FCC TEST REPORT

for

Xie He Kong Company Limited

Tablet PC

Model Number: TU-W8402A

FCC ID: 2ABZATU-W8402A

Prepared for	:	Xie He Kong Company Limited
Address	:	Room502,5/F,Tungsun Commercial Centre,194-200 Lockhart Rd,Wanchai,HK

Prepared by	:	Keyway Testing Technology Co., Ltd.
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Report No.	:	15KWE032387F
Date of Test	:	Mar. 11~16, 2015
Date of Report	:	Mar. 17, 2015

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Keyway Testing Technology Co., Ltd.

Applicant: **Address:**	Xie He Kong Company Limited Room502,5/F,Tungsun Commercial Centre,194-200 Lockhart Rd,Wanchai,HK		
Manufacturer: **Address:**	Xie He Kong Company Limited Room502,5/F,Tungsun Commercial Centre,194-200 Lockhart Rd,Wanchai,HK		
E.U.T:	Tablet PC		
Model Number:	TU-W8402A		
Trade Name:	------	**Serial No.:**	------
Date of Receipt:	Mar. 11, 2015	**Date of Test:**	Mar. 11~16, 2015
Test Specification:	FCC Part 15, Subpart C Section 15.247: 2014 ANSI C63.4:2009 KDB558074 D01 DTS Meas Guidance v03r02		
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied. **Issue Date: Mar. 17, 2015**		

Tested by:	Reviewed by:	Approved by:
William Huang/ Engineer	Andy Gao / Supervisor	Jade Yang/ Supervisor

Other Aspects:

None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

1.TEST SUMMARY

Test Items	Test Requirement	Result
Conducted Emissions	15.207	PASS
Radiated Emissions	15.205(a) 15.209 15.247(d)	PASS
6dB&99% Bandwidth	15.247(a)(2)	PASS
Power density	15.247(e	PASS
Maximum Peak Output Power	15.247(b)(3)	PASS
Emissions from out of band	15.247(d)	PASS
Antenna Requirement	15.203	PASS

2.GENERAL PRODUCT INFORMATION

2.1. Product Function

Refer to Technical Construction Form and User Manual.

2.2. Description of Device (EUT)

Product Name:	Tablet PC
Model No.:	TU-W8402A
Operation Frequency:	WIFI:2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	WIFI:11 for 802.11b/802.11g/802.11n(H20) ,7 for 802.11n(H40)
Modulation technology:	WIFI: Direct Sequence Spread Spectrum (DSSS) for (IEEE 802.11b) Orthogonal Frequency Division Multiplexing(OFDM) for (IEEE 802.11g/802.11n)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Internal
Antenna gain:	1.0dBi
Power supply:	DC 3.7V form battery DC 5V from adapter
Adapter	Manufacturer: Xie He Kong Company Limited M/N: 050100 I/P:AC 100~240V 50/60Hz 0.2A O/P:DC 5V 2A

2.3. Independent Operation Modes

The basic operation modes are:

2.3.1. EUT work WFI TX mode, and frequency as below:

	Channel	Frequency
802.11b	Low	2412MHz
	Middle	2437MHz
	High	2462MHz
802.11g	Low	2412MHz
	Middle	2437MHz
	High	2462MHz
802.11n(HT20)	Low	2412MHz
	Middle	2437MHz
	High	2462MHz
802.11 n(HT40)	Low	2422MHz
	Middle	2437MHz
	High	2452MHz

Remark: According to ANSI C63.9 standards, the test results are both the “worst case” and “worst setup” 11MHz for 802.11b,54MHz for 802.11g, 6.5Mbps for 802.11n(H20), 13Mbps for 802.11n(H40).

2.4. TEST SITES

2.4.1. Test Facilities

Lab Qualifications : Certificated by Industry Canada
Registration No.: 9868A
Date of registration: December 8, 2011

Certificated by FCC, USA
Registration No.: 370994
Date of registration: February 21, 2012

Certificated by CNAS China
Registration No.: CNAS L5783
Date of registration: August 8, 2012

2.5. List of Test and Measurement Instruments

2.5.1. For conducted emission at the mains terminals test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr. 27,14	Apr. 27,15
Artificial Mains Network	Rohde&Schwarz	ENV216	101315	Apr. 27,14	Apr. 27,15
Artificial Mains Network (AUX)	Rohde&Schwarz	ENV216	101314	Apr. 27,14	Apr. 27,15
RF Cable	FUJIKURA	3D-2W	944 Cable	Apr. 27,14	Apr. 27,15

2.5.2. For radiated emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr. 27,14	Apr. 27,15
System Simulator	Agilent	E5515C	GB43130245	Apr. 27,14	Apr. 27,15
Power Splitter	Weinschel	1506A	NW425	Apr. 27,14	Apr. 27,15
Bilog Antenna	ETS-LINDGREEN	3142D	135452	Apr. 27,14	Apr. 27,15
Spectrum Analyzer	Agilent	E4411B	MY4511304	Apr. 27,14	Apr. 27,15
Spectrum Analyzer	R&S	FSV40	132.1.3008K39 -100967	Apr. 27,14	Apr. 27,15
3m Semi-anechoic Chamber	ETS-LINDGREEN	966	KW01	Apr. 27,14	Apr. 27,15
Signal Amplifier	SONOMA	310	187016	Apr. 27,14	Apr. 27,15
Signal Amplifier	Agilent	8449B	3008A00251	Apr. 27,14	Apr. 27,15
RF Cable	IMRO	IMRO-400	966 Cable 1#	N/A	N/A
MULTI-DEVICE Controller	ETS-LINDGREEN	2090	126913	N/A	N/A
Horn Antenna	DAZE	ZN30701	11003	Apr. 27,14	Apr. 27,15
Horn Antenna	SCHWARZBECK	BBHA9170	9170-068	Apr. 27,14	Apr. 27,15
Spectrum Analyzer	Agilent	8593E	3911A04271	Apr. 27,14	Apr. 27,15
Spectrum Analyzer	Agilent	E4408B	MY44211125	Apr. 27,14	Apr. 27,15
Signal Amplifier	DAZE	ZN3380C	11001	Apr. 27,14	Apr. 27,15
High Pass filter	Micro	HPM50111	324216	Apr. 27,14	Apr. 27,15
Filter	COM-MW	ZBSF-C836.5-25-X	KW032	Apr. 27,14	Apr. 27,15
Filter	COM-MW	ZBSF-C1747.5-75-X2	KW035	Apr. 27,14	Apr. 27,15
Filter	COM-MW	ZBSF-C1880-60-X2	KW037	Apr. 27,14	Apr. 27,15
DC Power Supply	LongWei	PS-305D	010964729	Apr. 27,14	Apr. 27,15
Constant temperature and humidity box	GF	GTH-800-40-1P	MAA9906-005	Apr. 27,14	Apr. 27,15
Universal radio communication tester	Rohde&Schwarz	CMU200	3215420	Apr. 27,14	Apr. 27,15
Splitter	Agilent	11636B	0025164	Apr. 27,14	Apr. 27,15

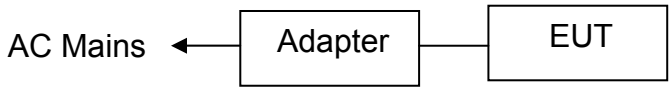
3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

3.2. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: Tablet PC)

3.3. Test Operation Mode and Test Software

None.

3.4. Special Accessories and Auxiliary Equipment

None.

3.5. Countermeasures to Achieve EMC Compliance

None.

3.6. Test Environment:

Ambient conditions in the test laboratory:

Items	Actual
Temperature (℃)	21~23
Humidity (%RH)	50~65

4. EMISSION TEST RESULTS

4.1. Conducted Emission at the Mains Terminals Test

4.1.1. Limit 15.207 limits

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

4.1.2. Test Setup

The EUT was put on a wooden table which was 0.8 m high above the ground and connected to the AC mains through the Artificial Mains Network (AMN). Where the mains cable supplied by the manufacture was longer than 0.8 m, the excess was folded back and forth parallel to the cable at the center so as to form a bundle no longer than 0.4 m.

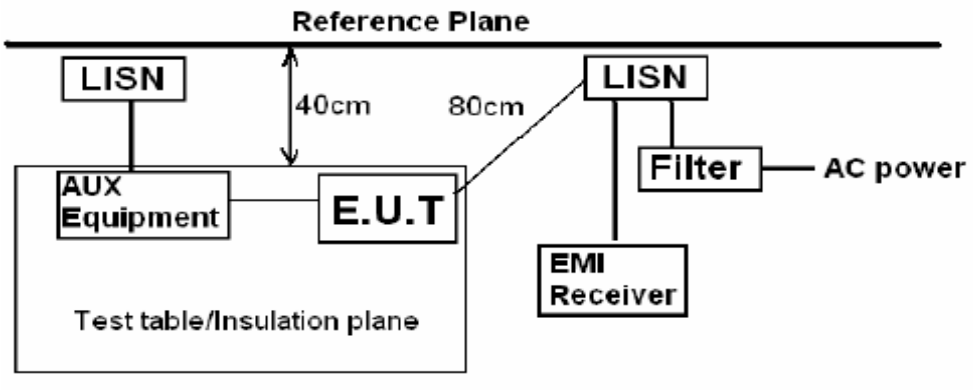
The EUT was kept 0.4 m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during the conducted emission test.

The frequency range from 150 kHz to 30 MHz was investigated.

The bandwidth of the test receiver was set at 9 kHz.

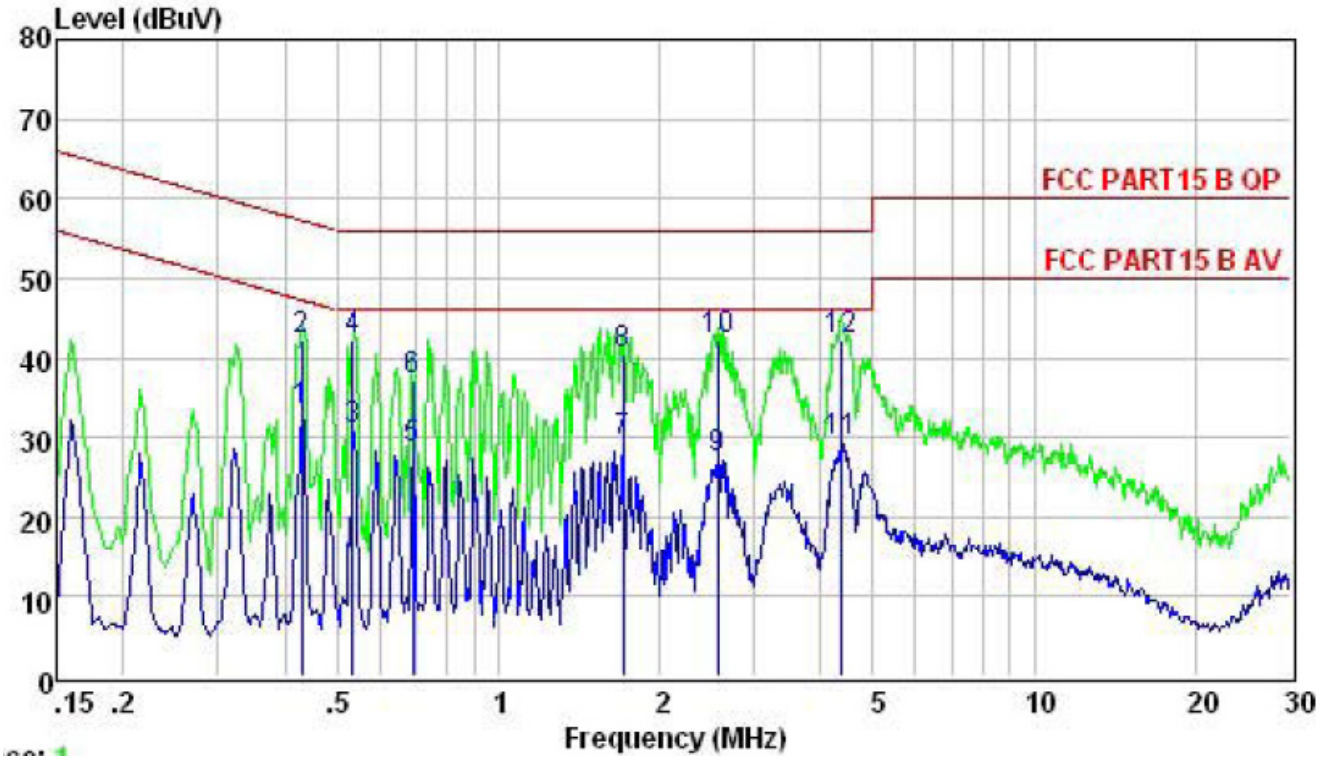
Pretest for all mode, The worst mode 802.11b low channel and the data was recording on the following page.

