

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT****INTENTIONAL RADIATOR CERTIFICATION TO  
FCC PART 15 SUBPART C REQUIREMENT  
AND INDUSTRY CANADA RSS 210**

OF

**Product Name:** HSPA+ 21Mbps Wi-Fi Router  
**Brand Name:** NetComm  
**Model Name:** 3G25W-R  
**Model Different:** N/A  
**FCC ID:** XIA-3G25WR  
**IC:** 8847A-3G25WR  
**Report No.:** EH/2010/B0032  
**Issue Date:** Jan. 26, 2011  
**FCC Rule Part:** §15.247  
**IC Rule Part:** RSS-210 issue 8 :2010, Annex 8  
**Prepared for:** NetComm Limited  
2-6 Orion Road, Lane Cove, NSW Australia 2066  
**Prepared by:** SGS Taiwan Ltd.  
Electronics & Communication Laboratory  
No. 134, Wu Kung Rd., Wuku Industrial Zone,  
Taipei County, Taiwan.



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## VERIFICATION OF COMPLIANCE

**Applicant:** NetComm Limited  
2-6 Orion Road, Lane Cove, NSW Australia 2066

**Product Name:** HSPA+ 21Mbps Wi-Fi Router

**Brand Name:** NetComm

**FCC ID:** XIA-3G25WR

**IC:** 8847A-3G25WR

**Model No.:** 3G25W-R

**Model Difference:** N/A

**File Number:** EH/2010/B0032

**Date of test:** Dec. 13, 2010 ~ Jan. 21, 2011

**Date of EUT Received:** Dec. 13, 2010

## 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 RSS-Gen. issue 3. 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 8: 2010 Annex 8.

The test results of this report relate only to the tested sample identified in this report.

Test By:

Jason Wu

Date

Jan. 26, 2011

Jason Wu / Asst. Supervisor

Prepared By:

Tiffany Kao

Date

Jan. 26, 2011

Tiffany Kao / Clerk

Approved By:

Arno Hsieh

Date

Jan. 26, 2011

Arno Hsieh / Asst. Supervisor

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## Version

Version No.	Date	Description
00	Jan. 26, 2011	Initial creation of document

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## 1 GENERAL INFORMATION

### 1.1 Product Description

General:

Product Name:	HSPA+ 21Mbps Wi-Fi Router	
Brand Name:	NetComm	
Model Name:	3G25W-R	
Model Difference:	N/A	
Power Supply	12Vdc by AC/DC power adapter	
	Adapter:	Model: AMS9-1201000FU2, Supplier: Global Yeou Diann Electric Industrial Co., Ltd

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GSM and WCDMA:

	Operating Frequency	Rated Power
Cellular Phone Standards Frequency Range and Power	GSM / GPRS 850, Class 12	824.2 MHz– 848.8 MHz
	EDGE 850, Class 12	824.2 MHz– 848.8 MHz
	GSM / GPRS 1900, Class 12	1850.2MHz – 1909.8MHz
	EDGE 1900, Class 12	1850.2MHz – 1909.8MHz
	WCDMA/HSUPA/HSDPA Band II	1852.4MHz – 1907.6MHz
	WCDMA/HSUPA/HSDPA Band V	826.4MHz - 846.6MHz
Hardware Version	V1.0	
Software Version	R0.01j0	
WWAN module FCC ID	N7NMC8700	
WWAN module IC ID	2417C-MC8700	
Type of Emission:	22H(GMSK): 824.2 - 848.8 MHz: 244KGXW 24E(GMSK): 1850.2 – 1909.8 MHz: 245KGXW 22H(8PSK): 824.2 - 848.8 MHz: 246KG7W 24E(8PSK): 1850.2 – 1909.8 MHz: 248KG7W 22H(WCDMA): 826.4 - 846.6 MHz: 4M20F9W 24E(WCDMA): 1852.4 – 1907.5 MHz: 4M20F9W	
IMEI 3534460		

Note: WWAN module is applies for Class I permission change.

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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: 16.80 dBm 802.11 g: 21.60 dBm 802.11n_20MHz: 23.76 dBm 802.11n_40MHz: 23.35 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:	Type: PIFA Gain: 4.0 dBi
Type of Emission:	802.11 b : 14M1G1D 802.11 g : 16M3G1D 802.11 n_20MHz : 17M4G1D 802.11 n_40MHz : 35M5G1D

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

This report applies for WLAN 802.11b/g/n.

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## 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: XIA-3G25WR** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules and **IC: 8847A-3G25WR** filing to comply with Industry Canada RSS-210 issue 8: 2010 Annex 8. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

## 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003) and RSS-Gen: 2010. 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-4.

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.

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## 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 placed on a 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 placed on a 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.

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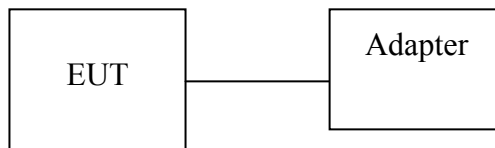
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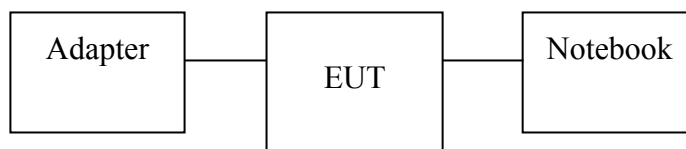
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## 2.4 Configuration of Tested System

**Fig. 2-1 Conducted Emission Configuration**



**Fig. 2-2 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 IBM		T60 L3DK794		Shielded	Un-Shielded
2.	Software Ralink		RT30520A	Version:1.0.1.6	N/A N/A	

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)/ RSS-Gen §7.2.4	AC Power Line Conducted Emission	Compliant
§15.247(b)/ RSS-210 §A8.4(4)	Peak Output Power	Compliant
§15.247(b)/ RSS-210 §A8.4(4)	6dB Bandwidth	Compliant
§15.247(c)/ RSS-210 §A8.4(4)	100 KHz Bandwidth Of Frequency Band Edges	Compliant
§15.247(c)/ RSS-210 §A8.4(4)	Spurious Emission	Compliant
§15.247/ RSS-210 §A8.2(b)	Peak Power Density	Compliant
§15.203/ RSS-GEN §7.1.2,	Antenna Requirement	Compliant
RSS-Gen §4.6.1	99% Power Bandwidth	Compliant
MPE	Maximum Permissible Exposure	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.

802.11 b mode: Channel low (2412MHz) 、mid (2437MHz) and high (2462MHz) with 1Mbps data rate are chosen for full testing.

802.11 g mode: Channel low (2412MHz) 、mid (2437MHz) and high (2462MHz) with 6Mbps data rate are chosen for full testing.

802.11 n\_20MHz mode: Channel low (2412MHz) 、mid (2437MHz) and high (2462MHz) with 6.5Mbps data rate are chosen for full testing.

802.11 n\_40MHz mode: Channel low (2422MHz) 、mid (2437MHz) and high (2452MHz) with 13.5Mbps data rate are chosen for full testing.

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## 5 CONDUCTED EMISSION TEST

### 5.1. Standard Applicable:

According to §15.207 and RSS-Gen §7.2.4, 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	09/15/2010	09/14/2011
LISN Rolf-Heine		NNB-2/16Z	99012	02/02/2010	02/01/2011
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	02/02/2010	02/01/ 2011
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2010	11/27/ 2011

### 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.

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#### 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.

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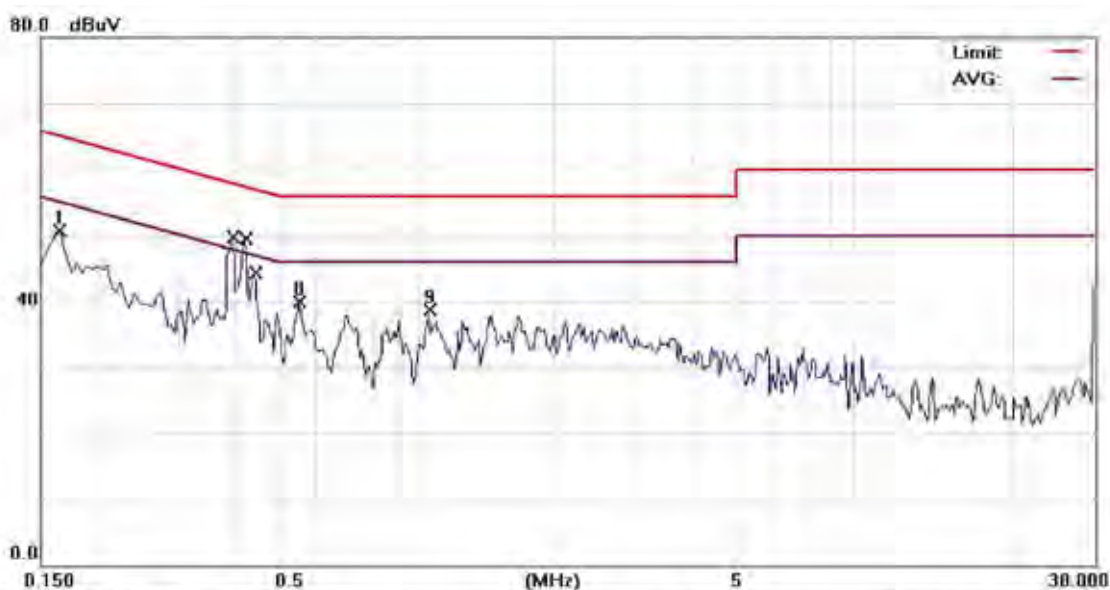
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## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Link			Test Date:	Jan. 21, 2011
Temperature:	22 °C	Humidity:	57 %	Test By:	Jason



Site: SGS CONDUCTED #1  
Limit: CISPR22/11/EN55022 Class B (QP)  
EUT: HSPA+21Mbps Wi-Fi Router  
M/N: 3G25W-R  
Note: Operation mode

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

Temperature: 22 °C  
Humidity: 57 %  
Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1650	50.56	0.13	50.69	65.21	-14.52	peak	
2		0.3959	45.27	0.12	45.39	57.94	-12.55	QP	
3		0.3959	37.05	0.12	37.17	47.94	-10.77	AVG	
4	*	0.4203	48.91	0.12	49.03	57.44	-8.41	QP	
5		0.4203	38.33	0.12	38.45	47.44	-8.99	AVG	
6		0.4403	31.29	0.12	31.41	57.06	-25.65	QP	
7		0.4403	26.65	0.12	26.77	47.06	-20.29	AVG	
8		0.5500	39.85	0.12	39.97	56.00	-16.03	peak	
9		1.0600	38.52	0.12	38.64	56.00	-17.36	peak	

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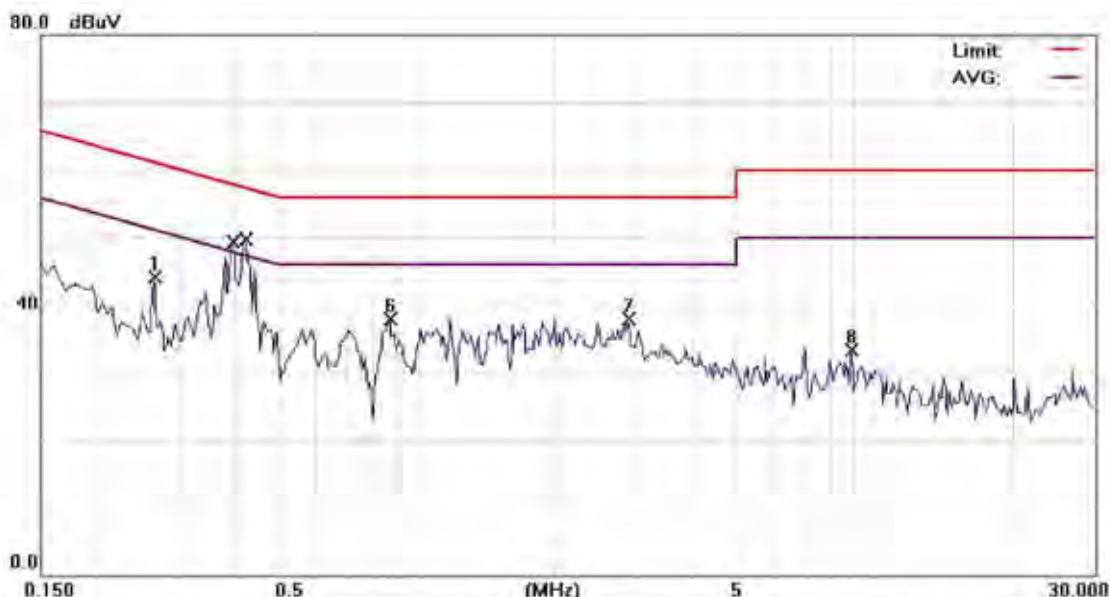
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Site: SGS CONDUCTED #1

Limit: CISPR22/11/EN55022 Class B (QP)

EUT: HSPA+21Mbps Wi-Fi Router

M/N: 3G25W-R

Note: Operation mode

Phase: N

Power: AC 120V/60Hz

Distance:

Temperature: 22 °C

Humidity: 57 %

Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2650	44.02	0.13	44.15	61.27	-17.12	peak	
2		0.3950	48.40	0.12	48.52	57.96	-9.44	QP	
3		0.3950	44.00	0.12	44.12	47.96	-3.84	AVG	
4		0.4200	48.50	0.12	48.62	57.45	-8.83	QP	
5	*	0.4200	44.20	0.12	44.32	47.45	-3.13	AVG	
6		0.8700	37.81	0.13	37.94	56.00	-18.06	peak	
7		2.8900	37.76	0.18	37.94	56.00	-18.06	peak	
8		8.9000	32.78	0.43	33.21	60.00	-26.79	peak	

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## 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.

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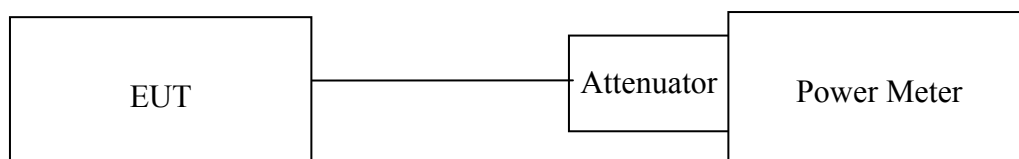
According to RSS-210 issue 8, §A8.4(4), for systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling 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 transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

## 6.2 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2495A	1005007	02/17/2010	02/16/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/ 2012
Attenuator Mini-Circuit		BW-S6W5	N/A	07/05/2010	07/04/ 2011
Power Sensor	Anritsu	MA2411B 9170	32	01/21/2010	01/20/2012

## 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.
3. Record the max. reading.
4. Repeat above procedures until all frequency measured were complete.

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## 6.5 Measurement Result:

802.11b

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	16.80	16.80	0.04786	1
2437.00	16.43	16.43	0.04395	1
2462.00	16.58	16.58	0.04550	1

802.11g

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	21.60	21.60	0.14454	1
2437.00	21.11	21.11	0.12912	1
2462.00	21.23	21.23	0.13274	1

\*  $Read\ Power = Output\ Power + Cable\ Loss$

\* *Cable Loss (0.2dBm) as offset is added in the power meter*

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## 802.11n\_20M Chain 1

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	20.63	20.63	0.11561	1
2437.00	20.26	20.26	0.10617	1
2462.00	19.42	19.42	0.08750	1

## 802.11n\_20M Chain 2

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	20.73	20.73	0.11830	1
2437.00	21.19	21.19	0.13152	1
2462.00	19.39	19.39	0.08690	1

## 802.11n\_20M Combine, Chain1,Chain2

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	23.69	23.69	0.23391 1	
2437.00	23.76	23.76	0.23769 1	
2462.00	22.42	22.42	0.17440 1	

\*  $Read\ Power = Output\ Power + Cable\ Loss$

\*  $Cable\ Loss\ (0.2dBm)$  as offset is added in the power meter

\*  $The\ Output\ Power\ of\ Combination\ Chain\ (W) = Output\ Power\ of\ Chain\ 1(W) + Output\ Power\ of\ Chain2(W)$

\*  $The\ Output\ Power\ of\ Reading\ Power(dBm) = 10 * \log (Output\ Power\ of\ Combination\ Chain\ (W))$

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## 802.11n\_40M Chain1

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2422.00	20.19	20.19	0.10447	1
2437.00	19.11	19.11	0.08147	1
2452.00	19.78	19.78	0.09506	1

## 802.11n\_40M Chain2

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2422.00	20.49	20.49	0.11194	1
2437.00	19.36	19.36	0.08630	1
2452.00	20.23	20.23	0.10544	1

802.11n\_40M Combine,  
Chain1,Chain2

Frequency (MHz)	Reading Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
2422.00	23.35	23.35	0.21641	1
2437.00	22.25	22.25	0.16777	1
2452.00	23.02	23.02	0.20050	1

\*  $Read\ Power = Output\ Power + Cable\ Loss$

\*  $Cable\ Loss\ (0.2dBm)$  as offset is added in the power meter

\*  $The\ Output\ Power\ of\ Combination\ Chain\ (W) = Output\ Power\ of\ Chain\ 1(W) + Output\ Power\ of\ Chain2(W)$

\*  $The\ Output\ Power\ of\ Reading\ Power(dBm) = 10 * \log (Output\ Power\ of\ Combination\ Chain\ (W))$

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## 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 8: 2010Annex 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/60MHz, Sweep=auto
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured were complete.

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## 7.5 Measurement Result:

### 802.11b

Frequency (MHz)	Bandwidth	Bandwidth	Result
	(MHz)	(KHz)	
2412 11.149		> 500	PASS
2437 10.189		> 500	PASS
2462 11.135		> 500	PASS

### 802.11g

Frequency (MHz)	Bandwidth	Bandwidth	Result
	(MHz)	(KHz)	
2412 16.468		> 500	PASS
2437 16.462		> 500	PASS
2462 16.508		> 500	PASS

*\*Offset 0.3dB*

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## 802.11n\_20M Chain1

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412 17.243		> 500	PASS
2437 17.170		> 500	PASS
2462 17.600		> 500	PASS

## 802.11n\_20M Chain2

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412 17.418		> 500	PASS
2437 17.423		> 500	PASS
2462 17.592		> 500	PASS

## 802.11n\_20M Combine, Chain1,Chain2

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412 17.650		> 500	PASS
2437 17.107		> 500	PASS
2462 17.317		> 500	PASS

*offset: 0.3dB*

Note: Refer to next page for plots.

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## 802.11n\_40M Chain1

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2422 36.447		> 500	PASS
2437 35.425		> 500	PASS
2452 35.626		> 500	PASS

## 802.11n\_40M Chain2

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2422 36.280		> 500	PASS
2437 35.056		> 500	PASS
2452 36.054		> 500	PASS

## 802.11n\_40M Combine, Chain1,Chain2

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2422 35.186		> 500	PASS
2437 35.861		> 500	PASS
2452 36.396		> 500	PASS

offset: 0.2dB

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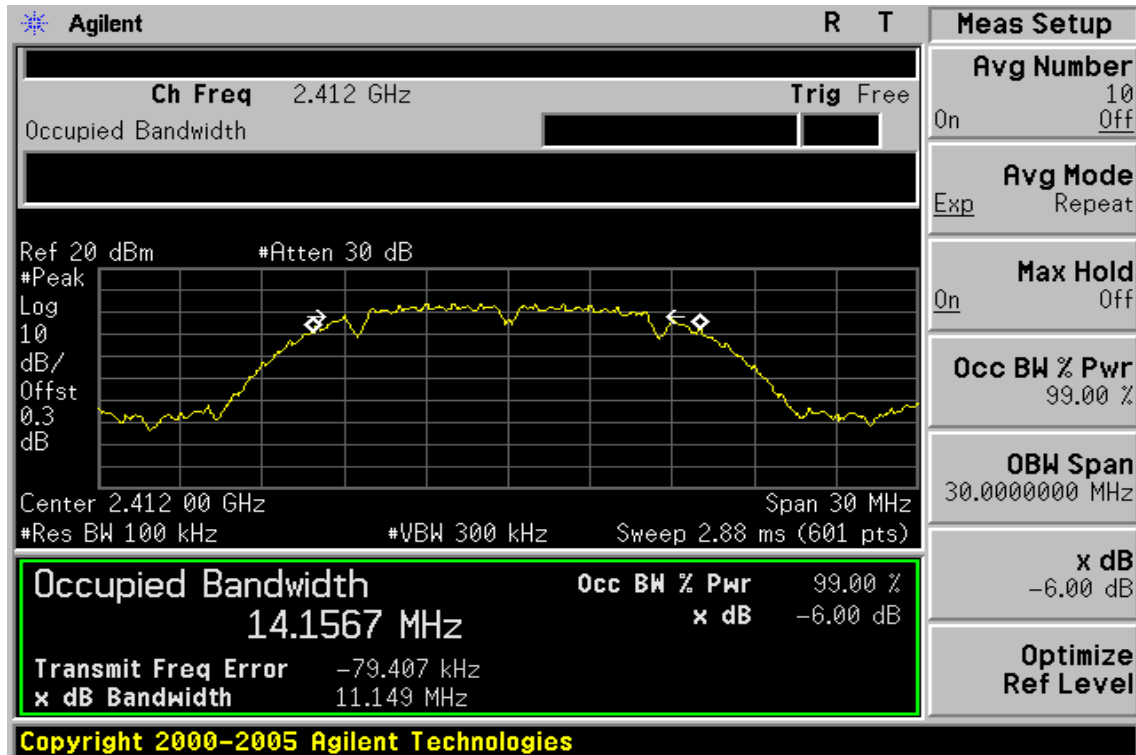
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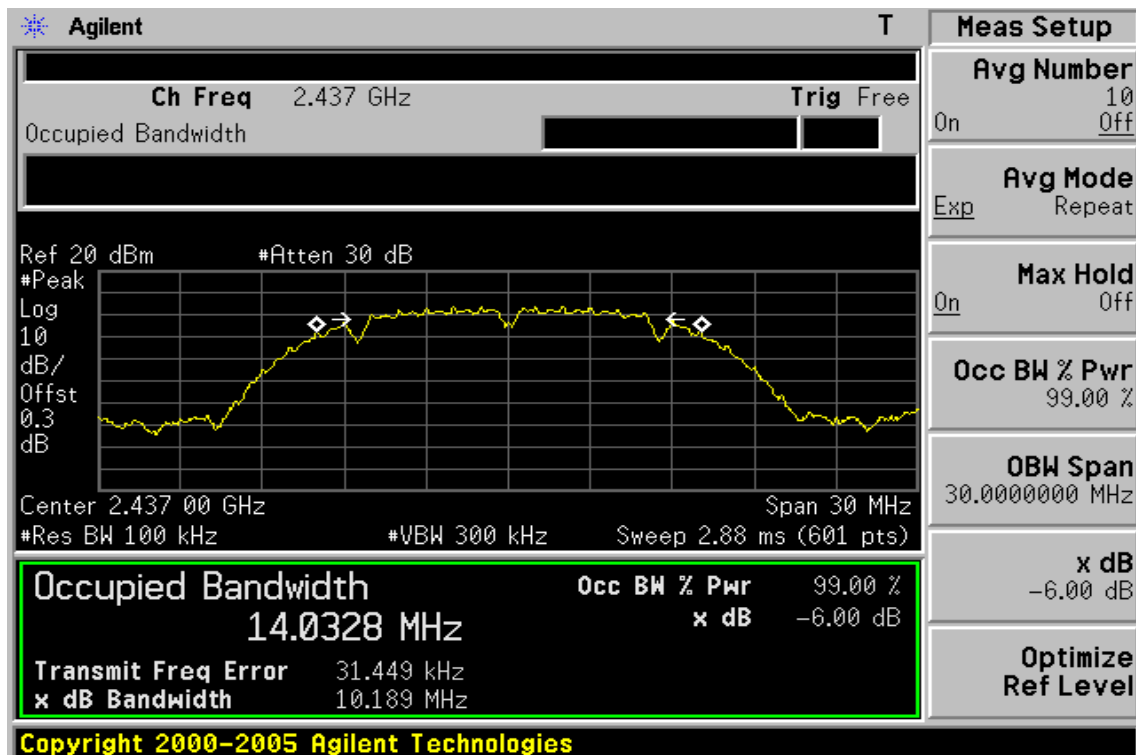
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## 802.11b

### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid



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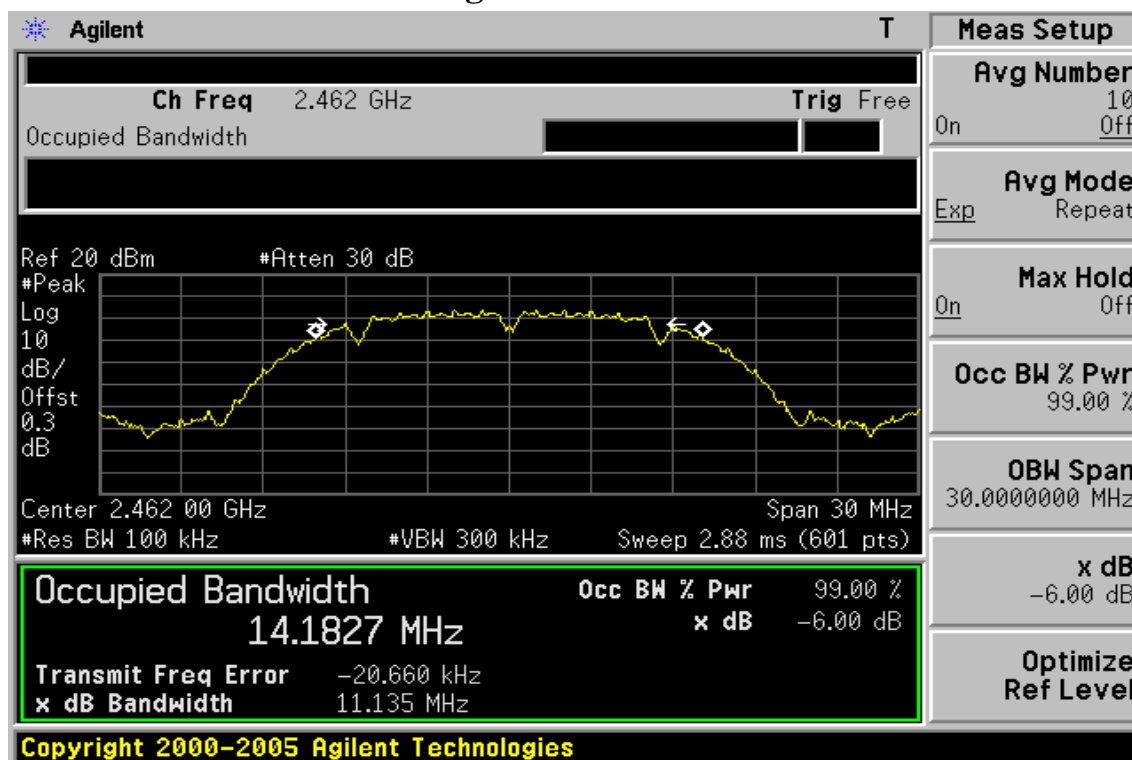
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## 6dB Band Width Test Data CH-High



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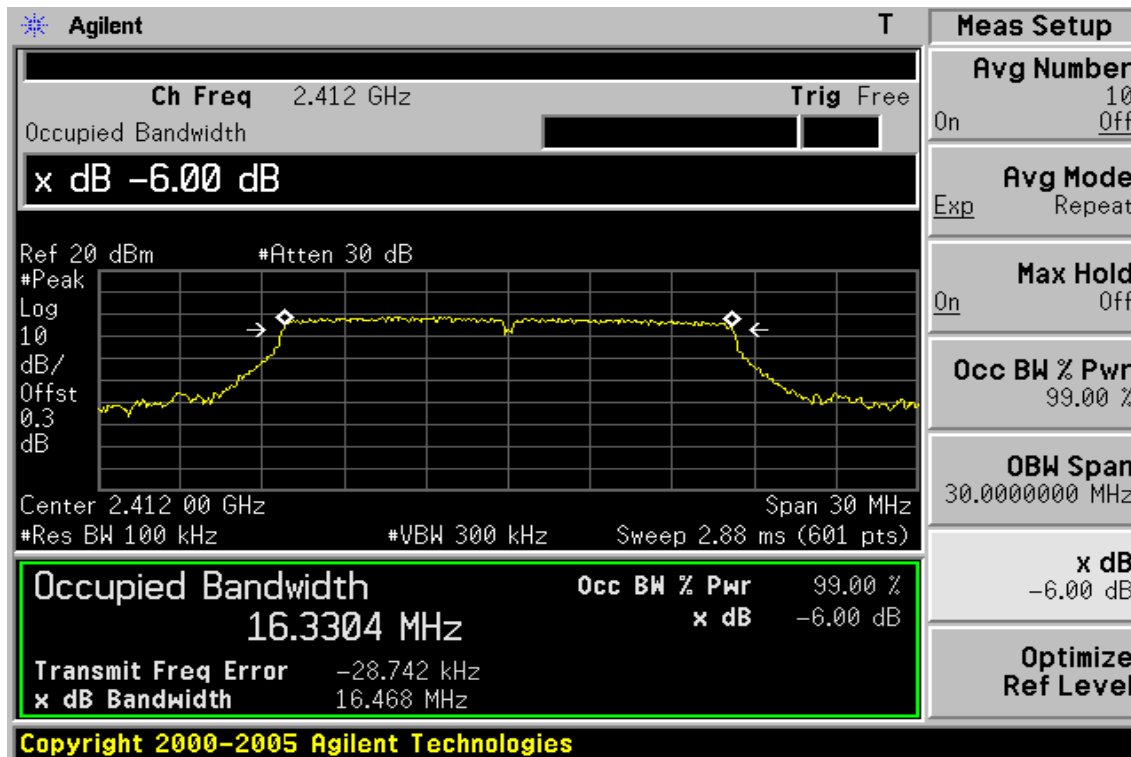
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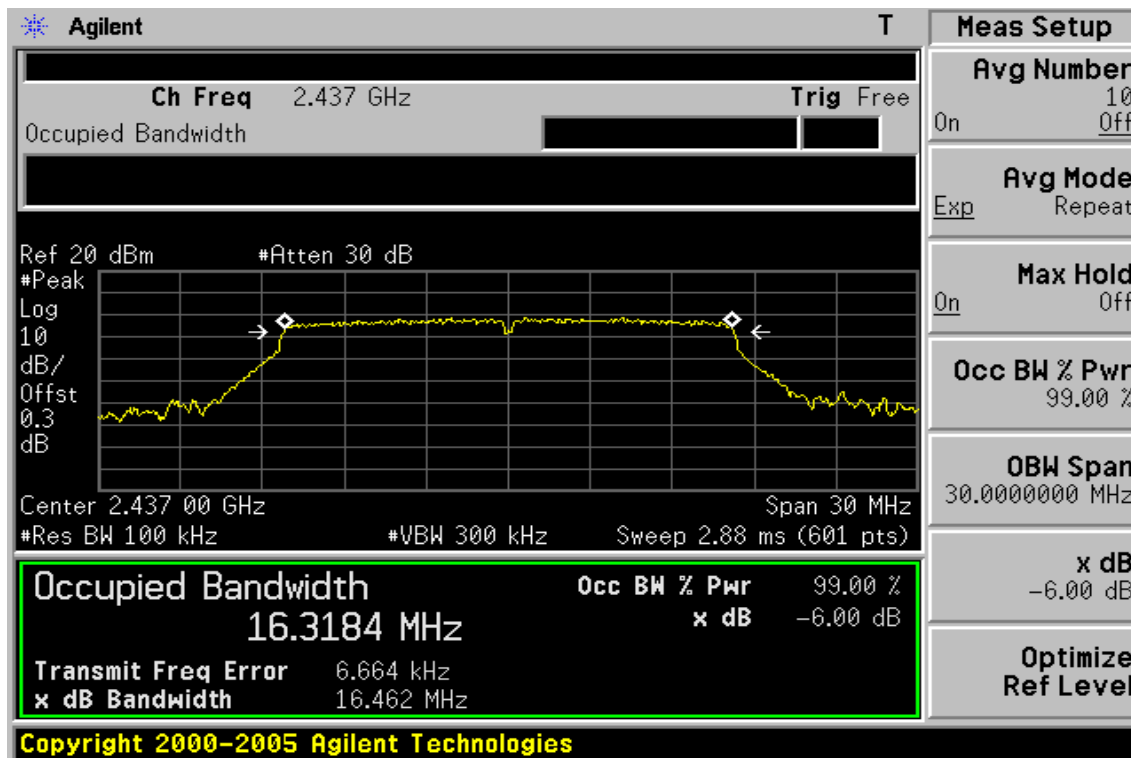
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802.11g

## 6dB Band Width Test Data CH-Low



## 6dB Band Width Test Data CH-Mid



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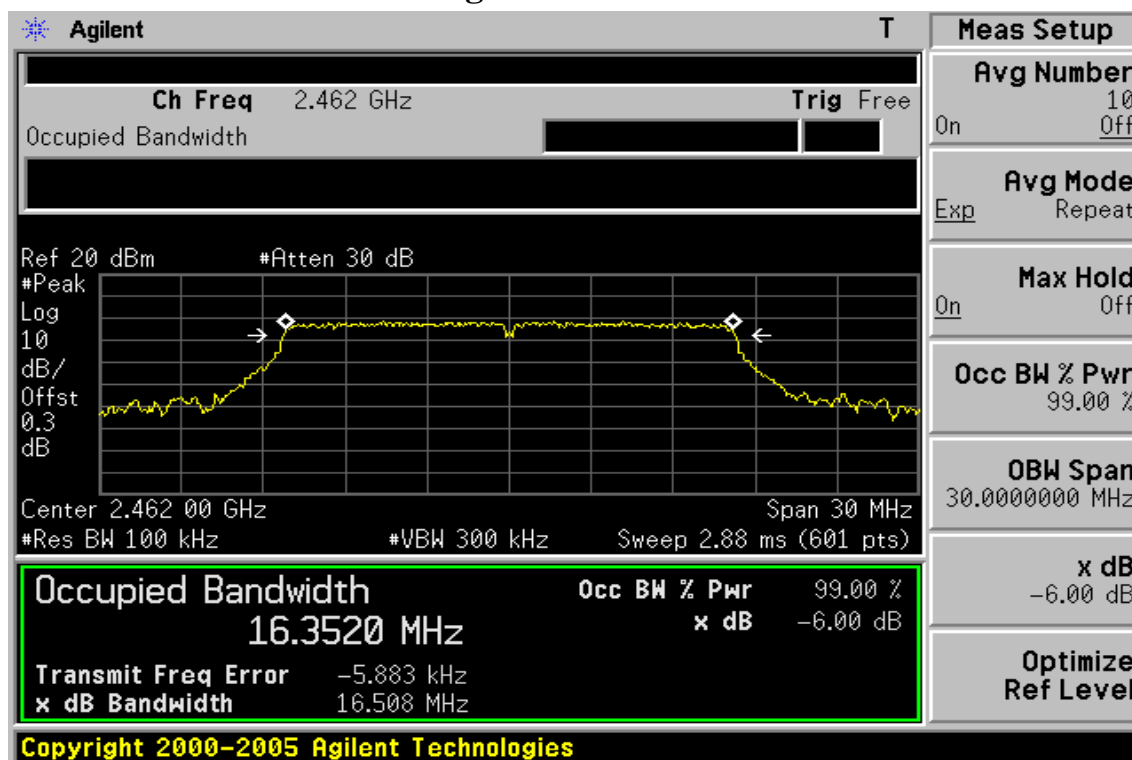
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## 6dB Band Width Test Data CH-High



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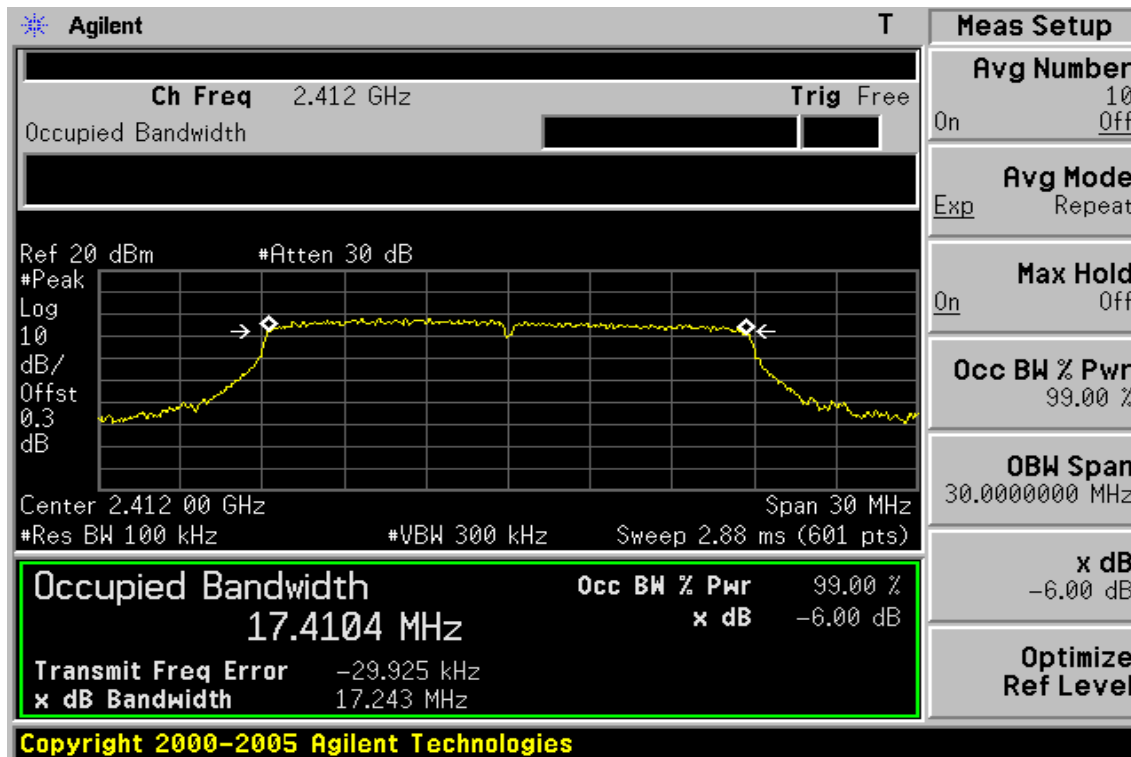
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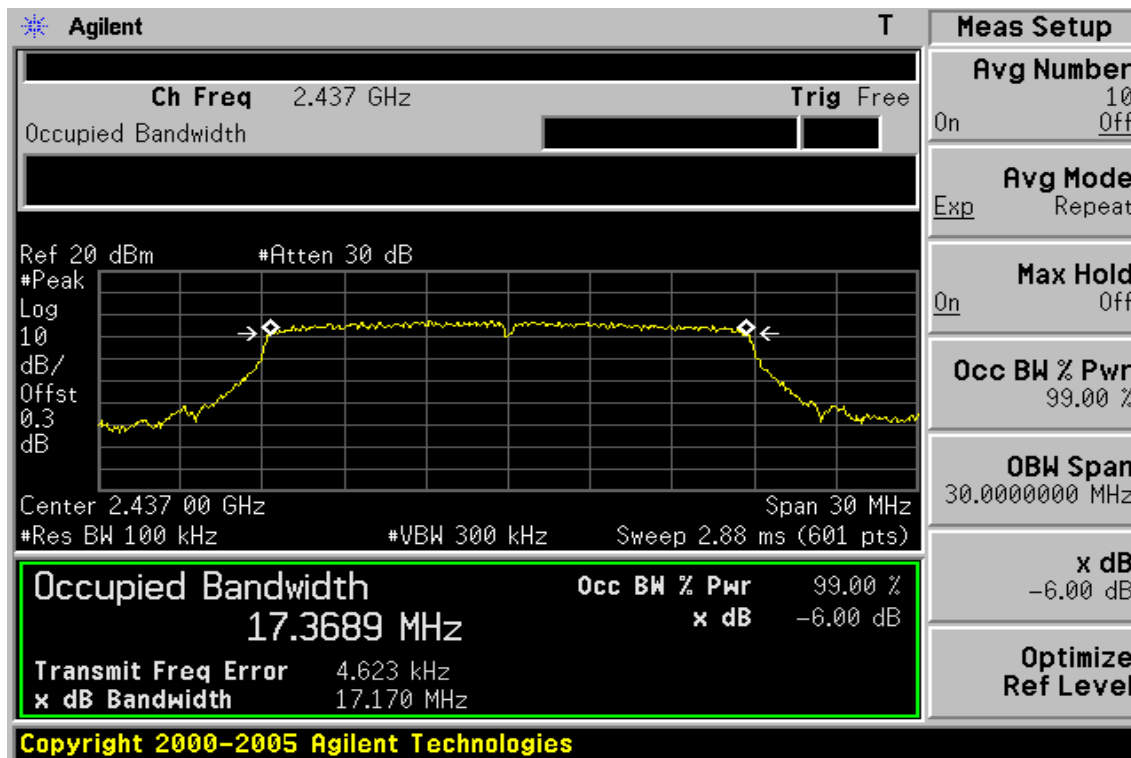
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## 802.11n\_20M, Chain1

### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid



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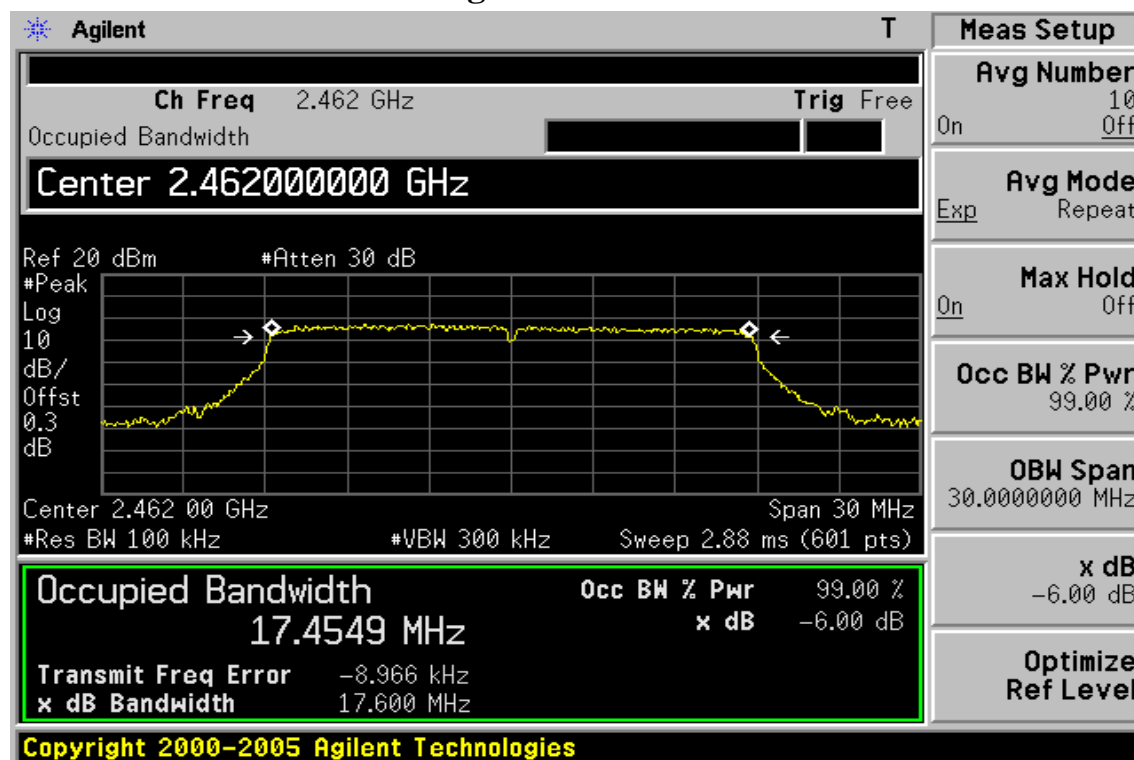
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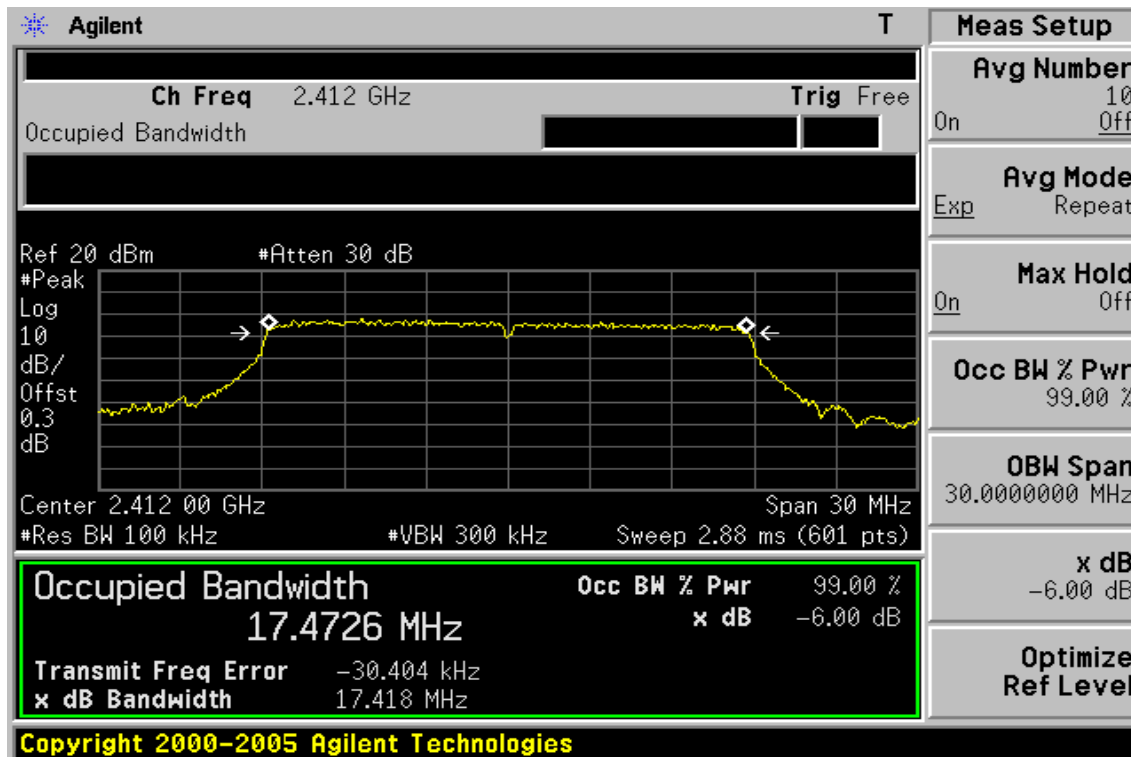
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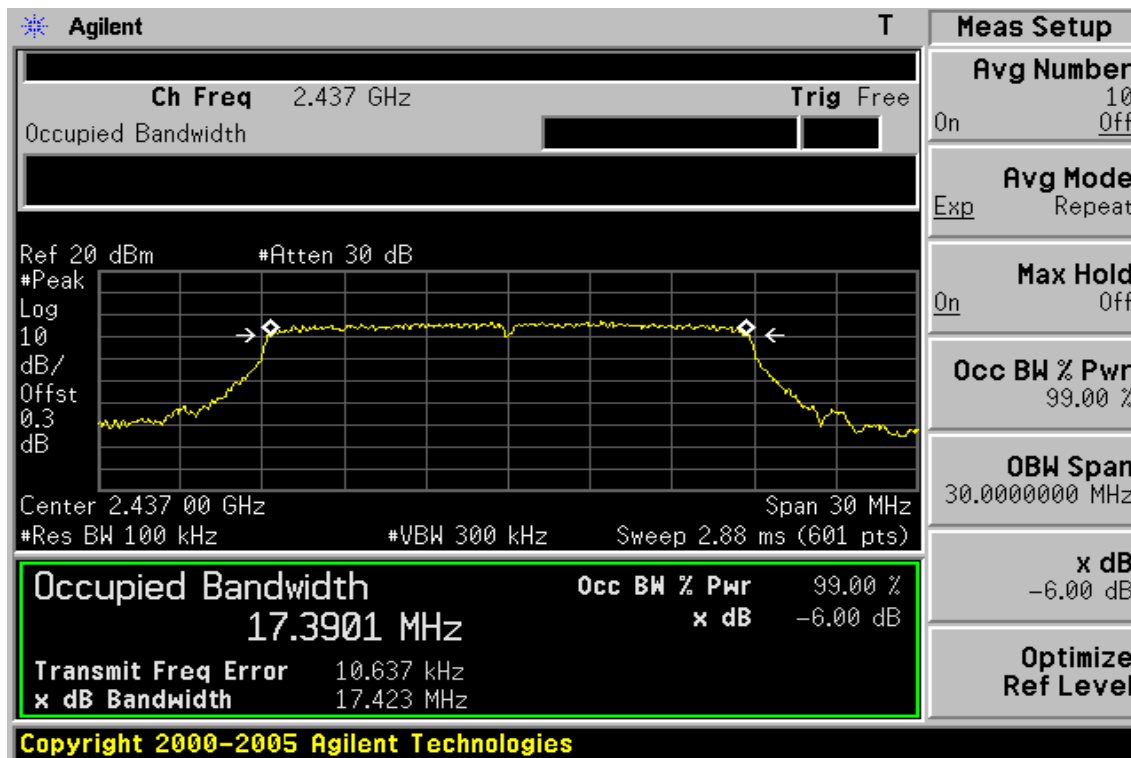
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## 802.11n\_20M ,Chain 2

### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid



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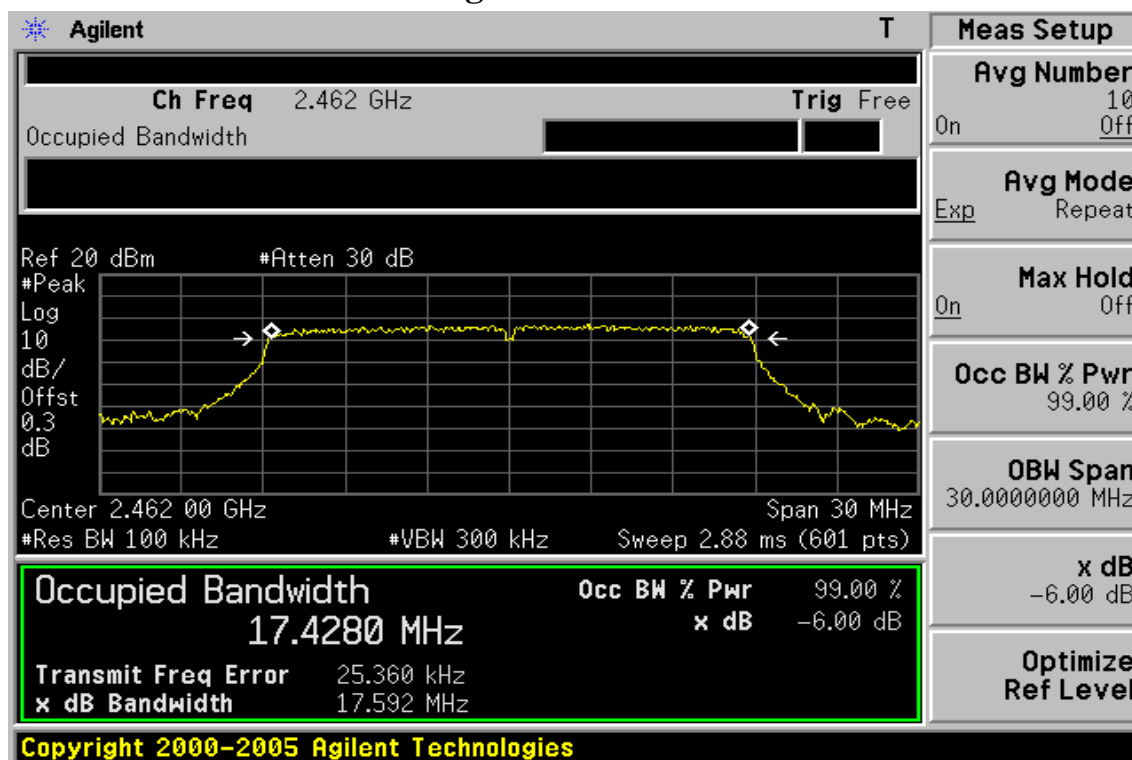
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## 6dB Band Width Test Data CH-High



