



# FCC RADIO TEST REPORT

## FCC ID: ULTWUA-0614

**Product :** 150M Wireless USB adapter

**Trade Name :** The logo for 'level one' consists of the word 'level' in a blue sans-serif font above a grid of blue squares. The grid is 4 squares wide and 3 squares high, with the word 'one' in a blue sans-serif font below it.

**Model Name :** WUA-0614

**Serial Model :** WUA-0624

**Report No. :** NTEK- 2012NT0522963F

### Prepared for

Digital Data Communications Asia Co., Ltd.

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### Prepared by

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## TEST RESULT CERTIFICATION

**Applicant's name** ..... : Digital Data Communications Asia Co., Ltd.  
**Address** ..... : 8F, No.41, Lane 221, Kang-Chien Rd., Nei-Hu,114,Taipei, Taiwan  
**Manufacturer's Name**..... : Shenzhen Mtn Electronics Co.,Ltd  
**Address** ..... : Longgang District the floor Cifo China Road MAGOTAN Industrial Park III

### Product description

**Product name** ..... : 150M Wireless USB adapter  
**Model and/or type reference** : WUA-0614  
**Serial Model** : WUA-0624

**Standards** ..... : FCC Part15.247

**Test procedure**..... ANSI C63.4-2003

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test** .....

**Date (s) of performance of tests** ..... : 25 May. 2012 ~02 Jun. 2012

**Date of Issue**..... : 02 Jun. 2012

**Test Result**..... : **Pass**

**Testing Engineer** : Apple Huang  
(Apple Huang)

**Technical Manager** : Tom Zhang  
(Tom Zhang)

**Authorized Signatory** : Bovey Yang  
(Bovey Yang)

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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

<b>FCC Part15 (15.247) , Subpart C</b>			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

**NOTE:**

(1) "N/A" denotes test is not applicable in this Test Report

**1.1 TEST FACILITY**

NTEK Testing Technology Co., Ltd

Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516


**1.2 MEASUREMENT UNCERTAINTY**

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^\circ\text{C}$
7	Humidity	$\pm 2\%$

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	150M Wireless USB adapter	
Trade Name		
Model Name	WUA-0614	
Serial Model	WUA-0624	
Model Difference	Only Model name is different.	
Product Description	The EUT is a 150M Wireless USB adapter	
	Operation Frequency:	2412~2462 MHz
	Modulation Type:	CCK/OFDM/DBPSK/DAPSK
	Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:150/144.44/130/117/115.56/104/86.67/78/52/6.5 Mbps
	Number Of Channel	11 CH, Please see Note 2.
	Antenna Designation:	Please see Note 3.
	Output Power(Conducted):	802.11b: 15.49 dBm (Max.) 802.11g: 13.77 dBm (Max.) 802.11n: 13.85 dBm (Max.)
	Antenna Gain (dBi)	4.0dbi
	EIRP	802.11b: 19.79 dBm (Max.) 802.11g: 17.77 dBm (Max.) 802.11n: 17.85 dBm (Max.)
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Channel List	Please refer to the Note 2.	
Power	DC 5V(USB) from PC	
Battery	N/A	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note

:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

Channel List for 802.11b/g/n(20MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
	N/A	N/A	external antenna	Reserve SMA-type	4.0	N/A



## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n CH1/ CH6/ CH11
Mode 4	NORMAL LINK

For Conducted Emission	
Final Test Mode	Description
Mode 4	NORMAL LINK

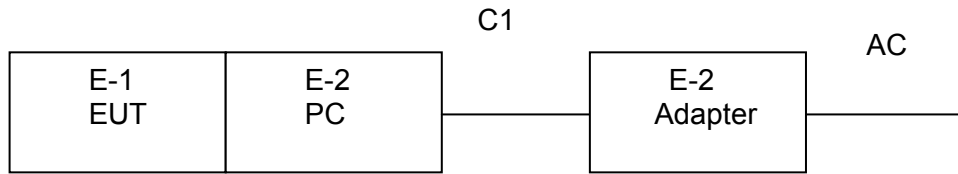
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n CH1/ CH6/ CH11

Note:

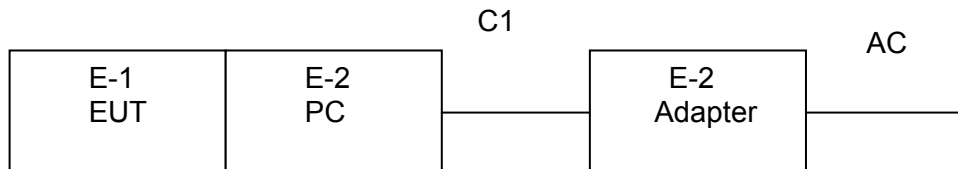
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

### 2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test




Radiated Spurious Emission Test



**2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)**

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	150M Wireless USB adapter		WUA-0614	N/A	EUT
E-2	Notebook computer	IBM	2366	N/A	
E-3	Adapter	IBM	08K8202	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	0.8M	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

**2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS**

**Radiation Test equipment**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	E4407B	160400005	Jul. 06. 2012
2	Test Receiver	R&S	ESPI	101318	Jul. 06. 2012
3	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06. 2012
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	Jul. 06. 2012
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	Jul. 06. 2012
6	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06. 2012
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	Jul. 06. 2012
8	Amplifier	EM	EM-30180	060538	Jul. 06. 2012
9	Loop Antenna	ARA	PLA-1030/B	1029	Jul. 06. 2012
10	Power Meter	R&S	NRVS	100696	Jul. 06. 2012

**Conduction Test equipment**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Test Receiver	R&S	ESCI	101160	Jul. 06. 2012
2	LISN	R&S	ENV216	101313	Jul. 06. 2012
3	LISN	EMCO	3816/2	00042990	Jul. 06. 2012
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	Jul. 06. 2012
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	Jul. 06. 2012
6	Absorbing clamp	R&S	MOS-21	100423	Jul. 06. 2012

### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

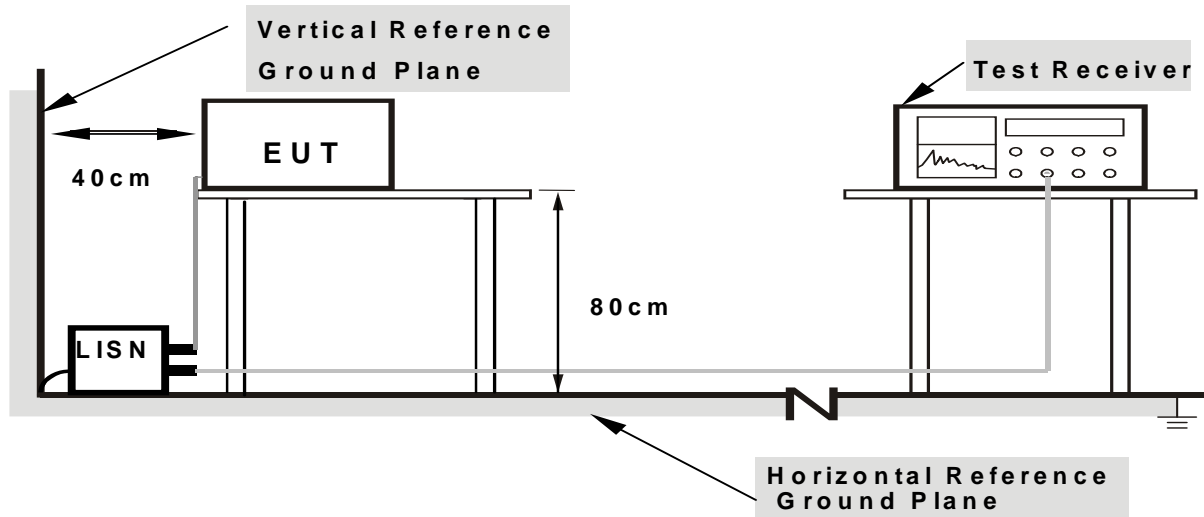
**3.1.2 TEST PROCEDURE**

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

**3.1.3 DEVIATION FROM TEST STANDARD**

No deviation

**3.1.4 TEST SETUP**



- Note:**
- 1. Support units were connected to second LISN.
  - 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

**3.1.5 EUT OPERATING CONDITIONS**

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

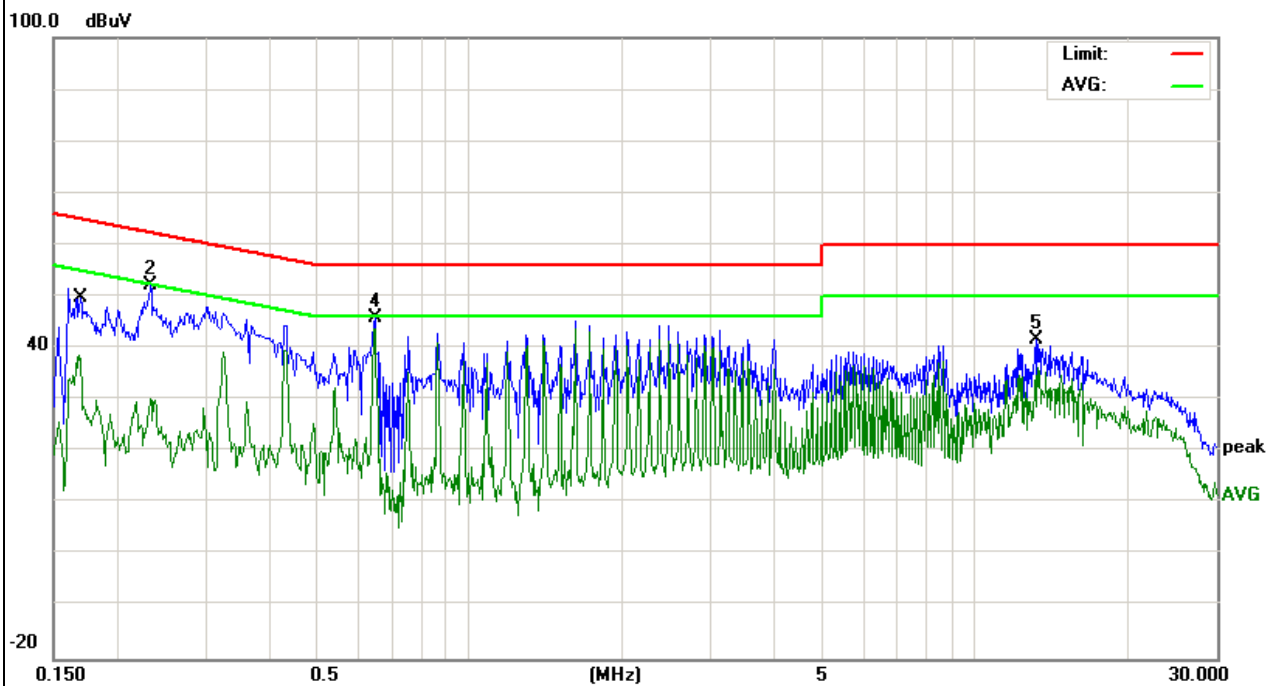
### 3.1.6 TEST RESULTS

EUT :	150M Wireless USB adapter	Model Name. :	WUA-0614
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	120V/60Hz	Test Mode :	Mode 5

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.1685	28.32	10.45	38.77	55.03	-16.26	AVG
0.234	41.76	10.44	52.2	62.3	-10.1	peak
0.646	31.43	10.41	41.84	46	-4.16	AVG
0.65	35.31	10.41	45.72	56	-10.28	peak
13.1699	30.87	10.7	41.57	60	-18.43	peak
13.2779	25.65	10.7	36.35	50	-13.65	AVG

**Remark:**

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

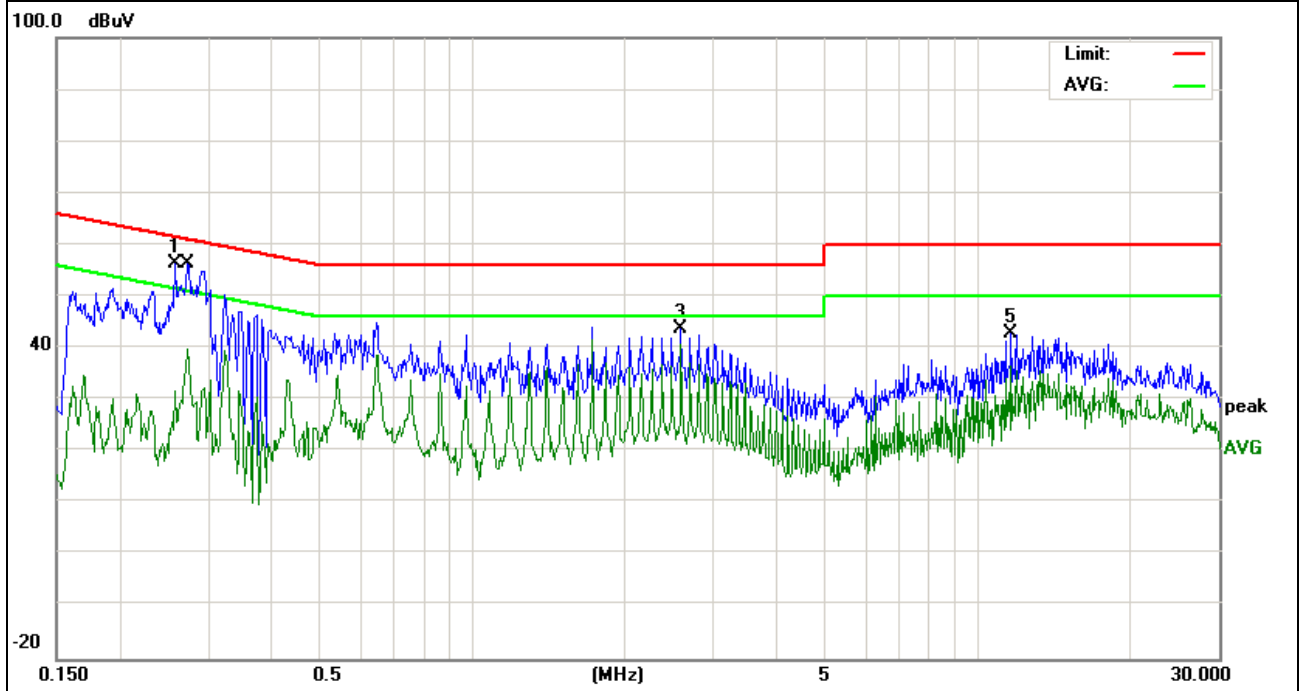


EUT :	150M Wireless USB adapter	Model Name. :	WUA-0614
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	120V/60Hz	Test Mode :	Mode 5

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.258	46.01	10.43	56.44	61.49	-5.05	peak
0.2714	29.31	10.43	39.74	51.07	-11.33	AVG
2.5899	33.4	10.42	43.82	56	-12.18	peak
2.5899	30.33	10.42	40.75	46	-5.25	AVG
11.6618	32.03	10.69	42.72	60	-17.28	peak
11.6618	25.77	10.69	36.46	50	-13.54	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.





### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microrvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

### 3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

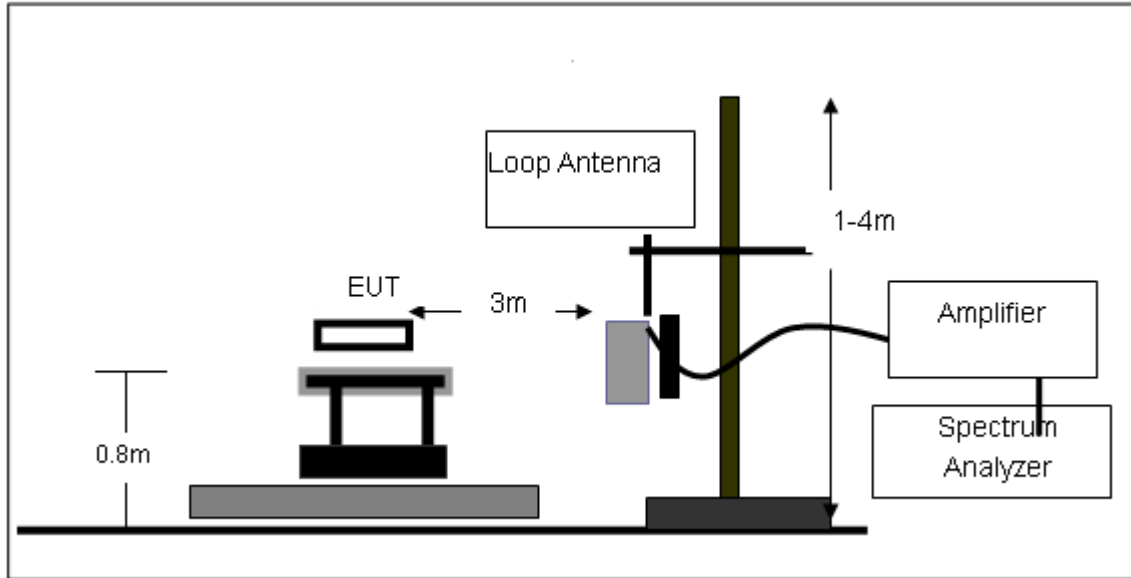
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

### 3.2.3 DEVIATION FROM TEST STANDARD

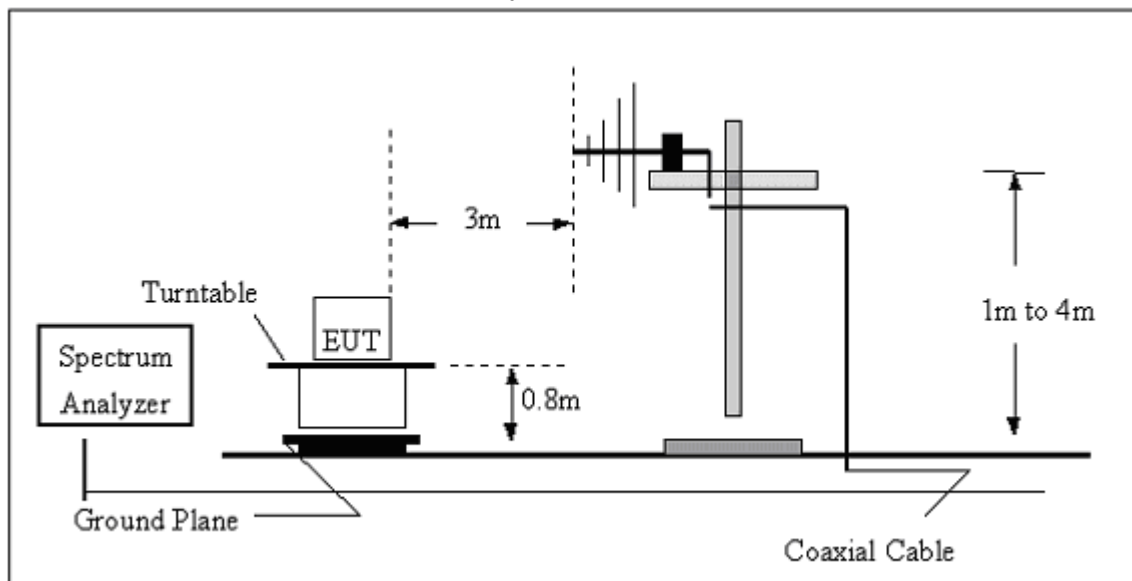
No deviation

### 3.2.4 TEST SETUP

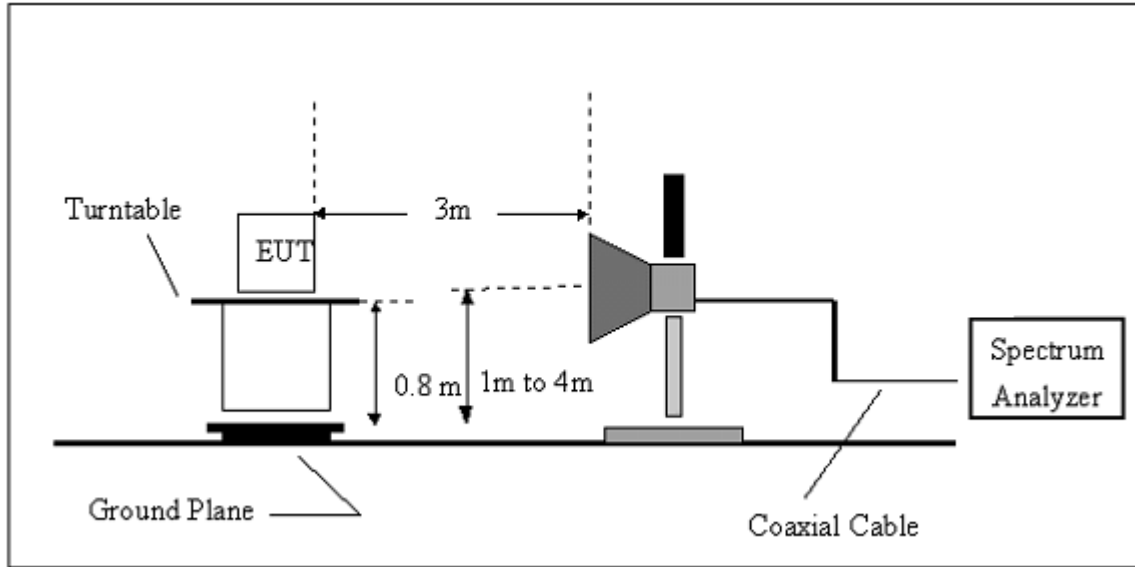
#### (A) Radiated Emission Test-Up Frequency Below 30MHz



#### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



**3.2.5 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)**

EUT:	150M Wireless USB adapter	Model Name. :	WUA-0614
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

**NOTE:**

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $20 \log (\text{specific distance}/\text{test distance})(\text{dB})$ ;

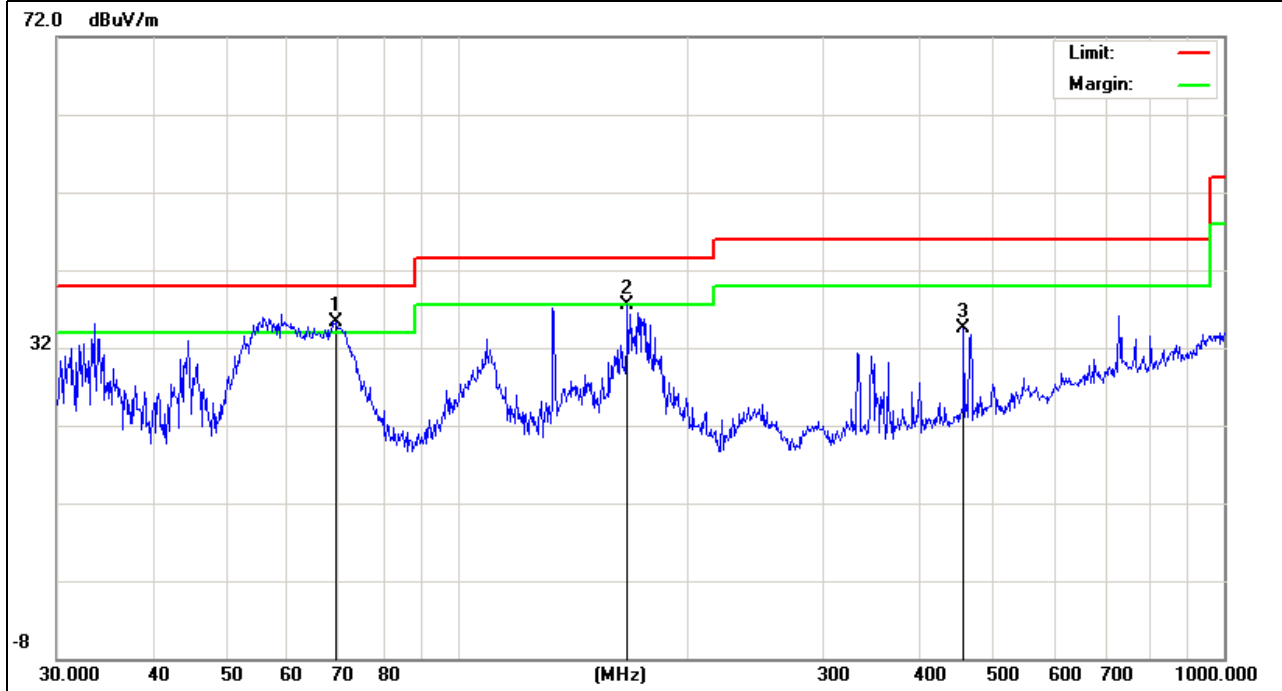
Limit line = specific limits(dBuv) + distance extrapolation factor.

### 3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
69.3568	29.39	5.91	35.3	40	-4.7	peak
166.6513	27.14	10.31	37.45	43.5	-6.05	peak
457.5072	16.06	18.36	34.42	46	-11.58	peak

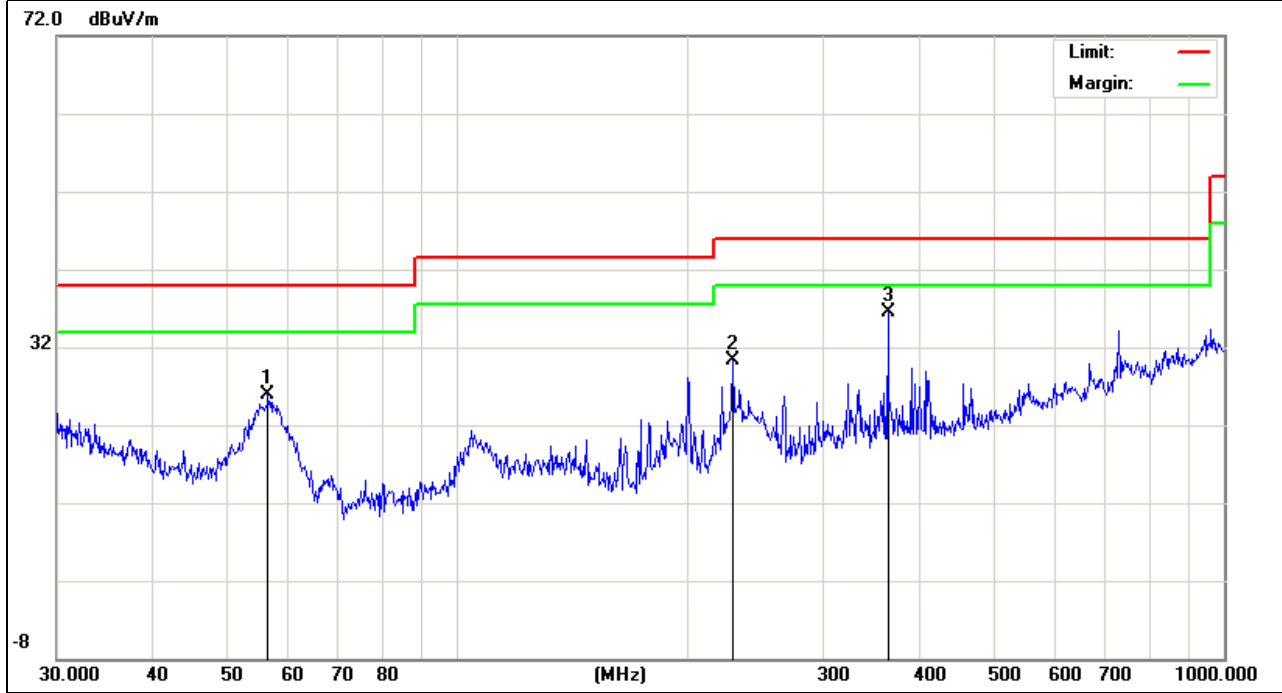
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
56.5929	20.29	5.69	25.98	40	-14.02	peak
228.4903	19.93	10.37	30.3	46	-15.7	peak
364.2595	20.73	15.7	36.43	46	-9.57	peak

Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

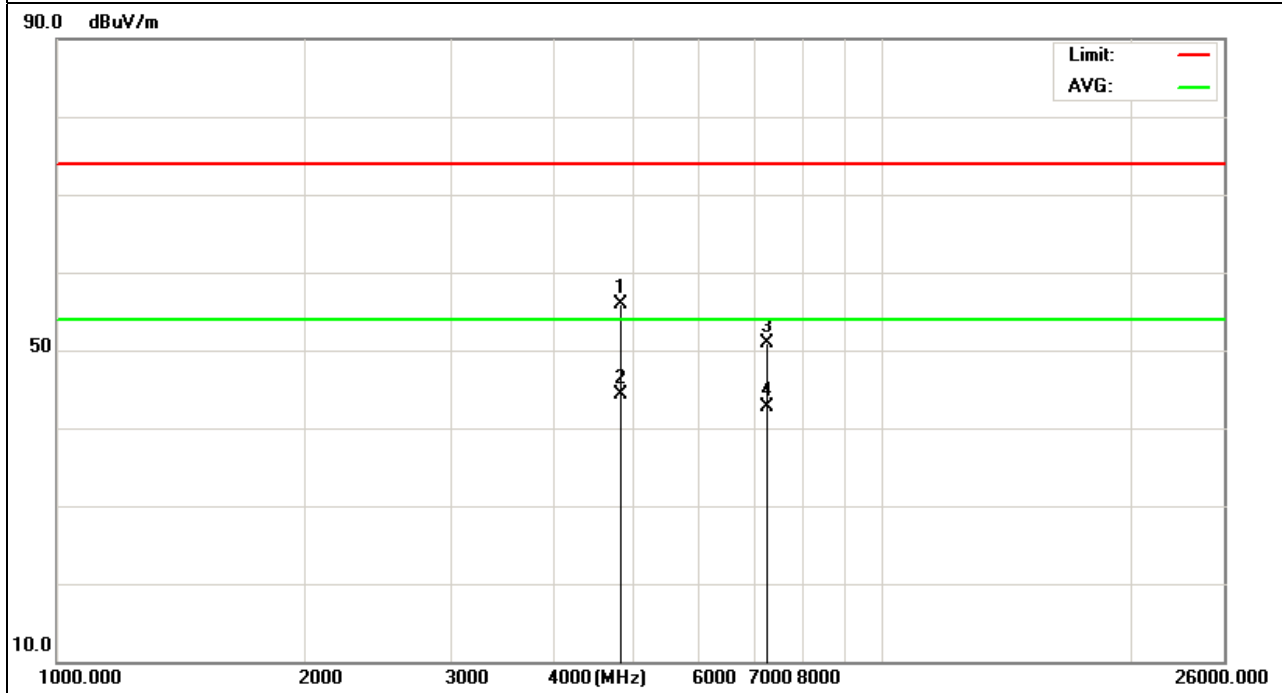


### 3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.027	45.56	10.44	56	74	-18	peak
4824.027	33.92	10.44	44.36	54	-9.64	AVG
7236.289	38.59	12.39	50.98	74	-23.02	peak
7236.289	30.29	12.39	42.68	54	-11.32	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

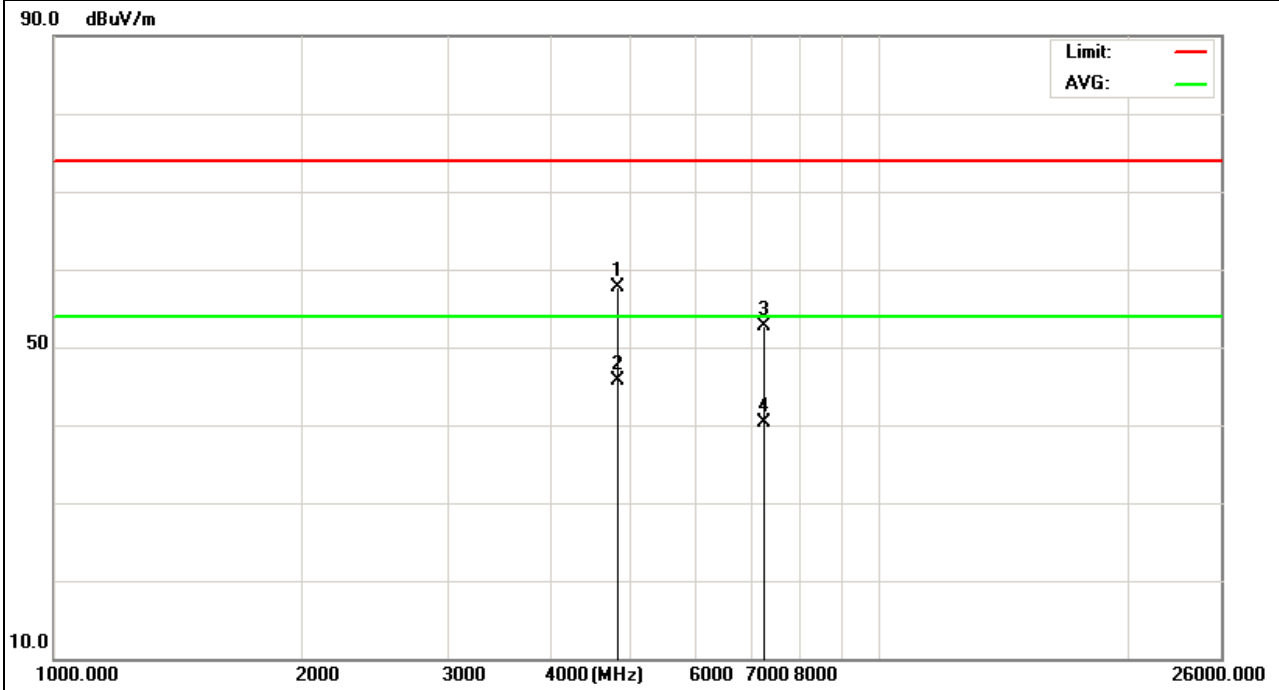




EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.133	47.24	10.44	57.68	74	-16.32	peak
4824.133	35.19	10.44	45.63	54	-8.37	AVG
7236.104	40.3	12.39	52.69	74	-21.31	peak
7236.104	27.87	12.39	40.26	54	-13.74	AVG

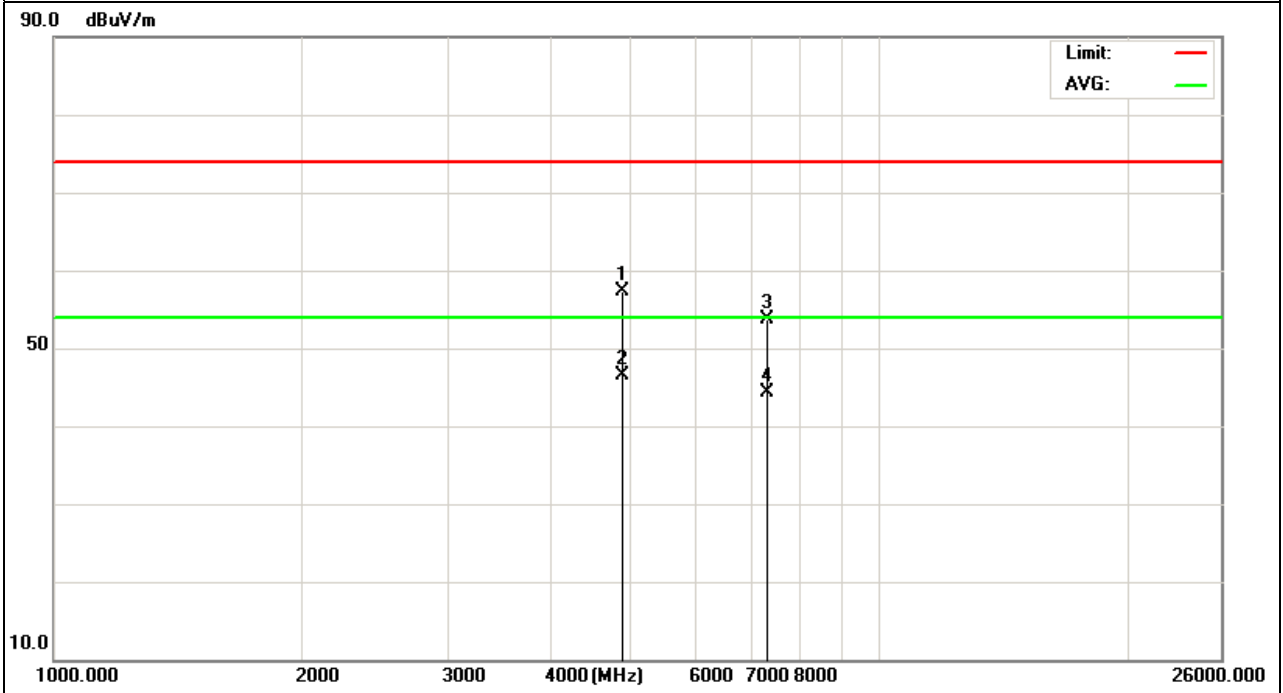
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH6 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.159	46.88	10.4	57.28	74	-16.72	peak
4874.159	36.18	10.4	46.58	54	-7.42	AVG
7311.257	41.04	12.75	53.79	74	-20.21	peak
7311.257	31.47	12.75	44.22	54	-9.78	AVG

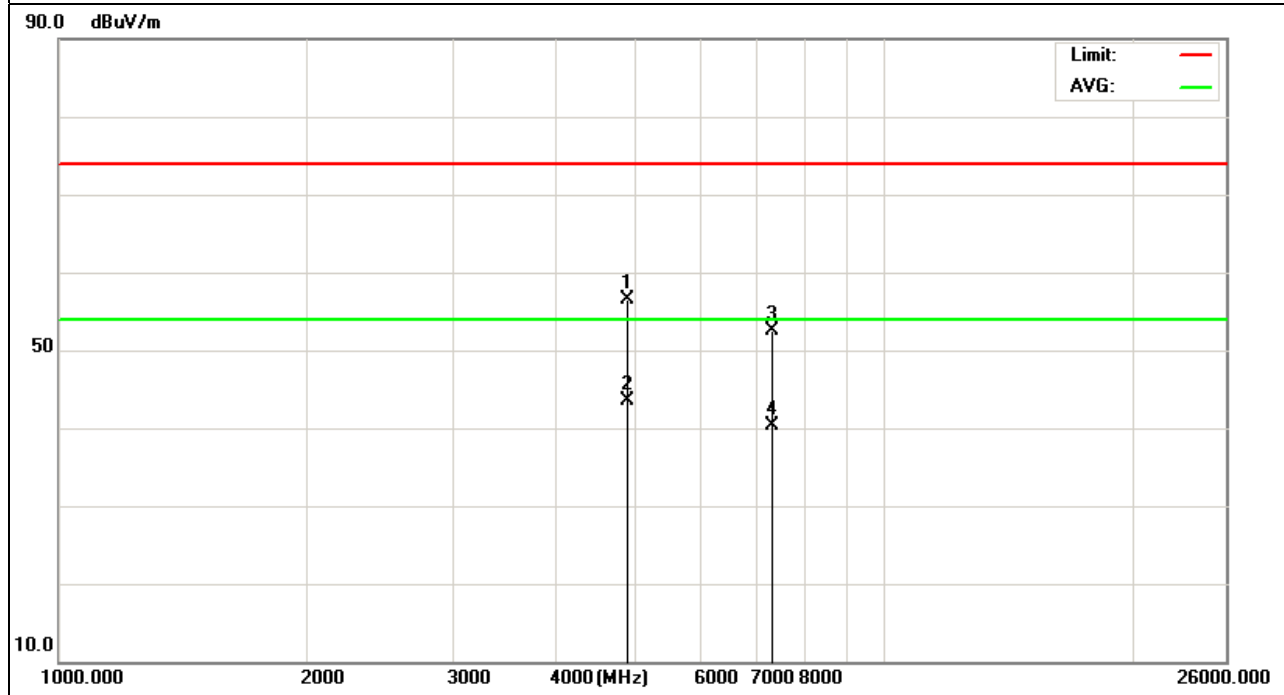
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH6 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.238	46.07	10.4	56.47	74	-17.53	peak
4874.238	33.16	10.4	43.56	54	-10.44	AVG
7311.265	39.67	12.75	52.42	74	-21.58	peak
7311.265	27.56	12.75	40.31	54	-13.69	AVG

Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

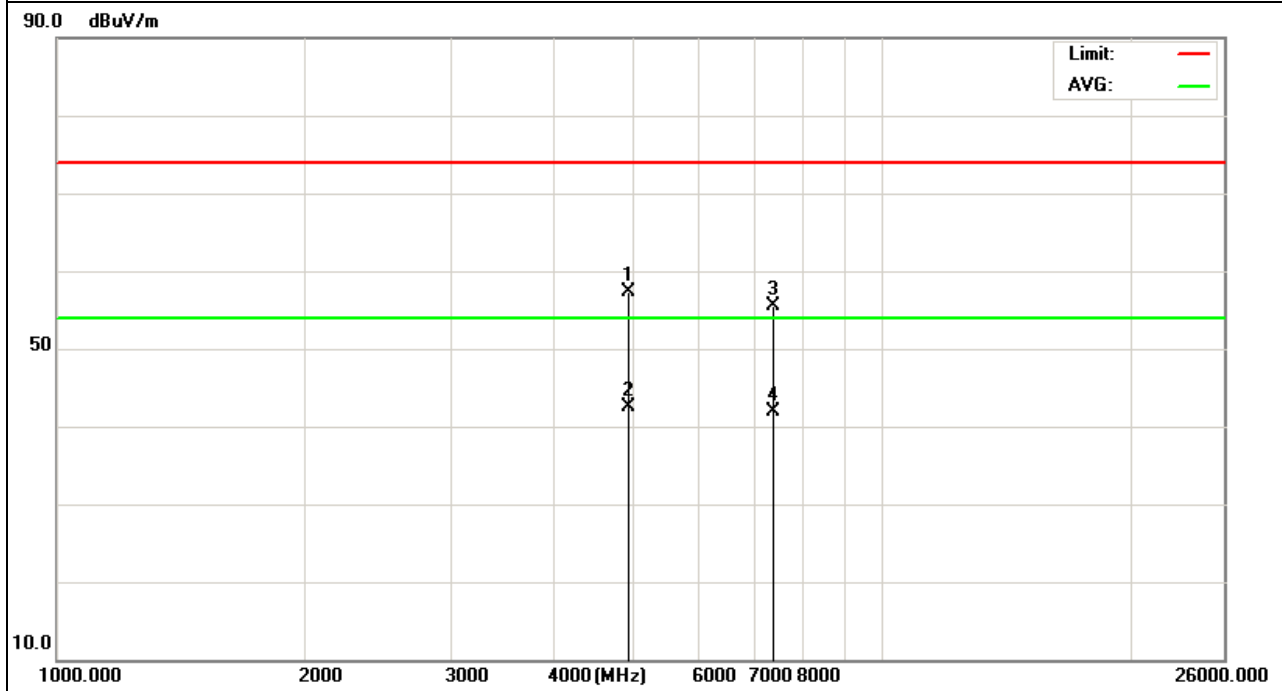


EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4924.182	46.94	10.39	57.33	74	-16.67	peak
4934.182	32.09	10.44	42.53	54	-11.47	AVG
7386.385	42.77	12.69	55.46	74	-18.54	peak
7386.385	29.15	12.69	41.84	54	-12.16	AVG

