APPLICATION CERTIFICATION
On Behalf of
HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD

300M Mini Wireless USB Adapter
Model No.: WU331EU, WU330EU, WU3XXEU, WU1XXETV

FCC ID: 2AAD8-WU331

Prepared for	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Address	:	3/F Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Baoan District, Shenzhen, Guangdong, China
Prepared by	:	ACCURATE TECHNOLOGY CO., LTD
Address	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report No.	:	ATE20141071
Date of Test	:	Mar 23, 2014-Jun 18, 2014
Date of Report	:	Jun 18, 2014

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Description Page

Test Report Certification

Applicant& address	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD 3/F Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Baoan District, Shenzhen, Guangdong, China
Manufacturer& address	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD 3/F Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Baoan District, Shenzhen, Guangdong, China
Product	:	300M Mini Wireless USB Adapter
Model No.	:	WU331EU, WU330EU, WU3XXEU, WU1XXETV
Trade name	:	/

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4: 2009

The EUT was tested according to DTS test procedure of April 09, 2013 KDB558074 D01 DTS Meas Guidance v03 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : Mar 23, 2014 - Jun 18, 2014

Prepared by : Tim Zhang
(Tim.zhang, Engineer)

Approved & Authorized Signer : Sean Liu
(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	300M Mini Wireless USB Adapter
Model Number	:	WU331EU, WU330EU, WU3XXEU, WU1XXETV
Frequency Range	:	802.11b/g/n(20MHz): 2412-2462MHz 802.11n(40MHz): 2422-2452MHz
Number of Channels	:	802.11b/g/n (20MHz):11 802.11n (40MHz): 7
Antenna Gain	:	0dBi
Type of Antenna	:	MIMO(2TX&2RX)
Power Supply	:	DC 5V (Powered by USB port)
Modulation Type	:	CCK, OFDM
Applicant	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Address	:	3/F Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Baoan District, Shenzhen, Guangdong, China
Manufacturer	:	HAOLIYUAN(SHENZHEN) ELECTRONIC CO.,LTD
Address	:	3/F Building A1, Junfeng Industrial Park, Yonghe Road, Fuyong, Baoan District, Shenzhen, Guangdong, China
Date of sample received	:	Mar 23, 2014
Date of Test	:	Mar 23, 2014- Jun 18, 2014

1.2.Carrier Frequency of Channels

802.11b, 802.11g, 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	---	---

802.11n (40MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	07	2442
---	---	08	2447
03	2422	09	2452
04	2427	---	---
05	2432	---	---
06	2437	---	---

1.3.Accessory and Auxiliary Equipment

N/A

1.4.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 11, 2014	Jan. 10, 2015
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 11, 2014	Jan. 10, 2015
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 11, 2014	Jan. 10, 2015
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 11, 2014	Jan. 10, 2015
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 15, 2014	Jan. 14, 2015
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 15, 2014	Jan. 14, 2015
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 11, 2014	Jan. 10, 2015
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 11, 2014	Jan. 10, 2015
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 11, 2014	Jan. 10, 2015
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 11, 2014	Jan. 10, 2015

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **1.802.11b Transmitting mode**
Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

2.802.11g Transmitting mode
Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

3.802.11n (20MHz) Transmitting mode
Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

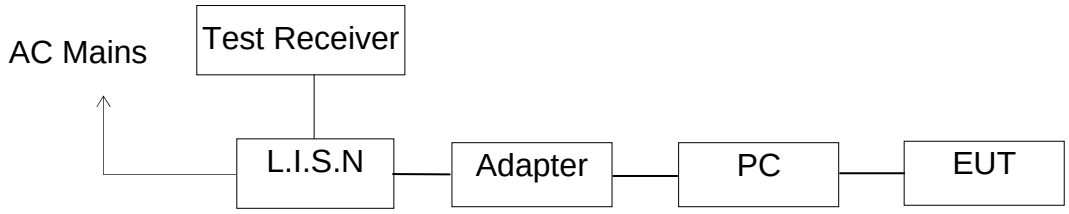
4.802.11n (40MHz) Transmitting mode
Low Channel: 2422MHz
Middle Channel: 2437MHz
High Channel: 2452MHz

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Power Line Conducted Emission	Compliant
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. POWER LINE CONDUCTED MEASUREMENT

5.1.Block Diagram of Test Setup



(EUT: 300M Mini Wireless USB Adapter)

5.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0
NOTE1: The lower limit shall apply at the transition frequencies. NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

5.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in test mode and measure it.

5.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2009 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

5.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Test mode : WIFI Operating

MEASUREMENT RESULT: "C-1204-V01_fin"

16/6/2014 5:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.531714	43.50	10.7	56	12.5	QP	L1	GND
1.031513	45.30	10.8	56	10.7	QP	L1	GND
3.820607	40.30	11.1	56	15.7	QP	L1	GND

MEASUREMENT RESULT: "C-1204-V01_fin2"

16/6/2014 5:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.533841	30.30	10.7	46	15.7	AV	L1	GND
0.604167	30.80	10.7	46	15.2	AV	L1	GND
0.929818	27.60	10.8	46	18.4	AV	L1	GND

MEASUREMENT RESULT: "C-1204-V02_fin"

16/6/2014 5:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.618813	51.50	10.8	56	4.5	QP	N	GND
1.011128	50.60	10.8	56	5.4	QP	N	GND
1.869811	50.40	11.0	56	5.6	QP	N	GND

MEASUREMENT RESULT: "C-1204-V02_fin2"

16/6/2014 5:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.531714	33.60	10.7	46	12.4	AV	N	GND
0.616347	33.40	10.8	46	12.6	AV	N	GND
0.662266	32.20	10.8	46	13.8	AV	N	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO.,LTD

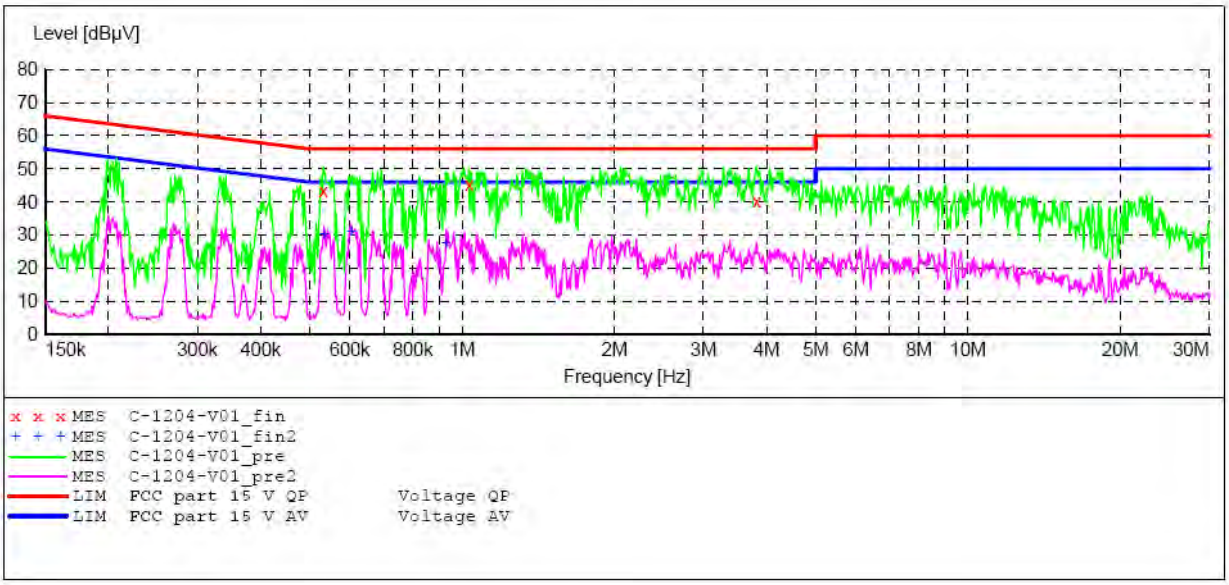
CONDUCTED EMISSION STANDARD FCC part 15

EUT: 300M Mini Wireless USB Adapter M/N:WU331EU
Manufacturer: Haoliyuan
Operating Condition: Wifi Operating
Test Site: 1#Shielding Room
Operator: Alen
Test Specification: L 120V/60Hz
Comment: Report No:ATE20141071
Start of Test: 16/6/2014 / 5:25:30PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126



MEASUREMENT RESULT: "C-1204-V01_fin"

16/6/2014 5:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.531714	43.50	10.7	56	12.5	QP	L1	GND
1.031513	45.30	10.8	56	10.7	QP	L1	GND
3.820607	40.30	11.1	56	15.7	QP	L1	GND

MEASUREMENT RESULT: "C-1204-V01_fin2"

16/6/2014 5:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.533841	30.30	10.7	46	15.7	AV	L1	GND
0.604167	30.80	10.7	46	15.2	AV	L1	GND
0.929818	27.60	10.8	46	18.4	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD

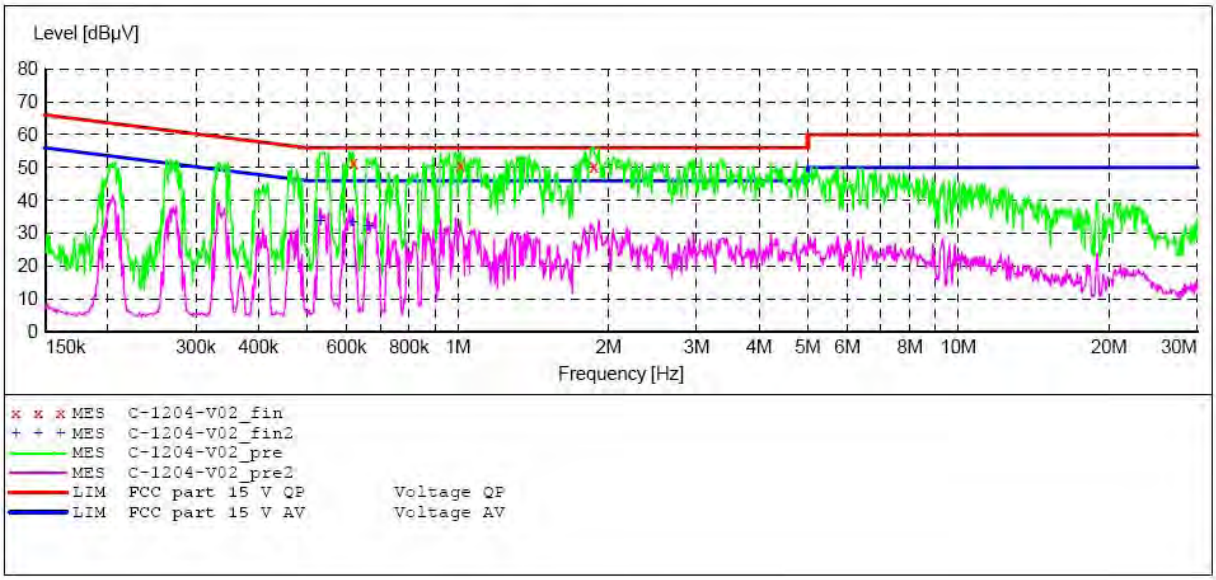
CONDUCTED EMISSION STANDARD FCC part 15

EUT: 300M Mini Wireless USB Adapter M/N:WU331EU
Manufacturer: Haoliyuan
Operating Condition: Wifi Operating
Test Site: 1#Shielding Room
Operator: Alen
Test Specification: N 120V/60Hz
Comment: Report No:ATE20141071
Start of Test: 16/6/2014 / 5:28:25PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "C-1204-V02_fin"

16/6/2014 5:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.618813	51.50	10.8	56	4.5	QP	N	GND
1.011128	50.60	10.8	56	5.4	QP	N	GND
1.869811	50.40	11.0	56	5.6	QP	N	GND

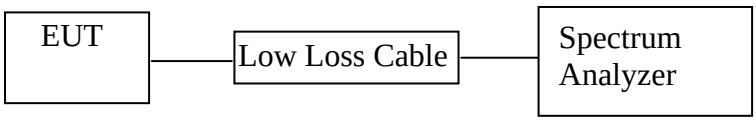
MEASUREMENT RESULT: "C-1204-V02_fin2"

16/6/2014 5:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.531714	33.60	10.7	46	12.4	AV	N	GND
0.616347	33.40	10.8	46	12.6	AV	N	GND
0.662266	32.20	10.8	46	13.8	AV	N	GND

6. 6DB BANDWIDTH TEST

6.1.Block Diagram of Test Setup



(EUT: 300M Mini Wireless USB Adapter)

6.2.The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.3.EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4.Operating Condition of EUT

6.4.1.Setup the EUT and simulator as shown as Section 6.1.

6.4.2.Turn on the power of all equipment.

6.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

6.5.Test Procedure

6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to300 kHz.

6.5.3.The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

6.6.Test Result

The test was performed with 802.11b			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	8.64	> 0.5MHz
Middle	2437	8.60	> 0.5MHz
High	2462	8.64	> 0.5MHz

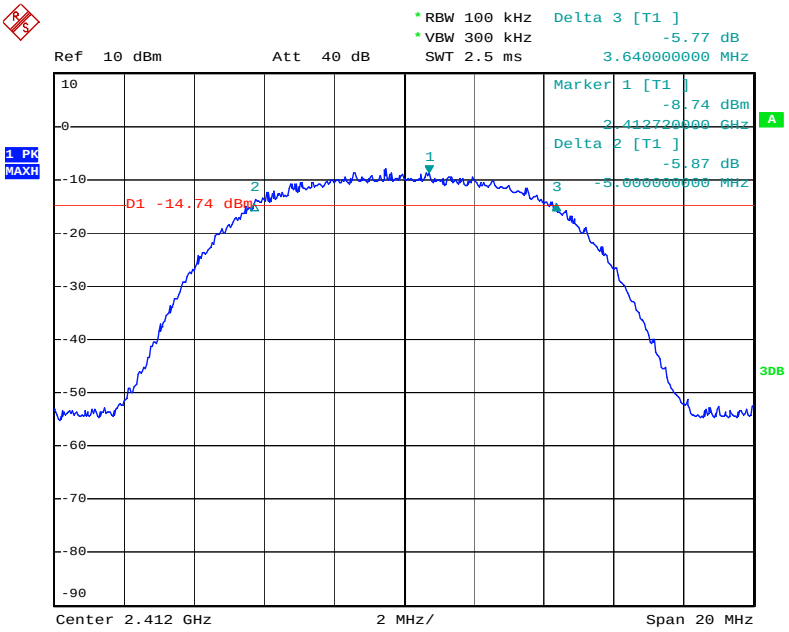
The test was performed with 802.11g			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	16.40	> 0.5MHz
Middle	2437	16.40	> 0.5MHz
High	2462	16.40	> 0.5MHz

The test was performed with 802.11n (Bandwidth: 20 MHz)			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	17.32	> 0.5MHz
Middle	2437	17.32	> 0.5MHz
High	2462	17.52	> 0.5MHz

The test was performed with 802.11n (Bandwidth: 40 MHz)			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2422	36.56	> 0.5MHz
Middle	2437	36.56	> 0.5MHz
High	2452	36.56	> 0.5MHz

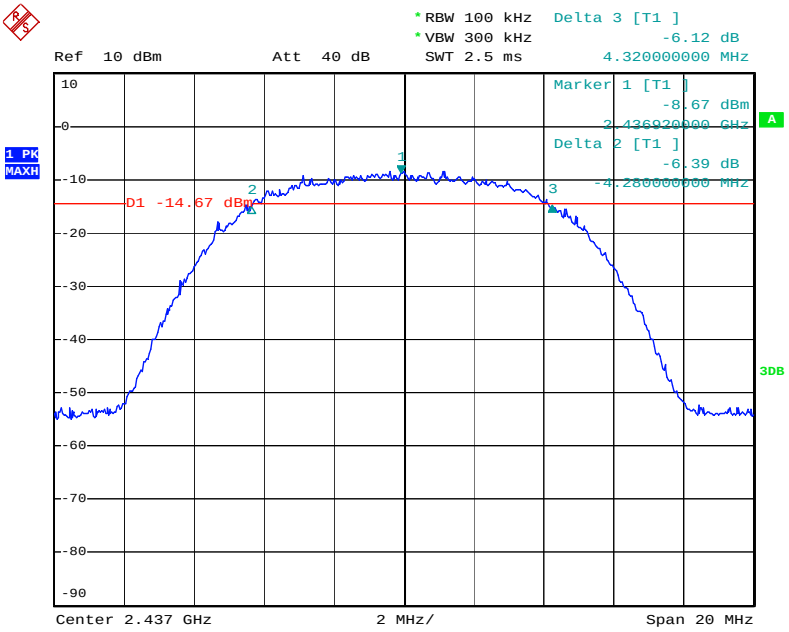
The spectrum analyzer plots are attached as below.

802.11b Channel Low 2412MHz



Date: 7.JUN.2014 16:35:10

802.11b Channel Middle 2437MHz



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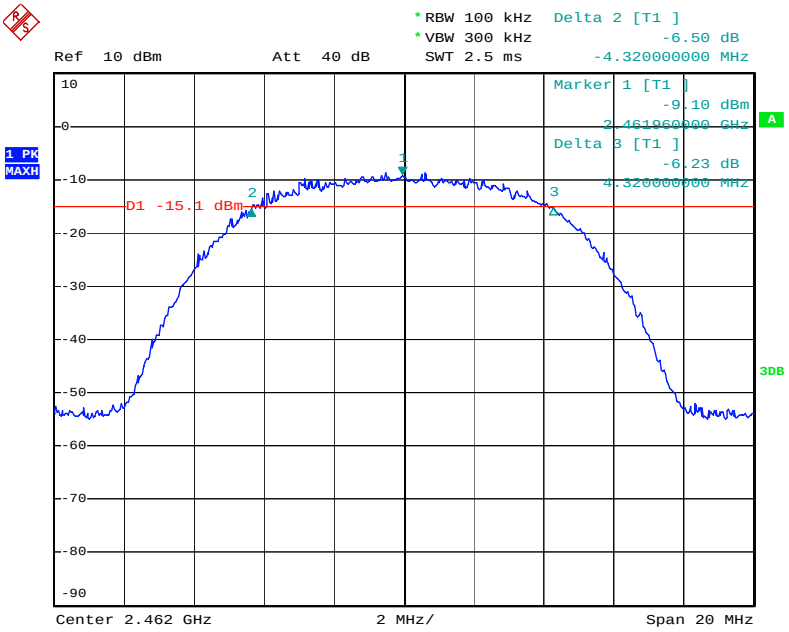
802.11b Channel High 2462MHz



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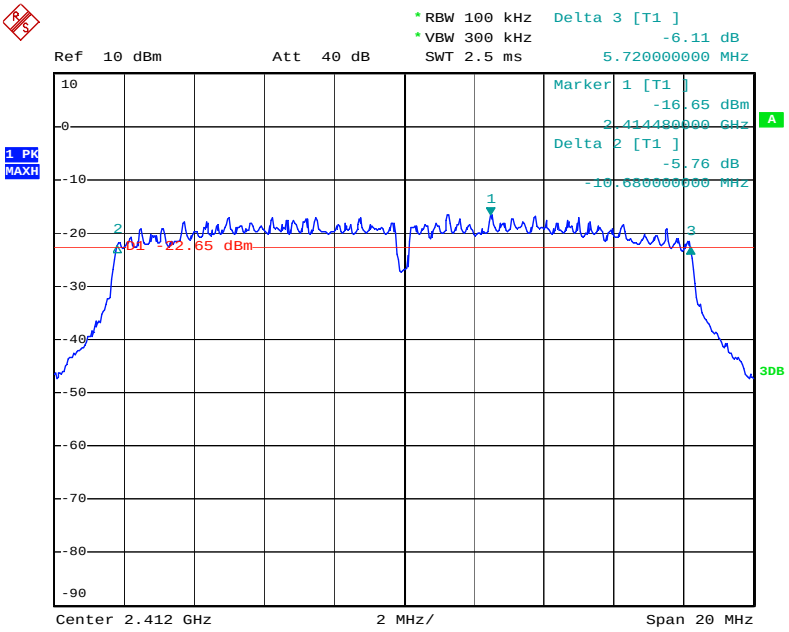
802.11g Channel Low 2412MHz



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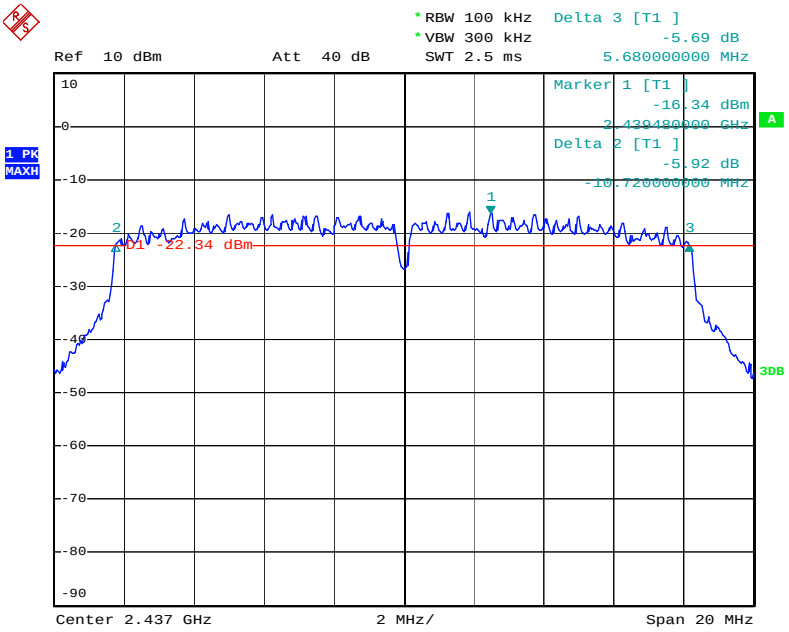
802.11g Channel Middle 2437MHz



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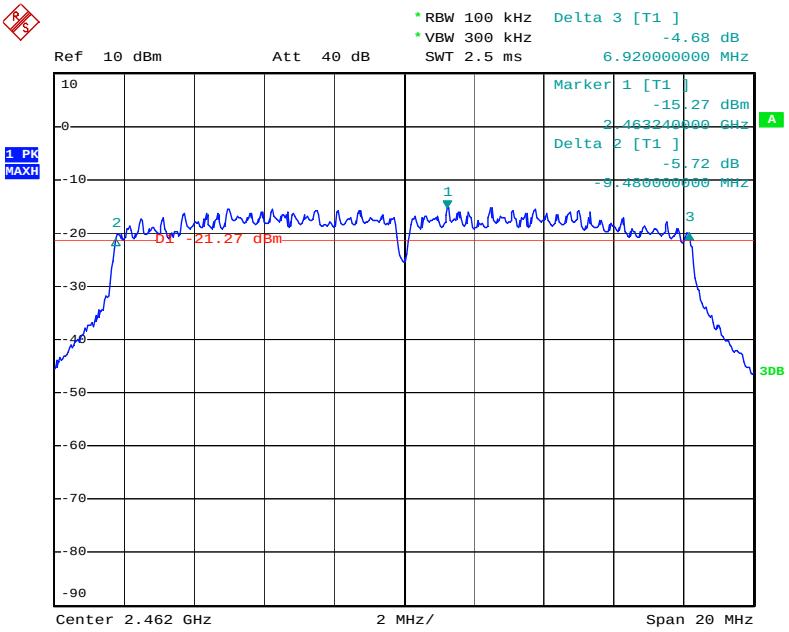
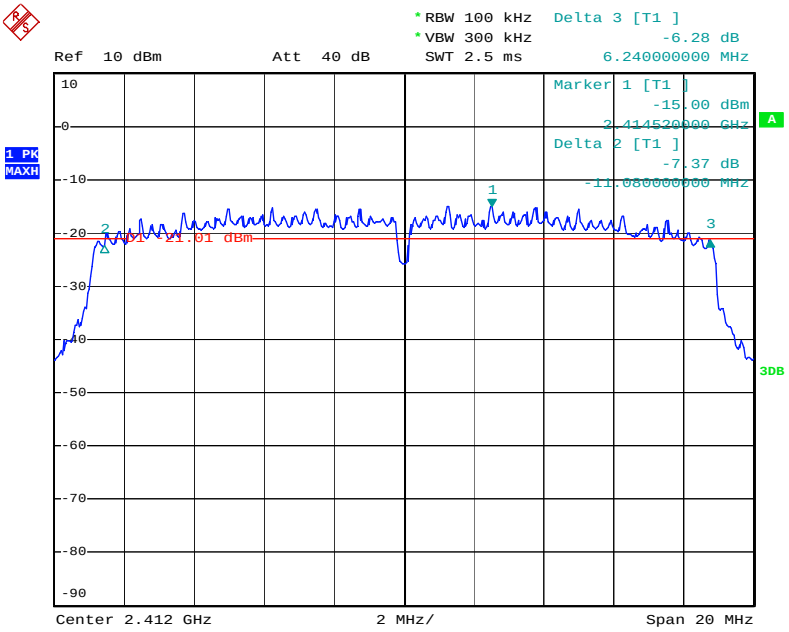
802.11g Channel High 2462MHz



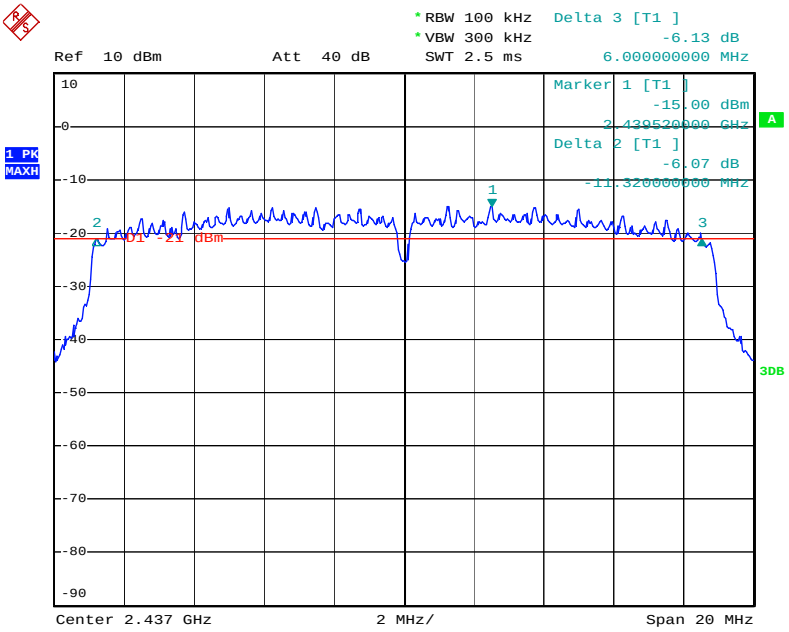
Date: 7.JUN.2014 15:50:32

802.11n Channel Low 2412MHz (20MHz)



Date: 7.JUN.2014 16:08:56

802.11n Channel Middle 2437MHz(20MHz)



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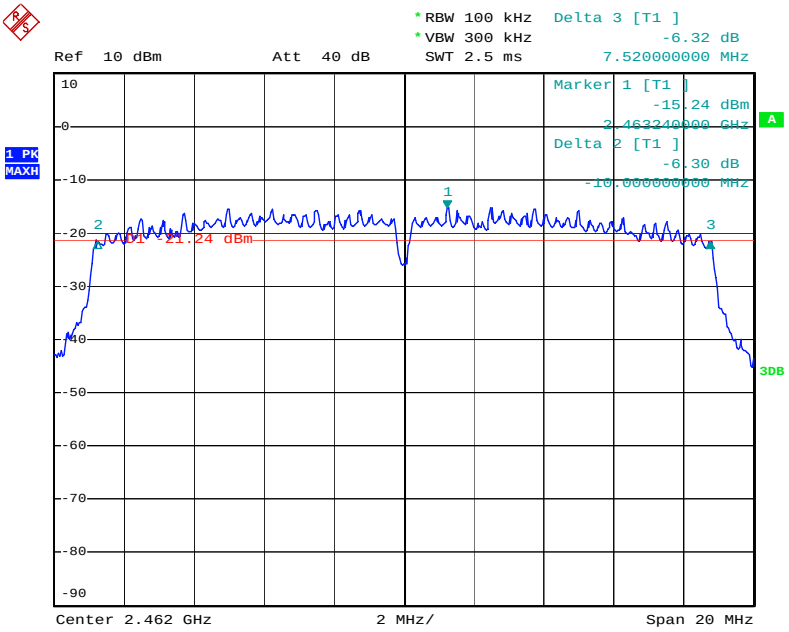
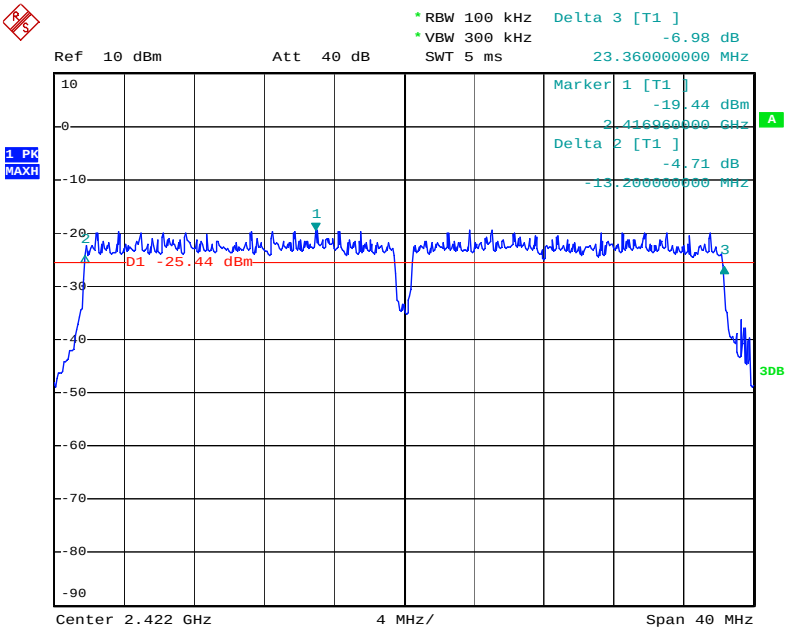
802.11n Channel High 2462MHz(20MHz)



Date: 7.JUN.2014 16:01:51

802.11n Channel Low 2422MHz (40MHz)



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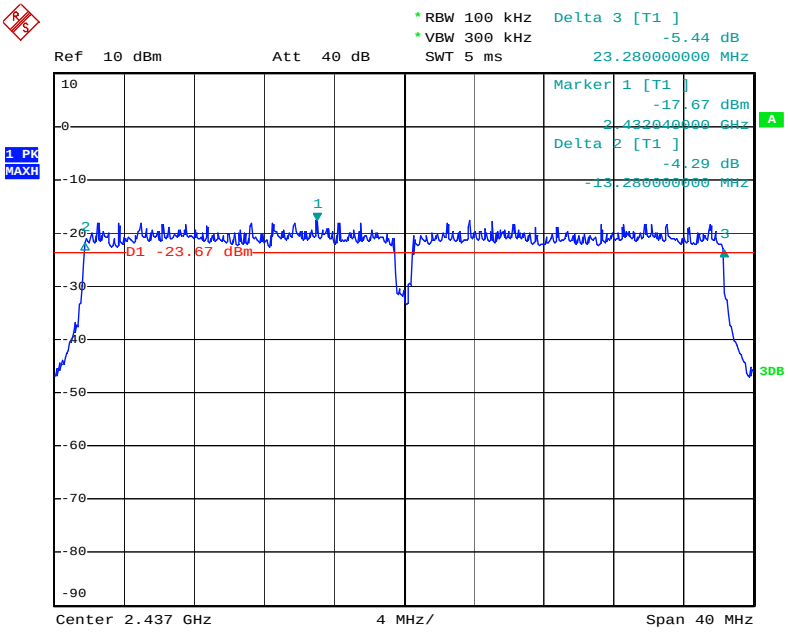
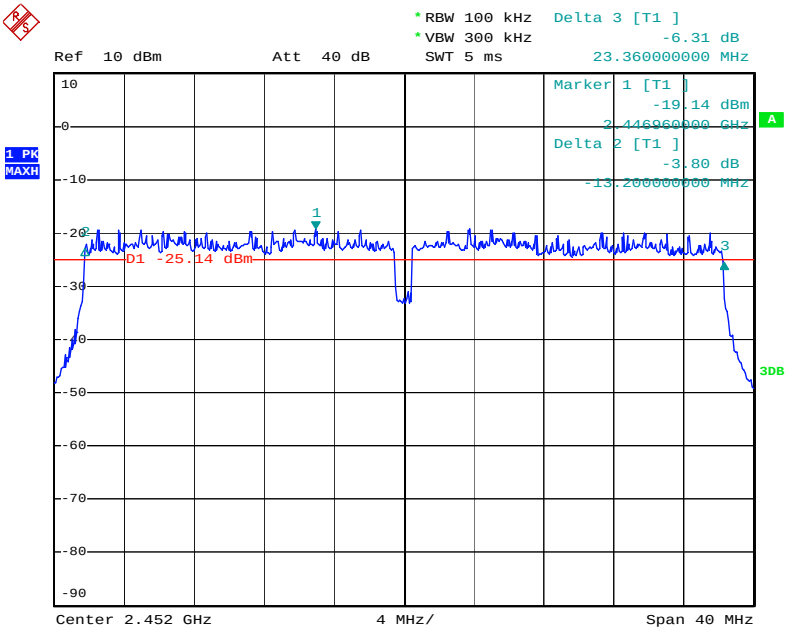
802.11n Channel Middle 2437MHz(40MHz)



Date: 7.JUN.2014 16:21:02

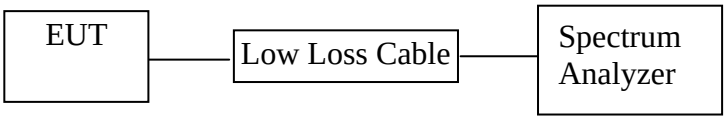
802.11n Channel High 2452MHz(40MHz)



Date: 7.JUN.2014 16:23:14

7. MAXIMUM PEAK OUTPUT POWER

7.1.Block Diagram of Test Setup



(EUT: 300M Mini Wireless USB Adapter)

7.2.The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

7.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 7.1.

7.4.2.Turn on the power of all equipment.

7.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

7.5.Test Procedure

7.5.1.The EUT was tested according to DTS test procedure of April 09, 2013 KDB558074 D01 DTS Meas Guidance v03 for compliance to FCC 47CFR 15.247 requirements.

7.5.2.The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.3.Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz.

7.5.4.Measurement the maximum peak output power.

7.6.Test Result

The test was performed with 802.11b						
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Peak Output Power Chain 1 (mW)	Peak Output Power Chain 2 (mW)	Limits dBm / W
Low	2412	1.64	1.55	1.459	1.429	30 dBm / 1 W
Middle	2437	1.73	1.73	1.489	1.489	30 dBm / 1 W
High	2462	1.76	1.75	1.500	1.496	30 dBm / 1 W

The test was performed with 802.11g						
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Peak Output Power Chain 1 (mW)	Peak Output Power Chain 2 (mW)	Limits dBm / W
Low	2412	2.65	2.66	1.841	1.845	30 dBm / 1 W
Middle	2437	2.66	2.27	1.845	1.687	30 dBm / 1 W
High	2462	2.38	2.52	1.730	1.786	30 dBm / 1 W

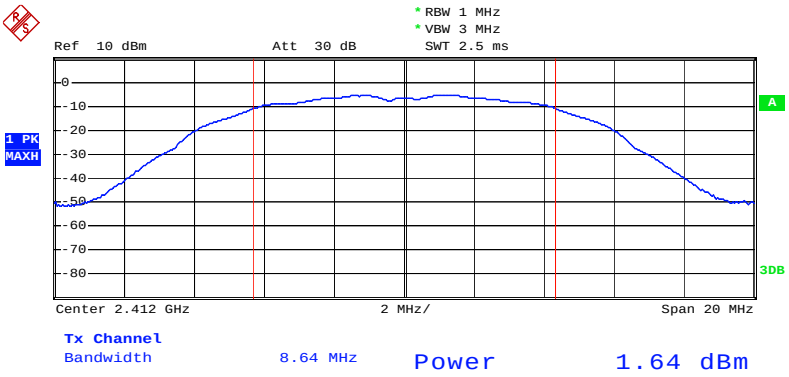
The test was performed with 802.11 n (20MHz)						
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Total(dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2412	1.86	1.56	4.72	2.97	30 dBm / 1 W
Middle	2437	1.41	1.72	4.58	2.87	30 dBm / 1 W
High	2462	1.23	1.38	4.31	2.70	30 dBm / 1 W

The test was performed with 802.11 n (40MHz)						
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Total(dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2422	0.62	0.32	3.48	2.23	30 dBm / 1 W
Middle	2437	0.48	0.65	3.58	2.28	30 dBm / 1 W
High	2452	0.82	0.68	3.77	2.38	30 dBm / 1 W

The spectrum analyzer plots are attached as below.