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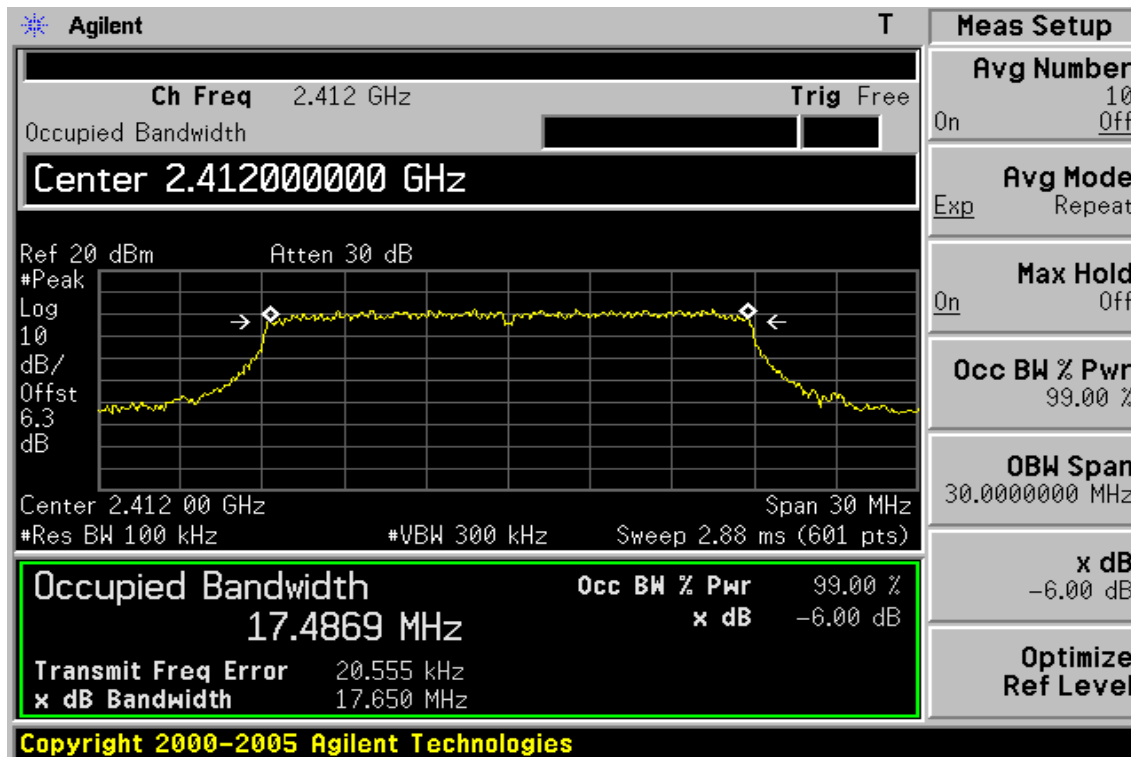
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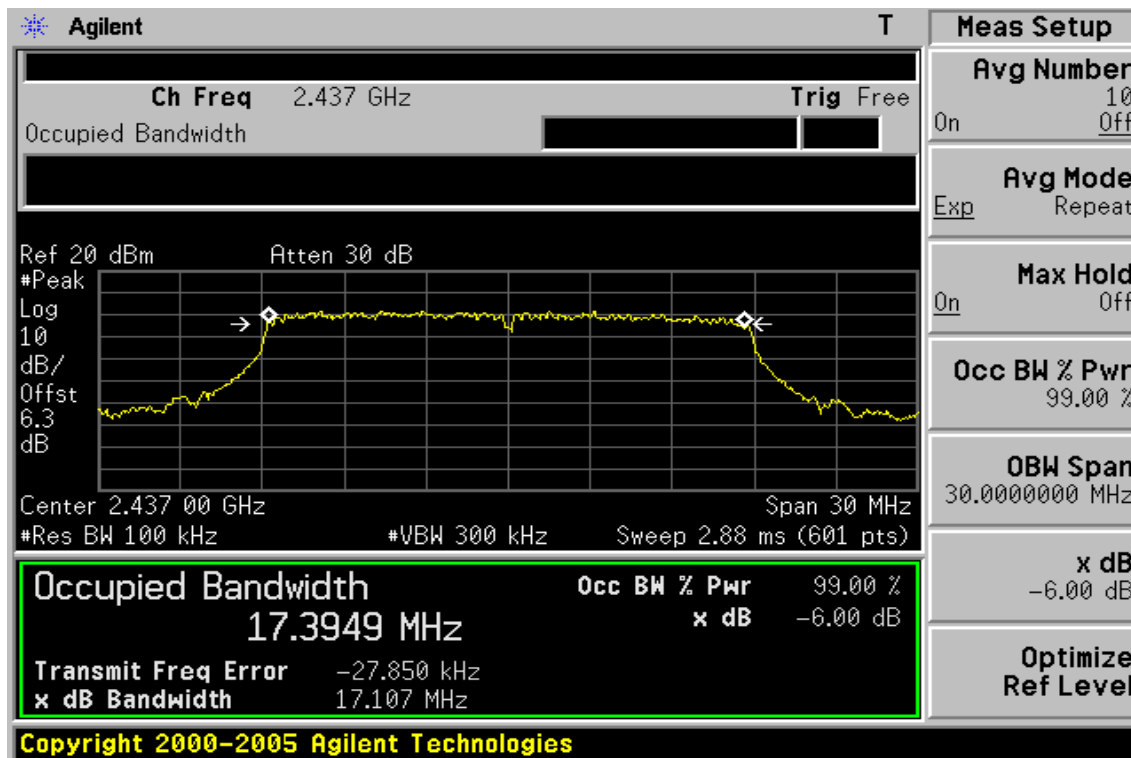
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## 802.11n\_20M , Combine, Chain1,Chain2 6dB Band Width Test Data CH-Low



## 6dB Band Width Test Data CH-Mid



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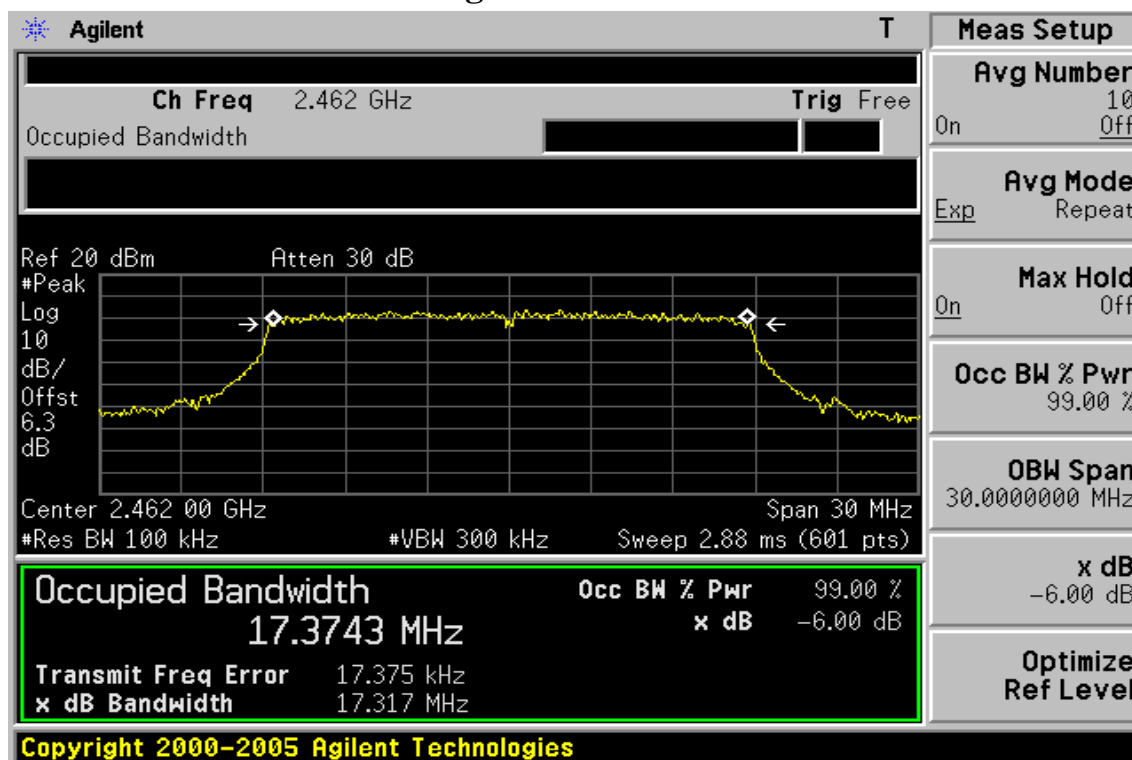
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## 6dB Band Width Test Data CH-High



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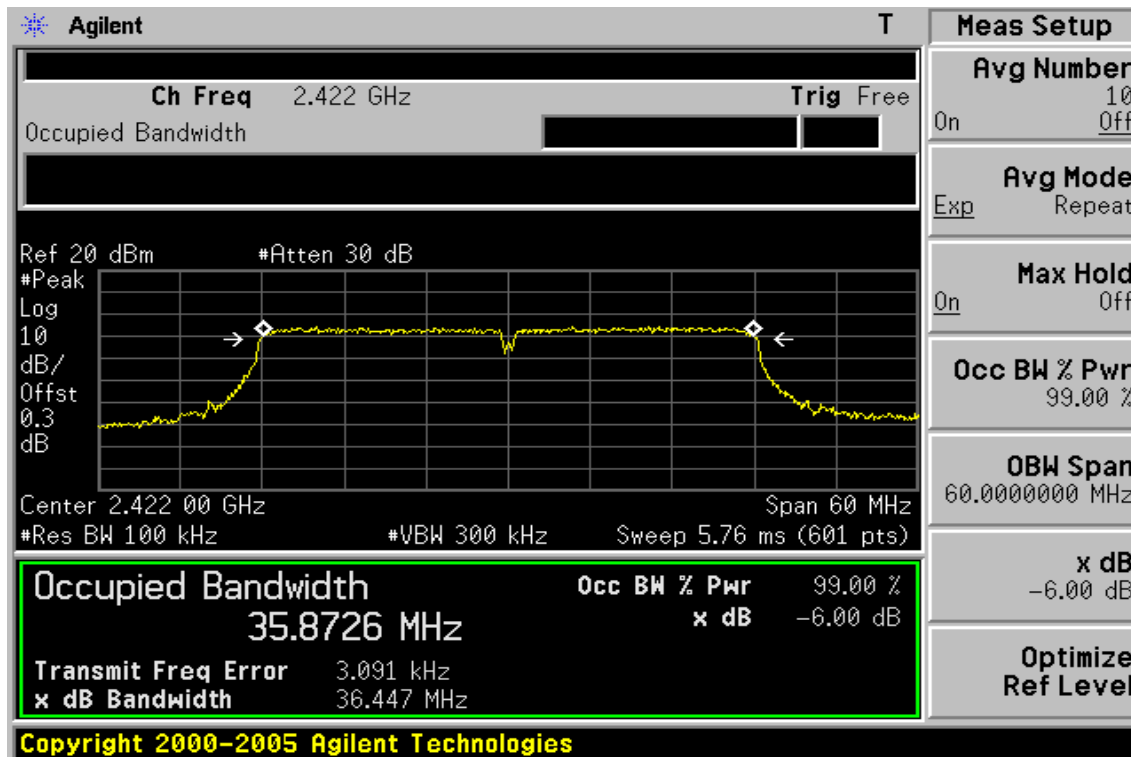
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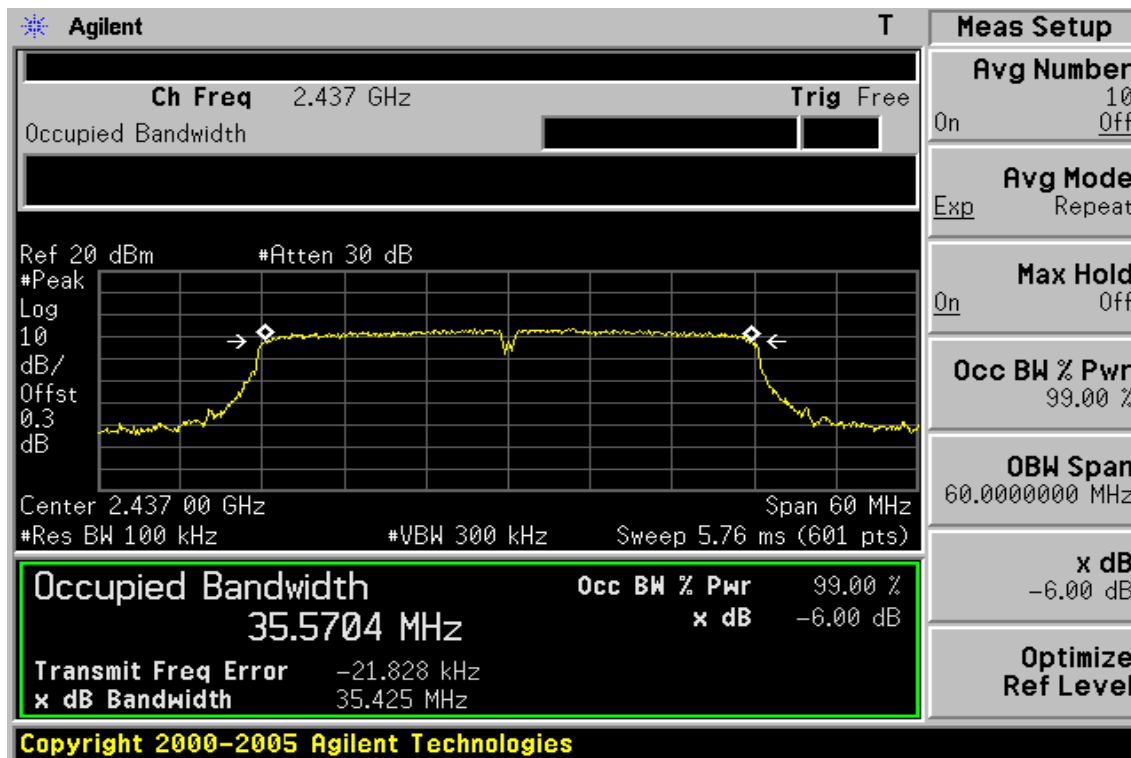
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## 802.11n\_40M, Chain1

### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid



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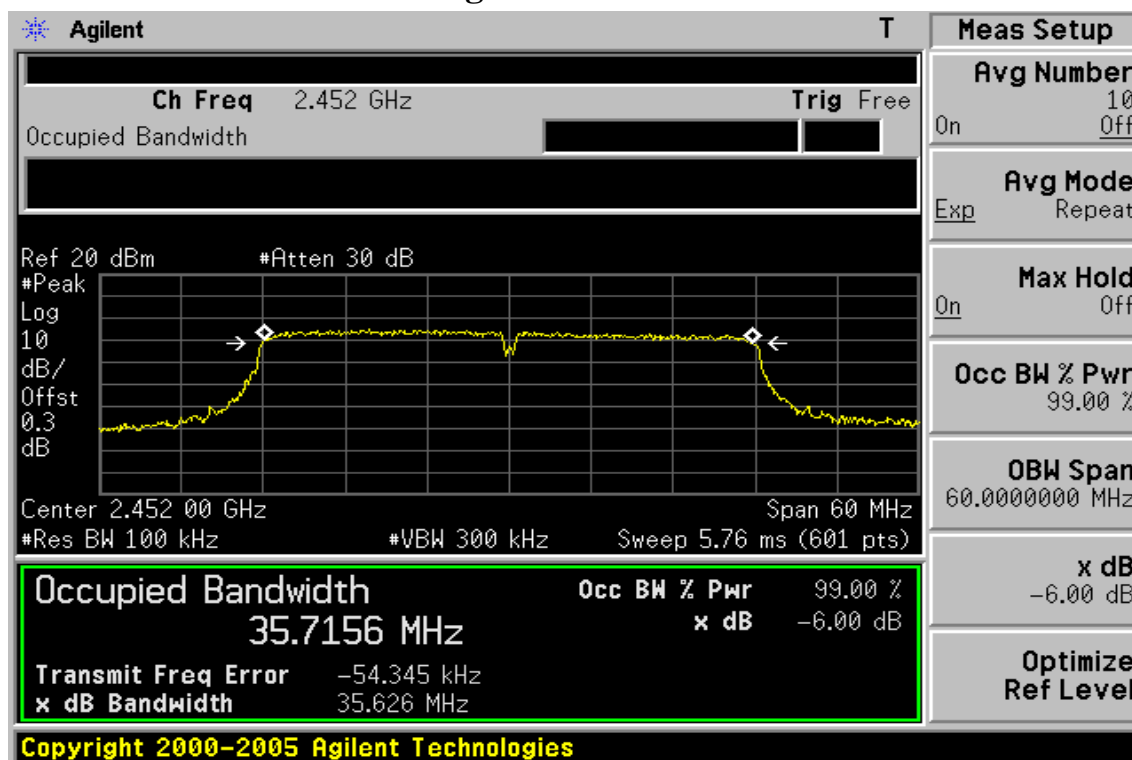
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## 6dB Band Width Test Data CH-High



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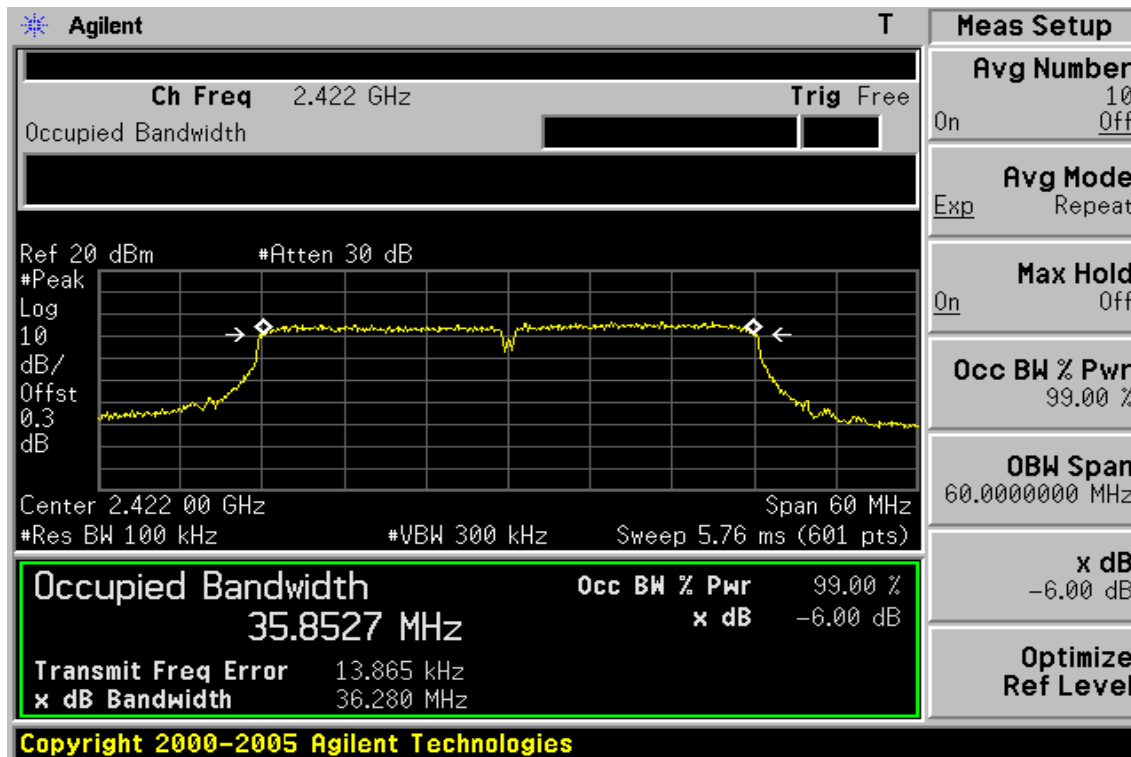
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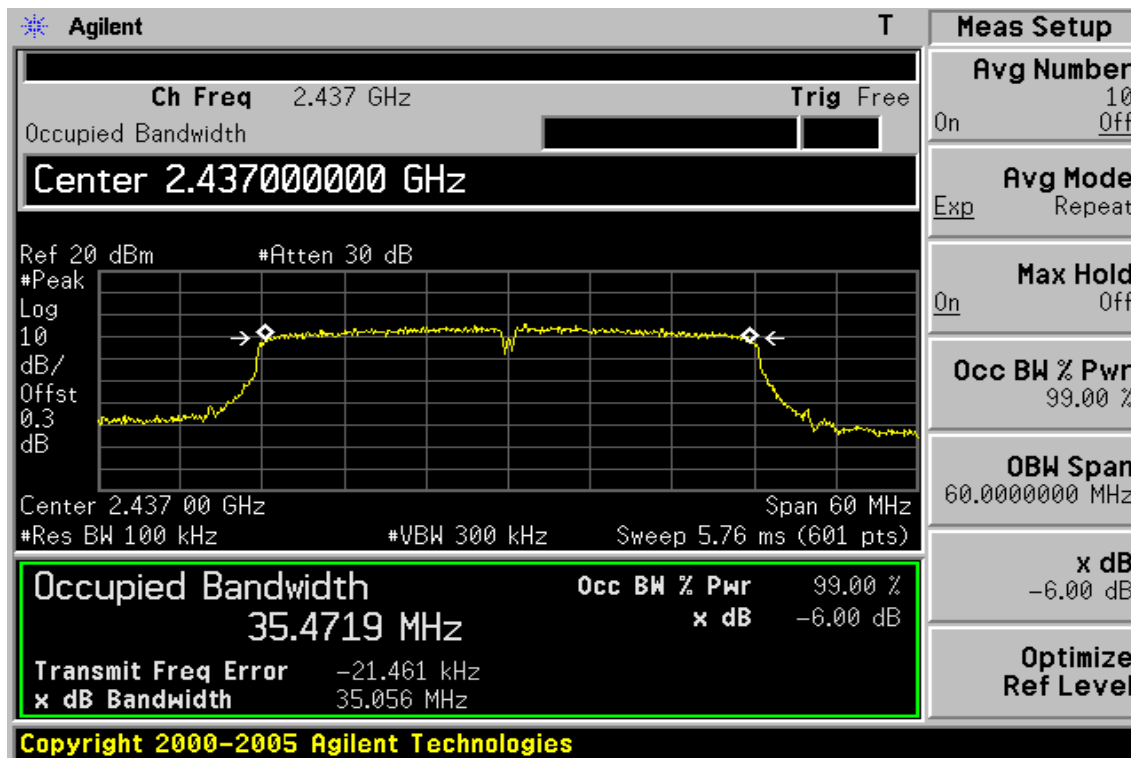
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## 802.11n\_40M, Chain2

### 6dB Band Width Test Data CH-Low



### 6dB Band Width Test Data CH-Mid



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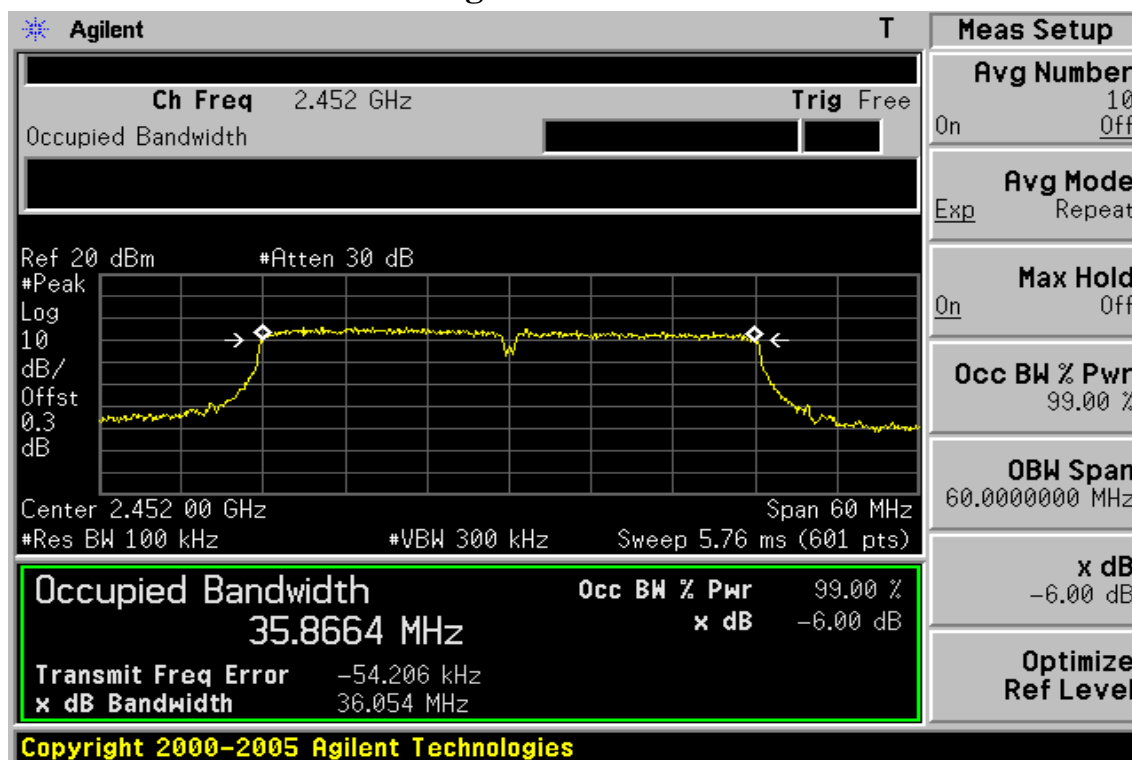
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## 6dB Band Width Test Data CH-High



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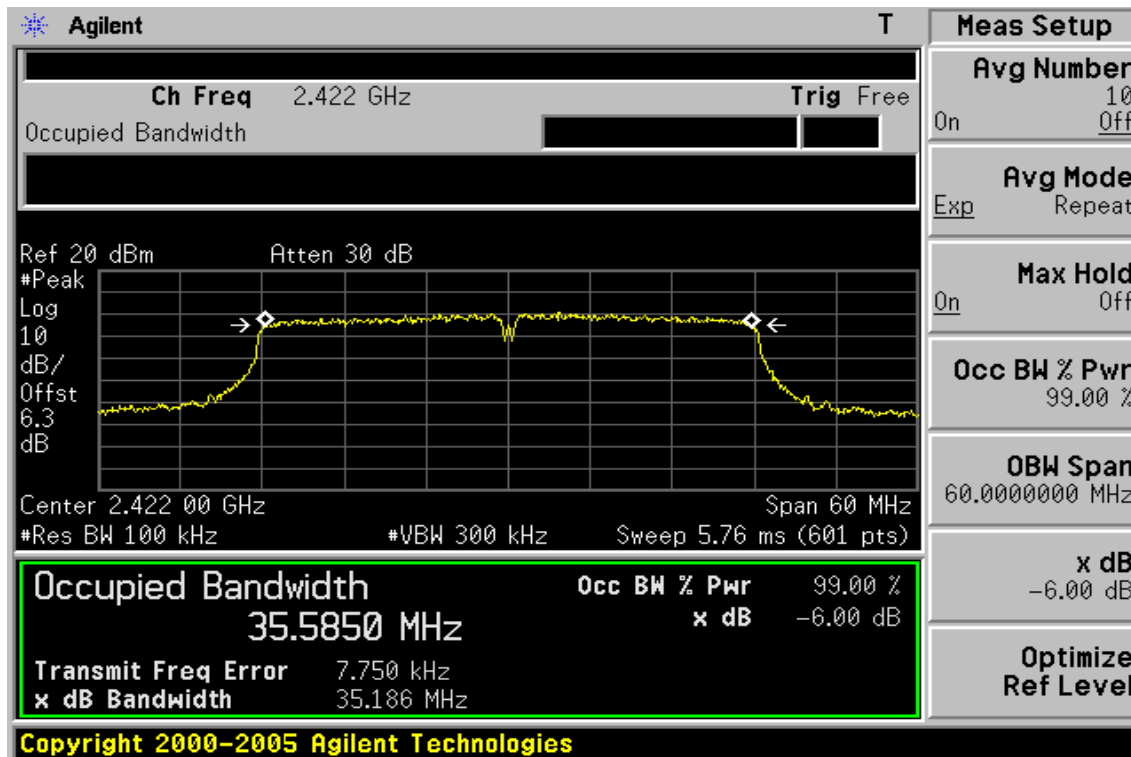
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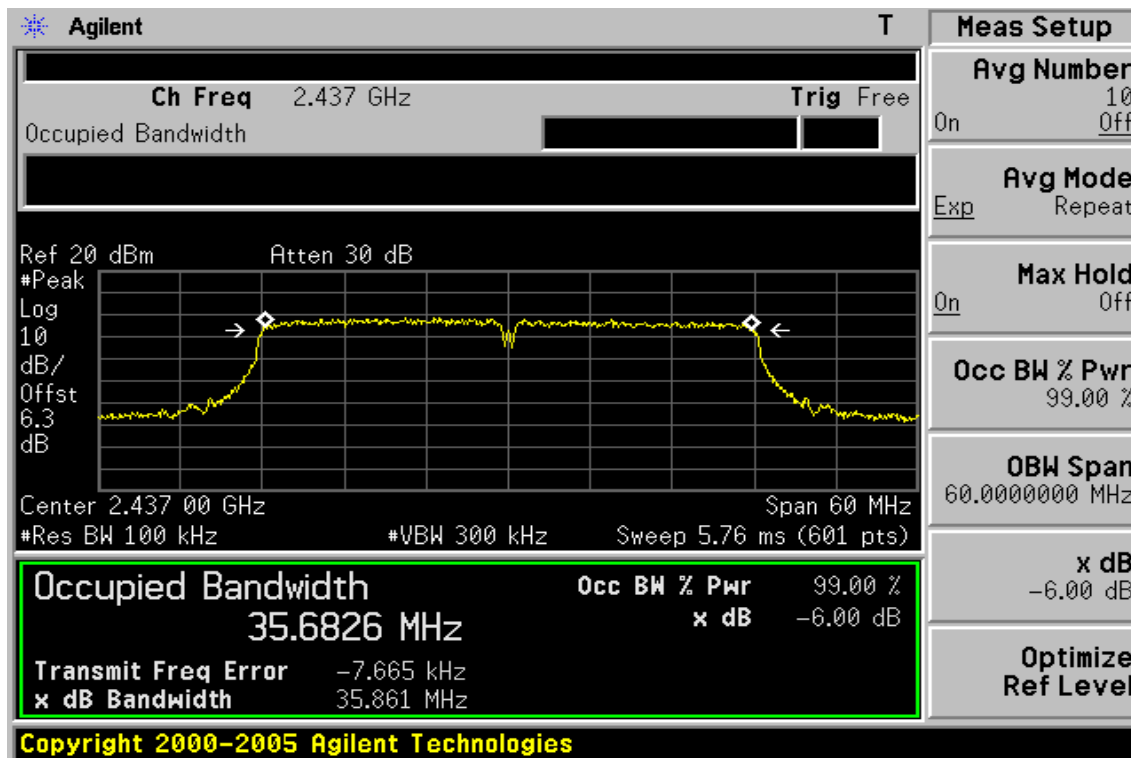
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## 802.11n\_40M, Combine, Chain1, Chain2 6dB Band Width Test Data CH-Low



## 6dB Band Width Test Data CH-Mid



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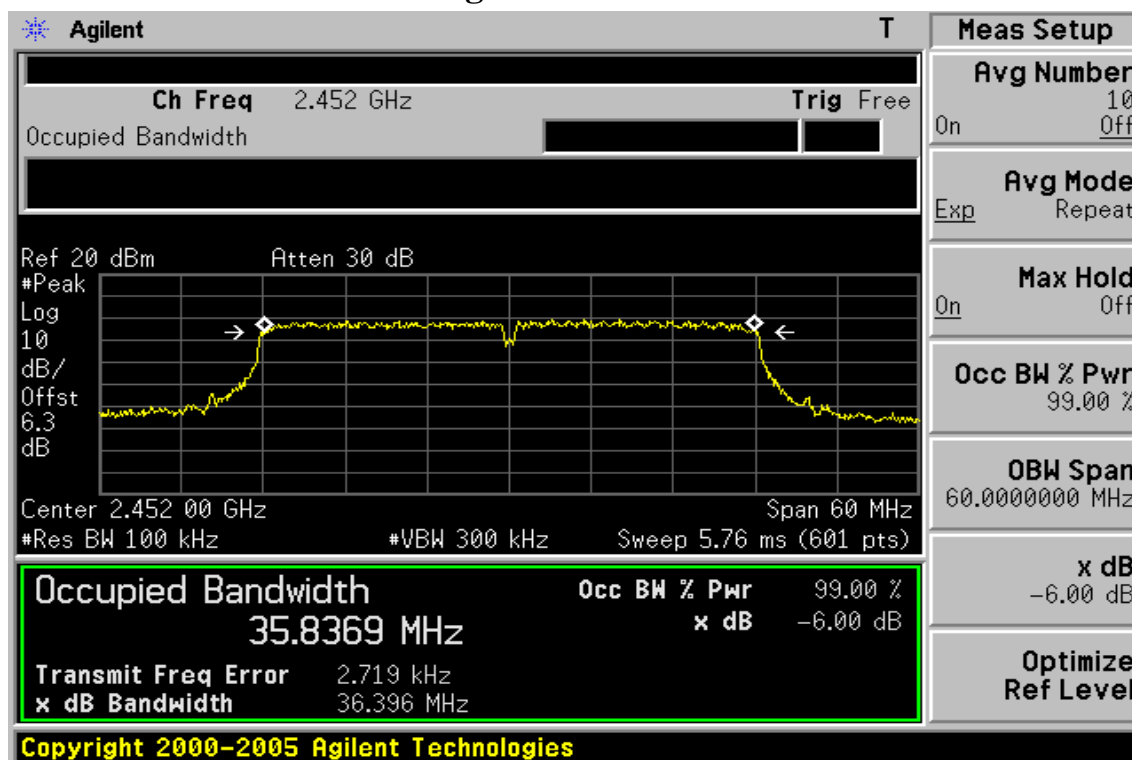
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## 8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

### 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 is 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 in 15.209(a).

According to RSS-210 issue 8, §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:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A MY	43360 126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E7405A US	41160 416	12/25/2009	12/24/ 2011
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2010	02/11/ 2011
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/ 2012
Attenuator Mini-Circuit		BW-S6W5	N/A	07/05/2010	07/04/ 2011
Software Audix		Ver 6.2009 – 23B	N/A	N/A N/A	

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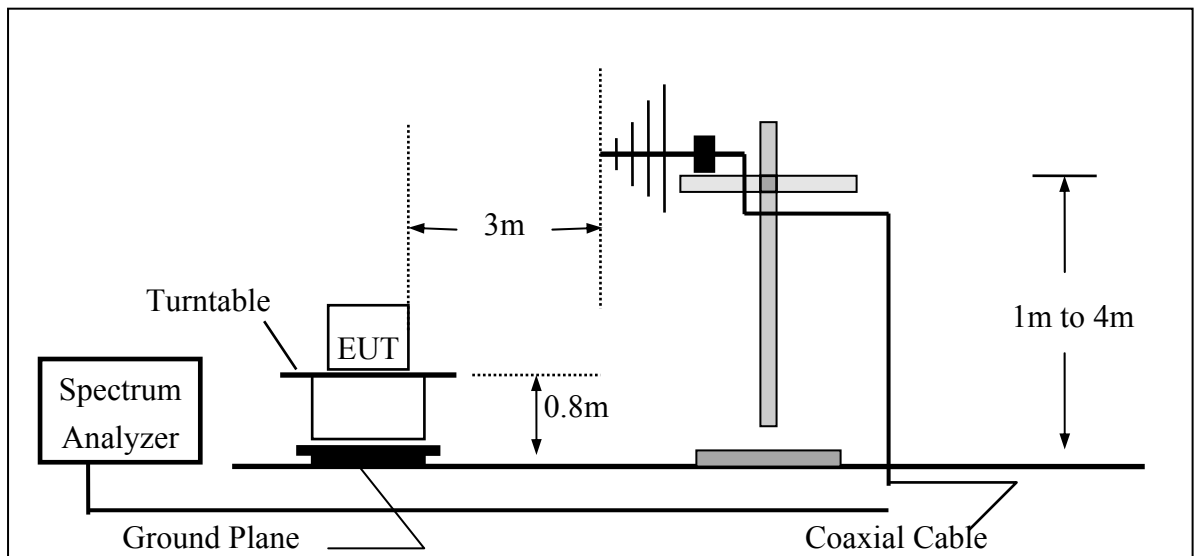
### 8.3 Test SET-UP:

#### 8.3.1 Conducted Emission at antenna port:

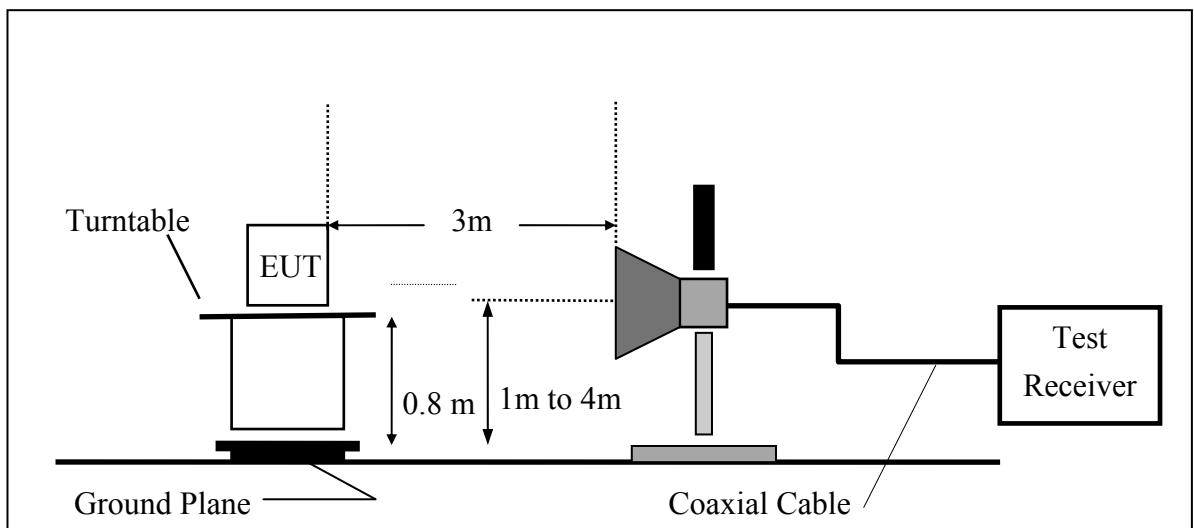
Refer to section 6.3 for details.

#### 8.3.2 Radiated emission:

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



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



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#### 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.

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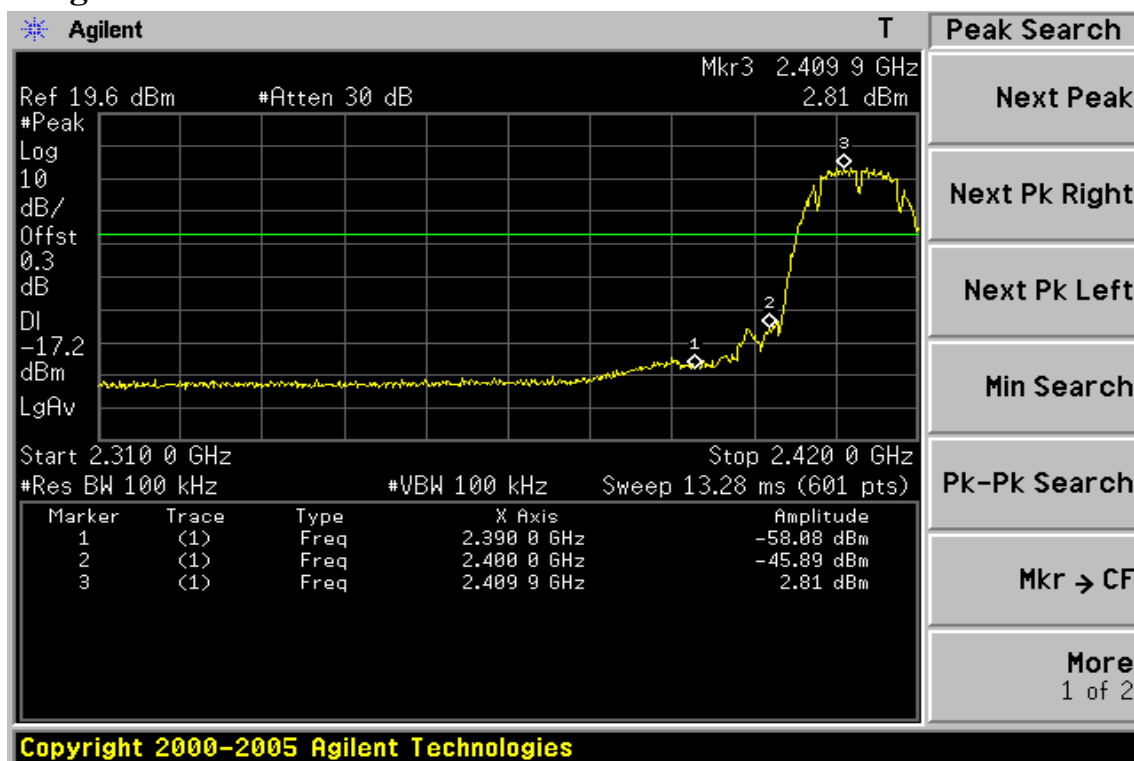
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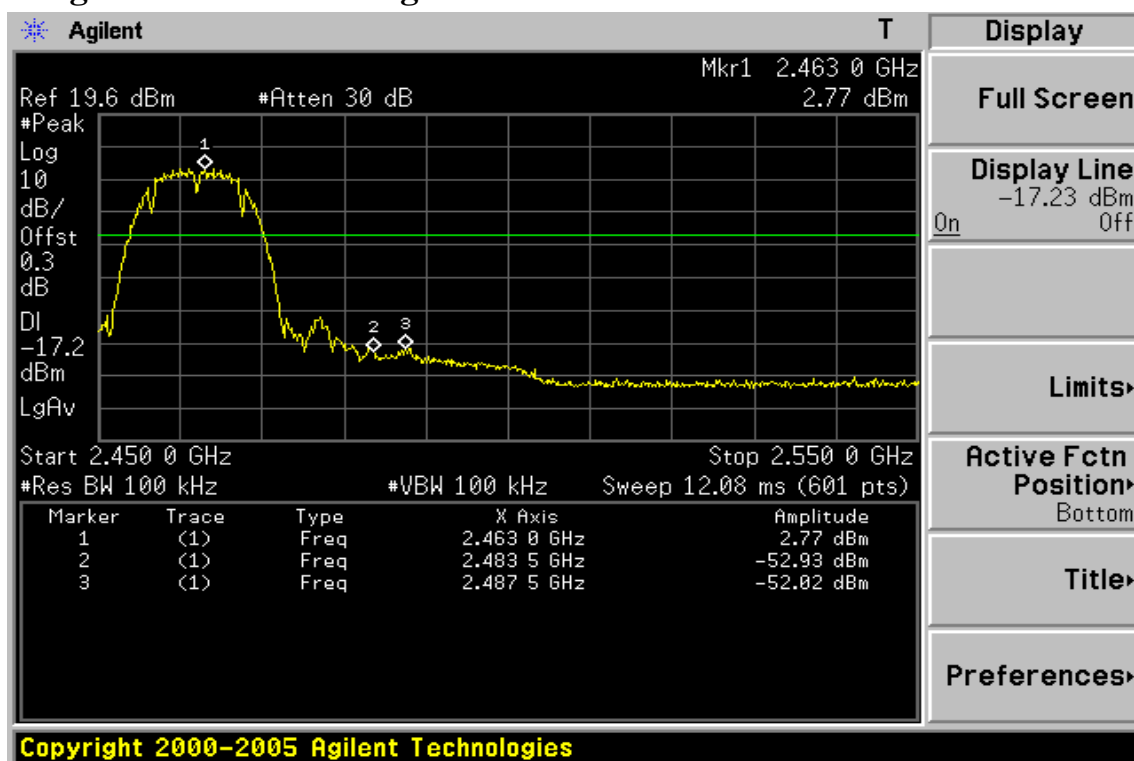
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## 802.11b

## Band Edges Test Data CH-Low



## Band Edges Test Data CH-High



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**Radiated Emission: 802.11 b mode**

Operation Mode TX CH Low  
Fundamental Frequency 2412 MHz  
Temperature 27 °C Pol  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Ver.

	Peak	AV		Actual FS		Peak	AV		
Freq. (MHz)	Reading (dBuV)	Reading (dBuV)	Ant./CL CF(dB)	Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.00	54.02	44.35	-1.39	52.63	42.96	74.00	54.00	-11.04	AV

Operation Mode TX CH Low  
Fundamental Frequency 2412 MHz  
Temperature 27  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Pol Hor.

	Peak	AV		Actual FS		Peak	AV		
Freq. (MHz)	Reading (dBuV)	Reading (dBuV)	Ant./CL CF(dB)	Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.00	54.61	45.89	-1.39	53.22	44.50	74.00	54.00	-9.50	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- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting : 1 GHz- 26GHz, RBW= 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Emission: 802.11 b mode**

Operation Mode TX CH High  
Fundamental Frequency 2462 MHz  
Temperature 27  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Pol Ver.

	Peak	AV		Actual FS		Peak	AV		
Freq. (MHz)	Reading (dBuV)	Reading (dBuV)	Ant./CL CF(dB)	Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.56	53.68	44.17	-0.92	52.76	43.25	74.00	54.00	-10.75	AV

Operation Mode TX CH High  
Fundamental Frequency 2462 MHz  
Temperature 27  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Pol Hor.

	Peak	AV		Actual FS		Peak	AV		
Freq. (MHz)	Reading (dBuV)	Reading (dBuV)	Ant./CL CF(dB)	Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.50	54.15	44.35	-0.92	53.23	43.43	74.00	54.00	-10.57	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: 1 GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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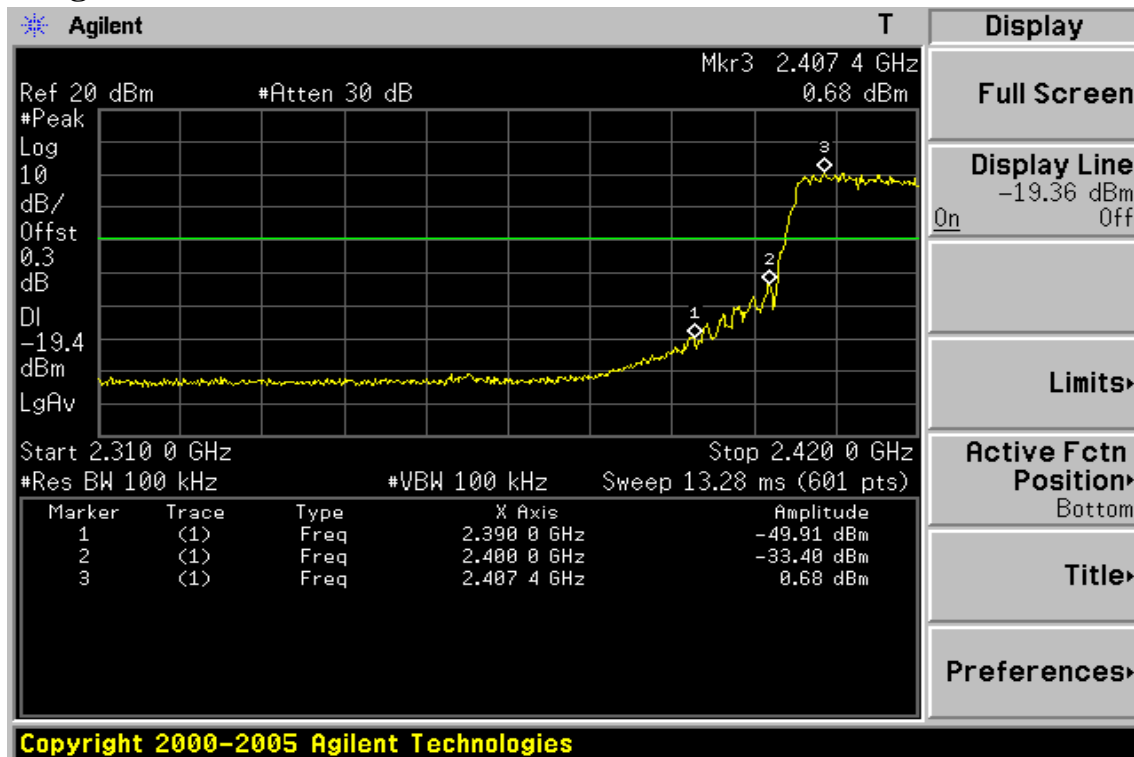
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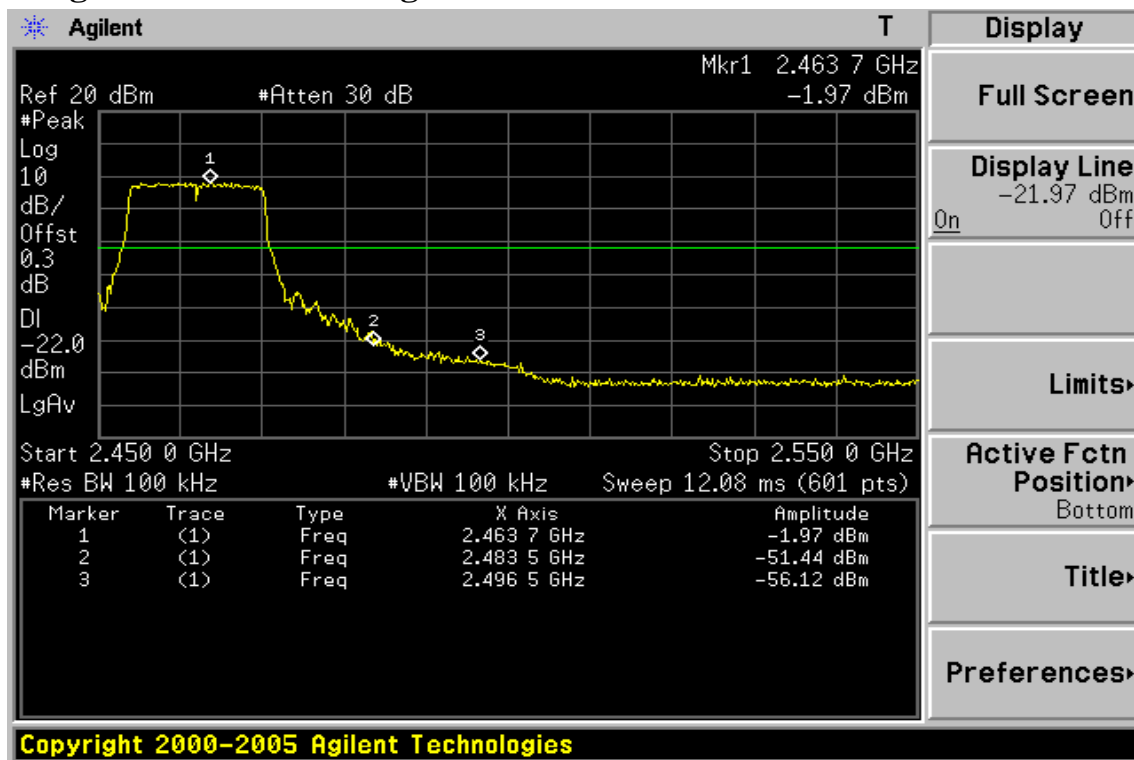


## 802.11g

## Band Edges Test Data CH-Low



## Band Edges Test Data CH-High



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**Radiated Emission: 802.11 g mode**

Operation Mode TX CH Low  
Fundamental Frequency 2412 MHz  
Temperature 27 °C Pol  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Ver.

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2390.00	54.57	44.69	-1.39	53.18	43.30	74.00	54.00	-10.70	AV

Operation Mode TX CH Low  
Fundamental Frequency 2412 MHz  
Temperature 27 °C Pol  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Hor.

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2390.00	55.67	45.38	-1.39	54.28	43.99	74.00	54.00	-10.01	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- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting : 1 GHz- 26GHz, RBW= 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Emission: 802.11 g mode**

Operation Mode TX CH High  
Fundamental Frequency 2462 MHz  
Temperature 27 °C Pol  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Ver.

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2483.50	55.37	44.39	-0.92	54.45	43.47	74.00	54.00	-10.53	AV

Operation Mode TX CH High  
Fundamental Frequency 2462 MHz  
Temperature 27 °C Pol  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Hor.

