FCC PART 15.247

EMI MEASUREMENT AND TEST REPORT

For

Shenzhen Smart-eye Digital Electronics Co.,Ltd.

#6 Northern Zone, Shangxue S&T City, Bantian,Longgang District,Shenzhen,China

FCC ID: ZCBHYIPC-537

November 05, 2012

This Report Concerns: Original Report	Equipment Type: IP Camera
Test Engineer:	Eric Li
Test Engineer of performing the tests:	Adam Yang
Report No.:	BST12081023Y
Receive EUT Date/Test Date:	October 25, 2012/ October 25, 2012-November 05, 2012
Reviewed By:	bella zheng
Prepared By:	**Shenzhen Smart-eye Digital Electronics Co.,Ltd.** #6 Northern Zone, Shangxue S&T City, Bantian, Longgang District,Shenzhen,Guangdong,China Tel: 0755-89390365 Fax: 0755-89390380

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1. GENERAL INFORMATION

1.1. Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that Shenzhen Smart-eye Digital Electronics Co.,Ltd approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that Shenzhen Smart-eye Digital Electronics Co.,Ltd in any way guarantees the later performance of the product/equipment.

1.1.2.The sample/s mentioned in this report is/are supplied by Applicant, Shenzhen Smart-eye Digital Electronics Co.,Ltd therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through Shenzhen Smart-eye Digital Electronics Co.,Ltd, unless the applicant has authorized Shenzhen Smart-eye Digital Electronics Co.,Ltd in writing to do so.

Test Facility -
The test site used to collect the radiated data is located on the address of
Shenzhen Certification Technology Service Co., Ltd
(FCC Registered Test Site Number: 197647) on
2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road,
Bao'an District, shenzhen 518126, China
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

Available upon request.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant	:	Shenzhen Smart-eye Digital Electronics Co.,Ltd.
Address	:	#6 Northern Zone, Shangxue S&T City, Bantian,Longgang District,Shenzhen,China
Manufacturer	:	Shenzhen Smart-eye Digital Electronics Co.,Ltd.
Address	:	#6 Northern Zone, Shangxue S&T City, Bantian,Longgang District,Shenzhen,China
EUT Description	:	IP Camera
Trade Name	:	wansview
Modulation	:	802.11b: DSSS 802.11g/n: OFDM
Wi-fi Frequency Band	:	IEEE 802.11b/g: 2412-2462MHz IEEE802.11n HT20: 2412-2462MHz IEEE802.11n HT40: 2422-2452MHz
Number of Channels	:	IEEE 802.11b/g: 11 Channels IEEE802.11n HT20: 11 Channels IEEE802.11n HT40: 7 Channels
Model Number	:	NCH537MW, NCH537MD01W, NCH537MD02W
Power Supply	:	DC 5V (Powered by Adapter)
Antenna gain	:	0dBi

The series products, model name: NCH537MW, NCH537MD01W, NCH537MD02W have the same circuit diagram,PCB layout, software, RF Module, Features and functionality. The differences are the model name, so, we select NCH537MW to test.

2.2. Block Diagram of EUT Configuration

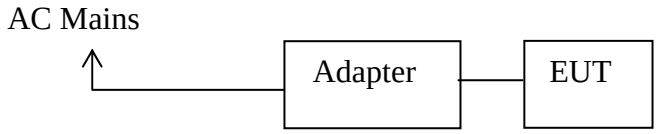


Figure 1 EUT SETUP

2.3. Support Equipment List

Table 2 Ancillary Equipment

Name	Model No	S/N	Manufacturer	Used "√"
Adapter Input: AC 100-240V, 50-60Hz, 0.5A Output: DC 5V, 1500mA	XED-1505d	--	Shenzhen Smart-eye Digital Electronics Co.,Ltd.	√

2.4. Test Conditions

Temperature: 23~25℃
Relative Humidity: 50~63 %

After the preliminary test, we found to emit the worst emissions and therefore had been tested under operating condition.
IEEE 802.11b:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.
IEEE 802.11g:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.
IEEE 802.11n HT20:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.
IEEE 802.11n HT40:
Channel Low (2422MHz), Channel Mid 2437MHz) and Channel High (2452MHz) with 13Mbpsdata rate were chosen for full testing.

3. TEST RESULTS SUMMARY

FCC 15 Subpart C,Paragraph 15.247

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247 (i) , §1.1307 (b) (1), §2.1093	RF Exposure	PASS
§15.203	Antenna Requirement	PASS
§15.207 (a)	Conducted Emissions	PASS
§15.247(d)	Spurious Emissions at Antenna Port	PASS
§15.205	Restricted Bands	PASS
§15.209, §15.205, §15.247(d)	Spurious Emissions	PASS
§15.247 (a)(2)	6 dB Bandwidth	PASS
§15.247(b)(3)	Maximum Peak Output Power	PASS
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	PASS
§15.247(e)	Power Spectral Density	PASS

Statement: The EUT was setup according to ANSI C63.4-2003 and tested according to DTS test procedure of March 23, 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Modifications

No modification was made.

4. TEST EQUIPMENT USED

EQUIPMENT/FACILITIES	MANUFACTURER	MODEL	SERIAL NO.	DATE OF CAL.	CAL. INTERVAL
3m Semi-Anechoic Chamber	Changzhou Chengyu	EC3048	N/A	May 5, 2012	1 Year
Broadband antenna	SCHWARZBECK	VULB 9168	VULB9168-438	Aug. 14, 2012	1 Year
Horn antenna	R&S	HF906	10027	Aug. 14, 2012	1 Year
ETS Horn Antenna	ETS	3160	SEL0076	May 8, 2012	1 Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	Apr. 6, 2012	1 Year
Spectrum analyzer	Agilent	E4443A	MY46185649	Apr. 6, 2012	1 Year
Spectrum analyzer	Agilent	E4440A	MY46187335	Apr. 6, 2012	1 Year
Spectrum analyzer	Agilent	E4446A	MY45300103	Apr. 6, 2012	1 Year
Test receiver	R&S	ESCI	100492	Apr. 6, 2012	1 Year
Test receiver	R&S	ESCI	101202	Apr. 6, 2012	1 Year
L.I.S.N.	SCHWARZBECK	NSLK8126	8126466	Apr. 6, 2012	1 Year
L.I.S.N.	SCHWARZBECK	NSLK8126	8126487	Apr. 6, 2012	1 Year
Cable	Resenberger	N/A	NO.1	Apr. 6, 2012	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Apr. 6, 2012	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Apr. 6, 2012	1 Year
Pre-amplifier	SCHWARZBECK	BBV9743	9743-019	Apr. 6, 2012	1 Year
Pre-amplifier	R&S	AFS33-18002650-30-8P-44	SEL0080	Apr. 6, 2012	1 Year

5. §15.247 (I) AND §1.1307 (B) (1), §2.1093 – RF EXPOSURE

5.1. Standard Applicable

According to §15.247 (i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3–3.0	614	1.63	*(100)	30
3.0–30	824/f	2.19/f	*(180/f2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

5.2. Test Data

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$
S: Power density, in mW/cm^2
P: Power input to the antenna, in mW
G: numeric gain of the antenna
R: distance to the center of the antenna, in cm

Maximum peak output power at antenna input terminal (dBm):	18.25
Maximum peak output power at antenna input terminal (mW):	66.83
Prediction distance (cm):	20
Prediction frequency (MHz):	2412
Antenna Gain, typical (dBi):	0
Maximum Antenna Gain (numeric):	1
Power density at predication frequency and distance (mW/cm^2):	0.013
MPE limit for Occupational exposure at predication frequency (mW/cm^2):	1.0

5.3. Test Result

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, Human proximity to the antenna shall not be less than 20cm(8 inches) during normal operation.

6. §15.203 - ANTENNA REQUIREMENT

6.1. Standard Applicable

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the 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 6 dBi.

6.2. Antenna Connector Construction

The antenna used for this product is a short metal soldered wire. The antenna is permanently attached. Refer to the product photo.

7. §15.207 - CONDUCTED EMISSIONS

7.1. Applicable Standard

The specification used was with the FCC Part 15.207 limits.

7.2. Test Procedure

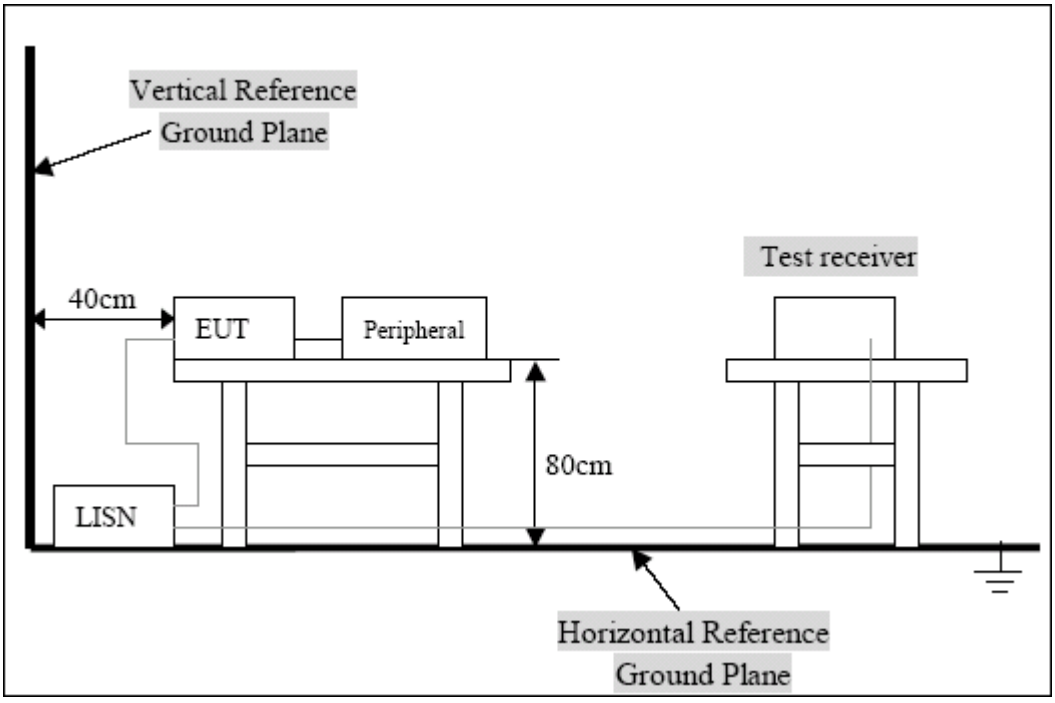
During the conducted emission test, the EUT was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

7.3. Conducted Power line Emission Limits

FCC Part 15 Paragraph 15.207 (dBuV)		
Frequency Range (MHz)	Class A QP/AV	Class B QP/AV
0.15-0.5	79/66	65-56/56-46
0.5-5.0	73/60	56-46
5.0-3.0	73/60	60-50

Note: In the above table, the tighter limit applies at the band edges.

7.4. Block Diagram of Test Setup

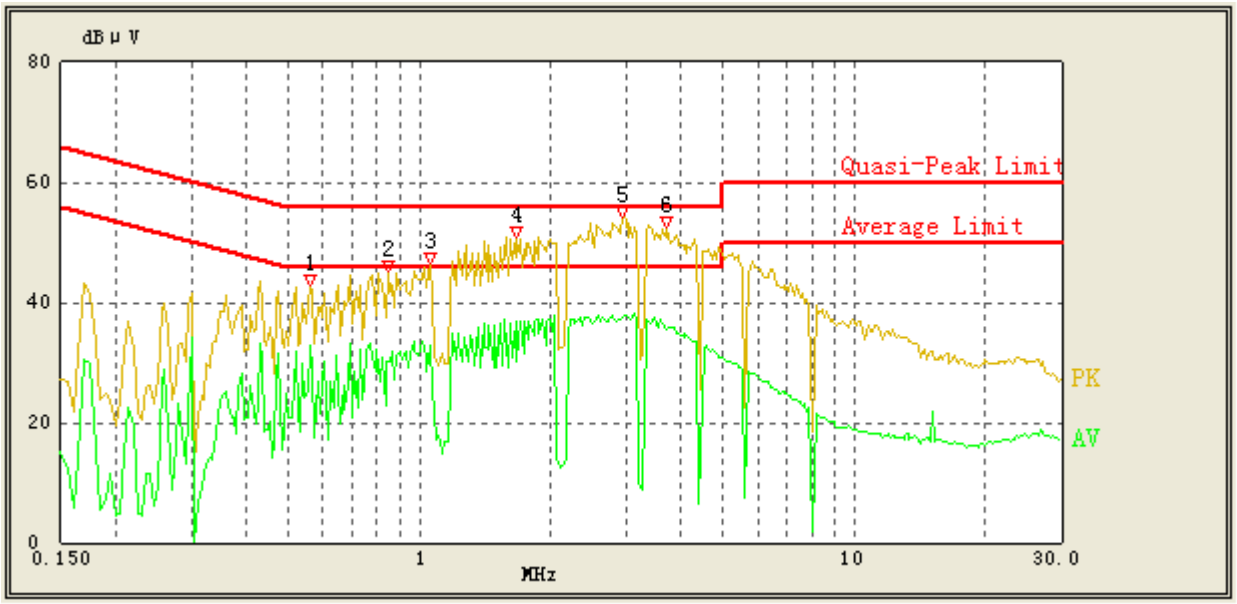


7.5. Conducted Power Line Test Result

Pass.

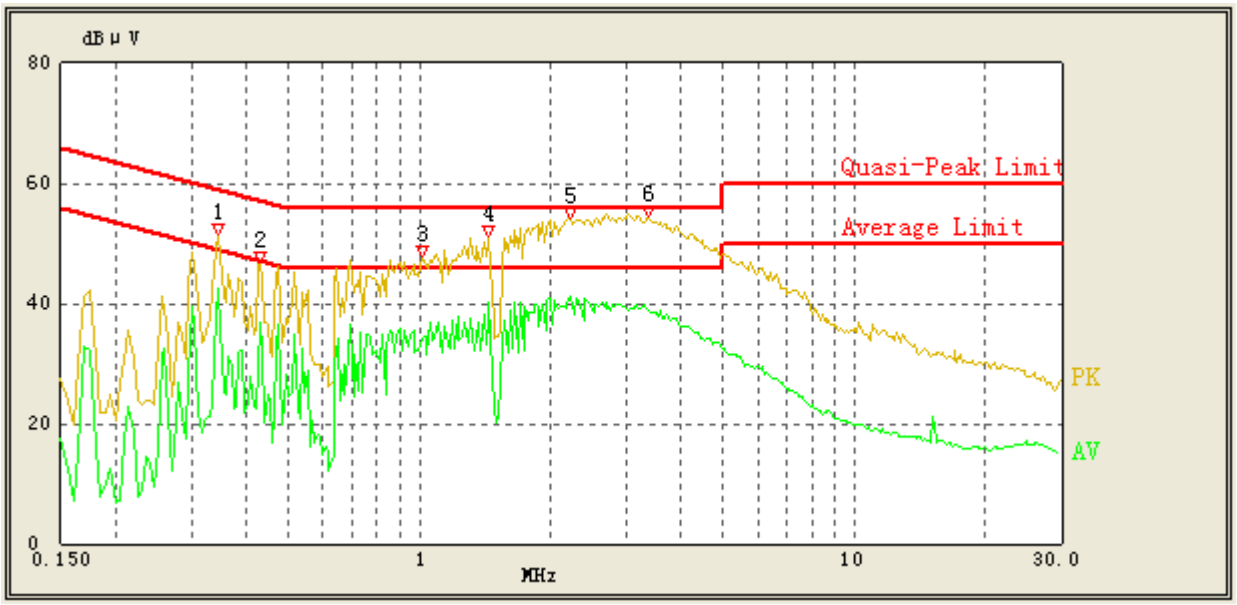
The worst test mode: Wi-Fi TX 802.11b 2437MHz

L line



Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
2.945	37.44	0.49	46.00	8.56	Ave.
1.670	36.73	0.47	46.00	9.27	Ave.
2.945	45.84	0.49	56.00	10.16	QP
3.715	35.61	0.50	46.00	10.39	Ave.
3.715	44.63	0.50	56.00	11.37	QP
1.670	43.55	0.47	56.00	12.45	QP
1.060	32.72	0.45	46.00	13.28	Ave.
0.560	32.70	0.43	46.00	13.30	Ave.
1.060	42.15	0.45	56.00	13.85	QP
0.840	30.01	0.44	46.00	15.99	Ave.
0.560	39.53	0.43	56.00	16.47	QP
0.850	37.48	0.44	56.00	18.52	QP

N line



Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
2.225	41.20	0.48	46.00	4.80	Ave.
1.445	40.06	0.46	46.00	5.94	Ave.
3.360	38.82	0.49	46.00	7.18	Ave.
0.345	42.66	0.42	50.43	7.77	Ave.
3.360	47.47	0.49	56.00	8.53	QP
2.225	46.76	0.48	56.00	9.24	QP
0.430	36.98	0.42	48.00	11.02	Ave.
1.445	44.41	0.46	56.00	11.59	QP
1.015	34.09	0.45	46.00	11.91	Ave.
1.015	42.19	0.45	56.00	13.81	QP
0.345	43.05	0.42	60.43	17.38	QP
0.430	39.76	0.42	58.00	18.24	QP

8. §15.209, §15.205, §15.247(D) - Spurious Emissions

8.1. Test Equipment

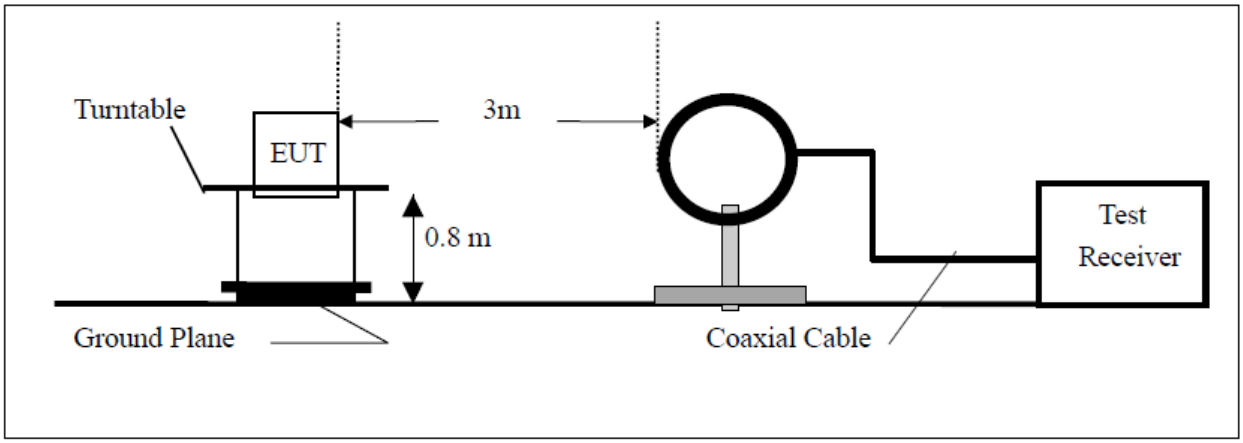
Please refer to section 5 this report.

8.2. Test Procedure

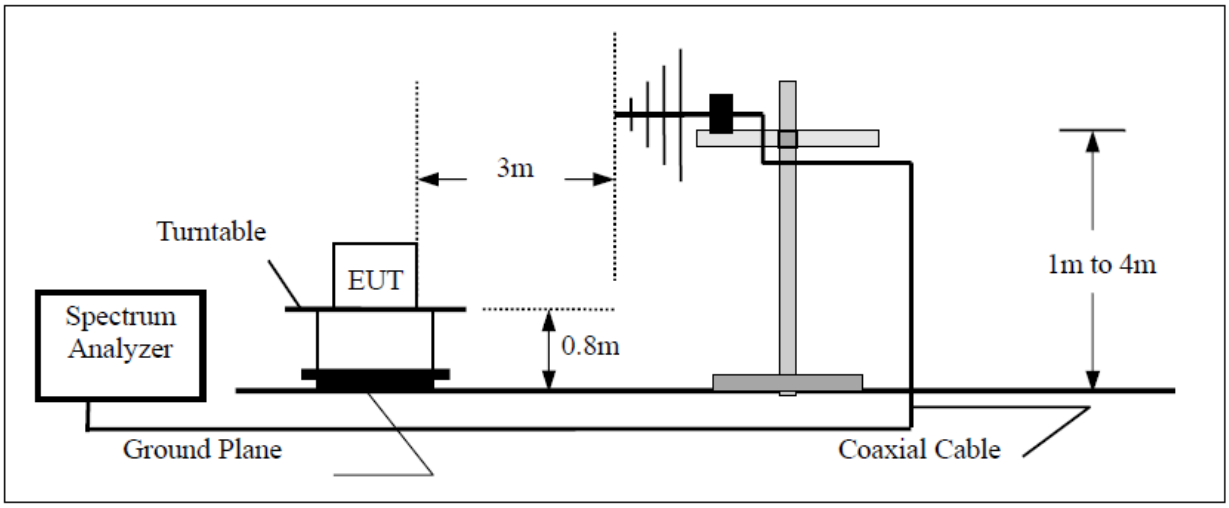
The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Calibrated Loop antenna is used as receiving antenna for frequencies below 30MHz, Calibrated Bilog antenna is used as receiving antenna for frequencies between 30 MHz and 1 GHz, Calibrated Horn antenna is used as receiving antenna for frequencies above 1000MHz. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.
The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.
The frequency range from 9kHz to 25GHz is checked.
The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
Through three orthogonal axes to determine which attitude and equipment arrangement produces the highest emission relative to the limit.

