FCC RADIO TEST REPORT
FCC ID: 2AB88XK-CARBON

Product：	XK Carbon WiFi App Controller
Trade Name：	XKGLOW
Model Name：	XK-CARBON
Serial Model：	XK-SILVER
Report No.：	BZT140423095F

Prepared for

XKGLOW LLC

24010 Burr Oaks Ln., Athens, Illinois 62613, United States

Prepared by

BZT Testing Technology Co., Ltd

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

TEST RESULT CERTIFICATION

Applicant's name ..... : XKGLOW LLC

Address ..... : 24010 Burr Oaks Ln., Athens, Illinois 62613, United States

Manufacture's Name ..... : XKGLOW LLC

Address ..... : 24010 Burr Oaks Ln., Athens, Illinois 62613, United States

Product description

Product name..... : XK Carbon WiFi App Controller

Model and/or type reference : XK-CARBON

Serial Model ..... : XK-SILVER

Standards ..... : FCC Part15.247

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

This device described above has been tested by BZT, 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.....: 05 April. 2014 ~14 April. 2014

Date of Issue .....: 15 April. 2014

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

Testing Engineer **:** Lynn Chen

(Lynn Chen)

Technical Manager **:** Carlen

(Carlen Liu)

Authorized Signatory **:** Tommy Zhang

(Tommy zhang)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	
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

BZT 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.: 701733

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended 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	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>XK Carbon WiFi App Controller</td></tr>
<tr><td>Trade Name</td><td>XKGLOW</td></tr>
<tr><td>Model Name</td><td>XK-CARBON</td></tr>
<tr><td>Serial Model</td><td>XK-SILVER</td></tr>
<tr><td>Model Difference</td><td>All the model are the same circuit and RF module,
except the model name.</td></tr>
<tr><td>Product Description</td><td>The EUT is a XK Carbon WiFi App Controller
<table>
<tr><td>Operation Frequency:</td><td>802.11b/g/n 20:2412~2462 MHz
802.11n 40: 2422~2452MHz</td></tr>
<tr><td>Modulation Type:</td><td>CCK/OFDM/DBPSK/DAPSK</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>802.11b:11/5.5/2/1 Mbps
802.11g:54/48/36/24/18/12/9/6Mbps
802.11n(20/40MHz):300/150/144.44/
130/117/115.56/104/86.67/78/52/6.5
Mbps</td></tr>
<tr><td>Number Of Channel</td><td>802.11b/g/n20: 11CH
802.11n 40: 7CH</td></tr>
<tr><td>Antenna Designation:</td><td>Please see Note 3.</td></tr>
<tr><td>Peak Output Power(Conducted):</td><td>802.11b: 9.36 dBm (Max.)
802.11g: 8.74 dBm (Max.)
802.11n(20MHz): 8.41 dBm (Max.)
802.11n(40MHz): 7.89 dBm (Max.)</td></tr>
<tr><td>Antenna Gain (dBi)</td><td>1 dbi</td></tr>
</table>
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.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Ratings</td><td>DC 12V from battery</td></tr>
<tr><td>Adapter</td><td>N/A</td></tr>
<tr><td>Battery</td><td>N/A</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
</table>

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		

Channel List for 802.11n(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	06	2437	09	2452		
04	2427	07	2442				
05	2432	08	2447				

3.

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	N/A	Integral Antenna	N/A	1	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(20)CH1/ CH6/ CH11
Mode 4	802.11n(40) CH3/ CH6/ CH9
Mode 5	Link Mode

For Conducted Emission	
Final Test Mode	Description
Mode 5	N/A

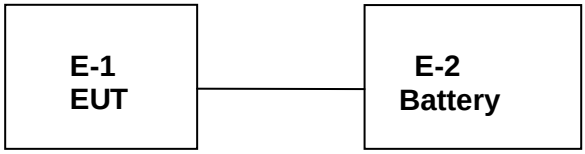
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n CH1/ CH6/ CH11
Mode 4	802.11n(40) CH3/ CH6/ CH9
Mode 5	Link Mode

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



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	XK Carbon WiFi App Controller	XKGLOW	XK-CARBON	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

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.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2013.07.06	2014.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2013.06.07	2014.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2013.07.06	2014.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2013.06.07	2014.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2013.06.07	2014.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2013.07.06	2014.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2013.07.06	2014.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2013.12.22	2014.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2013.06.08	2014.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2013.07.06	2014.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2013.07.06	2014.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2013.06.06	2014.06.05	1 year
2	LISN	R&S	ENV216	101313	2013.08.24	2014.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2013.08.24	2014.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2013.06.07	2014.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2013.06.07	2014.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2013.06.08	2014.06.07	1 year

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

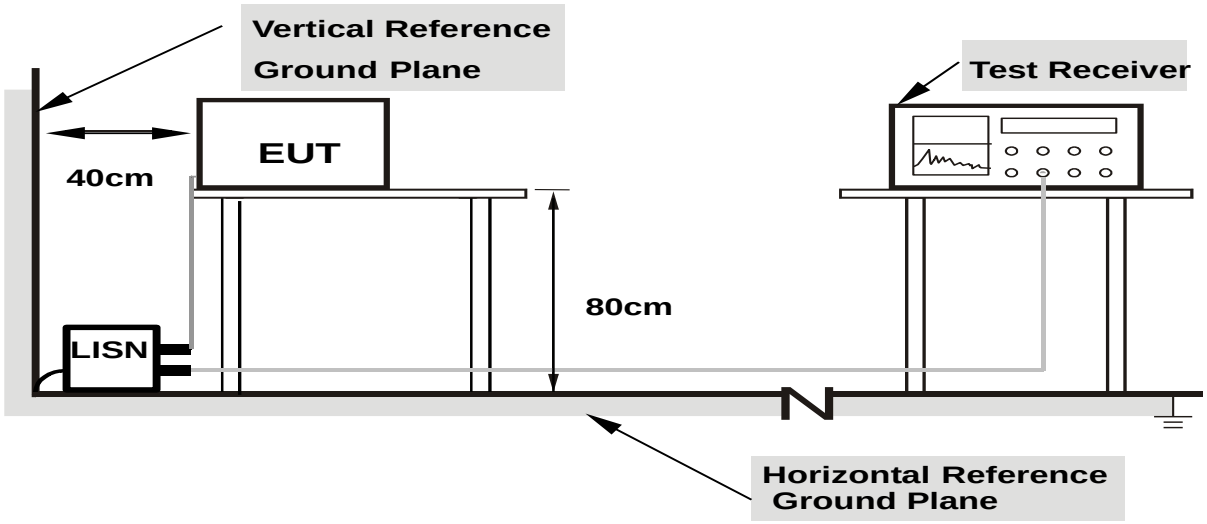
3.1.2 TEST PROCEDURE

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：	XK Carbon WiFi App Controller	Model Name. ：	XK-CARBON
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N/A
Test Voltage ：	N/A	Test Mode：	N/A

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 (micorvolts/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:

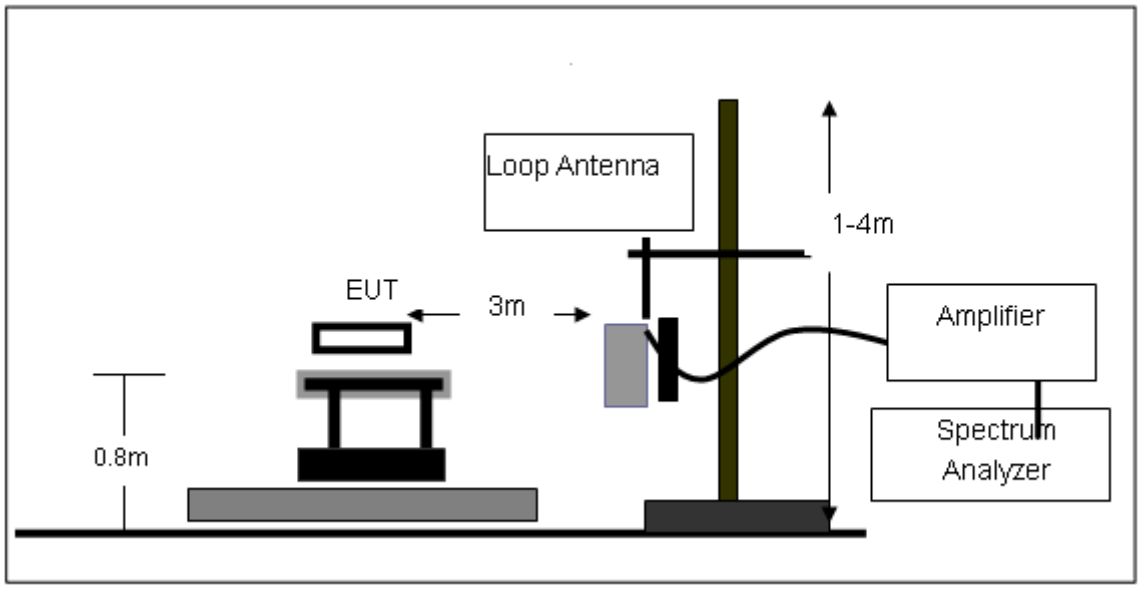
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

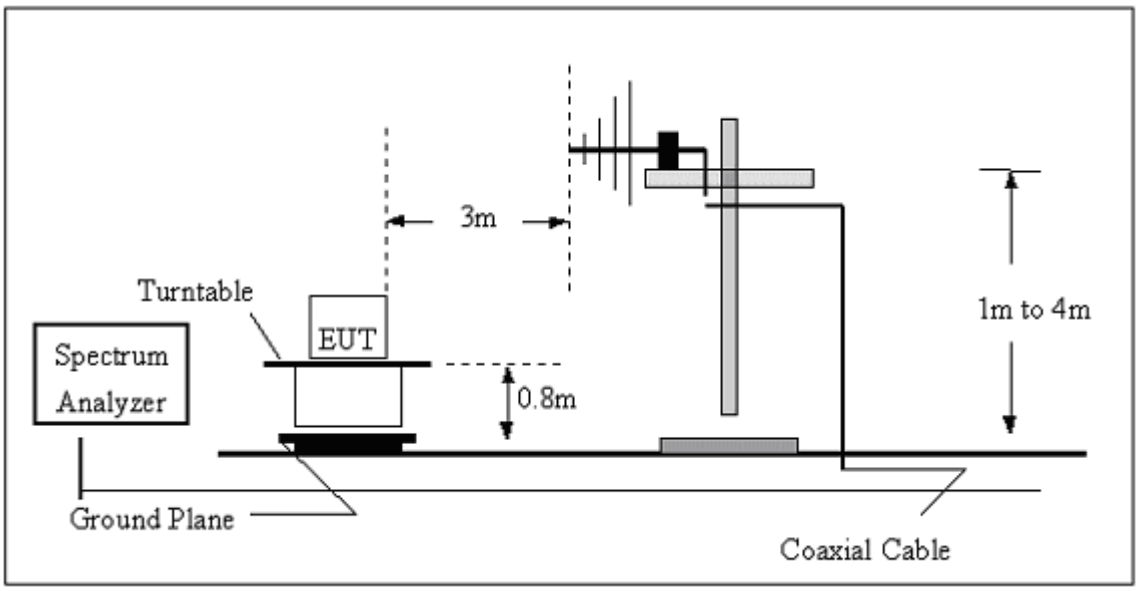
No deviation

3.2.4 TEST SETUP

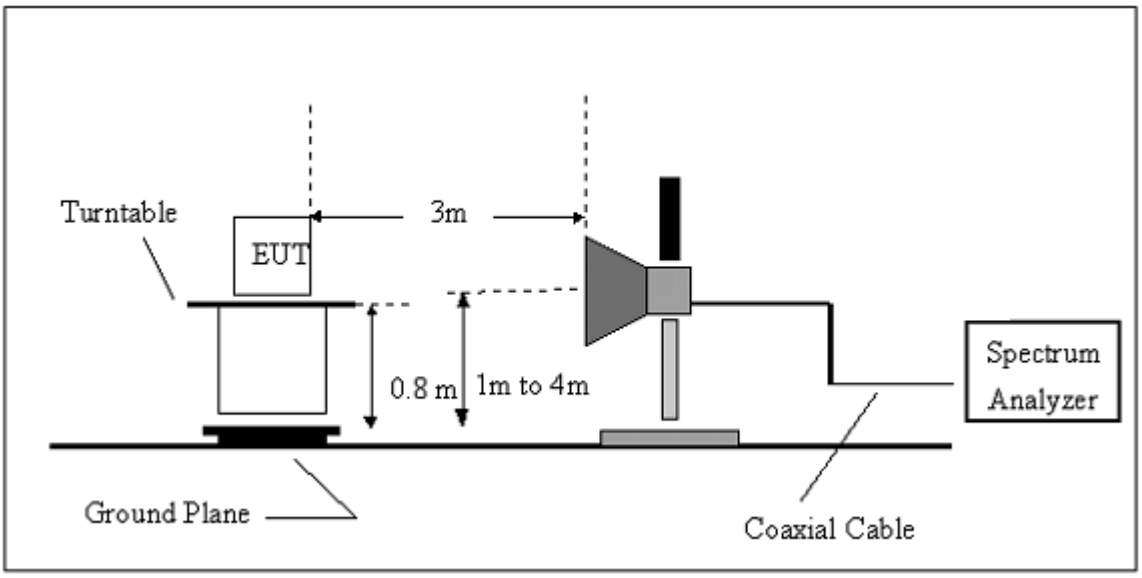
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT：	XK Carbon WiFi App Controller	Model Name. ：	XK-CARBON
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	Link mode	Polarization :	--

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

NOTE:

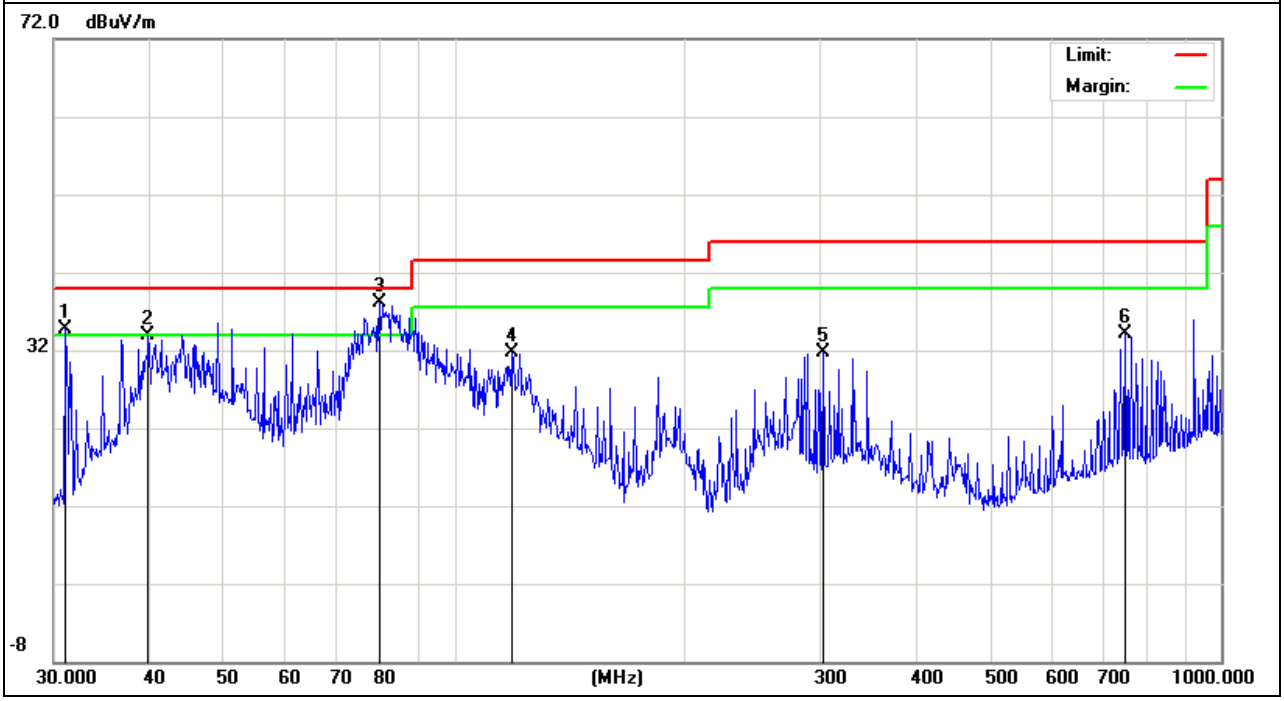
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	Link mode	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
31.0705	16.76	17.86	34.62	40	-5.38	QP
39.8541	20.45	13.46	33.91	40	-6.09	QP
79.8002	30.34	7.76	38.1	40	-1.9	QP
118.6013	19.65	12.05	31.7	43.5	-11.8	QP
302.4812	16.99	14.81	31.8	46	-14.2	QP
750.1082	7.71	26.39	34.1	46	-11.9	QP

