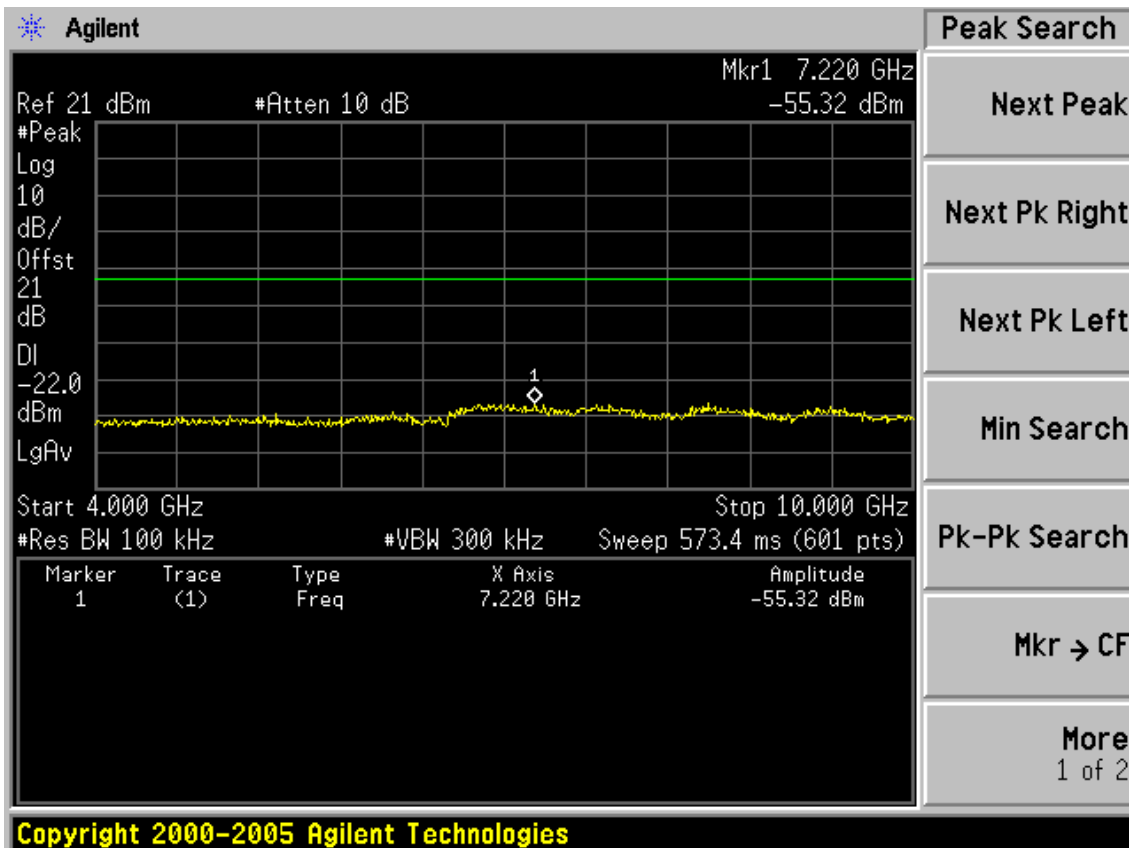
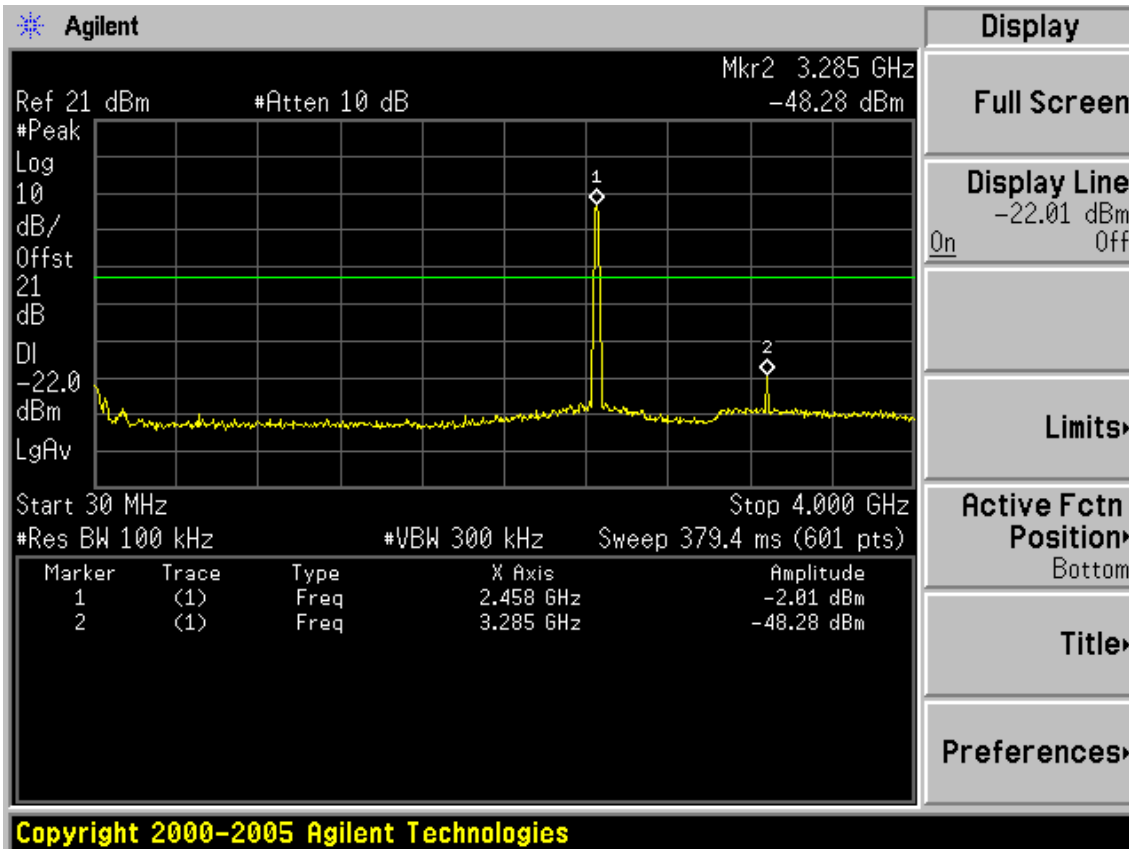
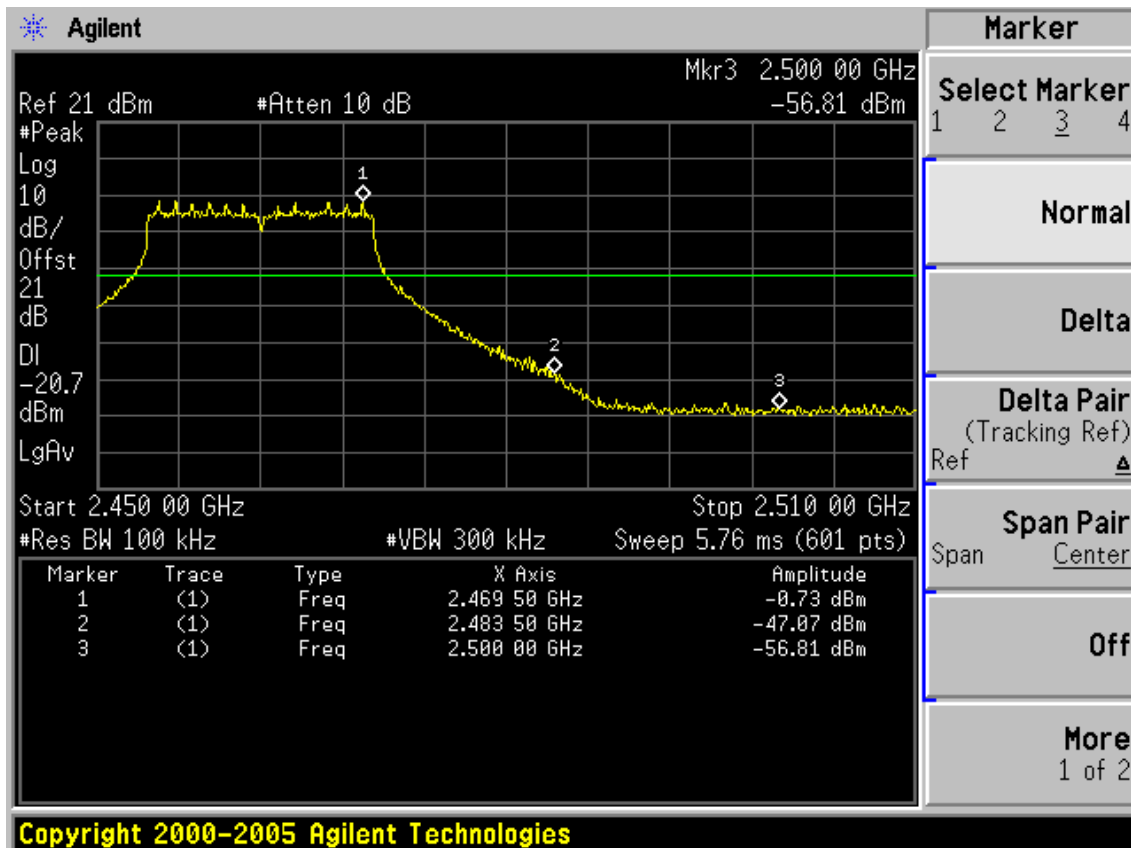
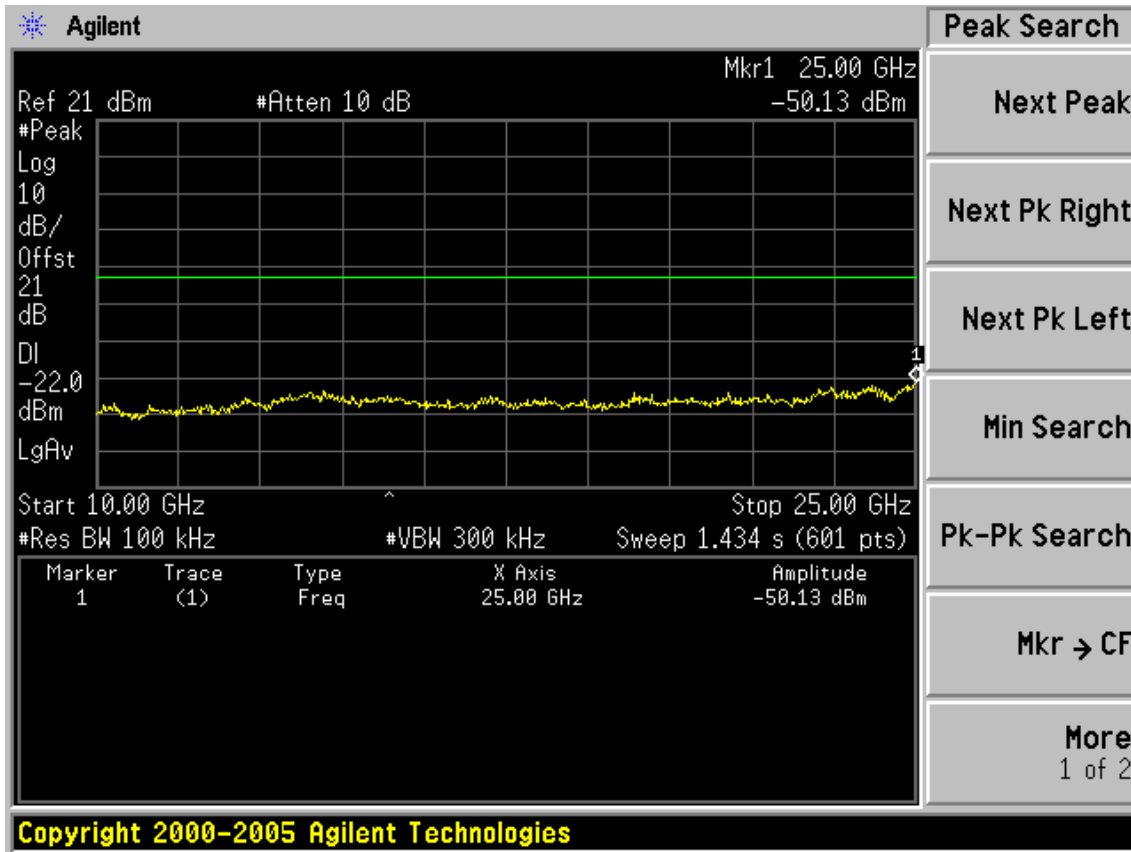
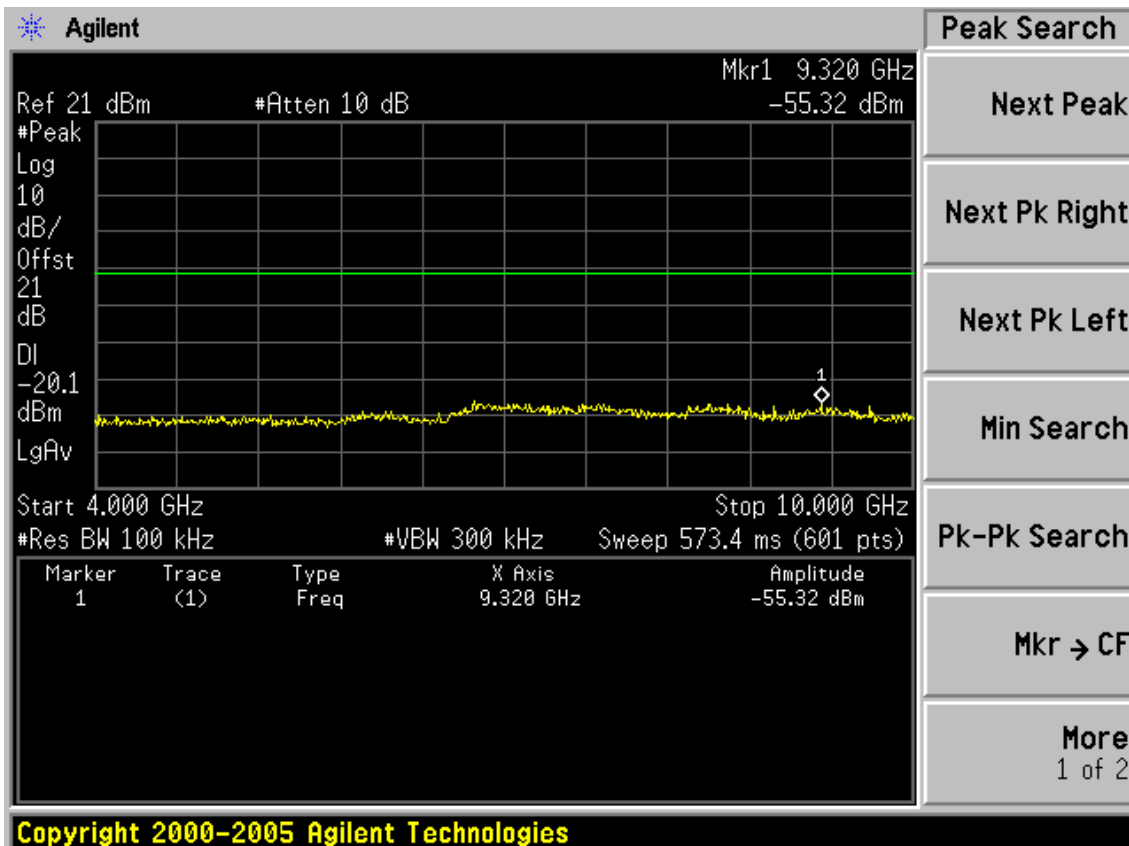
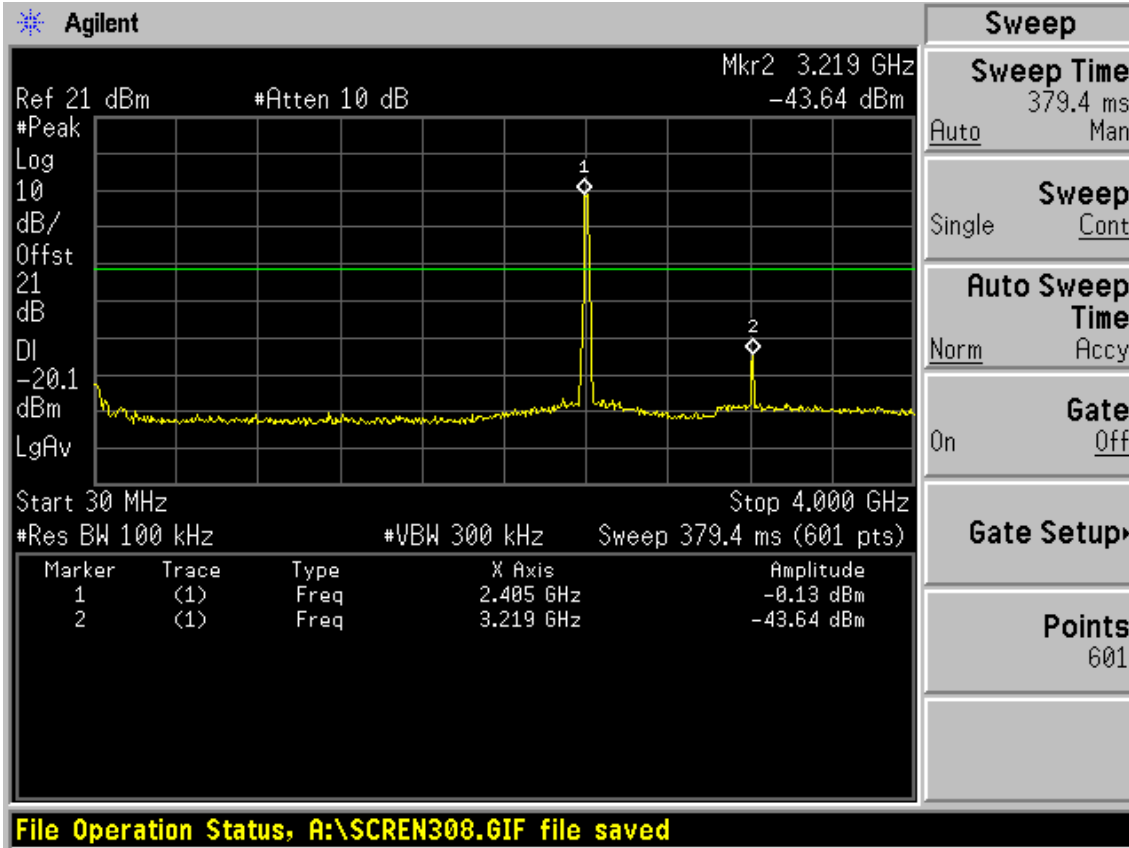


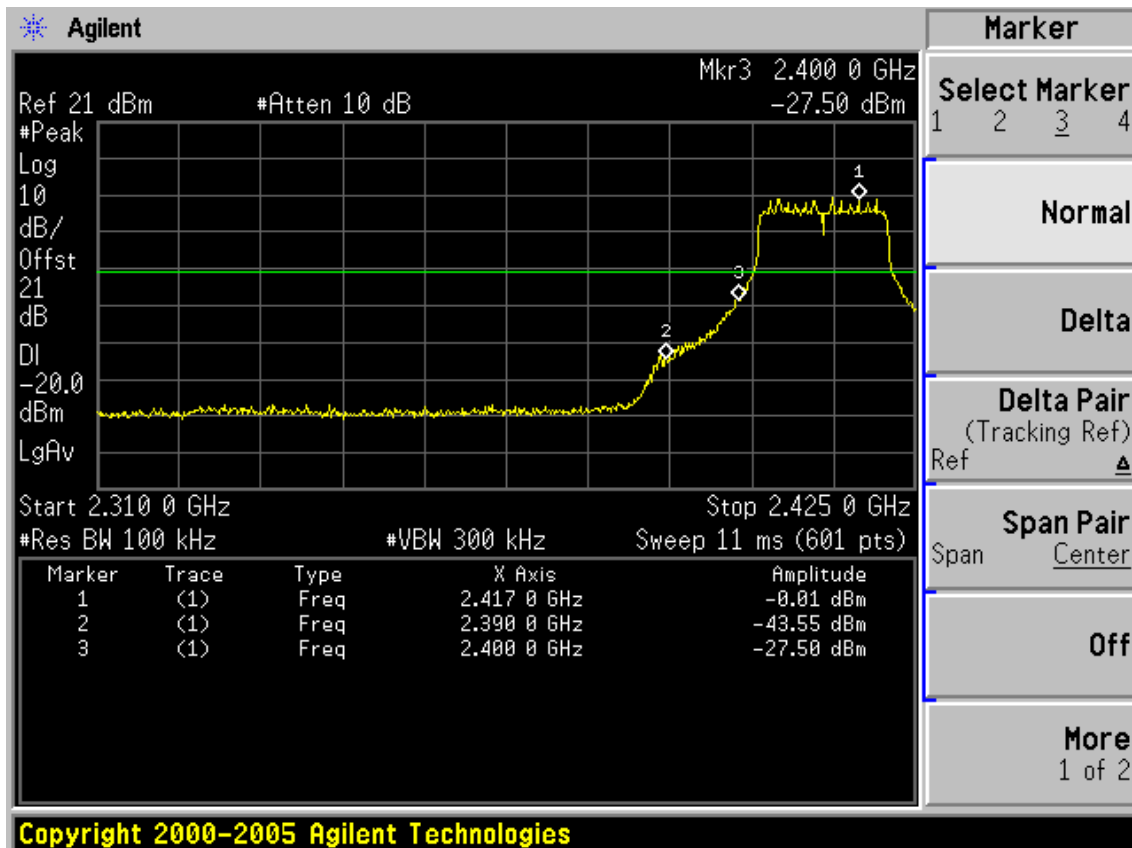
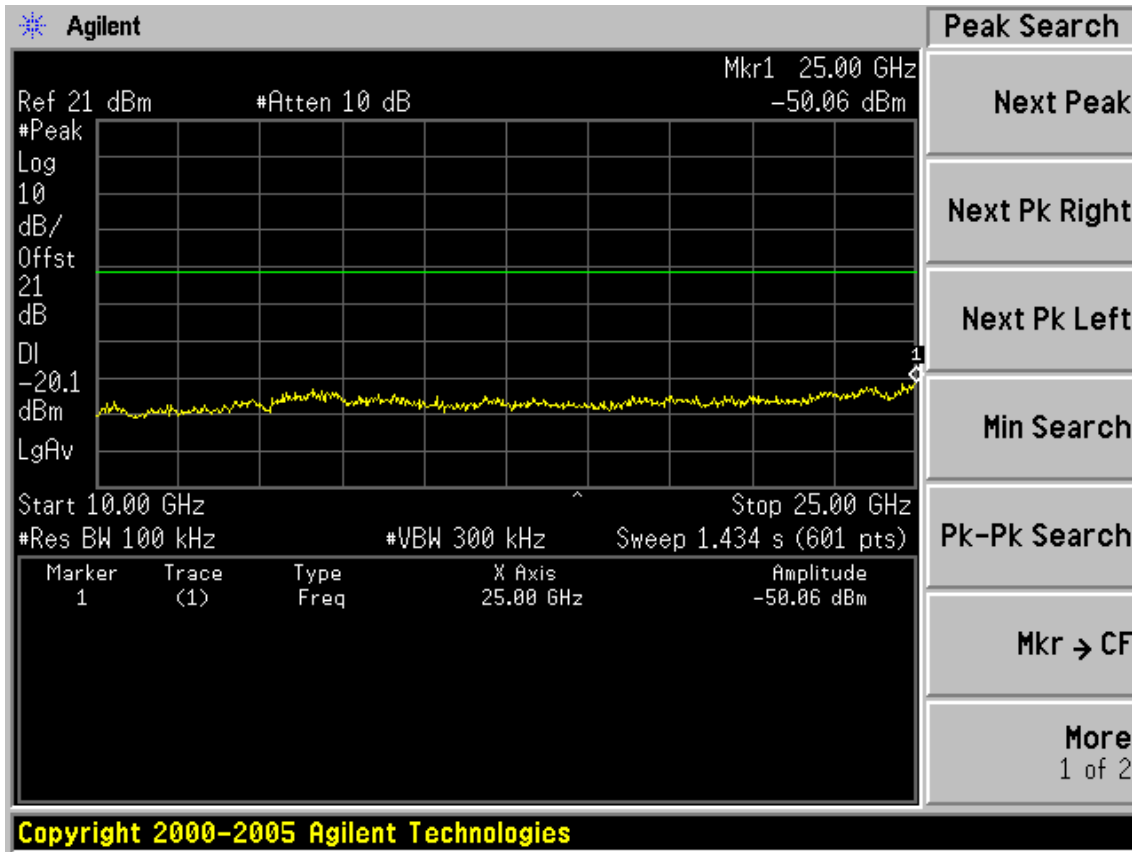
Test CH11: 2462MHz



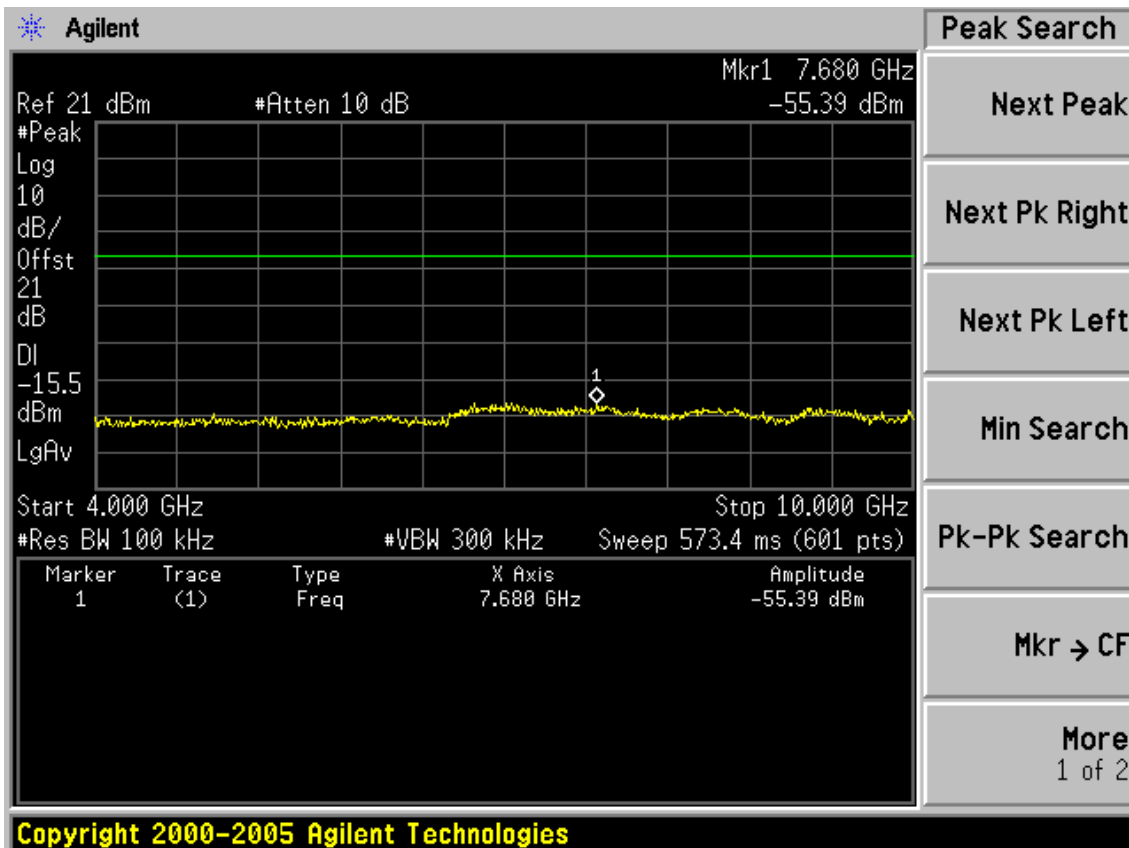
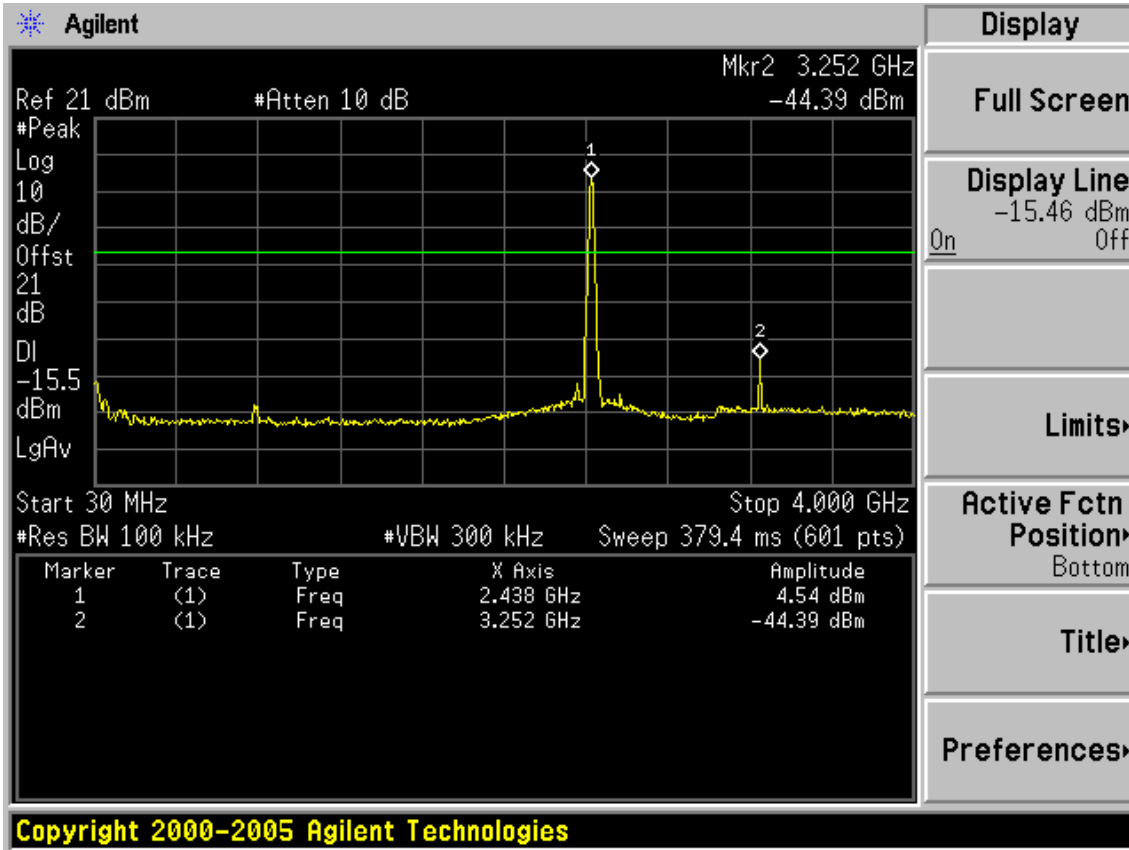


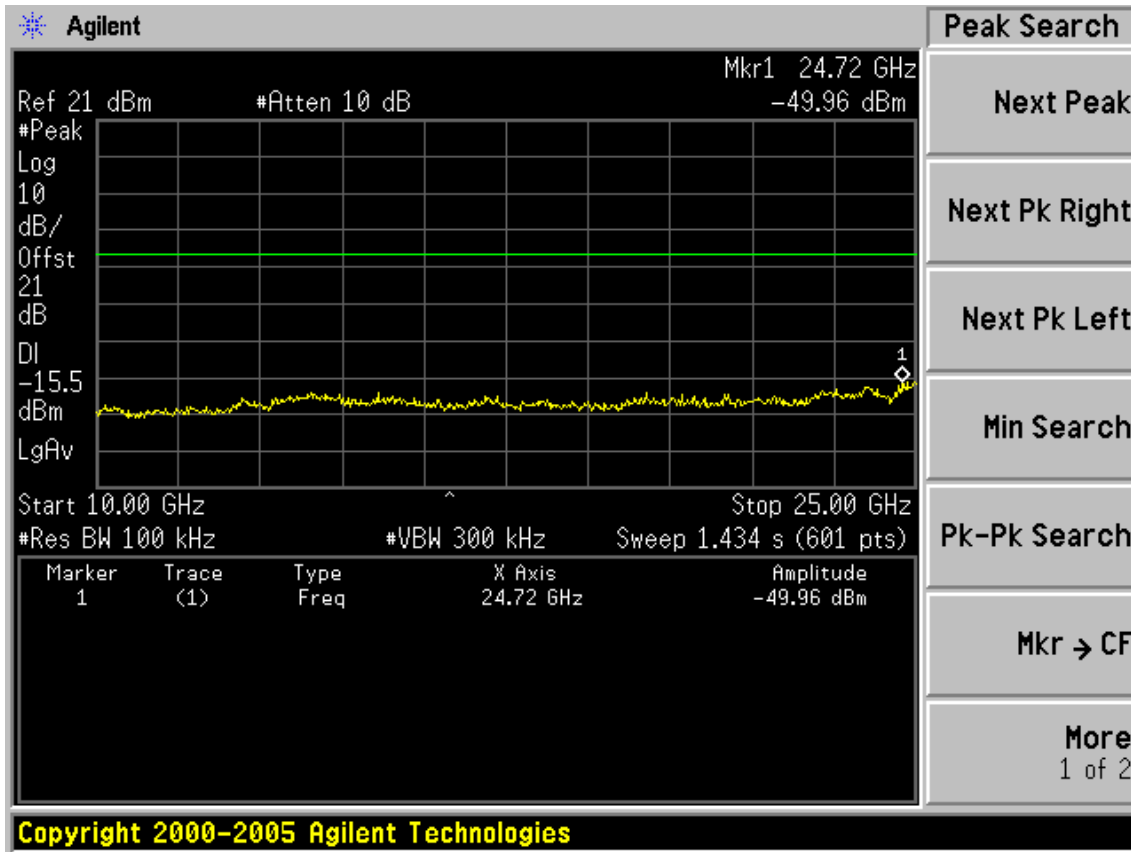
Test Mode: IEEE 802.11n HT20 TX
 Test CH1: 2412MHz