8.3. Radiated Test Setup

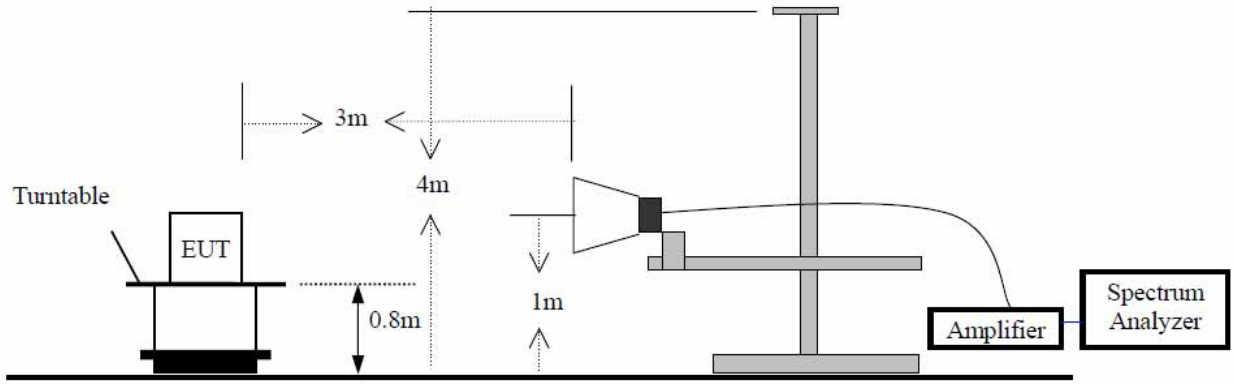
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



8.4. Radiated Emission Limit

Frequency (MHz)	Limit			
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dBμV/m)	Measurement distance (m)	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
0.009 - 0.490	2400/F(kHz)	/	300	
0.490 - 1.705	24000/F(kHz)	/	30	
1.705-30	30	29.5	30	
30 - 88	100	40	3	
88 - 216	150	43.5	3	
216 - 960	200	46	3	
Above 960	500	54	3	

Note: (1) RF Voltage (dBuV)=20 log Voltage(uV)
(2) In the Above Table,the tighter limit applies at the band edges.
(3) Distaqnce refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

8.5. Radiated Emission Test Result

Pass.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel Low 2412MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Correct Factor (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.860	41.121	-32.879	74.000
7236.000	10.650	36.090	46.740	-27.260	74.000
9648.000	13.337	36.200	49.536	-24.464	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	38.400	44.821	-29.179	74.000
7236.000	11.495	36.500	47.995	-26.005	74.000
9648.000	13.807	36.390	50.196	-23.804	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel Middle 2437MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	37.140	40.177	-33.823	74.000
7311.000	11.795	34.630	46.424	-27.576	74.000
9748.000	12.635	35.740	48.375	-25.625	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	37.820	43.631	-30.369	74.000
7311.000	12.630	35.350	47.979	-26.021	74.000
9748.000	13.126	36.210	49.336	-24.664	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel High 2462MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Peak Detector:					
4924.000	2.858	36.930	39.787	-34.213	74.000
7386.000	12.127	35.260	47.388	-26.612	74.000
9848.000	12.852	36.410	49.263	-24.737	74.000
Average Detector:					
--					
Vertical Peak Detector:					
4924.000	5.521	37.410	42.930	-31.070	74.000
7386.000	13.254	35.190	48.444	-25.556	74.000
9848.000	13.367	36.120	49.487	-24.513	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel Low 2412MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.230	40.491	-33.509	74.000
7236.000	10.650	35.700	46.350	-27.650	74.000
9648.000	13.337	36.620	49.956	-24.044	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	37.830	44.251	-29.749	74.000
7236.000	11.495	36.110	47.605	-26.395	74.000
9648.000	13.807	35.690	49.496	-24.504	74.000
Average					
Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel Middle 2437MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	36.510	39.547	-34.453	74.000
7311.000	11.795	35.140	46.934	-27.066	74.000
9748.000	12.635	35.900	48.535	-25.465	74.000
Average Detector:					
--					
Peak Detector:					
4874.000	5.812	37.400	43.211	-30.789	74.000
7311.000	12.630	35.620	48.249	-25.751	74.000
9748.000	13.126	36.420	49.546	-24.454	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel High 2462MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Peak Detector:					
4924.000	2.858	36.990	39.847	-34.153	74.000
7386.000	12.127	34.580	46.708	-27.292	74.000
9848.000	12.852	36.090	48.943	-25.057	74.000
Average Detector:					
--					
Vertical Peak Detector:					
4924.000	5.521	37.050	42.570	-31.430	74.000
7386.000	13.254	35.510	48.764	-25.236	74.000
9848.000	13.367	36.030	49.397	-24.603	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel Low 2412MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	37.620	40.881	-33.119	74.000
7236.000	10.650	35.610	46.260	-27.740	74.000
9648.000	13.337	35.410	48.746	-25.254	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	36.810	43.231	-30.769	74.000
7236.000	11.495	35.710	47.205	-26.795	74.000
9648.000	13.807	35.430	49.236	-24.764	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel Middle 2437MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	36.760	39.797	-34.203	74.000
7311.000	11.795	35.420	47.214	-26.786	74.000
9748.000	12.635	36.050	48.685	-25.315	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	36.820	42.631	-31.369	74.000
7311.000	12.630	35.280	47.909	-26.091	74.000
9748.000	13.126	36.450	49.576	-24.424	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel High 2462MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	38.320	41.177	-32.823	74.000
7386.000	12.127	35.020	47.148	-26.852	74.000
9848.000	12.852	35.960	48.813	-25.187	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	37.230	42.750	-31.250	74.000
7386.000	13.254	35.030	48.284	-25.716	74.000
9848.000	13.367	36.090	49.457	-24.543	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel Low 2422MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4844.000	3.171	37.020	40.191	-33.809	74.000
7266.000	11.162	35.620	46.782	-27.218	74.000
9688.000	12.964	36.530	49.495	-24.505	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4844.000	6.178	37.490	43.668	-30.332	74.000
7266.000	11.982	35.390	47.372	-26.628	74.000
9688.000	13.507	37.830	51.338	-22.662	74.000
Average Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel Middle 2437MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	37.390	40.427	-33.573	74.000
7311.000	11.795	35.640	47.434	-26.566	74.000
9748.000	12.635	36.490	49.125	-24.875	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	36.880	42.691	-31.309	74.000
7311.000	12.630	35.280	47.909	-26.091	74.000
9748.000	13.126	36.060	49.186	-24.814	74.000
Average					
Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel High 2452MHz	Test Engineer:	Adam Yang

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m) QP	Correct Factor (dB)	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

For 1GHz-25GHz

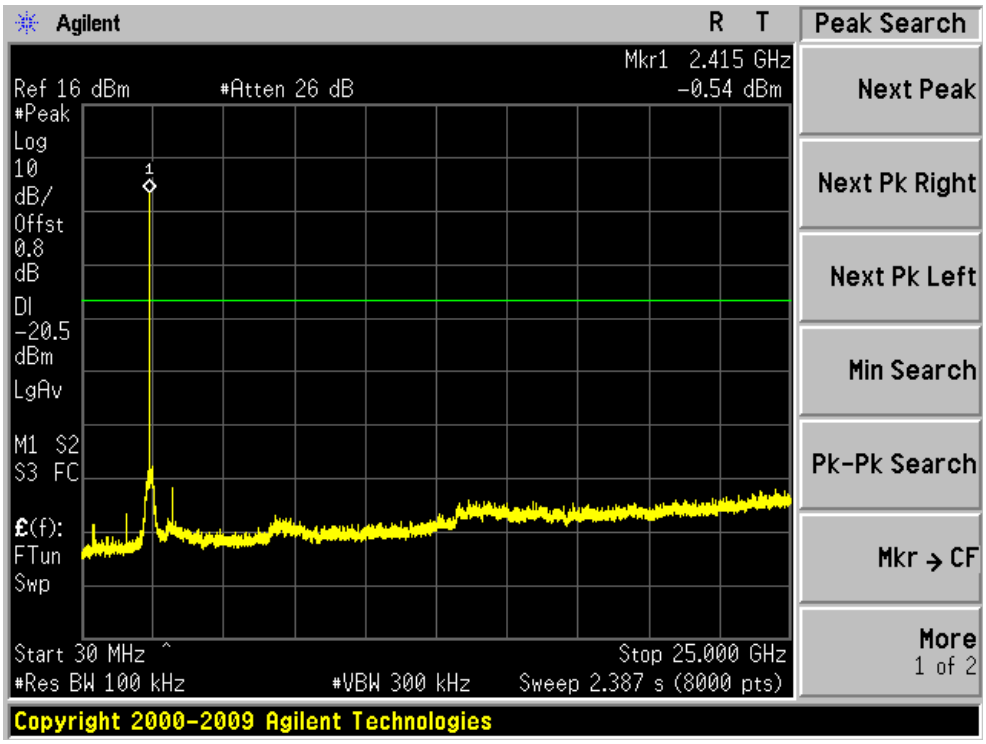
Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	2.914	37.490	40.405	-33.595	74.000
7356.000	11.995	35.190	47.184	-26.816	74.000
9808.000	12.475	35.880	48.355	-25.645	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	37.090	42.621	-31.379	74.000
7356.000	13.005	35.360	48.364	-25.636	74.000
9808.000	12.901	36.230	49.131	-24.869	74.000
Average					
Detector:					
--					

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

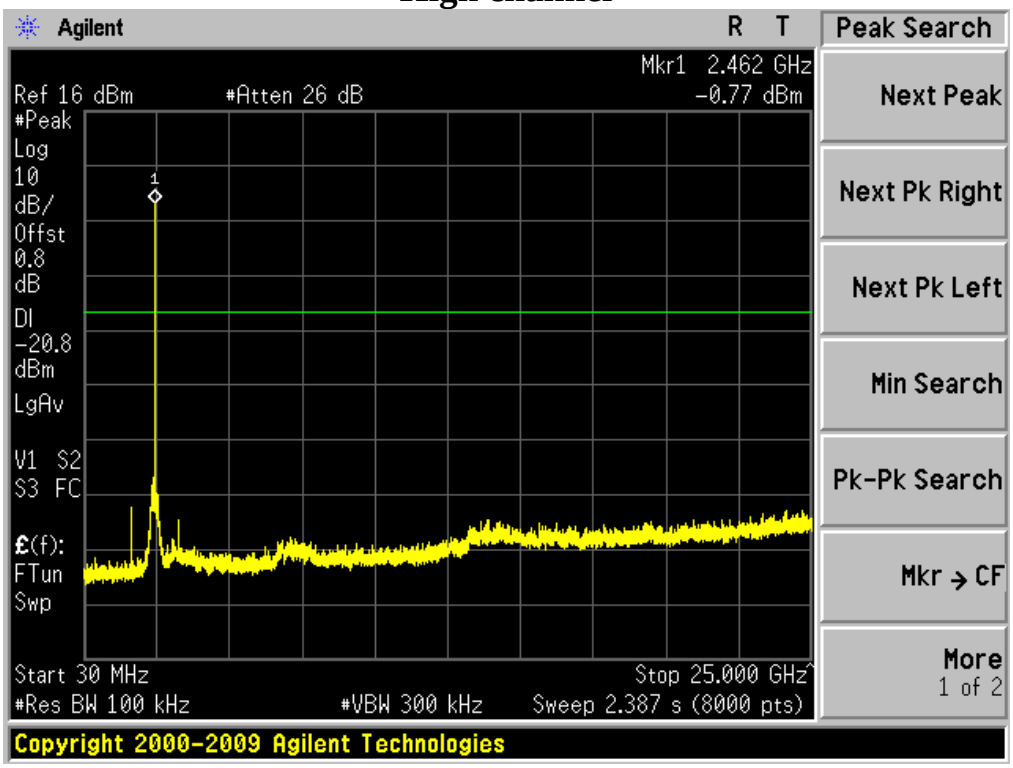
Antenna port conducted spurious emissions

802.11b mode:

Low channel

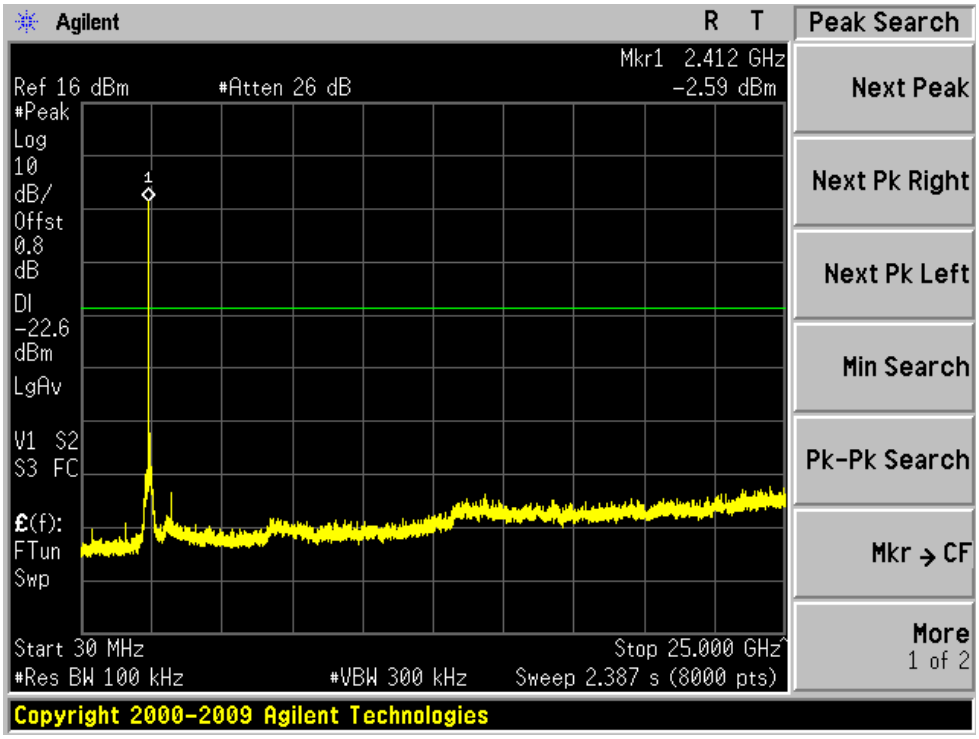


High channel

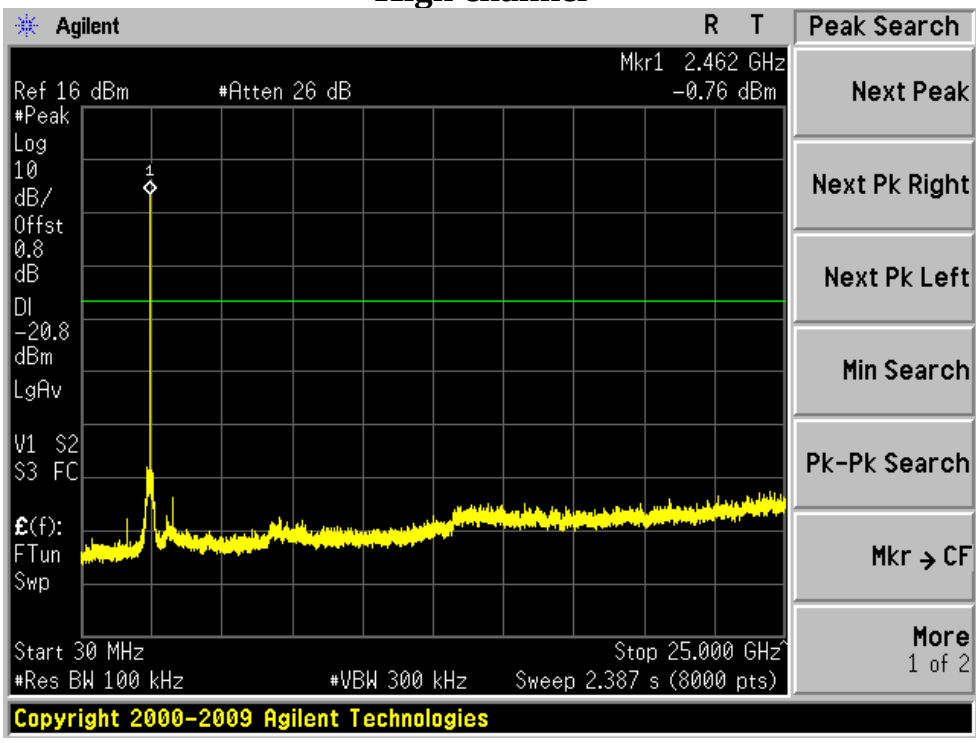


802.11g mode:

Low channel

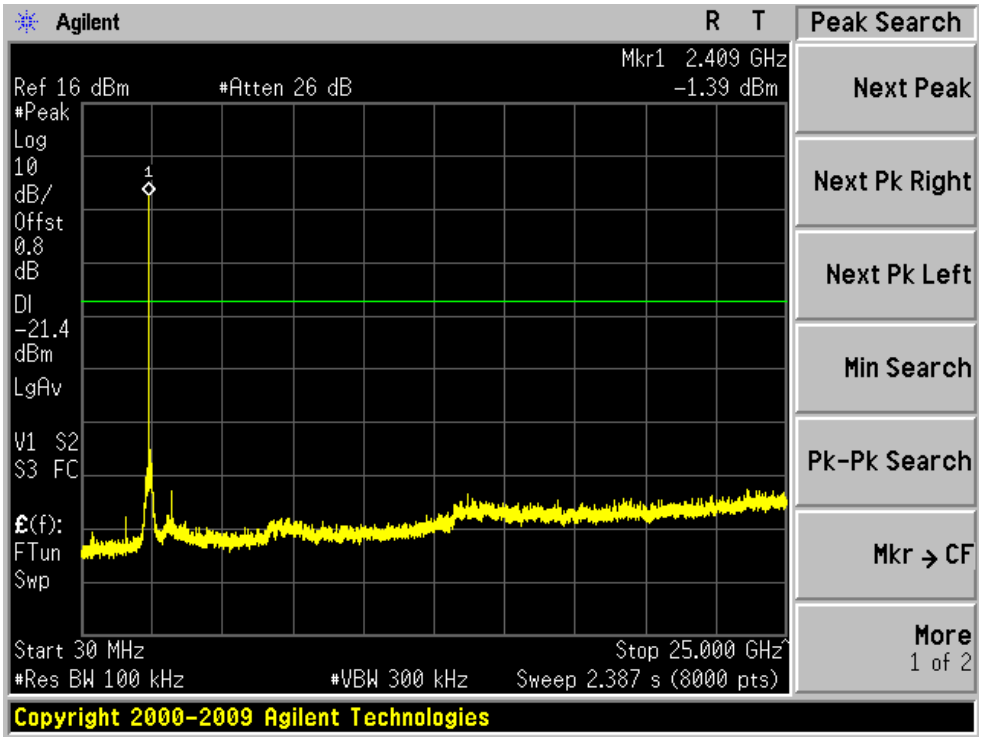


High channel

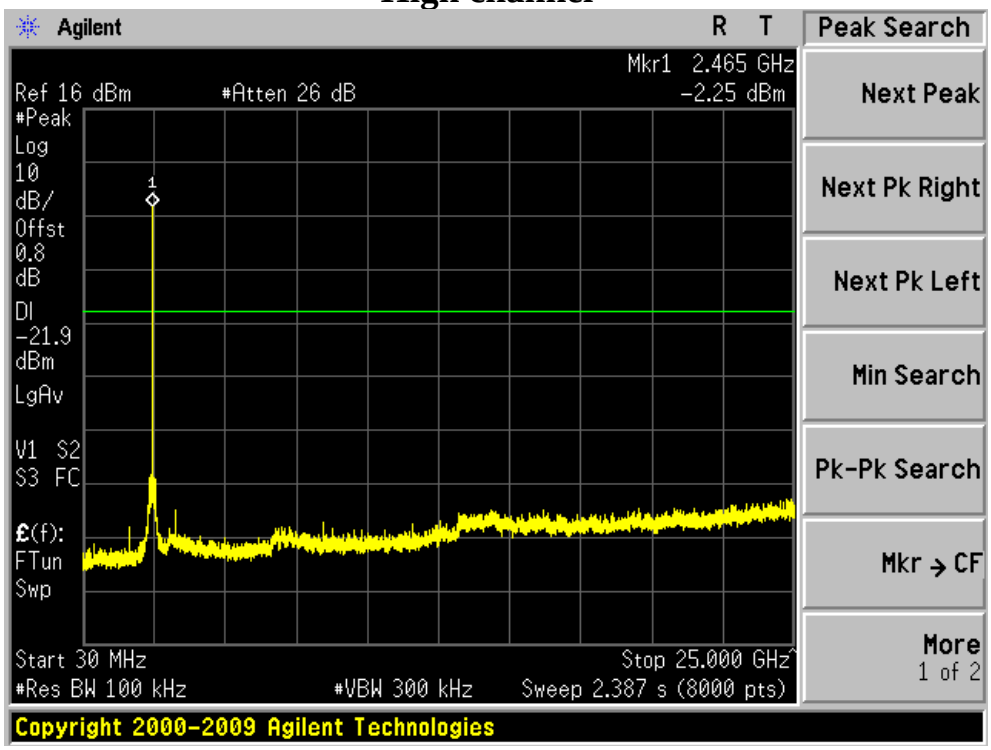


802.11n (20M) mode:

Low channel

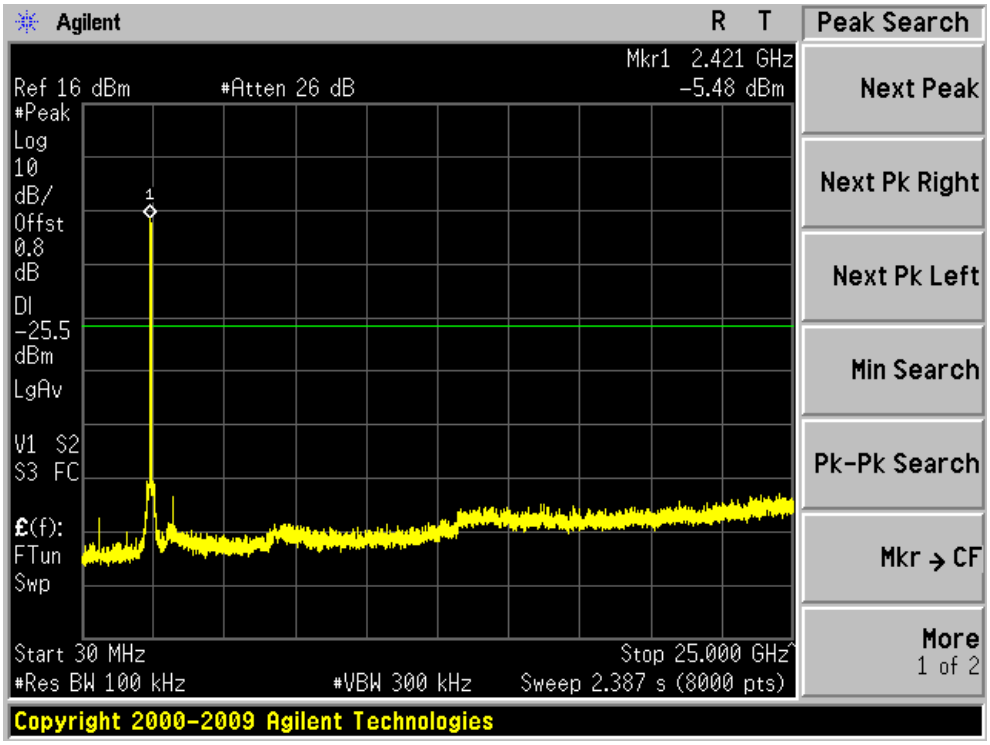


High channel

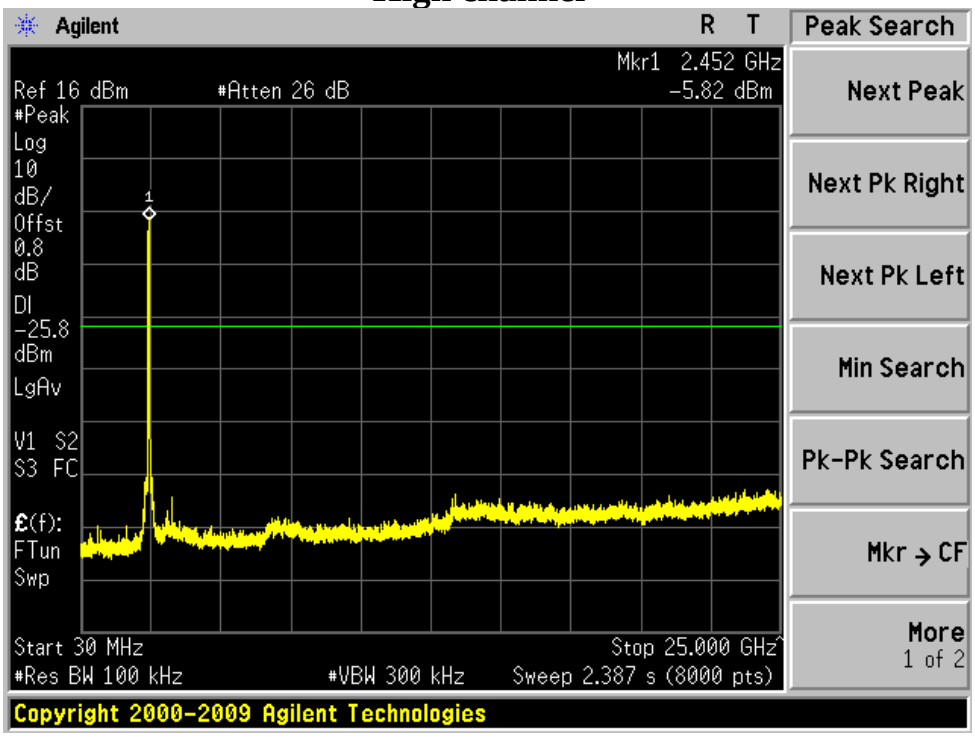


802.11n (40M) mode:

Low channel



High channel



9. §15.247(A) (2) – 6DB BANDWIDTH TESTING

9.1. Test Equipment

Please refer to Section 5 this report.