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2483.50	60.38	46.89	-0.92	59.46	45.97	74.00	54.00	-8.03	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.
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- (3) Spectrum Peak Setting: 1 GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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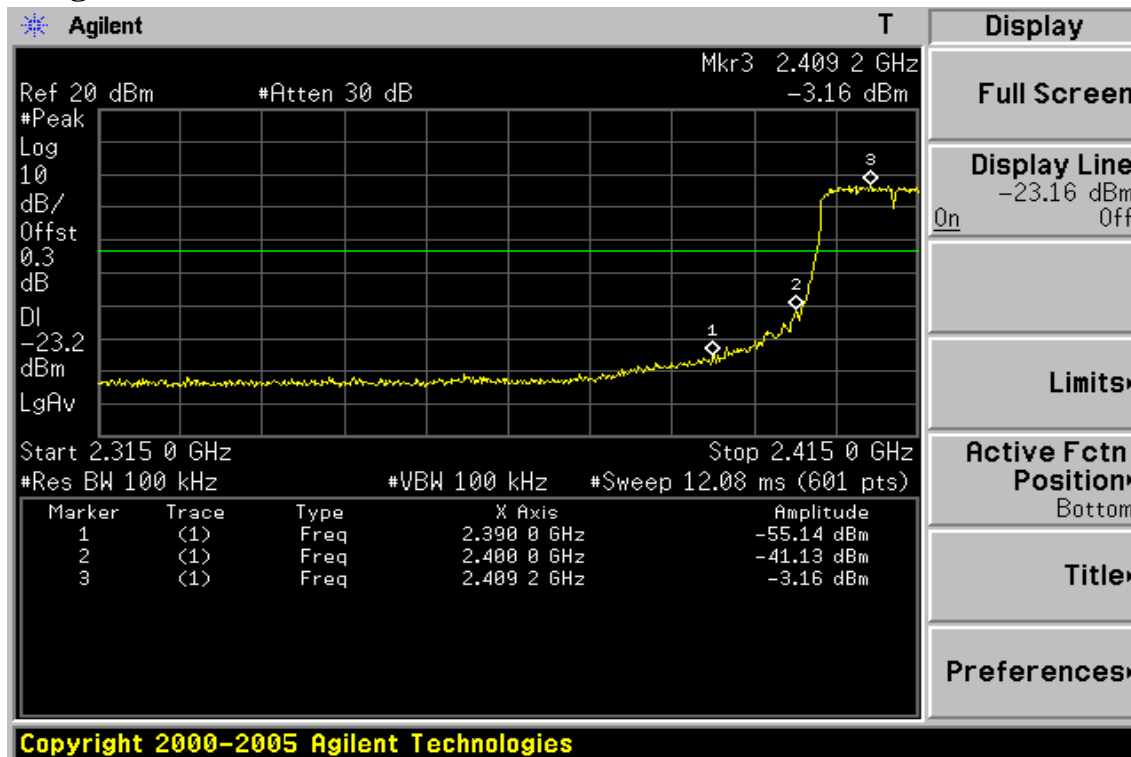
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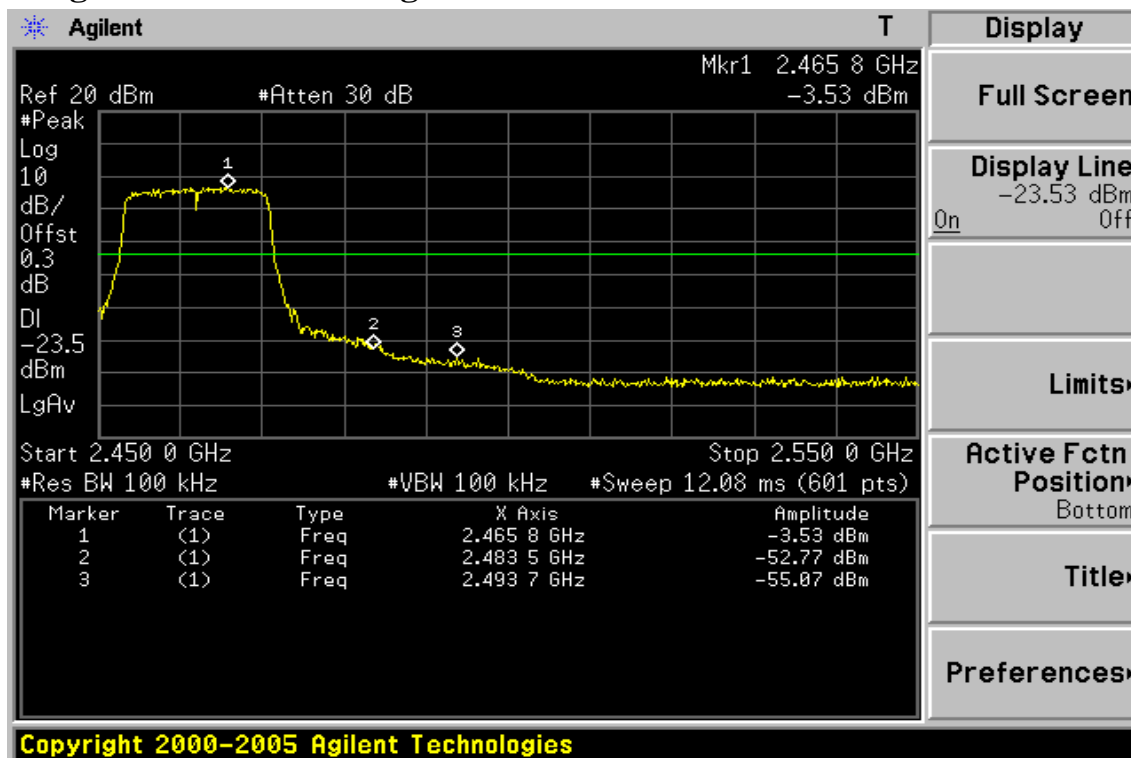
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## 802.11n\_20M, Chain1

## Band Edges Test Data CH-Low



## Band Edges Test Data CH-High



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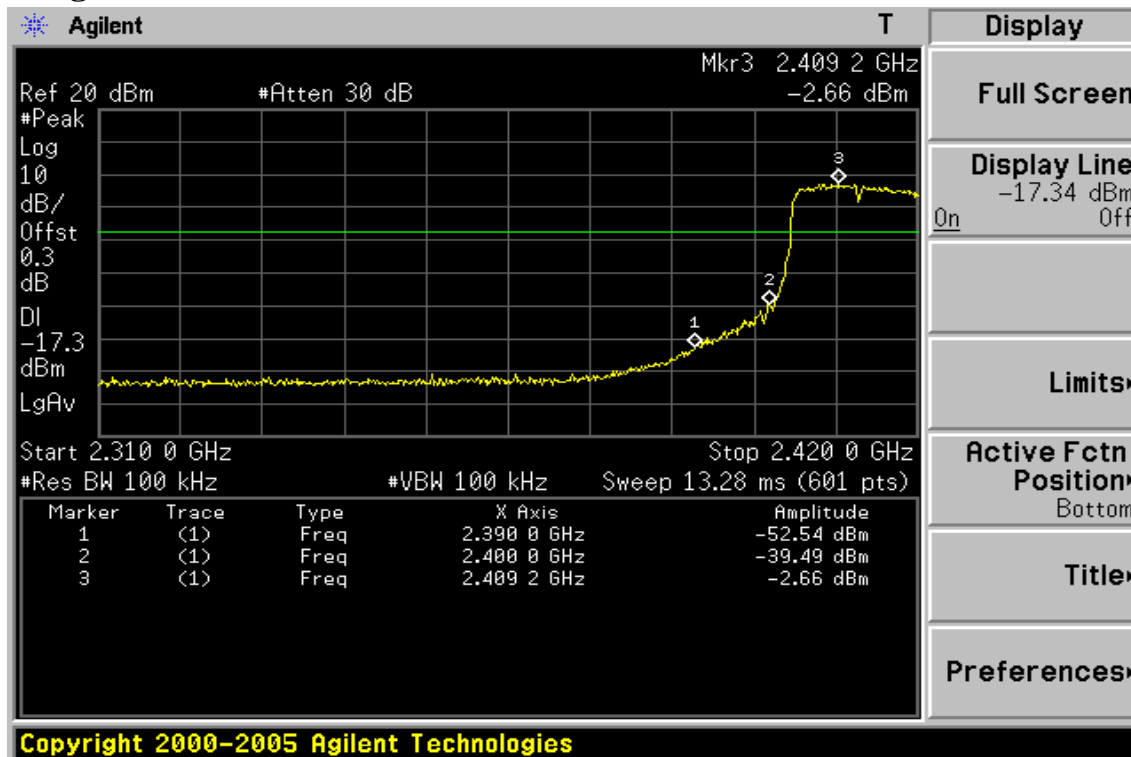
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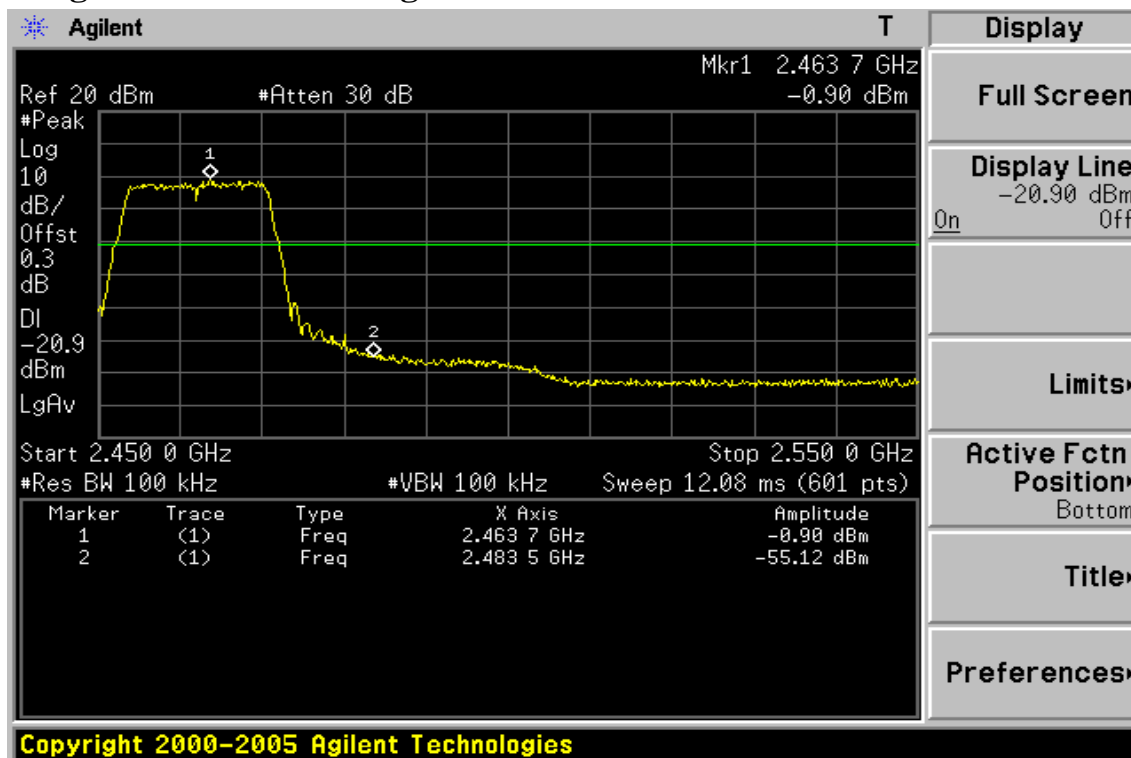
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## 802.11n\_20M, Chain2 Band Edges Test Data CH-Low



## Band Edges Test Data CH-High



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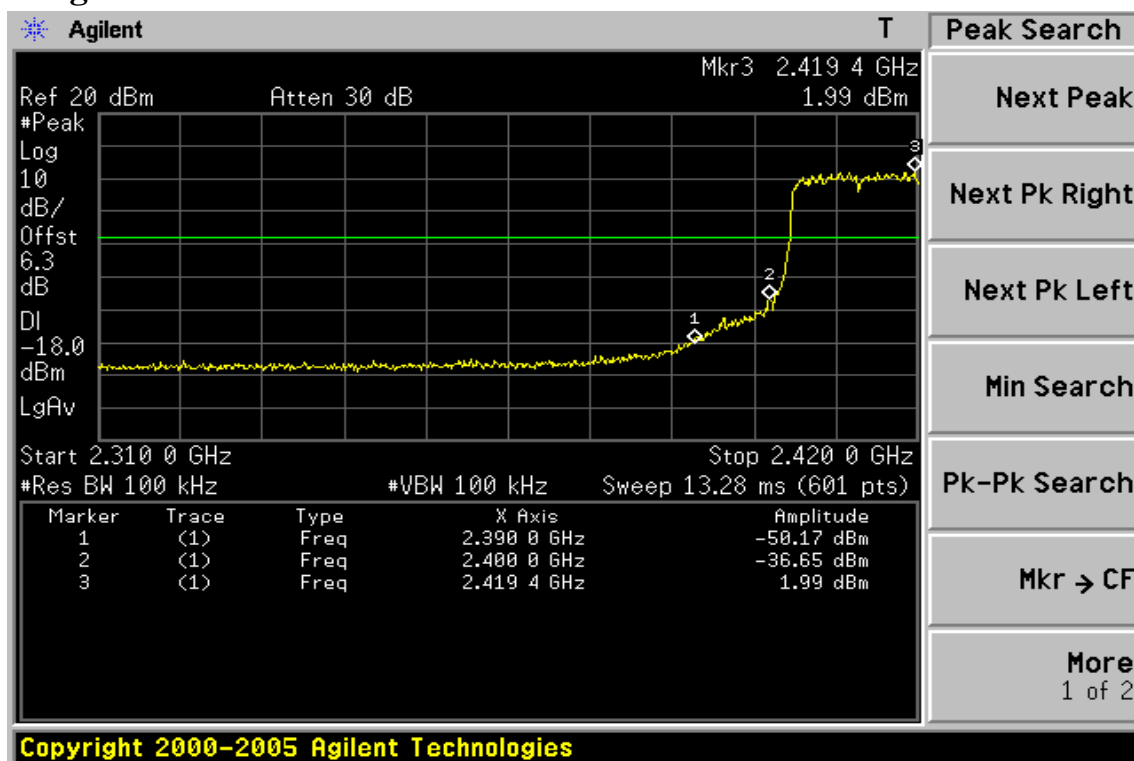
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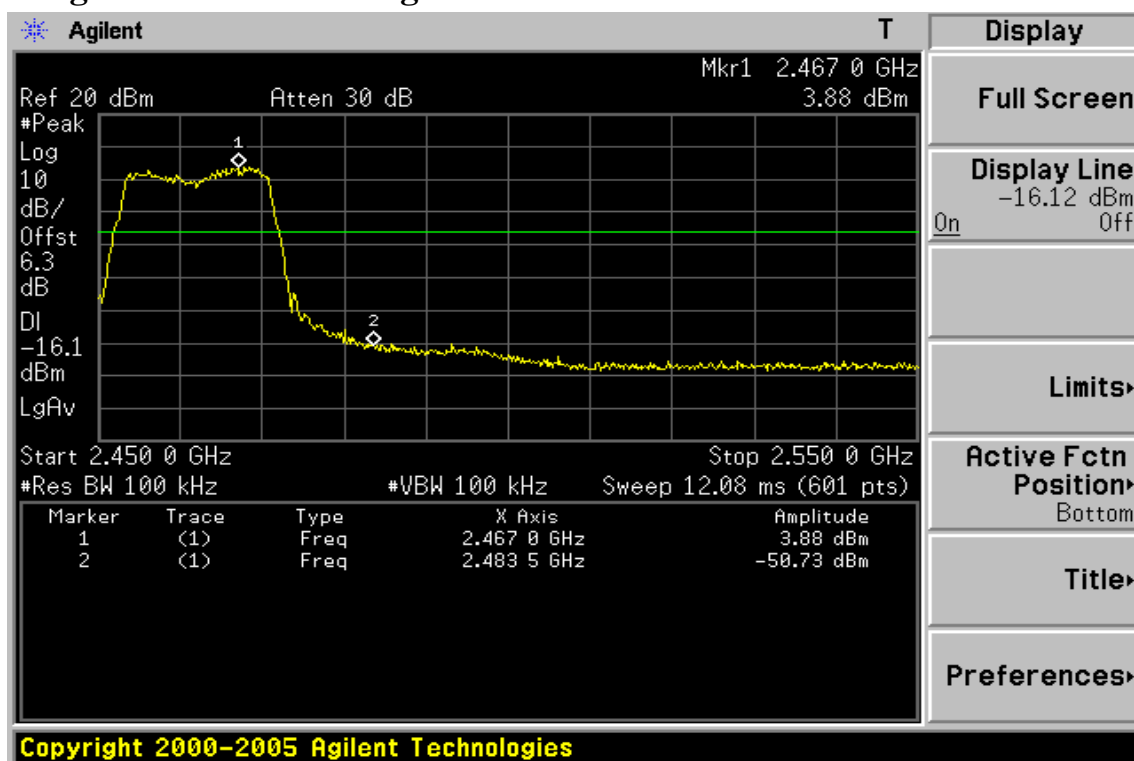
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## 802.11n\_20M, Combine, Chain1, Chain2

### Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



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**Radiated Emission: 802.11 n\_20M mode, Combine, Chain1, Chain2**

Operation Mode	TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	27 °C Pol	Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2390.00	56.60	45.25	-1.39	55.21	43.86	74.00	54.00	-10.14	AV

Operation Mode	TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	27 °C Pol	Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2390.00	54.75	44.86	-1.39	53.36	43.47	74.00	54.00	-10.53	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.

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**Radiated Emission: 802.11 n\_20M mode Combine, Chain0, Chain1**

Operation Mode	TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	27 °C Pol	Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2483.50	54.39	45.36	-0.92	53.47	44.44	74.00	54.00	-9.56	AV

Operation Mode	TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	27 °C Pol	Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2483.50	55.74	45.26	-0.92	54.82	44.34	74.00	54.00	-9.66	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.

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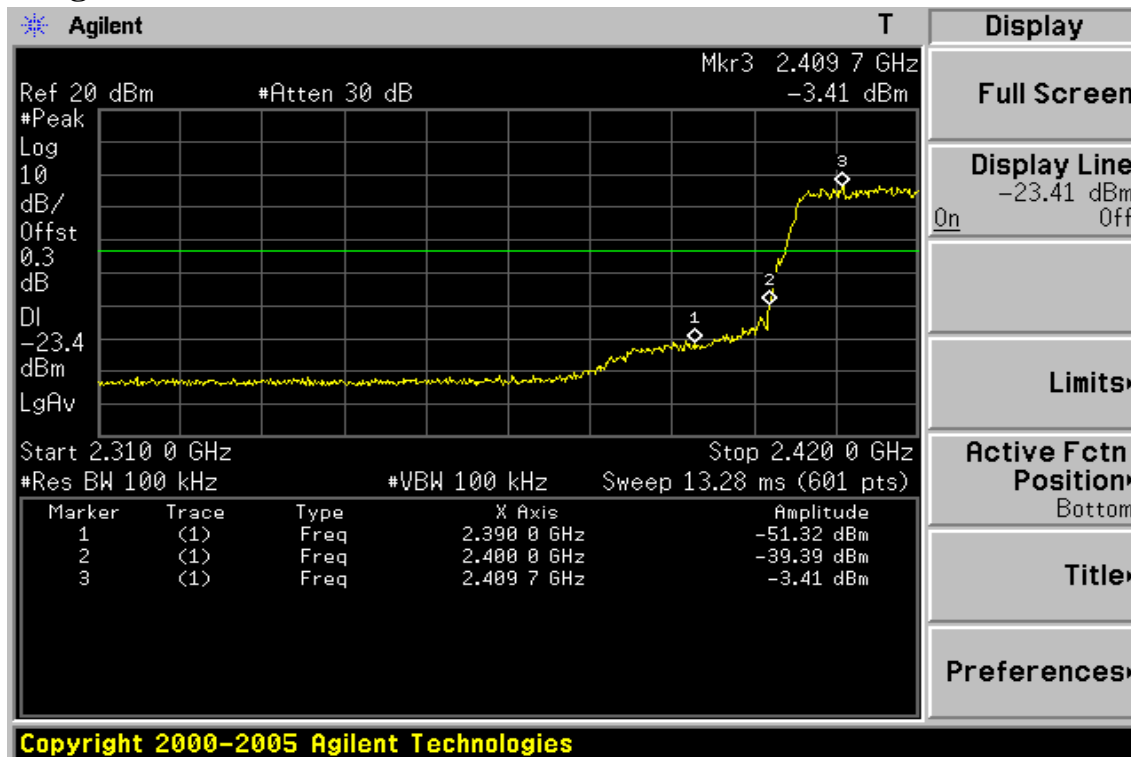
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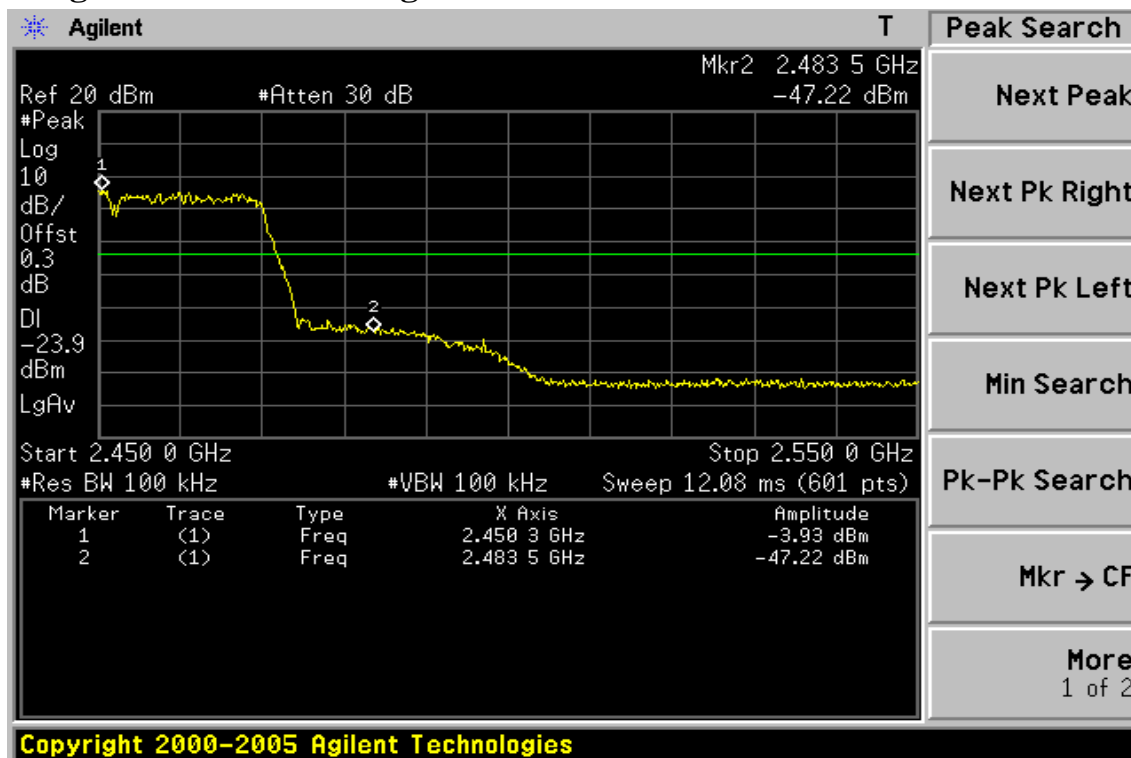


## 802.11n\_40M, Chain1

### Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



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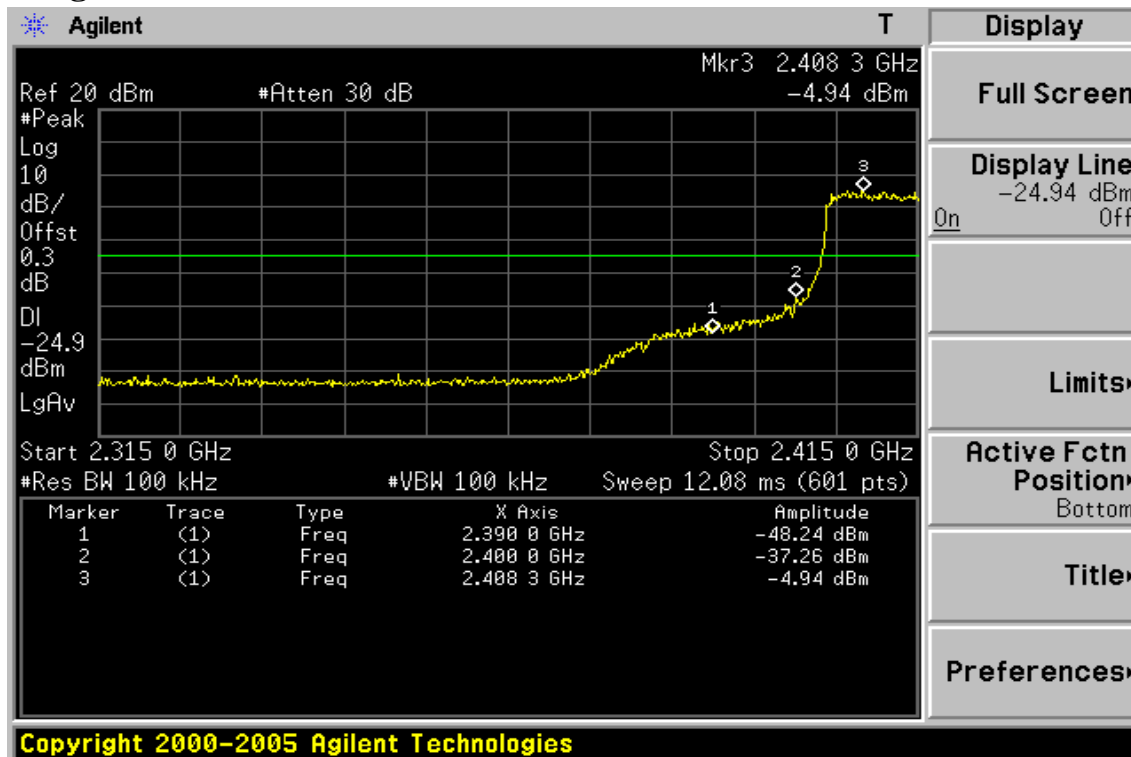
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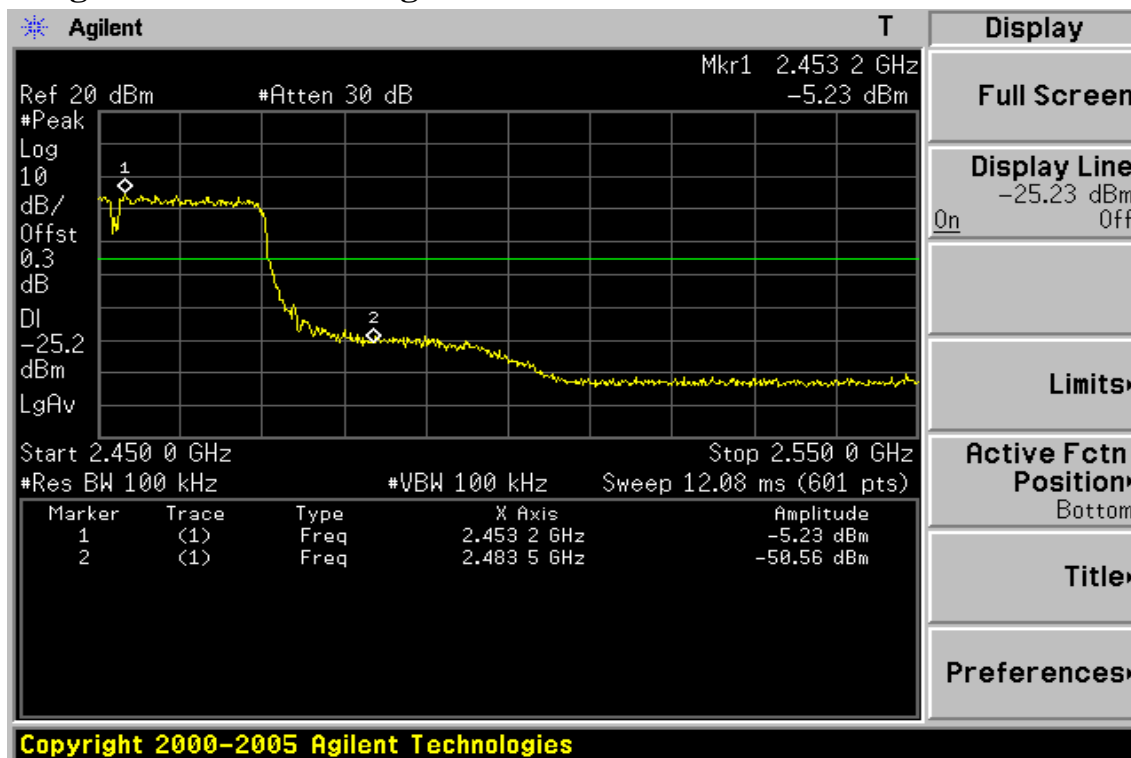
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## 802.11n\_40M, Chain2

### Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



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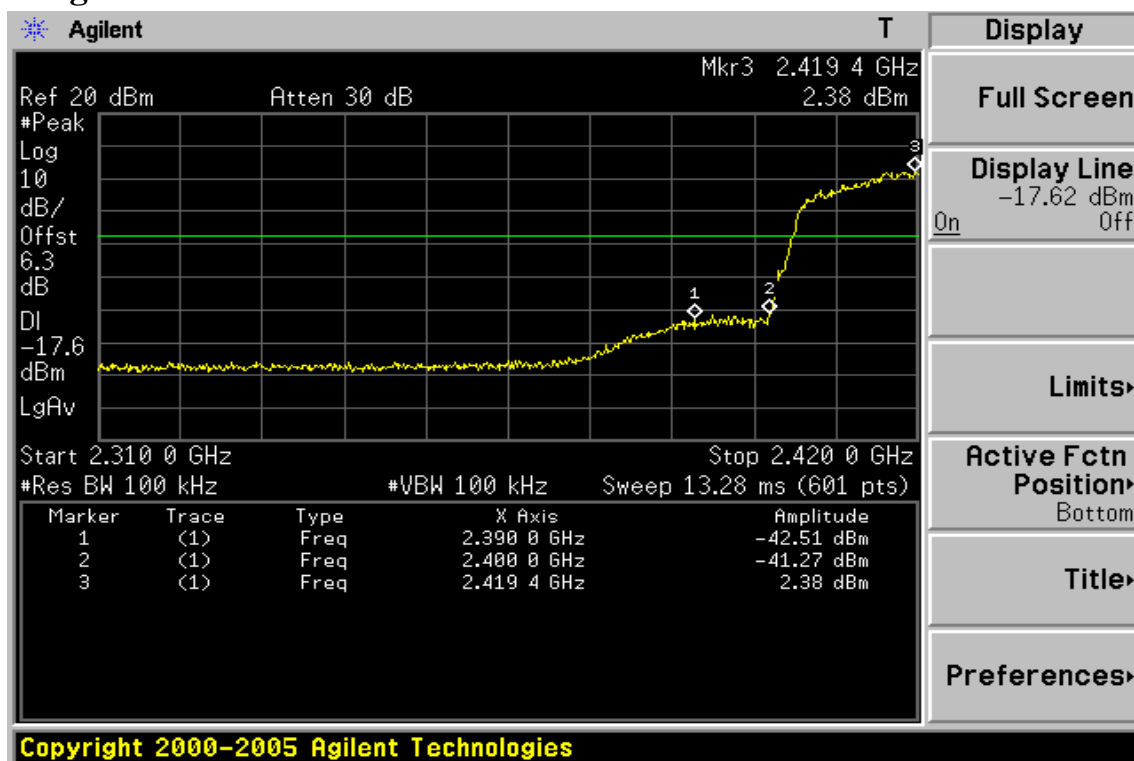
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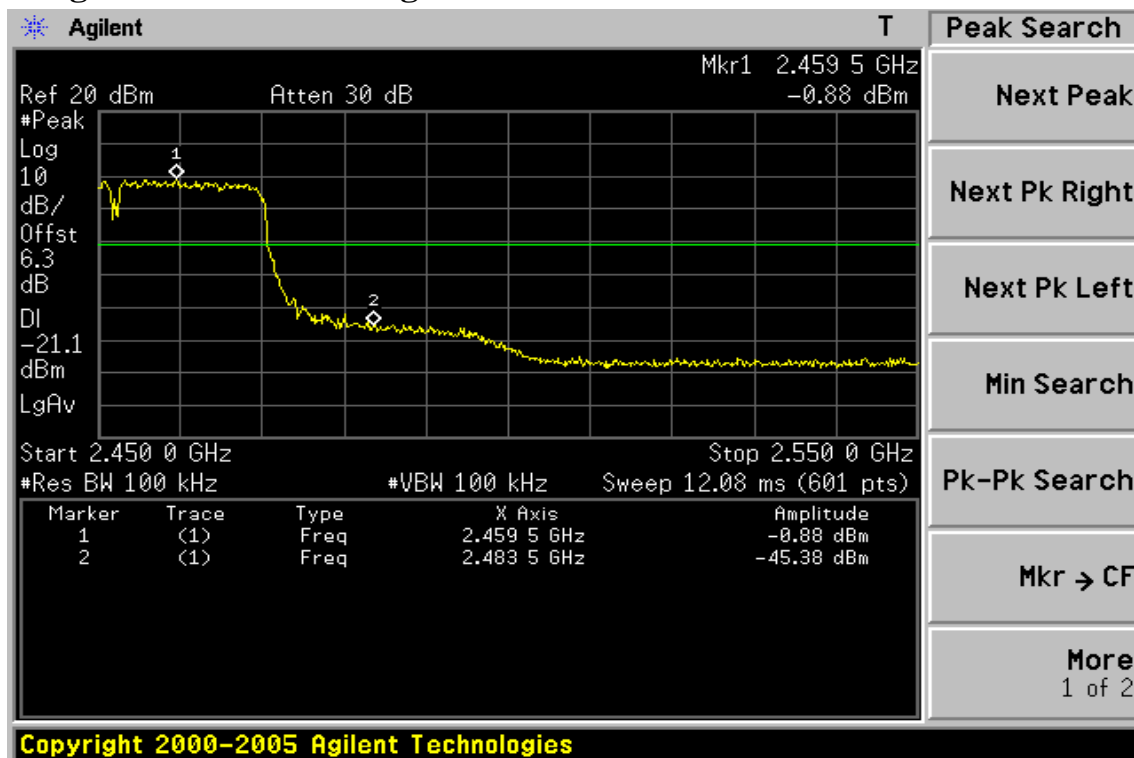
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## 802.11n\_40M, Combine, Chain1, Chain2

### Band Edges Test Data CH-Low



### Band Edges Test Data CH-High



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**Radiated Emission: 802.11 n\_40M mode, Combine, Chain1, Chain2**

Operation Mode	TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422 MHz	Test By	Jason
Temperature	27 °C Pol	Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2390.00	56.50	45.97	-1.39	55.11	44.58	74.00	54.00	-9.42	AV

Operation Mode	TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2442 MHz	Test By	Jason
Temperature	27 °C Pol	Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2390.00	56.79	47.52	-1.39	55.40	46.13	74.00	54.00	-7.87	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.

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**Radiated Emission: 802.11 n\_40M mode Combine, Chain1, Chain2**

Operation Mode	TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452 MHz	Test By	Jason
Temperature	27 °C Pol	Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2483.50	55.40	45.26	-0.92	54.48	44.34	74.00	54.00	-9.66	AV

Operation Mode	TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452 MHz	Test By	Jason
Temperature	27 °C Pol	Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
2483.50	58.05	48.37	-0.92	57.13	47.45	74.00	54.00	-6.55	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.

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## 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 8, §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 7.2 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 7.3 for details.

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## 9.4 Measurement Procedure:

### Radiated Emission:

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.

### Conducted Emission:

1. To connect Antenna Port of EUT to Spectrum.
2. Set RBW = 100K & VBW = 100K on Spectrum.
3. Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 3G, 3G to 8G, 8G to 13G, 13G to 18G and 18G to 26.5GHz
4. Via Software, combine 5 spans of frequency range into one plot

## 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	

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## 9.6 Measurement Result:

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

Note: In Comparison between Simultaneous Transmission (WWAN + WLAN) and Individual Transmission (WLAN), the radiated emission as generated (WLAN) is worsen than simultaneous transmission emitted by two radio modules. Hence, the data as measured in individual module is presented in the test report.

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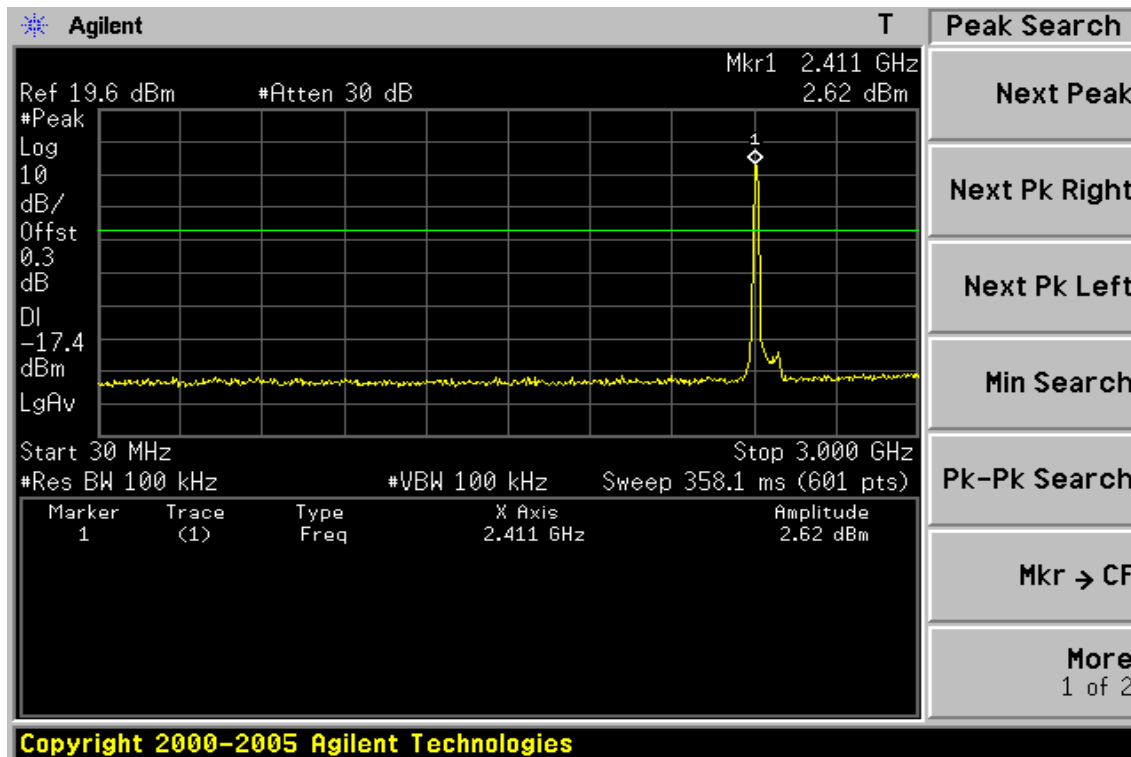
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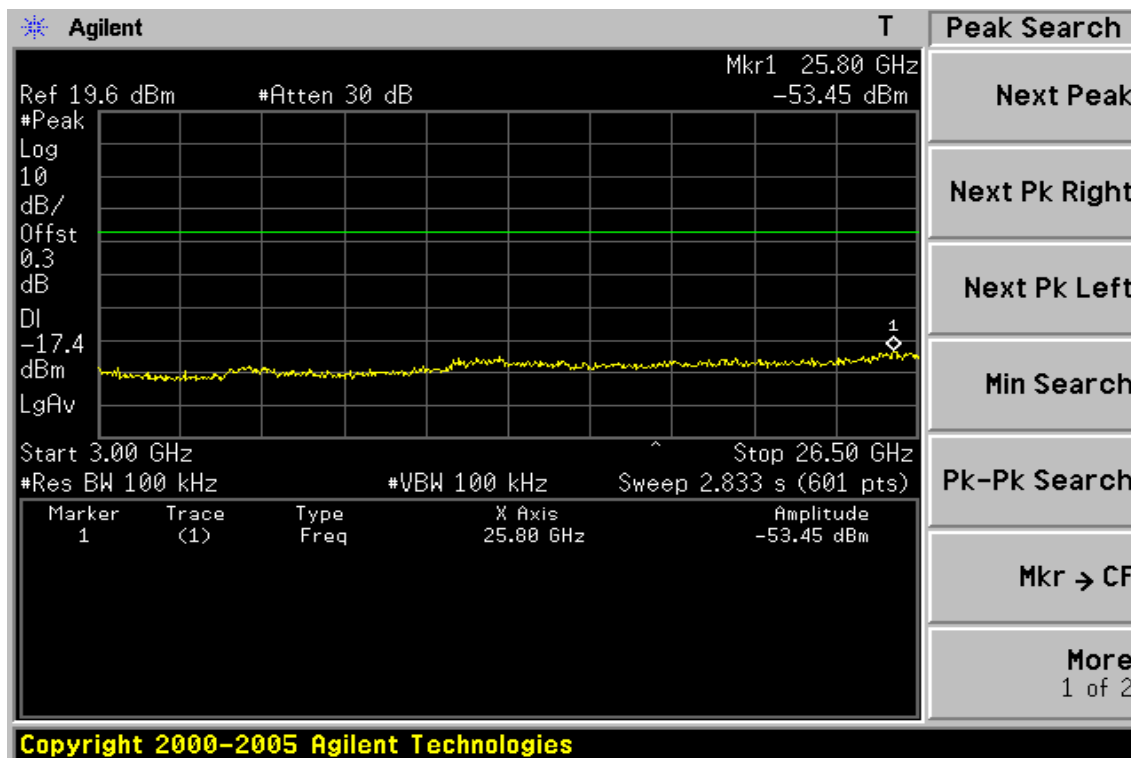
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## Conducted Spurious Emission Measurement Result (802.11b) Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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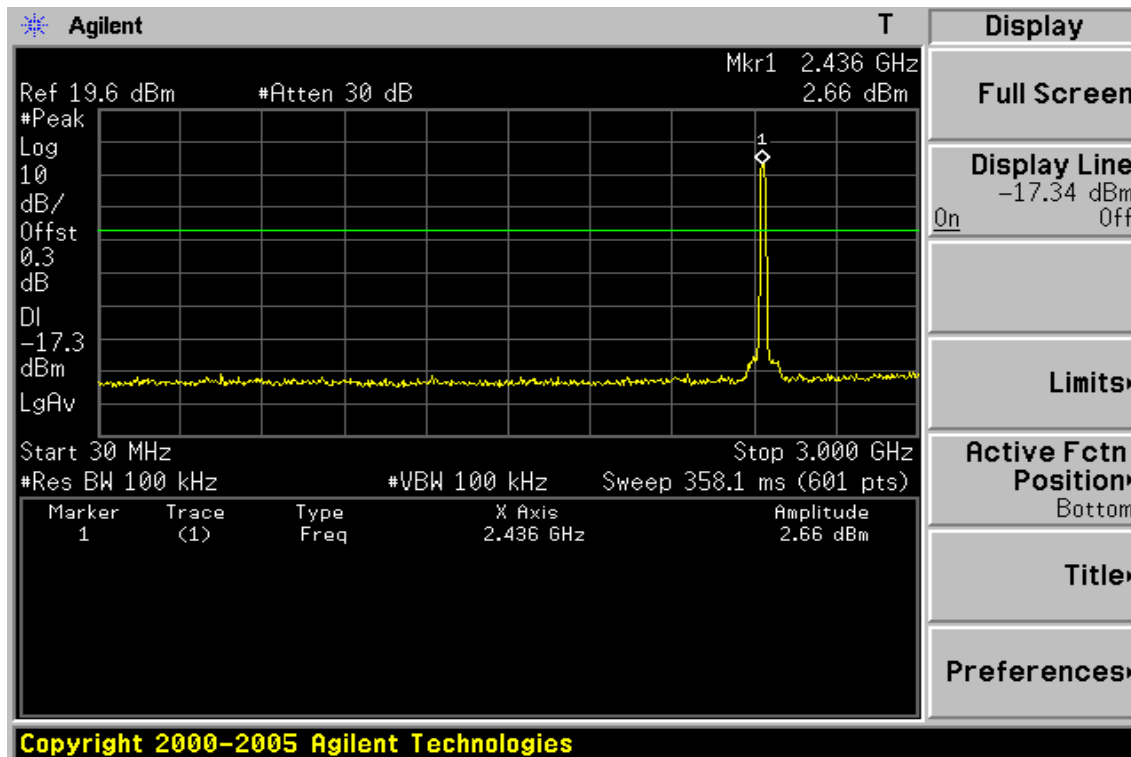
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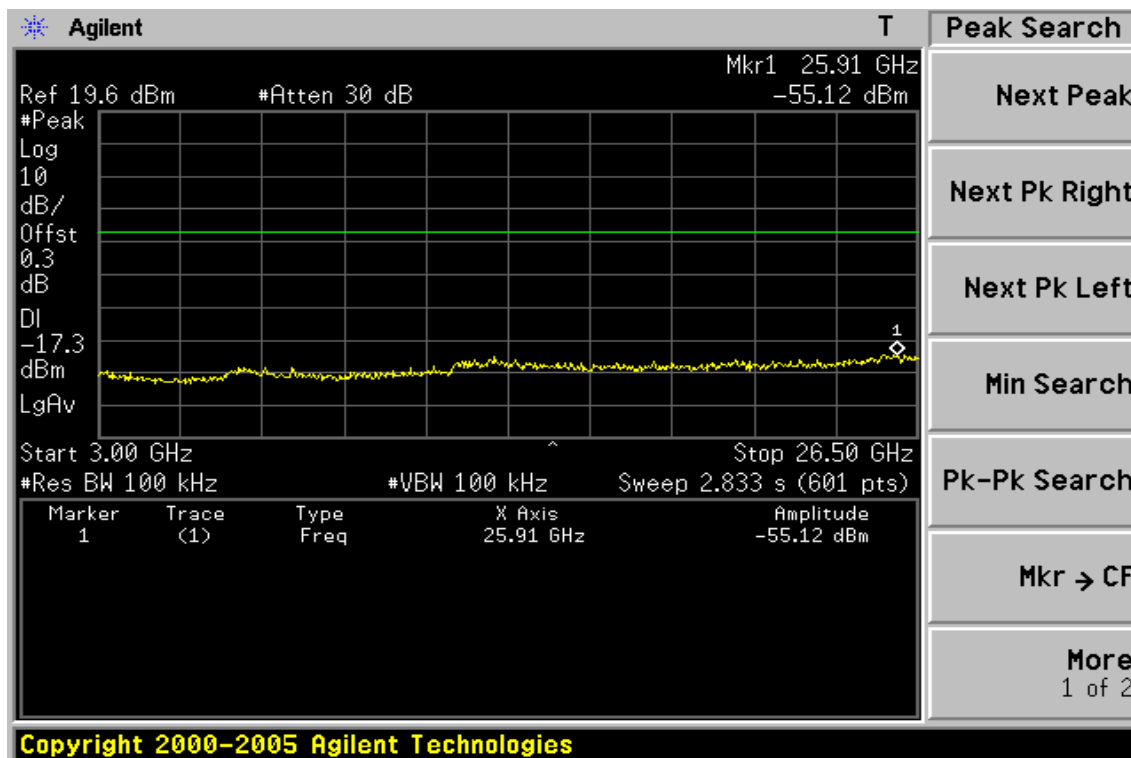
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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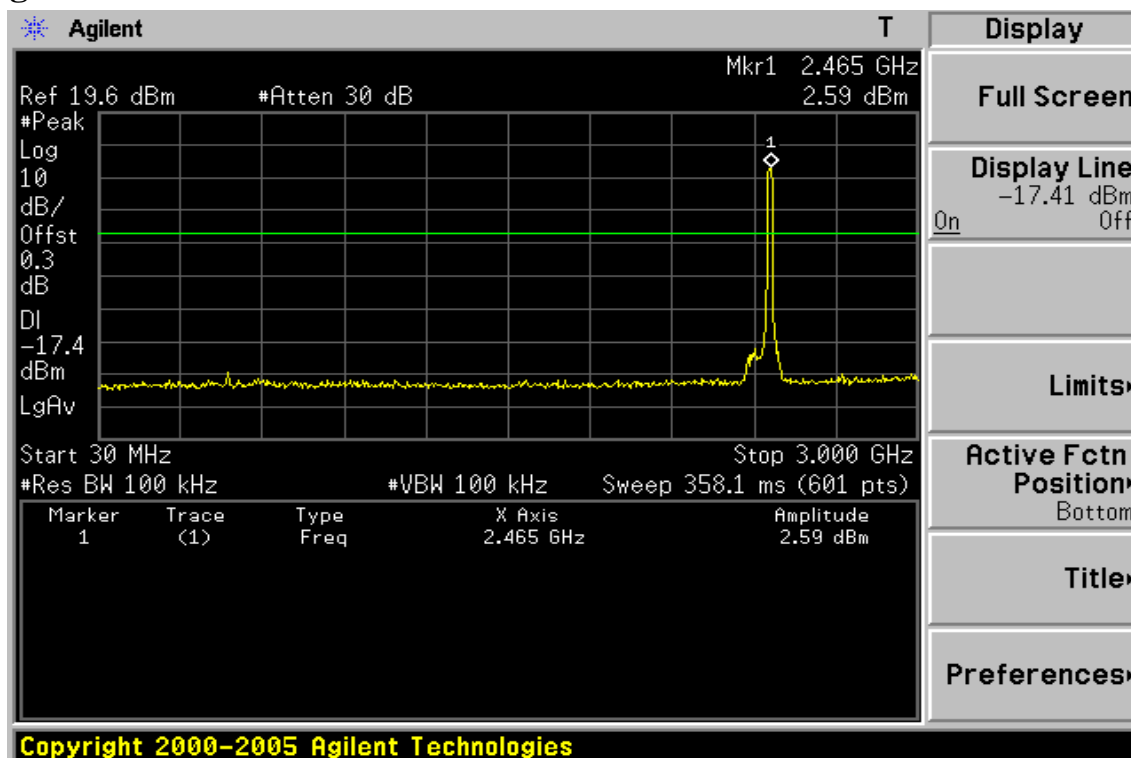
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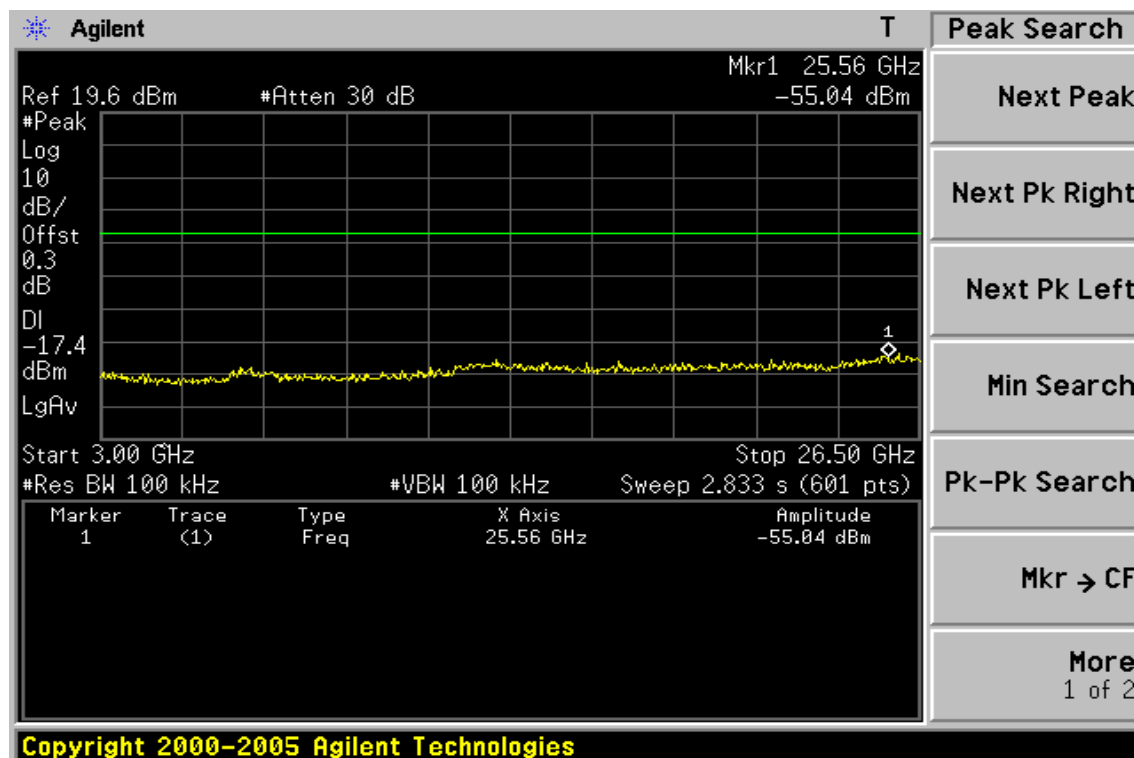
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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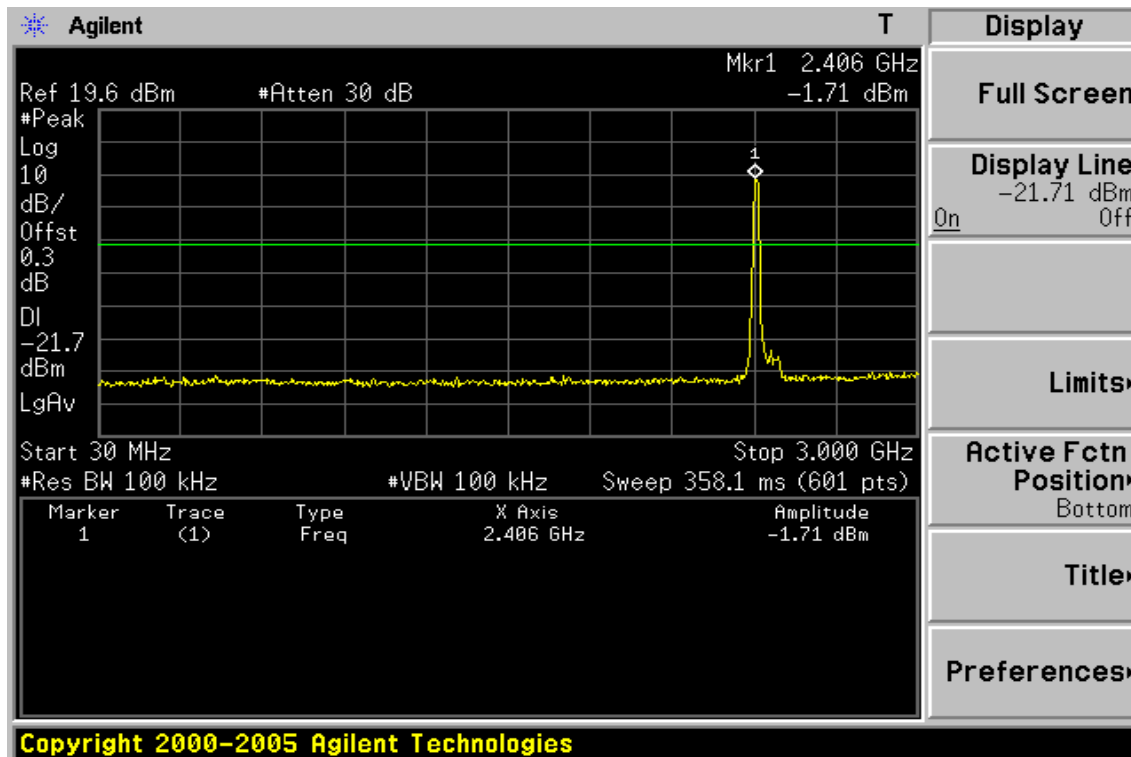
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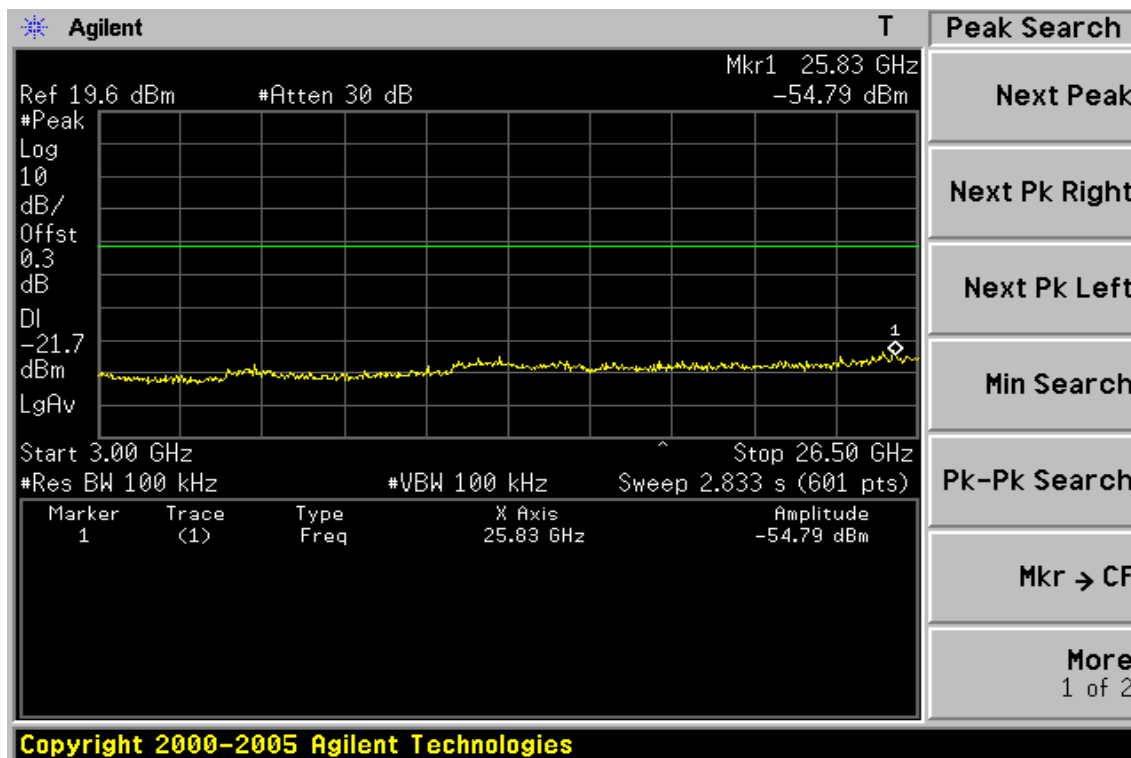
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## Conducted Spurious Emission Measurement Result (802.11g) Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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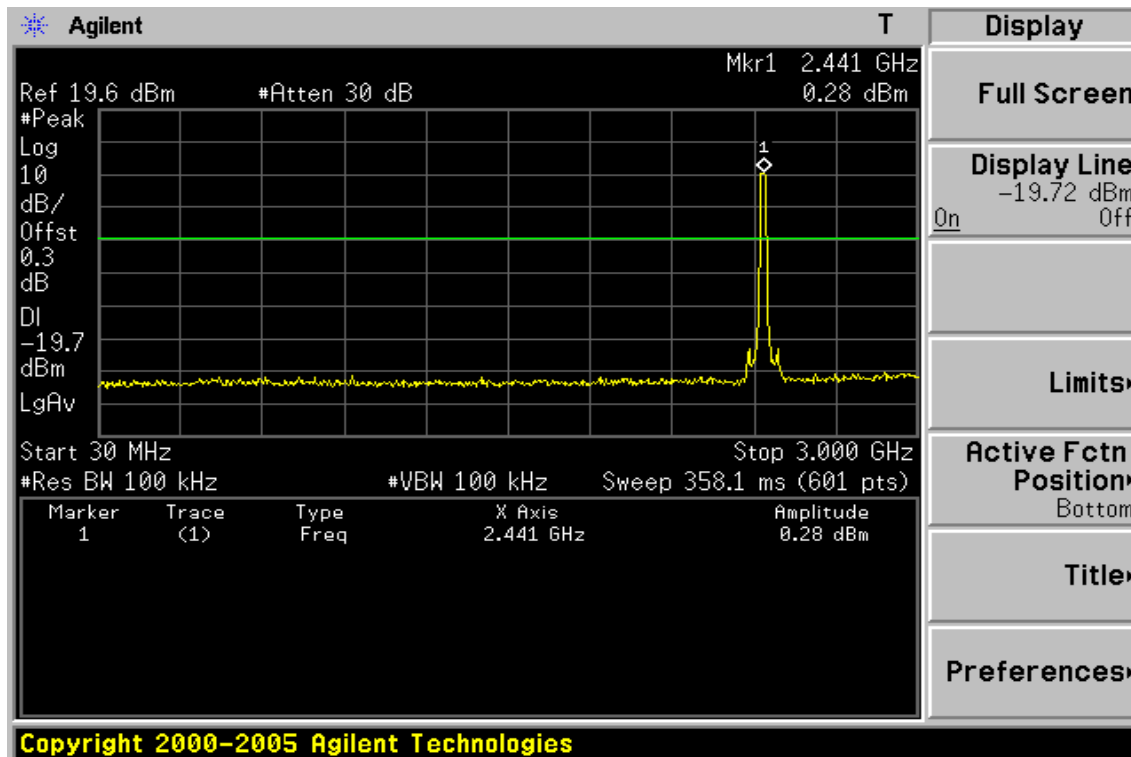
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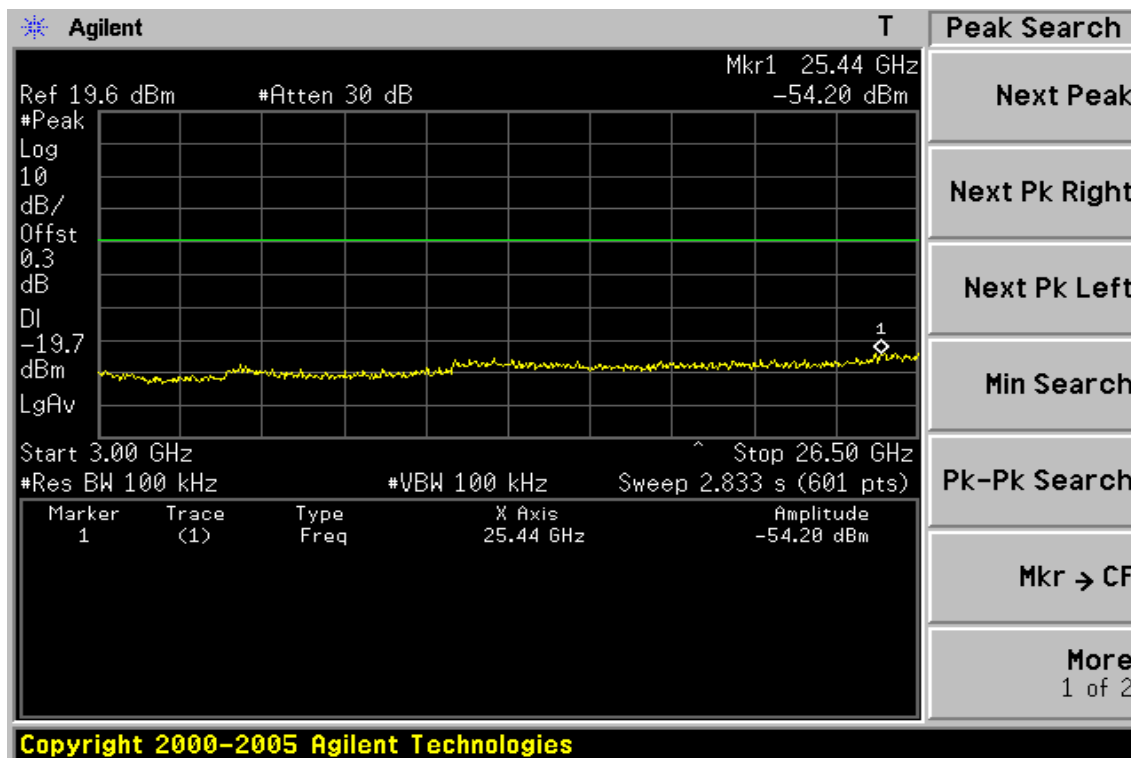
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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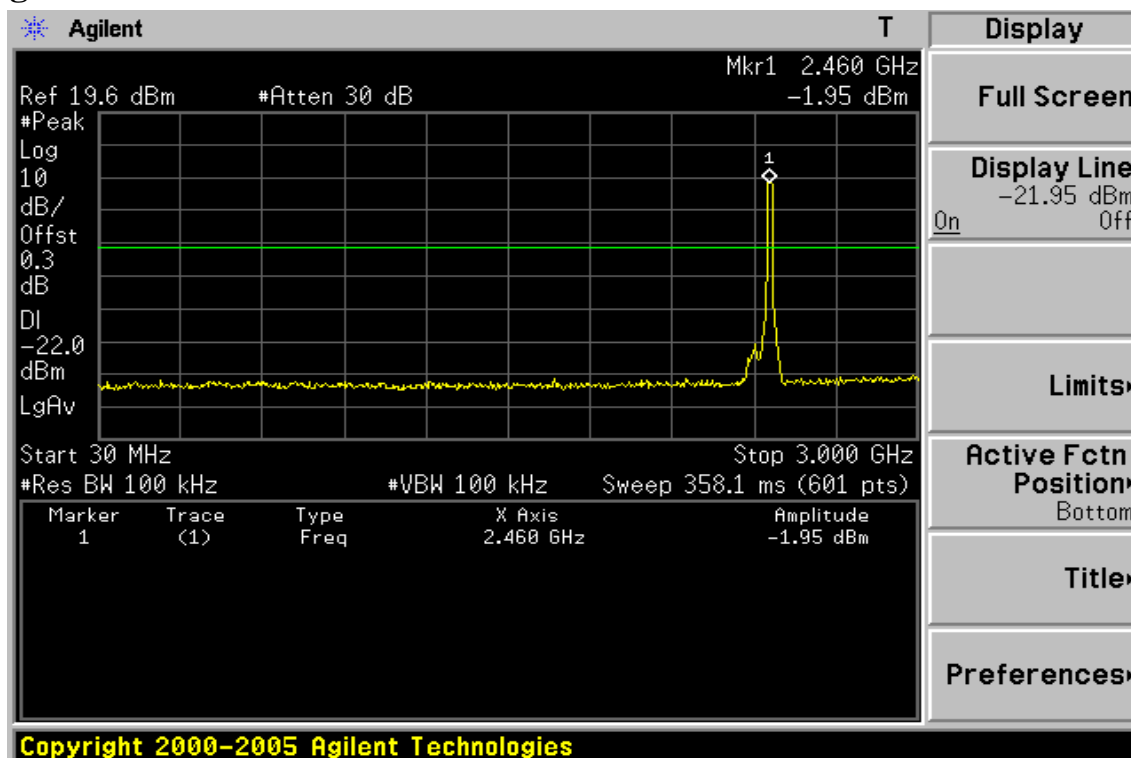
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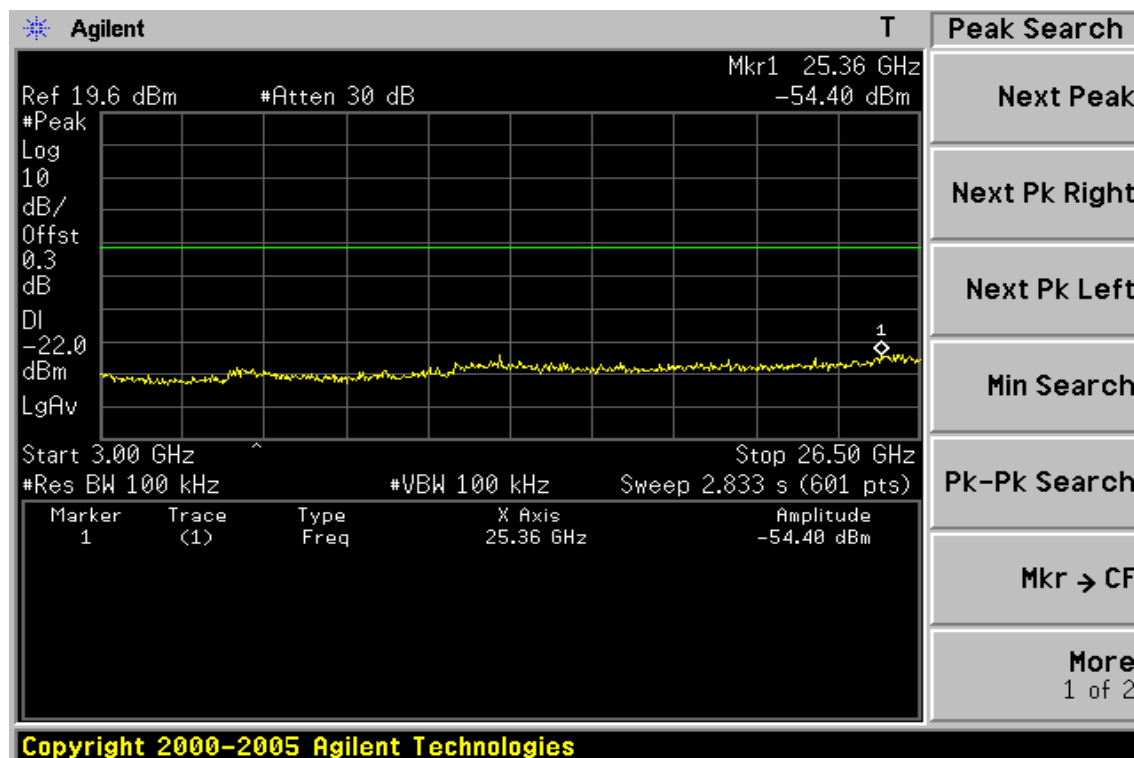
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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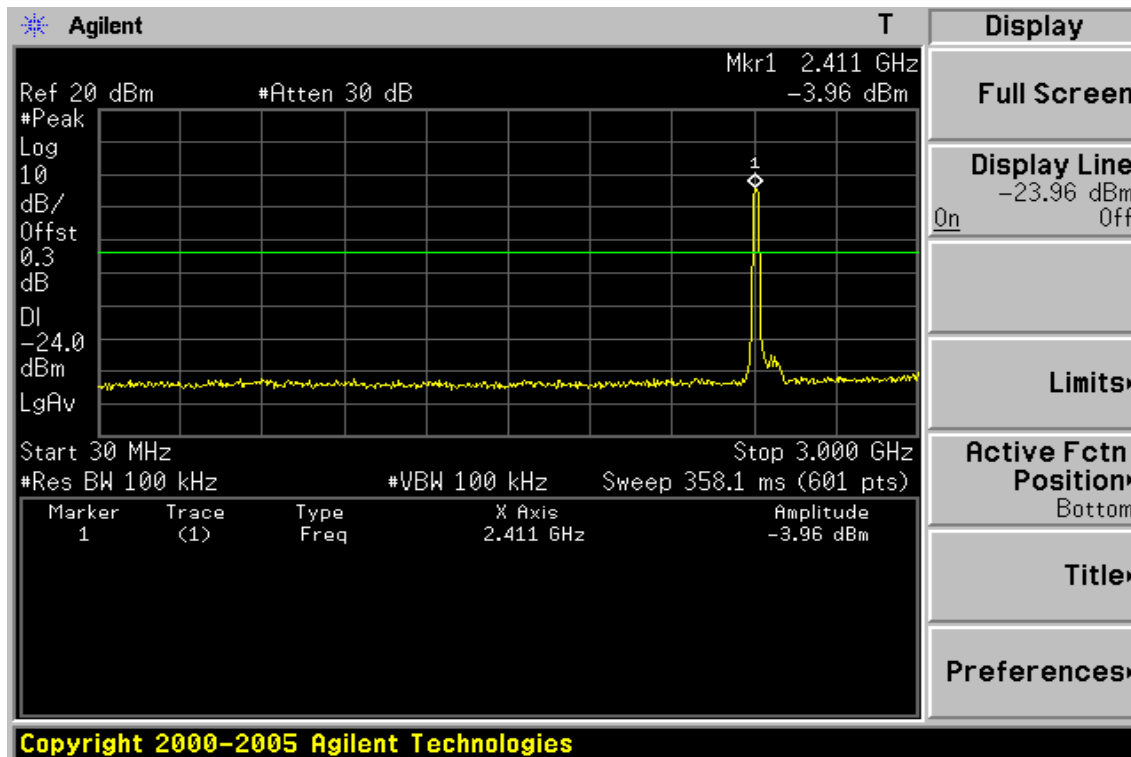
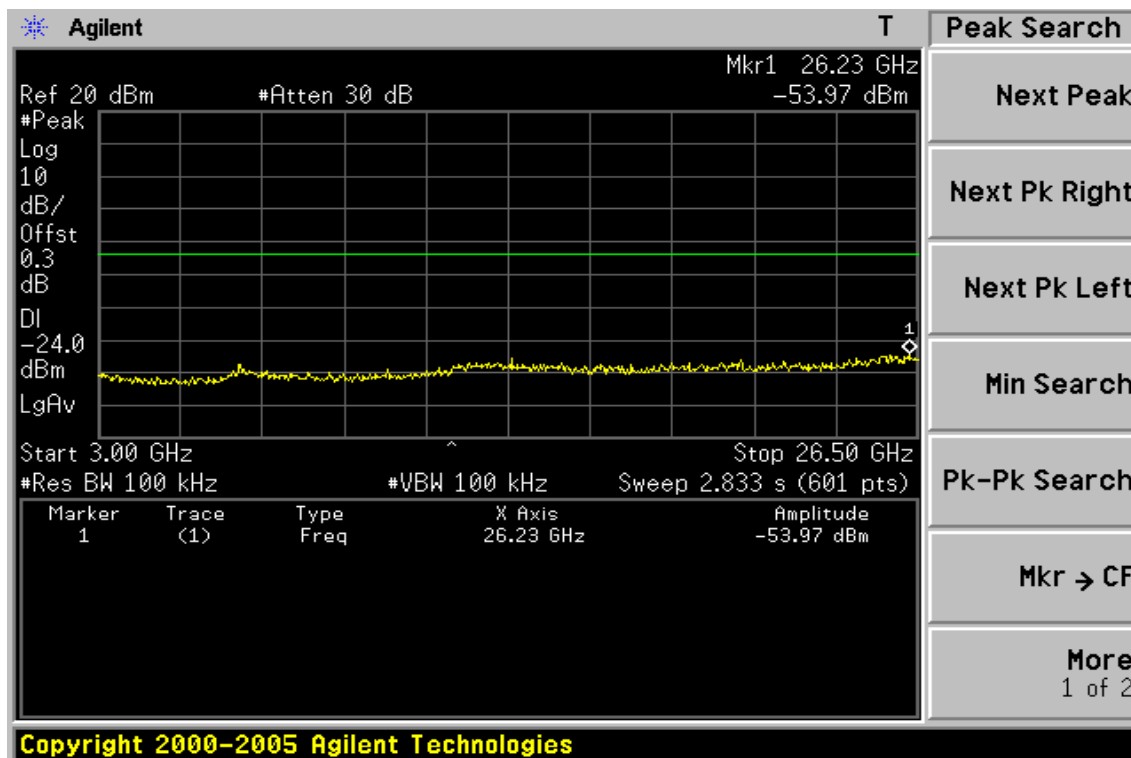
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**Conducted Spurious Emission Measurement Result (802.11n\_20M), Chain1**  
**Ch Low 30MHz – 3GHz****Ch Low 3GHz – 26.5GHz**

