

APPLICATION FOR CERTIFICATION

On Behalf of

Shenzhen Contel Electronics Technology Co., Ltd.

RF Module

Model Number: W220

FCC ID: YAPW220

Prepared for : Shenzhen Contel Electronics Technology Co., Ltd.
13/F, Dawning BLDG, 12Keji Nan Rd., SHIP, Shenzhen,
China

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Report Number : ACS-F10119
Date of Test : Jun.02~05, 2010
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TEST REPORT CERTIFICATION

Applicant : Shenzhen Contel Electronics Technology Co., Ltd.
 Manufacturer : Dong Guan Contel Electronics Co., Ltd.
 EUT Description : RF Module
 FCC ID : YAPW220

(A)MODEL NO. : W220
 (B)SERIAL NO. : N/A
 (C)POWER SUPPLY : DC 5V
 (D)TEST VOLTAGE : DC 5V

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2008

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both radiated and conducted emissions.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test : Jun.02~05, 2010

Prepared by :

Selina Liu
 Selina Liu / Assistant

Reviewer :

Jamy Yu
 Jamy Yu / Supervisor



Approved & Authorized Signer :

Ken Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10: 2009	PASS
Radiated Emission Test	FCC Part 15: 15.209 ANSI C63.10: 2009	PASS
Band Edge Compliance Test	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Conducted spurious emissions test	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
6dB Bandwidth Test	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Output Power Test	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Power Spectral Density Test	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product Name	: RF Module
Model Number	: W220
FCC ID	: YAPW220
Operation Frequency	: IEEE 802.11b/g, 802.11n HT20: 2412MHz---2462MHz IEEE802.11n HT40: 2422MHz---2452MHz
Channel Number	: IEEE 802.11b/g, 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Modulation Technology	: IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)
Output Power	: IEEE 802.11b: 23.48dBm IEEE 802.11g: 25.37dBm IEEE 802.11n HT20: 26.46dBm IEEE 802.11n HT40: 26.47dBm
Antenna Assembly and Gain	: Integral PCB antenna, MIMO 2X2; 1.74dBi Gain
Applicant	: Shenzhen Contel Electronics Technology Co., Ltd. 13/F, Dawning BLDG, 12Keji Nan Rd., SHIP, Shenzhen, China
Manufacturer	: Dong Guan Contel Electronics Co., Ltd. 2 nd Industrial Park, DiChong District, GaoBu Town, Dong Guan City, Guangdong Province, China
USB Cable	: Shielded, Detachable, 1m
Date of Test	: Jun.02~05, 2010
Date of Receipt	: Jun.02, 2010
Sample Type	: Prototype production

2.2. Test information

The test software “arcadyan_fcc_command” was used to control EUT work in Continuous TX mode (100% duty cycle), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	11	Low :CH1	2412
	11	Middle: CH6	2437
	11	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11n HT20	6.5	Low :CH1	2412
	6.5	Middle: CH6	2437
	6.5	High: CH11	2462
IEEE 802.11n HT40	13.5	Low :CH1	2422
	13.5	Middle: CH4	2437
	13.5	High: CH7	2452
<p>Note1:According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.</p> <p>Note2:This device use MIMO 2X2 antennas, for 802.11b/g mode, based exploratory test, when transmit with Chain 2 have worse emissions, so the final radiated emissions test for 802.11b/g mode were tested with chain 2 transmit mode.</p> <p>Note3: This device is a wireless Module, and the typical use is for DVD player, so for radiated emissions test, except tested as stand alone, also tested with a typical host DVD player.</p>			

2.3. Tested Supporting System Details

2.3.1. Notebook

M/N	:	PP09S
S/N	:	N/A
Manufacturer	:	DELL
Power Adaptor	:	Manufacturer: DELL, M/N: LA65NS1-00 Cable: Unshielded, Detachabled, 4.0m (Bond one ferrite core)

2.3.2. iPod

EMC CODE	:	ACS-EMC-IP01
M/N	:	A1199
S/N	:	YM706MLDVQ5
Manufacturer	:	APPLE
Data Cable	:	Shielded, Detachabled, 1.0m
FCC ID	:	By DoC
BSMI ID	:	R33057

2.3.3. TV

EMC CODE	:	ACS-EMC-TV01T
M/N	:	1419A
Manufacturer	:	TCL
Power cord	:	Unshielded, Undetachabled, 1.8m

2.4. Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Mar.31, 2009 File on Federal Communication Commission Registration Number: 90454
3m & 10m Anechoic Chamber	:	Dec. 30, 2009 File on Federal Communication Commission Registration Number: 794232
EMC Lab.	:	Accredited by DATech, German Registration Number: DAT-P-091/99-01 Feb. 02, 2009 Accredited by NVLAP, USA NVLAP Code: 200372-0 Apr. 01, 2010

2.5. Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.40dB
Uncertainty for Radiation Emission test in 3m chamber	3.78 dB (Polarize: V)
	4.20 dB (Polarize: H)
Uncertainty for Radiated Spurious Emission test in RF chamber	2.70 dB (Bilog antenna 30M~1000MHz)
	2.27 dB (Horn antenna 1000M~25000MHz)
Uncertainty for Conduction Spurious emission test	2.10 dB
Uncertainty for Output power test	0.94 dB
Uncertainty for Power density test	2.10 dB
Uncertainty for Temperature and humidity test	2%
	1°C
Uncertainty for Bandwidth test	1×10^{-9}
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6°C
	3%

3. POWER LINE CONDUCTED EMISSION TEST

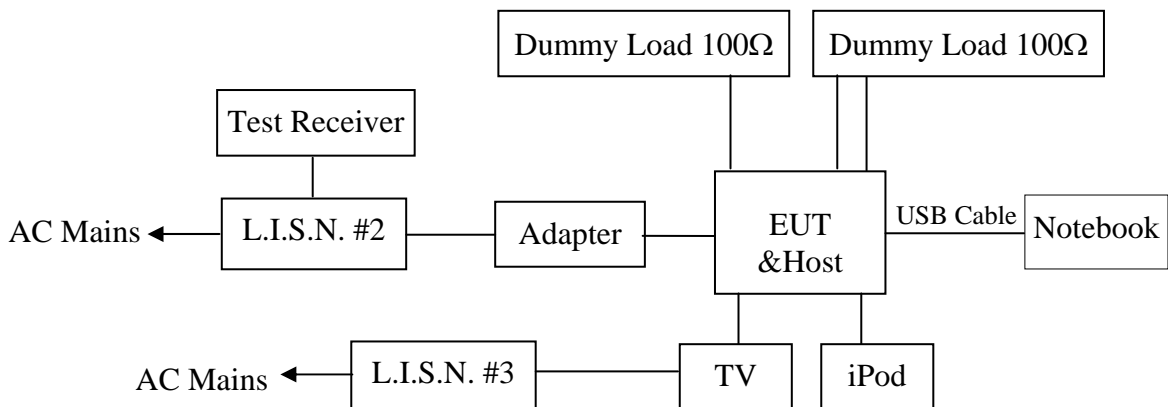
3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Dec.18, 09	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Mar.30, 10	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 10	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 10	1 Year
5.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 10	1Year
6.	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 10	1 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 10	1 Year

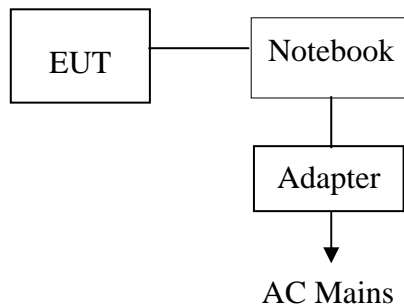
3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators

Test with host:



Test as stand alone:



(EUT: RF Module)

3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

- Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. RF Module (EUT)

Model Number : W220
Serial Number : N/A

3.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.3.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turned on the power of all equipment.

