_N.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11n, 2442 MHz.
Comments: Temp: 73f
Hum: 43%
3.3VDC

4/16/2015 10:40:21 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (Lab R)



There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.

Title: EN55022 Class B.
File: Radiated Final 30-1000Mhz_n.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11n, 2442 MHz
Comments: Temp: 73f
Hum: 43%
3.3VDC

4/16/2015 10:53:46 AM
Sequence: Final Measurements

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer (dB)	Cable(dB)
35.90	-19.60	20.85	25.68	40.45	V	323.25	374.25	22.60	1.08
36.00	-19.86	20.59	25.84	40.45	H	359.00	389.65	22.60	1.08
41.20	-20.54	19.91	24.79	40.45	V	222.25	163.56	22.66	1.16
48.90	-22.73	17.72	22.77	40.45	H	178.25	124.28	21.34	0.22
286.00	-12.74	34.71	35.84	47.45	H	260.75	100.22	17.68	2.05
286.00	-19.60	27.85	30.51	47.45	V	351.25	100.34	17.68	2.05

There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-25GHz.

APPENDIX E

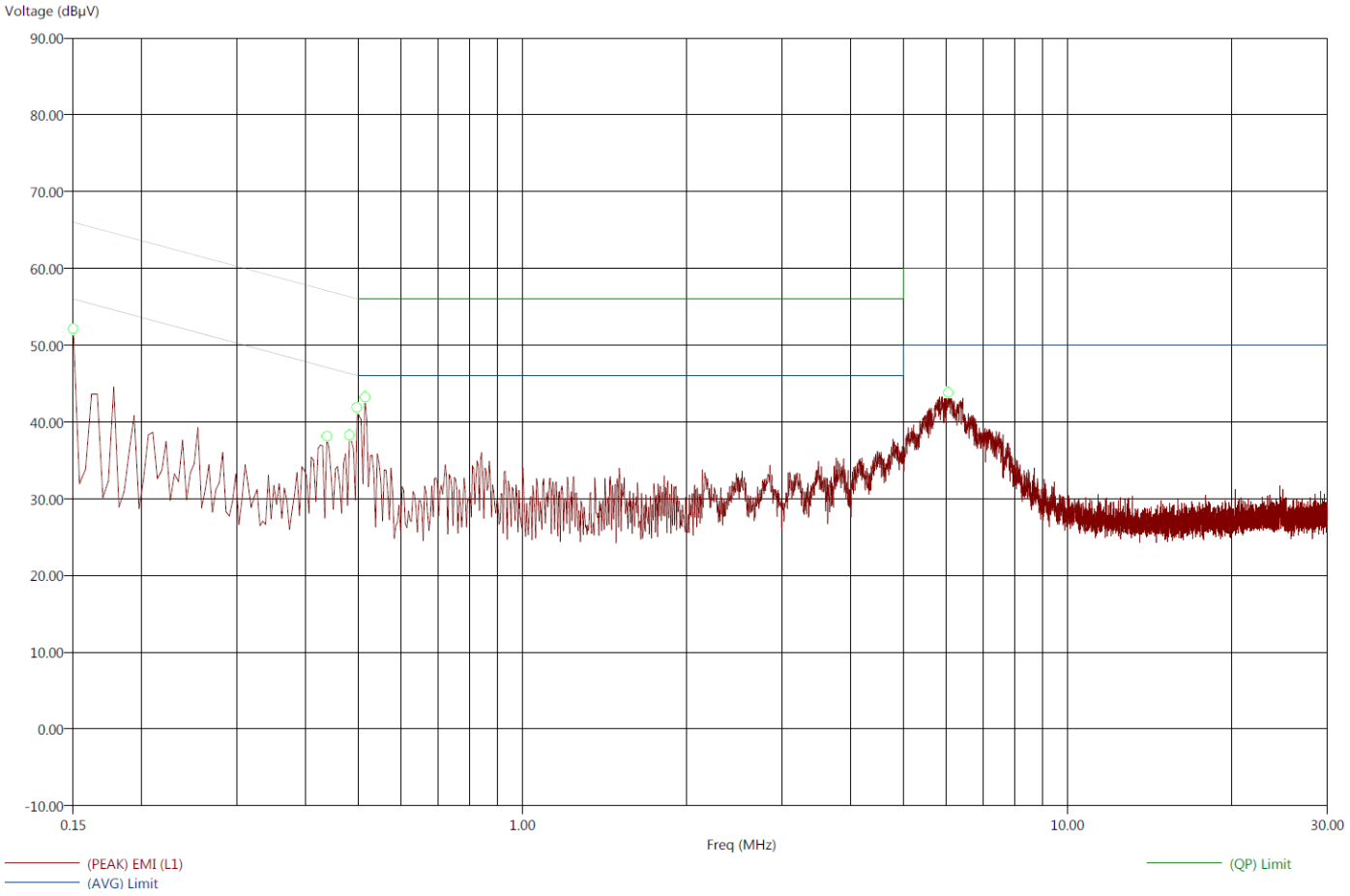
CONDUCTED EMISSIONS DATA SHEETS

802.11b MODE

Title: FCC 15.207
File: Conducted Pre-Line.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11b, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

4/29/2015 10:02:24 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB R)



Title: FCC 15.207 4/29/2015 10:07:16 AM
File: Conducted Final-Line.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11b, 2442 MHz
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

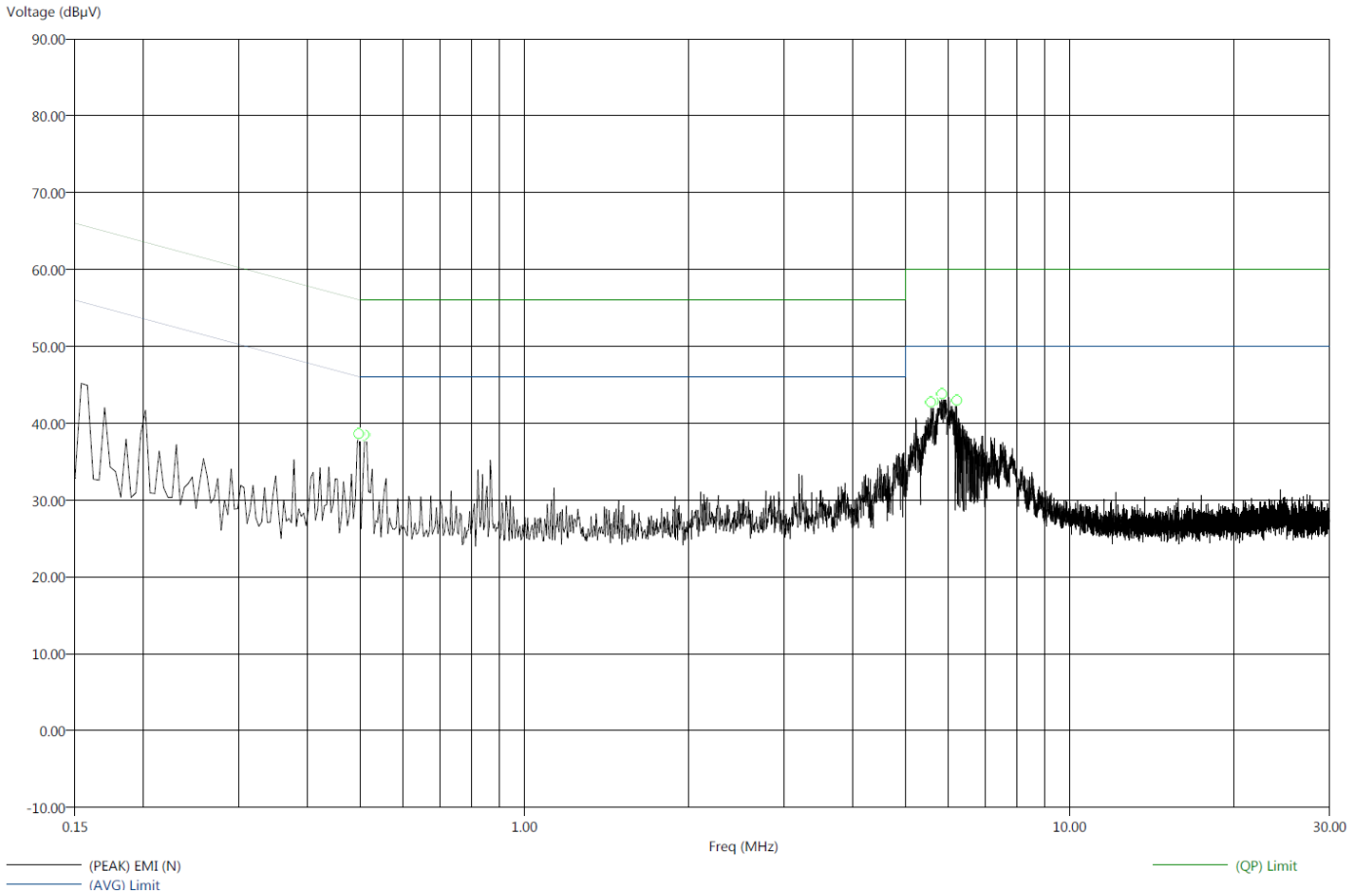
Compatible Electronics, Inc. FAC-3 (LAB R)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV)	Transducer (dB)	Cable (dB)
0.15	-29.57	-20.21	26.43	45.79	50.83	56.00	66.00	0.44	0.18
0.44	-19.93	-22.41	27.17	34.69	38.37	47.10	57.10	0.04	0.04
0.48	-19.39	-22.19	26.91	34.12	38.38	46.30	56.30	0.06	0.01
0.50	-14.33	-16.67	31.70	39.36	42.26	46.03	56.03	0.07	0.00
0.51	-13.74	-15.07	32.26	40.93	44.41	46.00	56.00	0.07	0.00
6.05	-21.04	-19.91	28.96	40.09	43.52	50.00	60.00	0.06	0.34

Title: FCC 15.207
File: Conducted Pre-Neutral.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11b, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

4/29/2015 10:11:34 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB R)



Title: FCC 15.207 4/29/2015 10:14:41 AM
File: Conducted Final-Neutral.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11b, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB R)

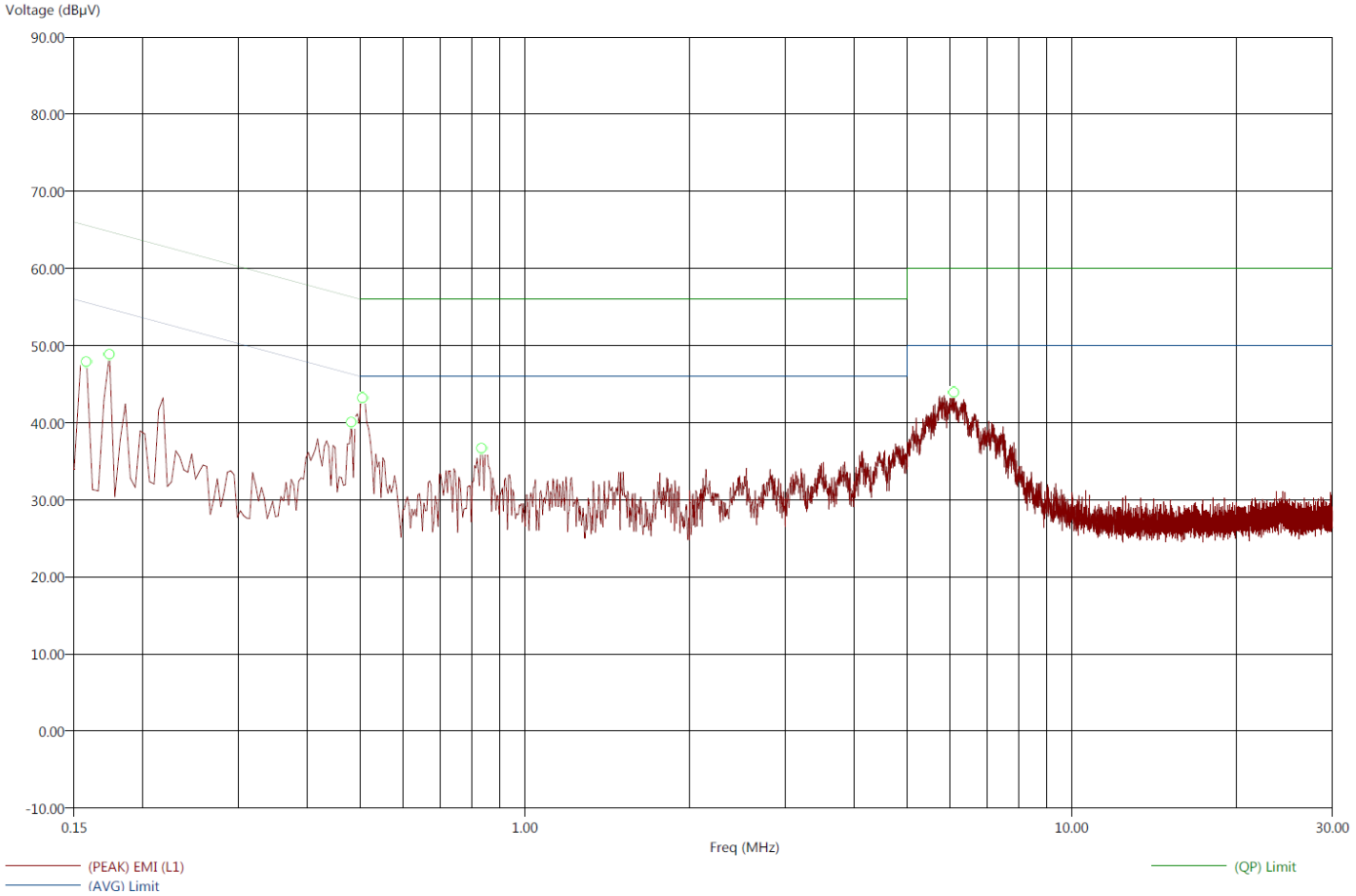
Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV)	Transducer (dB)	Cable (dB)
0.50	-24.44	-21.60	21.59	34.43	39.07	46.03	56.03	0.06	0.00
0.51	-23.21	-20.95	22.79	35.05	42.14	46.00	56.00	0.06	0.00
5.57	-30.24	-23.23	19.76	36.77	44.11	50.00	60.00	0.08	0.28
5.63	-31.37	-23.65	18.63	36.35	43.18	50.00	60.00	0.08	0.29
5.83	-28.04	-20.74	21.96	39.26	43.76	50.00	60.00	0.08	0.31
6.21	-28.71	-24.16	21.29	35.84	42.18	50.00	60.00	0.07	0.36

802.11g MODE

Title: FCC 15.207
File: Conducted Pre-Line_g.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11g, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

4/29/2015 10:28:15 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB R)



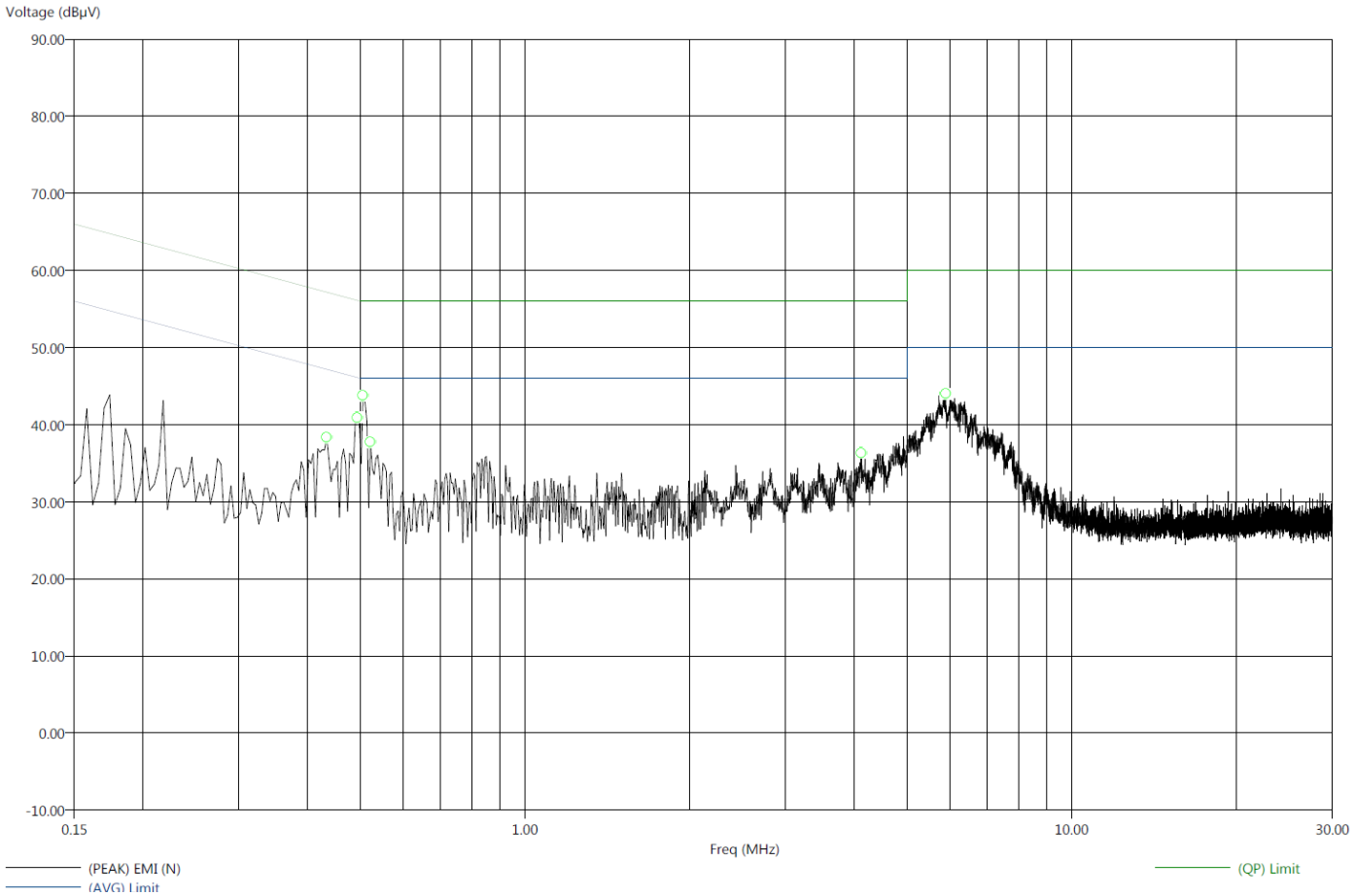
Title: FCC 15.207 4/29/2015 10:32:04 AM
File: Conducted Final-Line_g.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11g, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB R)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV)	Transducer (dB)	Cable (dB)
0.16	-30.32	-25.88	25.25	39.69	50.84	55.57	65.57	0.42	0.20
0.17	-31.36	-24.12	23.41	40.64	47.61	54.77	64.77	0.37	0.24
0.48	-18.65	-21.29	27.65	35.01	38.89	46.30	56.30	0.06	0.01
0.51	-13.10	-14.89	32.90	41.11	44.56	46.00	56.00	0.07	0.00
0.83	-20.44	-22.81	25.56	33.19	35.85	46.00	56.00	0.06	0.00
6.09	-19.62	-19.97	30.38	40.03	43.06	50.00	60.00	0.06	0.34

Title: FCC 15.207 4/29/2015 10:35:19 AM
File: Conducted Pre-Neutral_g.set Sequence: Preliminary Scan
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11g, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB R)



Title: FCC 15.207 4/29/2015 10:38:00 AM
File: Conducted Final-Neutral_g.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11g, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB R)

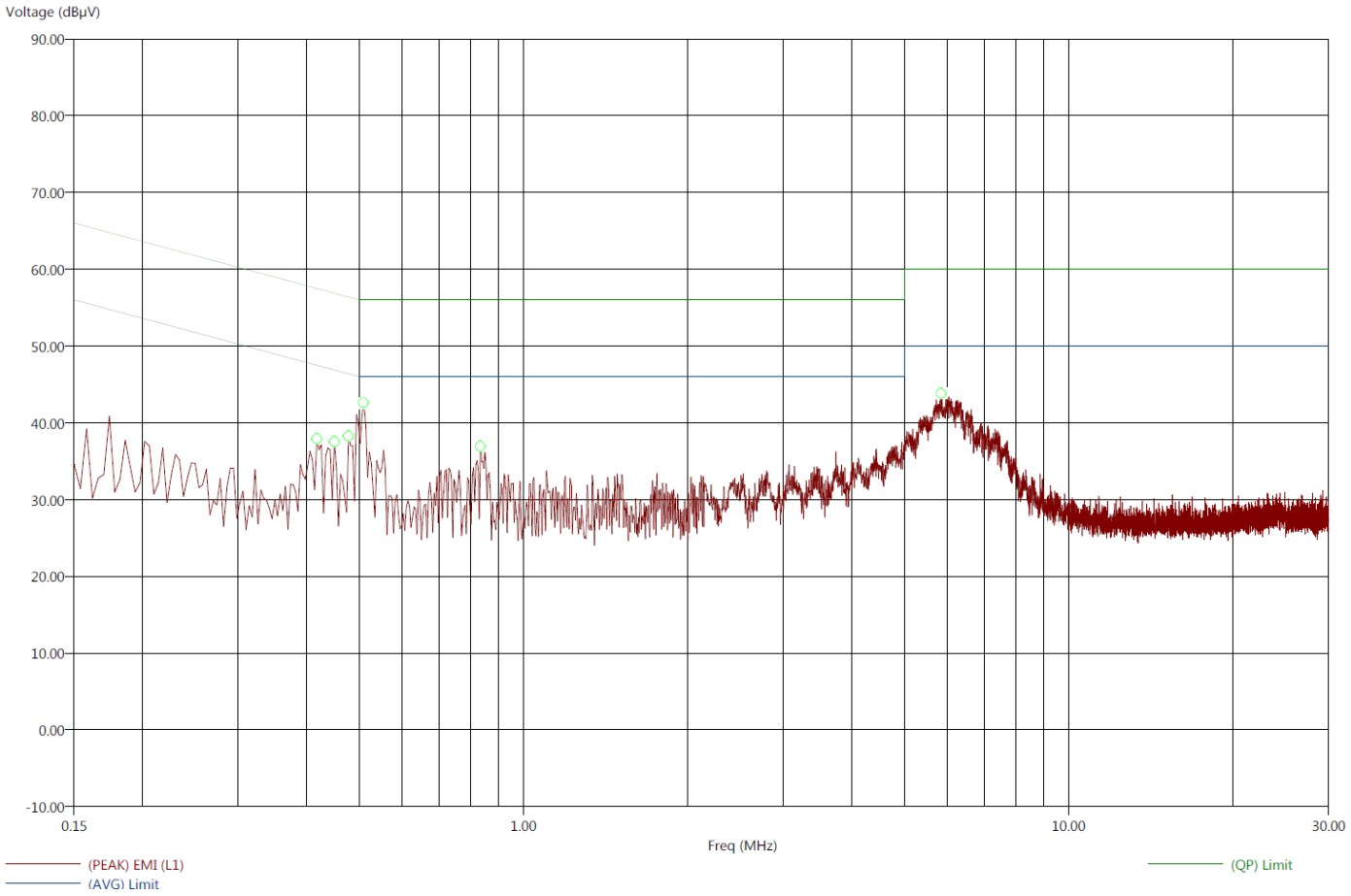
Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV)	Transducer (dB)	Cable (dB)
0.43	-20.06	-22.48	27.12	34.69	38.18	47.18	57.18	0.06	0.05
0.49	-15.15	-17.52	30.95	38.58	41.54	46.10	56.10	0.06	0.00
0.51	-13.13	-14.96	32.87	41.04	44.10	46.00	56.00	0.06	0.00
0.52	-19.90	-21.76	26.10	34.24	38.52	46.00	56.00	0.06	0.00
4.13	-23.09	-24.83	22.91	31.17	34.77	46.00	56.00	0.07	0.22
5.88	-21.01	-20.99	28.99	39.01	43.51	50.00	60.00	0.08	0.32