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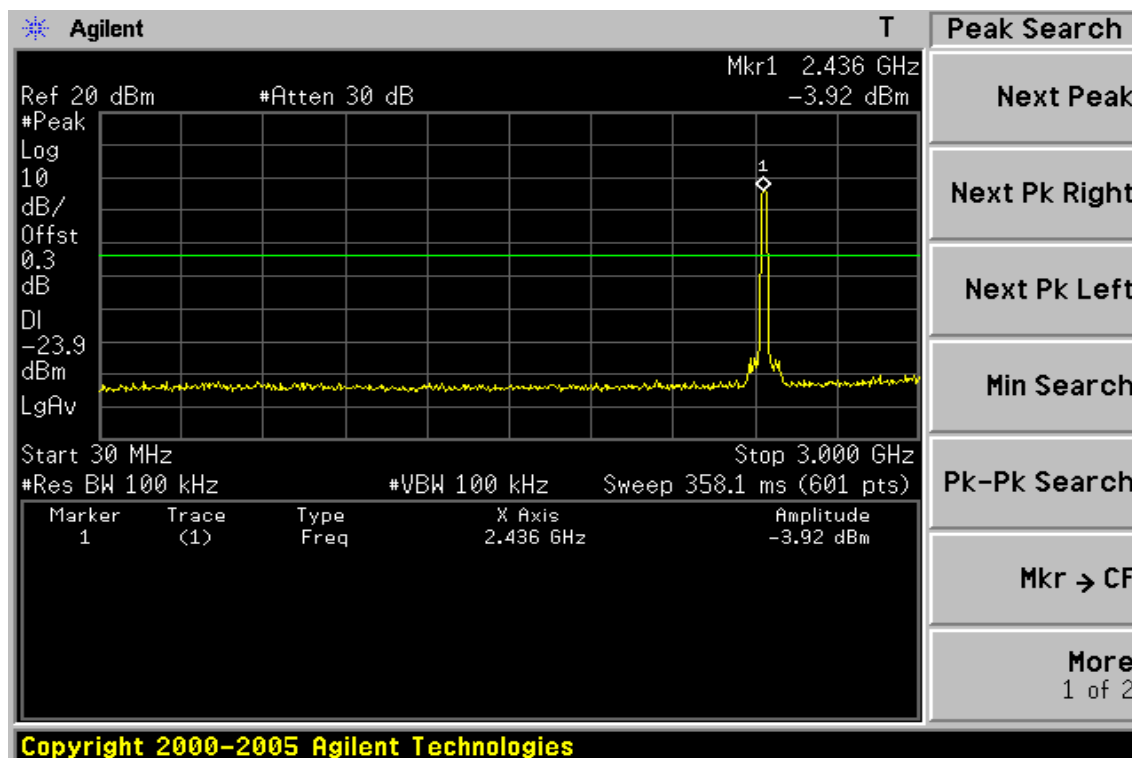
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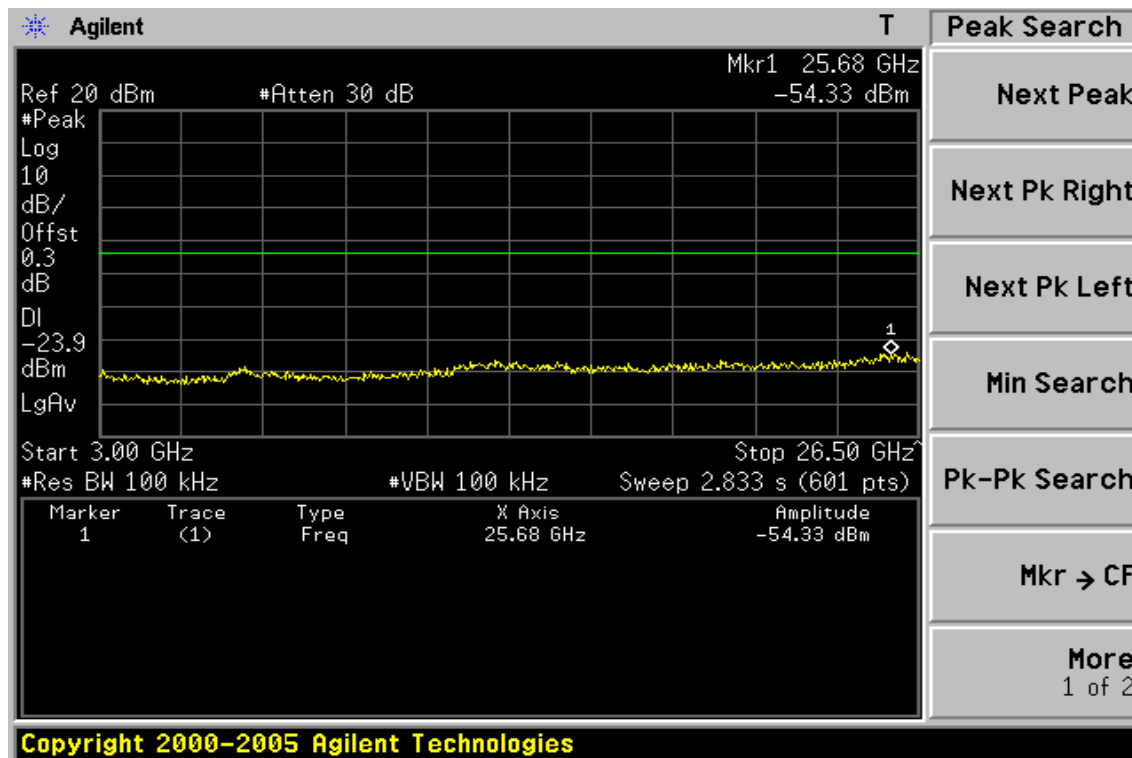
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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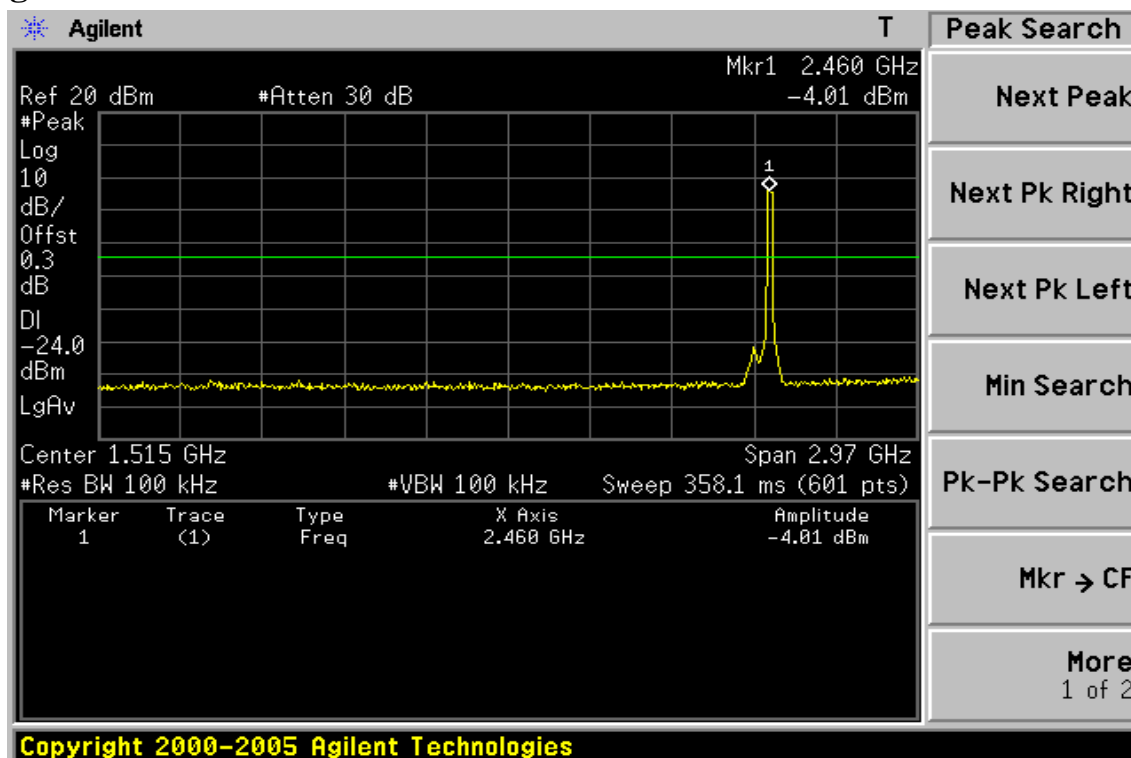
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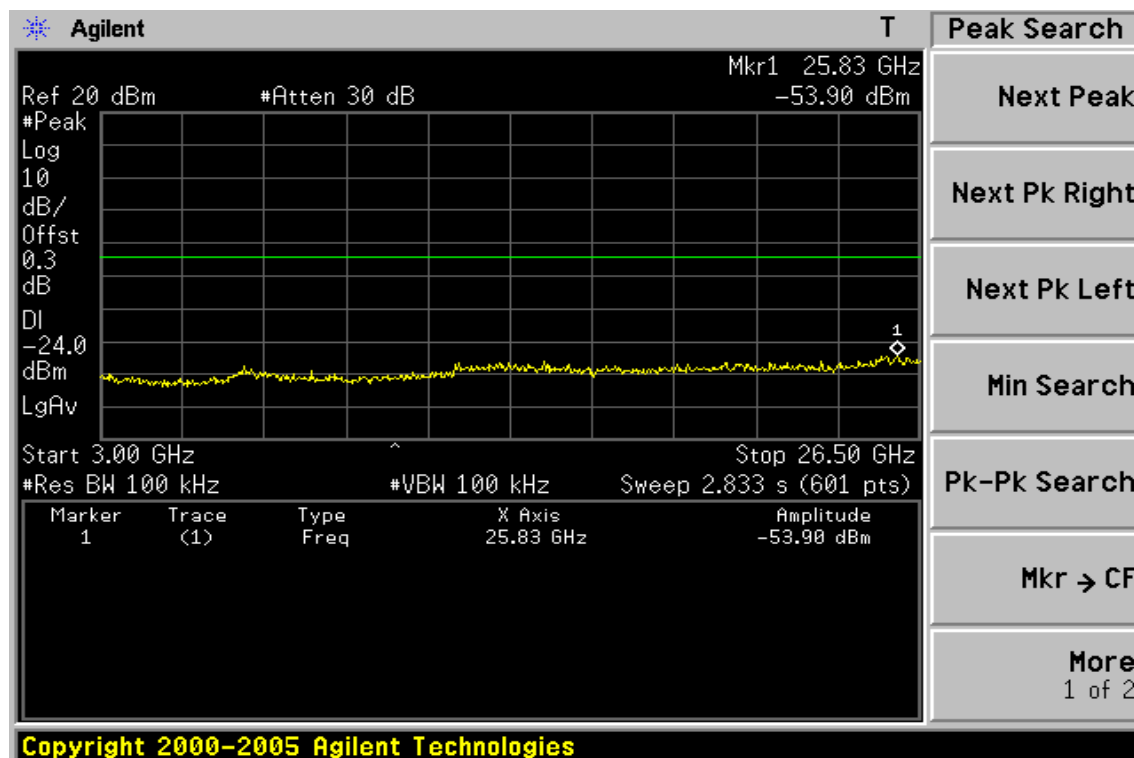
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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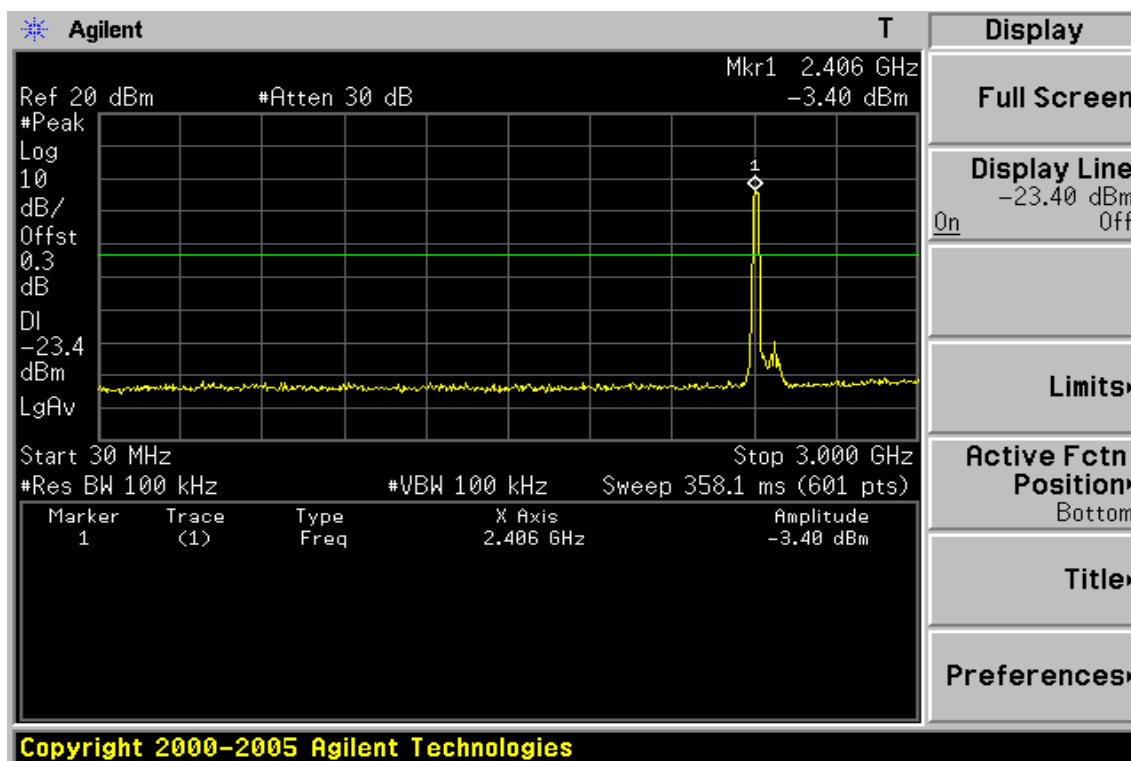
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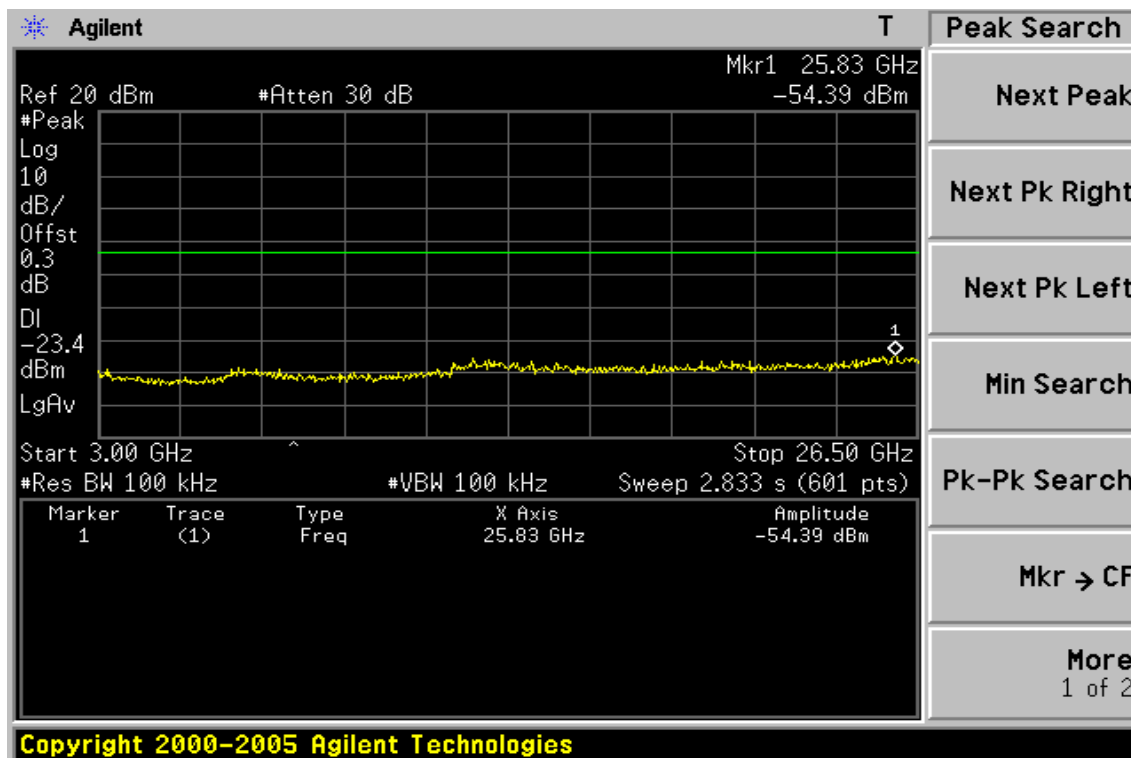
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## Conducted Spurious Emission Measurement Result (802.11n\_20M), Chain2 Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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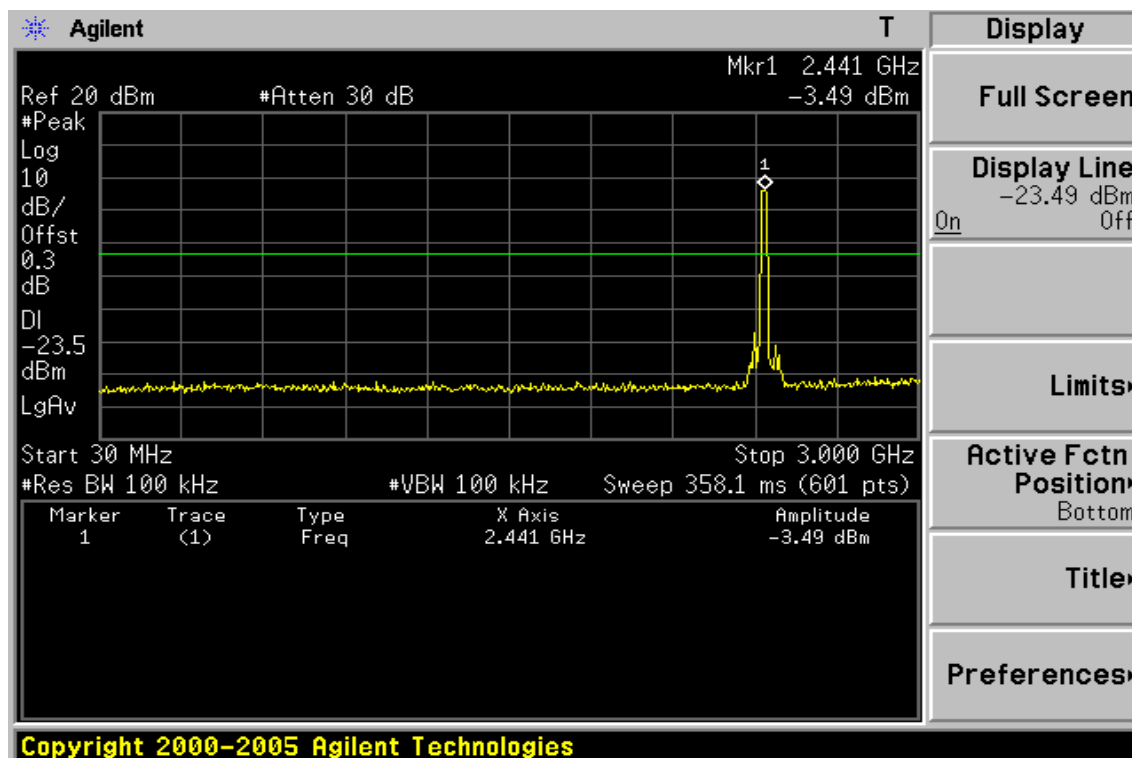
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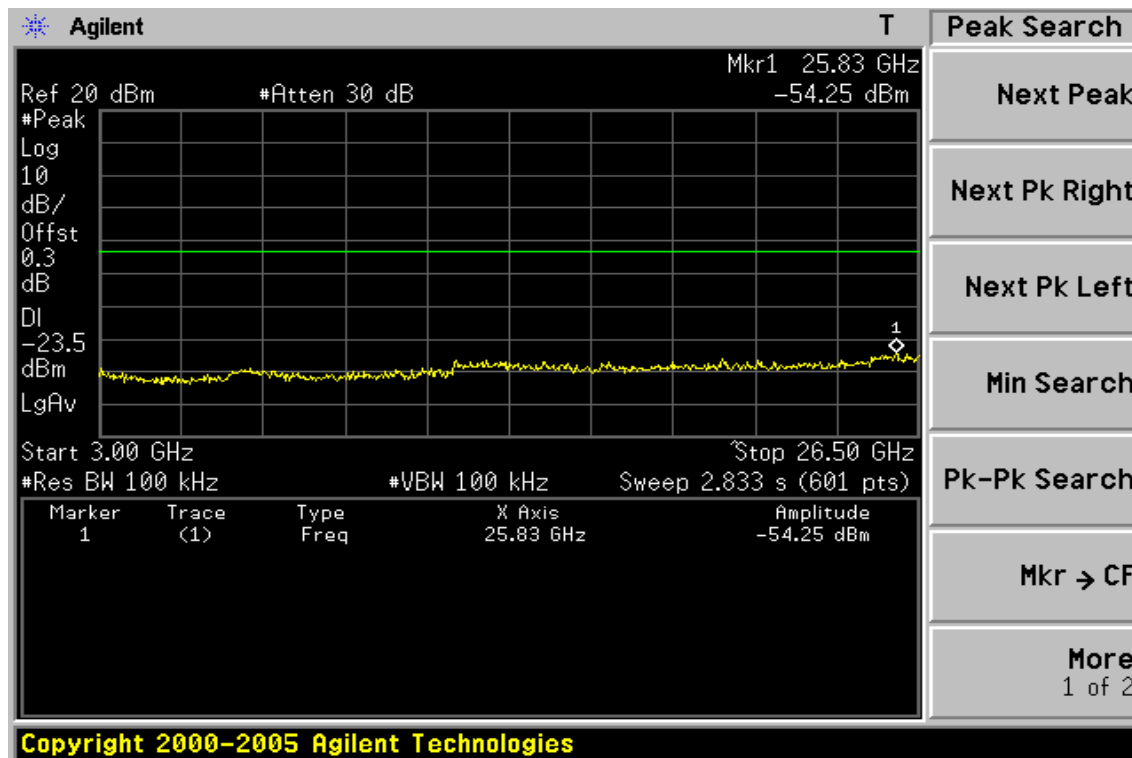
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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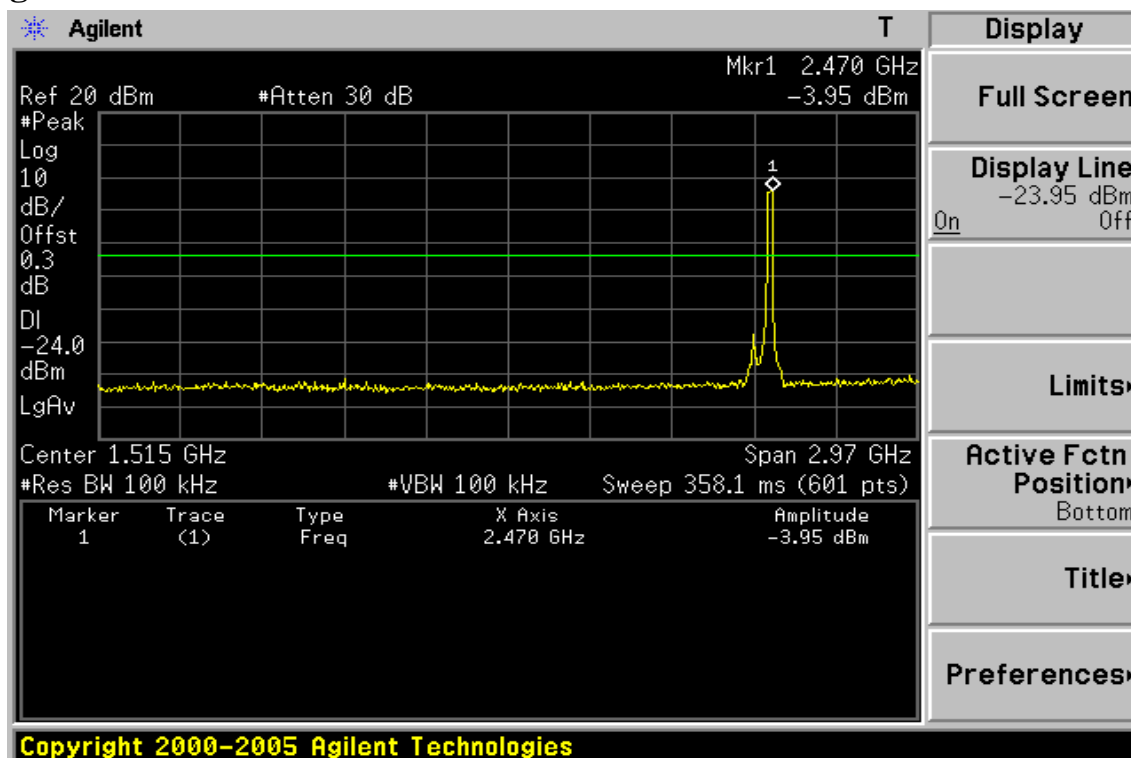
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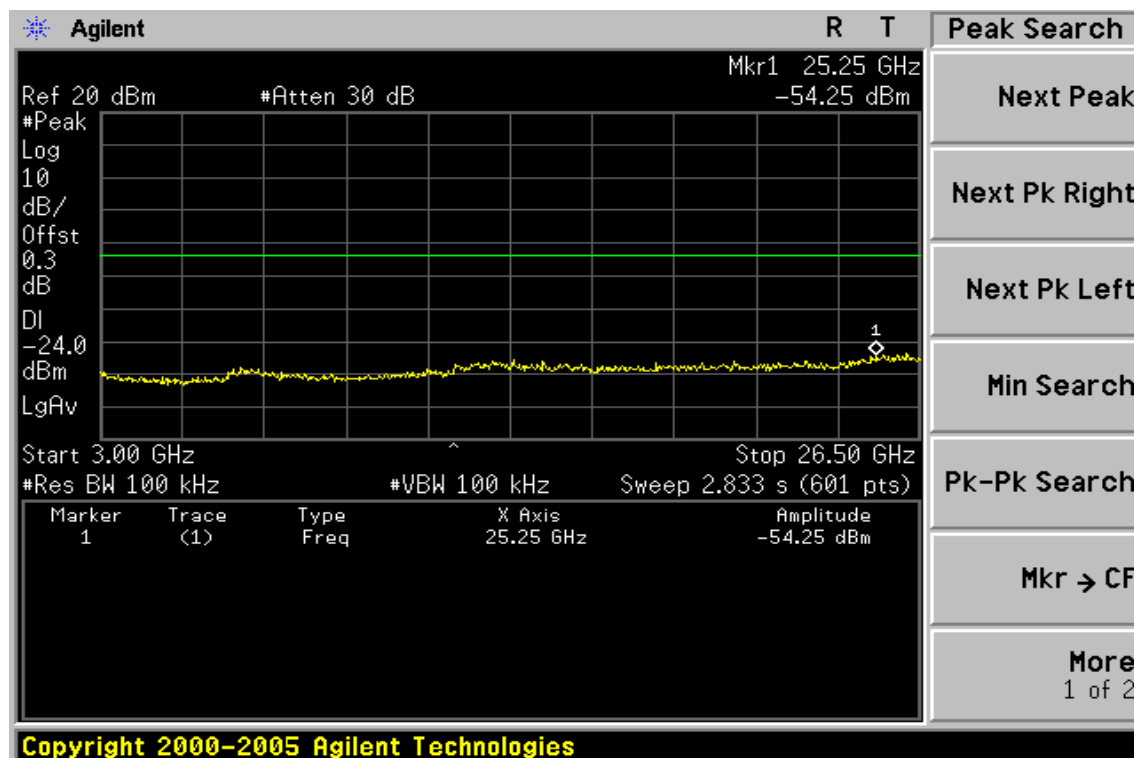
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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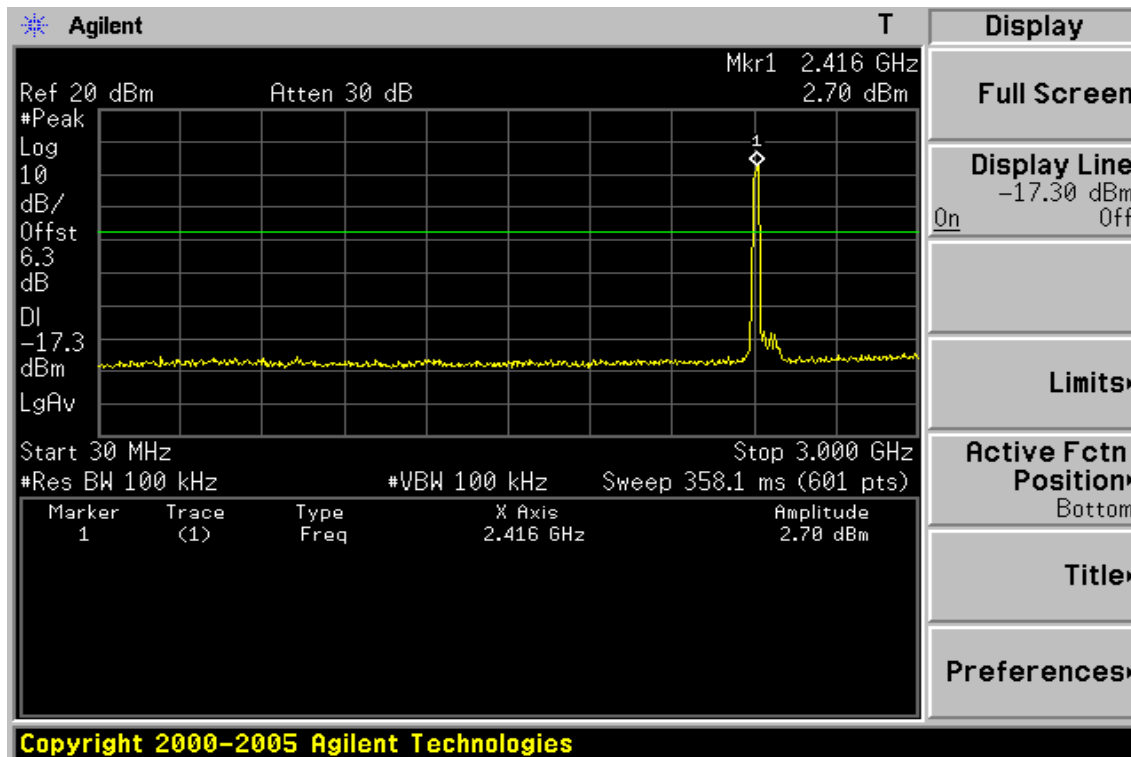
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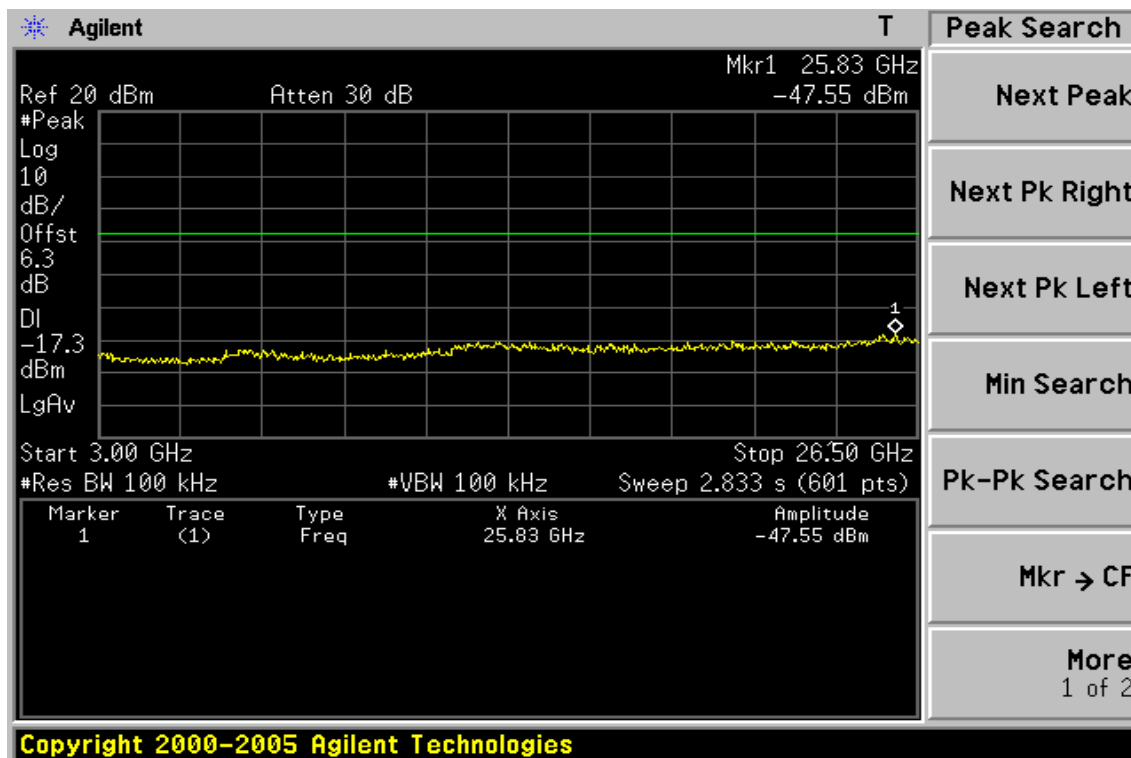
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## Conducted Spurious Emission Measurement Result (802.11n\_20M), Combine Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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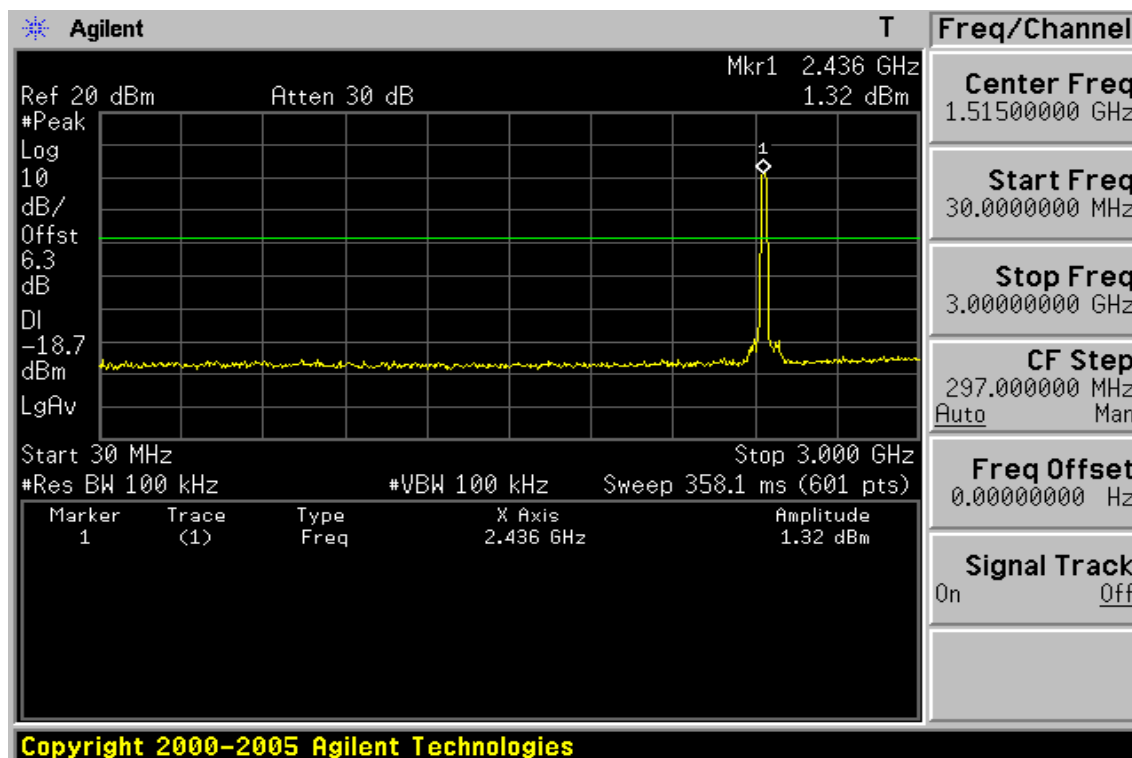
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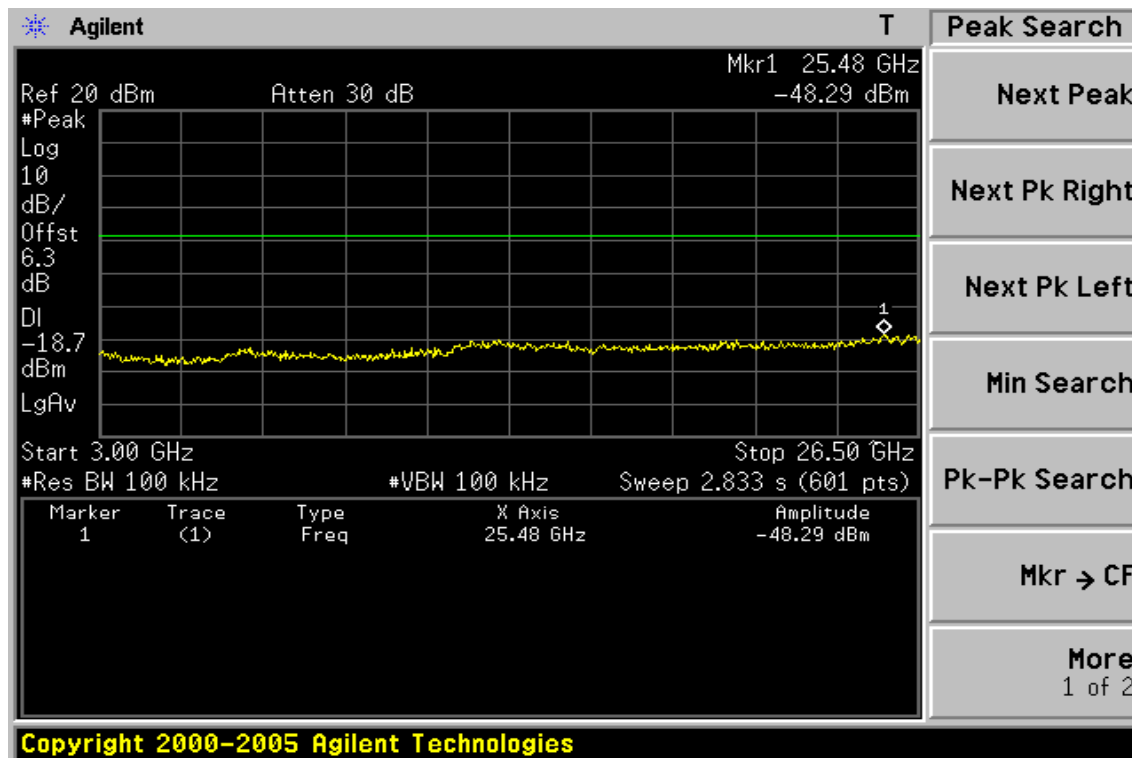
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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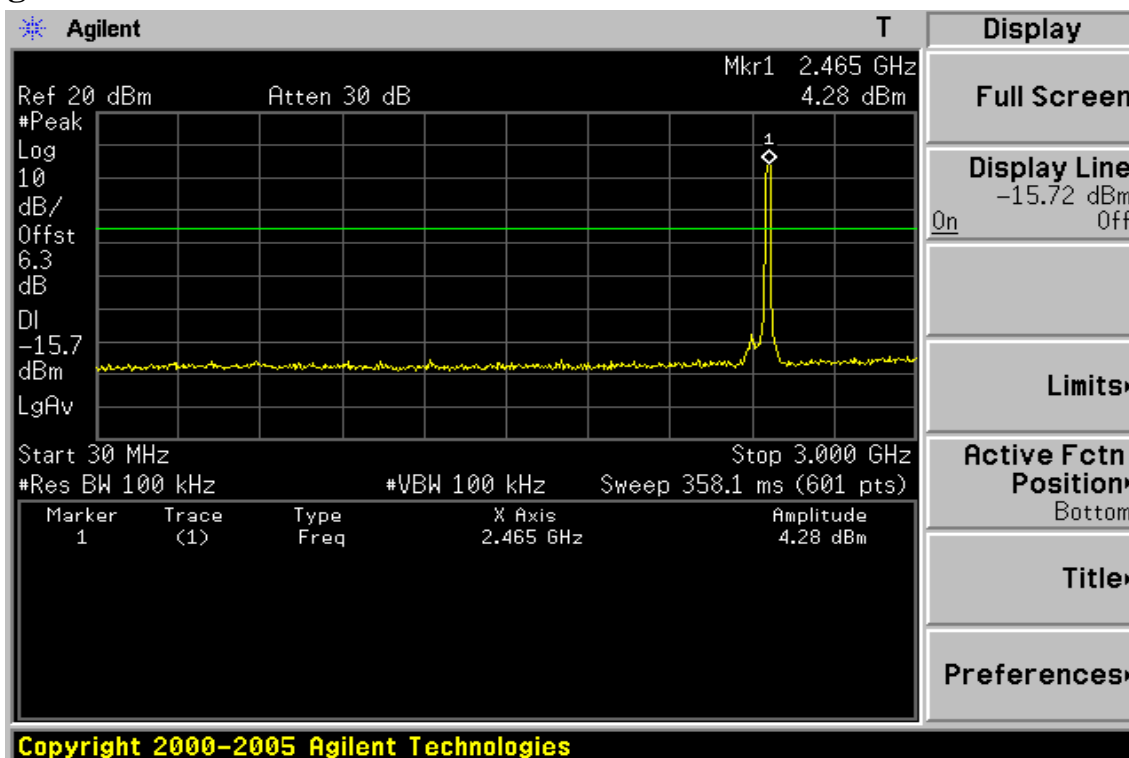
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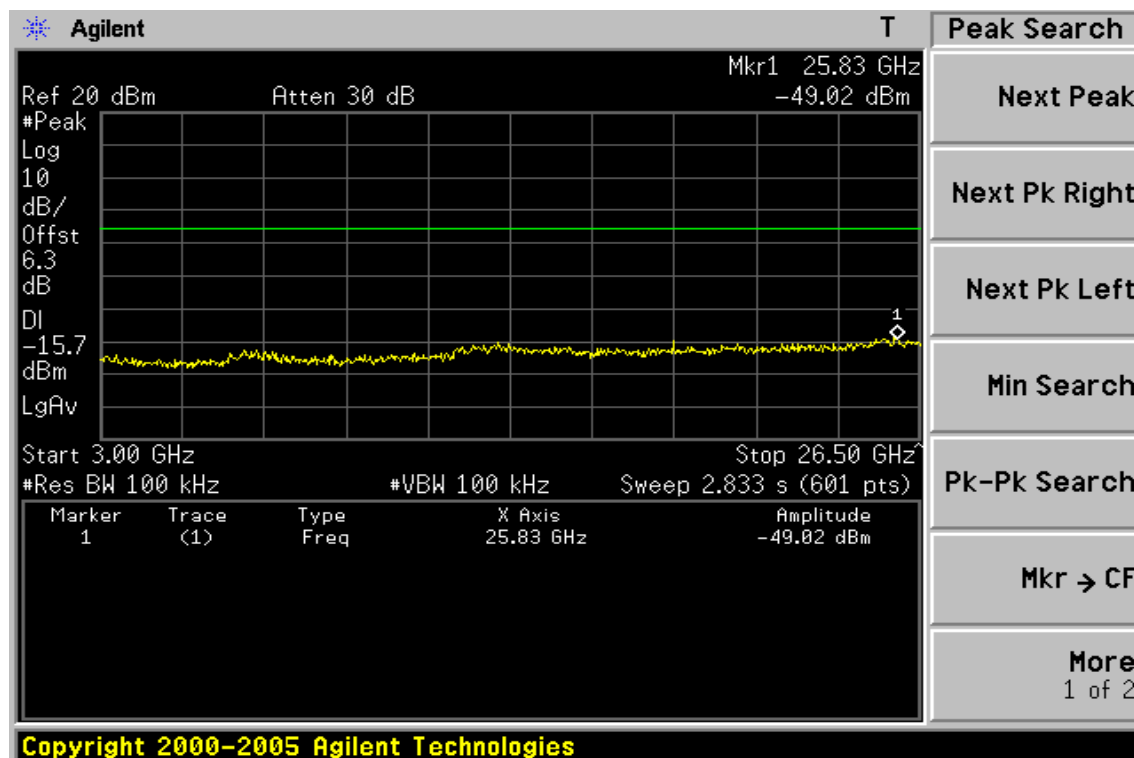
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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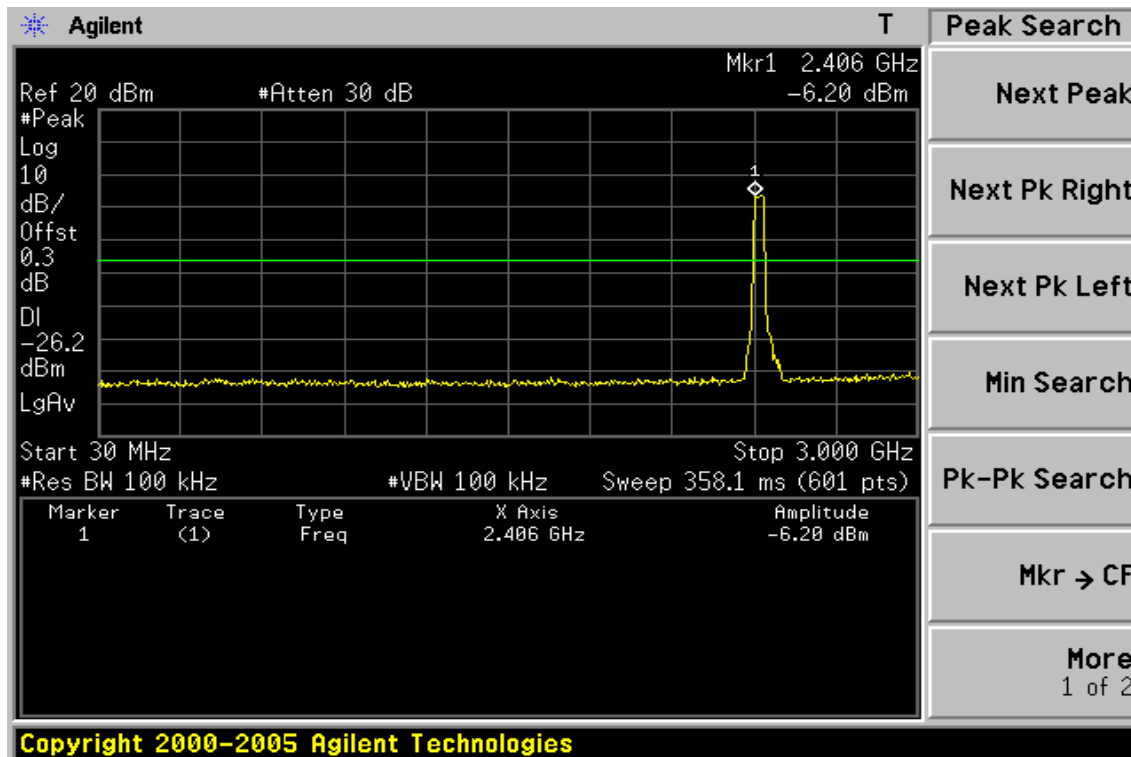
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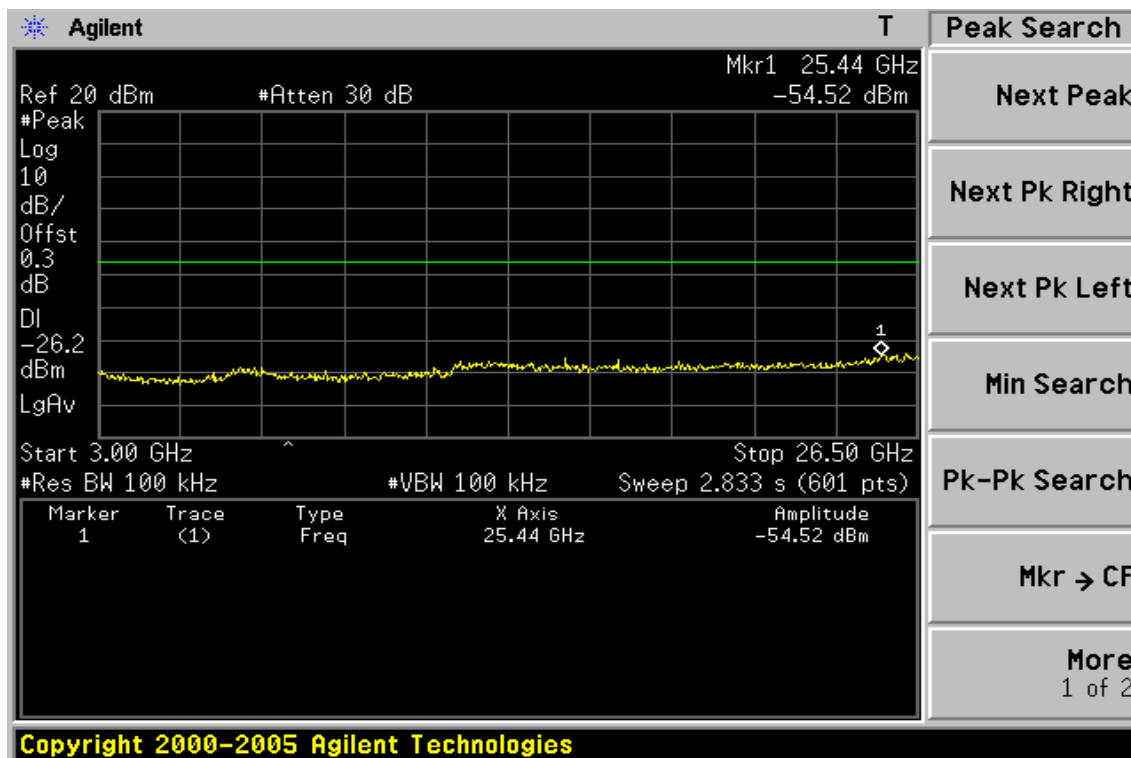
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## Conducted Spurious Emission Measurement Result (802.11n\_40M), Chain1 Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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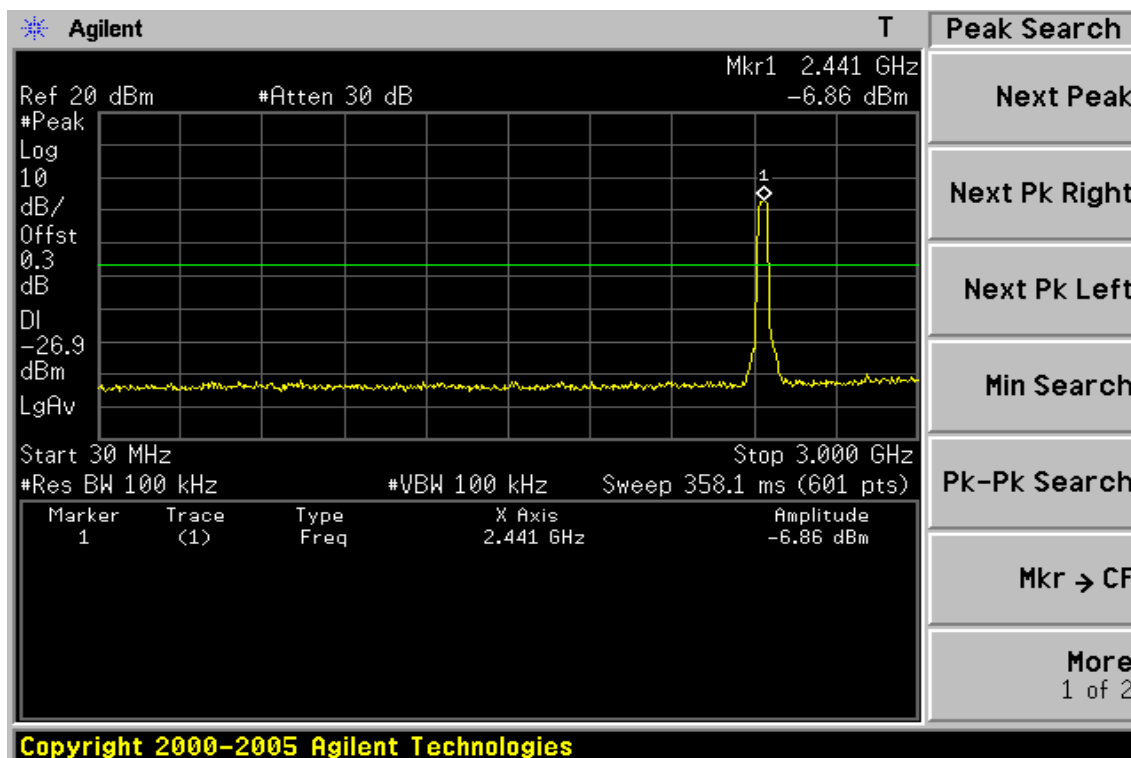
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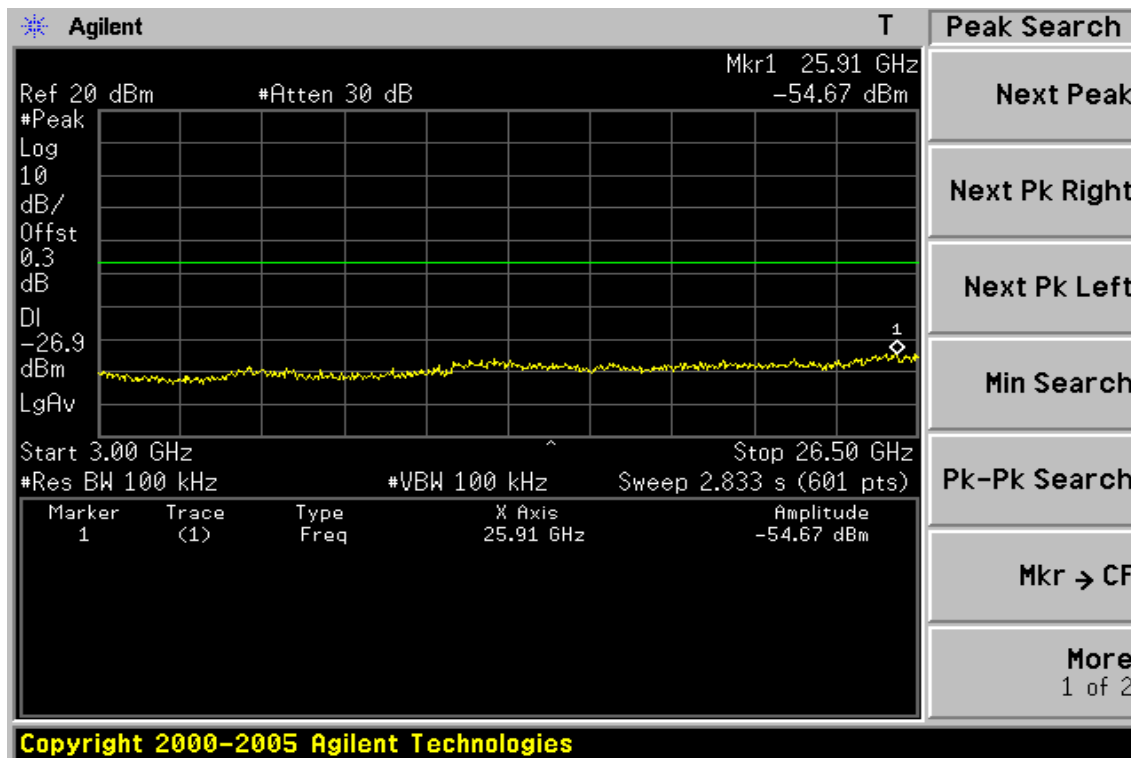
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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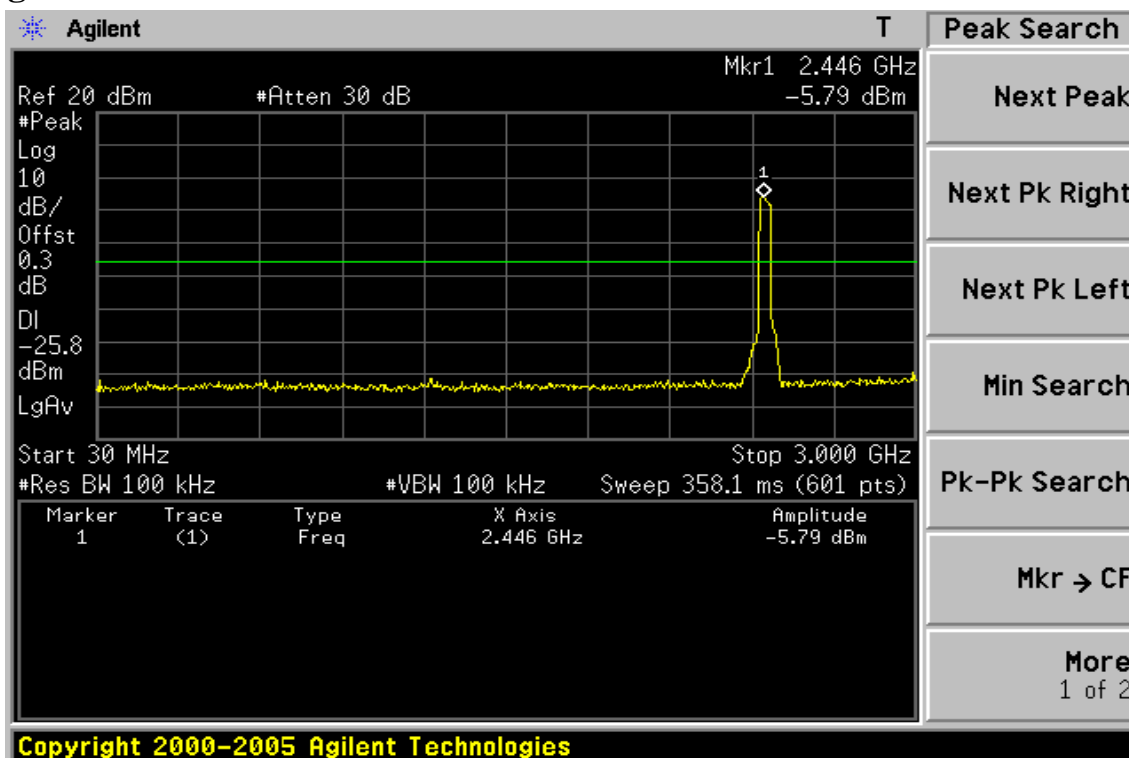
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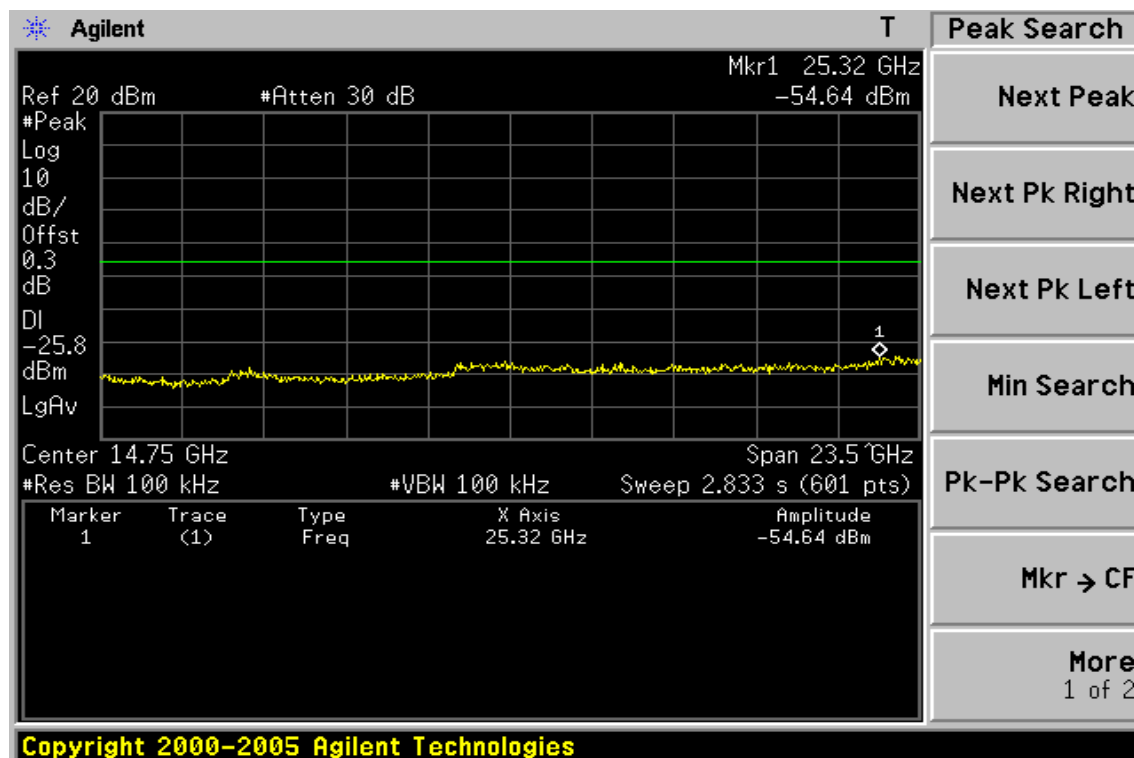
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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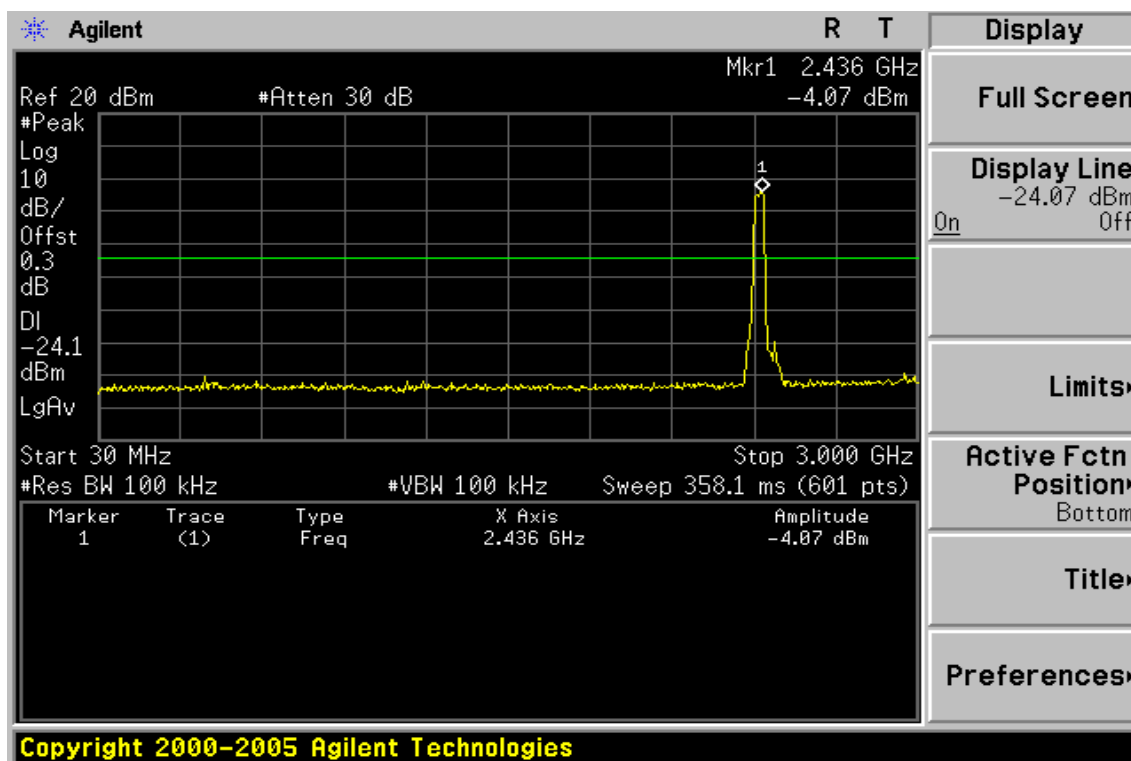
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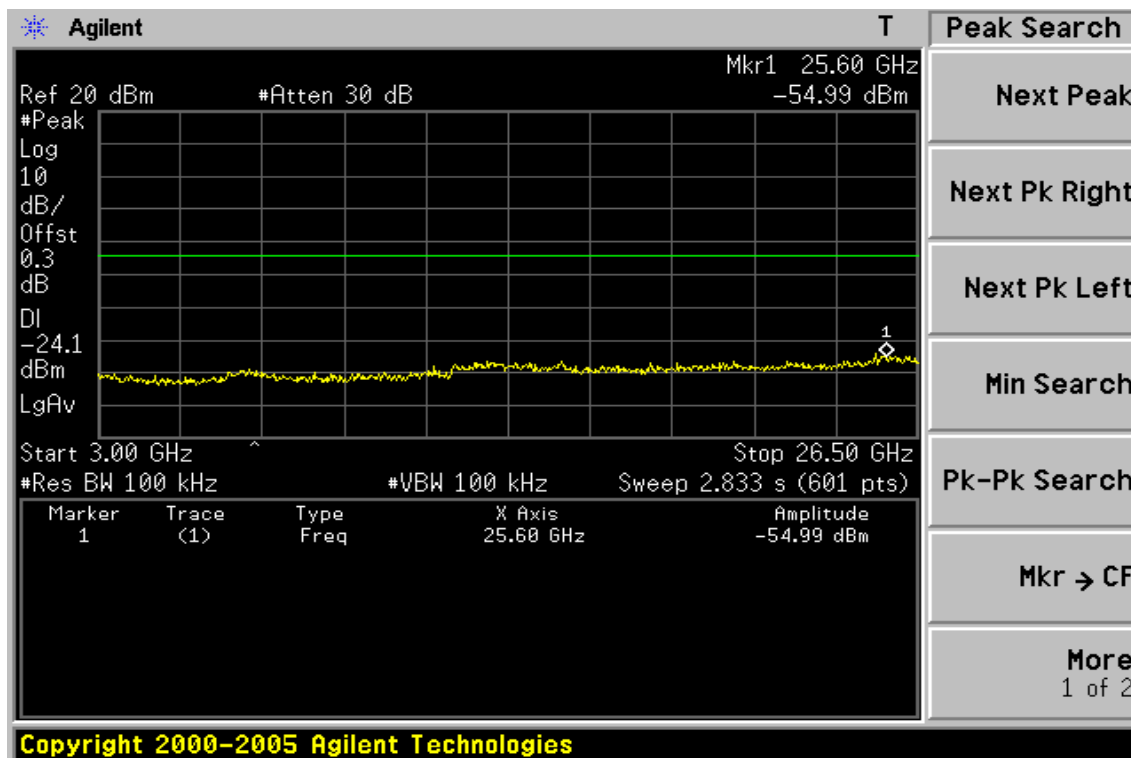
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## Conducted Spurious Emission Measurement Result (802.11n\_40M), Chain2 Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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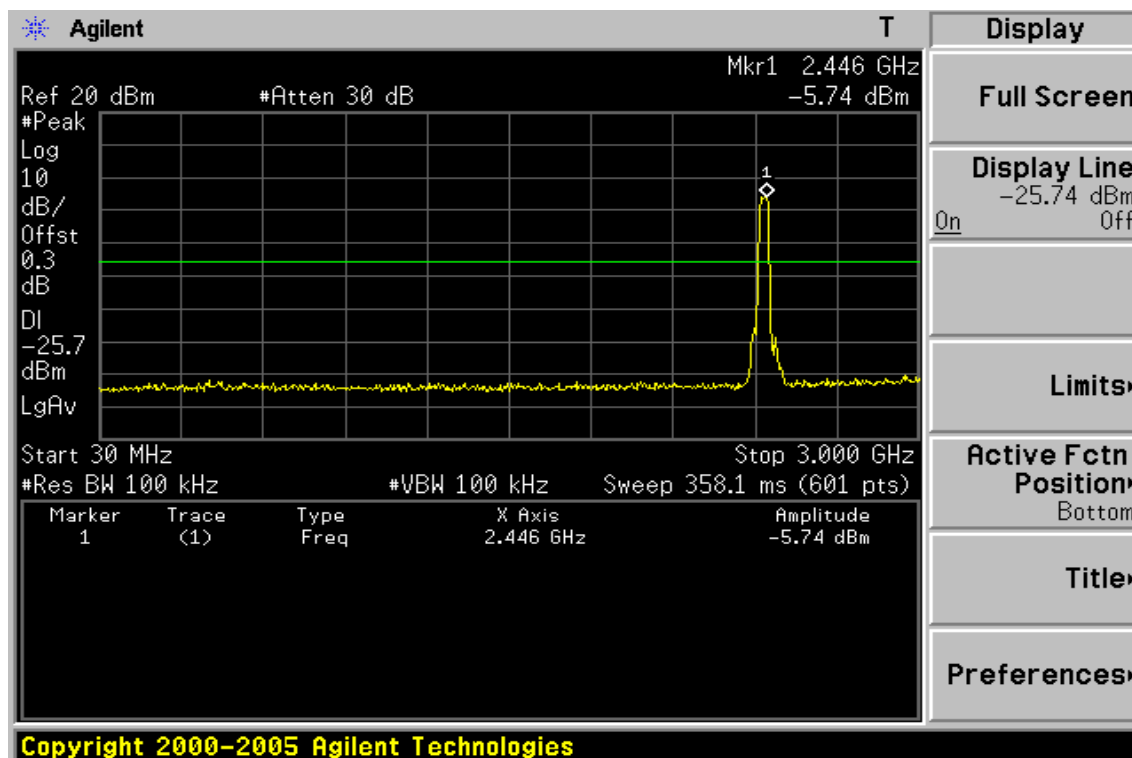
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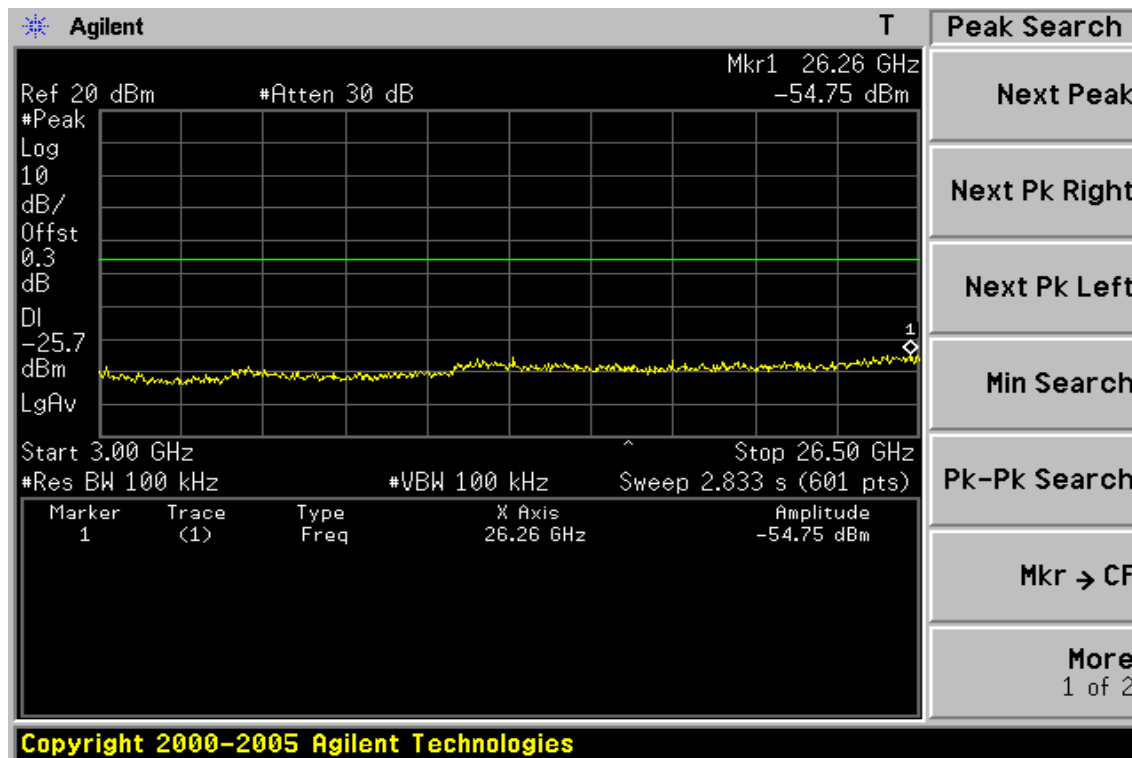
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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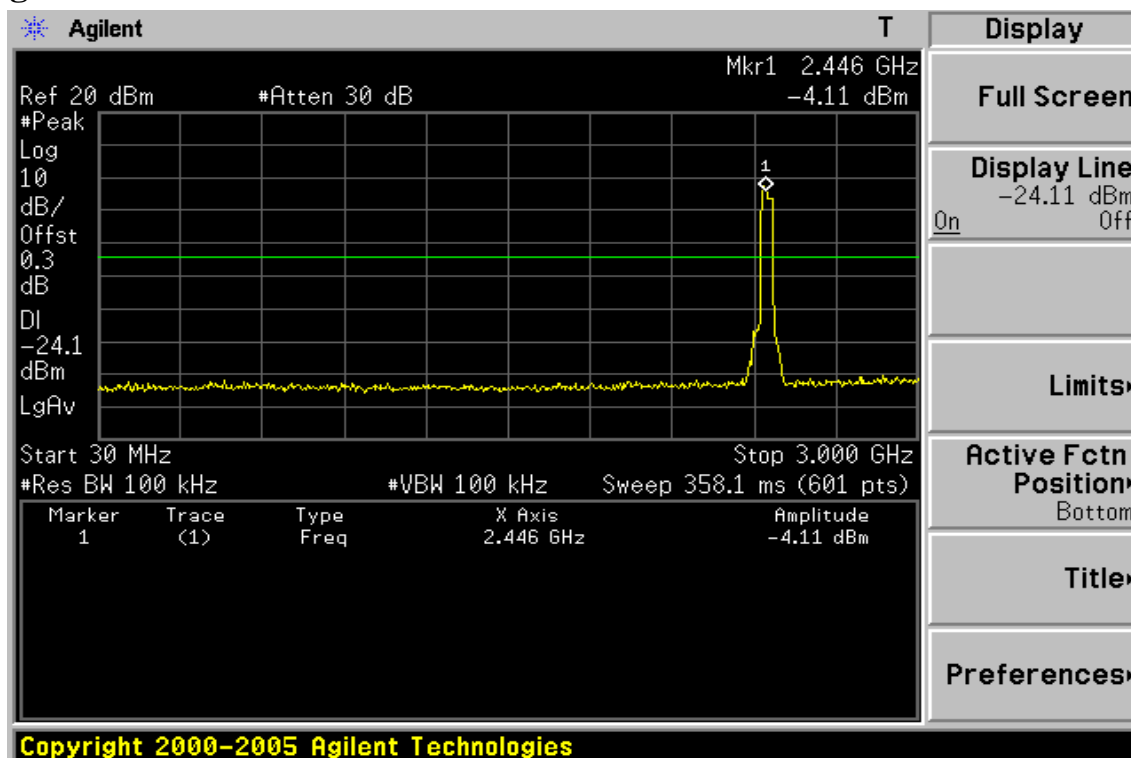
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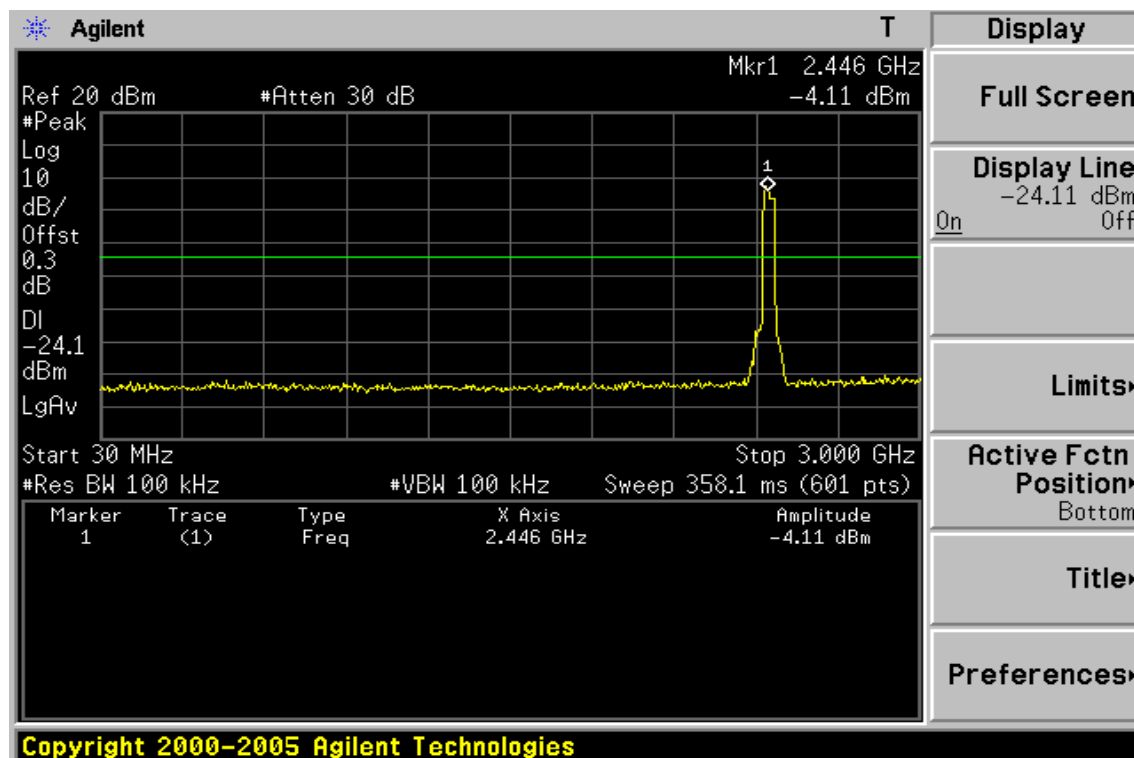
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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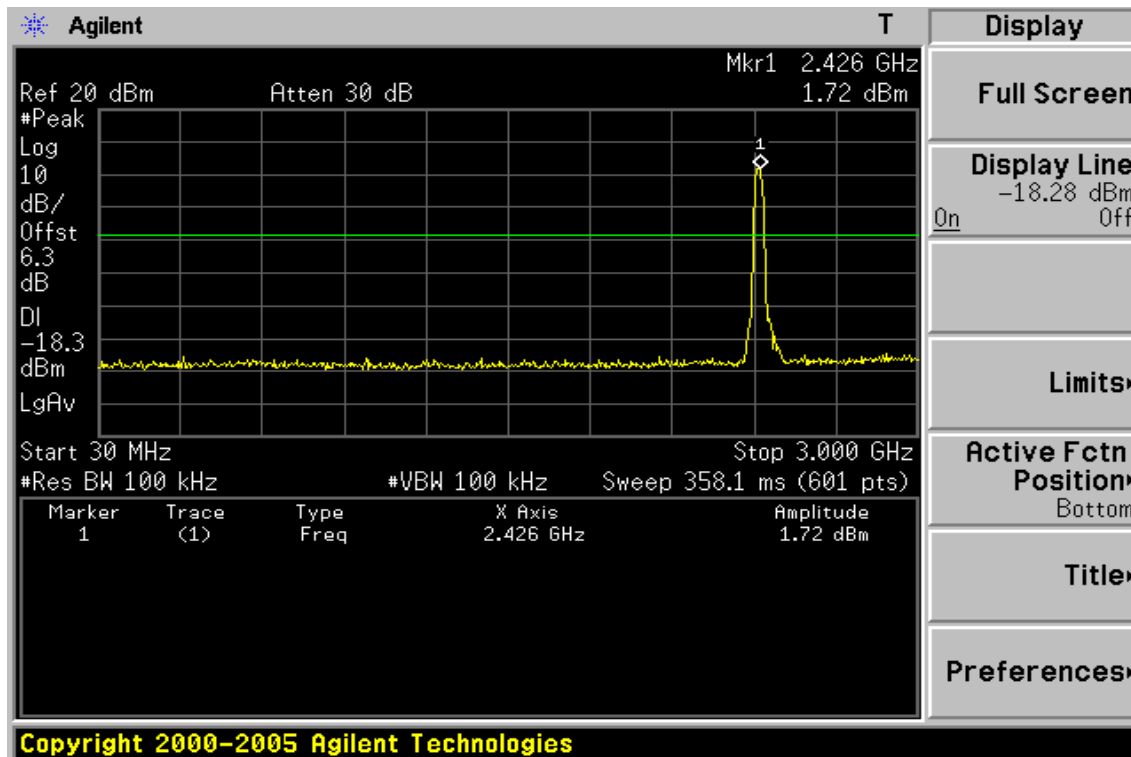
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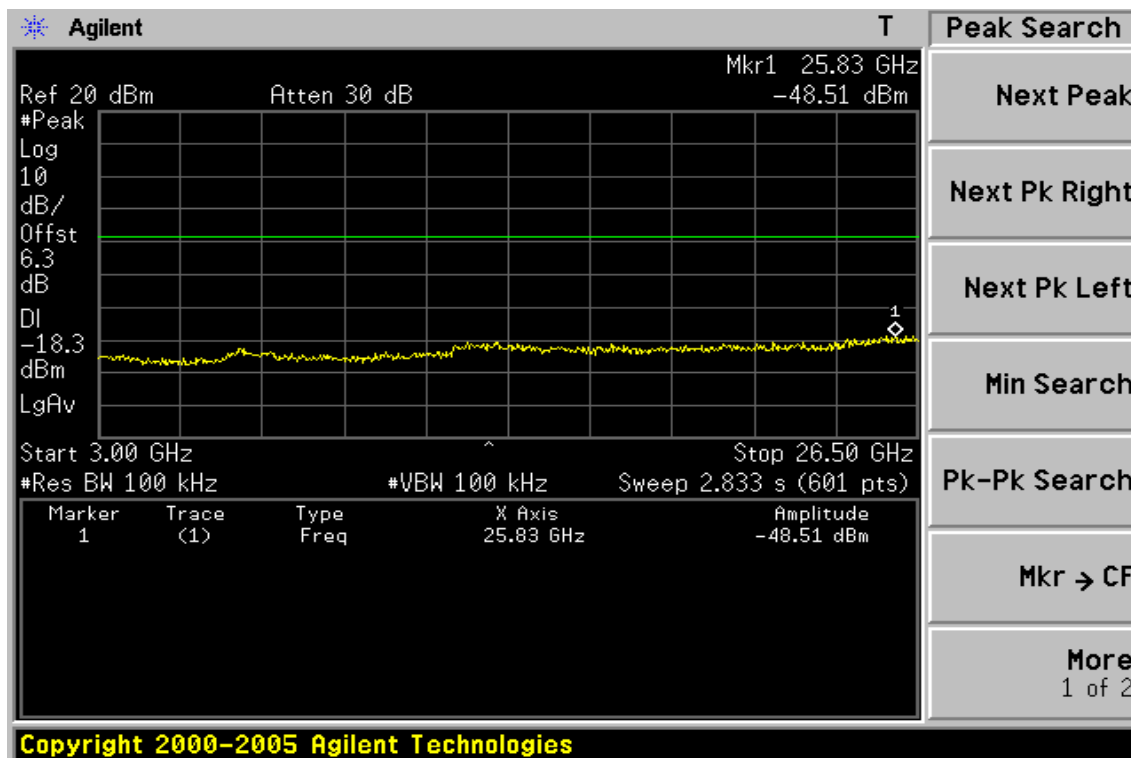
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## Conducted Spurious Emission Measurement Result (802.11n\_40M), Combine Ch Low 30MHz – 3GHz



