



Product Service

FCC - TEST REPORT

Report Number : **68.950.13.106.01** Date of Issue: 11 September 2013

Model : **349766**

Product Type : MP10FS

Applicant : ICON Health & Fitness Inc.

Address : 1500 South 1000 West, Logan, UT 84321, USA

Production Facility : Wanlida Group Co., Ltd.

Address : Wanlida Industry Zone, Nanjing, Fujian, China 363601

Test Result : **Positive** **Negative**

Total pages including Appendices : 62

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Product Service

2 Details about the Test Laboratory

Details about the Test Laboratory

Test site1:

Company name: Jiangsu TÜV Product Service Ltd. Shenzhen Branch
6th Floor, H Hall,
Culture Creative Park,
No. 4001, Fuqiang Road,
Futian District 518048,
Shenzhen,P.R.C.

Telephone: 86 755 8828 6998

Fax: 86 755 8828 5299

Test site2:

Company name: WALTEK SERVICES(SHENZHEN) CO.,LTD.
1/F,Fukangkai Building, West Baima Rd, Songgang Street, Baoan District,
Shenzhen, Guangdong, P. R. China

Telephone: 86-755-83551033

Fax: 86-755-83552400



3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product: MP10FS

Model no.: 349766

Options and accessories: NIL

Rating: DC 12V
Powered by external adaptor:
Adaptor Input: 100-240VAC, 50/60Hz
Adaptor Output: 12VDC

Antenna: Unique Antenna, NOT accessible by end user
Max. Gain: 1dBi

RF Transmission Frequency: 2412-2462MHz

Description of the EUT: NIL

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Notebook	Lenovo	T400	----



4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C, Intentional Radiators, 10-1-12 Edition	PART 15 – RADIO FREQUENCY DEVICES Subpart C – Intentional Radiators

**5 Summary of Test Results**

Technical Requirements					
FCC Part 15 Subpart C 10-1-12 Edition					
Test Condition	Pages	Test Result			Test Location
		Pass	Fail	N/A	
15.207 Conducted Emission AC Power Port	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247 (b) (1) Conducted peak output power	11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247(d) Band edge compliance of RF emissions	12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247(d) Spurious RF conducted emissions	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247(d) & 15.209 Spurious radiated emissions for transmitter and receiver	35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247(a)(2) 6dB bandwidth	48	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2
15.247(e) Power spectral density	55	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test Site2



6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: OMC349766 to comply with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

The Equipment Under Test

- **Fulfills** the general approval requirements.


- **Does not** fulfill the general approval requirements.

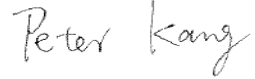
Sample Received Date: 02 September 2013


Testing Start Date: 03 September 2013

Testing End Date: 10 September 2013

- Jiangsu TÜV Product Service Ltd. Shenzhen Branch -

Tested By EMC Test Engineer	<u>2013-09-10</u>	<u>Caidy Cai</u>	 Signature
	Date	Name	

Prepared By EMC Project Engineer	<u>2013-09-10</u>	<u>Peter Kang</u>	 Signature
	Date	Name	

Approved by EMC Project Manager	<u>2013-09-10</u>	<u>Ken Li</u>	 Signature
	Date	Name	

7 Technical Requirement

7.1 Conducted Emission

Test Method

- 1 The EUT was placed on a table, which is 0.8m above ground plane
- 2 The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
- 3 Maximum procedure was performed to ensure EUT compliance
- 4 A EMI test receiver is used to test the emissions from both sides of AC line

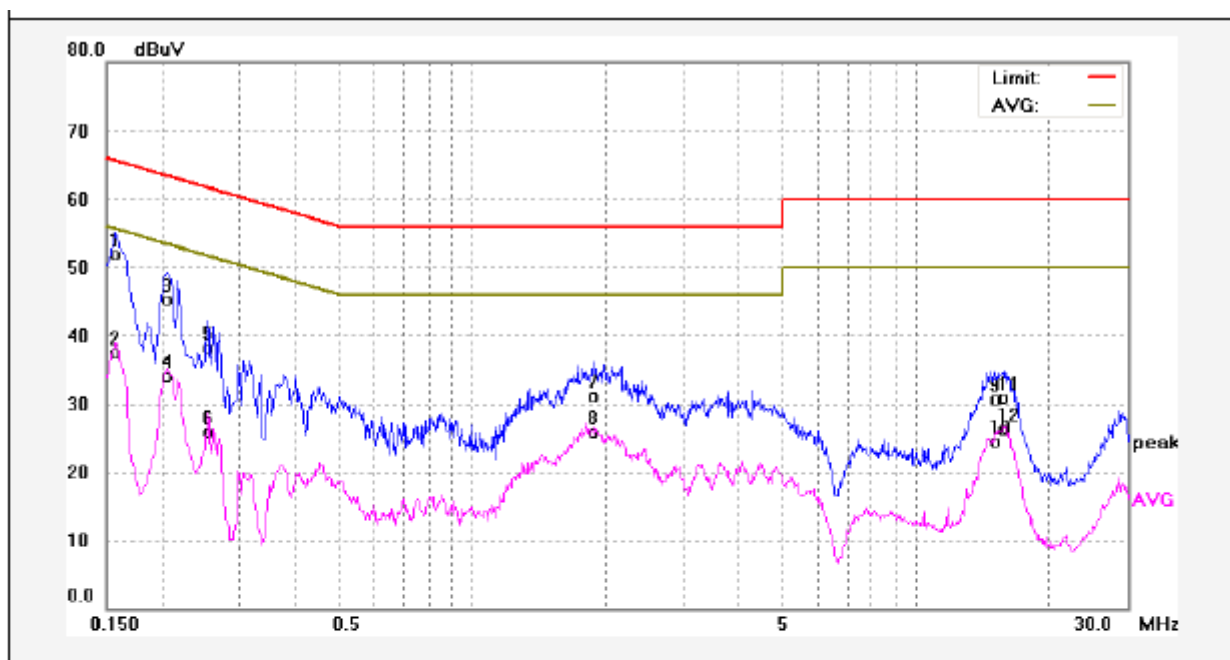
Limit

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

“*”Decreasing linearly with logarithm of the frequency

Conducted Emission

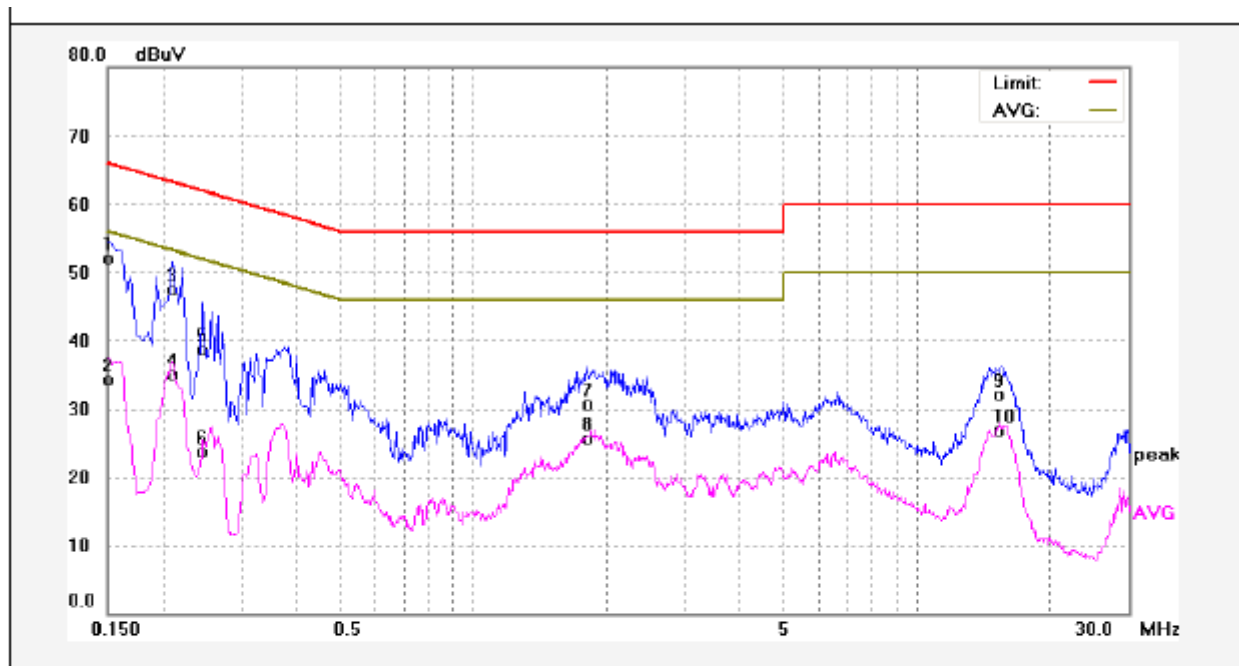
EUT: 349766
 Op Cond: WIFI On
 Test Spec: L
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1580	42.07	9.81	51.88	65.56	-13.68	QP	
2	0.1580	27.78	9.81	37.59	55.56	-17.97	AVG	
3	0.2060	35.53	9.84	45.37	63.36	-17.99	QP	
4	0.2060	24.20	9.84	34.04	53.36	-19.32	AVG	
5	0.2540	28.52	9.86	38.38	61.62	-23.24	QP	
6	0.2540	16.05	9.86	25.91	51.62	-25.71	AVG	
7	1.8700	21.06	10.00	31.06	56.00	-24.94	QP	
8	1.8700	15.90	10.00	25.90	46.00	-20.10	AVG	
9	14.9660	19.78	10.90	30.68	60.00	-29.32	QP	
10	14.9660	13.66	10.90	24.56	50.00	-25.44	AVG	
11	15.8340	19.96	10.95	30.91	60.00	-29.09	QP	
12	15.8340	15.42	10.95	26.37	50.00	-23.63	AVG	

Conducted Emission

EUT: 349766
 Op Cond: WIFI On
 Test Spec: N
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	42.37	9.80	52.17	65.99	-13.82	QP	
2	0.1500	24.57	9.80	34.37	55.99	-21.62	AVG	
3	0.2100	37.62	9.84	47.46	63.20	-15.74	QP	
4	0.2100	25.31	9.84	35.15	53.20	-18.05	AVG	
5	0.2460	28.94	9.85	38.79	61.89	-23.10	QP	
6	0.2460	13.80	9.85	23.65	51.89	-28.24	AVG	
7	1.7940	20.65	10.00	30.65	56.00	-25.35	QP	
8	1.7940	15.73	10.00	25.73	46.00	-20.27	AVG	
9	15.5100	21.14	10.93	32.07	60.00	-27.93	QP	
10	15.5100	15.97	10.93	26.90	50.00	-23.10	AVG	

7.2 Conducted peak output power

Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

Limits for conducted peak output power measurements

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

Conducted peak output power

WIFI Mode IEEE 802.11b modulation (1Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	15.78	Pass
CH6 2437MHz	15.29	Pass
CH11 2462MHz	15.00	Pass

WIFI Mode IEEE 802.11g modulation (6Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	18.36	Pass
CH6 2437MHz	17.91	Pass
CH11 2462MHz	16.31	Pass

WIFI Mode IEEE 802.11n HT20 modulation (6.5Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	18.71	Pass
CH6 2437MHz	17.57	Pass
CH11 2462MHz	16.54	Pass

7.3 Band edge compliance of RF emissions

Test Method

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW and VBW to 1MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW and VBW to 100kHz, to measure the conducted peak band edge.

Limits

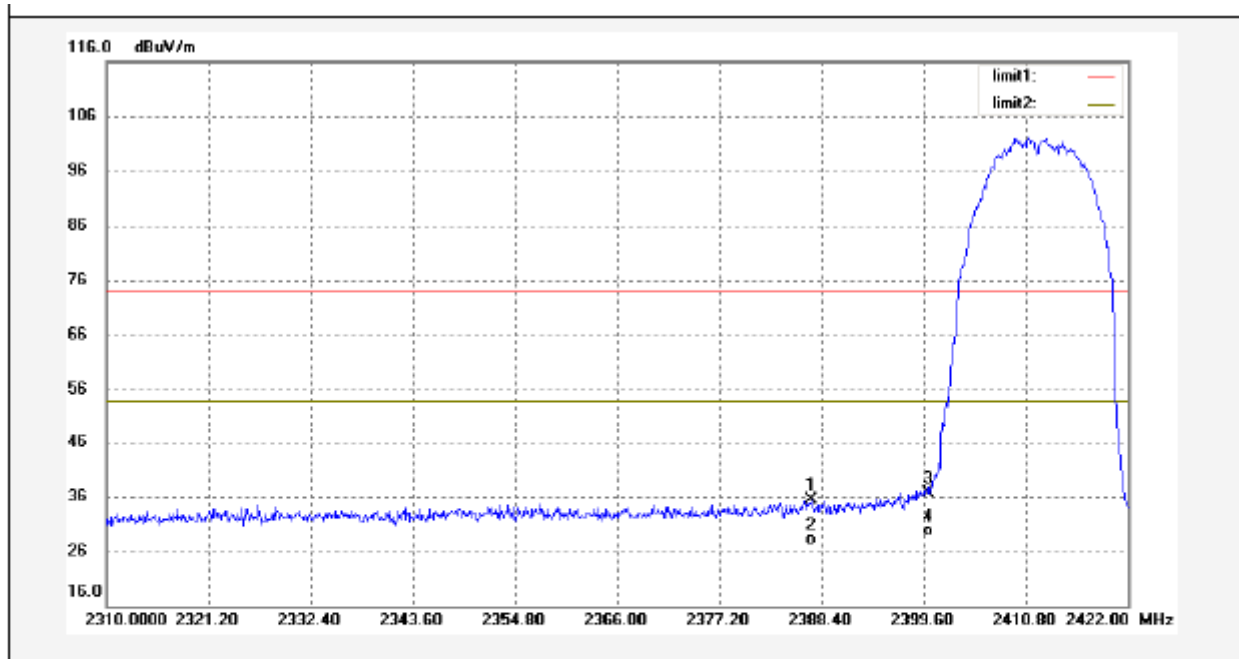
According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Frequency MHz	Limit Average dBuV/m	Limit Peak dBuV/m
Below 2390 Above 2483.5	54	74

Band edge compliance of RF emissions

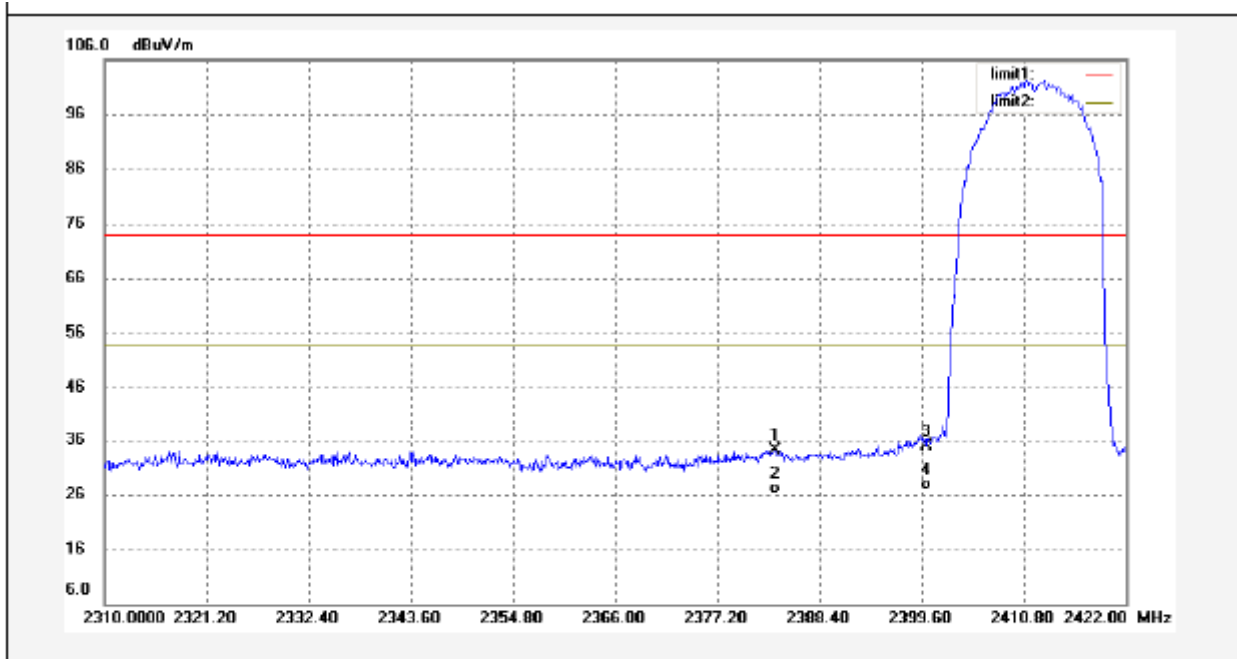
WIFI Mode IEEE 802.11b modulation (1 Mbps) Test Result

Low Edge Horizontal plot:



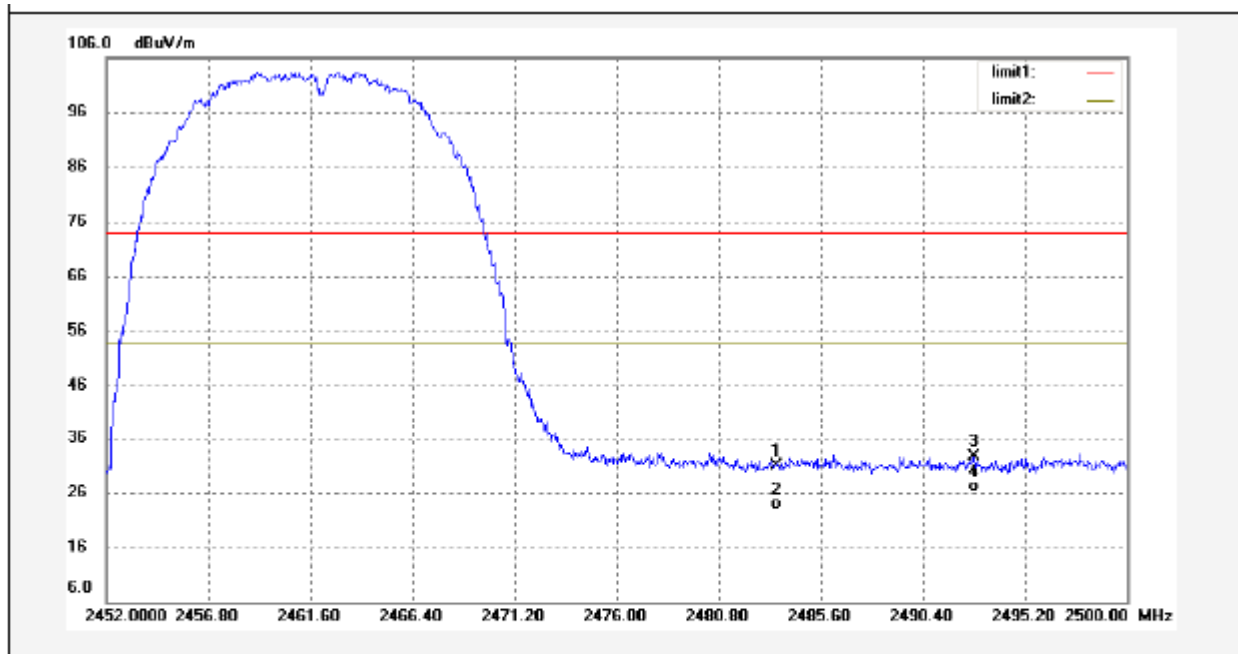
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2387.280	50.83	-15.54	35.29	74.00	-38.71	peak	
2	2387.280	42.56	-15.54	27.02	54.00	-26.98	AVG	
3	2400.000	52.20	-15.58	36.62	74.00	-37.38	peak	
4	2400.000	44.26	-15.58	28.68	54.00	-25.32	AVG	

Low Edge Vertical plot:



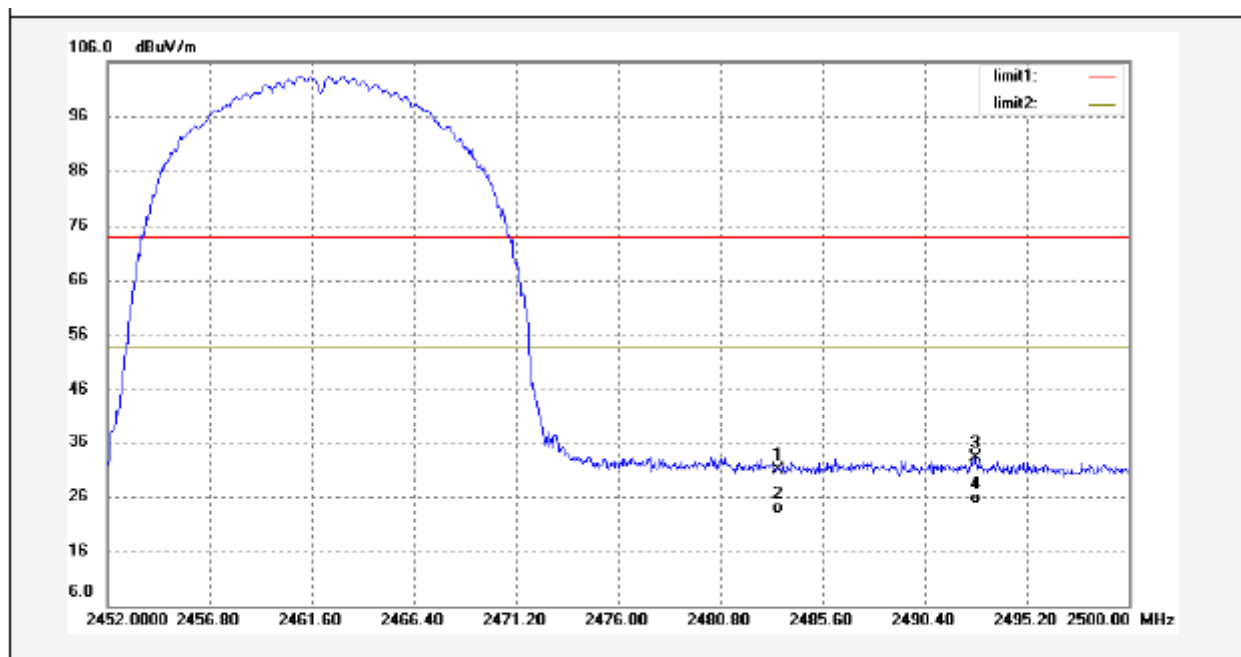
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2383.472	49.76	-15.53	34.23	74.00	-39.77	peak	
2	2383.472	41.78	-15.53	26.25	54.00	-27.75	AVG	
3	2400.000	50.53	-15.58	34.95	74.00	-39.05	peak	
4	2400.000	42.56	-15.58	26.98	54.00	-27.02	AVG	

High Edge Horizontal plot:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	46.47	-15.67	30.80	74.00	-43.20	peak	
2	2483.500	38.54	-15.67	22.87	54.00	-31.13	AVG	
3	2492.800	48.40	-15.66	32.74	74.00	-41.26	peak	
4	2492.800	41.74	-15.66	26.08	54.00	-27.92	AVG	

High Edge Vertical plot:

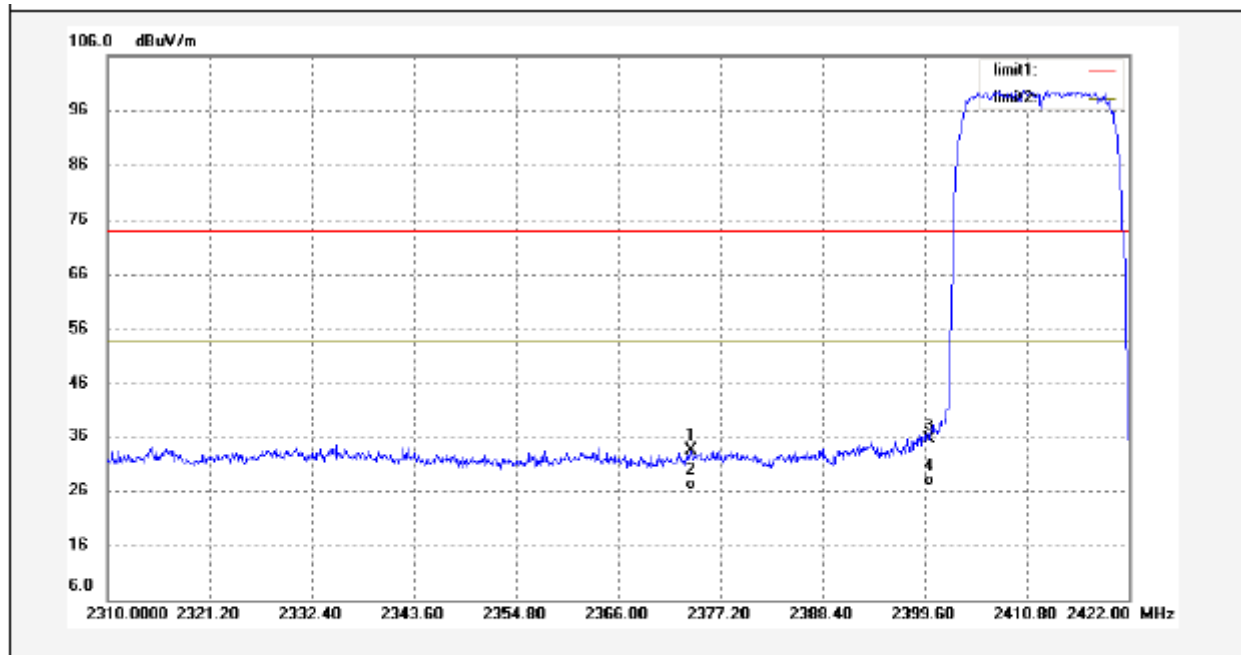


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	46.47	-15.67	30.80	74.00	-43.20	peak	
2	2483.500	38.56	-15.67	22.89	54.00	-31.11	AVG	
3	2492.800	48.90	-15.66	33.24	74.00	-40.76	peak	
4	2492.800	40.25	-15.66	24.59	54.00	-29.41	AVG	

Band edge compliance of RF emissions

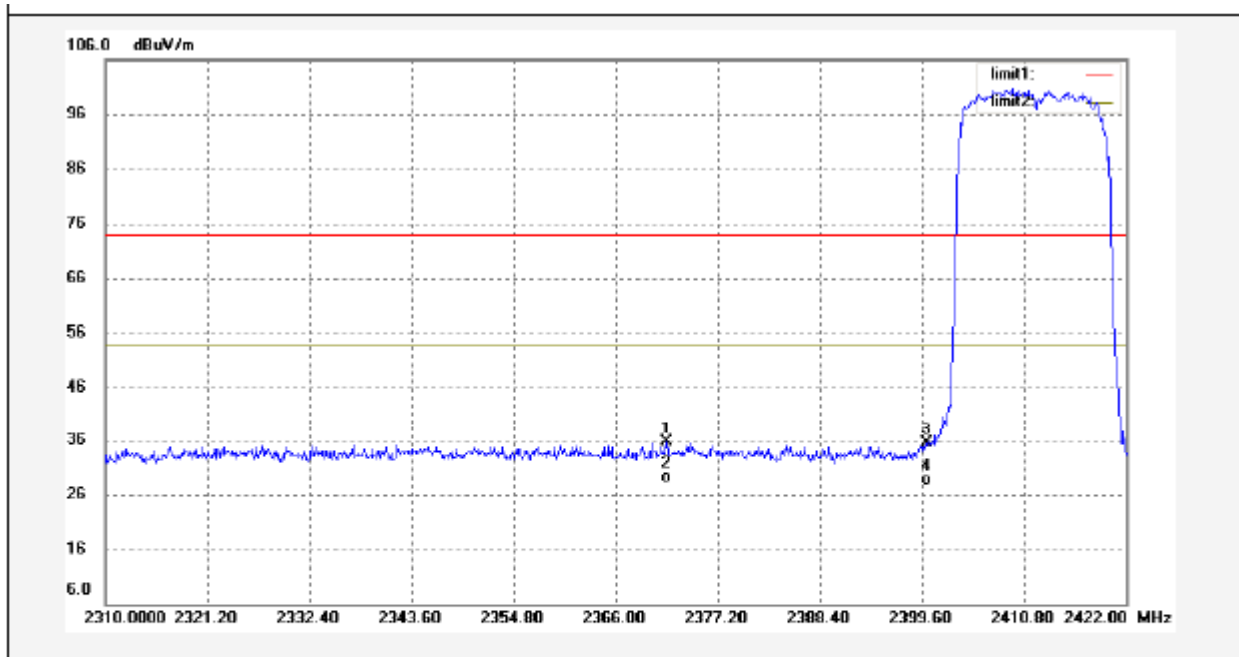
WIFI Mode IEEE 802.11g modulation (6 Mbps) Test Result

Low Edge Horizontal plot:



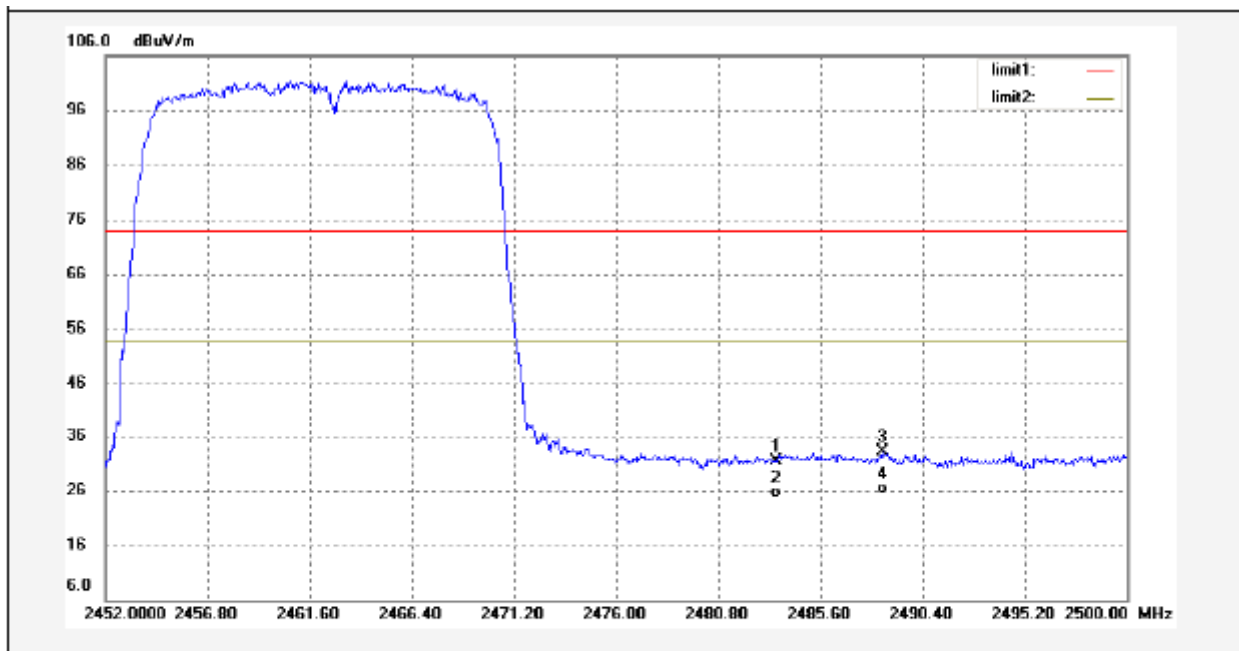
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2373.952	48.94	-15.50	33.44	74.00	-40.56	peak	
2	2373.952	41.59	-15.50	26.09	54.00	-27.91	AVG	
3	2400.000	50.94	-15.58	35.36	74.00	-38.64	peak	
4	2400.000	42.57	-15.58	26.99	54.00	-27.01	AVG	

Low Edge Vertical plot:



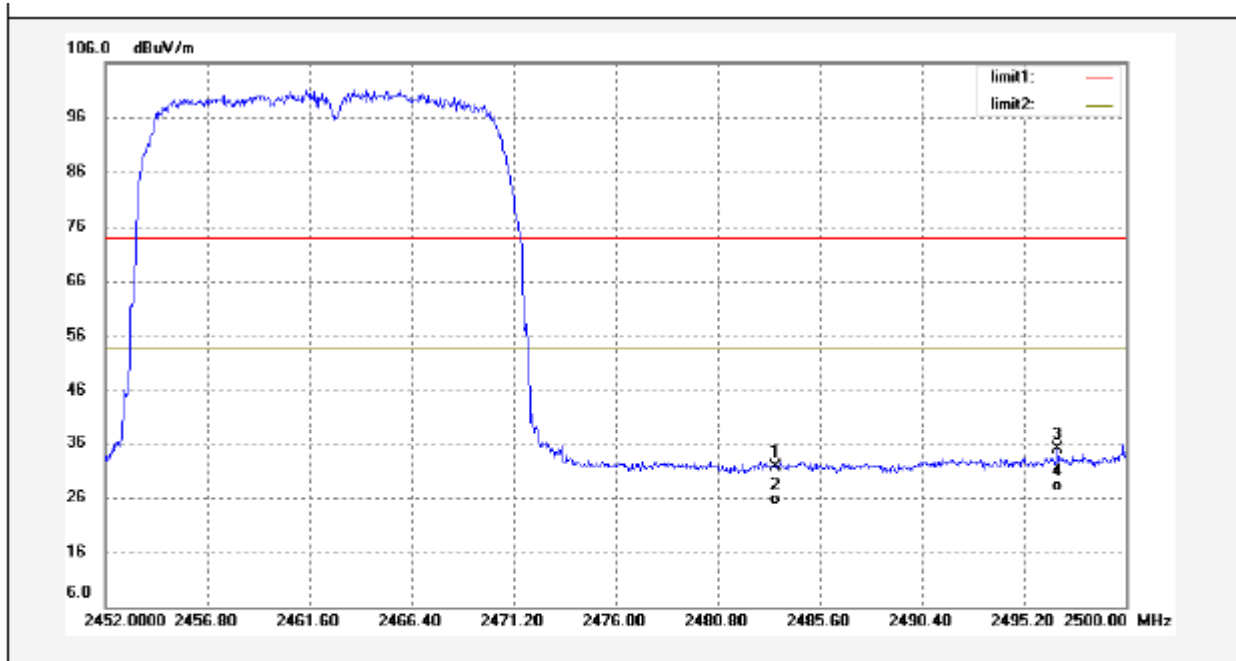
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2371.600	51.18	-15.50	35.68	74.00	-38.32	peak	
2	2371.600	43.57	-15.50	28.07	54.00	-25.93	AVG	
3	2400.000	51.00	-15.58	35.42	74.00	-38.58	peak	
4	2400.000	43.26	-15.58	27.68	54.00	-26.32	AVG	

High Edge Horizontal plot:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	47.12	-15.67	31.45	74.00	-42.55	peak	
2	2483.500	40.21	-15.67	24.54	54.00	-29.46	AVG	
3	2488.480	48.80	-15.67	33.13	74.00	-40.87	peak	
4	2488.480	41.02	-15.67	25.35	54.00	-28.65	AVG	

High Edge Vertical plot:

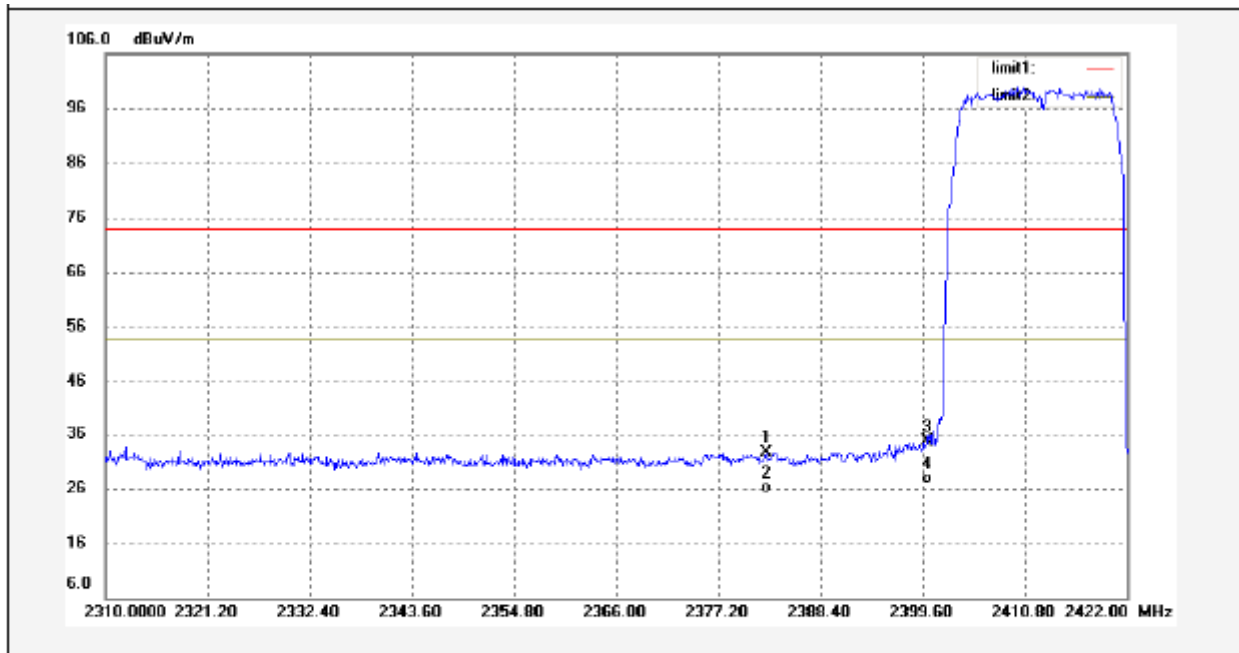


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	47.29	-15.67	31.62	74.00	-42.38	peak	
2	2483.500	40.25	-15.67	24.58	54.00	-29.42	AVG	
3	2496.784	50.58	-15.66	34.92	74.00	-39.08	peak	
4	2496.784	42.87	-15.66	27.21	54.00	-26.79	AVG	

Band edge compliance of RF emissions

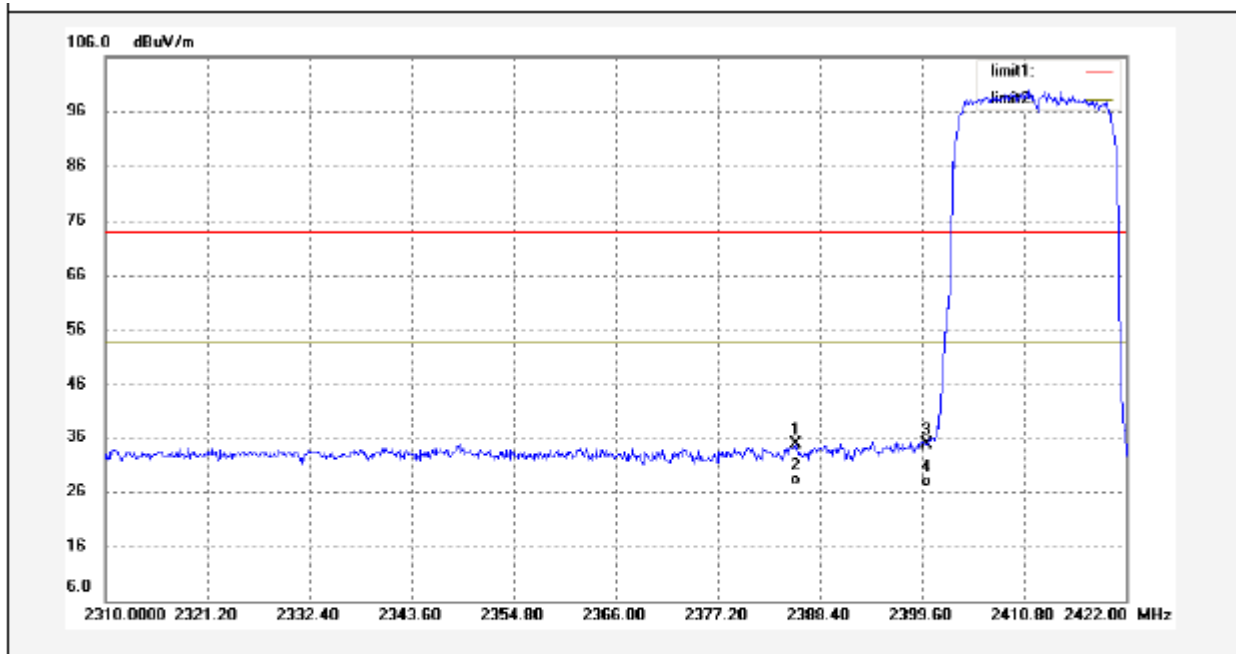
WIFI Mode IEEE 802.11n HT20 modulation (6.5Mbps) Test Result

