FCC CFR47 PART 15 SUBPART E
CERTIFICATION
TEST REPORT

FOR

802.11 a/b/g/n ACCESS POINT

MODEL NUMBER: A1143

FCC ID: BCGA1143

REPORT NUMBER: 06U10333-1

ISSUE DATE: SEPTEMBER 28, 2006

Prepared for
APPLE COMPUTER, INC.
1 INFINITE LOOP, M/S 26A
CUPERTINO, CA 95014, USA

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	9/29/2006	Initial Release	A. Ilarina

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 6

4.1. MEASURING INSTRUMENT CALIBRATION 6

4.2. MEASUREMENT UNCERTAINTY 6

5. EQUIPMENT UNDER TEST 7

5.1. DESCRIPTION OF EUT 7

5.2. MAXIMUM OUTPUT POWER 7

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 8

5.4. SOFTWARE AND FIRMWARE 8

5.5. WORST-CASE CONFIGURATION AND MODE 8

5.6. MODIFICATIONS 8

5.7. DESCRIPTION OF TEST SETUP 9

6. TEST AND MEASUREMENT EQUIPMENT 11

7. LIMITS AND RESULTS 12

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND 12

7.1.1. 6 dB BANDWIDTH 12
7.1.2. 99% BANDWIDTH 50
7.1.3. PEAK OUTPUT POWER 88
7.1.4. PEAK POWER SPECTRAL DENSITY 126
7.1.5. CONDUCTED SPURIOUS EMISSIONS 177
7.1.6. MAXIMUM PERMISSIBLE EXPOSURE 274

7.2. CHANNEL TESTS FOR THE 5725 to 5850 MHz BAND 277

7.2.1. 6 dB BANDWIDTH 277
7.2.2. 99% BANDWIDTH 306
7.2.3. PEAK OUTPUT POWER 335
7.2.4. PEAK POWER SPECTRAL DENSITY 364
7.2.5. CONDUCTED SPURIOUS EMISSIONS 403
7.2.6. MAXIMUM PERMISSIBLE EXPOSURE 476

7.3. RADIATED EMISSIONS 479

7.3.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS 479
7.3.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND 481
7.3.3. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND 517
7.3.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz 520

7.4. POWERLINE CONDUCTED EMISSIONS 523

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8. SETUP PHOTOS 527

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE COMPUTER, INC.
1 INFINITE LOOP, M/S 26A
CUPERTINO, CA 95014, USA

EUT DESCRIPTION: 802.11 a/b/g/n ACCESS POINT

MODEL: A1143

SERIAL NUMBER: 6F619000KVYBE
6F6270010VV6E
6F61801FVZC

DATE TESTED: AUGUST 1-24, 2006

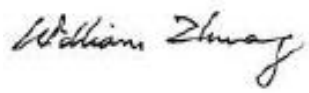
APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By: Tested By:

ALVIN ILARINA
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES



WILLIAM ZHUANG
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g/n Access Point.

The radio module is manufactured by Atheros Communications, Inc.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2400 to 2483.5 MHz Authorized Band			
2412 - 2462	802.11b	27.72	591.56
2412 - 2462	802.11g	28.29	674.53
2412 - 2462	802.11n HT20	28.05	638.26
2422 - 2452	802.11n HT40	23.12	205.12
5725 to 5850 MHz Authorized Band			
5745 - 5825	802.11a	27.47	558.47
5745 - 5825	802.11n HT20	28.67	736.21
5755 - 5795	802.11n HT40	29.10	812.83

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5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes three PCB Monopole Antennas, each antenna has a maximum gain of 2.0 dBi in the 2.4 GHz band and 2.9 dBi in the 5.8 GHz band.

5.4. SOFTWARE AND FIRMWARE

Software version: ART BSD Build #4
Firmware version: m28_0.0.1d1auto20060731T0200-M28_art.basebinary

5.5. WORST-CASE CONFIGURATION AND MODE

The 3x3 configuration was used for all testing in this report.

The worst- case data rates are determined to be as follows for each mode based on investigation by measuring the average power, peak power and PPSD across all data rates, bandwidths, and modulations.

The worst-case data rates for the 2GHz bands are: 1 Mbps for 802.11b; 6Mbps for 802.11g; MCS0 for 802.11n HT20; MCS0 for 802.11n HT40. These are based on baseline testing with this chipset.

The worst-case data rates for the 5GHz bands are: 6 Mbps for 802.11a 20MHz; MCS0 for 802.11n HT20 and 802.11n HT40. These are based on baseline testing with this chipset.

All emissions tests were made with the worst-case data rates.

5.6. MODIFICATIONS

There were no modifications made to the revision EUT during the testing.

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop PC	Apple	PowerBook G4	PT346234	DoC
Power Adapter for PC	Apple	A1021	N/A	N/A
Power Adapter for EUT	Delta Electronics	EADP-20BB A	MV61505JVNPEVT1	N/A

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	AC	Unshielded	1.8m	N/A
2	AC	1	AC	Unshielded	2m	N/A
3	DC	1	DC	Unshielded	1.8m	N/A
4	DC	1	DC	Unshielded	3m	N/A
5	Ethernet	1	RJ45	Unshielded	4.5m	N/A

TEST SETUP

The EUT is connected to a host laptop computer. Test software exercised the EUT.

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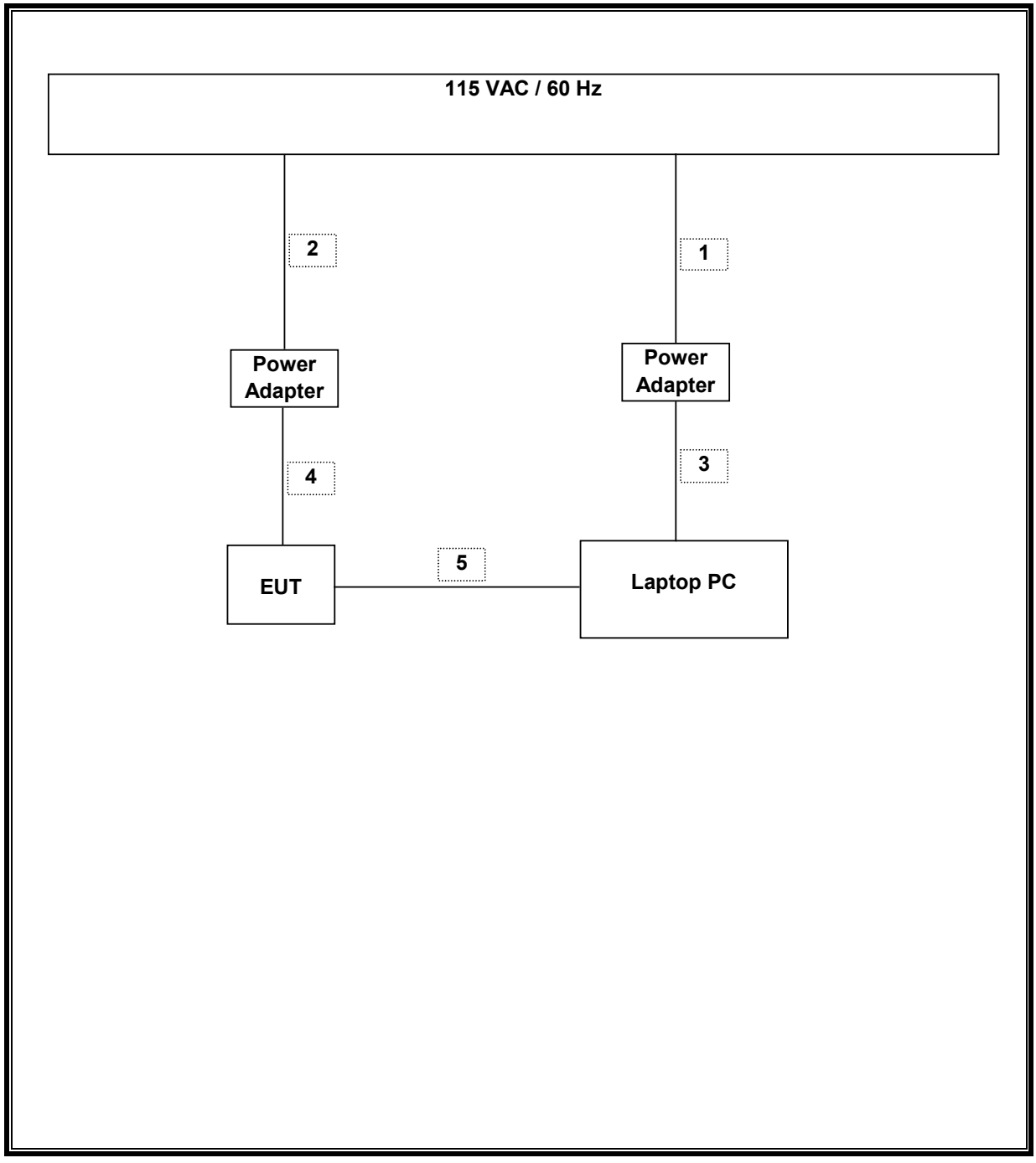
SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
Spectrum Analyzer	Agilent	E4446A	US42510266	10/19/06
Power Meter	Agilent / HP	438A	3513U04320	01/12/07
Power Sensor 10MHz - 18GHz	Agilent / HP	8481A	2237A31744	01/11/07
Power Combiner	Picoseconds	5350-218	555645 1406	C.N.R
Power Combiner	Picoseconds	5350-218	555720 1806	C.N.R
Power Combiner	Picoseconds	5350-218	555642 1406	C.N.R
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	04/22/07
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	09/12/06
Antenna, Horn 26 ~ 40 GHz	ARA	MWH-2640/B	1029	04/13/07
Preamplifier, 1 ~ 26 GHz	Miteq	NSP2600-SP	924342	09/02/06
Preamplifier, 26 ~ 40 GHz	Miteq	NSP4000-SP2	924343	08/29/06
5.15-5.35 GHz Reject Filter	Micro-Tronics	BRC13190	001	CNR
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	02/04/07
RF Filter Section	Agilent / HP	85420E	3705A00256	02/04/07
Antenna, Bilog 30 MHz ~ 2 GHz	Sunol Sciences	JB1	A121003	09/03/06
EMI Test Receiver	R & S	ESHS 20	827129/006	11/03/06
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	08/30/06
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	837990	08/30/06
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	04/22/07
Environmental Chamber	Thermotron	SE 600-10-10	29800	06/12/07

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7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

7.1.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

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RESULTS

No non-compliance noted:

Mode Channel	Frequency (MHz)	6 dB BW Chain 0 (kHz)	6 dB BW Chain 1 (kHz)	6 dB BW Chain 2 (kHz)	Minimum Limit (kHz)	Minimum Margin (kHz)
802.11b Mode						
Low	2412	11083.333	11083.333	12083.333	500	10583
Middle	2437	12000	11083.333	11000	500	10500
High	2462	11083.333	10083.333	10166.667	500	9583
802.11g Mode						
Low	2412	15833.333	16333.333	16333.333	500	15333
Middle	2437	16000	16250	16250	500	15500
High	2462	16250	16333.333	16416.667	500	15750
802.11n HT20 Mode						
Low	2412	17166.667	17166.667	17083.333	500	16583
Mid	2437	16666.667	16750	16333.333	500	15833
High	2462	16750	17500	17333.333	500	16250
802.11n HT40 Mode						
Low	2422	36333.333	36500	36500	500	35833
Mid	2437	36333.333	36333.333	36500	500	35833
High	2452	36333.333	36500	36500	500	35833

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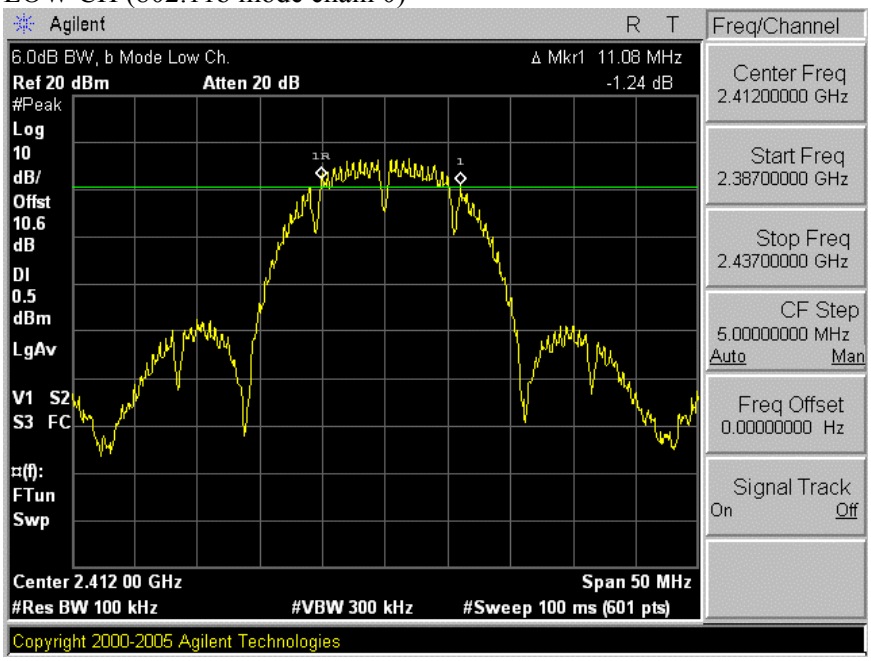
(802.11b MODE CHAIN 0)

LOW CH (802.11b mode chain 0)



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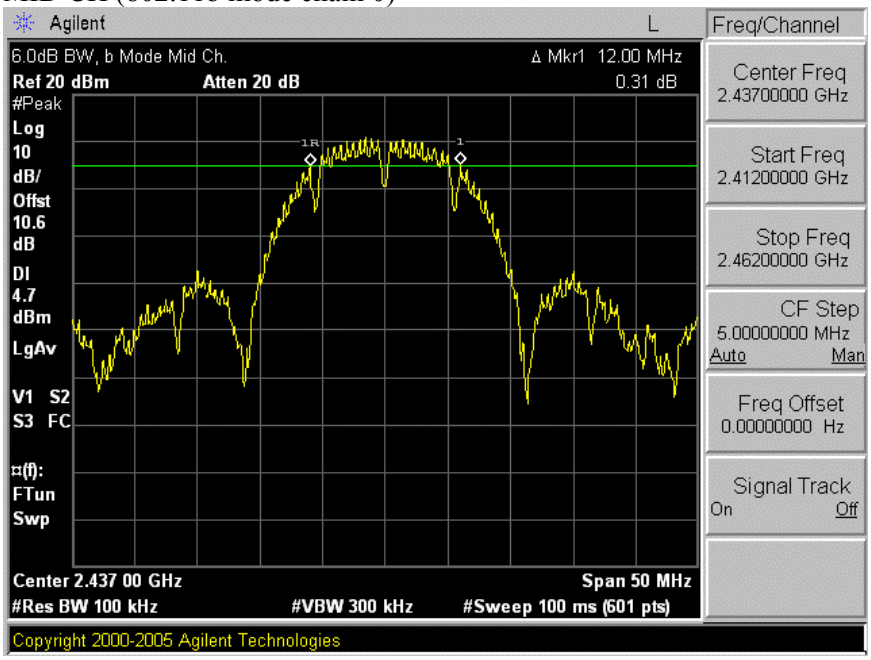
MID CH (802.11b mode chain 0)



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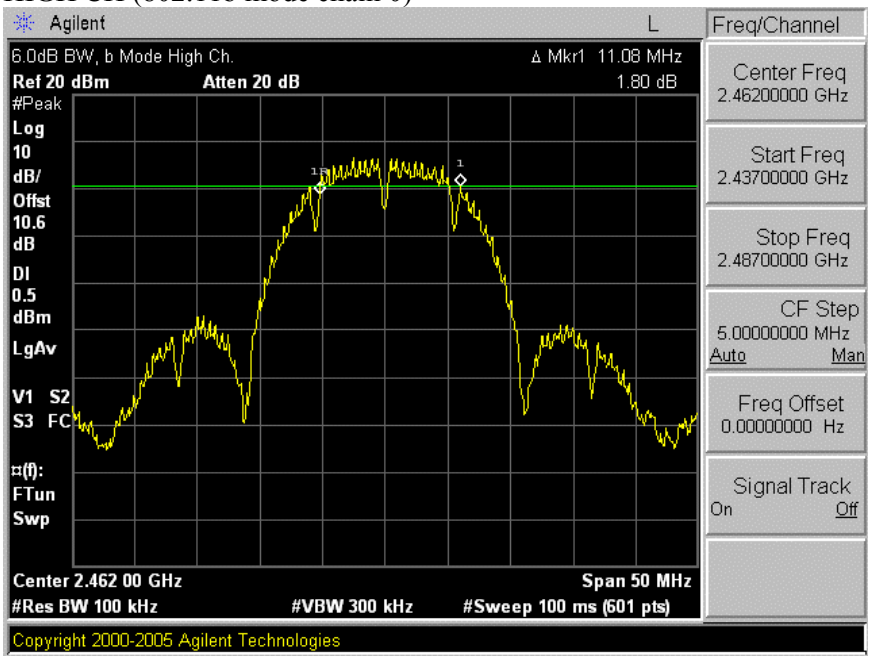
HIGH CH (802.11b mode chain 0)



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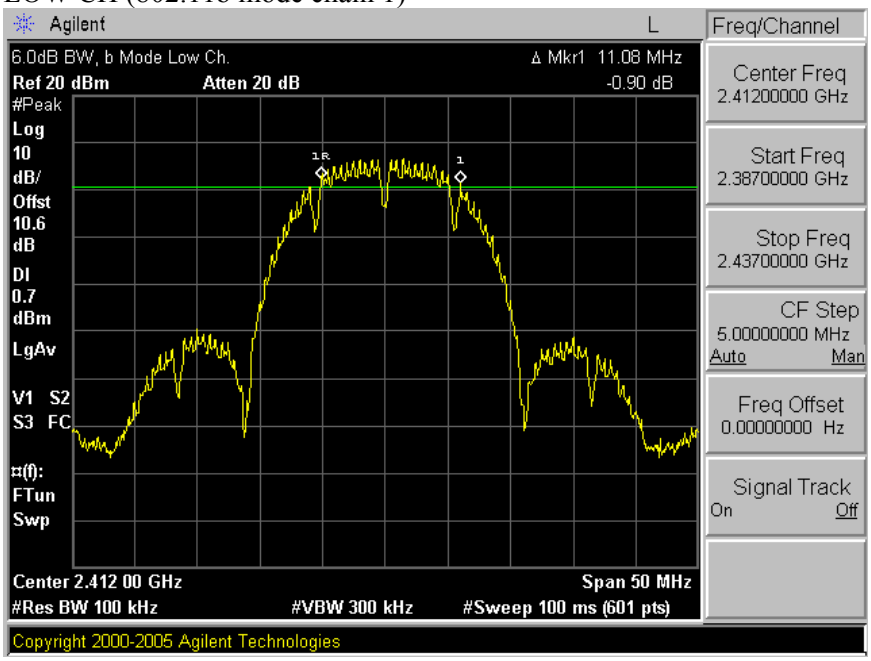
(802.11b MODE CHAIN 1)

LOW CH (802.11b mode chain 1)



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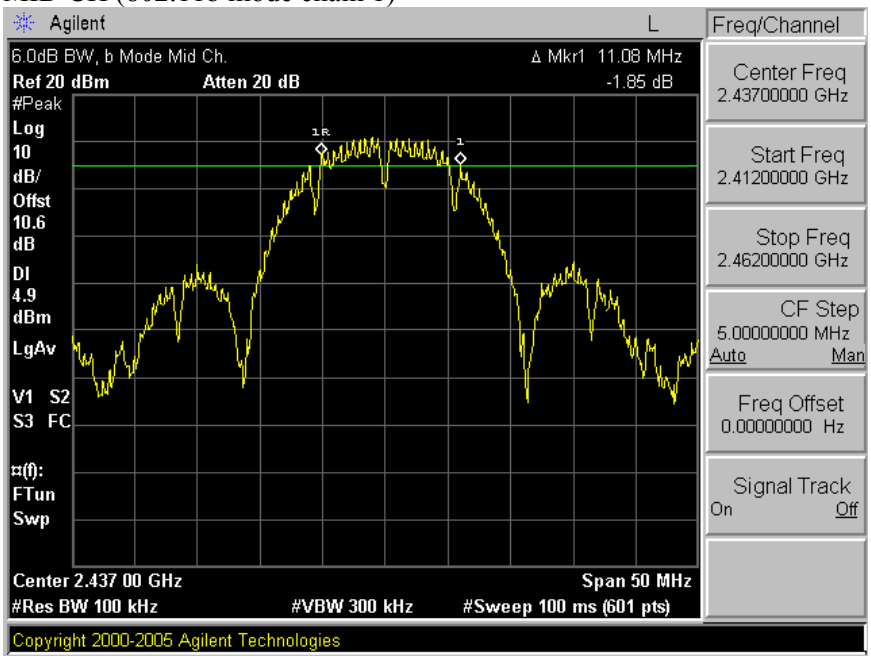

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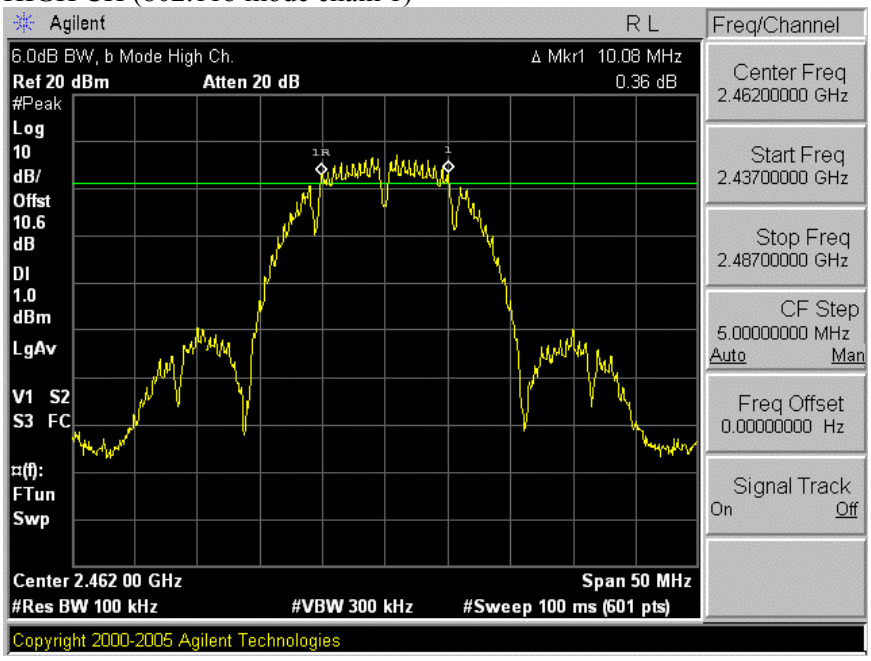

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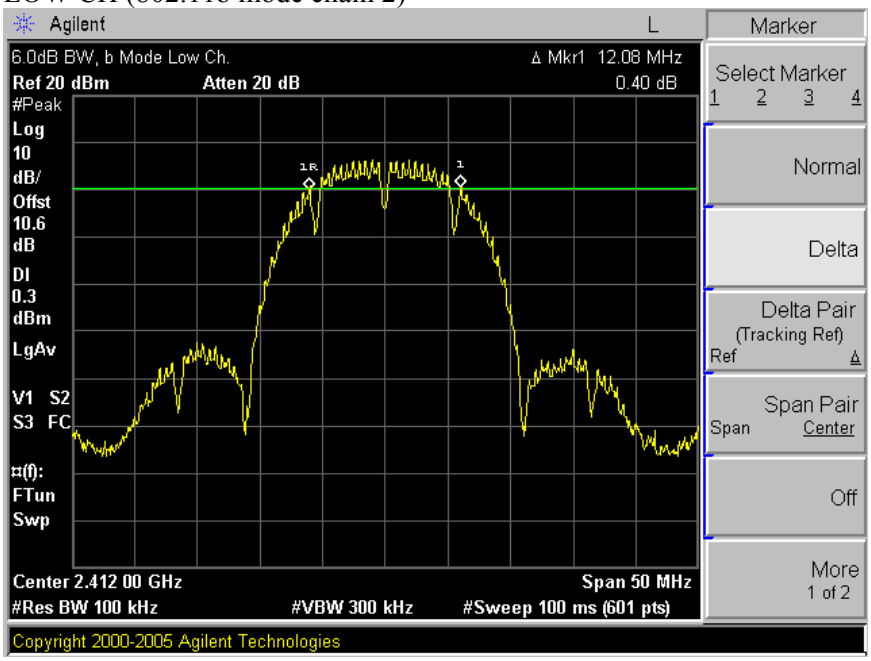
(802.11b MODE CHAIN 2)

LOW CH (802.11b mode chain 2)



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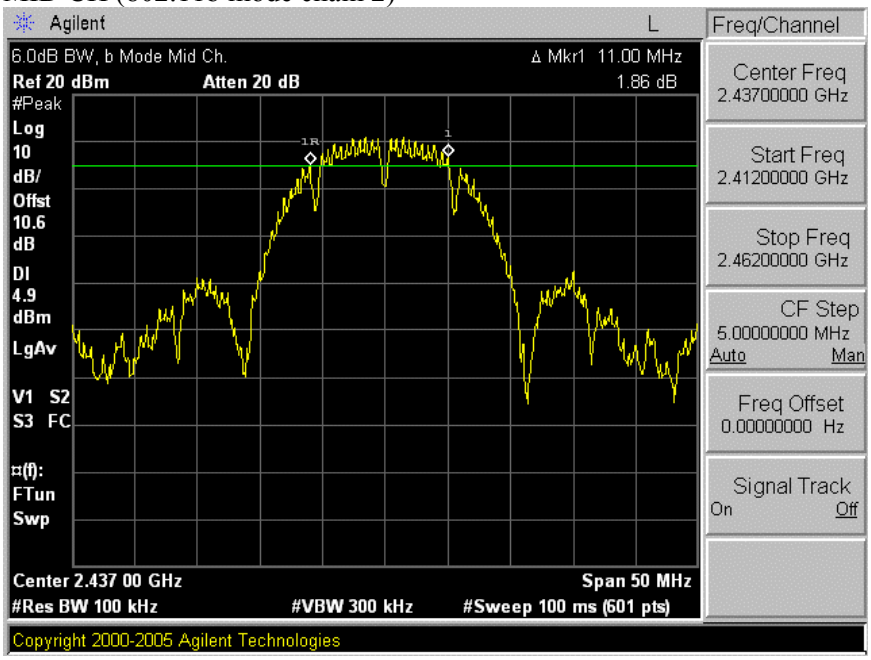

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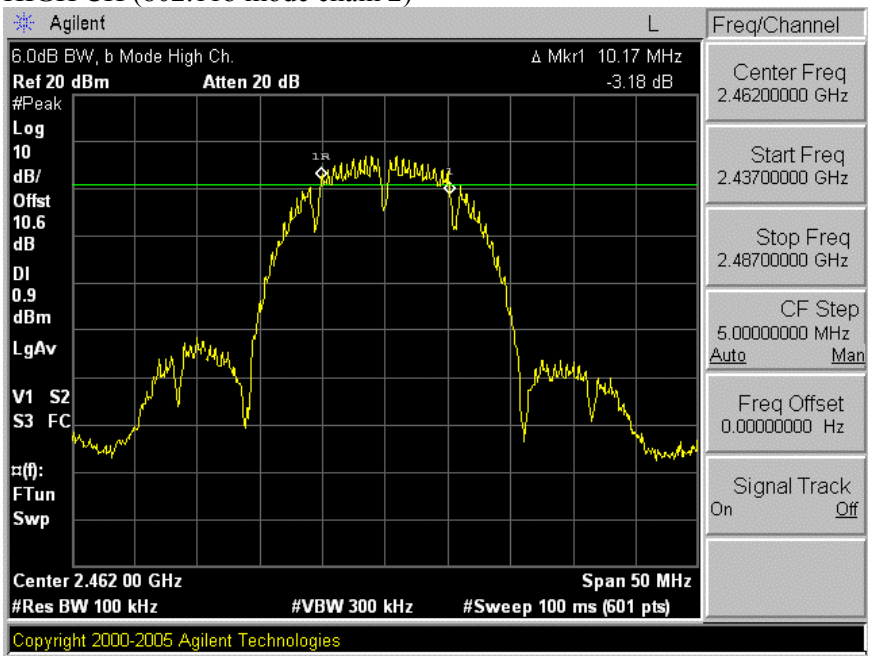

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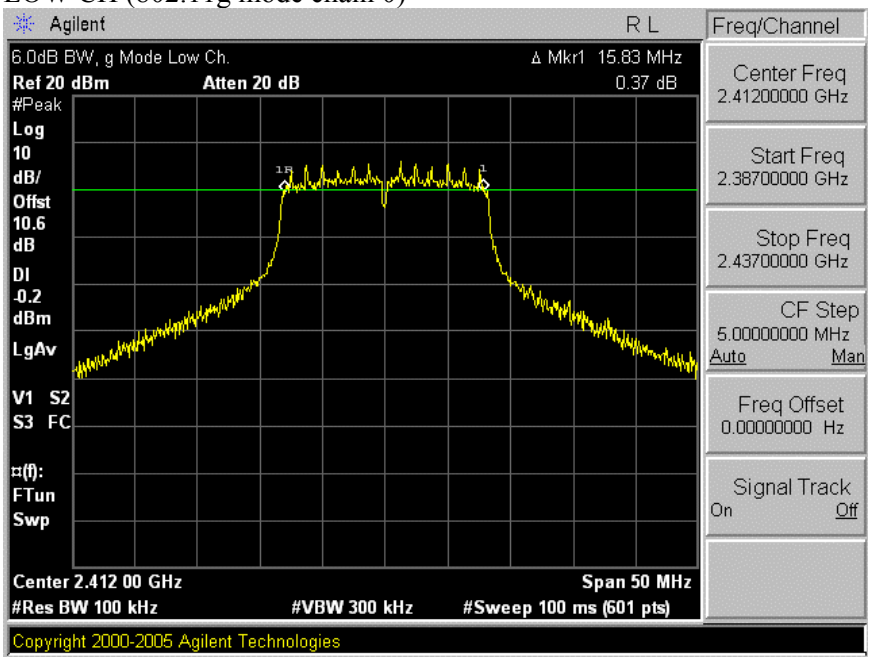
(802.11g MODE CHAIN 0)

LOW CH (802.11g mode chain 0)



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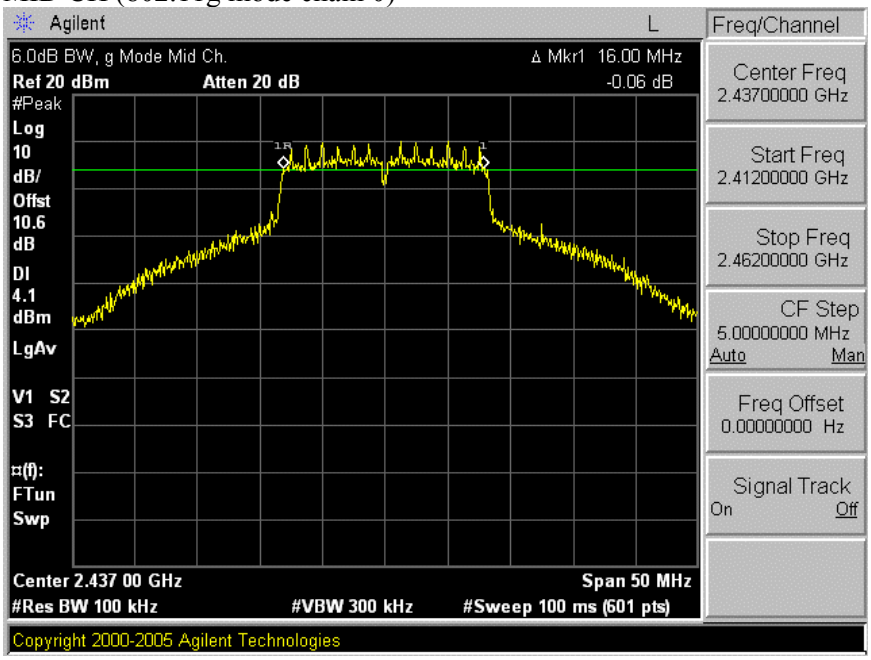

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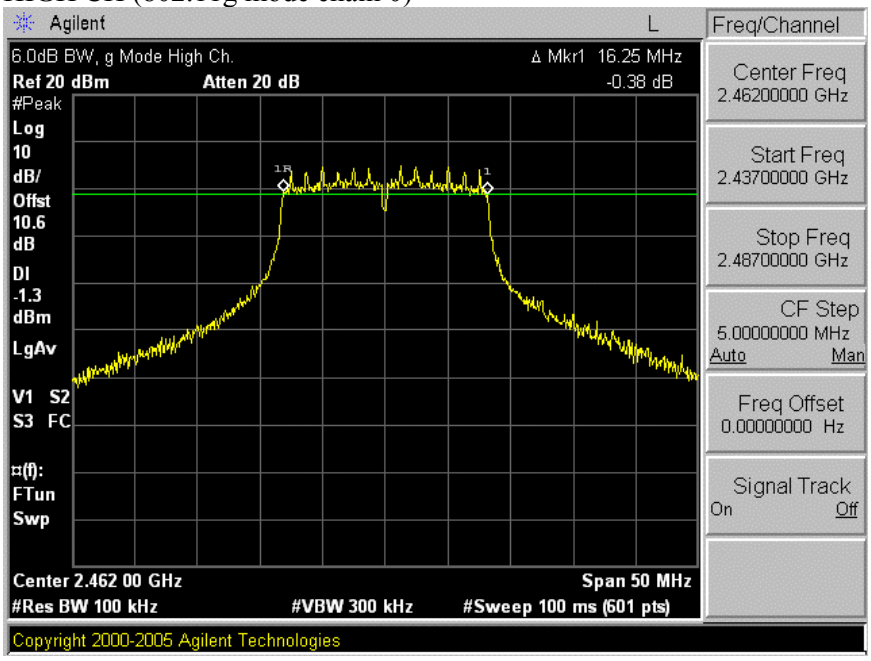
HIGH CH (802.11g mode chain 0)



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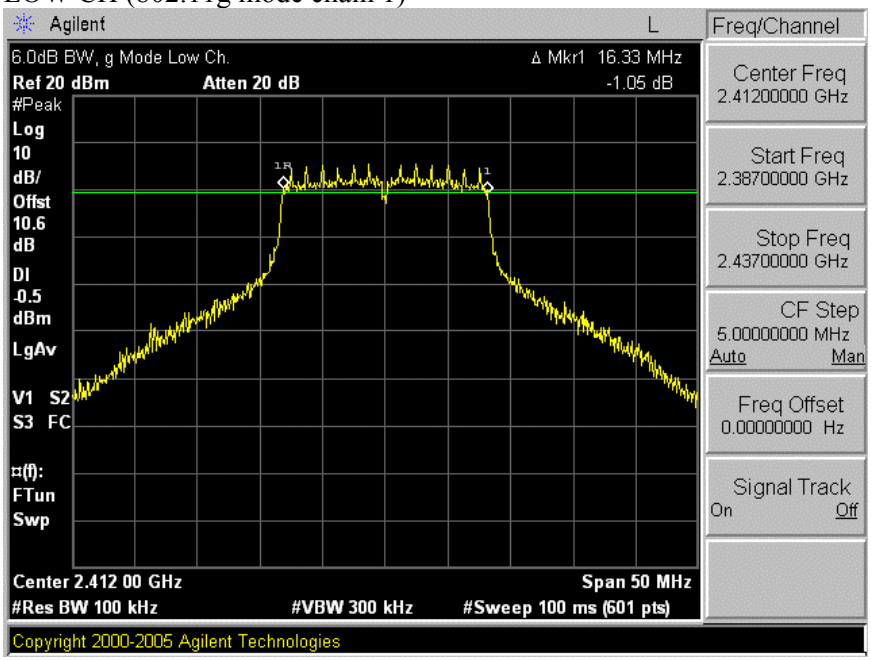
(802.11g MODE CHAIN 1)

LOW CH (802.11g mode chain 1)



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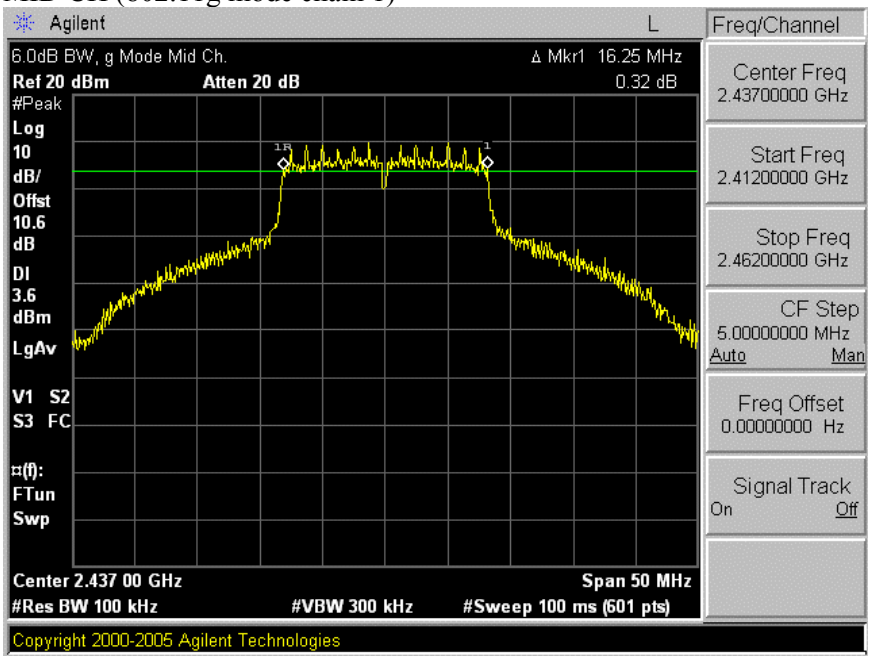

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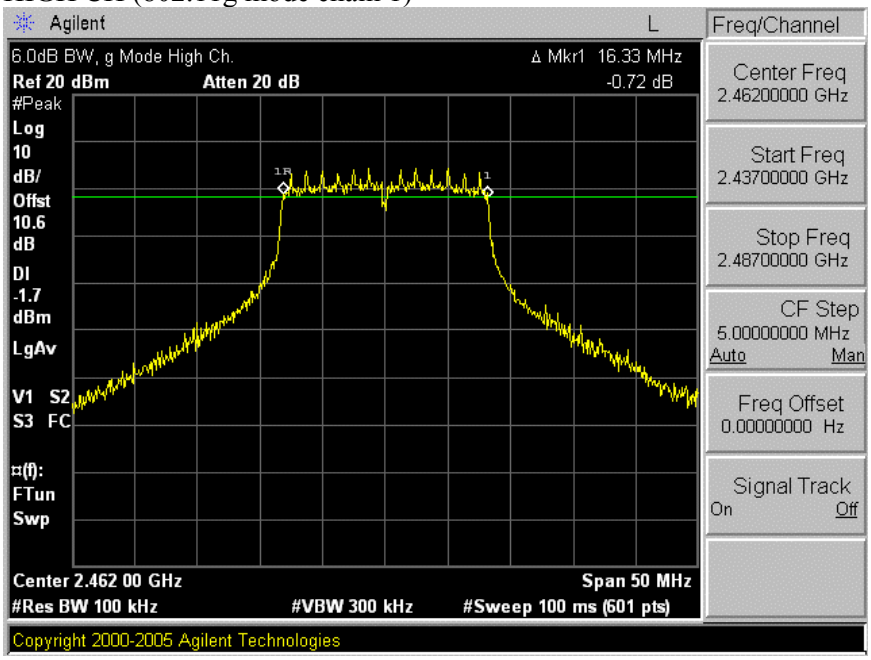
HIGH CH (802.11g mode chain 1)



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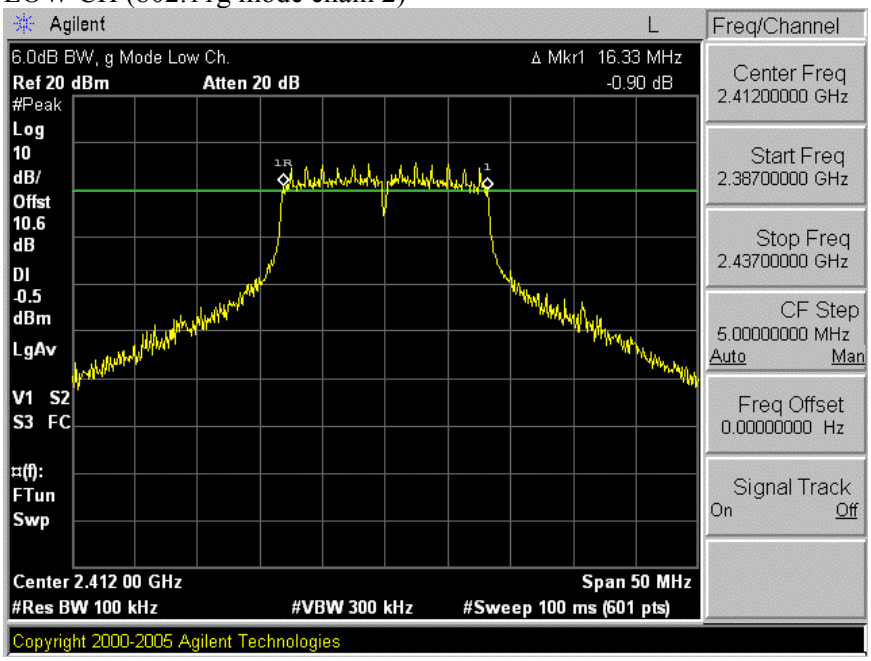
(802.11g MODE CHAIN 2)

LOW CH (802.11g mode chain 2)



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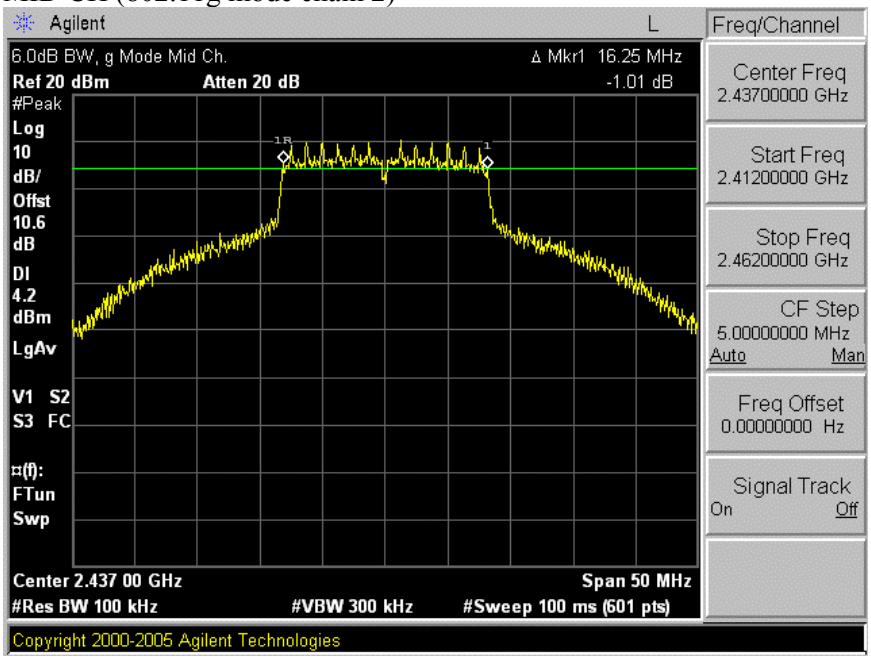

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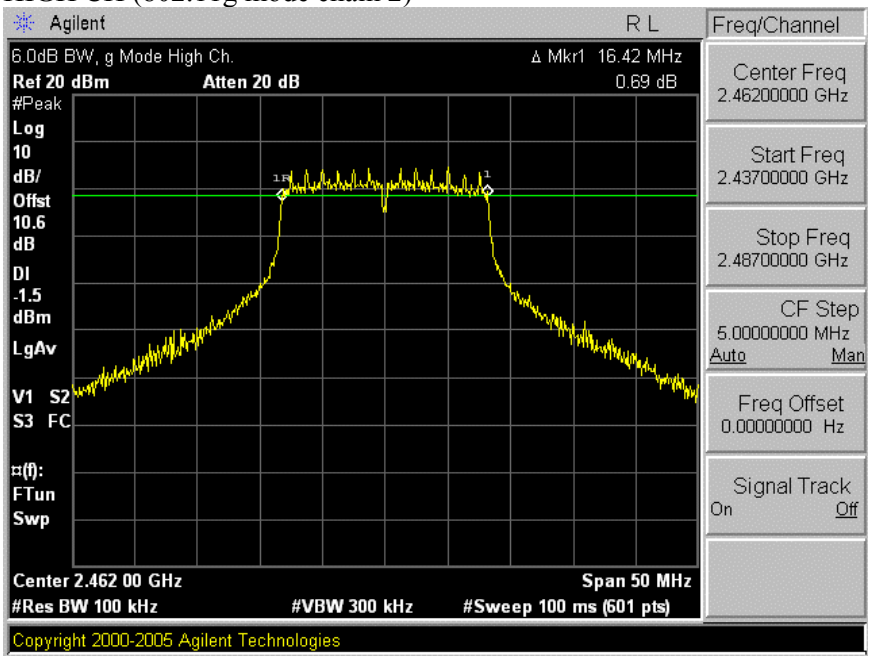
HIGH CH (802.11g mode chain 2)