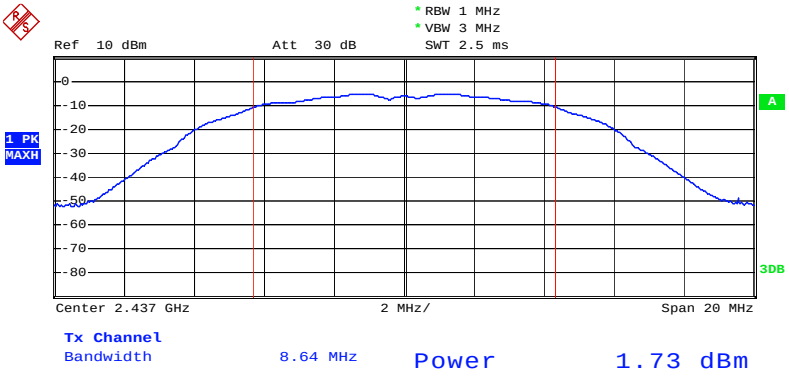
Antenna 1 test data:

802.11b Channel Low 2412MHz



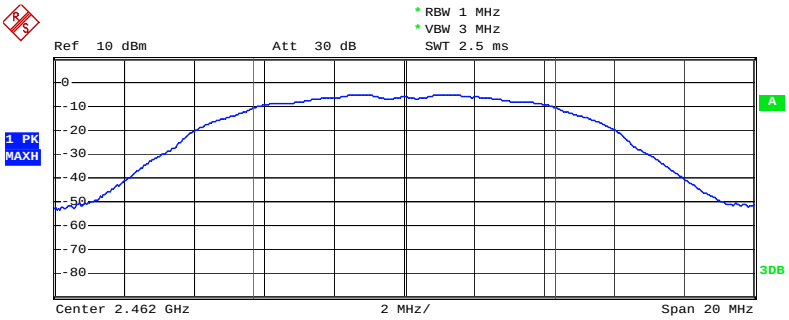
Date: 11.JUN.2014 14:01:38

802.11b Channel Middle 2437MHz



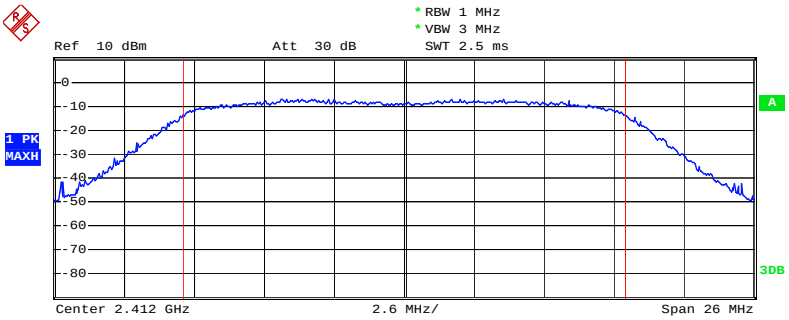
Date: 11.JUN.2014 14:02:11

802.11b Channel High 2462MHz



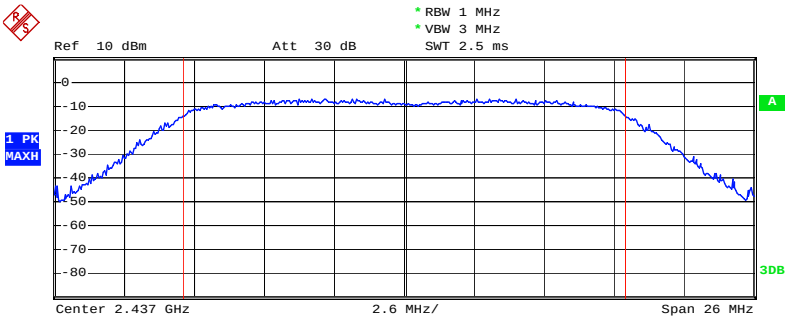
Date: 11.JUN.2014 14:02:50

802.11g Channel Low 2412MHz



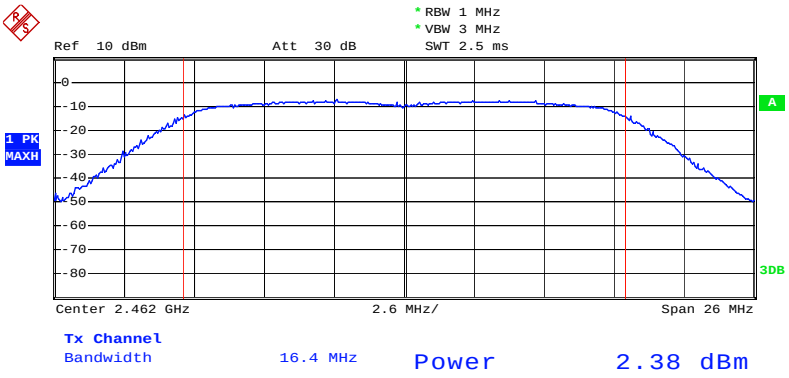
Date: 11.JUN.2014 14:17:07

802.11g Channel Middle 2437MHz



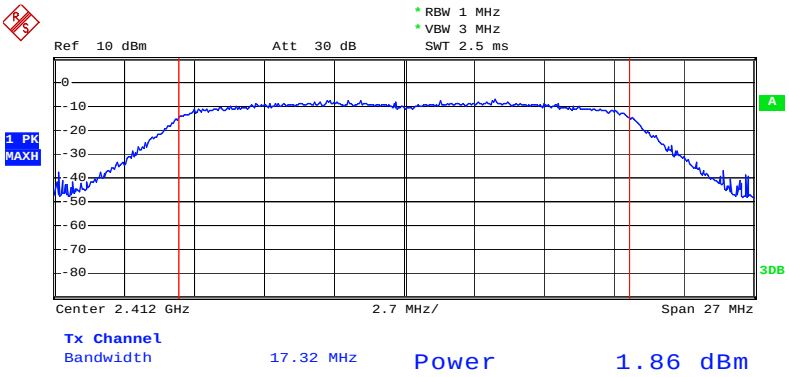
Date: 11.JUN.2014 14:16:14

802.11g Channel High 2462MHz



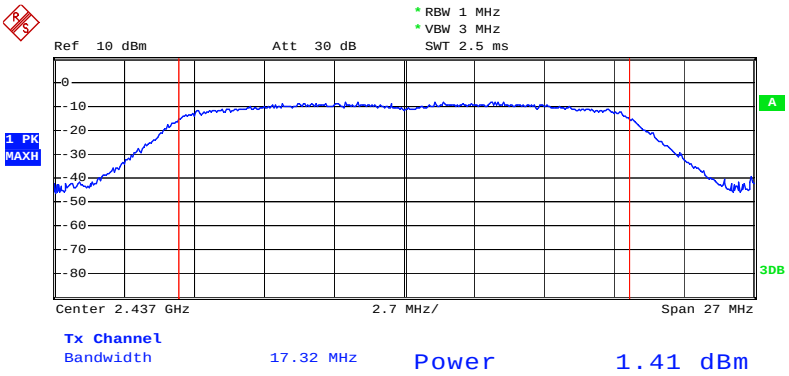
Date: 11.JUN.2014 14:15:21

802.11n Channel Low 2412MHz (20MHz)



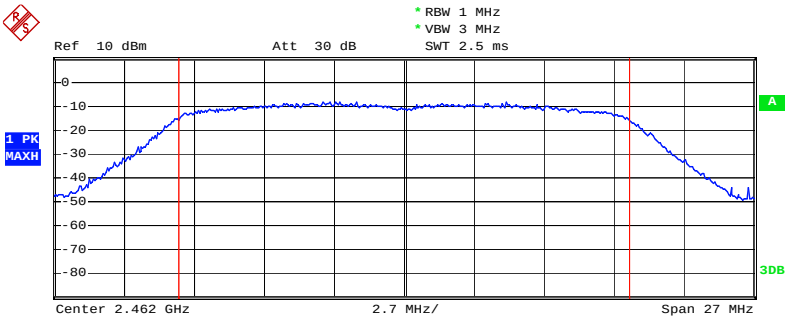
Date: 12.JUN.2014 09:12:17

802.11n Channel Middle 2437MHz (20MHz)



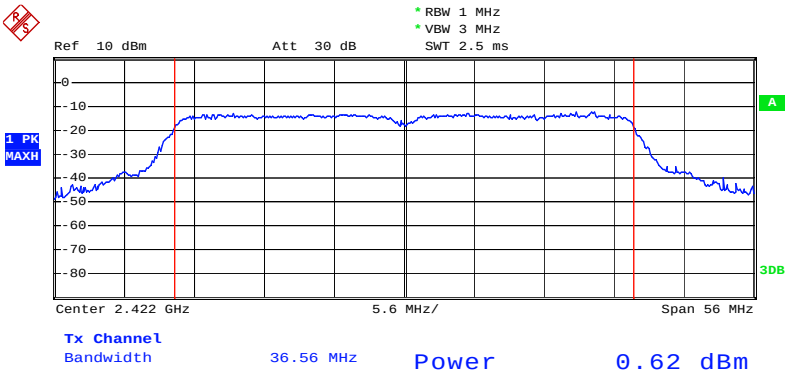
Date: 12.JUN.2014 09:15:10

802.11n Channel High 2462MHz (20MHz)



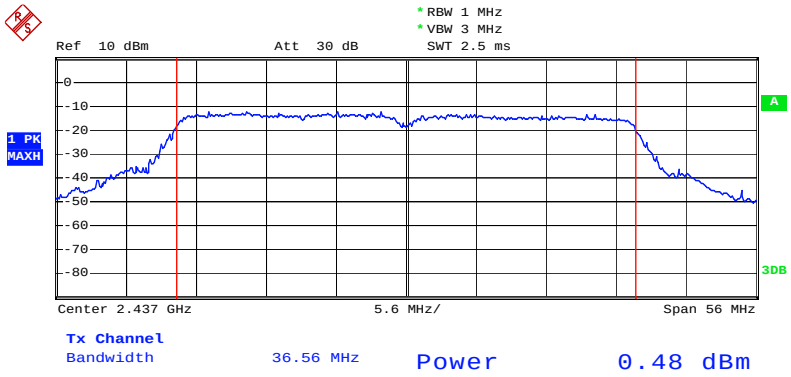
Date: 12.JUN.2014 09:18:05

802.11n Channel Low 2422MHz (40MHz)



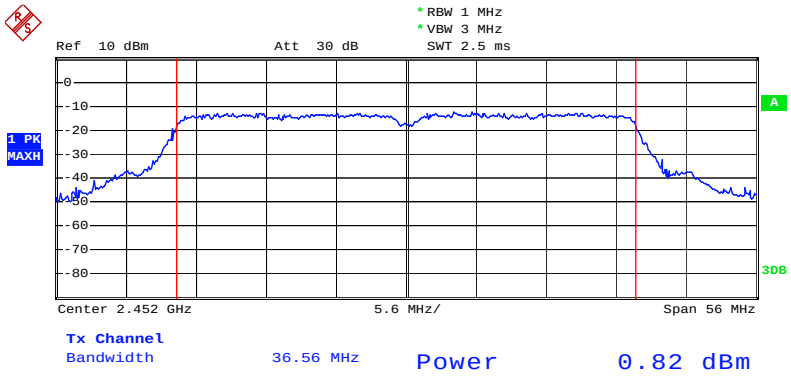
Date: 12.JUN.2014 09:28:54

802.11n Channel Middle 2437MHz (40MHz)



Date: 12.JUN.2014 09:30:28

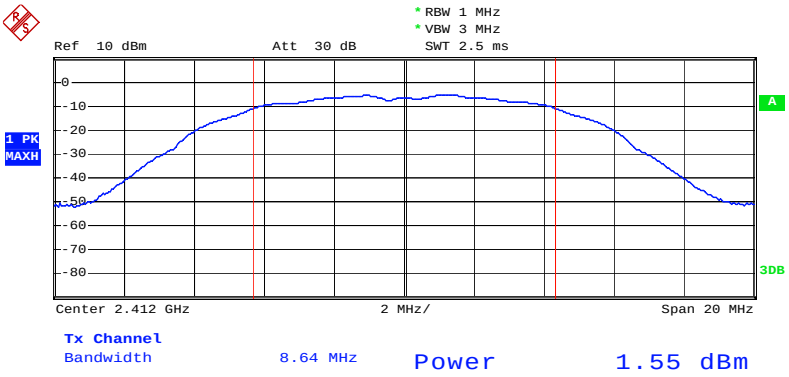
802.11n Channel High 2452MHz (40MHz)



Date: 12.JUN.2014 09:27:40

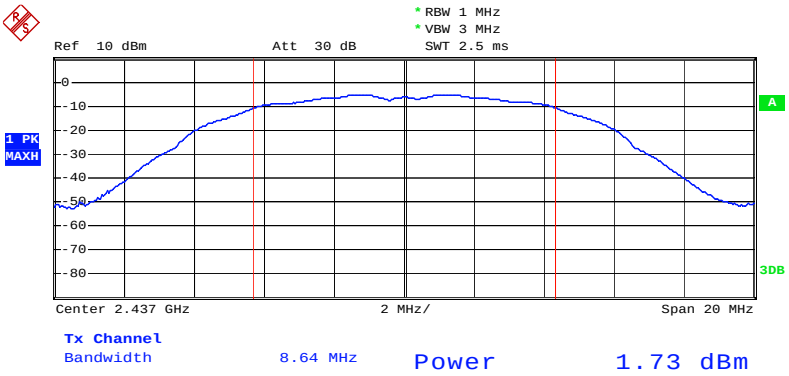
Antenna 2 test data:

802.11b Channel Low 2412MHz



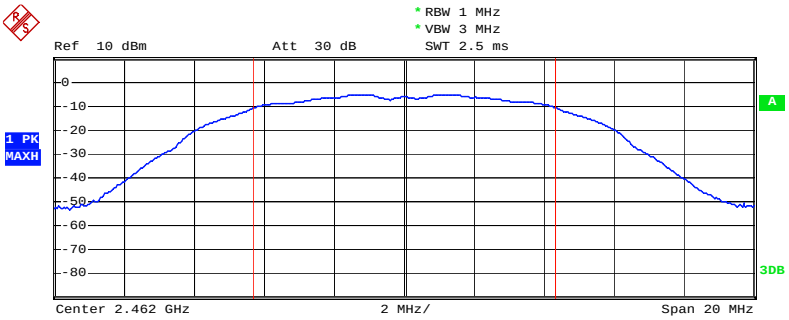
Date: 11.JUN.2014 14:04:21

802.11b Channel Middle 2437MHz



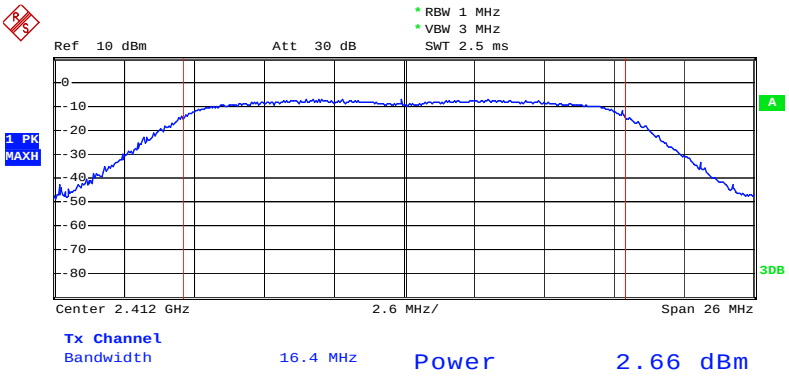
Date: 11.JUN.2014 14:03:32

802.11b Channel High 2462MHz



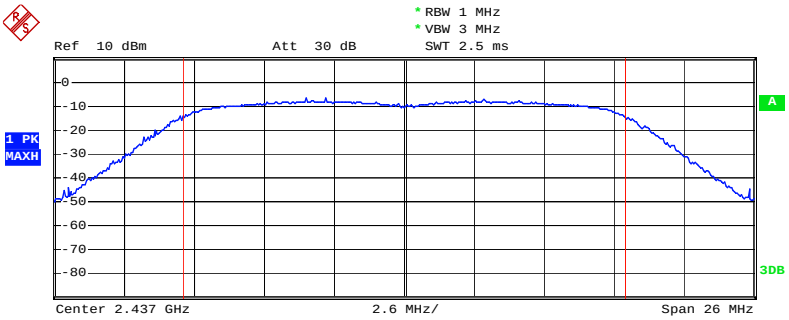
Date: 11.JUN.2014 14:03:09

802.11g Channel Low 2412MHz



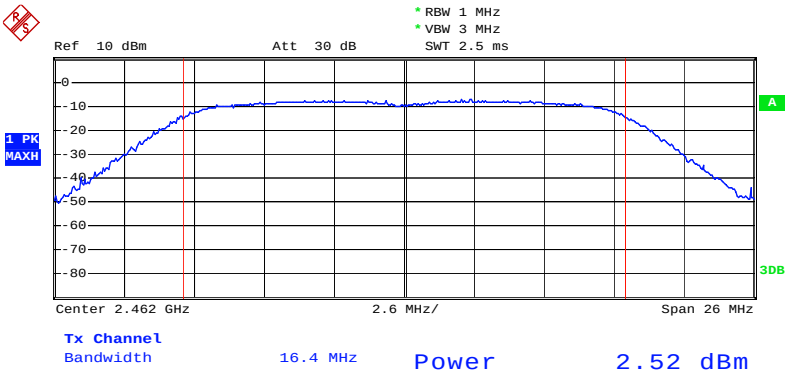
Date: 11.JUN.2014 14:11:53

802.11g Channel Middle 2437MHz



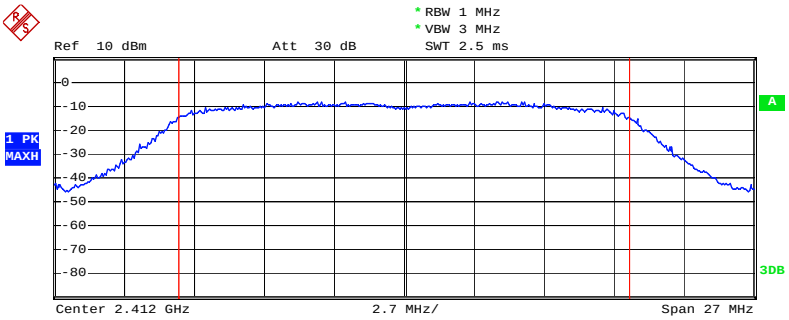
Date: 11.JUN.2014 14:14:37

802.11g Channel High 2462MHz



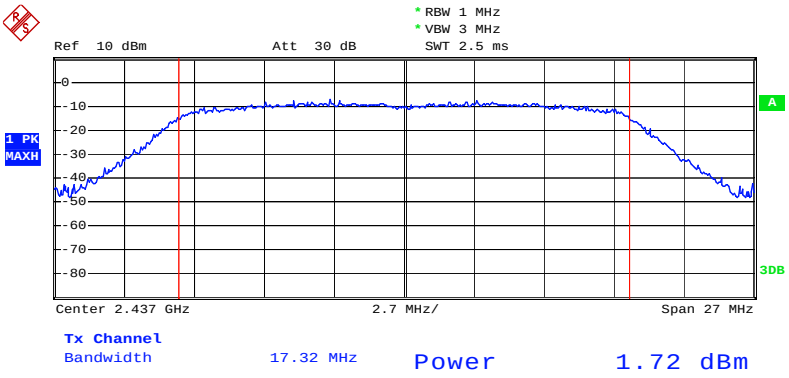
Date: 11.JUN.2014 14:15:09

802.11n Channel Low 2412MHz (20MHz)



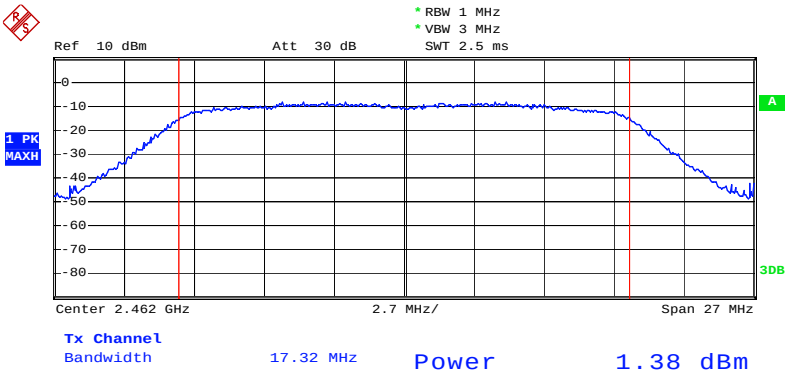
Date: 12.JUN.2014 09:22:11

802.11n Channel Middle 2437MHz (20MHz)



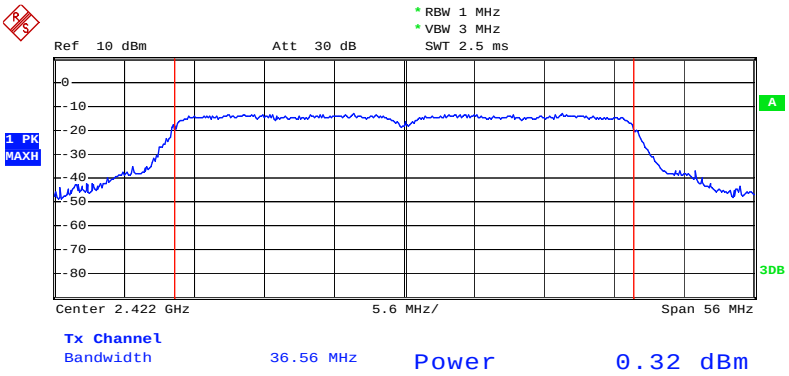
Date: 12.JUN.2014 09:21:15

802.11n Channel High 2462MHz (20MHz)



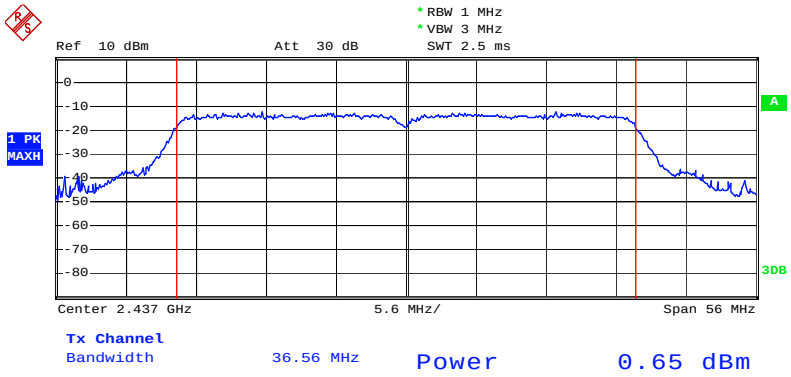
Date: 12.JUN.2014 09:18:27

802.11n Channel Low 2422MHz (40MHz)



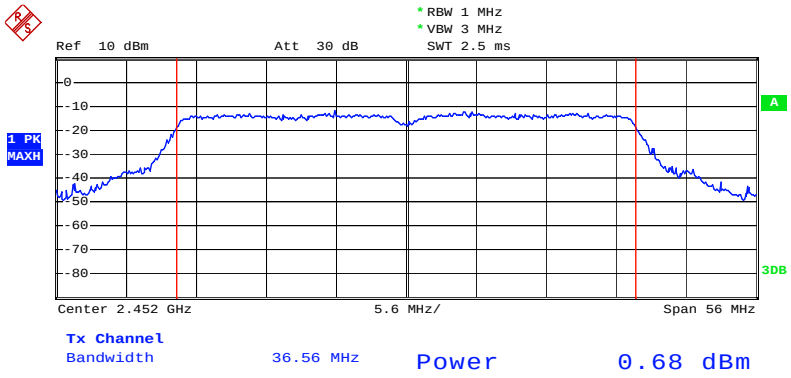
Date: 12.JUN.2014 09:24:27

802.11n Channel Middle 2437MHz (40MHz)



Date: 12.JUN.2014 09:29:44

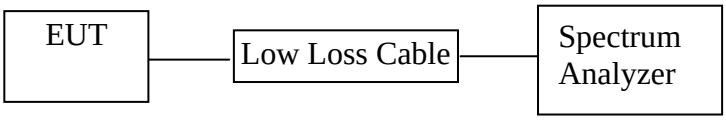
802.11n Channel High 2452MHz (40MHz)



Date: 12.JUN.2014 09:27:15

8. POWER SPECTRAL DENSITY MEASUREMENT

8.1.Block Diagram of Test Setup



8.2.The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4.Operating Condition of EUT

8.4.1.Setup the EUT and simulator as shown as Section 8.1.

8.4.2.Turn on the power of all equipment.

8.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

8.5.Test Procedure

8.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2.Measurement Procedure PK PSD:

8.5.3.This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.

3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.5.4.Measurement the maximum power spectral density.

8.6.Test Result

The test was performed with 802.11b				
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Limits (dBm)
Low	2412	-29.92	-29.95	8 dBm
Middle	2437	-22.89	-22.86	8 dBm
High	2462	-24.31	-24.27	8 dBm

The test was performed with 802.11g				
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Limits (dBm)
Low	2412	-29.92	-29.90	8 dBm
Middle	2437	-31.06	-31.02	8 dBm
High	2462	-30.22	-30.26	8 dBm

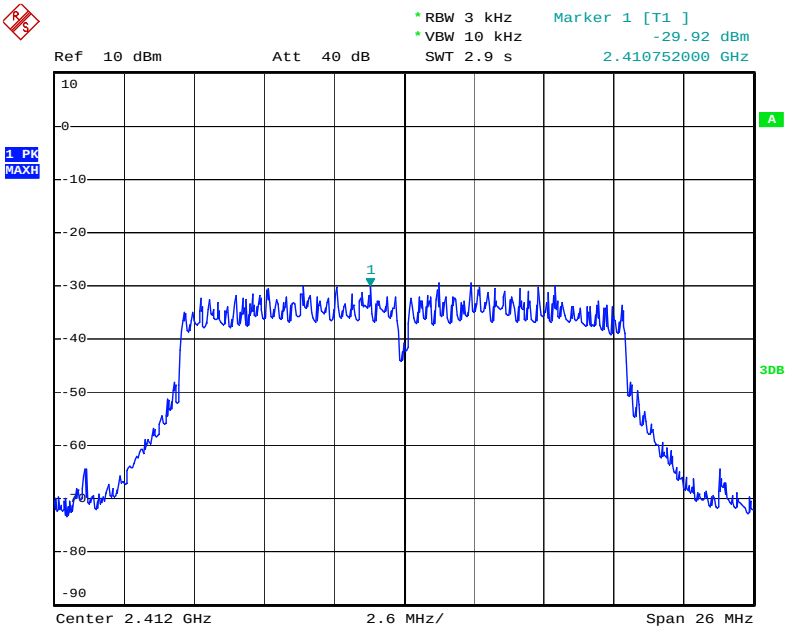
The test was performed with 802.11n (20MHz)					
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Total Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-31.34	-30.01	-27.61	8 dBm
Middle	2437	-29.77	-30.63	-27.17	8 dBm
High	2462	-30.02	-31.20	-27.56	8 dBm

The test was performed with 802.11n (40MHz)					
Channel	Frequency (MHz)	Chain 1 (dBm)	Chain 2 (dBm)	Total Power Spectral Density (dBm)	Limits (dBm)
Low	2422	-33.78	-34.61	-31.17	8 dBm
Middle	2437	-33.37	-32.82	-30.08	8 dBm
High	2452	-33.78	-33.99	-30.87	8 dBm

The spectrum analyzer plots are attached as below.

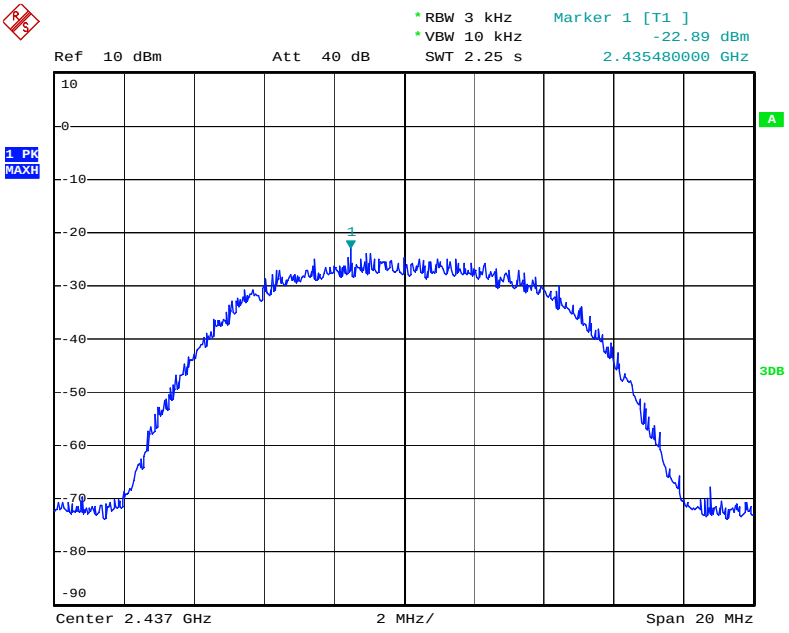
Antenna 1 test data:

802.11b Channel Low 2412MHz



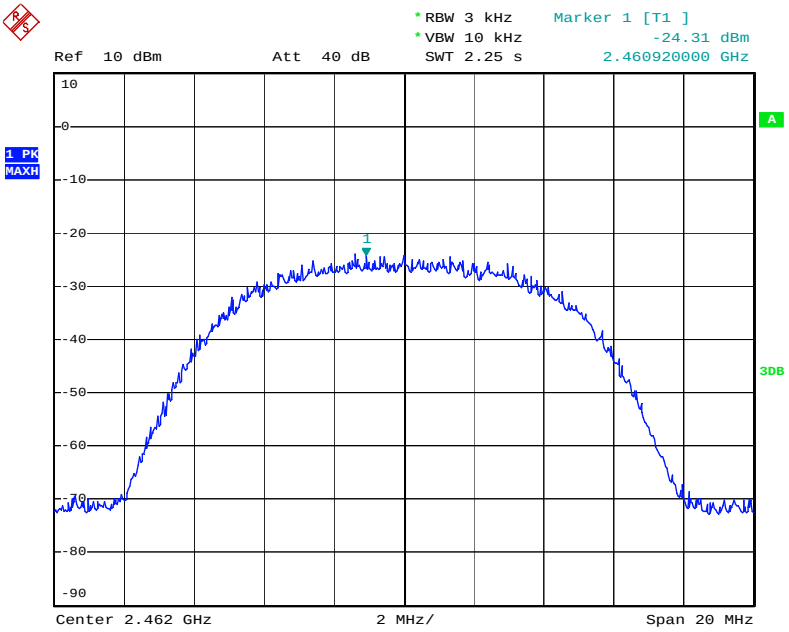
Date: 7.JUN.2014 15:56:14

802.11b Channel Middle 2437MHz



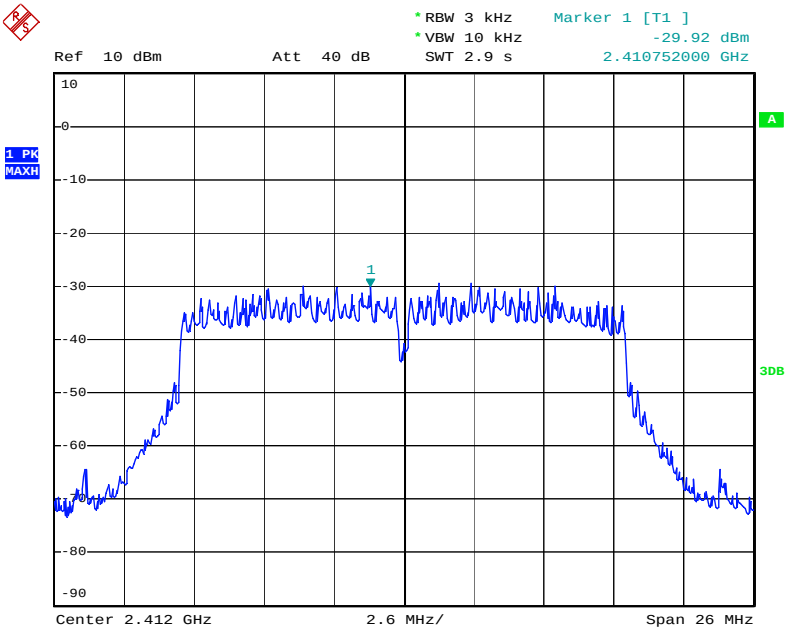
Date: 7.JUN.2014 16:33:34

802.11b Channel High 2462MHz



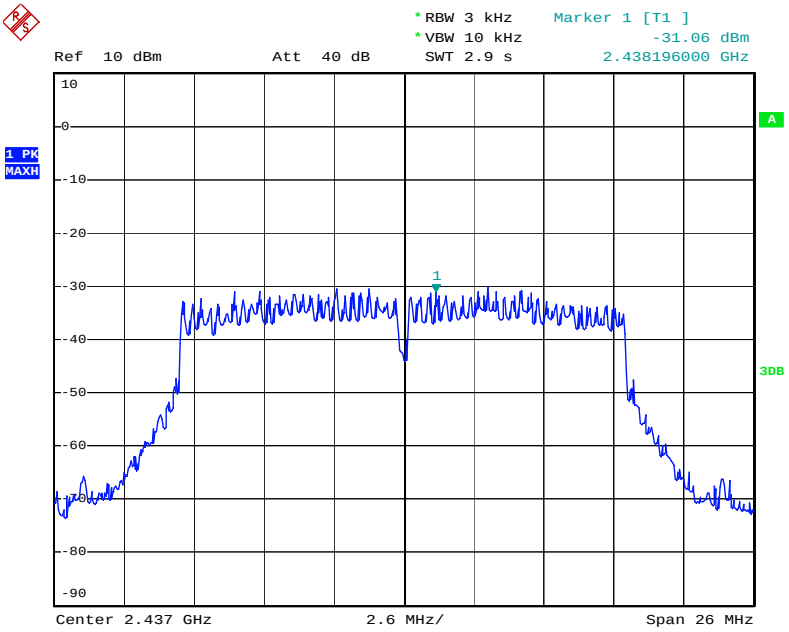
Date: 7.JUN.2014 16:33:04

802.11g Channel Low 2412MHz



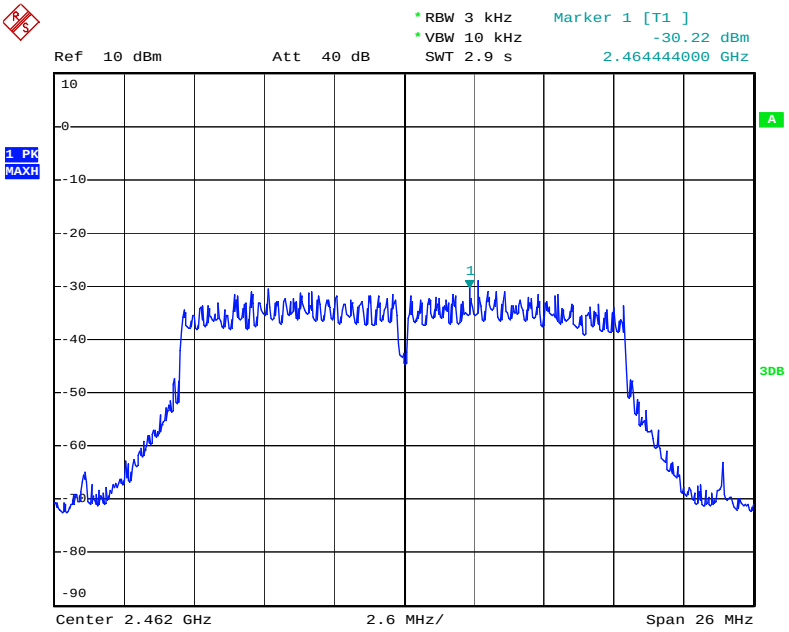
Date: 7.JUN.2014 15:56:14

802.11g Channel Middle 2437MHz



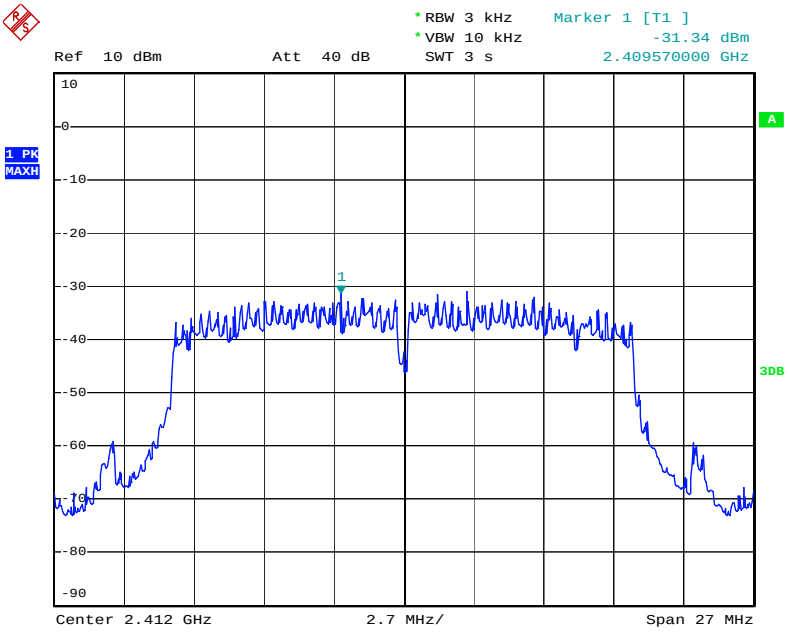
Date: 7.JUN.2014 15:55:47

802.11g Channel High 2462MHz



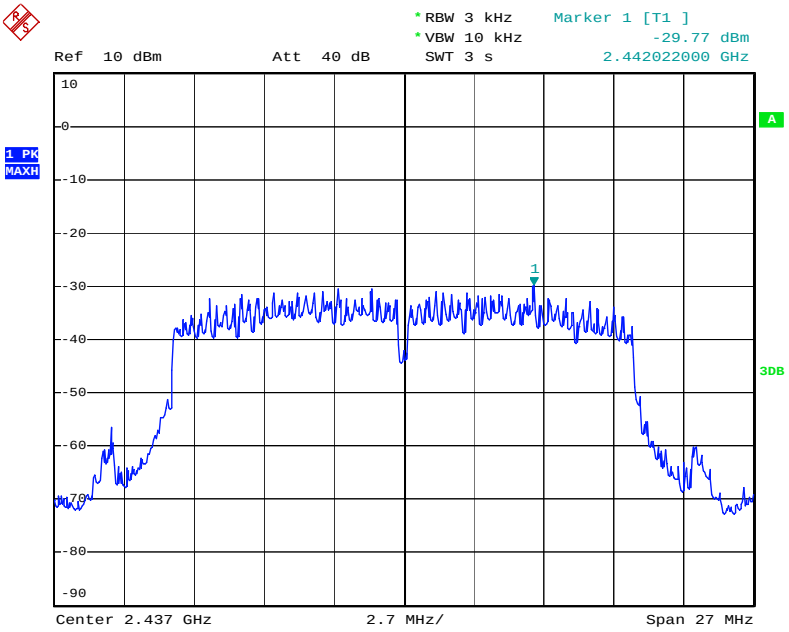
Date: 7.JUN.2014 15:55:19

802.11n Channel Low 2412MHz (20MHz)



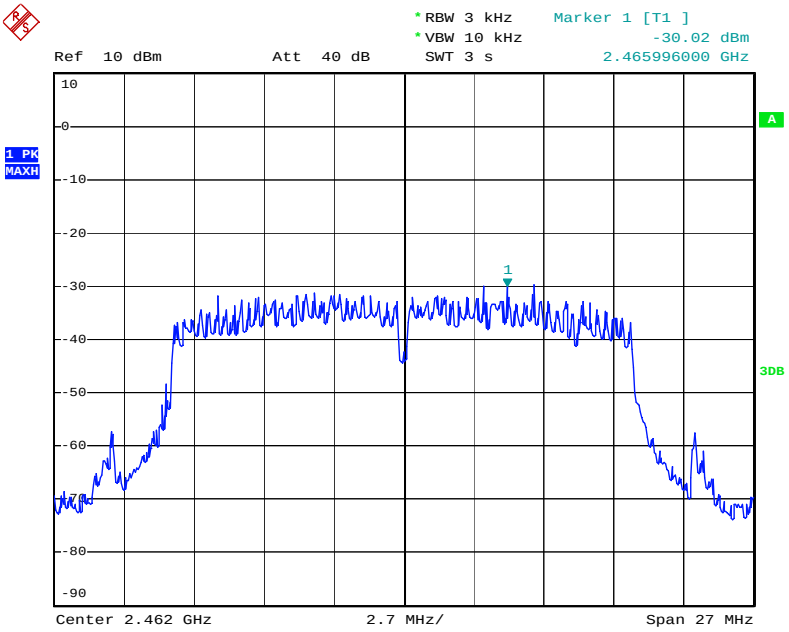
Date: 7.JUN.2014 15:58:06

802.11n Channel Middle 2437MHz (20MHz)



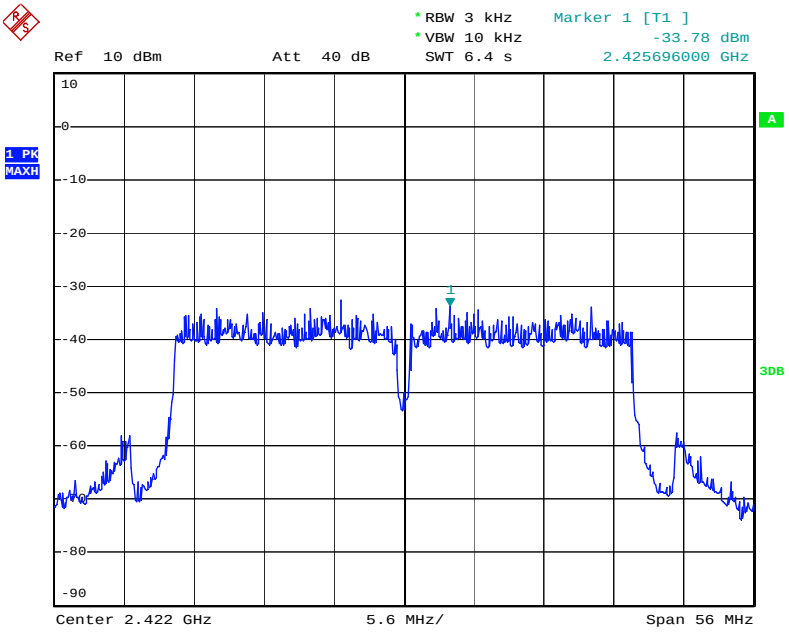
Date: 7.JUN.2014 15:58:39

802.11n Channel High 2462MHz(20MHz)



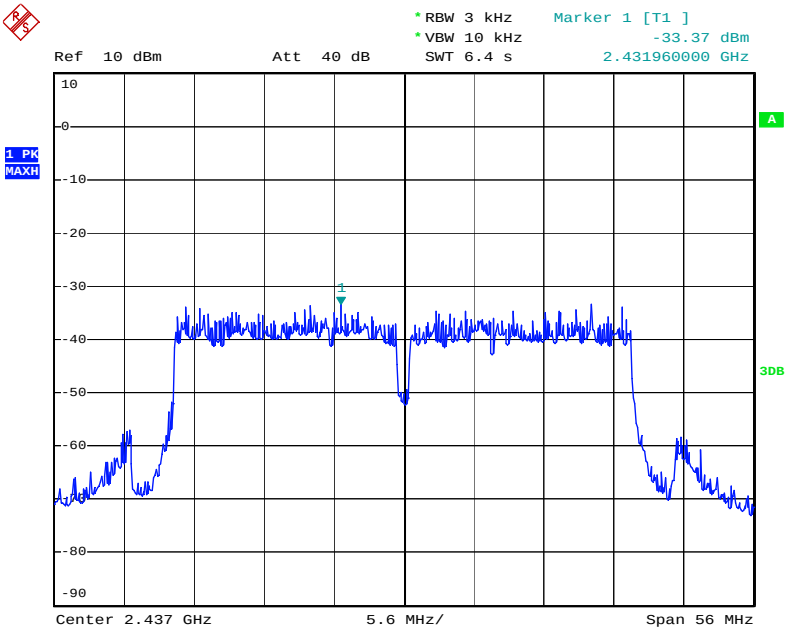
Date: 7.JUN.2014 15:59:09

802.11n Channel Low 2422MHz (40MHz)



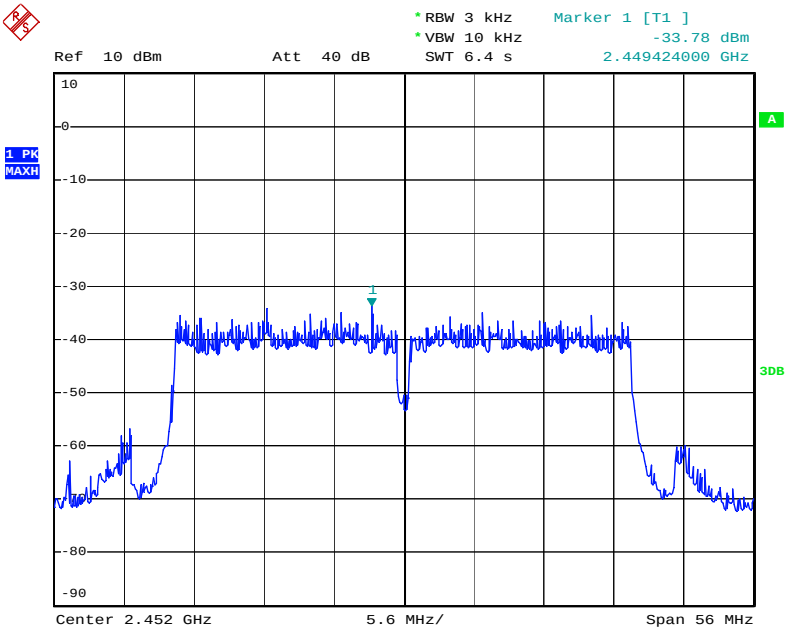
Date: 7.JUN.2014 16:28:11

802.11n Channel Middle 2437MHz(40MHz)



Date: 7.JUN.2014 16:28:38

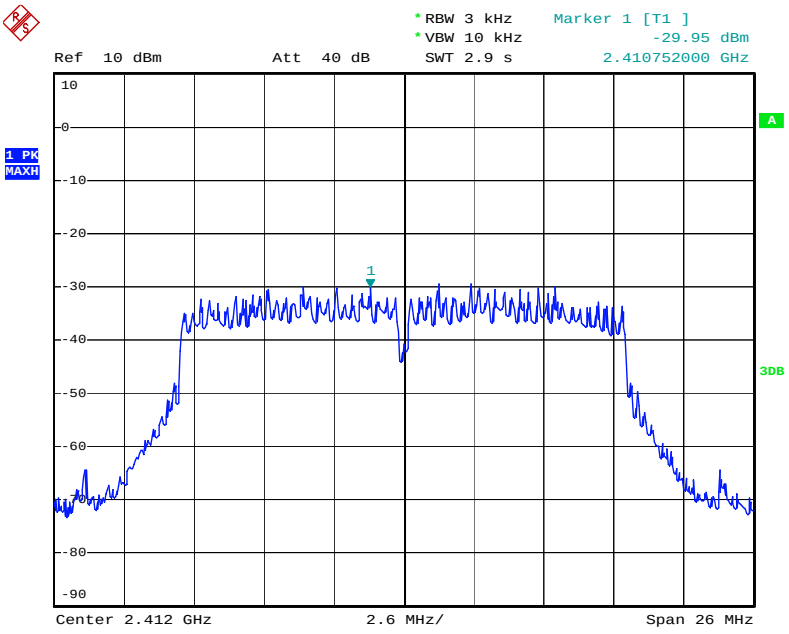
802.11n Channel High 2452MHz(40MHz)



Date: 7.JUN.2014 16:29:13

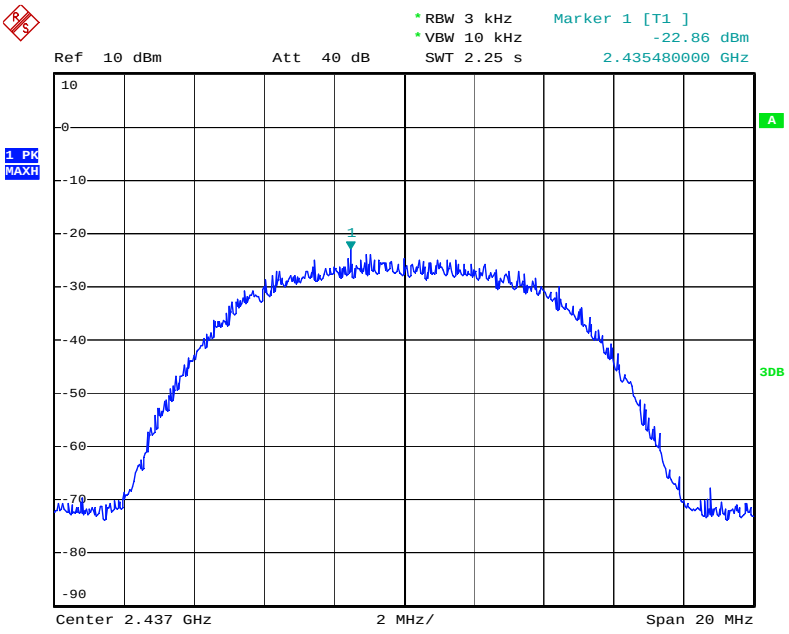
Antenna 2 test data:

802.11b Channel Low 2412MHz



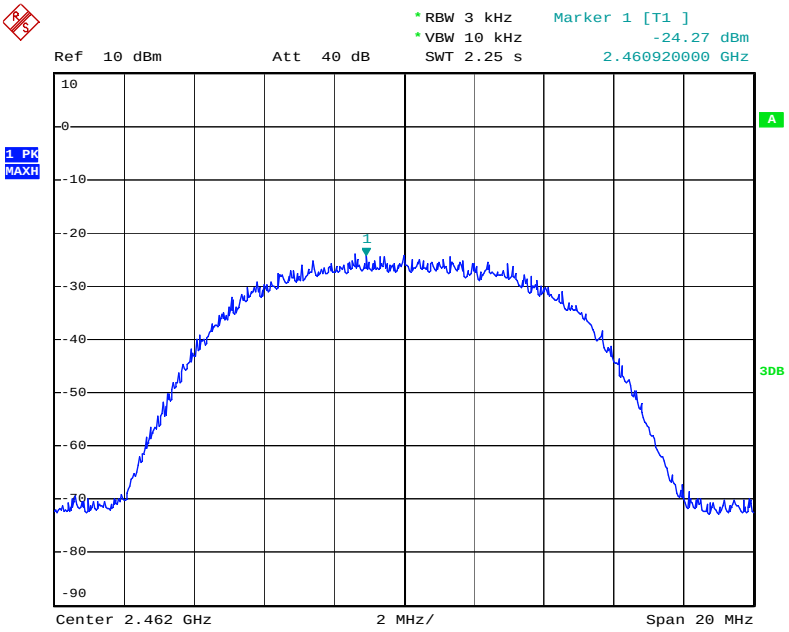
Date: 7.JUN.2014 15:56:14

802.11b Channel Middle 2437MHz



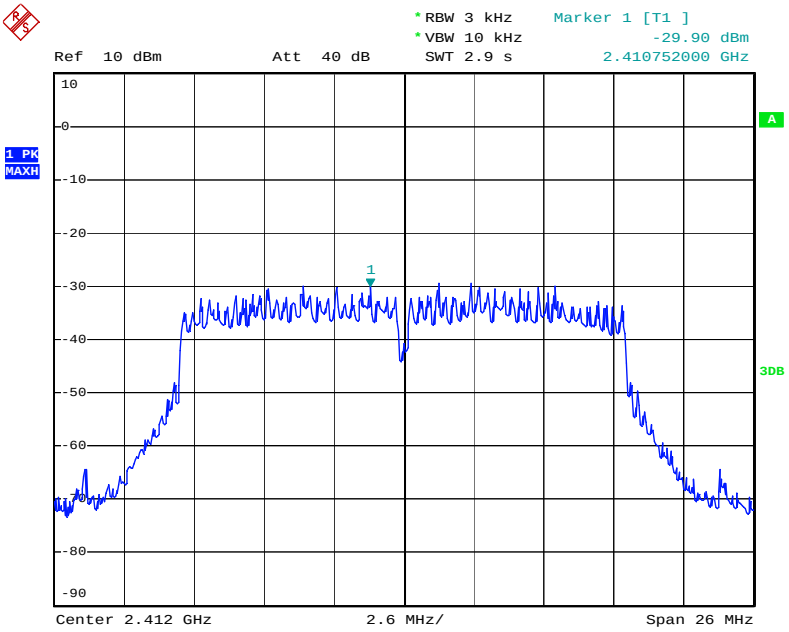
Date: 7.JUN.2014 16:33:34

802.11b Channel High 2462MHz



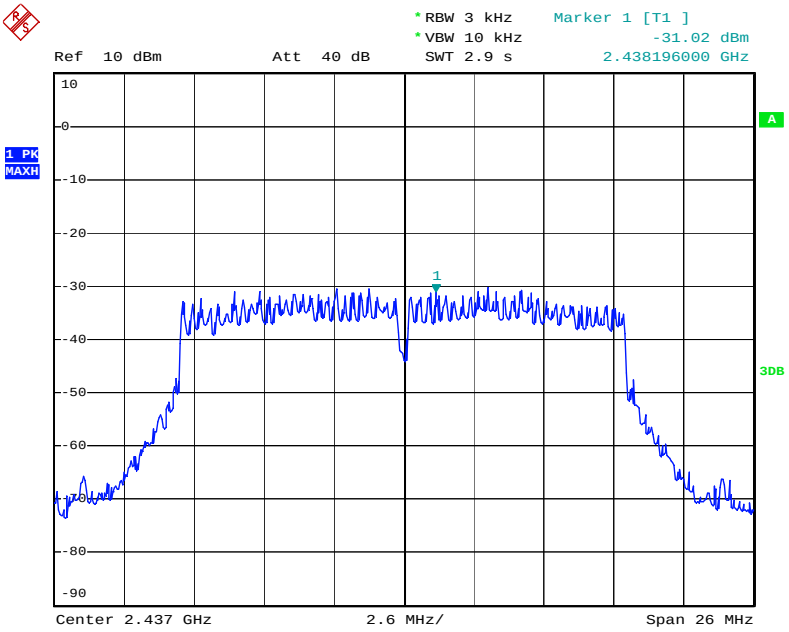
Date: 7.JUN.2014 16:33:04

802.11g Channel Low 2412MHz



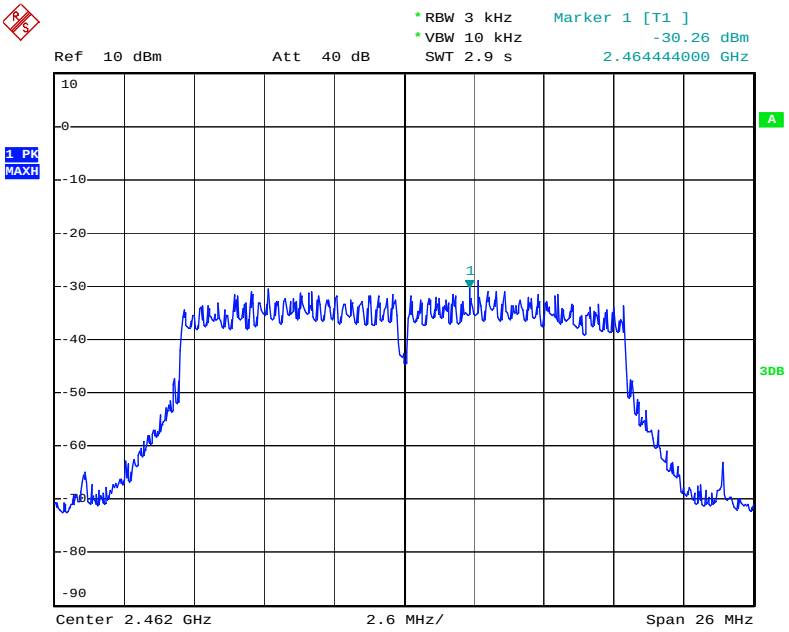
Date: 7.JUN.2014 15:56:14

802.11g Channel Middle 2437MHz



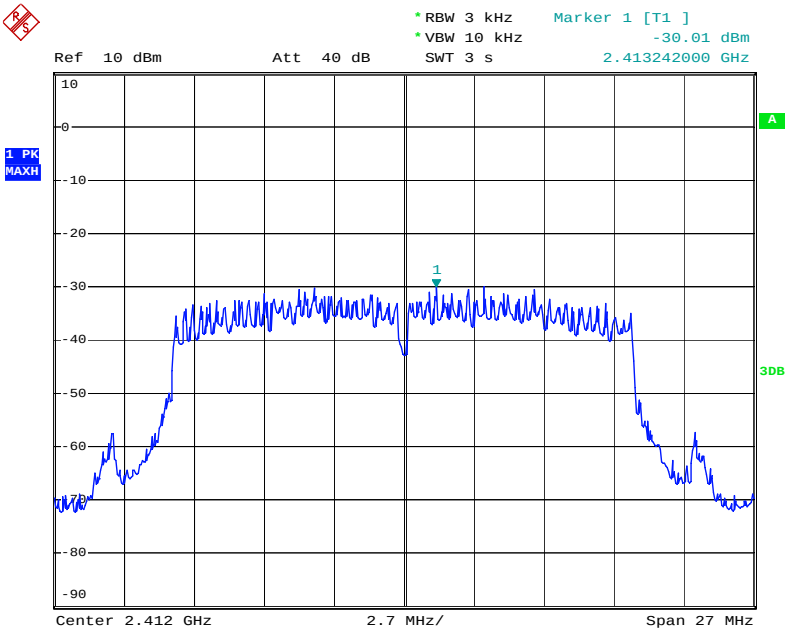
Date: 7.JUN.2014 15:55:47

802.11g Channel High 2462MHz



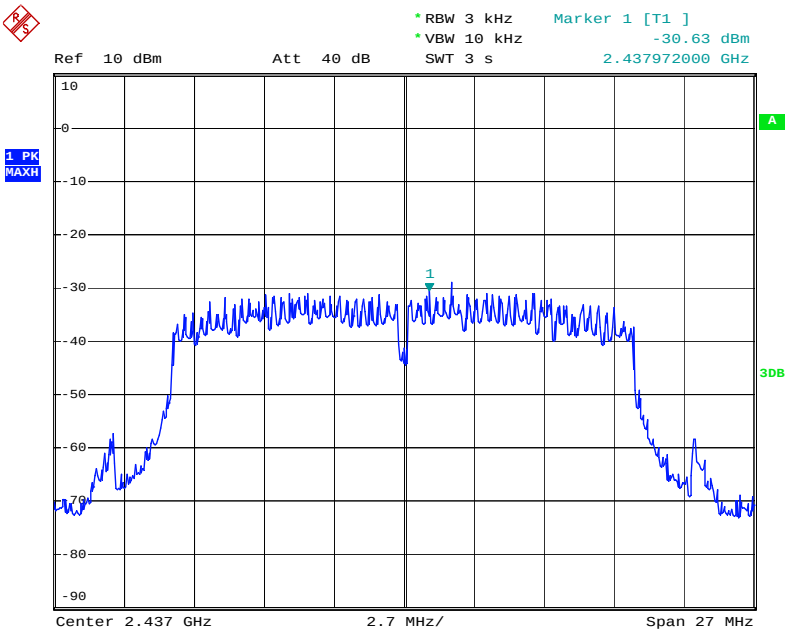
Date: 7.JUN.2014 15:55:19

802.11n Channel Low 2412MHz (20MHz)



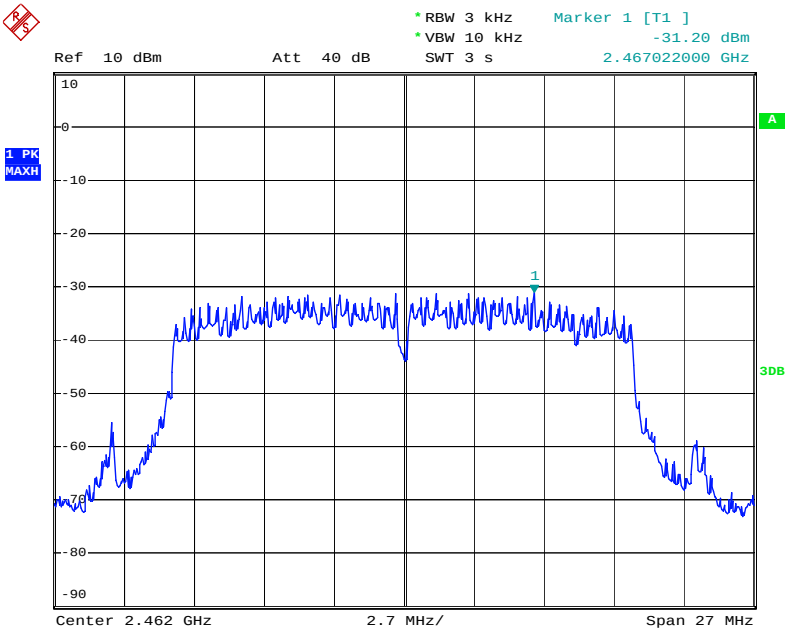
Date: 12.JUN.2014 09:36:56

802.11n Channel Middle 2437MHz (20MHz)



Date: 12.JUN.2014 09:37:41

802.11n Channel High 2462MHz(20MHz)



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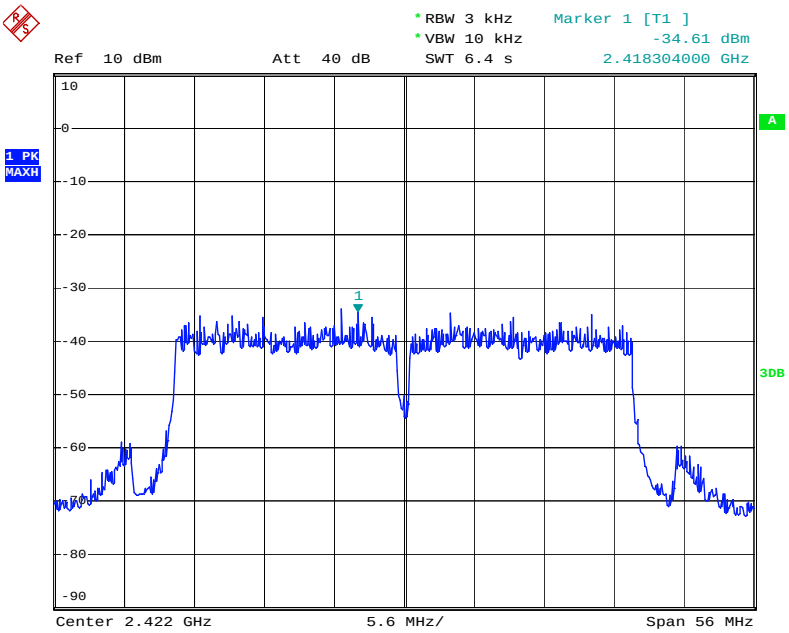
802.11n Channel Low 2422MHz (40MHz)



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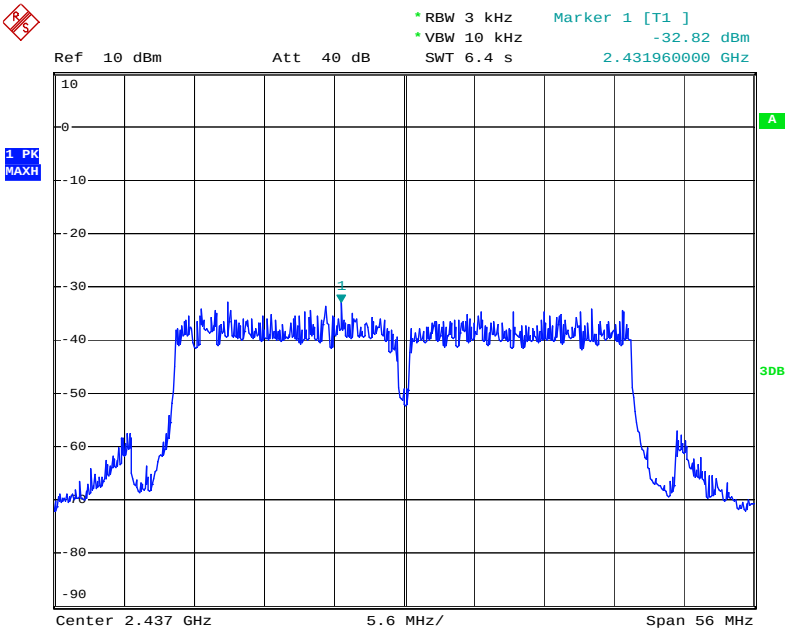
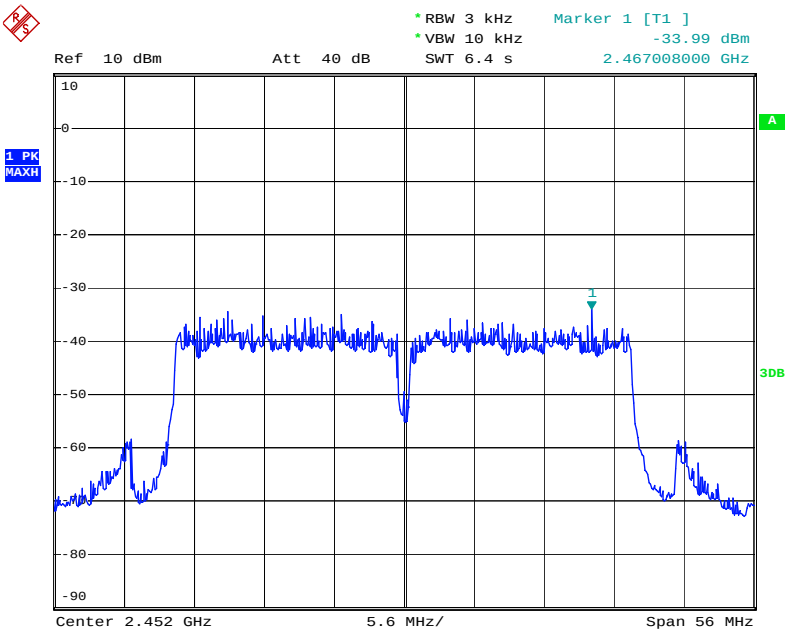
802.11n Channel Middle 2437MHz(40MHz)



Date: 12.JUN.2014 09:33:30

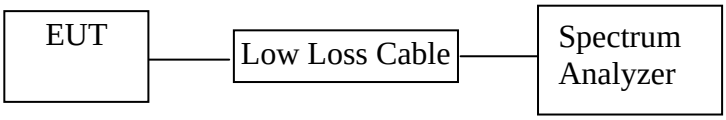
802.11n Channel High 2452MHz(40MHz)



Date: 12.JUN.2014 09:35:47

9. BAND EDGE COMPLIANCE TEST

9.1.Block Diagram of Test Setup



(EUT: 300M Mini Wireless USB Adapter)

9.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

9.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.4.Operating Condition of EUT

9.4.1.Setup the EUT and simulator as shown as Section 9.1.

9.4.2.Turn on the power of all equipment.

9.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

9.5.Test Procedure

Conducted Band Edge:

9.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

9.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

Radiate Band Edge:

9.5.3.The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

9.5.4.The turntable was rotated for 360 degrees to determine the position of maximum emission level.

9.5.5.EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

9.5.6.Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

9.5.7.RBW=1MHz, VBW=1MHz

9.5.8.The band edges was measured and recorded.

9.6.Test Result

The test was performed with 802.11b		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	44.34	> 20dBc
2462	43.12	> 20dBc

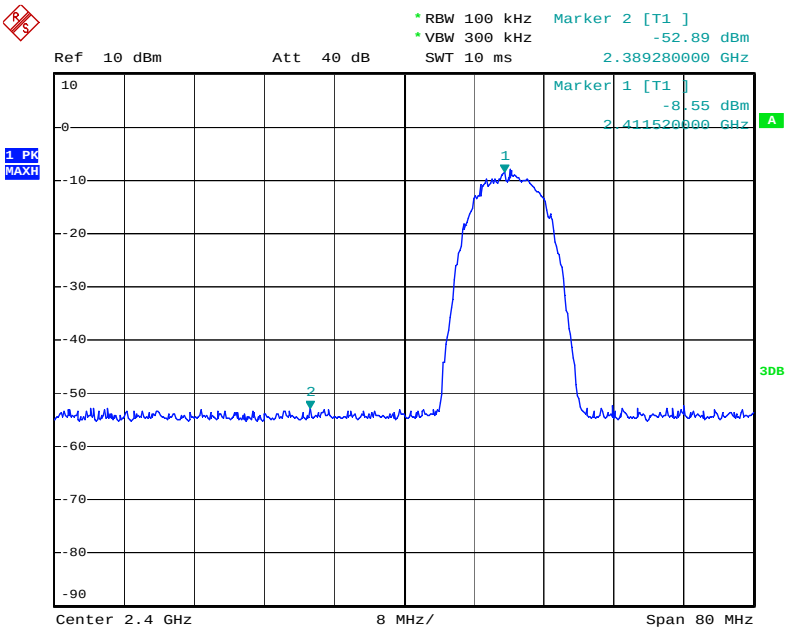
The test was performed with 802.11g		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	37.10	> 20dBc
2462	36.93	> 20dBc

The test was performed with 802.11n (20MHz)		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	35.73	> 20dBc
2462	36.61	> 20dBc

The test was performed with 802.11n (40MHz)		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2422	23.03	> 20dBc
2452	33.61	> 20dBc

The worst case conduct band edge data

802.11b Channel Low 2412MHz



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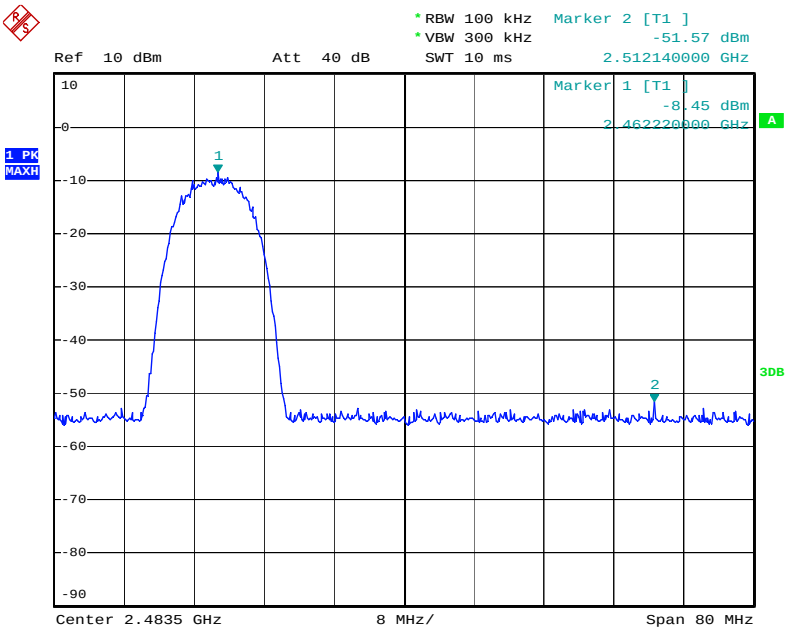
802.11b Channel High 2462MHz



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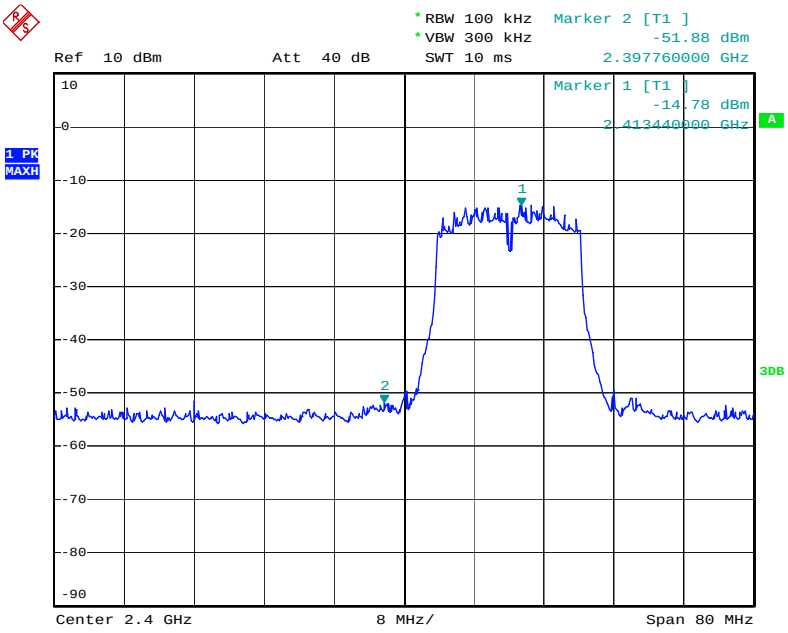
802.11g Channel Low 2412MHz



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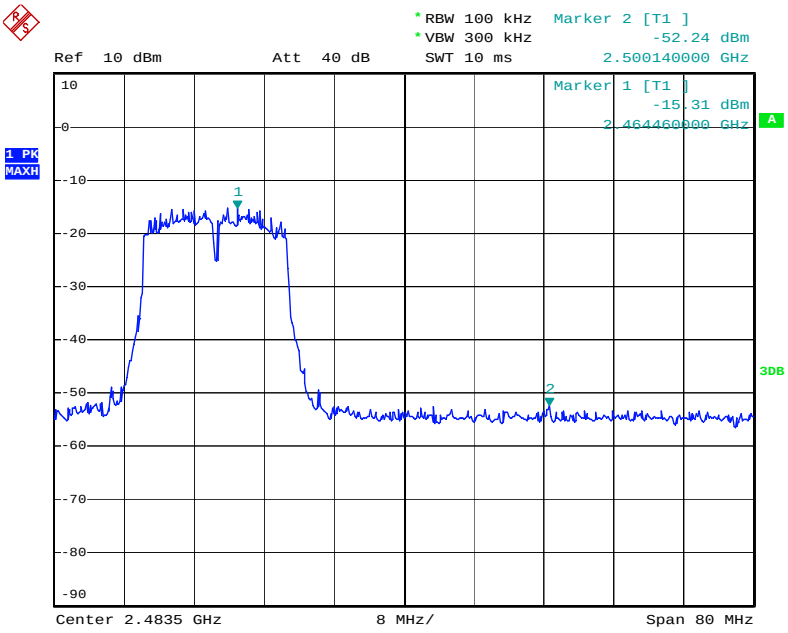
802.11g Channel High 2462MHz



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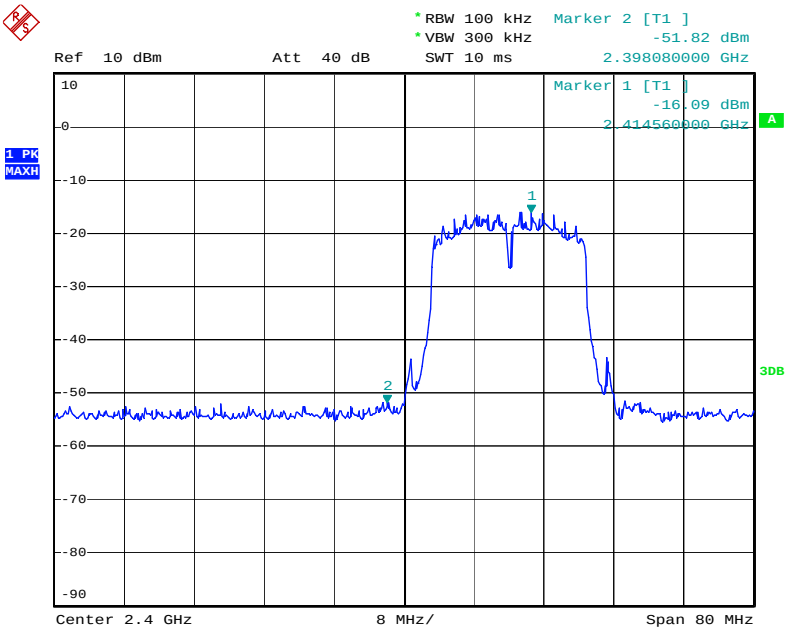
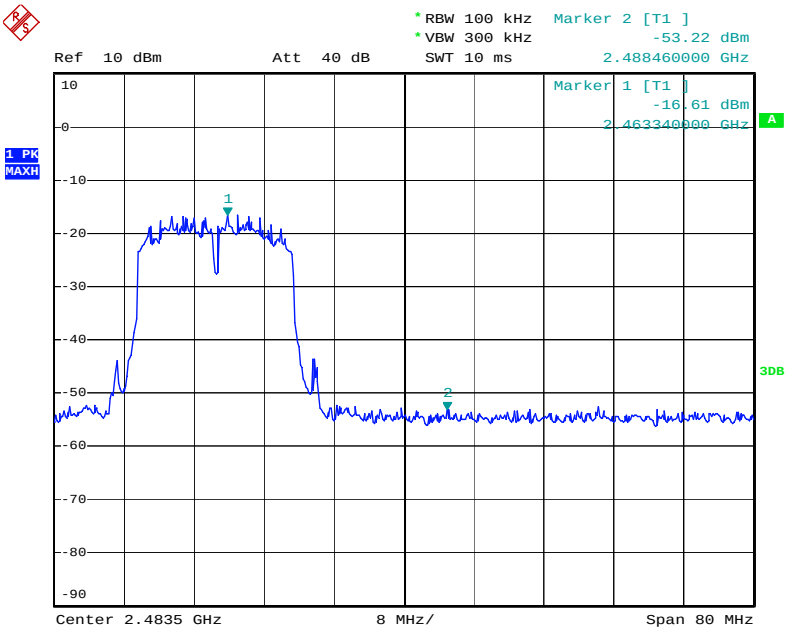
802.11n Channel Low 2412MHz (20MHz)



Date: 7.JUN.2014 16:15:41

802.11n Channel High 2462MHz (20MHz)



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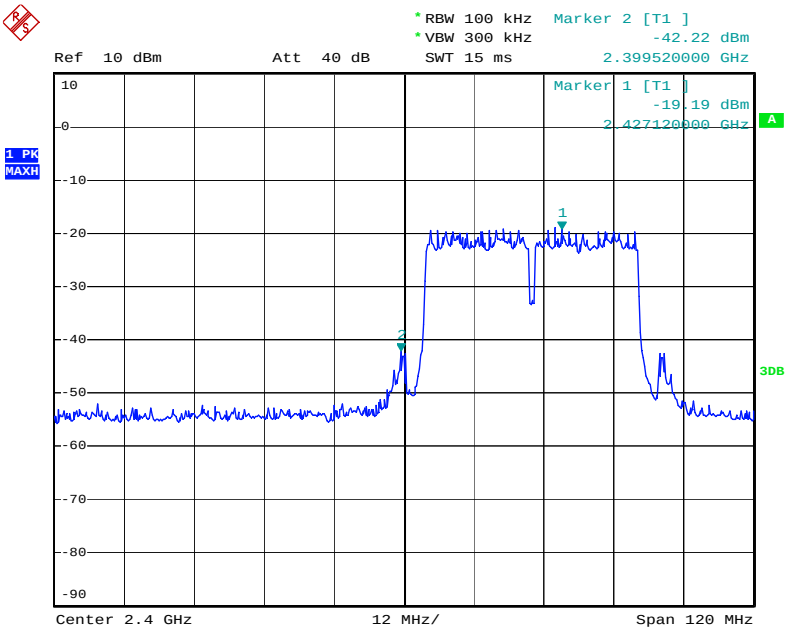
802.11n Channel Low 2422MHz (40MHz)



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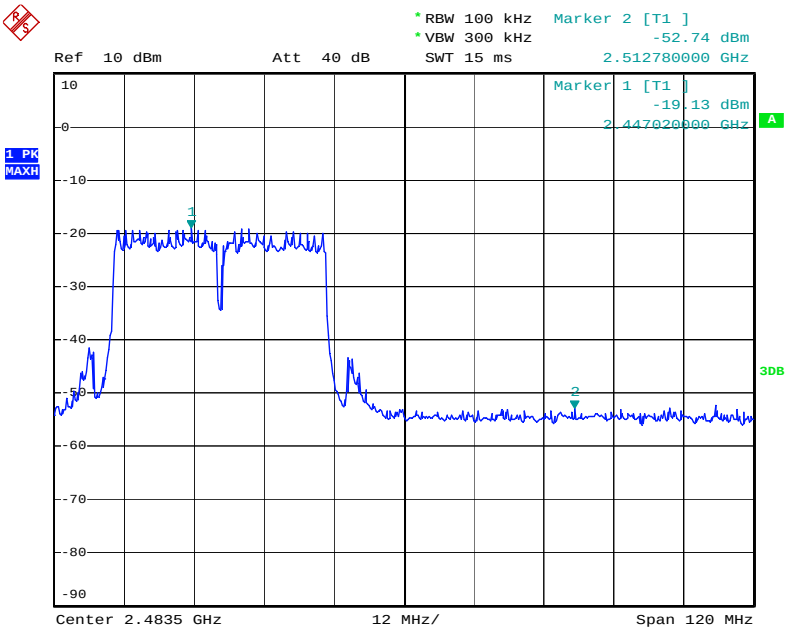
802.11n Channel High 2452MHz (40MHz)



Date: 7.JUN.2014 16:17:15

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows: Result = Reading + Corrected Factor
3. Display the measurement of peak values.

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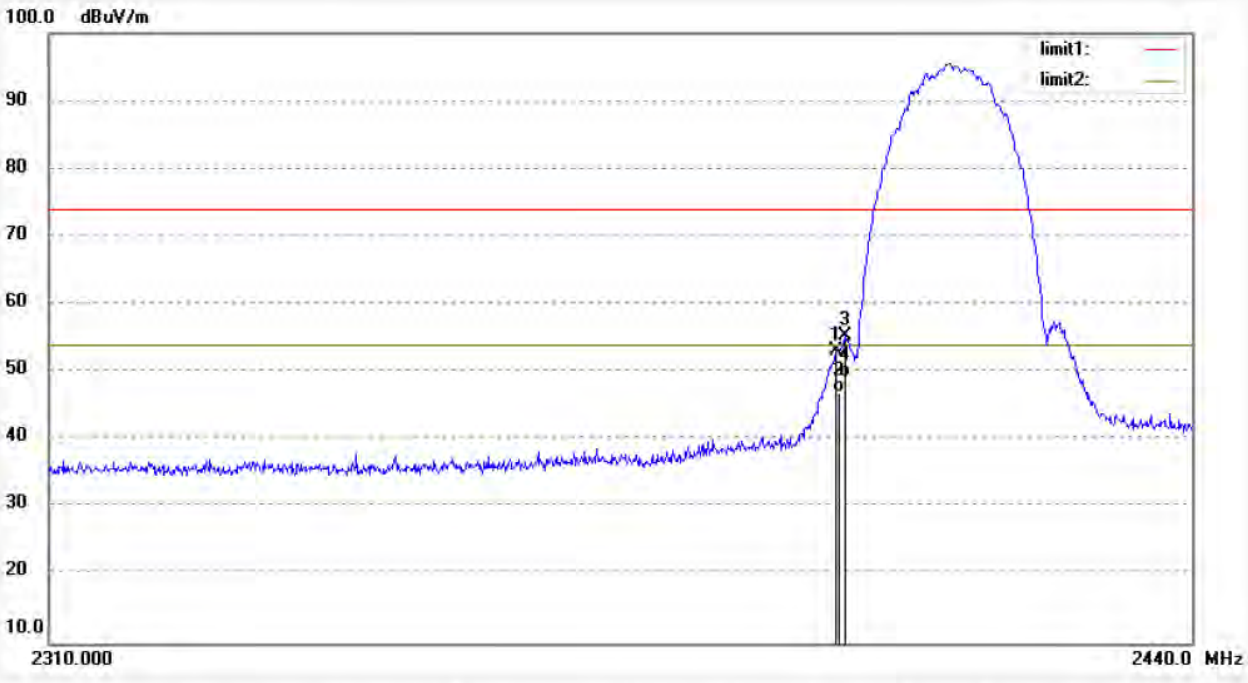
Fax:+86-0755-26503396

Job No.: alen #2924	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 5V
Test item: Radiation Test	Date: 14/05/24/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/59/39
EUT: 300M Mini Wireless USB Adapter	Engineer Signature:
Mode: TX 2412MHz(802.11b)	Distance: 3m
Model: WU331EU	
Manufacturer: Haoliyuan	

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.920	59.81	-6.76	53.05	74.00	-20.95	peak			
2	2398.920	53.78	-6.76	47.02	54.00	-6.98	AVG			
3	2399.960	62.04	-6.76	55.28	74.00	-18.72	peak			
4	2399.960	56.01	-6.76	49.25	54.00	-4.75	AVG			

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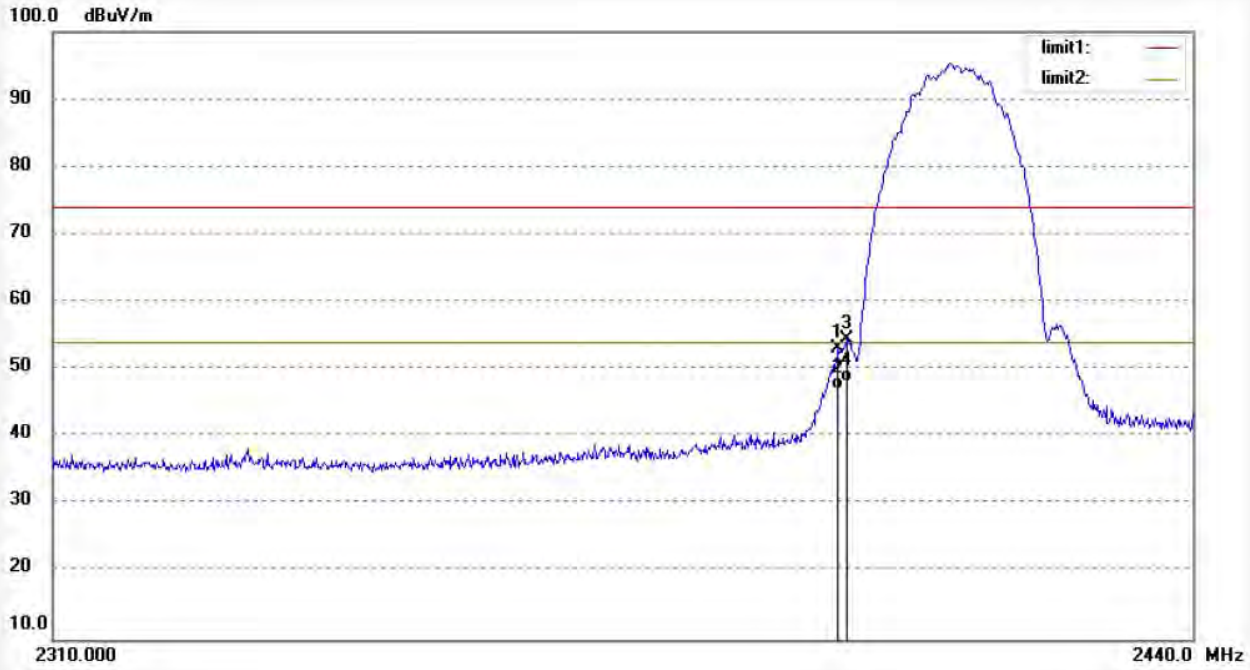
Job No.: alen #2923	Polarization: Vertical
Standard: FCC PK	Power Source: DC 5V
Test item: Radiation Test	Date: 14/05/24/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/58/59
EUT: 300M Mini Wireless USB Adapter	Engineer Signature:
Mode: TX 2412MHz(802.11b)	Distance: 3m
Model: WU331EU	
Manufacturer: Haoliyuan	

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.920	59.78	-6.76	53.02	74.00	-20.98	peak			
2	2398.920	53.69	-6.76	46.93	54.00	-7.07	AVG			
3	2399.960	61.09	-6.76	54.33	74.00	-19.67	peak			
4	2399.960	54.87	-6.76	48.11	54.00	-5.89	AVG			

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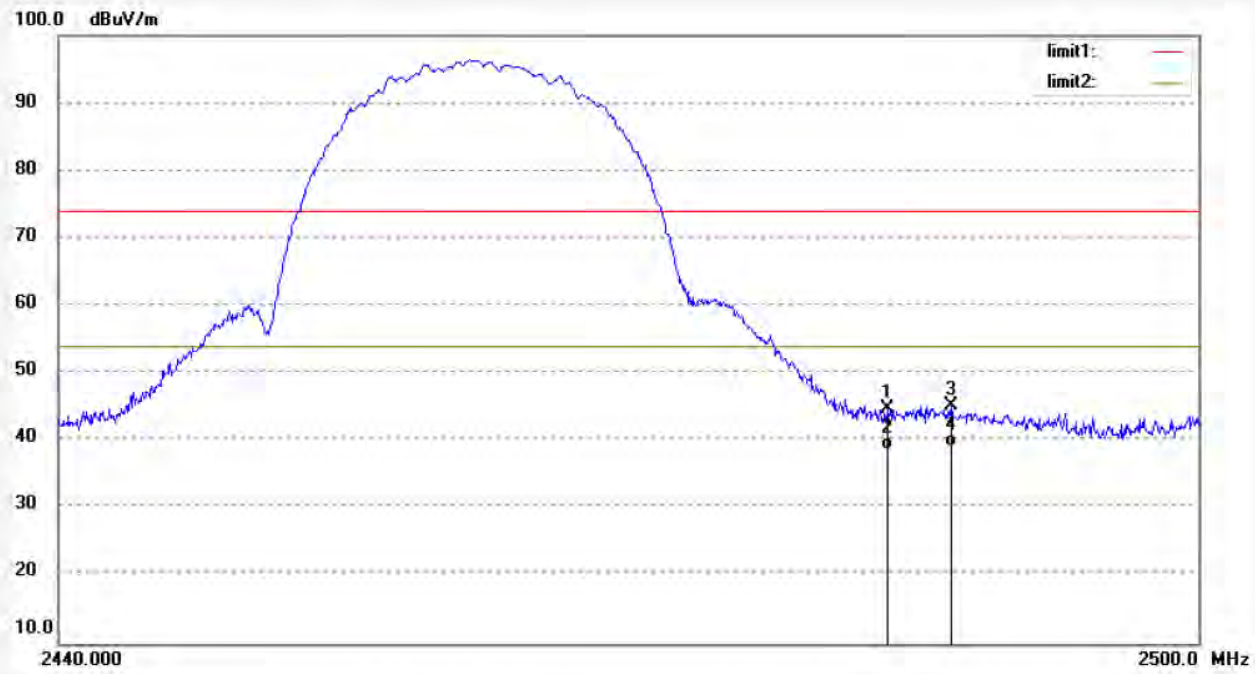
Job No.: alen #2925
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/01/18
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	51.20	-6.54	44.66	74.00	-29.34	peak			
2	2483.500	45.12	-6.54	38.58	54.00	-15.42	AVG			
3	2486.860	51.78	-6.53	45.25	74.00	-28.75	peak			
4	2486.860	45.57	-6.53	39.04	54.00	-14.96	AVG			