802.11n MODE

Title: FCC 15.207
File: Conducted Pre-Line_n.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11n, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

4/29/2015 10:43:57 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB R)



Title: FCC 15.207 4/29/2015 10:51:08 AM
File: Conducted Final-Line_n.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11n, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

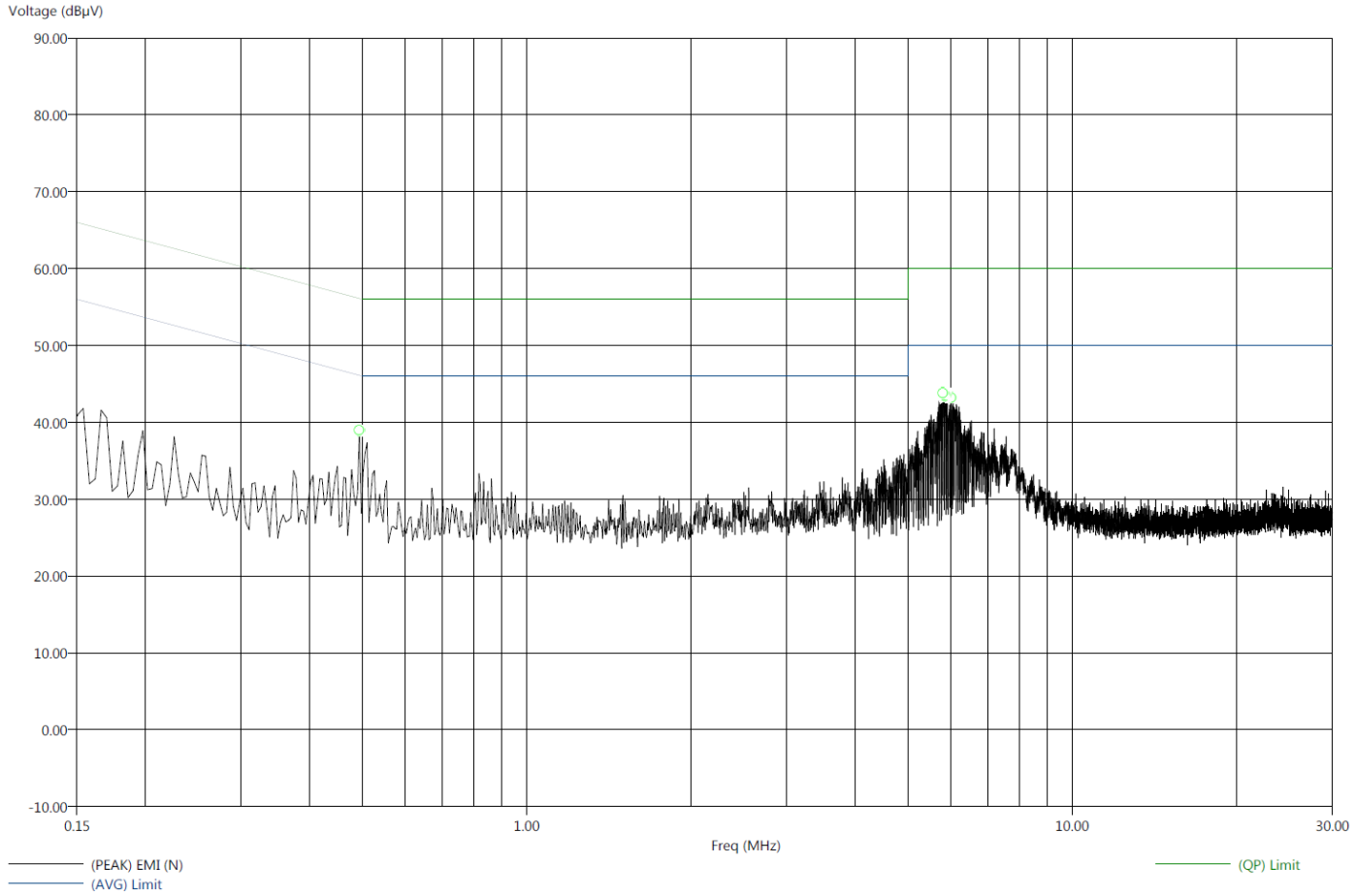
Compatible Electronics, Inc. FAC-3 (LAB R)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV)	Transducer (dB)	Cable (dB)
0.42	-20.02	-22.94	27.47	34.55	38.68	47.49	57.49	0.05	0.06
0.45	-21.77	-23.56	25.11	33.32	37.81	46.88	56.88	0.04	0.03
0.48	-19.86	-22.46	26.52	33.91	37.81	46.37	56.37	0.06	0.01
0.51	-13.35	-15.18	32.65	40.82	44.28	46.00	56.00	0.07	0.00
0.83	-20.31	-22.81	25.69	33.19	36.11	46.00	56.00	0.06	0.00
5.85	-20.45	-20.51	29.55	39.49	43.68	50.00	60.00	0.06	0.31

Title: FCC 15.207
File: Conducted Pre-Neutral_n.set
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11n, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

4/29/2015 10:54:26 AM
Sequence: Preliminary Scan

Compatible Electronics, Inc. FAC-3 (LAB R)



Title: FCC 15.207 4/29/2015 10:57:28 AM
File: Conducted Final-Neutral_n.set Sequence: Final Measurements
Operator: Matt Harrison
EUT Type: ATWINC1500B.
EUT Condition: Transmitting @ 802.11n, 2442 MHz.
Comments: Connected to Control Board Powered By USB Adapter.
Temp: 74f
Hum: 48%
USB Adapter: 120V 60Hz

Compatible Electronics, Inc. FAC-3 (LAB R)

Freq (MHz)	(AVG) Margin AVL (dB)	(QP) Margin QPL (dB)	(AVG) EMI (dBµV)	(QP) EMI (dBµV)	(PEAK) EMI (dBµV)	(AVG) Limit (dBµV)	(QP) Limit (dBµV)	Transducer (dB)	Cable (dB)
0.49	-24.69	-22.12	21.41	33.98	39.36	46.10	56.10	0.06	0.00
5.81	-27.70	-20.68	22.30	39.32	43.69	50.00	60.00	0.08	0.31
5.82	-27.93	-20.47	22.07	39.53	44.14	50.00	60.00	0.08	0.31
5.85	-28.38	-20.89	21.62	39.11	44.39	50.00	60.00	0.08	0.31
5.87	-29.31	-21.48	20.69	38.52	44.34	50.00	60.00	0.08	0.32
6.00	-30.23	-22.41	19.77	37.59	43.07	50.00	60.00	0.07	0.33

DTS BANDWIDTH

DATA SHEETS

802.11b MODE

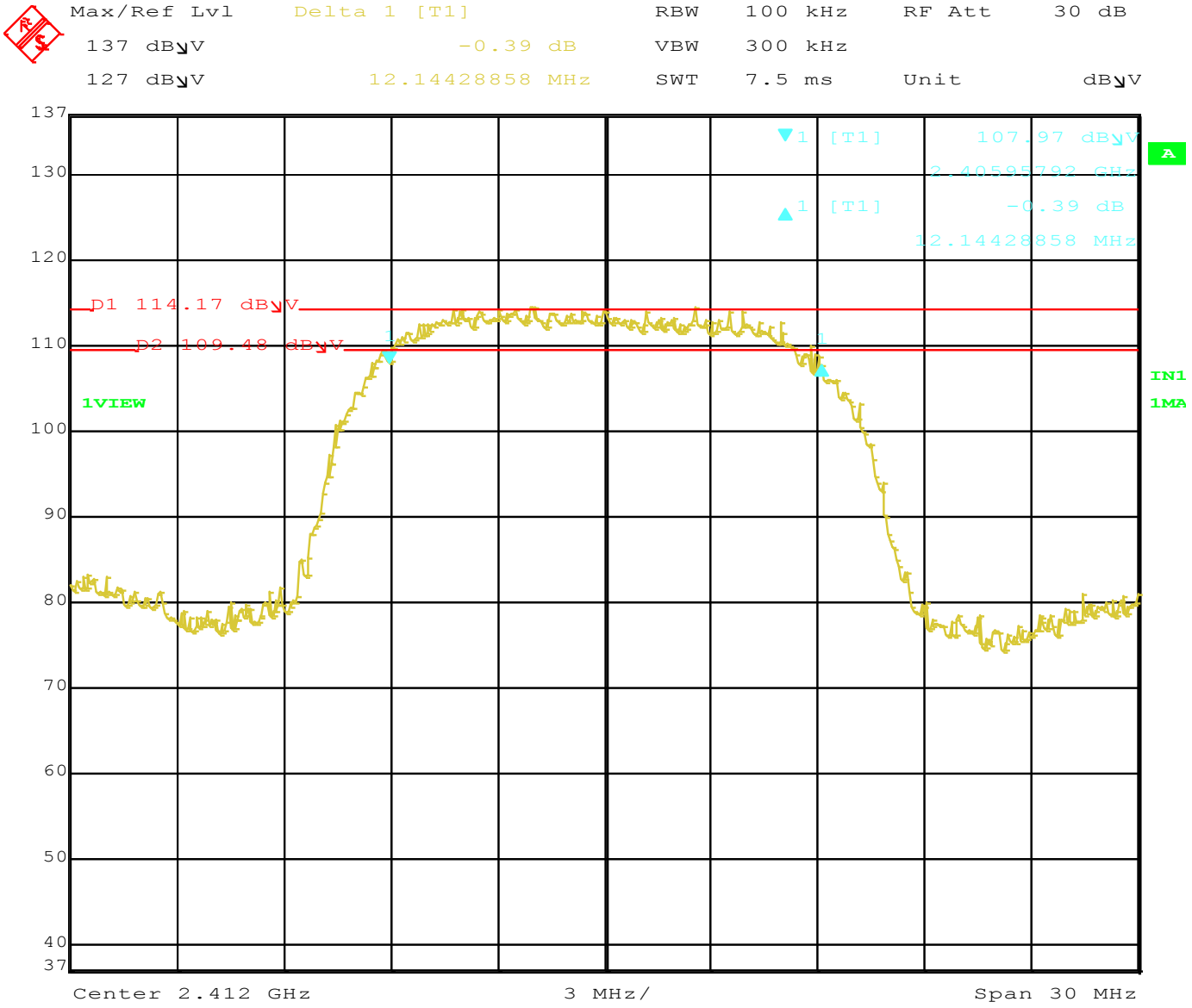
FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500	Test ENG:	M. Harrison
Mode:	802.11b		

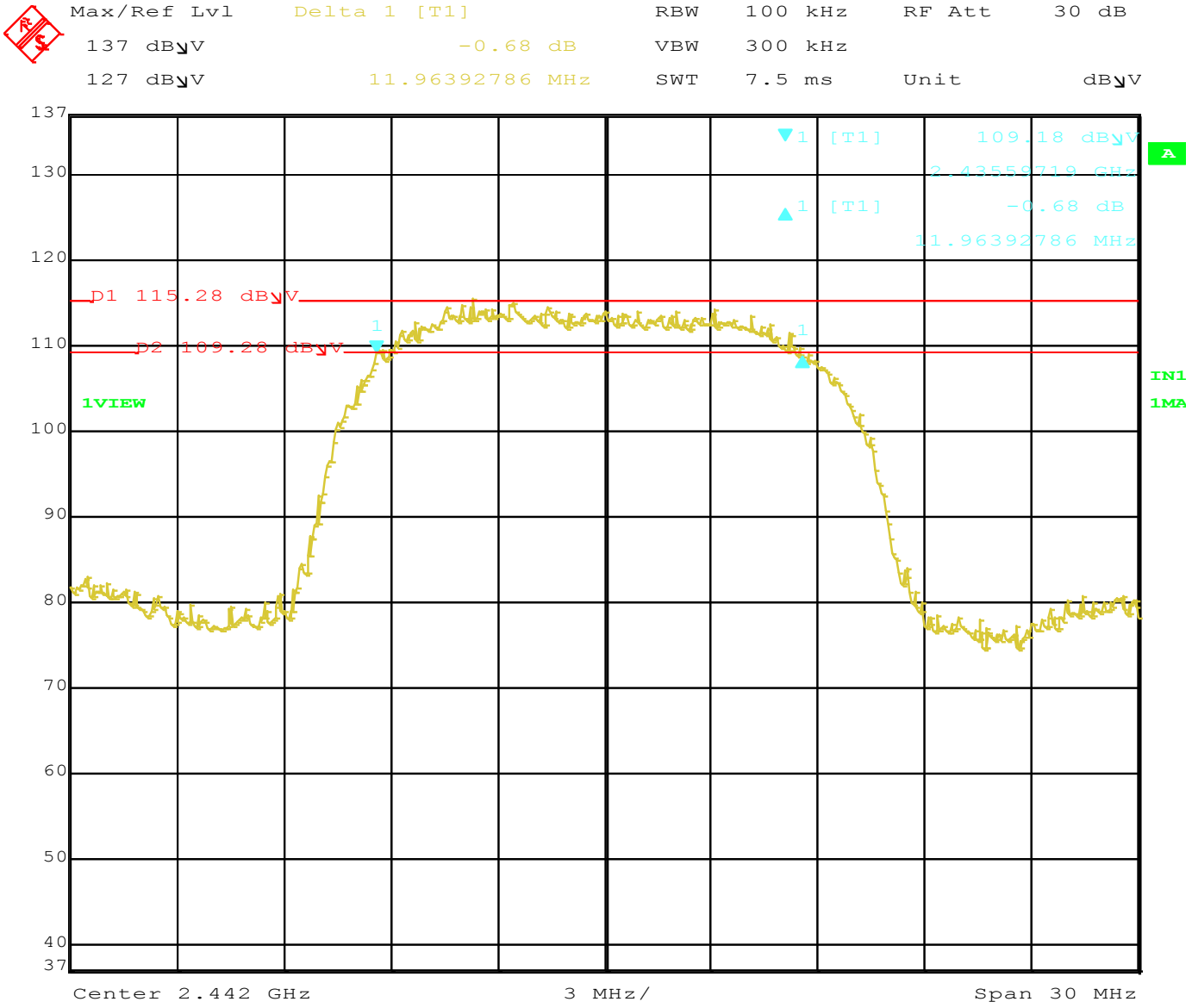
Compatible Electronics, Inc. FAC-3 (Lab R)

DTS Bandwidth

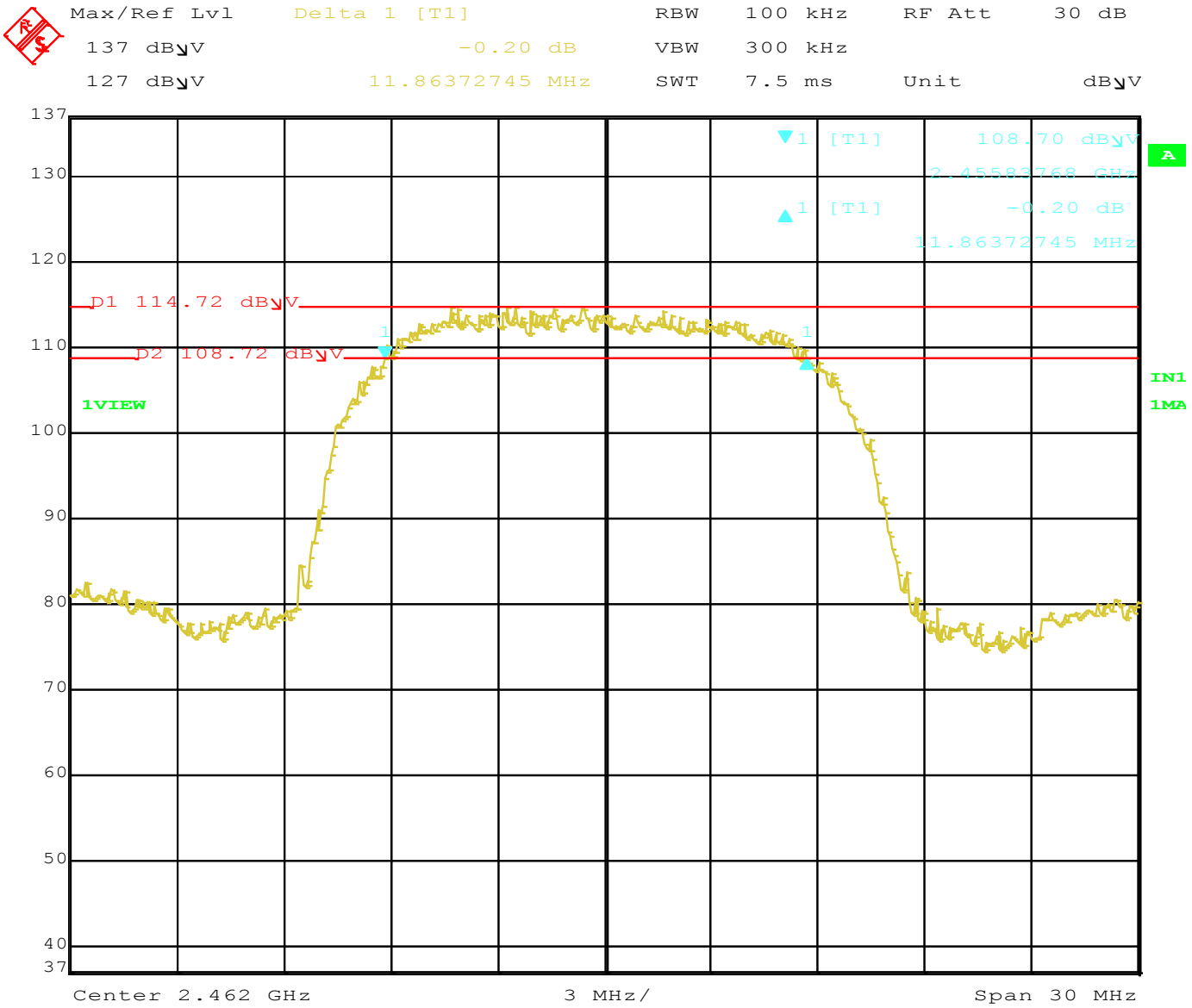
Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	12144.29	500.00	11644.29	Peak	
2442	11963.93	500.00	11463.93	Peak	
2462	11863.73	500.00	11363.73	Peak	



Title: ATWILC1500B.
Comment A: DTS BW, 802.11b, 2412MHz.
Date: 21.APR.2015 16:00:06



Title: ATWILC1500B.
Comment A: DTS BW, 802.11b, 2442MHz.
Date: 21.APR.2015 16:01:51



Title: ATWILC1500B.
Comment A: DTS BW, 802.11b, 2462MHz.
Date: 21.APR.2015 16:03:10

802.11g MODE

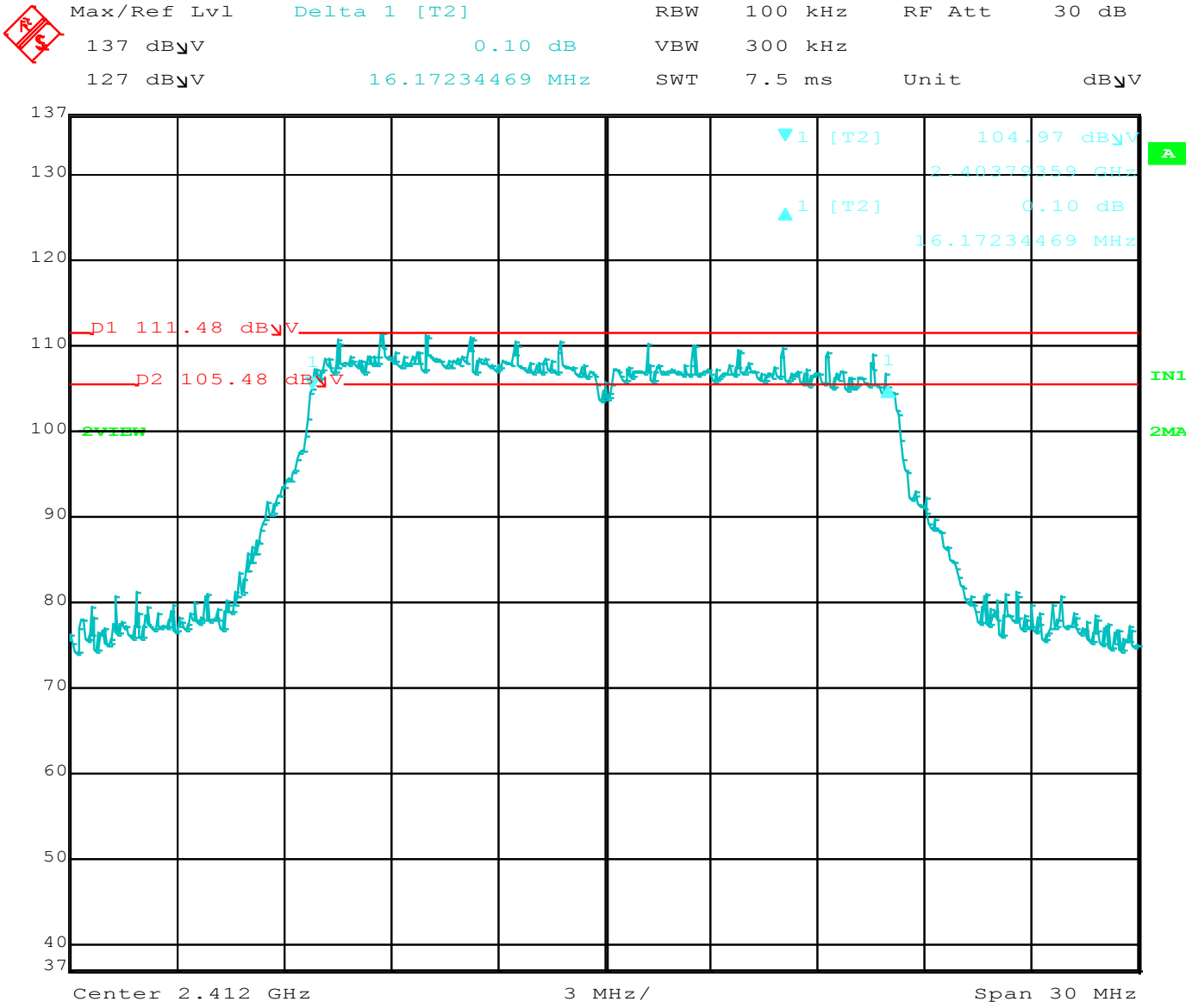
FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500	Test ENG:	M. Harrison
Mode:	802.11g		

