ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT AND INDUSTRY CANADA RSS 210

OF

Product Name:	**802.11b/g/n RTL8191SU miniCard**
Brand Name:	**N/A**
Model Name:	**RTL8191SU**
Model Different:	**N/A**
FCC ID:	**TX2-RTL8191SU**
IC:	**6317A-RTL8191SU**
Report No.:	**ER/2009/90021~22**
Issue Date:	**Sep. 23, 2009**
FCC Rule Part:	**§15.247,DTS**
IC Rule Part:	**RSS-210 issue 7:2007, Annex 8**
Prepared for:	**Realtek Semiconductor Corp.** **No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan**
Prepared by:	**SGS Taiwan Ltd.** **Electronics & Communication Laboratory** **No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.**

Testing Laboratory
0513

VERIFICATION OF COMPLIANCE

Applicant:	Realtek Semiconductor Corp. No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan
Product Name:	802.11b/g/n RTL8191SU miniCard
Brand Name:	N/A
FCC ID:	TX2-RTL8191SU
IC:	6317A-RTL8191SU
Model Name:	RTL8191SU
Model Difference:	N/A
File Number:	ER/2009/90021~22
Date of test:	Sep. 15, 2009 ~ Sep. 23, 2009
Date of EUT Received:	Sep. 15, 2009

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247 and IC RSS 210 issue 7: 2007 Annex 8.
The test results of this report relate only to the tested sample identified in this report.

Test By:		***Date:***	Sep. 23, 2009
	Jason Wu / Asst. Supervisor		
Prepared By:		***Date:***	Sep. 23, 2009
	Eva Kao / Asst. Supervisor		
Approved By:		***Date:***	Sep. 23, 2009
	Vincent Su/Manager		

Version

Version No.	Date	Description
00	Sep. 23, 2009	Initial creation of document

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1 GENERAL INFORMATION

1.1 Product Description

General:

Product Name:	802.11b/g/n RTL8191SU miniCard
Brand Name:	N/A
Model Name:	RTL8191SU
Model Difference:	N/A
Power Supply	3.3Vdc

WLAN:

Frequency Range & Channel number:	802.11 b/g: 2412 – 2462 MHz, 11 channels 802.11 n_20MHz: 2412 – 2462 MHz, 11 channels 802.11 n_40MHz: 2422 – 2452 MHz, 9 channels
Rated Power:	802.11 b: 19.92 dBm 802.11 g: 17.81 dBm 802.11 n_20MHz: 16.79 dBm 802.11 n_40MHz: 16.86 dBm
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transmission Rate:	802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 - 300Mbps
Antenna Designation:	See next page for Antenna list
Type of Emission:	36M0M7D

The EUT is compliance with IEEE 802.11 b/g/n Standard.

Antenna Specification

Item	Antenna Vendor	Model name	Antenna Type	Gain (dBi) With cable loss	Cable loss (dB)	Connector Type
1	wistron	DQ661500301(Main) DQ661500301(Aux)	PIFA	3.95 3.9	N/A	IPEX
2	wistron	DQ661500115(Main) DQ661500115(Aux)	PIFA	1.10 0.64	1.89 2.55	IPEX
3	wgt	AR830WIPI01A(L) AR830WIPI02A(R)	PIFA	2.17 2.39	-1.6 -2.03	IPEX
4	wgt	AR320WIPI01B(L) AR320WIPI02B(R)	PIFA	0.86 2.11	-1.43 -1.78	IPEX
5	wgt	ARW62WIPI01G(L) ARW62WIP102G(R)	PIFA	2.48 1.32	-2.39 -1.76	IPEX
6	wgt	ARUMPWIPI02+C (L) ARUMPWIPI01+D (R)	PIFA	2.41 2.07	N/A	IPEX
7	Foxconn	WDAN-GQMA6001-DF (Main) WDAN-GQMA6001-DF (Aux)	PIFA	2.32 1.10	-1.262 -1.813	IPEX
8	Foxconn	WDAN-GQMA6002-DF (Main) WDAN-GQMA6002-DF (Aux)	PIFA	0.74 0.78	-1.446 -2.009	IPEX
9	Galtronics	021020168NC3587 (Main) 021020168NC3587-1 (Aux)	PIFA	-0.25 3.64	1.75 2	U.FL
10	Galtronics	021020168NC3586 (Main) 021020168NC3586-1 (Aux)	PIFA	-0.04 3.25	1.9 1.85	U.FL
11	HIGH-TEK	AAFQ5050001LK0 (Main) AAFQ5050001RK0 (Aux)	PIFA	2.86 1.52	2.4 1.7	IPEX
12	Hitachi	HFT40-IV17 (Main) HMG03-IV17 (Aux)	PIFA	0.48 0.64	N/A	IPEX
13	WNC	81.EE215.016 (Main) 81.EE215.016 (Aux)	PIFA	0.34 0.79	2.52 3.17	IPEX
14	WNC	ASAW 001(L) ASAW 001(R)	PIFA	1.34 1.25	N/A	IPEX
15	Wgt	B1425050G00003 (Main) B1425050G00002 (Aux)	PIFA	0.03 0.63	-2.01 -2.05	IPEX
16	tyco	ASAT 001 (L) ASAT 001 (R)	PIFA	0.61 0.16	N/A	IPEX

17	ACON	ASAA 001 (L) ASAA 001 (R)	PIFA	1.56 1.36	N/A	IPEX
18	Hitachi	HFT40 (Main) HFT40 (Aux)	PIFA	0.58 1.12	1.42 2.12	IPEX
19	Hitachi	HFT60 (Main) HFT60 (Aux)	PIFA	-1.65 -0.92	1.48 2.18	IPEX
20	Hitachi	HTL008 (Main) HTL008 (Aux)	PIFA	2.24 1.84	1.72 2.20	IPEX
21	Hitachi	HTL017 (Main) HTL017 (Aux)	PIFA	2.82 2.94	1.94 2.39	IPEX
22	WNC	WNC001(Main) WNC001 (Aux)	PIFA	-1.10 1.76	1.17 1.17	IPEX
23	WNC	WNC002(Main) WNC002(Aux)	PIFA	1.18 1.75	2.28 2.12	IPEX
24	Tyco	TIAN01 (Main) TIAN01 (Aux)	PIFA	0.57 0.87	-1.463 -1.865	IPEX
25	Tyco	TBN001 (Main) TBN001 (Aux)	PIFA	3.45 2.41	1.45 2.13	IPEX
26	Tyco	TBN003 (Main) TBN003 (Aux)	PIFA	-1.11 -1.11	1.84 2.16	IPEX
27	Tyco	2023935-1 (Main) 2023936-1 (Aux) 2023936-1(MIMO)	PIFA	2.95 1.90	1.88 2.03	U.FL
28	Tyco	2023937-1 (Main) 2023937-1 (Aux) 2023934-1(MIMO)	PIFA	1.60 0.05	1.85 2.00	U.FL
29	Tyco	2023938-1 (Main) 2023938-1 (Aux) 2023939-1(MIMO)	PIFA	1.41 1.24	2.17 2.40	U.FL
30	Tyco	2023954-1 (Main) 2023954-1 (Aux) 2023955-1(MIMO)	PIFA	1.68 0.92	2.14 3.02	U.FL
31	Hitachi	HBY07 (TX1) HBY07 (TX2)	PIFA	2.19 -0.33	0.95 0.95	IPEX
32	Hitachi	HBY051 (TX1) HBY051 (TX2)	PIFA	2.91 2.82	0.95 0.95	IPEX

33	Hitachi	HBY052 (TX1) HBY052 (TX2)	PIFA	0.27 0.02	0.95 0.95	IPEX
34	Hitachi	HBY061 (TX1) HBY061 (TX2)	PIFA	1.30 2.42	0.95 0.95	IPEX
35	Hitachi	HBY062 (TX1) HBY062 (TX2)	PIFA	-1.04 -1.19	0.95 0.95	IPEX
36	Hitachi	HFT65 (TX1) HFT65 (TX2)	PIFA	-1.74 1.16	0.95 0.95	IPEX
37	QUANTA	AN-090-B (Tx1) AN-090-A (Tx2)	PIFA	-1.4 -2.2	-1	IPEX
38	Hitachi	HCT01 (Main) HCT01 (Aux)	PIFA	0.87 1.94	0.89	IPEX
39	FOXCONN	WDAN-TQ (Tx1) WDAN-TQ (Tx2)	PIFA	-0.43 -0.7	2.5	IPEX
40	Tyco	T BN005 TBN006	PIFA	-1.11	N/A	IPEX
41	Whayu	DQ652016100 (Tx1) DQ652016100 (Tx2)	PIFA	1.31 0.09	0.37 0.92	FAF
42	WNC	WNC004 (Main) WNC004 (Aux)	PIFA	2.40 1.50	1.53 1.92	IPEX
43	QUANTA	ON1 (Tx1) ON1 (Tx2)	PIFA	1.8 0.1	N/A	IPEX
44	HON HAI	WDAN-DQZM1001-DF (Tx1) WDAN-DQZM1001-DF (Tx2)	PIFA	1.67 -0.10	0.827 0.849	IPEX
45	ACON	AMM8P-700006(Tx1) AMM8P-700006 (Tx2)	PIFA	1.29 -0.8	0.97 0.9	IPEX
46	Yageo	CAN4313880012501B (Tx1) CAN4343880012501B (Tx2)	PIFA	1.12 0.7	1.05 1.08	IPEX
47	Wanshih	1415-00JK000	PIFA	3.34	N/A	IPEX
48	Wanshih	1415-00JL000	PIFA	2.05	N/A	IPEX
49	WNC	WNC001 (Main) WNC001(Aux)	PIFA	0.31 -0.75	1.98 2.01	IPEX
50	WNC	WNC003 (Main) WNC003 (Aux)	PIFA	0.52 1.07	1.49 2.13	IPEX

51	Wha Yu	DQ652015800 (Tx1) DQ652015800 (Tx2)	PIFA	1.13 0.74	1.68 2.29	IPEX
52	Smart Approach	PE-AB0370 (Main) PE-AB0430 (Aux)	PIFA	2.95 0.94	N/A	IPEX
53	ARISTOTLE	RFA-02-P23-70-300-L	PIFA	-5	N/A	IPEX
54	ARISTOTLE	RFA-02-P23-70B-350-R	PIFA	-5	N/A	IPEX
55	ARISTOTLE	RFA-02-P24-70-305-L	PIFA	-5	N/A	IPEX
56	ARISTOTLE	RFA-02-P24-70B-340-R	PIFA	-5	N/A	IPEX
57	WNC	81.EEO15.001 (Main) 81.EEO15.002 (Aux)	PIFA	1.52 1.72	1.86 2.03	IPEX
58	HON HAI	WDAN-M1OS1001-DF(Main) WDAN-M1OS1002-DF(Aux)	PIFA	0.13 -0.13	-1.871 -2.072	IPEX
59	Amphenol KAE	SS-03-03-099 (Main) SS-03-03-100 (Aux)	PIFA	0.77 -0.90	1.59 1.76	IPEX
60	WNC	81.EHD15.003 (Main) 81.EHD15.002 (Aux)	PIFA	0.94 -0.77	1.39 1.71	IPEX
61	Foxconn	WDAN-M1SN1002-DF(Main) WDAN-M1SN1001-DF(Aux)	PIFA	0.93 -0.53	-1.357 -1.727	IPEX
62	HON HAI	WDAN-M1NY1001-DF	PIFA	0.56	-0.054	U.FL
63	WNC	81.EHD15.004 (Main) 81.EHD15.006 (Aux)	PIFA	0.95 -0.49	1.07 1.82	IPEX
64	HON HAI	WDAN-M1WC1001-DF(Main) WDAN-M1BN1001-DF(Aux)	PIFA	-0.28 -0.14	-1.407 2.3	IPEX
65	WNC	81.EHD15.004 (Main) 81.EHD15.007 (Aux)	PIFA	0.95 -0.09	1.07 1.60	IPEX
66	HON HAI	WDAN-M1WC1001-DF(Main) WDAN-M1MM1001-DF(Aux)	PIFA	-0.28 -1.24	-1.407 1.99	IPEX
67	WNC	81.EHD15.G09 (Tx1) 81.EHD15.G10 (Tx2)	PIFA	0.31 -1.21	1.08 1.39	IPEX
68	HON HAI	WDAN-M1PB1001-DF (Tx1) WDAN-M1PB1002-DF(Tx2)	PIFA	0.54 -1.40	0.99 1.36	IPEX
69	WNC	81.EHD15.004 (Main) 81.EHD15.005 (Aux)	PIFA	0.95 -1.51	1.07 1.61	IPEX

70	HON HAI	WDAN-M1WC1002-DF (Main) MDAN-M1WC1001-DF(Aux)	PIFA	0.18 -0.28	-0.866 -1.407	IPEX
71	JEM	M810L (WM1) M810L (WM2)	PIFA	-2.04 0.83	-1.46 -1.14	IPEX
72	wgt	M810L (WM1) M810L (WM2)	PIFA	2.1 2.99	N/A	IPEX
73	wgt	M980N (WM1) M980N (WM2)	PIFA	2.94 2.04	N/A	IPEX
74	FVC	TN120R-WLAN-1 TN120R-WLAN-2	PIFA	0.9 2.8	N/A	IPEX
75	FVC	W760 (WM1) W760 (WM2)	PIFA	2.87 2.08	N/A	IPEX
76	Kim Well	89G 17356Z 61	PIFA	1.04	N/A	IPEX
77	ACON	APP6P-700261	PIFA	3.08	N/A	IPEX
78	TYCO	TBN007 (Tx1) TBN007 (Tx2)	PIFA	1.98 1.97	-0.97 -0.97	IPEX
79	Favortron	K05007010501 (WM-1) K05007010601 (WM-2)	PIFA	1.54 2.68	-2.71 -1.36	IPEX
80	Well Green	SKR13WMPB01+A (Tx1) SKR13WMPB01+A (Rx2)	PIFA	0.73 -0.98	-2.01 -2.01	IPEX
81	Well Green	SK840WMPB01+B (Tx1) SK840WMPB01+B (Rx2)	PIFA	-0.16 0.74	-1.81 -1.62	IPEX
82	Favortron	N01001146001 (WM-1) N01001146001 (WM-2)	PIFA	0.71 2.05	-2.69 -2.71	IPEX
83	Favortron	K05007009701 (WM-1) K05007009801 (WM-2)	PIFA	0.46 -0.29	-2.73 -3.87	IPEX
84	wgt	C4800 (WM1) C4800 (WM2)	PIFA	2.6 3.04	N/A	IPEX
85	wgt	D900F (WM1) D900F (WM2)	PIFA	2.76 1.13	N/A	IPEX
86	wgt	T890M (WM1) T890M (WM2)	PIFA	2.93 -0.32	N/A	IPEX

The max antenna gain is 3.95dBi which was choosing for Radiated Spurious Emission test.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: TX2-RTL8191SU** filing to comply with Section 15.247 of the FCC Part 15, Subpart E Rules and **IC: 6317A-RTL8191SU** filing to comply with Industry Canada RSS-210 issue 7: 2007 Annex 8.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003) and RSS-Gen: 2007. Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-1.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna. according to the requirements in Section 8 and 13 of ANSI C63.4-2003.

2.4 Configuration of Tested System

Fig. 2-1 AC Power line and Radiated Emission Configuration

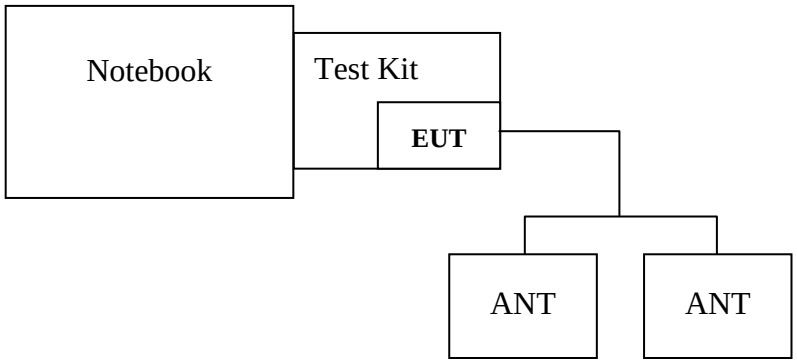


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	HP	ProBook 4411S	N/A	Un-Shielding	Un-Shielding
2.	Test Kit	Realtek	N/A	N/A	N/A	N/A

3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)/ RSS-Gen §7.2.2	AC Power Line Conducted Emission	Compliant
§15.247(b)/ §A8.4(2)	Peak Output Power	Compliant
§15.247(b)/ §A8.2	6dB Bandwidth	Compliant
§15.247(c)/ §A8.5	100 KHz Bandwidth of Frequency Band Edges	Compliant
§15.247(c)/ §A8.5	TX / RX Spurious Emission	Compliant
§15.247/,§A8.3(2)	Peak Power Density	Compliant
§15.203/ RSS-GEN 7.1.4, RSS-210 issue 7,§A8.4	Antenna Requirement	Compliant
RSS-Gen §4.4.1	99% Power Bandwidth	Compliant

4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.
Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Test item Receiver Spurious Emission was chosen worst case: 802.11b for testing.

802.11 b mode: Channel low (2412MHz)、mid (2437MHz) and high (2462MHz) with 1Mbps highest data rate are chosen for above testing.
802.11 g mode: Channel low (2412MHz)、mid (2437MHz) and high (2462MHz) with 6Mbps highest data rate are chosen for above testing.
802.11 n_20MHz: Lowest (2412MHz), Mid (2437MHz) and high (2462MHz) with 6.5 Mbps highest data rate are chosen for above testing.
802.11 n_40MHz: Lowest (2422MHz), Mid(2437MHz) and high (2452MHz) with 13.5 Mbps highest data rate are chosen for above testing.

Sample	Description	Different
Sample 1	Half Module Card	Power Down different with sample 1 is: power on/off: R27=10k, R1=0, R25=NC
Sample 2	Power Down - Half Module Card	

5 CONDUCTED EMISSION TEST

5.1 Standard Applicable:

According to §15.207 and RSS-Gen §7.2.2, frequency range within 150KHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

5.2 Measurement Equipment Used:

AC Power Line Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCS30	828985/004	09/16/2009	09/15/2010
LISN	Rolf-Heine	NNB-2/16Z	99012	02/02/2009	02/01/2010
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	02/02/2009	02/01/2010
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2008	10/29/2009

5.3 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

5.4 Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

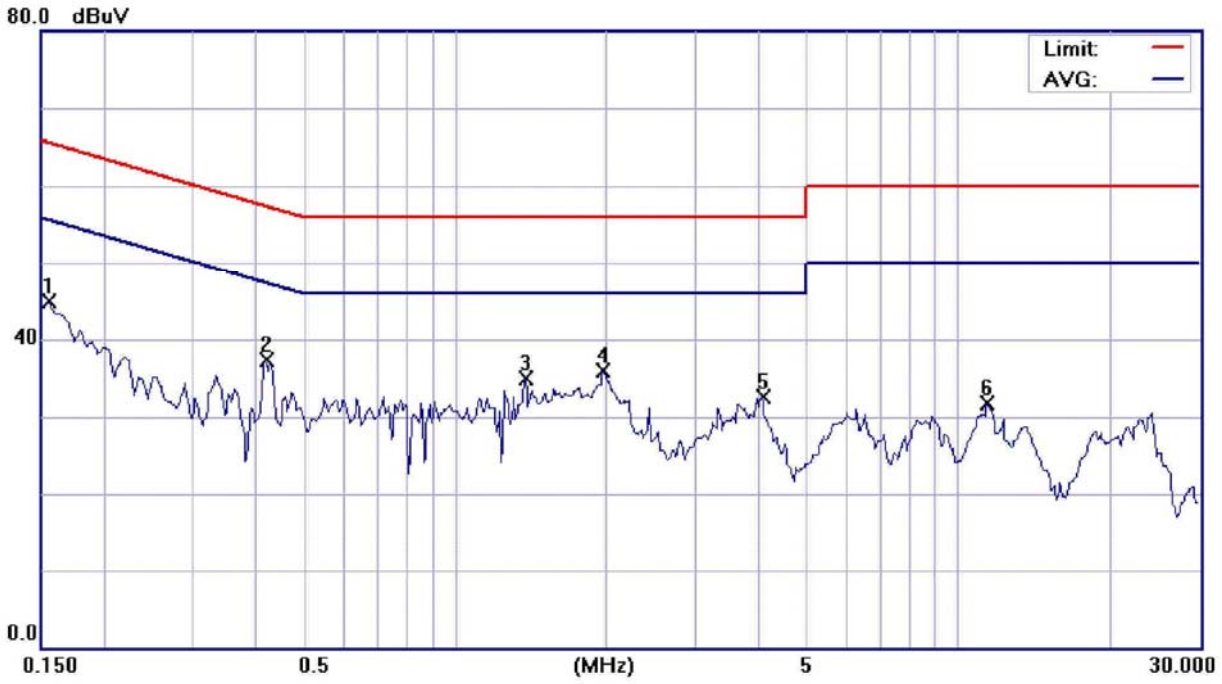
5.5 Measurement Result:

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Note: Refer to next page for measurement data and plots.

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Normal mode			Test Date:	Sep. 22, 2008
Temperature:	23 ℃	Humidity:	59 %	Test By:	Jason

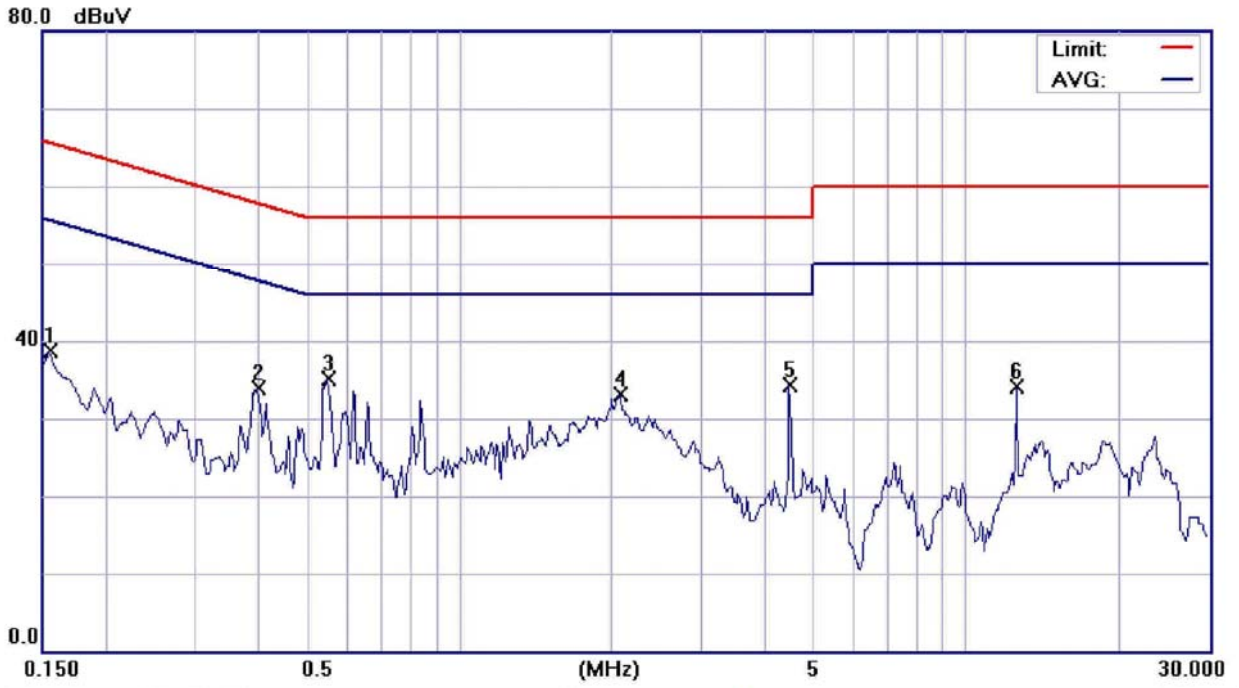


Site SGS CONDUCTED #1
Limit: CISPR22/11/EN55022 Class B
EUT: 802.11b/g/n RTL8191SU Minicard
M/N: RTL8191SU
Note: Normal Linking

Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 23 ℃
Humidity: 59 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1550	44.83	0.17	45.00	65.73	-20.73	peak	
2		0.4200	37.24	0.08	37.32	57.45	-20.13	peak	
3		1.3800	34.84	0.11	34.95	56.00	-21.05	peak	
4	*	1.9600	35.81	0.13	35.94	56.00	-20.06	peak	
5		4.0800	32.45	0.15	32.60	56.00	-23.40	peak	
6		11.4200	31.22	0.42	31.64	60.00	-28.36	peak	



Site SGS CONDUCTED #1
Limit: CISPR22/11/EN55022 Class B
EUT: 802.11b/g/n RTL8191SU Minicard
M/N: RTL8191SU
Note: Normal Linking

Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 23 ℃
Humidity: 59 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1550	38.49	0.19	38.68	65.73	-27.05	peak	
2		0.4000	33.74	0.11	33.85	57.85	-24.00	peak	
3	*	0.5500	34.97	0.10	35.07	56.00	-20.93	peak	
4		2.0800	32.92	0.15	33.07	56.00	-22.93	peak	
5		4.4900	34.12	0.18	34.30	56.00	-21.70	peak	
6		12.6200	33.59	0.43	34.02	60.00	-25.98	peak	

6 PEAK OUTPUT POWER MEASUREMENT

6.1 Standard Applicable:

According to §15.247(a)(2), (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.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

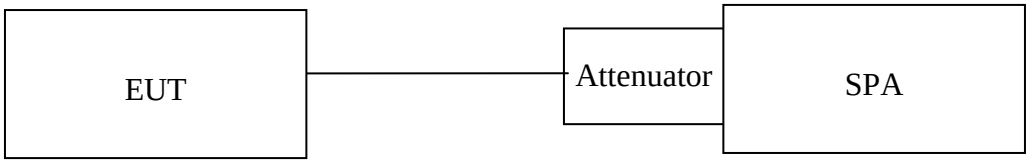
(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

According to RSS-210 issue 7,§A8.4(2), For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, the maximum conducted output power shall not exceed 1 W. For all other frequency hopping systems, the maximum peak conducted output power shall not exceed 0.125 W.

6.2 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/23/2008	01/22/2010
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2009	01/04/2010
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010

6.3 .Test Set-up:



6.4 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Channel power function, RBW, VBW = 1MHz,Bandwidth=26dB occupied Bandwidth)
3. Record the max. reading.
4. Repeat above procedures until all frequency measured were complete.

6.5 Measurement Result:

802.11b

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	19.92	0.00	19.92	0.09817	1
2437.00	19.90	0.00	19.90	0.09772	1
2462.00	19.71	0.00	19.71	0.09354	1

802.11g

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	17.73	0.00	17.73	0.05929	1
2437.00	17.80	0.00	17.80	0.06026	1
2462.00	17.81	0.00	17.81	0.06039	1

802.11n_20M

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	16.71	0.00	16.71	0.04688	1
2437.00	16.37	0.00	16.37	0.04335	1
2462.00	16.79	0.00	16.79	0.04775	1

802.11n_40M

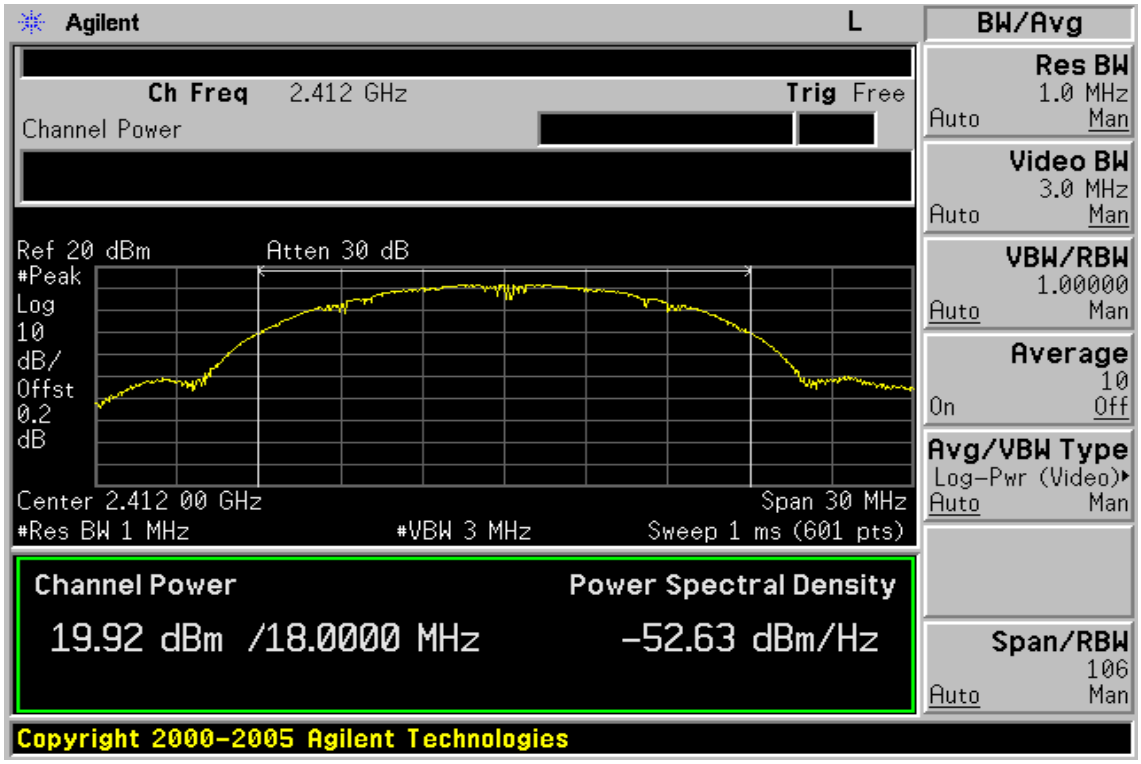
Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2422.00	16.70	0.00	16.70	0.04677	1
2437.00	16.86	0.00	16.86	0.04853	1
2452.00	16.75	0.00	16.75	0.04732	1

**Note: Offset 0.2dB*

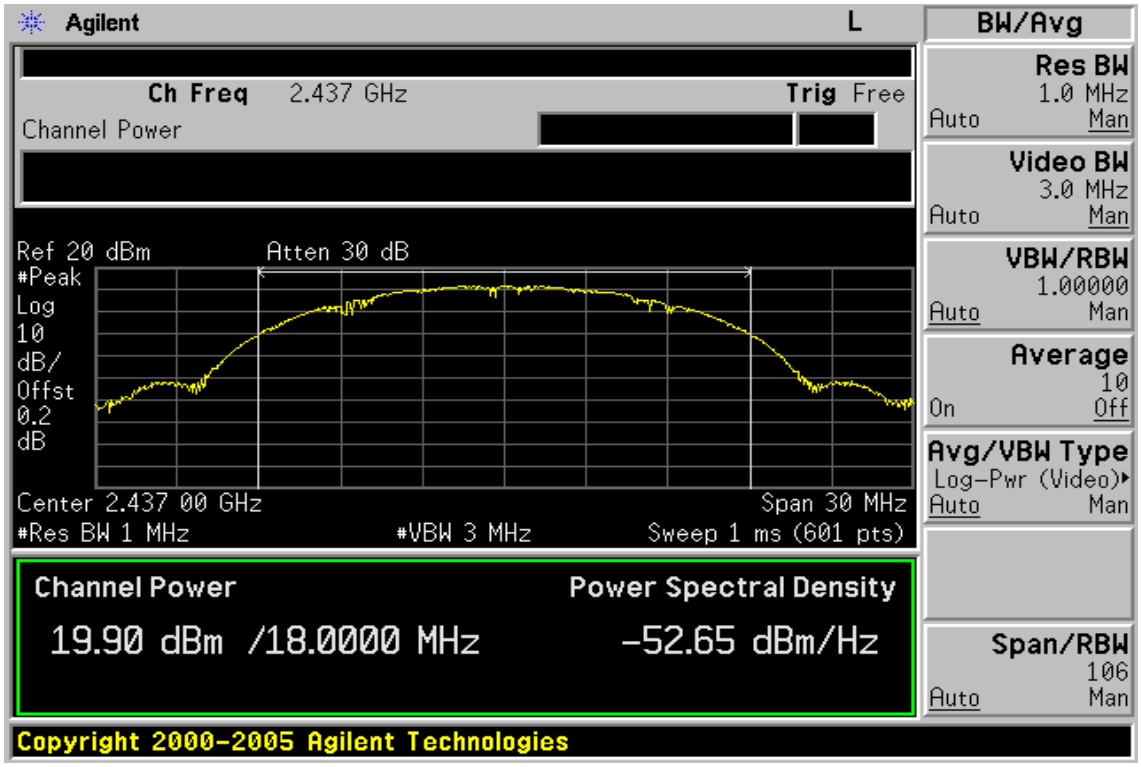
Note: Refer to next page for plots.