Low Edge Horizontal plot:



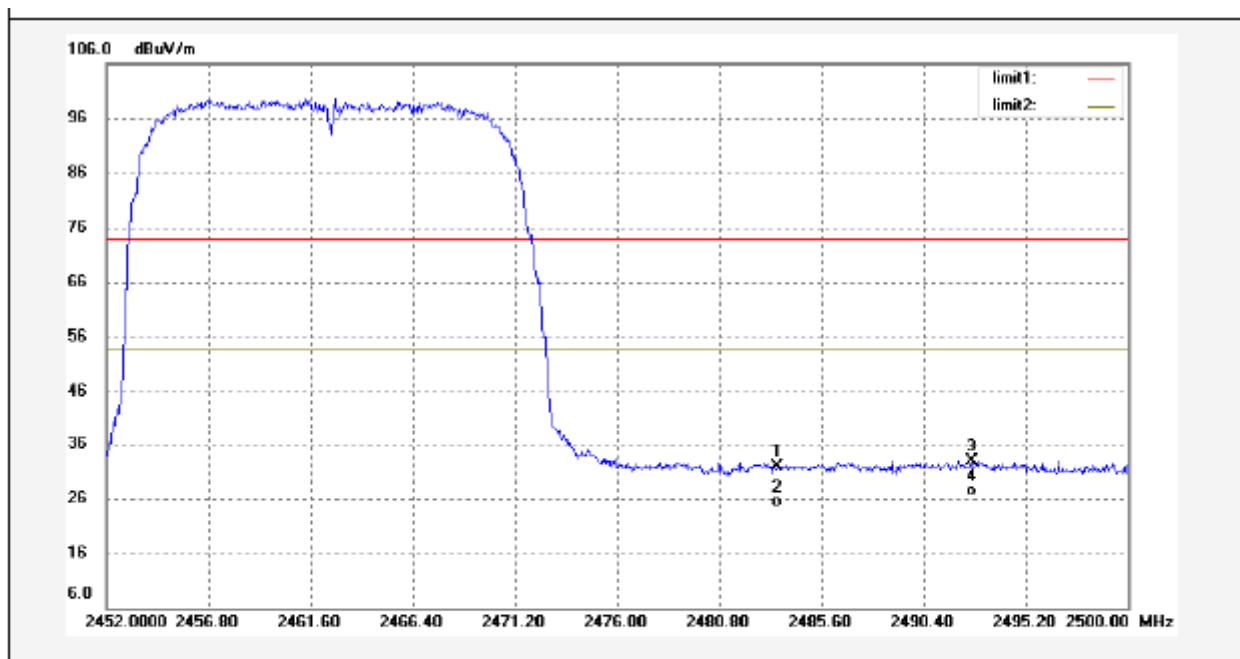
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2382.464	48.23	-15.52	32.71	74.00	-41.29	peak	
2	2382.464	40.74	-15.52	25.22	54.00	-28.78	AVG	
3	2400.000	50.19	-15.58	34.61	74.00	-39.39	peak	
4	2400.000	42.56	-15.58	26.98	54.00	-27.02	AVG	

Low Edge Vertical plot:



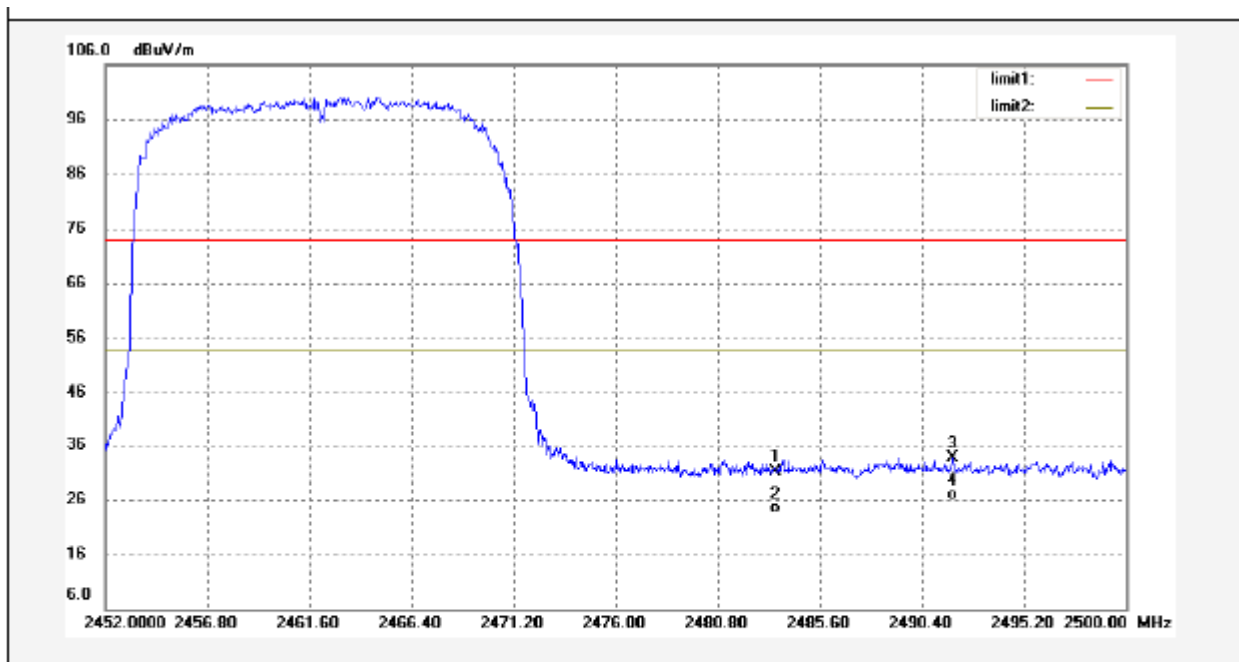
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2385.712	50.20	-15.53	34.67	74.00	-39.33	peak	
2	2385.712	42.78	-15.53	27.25	54.00	-26.75	AVG	
3	2400.000	50.10	-15.58	34.52	74.00	-39.48	peak	
4	2400.000	42.56	-15.58	26.98	54.00	-27.02	AVG	

High Edge Horizontal plot:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	47.59	-15.67	31.92	74.00	-42.08	peak	
2	2483.500	40.15	-15.67	24.48	54.00	-29.52	AVG	
3	2492.656	48.63	-15.66	32.97	74.00	-41.03	peak	
4	2492.656	42.01	-15.66	26.35	54.00	-27.65	AVG	

High Edge Vertical plot:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	46.85	-15.67	31.18	74.00	-42.82	peak	
2	2483.500	39.15	-15.67	23.48	54.00	-30.52	AVG	
3	2491.840	49.29	-15.66	33.63	74.00	-40.37	peak	
4	2491.840	41.56	-15.66	25.90	54.00	-28.10	AVG	



7.4 Spurious RF conducted emissions

Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

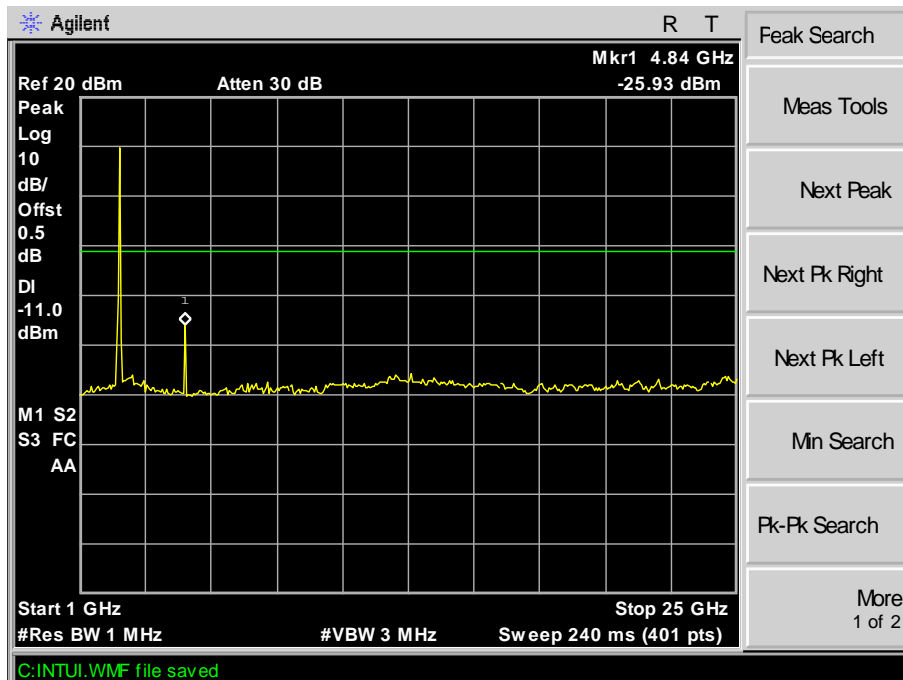
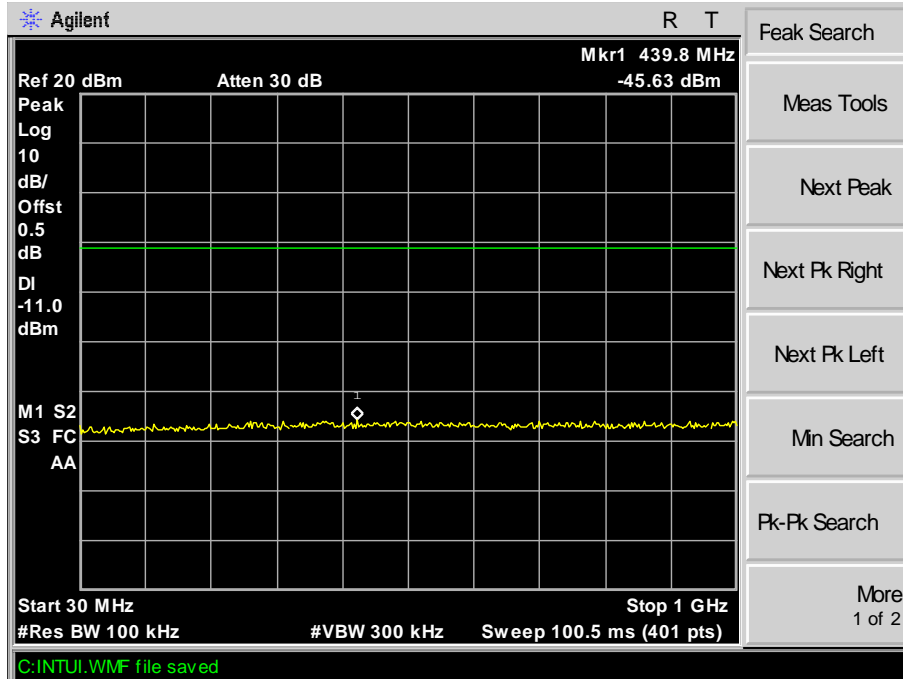
The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyzer were respectively set to 100 kHz and 100 kHz.

Limit

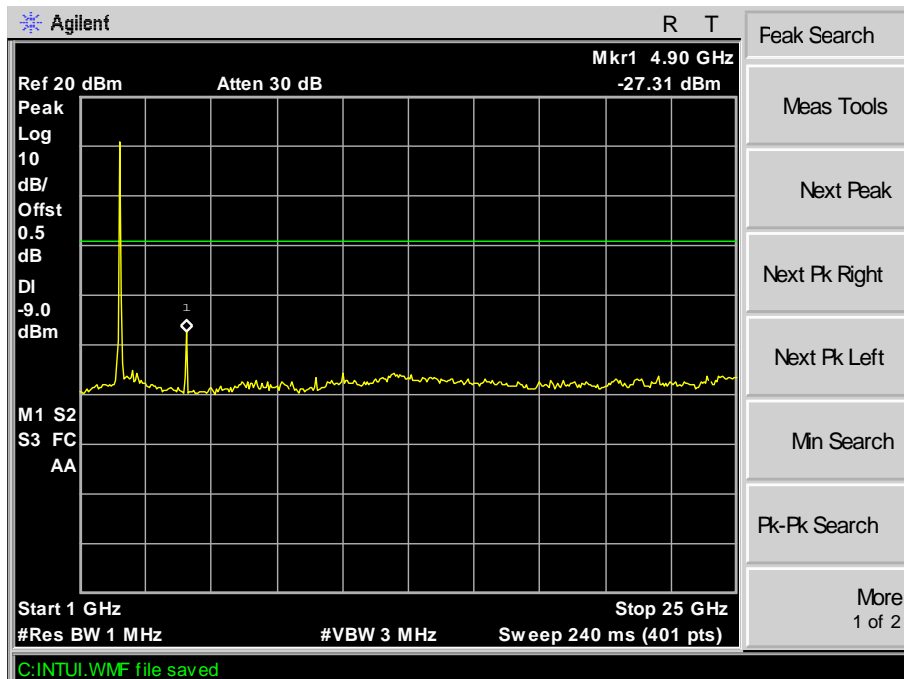
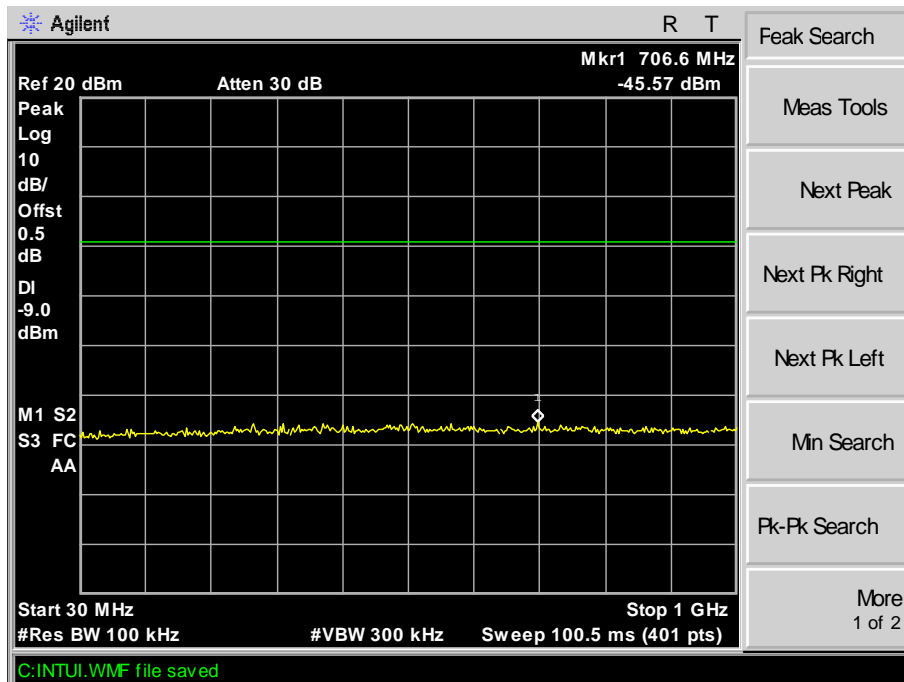
Frequency Range MHz	Limit (dBc)
1000-25000	-20

Spurious RF conducted emissions

WIFI Mode IEEE 802.11b modulation (1 Mbps) Test Result
2412MHz

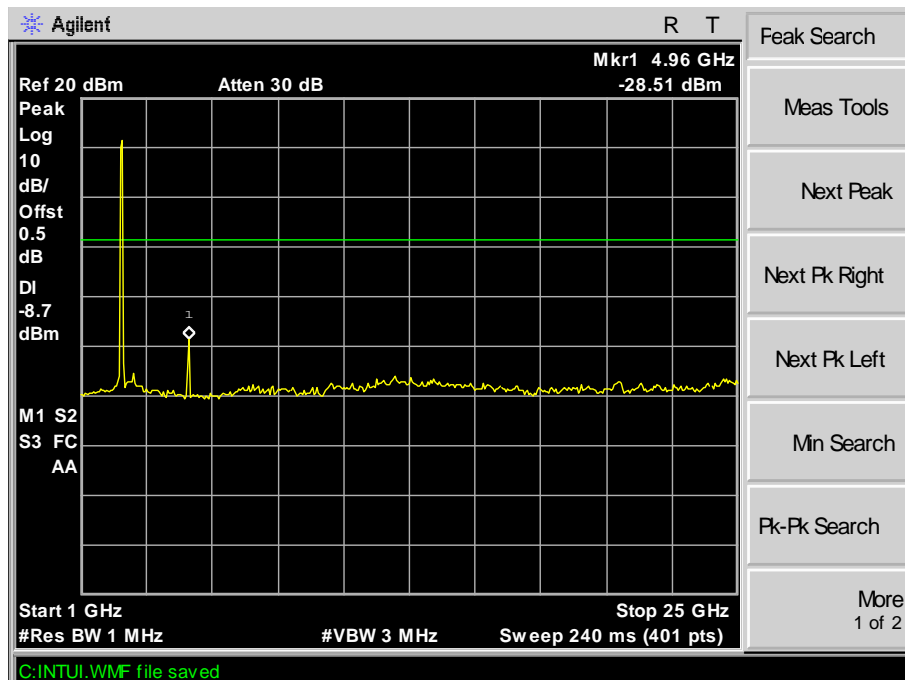
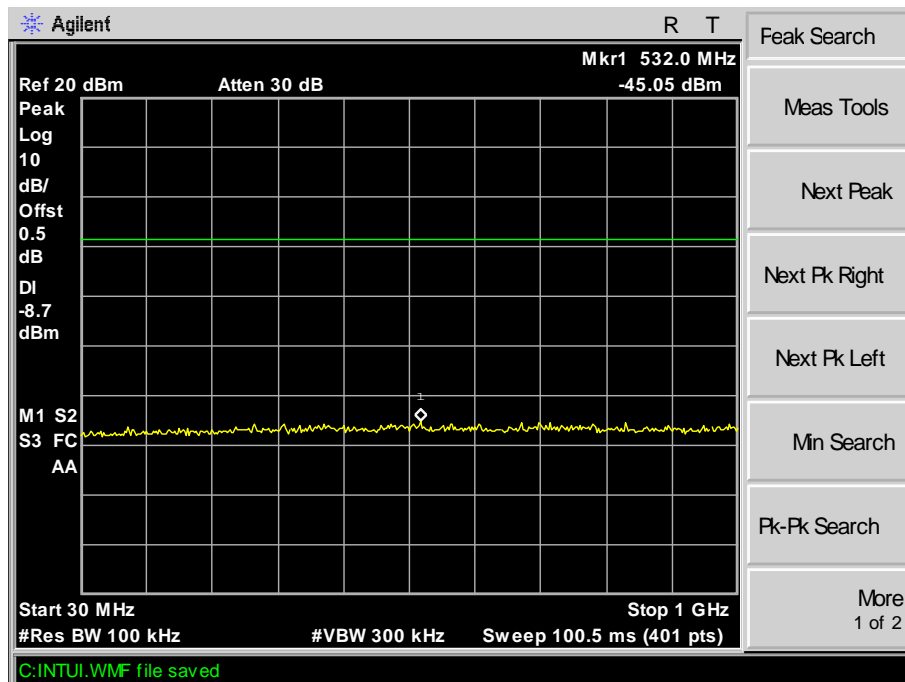