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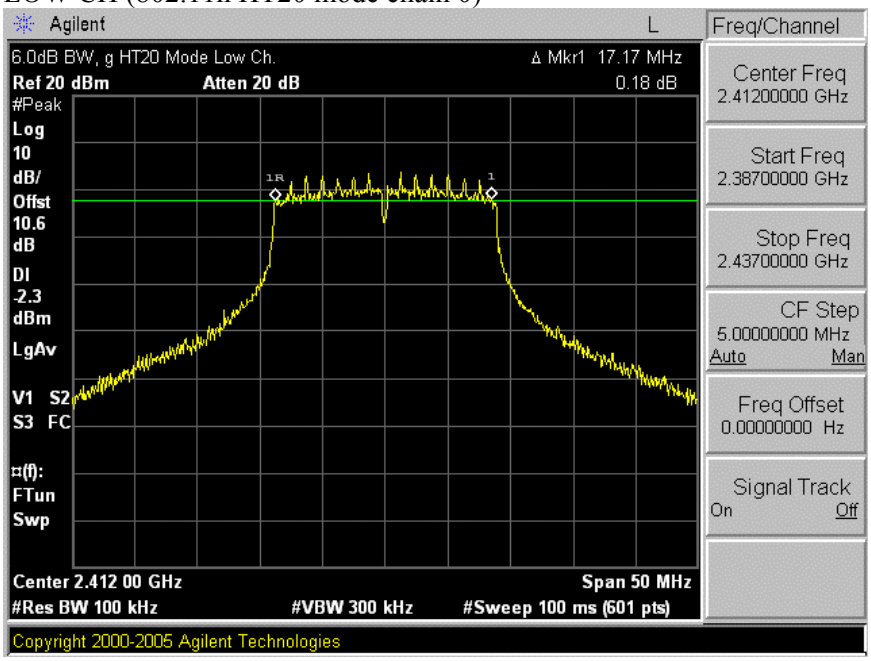
(802.11n HT20 MODE CHAIN 0)

LOW CH (802.11n HT20 mode chain 0)



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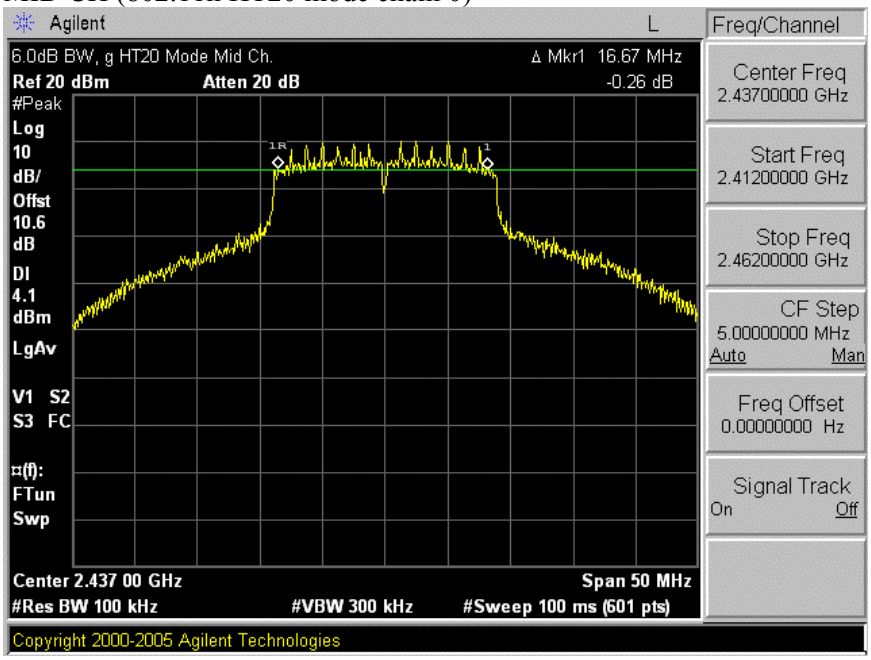
MID CH (802.11n HT20 mode chain 0)



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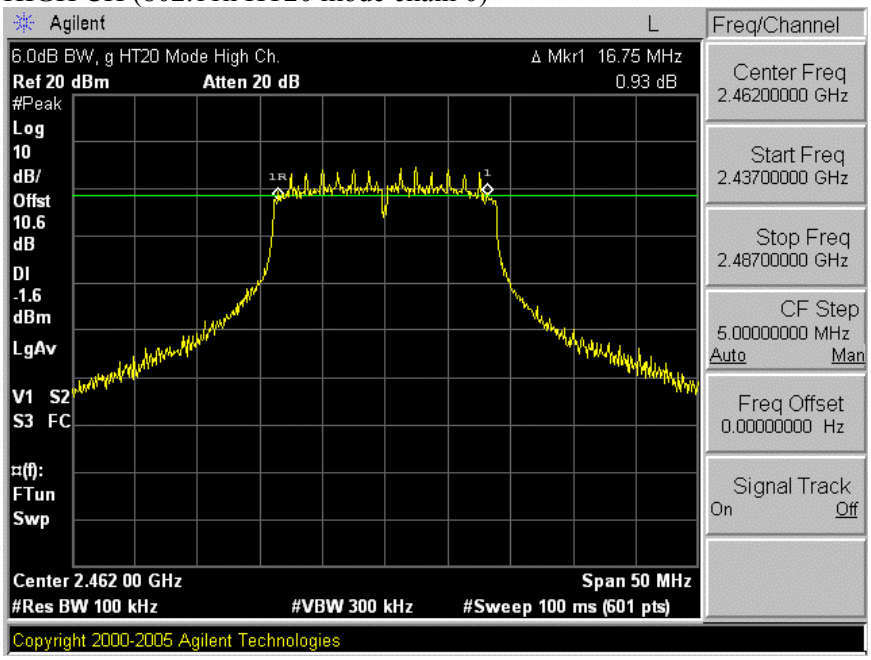
HIGH CH (802.11n HT20 mode chain 0)



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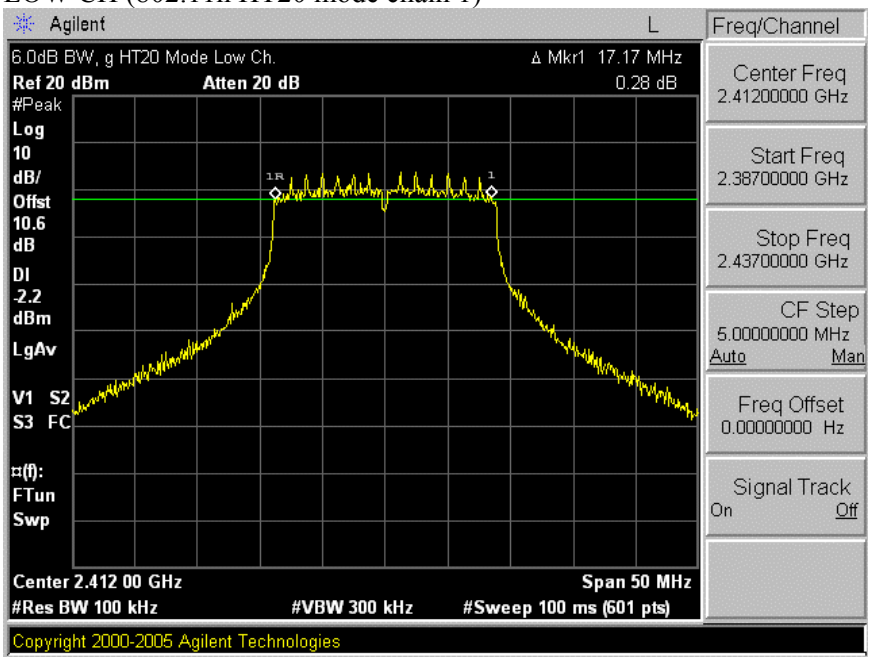
(802.11n HT20 MODE CHAIN 1)

LOW CH (802.11n HT20 mode chain 1)



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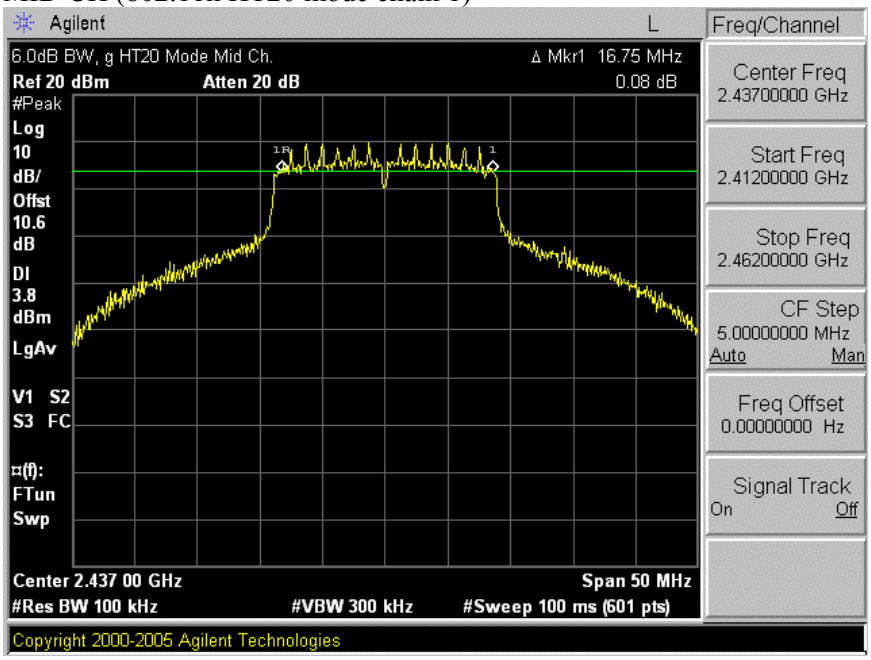
MID CH (802.11n HT20 mode chain 1)



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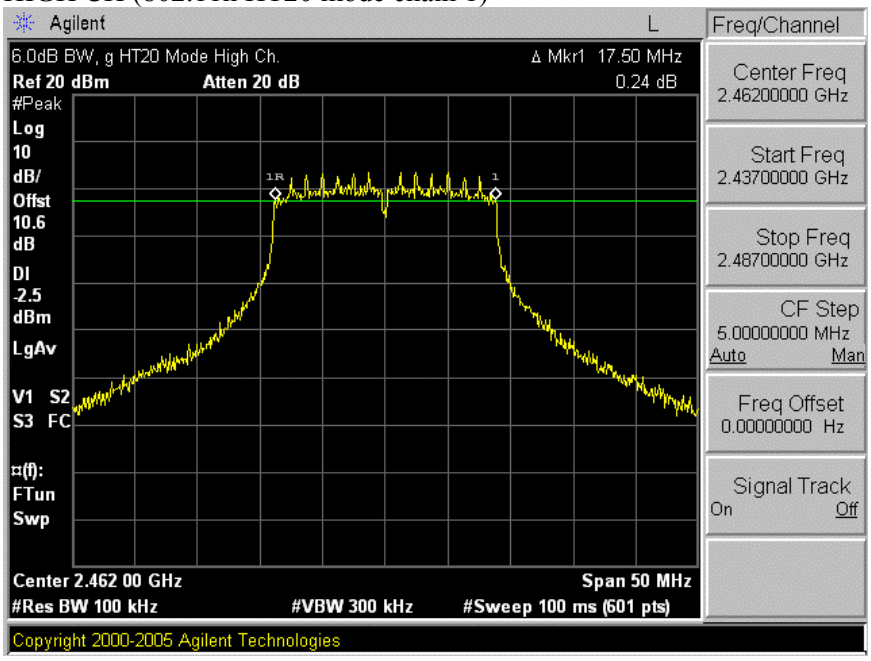
HIGH CH (802.11n HT20 mode chain 1)



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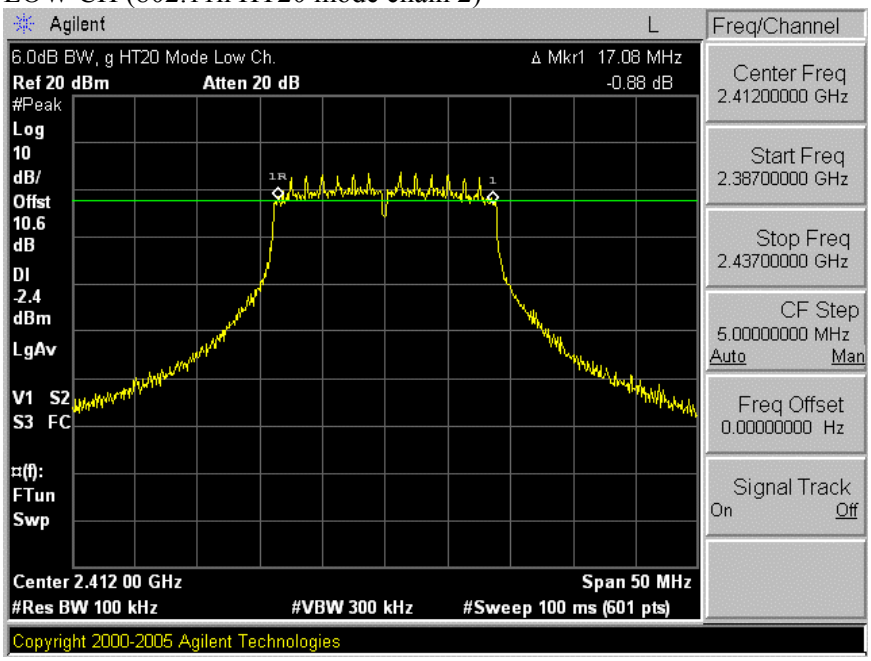
(802.11n HT20 MODE CHAIN 2)

LOW CH (802.11n HT20 mode chain 2)



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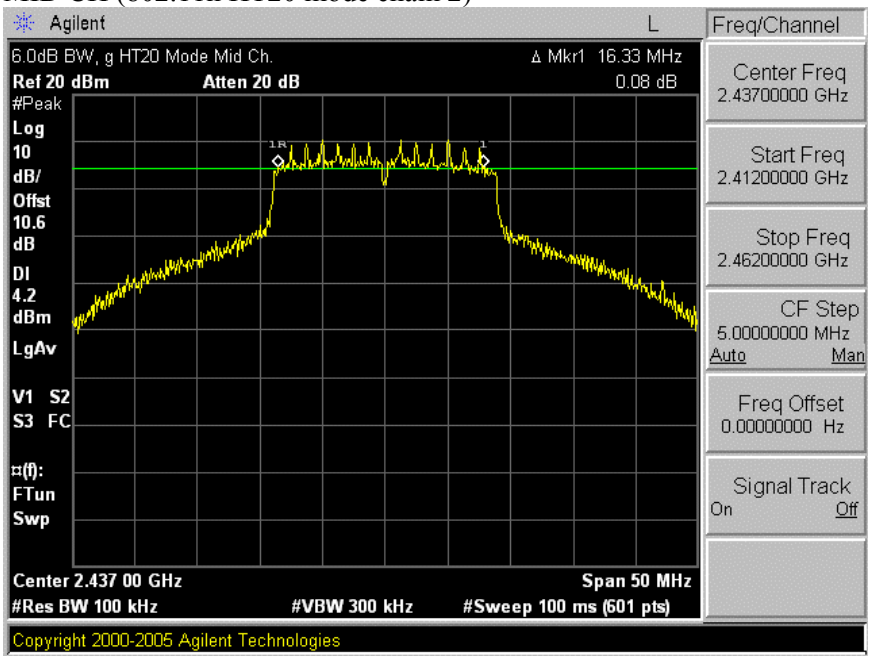
MID CH (802.11n HT20 mode chain 2)



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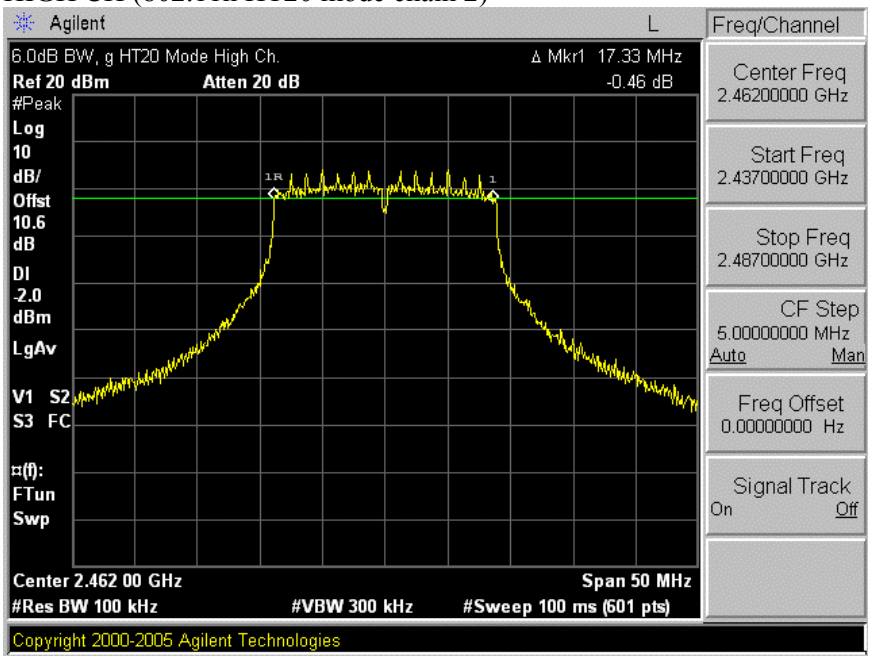
HIGH CH (802.11n HT20 mode chain 2)



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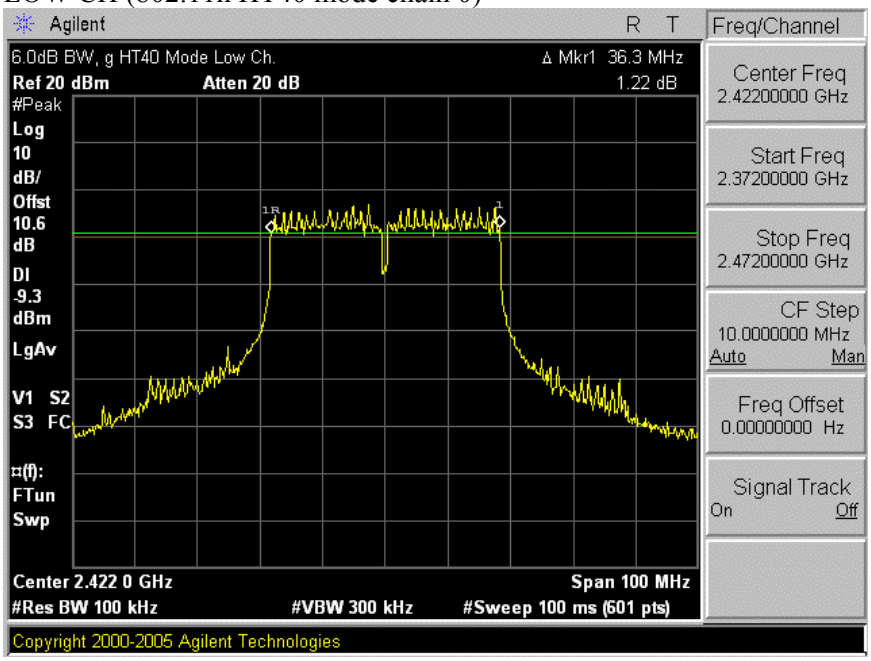
(802.11n HT40 MODE CHAIN 0)

LOW CH (802.11n HT40 mode chain 0)



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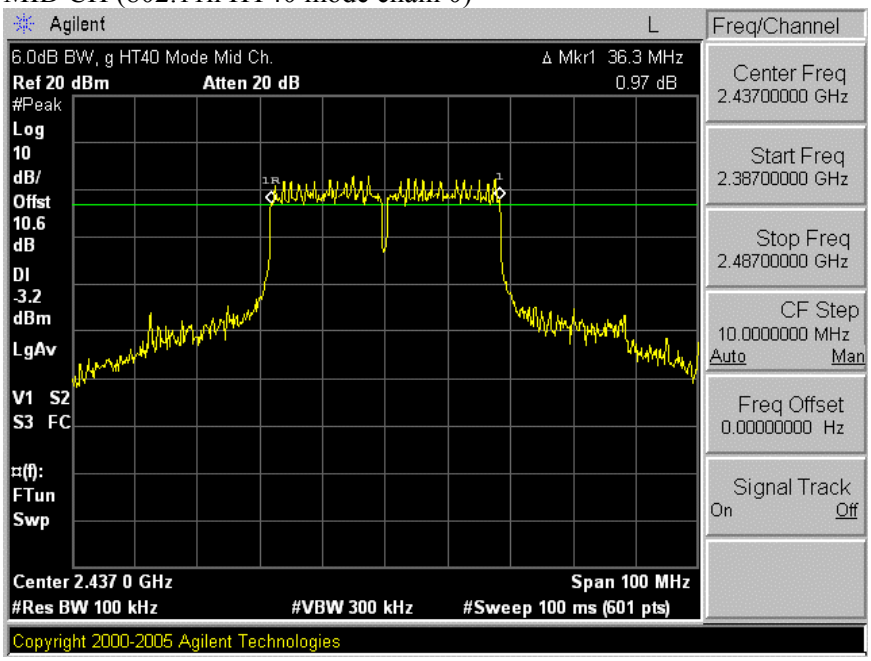
MID CH (802.11n HT40 mode chain 0)



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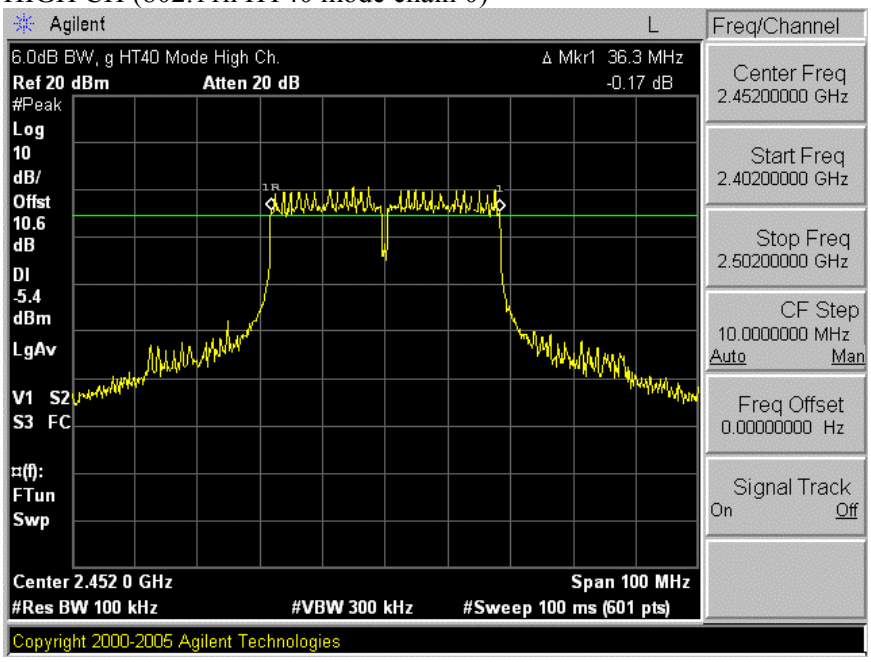
HIGH CH (802.11n HT40 mode chain 0)



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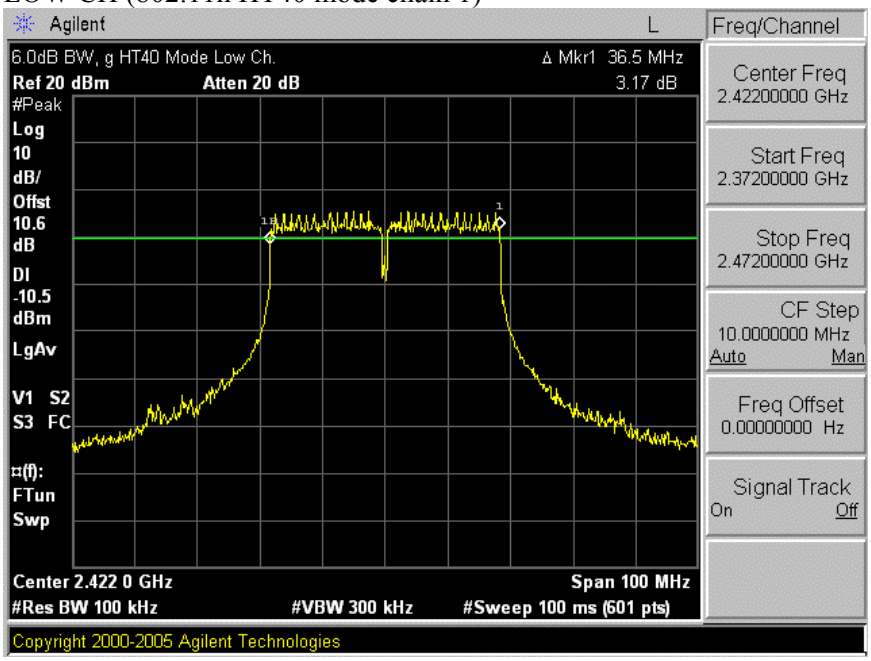
(802.11n HT40 MODE CHAIN 1)

LOW CH (802.11n HT40 mode chain 1)



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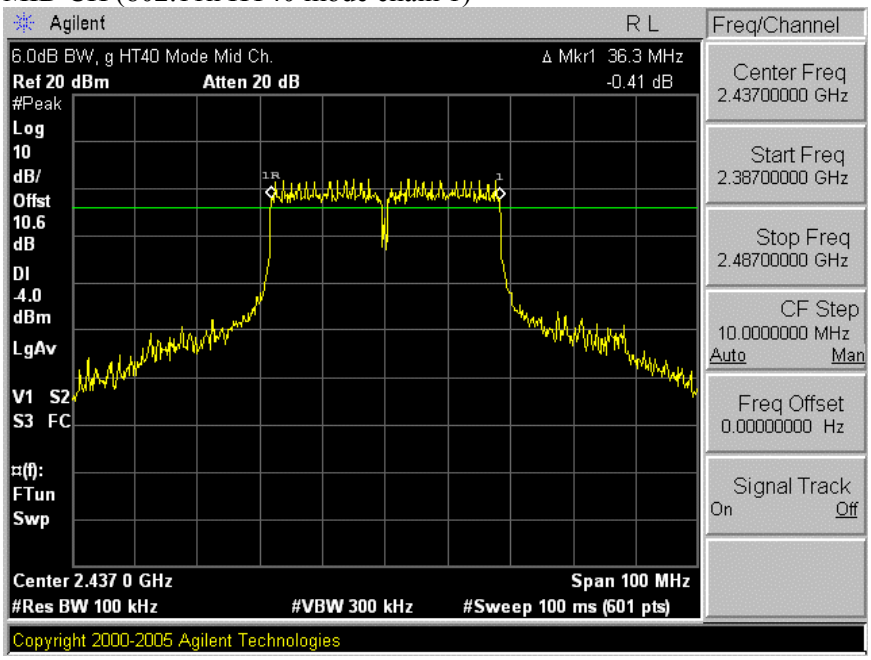
MID CH (802.11n HT40 mode chain 1)



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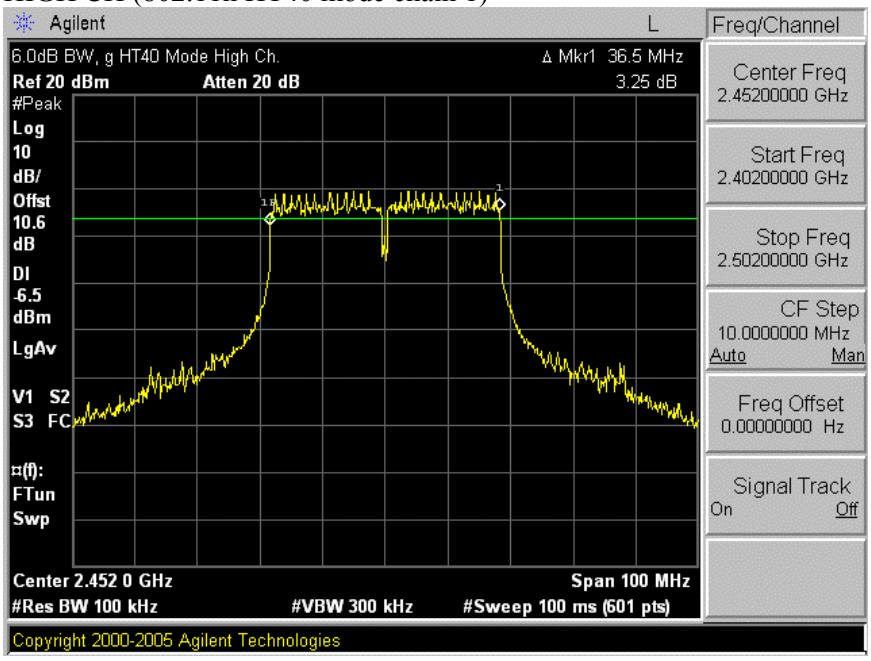
HIGH CH (802.11n HT40 mode chain 1)



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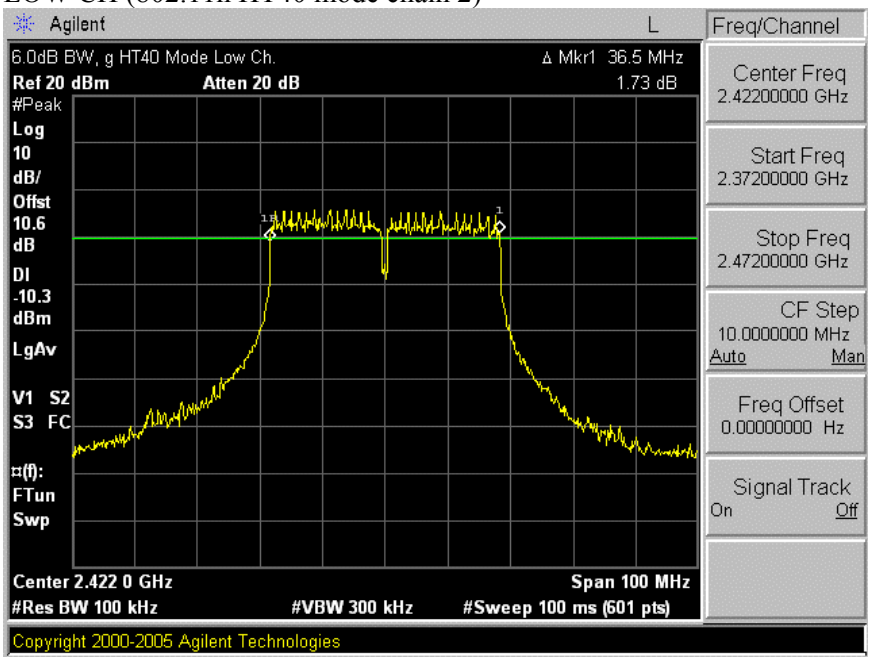
(802.11n HT40 MODE CHAIN 2)

LOW CH (802.11n HT40 mode chain 2)



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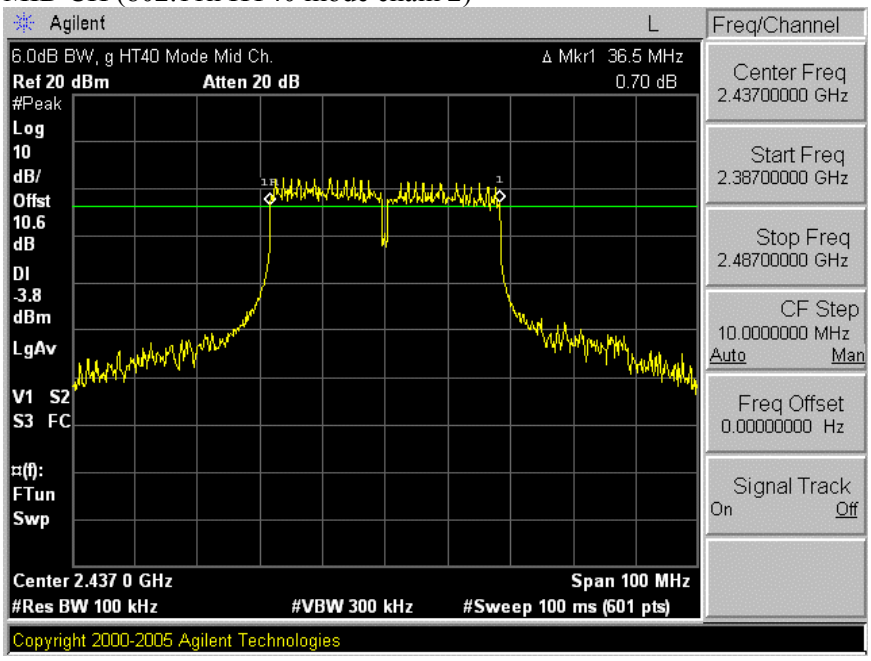
MID CH (802.11n HT40 mode chain 2)



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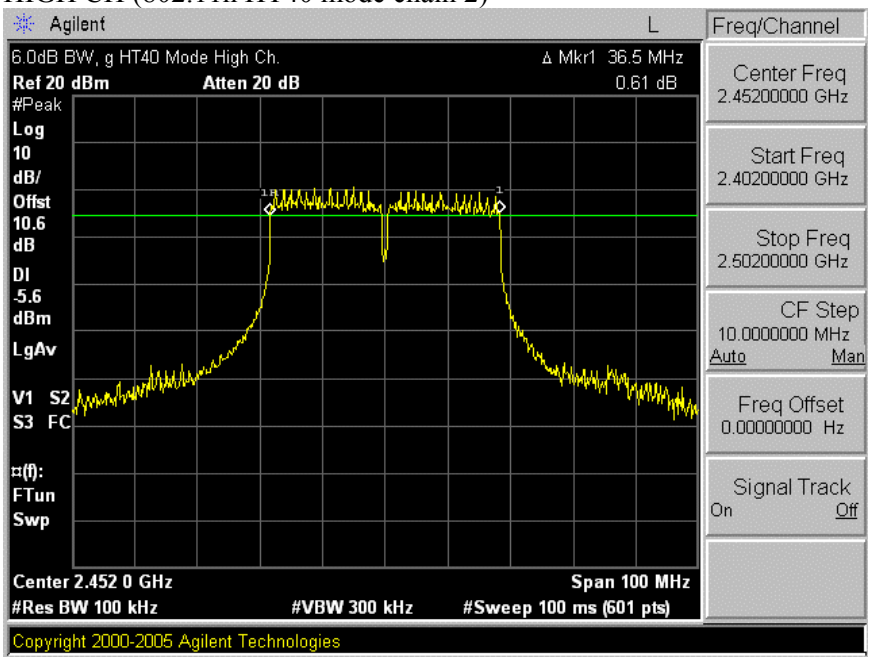
HIGH CH (802.11n HT40 mode chain 2)



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7.1.2. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to >=3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

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RESULTS

No non-compliance noted:

Mode Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
802.11b Mode				
Low	2412	15.377	15.324	15.186
Middle	2437	15.516	15.76	15.532
High	2462	15.098	15.256	15.227
802.11g Mode				
Low	2412	16.582	16.558	16.562
Middle	2437	24.154	21.099	21.969
High	2462	16.546	16.492	16.497
802.11n HT20 Mode				
Low	2412	17.685	17.647	17.691
Mid	2437	22.217	18.984	20.545
High	2462	17.692	17.64	17.651
802.11n HT40 Mode				
Low	2422	36.372	36.377	36.449
Mid	2437	36.49	36.486	36.564
High	2452	36.511	36.398	36.52

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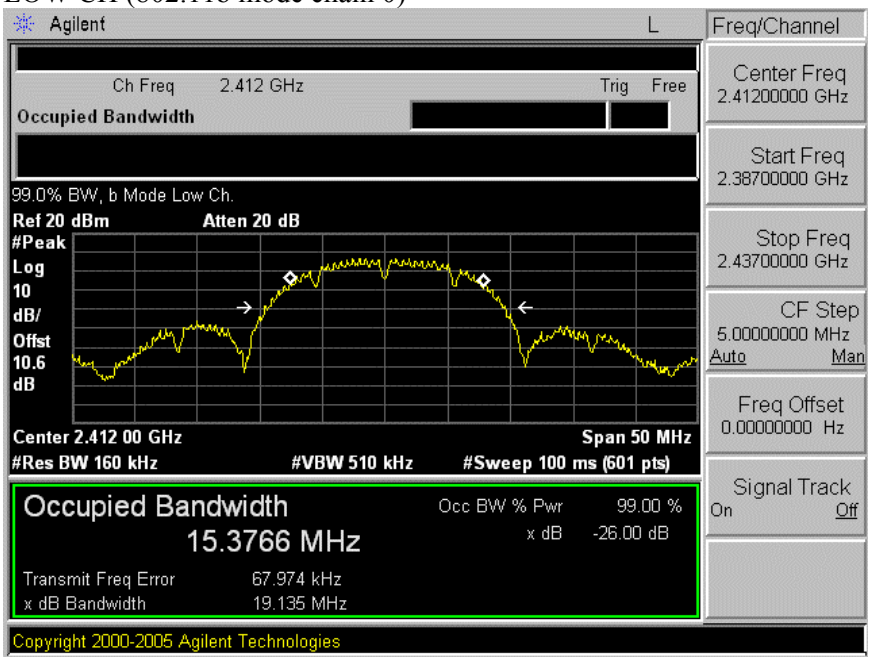
(802.11b MODE CHAIN 0)

LOW CH (802.11b mode chain 0)



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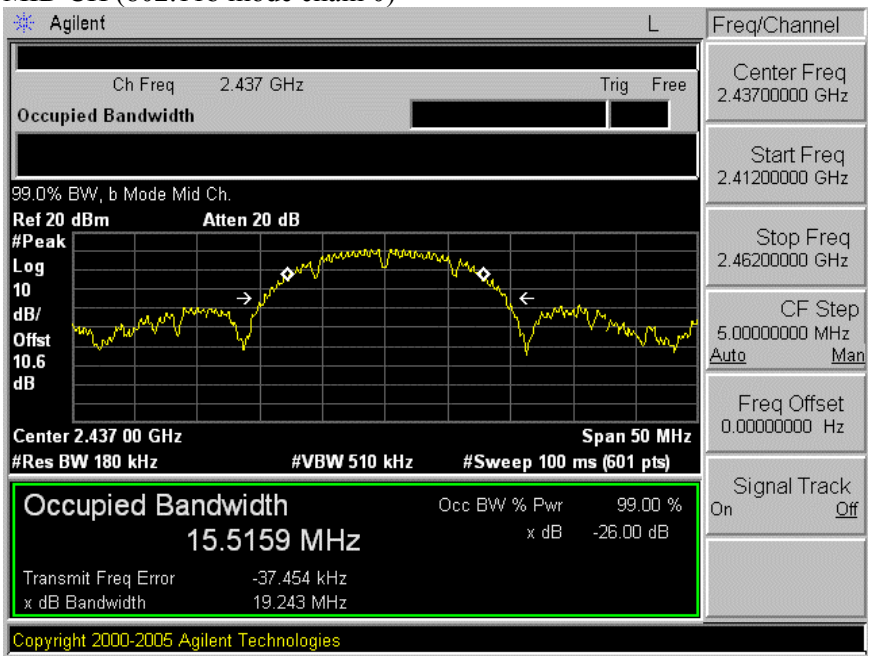
MID CH (802.11b mode chain 0)



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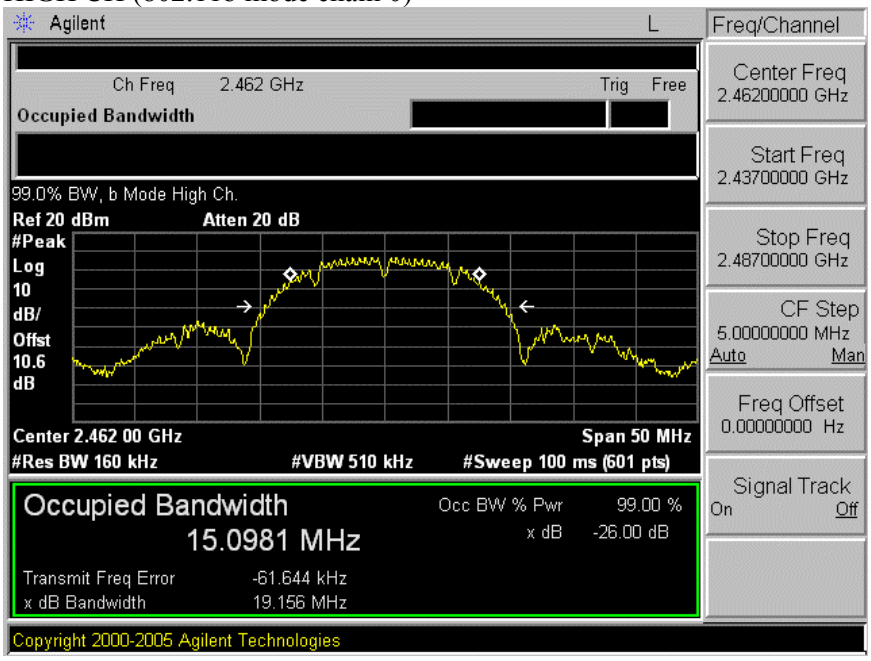
HIGH CH (802.11b mode chain 0)



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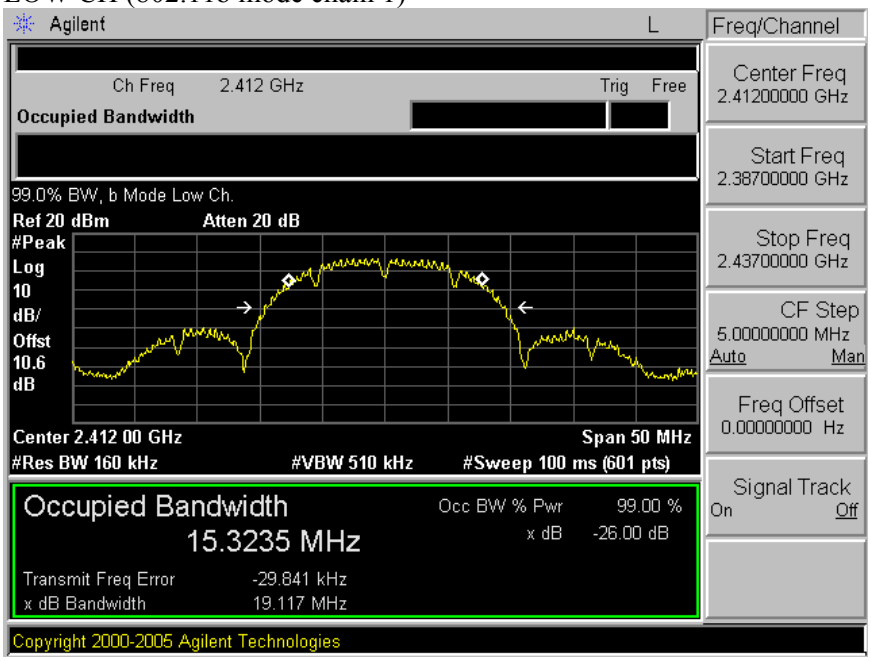
(802.11b MODE CHAIN 1)

LOW CH (802.11b mode chain 1)



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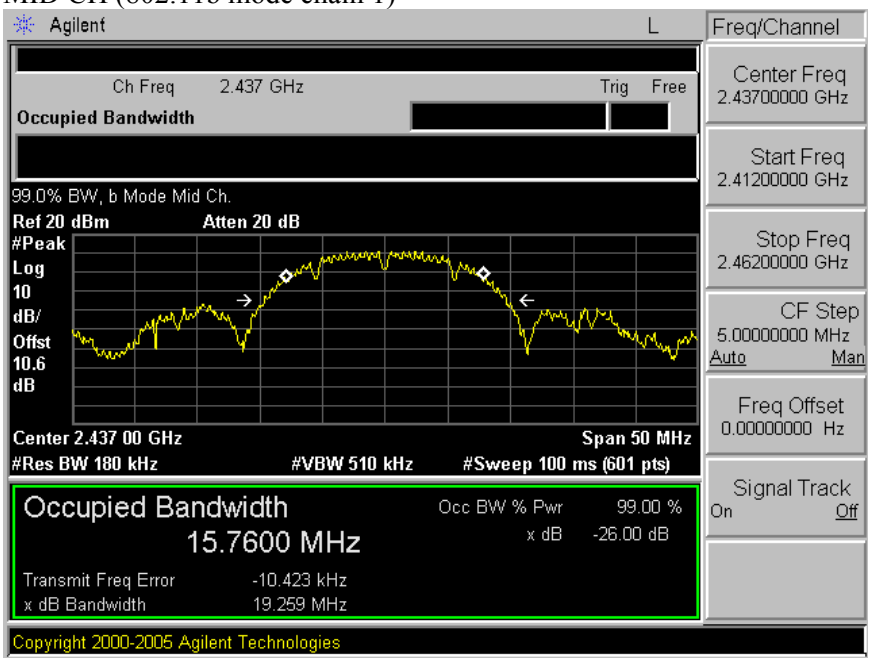
MID CH (802.11b mode chain 1)