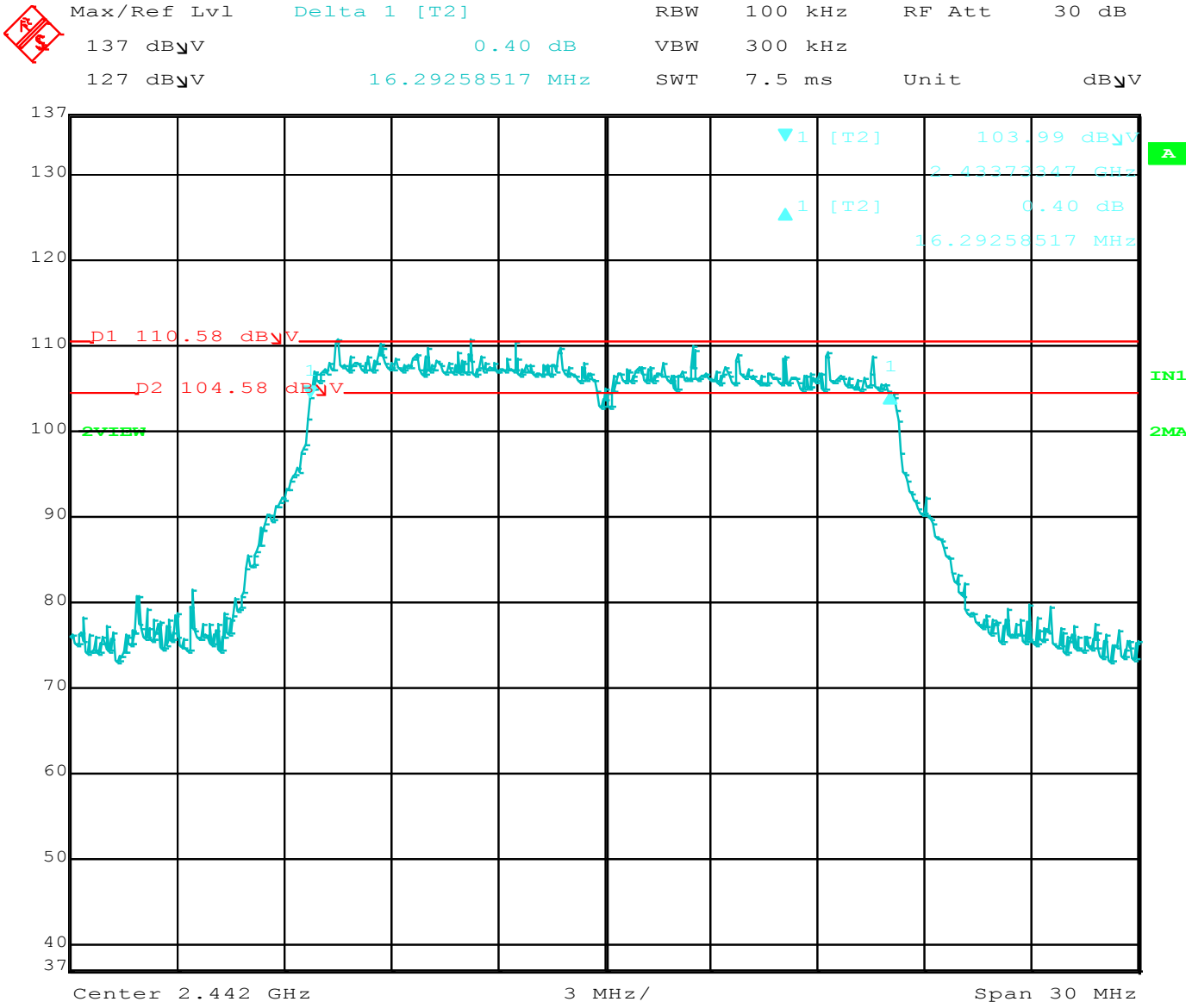
Compatible Electronics, Inc. FAC-3 (Lab R)

DTS Bandwidth

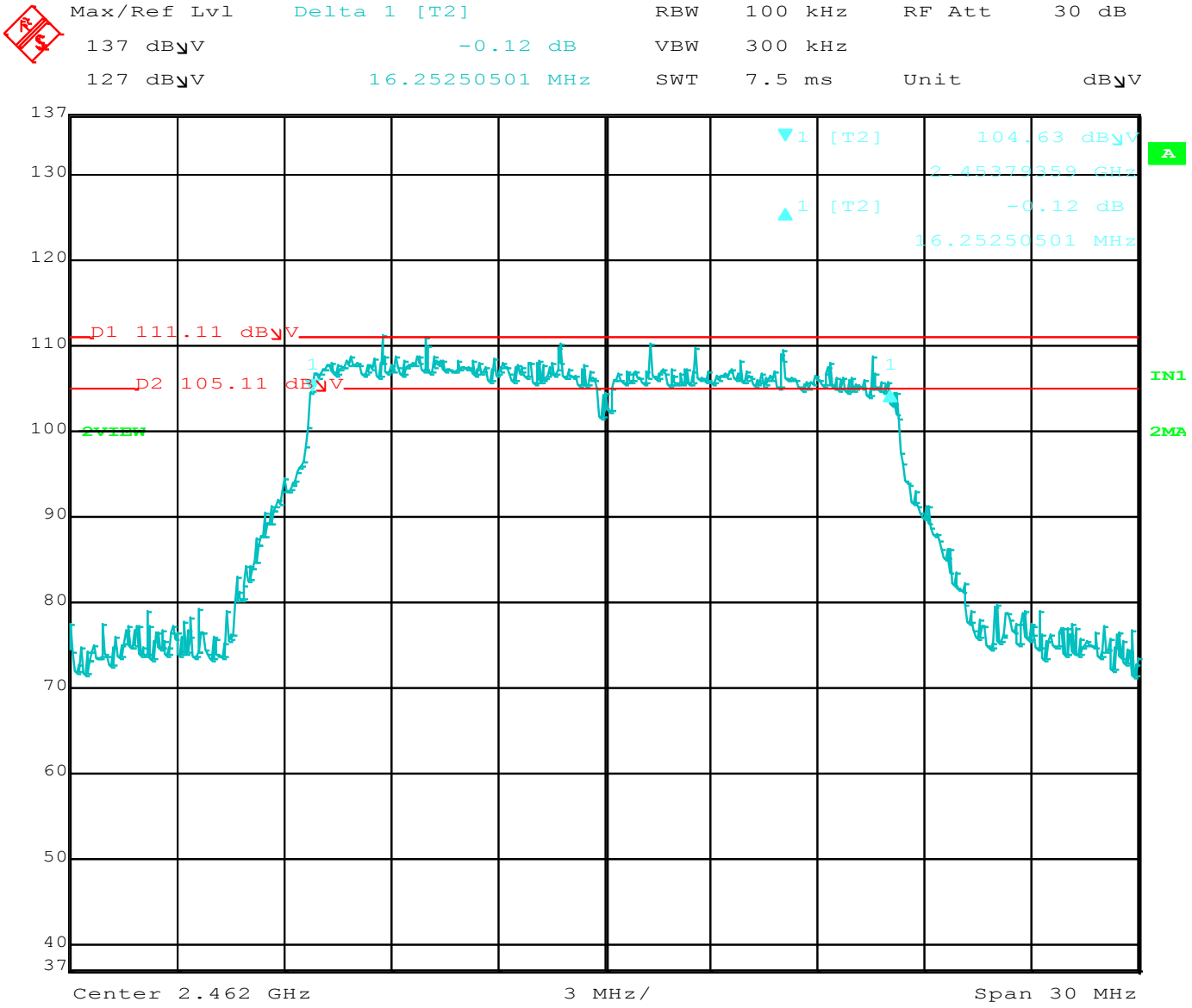
Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	16172.34	500.00	15672.34	Peak	
2442	16292.59	500.00	15792.59	Peak	
2462	16252.51	500.00	15752.51	Peak	



Title: ATWILC1500B.
Comment A: DTS BW, 802.11g, 2412MHz.
Date: 21.APR.2015 16:04:50



Title: ATWILC1500B.
Comment A: DTS BW, 802.11g, 2442MHz.
Date: 21.APR.2015 16:08:11



Title: ATWILC1500B.
Comment A: DTS BW, 802.11g, 2462MHz.
Date: 21.APR.2015 16:09:18

802.11n MODE

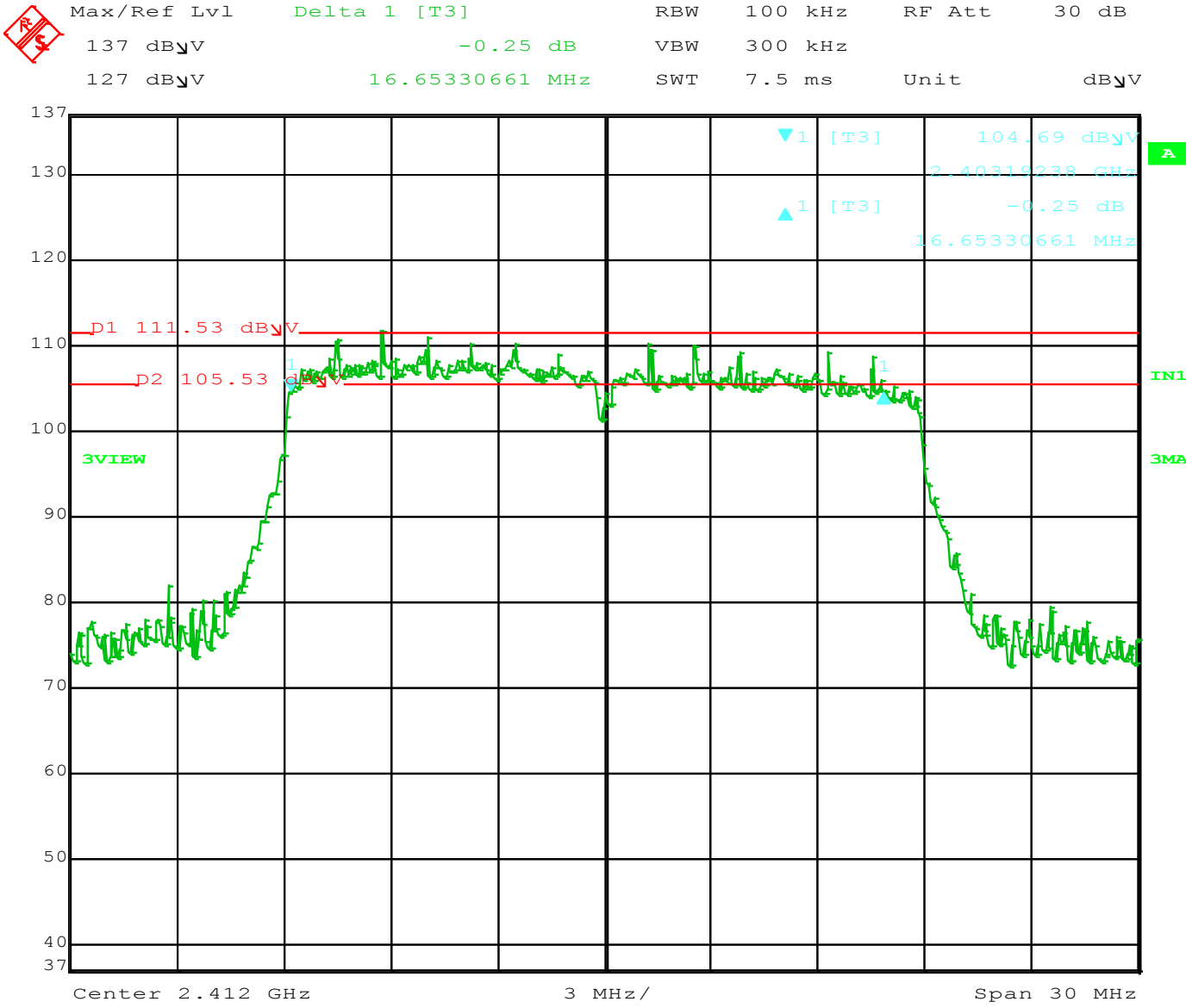
FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11n		

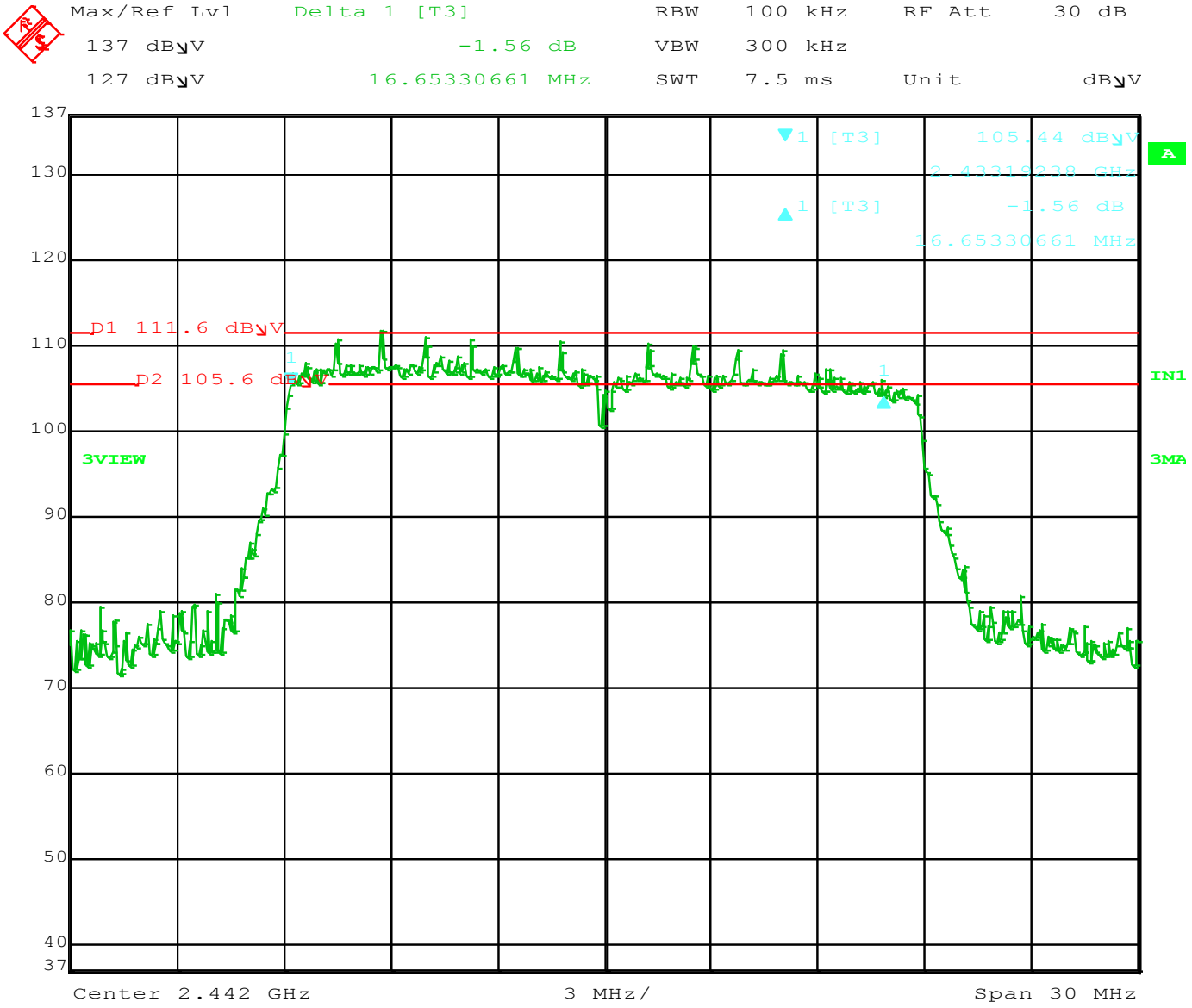
Compatible Electronics, Inc. FAC-3 (Lab R)

DTS Bandwidth

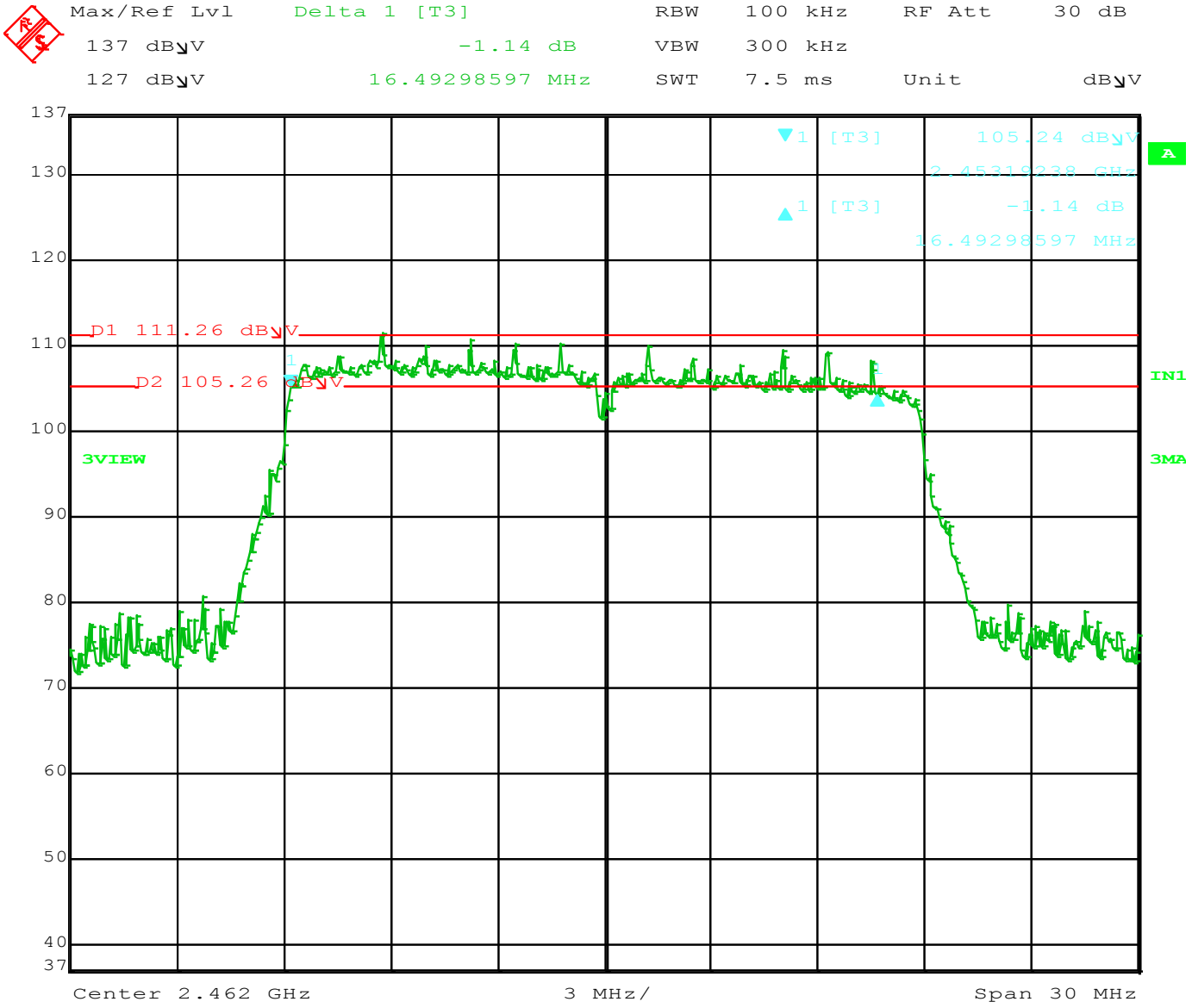
Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
2412	16653.31	500.00	16153.31	Peak	
2442	16653.31	500.00	16153.31	Peak	
2462	16492.99	500.00	15992.99	Peak	



Title: ATWILC1500B.
Comment A: DTS BW, 802.11n, 2412MHz.
Date: 21.APR.2015 16:11:52



Title: ATWILC1500B.
Comment A: DTS BW, 802.11n, 2442MHz.
Date: 21.APR.2015 16:12:55



Title: ATWILC1500B.
Comment A: DTS BW, 802.11n, 2462MHz.
Date: 21.APR.2015 16:13:54

MAXIMUM PEAK CONDUCTED OUTPUT POWER

DATA SHEETS

MAXIMUM PEAK CONDUCTED OUTPUT POWER

802.11b Mode

FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11b		

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	20.39	30.00	-9.61	Peak	DigGain= -10
2442	22.07	30.00	-7.93	Peak	DigGain= -7
2462	20.47	30.00	-9.53	Peak	DigGain= -10

MAXIMUM PEAK CONDUCTED OUTPUT POWER

802.11g Mode

FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11g		

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	22.23	30.00	-7.77	Peak	DigGain= -11
2442	23.73	30.00	-6.27	Peak	DigGain= -4
2462	22.97	30.00	-7.03	Peak	DigGain= -9

MAXIMUM PEAK CONDUCTED OUTPUT POWER

802.11n Mode

FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11n		

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	21.87	30.00	-8.13	Peak	DigGain= -12
2442	23.70	30.00	-6.30	Peak	DigGain= -4
2462	23.45	30.00	-6.55	Peak	DigGain= -10

MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE FUNDAMENTAL EMISSION

DATA SHEETS

PEAK POWER SPECTRAL DENSITY

802.11b Mode

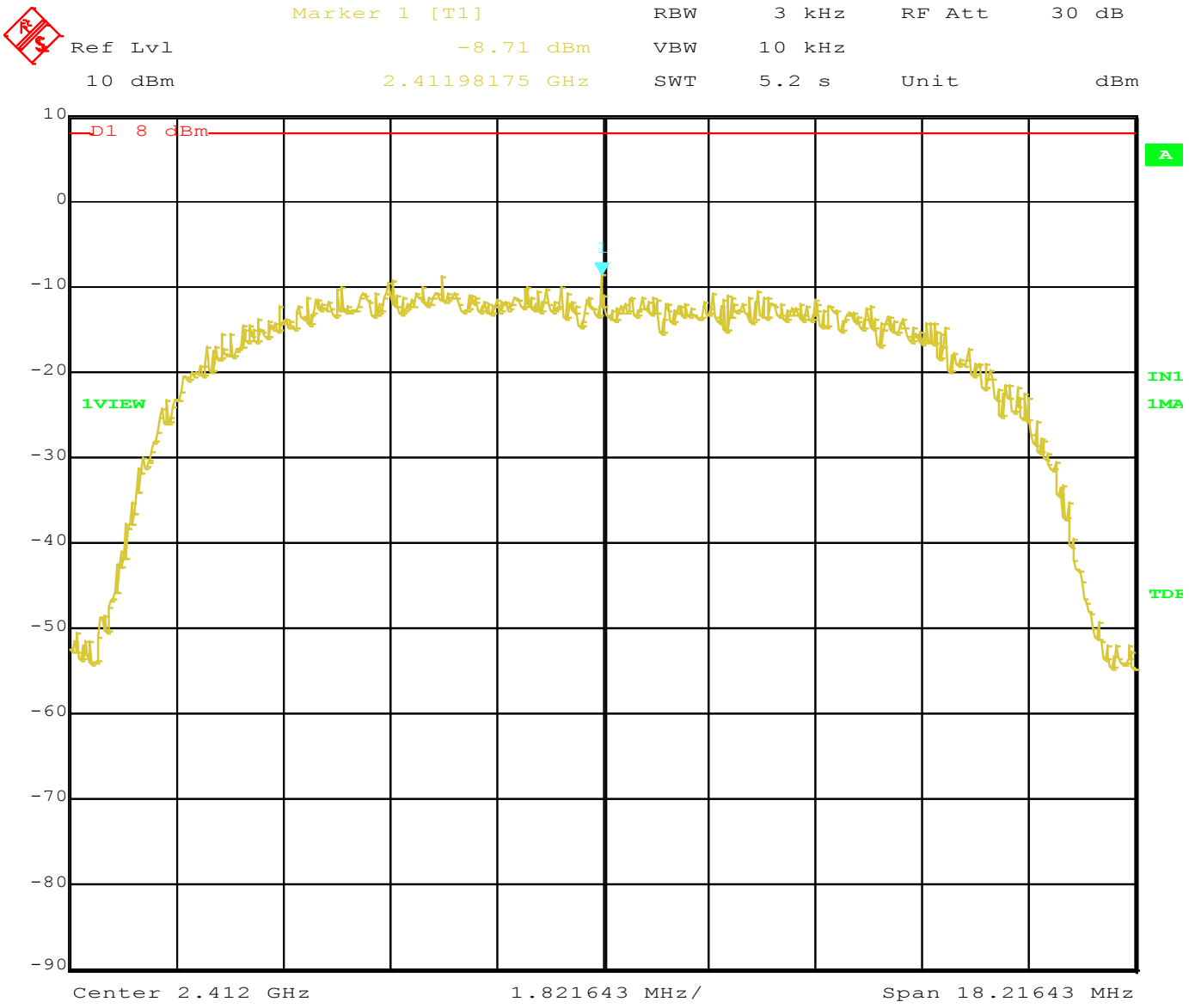
FCC 15.247

Company:	Atmel Corporation	Date:	4/27/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11b		

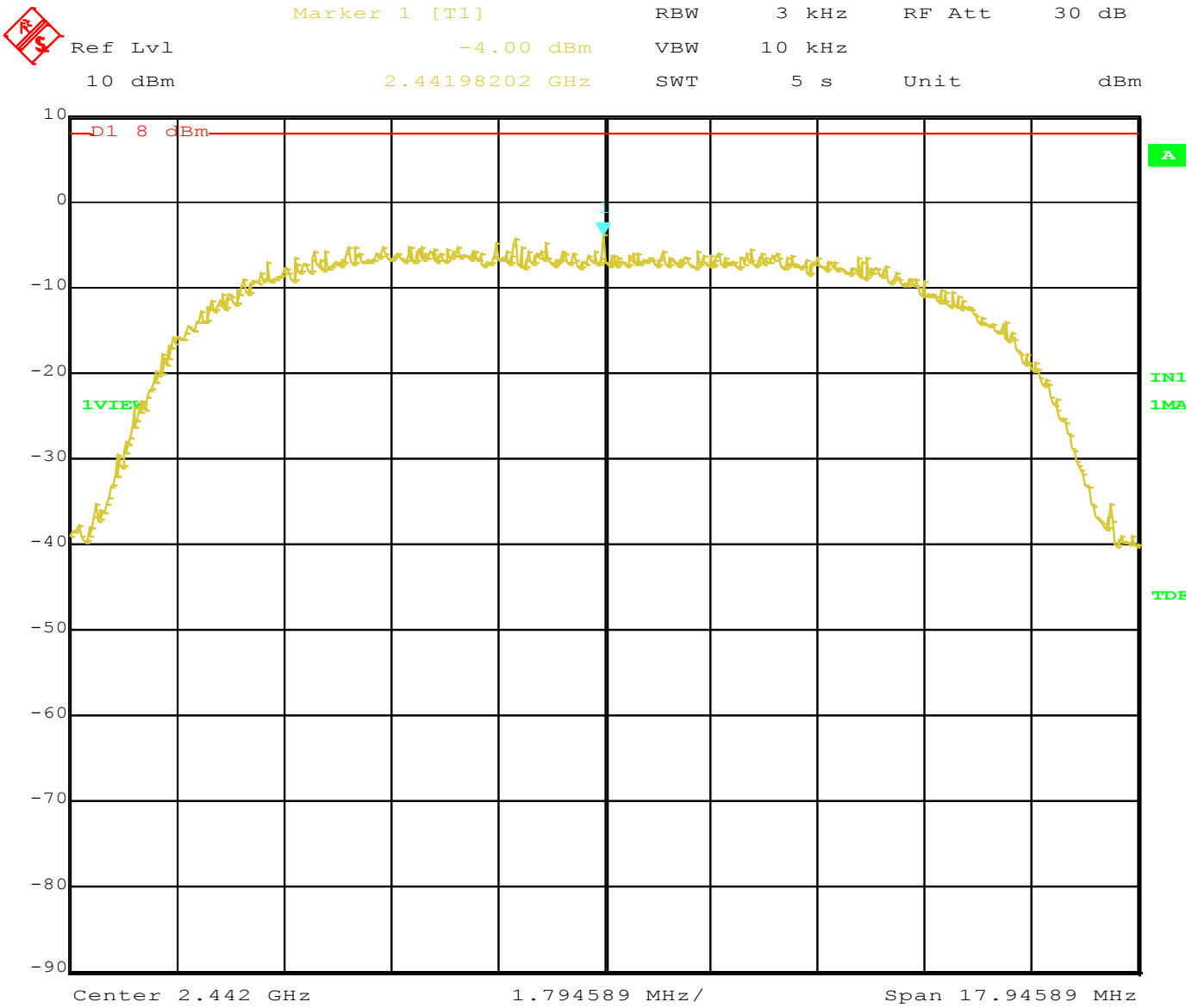
Compatible Electronics, Inc. FAC-3 (Lab R)

DTS Bandwidth

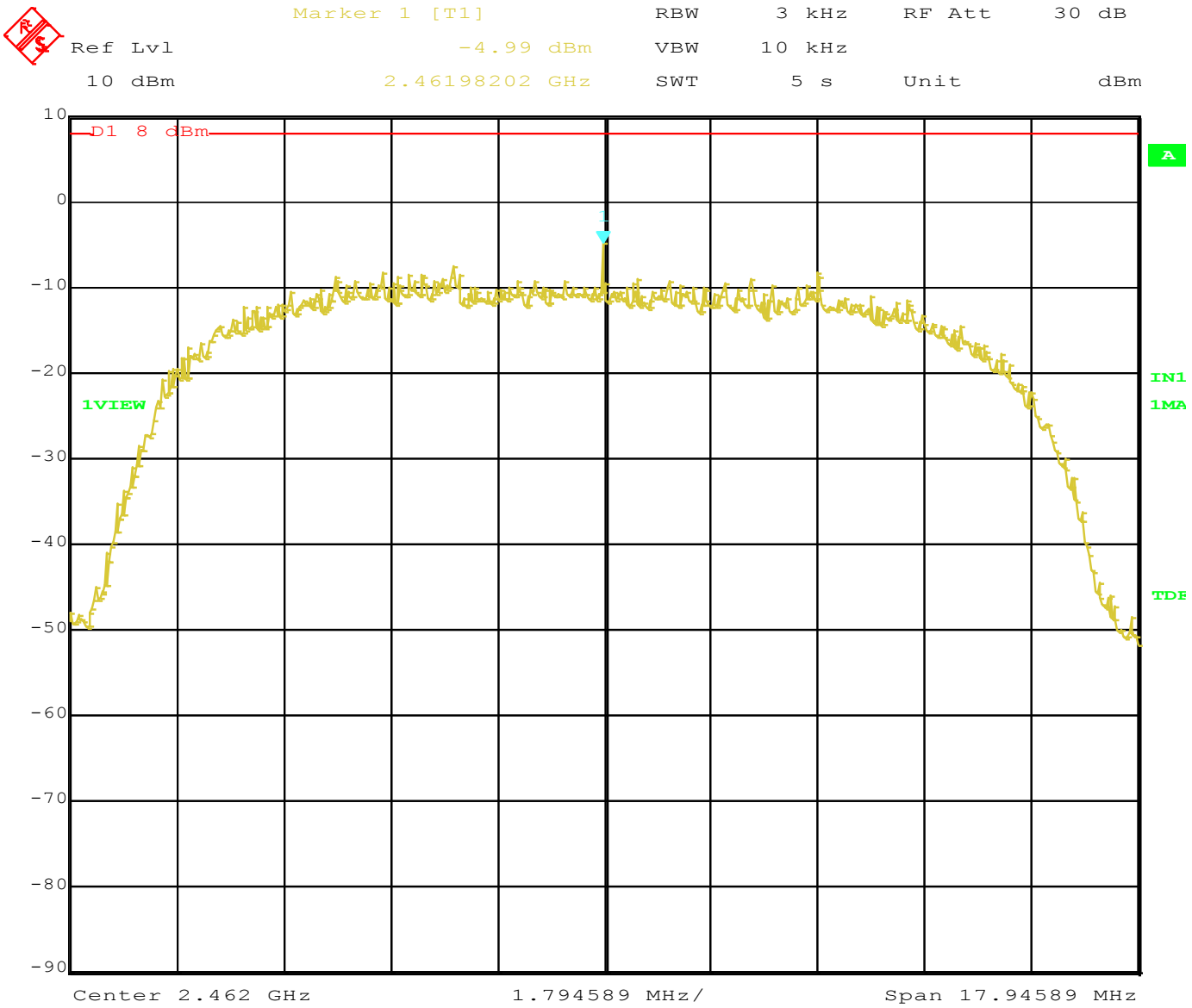
Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	-8.71	8.00	-16.30	Peak	
2442	-4.00	8.00	-14.23	Peak	
2462	-4.99	8.00	-15.75	Peak	



Title: ATWINC1500B.
Comment A: PSD, 802.11b, 2412MHz.
Date: 27.APR.2015 10:03:05



Title: ATWINC1500B.
Comment A: PSD, 802.11b, 2442MHz.
Date: 27.APR.2015 10:11:46



Title: ATWINC1500B.
Comment A: PSD, 802.11b, 2462MHz.
Date: 27.APR.2015 10:12:54

PEAK POWER SPECTRAL DENSITY

802.11g Mode

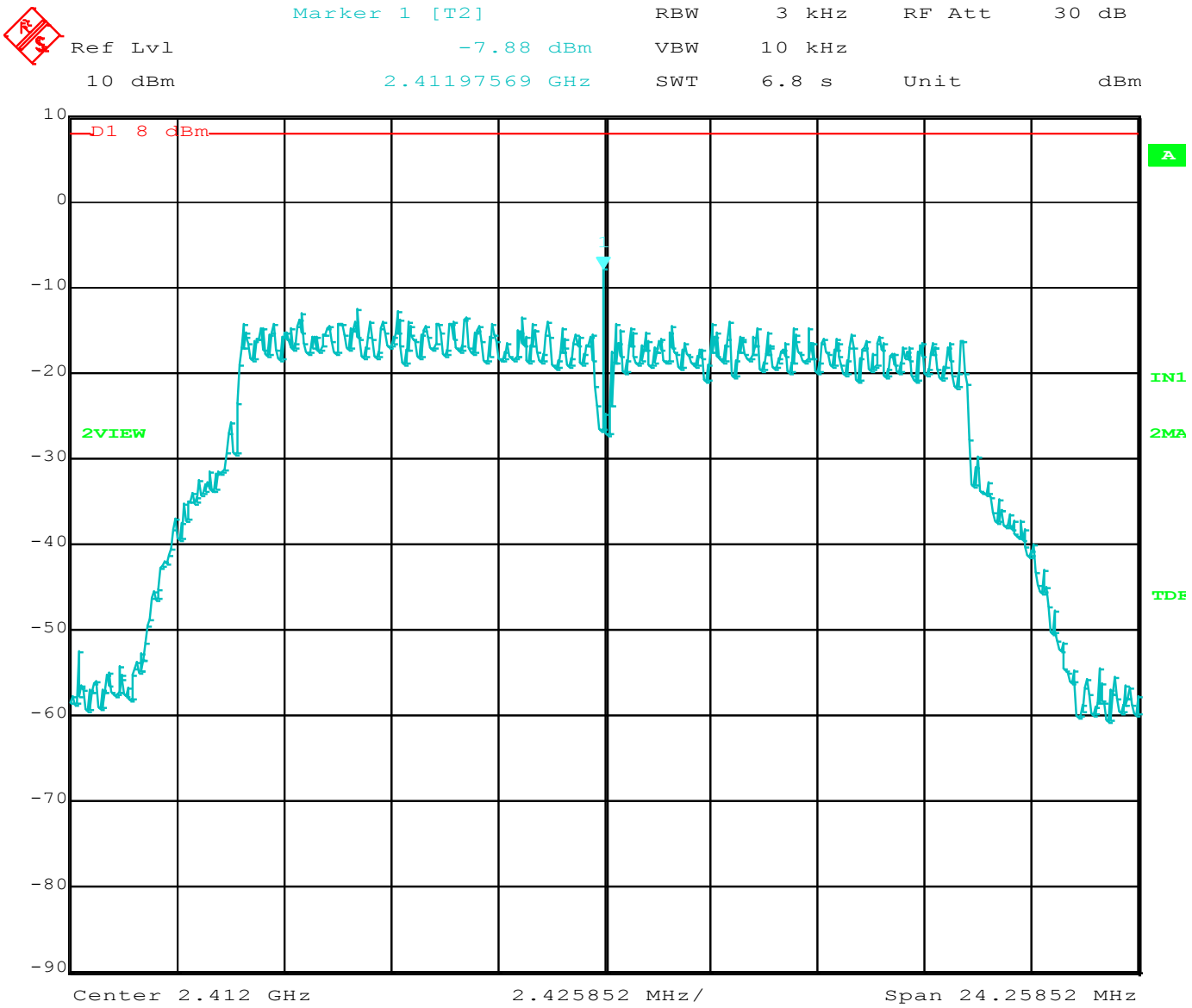
FCC 15.247

Company:	Atmel Corporation	Date:	4/27/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11g		

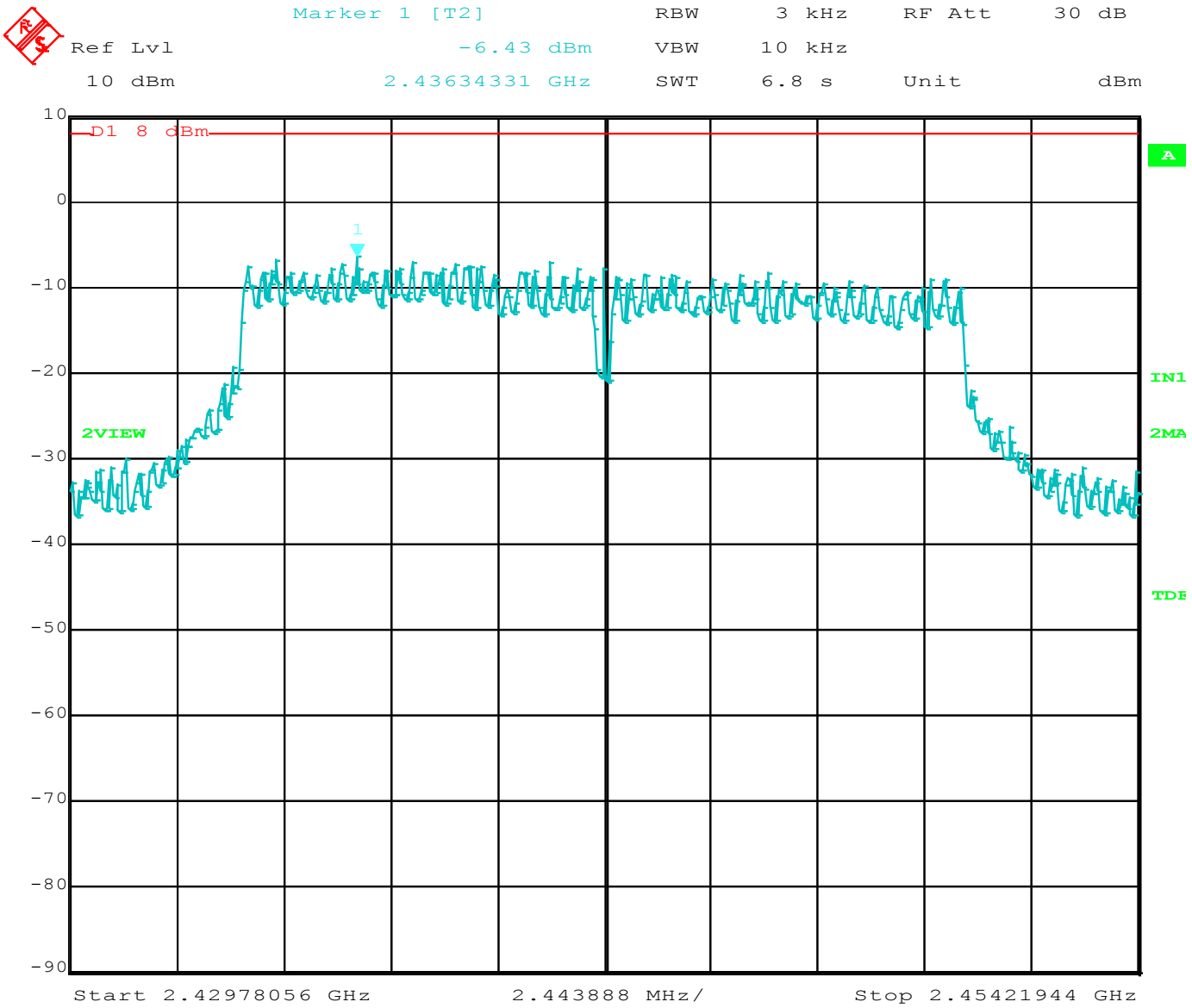
Compatible Electronics, Inc. FAC-3 (Lab R)

DTS Bandwidth

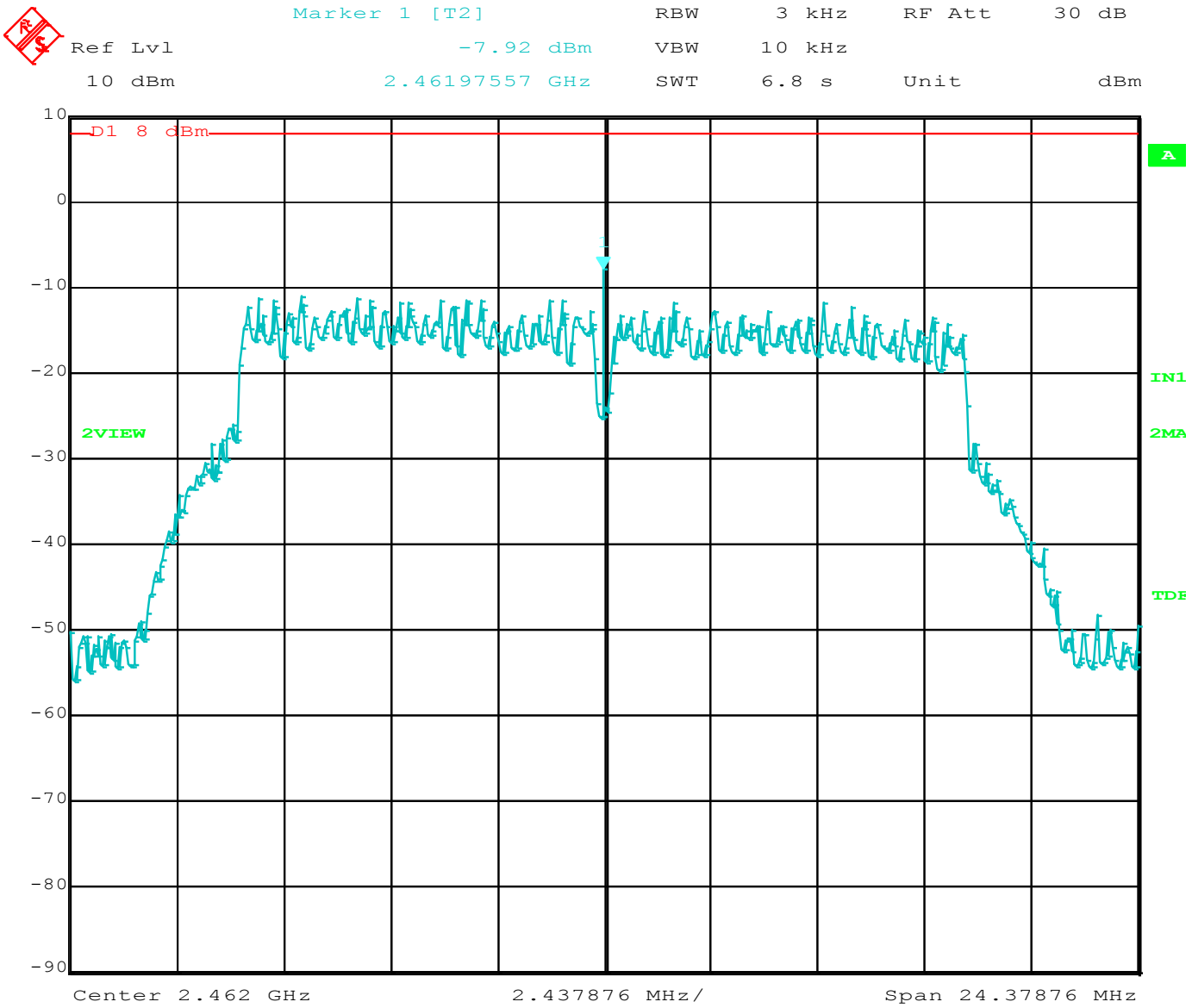
Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	-7.88	8.00	-15.88	Peak	
2442	-6.43	8.00	-14.43	Peak	
2462	-7.92	8.00	-15.92	Peak	