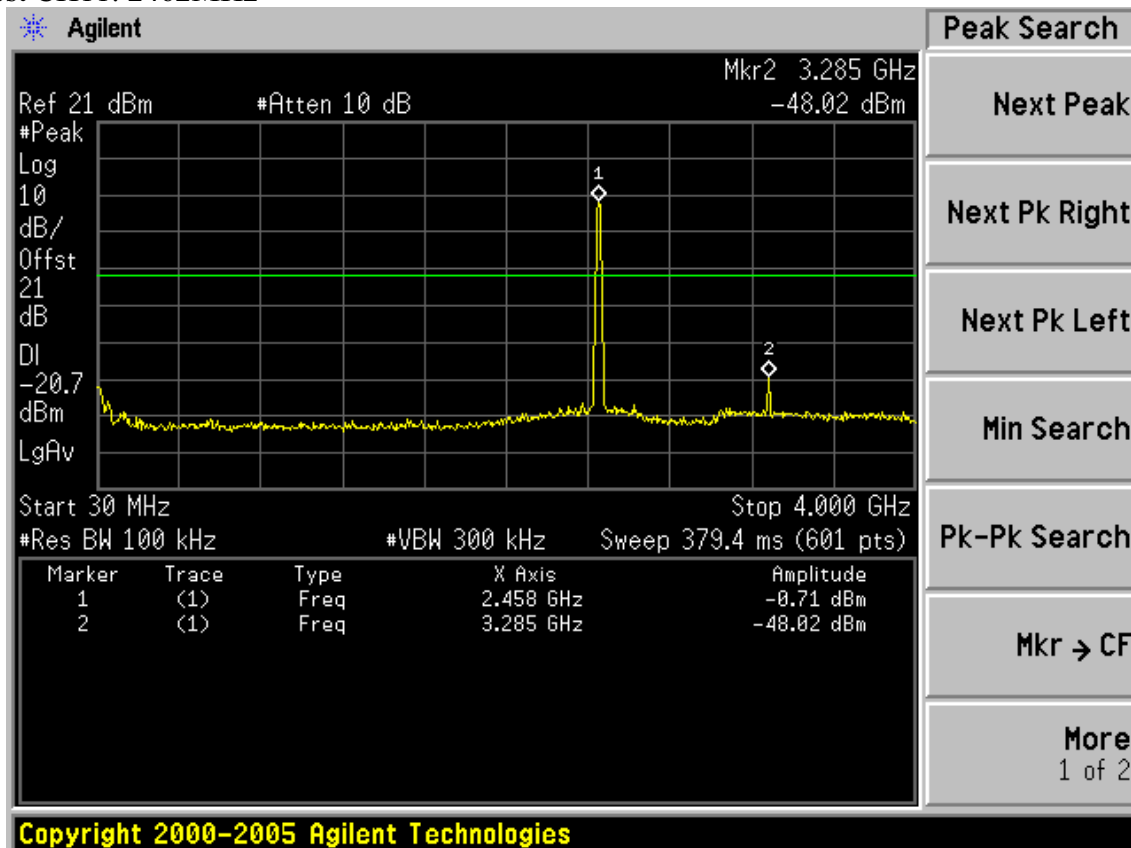


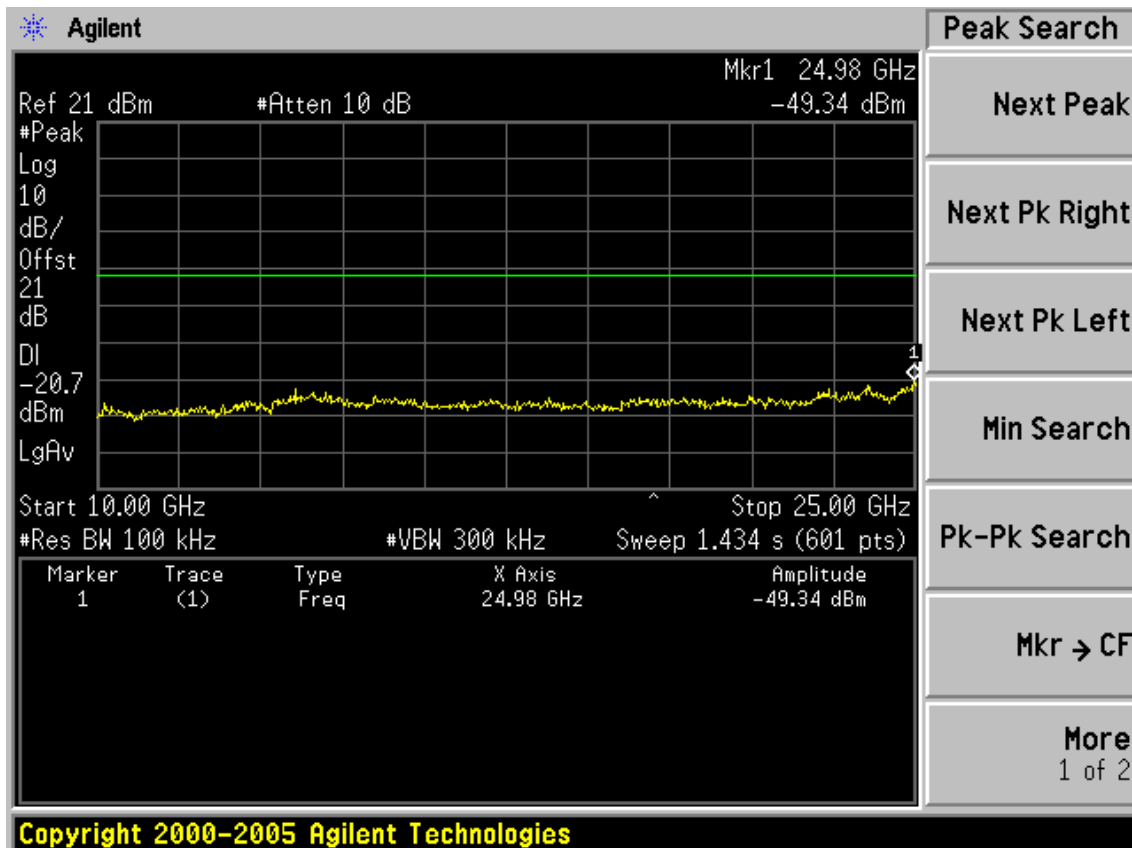
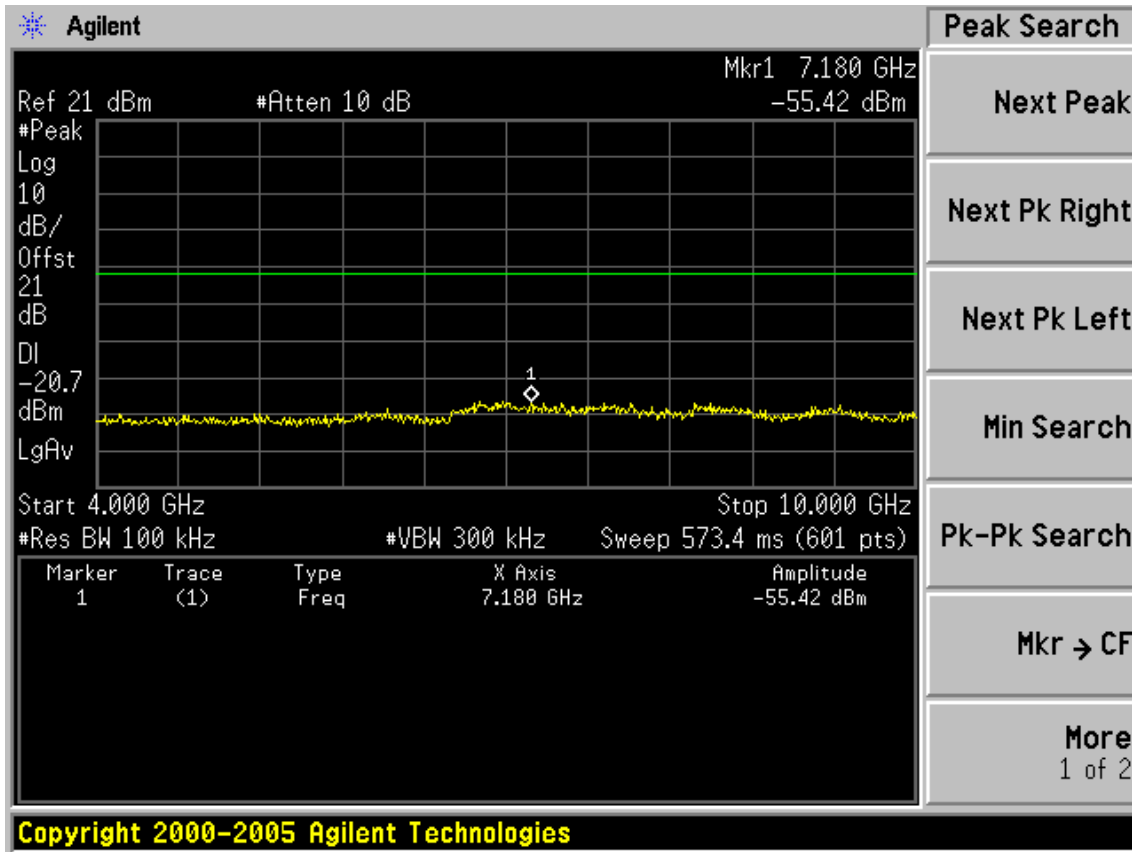
Test CH6: 2437MHz

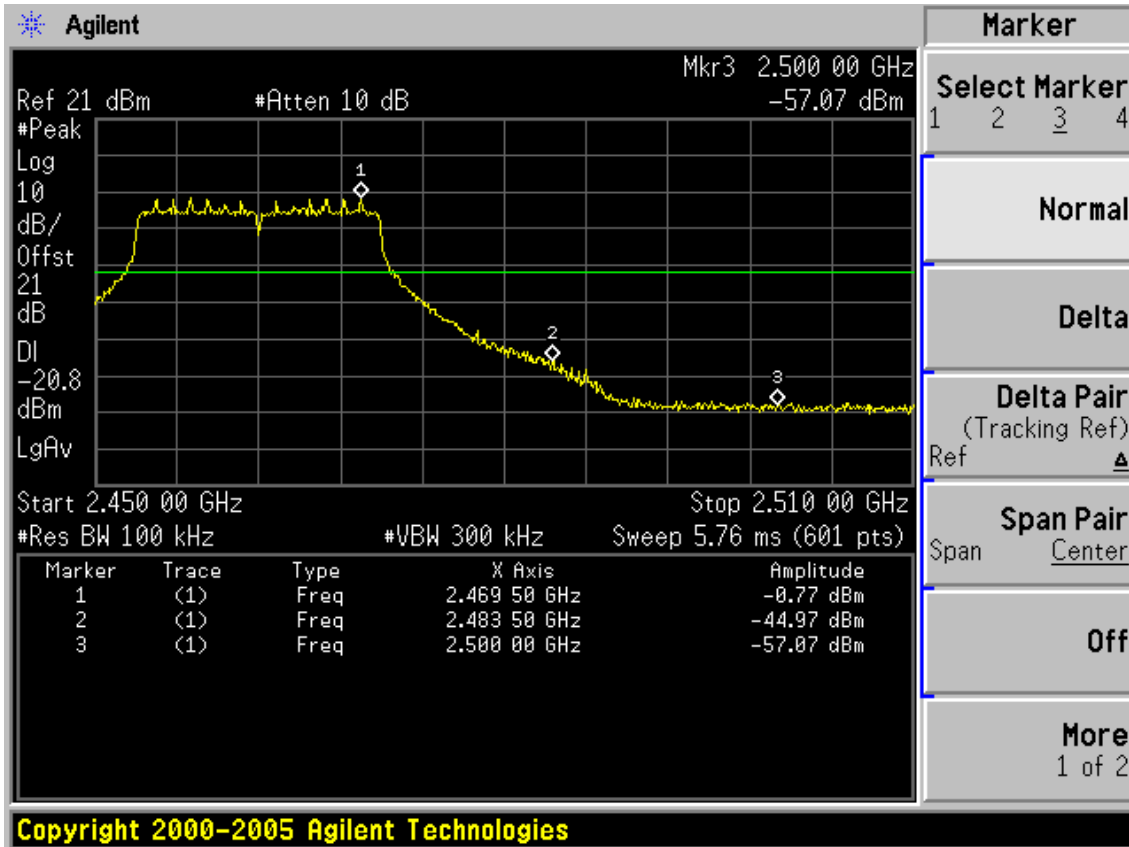




Test CH11: 2462MHz

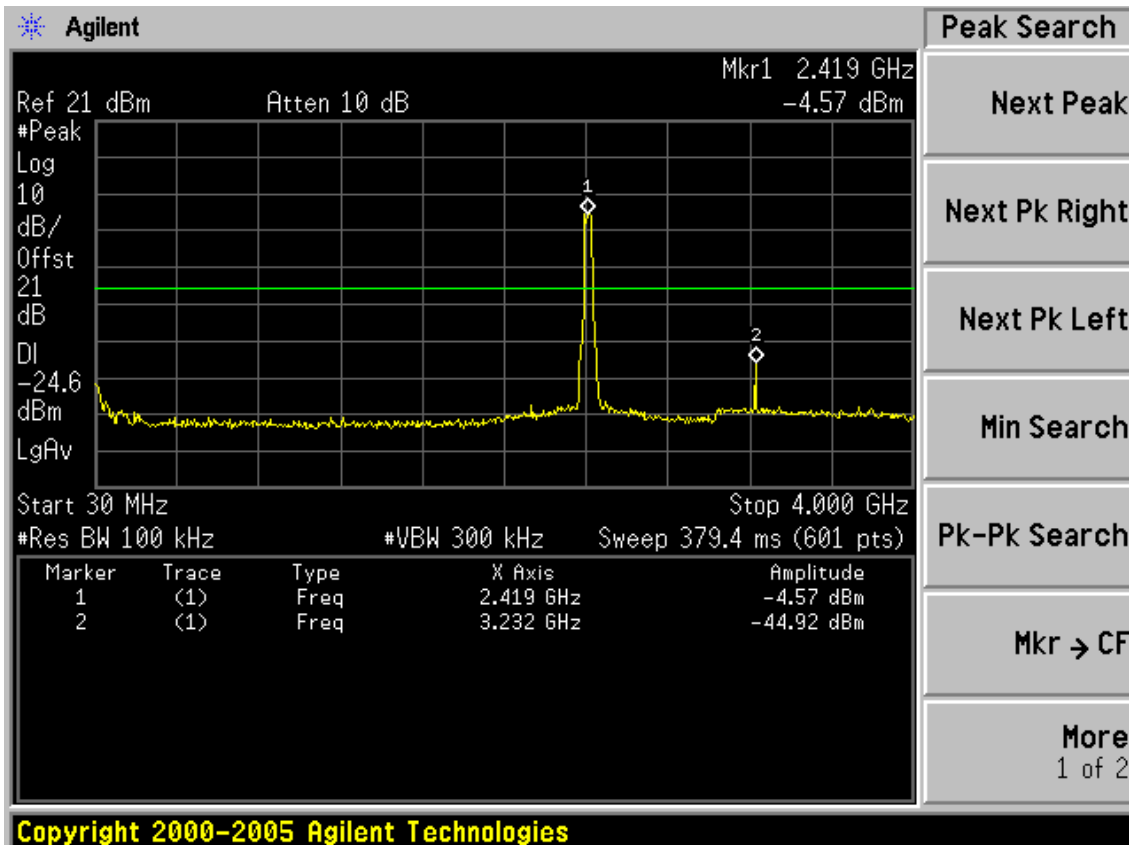


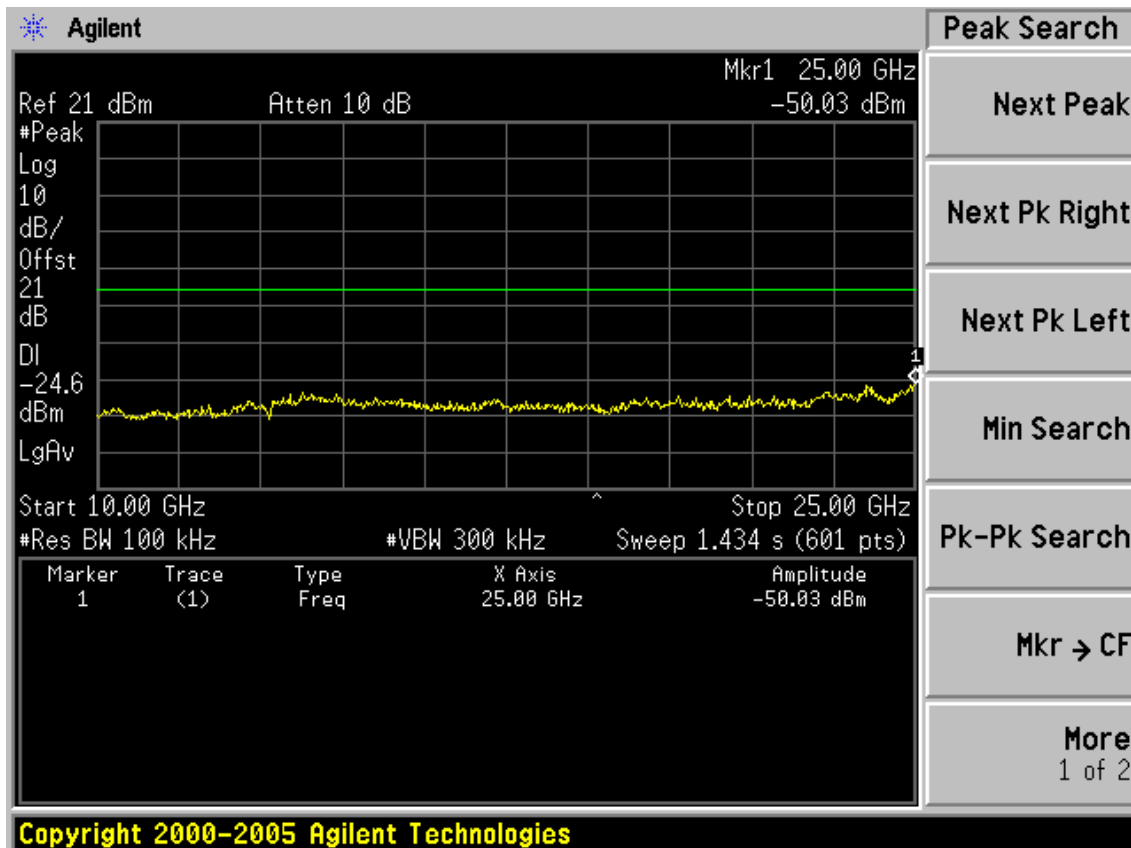
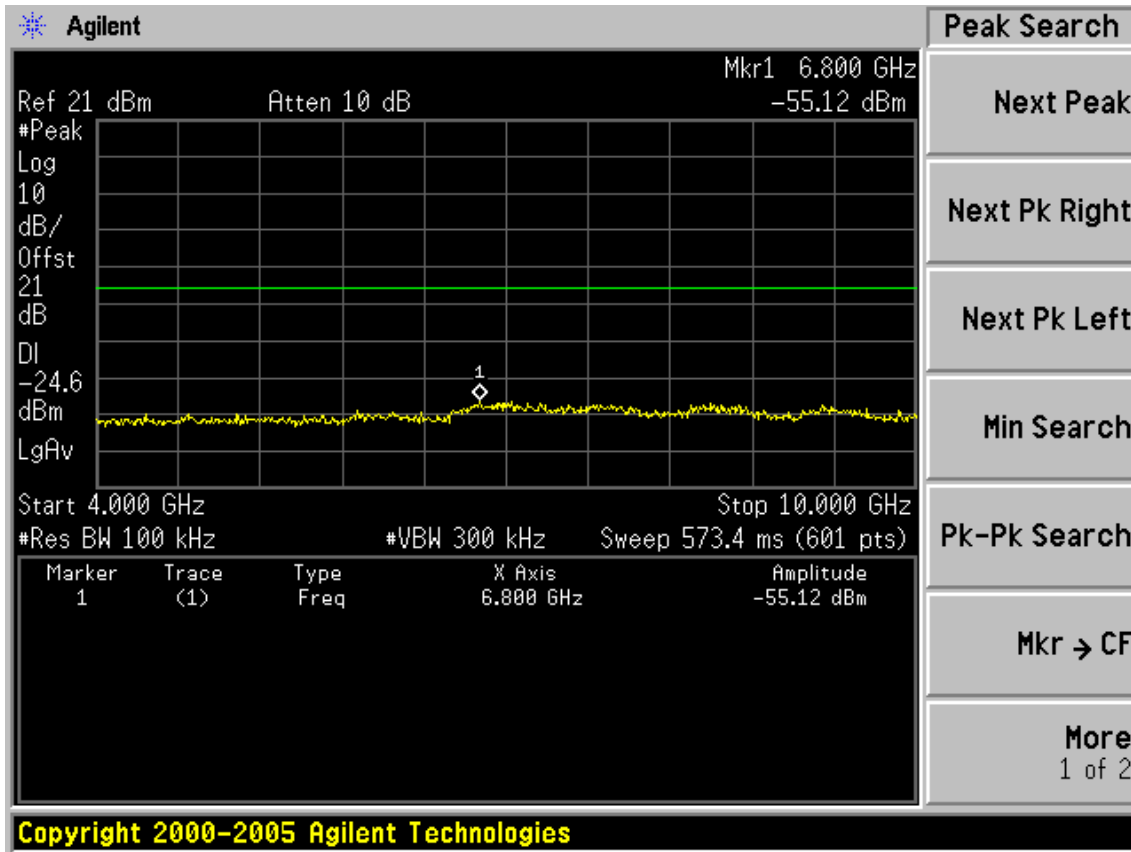


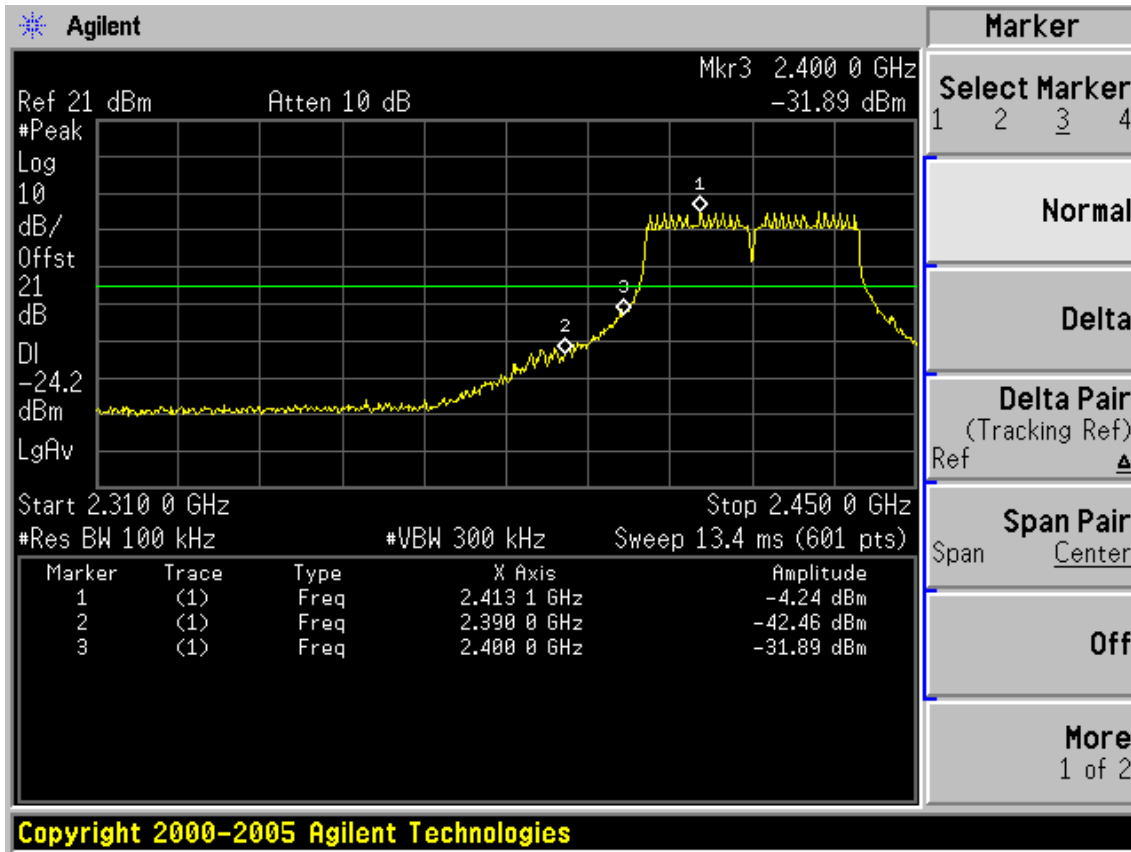


Test Mode: IEEE 802.11n HT40 TX

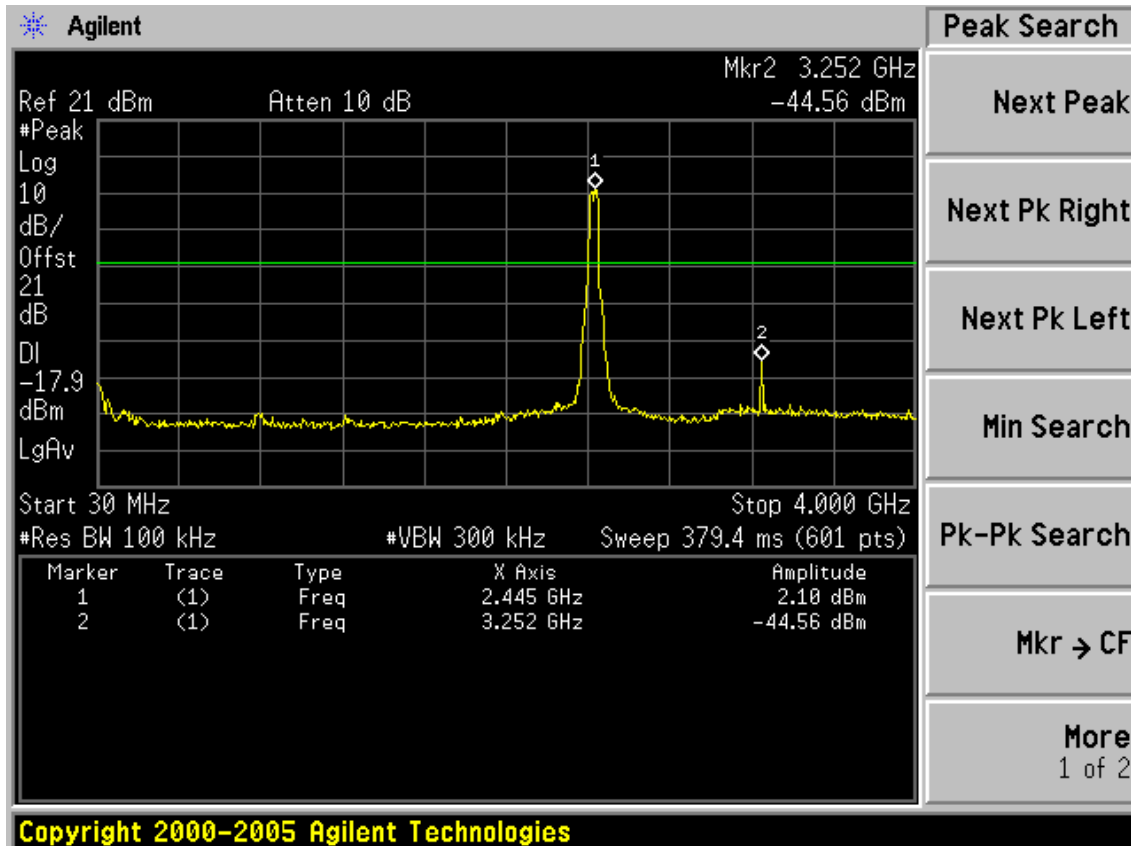
Test CH1: 2422MHz

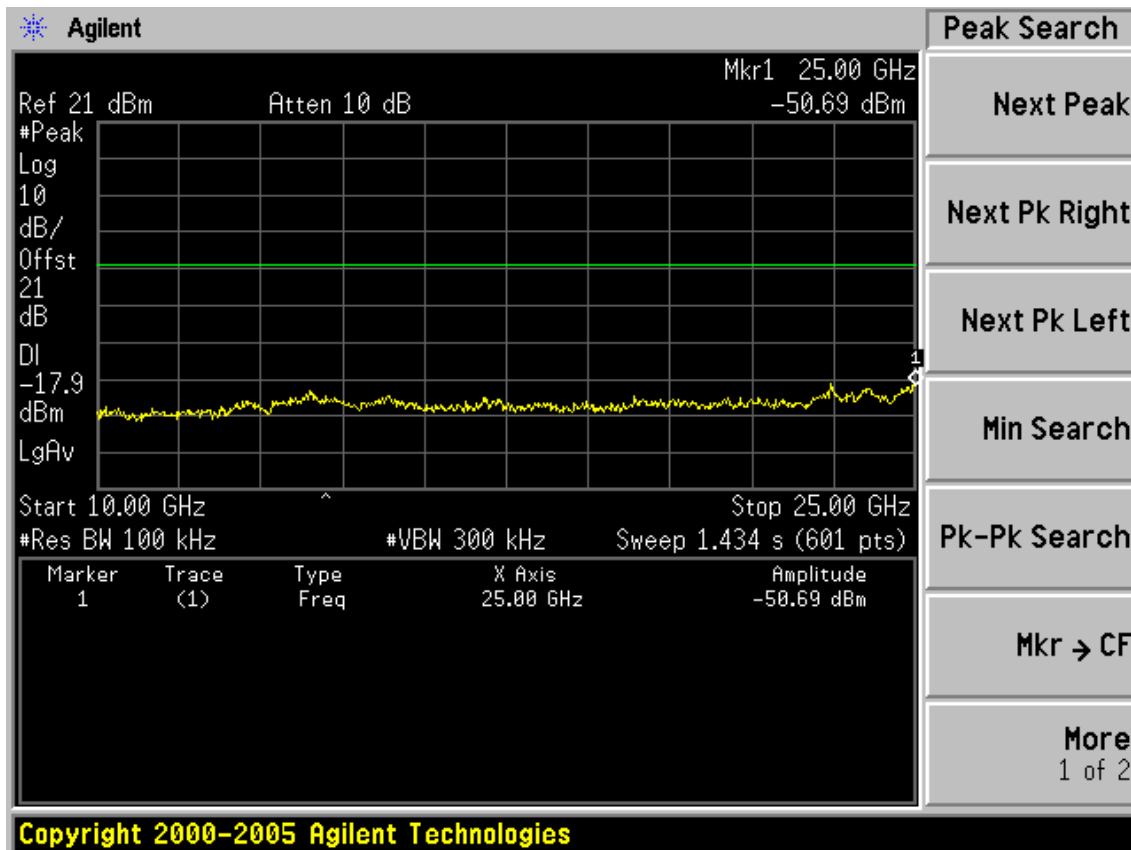
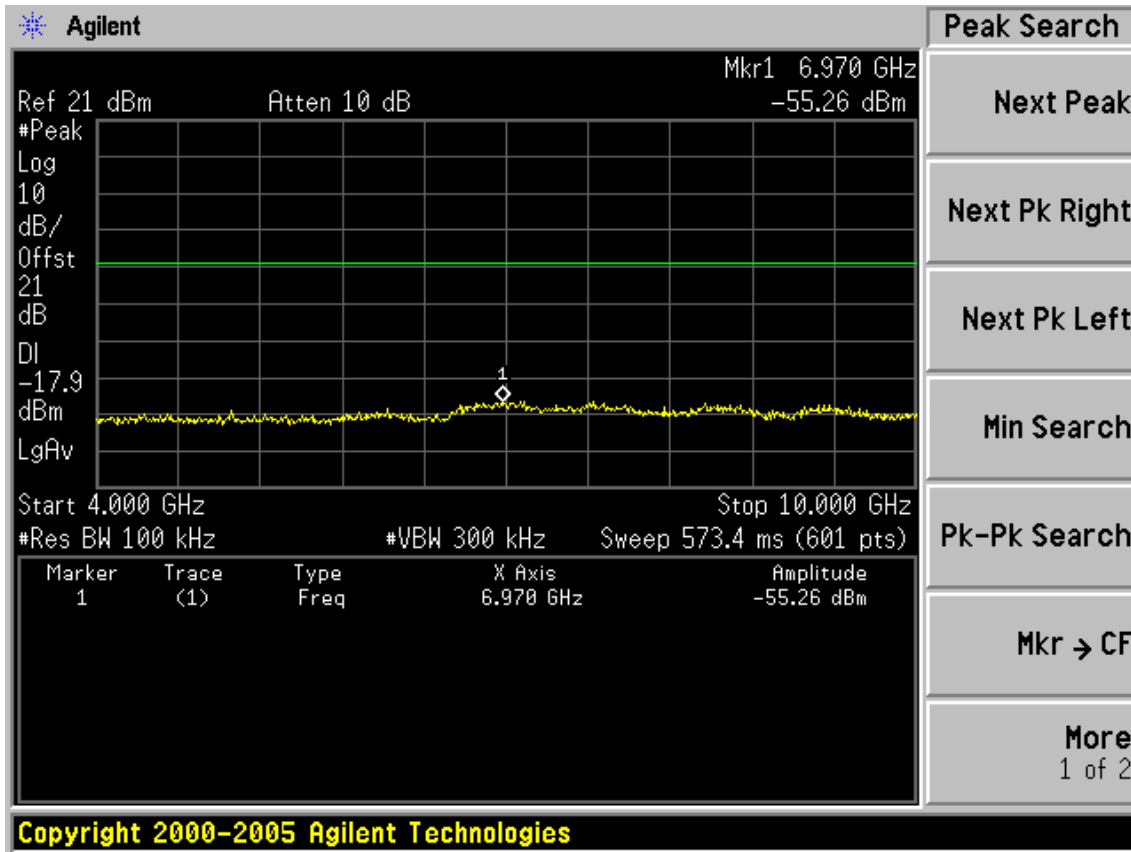