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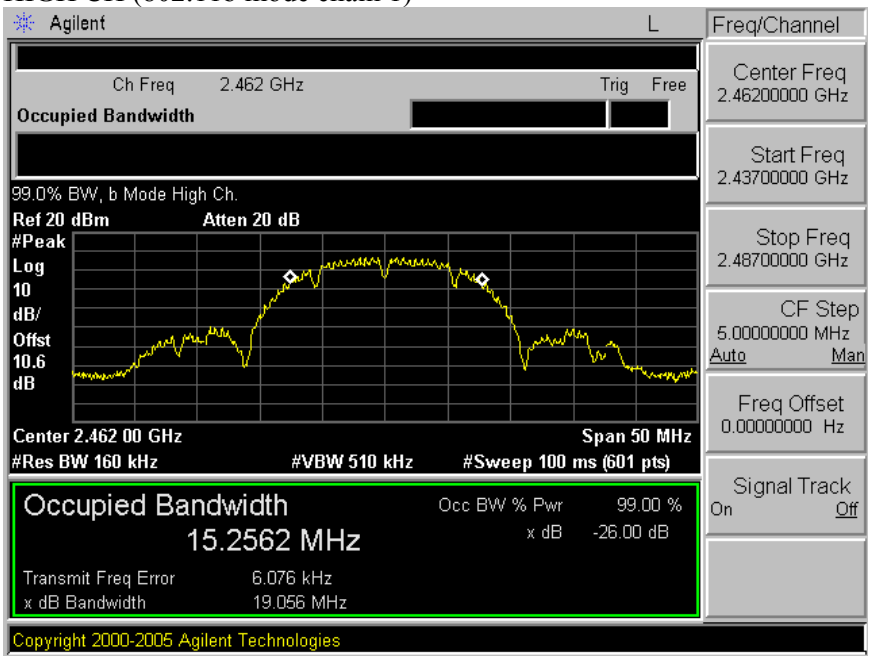
HIGH CH (802.11b mode chain 1)



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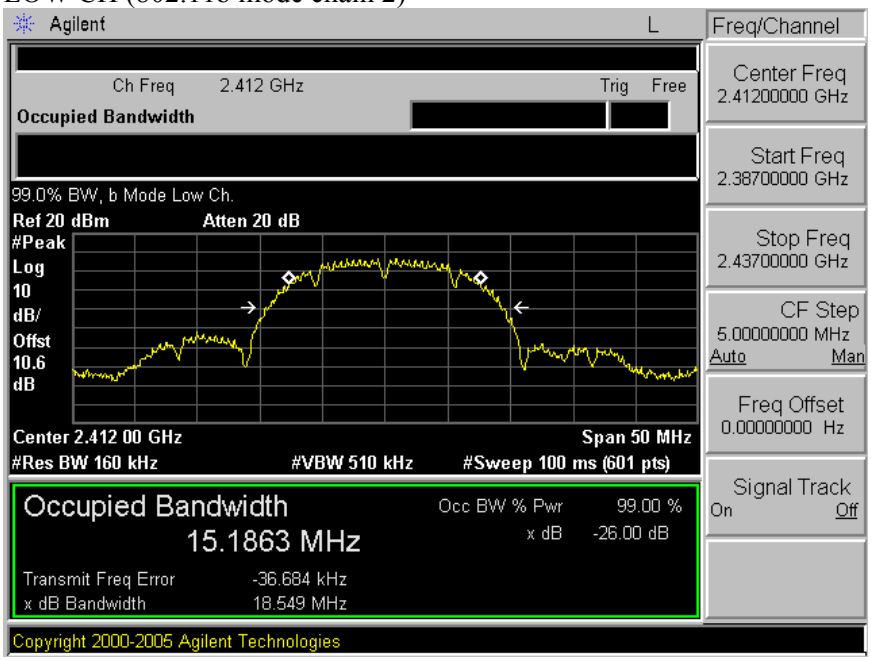
(802.11b MODE CHAIN 2)

LOW CH (802.11b mode chain 2)



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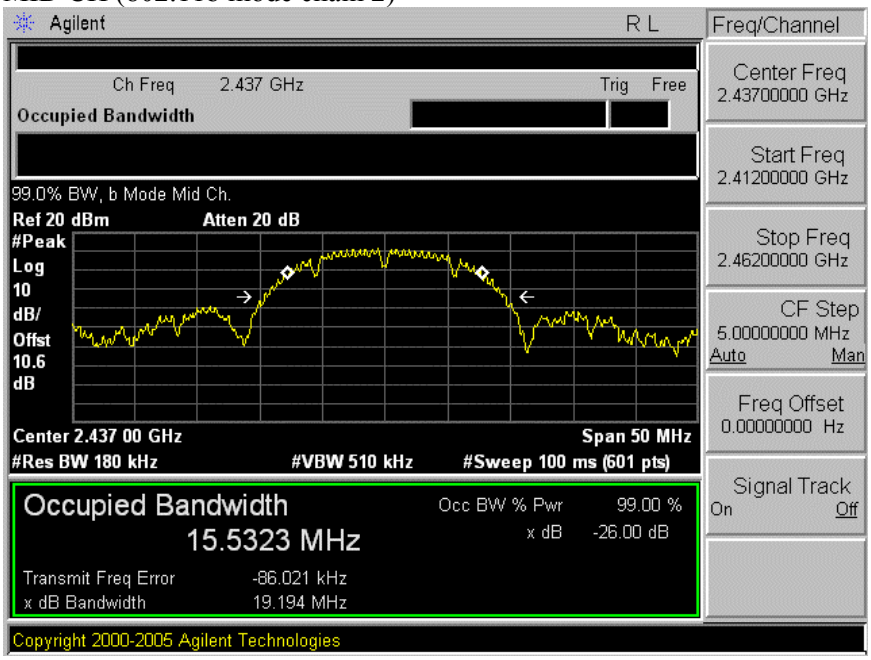
MID CH (802.11b mode chain 2)



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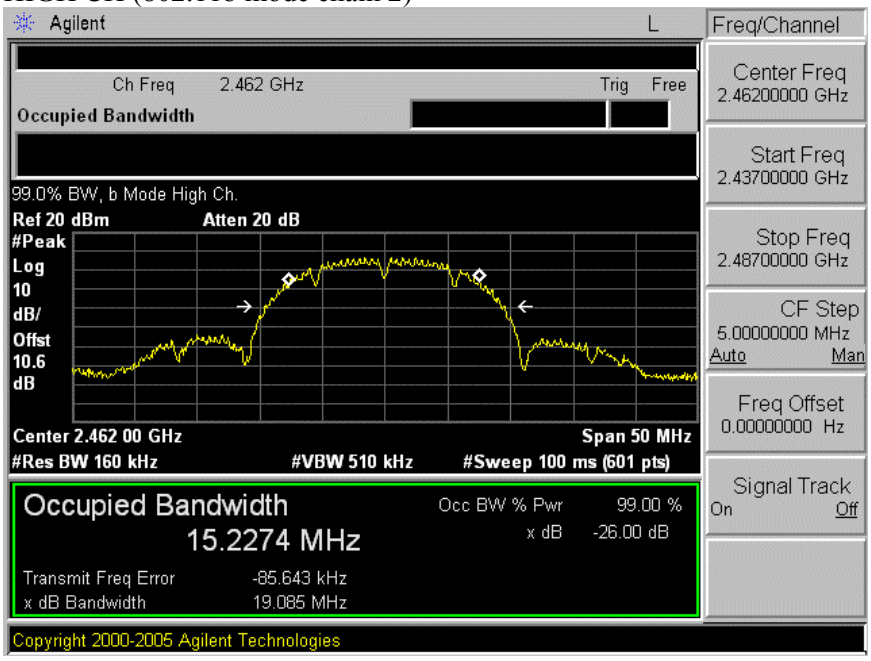
HIGH CH (802.11b mode chain 2)



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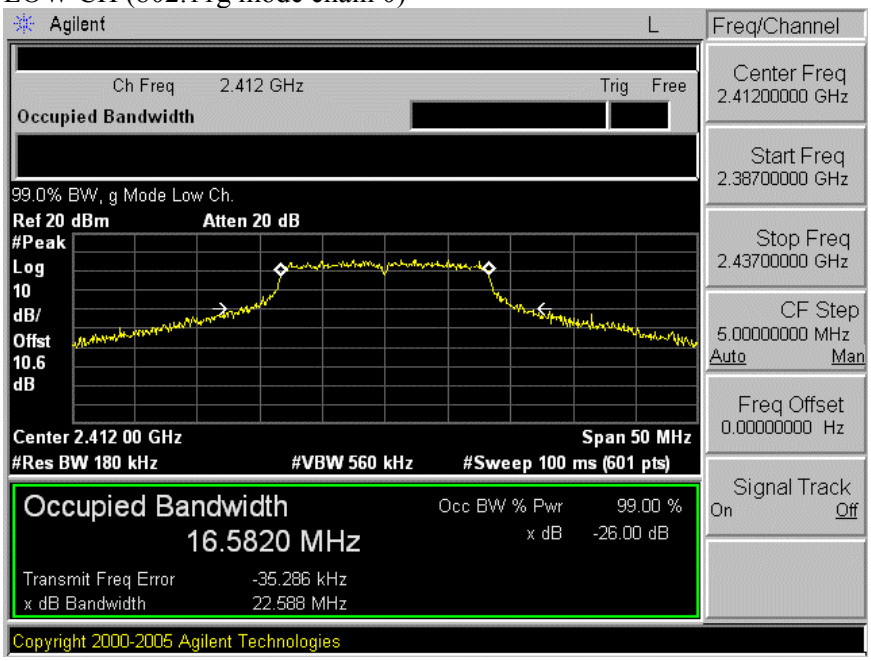
(802.11g MODE CHAIN 0)

LOW CH (802.11g mode chain 0)



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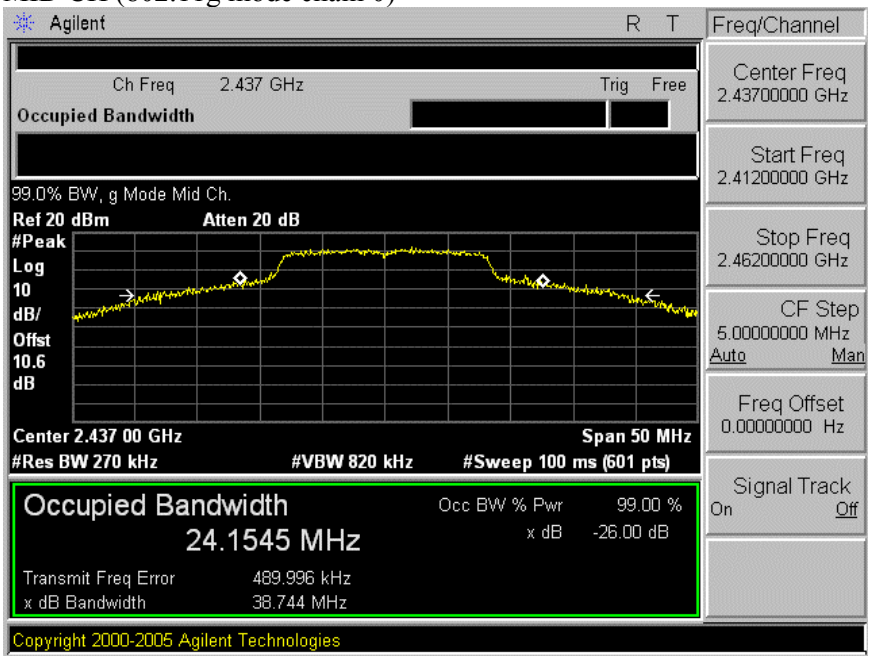
MID CH (802.11g mode chain 0)



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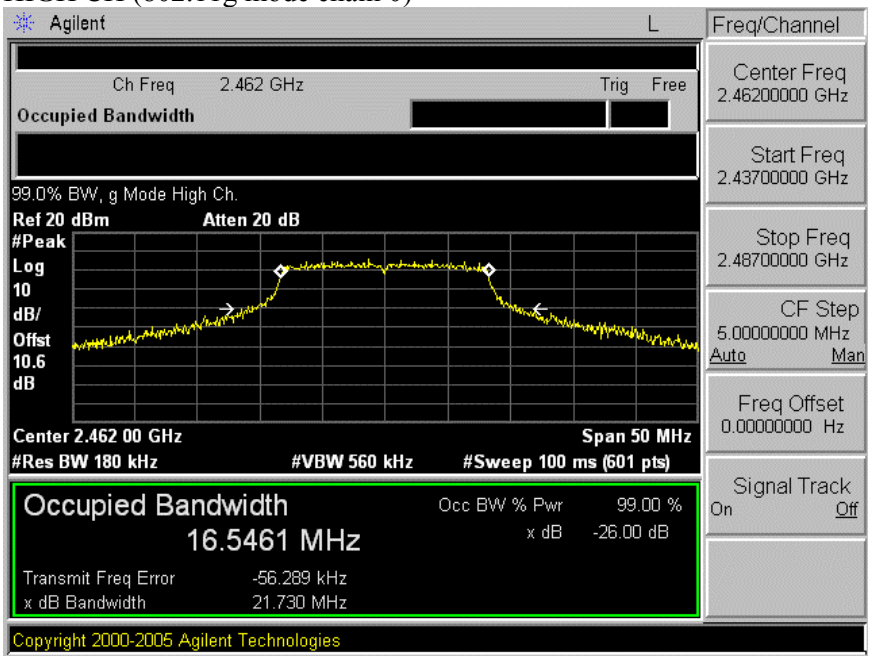
HIGH CH (802.11g mode chain 0)



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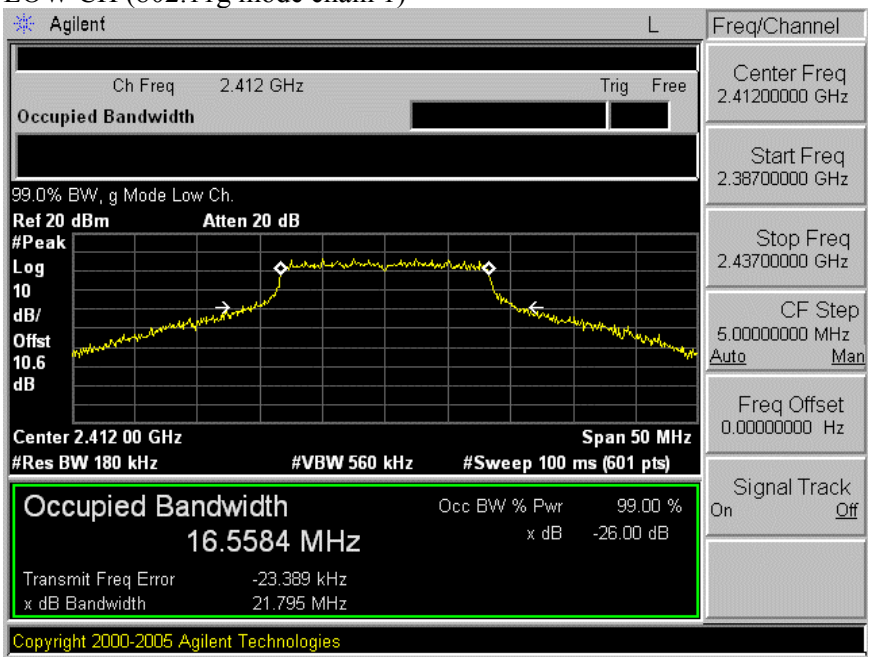
(802.11g MODE CHAIN 1)

LOW CH (802.11g mode chain 1)



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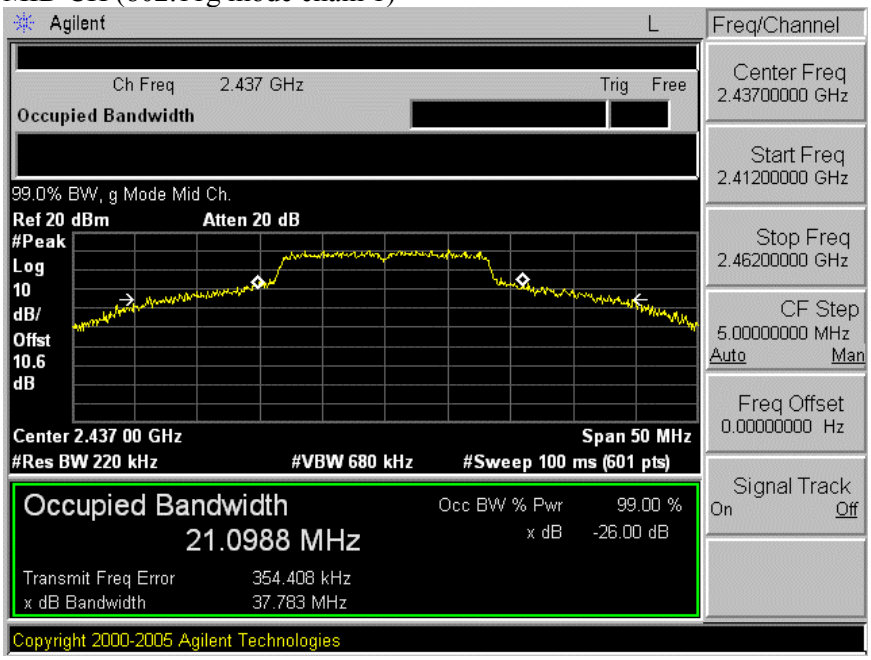
MID CH (802.11g mode chain 1)



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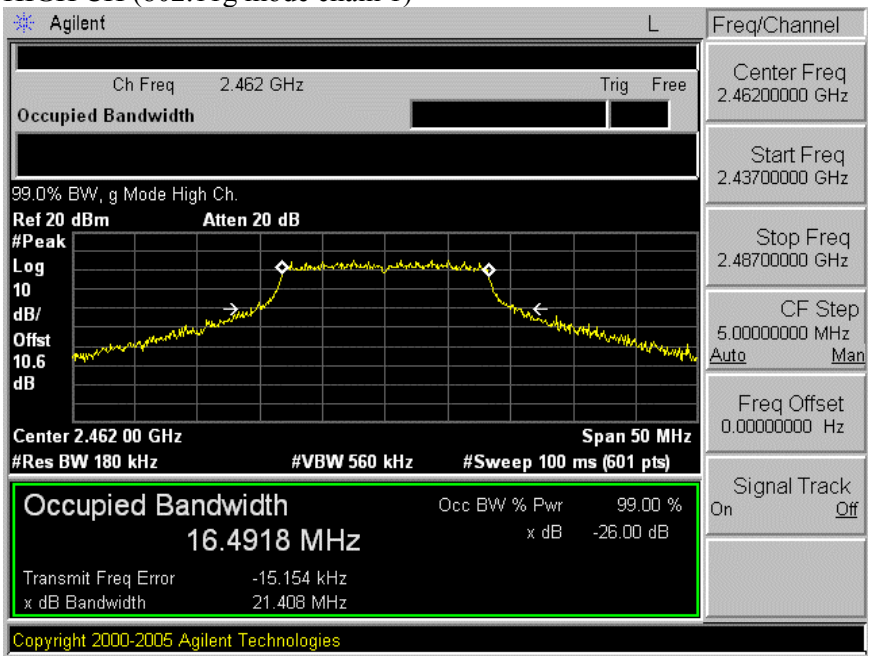
HIGH CH (802.11g mode chain 1)



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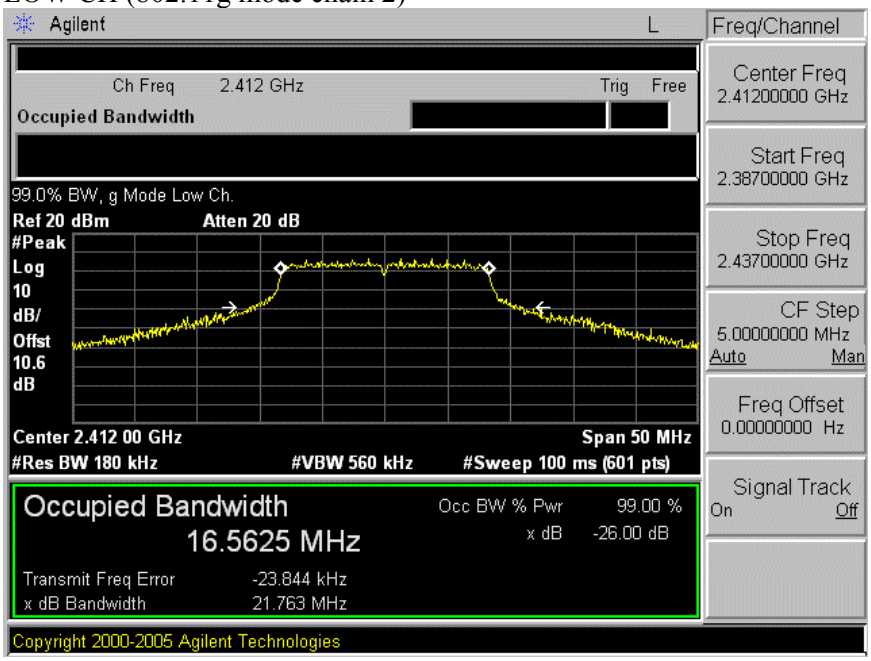
(802.11g MODE CHAIN 2)

LOW CH (802.11g mode chain 2)



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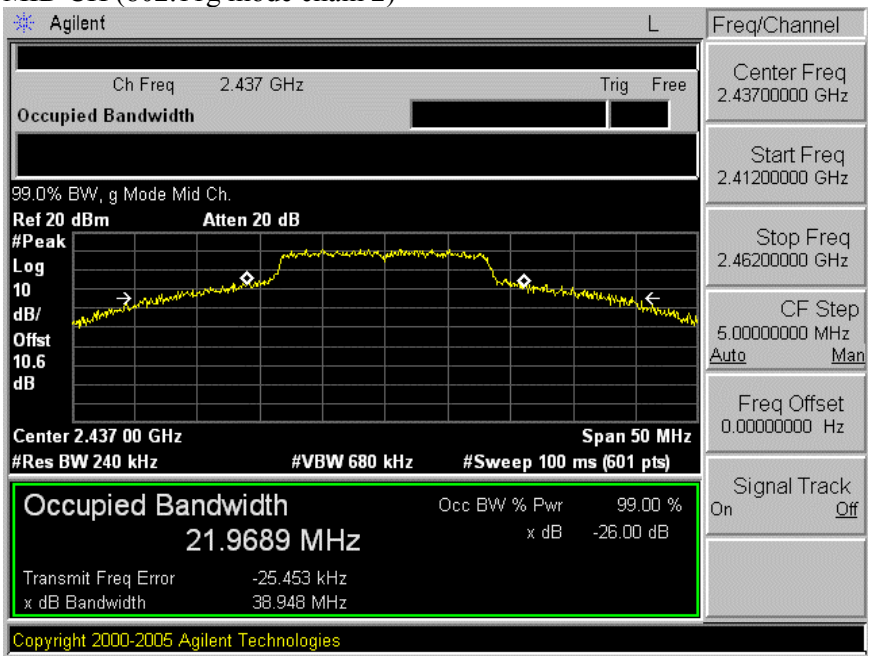
MID CH (802.11g mode chain 2)



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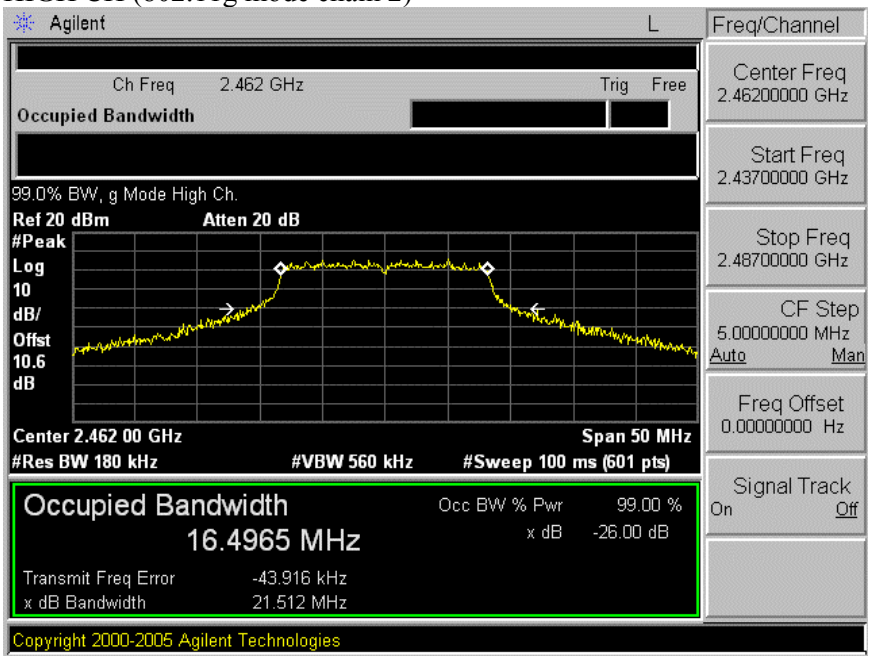
HIGH CH (802.11g mode chain 2)



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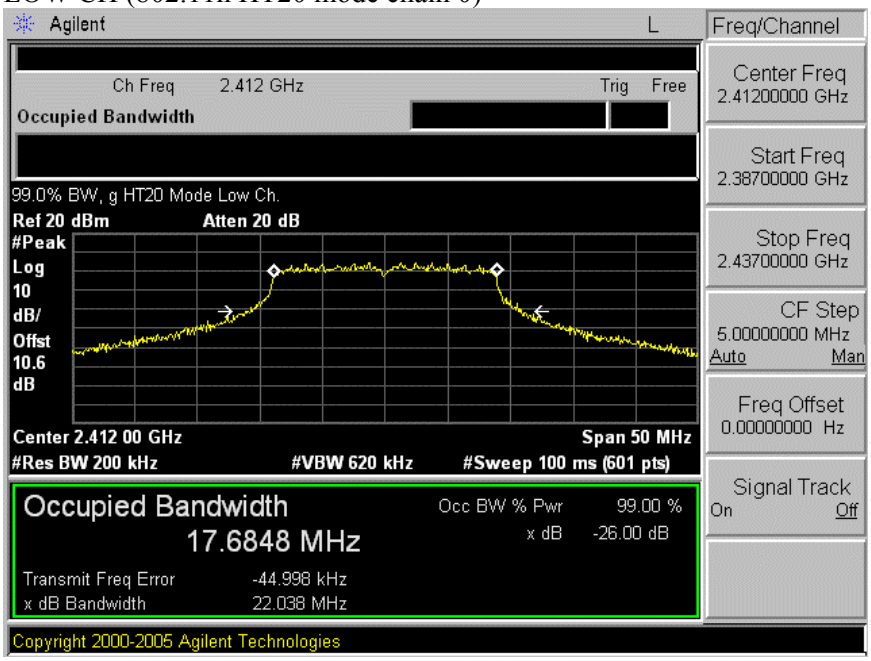
(802.11n HT20 MODE CHAIN 0)

LOW CH (802.11n HT20 mode chain 0)



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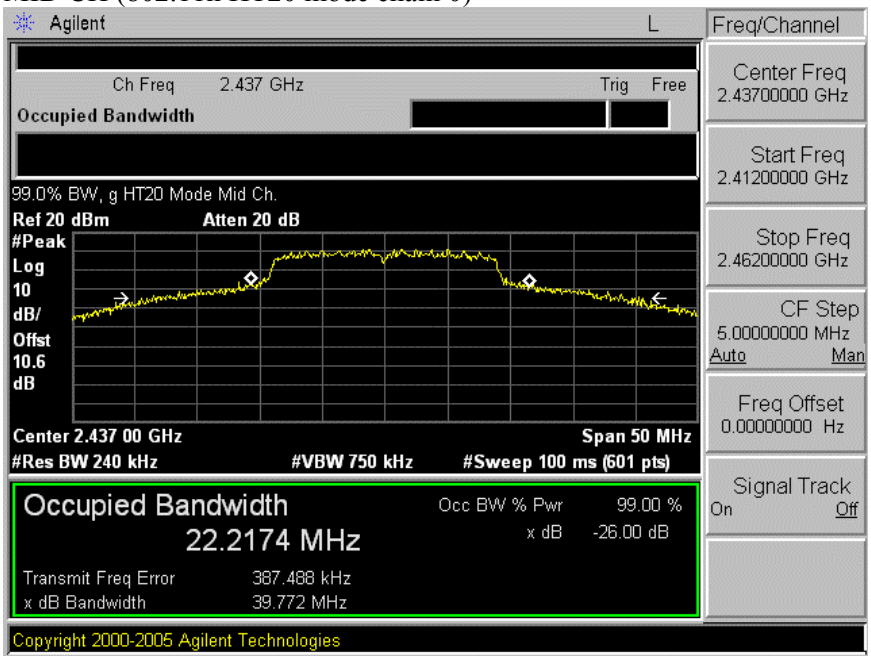

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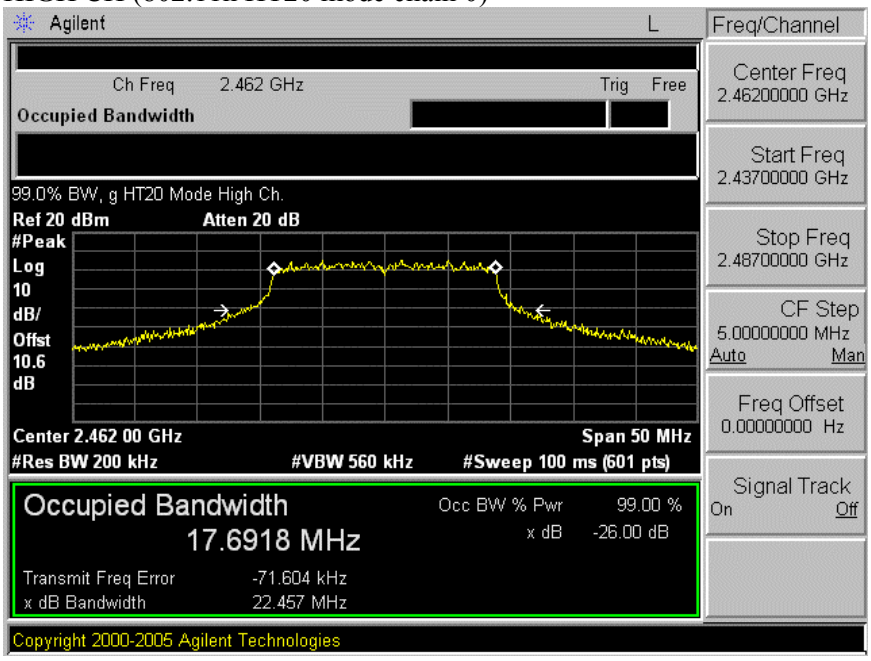
HIGH CH (802.11n HT20 mode chain 0)



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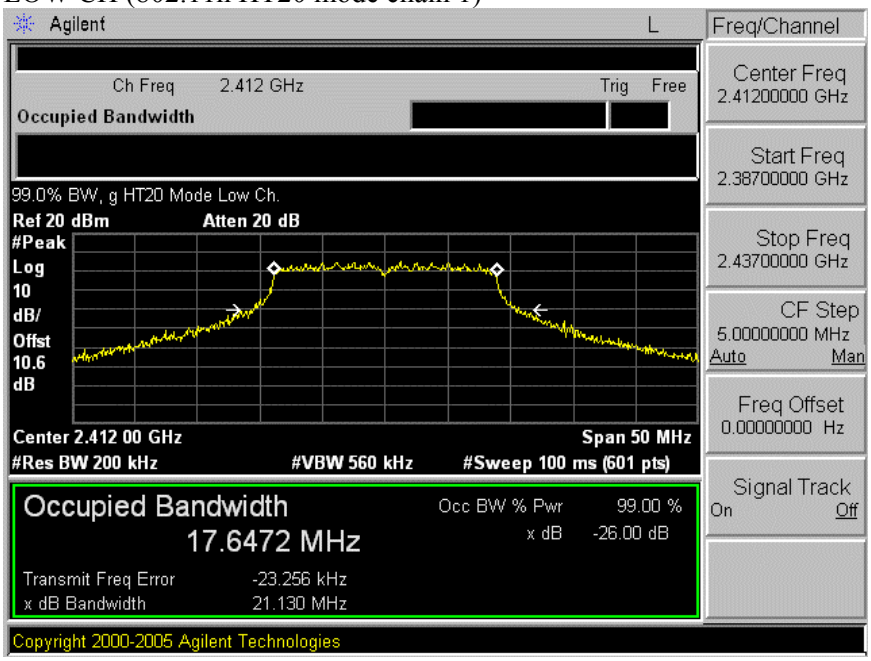
(802.11n HT20 MODE CHAIN 1)

LOW CH (802.11n HT20 mode chain 1)



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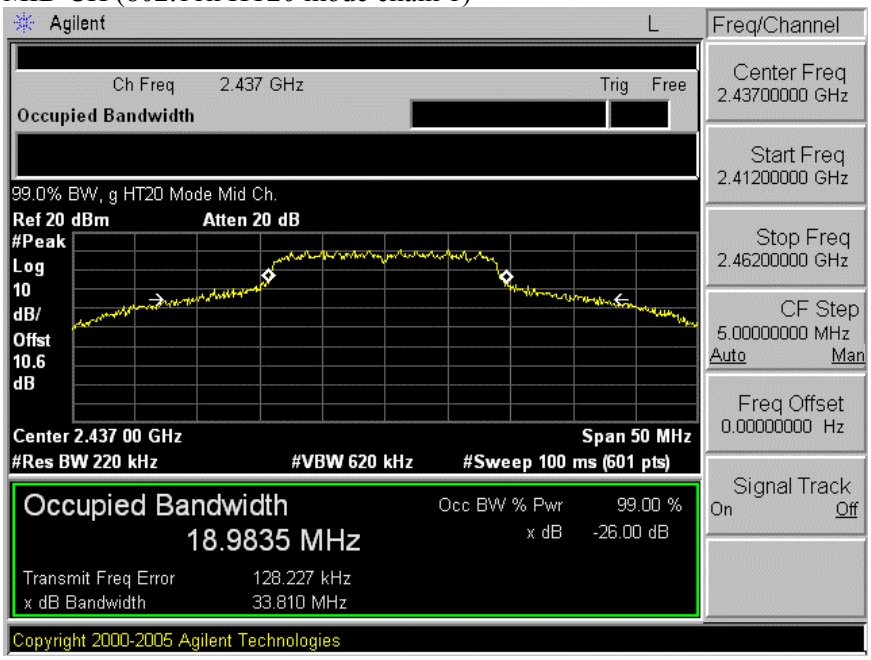
MID CH (802.11n HT20 mode chain 1)



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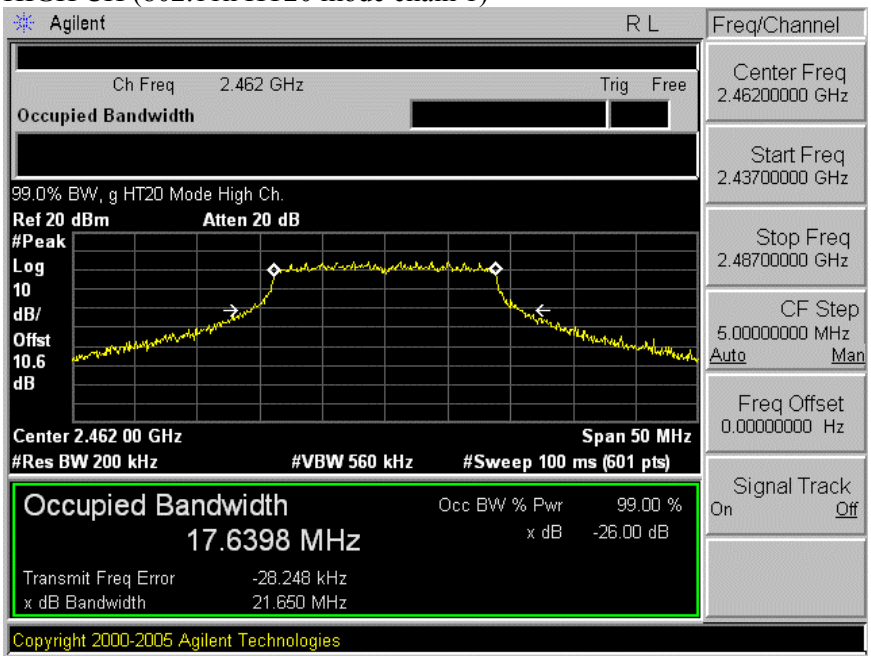
HIGH CH (802.11n HT20 mode chain 1)



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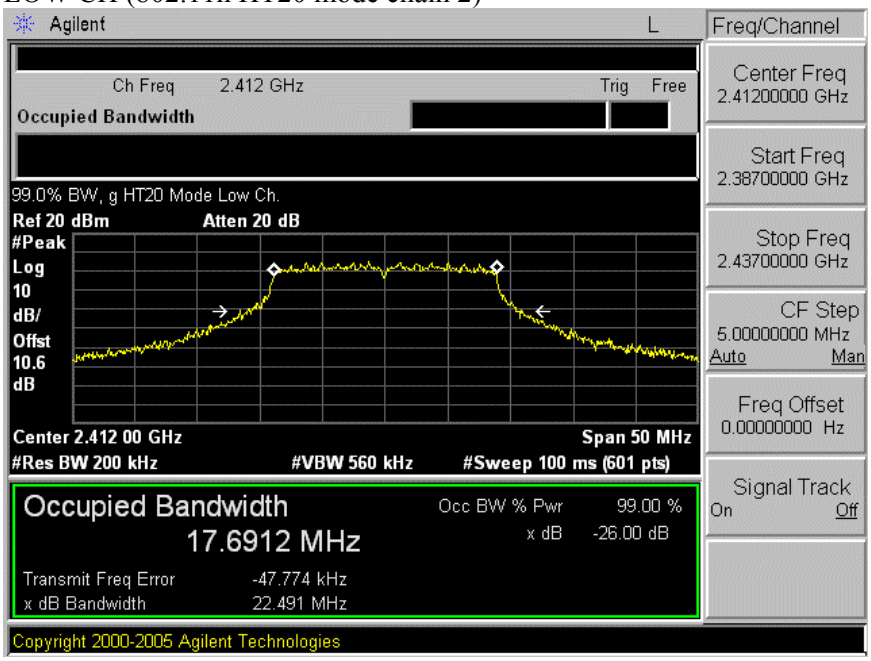
(802.11n HT20 MODE CHAIN 2)

LOW CH (802.11n HT20 mode chain 2)



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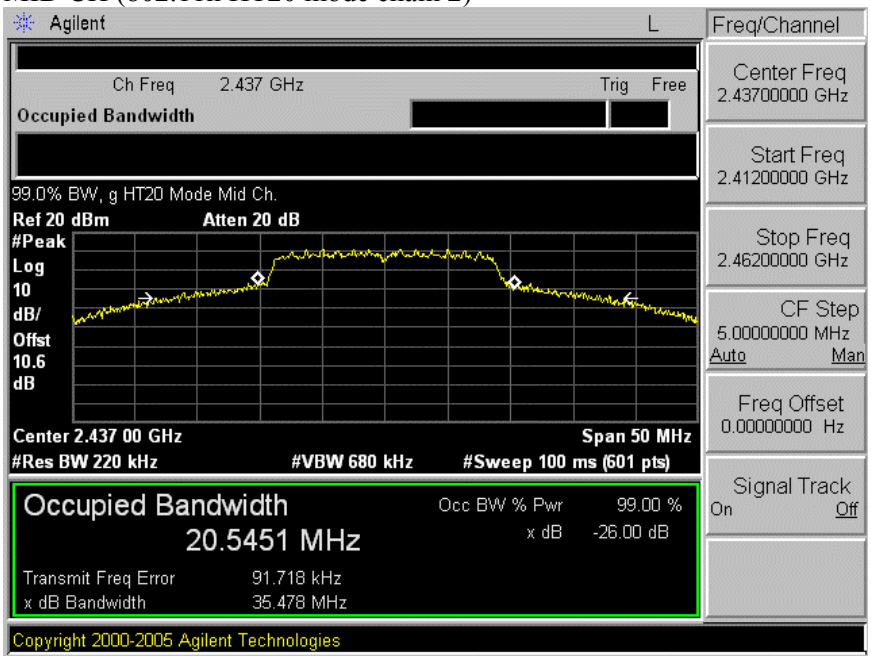
MID CH (802.11n HT20 mode chain 2)



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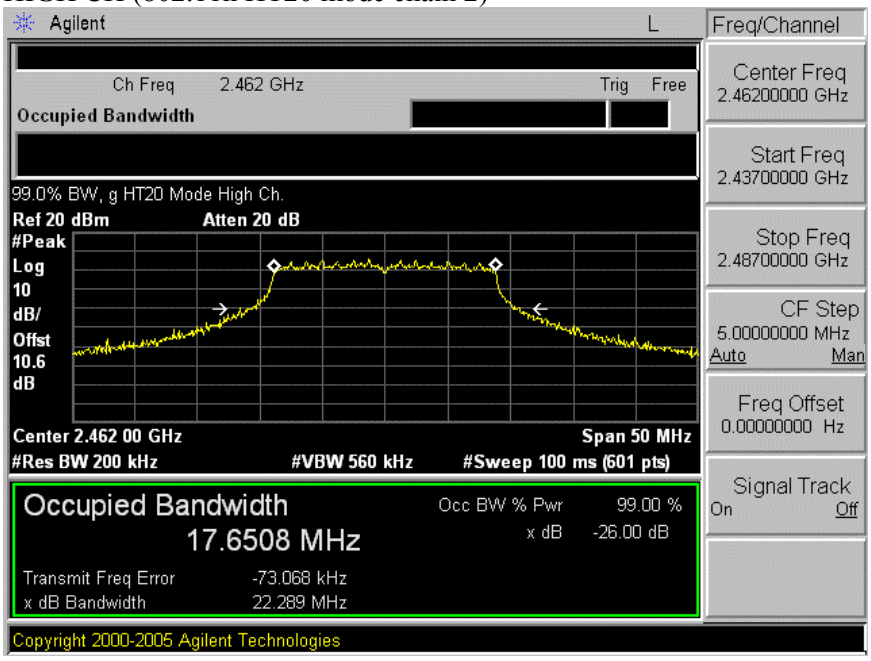

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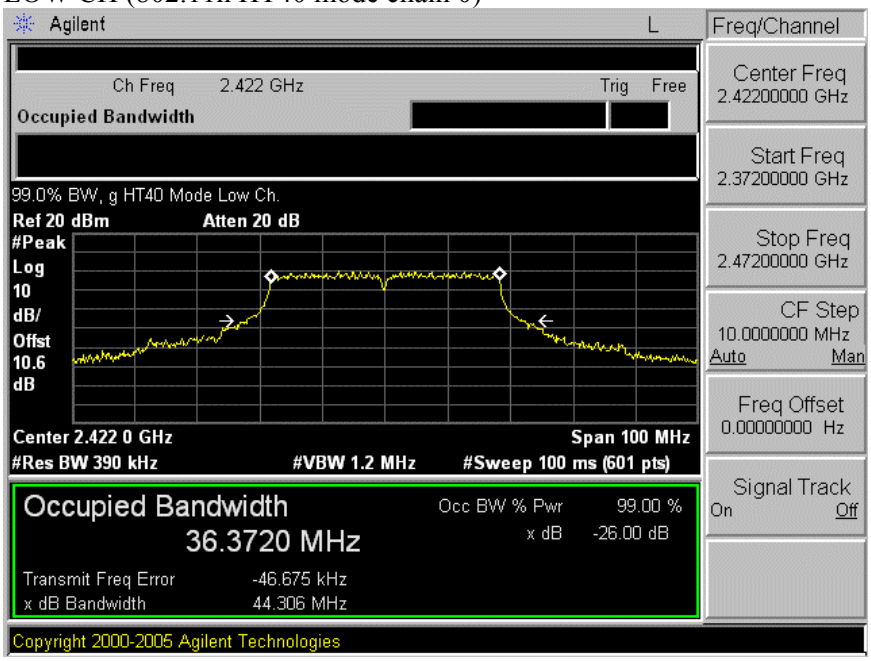
(802.11n HT40 MODE CHAIN 0)

LOW CH (802.11n HT40 mode chain 0)