Title: ATWINC1500B.
Comment A: PSD, 802.11g, 2412MHz.
Date: 27.APR.2015 09:53:39



Title: ATWINC1500B.
Comment A: PSD, 802.11g, 2442MHz.
Date: 27.APR.2015 09:48:08



Title: ATWINC1500B.
Comment A: PSD, 802.11g, 2462MHz.
Date: 27.APR.2015 09:51:07

PEAK POWER SPECTRAL DENSITY

802.11n Mode

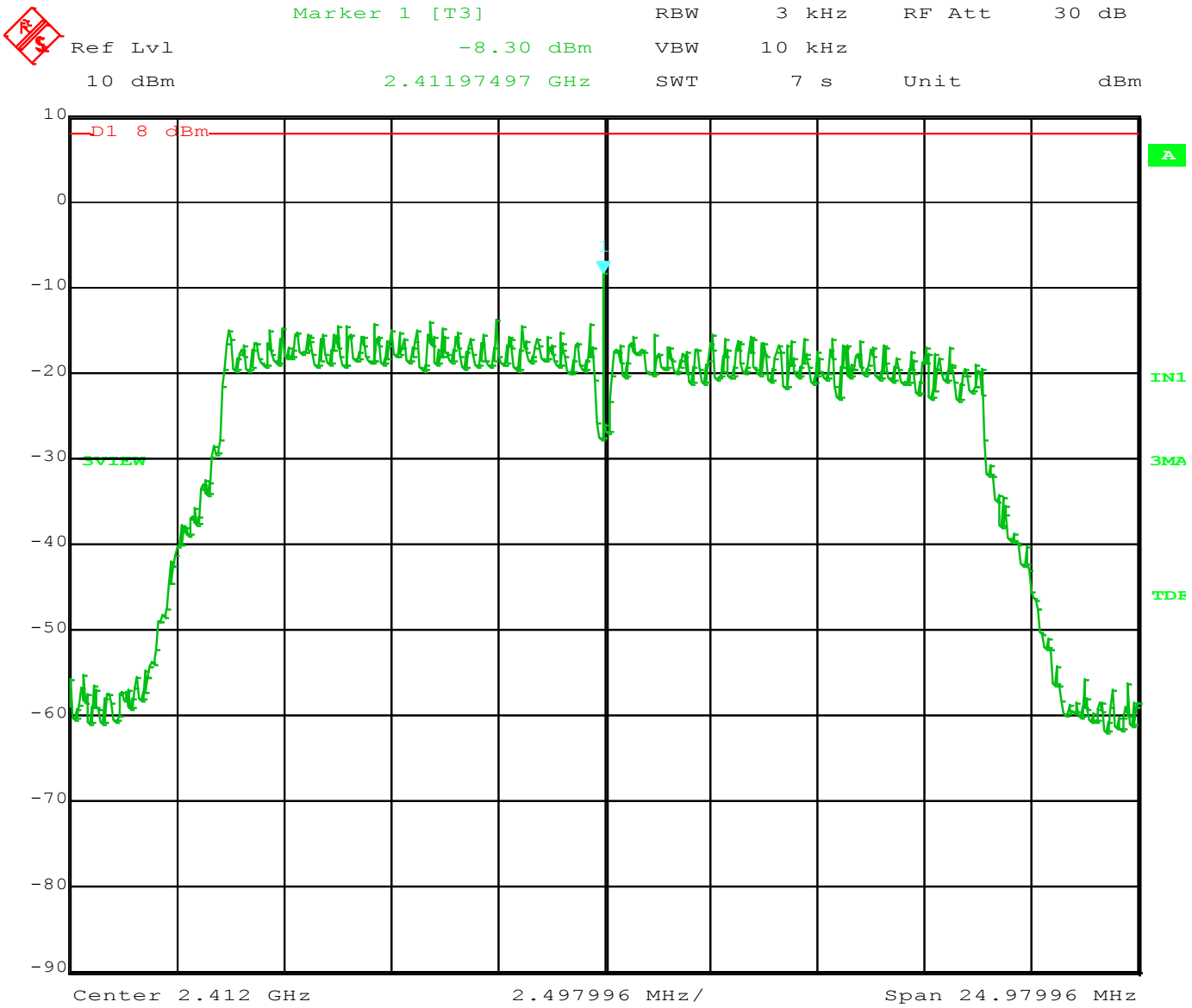
FCC 15.247

Company:	Atmel Corporation	Date:	4/27/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison
Mode:	802.11n		

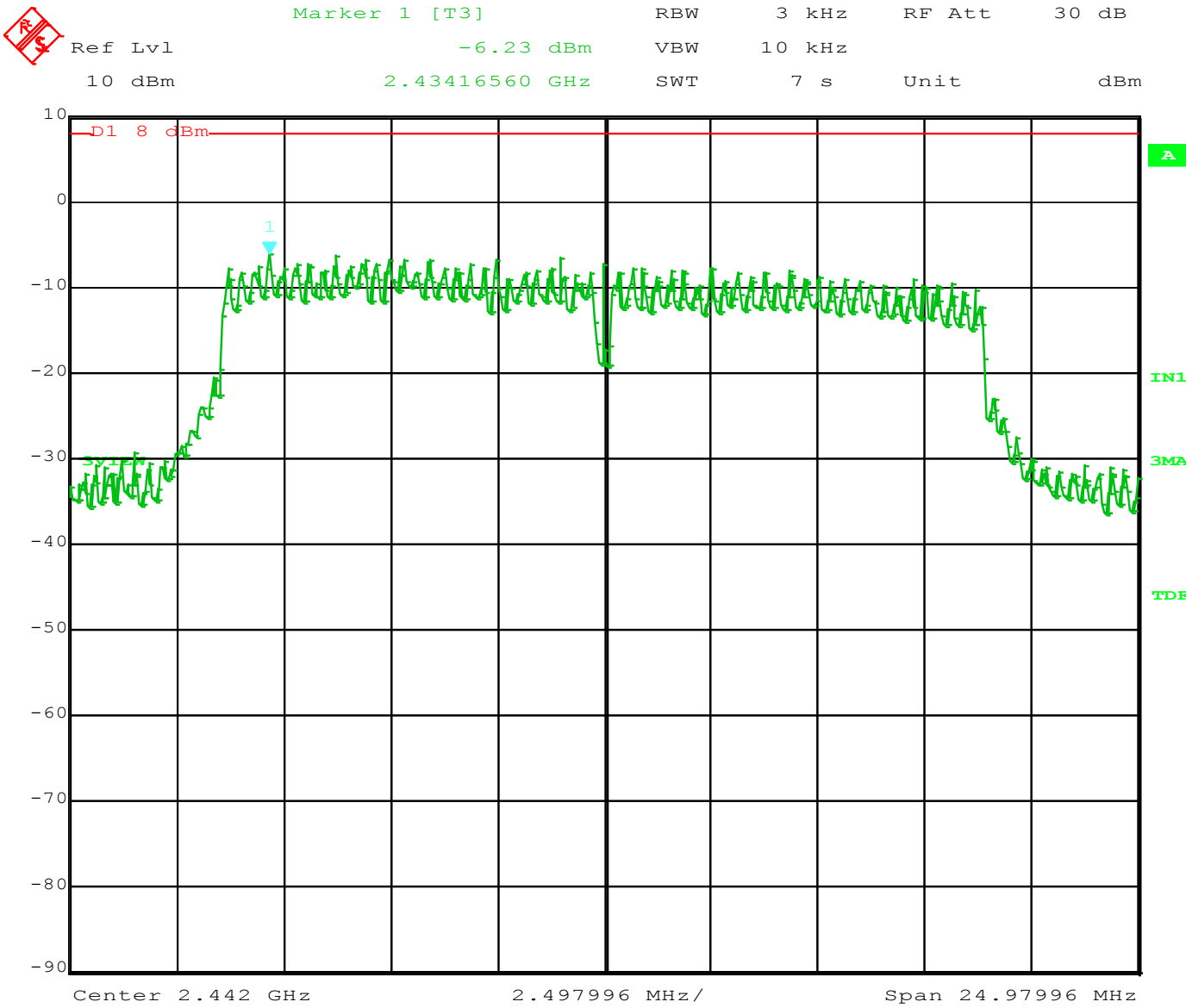
Compatible Electronics, Inc. FAC-3 (Lab R)

DTS Bandwidth

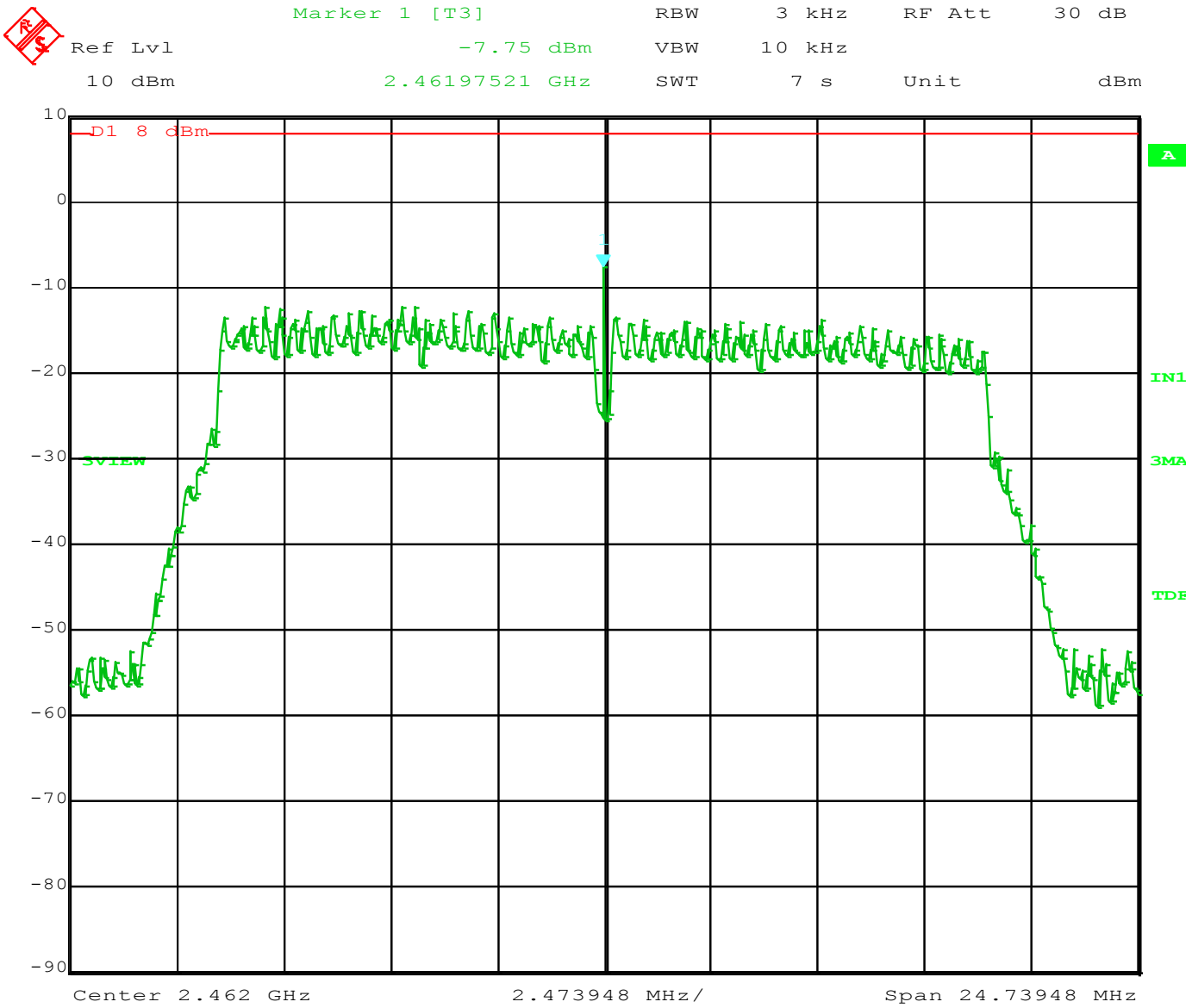
Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
2412	-8.30	8.00	-16.30	Peak	
2442	-6.23	8.00	-14.23	Peak	
2462	-7.75	8.00	-15.75	Peak	



Title: ATWINC1500B.
Comment A: PSD, 802.11n, 2412MHz.
Date: 27.APR.2015 10:14:46



Title: ATWINC1500B.
Comment A: PSD, 802.11n, 2442MHz.
Date: 27.APR.2015 10:16:45



Title: ATWINC1500B.
Comment A: PSD, 802.11n, 2462MHz.
Date: 27.APR.2015 10:17:54

HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS (IN 100KHZ BANDWIDTH) / CONDUCTED

DATA SHEETS

HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

802.11b Mode

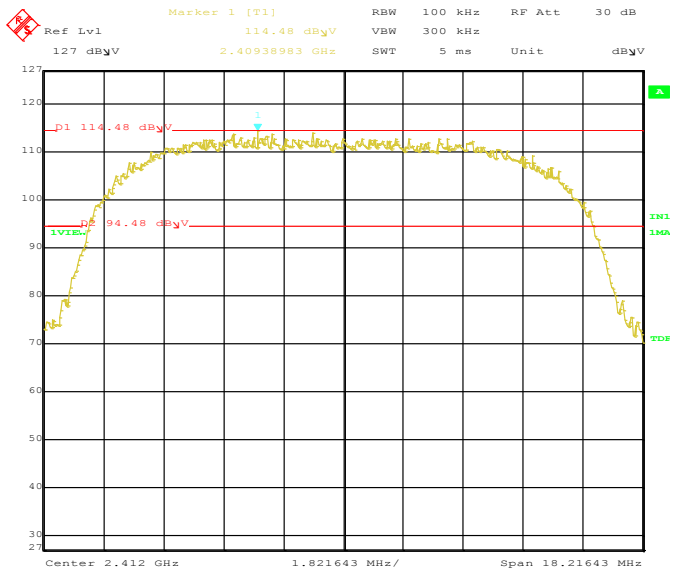
FCC 15.247

Company:	Atmel Corporation	Date:	4/20/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison

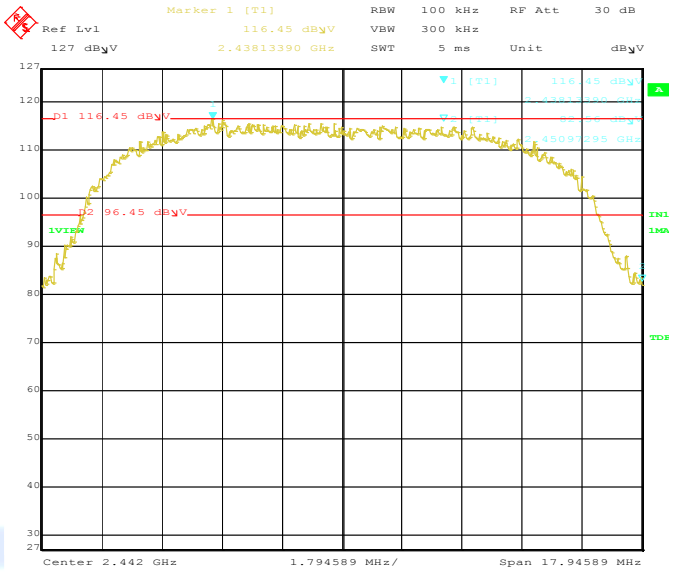
Freq. (MHz)	Level (dBuV)	Limit	Margin	Peak / QP / Avg	Comments
9848.00	66.59	93.26	-26.67	Peak	Channel 11
9768.00	71.09	96.45	-25.36	Peak	Channel 7
9648.00	65.18	94.48	-29.30	Peak	Channel 1

802.11b Mode

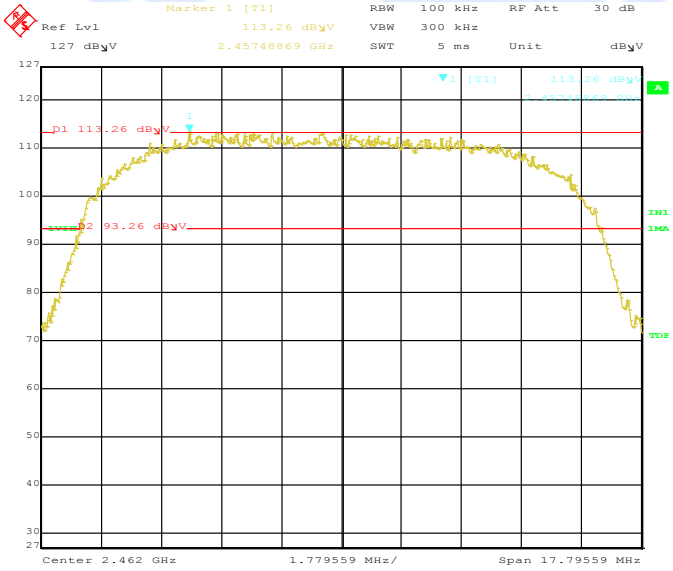
Reference Level Measurements



Title: ATWINC1500B.
Comment A: 802.11b, 2412MHz.
Date: 27.APR.2015 10:28:10



Title: ATWINC1500B.
Comment A: 802.11b, 2442MHz.
Date: 27.APR.2015 10:36:54



Title: ATWINC1500B.
Comment A: 802.11b, 2462MHz.
Date: 27.APR.2015 10:41:01

HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

802.11g Mode

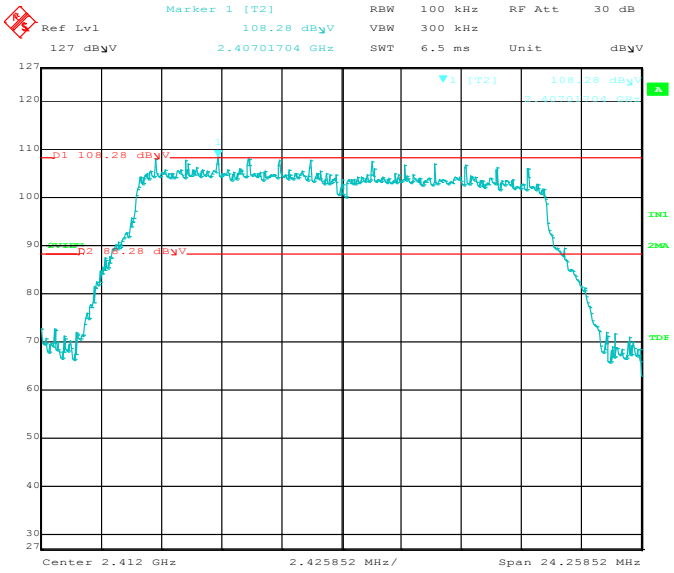
FCC 15.247

Company:	Atmel Corporation	Date:	4/27/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500	Test ENG:	M. Harrison

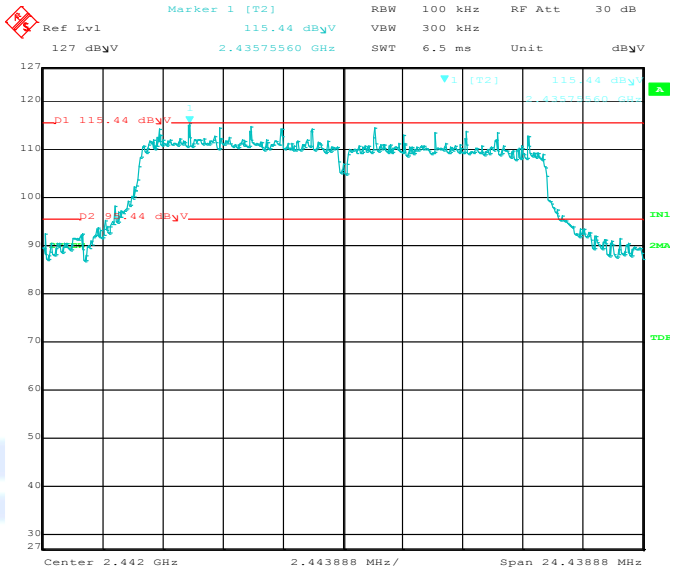
Freq. (MHz)	Level (dBuV)	Limit	Margin	Peak / QP / Avg	Comments
9848.00	66.41	90.57	-24.16	Peak	Channel 11
9648.00	66.42	88.28	-21.86	Peak	Channel 1
9768.00	69.14	95.44	-26.30	Peak	Channel 7

802.11g Mode

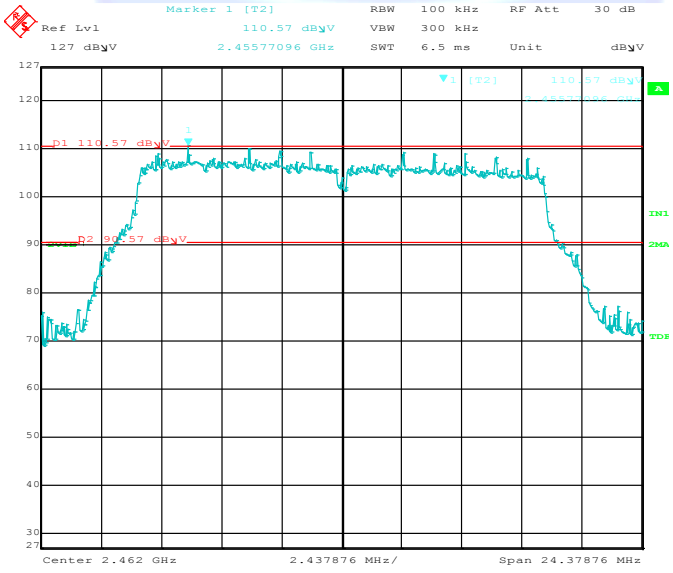
Reference Level Measurements



Title: ATWINC1500B.
Comment A: 802.11g, 2412MHz.
Date: 27.APR.2015 11:02:41



Title: ATWINC1500B.
Comment A: 802.11g, 2442MHz.
Date: 27.APR.2015 11:07:10



Title: ATWINC1500B.
Comment A: 802.11g, 2462MHz.
Date: 27.APR.2015 11:11:52

HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

802.11n Mode

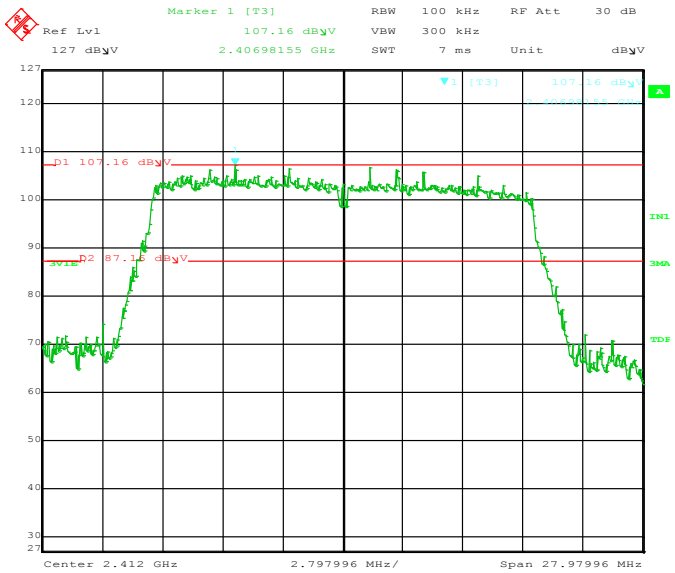
FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
Model:	ATWINC1500B	Test ENG:	M. Harrison