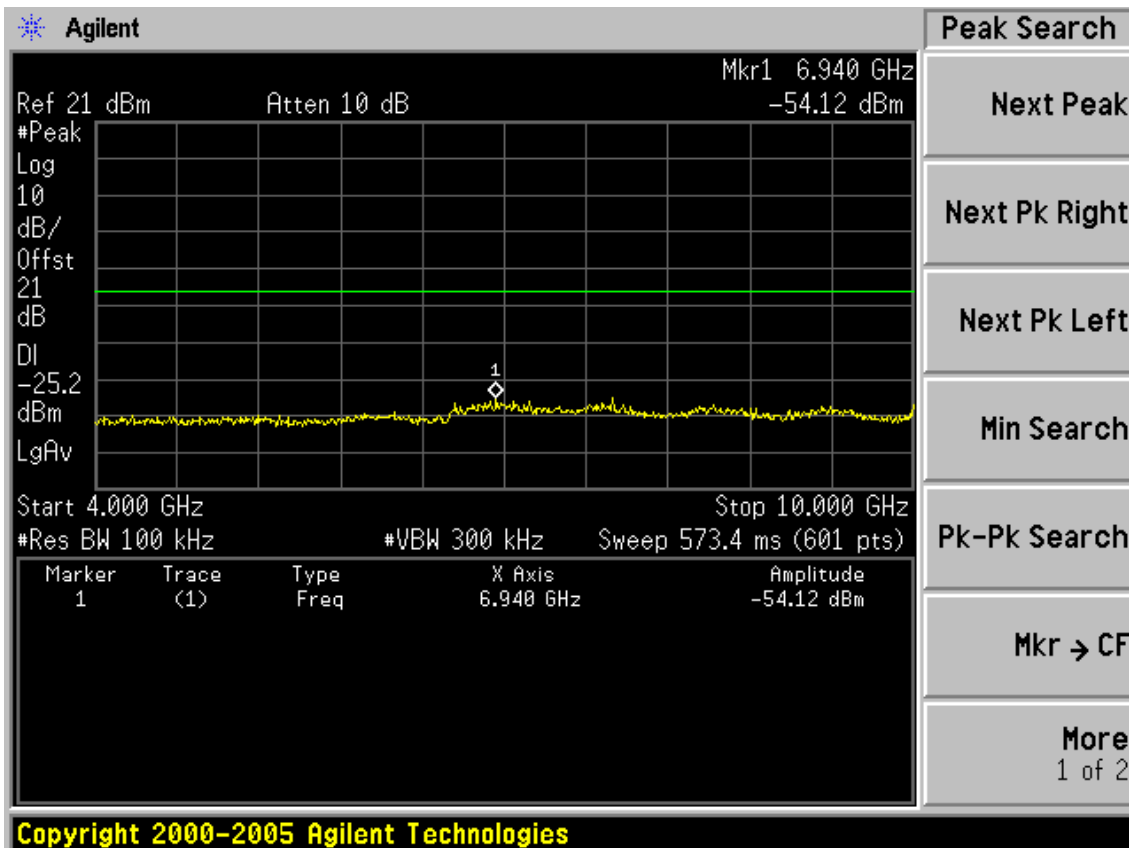
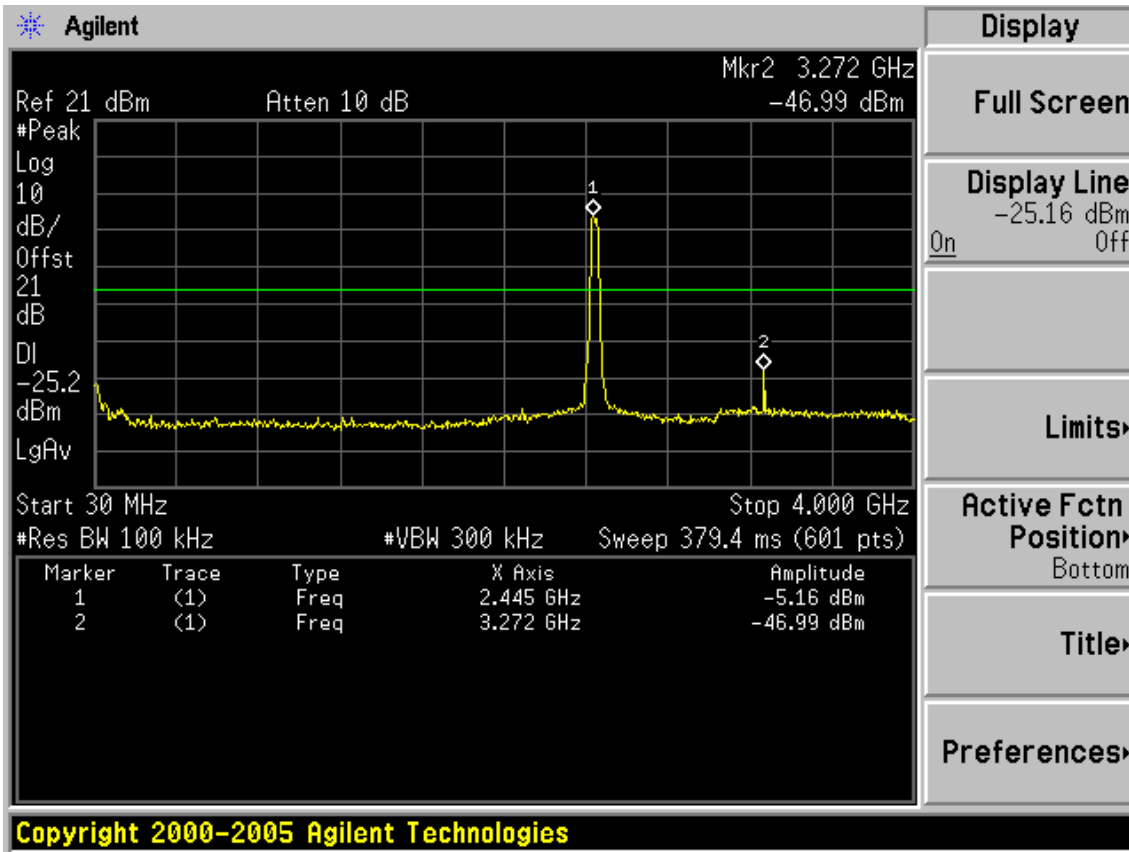


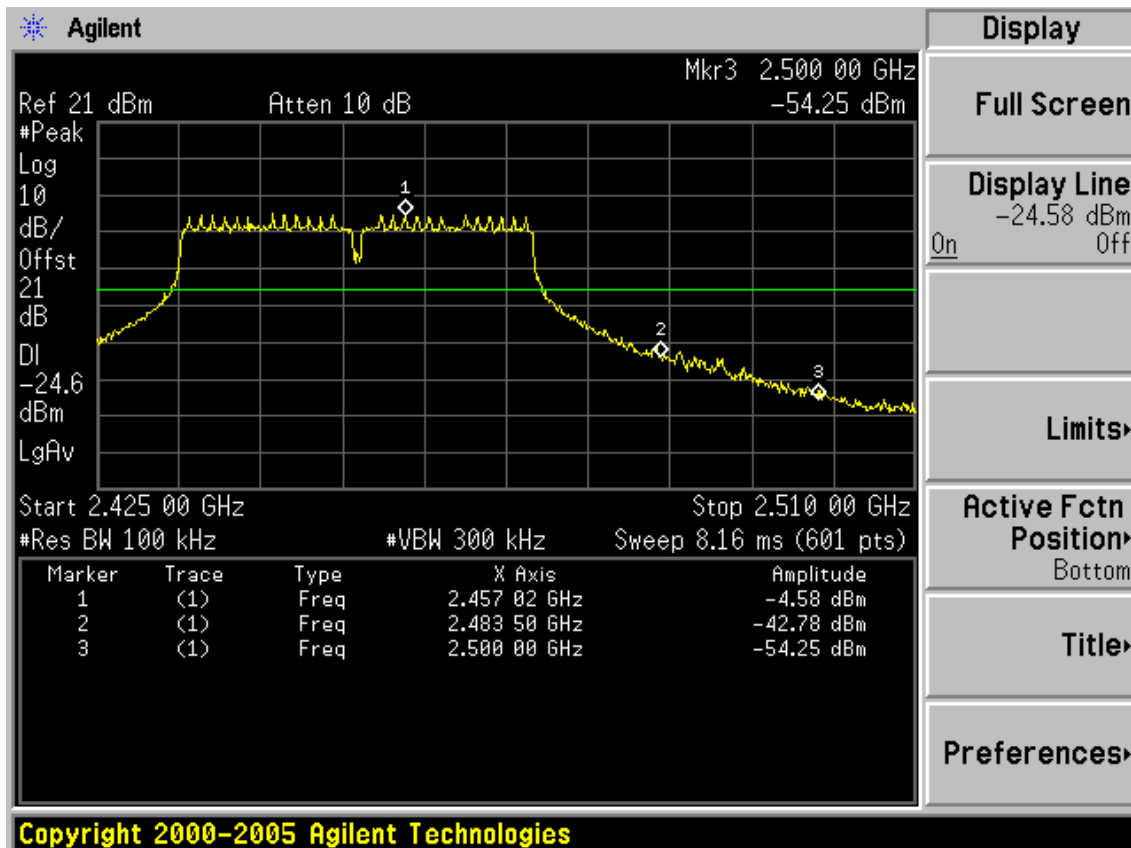
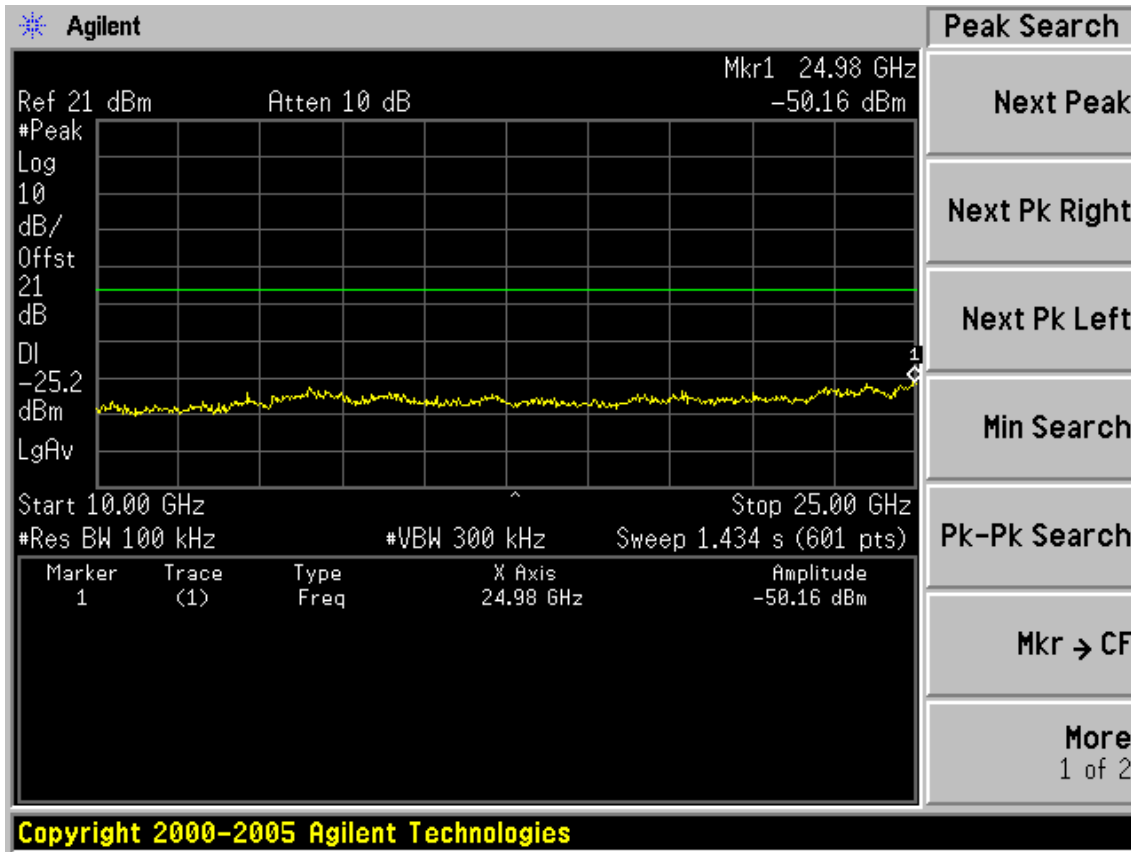
Test CH4: 2437MHz





Test CH7: 2452MHz





6. BAND EDGE COMPLIANCE TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 11	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 11	1 Year
3.	Antenna	EMCO	3115	9510-4580	May.31, 11	1Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 11	1 Year

6.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

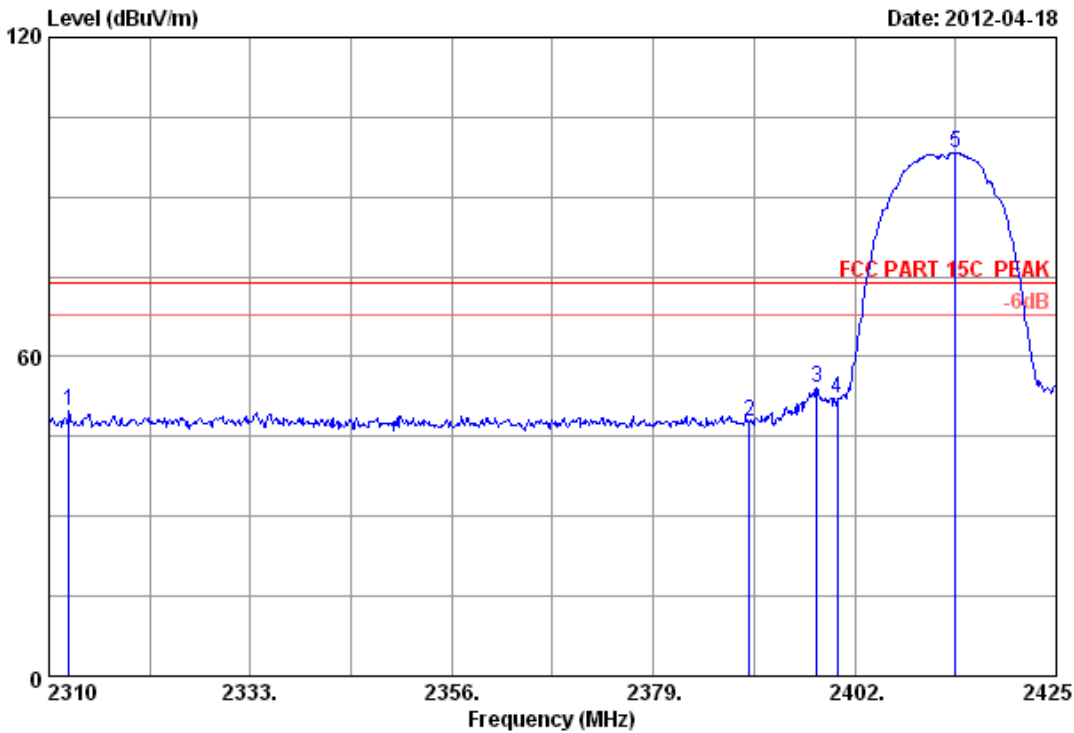
6.3. Test Produce

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz; VBW=10Hz; Sweep=AUTO

6.4. Test Results

Pass (The testing data was attached in the next pages.)

Data: 7 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

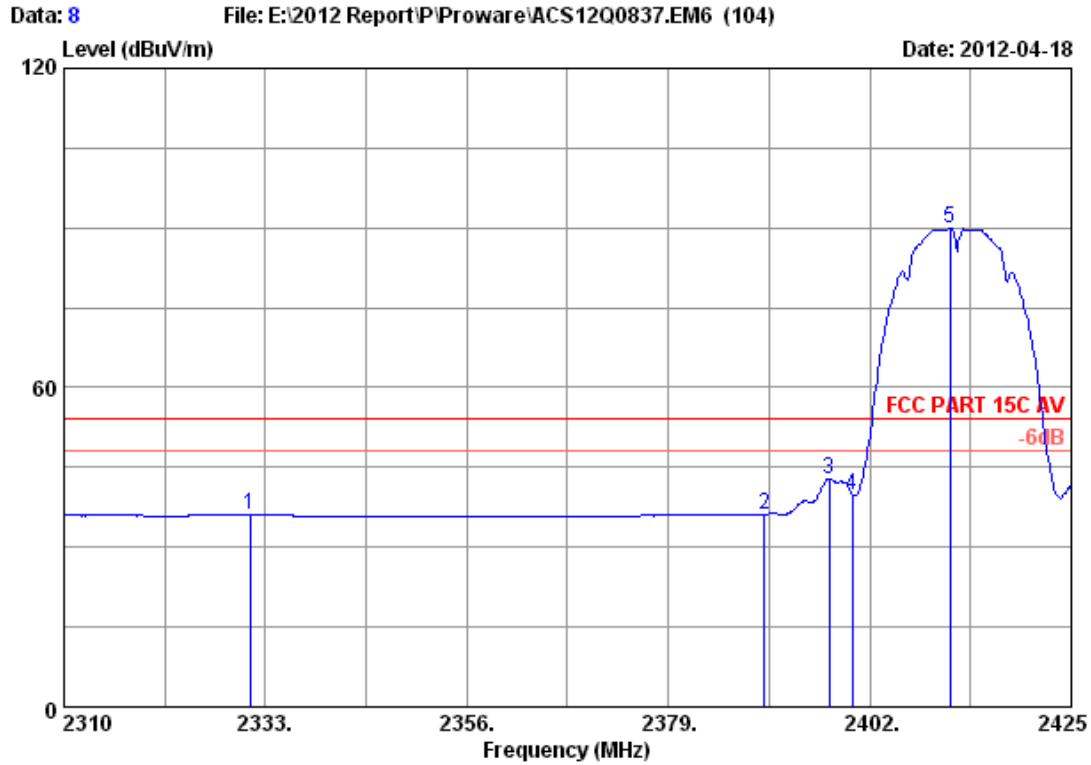


Site no. : 3m Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2312.300	29.39	7.24	36.64	49.78	49.77	74.00	24.23	Peak
2	2390.000	29.44	7.39	36.62	47.75	47.96	74.00	26.04	Peak
3	2397.630	29.44	7.39	36.62	54.05	54.26	74.00	19.74	Peak
4	2400.000	29.44	7.43	36.62	51.98	52.23	74.00	21.77	Peak
5	2413.500	29.45	7.43	36.62	98.13	98.39	74.00	-24.39	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



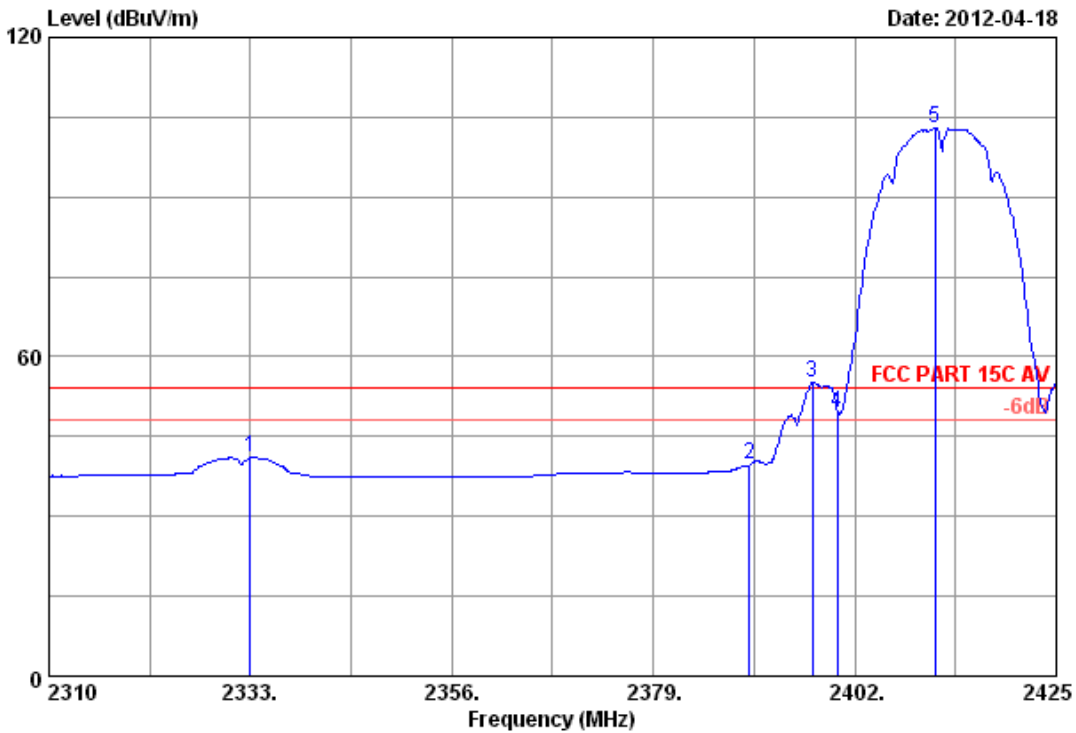
Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2331.275	29.40	7.27	36.63	36.08	36.12	54.00	17.88	Average
2	2390.000	29.44	7.39	36.62	35.98	36.19	54.00	17.81	Average
3	2397.400	29.44	7.39	36.62	42.64	42.85	54.00	11.15	Average
4	2400.000	29.44	7.43	36.62	39.48	39.73	54.00	14.27	Average
5	2411.200	29.45	7.43	36.62	89.79	90.05	54.00	-36.05	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 9 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

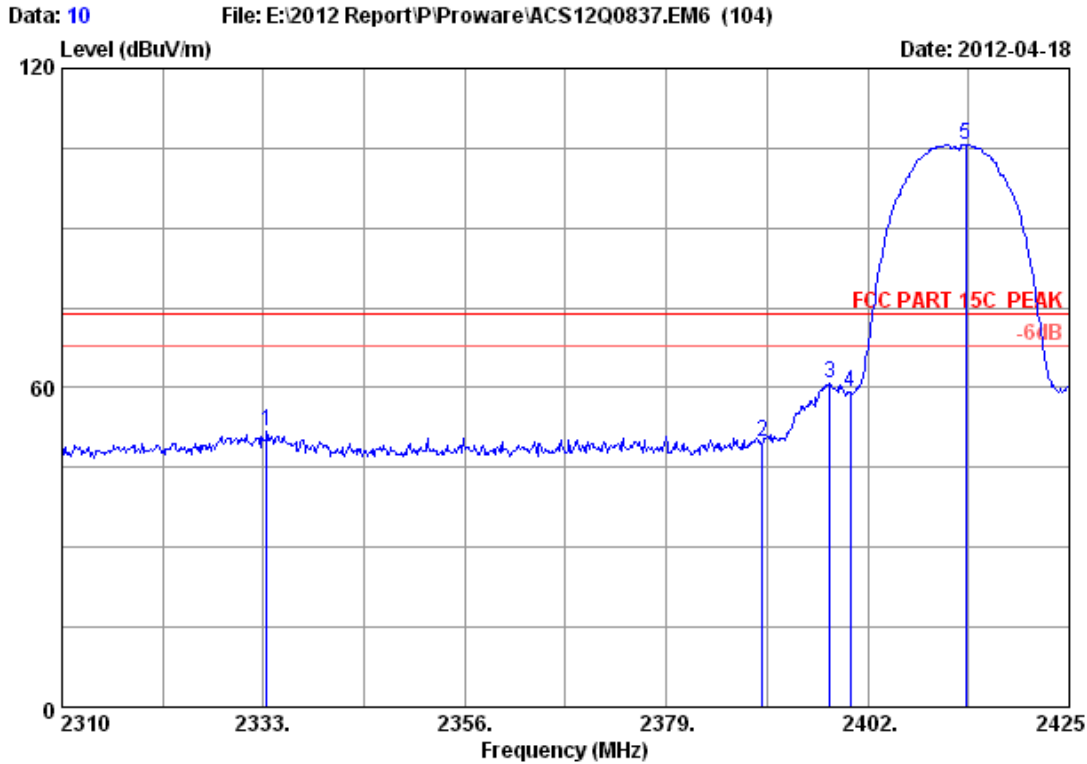


Site no. : 3m Chamber Data no. : 9
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2333.000	29.40	7.27	36.63	40.98	41.02	54.00	12.98	Average
2	2390.000	29.44	7.39	36.62	39.45	39.66	54.00	14.34	Average
3	2397.170	29.44	7.39	36.62	54.98	55.19	54.00	-1.19	Average
4	2400.000	29.44	7.43	36.62	49.29	49.54	54.00	4.46	Average
5	2411.200	29.45	7.43	36.62	102.71	102.97	54.00	-48.97	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

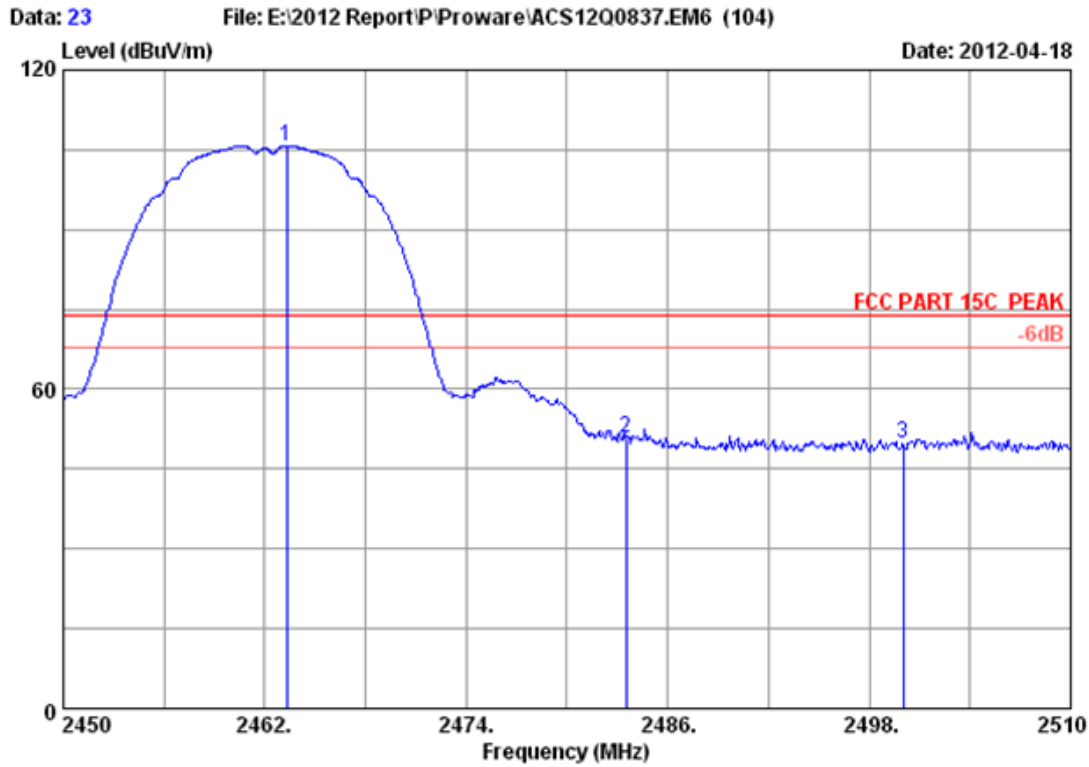


Site no. : 3m Chamber Data no. : 10
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2333.345	29.40	7.27	36.63	51.62	51.66	74.00	22.34	Peak
2	2390.000	29.44	7.39	36.62	49.66	49.87	74.00	24.13	Peak
3	2397.630	29.44	7.39	36.62	60.47	60.68	74.00	13.32	Peak
4	2400.000	29.44	7.43	36.62	58.75	59.00	74.00	15.00	Peak
5	2413.155	29.45	7.43	36.62	105.43	105.69	74.00	-31.69	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



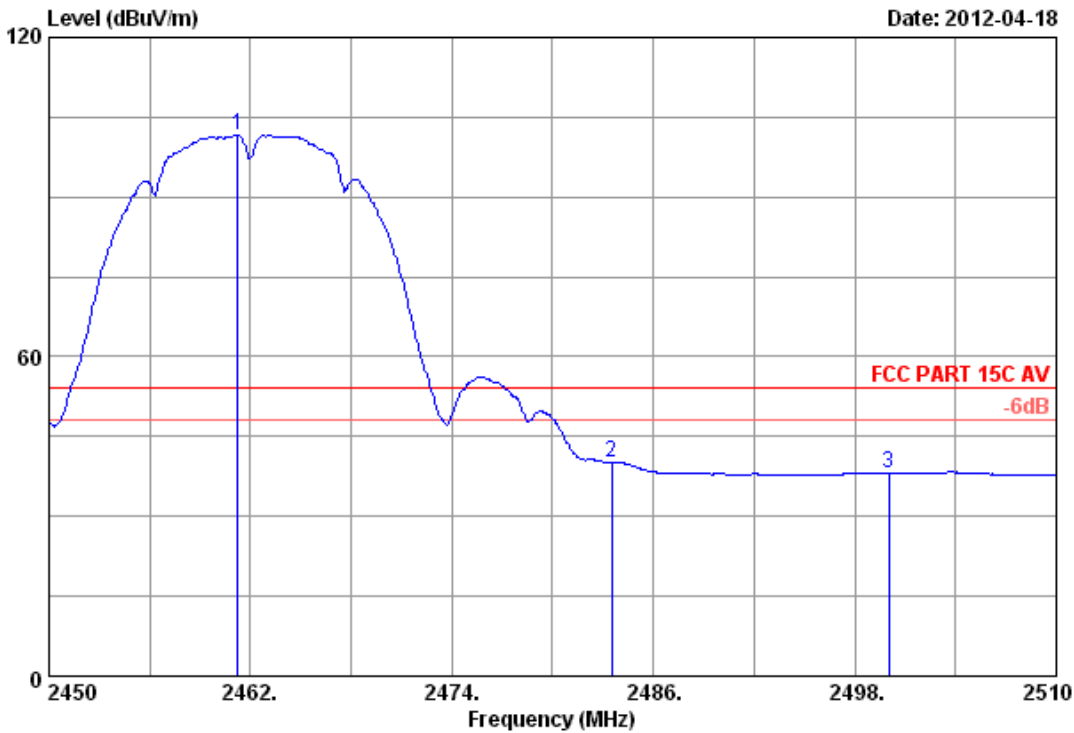
Site no. : 3m Chamber Data no. : 23
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.320	29.48	7.54	36.61	105.31	105.72	74.00	-31.72	Peak
2	2483.500	29.49	7.58	36.60	50.44	50.91	74.00	23.09	Peak
3	2500.000	29.50	7.62	36.60	49.17	49.69	74.00	24.31	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 24 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