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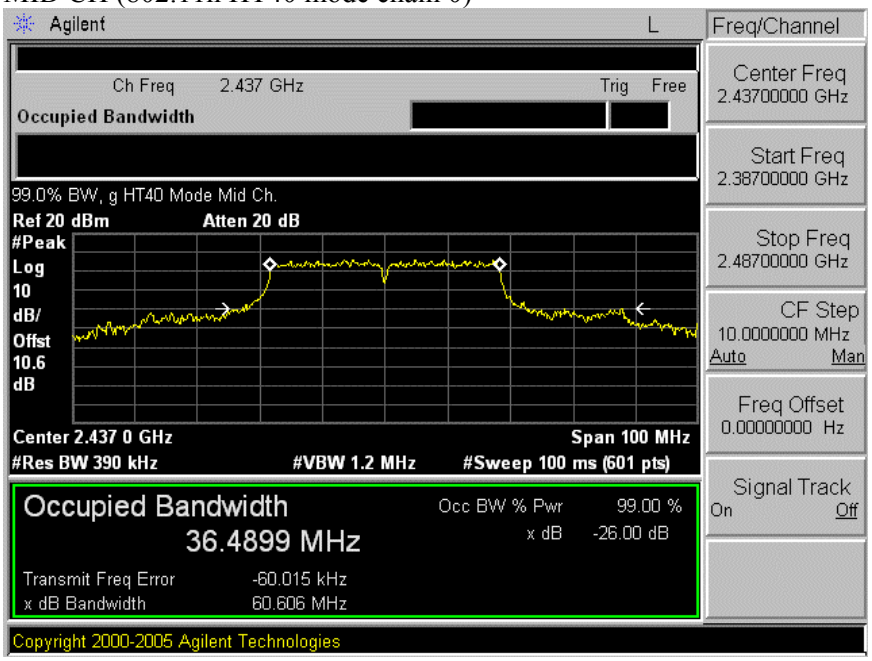
MID CH (802.11n HT40 mode chain 0)



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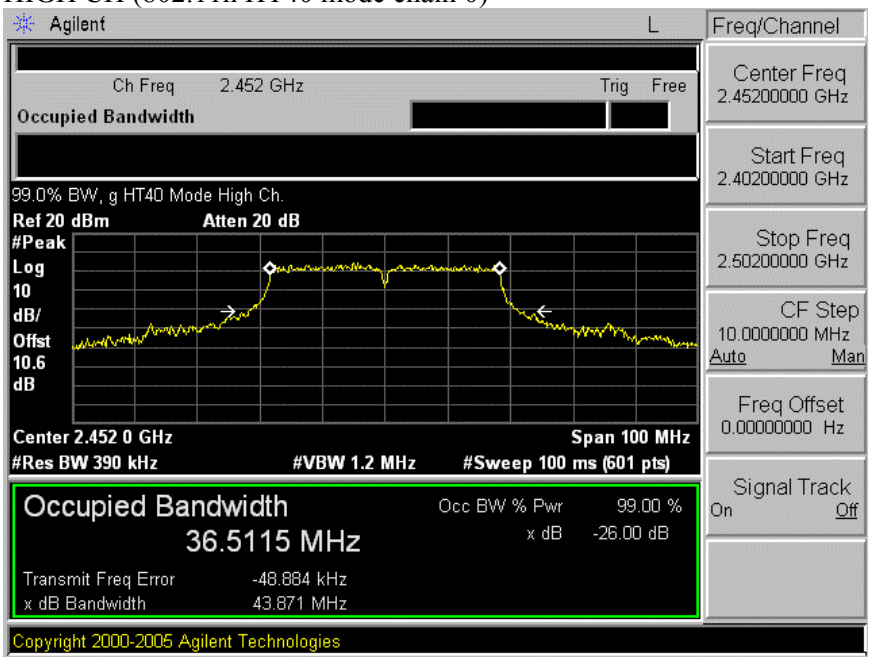
HIGH CH (802.11n HT40 mode chain 0)



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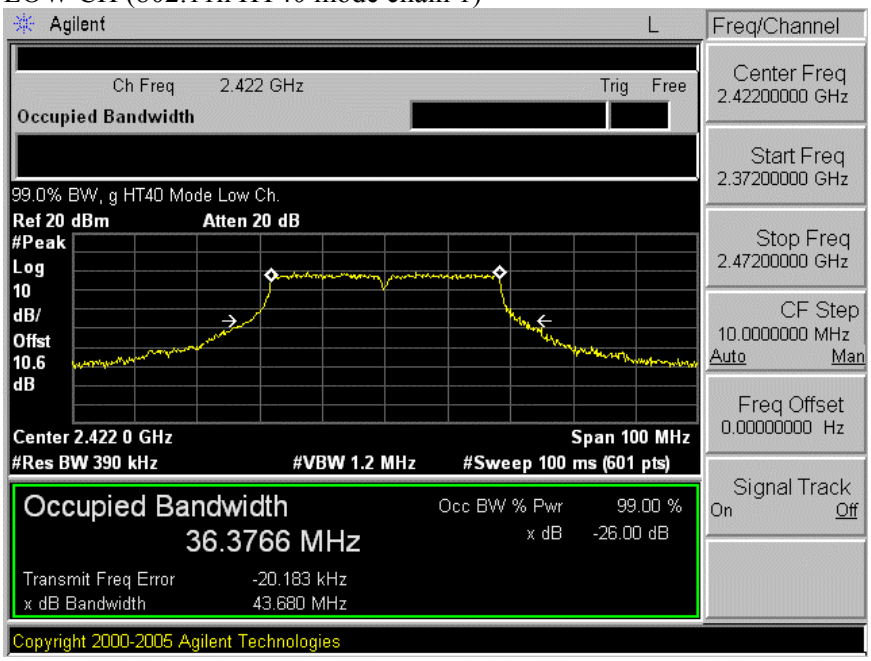
(802.11n HT40 MODE CHAIN 1)

LOW CH (802.11n HT40 mode chain 1)



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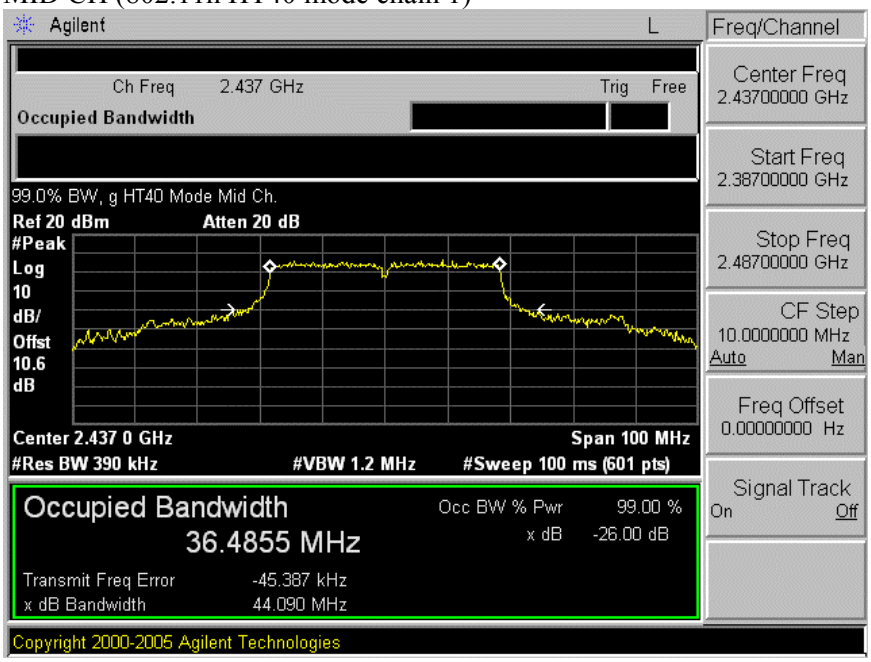
MID CH (802.11n HT40 mode chain 1)



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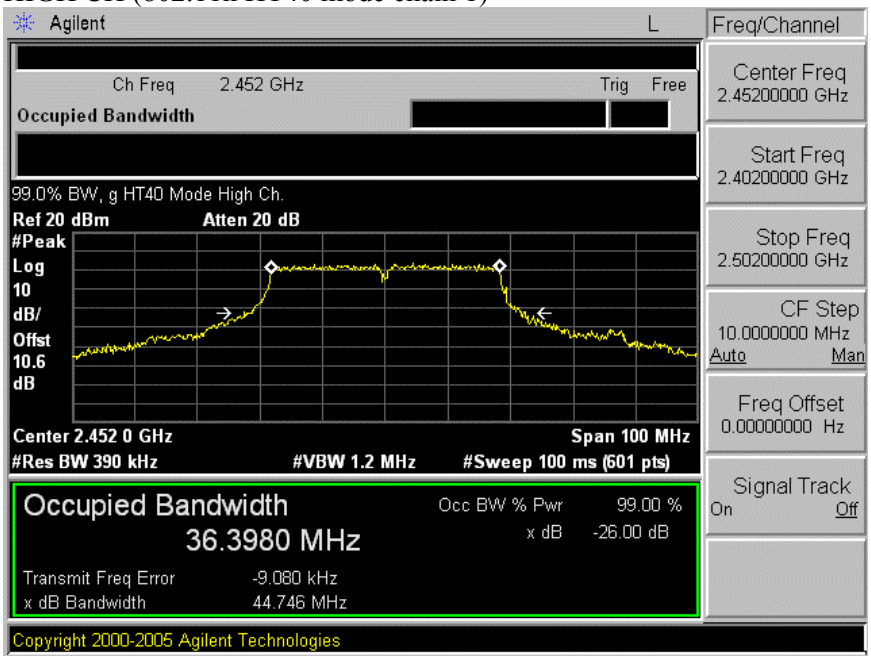
HIGH CH (802.11n HT40 mode chain 1)



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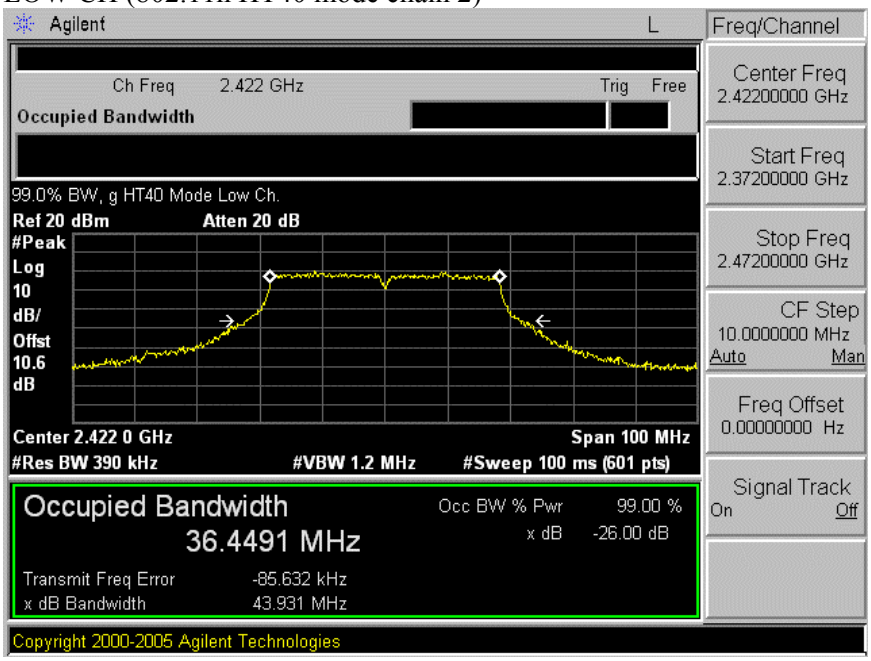
(802.11n HT40 MODE CHAIN 2)

LOW CH (802.11n HT40 mode chain 2)



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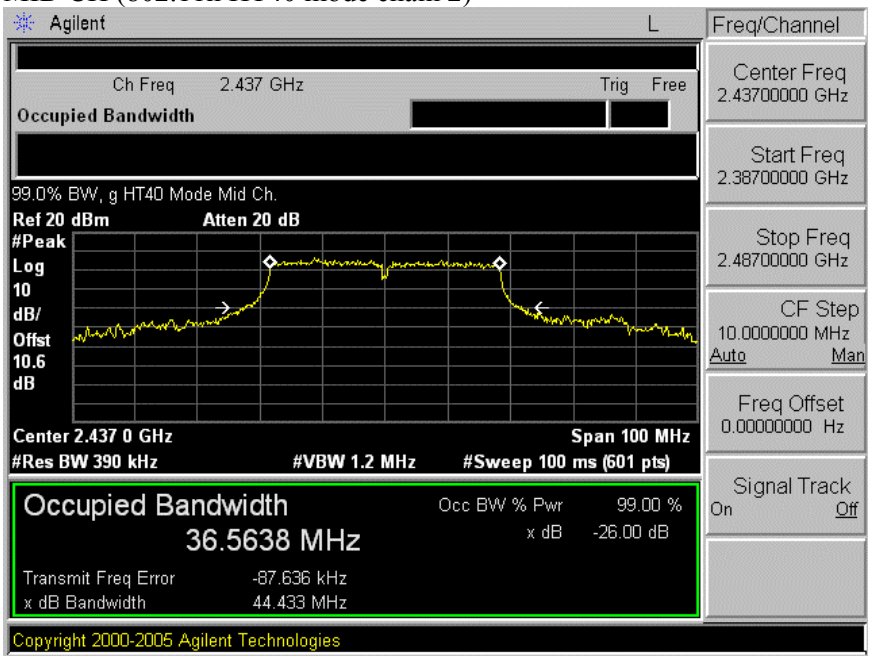
MID CH (802.11n HT40 mode chain 2)



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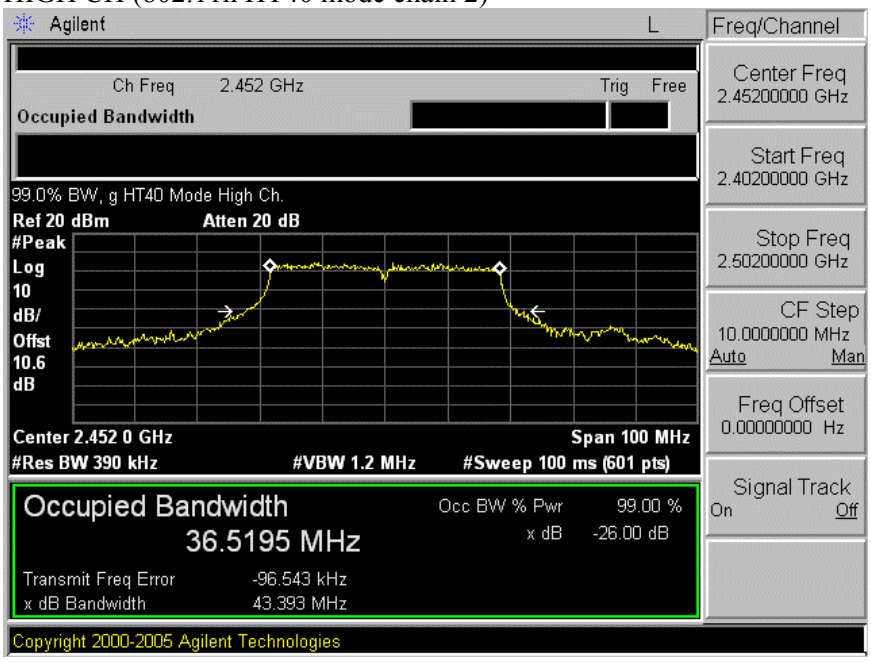
HIGH CH (802.11n HT40 mode chain 2)



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7.1.3. PEAK OUTPUT POWER

LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt.

§15.247 (b) (4) (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 peak 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.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.

Each chain is measured separately and the total power is calculated using:

Total Power = 10 log (10^ (Chain 0 Power / 10) + 10^ (Chain 1 Power / 10) + 10^ (Chain 2 Power / 10))

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RESULTS

No non-compliance noted:

Antenna Gain (dBi)	2
10 Log (# Tx Chains)	4.77
Effective Legacy Gain	6.77

Mode Channel	Frequency (MHz)	Max Power Chain 0 (dBm)	Max Power Chain 1 (dBm)	Max Power Chain 2 (dBm)	Max Power Total (dBm)	Limit (dBm)	Margin (dB)
802.11b Mode							
Low	2412	18.88	18.69	18.59	23.49	29.23	-5.74
Middle	2437	22.87	22.68	23.27	27.72	29.23	-1.51
High	2462	18.48	18.93	19.00	23.58	29.23	-5.65
802.11g Mode							
Low	2412	19.59	19.93	19.87	24.57	29.23	-4.66
Middle	2437	23.57	23.26	23.71	28.29	29.23	-0.94
High	2462	18.56	18.19	19.11	23.41	29.23	-5.82
802.11n HT20 Mode							
Low	2412	17.55	17.63	17.58	22.36	30.00	-7.64
Middle	2437	23.28	23.09	23.45	28.05	30.00	-1.95
High	2462	17.95	17.22	18.22	22.59	30.00	-7.41
802.11n HT40 Mode							
Low	2422	12.22	12.22	11.96	16.91	30.00	-13.09
Middle	2437	18.24	18.49	18.31	23.12	30.00	-6.88
High	2452	16.24	16.03	16.67	21.09	30.00	-8.91

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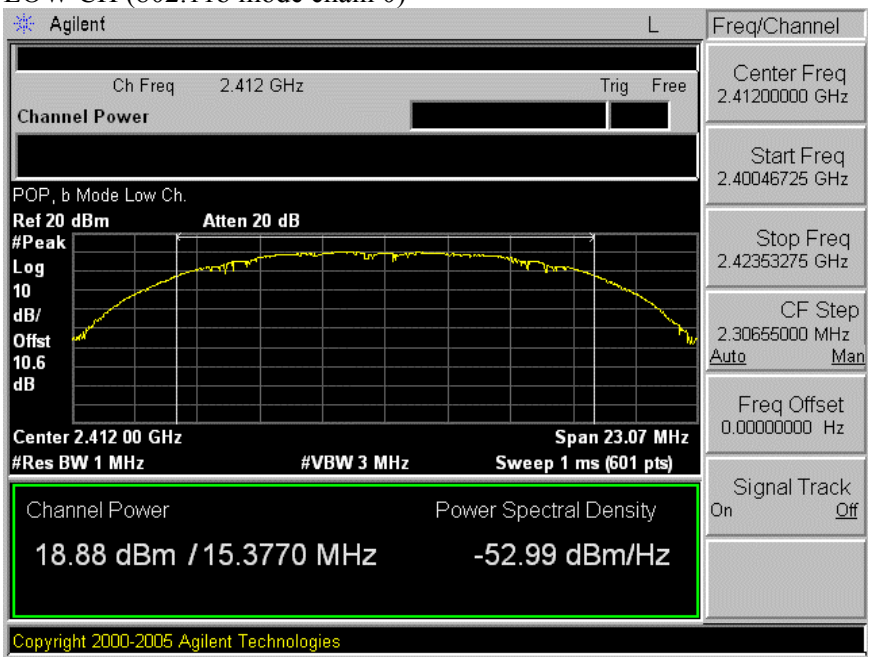
(802.11b MODE CHAIN 0)

LOW CH (802.11b mode chain 0)



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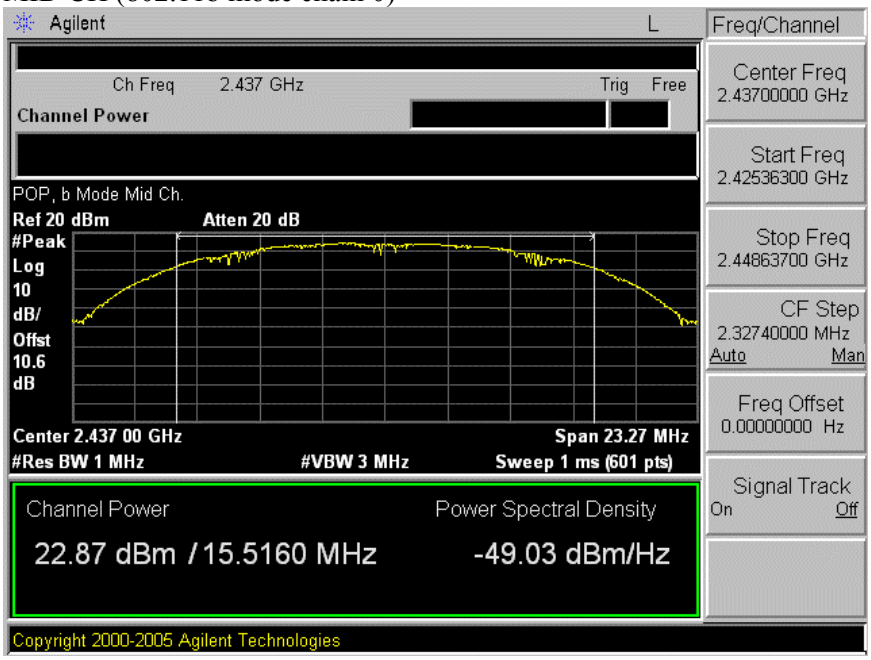
MID CH (802.11b mode chain 0)



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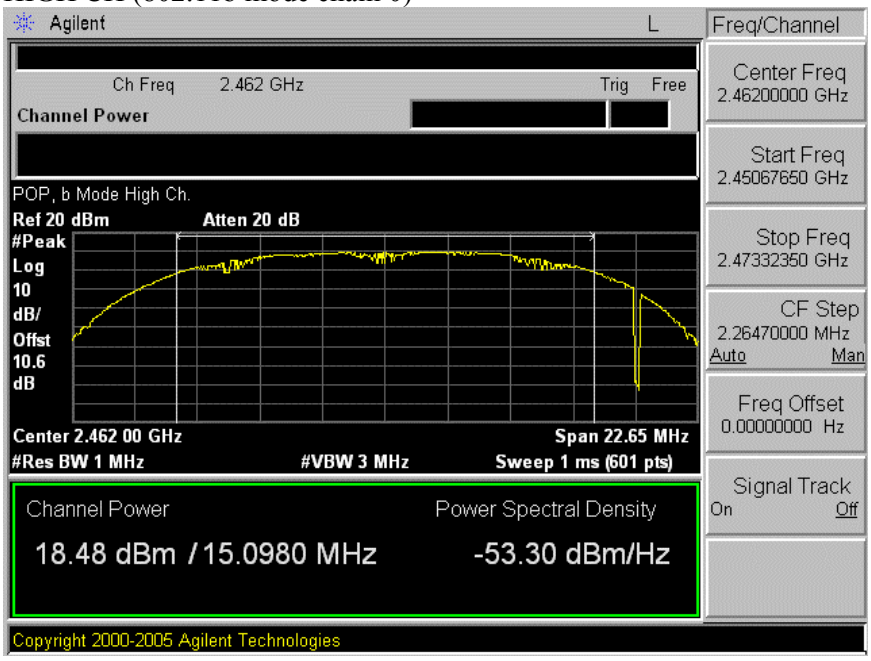
HIGH CH (802.11b mode chain 0)



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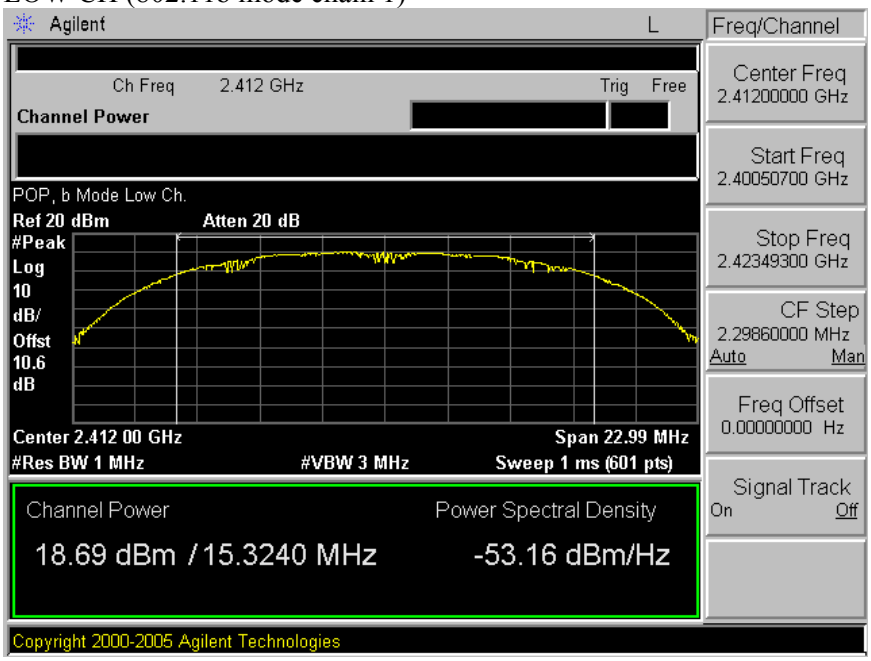
(802.11b MODE CHAIN 1)

LOW CH (802.11b mode chain 1)



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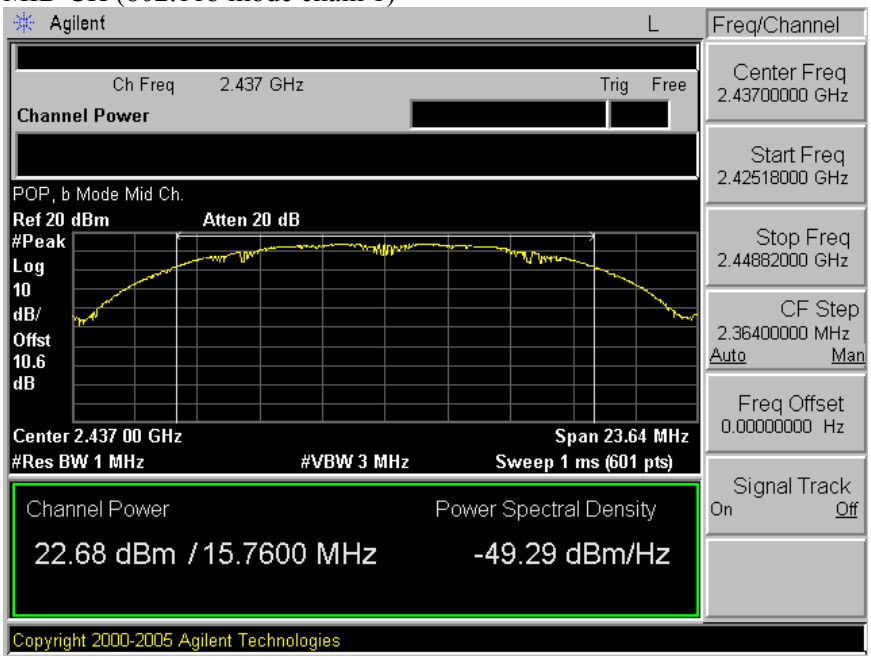
MID CH (802.11b mode chain 1)



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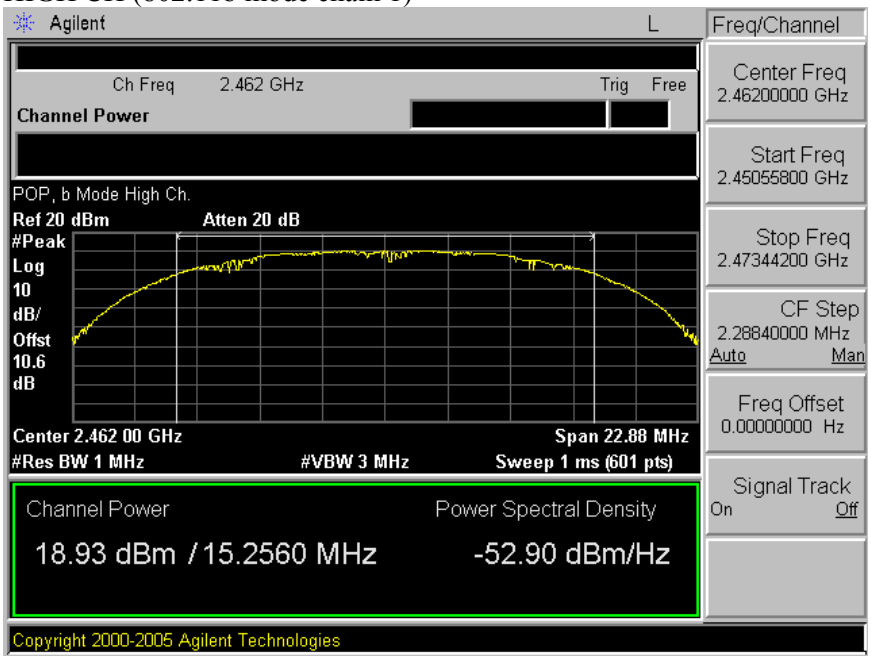
HIGH CH (802.11b mode chain 1)



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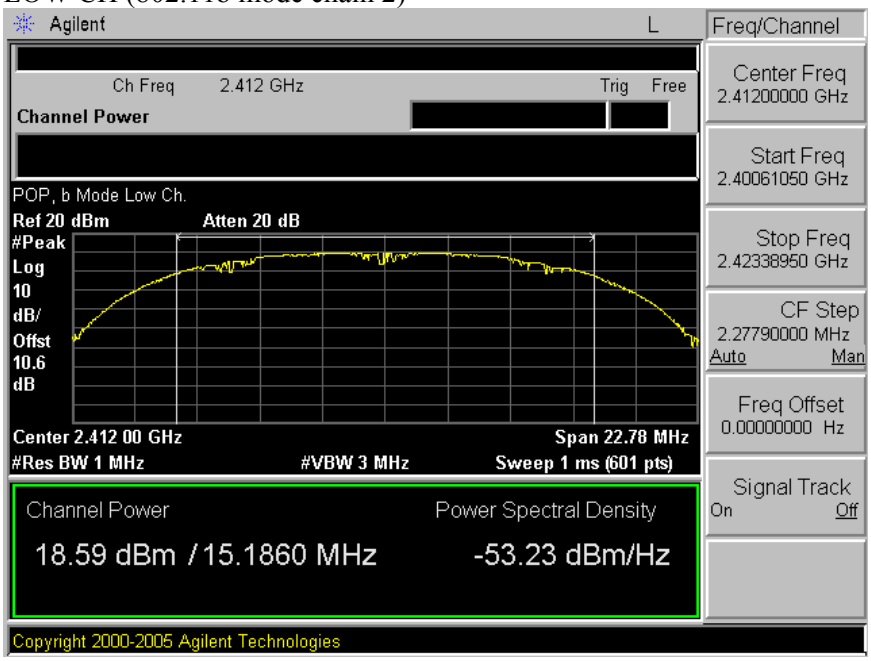
(802.11b MODE CHAIN 2)

LOW CH (802.11b mode chain 2)



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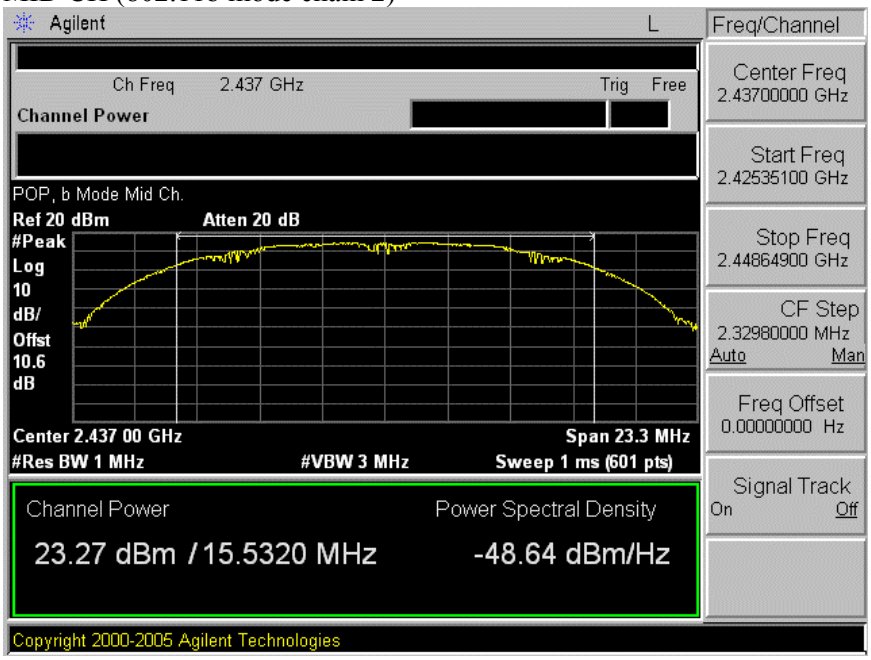
MID CH (802.11b mode chain 2)



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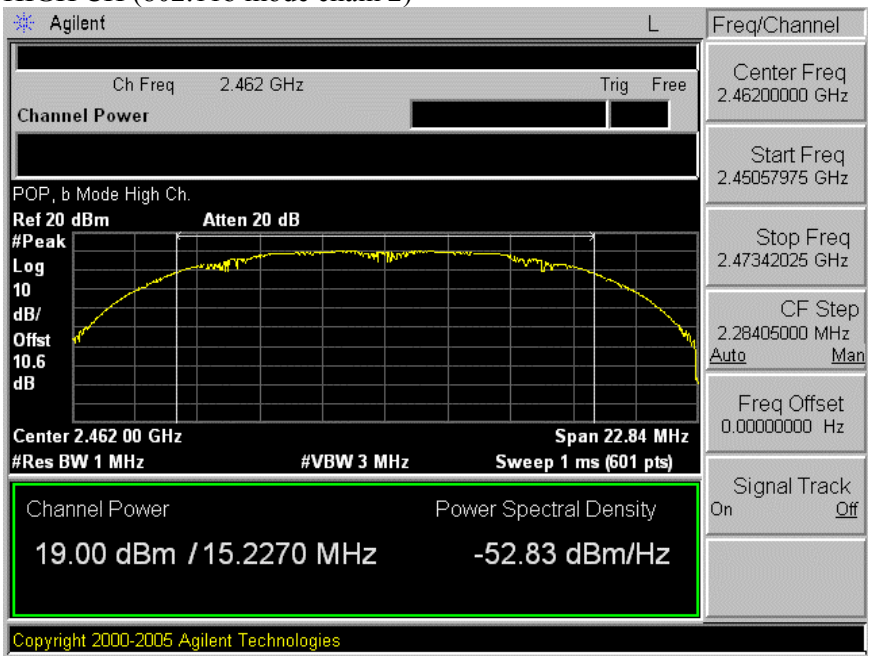
HIGH CH (802.11b mode chain 2)



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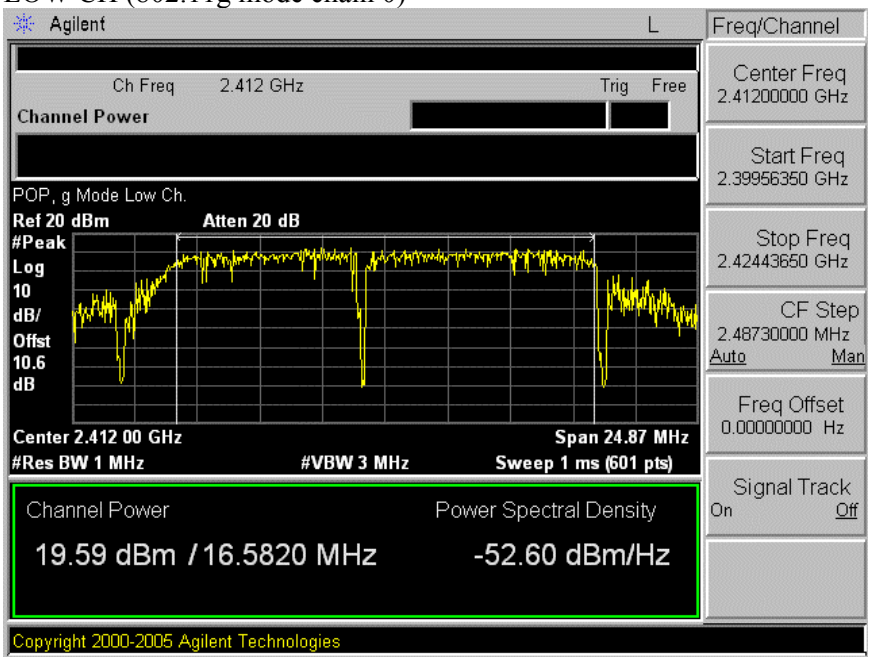
(802.11g MODE CHAIN 0)

LOW CH (802.11g mode chain 0)



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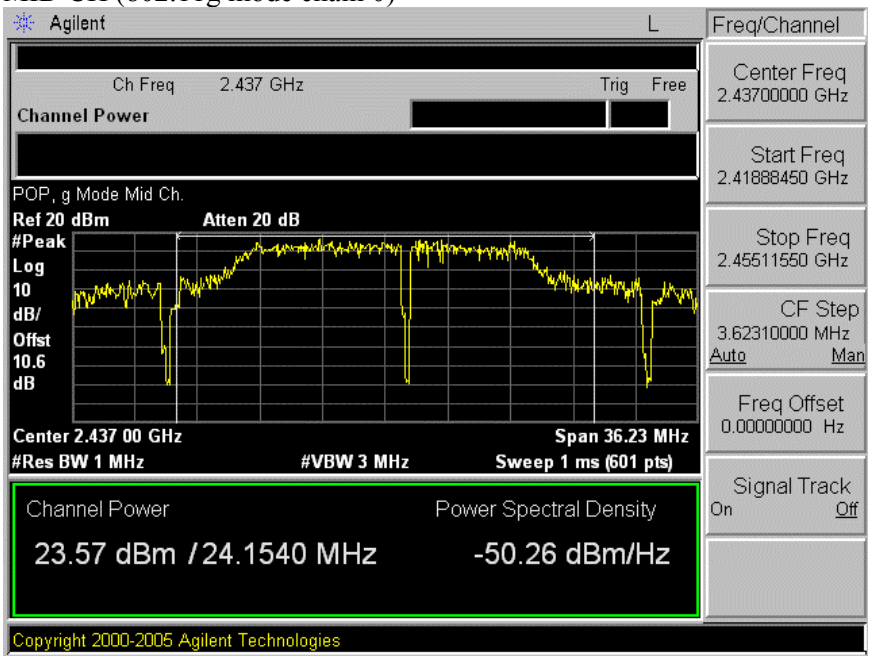
MID CH (802.11g mode chain 0)



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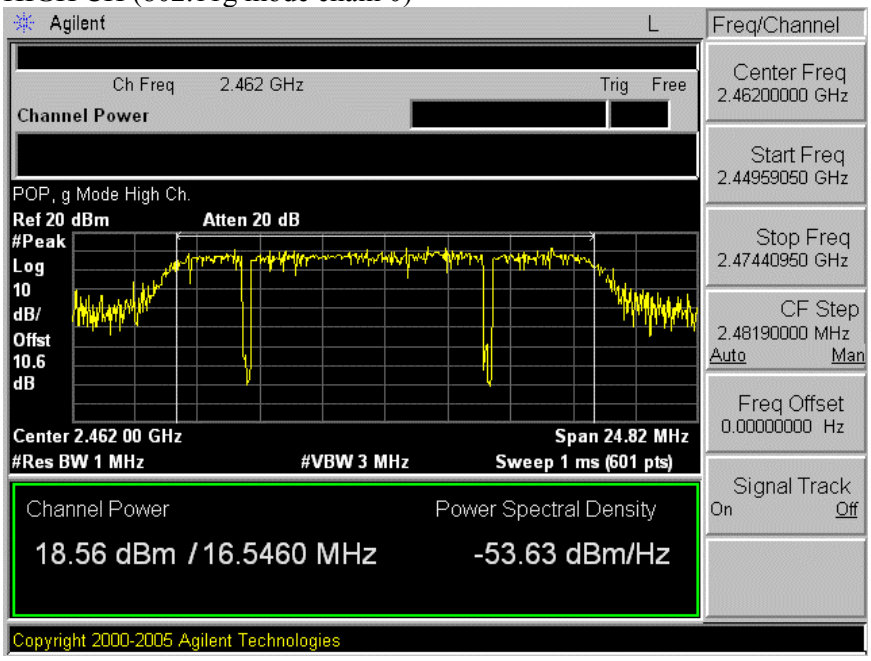
HIGH CH (802.11g mode chain 0)



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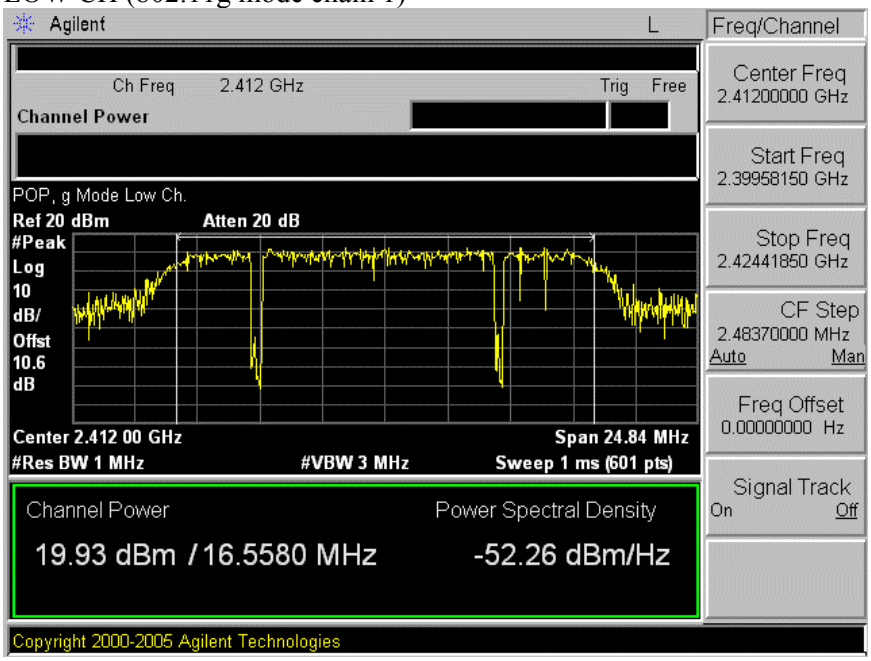
(802.11g MODE CHAIN 1)

LOW CH (802.11g mode chain 1)



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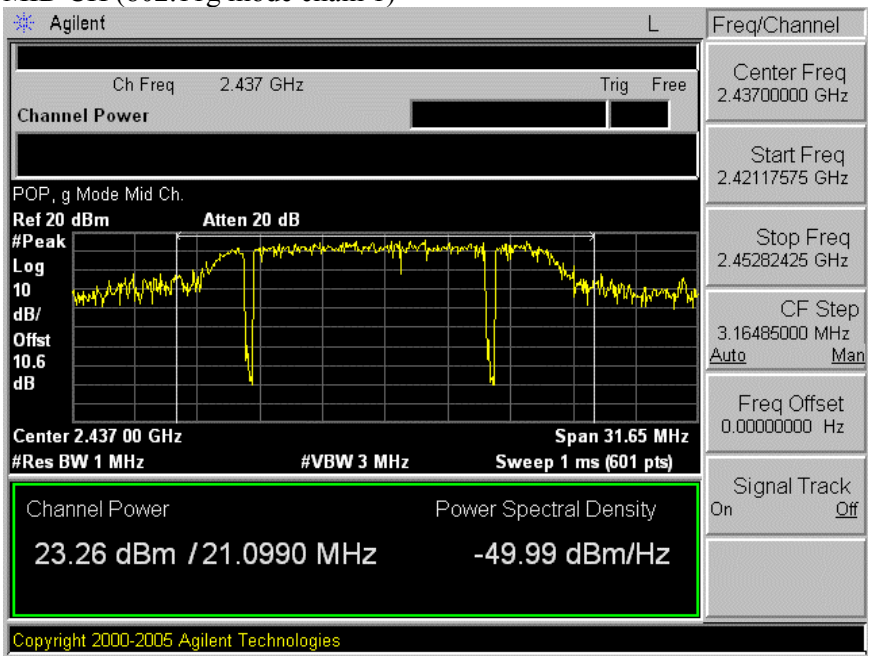
MID CH (802.11g mode chain 1)



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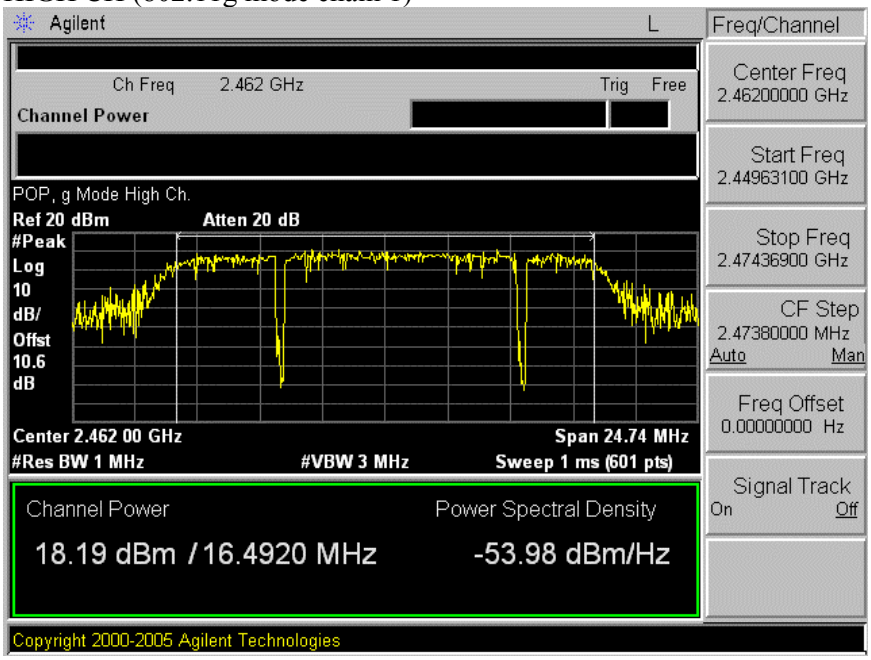
HIGH CH (802.11g mode chain 1)