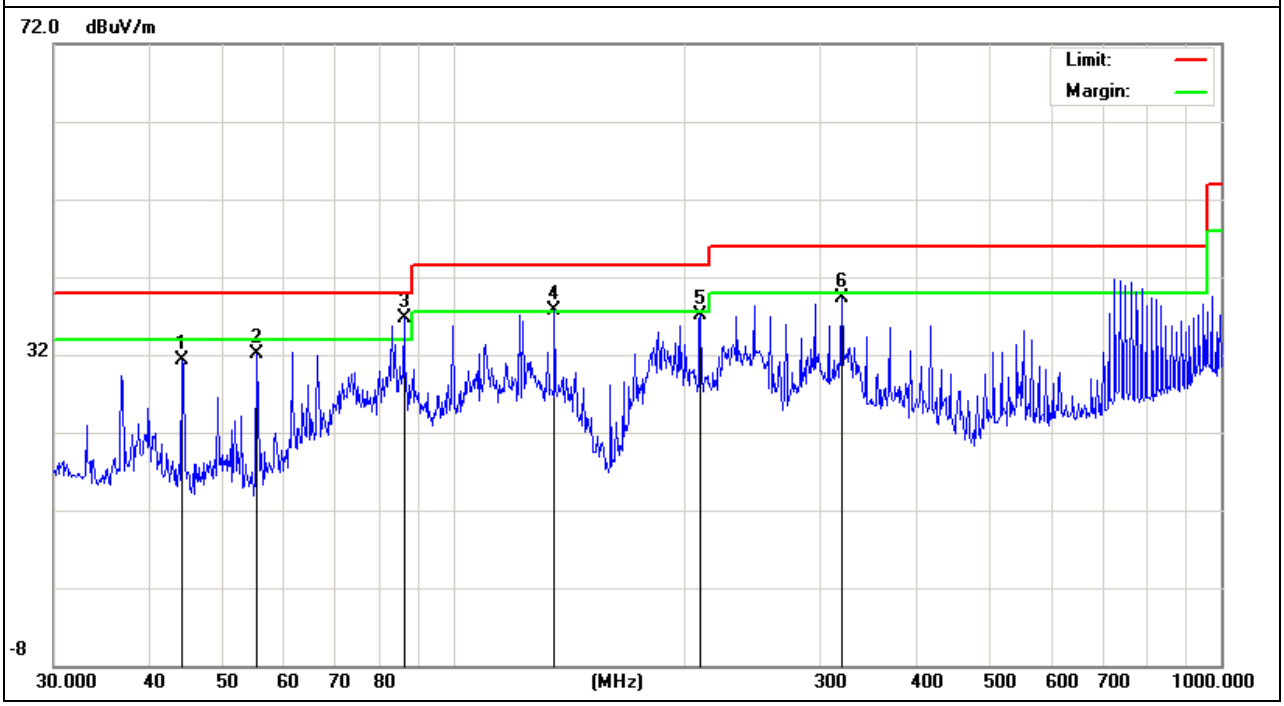
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	Link mode	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
44.12	20.13	11.09	31.22	40	-8.78	QP
55.2207	25.86	6.21	32.07	40	-7.93	QP
85.8983	27.83	8.9	36.73	40	-3.27	QP
135.0319	25.46	12.25	37.71	43.5	-5.79	QP
209.3129	27.43	9.65	37.08	43.5	-6.42	QP
319.937	23.82	15.44	39.26	46	-6.74	QP

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



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1 (802.11b Mode)/2412	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.15	53.27	10.44	63.71	74	-10.29	peak
4824.15	33.12	10.44	43.56	54	-10.44	AVG
7236.149	46.01	12.39	58.4	74	-15.6	peak
7236.149	31.33	12.39	43.72	54	-10.28	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1 (802.11b Mode)/2412	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4874.145	51.32	10.4	61.72	74	-12.28	peak
4874.145	32.14	10.4	42.54	54	-11.46	AVG
7311.163	48.12	12.75	60.87	74	-13.13	peak
7311.163	32.63	12.75	45.38	54	-8.62	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6 (802.11b Mode)/2437	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.159	48.93	10.4	59.33	74	-14.67	peak
4874.159	30.28	10.4	40.68	54	-13.32	AVG
7311.136	45.27	12.75	58.02	74	-15.98	peak
7311.136	29.23	12.75	41.98	54	-12.02	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6 (802.11b Mode)/2437	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.146	41.24	10.39	51.63	74	-22.37	peak
4934.146	31.25	10.44	41.69	54	-12.31	AVG
7386.143	41.72	12.68	54.4	74	-19.6	peak
7386.143	29.82	12.68	42.5	54	-11.5	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11 (802.11b Mode)/2462	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.145	52.12	10.39	62.51	74	-11.49	peak
4924.145	32.32	10.39	42.76	54	-11.24	AVG
7386.142	47.71	12.68	60.39	74	-13.61	peak
7386.142	30.91	12.68	43.59	54	-10.41	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11 (802.11b Mode)/2462	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.122	43.47	10.39	53.86	74	-20.14	peak
4924.122	30.86	10.39	41.25	54	-12.75	AVG
7386.143	41.96	12.68	54.64	74	-19.36	peak
7386.143	29.75	12.68	42.43	54	-11.57	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1 (802.11g Mode)/2412	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824.17	43.26	10.44	53.7	74	-20.3	peak
4824.17	31.79	10.44	42.23	54	-11.77	AVG
7236.224	42.11	12.39	54.5	74	-19.5	peak
7236.224	32.11	12.39	44.5	54	-9.5	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1 (802.11g Mode)/2412	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824.155	46.11	10.44	56.55	74	-17.45	peak
4824.155	30.71	10.44	41.15	54	-12.85	AVG
7236.142	41.48	12.39	53.87	74	-20.13	peak
7236.142	30.17	12.39	42.56	54	-11.44	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6 (802.11g Mode)/2437	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.14	40.85	10.4	51.25	74	-22.75	peak
4874.14	29.22	10.4	39.62	54	-14.38	AVG
7311.17	40.77	12.75	53.52	74	-20.48	peak
7311.17	28.32	12.75	41.07	54	-12.93	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6 (802.11g Mode)/2437	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.158	48.03	10.4	58.43	74	-20.57	peak
4874.158	32.91	10.4	43.31	54	-11.68	AVG
7311.137	45.81	12.75	58.56	74	-19.43	peak
7311.137	33.87	12.75	46.62	54	-12.44	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11 (802.11g Mode)/2462	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.138	44.73	10.39	55.12	74	-18.88	peak
4924.138	32.31	10.39	42.7	54	-11.3	AVG
7386.149	42.51	12.68	55.19	74	-18.81	peak
7386.149	29.81	12.68	42.49	54	-11.51	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11g Mode)/2462	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.148	43.15	10.39	53.54	74	-20.46	peak
4924.148	31.72	10.39	42.11	54	-11.89	AVG
7386.13	42.76	12.68	55.44	74	-18.56	peak
7386.13	30.58	12.68	43.26	54	-10.74	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11n Mode)/20MHz	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824.14	42.01	10.44	52.45	74	-21.55	peak
4824.14	32.17	10.44	42.61	54	-11.39	AVG
7236.122	42.92	12.39	55.31	74	-18.69	peak
7236.122	28.48	12.39	40.87	54	-13.13	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11n Mode)/20MHz	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824.141	47.28	10.44	57.72	74	-16.28	peak
4824.141	35.12	10.44	45.56	54	-8.44	AVG
7236.145	47.23	12.39	59.62	74	-14.38	peak
7236.145	32.11	12.39	44.5	54	-9.5	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6(802.11n Mode)/20MHz	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.16	52.22	10.4	62.62	74	-11.38	peak
4874.16	30.26	10.4	40.66	54	-13.34	AVG
7311.128	43.62	12.75	56.37	74	-17.63	peak
7311.128	29.26	12.75	42.01	54	-11.99	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6(802.11n Mode)/20MHz	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.161	40.11	10.4	50.51	74	-23.49	peak
4874.161	28.22	10.4	38.62	54	-15.38	AVG
7311.166	43.82	12.75	56.57	74	-17.43	peak
7311.166	27.72	12.75	40.47	54	-13.53	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11n Mode)/20MHz	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.14	42.78	10.39	53.17	74	-20.83	peak
4924.14	30.15	10.39	40.54	54	-13.46	AVG
7386.183	39.61	12.68	52.29	74	-21.71	peak
7386.183	29.43	12.68	42.11	54	-11.89	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11n Mode)/20MHz	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924.15	43.97	10.39	54.36	74	-19.64	peak
4924.15	31.03	10.39	41.42	54	-12.58	AVG
7386.167	39.93	12.68	52.61	74	-21.39	peak
7386.167	28.64	12.68	41.32	54	-12.68	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH3(802.11n Mode)/40MHz	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844.156	45.26	10.5	55.76	74	-18.24	peak
4844.156	32.78	10.5	43.28	54	-10.72	AVG
7266.319	41.22	12.5	53.72	74	-20.28	peak
7266.319	31.71	12.5	44.21	54	-9.79	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH3(802.11n Mode)/40MHz	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844.325	45.16	10.5	55.66	74	-18.34	peak
4844.325	30.11	10.5	40.61	54	-13.39	AVG
7266.258	43.17	12.5	55.67	74	-18.33	peak
7266.258	29.81	12.5	42.31	54	-11.69	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6(802.11n Mode)/40MHz	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.238	42.89	10.4	53.29	74	-20.71	peak
4874.238	31.67	10.4	42.07	54	-11.93	AVG
7311.159	39.61	12.75	52.36	74	-21.64	peak
7311.159	28.90	12.75	41.65	54	-12.35	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH6(802.11n Mode)/40MHz	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.535	43.17	10.4	53.57	74	-20.43	peak
4874.535	31.06	10.4	41.46	54	-12.54	AVG
7311.633	39.47	12.75	52.22	74	-21.78	peak
7311.633	29.42	12.75	42.17	54	-11.83	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH9(802.11n Mode)/40MHz	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4904.345	45.78	10.29	56.07	74	-17.93	peak
4904.345	35.38	10.29	45.67	54	-8.33	AVG
7356.247	43.14	12.79	55.93	74	-18.07	peak
7356.247	30.55	12.79	43.34	54	-10.66	AVG

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

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH9(802.11n Mode)/40MHz	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4904.16	43.08	10.29	53.37	74	-20.63	peak
4904.16	30.99	10.29	41.28	54	-12.72	AVG
7356.423	41.63	12.79	54.42	74	-19.58	peak
7356.423	30.18	12.79	42.97	54	-11.03	AVG

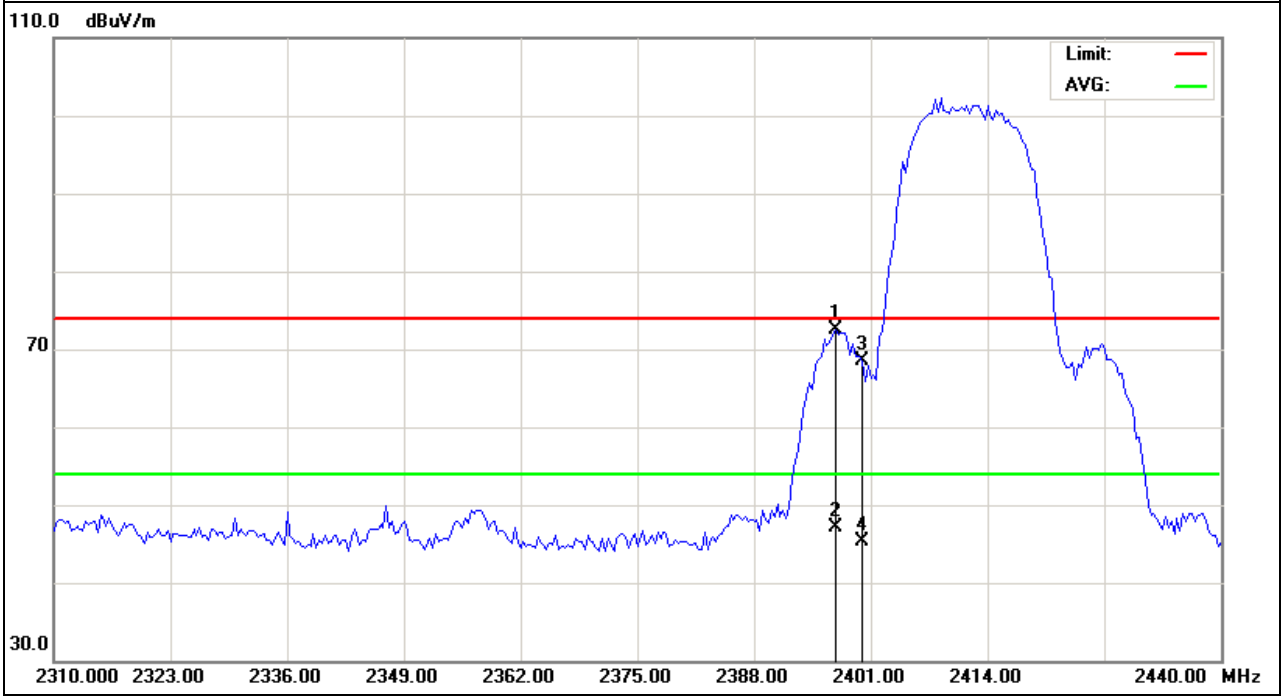
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

3.2.9 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11b Mode)	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2397.1	84.79	-13.02	71.77	74	-2.23	peak
2397.1	59.68	-13.02	46.66	54	-7.34	AVG
2400	80.86	-12.99	67.87	74	-6.13	peak
2400	58.70	-12.99	45.71	54	-8.29	AVG

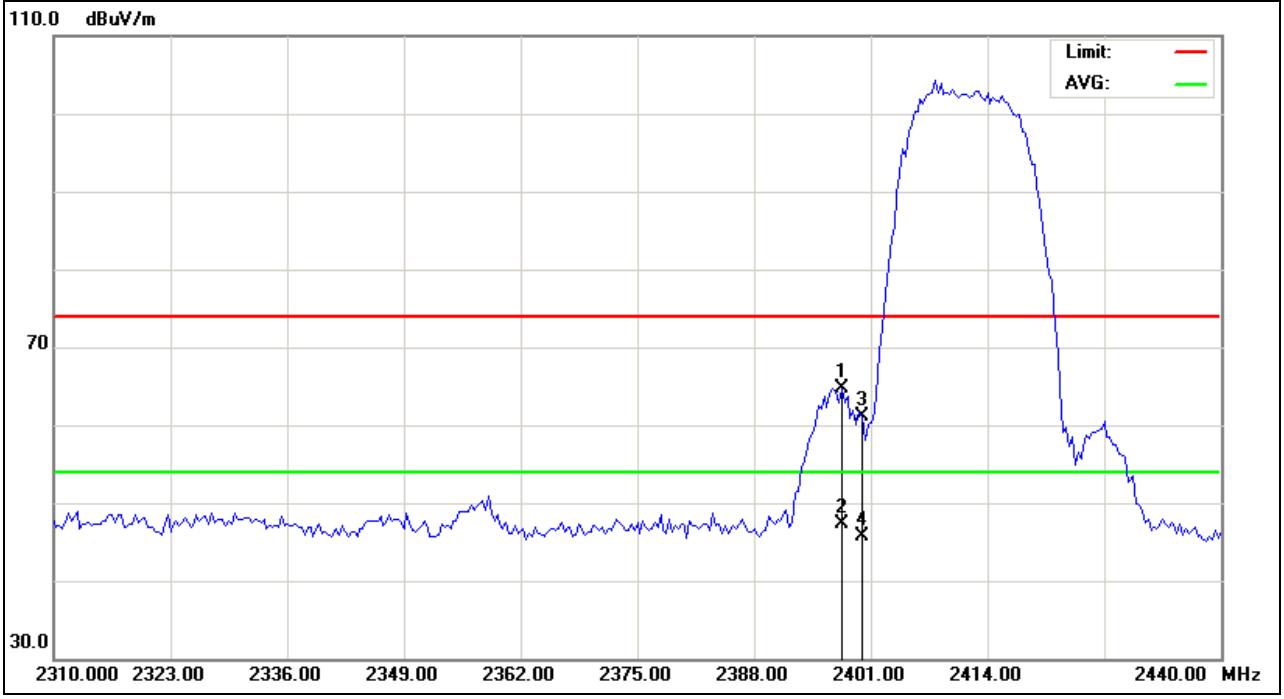
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11b Mode)	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2397.75	78.29	-13	65.29	74	-8.71	peak
2397.75	59.46	-13	46.46	54	-7.54	AVG
2400	75.13	-12.99	62.14	74	-11.86	peak
2400	58.05	-12.99	45.06	54	-8.94	AVG

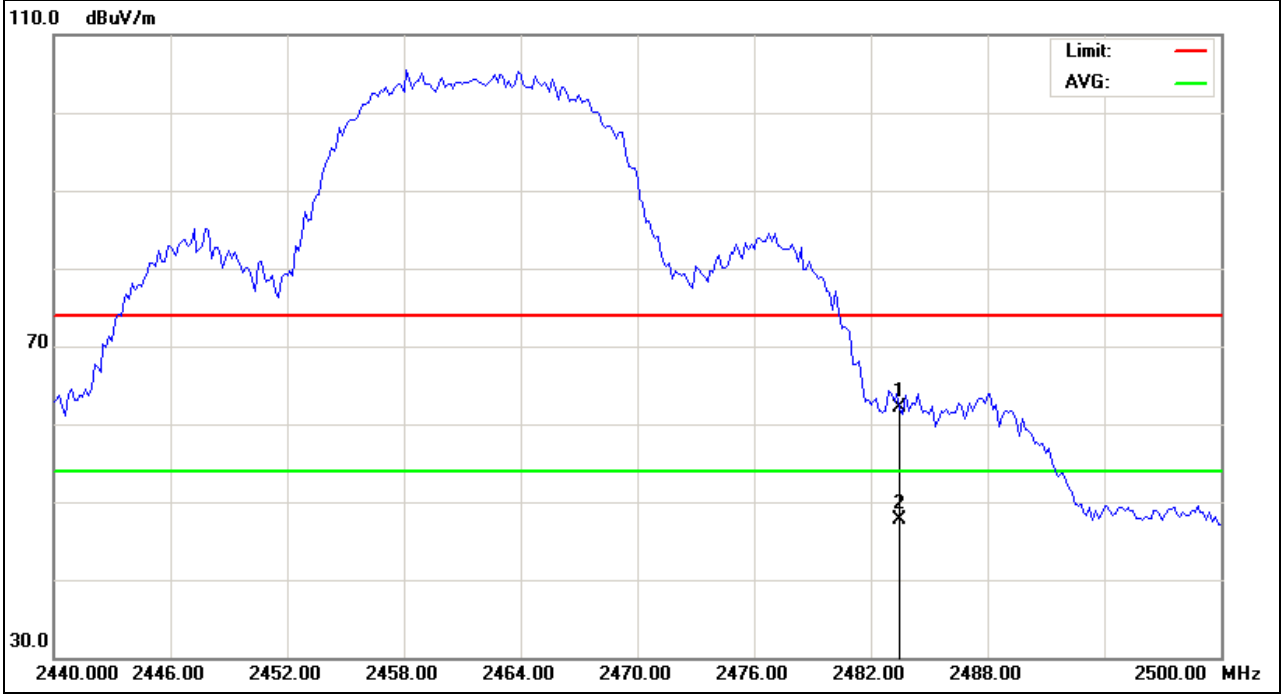
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11b Mode)	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	74.74	-12.78	61.96	74	-12.04	peak
2483.5	59.19	-12.78	46.41	54	-7.59	AVG