2437MHz



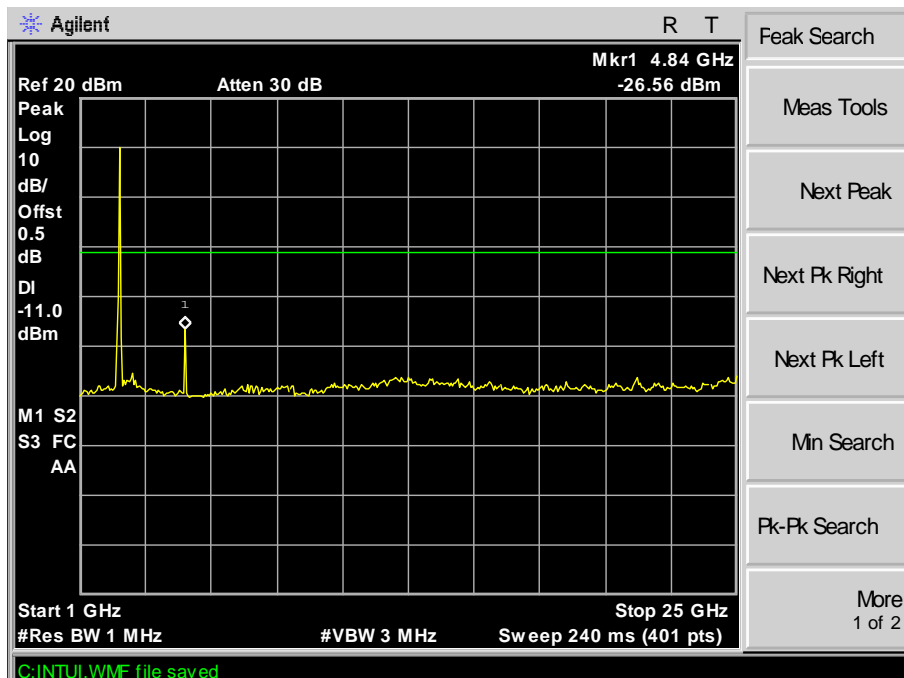
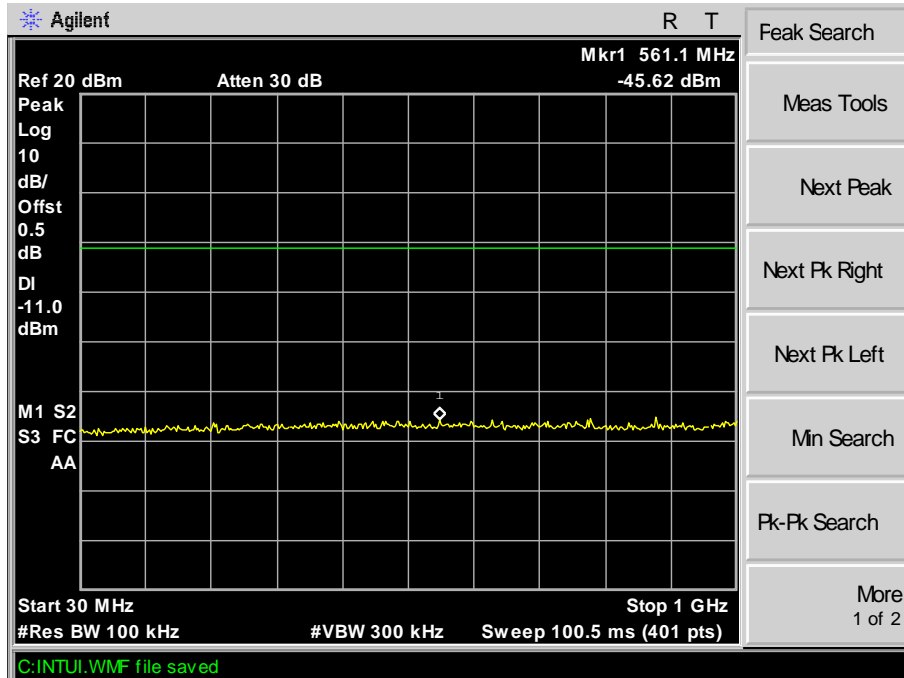
Spurious RF conducted emissions

2462MHz



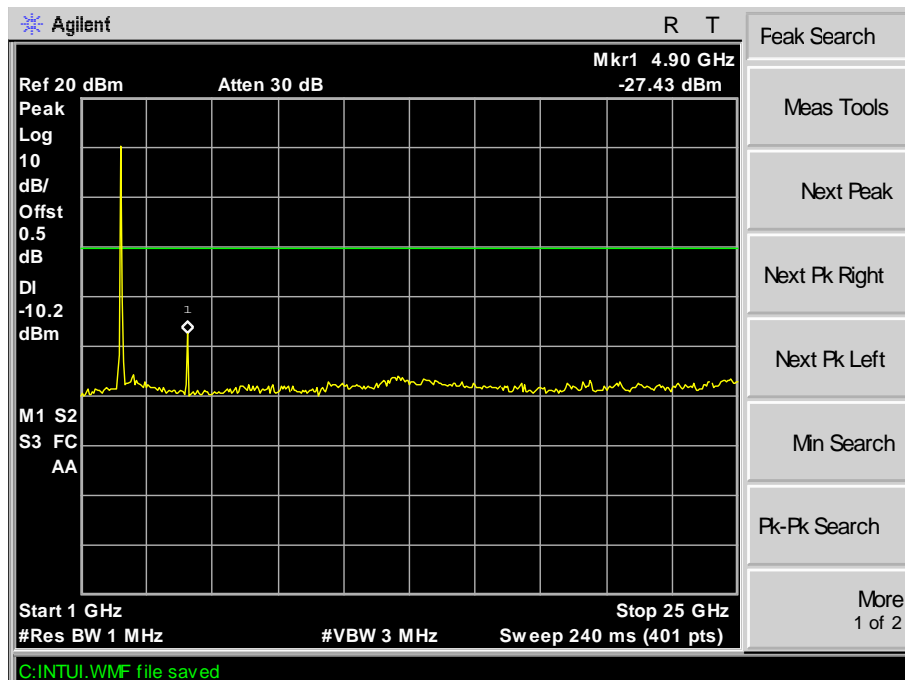
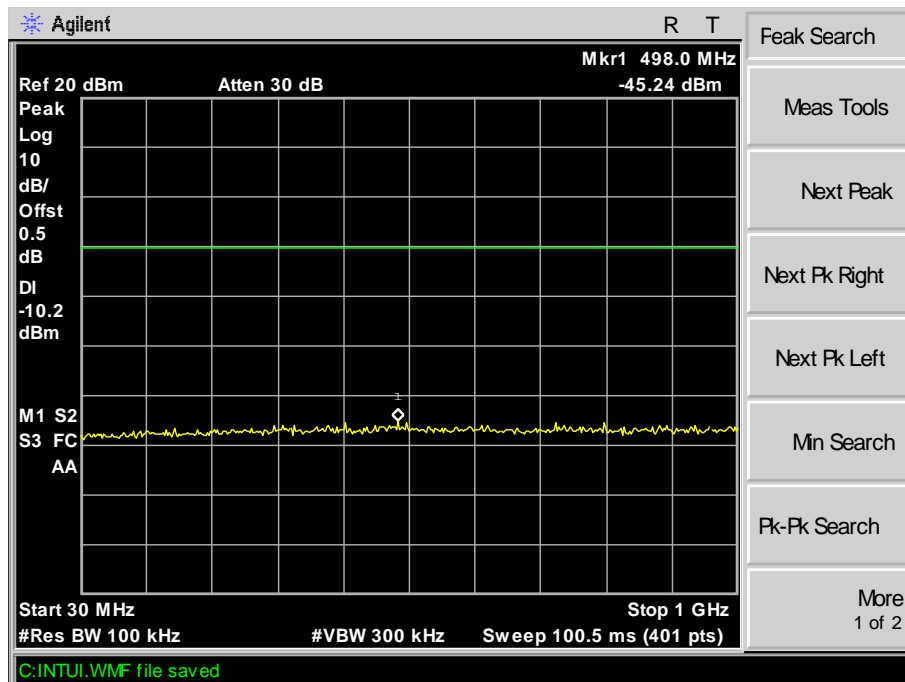
Spurious RF conducted emissions

WIFI Mode IEEE 802.11g modulation (6 Mbps) Test Result
2412MHz



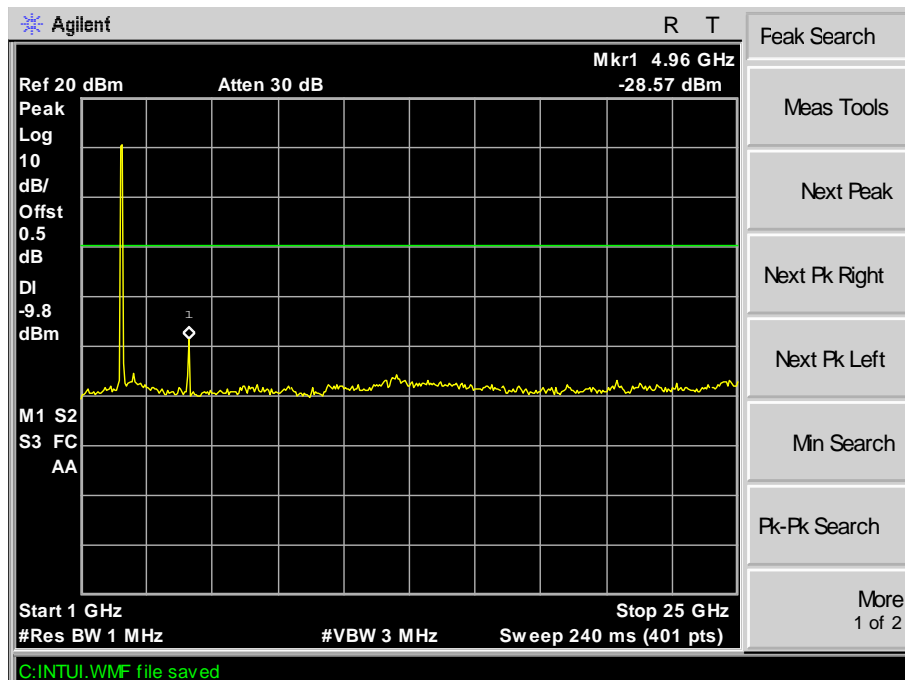
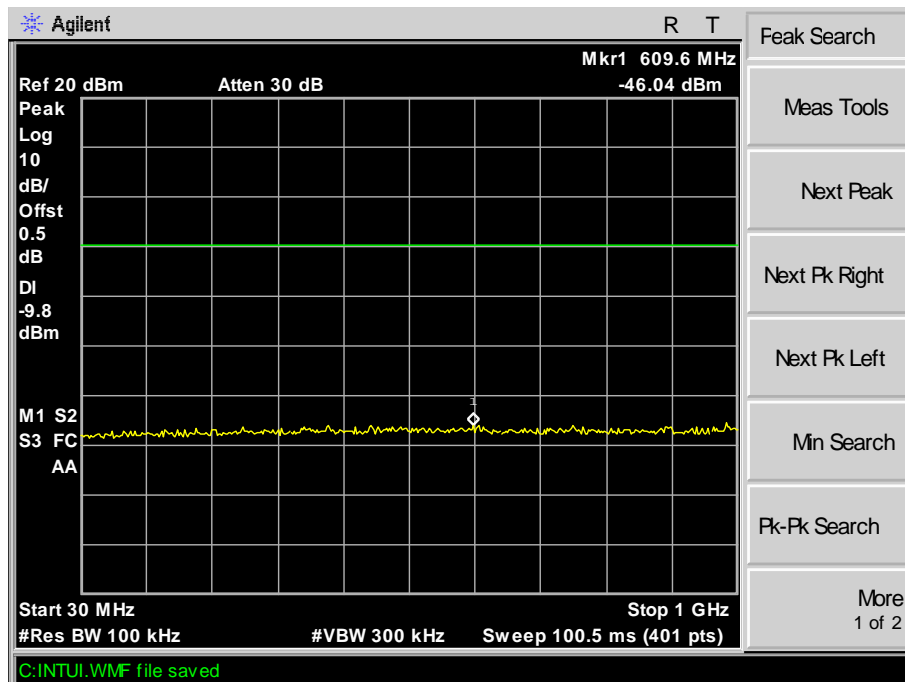
Spurious RF conducted emissions

2437MHz



Spurious RF conducted emissions

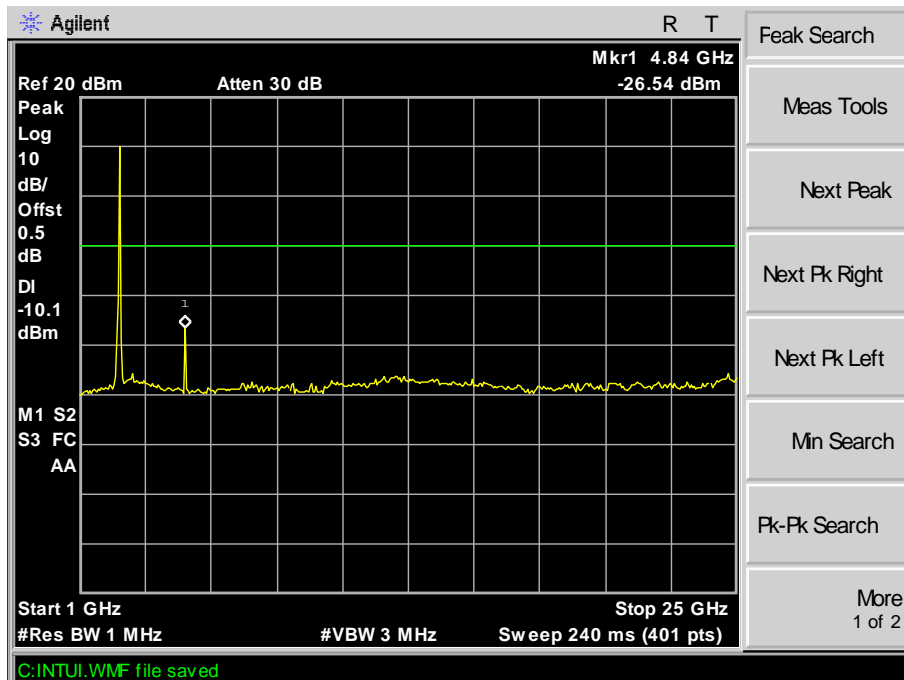
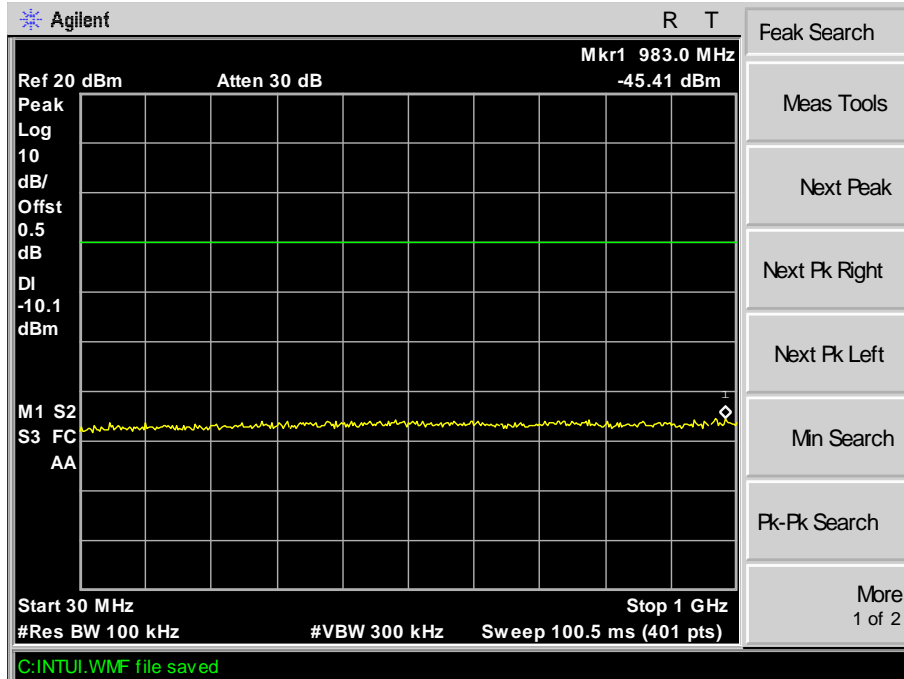
2462MHz





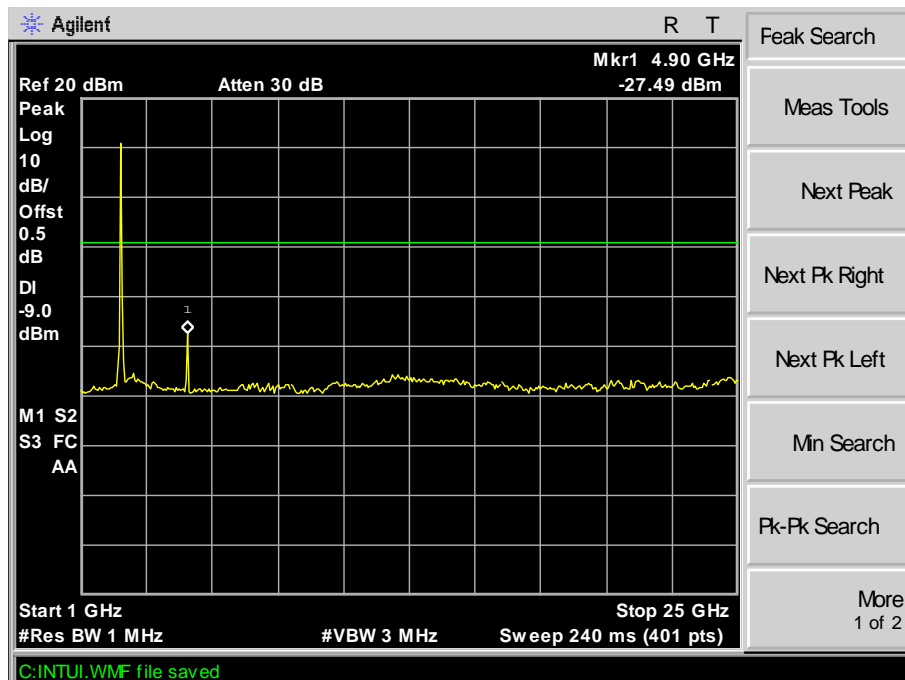
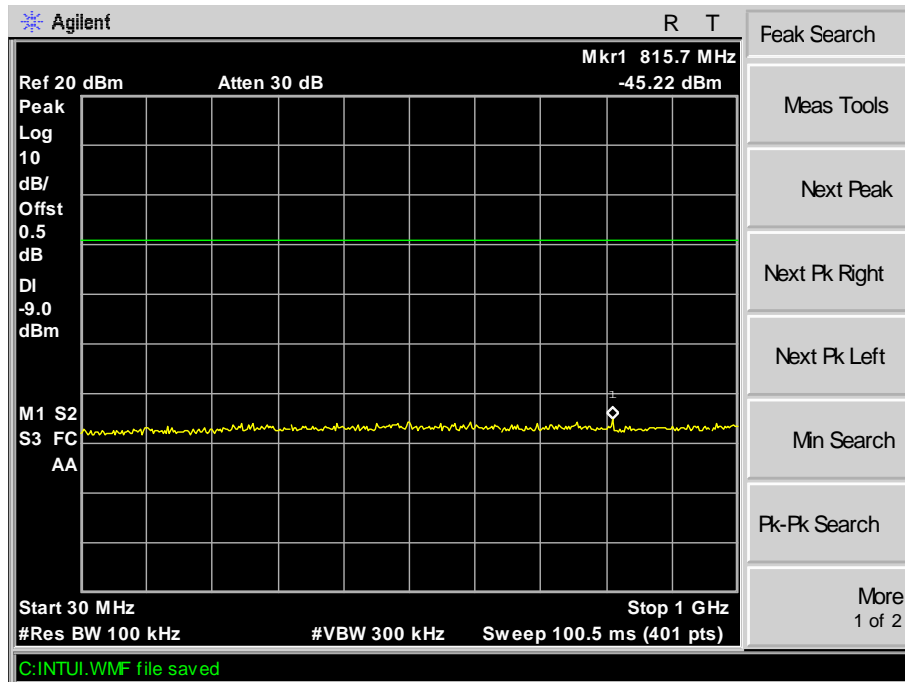
Spurious RF conducted emissions