## Ch Low 3GHz – 26.5GHz



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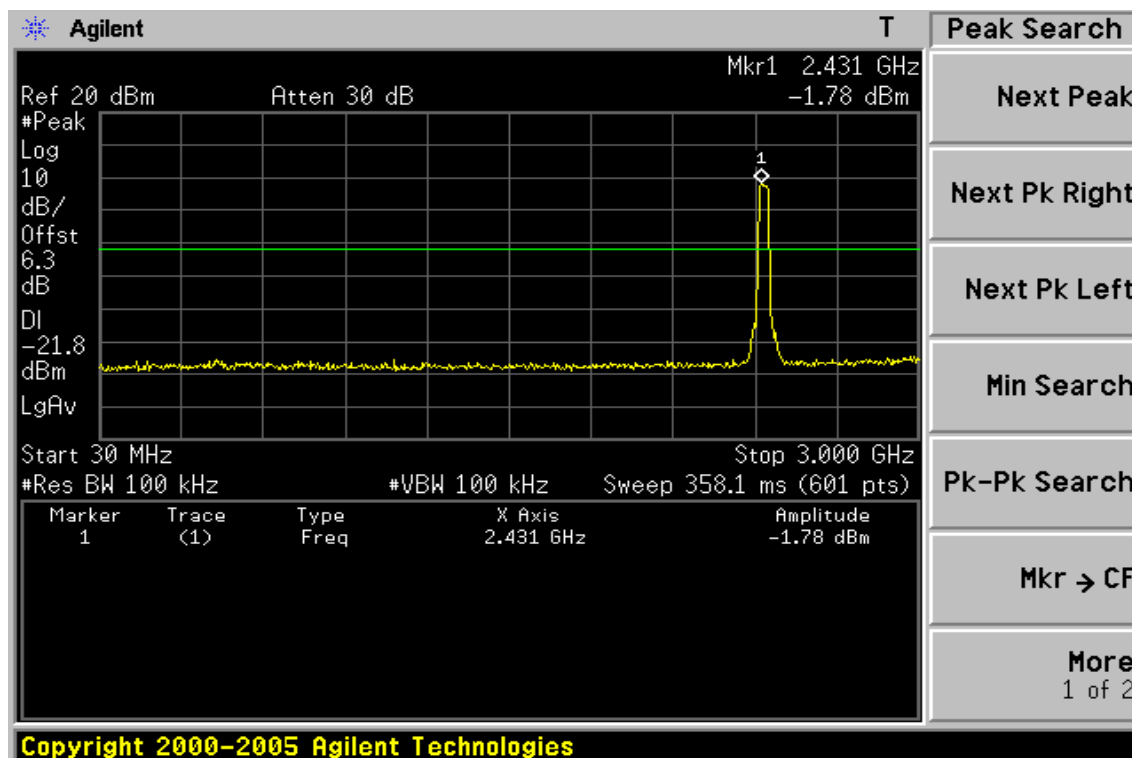
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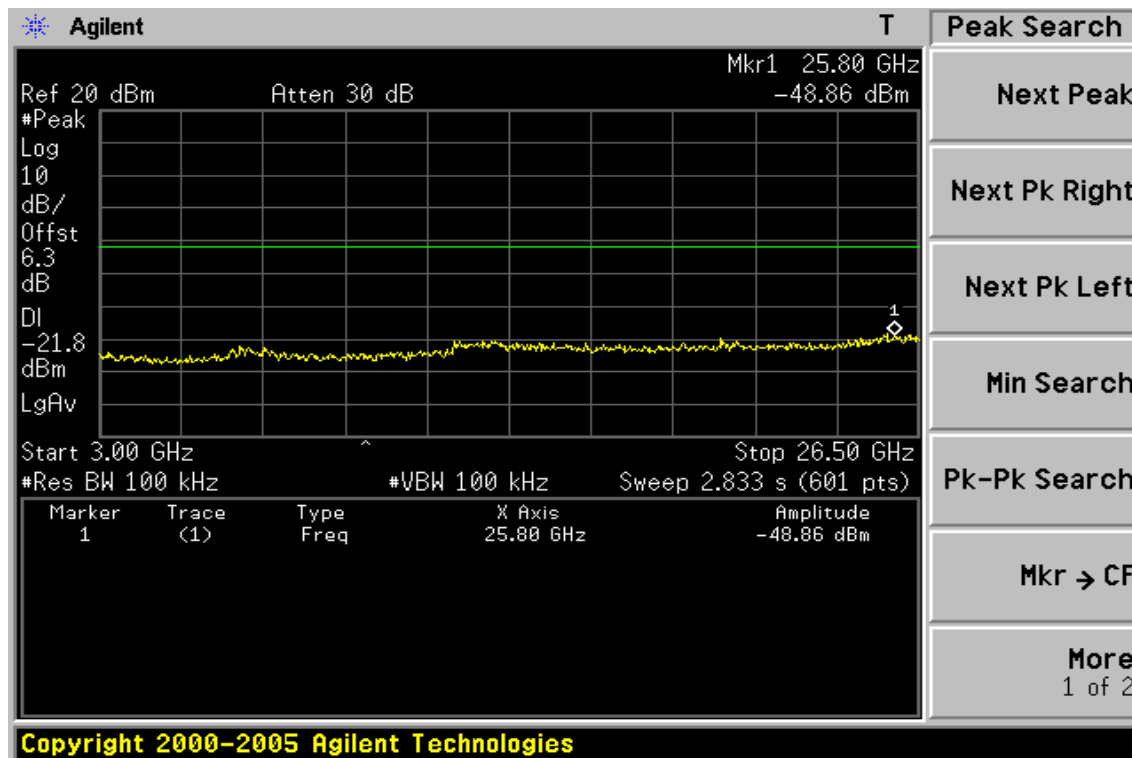
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## Ch Mid 30MHz – 3GHz