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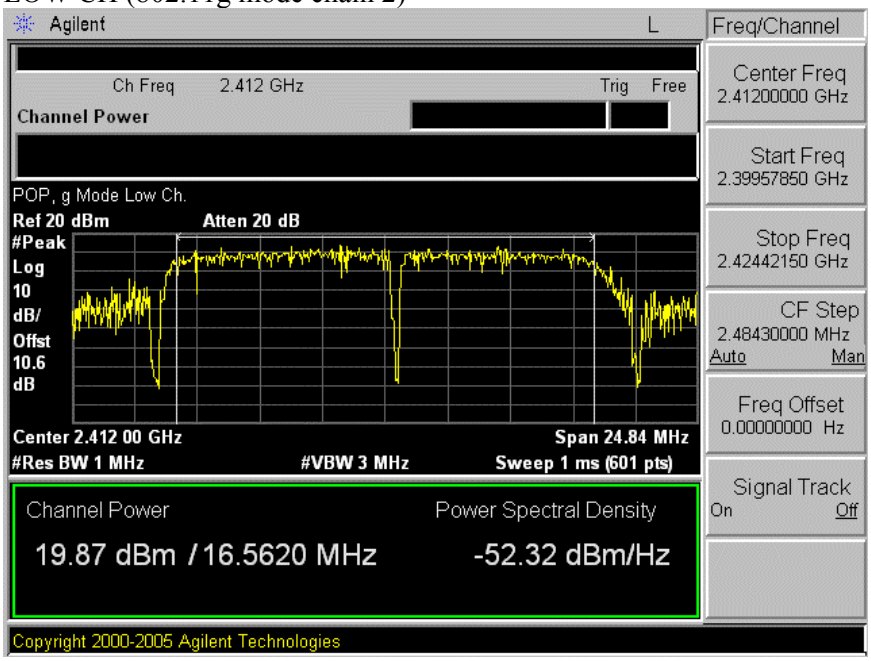
(802.11g MODE CHAIN 2)

LOW CH (802.11g mode chain 2)



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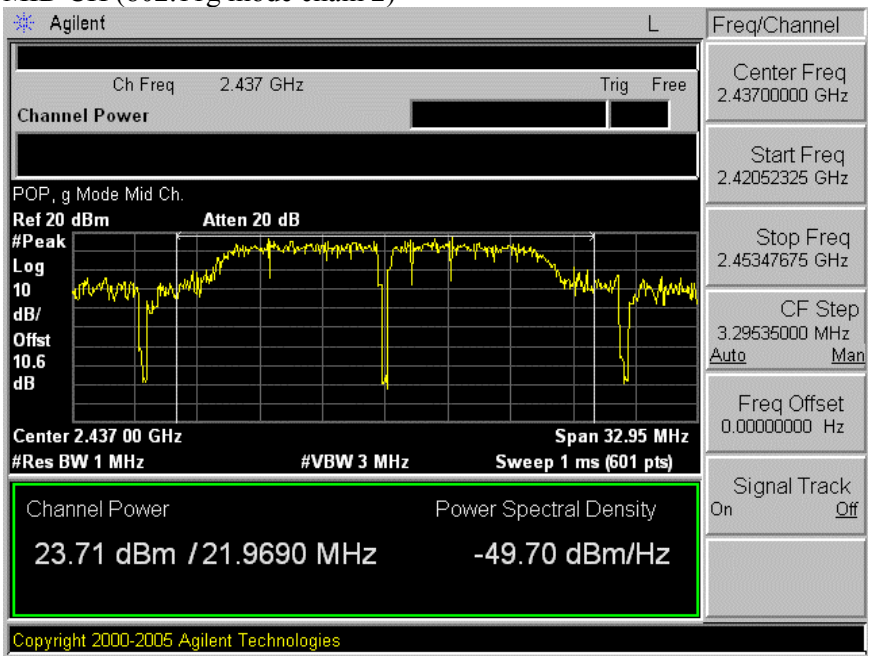
MID CH (802.11g mode chain 2)



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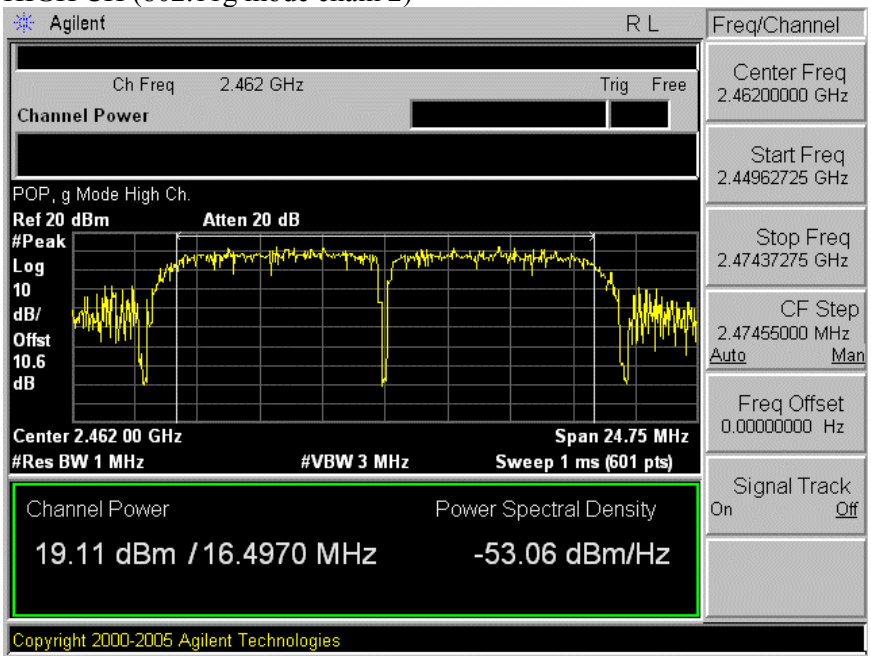
HIGH CH (802.11g mode chain 2)



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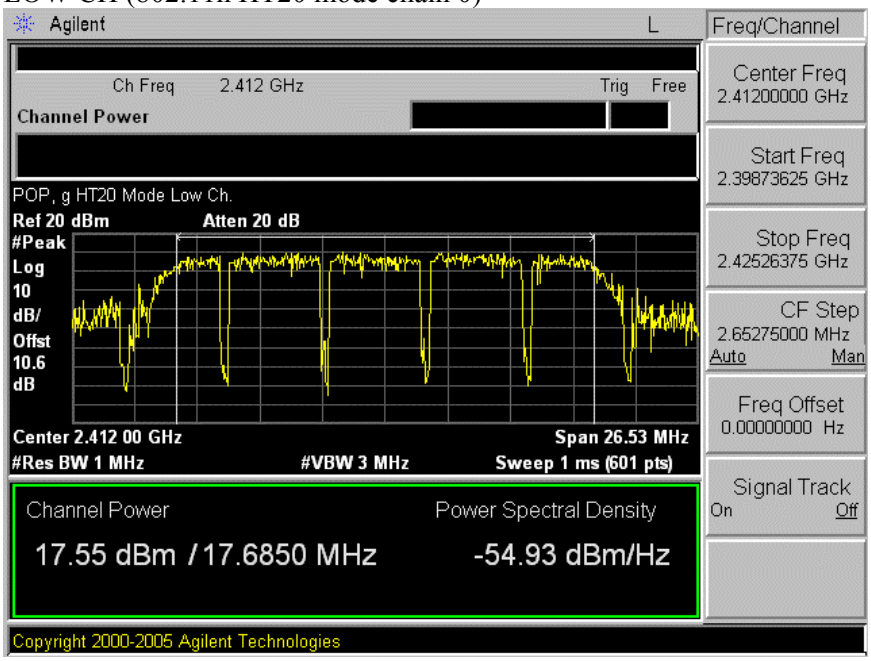
(802.11n HT20 MODE CHAIN 0)

LOW CH (802.11n HT20 mode chain 0)



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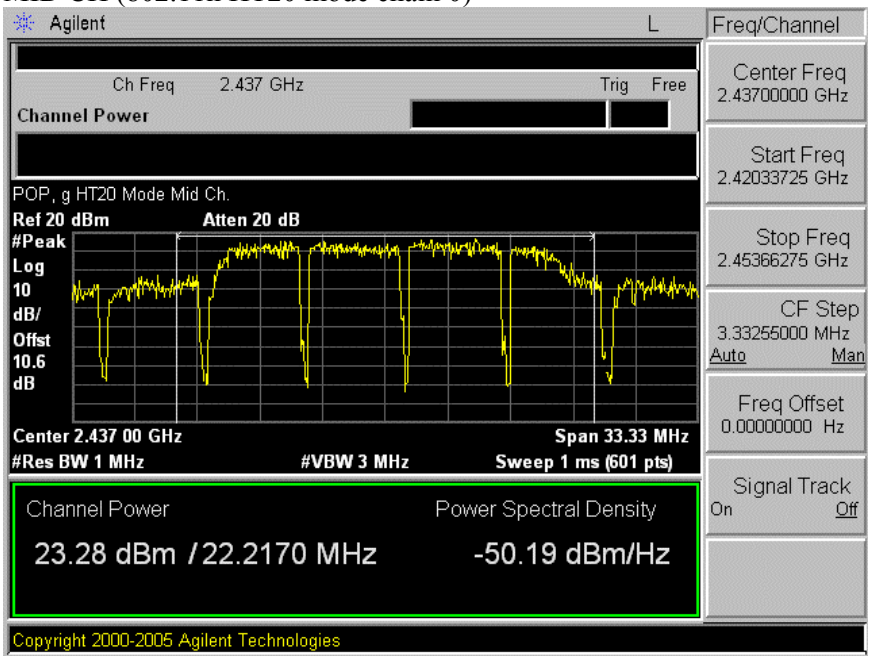
MID CH (802.11n HT20 mode chain 0)



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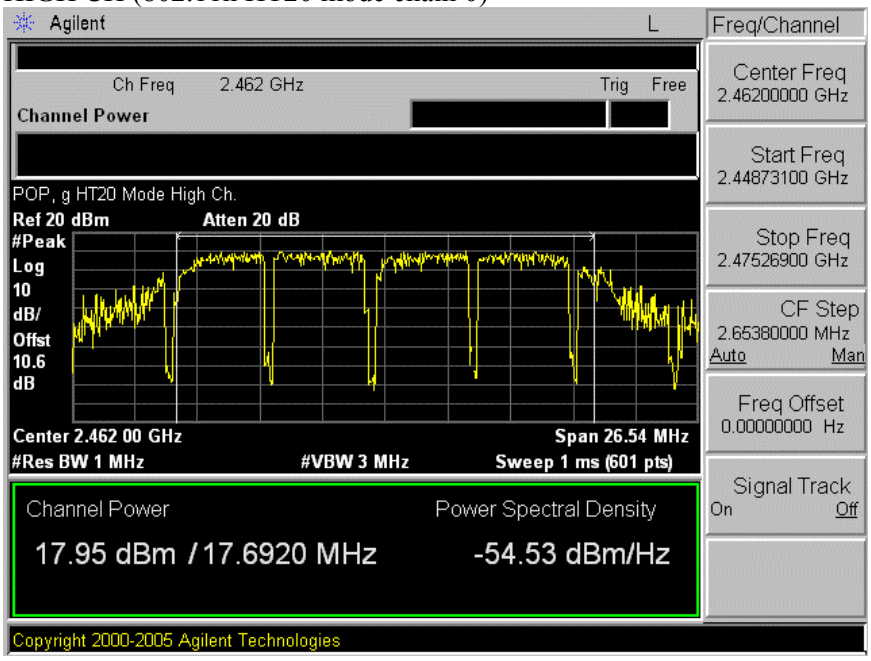
HIGH CH (802.11n HT20 mode chain 0)



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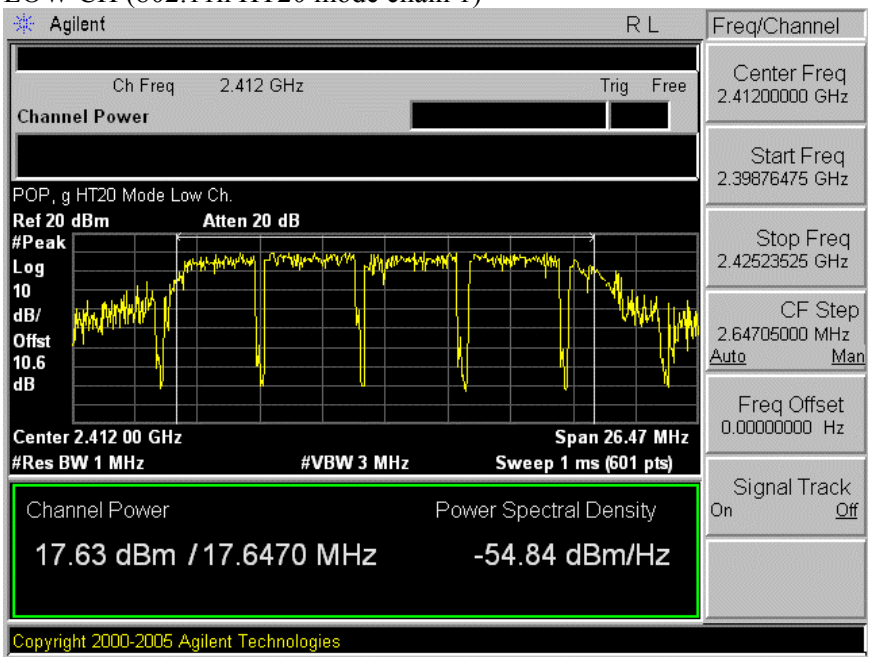
(802.11n HT20 MODE CHAIN 1)

LOW CH (802.11n HT20 mode chain 1)



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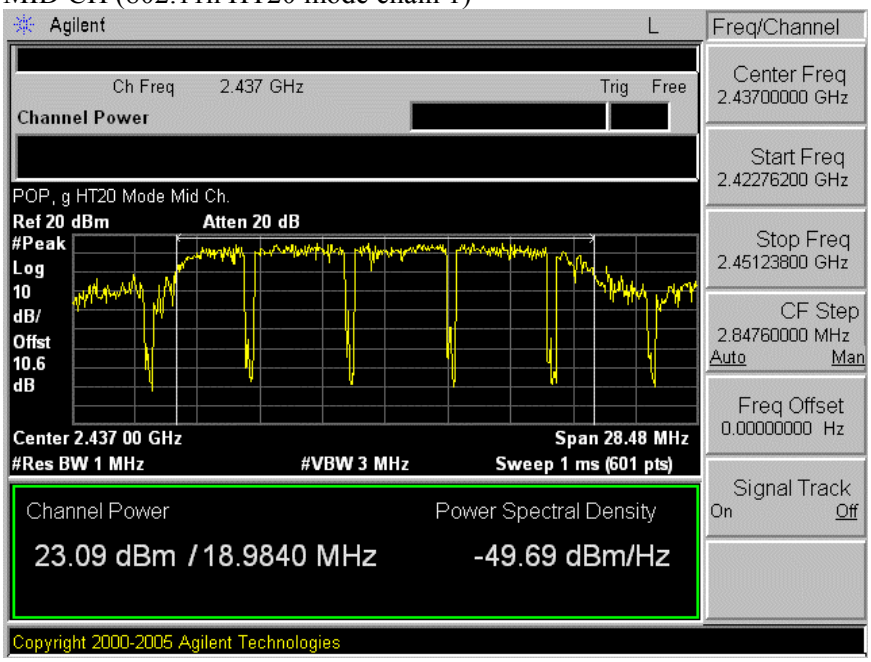
MID CH (802.11n HT20 mode chain 1)



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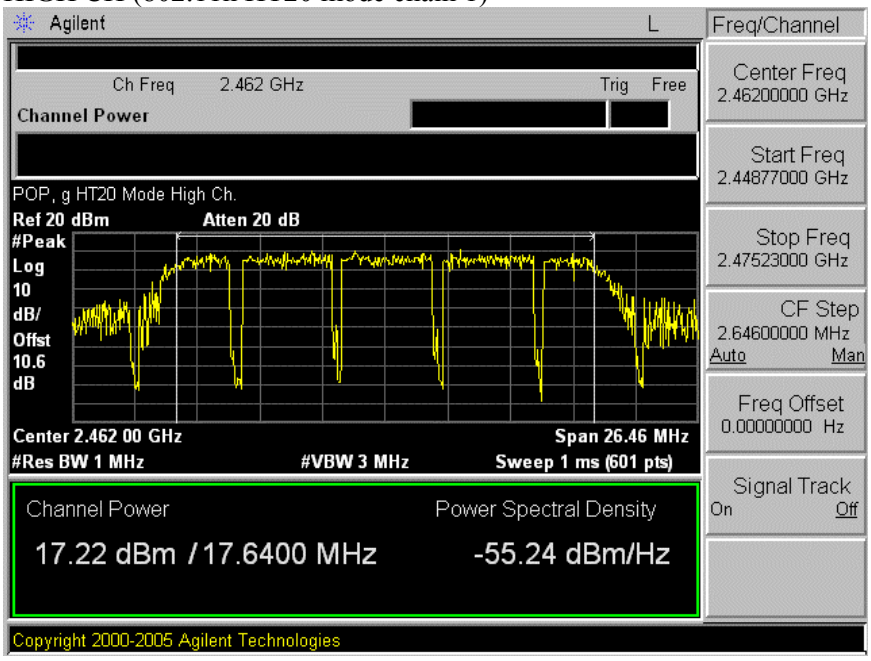
HIGH CH (802.11n HT20 mode chain 1)



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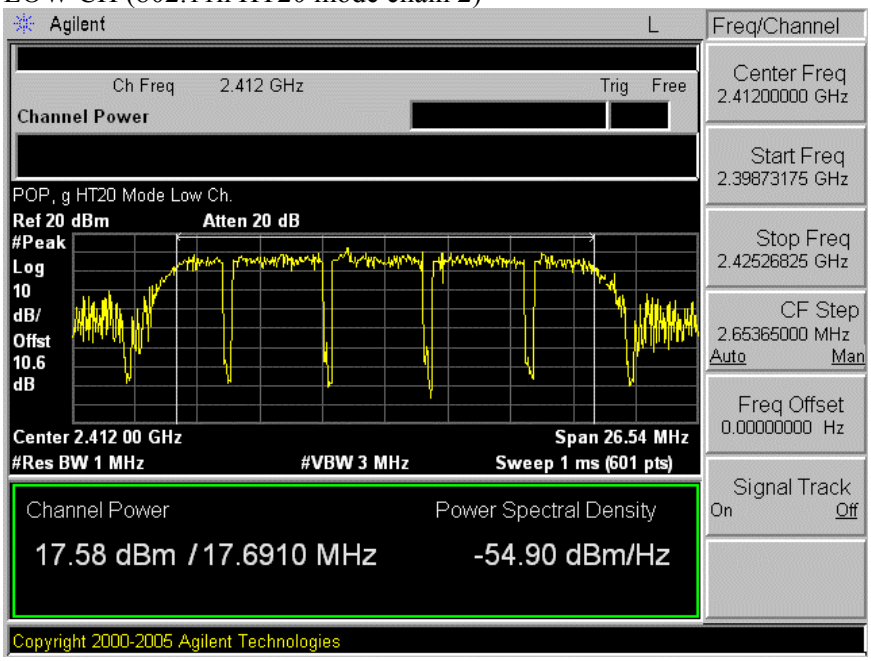
(802.11n HT20 MODE CHAIN 2)

LOW CH (802.11n HT20 mode chain 2)



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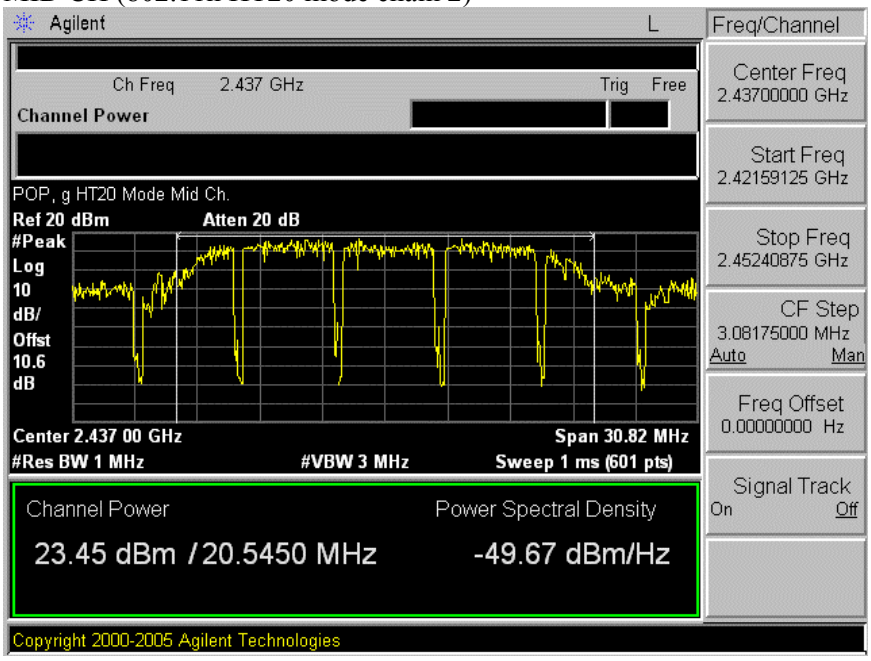

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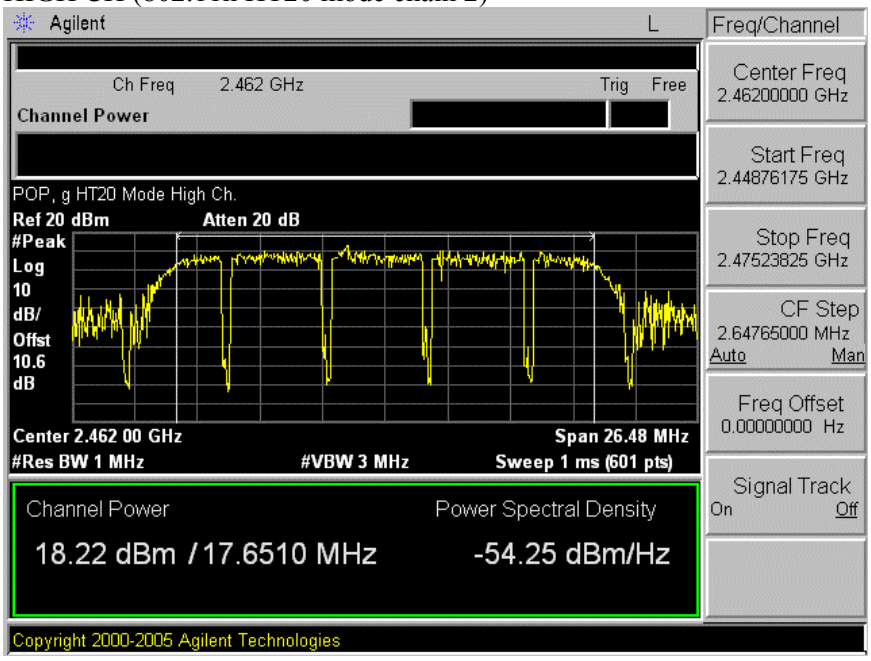
HIGH CH (802.11n HT20 mode chain 2)



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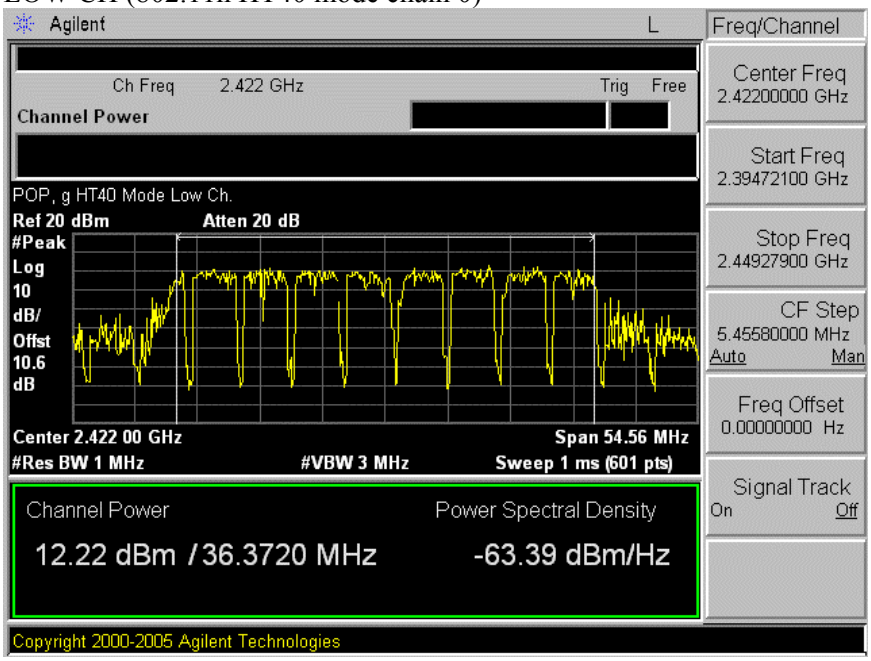
(802.11n HT40 MODE CHAIN 0)

LOW CH (802.11n HT40 mode chain 0)



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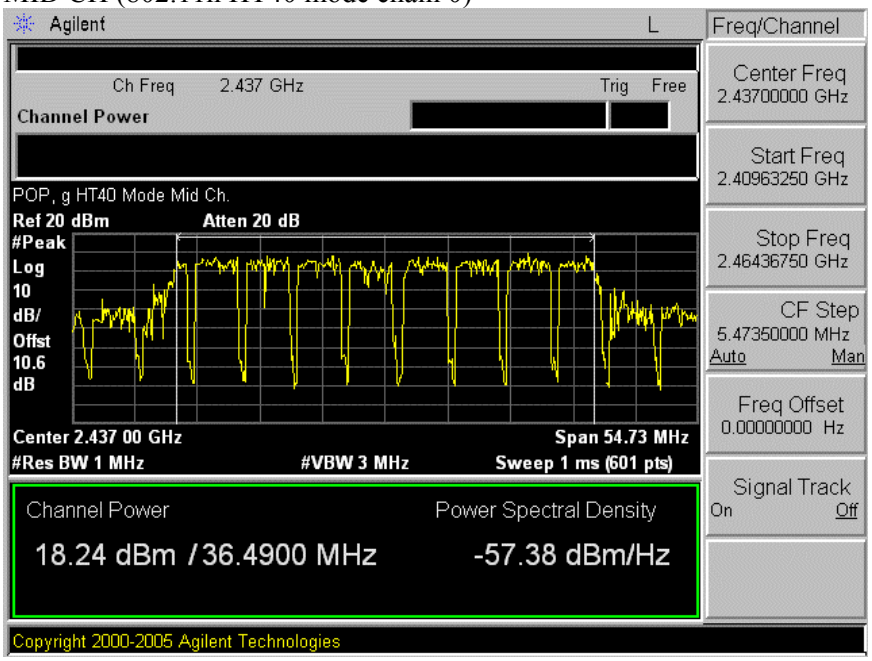
MID CH (802.11n HT40 mode chain 0)



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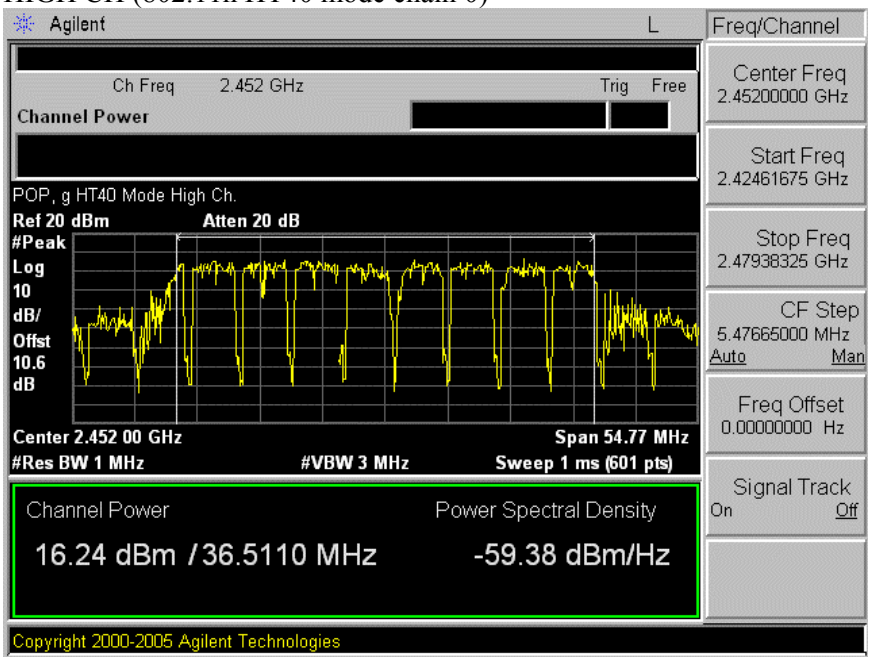
HIGH CH (802.11n HT40 mode chain 0)



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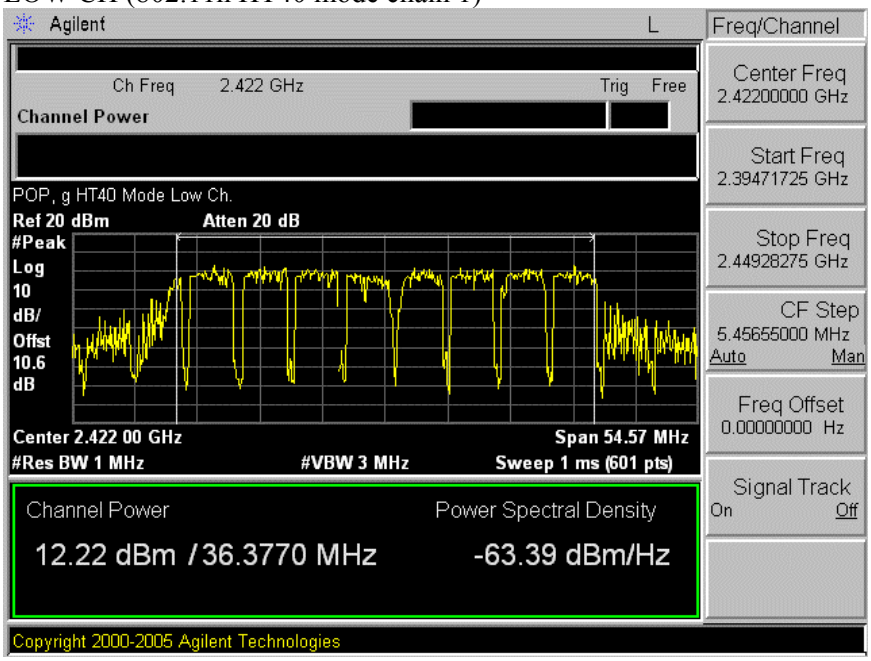
(802.11n HT40 MODE CHAIN 1)

LOW CH (802.11n HT40 mode chain 1)



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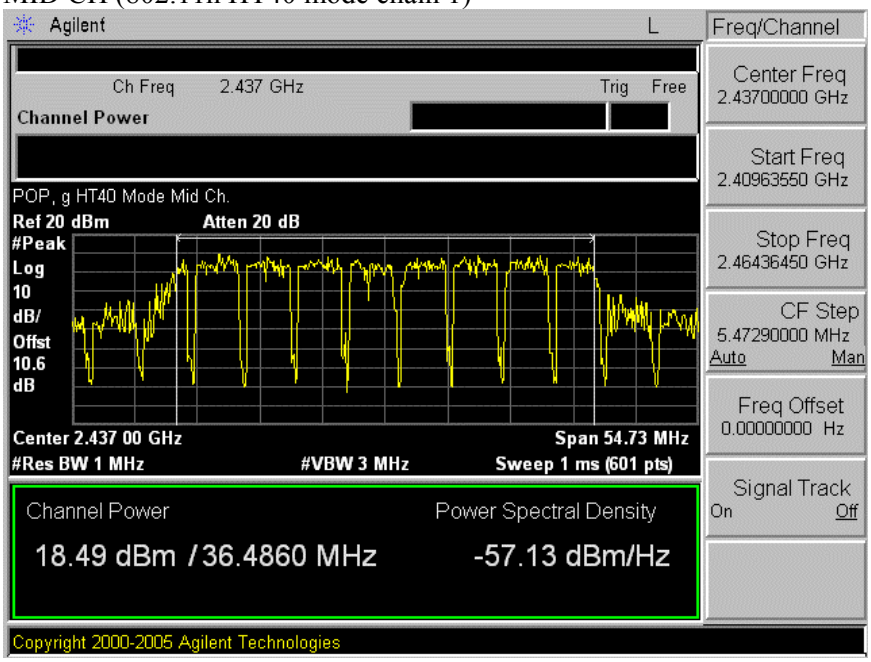
MID CH (802.11n HT40 mode chain 1)



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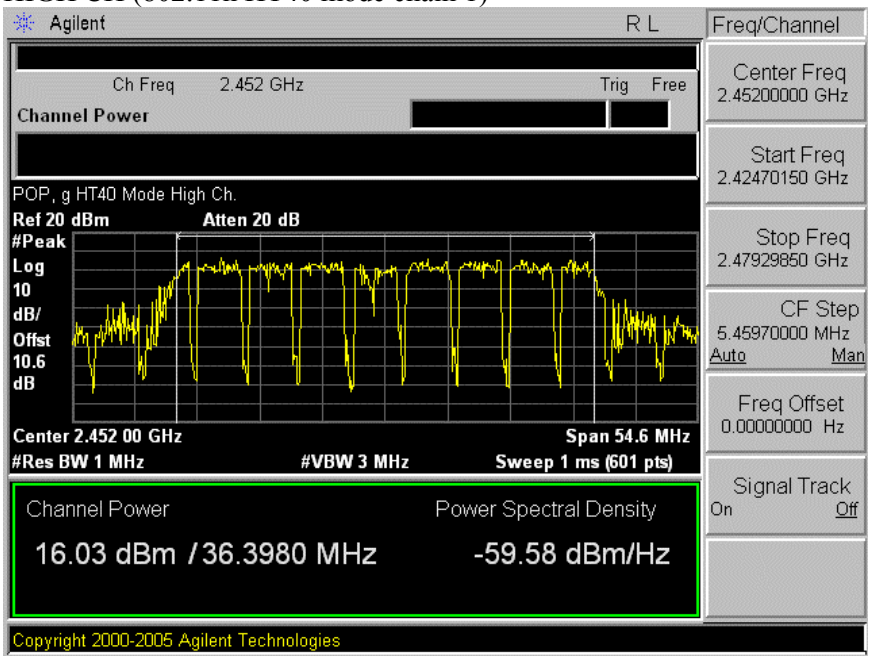
HIGH CH (802.11n HT40 mode chain 1)



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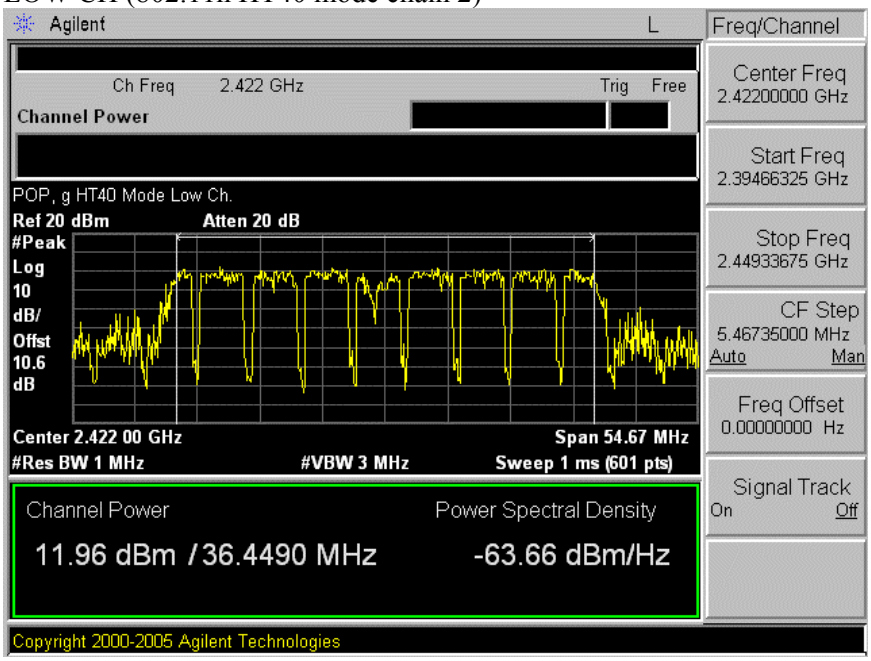
(802.11n HT40 MODE CHAIN 2)

LOW CH (802.11n HT40 mode chain 2)



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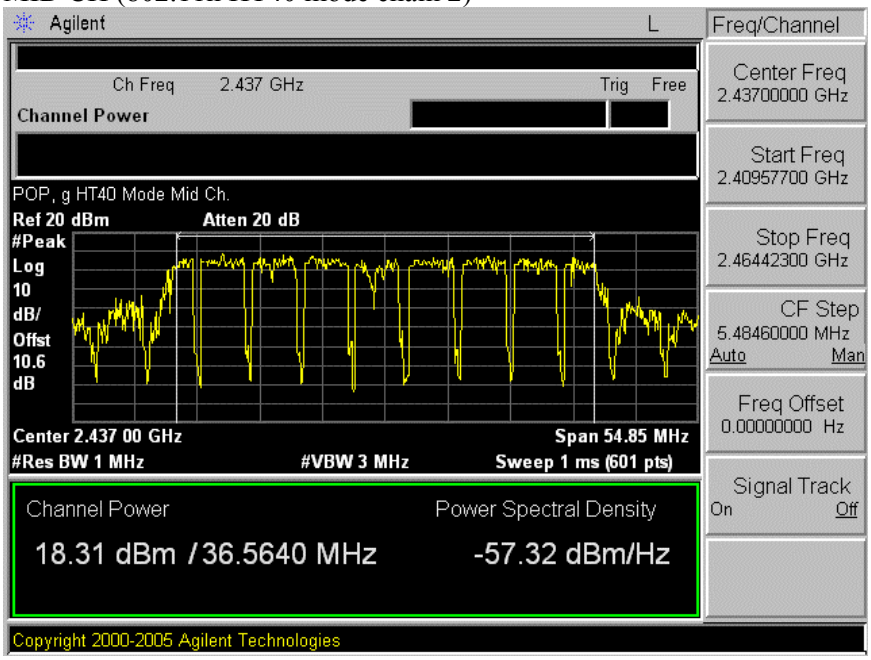
MID CH (802.11n HT40 mode chain 2)



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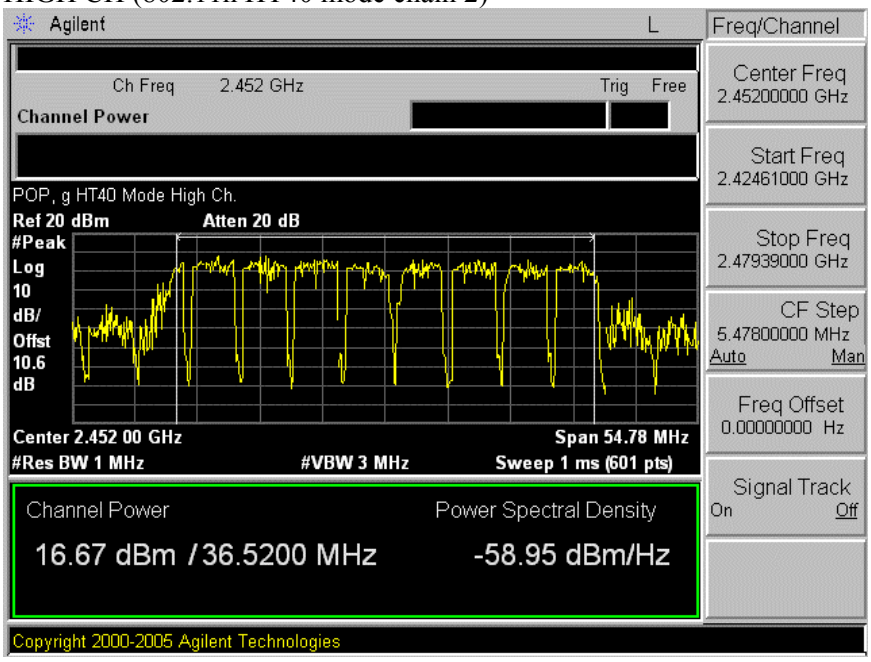
HIGH CH (802.11n HT40 mode chain 2)



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7.1.4. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak 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.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

Each chain is measured separately and the total PPSD is calculated using:

Total PPSD = 10 log (10^ (Chain 0 PPSD / 10) + 10^ (Chain 1 PPSD / 10) + 10^ (Chain 2 PPSD / 10))

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RESULTS

No non-compliance noted:

Mode Channel	Frequency (MHz)	PPSD Chain 0 (dBm)	PPSD Chain 1 (dBm)	PPSD Chain 2 (dBm)	PPSD Total (dBm)	Limit (dBm)	Margin (dB)
802.11b Mode							
Low	2412	-6.61	-6.72	-6.74	-1.92	8	-9.92
Middle	2437	-3.27	-2.45	-2.66	1.99	8	-6.01
High	2462	-7.23	-6.12	-6.87	-1.94	8	-9.94
802.11g Mode							
Low	2412	-8.70	-5.69	-7.81	-2.44	8	-10.44
Middle	2437	-2.90	-4.55	-2.63	1.49	8	-6.51
High	2462	-9.29	-7.58	-9.71	-3.99	8	-11.99
802.11n HT20 Mode							
Low	2412	-8.88	-7.59	-9.51	-3.81	8	-11.81
Middle	2437	-3.84	-3.98	-0.89	2.12	8	-5.88
High	2462	-9.42	-9.77	-6.73	-3.64	8	-11.64
802.11n HT40 Mode							
Low	2422	-14.13	-13.78	-14.84	-9.46	8	-17.46
Middle	2437	-8.76	-9.77	-7.34	-3.74	8	-11.74
High	2452	-11.45	-9.89	-9.51	-5.43	8	-13.43

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RESULTS WITH COMBINER

No non-compliance noted:

Mode Channel	Frequency (MHz)	PPSD Using Combiner (dBm)	Limit (dBm)	Margin (dB)
802.11b Mode				
Low	2412	1.84	8	-6.16
Middle	2437	6.61	8	-1.39
High	2462	1.40	8	-6.60
802.11g Mode				
Low	2412	1.08	8	-6.92
Middle	2437	4.11	8	-3.89
High	2462	-0.34	8	-8.34
802.11n HT20 Mode				
Low	2412	-0.03	8	-8.03
Middle	2437	6.08	8	-1.92
High	2462	-2.34	8	-10.34
802.11n HT40 Mode				
Low	2422	-8.00	8	-16.00
Middle	2437	-1.92	8	-9.92
High	2452	-3.28	8	-11.28

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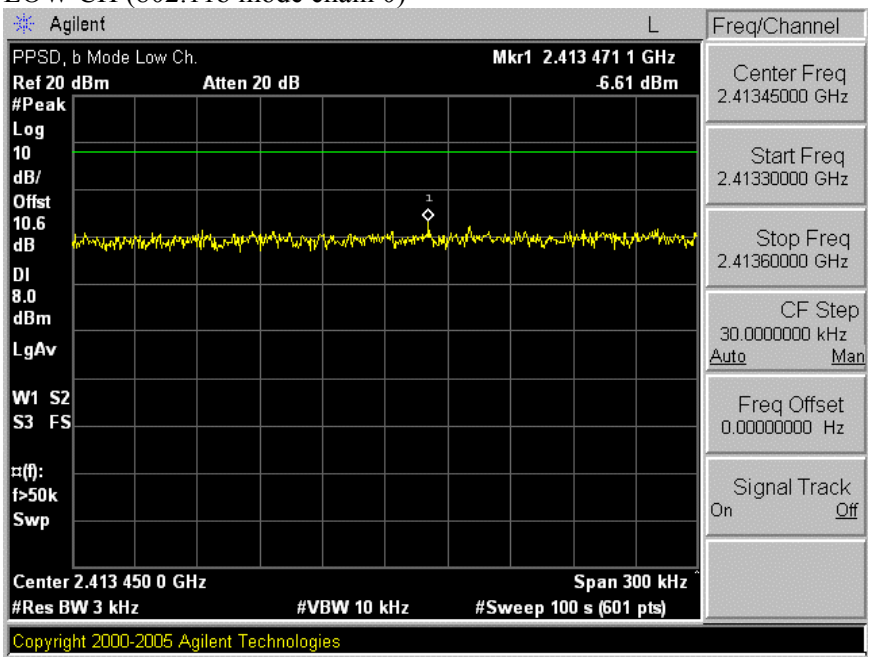
(802.11b MODE CHAIN 0)