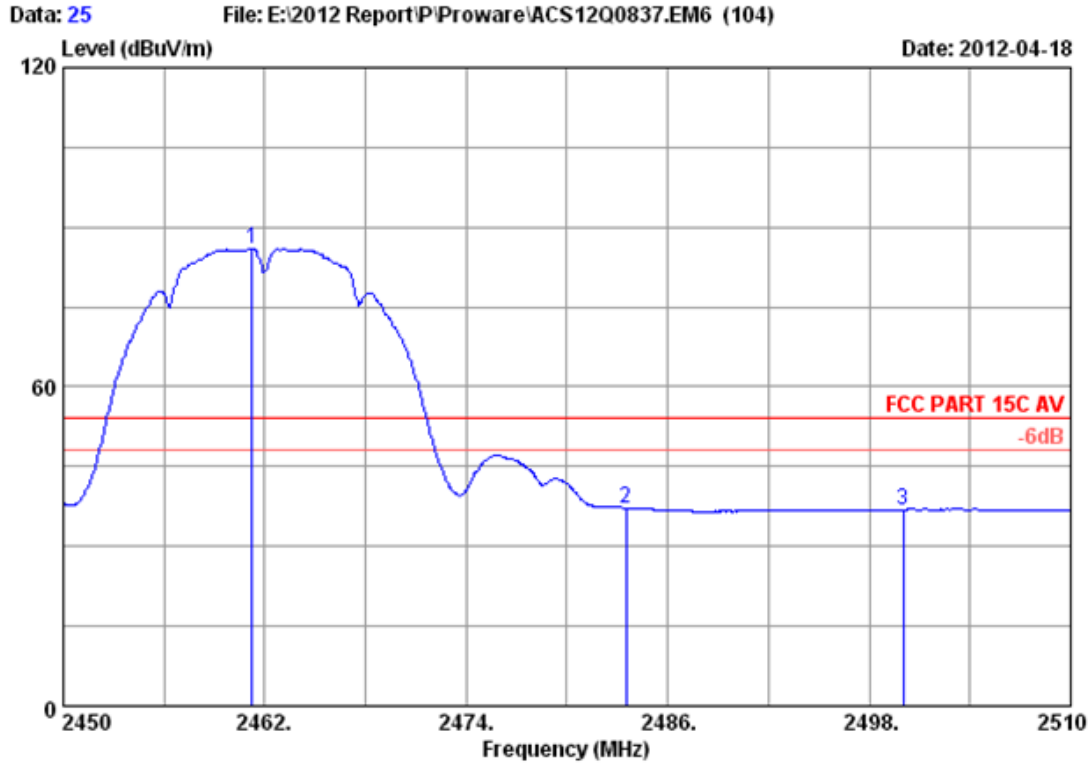


Site no. : 3m Chamber Data no. : 24
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2461.220	29.48	7.54	36.61	101.24	101.65	54.00	-47.65	Average
2	2483.500	29.49	7.58	36.60	39.59	40.06	54.00	13.94	Average
3	2500.000	29.50	7.62	36.60	37.66	38.18	54.00	15.82	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

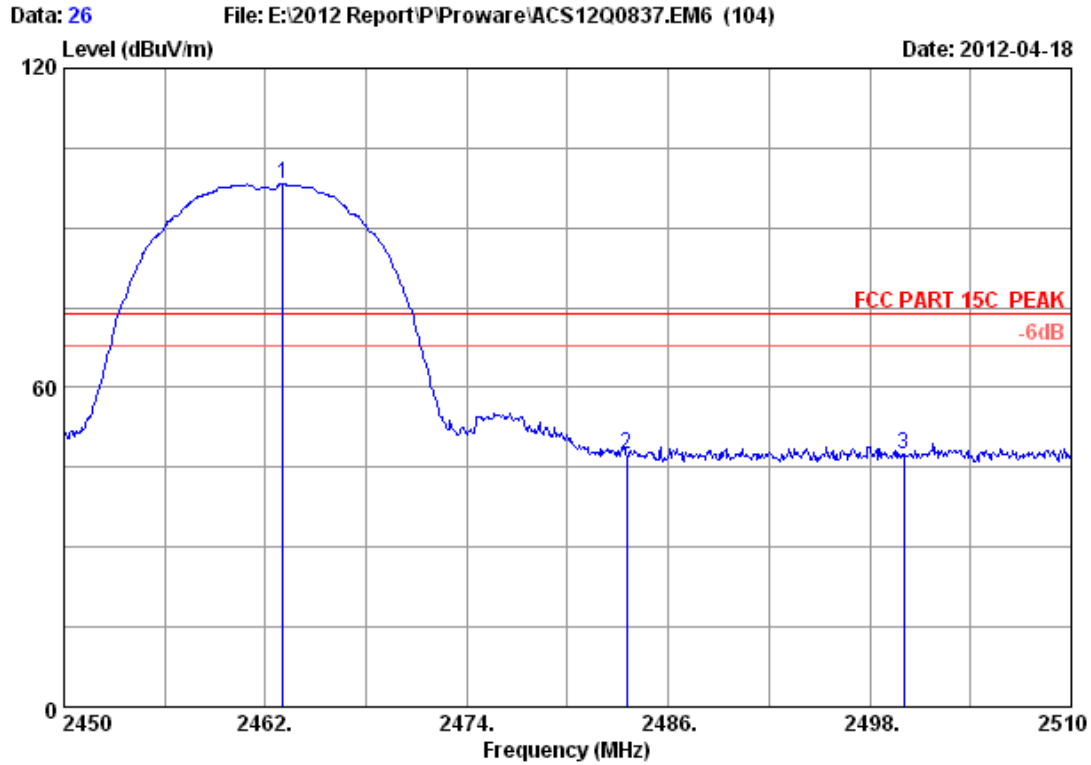


Site no. : 3m Chamber Data no. : 25
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.220	29.48	7.54	36.61	85.65	86.06	54.00	-32.06	Average
2	2483.500	29.49	7.58	36.60	36.70	37.17	54.00	16.83	Average
3	2500.000	29.50	7.62	36.60	36.38	36.90	54.00	17.10	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

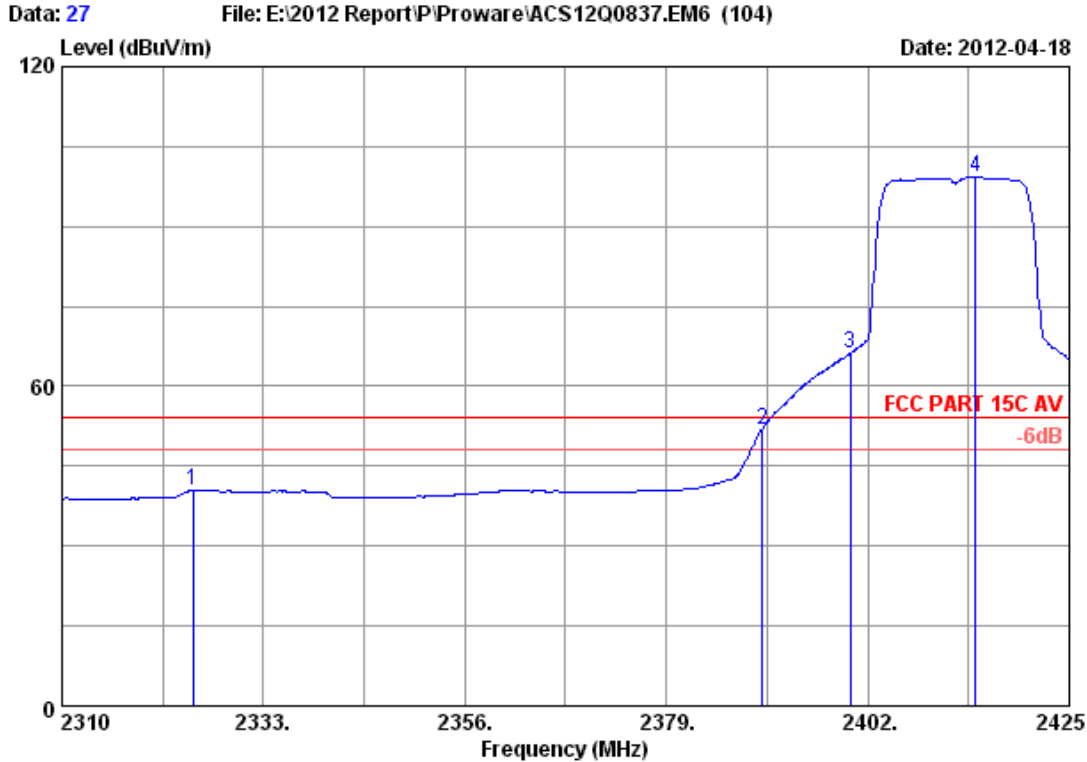


Site no. : 3m Chamber Data no. : 26
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11b CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.020	29.48	7.54	36.61	97.85	98.26	74.00	-24.26	Peak
2	2483.500	29.49	7.58	36.60	46.92	47.39	74.00	26.61	Peak
3	2500.000	29.50	7.62	36.60	47.00	47.52	74.00	26.48	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

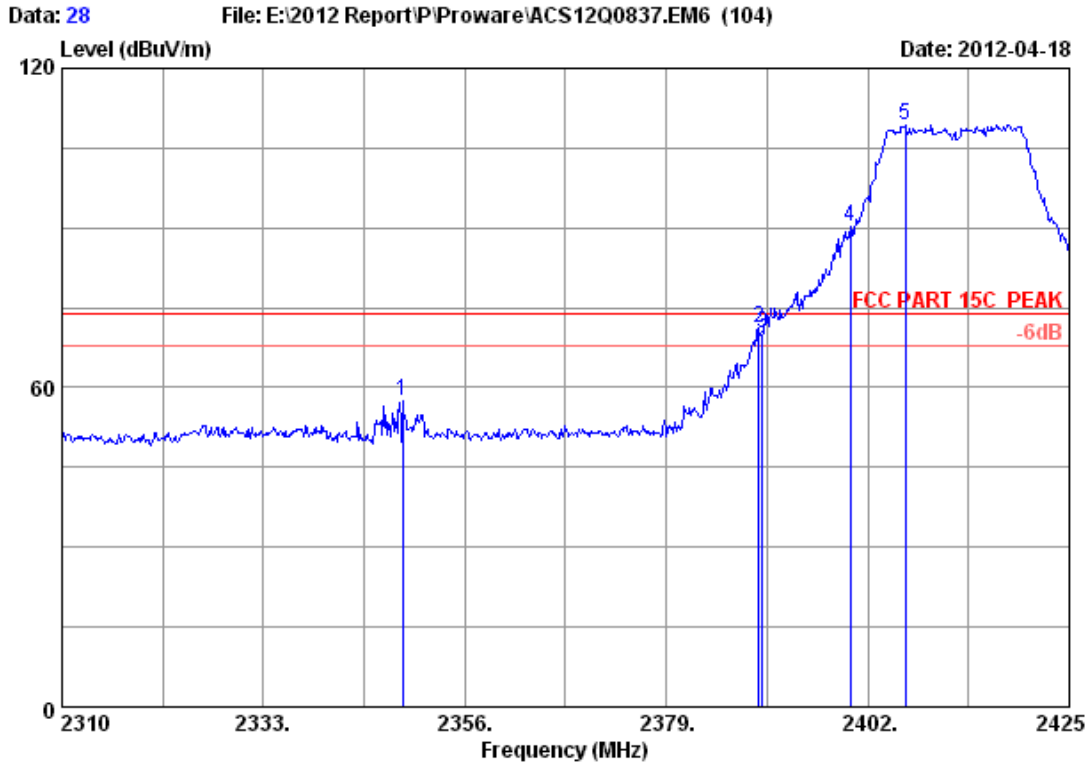


Site no. : 3m Chamber Data no. : 27
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2324.950	29.40	7.27	36.63	40.33	40.37	54.00	13.63	Average
2	2390.000	29.44	7.39	36.62	51.73	51.94	54.00	2.06	Average
3	2400.000	29.44	7.43	36.62	66.08	66.33	54.00	-12.33	Average
4	2414.305	29.45	7.43	36.62	98.93	99.19	54.00	-45.19	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

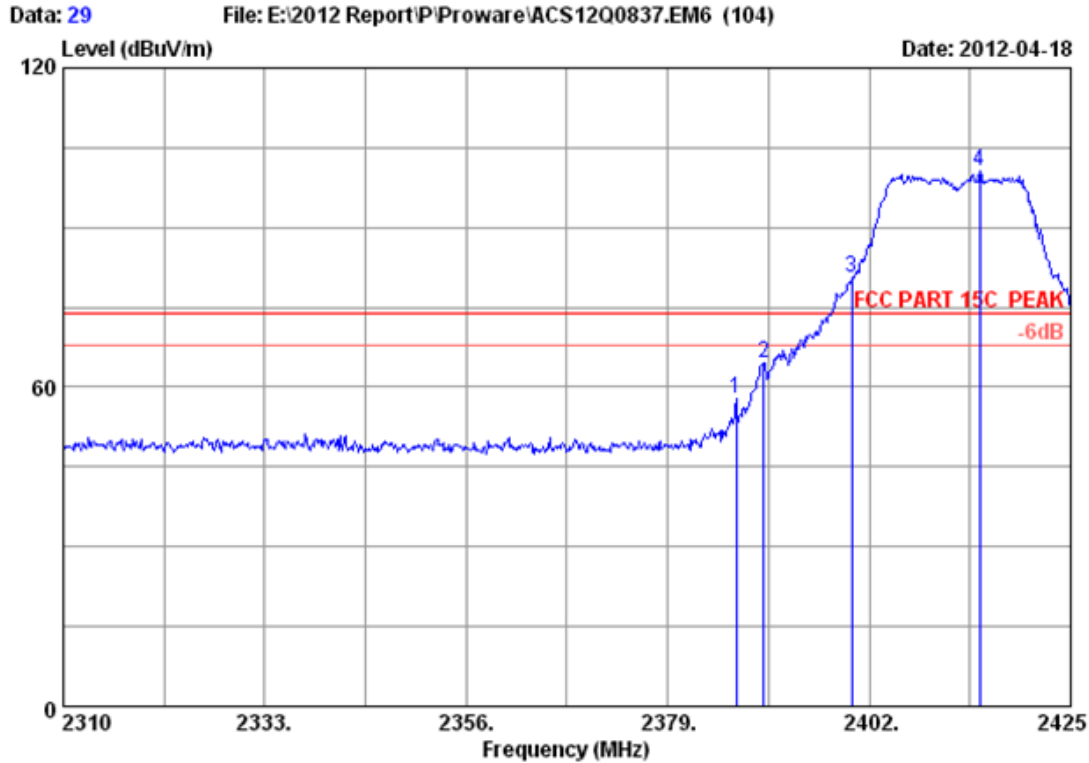


Site no. : 3m Chamber Data no. : 28
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2348.870	29.41	7.31	36.63	57.33	57.42	74.00	16.58	Peak
2	2389.580	29.44	7.39	36.62	70.88	71.09	74.00	2.91	Peak
3	2390.000	29.44	7.39	36.62	70.07	70.28	74.00	3.72	Peak
4	2400.000	29.44	7.43	36.62	89.87	90.12	74.00	-16.12	Peak
5	2406.255	29.45	7.43	36.62	109.17	109.43	74.00	-35.43	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



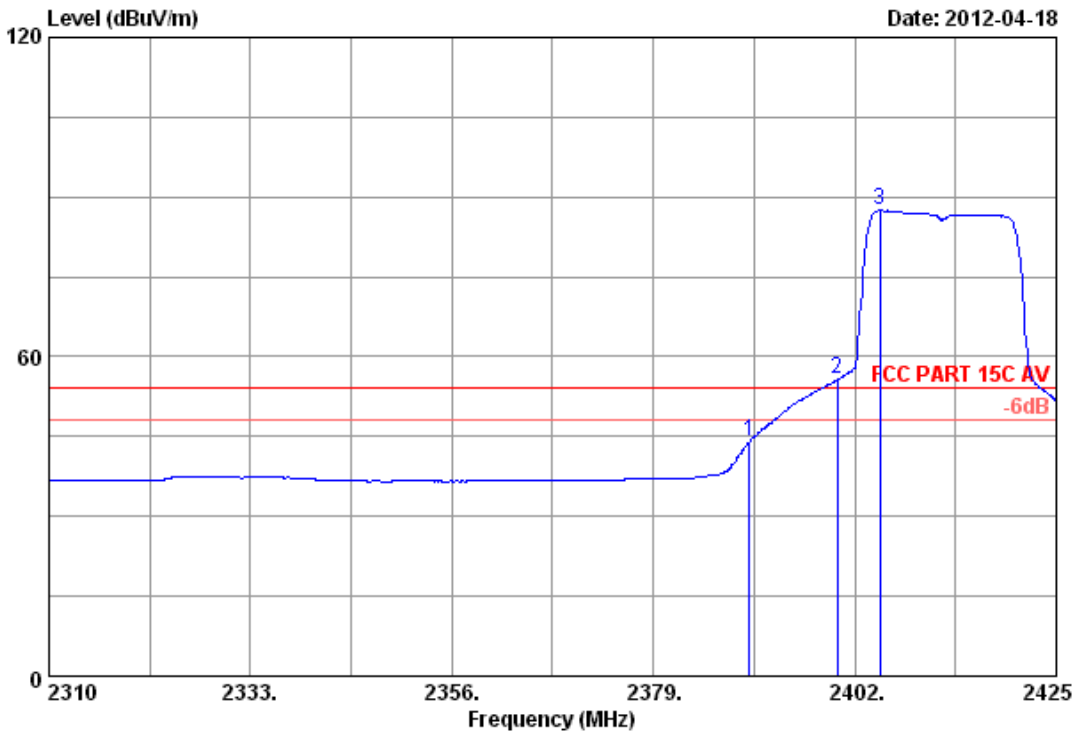
Site no. : 3m Chamber Data no. : 29
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2386.820	29.44	7.39	36.62	57.56	57.77	74.00	16.23	Peak
2	2390.000	29.44	7.39	36.62	64.28	64.49	74.00	9.51	Peak
3	2400.000	29.44	7.43	36.62	80.31	80.56	74.00	-6.56	Peak
4	2414.650	29.45	7.43	36.62	100.46	100.72	74.00	-26.72	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 30 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18



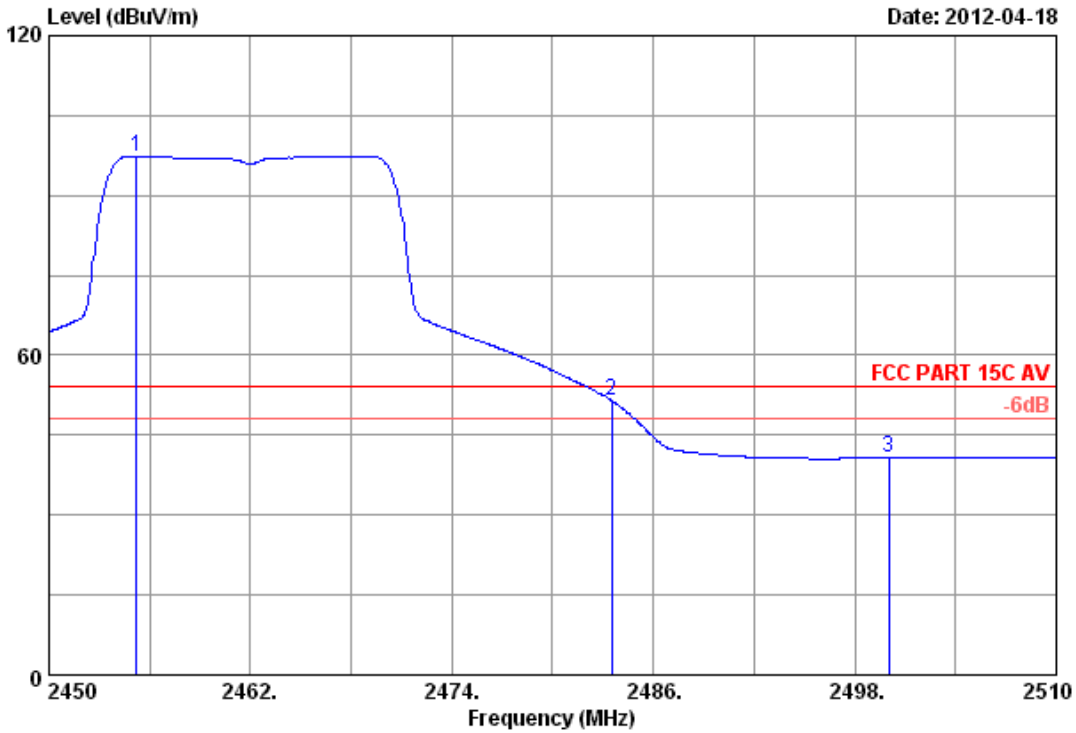
Site no. : 3m Chamber Data no. : 30
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.44	7.39	36.62	43.91	44.12	54.00	9.88	Average
2	2400.000	29.44	7.43	36.62	55.55	55.80	54.00	-1.80	Average
3	2404.875	29.45	7.43	36.62	87.21	87.47	54.00	-33.47	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 43 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18



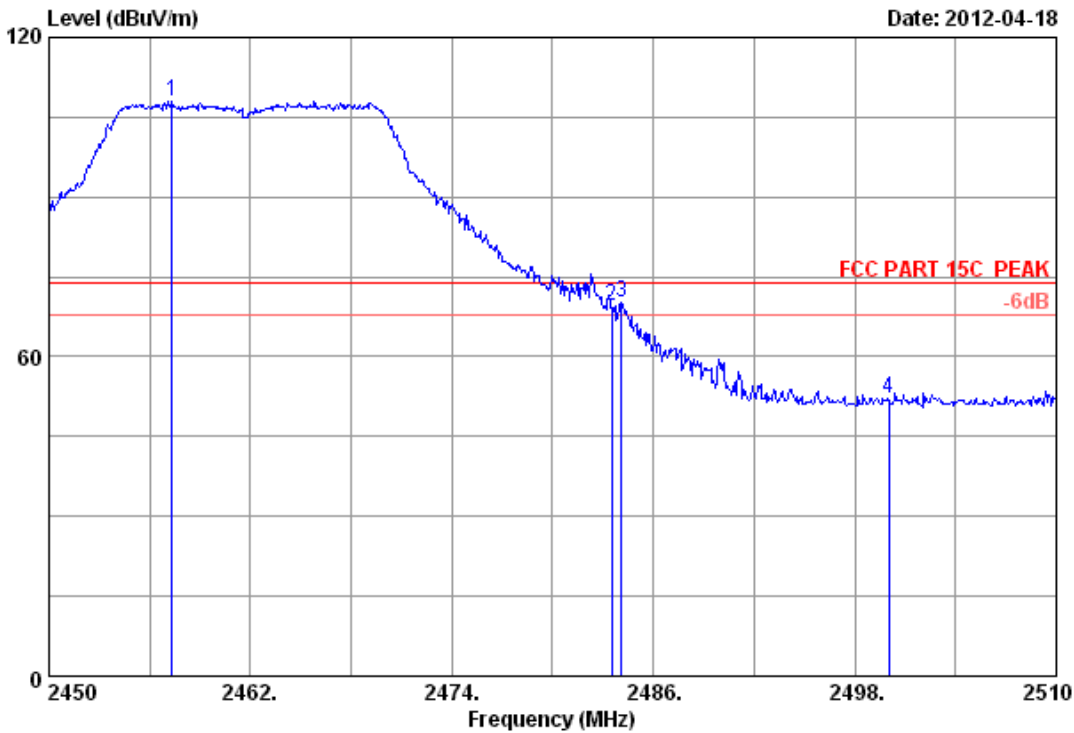
Site no. : 3m Chamber Data no. : 43
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2455.220	29.48	7.50	36.61	97.06	97.43	54.00	-43.43	Average
2	2483.500	29.49	7.58	36.60	51.05	51.52	54.00	2.48	Average
3	2500.000	29.50	7.62	36.60	40.26	40.78	54.00	13.22	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 44 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18



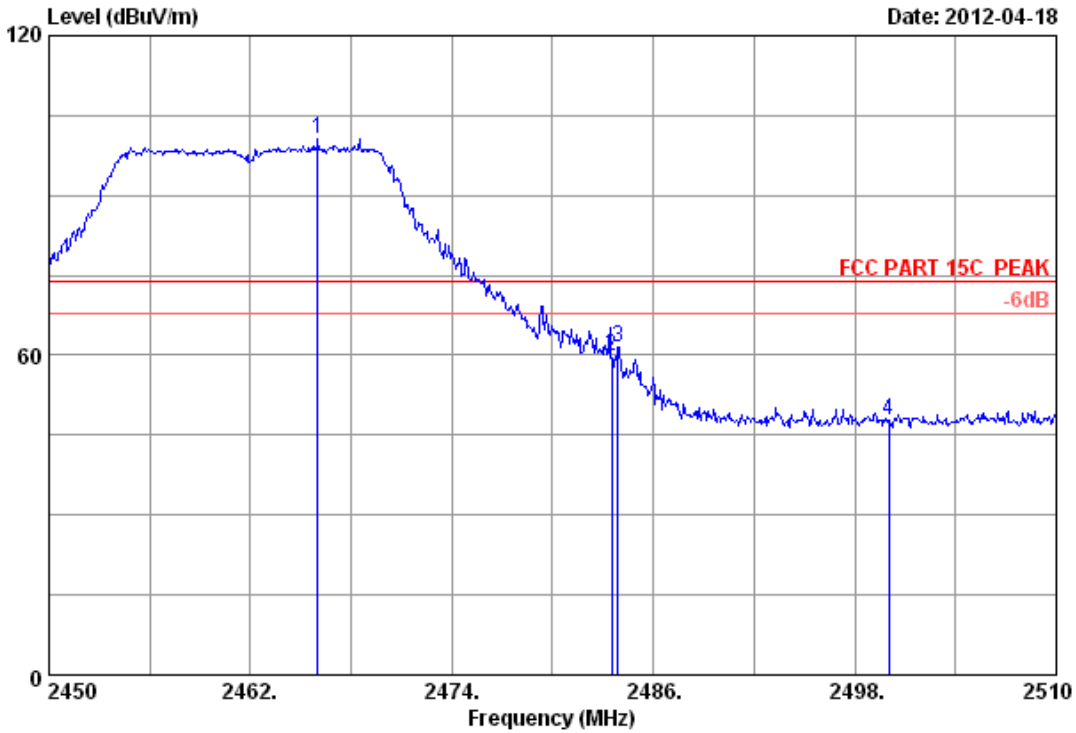
Site no. : 3m Chamber Data no. : 44
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Remark
1	2457.320	29.48	7.50	36.61	107.69	108.06	74.00	-34.06	Peak
2	2483.500	29.49	7.58	36.60	68.97	69.44	74.00	4.56	Peak
3	2484.080	29.49	7.58	36.60	69.86	70.33	74.00	3.67	Peak
4	2500.000	29.50	7.62	36.60	51.73	52.25	74.00	21.75	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 45 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

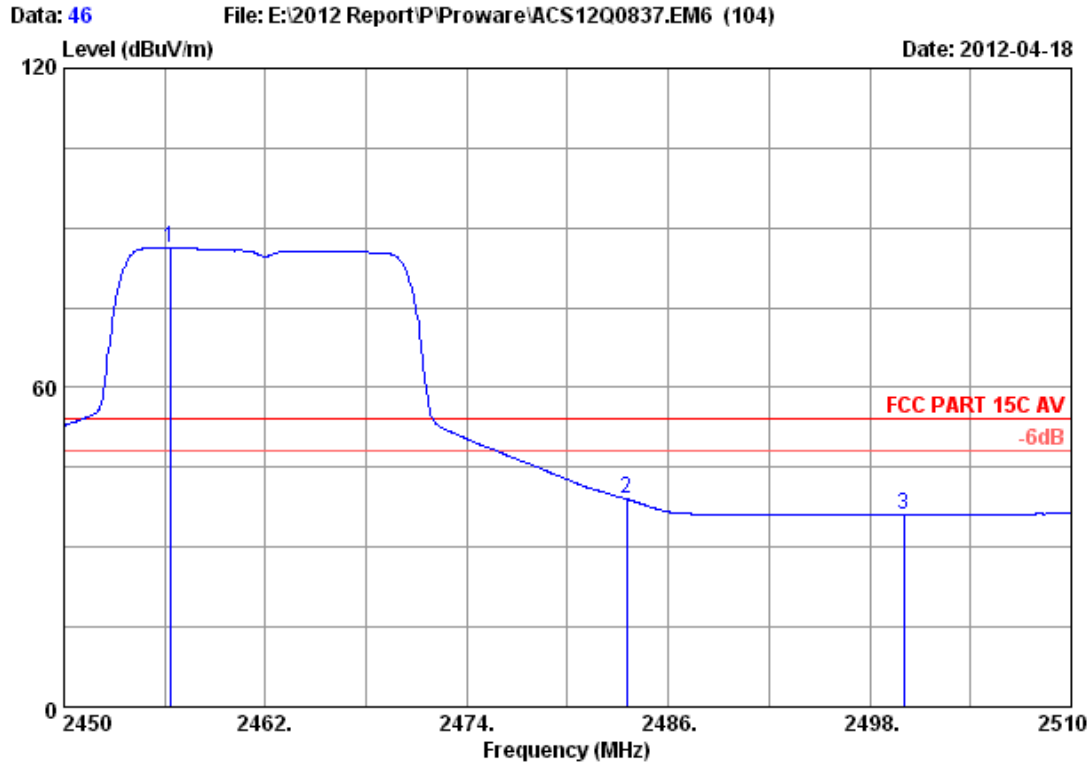


Site no. : 3m Chamber Data no. : 45
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2466.020	29.48	7.54	36.61	100.18	100.59	74.00	-26.59	Peak
2	2483.500	29.49	7.58	36.60	59.20	59.67	74.00	14.33	Peak
3	2483.900	29.49	7.58	36.60	60.99	61.46	74.00	12.54	Peak
4	2500.000	29.50	7.62	36.60	47.12	47.64	74.00	26.36	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

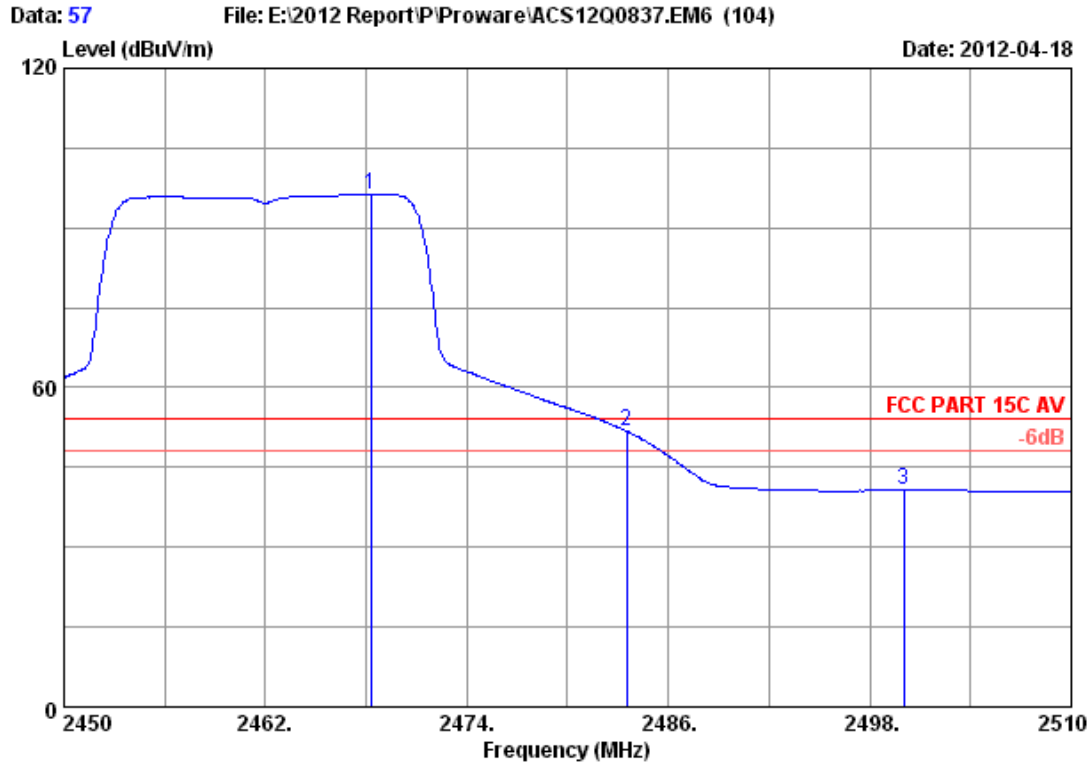


Site no. : 3m Chamber Data no. : 46
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11g CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2456.300	29.48	7.50	36.61	85.88	86.25	54.00	-32.25	Average
2	2483.500	29.49	7.58	36.60	38.60	39.07	54.00	14.93	Average
3	2500.000	29.50	7.62	36.60	35.68	36.20	54.00	17.80	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