Remark:

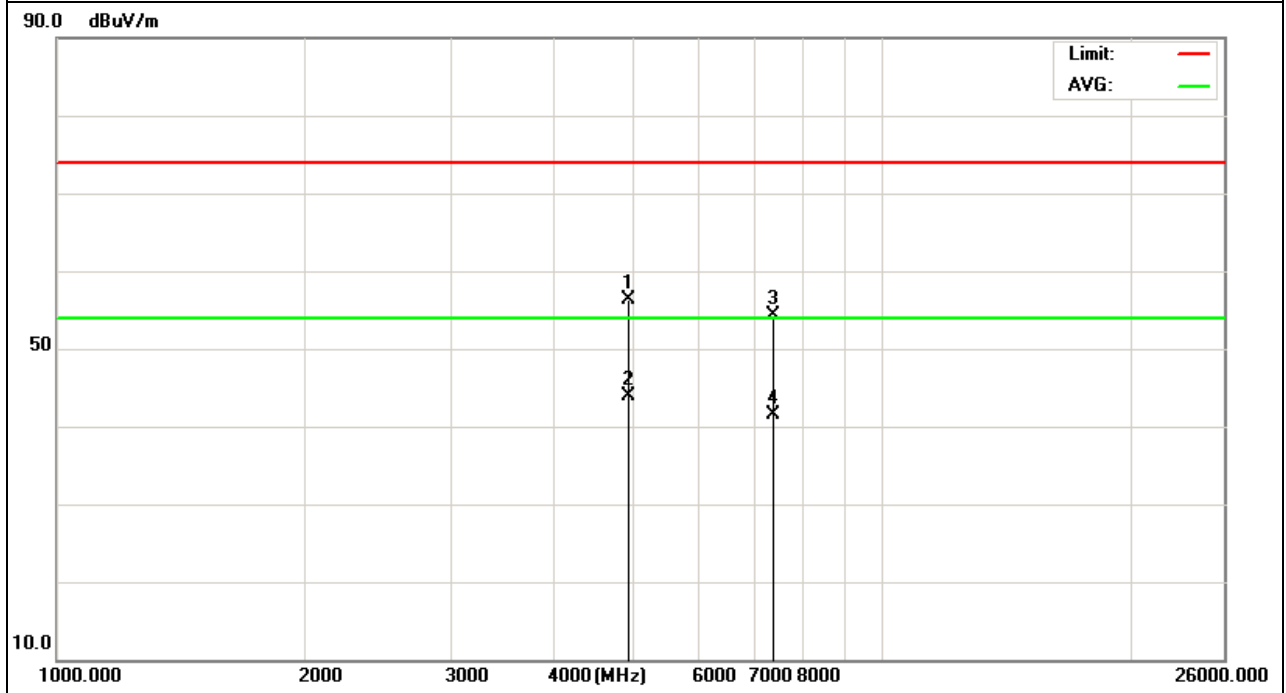
- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- No emission detected above 18GHz



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.226	45.98	10.39	56.37	74	-17.63	peak
4924.226	33.59	10.39	43.98	54	-10.02	AVG
7386.135	41.61	12.68	54.29	74	-19.71	peak
7386.135	28.9	12.68	41.58	54	-12.42	AVG

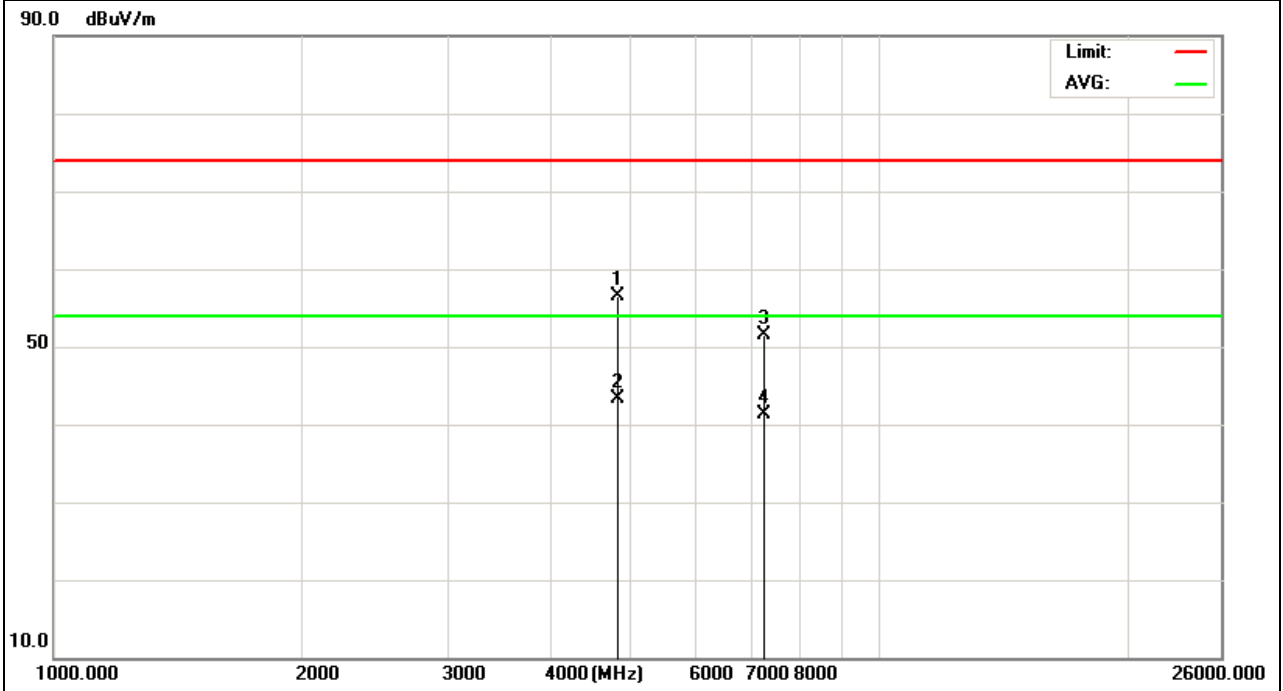
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.127	46.08	10.44	56.52	74	-17.48	peak
4824.127	32.81	10.44	43.25	54	-10.75	AVG
7236.338	39.1	12.39	51.49	74	-22.51	peak
7236.338	28.87	12.39	41.26	54	-12.74	AVG

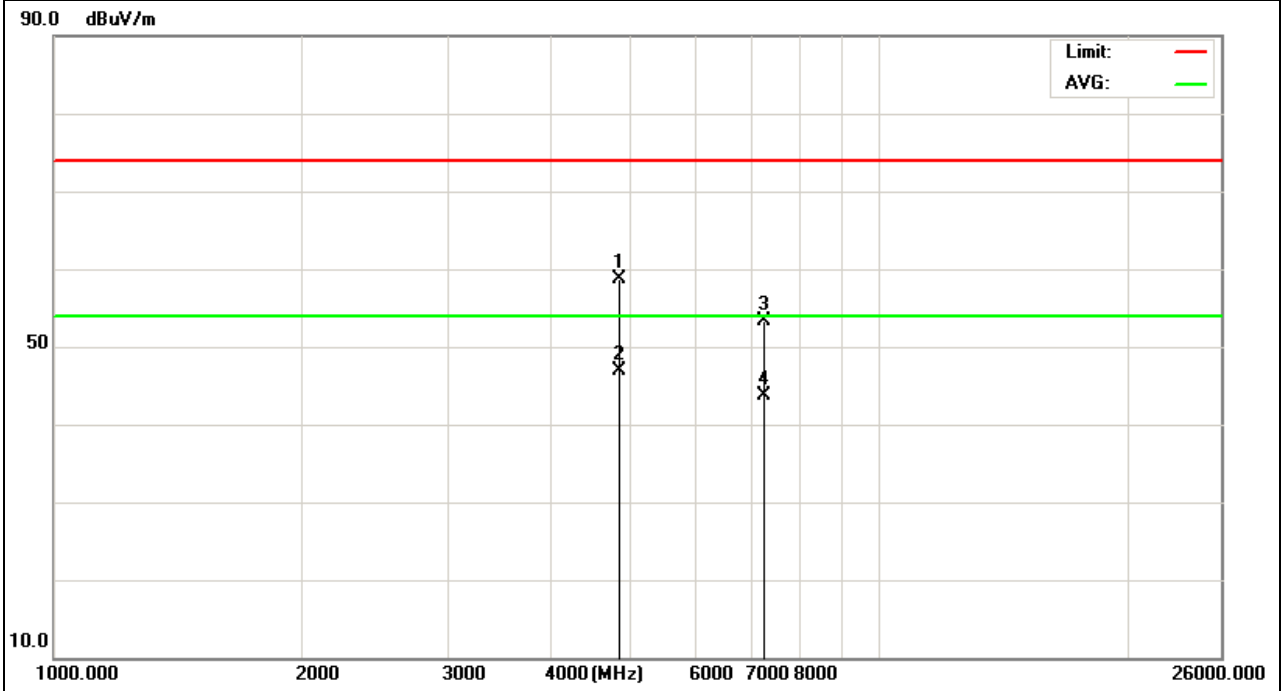
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1 (802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.289	48.31	10.44	58.75	74	-15.25	peak
4824.289	36.48	10.44	46.92	54	-7.08	AVG
7236.455	40.87	12.39	53.26	74	-20.74	peak
7236.455	31.4	12.39	43.79	54	-10.21	AVG

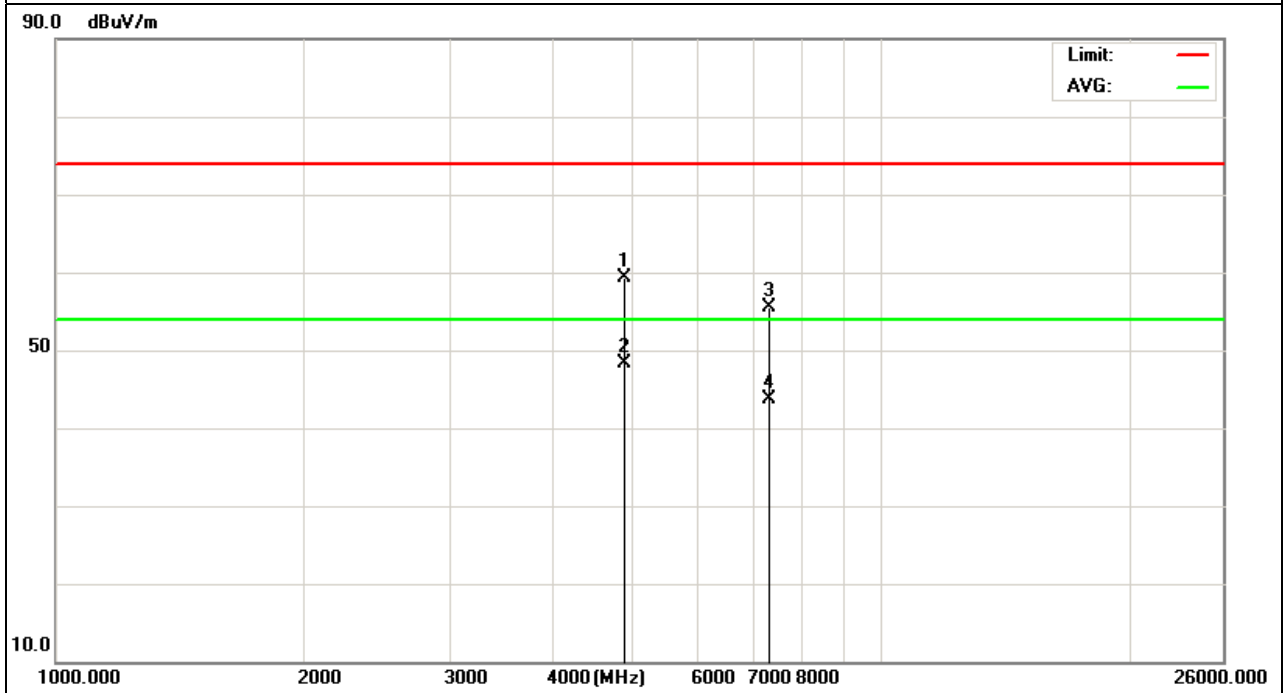
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH6 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.039	48.97	10.4	59.37	74	-14.63	peak
4874.039	37.92	10.4	48.32	54	-5.68	AVG
7311.591	42.68	12.75	55.43	74	-18.57	peak
7311.591	31	12.75	43.75	54	-10.25	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

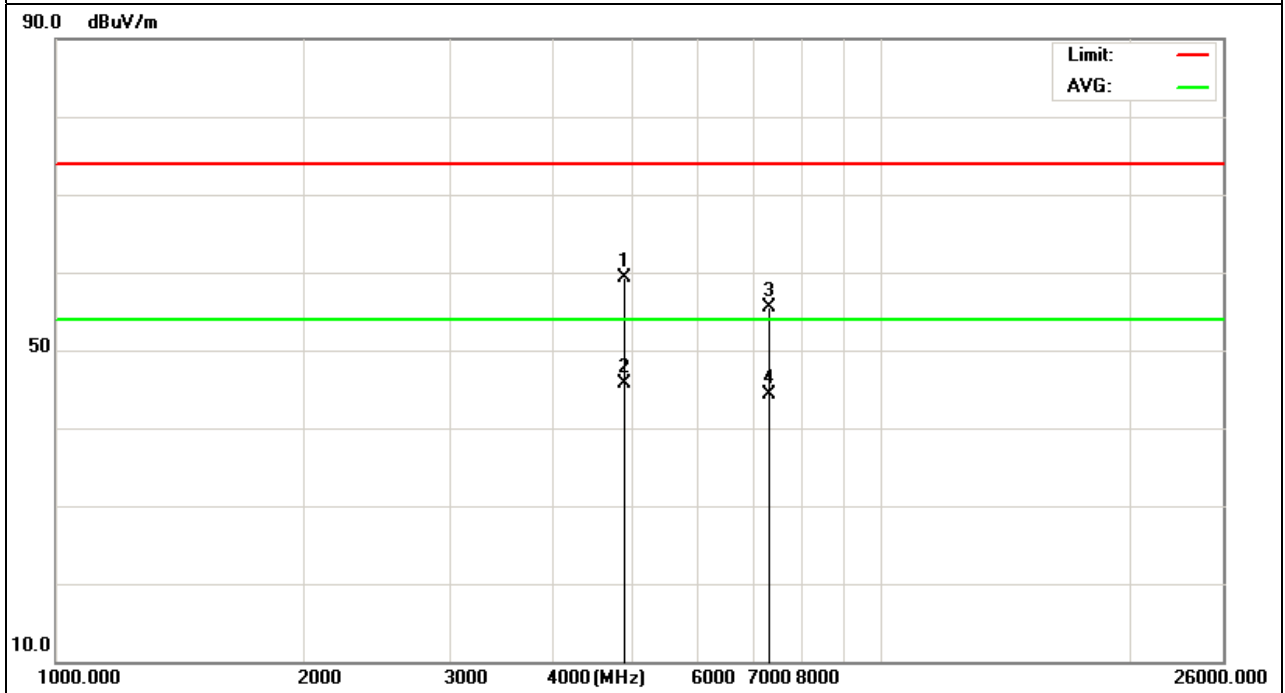




EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH6 (802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.408	48.88	10.4	59.28	74	-14.72	peak
4874.488	35.22	10.4	45.62	54	-8.38	AVG
7311.351	42.66	12.75	55.41	74	-18.59	peak
7311.351	31.61	12.75	44.36	54	-9.64	AVG

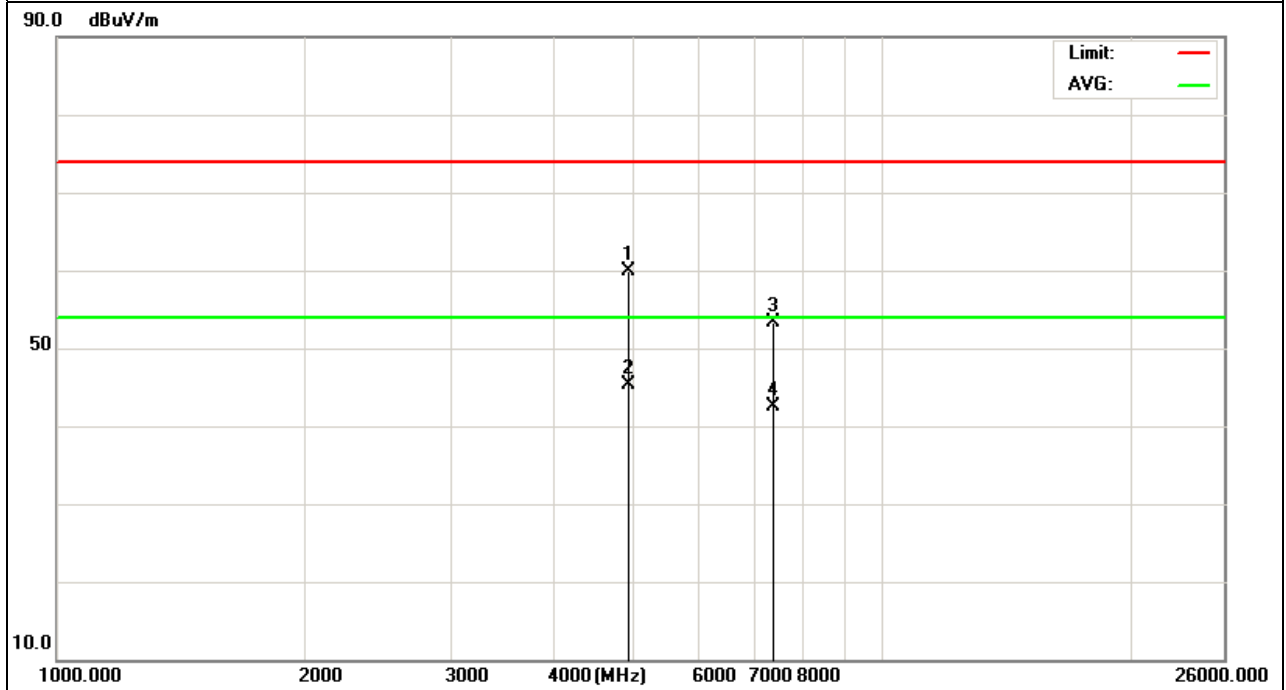
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.075	49.49	10.39	59.88	74	-14.12	peak
4934.075	34.96	10.44	45.4	54	-8.6	AVG
7386.152	40.56	12.68	53.24	74	-20.76	peak
7386.152	29.85	12.68	42.53	54	-11.47	AVG

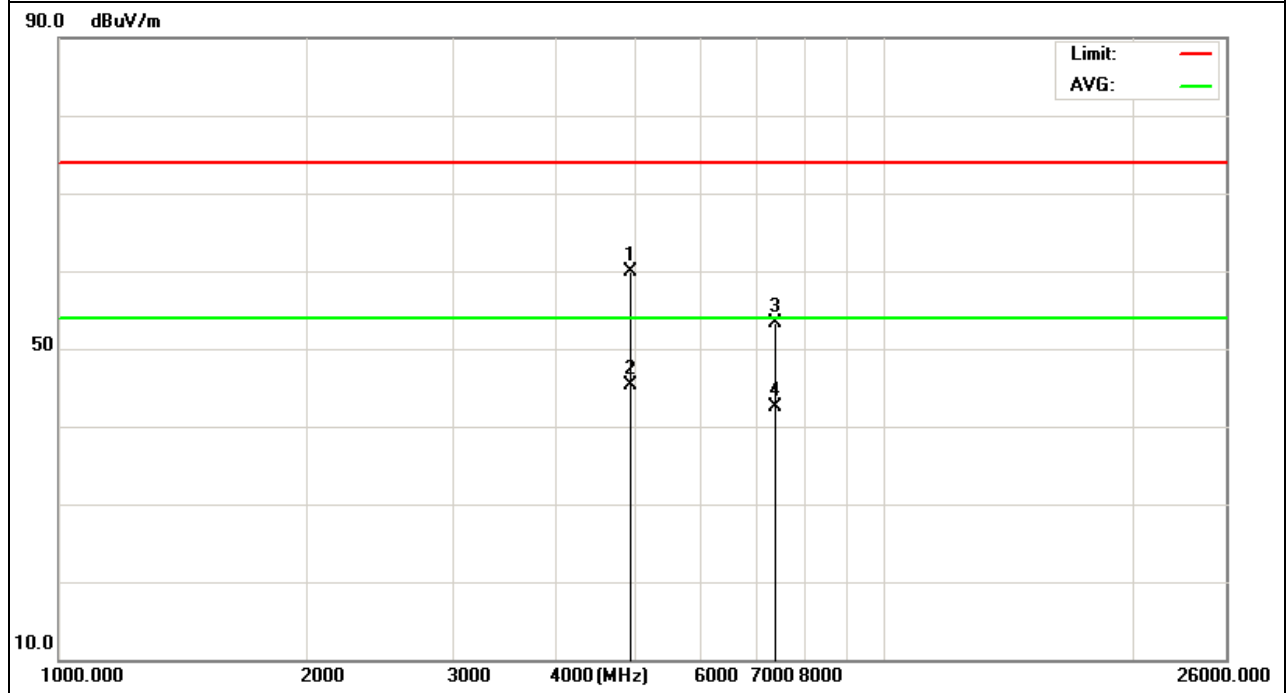
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.168	47.26	10.68	57.94	74	-16.06	peak
4934.168	34.35	10.43	44.78	54	-9.22	AVG
7386.133	40.92	12.35	53.27	74	-20.73	peak
7386.133	29.57	12.46	42.53	54	-11.97	AVG