The test voltage was AC 120V/60Hz



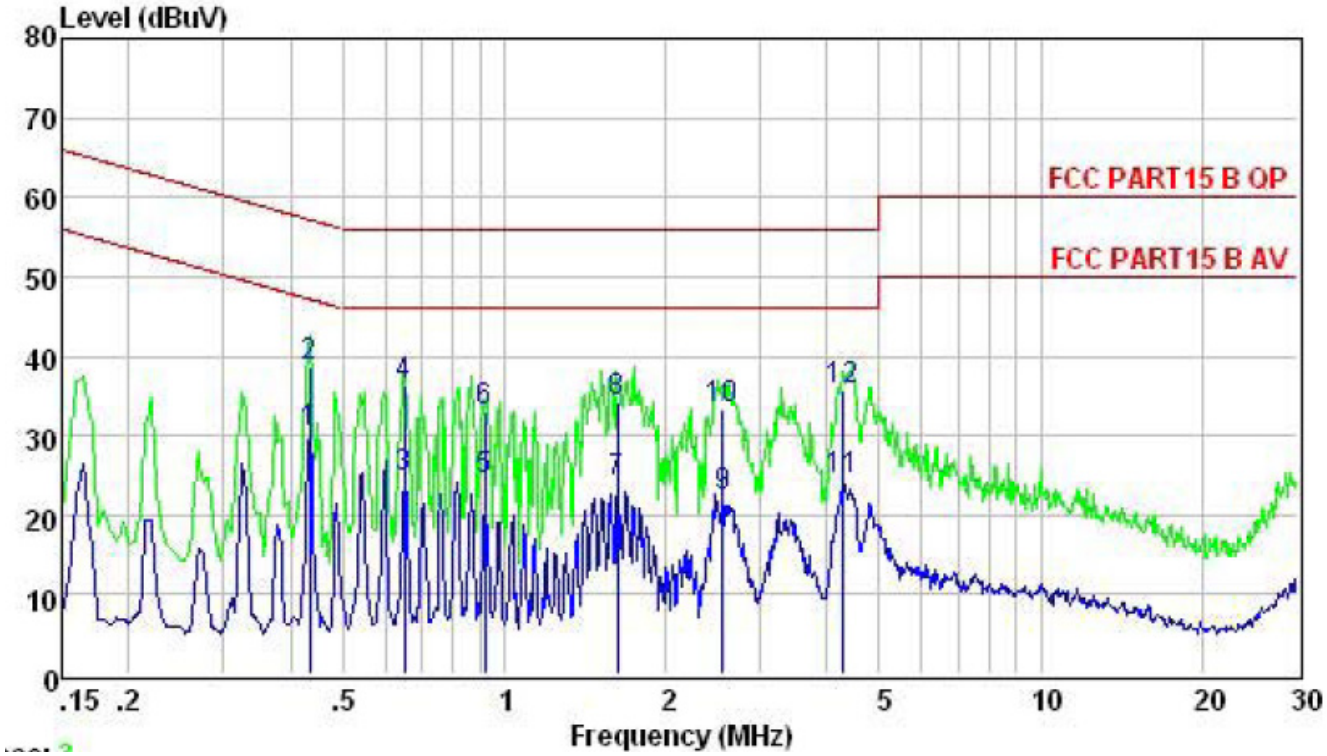
Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

Line



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.431	33.26	47.24	-13.98	Average
2	0.431	42.12	57.24	-15.12	QP
3	0.535	30.97	46.00	-15.03	Average
4	0.535	42.14	56.00	-13.86	QP
5	0.694	28.43	46.00	-17.57	Average
6	0.694	37.22	56.00	-18.78	QP
7	1.707	29.30	46.00	-16.70	Average
8	1.707	40.36	56.00	-15.64	QP
9	2.567	27.29	46.00	-18.71	Average
10	2.567	42.14	56.00	-13.86	QP
11	4.361	29.51	46.00	-16.49	Average
12	4.361	42.11	56.00	-13.89	QP

Neutral



	Freq	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	
1	0.435	30.35	47.15	-16.80	Average
2	0.435	38.69	57.15	-18.46	QP
3	0.651	24.76	46.00	-21.24	Average
4	0.651	36.14	56.00	-19.86	QP
5	0.918	24.42	46.00	-21.58	Average
6	0.918	33.12	56.00	-22.88	QP
7	1.628	24.20	46.00	-21.80	Average
8	1.628	34.24	56.00	-21.76	QP
9	2.554	22.24	46.00	-23.76	Average
10	2.554	33.40	56.00	-22.60	QP
11	4.269	24.26	46.00	-21.74	Average
12	4.269	35.58	56.00	-20.42	QP

4.2. Radiated Emission Test

4.2.1. Limit 15.209 limits

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

4.2.2. Restricted bands of operation

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

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.2.3. Test setup

The EUT was placed on a turn table which was 0.8 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth of the EMI test receiver is set at 120kHz for frequency range from 30MHz to 1000MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz, Both PK and AV measure, PK detector is used.

The frequency range from 30MHz to 10^{th} harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

Notes: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading-Preamp Factor.

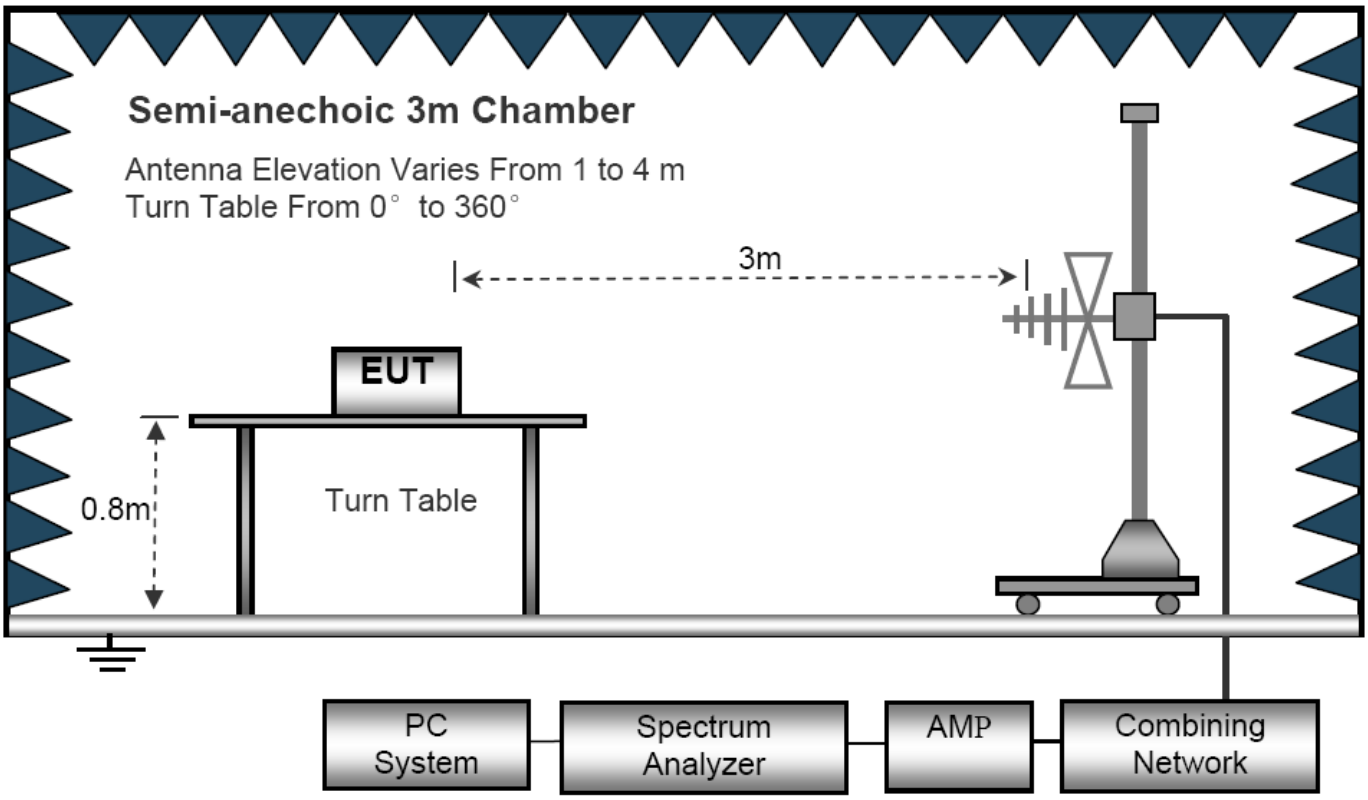
2. Measurement Uncertainty: ±3.2 dB at a level of confidence of 95%.

3. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

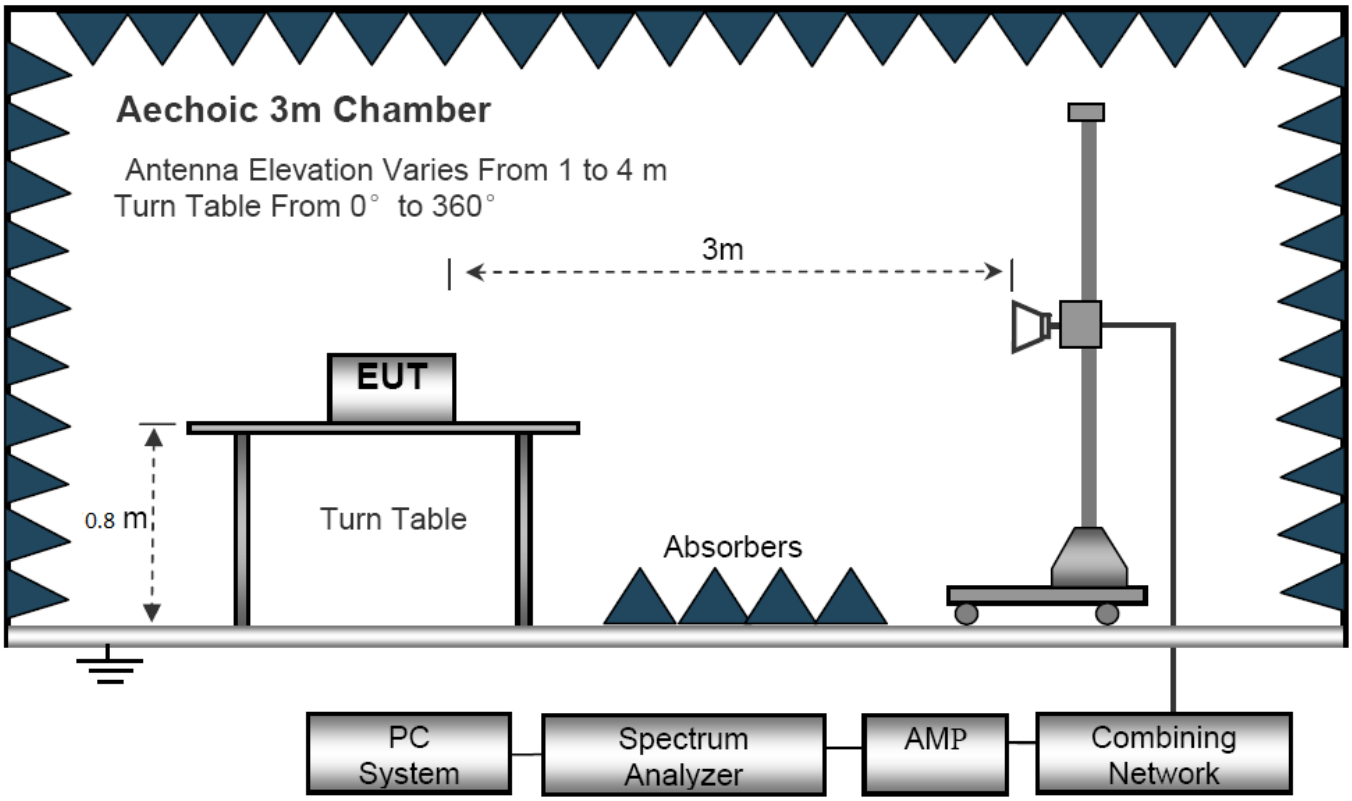
4. For emissions below 1GHz, pretest for all mode, The test data of the worst case condition(s) was reported on the following pages.