9.2. Test Procedure

1. Set EUT 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. Set the spectrum analyzer as RBW=100KHz,VBW≥RBW,Span=50MHz,Sweep=auto.
4. Mark the peak frequency and -6dB(upper and lower)frequency.
5. Repeat until all the rest channels are investigated.

9.3. Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

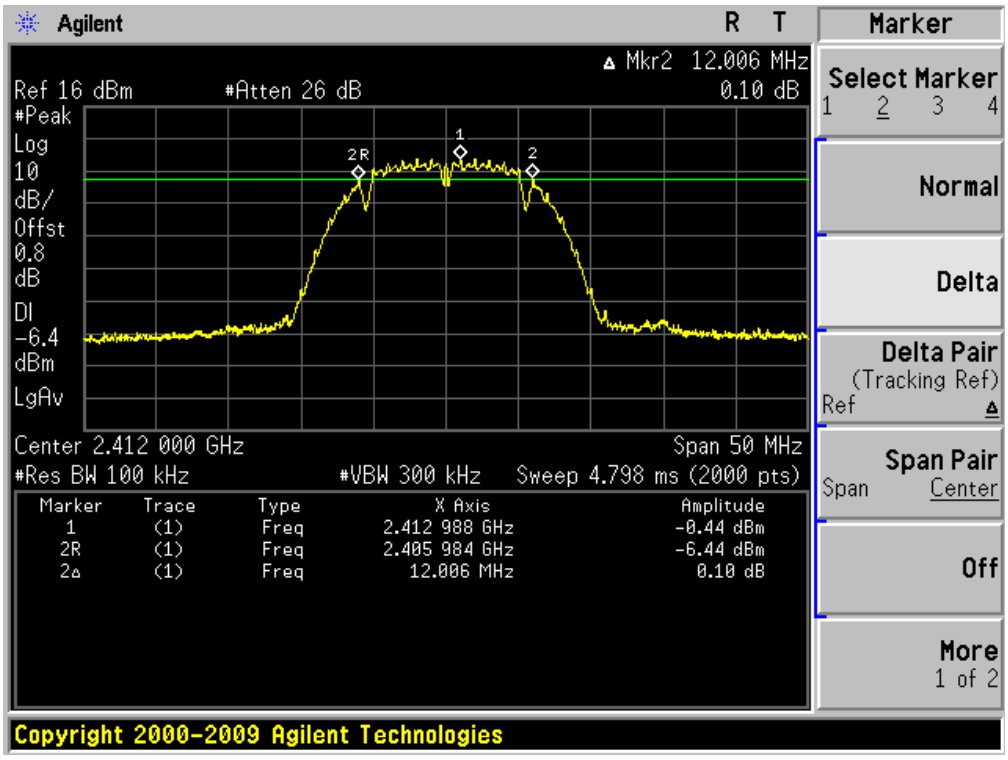
9.4. Test Result:Pass.

Please refer to the following tables

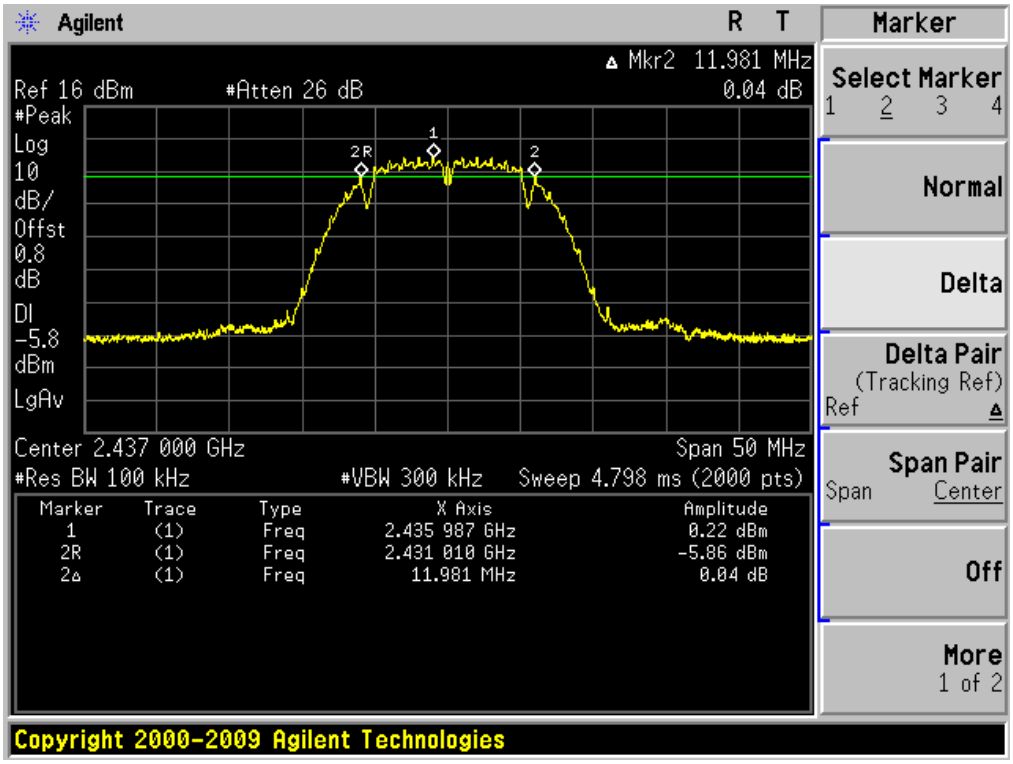
Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)	Limit (kHz)	Result
802.11b Mode				
2412	1	12006	＞500	Pass
2437	1	11981	＞500	Pass
2462	1	12006	＞500	Pass
802.11g Mode				
2412	6	16433	＞500	Pass
2437	6	16483	＞500	Pass
2462	6	16508	＞500	Pass
802.11n (20M) Mode				
2412	6.5	17184	＞500	Pass
2437	6.5	17384	＞500	Pass
2462	6.5	17459	＞500	Pass
802.11n (40M) Mode				
2412	13	36020	＞500	Pass
2437	13	36060	＞500	Pass
2462	13	36060	＞500	Pass

802.11b Mode:

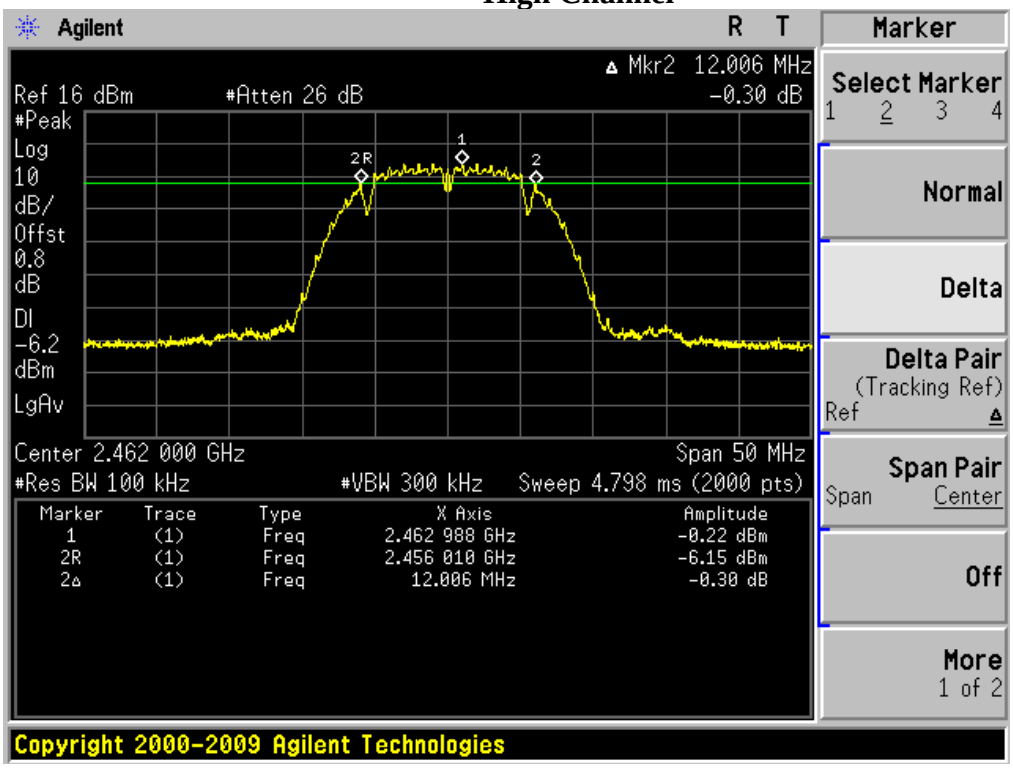
Low Channel



Middle Channel

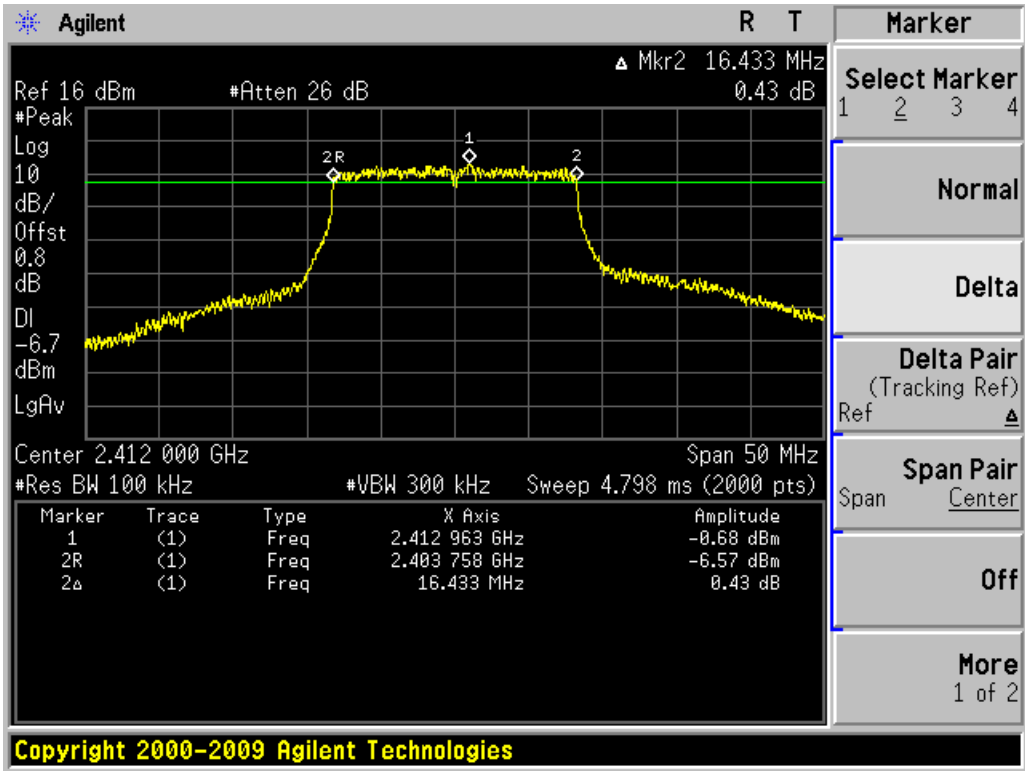


High Channel

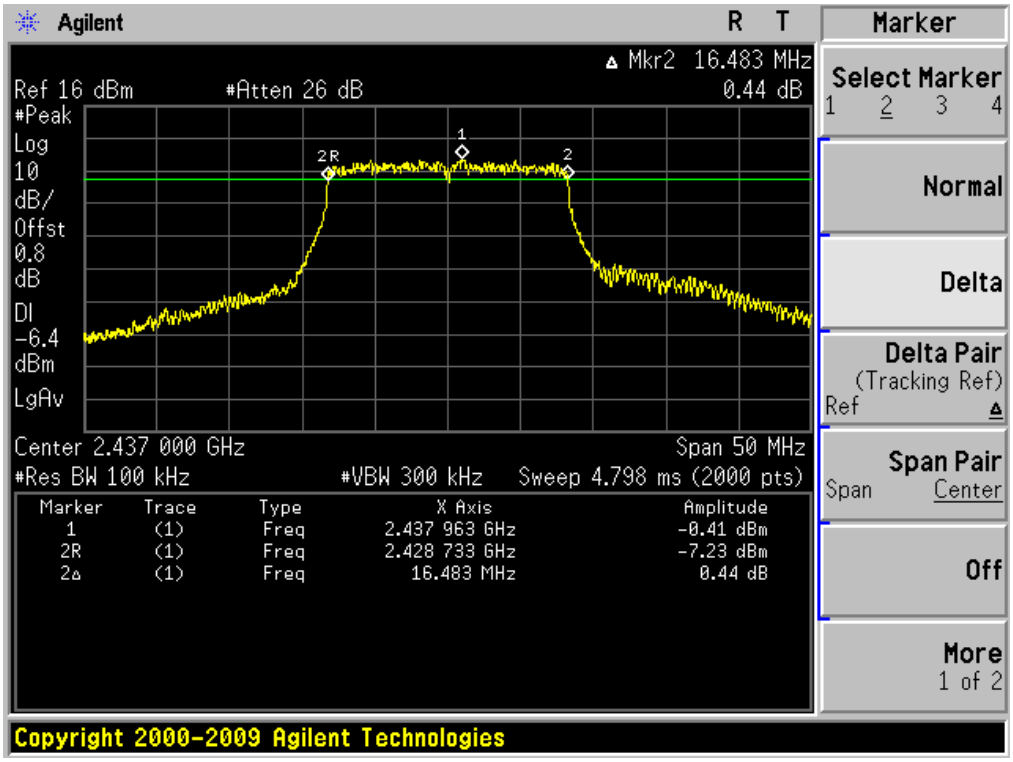


802.11g Mode:

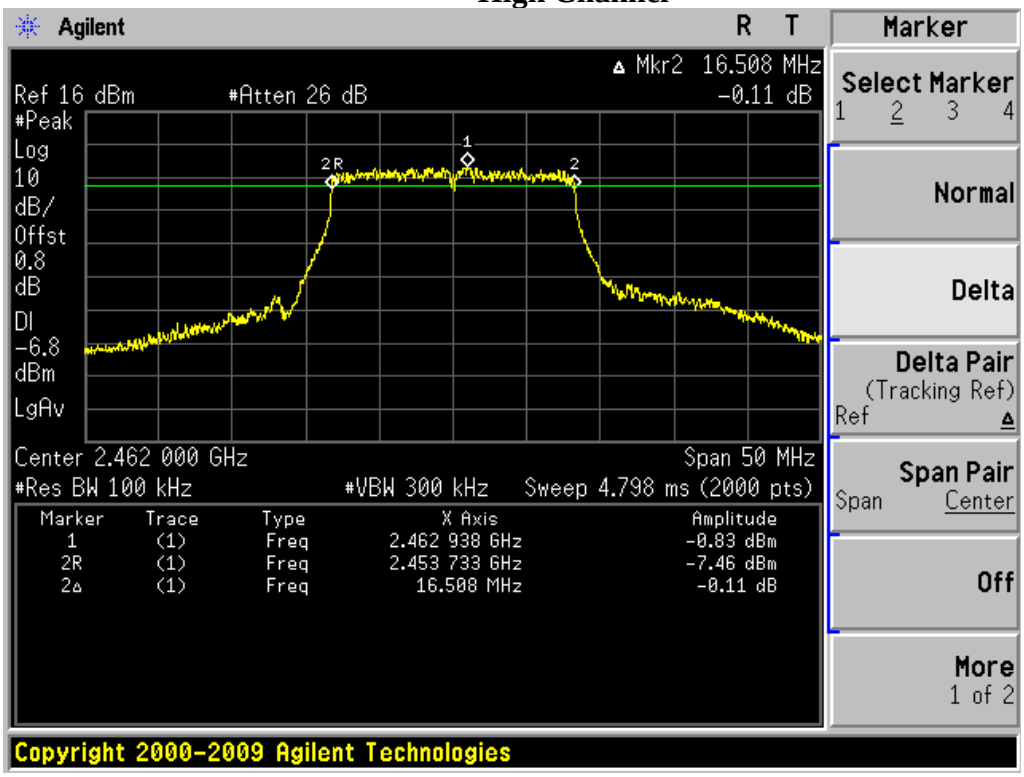
Low Channel



Middle Channel

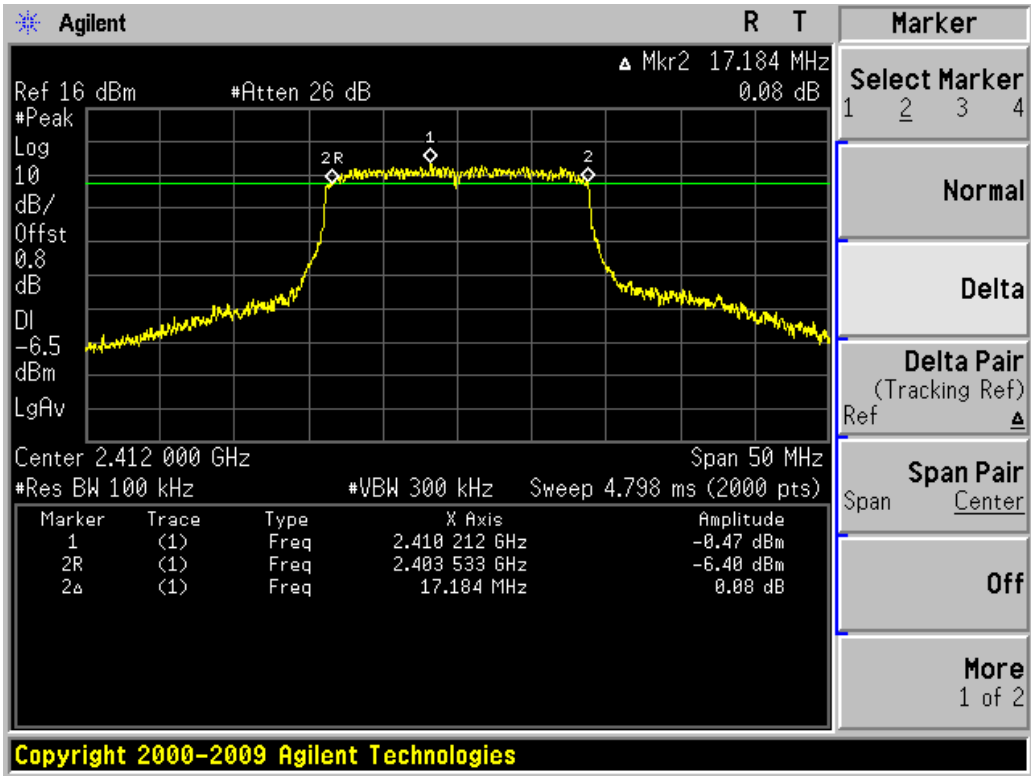


High Channel

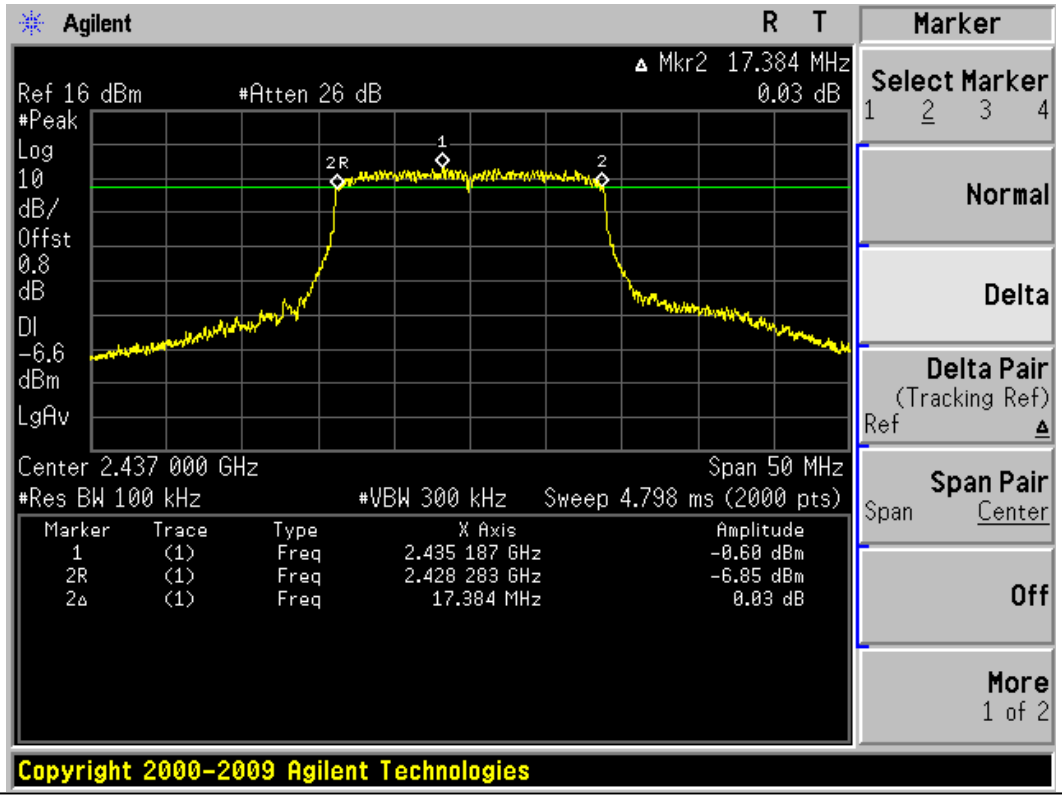


802.11n (20M) Mode:

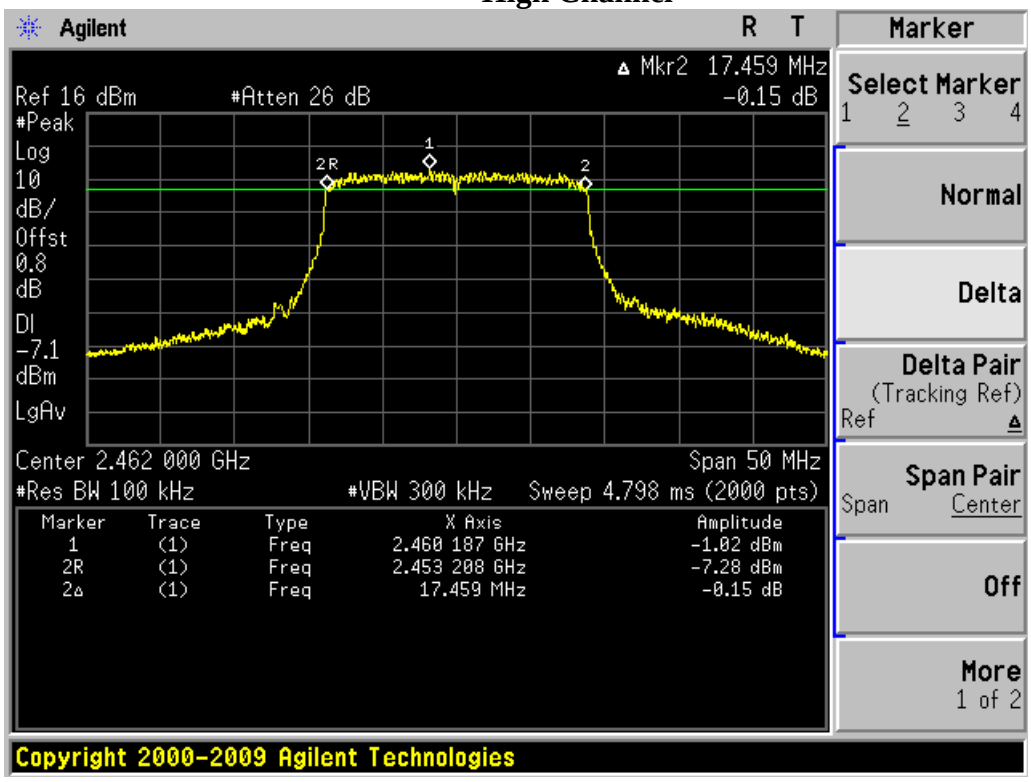
Low Channel



Middle Channel

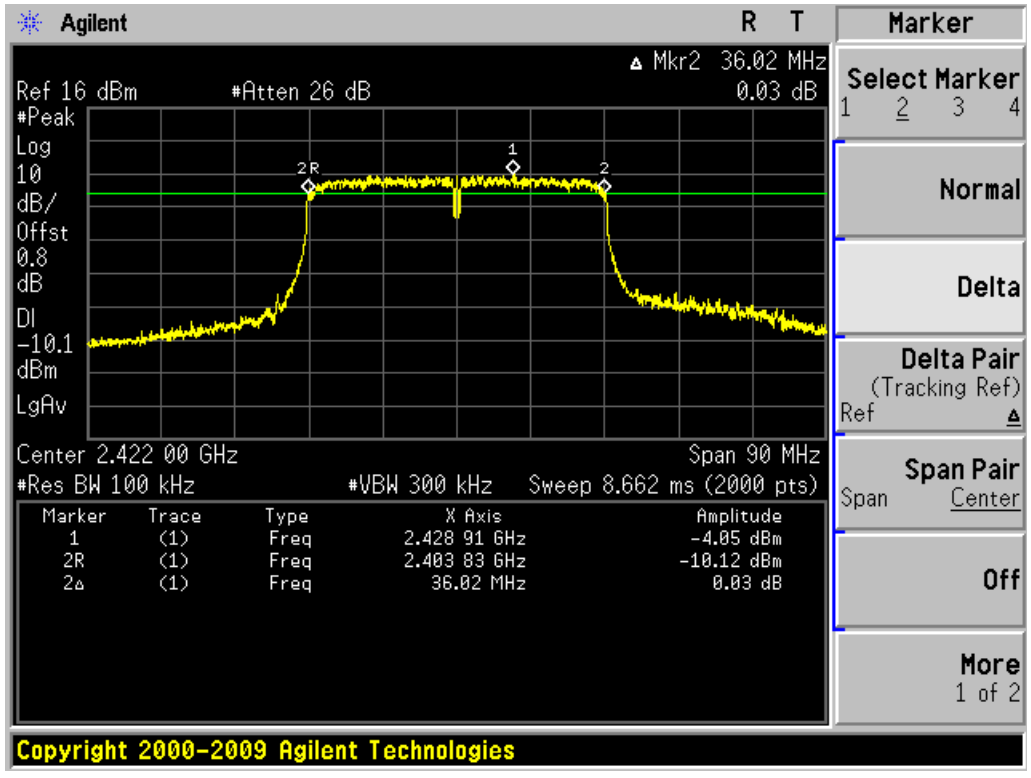


High Channel

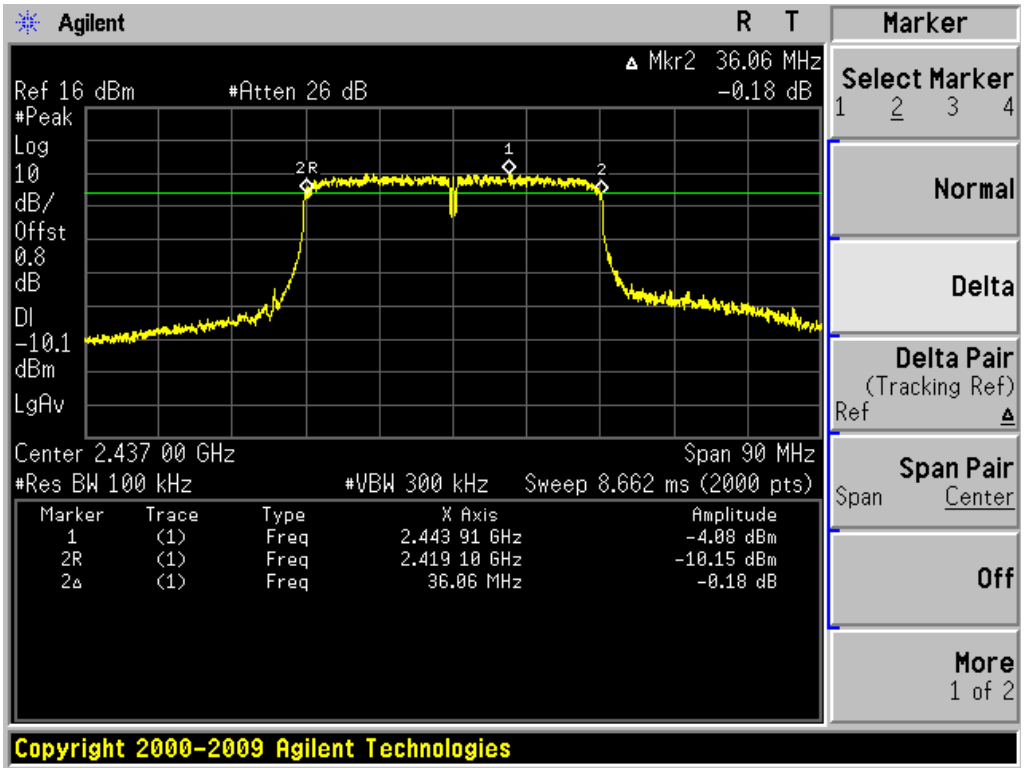


802.11n (40M) Mode:

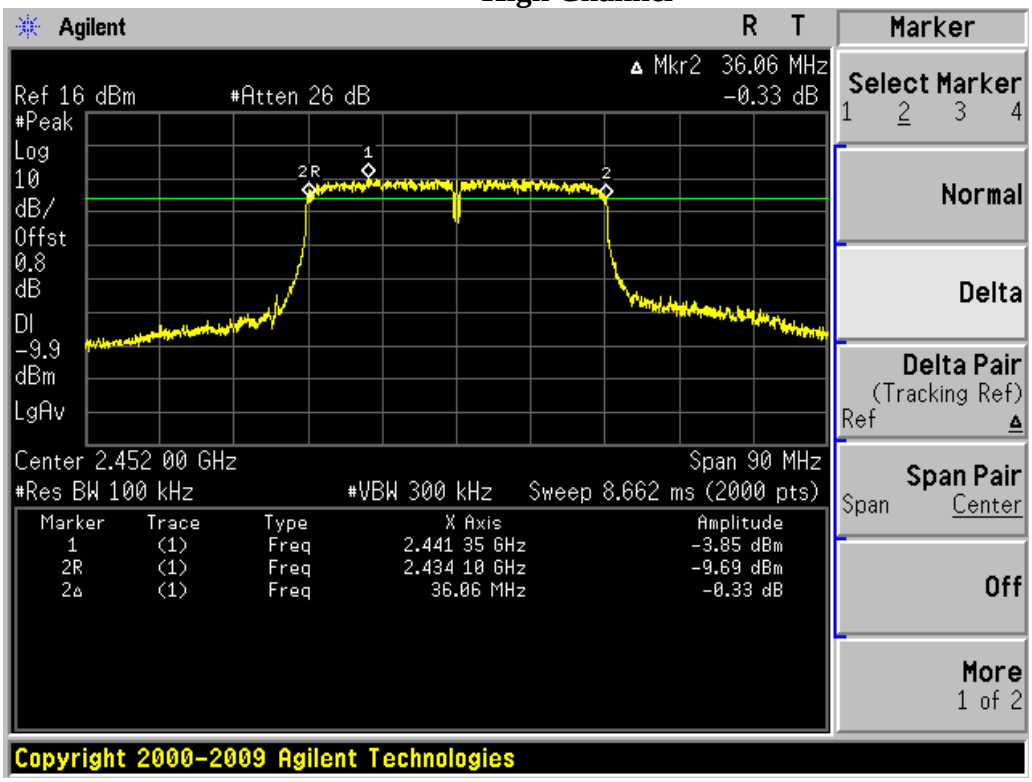
Low Channel



Middle Channel



High Channel



10. §15.247(B) (3) - Maximum Peak Output Power

10.1. Test Equipment

Please refer to Section 4 this report.

10.2.Test Procedure

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz.
3. Set VBW≥3 MHz.
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”.
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

10.3.Applicable Standard

According to §15.247(b) (3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

10.4. Test Result

Pass

802.11b Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	1	18.25	30
Mid	2437	1	18.04	30
High	2462	1	18.18	30

802.11g Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6	17.68	30
Mid	2437	6	17.47	30
High	2462	6	17.54	30

802.11n (20M) Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6.5	16.29	30
Mid	2437	6.5	16.16	30
High	2462	6.5	16.23	30

802.11n (40M) Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2422	13.5	15.71	30
Mid	2437	13.5	15.64	30
High	2452	13.5	15.77	30

11. §15.247(D) – 100 KHZ Bandwidth of Frequency Band Edge

11.1.Test Equipment

Please refer to Section 4 this report.

11.2.Test Procedure

1, Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2, Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3, Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
Note: For Rdstricted Band
RBW=1MHz
VBW=1 MHz
4, Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5, Repeat above procedures until all measured frequencies were complete.

11.3.Applicable Standard

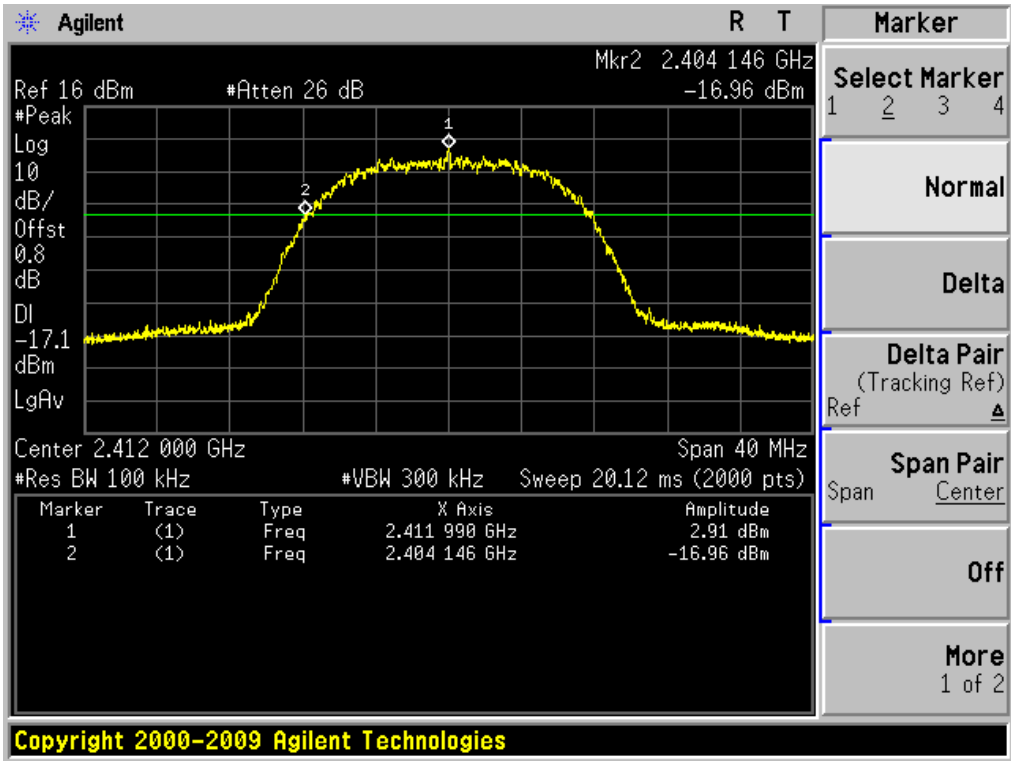
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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 §15.205(c)).

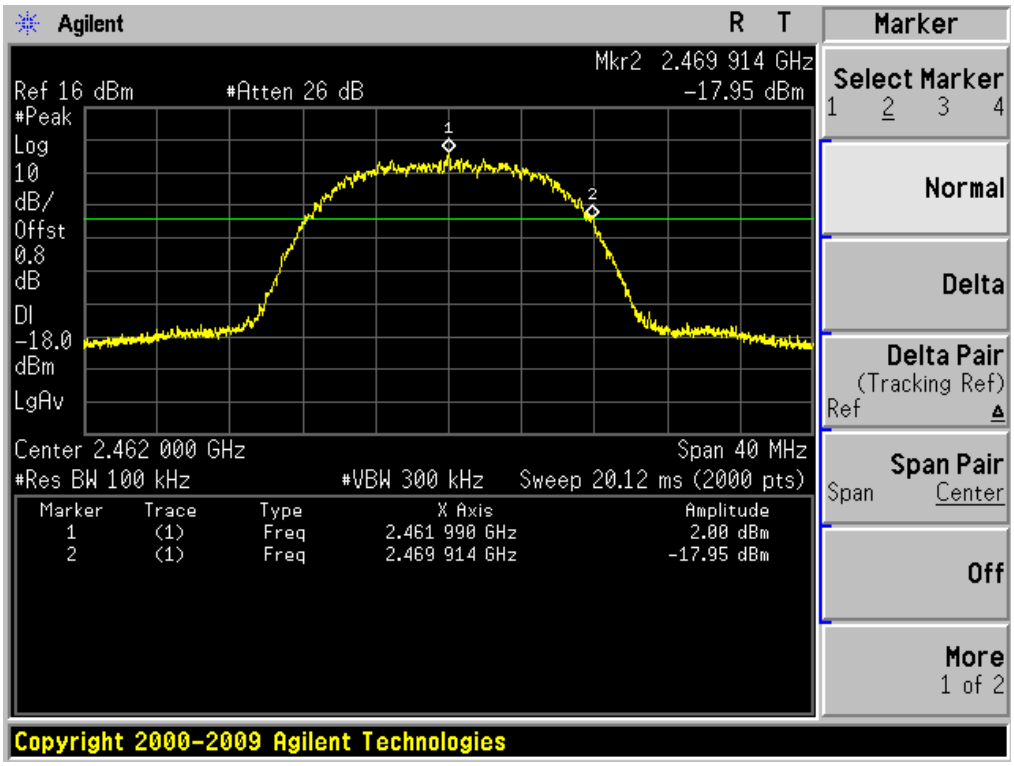
11.4.Test Result

Pass.

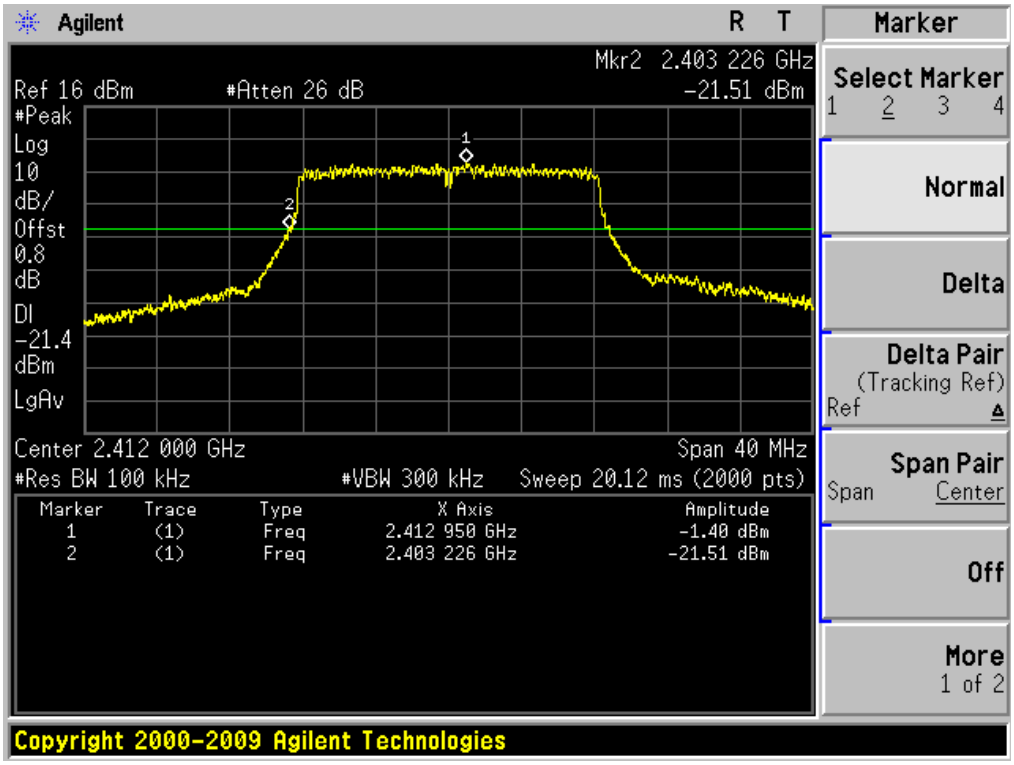
Conducted test

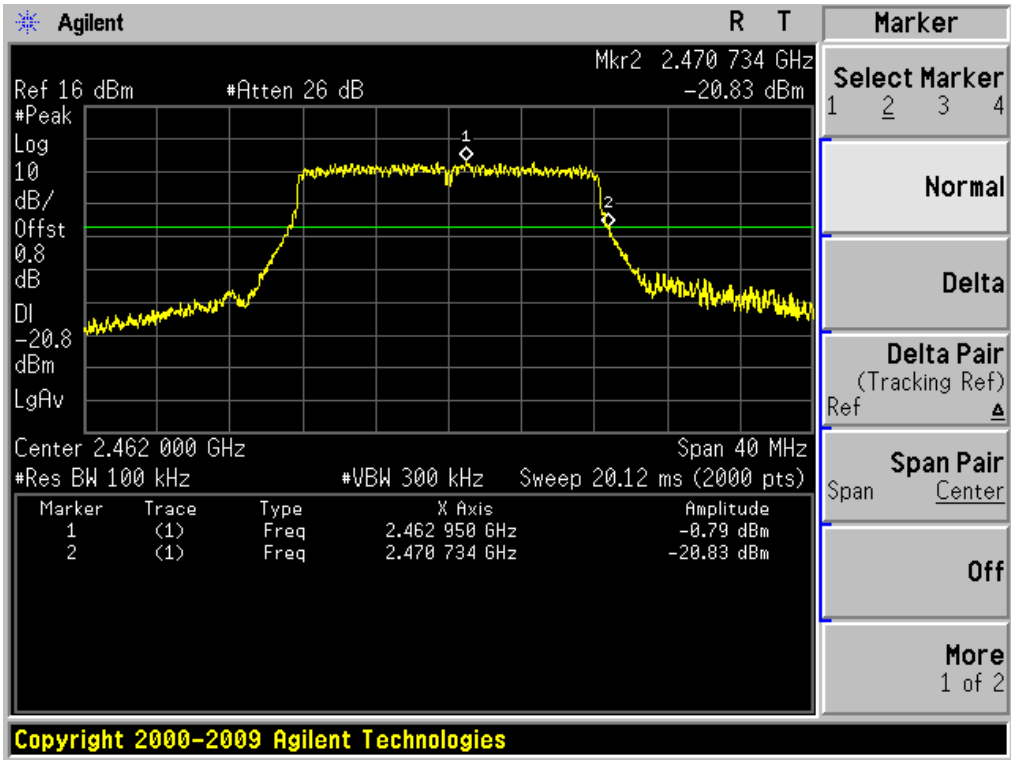
802.11b Mode:



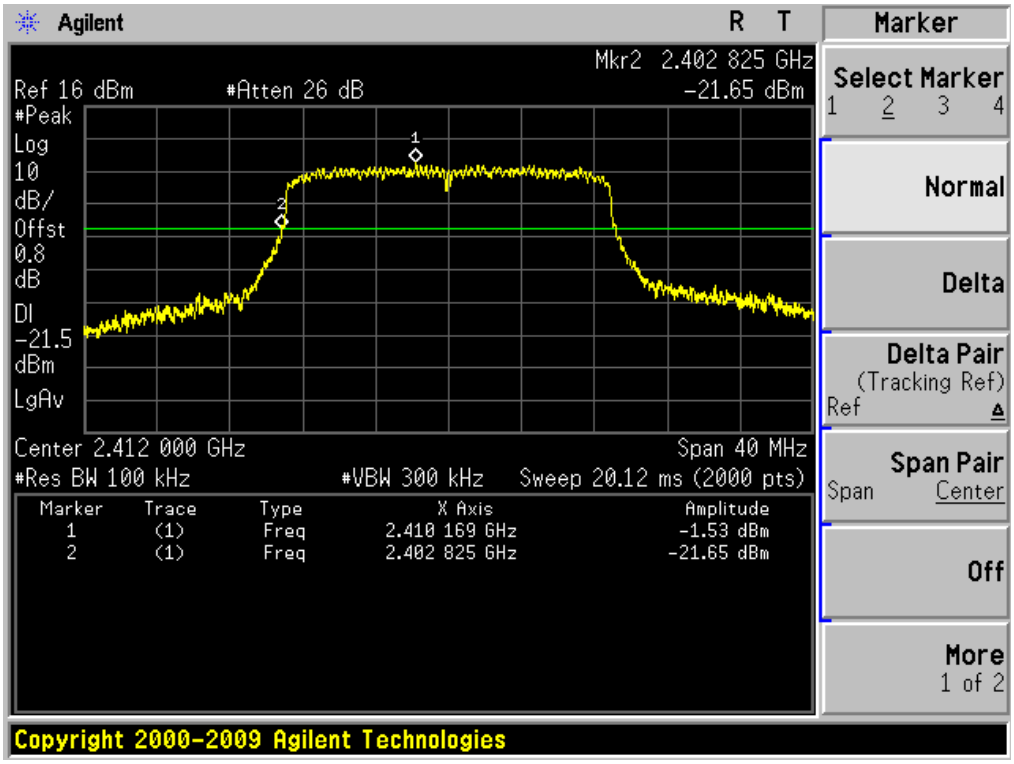


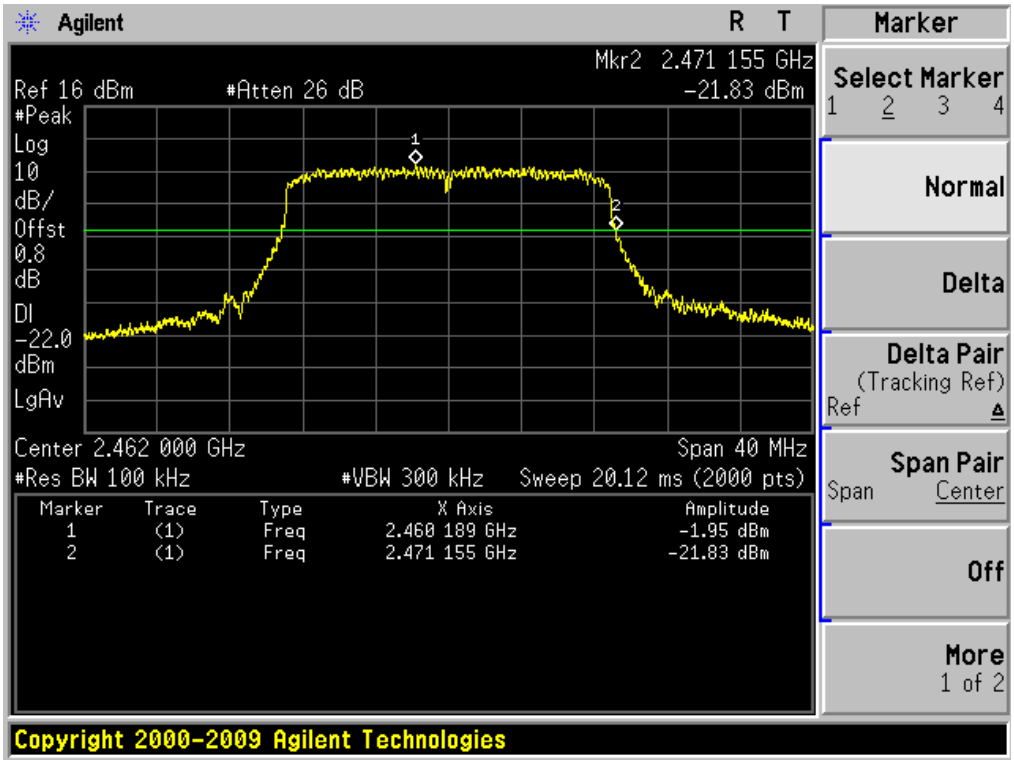
802.11g Mode:


Agilent
R T
Marker
Mkr2 2.403 226 GHz
Ref 16 dBm
#Atten 26 dB
-21.51 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-21.4
dBm
LgAv
Center 2.412 000 GHz
Span 40 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 20.12 ms (2000 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.412 950 GHz -1.40 dBm
2 (1) Freq 2.403 226 GHz -21.51 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2009 Agilent Technologies

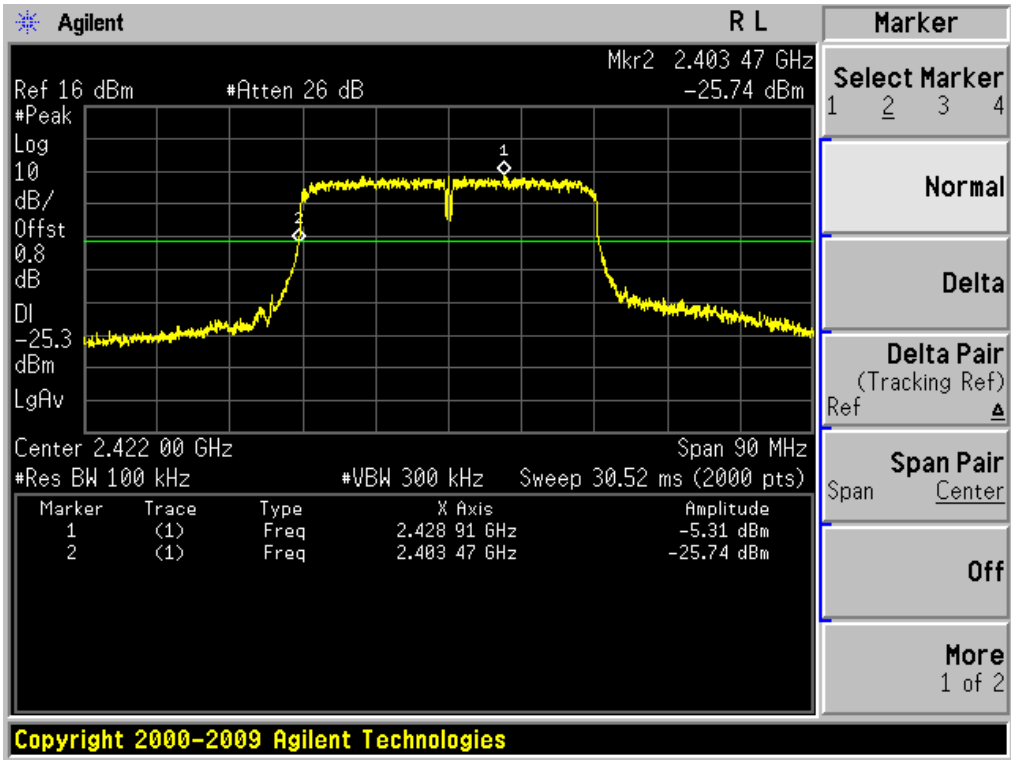

Agilent
R T
Marker
Mkr2 2.470 734 GHz
Ref 16 dBm
#Atten 26 dB
-20.83 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.8
dBm
LgAv
Center 2.462 000 GHz
Span 40 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 20.12 ms (2000 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.462 950 GHz -0.79 dBm
2 (1) Freq 2.470 734 GHz -20.83 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2009 Agilent Technologies

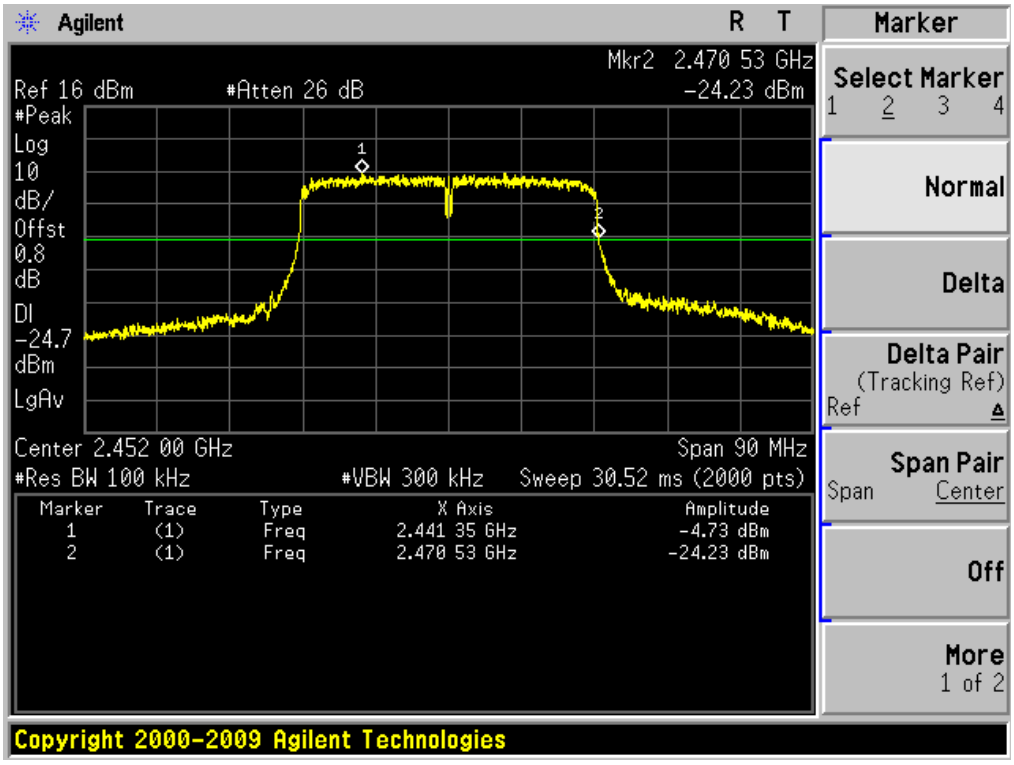
802.11n (20M) Mode:





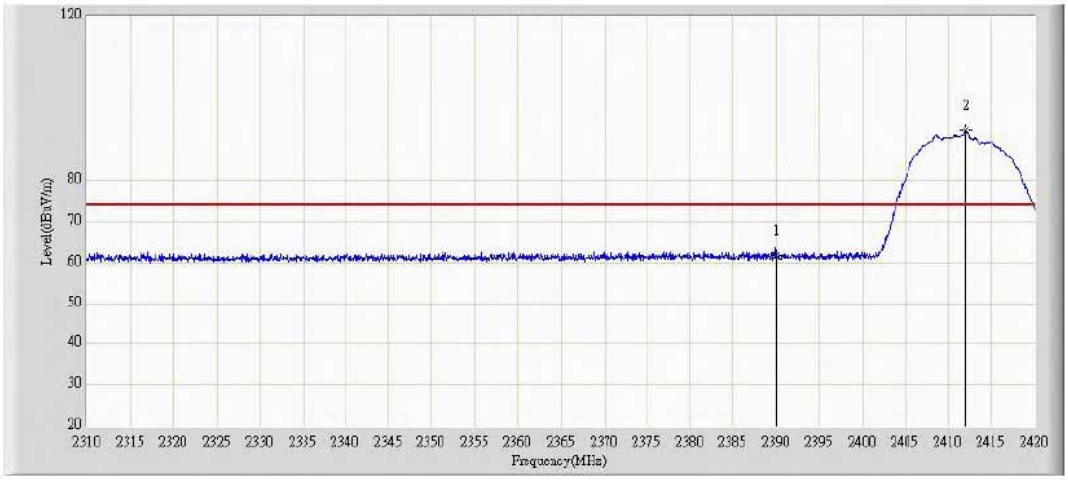
802.11n (40M) Mode:



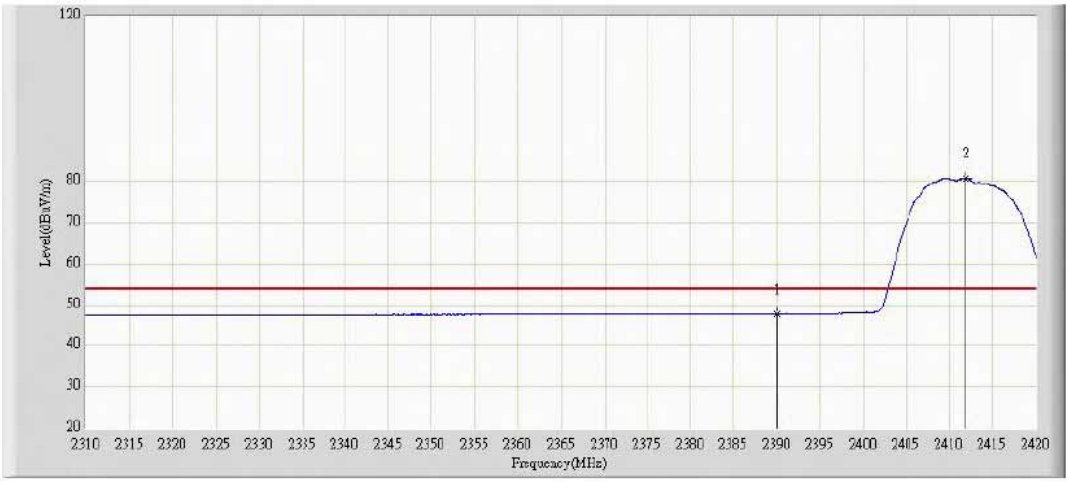


Radiated test

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel Low 2412MHz	Polarization:	HORIZONTAL



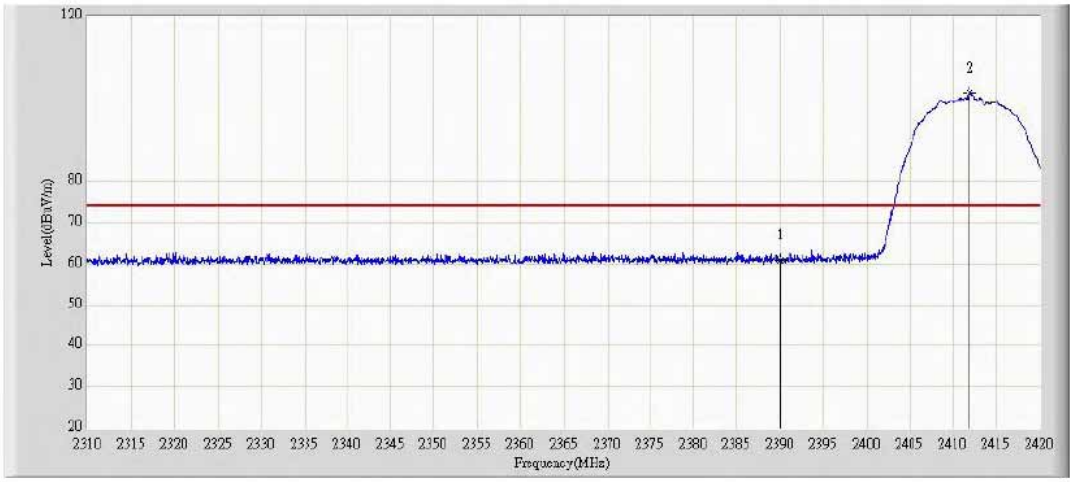
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.807	30.622	-12.193	74.000	31.185	PK
2		*	2412.080	91.983	60.803	N/A	N/A	31.180	PK



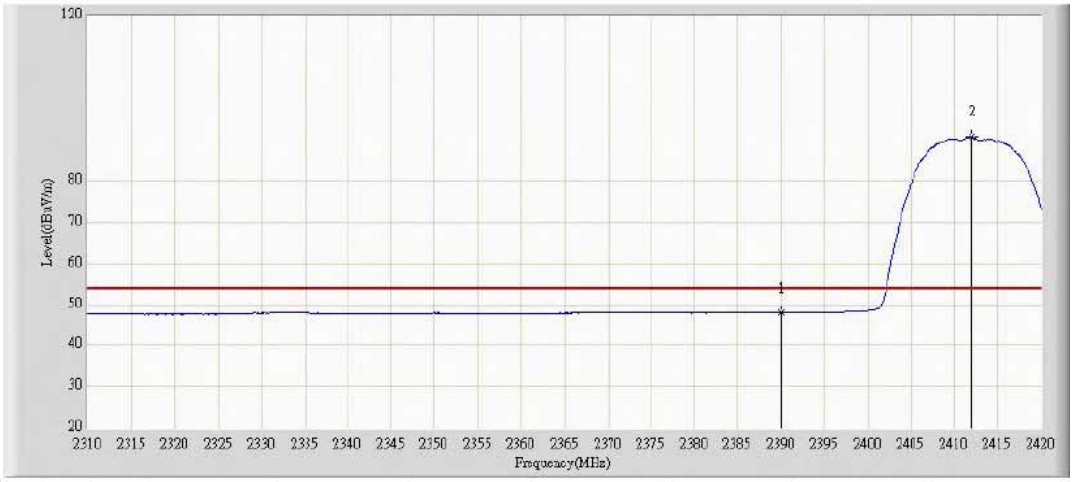
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.672	16.487	-6.328	54.000	31.185	AV
2		*	2411.915	80.755	49.575	N/A	N/A	31.180	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel Low 2412MHz	Polarization:	VERTICAL



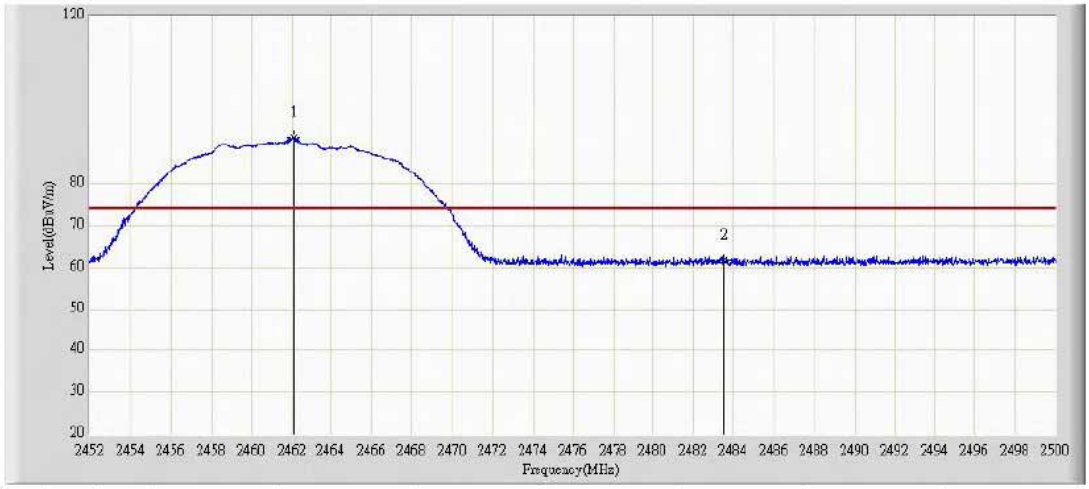
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	60.828	29.643	-13.172	74.000	31.185	PK
2		*	2411.915	101.219	70.039	N/A	N/A	31.180	PK



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.829	16.644	-6.171	54.000	31.185	AV
2		*	2412.080	90.669	59.489	N/A	N/A	31.180	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel High 2462MHz	Polarization:	HORIZONTAL