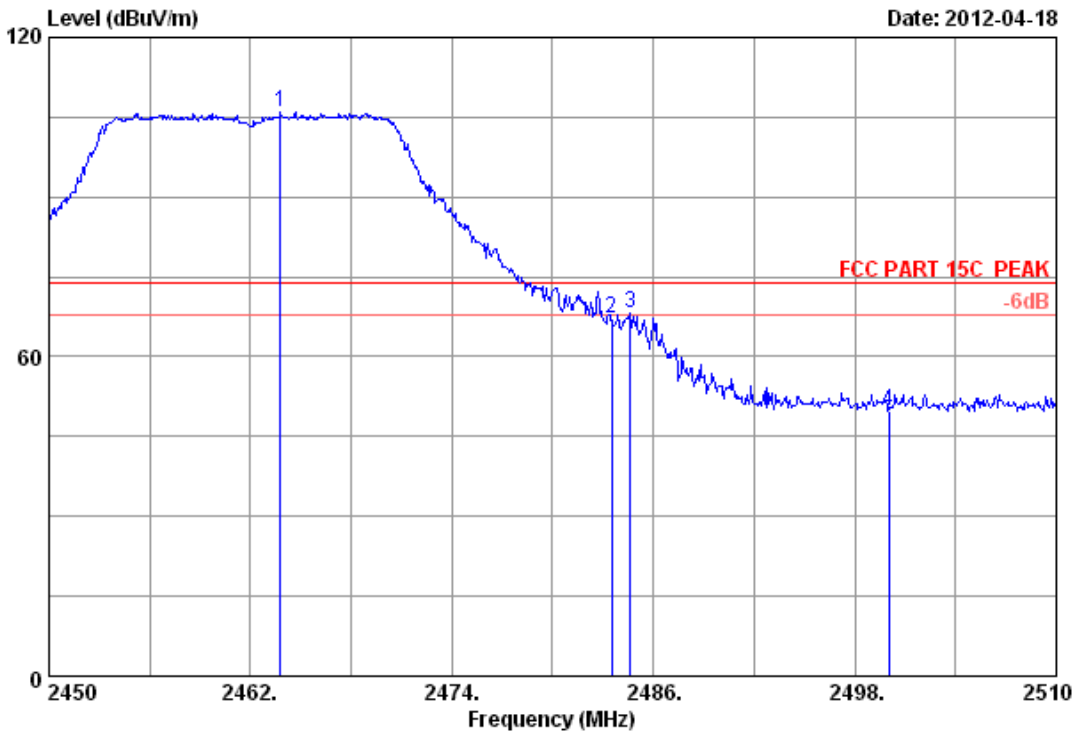
Site no. : 3m Chamber Data no. : 57
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.300	29.48	7.54	36.60	95.79	96.21	54.00	-42.21	Average
2	2483.500	29.49	7.58	36.60	51.34	51.81	54.00	2.19	Average
3	2500.000	29.50	7.62	36.60	40.23	40.75	54.00	13.25	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 58 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18



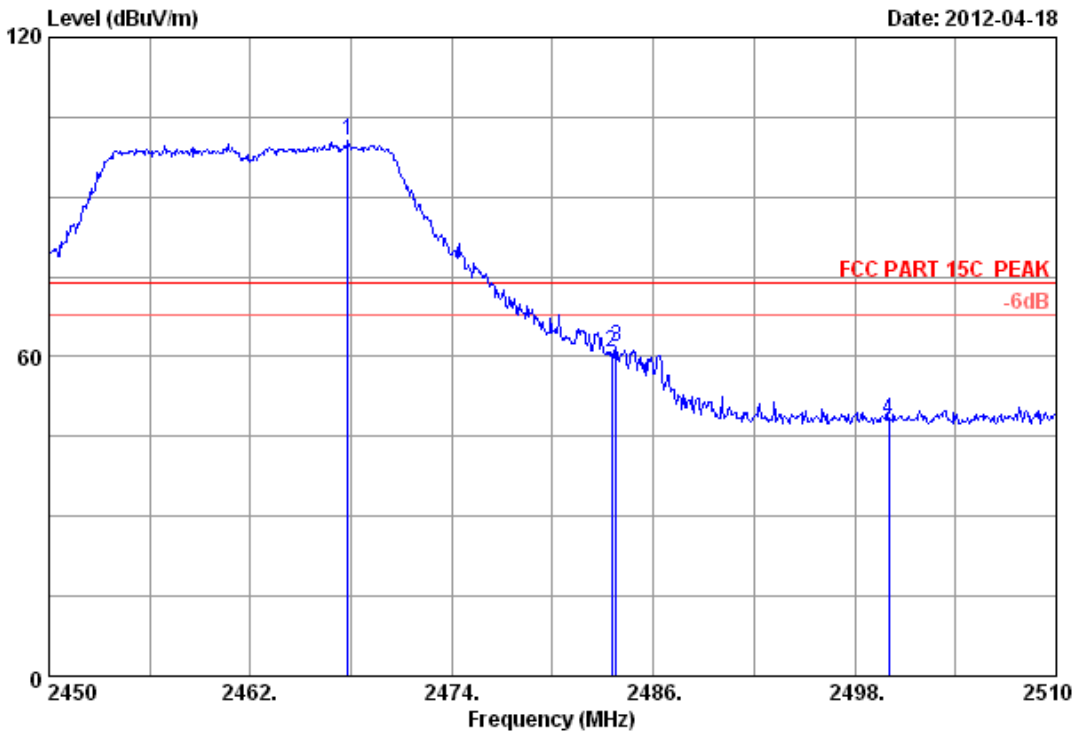
Site no. : 3m Chamber Data no. : 58
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.800	29.48	7.54	36.61	105.55	105.96	74.00	-31.96	Peak
2	2483.500	29.49	7.58	36.60	66.67	67.14	74.00	6.86	Peak
3	2484.620	29.49	7.58	36.60	67.71	68.18	74.00	5.82	Peak
4	2500.000	29.50	7.62	36.60	49.43	49.95	74.00	24.05	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 59 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

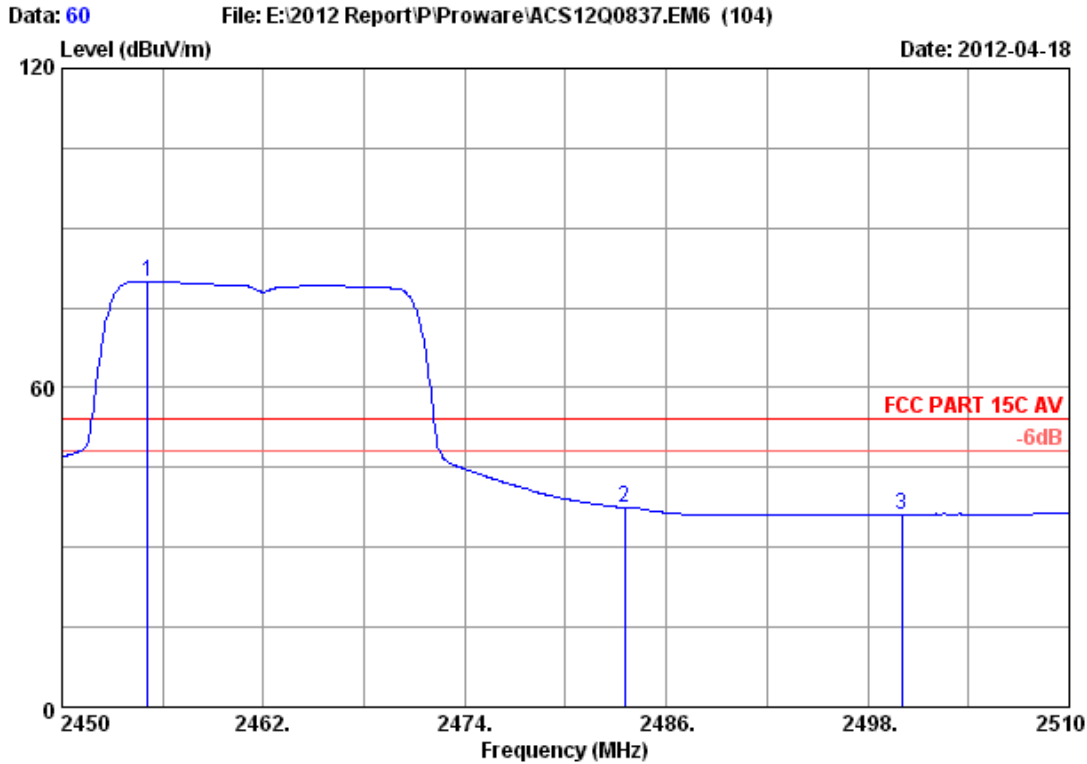


Site no. : 3m Chamber Data no. : 59
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2467.820	29.48	7.54	36.60	100.32	100.74	74.00	-26.74	Peak
2	2483.500	29.49	7.58	36.60	60.20	60.67	74.00	13.33	Peak
3	2483.780	29.49	7.58	36.60	61.25	61.72	74.00	12.28	Peak
4	2500.000	29.50	7.62	36.60	47.61	48.13	74.00	25.87	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

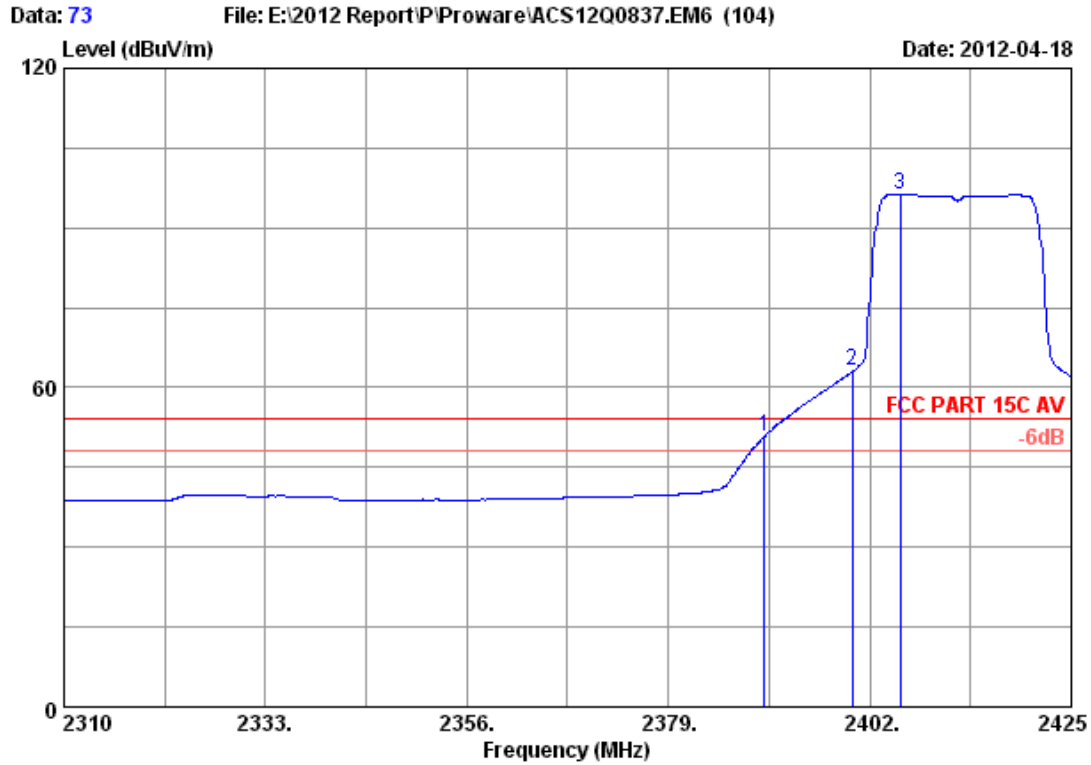


Site no. : 3m Chamber Data no. : 60
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH11 2462MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2455.100	29.48	7.50	36.61	79.64	80.01	54.00	-26.01	Average
2	2483.500	29.49	7.58	36.60	37.07	37.54	54.00	16.46	Average
3	2500.000	29.50	7.62	36.60	35.67	36.19	54.00	17.81	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

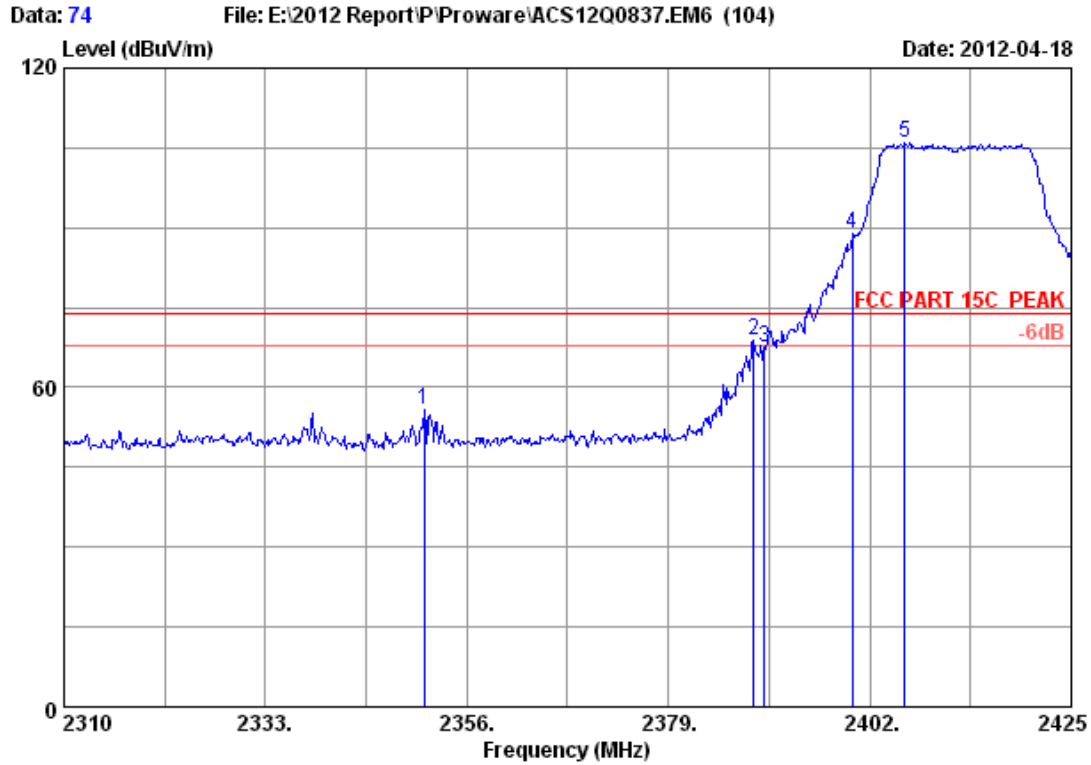


Site no. : 3m Chamber Data no. : 73
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.44	7.39	36.62	50.70	50.91	54.00	3.09	Average
2	2400.000	29.44	7.43	36.62	62.81	63.06	54.00	-9.06	Average
3	2405.450	29.45	7.43	36.62	96.10	96.36	54.00	-42.36	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



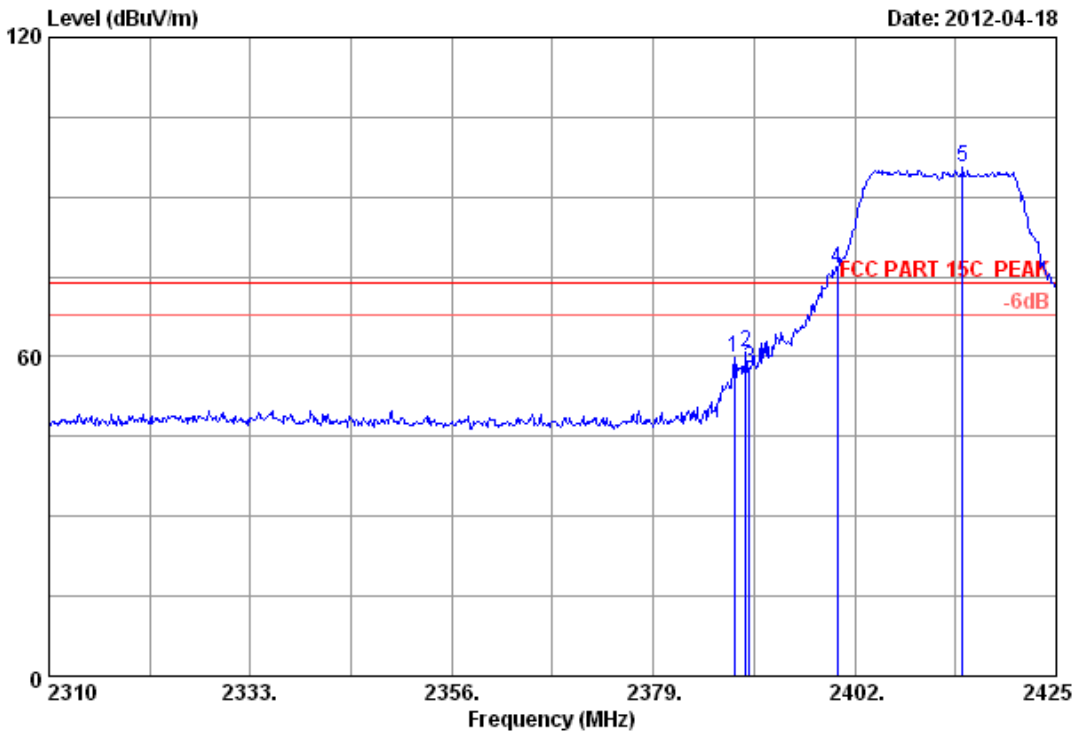
Site no. : 3m Chamber Data no. : 74
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH1 2412MHz Tx
 M/N : PW-DN451D

	Ant.	Cable	Amp.	Emission					
Freq. (MHz)	Factor (dB/m)	loss (dB)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark	
1	29.41	7.31	36.63	55.66	55.75	74.00	18.25	Peak	
2	29.44	7.39	36.62	68.62	68.83	74.00	5.17	Peak	
3	29.44	7.39	36.62	67.25	67.46	74.00	6.54	Peak	
4	29.44	7.43	36.62	88.81	89.06	74.00	-15.06	Peak	
5	29.45	7.43	36.62	105.67	105.93	74.00	-31.93	Peak	

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 75 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

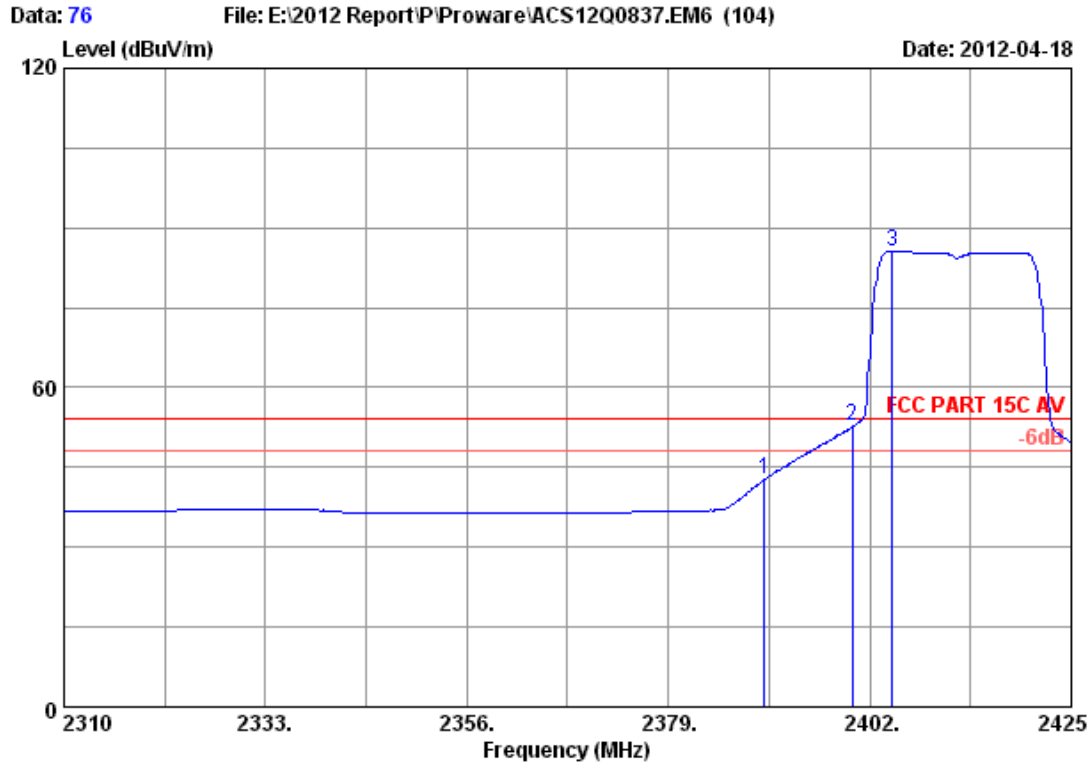


Site no. : 3m Chamber Data no. : 75
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2388.200	29.44	7.39	36.62	59.60	59.81	74.00	14.19	Peak
2	2389.580	29.44	7.39	36.62	60.62	60.83	74.00	13.17	Peak
3	2390.000	29.44	7.39	36.62	57.66	57.87	74.00	16.13	Peak
4	2400.000	29.44	7.43	36.62	76.38	76.63	74.00	-2.63	Peak
5	2414.305	29.45	7.43	36.62	95.24	95.50	74.00	-21.50	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



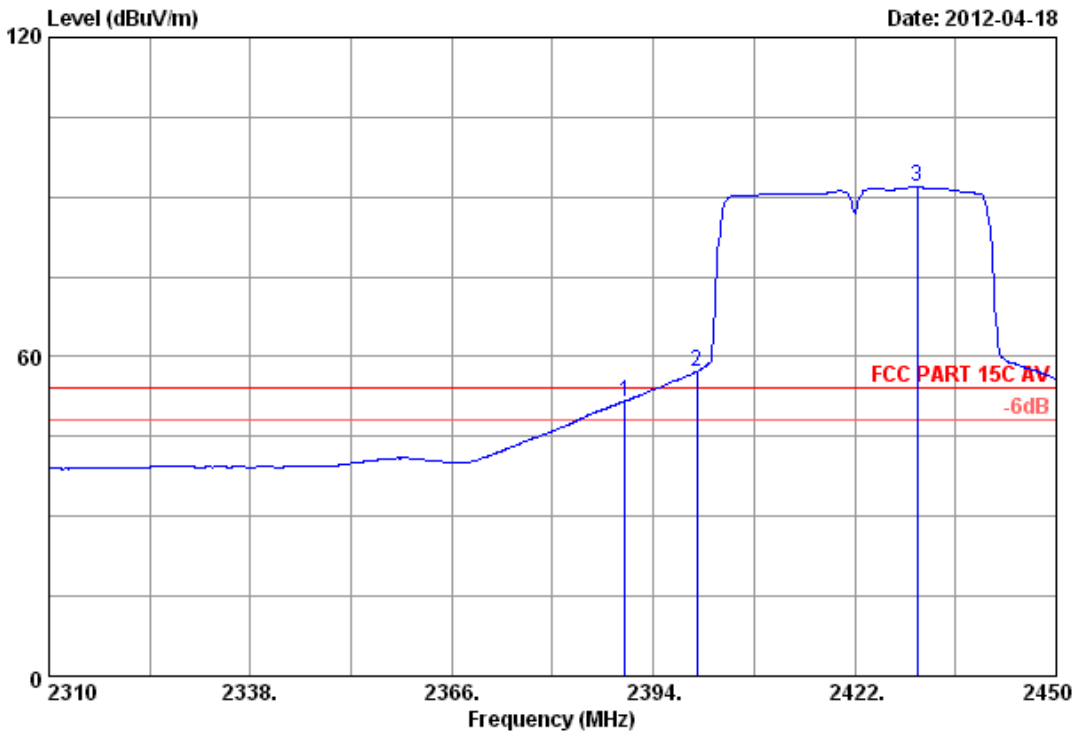
Site no. : 3m Chamber Data no. : 76
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT20 CH1 2412MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.44	7.39	36.62	42.58	42.79	54.00	11.21	Average
2	2400.000	29.44	7.43	36.62	52.45	52.70	54.00	1.30	Average
3	2404.530	29.45	7.43	36.62	85.40	85.66	54.00	-31.66	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 79 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

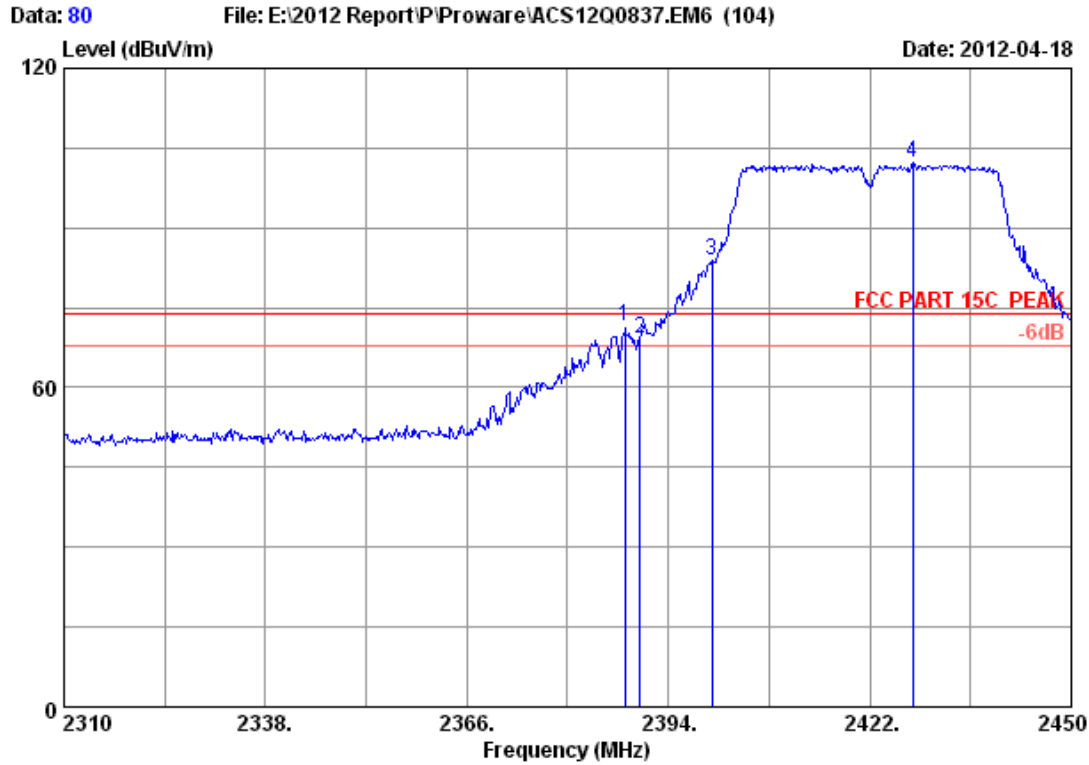


Site no. : 3m Chamber Data no. : 79
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH1 2422MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.44	7.39	36.62	51.40	51.61	54.00	2.39	Average
2	2400.000	29.44	7.43	36.62	56.99	57.24	54.00	-3.24	Average
3	2430.680	29.46	7.46	36.61	91.54	91.85	54.00	-37.85	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



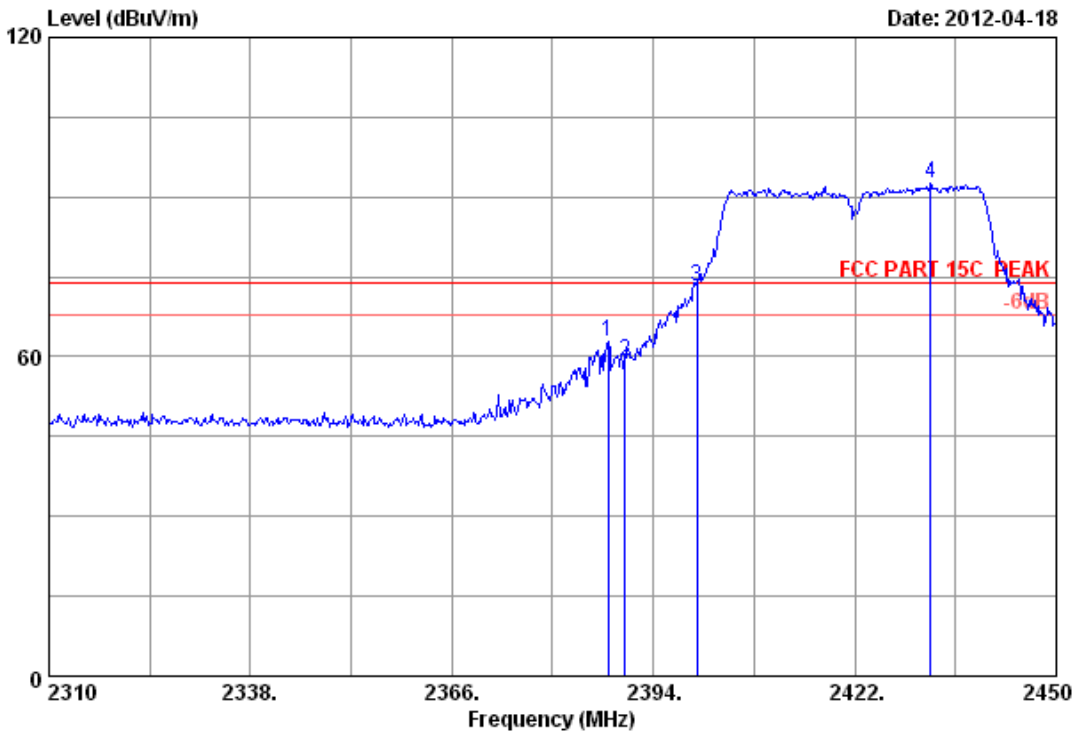
Site no. : 3m Chamber Data no. : 80
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH1 2422MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2387.980	29.44	7.39	36.62	71.21	71.42	74.00	2.58	Peak
2	2390.000	29.44	7.39	36.62	68.89	69.10	74.00	4.90	Peak
3	2400.000	29.44	7.43	36.62	83.61	83.86	74.00	-9.86	Peak
4	2428.020	29.46	7.46	36.61	101.85	102.16	74.00	-28.16	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 81 File: E:\2012 Report\PI\Proware\ACS1200837.EM6 (104) Date: 2012-04-18

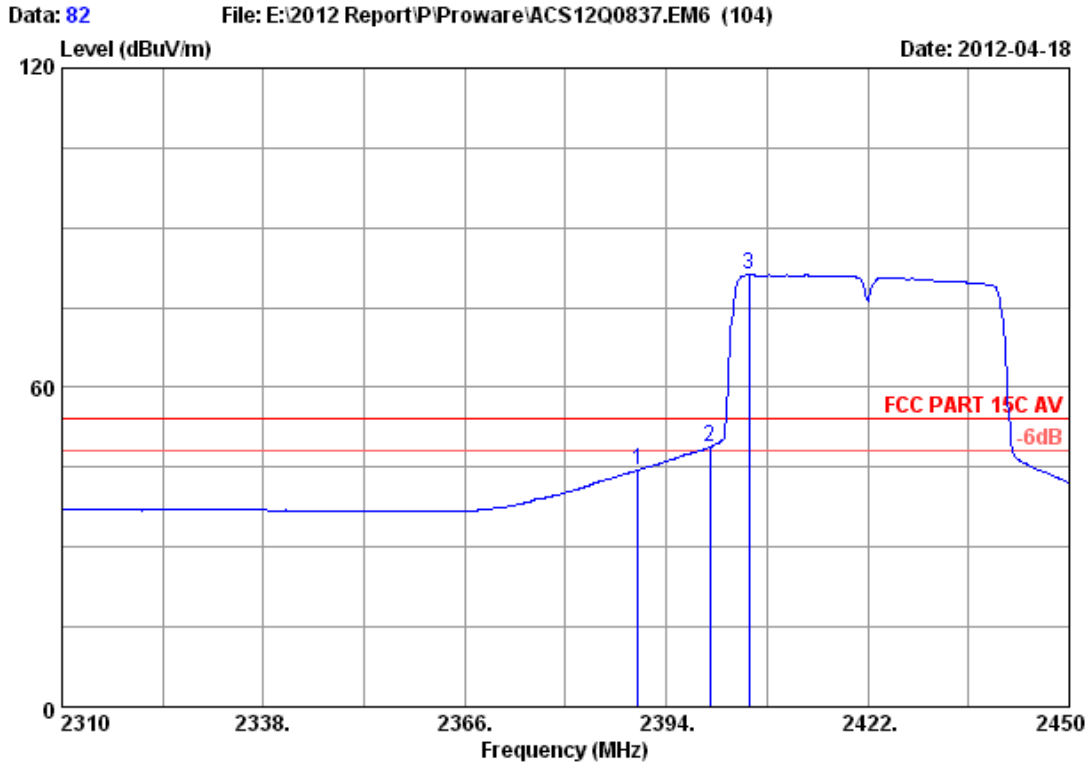


Site no. : 3m Chamber Data no. : 81
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH1 2422MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2387.700	29.44	7.39	36.62	62.51	62.72	74.00	11.28	Peak
2	2390.000	29.44	7.39	36.62	58.93	59.14	74.00	14.86	Peak
3	2400.000	29.44	7.43	36.62	73.02	73.27	74.00	0.73	Peak
4	2432.500	29.46	7.46	36.61	92.41	92.72	74.00	-18.72	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