802.11b, 1Mbps

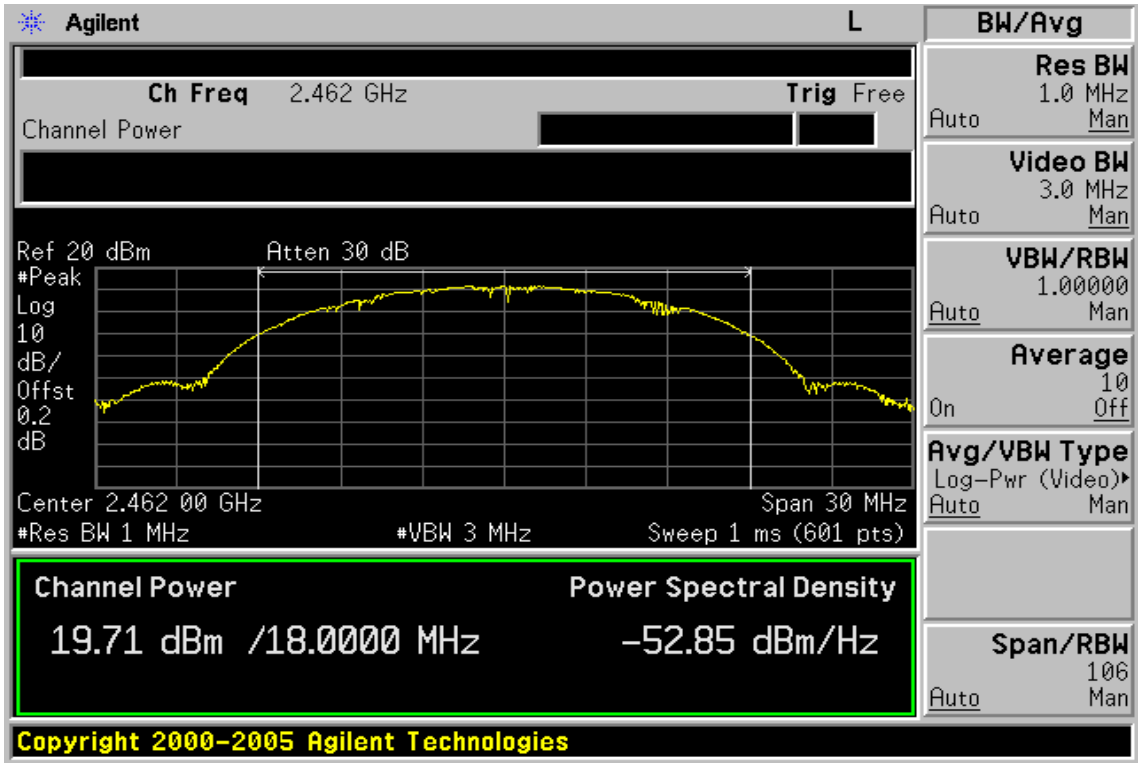
Power Output Plot (CH Low)



Power Output Plot (CH Mid)

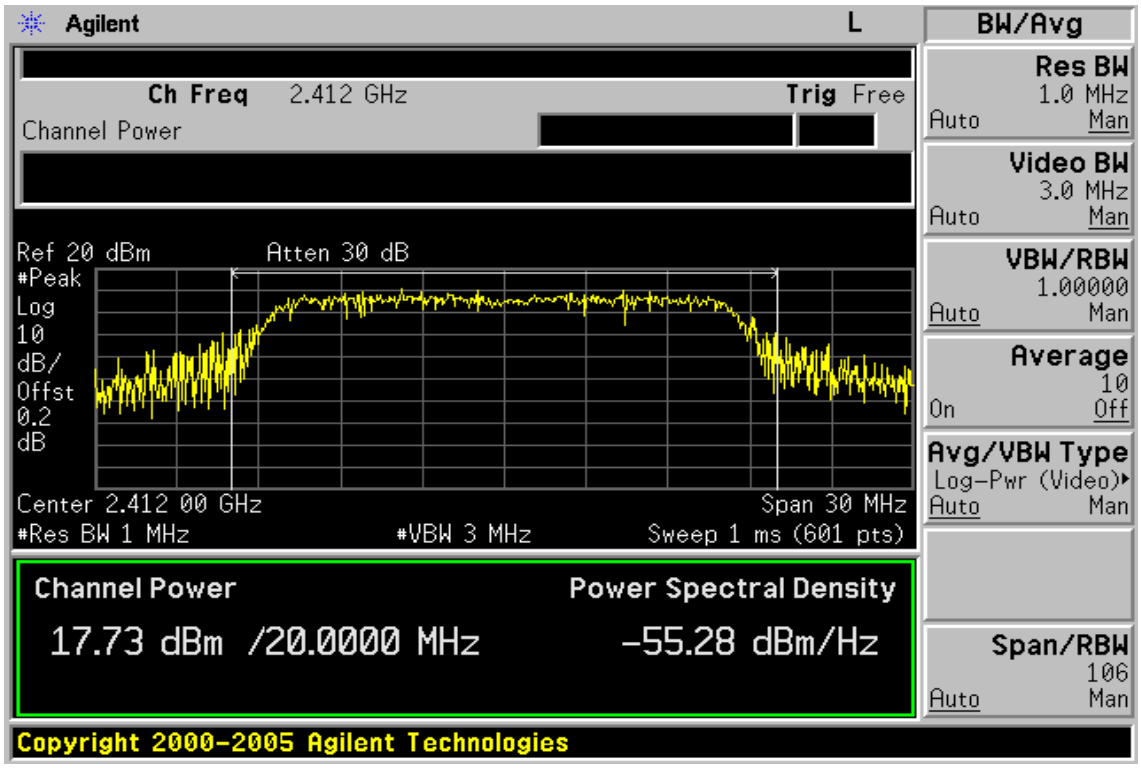


Power Output Plot (CH High)

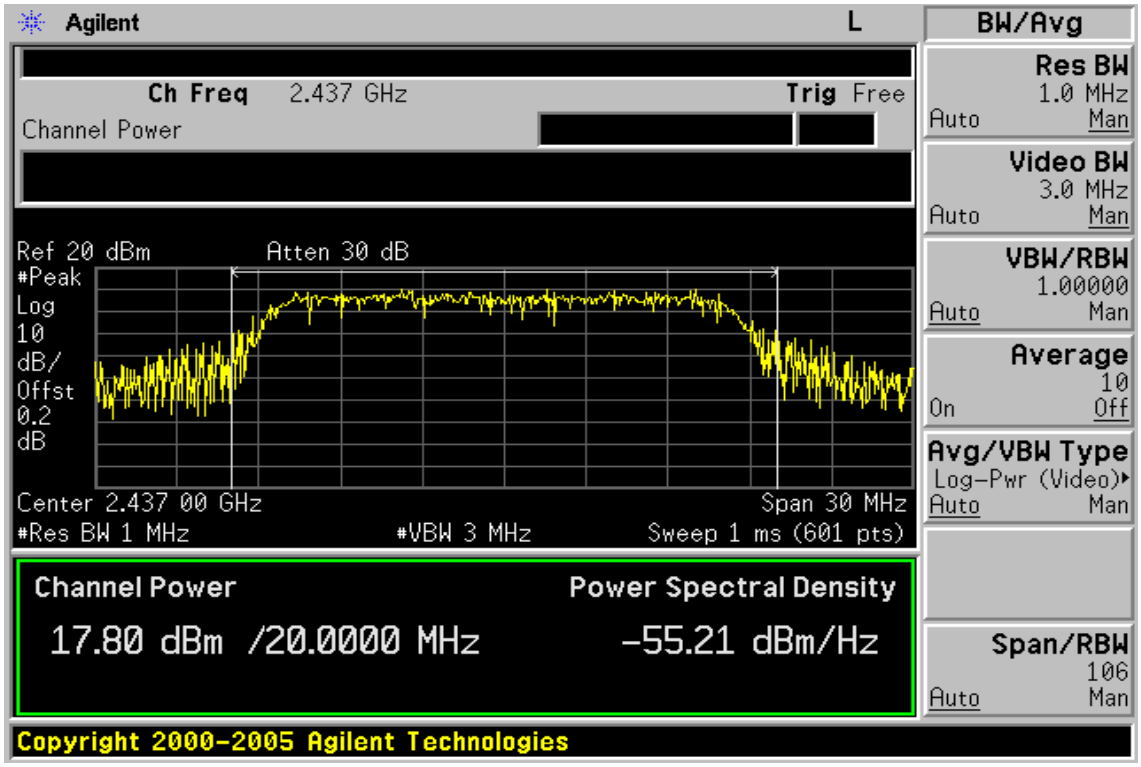


802.11g, 6Mbps

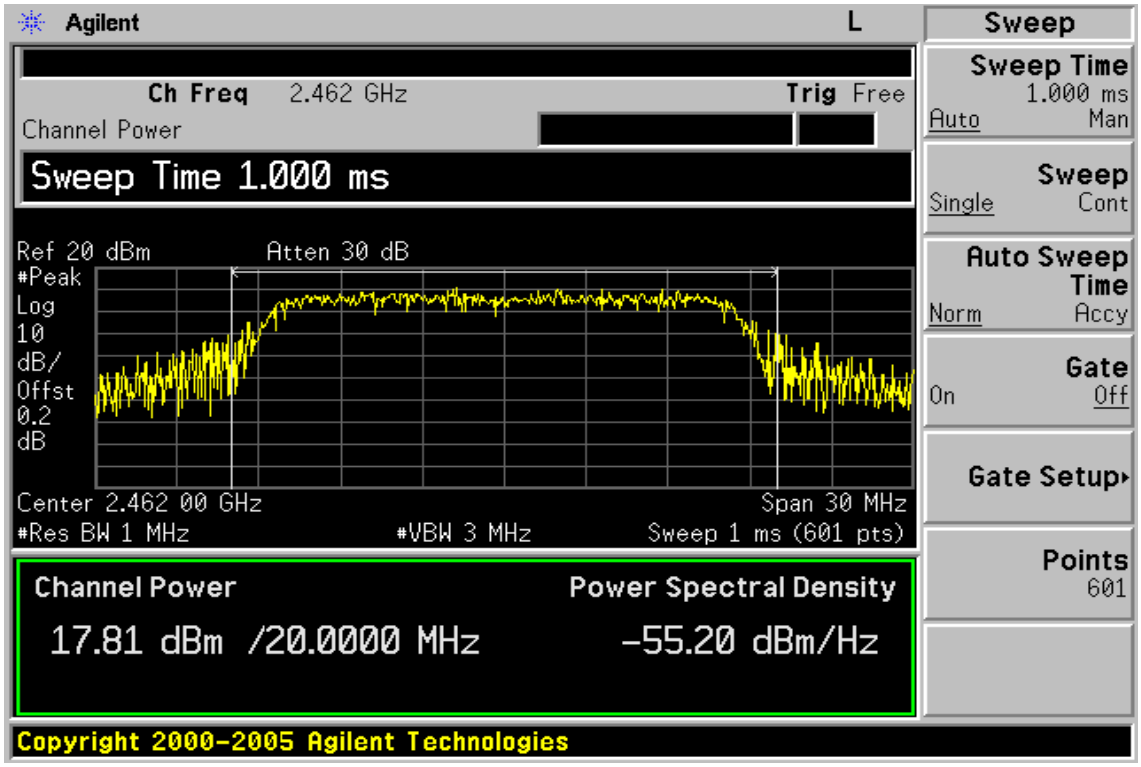
Power Output Plot (CH Low)



Power Output Plot (CH Mid)

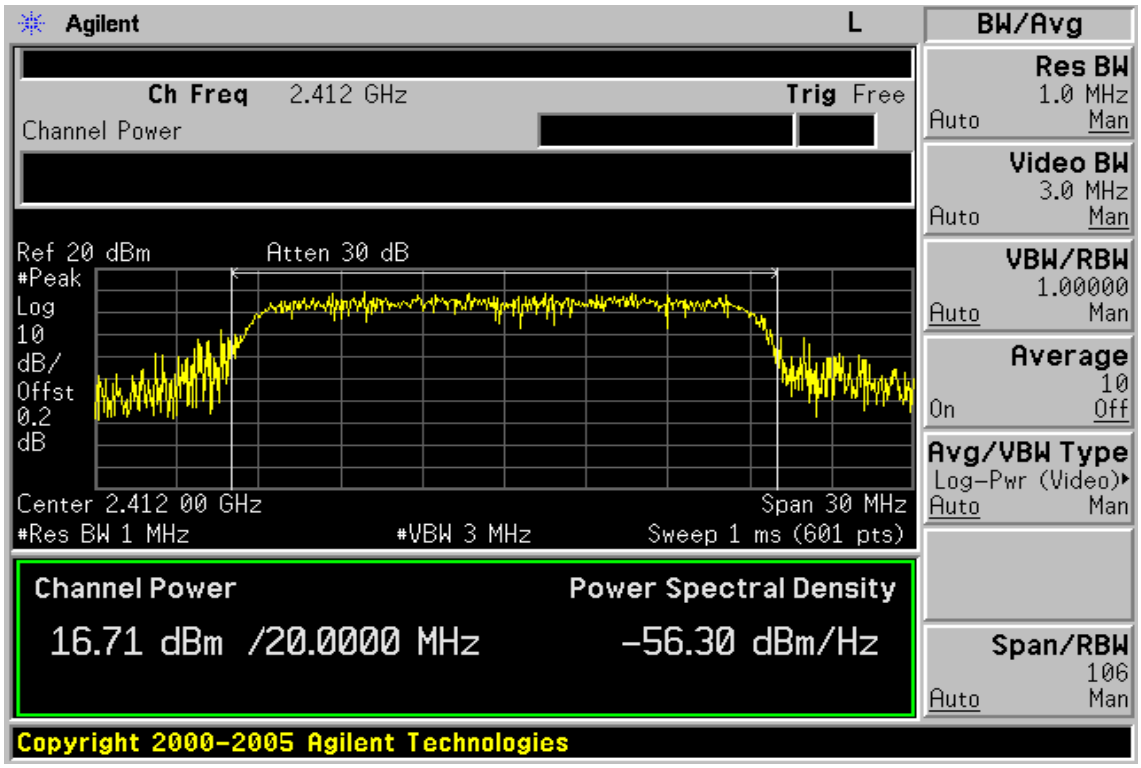


Power Output Plot (CH High)

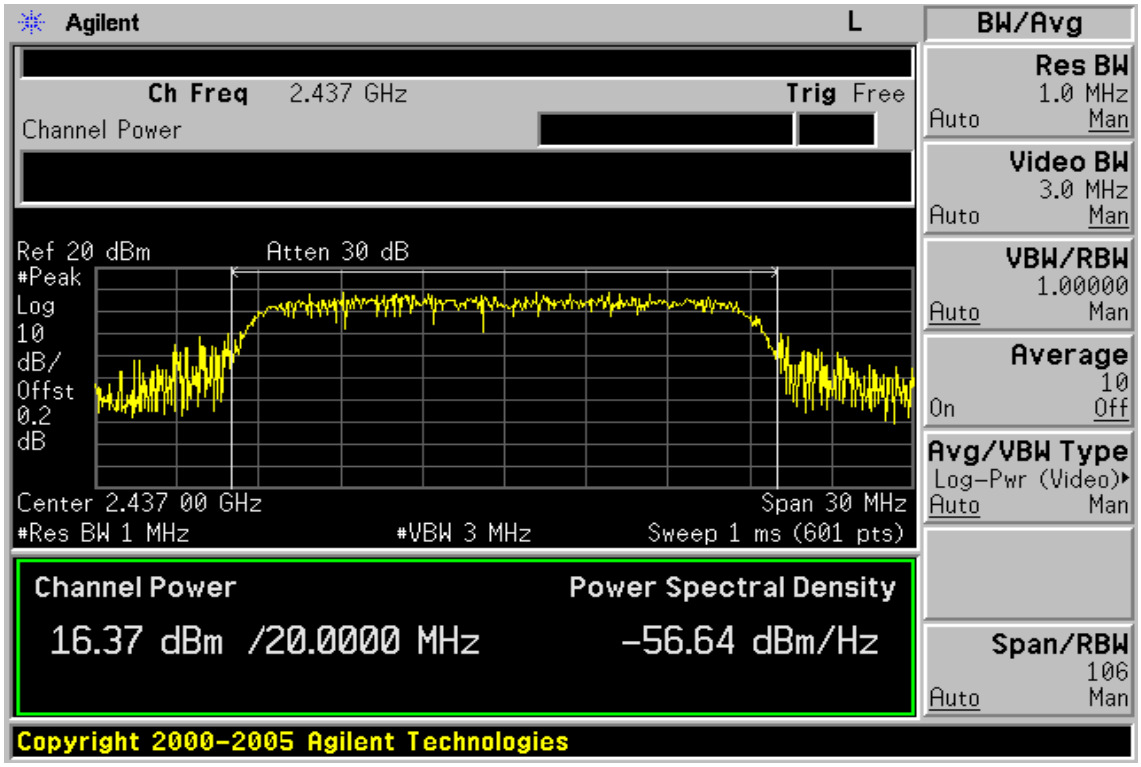


802.11n_20M, 6.5Mbps

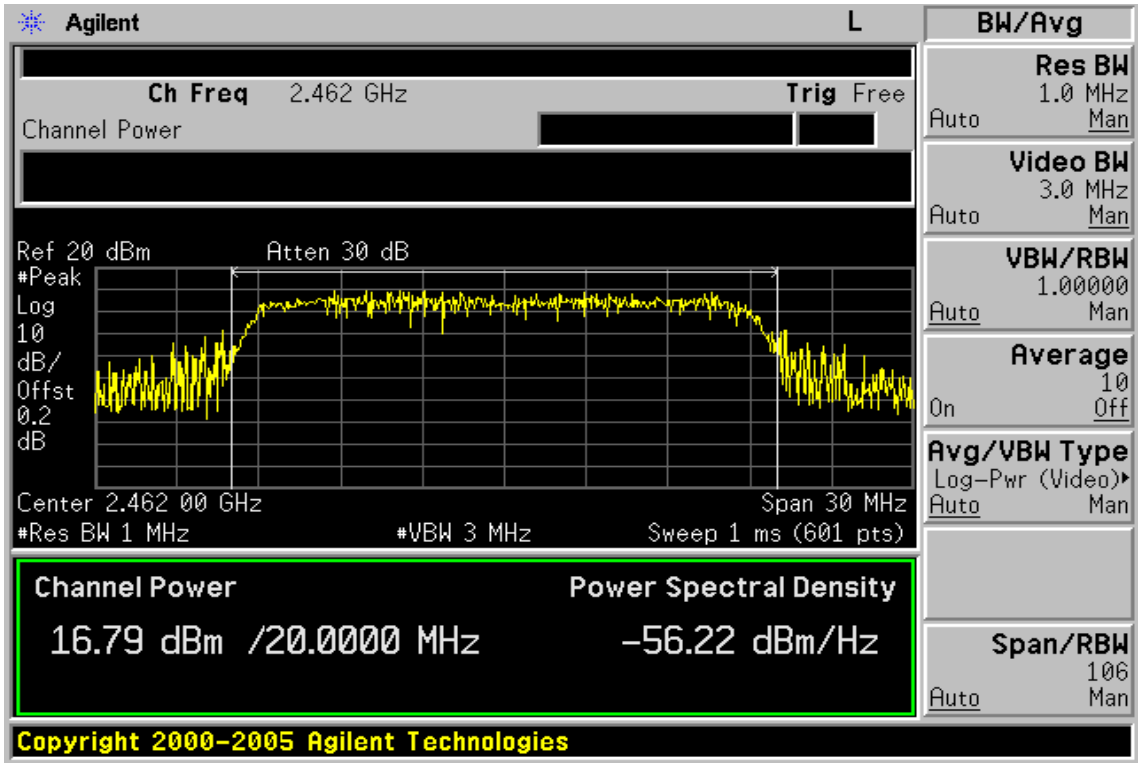
Power Output Plot (CH Low)



Power Output Plot (CH Mid)

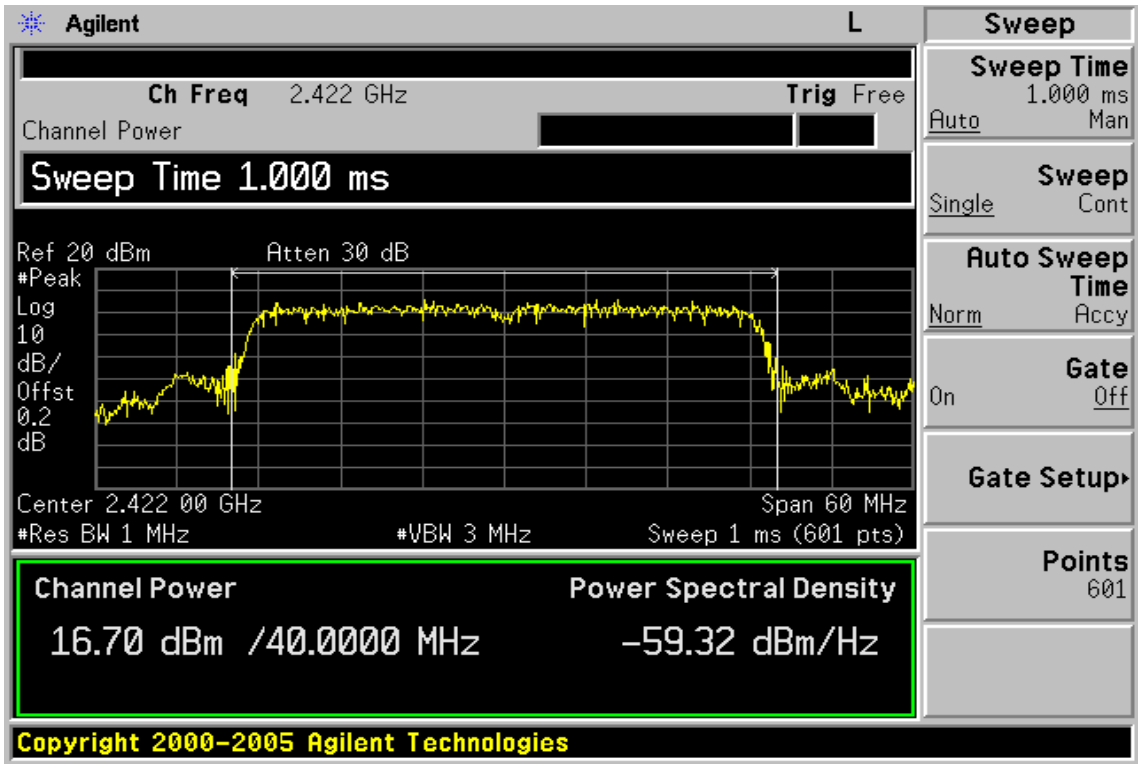


Power Output Plot (CH High)

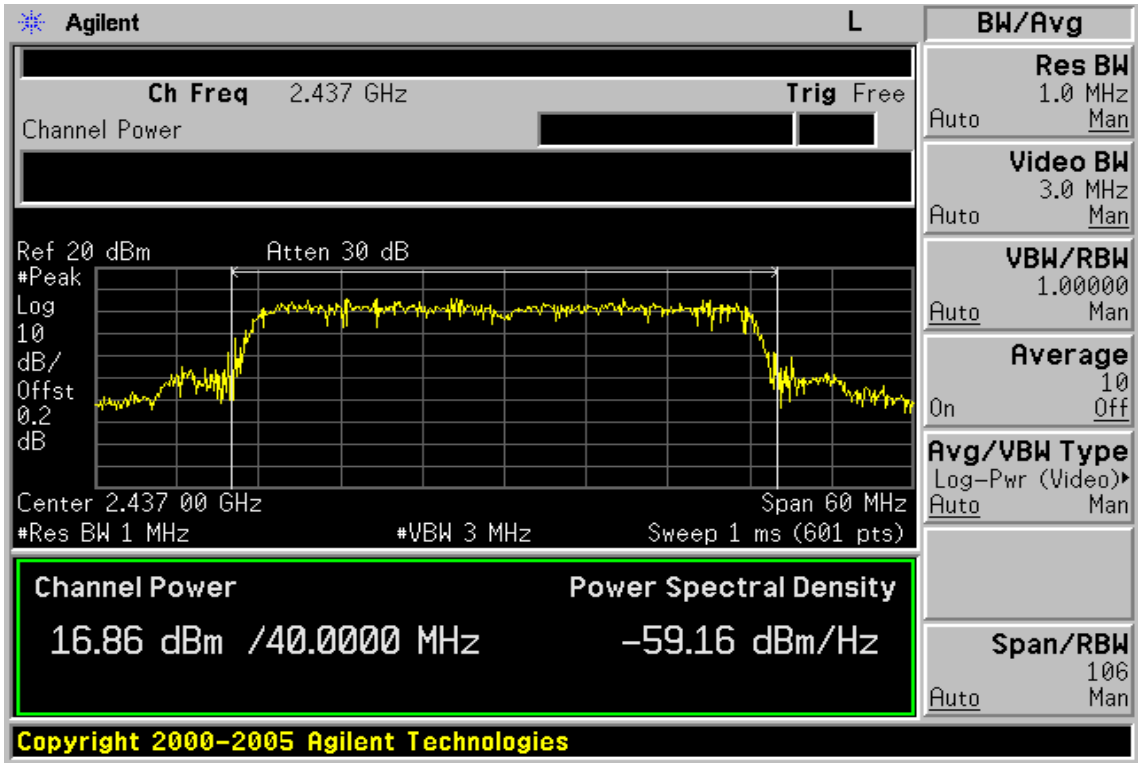


802.11n_40M, 13.5Mbps

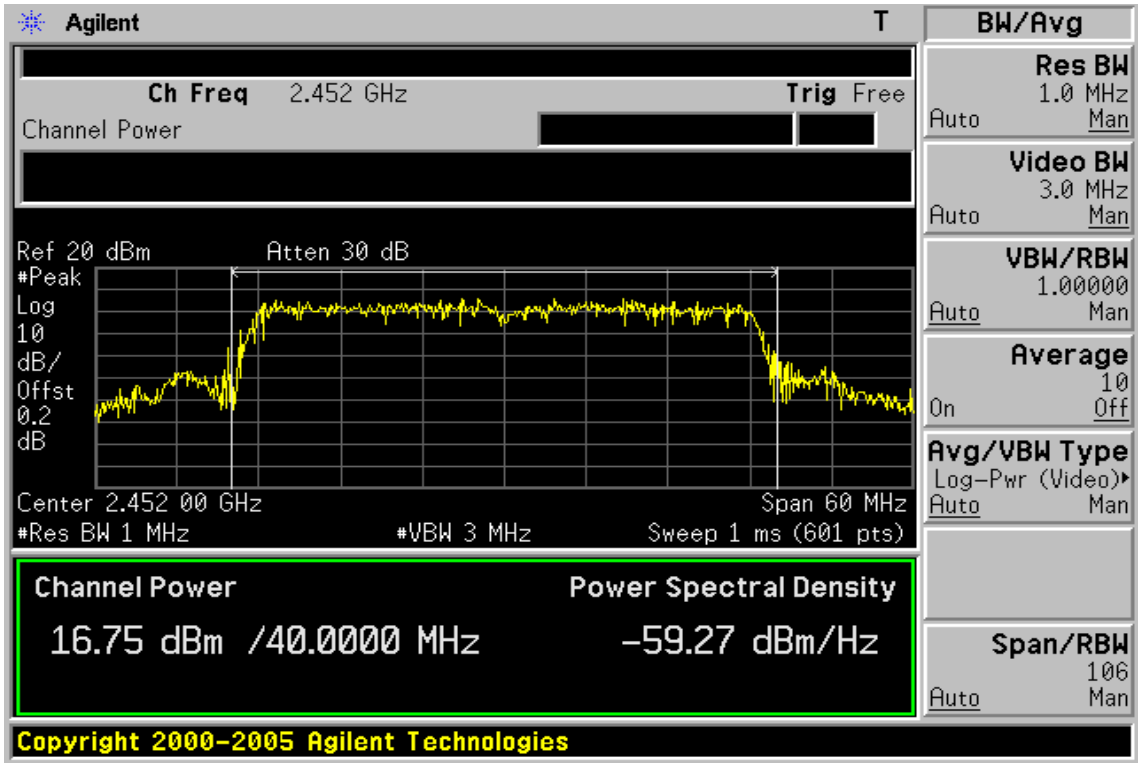
Power Output Plot (CH Low)



Power Output Plot (CH Mid)



Power Output Plot (CH High)



7 6dB Bandwidth

7.1 Standard Applicable:

According to §15.247(a)(2), 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 500kHz.

According to RSS 210 issue 7: 2007 Annex 8.2. Systems employing digital modulation techniques (which includes direct sequence) can now be certified under RSS-210 provided they comply with the following requirements: The minimum 6 dB bandwidth shall be at least 500 kHz.

7.2 Measurement Equipment Used:

Refer to section 6.2 for details.

7.3 Test Set-up:

Refer to section 6.3 for details.

7.4 Measurement Procedure:

1.Place the EUT on the table and set it in transmitting mode.

2.Remove the antenna from the EUT and then connect a low loss RF cable from the 3.antenna port to the spectrum analyzer.

3.Set the spectrum analyzer as RBW=100KHz, VBW = 3*RBW, Span= 30M/50MHz, Sweep=auto

4. Mark the peak frequency and –6dB (upper and lower) frequency.

5. Repeat above procedures until all frequency measured were complete.

7.5 Measurement Result:

802.11b

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	10.106	> 500	PASS
2437	10.105	> 500	PASS
2462	10.113	> 500	PASS

802.11b

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	16.556	> 500	PASS
2437	16.549	> 500	PASS
2462	16.570	> 500	PASS

802.11n_20M

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	17.801	> 500	PASS
2437	17.803	> 500	PASS
2462	17.804	> 500	PASS

802.11n_40M

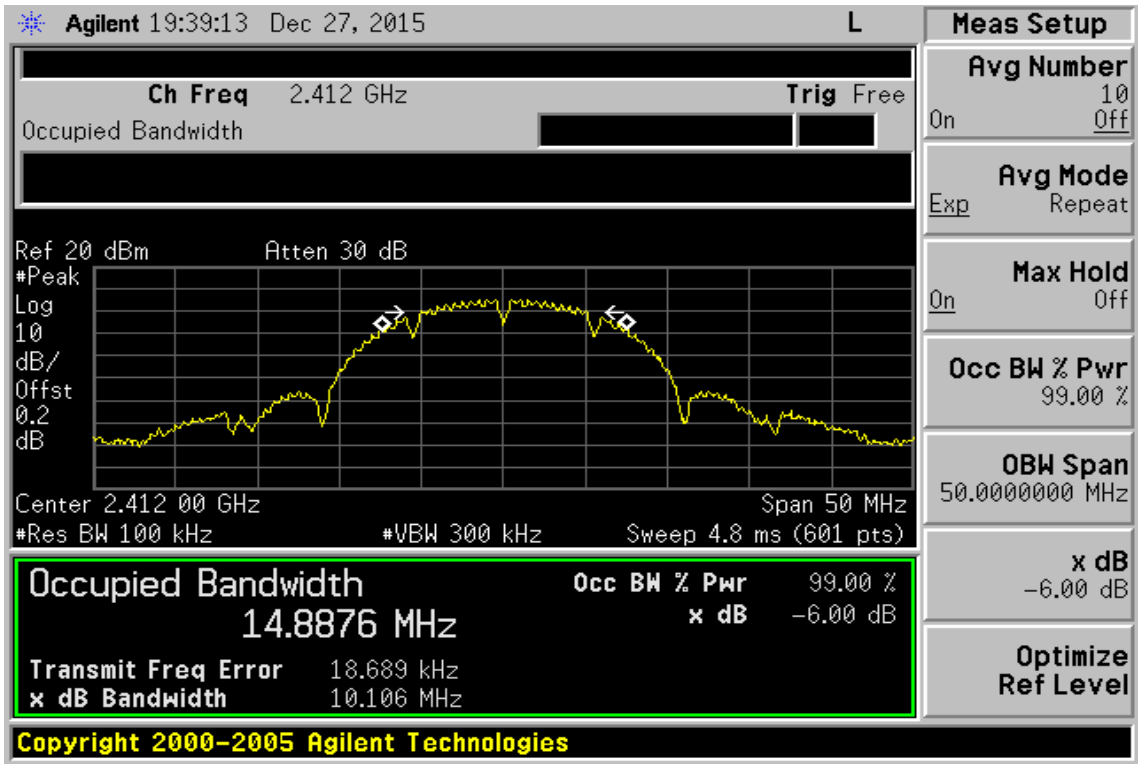
Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2422	36.432	> 500	PASS
2437	36.446	> 500	PASS
2452	36.462	> 500	PASS

offset: 0.2dB

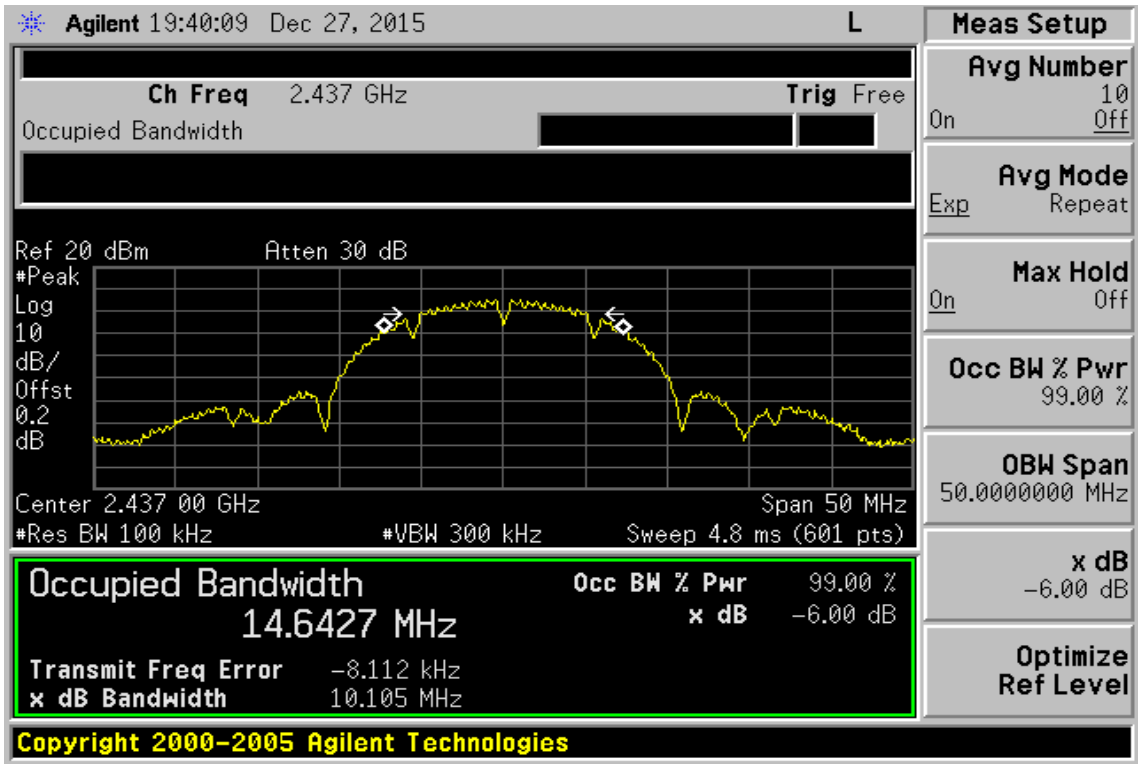
Note: Refer to next page for plots.

