

APPLICATION FOR CERTIFICATION  
On Behalf of

TP-LINK Technologies Co., Ltd.

Wireless N USB Adapter

Model Number: TL-WN821N

Prepared for : TP-LINK Technologies Co., Ltd.  
Building 7, Second Part, Honghualing Industrial Zone,  
Xili town, Nanshan District, Shenzhen, China

Prepared By : Audix Technology (Shenzhen) Co., Ltd.  
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Report Number : ACS-F08201  
Date of Test : Mar.13~Apr.07, 2008  
Date of Report : Apr.10, 2008

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## TEST REPORT CERTIFICATION

Applicant : TP-LINK Technologies Co., Ltd.  
 Manufacturer : TP-LINK Technologies Co., Ltd.  
 EUT Description : Wireless N USB Adapter  
 (A) MODEL NO. : TL-WN821N  
 (B) SERIAL NO. : N/A  
 (C) POWER SUPPLY : DC 5V From USB  
 (D) TEST VOLTAGE : DC 5V From PC AC 120V/60Hz

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2007

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) 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 limits both radiated and conducted emissions.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. 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 AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test : Mar.13~Apr.07, 2008

Prepared by : YoYo Wang  
YoYo Wang / Assistant

Reviewer : Jamy Yu  
Jamy Yu / Senior Engineer

Approved & Authorized Signer :



Ken Lu / Deputy Manager

# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.4: 2003 KDB58074	PASS
Radiated Emission Test	FCC Part 15: 15.209 ANSI C63.4: 2003 KDB58074	PASS
6dB Bandwidth Test	FCC Part 15: 15.247 KDB58074	PASS
Output Power Test	FCC Part 15: 15.247 KDB58074	PASS
Band Edge Compliance Test	FCC Part 15: 15.247 KDB58074	PASS
Power Spectral Density Test	FCC Part 15: 15.247 KDB58074	PASS
MPE ESTIMATION	FCC Part 2: 2.1093	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

Product name	:	Wireless N USB Adapter
Model Number	:	TL-WN821N
Operation frequency	:	IEEE 802.11b/g, 802.11n HT20: 2412MHz---2462MHz IEEE802.11n HT40: 2422MHz---2452MHz
Channel Number	:	IEEE 802.11b/g, 802.11n HT20:11 Channels IEEE 802.11n HT40 :7Channels
Modulation Technology	:	DSSS for IEEE 802.11b and OFDM for IEEE 802.11g OFDM for IEEE802.11n
Data Rate	:	IEEE 802.11b: 11/5.5/2/1Mbps. IEEE 802.11g: 54/48/36/24/18/12/9/6Mbps. IEEE 802.11n HT20 : 130, 117 ,104, 78, 65, 58.5, 52, 39, 26, 19.5,13, 6.5 Mbps IEEE 802.11n HT40 : 270, 243 ,216, 162, 135, 121.5, 108, 81, 54,40.5, 27, 13.5Mbps
Output power	:	24.24dBm(Maximum PK measured)
Power	:	DC 5V from USB
Antenna Assembly Gain	:	2dBi (maximum)
Applicant	:	TP-LINK Technologies Co., Ltd. Building 7, Second Part, Honghualing Industrial Zone, Xili town, Nanshan District, Shenzhen, China
Manufacturer	:	TP-LINK Technologies Co., Ltd. Building 7, Second Part, Honghualing Industrial Zone, Xili town, Nanshan District, Shenzhen, China
Date of Test	:	Mar.13~Apr.07, 2008
Date of Receipt	:	Mar.12, 2008
Sample Type	:	Prototype production

## 2.2. Tested Supporting System Details

### 2.2.1. PC

EMC CODE : Test PC G  
M/N : AG017PA#AB2  
S/N : CN5470G18  
Manufacturer : HP  
Power cord : Unshielded, Detachable, 1.8m  
FCC ID : By DoC  
BSMI ID : R33001

### 2.2.2. MONITOR

EMC CODE : ACS-EMC-LM03R  
M/N : 1907FPt  
S/N : CN-009759-71618-6AP-ACPP  
Manufacturer : DELL  
Data Cable (VGA) : Shielded, Detachable, 2.0m  
(Bond two ferrite cores)  
Power Cord : Unshielded, Detachable, 1.8m  
FCC ID : By DoC  
BSMI ID : R3A002

### 2.2.3. USB KEYBOARD

EMC CODE : ACS-EMC-K11R  
M/N : SK-8115  
S/N : CN-ODJ313-71616-6BB-049J  
Manufacturer : DELL  
Data Cable : Shielded, Undetachable, 2.0m  
FCC ID : By DoC  
BSMI ID : T3A002

### 2.2.4. USB MOUSE

EMC CODE : ACS-EMC-M08R  
M/N : M056UOA  
S/N : F1800P4E  
Manufacturer : DELL  
Data Cable : Shielded, Undetachable, 2.0m  
FCC ID : By DoC  
BSMI ID : R41108

### 2.3. Test Facility

#### Site Description

- Name of Firm : Audix Technology (Shenzhen) Co., Ltd.  
No. 6, Ke Feng Rd., 52 Block, Shenzhen  
Science & Industrial Park, Nantou,  
Shenzhen, Guangdong, China
- 3m Anechoic Chamber : Jun. 13, 2006 File on Federal  
Communication Commission  
Registration Number: 90454
- 3m & 10m Anechoic Chamber : Jan. 31, 2007 File on Federal  
Communication Commission  
Registration Number: 794232
- EMC Lab. : Accredited by DATech, German  
Registration Number: DAT-P-091/99-01  
Feb. 02, 2004
- Accredited by NVLAP, USA  
NVLAP Code: 200372-0  
Apr. 01, 2007

### 2.4. Measurement Uncertainty

No.	Item	Uncertainty
1.	Uncertainty for Conducted Emission Test	1.22dB
2.	Uncertainty for Radiated Emission Test<1GHz	4.62dB
3.	Uncertainty for Radiated Emission Test>1GHz	4.79dB
4.	Uncertainty for Frequency measure	$0.42 \times 10^{-6}$
5.	Uncertainty for conducted power measure	0.112



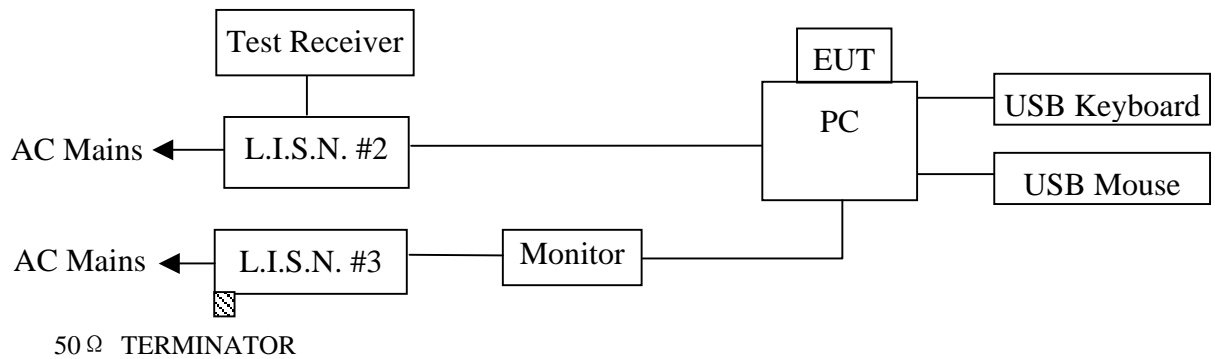
### 3. POWER LINE CONDUCTED EMISSION TEST

#### 3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Dec.19, 07	1 Year
2.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	May 11, 07	1 Year
3.	L.I.S.N.#3	EMCO	3825/2	9006-1660	May 11, 07	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May 11, 07	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	Jan.09, 08	1/2 Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	Jan.09, 08	1/2 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100340	Jan.09, 08	1/2 Year

#### 3.2. Block Diagram of Test Setup

##### 3.2.1. Block diagram of connection between the EUT and simulators



*(EUT: Wireless N USB Adapter)*

### 3.3.Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB( $\mu$ V)	Average Level dB( $\mu$ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

### 3.4.Configuration of EUT on Test

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

#### 3.4.1.Wireless N USB Adapter (EUT)

Model Number : TL-WN821N  
 Serial Number : N/A  
 Manufacturer : TP-LINK Technologies Co., Ltd.

3.4.2.Support Equipment : As Tested Supporting System Detail, in Section 2.2..

### 3.5.Operating Condition of EUT

3.5.1.Setup the EUT and simulator as shown as Section 3.2.

3.5.2.Turn on the power of all equipment.

3.5.3.PC ran the Control program to control EUT Work in Tx Mode

### 3.6.Test Procedure

The EUT is connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Power on the PC and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. Both sides of AC line 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: 2003 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

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

The test result are reported on Section 3.7.,

### 3.7.Power Line Conducted Emission Test Results

**PASS.** (All emissions not reported below are too low against the prescribed limits.)

The EUT with the following test modes was tested and selected (mode 1) to read Q.P values and average values, all the test results are listed in next pages.

EUT: Wireless N USB Adapter      Model No. : TL-WN821N

Test Date: Mar.14, 2008      Temperature: 23°C      Humidity: 54%

The details of test modes are as follows :

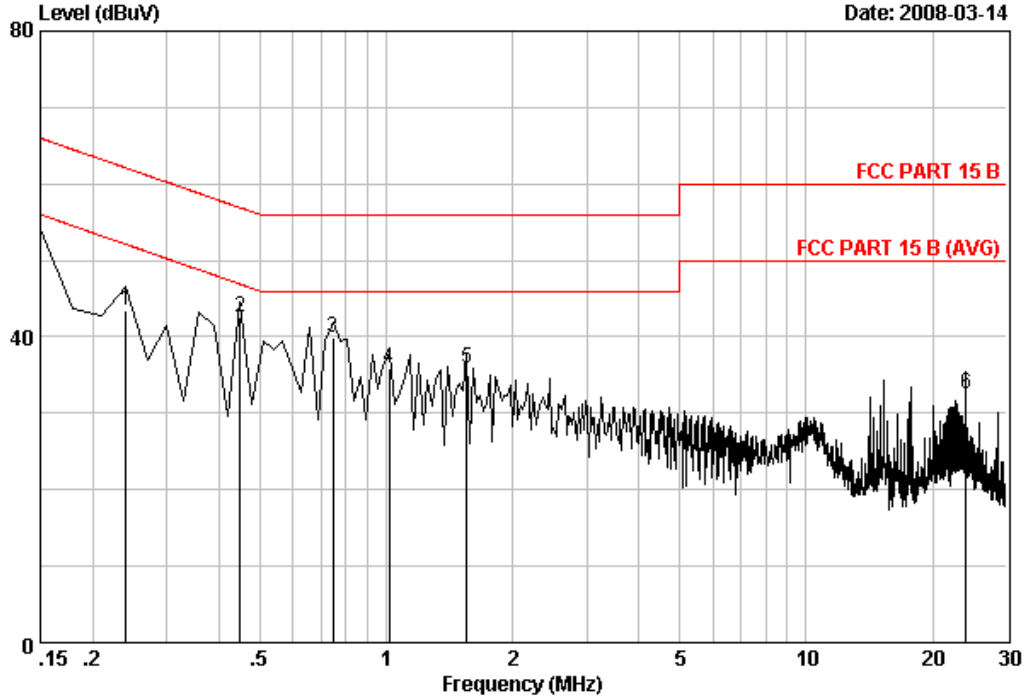
No.	Test Mode	Reference Test Data No.	
		VA	VB
1.	TX Mode	# 1	# 2



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Data: 1 File: D:\emc 002\DATA\2008 Report\TTP-LINK\ACS8Q346.EMI (4)

Date: 2008-03-14



Site no :AUDIX No.1 Conduction Data no :1  
 Dis./Ant. :-- KNW407 VA (1#)  
 Limit :FCC PART 15 B  
 Env./Ins. :Temp:23' Humi:54% Engineer :Jamy  
 EUT :Wireless N USB Adapter  
 Power Rating :DC 5V From PC 120V/60Hz  
 Test Mode :Tx Mode  
 M/N :TL-WN821N

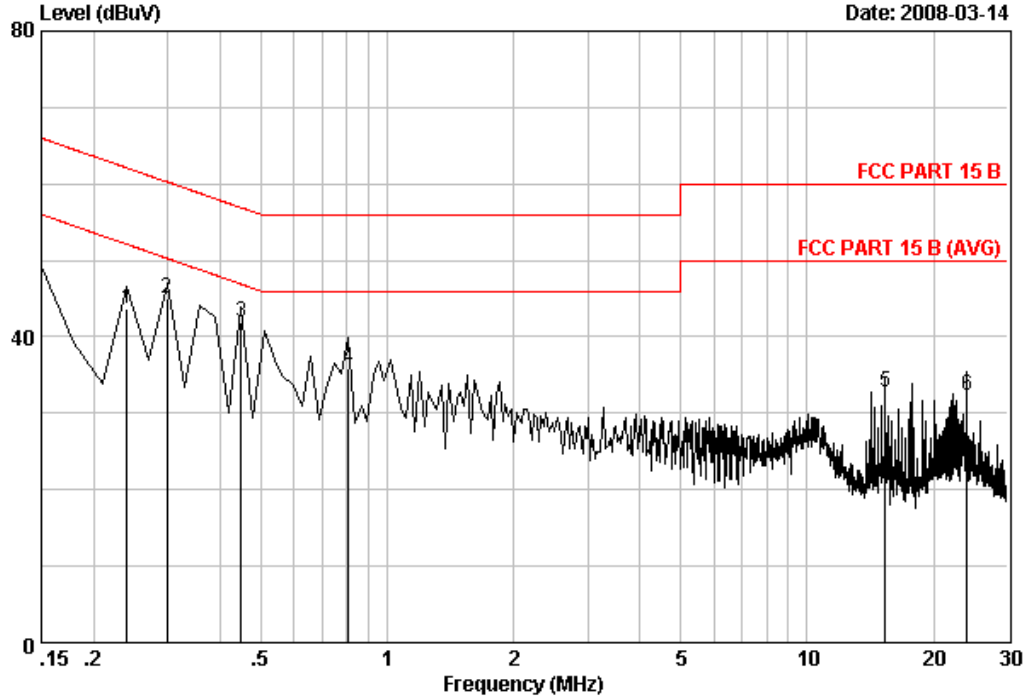
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.24	0.14	10.15	33.25	43.54	62.11	18.57	QP
2	0.45	0.07	10.14	32.28	42.49	56.90	14.41	QP
3	0.75	0.05	10.14	29.78	39.97	56.00	16.03	QP
4	1.02	0.04	10.15	25.69	35.88	56.00	20.12	QP
5	1.55	0.05	10.15	25.70	35.90	56.00	20.10	QP
6	24.03	0.54	10.35	21.55	32.44	60.00	27.56	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector.  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 2 File: D:\emc 002\DATA\2008 Report\TTP-LINK\ACS8Q346.EMI (4)



Site no :AUDIX No.1 Conduction Data no :2  
 Dis./Ant. :-- KNW407 VB (1#)  
 Limit :FCC PART 15 B  
 Env./Ins. :Temp:23' Humi:54% Engineer :Jamy  
 EUT :Wireless N USB Adapter  
 Power Rating :DC 5V From PC 120V/60Hz  
 Test Mode :Tx Mode  
 M/N :TL-WN821N

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.24	0.14	10.15	33.30	43.59	62.11	18.52	QP
2	0.30	0.12	10.15	34.70	44.97	60.26	15.29	QP
3	0.45	0.07	10.14	31.69	41.90	56.90	15.00	QP
4	0.81	0.05	10.14	25.77	35.96	56.00	20.04	QP
5	15.34	0.32	10.29	22.22	32.83	60.00	27.17	QP
6	24.03	0.54	10.35	21.47	32.36	60.00	27.64	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector.  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 4. RADIATED EMISSION TEST

### 4.1. Test Equipment

Frequency rang: 30~1000MHz

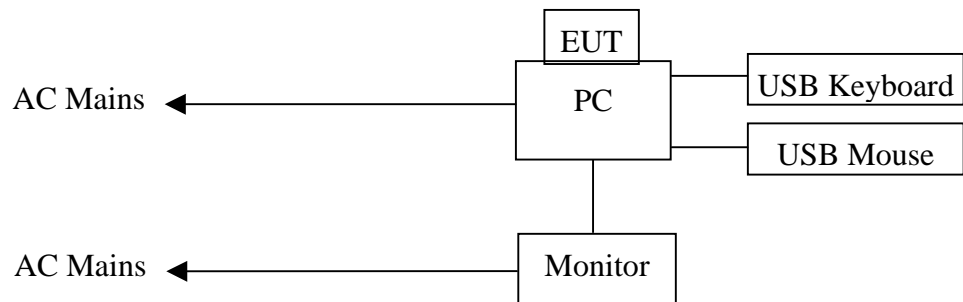
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Dec.20.07	1/2 Year
2.	EMI Spectrum	Agilent	E7403A	MY42000106	May 11, 07	1 Year
3.	Test Receiver	Rohde & Schwarz	ESVS20	830350/005	Dec.19, 07	1 Year
4.	Amplifier	HP	8447D	2944A04738	Jan.09, 08	1/2 Year
5.	Bilog Antenna	Schaffner	CBL6111C	2598	Feb.21, 08	1 Year
6.	RF Cable	JINGCHENG	KLMR400	3# Chamber No.1	Jan.09, 08	1/2 Year
7.	RF Cable	JINGCHENG	JBV400	3# Chamber No.2	Jan.09, 08	1/2 Year
8.	RF Cable	JINGCHENG	JBV400	3# Chamber No.3	Jan.09, 08	1/2 Year
9.	RF Cable	JINGCHENG	JBV400	3# Chamber No.4	Jan.09, 08	1/2 Year
10.	Coaxial Switch	Anritsu	MP59B	M73989	Jan.09, 08	1/2 Year

Frequency rang: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	MY41440292	May 11, 07	1 Year
2.	Amp	HP	8449B	3008A00863	May 11, 07	1 Year
3.	Antenna	EMCO	3115	9607-4877	Jan. 23, 07	1.5 Year
4.	Antenna	EMCO	3116	00060088	May 28, 07	1 Year
5.	HF Cable	Hubersuhne	Sucoflex104	-	May 11, 07	1 Year

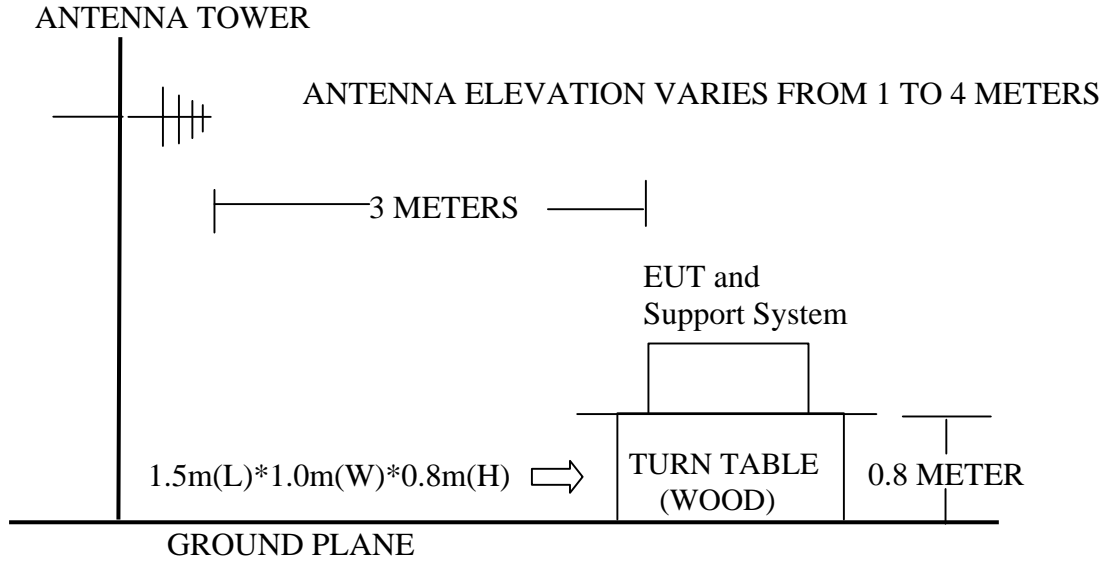
### 4.2. Block Diagram of Test Setup

#### 4.2.1. Block diagram of connection between the EUT and simulators



*(EUT: Wireless N USB Adapter)*

4.2.2. In Anechoic Chamber



4.3. Radiated Emission Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

- Remark :
- (1) Emission level dBμV = 20 log Emission level μV/m
  - (2) The smaller limit shall apply at the cross point between two frequency bands.
  - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Test

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

4.4.1. Wireless N USB Adapter (EUT)

Model Number : TL-WN821N  
 Serial Number : N/A  
 Manufacturer : TP-LINK Technologies Co., Ltd.

4.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.2.

## 4.5. Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.2.

4.5.2. Turn on the power of all equipment.

4.5.3. PC ran the Control program to control EUT Work in Tx Mode

## 4.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it work normally, we use a keyboard test software, let EUT working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1 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 polarization of the antenna are set on test.

The bandwidth of the EMI test receiver (R&S ESVS20) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW 10Hz VBW for average emission above 1GHz

The frequency range from 30MHz to 10<sup>th</sup> harmonic are checked.

## 4.7. Radiated Emission Test Results

**PASS.**

The frequency range from 30MHz to 1000MHz and above 1GHz is investigated. Please see the following pages.

All the emissions 1GHz~4GHz and 18GHz~25GHz are peak measured and comply with average limit.



Test Date: Mar.13~Apr.02, 2008      Temperature: 24℃      Humidity: 56%

The details of test modes are as follows :

Test Mode	Frequency (MHz)	Test Mode	Reference Test Data No.	
			Horizontal	Vertical
1.	30~1000	Tx Mode (TL-WR941N)	#2	#1
2.	1000~4000	Tx IEEE802.11b CH1 2412MHz	#2(P)	#1(P)
3.		Tx IEEE802.11b CH6 2437MHz	#3(P)	#4(P)
4.		Tx IEEE802.11b CH11 2462MHz	#6(P)	#5(P)
5.		Tx IEEE802.11g CH1 2412MHz	#35(P)	#36(P)
6.		Tx IEEE802.11g CH6 2437MHz	#34(P)	#33(P)
7.		Tx IEEE802.11g CH11 2462MHz	#31(P)	#32(P)
8.		Tx IEEE802.11n CH1 2412MHz (HT20)	#38(P)	#37(P)
9.		Tx IEEE802.11n CH6 2437MHz(HT20)	#39(P)	#40(P)
10.		Tx IEEE802.11n CH11 2462MHz(HT20)	#42(P)	#41(P)
11.		Tx IEEE802.11n CH1 2422MHz (HT40)	#71(P)	#72(P)
12.		Tx IEEE802.11n CH4 2437MHz(HT40)	#70(P)	#69(P)
13.		Tx IEEE802.11n CH7 2452MHz(HT40)	#67(P)	#68(P)
14.		4000~18000	Tx IEEE802.11b CH1 2412MHz	#15(P), #16(Av)
15.	Tx IEEE802.11b CH6 2437MHz		#13(P), #14(Av)	#11(P), #12(Av)
16.	Tx IEEE802.11b CH11 2462MHz		#7(P), #8(Av)	#9(P), #10(Av)
17.	Tx IEEE802.11g CH1 2412MHz		#21(P), #22(Av)	#19(P), #20(Av)
18.	Tx IEEE802.11g CH6 2437MHz		#23(P), #24(Av)	#25(P), #26(Av)
19.	Tx IEEE802.11g CH11 2462MHz		#29(P), #30(Av)	#27(P), #28(Av)
20.	Tx IEEE802.11n CH1 2412MHz (HT20)		#51(P), #52(Av)	#53(P), #54(Av)
21.	Tx IEEE802.11n CH6 2437MHz(HT20)		#49(P), #50(Av)	#47(P), #48(Av)
22.	Tx IEEE802.11n CH11 2462MHz(HT20)		#43(P), #44(Av)	#45(P), #46(Av)
23.	Tx IEEE802.11n CH1 2422MHz (HT40)		#57(P), #58(Av)	#55(P), #56(Av)
24.	Tx IEEE802.11n CH4 2437MHz(HT40)		#59(P), #60(Av)	#61(P), #62(Av)

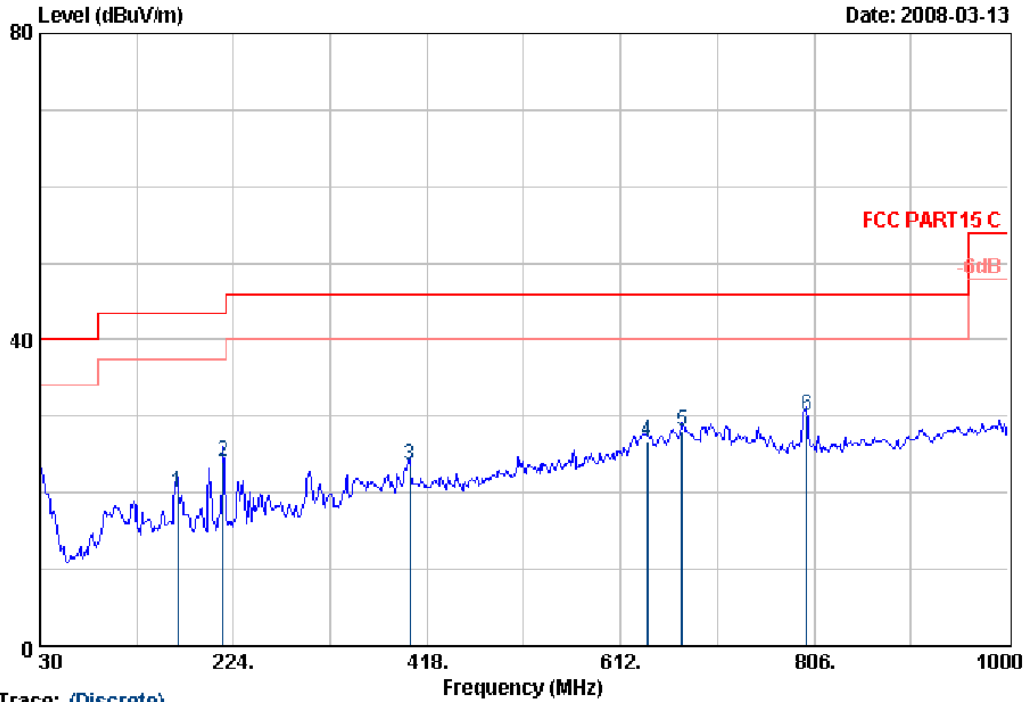
25.		Tx IEEE802.11n CH7 2452MHz(HT40)	#65(P), #66(Av)	#63(P), #64(Av)
26.	18000~25000	Tx IEEE802.11b CH1 2412MHz	#92(Av)	#91(Av)
27.		Tx IEEE802.11b CH6 2437MHz	#93(Av)	#94(Av)
28.		Tx IEEE802.11b CH11 2462MHz	#96(Av)	#95(Av)
29.		Tx IEEE802.11g CH1 2412MHz	#89(Av)	#90(Av)
30.		Tx IEEE802.11g CH6 2437MHz	#88(Av)	#87(Av)
31.		Tx IEEE802.11g CH11 2462MHz	#85(Av)	#86(Av)
32.		Tx IEEE802.11n CH1 2412MHz (HT20)	#80(Av)	#79(Av)
33.		Tx IEEE802.11n CH6 2437MHz(HT20)	#81(Av)	#82(Av)
34.		Tx IEEE802.11n CH11 2462MHz(HT20)	#84(Av)	#83(Av)
35.		Tx IEEE802.11n CH1 2422MHz (HT40)	#73(Av)	#74(Av)
36.		Tx IEEE802.11n CH4 2437MHz(HT40)	#76(Av)	#75(Av)
37.		Tx IEEE802.11n CH7 2452MHz(HT40)	#77(Av)	#78(Av)
Note: "P" means "peak", "Av" means "average"				

Frequency: 30MHz~1GHz



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Postcode:518057

Data: 2 File: D:\2008 Report Data\NTP-LINK\ACS8Q346.EMI (4)



Trace: (Discrete)

Site no. : 3# Chamber Radiation Data no. : 2  
 Dis. / Ant. : 3m 2598 Ant. pol. : HORIZONTAL  
 Limit : FCC PART15 C  
 Env. / Ins. : 24°C/56% ESVS20 Engineer : Jamy  
 EUT : Wireless N USB Adapter  
 Power Rating : DC 5V from PC 120V/60Hz  
 Test Mode : Tx Mode  
 M/N : TL-WN821N

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission			Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)		
1	167.74	10.36	1.25	8.47	20.08	43.50	23.42	QP
2	213.33	10.16	1.42	12.47	24.05	43.50	19.45	QP
3	400.54	16.53	1.83	5.29	23.65	46.00	22.35	QP
4	638.19	20.26	2.39	3.98	26.63	46.00	19.37	QP
5	674.08	20.58	2.42	5.16	28.16	46.00	17.84	QP
6	798.24	21.84	2.61	5.70	30.15	46.00	15.85	QP

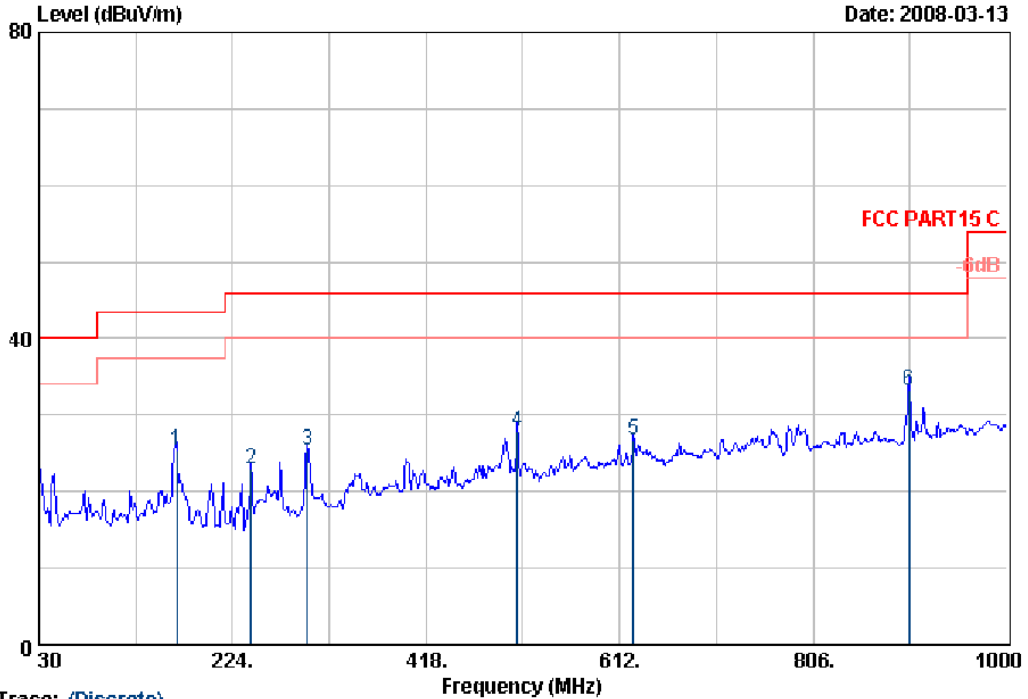
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 1 File: D:\2008 Report Data\WTP-LINK\ACS8Q346.EMI (4)

Date: 2008-03-13



Trace: (Discrete)

Site no. : 3# Chamber Radiation Data no. : 1  
 Dis. / Ant. : 3m 2598 Ant. pol. : VERTICAL  
 Limit : FCC PART15 C  
 Env. / Ins. : 24°C/56% ESVS20 Engineer : Jamy  
 EUT : Wireless N USB Adapter  
 Power Rating : DC 5V from PC 120V/60Hz  
 Test Mode : Tx Mode  
 M/N : TL-WN821N

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	167.74	10.36	1.25	13.85	25.46	46.00	18.04	QP
2	242.43	12.05	1.42	9.46	22.93	46.00	23.07	QP
3	298.69	13.78	1.60	9.92	25.30	46.00	20.70	QP
4	509.18	18.18	2.06	7.67	27.91	46.00	18.09	QP
5	625.58	20.00	2.37	4.31	26.68	46.00	19.32	QP
6	902.03	22.94	2.63	7.65	33.22	46.00	12.78	QP

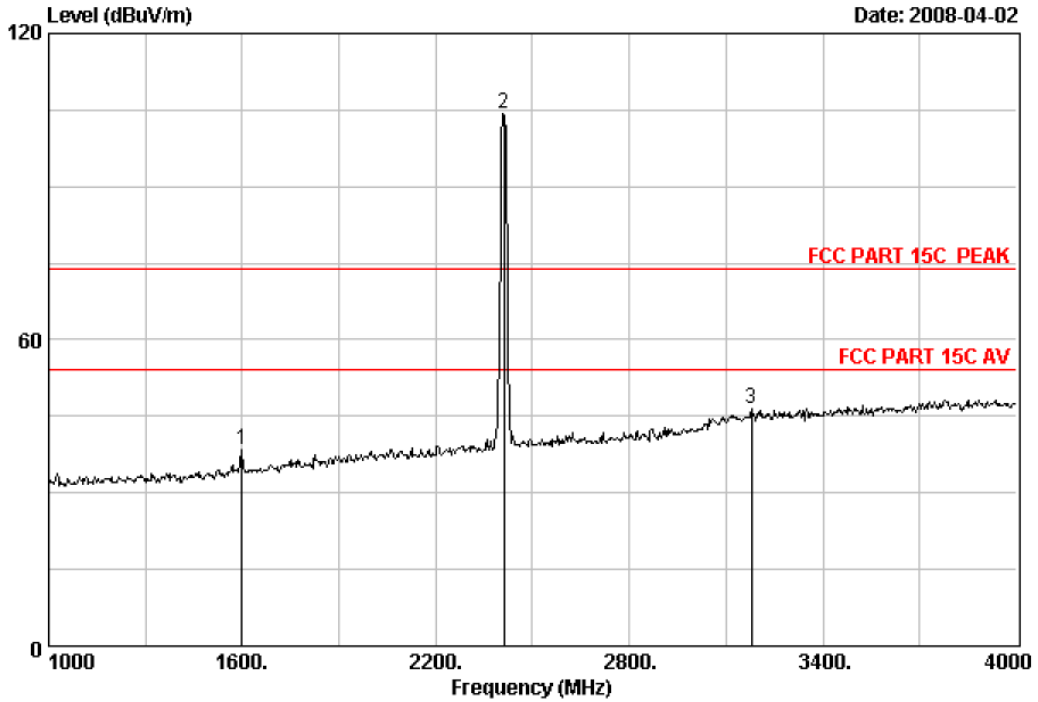
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~4GHz



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Data: 2 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 2  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH1:2412MHz Tx

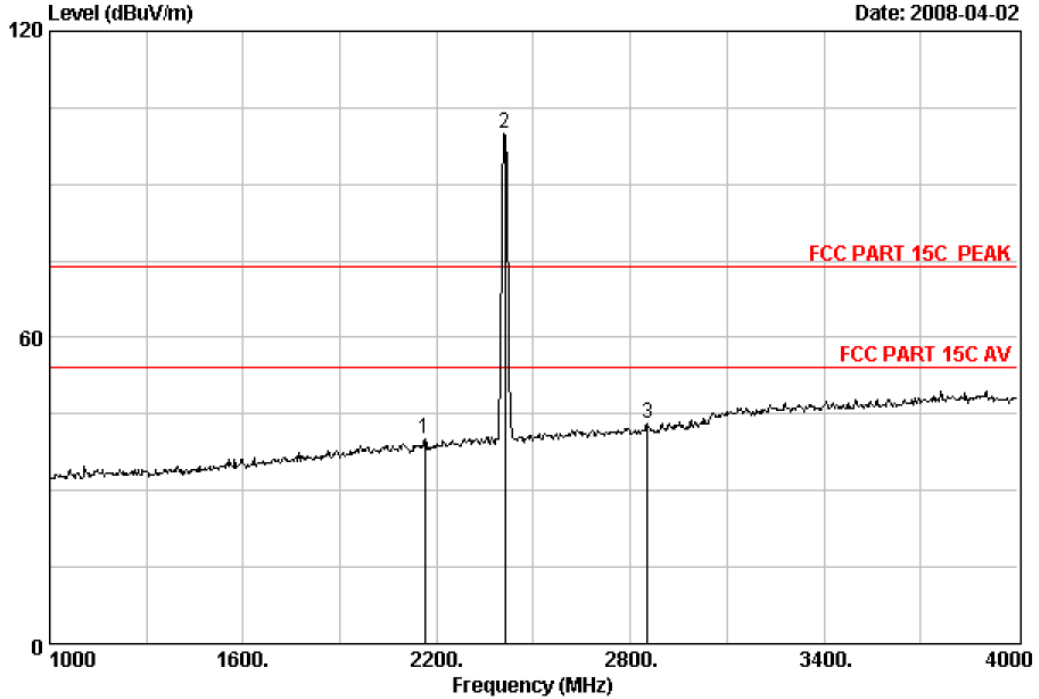
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	25.91	5.46	35.66	42.86	38.57	74.00	35.43	Peak
2	29.03	6.73	35.18	103.83	104.41	74.00	-30.41	Peak
3	31.47	8.03	34.95	41.82	46.37	74.00	27.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 1 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 1  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH1:2412MHz Tx

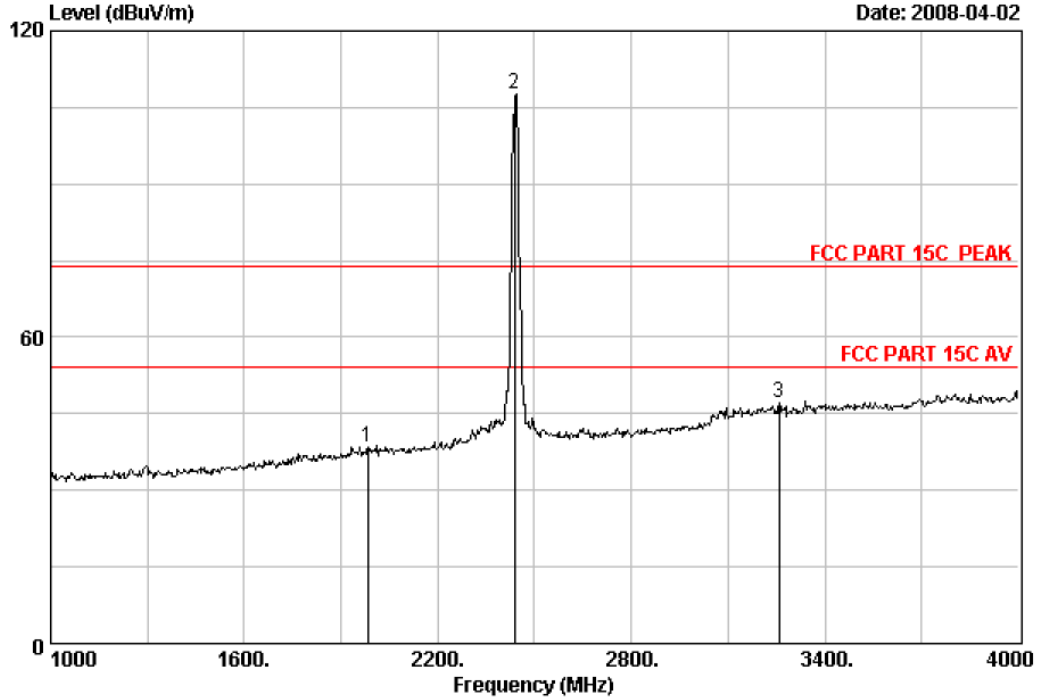
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2164.00	28.42	6.42	35.25	40.44	40.03	74.00	33.97	Peak
2	2412.00	29.03	6.73	35.18	99.26	99.84	74.00	-25.84	Peak
3	2854.00	30.47	7.44	35.04	40.08	42.95	74.00	31.05	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 3 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 3  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx

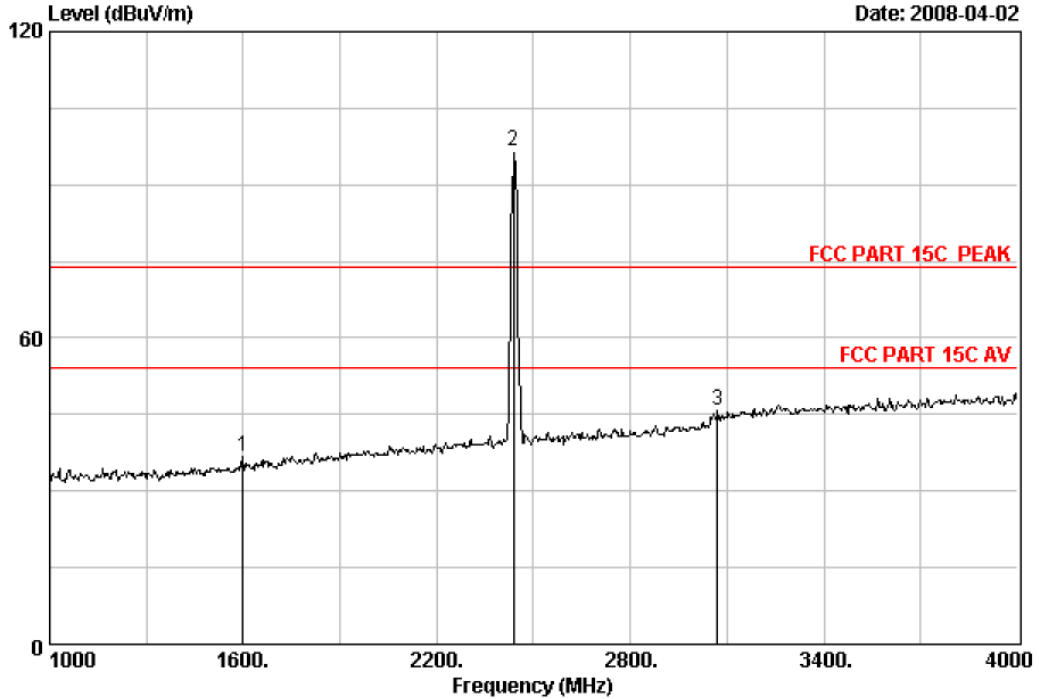
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission		Margin (dB)	Remark
					Level (dBuV/m)	Limits (dBuV/m)		
1	27.97	6.16	35.32	39.75	38.56	74.00	35.44	Peak
2	29.11	6.80	35.17	106.88	107.62	74.00	-33.62	Peak
3	31.71	8.23	34.92	42.26	47.28	74.00	26.72	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 4 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 4  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1600.00	25.91	5.46	35.66	41.04	36.75	74.00	37.25	Peak
2	2437.00	29.11	6.80	35.17	95.86	96.60	74.00	-22.60	Peak
3	3070.00	31.19	7.80	34.98	41.67	45.68	74.00	28.32	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

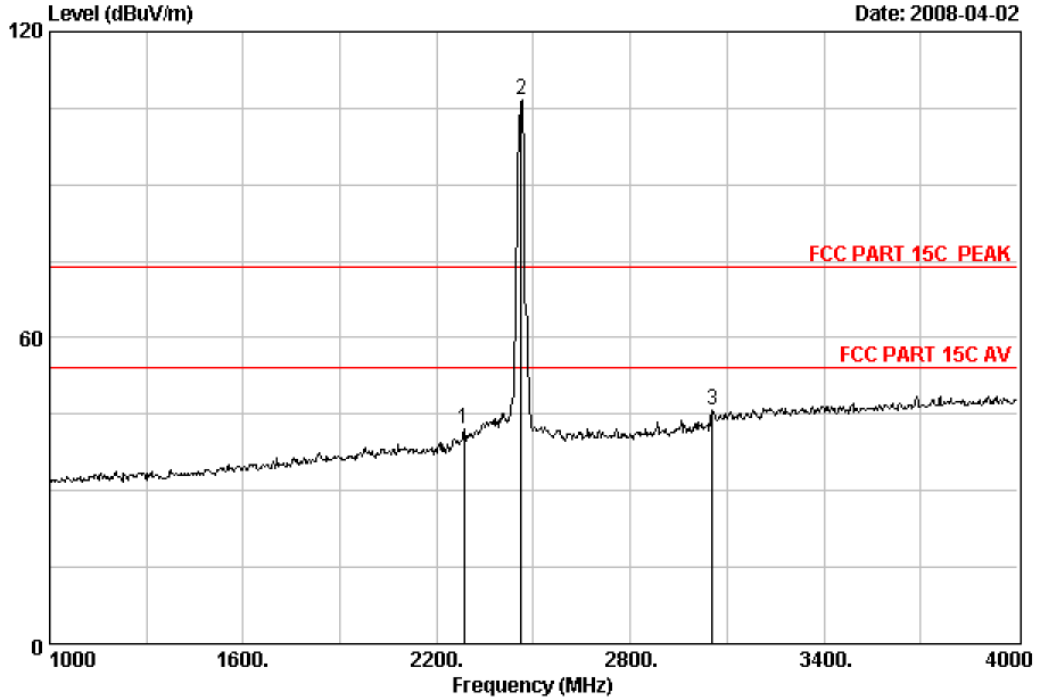




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Data: 6 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 6  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx

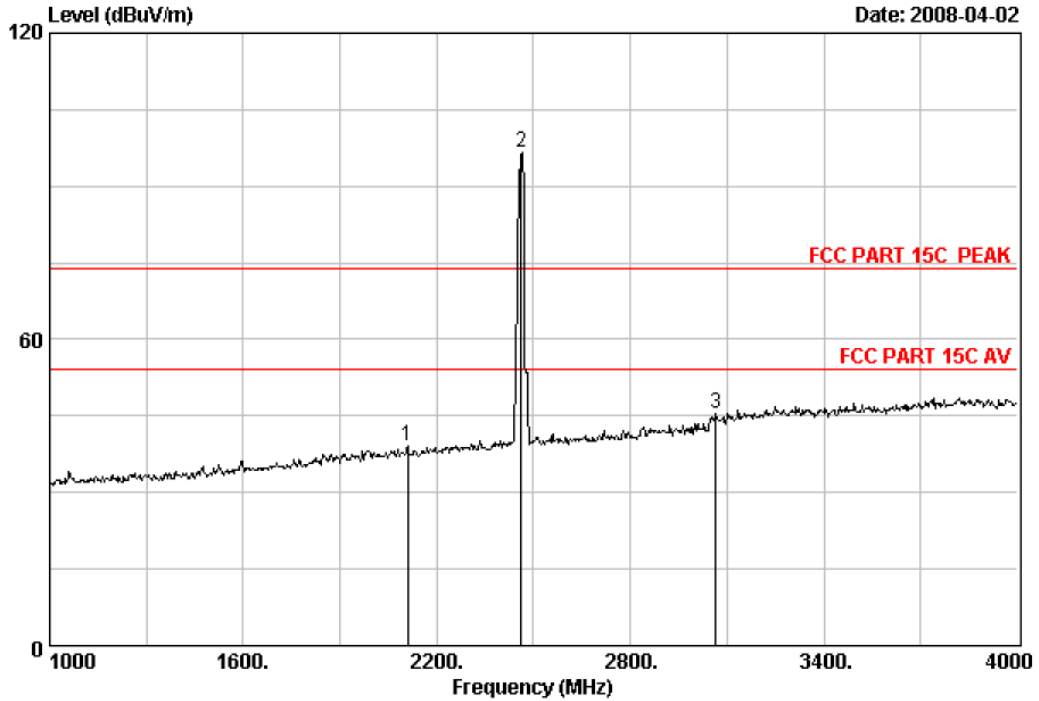
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2284.00	28.75	6.61	35.22	41.89	42.03	74.00	31.97	Peak
2	2462.00	29.15	6.84	35.17	105.72	106.54	74.00	-32.54	Peak
3	3055.00	31.14	7.78	34.99	41.83	45.76	74.00	28.24	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 5 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 5  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	28.30	6.35	35.27	39.71	39.09	74.00	34.91	Peak
2	29.15	6.84	35.17	95.86	96.68	74.00	-22.68	Peak
3	31.14	7.80	34.98	41.57	45.53	74.00	28.47	Peak

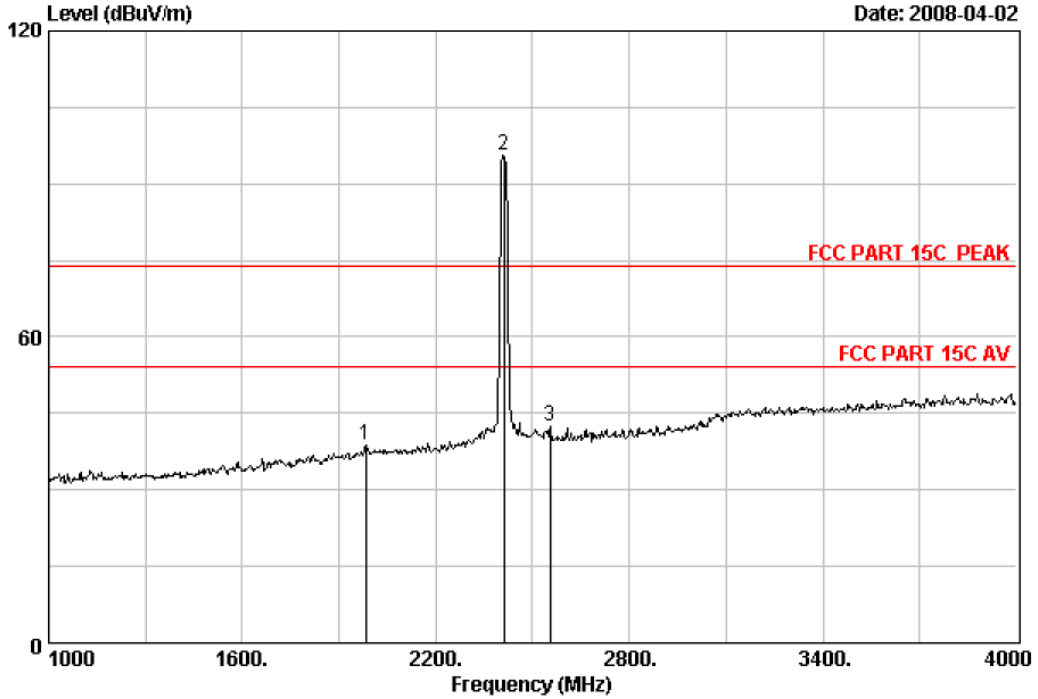
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 35 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 35  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