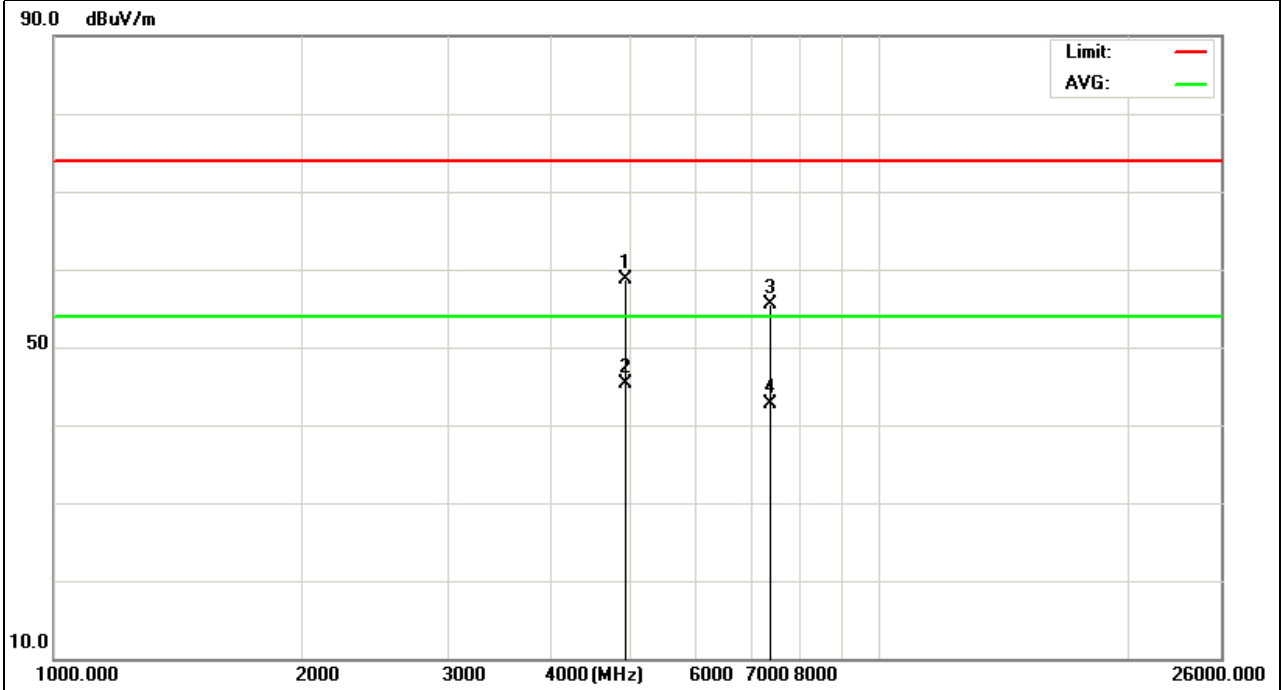
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1 (802.11n/20M Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.263	48.32	10.39	58.71	74	-15.29	peak
4924.263	34.97	10.39	45.36	54	-8.64	AVG
7386.154	42.9	12.68	55.58	74	-18.42	peak
7386.154	29.95	12.68	42.63	54	-11.37	AVG

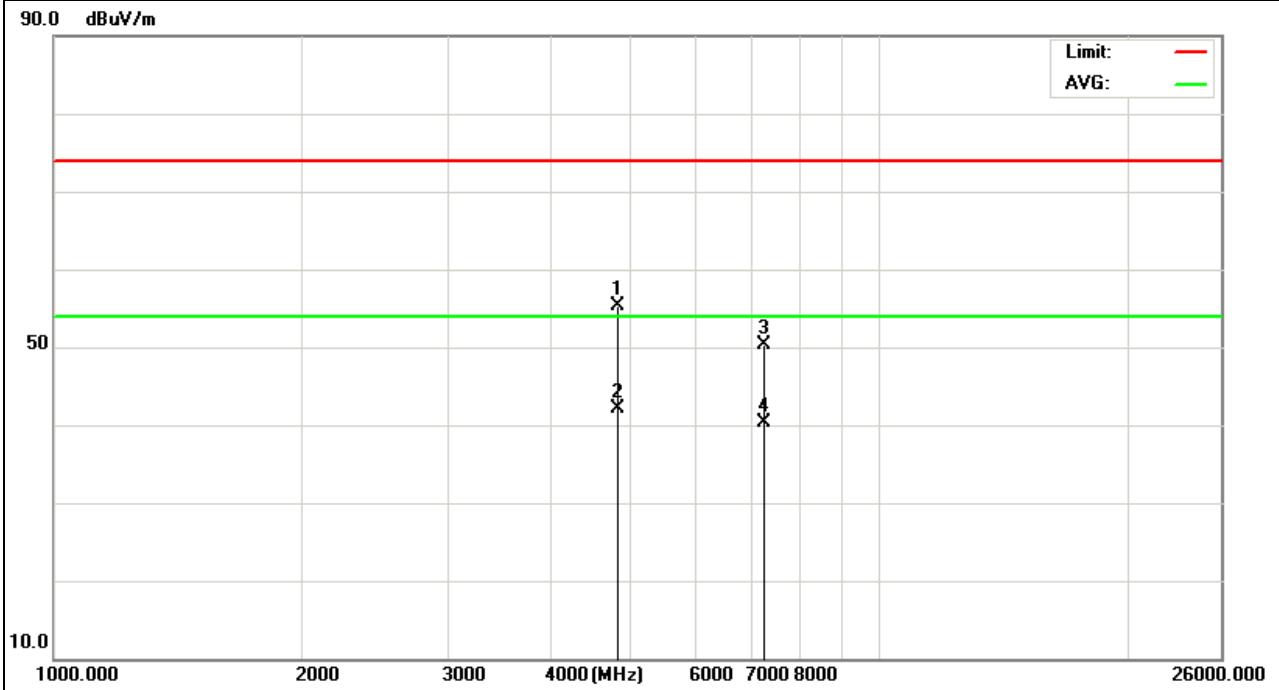
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1 (802.11n/20M Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.059	44.9	10.44	55.34	74	-18.66	peak
4824.059	31.74	10.44	42.18	54	-11.82	AVG
7236.231	37.93	12.39	50.32	74	-23.68	peak
7236.231	27.86	12.39	40.25	54	-13.75	AVG

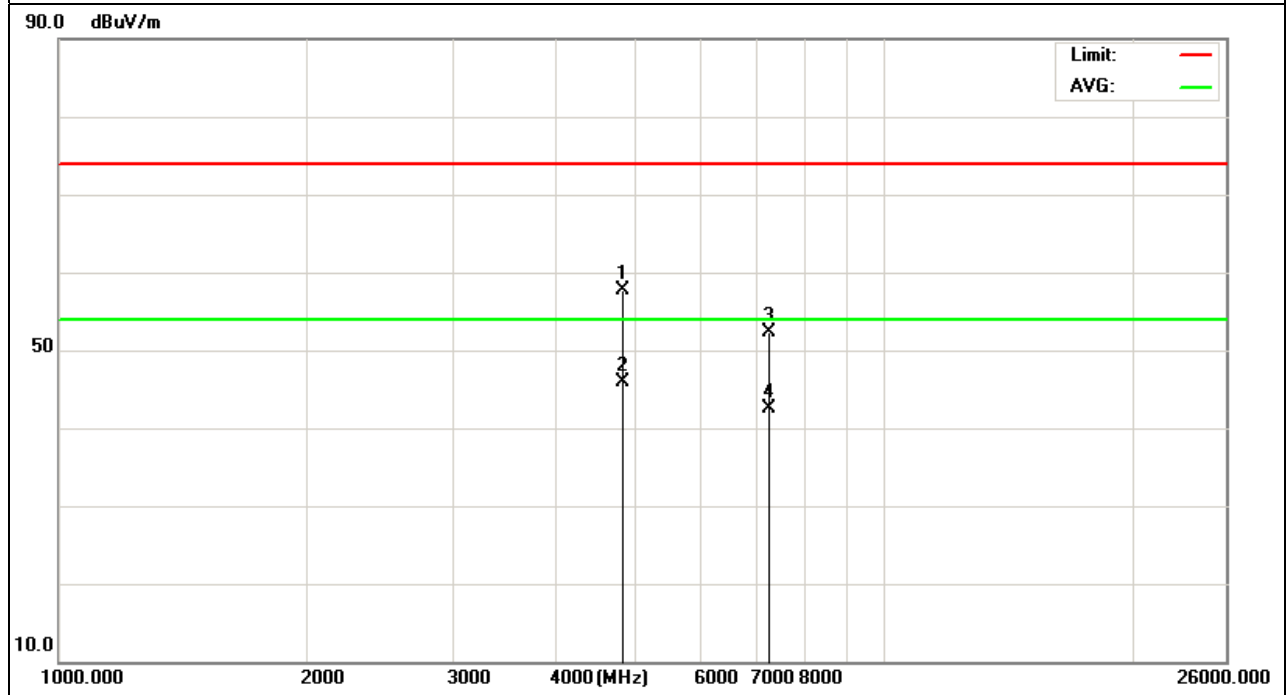
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH6 (802.11n/20M Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.173	47.22	10.44	57.66	74	-16.34	peak
4824.173	35.4	10.44	45.84	54	-8.16	AVG
7236.276	40	12.39	52.39	74	-21.61	peak
7236.276	30.19	12.39	42.58	54	-11.42	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

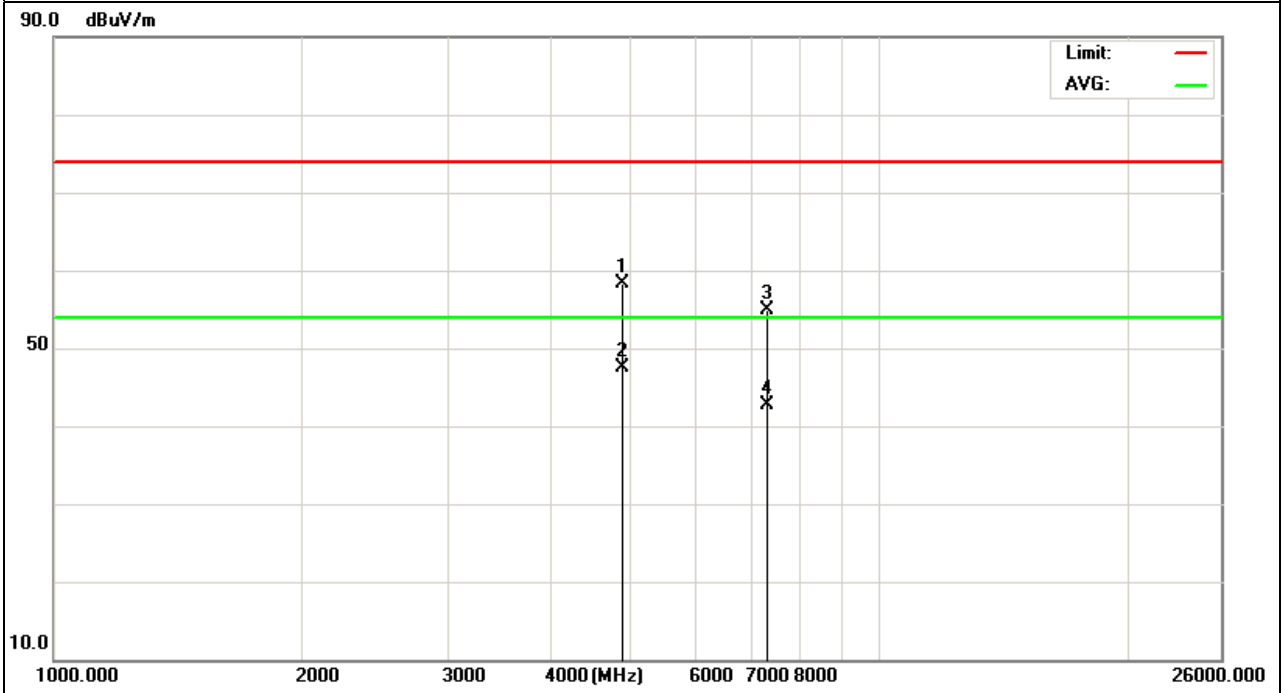


EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH6 (802.11n/20M Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.197	47.95	10.4	58.35	74	-15.65	peak
4874.197	37.06	10.4	47.46	54	-6.54	AVG
7311.329	42.08	12.75	54.83	74	-19.17	peak
7311.329	29.87	12.75	42.62	54	-11.38	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

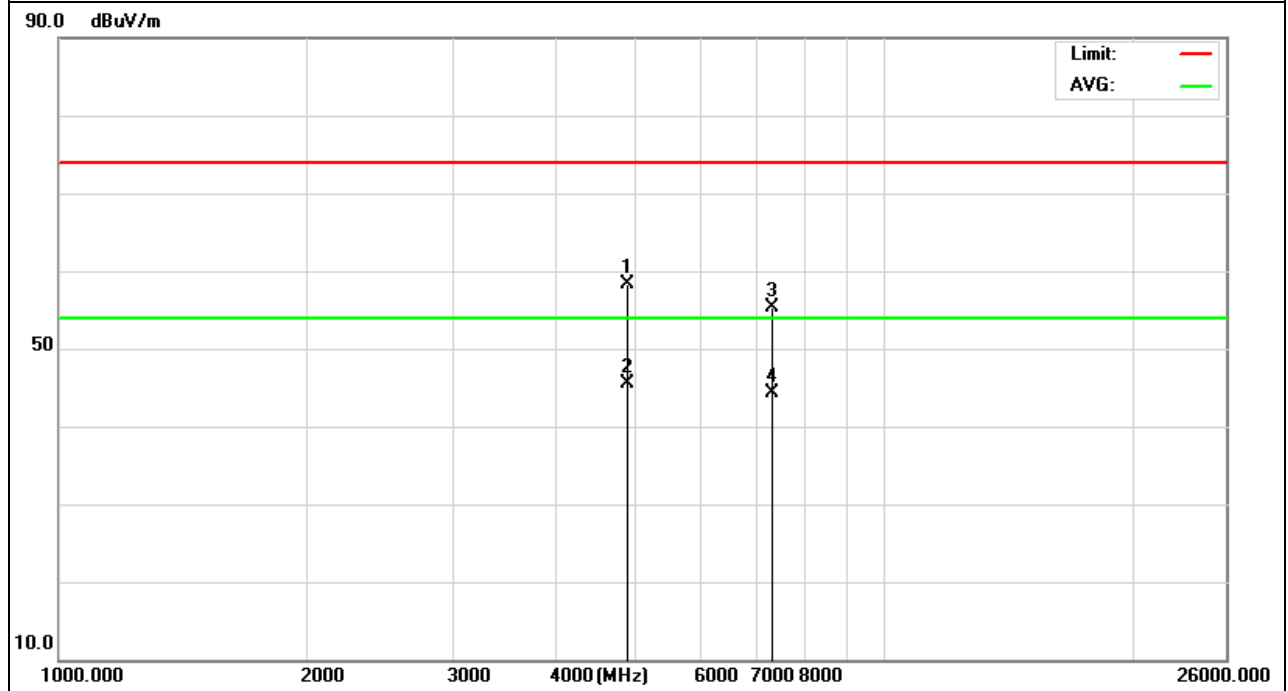


EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11 (802.11n/20M Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4874.373	47.92	10.4	58.32	74	-15.68	peak
4874.373	35.11	10.4	45.51	54	-8.49	AVG
7311.225	42.49	12.75	55.24	74	-18.76	peak
7311.225	31.53	12.75	44.28	54	-9.72	AVG

Remark:

- 3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- 4. No emission detected above 18GHz

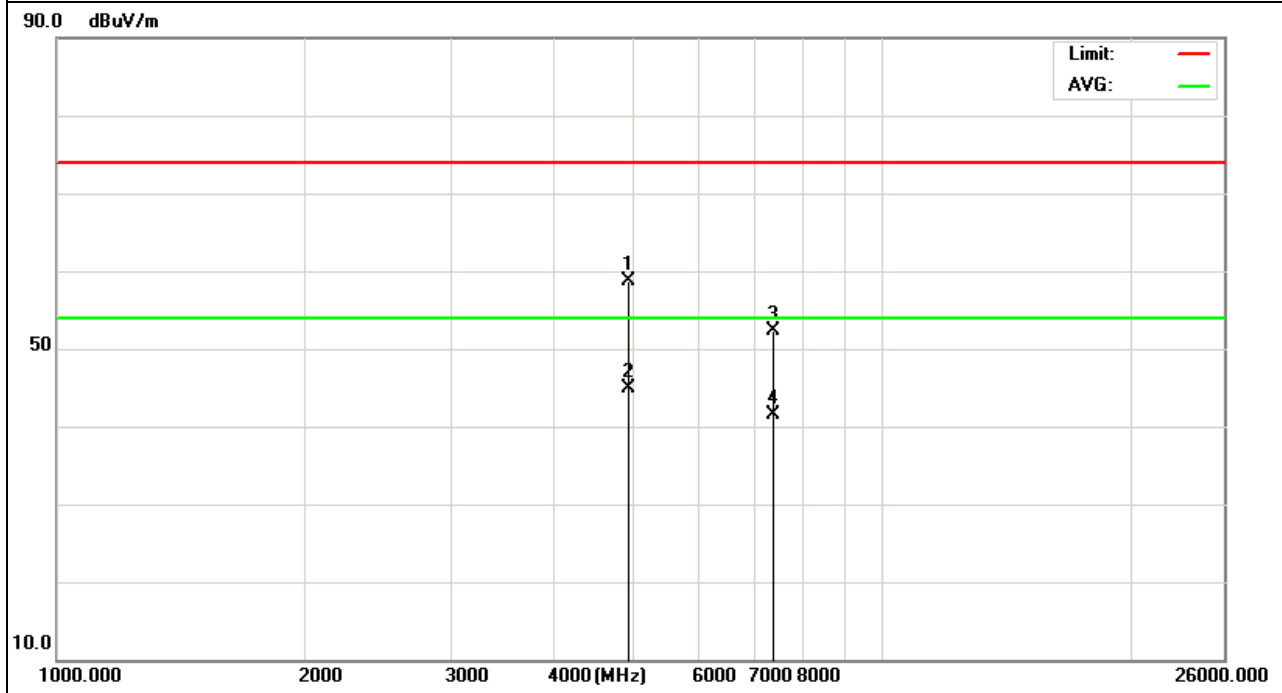




EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11 (802.11n/20M Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.121	48.38	10.39	58.77	74	-15.23	peak
4934.121	34.42	10.44	44.86	54	-9.14	AVG
7386.209	39.71	12.68	52.39	74	-21.61	peak
7386.209	28.8	12.68	41.48	54	-12.52	AVG

Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

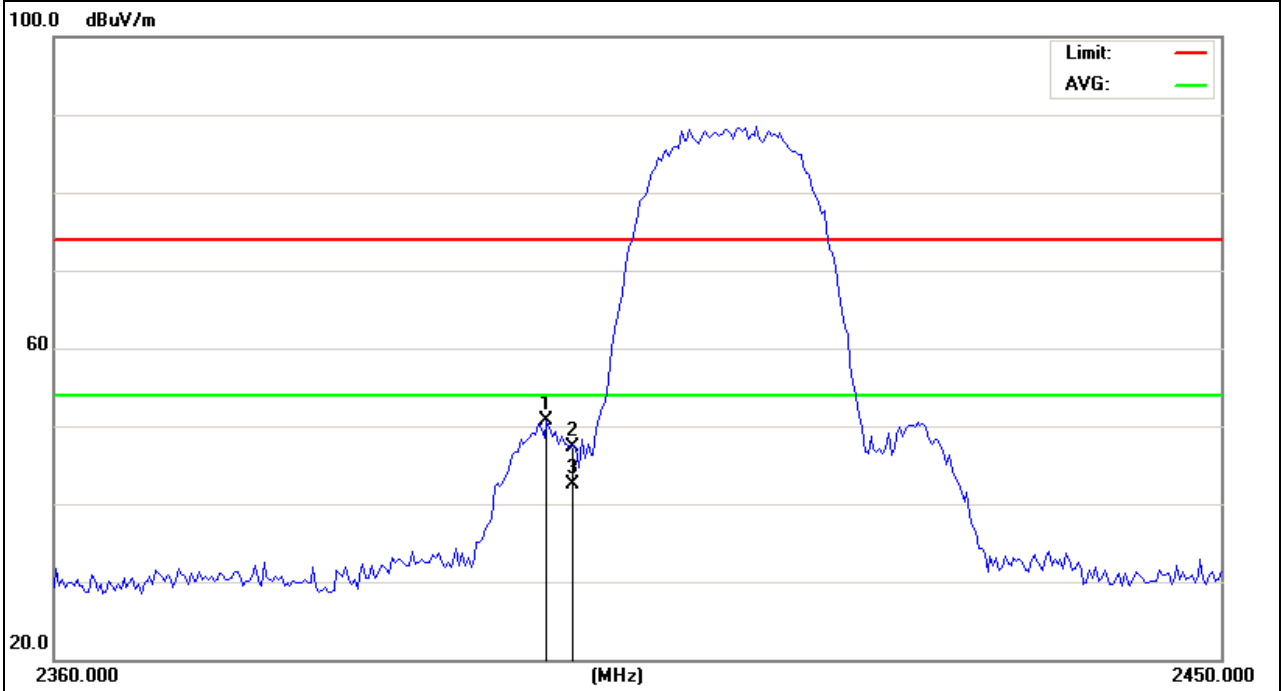


**Band Edge Emission:**

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1(802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2397.8	63.66	-13	50.66	74	-23.34	peak
2400	60.2	-12.99	47.21	74	-26.79	peak
2400	55.48	-12.99	42.49	54	-11.51	AVG

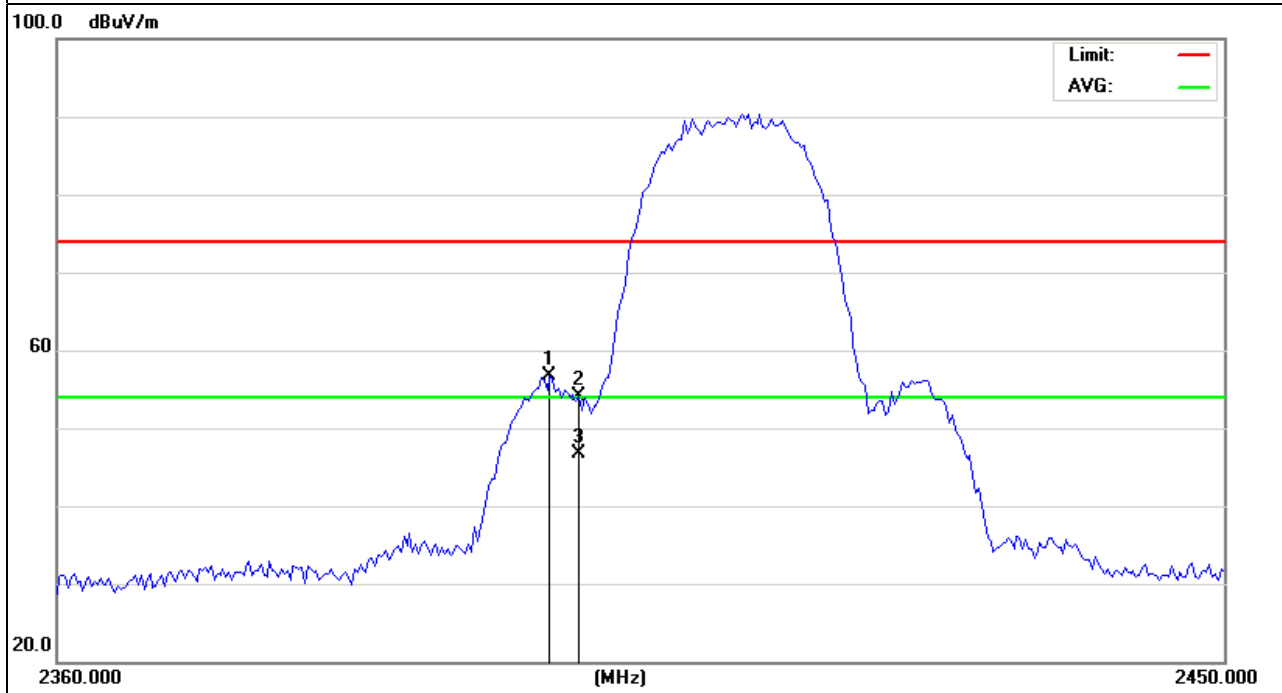
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1(802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
2397.8	69.77	-13	56.77	74	-17.23	peak
2400	67.01	-12.99	54.02	74	-19.98	peak
2400	59.65	-12.99	46.66	54	-7.34	AVG

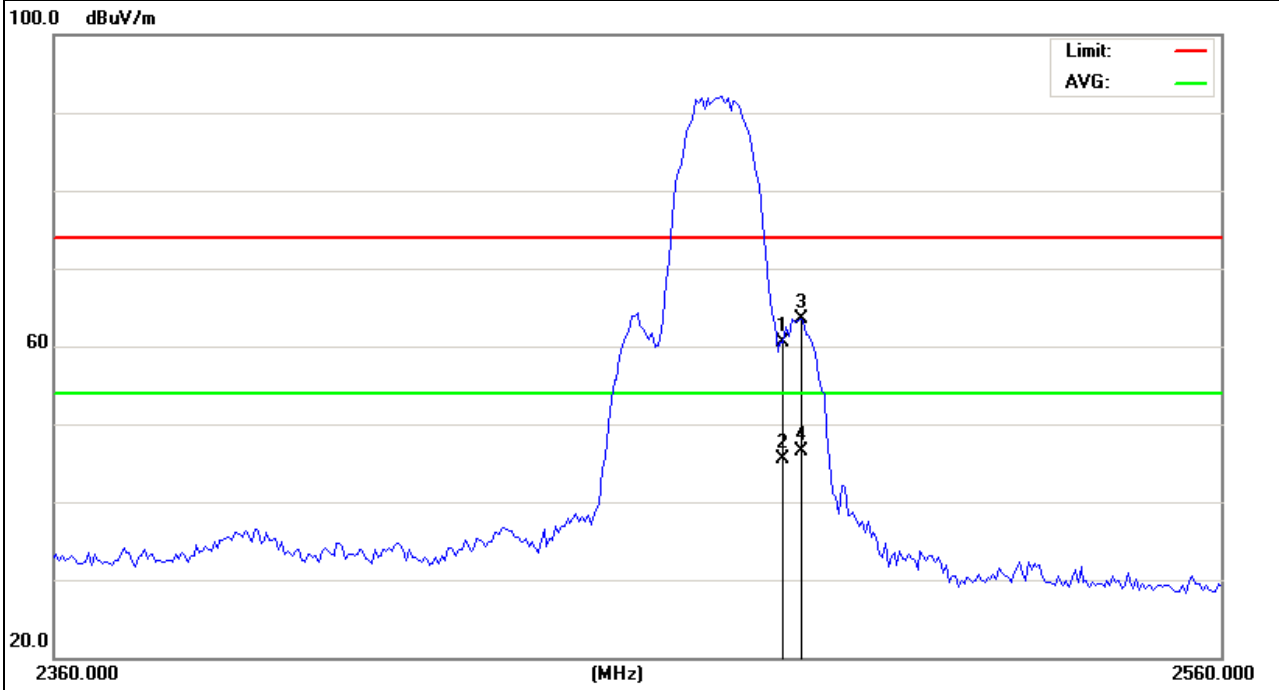
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	73.25	-12.78	60.47	74	-13.53	peak
2483.5	58.33	-12.78	45.55	54	-8.45	AVG
2486.5	76.26	-12.77	63.49	74	-10.51	peak
2486.5	59.25	-12.77	46.48	54	-7.52	AVG

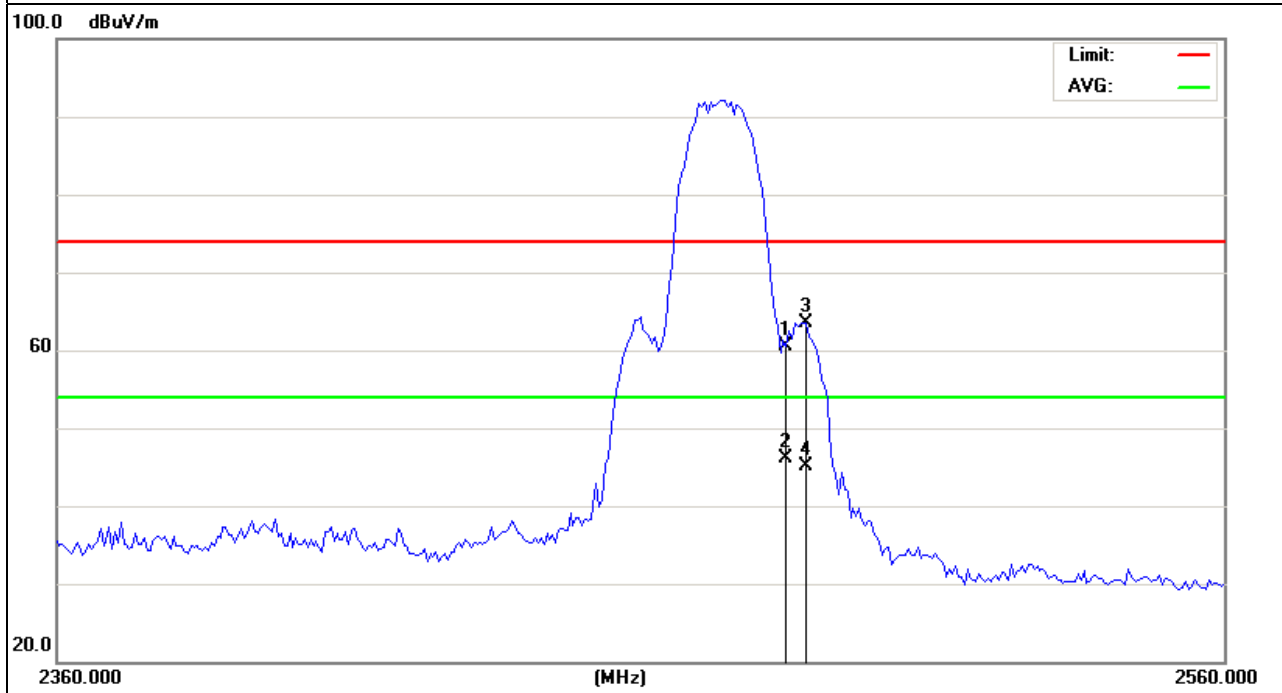
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	73.25	-12.78	60.47	74	-13.53	peak
2483.5	58.84	-12.78	46.06	54	-7.94	AVG
2487	76.31	-12.77	63.54	74	-10.46	peak
2487	57.94	-12.77	45.17	54	-8.83	AVG

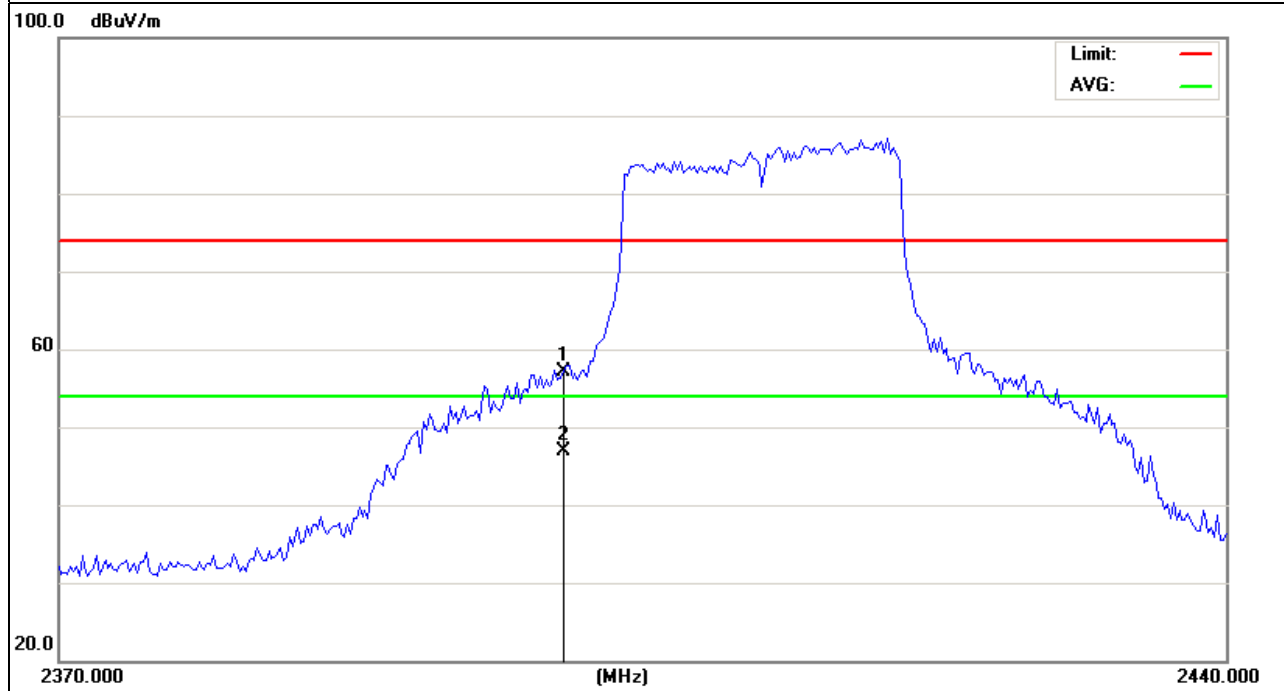
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1(802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400	70.17	-12.99	57.18	74	-16.82	peak
2400	59.84	-12.99	46.85	54	-7.15	AVG

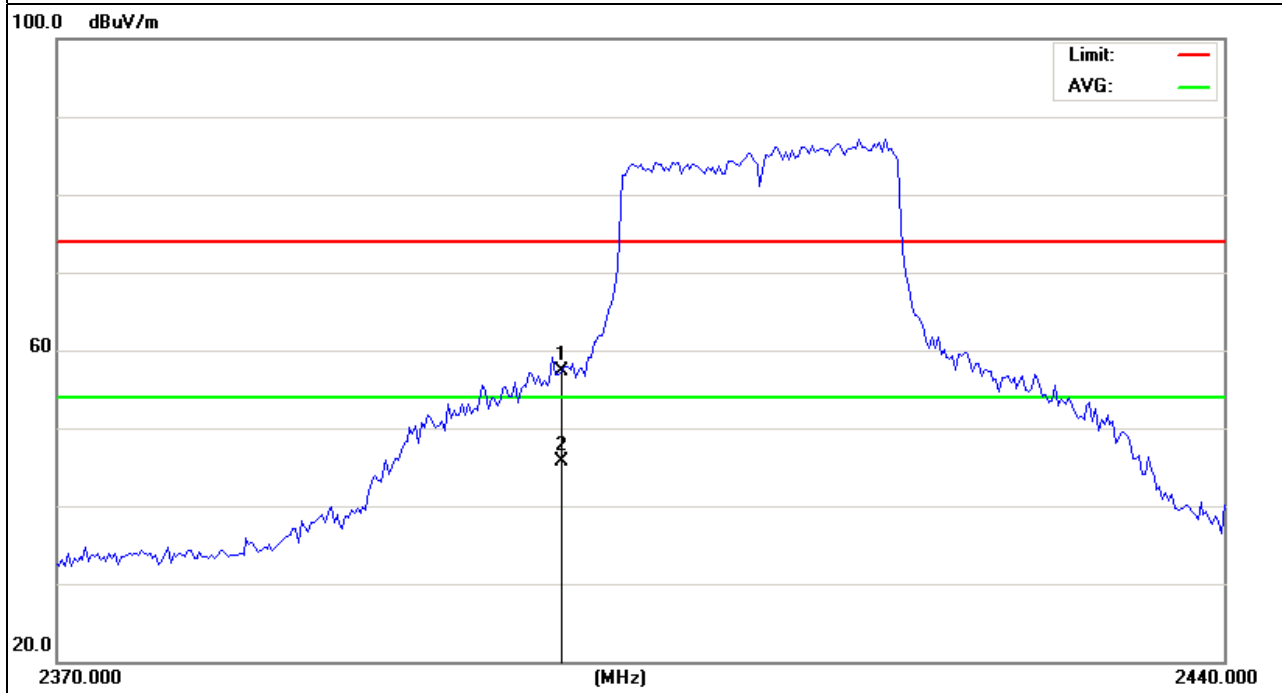
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1(802.11gMode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400	70.28	-12.99	57.29	74	-16.71	peak
2400	58.75	-12.99	45.76	54	-8.24	AVG

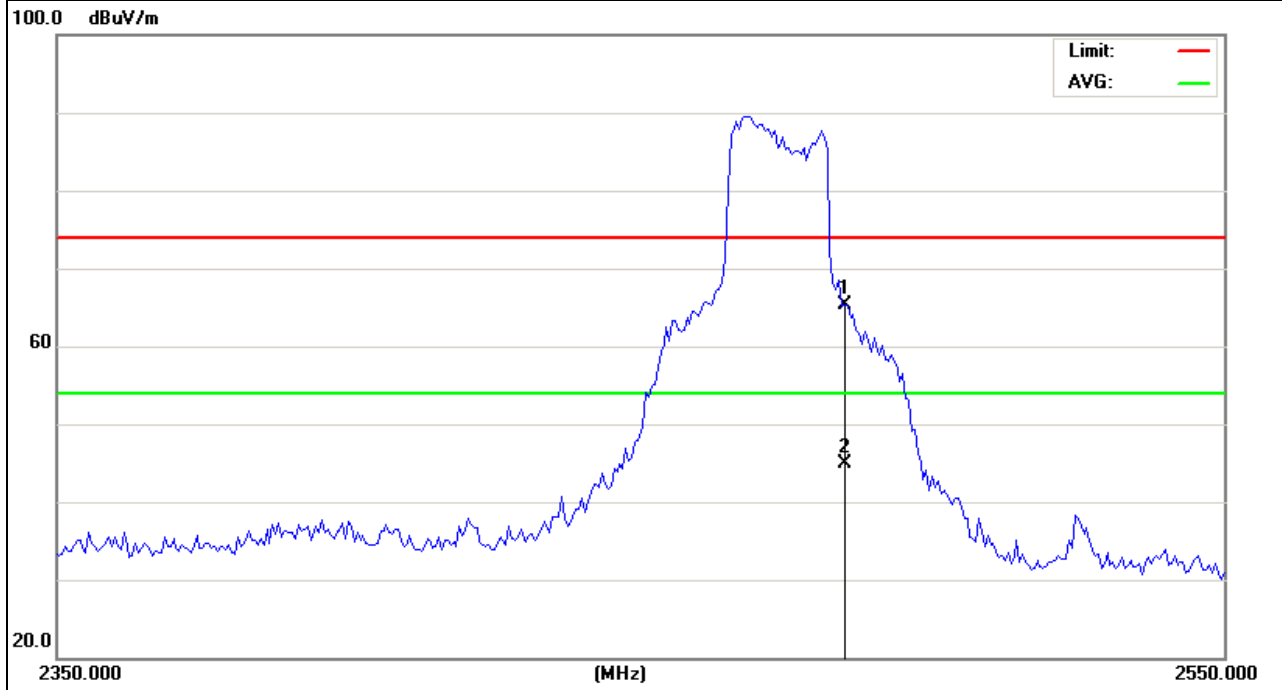
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	78.02	-12.78	65.24	74	-8.76	peak
2483.5	57.6	-12.78	44.82	54	-9.18	AVG

Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

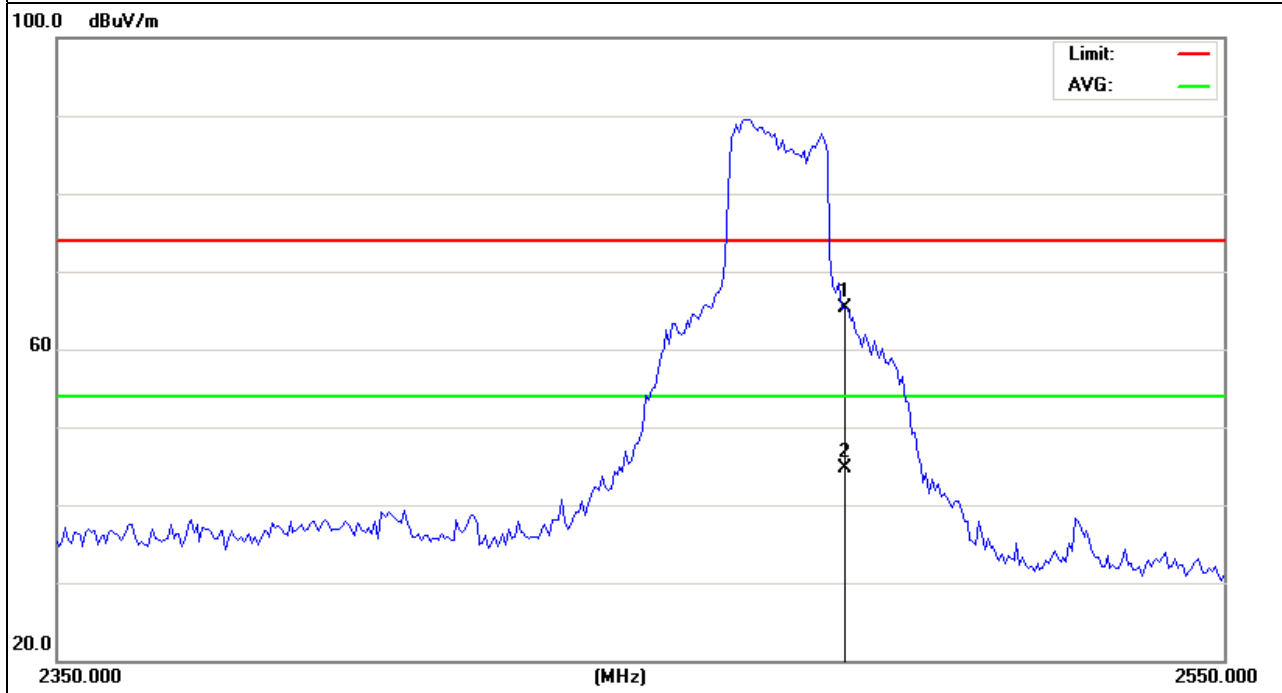




EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
2483.5	78.02	-12.78	65.24	74	-8.76	peak
2483.5	57.52	-12.78	44.74	54	-9.26	AVG

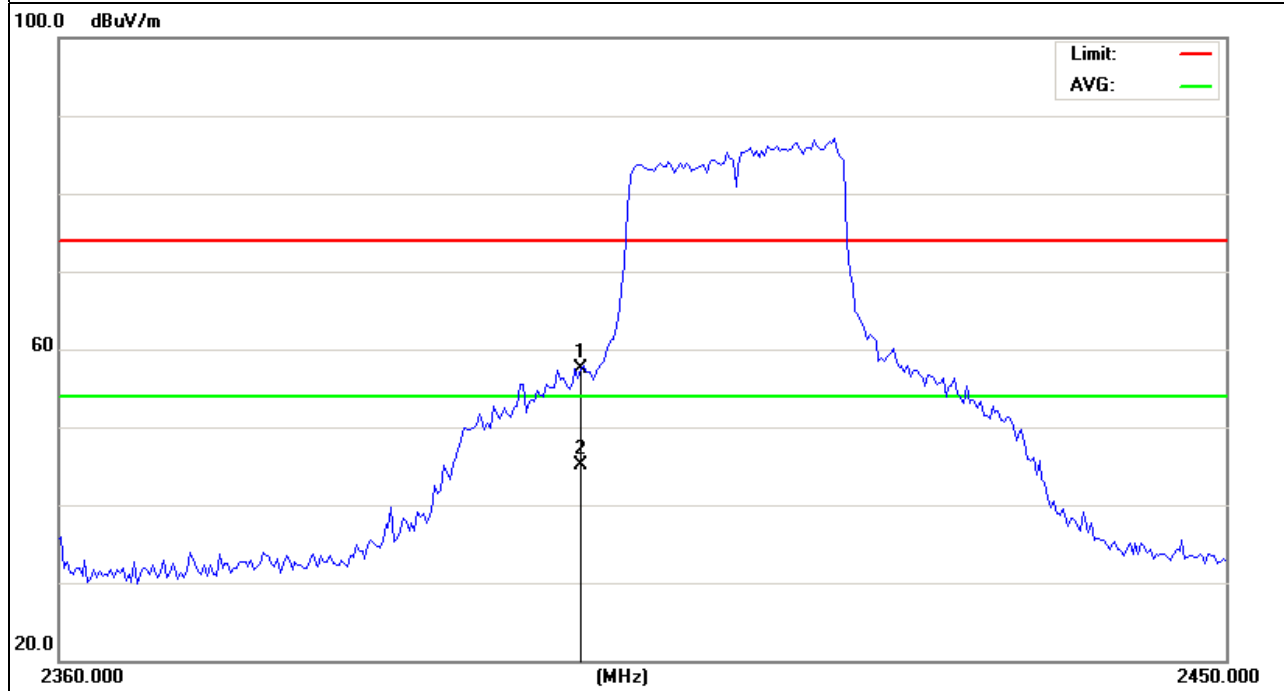
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1(802.11n Mode/20MHz)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400	70.43	-12.99	57.44	74	-16.56	peak
2400	58.18	-12.99	45.19	54	-8.81	AVG

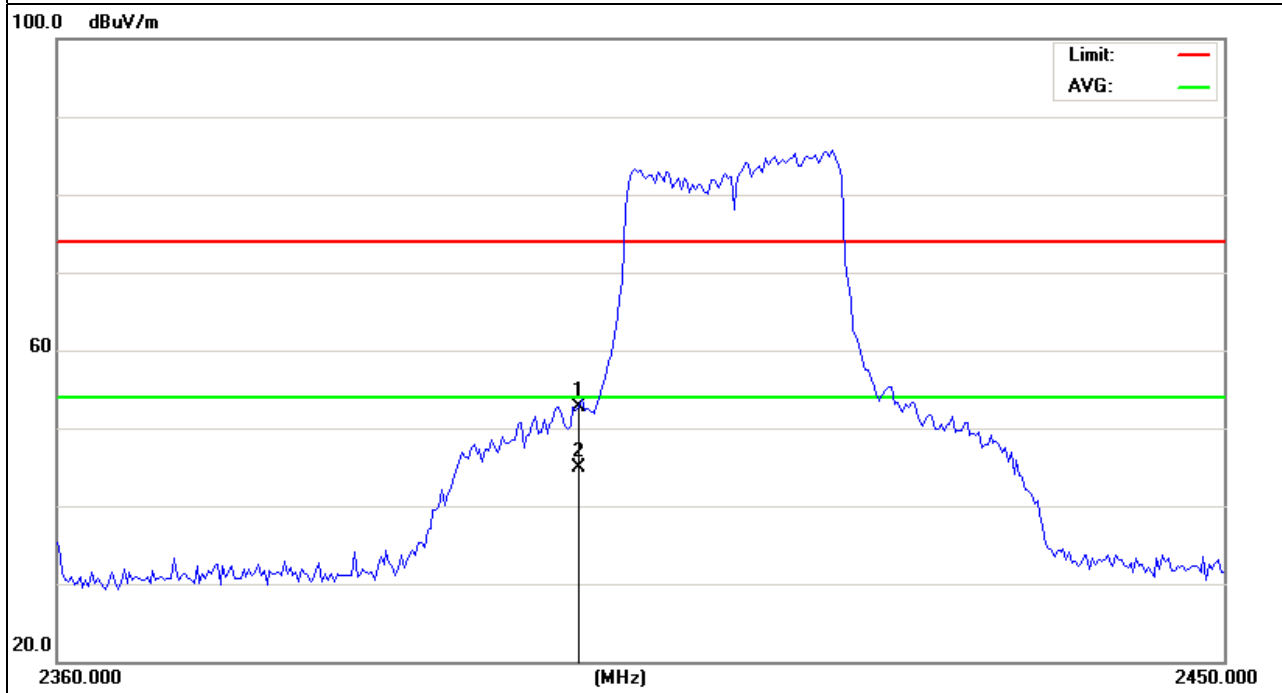
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH1(802.11n Mode/20MHz)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400	65.62	-12.99	52.63	74	-21.37	peak
2400	57.81	-12.99	44.82	54	-9.18	AVG

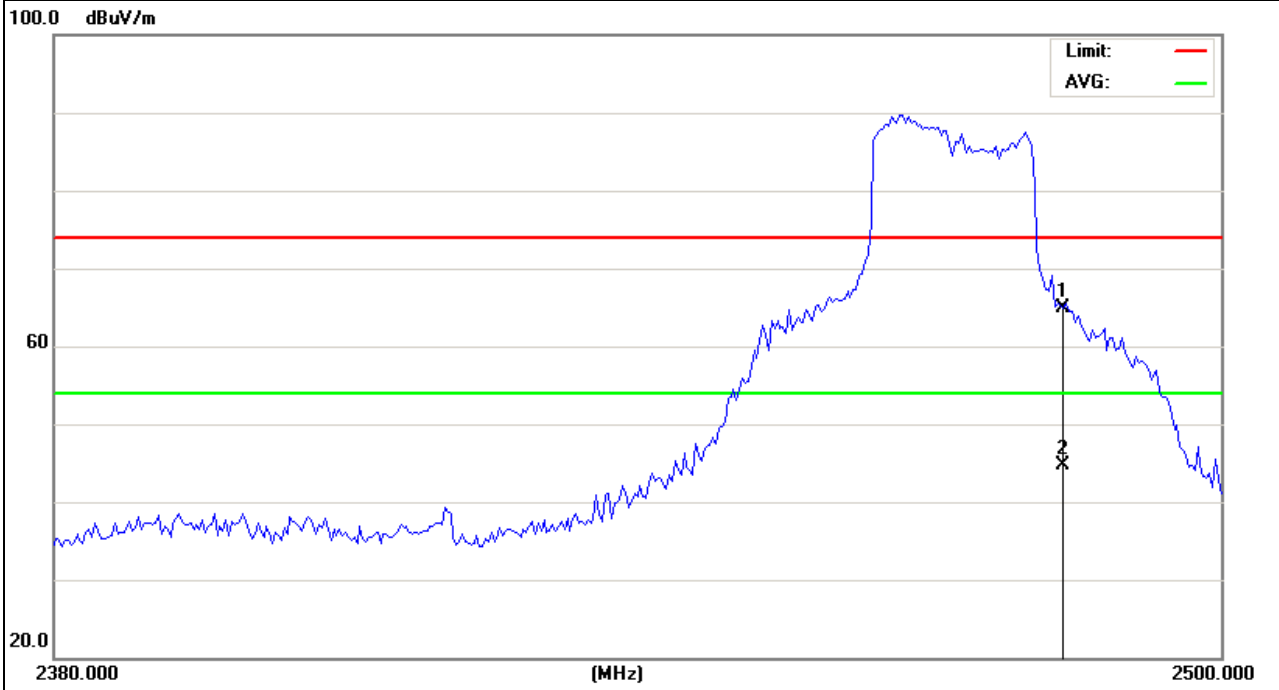
Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11n Mode/20MHz)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	77.74	-12.78	64.96	74	-9.04	peak
2483.5	57.55	-12.78	44.77	54	-9.23	AVG

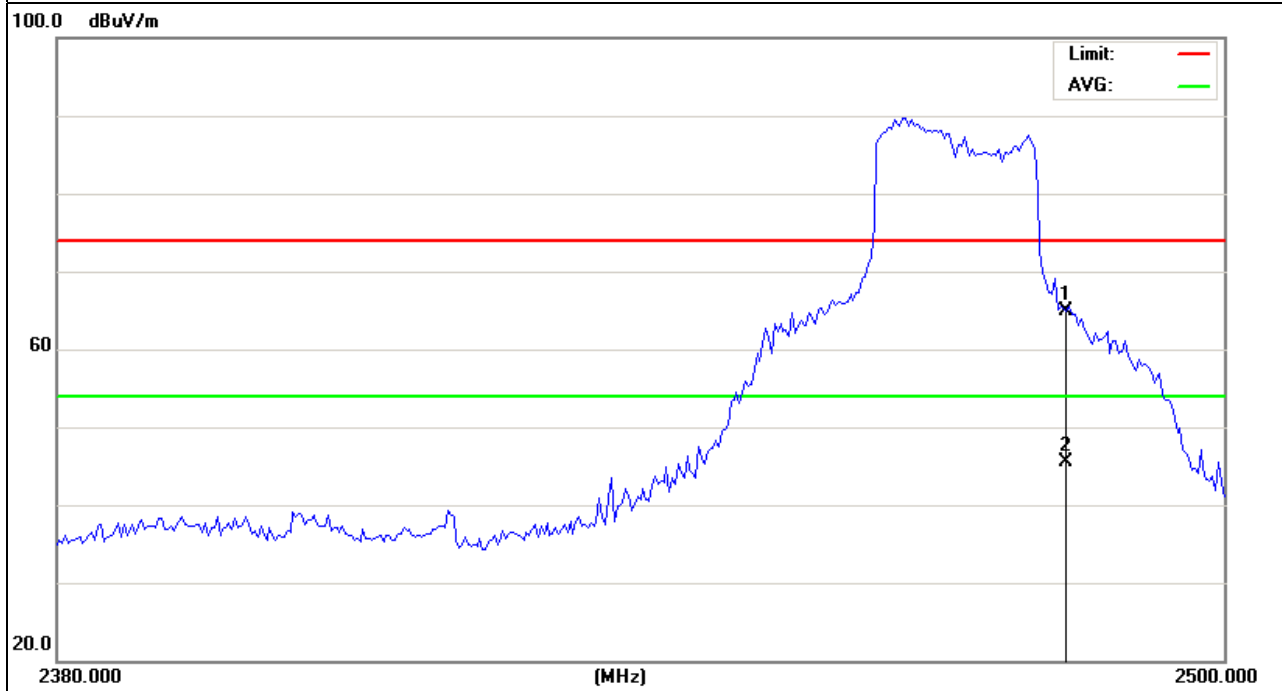
Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5.0V
Test Mode :	CH11(802.11n Mode/20MHz)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
2483.5	77.74	-12.78	64.96	74	-9.04	peak
2483.5	58.27	-12.78	45.49	54	-8.51	AVG

Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



#### 4. POWER SPECTRAL DENSITY TEST

##### 4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

##### 4.1.1 TEST PROCEDURE

1. The testing follows Measurement Procedure PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) >= 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$ .

##### 4.1.2 DEVIATION FROM STANDARD

No deviation.

##### 4.1.3 TEST SETUP



##### 4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

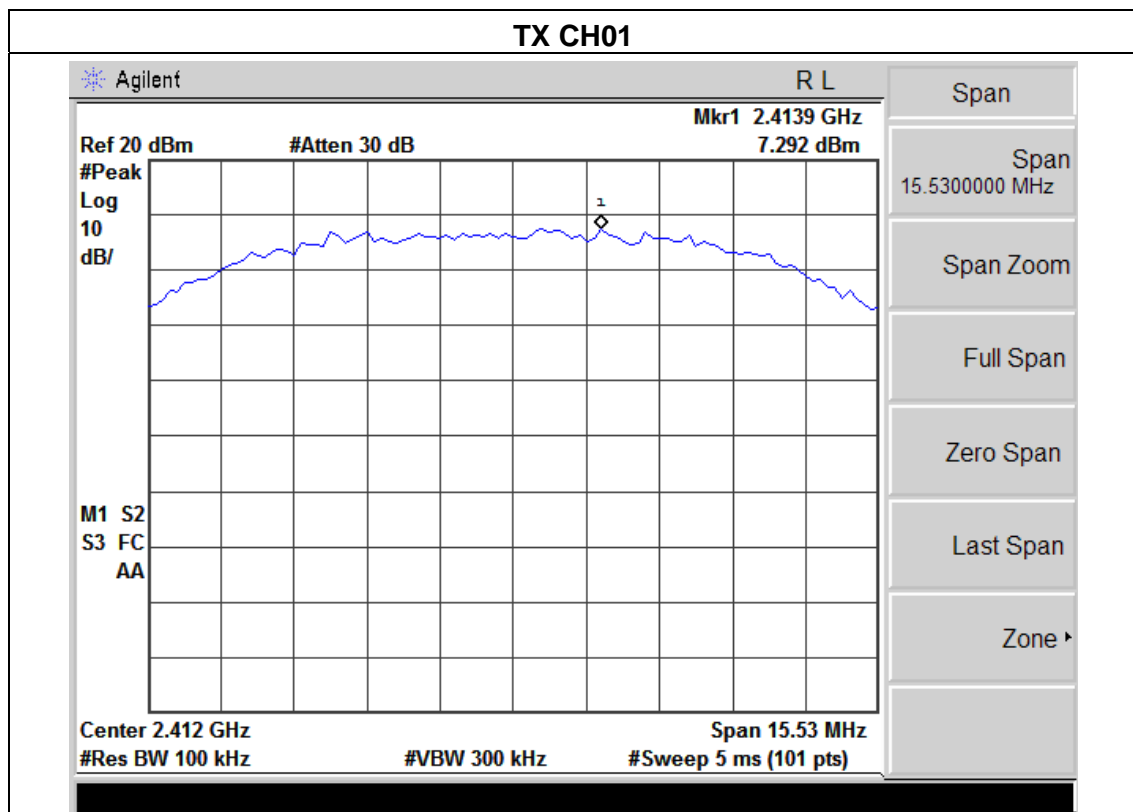
### 4.1.5 TEST RESULTS

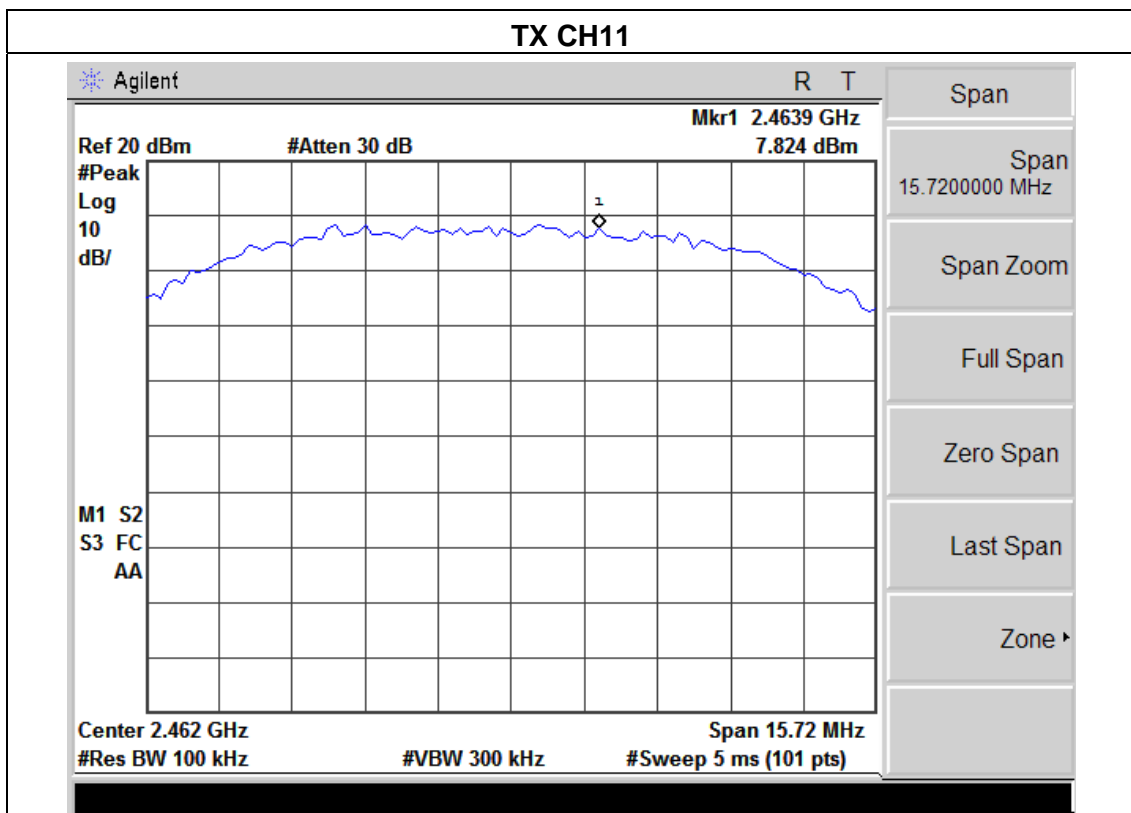
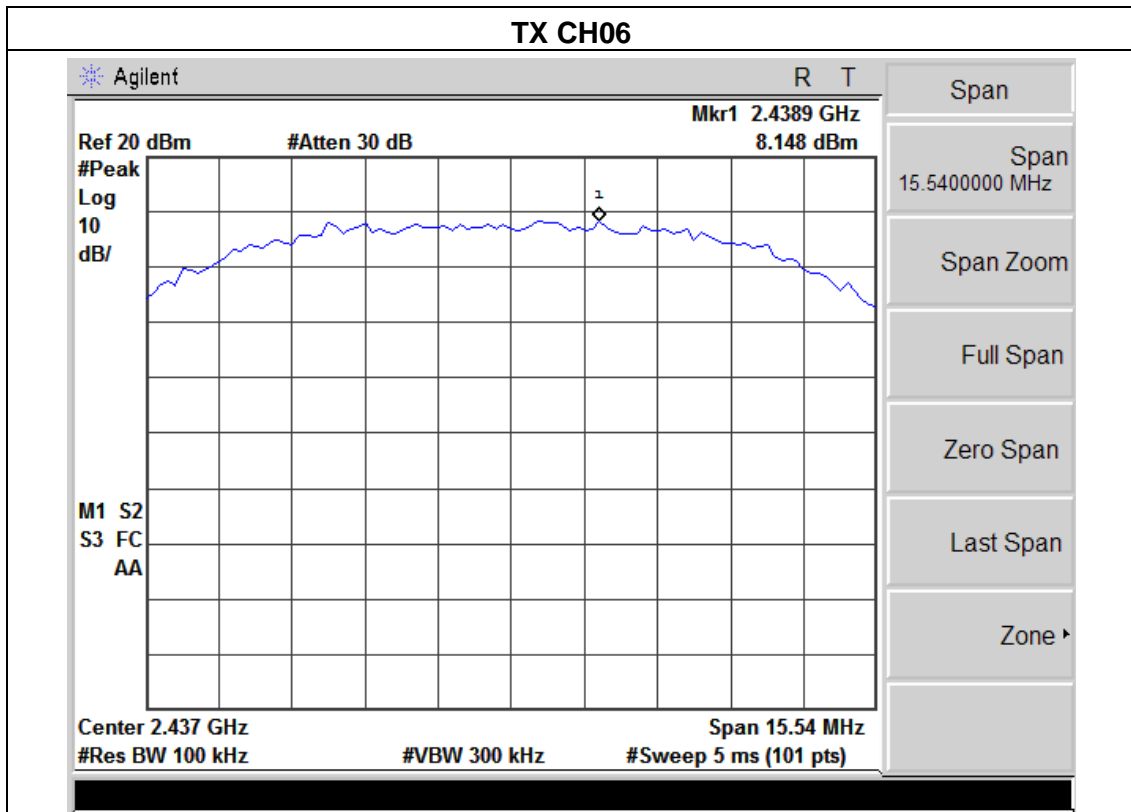
EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX b Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	PSD/3KHz (dBm)	Limit (dBm)	Result
2412 MHz	7.29	-7.91	8	<b>PASS</b>
2437 MHz	8.15	-7.05	8	<b>PASS</b>
2462 MHz	7.82	-7.38	8	<b>PASS</b>

**Note:**

BWCF =  $10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$ .