5. For Both PK and AV value above 1GHz, PK detector is used.

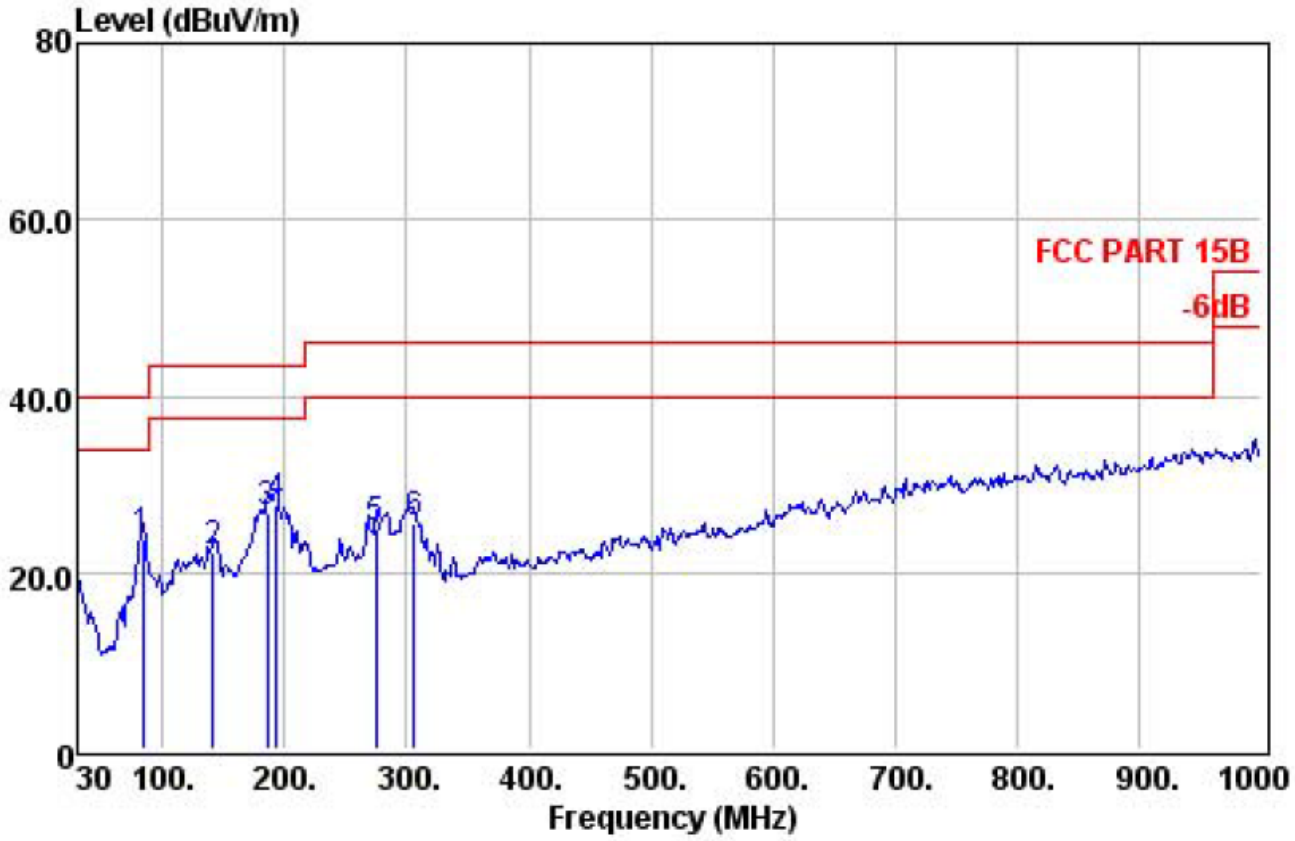
Below 1GHz



Above 1GHz

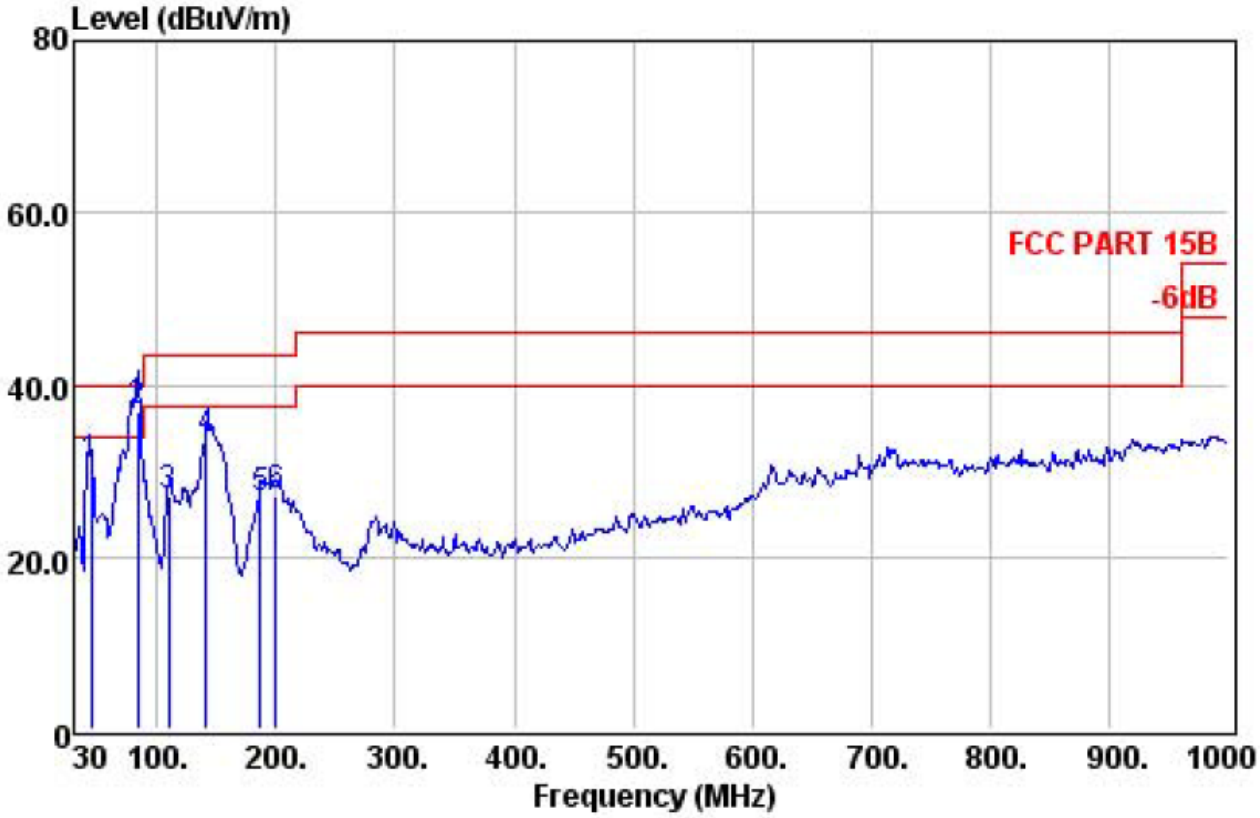


Below 1GHz
Horizontal



	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	83.35	31.35	45.75	0.94	8.37	23.71	40.00	-16.29	QP
2	141.55	31.22	43.68	1.22	8.49	22.17	43.50	-21.33	QP
3	185.20	31.14	46.40	1.39	10.24	26.89	43.50	-16.61	QP
4	192.96	31.12	46.87	1.46	10.37	27.58	43.50	-15.92	QP
5	274.44	30.95	41.13	1.78	13.00	24.96	46.00	-21.04	QP
6	306.45	30.92	40.50	1.94	13.98	25.50	46.00	-20.50	QP

Vertical



		Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
		MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1		44.55	31.40	50.30	0.56	11.03	30.49	40.00	-9.51	QP
2	!	83.35	31.35	59.00	0.94	8.37	36.96	40.00	-3.04	QP
3		109.54	31.31	48.01	1.03	9.31	27.04	43.50	-16.46	QP
4		141.55	31.22	55.12	1.22	8.49	33.61	43.50	-9.89	QP
5		187.14	31.13	46.39	1.39	10.19	26.84	43.50	-16.66	QP
6		199.75	31.10	45.64	1.46	10.98	26.98	43.50	-16.52	QP

Above 1GHz

802.11b 2412MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4824.00	27.50	32.81	12.01	32.99	50.31	74.00	-23.69	Peak
2	7236.00	27.95	23.80	16.61	37.30	49.76	74.00	-24.24	Peak
3	9126.00	28.45	19.54	16.89	37.54	45.52	74.00	-28.48	Peak
4	11336.00	28.93	18.13	17.23	39.77	46.20	74.00	-27.80	Peak
5	13155.00	29.23	13.75	18.40	41.41	44.33	74.00	-29.67	Peak
6	14430.00	29.46	13.29	19.63	41.00	44.46	74.00	-29.54	Peak

802.11b 2412MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4824.00	27.50	32.18	12.01	32.99	49.68	74.00	-24.32	Peak
2	7236.00	27.95	22.32	16.61	37.30	48.28	74.00	-25.72	Peak
3	9483.00	28.59	19.34	16.92	37.98	45.65	74.00	-28.35	Peak
4	11013.00	28.90	15.14	17.17	39.51	42.92	74.00	-31.08	Peak
5	12475.00	29.09	16.27	17.77	39.50	44.45	74.00	-29.55	Peak
6	14702.00	29.51	15.09	19.81	39.76	45.15	74.00	-28.85	Peak

802.11b 2437MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	31.47	12.14	33.11	49.19	74.00	-24.81	Peak
2	7311.00	27.96	22.31	16.62	37.32	48.29	74.00	-25.71	Peak
3	9058.00	28.42	19.09	16.88	37.46	45.01	74.00	-28.99	Peak
4	10401.00	28.84	17.05	17.04	39.04	44.29	74.00	-29.71	Peak
5	12713.00	29.14	13.89	17.97	40.02	42.74	74.00	-31.26	Peak
6	14702.00	29.51	14.44	19.81	39.76	44.50	74.00	-29.50	Peak

802.11b 2437MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	31.57	12.14	33.11	49.29	74.00	-24.71	Peak
2	7311.00	27.96	22.65	16.62	37.32	48.63	74.00	-25.37	Peak
3	8633.00	28.29	17.98	16.80	36.96	43.45	74.00	-30.55	Peak
4	10299.00	28.83	17.45	17.03	38.88	44.53	74.00	-29.47	Peak
5	12135.00	29.03	19.99	17.49	39.43	47.88	74.00	-26.12	Peak
6	13818.00	29.36	13.76	19.14	43.32	46.86	74.00	-27.14	Peak

802.11b 2462MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4924.00	27.56	31.32	12.28	33.23	49.27	74.00	-24.73	Peak
2	7386.00	27.98	22.63	16.62	37.36	48.63	74.00	-25.37	Peak
3	8888.00	28.36	19.52	16.85	37.26	45.27	74.00	-28.73	Peak
4	10554.00	28.86	16.92	17.08	39.23	44.37	74.00	-29.63	Peak
5	12118.00	29.02	19.49	17.47	39.42	47.36	74.00	-26.64	Peak
6	13801.00	29.36	14.55	19.12	43.30	47.61	74.00	-26.39	Peak

802.11b 2462MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4924.00	27.56	31.41	12.28	33.23	49.36	74.00	-24.64	Peak
2	7386.00	27.98	22.52	16.62	37.36	48.52	74.00	-25.48	Peak
3	9194.00	28.48	16.16	16.89	37.63	42.20	74.00	-31.80	Peak
4	10928.00	28.89	17.10	17.15	39.46	44.82	74.00	-29.18	Peak
5	12815.00	29.16	14.47	18.06	40.26	43.63	74.00	-30.37	Peak
6	15093.00	29.56	15.59	20.05	38.48	44.56	74.00	-29.44	Peak

802.11g 2412MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4824.00	27.50	32.31	12.01	32.99	49.81	74.00	-24.19	Peak
2	7236.00	27.95	22.23	16.61	37.30	48.19	74.00	-25.81	Peak
3	8395.00	28.22	20.48	16.75	36.72	45.73	74.00	-28.27	Peak
4	10571.00	28.86	19.84	17.08	39.24	47.30	74.00	-26.70	Peak
5	12016.00	29.00	17.70	17.38	39.40	45.48	74.00	-28.52	Peak
6	13835.00	29.37	13.26	19.16	43.33	46.38	74.00	-27.62	Peak