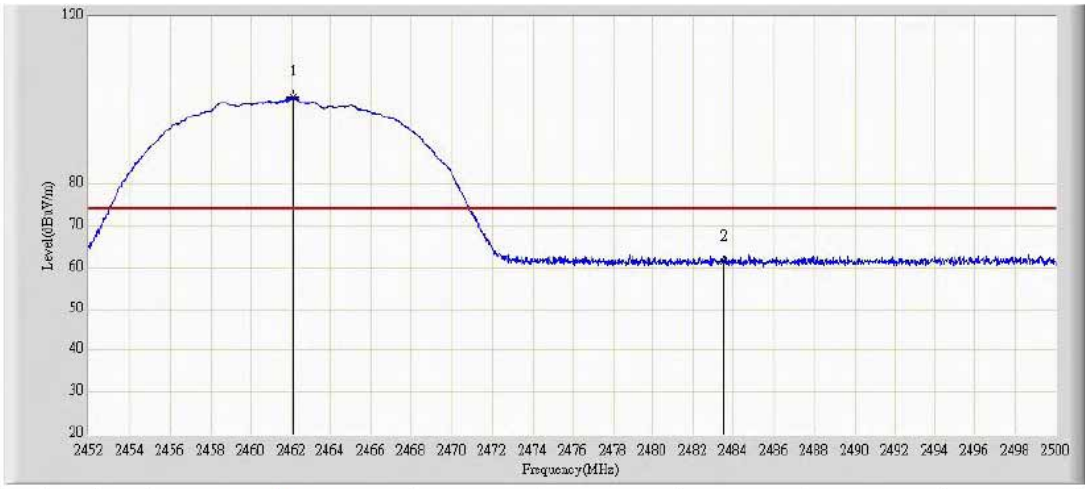


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.104	90.973	59.770	N/A	N/A	31.203	PK
2			2483.500	61.644	30.435	-12.356	74.000	31.209	PK

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2461.912	79.789	48.586	N/A	N/A	31.203	AV
2			2483.500	47.812	16.603	-6.188	54.000	31.209	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b Channel High 2462MHz	Polarization:	VERTICAL



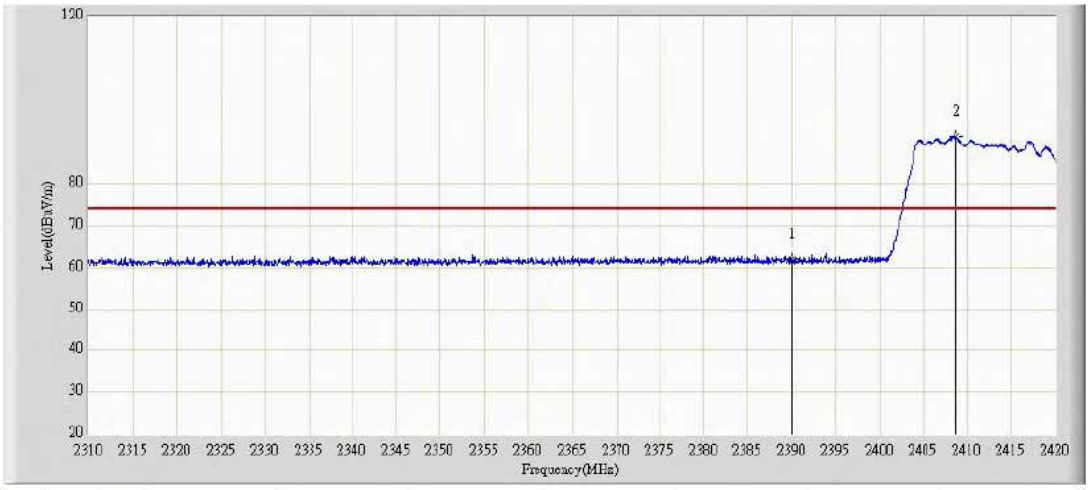
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.080	100.868	69.665	N/A	N/A	31.203	PK
2			2483.500	61.328	30.119	-12.672	74.000	31.209	PK

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2462.128	90.180	58.977	N/A	N/A	31.203	AV
2			2483.500	47.955	16.746	-6.045	54.000	31.209	AV

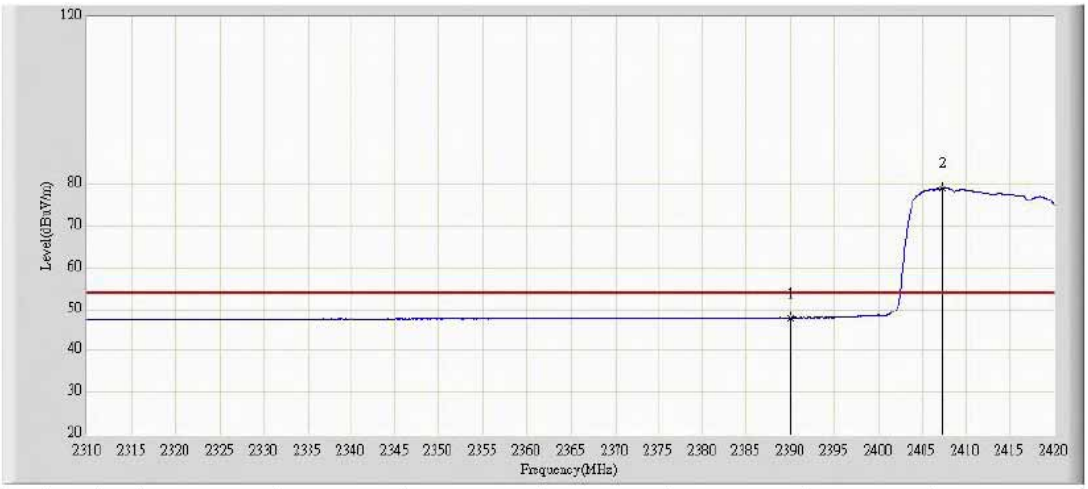
Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Radiated test

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel Low 2412MHz	Polarization:	HORIZONTAL



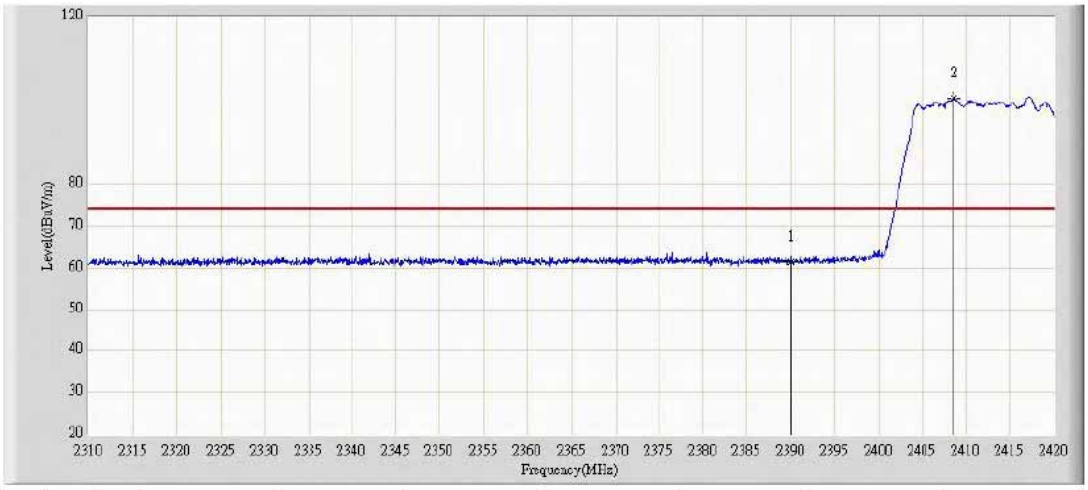
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.881	30.696	-12.119	74.000	31.185	PK
2		*	2408.725	91.348	60.168	N/A	N/A	31.180	PK



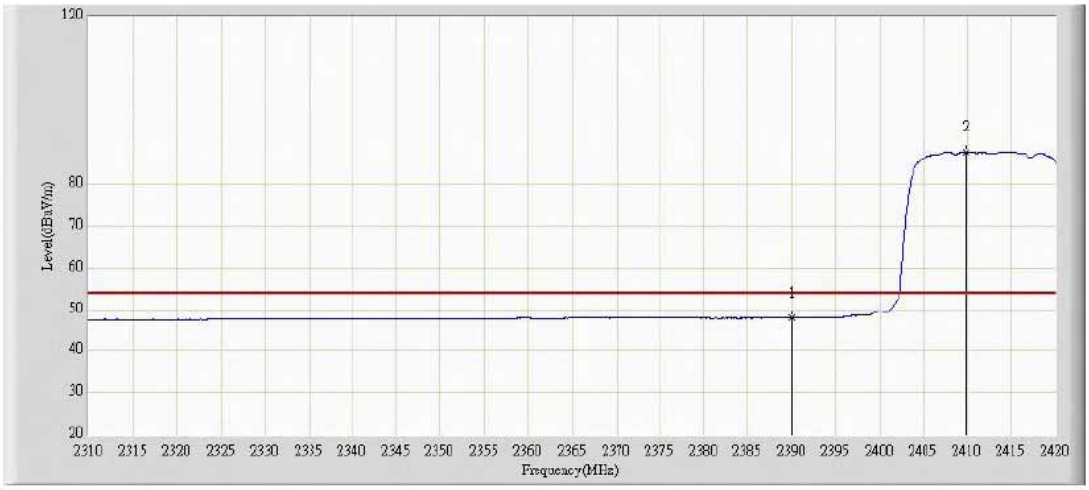
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.697	16.512	-6.303	54.000	31.185	AV
2		*	2407.460	78.906	47.725	N/A	N/A	31.181	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel Low 2412MHz	Polarization:	VERTICAL



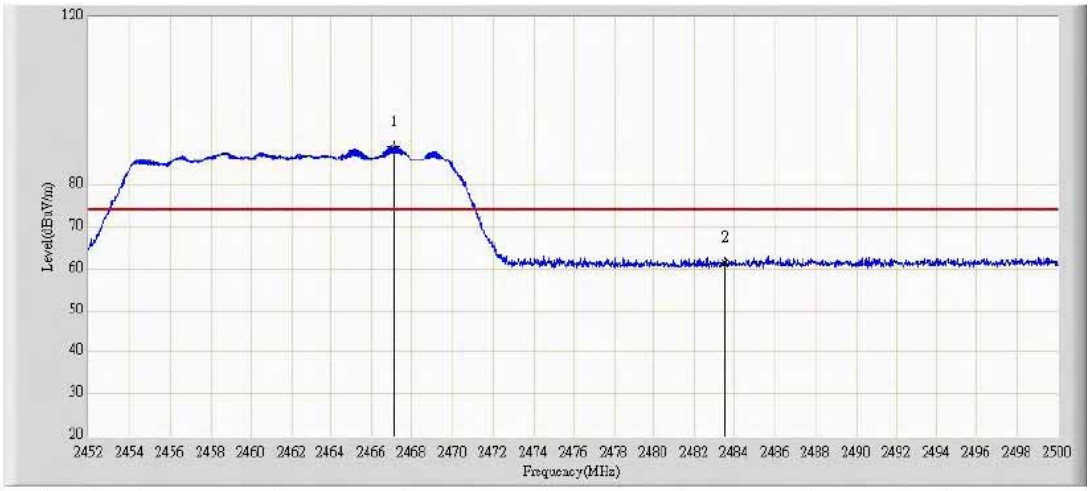
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.267	30.082	-12.733	74.000	31.185	PK
2		*	2408.670	100.442	69.262	N/A	N/A	31.180	PK



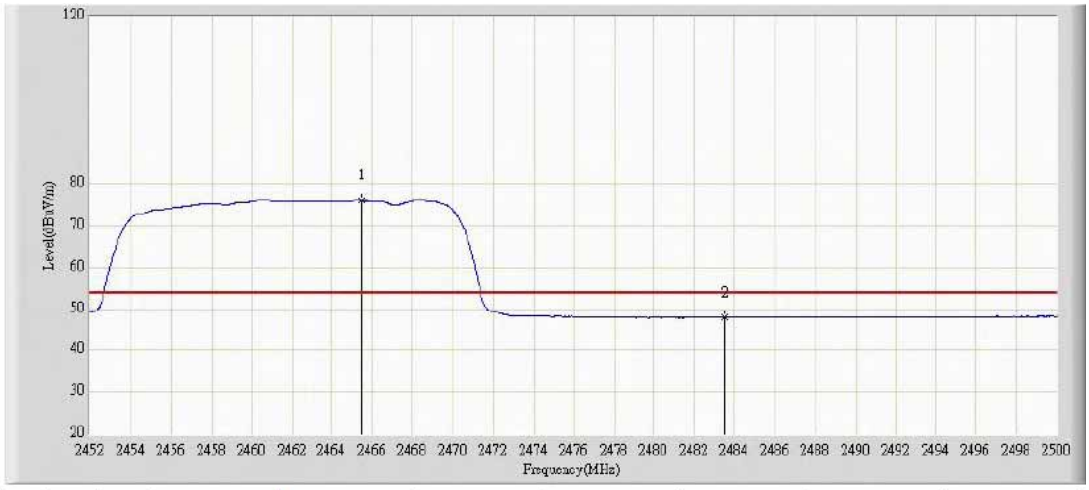
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.810	16.625	-6.190	54.000	31.185	AV
2		*	2409.825	87.572	56.392	N/A	N/A	31.181	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel High 2462MHz	Polarization:	HORIZONTAL



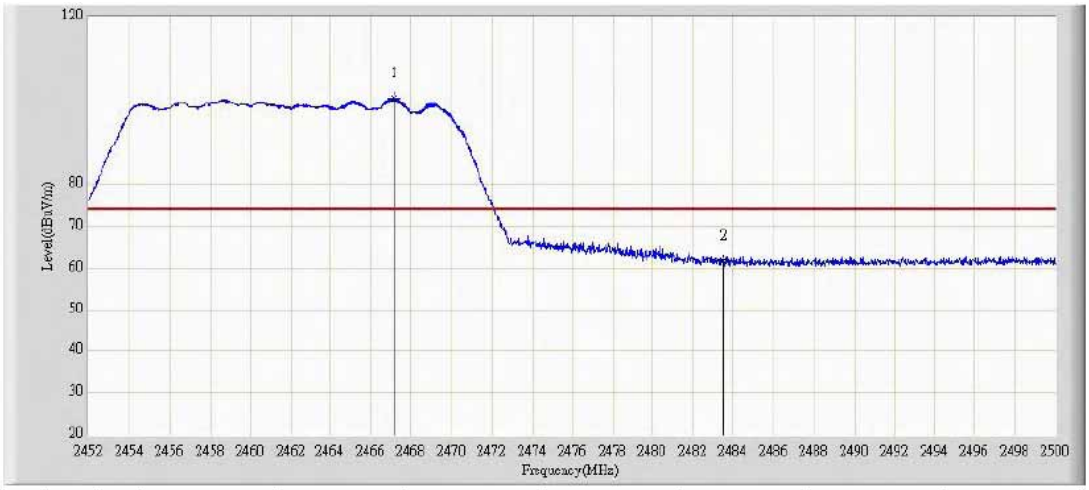
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.120	88.925	57.721	N/A	N/A	31.204	PK
2			2483.500	61.513	30.304	-12.487	74.000	31.209	PK



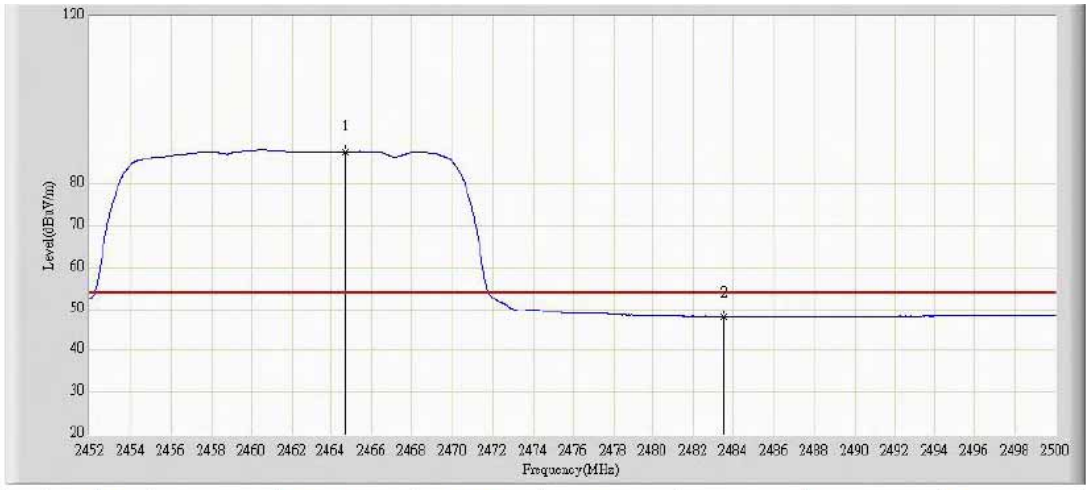
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2465.488	75.967	44.763	N/A	N/A	31.204	AV
2			2483.500	47.788	16.579	-6.212	54.000	31.209	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g Channel High 2462MHz	Polarization:	VERTICAL



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.192	100.418	69.214	N/A	N/A	31.204	PK
2			2483.500	61.693	30.484	-12.307	74.000	31.209	PK

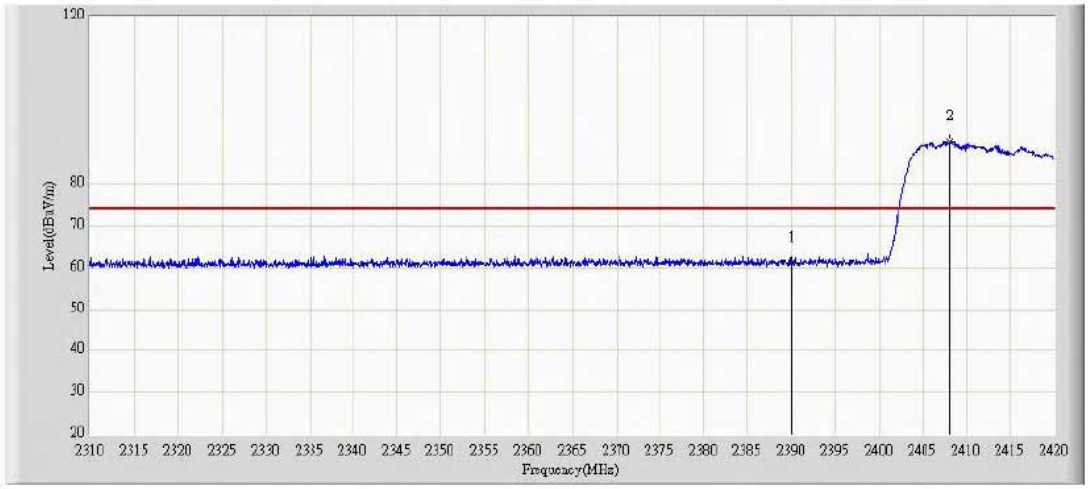


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.744	87.572	56.369	N/A	N/A	31.203	AV
2			2483.500	47.952	16.743	-6.048	54.000	31.209	AV

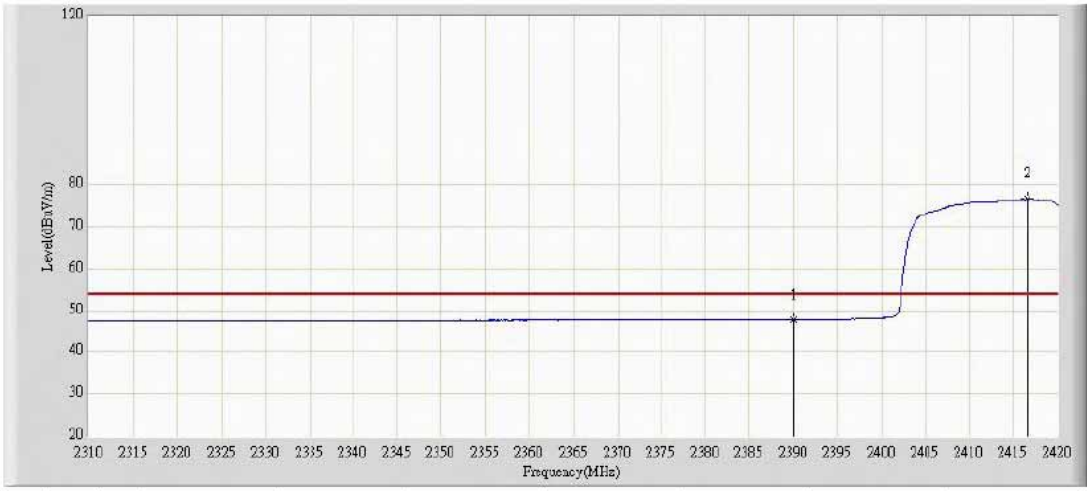
Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Radiated test

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel Low 2412MHz	Polarization:	HORIZONTAL



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	60.995	29.810	-13.005	74.000	31.185	PK
2		*	2408.120	90.148	58.967	N/A	N/A	31.181	PK

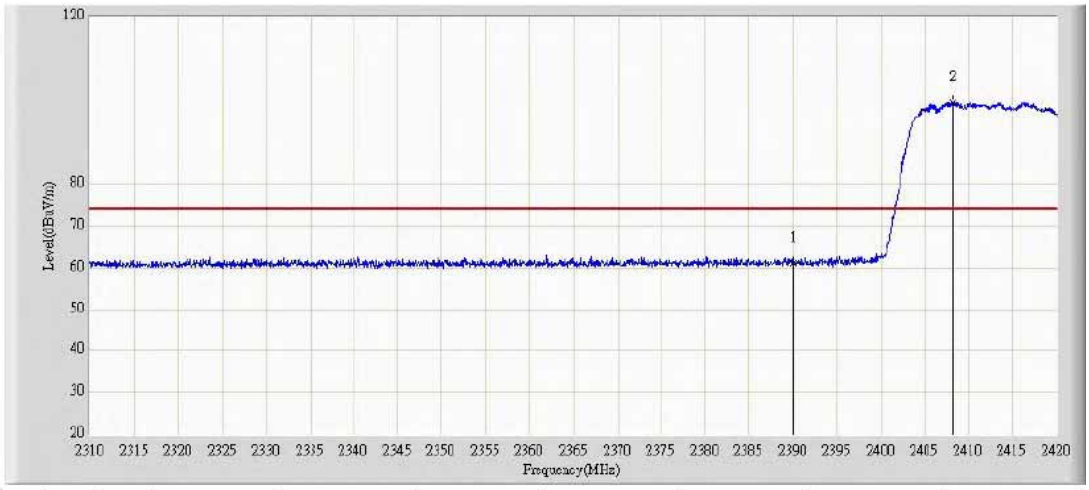


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.660	16.475	-6.340	54.000	31.185	AV
2		*	2416.535	76.507	45.325	N/A	N/A	31.182	AV

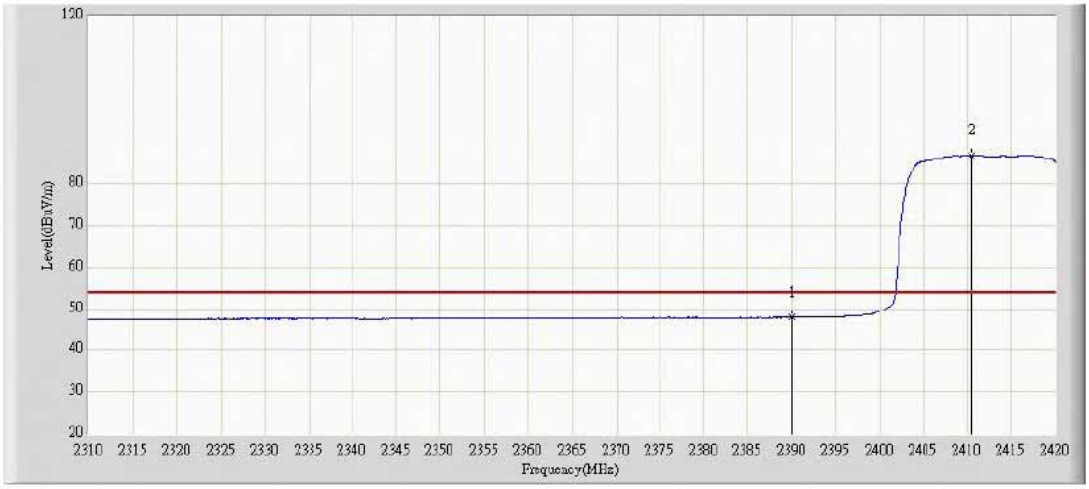
Note: 1. Measurement Level = Reading Level + Correct Factor.