802.11b

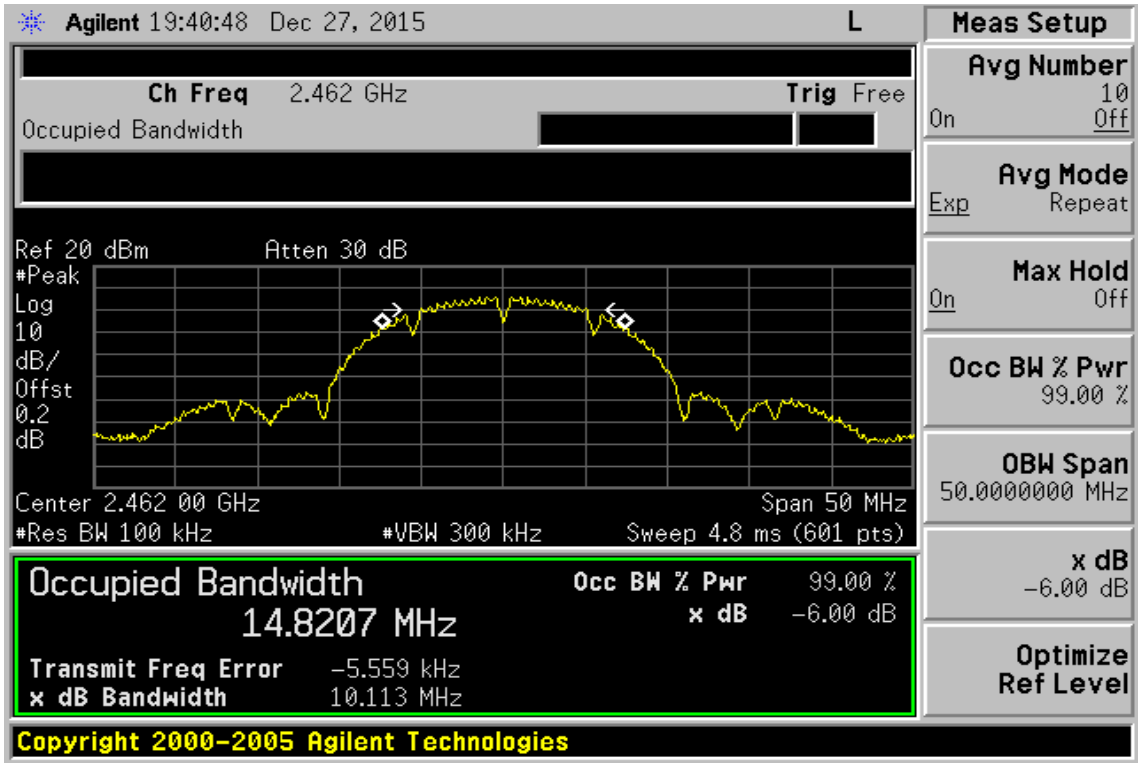
6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid

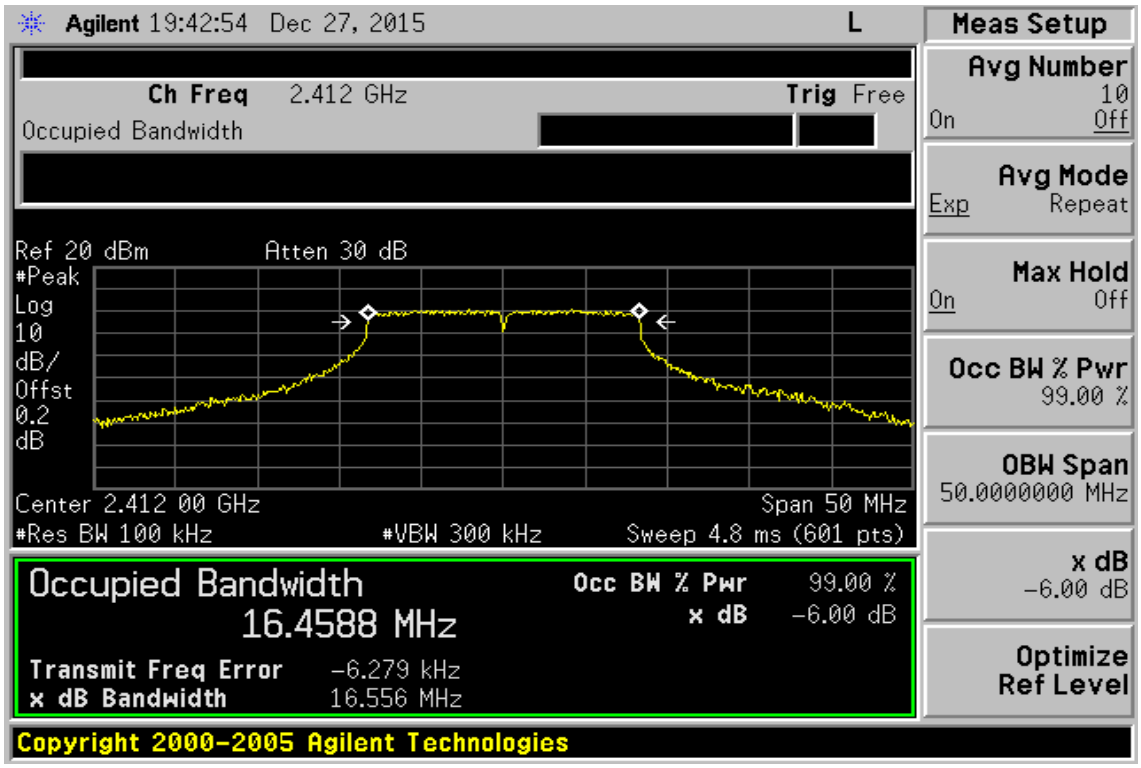


6dB Band Width Test Data CH-High

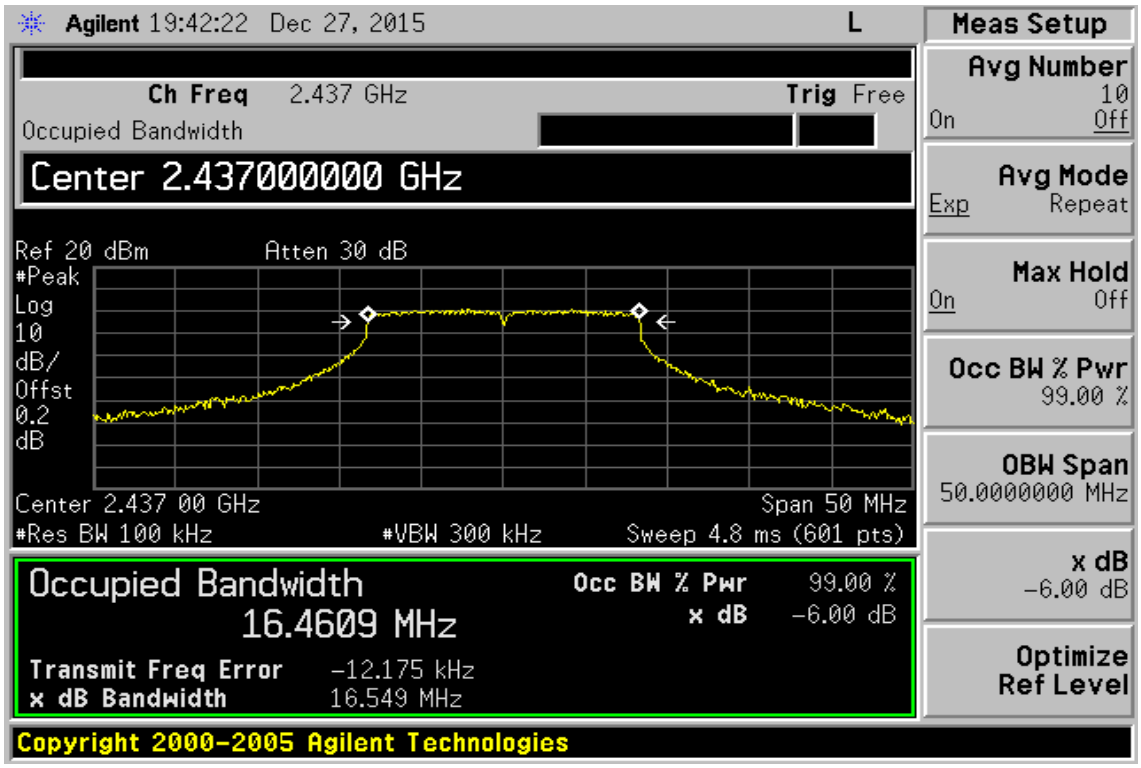


802.11g

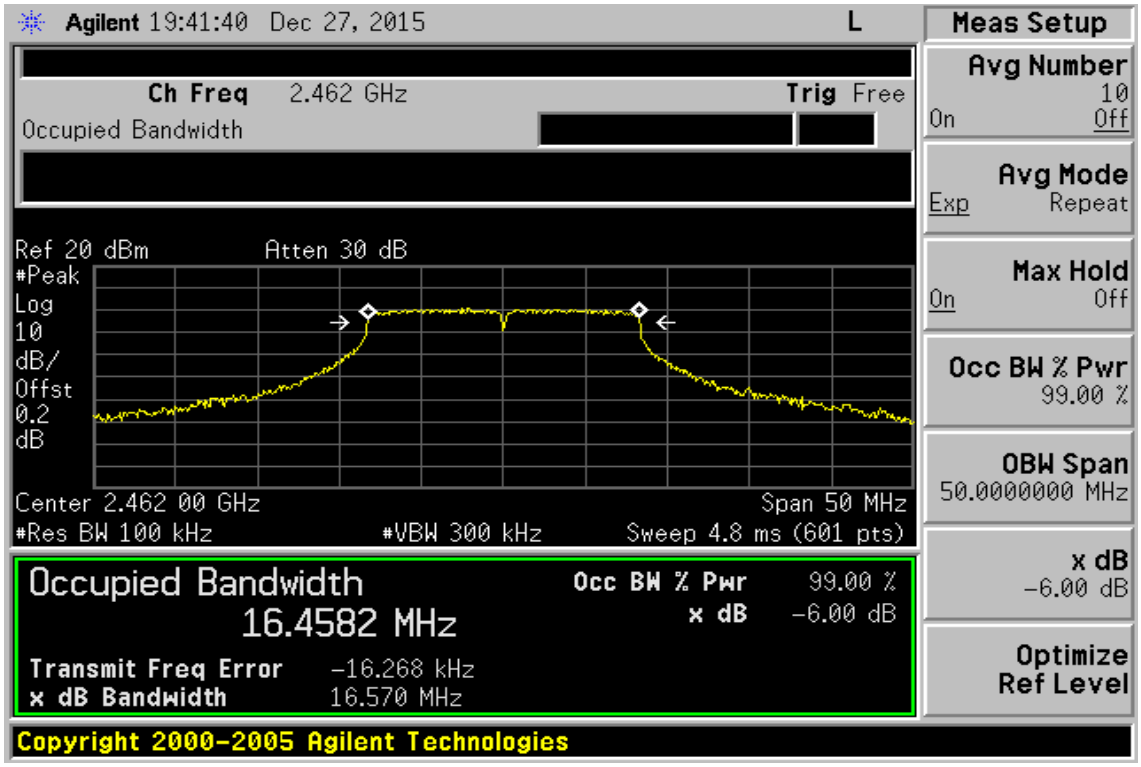
6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid

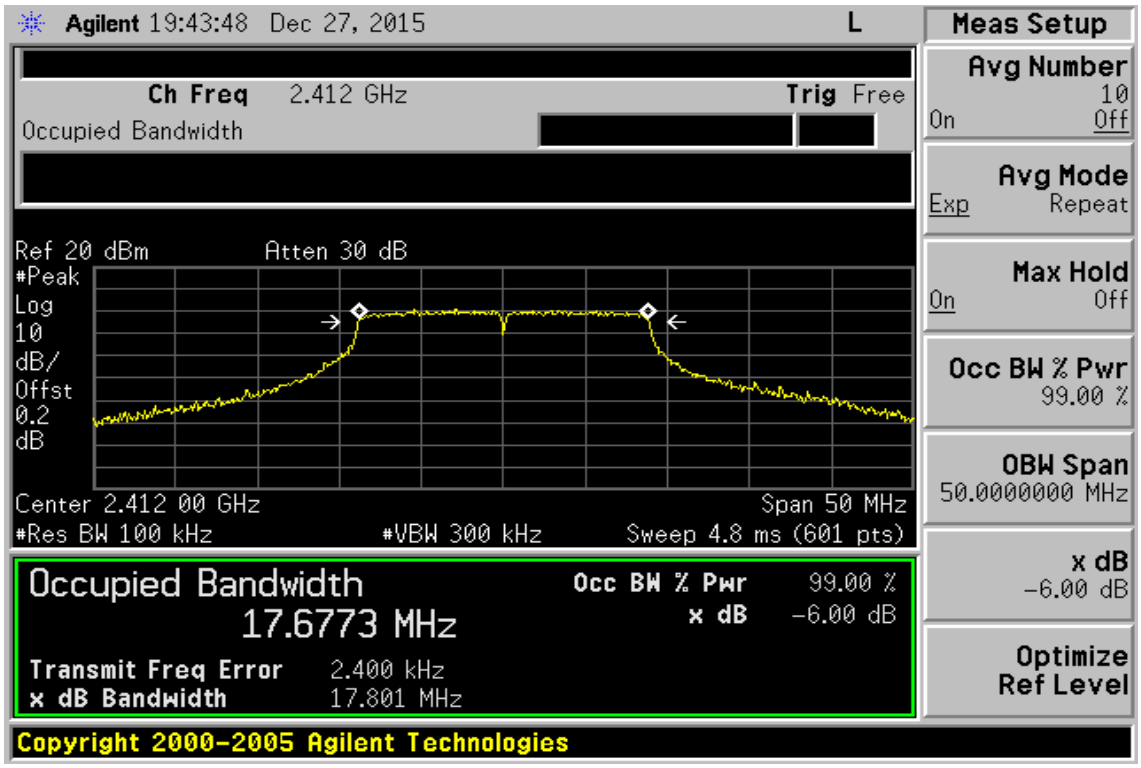


6dB Band Width Test Data CH-High

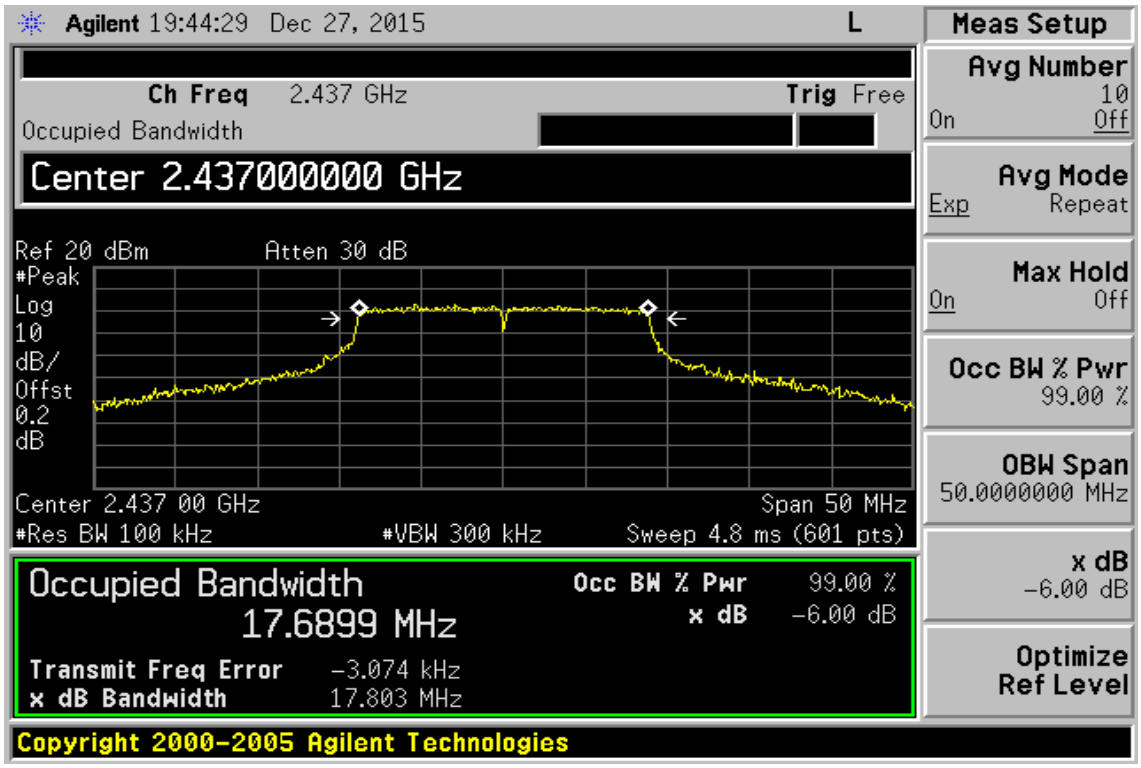


802.11n_20M

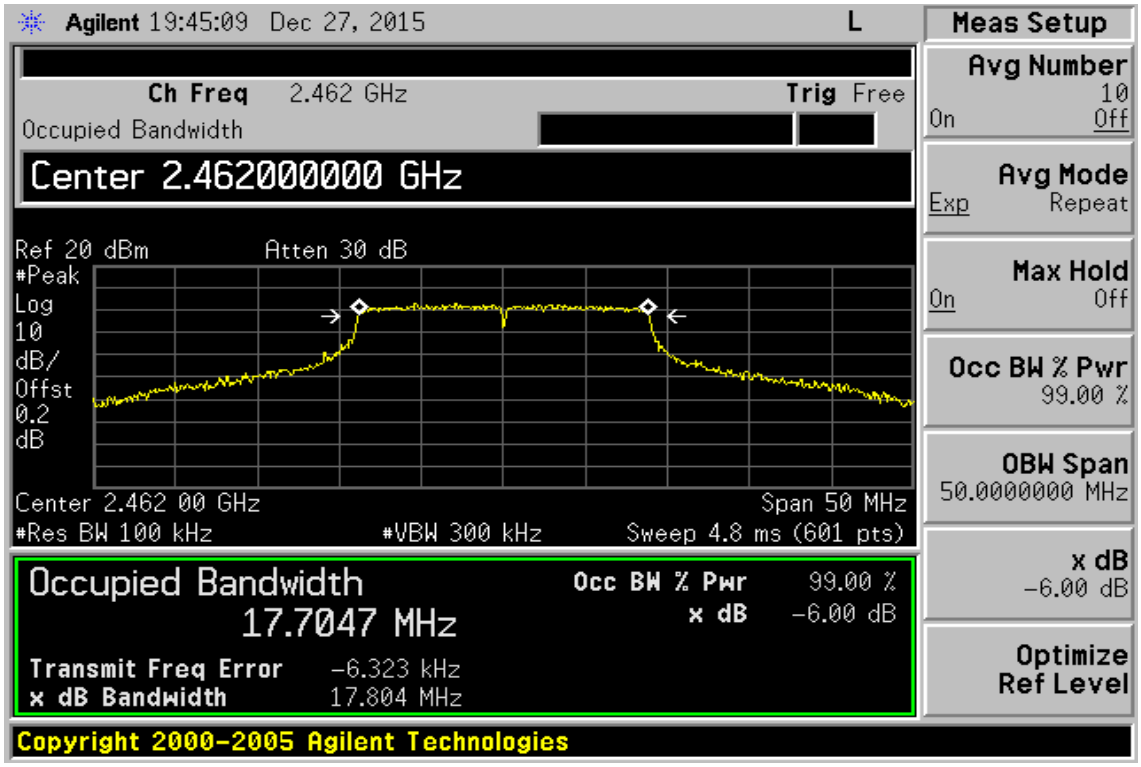
6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid

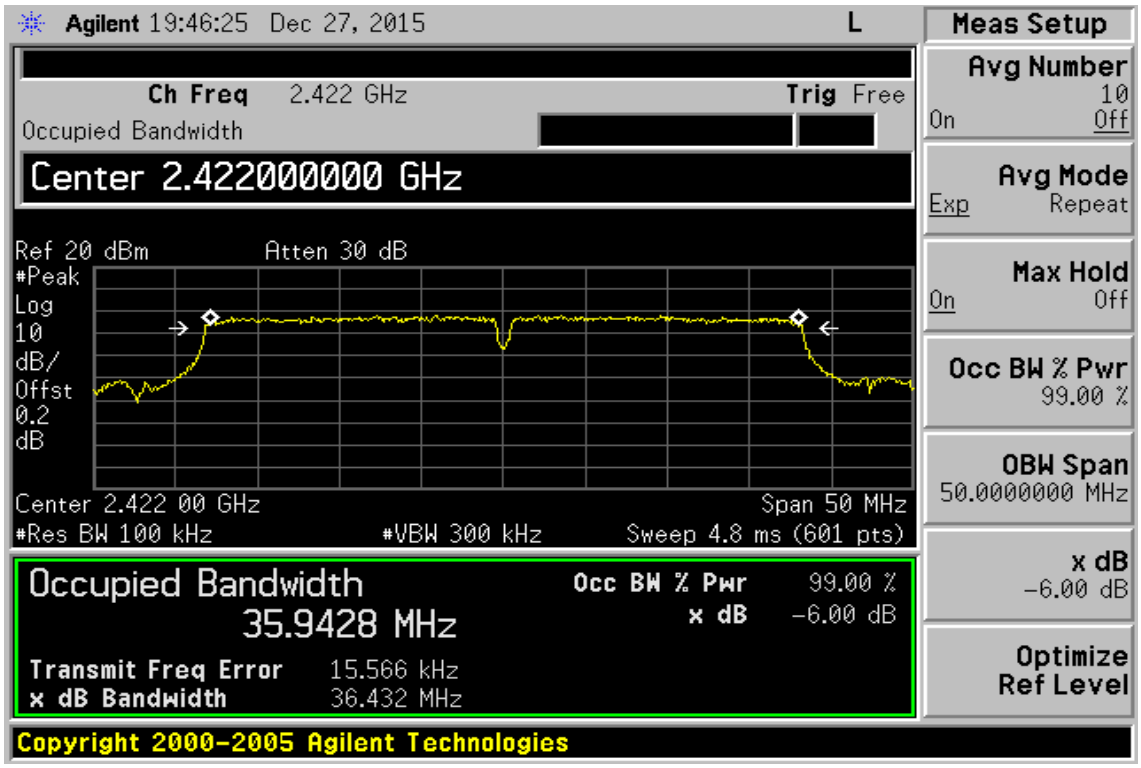


6dB Band Width Test Data CH-High

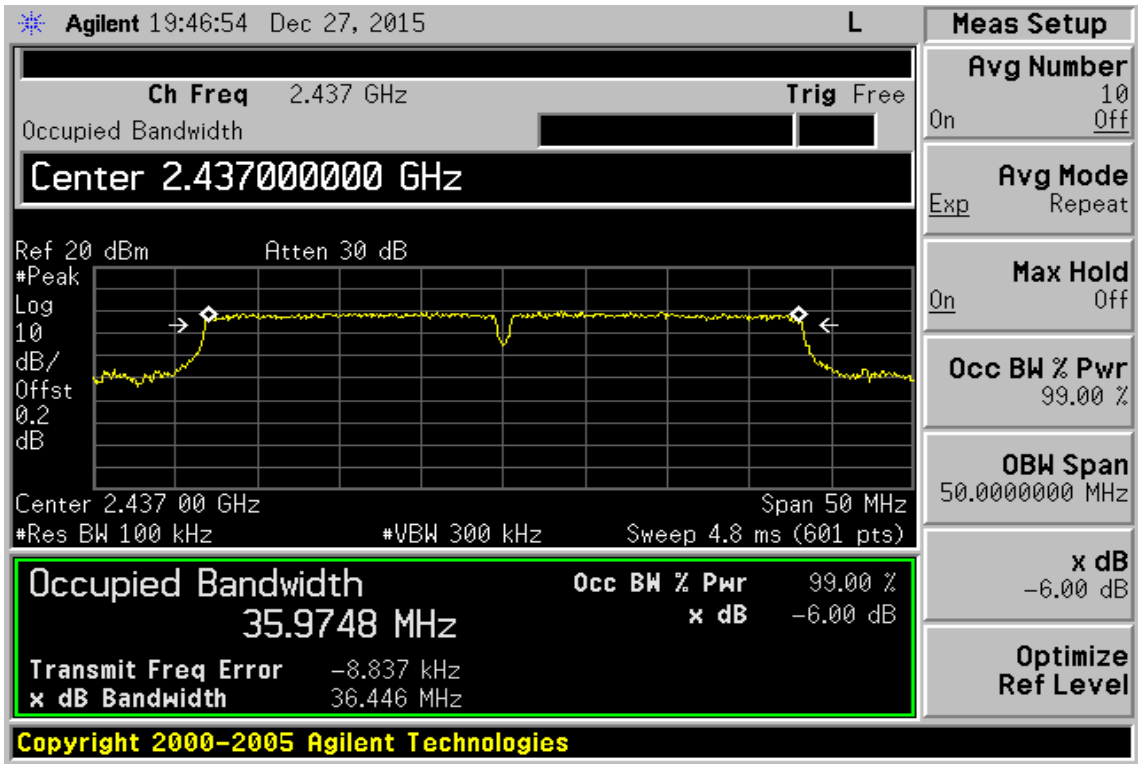


802.11n_40M

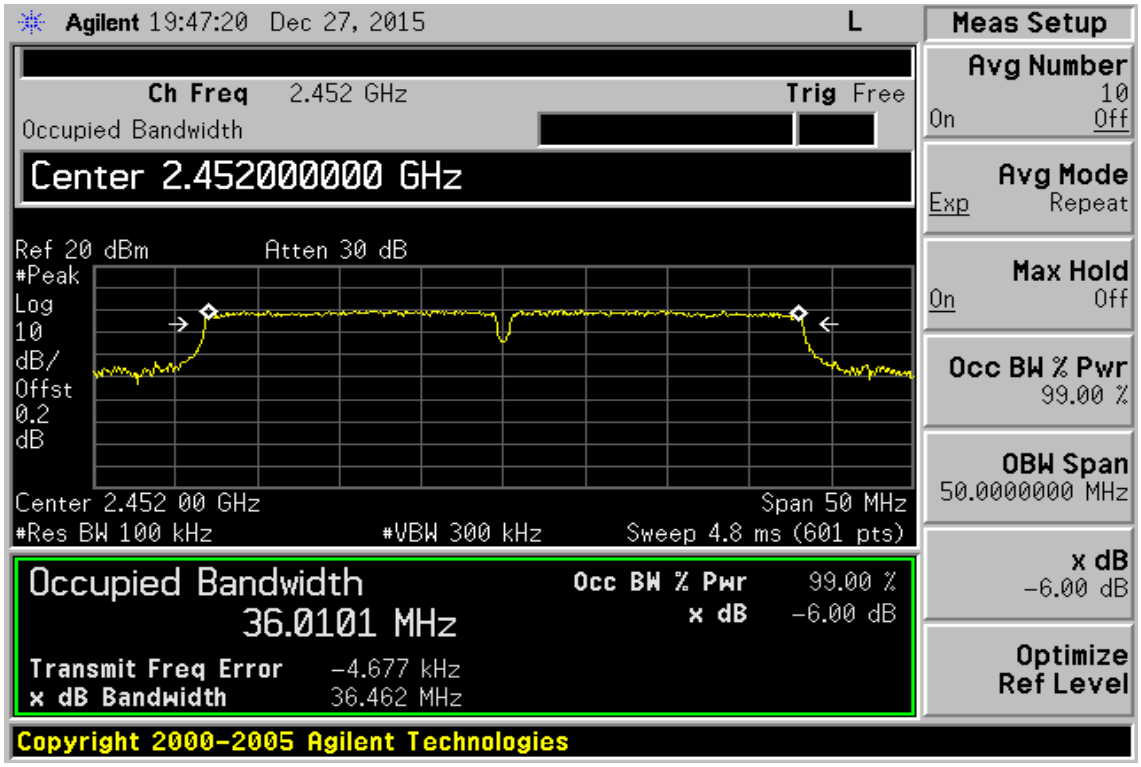
6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



6dB Band Width Test Data CH-High



8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

8.1 Standard Applicable:

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, 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 in15.209(a).

According to RSS-210 issue 7,§A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced 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 section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

8.2 Measurement Equipment Used:

8.2.1 Conducted Emission at antenna port:

Refer to section 6.2 for details.

8.2.2 Radiated emission:

966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2009	02/11/2010
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Bilog Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2008	11/14/2009
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2008	05/08/2010
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2008	11/29/2009
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2009	01/04/2010
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2009	01/04/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2009	01/04/2010
3m Site	SGS	966 chamber	N/A	11/08/2008	11/09/2009

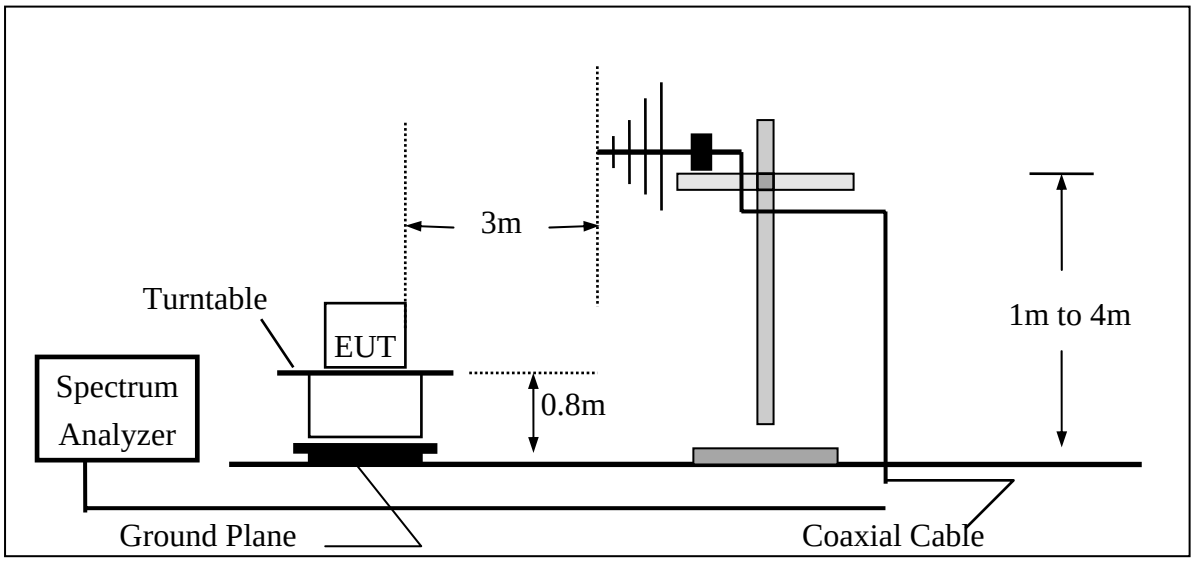
8.3 Test SET-UP:

8.3.1 Conducted Emission at antenna port:

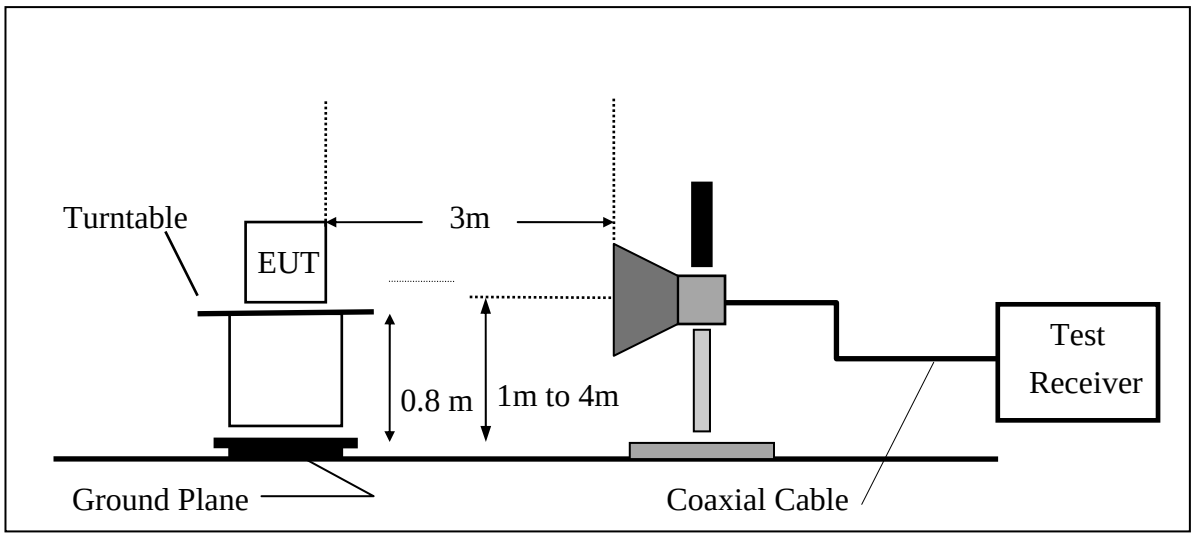
Refer to section 6.3 for details.

8.3.2 Radiated emission:

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



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



8.4 Measurement Procedure:

1. Place the EUT on the table and set it in 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 center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, Sweep = auto
5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
6. Repeat above procedures until all frequency measured were complete.