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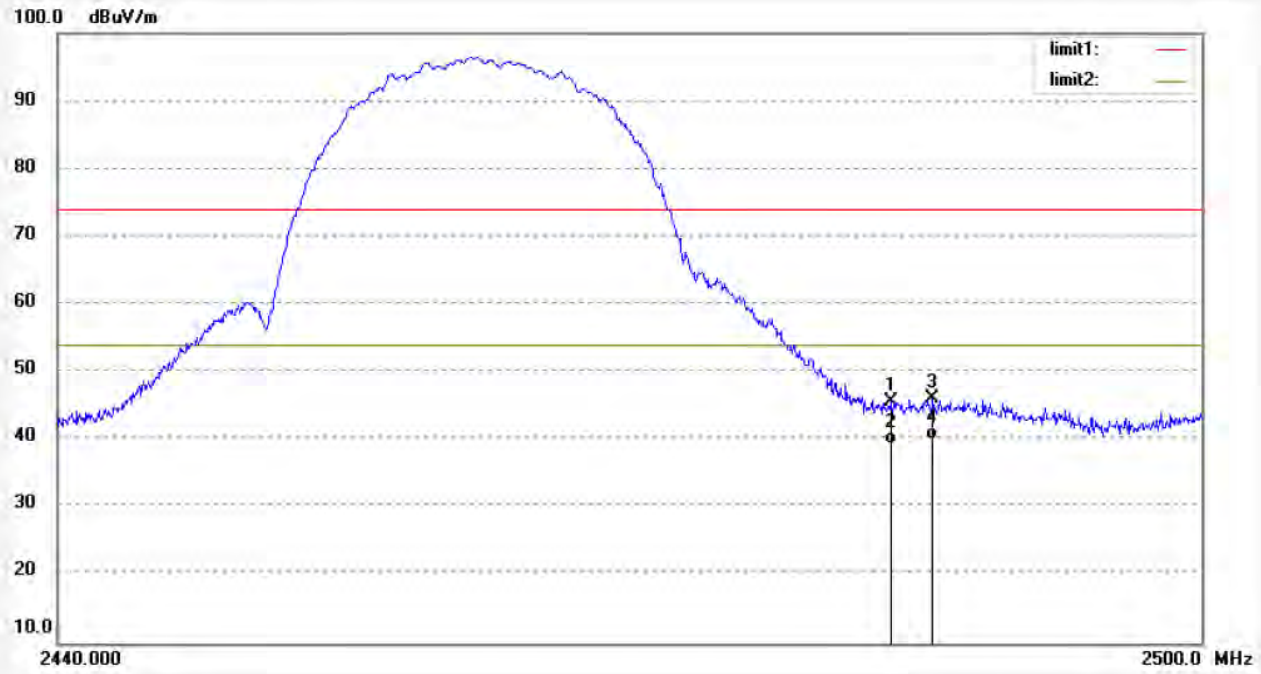
Job No.: alen #2926
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/05/24/
Time: 14/01/55
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.560	52.17	-6.54	45.63	74.00	-28.37	peak			
2	2483.560	46.01	-6.54	39.47	54.00	-14.53	AVG			
3	2485.780	52.55	-6.54	46.01	74.00	-27.99	peak			
4	2485.780	46.47	-6.54	39.93	54.00	-14.07	AVG			

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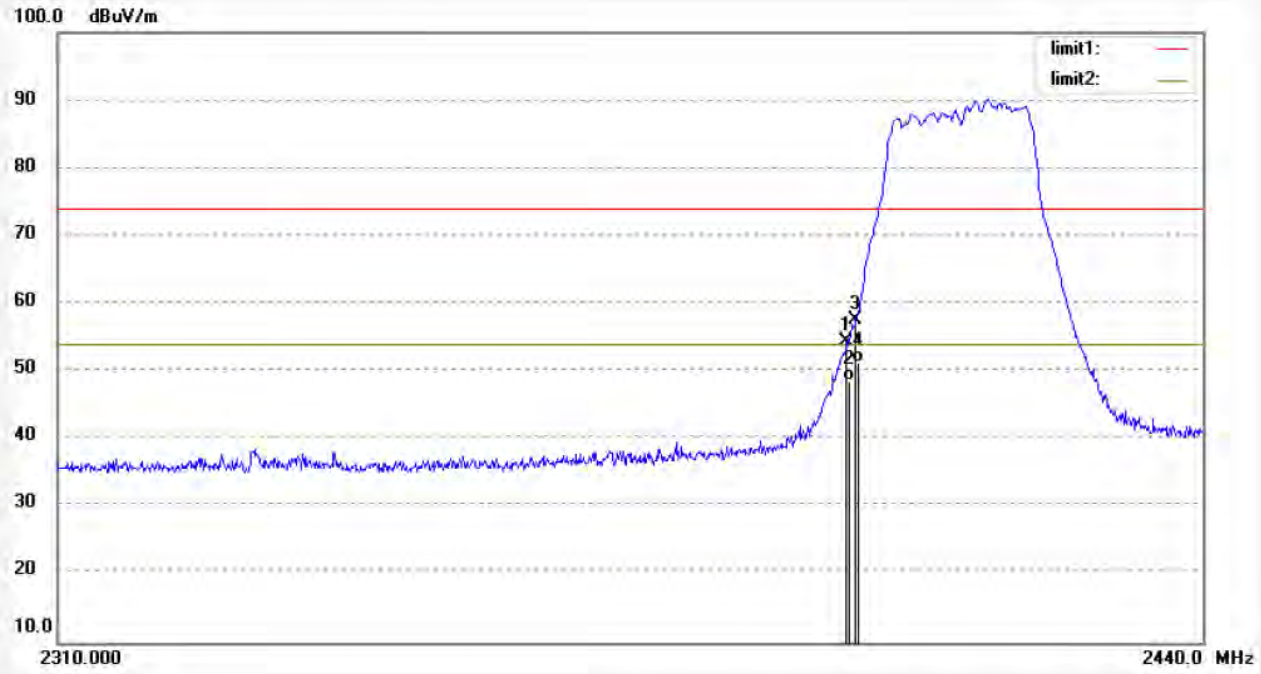
Job No.: alen #2929
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/05/36
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.920	61.25	-6.76	54.49	74.00	-19.51	peak			
2	2398.920	55.32	-6.76	48.56	54.00	-5.44	AVG			
3	2399.960	64.24	-6.76	57.48	74.00	-16.52	peak			
4	2399.960	58.01	-6.76	51.25	54.00	-2.75	AVG			

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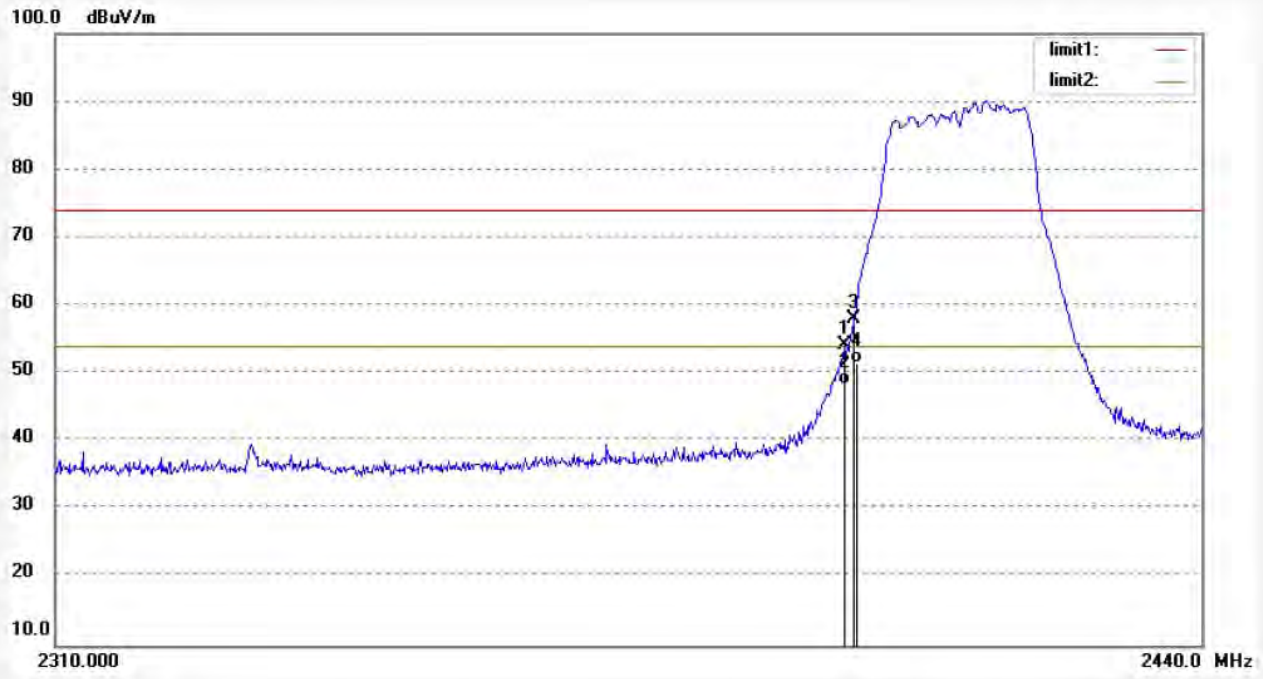
Job No.: alen #2930
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/05/24/
Time: 14/06/16
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.790	61.05	-6.76	54.29	74.00	-19.71	peak			
2	2398.790	55.07	-6.76	48.31	54.00	-5.69	AVG			
3	2399.960	64.88	-6.76	58.12	74.00	-15.88	peak			
4	2399.960	58.36	-6.76	51.60	54.00	-2.40	AVG			

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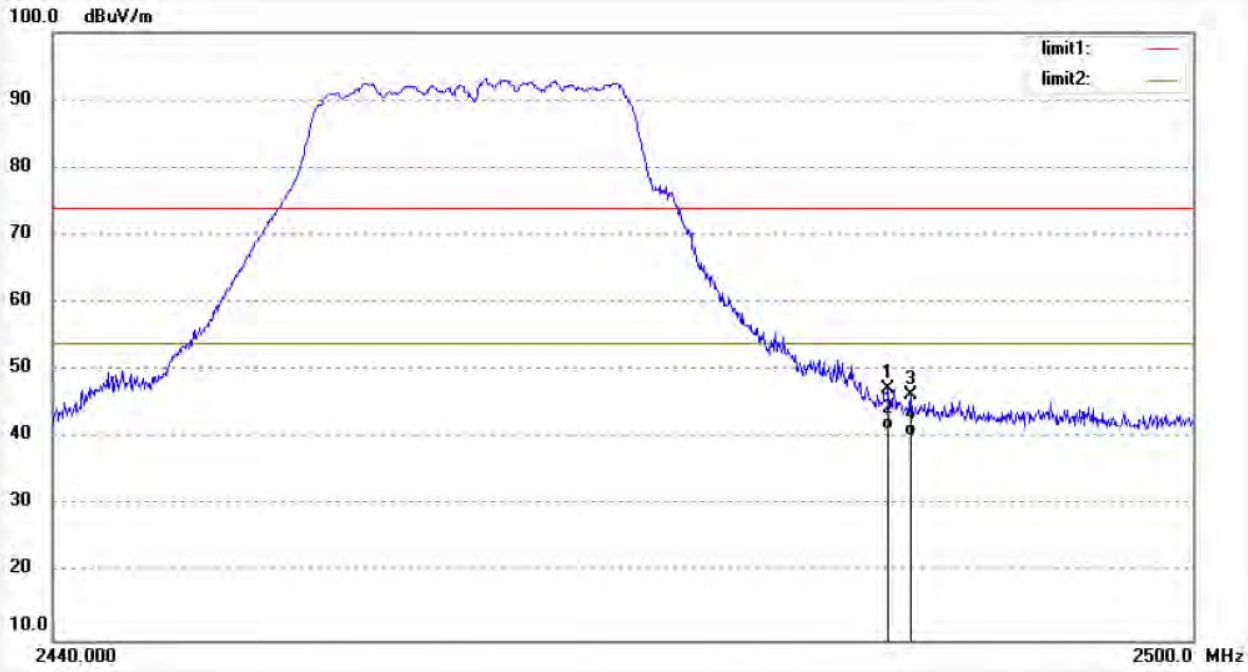
Job No.: alen #2928
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/04/03
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.800	53.77	-6.54	47.23	74.00	-26.77	peak			
2	2483.800	47.68	-6.54	41.14	54.00	-12.86	AVG			
3	2485.000	52.81	-6.54	46.27	74.00	-27.73	peak			
4	2485.000	46.74	-6.54	40.20	54.00	-13.80	AVG			

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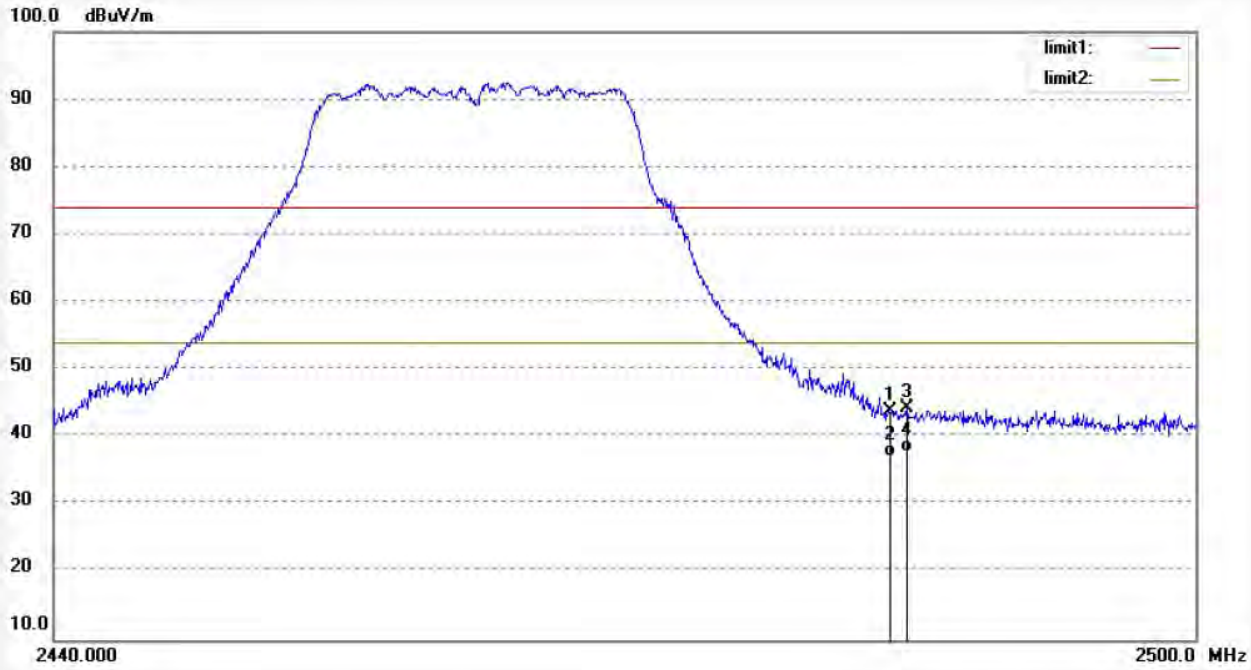
Job No.: alen #2927
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/05/24/
Time: 14/03/26
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.740	50.38	-6.54	43.84	74.00	-30.16	peak			
2	2483.740	43.74	-6.54	37.20	54.00	-16.80	AVG			
3	2484.700	50.77	-6.54	44.23	74.00	-29.77	peak			
4	2484.700	44.28	-6.54	37.74	54.00	-16.26	AVG			

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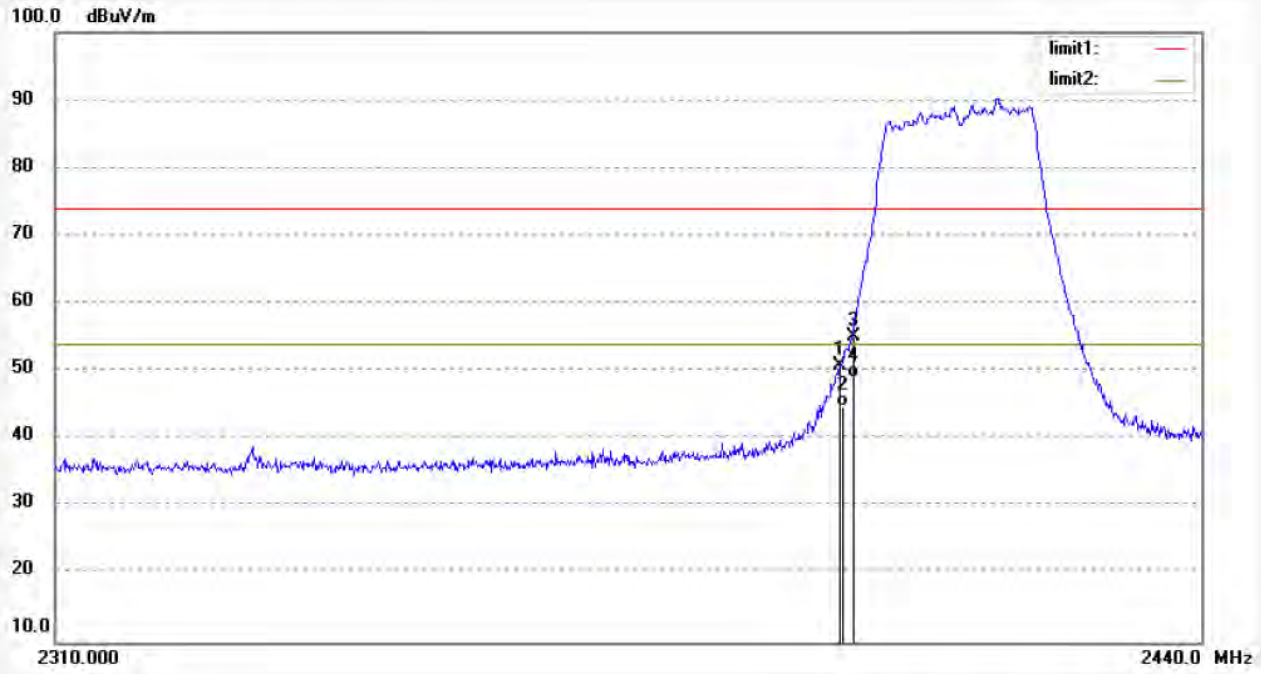
Job No.: alen #2932
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/08/26
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.400	57.64	-6.75	50.89	74.00	-23.11	peak			
2	2398.400	51.57	-6.75	44.82	54.00	-9.18	AVG			
3	2399.700	61.77	-6.76	55.01	74.00	-18.99	peak			
4	2399.700	55.81	-6.76	49.05	54.00	-4.95	AVG			

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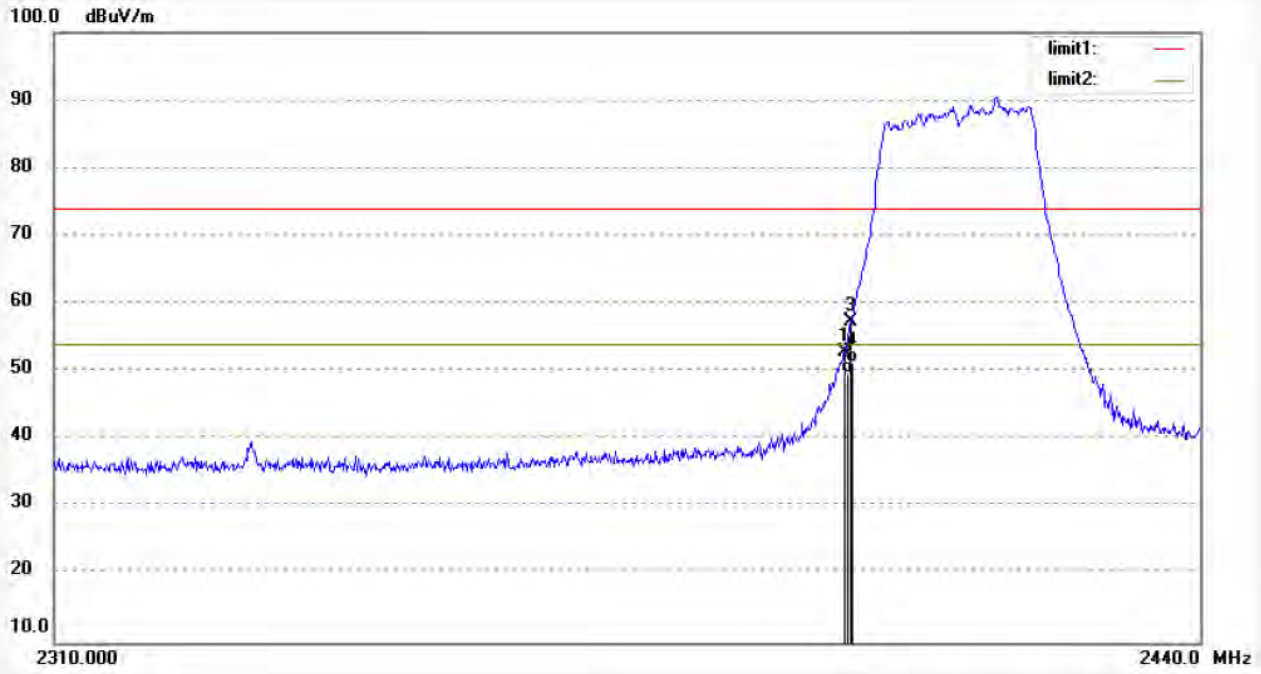
Job No.: alen #2931
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/05/24/
Time: 14/07/47
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2399.050	59.73	-6.76	52.97	74.00	-21.03	peak			
2	2399.050	56.38	-6.76	49.62	54.00	-4.38	AVG			
3	2399.700	64.11	-6.76	57.35	74.00	-16.65	peak			
4	2399.700	58.04	-6.76	51.28	54.00	-2.72	AVG			

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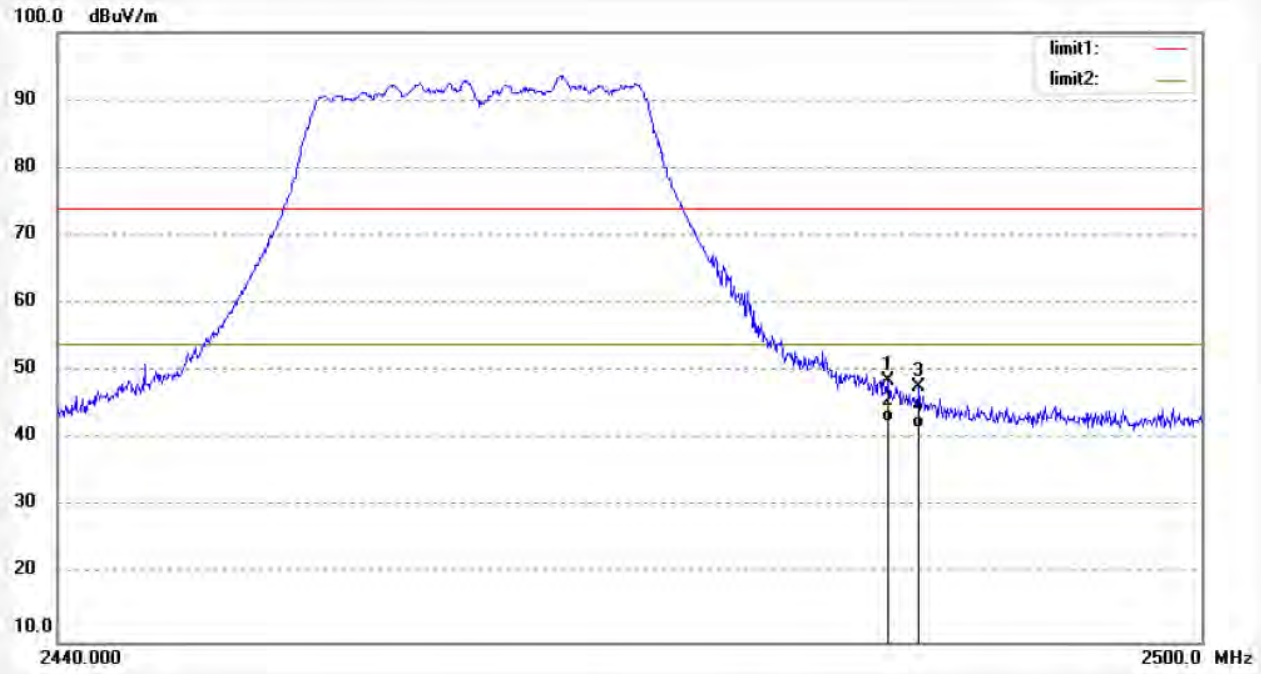
Job No.: alen #2933
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/10/04
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.440	55.08	-6.54	48.54	74.00	-25.46	peak			
2	2483.440	49.02	-6.54	42.48	54.00	-11.52	AVG			
3	2485.060	54.15	-6.54	47.61	74.00	-26.39	peak			
4	2485.060	48.13	-6.54	41.59	54.00	-12.41	AVG			

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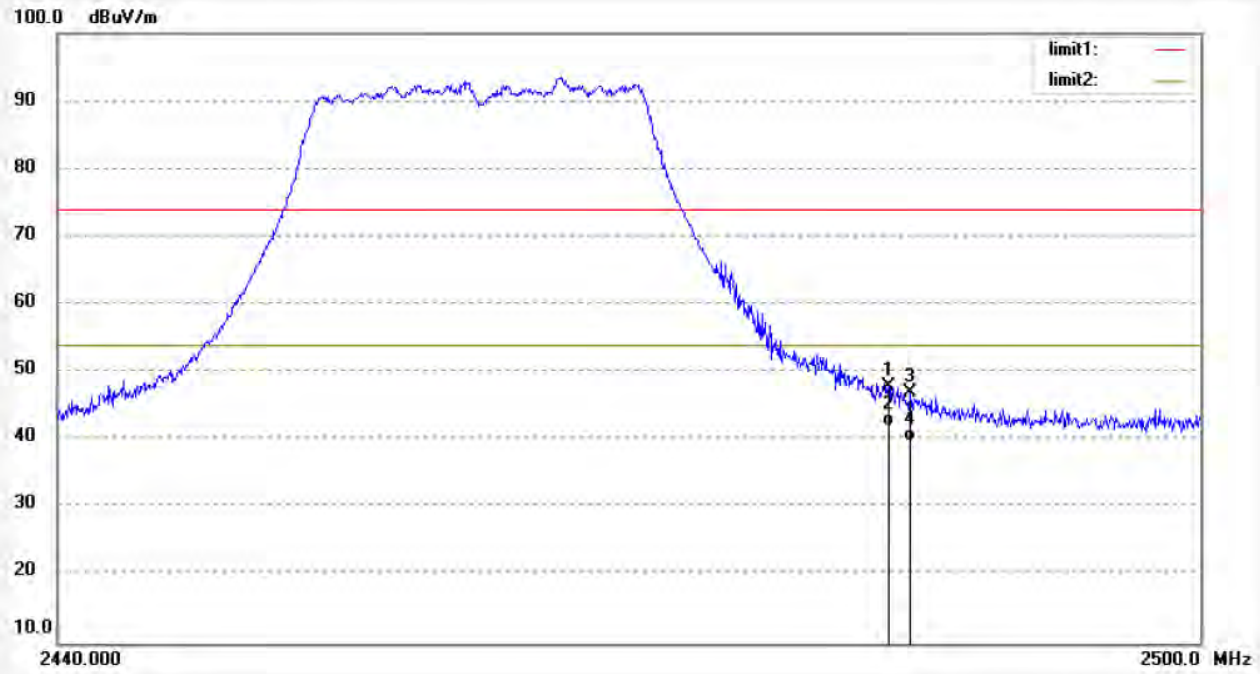
Job No.: alen #2934
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/05/24/
Time: 14/10/44
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	54.54	-6.54	48.00	74.00	-26.00	peak			
2	2483.500	48.57	-6.54	42.03	54.00	-11.97	AVG			
3	2484.640	53.48	-6.54	46.94	74.00	-27.06	peak			
4	2484.640	46.42	-6.54	39.88	54.00	-14.12	AVG			

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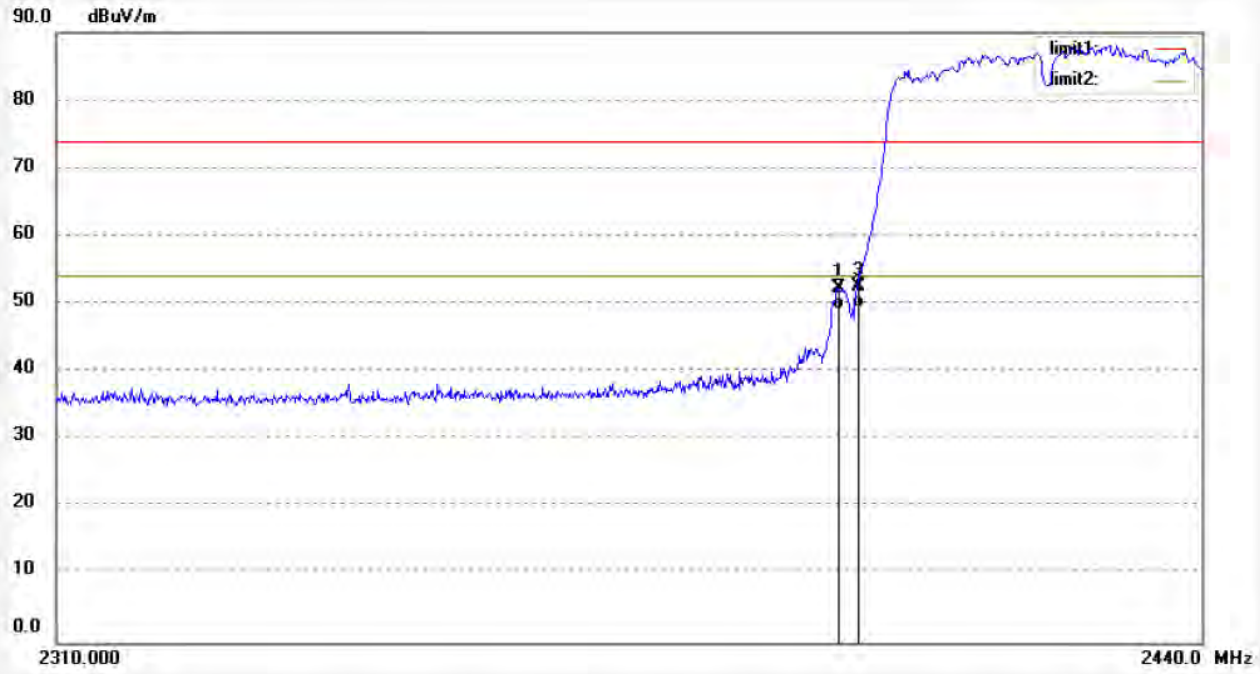
Job No.: alen #2937
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2422MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/14/30
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.140	59.13	-6.75	52.38	74.00	-21.62	peak			
2	2398.140	56.01	-6.75	49.26	54.00	-4.74	AVG			
3	2400.220	59.35	-6.76	52.59	74.00	-21.41	peak			
4	2400.220	56.14	-6.76	49.38	54.00	-4.62	AVG			

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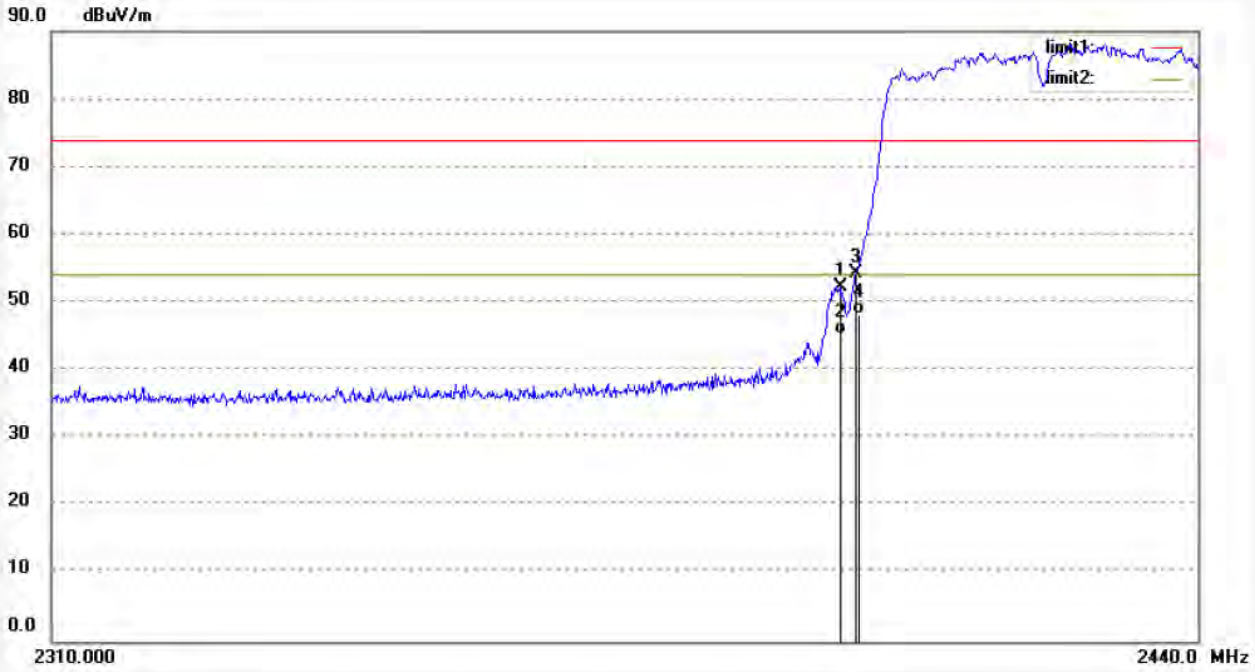
Job No.: alen #2938
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2422MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/05/24/
Time: 14/15/10
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.790	59.16	-6.76	52.40	74.00	-21.60	peak			
2	2398.790	52.17	-6.76	45.41	54.00	-8.59	AVG			
3	2400.610	61.10	-6.76	54.34	74.00	-19.66	peak			
4	2400.610	55.04	-6.76	48.28	54.00	-5.72	AVG			

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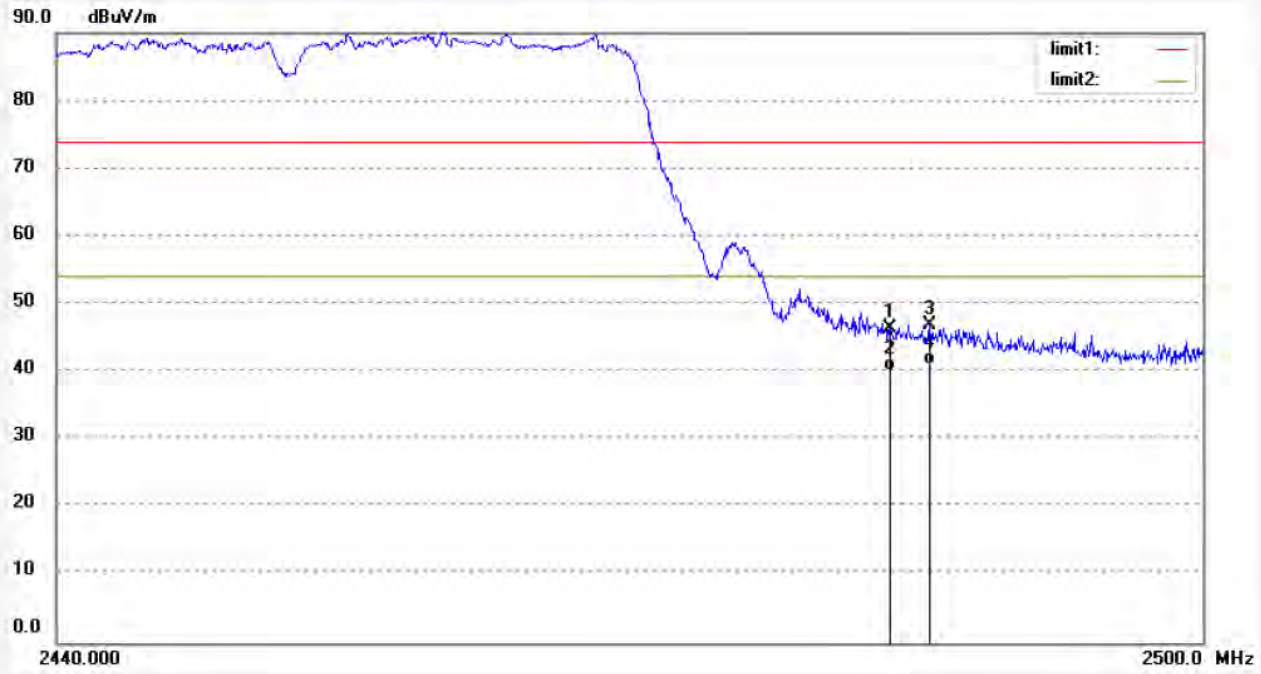
Job No.: alen #2936
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2452MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/05/24/
Time: 14/12/46
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	52.96	-6.54	46.42	74.00	-27.58	peak			
2	2483.500	46.65	-6.54	40.11	54.00	-13.89	AVG			
3	2485.600	53.47	-6.54	46.93	74.00	-27.07	peak			
4	2485.600	47.58	-6.54	41.04	54.00	-12.96	AVG			

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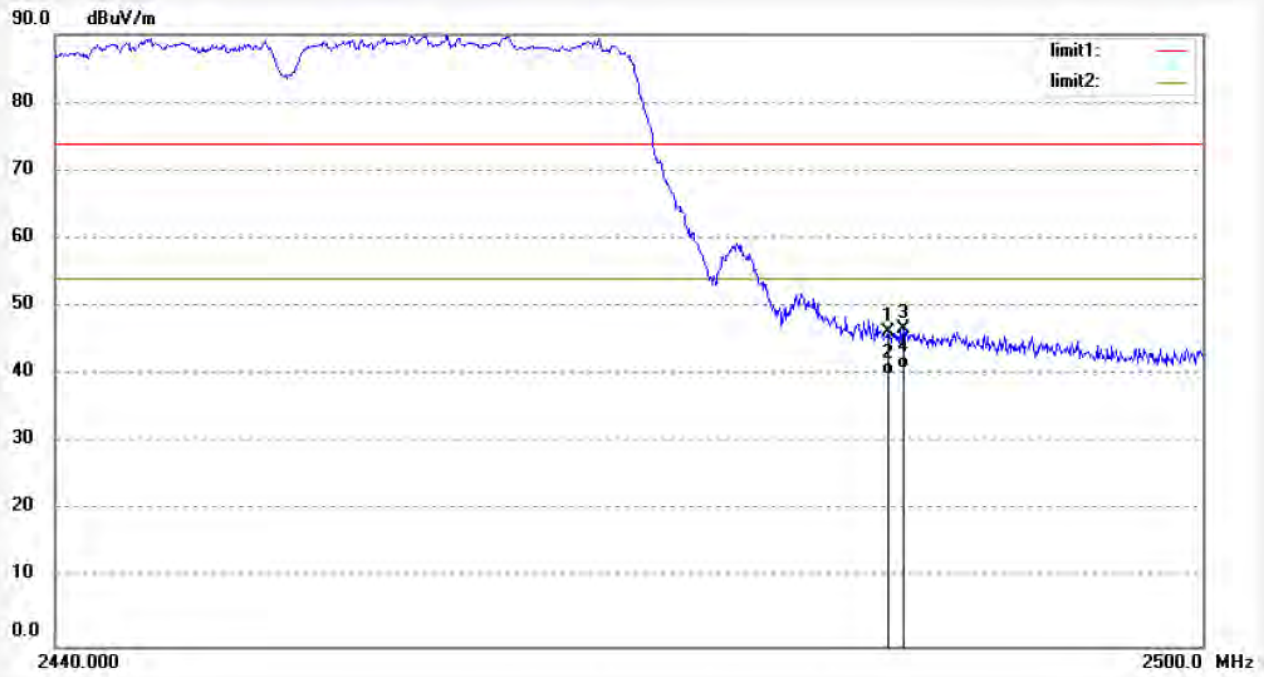
Job No.: alen #2935	Polarization: Vertical
Standard: FCC PK	Power Source: DC 5V
Test item: Radiation Test	Date: 14/05/24/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/12/18
EUT: 300M Mini Wireless USB Adapter	Engineer Signature:
Mode: TX 2452MHz(802.11n40)	Distance: 3m
Model: WU331EU	
Manufacturer: Haoliyuan	

Note: Report No:ATE20141071

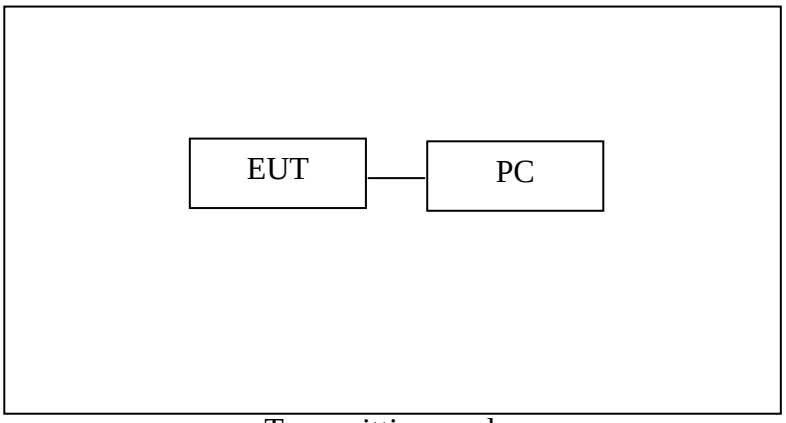


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.440	52.68	-6.54	46.14	74.00	-27.86	peak			
2	2483.440	46.57	-6.54	40.03	54.00	-13.97	AVG			
3	2484.220	53.34	-6.54	46.80	74.00	-27.20	peak			
4	2484.220	47.35	-6.54	40.81	54.00	-13.19	AVG			

10. TRANSMITTER RADIATED SPURIOUS EMISSION TEST

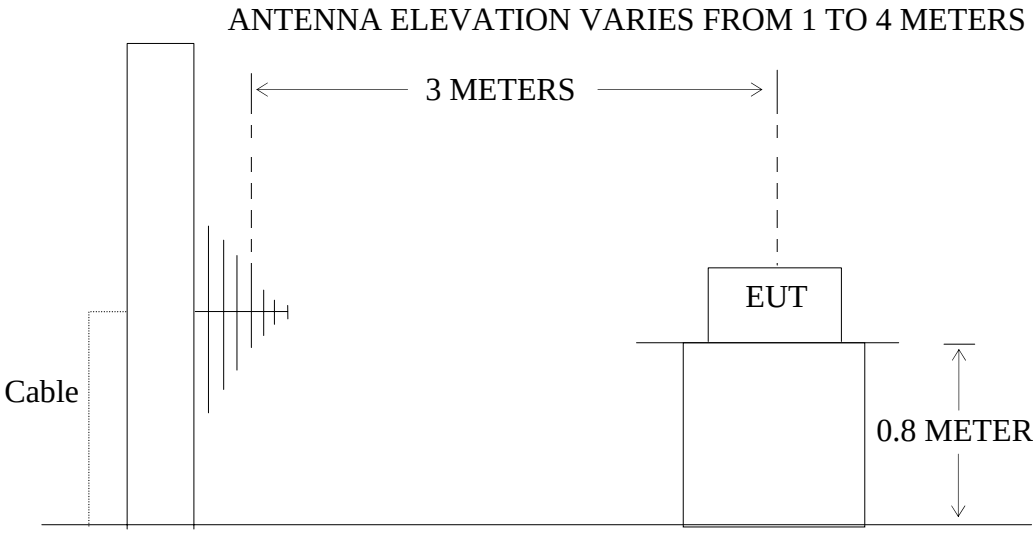
10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and simulators



Transmitting mode

10.1.2. Semi-Anechoic Chamber Test Setup Diagram



GROUND PLANE

10.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the

transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.5.Operating Condition of EUT

10.5.1.Setup the EUT and simulator as shown as Section 10.1.

10.5.2.Turn on the power of all equipment.

10.5.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

10.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.
The worst-case data rate for this channel to be 1Mbps for 802.11b mode and 6Mbps for 802.11g mode and 150Mbps for 802.11n mode, based on previous with 802.11 WLAN product design architectures.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9kHz to 25GHz is checked.
The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:Result = Reading + Corrected Factor
Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

10.7.The Field Strength of Radiation Emission Measurement Results

PASS.

For 30MHz-1000MHz(Worse case)

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
374.6225	49.74	-15.82	33.92	46.0	-12.08	Vertical
374.6225	46.50	-15.82	30.68	46.0	-15.32	Horizontal

For 1GHz-25GHz(Worse case)

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBμV/m)		Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
14450.131	---	37.54	12.74	---	50.28	54	74	---	-23.72	Vertical
14408.425	---	37.93	12.53	---	50.46	54	74	---	-23.54	Horizontal

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by Band Reject Filter in the attached plots.