3.5.3. Notebook run test software to control RF module work in Tx mode.

3.5.4. When test with host, the host also playing Blue-disc and reading music from iPod by USB port.

3.5.5. All other input and outputs of host were connected to dummy load.

3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via Notebook connected to the power mains through a line impedance stabilization network (L.I.S.N. 2#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#3). Both sides of power line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

The test result are reported on Section 3.7.,

3.7. Power Line Conducted Emission Test Results

PASS. (All emissions not reported below are too low against the prescribed limits.)

Mode 1: Stand alone

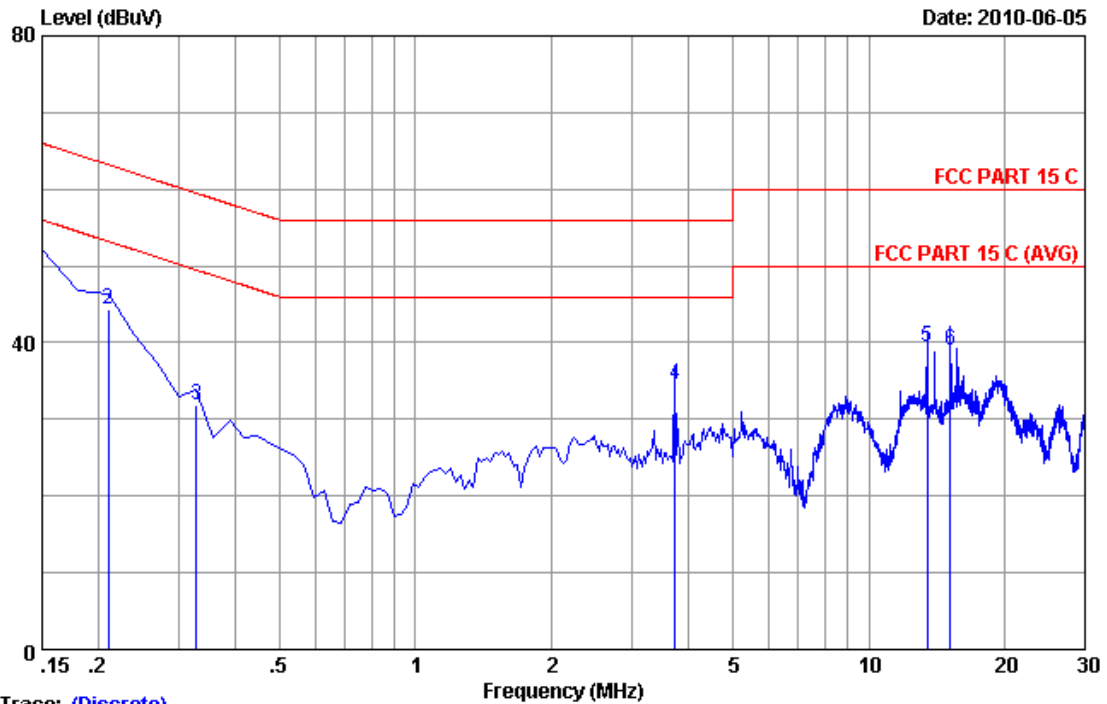


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Data: 8

File: D:\DATA\2010 REPORT\C\CONTEL\ACS10Q0594R2.EM6 (8)

Date: 2010-06-05



Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :8
 Dis./Ant. **: 2009 ESH2-25 LINE
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23'C Humi:54% Engineer :Paul Tian
 EUT :RF Module M/N:W220
 Power Rating :DC 5V
 Test Mode :Tx Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.21	9.88	40.10	50.19	66.00	15.81	QP
2	0.20970	0.18	9.88	34.32	44.38	63.22	18.84	QP
3	0.32910	0.18	9.89	21.82	31.89	59.47	27.58	QP
4	3.732	0.27	9.91	24.37	34.55	56.00	21.45	QP
5	13.463	0.41	9.96	29.12	39.49	60.00	20.51	QP
6	15.165	0.43	9.97	28.67	39.07	60.00	20.93	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

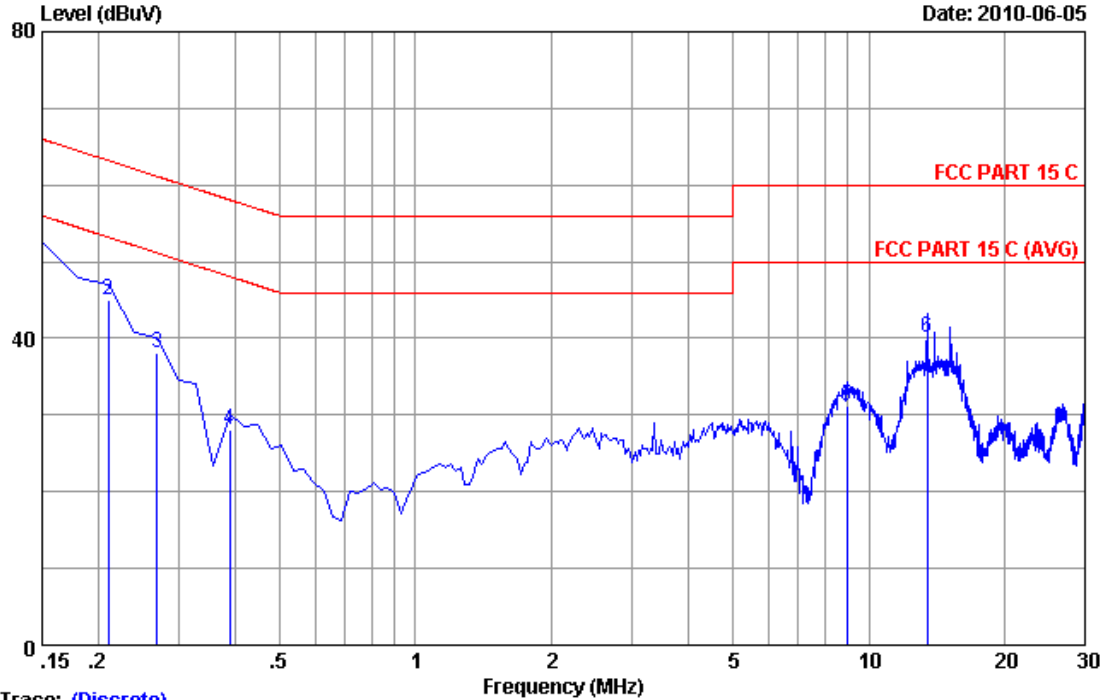


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Date: 2010-06-05



Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :7
 Dis./Ant. **: 2009 ESH2-25 NEUTRAL
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23'C Humi:54% Engineer :Paul Tian
 EUT :RF Module M/N:W220
 Power Rating :DC 5V
 Test Mode :Tx Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.15000	0.20	9.88	40.48	50.56	66.00	15.44	QP
2	0.20970	0.20	9.88	34.94	45.02	63.22	18.20	QP
3	0.26940	0.20	9.88	28.03	38.11	61.14	23.03	QP
4	0.38880	0.20	9.89	18.02	28.11	58.09	29.98	QP
5	8.956	0.29	9.94	21.00	31.23	60.00	28.77	QP
6	13.463	0.32	9.96	29.89	40.17	60.00	19.83	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector.
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