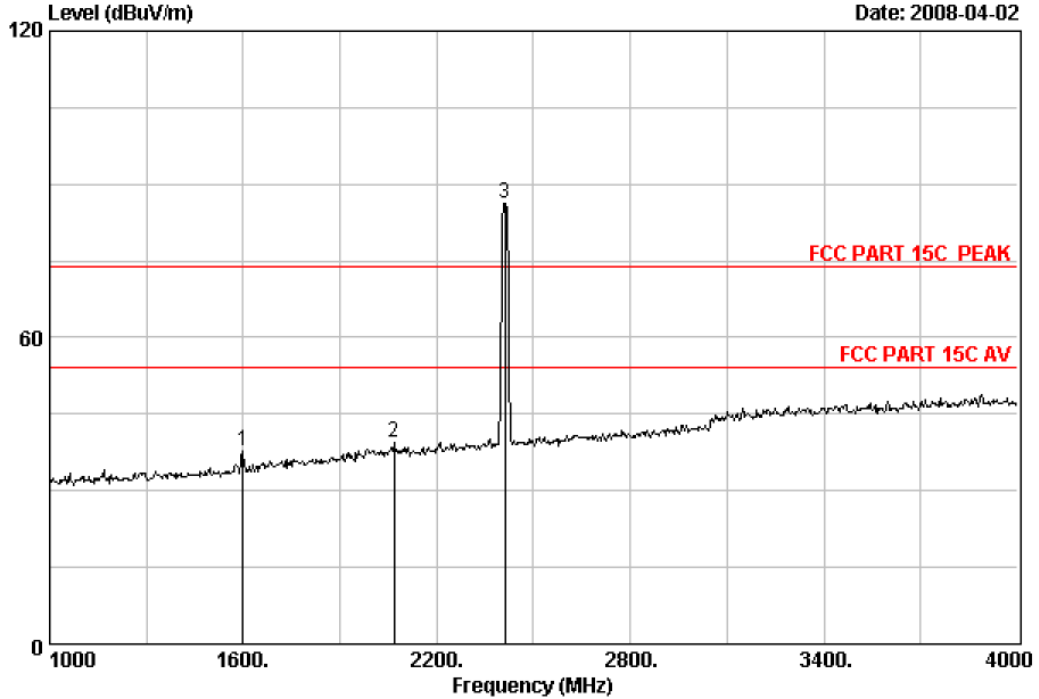
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission			Margin (dB)	Remark
					Level (dBuV/m)	Limits (dBuV/m)			
1	27.97	6.16	35.32	39.90	38.71	74.00	35.29	Peak	
2	29.03	6.73	35.18	94.88	95.46	74.00	-21.46	Peak	
3	29.41	6.98	35.13	41.09	42.35	74.00	31.65	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 36 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 36  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1600.00	25.91	5.46	35.66	42.10	37.81	74.00	36.19	Peak
2	2068.00	28.22	6.28	35.28	40.24	39.46	74.00	34.54	Peak
3	2412.00	29.03	6.73	35.18	85.80	86.38	74.00	-12.38	Peak

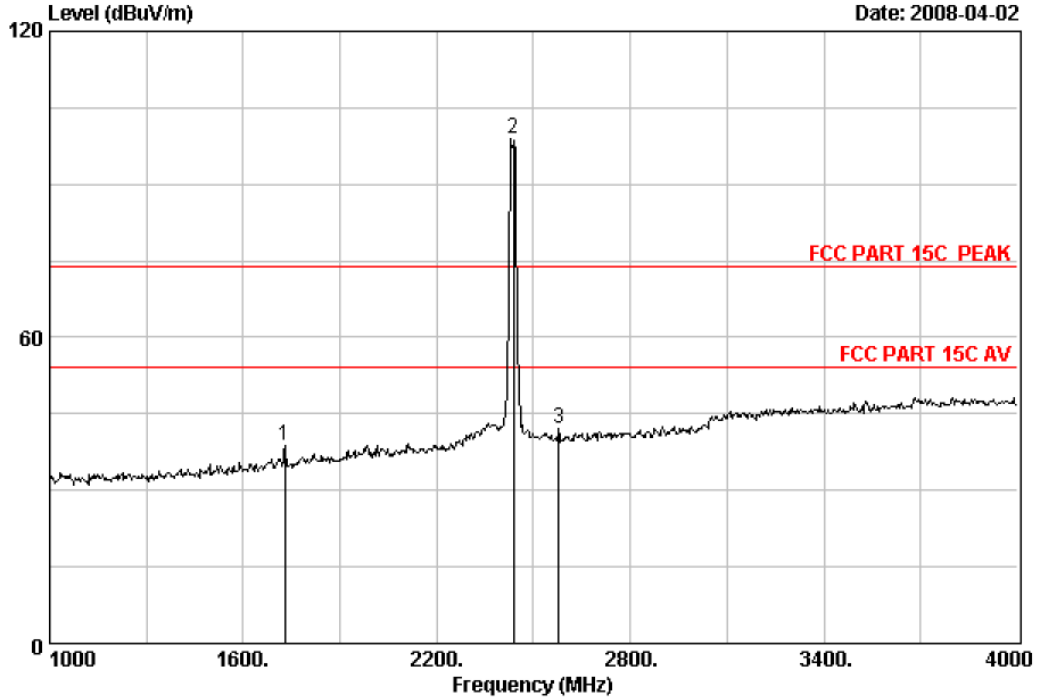
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 34 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 34  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx

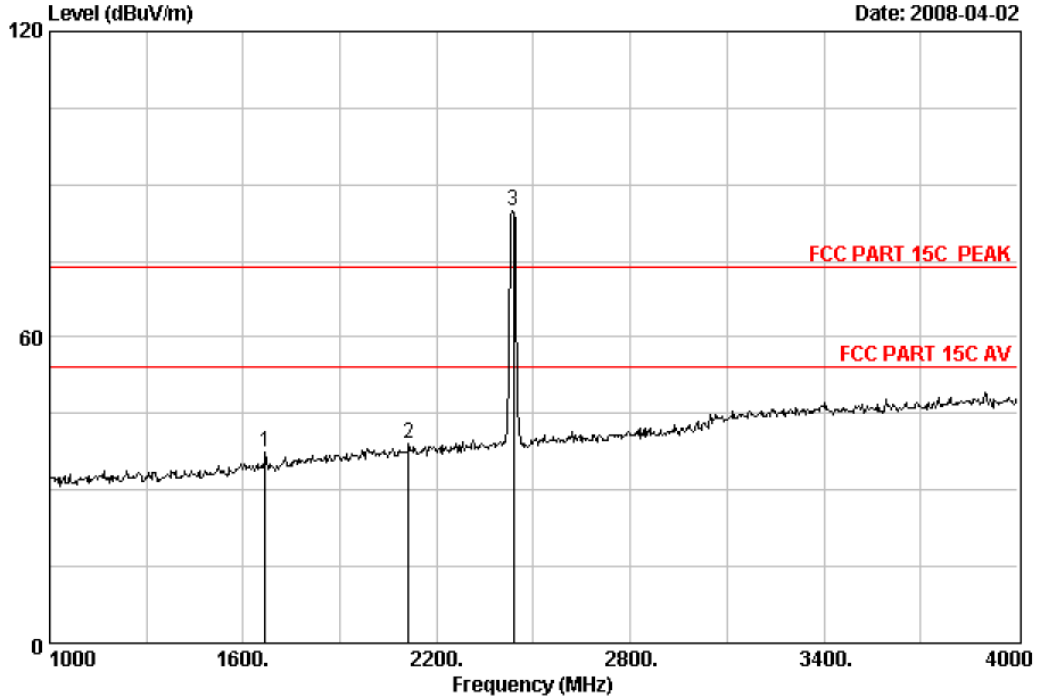
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission				
					Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1729.00	26.63	5.71	35.55	41.85	38.64	74.00	35.36	Peak
2	2437.00	29.11	6.80	35.17	98.27	99.01	74.00	-25.01	Peak
3	2578.00	29.52	7.01	35.13	40.80	42.20	74.00	31.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 33 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 33  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	26.27	5.57	35.59	41.26	37.51	74.00	36.49	Peak
2	28.30	6.35	35.26	39.66	39.05	74.00	34.95	Peak
3	29.11	6.80	35.17	84.02	84.76	74.00	-10.76	Peak

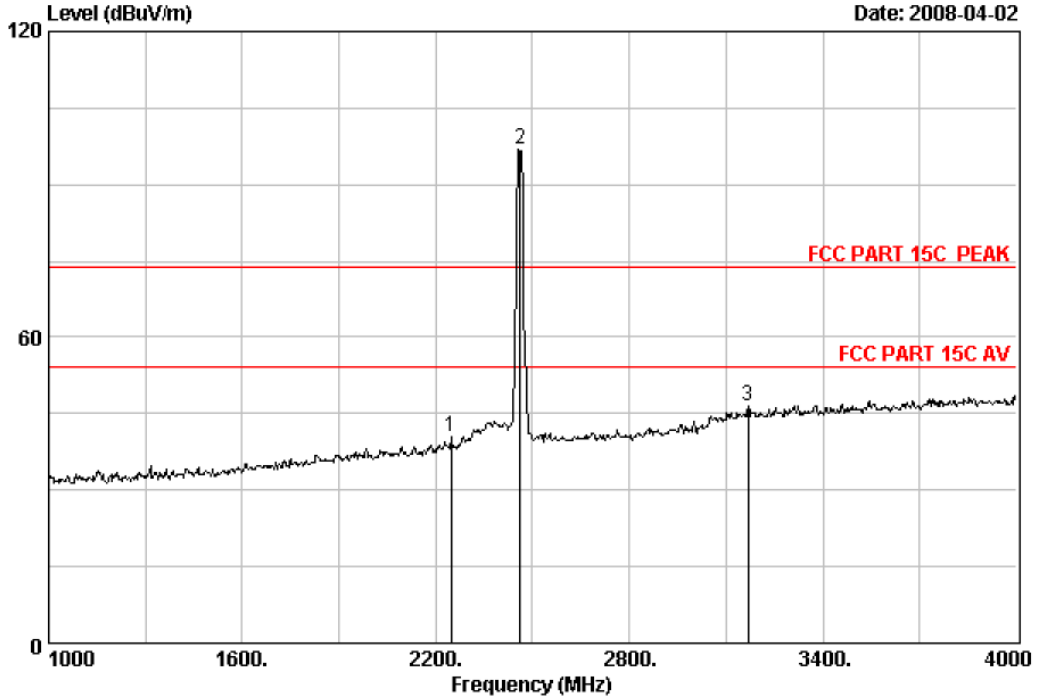
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 31 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 31  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2248.00	28.62	6.56	35.22	40.43	40.39	74.00	33.61	Peak
2	2462.00	29.15	6.84	35.17	96.24	97.06	74.00	-23.06	Peak
3	3169.00	31.47	7.99	34.95	41.84	46.35	74.00	27.65	Peak

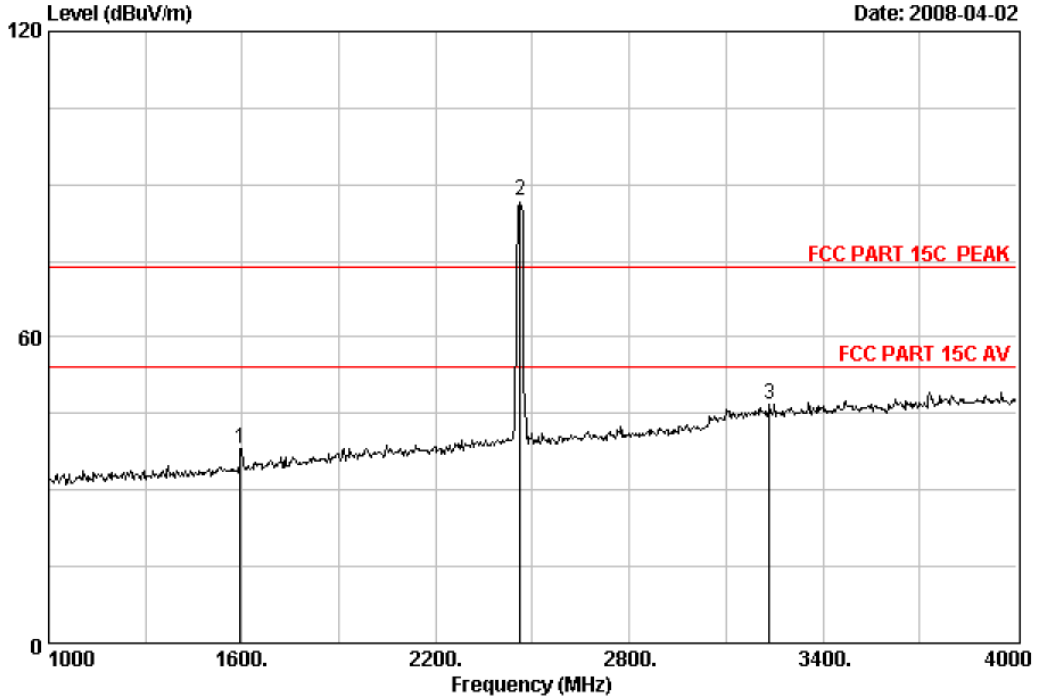
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 32 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 32  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1594.00	25.91	5.43	35.66	42.46	38.14	74.00	35.86	Peak
2	2462.00	29.15	6.84	35.17	85.99	86.81	74.00	-12.81	Peak
3	3235.00	31.61	8.18	34.93	42.08	46.94	74.00	27.06	Peak

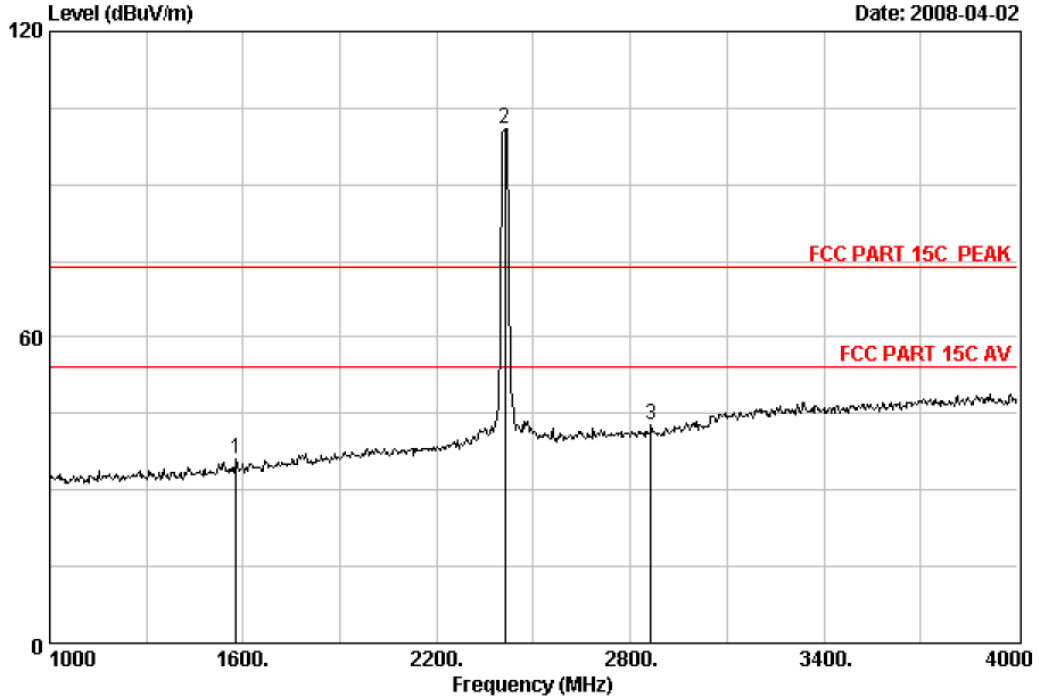
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.





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Data: 38 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 38  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission				
					Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1579.00	25.82	5.43	35.68	40.60	36.17	74.00	37.83	Peak
2	2412.00	29.03	6.73	35.18	100.45	101.03	74.00	-27.03	Peak
3	2863.00	30.53	7.44	35.04	39.79	42.72	74.00	31.28	Peak

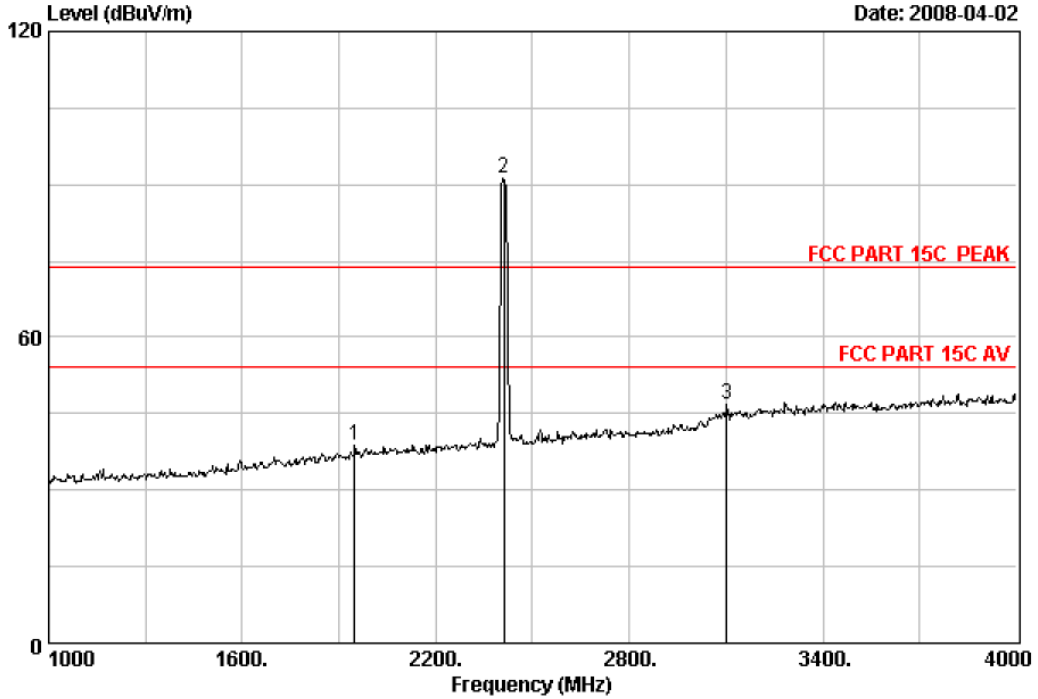
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 37 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 37  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20

	Ant.	Cable	Amp	Emission					
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	27.79	6.07	35.35	40.15	38.66	74.00	35.34	Peak	
2	29.03	6.73	35.18	90.75	91.33	74.00	-17.33	Peak	
3	31.28	7.85	34.97	42.70	46.86	74.00	27.14	Peak	

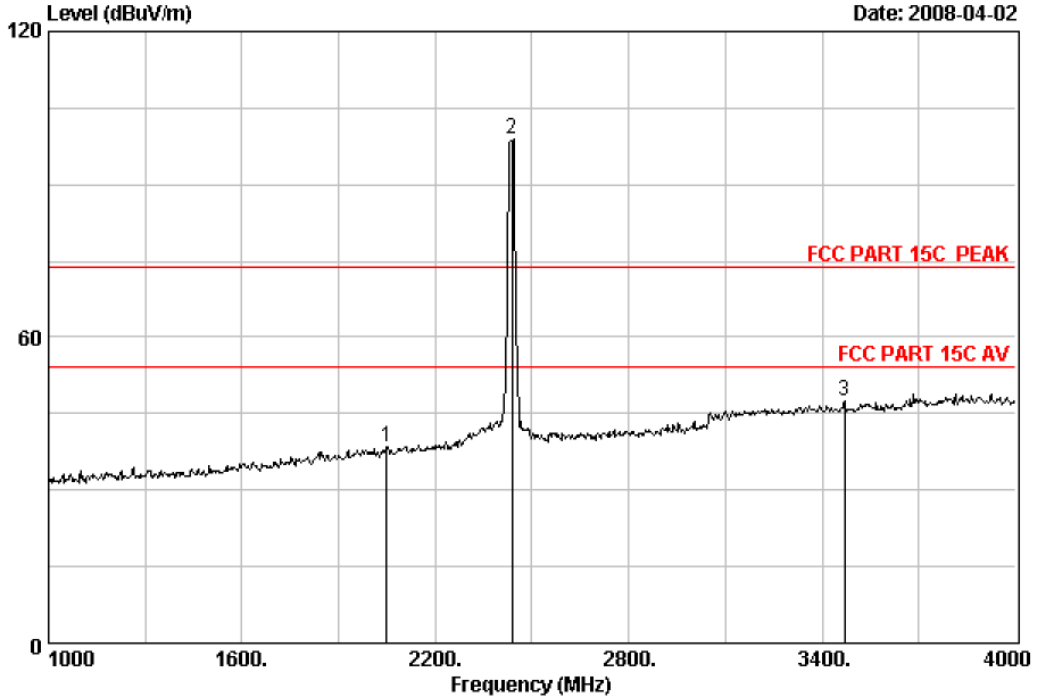
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 39 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 39  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20

	Ant.	Cable	Amp	Emission					
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	28.18	6.25	35.28	39.44	38.59	74.00	35.41	Peak	
2	29.11	6.80	35.17	98.13	98.87	74.00	-24.87	Peak	
3	32.28	8.72	34.86	41.23	47.37	74.00	26.63	Peak	

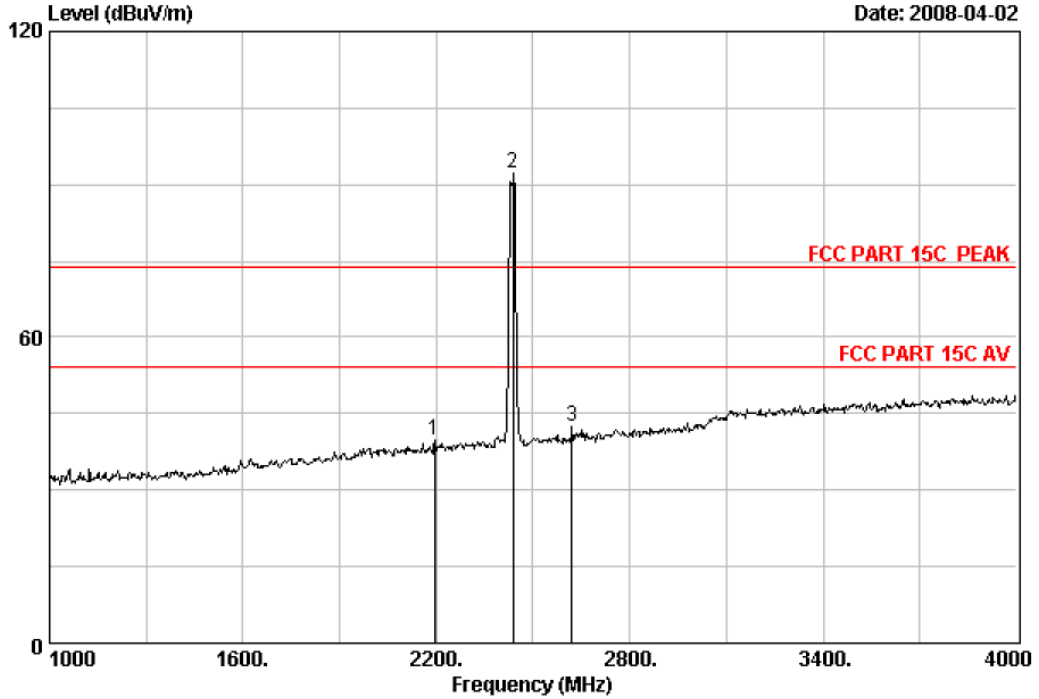
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 40 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 40  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission				
					Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2194.00	28.50	6.48	35.24	40.02	39.76	74.00	34.24	Peak
2	2437.00	29.11	6.80	35.17	91.45	92.19	74.00	-18.19	Peak
3	2620.00	29.64	7.06	35.11	40.86	42.45	74.00	31.55	Peak

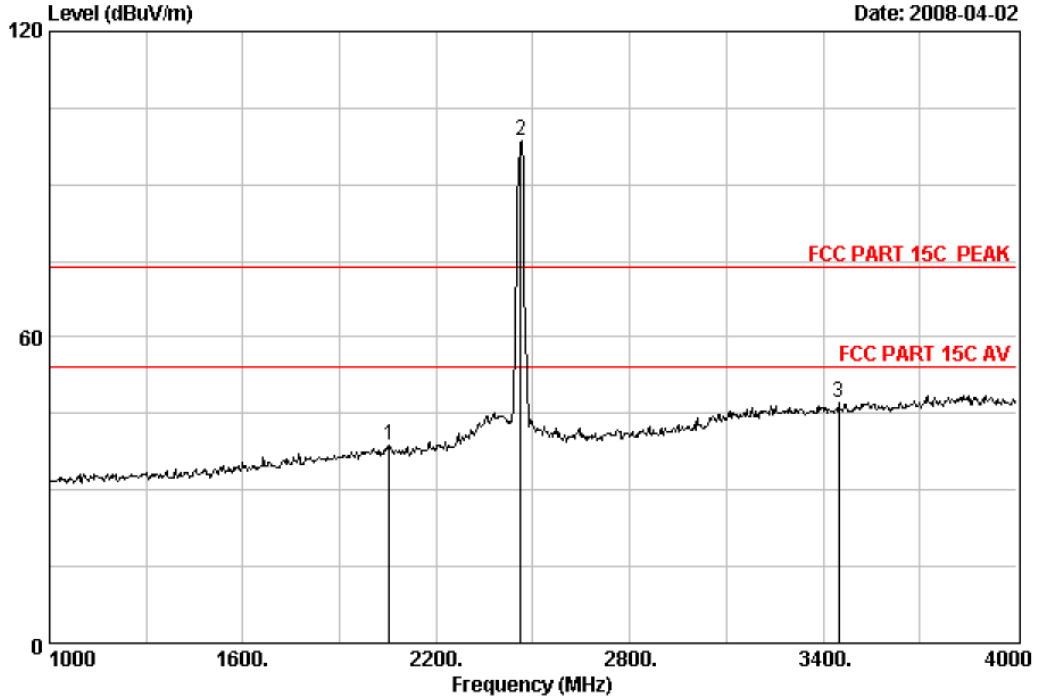
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 42 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 42  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission			Remark
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2053.00	28.18	6.28	35.28	39.70	38.88	74.00	35.12	Peak
2	2462.00	29.15	6.84	35.17	97.73	98.55	74.00	-24.55	Peak
3	3448.00	32.23	8.65	34.87	41.25	47.26	74.00	26.74	Peak

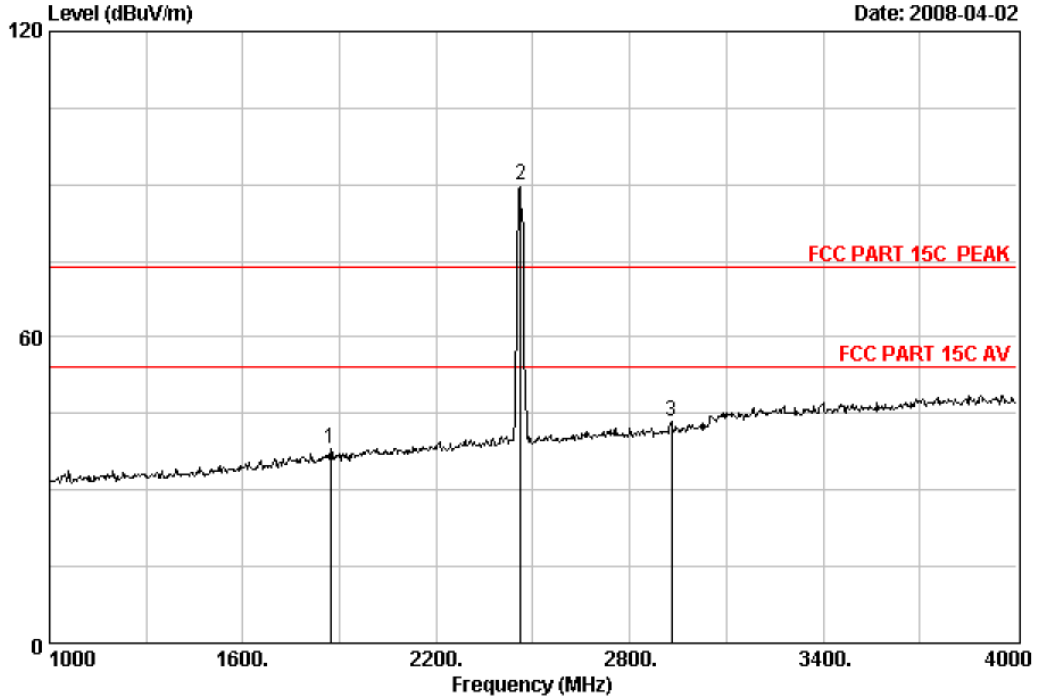
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 41 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 41  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20

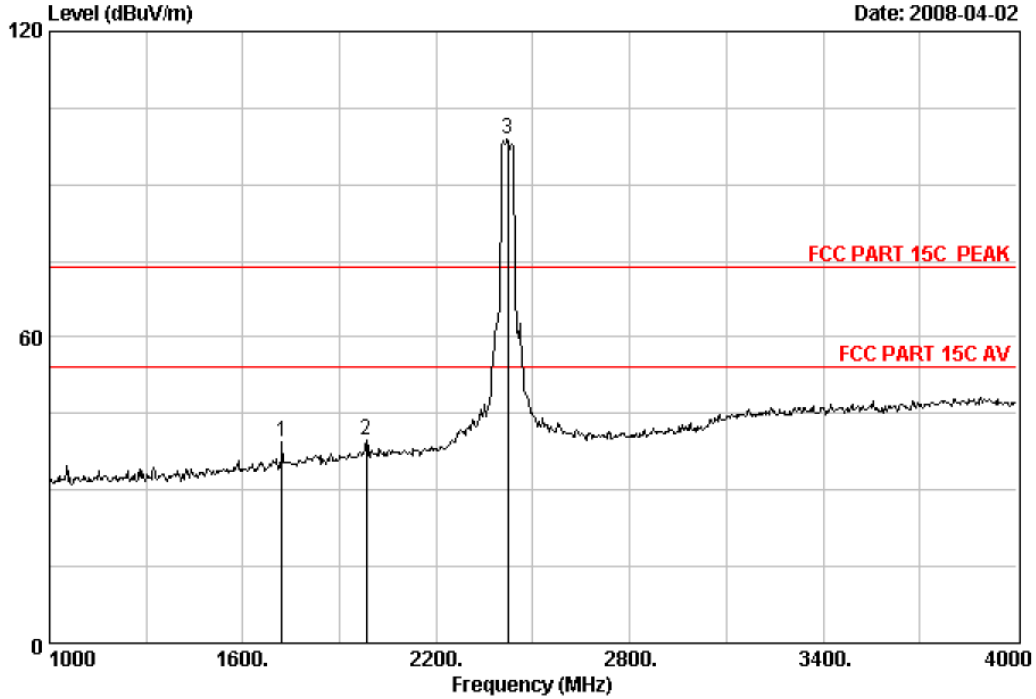
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	27.34	5.92	35.41	40.33	38.18	74.00	35.82	Peak
2	29.15	6.84	35.17	89.13	89.95	74.00	-15.95	Peak
3	30.70	7.57	35.02	40.23	43.48	74.00	30.52	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 71 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 71  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1720.00	26.54	5.67	35.55	42.64	39.30	74.00	34.70	Peak
2	1984.00	27.97	6.16	35.32	40.85	39.66	74.00	34.34	Peak
3	2422.00	29.07	6.77	35.17	98.40	99.07	74.00	-25.07	Peak

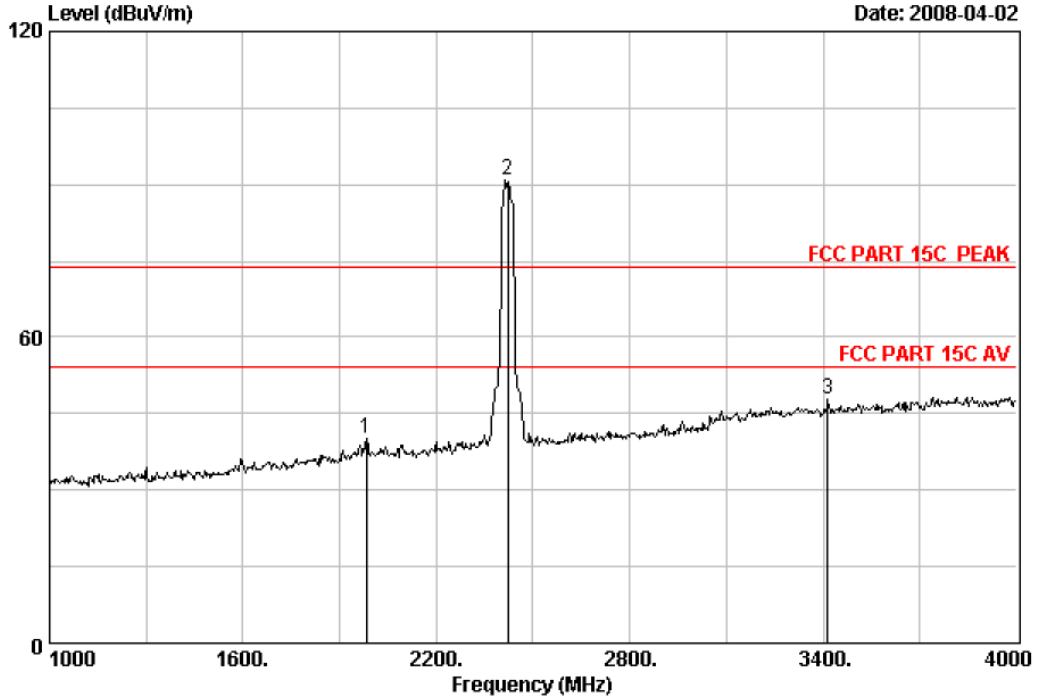
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 72 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 72  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission				
					Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1984.00	27.97	6.16	35.32	41.46	40.27	74.00	33.73	Peak
2	2422.00	29.07	6.77	35.17	90.12	90.79	74.00	-16.79	Peak
3	3415.00	32.13	8.51	34.87	42.05	47.82	74.00	26.18	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

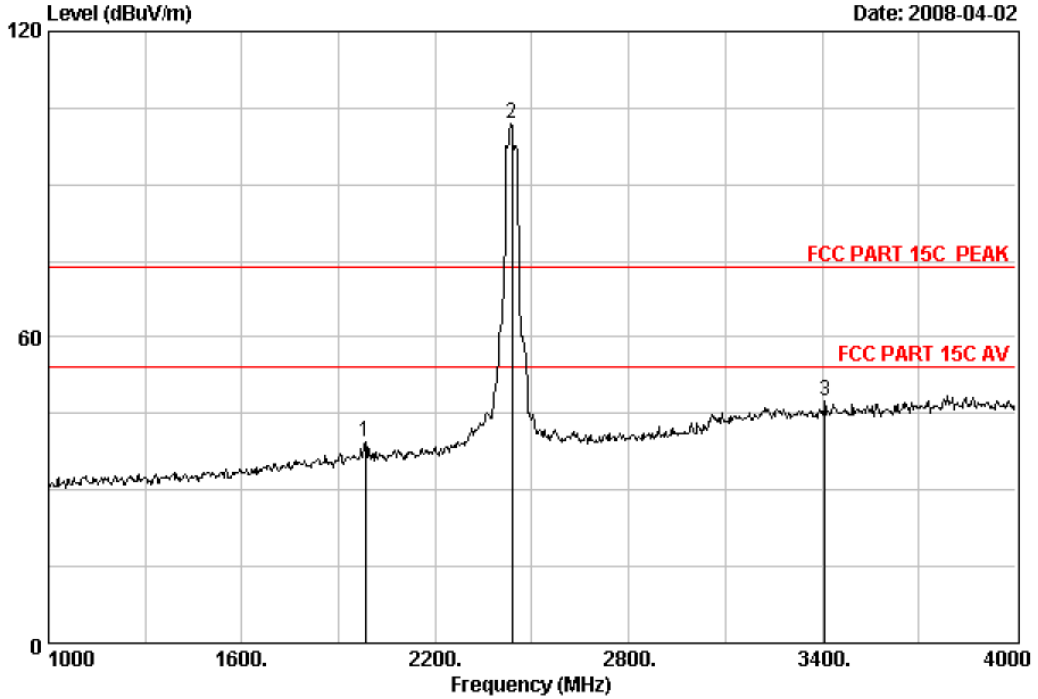




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Date: 2008-04-02



Site no. : RF Chamber Data no. : 70  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
					Reading (dBuV)	Level (dBuV/m)			
1	1984.00	27.97	6.16	35.32	40.53	39.34	74.00	34.66	Peak
2	2437.00	29.11	6.80	35.17	101.08	101.82	74.00	-27.82	Peak
3	3409.00	32.13	8.51	34.88	41.58	47.34	74.00	26.66	Peak

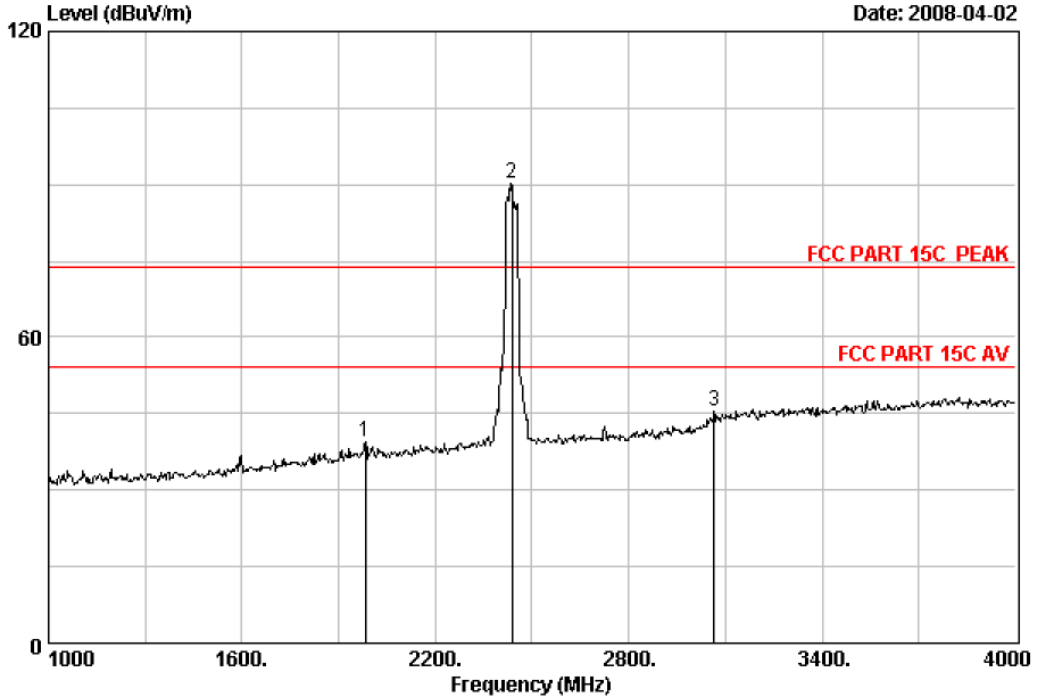
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Date: 2008-04-02



Site no. : RF Chamber Data no. : 69  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	27.97	6.16	35.32	40.59	39.40	74.00	34.60	Peak
2	29.11	6.80	35.17	89.46	90.20	74.00	-16.20	Peak
3	31.14	7.80	34.98	41.52	45.48	74.00	28.52	Peak

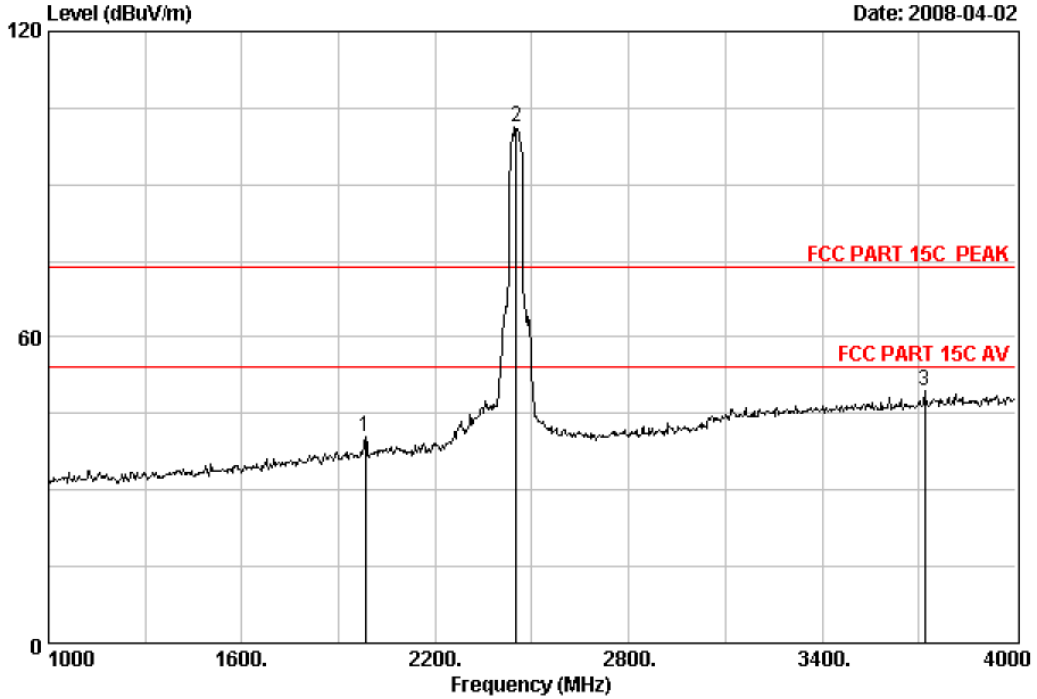
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 67 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 67  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1984.00	27.97	6.16	35.32	41.66	40.47	74.00	33.53	Peak
2	2452.00	29.11	6.84	35.17	100.60	101.38	74.00	-27.38	Peak
3	3718.00	33.01	9.23	34.78	41.98	49.44	74.00	24.56	Peak

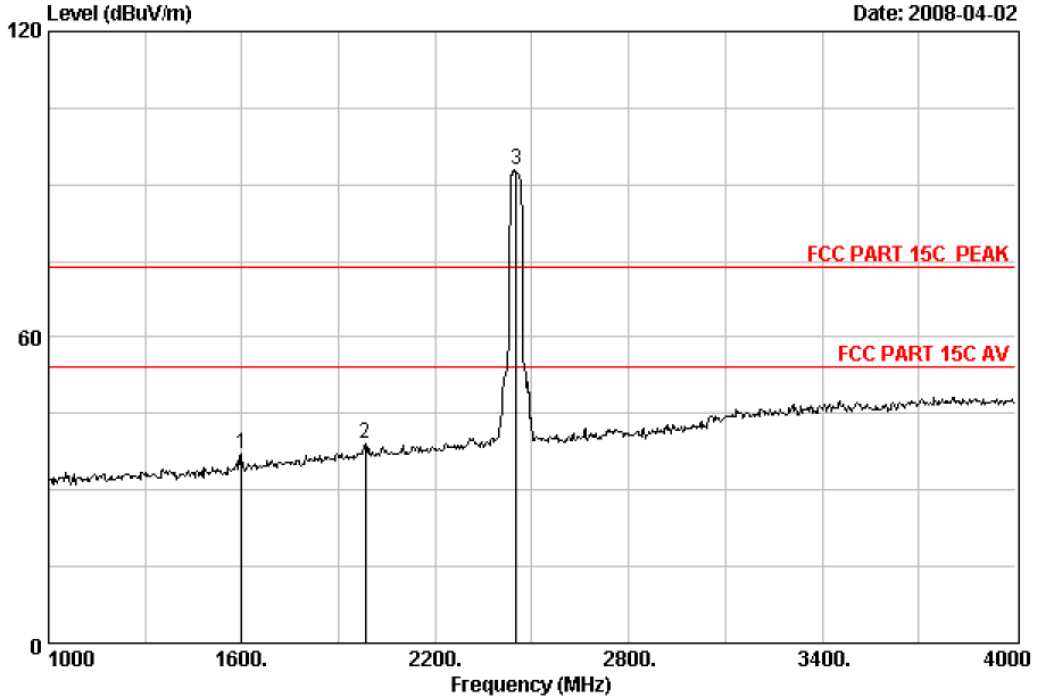
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Date: 2008-04-02



Site no. : RF Chamber Data no. : 68  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40

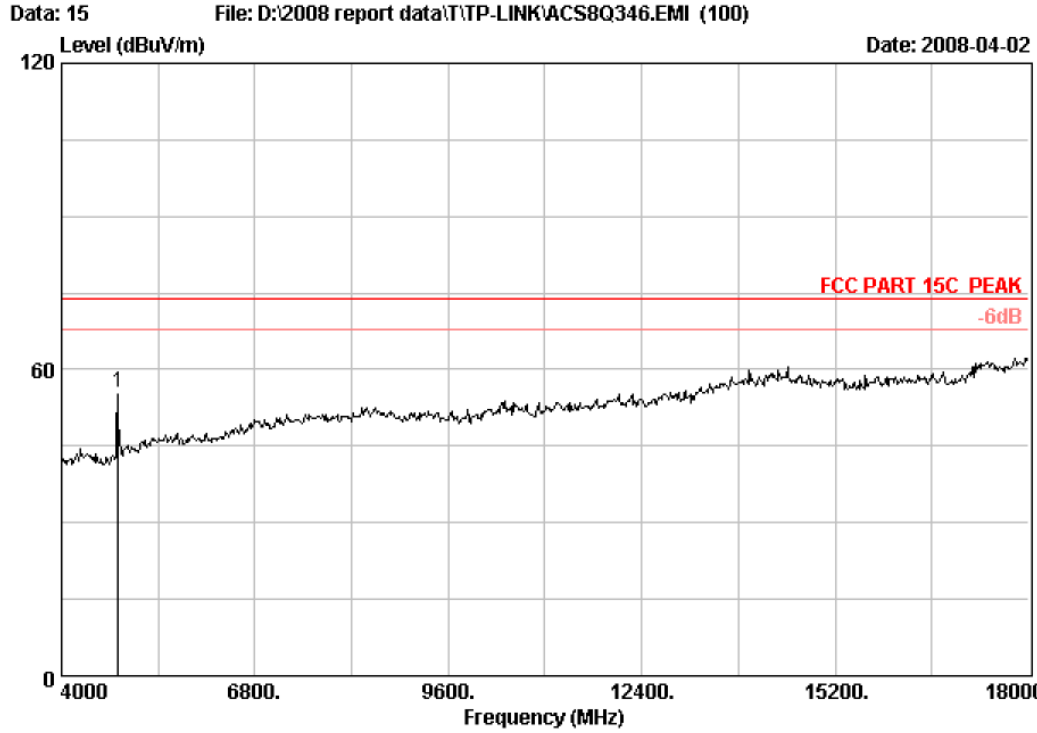
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark	
				Reading (dBuV)	Level (dBuV/m)				
1	1600.00	25.91	5.46	35.66	41.40	37.11	74.00	36.89	Peak
2	1984.00	27.97	6.16	35.32	40.26	39.07	74.00	34.93	Peak
3	2452.00	29.11	6.84	35.17	92.08	92.86	74.00	-18.86	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 4GHz~18GHz



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Site no. : RF Chamber Data no. : 15  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH1:2412MHz Tx

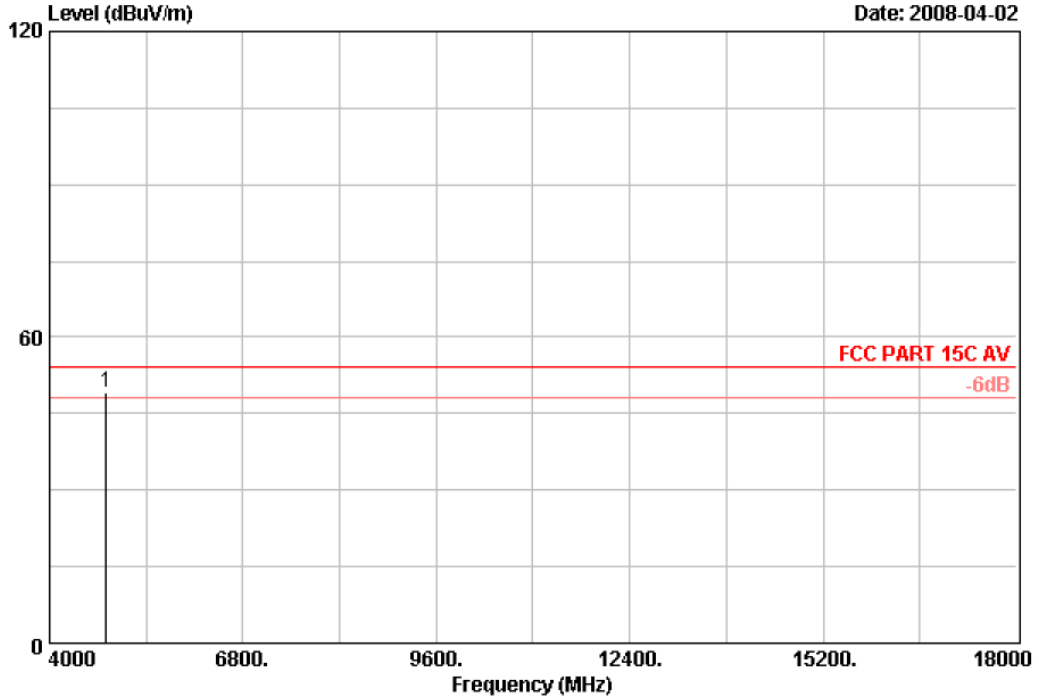
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1 4824.00	34.02	10.55	34.49	45.36	55.44	74.00	18.56	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Site no. : RF Chamber Data no. : 16  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH1:2412MHz Tx

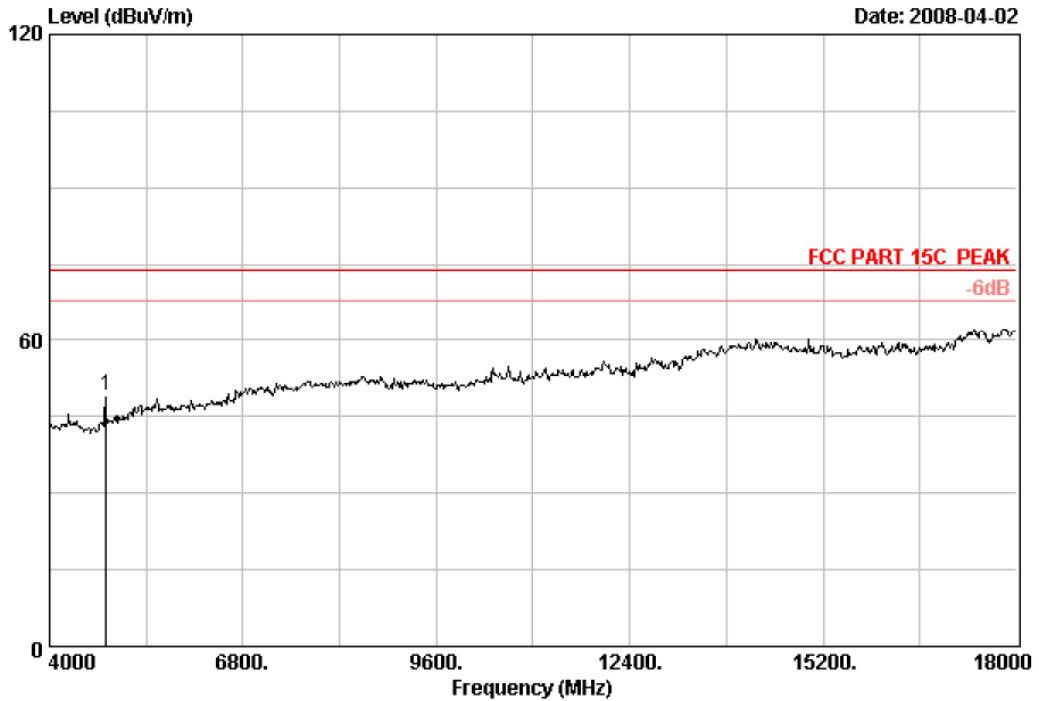
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	39.00	49.08	54.00	4.92	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 17 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 17  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH1:2412MHz Tx

