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-532

November 21, 2012

This Report Concerns: Original Report	Equipment Type: IP Camera
Test Engineer:	Eric Li
Test Engineer of performing the tests:	Adam Yang
Report No.:	BST12093034Y
Receive EUT Date/Test Date:	October 25, 2012/ October 25, 2012-November 21, 2012
Reviewed By:	Christina Deng
Prepared By:	**Shenzhen BST Technology Co.,Ltd.** 3F,Weames Technology Building, No. 10 Kefa Road, Science Park, Nanshan District,Shenzhen,Guangdong,China Tel: 0755-26747751-3 Fax: 0755-26747751-3 ext.826

TABLE OF CONTENTS

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

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

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. 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	:	NCH532MW, NCH531MW, NCH532MKW, NCH532MJW
Power Supply	:	DC 12V (Powered by Adapter)
Antenna gain	:	0dBi

The series products, model name: NCH532MW, NCH531MW, NCH532MKW, NCH532MJW have the same circuit diagram,PCB layout, software, RF Module, Features and functionality. The differences are the model name, so, we select NCH532MW to test.

2.2. Block Diagram of EUT Configuration

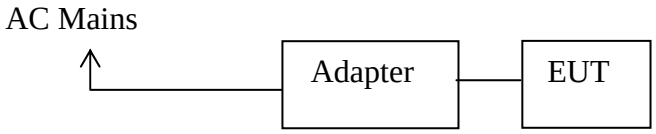


Figure 1 EUT SETUP

2.3. Support Equipment List

Table 2 Ancillary Equipment

Name	Model No	S/N	Manufacturer	Used (Y/N)
Adapter Input: AC 100-240V, 50-60Hz Output: DC 12V, 2A	SUN-1200200	--	SHENZHEN SUNUP ELECTRONICS CO.,LTD.	Y

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 54Mbpsdata 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

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
Power Meter	R&S	NRVS	100696	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):	16.42
Maximum peak output power at antenna input terminal (mW):	43.85
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):	0.0139
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 Internal antenna. Is not removable down , unless you want to remove the casing. 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

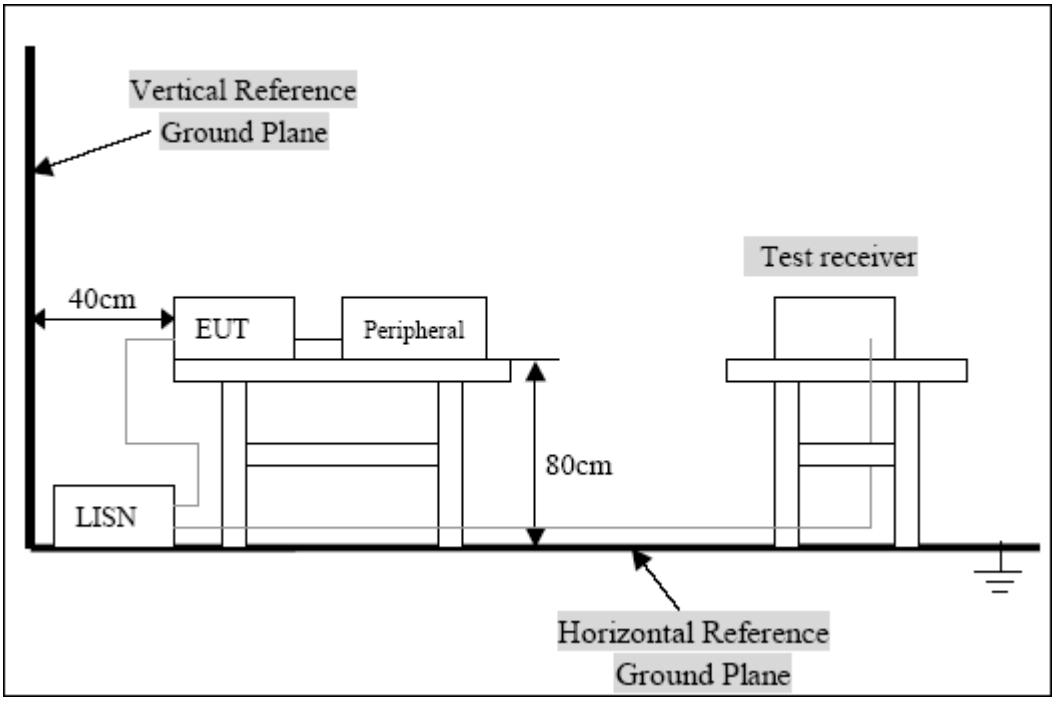
During the conducted emission test, the EUT was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

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

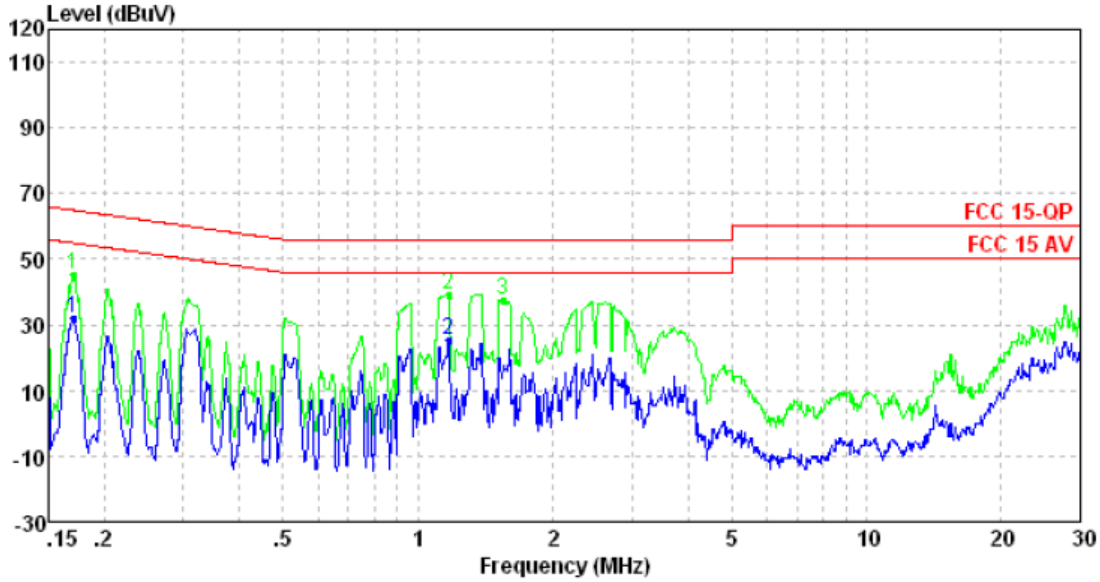


7.5. Conducted Power Line Test Result

Pass.

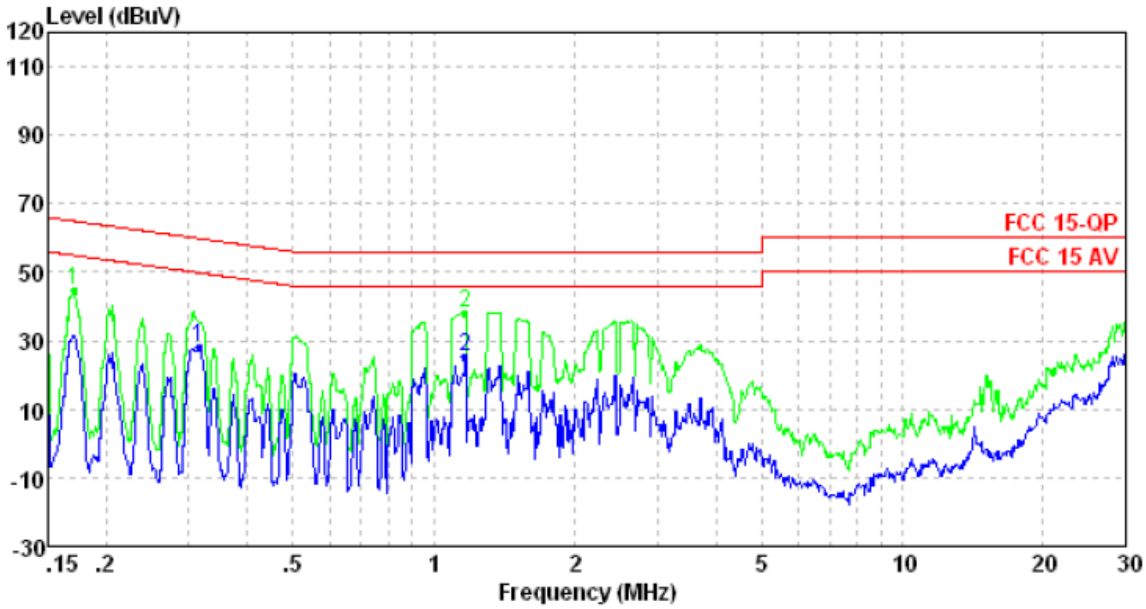
The worst test mode: Wi-Fi TX 802.11b 2437MHz

L line



Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK /QP/Ave.)
0,17	32,14	0.49	54,94	22,80	Ave.
1,17	25,58	0.47	46.00	20,42	Ave.
0,17	45,29	0.49	64,94	19,65	QP
1,17	39,33	0.50	56.00	16,67	QP
1,55	37,26	0.50	56.00	18,74	QP

N line



Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK /QP/Ave.)
0,31	27,93	0.48	49,84	21,91	Ave.
1,17	25,10	0.46	46.00	20,90	Ave.
0,17	44,58	0.49	64,94	20,36	QP
1,17	38,31	0.42	56,00	17,69	QP

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

8.1. Test Equipment

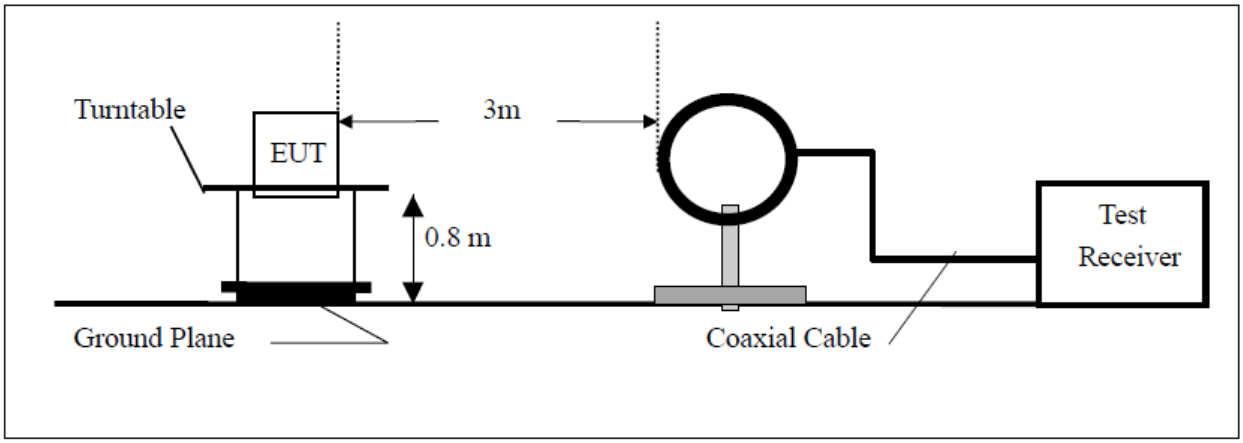
Please refer to section 5 this report.

8.2. Test Procedure

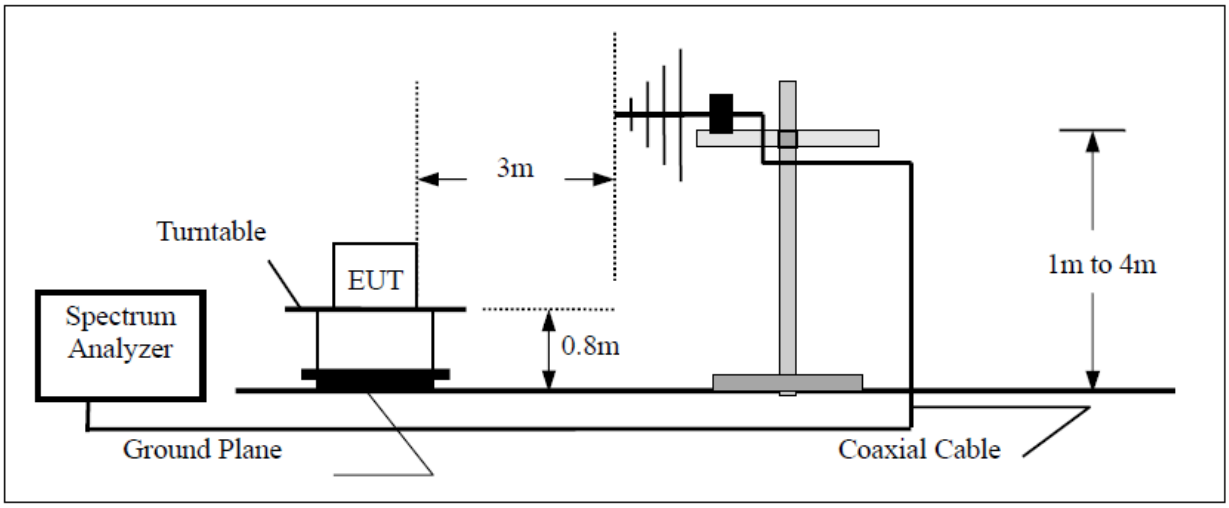
The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved 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

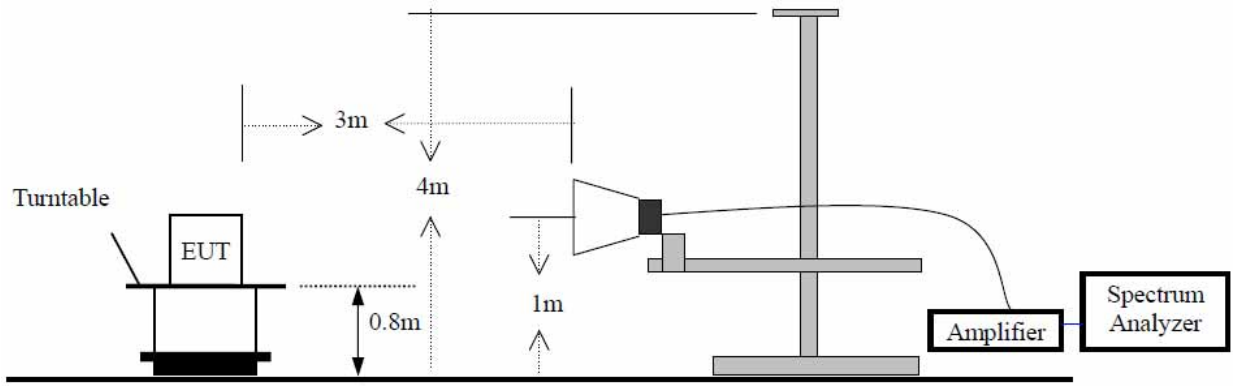
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(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

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst margin of:

-6.50 dBuV at 625.07MHz in the Vertical polarization, with 9KHz to 25 GHz, 3Meters Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

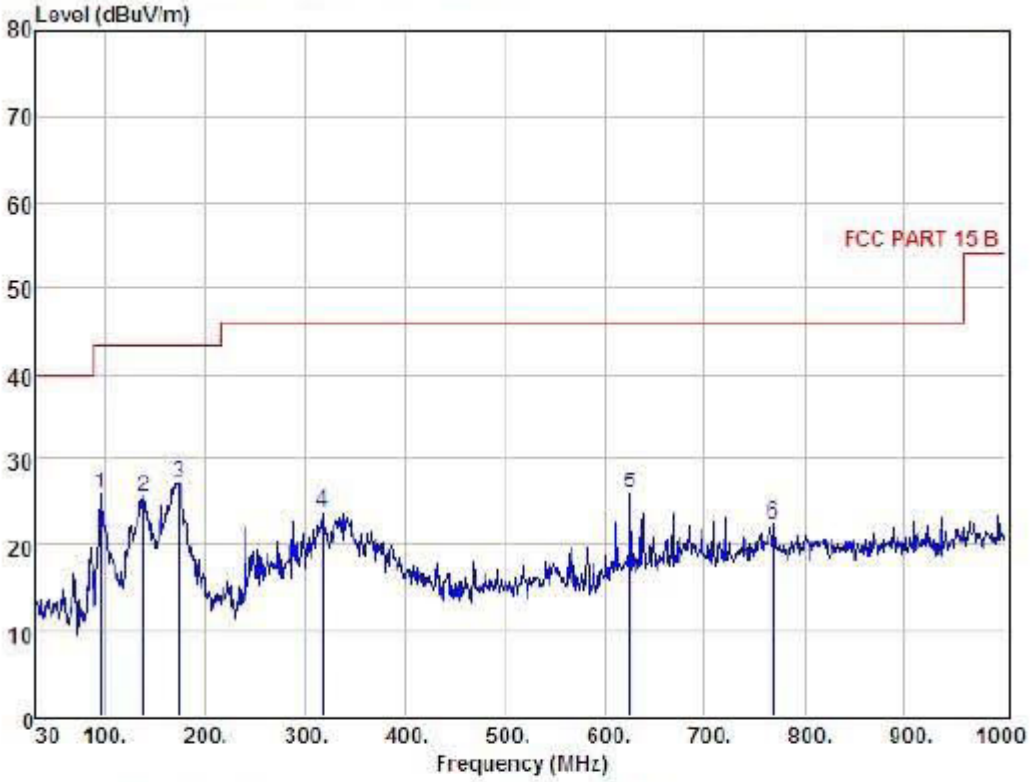
From 9KHz to 30MHz: Conclusion: PASS

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

For below 1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

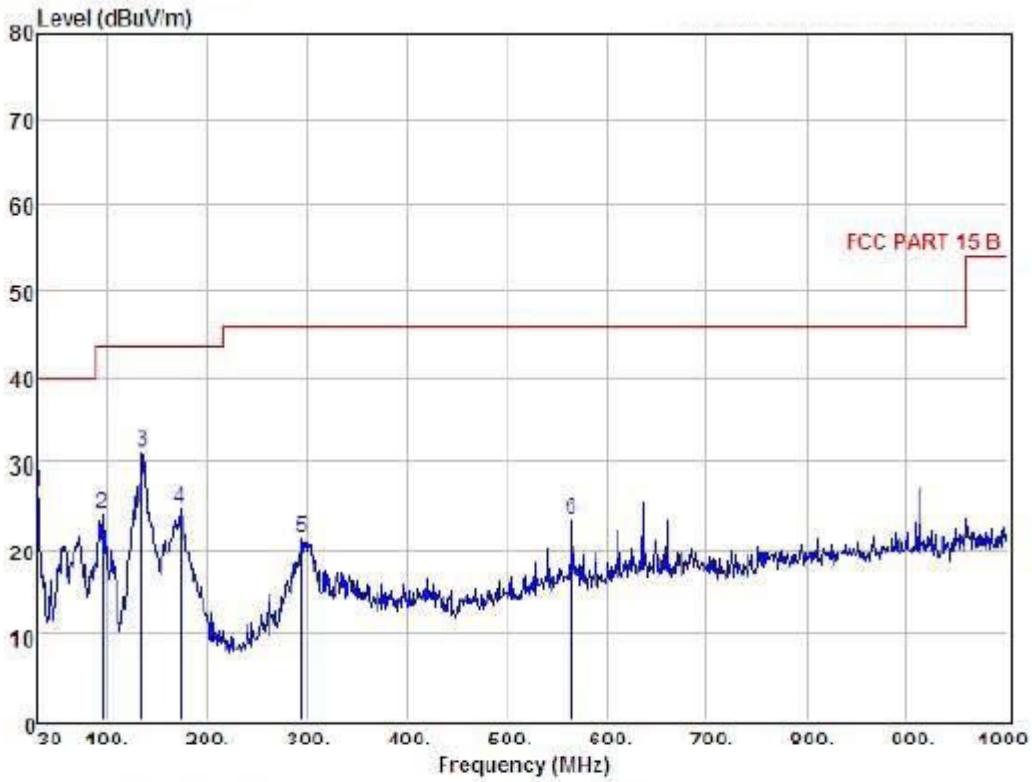
Horizontal



Condition : FCC PART 15 B 3m POL: HORIZONTAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	95.96	44.14	9.07	20.70	0.41	25.72	43.50	-17.78	QP
2	138.64	40.23	13.37	28.57	0.38	25.41	43.50	-18.09	QP
3	173.56	42.72	12.58	28.79	0.52	27.03	43.50	-16.47	QP
4	317.12	38.44	13.24	28.73	0.60	23.55	46.00	-22.45	QP
5	624.61	34.17	18.76	28.31	1.11	25.73	46.00	-20.27	QP
6	768.17	28.73	20.47	28.21	1.33	22.32	46.00	-23.68	QP

Vertical



Condition : FCC PART 15 B 3m POL: VERTICAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	30.00	41.95	13.22	28.58	0.03	26.62	40.00	-13.38	QP
2	95.96	42.36	9.87	28.70	0.41	23.94	43.50	-19.56	QP
3	134.76	46.30	13.08	28.44	0.46	31.40	43.50	-12.10	QP
4	172.59	39.91	12.88	28.75	0.58	24.62	43.50	-18.88	QP
5	294.81	36.61	12.71	28.80	0.80	21.32	46.00	-24.68	QP
6	564.47	32.32	17.64	28.13	1.49	23.32	46.00	-22.68	QP