4. The EUT is tested radiation emission at each test mode(802.11 b/g/n) in three axes. The worst emissions are reported in all test mode and channels.

5. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.

Below 1G

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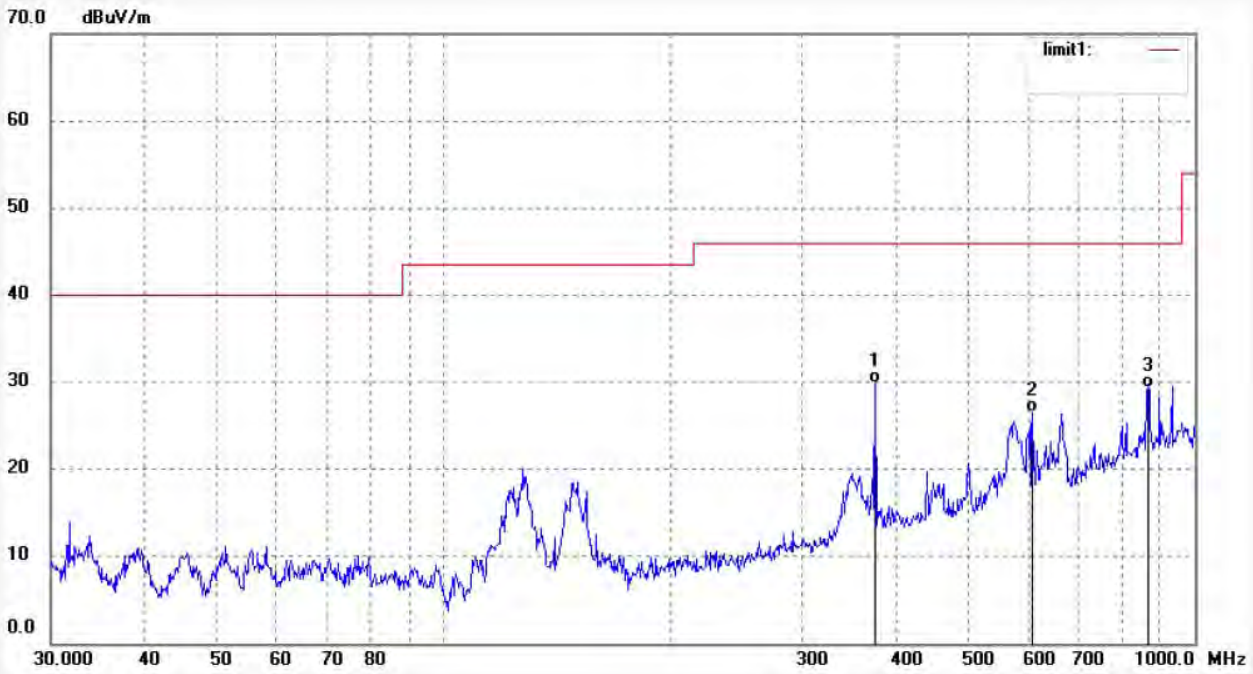
Job No.: alen #4230
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/47/43
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	45.59	-15.82	29.77	46.00	-16.23	QP			
2	607.7866	38.00	-11.50	26.50	46.00	-19.50	QP			
3	866.0878	35.98	-6.69	29.29	46.00	-16.71	QP			

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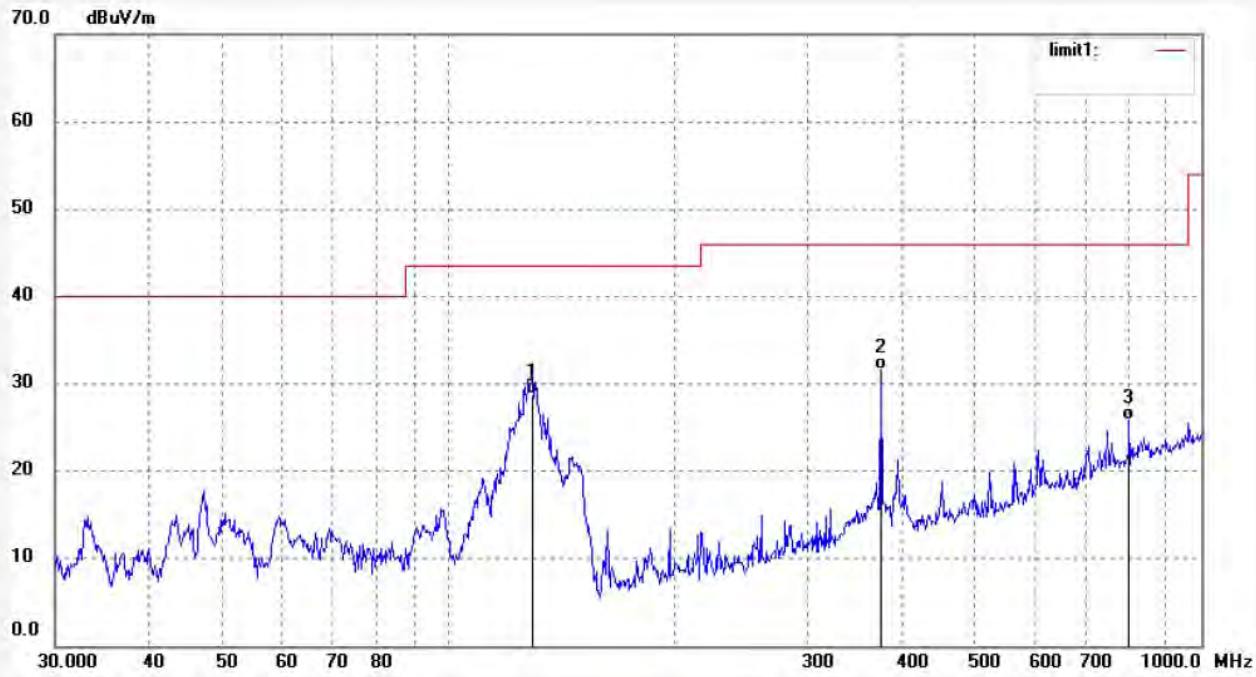
Job No.: alen #4229
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/46/45
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	129.0146	51.85	-22.98	28.87	43.50	-14.63	QP			
2	374.6225	47.47	-15.82	31.65	46.00	-14.35	QP			
3	801.7862	33.52	-7.76	25.76	46.00	-20.24	QP			

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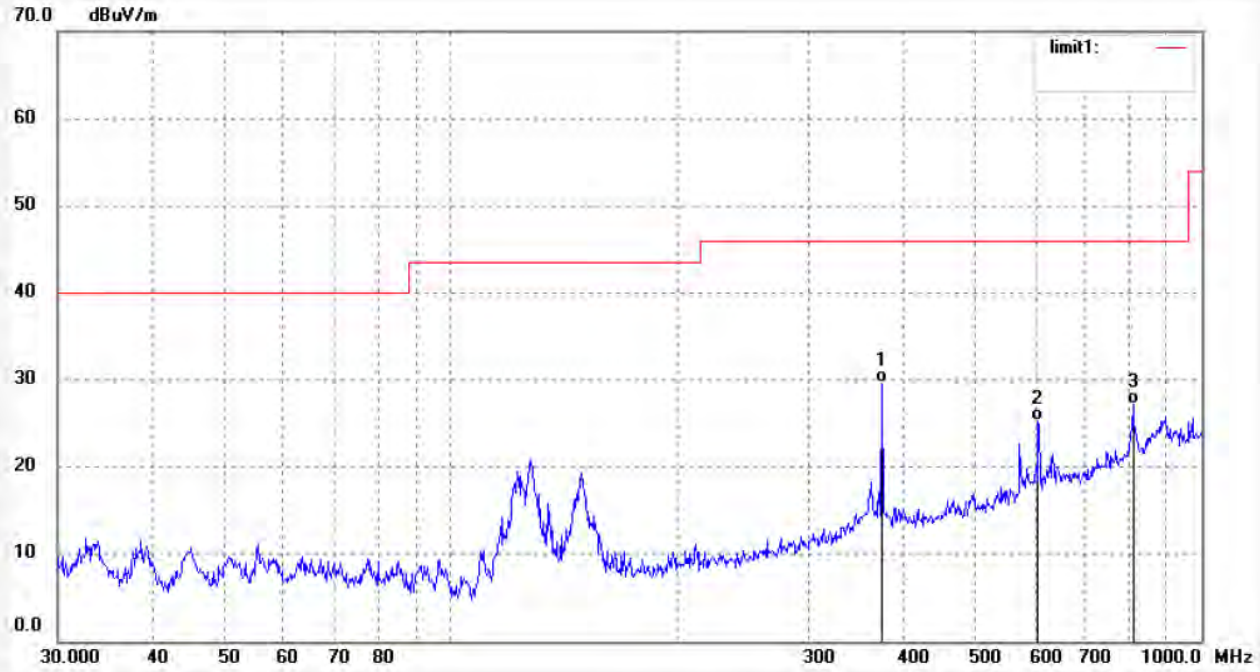
Job No.: alen #4231
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/48/32
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	45.49	-15.82	29.67	46.00	-16.33	QP			
2	605.6592	36.76	-11.53	25.23	46.00	-20.77	QP			
3	810.2653	34.80	-7.61	27.19	46.00	-18.81	QP			

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Site: 1# Chamber
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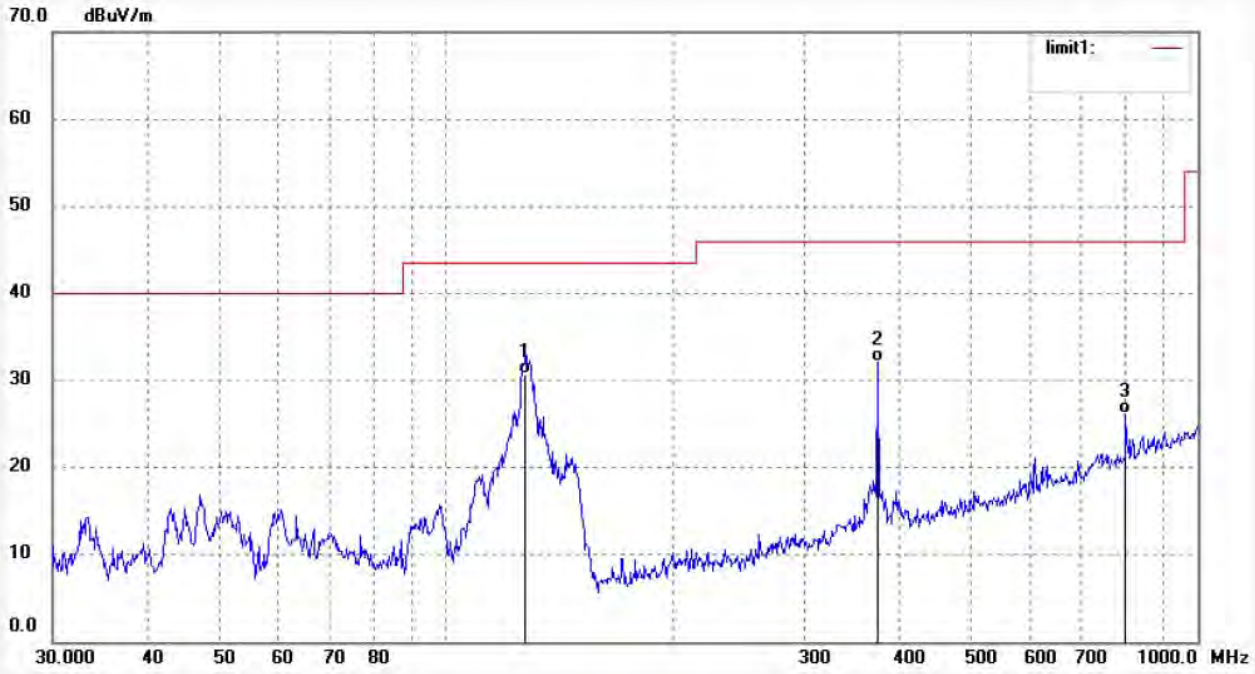
Fax:+86-0755-26503396

Job No.: alen #4232
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/49/28
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	127.6645	53.54	-22.91	30.63	43.50	-12.87	QP			
2	374.6225	47.96	-15.82	32.14	46.00	-13.86	QP			
3	801.7862	33.89	-7.76	26.13	46.00	-19.87	QP			

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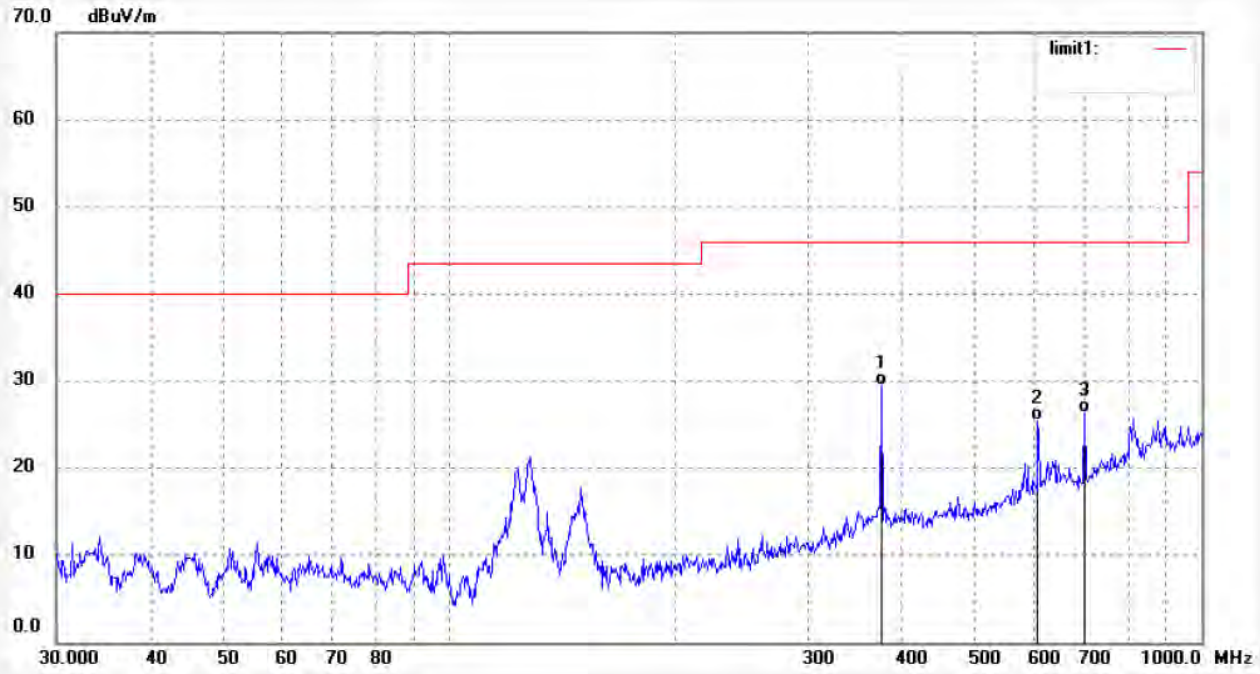
Fax:+86-0755-26503396

Job No.: alen #4234
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/51/24
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	45.25	-15.82	29.43	46.00	-16.57	QP			
2	605.6592	37.00	-11.53	25.47	46.00	-20.53	QP			
3	699.3046	36.15	-9.82	26.33	46.00	-19.67	QP			

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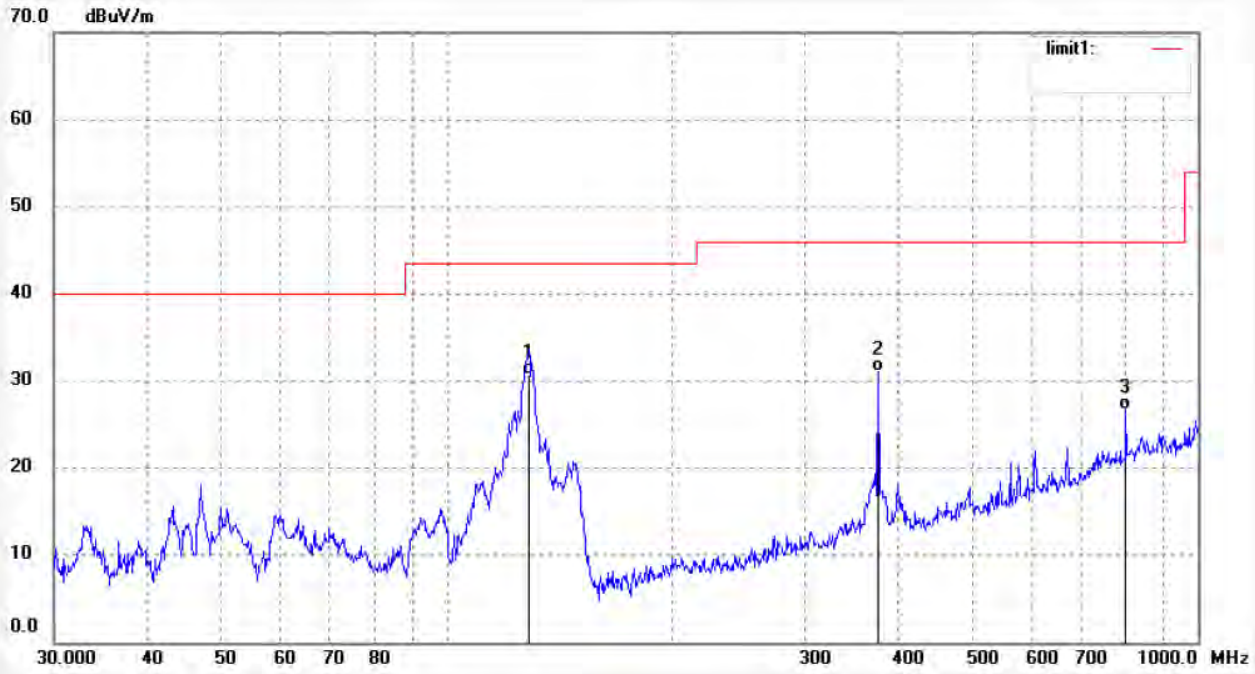
Fax:+86-0755-26503396

Job No.: alen #4233
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/50/32
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	128.5629	53.74	-22.95	30.79	43.50	-12.71	QP			
2	374.6225	46.94	-15.82	31.12	46.00	-14.88	QP			
3	801.7862	34.53	-7.76	26.77	46.00	-19.23	QP			

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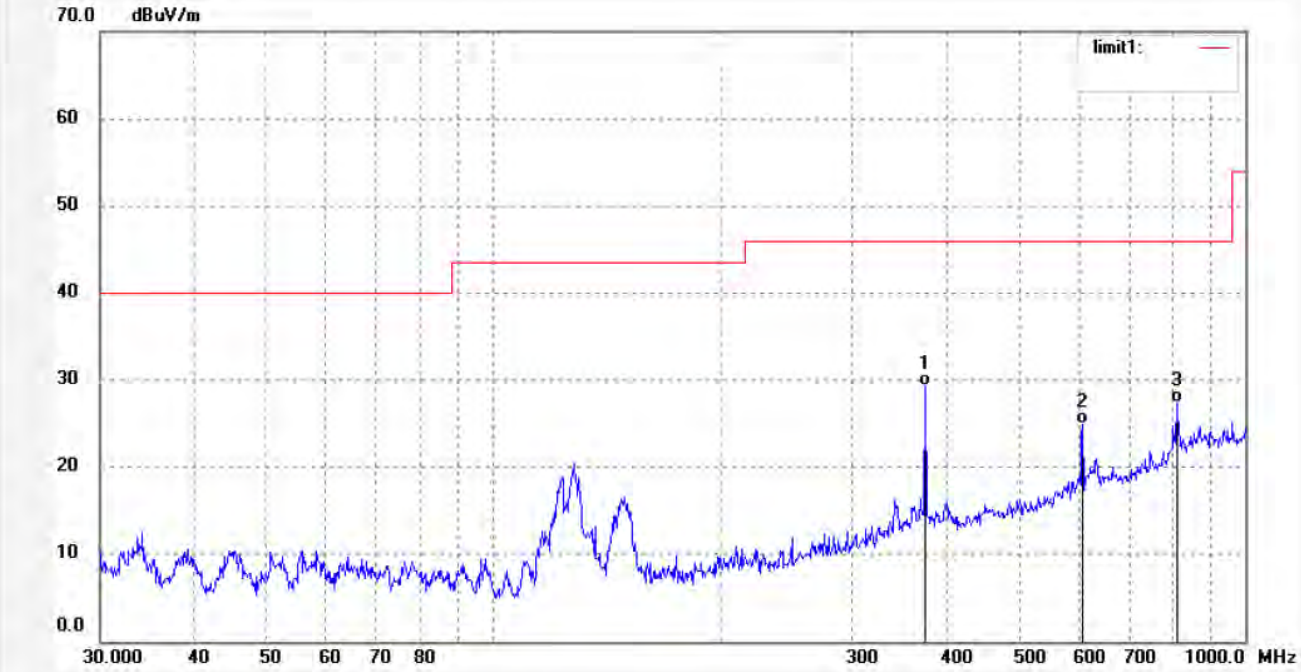
Fax:+86-0755-26503396

Job No.: alen #4239
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/55/44
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	45.12	-15.82	29.30	46.00	-16.70	QP			
2	607.7866	36.39	-11.50	24.89	46.00	-21.11	QP			
3	810.2653	34.92	-7.61	27.31	46.00	-18.69	QP			

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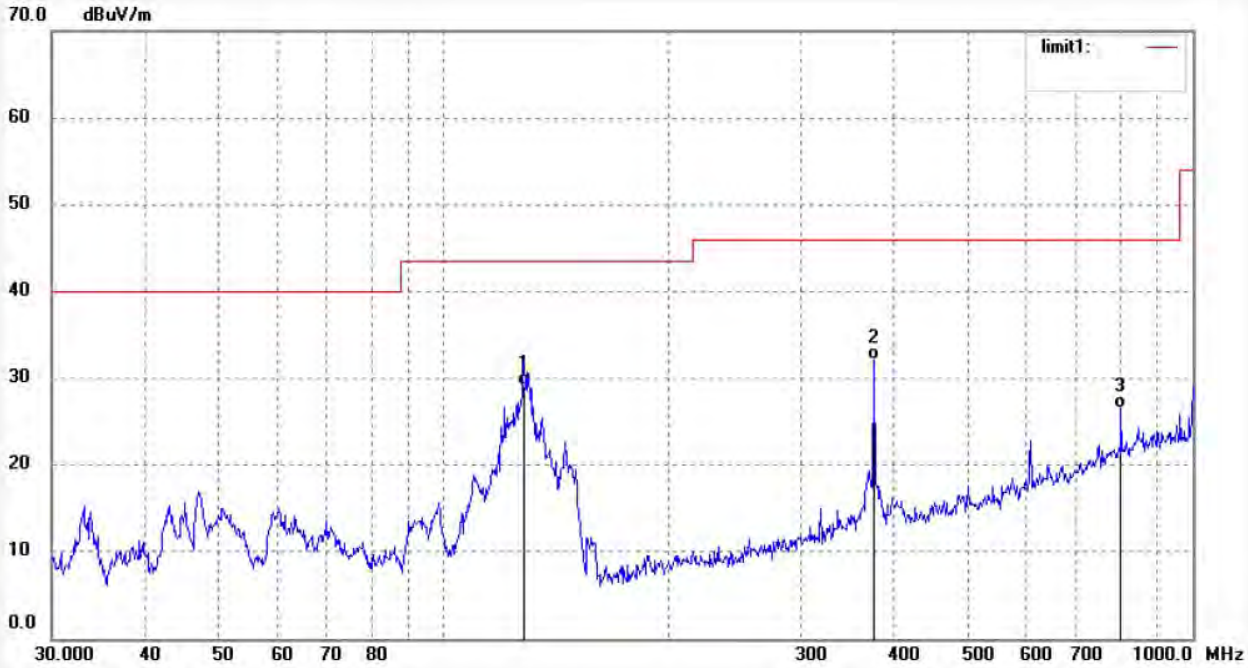
Job No.: alen #4240
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/56/30
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	128.1129	52.05	-22.94	29.11	43.50	-14.39	QP			
2	374.6225	47.91	-15.82	32.09	46.00	-13.91	QP			
3	801.7862	34.22	-7.76	26.46	46.00	-19.54	QP			

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Site: 1# Chamber
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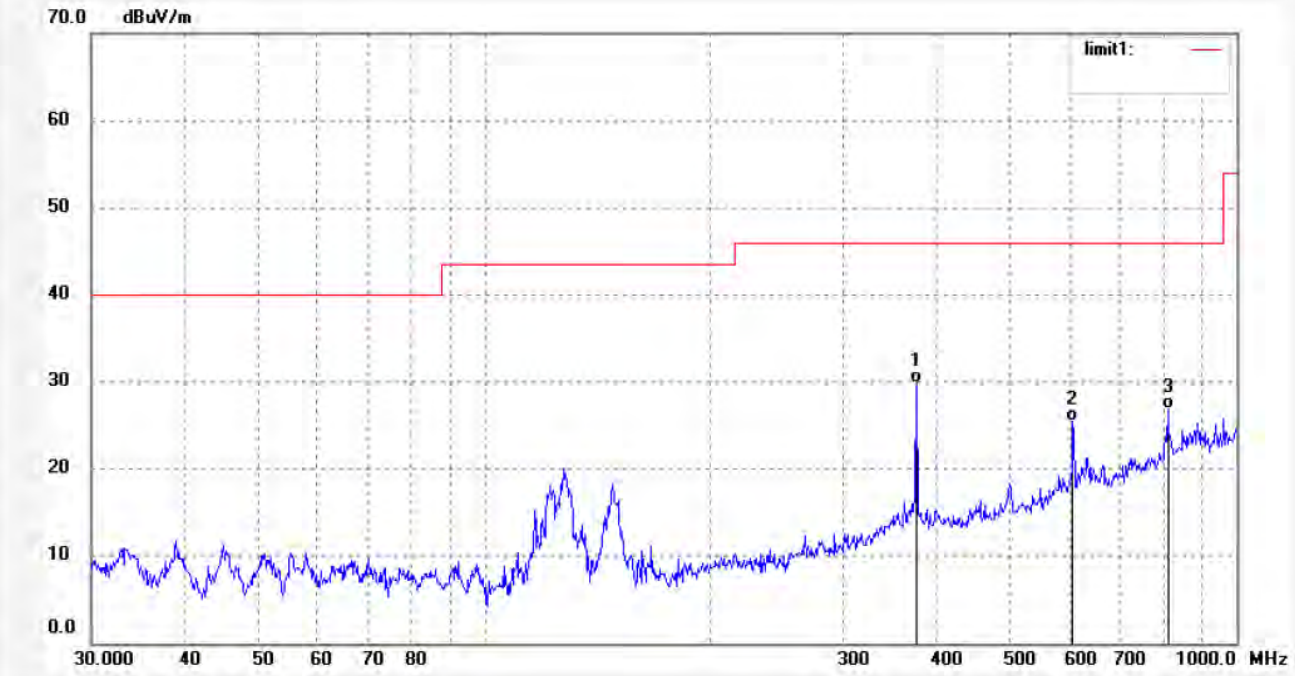
Job No.: alen #4238
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/55/08
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	375.9384	45.65	-15.81	29.84	46.00	-16.16	QP			
2	605.6592	36.96	-11.53	25.43	46.00	-20.57	QP			
3	810.2653	34.40	-7.61	26.79	46.00	-19.21	QP			

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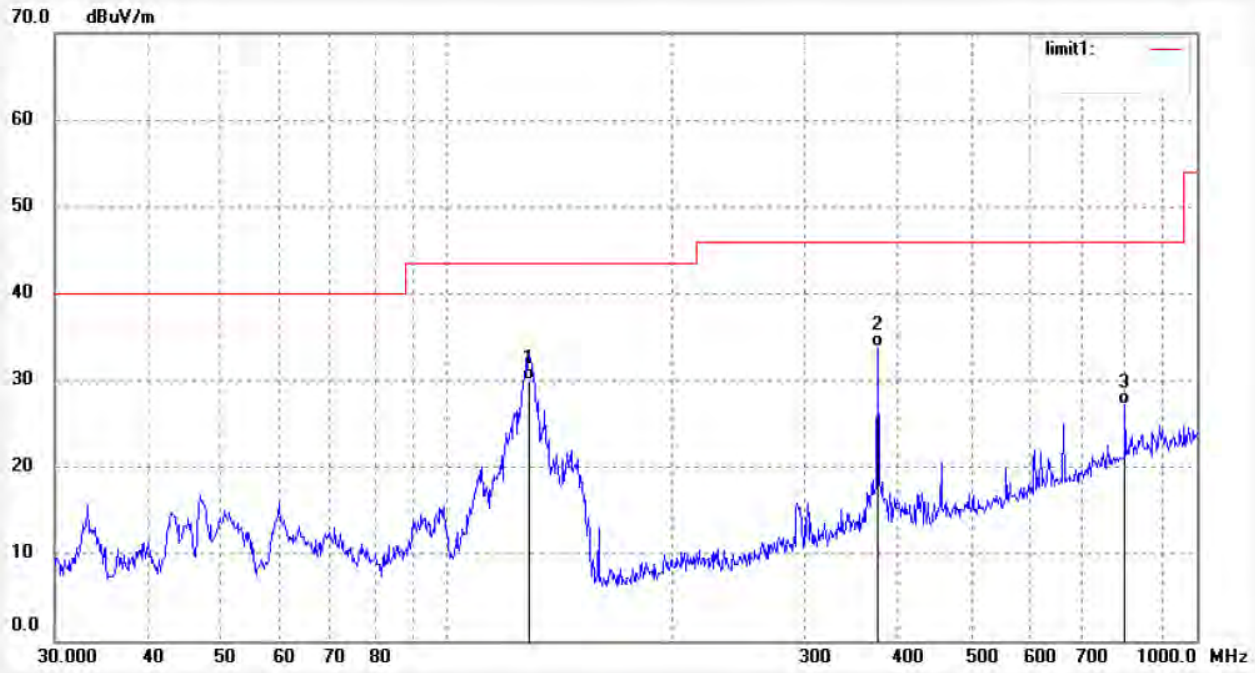
Job No.: alen #4237
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/54/14
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	128.5629	52.89	-22.95	29.94	43.50	-13.56	QP			
2	374.6225	49.74	-15.82	33.92	46.00	-12.08	QP			
3	801.7862	34.97	-7.76	27.21	46.00	-18.79	QP			

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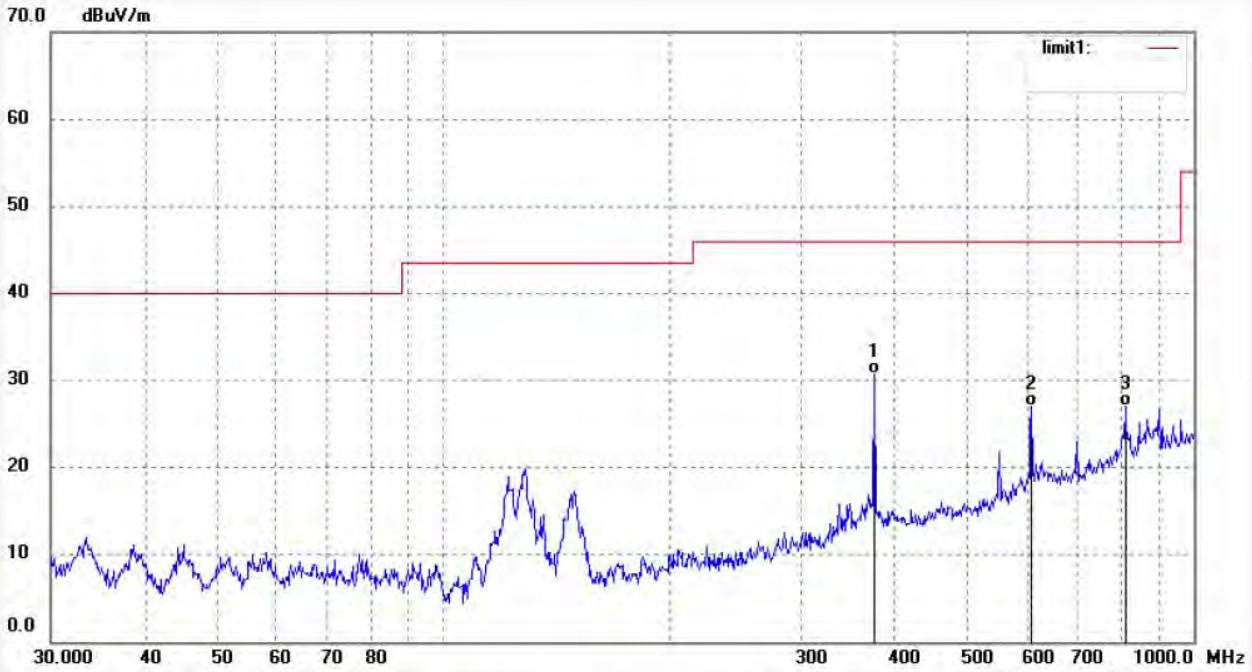
Job No.: alen #4235
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/52/06
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	46.50	-15.82	30.68	46.00	-15.32	QP			
2	607.7866	38.53	-11.50	27.03	46.00	-18.97	QP			
3	810.2653	34.61	-7.61	27.00	46.00	-19.00	QP			

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Site: 1# Chamber
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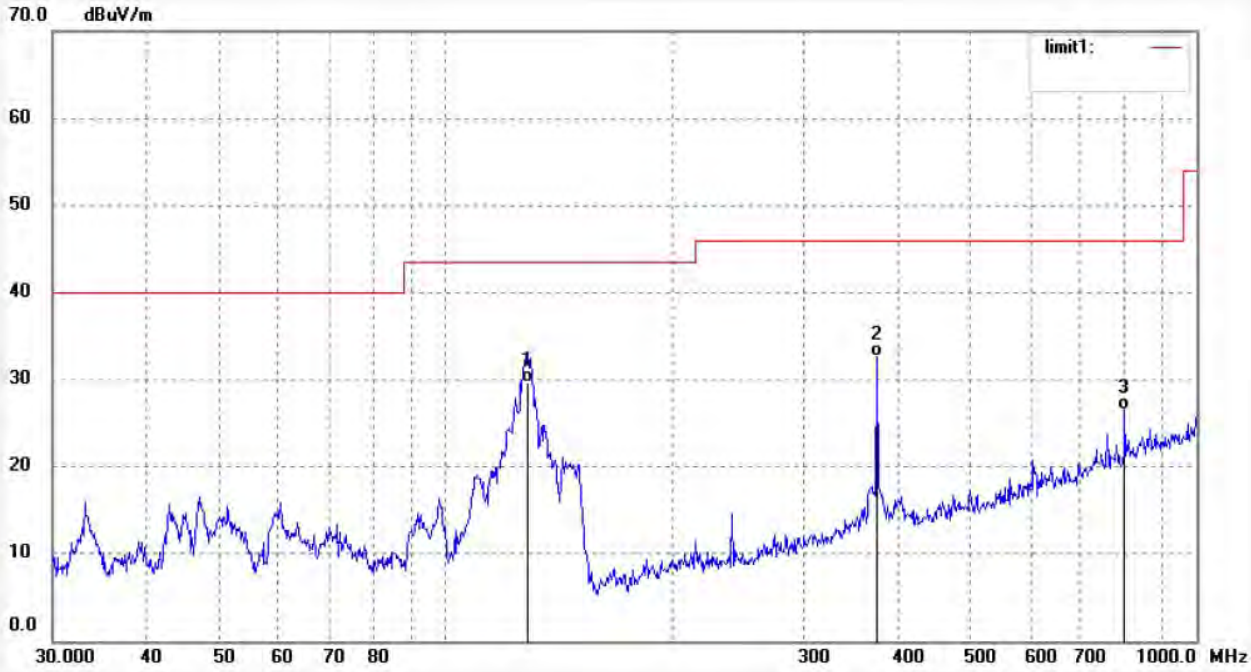
Fax:+86-0755-26503396

Job No.: alen #4236
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/53/37
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	128.5629	52.58	-22.95	29.63	43.50	-13.87	QP			
2	374.6225	48.42	-15.82	32.60	46.00	-13.40	QP			
3	801.7862	34.20	-7.76	26.44	46.00	-19.56	QP			

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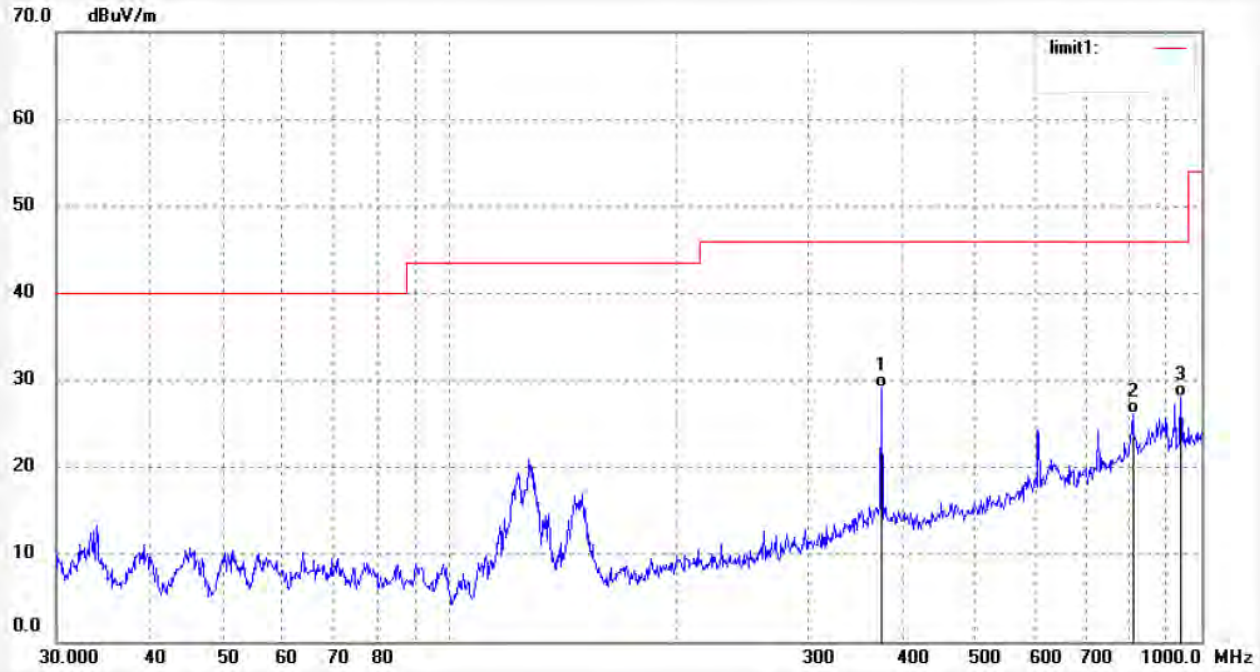
Job No.: alen #4242
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/58/34
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	45.03	-15.82	29.21	46.00	-16.79	QP			
2	810.2653	33.82	-7.61	26.21	46.00	-19.79	QP			
3	938.8325	33.58	-5.56	28.02	46.00	-17.98	QP			

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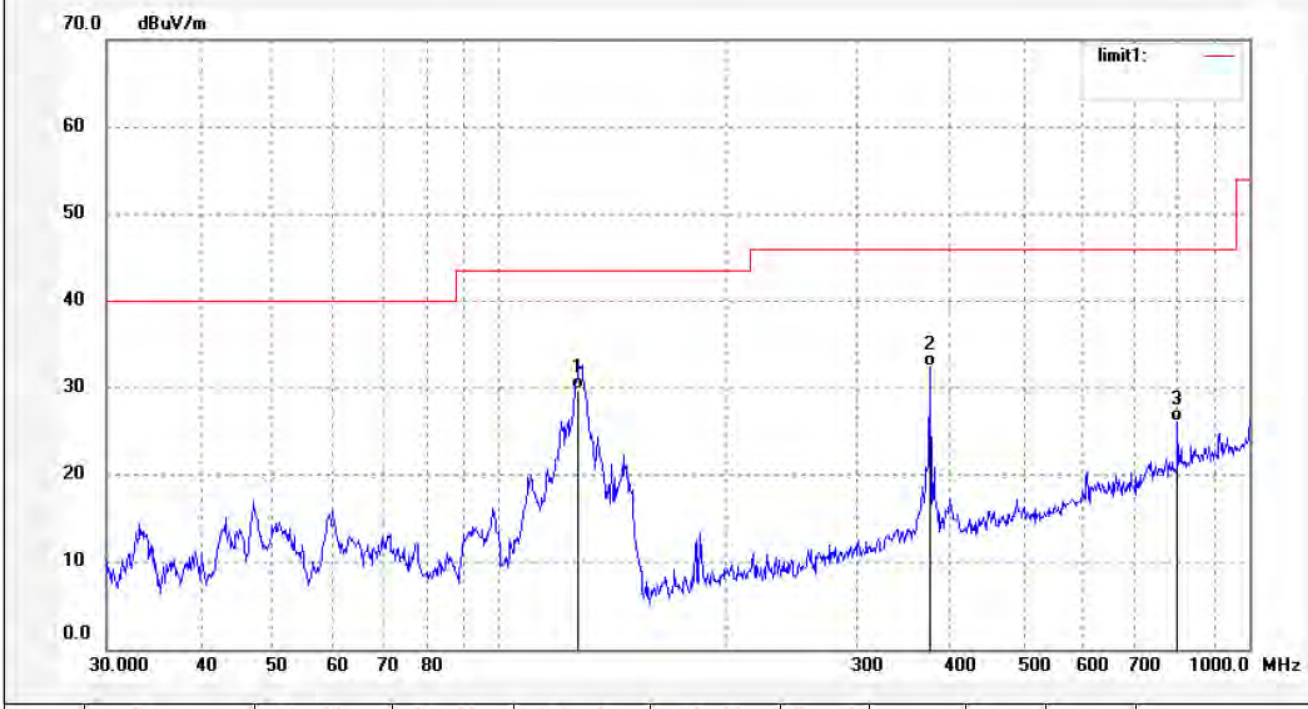
Fax:+86-0755-26503396

Job No.: alen #4241
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 9/57/40
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	127.6645	52.78	-22.91	29.87	43.50	-13.63	QP			
2	374.6225	48.26	-15.82	32.44	46.00	-13.56	QP			
3	801.7862	33.99	-7.76	26.23	46.00	-19.77	QP			