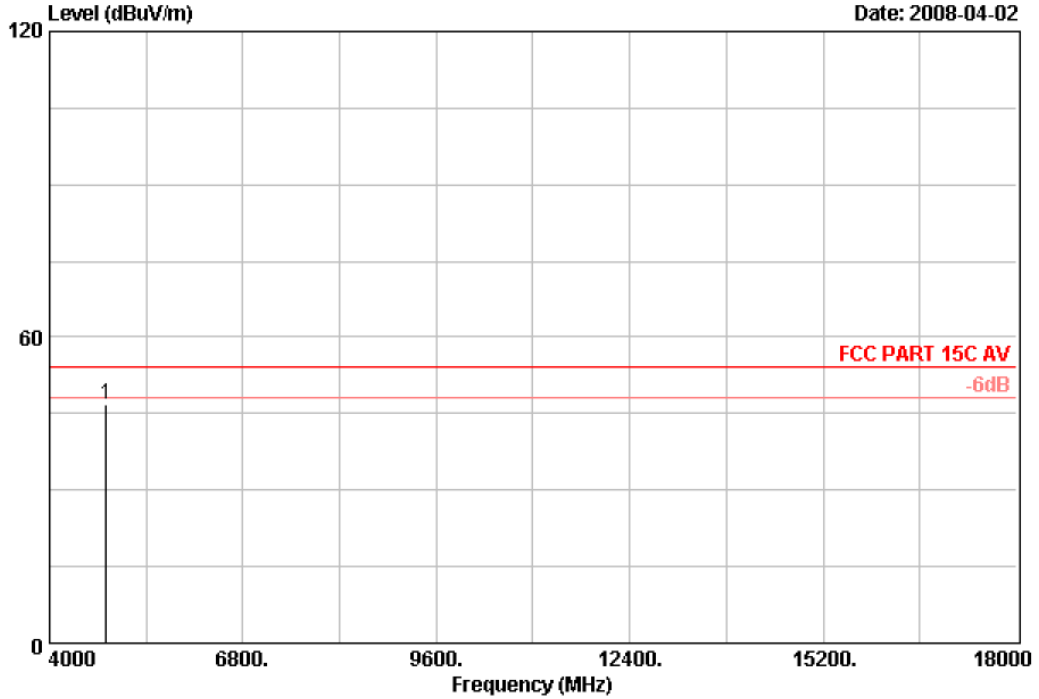
	Ant. Factor	Cable Loss	Amp Factor	Reading	Emission Level	Limits	Margin	Remark
Freq. (MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 4824.00	34.02	10.55	34.49	39.04	49.12	74.00	24.88	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 18 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 18  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH1:2412MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	36.85	46.93	54.00	7.07	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

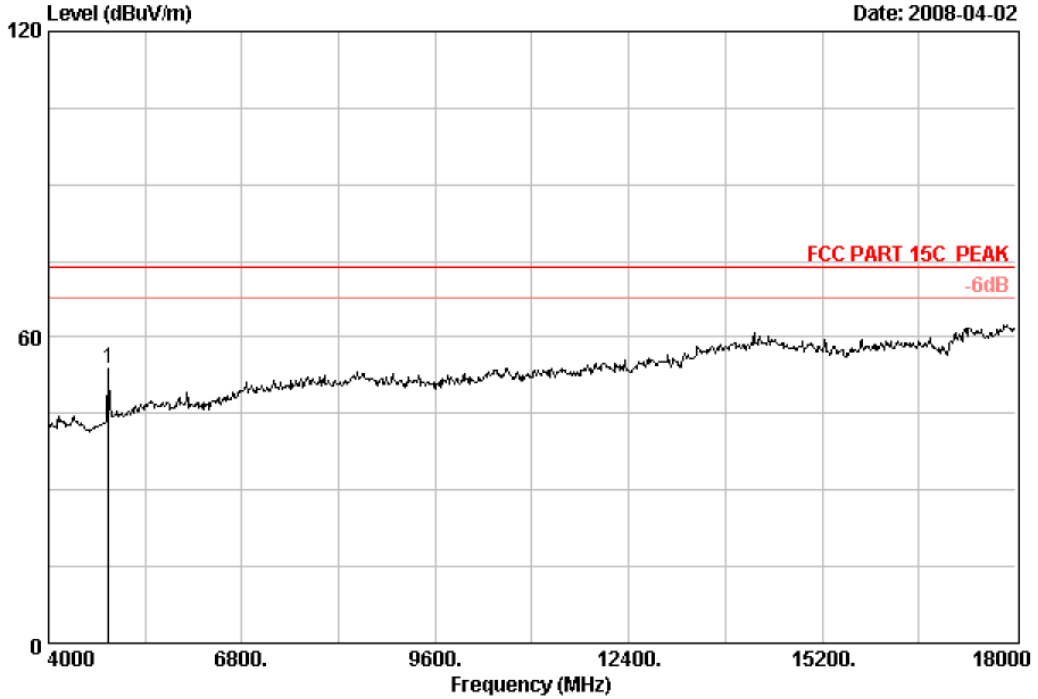




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 Postcode:518057

Data: 13 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 13  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx

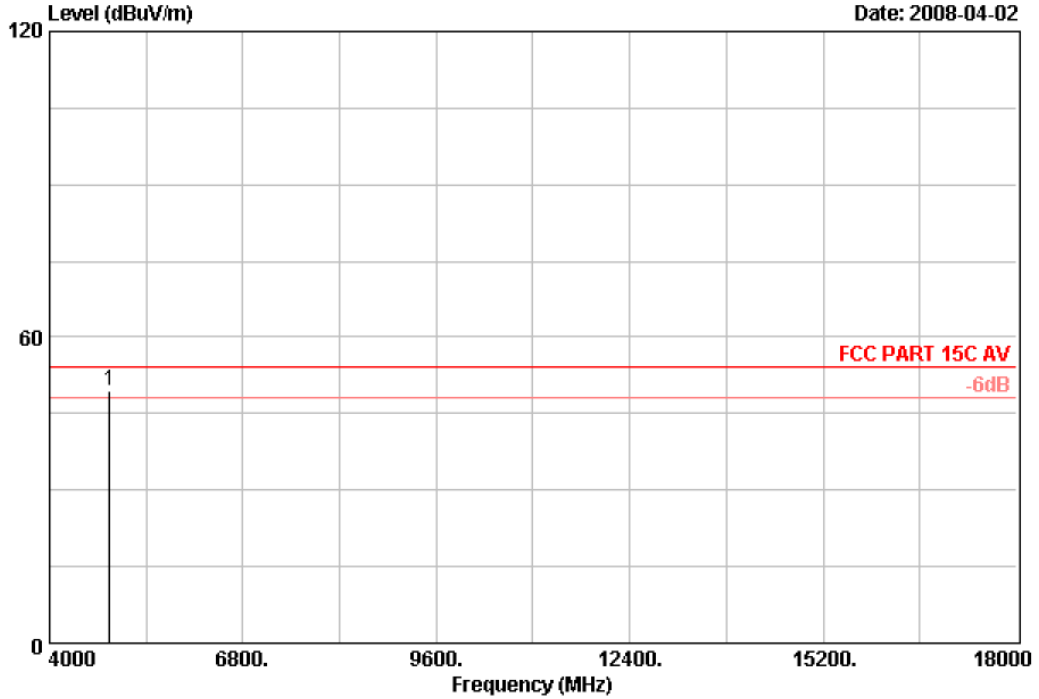
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission			Margin (dB)	Remark
					Level (dBuV/m)	Limits (dBuV/m)			
1 4874.00	34.16	10.56	34.48	43.71	53.95	74.00	20.05	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 14 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 14  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	39.09	49.33	54.00	4.67	Average

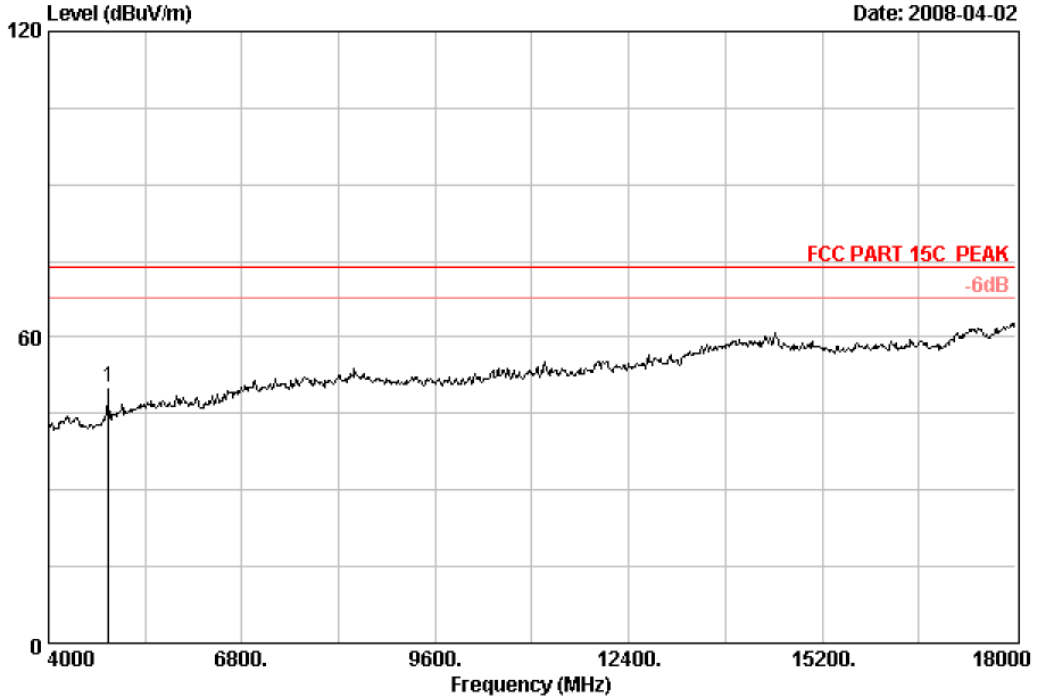
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 11 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 11  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx

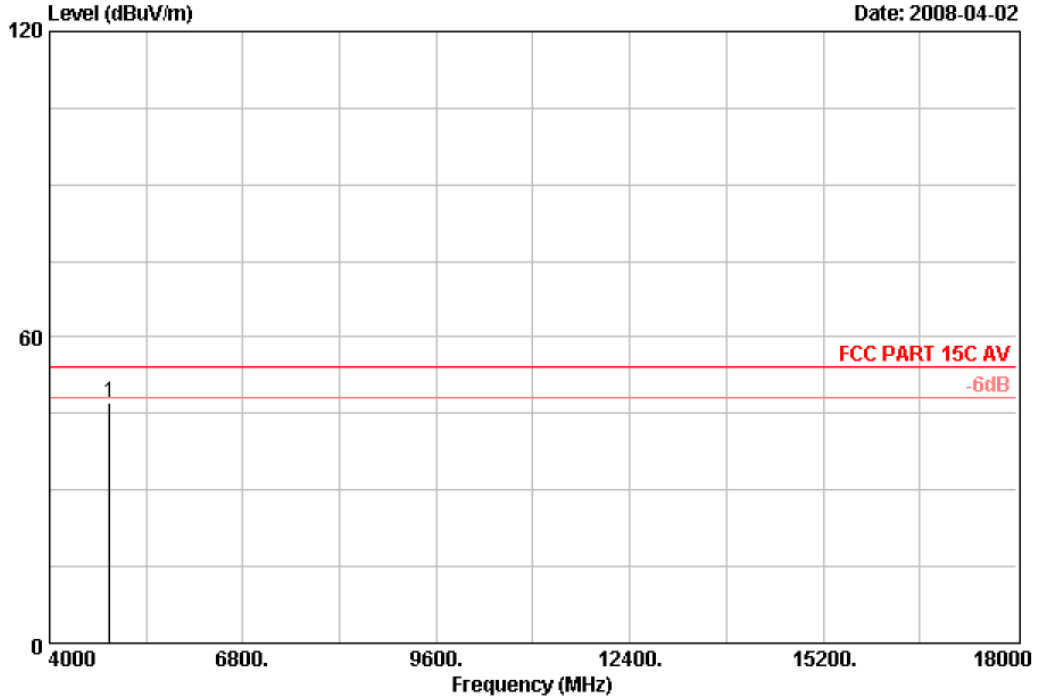
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	39.74	49.98	74.00	24.02	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 12 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 12  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	36.98	47.22	54.00	6.78	Average

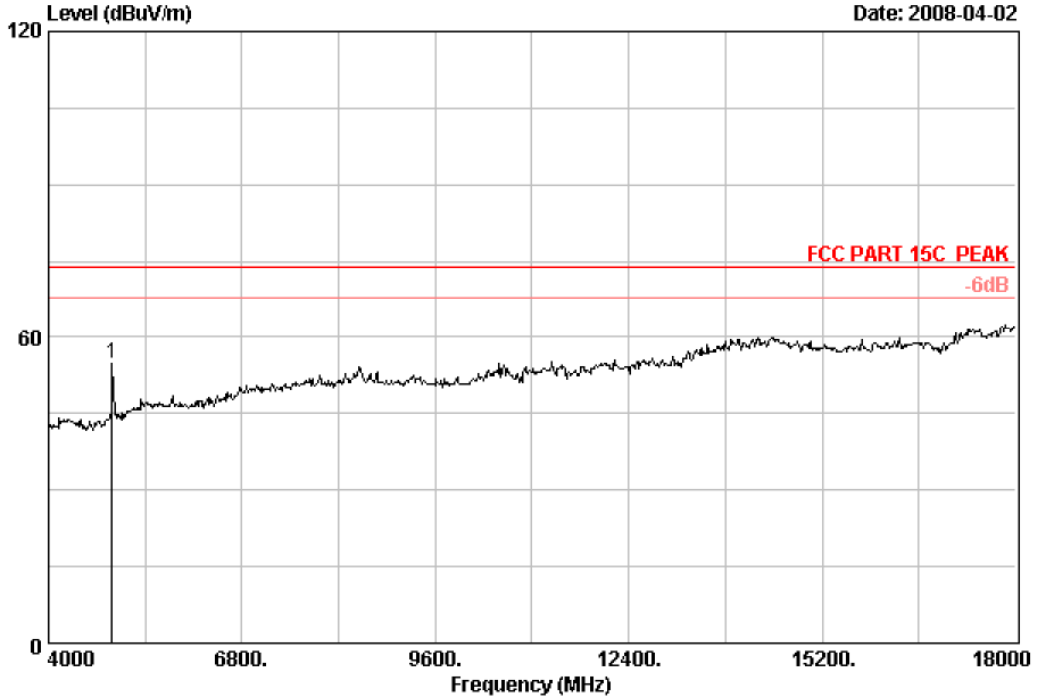
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 7 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 7  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx

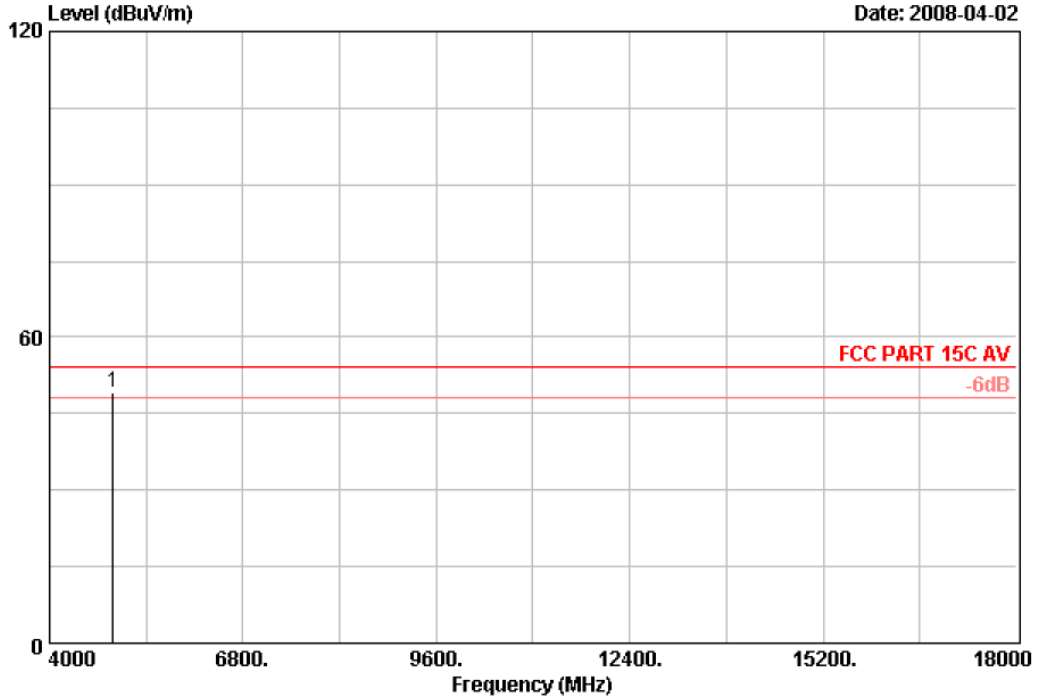
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.00	34.29	10.58	34.47	44.29	54.69	74.00	19.31	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 8 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 8  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx

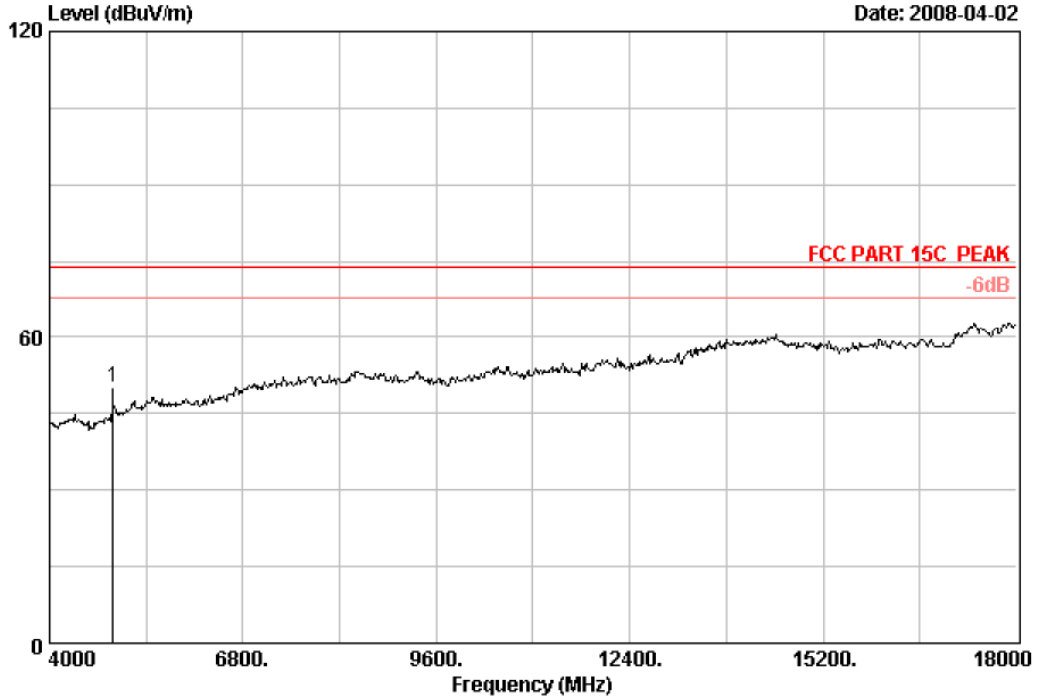
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	38.63	49.03	54.00	4.97	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 9 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 9  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx

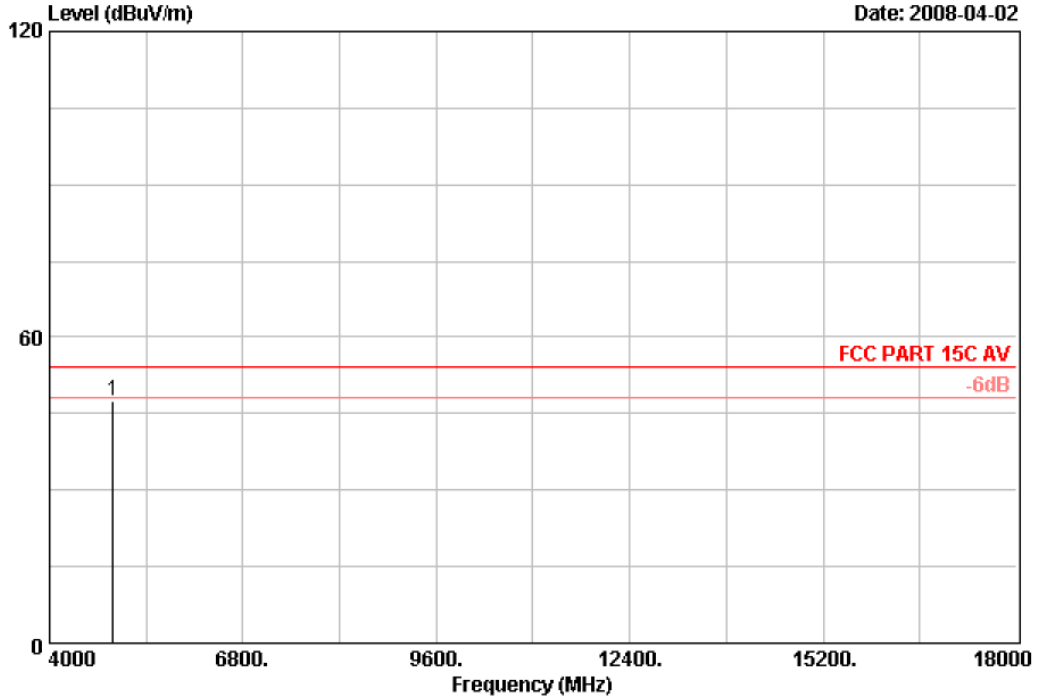
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	39.80	50.20	74.00	23.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 10 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 10  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	37.12	47.52	54.00	6.48	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

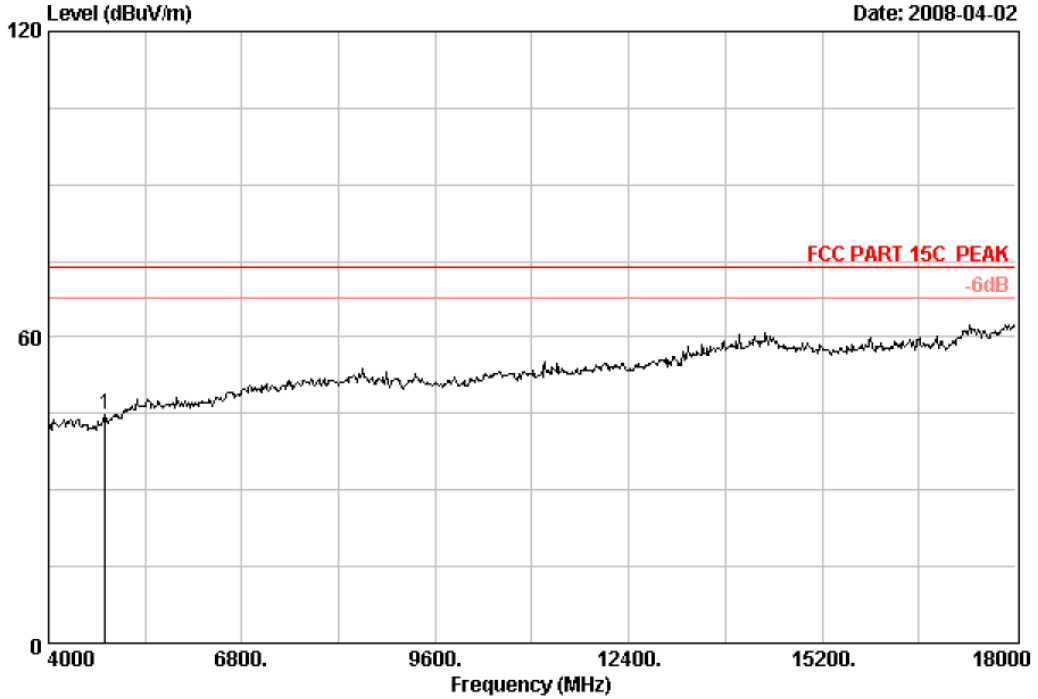




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Data: 21 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 21  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

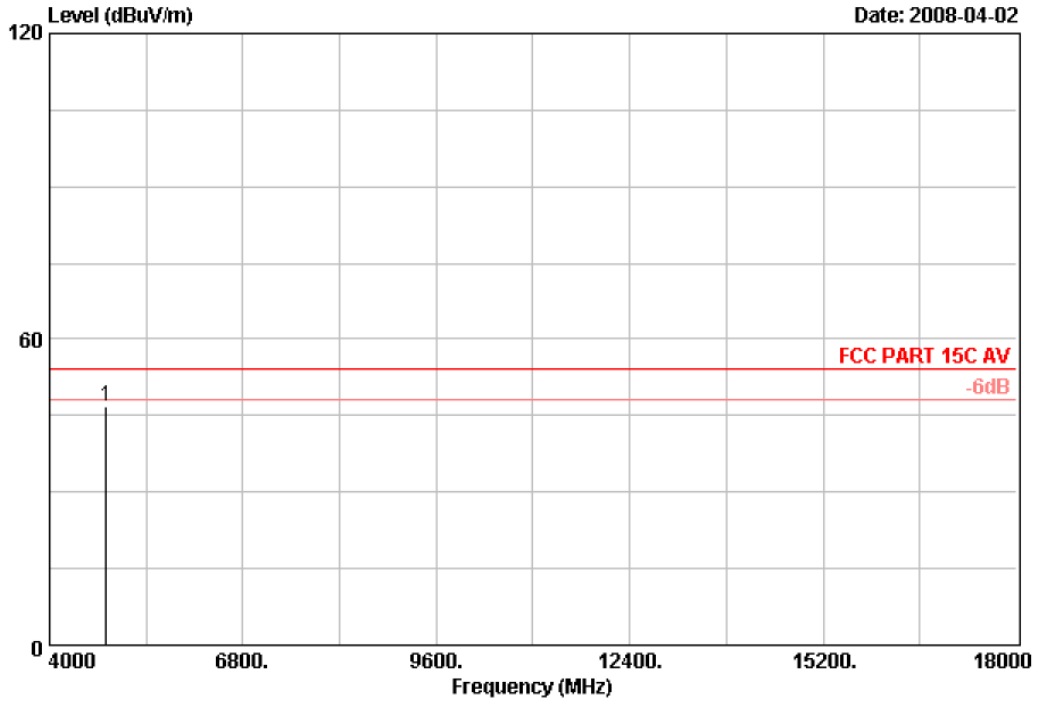
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	34.87	44.95	74.00	29.05	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 22 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 22  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

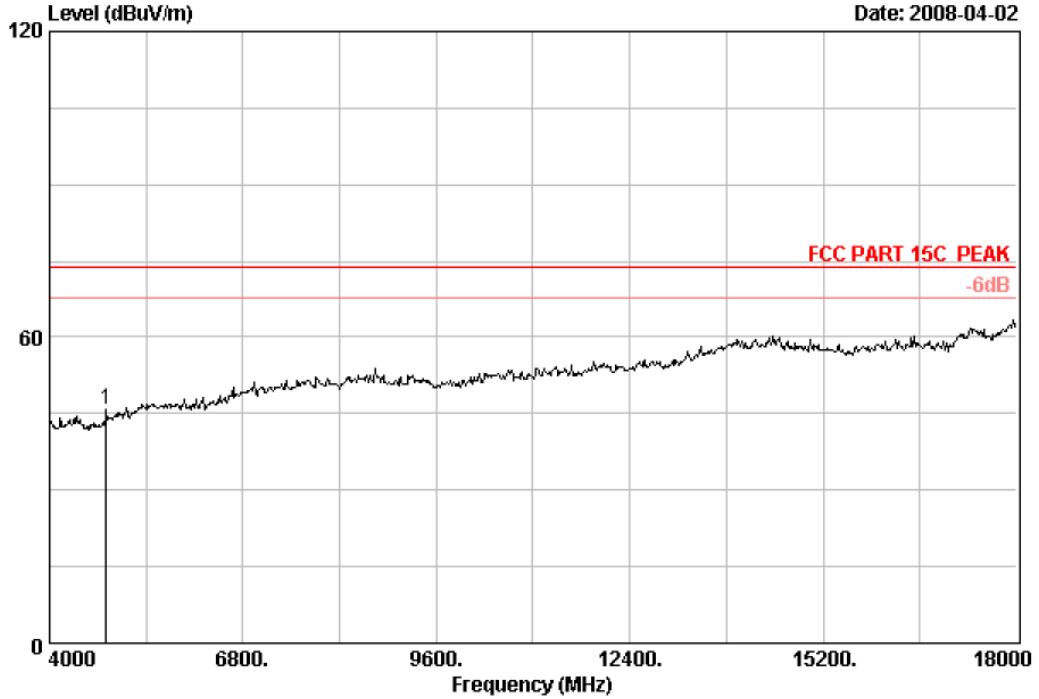
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	36.58	46.66	54.00	7.34	Average
-----										

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 19 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 19  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

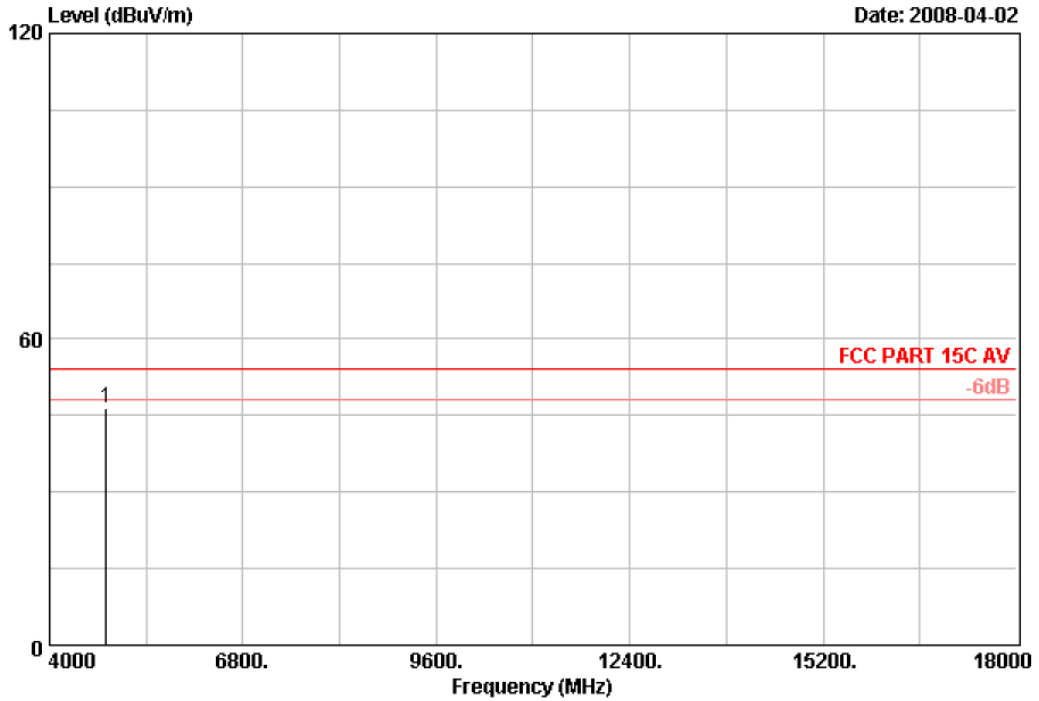
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	35.59	45.67	74.00	28.33	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 20 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 20  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	36.24	46.32	54.00	7.68	Average

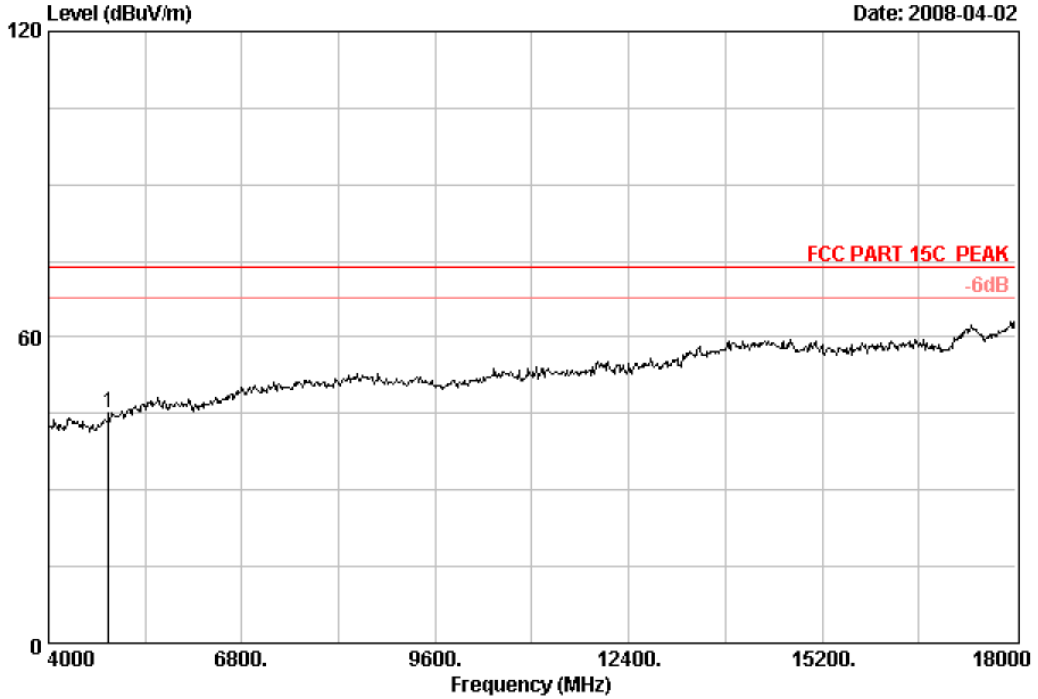
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 23 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 23  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx

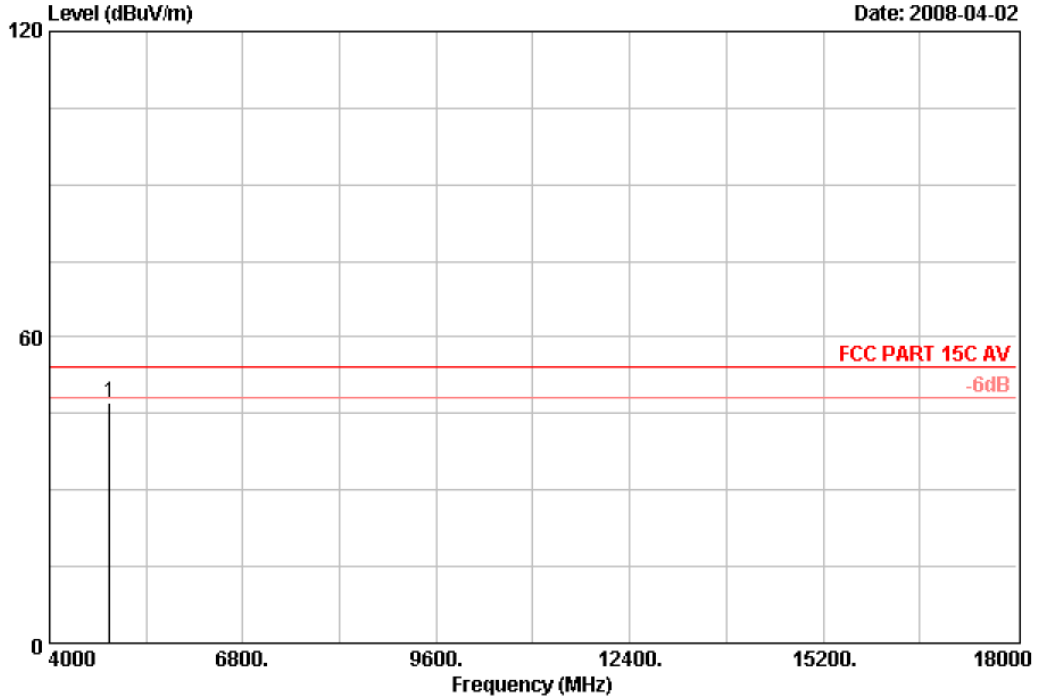
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	35.01	45.25	74.00	28.75	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 24 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 24  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	36.98	47.22	54.00	6.78	Average

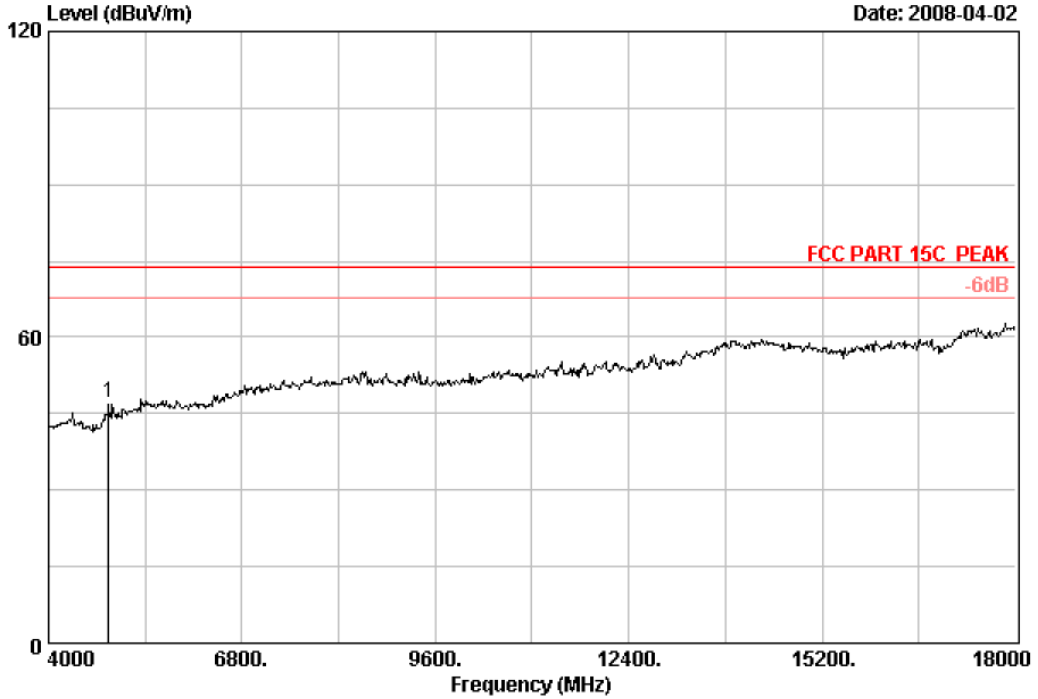
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 25 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 25  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx

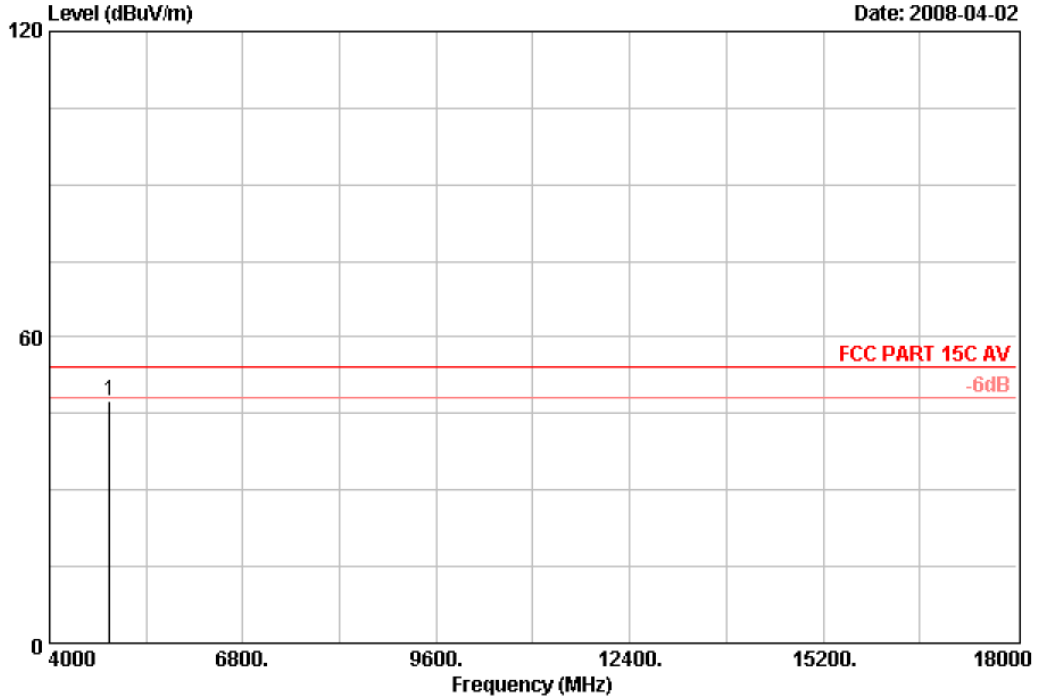
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	36.76	47.00	74.00	27.00	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 26 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 26  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	37.23	47.47	54.00	6.53	Average

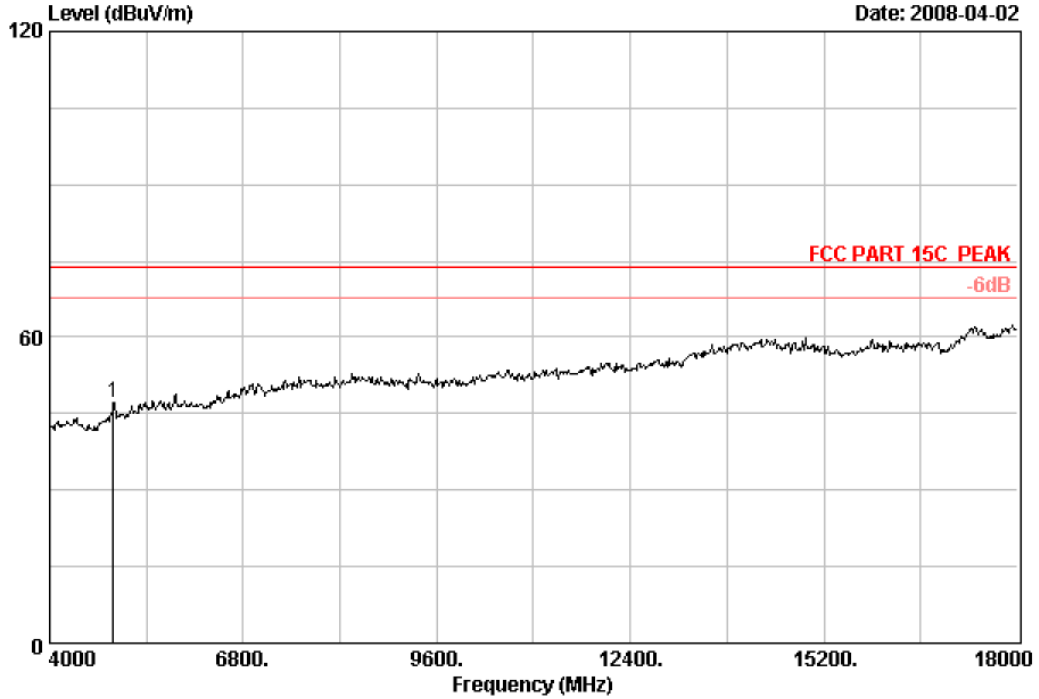
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.





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Data: 29 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 29  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx

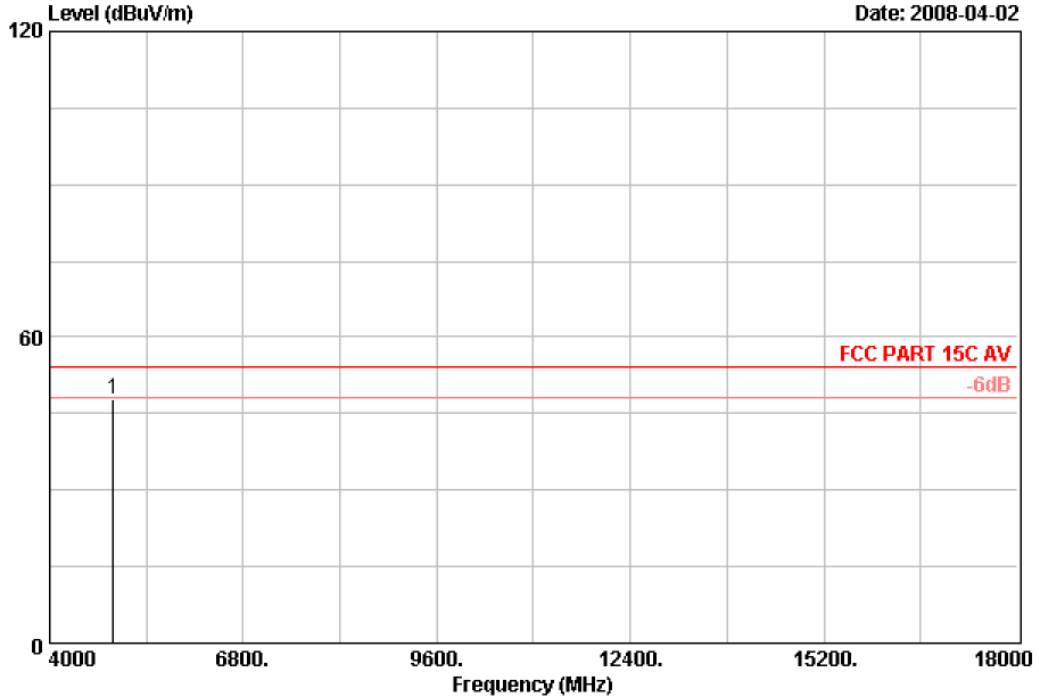
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
-----	1	34.29	10.58	34.47	36.64	47.04	74.00	26.96	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 30 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 30  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx

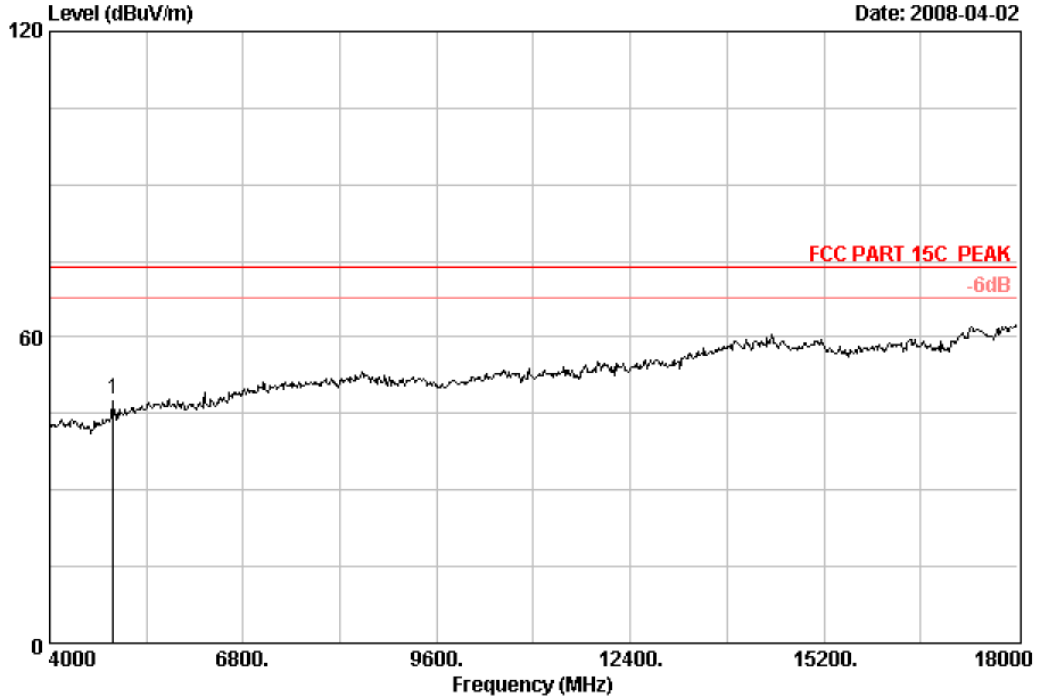
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission			Margin (dB)	Remark	
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)			
1	4924.00	34.29	10.58	34.47	37.24	47.64	54.00	6.36	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 27 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 27  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx

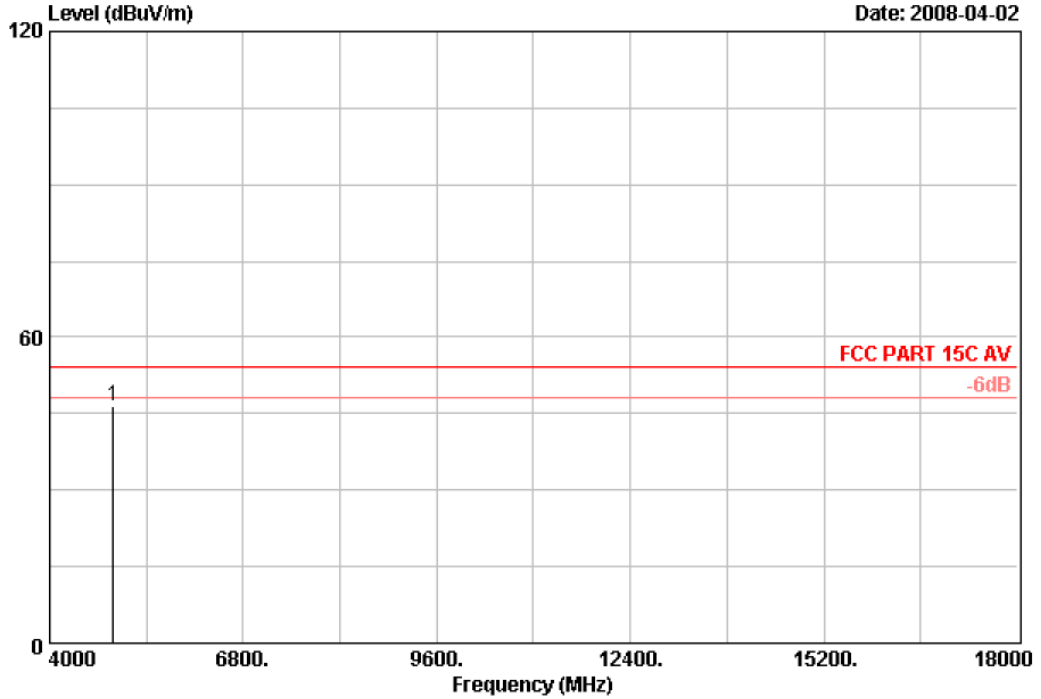
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	37.52	47.92	74.00	26.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 28 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 28  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx

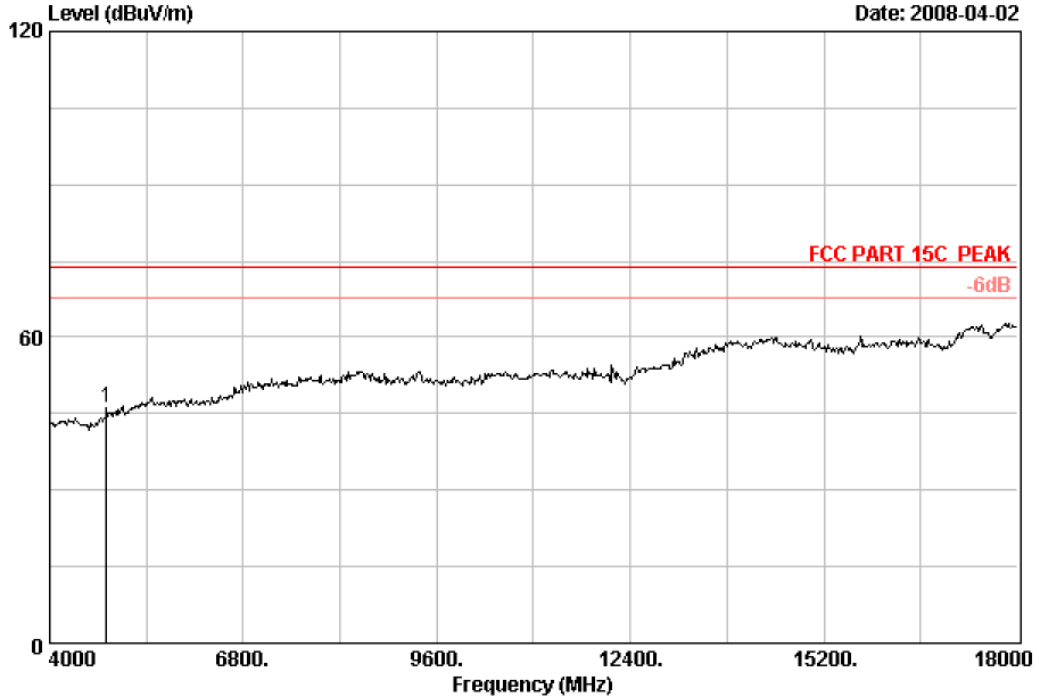
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
-----	1	34.29	10.58	34.47	35.96	46.36	54.00	7.64	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 51 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 51  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20