802.11g 2412MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4824.00	27.50	32.44	12.01	32.99	49.94	74.00	-24.06	Peak
2	7236.00	27.95	22.31	16.61	37.30	48.27	74.00	-25.73	Peak
3	9075.00	28.43	18.61	16.88	37.48	44.54	74.00	-29.46	Peak
4	10554.00	28.86	18.36	17.08	39.23	45.81	74.00	-28.19	Peak
5	12832.00	29.17	17.22	18.08	40.30	46.43	74.00	-27.57	Peak
6	14362.00	29.45	14.79	19.60	41.40	46.34	74.00	-27.66	Peak

802.11g 2437MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	31.94	12.14	33.11	49.66	74.00	-24.34	Peak
2	7311.00	27.96	21.30	16.62	37.32	47.28	74.00	-26.72	Peak
3	9415.00	28.57	19.32	16.91	37.90	45.56	74.00	-28.44	Peak
4	10809.00	28.88	18.35	17.13	39.39	45.99	74.00	-28.01	Peak
5	12815.00	29.16	17.34	18.06	40.26	46.50	74.00	-27.50	Peak
6	14583.00	29.49	16.79	19.73	40.25	47.28	74.00	-26.72	Peak

802.11g 2437MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	32.15	12.14	33.11	49.87	74.00	-24.13	Peak
2	7311.00	27.96	21.28	16.62	37.32	47.26	74.00	-26.74	Peak
3	9653.00	28.66	19.60	16.94	38.12	46.00	74.00	-28.00	Peak
4	10979.00	28.90	18.03	17.16	39.49	45.78	74.00	-28.22	Peak
5	12373.00	29.07	18.42	17.68	39.48	46.51	74.00	-27.49	Peak
6	13580.00	29.32	12.52	18.87	43.08	45.15	74.00	-28.85	Peak

802.11g 2462MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4924.00	27.56	32.08	12.28	33.23	50.03	74.00	-23.97	Peak
2	7386.00	27.98	23.11	16.62	37.36	49.11	74.00	-24.89	Peak
3	8735.00	28.32	21.66	16.82	37.08	47.24	74.00	-26.76	Peak
4	11268.00	28.93	19.11	17.22	39.71	47.11	74.00	-26.89	Peak
5	11370.00	28.94	18.01	17.24	39.79	46.10	74.00	-27.90	Peak
6	14039.00	29.41	14.46	19.39	43.30	47.74	74.00	-26.26	Peak

802.11g 2462MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4924.00	27.56	31.57	12.28	33.23	49.52	74.00	-24.48	Peak
2	7386.00	27.98	21.97	16.62	37.36	47.97	74.00	-26.03	Peak
3	8905.00	28.37	15.00	16.86	37.28	40.77	74.00	-33.23	Peak
4	10758.00	28.88	15.64	17.12	39.36	43.24	74.00	-30.76	Peak
5	12611.00	29.12	13.90	17.88	39.78	42.44	74.00	-31.56	Peak
6	12815.00	29.16	12.19	18.06	40.26	41.35	74.00	-32.65	Peak

802.11n(HT20) 2412MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4824.00	27.50	32.19	12.01	32.99	49.69	74.00	-24.31	Peak
2	7236.00	27.95	22.96	16.61	37.30	48.92	74.00	-25.08	Peak
3	8650.00	28.29	20.42	16.80	36.98	45.91	74.00	-28.09	Peak
4	10605.00	28.86	17.65	17.09	39.26	45.14	74.00	-28.86	Peak
5	11166.00	28.92	17.90	17.20	39.63	45.81	74.00	-28.19	Peak
6	11659.00	28.97	17.31	17.30	39.74	45.38	74.00	-28.62	Peak

802.11n(HT20) 2412MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4824.00	27.50	32.35	12.01	32.99	49.85	74.00	-24.15	Peak
2	7236.00	27.95	22.01	16.61	37.30	47.97	74.00	-26.03	Peak
3	8684.00	28.30	18.34	16.81	37.02	43.87	74.00	-30.13	Peak
4	11234.00	28.92	16.66	17.21	39.69	44.64	74.00	-29.36	Peak
5	12033.00	29.01	16.91	17.40	39.41	44.71	74.00	-29.29	Peak
6	13478.00	29.29	12.72	18.75	42.92	45.10	74.00	-28.90	Peak

802.11n(HT20) 2437MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	30.85	12.14	33.11	48.57	74.00	-25.43	Peak
2	7311.00	27.96	21.66	16.62	37.32	47.64	74.00	-26.36	Peak
3	8854.00	28.35	16.87	16.85	37.22	42.59	74.00	-31.41	Peak
4	10452.00	28.85	15.79	17.06	39.12	43.12	74.00	-30.88	Peak
5	12220.00	29.04	14.18	17.56	39.44	42.14	74.00	-31.86	Peak
6	14226.00	29.43	13.82	19.51	42.20	46.10	74.00	-27.90	Peak

802.11n(HT20) 2437MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	31.85	12.14	33.11	49.57	74.00	-24.43	Peak
2	7311.00	27.96	21.89	16.62	37.32	47.87	74.00	-26.13	Peak
3	8684.00	28.30	18.34	16.81	37.02	43.87	74.00	-30.13	Peak
4	10605.00	28.86	16.05	17.09	39.26	43.54	74.00	-30.46	Peak
5	12220.00	29.04	16.08	17.56	39.44	44.04	74.00	-29.96	Peak
6	13053.00	29.21	14.62	18.28	40.94	44.63	74.00	-29.37	Peak

802.11n(HT20) 2462MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4924.00	27.56	30.92	12.28	33.23	48.87	74.00	-25.13	Peak
2	7386.00	27.98	21.19	16.62	37.36	47.19	74.00	-26.81	Peak
3	8905.00	28.37	16.19	16.86	37.28	41.96	74.00	-32.04	Peak
4	10486.00	28.85	15.96	17.06	39.17	43.34	74.00	-30.66	Peak
5	11251.00	28.93	15.14	17.22	39.70	43.13	74.00	-30.87	Peak
6	12798.00	29.16	15.80	18.05	40.22	44.91	74.00	-29.09	Peak

802.11n(HT20) 2462MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4924.00	27.56	31.10	12.28	33.23	49.05	74.00	-24.95	Peak
2	7386.00	27.98	21.41	16.62	37.36	47.41	74.00	-26.59	Peak
3	9534.00	28.61	15.87	16.92	38.03	42.21	74.00	-31.79	Peak
4	11761.00	28.98	12.93	17.32	39.64	40.91	74.00	-33.09	Peak
5	12781.00	29.16	10.64	18.03	40.18	39.69	74.00	-34.31	Peak
6	13716.00	29.34	9.92	19.04	43.22	42.84	74.00	-31.16	Peak

802.11n(HT40) 2422MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4844.00	27.51	31.65	12.05	33.03	49.22	74.00	-24.78	Peak
2	7266.00	27.95	21.28	16.61	37.31	47.25	74.00	-26.75	Peak
3	9007.00	28.40	17.33	16.88	37.40	43.21	74.00	-30.79	Peak
4	10520.00	28.85	15.24	17.07	39.21	42.67	74.00	-31.33	Peak
5	12611.00	29.12	14.50	17.88	39.78	43.04	74.00	-30.96	Peak
6	13461.00	29.29	9.80	18.75	42.84	42.10	74.00	-31.90	Peak

802.11n(HT40) 2422MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4844.00	27.51	30.60	12.05	33.03	48.17	74.00	-25.83	Peak
2	7266.00	27.95	21.64	16.61	37.31	47.61	74.00	-26.39	Peak
3	8803.00	28.34	15.56	16.83	37.16	41.21	74.00	-32.79	Peak
4	11081.00	28.91	13.85	17.18	39.57	41.69	74.00	-32.31	Peak
5	13104.00	29.22	11.81	18.34	41.18	42.11	74.00	-31.89	Peak
6	13325.00	29.26	9.97	18.59	42.21	41.51	74.00	-32.49	Peak

802.11n(HT40) 2437MHz Vertical polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	31.35	12.14	33.11	49.07	74.00	-24.93	Peak
2	7311.00	27.96	21.59	16.62	37.32	47.57	74.00	-26.43	Peak
3	8395.00	28.22	16.05	16.75	36.72	41.30	74.00	-32.70	Peak
4	10044.00	28.81	15.04	16.98	38.48	41.69	74.00	-32.31	Peak
5	11404.00	28.94	13.93	17.25	39.82	42.06	74.00	-31.94	Peak
6	13631.00	29.33	7.08	18.94	43.13	39.82	74.00	-34.18	Peak

802.11n(HT40) 2437MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4874.00	27.53	30.57	12.14	33.11	48.29	74.00	-25.71	Peak
2	7311.00	27.96	21.44	16.62	37.32	47.42	74.00	-26.58	Peak
3	9041.00	28.41	14.54	16.88	37.44	40.45	74.00	-33.55	Peak
4	10146.00	28.82	15.02	16.99	38.64	41.83	74.00	-32.17	Peak
5	11438.00	28.94	13.25	17.25	39.85	41.41	74.00	-32.59	Peak
6	13359.00	29.27	9.07	18.63	42.37	40.80	74.00	-33.20	Peak

802.11n(HT40) 2452MHz Horizontal polarizations

	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4904.00	27.55	31.31	12.23	33.19	49.18	74.00	-24.82	Peak
2	7356.00	27.97	22.20	16.62	37.34	48.19	74.00	-25.81	Peak
3	9755.00	28.70	13.95	16.94	38.21	40.40	74.00	-33.60	Peak
4	11319.00	28.93	13.26	17.23	39.75	41.31	74.00	-32.69	Peak
5	12713.00	29.14	11.99	17.97	40.02	40.84	74.00	-33.16	Peak
6	14328.00	29.45	12.47	19.57	41.60	44.19	74.00	-29.81	Peak

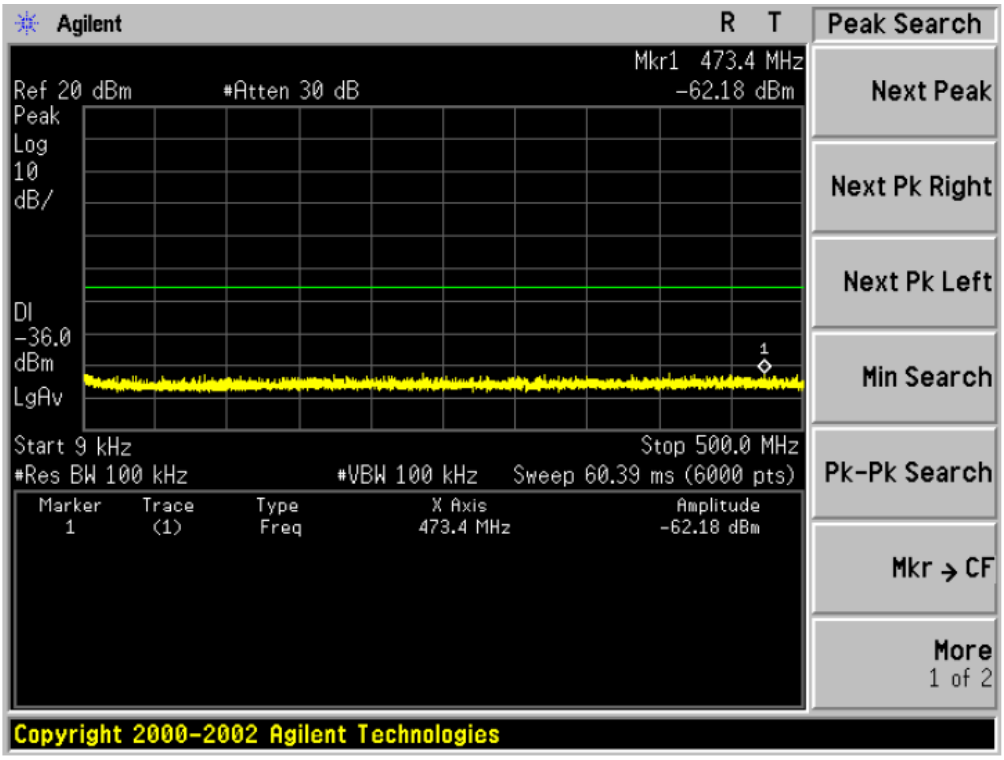
802.11n(HT40) 2452MHz Vertical polarizations