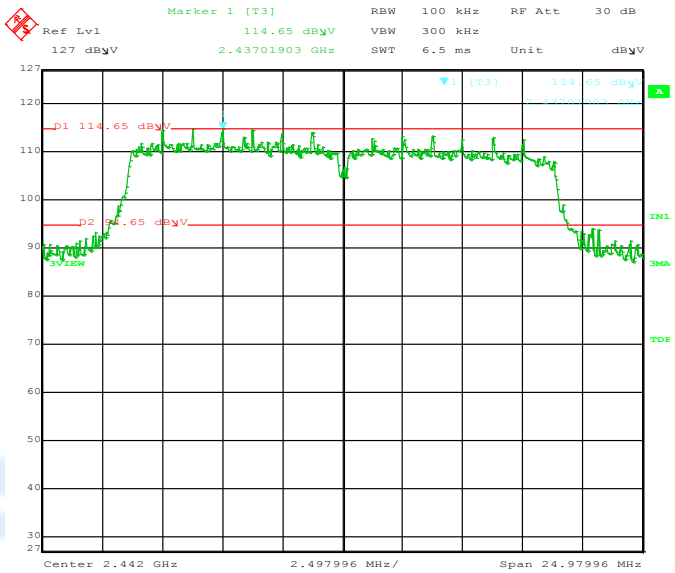
Freq. (MHz)	Level (dBuV)	Limit	Margin	Peak / QP / Avg	Comments
9848.00	66.56	88.90	-22.34	Peak	Channel 11
9648.00	66.87	87.16	-20.29	Peak	Channel 1
9768.00	69.17	94.65	-25.48	Peak	Channel 7

802.11n Mode

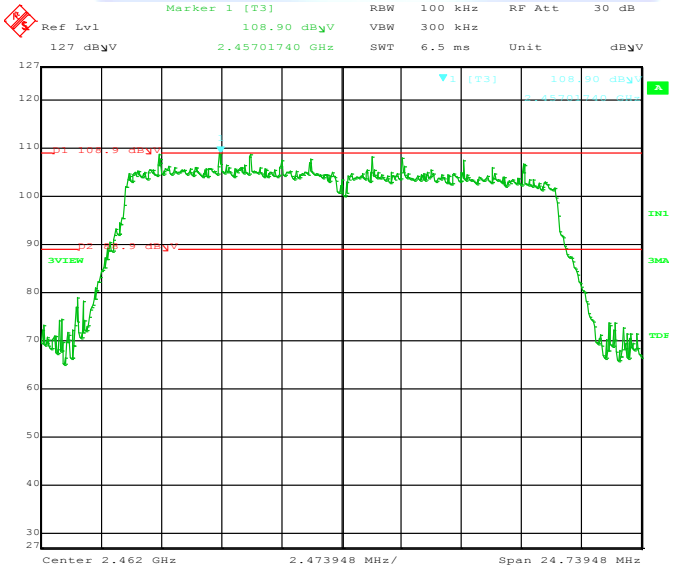
Reference Level Measurements



Title: ATWINC1500B.
Comment A: 802.11n, 2412MHz.
Date: 27.APR.2015 13:10:56



Title: ATWINC1500B.
Comment A: 802.11n, 2442MHz.
Date: 27.APR.2015 13:14:21



Title: ATWINC1500B.
Comment A: 802.11n, 2462MHz.
Date: 27.APR.2015 13:20:19

EMISSIONS IN RESTRICTED FREQUENCY BANDS (RADIATED FIELD STRENGTH)

DATA SHEETS

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11b Mode, Low Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11b

Date: 4/20/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824.00	51.88	H	73.98	-22.10	Peak	1.01	150	In Restricted Band
4824.00	37.88	H	53.98	-16.10	Avg	1.01	150	
12060.00	58.25	H	73.98	-15.73	Peak	1.36	227	In Restricted Band
12060.00	45.13	H	53.98	-8.85	Avg	1.36	227	
14472.00	56.63	H	73.98	-17.35	Peak	1.01	151	In Restricted Band
14472.00	44.01	H	53.98	-9.97	Avg	1.01	151	
19296.00		H	73.98		Peak			In Restricted Band
19296.00		H	53.98		Avg			No Emissions Found
4824.00	48.60	V	73.98	-25.38	Peak	1.30	204	In Restricted Band
4824.00	34.25	V	53.98	-19.73	Avg	1.30	204	
12060.00	58.25	V	73.98	-15.73	Peak	1.36	227	In Restricted Band
12060.00	45.13	V	53.98	-8.85	Avg	1.36	227	
14472.00	58.06	V	73.98	-15.92	Peak	1.10	118	In Restricted Band
14472.00	45.47	V	53.98	-8.51	Avg	1.10	118	
19296.00		V	73.98		Peak			In Restricted Band
19296.00		V	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11b Mode, Mid Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11b

Date: 4/17/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884.00	52.87	H	73.98	-21.11	Peak	1.49	202	
4884.00	38.61	H	53.98	-15.37	Avg	1.49	202	In Restricted Band
7326.00	53.04	H	73.98	-20.94	Peak	1.28	148	
7326.00	40.95	H	53.98	-13.03	Avg	1.28	148	In Restricted Band
12210.00	62.99	H	73.98	-10.99	Peak	1.27	226	
12210.00	50.45	H	53.98	-3.53	Avg	1.27	226	In Restricted Band
19536.00		H	73.98		Peak			No Emissions Found
19536.00		H	53.98		Avg			In Restricted Band
4884.00	51.93	V	73.98	-22.05	Peak	1.98	276	
4884.00	39.49	V	53.98	-14.49	Avg	1.98	276	In Restricted Band
7326.00	53.28	V	73.98	-20.70	Peak	1.67	258	
7326.00	41.25	V	53.98	-12.73	Avg	1.67	258	In Restricted Band
12210.00	66.30	V	73.98	-7.68	Peak	1.25	268	
12210.00	52.11	V	53.98	-1.87	Avg	1.25	268	In Restricted Band
19536.00		V	73.98		Peak			No Emissions Found
19536.00		V	53.98		Avg			In Restricted Band

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11b Mode, High Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11b

Date: 4/20/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924.00	45.25	H	73.98	-28.73	Peak	1.09	51	In Restricted Band
4924.00	32.33	H	53.98	-21.65	Avg	1.09	51	
7386.00		H	73.98		Peak			In Restricted Band
7386.00		H	53.98		Avg			No Emission Found
12310.00	54.20	H	73.98	-19.78	Peak	1.11	340	In Restricted Band
12310.00	42.43	H	53.98	-11.55	Avg	1.11	340	
19696.00		H	73.98		Peak			In Restricted Band
19696.00		H	53.98		Avg			No Emissions Found
22158.00		H	73.98		Peak			In Restricted Band
22158.00		H	53.98		Avg			No Emissions Found
4924.00	48.04	V	73.98	-25.94	Peak	1.19	276	In Restricted Band
4924.00	35.57	V	53.98	-18.41	Avg	1.19	276	
7386.00		V	73.98		Peak			In Restricted Band
7386.00		V	53.98		Avg			No Emission Found
12310.00	56.18	V	73.98	-17.80	Peak	1.28	266	In Restricted Band
12310.00	44.38	V	53.98	-9.60	Avg	1.28	266	
19696.00		V	73.98		Peak			In Restricted Band
19696.00		V	53.98		Avg			No Emissions Found
22158.00		V	73.98		Peak			In Restricted Band
22158.00		V	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11g Mode, Low Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500
Mode: 802.11g

Date: 4/21/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824.00	45.44	H	73.98	-28.54	Peak	1.07	281	In Restricted Band
4824.00	31.12	H	53.98	-22.86	Avg	1.07	281	
12060.00	57.37	H	73.98	-16.61	Peak	1.35	340	In Restricted Band
12060.00	40.38	H	53.98	-13.60	Avg	1.35	340	
14472.00	56.16	H	73.98	-17.82	Peak	1.13	158	In Restricted Band
14472.00	41.96	H	53.98	-12.02	Avg	1.13	158	
19296.00		H	73.98		Peak			In Restricted Band
19296.00		H	53.98		Avg			No Emissions Found
4824.00	44.93	V	73.98	-29.05	Peak	1.17	151	In Restricted Band
4824.00	30.93	V	53.98	-23.05	Avg	1.17	151	
12060.00	59.12	V	73.98	-14.86	Peak	1.25	278	In Restricted Band
12060.00	42.49	V	53.98	-11.49	Avg	1.25	278	
14472.00	58.45	V	73.98	-15.53	Peak	1.81	113	In Restricted Band
14472.00	43.00	V	53.98	-10.98	Avg	1.81	113	
19296.00		V	73.98		Peak			In Restricted Band
19296.00		V	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11g Mode, Mid Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500
Mode: 802.11g

Date: 4/20/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884.00	55.63	H	73.98	-18.35	Peak	1.16	150	In Restricted Band
4884.00	41.20	H	53.98	-12.78	Avg	1.16	150	
7326.00	58.94	H	73.98	-15.04	Peak	1.57	257	
7326.00	44.64	H	53.98	-9.34	Avg	1.57	257	In Restricted Band
12210.00	67.37	H	73.98	-6.61	Peak	1.23	249	In Restricted Band
12210.00	52.42	H	53.98	-1.56	Avg	1.23	249	
19536.00		H	73.98		Peak			No Emissions Found
19536.00		H	53.98		Avg			In Restricted Band
4884.00	58.94	V	73.98	-15.04	Peak	1.01	281	In Restricted Band
4884.00	44.64	V	53.98	-9.34	Avg	1.01	281	
7326.00	55.40	V	73.98	-18.58	Peak	1.20	150	
7326.00	40.97	V	53.98	-13.01	Avg	1.20	150	In Restricted Band
12210.00	53.13	V	73.98	-20.85	Peak	1.01	164	In Restricted Band
12210.00	49.06	V	53.98	-4.92	Avg	1.01	164	
19536.00		V	73.98		Peak			No Emissions Found
19536.00		V	53.98		Avg			In Restricted Band

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11g Mode, High Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500
Mode: 802.11g

Date: 4/21/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924.00	43.74	H	73.98	-30.24	Peak	1.77	46	In Restricted Band
4924.00	30.58	H	53.98	-23.40	Avg	1.77	46	
7386.00		H	73.98		Peak			In Restricted Band
7386.00		H	53.98		Avg			No Emissions Found
12310.00	59.86	H	73.98	-14.12	Peak	1.17	336	In Restricted Band
12310.00	44.21	H	53.98	-9.77	Avg	1.17	336	
19696.00		H	73.98		Peak			In Restricted Band
19696.00		H	53.98		Avg			No Emissions Found
22158.00		H	73.98		Peak			In Restricted Band
22158.00		H	53.98		Avg			No Emissions Found
4924.00	50.21	V	73.98	-23.77	Peak	1.34	48	In Restricted Band
4924.00	34.16	V	53.98	-19.82	Avg	1.34	48	
7386.00		V	73.98		Peak			In Restricted Band
7386.00		V	53.98		Avg			No Emissions Found
12310.00	59.86	V	73.98	-14.12	Peak	1.36	282	In Restricted Band
12310.00	44.21	V	53.98	-9.77	Avg	1.36	282	
19696.00		V	73.98		Peak			In Restricted Band
19696.00		V	53.98		Avg			No Emissions Found
22158.00		V	73.98		Peak			In Restricted Band
22158.00		V	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11n Mode, Low Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11n

Date: 4/21/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4824.00		H	73.98		Peak			In Restricted Band
4824.00		H	53.98		Avg			No Emissions Found
12060.00	50.13	H	73.98	-23.85	Peak	1.42	202	In Restricted Band
12060.00	37.04	H	53.98	-16.94	Avg	1.42	202	
14472.00	53.66	H	73.98	-20.32	Peak	1.61	5	In Restricted Band
14472.00	40.49	H	53.98	-13.49	Avg	1.61	5	
19296.00		H	73.98		Peak			In Restricted Band
19296.00		H	53.98		Avg			No Emissions Found
4824.00		V	73.98		Peak			In Restricted Band
4824.00		V	53.98		Avg			No Emissions Found
12060.00	56.98	V	73.98	-17.00	Peak	1.13	295	In Restricted Band
12060.00	40.39	V	53.98	-13.59	Avg	1.13	295	
14472.00	59.05	V	73.98	-14.93	Peak	1.21	96	In Restricted Band
14472.00	42.91	V	53.98	-11.07	Avg	1.21	96	
19296.00		V	73.98		Peak			In Restricted Band
19296.00		V	53.98		Avg			No Emissions Found

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11n Mode, Mid Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11n

Date: 4/20/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884.00	54.32	H	73.98	-19.66	Peak	1.07	211	In Restricted Band
4884.00	39.41	H	53.98	-14.57	Avg	1.07	211	
7326.00	57.81	H	73.98	-16.17	Peak	1.78	277	
7326.00	42.24	H	53.98	-11.74	Avg	1.78	277	In Restricted Band
12210.00	63.13	H	73.98	-10.85	Peak	1.05	347	In Restricted Band
12210.00	49.18	H	53.98	-4.80	Avg	1.05	347	
19536.00		H	73.98		Peak			No Emissions Found
19536.00		H	53.98		Avg			In Restricted Band
4884.00	57.18	V	73.98	-16.80	Peak	1.36	36	In Restricted Band
4884.00	42.27	V	53.98	-11.71	Avg	1.36	36	
7326.00	53.52	V	73.98	-20.46	Peak	1.17	357	
7326.00	39.66	V	53.98	-14.32	Avg	1.17	357	In Restricted Band
12210.00	66.18	V	73.98	-7.80	Peak	1.17	275	In Restricted Band
12210.00	51.59	V	53.98	-2.39	Avg	1.17	275	
19536.00		V	73.98		Peak			No Emissions Found
19536.00		V	53.98		Avg			In Restricted Band

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
802.11n Mode, High Channel, Horizontal & Vertical

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11n

Date: 4/21/2015
Lab: R
Test ENG: M. Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4924.00		H	73.98		Peak			In Restricted Band
4924.00		H	53.98		Avg			No Emissions Found
7386.00	49.15	H	73.98	-24.83	Peak	1.53	140	In Restricted Band
7386.00	36.51	H	53.98	-17.47	Avg	1.53	140	
12310.00	55.67	H	73.98	-18.31	Peak	1.37	343	In Restricted Band
12310.00	40.89	H	53.98	-13.09	Avg	1.37	343	
19696.00		H	73.98		Peak			In Restricted Band
19696.00		H	53.98		Avg			No Emissions Found
22158.00		H	73.98		Peak			In Restricted Band
22158.00		H	53.98		Avg			No Emissions Found
4924.00	44.73	V	73.98	-29.25	Peak	1.32	342	In Restricted Band
4924.00	30.96	V	53.98	-23.02	Avg	1.32	342	
7386.00	48.16	V	73.98	-25.82	Peak	1.19	240	In Restricted Band
7386.00	36.01	V	53.98	-17.97	Avg	1.19	240	
12310.00	57.09	V	73.98	-16.89	Peak	1.40	269	In Restricted Band
12310.00	43.11	V	53.98	-10.87	Avg	1.40	269	
19696.00		V	73.98		Peak			In Restricted Band
19696.00		V	53.98		Avg			No Emissions Found
22158.00		V	73.98		Peak			In Restricted Band
22158.00		V	53.98		Avg			No Emissions Found

Test distance
3 meter

EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND AT BAND EDGES

DATA SHEETS

802.11b Mode

BAND EDGES- VERTICAL

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11b

Date: 4/20/2015
Lab: R
Test ENG: Matt Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412.00	105.38	V	--	--	Peak	1.3	336	Fundamental of High Channel
2396.17	83.02	V	85.38	-2.36	Delta	1.3	336	From Peak
2386.65	73.16	V	73.98	-0.82	Peak	1.3	336	
2386.65	47.77	V	53.98	-6.21	Avg	1.3	336	
2462.00	107.19	V	--	--	Peak	1	326	Fundamental of High Channel
2487.09	69.37	V	73.98	-4.61	Peak	1	326	
2487.09	45.03	V	53.98	-8.95	Avg	1	326	

Test distance
3 meter

BAND EDGES- HORIZONTAL

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500B
Mode: 802.11b

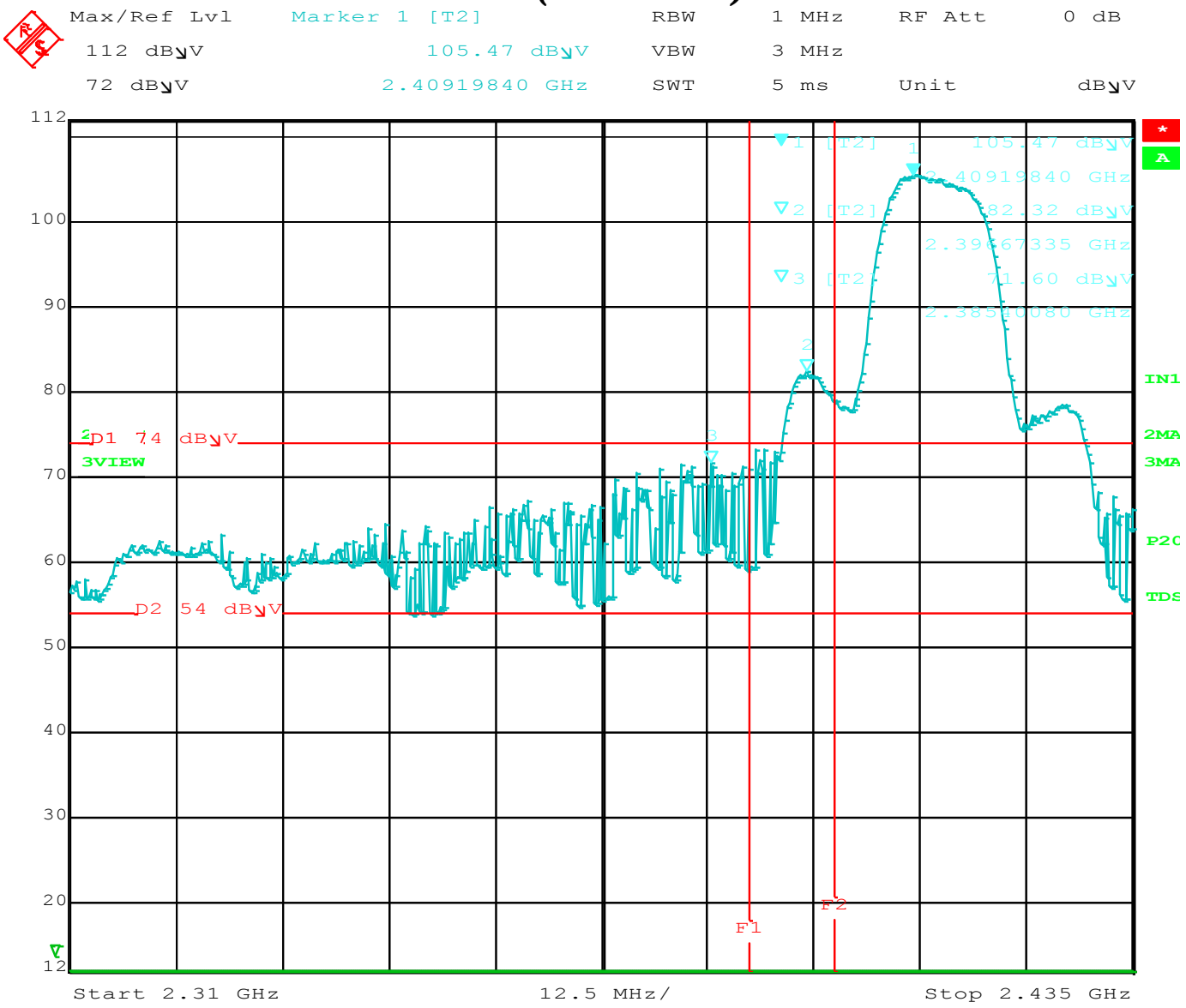
Date: 4/20/2015
Lab: R
Test ENG: Matt Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412.00	105.47	H	--	--	Peak	1.3	233	Fundamental of High Channel
2396.67	82.32	H	85.47	-3.15	Delta	1.3	233	From Peak
2385.40	71.60	H	73.98	-2.38	Peak	1.3	233	
2385.40	47.13	H	53.98	-6.85	Avg	1.3	233	
2462.00	103.70	H	--	--	Peak	1.26	244	Fundamental of High Channel
2459.03	64.22	H	73.98	-9.76	Peak	1.26	244	
2459.03	42.07	H	53.98	-11.91	Avg	1.26	244	