Spurious Emission Above 1GHz

Test mode 802.11b

Frequency MHz	Detector	Meter Reading dBuV	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)									
4824	PK	46.36	V	31.54	5.87	35.47	48.30	74.00	-25.70
4824	PK	45.24	H	31.54	5.87	35.47	47.18	74.00	-26.82
7236	PK	47.65	V	36.50	7.10	35.30	55.95	74.00	-18.05
7236	PK	46.07	H	36.50	7.10	35.30	54.37	74.00	-19.63
4824	AV	37.47	V	31.54	5.87	35.47	39.41	54.00	-14.59
4824	AV	36.44	H	31.54	5.87	35.47	38.38	54.00	-15.62
7236	AV	34.06	V	36.50	7.10	35.30	42.36	54.00	-11.64
7236	AV	33.11	H	36.50	7.10	35.30	41.41	54.00	-12.59
Middle Channel (2437MHz)									
4874	PK	48.97	V	31.57	5.91	35.48	50.97	74.00	-23.03
4874	PK	47.14	H	31.57	5.91	35.48	49.14	74.00	-24.86
7311	PK	46.78	V	36.48	7.14	35.28	55.12	74.00	-18.88
7311	PK	46.36	H	36.48	7.14	35.28	54.70	74.00	-19.30
4874	AV	37.61	V	31.57	5.91	35.48	39.61	54.00	-14.39
4874	AV	36.47	H	31.57	5.91	35.48	38.47	54.00	-15.53
7311	AV	35.46	V	36.48	7.14	35.28	43.80	54.00	-10.20
7311	AV	34.58	H	36.48	7.14	35.28	42.92	54.00	-10.88
HighChannel (2462MHz)									
4924	PK	50.07	V	31.61	5.93	35.49	52.12	74.00	-21.88
4924	PK	49.94	H	31.61	5.93	35.49	51.99	74.00	-22.01
7386	PK	47.09	V	36.52	7.16	35.24	55.53	74.00	-18.47
7386	PK	46.40	H	36.52	7.16	35.24	54.84	74.00	-19.16
4924	AV	37.97	V	31.61	5.93	35.49	40.02	54.00	-13.98
4924	AV	37.74	H	31.61	5.93	35.49	39.79	54.00	-14.21
7386	AV	34.89	V	36.52	7.16	35.24	43.33	54.00	-10.67
7386	AV	34.10	H	36.52	7.16	35.24	42.54	54.00	-11.46

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Level = Meter Reading + Antenna Loss + Cable loss - Amplifier.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Test mode 802.11g

Frequency MHz	Detector	Meter Reading dBuV	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)									
4824	PK	51.14	V	31.54	5.87	35.47	53.08	74.00	-20.92
4824	PK	50.53	H	31.54	5.87	35.47	52.47	74.00	-21.53
7236	PK	47.44	V	36.50	7.10	35.30	55.74	74.00	-18.26
7236	PK	46.44	H	36.50	7.10	35.30	54.74	74.00	-19.26
4824	AV	38.94	V	31.54	5.87	35.47	40.88	54.00	-13.12
4824	AV	38.33	H	31.54	5.87	35.47	40.27	54.00	-13.73
7236	AV	35.14	V	36.50	7.10	35.30	43.44	54.00	-10.56
7236	AV	34.08	H	36.50	7.10	35.30	42.38	54.00	-11.62
Middle Channel (2437MHz)									
4874	PK	51.07	V	31.57	5.91	35.48	53.07	74.00	-20.93
4874	PK	50.79	H	31.57	5.91	35.48	52.79	74.00	-21.21
7311	PK	47.62	V	36.48	7.14	35.28	55.96	74.00	-18.04
7311	PK	46.04	H	36.48	7.14	35.28	54.38	74.00	-19.62
4874	AV	39.87	V	31.57	5.91	35.48	41.87	54.00	-12.13
4874	AV	38.59	H	31.57	5.91	35.48	40.59	54.00	-13.41
7311	AV	34.06	V	36.48	7.14	35.28	42.40	54.00	-11.60
7311	AV	32.74	H	36.48	7.14	35.28	41.08	54.00	-12.92
HighChannel (2462MHz)									
4924	PK	51.24	V	31.61	5.93	35.49	53.29	74.00	-20.71
4924	PK	50.61	H	31.61	5.93	35.49	52.66	74.00	-21.34
7386	PK	46.87	V	36.52	7.16	35.24	55.31	74.00	-18.69
7386	PK	45.77	H	36.52	7.16	35.24	54.21	74.00	-19.79
4924	AV	40.04	V	31.61	5.93	35.49	42.09	54.00	-11.91
4924	AV	39.41	H	31.61	5.93	35.49	41.46	54.00	-12.54
7386	AV	34.57	V	36.52	7.16	35.24	43.01	54.00	-10.99
7386	AV	34.47	H	36.52	7.16	35.24	42.91	54.00	-11.09

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Level = Meter Reading + Antenna Loss + Cable loss - Amplifier.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Test mode 802.11n(H20)

Frequency MHz	Detector	Meter Reading dBuV	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2412MHz)									
4824	PK	51.00	V	31.54	5.87	35.47	52.94	74.00	-21.06
4824	PK	50.69	H	31.54	5.87	35.47	52.63	74.00	-21.37
7236	PK	46.90	V	36.50	7.10	35.30	55.20	74.00	-18.80
7236	PK	45.93	H	36.50	7.10	35.30	54.23	74.00	-19.77
4824	AV	37.70	V	31.54	5.87	35.47	39.64	54.00	-14.36
4824	AV	36.39	H	31.54	5.87	35.47	38.33	54.00	-15.67
7236	AV	35.50	V	36.50	7.10	35.30	43.80	54.00	-10.20
7236	AV	34.63	H	36.50	7.10	35.30	42.93	54.00	-11.07
Middle Channel (2437MHz)									
4874	PK	51.50	V	31.57	5.91	35.48	53.50	74.00	-20.50
4874	PK	50.48	H	31.57	5.91	35.48	52.48	74.00	-21.52
7311	PK	46.88	V	36.48	7.14	35.28	55.22	74.00	-18.78
7311	PK	45.76	H	36.48	7.14	35.28	54.10	74.00	-19.90
4874	AV	38.20	V	31.57	5.91	35.48	40.20	54.00	-13.80
4874	AV	37.18	H	31.57	5.91	35.48	39.18	54.00	-14.82
7311	AV	35.48	V	36.48	7.14	35.28	43.82	54.00	-10.18
7311	AV	34.36	H	36.48	7.14	35.28	42.70	54.00	-11.30
HighChannel (2462MHz)									
4924	PK	51.10	V	31.61	5.93	35.49	53.15	74.00	-20.85
4924	PK	50.83	H	31.61	5.93	35.49	52.88	74.00	-21.12
7386	PK	45.91	V	36.52	7.16	35.24	54.35	74.00	-19.65
7386	PK	45.19	H	36.52	7.16	35.24	53.63	74.00	-20.37
4924	AV	38.80	V	31.61	5.93	35.49	40.85	54.00	-13.15
4924	AV	37.53	H	31.61	5.93	35.49	39.58	54.00	-14.42
7386	AV	34.51	V	36.52	7.16	35.24	42.95	54.00	-11.05
7386	AV	33.79	H	36.52	7.16	35.24	42.23	54.00	-11.77

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. Level = Meter Reading + Antenna Loss + Cable loss - Amplifier.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Test mode 802.11n(H40)

Frequency MHz	Detector	Meter Reading dBuV	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (2422MHz)									
4844	PK	51.19	V	31.55	5.89	35.47	53.16	74.00	-20.84
4844	PK	50.10	H	31.55	5.89	35.47	52.07	74.00	-21.93
7266	PK	47.07	V	36.49	7.12	35.29	55.39	74.00	-18.61
7266	PK	46.58	H	36.49	7.12	35.29	54.90	74.00	-19.10
4844	AV	38.89	V	31.55	5.89	35.47	40.86	54.00	-13.14
4844	AV	37.89	H	31.55	5.89	35.47	39.86	54.00	-14.14
7266	AV	32.87	V	36.49	7.12	35.29	41.19	54.00	-12.81
7236	AV	31.38	H	36.49	7.12	35.29	39.70	54.00	-14.30
Middle Channel (2437MHz)									
4874	PK	51.56	V	31.57	5.91	35.48	53.56	74.00	-20.44
4874	PK	50.40	H	31.57	5.91	35.48	52.40	74.00	-21.60
7311	PK	46.29	V	36.48	7.14	35.28	54.63	74.00	-19.37
7311	PK	45.19	H	36.48	7.14	35.28	53.53	74.00	-20.47
4874	AV	39.26	V	31.57	5.91	35.48	41.26	54.00	-12.74
4874	AV	38.10	H	31.57	5.91	35.48	40.10	54.00	-13.90
7311	AV	35.09	V	36.48	7.14	35.28	43.43	54.00	-10.57
7311	AV	33.99	H	36.48	7.14	35.28	42.33	54.00	-11.67
HighChannel (2452MHz)									
4904	PK	51.34	V	31.59	5.93	35.48	53.38	74.00	-20.62
4904	PK	50.50	H	31.59	5.93	35.48	52.54	74.00	-21.46
7356	PK	47.60	V	36.47	7.14	35.26	55.95	74.00	-18.05
7356	PK	46.62	H	36.47	7.14	35.26	54.97	74.00	-19.03
4904	AV	39.04	V	31.59	5.93	35.48	41.08	54.00	-12.92
4904	AV	38.20	H	31.59	5.93	35.48	40.24	54.00	-13.76
7356	AV	34.40	V	36.47	7.14	35.26	42.75	54.00	-11.25
7356	AV	33.12	H	36.47	7.14	35.26	41.47	54.00	-12.53

8.6. Conducted Emission Method

Please refer to section 5 this report.

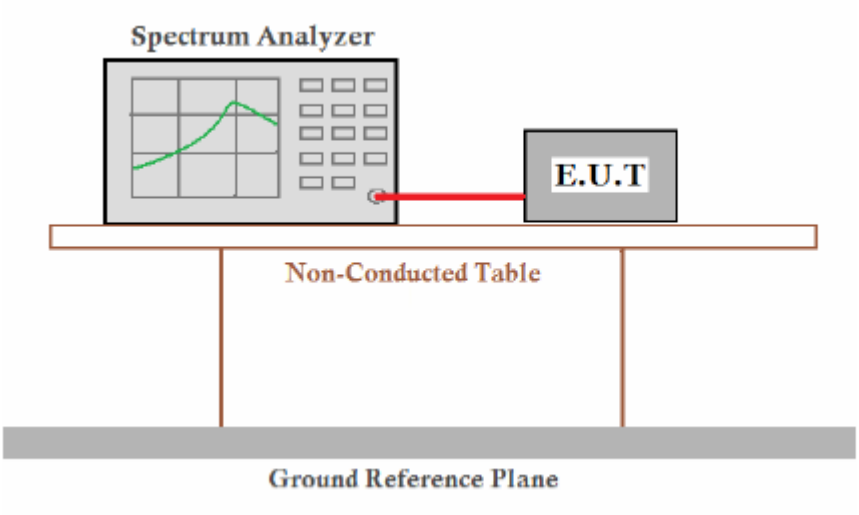
8.7. Test Requirement:

FCC Part15 C Section 15.247 (d)

8.8. Limit:

In any 100 kHz bandwidth outside the frequency band 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.

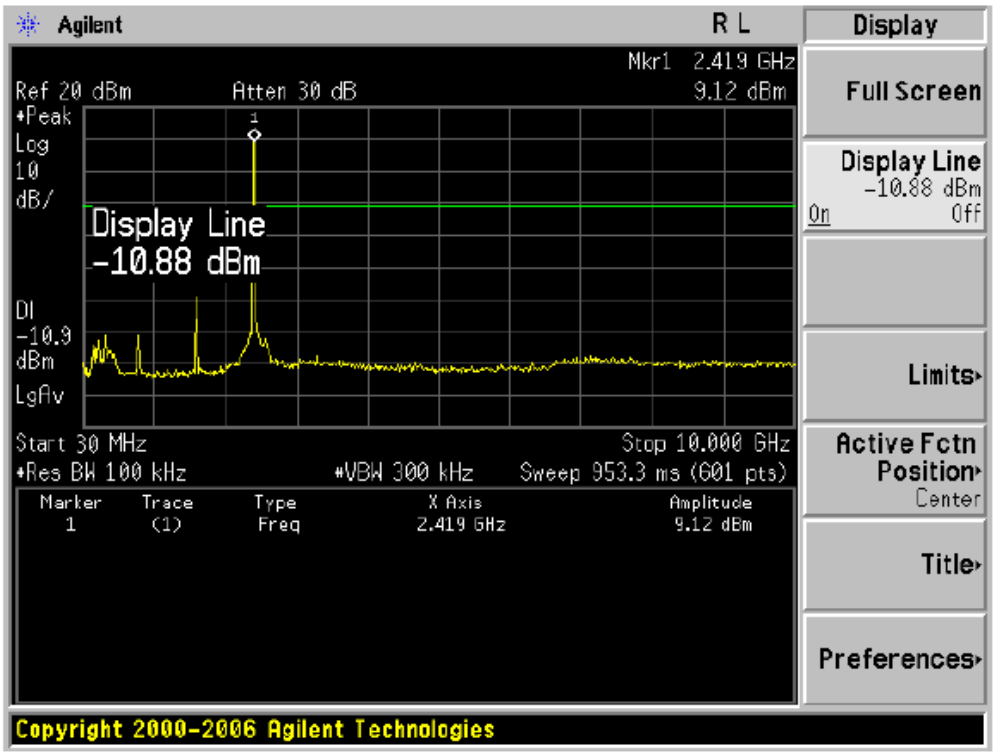
8.9. Test Setup



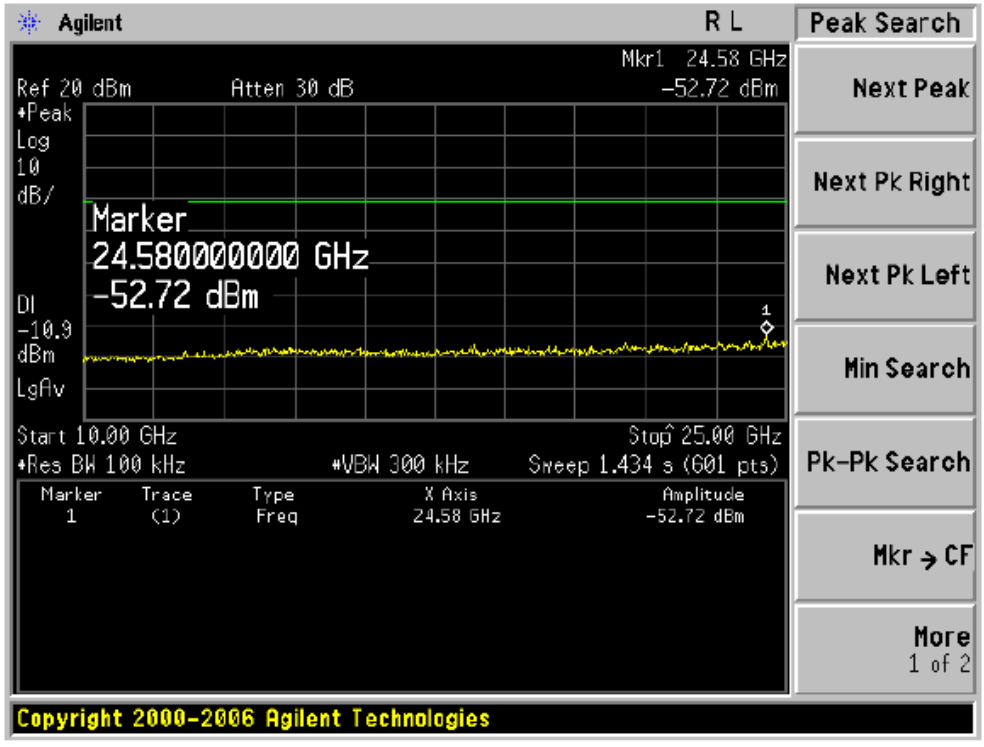
8.10.Test Result

Test plot as follows:

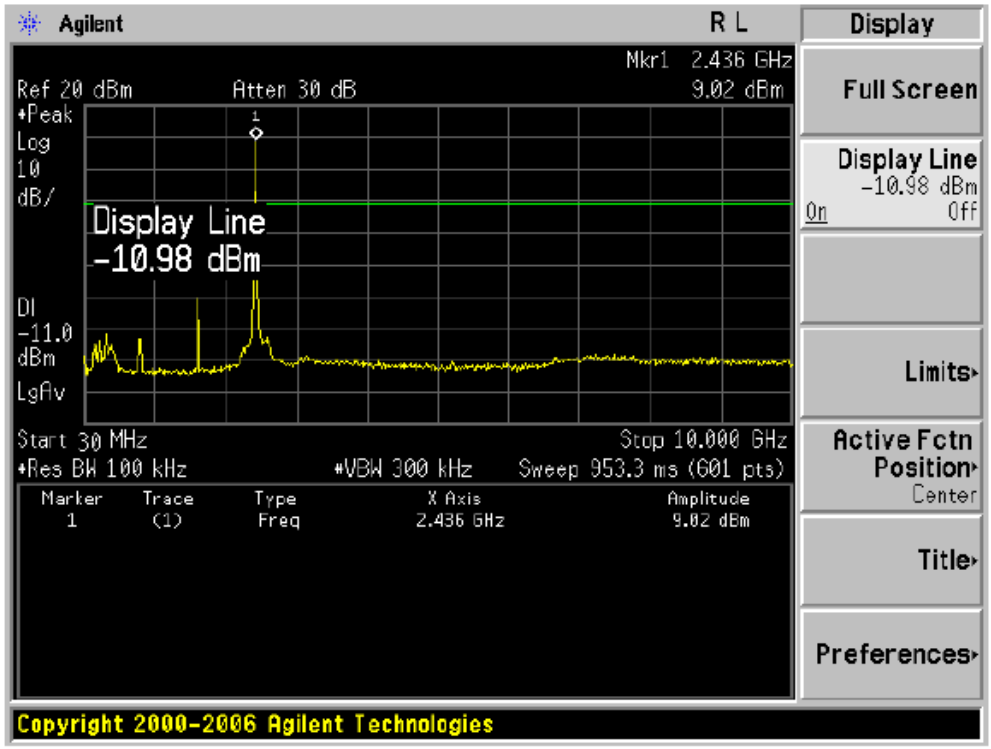
Test mode: 802.11b
Lowest channel 30MHz~10GHz