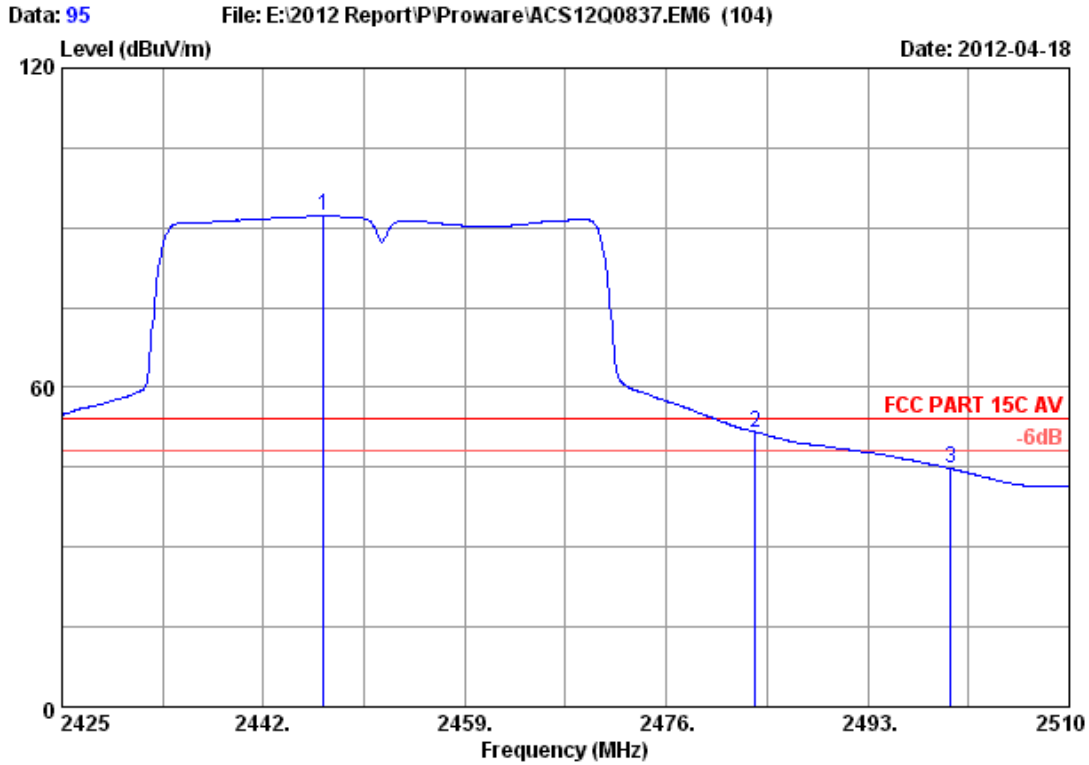


Site no. : 3m Chamber Data no. : 82
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH1 2422MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.44	7.39	36.62	44.22	44.43	54.00	9.57	Average
2	2400.000	29.44	7.43	36.62	48.54	48.79	54.00	5.21	Average
3	2405.480	29.45	7.43	36.62	80.86	81.12	54.00	-27.12	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

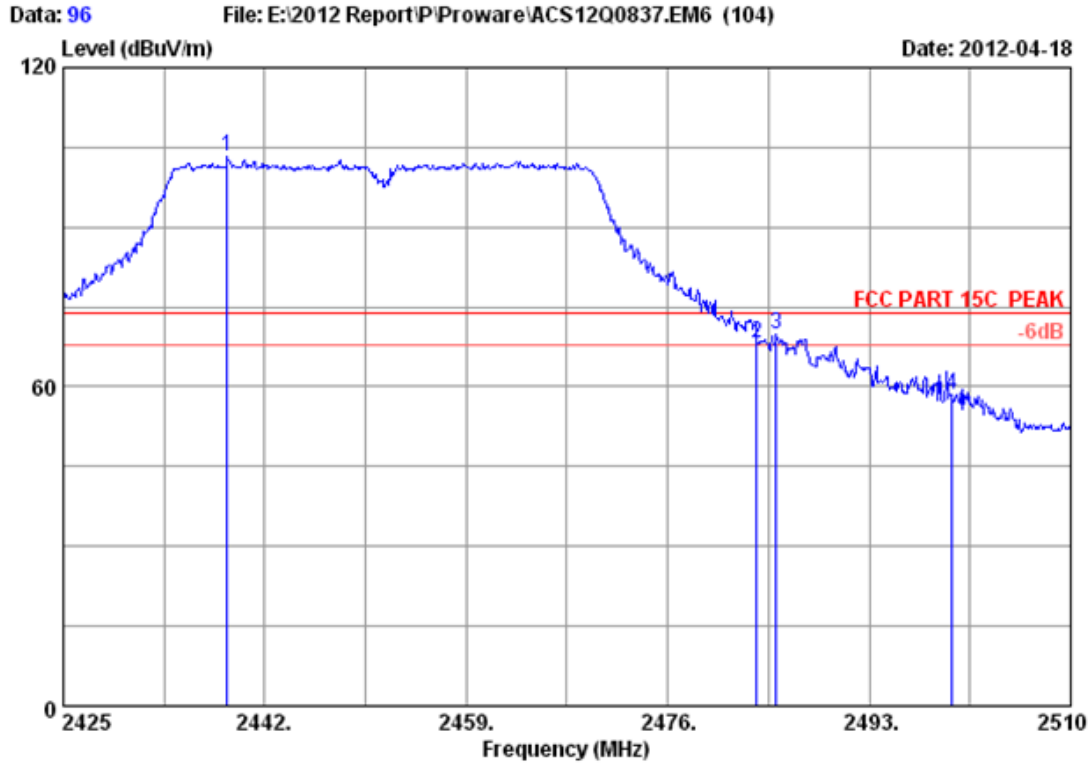


Site no. : 3m Chamber Data no. : 95
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH7 2452MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2447.100	29.47	7.50	36.61	91.90	92.26	54.00	-38.26	Average
2	2483.500	29.49	7.58	36.60	51.17	51.64	54.00	2.36	Average
3	2500.000	29.50	7.62	36.60	44.34	44.86	54.00	9.14	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

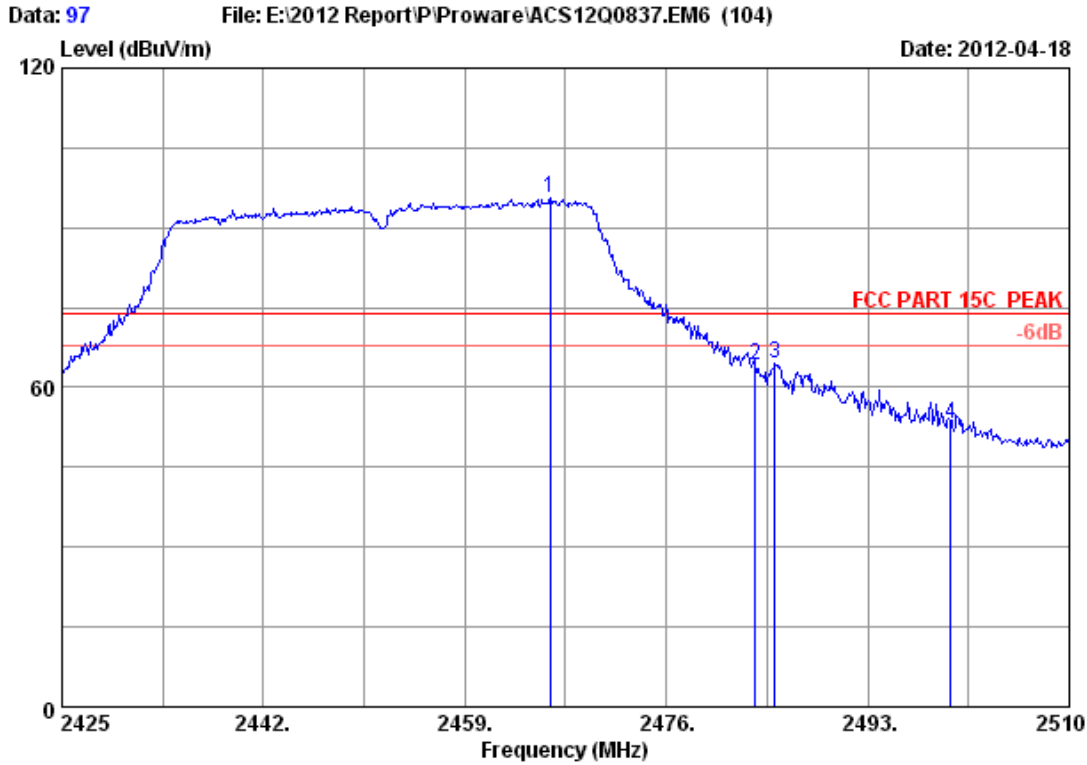


Site no. : 3m Chamber Data no. : 96
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH7 2452MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2438.855	29.47	7.50	36.61	102.87	103.23	74.00	-29.23	Peak
2	2483.500	29.49	7.58	36.60	67.64	68.11	74.00	5.89	Peak
3	2485.180	29.49	7.58	36.60	69.55	70.02	74.00	3.98	Peak
4	2500.000	29.50	7.62	36.60	57.87	58.39	74.00	15.61	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



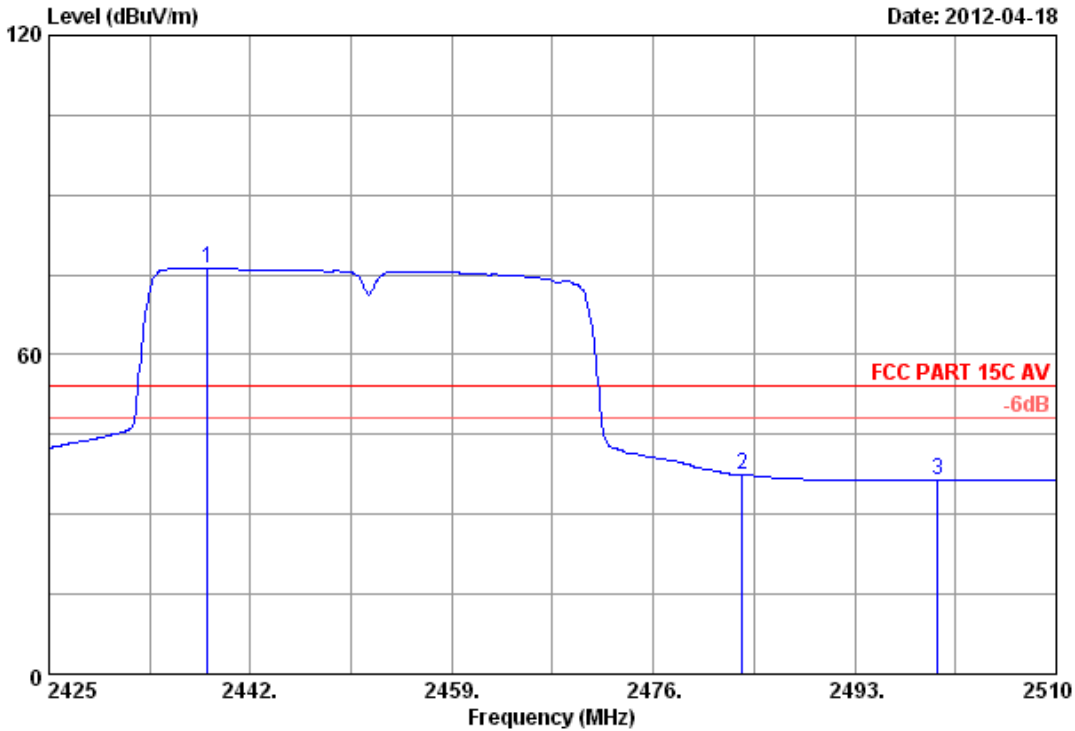
Site no. : 3m Chamber Data no. : 97
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH7 2452MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2466.225	29.48	7.54	36.61	95.04	95.45	74.00	-21.45	Peak
2	2483.500	29.49	7.58	36.60	63.61	64.08	74.00	9.92	Peak
3	2485.180	29.49	7.58	36.60	63.92	64.39	74.00	9.61	Peak
4	2500.000	29.50	7.62	36.60	52.53	53.05	74.00	20.95	Peak

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 98 File: E:\2012 Report\PI\Proware\ACS12Q0837.EM6 (104) Date: 2012-04-18



Site no. : 3m Chamber Data no. : 98
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Leo-Li
 EUT : 150Mbps Wireless N PCI Adapter
 Power supply : DC 3.3V From PC input AC 120V/60Hz
 Test mode : IEEE802.11nHT40 CH7 2452MHz Tx
 M/N : PW-DN451D

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2438.345	29.47	7.46	36.61	75.95	76.27	54.00	-22.27	Average
2	2483.500	29.49	7.58	36.60	37.00	37.47	54.00	16.53	Average
3	2500.000	29.50	7.62	36.60	35.90	36.42	54.00	17.58	Average

Remarks:

1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

7. 6dB Bandwidth Test

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 11	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 11	1 Year
3.	Antenna	EMCO	3115	9510-4580	May.31, 11	1Year
4.	HF Cable	Hubersuhner	Sucoflex104	-	May.08, 11	1 Year

7.2. Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

7.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300 kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

7.4. Test Results

EUT: 150Mbps Wireless N PCI Adapter		
M/N: PW-DN451D		
Test date: 2012-04-19	Pressure: 100.6 kpa	Humidity: 53%
Tested by: Leo-Li	Test site: RF Site	Temperature : 25 °C

Cable loss: 1 dB		Attenuator loss: 20 dB	Antenna Gain: 2 dBi
Test Mode	CH	6dB bandwidth (MHz)	Limit (KHz)
11b	CH1	10.162	>500
	CH6	10.156	>500
	CH11	10.159	>500
11g	CH1	16.457	>500
	CH6	16.451	>500
	CH11	16.465	>500
11n HT20	CH1	17.673	>500
	CH6	17.652	>500
	CH11	17.658	>500
11n HT40	CH1	36.539	>500
	CH4	36.577	>500
	CH7	36.636	>500

Conclusion : PASS

Test Mode: IEEE 802.11b TX
 Test CH1: 2412MHz

Agilent

Ch Freq 2.412 GHz Trig Free

Occupied Bandwidth

Ref 21 dBm Atten 10 dB

#Peak Log 10 dB/ Offst 21 dB

Center 2.412 00 GHz Span 50 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
14.1224 MHz	x dB	-6.00 dB
Transmit Freq Error	-13.019 kHz	
x dB Bandwidth	10.162 MHz	

File Operation Status, A:\SCREN066.GIF file saved

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More 1 of 2

Test CH6: 2437MHz

Agilent

Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth

Ref 21 dBm Atten 10 dB

#Peak Log 10 dB/ Offst 21 dB

Center 2.437 00 GHz Span 50 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
14.1643 MHz	x dB	-6.00 dB
Transmit Freq Error	-6.811 kHz	
x dB Bandwidth	10.156 MHz	

File Operation Status, A:\SCREN068.GIF file saved

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More 1 of 2

Test CH11: 2462MHz

* **Agilent**

Trace
 Trace 1 2 3

Ch Freq 2.462 GHz
Trig Free

Occupied Bandwidth █

Ref 21 dBm
Atten 10 dB

#Peak
 Log
 10
 dB/
 Offst
 21
 dB

Center 2.462 00 GHz
Span 50 MHz

#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
14.2243 MHz	x dB	-6.00 dB
Transmit Freq Error		
x dB Bandwidth		

Transmit Freq Error	-7.818 kHz
x dB Bandwidth	10.159 MHz

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More

1 of 2

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Test Mode: IEEE 802.11g TX

Test CH1: 2412MHz

* **Agilent**

Trace
 Trace 1 2 3

Ch Freq 2.412 GHz
Trig Free

Occupied Bandwidth █

Ref 21 dBm
Atten 10 dB

#Peak
 Log
 10
 dB/
 Offst
 21
 dB

Center 2.412 00 GHz
Span 50 MHz

#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
18.2720 MHz	x dB	-6.00 dB
Transmit Freq Error		
x dB Bandwidth		

Transmit Freq Error	-36.871 kHz
x dB Bandwidth	16.457 MHz

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

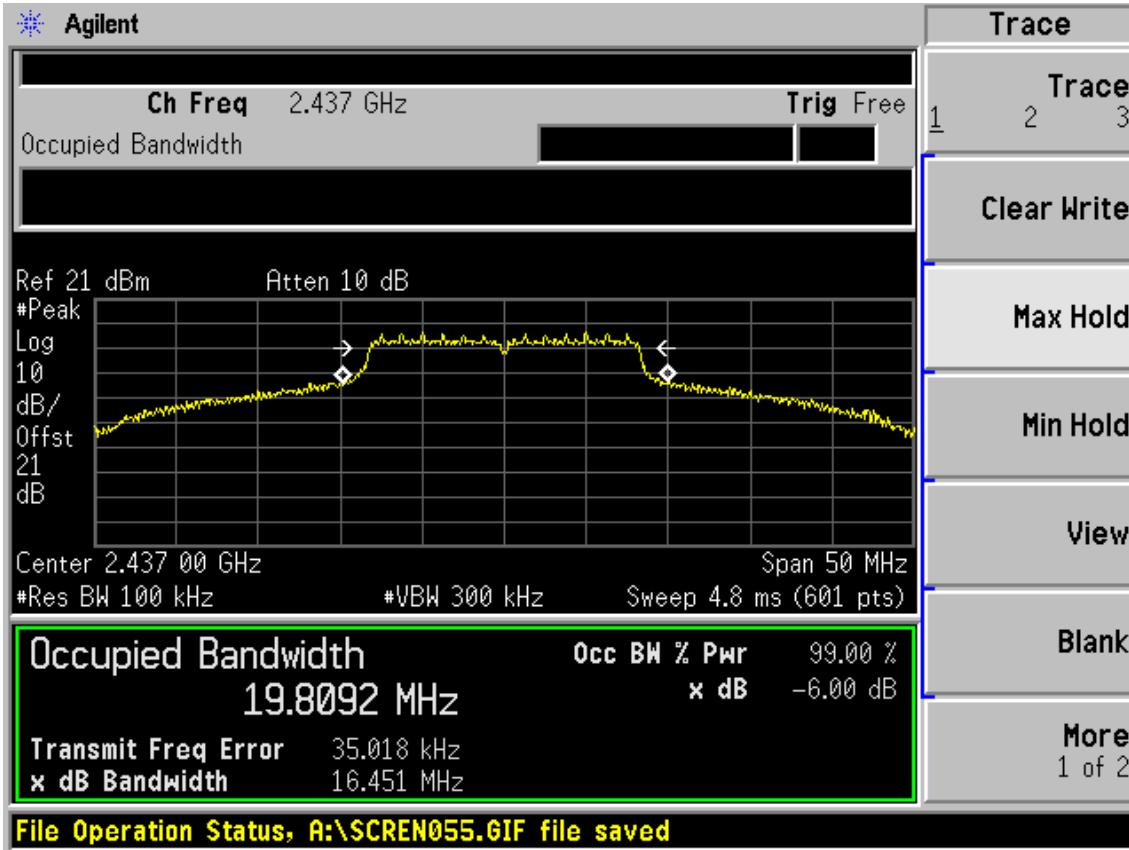
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More

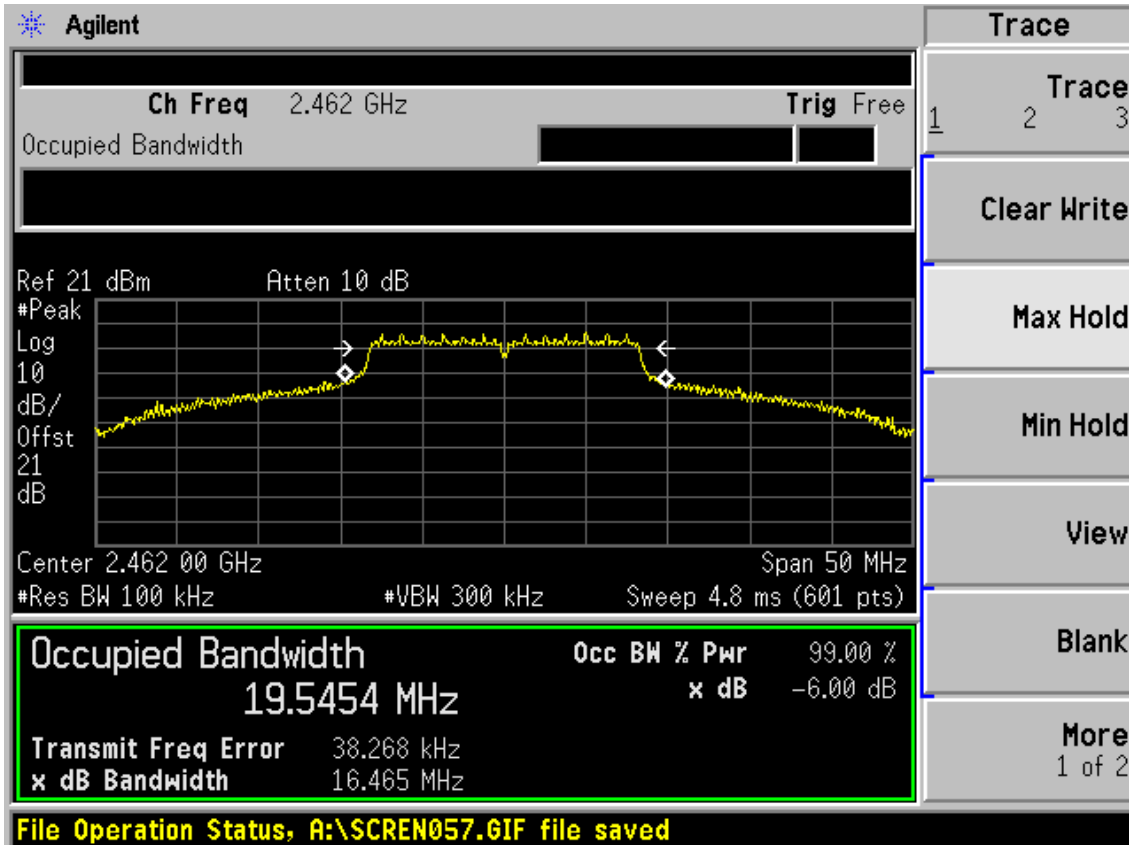
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File Operation Status, A:\SCREN052.GIF file saved

Test CH6: 2437MHz



Test CH11: 2462MHz



Test Mode: IEEE 802.11n HT20 TX
 Test CH1: 2412MHz

Agilent

Ch Freq 2.412 GHz Trig Free

Occupied Bandwidth

Ref 21 dBm Atten 10 dB

#Peak

Log

10

dB/

Offst

21

dB

Center 2.412 00 GHz Span 50 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Occupied Bandwidth Occ BW % Pwr 99.00 %

18.8637 MHz x dB -6.00 dB

Transmit Freq Error -14.710 kHz

x dB Bandwidth 17.658 MHz

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More 1 of 2

File Operation Status, A:\SCREN063.GIF file saved

Test CH6: 2437MHz

Agilent

Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth

Ref 21 dBm Atten 10 dB

#Peak

Log

10

dB/

Offst

21

dB

Center 2.437 00 GHz Span 50 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 4.8 ms (601 pts)

Occupied Bandwidth Occ BW % Pwr 99.00 %

20.1374 MHz x dB -6.00 dB

Transmit Freq Error 54.665 kHz

x dB Bandwidth 17.652 MHz

Trace

Trace 1 2 3

Clear Write

Max Hold

Min Hold

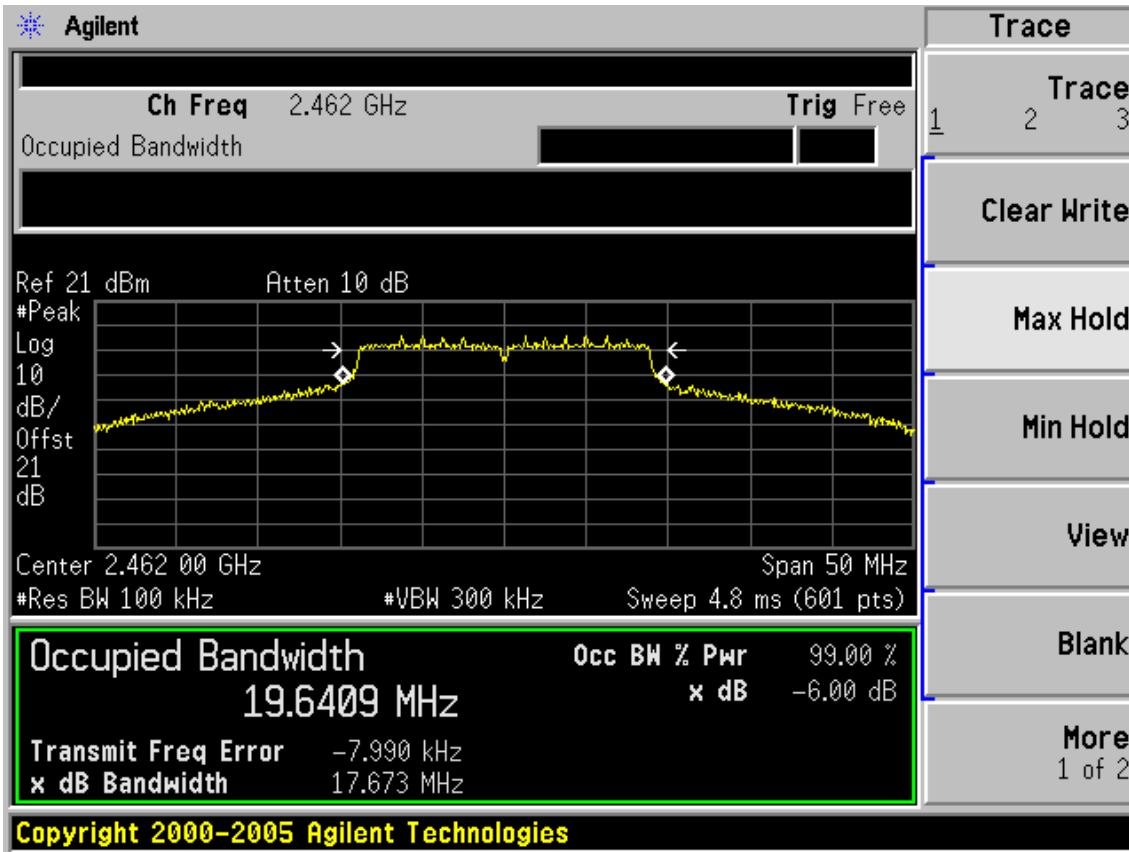
View

Blank

More 1 of 2

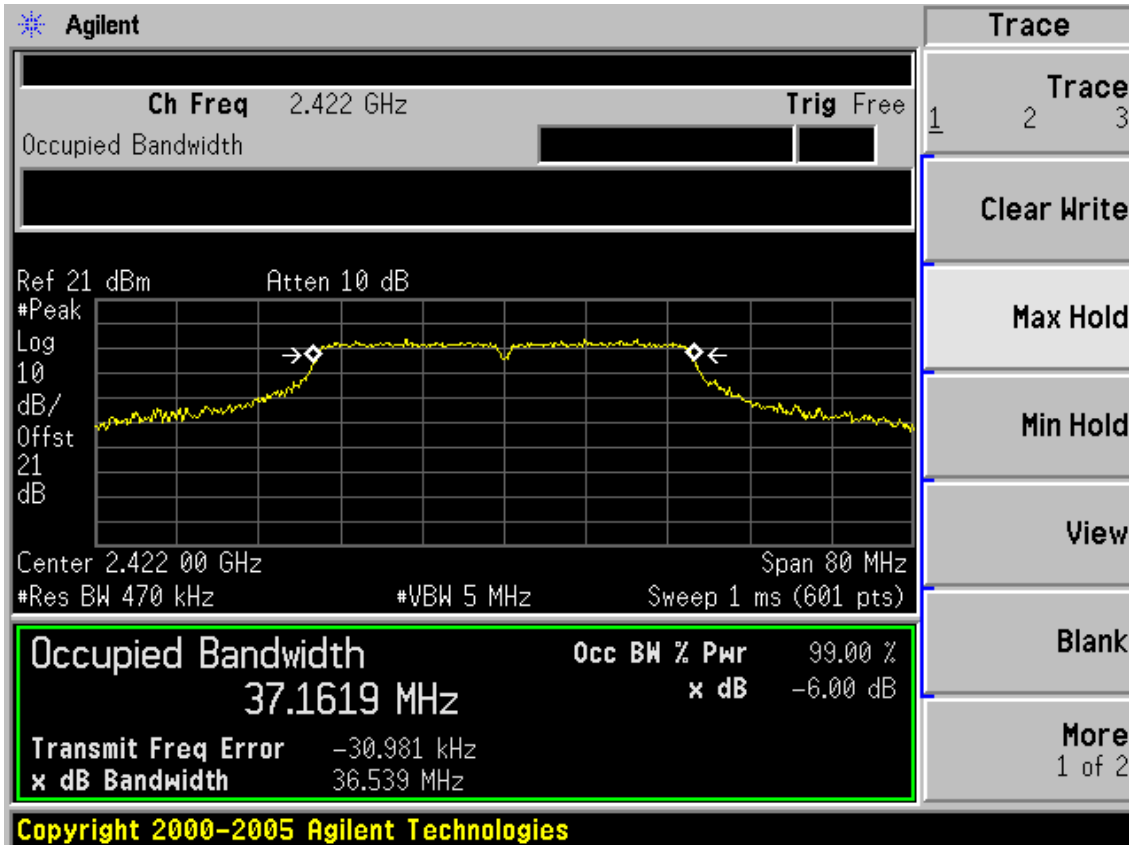
File Operation Status, A:\SCREN061.GIF file saved