WIFI Mode IEEE 802.11n HT20 modulation (6.5 Mbps) Test Result
2412MHz



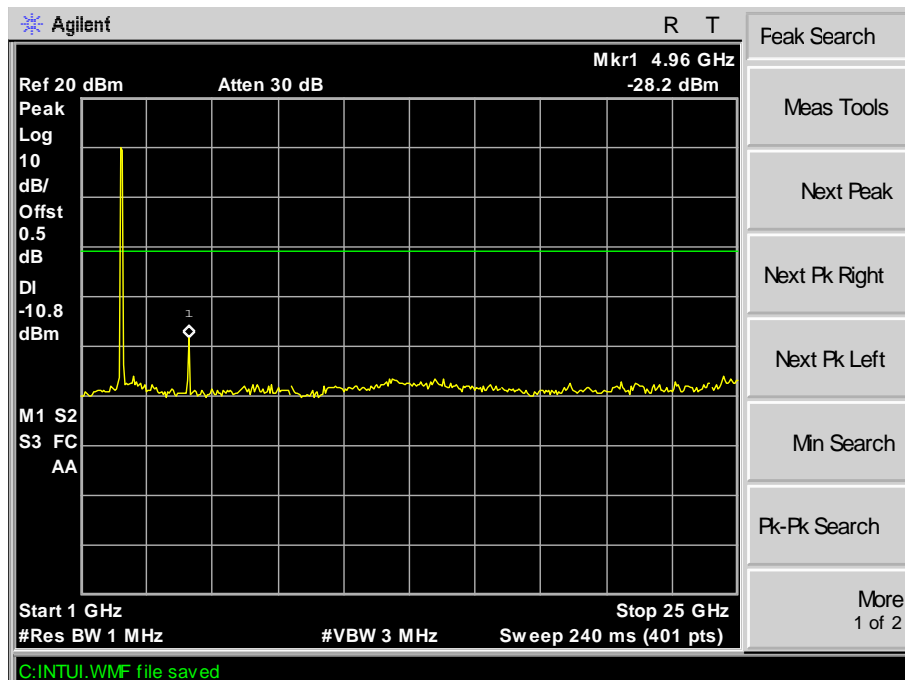
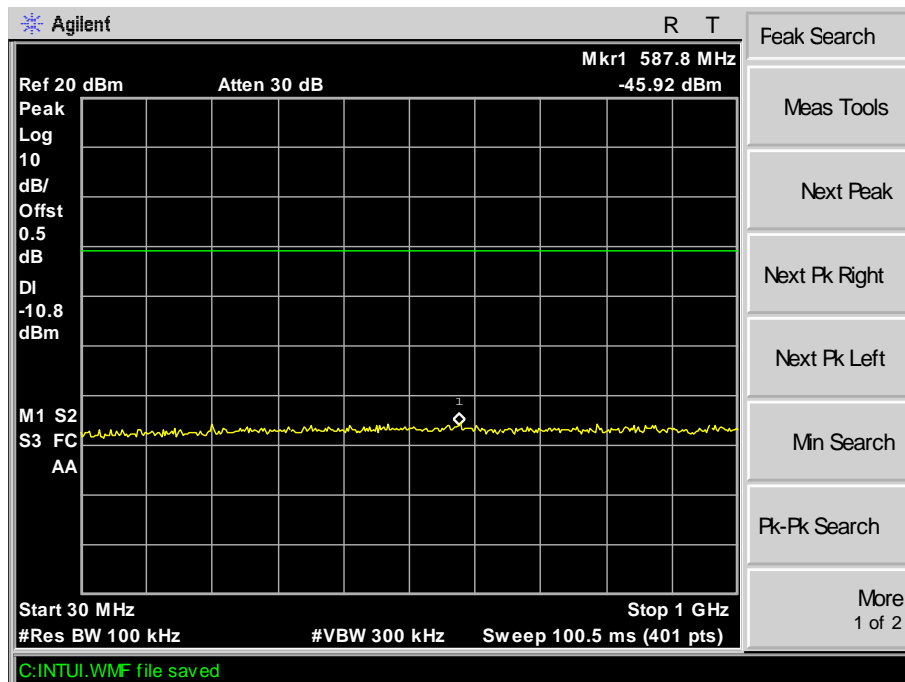
Spurious RF conducted emissions

2437MHz



Spurious RF conducted emissions

2462MHz



7.5 Spurious radiated emissions for transmitter and receiver

Test Method

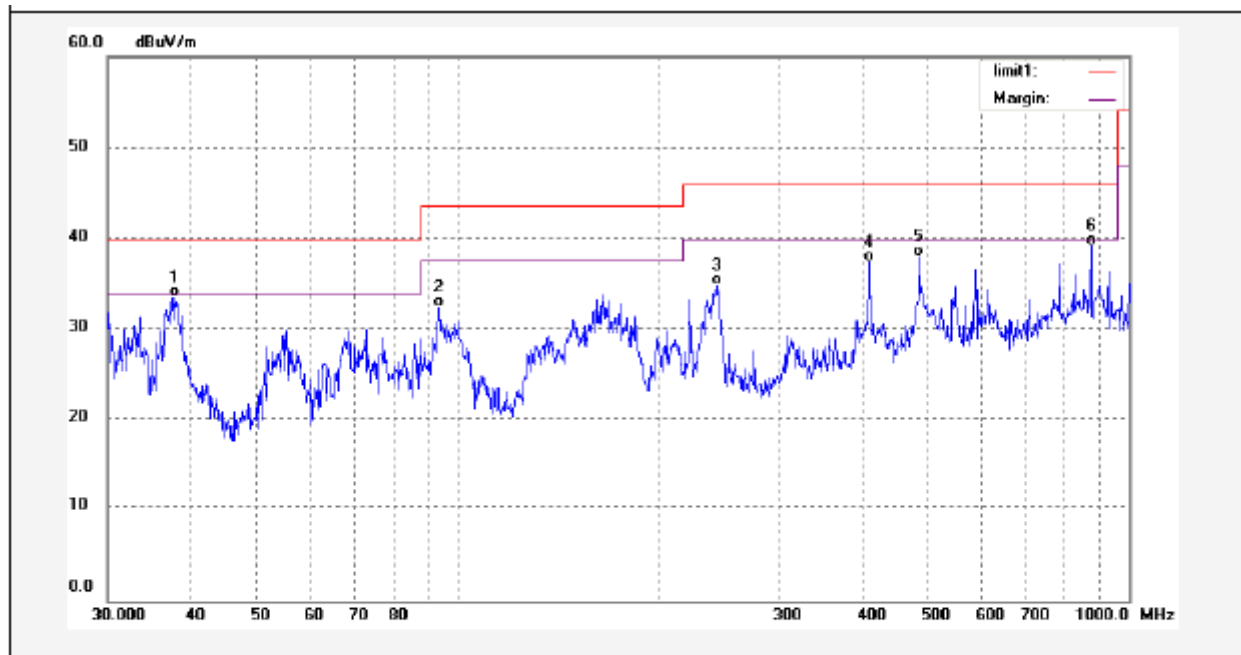
- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

Limit

Frequency MHz	Field Strength uV/m	Field Strength dB μ V/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

Transmitter Spurious radiated emissions

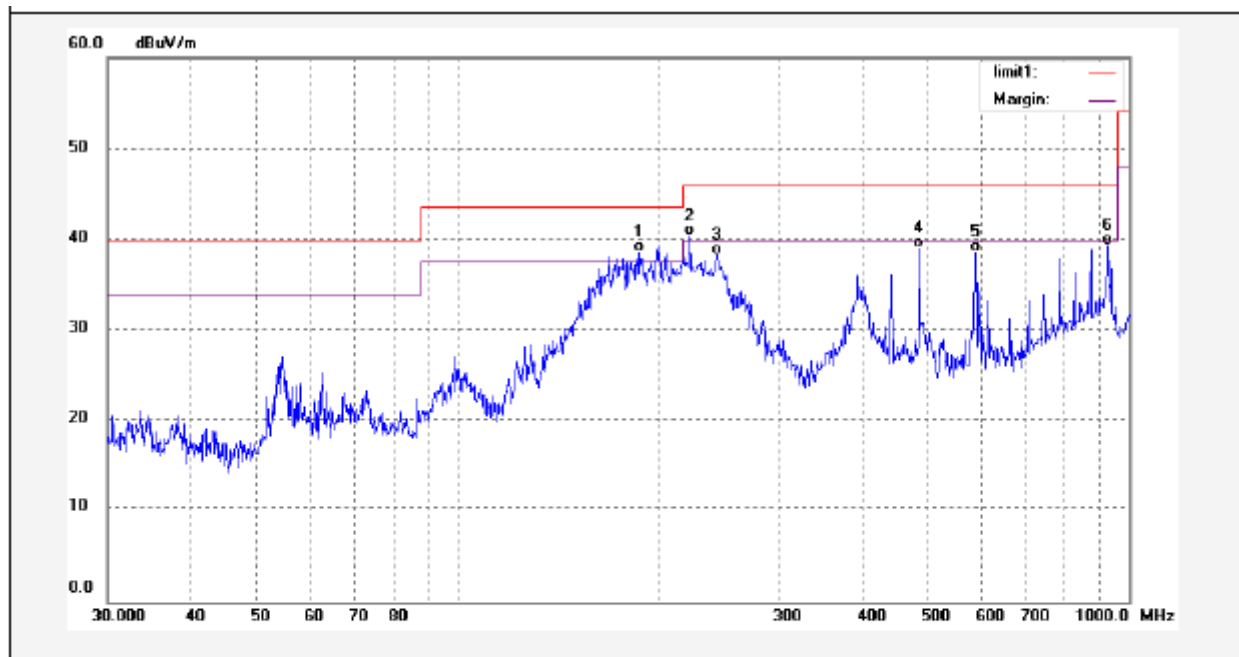
EUT: 349766
 Op Cond: 802.11n HT20 Low Channel
 Test Spec: Horizontal
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	37.8296	16.87	16.71	33.58	40.00	-6.42	QP	
2	93.6532	19.72	12.79	32.51	43.50	-10.99	QP	
3	242.6889	20.20	14.65	34.85	46.00	-11.15	QP	
4	411.0925	16.67	20.76	37.43	46.00	-8.57	QP	
5	486.6135	13.78	24.20	37.98	46.00	-8.02	QP	
6	878.0931	9.37	29.83	39.20	46.00	-6.80	QP	

Transmitter Spurious radiated emissions

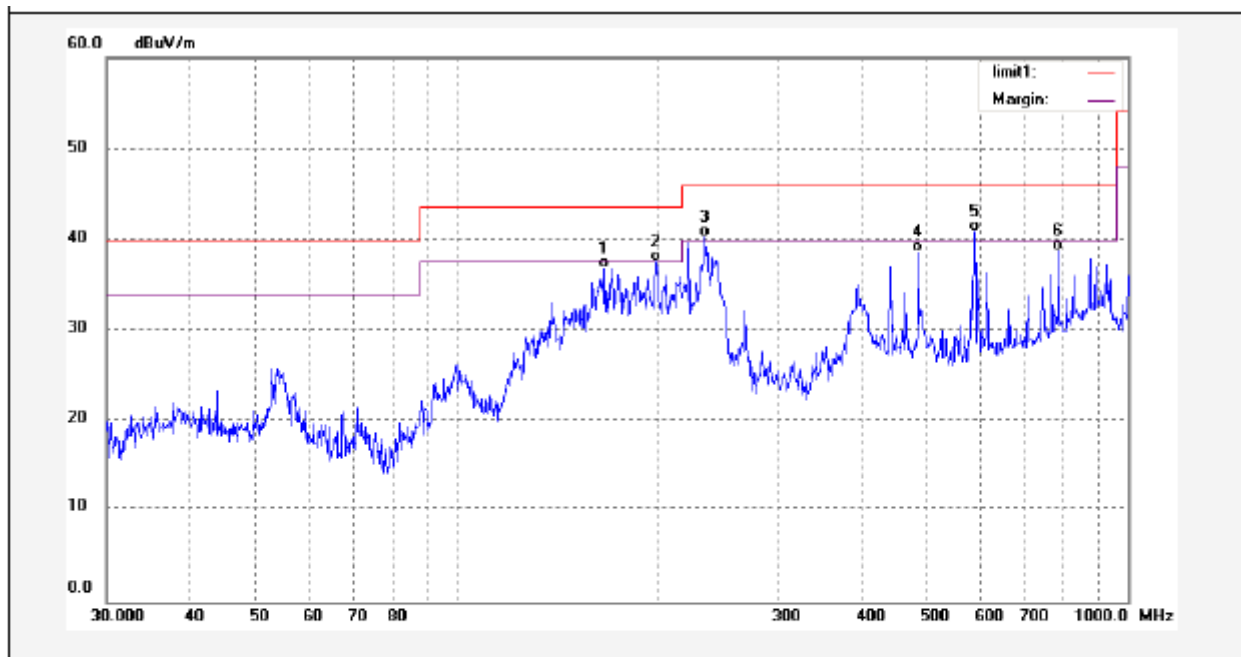
EUT: 349766
 Op Cond: 802.11n HT20 Low Channel
 Test Spec: Vertical
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	185.8143	24.96	13.70	38.66	43.50	-4.84	QP	
2	221.5010	24.85	15.61	40.46	46.00	-5.54	QP	
3	243.5431	23.75	14.58	38.33	46.00	-7.67	QP	
4	486.6135	14.88	24.20	39.08	46.00	-6.92	QP	
5	590.3511	14.22	24.45	38.67	46.00	-7.33	QP	
6	932.1405	7.97	31.36	39.33	46.00	-6.67	QP	

Transmitter Spurious radiated emissions

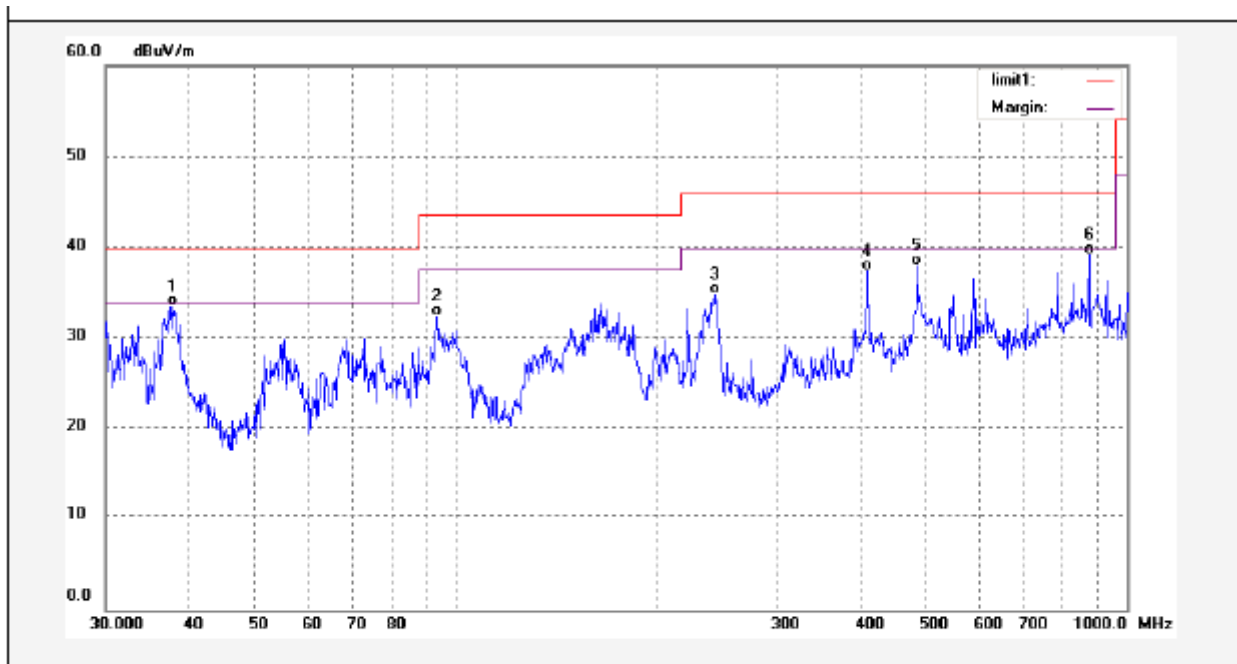
EUT: 349766
 Op Cond: 802.11n HT20 Middle Channel
 Test Spec: Horizontal
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	166.0540	25.03	11.87	36.90	43.50	-6.60	QP	
2	197.9456	22.86	14.68	37.54	43.50	-5.96	QP	
3	234.3099	25.13	15.22	40.35	46.00	-5.65	QP	
4	486.6135	14.44	24.20	38.64	46.00	-7.36	QP	
5	590.3511	16.38	24.45	40.83	46.00	-5.17	QP	
6	787.4748	10.10	28.65	38.75	46.00	-7.25	QP	

Transmitter Spurious radiated emissions

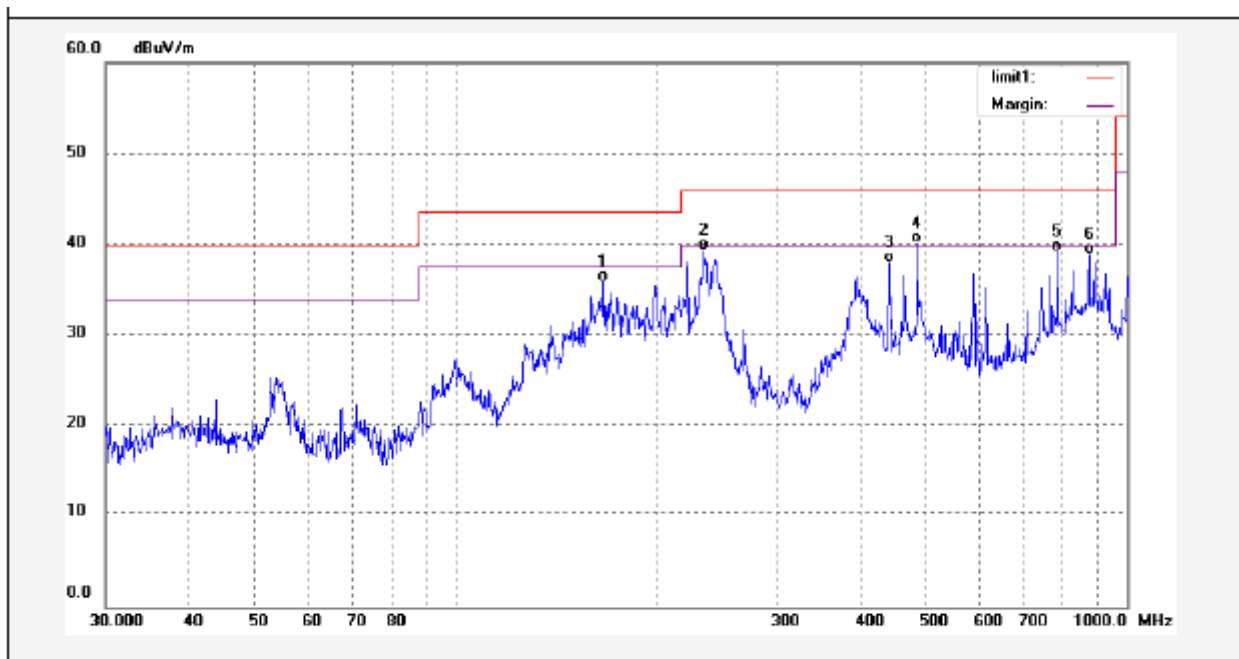
EUT: 349766
 Op Cond: 802.11n HT20 Middle Channel
 Test Spec: Vertical
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	37.8296	16.87	16.71	33.58	40.00	-6.42	QP	
2	93.6532	19.72	12.79	32.51	43.50	-10.99	QP	
3	242.6889	20.20	14.65	34.85	46.00	-11.15	QP	
4	411.0925	16.67	20.76	37.43	46.00	-8.57	QP	
5	486.6135	13.78	24.20	37.98	46.00	-8.02	QP	
6	878.0931	9.37	29.83	39.20	46.00	-6.80	QP	