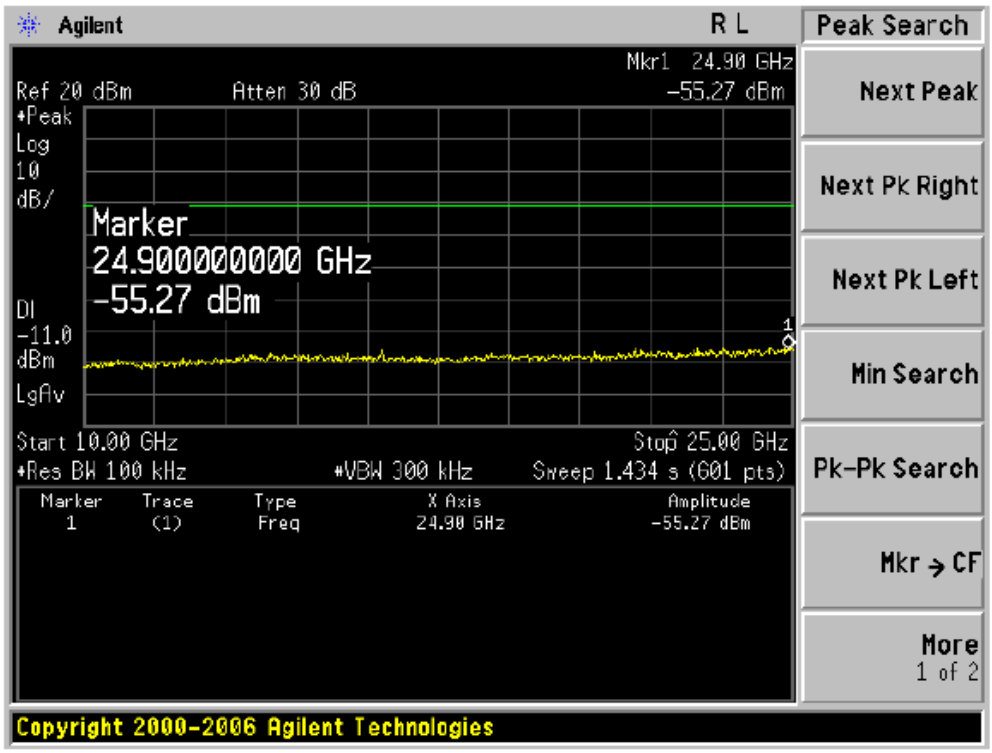
10GHz~25GHz



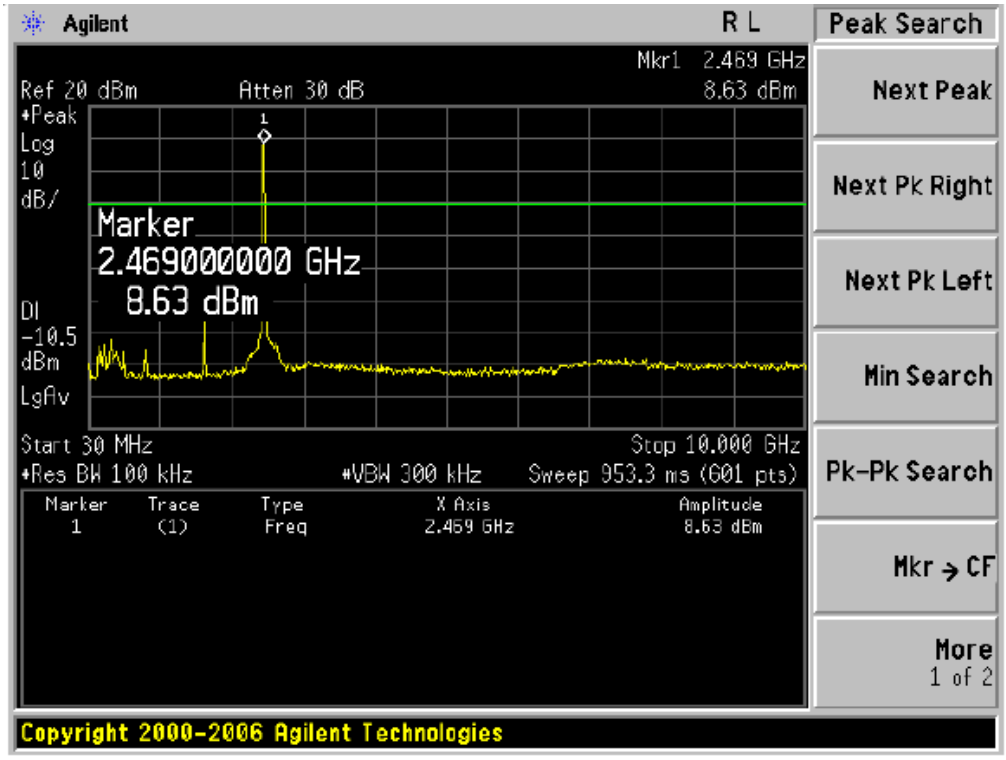
Middle channel 30MHz~10GHz



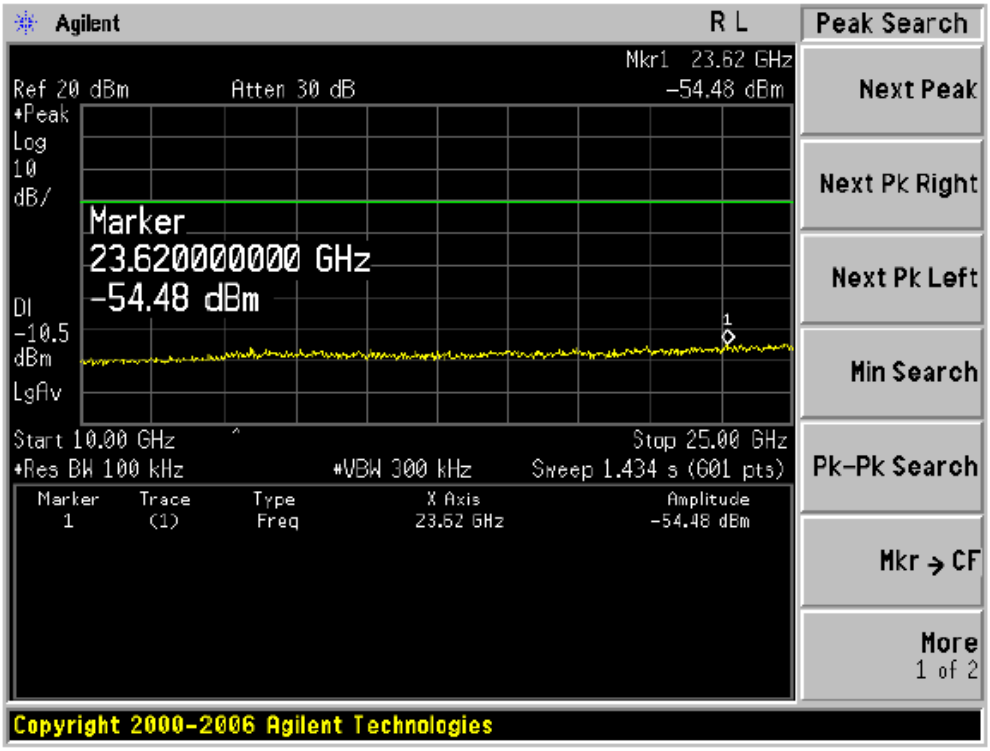
10GHz~25GHz



Highest channel 30MHz~10GHz

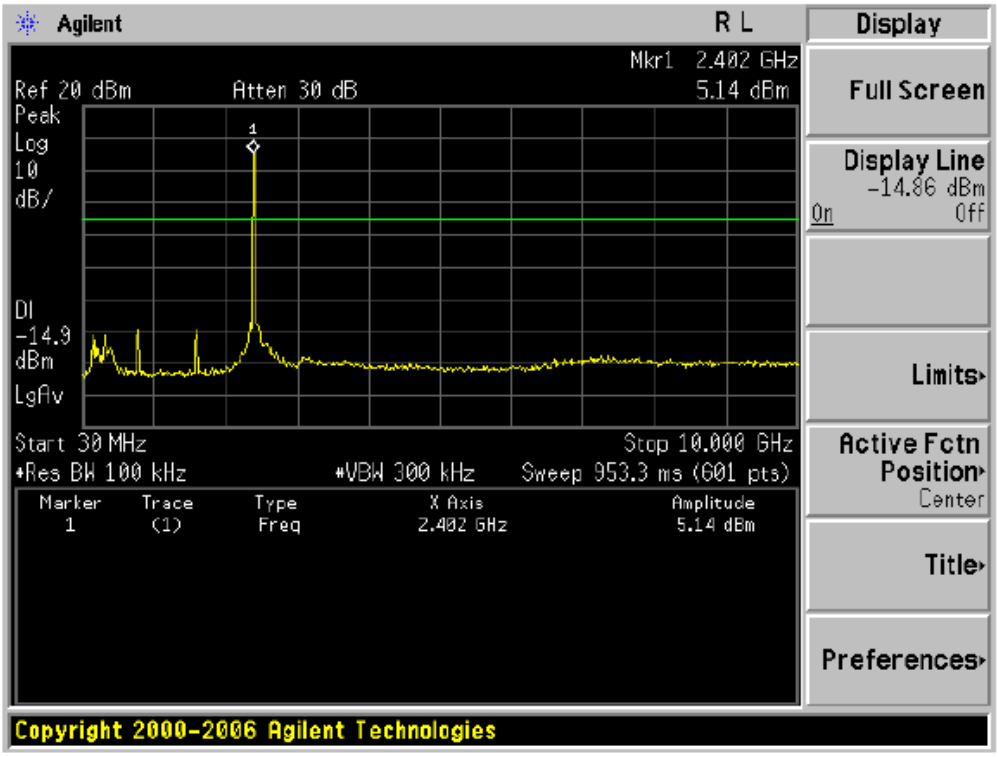


10GHz~25GHz

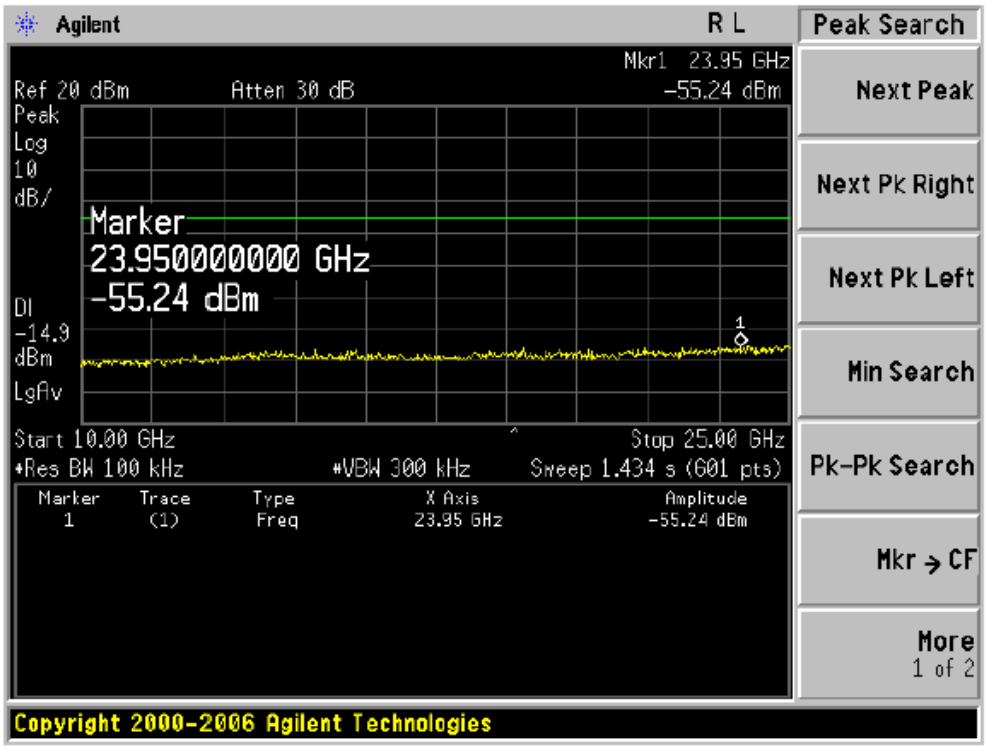


Test mode: 802.11g

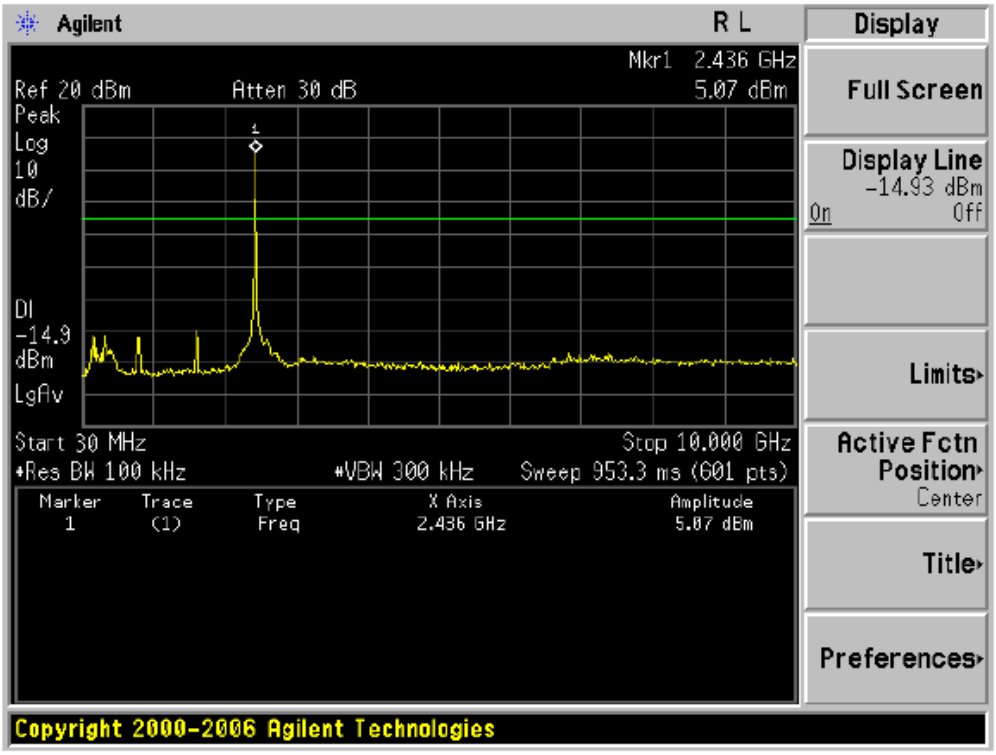
Lowest channel 30MHz~10GHz



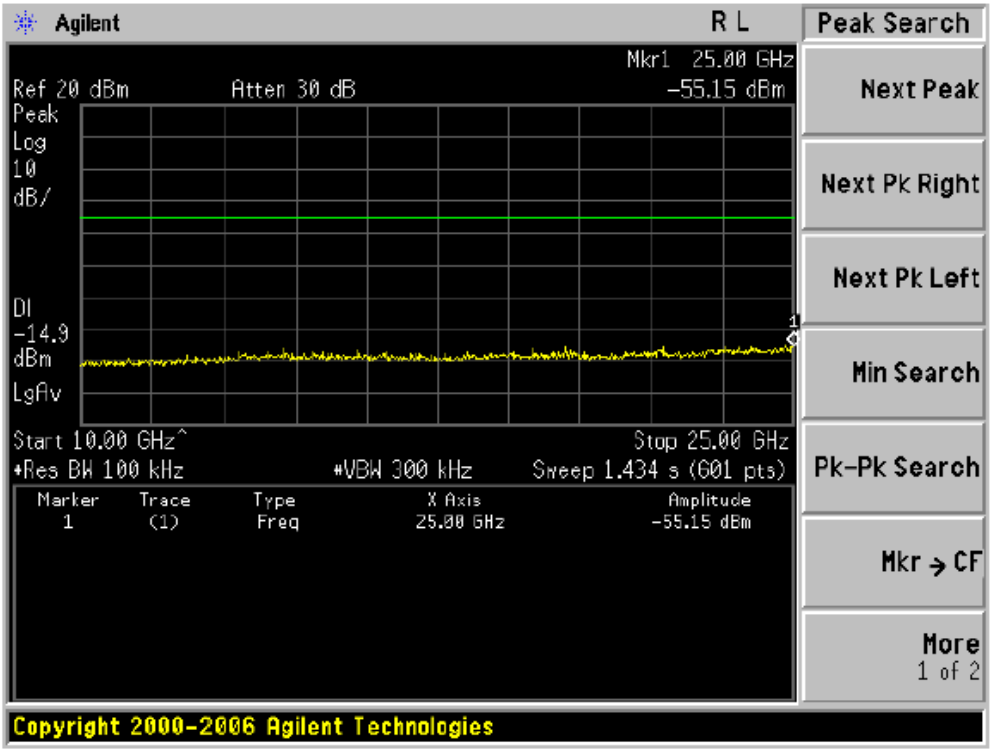
10GHz~25GHz



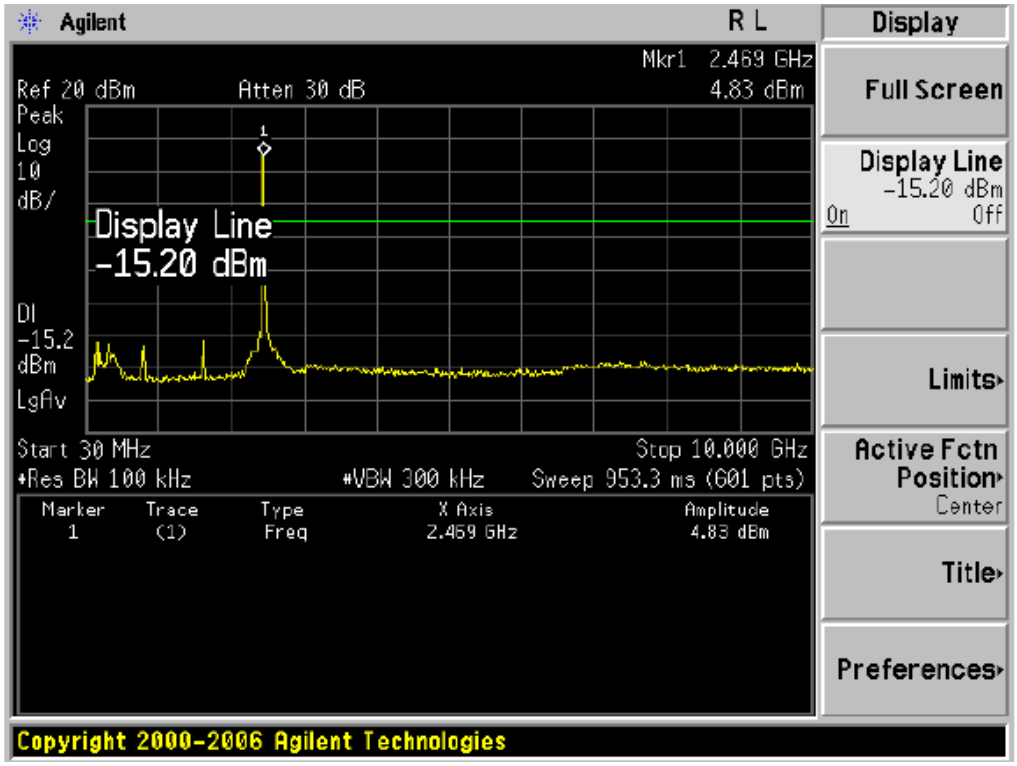
Middle channel 30MHz~10GHz



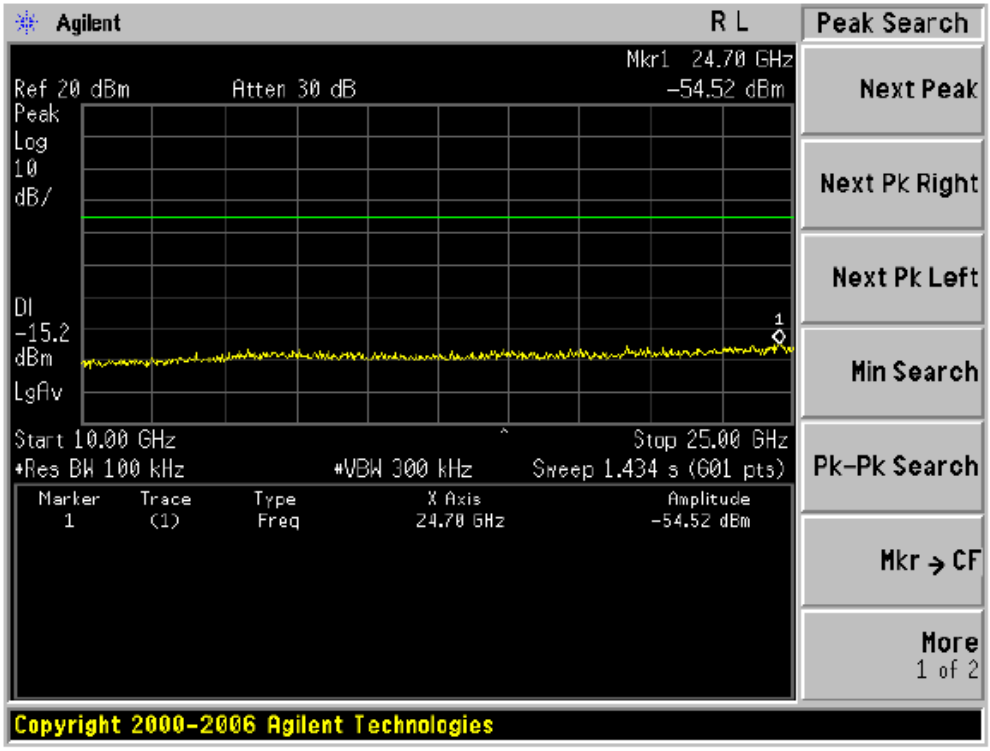
10GHz~25GHz



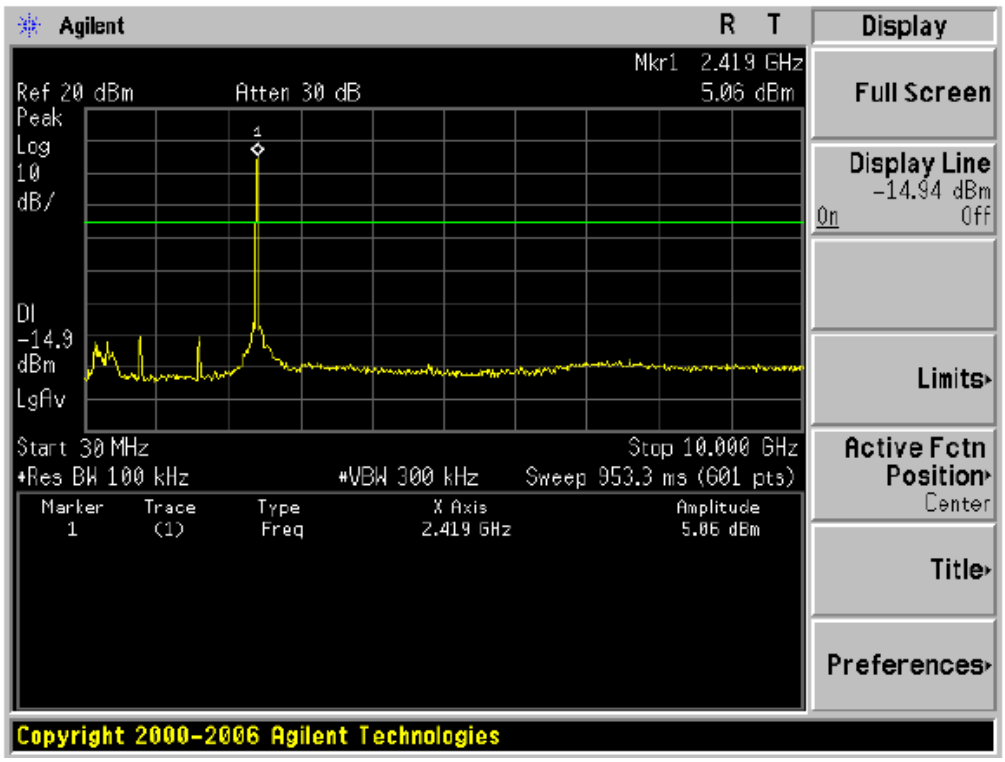
Highest channel 30MHz~10GHz


Agilent
R L
Display
Mkr1 2.469 GHz
Ref 20 dBm
Atten 30 dB
4.83 dBm
Peak
Log
10
dB/
Display Line
-15.20 dBm
Full Screen
Display Line
-15.20 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences
Dl
-15.2
dBm
LgAv
Start 30 MHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 953.3 ms (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
2.469 GHz
4.83 dBm
Copyright 2000-2006 Agilent Technologies