2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel Low 2412MHz	Polarization:	VERTICAL



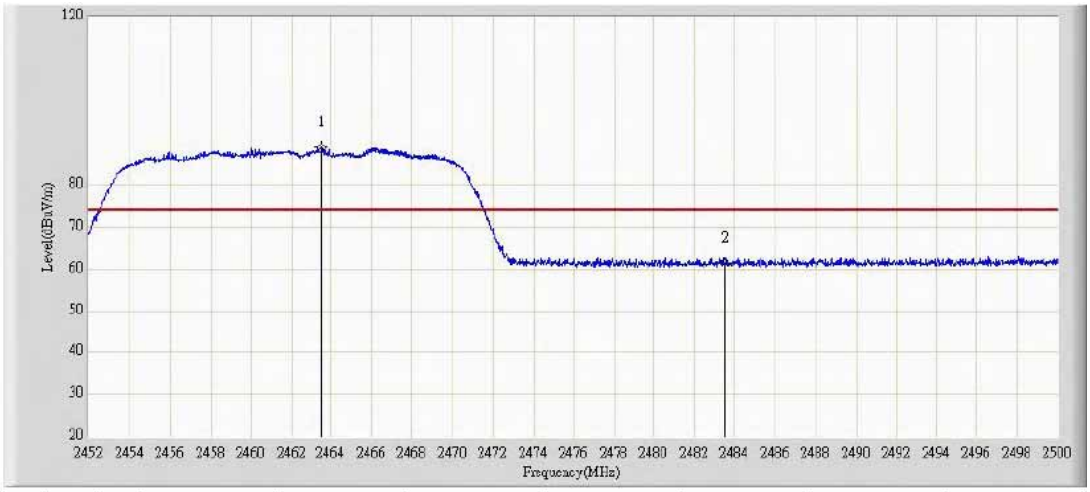
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.016	29.831	-12.984	74.000	31.185	PK
2		*	2408.230	99.680	68.500	N/A	N/A	31.181	PK



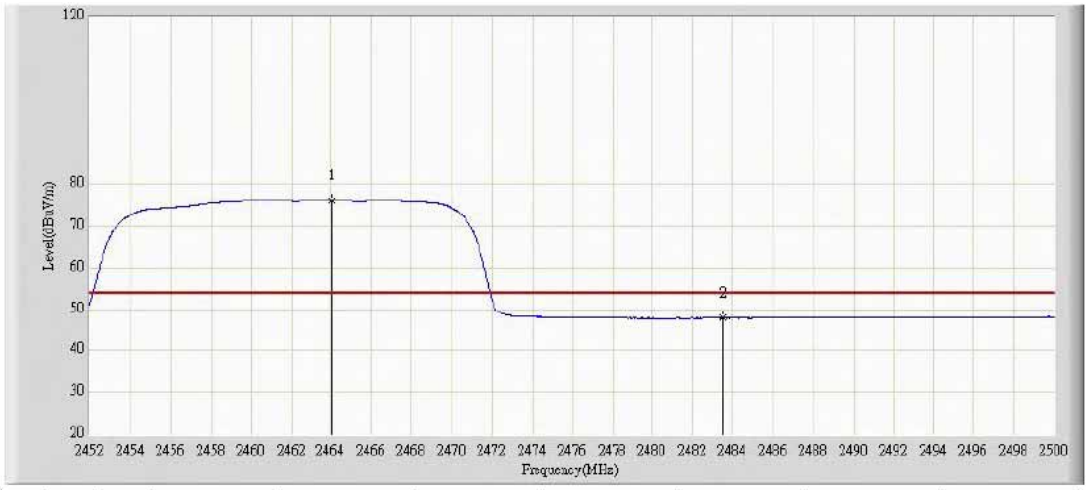
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.778	16.593	-6.222	54.000	31.185	AV
2		*	2410.540	86.781	55.601	N/A	N/A	31.180	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel High 2462MHz	Polarization:	HORIZONTAL



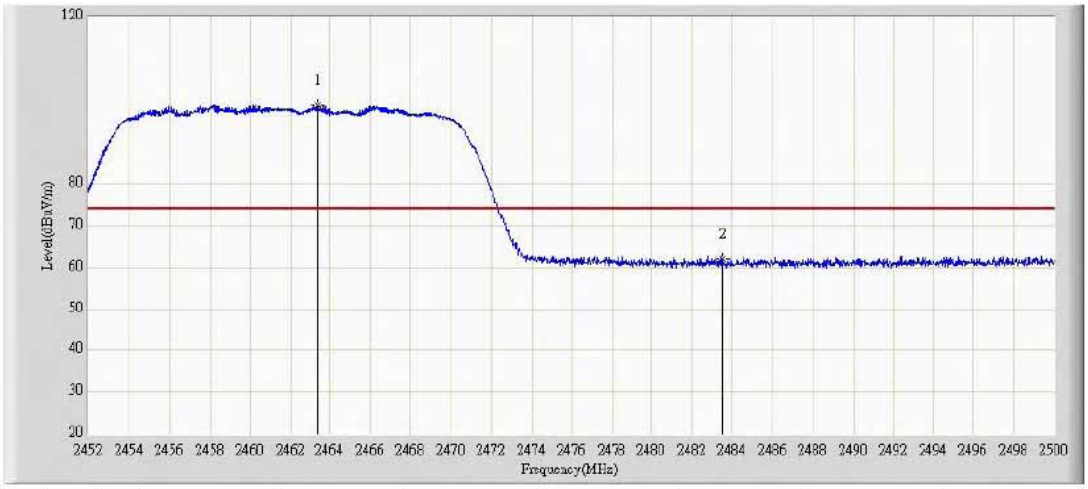
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.544	88.841	57.638	N/A	N/A	31.203	PK
2			2483.500	61.270	30.061	-12.730	74.000	31.209	PK



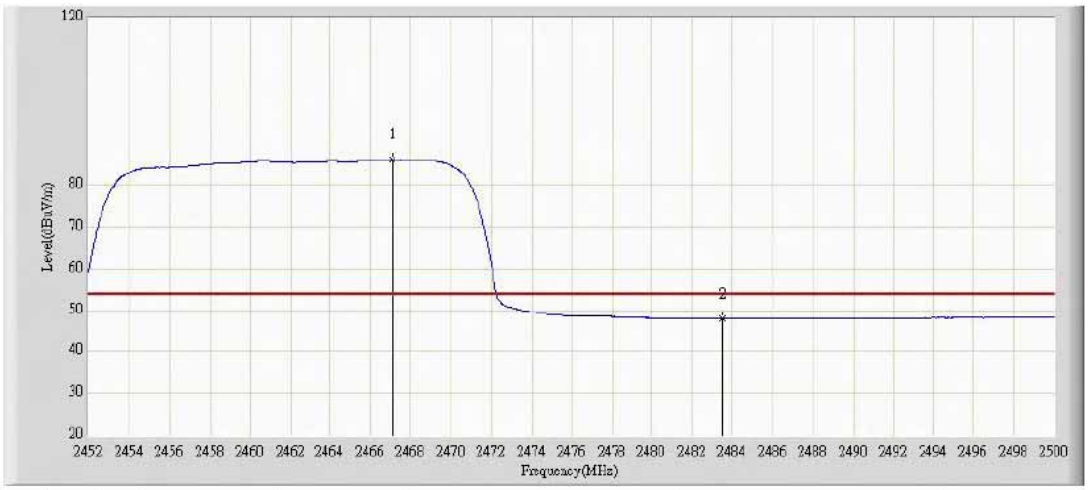
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2464.072	76.057	44.854	N/A	N/A	31.204	AV
2			2483.500	47.770	16.561	-6.230	54.000	31.209	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20 Channel High 2462MHz	Polarization:	VERTICAL



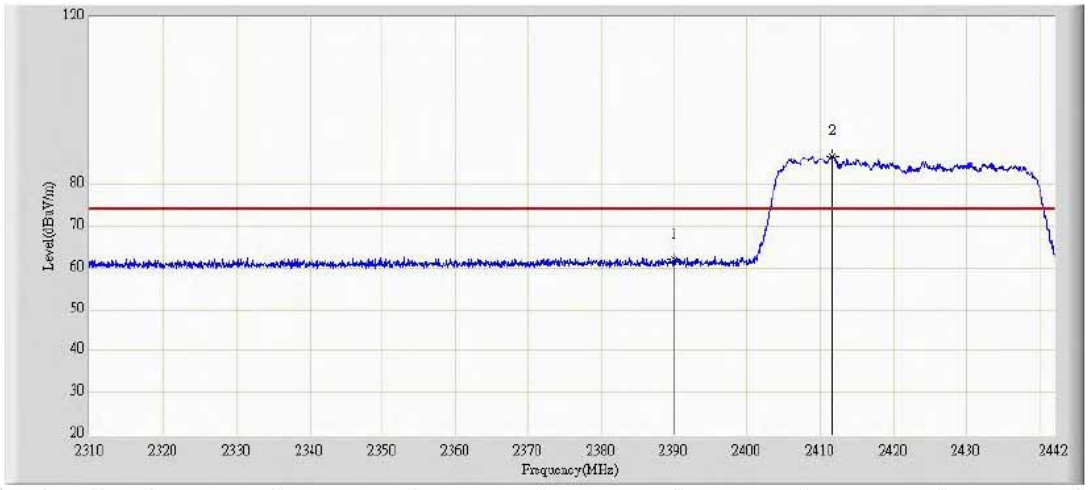
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2463.424	98.753	67.550	N/A	N/A	31.203	PK
2			2483.500	62.046	30.837	-11.954	74.000	31.209	PK



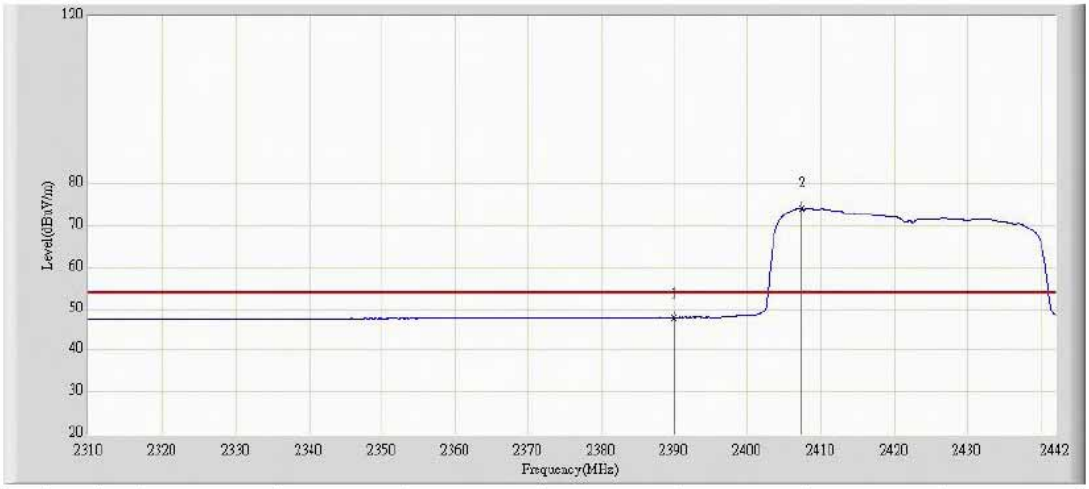
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2467.120	86.130	54.926	N/A	N/A	31.204	AV
2			2483.500	47.884	16.675	-6.116	54.000	31.209	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel Low 2422MHz	Polarization:	HORIZONTAL



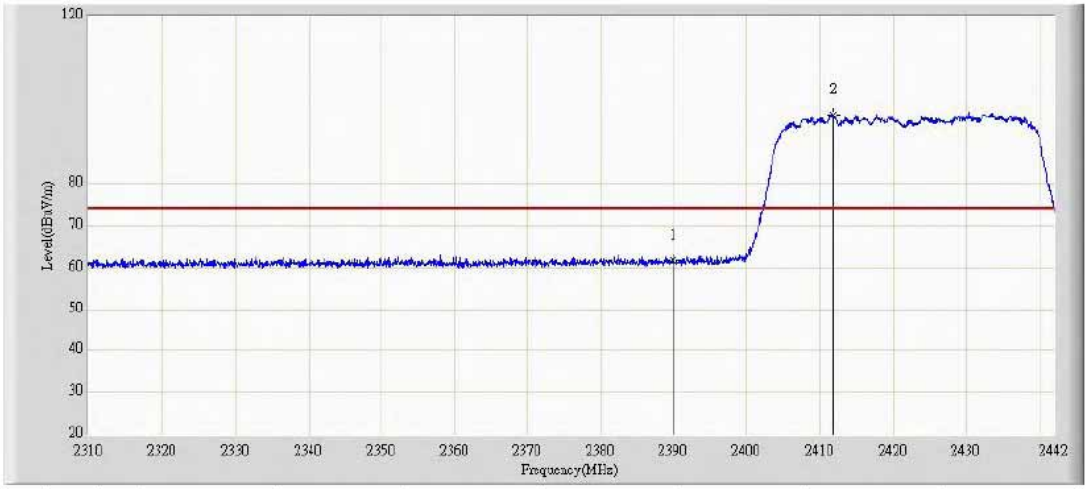
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	62.040	30.855	-11.960	74.000	31.185	PK
2		*	2411.574	86.641	55.461	N/A	N/A	31.181	PK



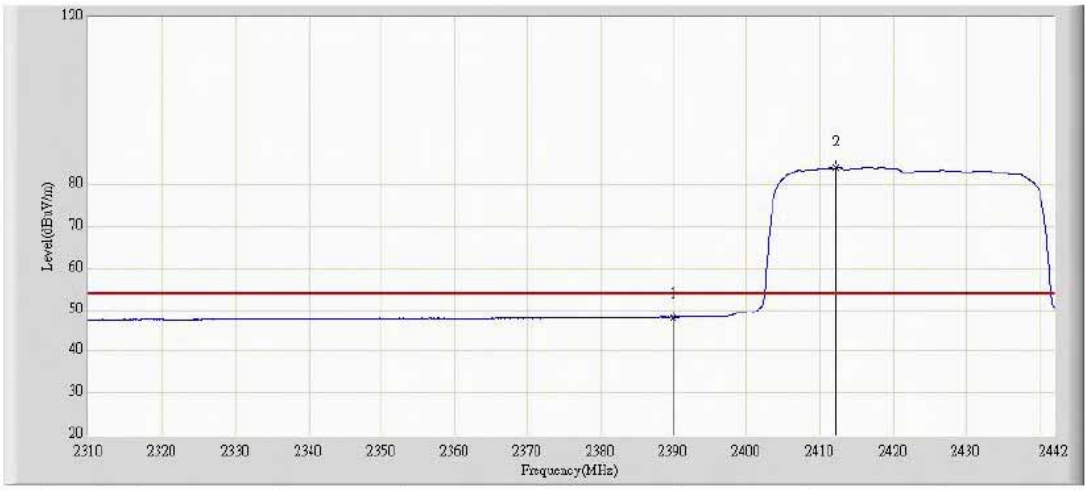
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.681	16.496	-6.319	54.000	31.185	AV
2		*	2407.416	73.944	42.763	N/A	N/A	31.181	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel Low 2422MHz	Polarization:	VERTICAL



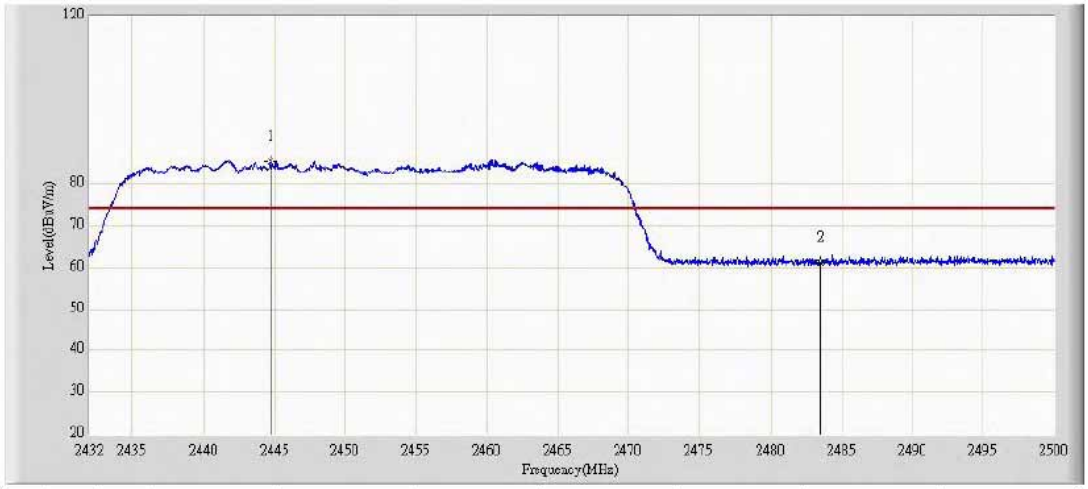
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	61.565	30.380	-12.435	74.000	31.185	PK
2		*	2411.772	96.533	65.353	N/A	N/A	31.181	PK



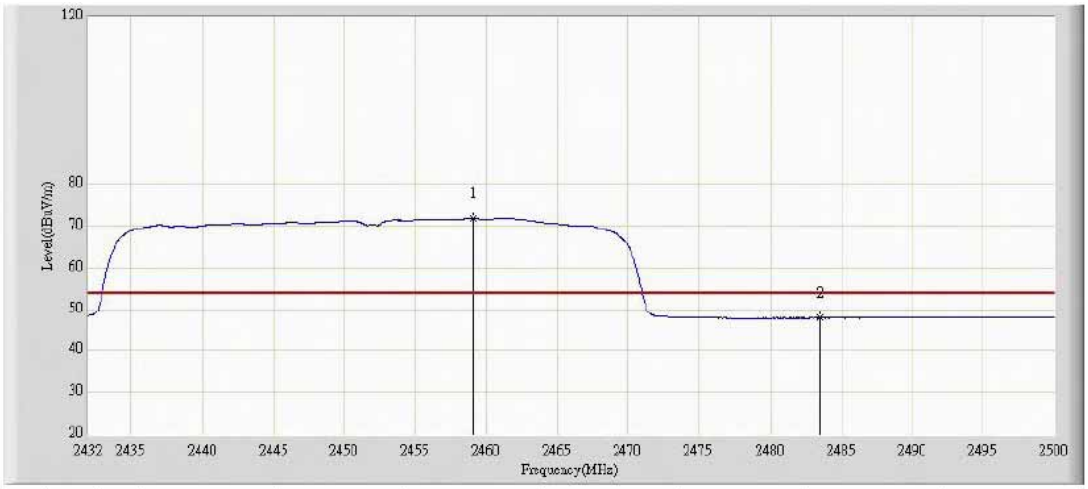
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			2390.000	47.978	16.793	-6.022	54.000	31.185	AV
2		*	2412.168	83.990	52.810	N/A	N/A	31.180	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel High 2452MHz	Polarization:	HORIZONTAL



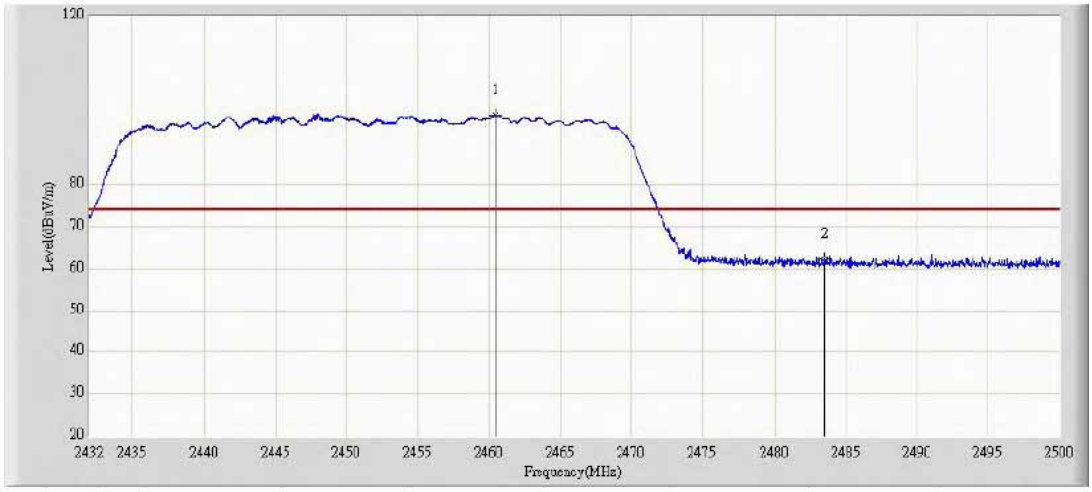
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2444.648	85.103	53.918	N/A	N/A	31.185	PK
2			2483.500	61.073	29.864	-12.927	74.000	31.209	PK



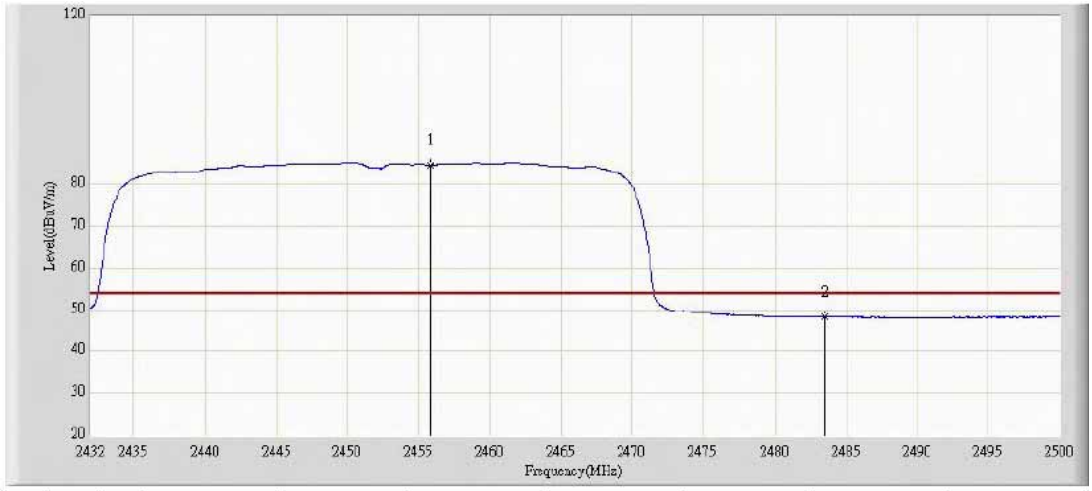
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2459.030	71.764	40.564	N/A	N/A	31.200	AV
2			2483.500	47.746	16.537	-6.254	54.000	31.209	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

Date of Test:	October 27, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH537MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40 Channel High 2452MHz	Polarization:	VERTICAL



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2460.424	96.491	65.290	N/A	N/A	31.201	PK
2			2483.500	62.220	31.011	-11.780	74.000	31.209	PK



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	2455.868	84.511	53.314	N/A	N/A	31.197	AV
2			2483.500	48.067	16.858	-5.933	54.000	31.209	AV

Note: 1. Measurement Level = Reading Level + Correct Factor.
2. The average measurement was not performed when the peak measured data under the limit of average detection.