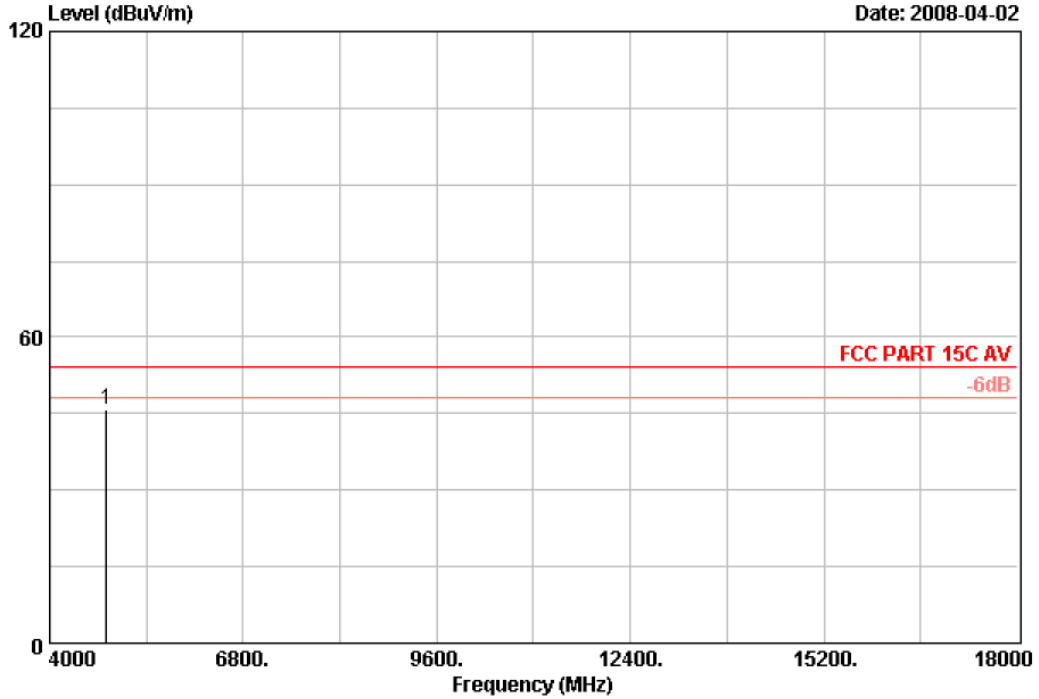
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	36.11	46.19	74.00	27.81	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 52 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 52  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Emission			Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)		
1 4824.00	34.02	10.55	34.49	35.68	45.76	54.00	8.24	Average

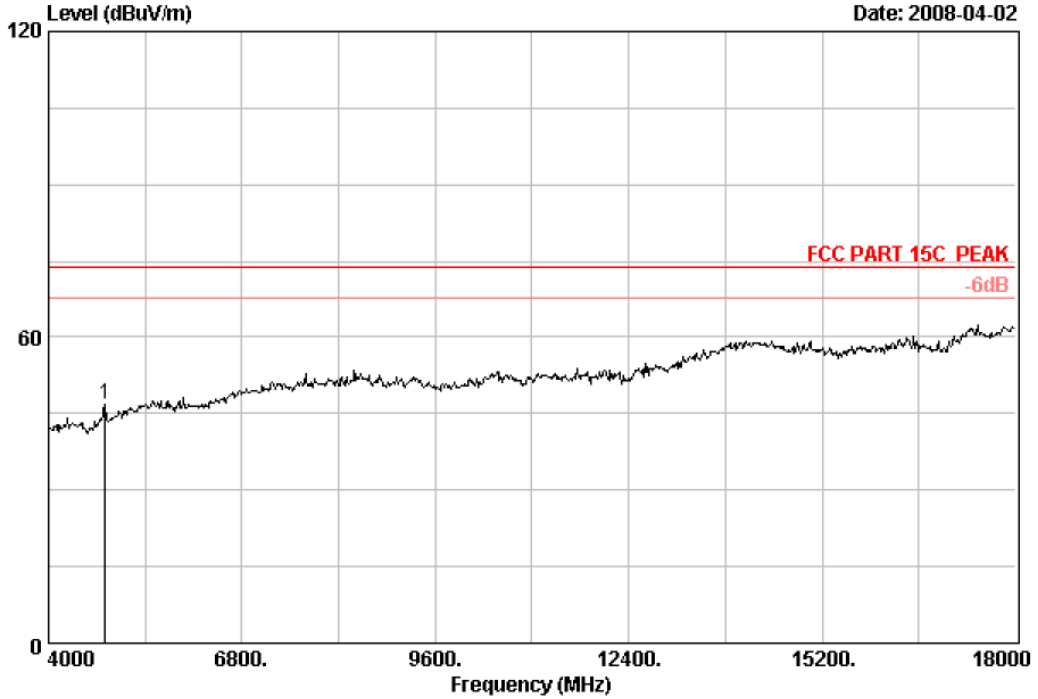
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 53 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 53  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20

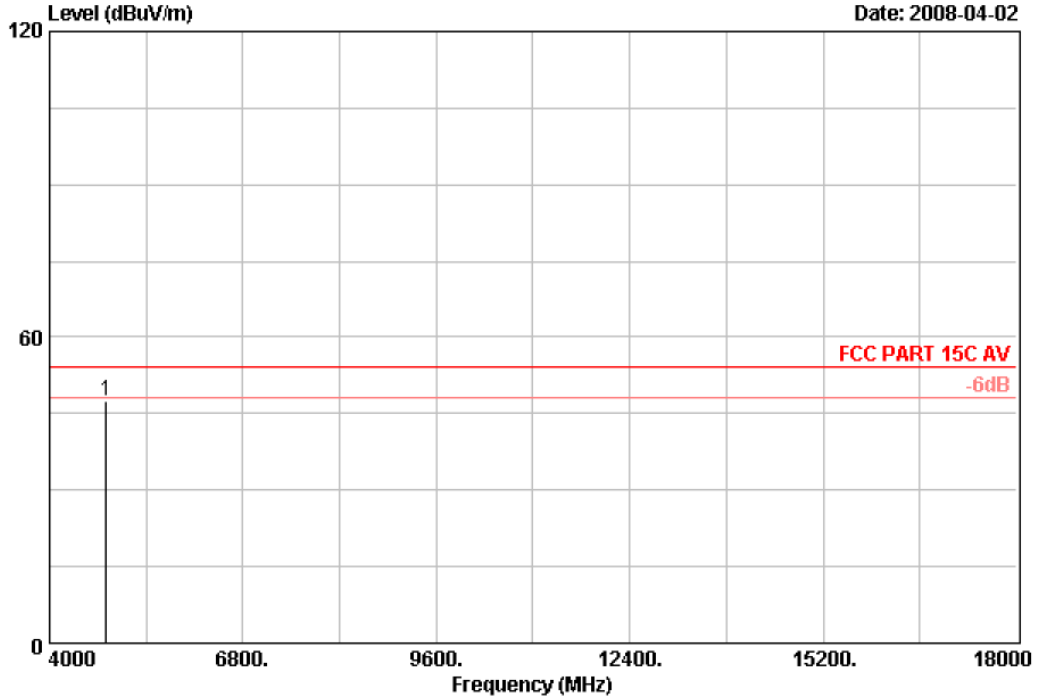
	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4824.00	34.02	10.55	34.49	36.60	46.68	74.00	27.32	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 54 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 54  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4824.00	34.02	10.55	34.49	37.25	47.33	54.00	6.67	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

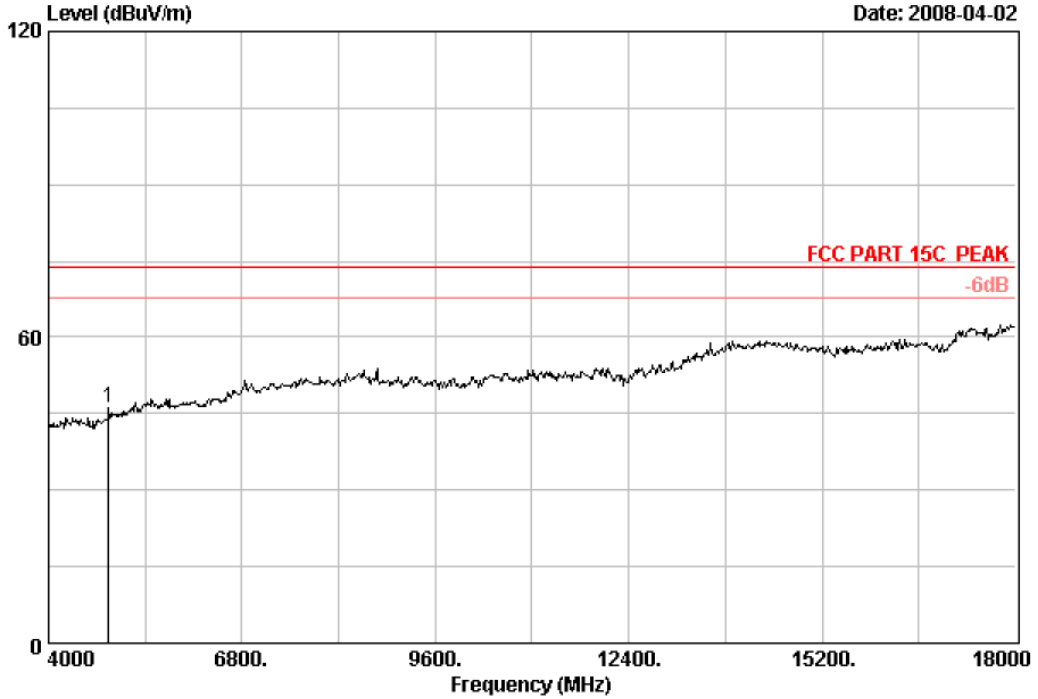




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Data: 49 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 49  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20

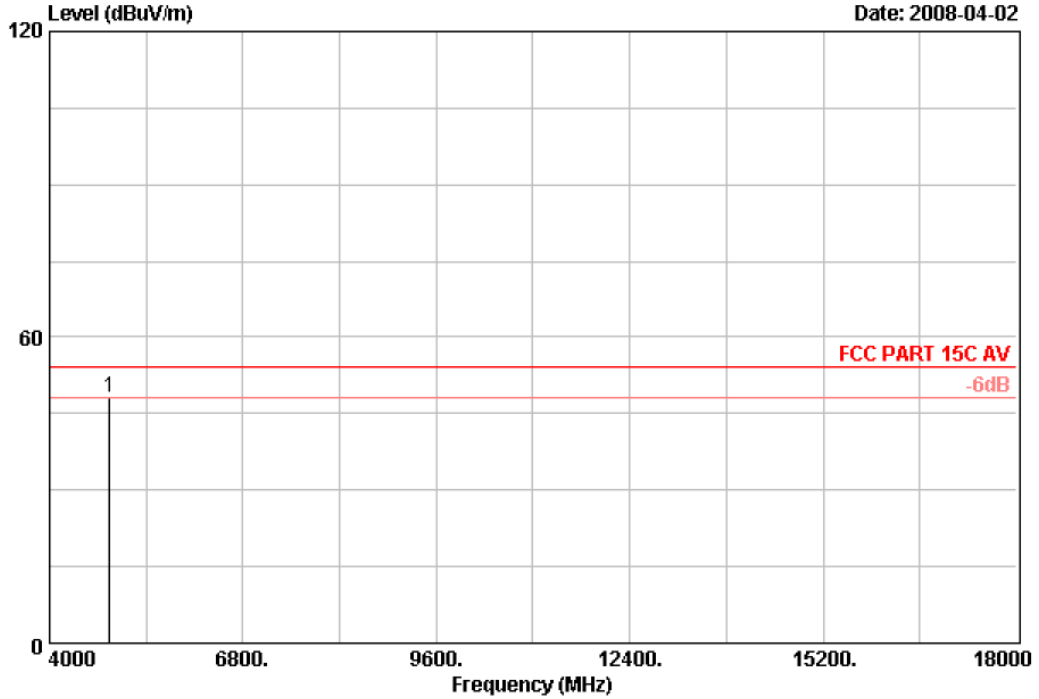
	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4874.00	34.16	10.56	34.48	35.94	46.18	74.00	27.82	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 50 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 50  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	37.95	48.19	54.00	5.81	Average

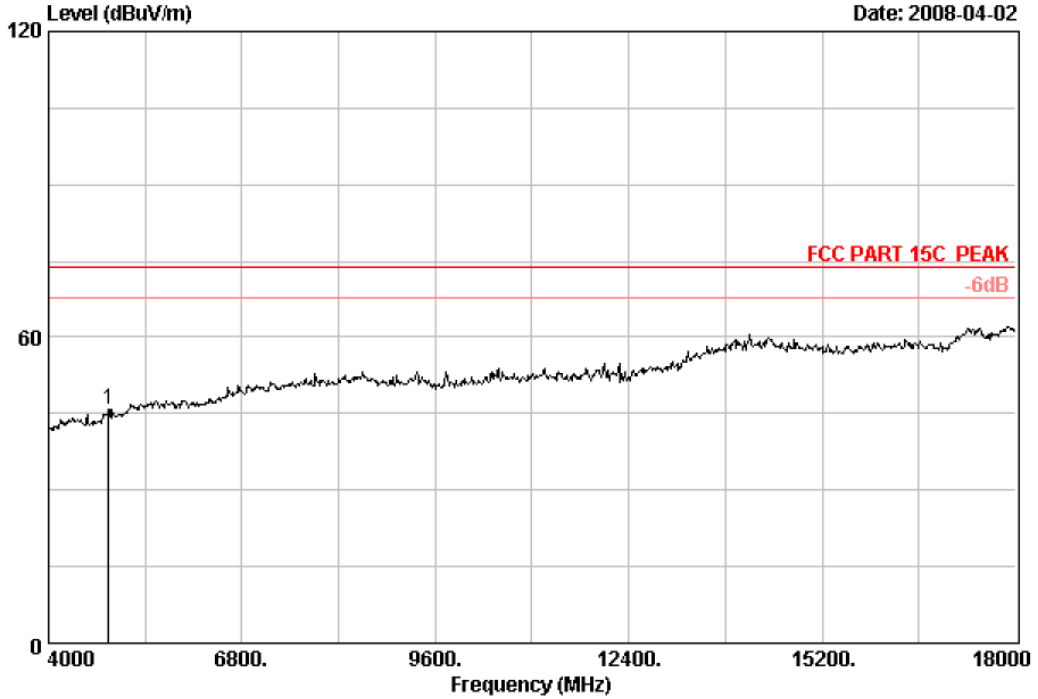
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 47 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 47  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20

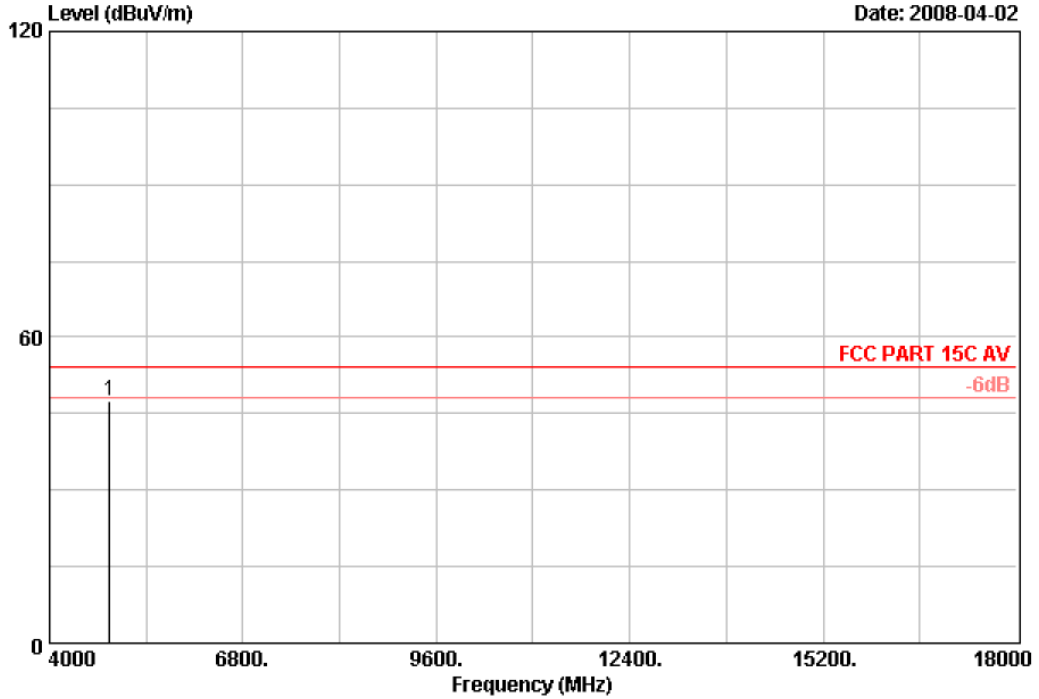
	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4874.00	34.16	10.56	34.48	35.67	45.91	74.00	28.09	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 48 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 48  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	37.08	47.32	54.00	6.68	Average

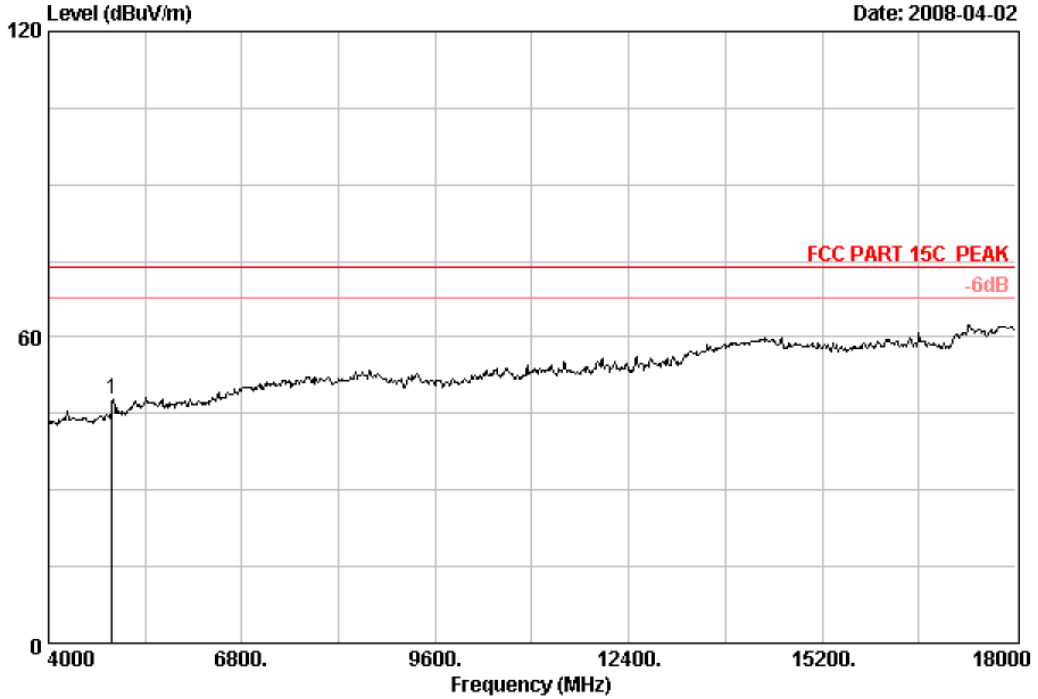
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 43 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 43  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20

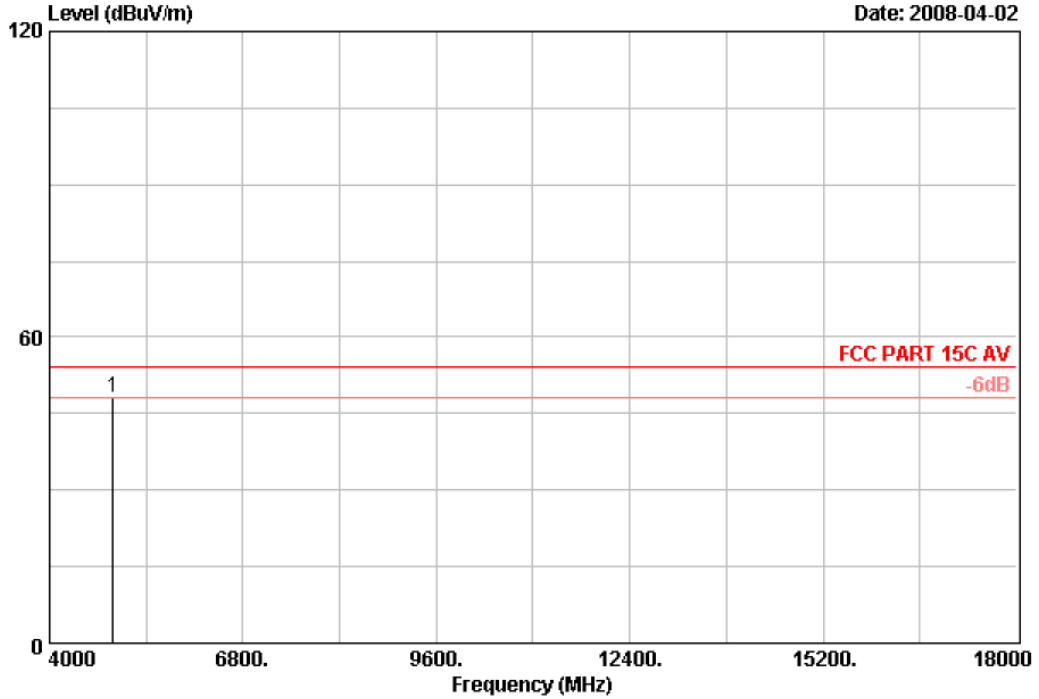
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	37.45	47.85	74.00	26.15	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 44 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 44  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	37.65	48.05	54.00	5.95	Average

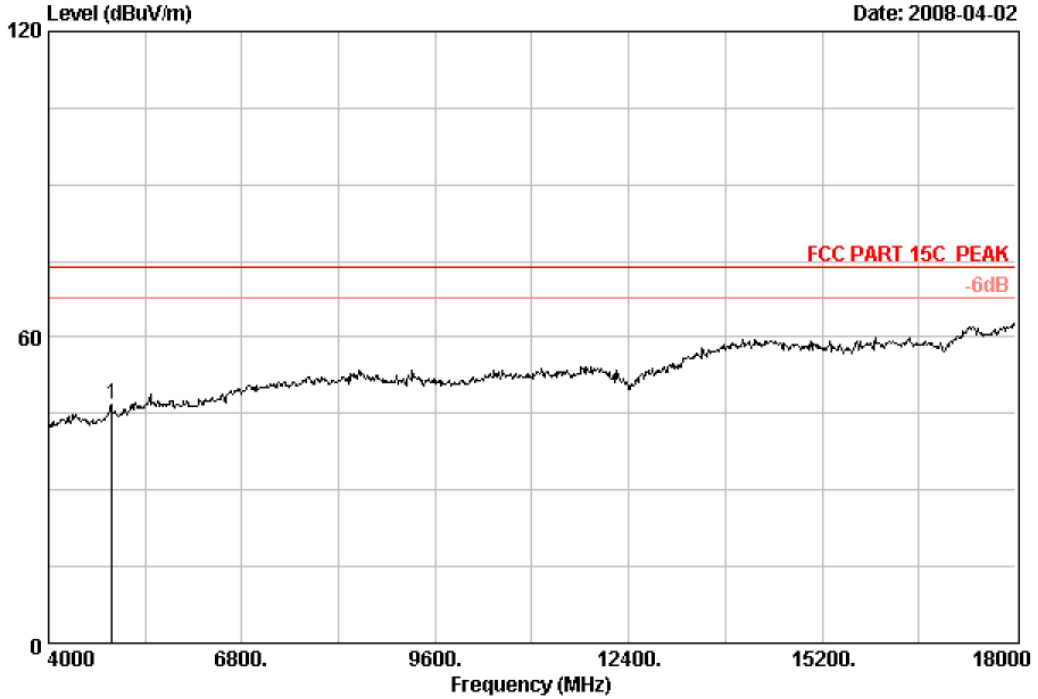
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 45 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 45  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20

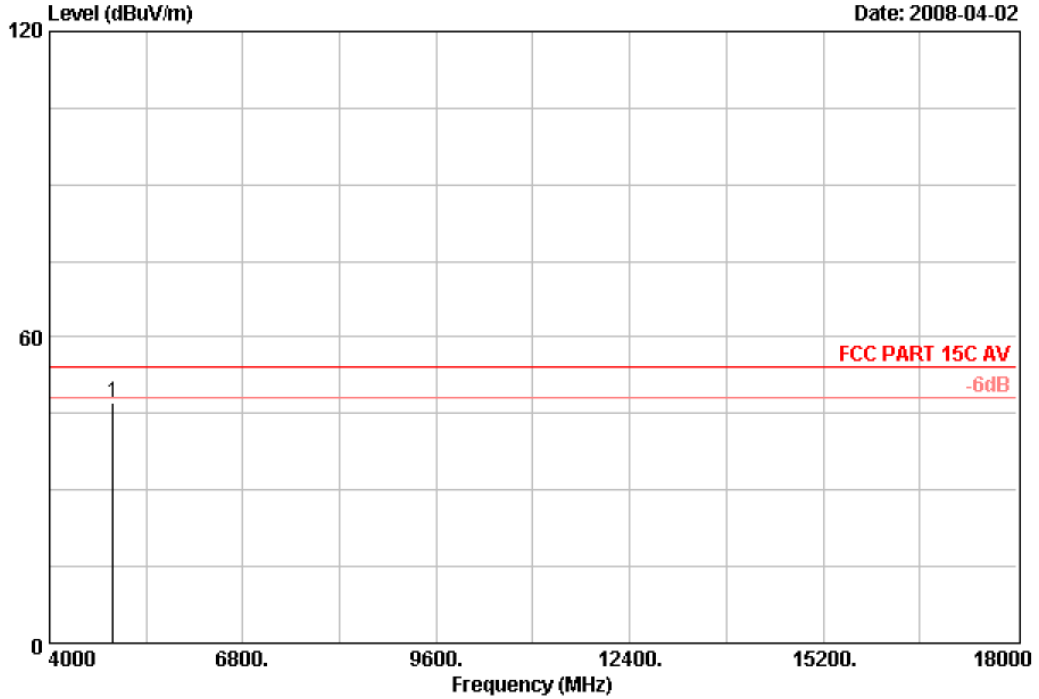
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
-----	1	34.29	10.58	34.47	36.50	46.90	74.00	27.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 46 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 46  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4924.00	34.29	10.58	34.47	36.58	46.98	54.00	7.02	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

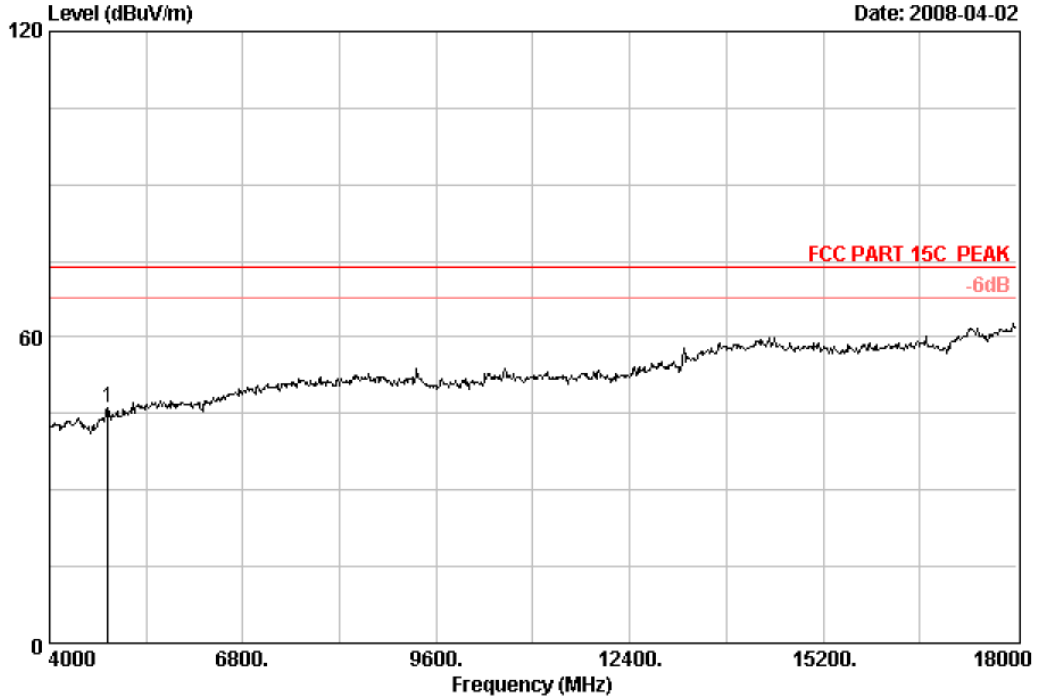




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Data: 57 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 57  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40

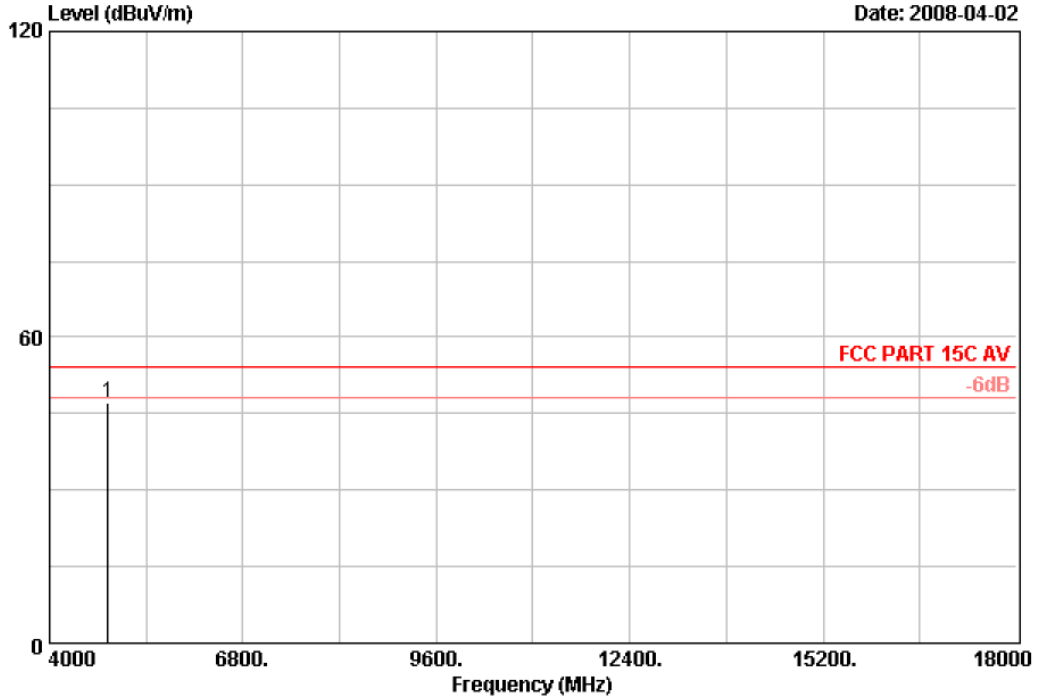
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4844.00	34.07	10.56	34.49	36.05	46.19	74.00	27.81	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 58 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 58  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4844.00	34.07	10.56	34.49	37.04	47.18	54.00	6.82	Average

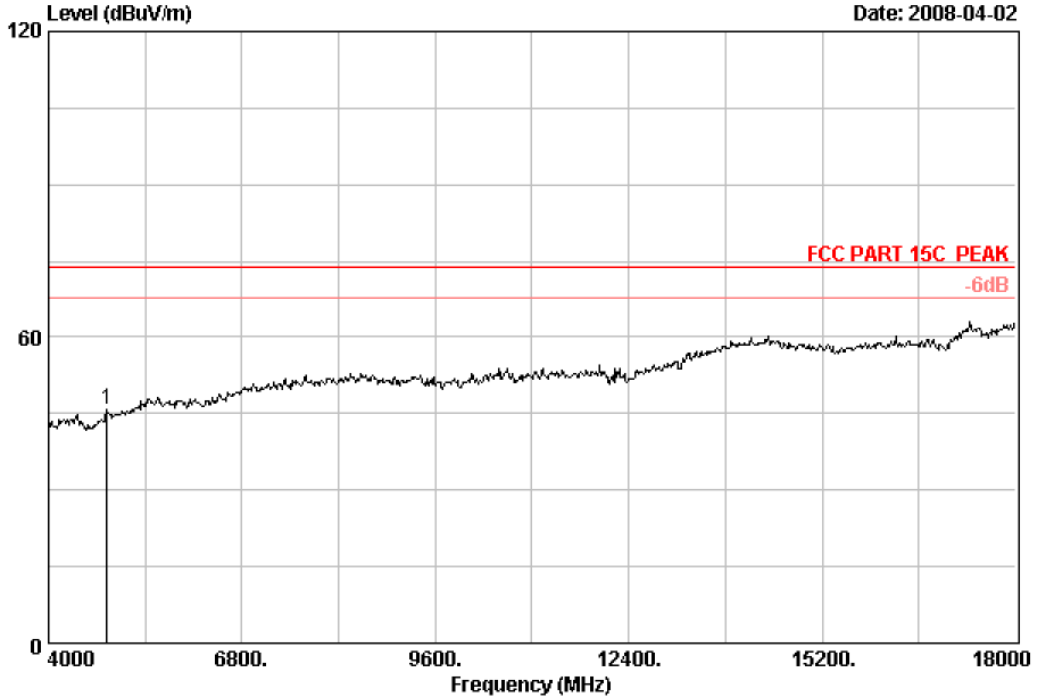
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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 Postcode:518057

Data: 55 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 55  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40

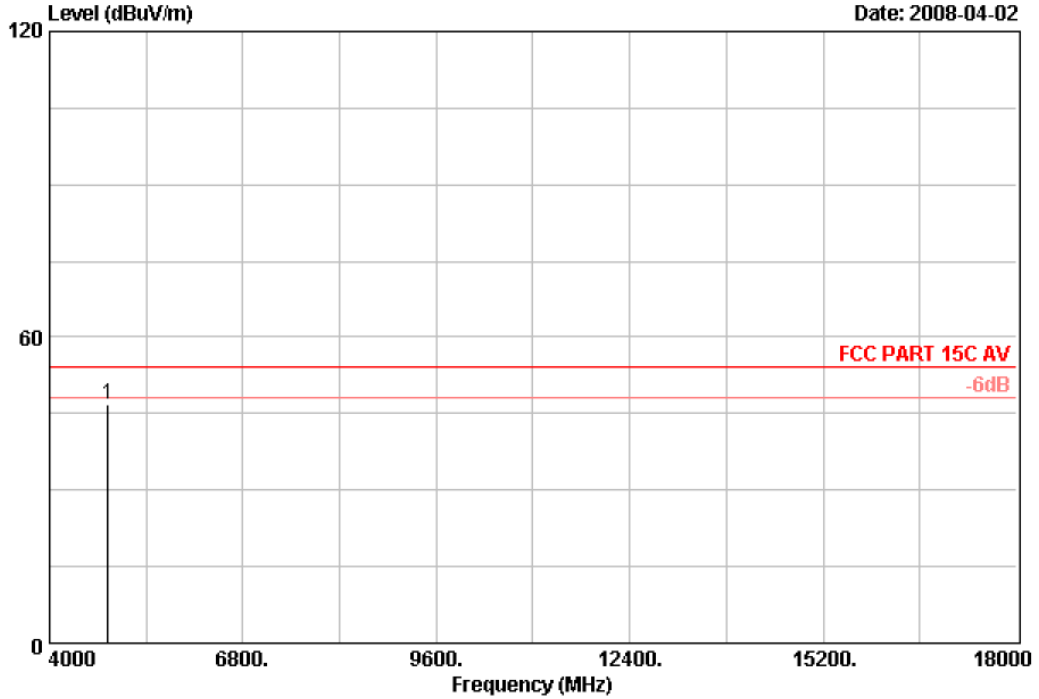
	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4844.00	34.07	10.56	34.49	35.54	45.68	74.00	28.32	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 56 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 56  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4844.00	34.07	10.56	34.49	36.51	46.65	54.00	7.35	Average

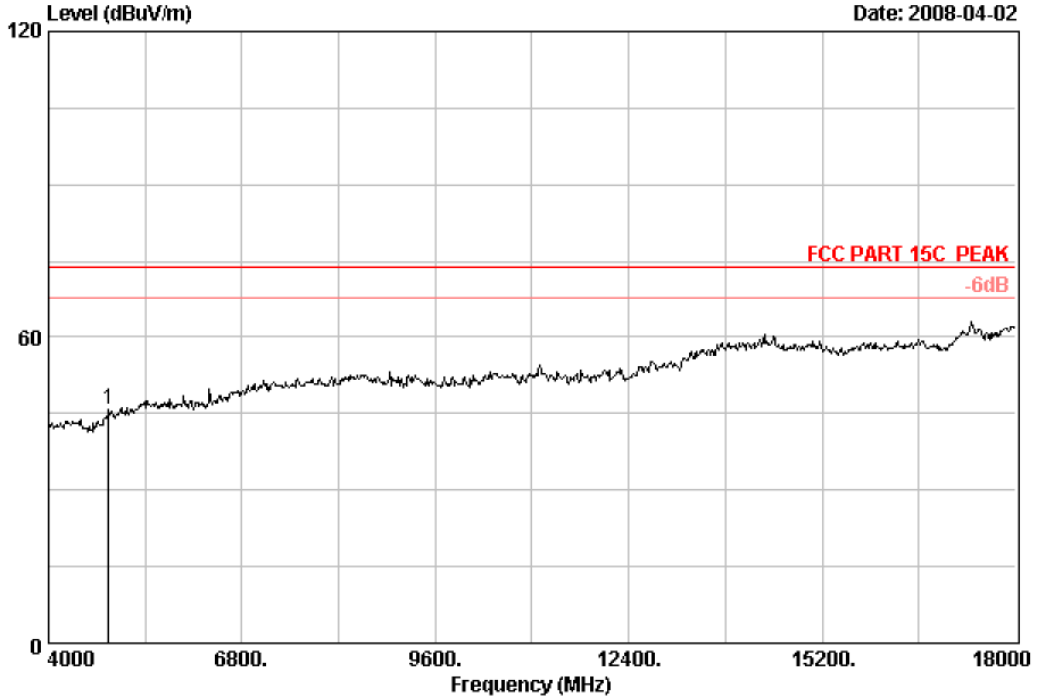
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 59 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 59  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40

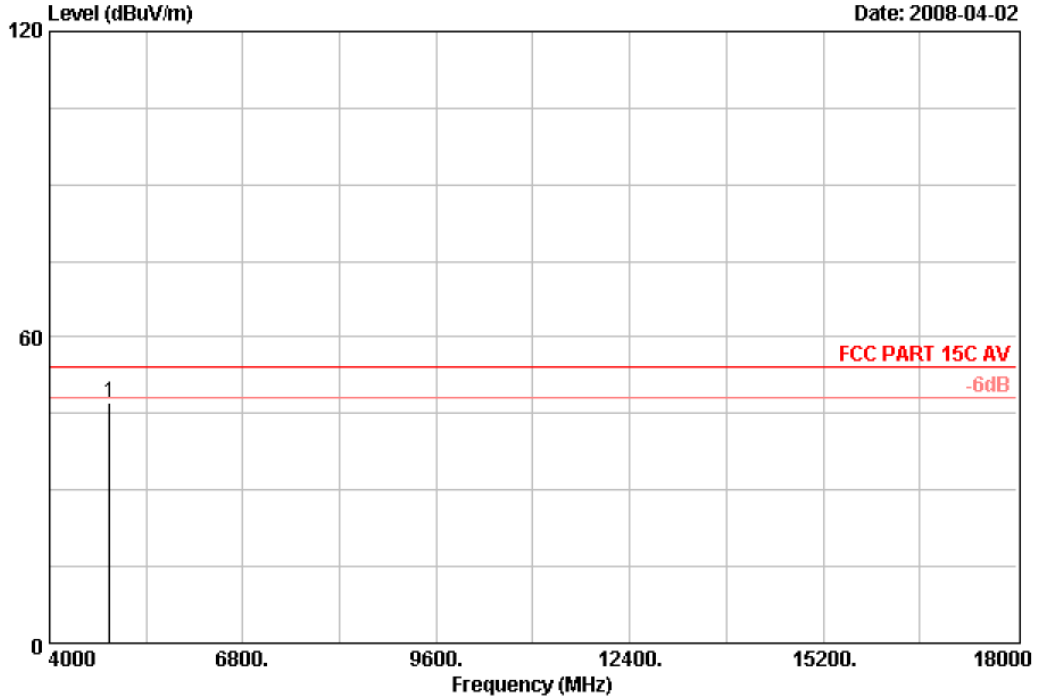
	Ant.	Cable	Amp	Emission			Margin	Remark
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	(dB)	
1 4874.00	34.16	10.56	34.48	35.65	45.89	74.00	28.11	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 60 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 60  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	36.98	47.22	54.00	6.78	Average

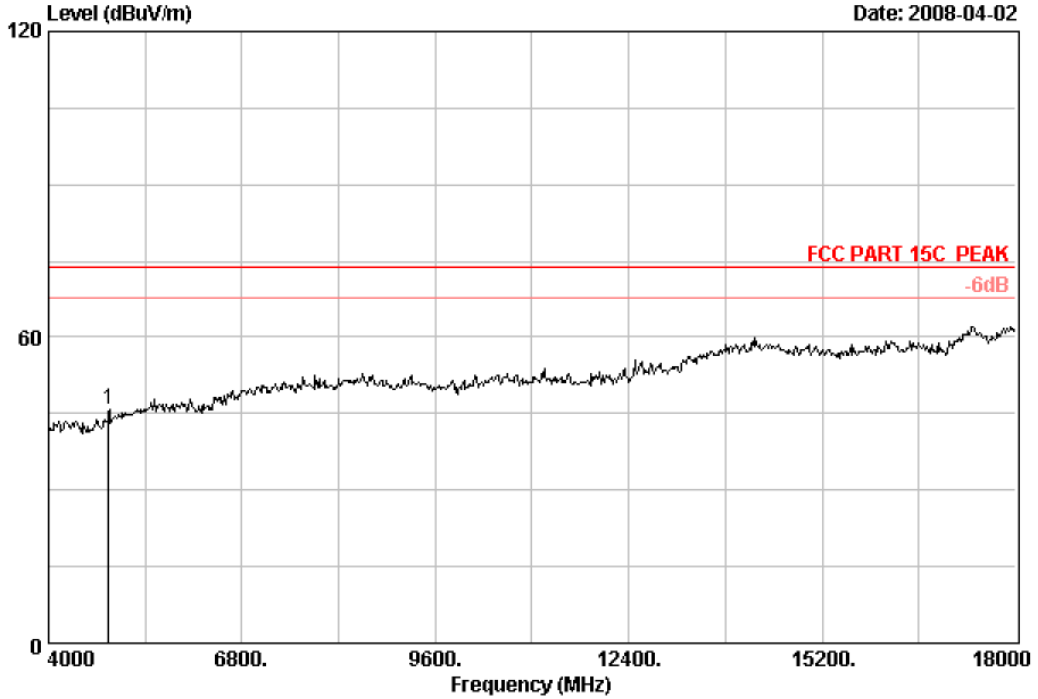
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 61 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 61  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40

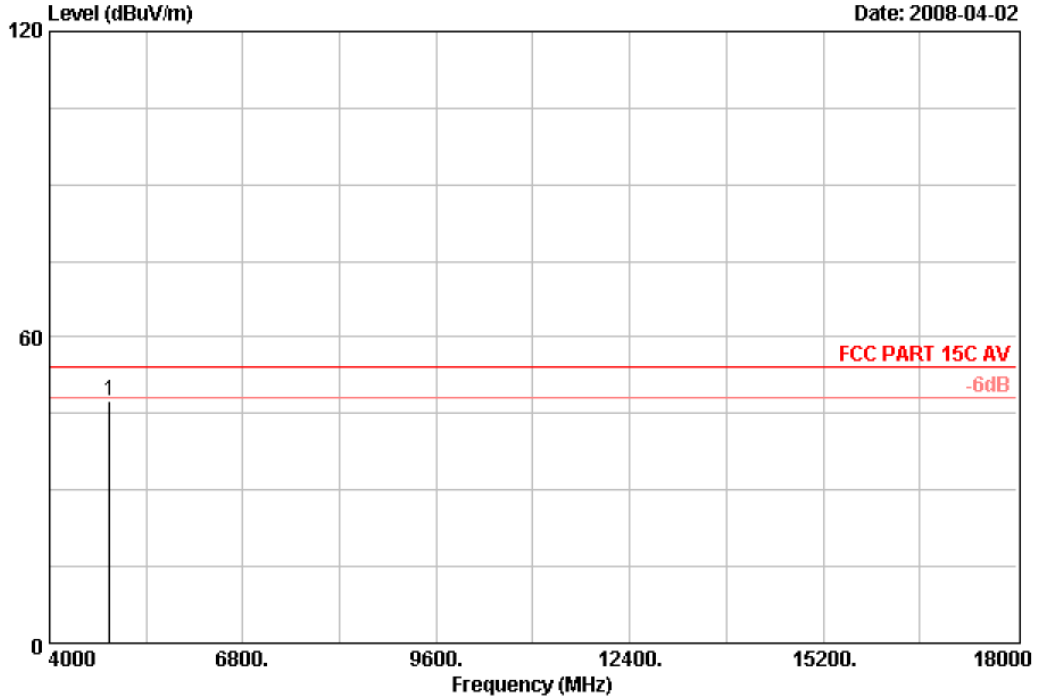
	Ant.	Cable	Amp	Emission			Margin	Remark	
Freq. (MHz)	Factor (dB/m)	Loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	(dB)		
1	4874.00	34.16	10.56	34.48	35.45	45.69	74.00	28.31	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 62 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 62  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4874.00	34.16	10.56	34.48	37.08	47.32	54.00	6.68	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

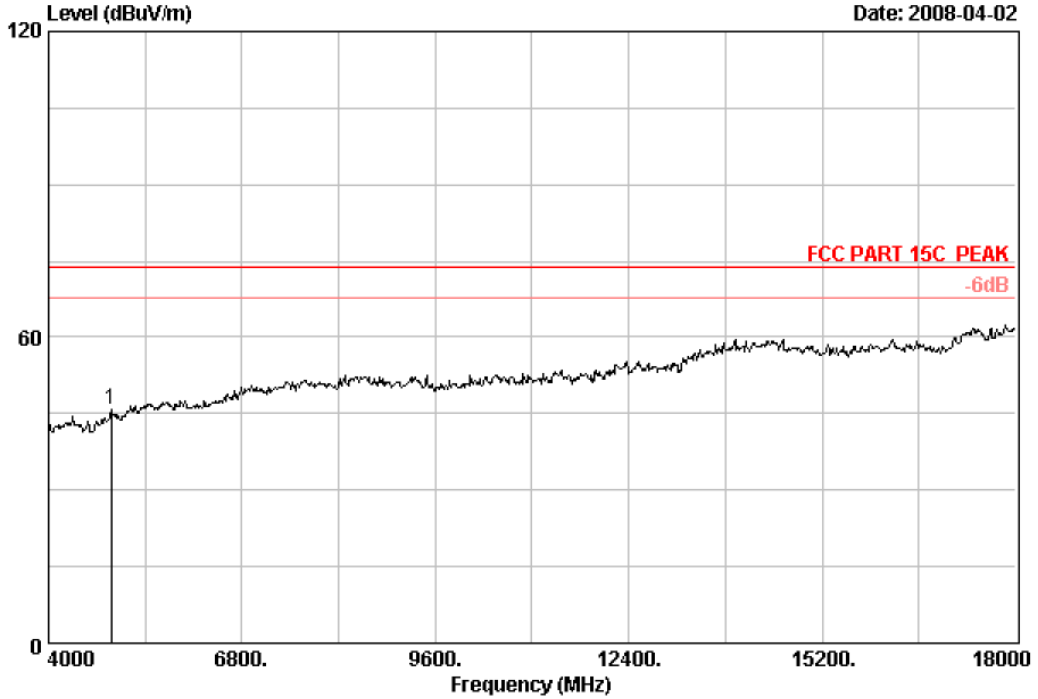




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Data: 65 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 65  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40

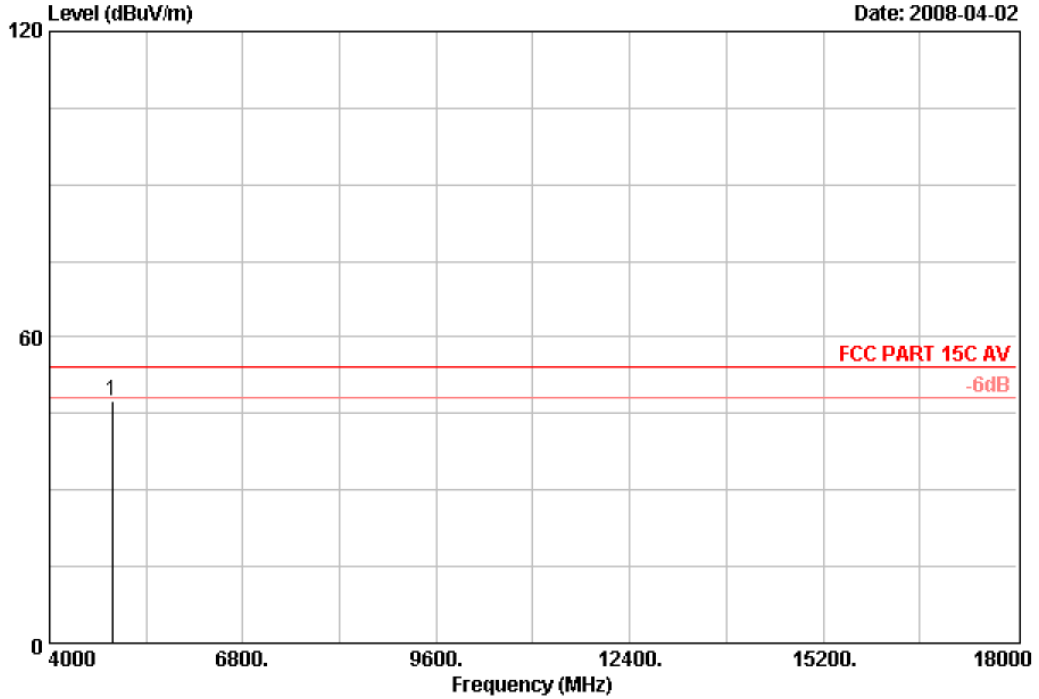
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4904.00	34.25	10.58	34.48	35.58	45.93	74.00	28.07	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 66 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 66  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4904.00	34.25	10.58	34.48	37.09	47.44	54.00	6.56	Average