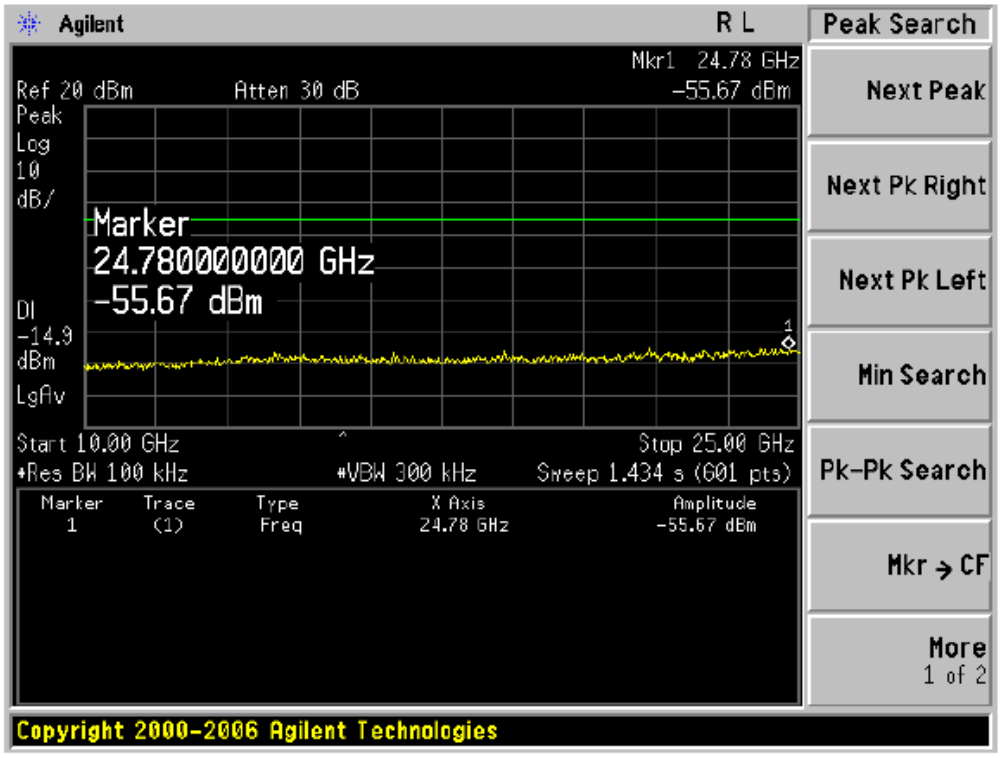
10GHz~25GHz


Agilent
R L
Peak Search
Mkr1 24.70 GHz
Ref 20 dBm
Atten 30 dB
-54.52 dBm
Peak
Log
10
dB/
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Dl
-15.2
dBm
LgAv
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.70 GHz
-54.52 dBm
Copyright 2000-2006 Agilent Technologies

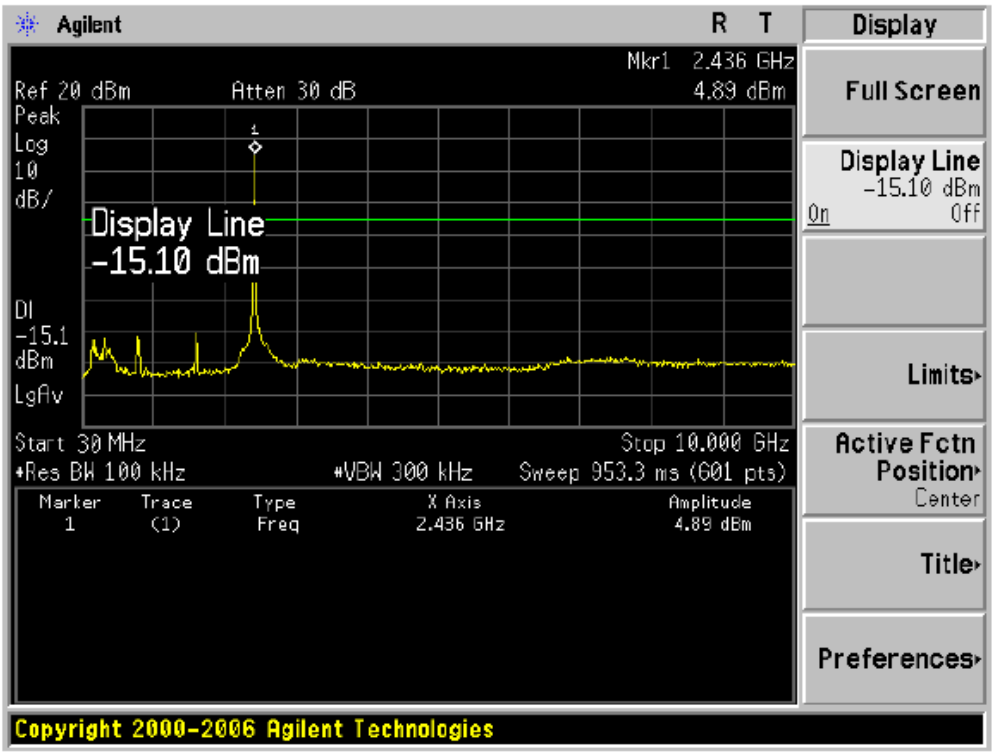
Test mode: 802.11n(H20)
Lowest channel 30MHz~10GHz



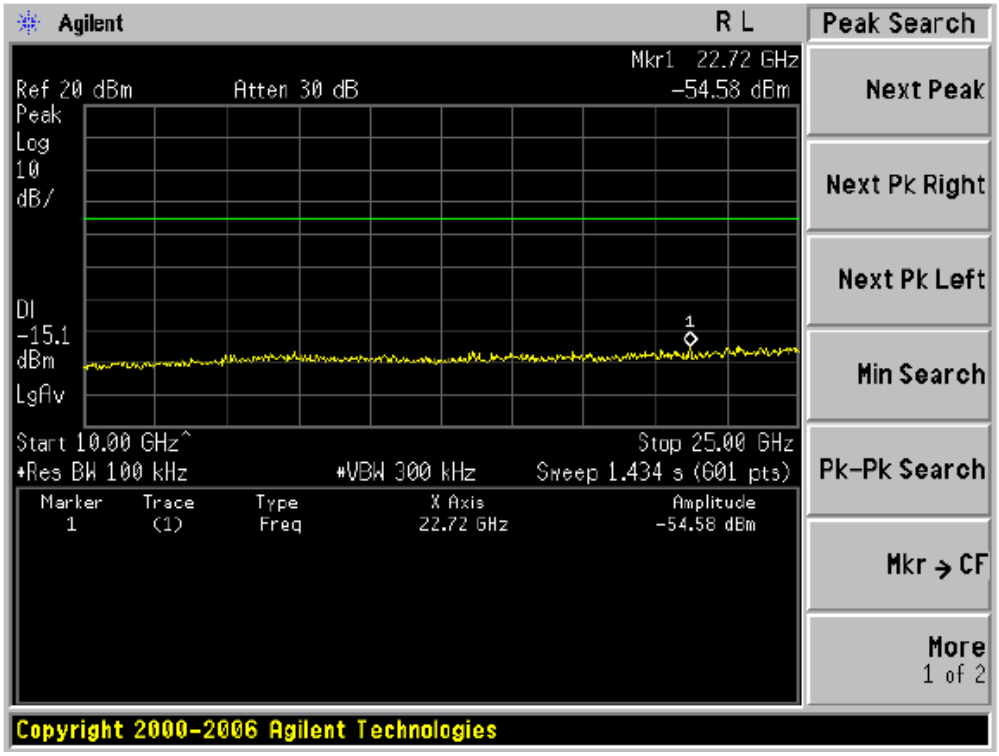
10GHz~25GHz



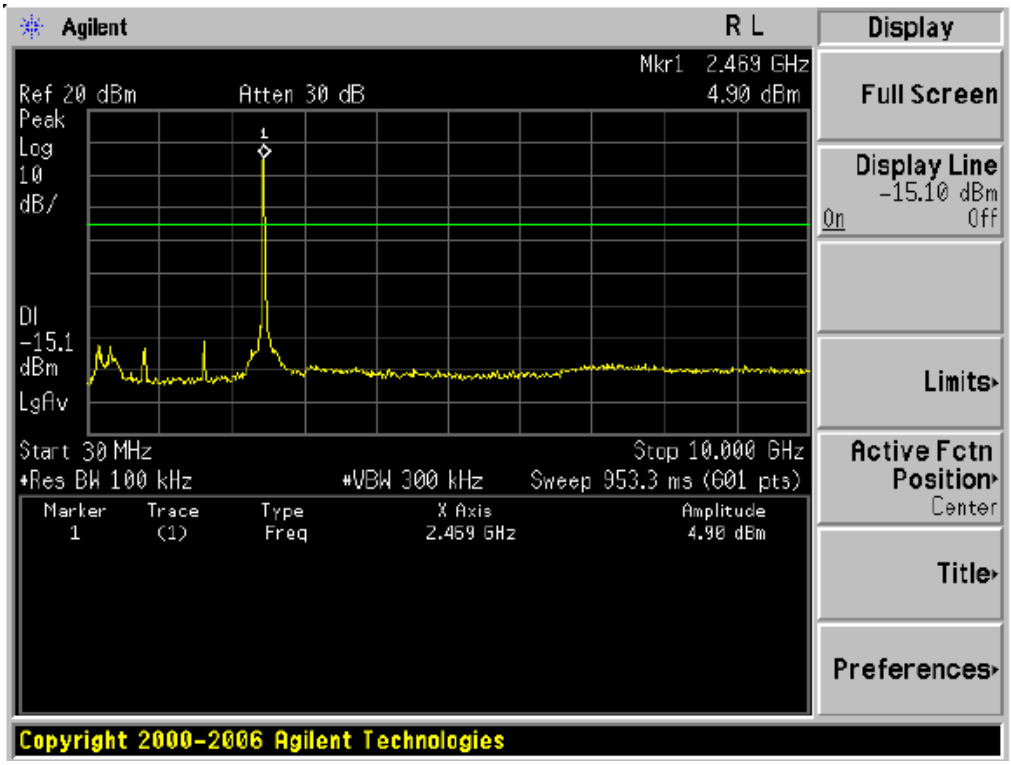
Middle channel 30MHz~10GHz



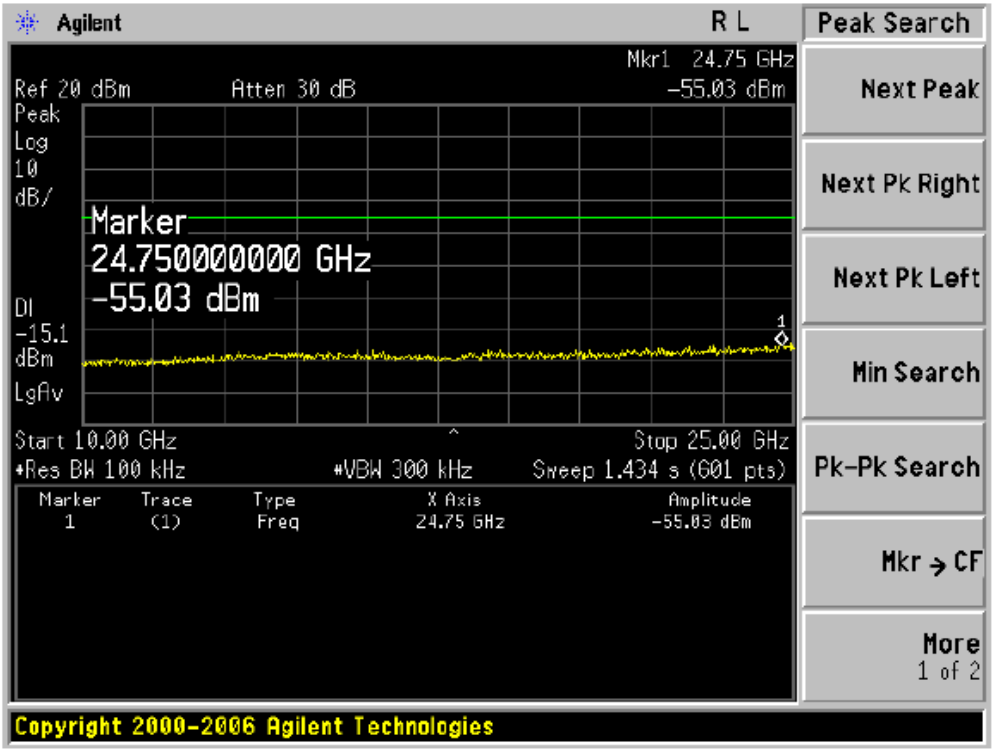
10GHz~25GHz



Highest channel 30MHz~10GHz

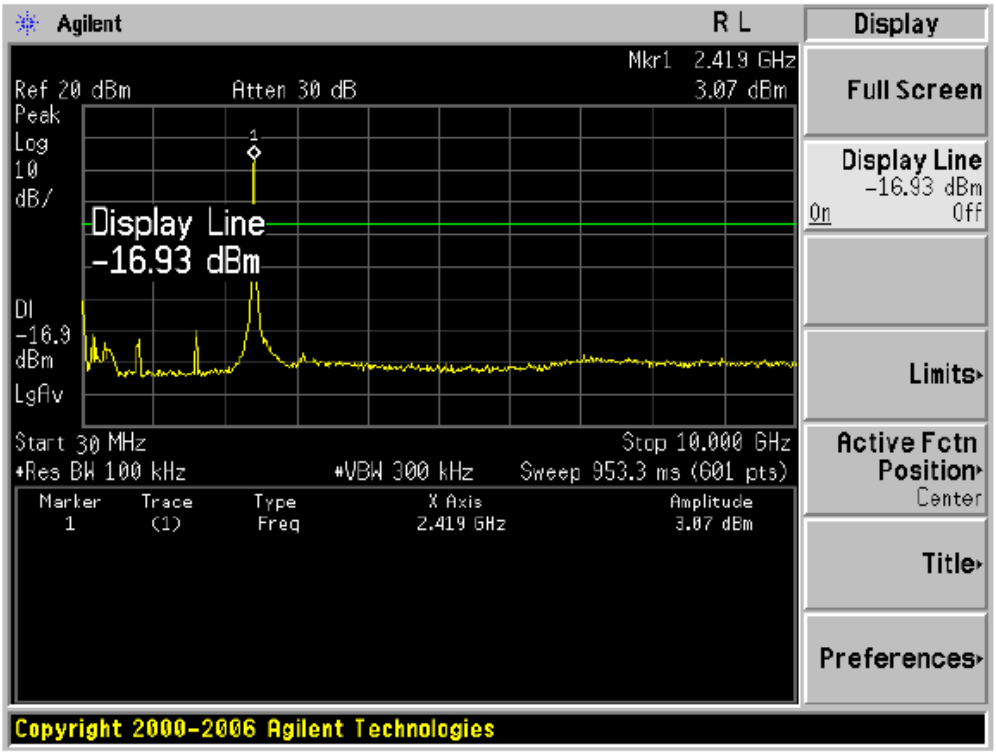


10GHz~25GHz

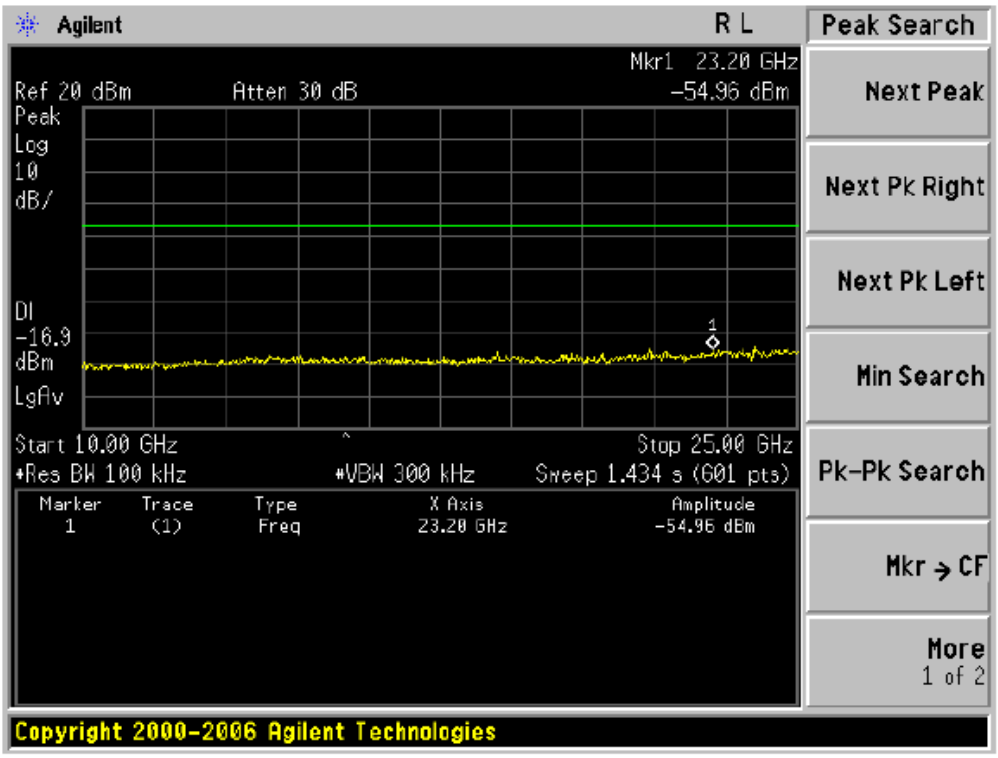


Test mode: 802.11n(H40)