Test CH11: 2462MHz

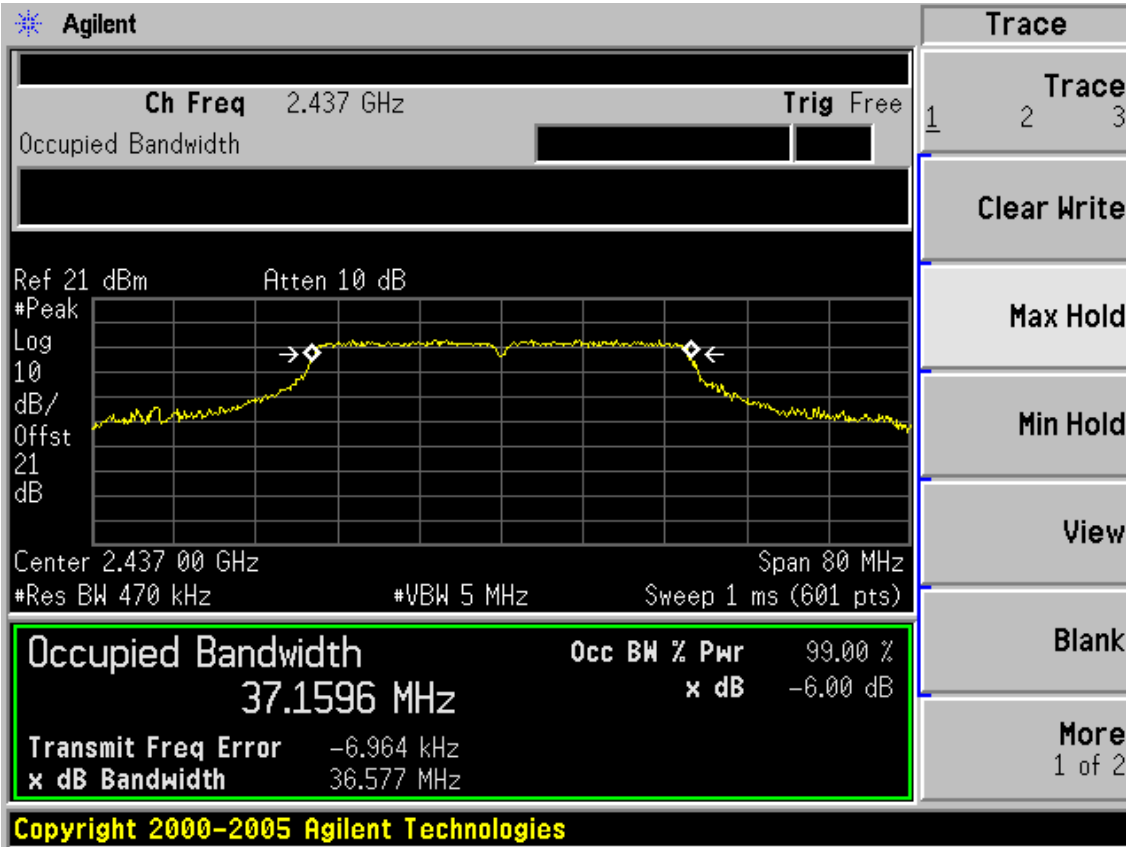


Test Mode: IEEE 802.11n HT40 TX

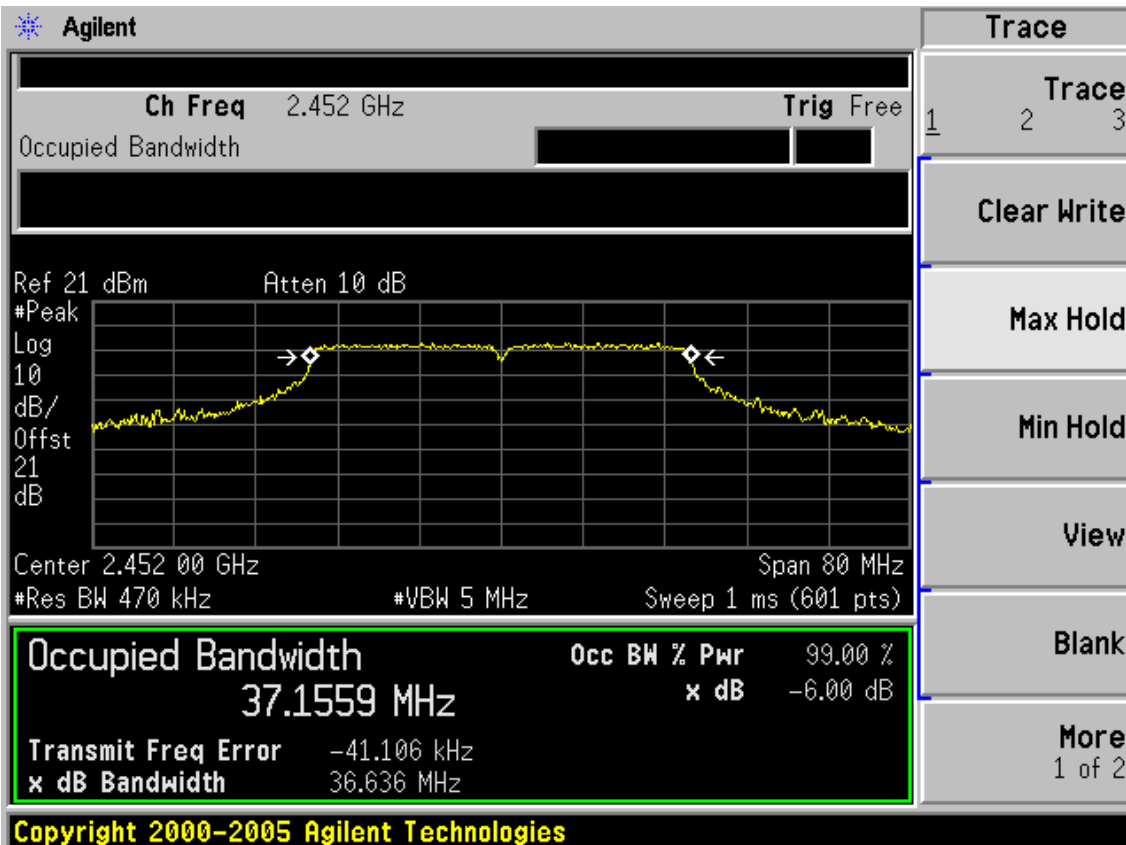
Test CH1: 2422MHz



Test CH4: 2437MHz



Test CH7: 2452MHz



8. OUTPUT POWER TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 11	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 11	1 Year
3.	Antenna	EMCO	3115	9510-4580	May.31, 11	1Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 11	1 Year
5.	Power Meter	Anritsu	ML2487A	6K00002472	May.08, 11	1Year
6.	Power Sensor	Anritsu	MA2491A	033005	May.08, 11	1Year

8.2. Limit (FCC Part 15C 15.247 b(3))

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put Power shall not exceed 1W(30dBm)

8.3. Test Procedure

- 1, Connected the EUT's antenna port to measure device by 26dB attenuator.
- 2, For IEEE 802.11b/g and IEEE802.11n HT20 mode, use a PK power meter which's bandwidth is 20MHz and above 26dB bandwidth of signal to measure out each test modes' PK output power.
- 3, For IEEE802.11n HT40 mode, because the signal's bandwidth is about 40MHz and above 20MHz bandwidth of power sensor ML2491A. So Bandwidth correction method according to ANSI C63.10 clause 6.10.2.1 part (c) was used:
 - 1) Set the RBW=3MHz and VBW =8MHz
 - 2) Turn averaging off
 - 3) Set sweep to automatic
 - 4) Set the span just large enough to capture the emission
 - 5) Use a peak detector on max hold
 - 6) Record the measured power
 - 7) Calculate Output power of EUT use the formula:

Peak output power =measured power+ 10log[(26dB bandwidth of emission)/(analyzer RBW)]

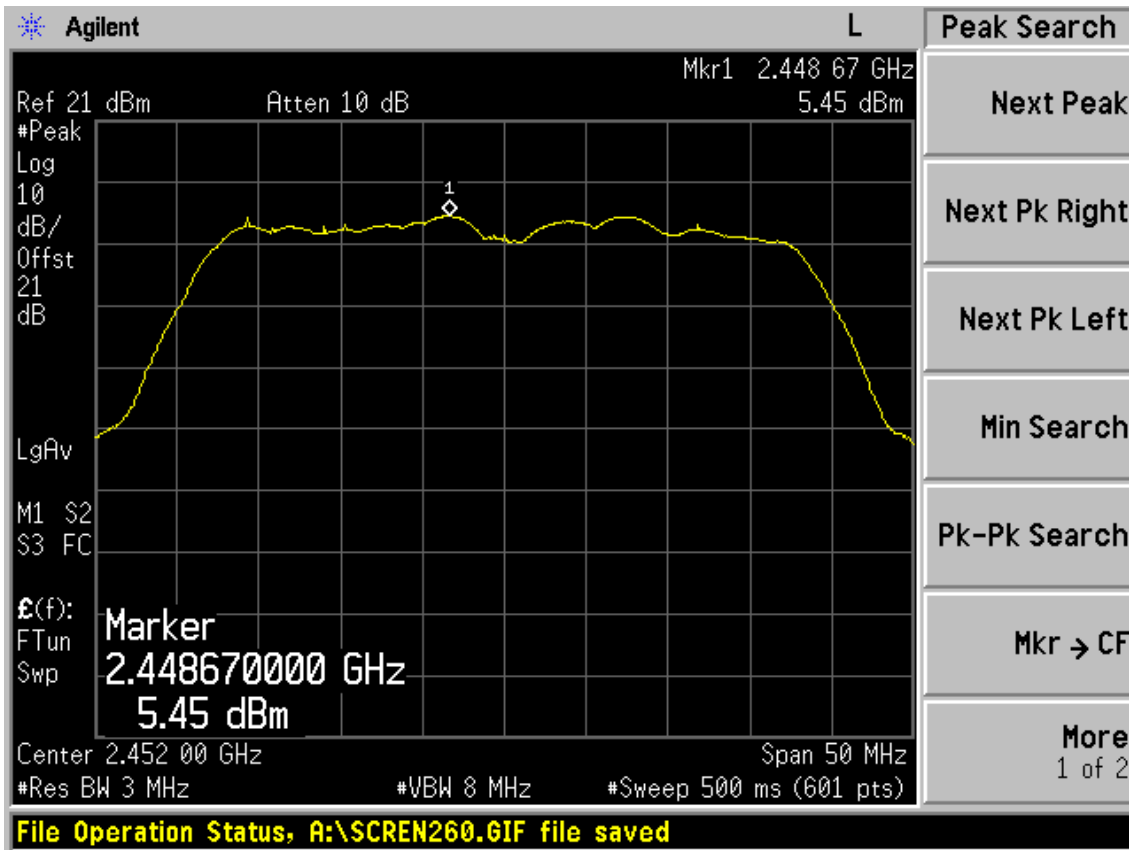
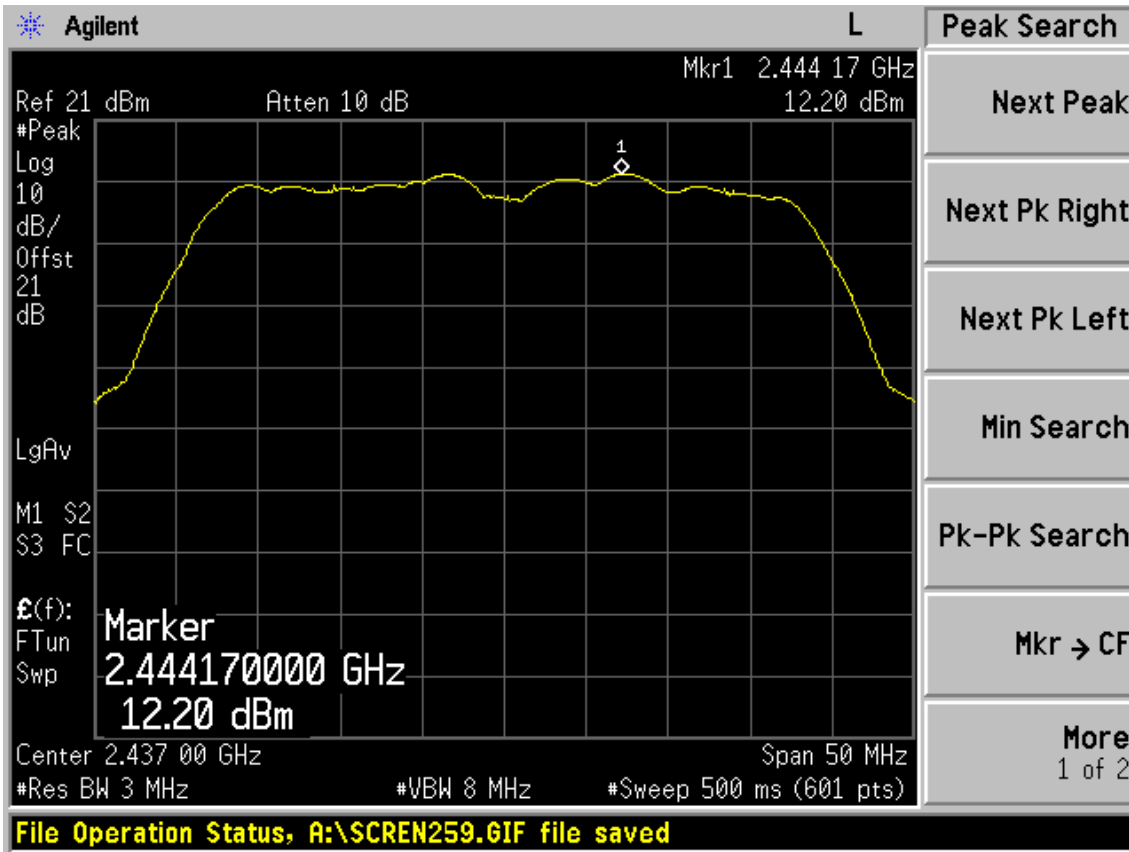
Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

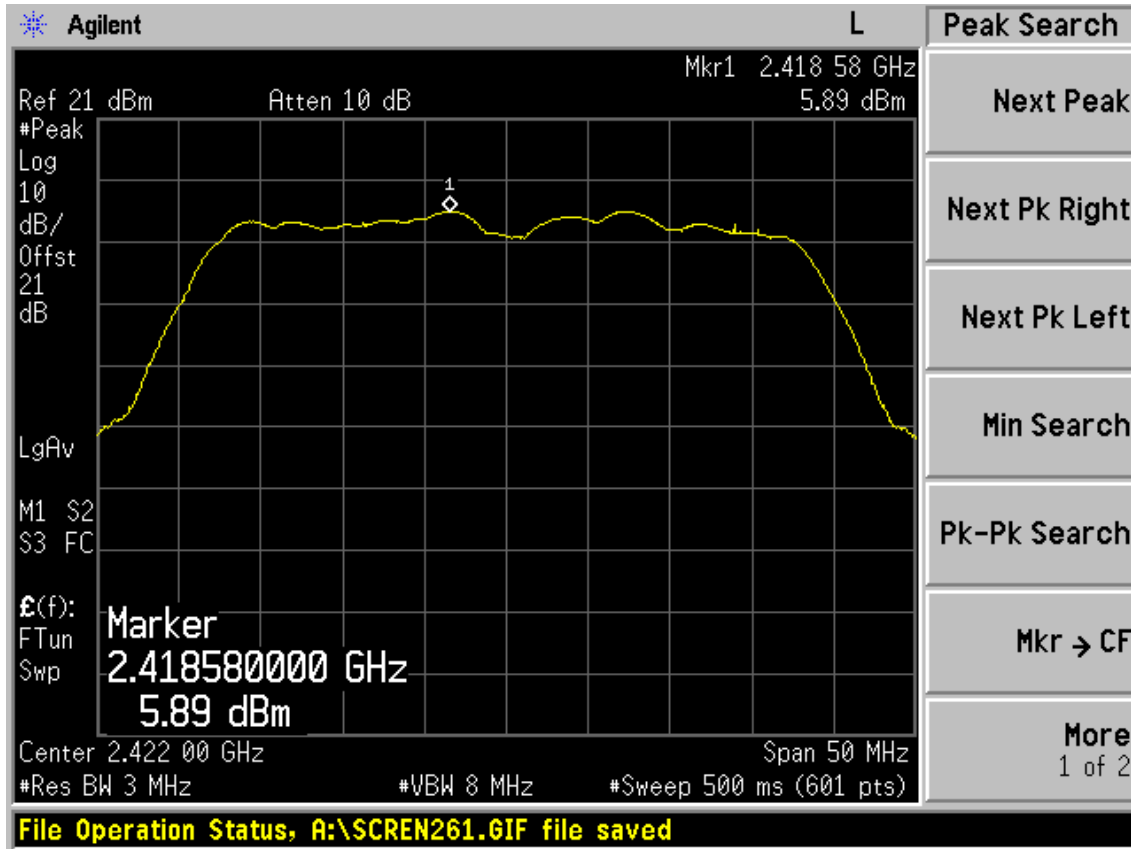
8.4. Test Results

EUT: 150Mbps Wireless N PCI Adapter			
M/N: PW-DN451D			
Test date: 2012-04-19	Pressure: 101.3 kpa	Humidity: 55 %	
Tested by: Leo-Li	Test site: RF site	Temperature: 25 °C	
Cable loss: 1 dB		Attenuator loss: 20 dB	Antenna Gain: 2 dBi
Test Mode	CH (MHz)	Peak output Power (dBm)	Limit (dBm)
11b	CH1	14.19	30
	CH6	14.68	30
	CH11	15.06	30
11g	CH1	20.94	30
	CH6	24.44	30
	CH11	18.65	30
11n HT20	CH1	19.35	30
	CH6	23.84	30
	CH11	18.47	30

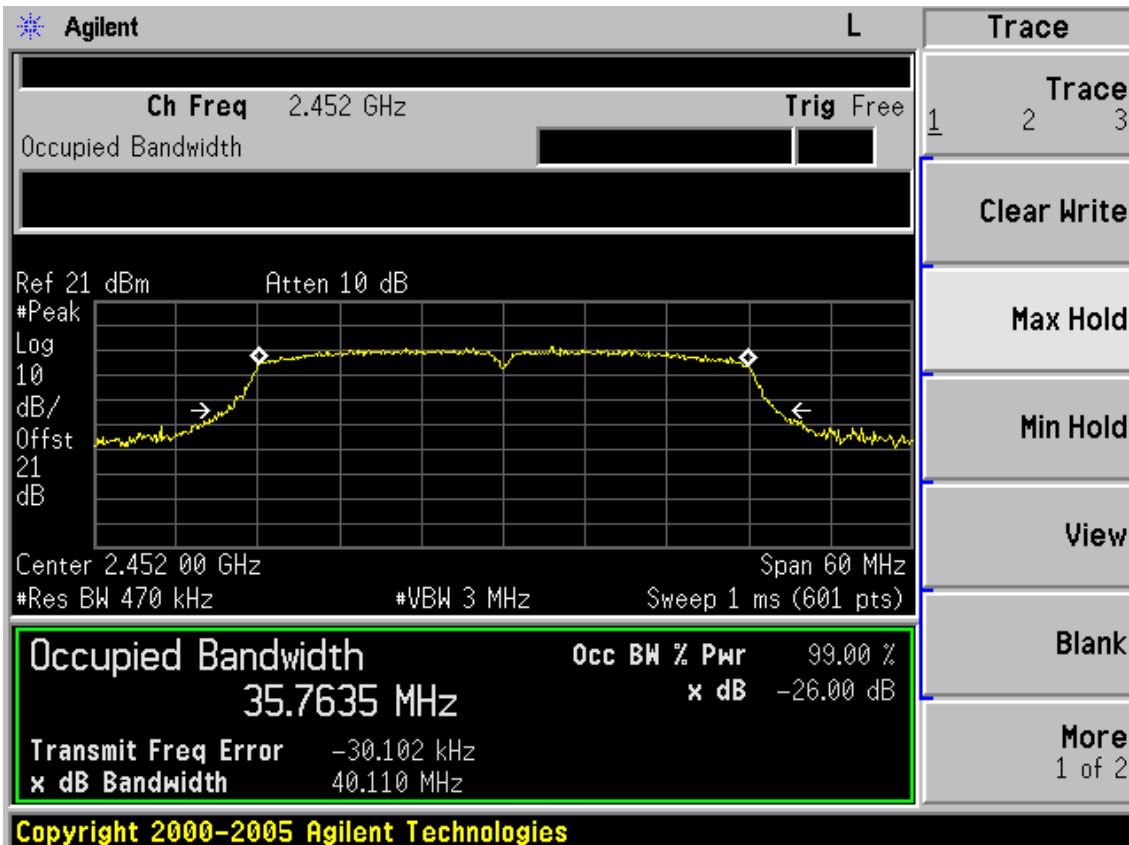
Test Mode	CH	Result		Limit (dBm)
		Measured power(dBm)/3MHz	PK Output power (dBm)	
11n HT40	CH1	5.89	17.23	30
	CH4	12.20	23.54	30
	CH7	5.45	16.79	30
26dB Bandwidth for 11n HT40: 40.833MHz				
BW correction factor = $10\log[(40.833\text{MHz})/(3\text{MHz})] = 11.34\text{dB}$				
Conclusion: PASS				

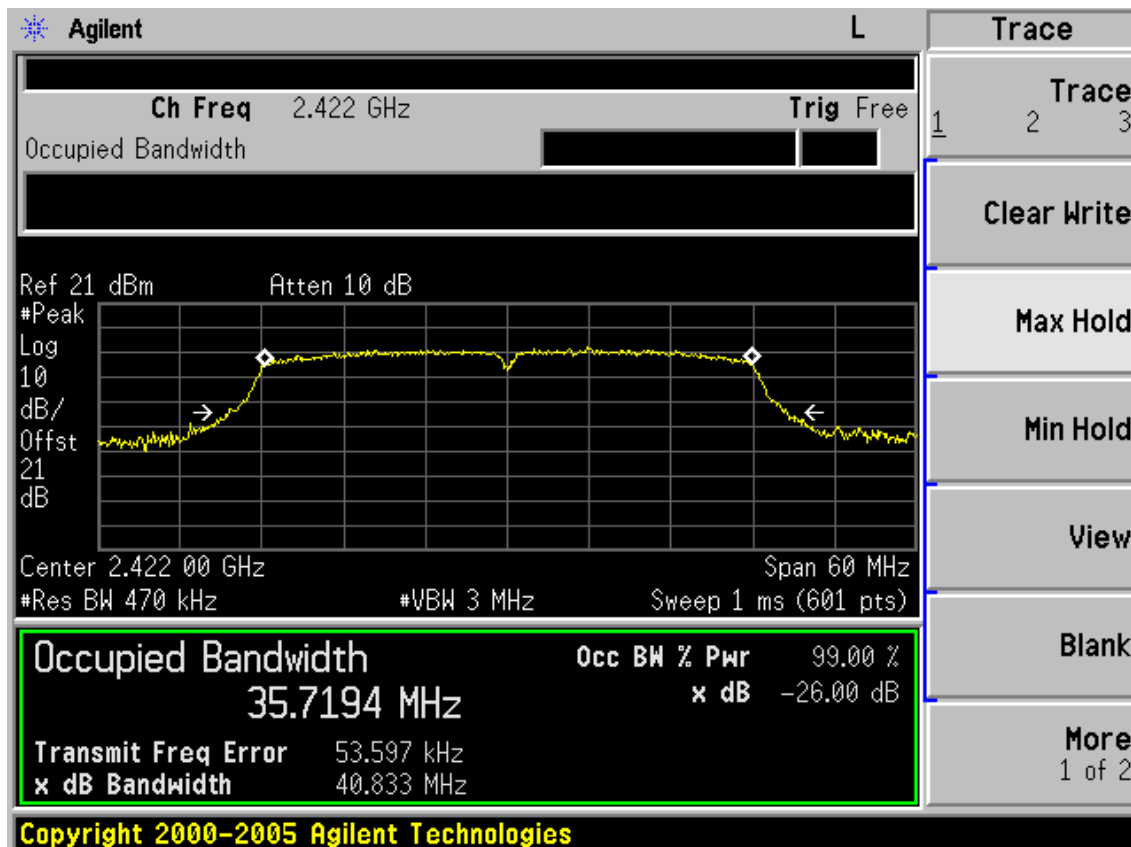
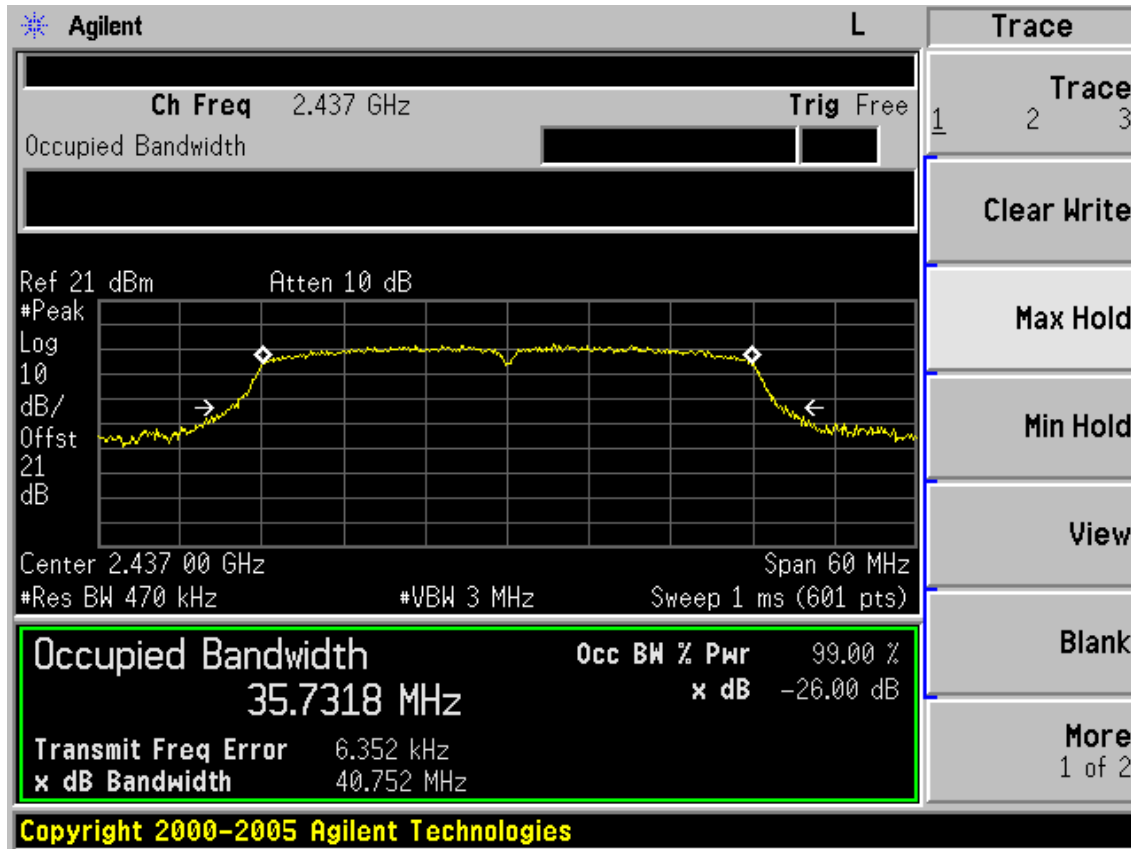
Test Mode: IEEE 802.11n HT40





26dB Bandwidth





9. POWER SPECTRAL DENSITY TEST

9.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	May.08, 11	1 Year
2.	Amp	HP	8449B	3008A08495	May.08, 11	1 Year
3.	Antenna	EMCO	3115	9510-4580	May.31, 11	1Year
4.	HF Cable	Hubersuhne	Sucoflex104	-	May.08, 11	1 Year

9.2. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

9.3. Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.
- 2 , Set the test frequency as center frequency,Set RBW=3KHz,VBW=10KHz,Span large enough capture the entire frequency,Read out maximum peak level frequency
- 3, Set the frequency read from produce 2 as center frequency,then set the span=300KHz, Sweep time=Span/RBW,Then Max hold,read out each mode and each chain's Power density.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude

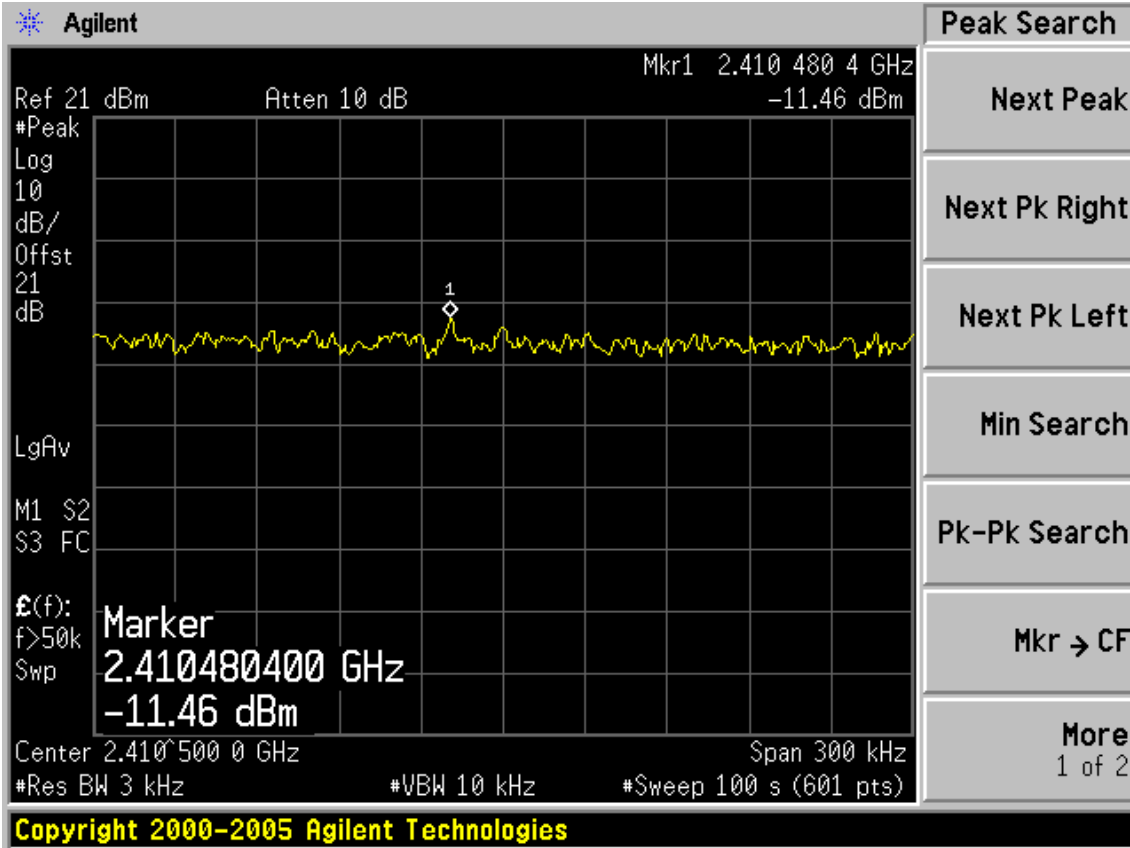
9.4. Test Results

EUT: 150Mbps Wireless N PCI Adapter		
M/N: PW-DN451D		
Test date: 2012-04-19	Pressure: 100.6 kpa	Humidity: 48 %
Tested by: Leo-Li	Test site: RF Site	Temperature : 25°C

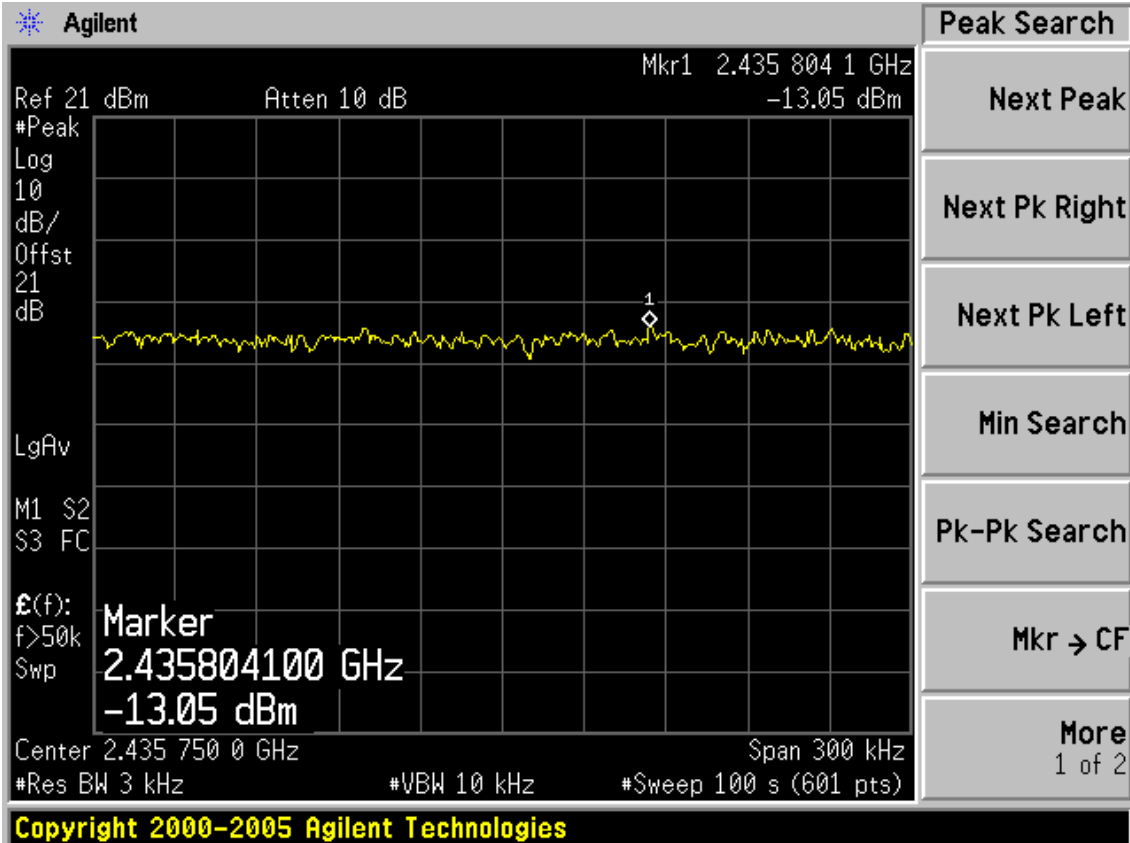
Cable loss: 1 dB		Attenuator loss: 20 dB	Antenna Gain: 2 dBi
Test Mode	CH	Power density (dBm/3KHz)	Limit (dBm/3KHz)
11b	CH1	-11.46	8
	CH6	-13.05	8
	CH11	-11.99	8
11g	CH1	-11.24	8
	CH6	-8.52	8
	CH11	-12.75	8
11n HT20	CH1	-14.37	8
	CH6	-8.81	8
	CH11	-14.85	8
11n HT40	CH1	-16.09	8
	CH4	-11.94	8
	CH7	-18.25	8