Mode 2: Test with host

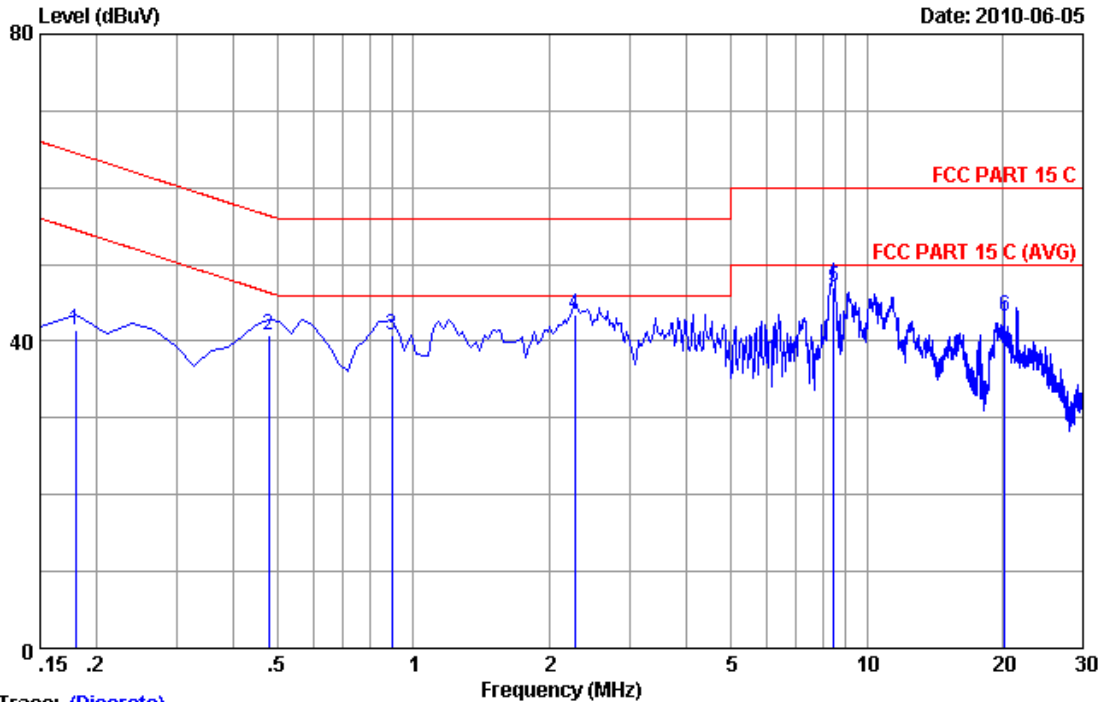


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Date: 2010-06-05



Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :5
 Dis./Ant. **: 2009 ESH2-25 LINE
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23'C Humi:54% Engineer :Paul Tian
 EUT :RF Module M/N:W220
 Power Rating :AC 120V/60Hz
 Test Mode :Tx Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17985	0.19	9.88	31.47	41.54	64.49	22.95	QP
2	0.47835	0.18	9.89	30.81	40.88	56.37	15.49	QP
3	0.89625	0.20	9.89	30.64	40.73	56.00	15.27	QP
4	2.269	0.22	9.90	33.38	43.50	56.00	12.50	QP
5	8.448	0.34	9.94	36.85	47.13	60.00	12.87	QP
6	20.150	0.60	10.01	32.56	43.17	60.00	16.83	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

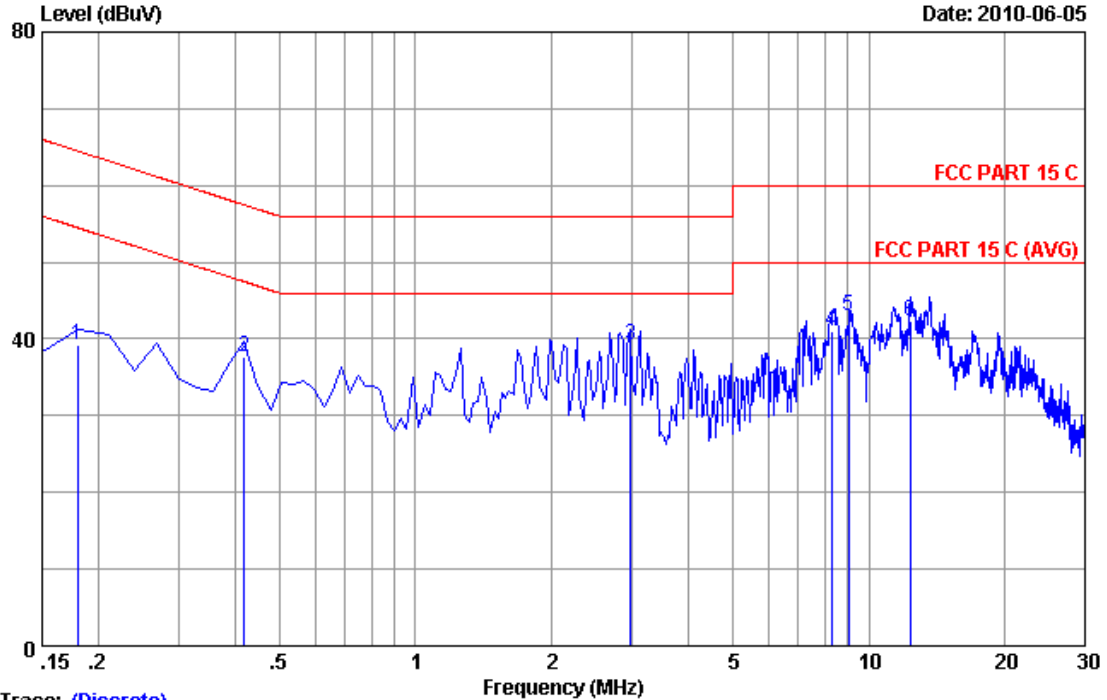


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Data: 6

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Date: 2010-06-05



Trace: (Discrete)

Site no :Audix No.1 Conduction Data no :6
 Dis./Ant. **: 2009 ESH2-25 NEUTRAL
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23'C Humi:54% Engineer :Paul Tian
 EUT :RF Module M/N:W220
 Power Rating :AC 120V/60Hz
 Test Mode :Tx Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17985	0.20	9.88	29.04	39.12	64.49	25.37	QP
2	0.41865	0.20	9.89	27.52	37.61	57.47	19.86	QP
3	2.986	0.24	9.91	29.01	39.16	56.00	16.84	QP
4	8.269	0.30	9.93	30.84	41.07	60.00	18.93	QP
5	9.045	0.29	9.94	32.74	42.97	60.00	17.03	QP
6	12.329	0.31	9.95	32.19	42.45	60.00	17.55	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

Frequency range: 30~1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,09	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 10	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 10	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 10	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 09	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 10	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 10	1 Year

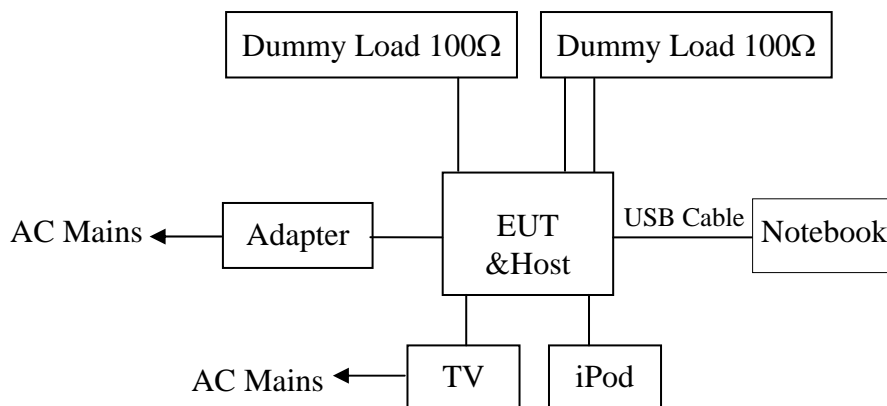
Frequency range: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2	Horn Antenna	EMCO	3115	9510-4580	Nov.19, 09	1.5 Year
3	Horn Antenna	EMCO	3116	00060089	Nov.25, 09	1.5 Year
4	Amplifier	Agilent	8449B	3008A00863	May.08, 10	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08, 10	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08, 10	1 Year
7	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08, 10	1 Year