## Ch Mid 3GHz – 26.5GHz



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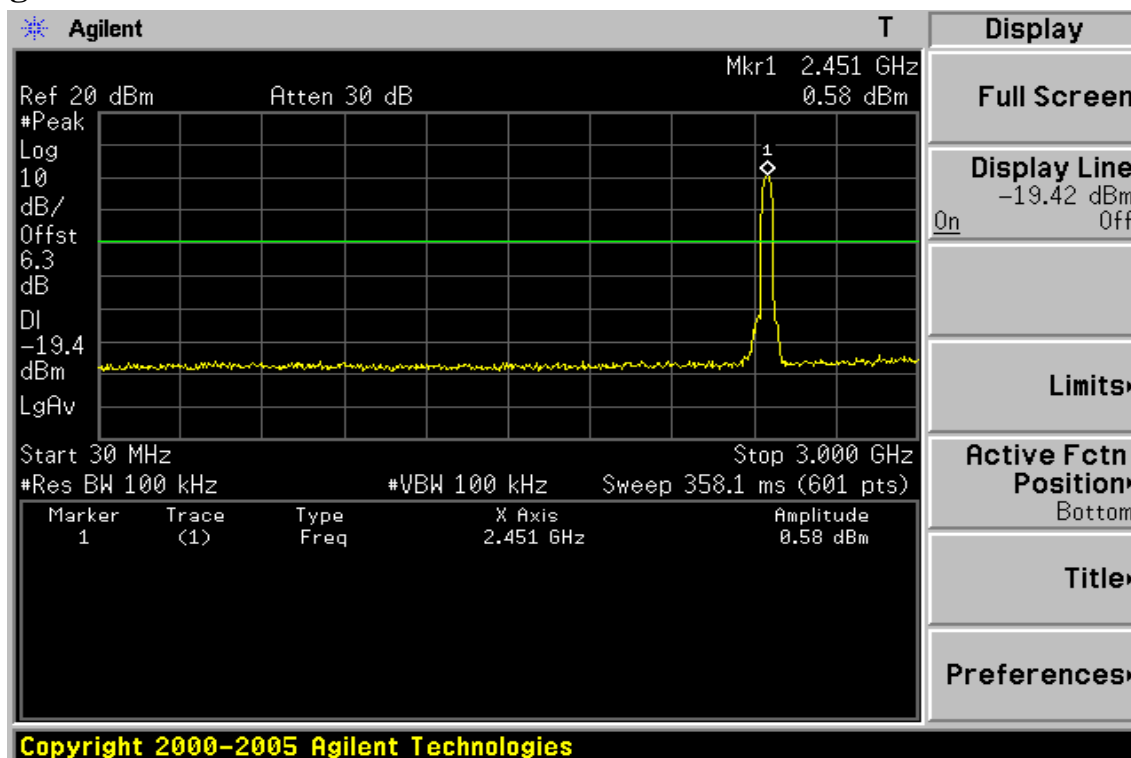
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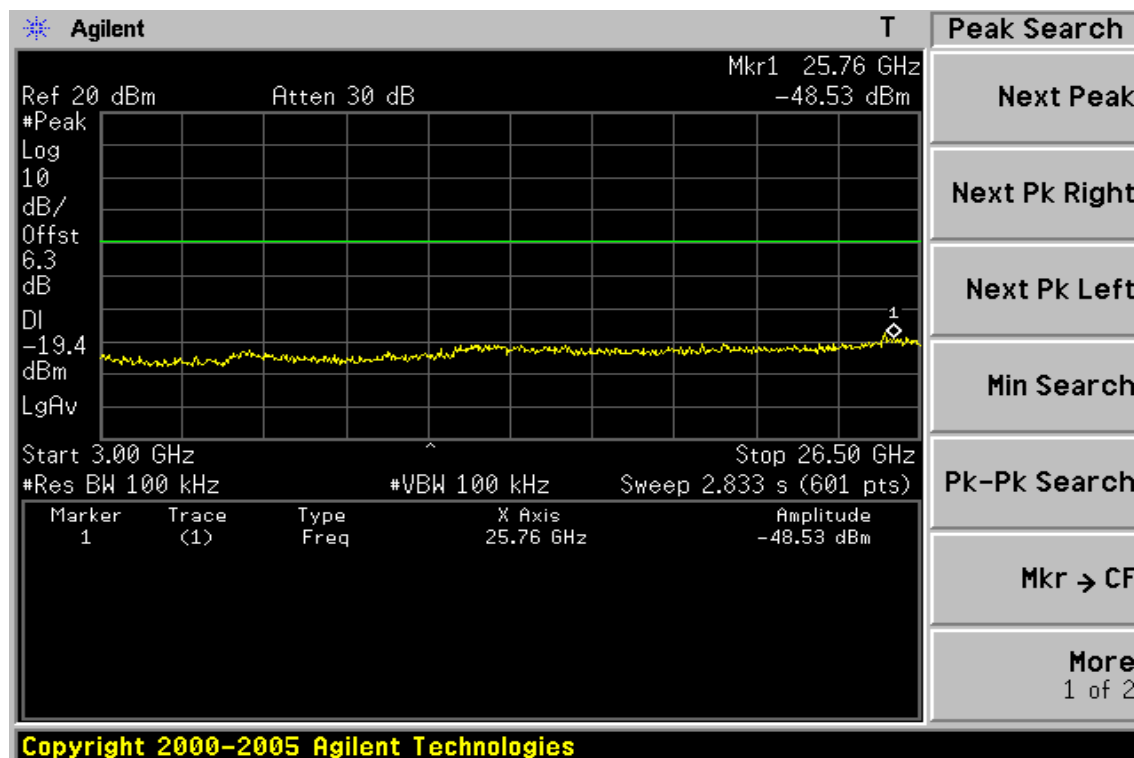
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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

Operation Mode	802.11b TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver./Hor.	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Mar- gin (dB)
66.86	V	Peak	47.67	-15.34	32.33	40.00	-7.67
384.05	V	Peak	54.44	-10.54	43.90	46.00	-2.10
513.06	V	Peak	48.19	-8.32	39.87	46.00	-6.13
641.10	V	Peak	43.81	-5.17	38.64	46.00	-7.36
769.14	V	Peak	38.80	-3.80	35.00	46.00	-11.00
895.24	V	Peak	37.81	-1.13	36.68	46.00	-9.32
66.86	H	Peak	45.84	-15.34	30.50	40.00	-9.50
128.94	H	Peak	44.14	-14.56	29.58	43.50	-13.92
384.05	H	Peak	44.43	-10.54	33.89	46.00	-12.11
513.06	H	Peak	38.82	-8.32	30.50	46.00	-15.50
641.10	H	Peak	40.99	-5.17	35.82	46.00	-10.18
895.24	H	Peak	40.77	-1.13	39.64	46.00	-6.36

**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.

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

Operation Mode	802.11b TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver./Hor.	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Mar- gin (dB)
70.74	V	Peak	49.36	-16.27	33.09	40.00	-6.91
384.05	V	Peak	53.12	-10.54	42.58	46.00	-3.42
513.06	V	Peak	48.32	-8.32	40.00	46.00	-6.00
641.00	V	Peak	43.56	-5.17	38.39	46.00	-7.61
769.14	V	Peak	38.27	-3.80	34.47	46.00	-11.53
895.24	V	Peak	37.02	-1.13	35.89	46.00	-10.11
66.86	H	Peak	47.50	-15.34	32.16	40.00	-7.84
128.94	H	Peak	44.47	-14.56	29.91	43.50	-13.59
251.16	H	Peak	40.85	-13.72	27.13	46.00	-18.87
384.05	H	Peak	44.18	-10.54	33.64	46.00	-12.36
513.06	H	Peak	39.41	-8.32	31.09	46.00	-14.91
641.10	H	Peak	41.33	-5.17	36.16	46.00	-9.84

**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.

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

Operation Mode	802.11b TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver./Hor.	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Mar- gin (dB)
70.74	V	Peak	48.72	-16.27	32.45	40.00	-7.55
384.05	V	Peak	54.46	-10.54	43.92	46.00	-2.08
513.06	V	Peak	48.26	-8.32	39.94	46.00	-6.06
641.10	V	Peak	43.69	-5.17	38.52	46.00	-7.48
769.14	V	Peak	38.80	-3.80	35.00	46.00	-11.00
895.24	V	Peak	37.03	-1.13	35.90	46.00	-10.10
63.95	H	Peak	47.30	-14.89	32.41	40.00	-7.59
251.16	H	Peak	41.68	-13.72	27.96	46.00	-18.04
384.05	H	Peak	43.66	-10.54	33.12	46.00	-12.88
513.06	H	Peak	41.91	-8.32	33.59	46.00	-12.41
641.10	H	Peak	41.14	-5.17	35.97	46.00	-10.03
895.24	H	Peak	40.45	-1.13	39.32	46.00	-6.68

**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.

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

Operation Mode	802.11g TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver./Hor.	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Mar- gin (dB)
70.74	V	Peak	48.21	-16.27	31.94	40.00	-8.06
384.05	V	Peak	52.72	-10.54	42.18	46.00	-3.82
513.06	V	Peak	48.14	-8.32	39.82	46.00	-6.18
641.10	V	Peak	44.02	-5.17	38.85	46.00	-7.15
769.14	V	Peak	38.68	-3.80	34.88	46.00	-11.12
895.24	V	Peak	38.82	-1.13	37.69	46.00	-8.31
66.86	H	Peak	46.84	-15.34	31.50	40.00	-8.50
128.94	H	Peak	44.82	-14.56	30.26	43.50	-13.24
251.16	H	Peak	42.71	-13.72	28.99	46.00	-17.01
384.05	H	Peak	43.29	-10.54	32.75	46.00	-13.25
641.10	H	Peak	40.37	-5.17	35.20	46.00	-10.80
395.24	H	Peak	40.78	-1.13	39.65	46.00	-6.35

**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.

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

Operation Mode	802.11g TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver./Hor.	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Mar- gin (dB)
70.74	V	Peak	48.31	-16.27	32.04	40.00	-7.96
128.94	V	Peak	43.37	-14.56	28.81	43.50	-14.69
384.05	V	Peak	52.94	-10.54	42.40	46.00	-3.60
513.06	V	Peak	48.60	-8.32	40.28	46.00	-5.72
641.10	V	Peak	43.45	-5.17	38.28	46.00	-7.72
769.14	V	Peak	38.49	-3.80	34.69	46.00	-11.31
64.92	H	Peak	45.86	-14.83	31.03	40.00	-8.97
128.94	H	Peak	43.91	-14.56	29.35	43.50	-14.15
251.16	H	Peak	43.35	-13.72	29.63	46.00	-16.37
384.05	H	Peak	43.85	-10.54	33.31	46.00	-12.69
641.10	H	Peak	40.89	-5.17	35.72	46.00	-10.28
895.24	H	Peak	40.64	-1.13	39.51	46.00	-6.49

**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.

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

Operation Mode	802.11g TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver./Hor.	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Mar- gin (dB)
63.95	V	Peak	47.21	-14.89	32.32	40.00	-7.68
384.05	V	Peak	53.32	-10.54	42.78	46.00	-3.22
513.06	V	Peak	48.59	-8.32	40.27	46.00	-5.73
641.10	V	Peak	43.75	-5.17	38.58	46.00	-7.42
769.14	V	Peak	38.49	-3.80	34.69	46.00	-11.31
895.24	V	Peak	39.09	-1.13	37.96	46.00	-8.04
68.80	H	Peak	47.25	-15.85	31.40	40.00	-8.60
128.94	H	Peak	44.87	-14.56	30.31	43.50	-13.19
384.05	H	Peak	43.61	-10.54	33.07	46.00	-12.93
513.06	H	Peak	40.21	-8.32	31.89	46.00	-14.11
641.10	H	Peak	40.33	-5.17	35.16	46.00	-10.84
895.24	H	Peak	40.64	-1.13	39.51	46.00	-6.49

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	47.18	-15.34	31.84	40.00	-8.16
384.05	V	Peak	53.67	-10.54	43.13	46.00	-2.87
513.06	V	Peak	47.39	-8.32	39.07	46.00	-6.93
641.10	V	Peak	43.43	-5.17	38.26	46.00	-7.74
769.14	V	Peak	38.26	-3.80	34.46	46.00	-11.54
895.24	V	Peak	36.85	-1.13	35.72	46.00	-10.28
66.86	H	Peak	46.08	-15.34	30.74	40.00	-9.26
251.16	H	Peak	41.86	-13.72	28.14	46.00	-17.86
384.05	H	Peak	43.75	-10.54	33.21	46.00	-12.79
513.06	H	Peak	39.92	-8.32	31.60	46.00	-14.40
641.10	H	Peak	42.78	-5.17	37.61	46.00	-8.39
895.24	H	Peak	41.06	-1.13	39.93	46.00	-6.07

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	46.95	-15.34	31.61	40.00	-8.39
158.04	V	Peak	43.51	-13.28	30.23	43.50	-13.27
384.05	V	Peak	54.36	-10.54	43.82	46.00	-2.18
513.06	V	Peak	48.83	-8.32	40.51	46.00	-5.49
641.10	V	Peak	43.29	-5.17	38.12	46.00	-7.88
895.24	V	Peak	37.71	-1.13	36.58	46.00	-9.42
66.86	H	Peak	45.38	-15.34	30.04	40.00	-9.96
128.94	H	Peak	44.61	-14.56	30.05	43.50	-13.45
384.05	H	Peak	44.23	-10.54	33.69	46.00	-12.31
513.06	H	Peak	39.33	-8.32	31.01	46.00	-14.99
641.10	H	Peak	42.19	-5.17	37.02	46.00	-8.98
895.24	H	Peak	40.86	-1.13	39.73	46.00	-6.27

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	46.89	-14.89	32.00	40.00	-8.00
384.05	V	Peak	52.57	-10.54	42.03	46.00	-3.97
513.06	V	Peak	48.27	-8.32	39.95	46.00	-6.05
641.10	V	Peak	43.44	-5.17	38.27	46.00	-7.73
769.14	V	Peak	38.02	-3.80	34.22	46.00	-11.78
895.24	V	Peak	37.64	-1.13	36.51	46.00	-9.49
68.80	H	Peak	46.32	-15.85	30.47	40.00	-9.53
128.94	H	Peak	44.32	-14.56	29.76	43.50	-13.74
251.16	H	Peak	42.32	-13.72	28.60	46.00	-17.40
384.05	H	Peak	43.58	-10.54	33.04	46.00	-12.96
641.10	H	Peak	41.75	-5.17	36.58	46.00	-9.42
895.24	H	Peak	40.14	-1.13	39.01	46.00	-6.99

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	47.32	-15.34	31.98	40.00	-8.02
384.05	V	Peak	54.44	-10.54	43.90	46.00	-2.10
513.06	V	Peak	48.46	-8.32	40.14	46.00	-5.86
641.10	V	Peak	44.24	-5.17	39.07	46.00	-6.93
769.14	V	Peak	39.33	-3.80	35.53	46.00	-10.47
895.24	V	Peak	36.64	-1.13	35.51	46.00	-10.49
63.95	H	Peak	46.53	-14.89	31.64	40.00	-8.36
128.94	H	Peak	44.57	-14.56	30.01	43.50	-13.49
384.05	H	Peak	44.37	-10.54	33.83	46.00	-12.17
513.06	H	Peak	40.94	-8.32	32.62	46.00	-13.38
641.10	H	Peak	41.83	-5.17	36.66	46.00	-9.34
895.24	H	Peak	40.90	-1.13	39.77	46.00	-6.23

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	47.70	-15.85	31.85	40.00	-8.15
384.05	V	Peak	54.13	-10.54	43.59	46.00	-2.41
513.06	V	Peak	48.22	-8.32	39.90	46.00	-6.10
641.10	V	Peak	44.06	-5.17	38.89	46.00	-7.11
769.14	V	Peak	38.79	-3.80	34.99	46.00	-11.01
895.24	V	Peak	37.49	-1.13	36.36	46.00	-9.64
66.86	H	Peak	45.72	-15.34	30.38	40.00	-9.62
128.94	H	Peak	45.02	-14.56	30.46	43.50	-13.04
251.16	H	Peak	43.45	-13.72	29.73	46.00	-16.27
384.05	H	Peak	43.87	-10.54	33.33	46.00	-12.67
641.10	H	Peak	40.94	-5.17	35.77	46.00	-10.23
895.24	H	Peak	40.83	-1.13	39.70	46.00	-6.30

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	47.43	-15.85	31.58	40.00	-8.42
128.94	V	Peak	44.58	-14.56	30.02	43.50	-13.48
384.05	V	Peak	54.04	-10.54	43.50	46.00	-2.50
513.06	V	Peak	48.23	-8.32	39.91	46.00	-6.09
641.10	V	Peak	43.65	-5.17	38.48	46.00	-7.52
769.14	V	Peak	39.10	-3.80	35.30	46.00	-10.70
63.95	H	Peak	46.70	-14.89	31.81	40.00	-8.19
128.94	H	Peak	44.53	-14.56	29.97	43.50	-13.53
384.05	H	Peak	43.58	-10.54	33.04	46.00	-12.96
513.06	H	Peak	40.31	-8.32	31.99	46.00	-14.01
641.10	H	Peak	41.18	-5.17	36.01	46.00	-9.99
895.24	H	Peak	40.76	-1.13	39.63	46.00	-6.37

**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.

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

Operation Mode	802.11b TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.11	---	-7.52	33.59	---	74.00	54.00	-20.41	Peak
1403.0	39.14	---	-6.34	32.80	---	74.00	54.00	-21.20	Peak
4824.0	46.59	44.69	6.05	52.64	50.74	74.00	54.00	-3.26	AV
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 scanned 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.

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

Operation Mode	802.11b TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	43.98	---	-6.34	37.64	---	74.00	54.00	-16.36	Peak
4824.0	41.48	---	6.05	47.53	---	74.00	54.00	-6.47	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 scanned 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.

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

Operation Mode	802.11b TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	39.83	---	-6.34	33.49	---	74.00	54.00	-20.51	Peak
4874.0	40.07	---	6.17	46.24	---	74.00	54.00	-7.76	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 scanned 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.

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

Operation Mode	802.11b TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	44.27	---	-6.34	37.93	---	74.00	54.00	-16.07	Peak
1663.0	39.07	---	-5.11	33.96	---	74.00	54.00	-20.04	Peak
4874.0	36.94	---	6.17	43.11	---	74.00	54.00	-10.89	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 scanned 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.

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

Operation Mode	802.11b TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	39.92	---	-6.34	33.58	---	74.00	54.00	-20.42	Peak
4924.0	48.33	45.39	6.28	54.61	51.67	74.00	54.00	-2.33	AV
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 scanned 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.

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

Operation Mode	802.11b TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	42.86	---	-6.34	36.52	---	74.00	54.00	-17.48	Peak
4924.0	40.45	---	6.28	46.73	---	74.00	54.00	-7.27	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 scanned 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.

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

Operation Mode	802.11g TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.20	---	-7.52	33.68	---	74.00	54.00	-20.32	Peak
1663.0	38.95	---	-5.11	33.84	---	74.00	54.00	-20.16	Peak
4824.0	32.93	---	6.05	38.98	---	74.00	54.00	-15.02	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 scanned 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.

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

Operation Mode	802.11g TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1032.5	44.18	---	-8.01	36.17	---	74.00	54.00	-17.83	Peak
1403.0	43.56	---	-6.34	37.22	---	74.00	54.00	-16.78	Peak
4824.0	33.42	---	6.05	39.47	---	74.00	54.00	-14.53	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 scanned 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.

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

Operation Mode	802.11g TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	42.13	---	-8.01	34.12	---	74.00	54.00	-19.88	Peak
1403.0	40.42	---	-6.34	34.08	---	74.00	54.00	-19.92	Peak
4874.0	33.40	---	6.17	39.57	---	74.00	54.00	-14.43	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 scanned 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.

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

Operation Mode	802.11g TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	43.81	---	-6.34	37.47	---	74.00	54.00	-16.53	Peak
4874.0	33.34	---	6.17	39.51	---	74.00	54.00	-14.49	Peak
6408.0	35.67	---	9.56	45.23	---	74.00	54.00	-8.77	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 scanned 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.

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

Operation Mode	802.11g TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1292.5	39.59	---	-6.85	32.74	---	74.00	54.00	-21.26	Peak
4924.0	32.03	---	6.28	38.31	---	74.00	54.00	-15.69	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 scanned 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.

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

Operation Mode	802.11g TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	40.72	---	-6.34	34.38	---	74.00	54.00	-19.62	Peak
4924.0	31.43	---	6.28	37.71	---	74.00	54.00	-16.29	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 scanned 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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.60	---	-7.52	34.08	---	74.00	54.00	-19.92	Peak
1403.0	41.26	---	-6.34	34.92	---	74.00	54.00	-19.08	Peak
4824.0	32.40	---	6.05	38.45	---	74.00	54.00	-15.55	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	44.33	---	-6.34	37.99	---	74.00	54.00	-16.01	Peak
1663.0	39.13	---	-5.11	34.02	---	74.00	54.00	-19.98	Peak
4824.0	32.87	---	6.05	38.92	---	74.00	54.00	-15.08	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	42.04	---	-7.52	34.52	---	74.00	54.00	-19.48	Peak
1403.0	39.81	---	-6.34	33.47	---	74.00	54.00	-20.53	Peak
1663.0	38.34	---	-5.11	33.23	---	74.00	54.00	-20.77	Peak
4874.0	35.85	---	6.23	42.08	---	74.00	54.00	-11.92	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	40.95	---	-7.52	33.43	---	74.00	54.00	-20.57	Peak
1403.0	43.01	---	-6.34	36.67	---	74.00	54.00	-17.33	Peak
1663.0	39.30	---	-5.11	34.19	---	74.00	54.00	-19.81	Peak
4874.0	33.19	---	6.17	39.36	---	74.00	54.00	-14.64	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	40.66	---	-7.52	33.14	---	74.00	54.00	-20.86	Peak
1663.0	38.81	---	-5.11	33.70	---	74.00	54.00	-20.30	Peak
3242.5	37.22	---	1.23	38.45	---	74.00	54.00	-15.55	Peak
4924.0	36.43	---	6.28	42.71	---	74.00	54.00	-11.29	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	42.83	---	-6.34	36.49	---	74.00	54.00	-17.51	Peak
1663.0	38.73	---	-5.11	33.62	---	74.00	54.00	-20.38	Peak
4924.0	33.67	---	6.28	39.95	---	74.00	54.00	-14.05	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.35	---	-7.52	33.83	---	74.00	54.00	-20.17	Peak
1663.0	38.59	---	-5.11	33.48	---	74.00	54.00	-20.52	Peak
4844.0	33.25	---	6.10	39.35	---	74.00	54.00	-14.65	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	40.86	---	-7.52	33.34	---	74.00	54.00	-20.66	Peak
1403.0	43.18	---	-6.34	36.84	---	74.00	54.00	-17.16	Peak
1663.0	38.81	---	-5.11	33.70	---	74.00	54.00	-20.30	Peak
4844.0	33.03	---	6.10	39.13	---	74.00	54.00	-14.87	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.47	---	-7.52	33.95	---	74.00	54.00	-20.05	Peak
1663.0	38.63	---	-5.11	33.52	---	74.00	54.00	-20.48	Peak
4874.0	35.63	---	6.23	41.86	---	74.00	54.00	-12.14	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1032.5	40.81	---	-8.01	32.80	---	74.00	54.00	-21.20	Peak
1403.0	43.55	---	-6.34	37.21	---	74.00	54.00	-16.79	Peak
1663.0	39.39	---	-5.11	34.28	---	74.00	54.00	-19.72	Peak
4874.0	32.84	---	6.17	39.01	---	74.00	54.00	-14.99	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.62	---	-7.52	34.10	---	74.00	54.00	-19.90	Peak
1663.0	38.09	---	-5.11	32.98	---	74.00	54.00	-21.02	Peak
3242.0	36.65	---	1.23	37.88	---	74.00	54.00	-16.12	Peak
4904.0	35.34	---	6.23	41.57	---	74.00	54.00	-12.43	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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M TX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1032.5	42.59	---	-8.01	34.58	---	74.00	54.00	-19.42	Peak
1403.0	43.98	---	-6.34	37.64	---	74.00	54.00	-16.36	Peak
4904.0	33.42	---	6.24	39.66	---	74.00	54.00	-14.34	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.

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**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode 802.11b RX CH Low  
 Fundamental Frequency 2412MHz  
 Temperature 27  
 Humidity 66 %

Test Date Jan. 19, 2011  
 Test By Jason  
 Pol Ver./Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	47.73	-15.85	31.88	40.00	-8.12
384.05	V	Peak	54.51	-10.54	43.97	46.00	-2.03
513.06	V	Peak	48.19	-8.32	39.87	46.00	-6.13
641.10	V	Peak	44.19	-5.17	39.02	46.00	-6.98
769.14	V	Peak	39.59	-3.80	35.79	46.00	-10.21
895.24	V	Peak	36.83	-1.13	35.70	46.00	-10.30
63.95	H	Peak	46.24	-14.89	31.35	40.00	-8.65
251.16	H	Peak	43.64	-13.72	29.92	46.00	-16.08
384.05	H	Peak	44.17	-10.54	33.63	46.00	-12.37
513.06	H	Peak	39.90	-8.32	31.58	46.00	-14.42
641.10	H	Peak	40.94	-5.17	35.77	46.00	-10.23
895.24	H	Peak	40.44	-1.13	39.31	46.00	-6.69

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode 802.11b RX CH Mid  
Fundamental Frequency 2437MHz  
Temperature 27  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Pol Ver./Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	47.51	-15.34	32.17	40.00	-7.83
384.05	V	Peak	54.39	-10.54	43.85	46.00	-2.15
513.06	V	Peak	47.57	-8.32	39.25	46.00	-6.75
641.10	V	Peak	43.59	-5.17	38.42	46.00	-7.58
769.14	V	Peak	39.06	-3.80	35.26	46.00	-10.74
895.24	V	Peak	37.51	-1.13	36.38	46.00	-9.62
63.95	H	Peak	46.69	-14.89	31.80	40.00	-8.20
251.16	H	Peak	43.28	-13.72	29.56	46.00	-16.44
384.05	H	Peak	43.92	-10.54	33.38	46.00	-12.62
513.06	H	Peak	38.25	-8.32	29.93	46.00	-16.07
641.10	H	Peak	40.99	-5.17	35.82	46.00	-10.18
895.24	H	Peak	40.53	-1.13	39.40	46.00	-6.60

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode 802.11b RX CH High  
 Fundamental Frequency 2462MHz  
 Temperature 27  
 Humidity 66 %

Test Date Jan. 19, 2011  
 Test By Jason  
 Pol Ver./Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	47.17	-14.89	32.28	40.00	-7.72
384.05	V	Peak	53.60	-10.54	43.06	46.00	-2.94
513.06	V	Peak	47.31	-8.32	38.99	46.00	-7.01
641.10	V	Peak	43.14	-5.17	37.97	46.00	-8.03
769.14	V	Peak	39.03	-3.80	35.23	46.00	-10.77
895.24	V	Peak	37.49	-1.13	36.36	46.00	-9.64
128.94	H	Peak	44.47	-14.56	29.91	43.50	-13.59
251.16	H	Peak	42.62	-13.72	28.90	46.00	-17.10
384.05	H	Peak	44.21	-10.54	33.67	46.00	-12.33
513.06	H	Peak	38.81	-8.32	30.49	46.00	-15.51
641.10	H	Peak	40.85	-5.17	35.68	46.00	-10.32
895.24	H	Peak	41.42	-1.13	40.29	46.00	-5.71

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode 802.11g RX CH Low  
 Fundamental Frequency 2412MHz  
 Temperature 27  
 Humidity 66 %

Test Date Jan. 19, 2011  
 Test By Jason  
 Pol Ver./Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	47.25	-15.85	31.40	40.00	-8.60
381.05	V	Peak	54.37	-10.54	43.83	46.00	-2.17
513.06	V	Peak	47.72	-8.32	39.40	46.00	-6.60
641.10	V	Peak	44.18	-5.17	39.01	46.00	-6.99
769.14	V	Peak	37.22	-3.80	33.42	46.00	-12.58
895.24	V	Peak	37.18	-1.13	36.05	46.00	-9.95
63.95	H	Peak	46.53	-14.89	31.64	40.00	-8.36
128.94	H	Peak	44.63	-14.56	30.07	43.50	-13.43
384.05	H	Peak	43.97	-10.54	33.43	46.00	-12.57
513.06	H	Peak	39.27	-8.32	30.95	46.00	-15.05
641.10	H	Peak	40.70	-5.17	35.53	46.00	-10.47
895.24	H	Peak	40.88	-1.13	39.75	46.00	-6.25

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode 802.11g RX CH Mid  
Fundamental Frequency 2437MHz  
Temperature 27  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Pol Ver./Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	47.58	-15.85	31.73	40.00	-8.27
384.05	V	Peak	53.43	-10.54	42.89	46.00	-3.11
513.06	V	Peak	48.27	-8.32	39.95	46.00	-6.05
641.10	V	Peak	43.90	-5.17	38.73	46.00	-7.27
769.14	V	Peak	37.50	-3.80	33.70	46.00	-12.30
895.24	V	Peak	36.66	-1.13	35.53	46.00	-10.47
61.92	H	Peak	45.81	-14.83	30.98	40.00	-9.02
128.94	H	Peak	44.38	-14.56	29.82	43.50	-13.68
251.16	H	Peak	43.35	-13.72	29.63	46.00	-16.37
384.05	H	Peak	43.69	-10.54	33.15	46.00	-12.85
641.10	H	Peak	41.64	-5.17	36.47	46.00	-9.53
895.24	H	Peak	41.02	-1.13	39.89	46.00	-6.11

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode 802.11g RX CH High  
Fundamental Frequency 2462MHz  
Temperature 27  
Humidity 66 %

Test Date Jan. 19, 2011  
Test By Jason  
Pol Ver./Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	47.47	-15.85	31.62	40.00	-8.38
384.05	V	Peak	53.92	-10.54	43.38	46.00	-2.62
513.06	V	Peak	48.41	-8.32	40.09	46.00	-5.91
641.10	V	Peak	43.70	-5.17	38.53	46.00	-7.47
769.14	V	Peak	38.38	-3.80	34.58	46.00	-11.42
895.24	V	Peak	38.27	-1.13	37.14	46.00	-8.86
66.86	H	Peak	46.49	-15.34	31.15	40.00	-8.85
128.94	H	Peak	44.27	-14.56	29.71	43.50	-13.79
158.04	H	Peak	40.92	-13.28	27.64	43.50	-15.86
251.16	H	Peak	42.56	-13.72	28.84	46.00	-17.16
384.05	H	Peak	44.33	-10.54	33.79	46.00	-12.21
513.06	H	Peak	38.86	-8.32	30.54	46.00	-15.46

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	47.20	-14.89	32.31	40.00	-7.69
384.05	V	Peak	53.77	-10.54	43.23	46.00	-2.77
513.06	V	Peak	48.26	-8.32	39.94	46.00	-6.06
641.10	V	Peak	43.43	-5.17	38.26	46.00	-7.74
769.14	V	Peak	37.90	-3.80	34.10	46.00	-11.90
895.24	V	Peak	38.81	-1.13	37.68	46.00	-8.32
64.92	H	Peak	44.91	-14.83	30.08	40.00	-9.92
128.94	H	Peak	44.31	-14.56	29.75	43.50	-13.75
251.16	H	Peak	42.56	-13.72	28.84	46.00	-17.16
384.05	H	Peak	43.61	-10.54	33.07	46.00	-12.93
641.10	H	Peak	41.48	-5.17	36.31	46.00	-9.69
895.24	H	Peak	40.85	-1.13	39.72	46.00	-6.28

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	47.22	-14.89	32.33	40.00	-7.67
384.05	V	Peak	54.37	-10.54	43.83	46.00	-2.17
513.06	V	Peak	47.77	-8.32	39.45	46.00	-6.55
641.10	V	Peak	43.27	-5.17	38.10	46.00	-7.90
769.14	V	Peak	38.99	-3.80	35.19	46.00	-10.81
895.24	V	Peak	39.40	-1.13	38.27	46.00	-7.73
63.95	H	Peak	45.97	-14.89	31.08	40.00	-8.92
128.94	H	Peak	45.15	-14.56	30.59	43.50	-12.91
384.05	H	Peak	43.48	-10.54	32.94	46.00	-13.06
513.06	H	Peak	39.37	-8.32	31.05	46.00	-14.95
641.10	H	Peak	41.17	-5.17	36.00	46.00	-10.00
895.24	H	Peak	40.72	-1.13	39.59	46.00	-6.41

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
68.80	V	Peak	48.07	-15.85	32.22	40.00	-7.78
128.94	V	Peak	43.72	-14.56	29.16	43.50	-14.34
384.05	V	Peak	53.15	-10.54	42.61	46.00	-3.39
513.06	V	Peak	48.90	-8.32	40.58	46.00	-5.42
641.10	V	Peak	43.49	-5.17	38.32	46.00	-7.68
769.14	V	Peak	39.16	-3.80	35.36	46.00	-10.64
64.92	H	Peak	46.02	-14.83	31.19	40.00	-8.81
128.94	H	Peak	44.16	-14.56	29.60	43.50	-13.90
384.05	H	Peak	43.50	-10.54	32.96	46.00	-13.04
513.06	H	Peak	39.71	-8.32	31.39	46.00	-14.61
641.10	H	Peak	40.70	-5.17	35.53	46.00	-10.47
895.24	H	Peak	40.86	-1.13	39.73	46.00	-6.27

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
70.74	V	Peak	48.05	-16.27	31.78	40.00	-8.22
384.05	V	Peak	54.35	-10.54	43.81	46.00	-2.19
513.06	V	Peak	48.12	-8.32	39.80	46.00	-6.20
641.10	V	Peak	43.43	-5.17	38.26	46.00	-7.74
769.14	V	Peak	39.74	-3.80	35.94	46.00	-10.06
895.24	V	Peak	37.29	-1.13	36.16	46.00	-9.84
63.95	H	Peak	45.72	-14.89	30.83	40.00	-9.17
128.94	H	Peak	44.78	-14.56	30.22	43.50	-13.28
251.16	H	Peak	42.72	-13.72	29.00	46.00	-17.00
384.05	H	Peak	44.07	-10.54	33.53	46.00	-12.47
641.10	H	Peak	40.75	-5.17	35.58	46.00	-10.42
895.24	H	Peak	40.84	-1.13	39.71	46.00	-6.29

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	48.07	-14.89	33.18	40.00	-6.82
384.05	V	Peak	53.86	-10.54	43.32	46.00	-2.68
513.06	V	Peak	48.05	-8.32	39.73	46.00	-6.27
641.10	V	Peak	44.01	-5.17	38.84	46.00	-7.16
769.14	V	Peak	38.24	-3.80	34.44	46.00	-11.56
895.24	V	Peak	38.14	-1.13	37.01	46.00	-8.99
66.86	H	Peak	47.41	-15.34	32.07	40.00	-7.93
158.04	H	Peak	42.45	-13.28	29.17	43.50	-14.33
251.16	H	Peak	42.30	-13.72	28.58	46.00	-17.42
384.05	H	Peak	44.02	-10.54	33.48	46.00	-12.52
641.10	H	Peak	41.83	-5.17	36.66	46.00	-9.34
895.24	H	Peak	40.72	-1.13	39.59	46.00	-6.41

**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.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	27	Pol Ver./Hor	
Humidity	66 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
64.92	V	Peak	46.76	-14.83	31.93	40.00	-8.07
384.05	V	Peak	53.61	-10.54	43.07	46.00	-2.93
513.06	V	Peak	48.37	-8.32	40.05	46.00	-5.95
641.10	V	Peak	44.24	-5.17	39.07	46.00	-6.93
769.14	V	Peak	39.41	-3.80	35.61	46.00	-10.39
895.24	V	Peak	38.38	-1.13	37.25	46.00	-8.75
63.95	H	Peak	45.82	-14.89	30.93	40.00	-9.07
128.94	H	Peak	44.66	-14.56	30.10	43.50	-13.40
384.05	H	Peak	43.60	-10.54	33.06	46.00	-12.94
513.06	H	Peak	39.18	-8.32	30.86	46.00	-15.14
641.10	H	Peak	41.22	-5.17	36.05	46.00	-9.95
895.24	H	Peak	41.51	-1.13	40.38	46.00	-5.62

**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.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11b RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	40.91	---	-6.34	34.57	---	74.00	54.00	-19.43	Peak
1663.0	39.45	---	-5.11	34.34	---	74.00	54.00	-19.66	Peak
3977.0	34.61	---	3.57	38.18	---	74.00	54.00	-15.82	Peak
4824.0	----					74.00	54.00		
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11b RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.39	---	-6.34	40.05	---	74.00	54.00	-13.95	Peak
1663.0	41.88	---	-5.11	36.77	---	74.00	54.00	-17.23	Peak
3210.0	37.23	---	1.11	38.34	---	74.00	54.00	-15.66	Peak
4824.0	----					74.00	54.00		
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11b RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437 MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	43.45	---	-7.52	35.93	---	74.00	54.00	-18.07	Peak
1403.0	42.59	---	-6.34	36.25	---	74.00	54.00	-17.75	Peak
1663.0	40.46	---	-5.11	35.35	---	74.00	54.00	-18.65	Peak
3957.5	34.84	---	3.54	38.38	---	74.00	54.00	-15.62	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11b RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437 MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.73	---	-6.34	40.39	---	74.00	54.00	-13.61	Peak
1663.0	43.42	---	-5.11	38.31	---	74.00	54.00	-15.69	Peak
3795.0	35.11	---	2.97	38.08	---	74.00	54.00	-15.92	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11b RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	40.94	---	-6.34	34.60	---	74.00	54.00	-19.40	Peak
3990.0	34.77	---	3.68	38.45	---	74.00	54.00	-15.55	Peak
4924.0	----					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11b RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	44.63	---	-6.34	38.29	---	74.00	54.00	-15.71	Peak
1663.0	42.51	---	-5.11	37.40	---	74.00	54.00	-16.60	Peak
3938.0	35.25	---	3.48	38.73	---	74.00	54.00	-15.27	Peak
4924.0	----					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11g RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	42.09	---	-6.34	35.75	---	74.00	54.00	-18.25	Peak
1663.0	40.66	---	-5.11	35.55	---	74.00	54.00	-18.45	Peak
3957.5	35.23	---	3.54	38.77	---	74.00	54.00	-15.23	Peak
4824.0	----					74.00	54.00		
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11g RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	45.98	---	-6.34	39.64	---	74.00	54.00	-14.36	Peak
1663.0	43.27	---	-5.11	38.16	---	74.00	54.00	-15.84	Peak
3892.5	34.70	---	3.32	38.02	---	74.00	54.00	-15.98	Peak
4824.0	----					74.00	54.00		
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11g RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437 MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	41.83	---	-6.34	35.49	---	74.00	54.00	-18.51	Peak
1663.0	40.06	---	-5.11	34.95	---	74.00	54.00	-19.05	Peak
3892.0	34.72	---	3.32	38.04	---	74.00	54.00	-15.96	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11g RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437 MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.63	---	-6.34	40.29	---	74.00	54.00	-13.71	Peak
1663.0	43.04	---	-5.11	37.93	---	74.00	54.00	-16.07	Peak
3483.0	36.23	---	2.01	38.24	---	74.00	54.00	-15.76	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11g RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	42.20	---	-7.52	34.68	---	74.00	54.00	-19.32	Peak
1403.0	40.76	---	-6.34	34.42	---	74.00	54.00	-19.58	Peak
1773.5	47.74	---	-4.58	43.16	---	74.00	54.00	-10.84	Peak
3990.0	35.11	---	3.68	38.79	---	74.00	54.00	-15.21	Peak
4924.0	----					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	802.11g RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	27	Pol Hor.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	45.50	---	-6.34	39.16	---	74.00	54.00	-14.84	Peak
1767.0	49.13	---	-4.61	44.52	---	74.00	54.00	-9.48	Peak
3782.0	35.62	---	2.98	38.60	---	74.00	54.00	-15.40	Peak
4924.0	----					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					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 : 1 GHz- 40GHz, RBW= 3MHz, VBW= 1MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting : 1 GHz- 40GHz, RBW = 1MHz, VBW = 10Hz, Sweep time= 200 ms.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	42.80	---	-6.34	36.46	---	74.00	54.00	-17.54	Peak
2430.0	37.49	---	-1.19	36.30	---	74.00	54.00	-17.70	Peak
3983.5	34.28	---	3.68	37.96	---	74.00	54.00	-16.04	Peak
4824.0	----					74.00	54.00		
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.06	---	-6.34	39.72	---	74.00	54.00	-14.28	Peak
1663.0	41.38	---	-5.11	36.27	---	74.00	54.00	-17.73	Peak
3892.5	34.75	---	3.32	38.07	---	74.00	54.00	-15.93	Peak
4824.0	----					74.00	54.00		
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.51	---	-7.52	33.99	---	74.00	54.00	-20.01	Peak
1663.0	40.98	---	-5.11	35.87	---	74.00	54.00	-18.13	Peak
3782.0	35.38	---	2.98	38.36	---	74.00	54.00	-15.64	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.35	---	-6.34	40.01	---	74.00	54.00	-13.99	Peak
1663.0	41.08	---	-5.11	35.97	---	74.00	54.00	-18.03	Peak
3977.0	34.76	---	3.57	38.33	---	74.00	54.00	-15.67	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.63	---	-7.52	34.11	---	74.00	54.00	-19.89	Peak
1403.0	40.69	---	-6.34	34.35	---	74.00	54.00	-19.65	Peak
1663.0	39.71	---	-5.11	34.60	---	74.00	54.00	-19.40	Peak
3892.5	34.92	---	3.32	38.24	---	74.00	54.00	-15.76	Peak
4924.0	----					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M) Combine mode**

Operation Mode	802.11n_20M RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.50	---	-6.34	40.16	---	74.00	54.00	-13.84	Peak
1663.0	42.47	---	-5.11	37.36	---	74.00	54.00	-16.64	Peak
2170.0	37.82	---	-2.54	35.28	---	74.00	54.00	-18.72	Peak
4924.0	----					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	27	Pol Ver.	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	41.51	---	-7.52	33.99	---	74.00	54.00	-20.01	Peak
1663.0	38.98	---	-5.11	33.87	---	74.00	54.00	-20.13	Peak
4844.0	----					74.00	54.00		
7266.0	----					74.00	54.00		
9688.0	----					74.00	54.00		
12110.0	----					74.00	54.00		
14532.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH Low	Test Date	Jan. 19, 2011
Fundamental Frequency	2422MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	45.31	---	-6.34	38.97	---	74.00	54.00	-15.03	Peak
1663.0	41.49	---	-5.11	36.38	---	74.00	54.00	-17.62	Peak
2963.0	38.33	---	0.29	38.62	---	74.00	54.00	-15.38	Peak
4844.0	----					74.00	54.00		
7266.0	----					74.00	54.00		
9688.0	----					74.00	54.00		
12110.0	----					74.00	54.00		
14532.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1143.0	42.09	---	-7.52	34.57	---	74.00	54.00	-19.43	Peak
1663.0	40.25	---	-5.11	35.14	---	74.00	54.00	-18.86	Peak
2430.0	37.59	---	-1.19	36.40	---	74.00	54.00	-17.60	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH Mid	Test Date	Jan. 19, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	46.52	---	-6.34	40.18	---	74.00	54.00	-13.82	Peak
1663.0	41.83	---	-5.11	36.72	---	74.00	54.00	-17.28	Peak
4874.0	----					74.00	54.00		
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	27	Pol Ver	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	43.32	---	-6.34	36.98	---	74.00	54.00	-17.02	Peak
3028.0	36.70	---	0.52	37.22	---	74.00	54.00	-16.78	Peak
4904.0	----					74.00	54.00		
7356.0	----					74.00	54.00		
9808.0	----					74.00	54.00		
12260.0	----					74.00	54.00		
14712.0	----					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.

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**Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_40M) Combine mode**

Operation Mode	802.11n_40M RX CH High	Test Date	Jan. 19, 2011
Fundamental Frequency	2452MHz	Test By	Jason
Temperature	27	Pol Hor	
Humidity	66 %		

Freq. (MHz)	Peak Reading	AV Reading	Ant./CL CF(dB)	Actual FS		Peak Limit	AV Limit	Margin (dB)	Remark
	(dBuV)	(dBuV)		Peak (dBuV/m)	AV (dBuV/m)	(dBuV/m)	(dBuV/m)		
1403.0	47.08	---	-6.34	40.74	---	74.00	54.00	-13.26	Peak
4904.0	35.43	---	5.62	41.05	---	74.00	54.00	-12.95	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		

**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.

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## 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 8, §A8.2(b) 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.

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## 10.5 Measurement Result:

### 802.11b

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2412	-14.27	0.037411	8
2437	-13.87	0.041020	8
2462	-14.73	0.033651	8

### 802.11g

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2412	-13.88	0.040926	8
2437	-13.40	0.045709	8
2462	-13.84	0.041305	8

\* Cable Loss (0.3dBm) as offset is added in the Spectrum

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**802.11n\_20M Chain 0**

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2412 -15.98		0.025235	8
2437 -15.75		0.026607	8
2462 -16.02		0.025003	8

**802.11n\_20M Chain 1**

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2412 -14.95		0.031989	8
2437 -15.05		0.031261	8
2462 -15.61		0.027479	8

**802.11n\_20M Combine Chain 0,  
Chain 1**

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2412 -12.4242		0.057224	8
2437 -12.3756		0.057868	8
2462 -12.7999		0.052482	8

\* Cable Loss (0.3dBm) as offset is added in the Spectrum

\* The combinational of RF Power Density (mW) = Chain 1 + Chain 2 (mW)

\* The combinational of RF Power Density (dBm) =  $10 * \log((Chain1 + Chain2 (mW)))$

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**802.11n\_40M Chain 0**

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2422 -16.71		0.02133	8
2437 -15.88		0.025235	8
2452 -16.86		0.020606	8

**802.11n\_40M Chain 1**

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2422 -15.22		0.030061	8
2437 -13.90		0.040738	8
2452 -16.52		0.022284	8

**8802.11n\_40M Combine Chain 0,  
Chain 1**

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (mW)	Maximum Limit (dBm)
2422 -12.89		0.051391	8
2437 -11.77		0.066561	8
2452 -13.68		0.042891	8

\* Cable Loss (0.3dBm) as offset is added in the Spectrum

\* The combinational of RF Power Density (mW) = Chain 1 + Chain 2 (mW)

\* The combinational of RF Power Density (dBm) =  $10 * \log((Chain1 + Chain2 (mW)))$

Note: Refer to next page for plots.

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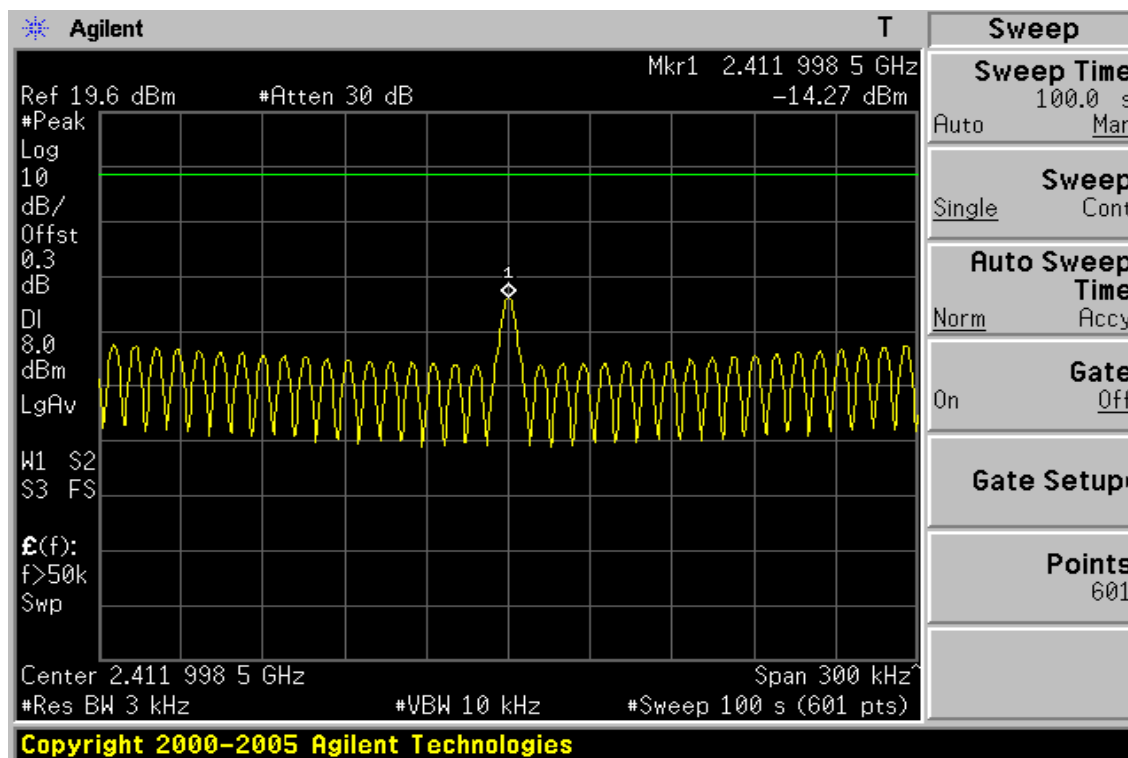
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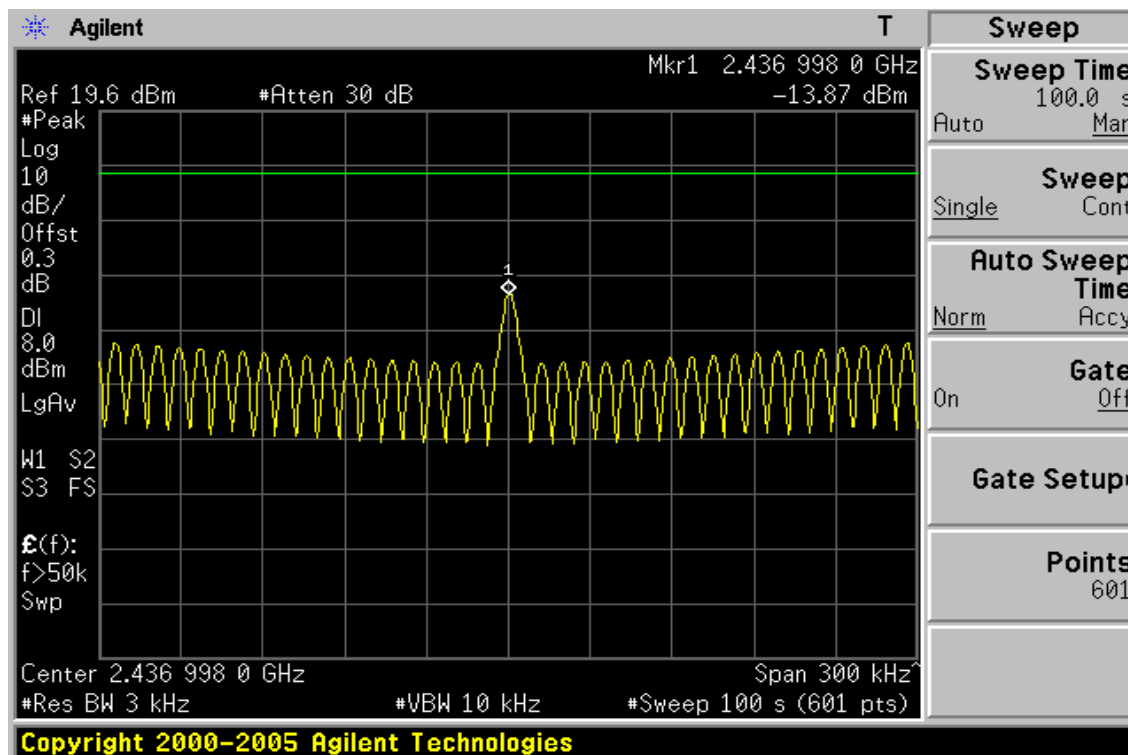
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## 802.11b

### Power Spectral Density Test Plot (CH-Low)



### Power Spectral Density Test Plot (CH-Mid)



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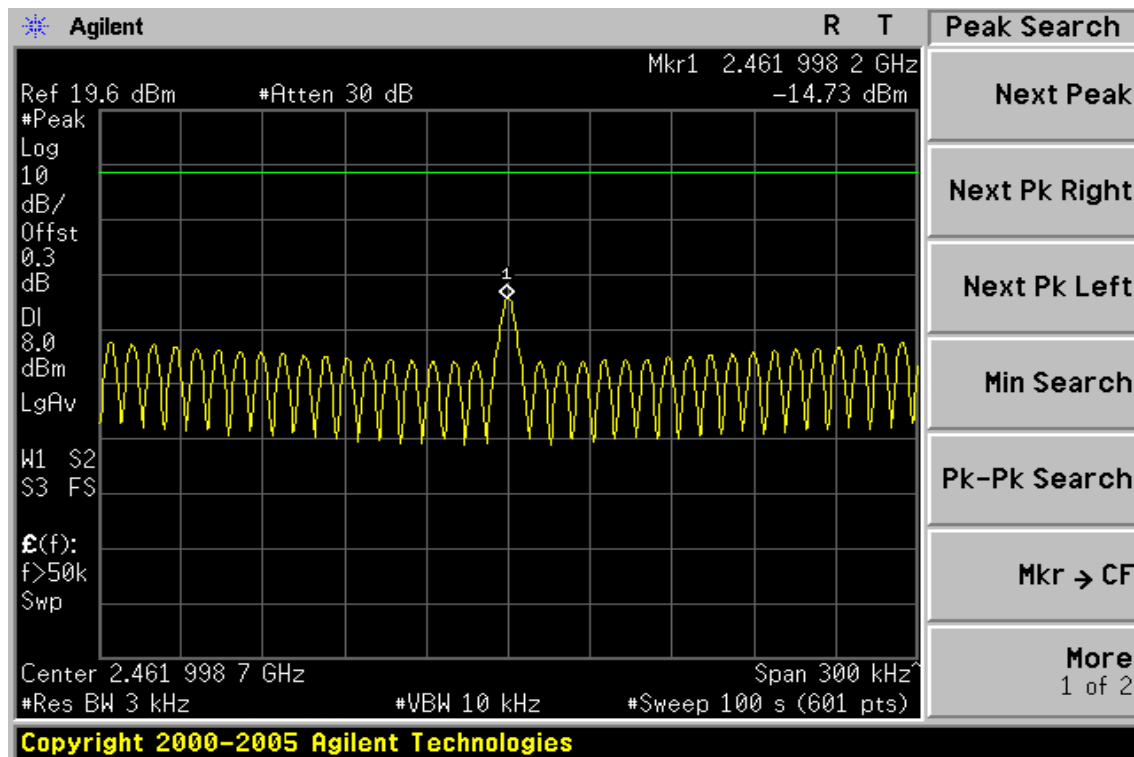
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## Power Spectral Density Test Plot (CH-High)