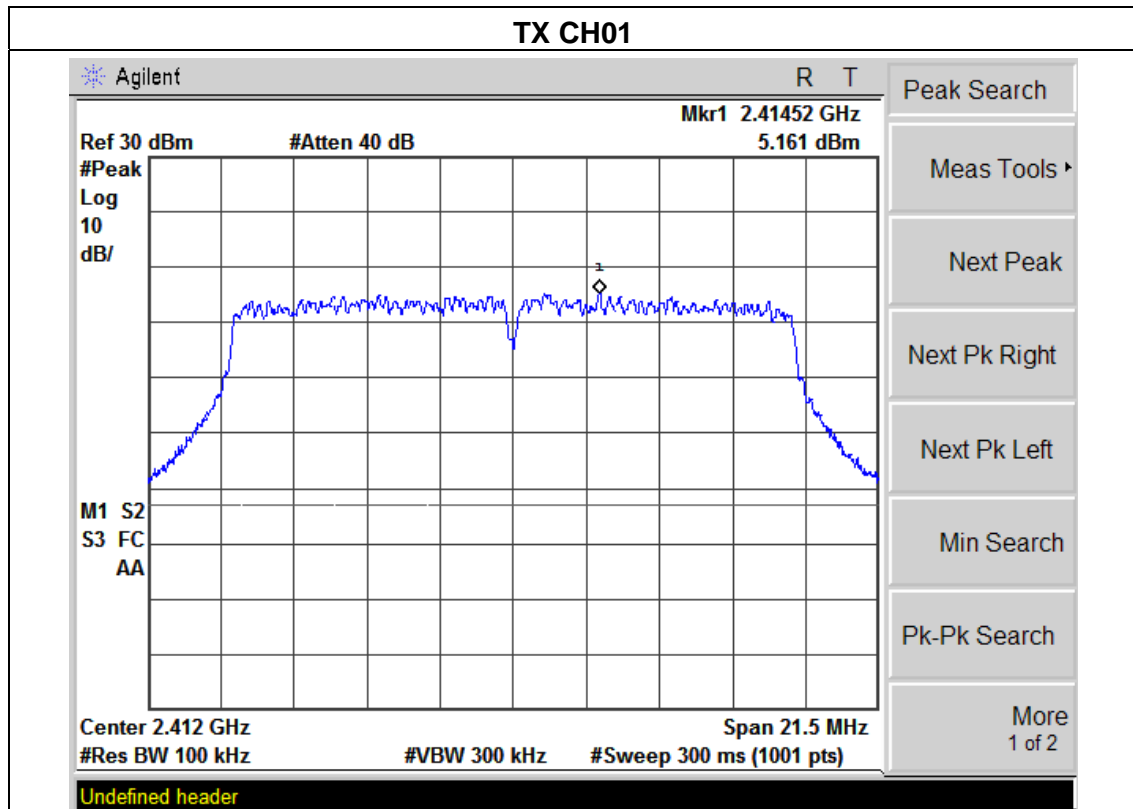


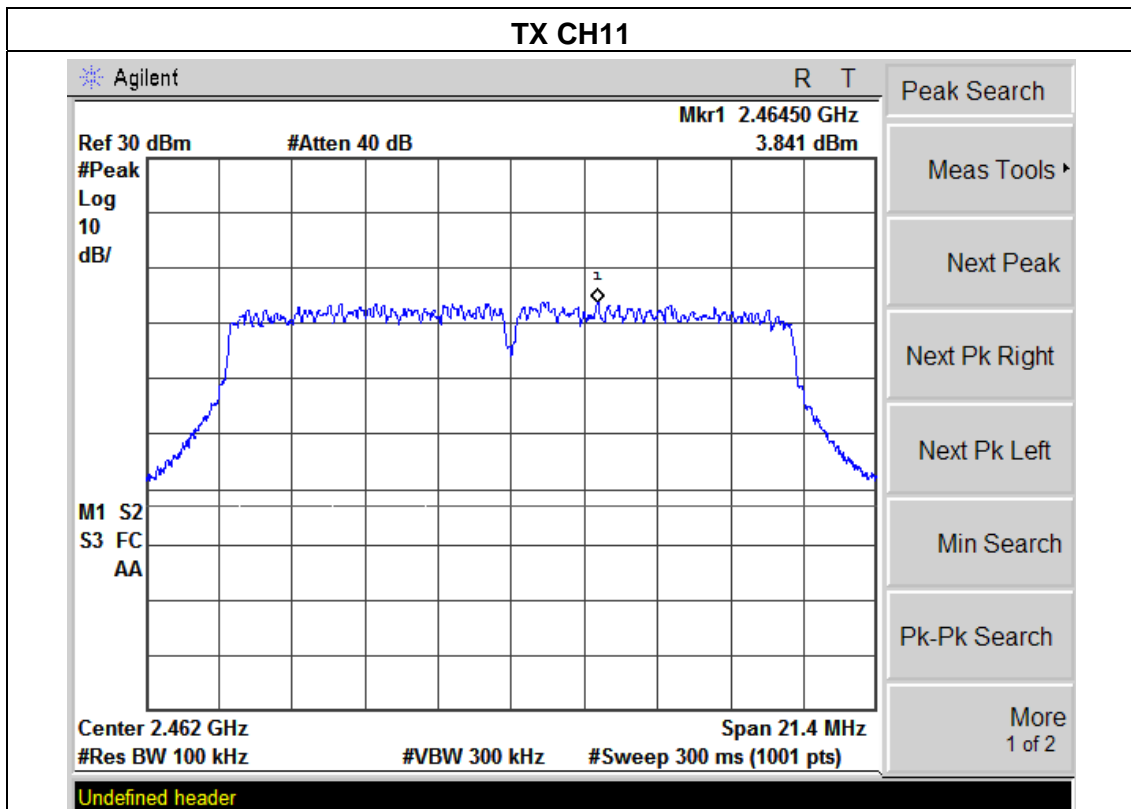
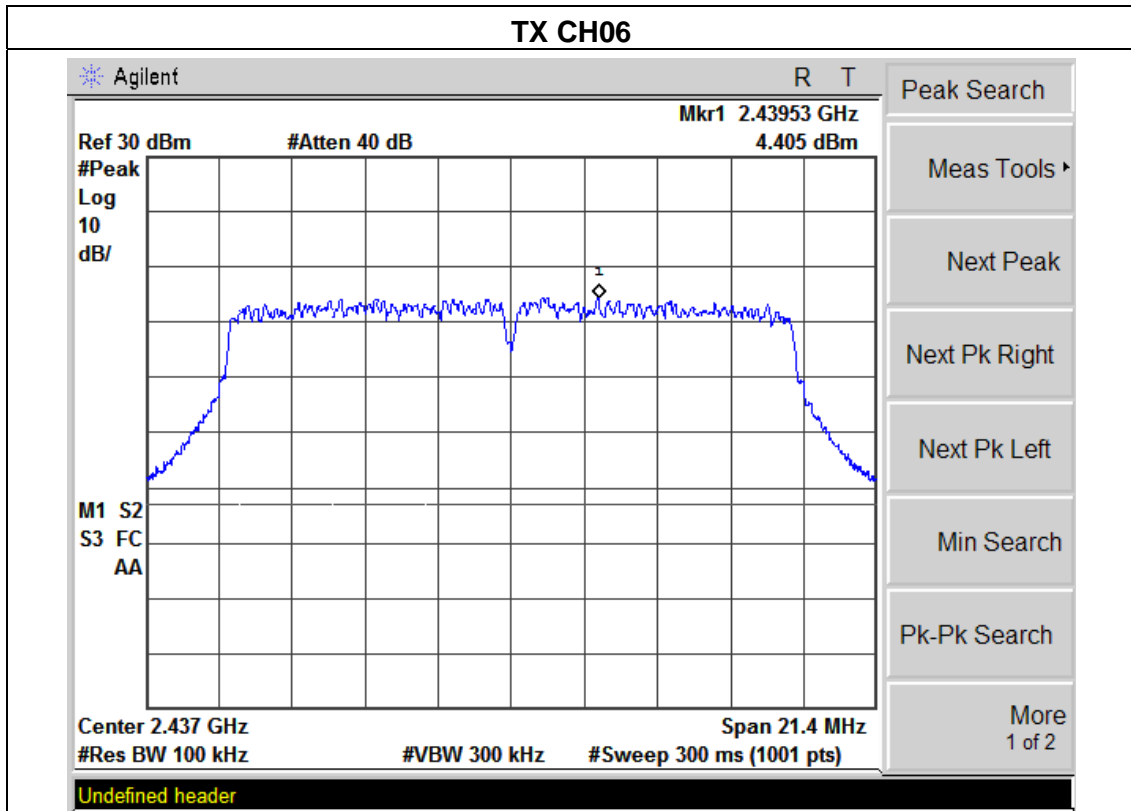
EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	PSD/3KHz (dBm)	Limit (dBm)	Result
2412 MHz	5.16	-10.04	8	<b>PASS</b>
2437 MHz	4.41	-10.79	8	<b>PASS</b>
2462 MHz	3.84	-11.36	8	<b>PASS</b>

**Note:**

BWCF = 10log (3 kHz/100 kHz = -15.2 dB).



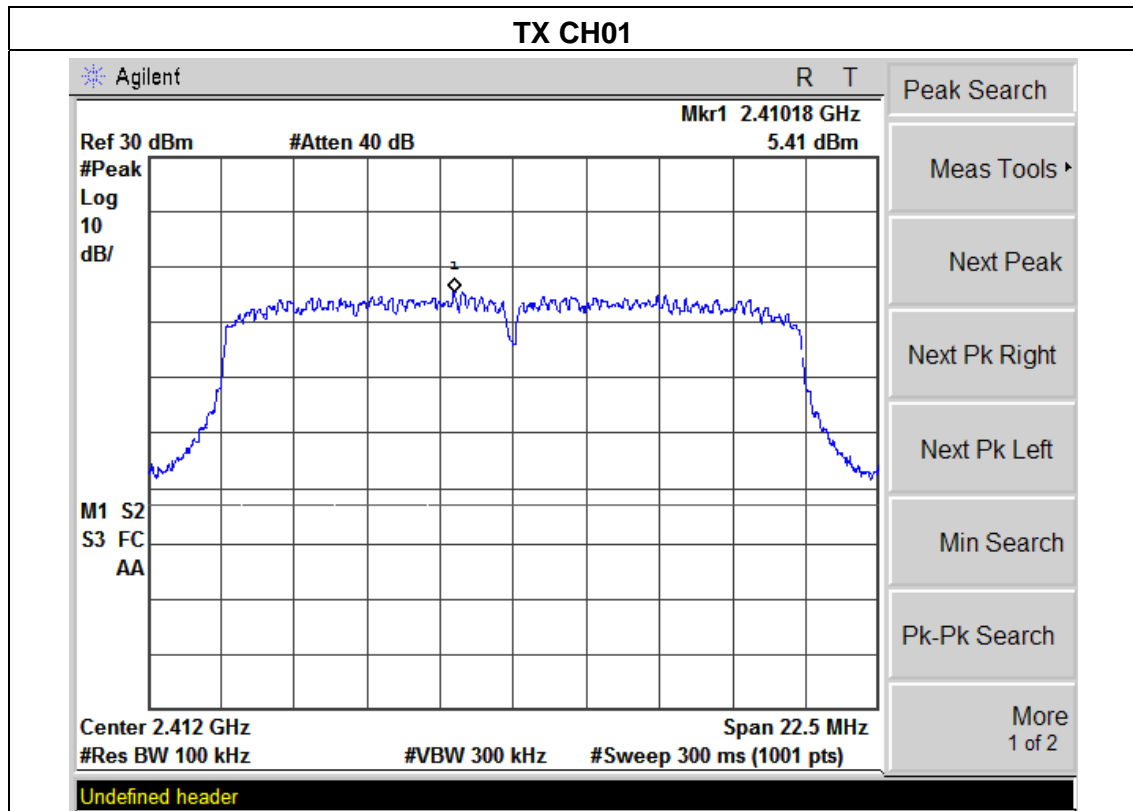


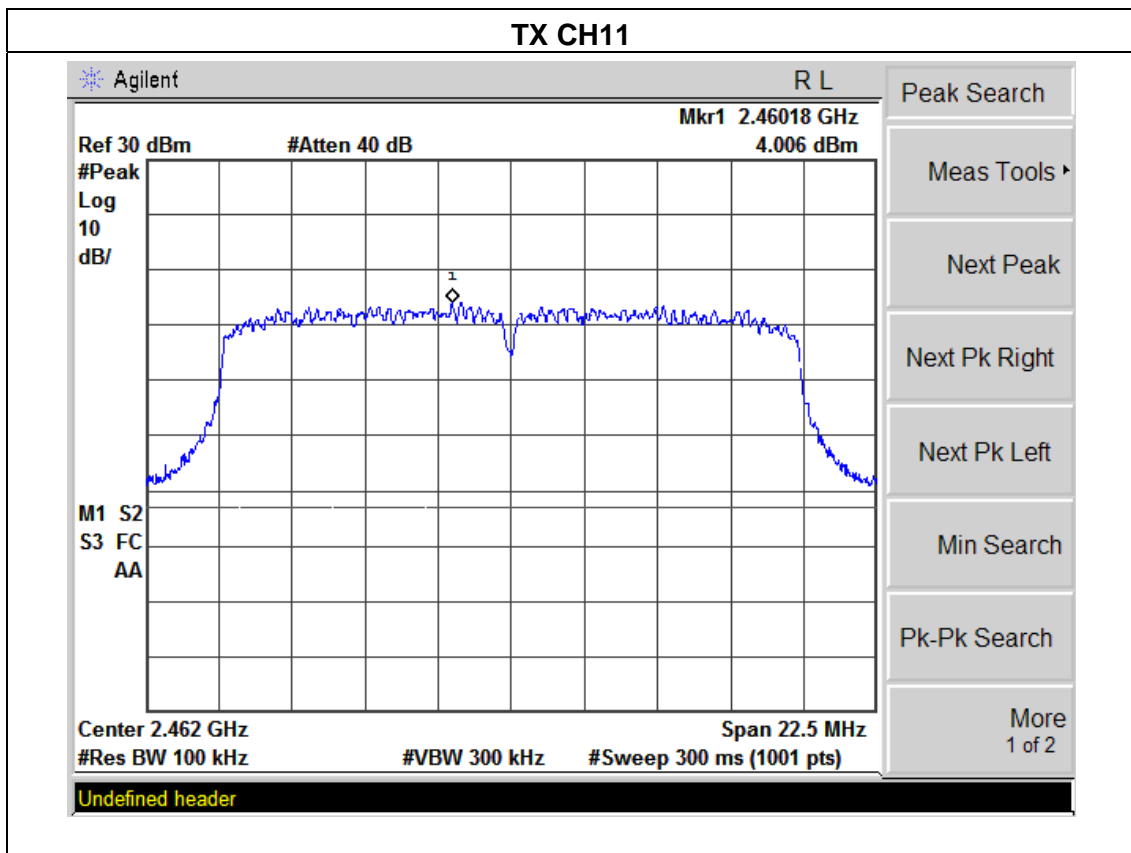
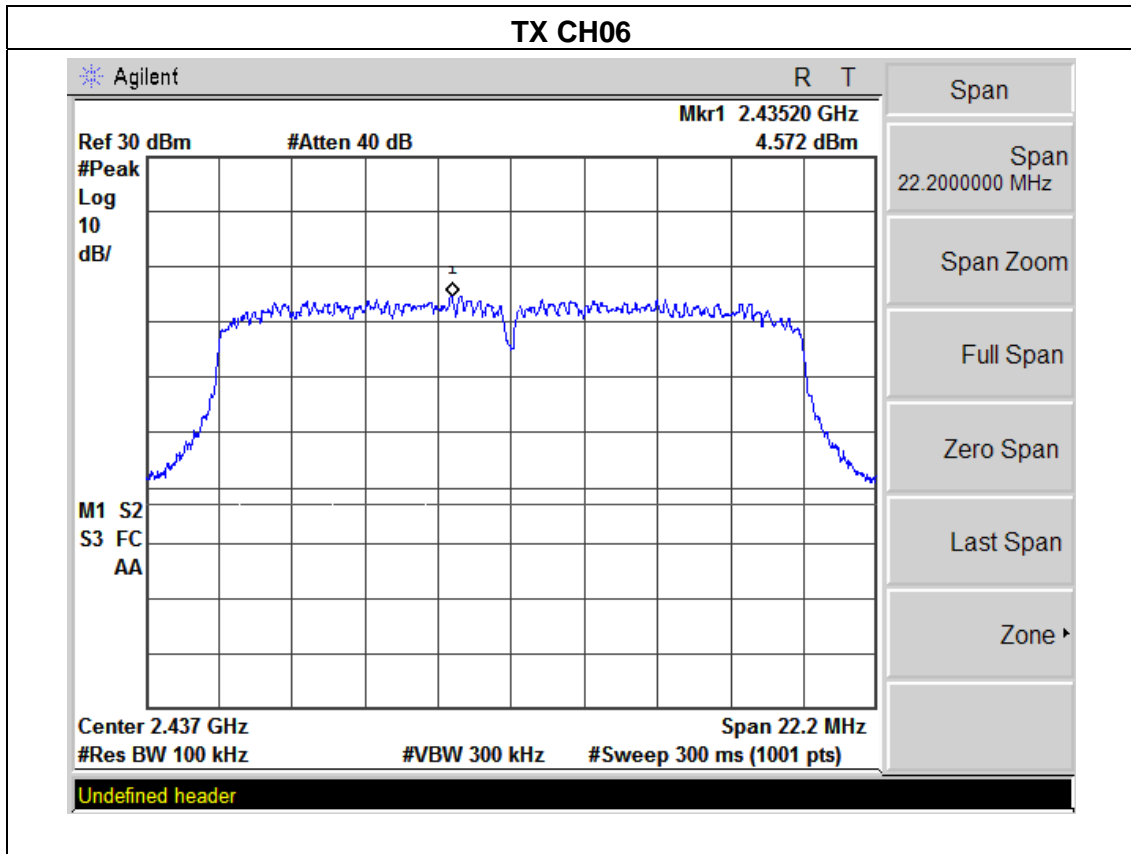
EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11		

Frequency	Power Density (dBm)	PSD/3KHz (dBm)	Limit (dBm)	Result
2412 MHz	5.41	-9.79	8	<b>PASS</b>
2437 MHz	4.57	-10.63	8	<b>PASS</b>
2462 MHz	4.00	-11.2	8	<b>PASS</b>

**Note:**

1. BWCF =  $10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$ .





## 5. BANDWIDTH TEST

### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	$>$ Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

#### 5.1.1 TEST PROCEDURE

- a.
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
  2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
  3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW)  $\geq 3 * \text{RBW}$ . In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
  4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