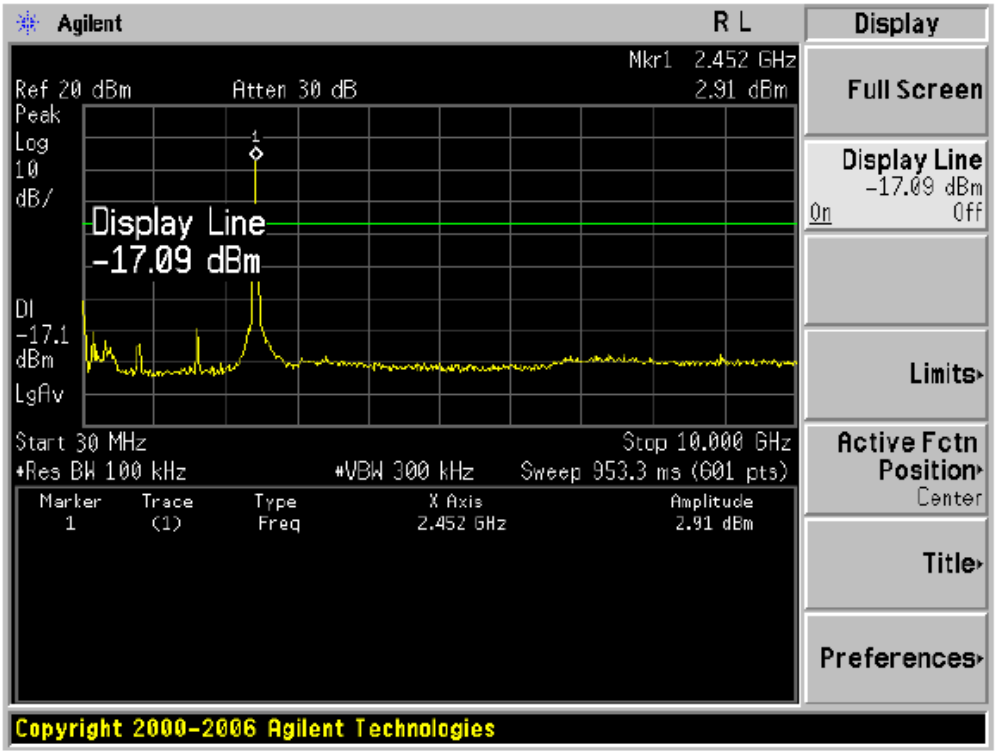
Lowest channel 30MHz~10GHz



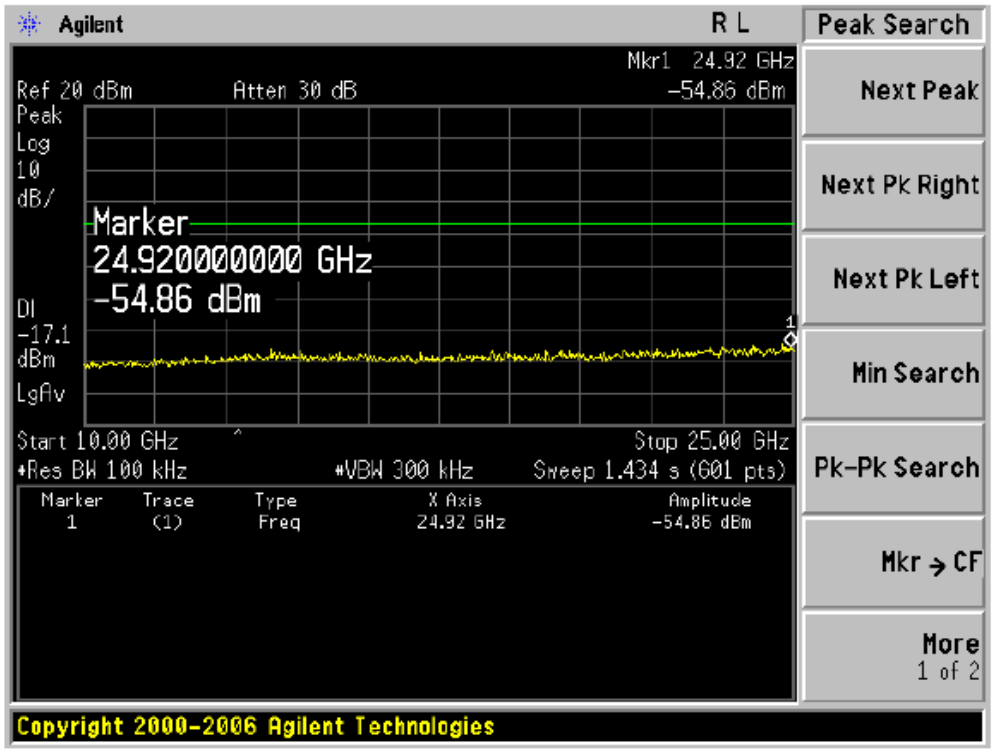
10GHz~25GHz



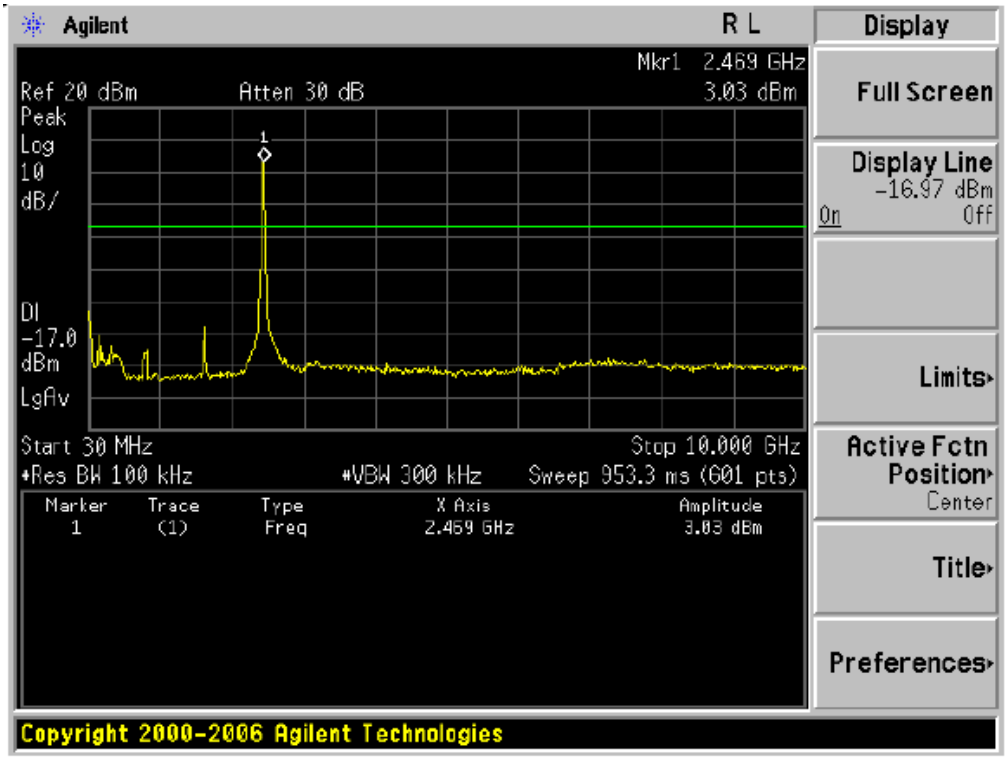
Middle channel 30MHz~10GHz



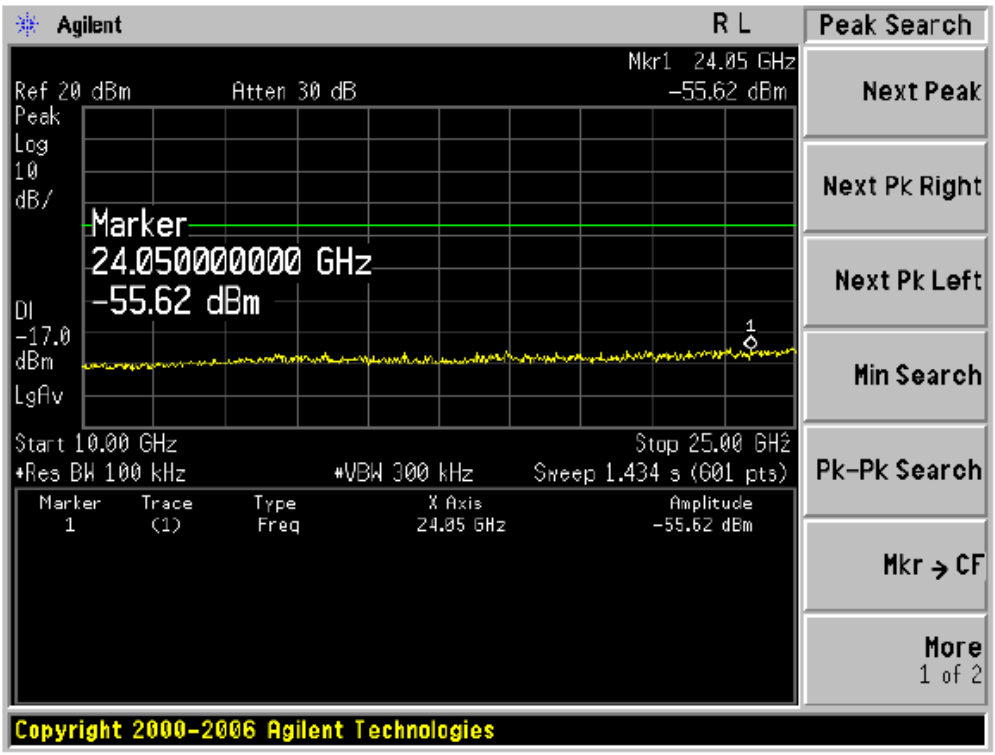
10GHz~25GHz



Highest channel 30MHz~10GHz


Agilent
R L
Display
Mkr1 2.469 GHz
Ref 20 dBm
Atten 30 dB
3.03 dBm
Peak
Log
10
dB/
Full Screen
Display Line
-16.97 dBm
On
Off
Dl
-17.0
dBm
LgAv
Limits
Start 30 MHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 953.3 ms (601 pts)
Active Fctn
Position
Center
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.469 GHz 3.03 dBm
Title
Preferences
Copyright 2000-2006 Agilent Technologies

10GHz~25GHz


Agilent
R L
Peak Search
Mkr1 24.05 GHz
Ref 20 dBm
Atten 30 dB
-55.62 dBm
Peak
Log
10
dB/
Next Peak
Marker
24.050000000 GHz
-55.62 dBm
Next Pk Right
Next Pk Left
Dl
-17.0
dBm
LgAv
Min Search
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Pk-Pk Search
Marker Trace Type X Axis Amplitude
1 (1) Freq 24.05 GHz -55.62 dBm
Mkr → CF
More
1 of 2
Copyright 2000-2006 Agilent Technologies

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.

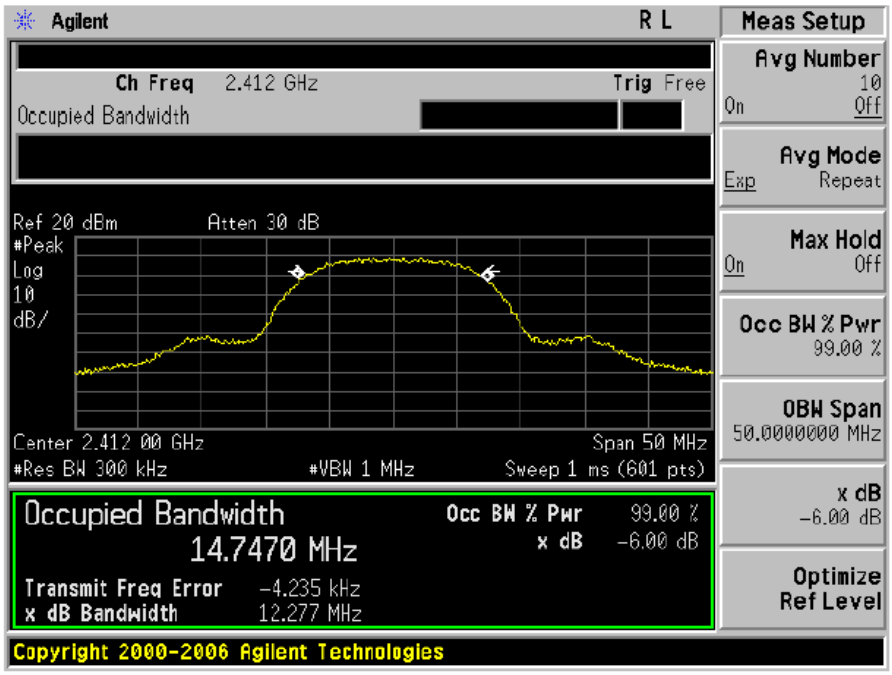
9.4. Test Result:Pass.

Please refer to the following tables

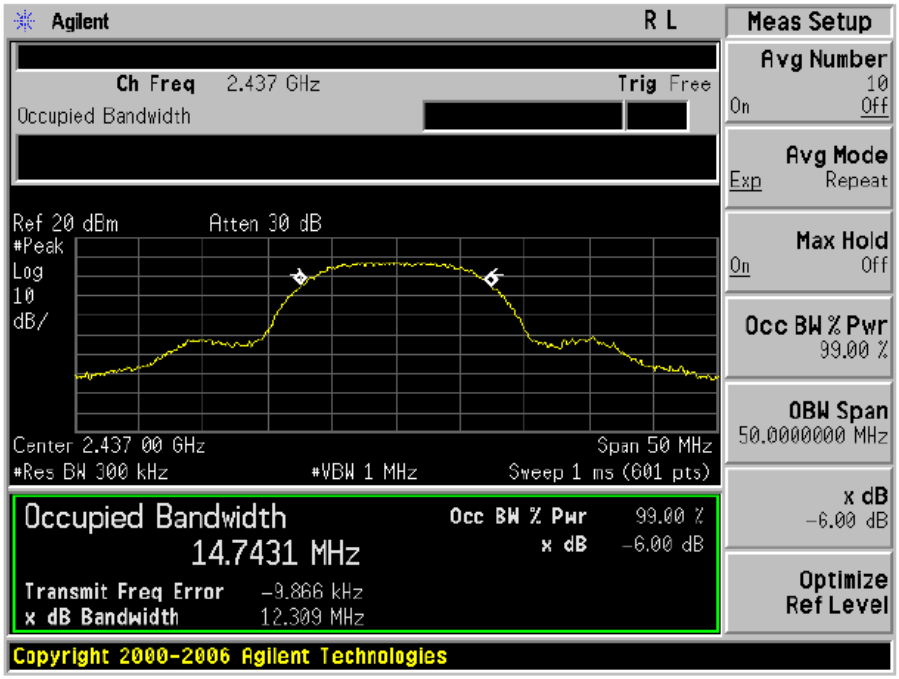
Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (kHz)	Limit (kHz)	Result
802.11b Mode				
2412	1	12277	>500	Pass
2437	1	12309	>500	Pass
2462	1	12308	>500	Pass
802.11g Mode				
2412	6	16474	>500	Pass
2437	6	16416	>500	Pass
2462	6	16589	>500	Pass
802.11n (20M) Mode				
2412	6.5	17492	>500	Pass
2437	6.5	17400	>500	Pass
2462	6.5	17537	>500	Pass
802.11n (40M) Mode				
2422	13	35974	>500	Pass
2437	13	35926	>500	Pass
2452	13	35553	>500	Pass

802.11b Mode:

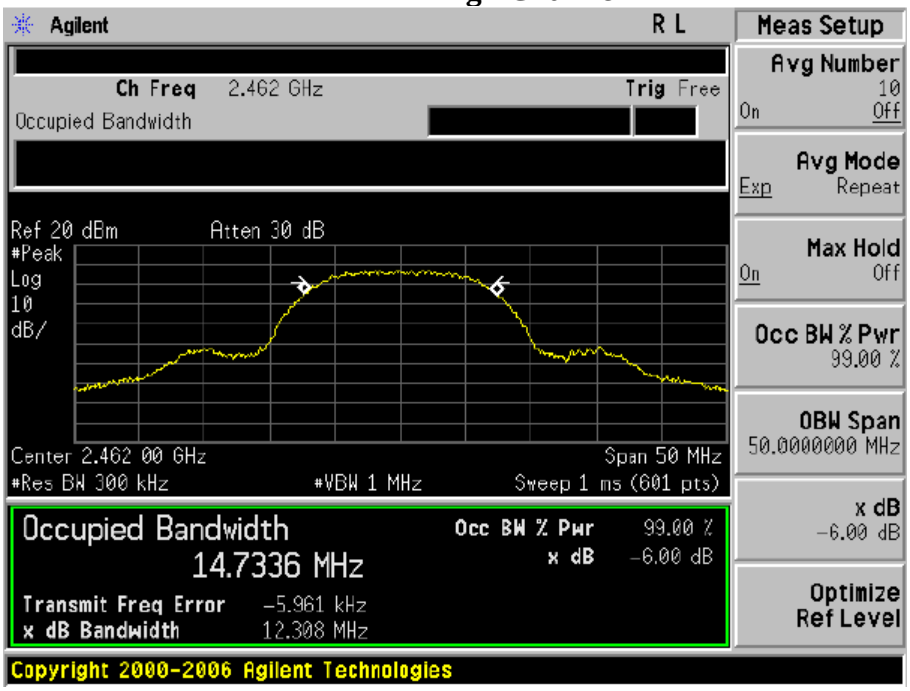
Low Channel



Middle Channel

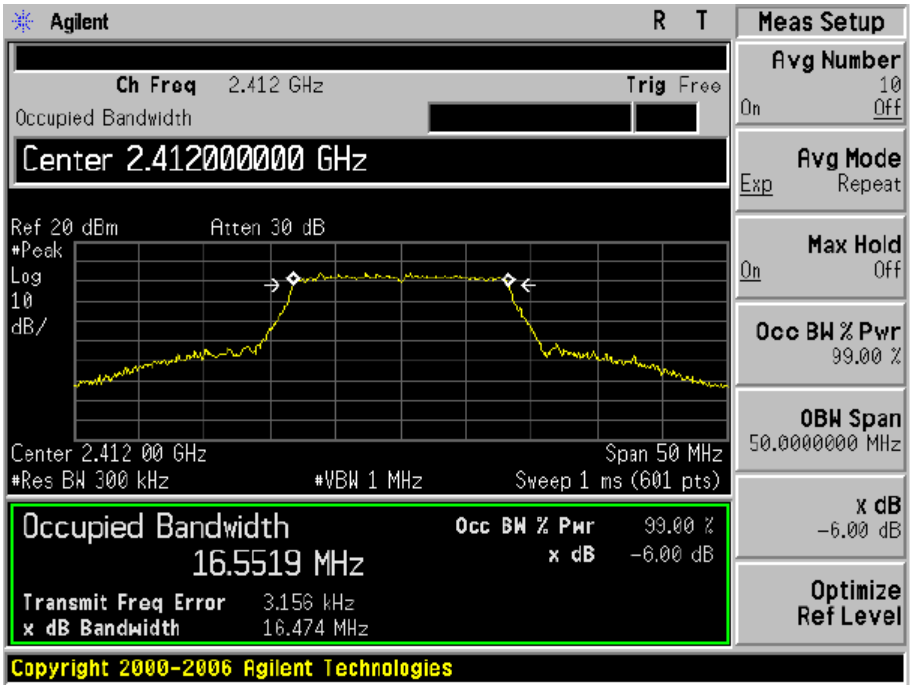


High Channel

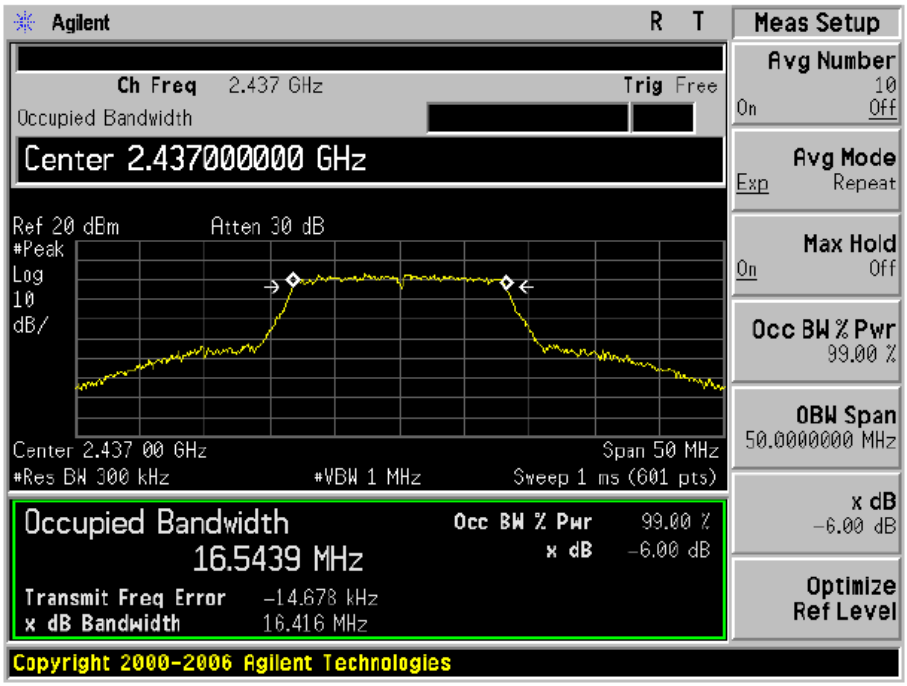


802.11g Mode:

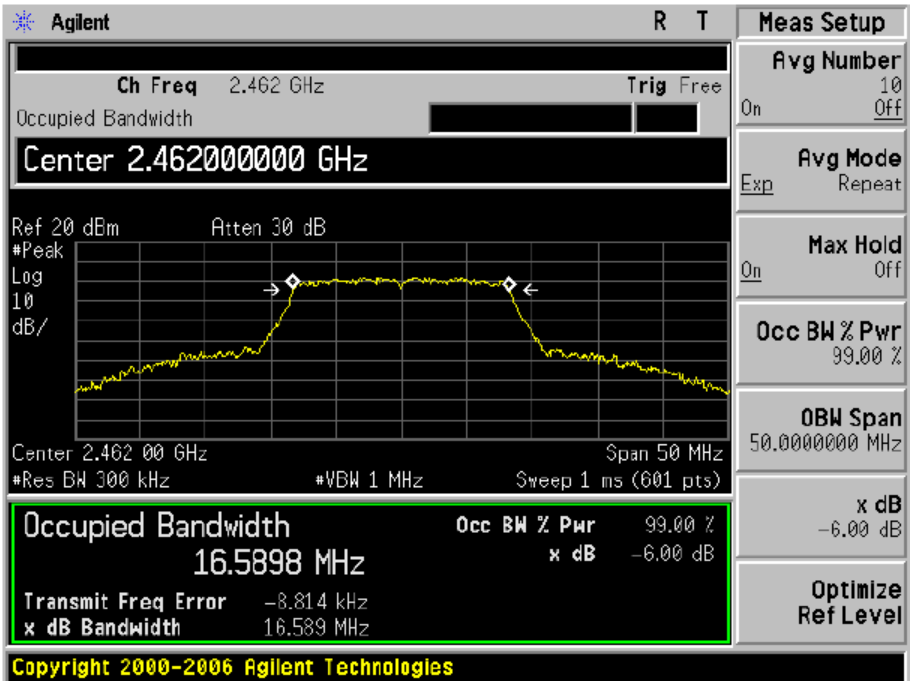
Low Channel



Middle Channel

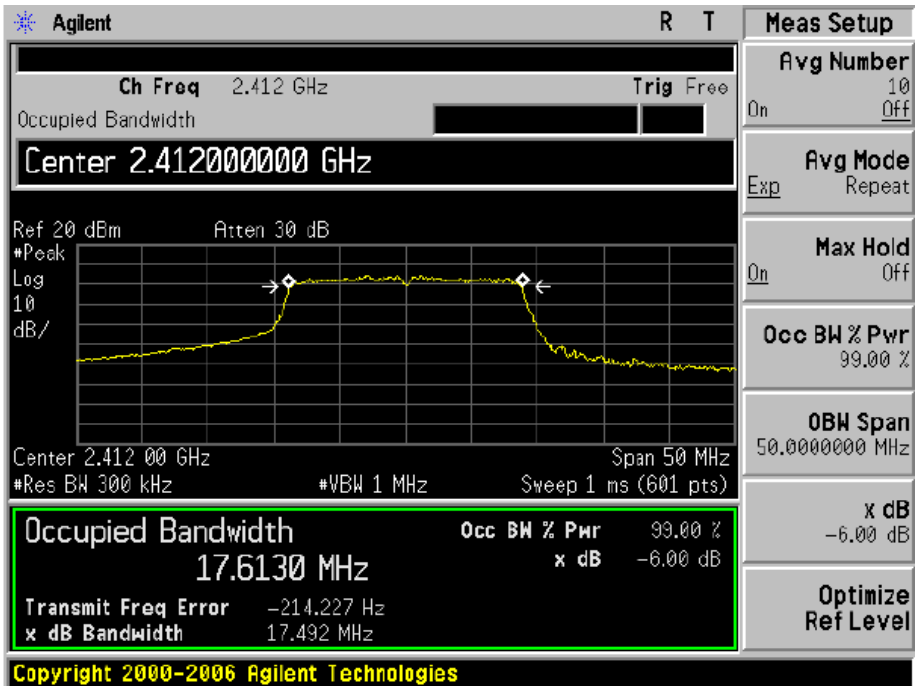


High Channel

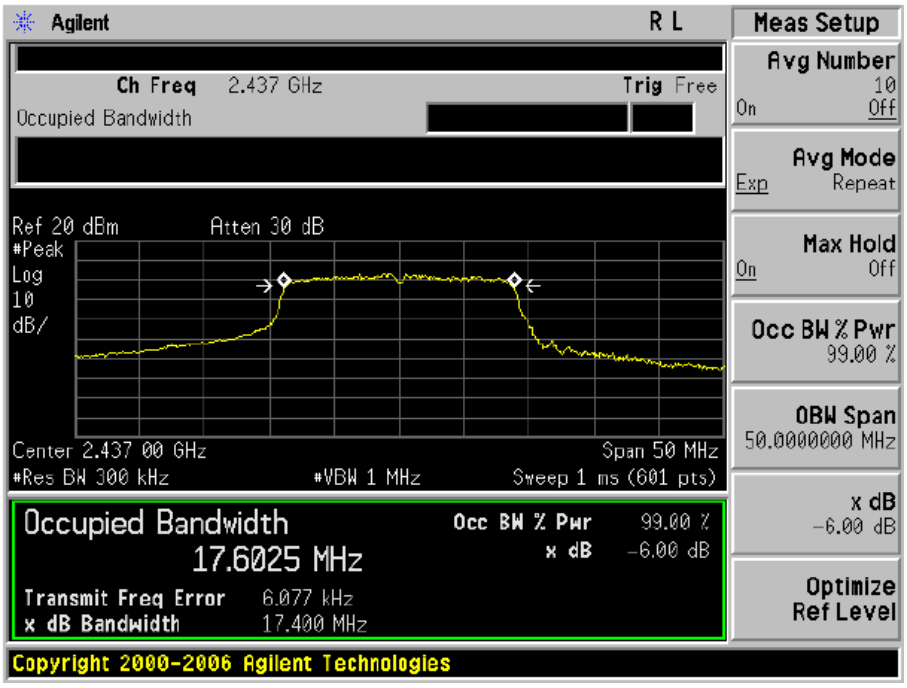


802.11n (20M) Mode:

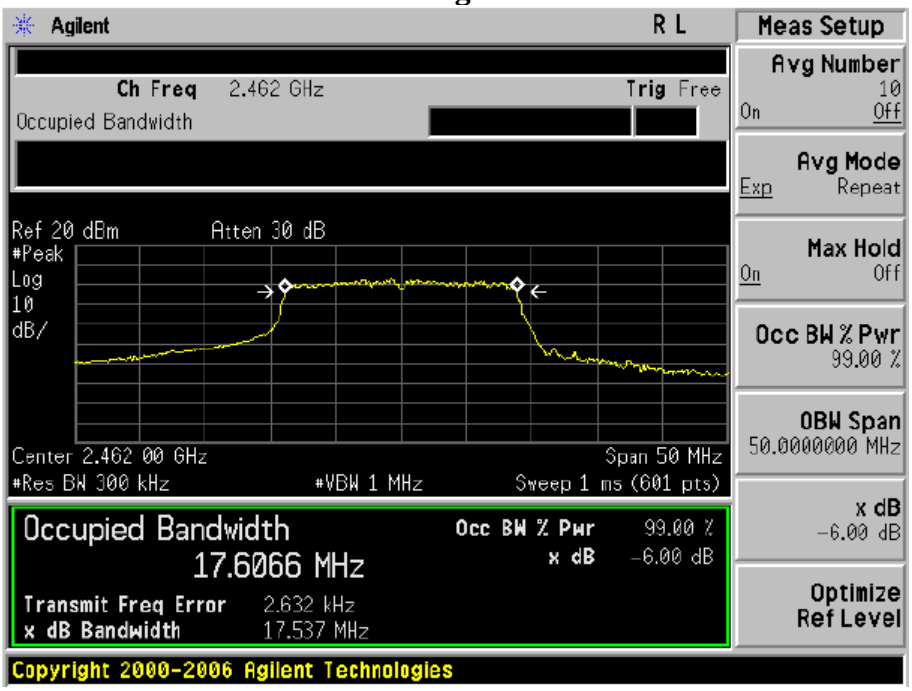
Low Channel



Middle Channel

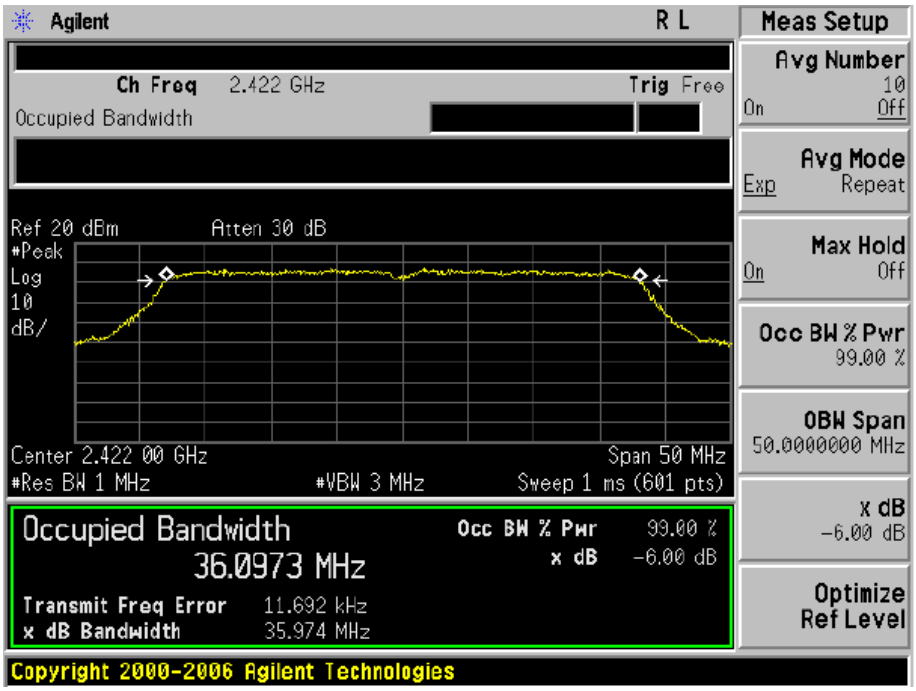


High Channel

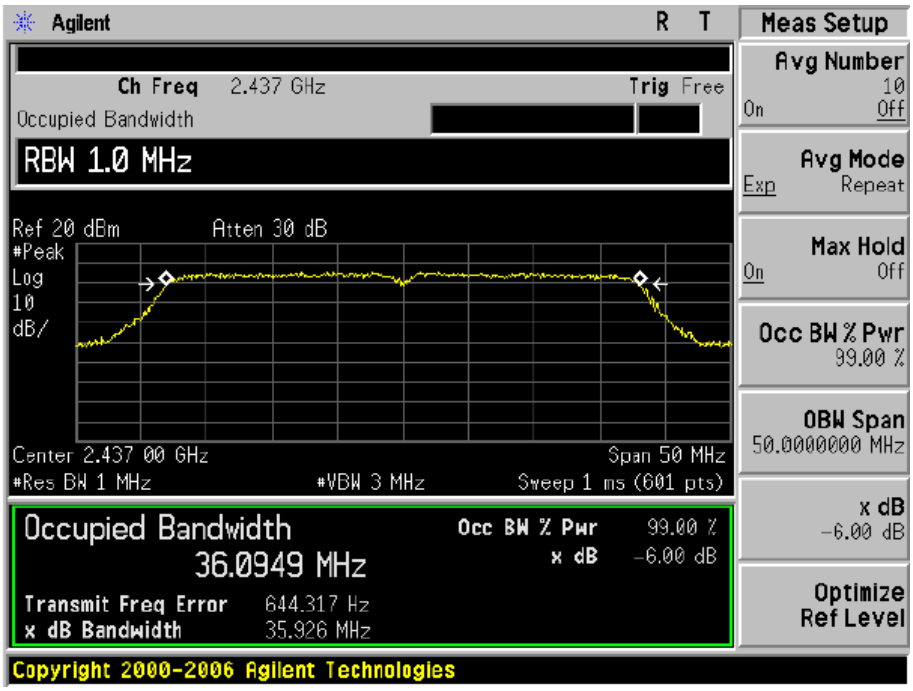


802.11n (40M) Mode:

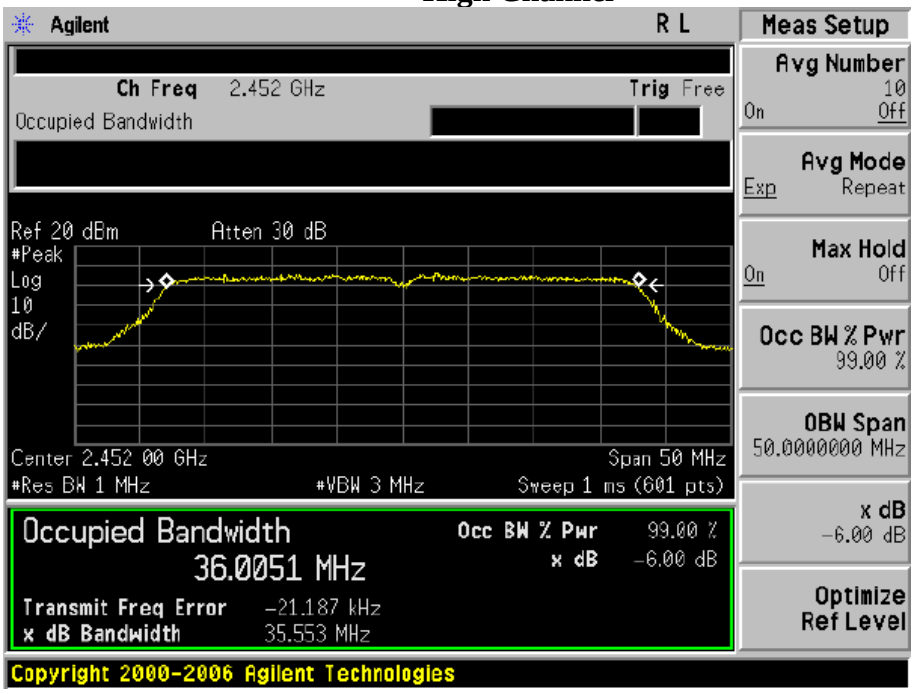
Low Channel



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. The EUT was directly connected to the power meter

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	16.42	30
Mid	2437	1	15.98	30
High	2462	1	16.23	30

802.11g Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6	15.03	30
Mid	2437	6	15.13	30
High	2462	6	15.00	30

802.11n (20M) Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6.5	13.86	30
Mid	2437	6.5	14.14	30
High	2462	6.5	13.85	30

802.11n (40M) Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2422	54	13.65	30
Mid	2437	54	13.98	30
High	2452	54	13.63	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

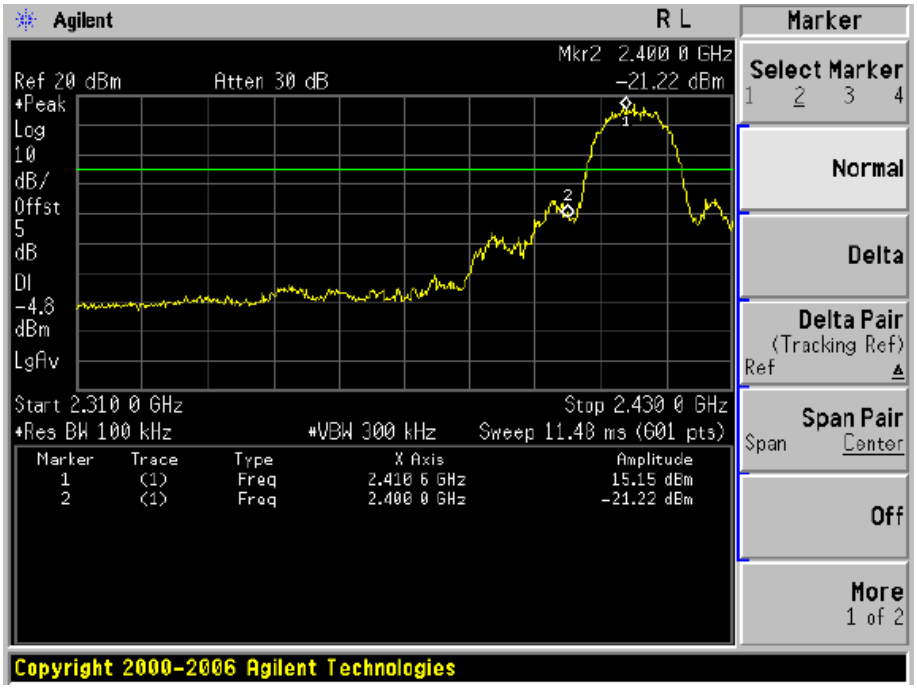
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

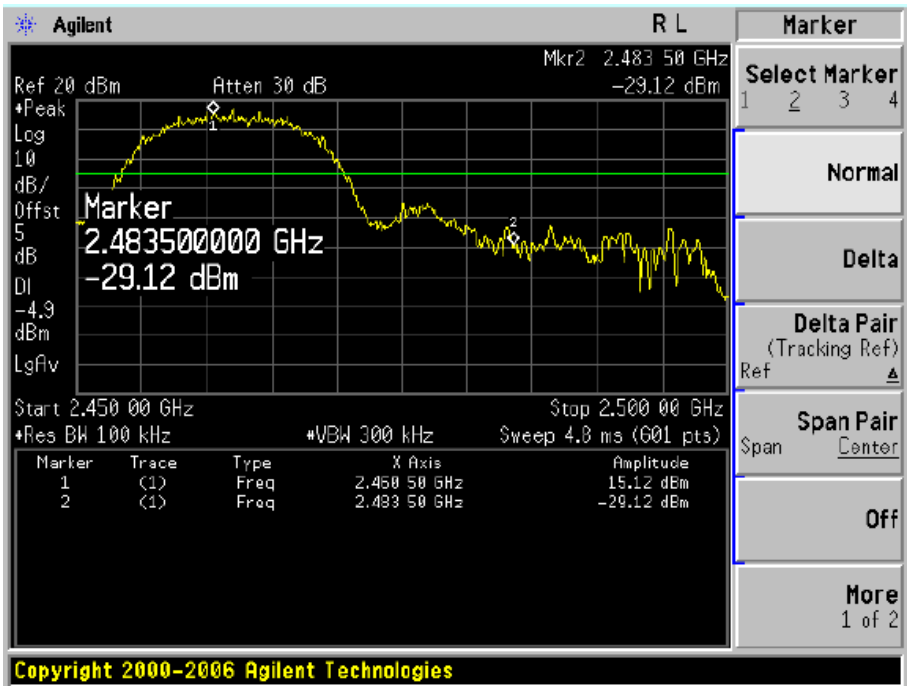
11.4.Test Result

Pass.

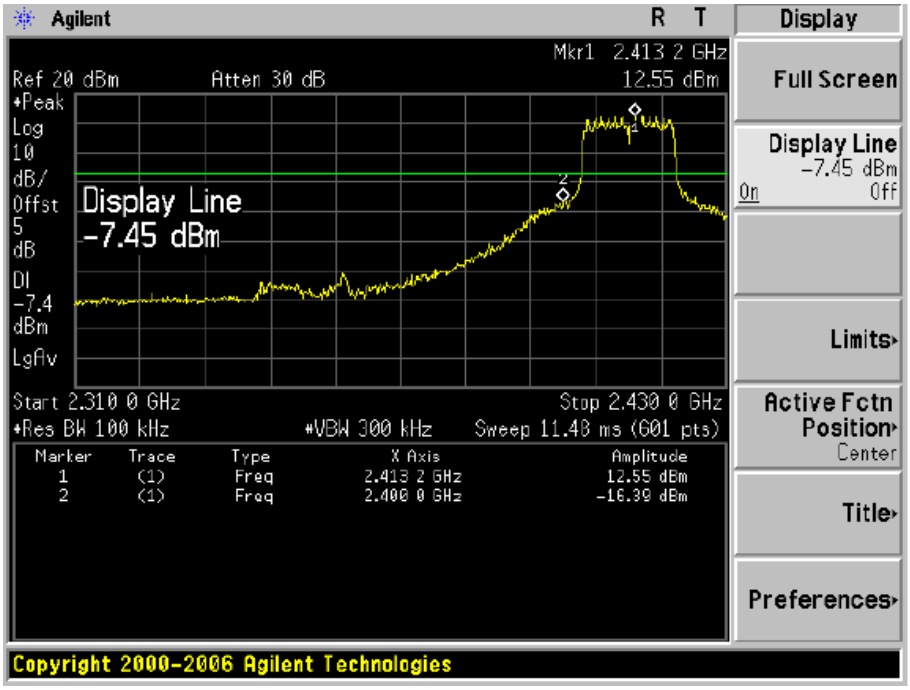
Conducted test

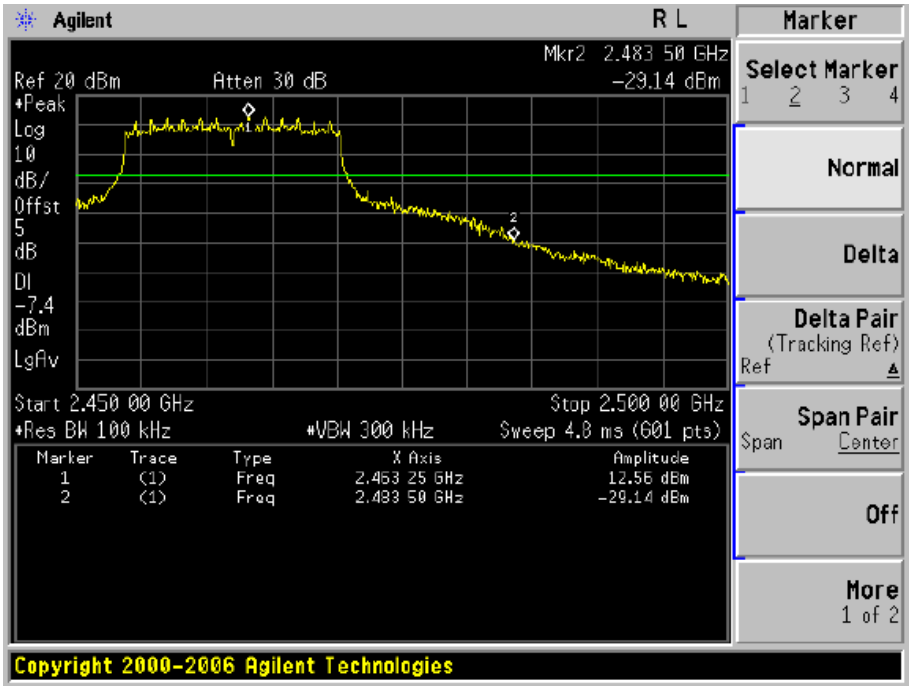
802.11b Mode:



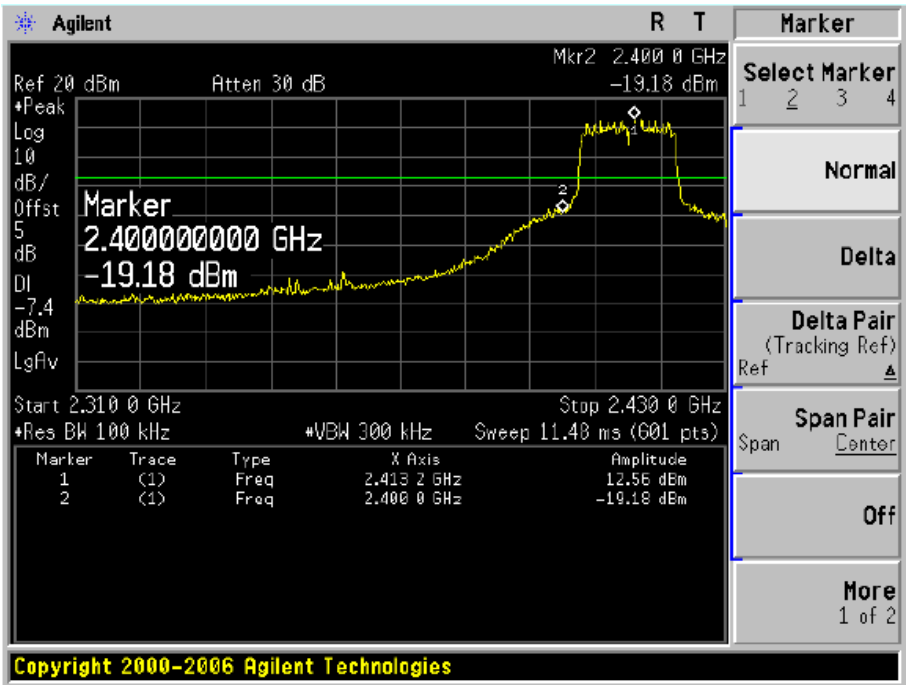


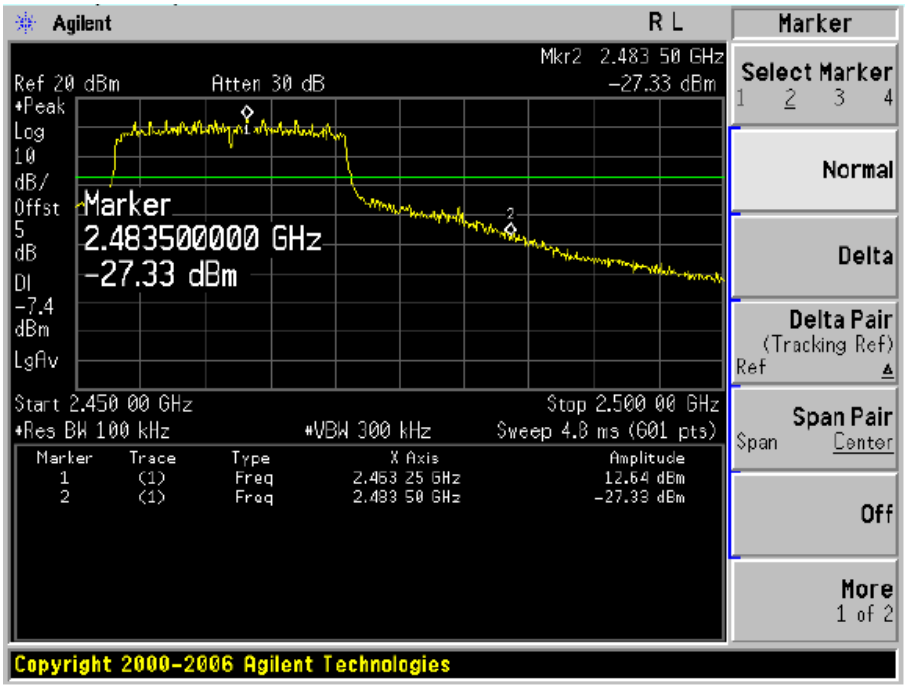
802.11g Mode:


Agilent
R T
Display
Mkr1 2.413 2 GHz
Ref 20 dBm
Atten 30 dB
12.55 dBm
#Peak
Log
10
dB/
Offst
5
dB
Dl
-7.4
dBm
LgAv
Display Line
-7.45 dBm
Full Screen
Display Line
-7.45 dBm
On
Off
Limits
Start 2.310 0 GHz
Stop 2.430 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 11.48 ms (601 pts)
Active Fctn
Position
Center
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.413 2 GHz 12.55 dBm
2 (1) Freq 2.400 0 GHz -16.39 dBm
Title
Preferences
Copyright 2000-2006 Agilent Technologies

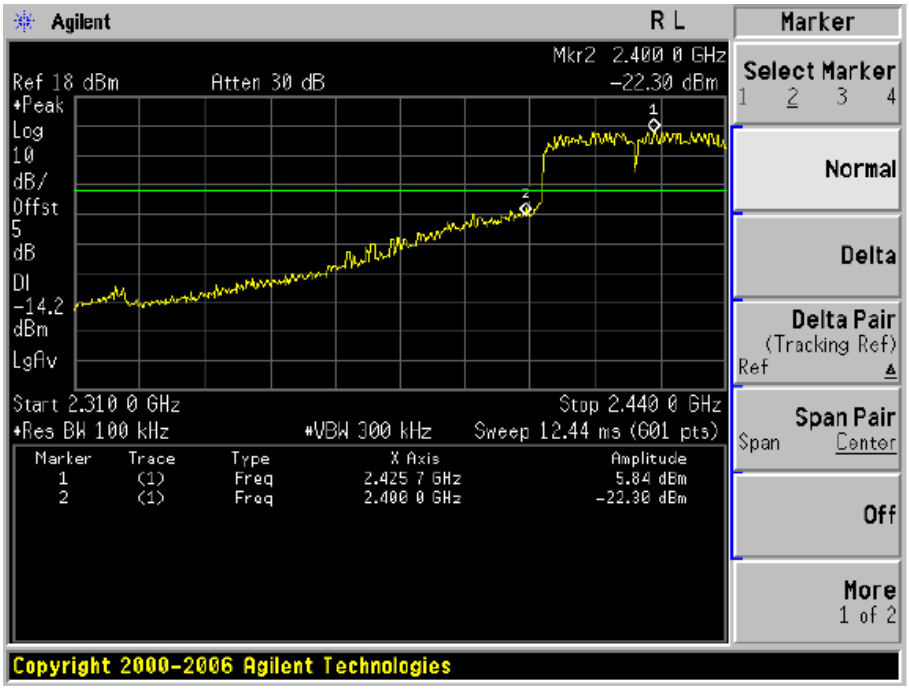

Agilent
R L
Marker
Mkr2 2.483 50 GHz
Ref 20 dBm
Atten 30 dB
-29.14 dBm
#Peak
Log
10
dB/
Offst
5
dB
Dl
-7.4
dBm
LgAv
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Start 2.450 00 GHz
Stop 2.500 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.463 25 GHz 12.56 dBm
2 (1) Freq 2.483 50 GHz -29.14 dBm
Copyright 2000-2006 Agilent Technologies

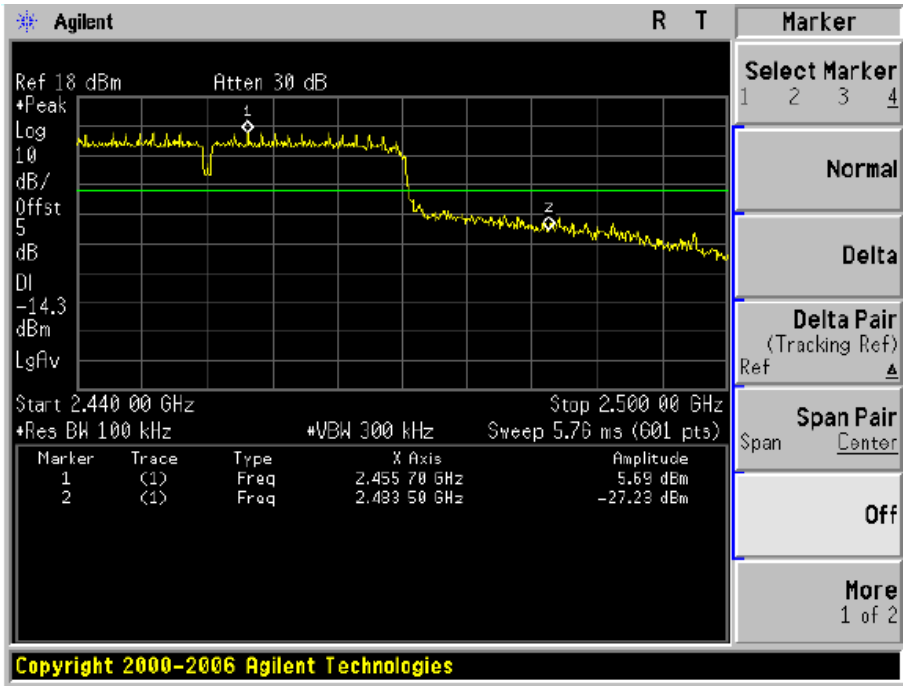
802.11n (20M) Mode:





802.11n (40M) Mode:





Radiated test

Date of Test:	November 13, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH532MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11b	Polarization:	H/V

		(MHz)	Level (dBuV/m)	(dB)	Level (dBuV/m)	(dBuV/m)	(dB)	
1	V	2411.1	68.7	30.4	99.1	Fundamental	/	PK
	H	365.1	1.5	16.7	18.2	46	-27.8	PK
	V	567.4	1.1	21.3	22.4	46	-23.6	PK
	H	3397.0	50.6	-15.1	35.5	54(Note 2)	-18.5	PK
	H	4824.0	62.4	-10.4	52.0	54	-2.0	AV
	H	4824.0	68.0	-10.4	57.6	74	-16.4	PK
	V	7236.0	49.2	-2.2	47.0	54(Note 2)	-7.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	68.2	30.4	98.6	Fundamental	/	PK
	H	347.7	2.0	16.2	18.2	46	-27.8	QP
	H	614.4	1.3	21.2	22.5	46	-23.5	PK
	V	3408.5	49.7	-15.1	34.6	54(Note 2)	-19.4	PK
	H	4876.0	60.3	-10.1	50.2	54	-3.8	AV
	H	4876.0	65.6	-10.1	55.5	74	-18.5	PK
	V	7311.0	45.9	-1.9	44.0	54(Note 2)	-10.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2462.1	67.6	30.5	98.1	Fundamental	/	PK
	H	347.7	2.0	16.2	18.2	46	-27.8	PK
	H	517.4	2.0	20.2	22.2	46	-23.8	PK
	H	3580.5	49.4	-14.7	34.7	54(Note 2)	-19.3	PK
	H	4927.0	58.4	-9.8	48.6	54	-5.4	AV
	H	4927.0	64.2	-9.8	54.4	74	-19.6	PK
	V	7383.5	49.7	-1.7	48.0	54(Note 2)	-6.0	PK
	V	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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:	November 13, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH532MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11g	Polarization:	H/V

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2405.3	72.4	30.4	102.8	Fundamental	/	PK
	H	365.1	0.0	16.7	16.7	46	-29.3	PK
	V	567.4	1.9	21.3	23.2	46	-22.8	PK
	H	3397.0	49.9	-15.1	34.8	54(Note 2)	-19.2	PK
	V	4825.0	60.3	-10.4	49.9	54(Note 2)	-4.1	PK
	V	7236.0	46.2	-2.2	44.0	54(Note 2)	-10.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	71.6	30.4	102.0	Fundamental	/	PK
	V	347.7	0.1	16.2	16.3	46	-29.7	PK
	H	614.4	-1.0	21.2	20.2	46	-25.8	PK
	H	3408.5	49.6	-15.1	34.5	54(Note 2)	-19.5	PK
	H	4876.0	57.4	-10.1	47.3	54(Note 2)	-6.7	PK
	V	7311.0	45.5	-1.9	43.6	54(Note 2)	-10.4	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2466.3	70.5	30.5	101.0	Fundamental	/	PK
	V	347.7	-0.4	16.2	15.8	46	-30.2	PK
	V	517.4	0.0	20.2	20.2	46	-25.8	PK
	V	3580.5	48.9	-14.7	34.2	54(Note 2)	-19.8	PK
	H	4927.0	57.1	-9.8	47.3	54(Note 2)	-6.7	PK
	V	7383.5	47.1	-1.7	45.4	54(Note 2)	-8.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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:	November 13, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH532MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT20	Polarization:	H/V

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2403.9	71.8	30.4	102.2	Fundamental	/	PK
	V	365.1	-0.3	16.7	16.4	46	-29.6	PK
	V	567.4	1.8	21.3	23.1	46	-22.9	PK
	V	3397.0	49.2	-15.1	34.1	54(Note 2)	-19.9	PK
	H	4816.5	57.7	-10.4	47.3	54(Note 2)	-6.7	PK
	V	7236.0	46.5	-2.2	44.3	54(Note 2)	-9.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	71.9	30.4	102.3	Fundamental	/	PK
	V	347.7	1.3	16.2	17.5	46	-28.5	PK
	H	614.4	-0.9	21.2	20.3	46	-25.7	PK
	H	3408.5	50.0	-15.1	34.9	54(Note 2)	-19.1	PK
	H	4867.5	56.1	-10.1	46.0	54(Note 2)	-8.0	PK
	V	7311.0	45.3	-1.9	43.4	54(Note 2)	-10.6	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
11	V	2459.7	72.0	30.5	102.5	Fundamental	/	PK
	V	347.7	-0.3	16.2	15.9	46	-30.1	PK
	V	517.4	-0.1	20.2	20.1	46	-25.9	PK
	V	3580.5	48.6	-14.7	33.9	54(Note 2)	-20.1	PK
	H	4927.0	56.0	-9.8	46.2	54(Note 2)	-7.8	PK
	V	7386.0	46.5	-1.7	44.8	54(Note 2)	-9.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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:	November 13, 2012	Temperature:	24°C
EUT:	IP Camera	Humidity:	55%
Model No.:	NCH532MW	Power Supply:	AC 120V/60Hz
Test Mode:	802.11n HT40	Polarization:	H/V

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	V	2414.7	69.2	30.4	99.6	Fundamental	/	PK
	H	385.5	-1.6	17.2	15.6	46	-30.4	PK
	H	567.4	0.6	21.3	21.9	46	-24.1	PK
	H	3397.0	50.3	-15.1	35.2	54(Note 2)	-18.8	PK
	H	4842.0	54.5	-10.2	44.3	54(Note 2)	-9.7	PK
	H	7266.0	45.4	-2.1	43.3	54(Note 2)	-10.7	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
6	V	2438.5	67.2	30.4	97.6	Fundamental	/	PK
	V	347.7	0.2	16.2	16.4	46	-29.6	PK
	V	614.4	-1.0	21.2	20.2	46	-25.8	PK
	V	3408.5	49.7	-15.1	34.6	54(Note 2)	-19.4	PK
	H	4876.0	53.8	-10.1	43.7	54(Note 2)	-10.3	PK
	V	7311.0	45.7	-1.9	43.8	54(Note 2)	-10.2	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK
9	V	2450.3	65.5	30.5	96.0	Fundamental	/	PK
	V	368.5	-0.5	16.7	16.2	46	-29.8	PK
	V	547.5	-0.9	21.2	20.3	46	-25.7	PK
	H	3580.5	49.2	-14.7	34.5	54(Note 2)	-19.5	PK
	H	4901.5	52.6	-9.9	42.7	54(Note 2)	-11.3	PK
	H	7356.0	44.8	-1.8	43.0	54(Note 2)	-11.0	PK
	H	24000.0	59.1	-8.9	50.2	54(Note 2)	-3.8	PK

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

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.

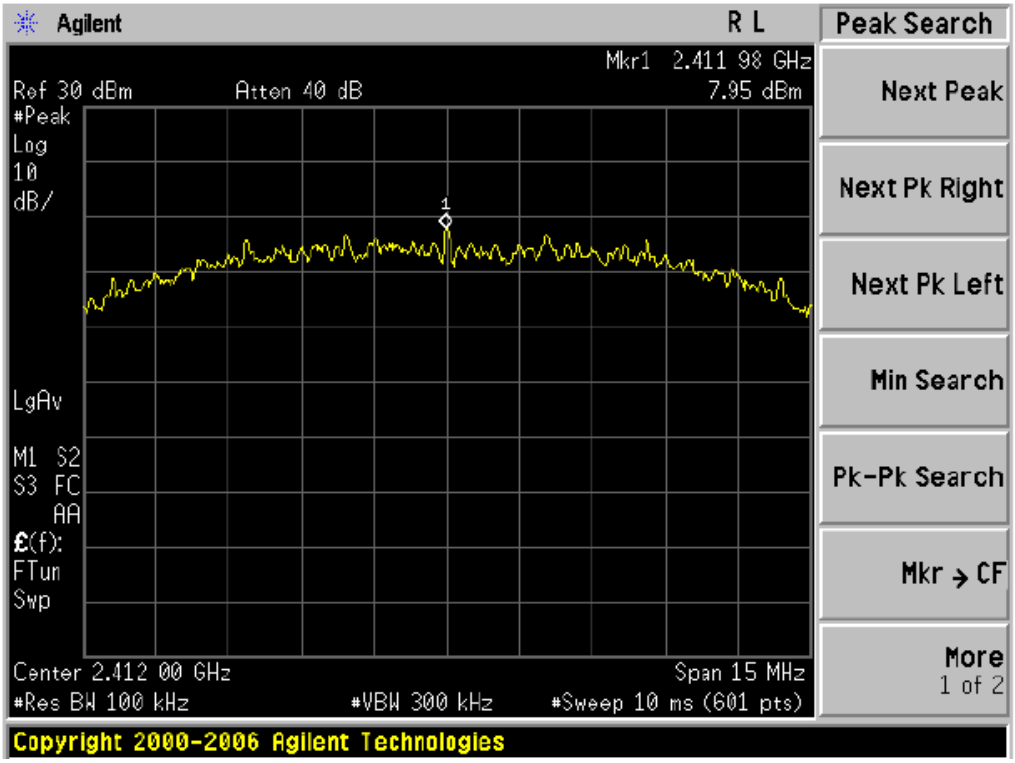
12.4.Test Result

PASS

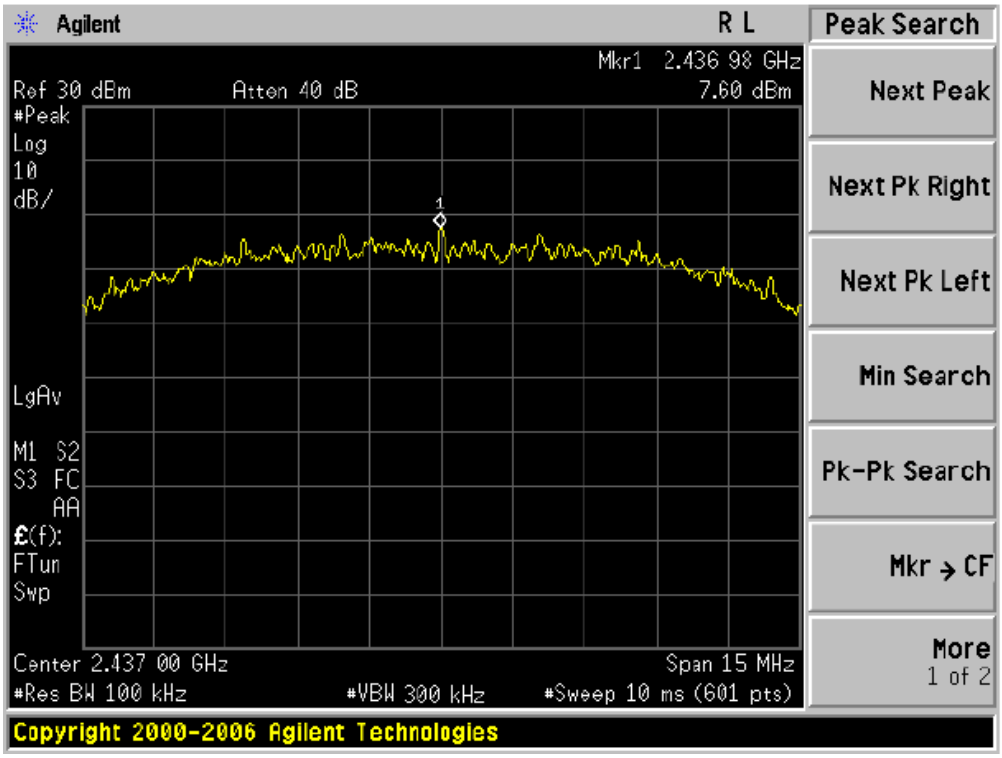
Test CH	Power Spectral Density (dBm/100KHz)		BWCF	Power Spectral Density (dBm/3KHz)		Limit (dBm/3KHz)	Result
	802.11b	802.11g		802.11b	802.11g		
Lowest	7.95	5.53	-15.20	-7.25	-9.67	8.00	Pass
Middle	7.60	5.20	-15.20	-7.60	-10.00		
Highest	7.27	5.34	-15.20	-7.93	-9.86		
Test CH	Power Spectral Density (dBm/100KHz)		BWCF	Power Spectral Density (dBm/3KHz)		Limit (dBm/3KHz)	Result
	802.11n(H20)	802.11n(H40)		802.11n(H20)	802.11n(H40)		
Lowest	4.29	4.24	-15.20	-10.91	-10.96	8.00	Pass
Middle	4.69	4.05	-15.20	-10.51	-11.15		
Highest	4.31	4.29	-15.20	-10.89	-10.91		
Remark: BWCF = 10log(3 kHz/100 kHz)= -15.20dB							

Please refer to the following plots

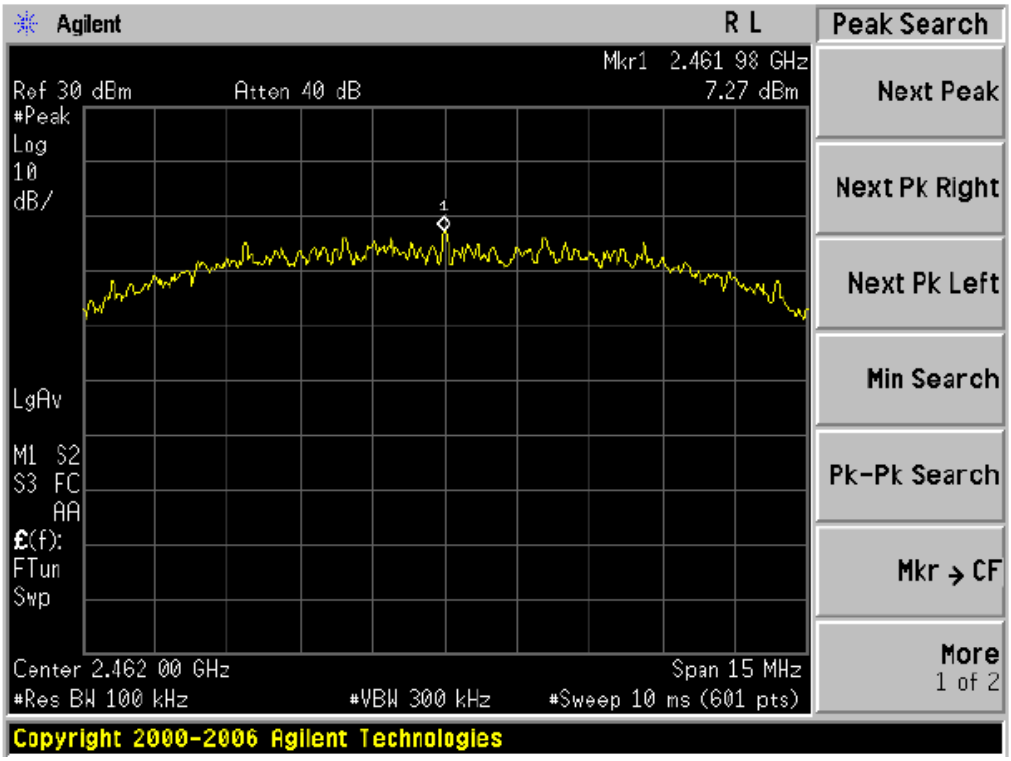
Power Spectral Density, 802.11b Low Channel