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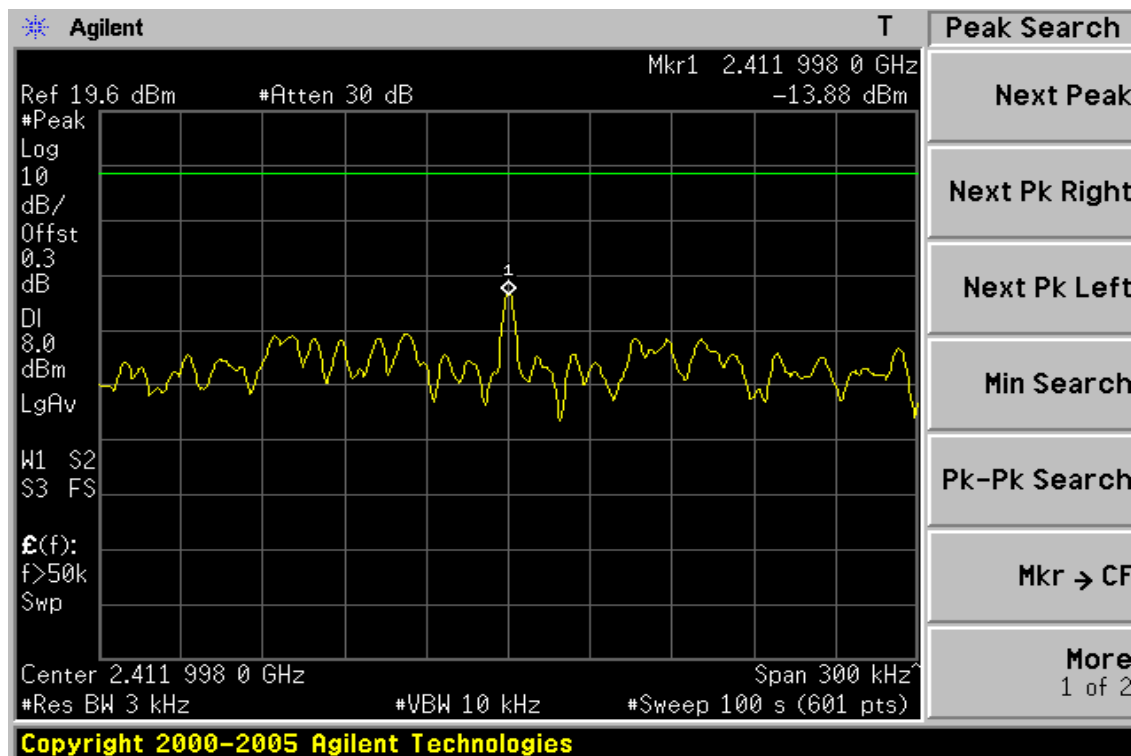
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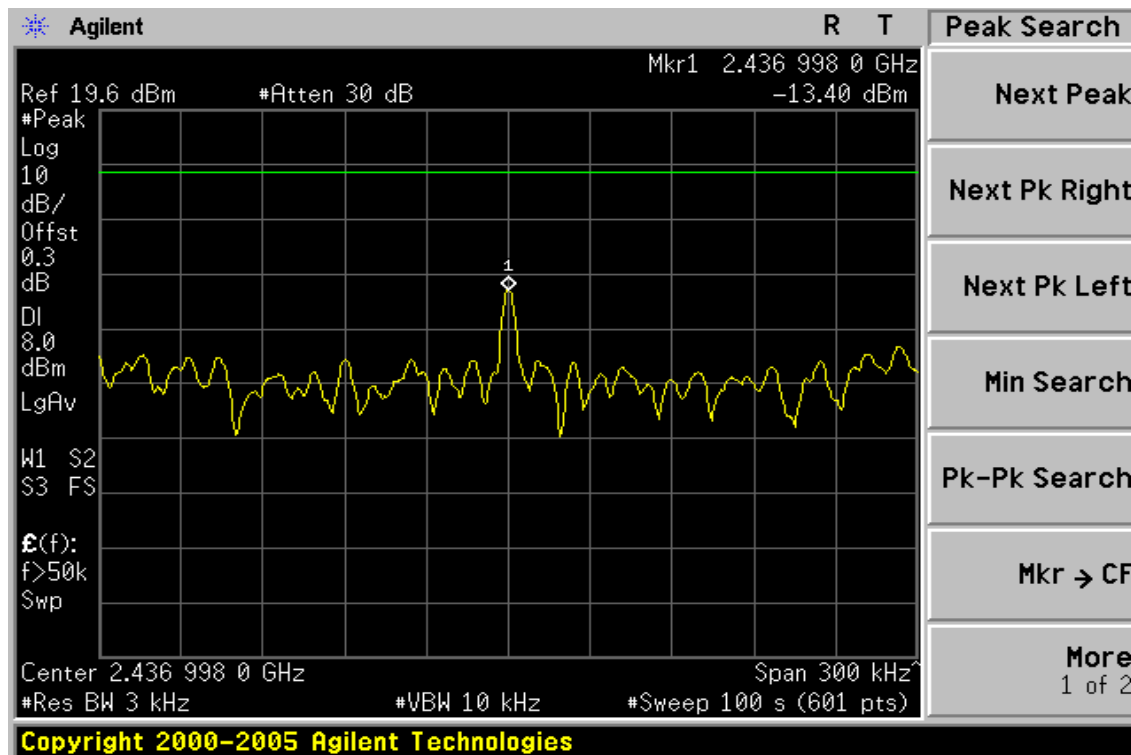
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## 802.11g

### Power Spectral Density Test Plot (CH-Low)



### Power Spectral Density Test Plot (CH-Mid)



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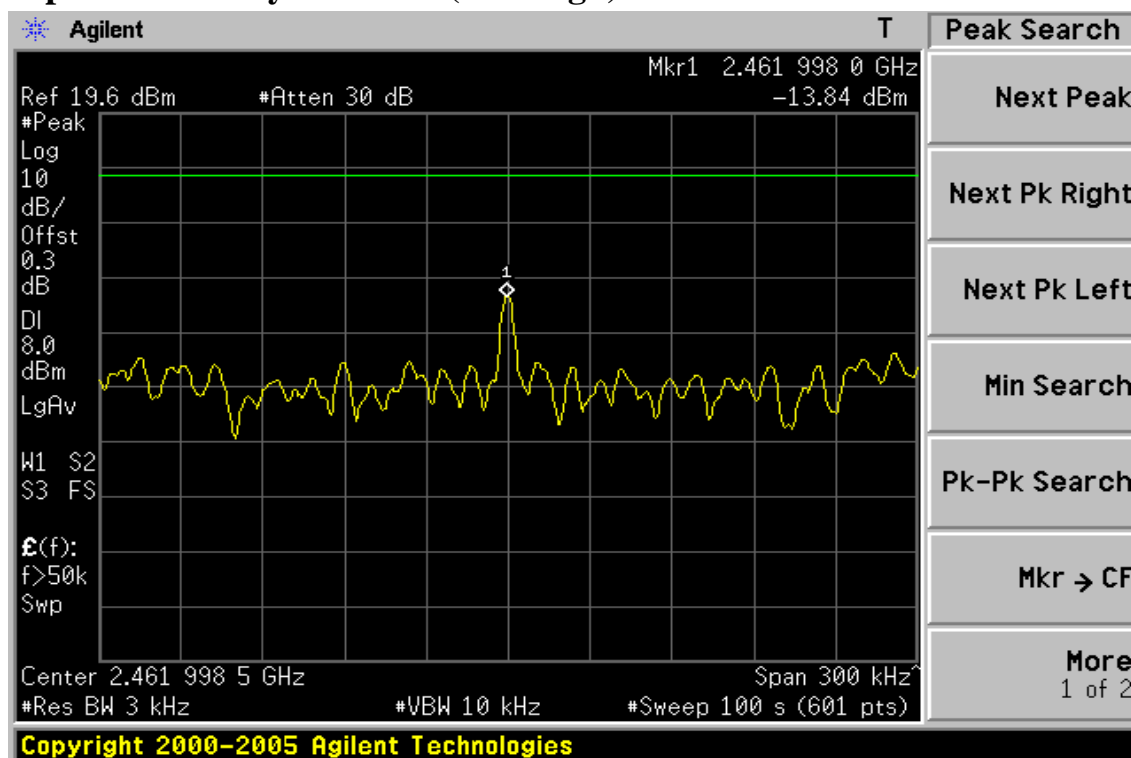
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## Power Spectral Density Test Plot (CH-High)



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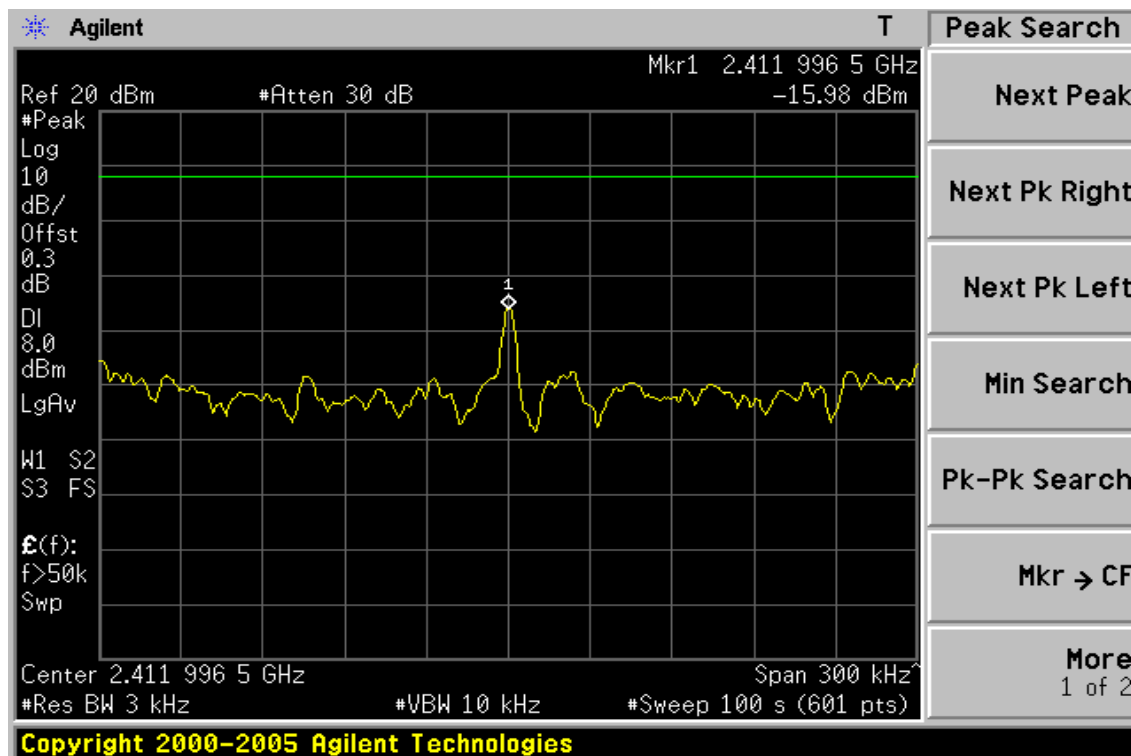
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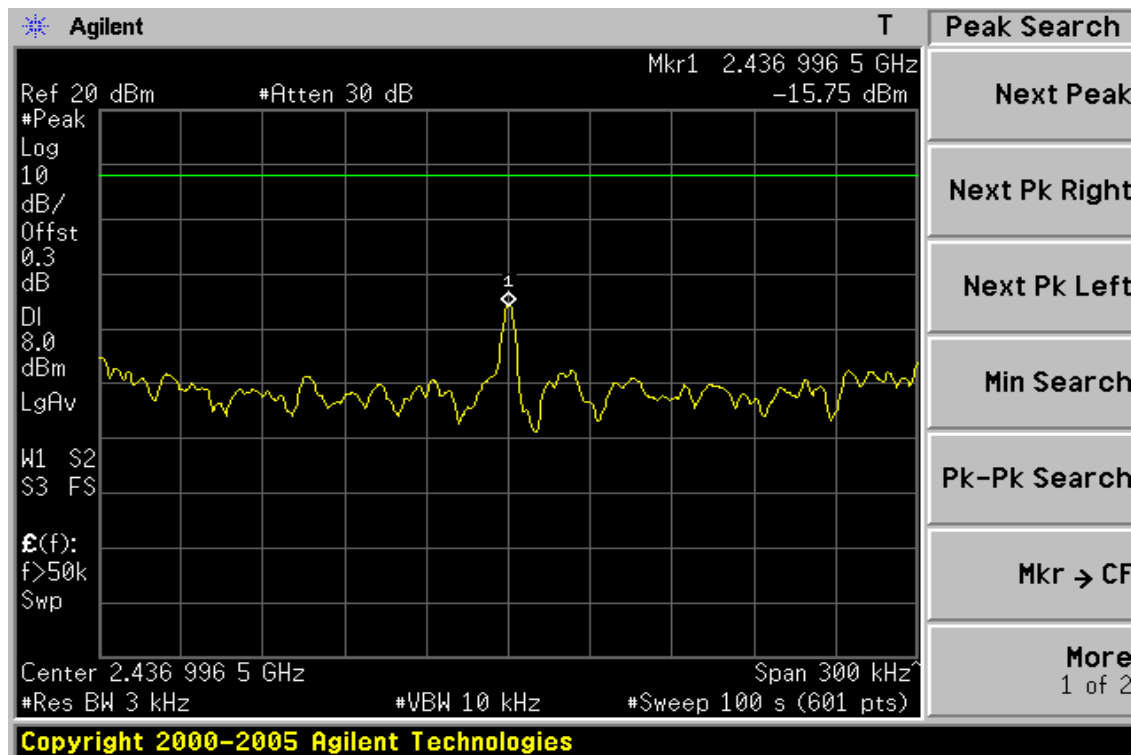


## 802.11n\_20M, Chain 1

### Power Spectral Density Test Plot (CH-Low)



### Power Spectral Density Test Plot (CH-Mid)



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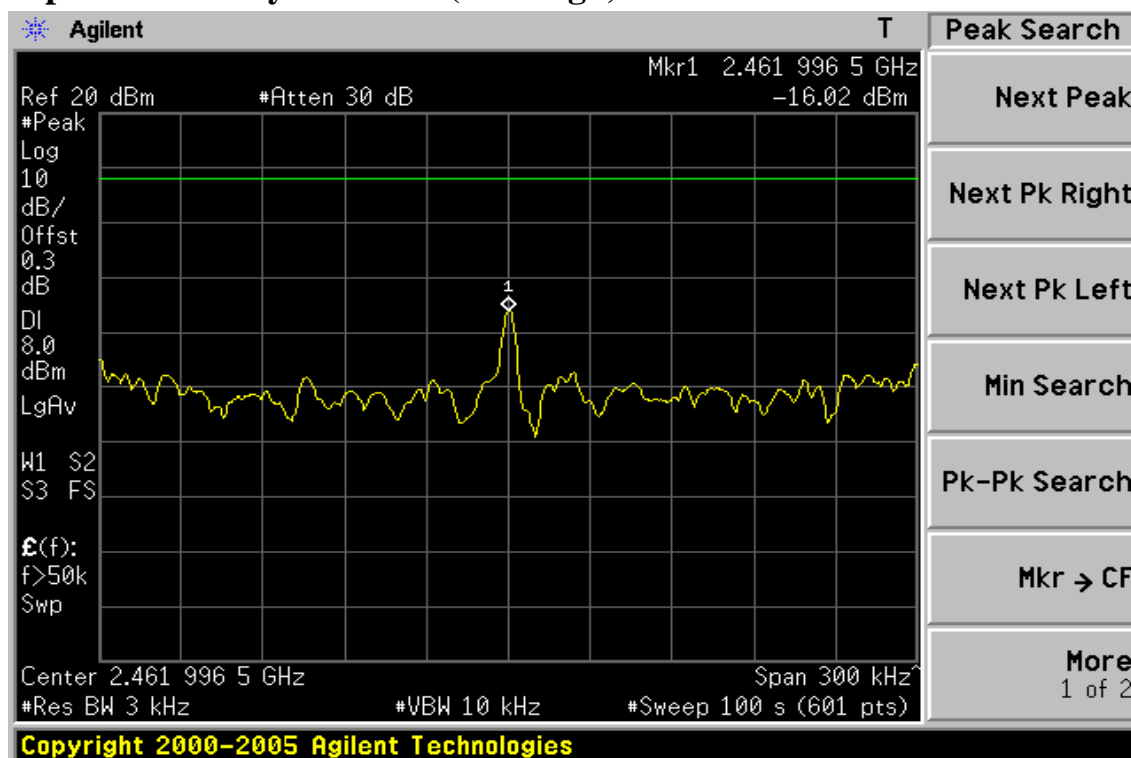
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## Power Spectral Density Test Plot (CH-High)



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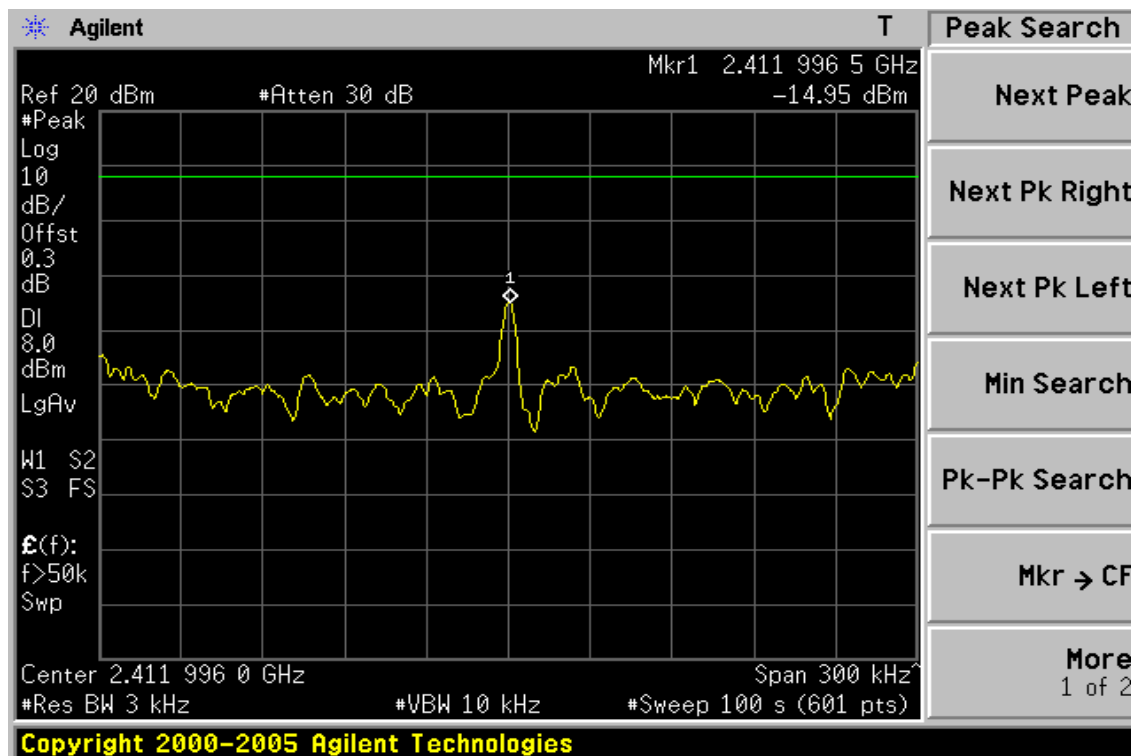
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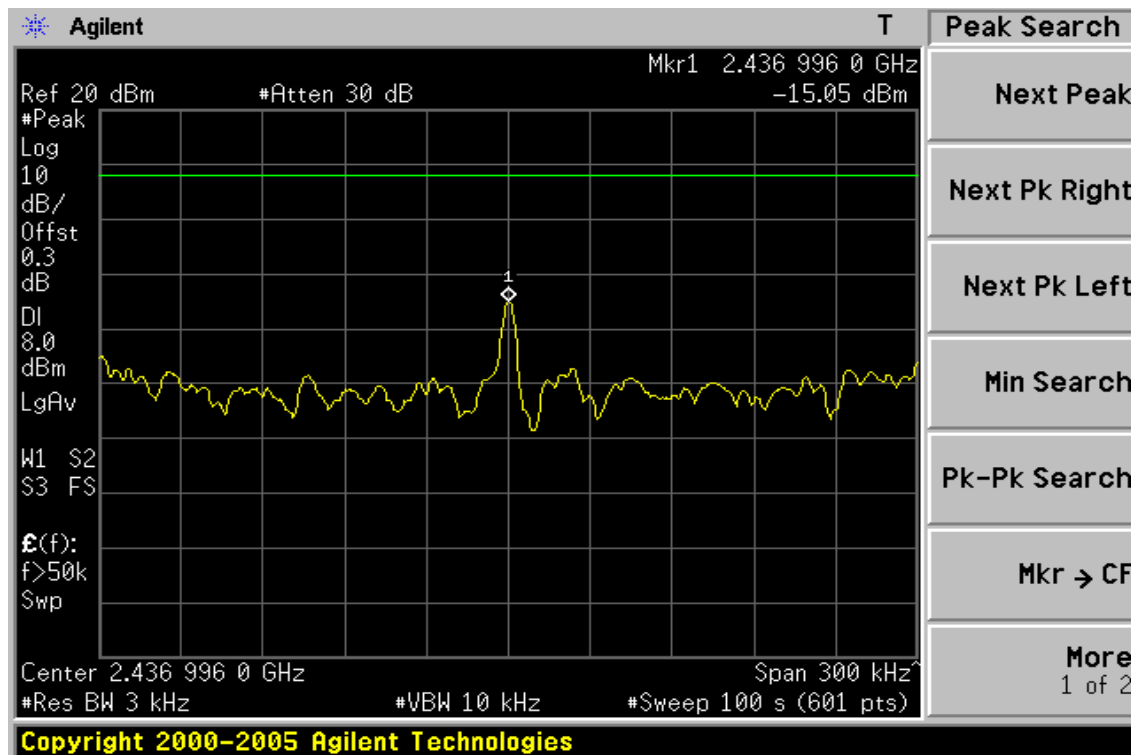
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## 802.11n\_20M, Chain 2

### Power Spectral Density Test Plot (CH-Low)



### Power Spectral Density Test Plot (CH-Mid)



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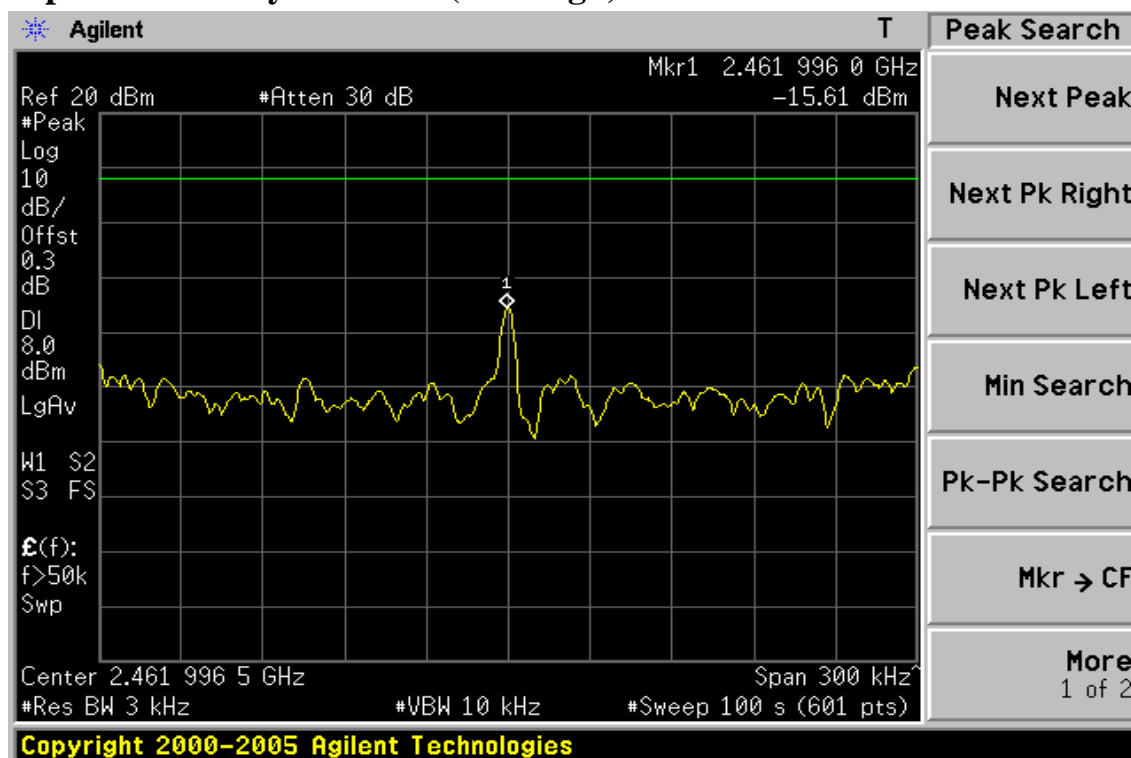
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## Power Spectral Density Test Plot (CH-High)



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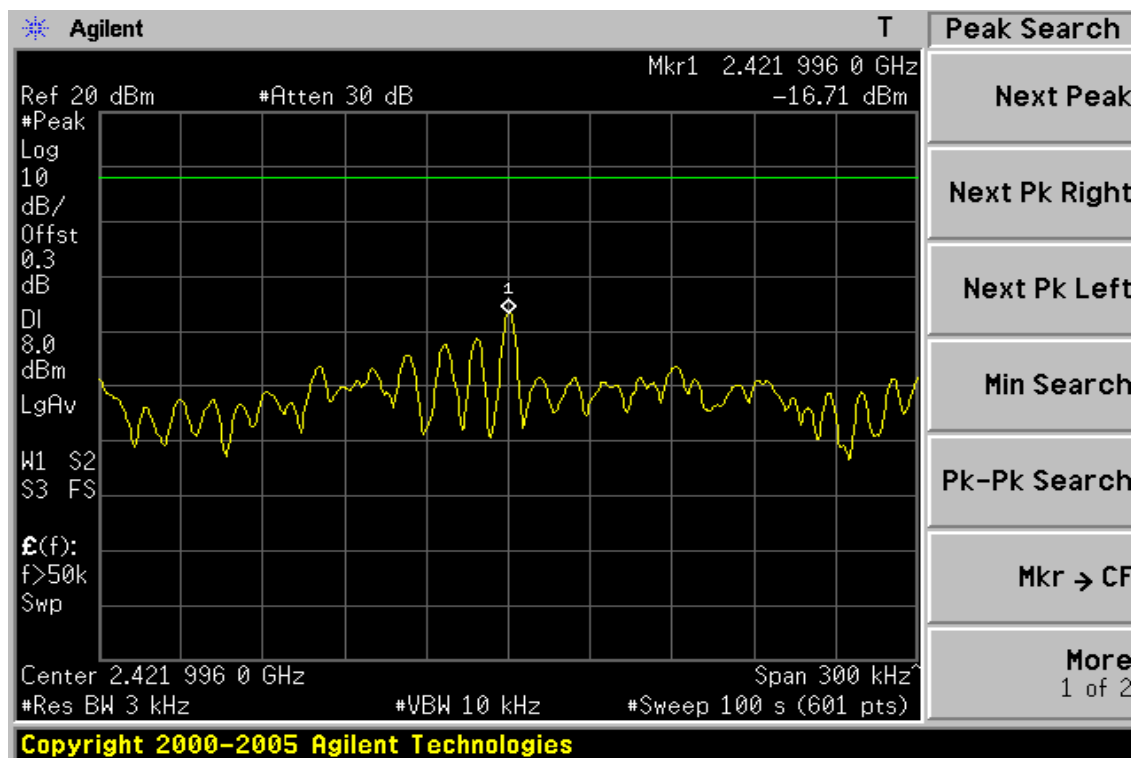
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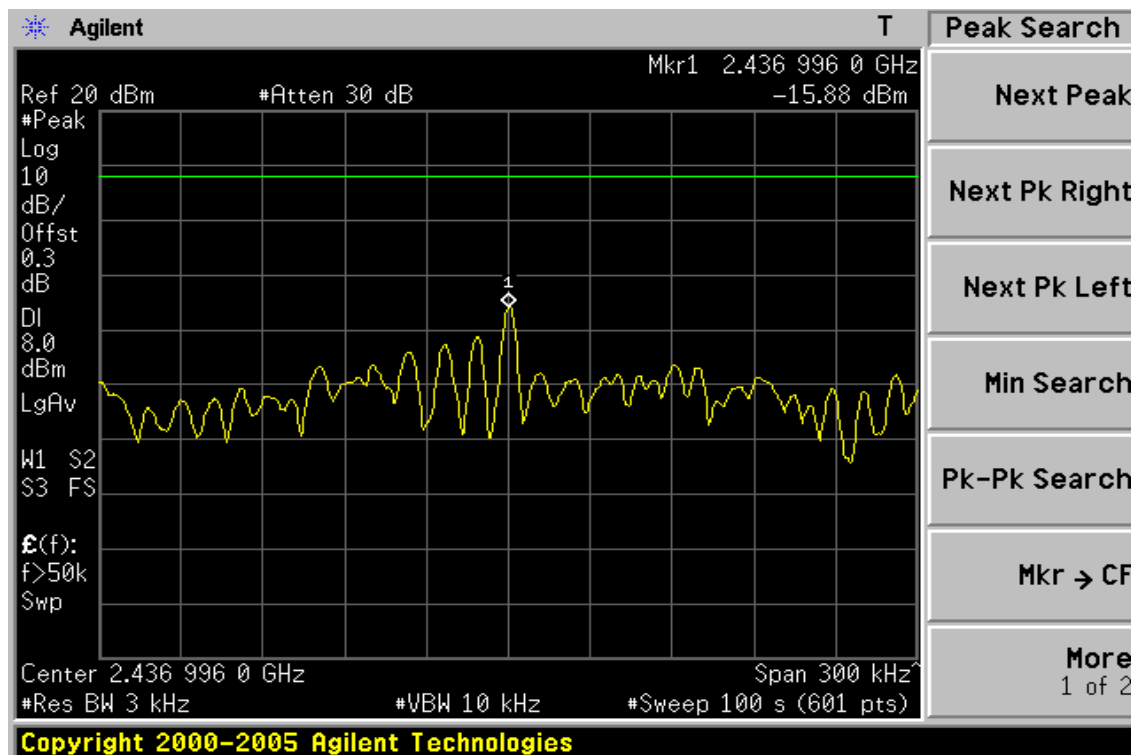
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## 802.11n\_40M, Chain 1

### Power Spectral Density Test Plot (CH-Low)



### Power Spectral Density Test Plot (CH-Mid)



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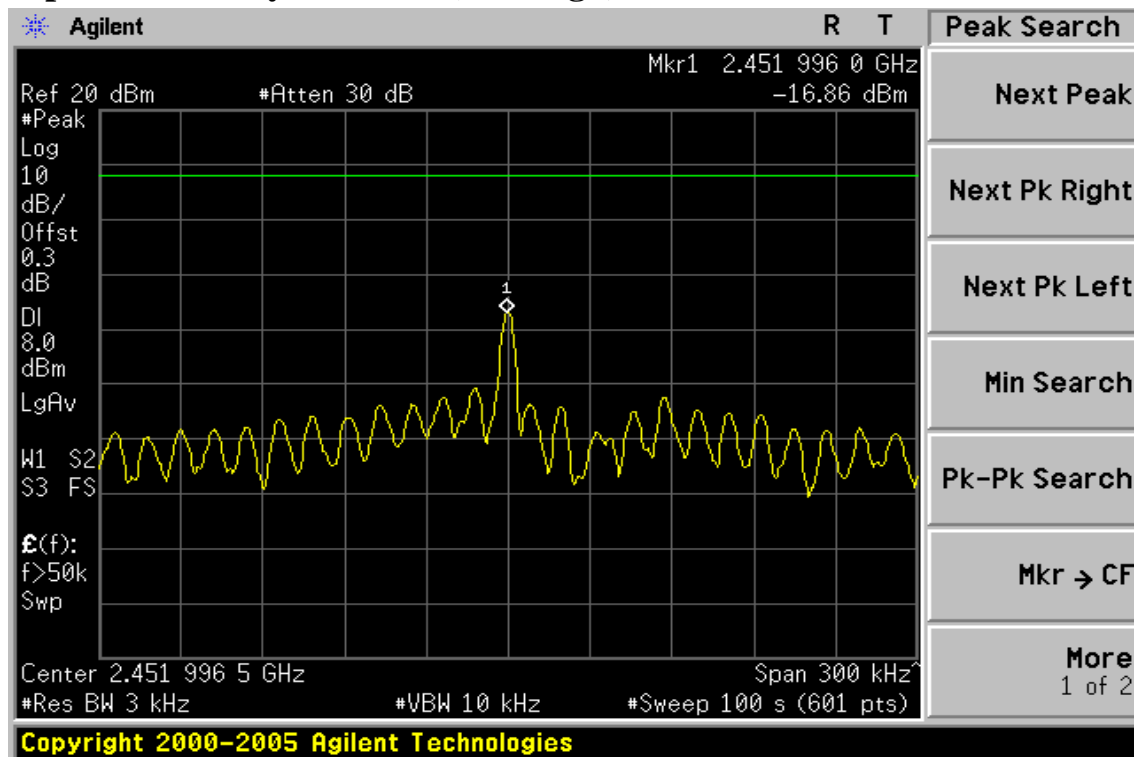
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## Power Spectral Density Test Plot (CH-High)



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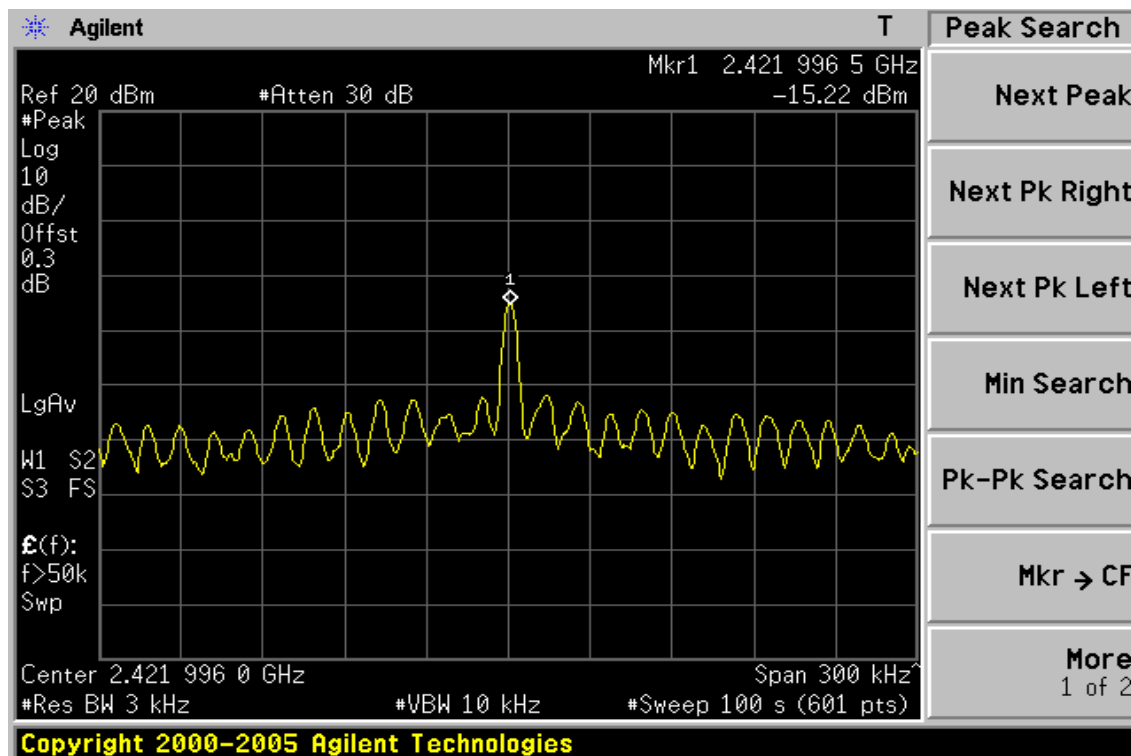
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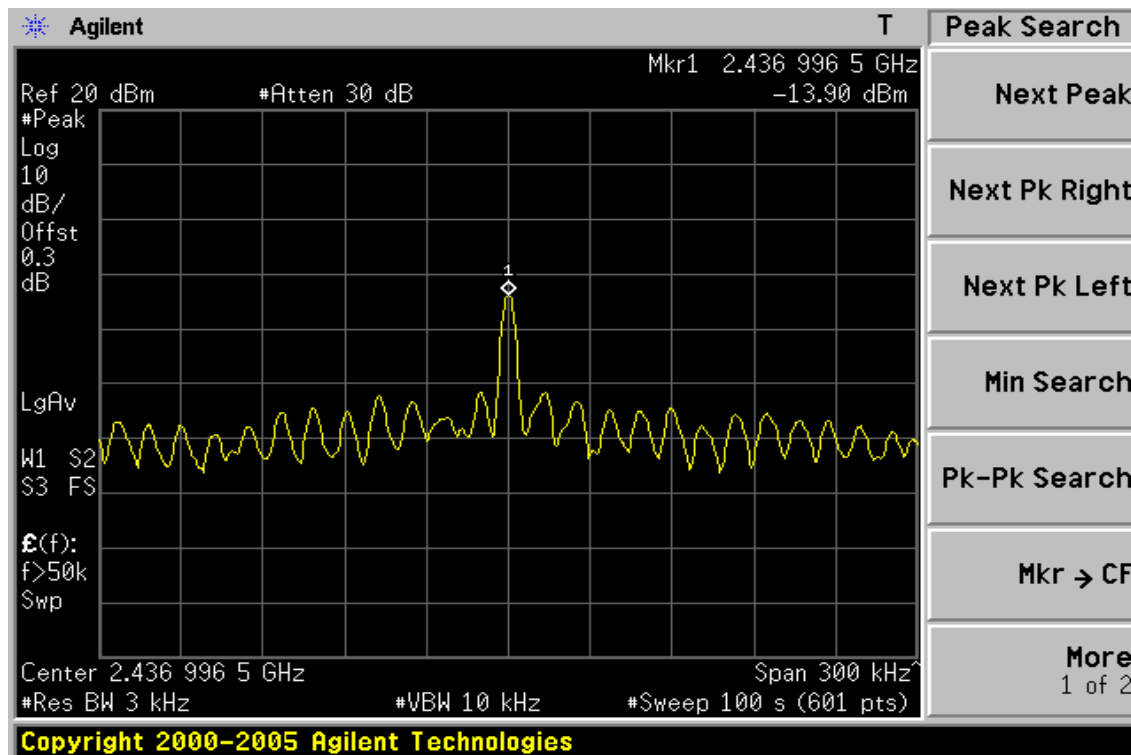
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## 802.11n\_40M, Chain 2

### Power Spectral Density Test Plot (CH-Low)



### Power Spectral Density Test Plot (CH-Mid)



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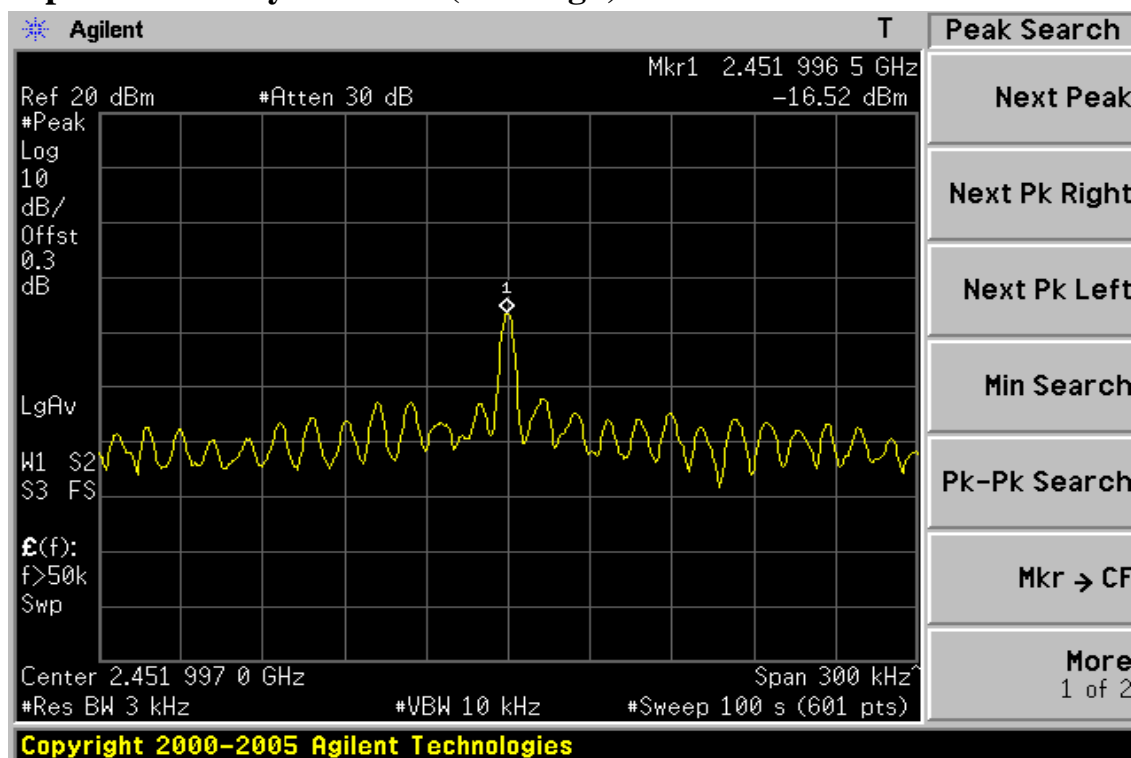
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## Power Spectral Density Test Plot (CH-High)



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## 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 7.1.2, 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.

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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 4.0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

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## 12 99% Bandwidth Measurement

### 12.1. Standard Applicable:

RSS-Gen §4.6.1, 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= 30/60
4. Turn on the 99% bandwidth function, max reading..
5. Repeat above procedures until all frequency measured were complete.

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**12.5. Measurement Result:****802.11b**

Frequency MHz	99%Bandwidth (MHz)
2412 14.1509	
2437 14.0307	
2462 14.1824	

**802.11g**

Frequency MHz	99%Bandwidth (MHz)
2412 16.3343	
2437 16.3109	
2462 16.3883	

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## 802.11n\_20M, Chain 1

Frequency MHz	99%Bandwidth (MHz)
2412 17.4310	
2437 17.4407	
2462 17.4566	

## 802.11n\_20M, Chain 2

Frequency MHz	99%Bandwidth (MHz)
2412 17.4822	
2437 17.3234	
2462 17.4414	

## 802.11n\_20M, Combine Chain 1, Chain 2

Frequency MHz	99%Bandwidth (MHz)
2412 17.4797	
2437 17.4078	
2462 17.3714	

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**802.11n\_40M, Chain 1**

<b>Frequency MHz</b>	<b>99%Bandwidth (MHz)</b>
2422 35.8534	
2437 35.5610	
2452 35.7050	

**802.11n\_40M, Chain 1**

<b>Frequency MHz</b>	<b>99%Bandwidth (MHz)</b>
2422 35.8455	
2437 35.4914	
2452 35.8508	

**802.11n\_40M, Combine Chain 1, Chain 2**

<b>Frequency MHz</b>	<b>99%Bandwidth (MHz)</b>
2422 35.6057	
2437 35.6873	
2452 35.7427	

Note: Refer to next page for plots.

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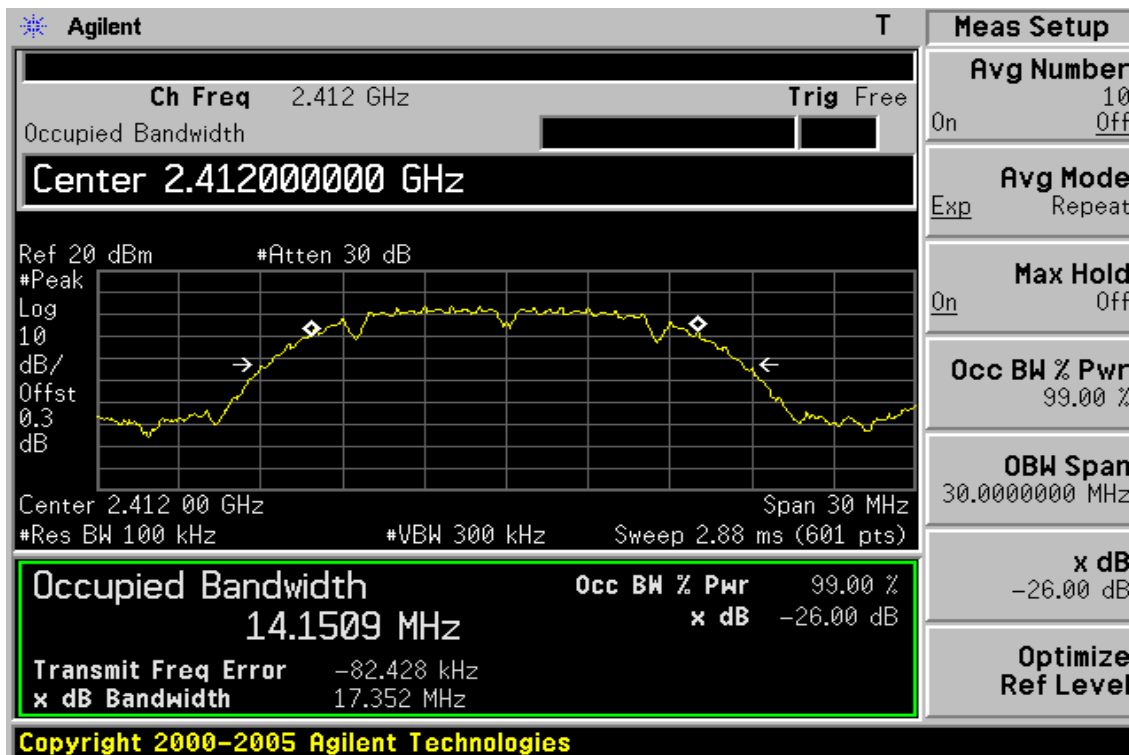
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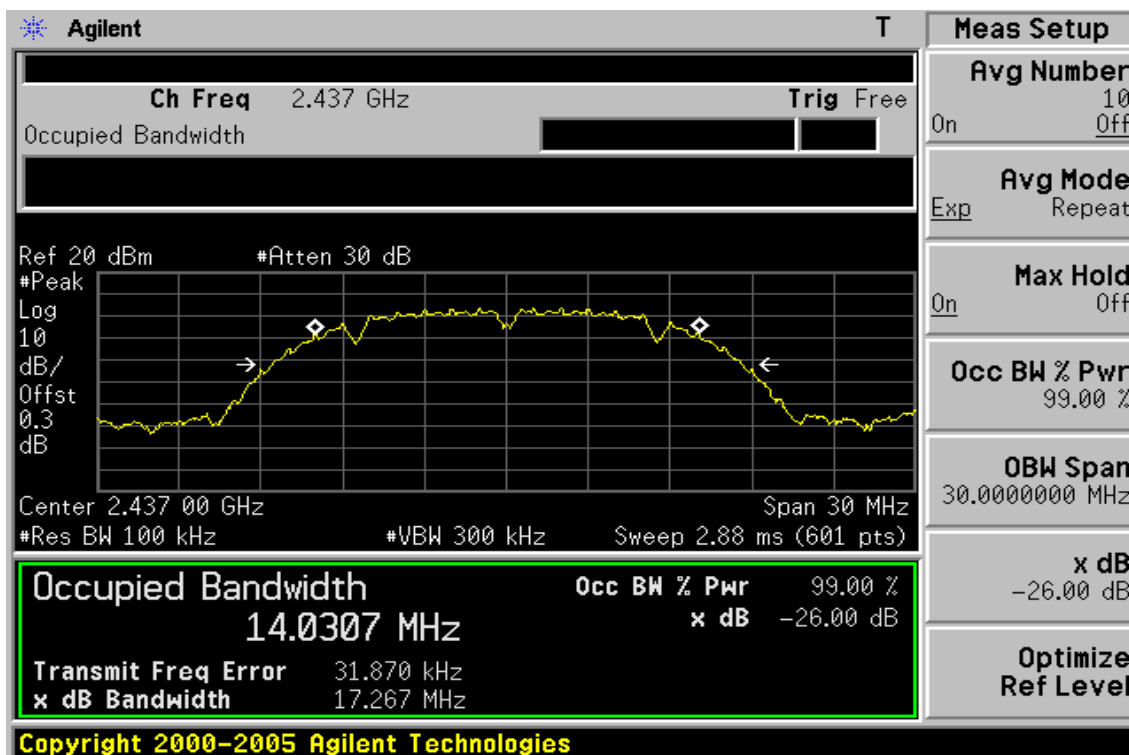
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802.11b

## 99% Band Width Test Data CH-Low



## 99% Band Width Test Data CH-Mid



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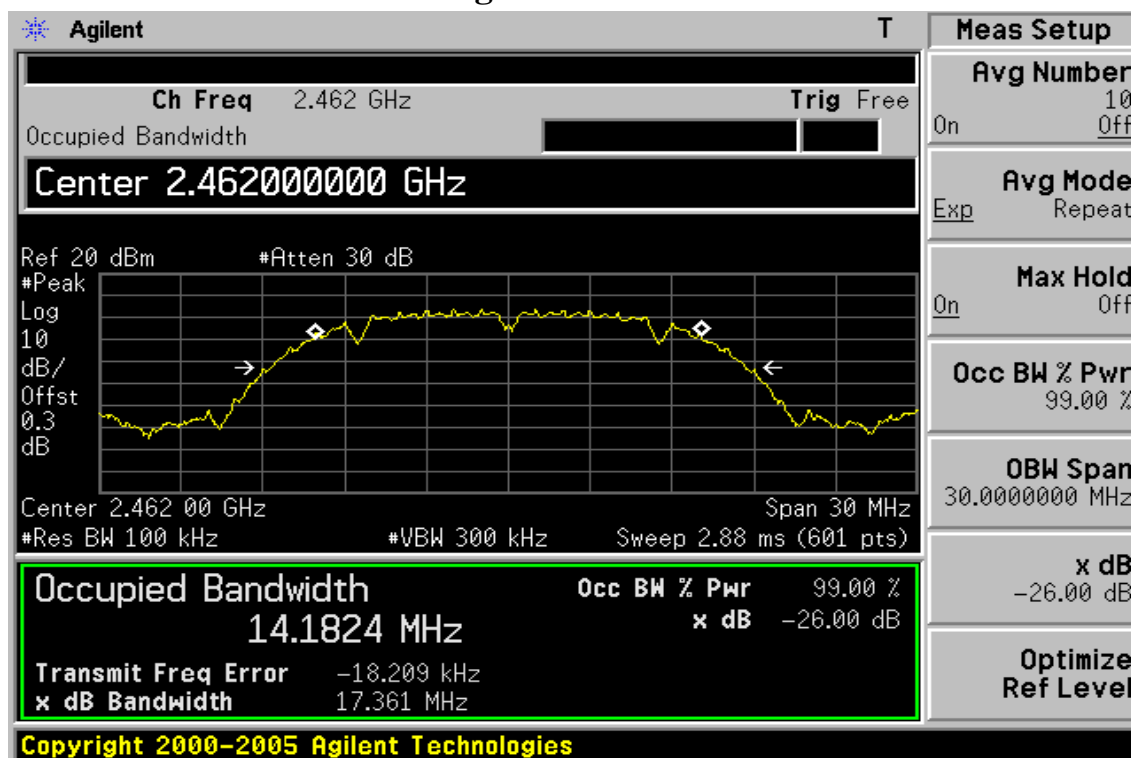
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## 99% Band Width Test Data CH-High



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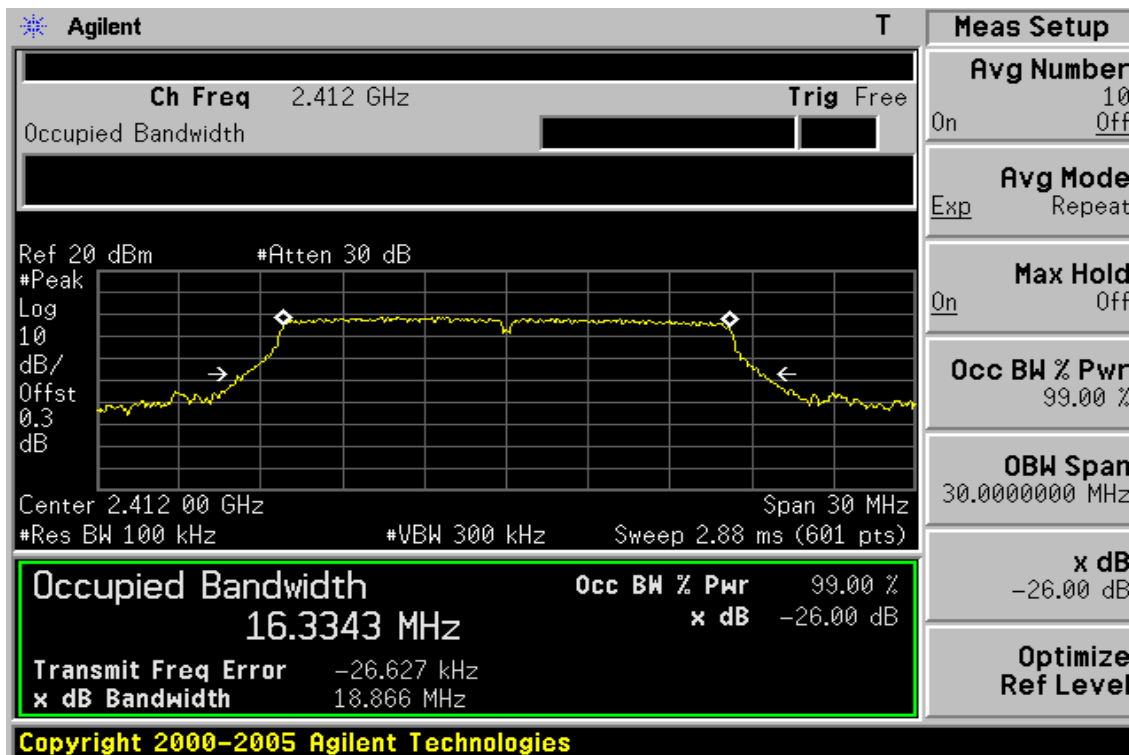
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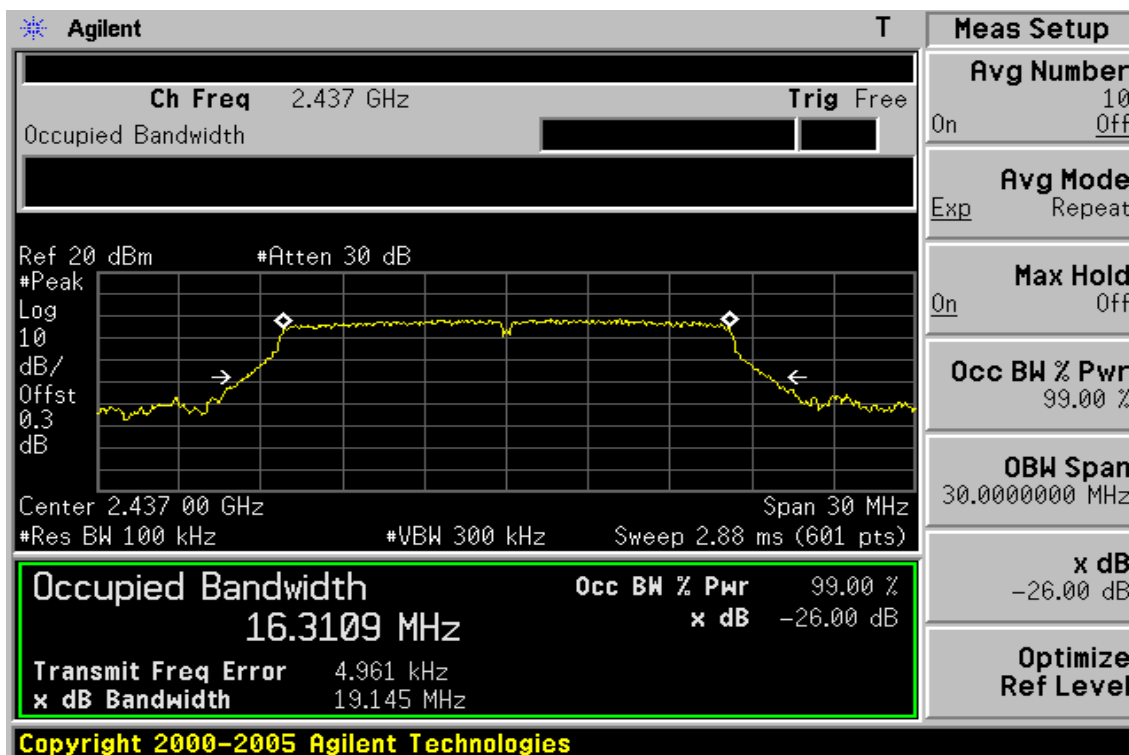