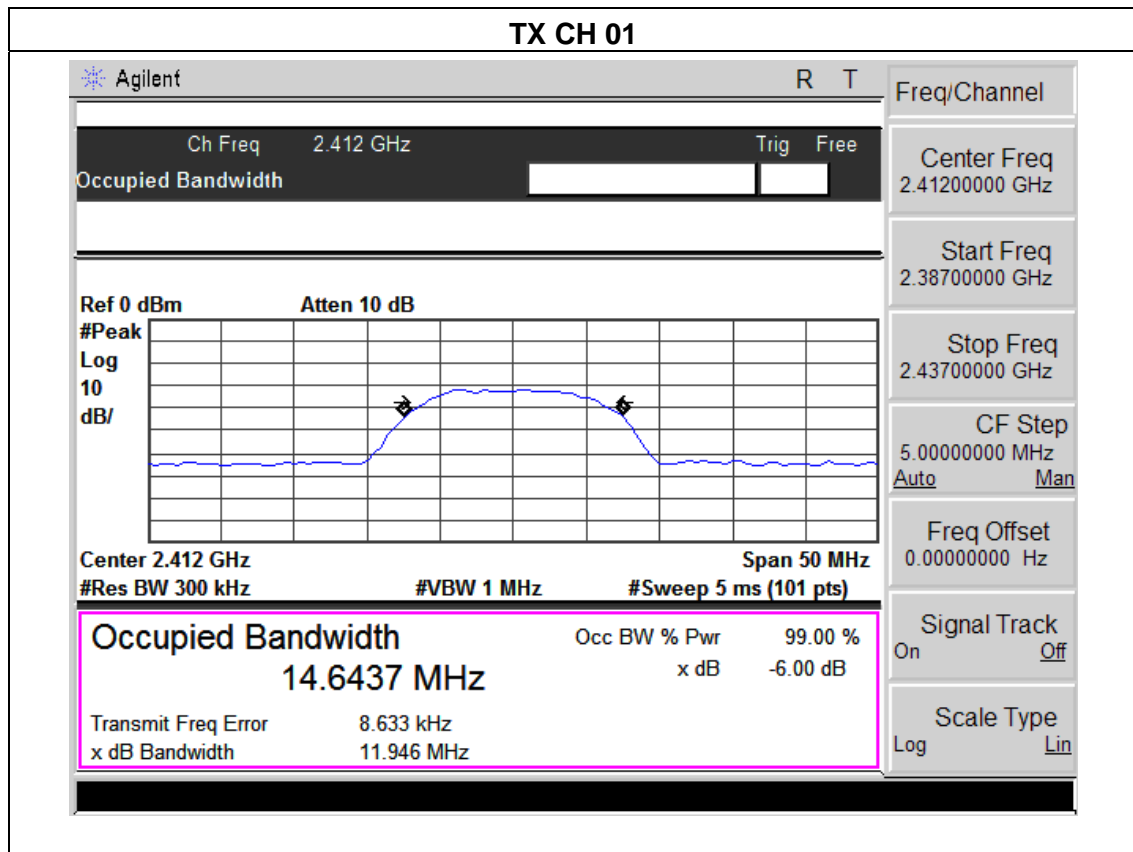
#### 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 5.1.5 TEST RESULTS

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	11.95	14.64	>=500KHz	<b>PASS</b>
2437 MHz	11.95	14.97	>=500KHz	<b>PASS</b>
2462 MHz	12.09	14.93	>=500KHz	<b>PASS</b>



### TX CH 06

Agilent
R T

---

Ch Freq 2.437 GHz
Trig Free

Occupied Bandwidth

---

Ref 0 dBm
Atten 10 dB

#Peak									
Log									
10									
dB/									

Center 2.437 GHz Span 50 MHz

#Res BW 300 kHz #VBW 1 MHz #Sweep 5 ms (101 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
14.9688 MHz	x dB	-6.00 dB
Transmit Freq Error	-62.179 kHz	
x dB Bandwidth	11.952 MHz	

Freq/Channel	
Center Freq	2.43700000 GHz
Start Freq	2.41200000 GHz
Stop Freq	2.46200000 GHz
CF Step	5.00000000 MHz
	Auto <span style="margin-left: 20px;">Man</span>
Freq Offset	0.00000000 Hz
Signal Track	On <span style="margin-left: 20px;">Off</span>
Scale Type	Log <span style="margin-left: 20px;">Lin</span>

### TX CH 11

Agilent
R T

---

Ch Freq 2.462 GHz
Trig Free

Occupied Bandwidth

---

Ref 0 dBm
Atten 10 dB

#Peak									
Log									
10									
dB/									

Center 2.462 GHz Span 50 MHz

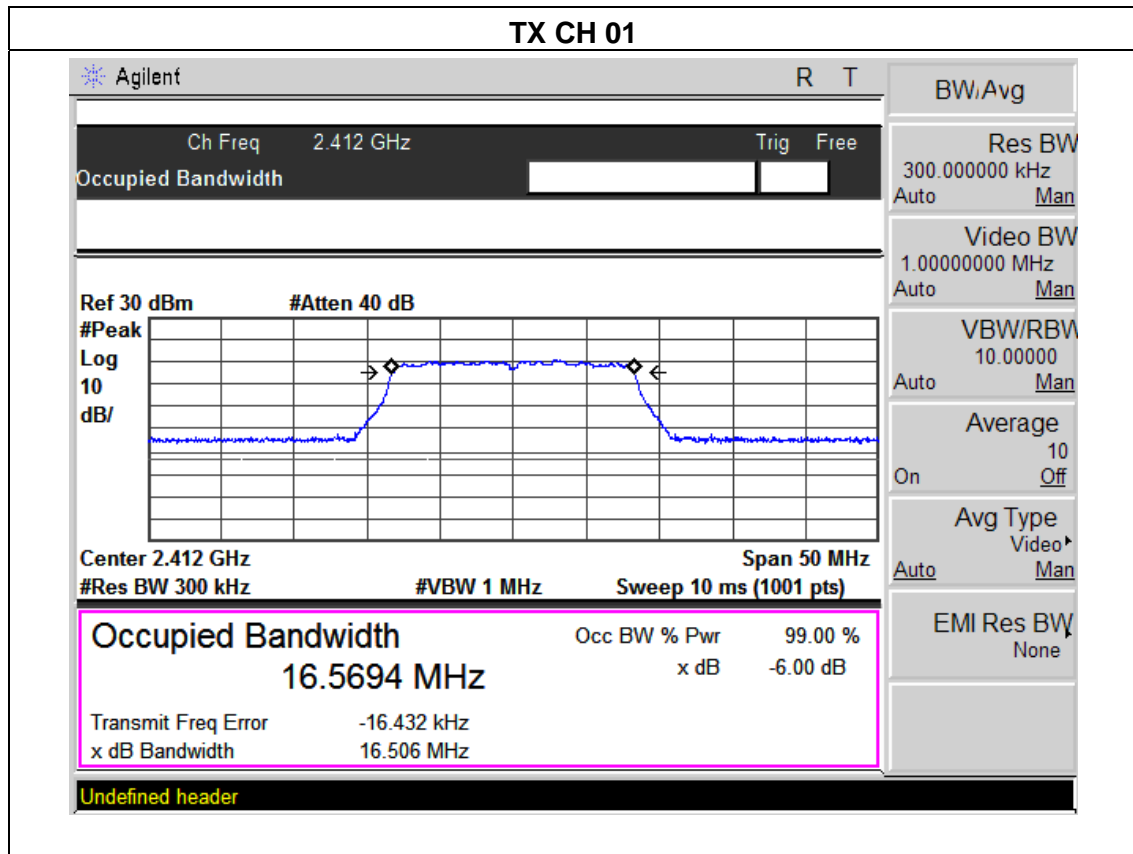
#Res BW 300 kHz #VBW 1 MHz #Sweep 5 ms (101 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
14.9253 MHz	x dB	-6.00 dB
Transmit Freq Error	-53.374 kHz	
x dB Bandwidth	12.089 MHz	

Freq/Channel	
Center Freq	2.46200000 GHz
Start Freq	2.43700000 GHz
Stop Freq	2.48700000 GHz
CF Step	5.00000000 MHz
	Auto <span style="margin-left: 20px;">Man</span>
Freq Offset	0.00000000 Hz
Signal Track	On <span style="margin-left: 20px;">Off</span>
Scale Type	Log <span style="margin-left: 20px;">Lin</span>

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	16.51	16.57	>=500KHz	<b>PASS</b>
2437 MHz	16.46	16.54	>=500KHz	<b>PASS</b>
2462 MHz	16.45	16.54	>=500KHz	<b>PASS</b>





### TX CH 06

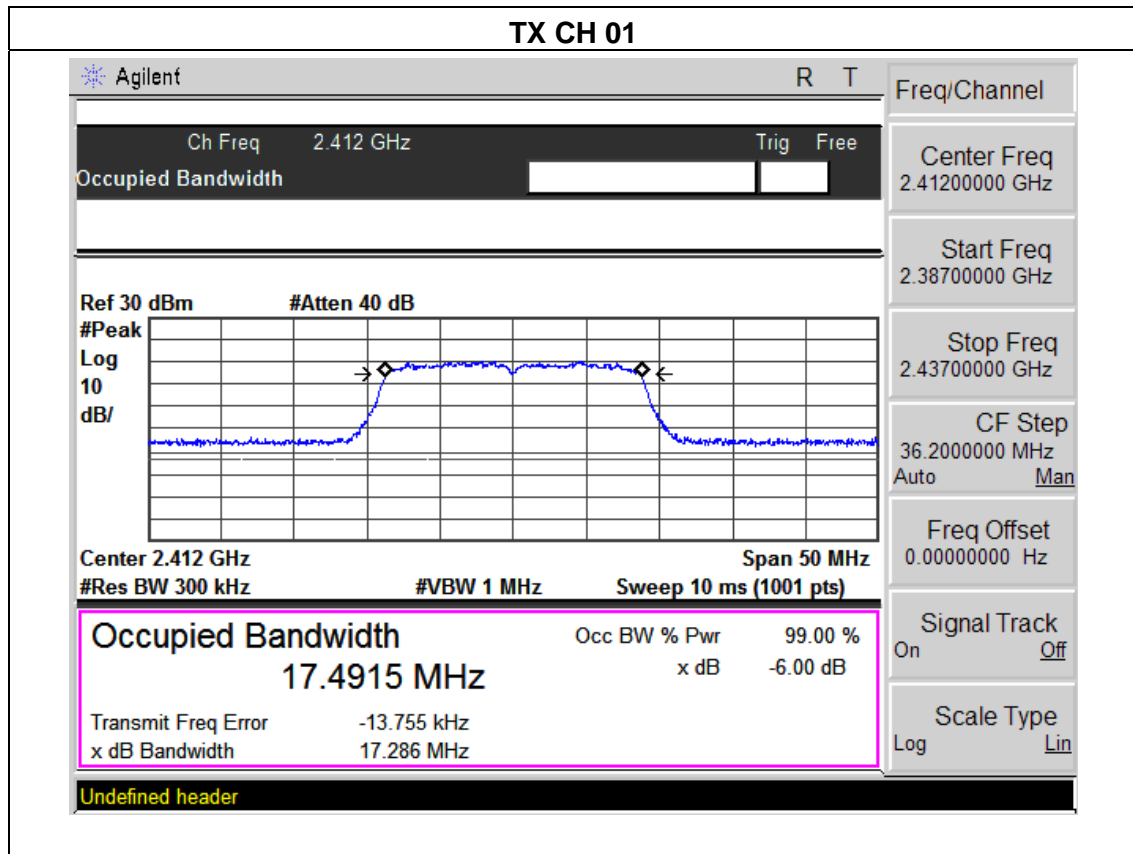
Agilent		R	T
Ch Freq 2.437 GHz		Trig	Free
Occupied Bandwidth			
Center 2.437 GHz		Span 50 MHz	
#Res BW 300 kHz		#VBW 1 MHz	Sweep 10 ms (1001 pts)
<b>Occupied Bandwidth</b>		Occ BW % Pwr	99.00 %
16.5390 MHz		x dB	-6.00 dB
Transmit Freq Error		-6.461 kHz	
x dB Bandwidth		16.464 MHz	
Undefined header			
Freq/Channel		Center Freq 2.43700000 GHz	
		Start Freq 2.41200000 GHz	
		Stop Freq 2.46200000 GHz	
		CF Step 36.2000000 MHz	
		Auto <u>Man</u>	
		Freq Offset 0.00000000 Hz	
Signal Track		On <u>Off</u>	
Scale Type		Log <u>Lin</u>	

### TX CH 11

Agilent		R	T
Ch Freq 2.462 GHz		Trig	Free
Occupied Bandwidth			
Center 2.462 GHz		Span 50 MHz	
#Res BW 300 kHz		#VBW 1 MHz	Sweep 10 ms (1001 pts)
<b>Occupied Bandwidth</b>		Occ BW % Pwr	99.00 %
16.5393 MHz		x dB	-6.00 dB
Transmit Freq Error		-5.931 kHz	
x dB Bandwidth		16.448 MHz	
Undefined header			
Freq/Channel		Center Freq 2.46200000 GHz	
		Start Freq 2.43700000 GHz	
		Stop Freq 2.48700000 GHz	
		CF Step 36.2000000 MHz	
		Auto <u>Man</u>	
		Freq Offset 0.00000000 Hz	
Signal Track		On <u>Off</u>	
Scale Type		Log <u>Lin</u>	

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	17.29	17.49	>=500KHz	<b>PASS</b>
2437 MHz	17.04	17.49	>=500KHz	<b>PASS</b>
2462 MHz	17.30	17.50	>=500KHz	<b>PASS</b>



### TX CH 06

Agilent R T

Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth [ ] [ ]

---

Ref 30 dBm #Atten 40 dB

Center 2.437 GHz Span 50 MHz

#Res BW 300 kHz #VBW 1 MHz Sweep 10 ms (1001 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
<b>17.4896 MHz</b>	x dB	-6.00 dB
Transmit Freq Error	-15.813 kHz	
x dB Bandwidth	17.035 MHz	

Undefined header

Freq/Channel

Center Freq  
2.43700000 GHz

Start Freq  
2.41200000 GHz

Stop Freq  
2.46200000 GHz

CF Step  
36.20000000 MHz  
Auto [Man](#)

Freq Offset  
0.00000000 Hz

Signal Track  
On [Off](#)

Scale Type  
Log [Lin](#)

### TX CH 11

Agilent R T

Ch Freq 2.462 GHz Trig Free

Occupied Bandwidth [ ] [ ]

---

Ref 30 dBm #Atten 40 dB

Center 2.462 GHz Span 50 MHz

#Res BW 300 kHz #VBW 1 MHz Sweep 10 ms (1001 pts)

<b>Occupied Bandwidth</b>	Occ BW % Pwr	99.00 %
<b>17.5142 MHz</b>	x dB	-6.00 dB
Transmit Freq Error	-6.897 kHz	
x dB Bandwidth	17.301 MHz	

Undefined header

BW/Avg

Res BW  
300.000000 kHz  
Auto [Man](#)

Video BW  
1.00000000 MHz  
Auto [Man](#)

VBW/RBW  
10.00000  
Auto [Man](#)

Average  
10  
On [Off](#)

Avg Type  
Video [Man](#)

EMI Res BW  
None

**6. PEAK OUTPUT POWER TEST**

**6.1 APPLIED PROCEDURES / LIMIT**

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

**6.1.1 TEST PROCEDURE**

- a. The EUT was directly connected to the Power meter

**6.1.2 DEVIATION FROM STANDARD**

No deviation.

**6.1.3 TEST SETUP**



**6.1.4 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**6.1.5 TEST RESULTS**

EUT :	150M Wireless USB adapter	Model Name :	WUA-0614
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5.0V
Test Mode :	TX b/g/n(20M) Mode /CH01, CH06, CH11		

<b>TX 802.11b Mode</b>					
Test Channel	Frequency	Peak output power. Antenna port	Antenna Gain	EIRP	LIMIT
	(MHz)	(dBm)	dBi	dBm	dBm
CH01	2412	15.79	4.0	<b>19.79</b>	30
CH06	2437	15.76	4.0	19.76	30
CH11	2462	15.45	4.0	19.45	30
<b>TX 802.11g Mode</b>					
CH01	2412	13.77	4.0	<b>17.77</b>	30
CH06	2437	13.51	4.0	17.51	30
CH11	2462	13.44	4.0	17.44	30
<b>TX 802.11n/20M Mode</b>					
CH01	2412	13.85	4.0	<b>17.85</b>	30
CH06	2437	13.31	4.0	17.31	30
CH11	2462	13.21	4.0	17.21	30

## **7. ANTENNA REQUIREMENT**

### **7.1 STANDARD REQUIREMENT**

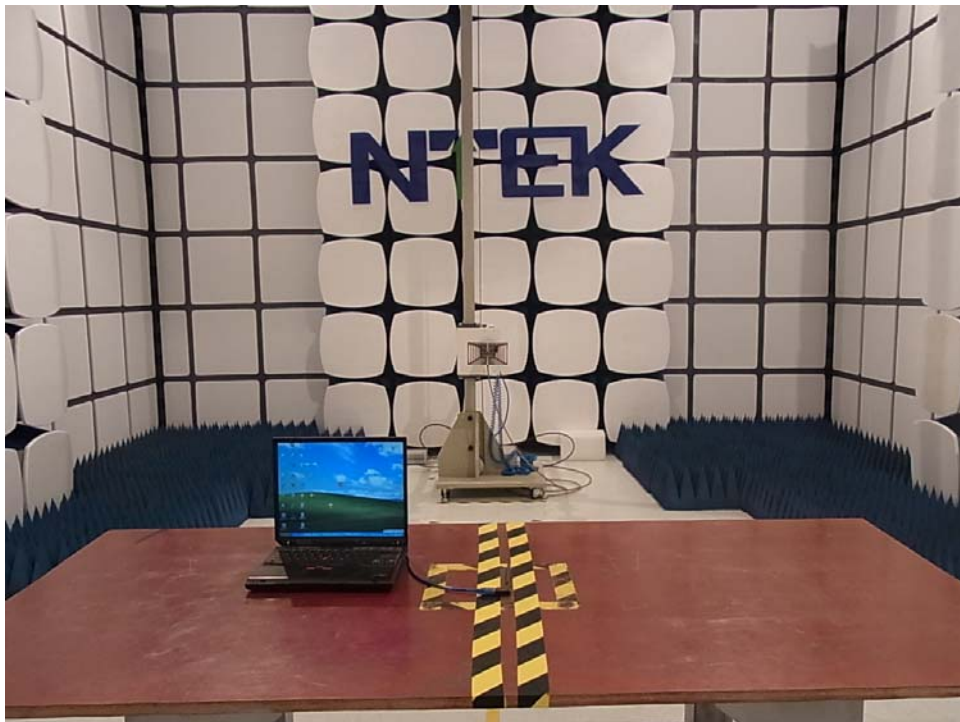
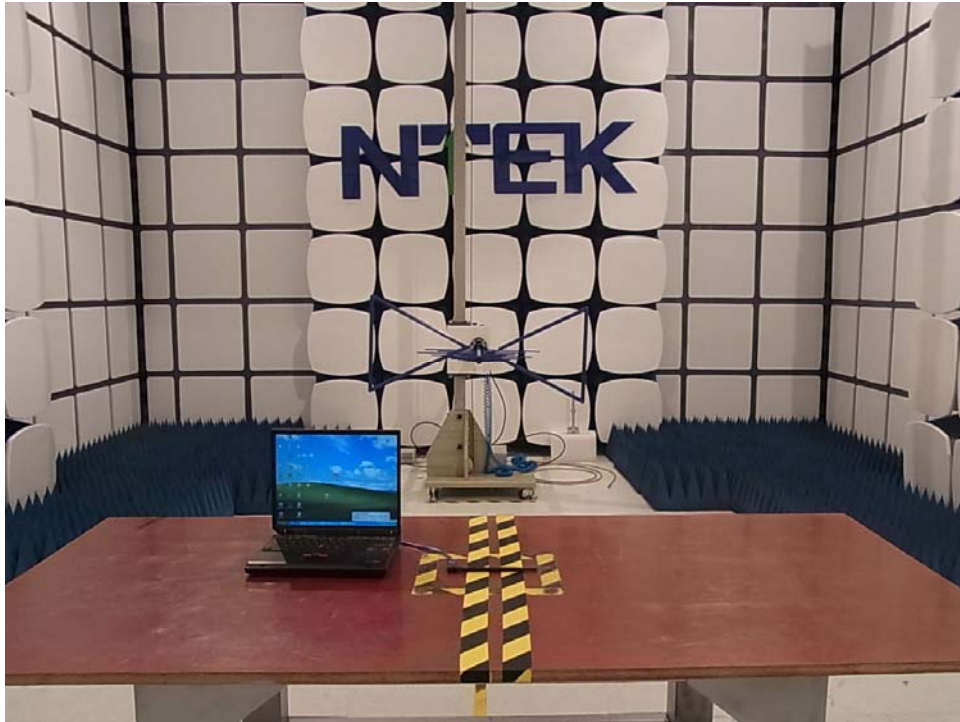
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### **7.2 EUT ANTENNA**

The EUT antenna is external antenna(Reserve SMA-type). It comply with the standard requirement.

**8. EUT TEST PHOTO**

**Radiated Measurement Photos**



**Conducted Measurement Photos**