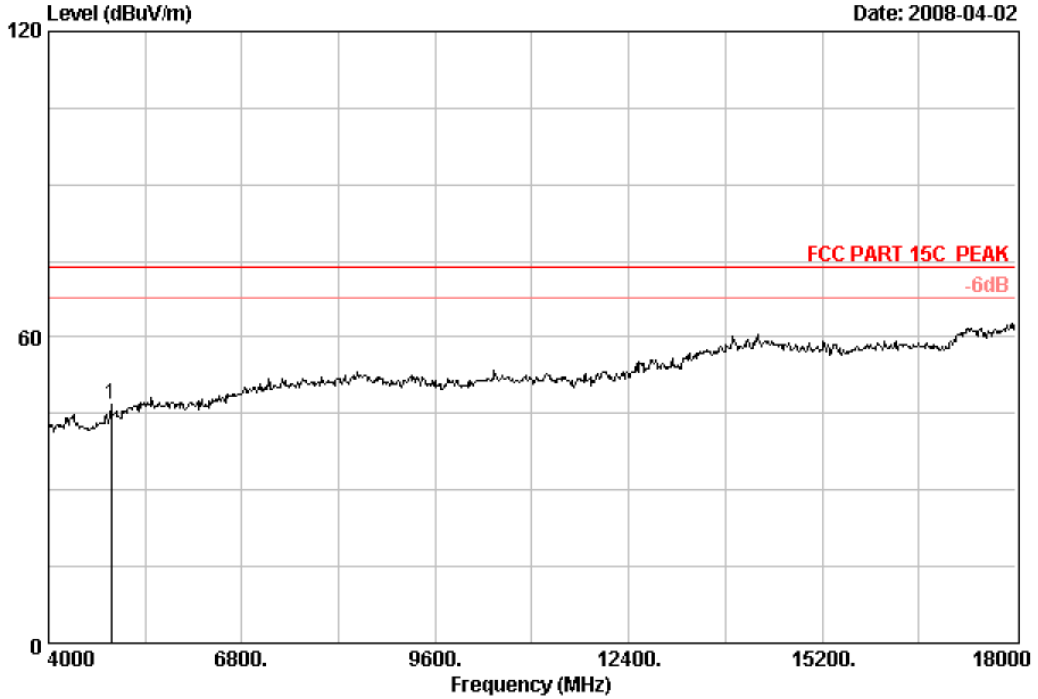
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 63 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)

Date: 2008-04-02



Site no. : RF Chamber Data no. : 63  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40

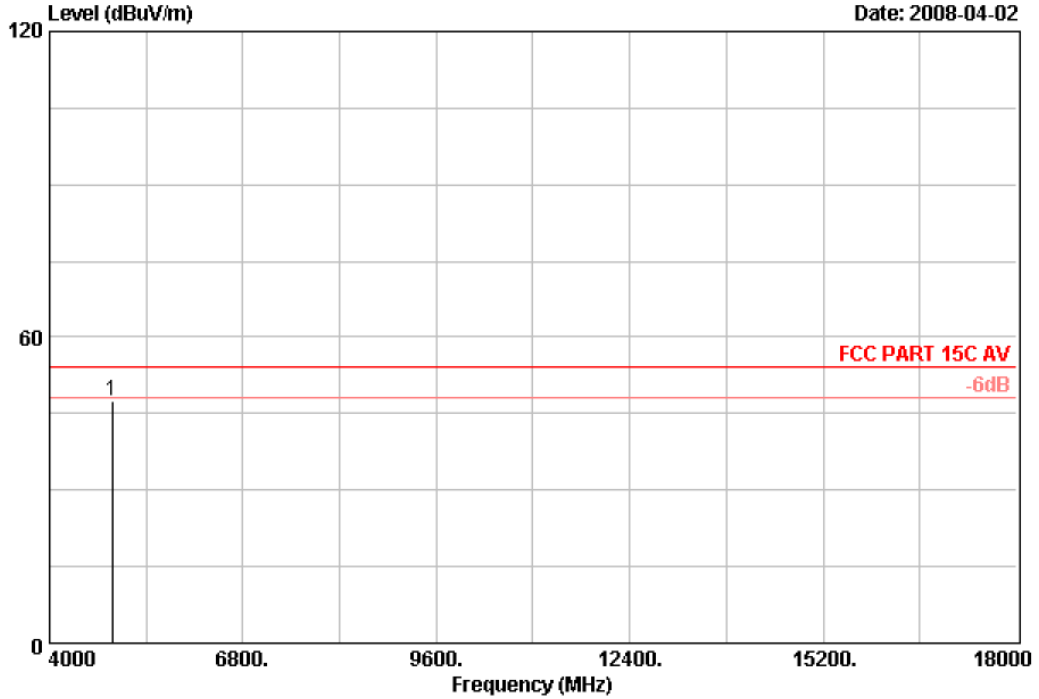
	Ant.	Cable	Amp	Emission					
Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4904.00	34.25	10.58	34.48	36.54	46.89	74.00	27.11	Peak	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 64 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100)



Site no. : RF Chamber Data no. : 64  
 Dis. / Ant. : 3m 3115 FACTOR Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
-----	1	4904.00	34.25	10.58	34.48	36.97	47.32	54.00	6.68	Average

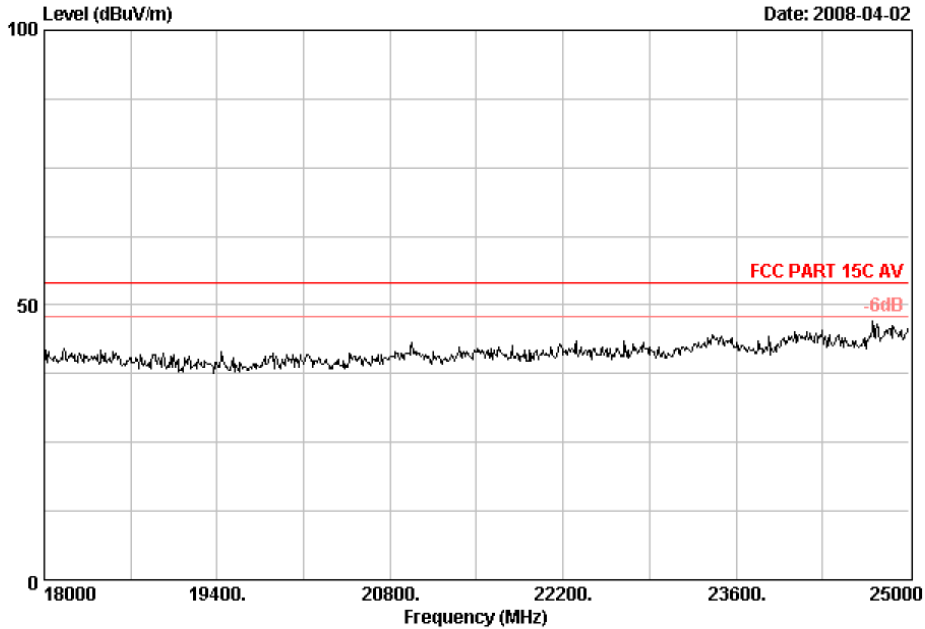
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 18GHz~25GHz



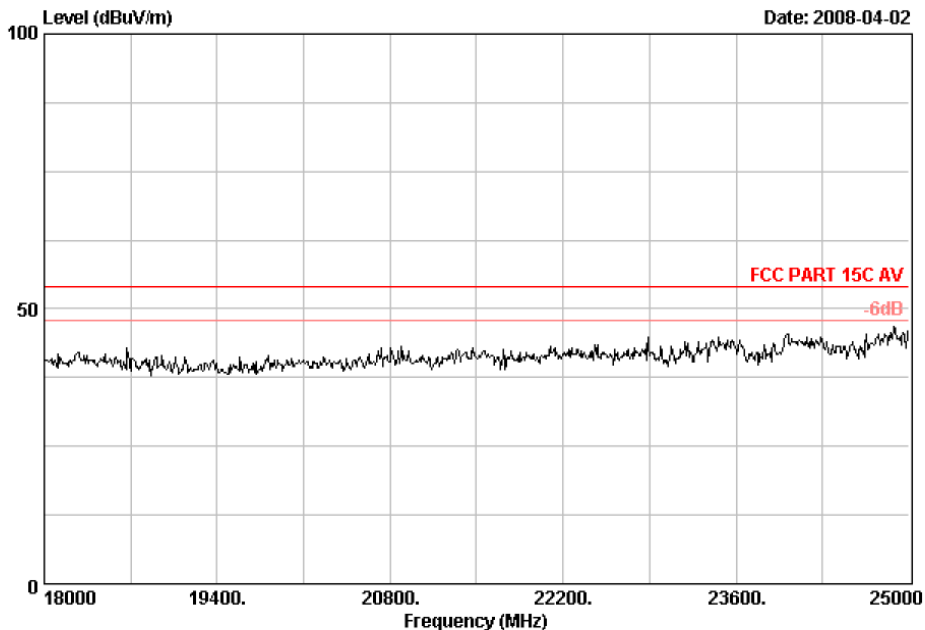
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Data: 92 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100) Date: 2008-04-02



Site no. : RF Chamber Data no. : 92  
Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54% Engineer : Jamy  
EUT : Wireless N USB Adapter M/N:TL-WN821N  
Power Rating: DC 5V From PC AC 120V/60Hz  
Test Mode : IEEE802.11b CH1:2412MHz Tx

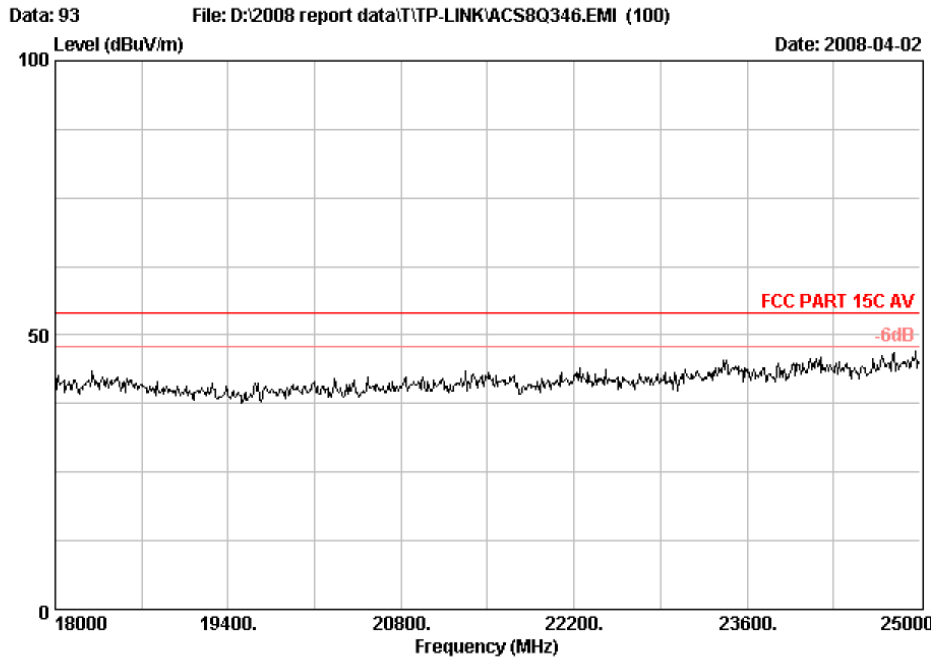
Data: 91 File: D:\2008 report data\T\TP-LINK\ACS8Q346.EMI (100) Date: 2008-04-02



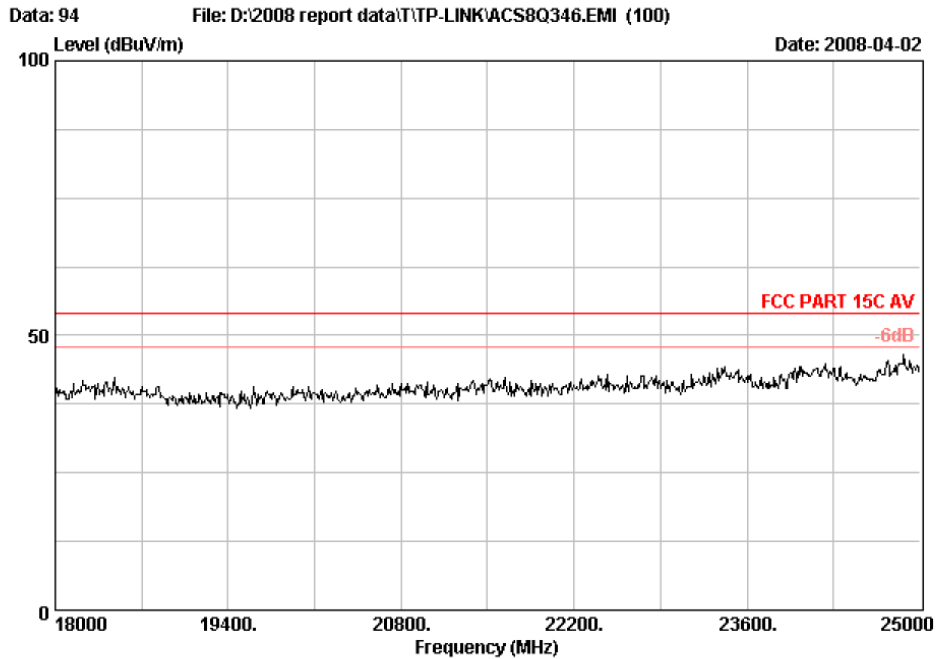
Site no. : RF Chamber Data no. : 91  
Dis. / Ant. : 3m Ant. pol. : VERTICAL  
Limit : FCC PART 15C AV  
Env. / Ins. : 23°C/54% Engineer : Jamy  
EUT : Wireless N USB Adapter M/N:TL-WN821N  
Power Rating: DC 5V From PC AC 120V/60Hz  
Test Mode : IEEE802.11b CH1:2412MHz Tx



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 Postcode:518057



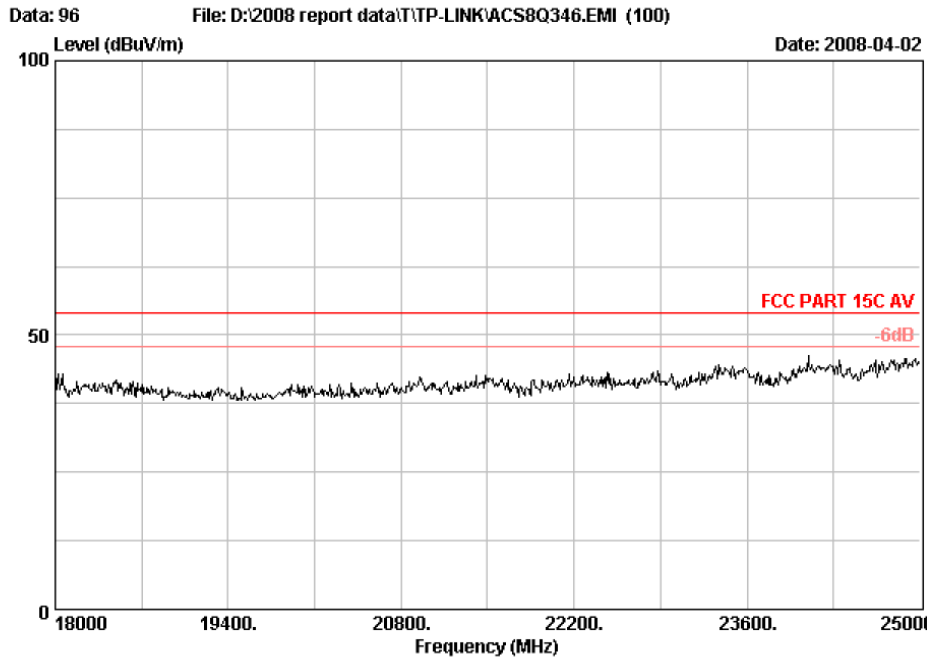
Site no. : RF Chamber Data no. : 93  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx



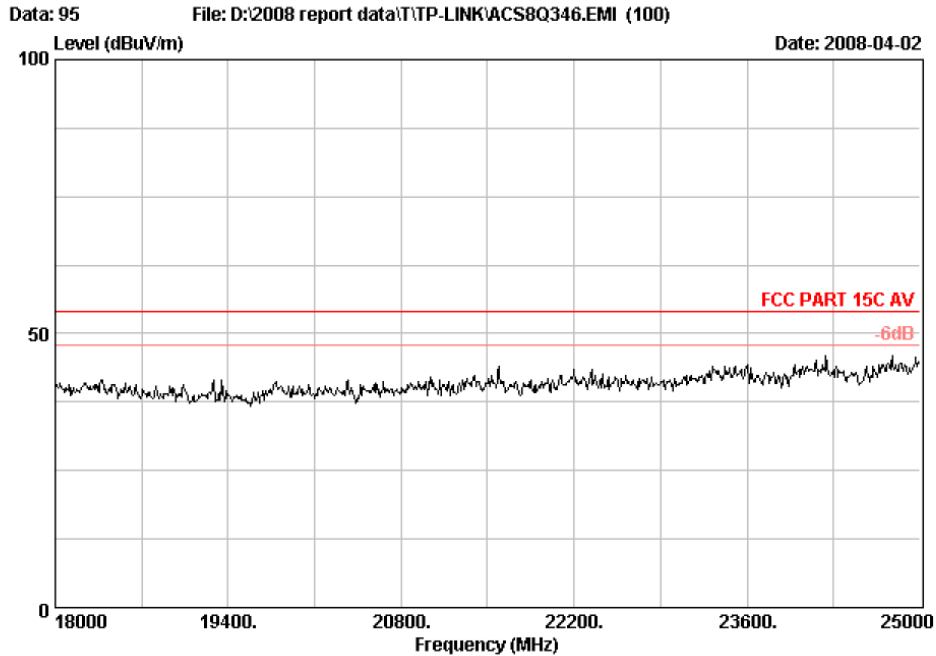
Site no. : RF Chamber Data no. : 94  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH6:2437MHz Tx



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 Postcode:518057



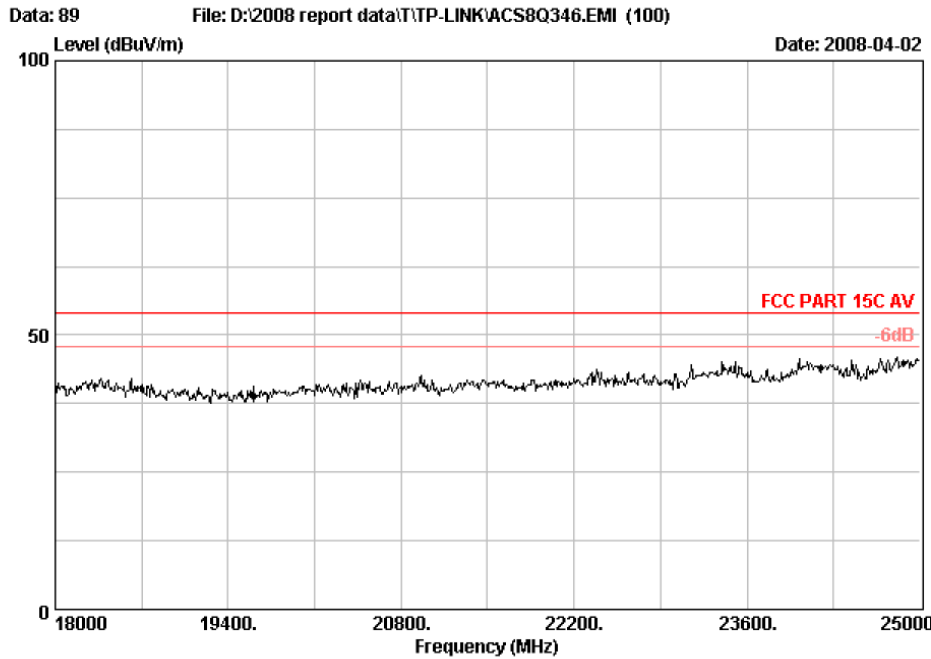
Site no. : RF Chamber Data no. : 96  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx



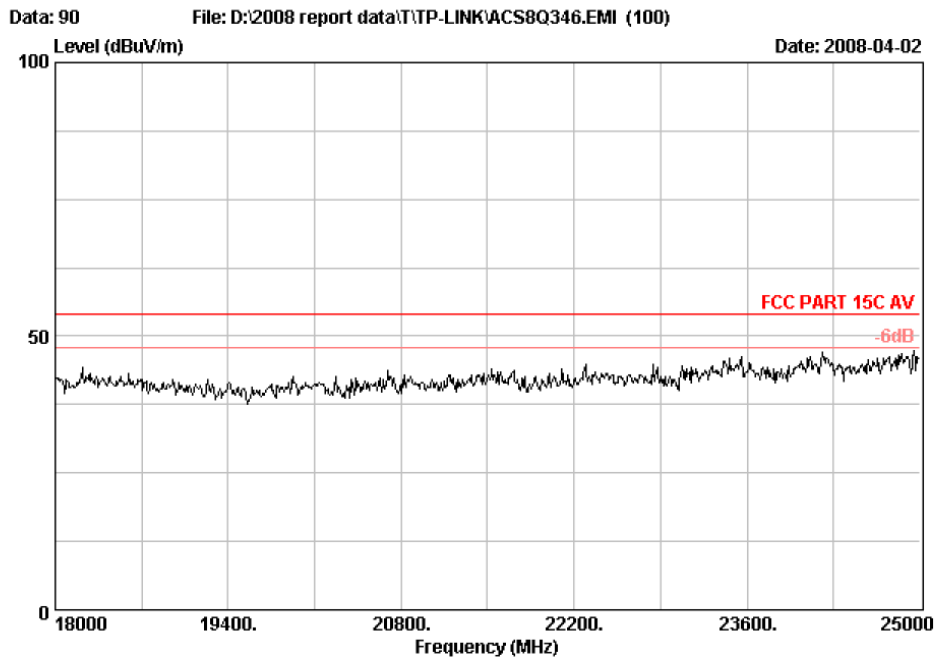
Site no. : RF Chamber Data no. : 95  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11b CH11:2462MHz Tx



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Site no. : RF Chamber Data no. : 89  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

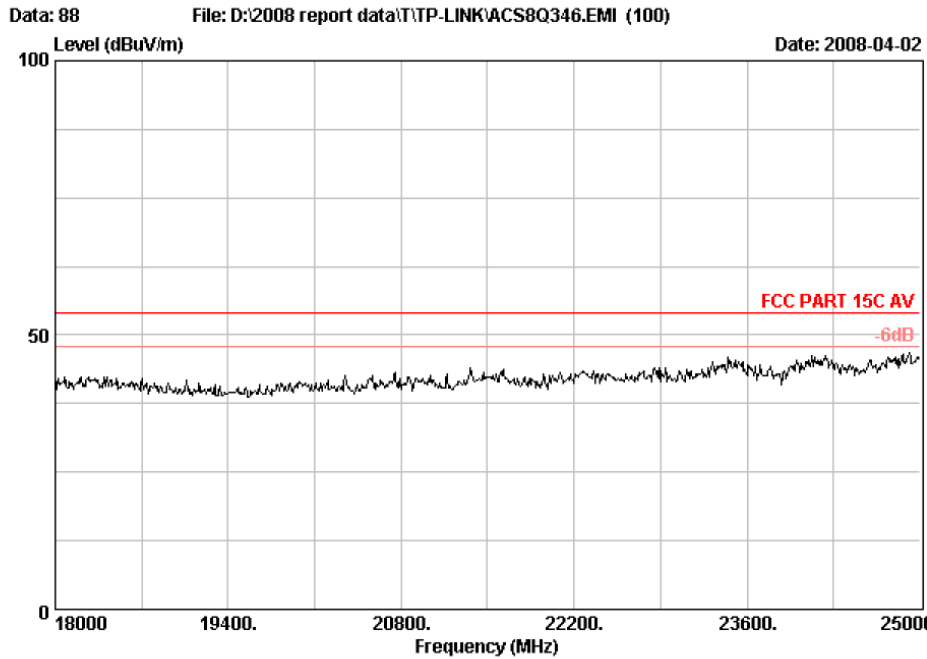


Site no. : RF Chamber Data no. : 90  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH1:2412MHz Tx

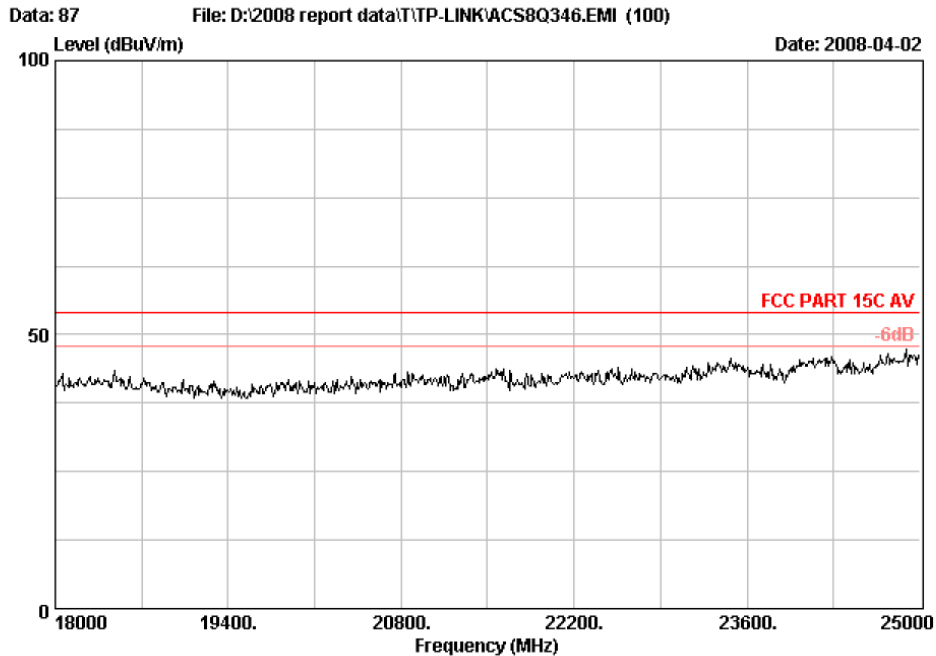




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 Postcode:518057



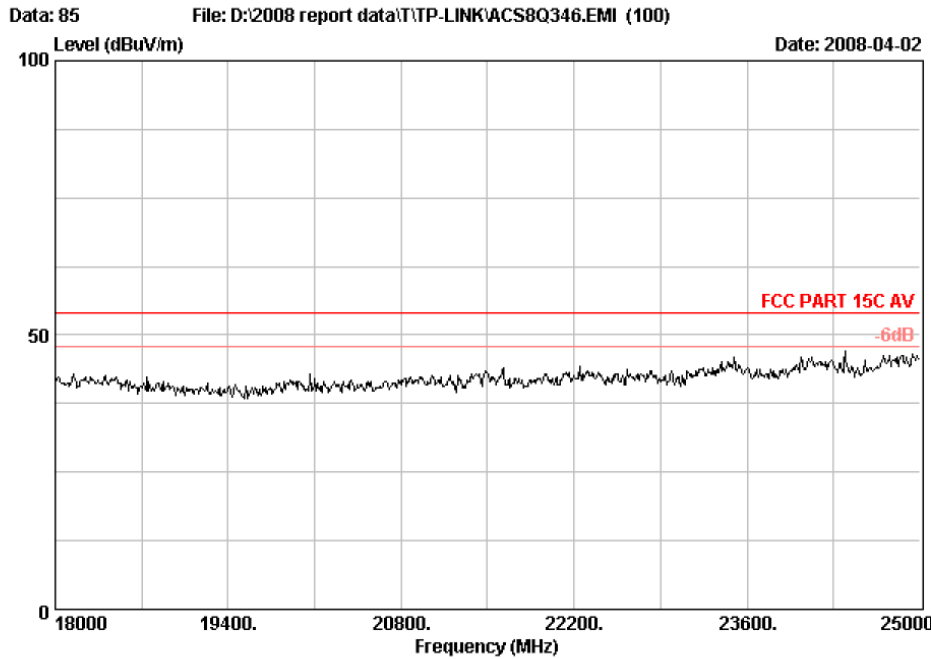
Site no. : RF Chamber Data no. : 88  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx



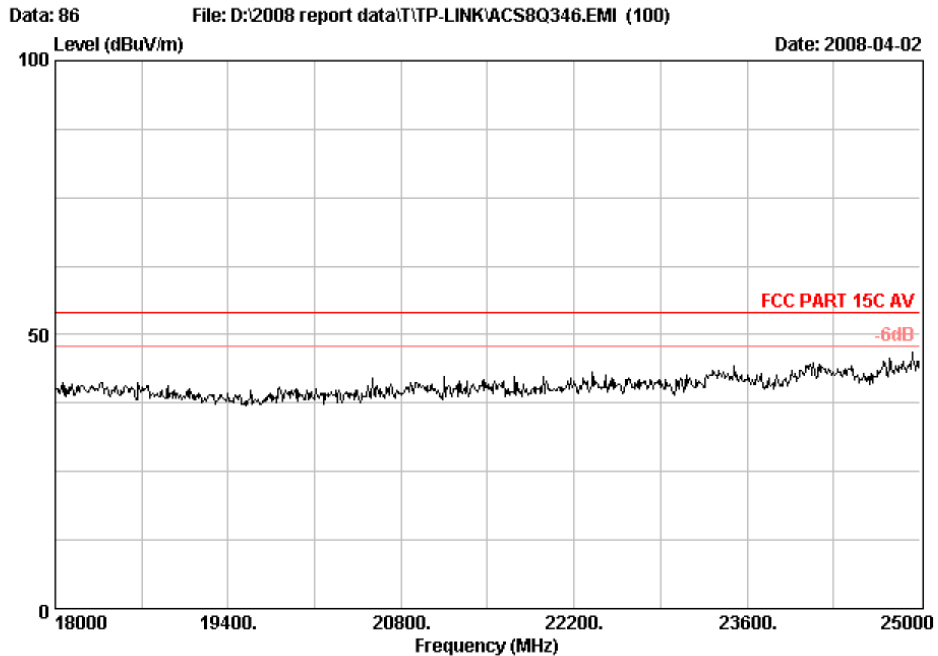
Site no. : RF Chamber Data no. : 87  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH6:2437MHz Tx



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 Postcode:518057



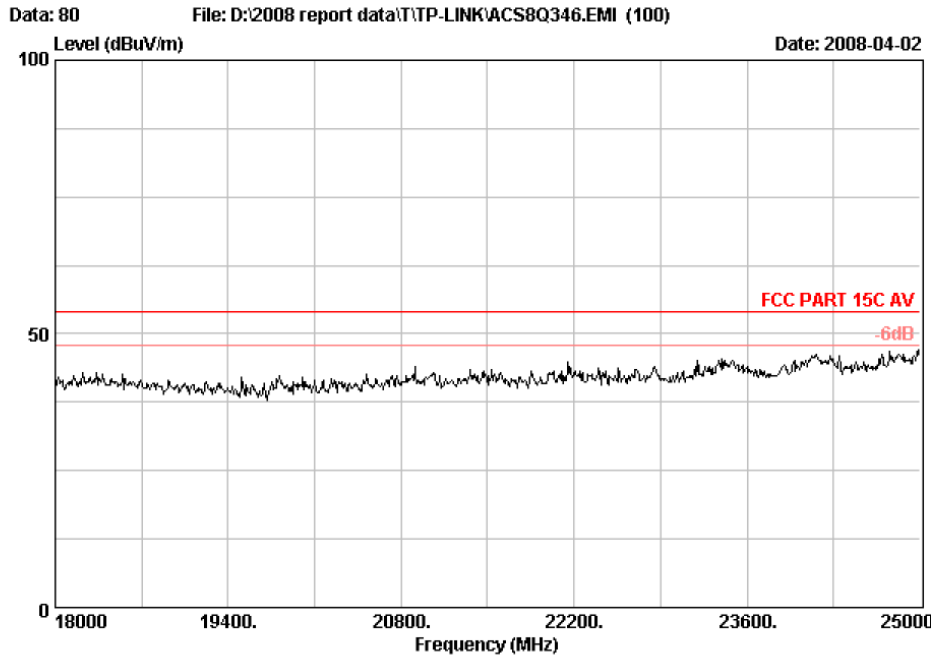
Site no. : RF Chamber Data no. : 85  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx



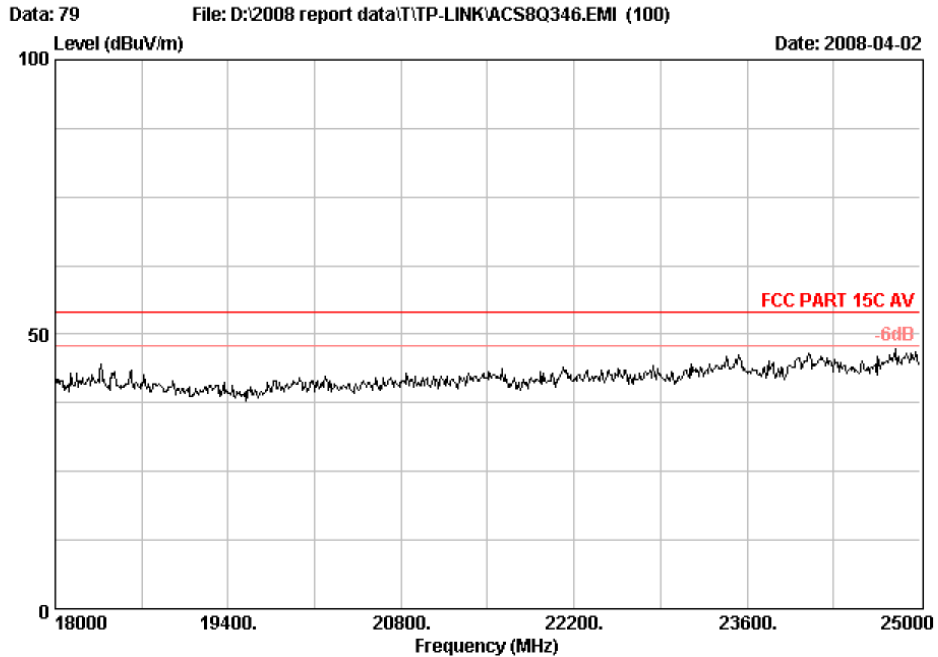
Site no. : RF Chamber Data no. : 86  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11g CH11:2462MHz Tx



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 Noutou, ShenZhen, GuangDong, China  
 Tel:+86-755-26639495-7  
 Fax:+86-755-26632877  
 Postcode:518057



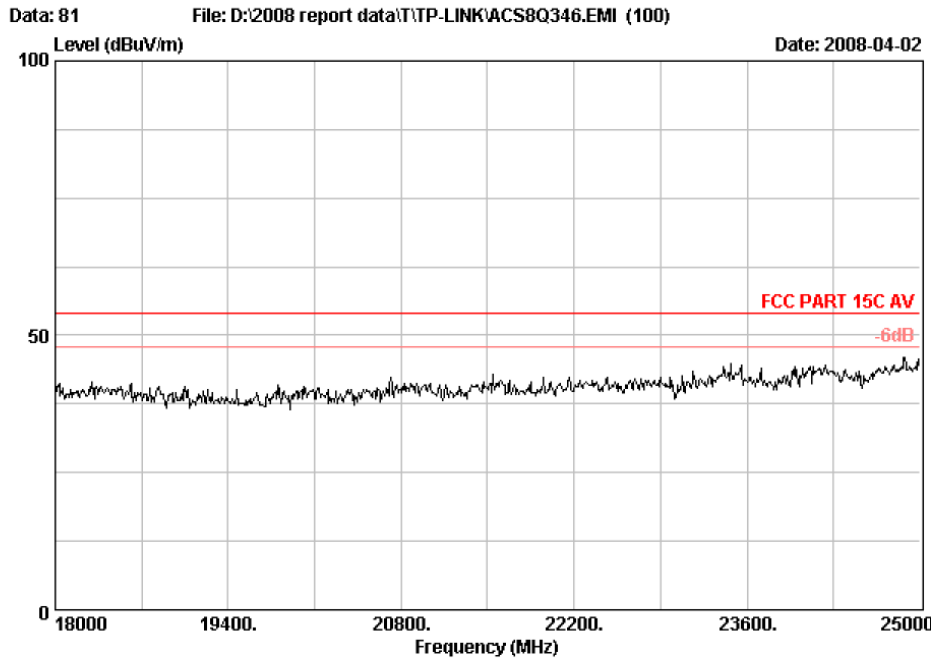
Site no. : RF Chamber Data no. : 80  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20



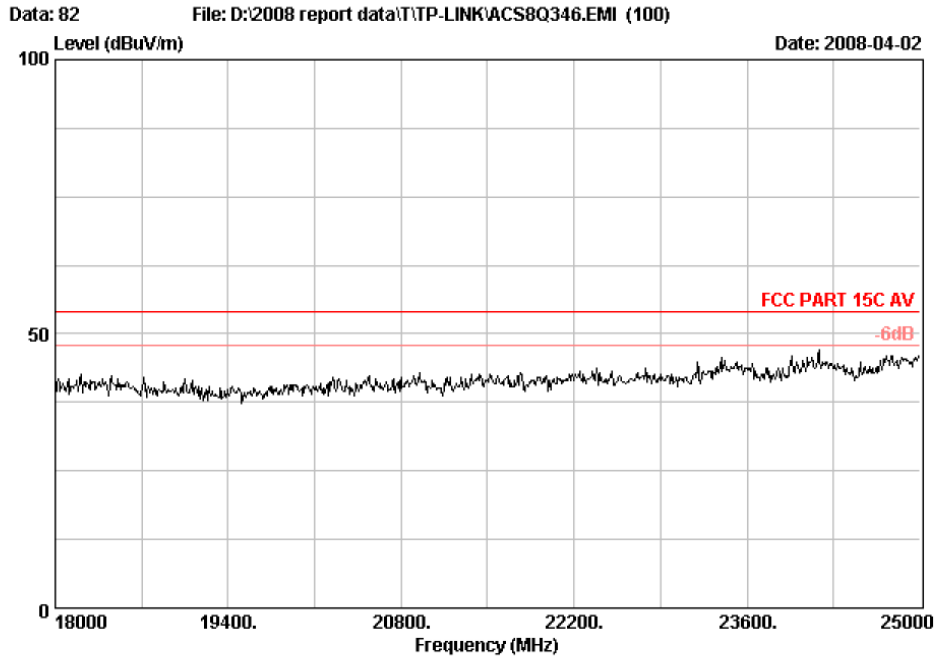
Site no. : RF Chamber Data no. : 79  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2412MHz Tx  
 HT20



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Postcode:518057



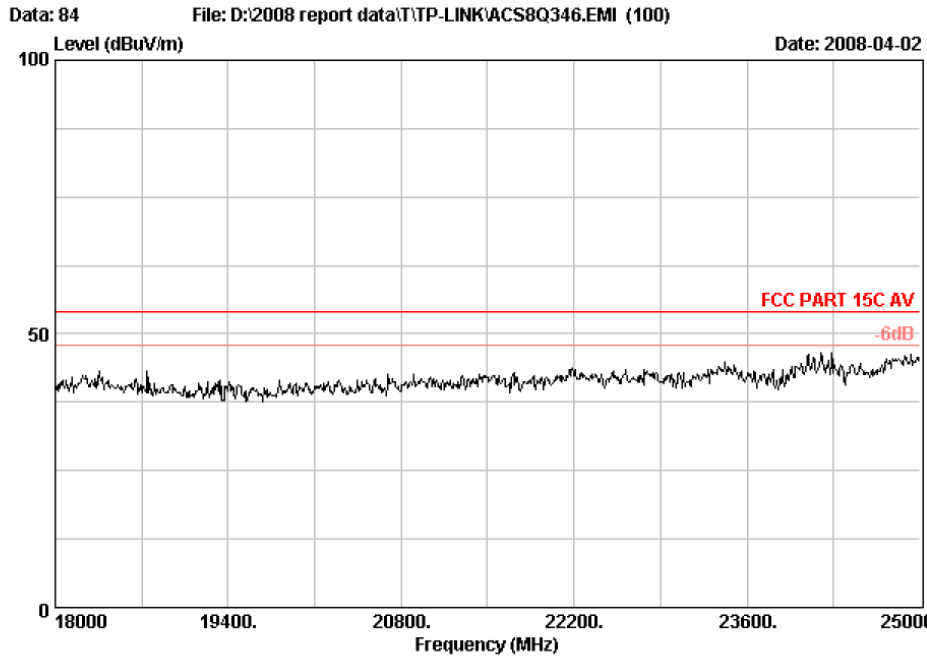
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 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20



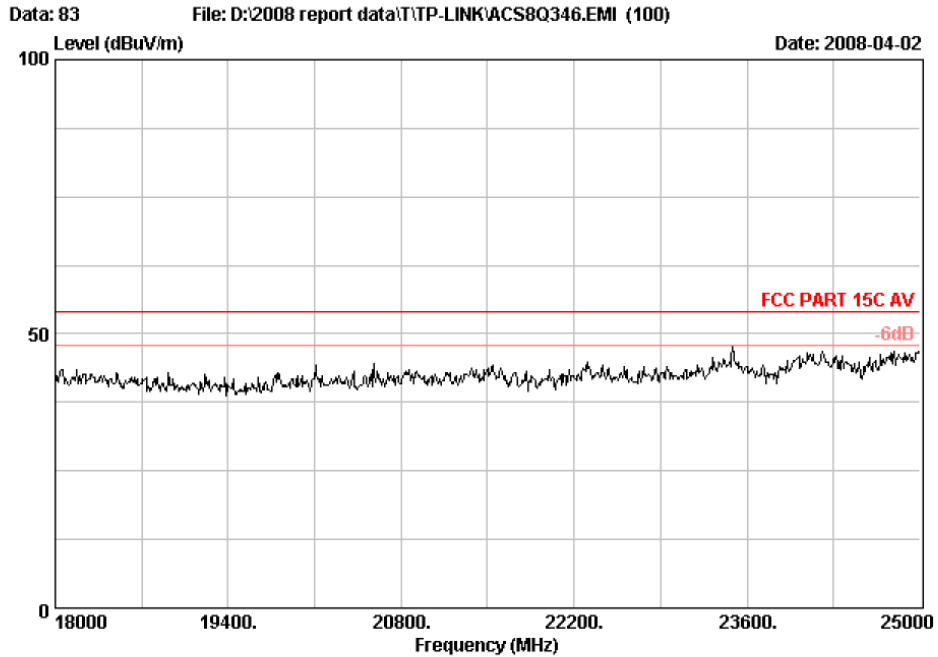
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 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH6:2437MHz Tx  
 HT20



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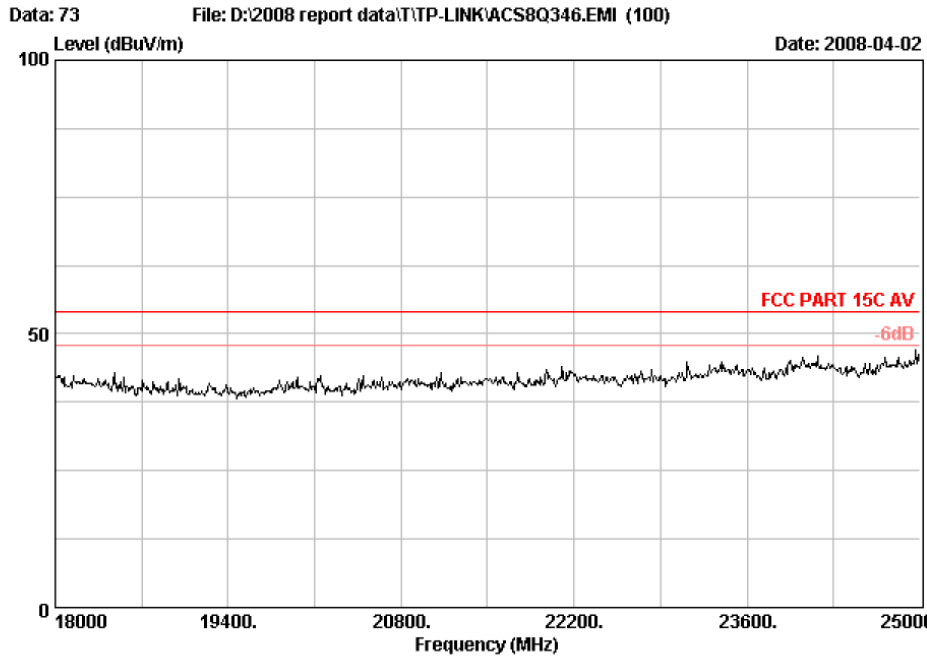
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 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20



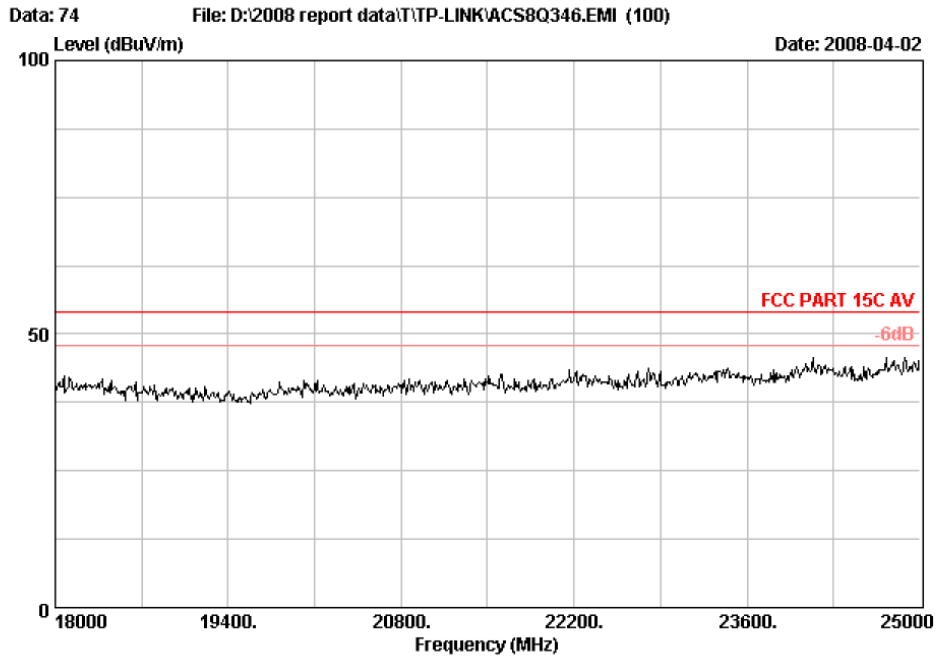
Site no. : RF Chamber Data no. : 83  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH11:2462MHz Tx  
 HT20



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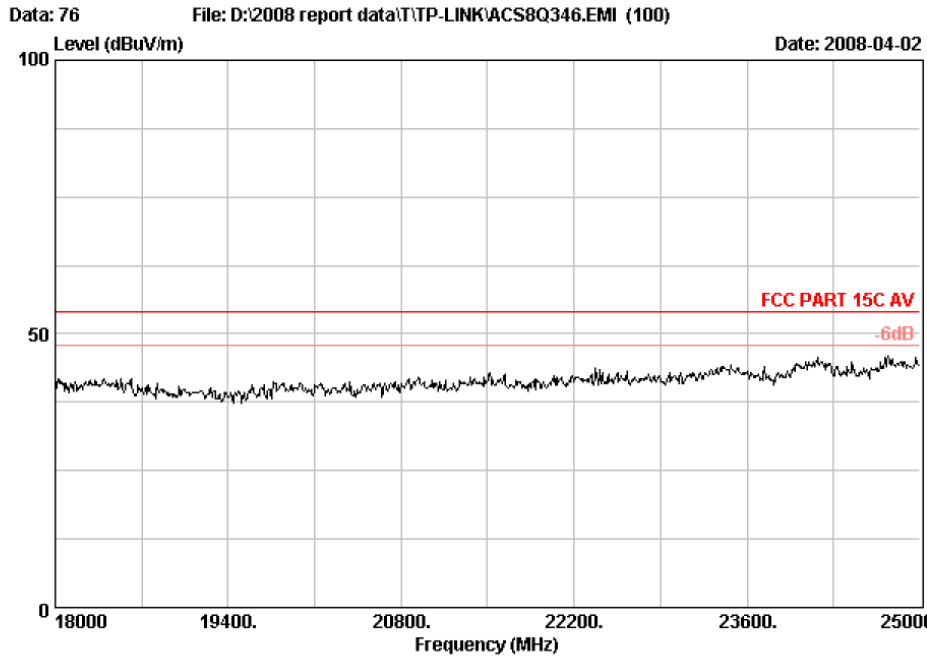
Site no. : RF Chamber Data no. : 73  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40



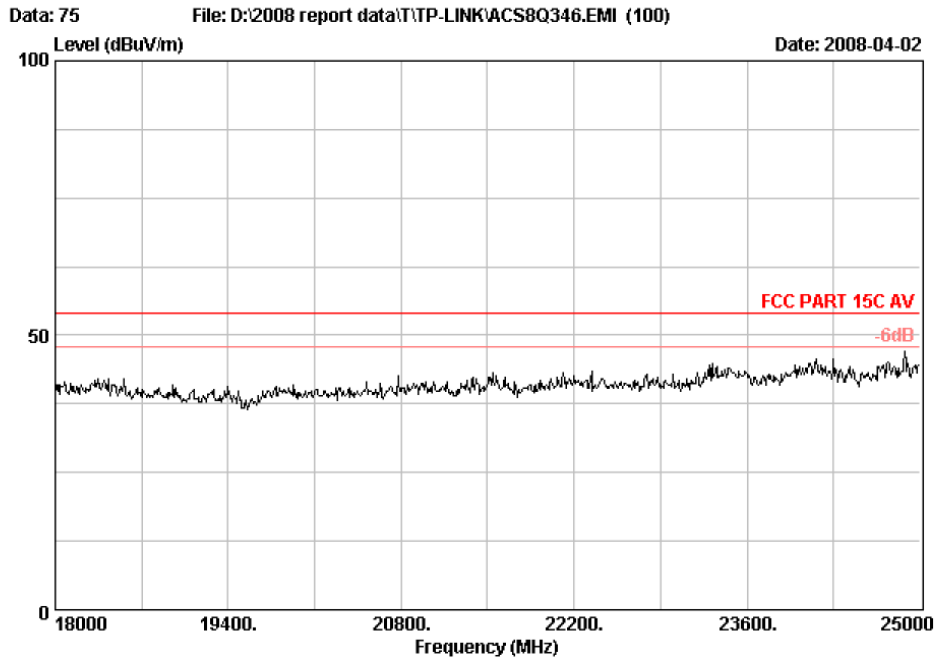
Site no. : RF Chamber Data no. : 74  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH1:2422MHz Tx  
 HT40



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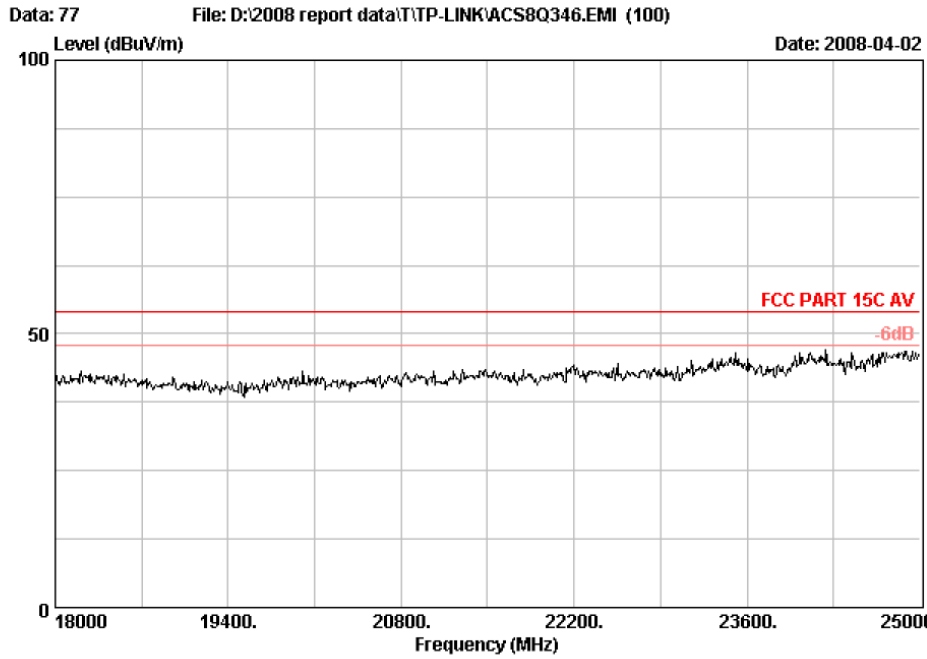
Site no. : RF Chamber Data no. : 76  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40