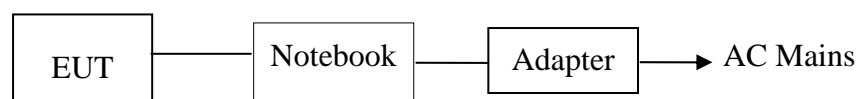
4.2. Block Diagram of Test Setup

4.2.1. Block diagram of connection between the EUT and simulators

Test with host:

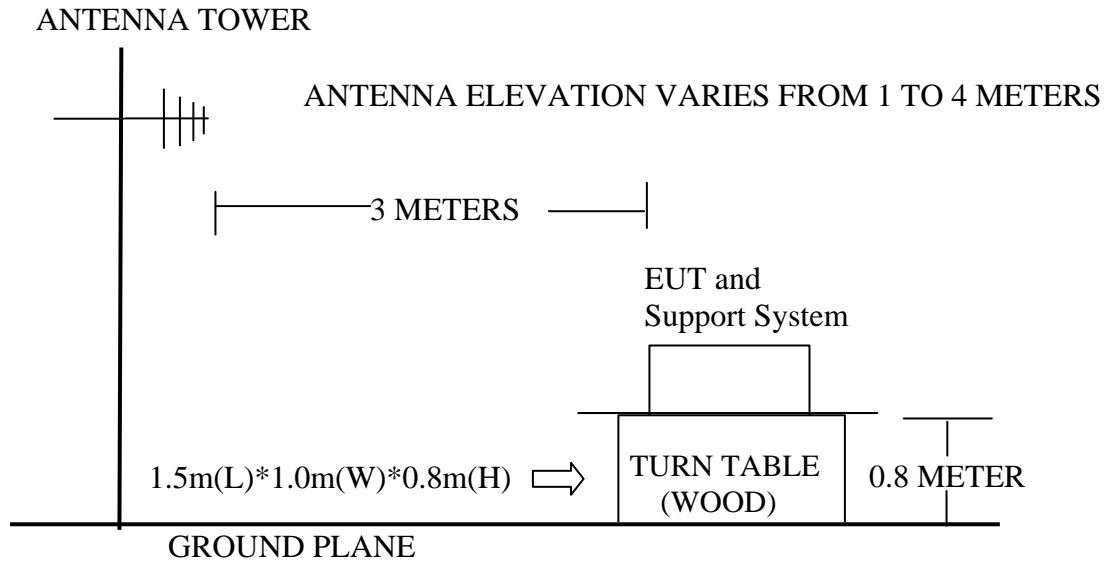


Stand alone test:



(EUT: RF Module)

4.2.2. In Anechoic Chamber



4.3. Radiated Emission Limit

4.3.1. 15.209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

- Remark :
- (1) Emission level dBμV = 20 log Emission level μV/m
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.3.2. 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. RF Module (EUT)

Model Number : W220
Serial Number : N/A

4.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.3.

4.5.Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.2.

4.5.2. Turned on the power of all equipment.

4.5.3. Notebook run test software to control RF module work in Tx mode.

4.5.4. When test with host, the host also playing Blue-disc and reading music from iPod by USB port.

4.5.5. All other input and outputs of host were connected to dummy load.

4.6.Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

4.7. Radiated Emission Test Results

PASS.

For emissions above 1GHz, based exploratory test, there was no significance difference between stand alone test and with host, so for emissions above 1GHz, With host set up was used for final test.

All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

Frequency: 30MHz~1GHz

Mode 1: Stand alone

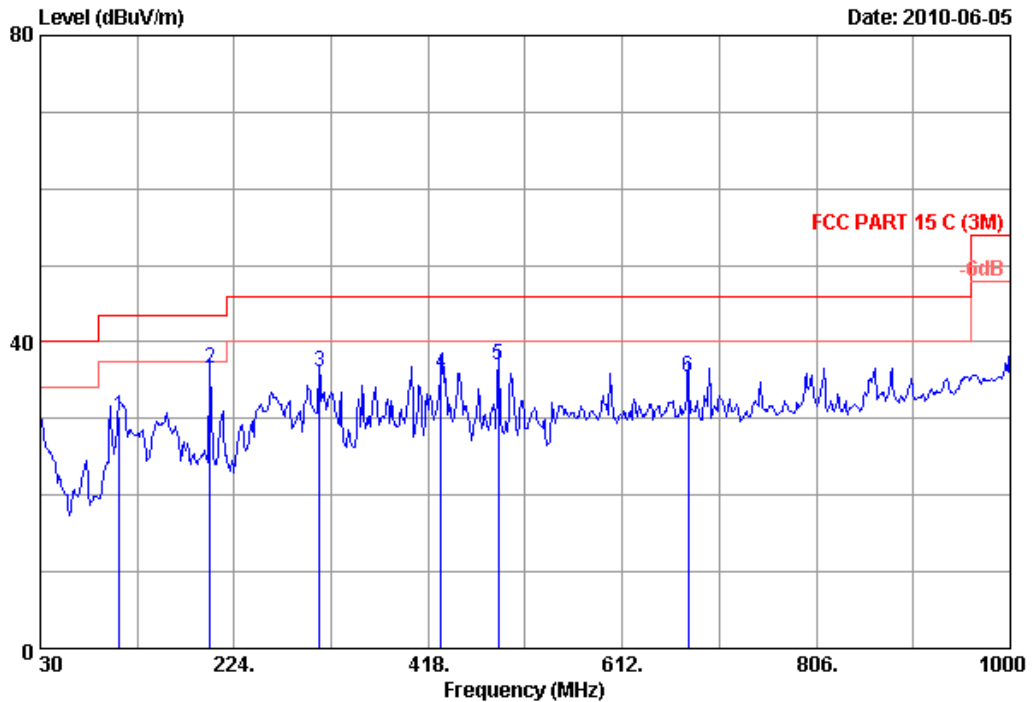


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Data: 44

File: D:\2010 Repot Data\C\contel\ACS10Q0594R2.EM6 (44)

Date: 2010-06-05



Site no. : 3m Chamber	Data no. : 44
Dis. / Ant. : 3m 2010 CBL6111C	Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C (3M)	Engineer : Paul Tian
Env. / Ins. : 24°C/56%	
EUT : RF Module M/N:W220	
Power Rating : DC 5V	
Test Mode : Tx Mode	

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	109.540	11.40	1.12	17.82	30.34	43.50	13.16	QP
2	199.750	10.00	1.72	24.88	36.60	43.50	6.90	QP
3	309.360	13.97	2.52	19.57	36.06	46.00	9.94	QP
4	430.610	17.47	3.11	15.32	35.90	46.00	10.10	QP
5	487.840	18.18	3.47	15.28	36.93	46.00	9.07	QP
6	677.960	20.72	4.42	10.27	35.41	46.00	10.59	QP