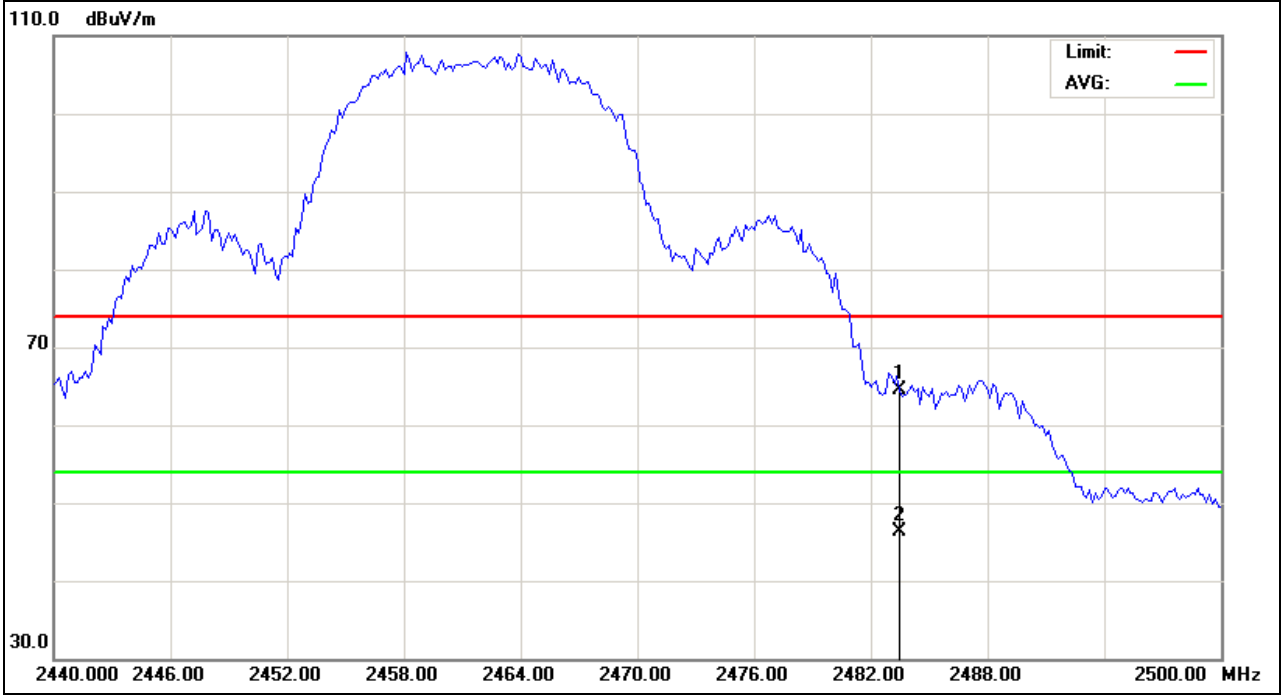
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11b Mode)	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	76.60	-12.78	63.82	74	-10.18	peak
2483.5	60.29	-12.78	47.51	54	-6.49	AVG

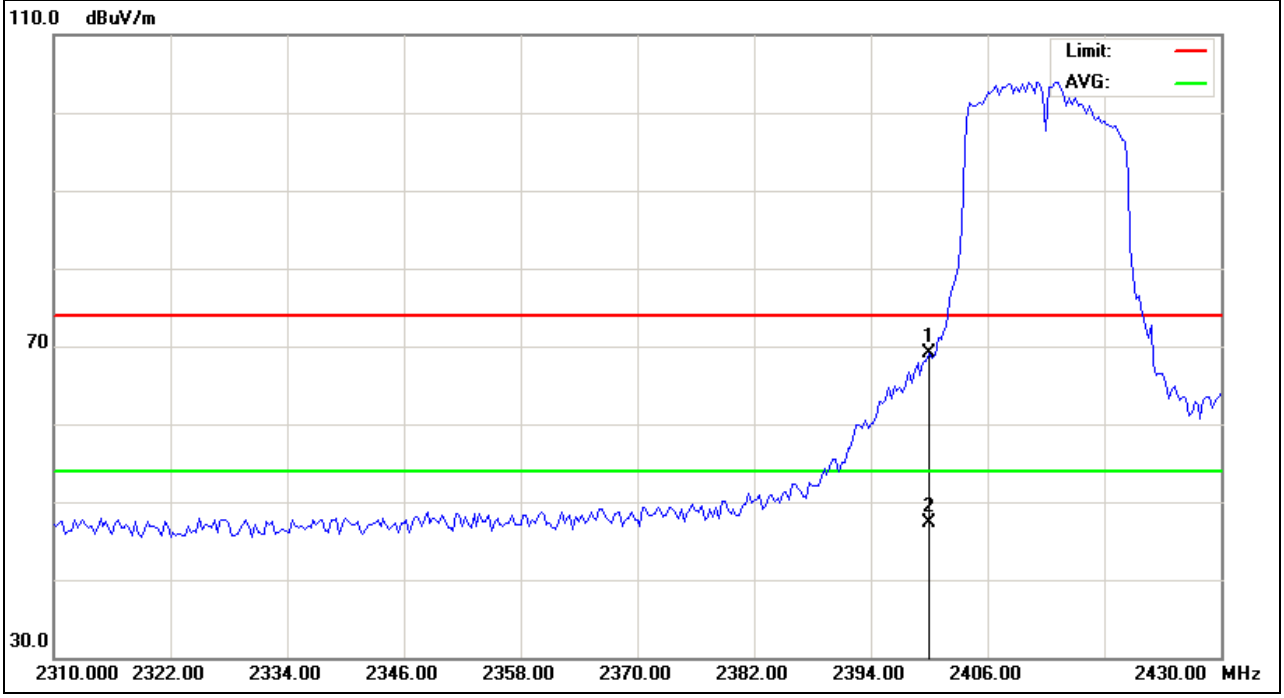
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11g Mode)	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	83.21	-12.99	70.22	74	-3.78	peak
2400	61.15	-12.99	48.16	54	-5.84	AVG

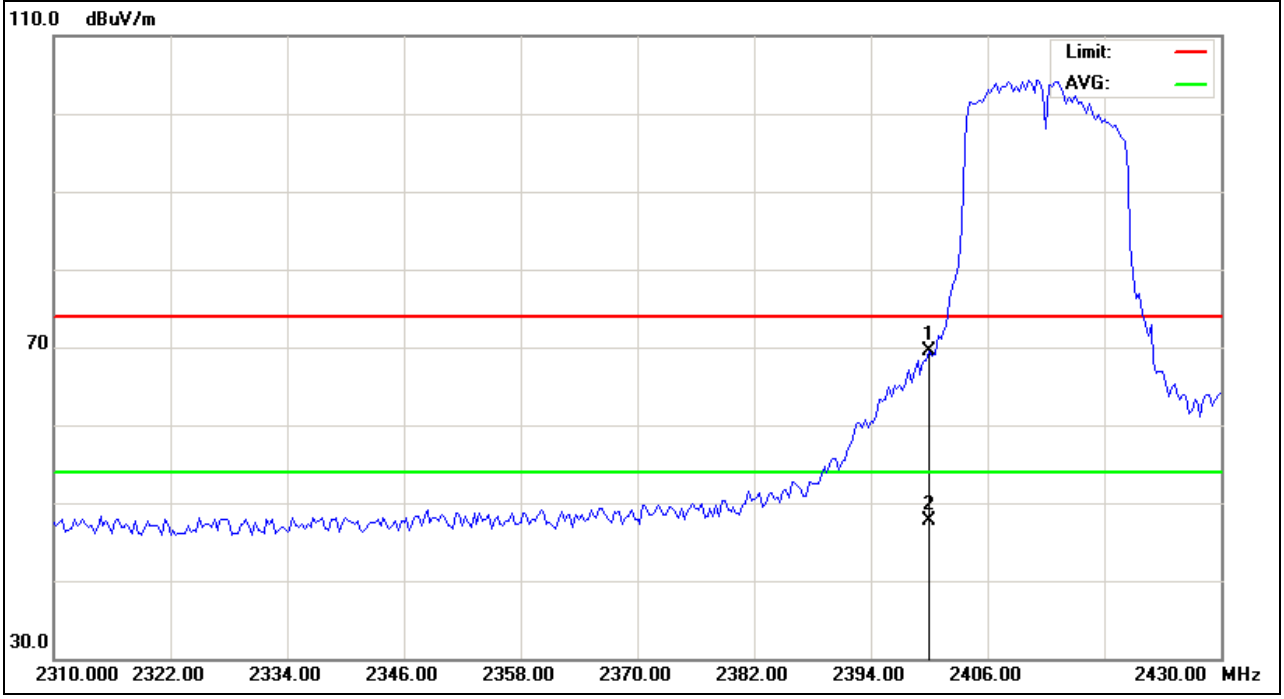
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11gMode)	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	82.22	-12.99	69.23	74	-4.77	peak
2400	60.86	-12.99	47.87	54	-6.13	AVG

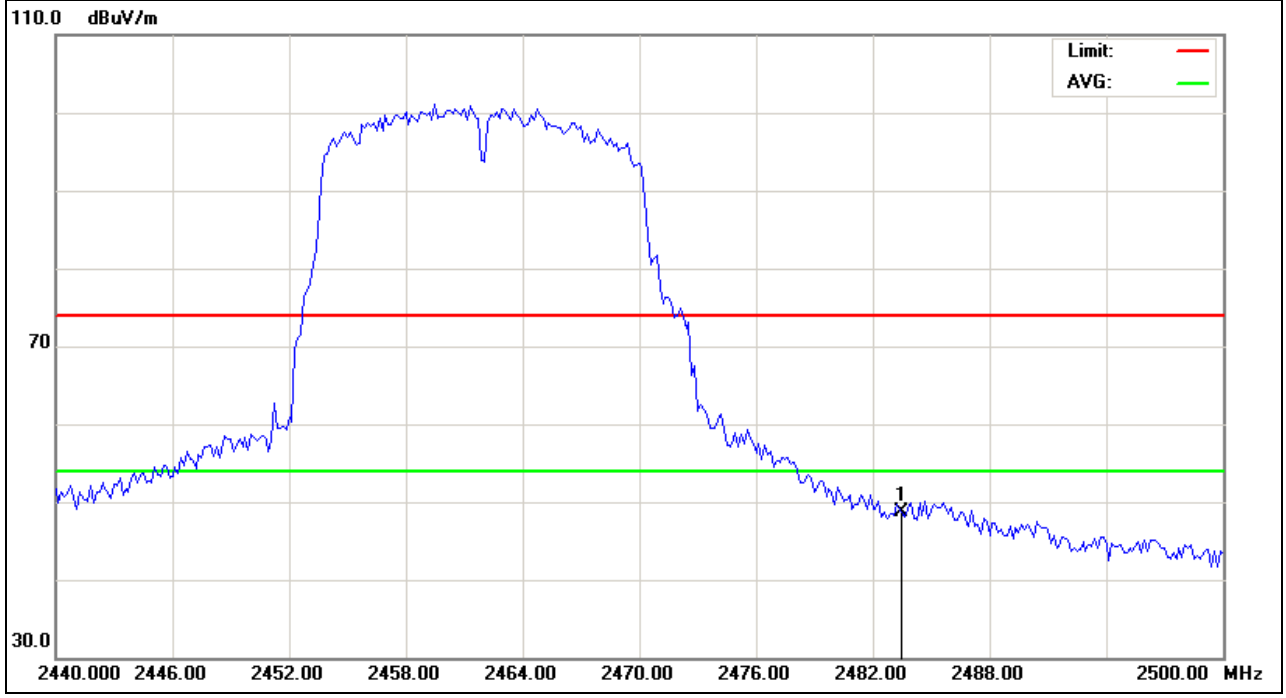
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11g Mode)	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	61.91	-12.78	49.13	74	-24.87	peak

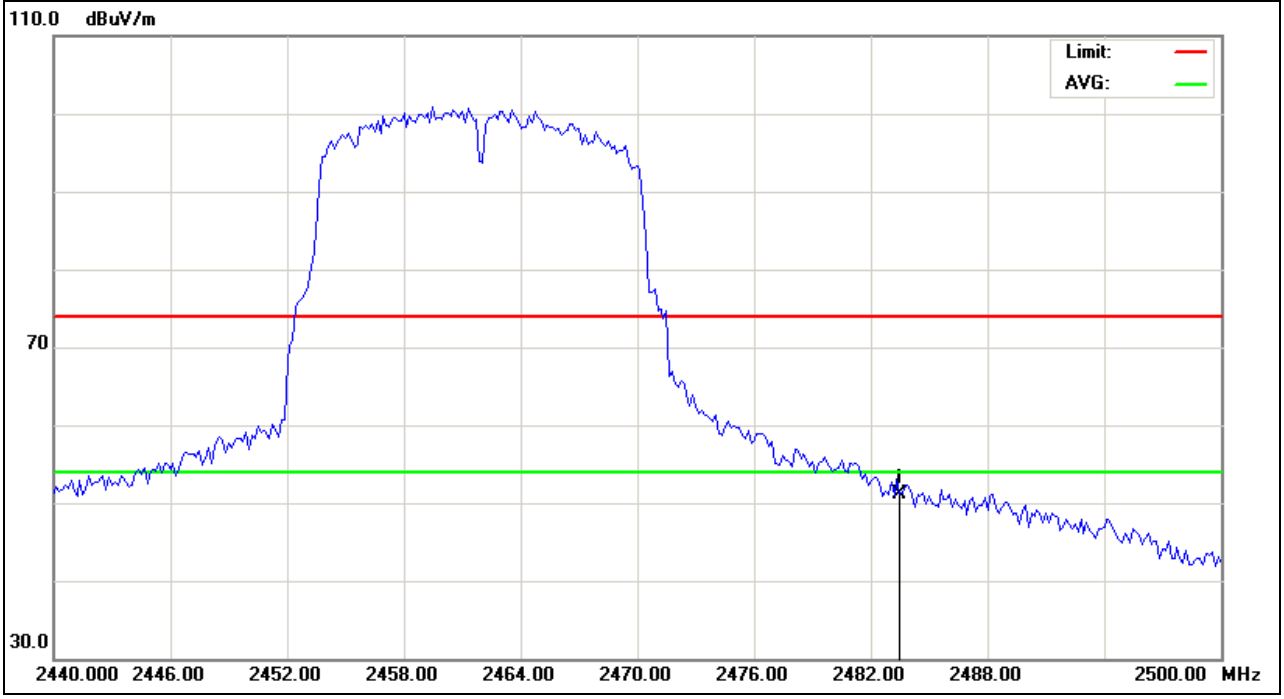
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11g Mode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	63.53	-12.78	50.75	74	-23.25	peak

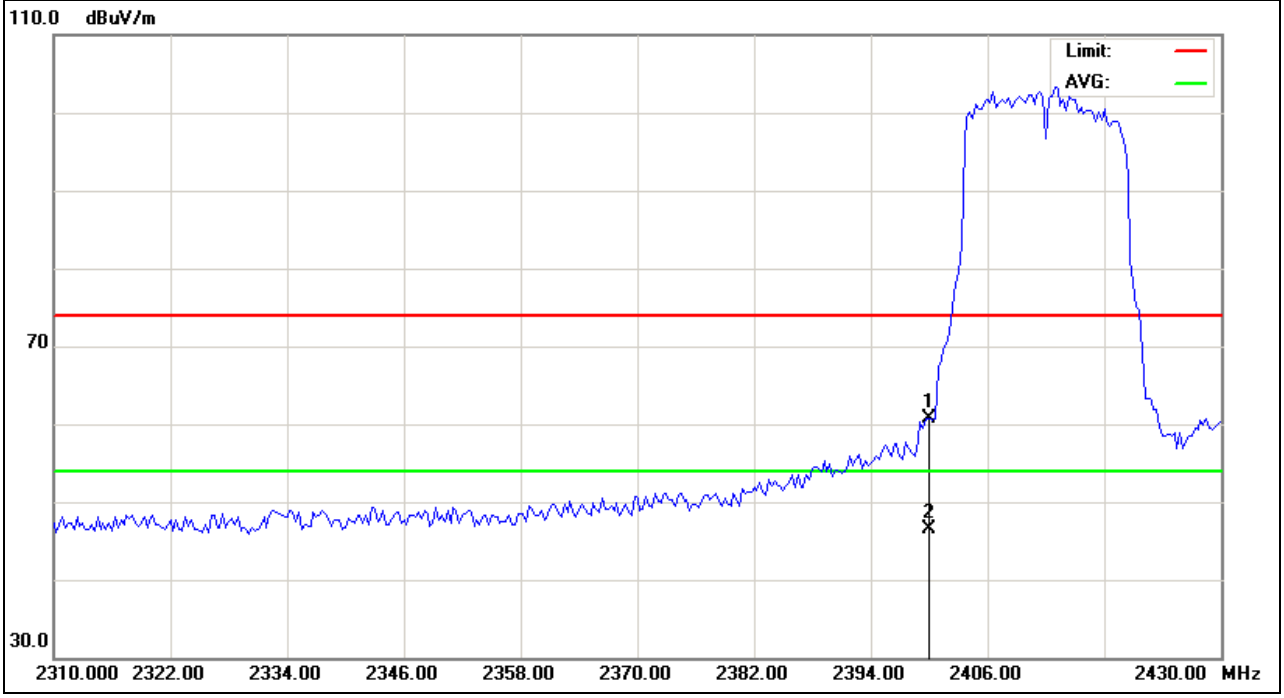
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11n Mode)/20MHz	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	73.27	-12.99	60.28	74	-13.72	peak
2400	60.81	-12.99	47.82	54	-6.18	AVG