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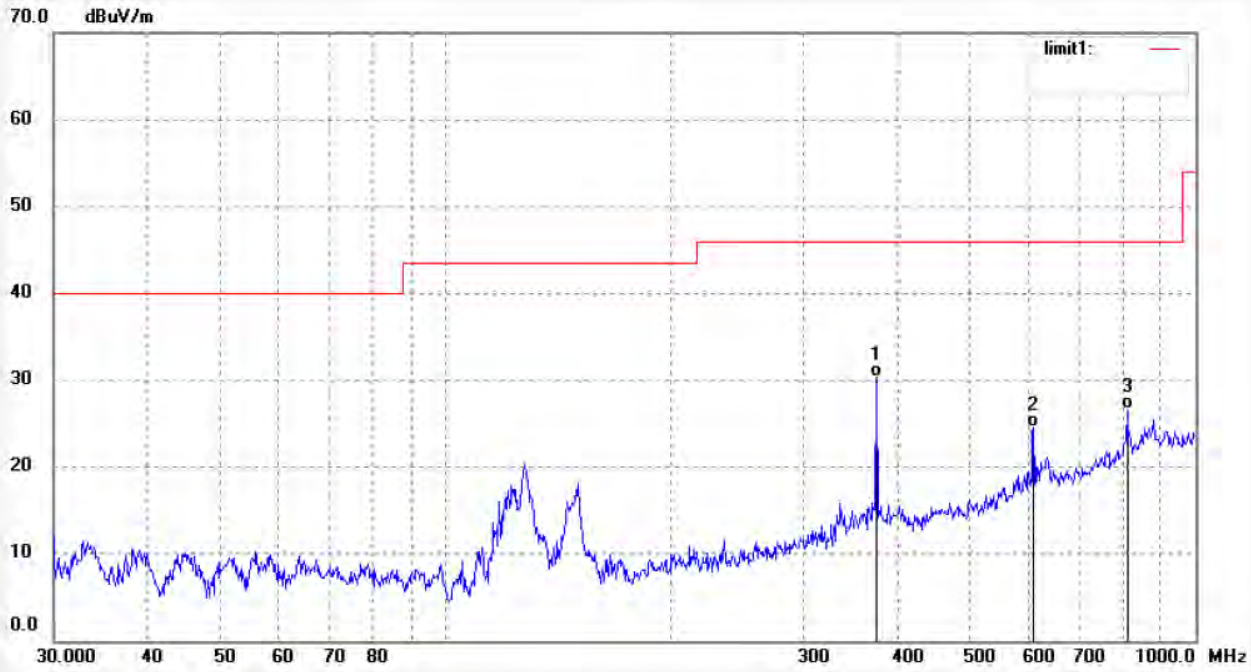
Job No.: alen #4243
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 9/59/14
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	46.27	-15.82	30.45	46.00	-15.55	QP			
2	607.7866	36.11	-11.50	24.61	46.00	-21.39	QP			
3	810.2653	34.25	-7.61	26.64	46.00	-19.36	QP			

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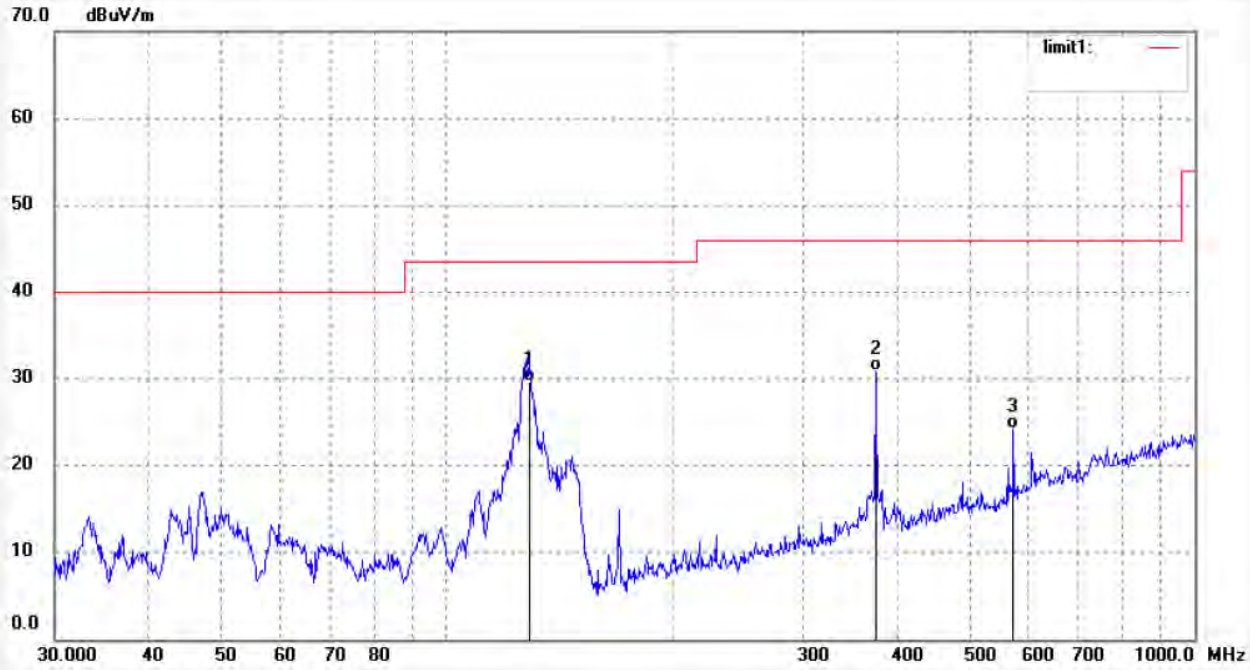
Job No.: alen #4244
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 10/00/17
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	129.4677	52.58	-23.00	29.58	43.50	-13.92	QP			
2	374.6225	46.75	-15.82	30.93	46.00	-15.07	QP			
3	572.6144	36.61	-12.31	24.30	46.00	-21.70	QP			

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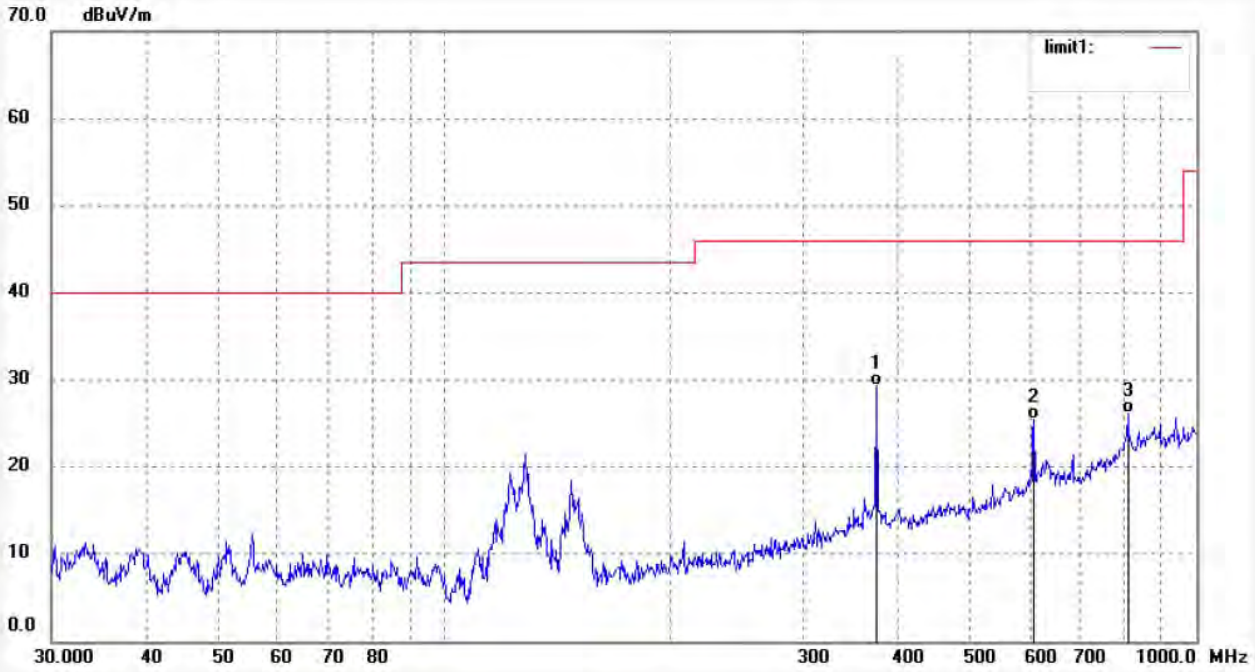
Job No.: alen #4246
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 10/01/44
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	375.9384	45.19	-15.81	29.38	46.00	-16.62	QP			
2	607.7866	36.93	-11.50	25.43	46.00	-20.57	QP			
3	810.2653	33.81	-7.61	26.20	46.00	-19.80	QP			

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Science & Industry Park,Nanshan Shenzhen,P.R.China
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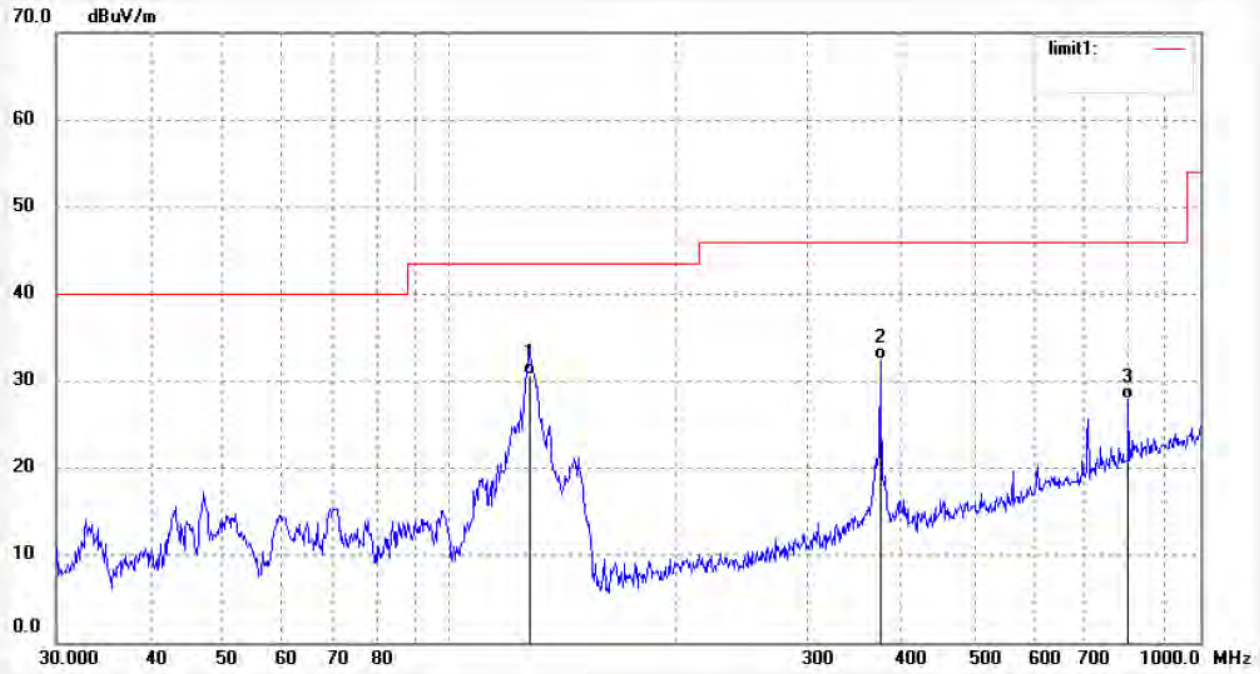
Fax:+86-0755-26503396

Job No.: alen #4245
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 10/00/53
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	128.1129	53.65	-22.94	30.71	43.50	-12.79	QP			
2	374.6225	48.22	-15.82	32.40	46.00	-13.60	QP			
3	801.7862	35.65	-7.76	27.89	46.00	-18.11	QP			

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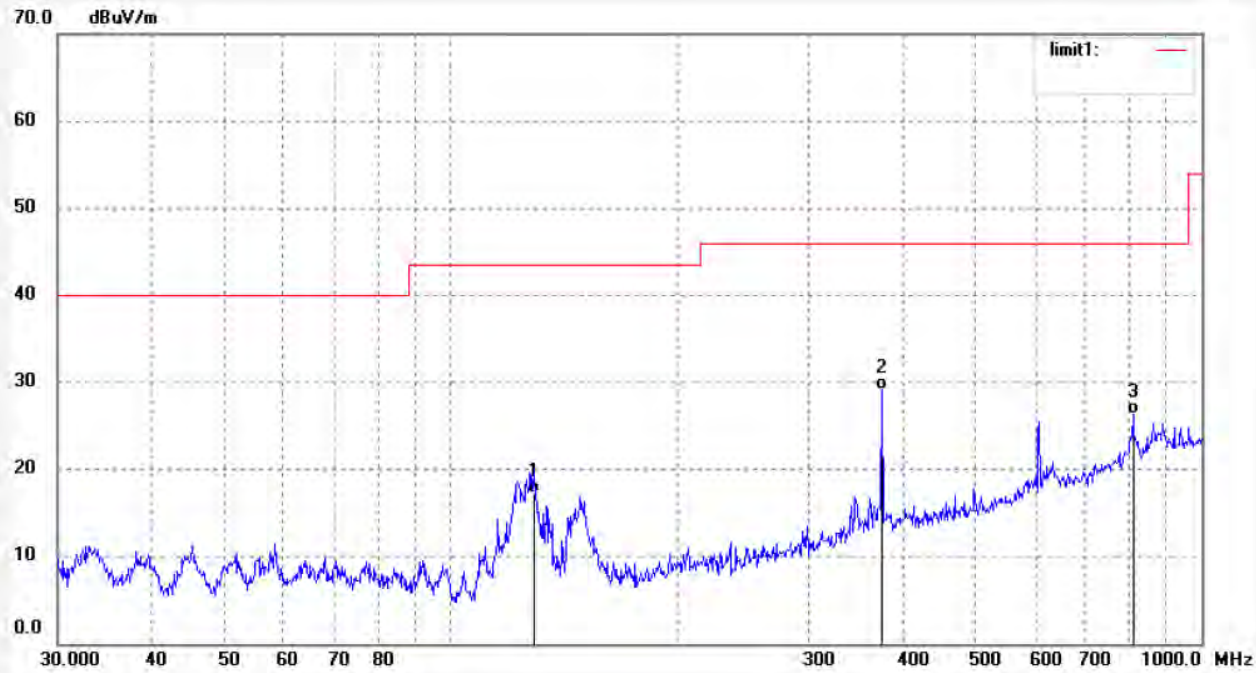
Fax:+86-0755-26503396

Job No.: alen #4251
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2422MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 10/06/14
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	129.0146	40.23	-22.98	17.25	43.50	-26.25	QP			
2	374.6225	45.02	-15.82	29.20	46.00	-16.80	QP			
3	810.2653	33.95	-7.61	26.34	46.00	-19.66	QP			

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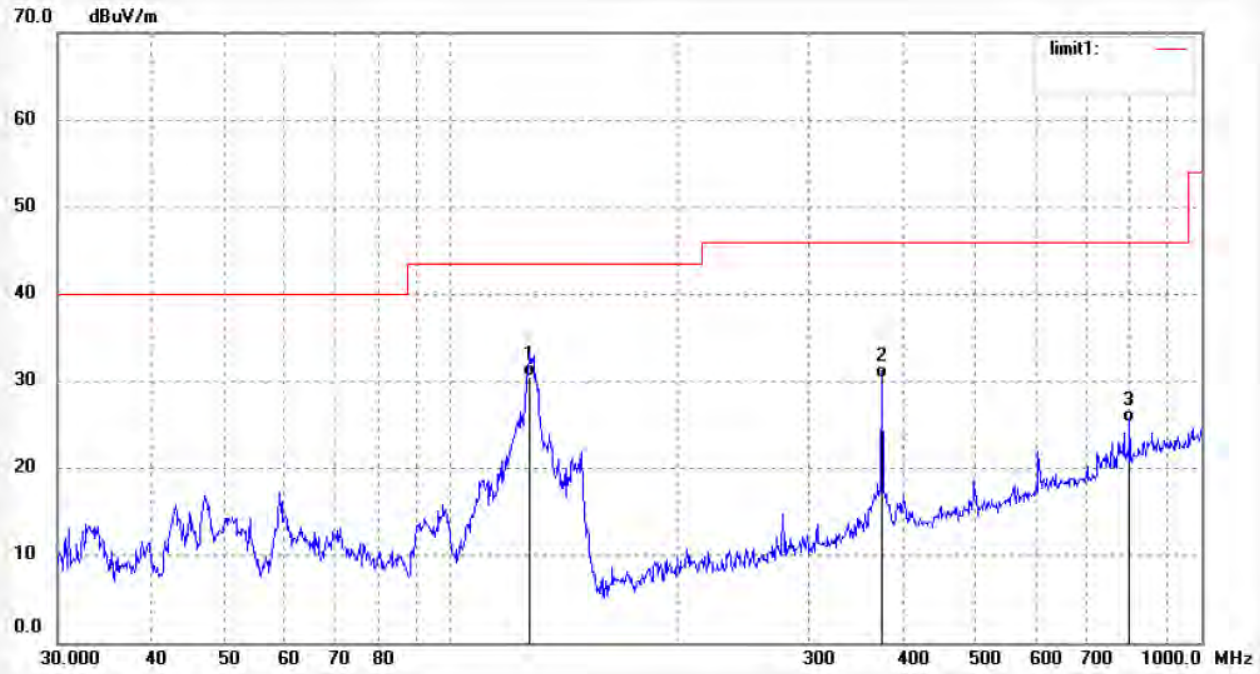
Fax:+86-0755-26503396

Job No.: alen #4252
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2422MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 10/06/59
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	127.6645	53.45	-22.91	30.54	43.50	-12.96	QP			
2	374.6225	46.20	-15.82	30.38	46.00	-15.62	QP			
3	801.7862	33.01	-7.76	25.25	46.00	-20.75	QP			

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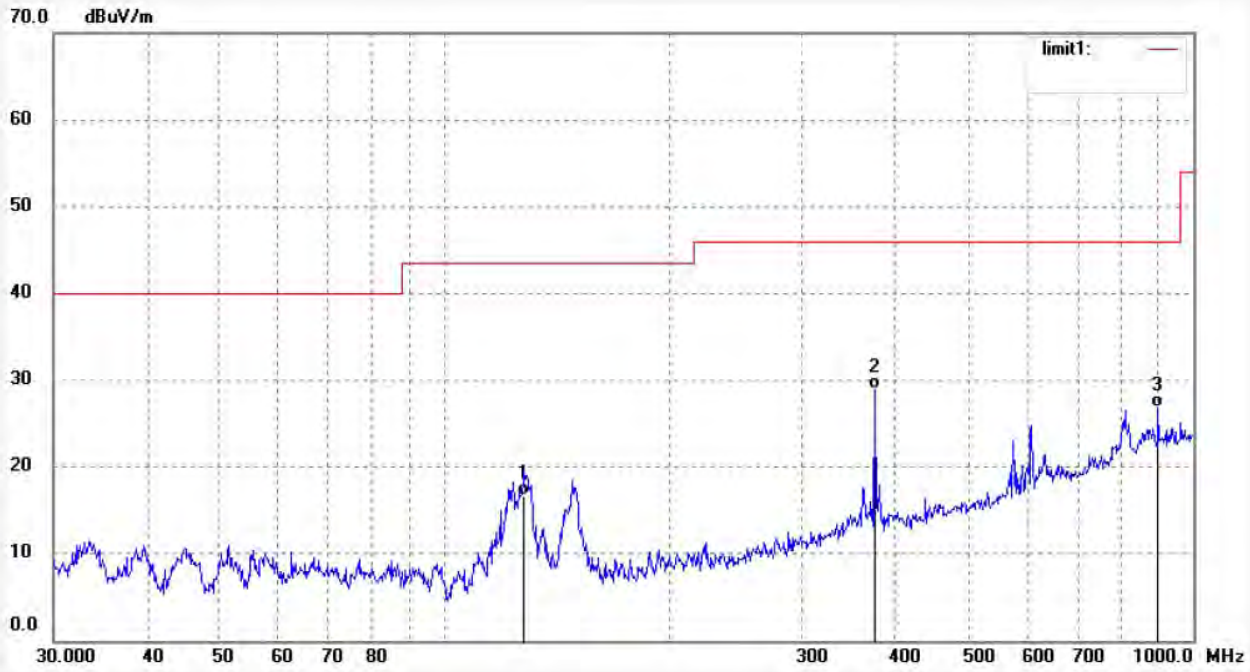
Job No.: alen #4250
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 10/04/58
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	127.6645	39.68	-22.91	16.77	43.50	-26.73	QP			
2	374.6225	44.82	-15.82	29.00	46.00	-17.00	QP			
3	896.9963	33.01	-6.15	26.86	46.00	-19.14	QP			

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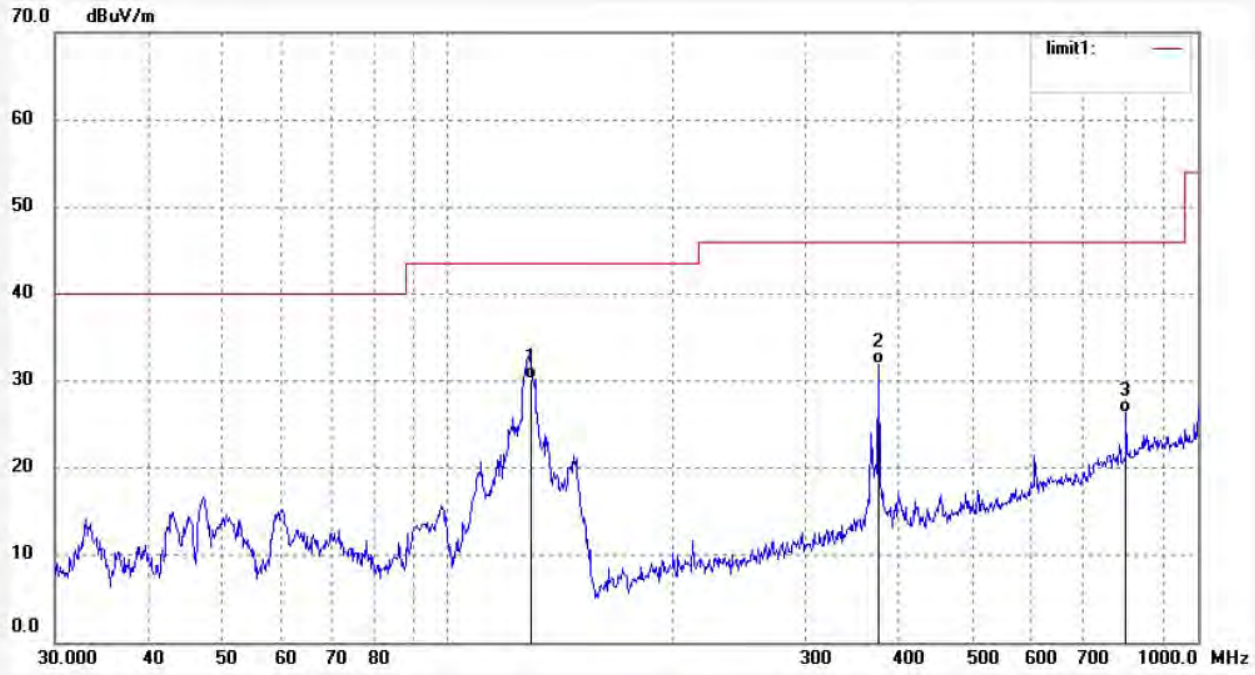
Job No.: alen #4249	Polarization: Vertical
Standard: FCC 15.247 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 14/06/03/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 10/03/55
EUT: 300M Mini Wireless USB Adapter	Engineer Signature:
Mode: TX 2437MHz(802.11n40)	Distance: 3m
Model: WU331EU	
Manufacturer: Haoliyuan	

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	129.0146	53.21	-22.98	30.23	43.50	-13.27	QP			
2	374.6225	47.79	-15.82	31.97	46.00	-14.03	QP			
3	801.7862	34.14	-7.76	26.38	46.00	-19.62	QP			

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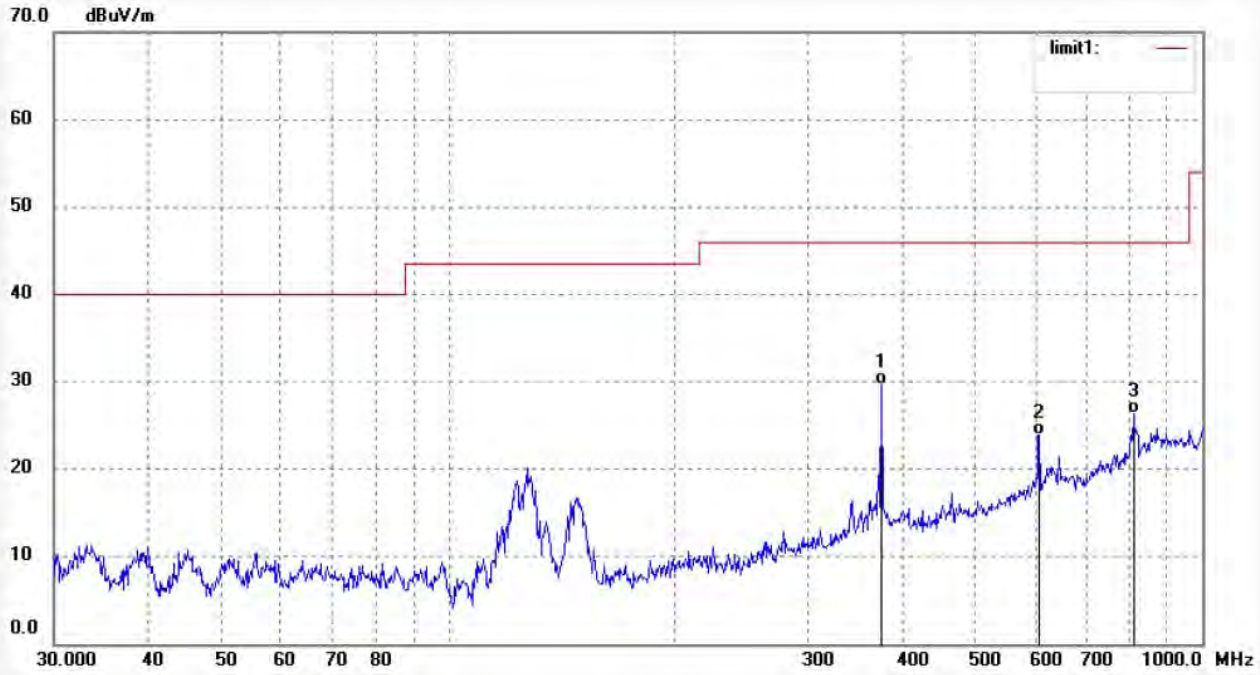
Job No.: alen #4247
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2452MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/03/
Time: 10/02/21
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	375.9384	45.40	-15.81	29.59	46.00	-16.41	QP			
2	607.7866	35.47	-11.50	23.97	46.00	-22.03	QP			
3	810.2653	33.88	-7.61	26.27	46.00	-19.73	QP			

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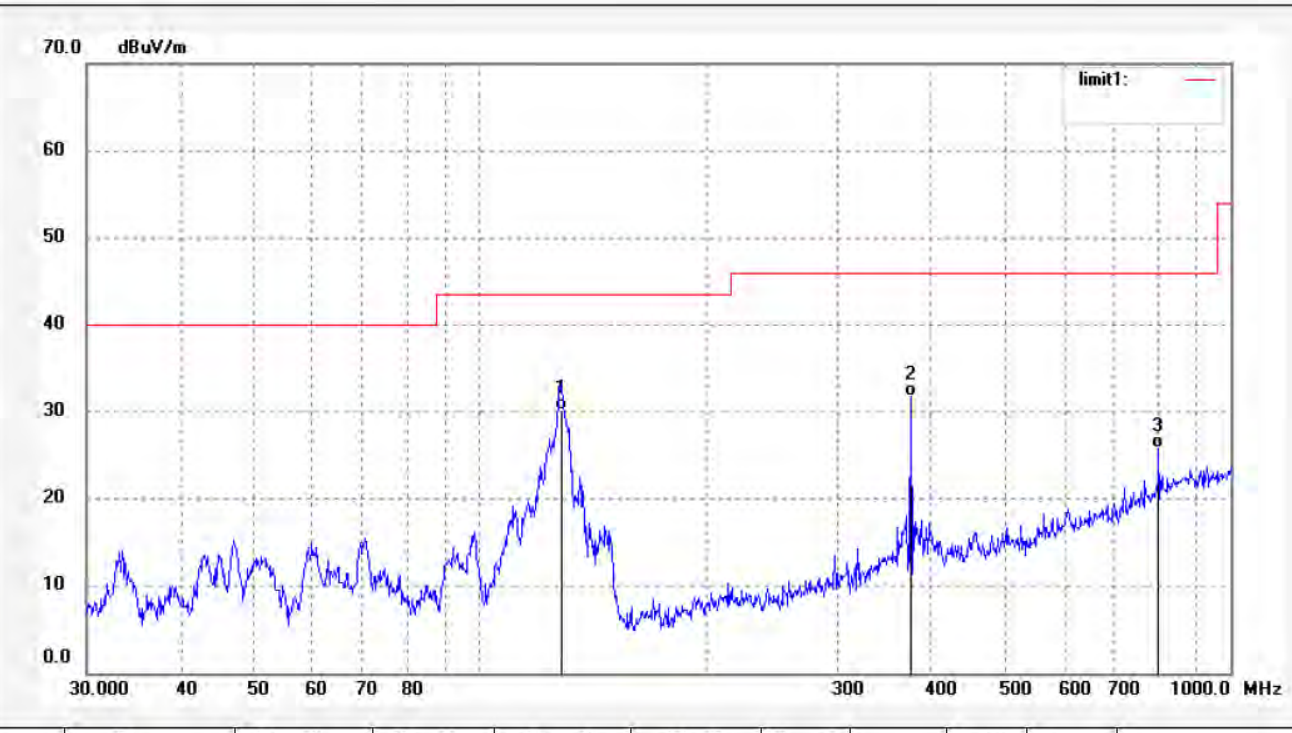
Job No.: alen #4248
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2452MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/03/
Time: 10/03/01
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	128.5629	53.12	-22.95	30.17	43.50	-13.33	QP			
2	374.6225	47.61	-15.82	31.79	46.00	-14.21	QP			
3	801.7862	33.63	-7.76	25.87	46.00	-20.13	QP			

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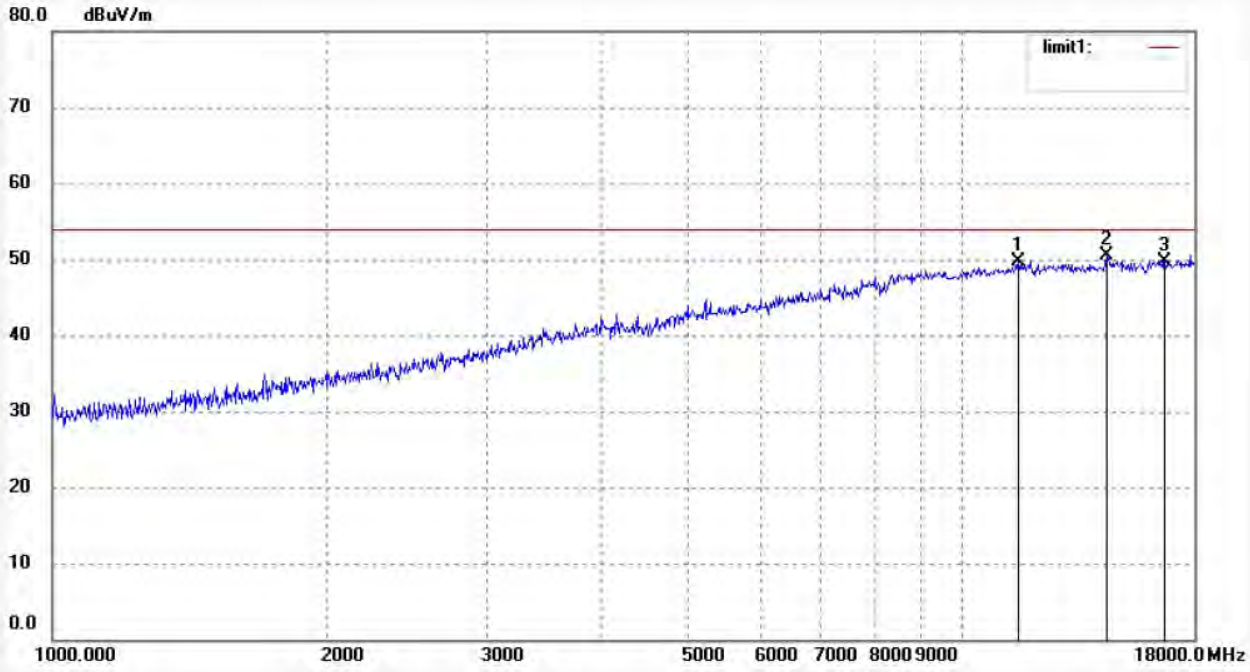
Job No.: alen #2900
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 9/59/42
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11533.485	43.72	6.07	49.79	74.00	-24.21	peak			
2	14408.425	37.93	12.53	50.46	74.00	-23.54	peak			
3	16696.884	36.97	12.81	49.78	74.00	-24.22	peak			

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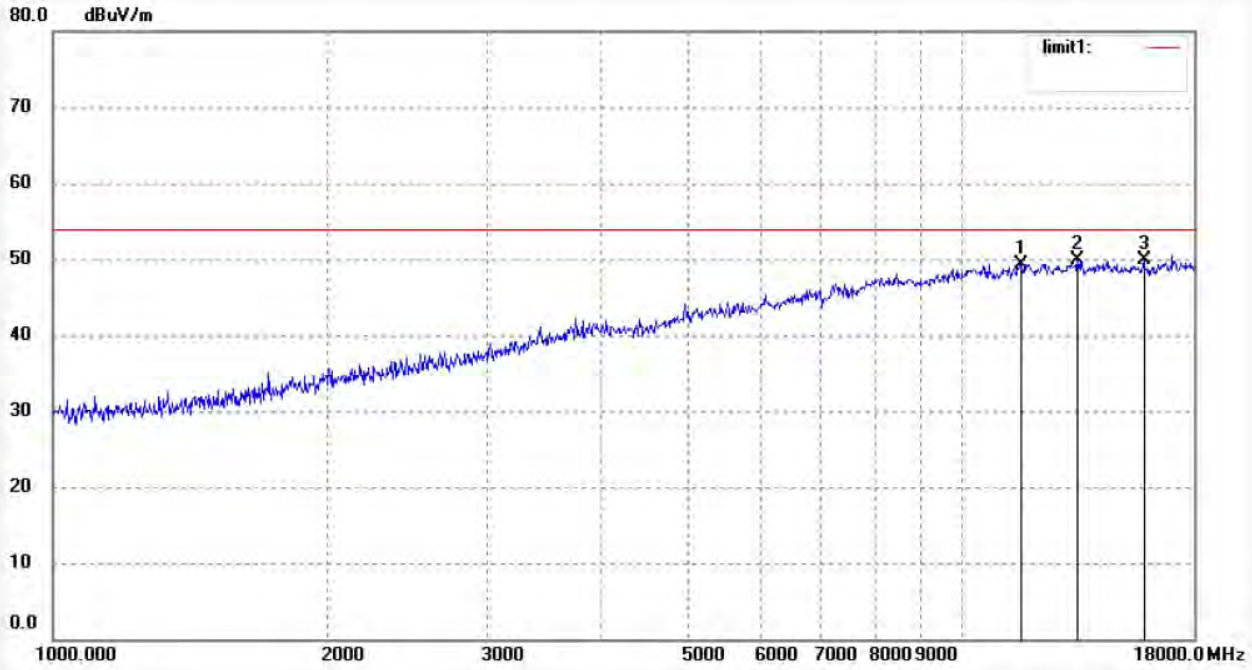
Job No.: alen #2899
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 9/59/01
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11600.350	43.21	6.14	49.35	74.00	-24.65	peak			
2	13404.009	41.03	8.82	49.85	74.00	-24.15	peak			
3	15850.410	38.42	11.48	49.90	74.00	-24.10	peak			

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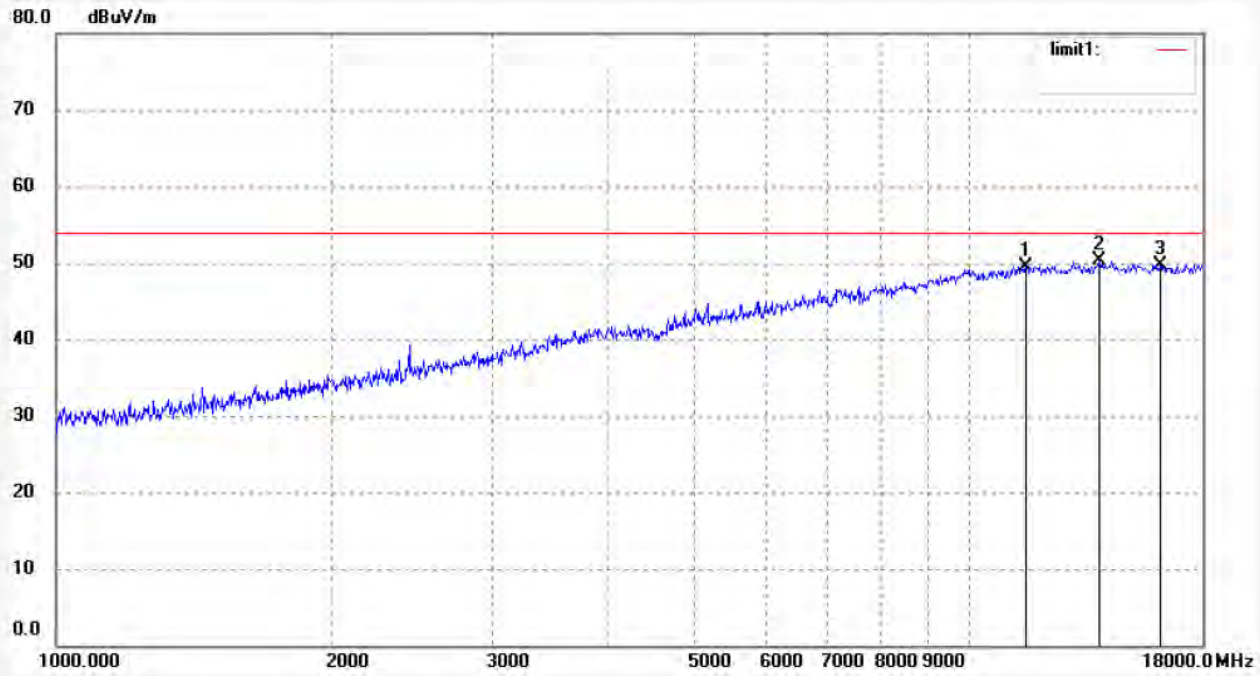
Job No.: alen #2901
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 10/01/25
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11533.485	43.52	6.07	49.59	74.00	-24.41	peak			
2	13877.076	40.14	10.08	50.22	74.00	-23.78	peak			
3	16174.372	37.91	11.79	49.70	74.00	-24.30	peak			

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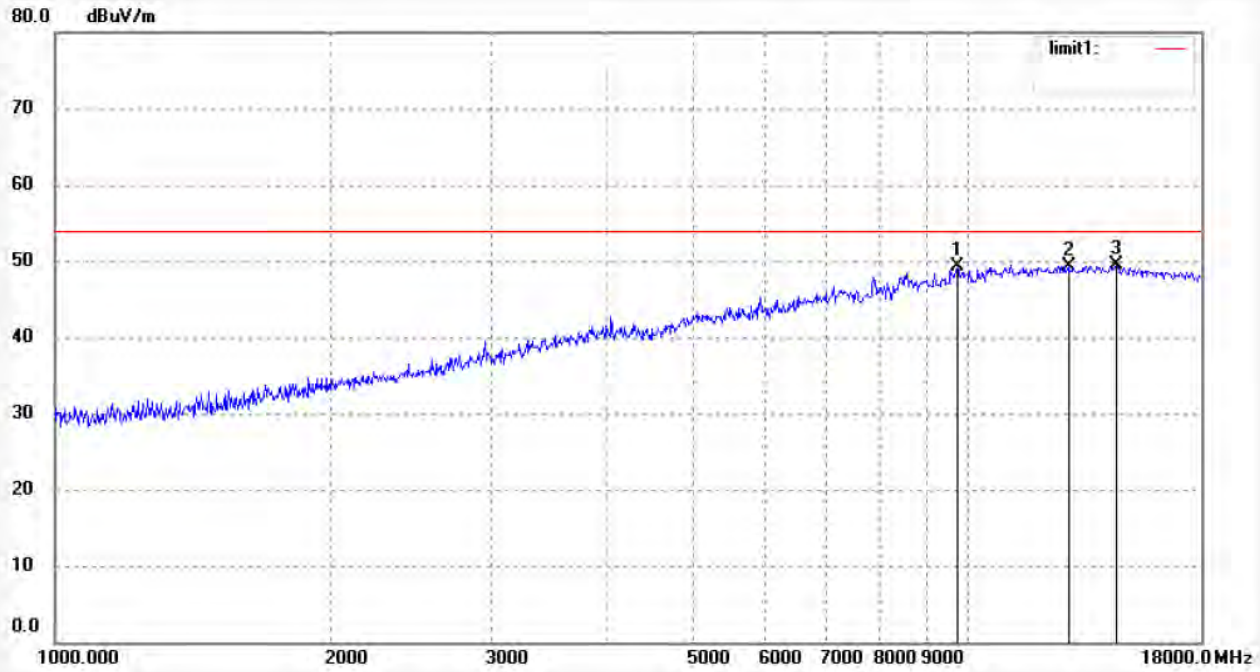
Job No.: alen #2902
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 10/01/51
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9725.221	44.24	5.03	49.27	74.00	-24.73	peak			
2	12872.441	41.68	7.72	49.40	74.00	-24.60	peak			
3	14533.906	36.67	12.92	49.59	74.00	-24.41	peak			

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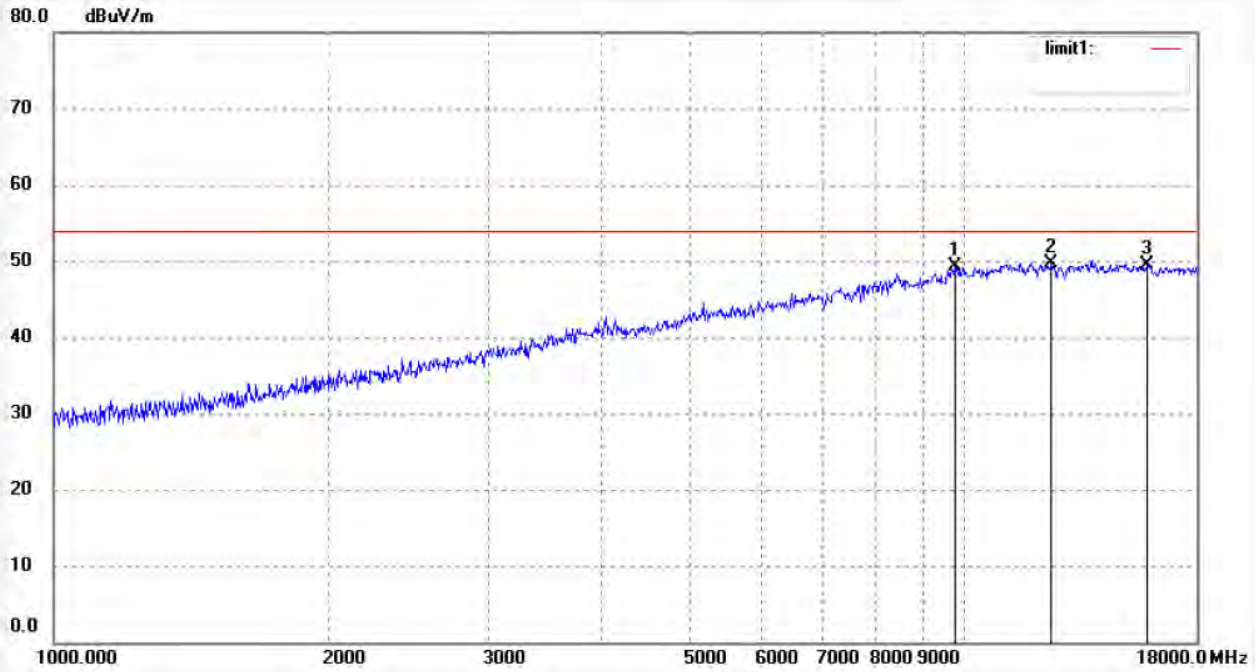
Job No.: alen #2904
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 10/04/12
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9753.371	44.19	5.06	49.25	74.00	-24.75	peak			
2	12469.611	42.54	7.12	49.66	74.00	-24.34	peak			
3	15850.410	38.11	11.48	49.59	74.00	-24.41	peak			