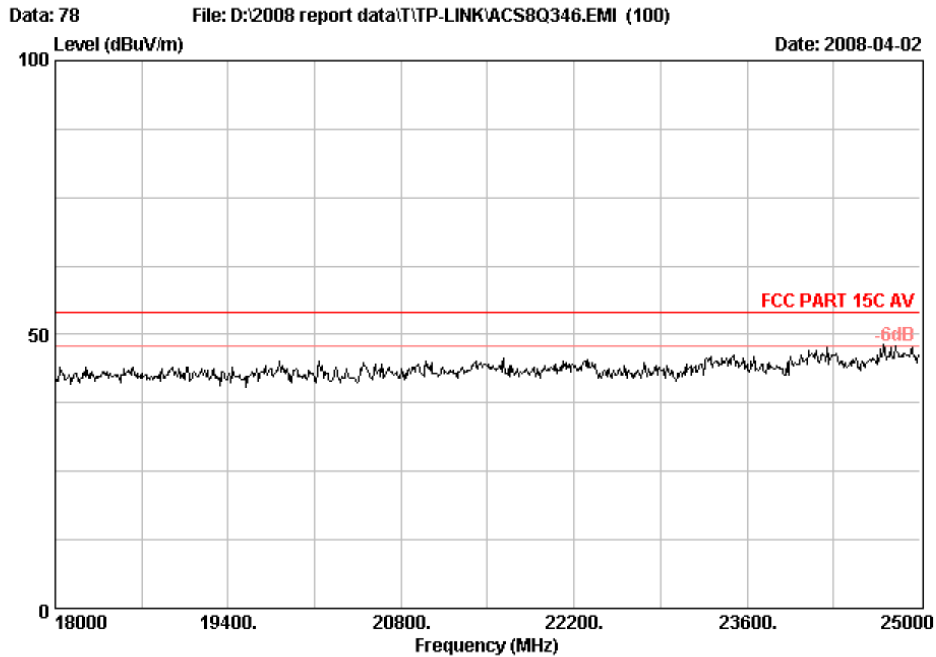
Site no. : RF Chamber Data no. : 75  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH4:2437MHz Tx  
 HT40



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 Postcode:518057



Site no. : RF Chamber Data no. : 77  
 Dis. / Ant. : 3m Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40



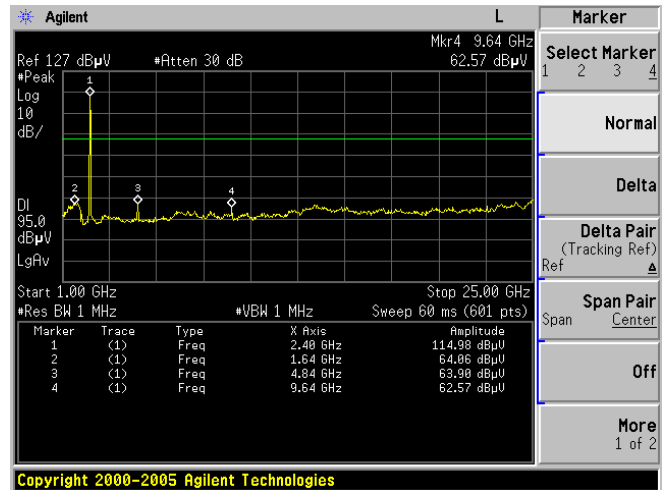
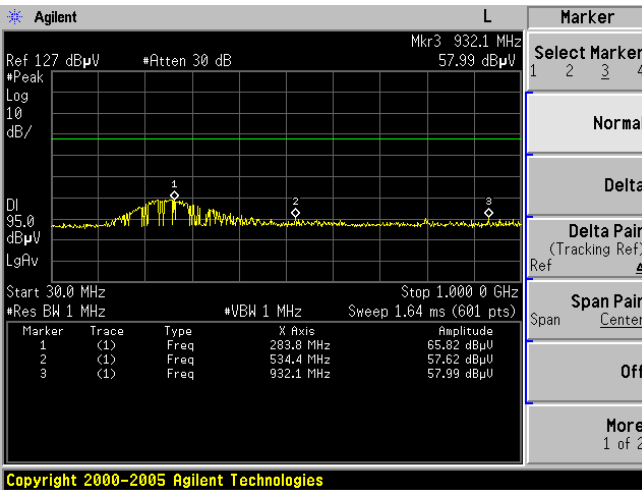
Site no. : RF Chamber Data no. : 78  
 Dis. / Ant. : 3m Ant. pol. : VERTICAL  
 Limit : FCC PART 15C AV  
 Env. / Ins. : 23°C/54% Engineer : Jamy  
 EUT : Wireless N USB Adapter M/N:TL-WN821N  
 Power Rating: DC 5V From PC AC 120V/60Hz  
 Test Mode : IEEE802.11n CH7:2452MHz Tx  
 HT40



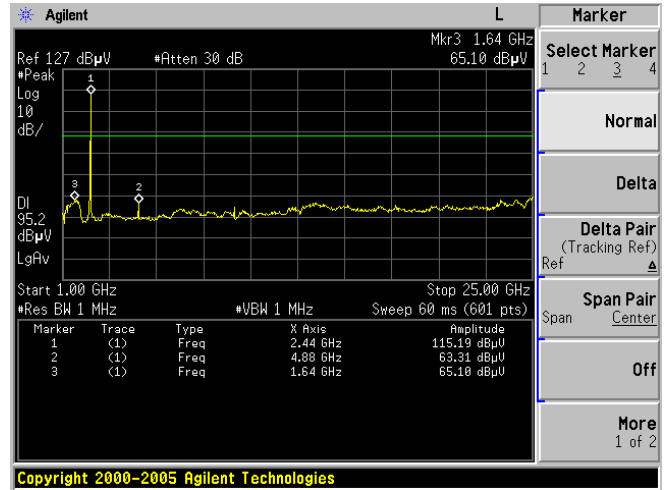
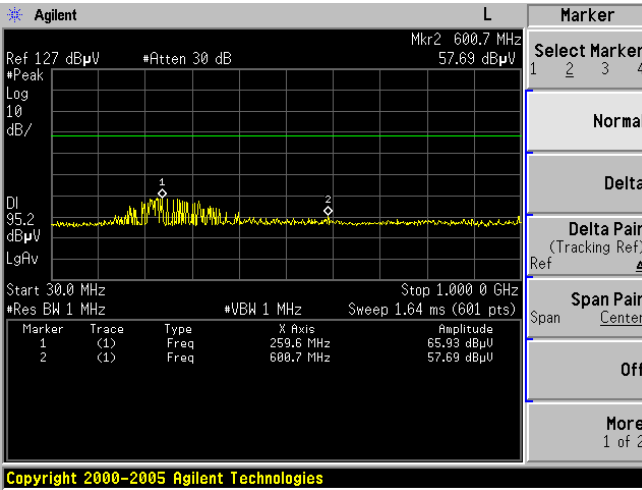
**Conducted emission test data:**

Test Mode: IEEE 802.11b TX

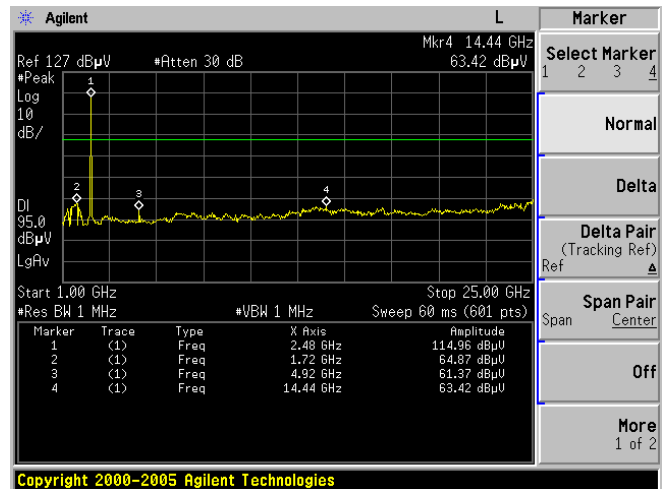
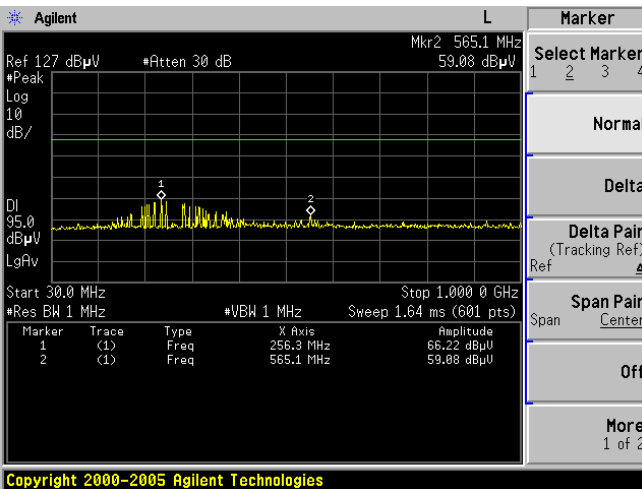
Test CH1: 2412MHz



Test CH6: 2437MHz

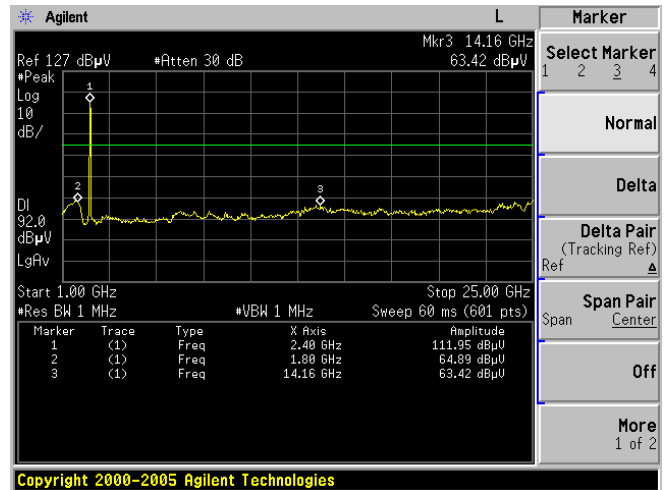
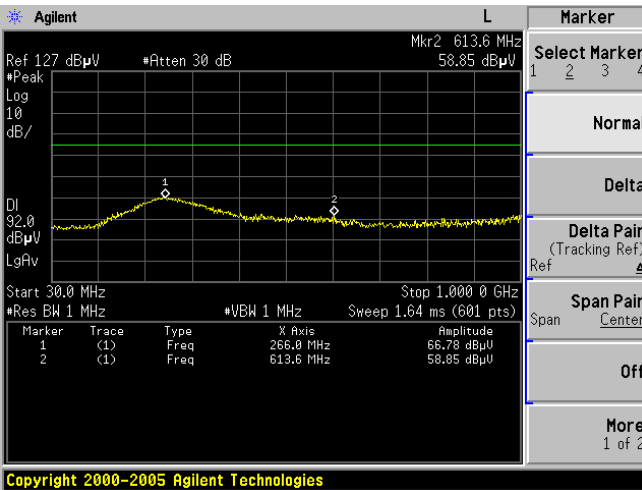


Test CH11: 2462MHz

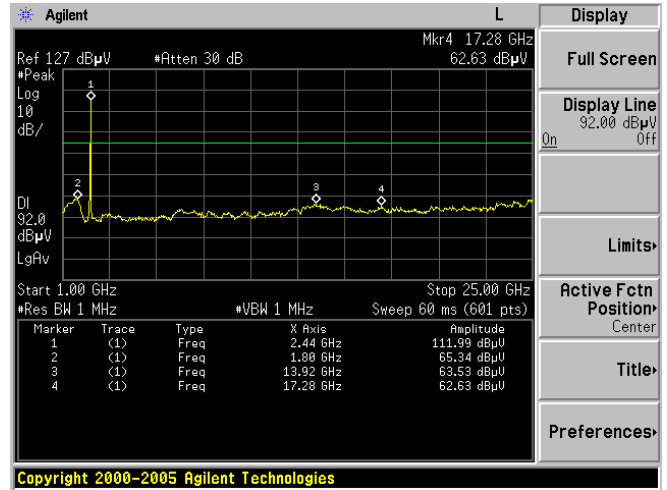
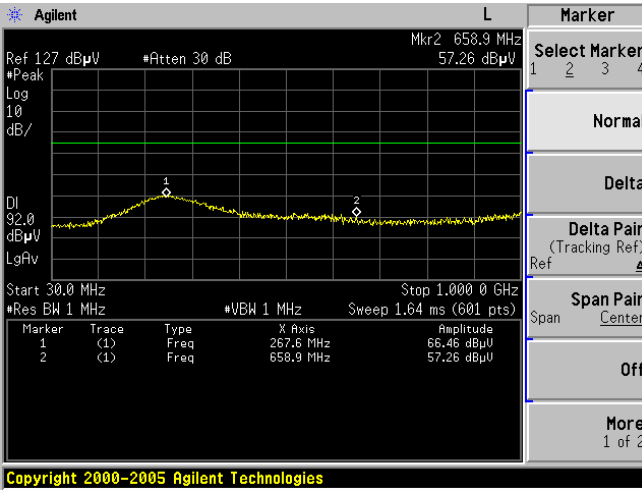


Test Mode: IEEE 802.11g TX

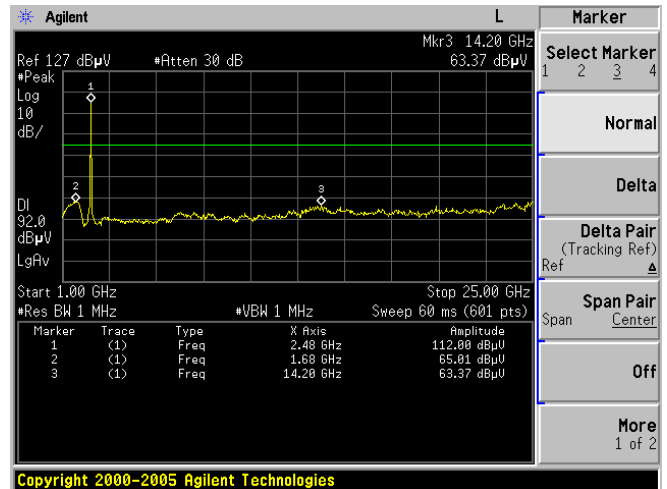
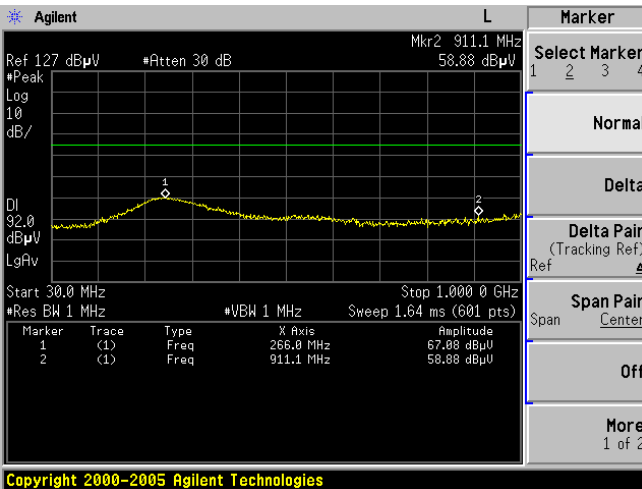
Test CH1: 2412MHz



Test CH6: 2437MHz

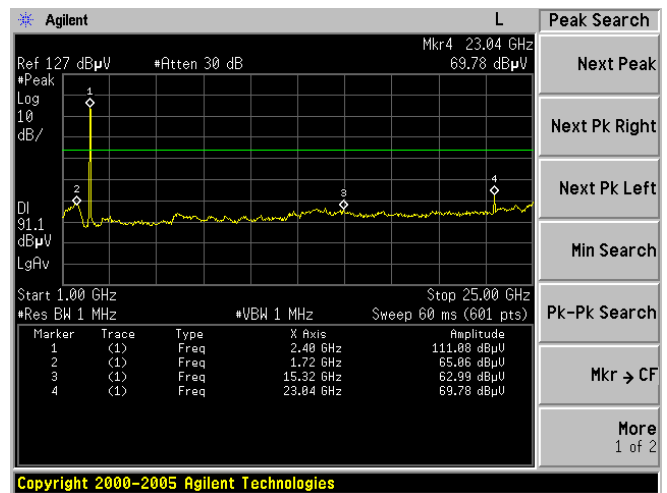
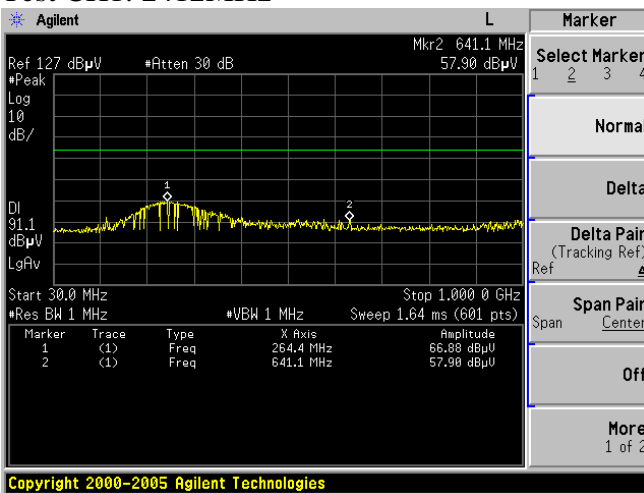


Test CH11: 2462MHz

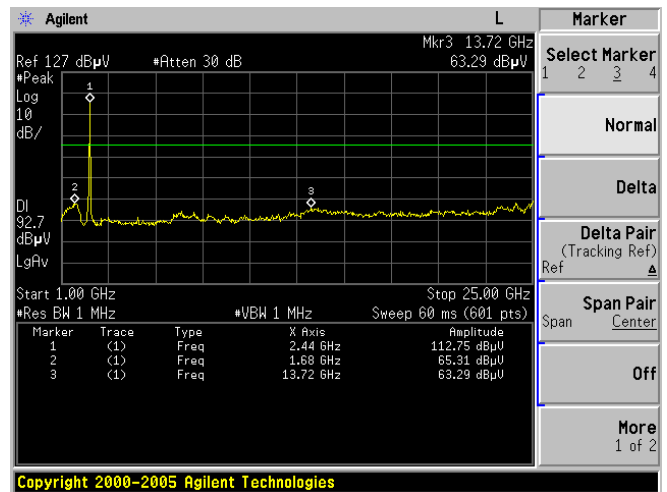
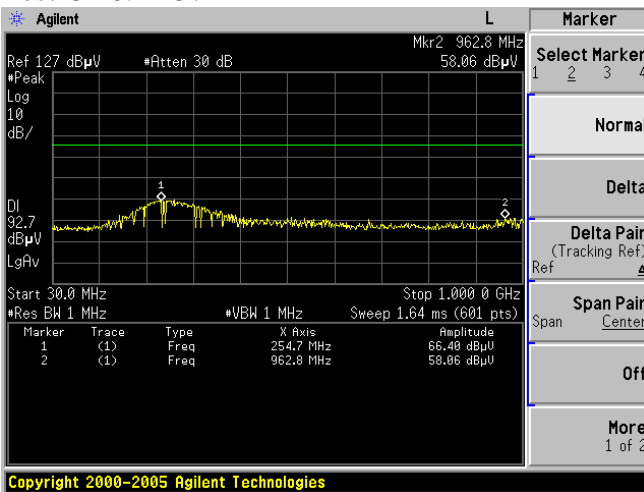


Test Mode: IEEE 802.11n TX (HT20)

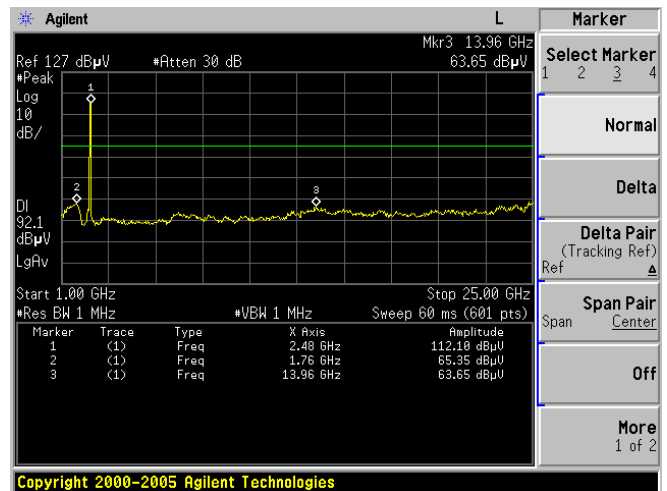
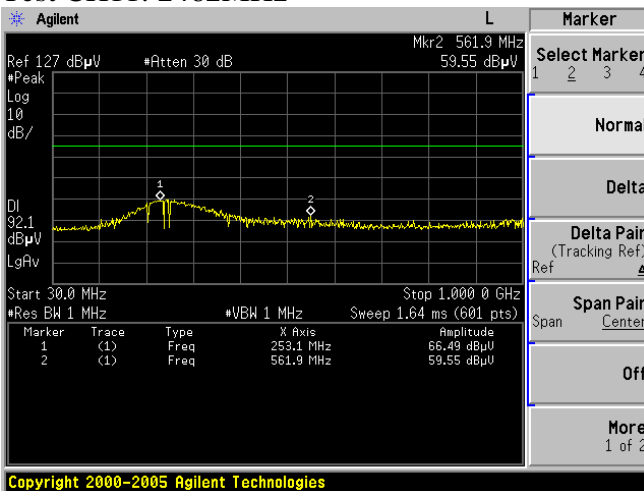
Test CH1: 2412MHz



Test CH6: 2437MHz

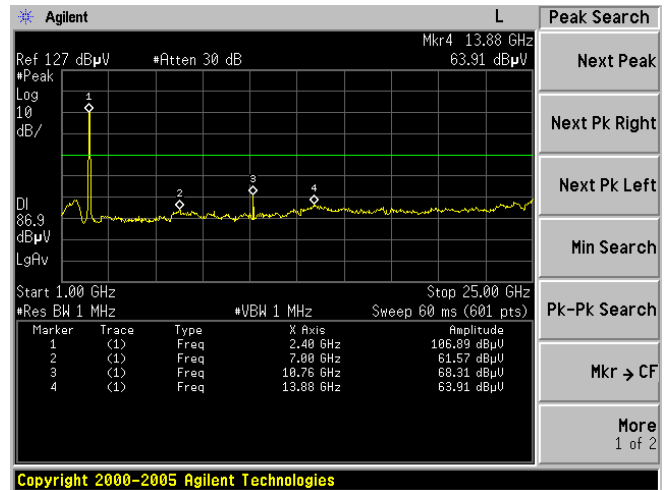
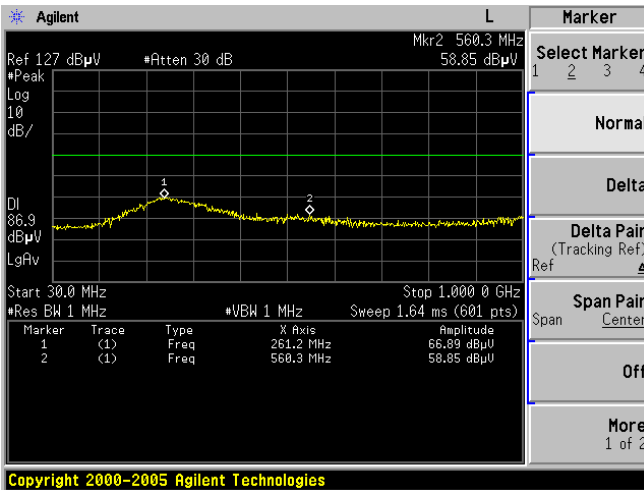


Test CH11: 2462MHz

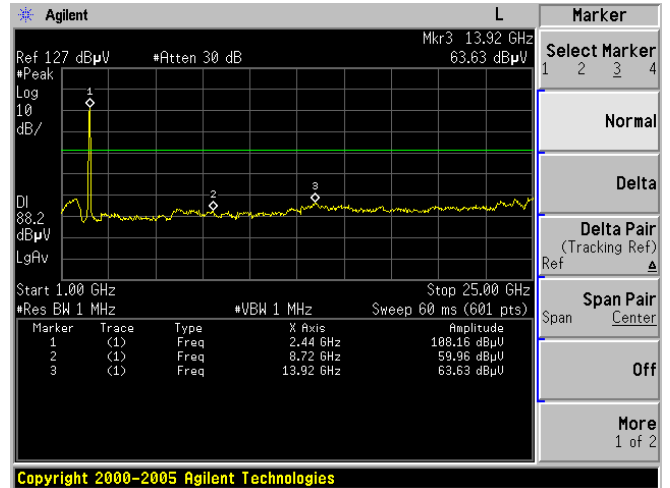
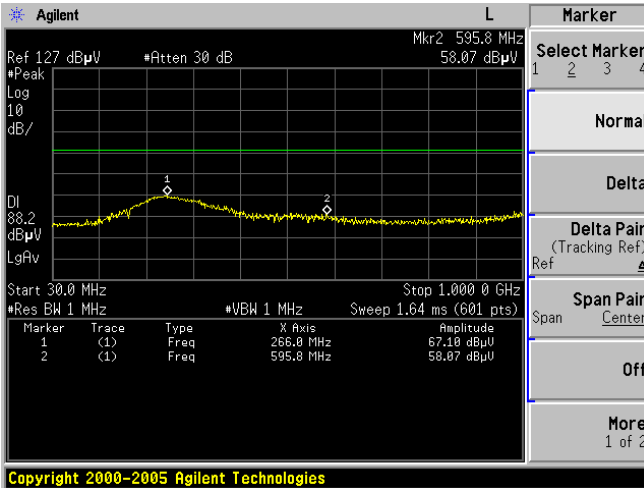


Test Mode: IEEE 802.11n TX (HT40)

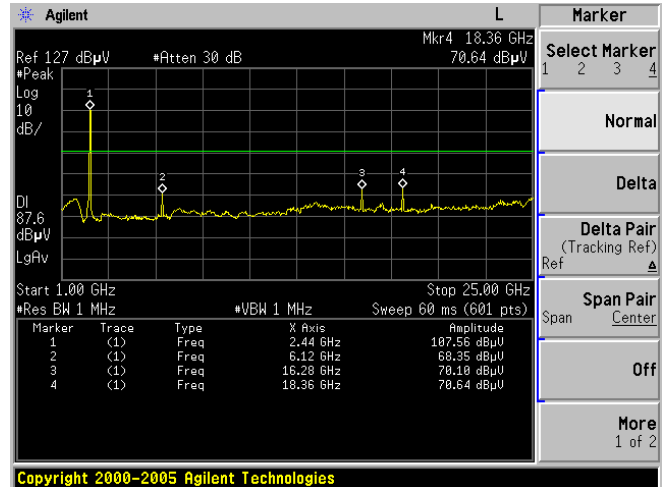
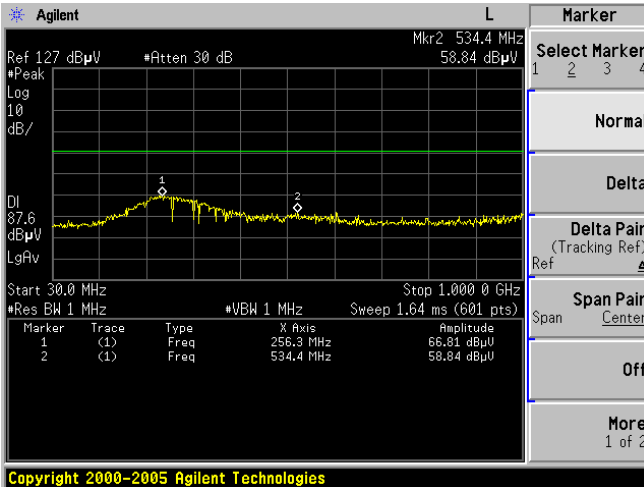
Test CH1: 2422MHz



Test CH4: 2437MHz



Test CH7: 2452MHz



## 5. 6dB Bandwidth Test

### 5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,11, 07	1 Year
2	RF Cable	MIYAZAKI	8D-FB	NO 3	May,11,07	1 Year

### 5.2. Test Information

EUT:	Wireless N USB Adapter
M/N:	TL-WN821N
Test Date:	Mar.28, 2008
Ambient Temperature:	23°C
Relative Humidity:	60%
Test standard:	FCC PART 15C: 15.247
Test mode:	IEEE 802.11b TX / IEEE 802.11g TX IEEE 802.11n TX (HT20) / IEEE 802.11n TX (HT40)
Test Frequency:	11b,11g,11n HT20: CH1: 2412MHz CH6: 2437MHz CH11: 2462MHz 11n HT40: CH1: 2422MHz CH4: 2437MHz CH7: 2452MHz
Tested By:	Jamy

### 5.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 100 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

## 5.4. Test Results

### Test Mode: IEEE 802.11b TX

CH	6dB Bandwidth (MHz)	Limit	Conclusion
1	12.00	>500	PASS
6	12.00	>500	PASS
11	12.67	>500	PASS

### Test Mode: IEEE 802.11g TX

CH	6dB Bandwidth (MHz)	Limit	Conclusion
1	16.53	>500	PASS
6	16.53	>500	PASS
11	16.53	>500	PASS

### Test Mode: IEEE 802.11n TX (HT20)

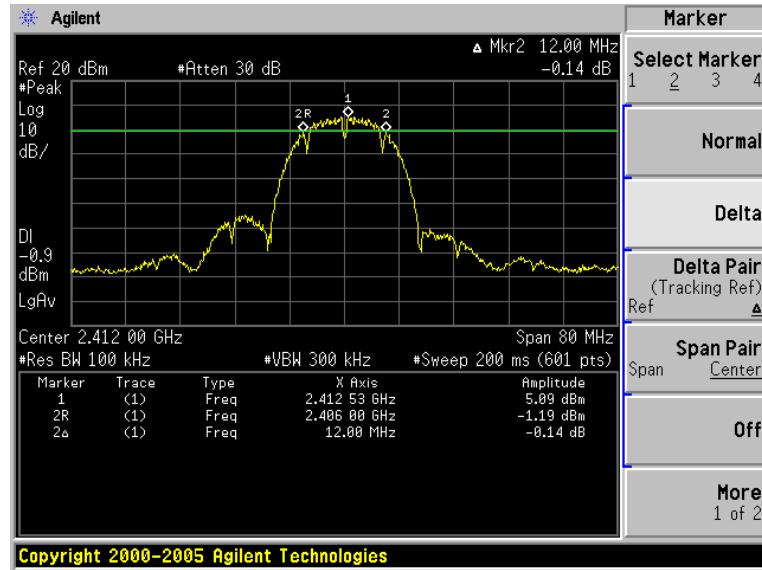
CH	6dB Bandwidth (MHz)	Limit	Conclusion
1	17.60	>500	PASS
6	17.20	>500	PASS
11	17.20	>500	PASS

### Test Mode: IEEE 802.11n TX (HT40)

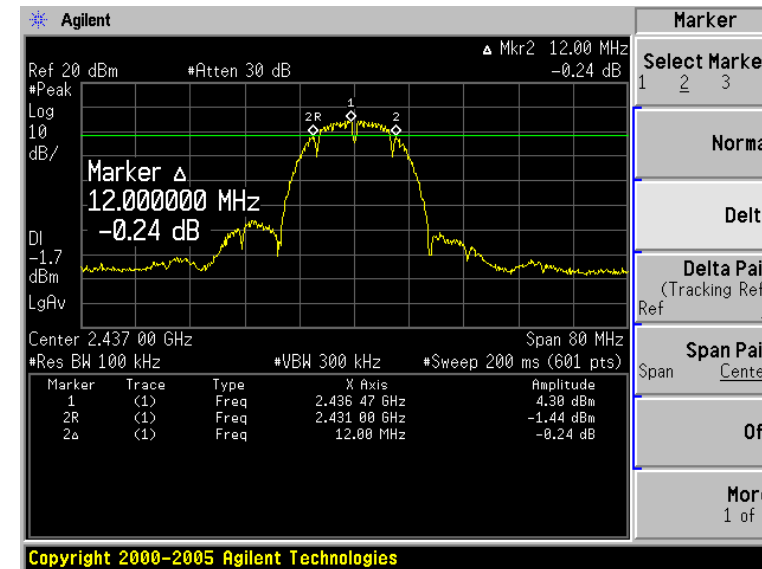
CH	6dB Bandwidth (MHz)	Limit	Conclusion
1	34.93	>500	PASS
4	34.93	>500	PASS
7	35.07	>500	PASS

Test Mode: IEEE 802.11b TX

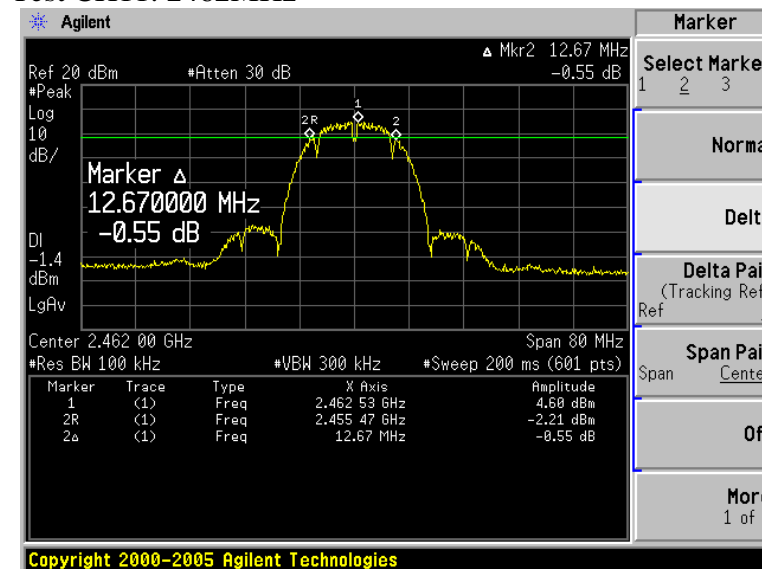
Test CH1: 2412MHz



Test CH6: 2437MHz

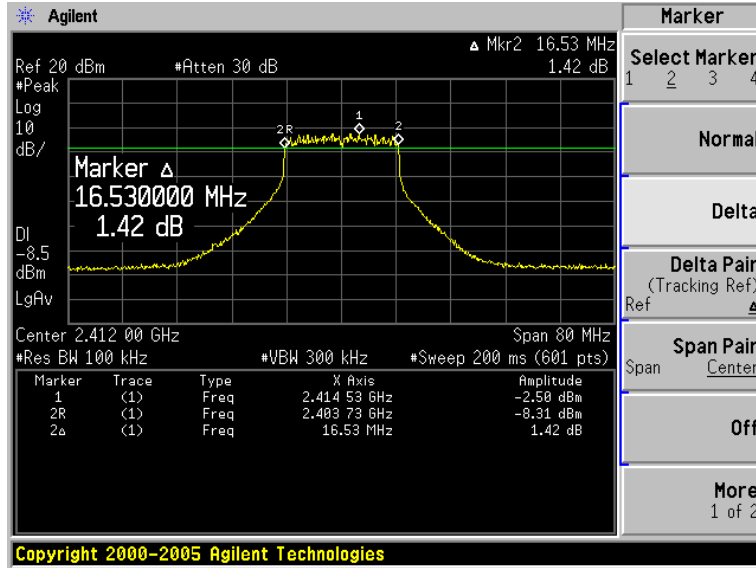


Test CH11: 2462MHz

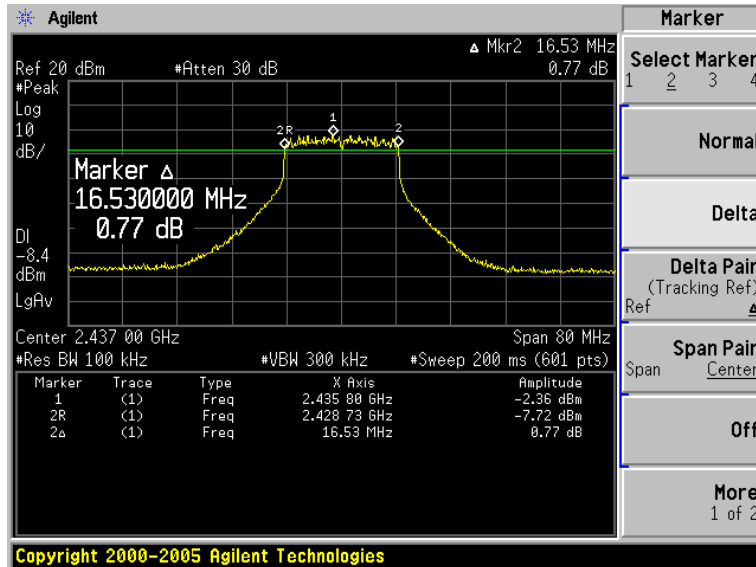


Test Mode: IEEE 802.11g TX

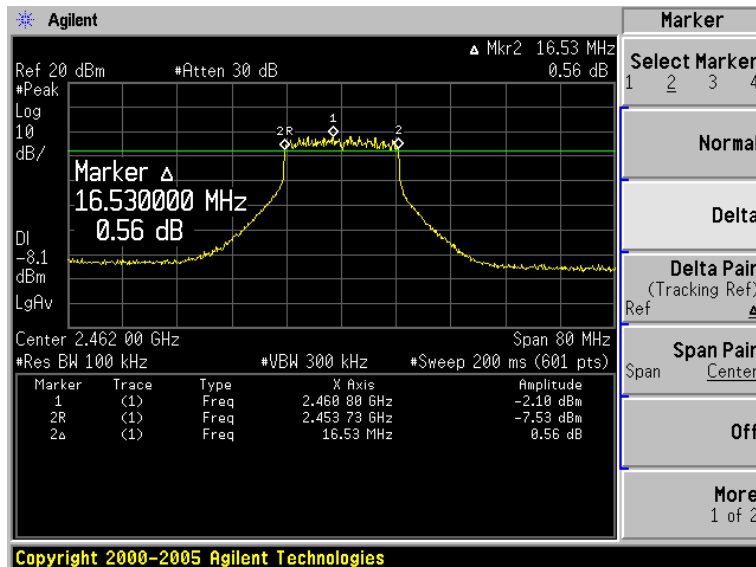
Test CH1: 2412MHz



Test CH6: 2437MHz



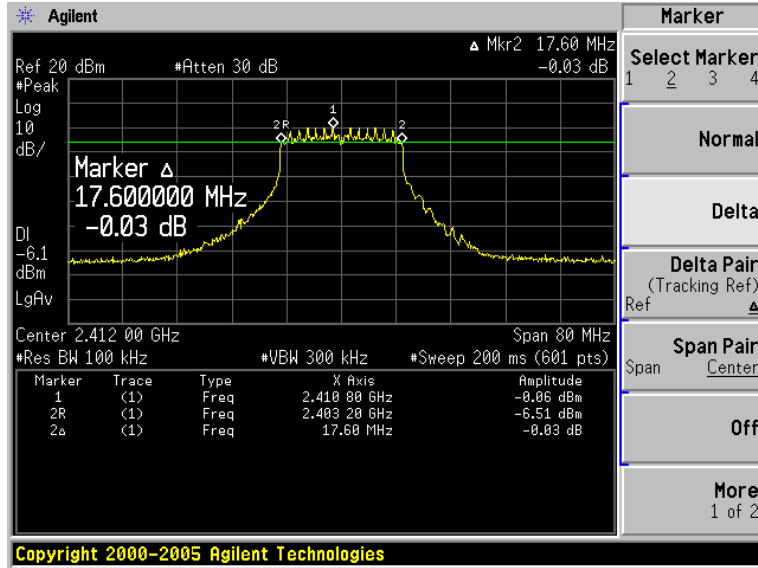
Test CH11: 2462MHz



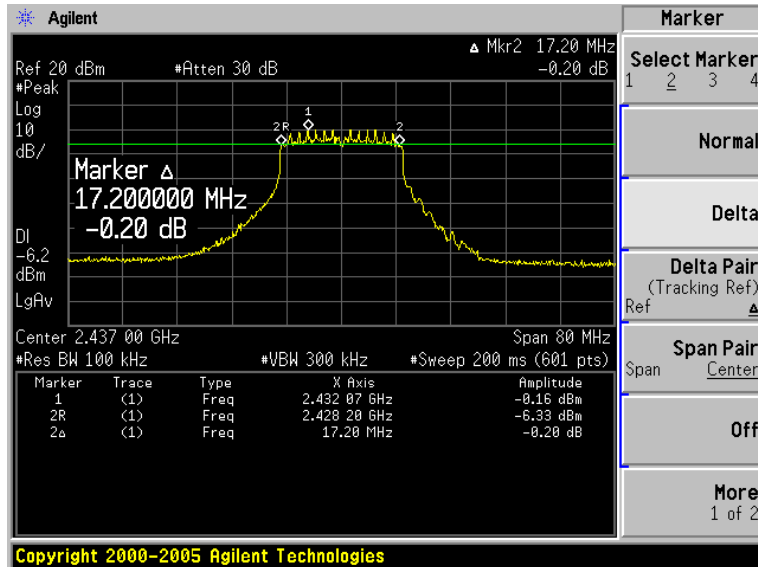


Test Mode: IEEE 802.11n TX (HT20)

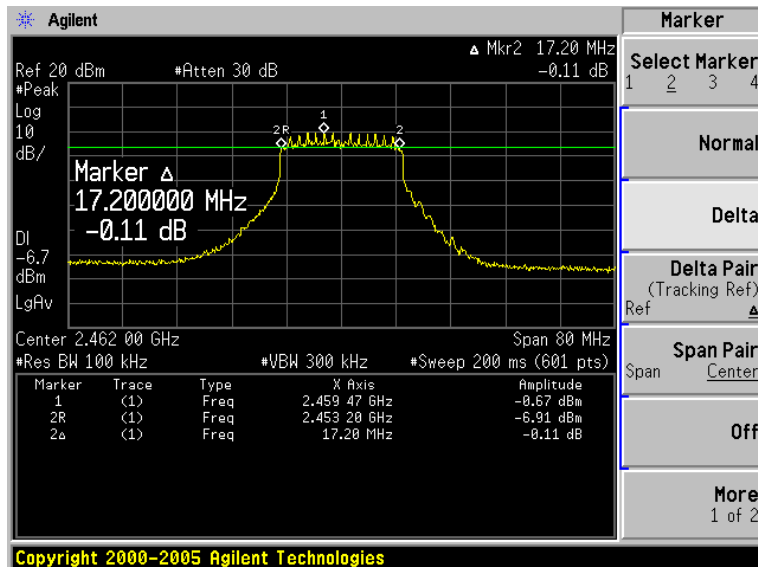
Test CH1: 2412MHz



Test CH6: 2437MHz

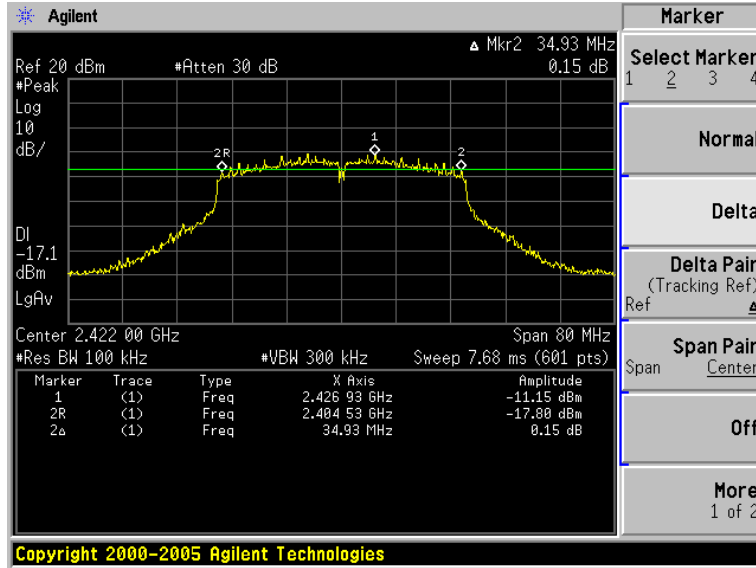


Test CH11: 2462MHz

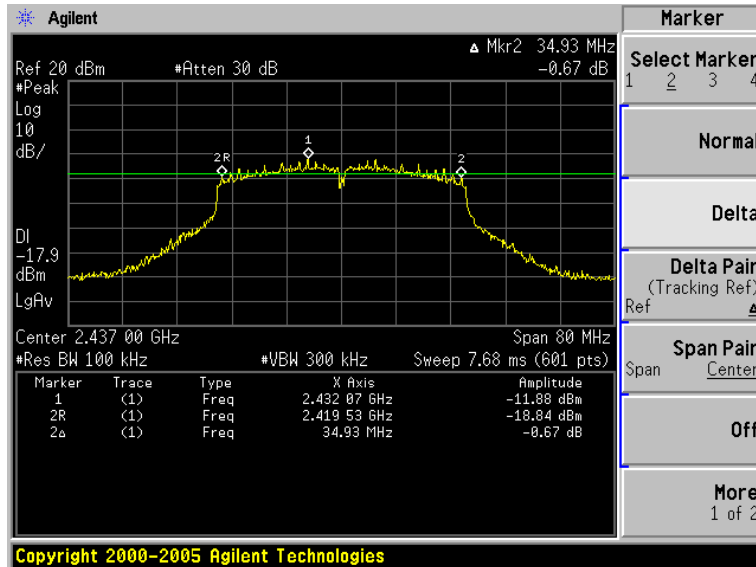


Test Mode: IEEE 802.11n TX (HT40)

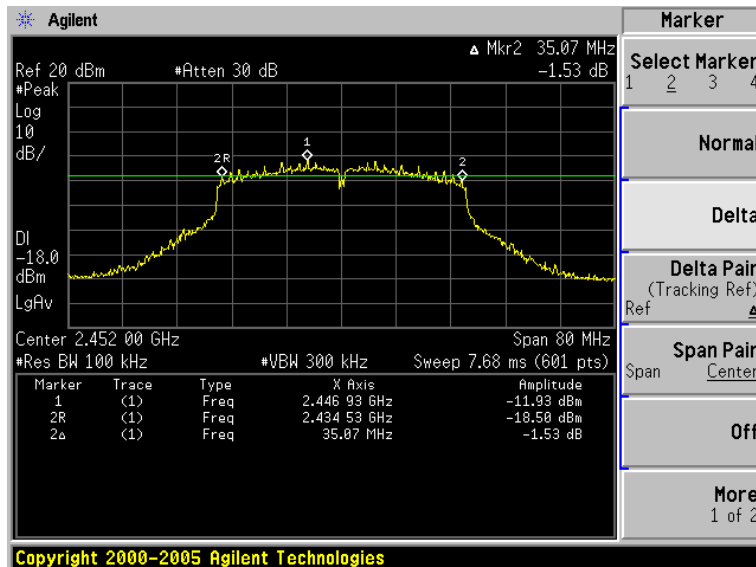
Test CH1: 2422MHz



Test CH4: 2437MHz



Test CH7: 2452MHz



## 6. OUTPUT POWER TEST

### 6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,11, 07	1 Year
2	RF Cable	MIYAZAKI	8D-FB	NO 3	May,11,07	1 Year
3	Power meter	Anritsu	ML2487	6K00002472	May,11,07	1 Year

### 6.2. Test Procedure

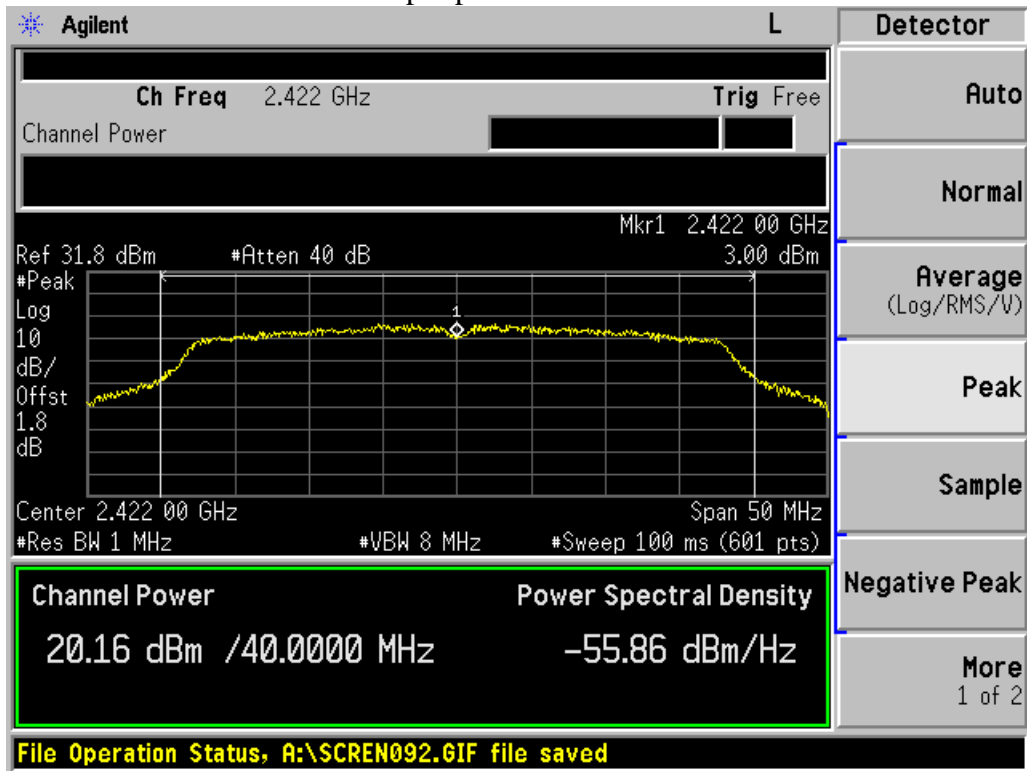
1, For IEEE 802.11b/g and IEEE802.11n HT20 mode, the transmitter output was connected to a power meter, use the power meter to read out the peak output power.

2, For IEEE802.11n HT40 mode the transmitter output was connected to a Spectrum Analyzer through a 20dB Attenuator, and use the channel power measure function of Spectrum Analyzer to read out the peak output power.