8.5 Field Strength Calculation:

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

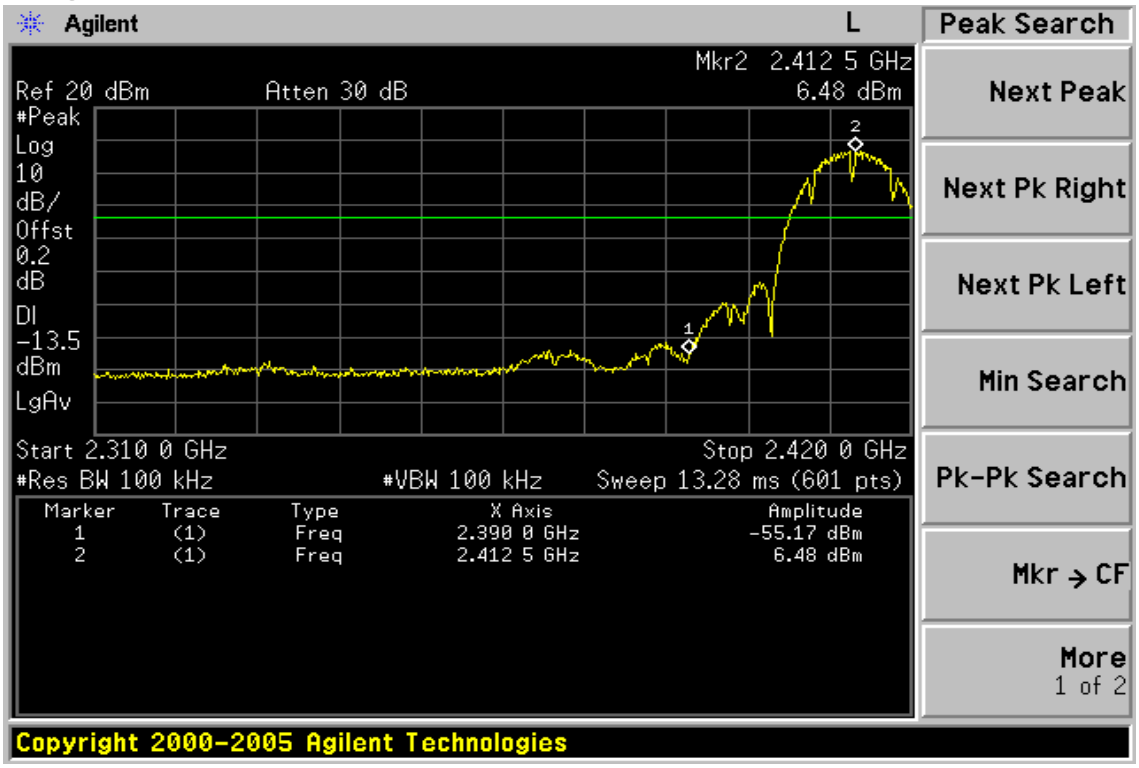
Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

8.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

802.11b

Band Edges Test Data CH-Low



Band Edges Test Data CH-High

Radiated Emission: 802.11 b mode

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2386.95	53.39	46.58	-1.40	51.99	45.18	74.00	54.00	-8.82	AV
2390.00	50.60	---	-1.39	49.21	---	74.00	54.00	-4.79	Peak

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2386.95	55.46	47.86	-1.40	54.06	46.46	74.00	54.00	-7.54	AV
2390.00	51.30	---	-1.39	49.91	---	74.00	54.00	-4.09	Peak

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Emission: 802.11 b mode

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	51.24	---	-0.92	50.32	---	74.00	54.00	-3.68	Peak
2487.91	54.24	48.67	-0.86	53.38	47.81	74.00	54.00	-6.19	AV

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	54.17	46.78	-0.92	53.25	45.86	74.00	54.00	-8.14	AV
2487.76	57.23	50.47	-0.86	56.37	49.61	74.00	54.00	-4.39	AV
2498.01	56.29	49.90	-0.84	55.45	49.06	74.00	54.00	-4.94	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

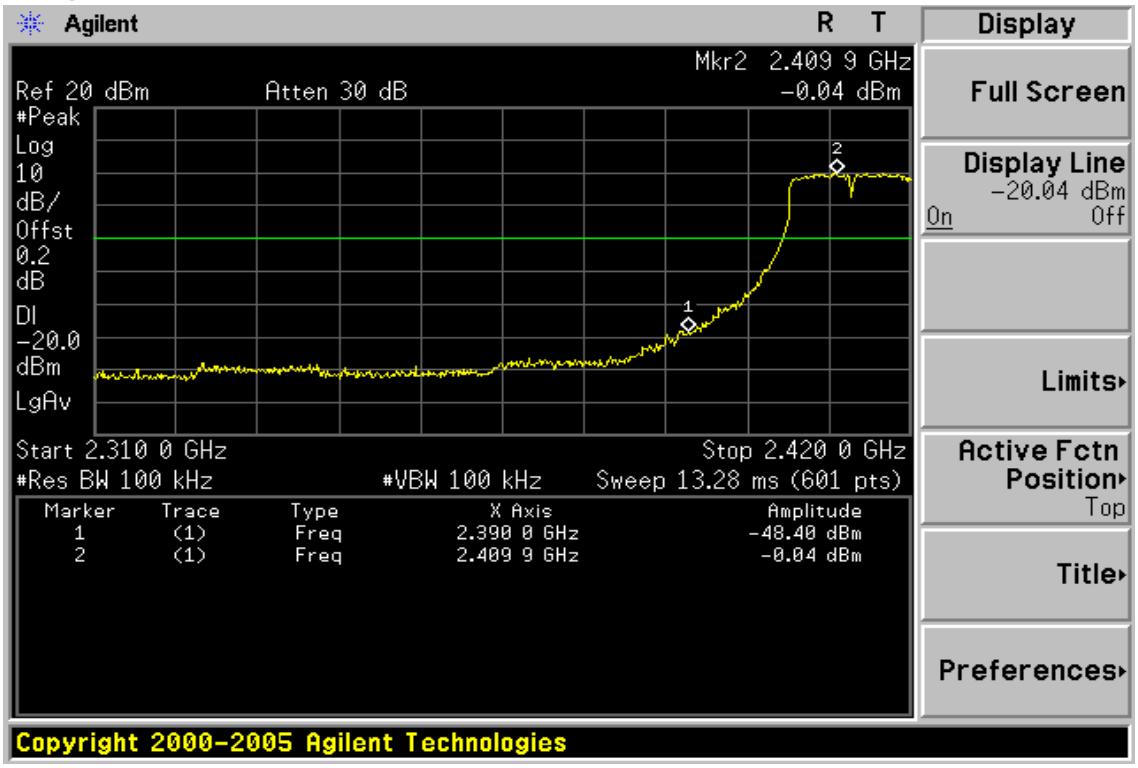
(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

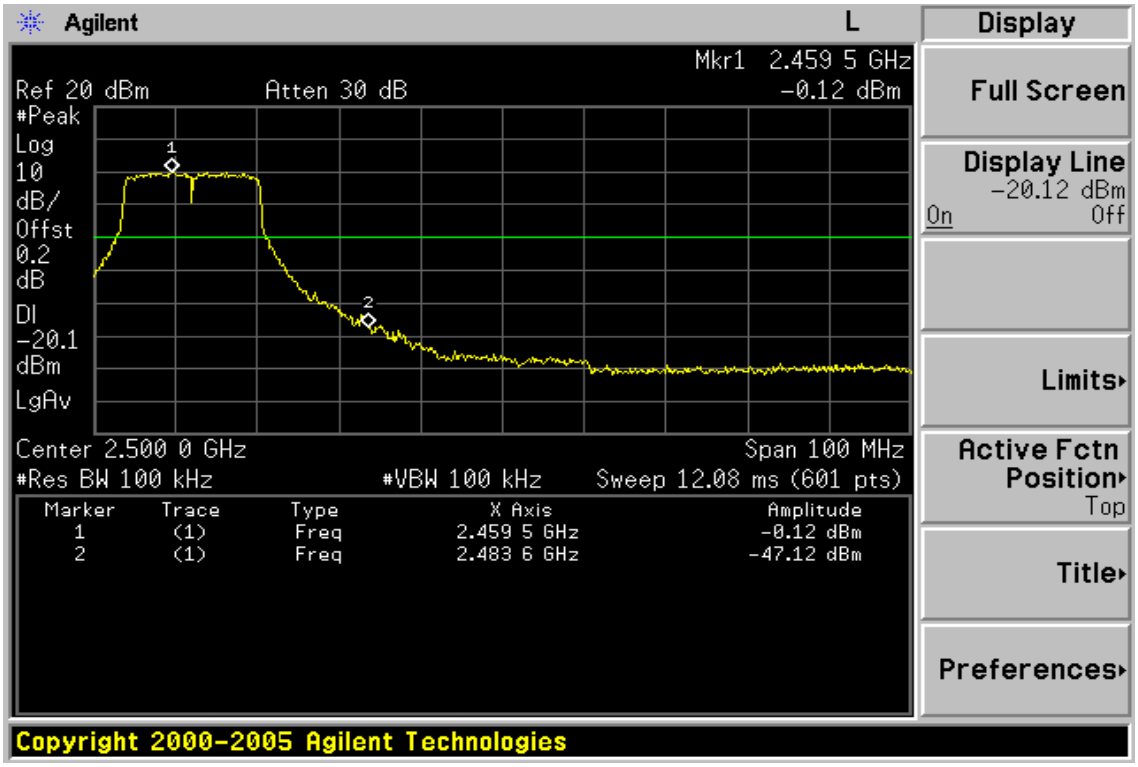
(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

802.11g

Band Edges Test Data CH-Low



Band Edges Test Data CH-High



Radiated Emission: 802.11 g mode

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2390.00	53.85	44.98	-1.39	52.46	43.59	74.00	54.00	-10.41	AV

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2390.00	54.92	44.89	-1.39	53.53	43.50	74.00	54.00	-10.50	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Emission: 802.11 g mode

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	60.69	45.81	-0.92	59.77	44.89	74.00	54.00	-9.11	AV
2485.01	60.12	43.94	-0.92	59.20	43.02	74.00	54.00	-10.98	AV

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	66.10	52.26	-0.92	65.18	51.34	74.00	54.00	-2.66	AV
2485.16	65.69	48.90	-0.92	64.77	47.98	74.00	54.00	-6.02	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

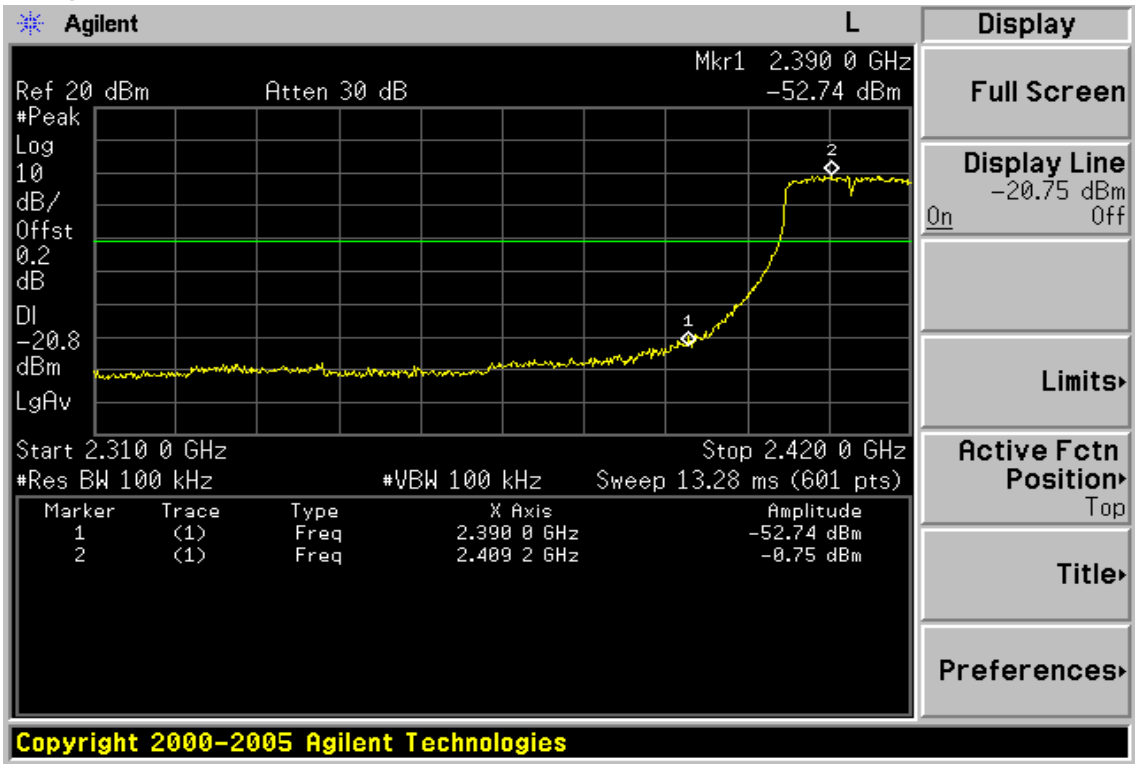
(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

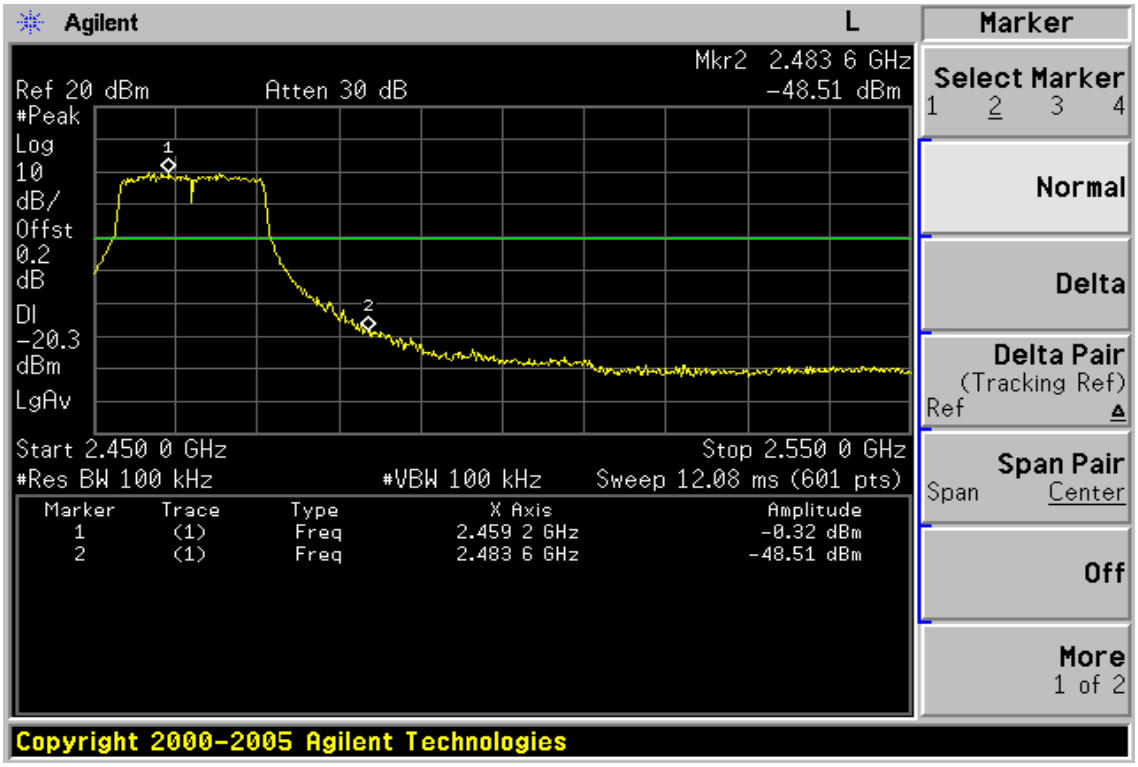
(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

802.11n_20M

Band Edges Test Data CH-Low



Band Edges Test Data CH-High



Radiated Emission: 802.11 n_20M mode

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2390.00	52.76	43.75	-1.39	51.37	42.36	74.00	54.00	-11.64	AV

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2390.00	53.05	43.69	-1.39	51.66	42.30	74.00	54.00	-11.70	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Emission: 802.11 n_20M mode

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	57.34	45.25	-0.92	56.42	44.33	74.00	54.00	-9.67	AV
2485.66	58.27	43.60	-0.92	57.35	42.68	74.00	54.00	-11.32	AV

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	62.88	50.56	-0.92	61.96	49.64	74.00	54.00	-4.36	AV
2485.66	65.58	48.16	-0.92	64.66	47.24	74.00	54.00	-6.76	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

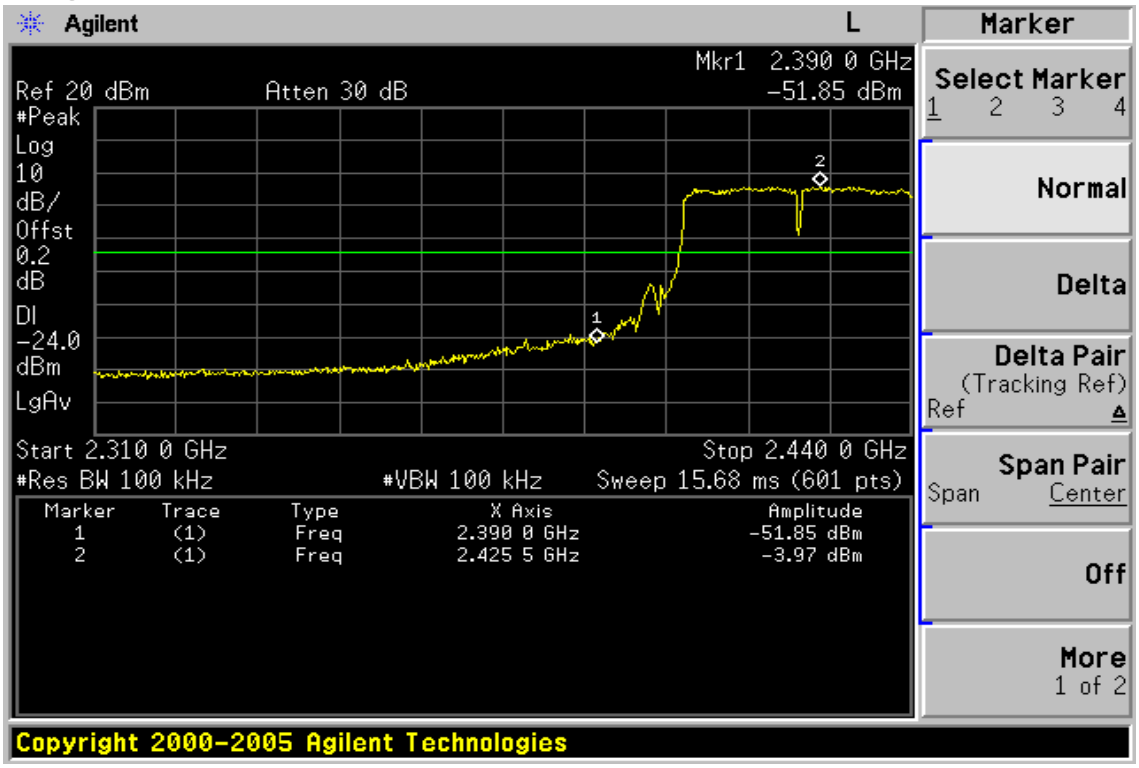
(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

802.11n_40M

Band Edges Test Data CH-Low



Band Edges Test Data CH-High

Radiated Emission: 802.11 n_40M mode

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2422 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2386.45	58.13	44.43	-1.40	56.73	43.03	74.00	54.00	-10.97	AV
2390.00	56.54	45.86	-1.39	55.15	44.47	74.00	54.00	-9.53	AV

Operation Mode	TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2442 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2387.85	59.48	47.65	-1.40	58.08	46.25	74.00	54.00	-7.75	AV
2390.00	58.13	47.81	-1.39	56.74	46.42	74.00	54.00	-7.58	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Emission: 802.11 n_40M mode

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2452 MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	58.44	47.69	-0.92	57.52	46.77	74.00	54.00	-7.23	AV
2487.91	58.91	46.51	-0.86	58.05	45.65	74.00	54.00	-8.35	AV

Operation Mode	TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2452 MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
2483.56	63.52	52.92	-0.92	62.60	52.00	74.00	54.00	-2.00	AV
2487.66	67.24	52.00	-0.86	66.38	51.14	74.00	54.00	-2.86	AV
2494.41	63.05	48.95	-0.84	62.21	48.11	74.00	54.00	-5.89	AV

Remark:

(1) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

(3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

(4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

9 SPURIOUS RADIATED EMISSION TEST

9.1 Standard Applicable

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to RSS-210 issue 7,§A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced 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 section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

9.2 Measurement Equipment Used:

9.2.1. Conducted Emission at antenna port:

Refer to section 6.2 for details.

9.2.2. Radiated emission:

Refer to section 8.2 for details.

9.3 Test SET-UP:

9.3.1. Conducted Emission at antenna port:

Refer to section 6.3 for details.

9.3.2. Radiated emission:

Refer to section 8.3 for details.

9.4 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until all frequency measured were complete.

9.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

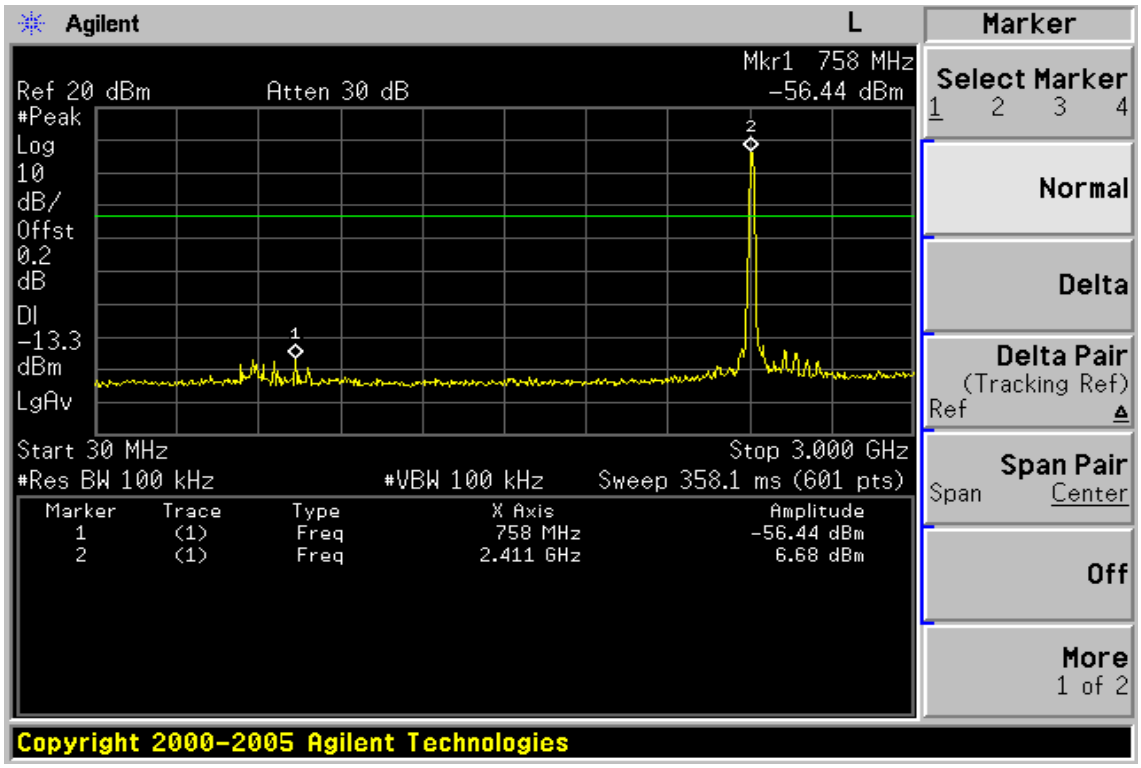
Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

9.6 Measurement Result:

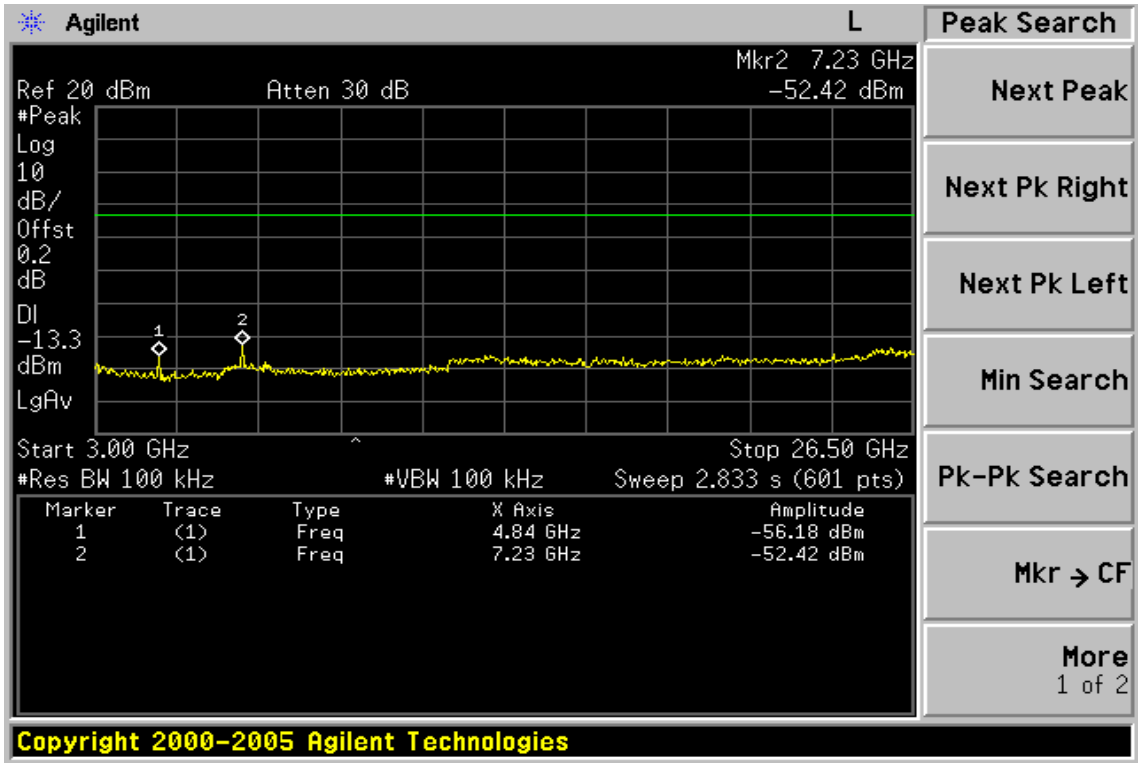
Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

Conducted Spurious Emission Measurement Result (802.11b)