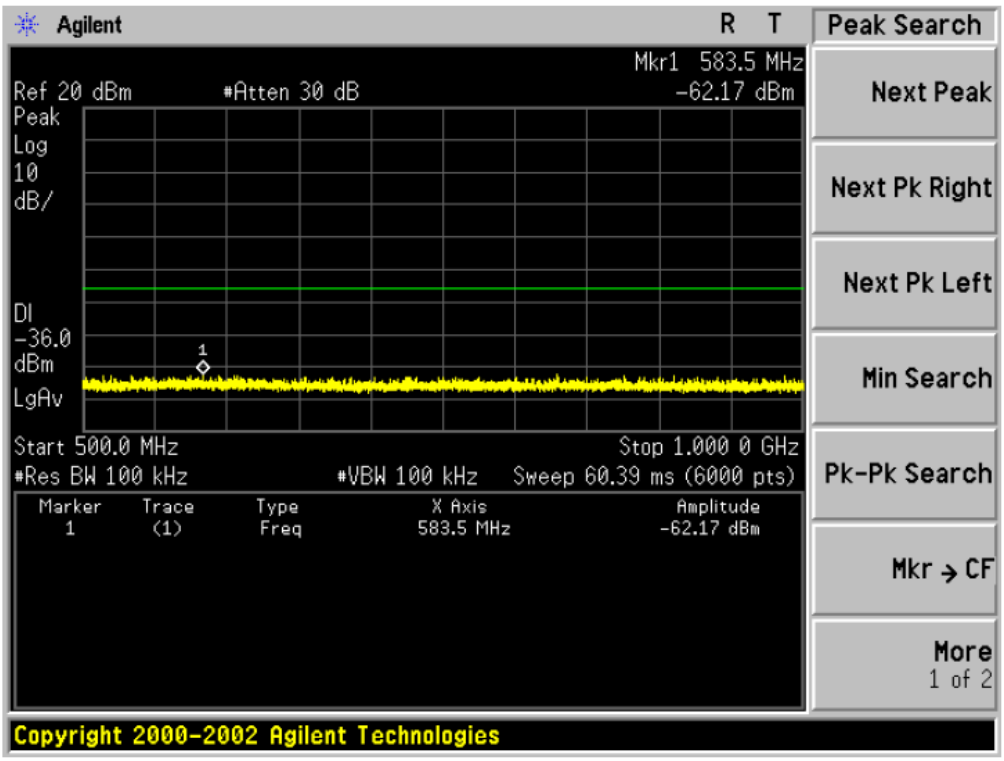
	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4904.00	27.55	31.26	12.23	33.19	49.13	74.00	-24.87	Peak
2	7356.00	27.97	21.40	16.62	37.34	47.39	74.00	-26.61	Peak
3	9313.00	28.52	14.93	16.91	37.77	41.09	74.00	-32.91	Peak
4	11319.00	28.93	15.26	17.23	39.75	43.31	74.00	-30.69	Peak
5	12866.00	29.17	12.62	18.09	40.38	41.92	74.00	-32.08	Peak
6	14090.00	29.41	9.99	19.43	43.00	43.01	74.00	-30.99	Peak

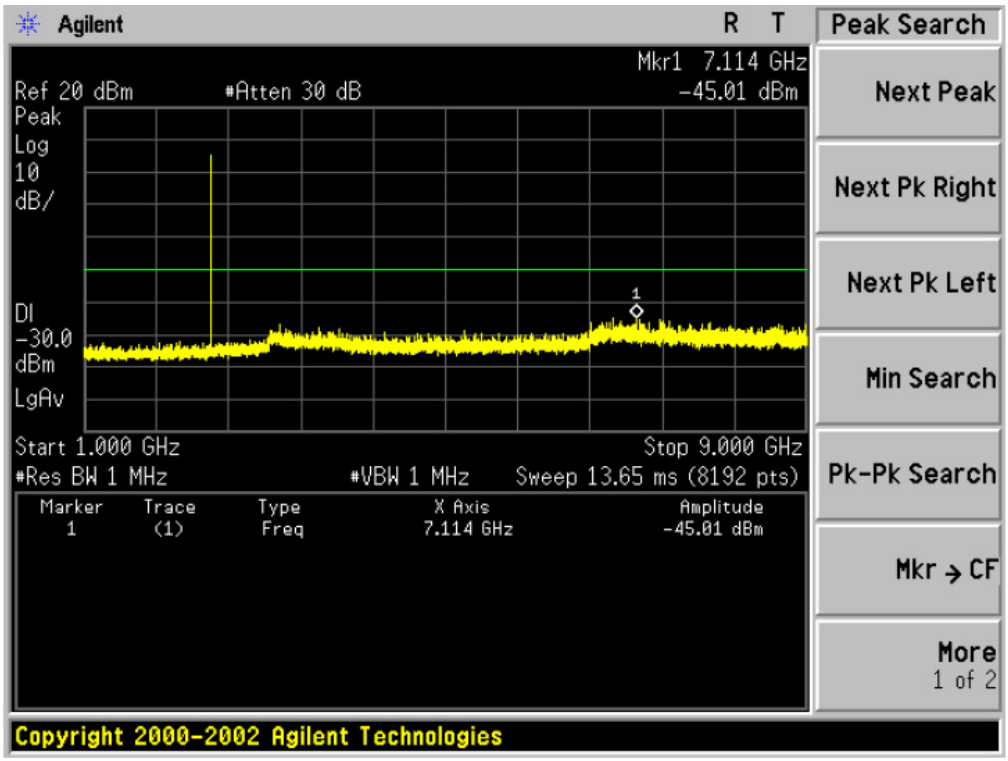
For conducted test

All modes for 802.11b/g/n have tested, and the worst result was 802.11b Low channel, the data recorded as below.

802.11b 2412MHz






Agilent
R T
Peak Search
Mkr1 7.114 GHz
Ref 20 dBm
#Atten 30 dB
-45.01 dBm
Next Peak
Peak
Log
10
dB/
Next Pk Right
Next Pk Left
Dl
-30.0
dBm
LgAv
Min Search
Start 1.000 GHz
Stop 9.000 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 13.65 ms (8192 pts)
Pk-Pk Search
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.114 GHz -45.01 dBm
Mkr → CF
More
1 of 2
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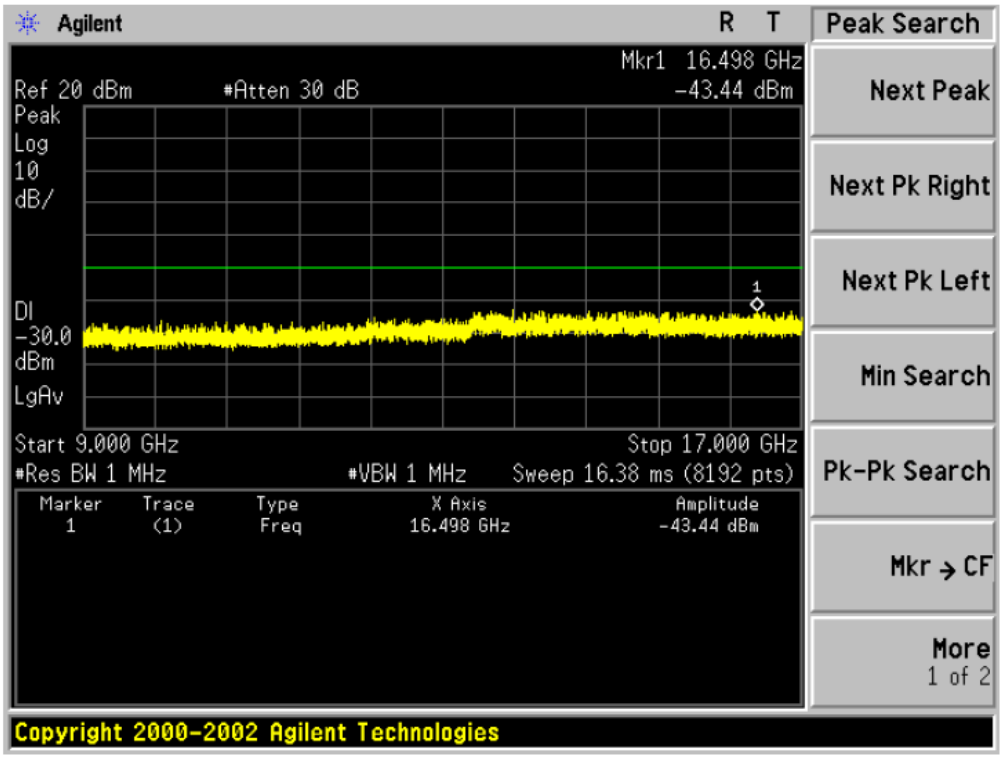
Agilent
R T
Peak Search
Mkr1 16.498 GHz
Ref 20 dBm
#Atten 30 dB
-43.44 dBm
Next Peak
Peak
Log
10
dB/
Next Pk Right
Next Pk Left
Dl
-30.0
dBm
LgAv
Min Search
Start 9.000 GHz
Stop 17.000 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 16.38 ms (8192 pts)
Pk-Pk Search
Marker Trace Type X Axis Amplitude
1 (1) Freq 16.498 GHz -43.44 dBm
Mkr → CF
More
1 of 2
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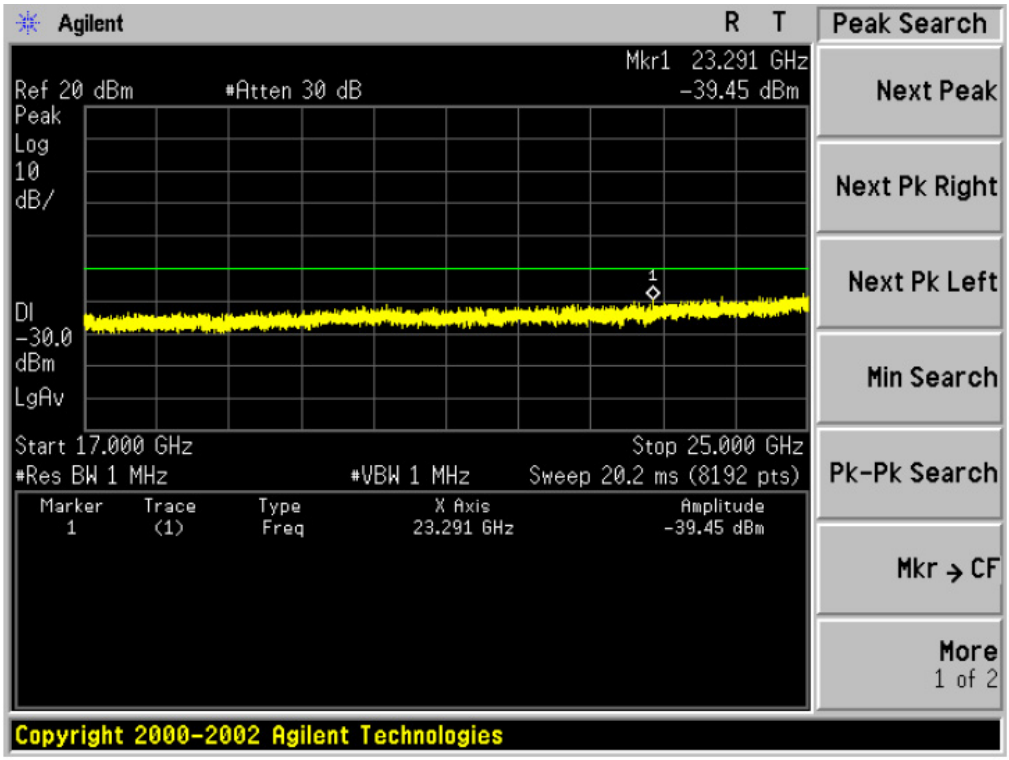
Agilent
R T
Peak Search
Mkr1 23.291 GHz
Ref 20 dBm
#Atten 30 dB
-39.45 dBm
Next Peak
Peak
Log
10
dB/
Next Pk Right
Next Pk Left
Dl
-30.0
dBm
LgAv
Min Search
Start 17.000 GHz
Stop 25.000 GHz
#Res BW 1 MHz
#VBW 1 MHz
Sweep 20.2 ms (8192 pts)
Pk-Pk Search
Marker Trace Type X Axis Amplitude
1 (1) Freq 23.291 GHz -39.45 dBm
Mkr → CF
More
1 of 2
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5. BAND EDGE COMPLIANCE TEST

5.1. Limits

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 30dB below the fundamental emissions, or comply with 15.209 limits.

5.2. Test setup

The EUT was placed on a turn table which was 1.5 m above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure.

For conduct test, VBW is set at 300kHz and RBW is set at 100kHz for measurement.

Note: 1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

2. For Both PK and AV value above 1GHz，PK detector is used。

Remark: All emission out of band are more than 30dB lower than fundamental.