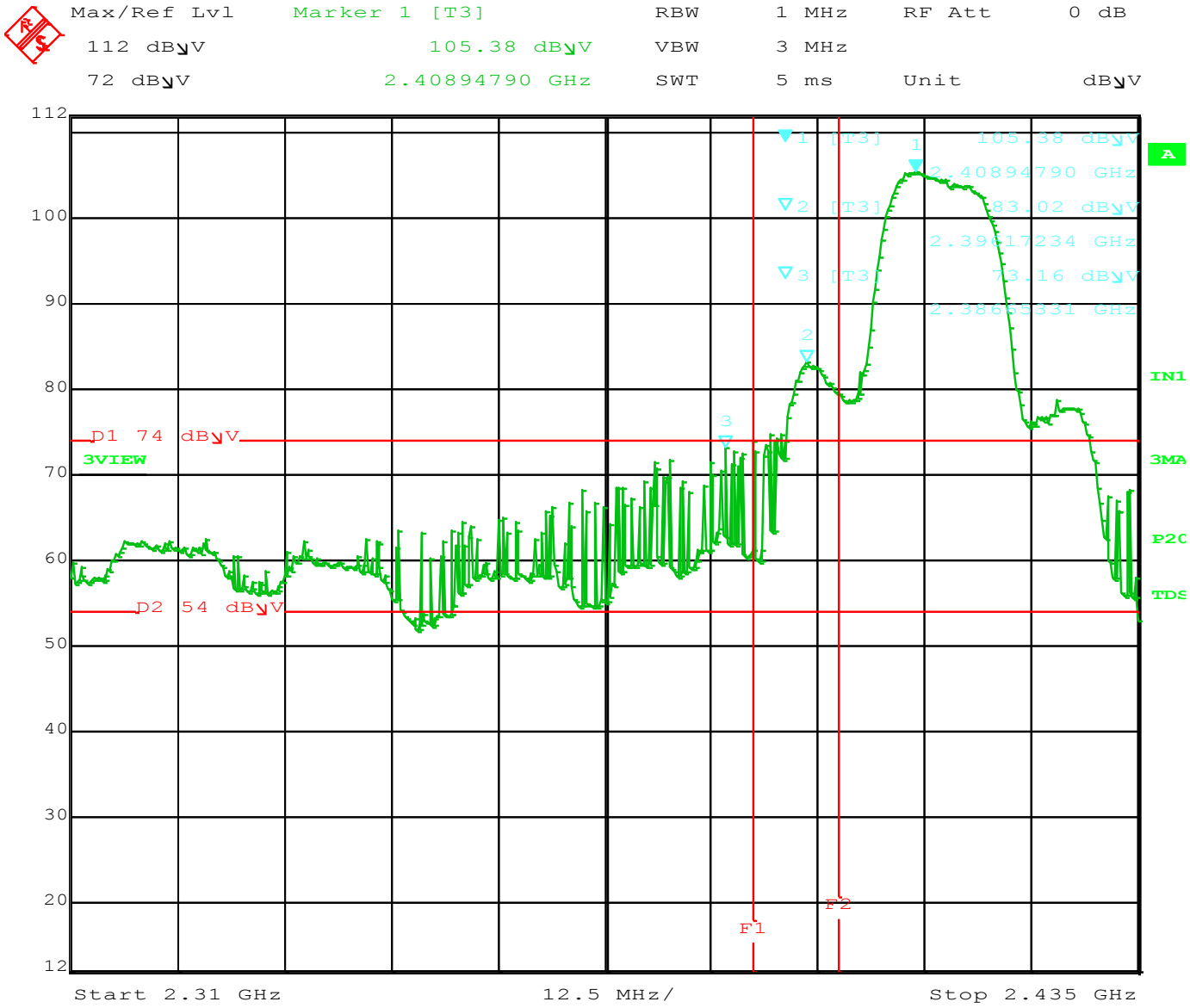
Test distance
3 meter

LOWER BAND EDGE
(Horizontal)



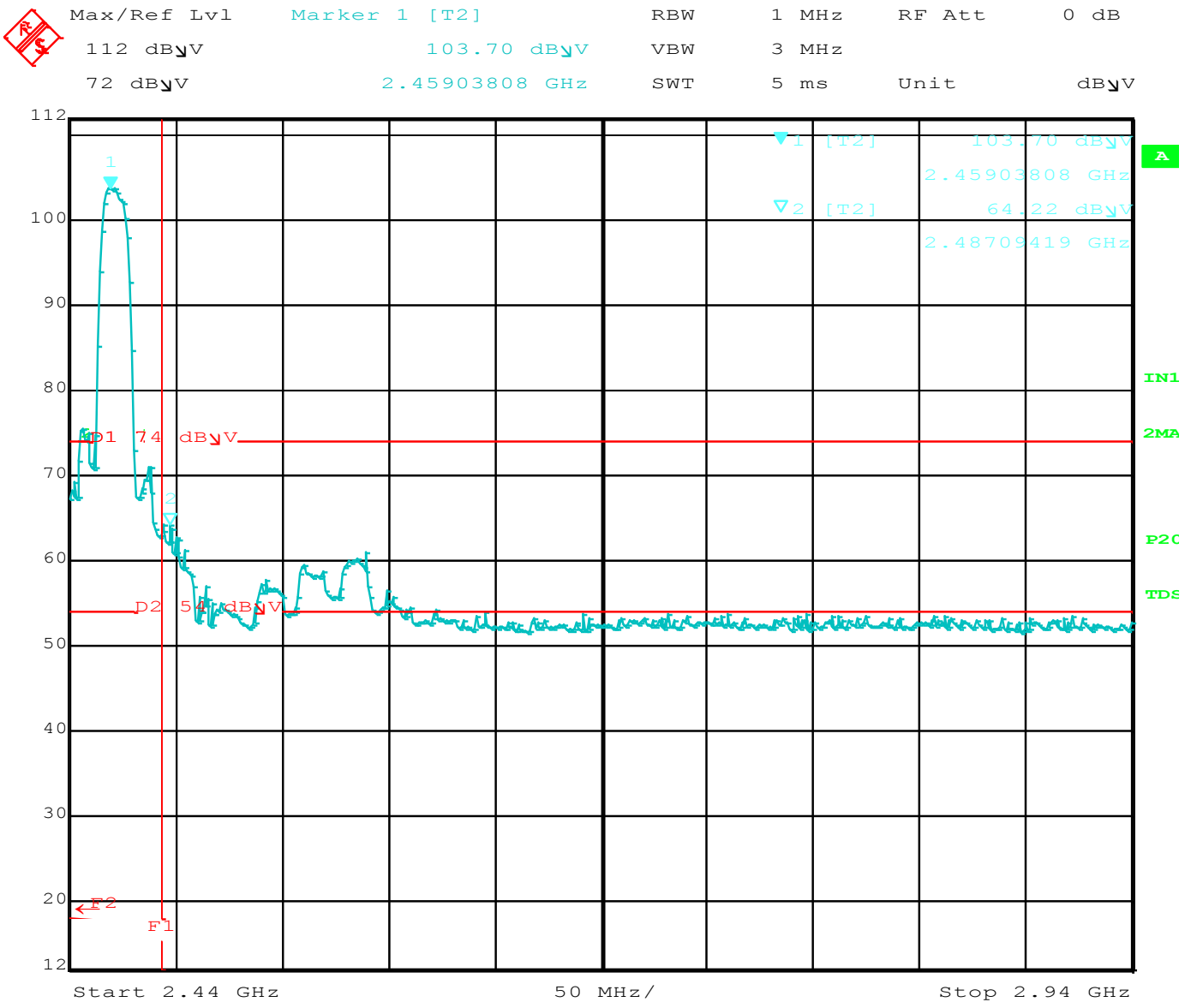
Title:
Comment A: Band Edges, 802.11b, 2412MHz,
Date: 20.APR.2015 14:06:48

LOWER BAND EDGE
(Vertical)



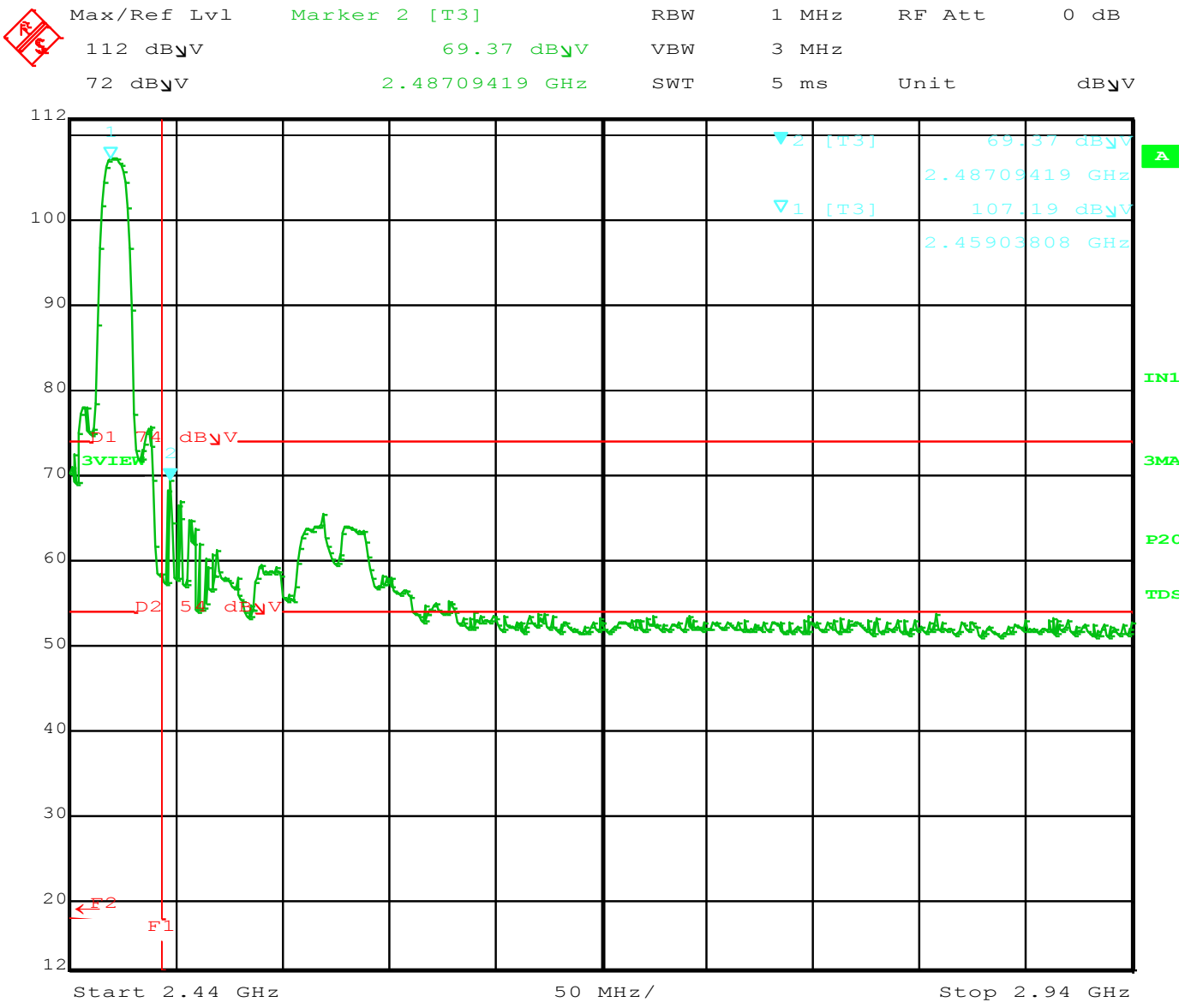
Title:
Comment A: Band Edges, 802.11b, 2412MHz,
Date: 20.APR.2015 13:58:37

UPPER BAND EDGE
(Horizontal)



Title:
Comment A: Band Edges, 802.11b,
Date: 20.APR.2015 15:38:00

UPPER BAND EDGE
(Vertical)



Title:
Comment A: Band Edges, 802.11b,
Date: 20.APR.2015 15:27:38

BAND EDGES- VERTICAL

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500
Mode: 802.11g

Date: 4/21/2015
Lab: R
Test ENG: Matt Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412.00	103.49	V	--	--	Peak	1	335	Fundamental of High Channel
2399.68	82.33	V	83.49	-1.16	Delta	1	335	From Peak
2388.91	72.83	V	73.98	-1.15	Peak	1	335	
2388.91	51.31	V	53.98	-2.67	Avg	1	335	
2462.00	104.60	V	--	--	Peak	1	330	Fundamental of High Channel
2483.50	72.36	V	73.98	-1.62	Peak	1	330	
2483.50	53.18	V	53.98	-0.80	Avg	1	330	

Test distance
3 meter

BAND EDGES- HORIZONTAL

FCC 15.247

Company: Atmel Corporation
EUT: Modular Transmitter
Model: ATWINC1500
Mode: 802.11g

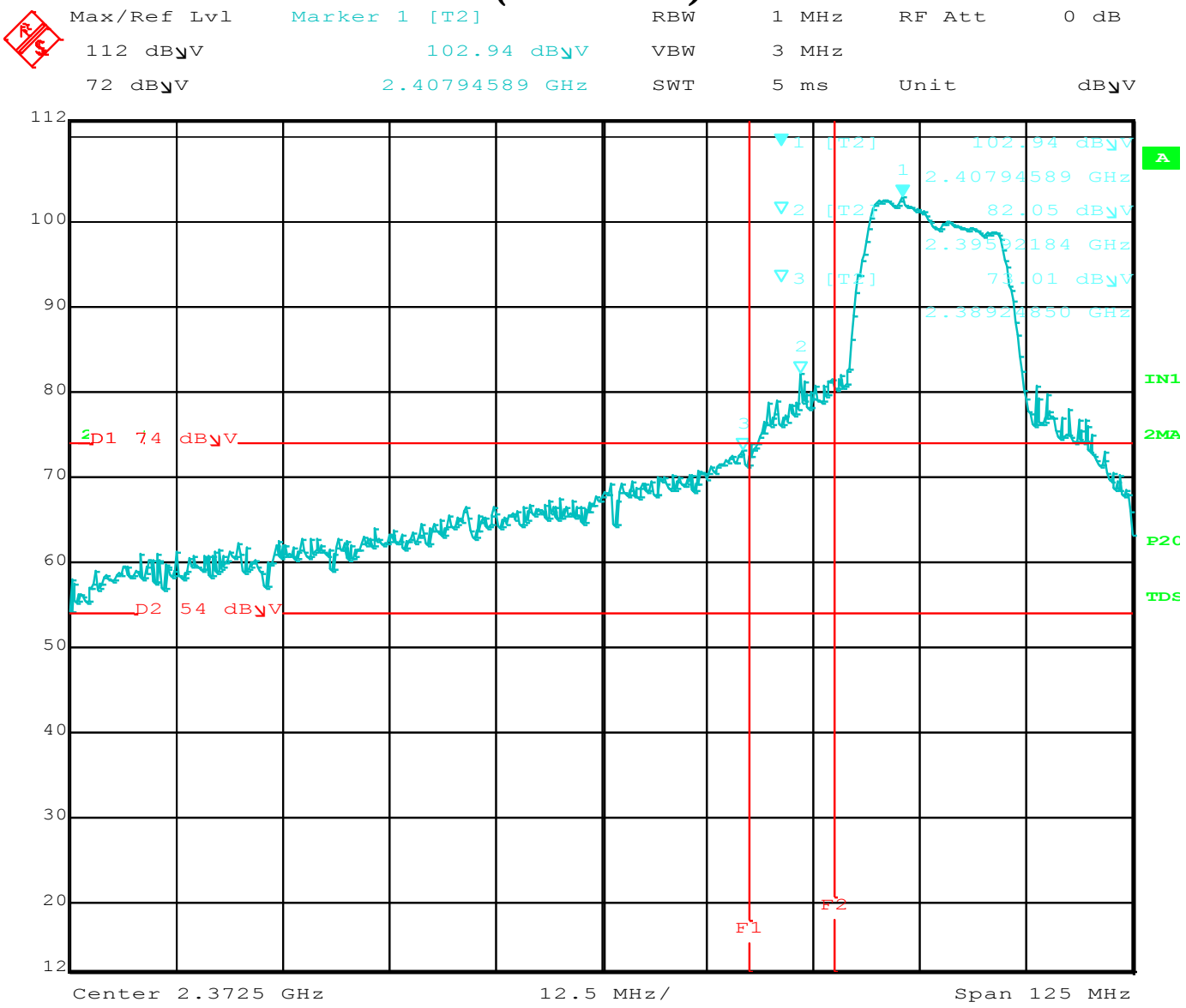
Date: 4/21/2015
Lab: R
Test ENG: Matt Harrison

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412.00	102.94	H	--	--	Peak	1	120	Fundamental of High Channel
2395.92	82.05	H	82.94	-0.89	Delta	1	120	From Peak
2389.24	73.01	H	73.98	-0.97	Peak	1	120	
2389.24	51.98	H	53.98	-2.00	Avg	1	120	
2462.00	101.21	H	--	--	Peak	1	130	Fundamental of High Channel
2483.50	71.07	H	73.98	-2.91	Peak	1	130	
2483.50	50.67	H	53.98	-3.31	Avg	1	130	

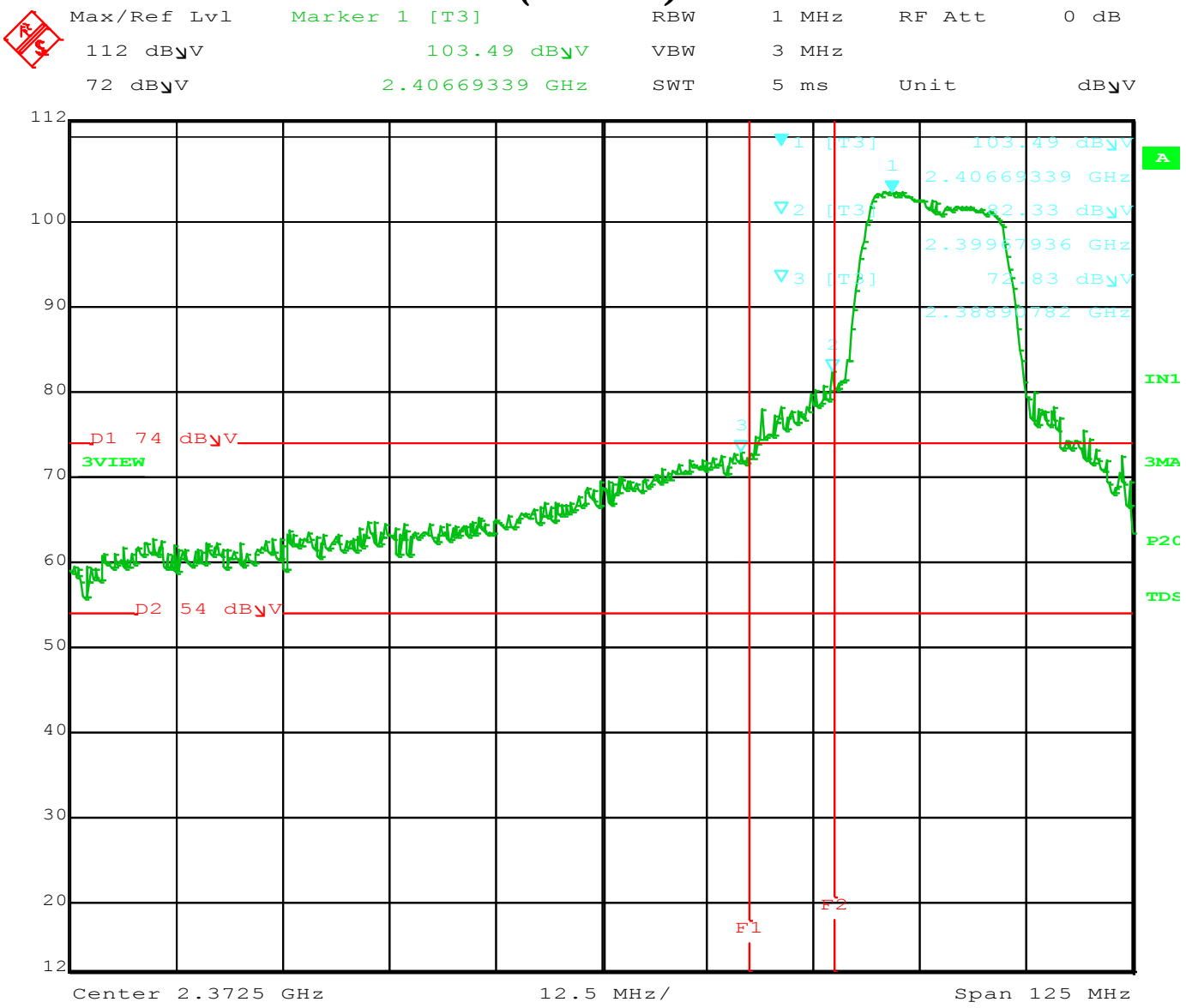
Test distance
3 meter

LOWER BAND EDGE
(Horizontal)



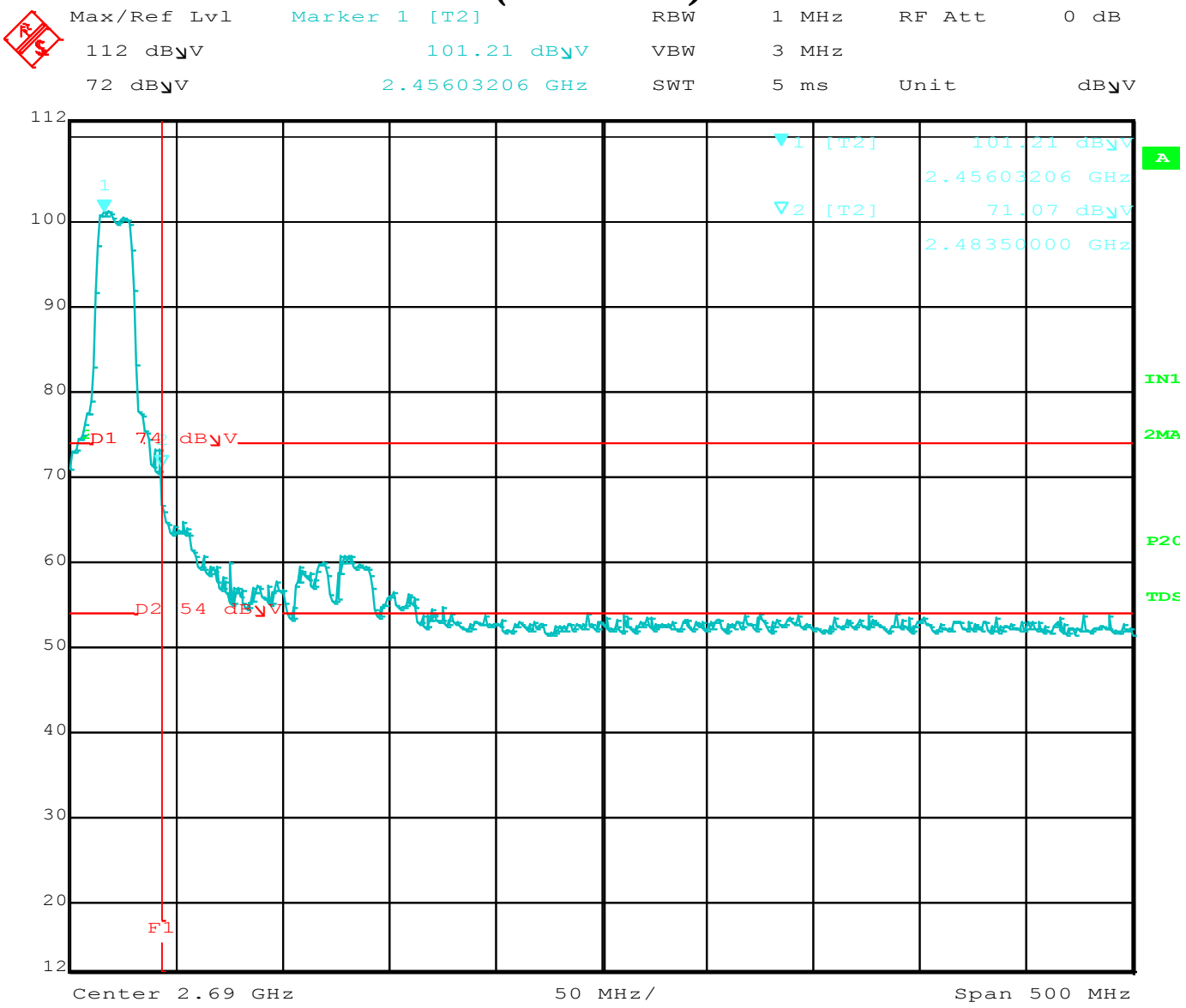
Title:
Comment A: 802.11g, 2412MHz,
Date: 21.APR.2015 08:02:48