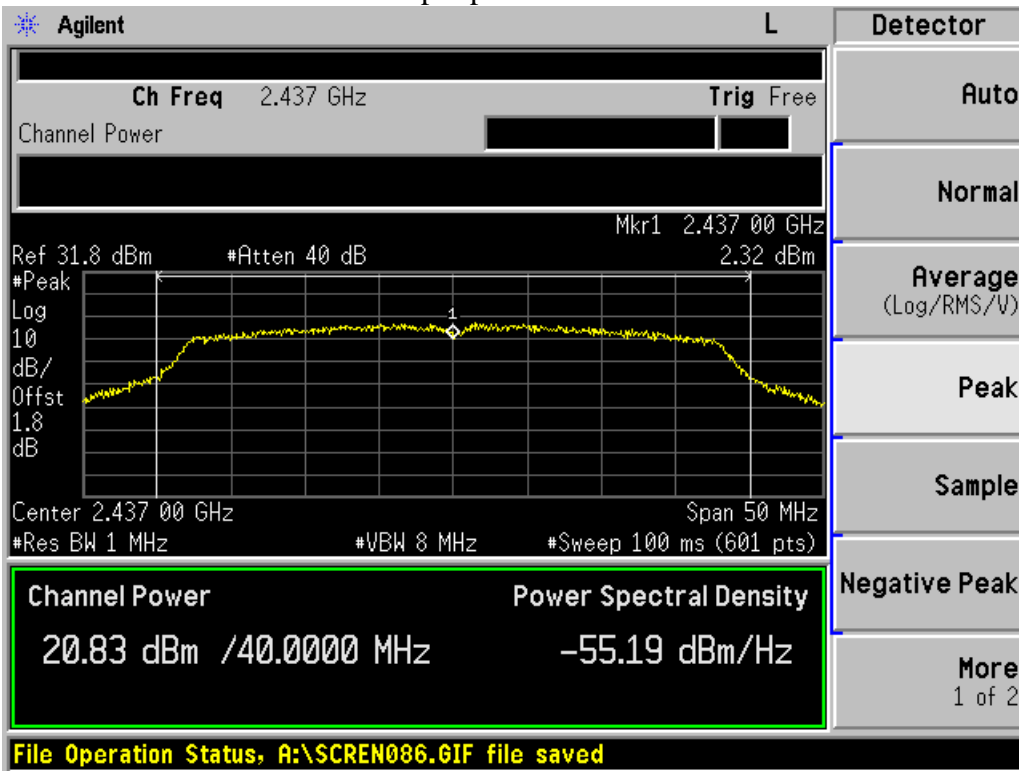
## 6.3.Test Results

EUT: Wireless N USB Adapter M/N: TL-WN821N					
Power: DC 5V From PC 120V/60Hz					
Data Rate:11b 1Mbps ; 11g : 6Mbps ; 11n HT20 : 6.5Mbps ; 11n HT40 : 13.5Mbps(Note 1)					
Ambient Temperature:23°C			Relative Humidity: 60%		
Test date: 2008/04/03		Test site: RF site		Tested By: Jamy	
Cable Loss: 0.6dB Antenna Gain:2dBi					
Test CH	11b,11g,11n HT20	CH1:2412MHz	CH6:2437MHz	CH11:2462MHz	
Test CH	11n HT40	CH1:2422MHz	CH4:2437MHz	CH7:2452MHz	
Mode	CH	Chain1	Chain2	Result	
		Level (dBm)	Level (dBm)	Total Power (dBm)	Limit
11b	CH1	16.03	17.05	<b>19.58</b>	30.00
	CH6	16.69	17.22	<b>19.97</b>	30.00
	CH11	16.89	17.49	<b>20.21</b>	30.00
11g	CH1	18.55	19.84	<b>22.25</b>	30.00
	CH6	19.16	19.56	<b>22.37</b>	30.00
	CH11	19.23	19.80	<b>22.53</b>	30.00
11n HT20	CH1	19.44	20.67	<b>23.11</b>	30.00
	CH6	20.33	20.51	<b>23.43</b>	30.00
	CH11	20.33	20.55	<b>23.45</b>	30.00
11n HT40	CH1	20.16	21.60	<b>23.95</b>	30.00
	CH4	20.83	21.50	<b>24.19</b>	30.00
	CH7	20.96	21.48	<b>24.24</b>	30.00
Note1:According Exploratory test, These data rate have the maximum output power					
Note2:Level=Read+ cable loss, Total power=Chain1 Level +Chain2 Level (Linear)					

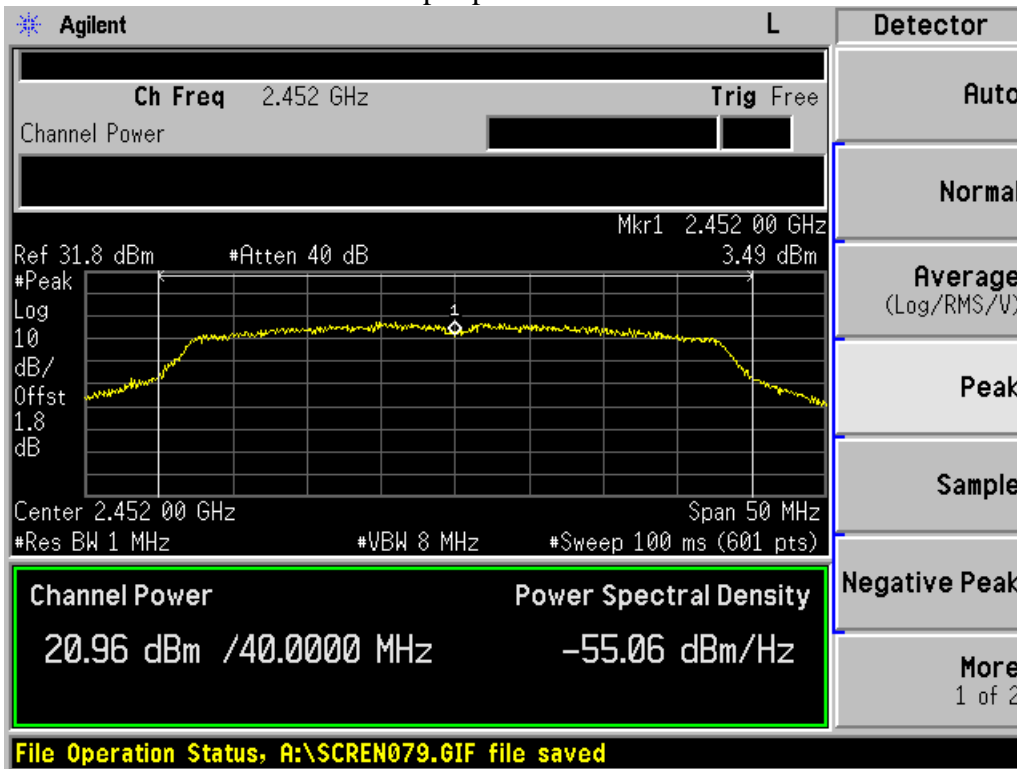
11n HT40 CH1 Chain1 Peak output power:



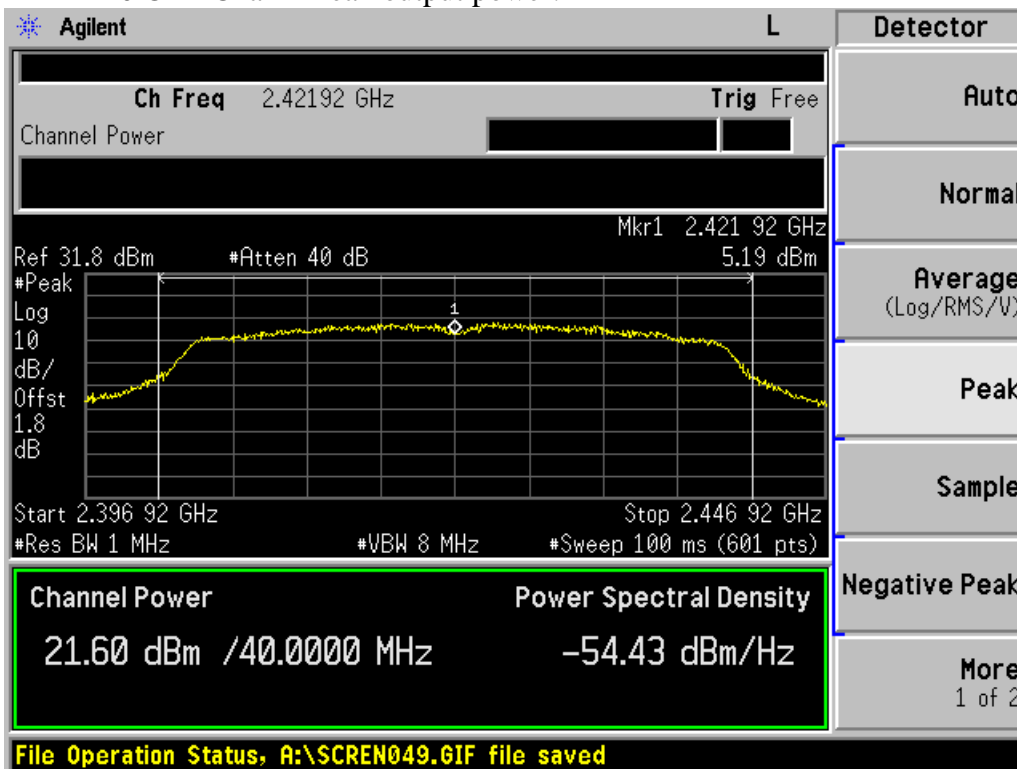
11n HT40 CH4 Chain1 Peak output power:



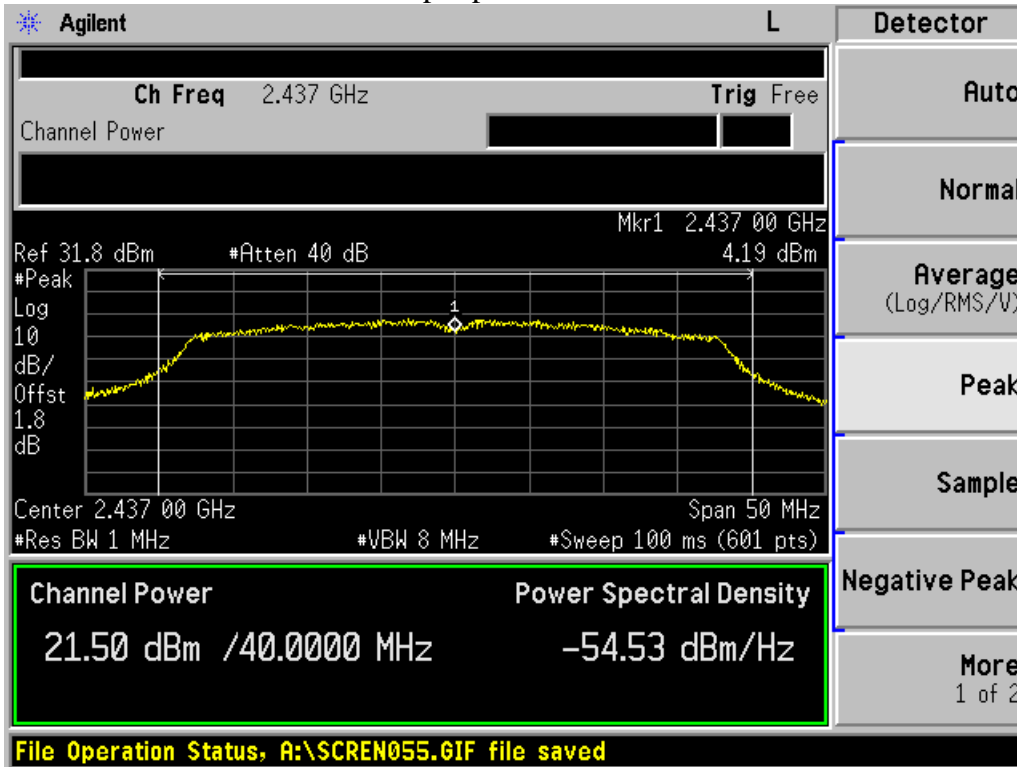
11n HT40 CH7 Chain1 Peak output power:



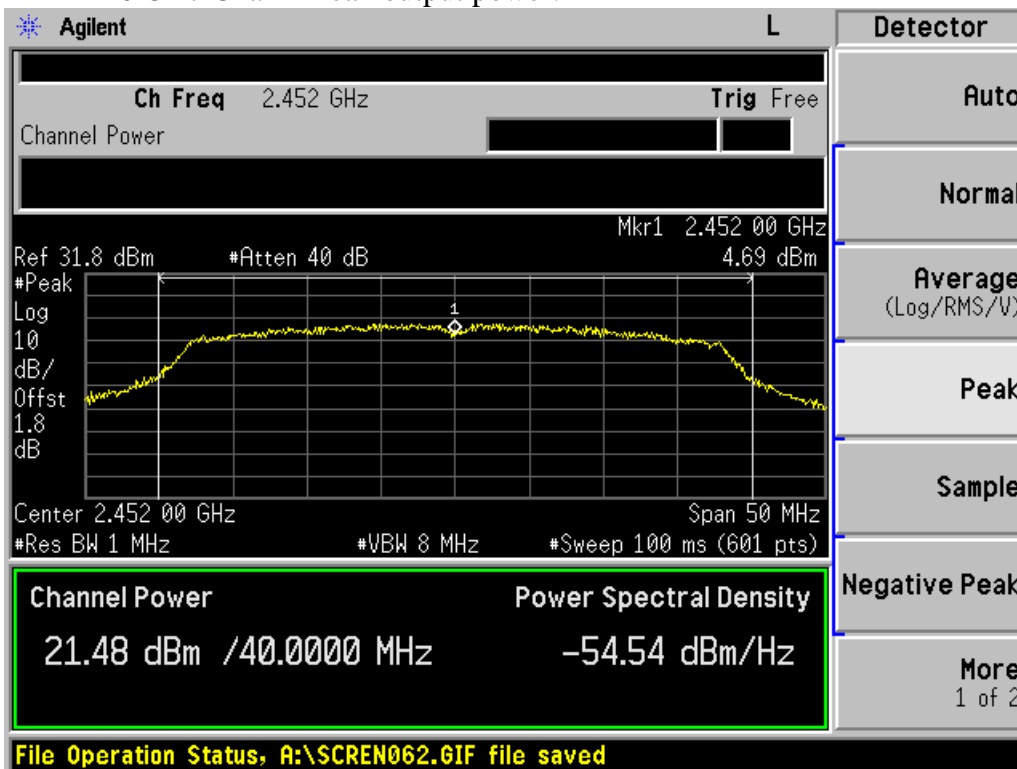
11n HT40 CH1 Chain2 Peak output power:



11n HT40 CH4 Chain2 Peak output power:



11n HT40 CH7 Chain2 Peak output power:



## 7. BAND EDGE COMPLIANCE TEST

### 7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,11, 07	1 Year
2.	Amp	HP	8449B	3008A00863	May 11, 07	1 Year
3.	Antenna	EMCO	3115	9607-4877	Jan. 23, 07	1.5 Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May 11, 07	1 Year

### 7.2. Limit

According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

### 7.3. Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
  - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
  - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

### 7.4. Test Information

EUT:	Wireless N USB Adapter
M/N:	TL-WN821N
Test Date:	Apr.03, 2008
Ambient Temperature:	23°C
Relative Humidity:	60%
Test standard:	FCC PART 15C: 15.247
Test mode:	IEEE 802.11b TX / IEEE 802.11g TX IEEE 802.11n TX (HT20) / IEEE 802.11n TX (HT40)
Test Frequency:	11b,11g,11n HT20: CH1: 2412MHz CH11: 2462MHz 11n HT40: CH1: 2422MHz CH7: 2452MHz
Test By:	Jamy

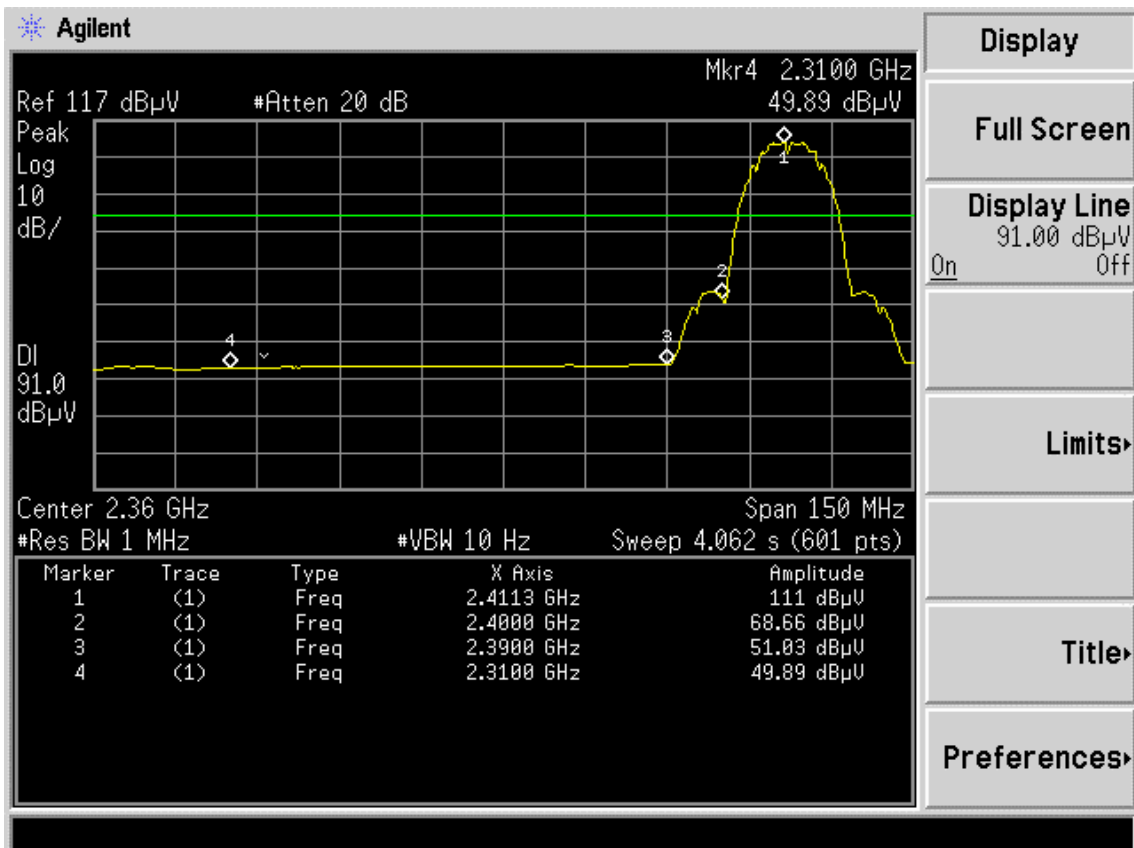
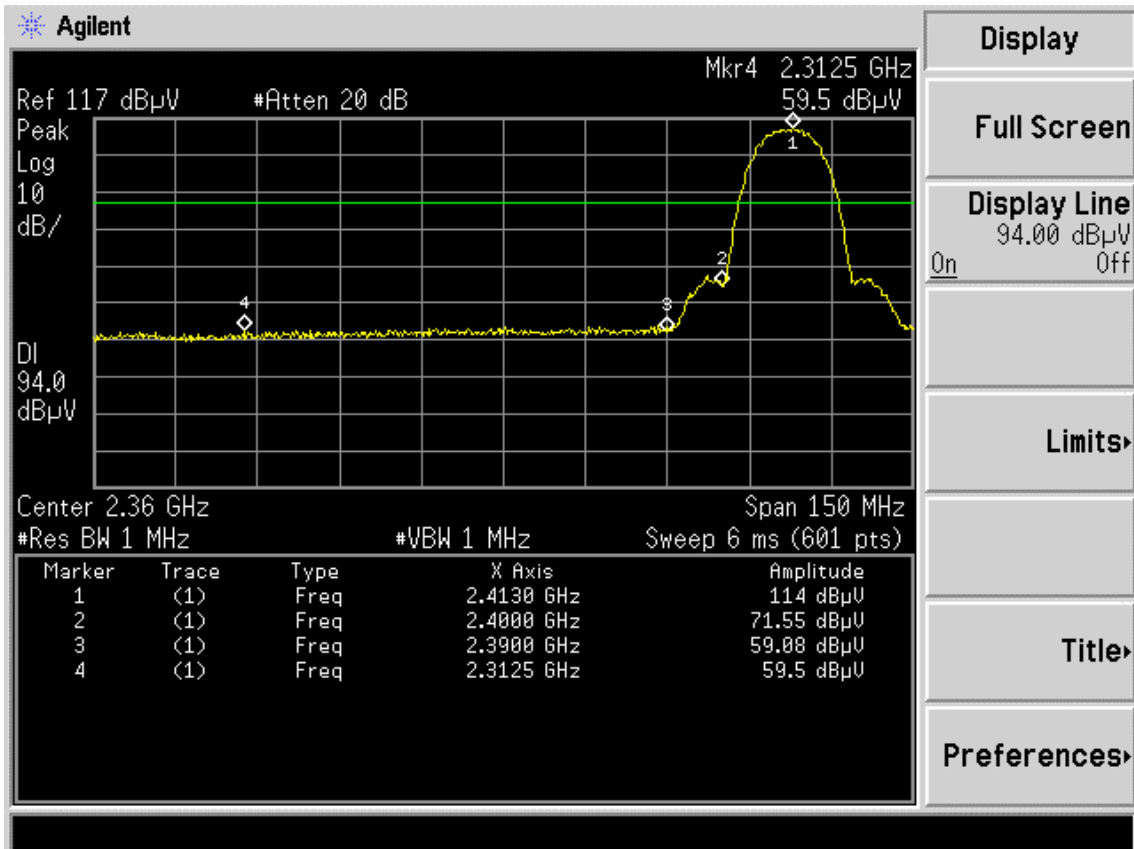
### 7.5. Test Results

Pass (The testing data was attached in the next pages.)

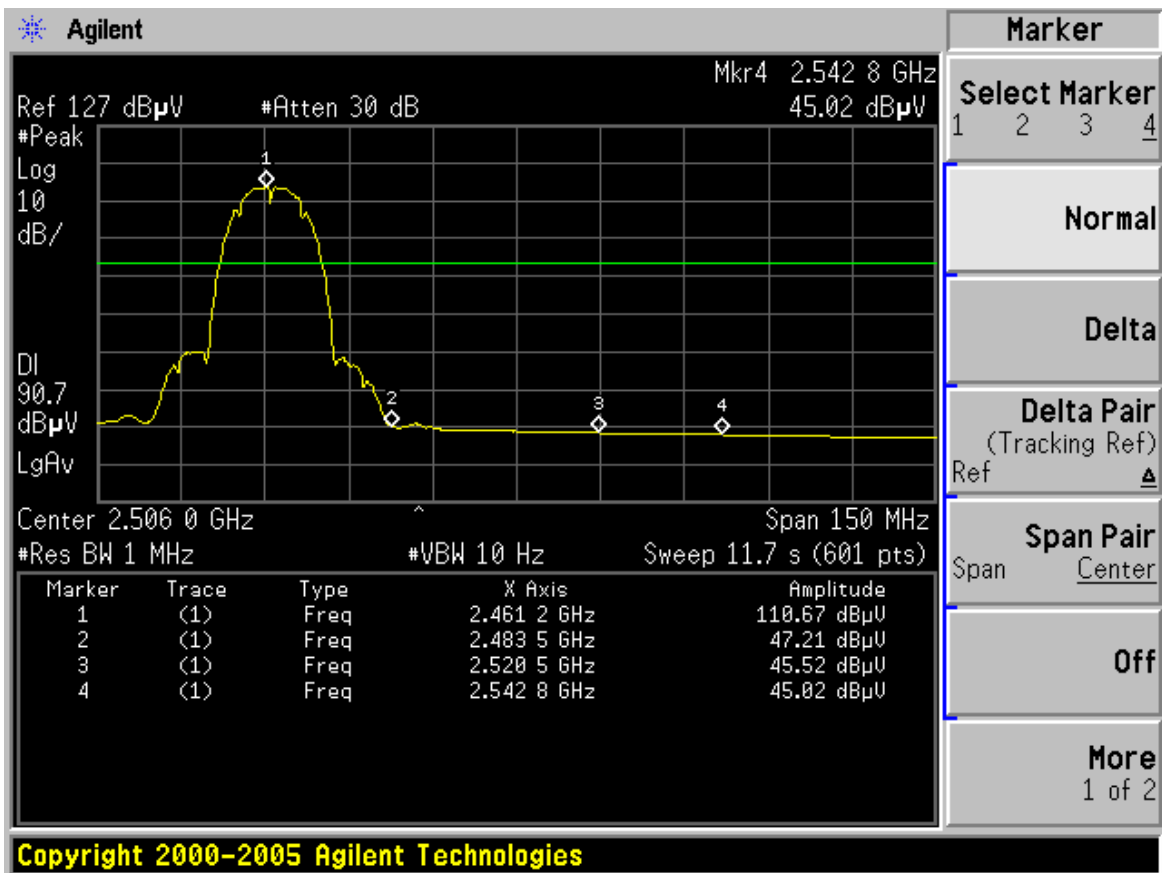
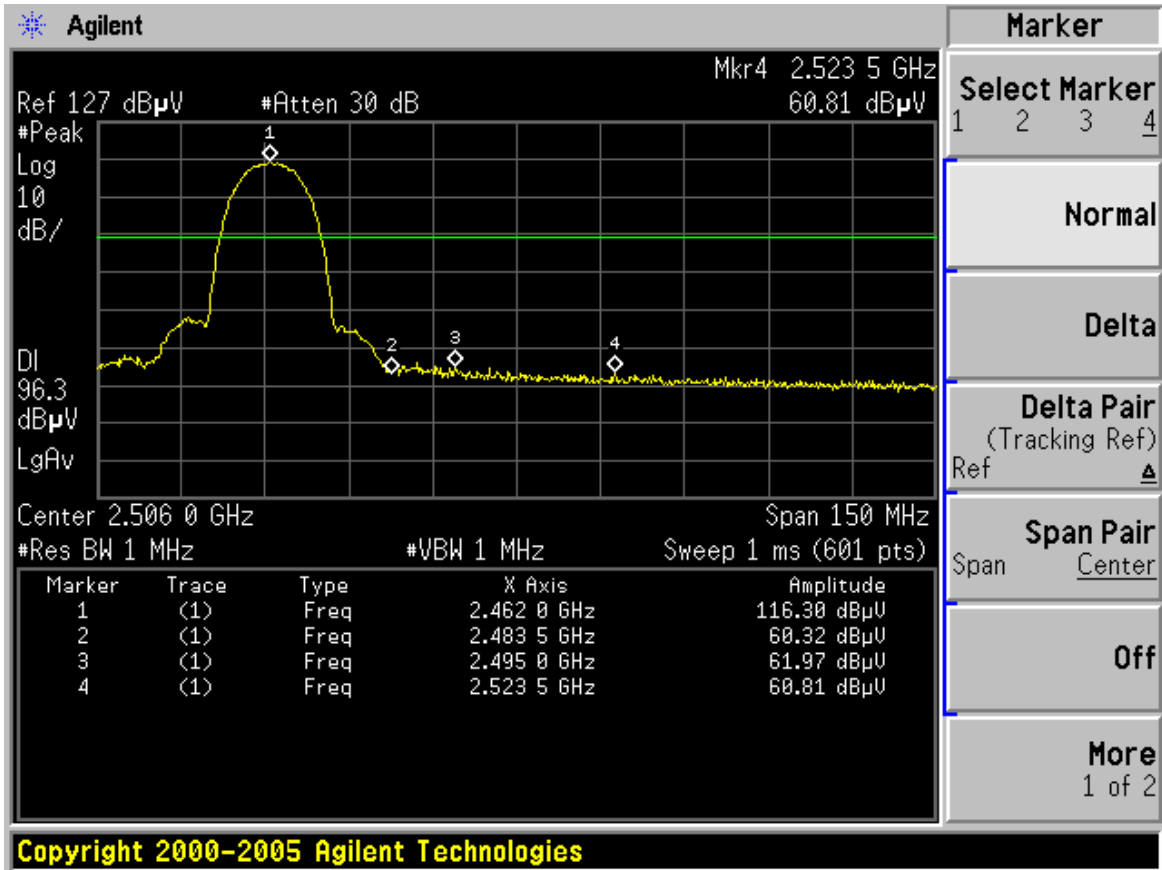


Test mode: IEEE 802.11b TX

CH1: 2412MHz

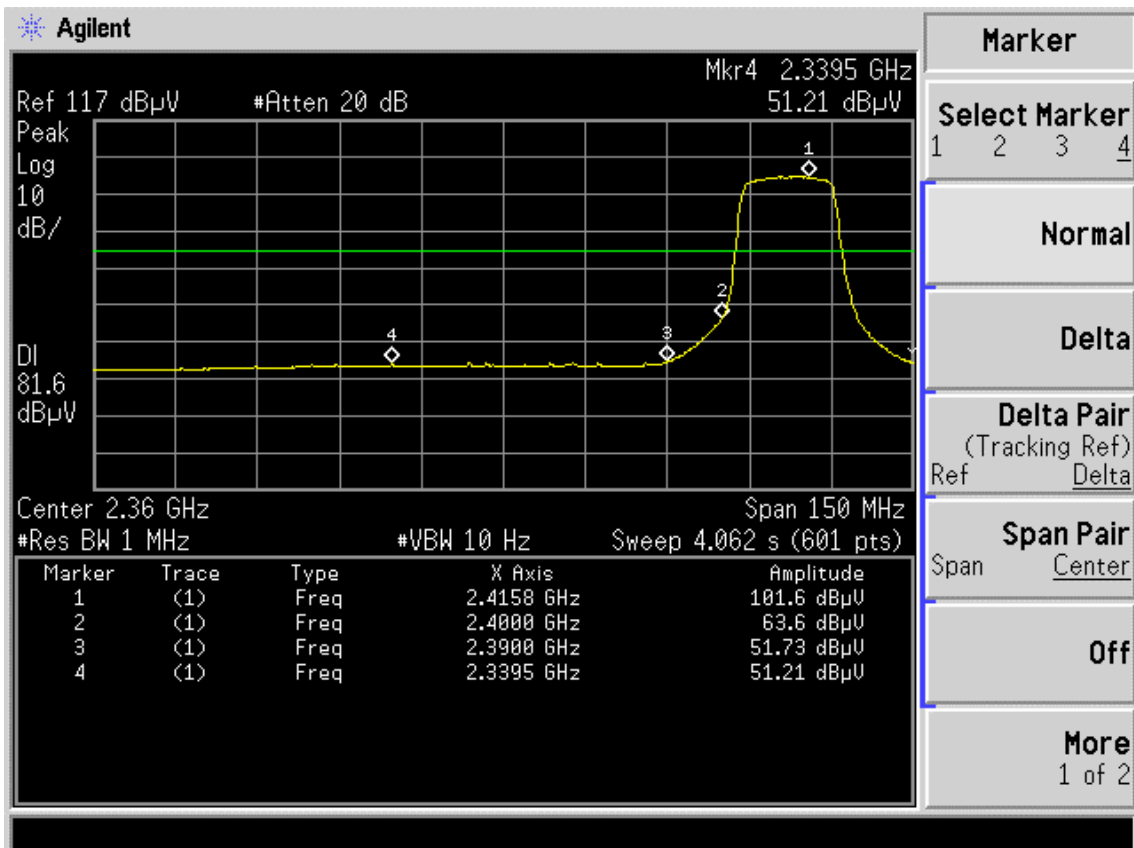
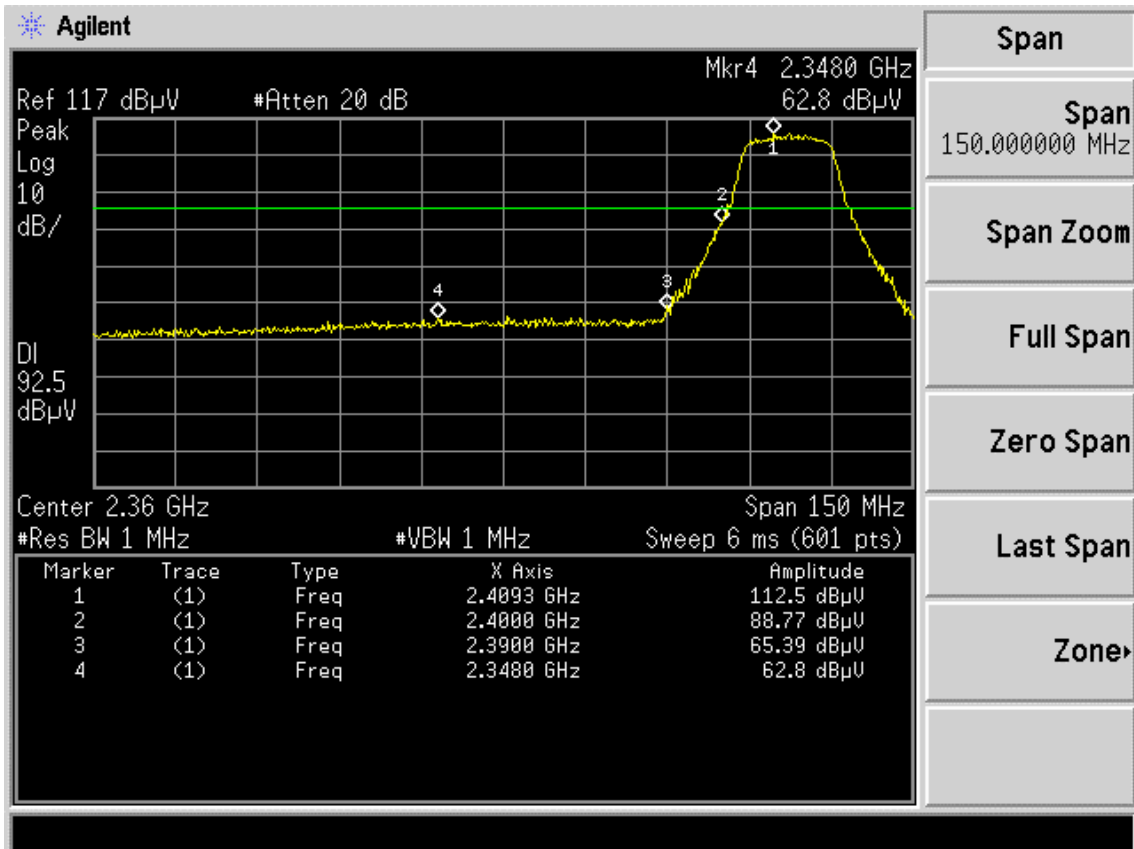


CH11: 2462MHz

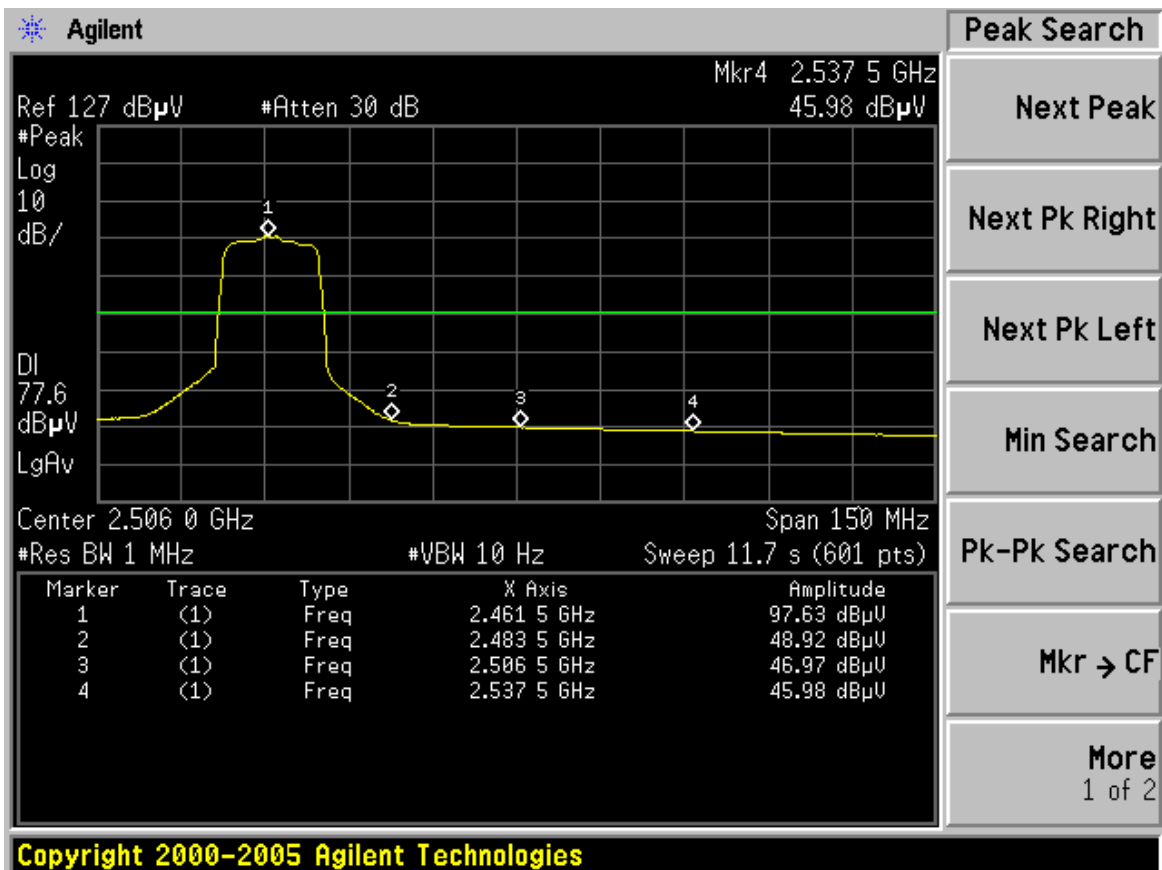
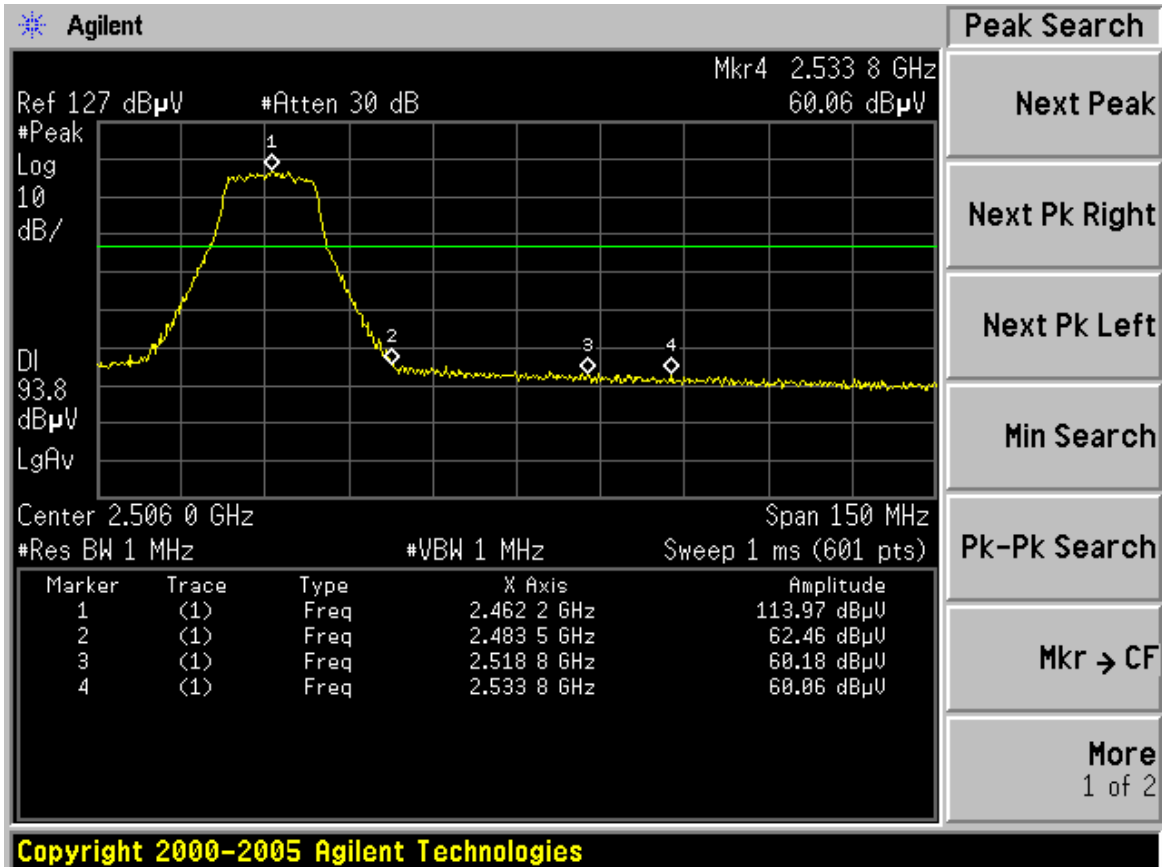


Test mode: IEEE 802.11g TX

CH1: 2412MHz

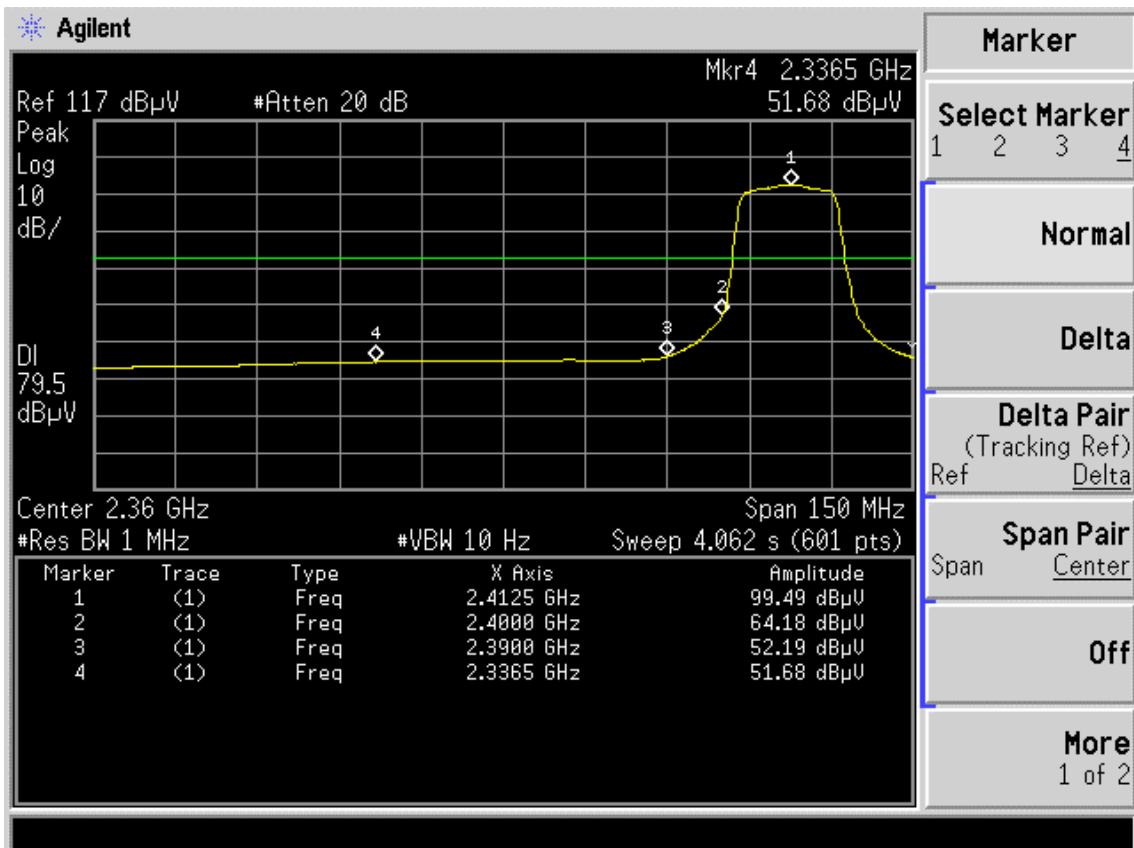
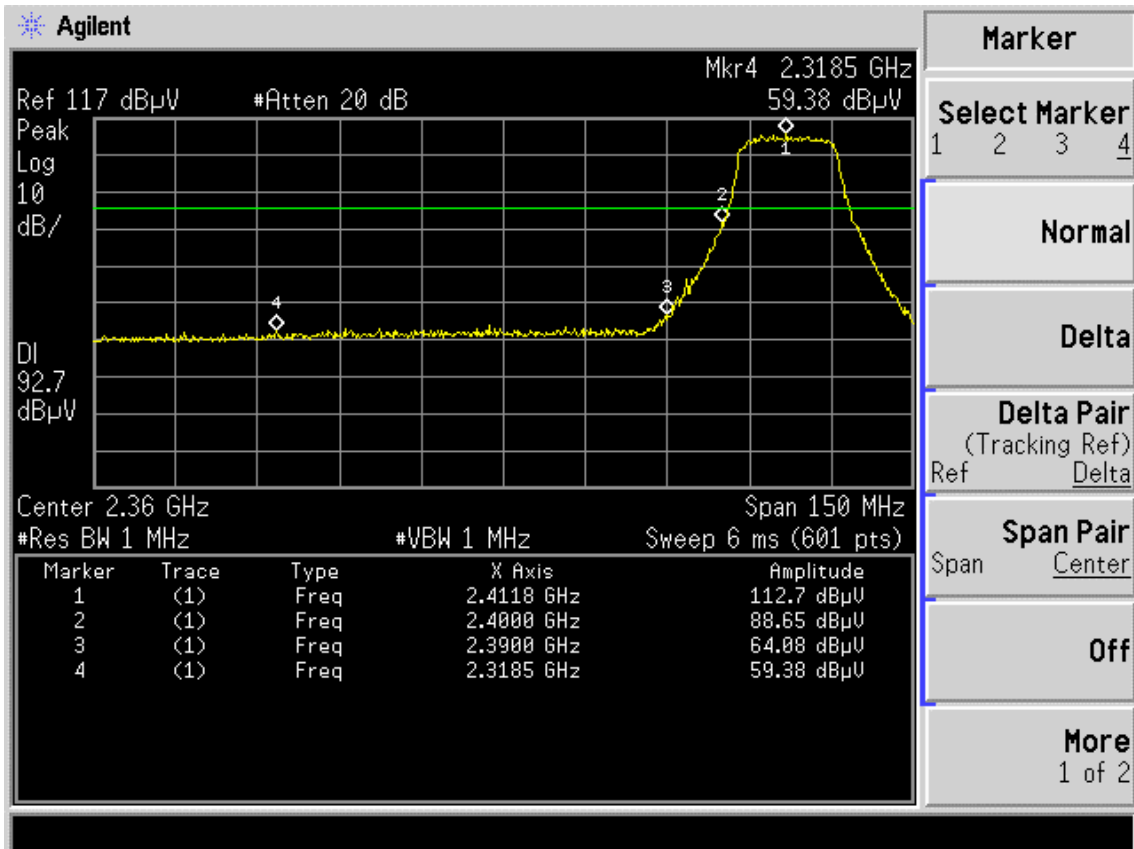


CH11: 2462MHz

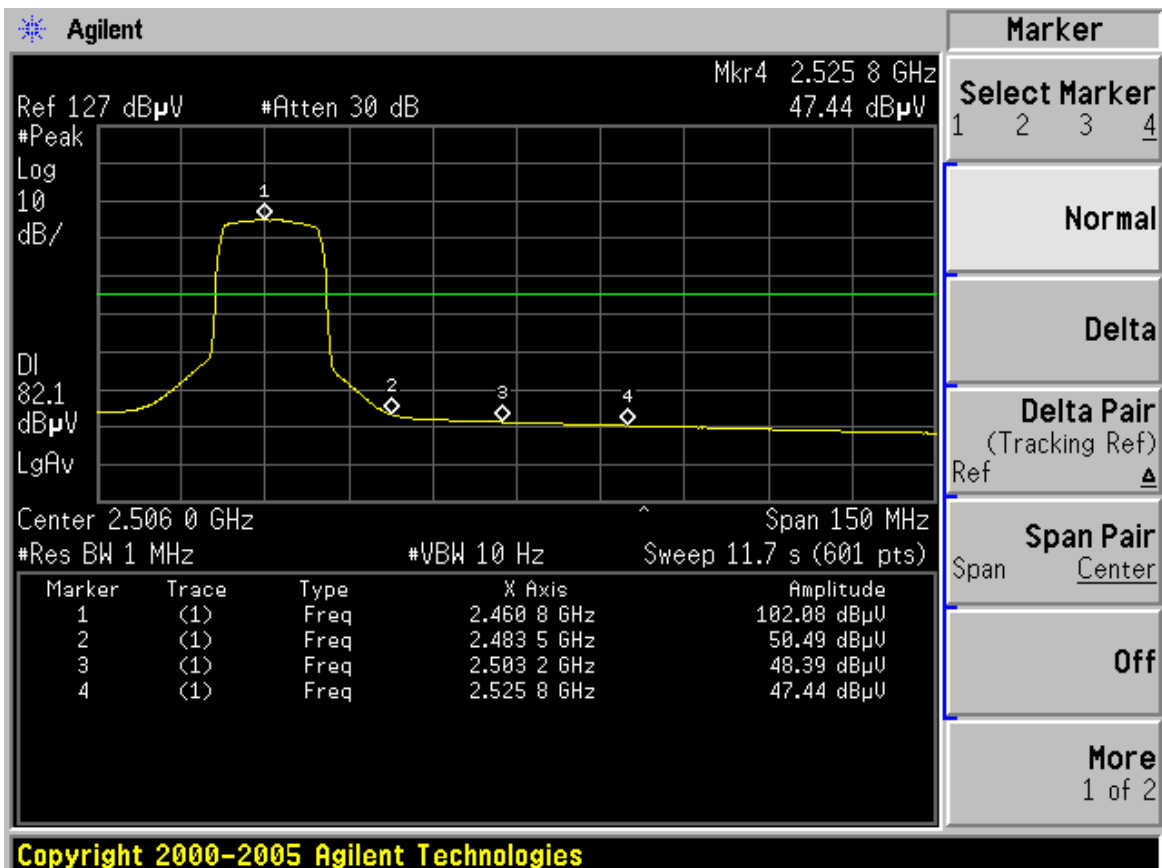
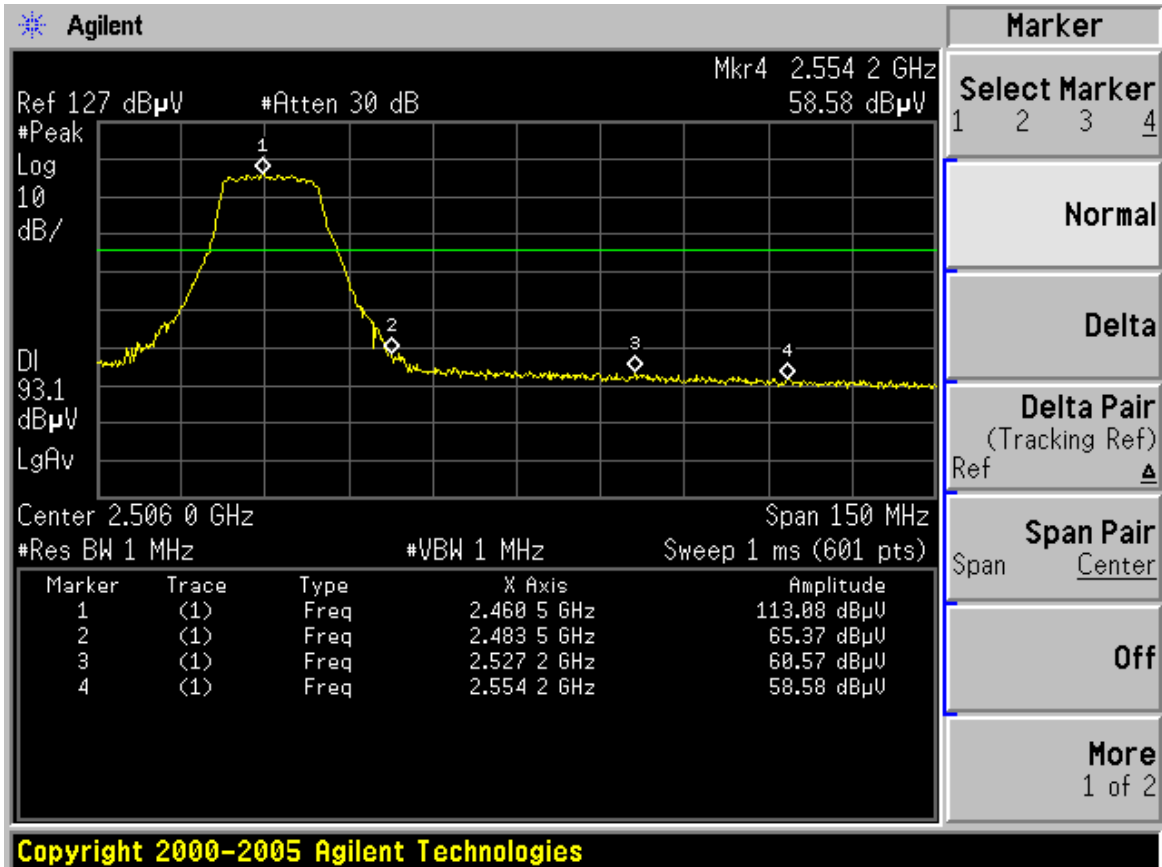