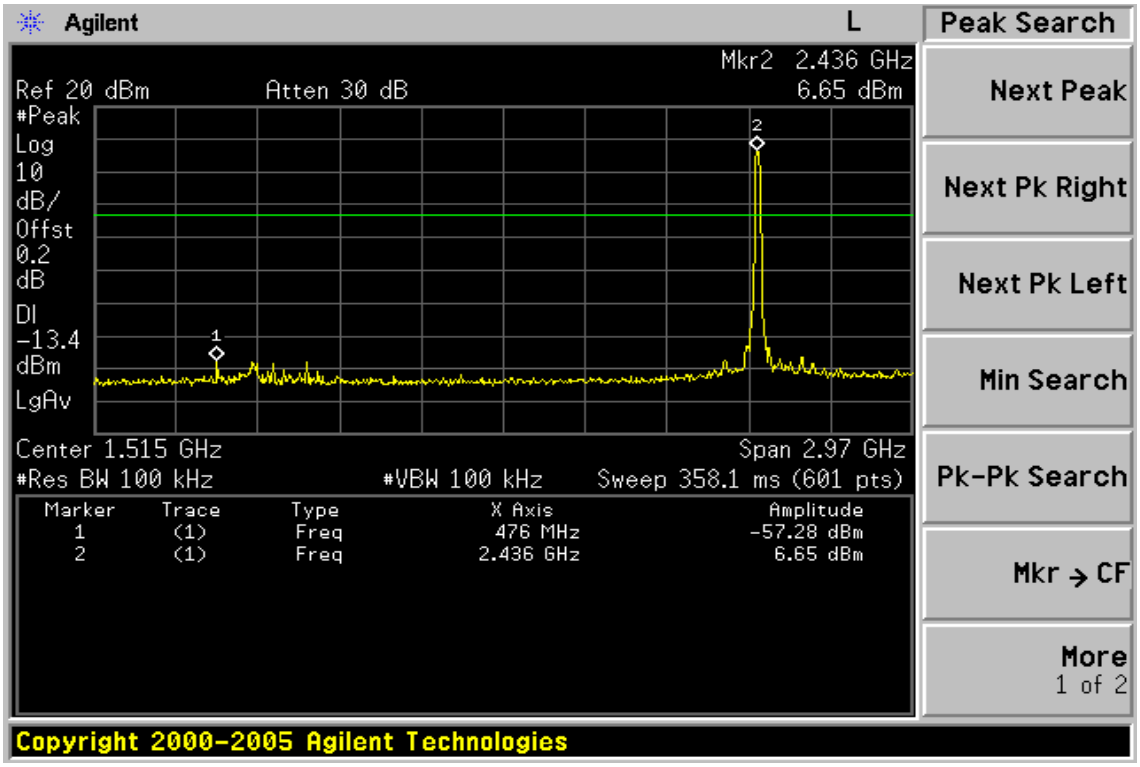
Ch Low 30MHz – 3GHz



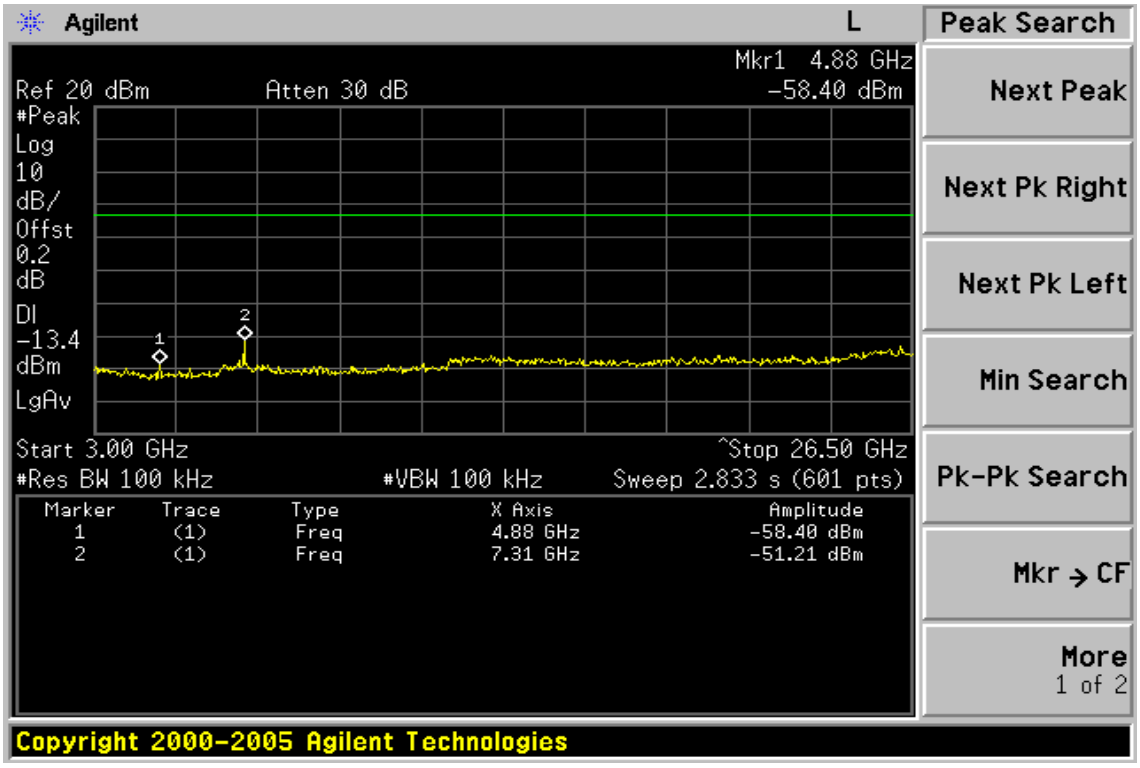
Ch Low 3GHz – 26.5GHz



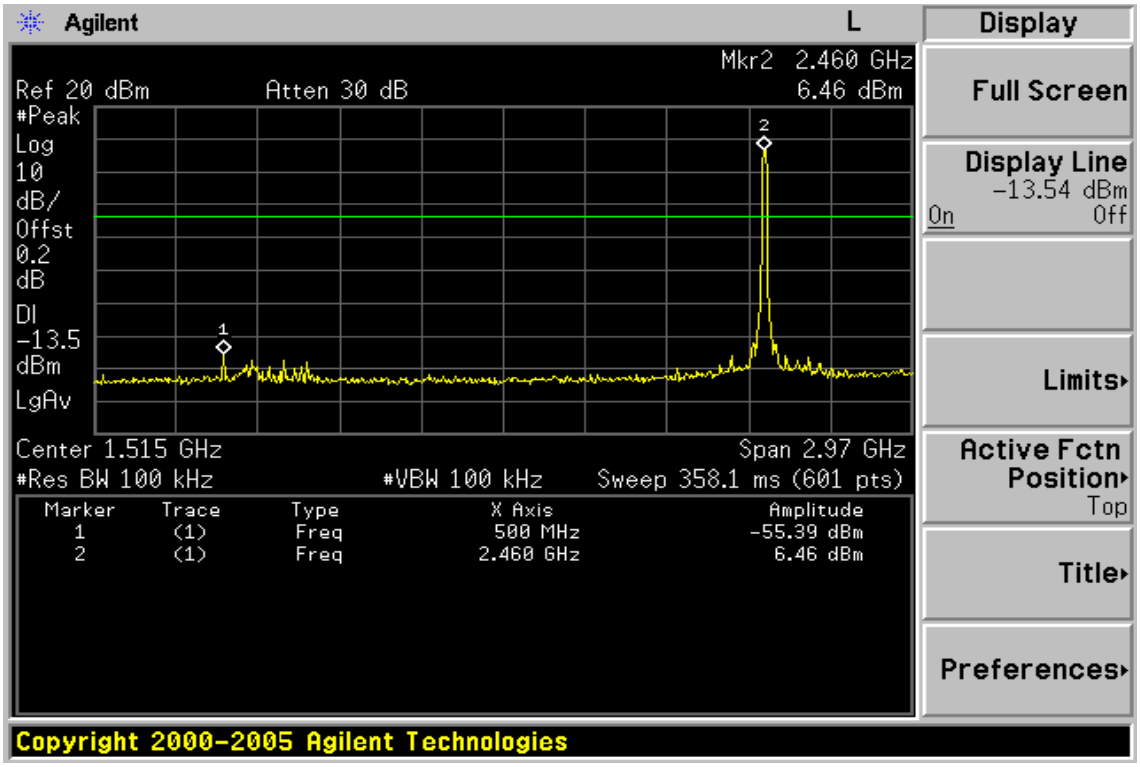
Ch Mid 30MHz – 3GHz



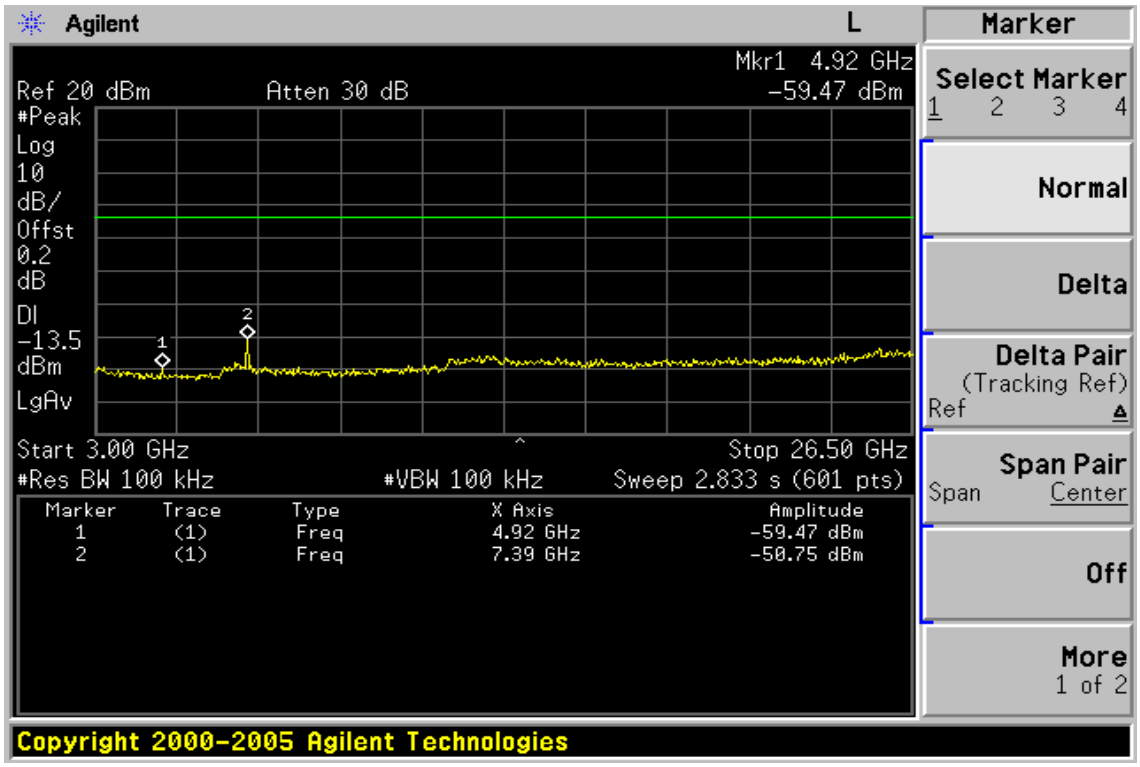
Ch Mid 3GHz – 26.5GHz



Ch High 30MHz – 3GHz

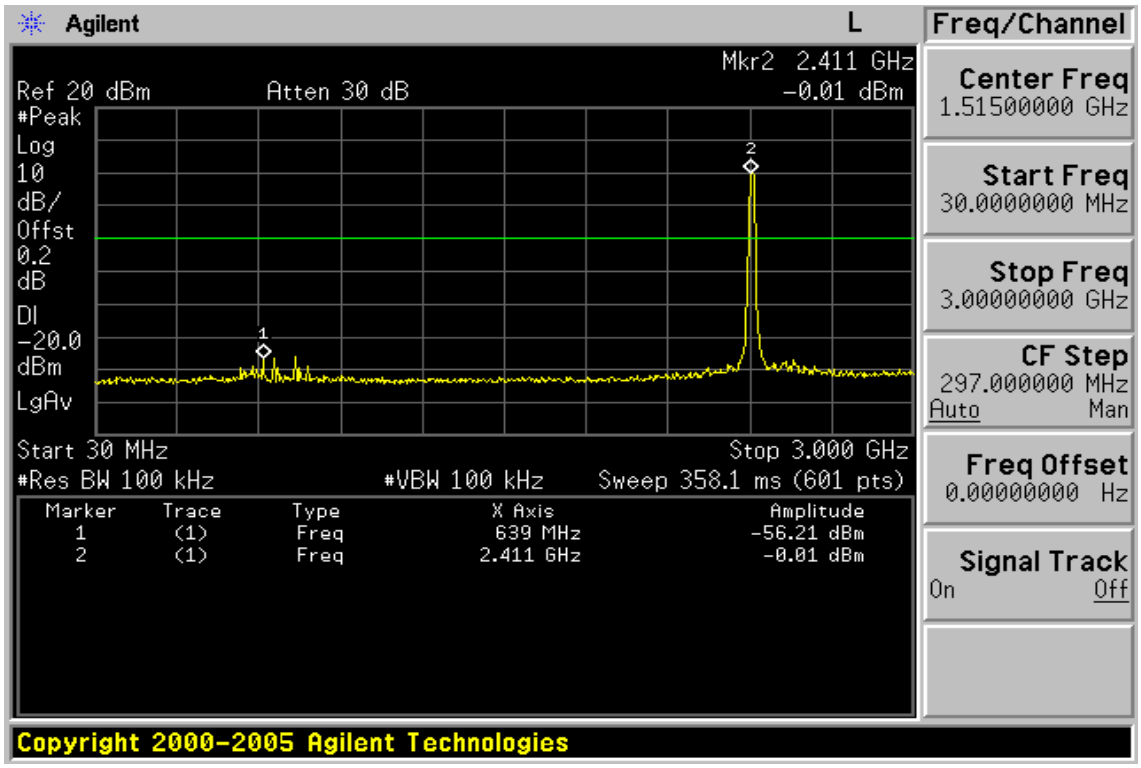


Ch High 3GHz – 26.5GHz

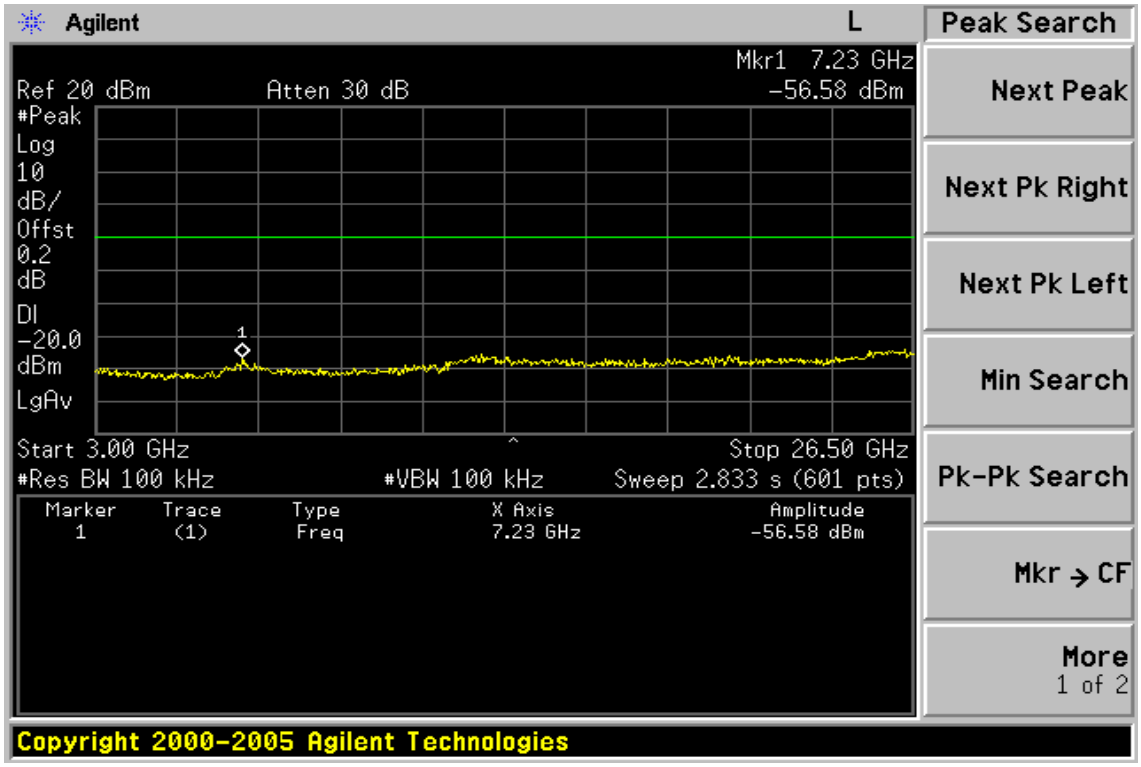


Conducted Spurious Emission Measurement Result (802.11g)

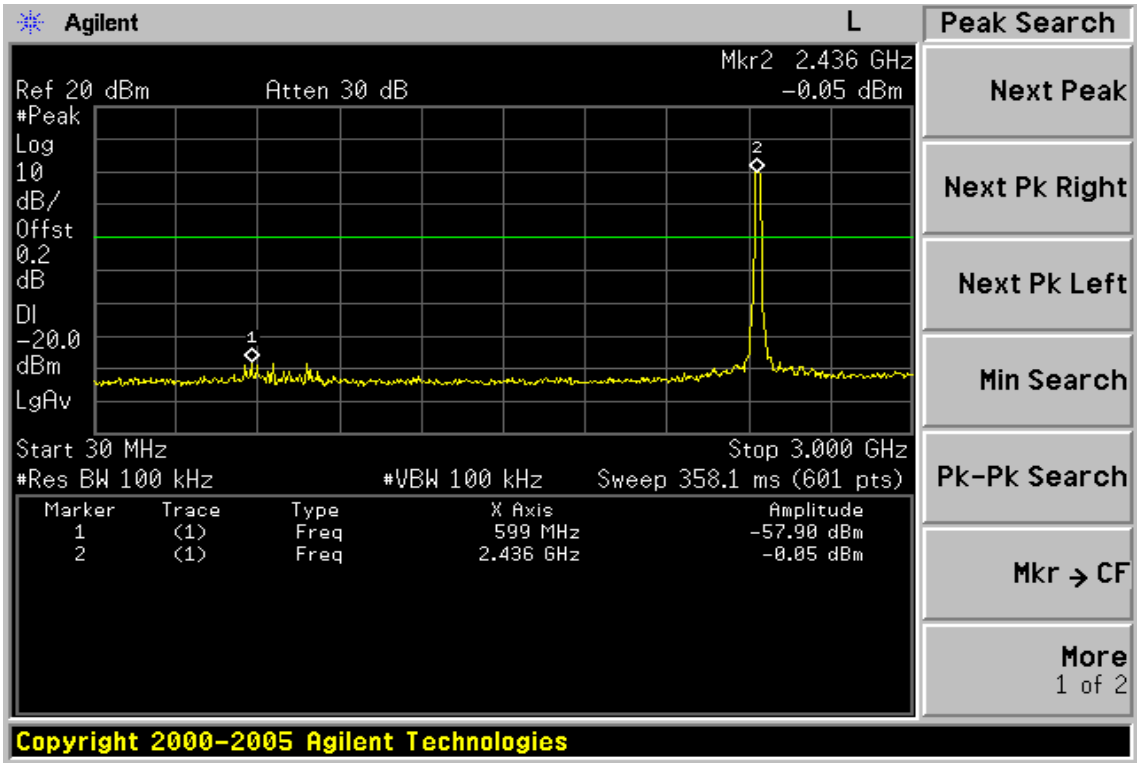
Ch Low 30MHz – 3GHz



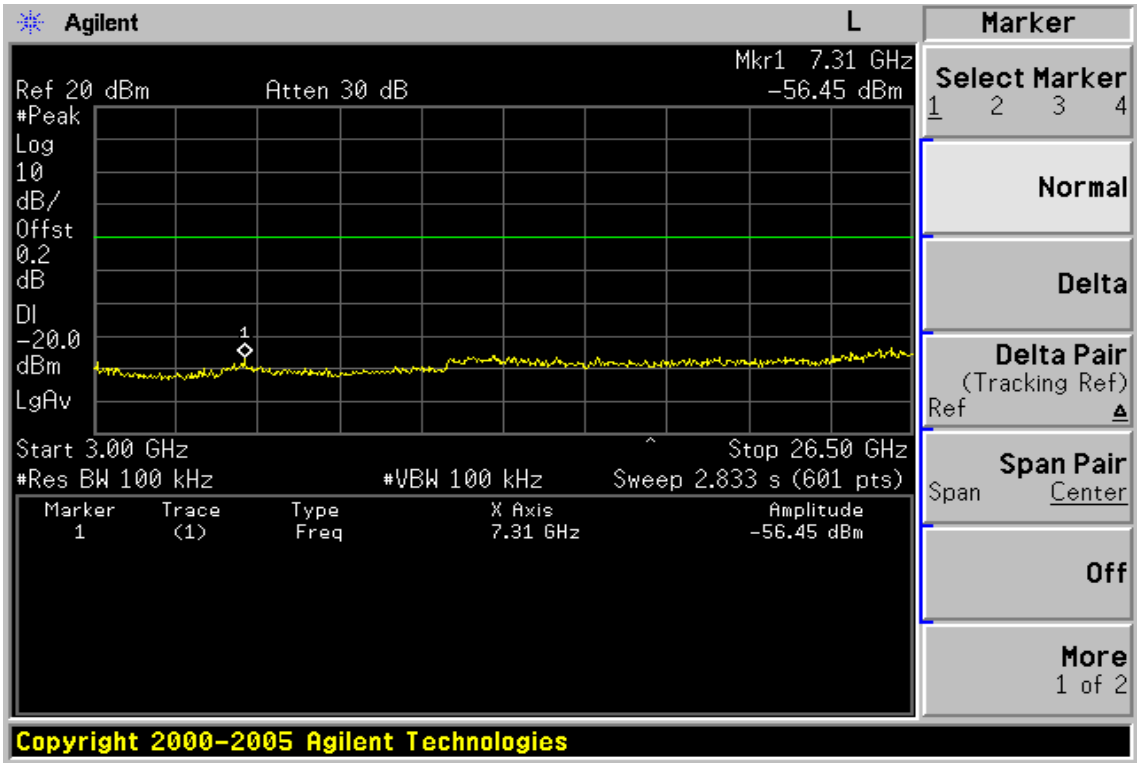
Ch Low 3GHz – 26.5GHz



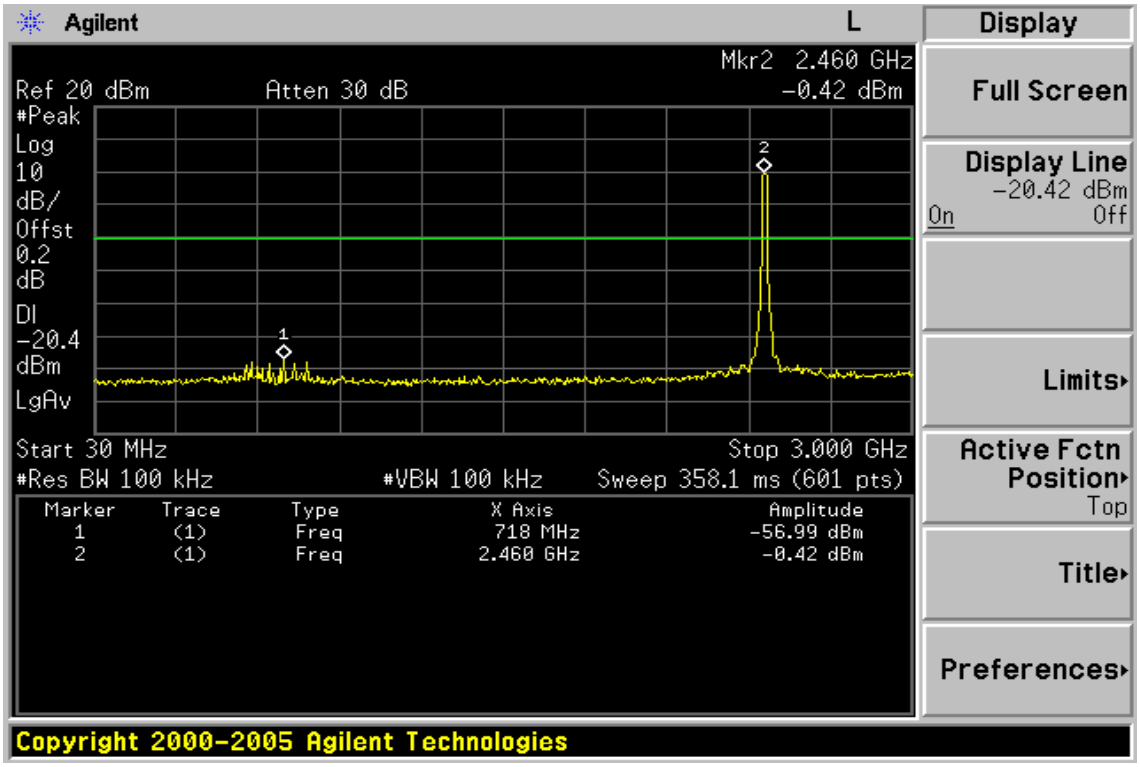
Ch Mid 30MHz – 3GHz



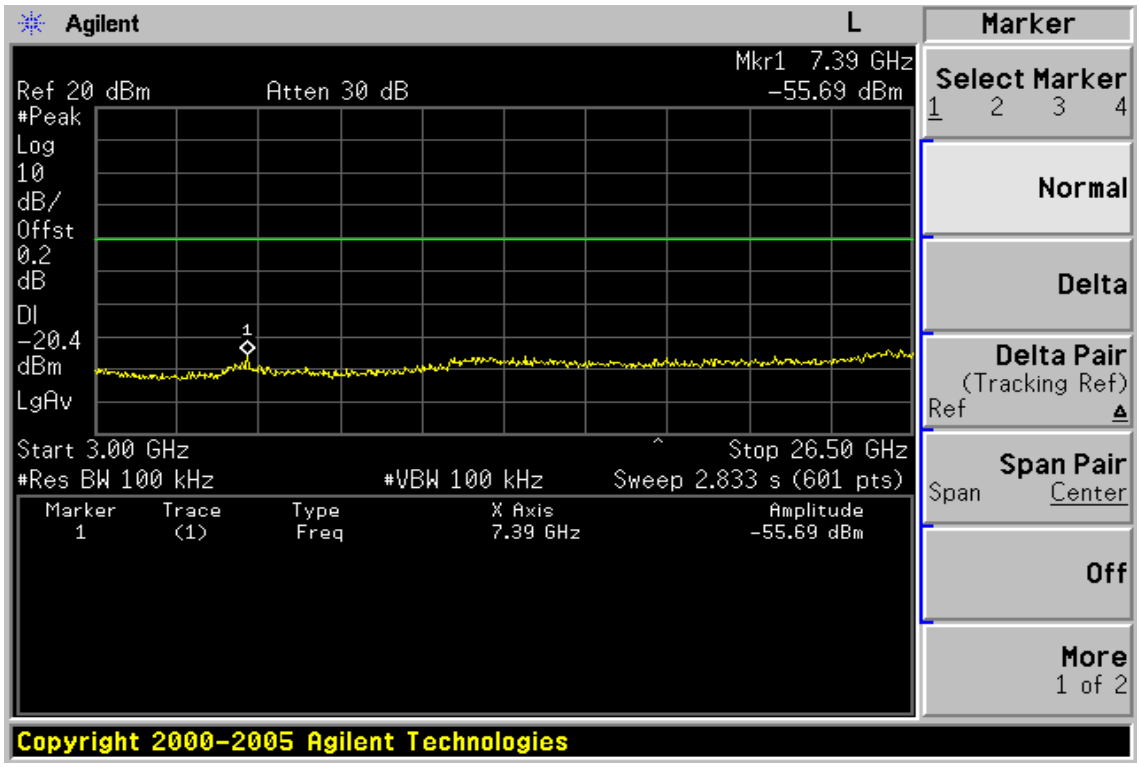
Ch Mid 3GHz – 26.5GHz



Ch High 30MHz – 3GHz

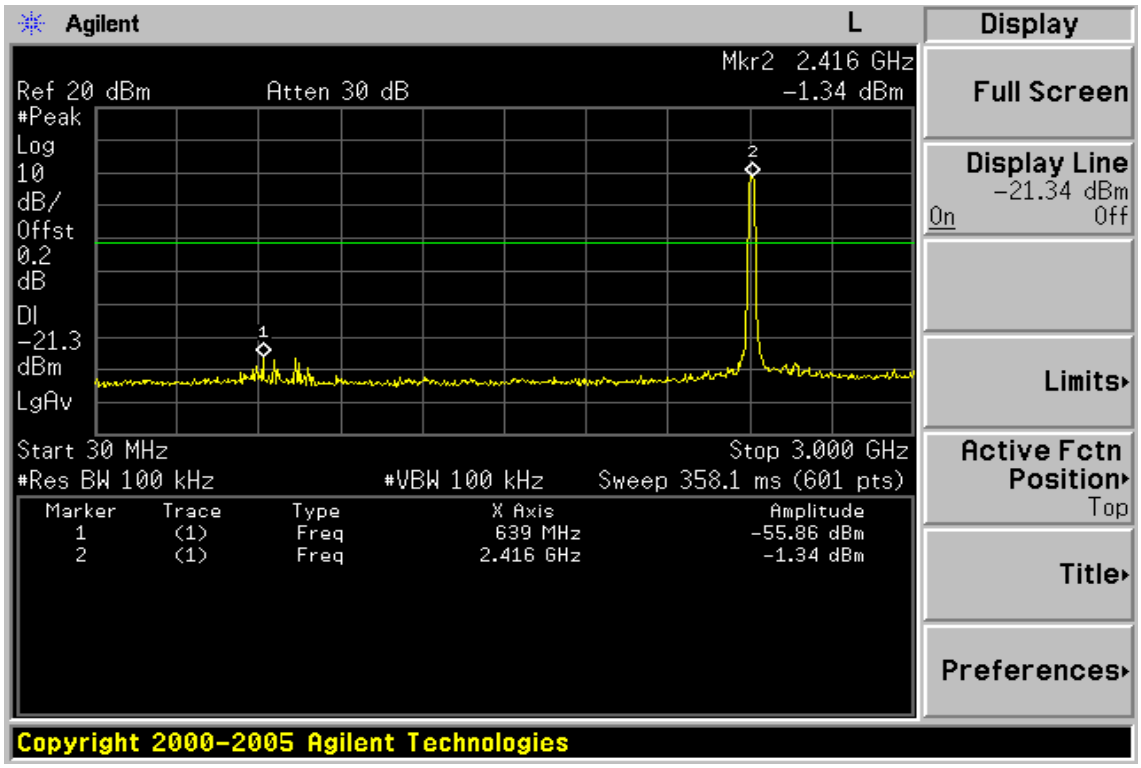


Ch High 3GHz – 26.5GHz

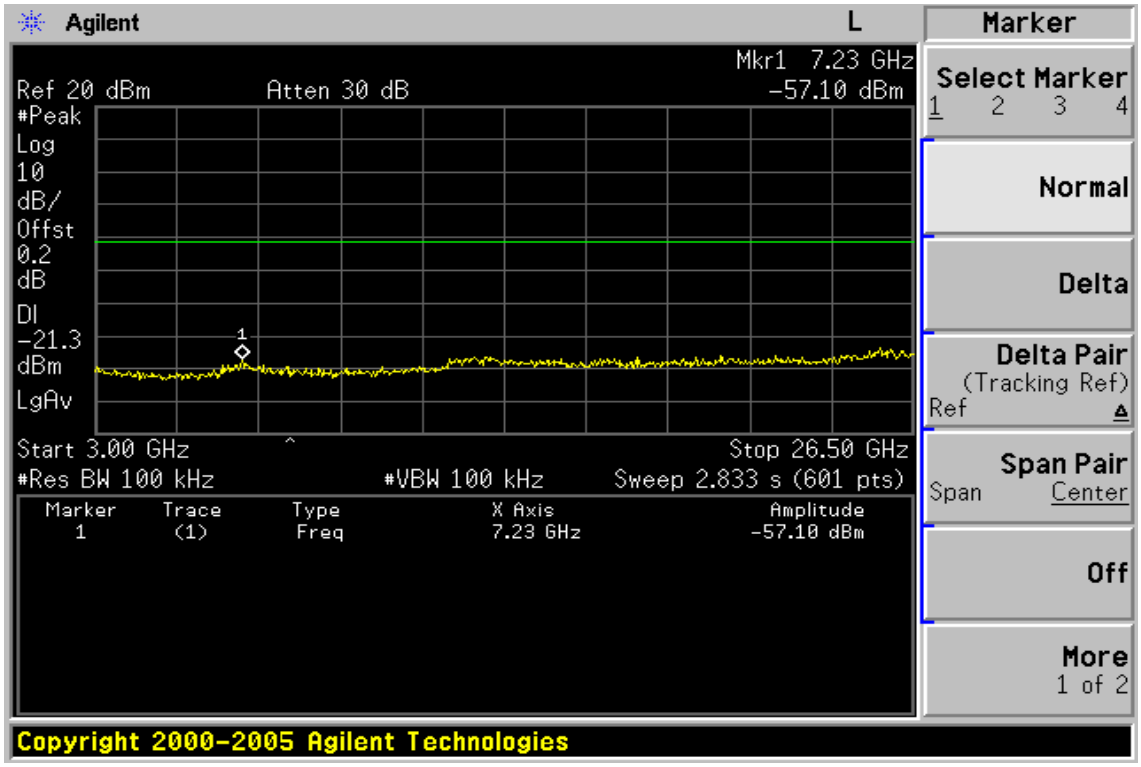


Conducted Spurious Emission Measurement Result (802.11n_20M)