Transmitter Spurious radiated emissions

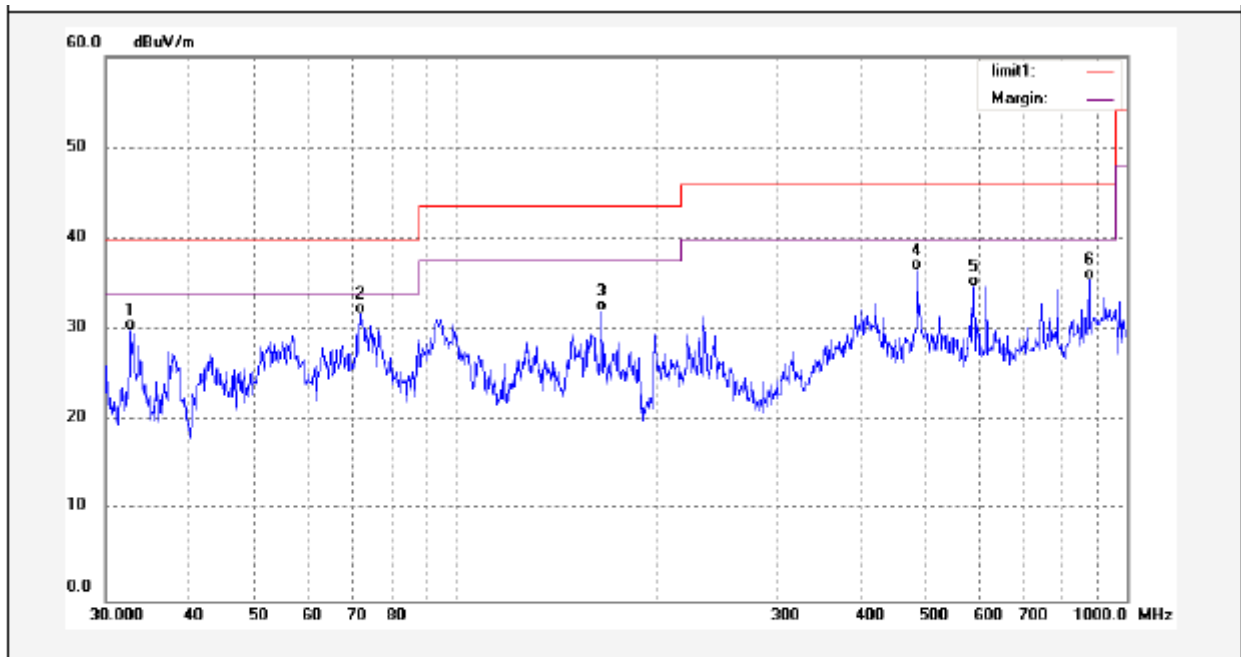
EUT: 349766
 Op Cond: 802.11n HT20 High Channel
 Test Spec: Horizontal
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	166.0540	24.03	11.87	35.90	43.50	-7.60	QP	
2	234.3098	24.13	15.22	39.35	46.00	-6.65	QP	
3	442.5720	18.46	19.52	37.98	46.00	-8.02	QP	
4	486.6134	15.94	24.20	40.14	46.00	-5.86	QP	
5	787.4747	10.60	28.65	39.25	46.00	-6.75	QP	
6	878.0931	9.08	29.83	38.91	46.00	-7.09	QP	

Transmitter Spurious radiated emissions

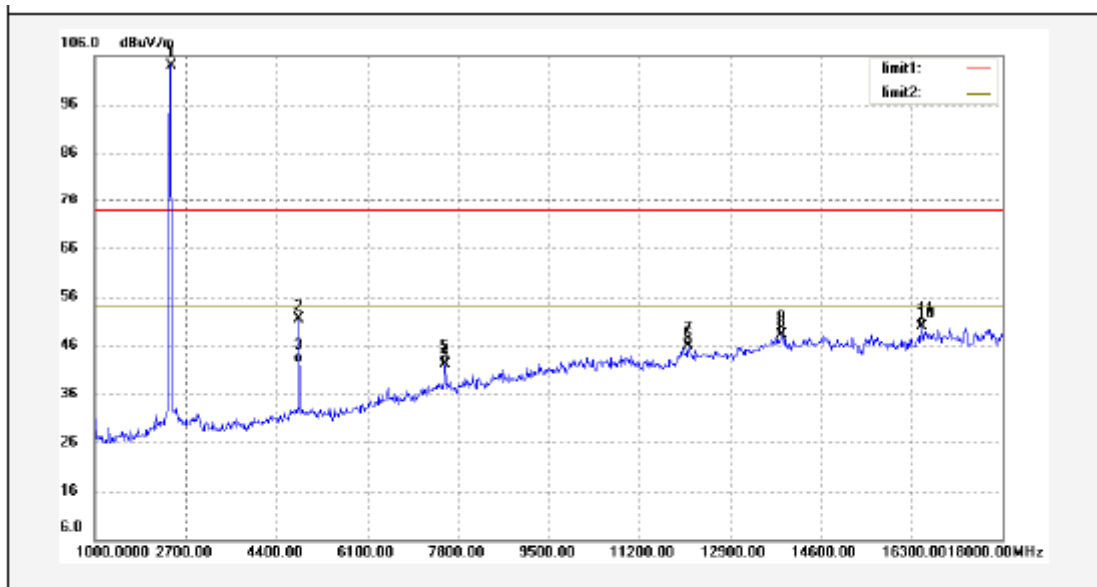
EUT: 349766
 Op Cond: 802.11n HT20 High Channel
 Test Spec: Vertical
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	32.7542	13.31	16.61	29.92	40.00	-10.08	QP	
2	71.9578	22.05	9.68	31.73	40.00	-8.27	QP	
3	164.8911	20.23	11.83	32.06	43.50	-11.44	QP	
4	486.6134	12.37	24.20	36.57	46.00	-9.43	QP	
5	590.3510	10.25	24.45	34.70	46.00	-11.30	QP	
6	878.0931	5.68	29.83	35.51	46.00	-10.49	QP	

Transmitter Spurious radiated emissions

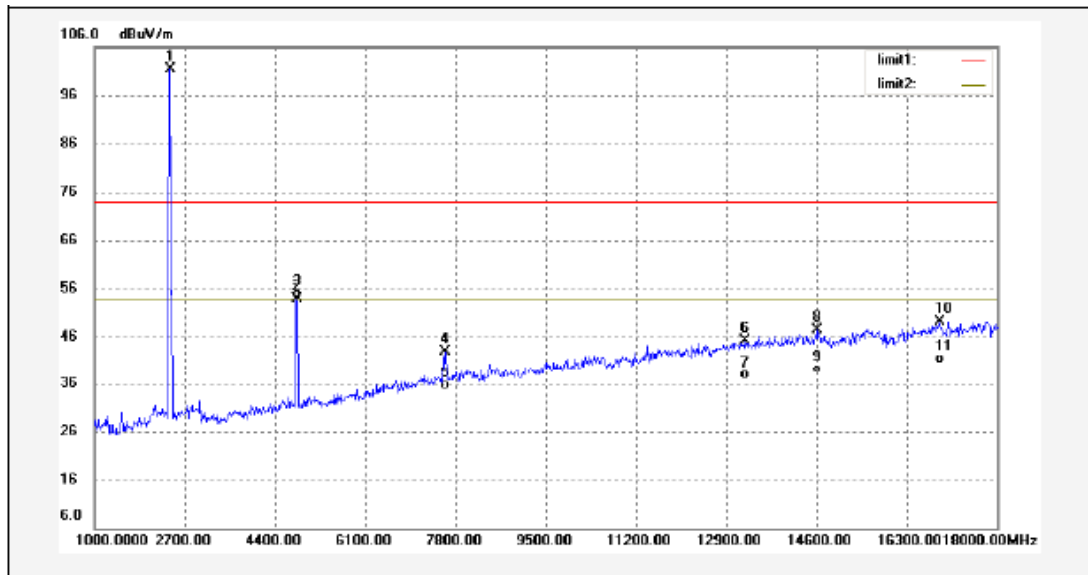
EUT: 349766
 Op Cond: 802.11b Low Channel
 Test Spec: Horizontal
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2412.000	119.50	-15.61	103.89	74.00	29.89	peak	
2	4824.000	63.31	-11.96	51.35	74.00	-22.65	peak	
3	4824.000	54.23	-11.96	42.27	54.00	-11.73	AVG	
4	7562.000	48.96	-8.86	42.10	74.00	-31.90	peak	
5	7562.000	48.96	-8.86	42.10	54.00	-11.90	AVG	
6	12118.000	50.29	-4.39	45.90	74.00	-28.10	peak	
7	12118.000	50.29	-4.39	45.90	54.00	-8.10	AVG	
8	13869.000	49.45	-1.22	48.23	74.00	-25.77	peak	
9	13869.000	49.45	-1.22	48.23	54.00	-5.77	AVG	
10	16487.000	51.82	-2.02	49.80	74.00	-24.20	peak	
11	16487.000	51.82	-2.02	49.80	54.00	-4.20	AVG	

Transmitter Spurious radiated emissions

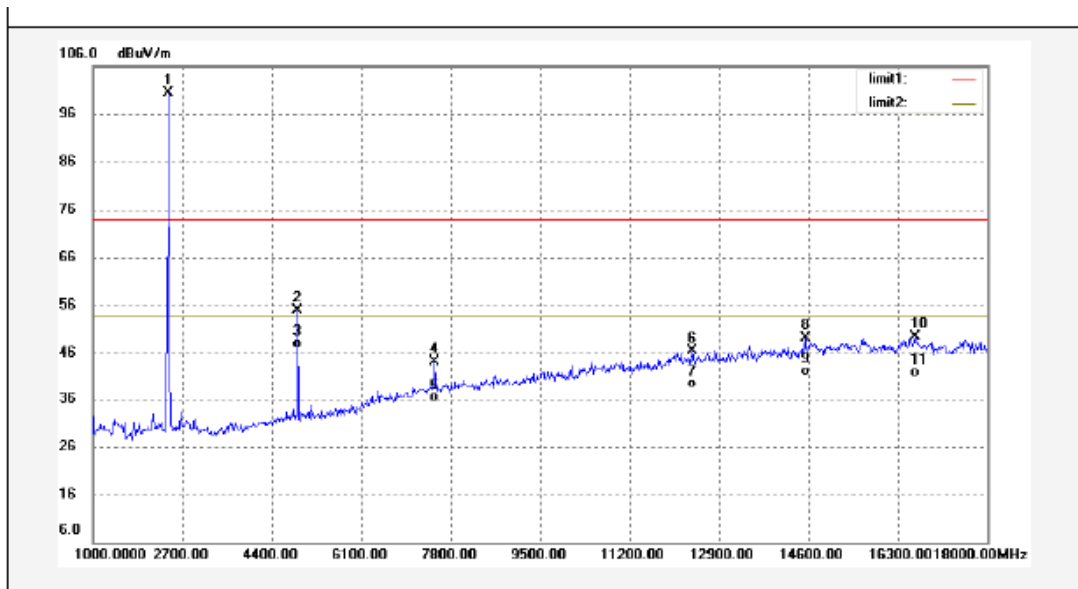
EUT: 349766
 Op Cond: 802.11b Low Channel
 Test Spec: Vertical
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2412.000	116.97	-15.61	101.36	74.00	27.36	peak	
2	4824.000	65.74	-11.96	53.78	74.00	-20.22	peak	
3	4824.000	60.74	-11.96	48.78	54.00	-5.22	AVG	
4	7613.000	49.86	-6.92	42.94	74.00	-31.06	peak	
5	7613.000	41.65	-6.92	34.73	54.00	-19.27	AVG	
6	13240.000	48.31	-3.12	45.19	74.00	-28.81	peak	
7	13240.000	40.01	-3.12	36.89	54.00	-17.11	AVG	
8	14617.000	47.09	0.41	47.50	74.00	-26.50	peak	
9	14617.000	37.65	0.41	38.06	54.00	-15.94	AVG	
10	16912.000	48.98	0.18	49.16	74.00	-24.84	peak	
11	16912.000	40.23	0.18	40.41	54.00	-13.59	AVG	

Transmitter Spurious radiated emissions

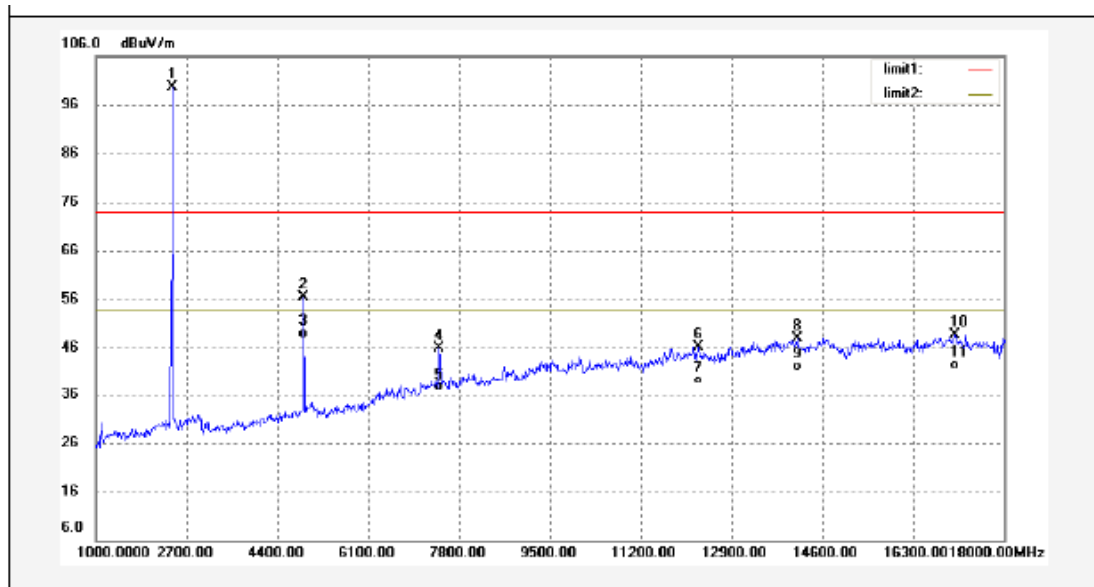
EUT: 349766
 Op Cond: 802.11b Middle Channel
 Test Spec: Horizontal
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2437.000	116.05	-15.68	100.37	74.00	26.37	peak	
2	4874.000	66.91	-11.93	54.98	74.00	-19.02	peak	
3	4874.000	58.75	-11.93	46.82	54.00	-7.18	AVG	
4	7494.000	50.99	-6.83	44.16	74.00	-29.84	peak	
5	7494.000	42.15	-6.83	35.32	54.00	-18.68	AVG	
6	12390.000	51.10	-4.82	46.28	74.00	-27.72	peak	
7	12390.000	43.28	-4.82	38.46	54.00	-15.54	AVG	
8	14532.000	48.50	0.52	49.02	74.00	-24.98	peak	
9	14532.000	40.65	0.52	41.17	54.00	-12.83	AVG	
10	16623.000	50.60	-1.26	49.34	74.00	-24.66	peak	
11	16623.000	42.10	-1.26	40.84	54.00	-13.16	AVG	

Transmitter Spurious radiated emissions

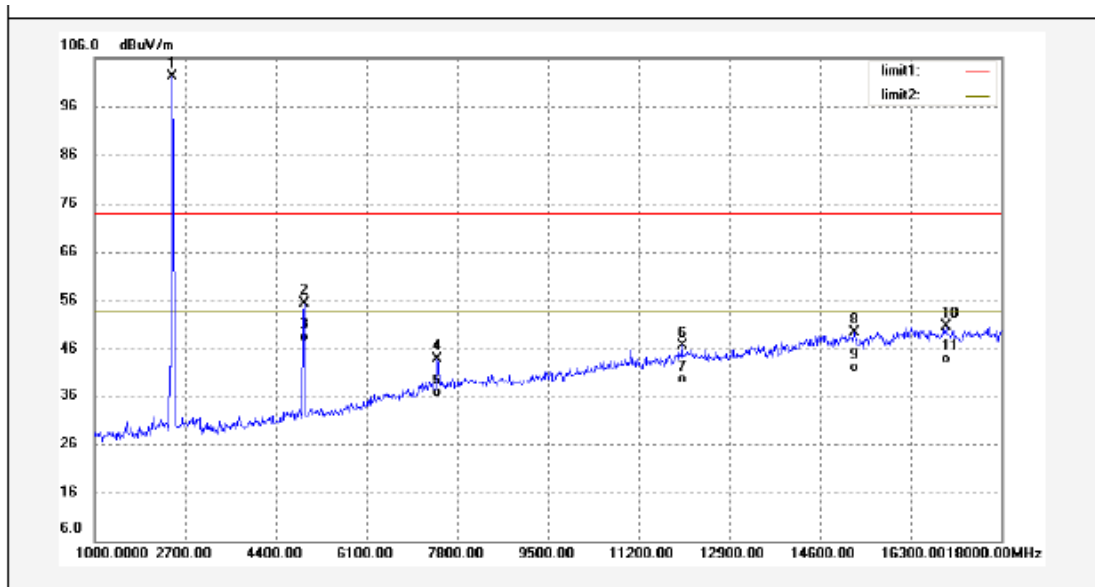
EUT: 349766
 Op Cond: 802.11b Middle Channel
 Test Spec: Vertical
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2445.000	115.37	-15.71	99.66	74.00	25.66	peak	
2	4874.000	68.28	-11.93	56.35	74.00	-17.65	peak	
3	4874.000	59.78	-11.93	47.85	54.00	-6.15	AVG	
4	7426.000	52.77	-6.95	45.82	74.00	-28.18	peak	
5	7426.000	43.65	-6.95	36.70	54.00	-17.30	AVG	
6	12271.000	50.61	-4.55	46.06	74.00	-27.94	peak	
7	12271.000	42.57	-4.55	38.02	54.00	-15.98	AVG	
8	14124.000	48.12	-0.28	47.84	74.00	-26.16	peak	
9	14124.000	41.52	-0.28	41.24	54.00	-12.76	AVG	
10	17082.000	48.06	0.46	48.52	74.00	-25.48	peak	
11	17082.000	41.03	0.46	41.49	54.00	-12.51	AVG	

Transmitter Spurious radiated emissions

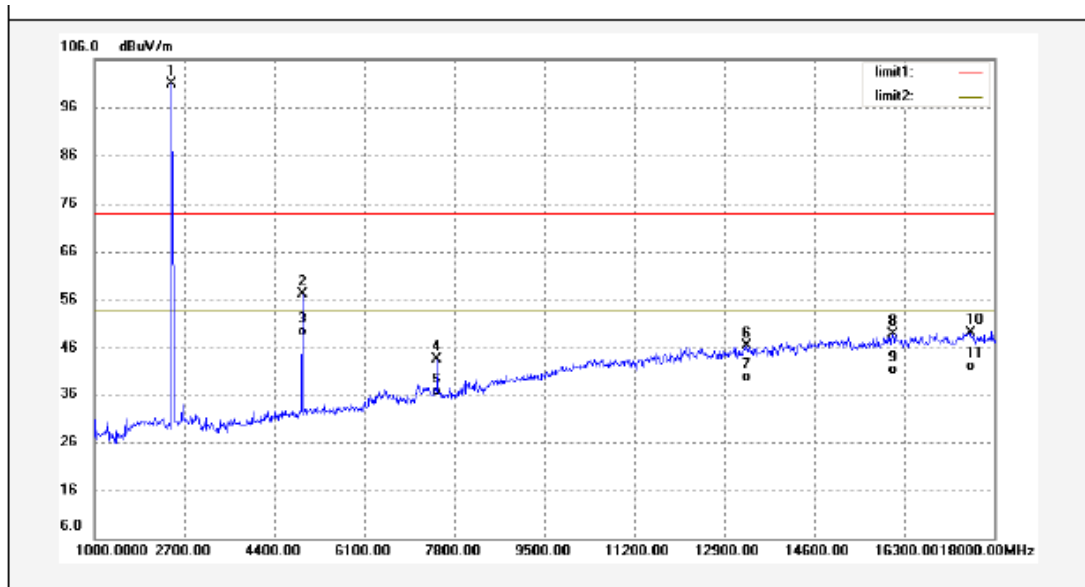
EUT: 349766
 Op Cond: 802.11b High Channel
 Test Spec: Horizontal
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2462.000	117.83	-15.70	102.13	74.00	28.13	peak	
2	4924.000	67.30	-11.83	55.47	74.00	-18.53	peak	
3	4924.000	59.25	-11.83	47.42	54.00	-6.58	AVG	
4	7426.000	50.78	-6.95	43.83	74.00	-30.17	peak	
5	7426.000	42.57	-6.95	35.62	54.00	-18.38	AVG	
6	12016.000	51.22	-4.47	46.75	74.00	-27.25	peak	
7	12016.000	43.20	-4.47	38.73	54.00	-15.27	AVG	
8	15246.000	51.55	-2.18	49.37	74.00	-24.63	peak	
9	15246.000	43.26	-2.18	41.08	54.00	-12.92	AVG	
10	16963.000	50.32	0.34	50.66	74.00	-23.34	peak	
11	16963.000	42.61	0.34	42.95	54.00	-11.05	AVG	

Transmitter Spurious radiated emissions

EUT: 349766
 Op Cond: 802.11b High Channel
 Test Spec: Vertical
 Comment: 120V AC/60Hz



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2462.000	116.63	-15.70	100.93	74.00	26.93	peak	
2	4924.000	68.96	-11.83	57.13	74.00	-16.87	peak	
3	4924.000	60.25	-11.83	48.42	54.00	-5.58	AVG	
4	7477.000	50.44	-6.85	43.59	74.00	-30.41	peak	
5	7477.000	42.57	-6.85	35.72	54.00	-18.28	AVG	
6	13308.000	49.22	-2.75	46.47	74.00	-27.53	peak	
7	13308.000	41.68	-2.75	38.93	54.00	-15.07	AVG	
8	16079.000	52.47	-3.49	48.98	74.00	-25.02	peak	
9	16079.000	43.87	-3.49	40.38	54.00	-13.62	AVG	
10	17558.000	46.40	2.72	49.12	74.00	-24.88	peak	
11	17558.000	38.47	2.72	41.19	54.00	-12.81	AVG	

Remark1: Factor = Antenna factor + cable loss – preamplifier gain

Remark2: All modes were tested, and only worst data listed

7.6 6 dB bandwidth & 99% bandwidth

Test Method

- 1 Place the EUT on the table and set it in the transmitting mode.
- 2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3 Mark the peak frequency and -6dB (upper and lower) frequency.