For radiated test as follows:

	Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)	Band edge Limit (dBuV/m)		Result
			PK	PK	AV	
802.11b	<2400	H	49.89	74.00	54.00	Pass
	<2400	V	50.76	74.00	54.00	Pass
	>2483.5	H	50.84	74.00	54.00	Pass
	>2483.5	V	50.07	74.00	54.00	Pass
802.11g	<2400	H	49.93	74.00	54.00	Pass
	<2400	V	50.24	74.00	54.00	Pass
	>2483.5	H	50.48	74.00	54.00	Pass
	>2483.5	V	50.94	74.00	54.00	Pass
802.11n(HT20)	<2400	H	50.07	74.00	54.00	Pass
	<2400	V	50.66	74.00	54.00	Pass
	>2483.5	H	50.39	74.00	54.00	Pass
	>2483.5	V	50.41	74.00	54.00	Pass
802.11n(HT40)	<2400	H	50.61	74.00	54.00	Pass
	<2400	V	50.78	74.00	54.00	Pass
	>2483.5	H	50.61	74.00	54.00	Pass
	>2483.5	V	50.49	74.00	54.00	Pass

If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

6. 6DB OCCUPY BANDWIDTH

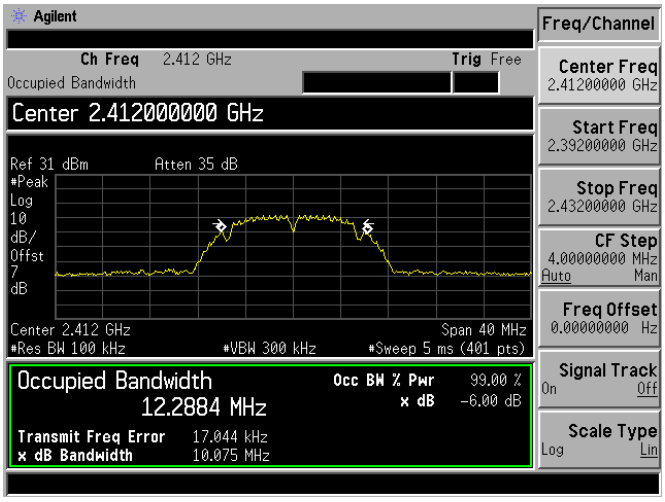
6.1. Limits

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz
Test data:

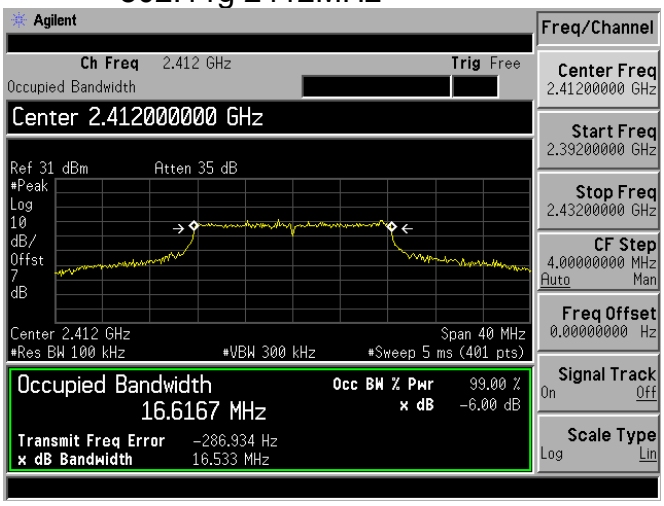
	Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
802.11b	2412	10075	>500	Pass
	2437	10019	>500	Pass
	2462	10081	>500	Pass
802.11g	2412	16533	>500	Pass
	2437	16446	>500	Pass
	2462	16472	>500	Pass
802.11n (HT20)	2412	17670	>500	Pass
	2437	17173	>500	Pass
	2462	17415	>500	Pass
802.11n (HT40)	2422	36667	>500	Pass
	2437	36458	>500	Pass
	2452	36523	>500	Pass

Test plot as follows:

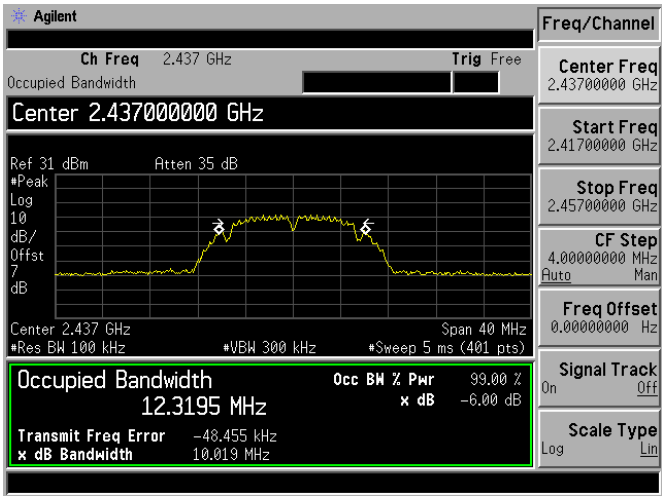
802.11b 2412MHz



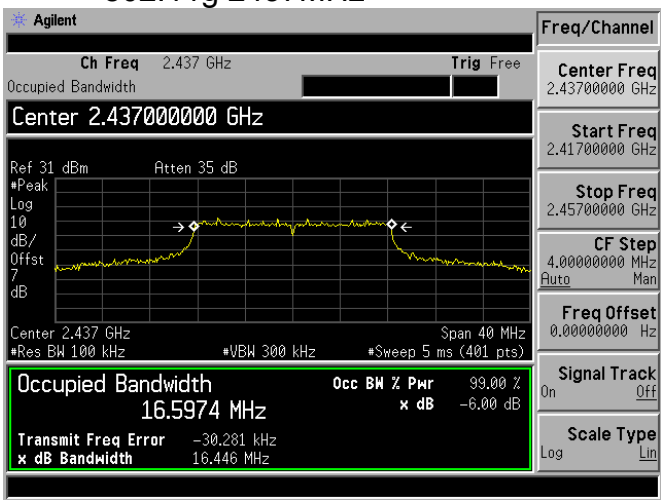
802.11g 2412MHz



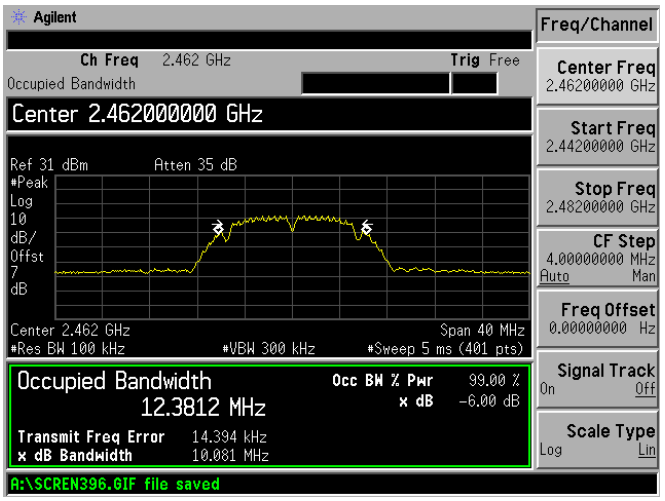
802.11b 2437MHz



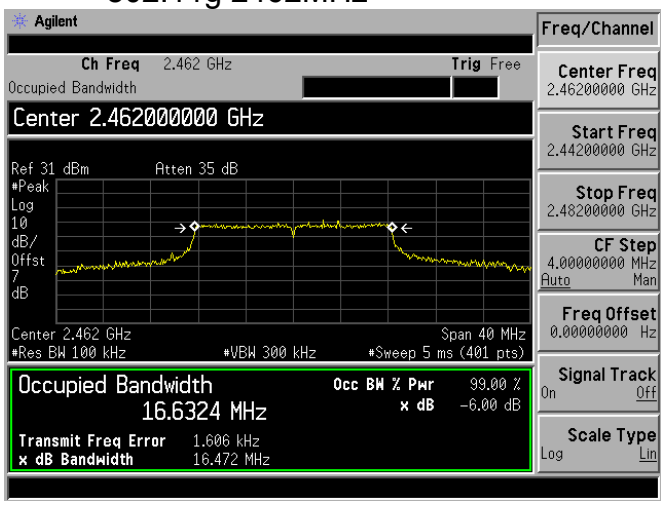
802.11g 2437MHz



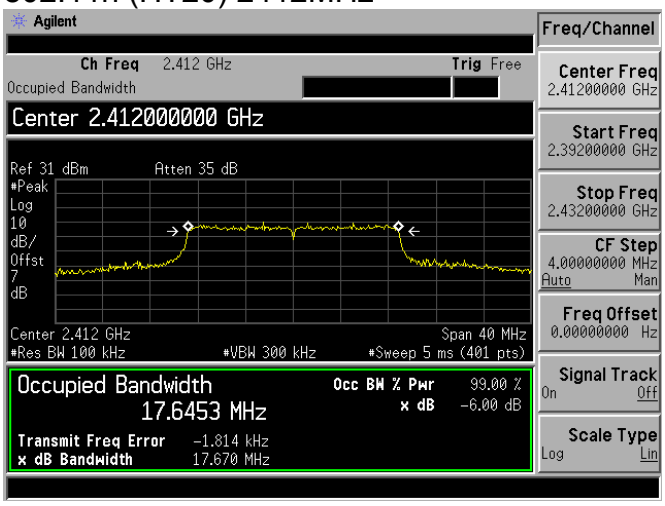
802.11b 2462MHz



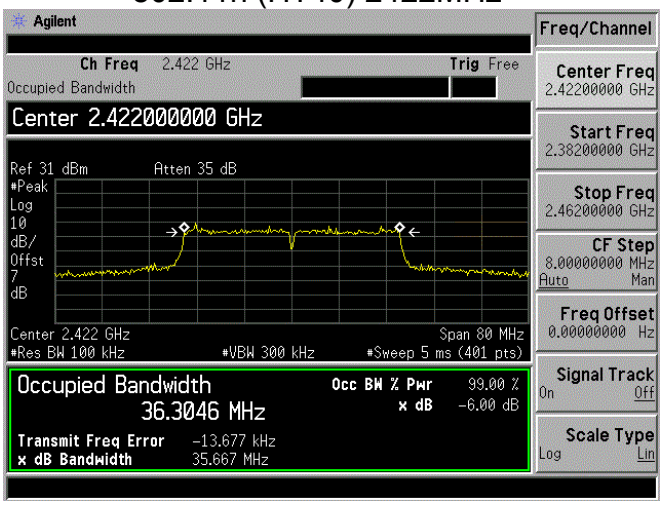
802.11g 2462MHz



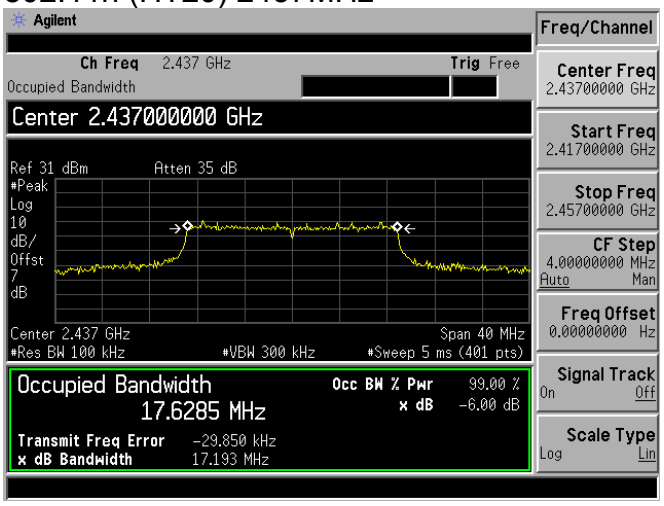
802.11n (HT20) 2412MHz



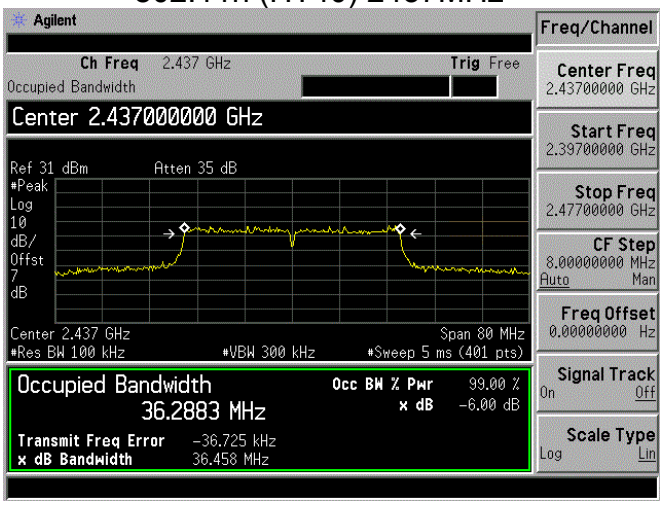
802.11n (HT40) 2422MHz



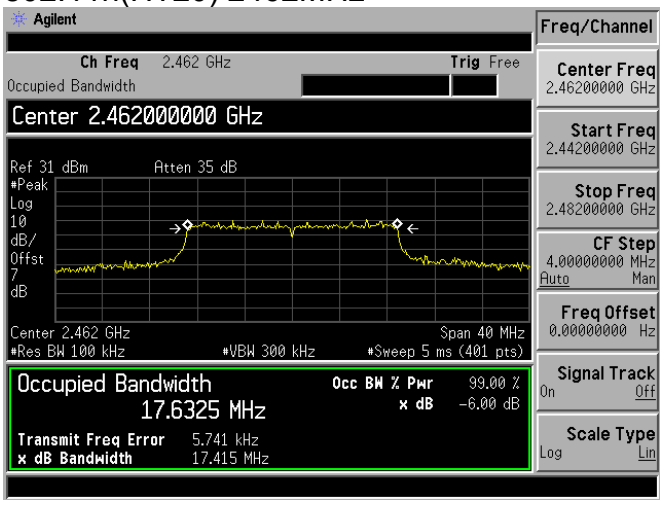
802.11n (HT20) 2437MHz



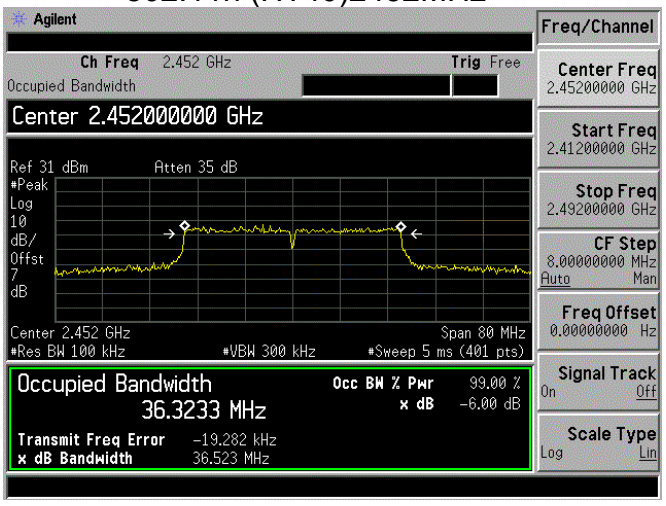
802.11n (HT40) 2437MHz



802.11n(HT20) 2462MHz



802.11n (HT40)2452MHz



7. OUTPUT POWER TEST

7.1. Limits

For systems using digital modulation in the 2400~2483.5MHz, The out put Power shall not exceed 1W (30dBm)

7.2. Test setup

1. The Transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

7.3. Test result

	Frequency (MHz)	Output Power(dBm)	Limit (dBm)	Result
802.11b	2412	8.64	30	Pass
	2437	8.49	30	Pass
	2462	8.37	30	Pass
802.11g	2412	7.59	30	Pass
	2437	7.61	30	Pass
	2462	7.54	30	Pass
802.11n(HT20)	2412	7.29	30	Pass
	2437	7.51	30	Pass
	2462	7.37	30	Pass
802.11n(HT40)	2422	7.24	30	Pass
	2437	7.33	30	Pass
	2452	7.41	30	Pass

8. POWER SPECTRAL DENSITY TEST

8.1. Limits

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

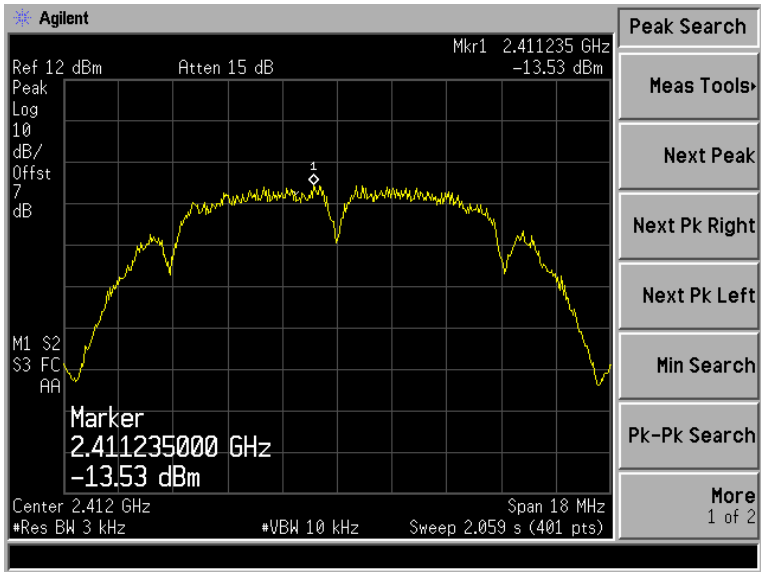
8.2. Test setup

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 =3kHz.
4. Set the VBW ≥3 times 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.

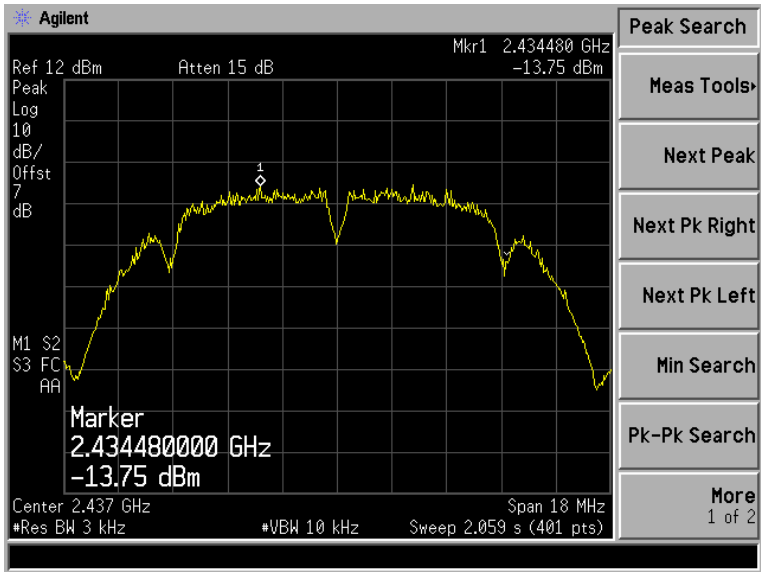
8.3. Test result

	Channel Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b	2412	-13.53	8	Pass
	2437	-13.75	8	Pass
	2462	-13.30	8	Pass
802.11g	2412	-11.39	8	Pass
	2437	-12.19	8	Pass
	2462	-12.97	8	Pass
802.11n (HT20)	2412	-15.31	8	Pass
	2437	-16.27	8	Pass
	2462	-16.83	8	Pass
802.11n (HT40)	2422	-16.03	8	Pass
	2437	-16.46	8	Pass
	2452	-17.13	8	Pass