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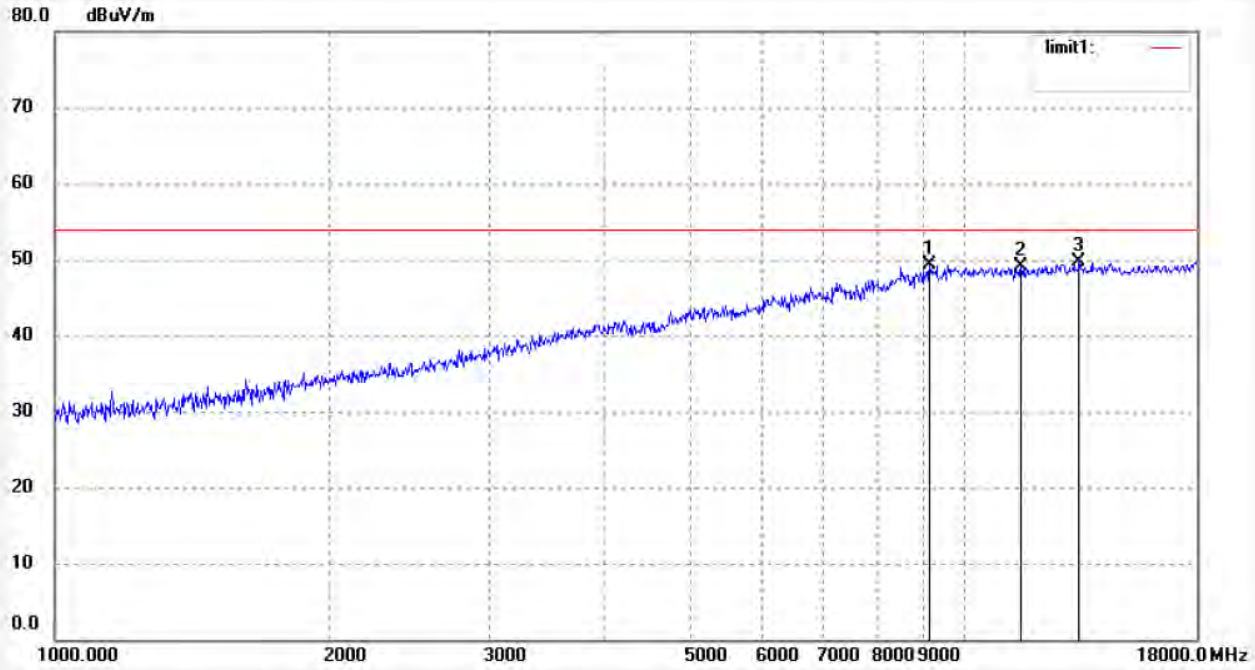
Job No.: alen #2903
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11b)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 10/03/29
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9152.479	45.47	3.88	49.35	74.00	-24.65	peak			
2	11533.485	42.94	6.07	49.01	74.00	-24.99	peak			
3	13365.322	41.06	8.74	49.80	74.00	-24.20	peak			

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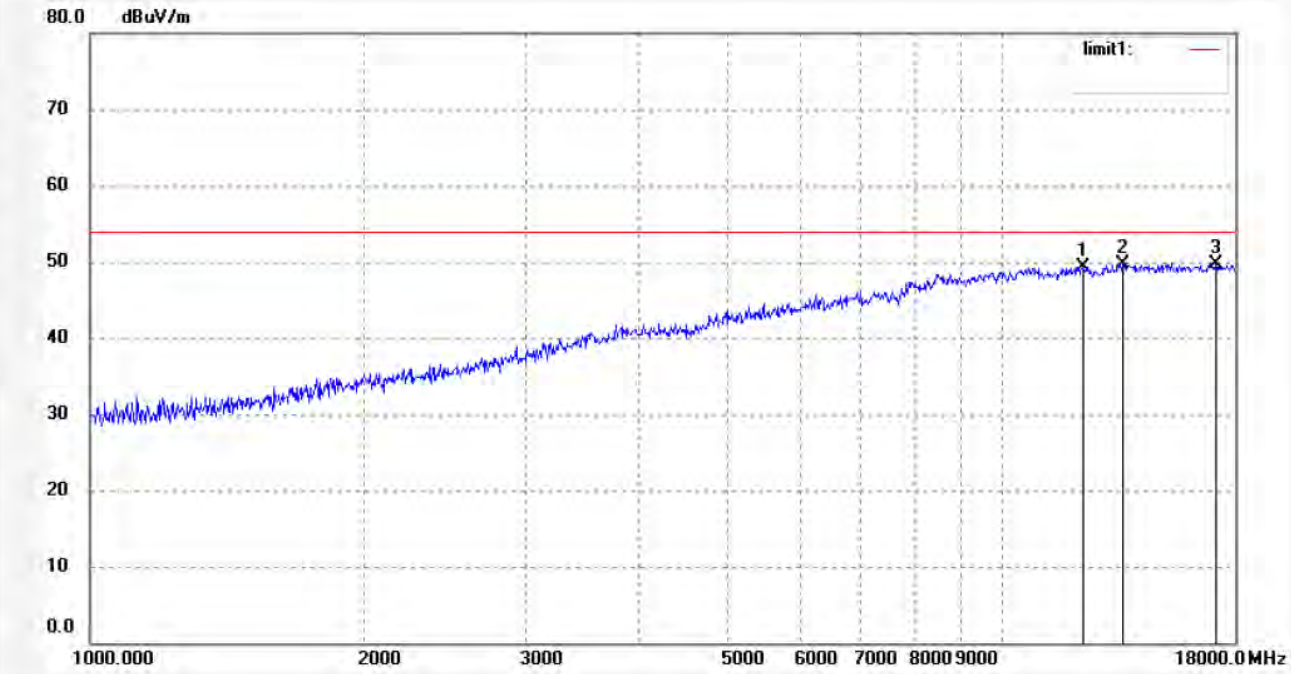
Job No.: alen #2909
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/45/26
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	12255.224	42.46	6.84	49.30	74.00	-24.70	peak			
2	13559.879	40.43	9.22	49.65	74.00	-24.35	peak			
3	17136.924	35.33	14.42	49.75	74.00	-24.25	peak			

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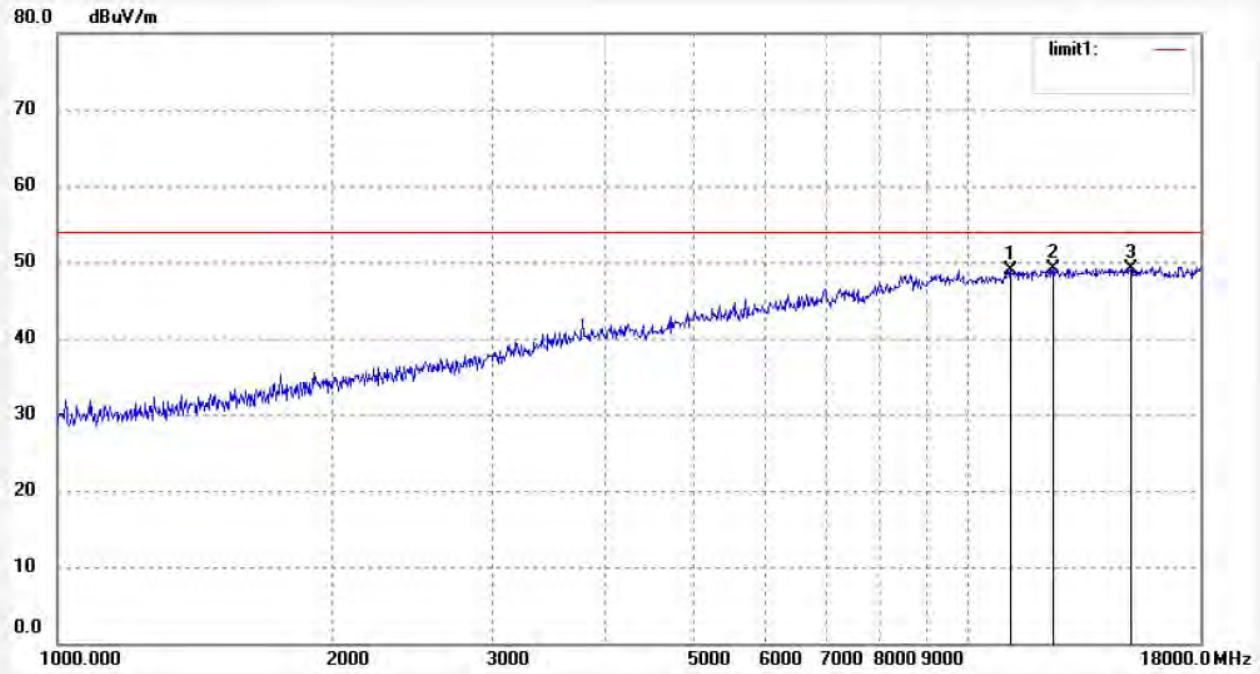
Job No.: alen #2910
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/46/09
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11140.310	43.23	5.65	48.88	74.00	-25.12	peak			
2	12397.735	42.07	7.02	49.09	74.00	-24.91	peak			
3	15090.405	37.33	11.76	49.09	74.00	-24.91	peak			

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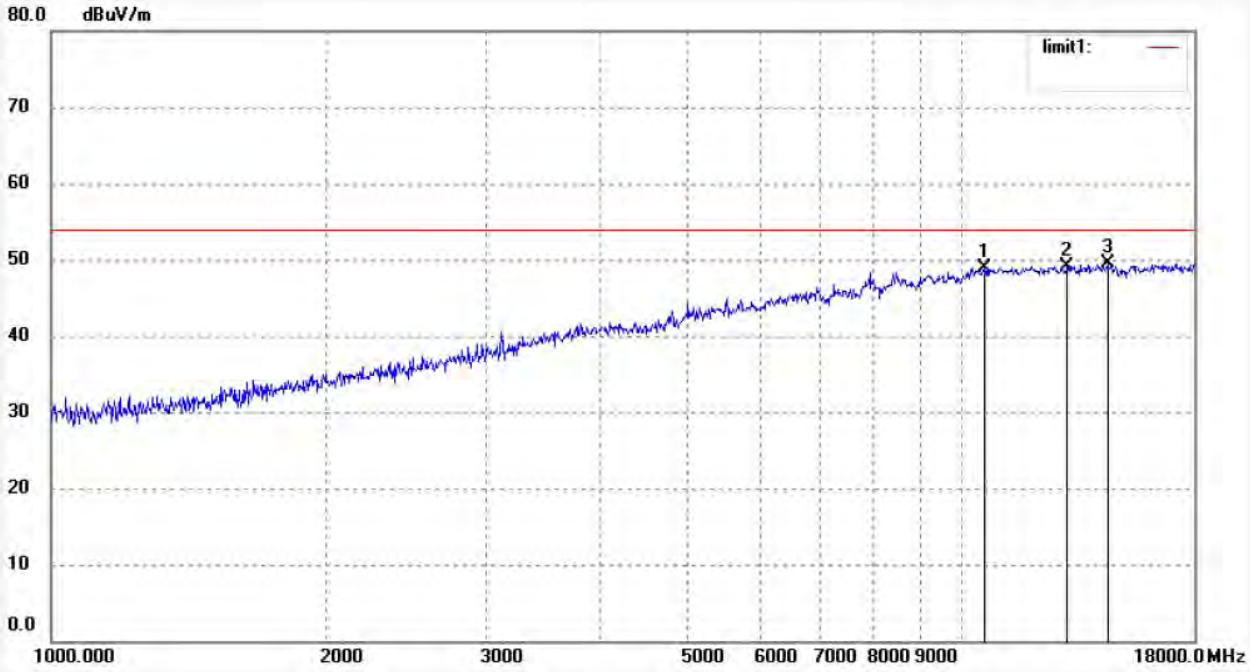
Job No.: alen #2908
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/44/37
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10606.147	43.64	5.26	48.90	74.00	-25.10	peak			
2	13059.822	41.06	8.02	49.08	74.00	-24.92	peak			
3	14450.131	36.83	12.73	49.56	74.00	-24.44	peak			

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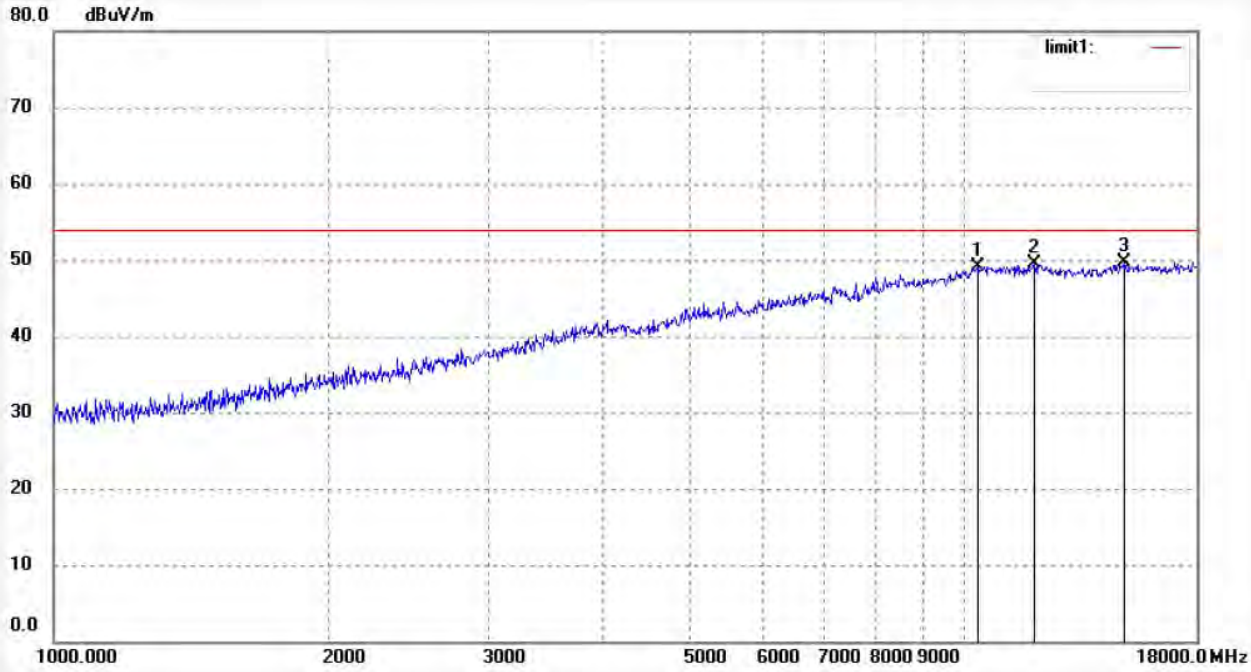
Fax:+86-0755-26503396

Job No.: alen #2907
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/43/49
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10333.803	43.88	5.26	49.14	74.00	-24.86	peak			
2	11940.536	43.01	6.43	49.44	74.00	-24.56	peak			
3	14960.120	37.77	11.98	49.75	74.00	-24.25	peak			

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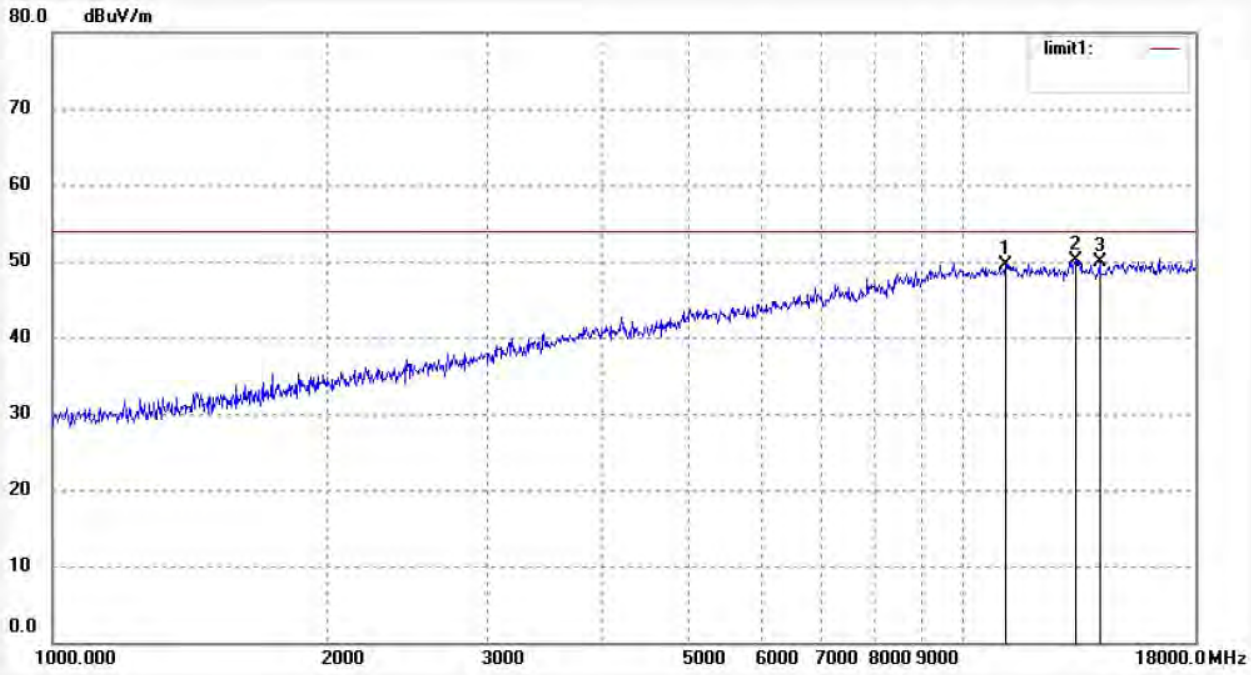
Job No.: alen #2905	Polarization: Horizontal
Standard: FCC 15.247 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 14/06/04/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 10/05/59
EUT: 300M Mini Wireless USB Adapter	Engineer Signature:
Mode: TX 2462MHz(802.11g)	Distance: 3m
Model: WU331EU	
Manufacturer: Haoliyuan	

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11140.310	43.84	5.65	49.49	74.00	-24.51	peak			
2	13288.284	41.56	8.56	50.12	74.00	-23.88	peak			
3	14119.835	38.90	11.02	49.92	74.00	-24.08	peak			

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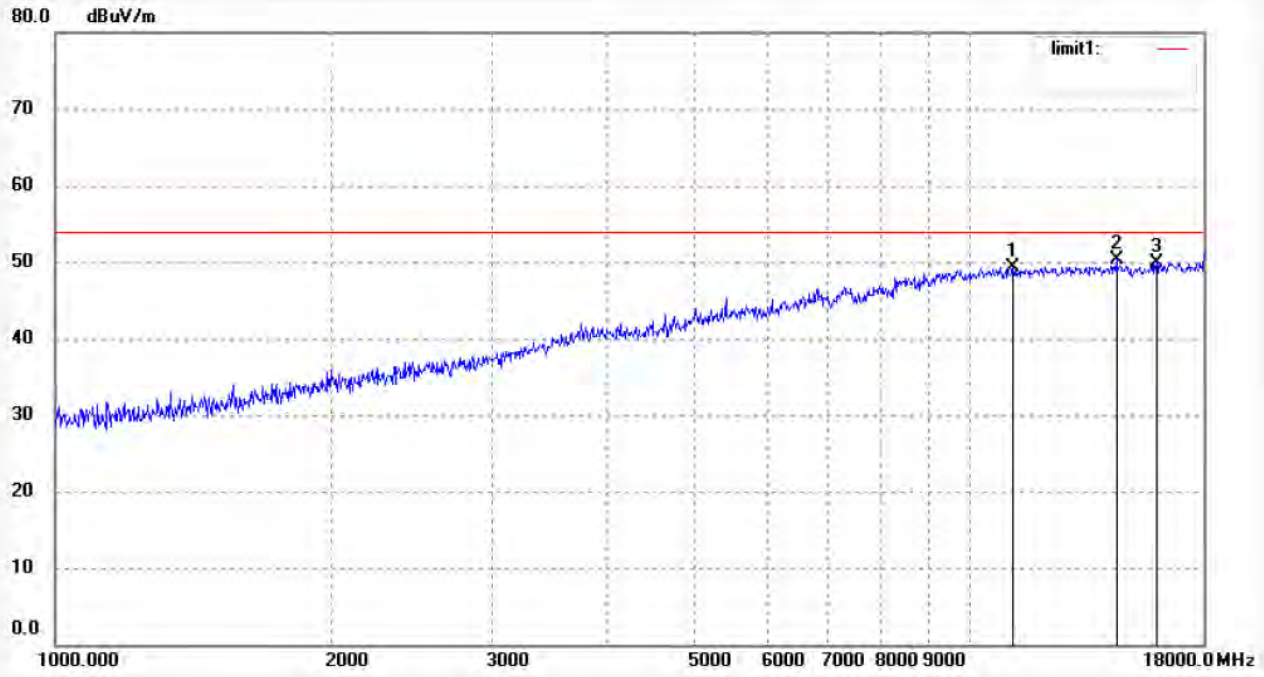
Job No.: alen #2906
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11g)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 10/06/33
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11140.310	43.60	5.65	49.25	74.00	-24.75	peak			
2	14450.131	37.54	12.74	50.28	74.00	-23.72	peak			
3	15988.449	38.43	11.57	50.00	74.00	-24.00	peak			

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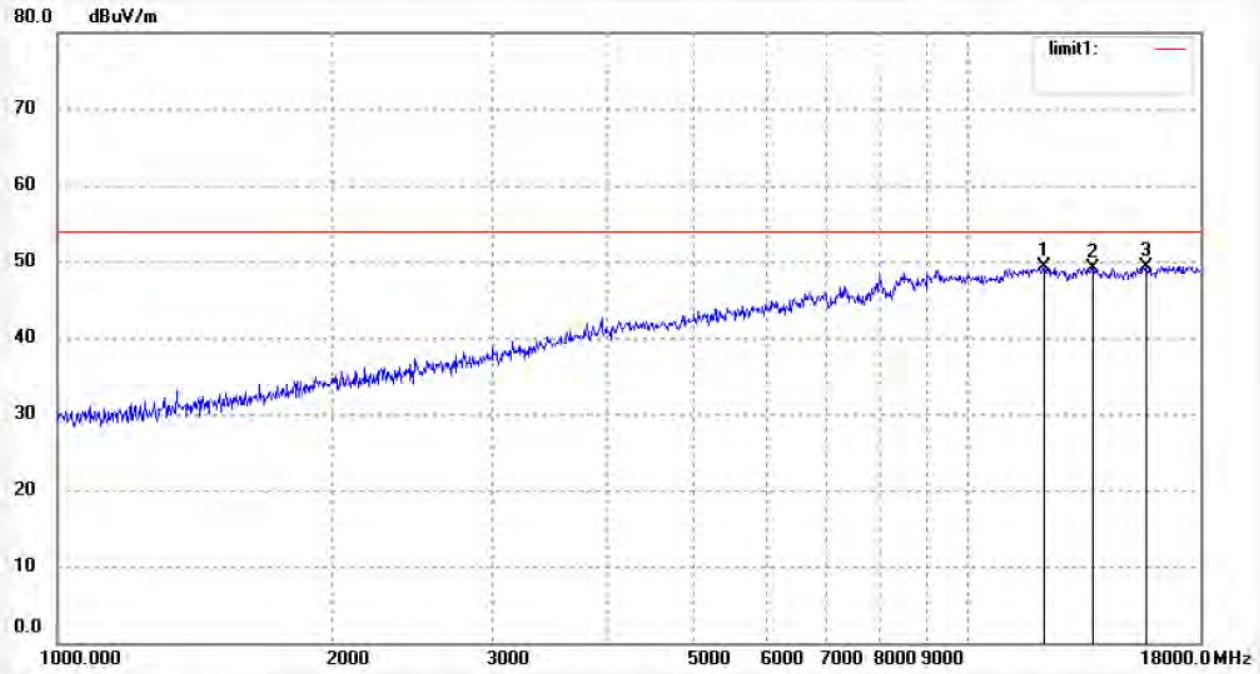
Job No.: alen #2912
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/46/45
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	12114.352	42.58	6.65	49.23	74.00	-24.77	peak			
2	13717.561	39.49	9.66	49.15	74.00	-24.85	peak			
3	15713.564	38.00	11.40	49.40	74.00	-24.60	peak			

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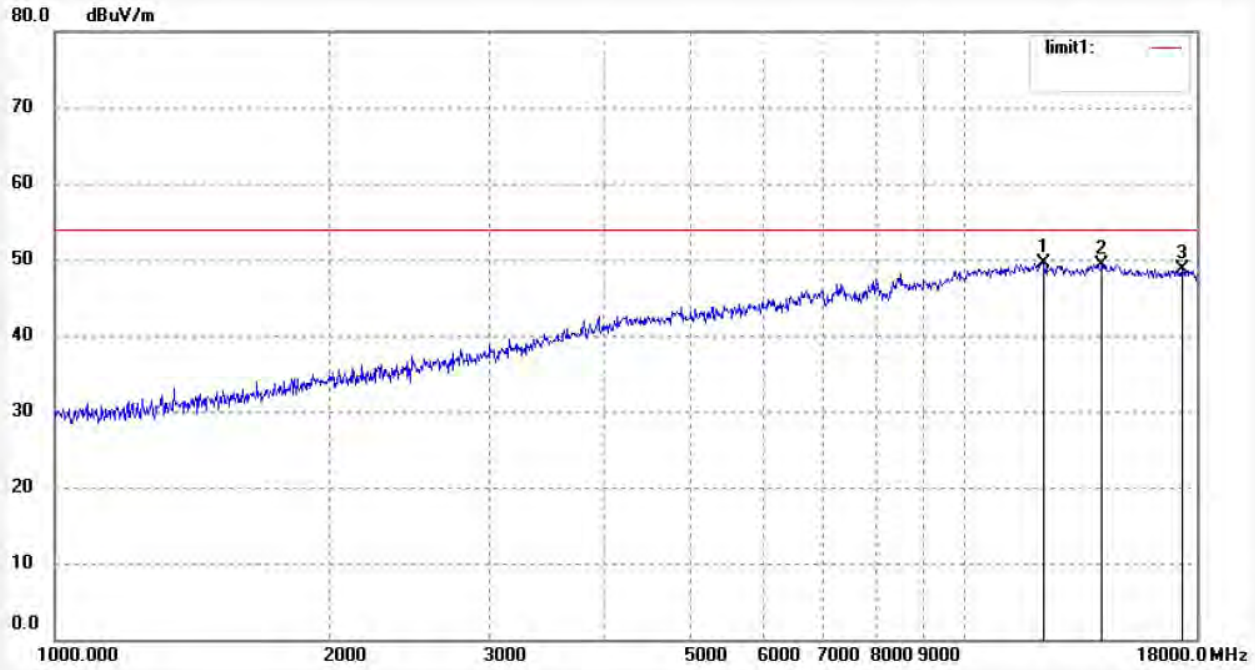
Job No.: alen #2911
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2412MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/46/45
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	12219.853	42.69	6.79	49.48	74.00	-24.52	peak			
2	14160.705	38.11	11.24	49.35	74.00	-24.65	peak			
3	17336.202	33.37	15.33	48.70	74.00	-25.30	peak			

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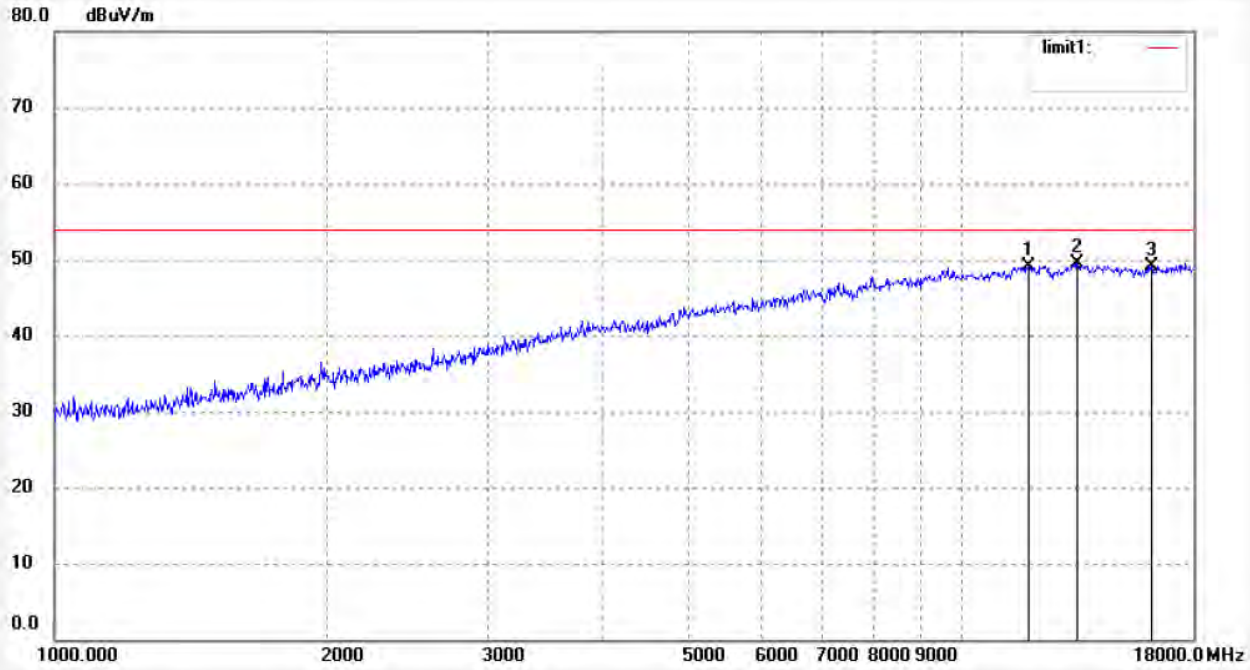
Job No.: alen #2913
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/48/06
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11837.445	42.83	6.34	49.17	74.00	-24.83	peak			
2	13404.009	40.71	8.82	49.53	74.00	-24.47	peak			
3	16174.372	37.35	11.79	49.14	74.00	-24.86	peak			

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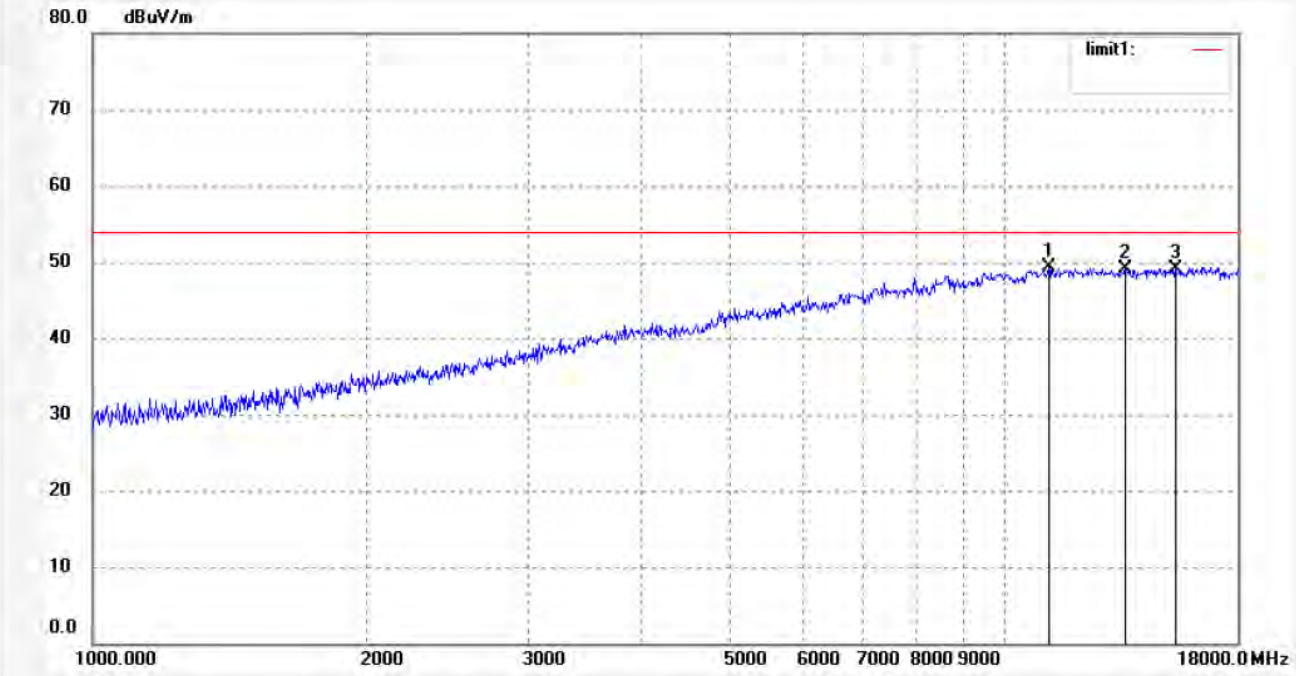
Job No.: alen #2914
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/49/07
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11172.556	43.53	5.69	49.22	74.00	-24.78	peak			
2	13559.879	39.87	9.22	49.09	74.00	-24.91	peak			
3	15398.832	37.69	11.38	49.07	74.00	-24.93	peak			

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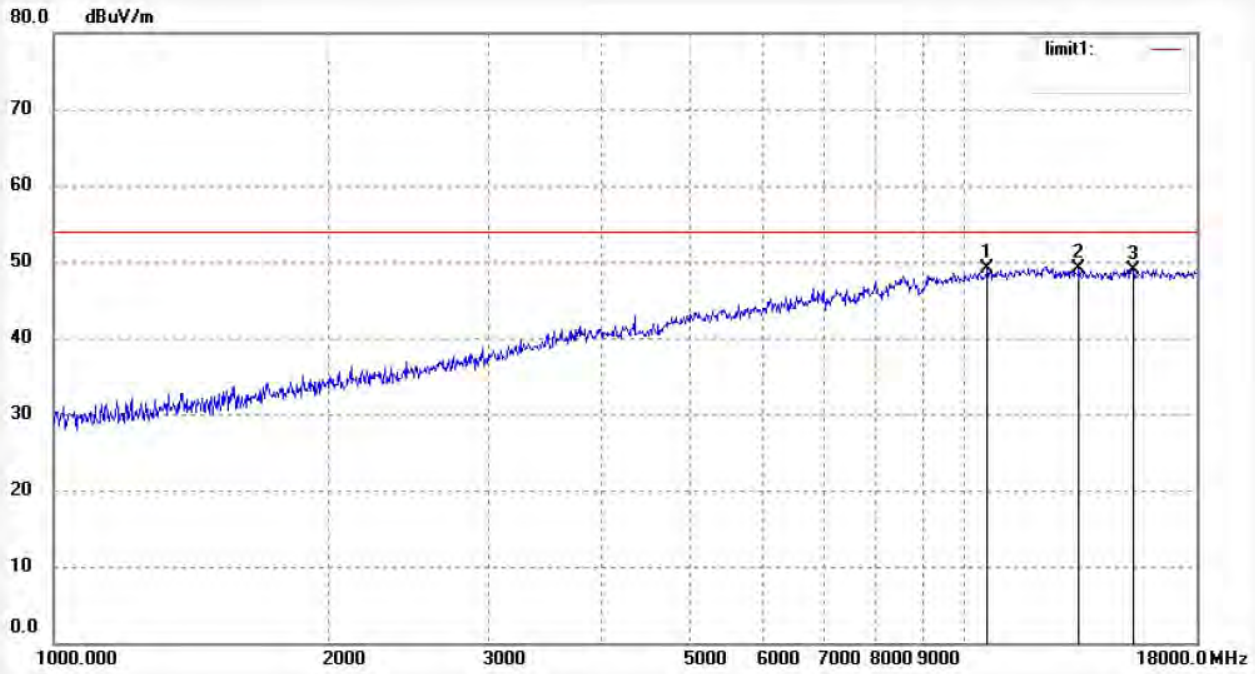
Job No.: alen #2916
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/50/22
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10606.147	43.78	5.26	49.04	74.00	-24.96	peak			
2	13365.322	40.37	8.74	49.11	74.00	-24.89	peak			
3	15354.388	37.45	11.43	48.88	74.00	-25.12	peak			

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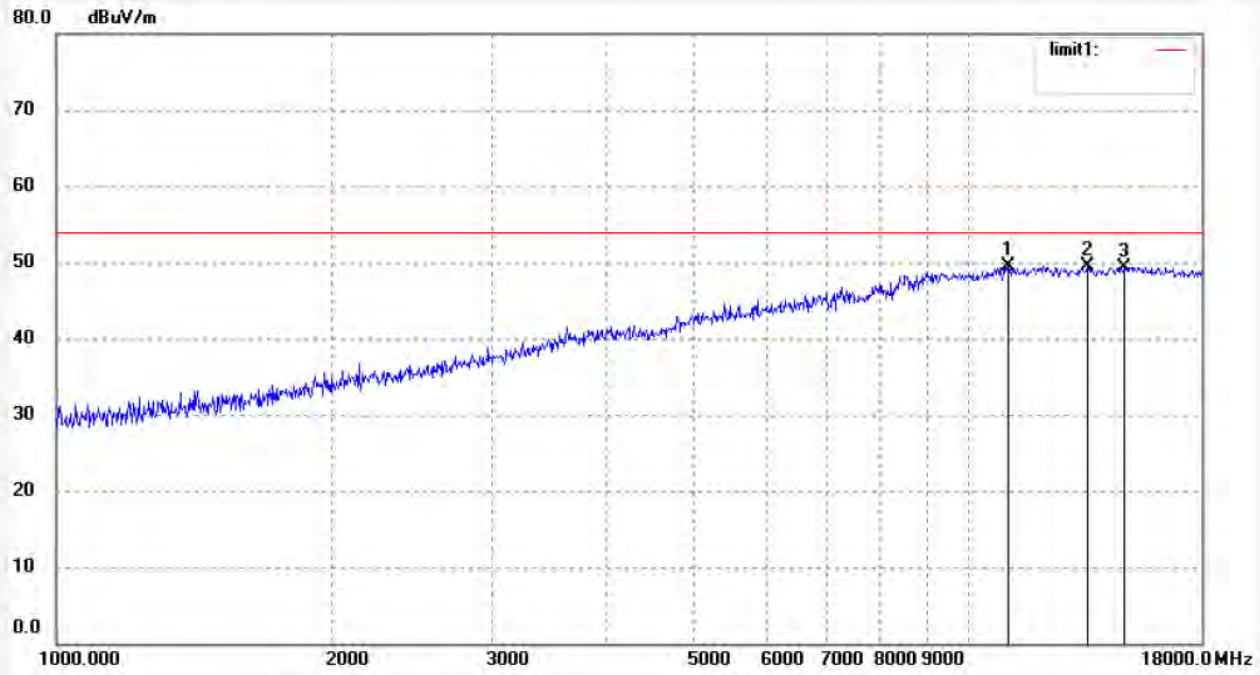
Job No.: alen #2915
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2462MHz(802.11n20)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/49/41
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11044.129	43.94	5.55	49.49	74.00	-24.51	peak			
2	13481.719	40.48	9.01	49.49	74.00	-24.51	peak			
3	14788.154	37.03	12.36	49.39	74.00	-24.61	peak			

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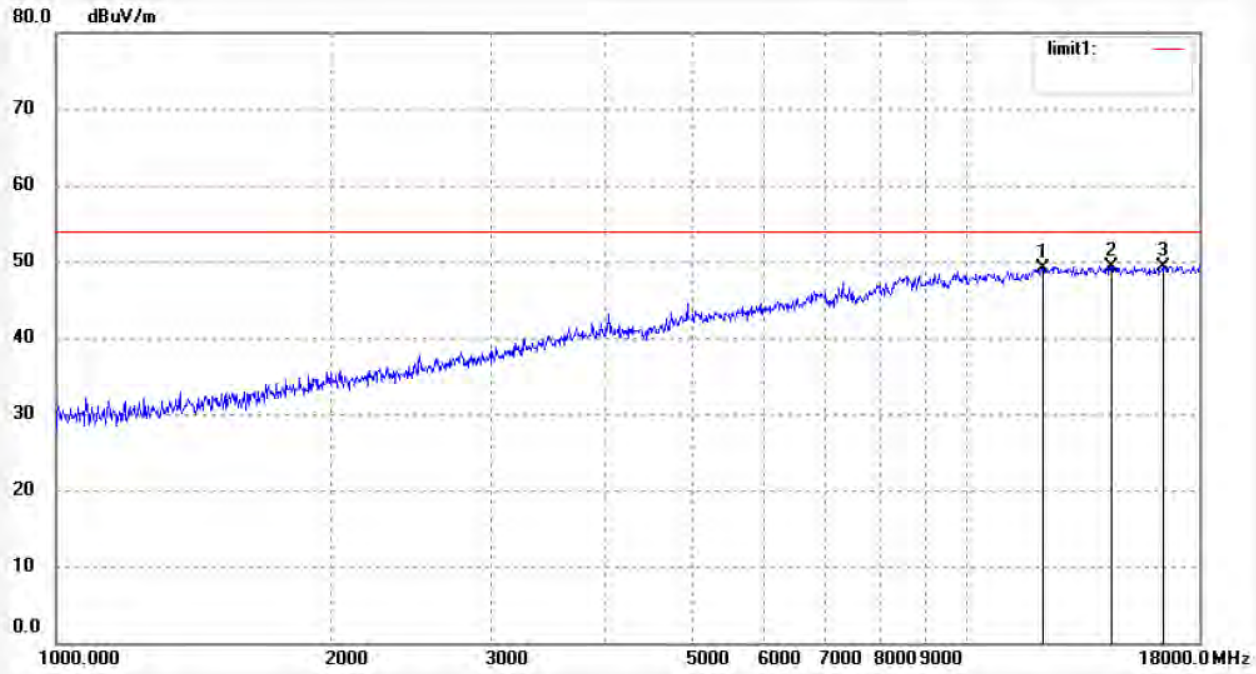
Job No.: alen #2921
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2422MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/54/04
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	12114.352	42.42	6.65	49.07	74.00	-24.93	peak			
2	14408.425	36.79	12.53	49.32	74.00	-24.68	peak			
3	16409.819	37.34	12.06	49.40	74.00	-24.60	peak			