LOW CH (802.11b mode chain 0)



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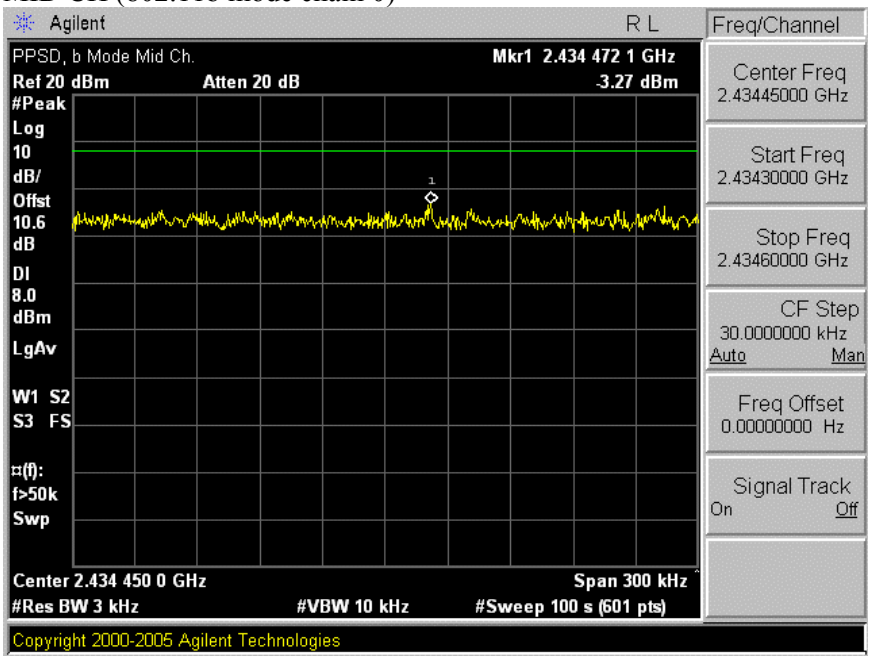
MID CH (802.11b mode chain 0)



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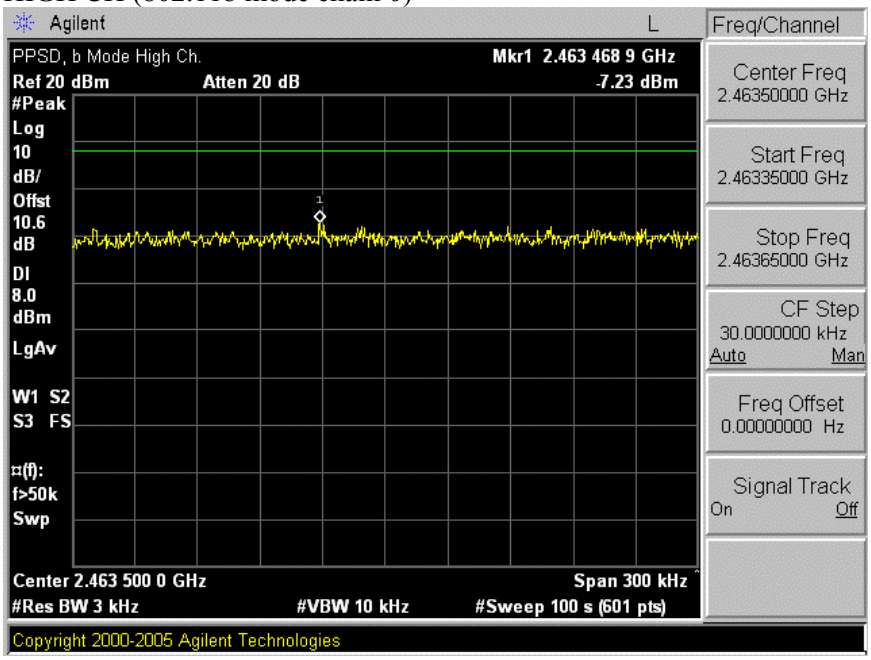
HIGH CH (802.11b mode chain 0)



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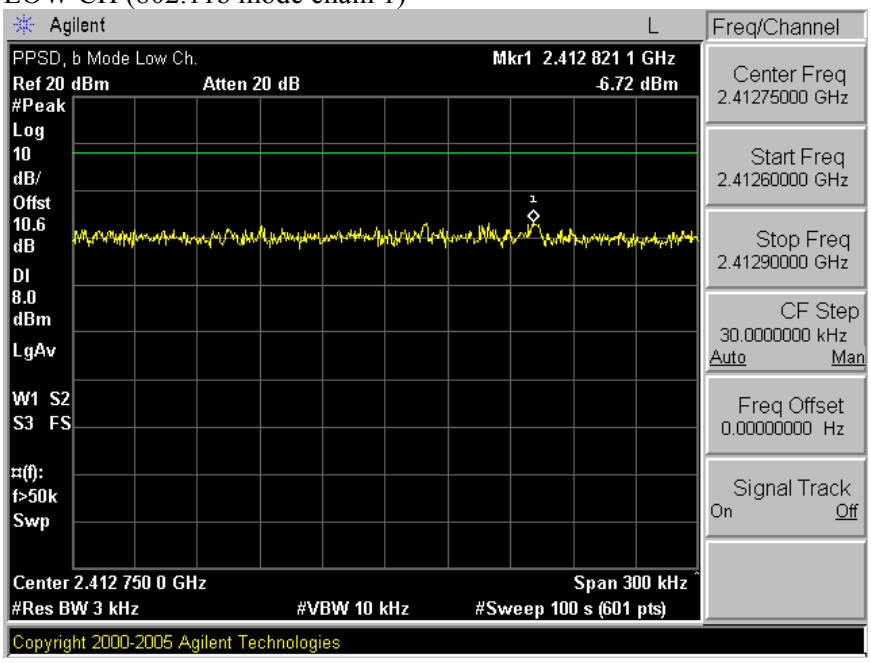
(802.11b MODE CHAIN 1)

LOW CH (802.11b mode chain 1)



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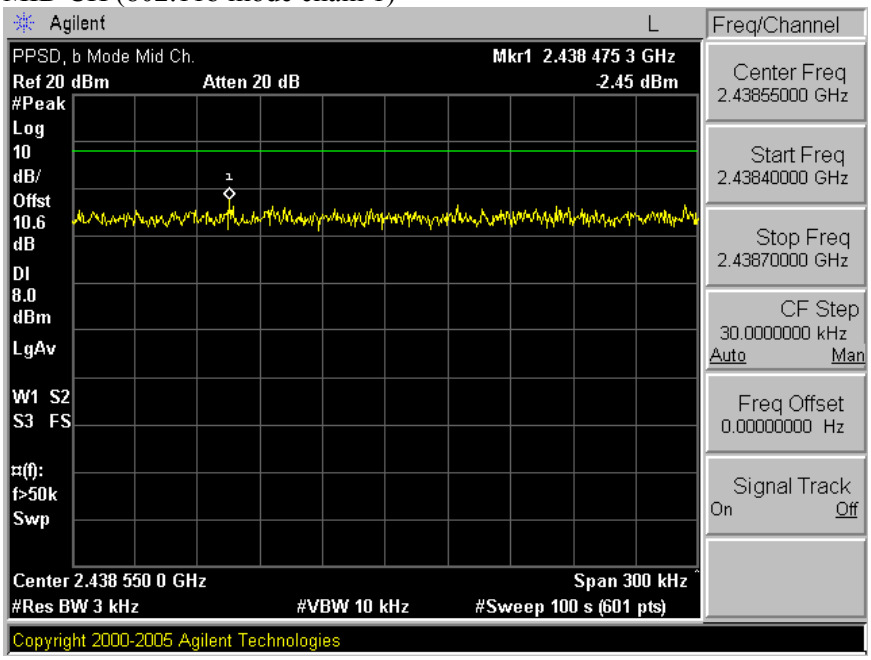
MID CH (802.11b mode chain 1)



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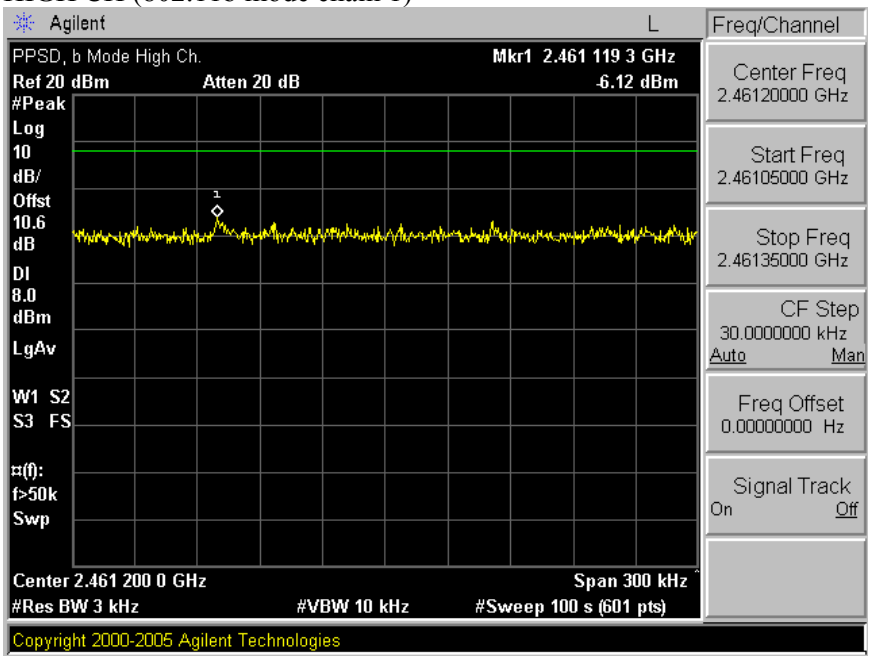

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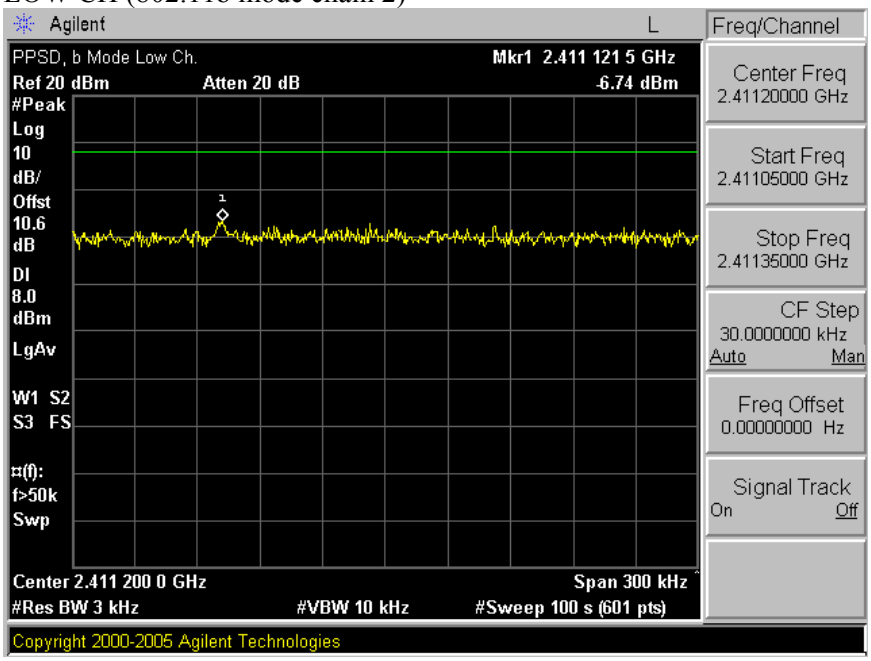
(802.11b MODE CHAIN 2)

LOW CH (802.11b mode chain 2)



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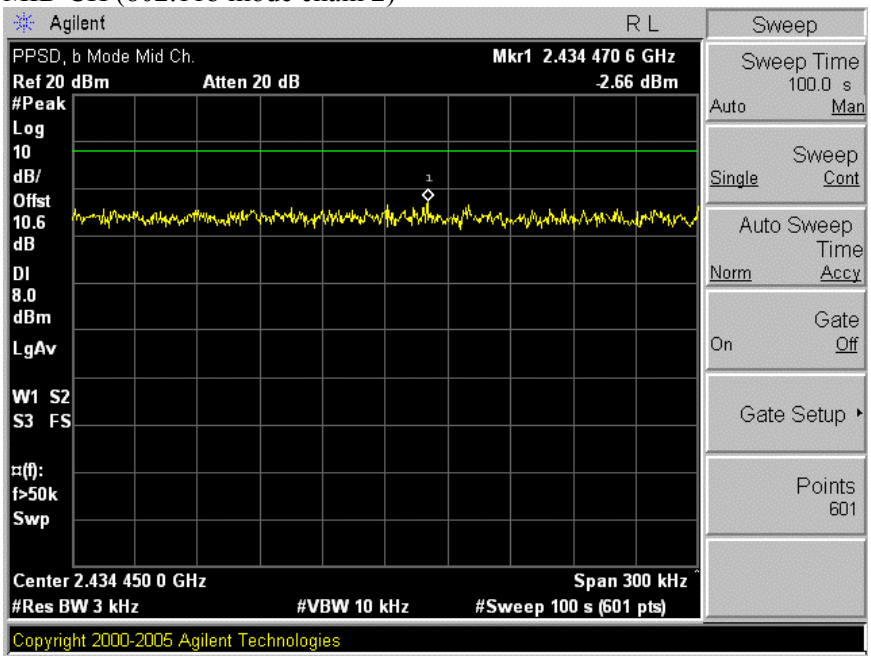
MID CH (802.11b mode chain 2)



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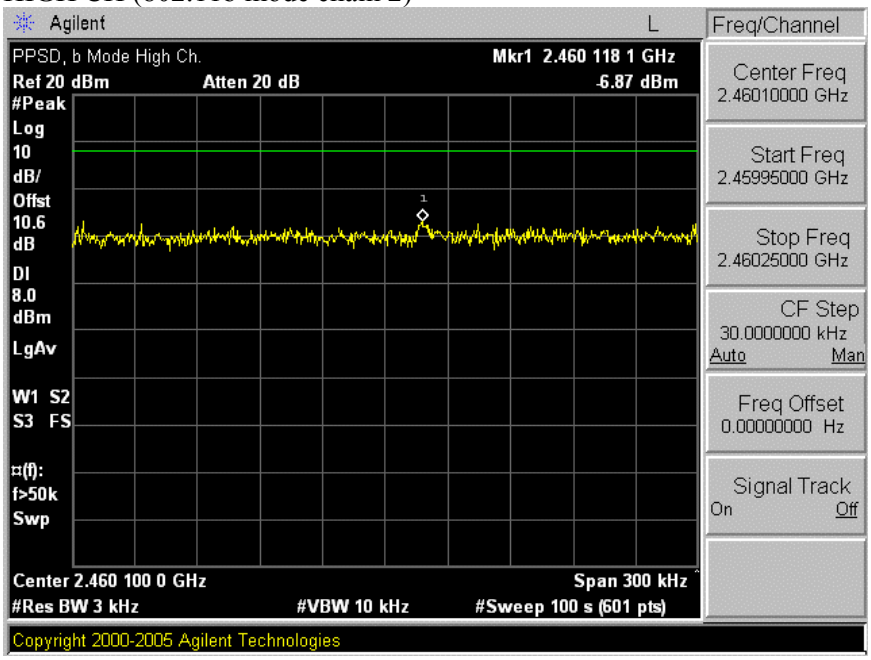
HIGH CH (802.11b mode chain 2)



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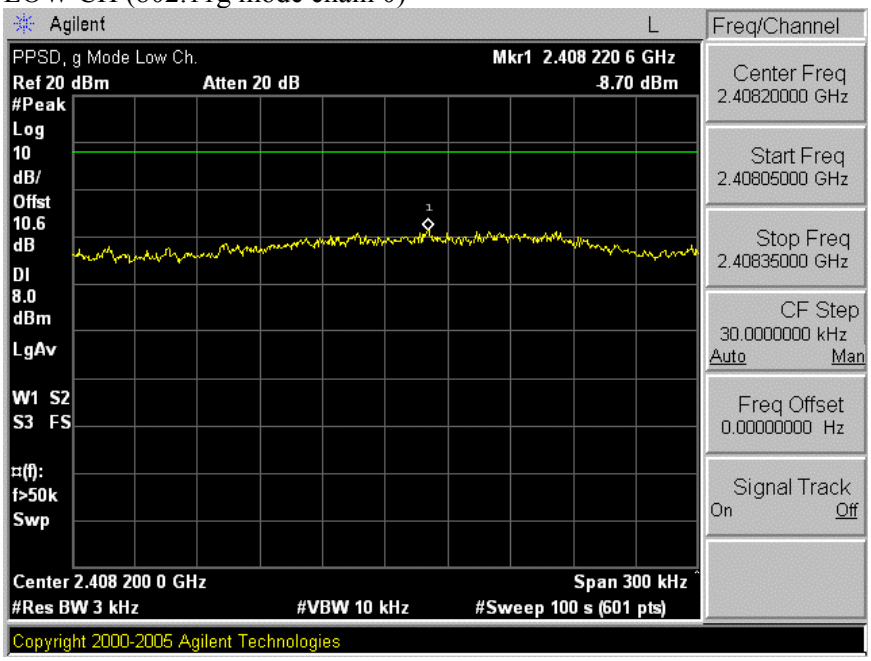
(802.11g MODE CHAIN 0)

LOW CH (802.11g mode chain 0)



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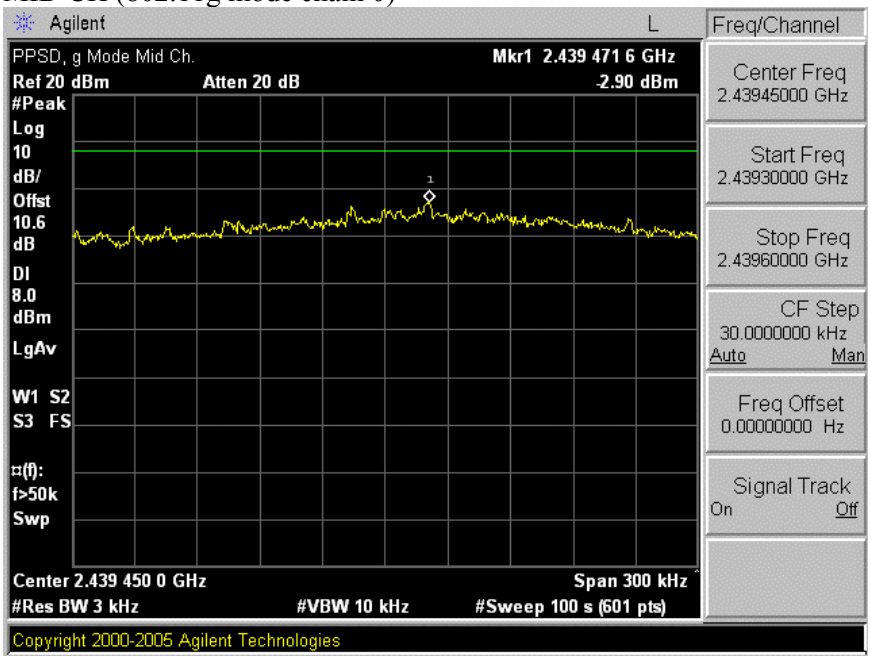

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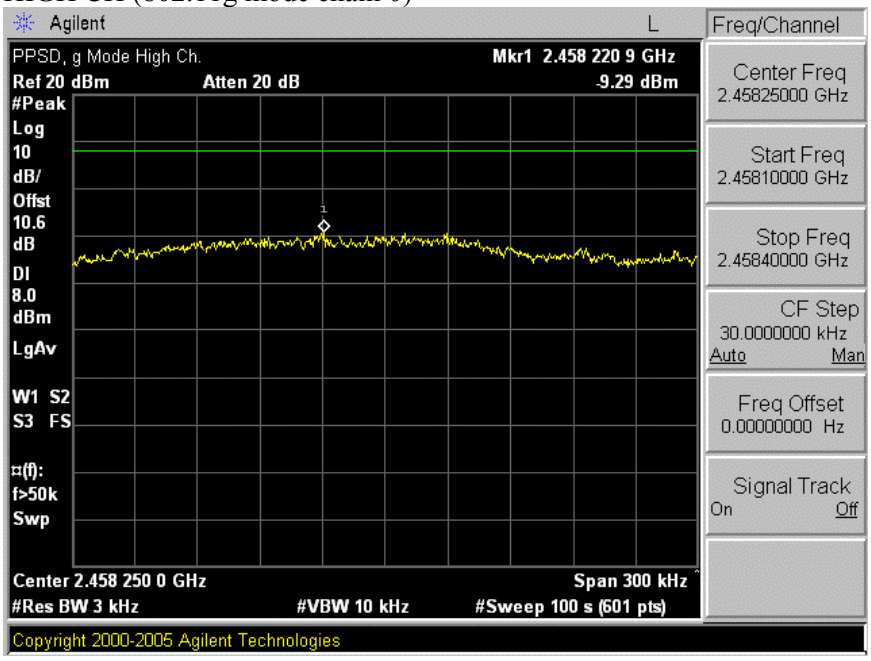

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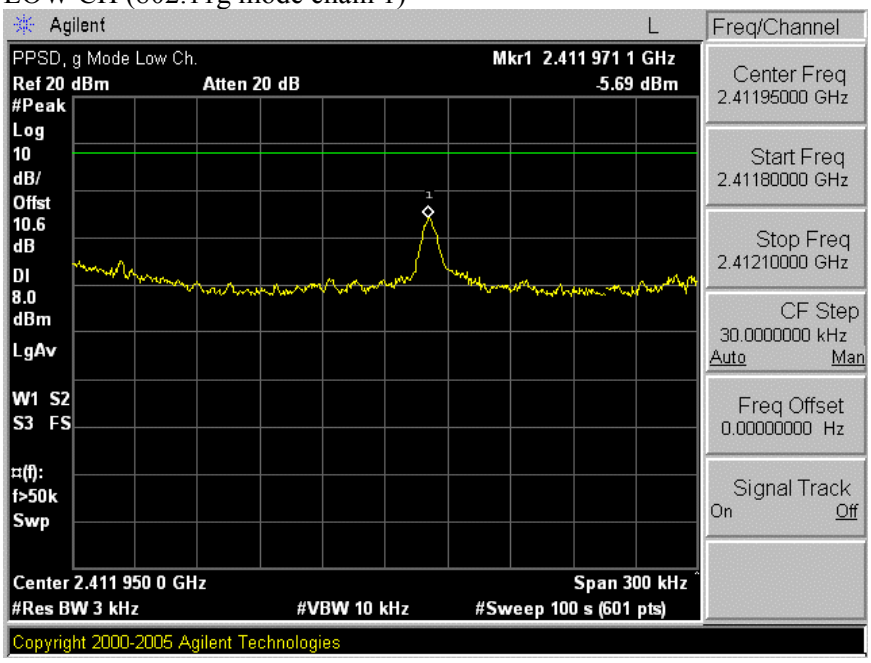
(802.11g MODE CHAIN 1)

LOW CH (802.11g mode chain 1)



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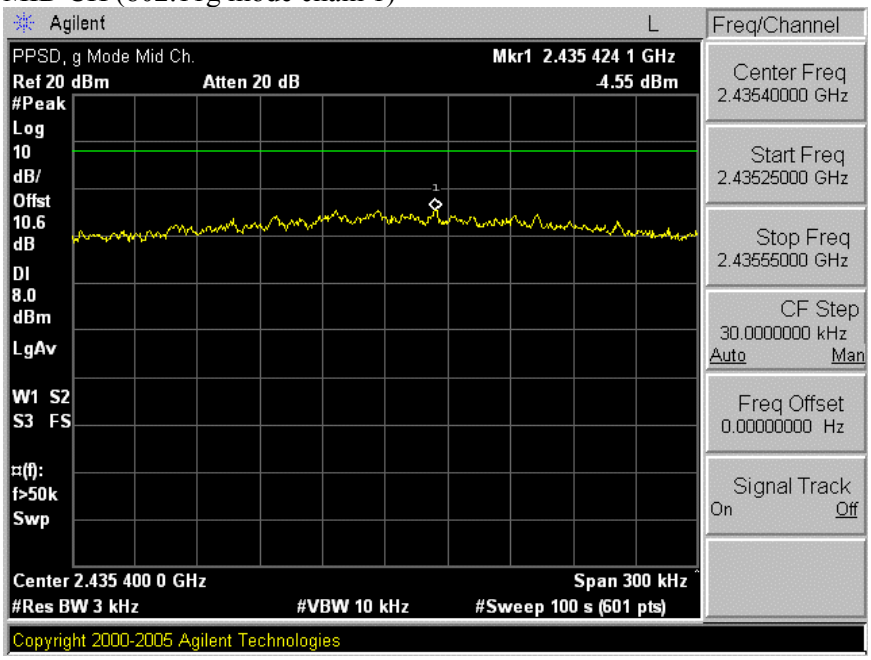

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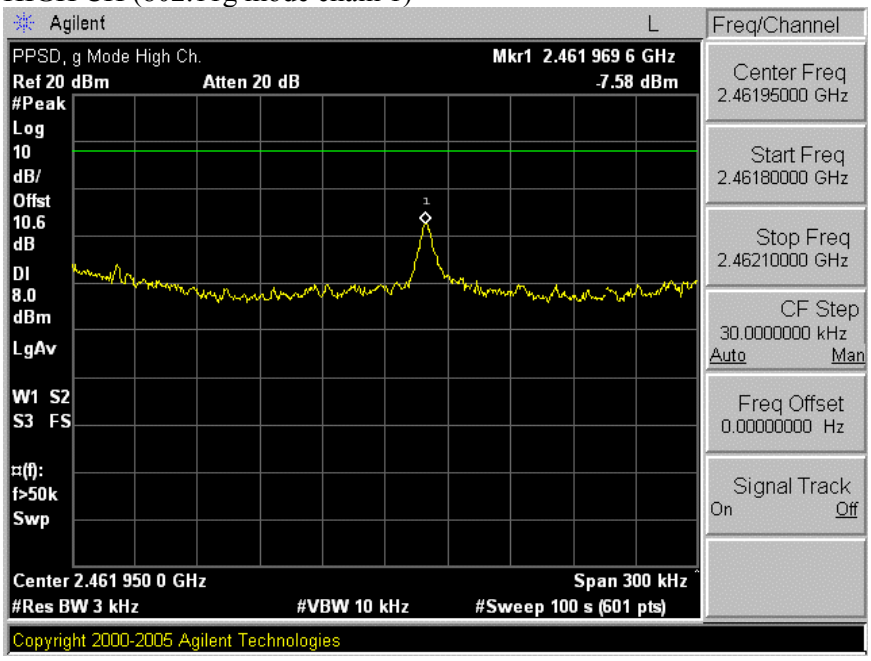

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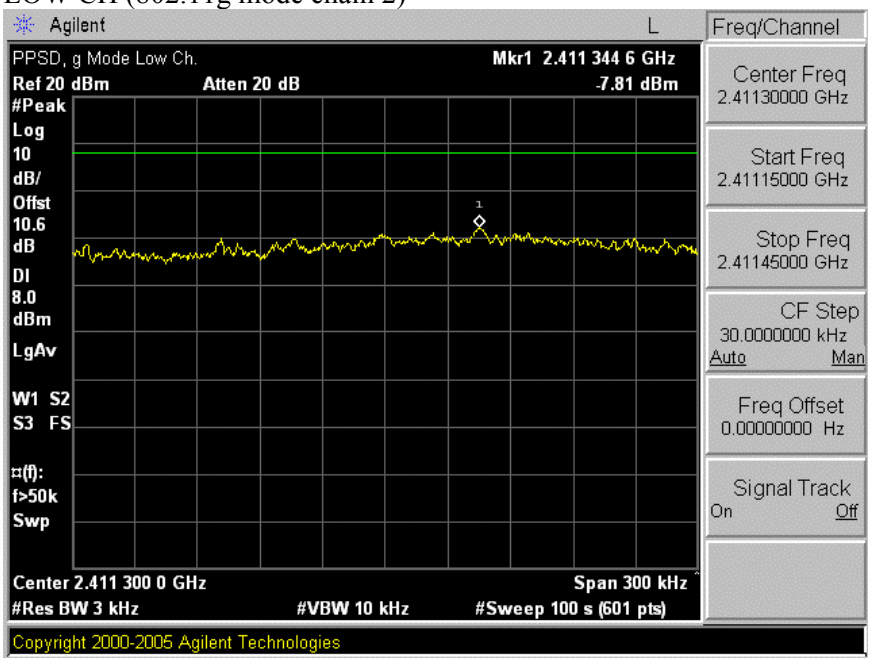
(802.11g MODE CHAIN 2)

LOW CH (802.11g mode chain 2)



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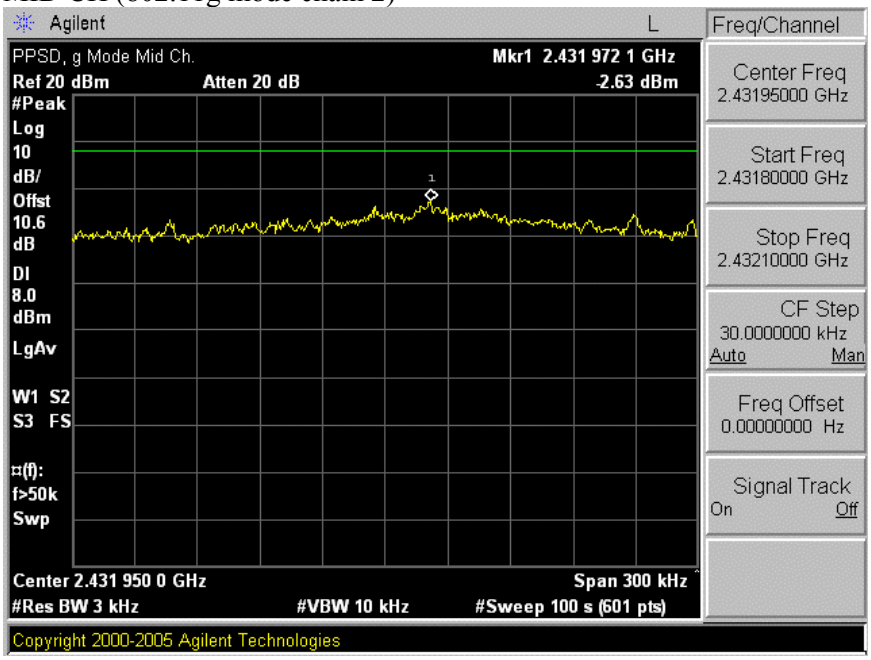
MID CH (802.11g mode chain 2)



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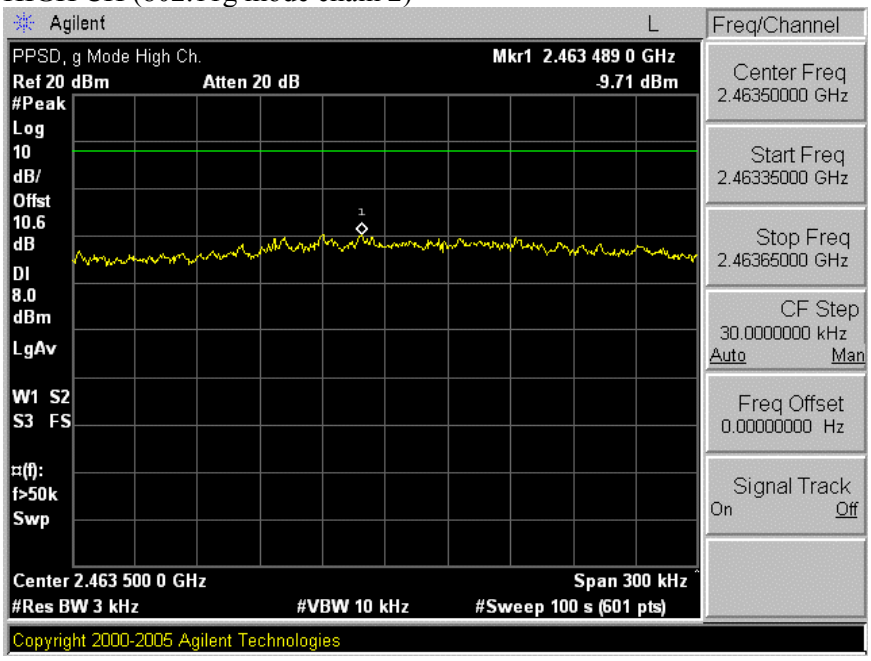
HIGH CH (802.11g mode chain 2)



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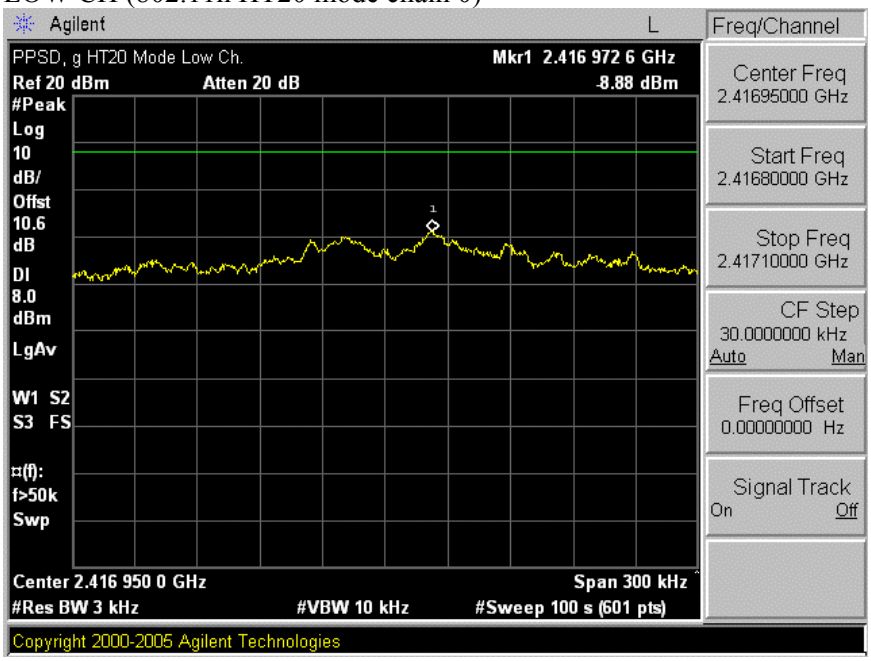
(802.11n HT20 MODE CHAIN 0)

LOW CH (802.11n HT20 mode chain 0)



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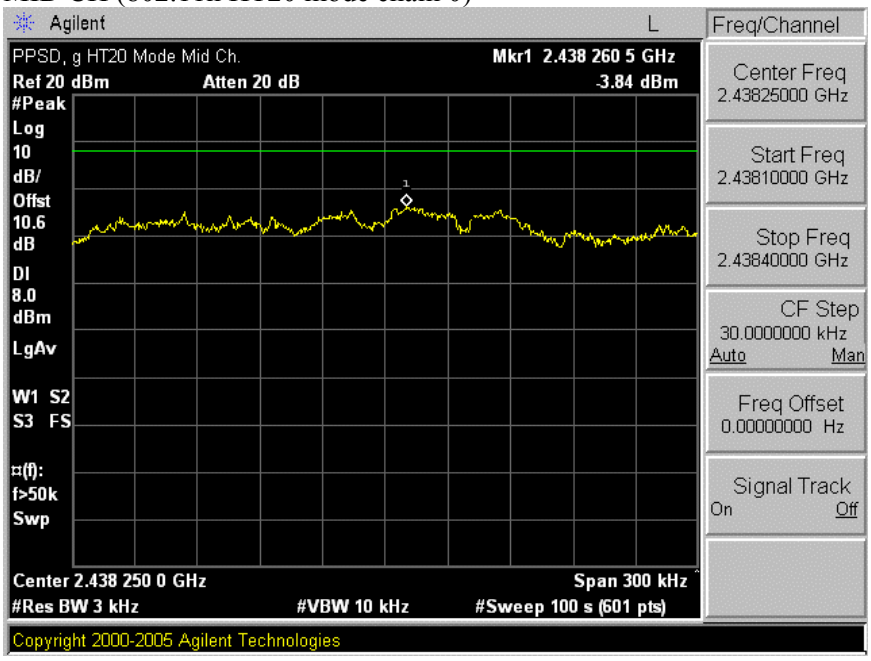
MID CH (802.11n HT20 mode chain 0)



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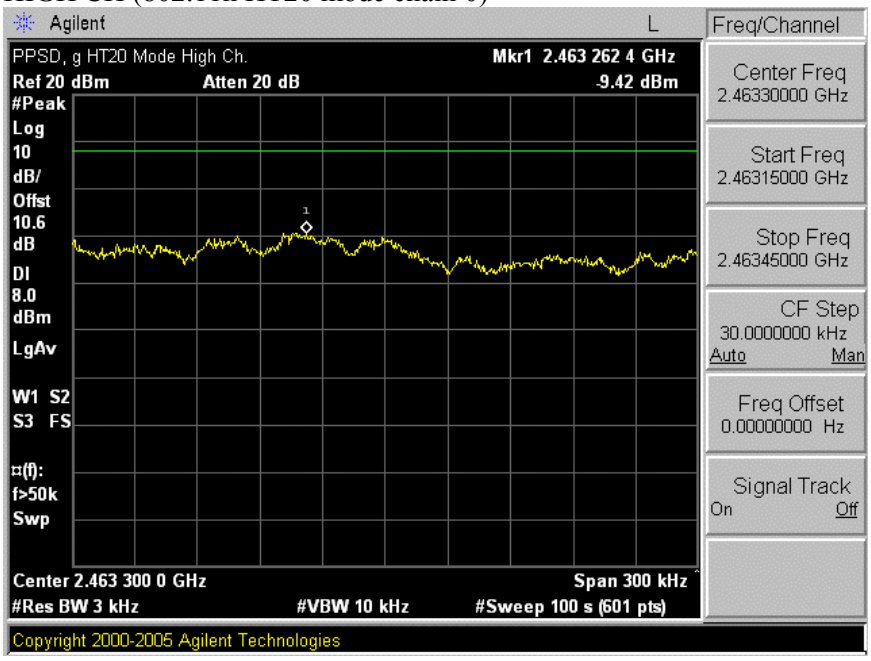

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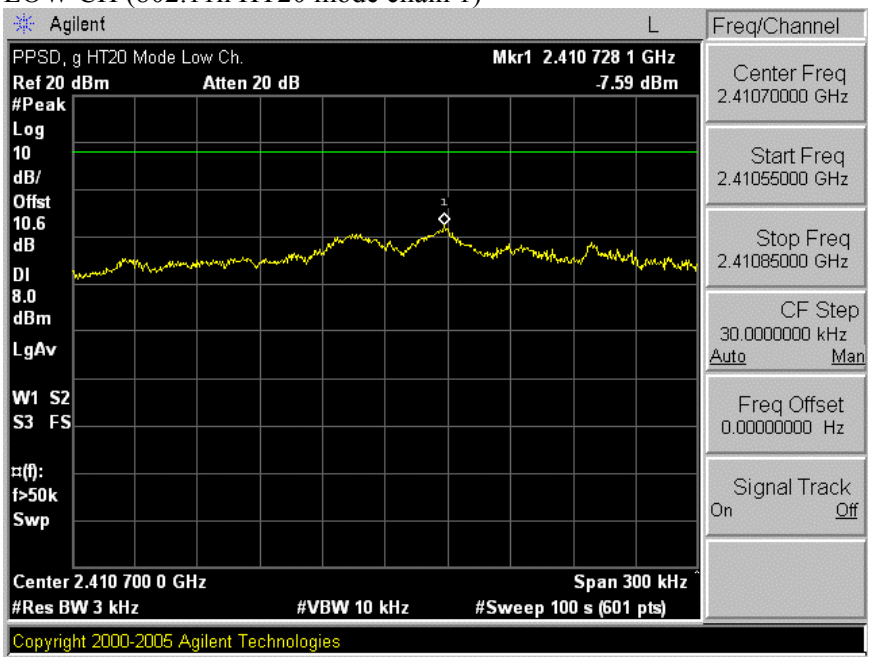
(802.11n HT20 MODE CHAIN 1)

LOW CH (802.11n HT20 mode chain 1)



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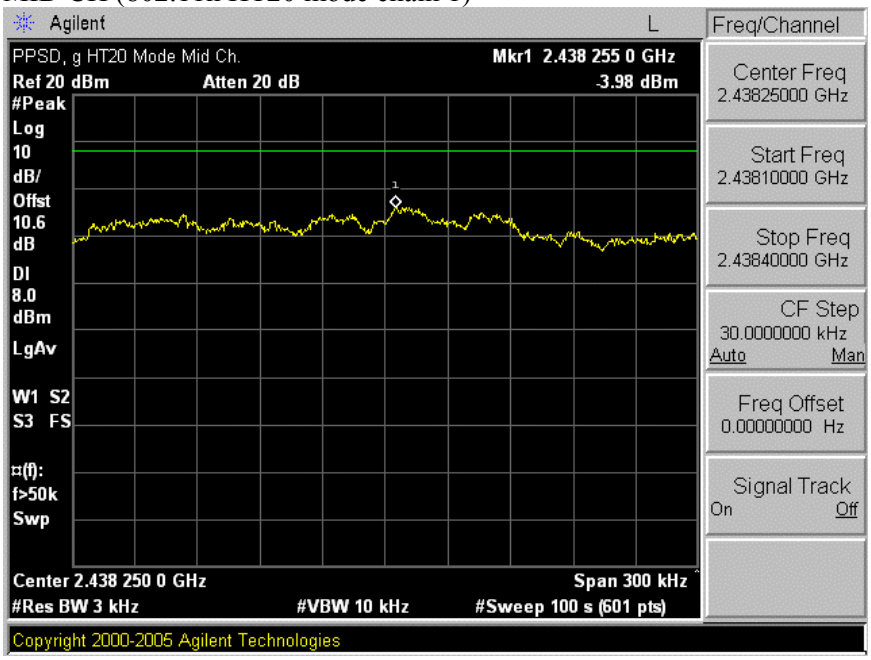

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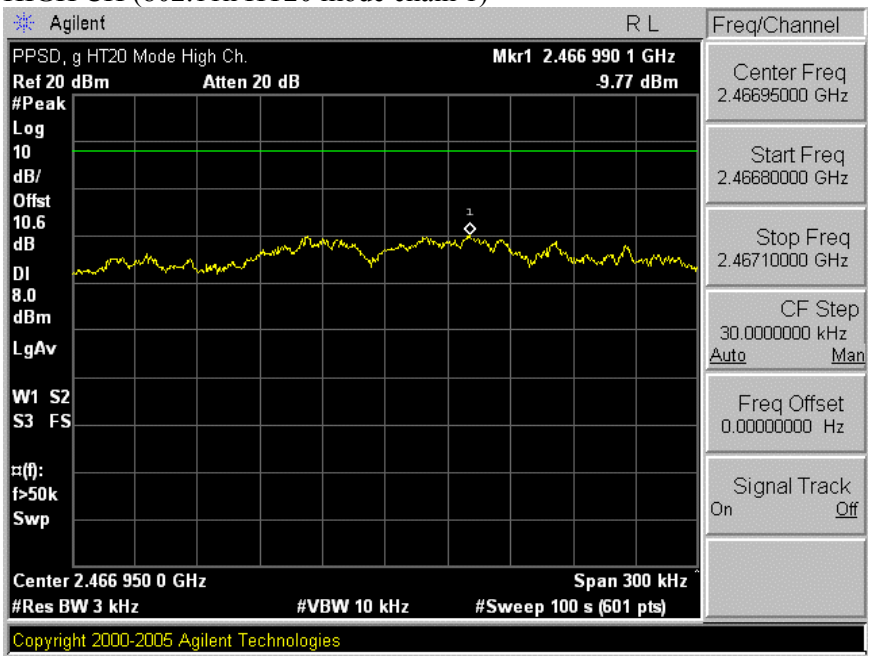