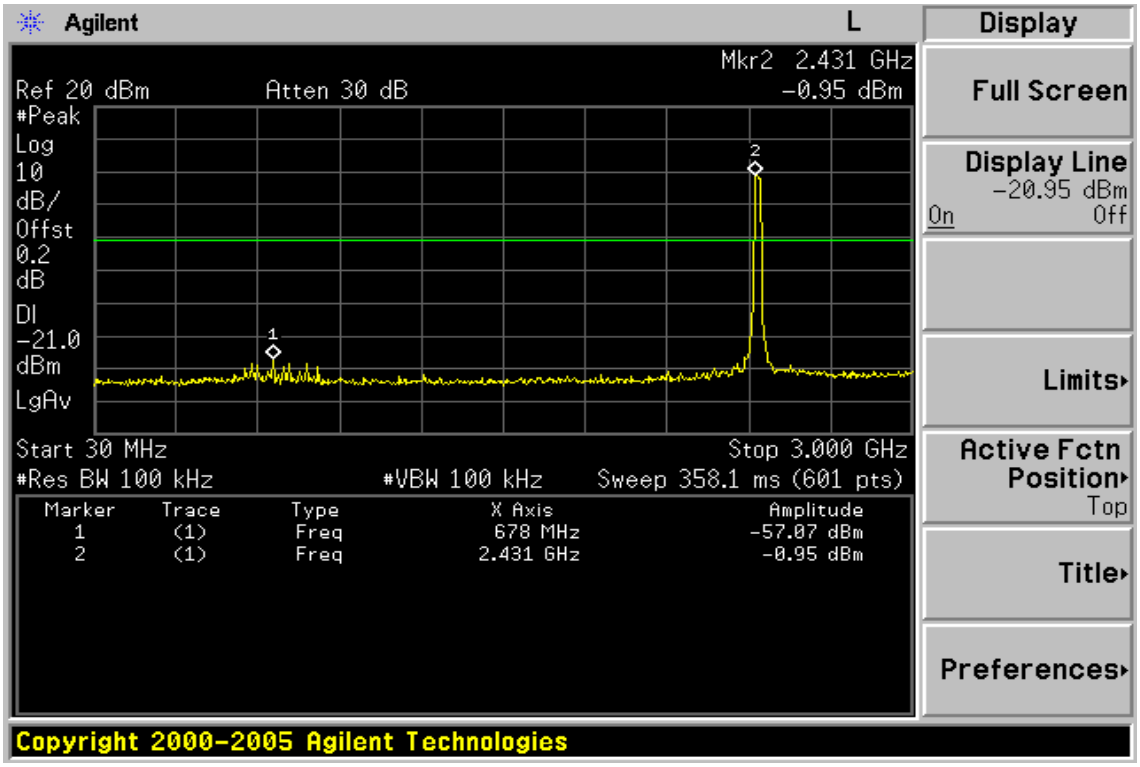
Ch Low 30MHz – 3GHz



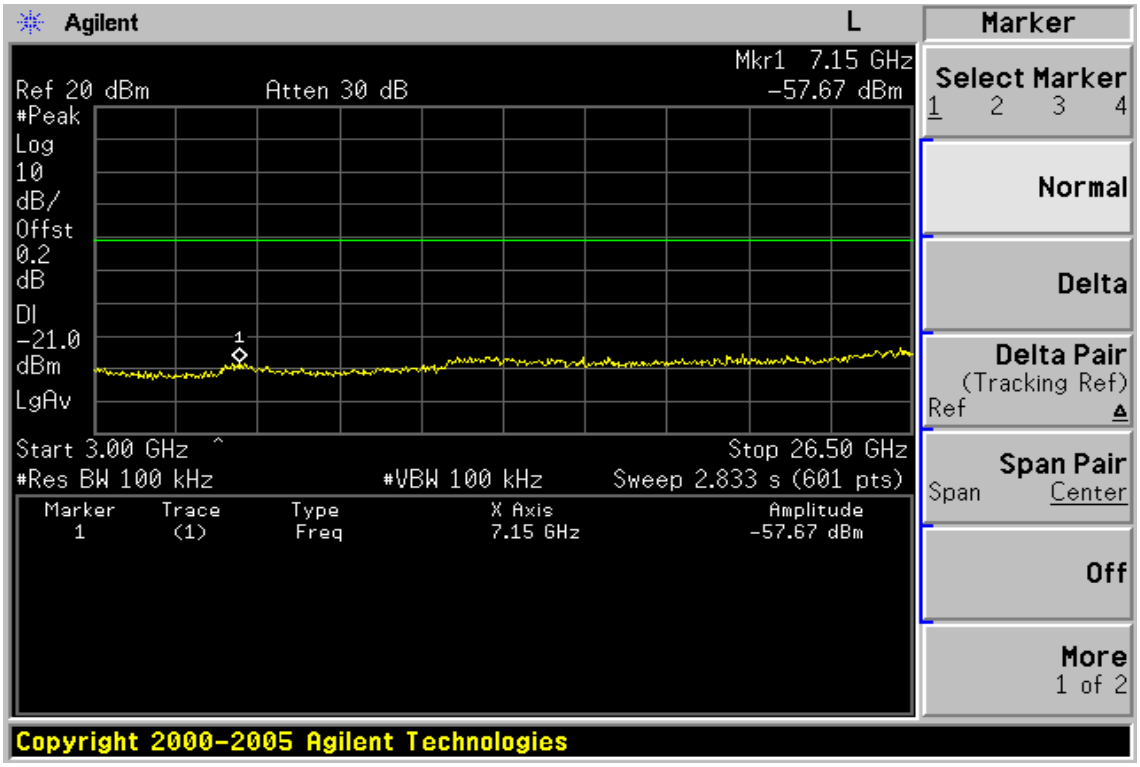
Ch Low 3GHz – 26.5GHz



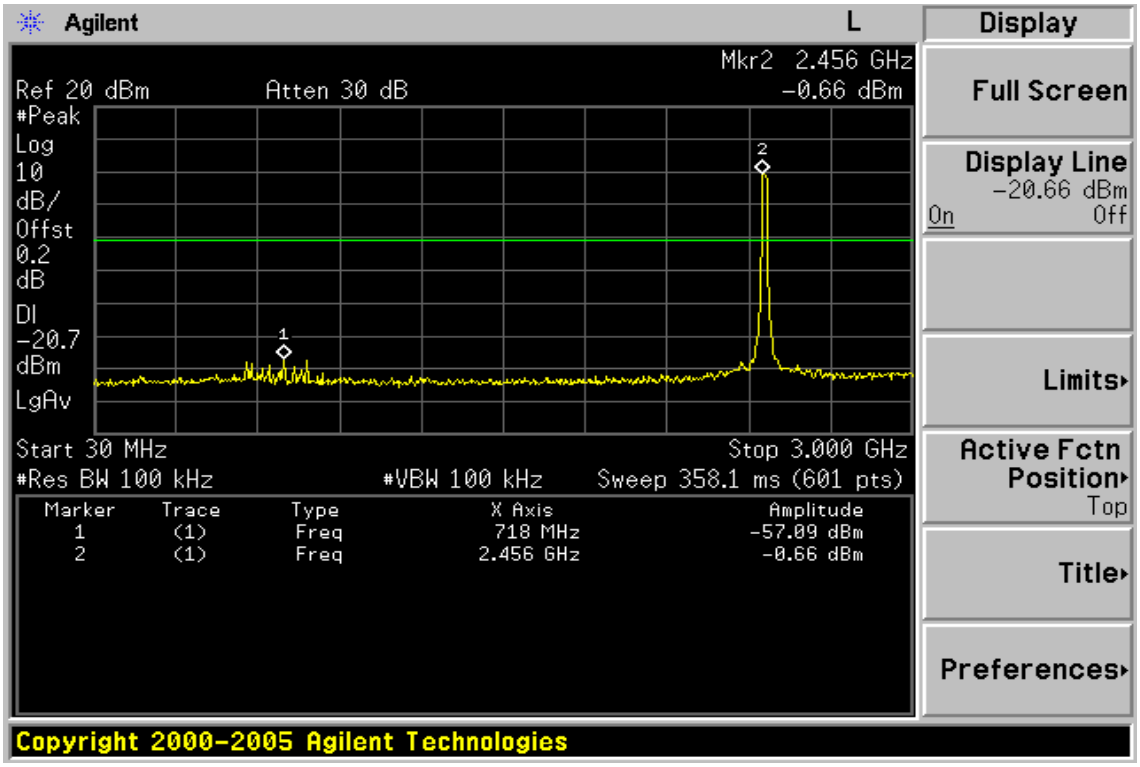
Ch Mid 30MHz – 3GHz



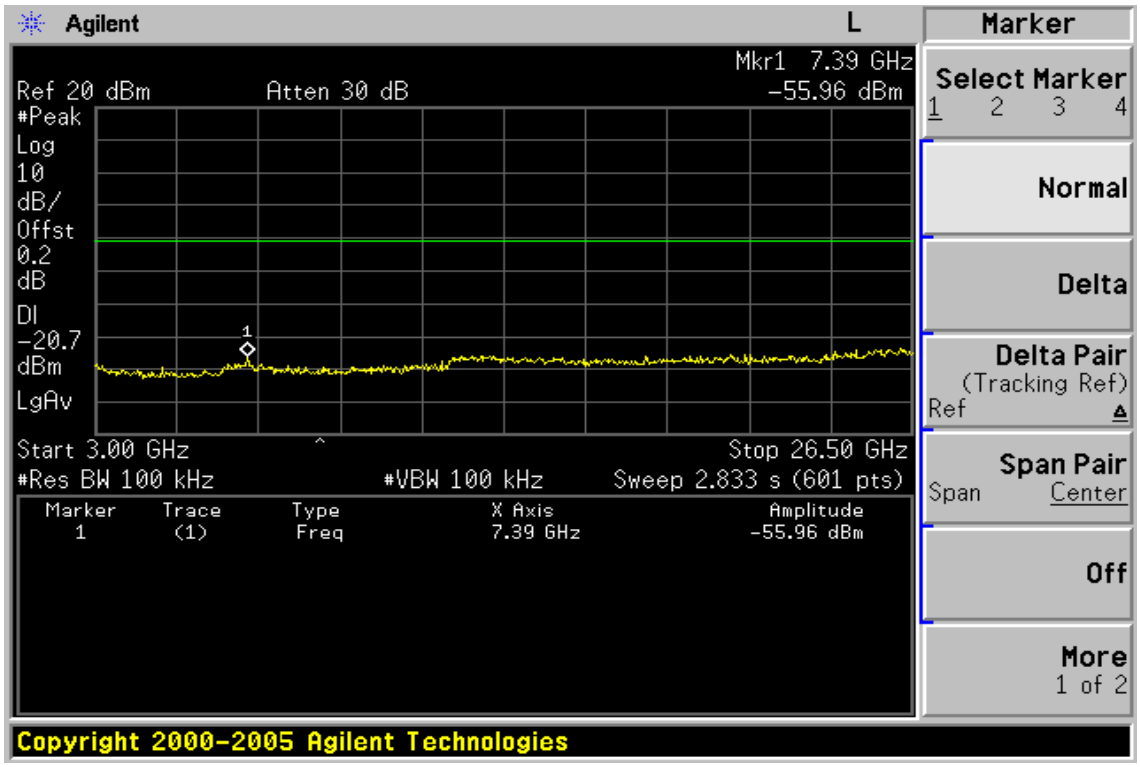
Ch Mid 3GHz – 26.5GHz



Ch High 30MHz – 3GHz

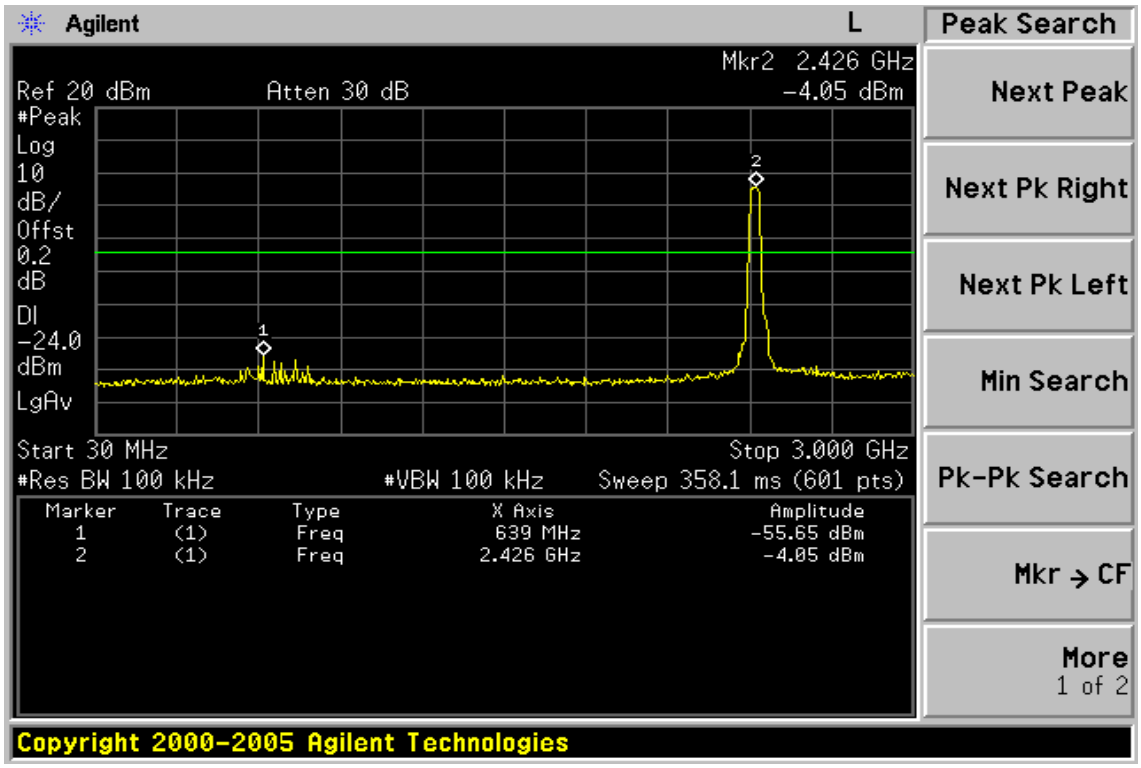


Ch High 3GHz – 26.5GHz

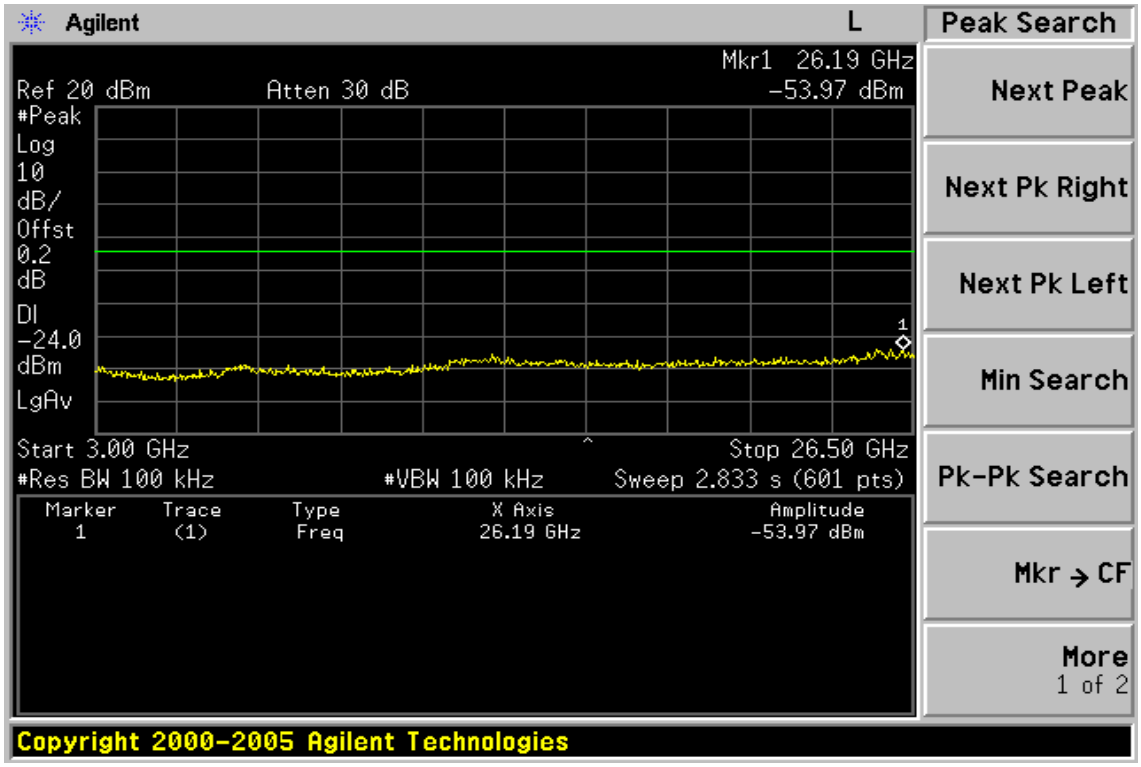


Conducted Spurious Emission Measurement Result (802.11n_40M)

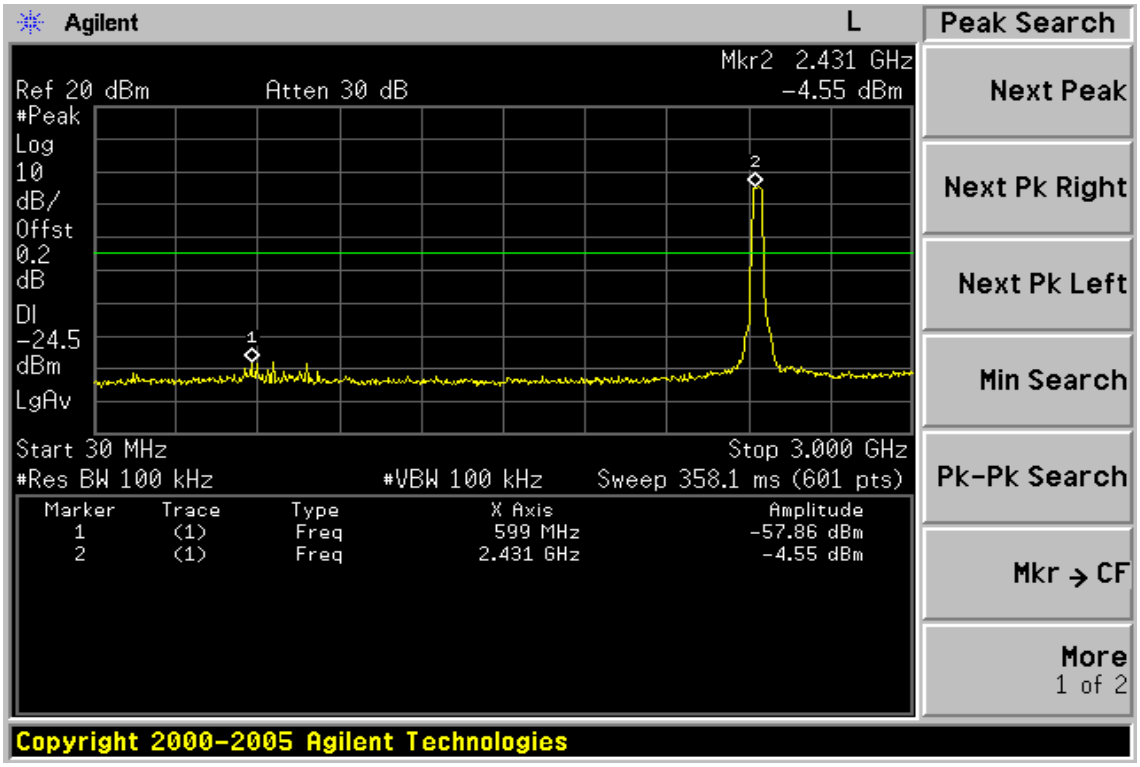
Ch Low 30MHz – 3GHz



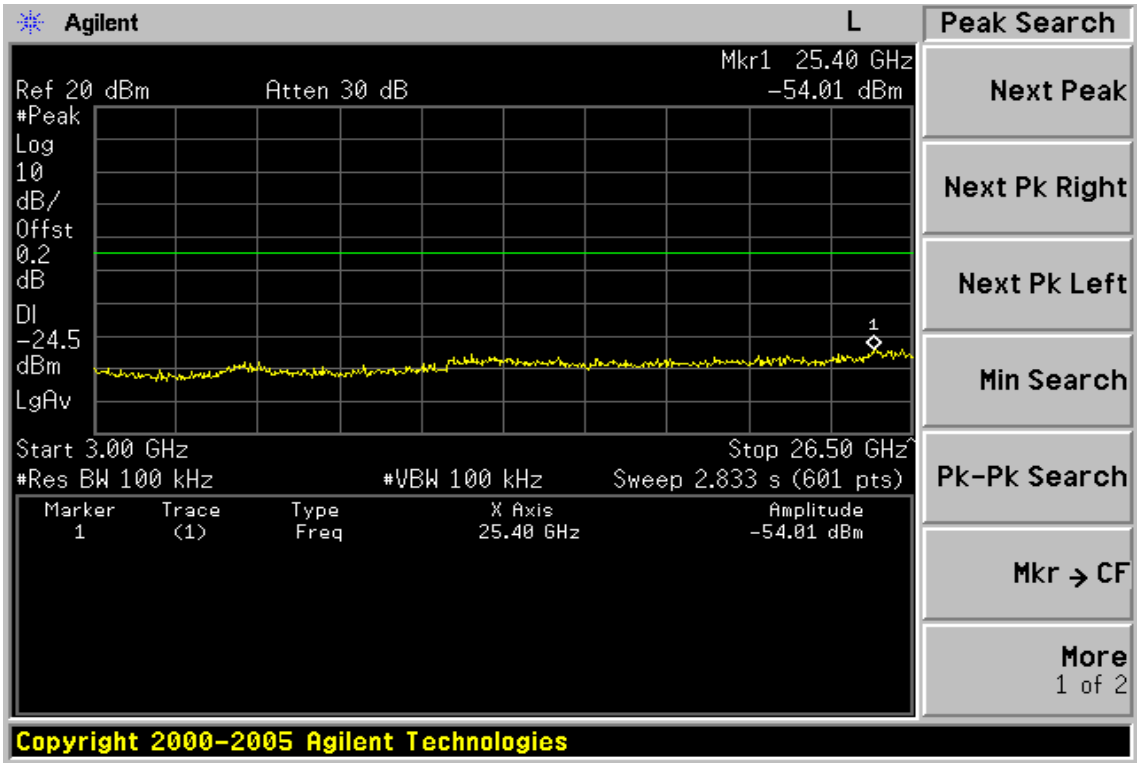
Ch Low 3GHz – 26.5GHz



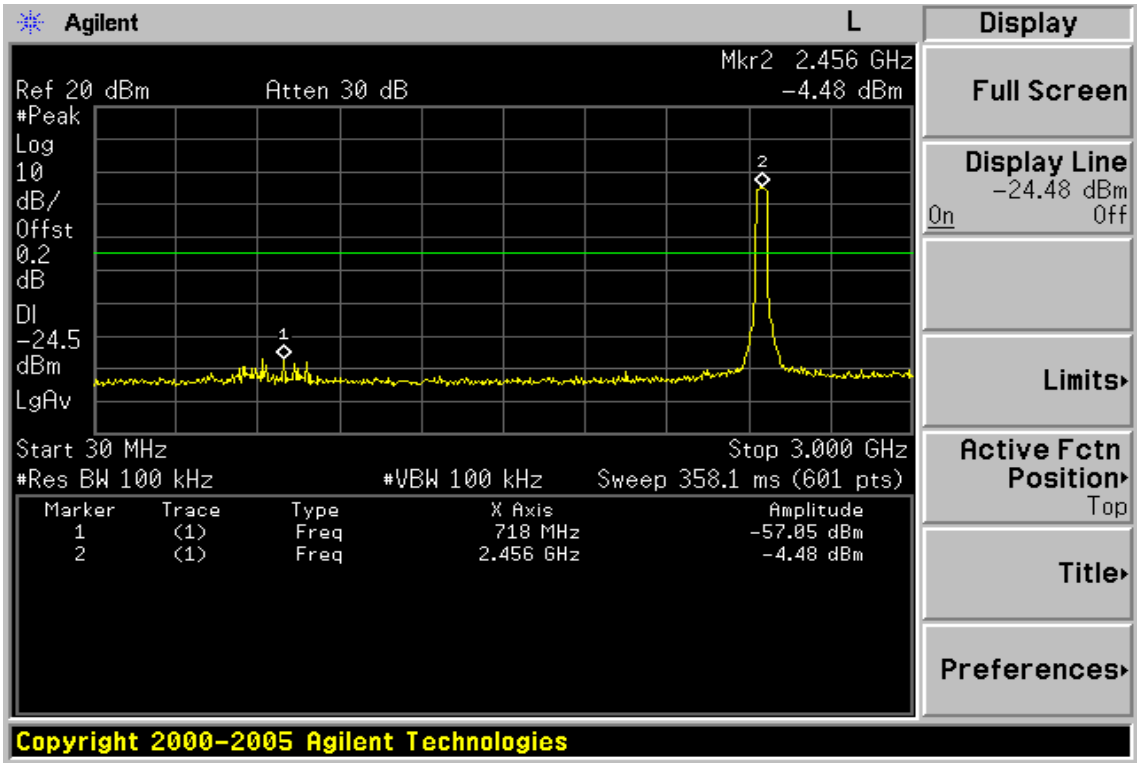
Ch Mid 30MHz – 3GHz



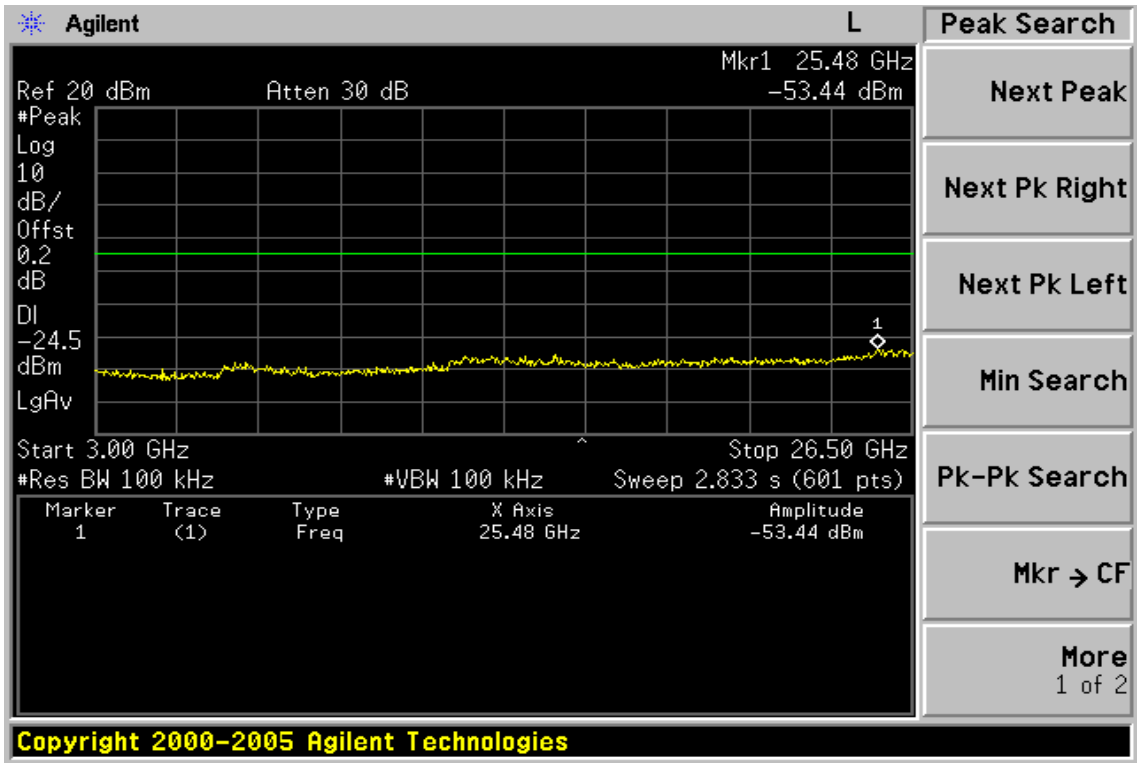
Ch Mid 3GHz – 26.5GHz



Ch High 30MHz – 3GHz



Ch High 3GHz – 26.5GHz



Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode	802.11b TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
33.88	V	Peak	49.68	-14.65	35.03	40.00	-4.97
90.14	V	Peak	53.35	-17.62	35.73	43.50	-7.77
104.69	V	Peak	51.19	-16.63	34.56	43.50	-8.94
290.93	V	Peak	48.72	-13.21	35.51	46.00	-10.49
400.54	V	Peak	42.27	-9.99	32.28	46.00	-13.72
33.88	H	Peak	51.36	-14.65	36.71	40.00	-3.29
70.74	H	Peak	50.52	-16.27	34.25	40.00	-5.75
198.78	H	Peak	46.61	-15.56	31.05	43.50	-12.45
242.43	H	Peak	46.80	-14.06	32.74	46.00	-13.26
290.93	H	Peak	47.42	-13.21	34.21	46.00	-11.79
400.54	H	Peak	47.14	-9.99	37.15	46.00	-8.85

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode	802.11b TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	50.62	-14.82	35.80	40.00	-4.20
90.14	V	Peak	53.56	-17.62	35.94	43.50	-7.56
104.69	V	Peak	50.83	-16.63	34.20	43.50	-9.30
245.34	V	Peak	44.43	-13.98	30.45	46.00	-15.55
290.93	V	Peak	48.72	-13.21	35.51	46.00	-10.49
397.63	V	Peak	43.05	-10.09	32.96	46.00	-13.04
33.88	H	Peak	51.24	-14.65	36.59	40.00	-3.41
70.74	H	Peak	49.26	-16.27	32.99	40.00	-7.01
216.24	H	Peak	47.53	-15.05	32.48	46.00	-13.52
242.43	H	Peak	46.89	-14.06	32.83	46.00	-13.17
286.08	H	Peak	47.15	-13.26	33.89	46.00	-12.11
397.63	H	Peak	46.34	-10.09	36.25	46.00	-9.75

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode	802.11b TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	49.64	-14.82	34.82	40.00	-5.18
90.14	V	Peak	52.92	-17.62	35.30	43.50	-8.20
218.18	V	Peak	46.18	-14.99	31.19	46.00	-14.81
290.93	V	Peak	46.12	-13.21	32.91	46.00	-13.09
358.83	V	Peak	40.46	-11.43	29.03	46.00	-16.97
400.54	V	Peak	42.07	-9.99	32.08	46.00	-13.92
33.88	H	Peak	50.66	-14.65	36.01	40.00	-3.99
70.74	H	Peak	49.44	-16.27	33.17	40.00	-6.83
198.74	H	Peak	46.53	-15.56	30.97	43.50	-12.53
240.49	H	Peak	46.24	-14.11	32.13	46.00	-13.87
400.54	H	Peak	46.54	-9.99	36.55	46.00	-9.45

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode	802.11g TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
30.00	V	Peak	50.91	-14.97	35.94	40.00	-4.06
67.83	V	Peak	47.18	-15.60	31.58	40.00	-8.42
90.14	V	Peak	53.94	-17.62	36.32	43.50	-7.18
216.24	V	Peak	46.42	-15.05	31.37	46.00	-14.63
290.93	V	Peak	47.99	-13.21	34.78	46.00	-11.22
400.54	V	Peak	42.50	-9.99	32.51	46.00	-13.49
33.88	H	Peak	50.81	-14.65	36.16	40.00	-3.84
67.83	H	Peak	48.13	-15.60	32.53	40.00	-7.47
216.24	H	Peak	49.22	-15.05	34.17	46.00	-11.83
242.46	H	Peak	47.26	-14.06	33.20	46.00	-12.80
290.93	H	Peak	47.82	-13.21	34.61	46.00	-11.39
400.54	H	Peak	47.20	-9.99	37.21	46.00	-8.79

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode	802.11g TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	50.92	-14.82	36.10	40.00	-3.90
90.14	V	Peak	54.05	-17.62	36.43	43.50	-7.07
104.69	V	Peak	51.01	-16.63	34.38	43.50	-9.12
293.84	V	Peak	48.07	-13.19	34.88	46.00	-11.12
397.63	V	Peak	42.35	-10.09	32.26	46.00	-13.74
33.88	H	Peak	50.45	-14.65	35.80	40.00	-4.20
70.74	H	Peak	49.12	-16.27	32.85	40.00	-7.15
216.24	H	Peak	48.79	-15.05	33.74	46.00	-12.26
242.43	H	Peak	46.82	-14.06	32.76	46.00	-13.24
286.08	H	Peak	47.10	-13.26	33.84	46.00	-12.16
400.54	H	Peak	46.16	-9.99	36.17	46.00	-9.83

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode	802.11g TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
30.00	V	Peak	48.95	-14.97	33.98	40.00	-6.02
67.83	V	Peak	47.10	-15.60	31.50	40.00	-8.50
90.14	V	Peak	53.51	-17.62	35.89	43.50	-7.61
104.69	V	Peak	50.76	-16.63	34.13	43.50	-9.37
290.93	V	Peak	48.31	-13.21	35.10	46.00	-10.90
400.54	V	Peak	43.35	-9.99	33.36	46.00	-12.64
31.94	H	Peak	50.15	-14.82	35.33	40.00	-4.67
70.74	H	Peak	49.68	-16.27	33.41	40.00	-6.59
216.24	H	Peak	48.89	-15.05	33.84	46.00	-12.16
242.43	H	Peak	45.55	-14.06	31.49	46.00	-14.51
290.93	H	Peak	46.39	-13.21	33.18	46.00	-12.82
400.54	H	Peak	46.28	-9.99	36.29	46.00	-9.71

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	49.71	-14.82	34.89	40.00	-5.11
90.14	V	Peak	52.49	-17.62	34.87	43.50	-8.63
104.69	V	Peak	51.34	-16.63	34.71	43.50	-8.79
216.24	V	Peak	46.73	-15.05	31.68	46.00	-14.32
290.93	V	Peak	49.55	-13.21	36.34	46.00	-9.66
400.54	V	Peak	42.35	-9.99	32.36	46.00	-13.64
31.94	H	Peak	50.98	-14.82	36.16	40.00	-3.84
70.74	H	Peak	49.17	-16.27	32.90	40.00	-7.10
216.24	H	Peak	47.01	-15.05	31.96	46.00	-14.04
242.43	H	Peak	46.94	-14.06	32.88	46.00	-13.12
286.08	H	Peak	46.85	-13.26	33.59	46.00	-12.41
400.54	H	Peak	46.11	-9.99	36.12	46.00	-9.88

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	49.15	-14.82	34.33	40.00	-5.67
90.14	V	Peak	53.10	-17.62	35.48	43.50	-8.02
104.69	V	Peak	51.40	-16.63	34.77	43.50	-8.73
216.24	V	Peak	45.89	-15.05	30.84	46.00	-15.16
290.93	V	Peak	48.63	-13.21	35.42	46.00	-10.58
400.54	V	Peak	42.71	-9.99	32.72	46.00	-13.28
33.88	H	Peak	51.58	-14.65	36.93	40.00	-3.07
70.74	H	Peak	48.38	-16.27	32.11	40.00	-7.89
218.18	H	Peak	47.78	-14.99	32.79	46.00	-13.21
242.43	H	Peak	46.44	-14.06	32.38	46.00	-13.62
290.93	H	Peak	46.89	-13.21	33.68	46.00	-12.32
400.54	H	Peak	46.39	-9.99	36.40	46.00	-9.60

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	49.80	-14.82	34.98	40.00	-5.02
70.74	V	Peak	47.28	-16.27	31.01	40.00	-8.99
90.14	V	Peak	52.32	-17.62	34.70	43.50	-8.80
216.24	V	Peak	47.11	-15.05	32.06	46.00	-13.94
293.84	V	Peak	48.99	-13.19	35.80	46.00	-10.20
400.54	V	Peak	42.40	-9.99	32.41	46.00	-13.59
33.88	H	Peak	50.35	-14.65	35.70	40.00	-4.30
70.74	H	Peak	50.33	-16.27	34.06	40.00	-5.94
213.33	H	Peak	47.54	-15.16	32.38	43.50	-11.12
242.43	H	Peak	46.83	-14.06	32.77	46.00	-13.23
290.93	H	Peak	46.54	-13.21	33.33	46.00	-12.67
400.54	H	Peak	46.24	-9.99	36.25	46.00	-9.75

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
33.88	V	Peak	48.34	-14.65	33.69	40.00	-6.31
67.83	V	Peak	46.95	-15.60	31.35	40.00	-8.65
90.14	V	Peak	53.24	-17.62	35.62	43.50	-7.88
218.18	V	Peak	46.19	-14.99	31.20	46.00	-14.80
290.93	V	Peak	48.72	-13.21	35.51	46.00	-10.49
397.63	V	Peak	42.60	-10.09	32.51	46.00	-13.49
33.88	H	Peak	51.20	-14.65	36.55	40.00	-3.45
70.74	H	Peak	50.04	-16.27	33.77	40.00	-6.23
216.24	H	Peak	48.01	-15.05	32.96	46.00	-13.04
242.43	H	Peak	46.41	-14.06	32.35	46.00	-13.65
290.93	H	Peak	47.85	-13.21	34.64	46.00	-11.36
400.54	H	Peak	47.16	-9.99	37.17	46.00	-8.83

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	49.70	-14.82	34.88	40.00	-5.12
67.83	V	Peak	46.69	-15.60	31.09	40.00	-8.91
90.14	V	Peak	53.17	-17.62	35.55	43.50	-7.95
293.84	V	Peak	48.86	-13.19	35.67	46.00	-10.33
400.54	V	Peak	42.92	-9.99	32.93	46.00	-13.07
31.94	H	Peak	50.07	-14.82	35.25	40.00	-4.75
67.83	H	Peak	49.06	-15.60	33.46	40.00	-6.54
213.33	H	Peak	46.81	-15.16	31.65	43.50	-11.85
242.43	H	Peak	47.26	-14.06	33.20	46.00	-12.80
290.93	H	Peak	46.34	-13.21	33.13	46.00	-12.87
400.54	H	Peak	46.07	-9.99	36.08	46.00	-9.92

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	51.24	-14.82	36.42	40.00	-3.58
67.83	V	Peak	47.08	-15.60	31.48	40.00	-8.52
90.14	V	Peak	52.81	-17.62	35.19	43.50	-8.31
216.24	V	Peak	46.45	-15.05	31.40	46.00	-14.60
293.84	V	Peak	48.27	-13.19	35.08	46.00	-10.92
400.54	V	Peak	42.76	-9.99	32.77	46.00	-13.23
31.94	H	Peak	49.48	-14.82	34.66	40.00	-5.34
90.14	H	Peak	55.27	-17.62	37.65	43.50	-5.85
96.93	H	Peak	50.40	-17.16	33.24	43.50	-10.26
216.24	H	Peak	46.63	-15.05	31.58	46.00	-14.42
290.93	H	Peak	48.10	-13.21	34.89	46.00	-11.11
400.54	H	Peak	43.42	-9.99	33.43	46.00	-12.57

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	41.17	---	6.02	47.19	---	74.00	54.00	-6.81	Peak
7236.0	33.03	---	12.91	45.94	---	74.00	54.00	-8.06	Peak
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	39.17	---	6.02	45.19	---	74.00	54.00	-8.81	Peak
7236.0	32.91	---	12.91	45.82	---	74.00	54.00	-8.18	Peak
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	38.27	---	6.15	44.42	---	74.00	54.00	-9.58	Peak
7311.0	34.45	---	12.90	47.35	---	74.00	54.00	-6.65	Peak
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	35.50	---	6.15	41.65	---	74.00	54.00	-12.35	Peak
7311.0	33.82	---	12.90	46.72	---	74.00	54.00	-7.28	Peak
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	37.85	---	6.28	44.13	---	74.00	54.00	-9.87	Peak
7386.0	32.69	---	12.97	45.66	---	74.00	54.00	-8.34	Peak
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	32.57	---	6.28	38.85	---	74.00	54.00	-15.15	Peak
7386.0	31.73		12.97	44.70	---	74.00	54.00	-9.30	Peak
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	36.67	---	6.02	42.69	---	74.00	54.00	-11.31	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	34.84	---	6.02	40.86	---	74.00	54.00	-13.14	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	33.34	---	6.15	39.49	---	74.00	54.00	-14.51	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	33.70	---	6.15	39.85	---	74.00	54.00	-14.15	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	34.53	---	6.28	40.81	---	74.00	54.00	-13.19	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	32.76	---	6.28	39.04	---	74.00	54.00	-14.96	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	36.79	---	6.02	42.81	---	74.00	54.00	-11.19	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	35.28	---	6.02	41.30	---	74.00	54.00	-12.70	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	36.15	---	6.15	42.30	---	74.00	54.00	-11.70	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	34.00	---	6.15	40.15	---	74.00	54.00	-13.85	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	33.77	---	6.28	40.05	---	74.00	54.00	-13.95	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode	802.11n_20M TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	32.56	---	6.28	38.84	---	74.00	54.00	-15.16	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4844.0	35.64	---	6.10	41.74	---	74.00	54.00	-12.26	Peak
7266.0	----					74.00	54.00		
9688.0	----					74.00	54.00		
12110.0	----					74.00	54.00		
14532.0	----					74.00	54.00		
16954.0	----					74.00	54.00		
19376.0	----					74.00	54.00		
21798.0	----					74.00	54.00		
24220.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4844.0	33.00	---	6.10	39.10	---	74.00	54.00	-14.90	Peak
7266.0	----					74.00	54.00		
9688.0	----					74.00	54.00		
12110.0	----					74.00	54.00		
14532.0	----					74.00	54.00		
16954.0	----					74.00	54.00		
19376.0	----					74.00	54.00		
21798.0	----					74.00	54.00		
24220.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	32.68	---	6.15	38.83	---	74.00	54.00	-15.17	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	36.71	---	6.15	42.86	---	74.00	54.00	-11.14	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4904.0	36.69	---	6.21	42.90	---	74.00	54.00	-11.10	Peak
7356.0	----					74.00	54.00		
9808.0	----					74.00	54.00		
12260.0	----					74.00	54.00		
14712.0	----					74.00	54.00		
17164.0	----					74.00	54.00		
19616.0	----					74.00	54.00		
22068.0	----					74.00	54.00		
24520.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_40M)

Operation Mode	802.11n_40M TX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	25 ℃	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4904.0	32.40	---	6.21	38.61	---	74.00	54.00	-15.39	Peak
7356.0	----					74.00	54.00		
9808.0	----					74.00	54.00		
12260.0	----					74.00	54.00		
14712.0	----					74.00	54.00		
17164.0	----					74.00	54.00		
19616.0	----					74.00	54.00		
22068.0	----					74.00	54.00		
24520.0	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b) (worst case)

Operation Mode	802.11b RX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	51.60	-14.65	36.95	40.00	-3.05
67.83	V	Peak	47.30	-15.60	31.70	40.00	-8.30
90.14	V	Peak	53.73	-17.62	36.11	43.50	-7.39
104.69	V	Peak	50.61	-16.63	33.98	43.50	-9.52
242.43	V	Peak	45.14	-14.06	31.08	46.00	-14.92
400.54	V	Peak	43.35	-9.99	33.36	46.00	-12.64
33.88	H	Peak	50.28	-14.65	35.63	40.00	-4.37
70.74	H	Peak	50.56	-16.27	34.29	40.00	-5.71
198.78	H	Peak	46.90	-15.56	31.34	43.50	-12.16
242.43	H	Peak	46.42	-14.06	32.36	46.00	-13.64
400.54	H	Peak	46.87	-9.99	36.88	46.00	-9.12

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b) (worst case)

Operation Mode	802.11b RX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	50.08	-14.82	35.26	40.00	-4.74
67.83	V	Peak	46.93	-15.60	31.33	40.00	-8.67
90.14	V	Peak	53.66	-17.62	36.04	43.50	-7.46
104.69	V	Peak	50.35	-16.63	33.72	43.50	-9.78
400.54	V	Peak	43.01	-9.99	33.02	46.00	-12.98
33.88	H	Peak	50.46	-14.65	35.81	40.00	-4.19
70.74	H	Peak	48.99	-16.27	32.72	40.00	-7.28
198.78	H	Peak	46.30	-15.56	30.74	43.50	-12.76
242.43	H	Peak	47.56	-14.06	33.50	46.00	-12.50
400.54	H	Peak	46.92	-9.99	36.93	46.00	-9.07

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b) (worst case)

Operation Mode	802.11b RX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
31.94	V	Peak	50.31	-14.82	35.49	40.00	-4.51
67.83	V	Peak	46.28	-15.60	30.68	40.00	-9.32
90.14	V	Peak	52.87	-17.62	35.25	43.50	-8.25
104.69	V	Peak	49.90	-16.63	33.27	43.50	-10.23
400.54	V	Peak	42.86	-9.99	32.87	46.00	-13.13
31.94	H	Peak	51.09	-14.82	36.27	40.00	-3.73
70.74	H	Peak	49.10	-16.27	32.83	40.00	-7.17
198.78	H	Peak	46.31	-15.56	30.75	43.50	-12.75
242.43	H	Peak	46.49	-14.06	32.43	46.00	-13.57
400.54	H	Peak	46.52	-9.99	36.53	46.00	-9.47

Remark：

1 Measuring frequencies from 30 MHz to the 1GHz。

2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.