LOWER BAND EDGE
(Vertical)



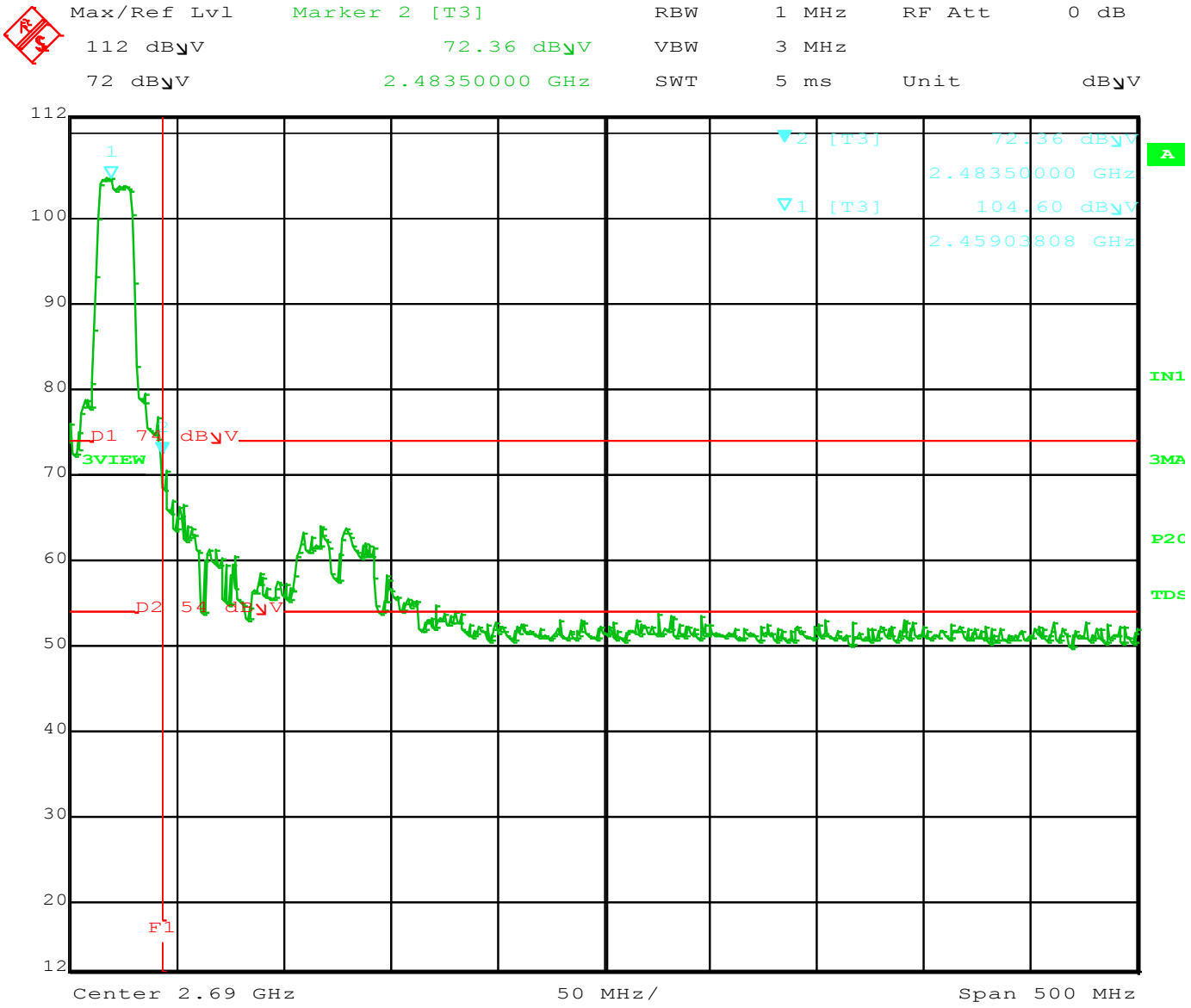
Title: [redacted]
Comment A: 802.11g, 2412MHz,
Date: 21.APR.2015 08:05:42

UPPER BAND EDGE
(Horizontal)



Title:
Comment A: 802.11g, Band Edges, 2462MHz,
Date: 21.APR.2015 09:38:54

UPPER BAND EDGE
(Vertical)



Title:
Comment A: 802.11g, Band Edges, 2462MHz,
Date: 21.APR.2015 09:55:09

802.11N Mode

BAND EDGES- VERTICAL

FCC 15.247

Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
		Test ENG:	Matt Harrison
Model:	ATWINC1500B		
Mode:	802.11n		

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412.00	102.33	V	--	--	Peak	1	335	Fundamental of High Channel
2398.42	80.56	V	82.33	-1.77	Delta	1	335	From Peak
2388.91	72.97	V	73.98	-1.01	Peak	1	335	
2388.91	51.82	V	53.98	-2.16	Avg	1	335	
2462.00	104.39	V	--	--	Peak	1	330	Fundamental of High Channel
2483.50	68.93	V	73.98	-5.05	Peak	1	330	
2483.50	52.61	V	53.98	-1.37	Avg	1	330	

Test distance
3 meter

BAND EDGES- HORIZONTAL

FCC 15.247

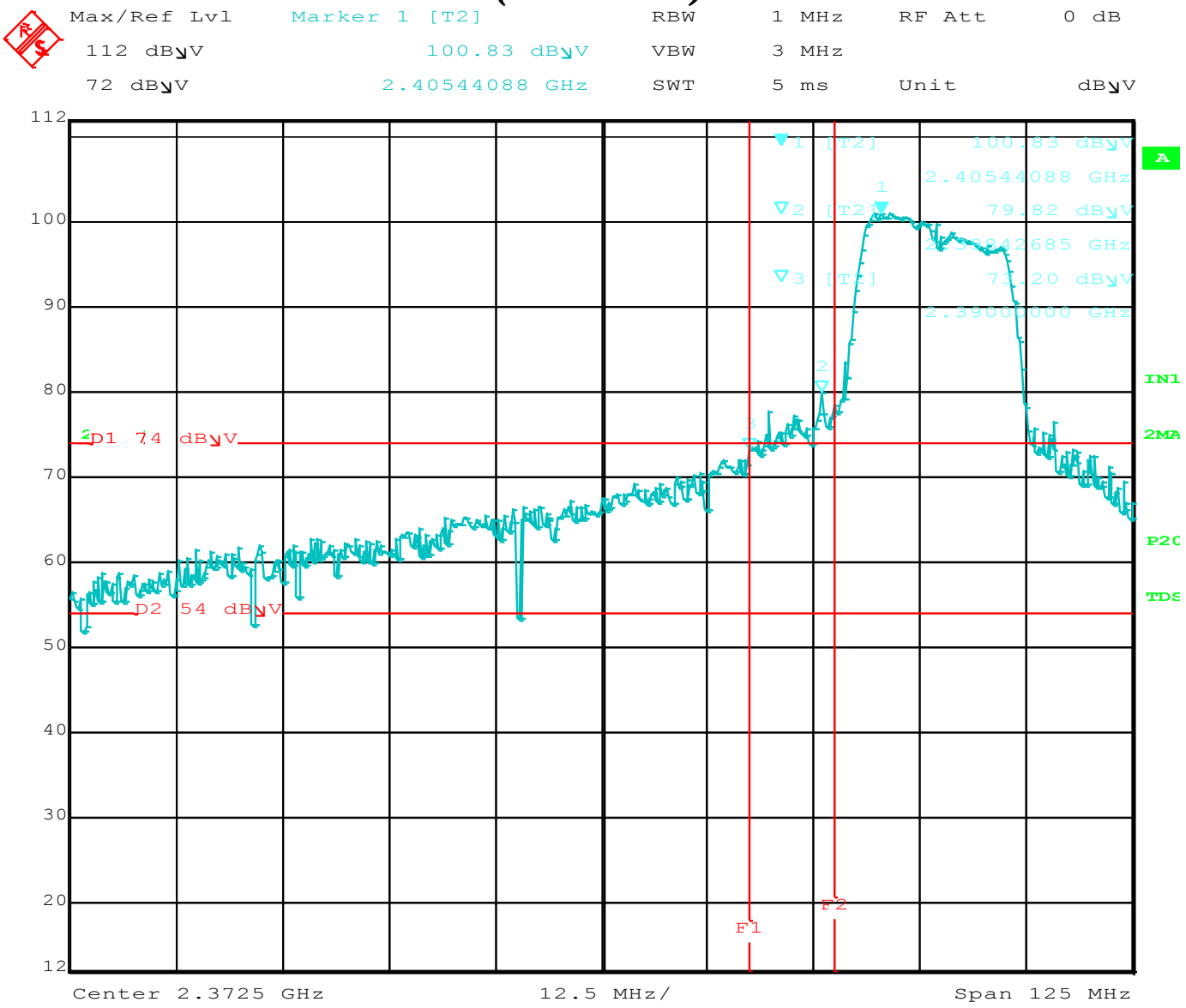
Company:	Atmel Corporation	Date:	4/21/2015
EUT:	Modular Transmitter	Lab:	R
		Test ENG:	Matt Harrison
Model:	ATWINC1500B		
Mode:	802.11n		

Compatible Electronics, Inc. FAC-3 (Lab R)

Freq. (MHz)	Level (dBµV)	Pol	Limit (dBµV)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2412.00	100.83	H	--	--	Peak	1	120	Fundamental of High Channel
2398.43	79.82	H	80.83	-1.01	Delta	1	120	From Peak
2390.00	73.20	H	73.98	-0.78	Peak	1	120	
2390.00	53.28	H	53.98	-0.70	Avg	1	120	
2462.00	100.97	H	--	--	Peak	1	130	Fundamental of High Channel
2483.50	70.36	H	73.98	-3.62	Peak	1	130	
2483.50	50.84	H	53.98	-3.14	Avg	1	130	

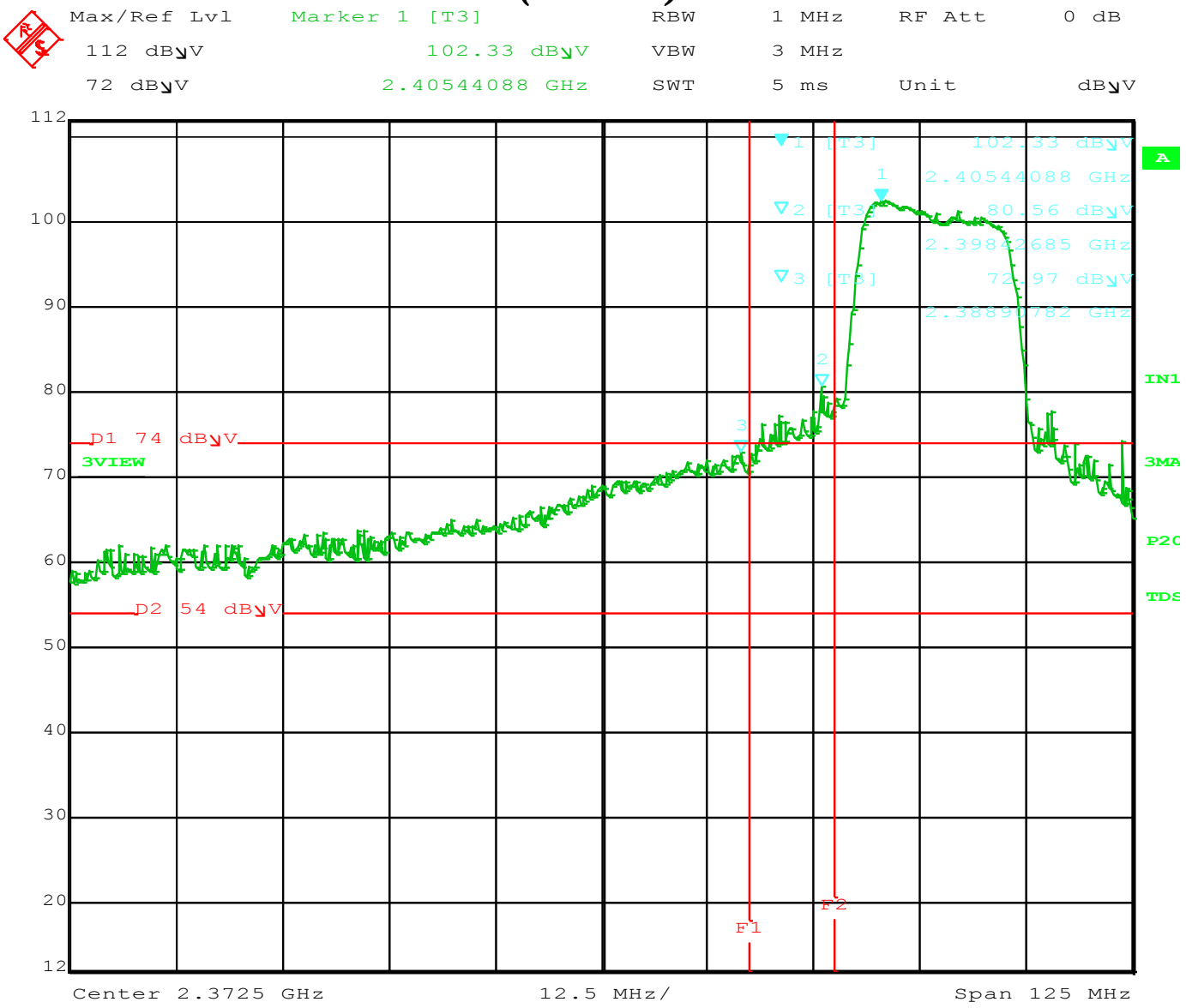
Test distance
3 meter

LOWER BAND EDGE
(Horizontal)



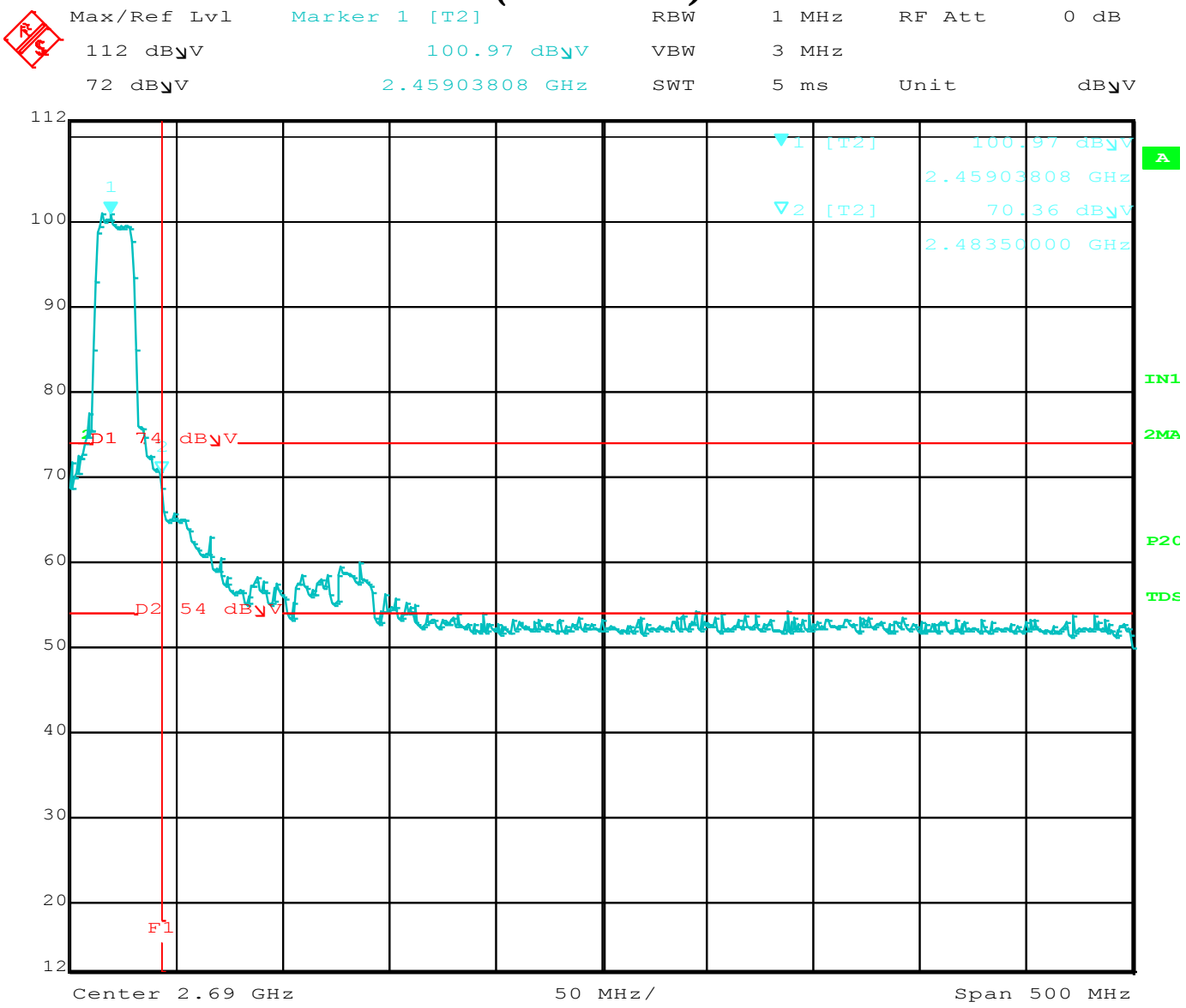
Title:
Comment A: 802.11n, 2412MHz,
Date: 21.APR.2015 08:22:45

LOWER BAND EDGE
(Vertical)



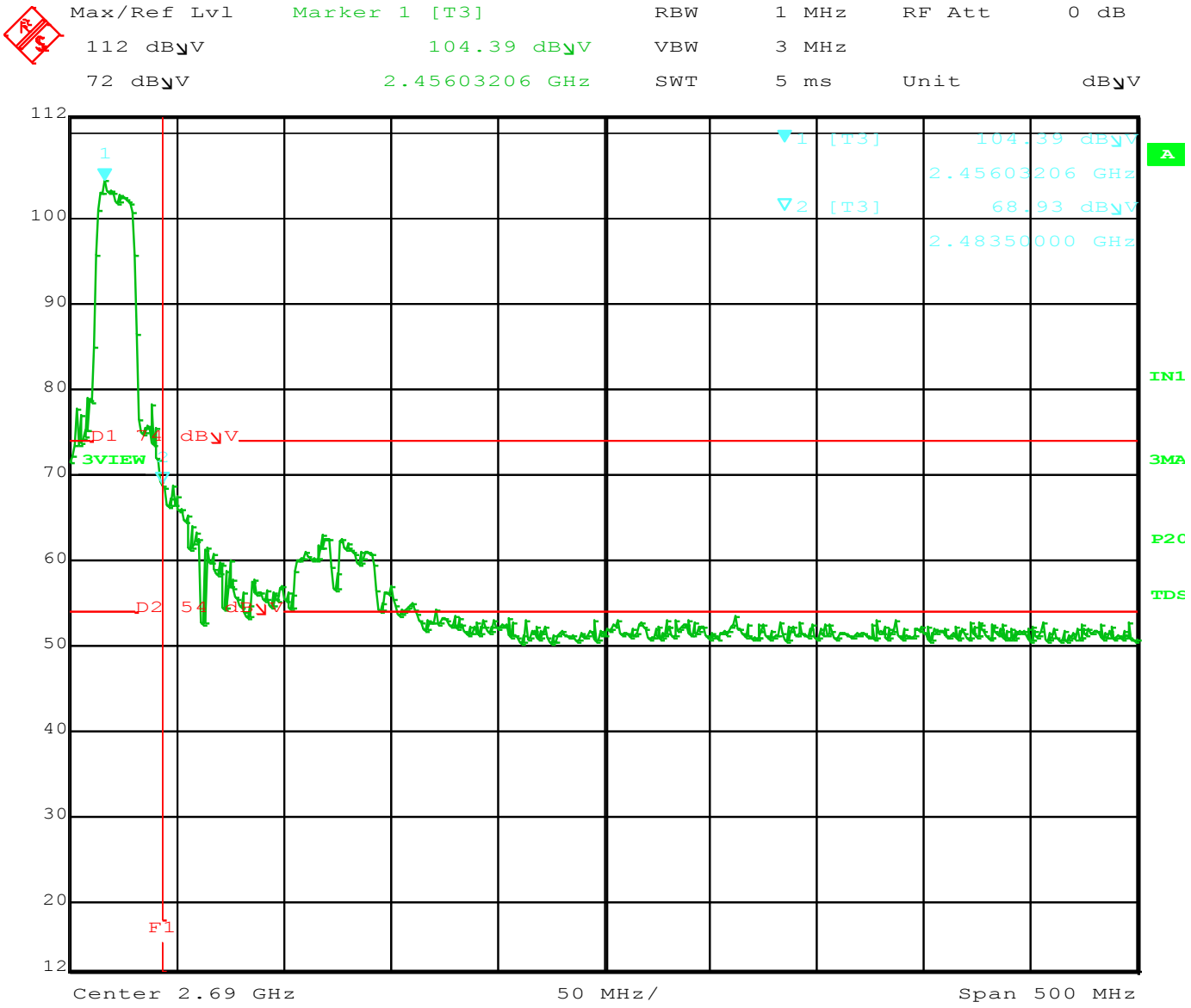
Title:
Comment A: 802.11n, 2412MHz,
Date: 21.APR.2015 08:27:05

UPPER BAND EDGE
(Horizontal)



Title:
Comment A: 802.11n, Band Edges, 2462MHz,
Date: 21.APR.2015 09:49:35

UPPER BAND EDGE
(Vertical)



Title:
Comment A: 802.11n, Band Edges, 2462MHz,
Date: 21.APR.2015 09:46:46