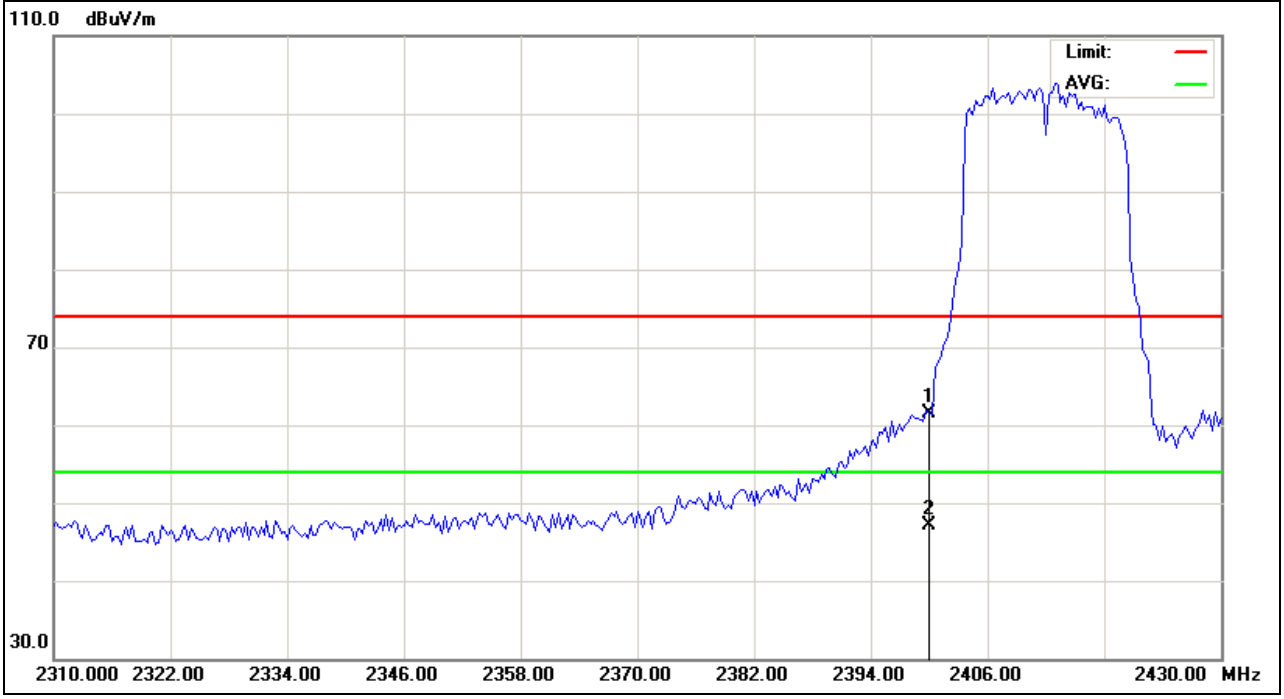
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH1(802.11n Mode)/20M	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	75.01	-12.99	62.02	74	-11.98	peak
2400	61.56	-12.99	48.57	54	-5.43	AVG

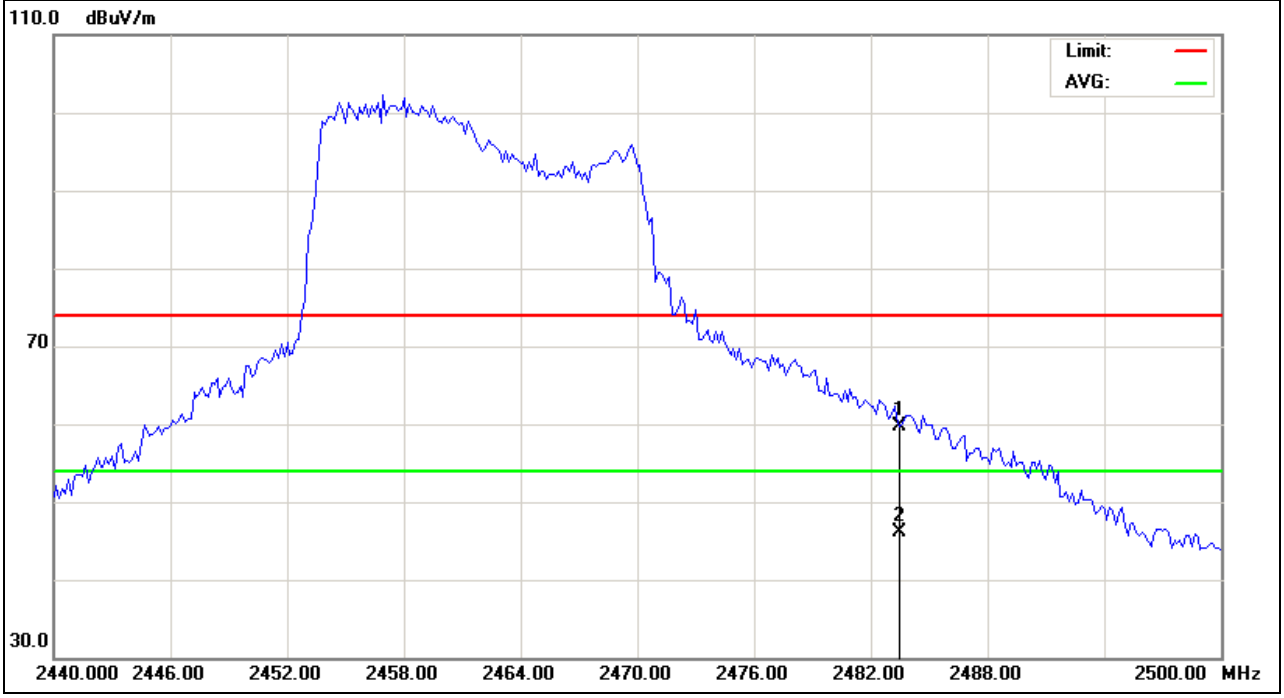
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11n Mode)/20MHz	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	73.31	-12.78	60.53	74	-13.47	peak
2483.5	60.53	-12.78	47.75	54	-6.25	AVG

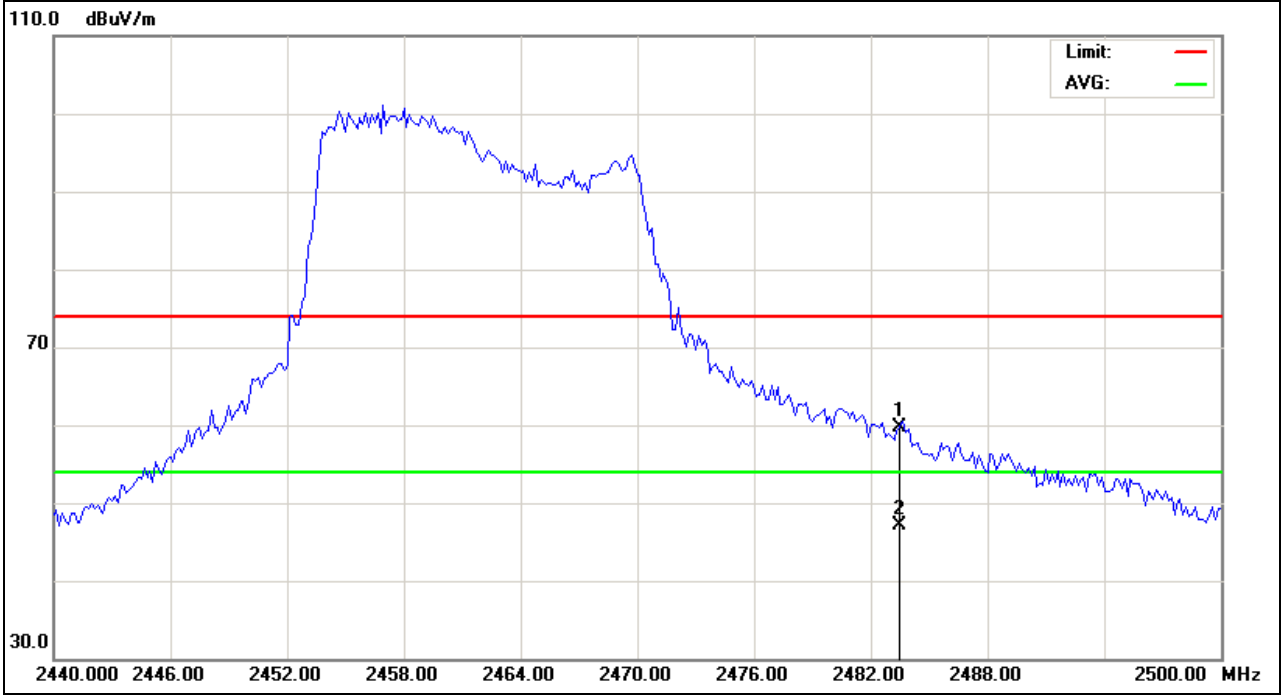
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH11(802.11n Mode)/20MHz	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	73.03	-12.78	60.25	74	-13.75	peak
2483.5	60.60	-12.78	47.82	54	-6.18	AVG

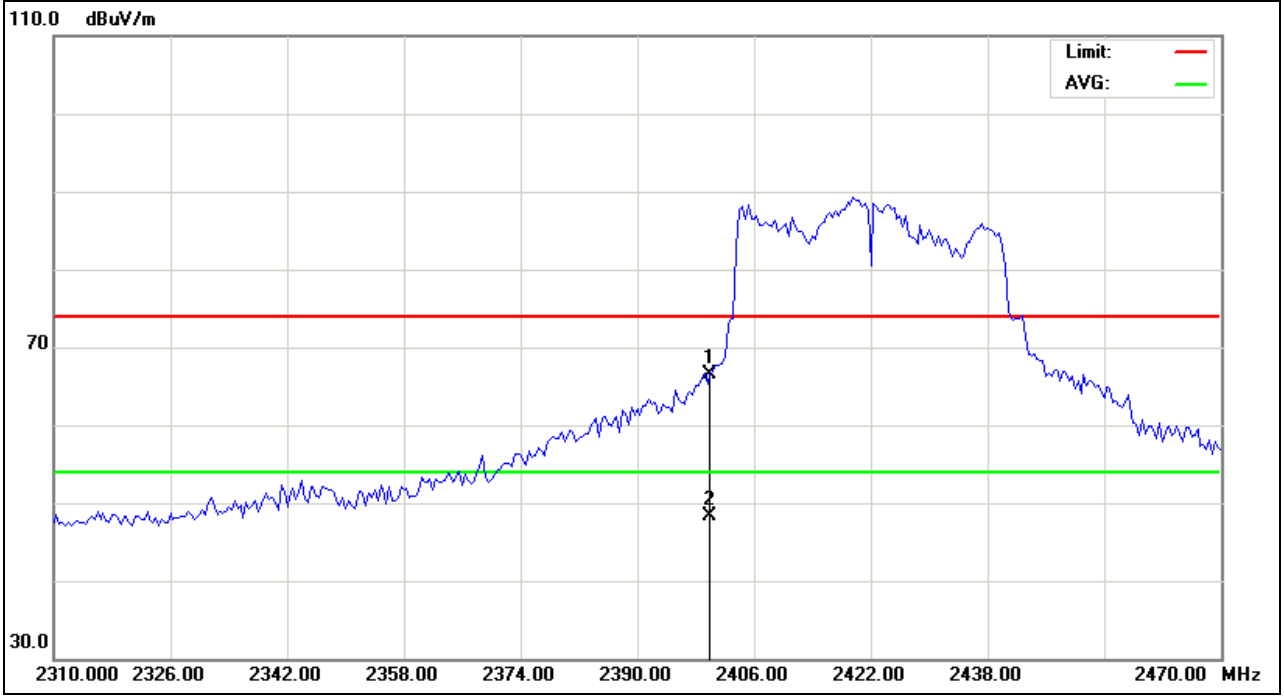
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH3(802.11n Mode)/40M	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	80.30	-12.99	67.31	74	-6.69	peak
2400	62.02	-12.99	49.03	54	-4.97	AVG

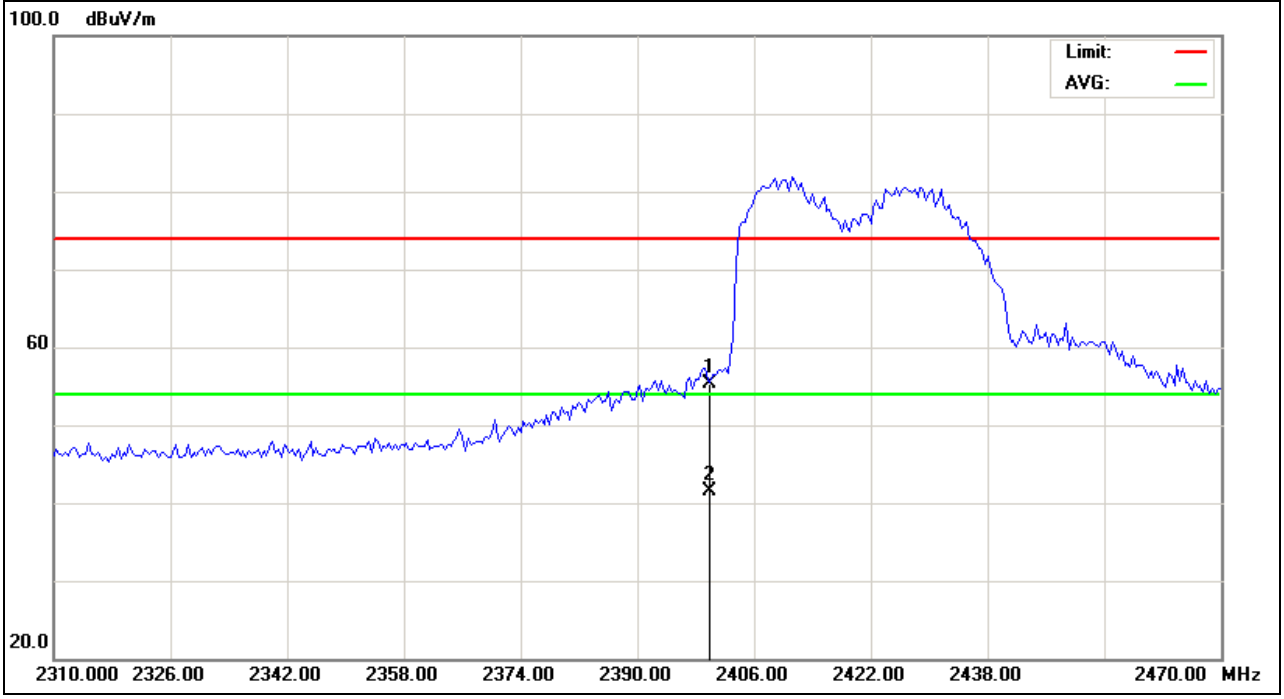
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH3(802.11n Mode)/40MHz	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400	68.67	-12.99	55.68	74	-18.32	peak
2400	55.14	-12.99	42.15	54	-11.85	AVG