3 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b) (worst case)

Operation Mode	802.11b RX CH Low	Test Date	Sep. 22, 2009
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4824.0	V	37.58	---	6.02	43.60	---	74.00	54.00	-10.40	Peak
7236.0	V	----					74.00	54.00		
9648.0	V	----					74.00	54.00		
12060.0	V	----					74.00	54.00		
4824.0	H	35.82	---	6.02	41.84	---	74.00	54.00	-12.16	Peak
7236.0	H	----					74.00	54.00		
9648.0	H	----					74.00	54.00		
12060.0	H	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b) (worst case)

Operation Mode	802.11b RX CH Mid	Test Date	Sep. 22, 2009
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver. / Hor.
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4874.0	V	36.49	---	6.15	42.64	---	74.00	54.00	-11.36	Peak
7311.0	V	----					74.00	54.00		
9748.0	V	----					74.00	54.00		
12185.0	V	----					74.00	54.00		
4874.0	H	34.23	---	6.15	40.38	---	74.00	54.00	-13.62	Peak
7311.0	H	----					74.00	54.00		
9748.0	H	----					74.00	54.00		
12185.0	H	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b) (worst case)

Operation Mode	802.11b RX CH High	Test Date	Sep. 22, 2009
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 ℃	Pol	Ver. / Hor.
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS Peak (dBuV/m)	Actual FS AV (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
4924.0	V	34.10	---	6.28	40.38	---	74.00	54.00	-13.62	Peak
7386.0	V	----					74.00	54.00		
9848.0	V	----					74.00	54.00		
12310.0	V	----					74.00	54.00		
4924.0	H	----					74.00	54.00		
7386.0	H	----					74.00	54.00		
9848.0	H	----					74.00	54.00		
12310.0	H	----					74.00	54.00		

Remark:

1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.

2 Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.

5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

10 Peak Power Spectral Density

10.1 Standard Applicable:

According to §15.247(e) 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.

According to RSS-210 issue 7, §A8.2(2) and §A8.3(2), The transmitter power spectral density (into the antenna) shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0 second duration.

10.2 Measurement Equipment Used:

Refer to section 6.2 for details.

10.3 Test Set-up:

Refer to section 6.3 for details.

10.4 Measurement Procedure:

1. Place the EUT on the table and set it in 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 = 1.5MHz, Sweep=100s
4. Record the max. reading.
5. Repeat above procedures until all frequency measured were complete.

10.5 Measurement Result:

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Frequency MHz	RF Power Density Reading (dBm)	Cable loss (dB)	RF Power Density Level (dBm)	Maximum Limit (dBm)
2412	-13.53	0.00	-13.53	8
2437	-13.55	0.00	-13.55	8
2462	-13.56	0.00	-13.56	8

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Frequency MHz	RF Power Density Reading (dBm)	Cable loss (dB)	RF Power Density Level (dBm)	Maximum Limit (dBm)
2412	-15.06	0.00	-15.06	8
2437	-15.75	0.00	-15.75	8
2462	-15.27	0.00	-15.27	8

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Frequency MHz	RF Power Density Reading (dBm)	Cable loss (dB)	RF Power Density Level (dBm)	Maximum Limit (dBm)
2412	-16.36	0.00	-16.36	8
2437	-16.27	0.00	-16.27	8
2462	-15.31	0.00	-15.31	8

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Frequency MHz	RF Power Density Reading (dBm)	Cable loss (dB)	RF Power Density Level (dBm)	Maximum Limit (dBm)
2422	-19.02	0.00	-19.02	8
2437	-19.57	0.00	-19.57	8
2452	-19.05	0.00	-19.05	8

Offset: 0.2dB

Note: Refer to next page for plots.

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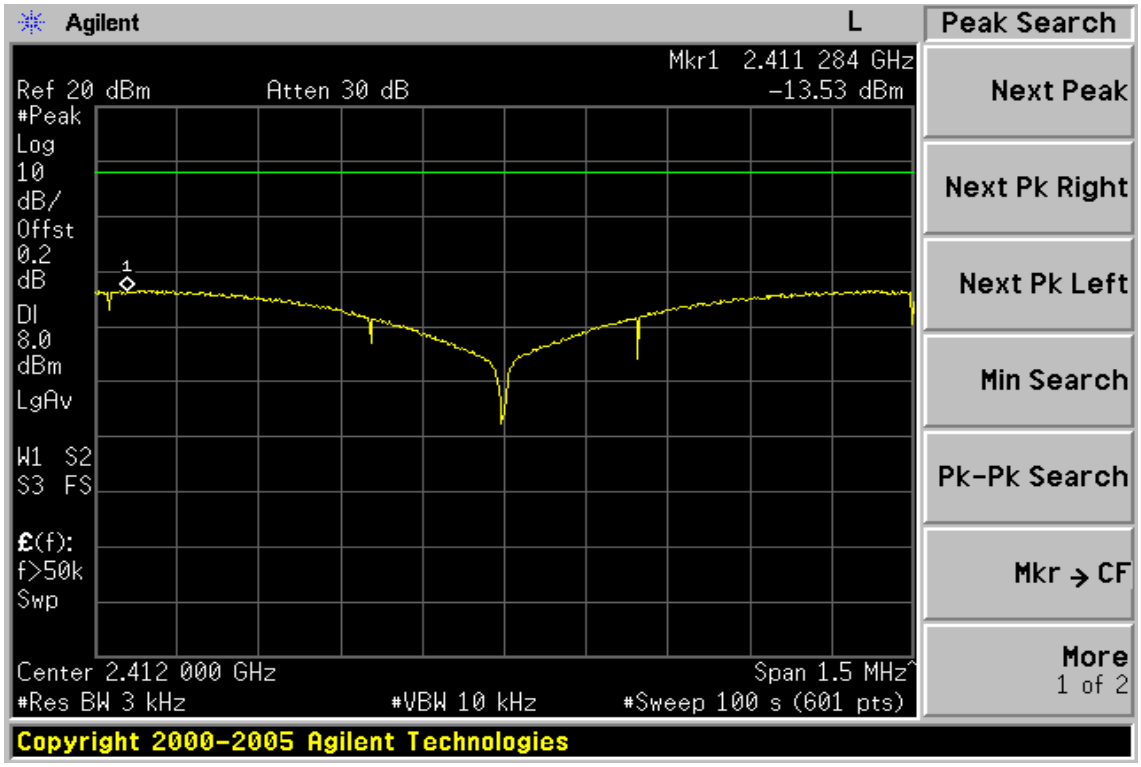
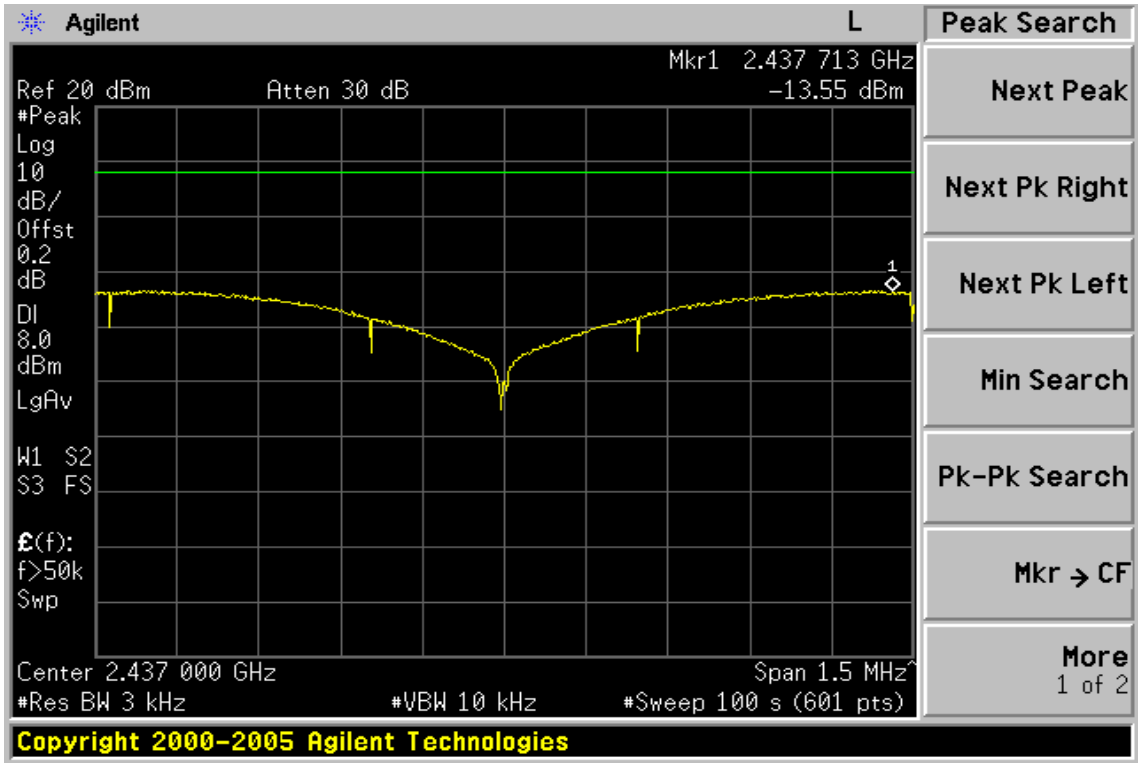
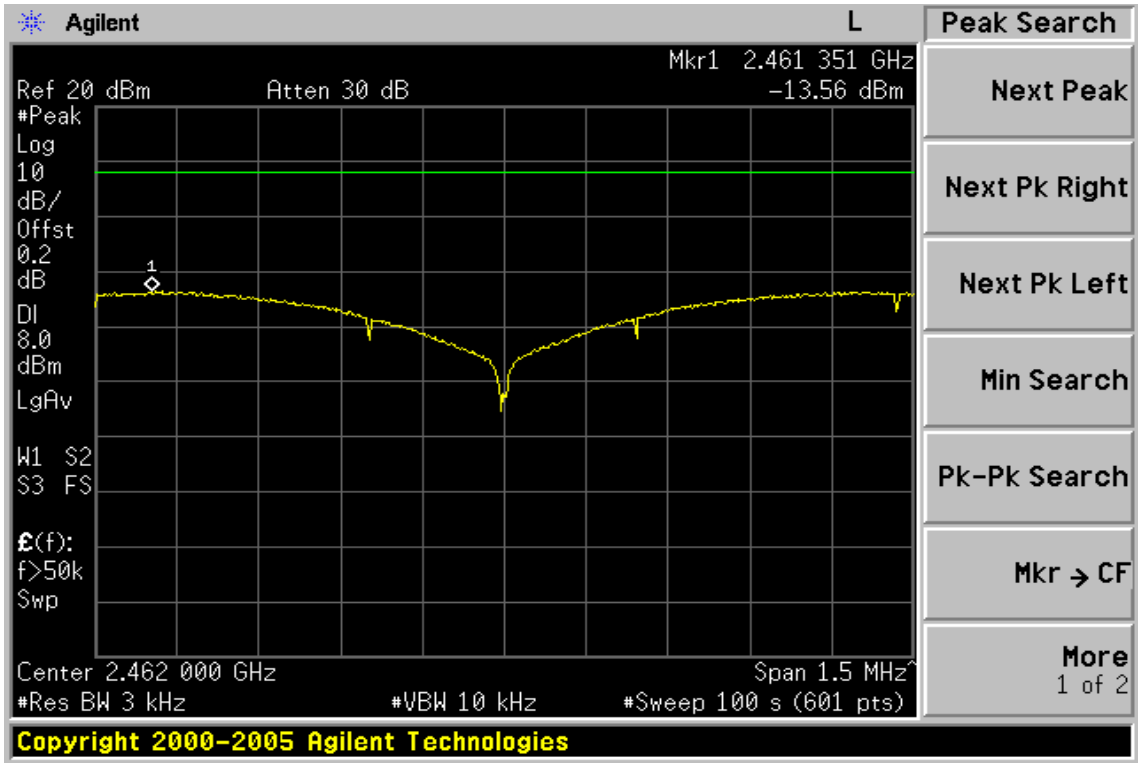
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

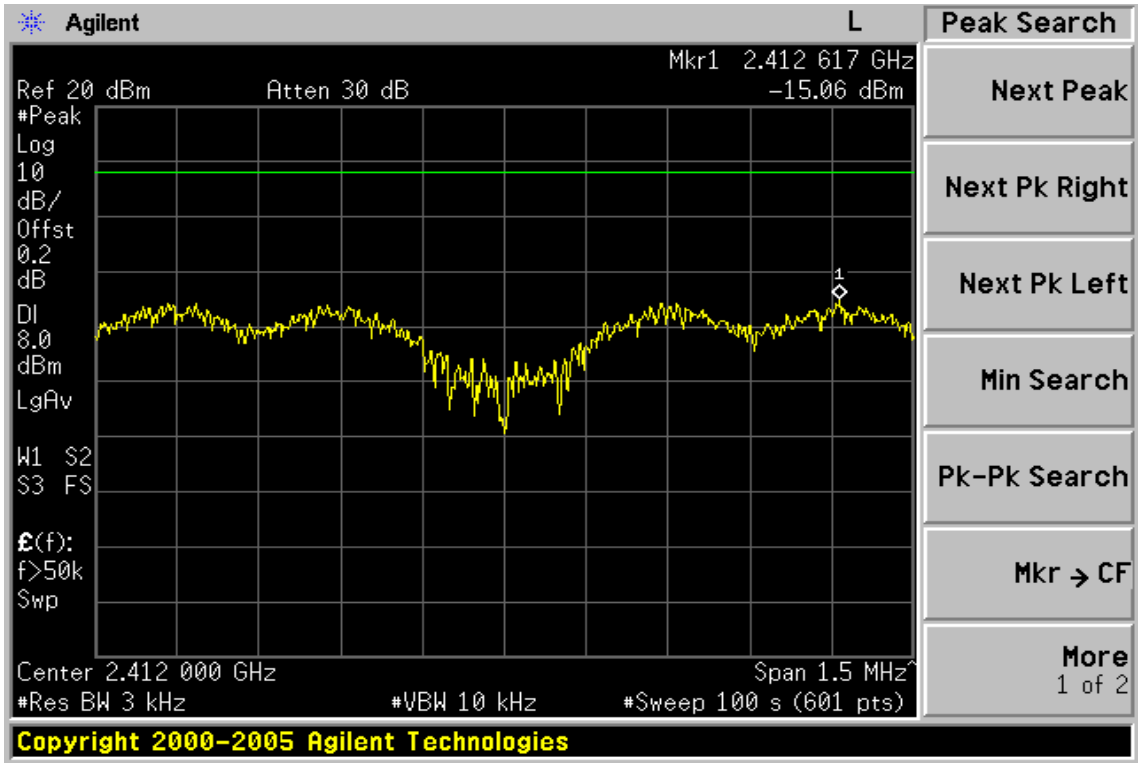


Power Spectral Density Test Plot (CH-High)

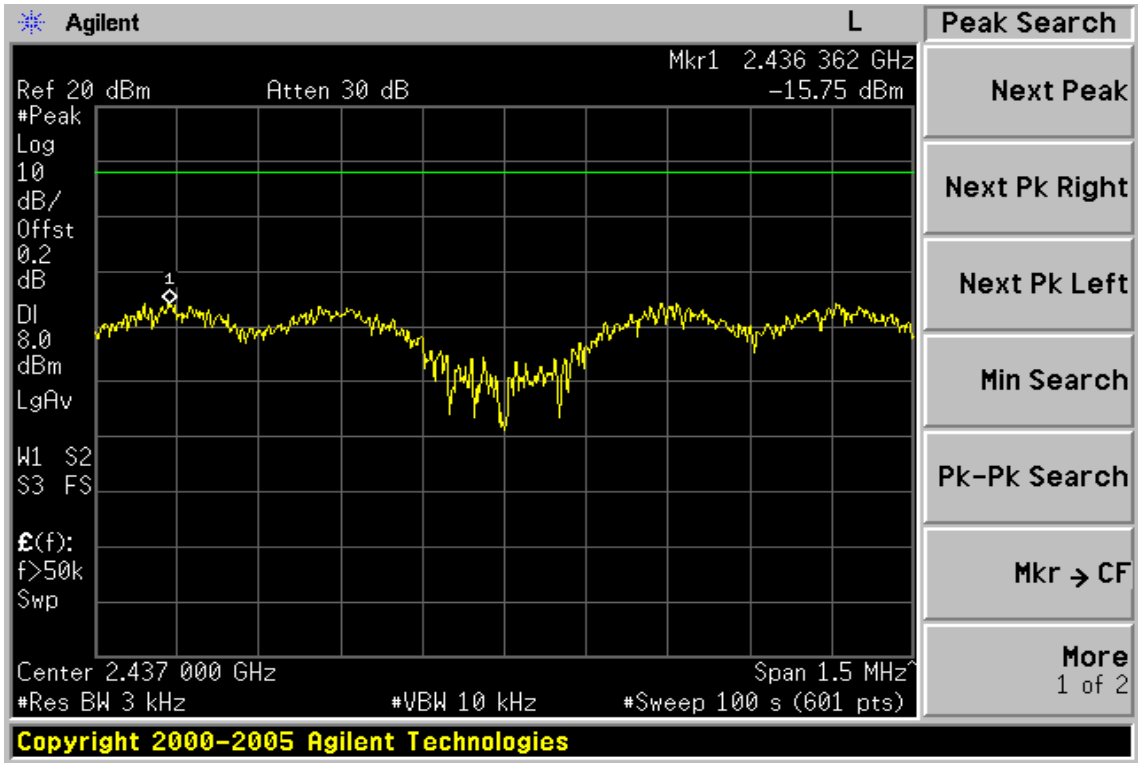


802.11g

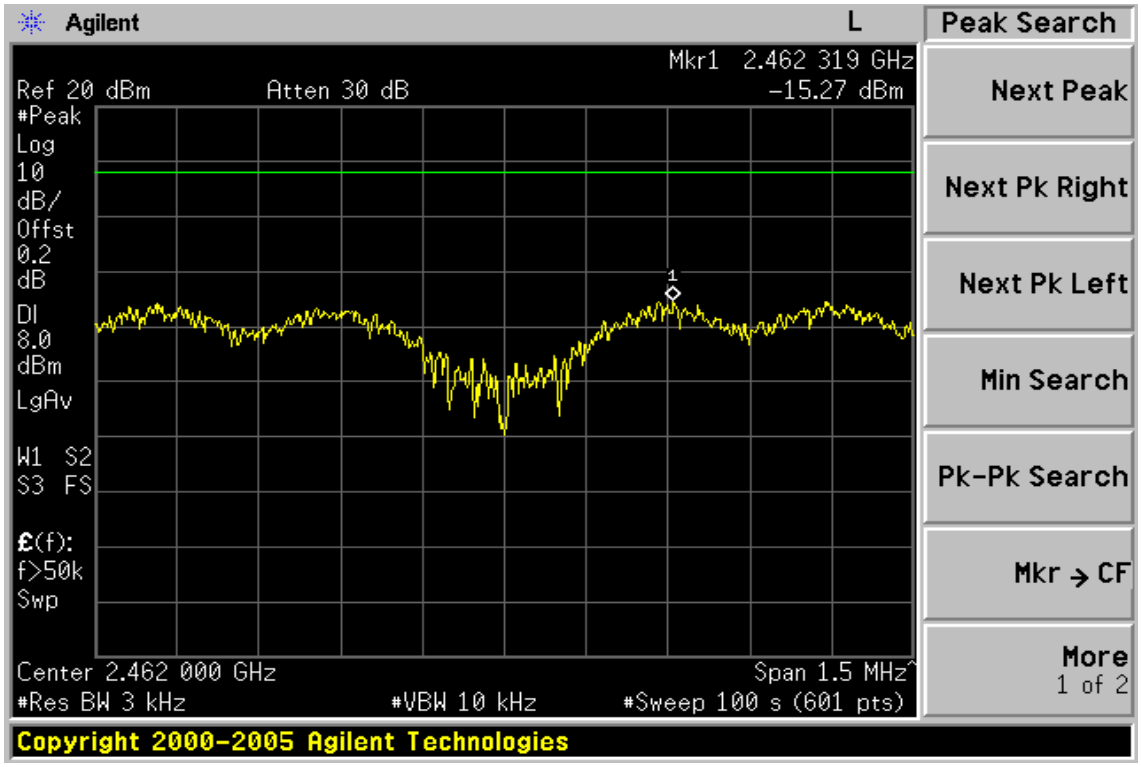
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



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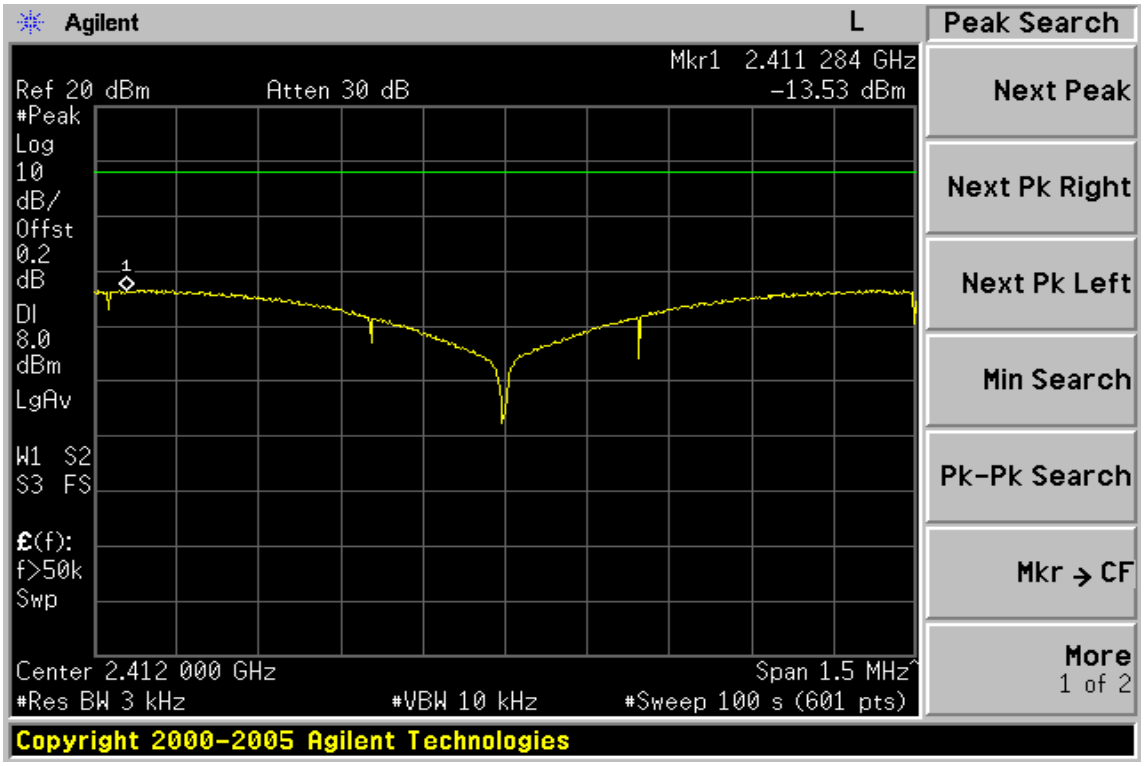
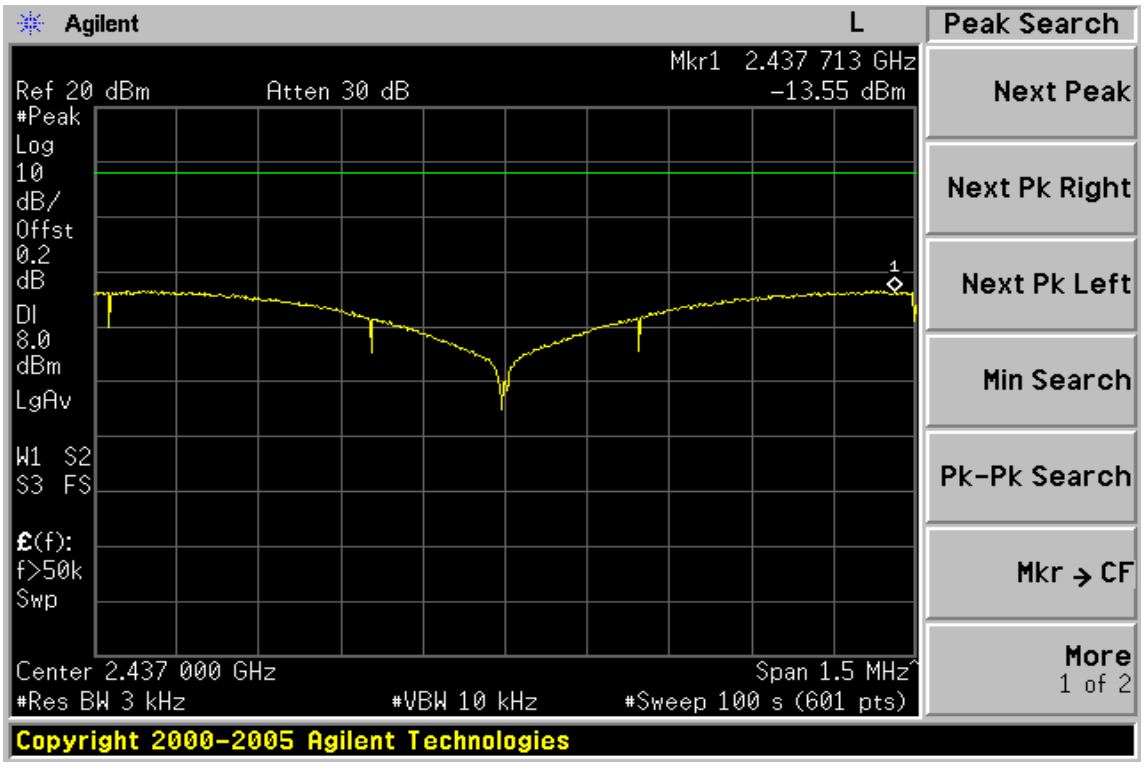
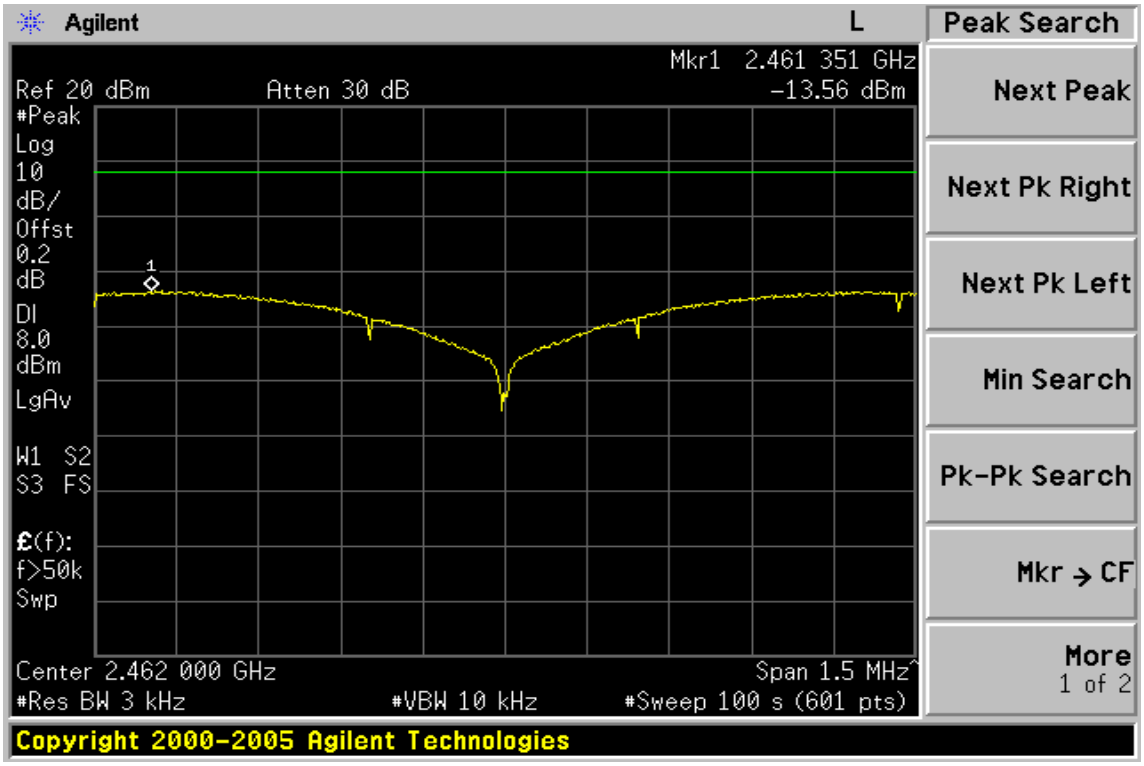
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



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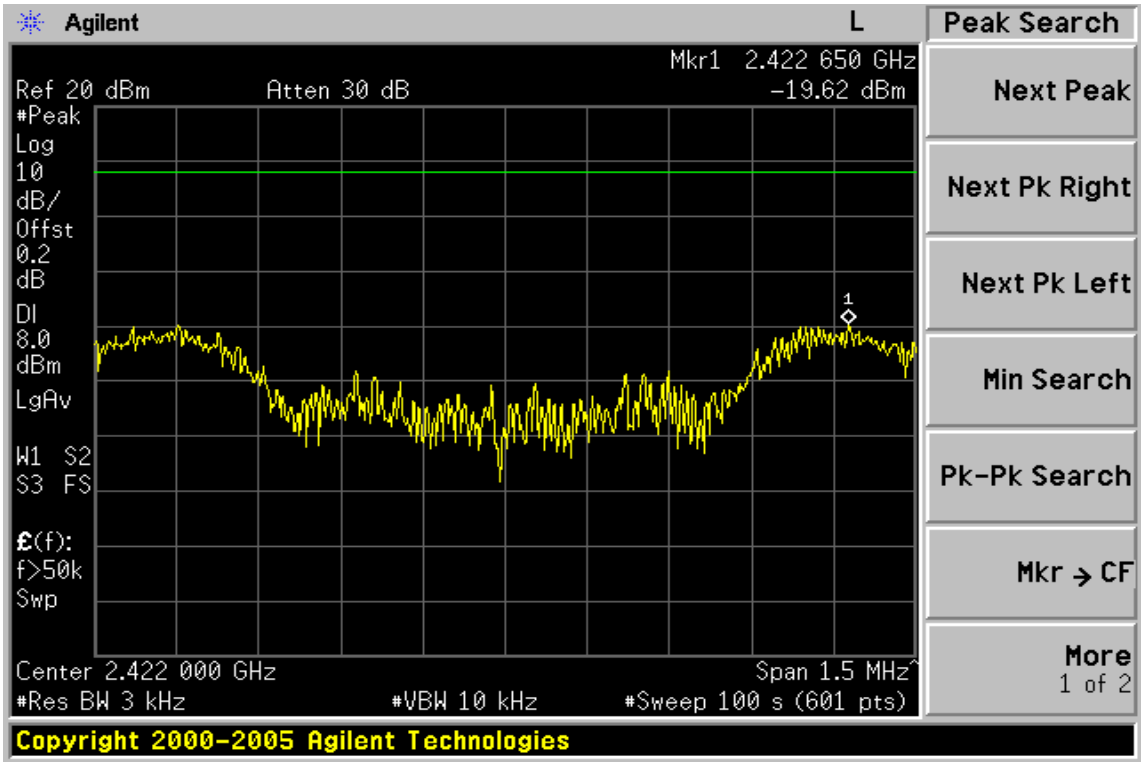
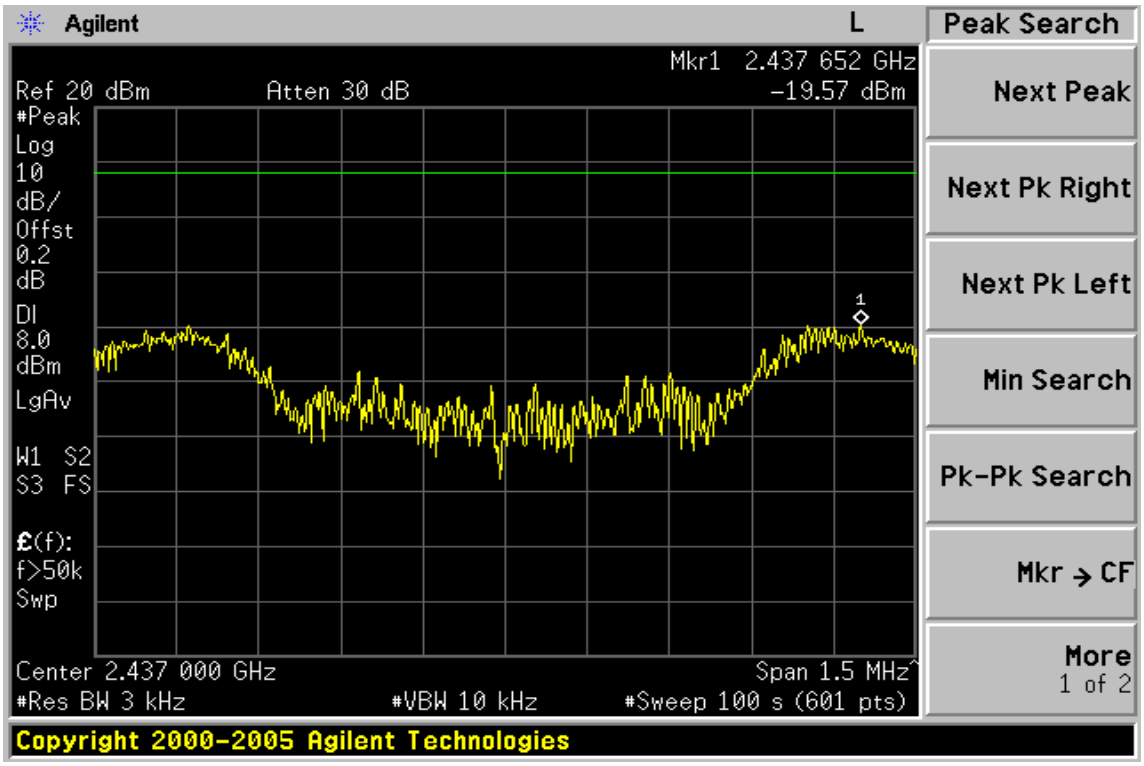
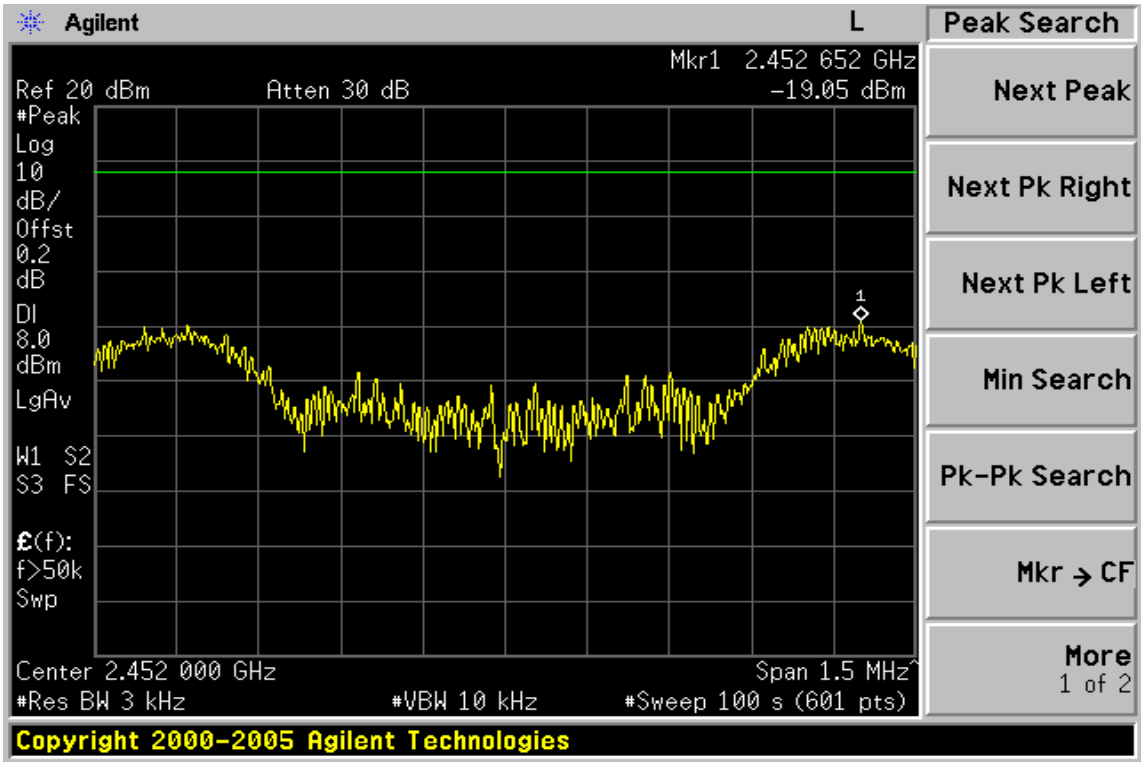
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



11 ANTENNA REQUIREMENT

11.1 Standard Applicable:

According to §15.203, Antenna requirement.