Limit

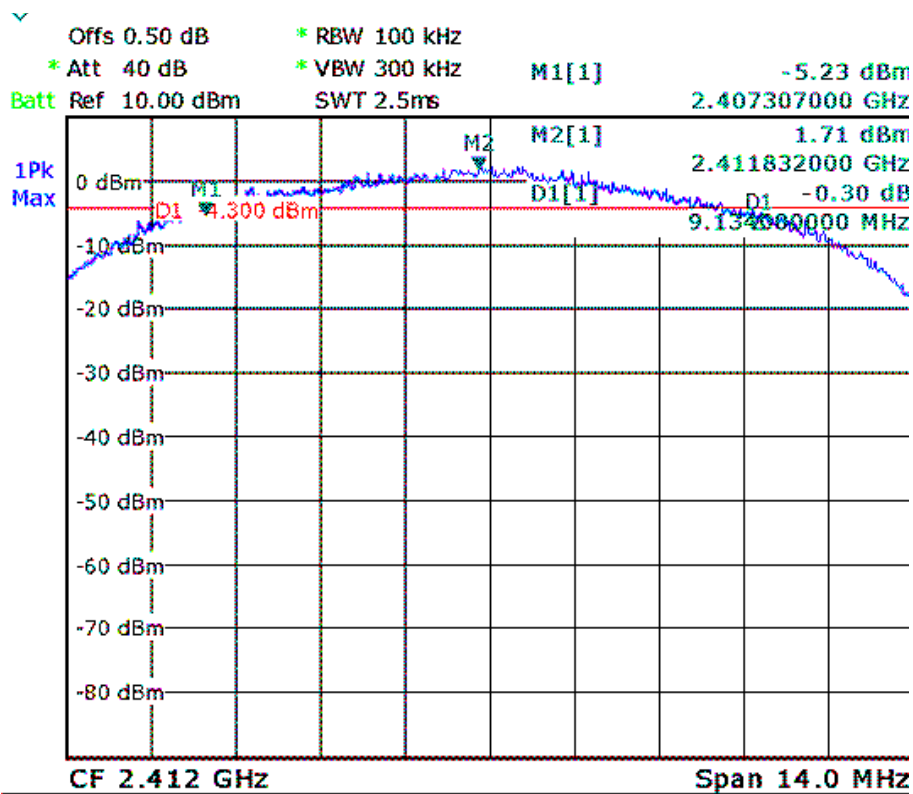
Limit [kHz]

≥ 500

6 dB bandwidth & 99% bandwidth

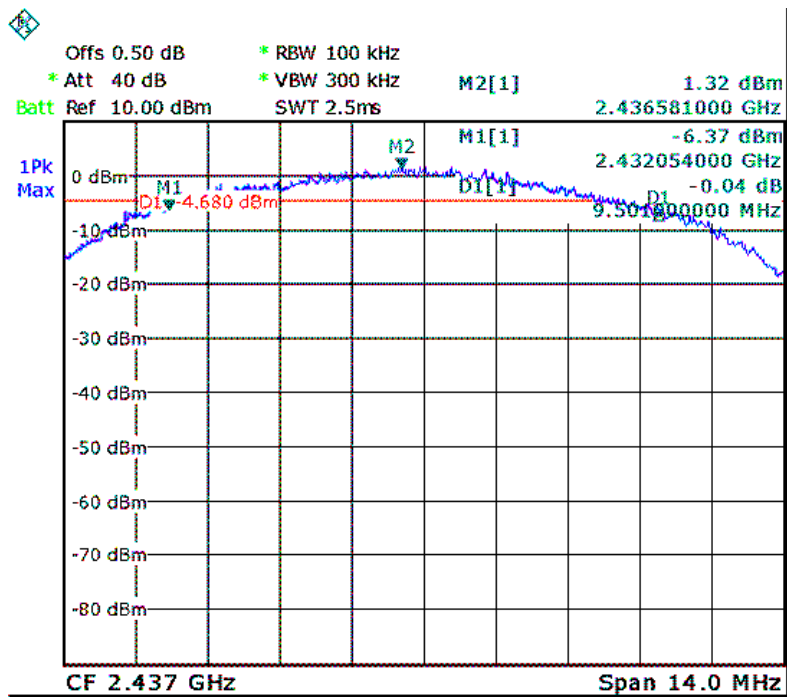
WIFI Mode IEEE 802.11b modulation (1Mbps) Test Result

Frequency MHz	6 dB Bandwidth kHz	Limit kHz	Result
2412	9130	≥ 500	Pass
2437	9501	≥ 500	Pass
2462	9920	≥ 500	Pass

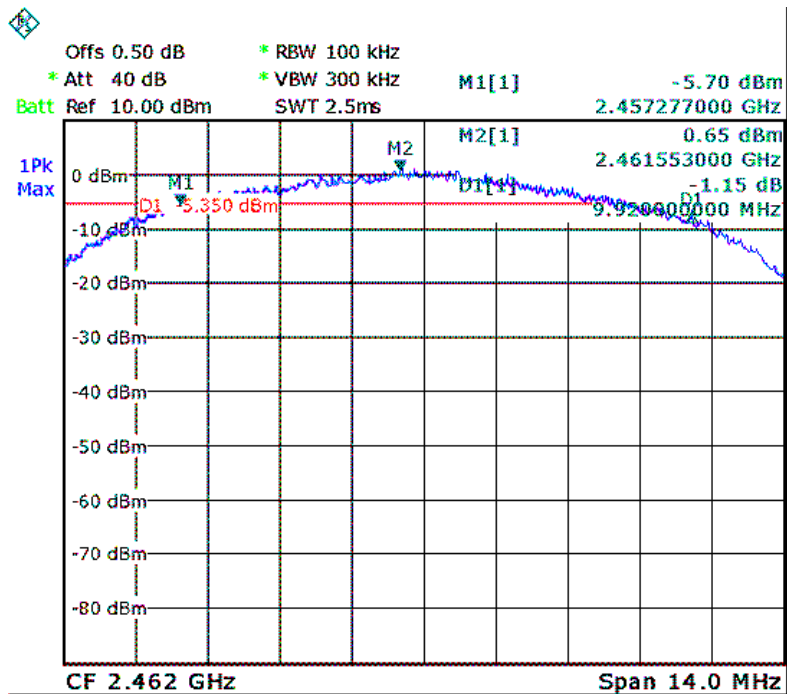


Date: 6.SEP.2013 16:16:12

6 dB bandwidth & 99% bandwidth



Date: 6.SEP.2013 16:17:46

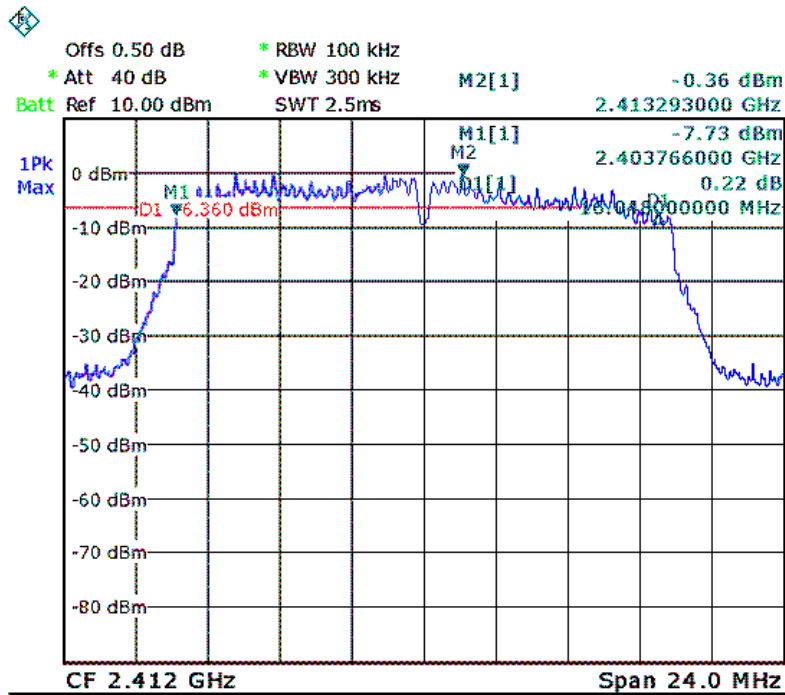


Date: 6.SEP.2013 16:19:00

6 dB bandwidth & 99% bandwidth

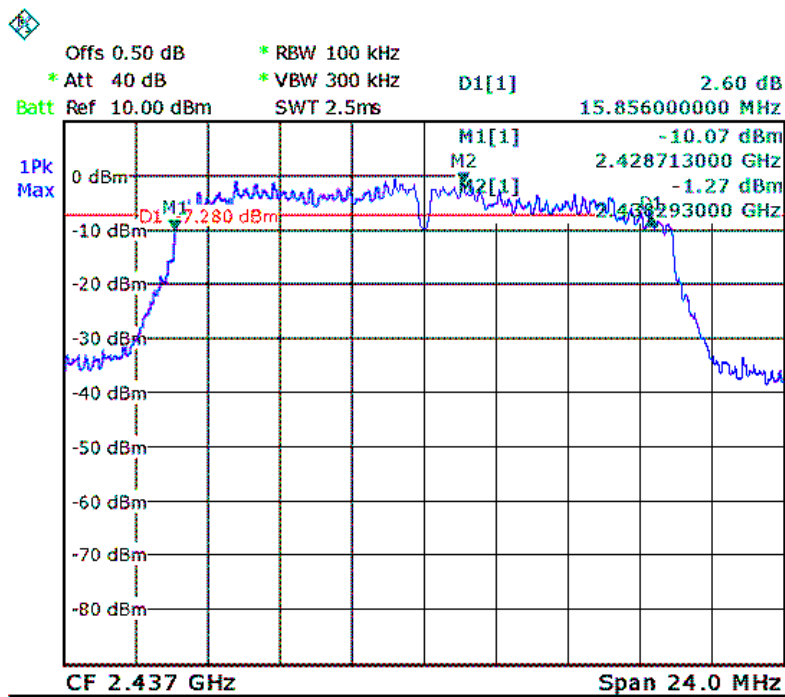
WIFI Mode IEEE 802.11g modulation (6Mbps) Test Result

Frequency MHz	6 dB Bandwidth kHz	Limit kHz	Result
2412	16018	≥ 500	Pass
2437	15856	≥ 500	Pass
2462	16096	≥ 500	Pass

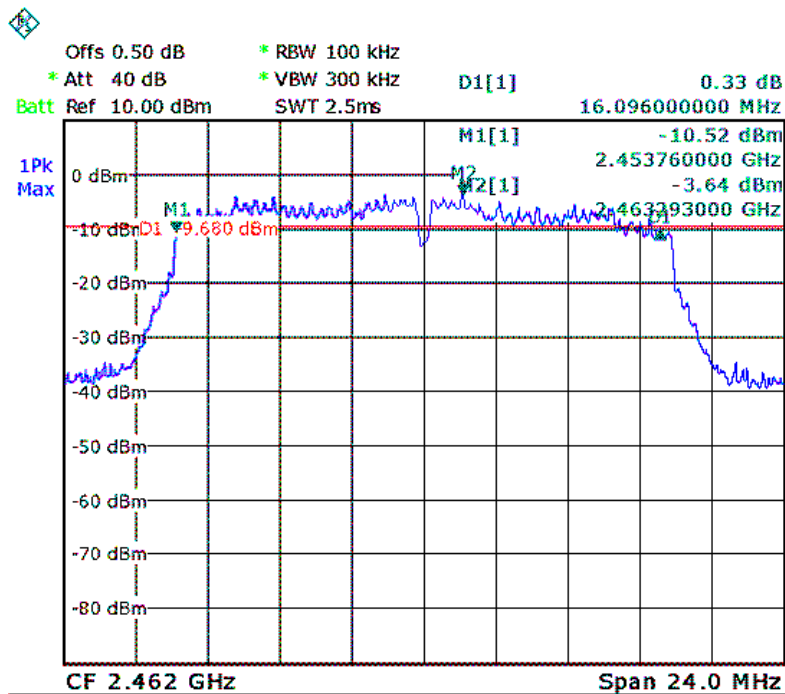


Date: 6.SEP.2013 16:23:09

6 dB dB bandwidth & 99% bandwidth



Date: 6.SEP.2013 16:24:48

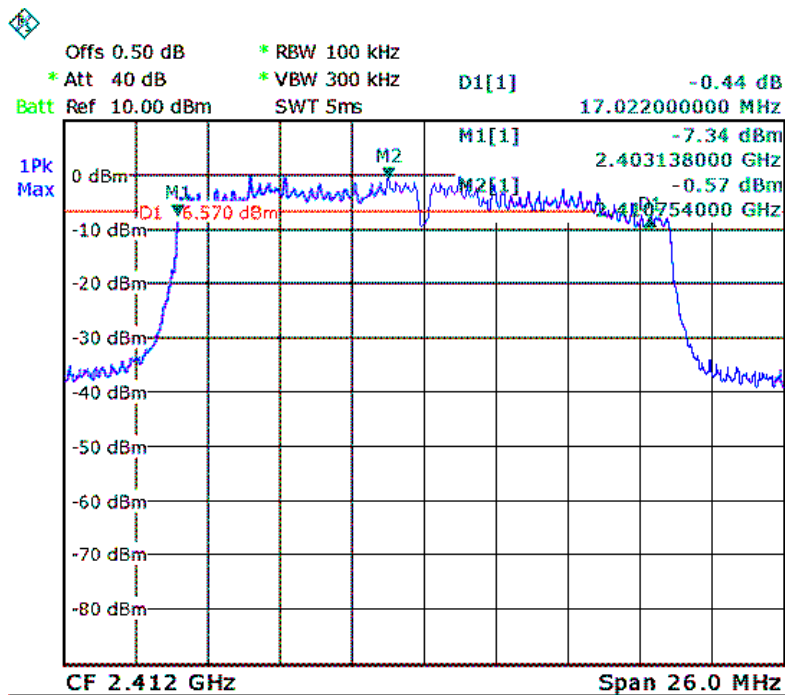


Date: 6.SEP.2013 16:26:19

6 dB bandwidth & 99% bandwidth

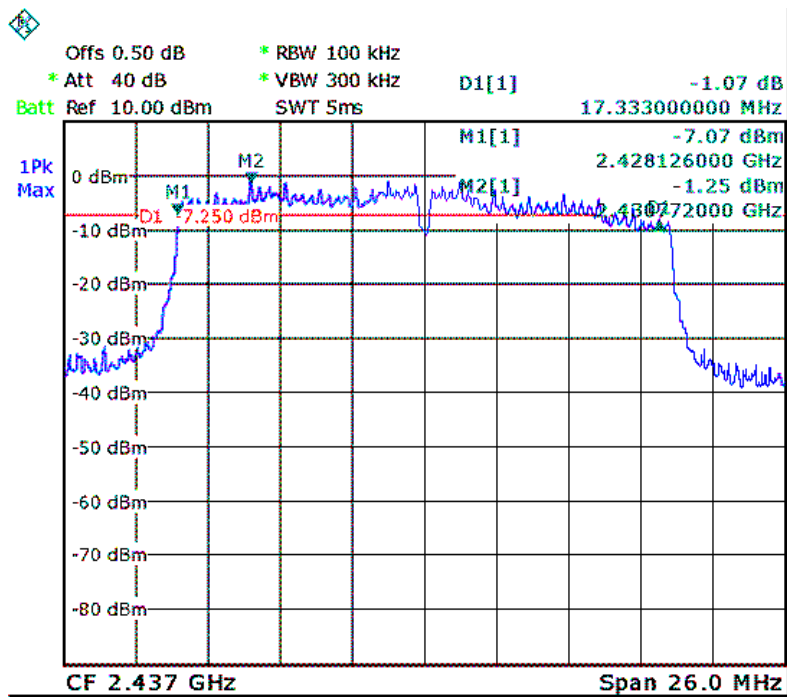
WIFI Mode IEEE 802.11n HT20 modulation (6.5Mbps) Test Result

Frequency MHz	6 dB Bandwidth kHz	Limit kHz	Result
2412	17022	≥ 500	Pass
2437	17333	≥ 500	Pass
2462	17333	≥ 500	Pass

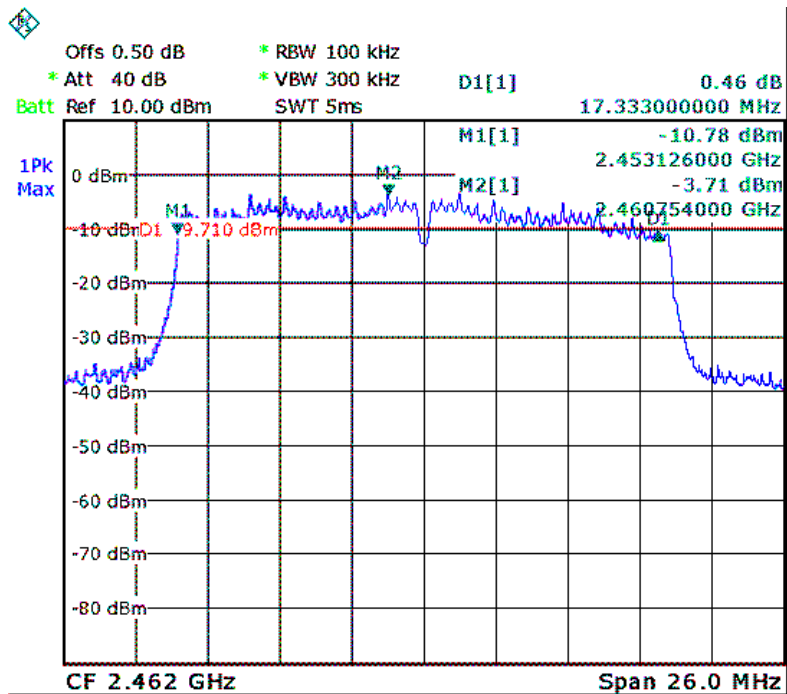


Date: 6.SEP.2013 16:29:46

6 dB bandwidth & 99% bandwidth



Date: 6.SEP.2013 16:31:14



Date: 6.SEP.2013 16:32:54

7.7 Power spectral density

Test Method

- 1 Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 2 Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 1.5 times channel bandwidth, Sweep = auto couple.
- 3 Record the max reading.