Test mode: IEEE 802.11n TX (HT20)

CH1: 2412MHz

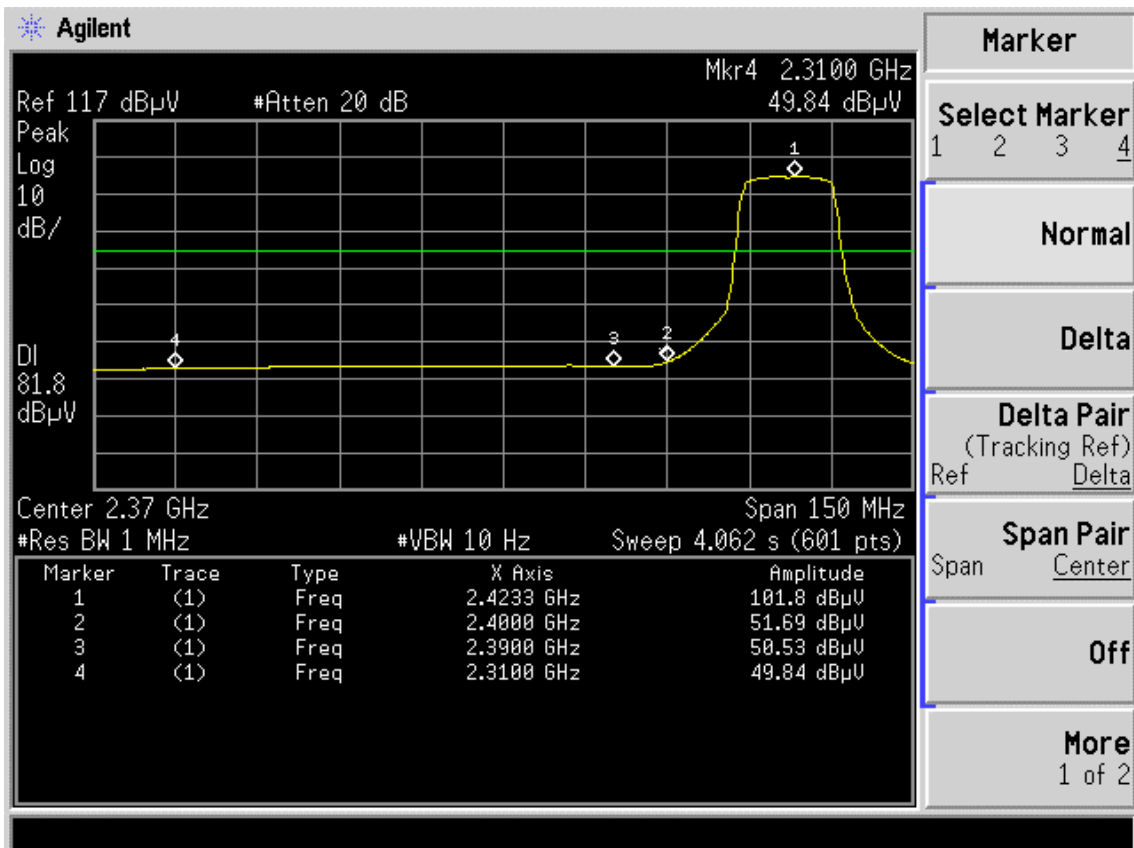
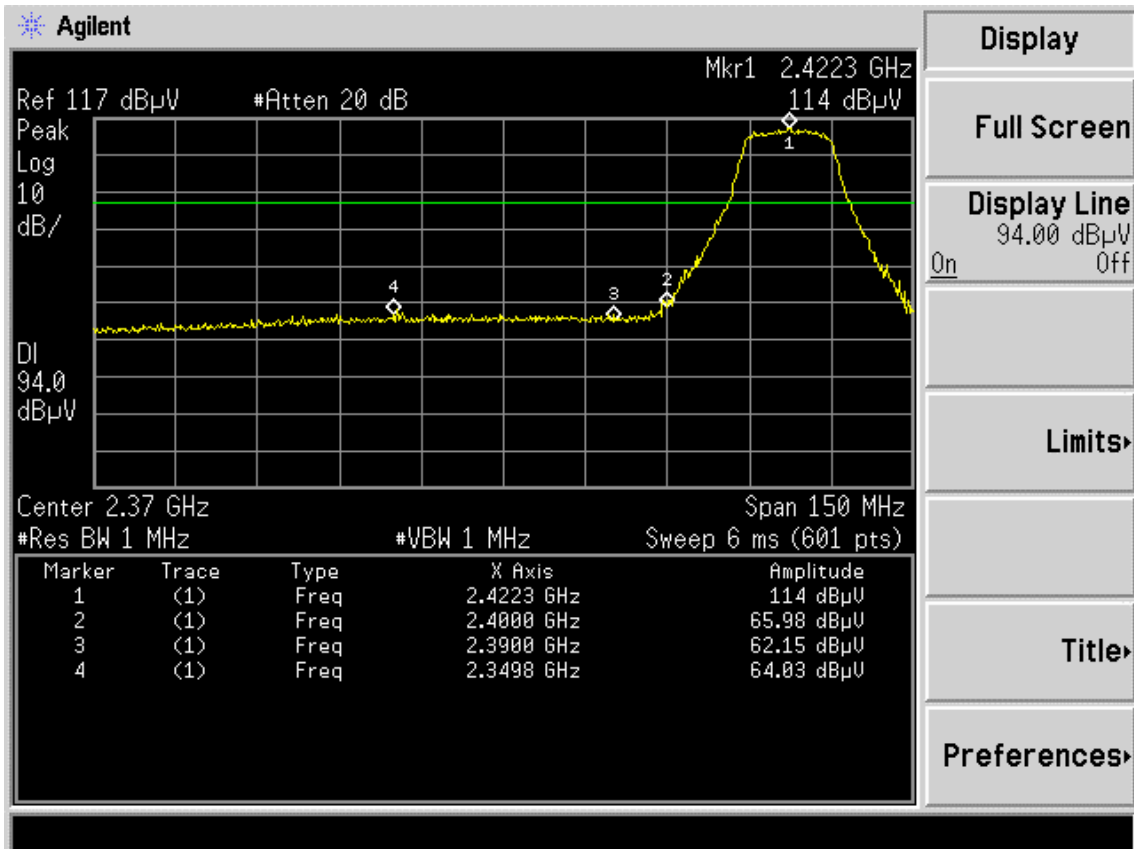


CH11: 2462MHz

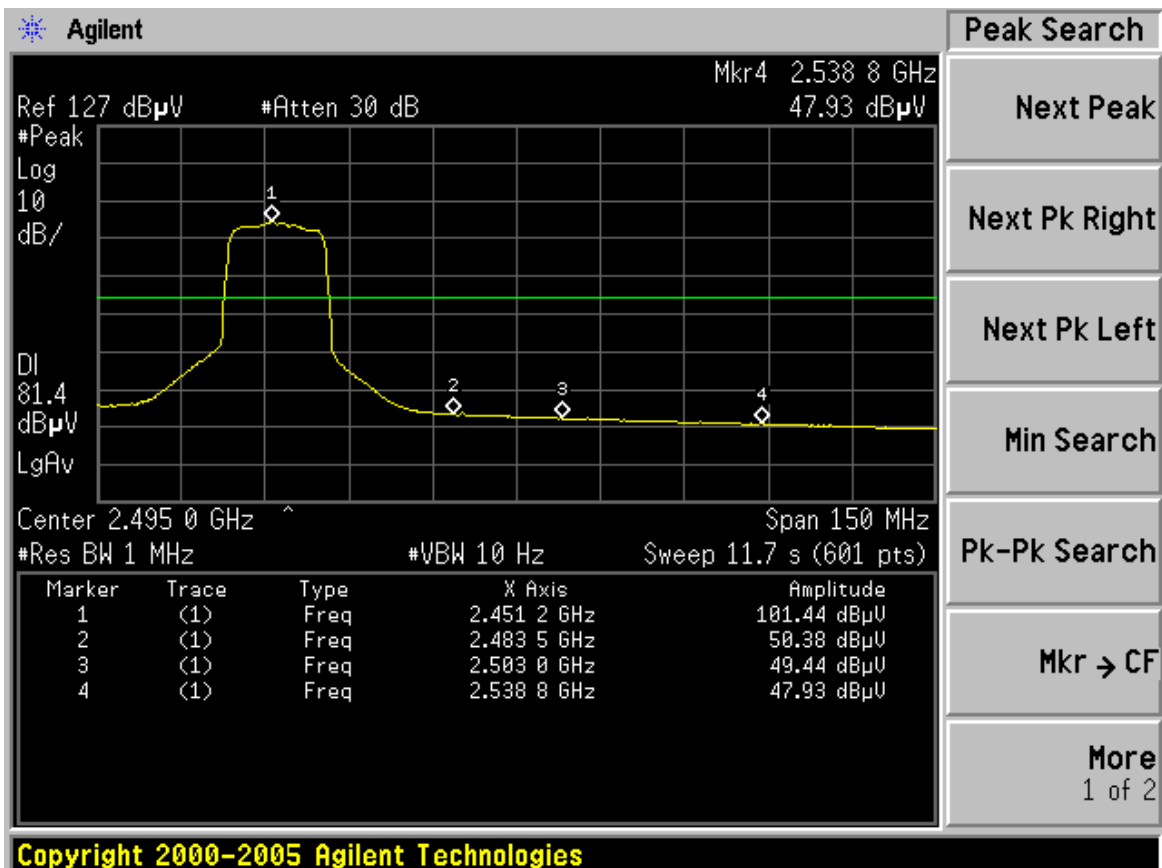
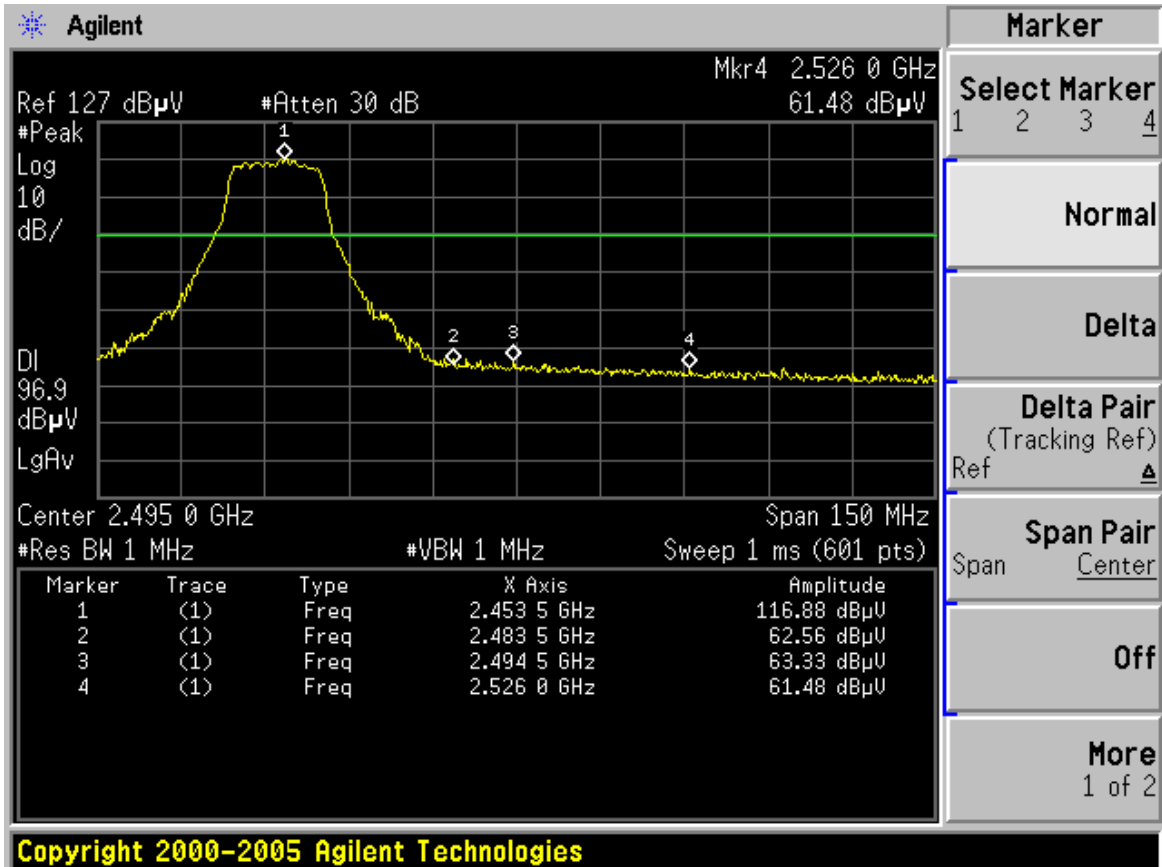


Test mode: IEEE 802.11n TX (HT40)

CH1: 2422MHz



CH7: 2452MHz





## 8. POWER SPECTRAL DENSITY TEST

### 8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May,11, 07	1 Year
2	RF Cable	MIYAZAKI	8D-FB	NO 3	May,11,07	1 Year

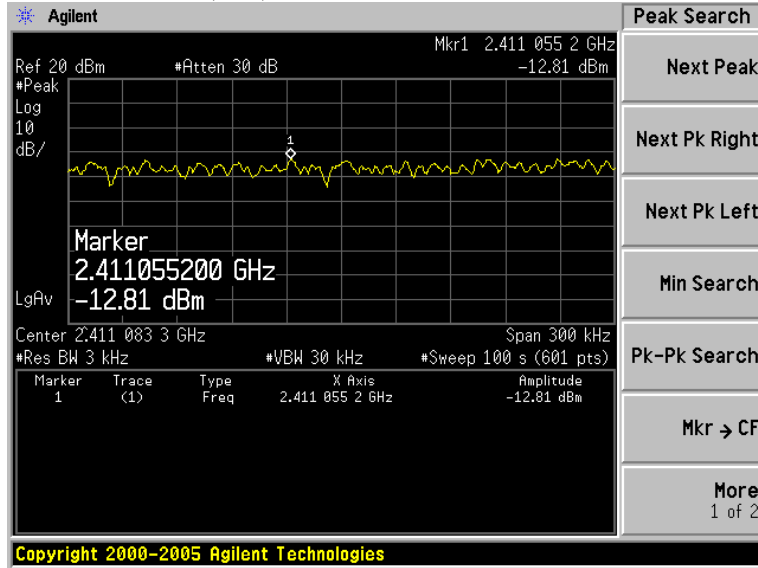
### 8.2. Test Procedure

The transmitter output was connected to a spectrum analyzer via a Attenuator . The power density was measured by spectrum analyzer with 3 KHz RBW and 30KHz VBW, sweep time=span/3KHz.

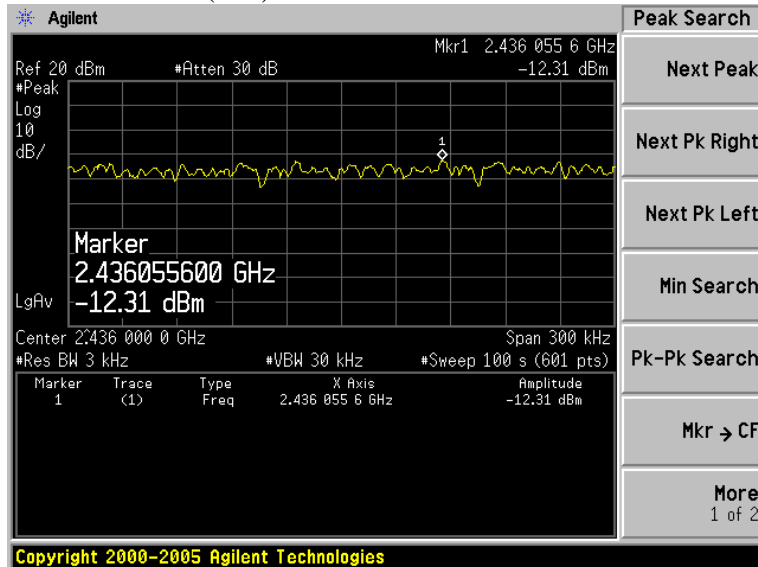
## 8.3.Test Results

EUT: Wireless N USB Adapter M/N: TL-WN821N							
Power: DC 5V From PC 120V/60Hz							
Data Rate:11b 1Mbps ; 11g : 6Mbps ; 11n HT20 : 6.5Mbps ; 11n HT40 : 13.5Mbps(Note 1)							
Ambient Temperature:23°C				Relative Humidity: 60%			
Test date: 2008/04/03				Test site: RF site		Tested By: Jamy	
Cable Loss: 0.6dB Antenna Gain:2dBi							
Test CH	11b,11g,11n HT20			CH1:2412MHz CH6:2437MHz		CH11:2462MHz	
Test CH	11n HT40			CH1:2422MHz CH4:2437MHz		CH7:2452MHz	
Mode	CH	Chain1		Chain2			Result
		Read (dBm)	Level (dBm)	Read (dBm)	Level (dBm)	Total Power (dBm)	Limit
11b	CH1	-12.81	-12.21	-11.52	-10.92	<b>-8.51</b>	8
	CH6	-12.31	-11.71	-11.92	-11.32	<b>-8.50</b>	8
	CH11	-12.54	-11.94	-11.72	-11.12	<b>-8.50</b>	8
11g	CH1	-18.61	-18.01	-15.70	-15.10	<b>-13.31</b>	8
	CH6	-18.66	-18.06	-15.44	-14.84	<b>-13.5</b>	8
	CH11	-18.12	-17.52	-15.54	-14.94	<b>-13.03</b>	8
11n HT20	CH1	-18.84	-18.24	-16.04	-15.44	<b>-13.61</b>	8
	CH6	-17.98	-17.38	-15.76	-15.16	<b>-13.12</b>	8
	CH11	-18.51	-17.91	-15.74	-15.14	<b>-13.30</b>	8
11n HT40	CH1	-24.27	-23.67	-20.17	-19.57	<b>-18.14</b>	8
	CH4	-25.08	-24.48	-20.83	-20.23	<b>-18.84</b>	8
	CH7	-25.01	-24.41	-20.58	-19.98	<b>-18.64</b>	8
Note1: According Exploratory test, These data rate have the maximum output power							
Note2: Level=Read+ cable loss, Total power=Chain1 Level +Chain2 Level (Linear)							

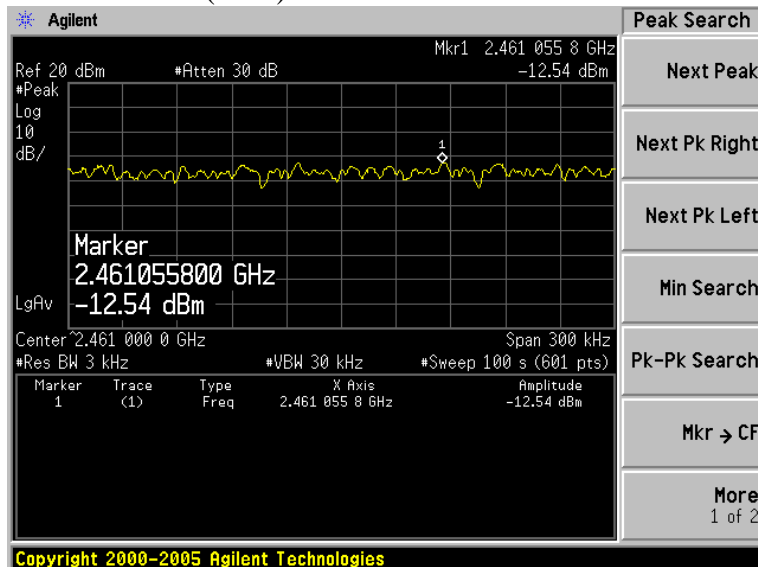
**CHAIN1:**  
IEEE 802.11b (ch1)



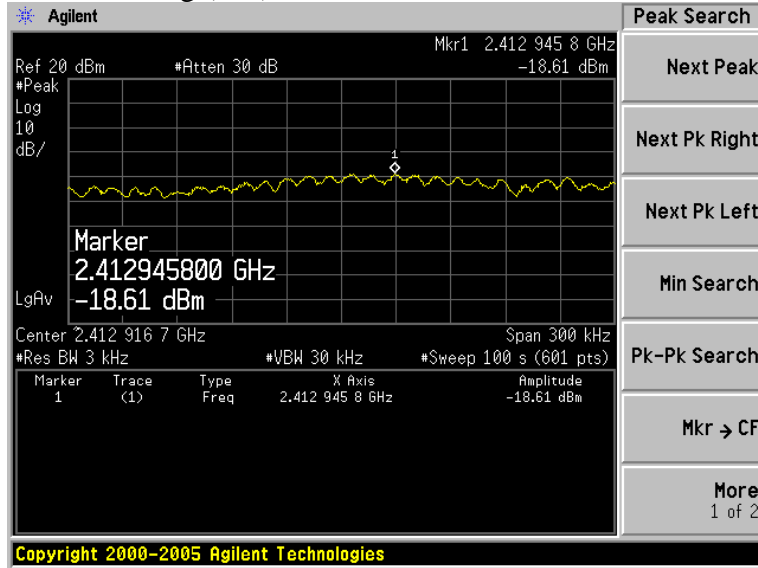
IEEE 802.11b (ch6)



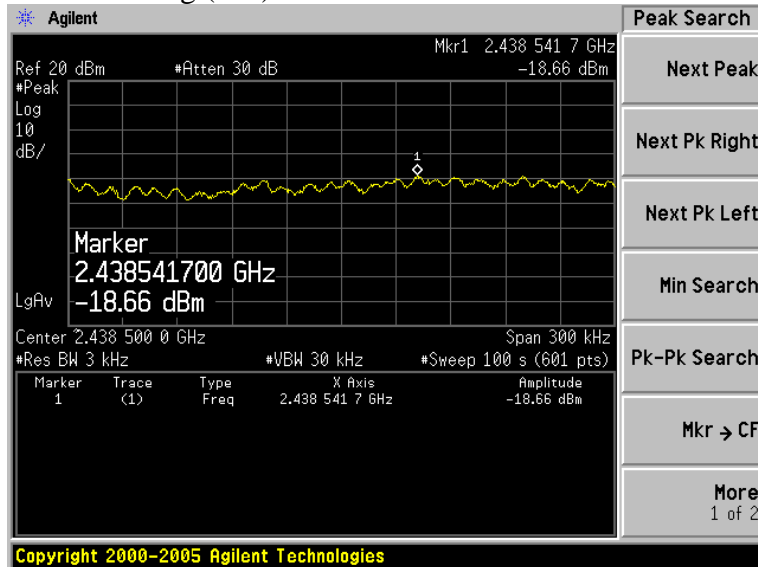
IEEE 802.11b (ch11)



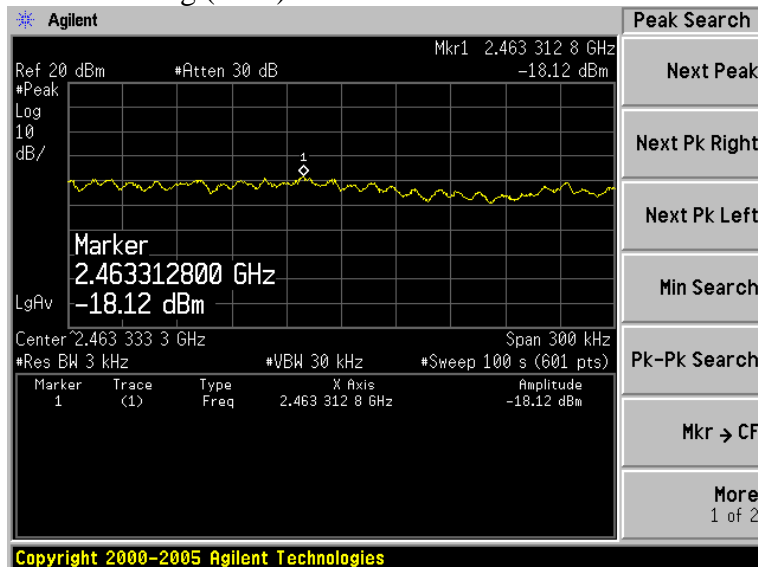
IEEE 802.11g (ch1)



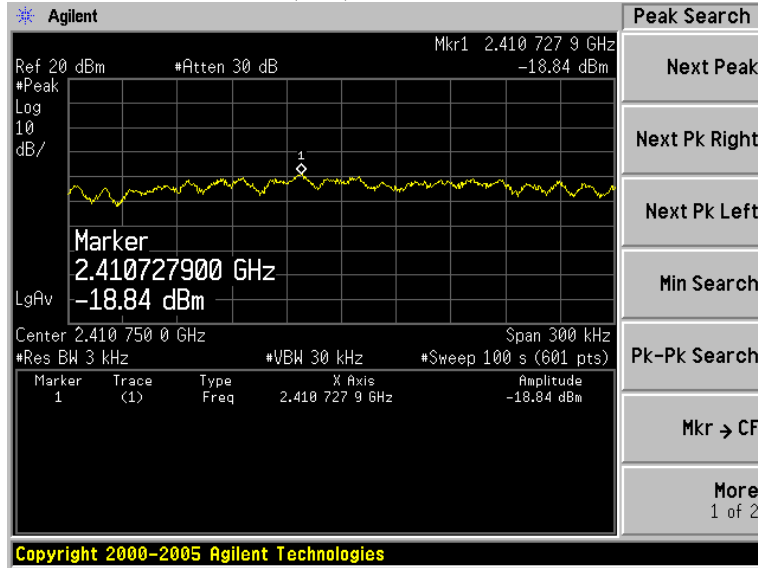
IEEE 802.11g (ch6)



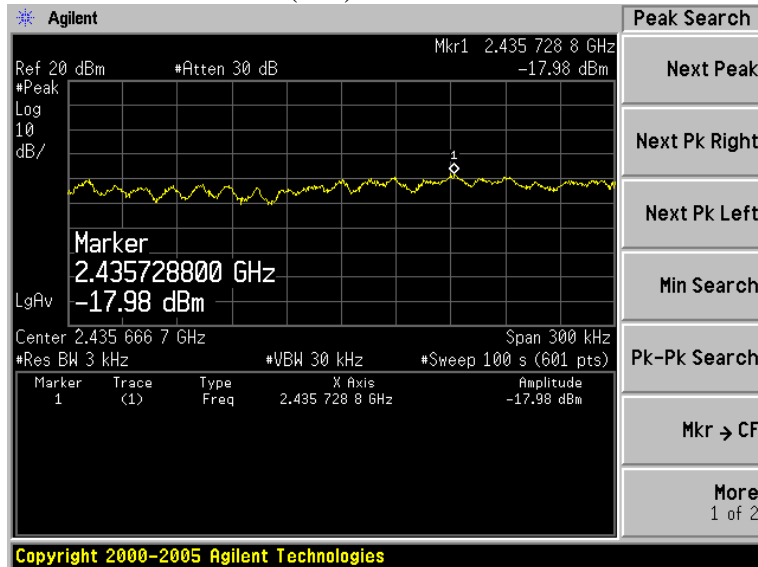
IEEE 802.11g (ch11)



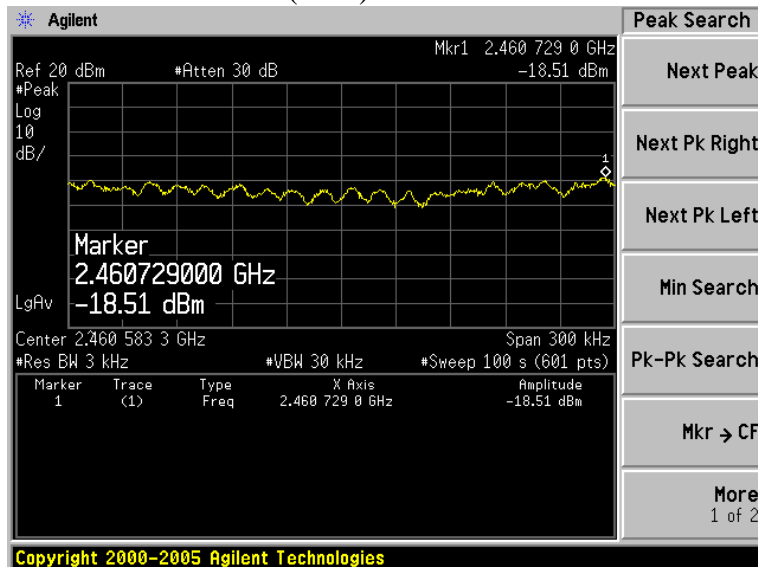
IEEE 802.11n HT20 (ch1)



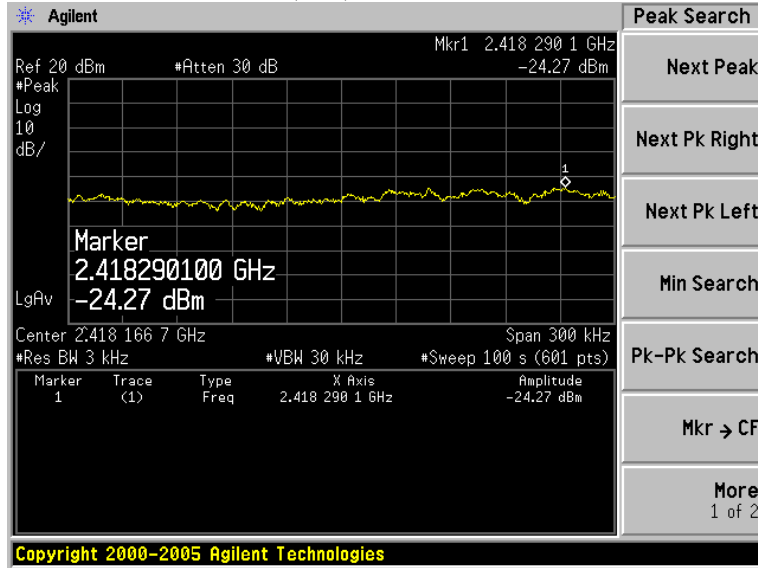
IEEE 802.11n HT20 (ch6)



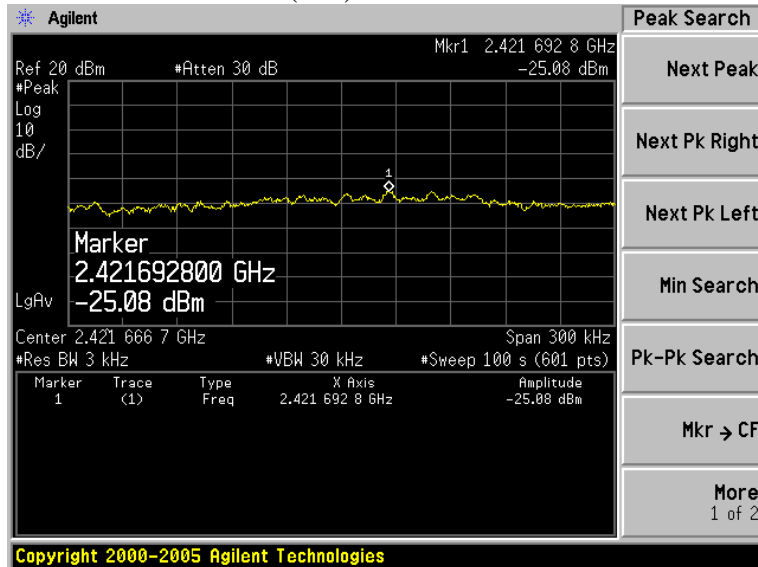
IEEE 802.11n HT20 (ch11)



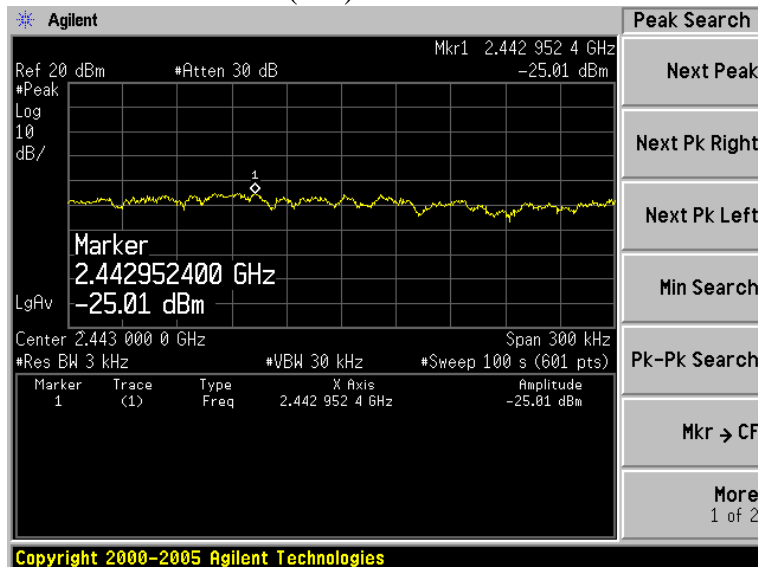
IEEE 802.11n HT40 (ch1)



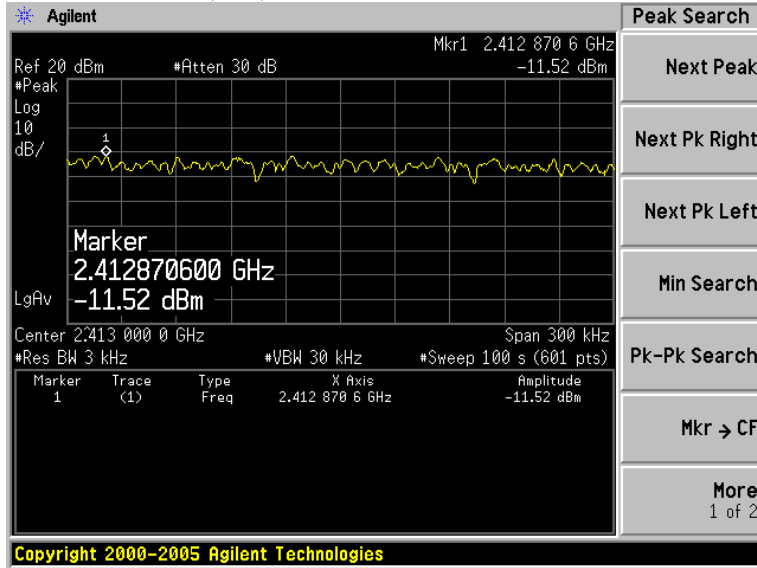
IEEE 802.11n HT40 (ch4)



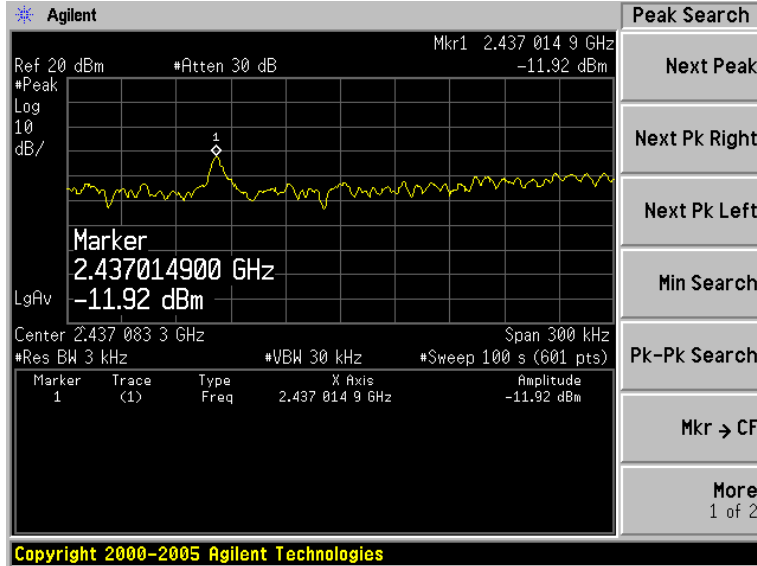
IEEE 802.11n HT40 (ch7)



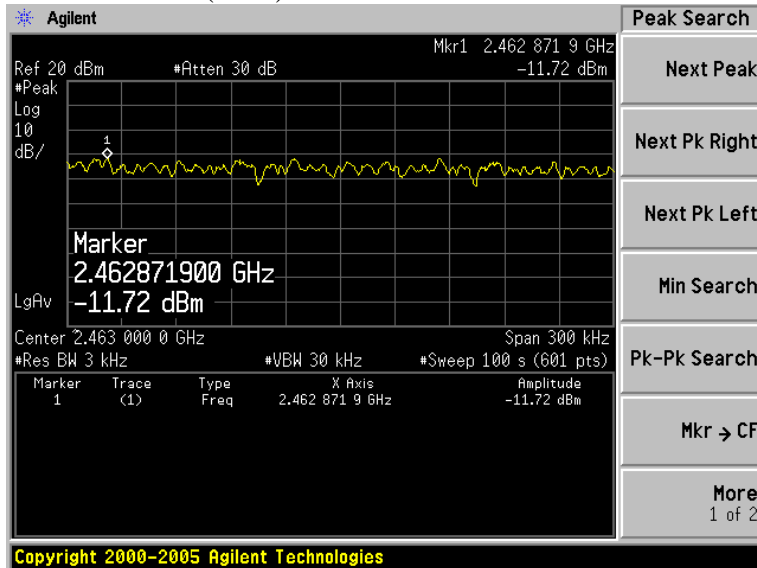
**CHAIN2:**  
IEEE 802.11b (ch1)



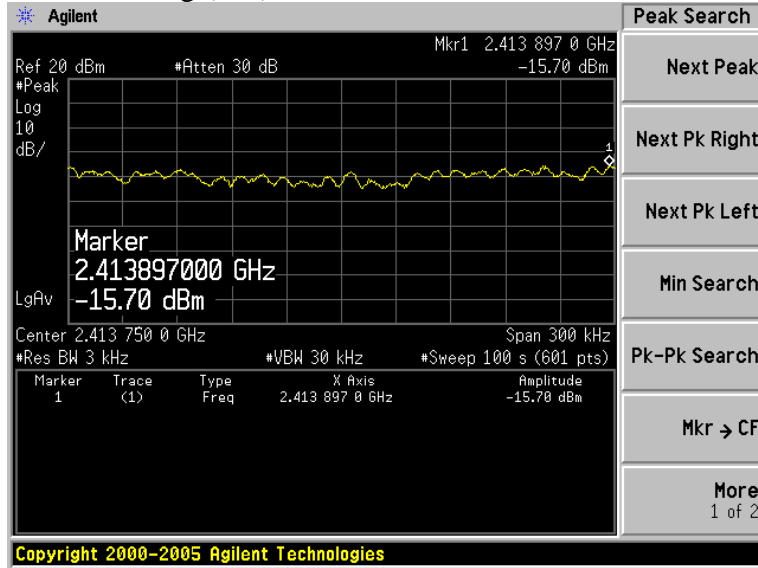
IEEE 802.11b (ch6)



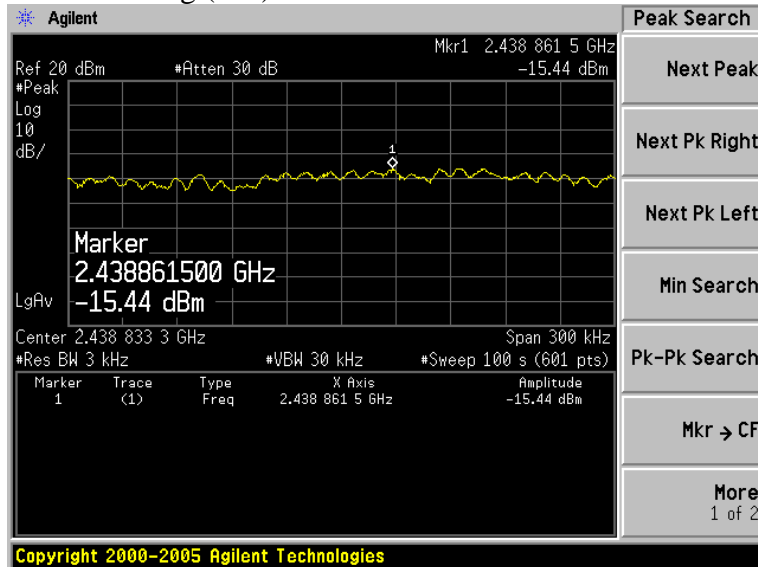
IEEE 802.11b (ch11)



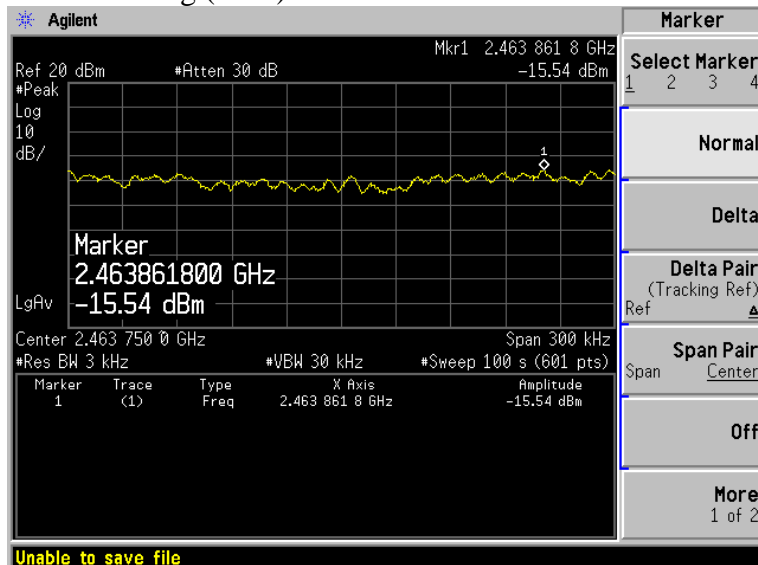
IEEE 802.11g (ch1)



IEEE 802.11g (ch6)

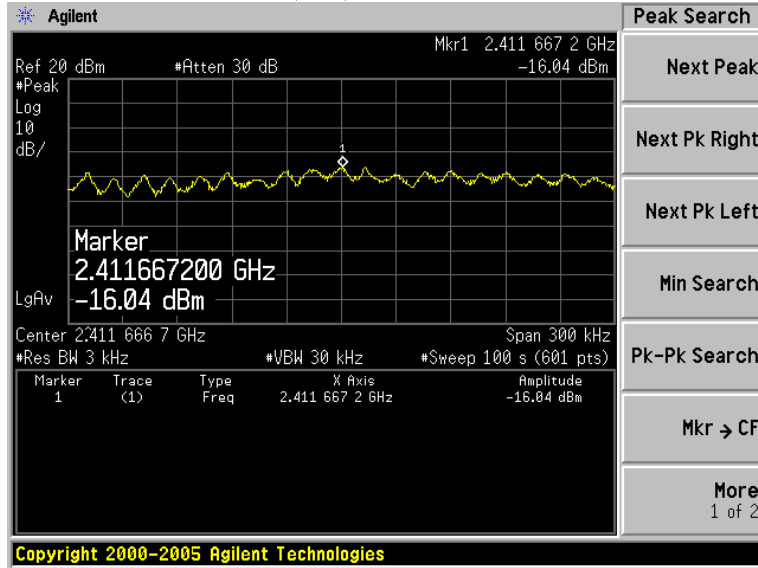


IEEE 802.11g (ch11)

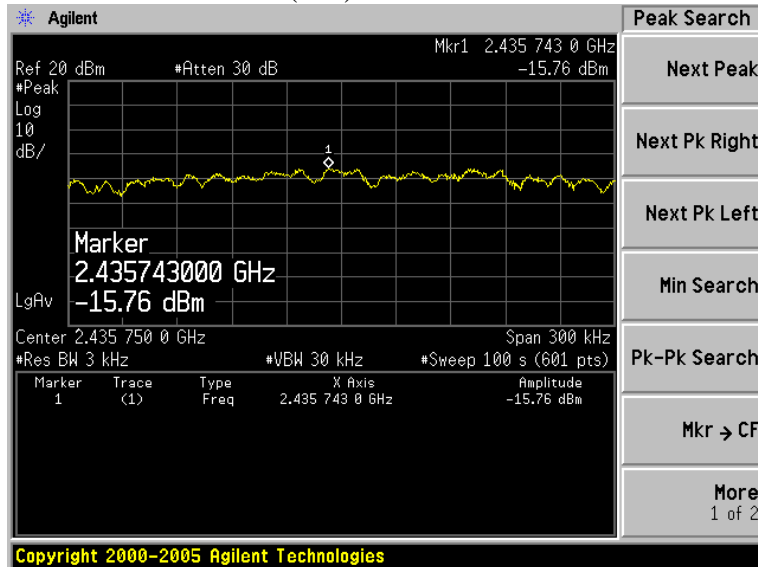




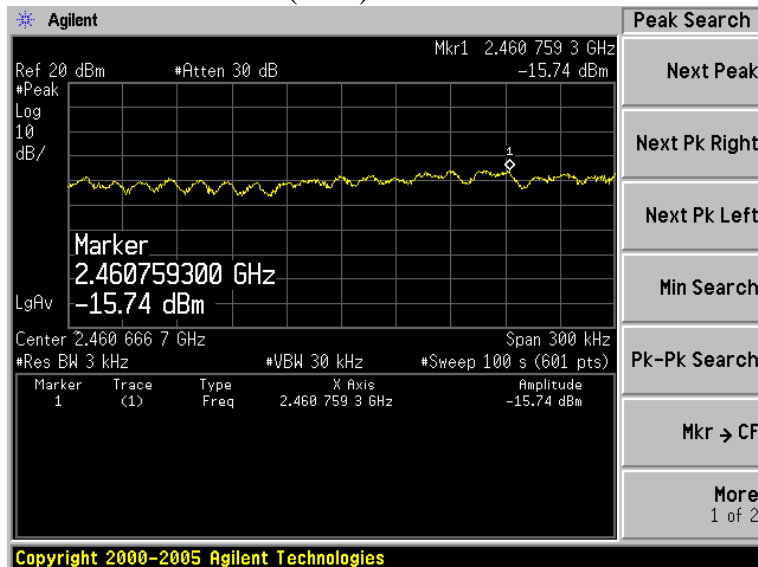
IEEE 802.11n HT20 (ch1)



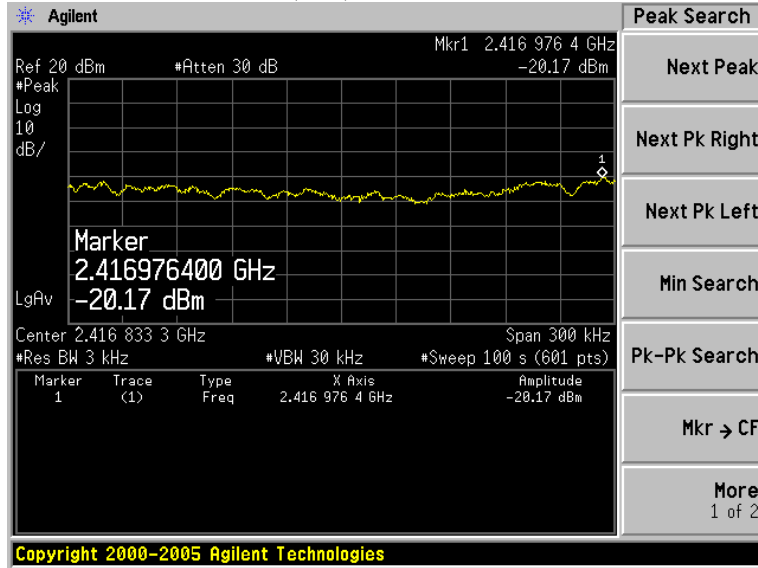
IEEE 802.11n HT20 (ch6)



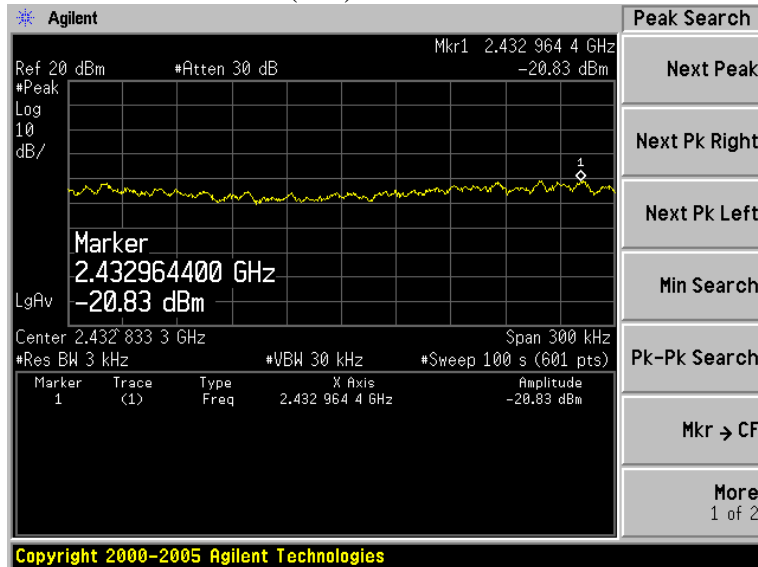
IEEE 802.11n HT20 (ch11)



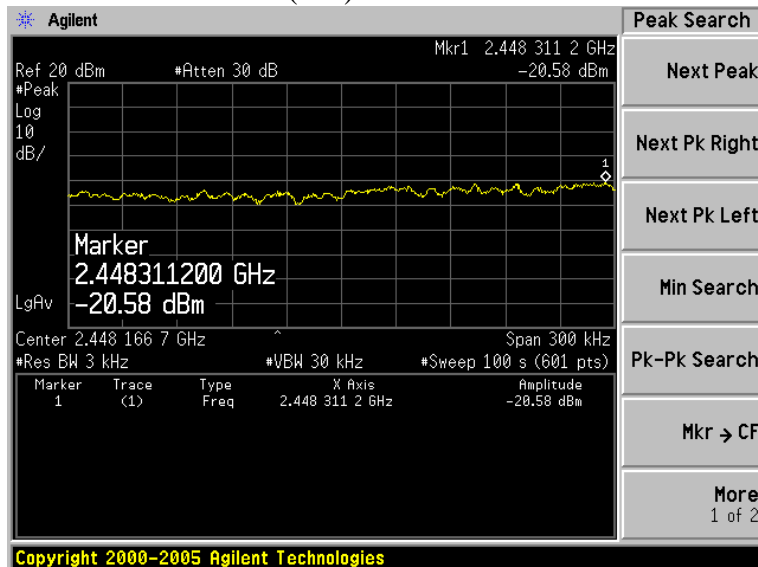
IEEE 802.11n HT40 (ch1)



IEEE 802.11n HT40 (ch4)



IEEE 802.11n HT40 (ch7)



## **9. ANTENNA REQUIREMENT**

### **10.1 STANDARD APPLICABLE**

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **10.2 ANTENNA CONNECTED CONSTRUCTION**

The antenna used for this product is an **integral PCB antenna** (see EUT photo) that no antenna other than that furnished by the responsible party shall be used with the device, The maximum peak gain of this antenna is only 2dBi.

## **10.DEVIATION TO TEST SPECIFICATIONS**

[ NONE]