12. §15.247(E) - Power Spectral Density

12.1. Test Equipment

Please refer to Section 4 this report.

12.2.Test Procedure

1,Set EUT 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,Set the spectrum analyzer as RBW=3kHz,VBW=10kHz,Span=300kHz,Sweep=100s.
4,Record the max.reading
5, Repeat the above procedure until the measurements for all frequencies are completed.

12.3.Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

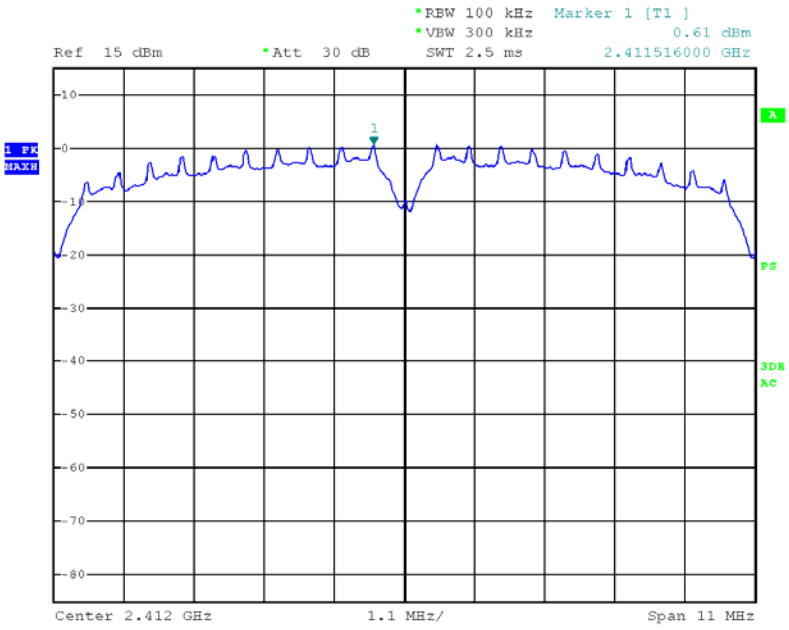
12.4.Test Result

PASS

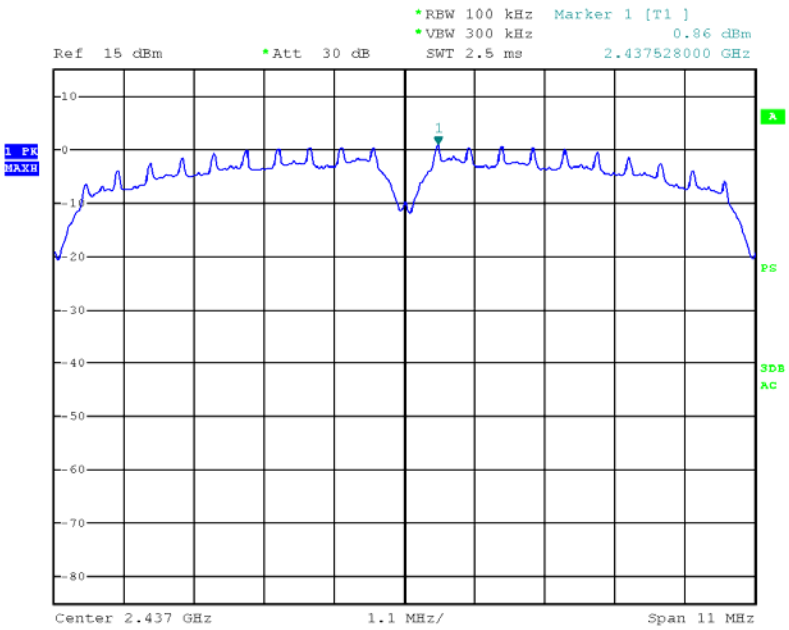
Channel	Reading Level (dBm/100KHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3KHz)	Result
802.11b mode				
Low	0.61	-14.59	8	PASS
Middle	0.86	-14.34	8	PASS
High	0.71	-14.49	8	PASS
802.11g mode				
Low	-8.28	-23.48	8	PASS
Middle	-8.70	-23.90	8	PASS
High	-8.36	-23.56	8	PASS
802.11n20 mode				
Low	-8.78	-23.98	8	PASS
Middle	-8.67	-23.87	8	PASS
High	-8.57	-23.77	8	PASS
802.11n40 mode				
Low	-12.00	-27.20	8	PASS
Middle	-12.70	-27.90	8	PASS
High	-12.39	-27.59	8	PASS

Please refer to the following plots

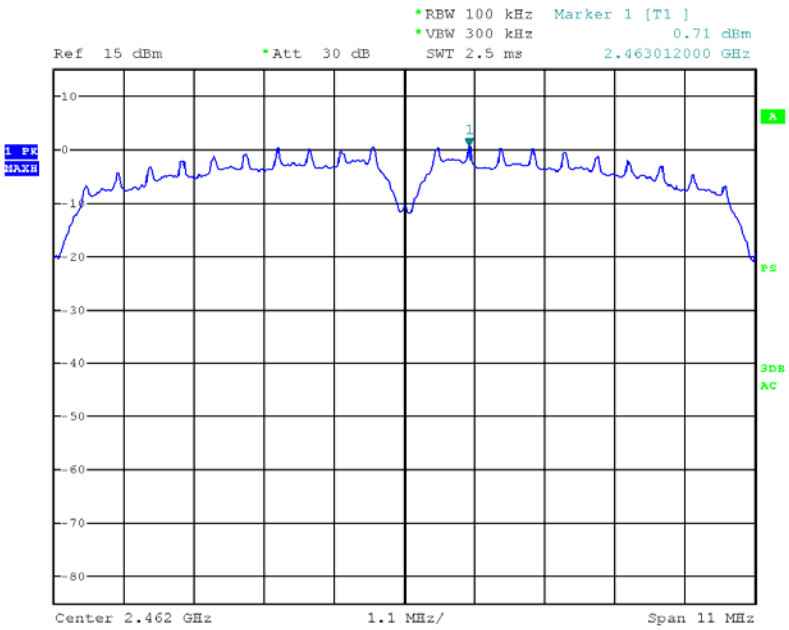
Power Spectral Density, 802.11b Low Channel



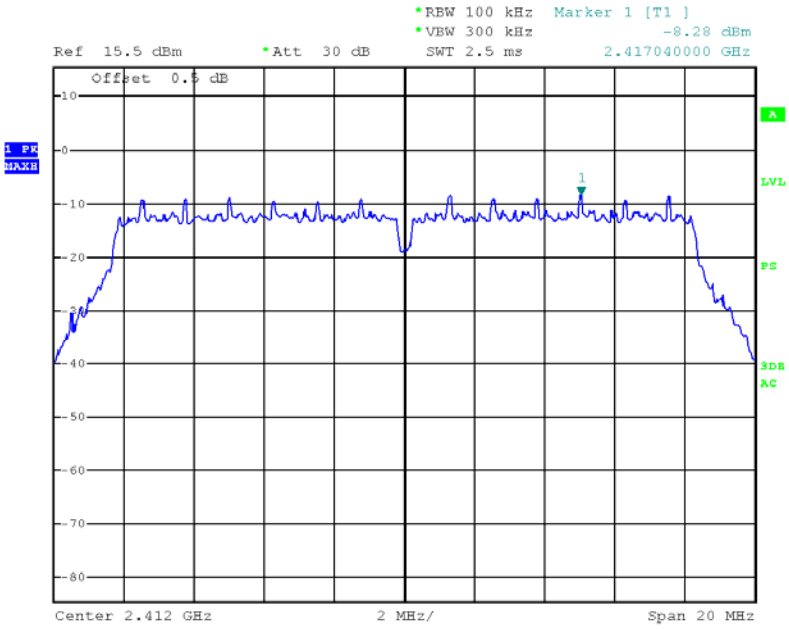
Power Spectral Density, 802.11b Middle Channel



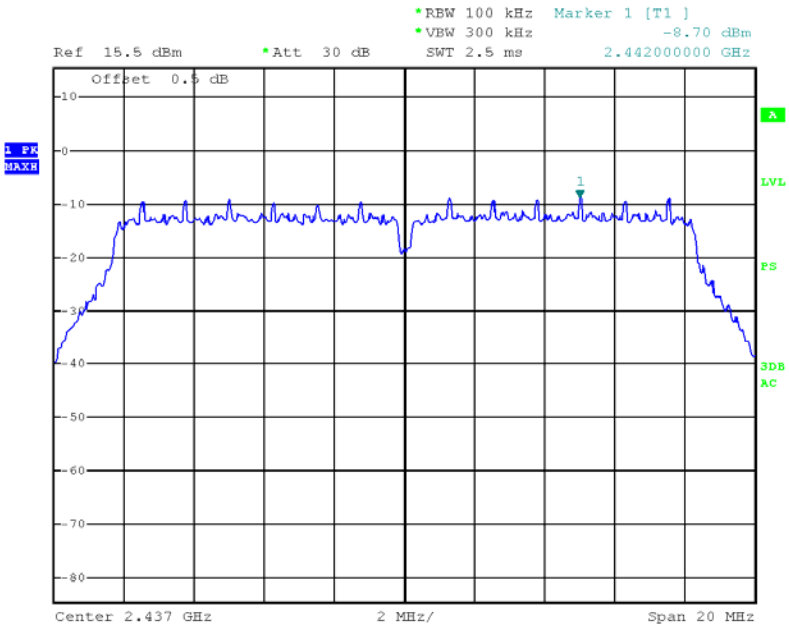
Power Spectral Density, 802.11b High Channel



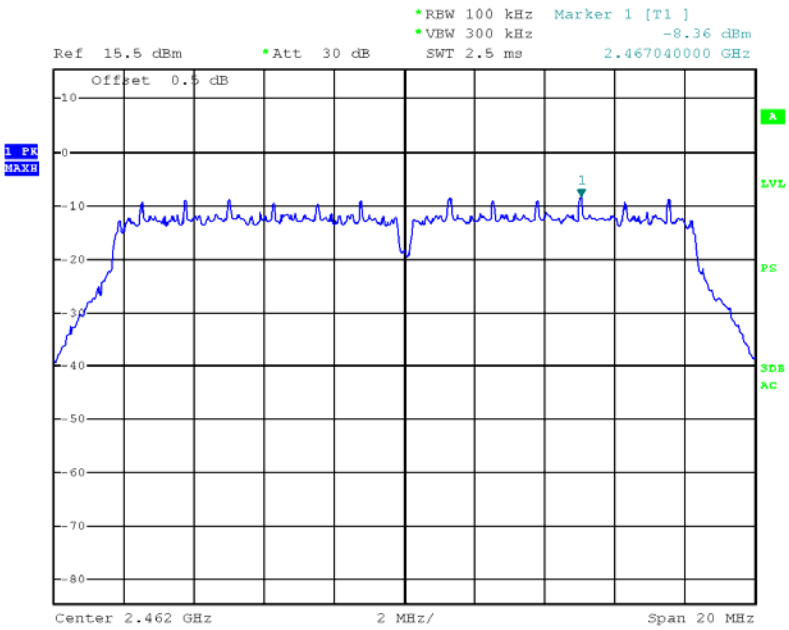
Power Spectral Density, 802.11g Low Channel



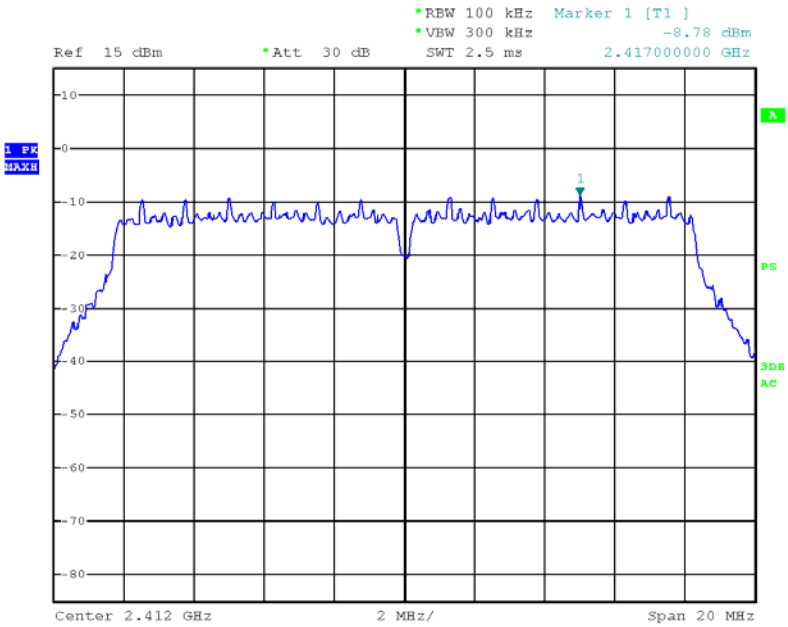
Power Spectral Density, 802.11g Middle Channel



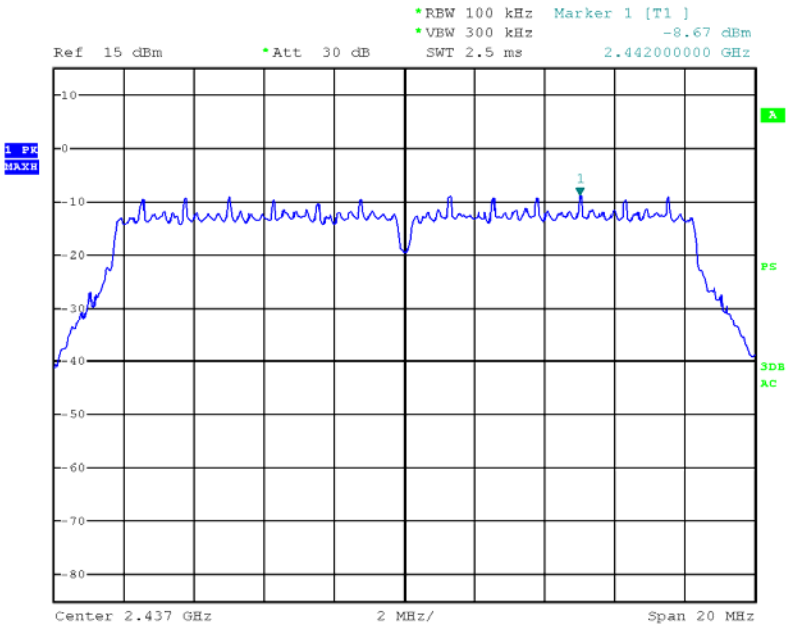
Power Spectral Density, 802.11g High Channel



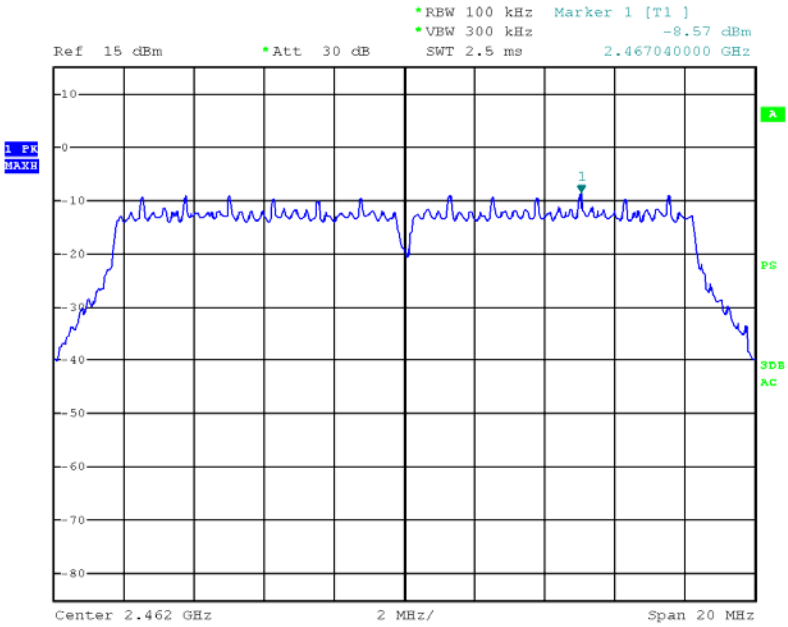
Power Spectral Density, 802.11n20 Low Channel



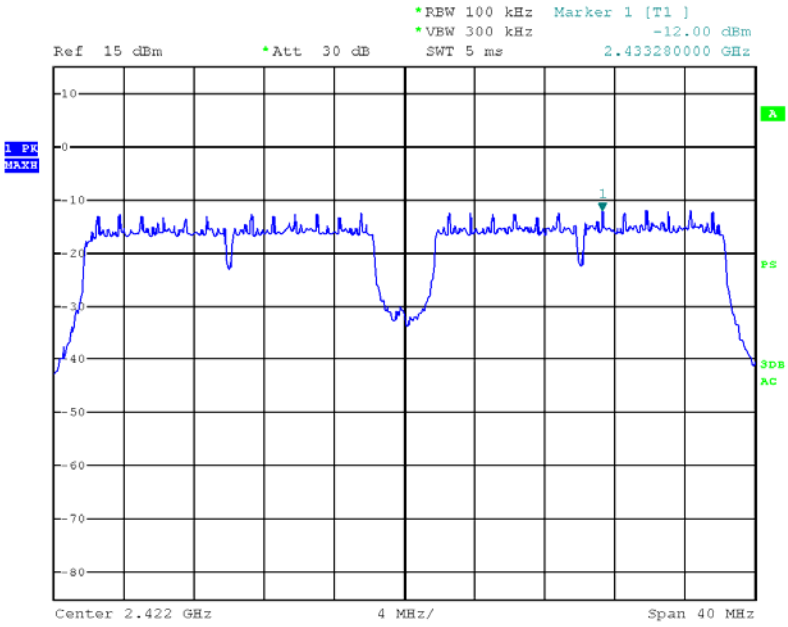
Power Spectral Density, 802.11n20 Middle Channel



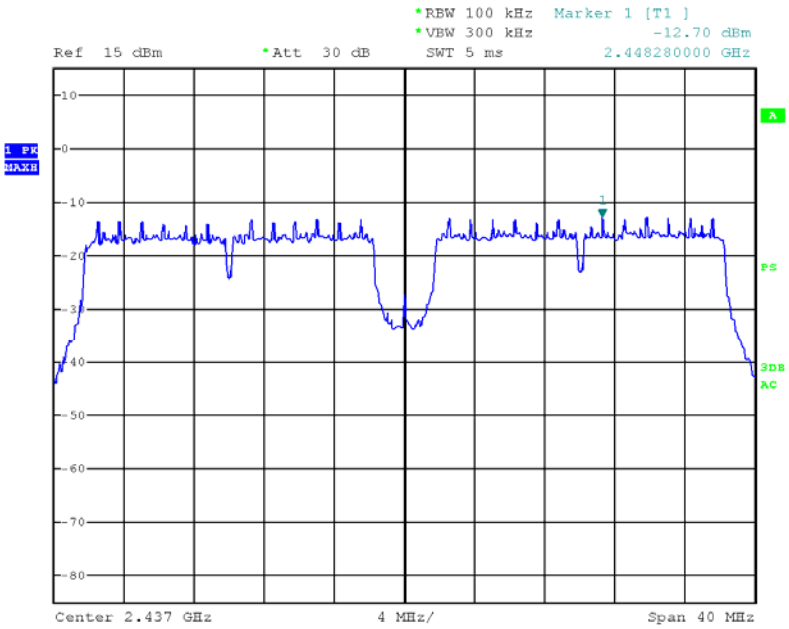
Power Spectral Density, 802.11n20 High Channel



Power Spectral Density, 802.11n40 Low Channel



Power Spectral Density, 802.11n40 Middle Channel



Power Spectral Density, 802.11n40 High Channel