Limit

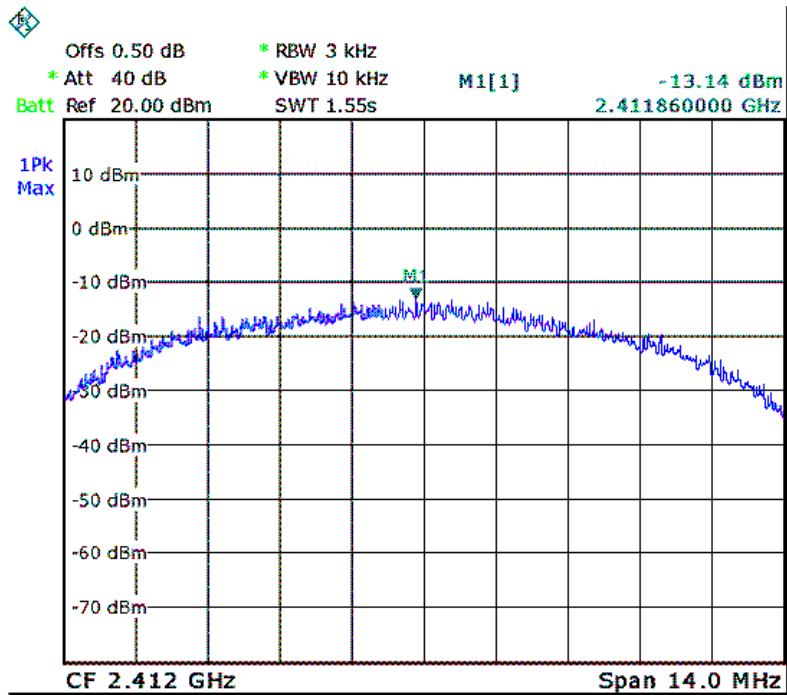
Limit
dBm / 3 kHz

8

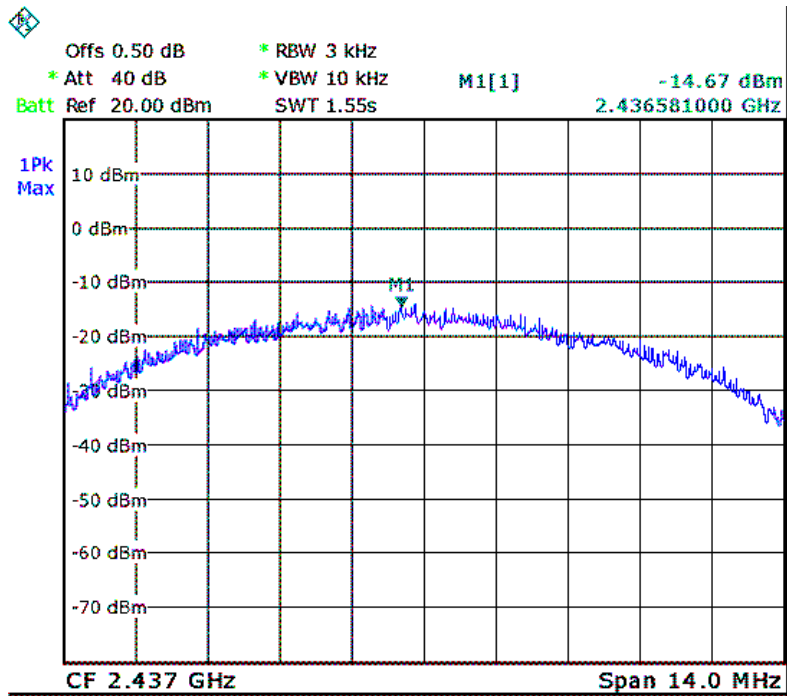
Power spectral density

WIFI Mode IEEE 802.11b modulation (1Mbps) Test Result

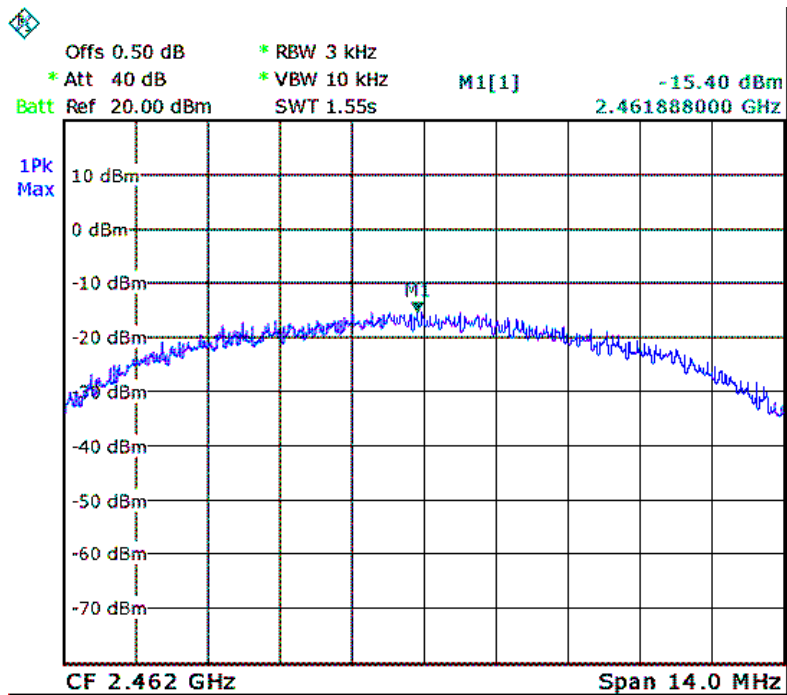
Frequency MHz	P dBm	Result
2412	-13.14	Pass
2437	-14.67	Pass
2462	-15.40	Pass



Date: 6.SEP.2013 17:03:07



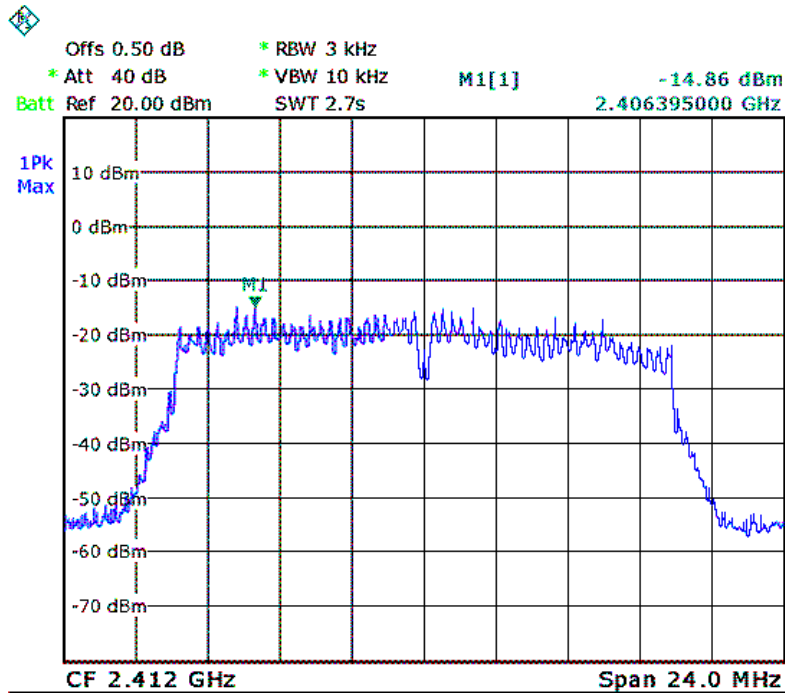
Date: 6.SEP.2013 17:02:11



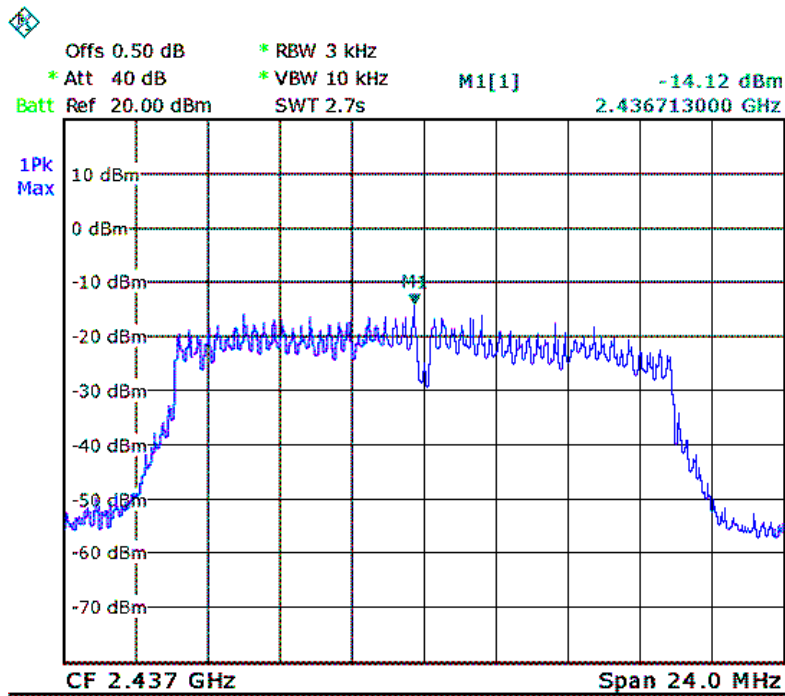
Date: 6.SEP.2013 17:01:38

WIFI Mode IEEE 802.11g modulation (6Mbps) Test Result

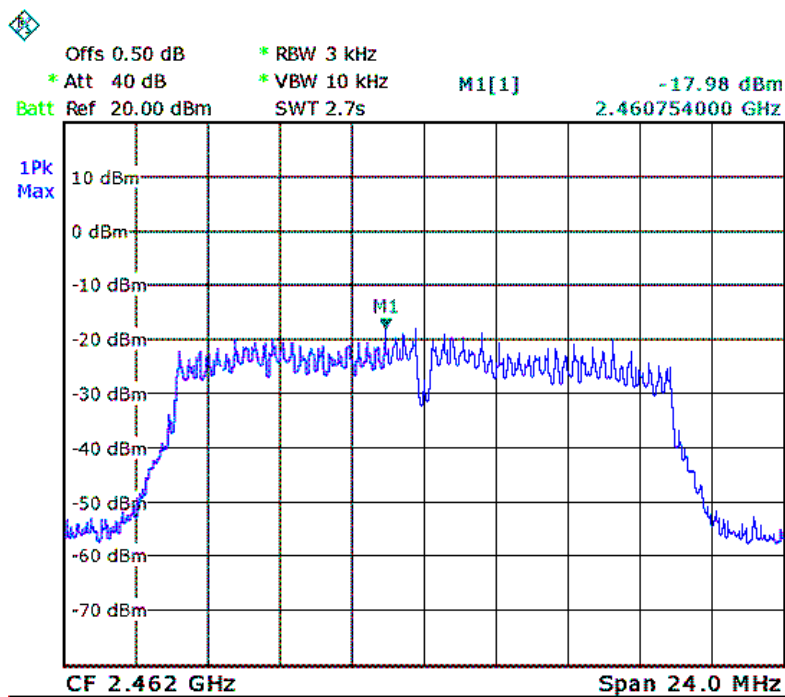
Frequency MHz	P dBm	Result
2412	-14.86	Pass
2437	-14.12	Pass
2462	-17.98	Pass



Date: 6.SEP.2013 17:04:01



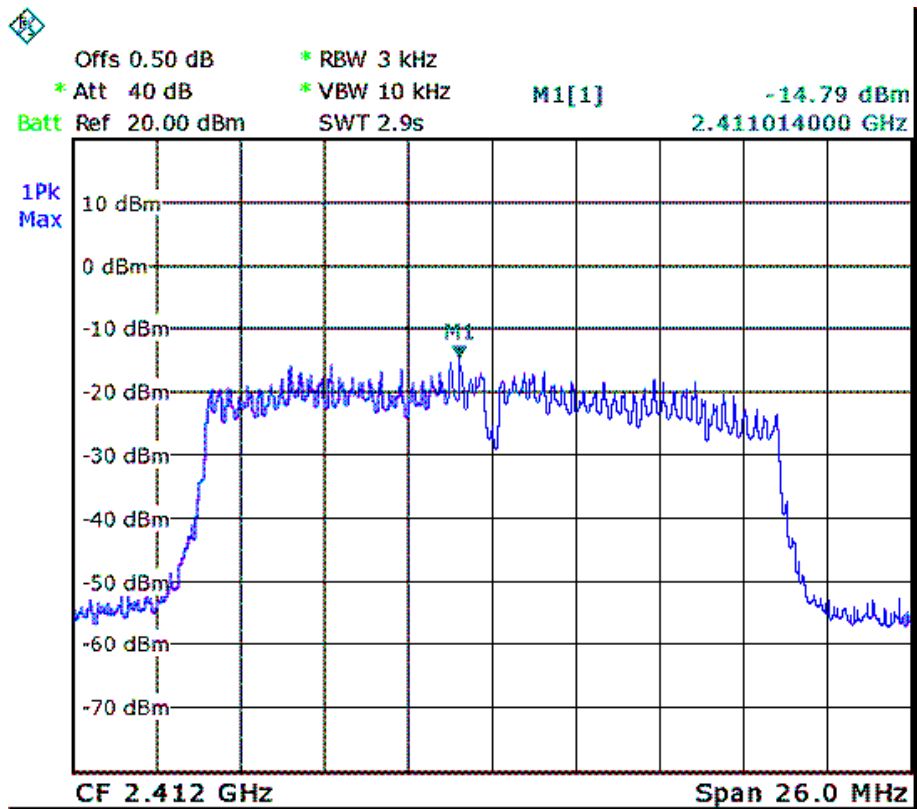
Date: 6.SEP.2013 17:04:34



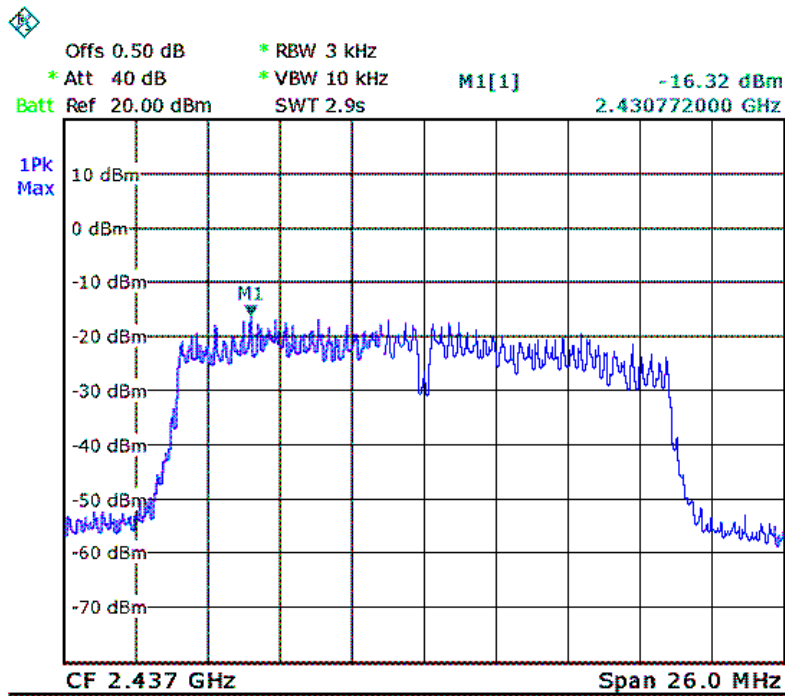
Date: 6.SEP.2013 17:05:03

WIFI Mode IEEE 802.11n HT20 modulation (6.5Mbps) Test Result

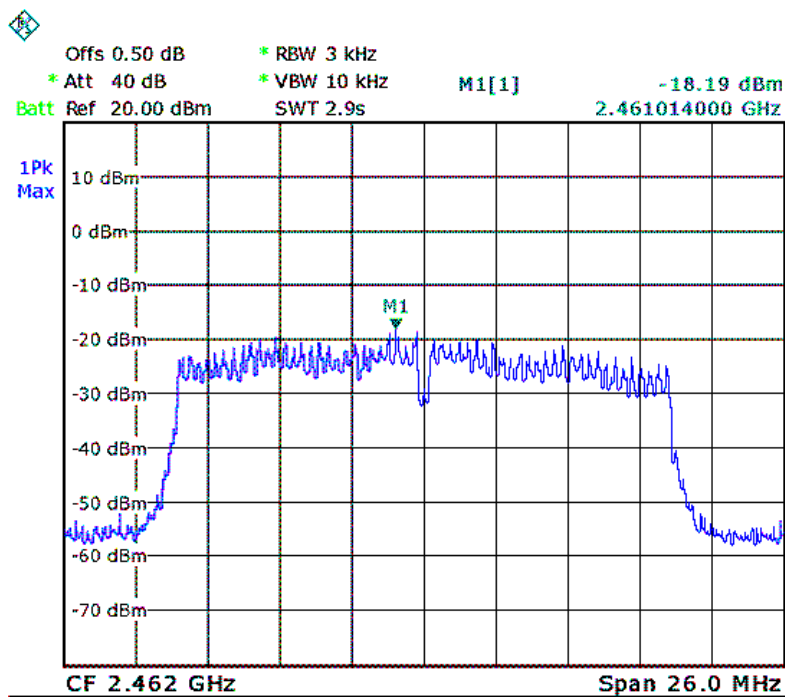
Frequency MHz	P dBm	Result
2412	-14.79	Pass
2437	-16.32	Pass
2462	-18.19	Pass



Date: 6.SEP.2013 17:05:46



Date: 6.SEP.2013 17:06:15



Date: 6.SEP.2013 17:06:44

8 Test Equipment

TEST ITEM	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DAT E
CE	EMI Test Receiver	R&S	ESCI	100947	Sep. 20,2013
	LISN	R&S	ENV216	101215	Sep. 20,2013
	Cable	Top	TYPE16(3.5 M)	-	Sep. 20,2013
Peak Power	EMI Test Receiver	R&S	ESCI	100947	Sep. 20,2013
Band Edge	EMC Analyzer	Agilent	E7405A	MY45114943	Sep. 20,2013
	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.19,2014
	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2014
	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.06,2014
Conducted RF Emissions	Spectrum Analyzer	Agilent	E4446A	US44300459	2013-05-07
RSE	EMC Analyzer	Agilent	E7405A	MY45114943	Sep. 20,2013
	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.19,2014
	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2014
	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.06,2014
Bandwidth	EMI Test Receiver	R&S	ESCI	100947	Sep. 20,2013
PSD	EMI Test Receiver	R&S	ESCI	100947	Sep. 20,2013

9 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

Items		Extended Uncertainty
RE	Field strength (dB μ V/m)	U=4.32dB (30MHz-25GHz)
CE	Disturbance Voltage (dB μ V)	U=2.40dB(150KHz-30MHz)