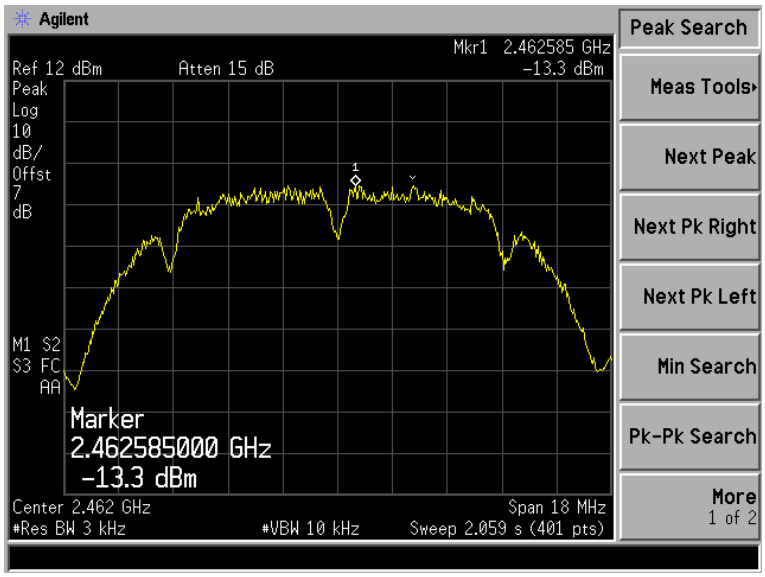
802.11b 2412MHz



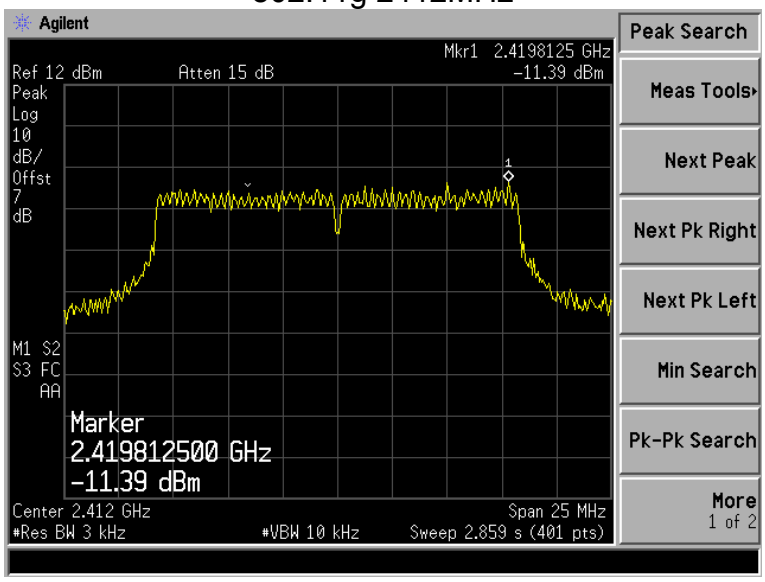
802.11b 2437MHz



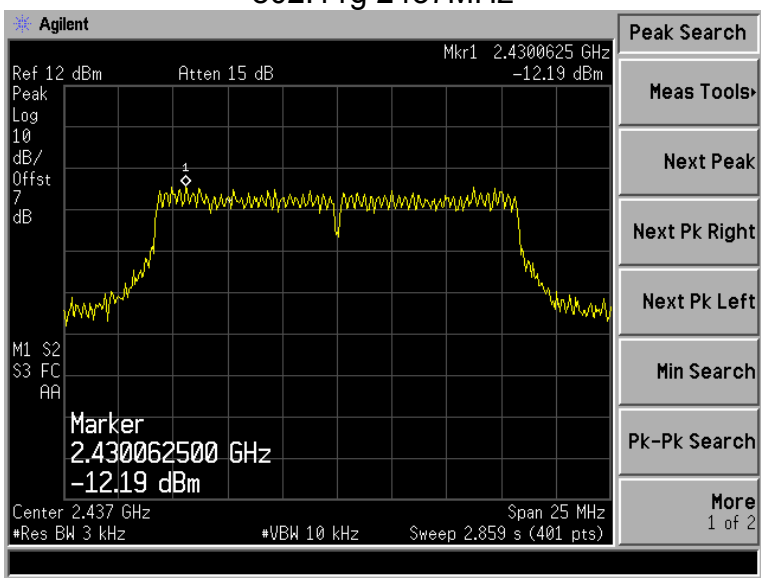
802.11b 2462MHz



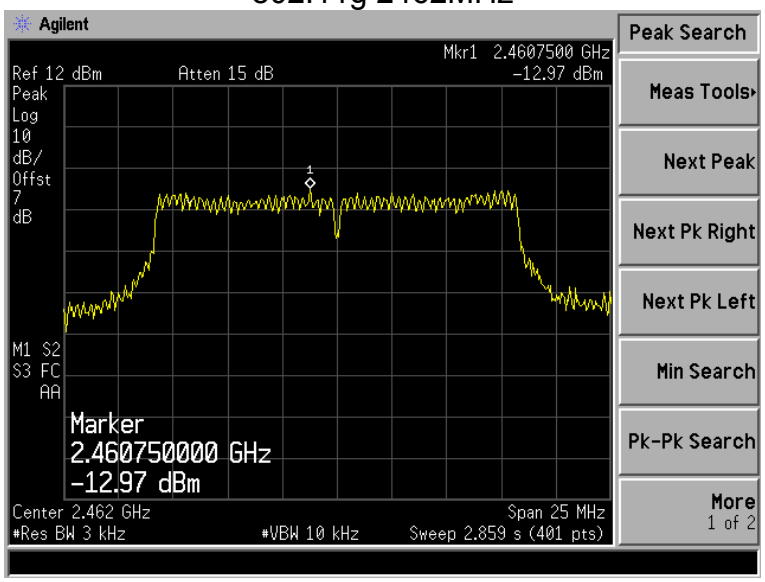
802.11g 2412MHz



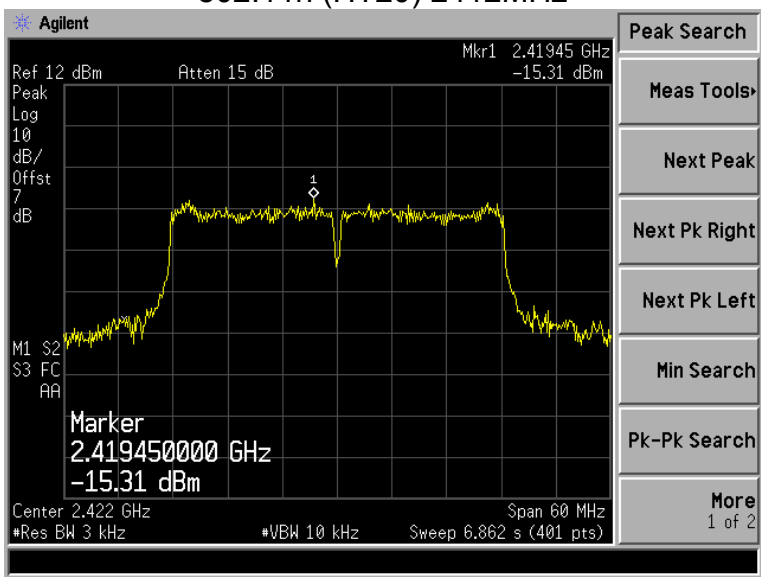
802.11g 2437MHz



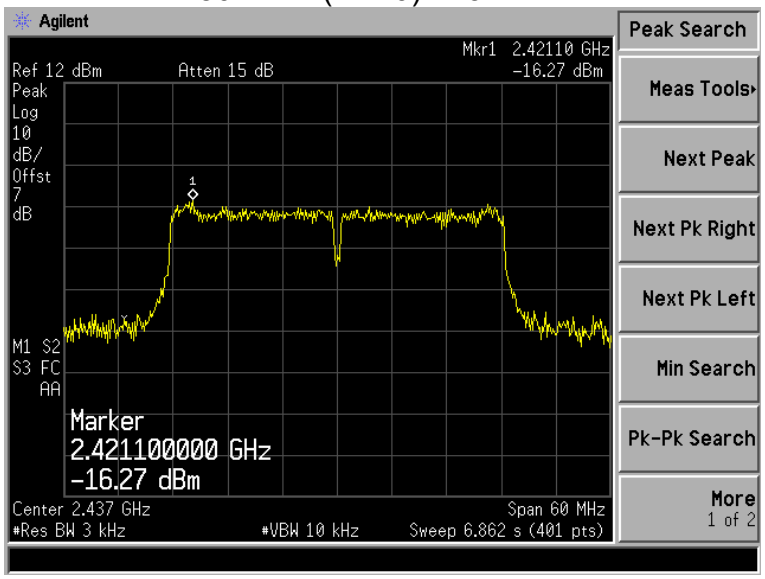
802.11g 2462MHz



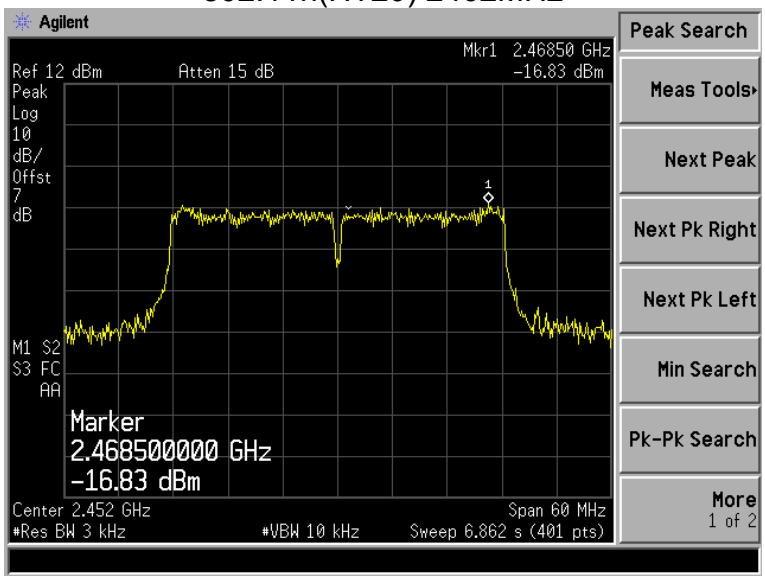
802.11n (HT20) 2412MHz



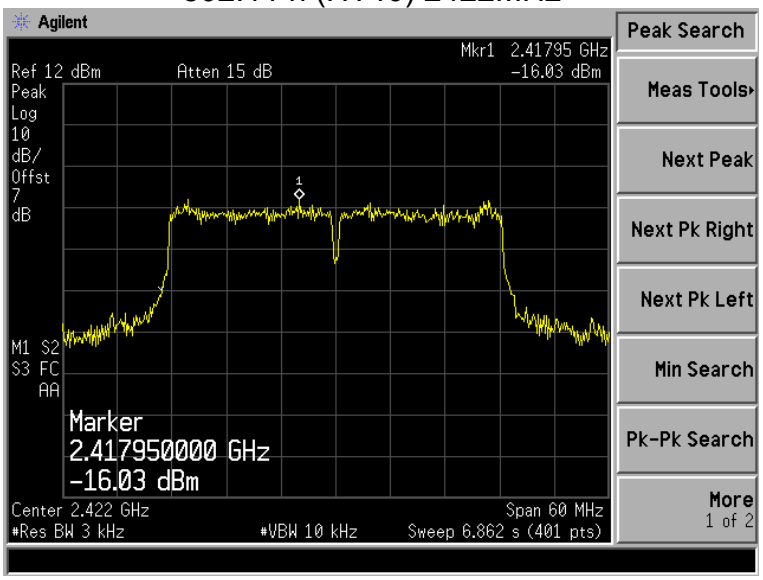
802.11n (HT20) 2437MHz



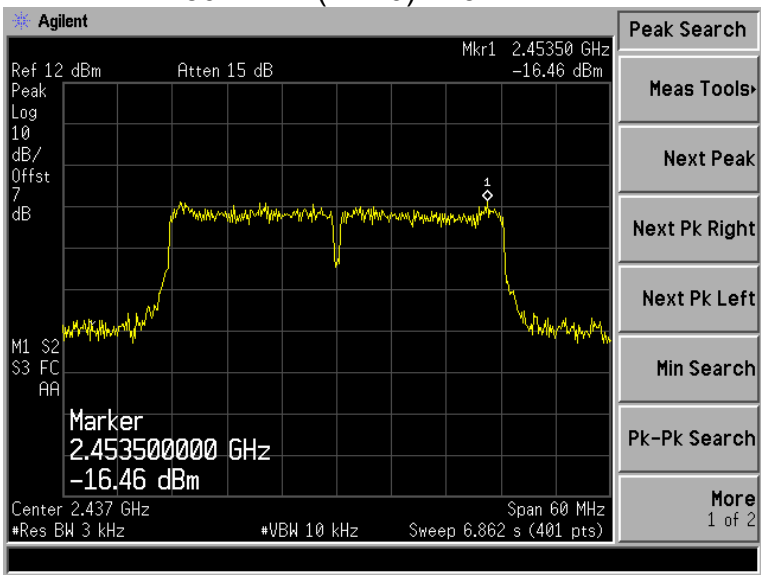
802.11n(HT20) 2462MHz



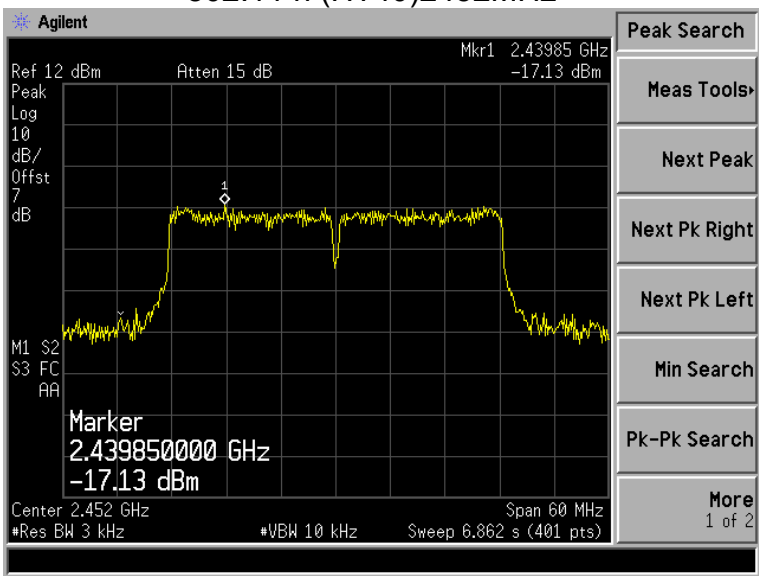
802.11 n (HT40) 2422MHz



802.11 n (HT40) 2437MHz



802.11 n (HT40)2452MHz



9. ANTENNA REQUIREMENTS

9.1. Limits

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

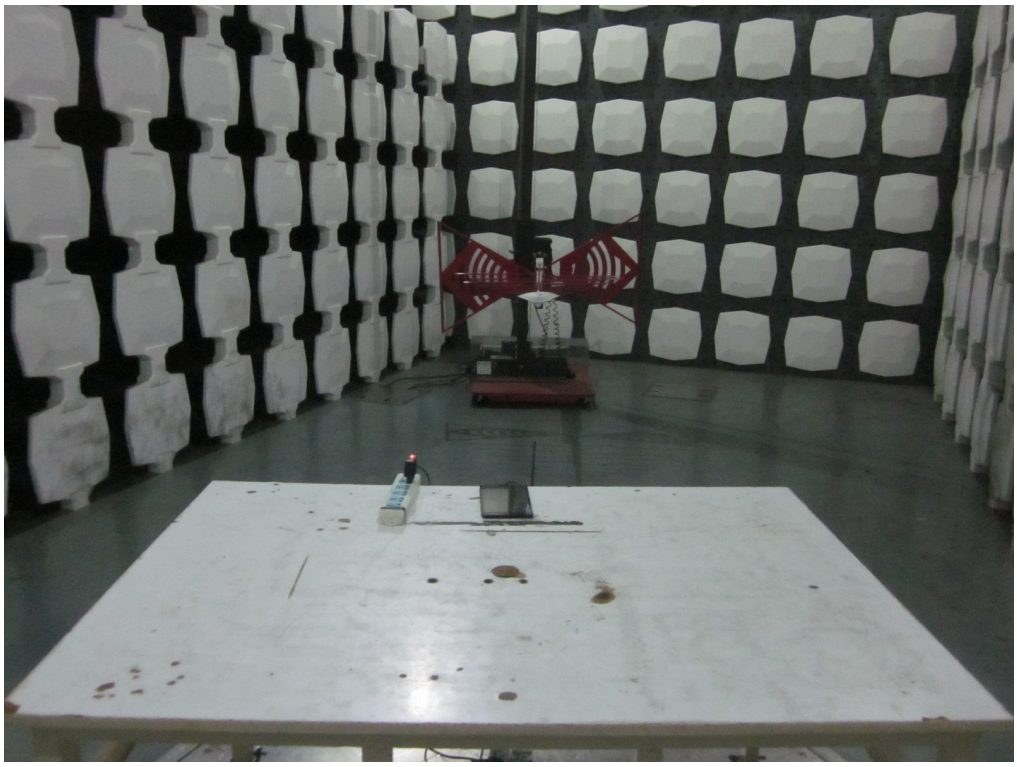
9.2. Result

The antennas used for this product are permanent attached antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.0dBi.

10. PHOTOGRAPHS OF TEST SET-UP

Conducted Emission

Radiated Emission Test



11. PHOTOGRAPHS OF THE EUT

------END------