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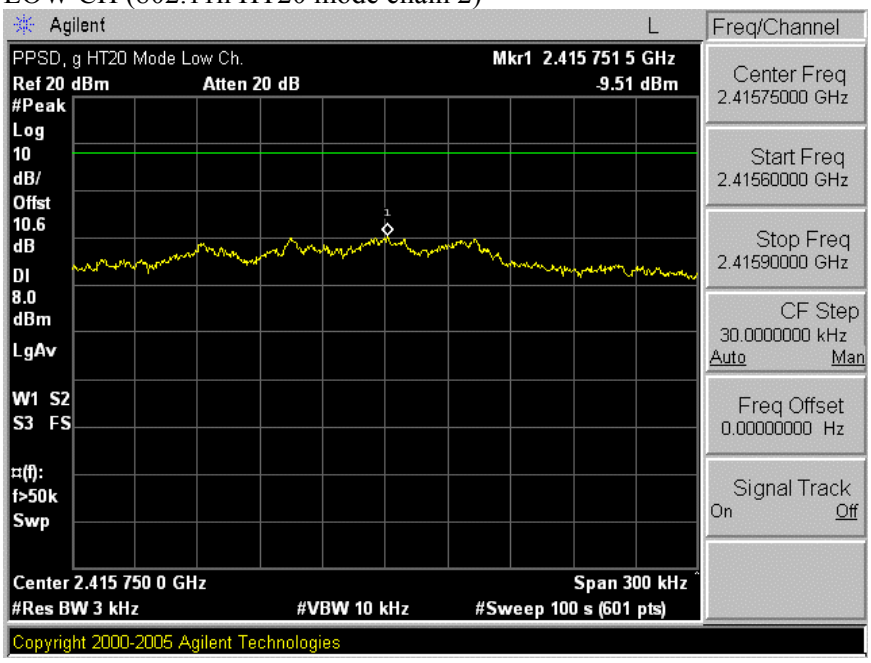
(802.11 HT20 MODE CHAIN 2)

LOW CH (802.11n HT20 mode chain 2)



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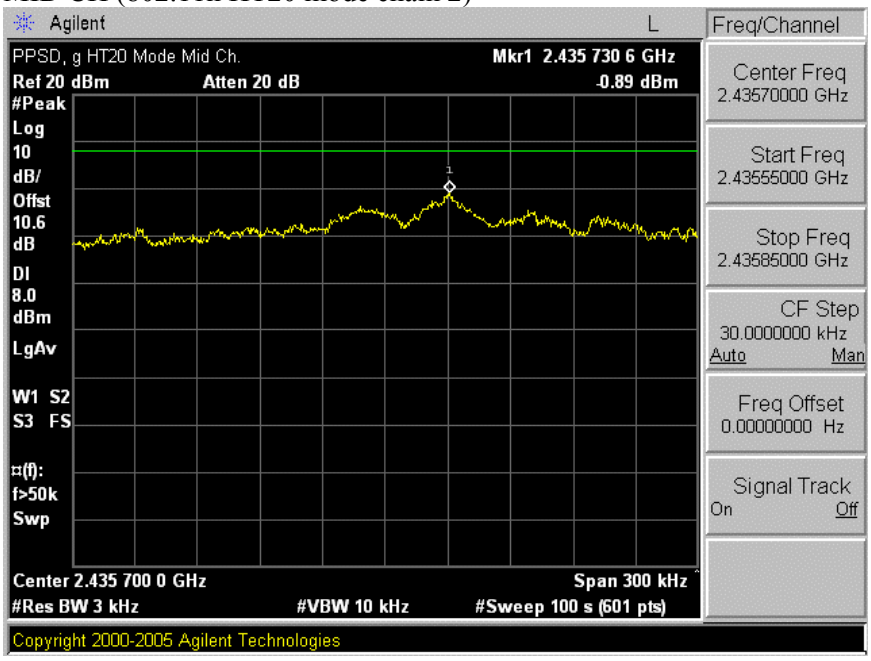
MID CH (802.11n HT20 mode chain 2)



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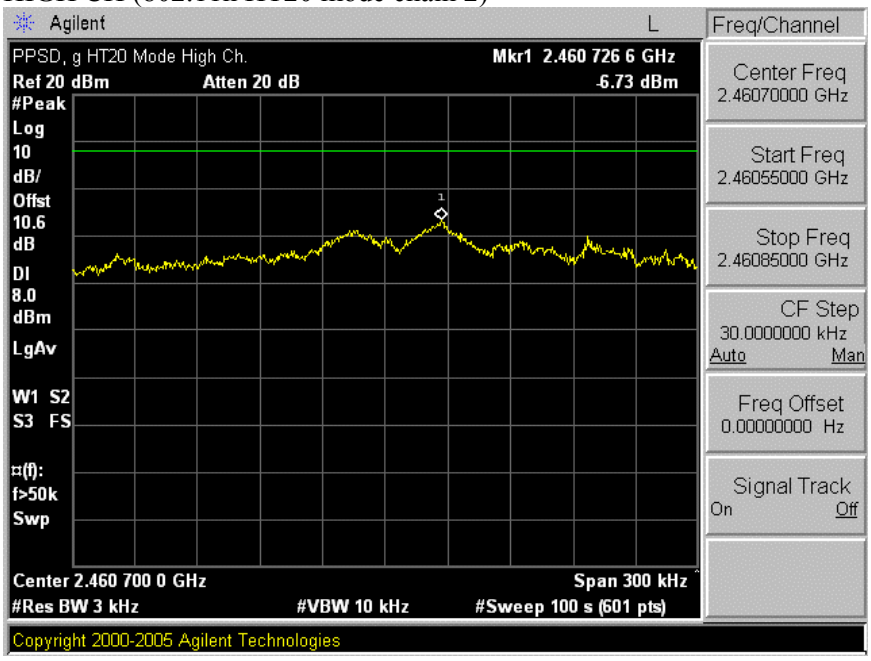
HIGH CH (802.11n HT20 mode chain 2)



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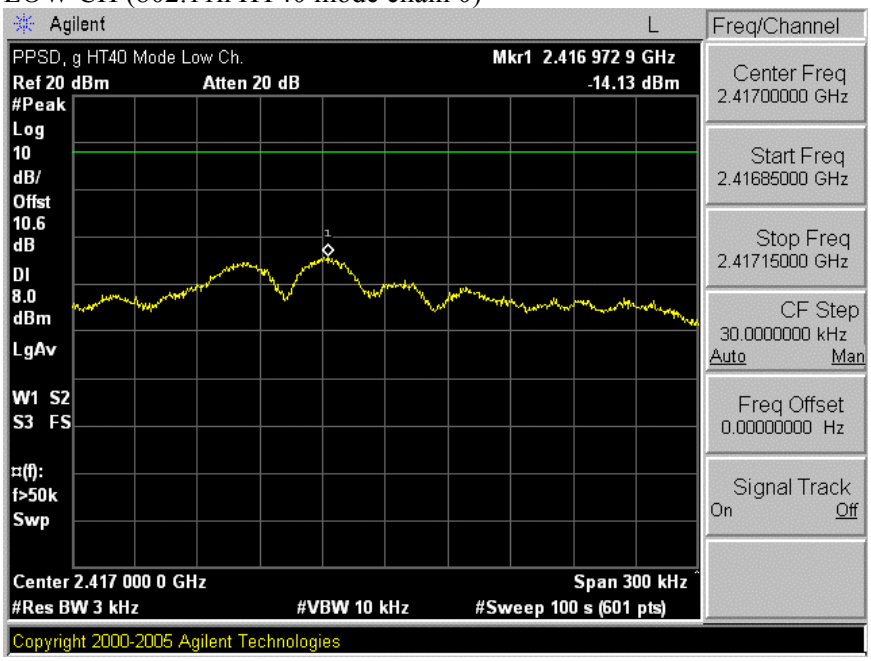
(802.11 HT40 MODE CHAIN 0)

LOW CH (802.11n HT40 mode chain 0)



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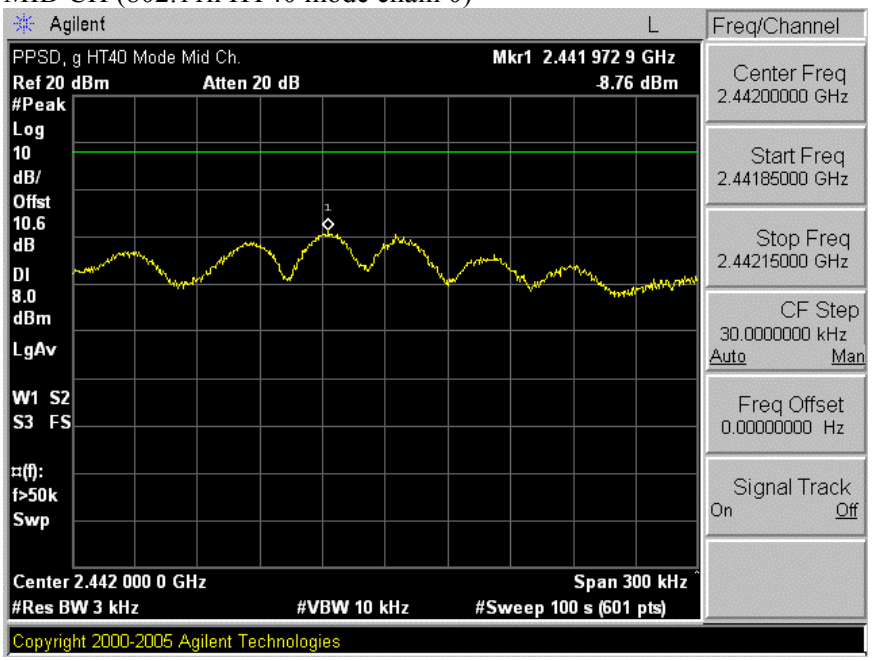
MID CH (802.11n HT40 mode chain 0)



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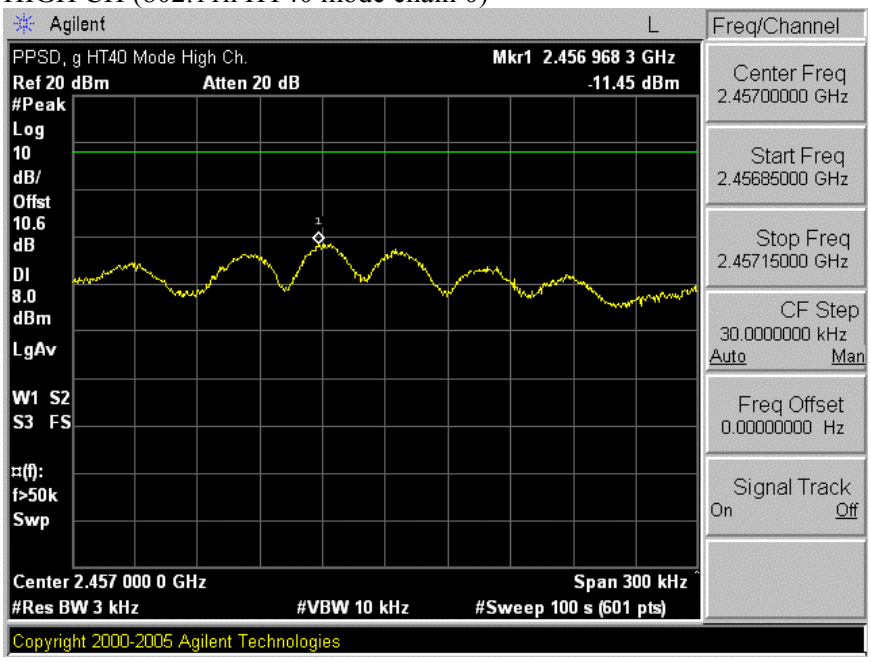
HIGH CH (802.11n HT40 mode chain 0)



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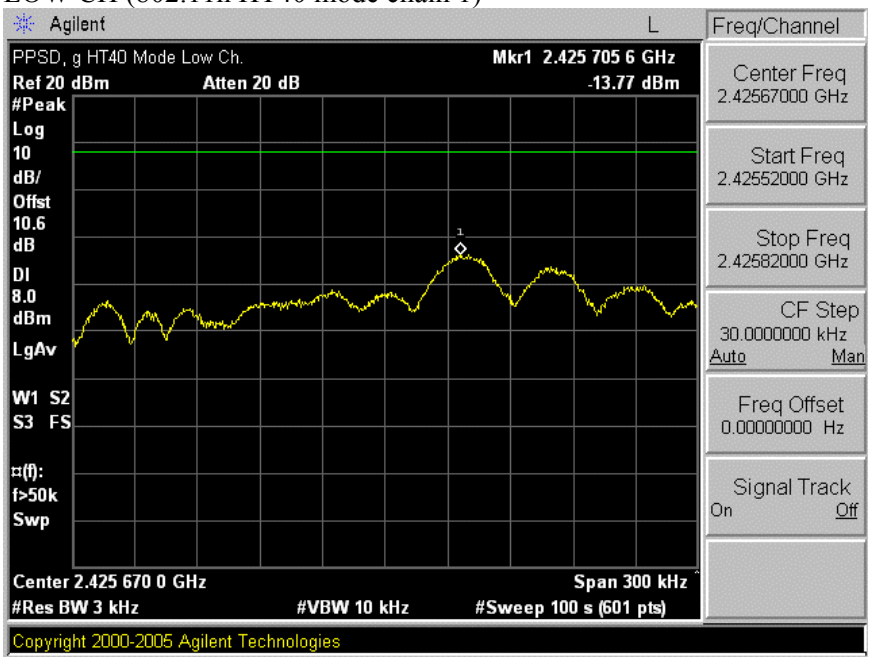
(802.11n HT40 MODE CHAIN 1)

LOW CH (802.11n HT40 mode chain 1)



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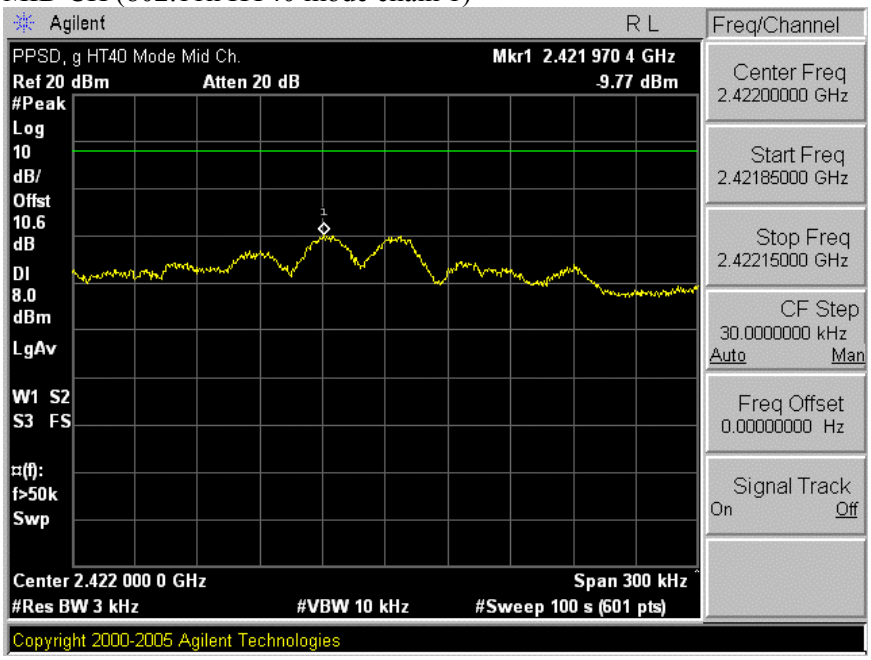
MID CH (802.11n HT40 mode chain 1)



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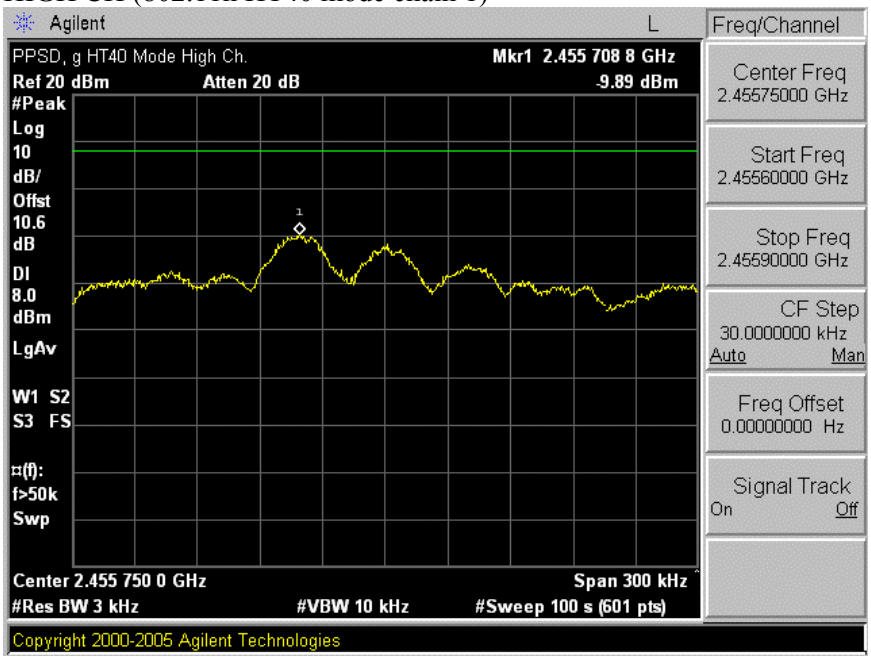
HIGH CH (802.11n HT40 mode chain 1)



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(802.11 HT40 MODE CHAIN 2)

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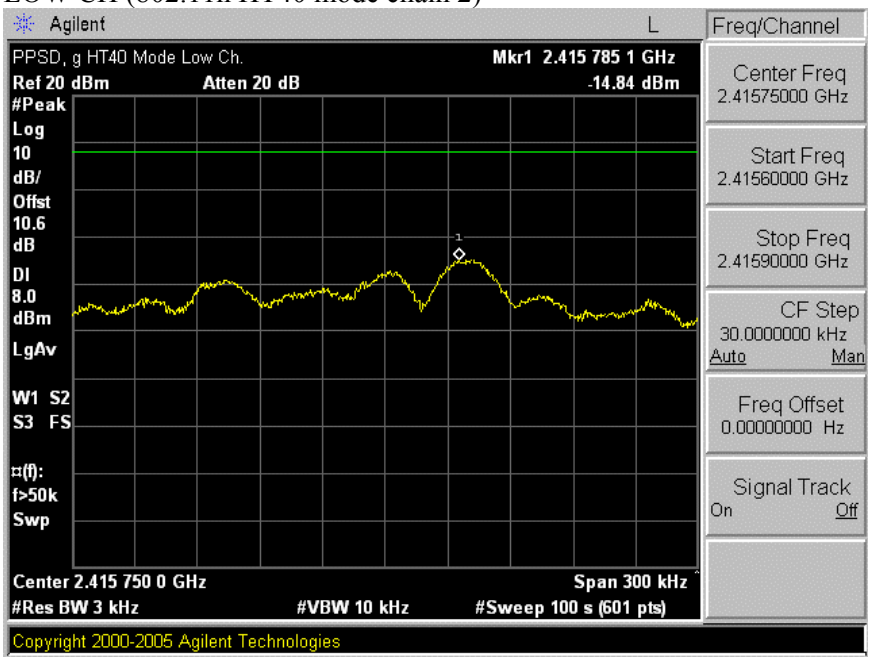

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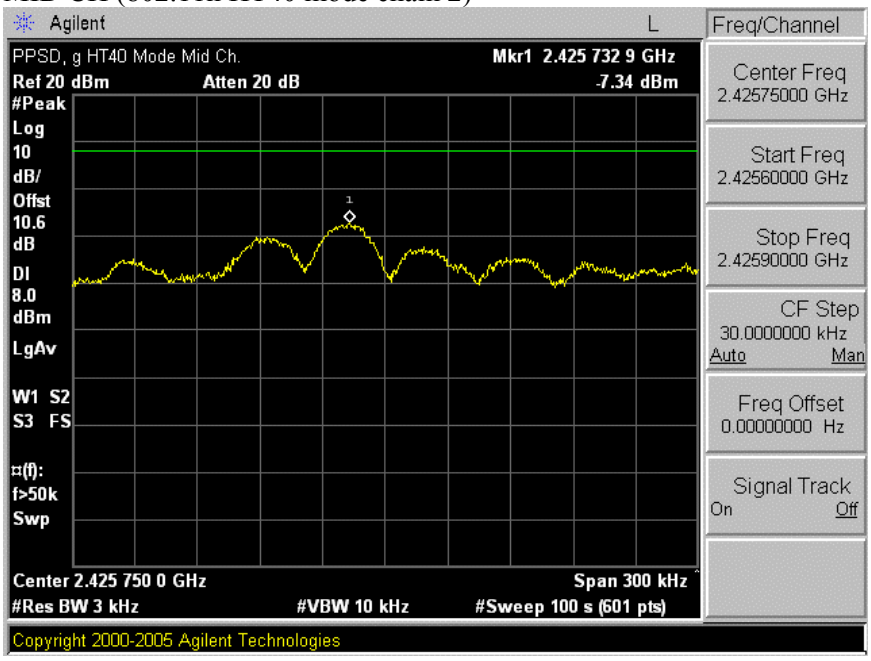

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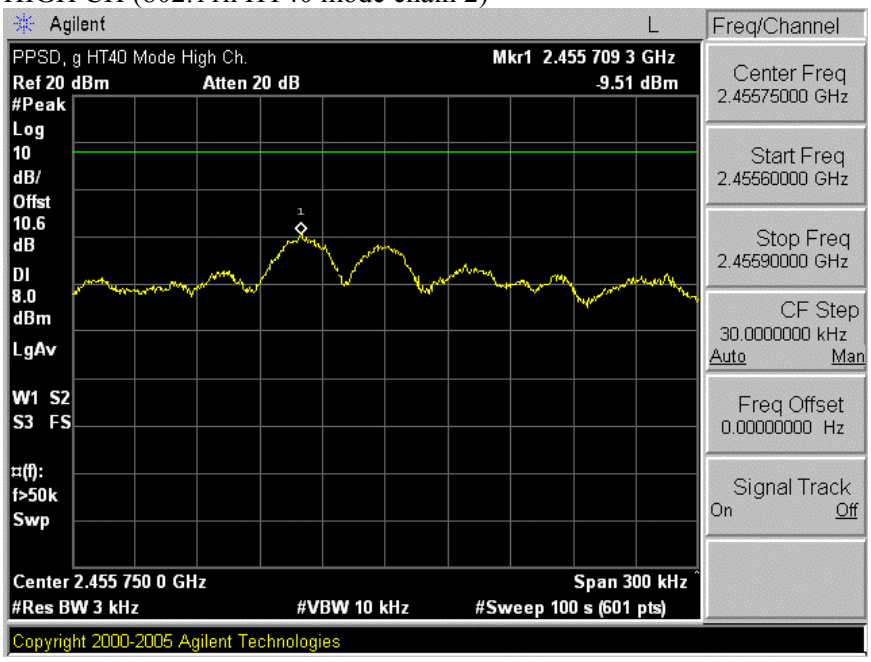
HIGH CH (802.11n HT40 mode chain 2)



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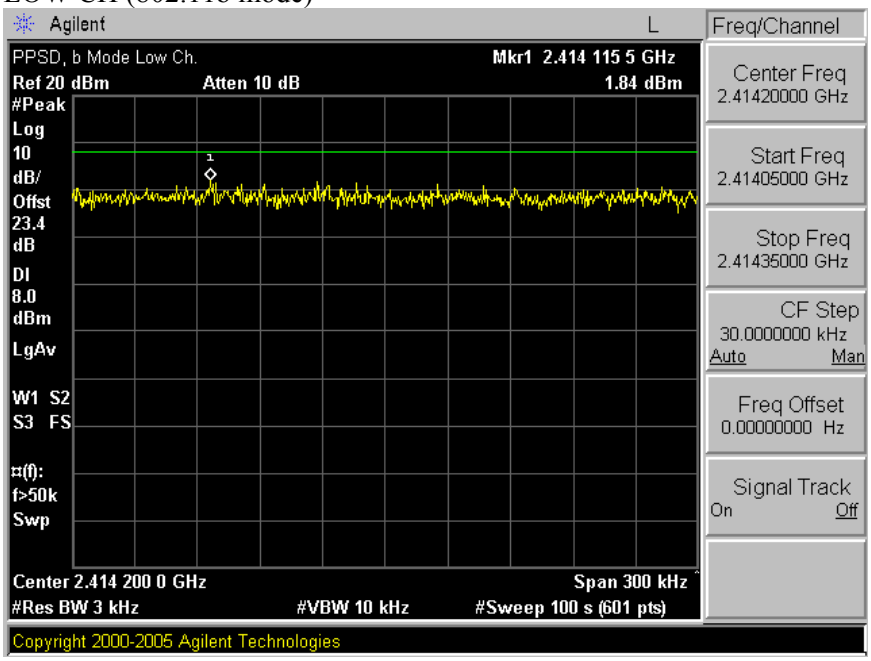
COMBINED PPSD (802.11b MODE)

LOW CH (802.11b mode)



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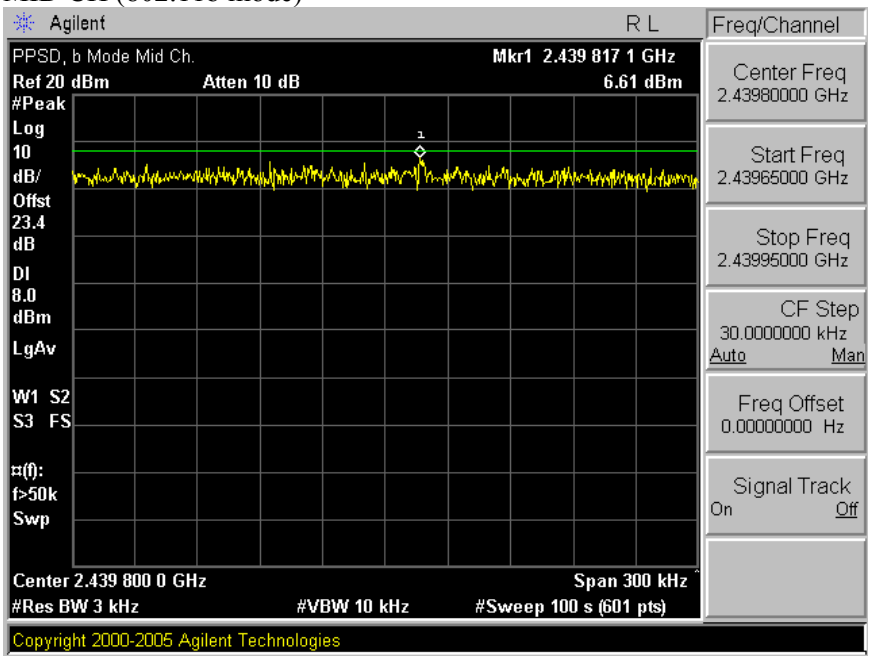

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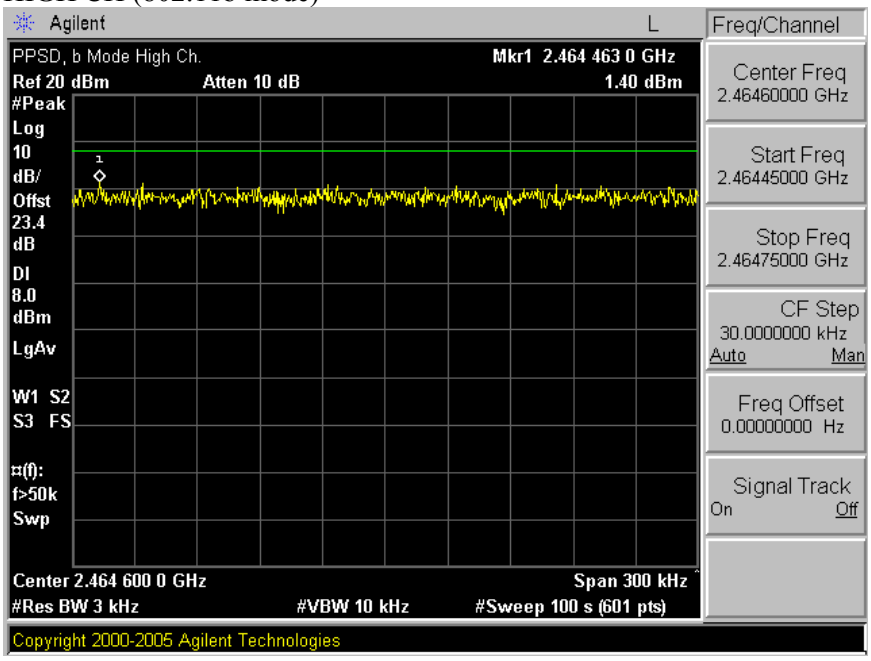
HIGH CH (802.11b mode)



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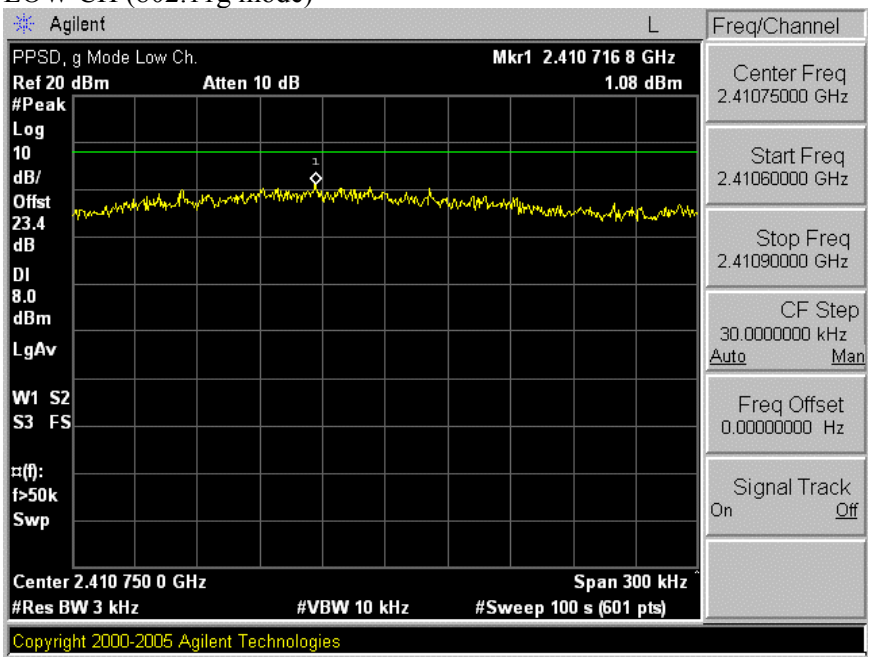
COMBINED PPSD (802.11g MODE)

LOW CH (802.11g mode)



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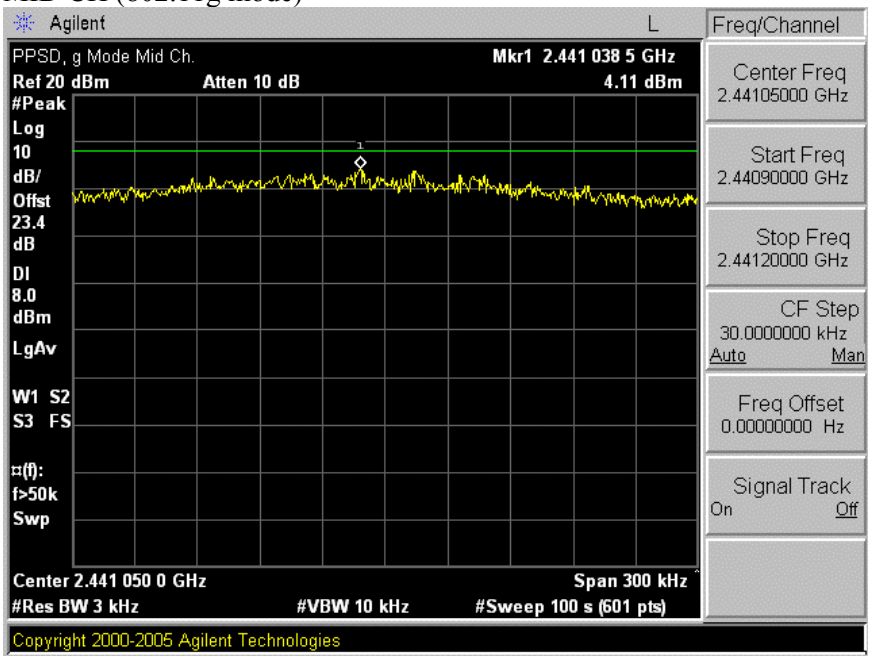
MID CH (802.11g mode)



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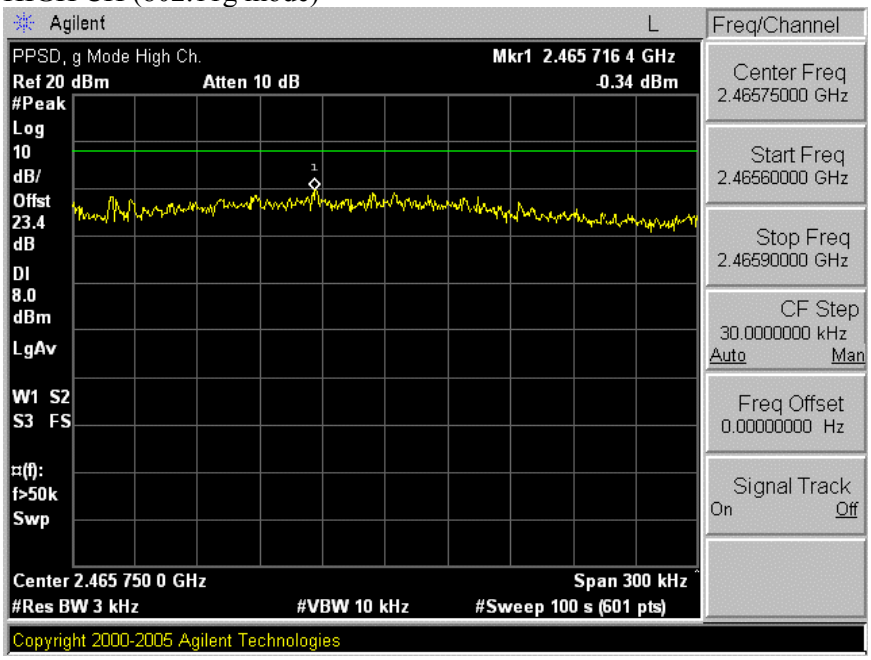
HIGH CH (802.11g mode)



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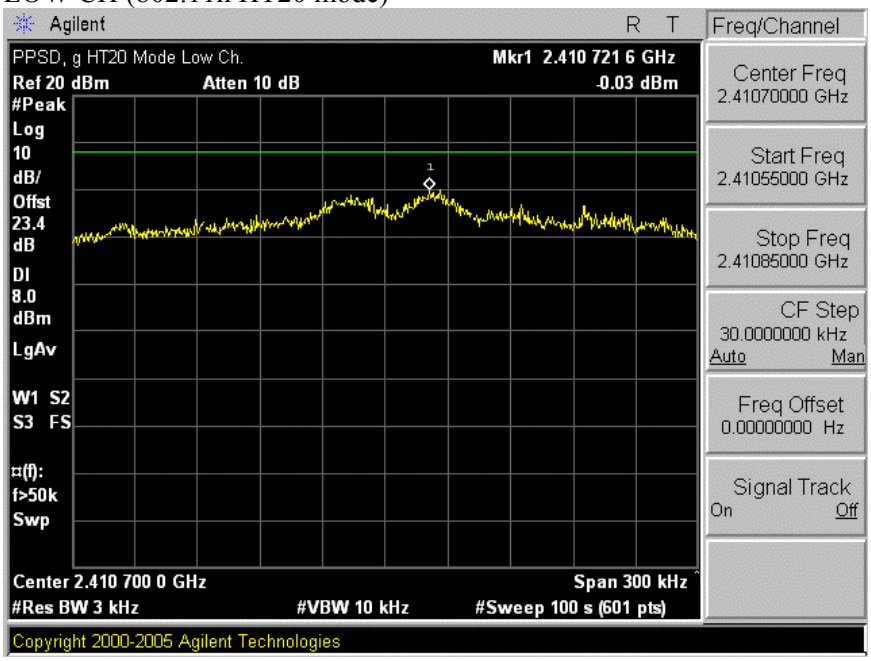
COMBINED PPSD (802.11n HT20 MODE)

LOW CH (802.11n HT20 mode)



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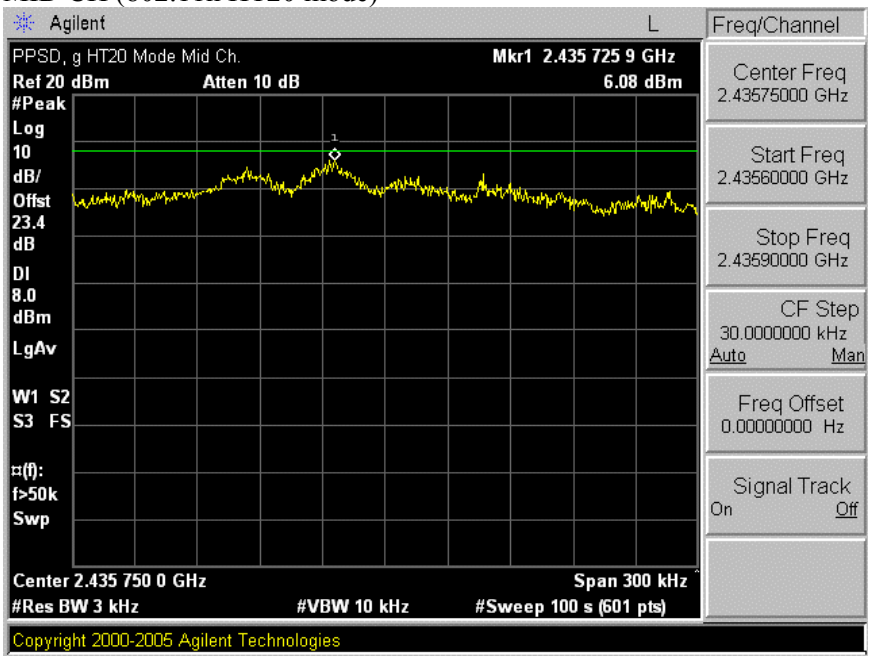
MID CH (802.11n HT20 mode)



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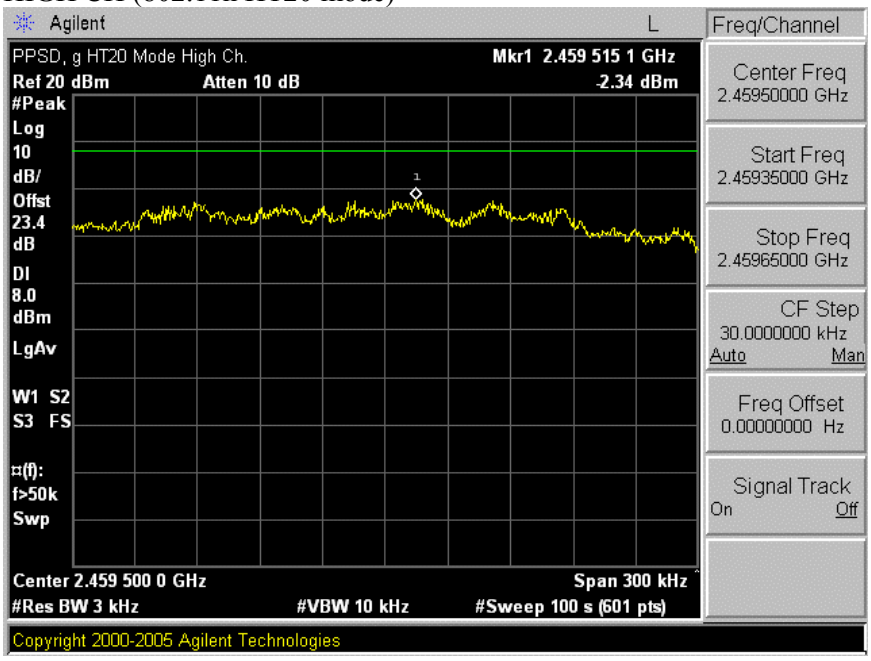
HIGH CH (802.11n HT20 mode)



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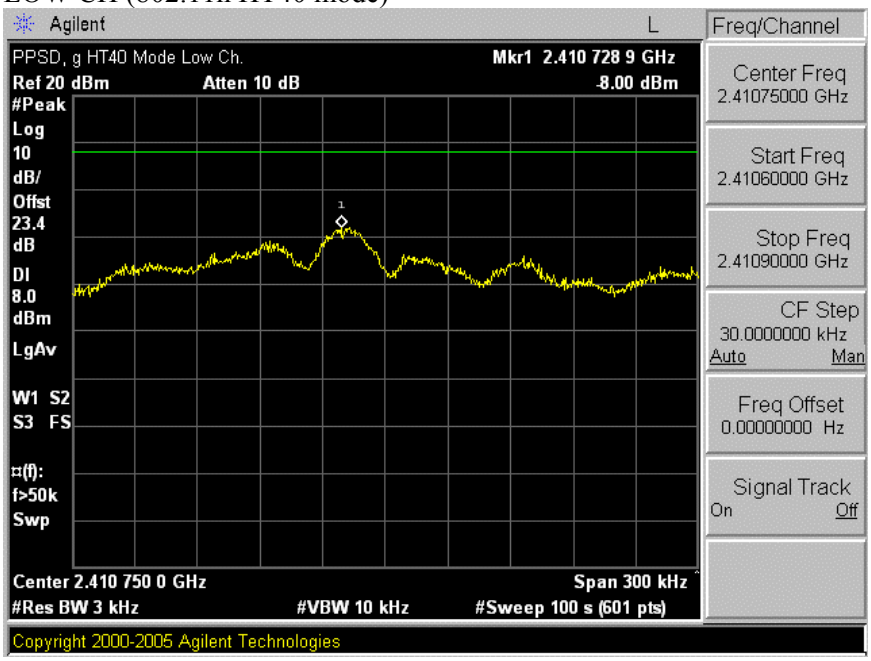
COMBINED PPSD (802.11n HT40 MODE)

LOW CH (802.11n HT40 mode)



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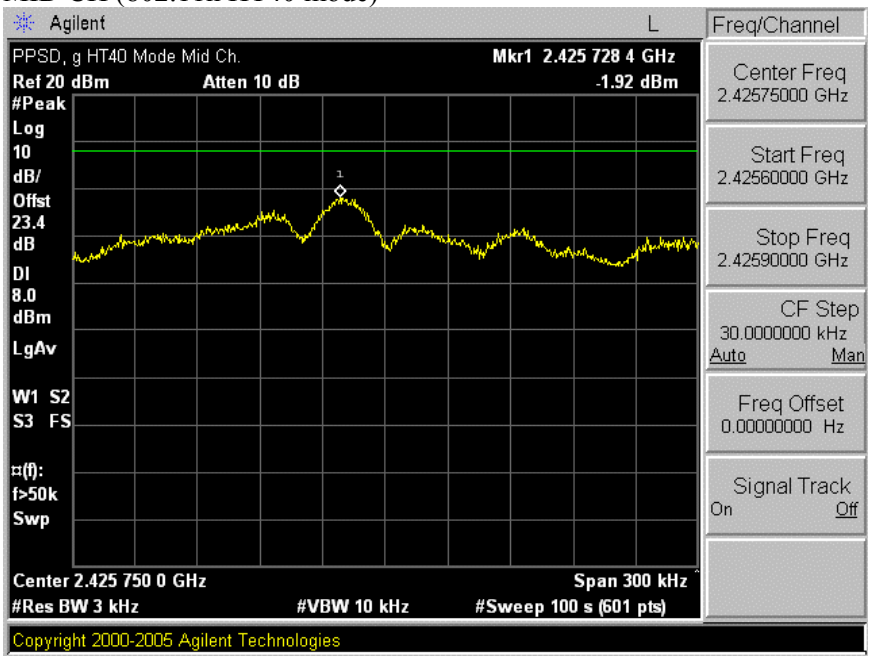
MID CH (802.11n HT40 mode)



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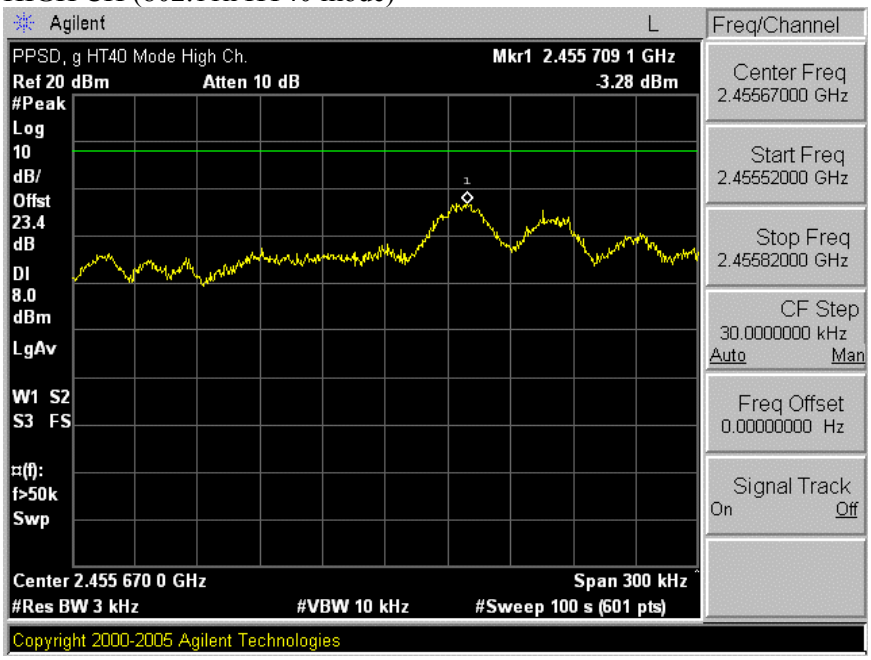
HIGH CH (802.11n HT40 mode)