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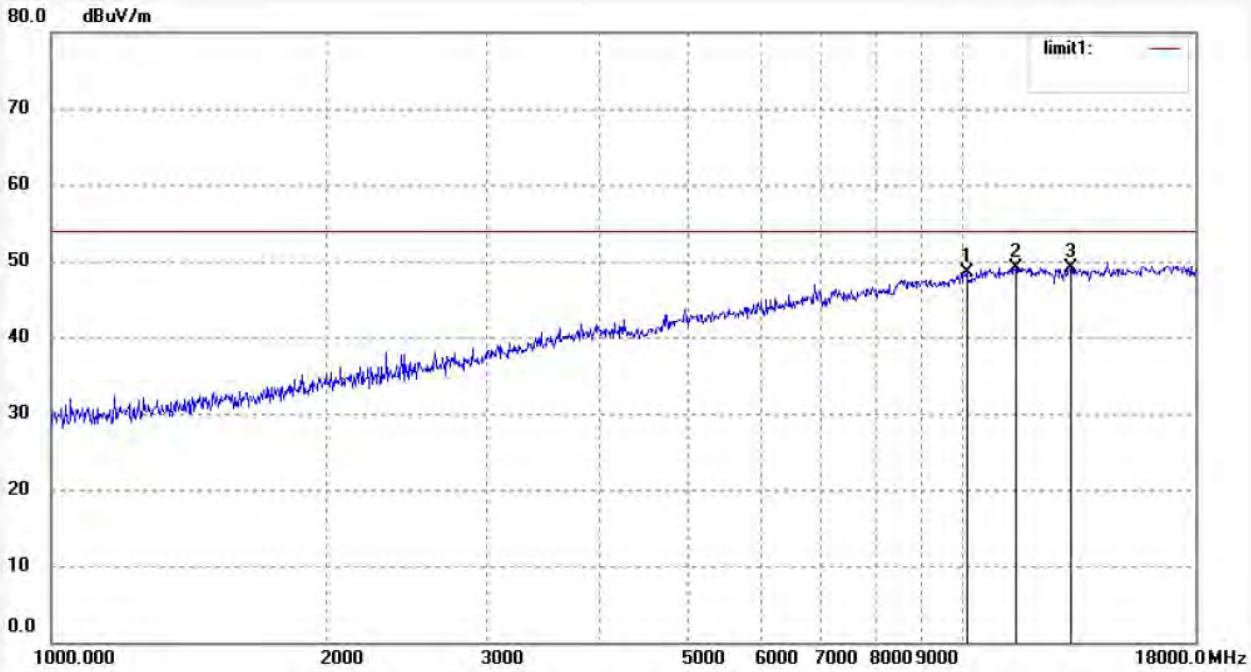
Job No.: alen #2922
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2422MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/54/46
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10097.596	43.17	5.35	48.52	74.00	-25.48	peak			
2	11433.909	43.12	5.97	49.09	74.00	-24.91	peak			
3	13135.536	40.85	8.19	49.04	74.00	-24.96	peak			

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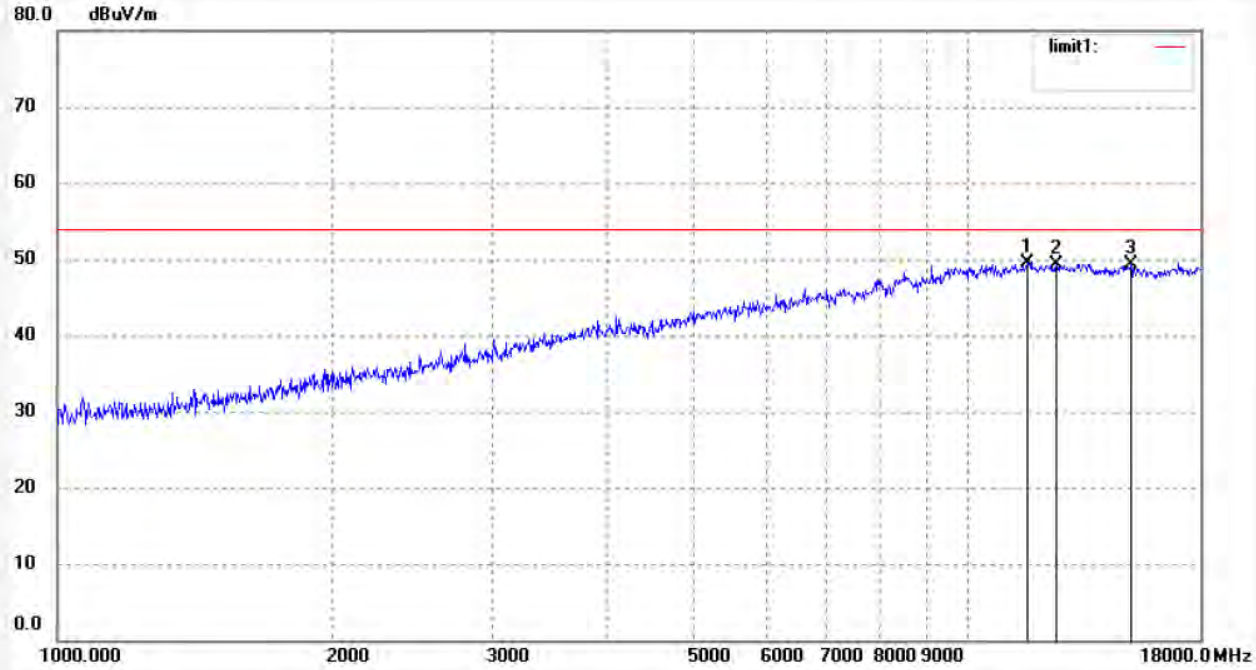
Job No.: alen #2920
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/53/16
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11633.928	43.44	6.16	49.60	74.00	-24.40	peak			
2	12505.705	42.24	7.16	49.40	74.00	-24.60	peak			
3	15090.405	37.47	11.76	49.23	74.00	-24.77	peak			

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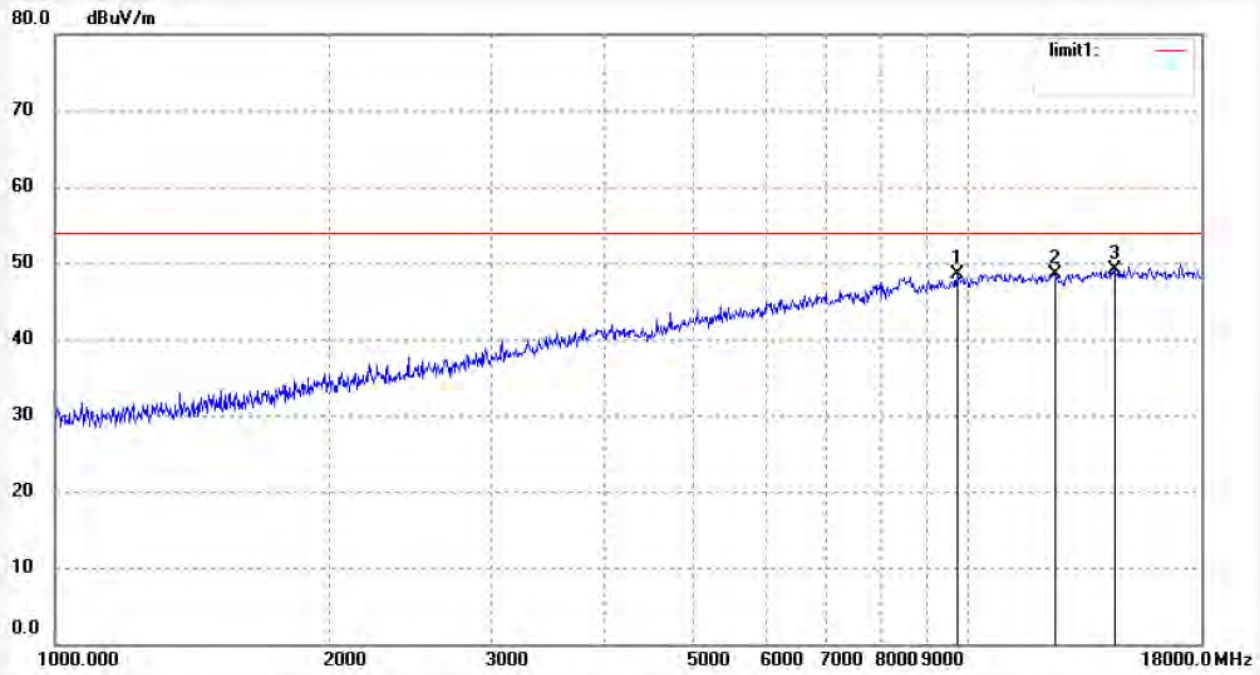
Job No.: alen #2919
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2437MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/52/39
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	9725.221	43.53	5.03	48.56	74.00	-25.44	peak			
2	12433.621	41.42	7.06	48.48	74.00	-25.52	peak			
3	14450.131	36.39	12.74	49.13	74.00	-24.87	peak			

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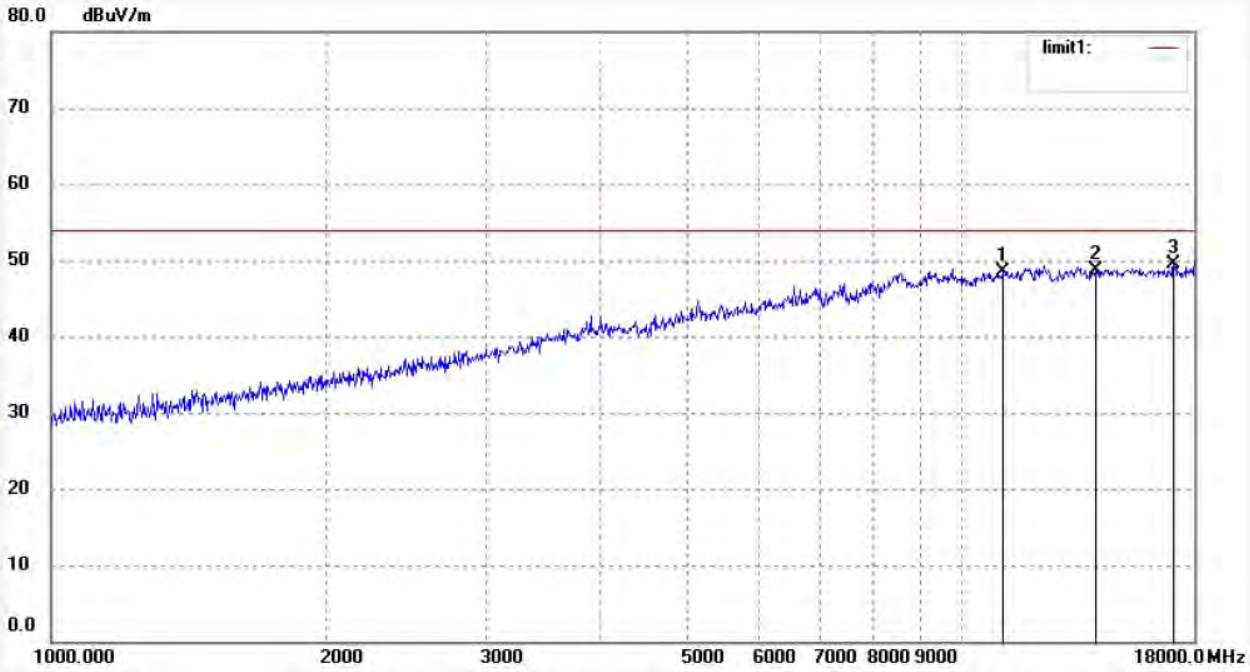
Job No.: alen #2917
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2452MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Horizontal
Power Source: DC 5V
Date: 14/06/04/
Time: 13/51/15
Engineer Signature:
Distance: 3m

Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	11108.157	42.96	5.62	48.58	74.00	-25.42	peak			
2	14038.447	38.17	10.61	48.78	74.00	-25.22	peak			
3	17087.464	35.29	14.19	49.48	74.00	-24.52	peak			

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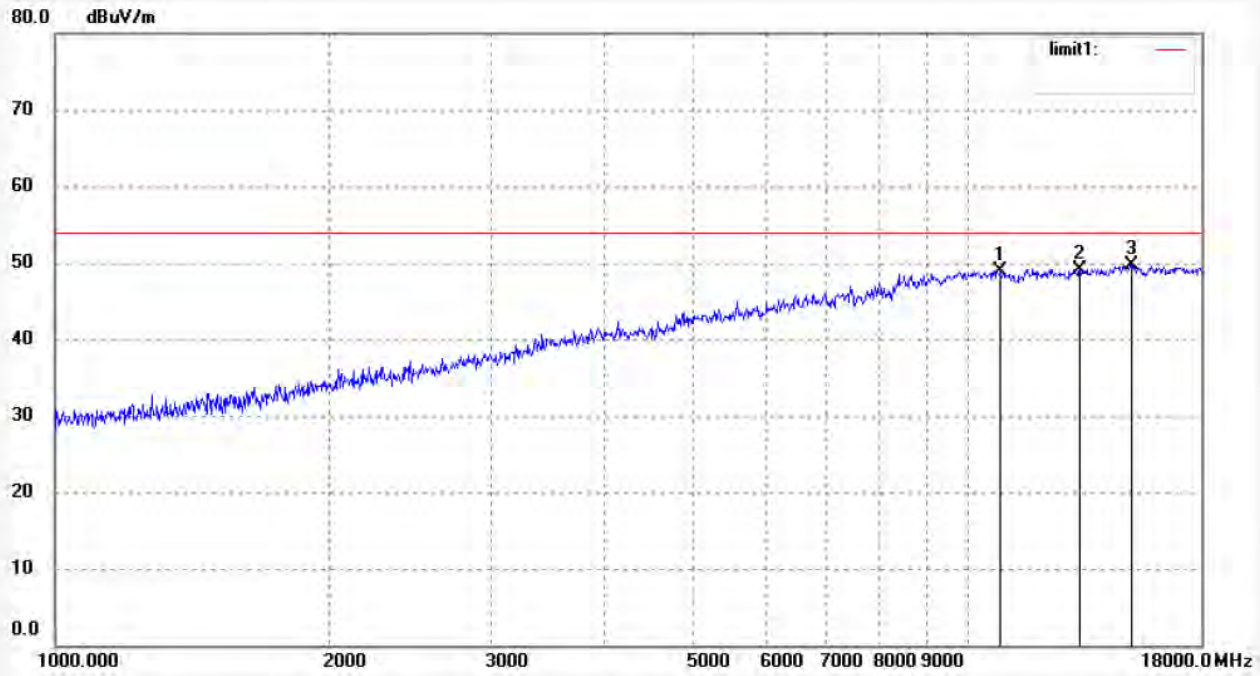
Job No.: alen #2918
Standard: FCC 15.247 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 300M Mini Wireless USB Adapter
Mode: TX 2452MHz(802.11n40)
Model: WU331EU
Manufacturer: Haoliyuan

Polarization: Vertical
Power Source: DC 5V
Date: 14/06/04/
Time: 13/52/00
Engineer Signature:
Distance: 3m

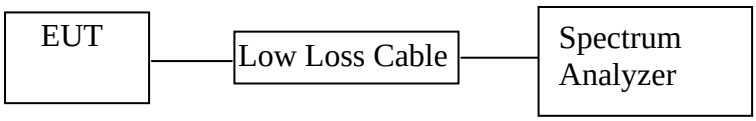
Note: Report No:ATE20141071



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	10854.250	43.47	5.41	48.88	74.00	-25.12	peak			
2	13249.931	40.73	8.46	49.19	74.00	-24.81	peak			
3	15090.405	37.93	11.76	49.69	74.00	-24.31	peak			

11.ANTENNA CONDUCTED SPURIOUS EMISSION TEST

11.1.Block Diagram of Test Setup



(EUT: 300M Mini Wireless USB Adapter)

11.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The following equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

11.5.Test Procedure

11.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

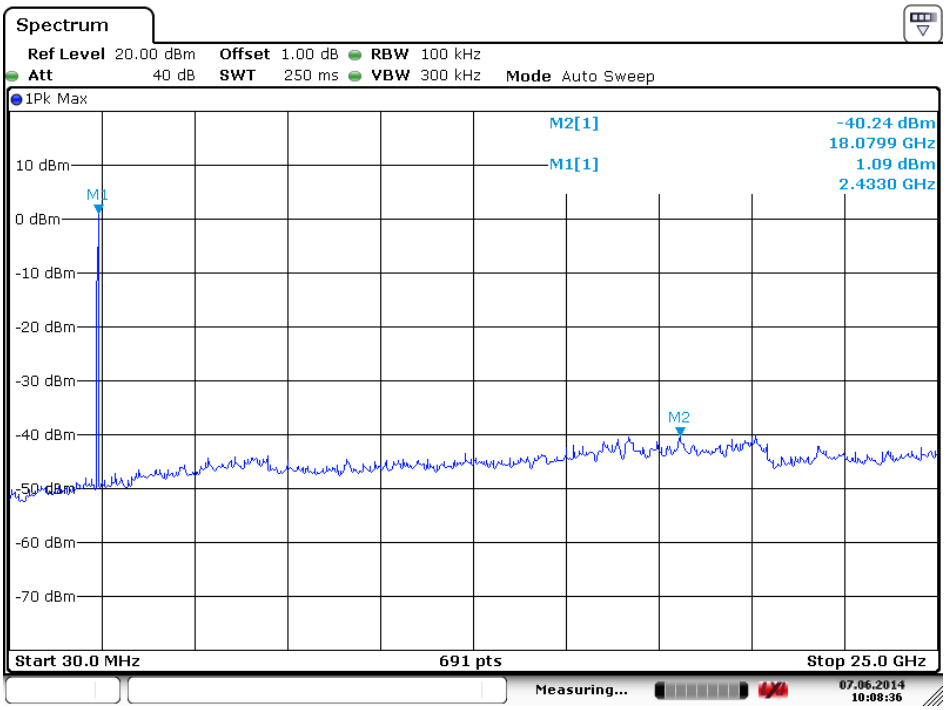
11.5.3.The Conducted Spurious Emission was measured and recorded.

11.6.Test Result

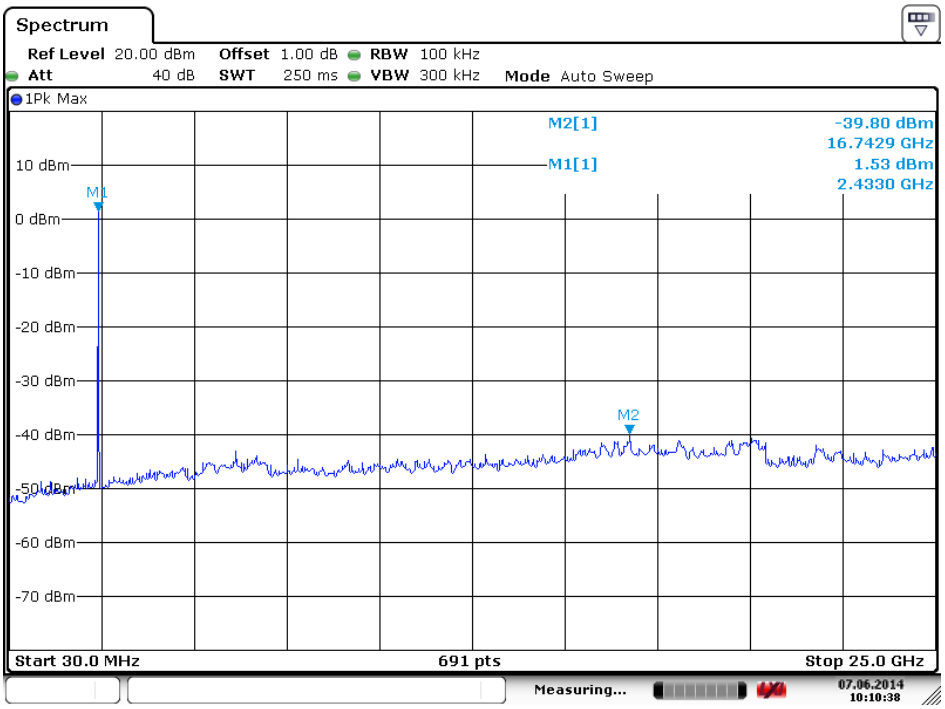
Pass.

The worst case spectrum analyzer plots are attached as below.

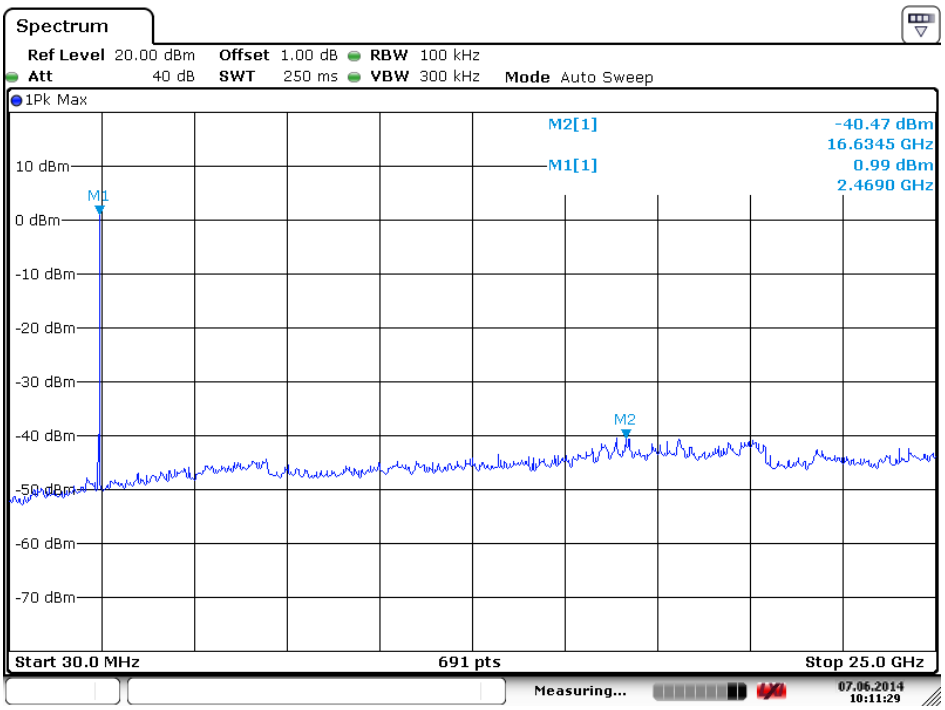
TX 802.11b Channel Low 2412MHz



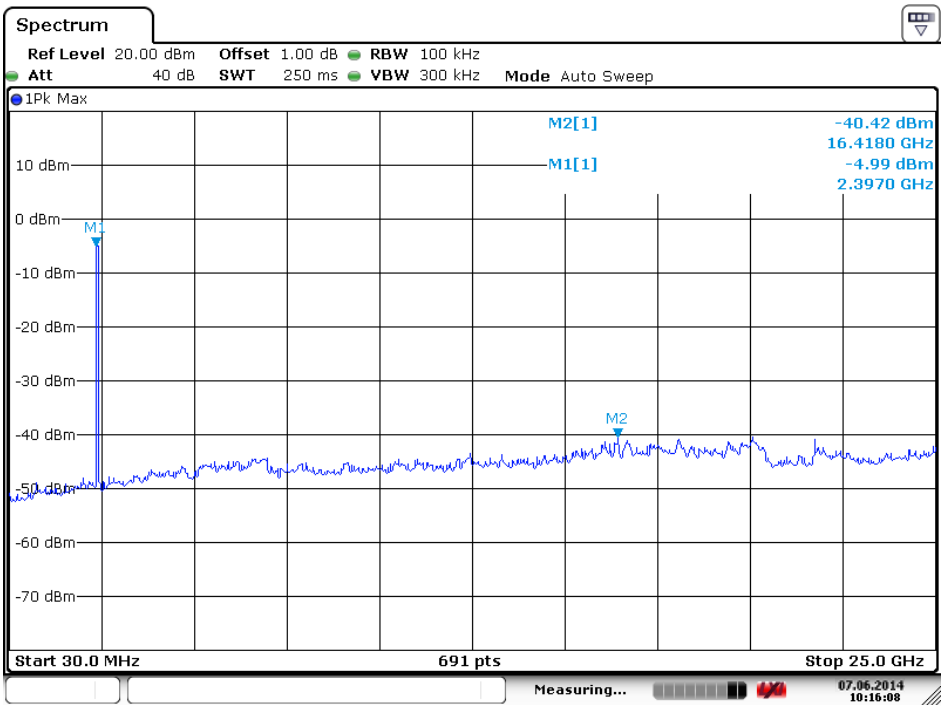
TX 802.11b Channel Middle 2437MHz



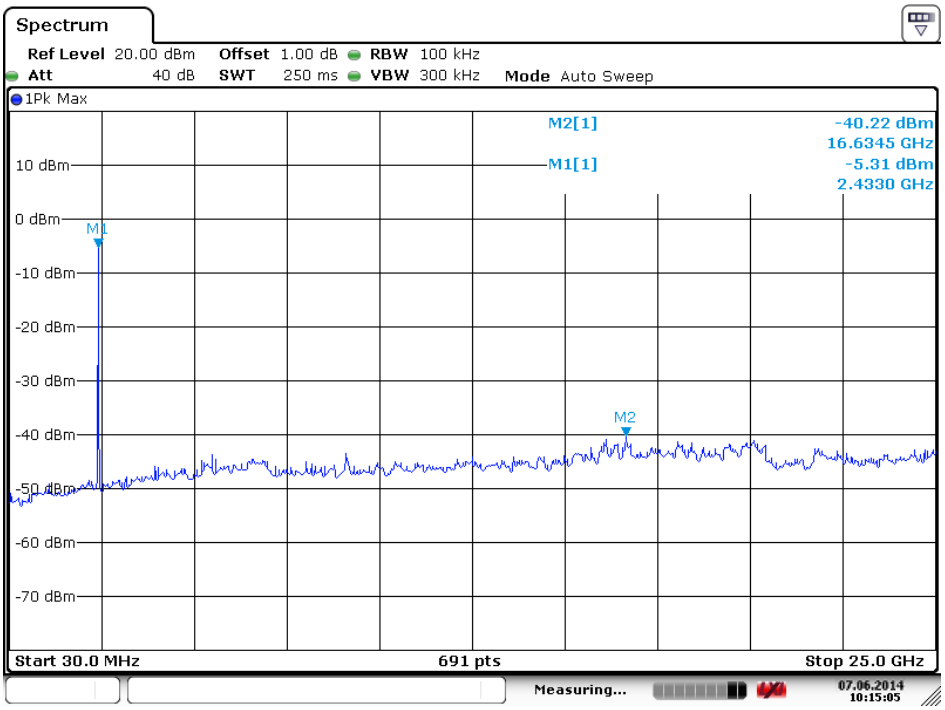
TX 802.11b Channel High 2462MHz



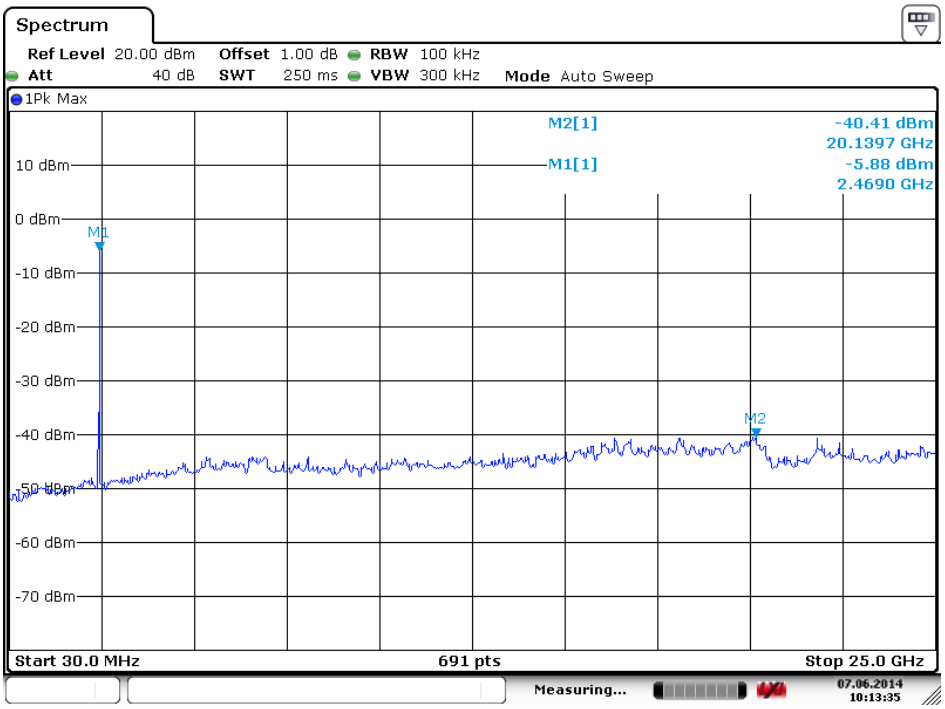
TX 802.11g Channel Low 2412MHz



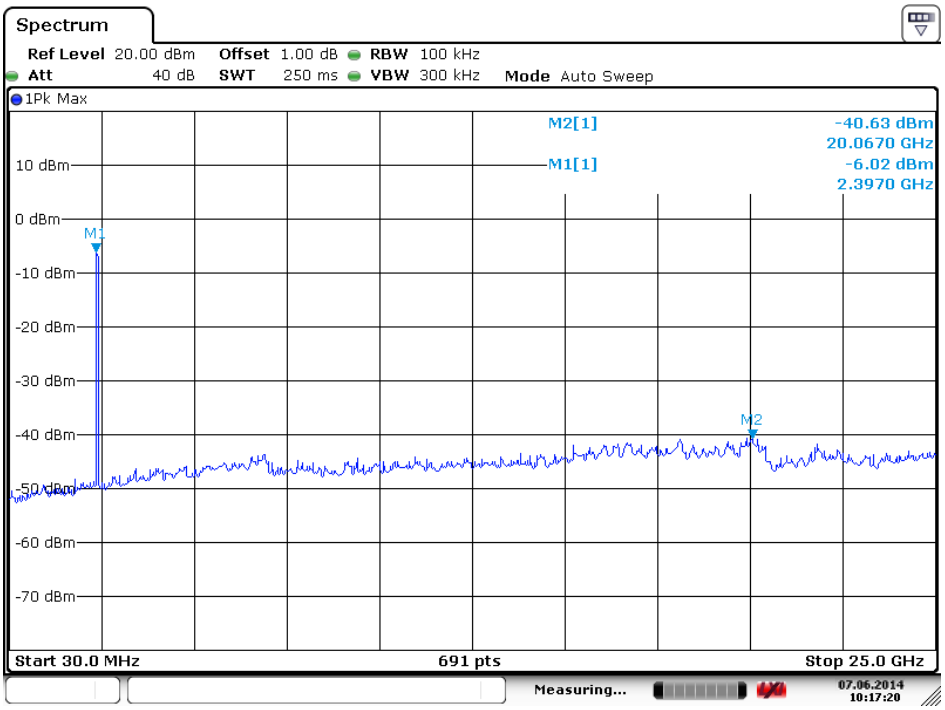
TX 802.11g Channel Middle 2437MHz



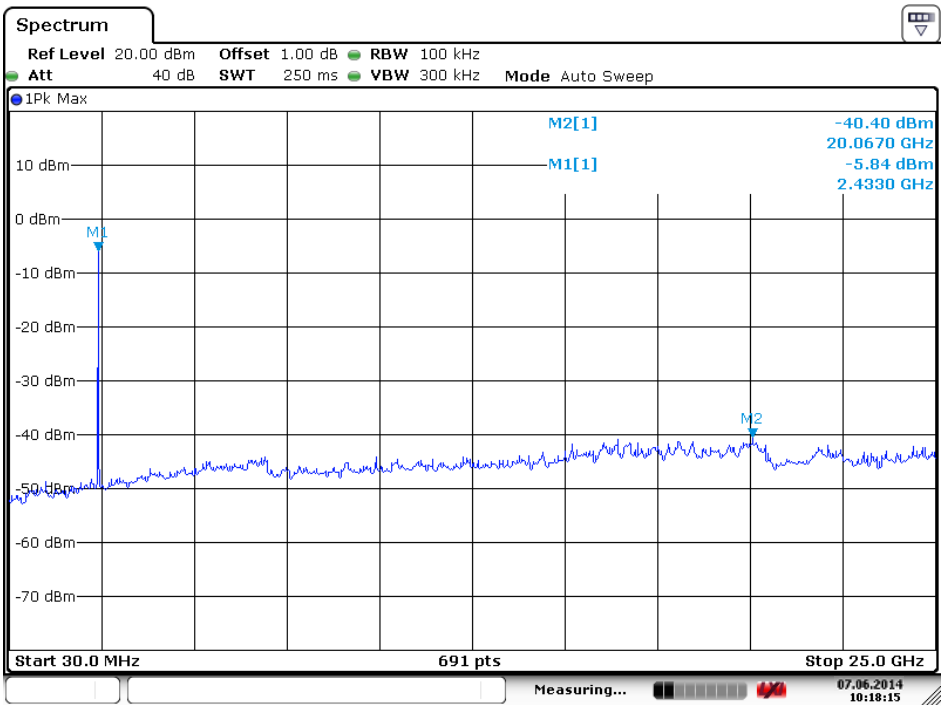
TX 802.11g Channel High 2462MHz



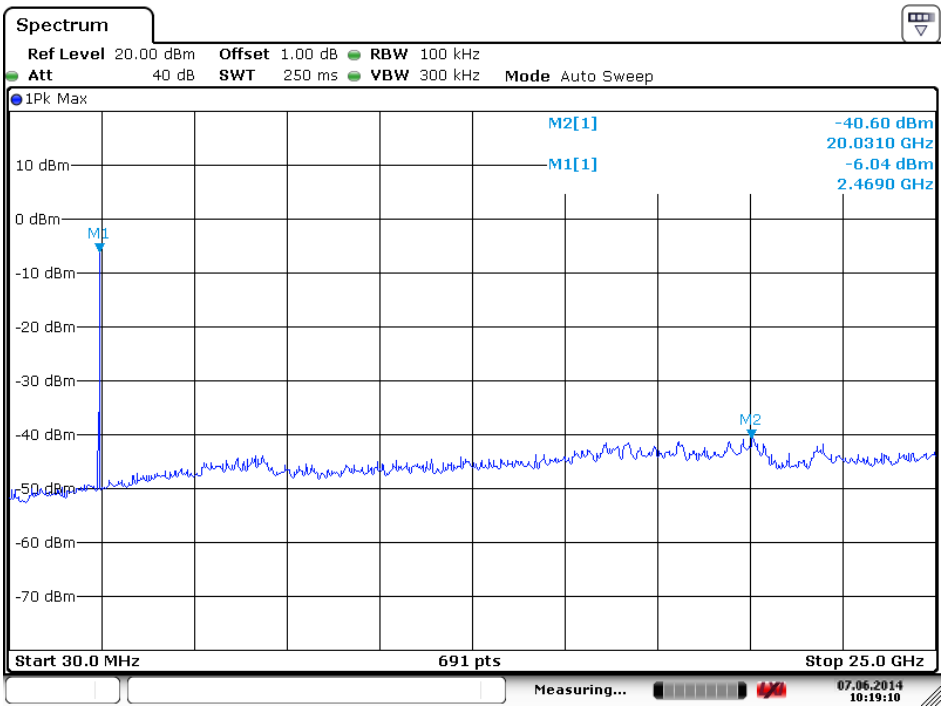
TX 802.11n Channel Low 2412MHz (20MHz)



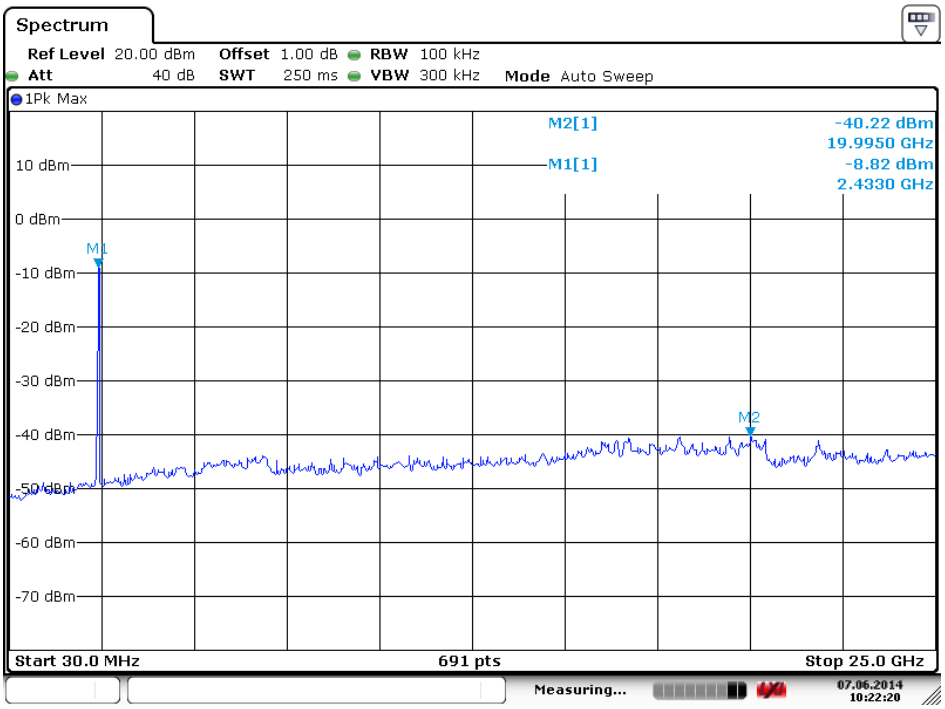
TX 802.11n Channel Middle 2437MHz (20MHz)



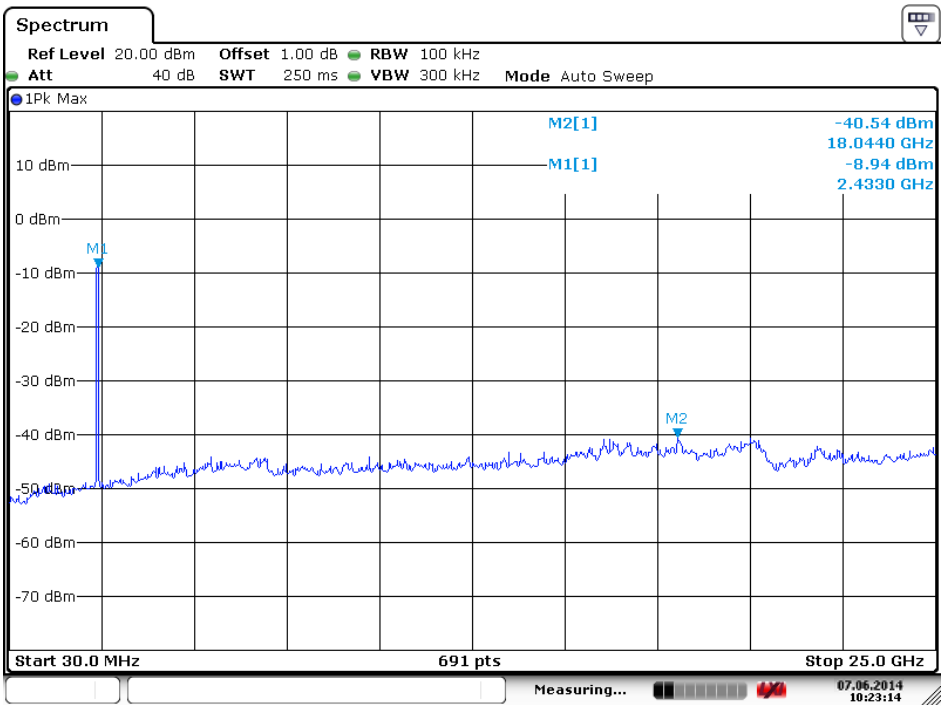
TX 802.11n Channel High 2462MHz (20MHz)



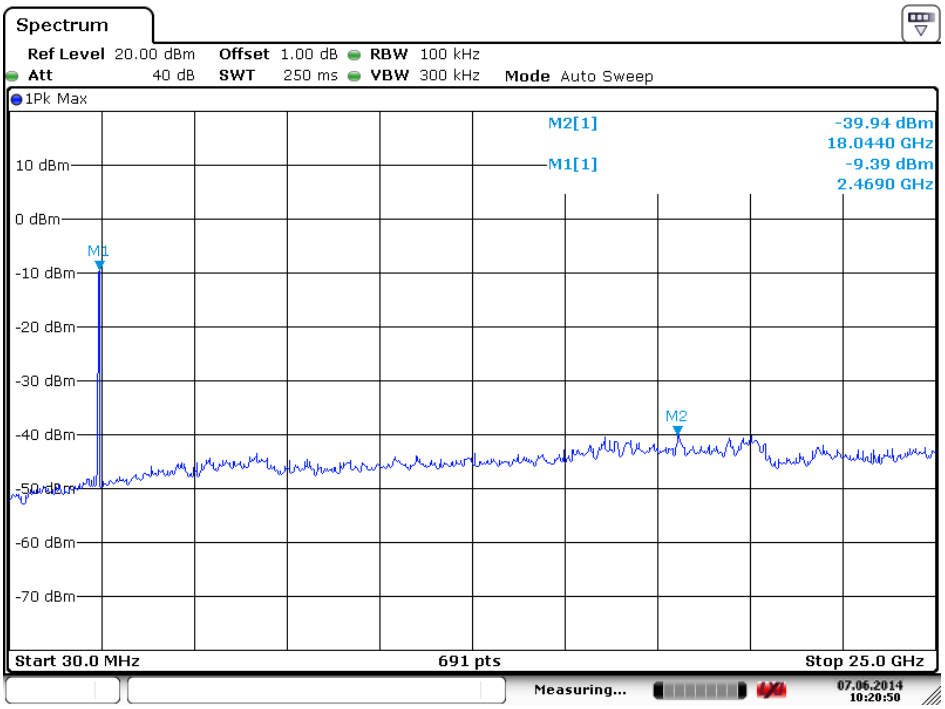
TX 802.11n Channel Low 2422MHz (40MHz)



TX 802.11n Channel Middle 2437MHz (40MHz)



TX 802.11n Channel High 2452MHz (40MHz)



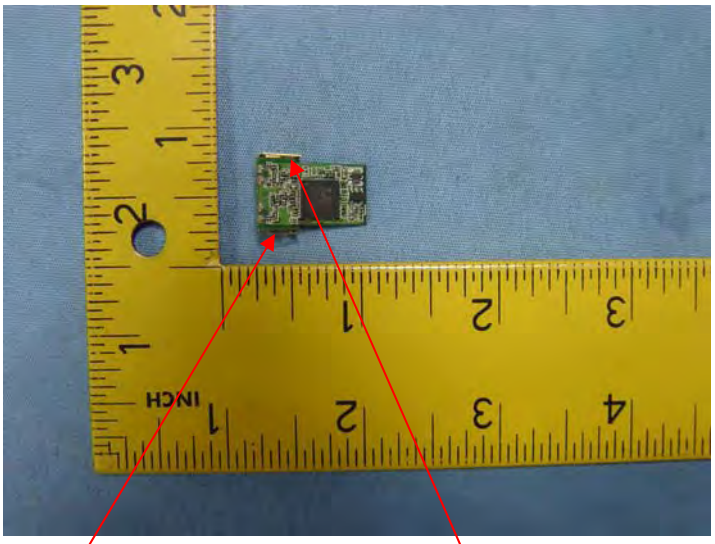
12. ANTENNA REQUIREMENT

12.1. The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

12.2. Antenna Construction

Device is equipped with MIMO antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna 1 Antenna 2