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 use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some

field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the

proper antenna is employed so that the limits in this Part are not exceeded.

According to RSS-GEN 7.1.4, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 milliwatts or less. For devices of output powers greater than 10 milliwatts, except devices subject to RSS-210 Annex 8 (Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands) or RSS-210 Annex 9 (Local Area Network Devices), the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

11.2 Antenna Connected Construction:

The directional gains of antenna used for transmitting is 3.95dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

12 99% Bandwidth Measurement

12.1 Standard Applicable:

RSS-Gen §4.4.1, the transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

The span between the two recorded frequencies is the occupied bandwidth.

12.2 Measurement Equipment Used:

Refer to section 6.2 for details.

12.3 Test Set-up:

Refer to section 6.3 for details.

12.4 Measurement Procedure:

1. Place the EUT on the table and set it in 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=1% of the approximate emission bandwidth, VBW = 3 times RBW, Span= approximately 20dB below the peak level. Sweep=auto
4. Turn on the 99% bandwidth function, max reading..
5. Repeat above procedures until all frequency measured were complete.

12.5 Measurement Result:

802.11b

Frequency MHz	Bandwidth (MHz)
2412	14.65
2437	14.78
2462	14.61

802.11b

Frequency MHz	Bandwidth (MHz)
2412	16.49
2437	16.45
2462	16.45

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Frequency MHz	Bandwidth (MHz)
2412	17.69
2437	17.69
2462	17.70

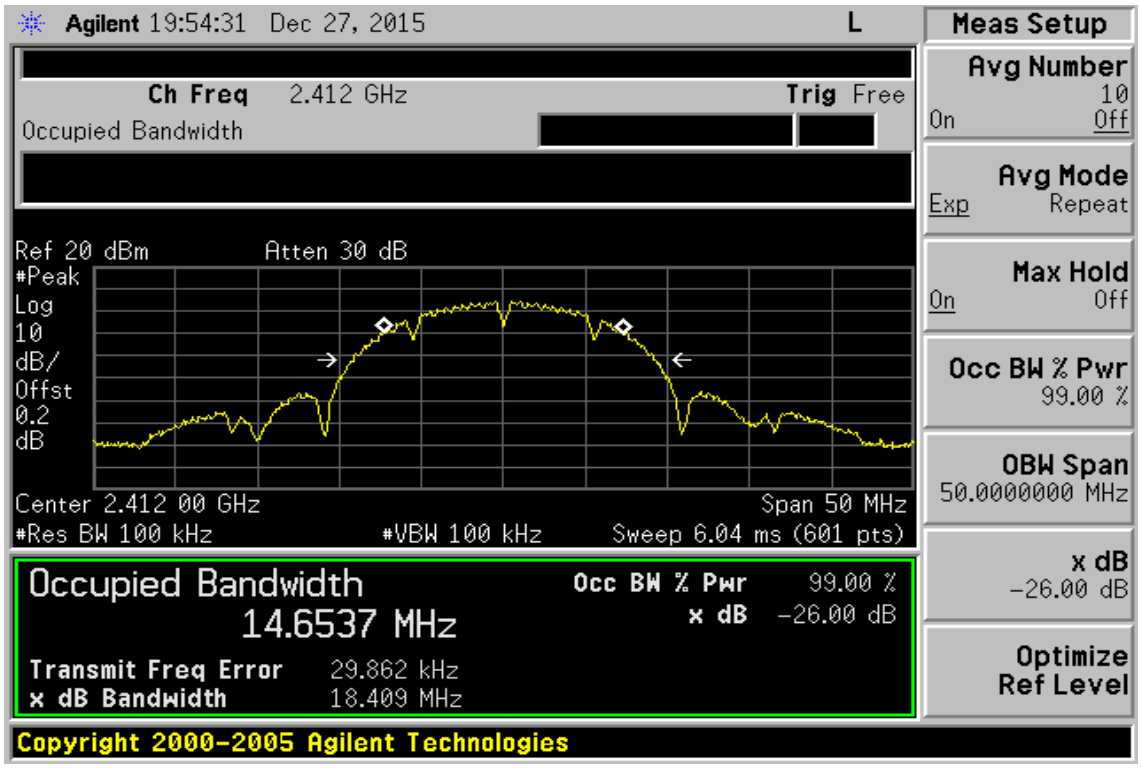
802.11n_40M

Frequency MHz	Bandwidth (MHz)
2422	35.99
2437	35.98
2462	36.00

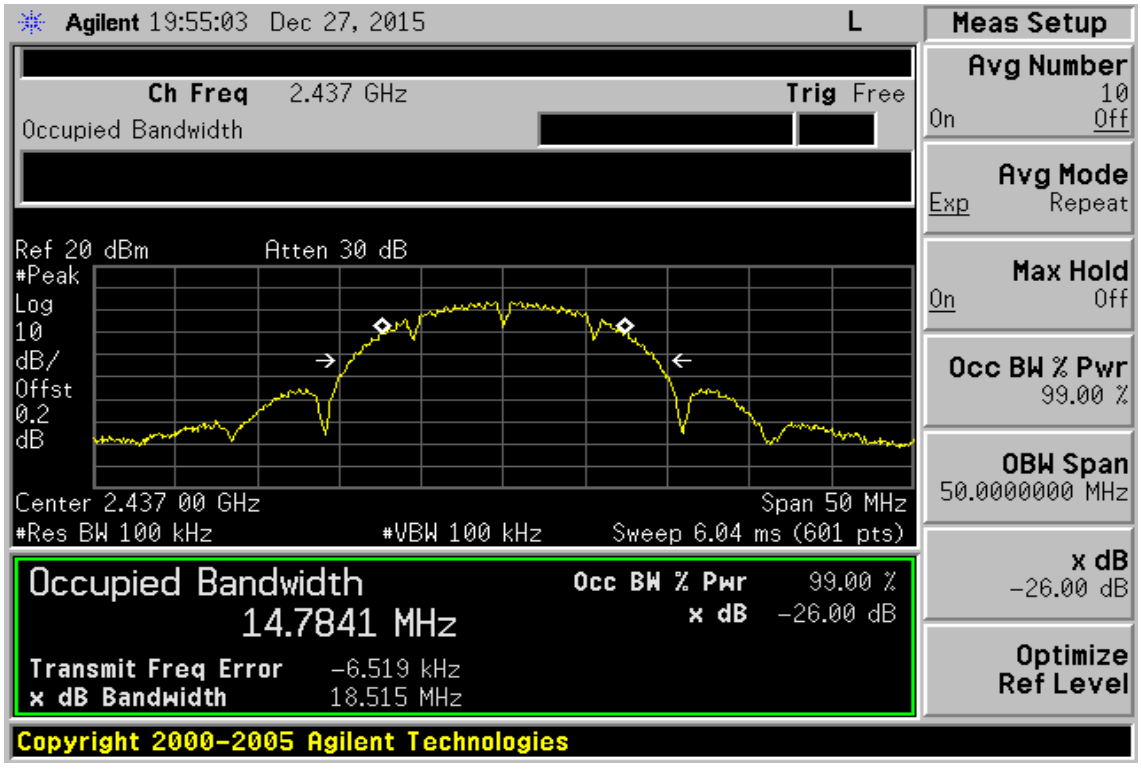
Note: Refer to next page for plots.

802.11b

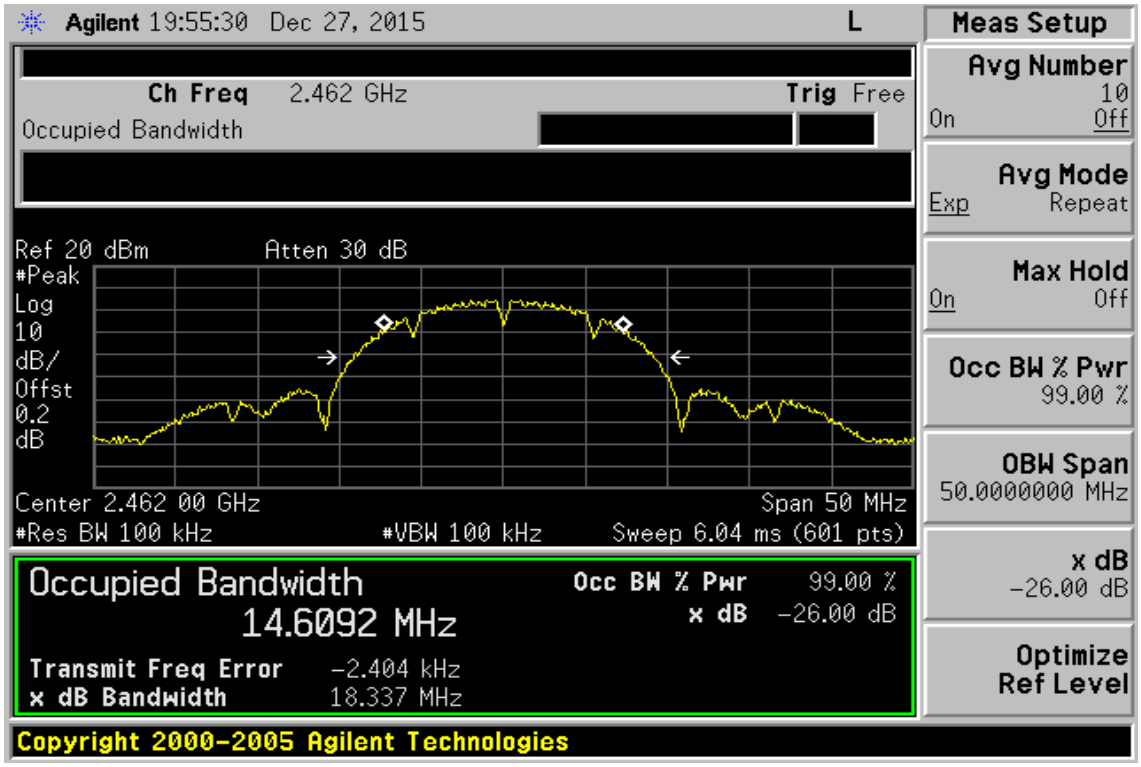
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid

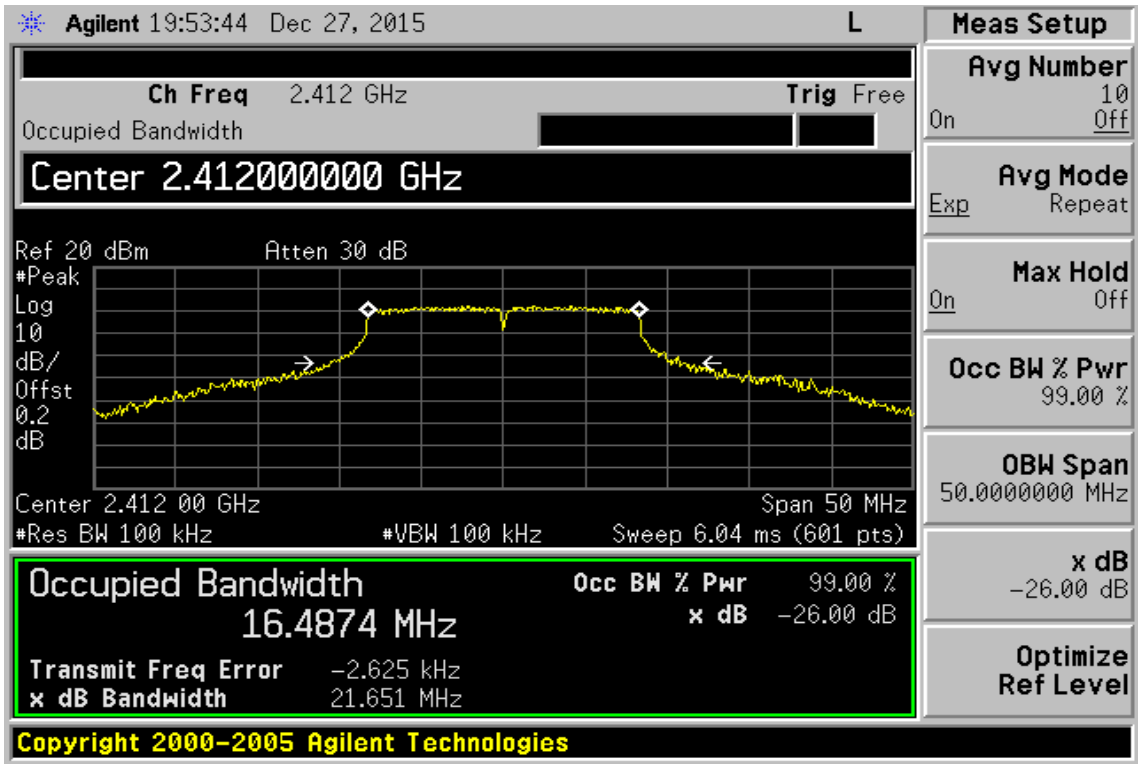


99% Band Width Test Data CH-High

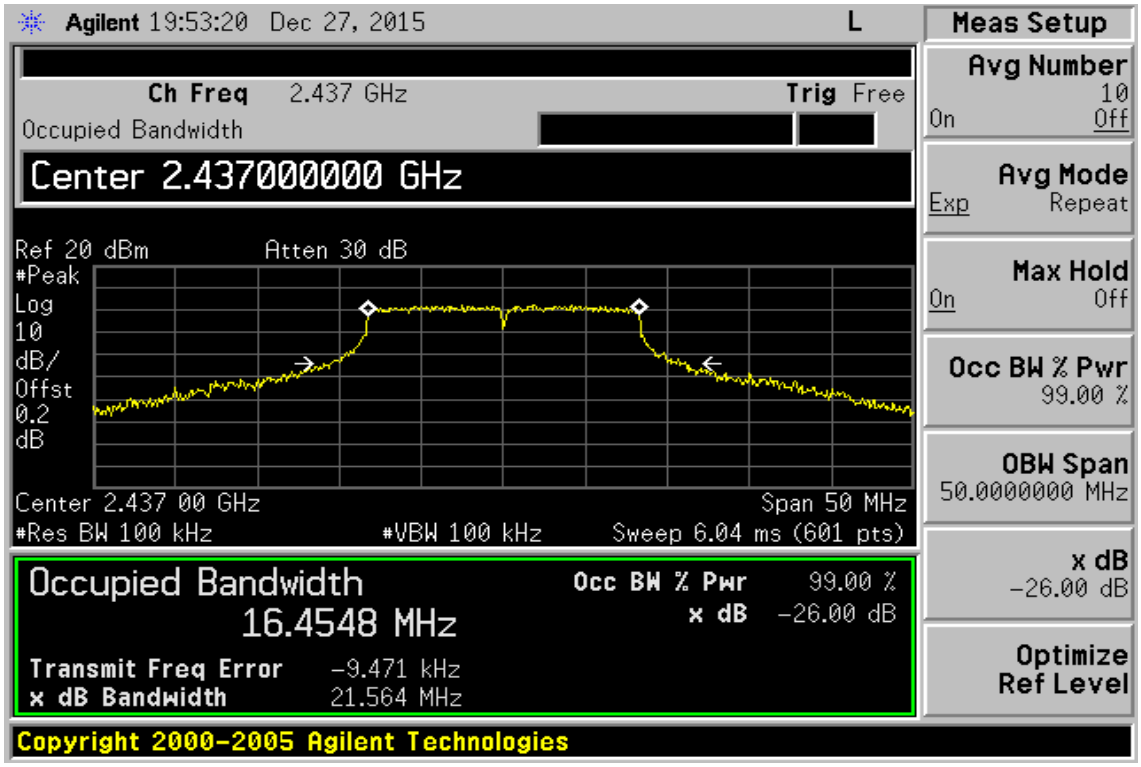


802.11g

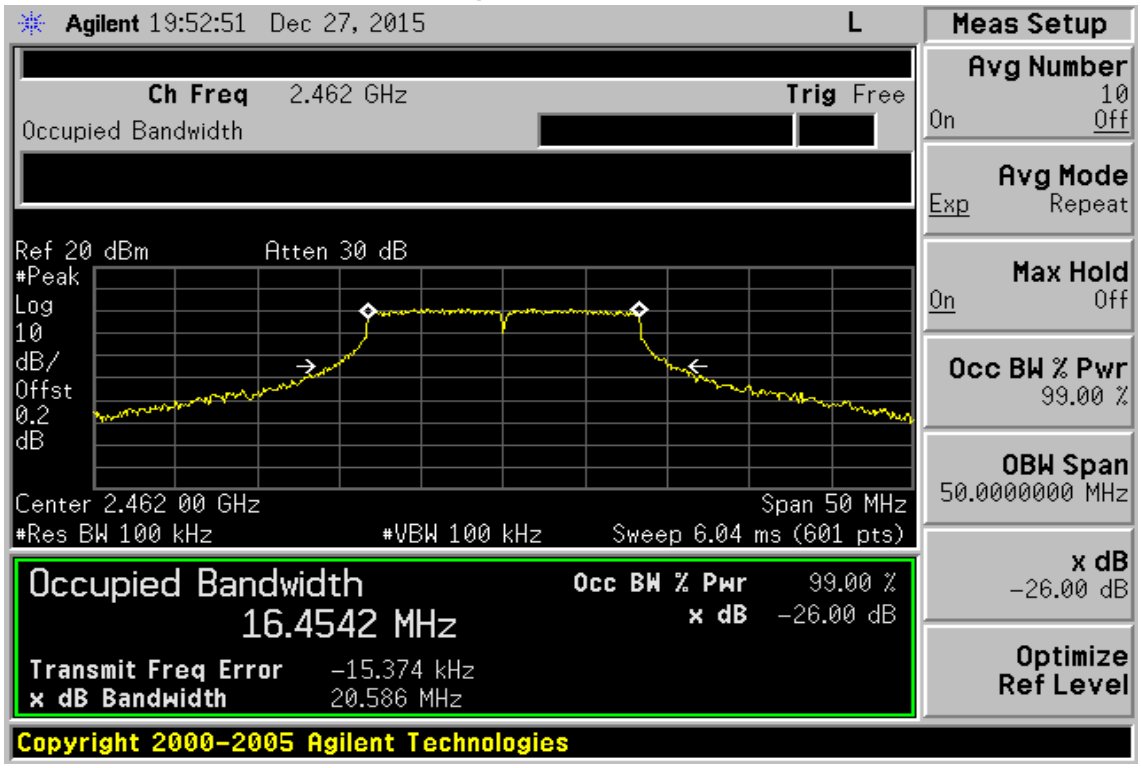
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid

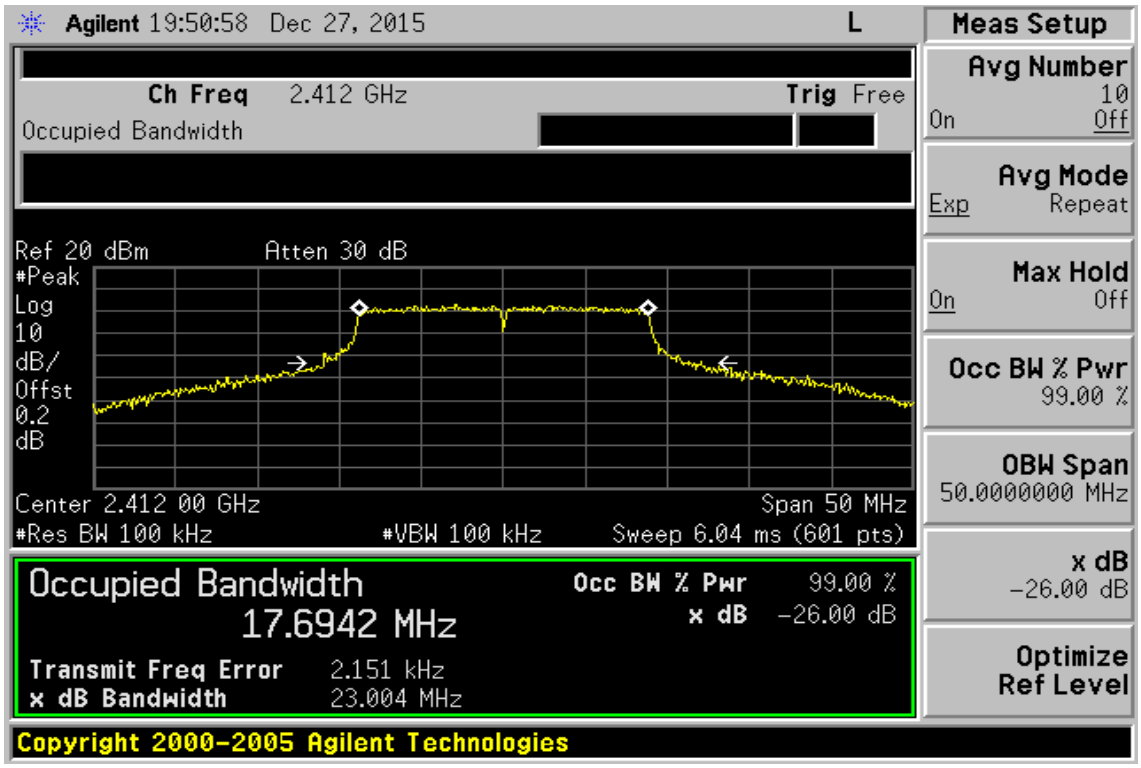


99% Band Width Test Data CH-High

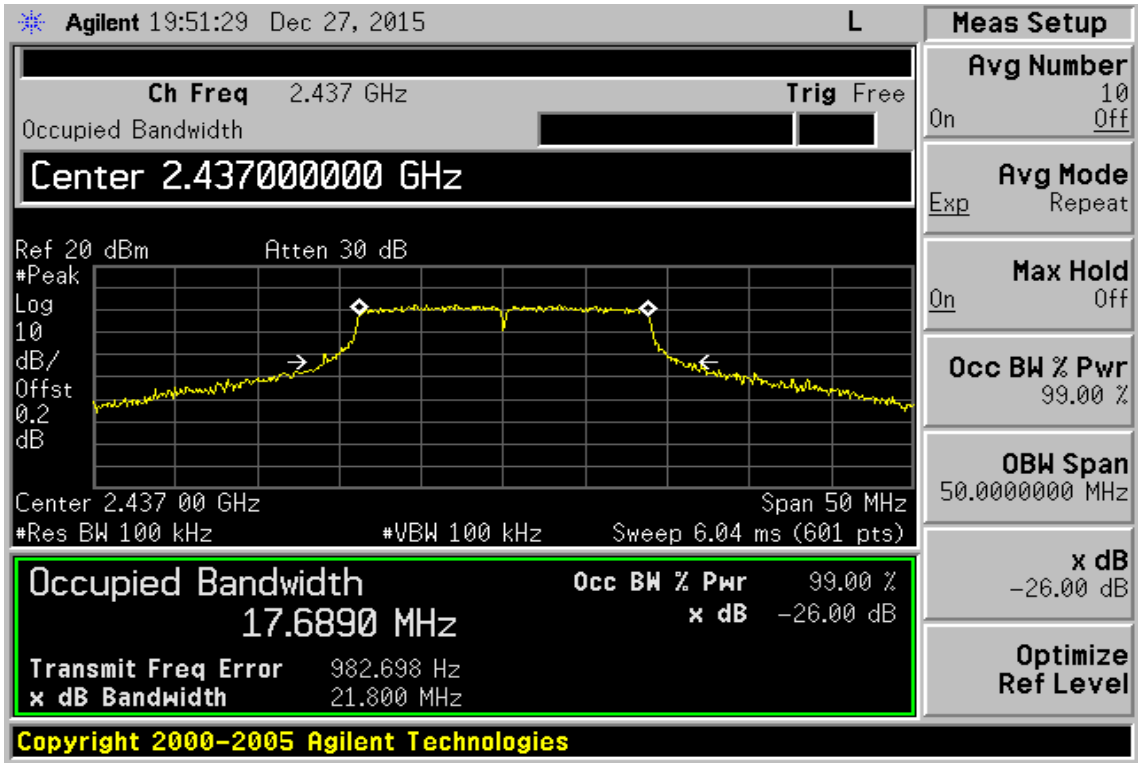


802.11n_20M

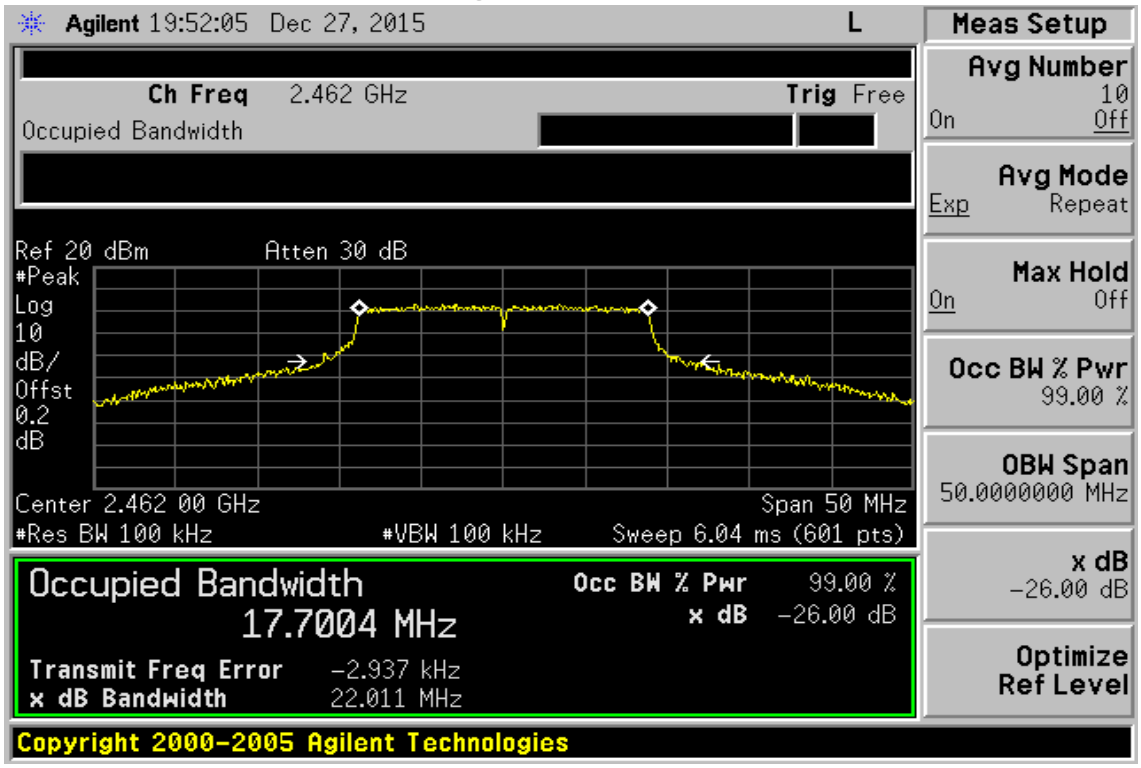
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid

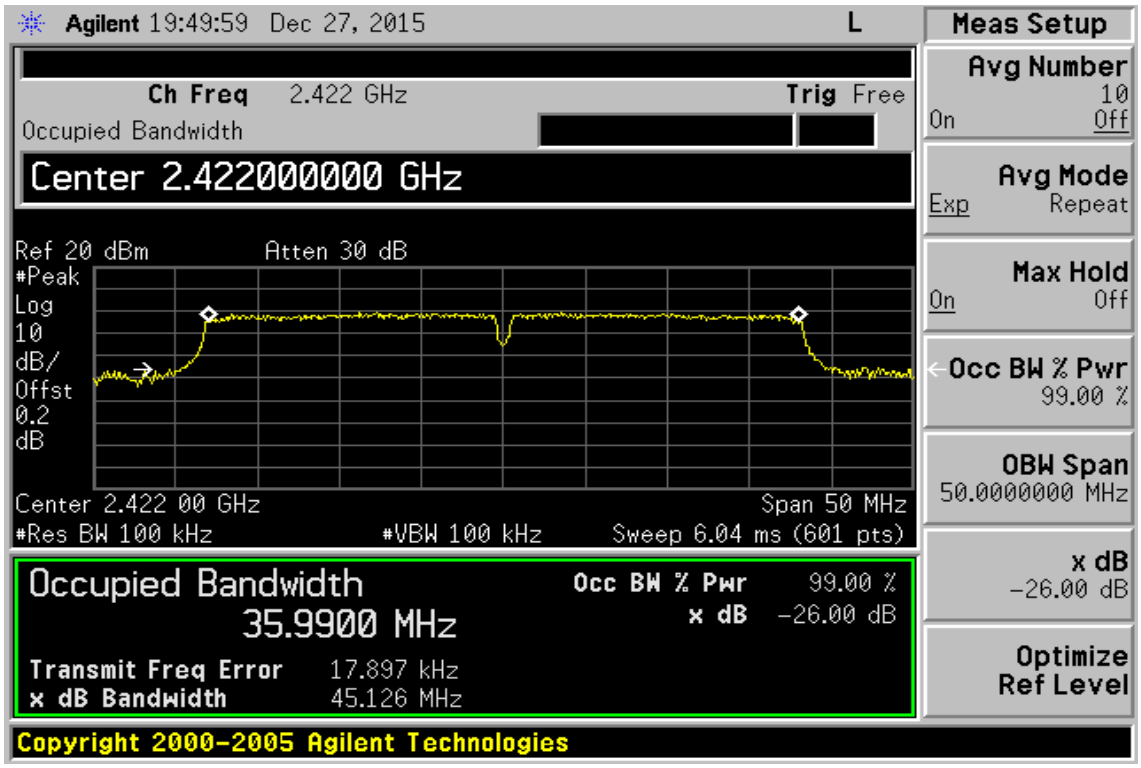


99% Band Width Test Data CH-High

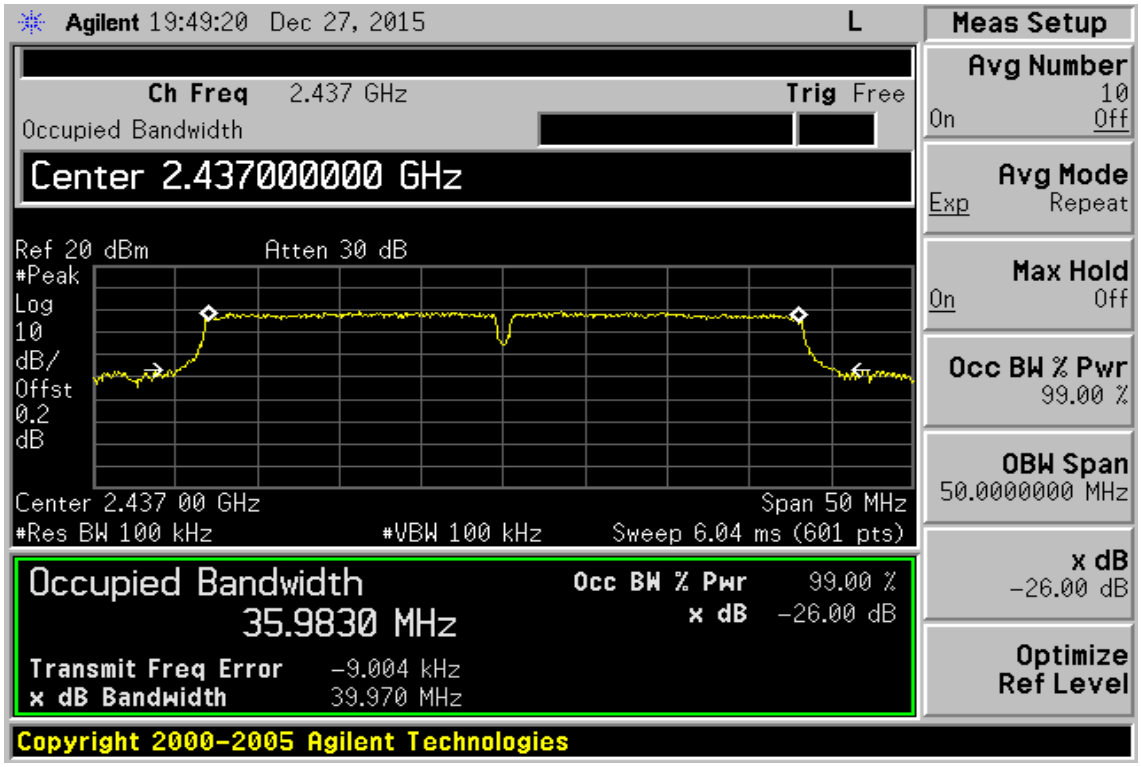


802.11n_40M

99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



99% Band Width Test Data CH-High