Conclusion : PASS

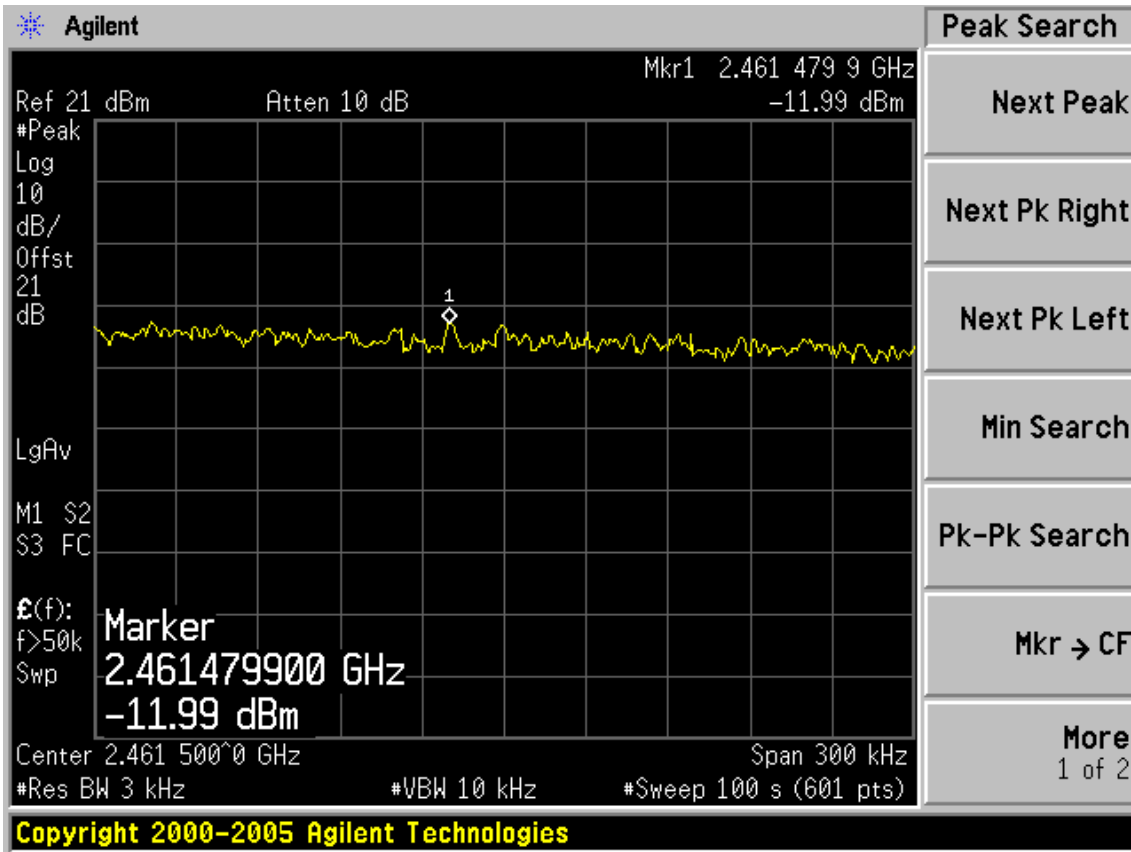
Test Mode: IEEE 802.11b TX
 Test CH1: 2412MHz



Test CH6: 2437MHz

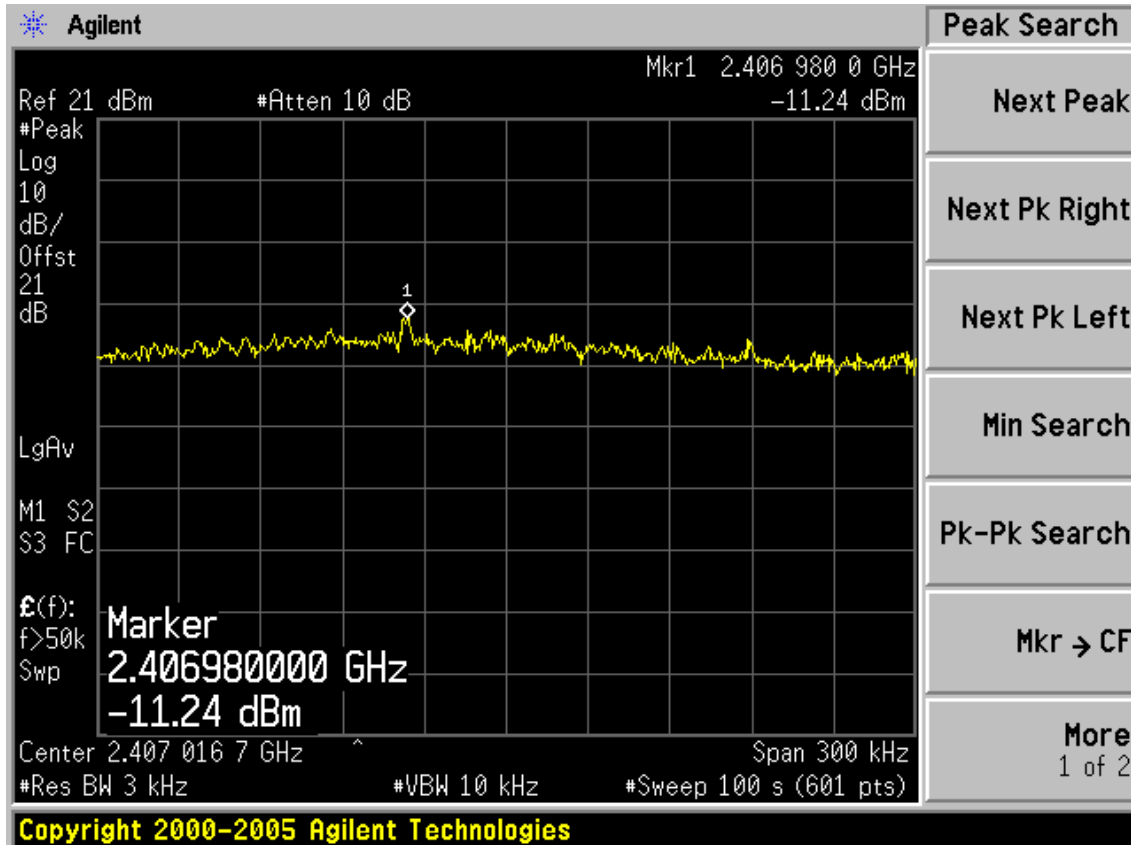


Test CH11: 2462MHz

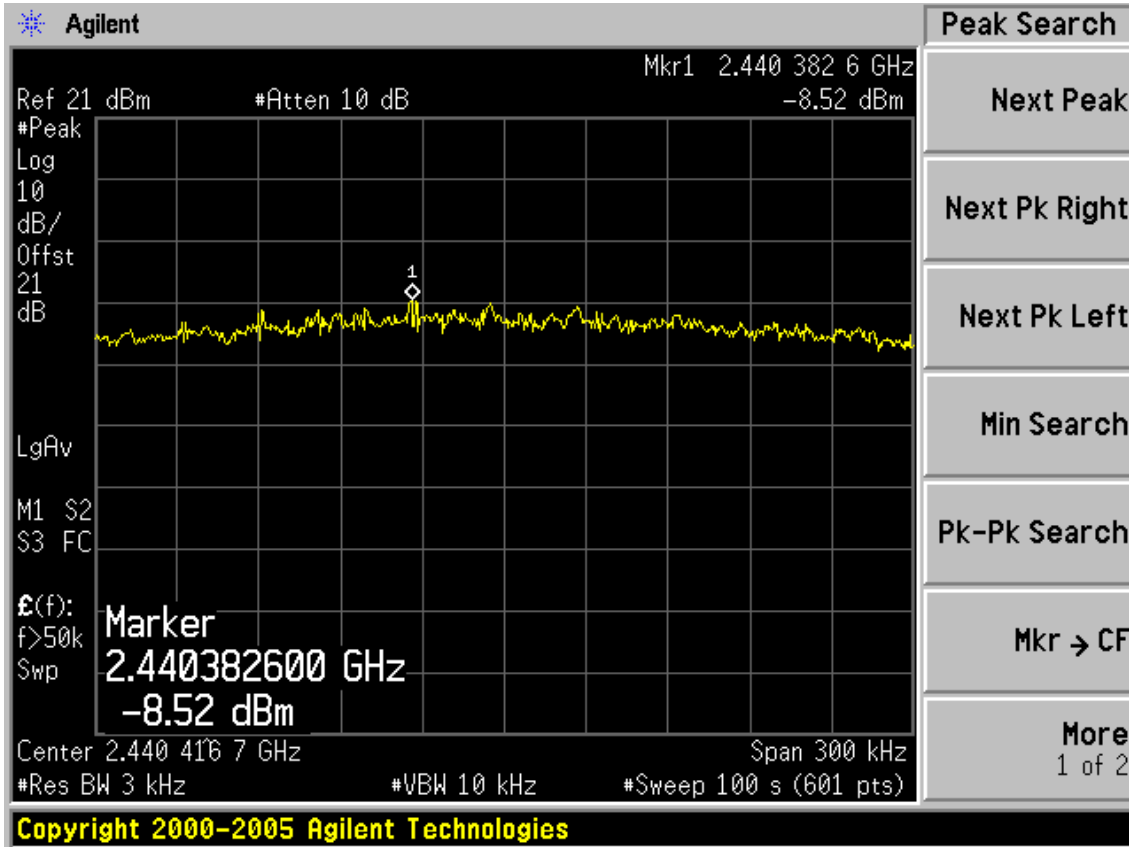


Test Mode: IEEE 802.11g TX

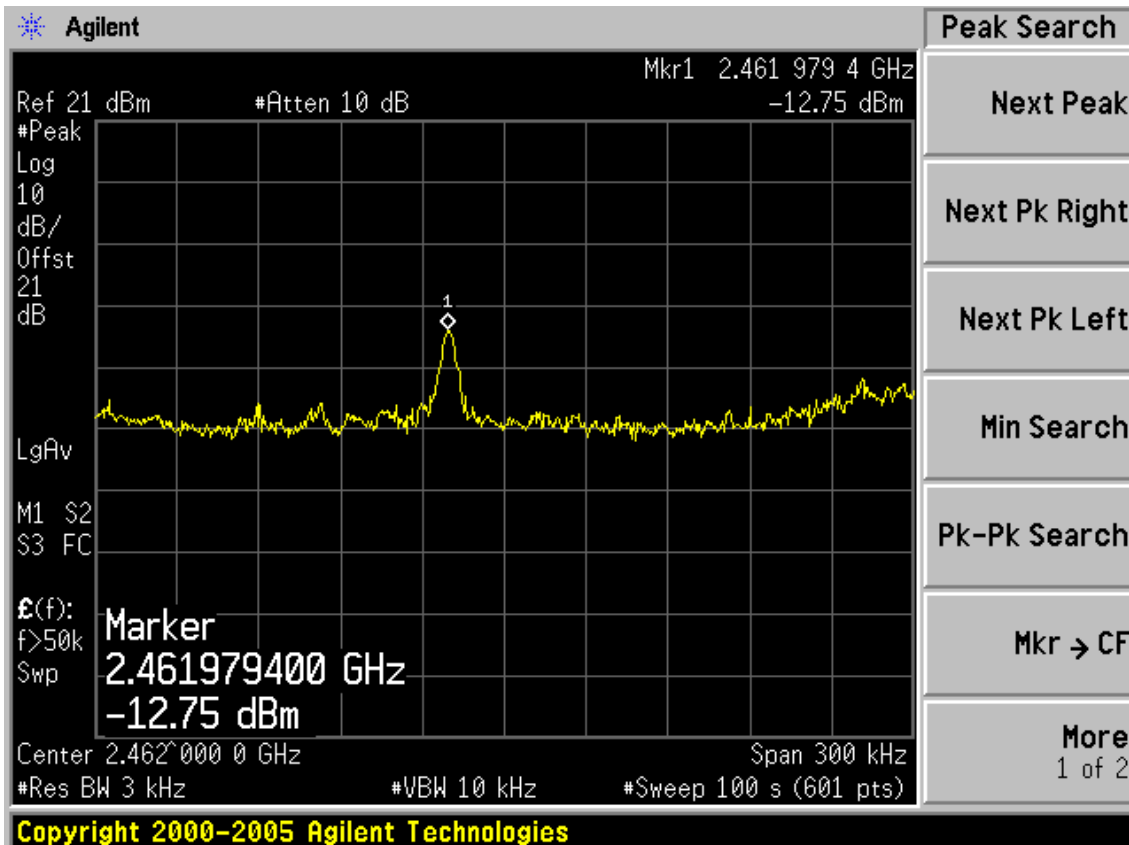
Test CH1: 2412MHz



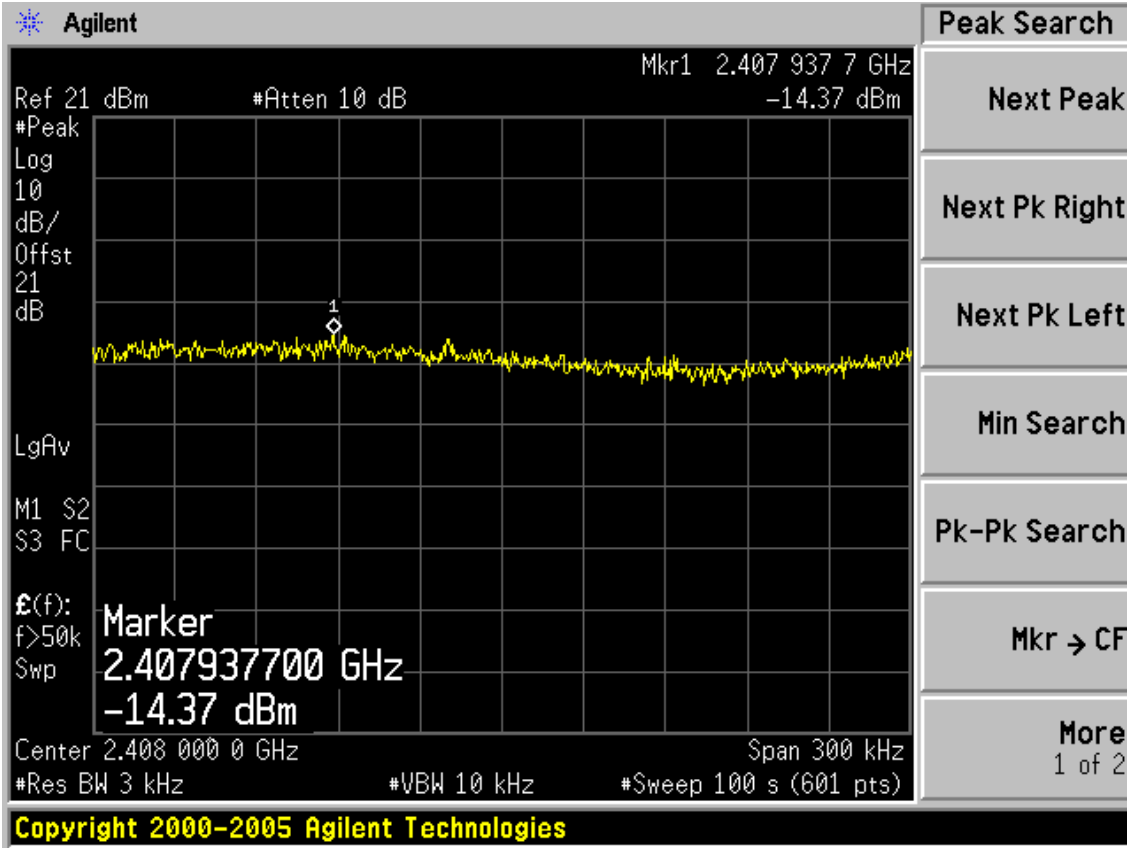
Test CH6: 2437MHz



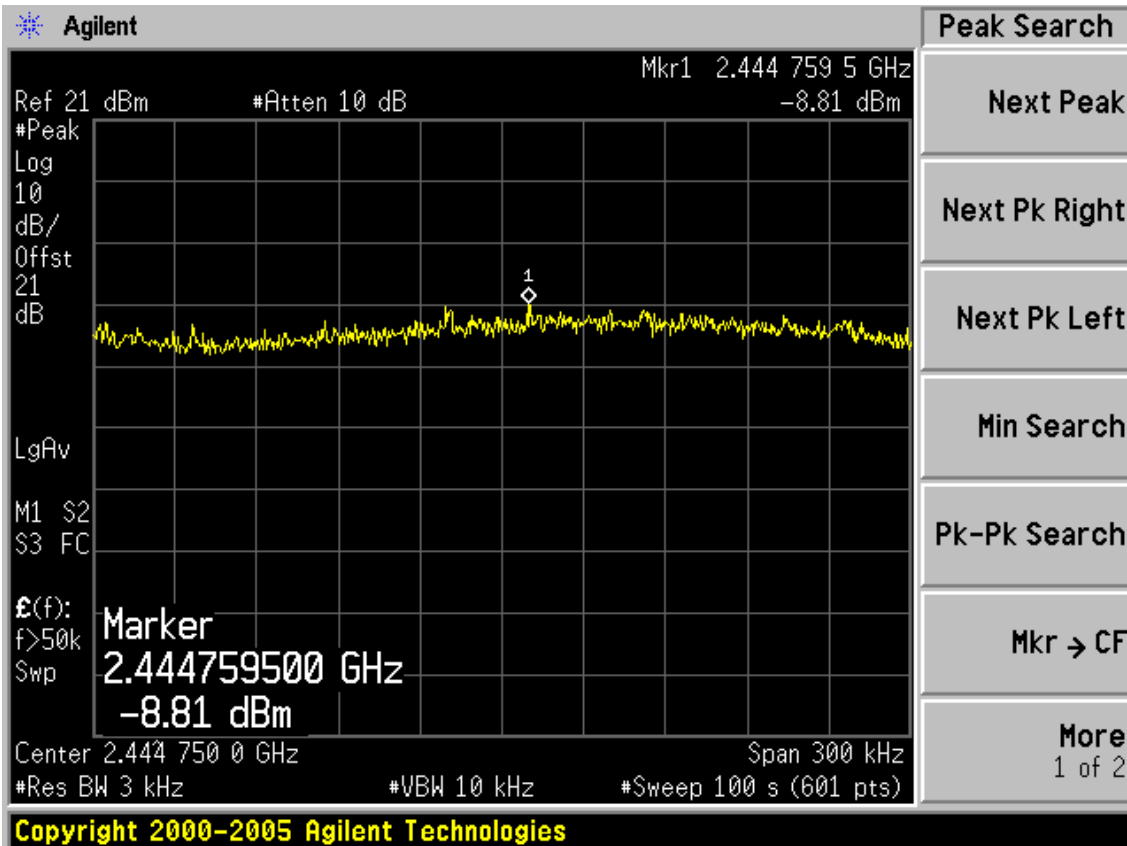
Test CH11: 2462MHz



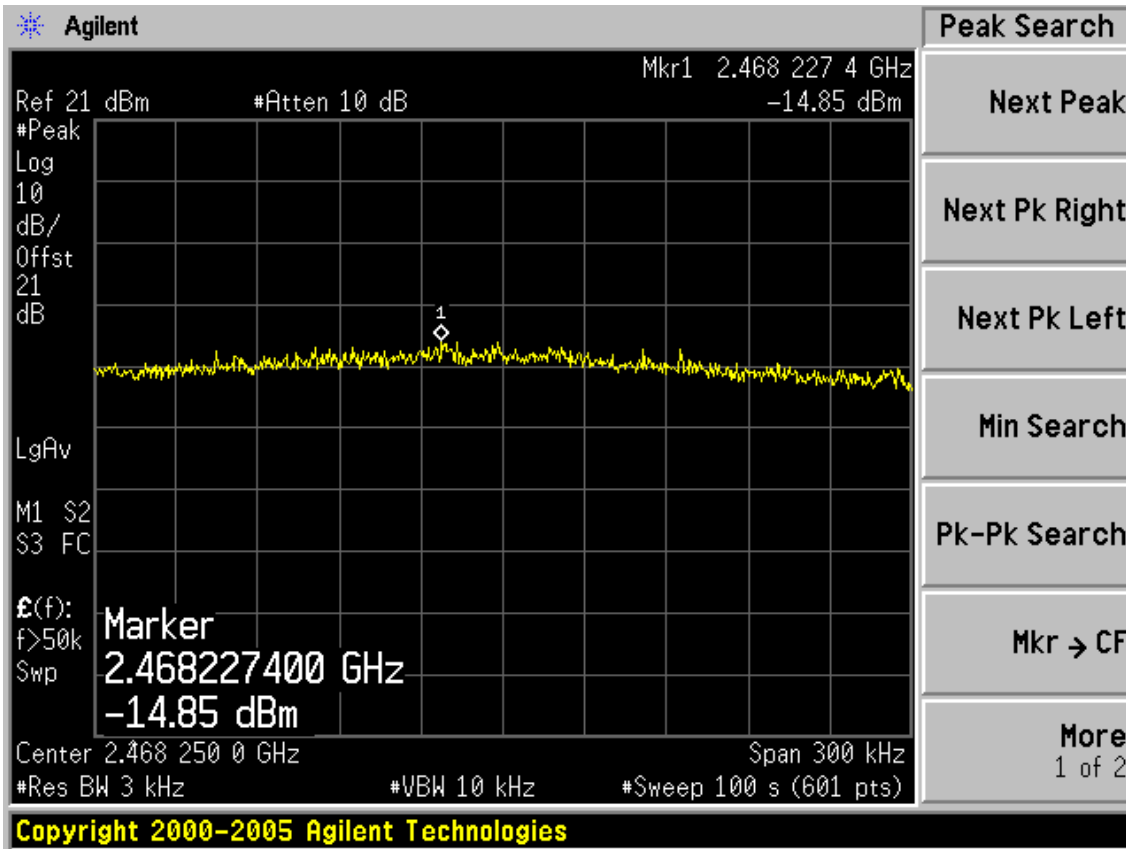
Test Mode: IEEE 802.11n HT20 TX
 Test CH1: 2412MHz



Test CH6: 2437MHz

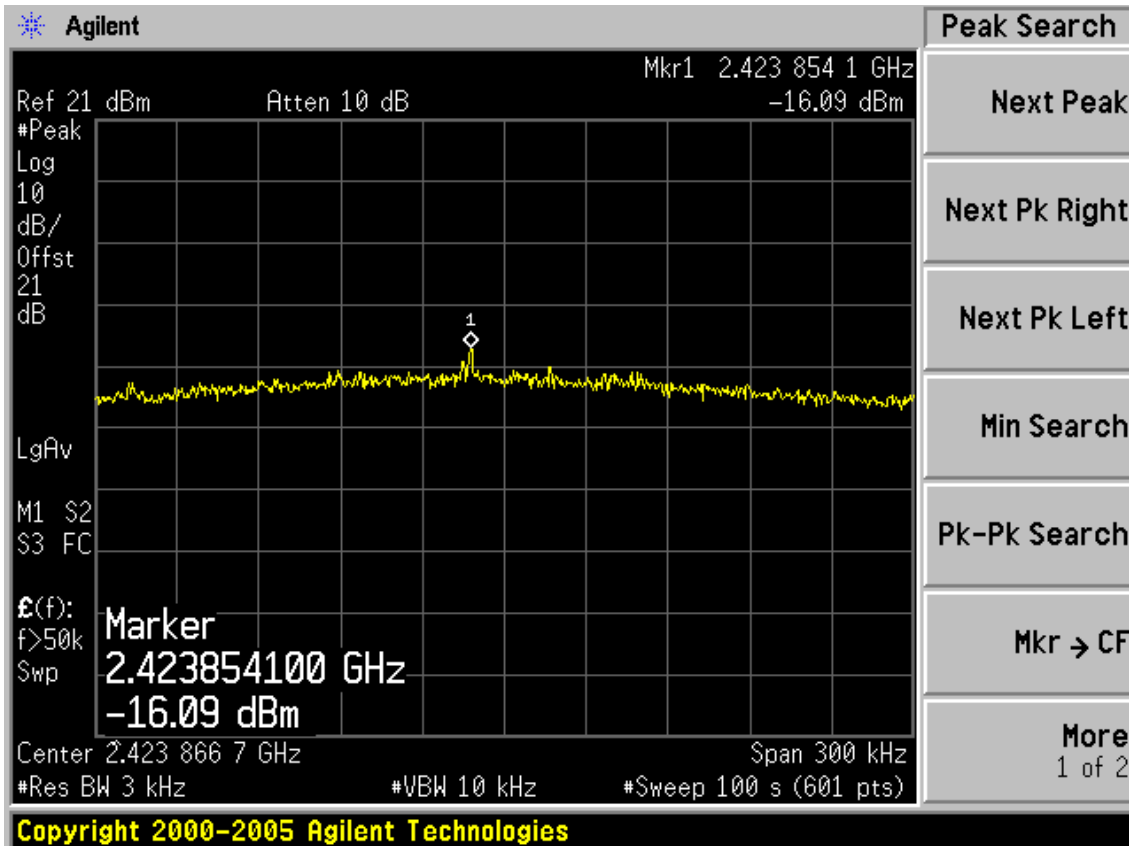


Test CH11: 2462MHz

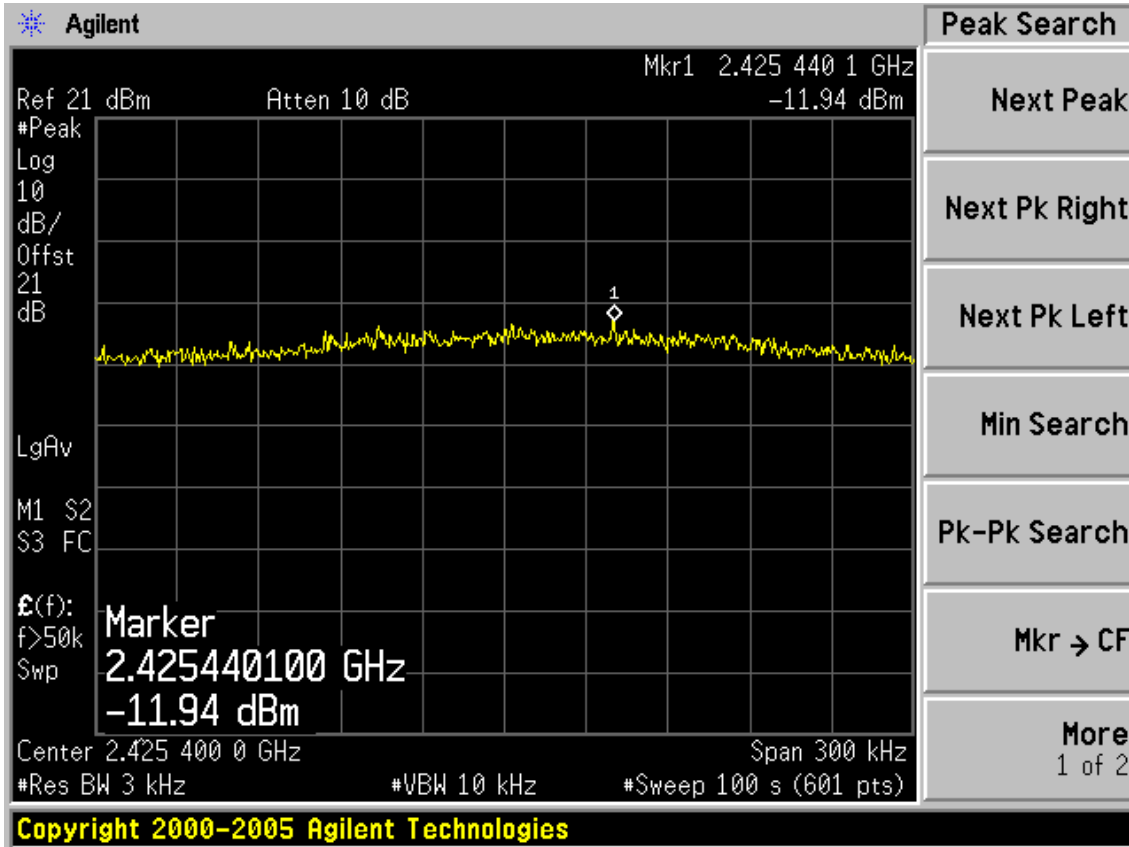


Test Mode: IEEE 802.11n HT40 TX

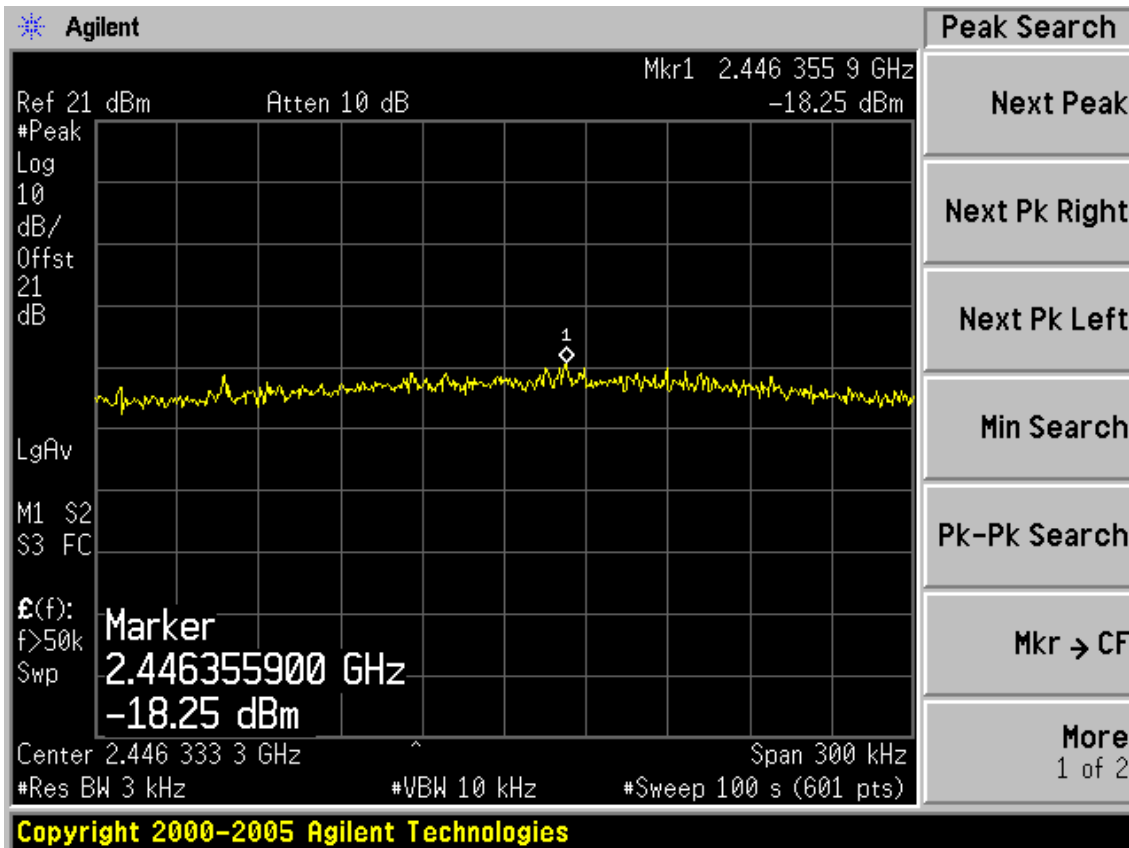
Test CH1: 2422MHz



Test CH4: 2437MHz



Test CH7: 2452MHz



10. ANTENNA REQUIREMENT

10.1. STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. ANTENNA CONNECTED CONSTRUCTION

The antennas used for this product are Dipole antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 2.0dBi.

11.MPE ESTIMATION

11.1.Limit for General Population/ Uncontrolled Exposures

Frequency	Power density (mW/ cm ²)	Averaging time(minutes)
300MHz----1.5GHz	F/1500	30
1.5GHz---100GHz	1.0	30

Frequency(MHz)	Power density (mW/ cm ²)	Averaging time(minutes)
2412	1	30
2437	1	30
2462	1	30

Note: F= Frequency in MHz

11.2. Estimation Result

EUT: 150Mbps Wireless N PCI Adapter		
M/N: PW-DN451D		
Test date: 2012-04-19	Pressure: 100.6 kpa	Humidity: 49%
Tested by: Leo-Li	Test site: RF Site	Temperature : 25°C

Cable loss: 1 dB		Attenuator loss: 20 dB				Antenna Gain: 2 dBi	
Test Mode	CH	Frequency (MHz)	Peak Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Antenna Gain (Linear)	MPE
11b	CH1	2412	14.19	26.24	2	1.58	0.0083
	CH6	2437	14.68	29.38	2	1.58	0.0093
	CH11	2462	15.06	32.06	2	1.58	0.0101
11g	CH1	2412	20.94	124.17	2	1.58	0.0392
	CH6	2437	24.44	277.97	2	1.58	0.0877
	CH11	2462	18.65	73.28	2	1.58	0.0231
11n HT20	CH1	2412	19.35	86.10	2	1.58	0.0272
	CH6	2437	23.84	242.10	2	1.58	0.0764
	CH11	2462	18.47	70.31	2	1.58	0.0222
11n HT40	CH1	2412	17.16	52.00	2	1.58	0.0164
	CH4	2437	23.53	225.42	2	1.58	0.0711
	CH7	2462	16.69	46.67	2	1.58	0.0147

12.DEVIATION TO TEST SPECIFICATIONS

[NONE]