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

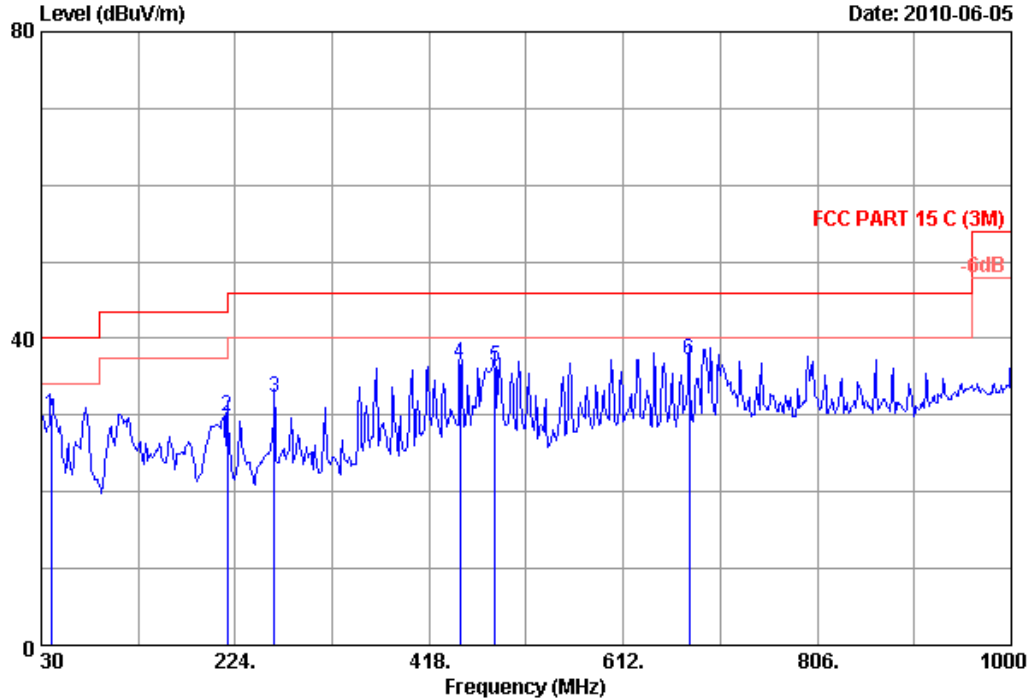


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Data: 43

File: D:\2010 Reput Data\C\contel\ACS10Q0594R2.EM6 (44)

Date: 2010-06-05



Site no.	: 3m Chamber	Data no.	: 43
Dis. / Ant.	: 3m 2010 CBL6111C	Ant. pol.	: VERTICAL
Limit	: FCC PART 15 C (3M)	Engineer	: Paul Tian
Env. / Ins.	: 24°C/56%		
EUT	: RF Module M/N:W220		
Power Rating	: DC 5V		
Test Mode	: Tx Mode		

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission			Remark
					Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	39.700	14.50	0.69	14.99	30.18	40.00	9.82	QP
2	216.240	10.04	1.87	17.98	29.89	46.00	16.11	QP
3	262.800	13.80	2.25	16.29	32.34	46.00	13.66	QP
4	449.040	17.02	3.22	16.43	36.67	46.00	9.33	QP
5	483.960	18.14	3.45	14.69	36.28	46.00	9.72	QP
6	677.960	20.72	4.42	11.97	37.11	46.00	8.89	QP

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

Mode 2: Test with host:

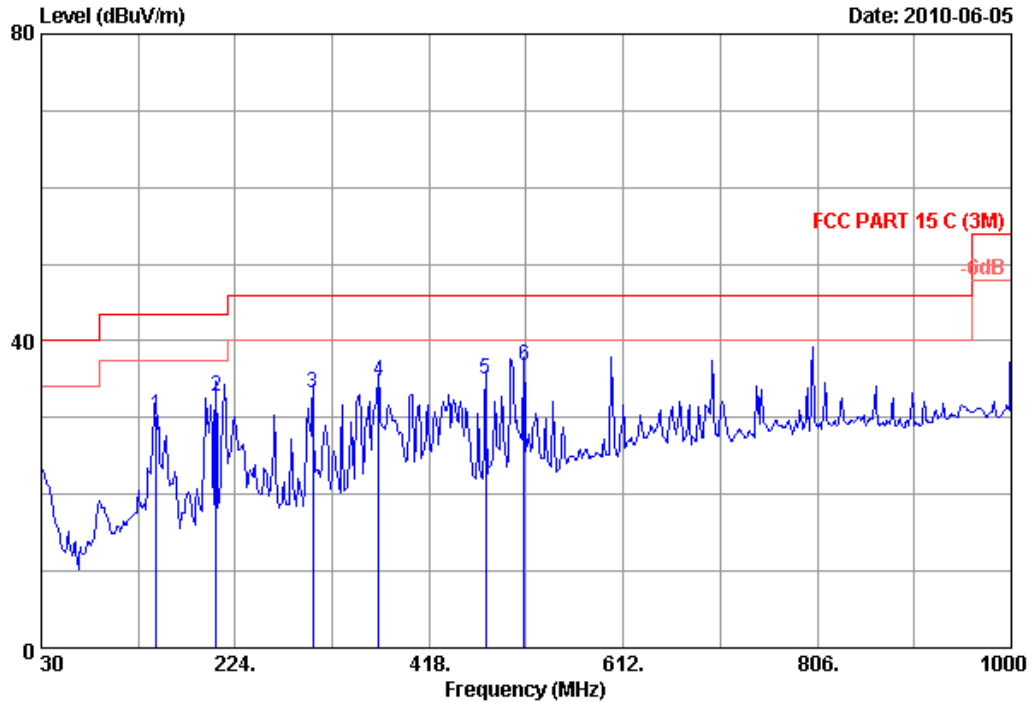


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Data: 41

File: D:\2010 Reput Data\C\contel\ACS10Q0594R2.EM6 (44)

Date: 2010-06-05



Site no. : 3m Chamber	Data no. : 41
Dis. / Ant. : 3m 2010 CBL6111C	Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C (3M)	Engineer : Paul Tian
Env. / Ins. : 24°C/56%	
EUT : RF Module M/N:W220	
Power Rating : AC 120V/60Hz	
Test Mode : Tx Mode	

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	145.430	11.90	1.14	17.33	30.37	43.50	13.13	QP
2	204.600	10.10	1.76	21.00	32.86	43.50	10.64	QP
3	301.600	13.75	2.49	16.97	33.21	46.00	12.79	QP
4	367.560	15.53	2.77	16.37	34.67	46.00	11.33	QP
5	474.260	17.80	3.38	13.90	35.08	46.00	10.92	QP
6	513.060	18.33	3.62	14.90	36.85	46.00	9.15	QP

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

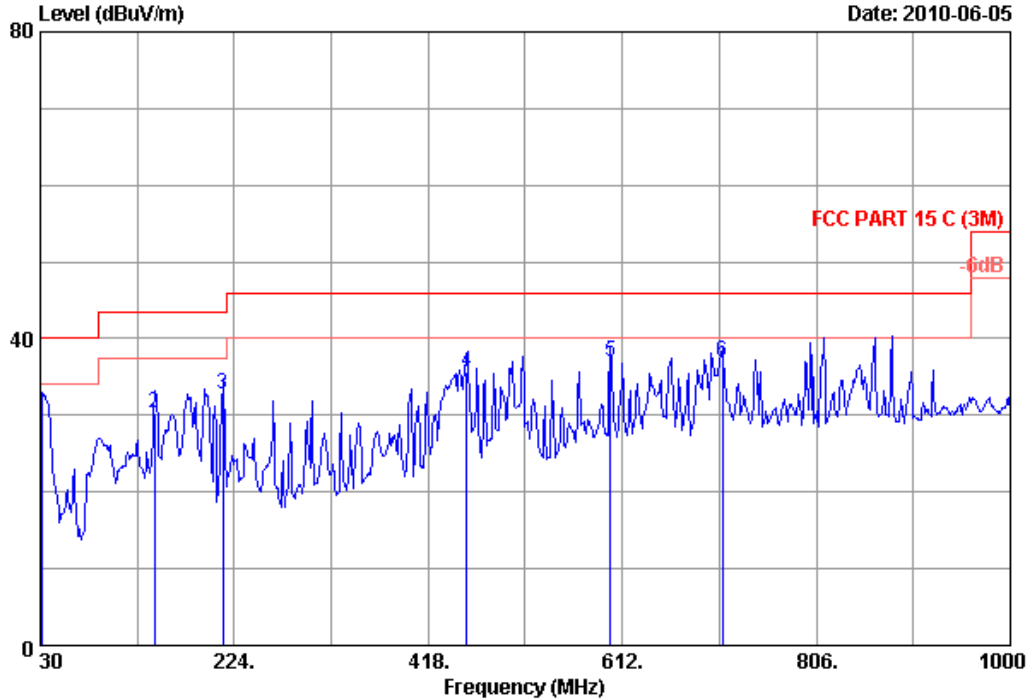


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Data: 42

File: D:\2010 Reput Data\C\contel\ACS10Q0594R2.EM6 (44)