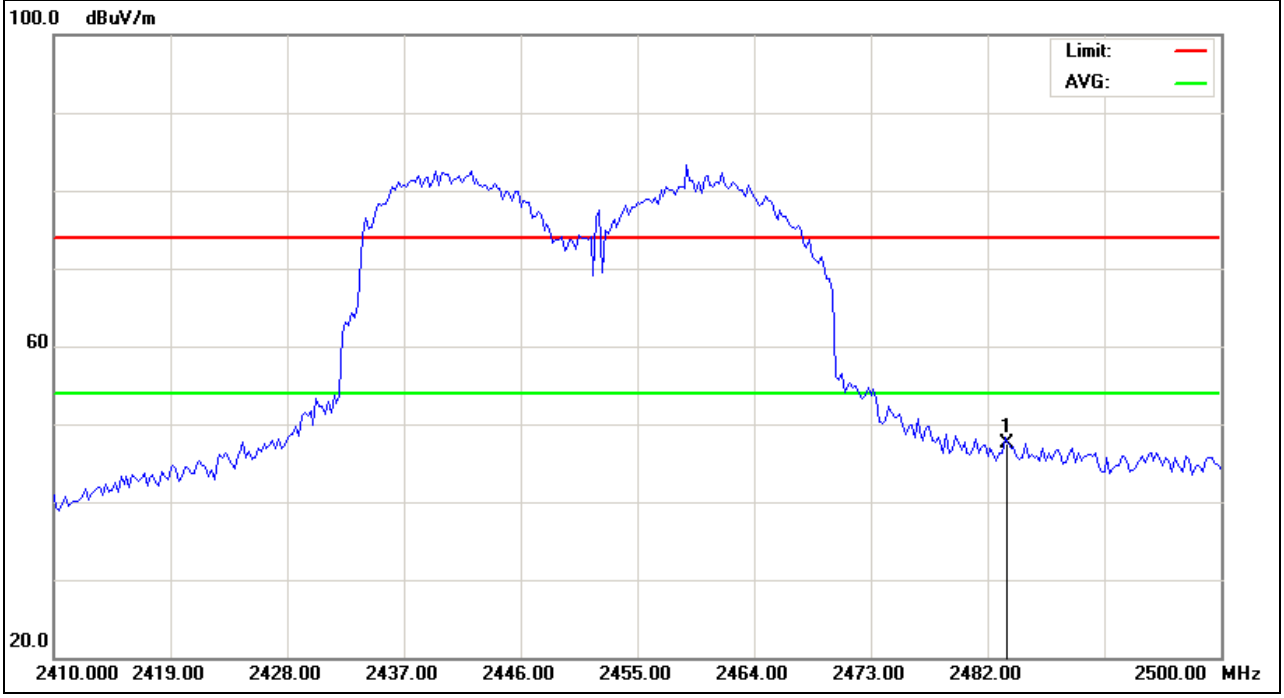
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH9(802.11n Mode)/40MHz	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	60.95	-12.78	48.17	74	-25.83	peak

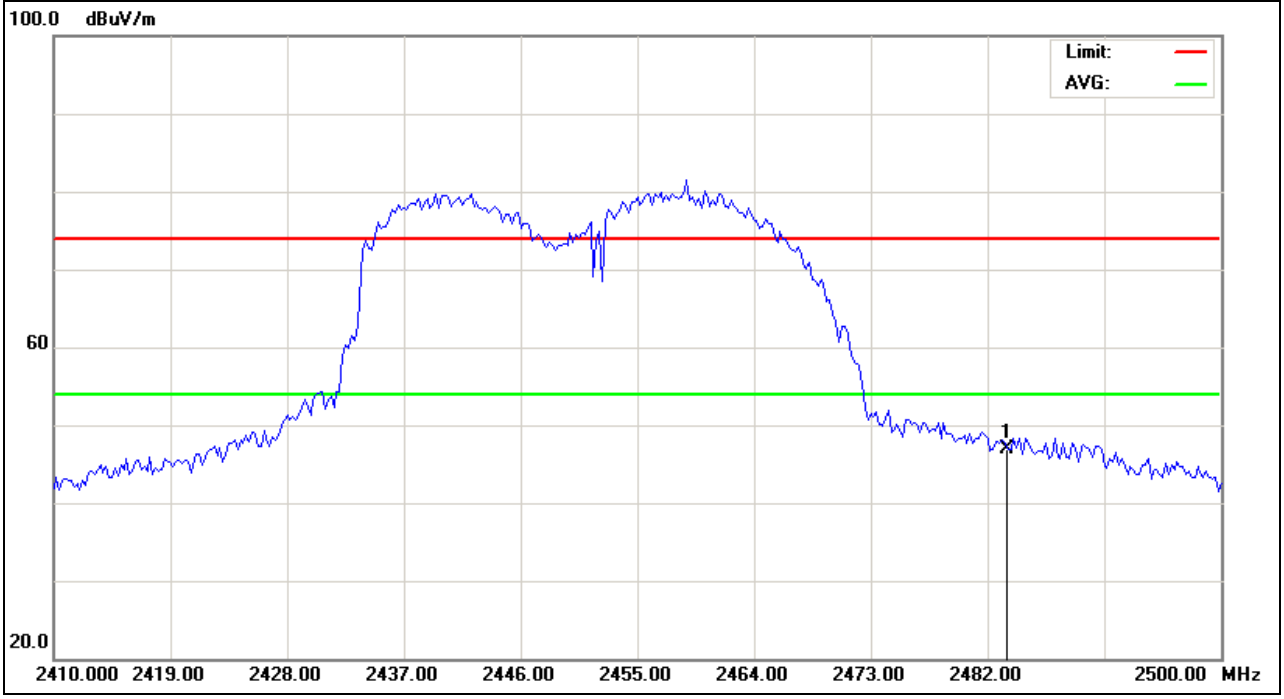
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V
Test Mode ：	CH9(802.11n Mode)/40MHz	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	60.81	-12.78	48.03	74	-25.97	peak

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

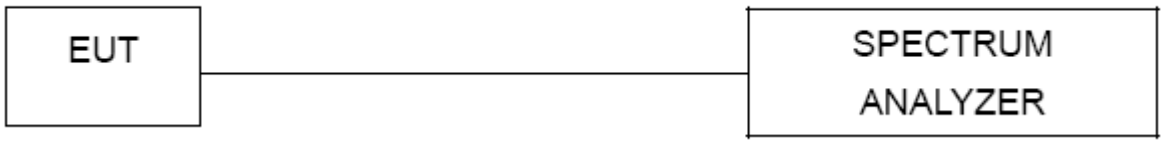
4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW ≥ 3 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

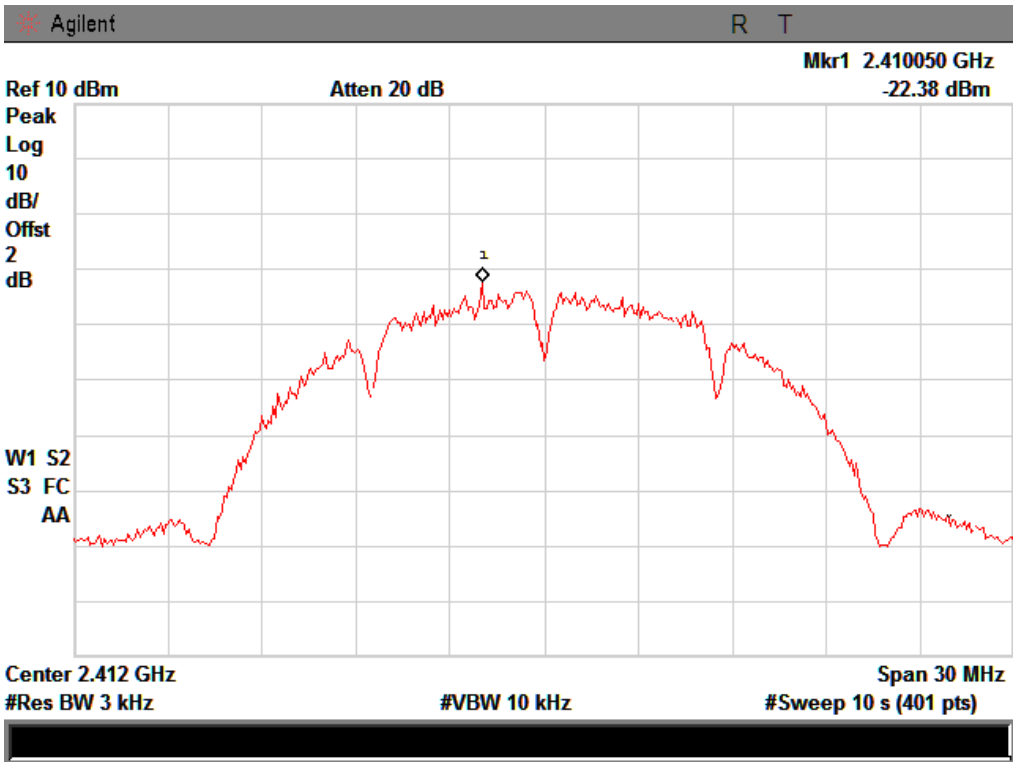
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

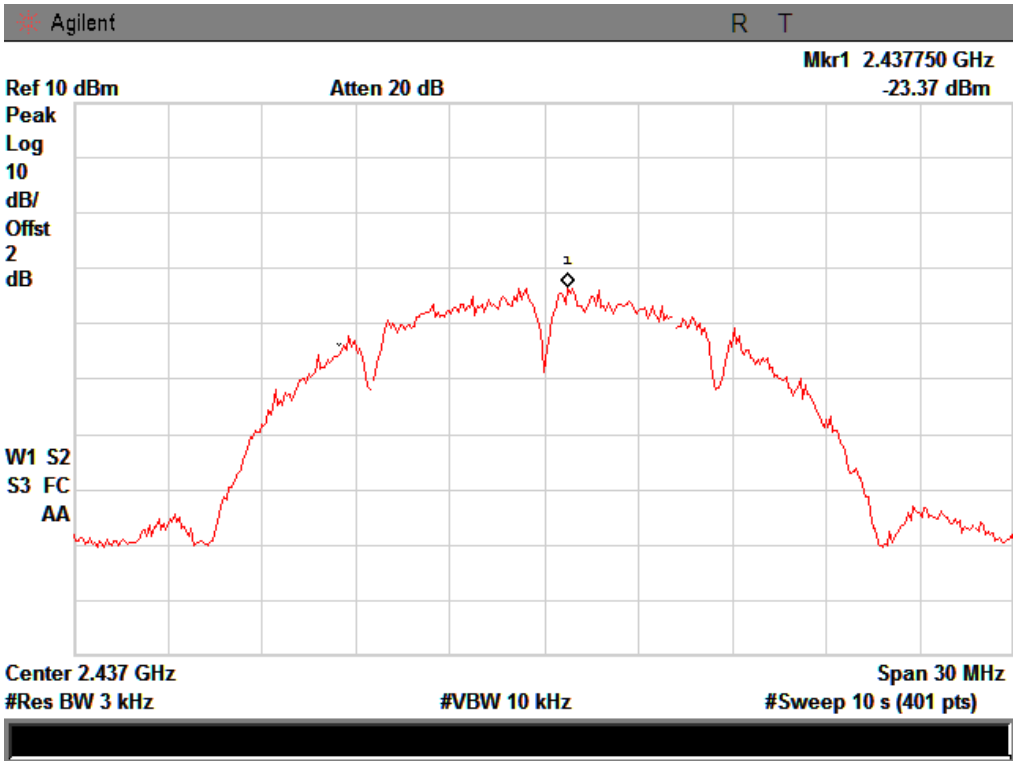
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm)	Result
IEEE 802.11b:				
Low	2412	-22.38	8	PASS
Mid	2437	-23.37	8	PASS
High	2462	-23.74	8	PASS
IEEE 802.11g:				
Low	2412	-30.38	8	PASS
Mid	2437	-24.63	8	PASS
High	2462	-26.92	8	PASS
IEEE 802.11n/HT20				
Low	2412	-22.19	8	PASS
Mid	2437	-25.47	8	PASS
High	2462	-27.96	8	PASS
IEEE 802.11n/HT40				
Low	2422	-25.15	8	PASS
Mid	2437	-23.63	8	PASS
High	2452	-24.17	8	PASS
Note: This test with port 1 antenna.				

IEEE 802.11b:

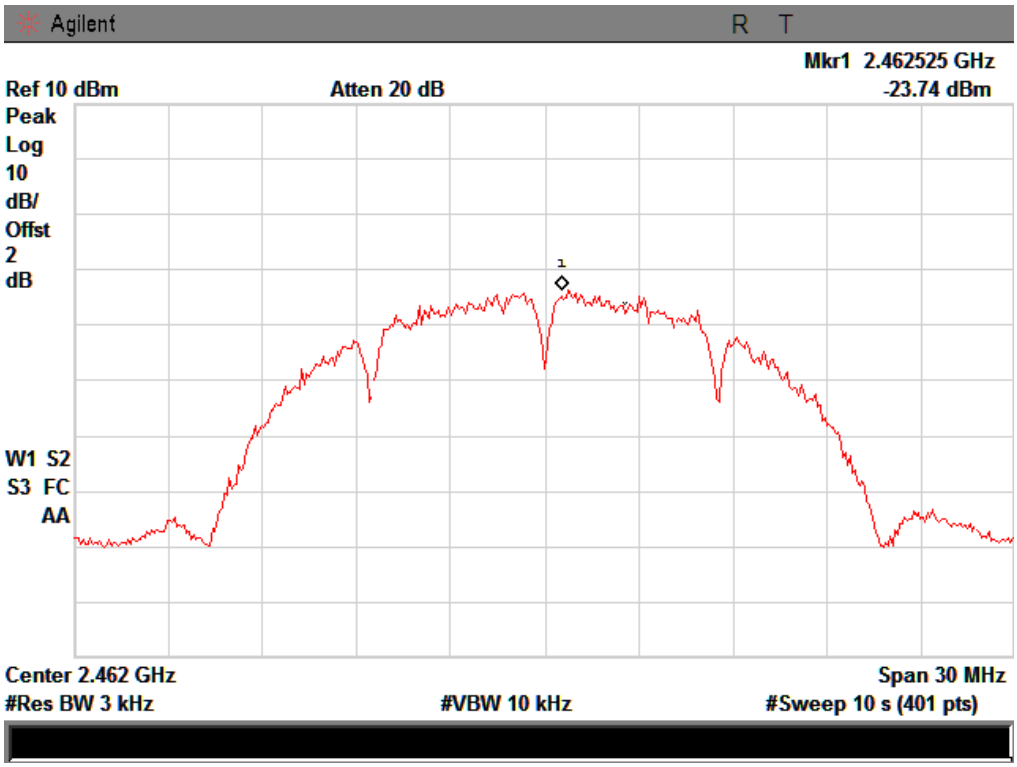
CH Low :



CH Mid :

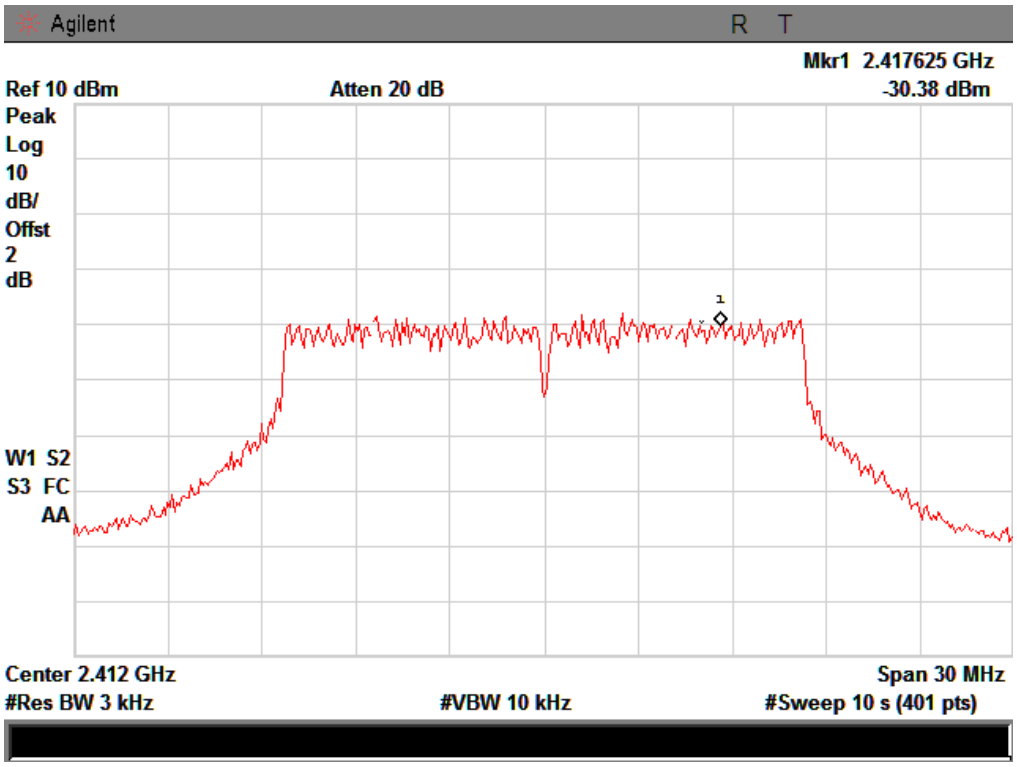


CH High :

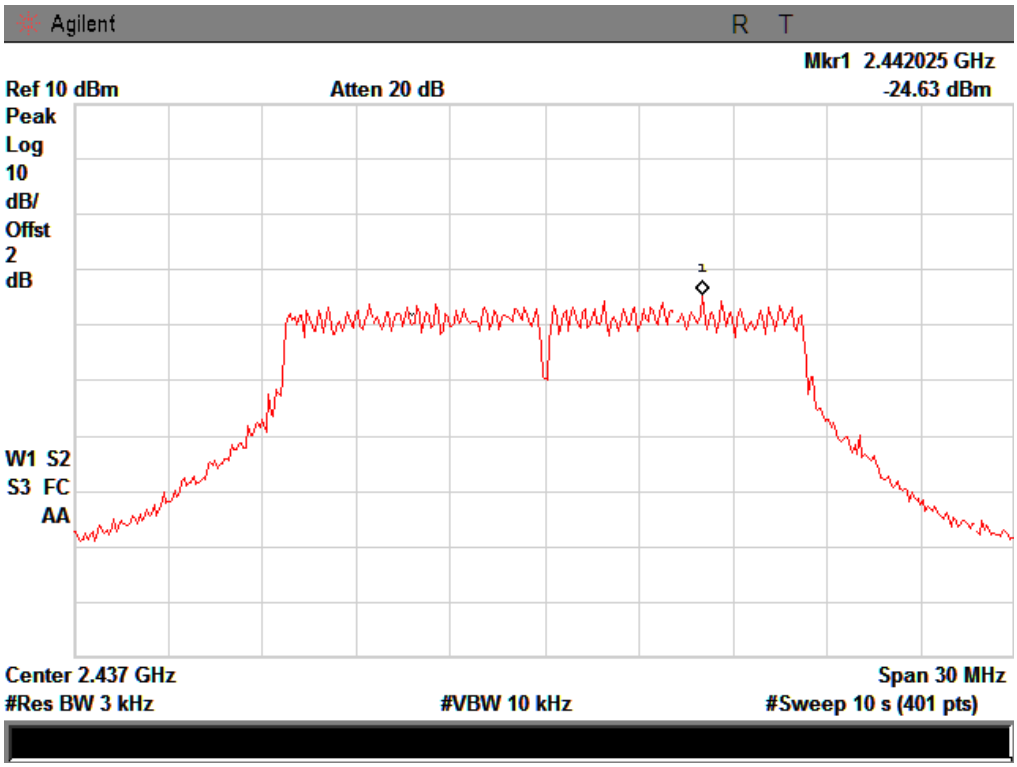


IEEE 802.11g:

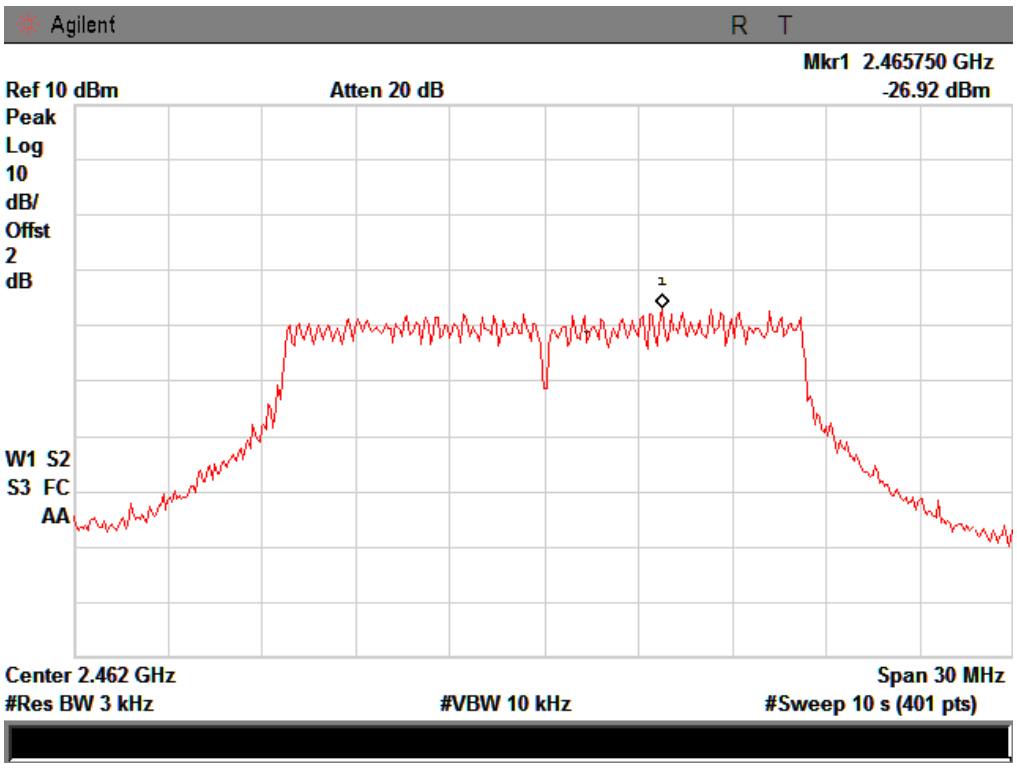
CH Low :



CH Mid :

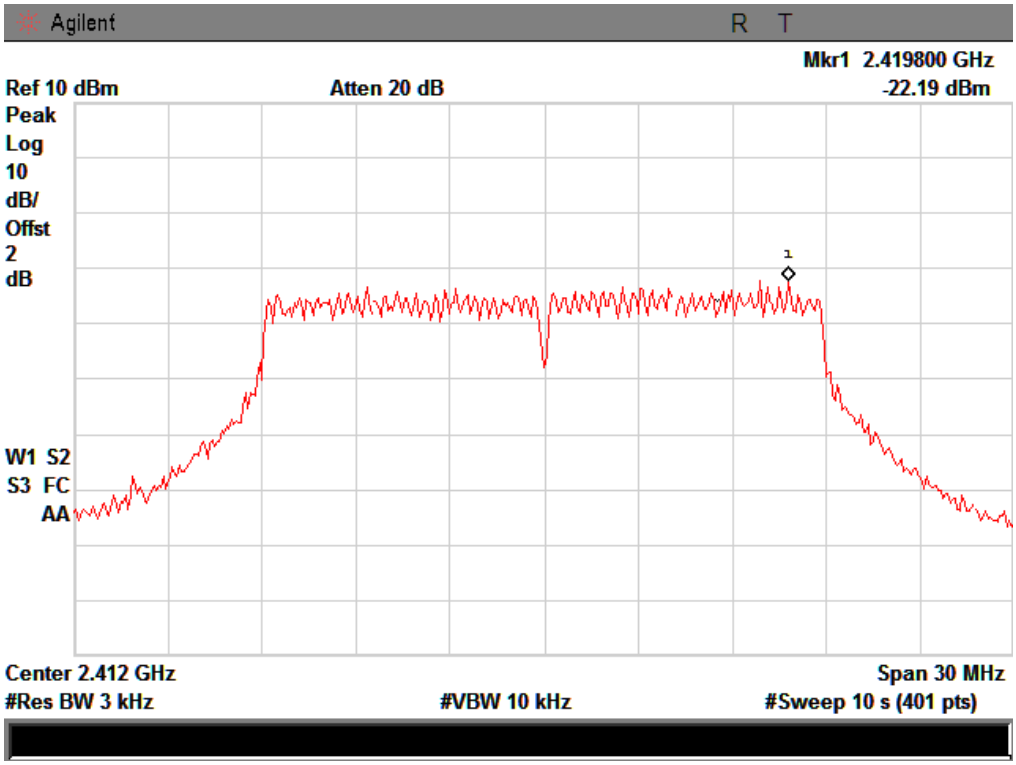


CH High :

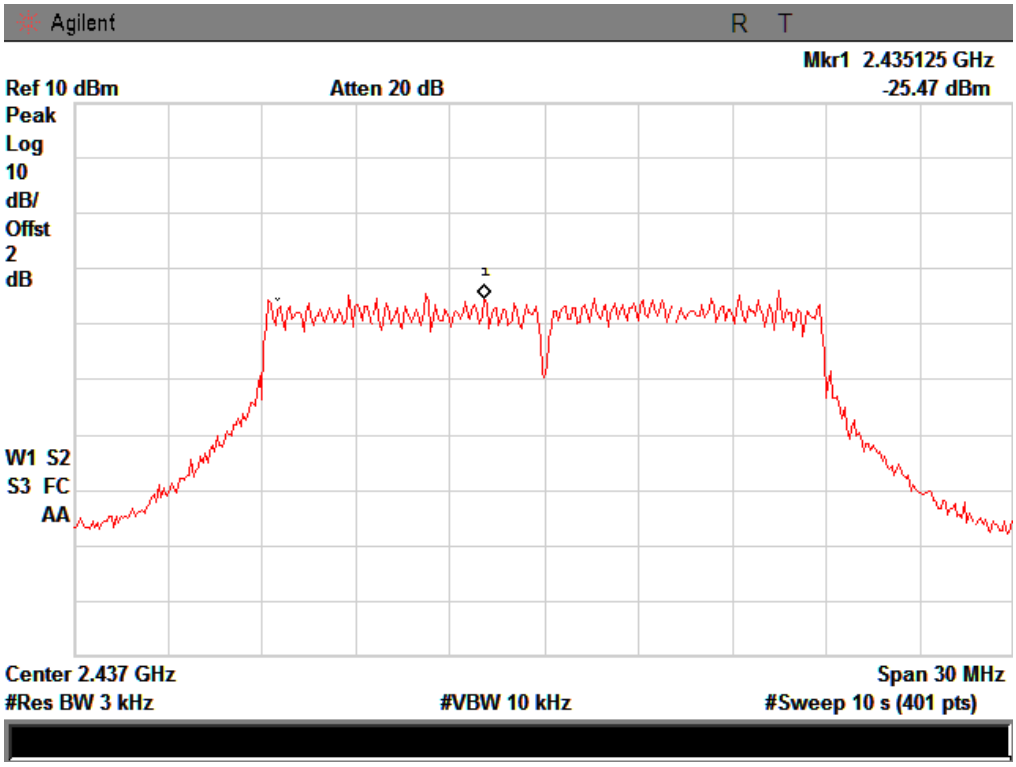


IEEE 802.11n/HT20:

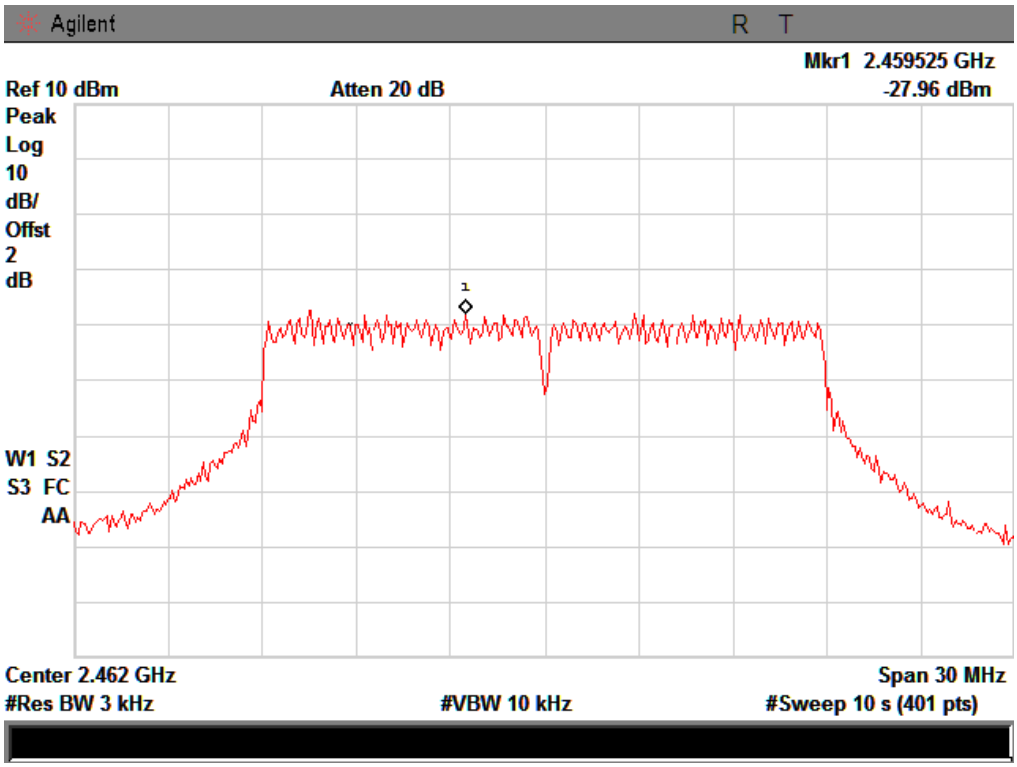
CH Low :



CH Mid :

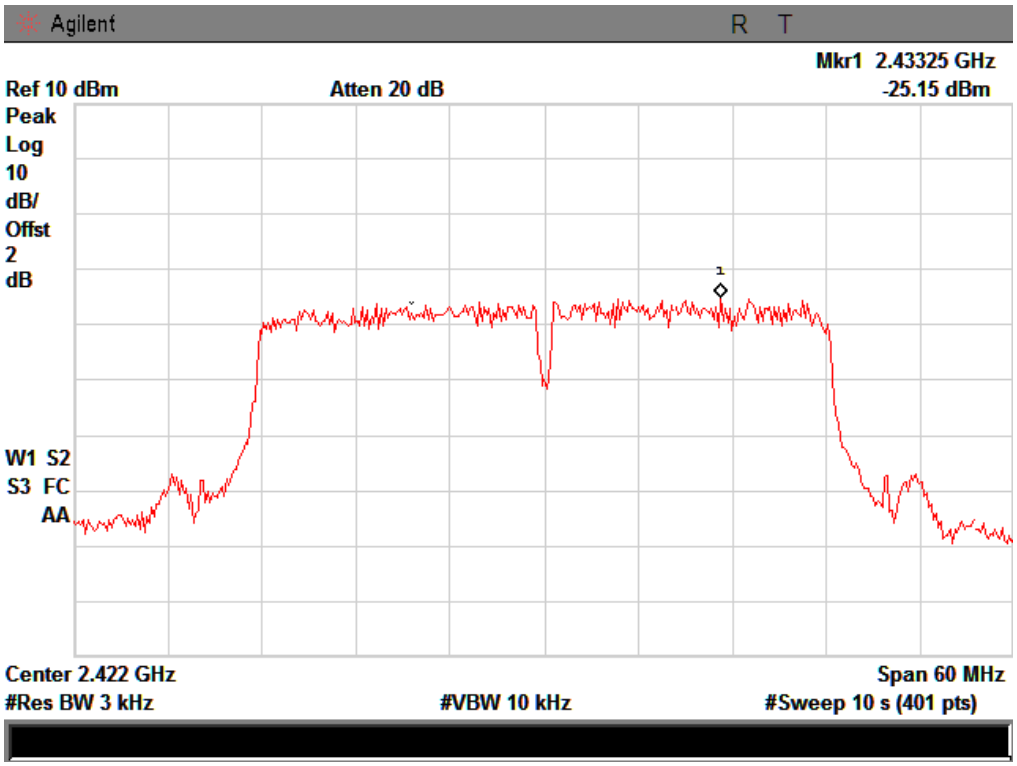


CH High :

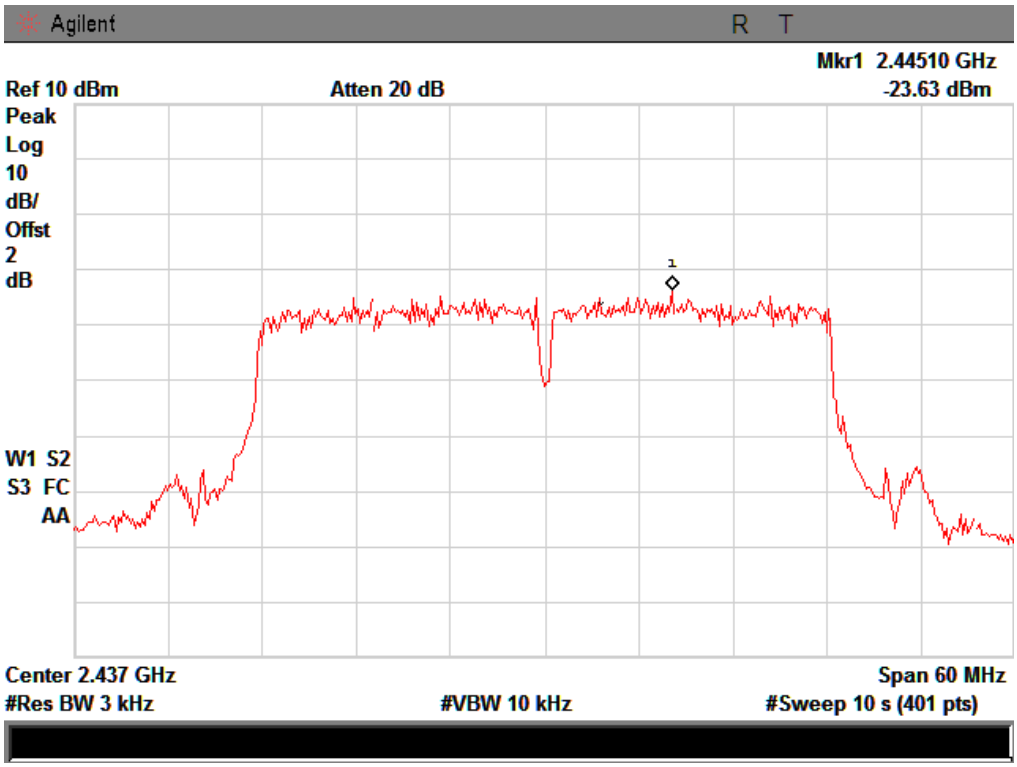


IEEE 802.11n/HT40:

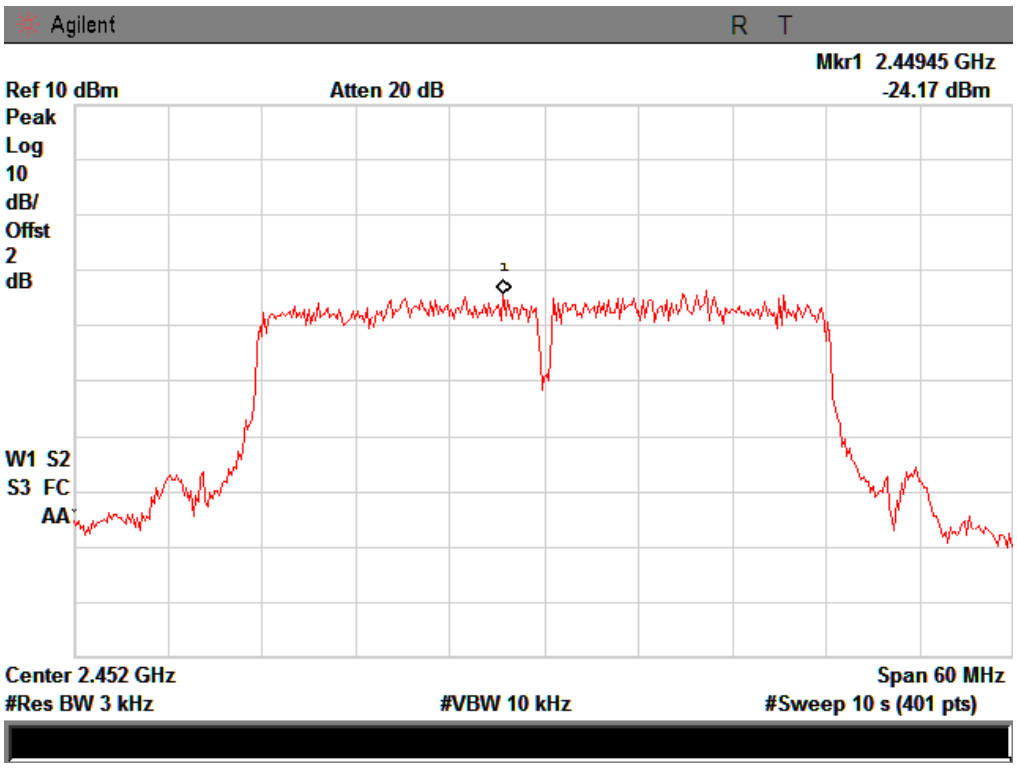
CH Low :



CH Mid :



CH High :



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	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

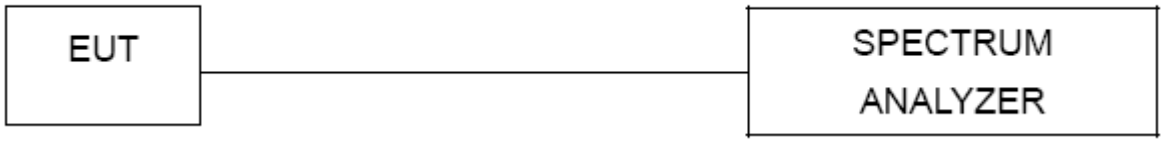
5.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 ´ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7.Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 d B relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

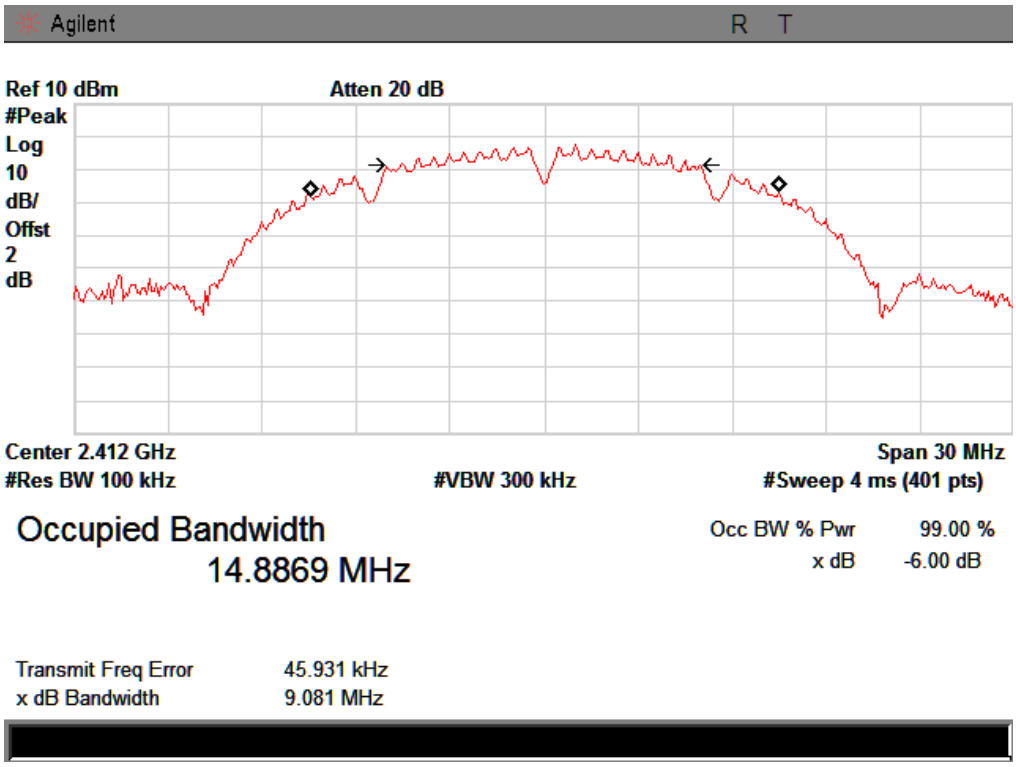
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

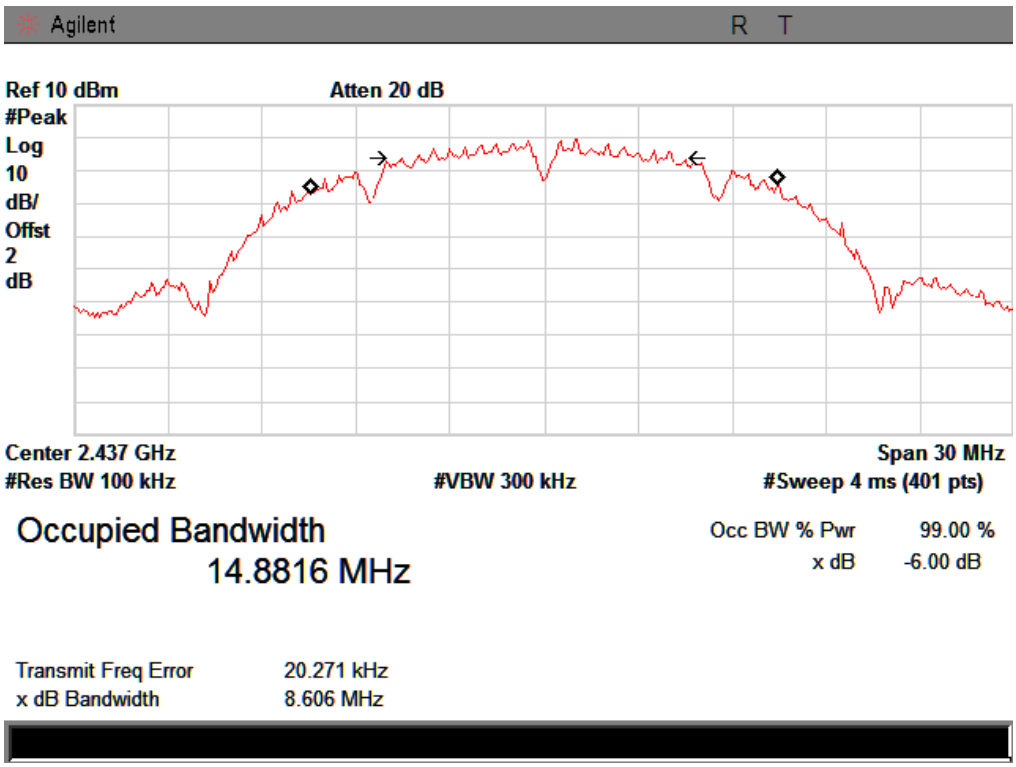
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b:					
Low	2412	9.08	14.89	0.5	PASS
Mid	2437	8.61	14.88	0.5	PASS
High	2462	9.13	14.91	0.5	PASS
IEEE 802.11g:					
Low	2412	16.44	16.48	0.5	PASS
Mid	2437	16.41	16.49	0.5	PASS
High	2462	16.41	16.47	0.5	PASS
IEEE 802.11n/HT20:					
Low	2412	17.59	17.65	0.5	PASS
Mid	2437	17.62	17.64	0.5	PASS
High	2462	17.70	17.64	0.5	PASS
IEEE 802.11n/HT40:					
Low	2422	35.57	35.70	0.5	PASS
Mid	2437	35.11	35.84	0.5	PASS
High	2452	35.28	35.69	0.5	PASS

IEEE 802.11b:

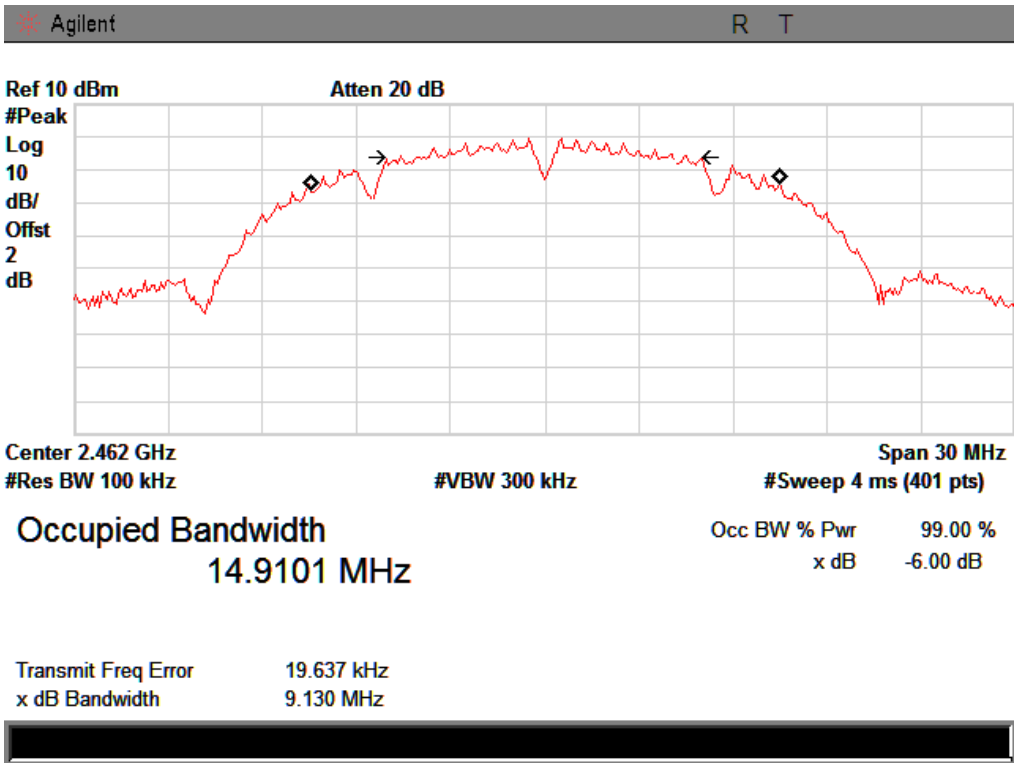
CH Low :



CH Mid :

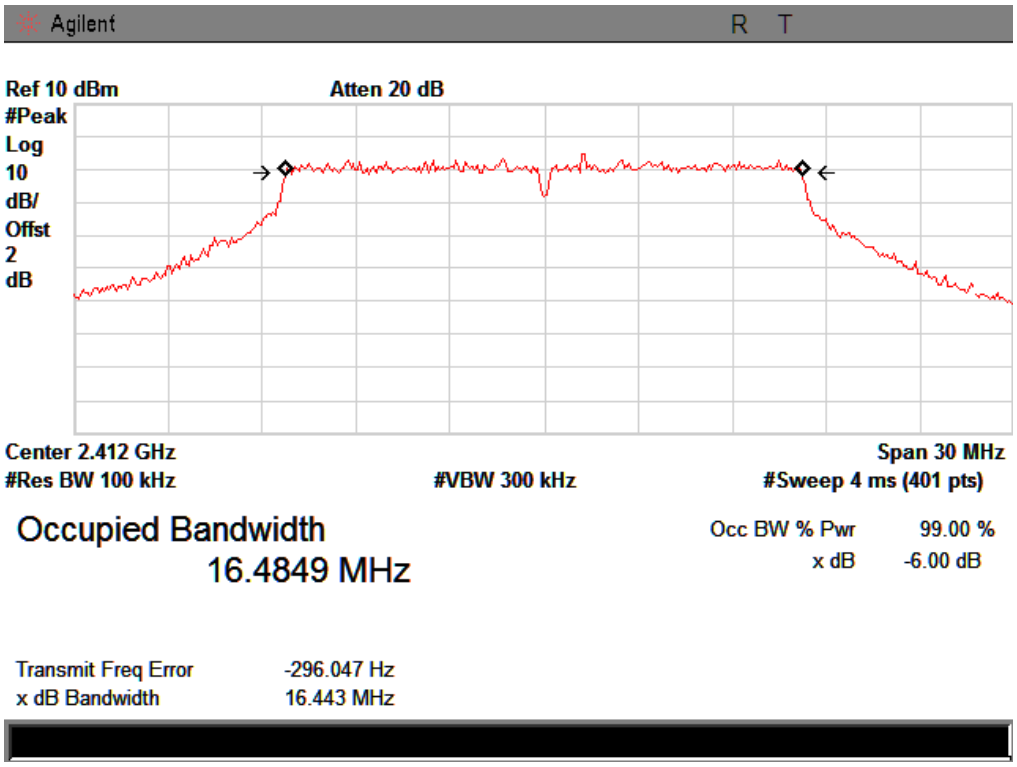


CH High :

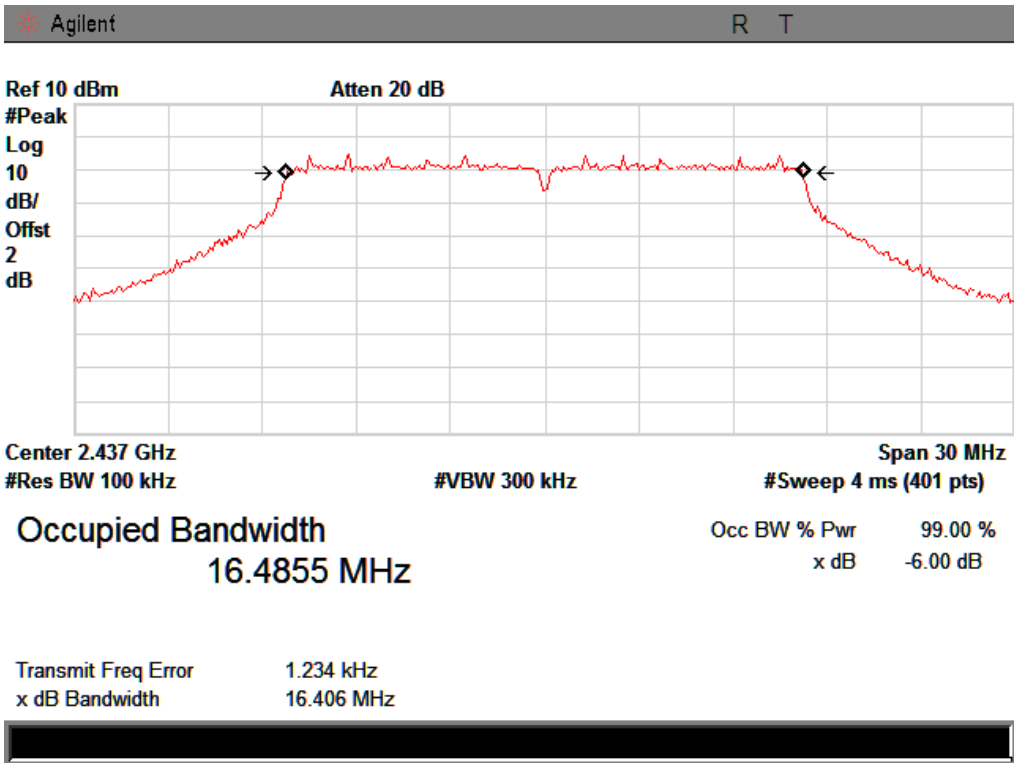


IEEE 802.11g:

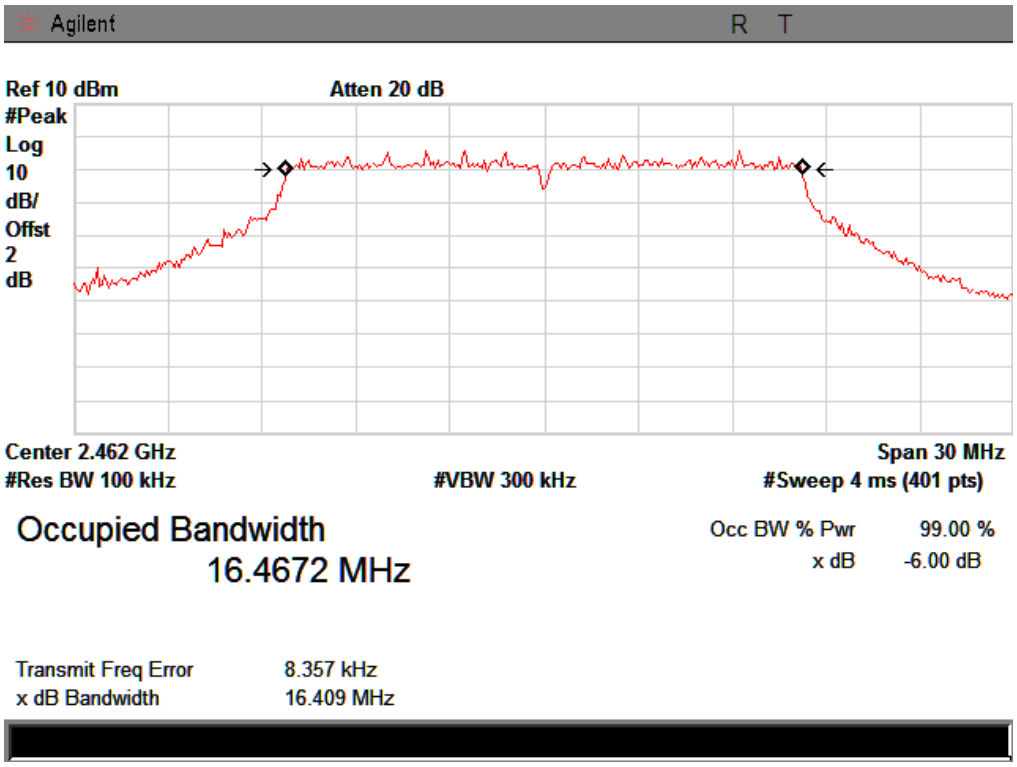
CH Low :