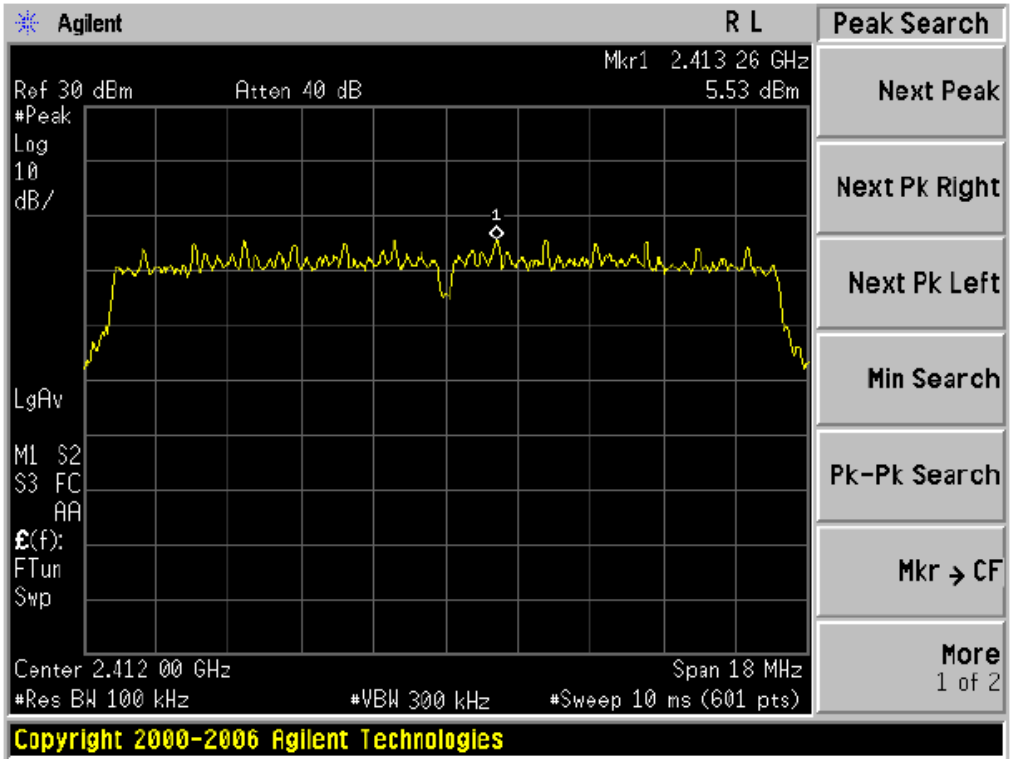
Power Spectral Density, 802.11b Middle Channel



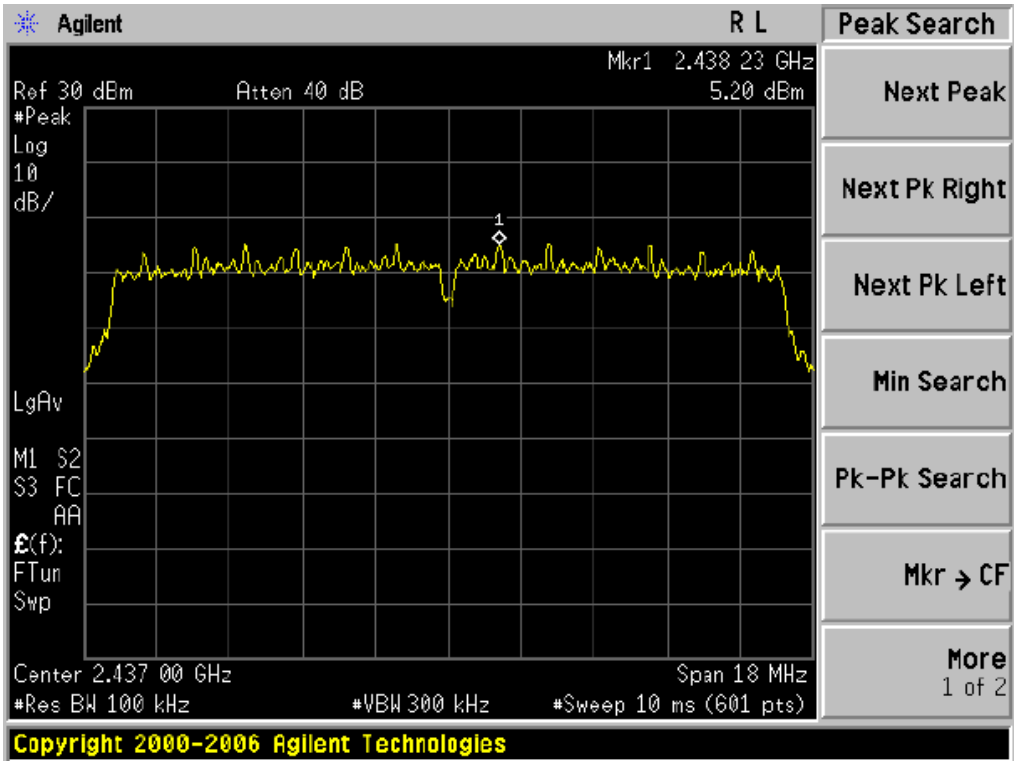
Power Spectral Density, 802.11b High Channel



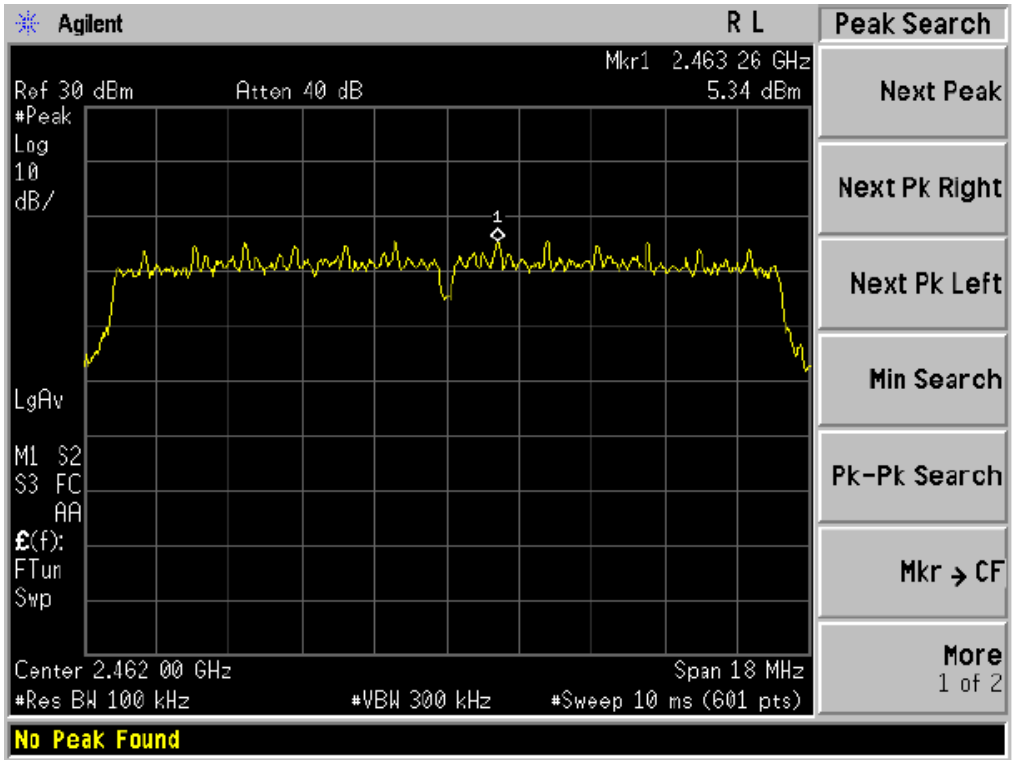
Power Spectral Density, 802.11g Low Channel



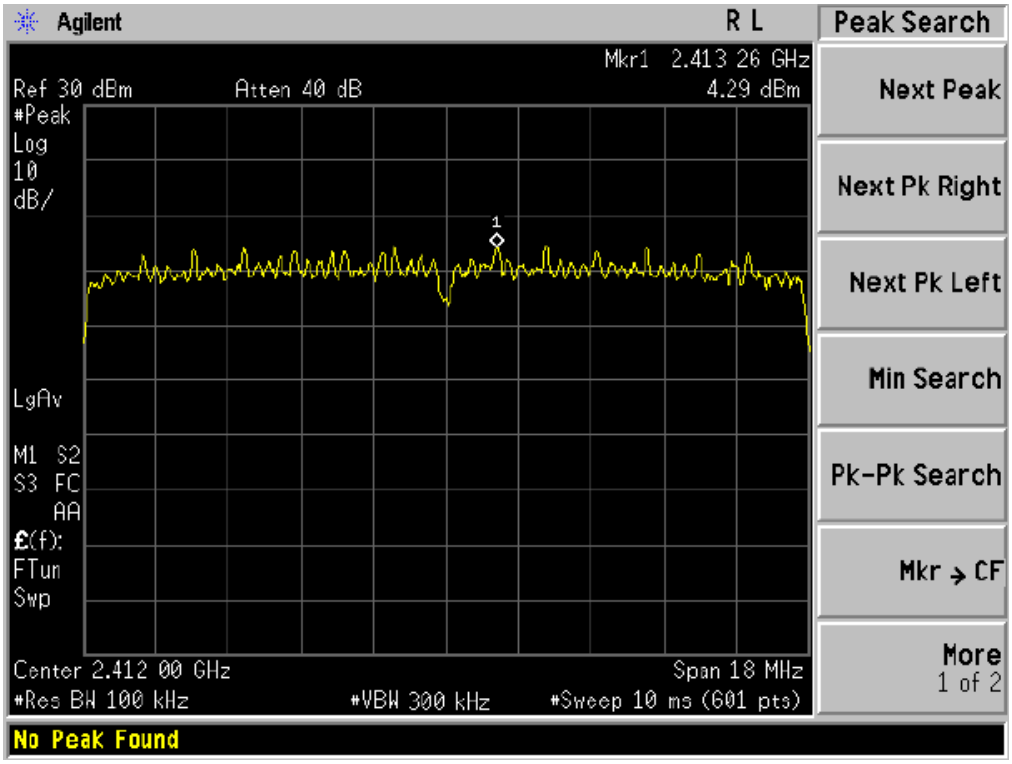
Power Spectral Density, 802.11g Middle Channel



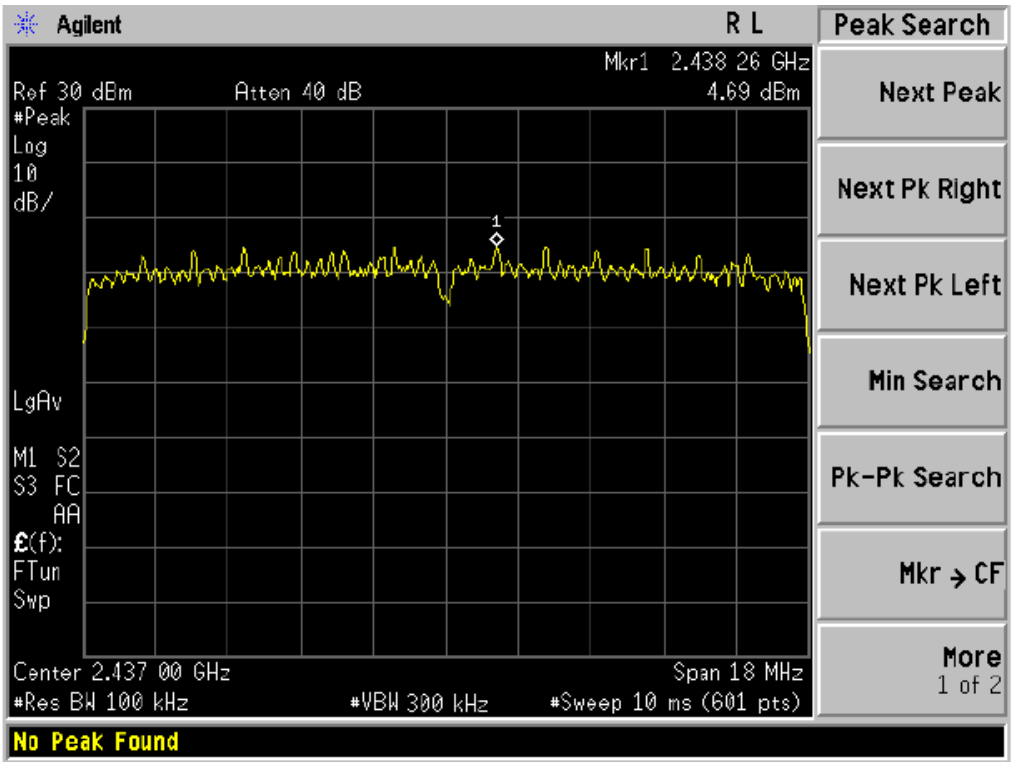
Power Spectral Density, 802.11g High Channel



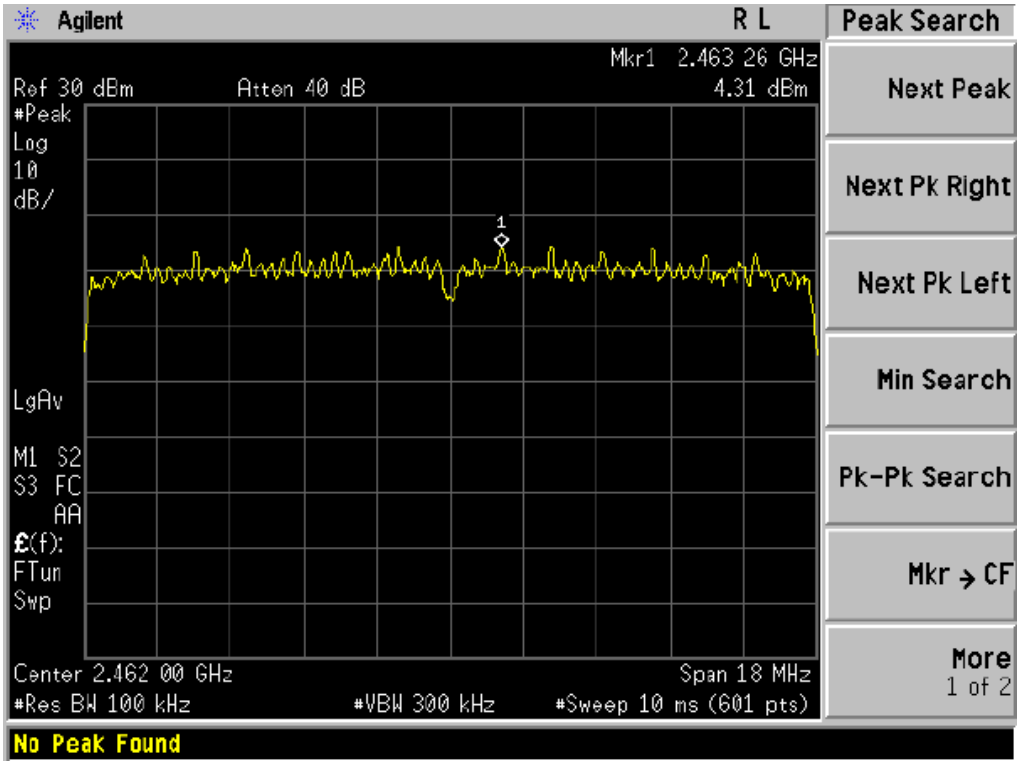
Power Spectral Density, 802.11n20 Low Channel



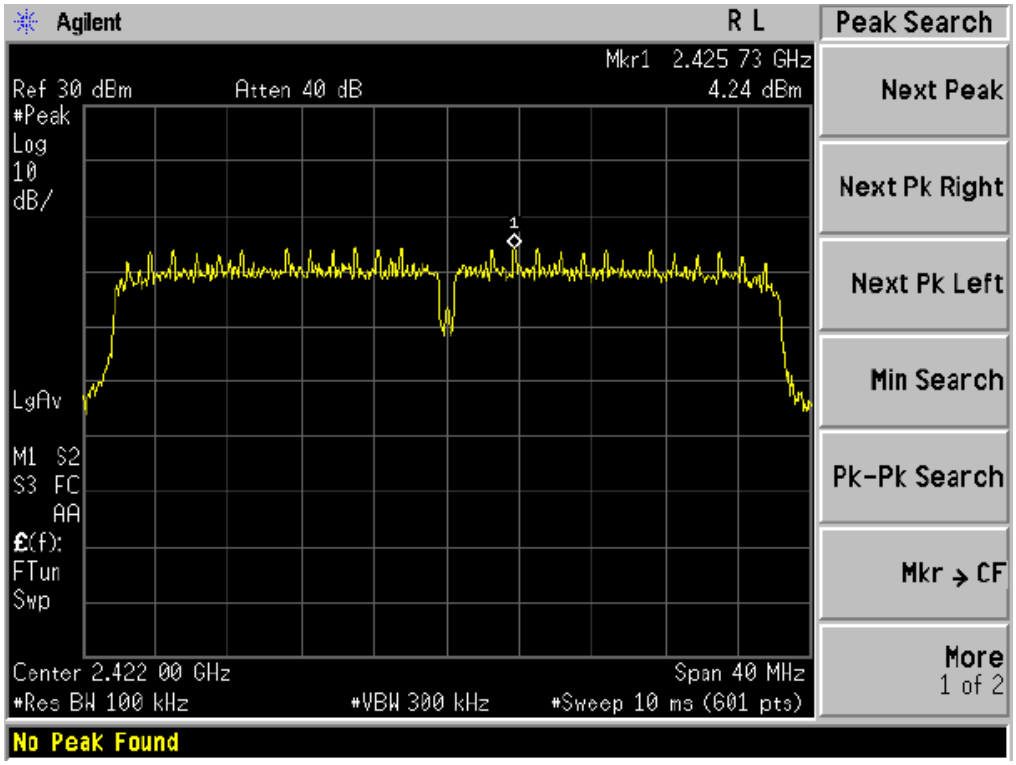
Power Spectral Density, 802.11n20 Middle Channel



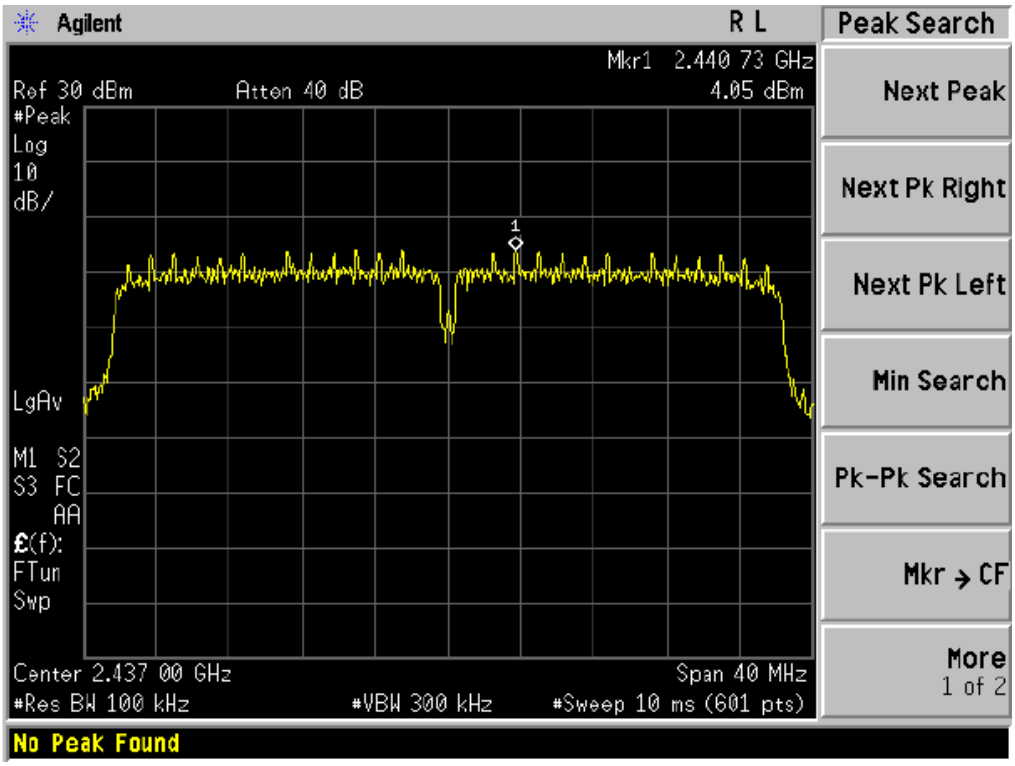
Power Spectral Density, 802.11n20 High Channel



Power Spectral Density, 802.11n40 Low Channel



Power Spectral Density, 802.11n40 Middle Channel



Power Spectral Density, 802.11n40 High Channel