802.11g

## 99% Band Width Test Data CH-Low



## 99% Band Width Test Data CH-Mid



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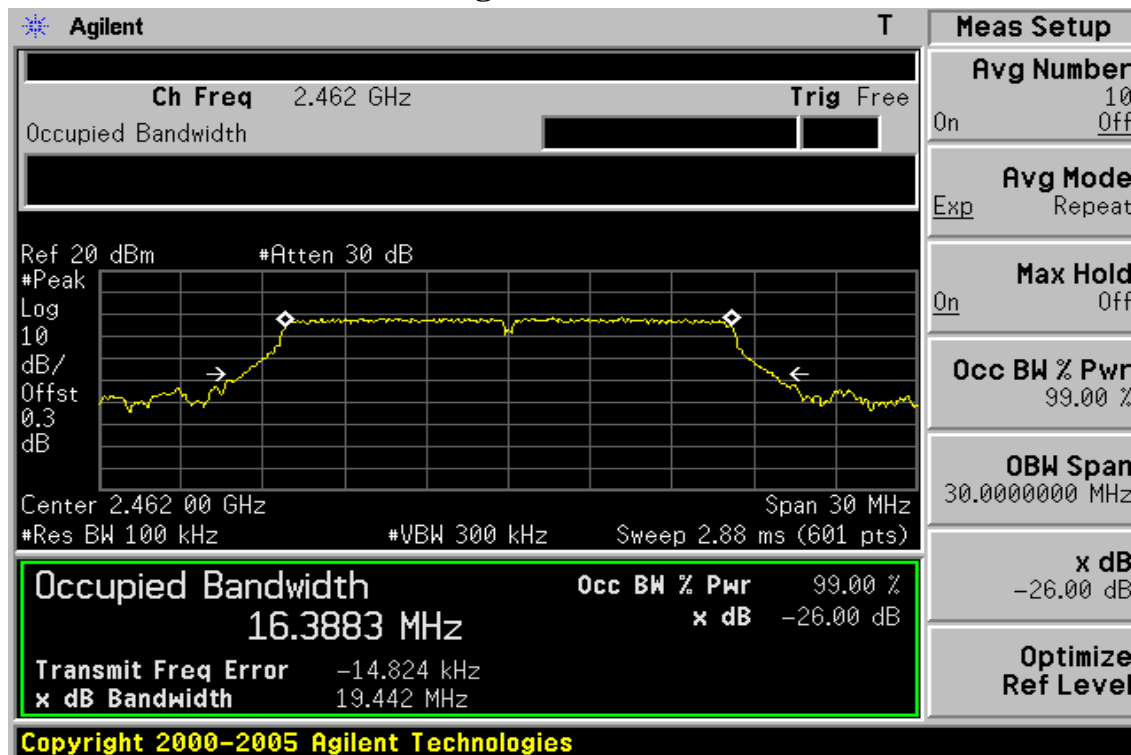
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## 99% Band Width Test Data CH-High



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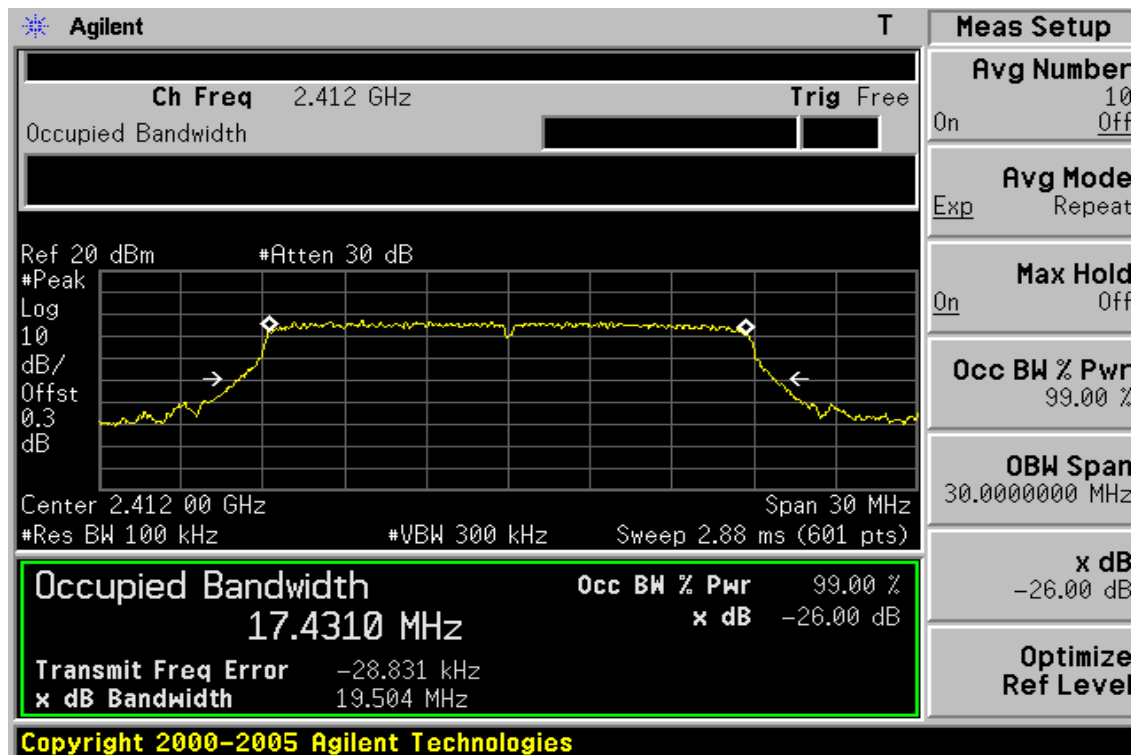
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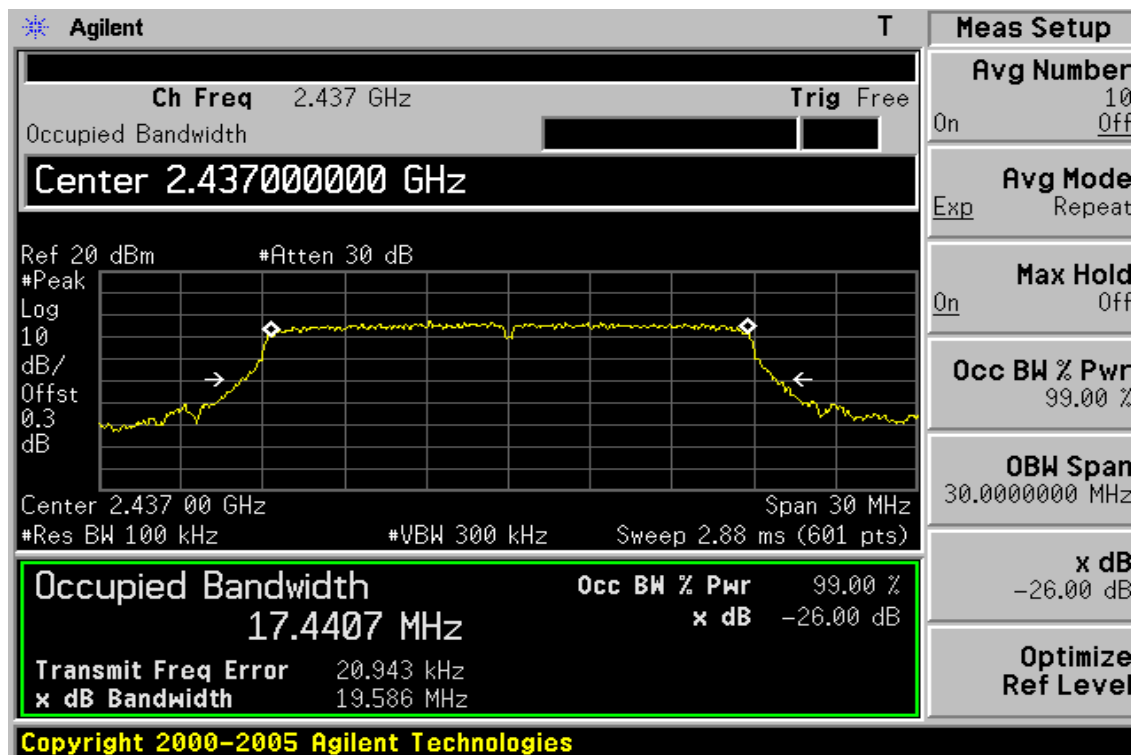
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## 802.11n\_20M, Chain 1

### 99% Band Width Test Data CH-Low



### 99% Band Width Test Data CH-Mid



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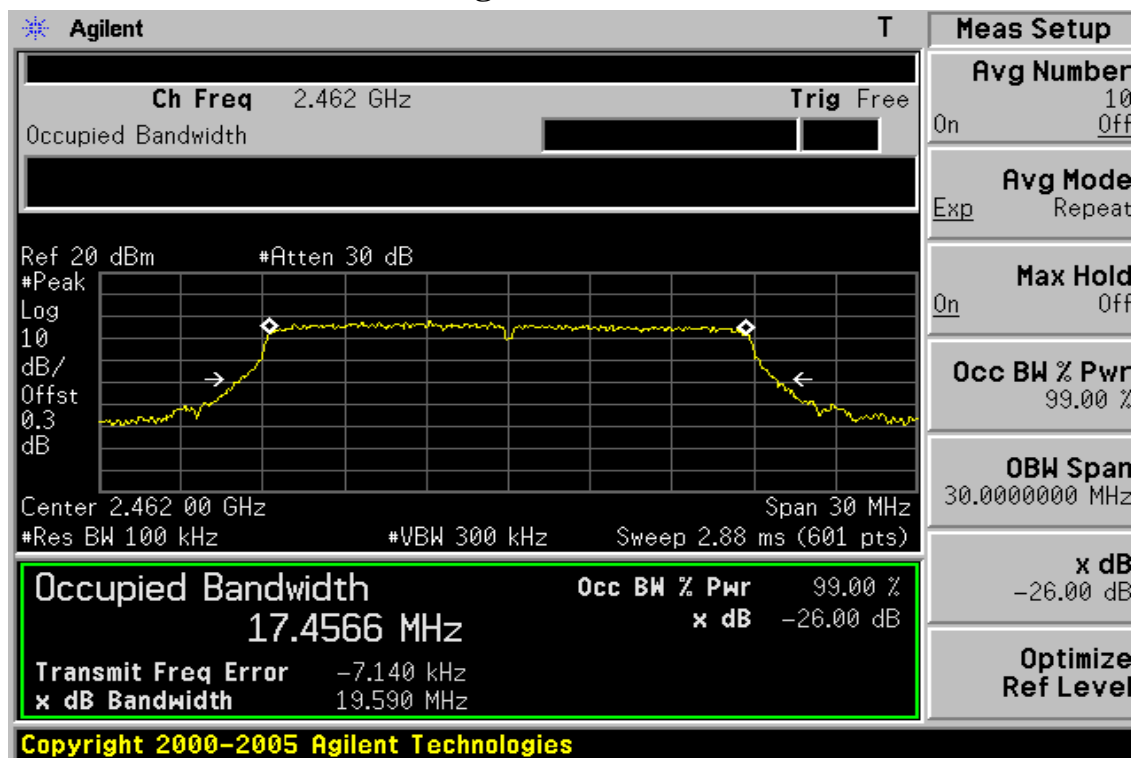
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## 99% Band Width Test Data CH-High



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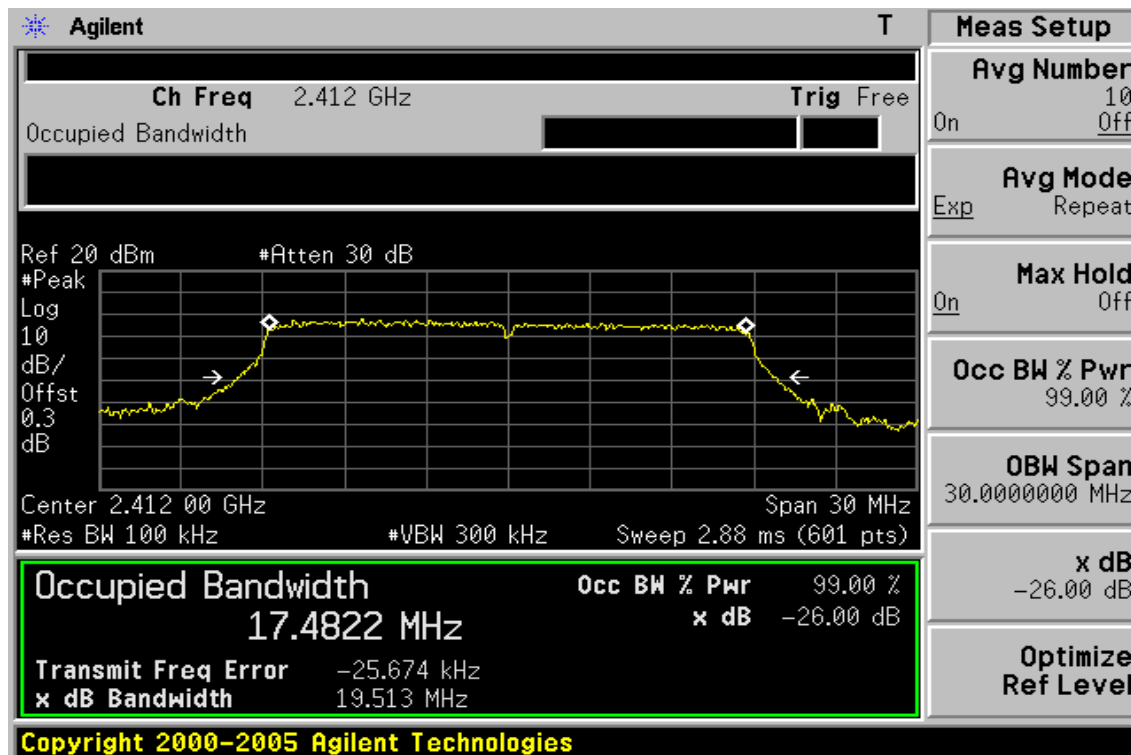
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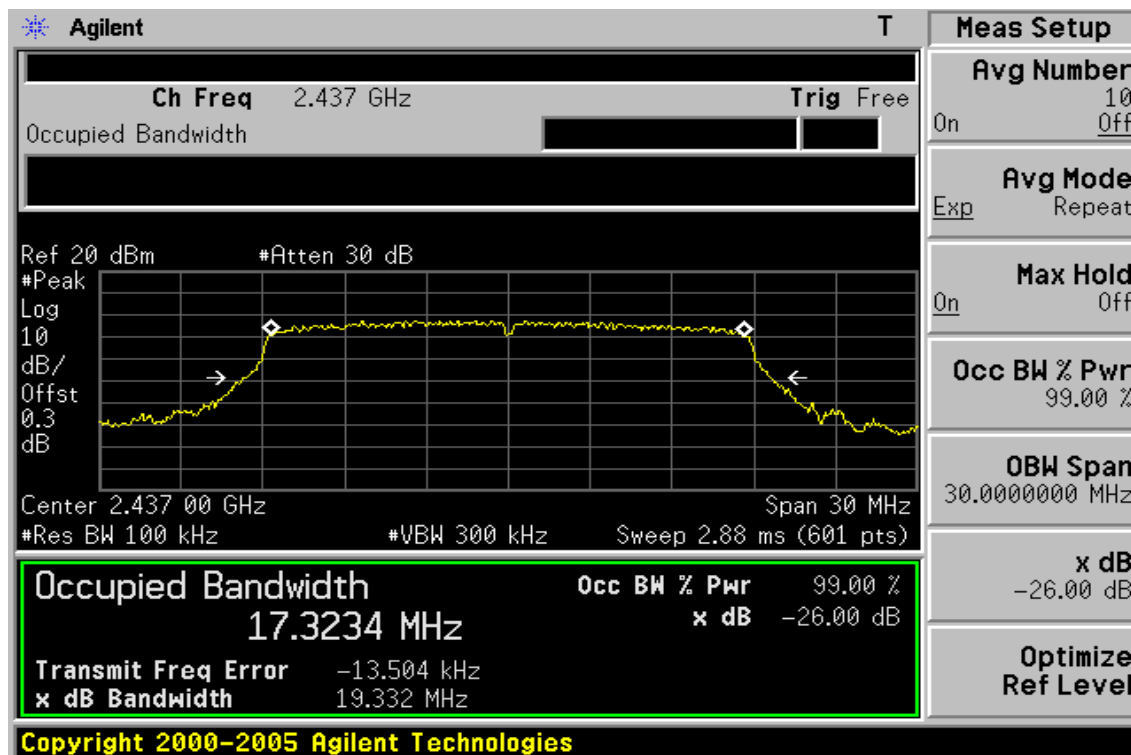
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## 802.11n\_20M, ,Chain 2

### 99% Band Width Test Data CH-Low



### 99% Band Width Test Data CH-Mid



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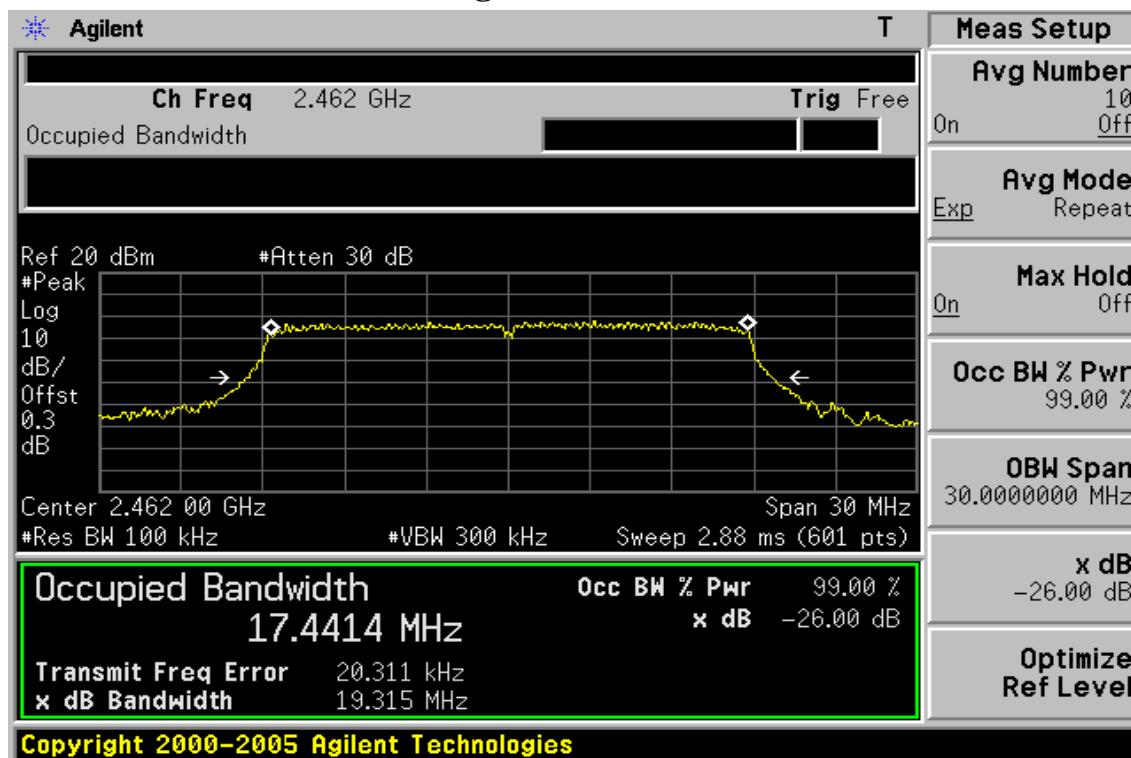
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## 99% Band Width Test Data CH-High



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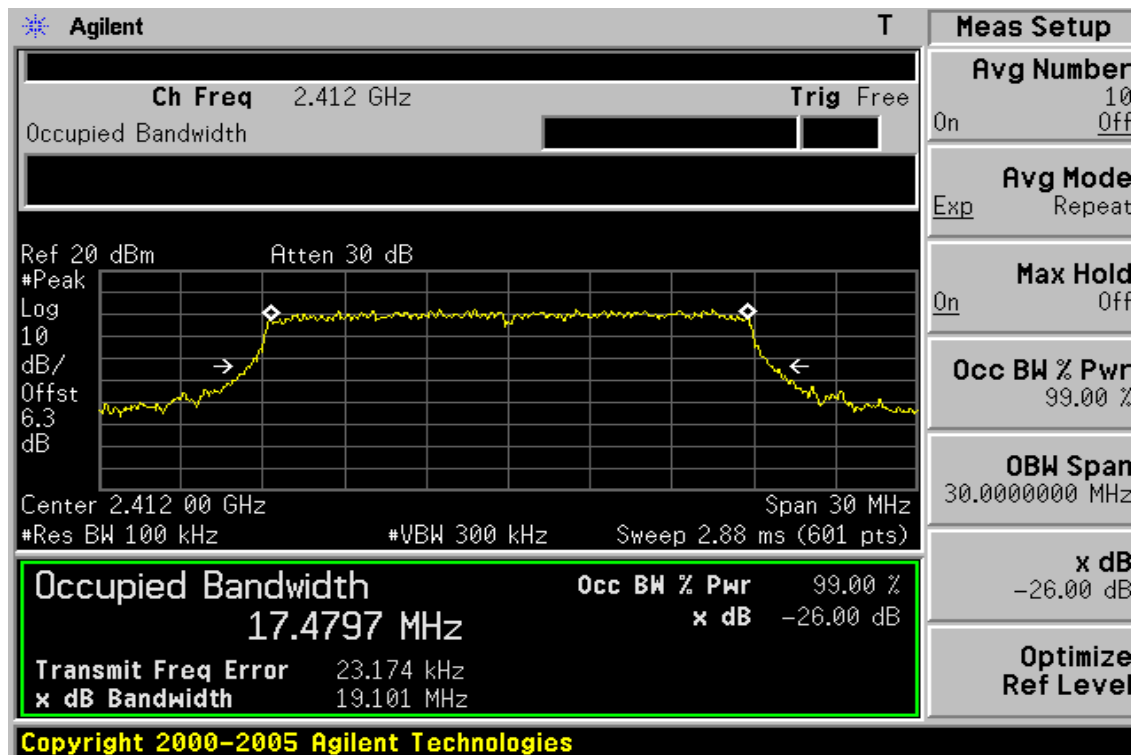
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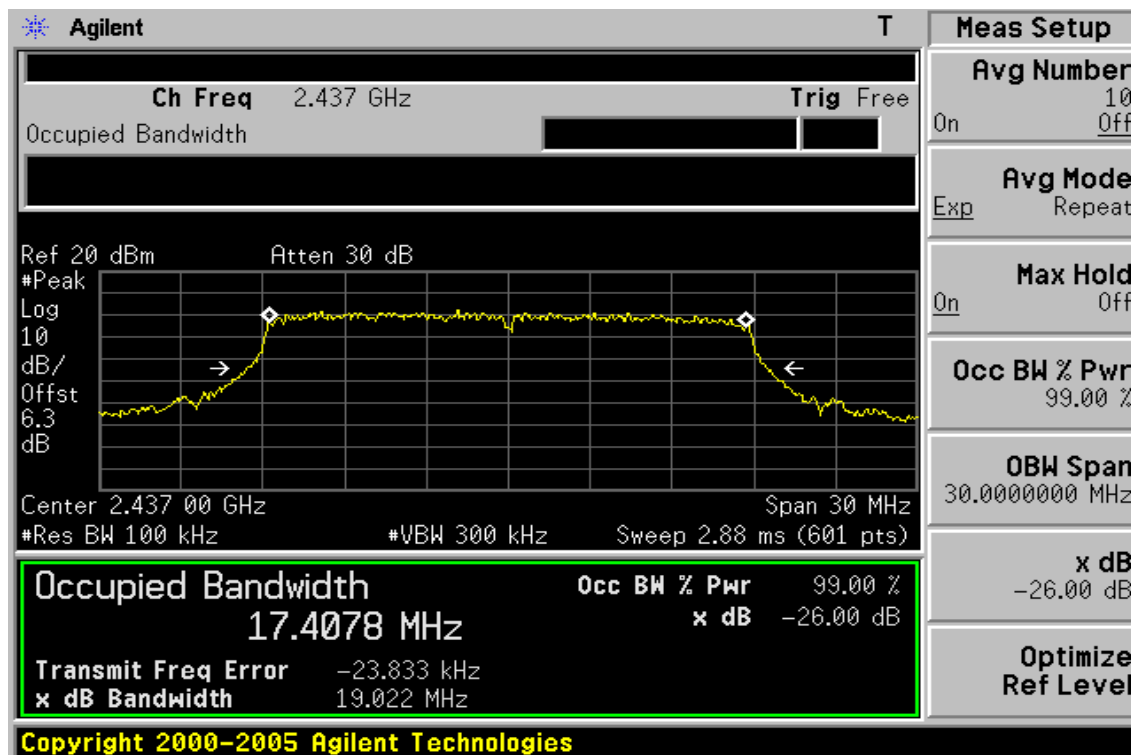
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## 802.11n\_20M, Combine, Chain1,Chain2

### 99% Band Width Test Data CH-Low



### 99% Band Width Test Data CH-Mid



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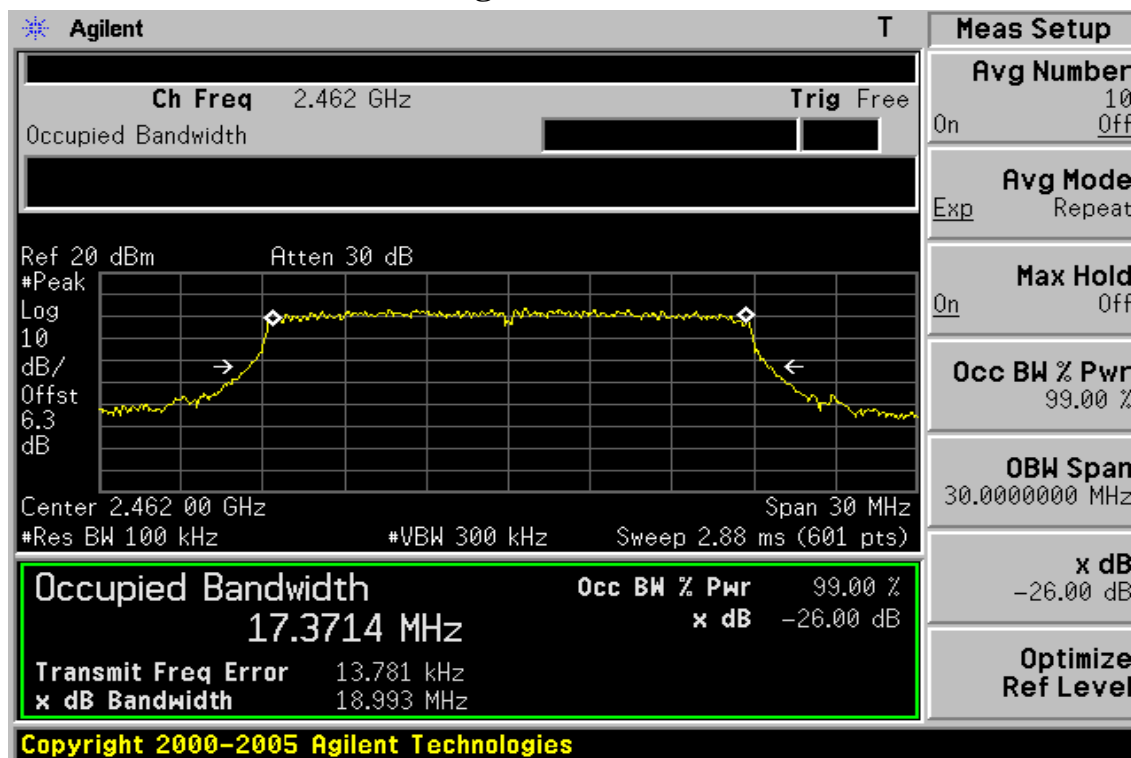
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## 99% Band Width Test Data CH-High



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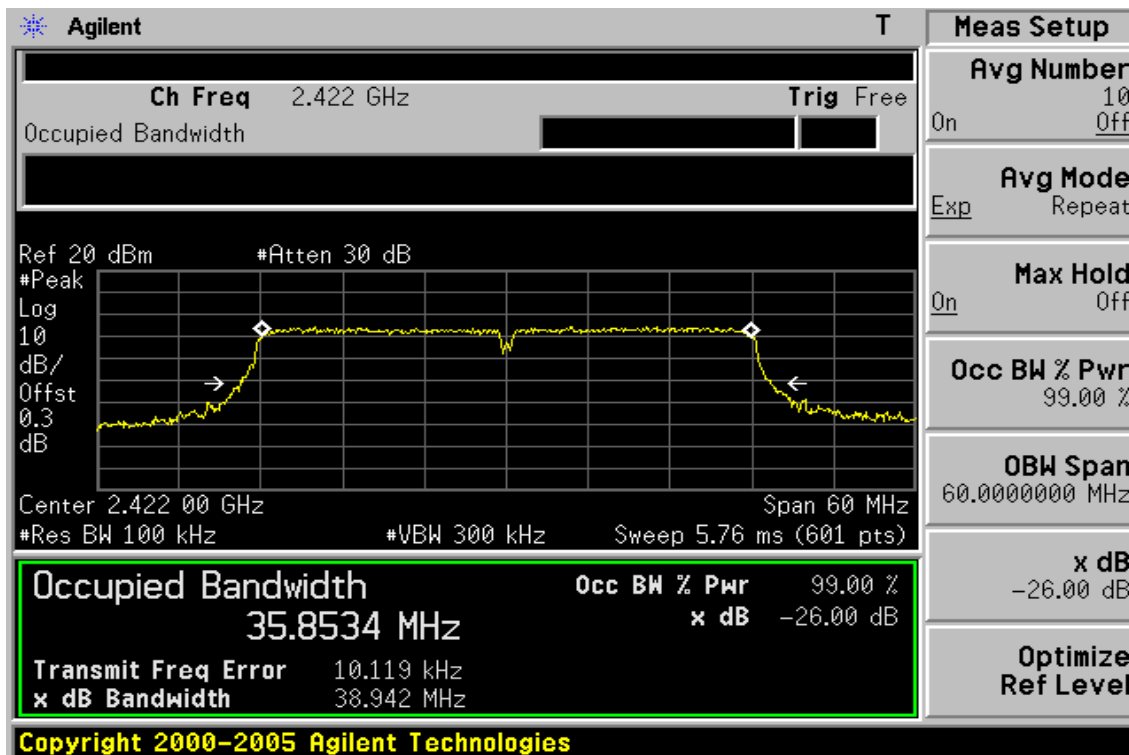
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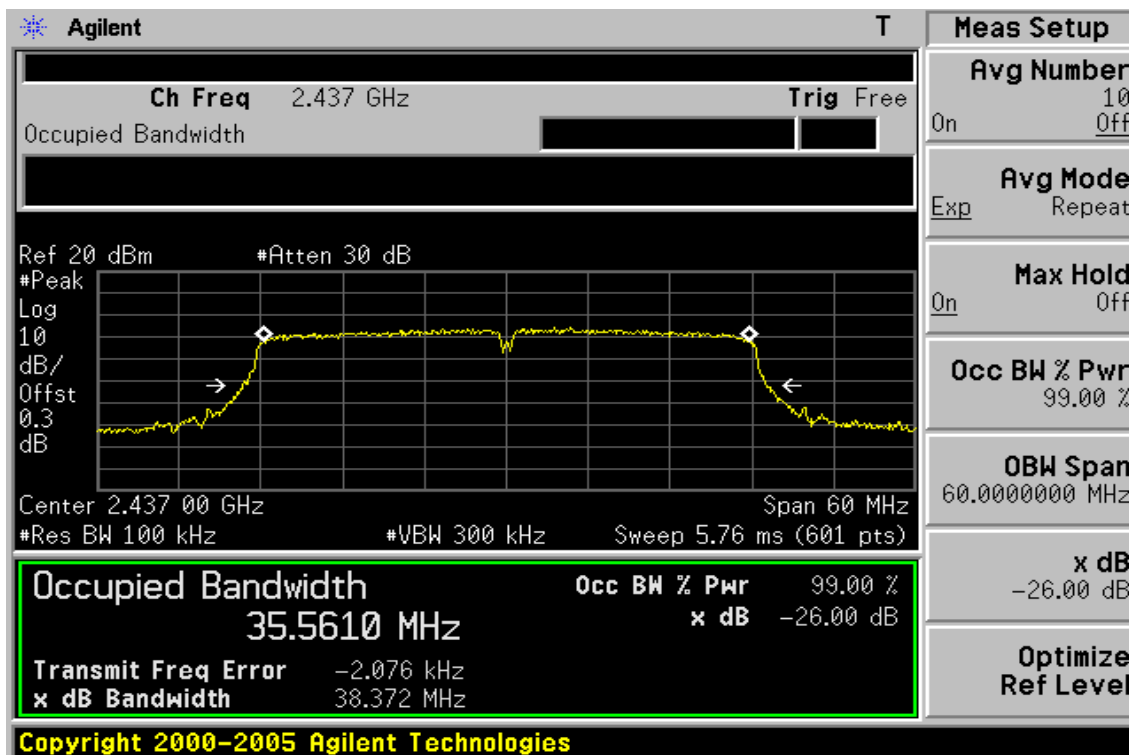


## 802.11n\_40M, Chain 1

### 99% Band Width Test Data CH-Low



### 99% Band Width Test Data CH-Mid



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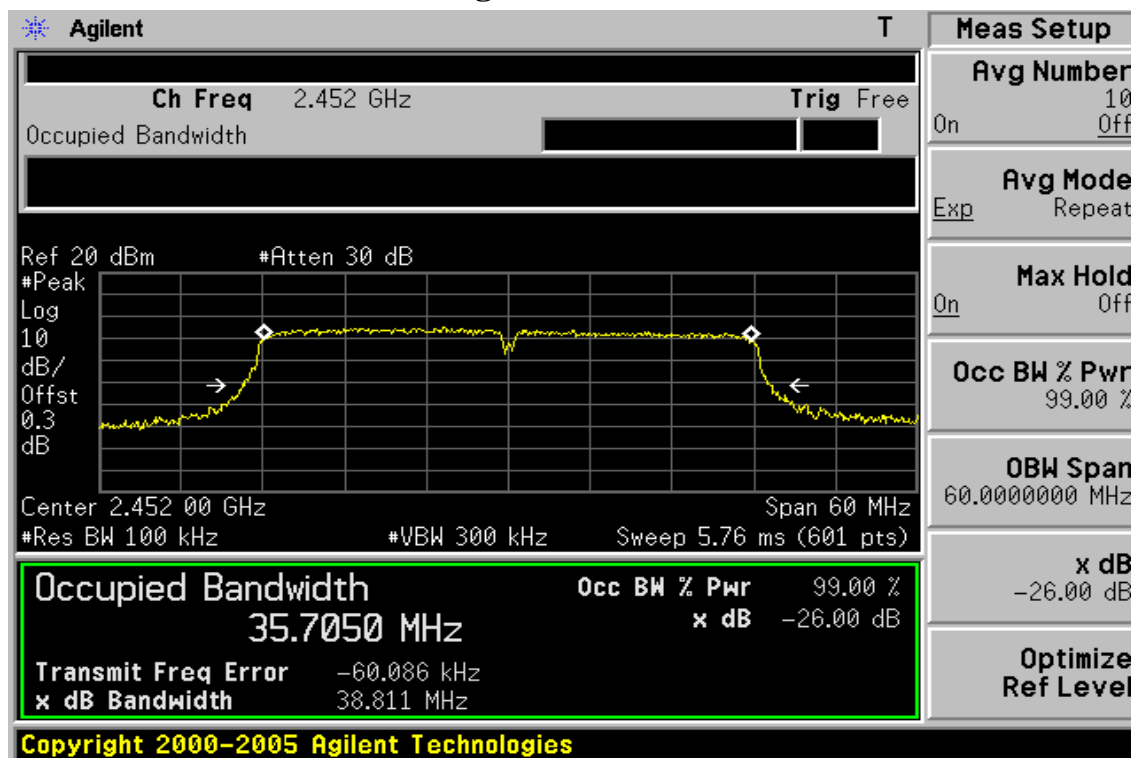
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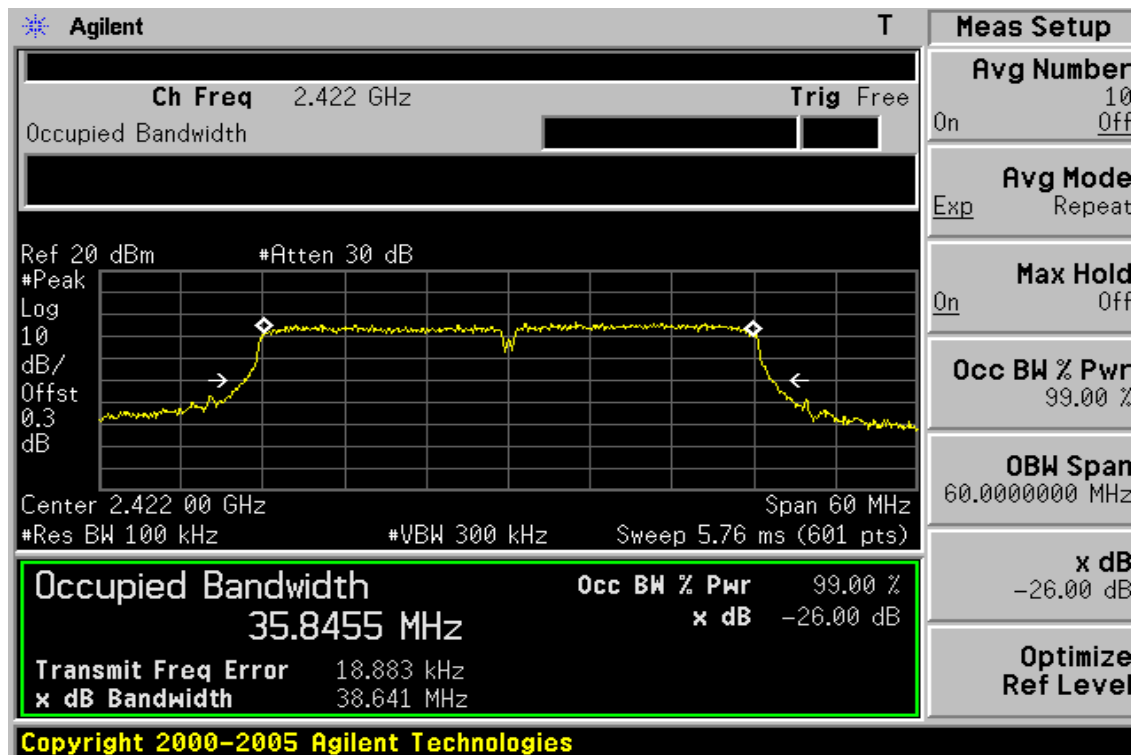
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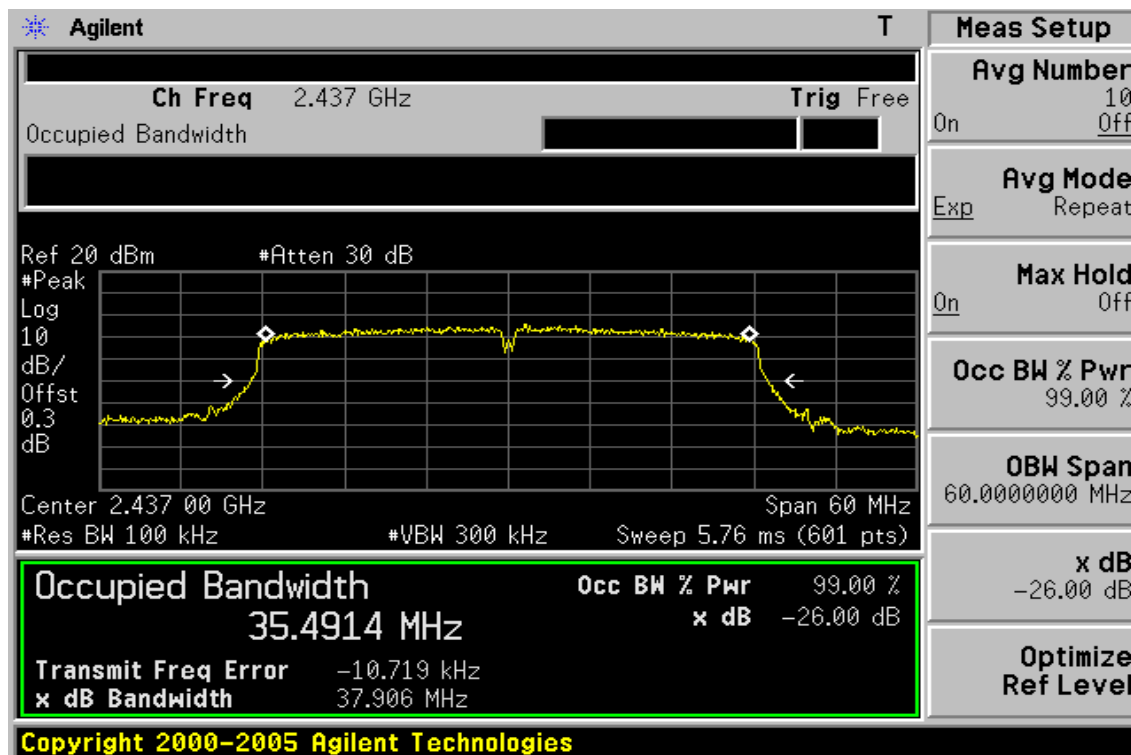
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## 802.11n\_40M, Chain 2

### 99% Band Width Test Data CH-Low



### 99% Band Width Test Data CH-Mid



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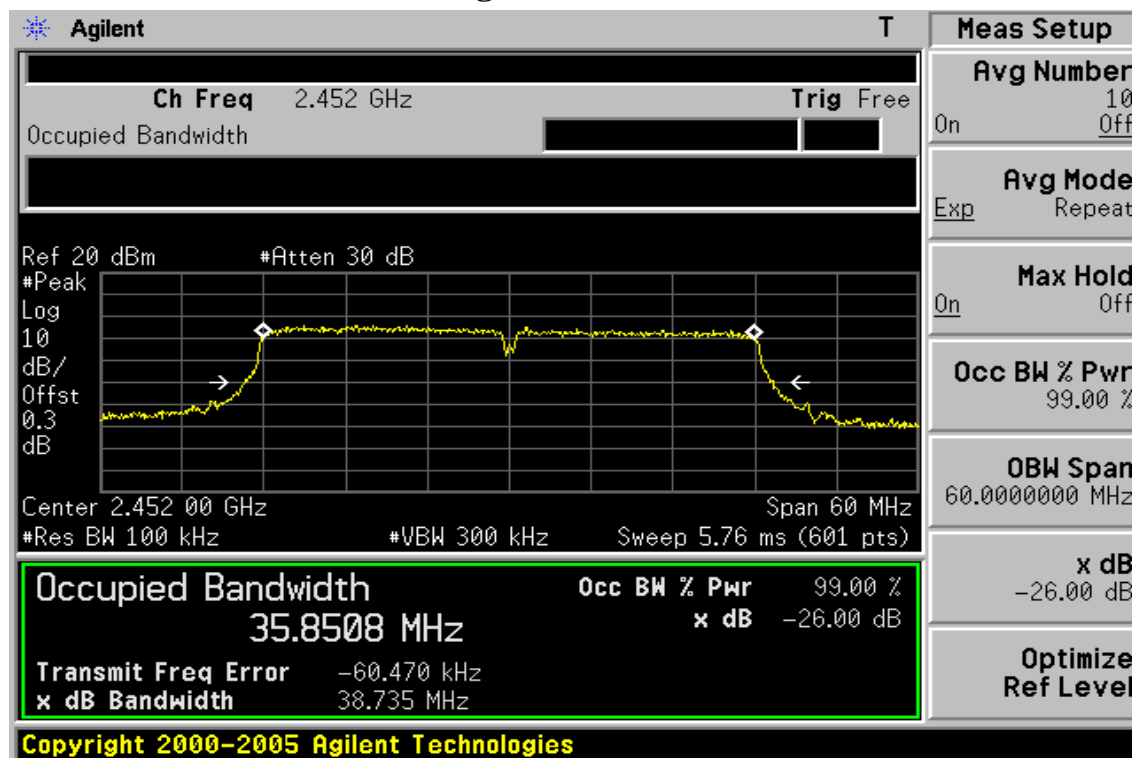
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## 99% Band Width Test Data CH-High



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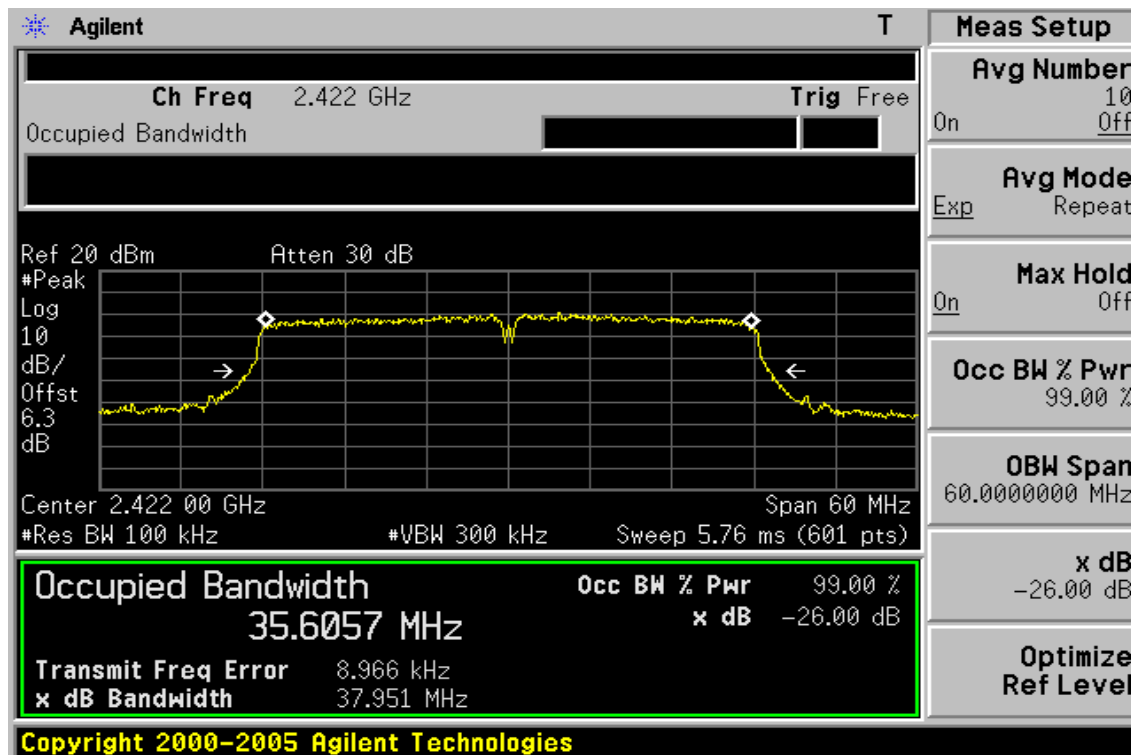
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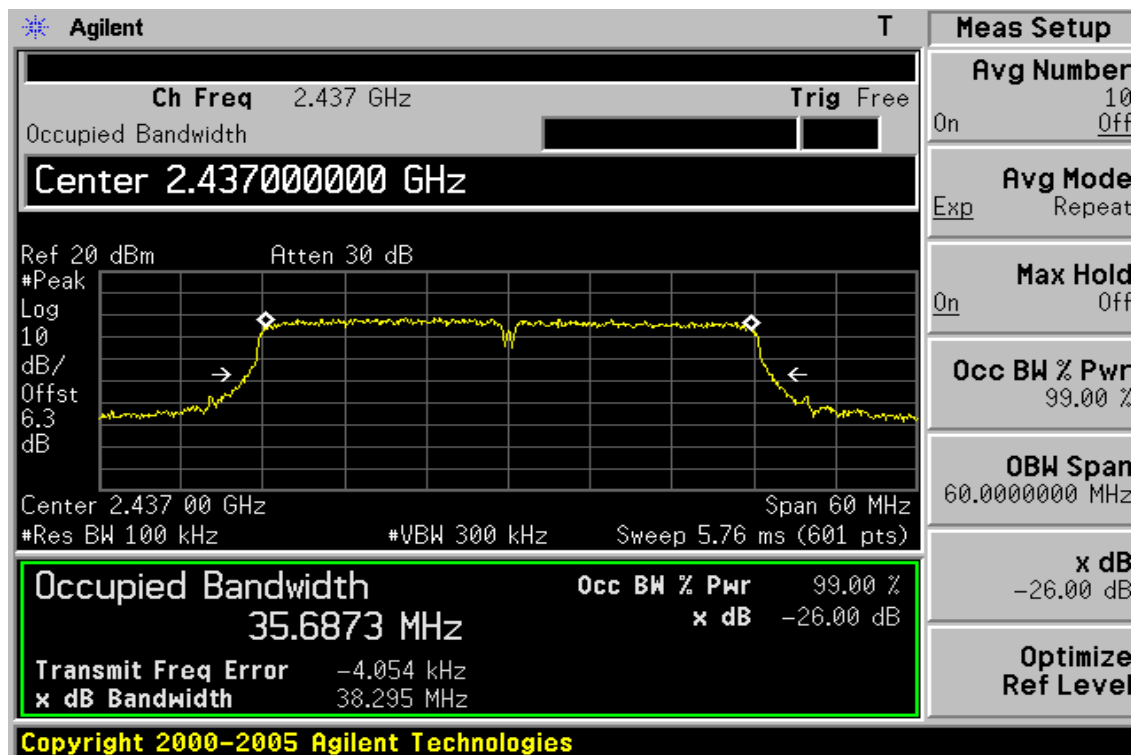
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## 802.11n\_40M, Combine, Chain 1 Chain 2 99% Band Width Test Data CH-Low



## 99% Band Width Test Data CH-Mid



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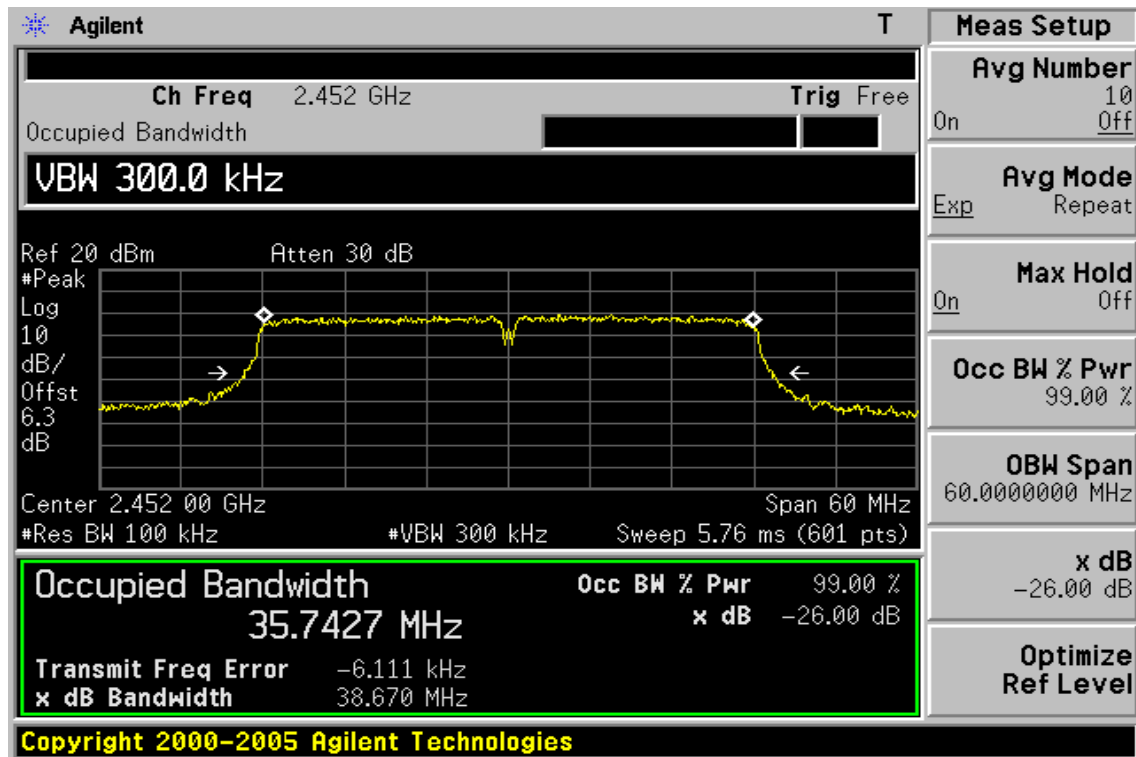
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## 99% Band Width Test Data CH-High



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