CH Mid :

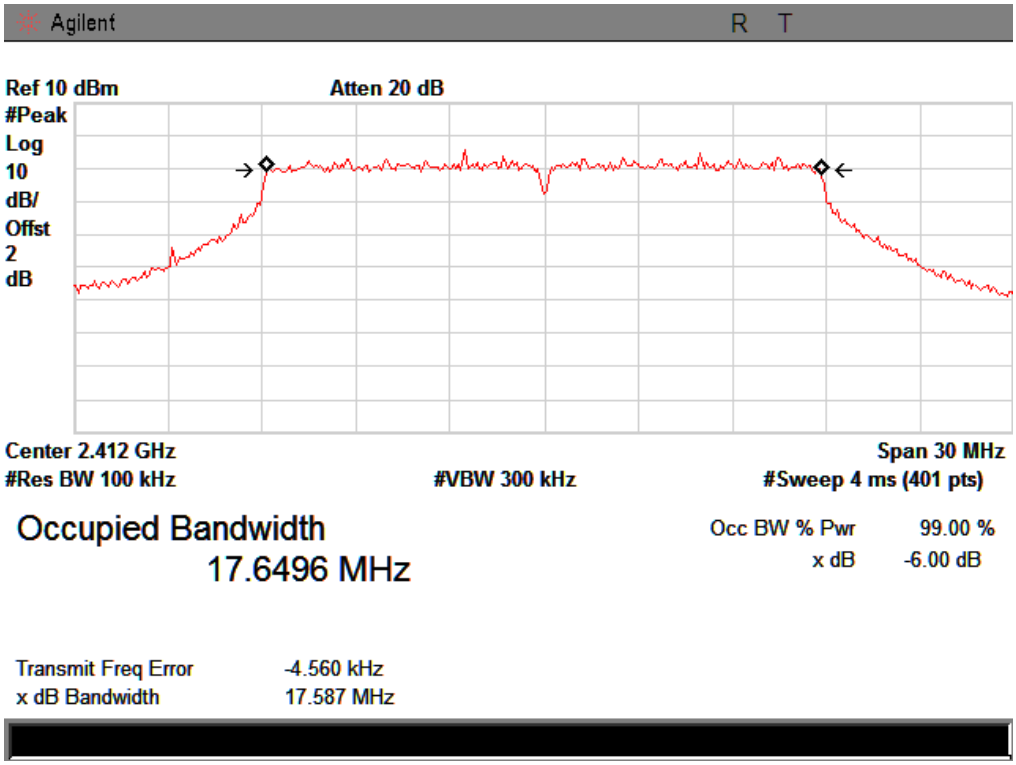


CH High :

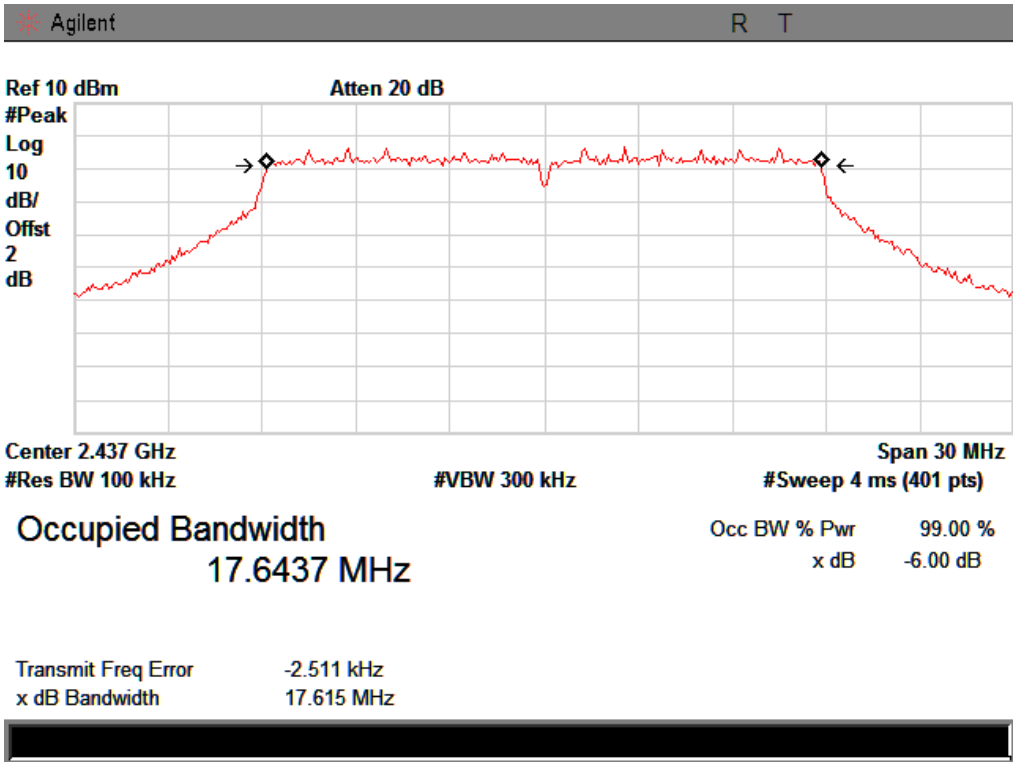


IEEE 802.11 n/HT20:

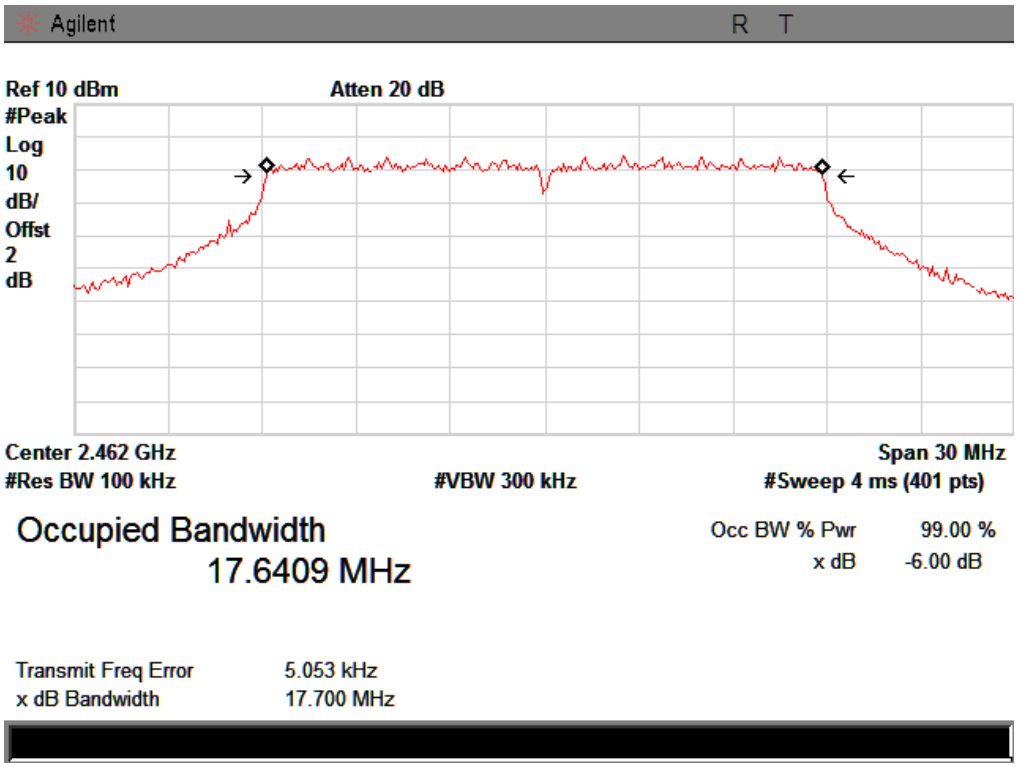
CH Low :



CH Mid :

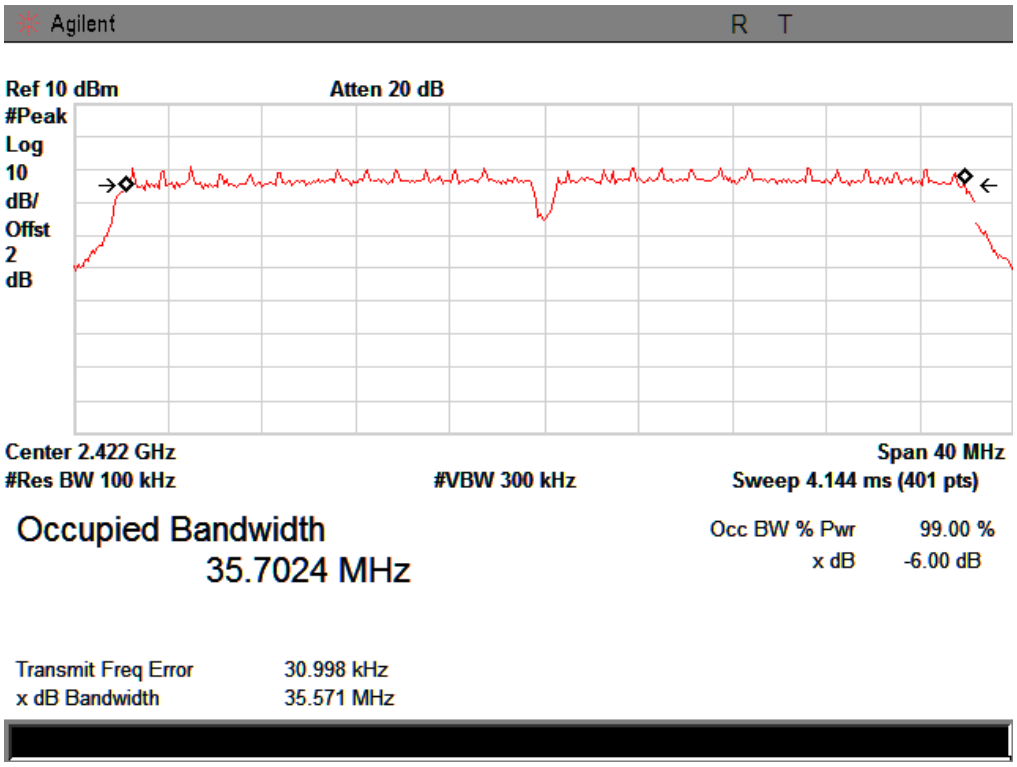


CH High :

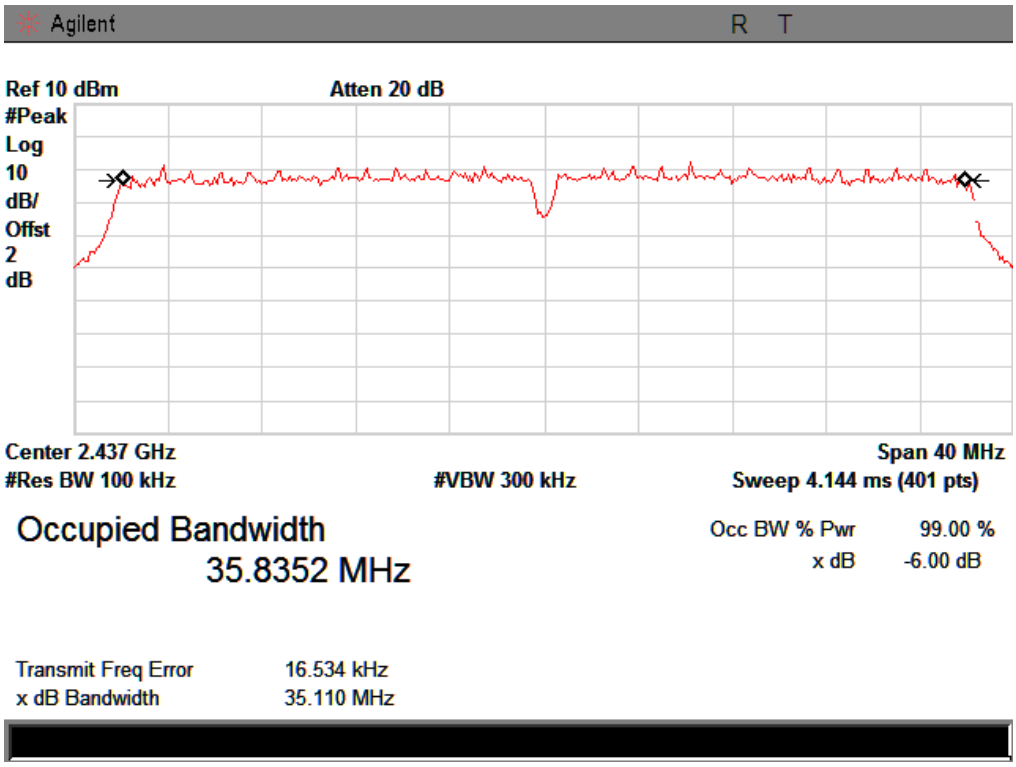


IEEE 802.11n/HT40:

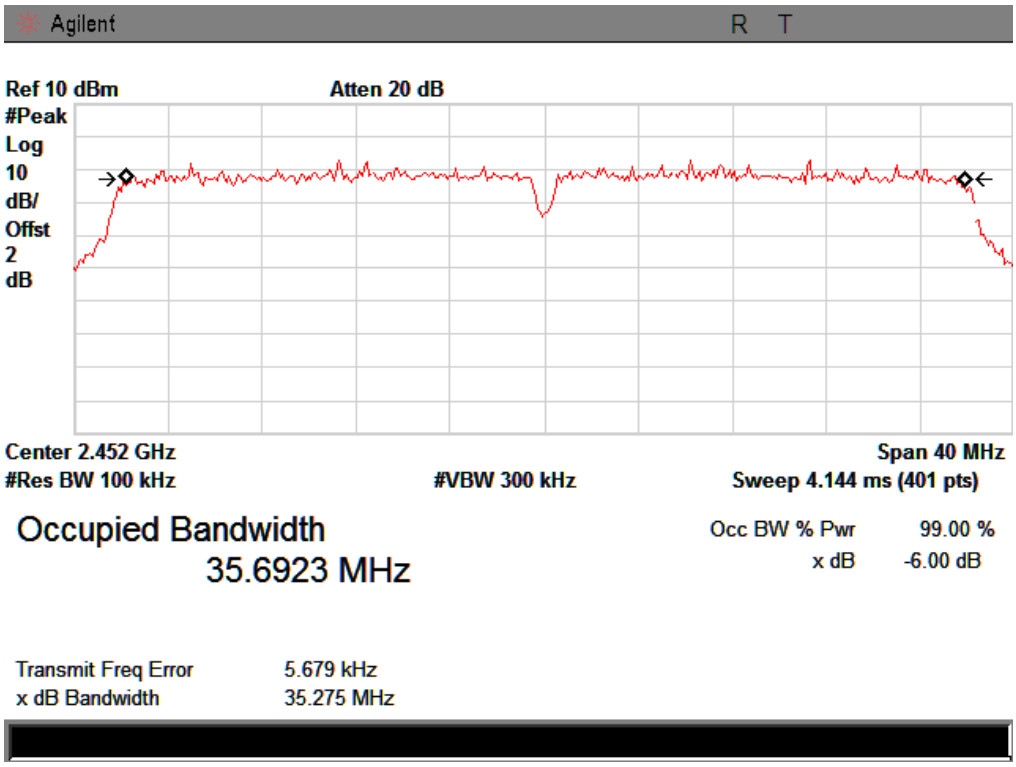
CH Low :



CH Mid :



CH High :



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

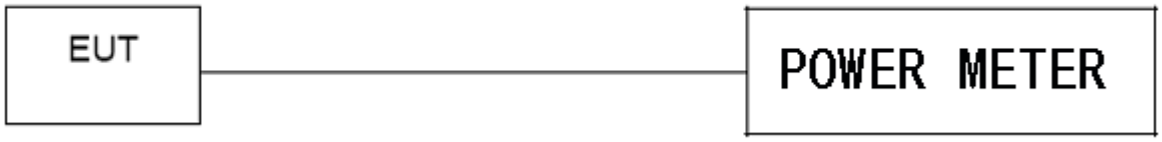
6.1.1 TEST PROCEDURE

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 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

EUT：	XK Carbon WiFi App Controller	Model Name ：	XK-CARBON
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 12V
Test Mode ：	TX b/g/n(20M,40M) Mode /CH01, CH06, CH11		

TX 802.11b Mode			
Test Channe	Frequency (MHz)	Peak Conducted Output Power (dBm)	LIMIT dBm
CH01	2412	9.36	30
CH06	2437	9.21	30
CH11	2462	9.15	30
TX 802.11g Mode			
CH01	2412	8.74	30
CH06	2437	8.68	30
CH11	2462	8.53	30
TX 802.11n20 Mode			
CH01	2412	8.41	30
CH06	2437	8.25	30
CH11	2462	8.34	30
TX 802.11n40 Mode			
CH03	2422	7.89	30
CH06	2437	7.43	30
CH09	2452	7.27	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 integral antenna . It comply with the standard requirement.

8. EUT TEST PHOTO

Radiated Measurement Photos