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7.1.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

No non-compliance noted:

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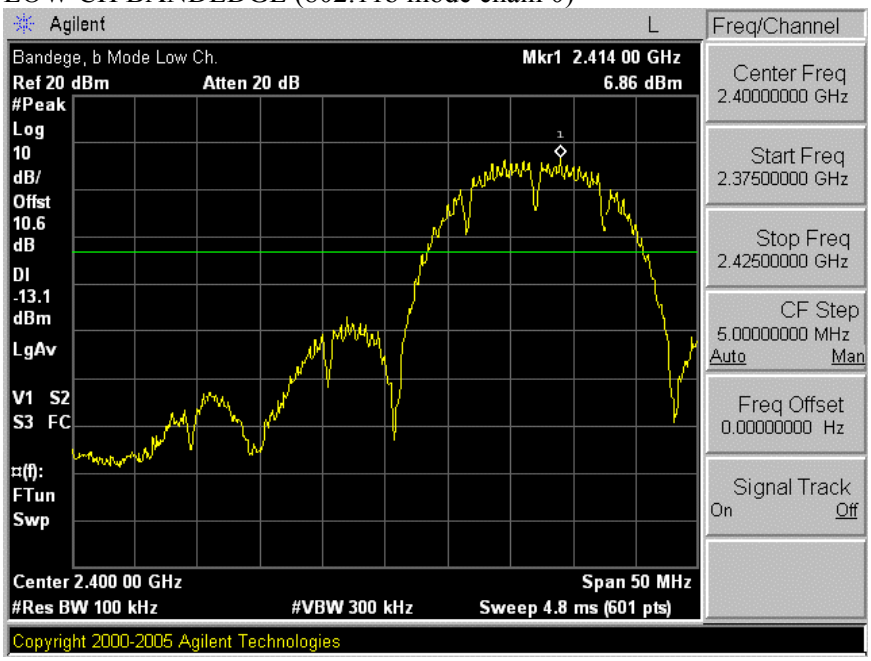
SPURIOUS EMISSIONS (802.11b MODE CHAIN 0)

LOW CH BANDEDGE (802.11b mode chain 0)



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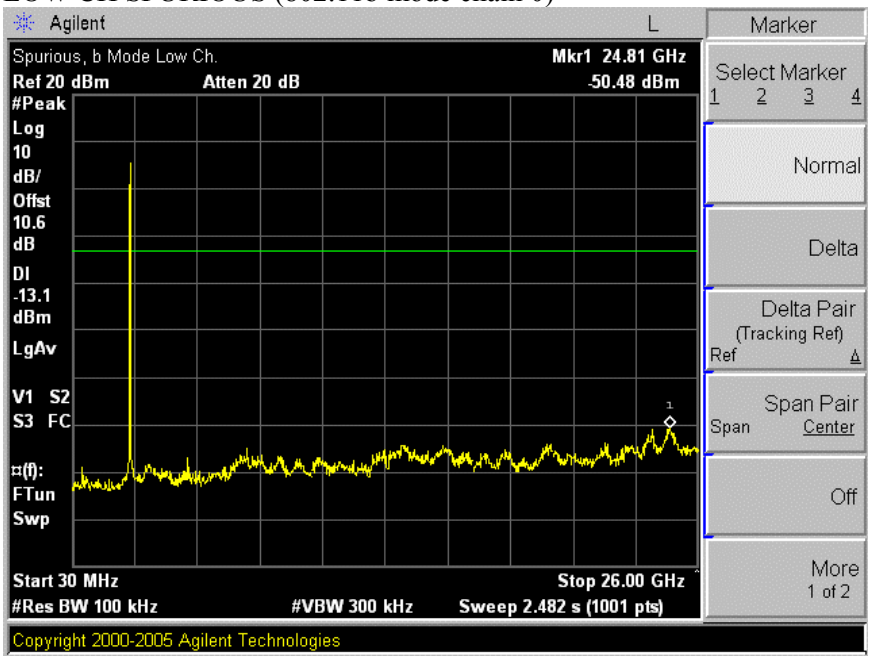
LOW CH SPURIOUS (802.11b mode chain 0)



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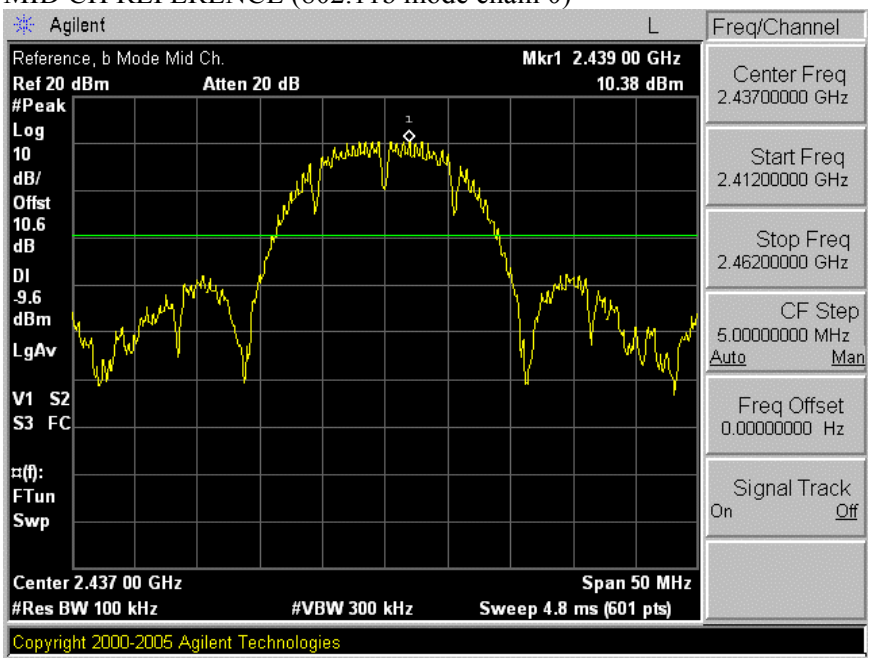
MID CH REFERENCE (802.11b mode chain 0)



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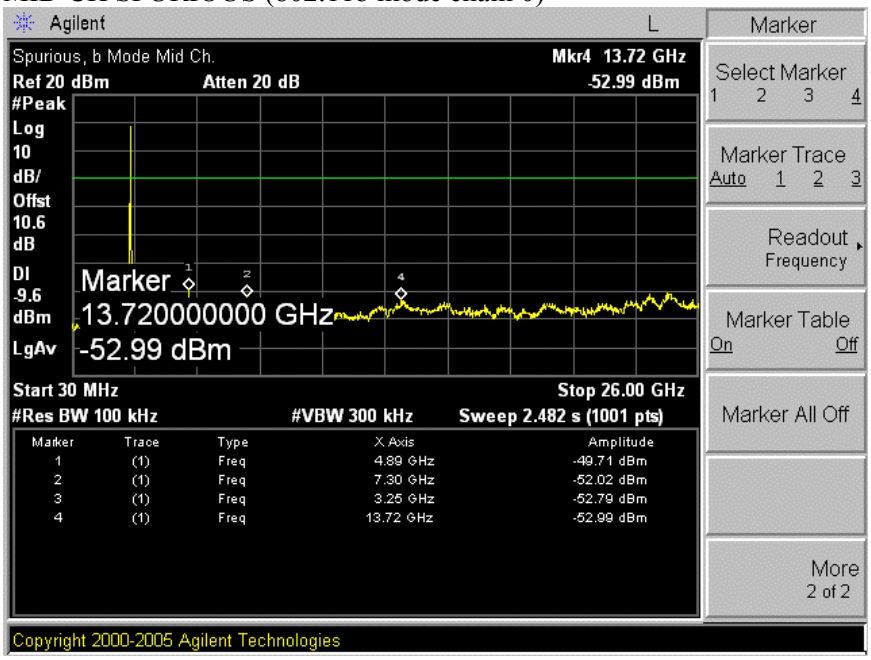
MID CH SPURIOUS (802.11b mode chain 0)



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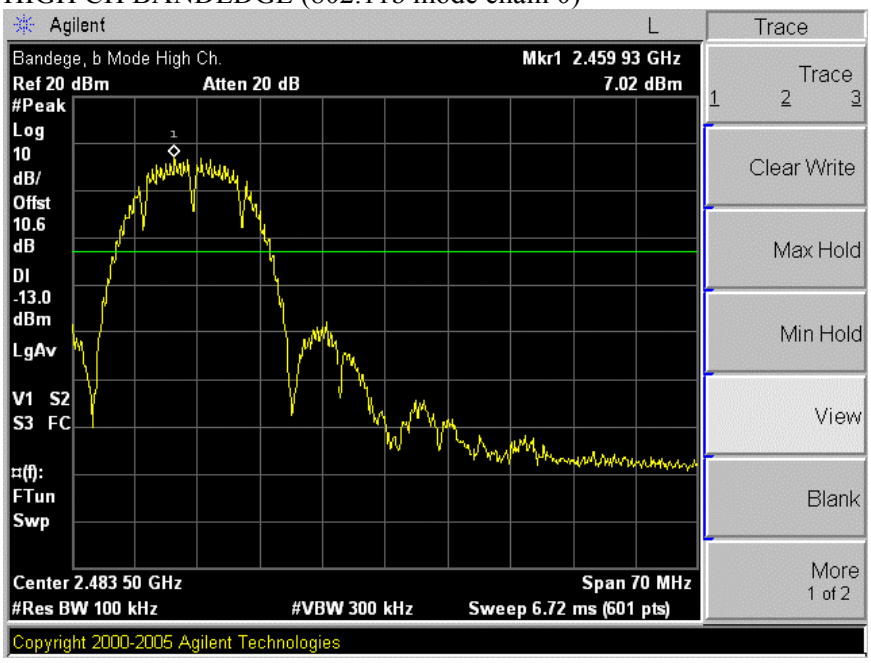
HIGH CH BANDEDGE (802.11b mode chain 0)



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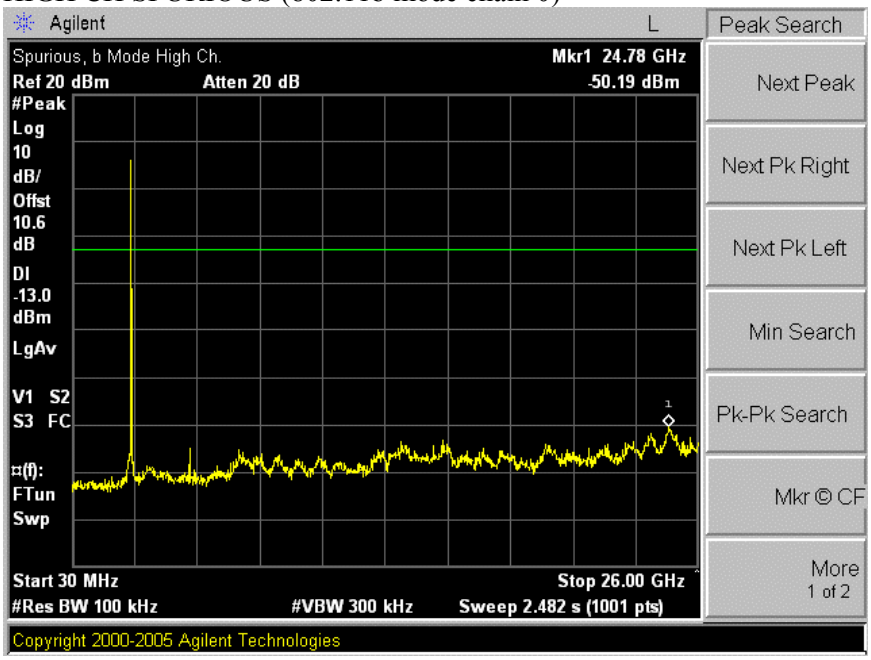
HIGH CH SPURIOUS (802.11b mode chain 0)



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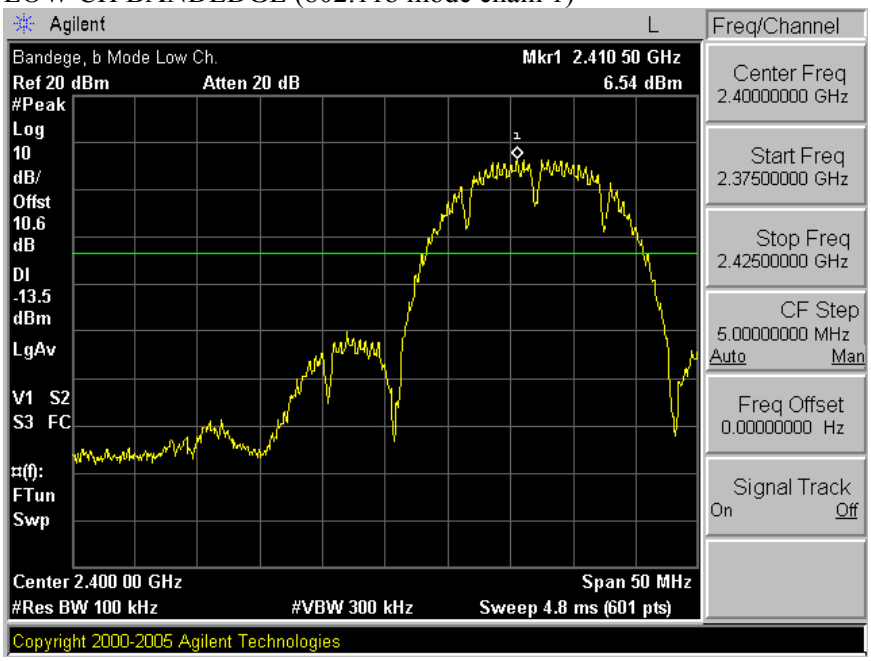
SPURIOUS EMISSIONS (802.11b MODE CHAIN 1)

LOW CH BANDEDGE (802.11b mode chain 1)



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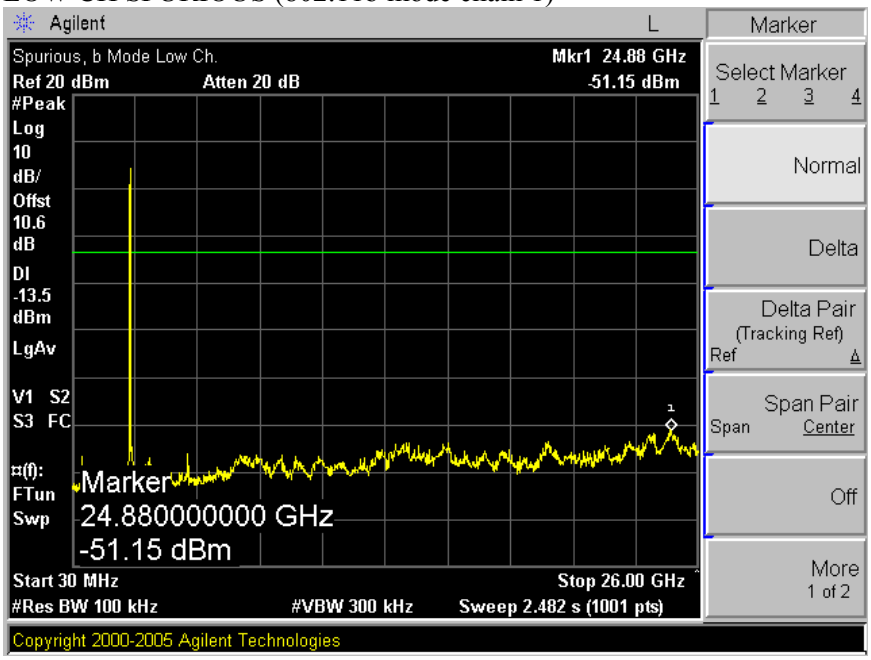
LOW CH SPURIOUS (802.11b mode chain 1)



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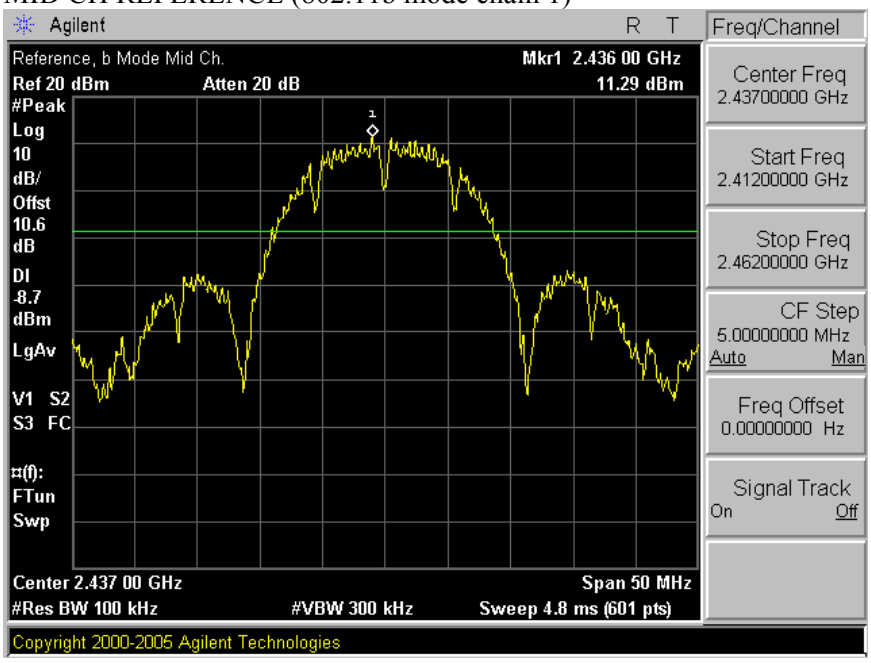
MID CH REFERENCE (802.11b mode chain 1)



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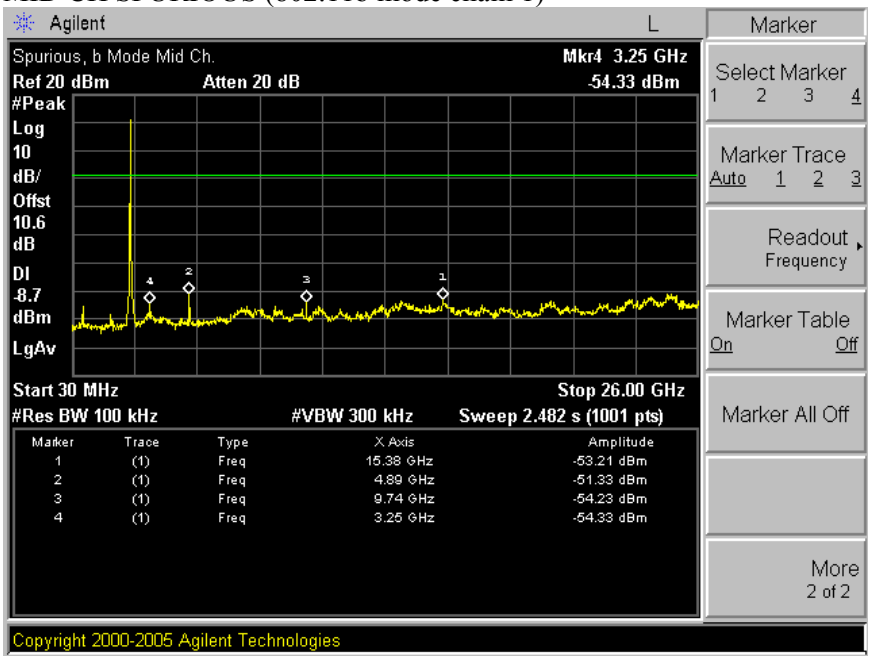
MID CH SPURIOUS (802.11b mode chain 1)



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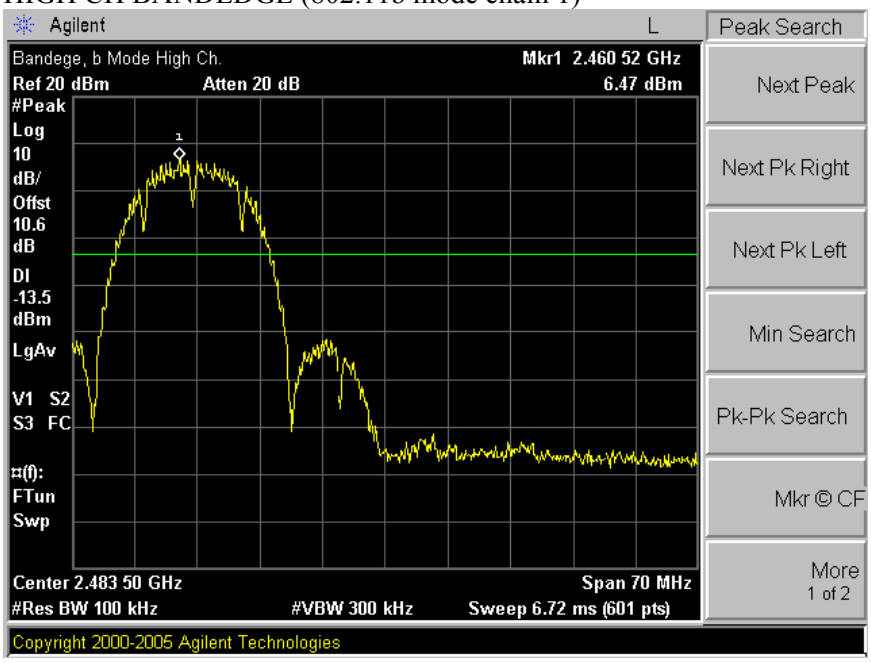
HIGH CH BANDEDGE (802.11b mode chain 1)



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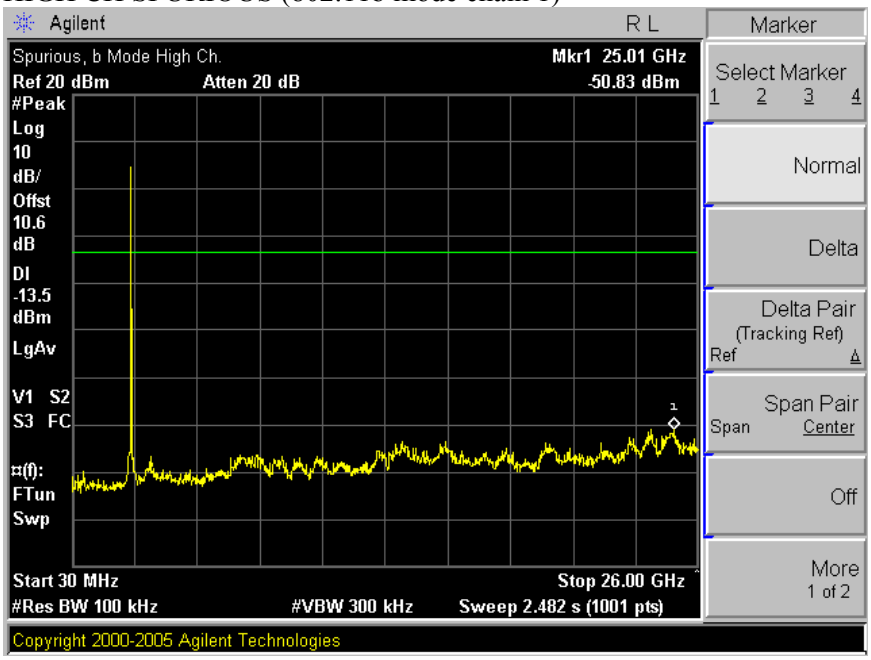
HIGH CH SPURIOUS (802.11b mode chain 1)



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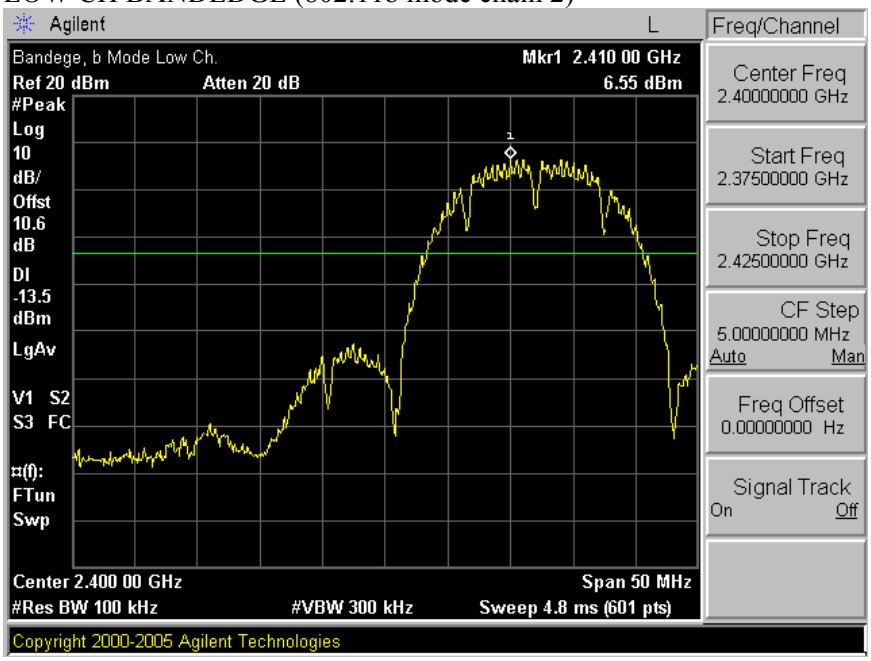
SPURIOUS EMISSIONS (802.11b MODE CHAIN 2)

LOW CH BANDEDGE (802.11b mode chain 2)



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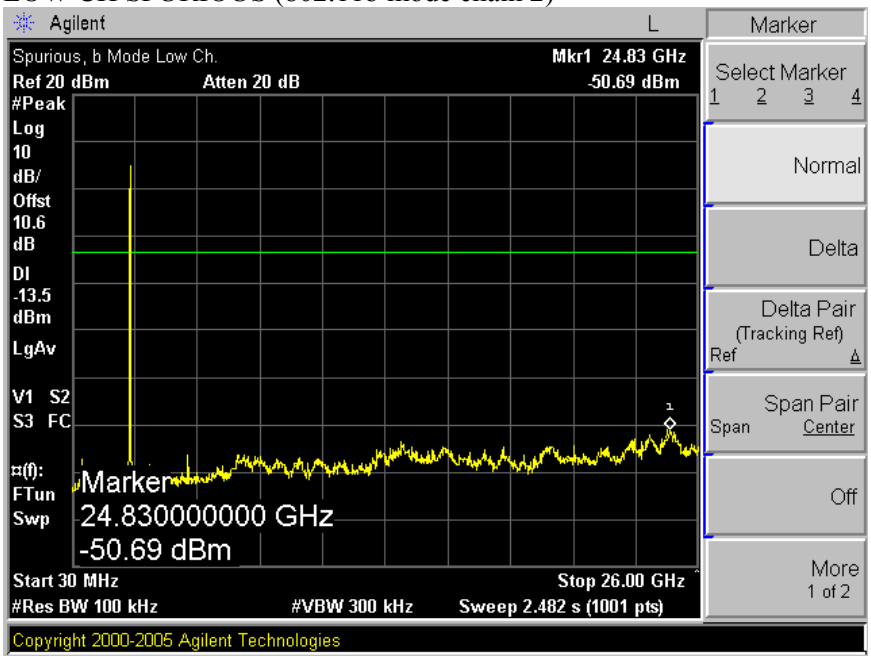
LOW CH SPURIOUS (802.11b mode chain 2)



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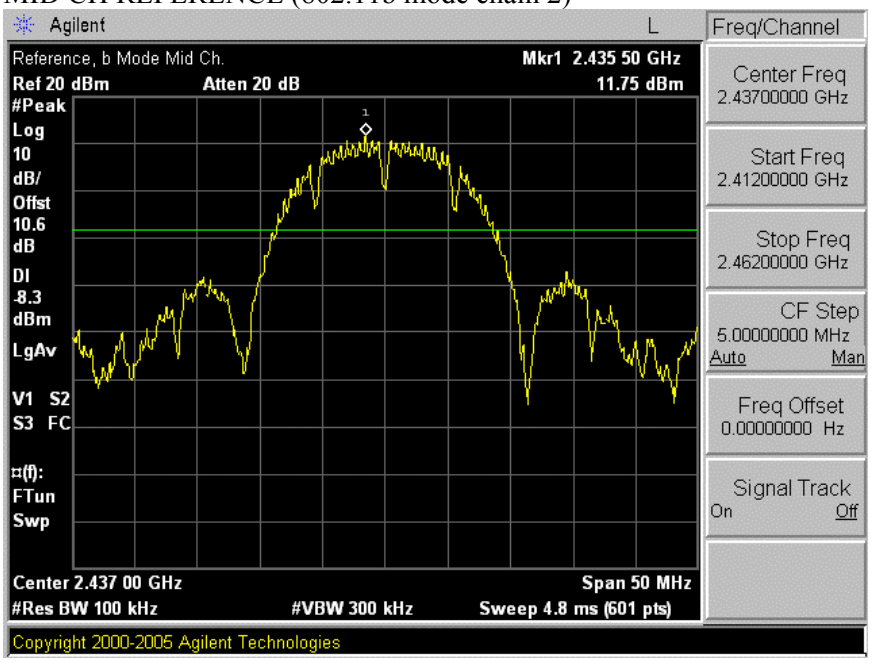
MID CH REFERENCE (802.11b mode chain 2)



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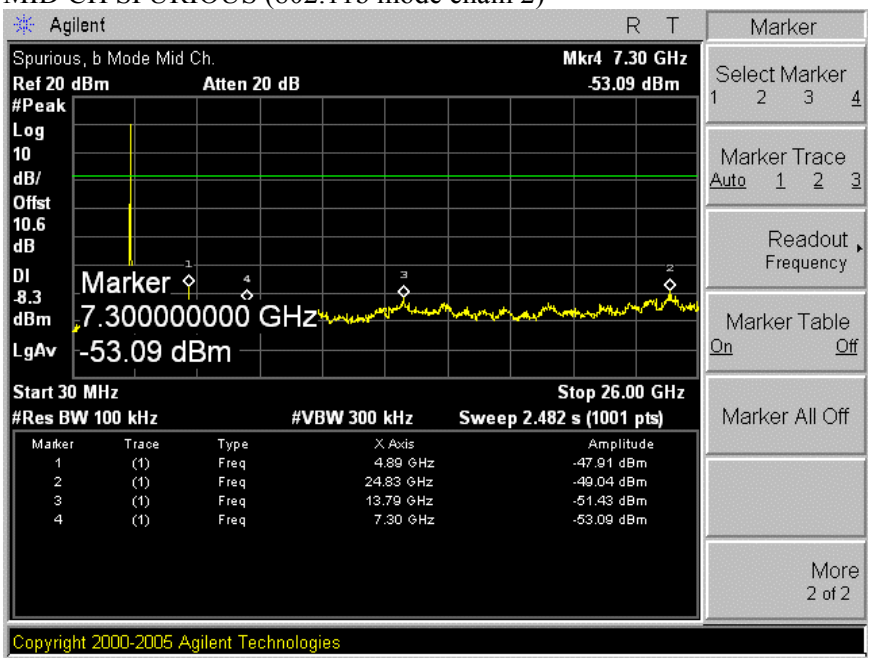
MID CH SPURIOUS (802.11b mode chain 2)



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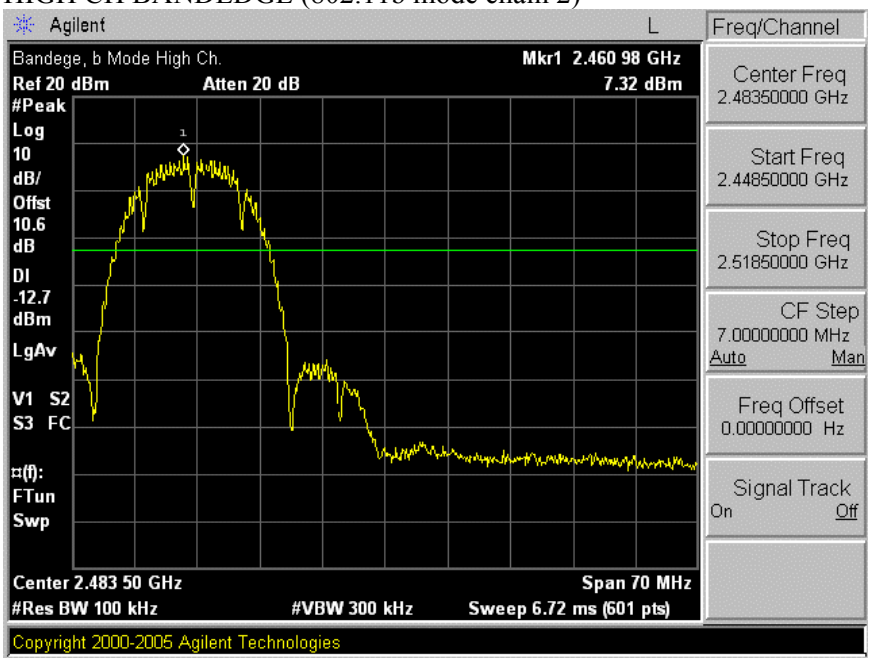
HIGH CH BANDEDGE (802.11b mode chain 2)



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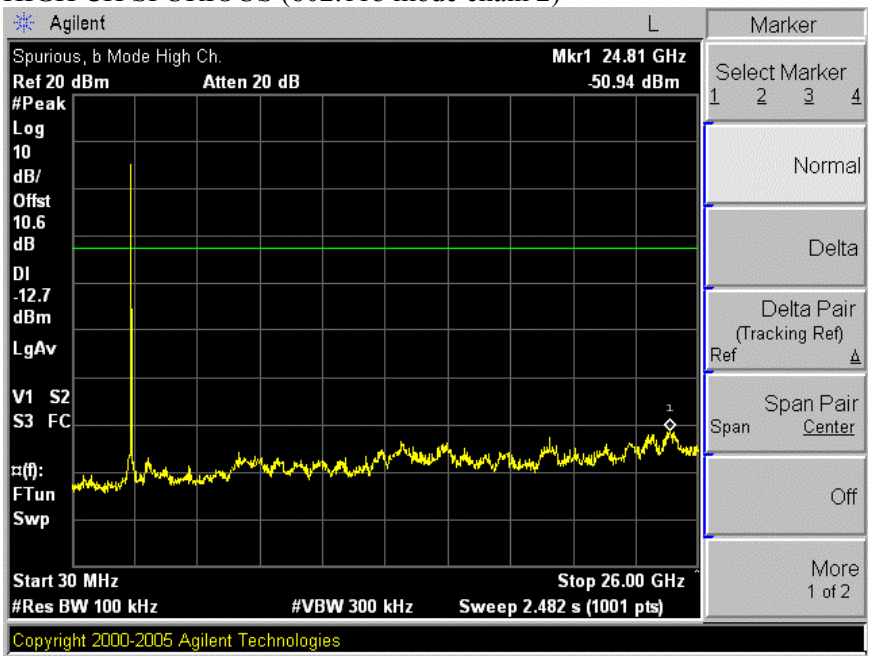
HIGH CH SPURIOUS (802.11b mode chain 2)



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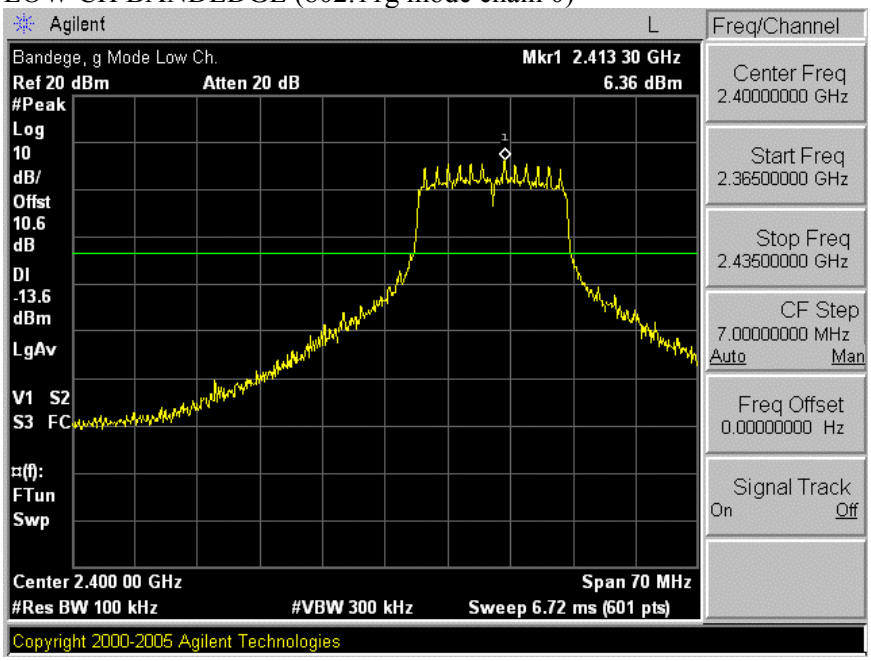
SPURIOUS EMISSIONS (802.11g MODE CHAIN 0)

LOW CH BANDEDGE (802.11g mode chain 0)



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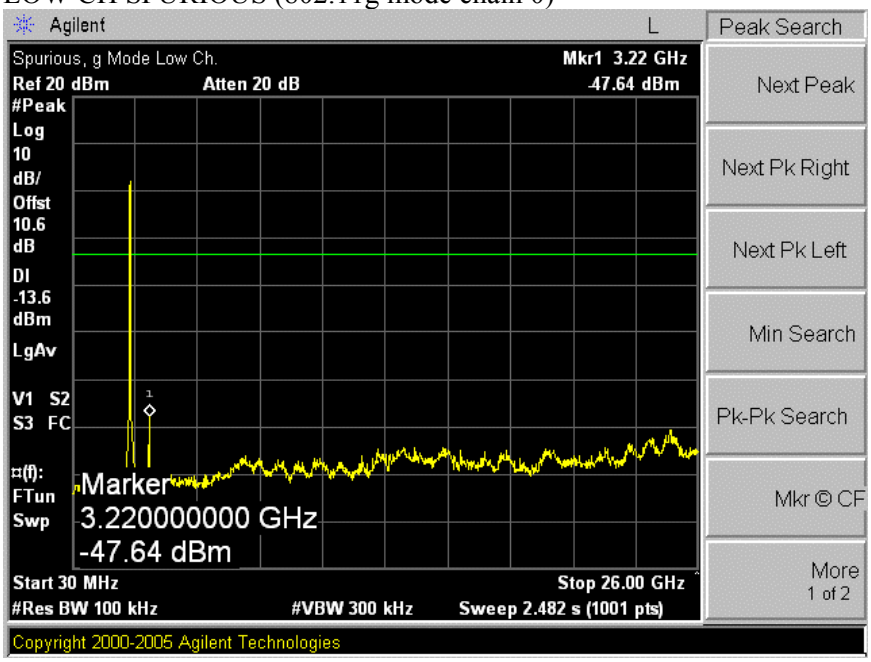
LOW CH SPURIOUS (802.11g mode chain 0)



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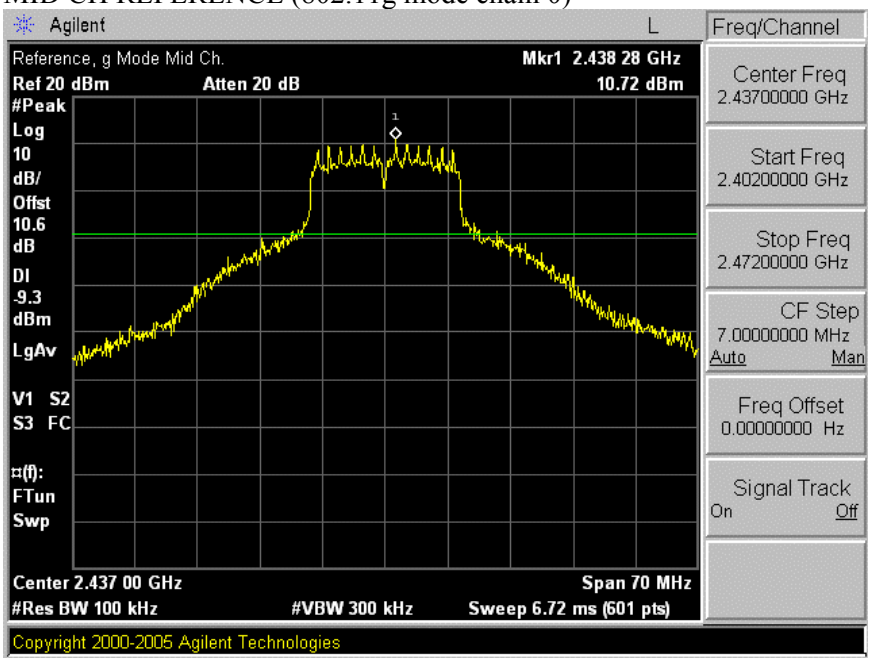
MID CH REFERENCE (802.11g mode chain 0)



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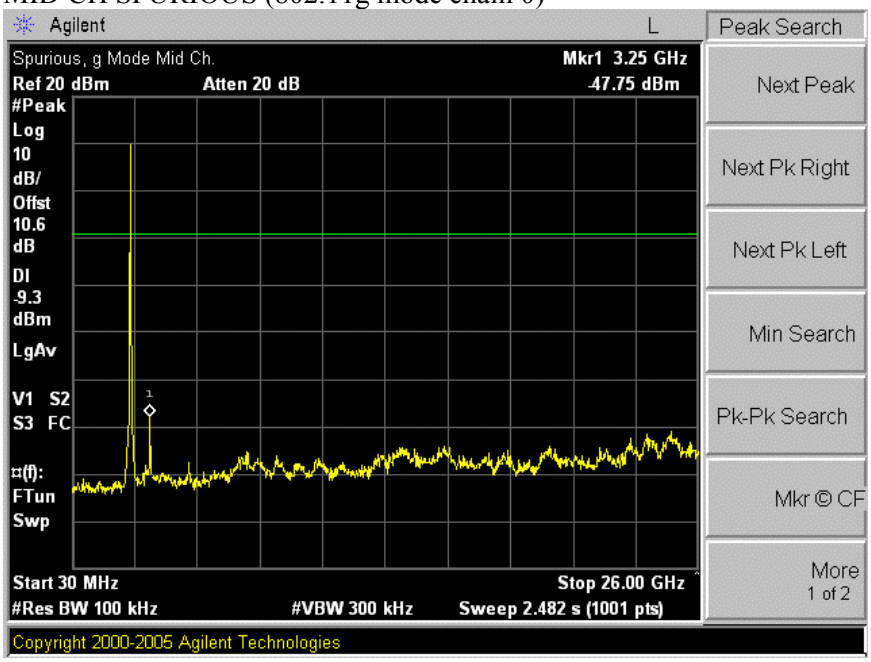
MID CH SPURIOUS (802.11g mode chain 0)



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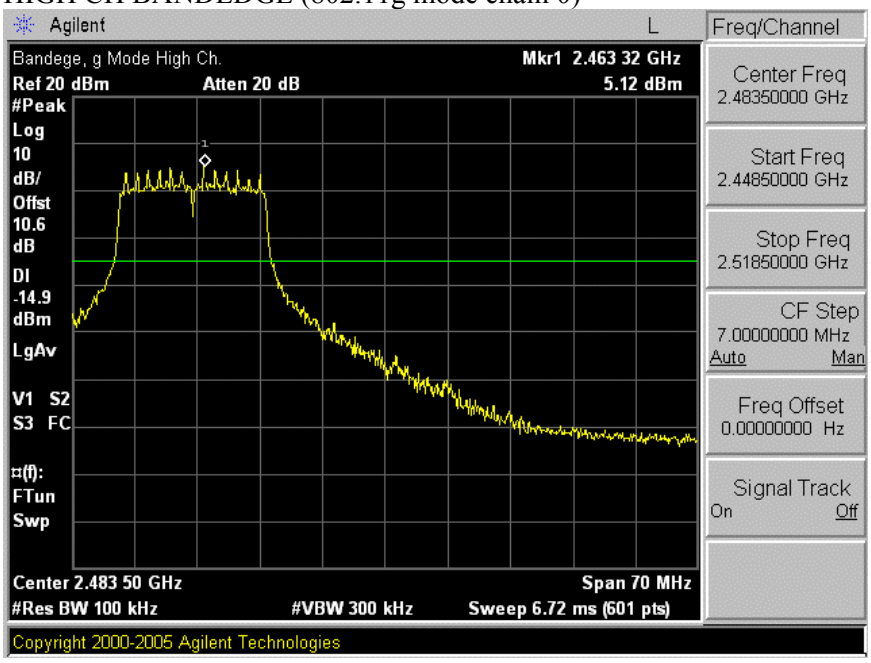
HIGH CH BANDEDGE (802.11g mode chain 0)



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