Date: 2010-06-05



Site no. : 3m Chamber	Data no. : 42
Dis. / Ant. : 3m 2010 CBL6111C	Ant. pol. : VERTICAL
Limit : FCC PART 15 C (3M)	
Env. / Ins. : 24°C/56%	Engineer : Paul Tian
EUT : RF Module M/N:W220	
Power Rating : AC 120V/60Hz	
Test Mode : Tx Mode	

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission			Remark
					Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	31.940	18.88	0.63	10.50	30.01	40.00	9.99	QP
2	144.460	11.92	1.14	17.22	30.28	43.50	13.22	QP
3	212.360	10.06	1.83	20.93	32.82	43.50	10.68	QP
4	456.800	17.07	3.27	15.38	35.72	46.00	10.28	QP
5	600.360	19.90	4.12	12.97	36.99	46.00	9.01	QP
6	711.910	20.72	4.55	11.78	37.05	46.00	8.95	QP

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

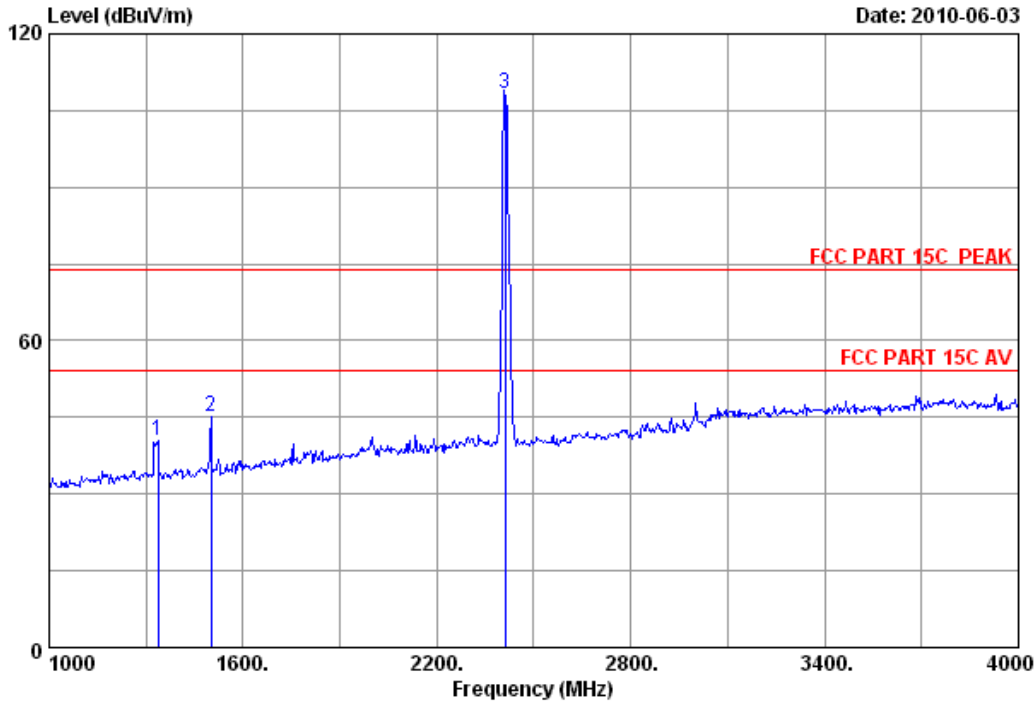
Frequency: 1GHz~18GHz



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Data: 1 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-06-03



Site no. : RF Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz

	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1336.000	26.09	6.30	36.67	44.57	40.29	74.00	33.71	Peak
2	1501.000	26.40	6.74	36.57	48.42	44.99	74.00	29.01	Peak
3	2412.000	29.45	8.72	35.95	106.14	108.36	74.00	-34.36	Peak

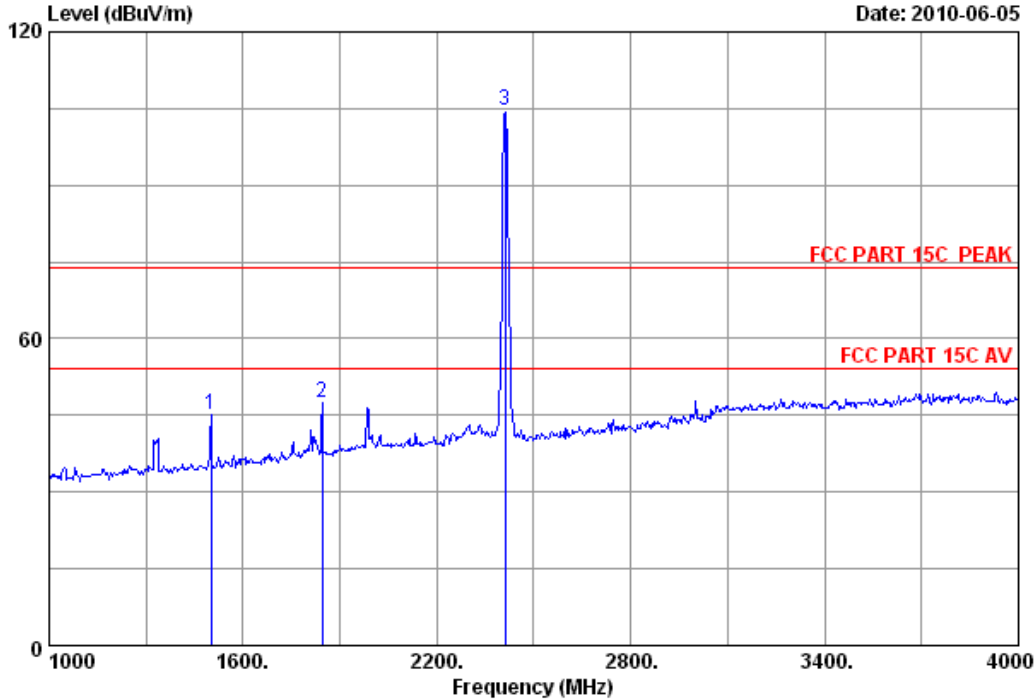
Remarks:

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



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Data: 2 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz

	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	1501.000	26.40	6.74	36.57	48.42	44.99	74.00	29.01	Peak
2	1846.000	28.36	7.51	36.23	47.73	47.37	74.00	26.63	Peak
3	2412.000	29.45	8.72	35.95	102.51	104.73	74.00	-30.73	Peak

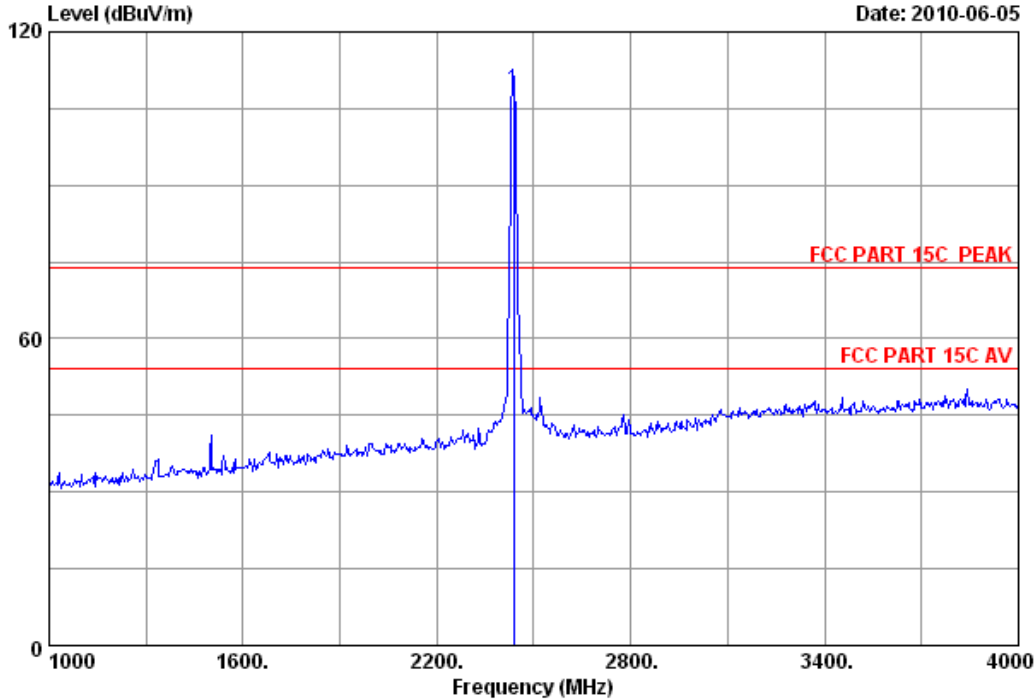
Remarks:

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



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Data: 3 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH6 2437MHz

	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	2437.000	29.47	8.77	36.06	106.41	108.59	74.00	-34.59	Peak

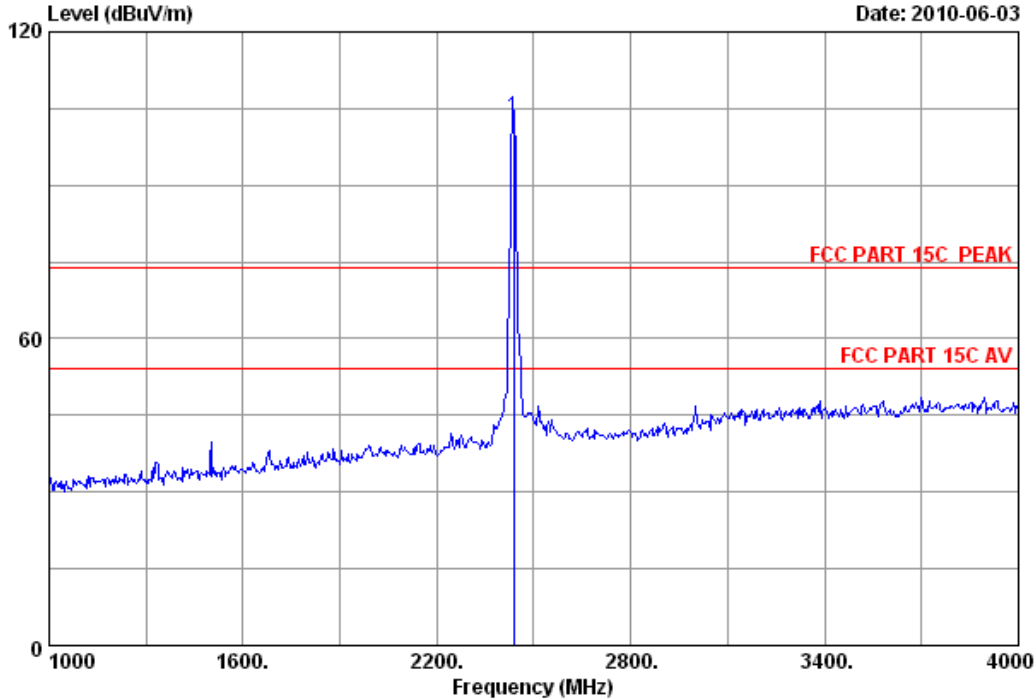
Remarks:

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



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Data: 4 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH6 2437MHz

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	29.47	8.77	36.06	101.15	103.33	74.00	-29.33	Peak

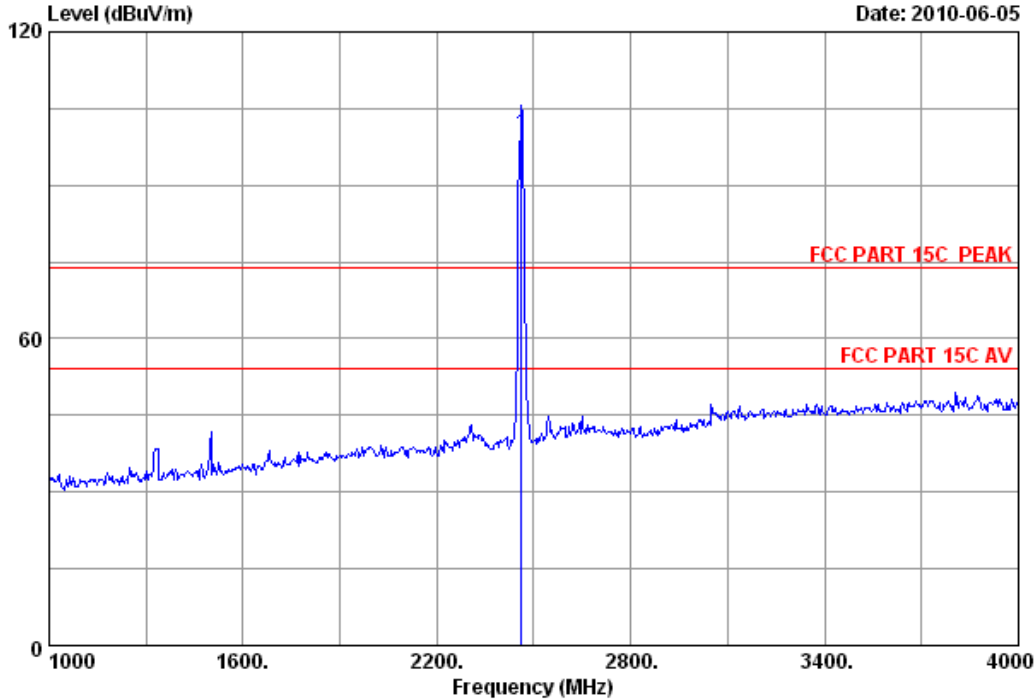
Remarks:

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



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Data: 5 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

	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	2462.000	29.48	8.82	36.02	97.63	99.91	74.00	-25.91	Peak

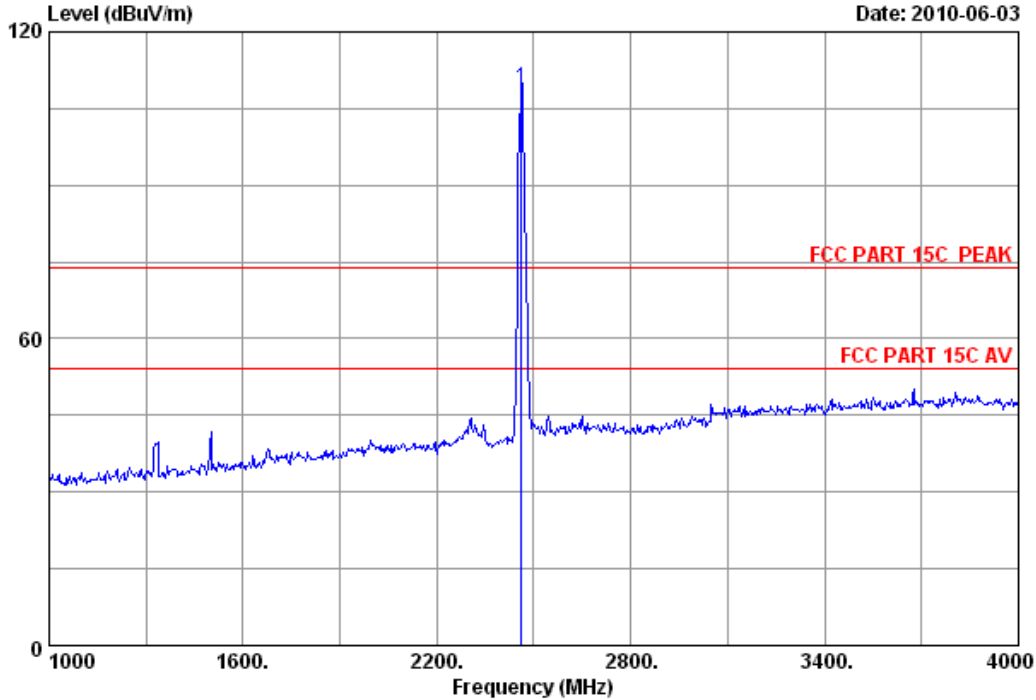
Remarks:

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



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Data: 6 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2462.000	29.48	8.82	36.02	106.80	109.08	74.00	-35.08	Peak

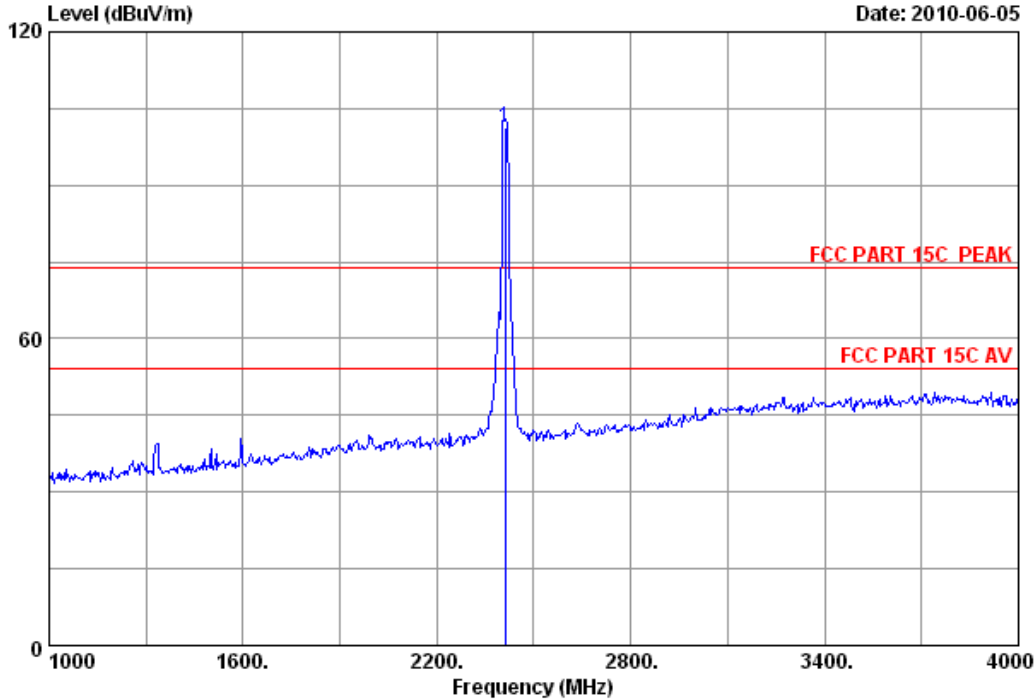
Remarks:

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



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Data: 7 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2412.000	29.45	8.72	35.95	99.22	101.44	74.00	-27.44	Peak

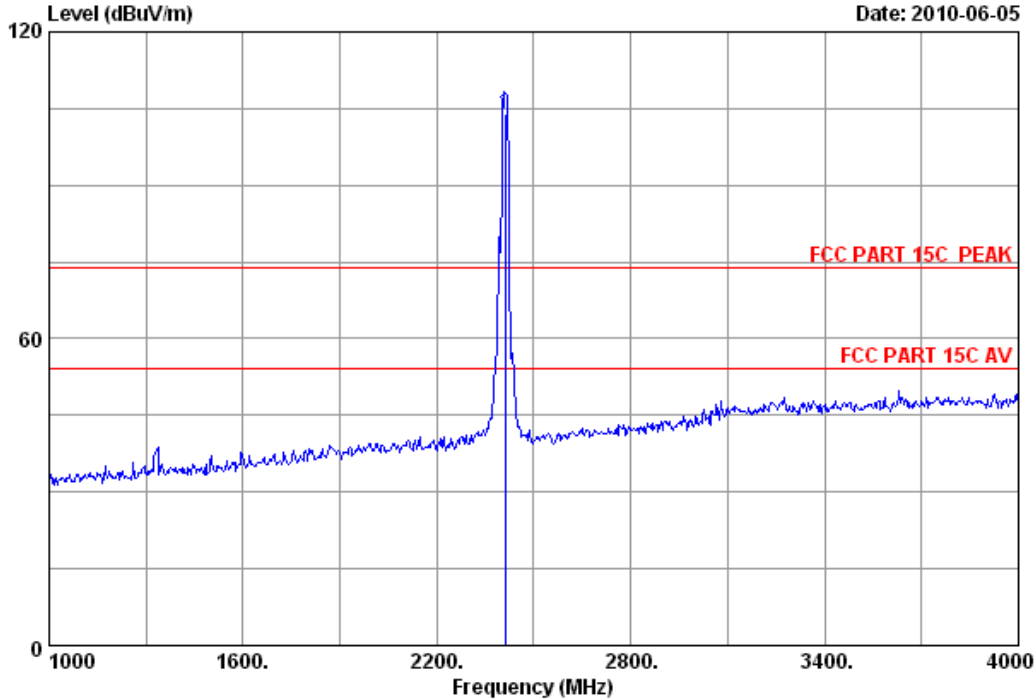
Remarks:

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



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Data: 8 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2412.000	29.45	8.72	35.95	101.68	103.90	74.00	-29.90	Peak

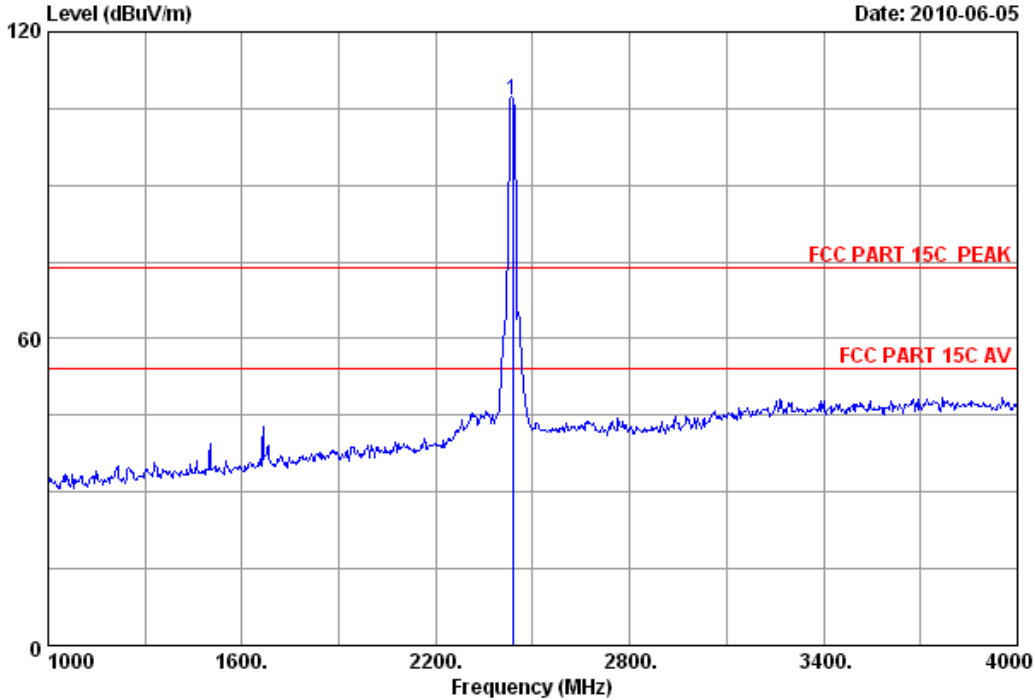
Remarks:

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



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Data: 9 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 9
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH6 2437MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2437.000	29.47	8.77	36.06	104.50	106.68	74.00	-32.68	Peak

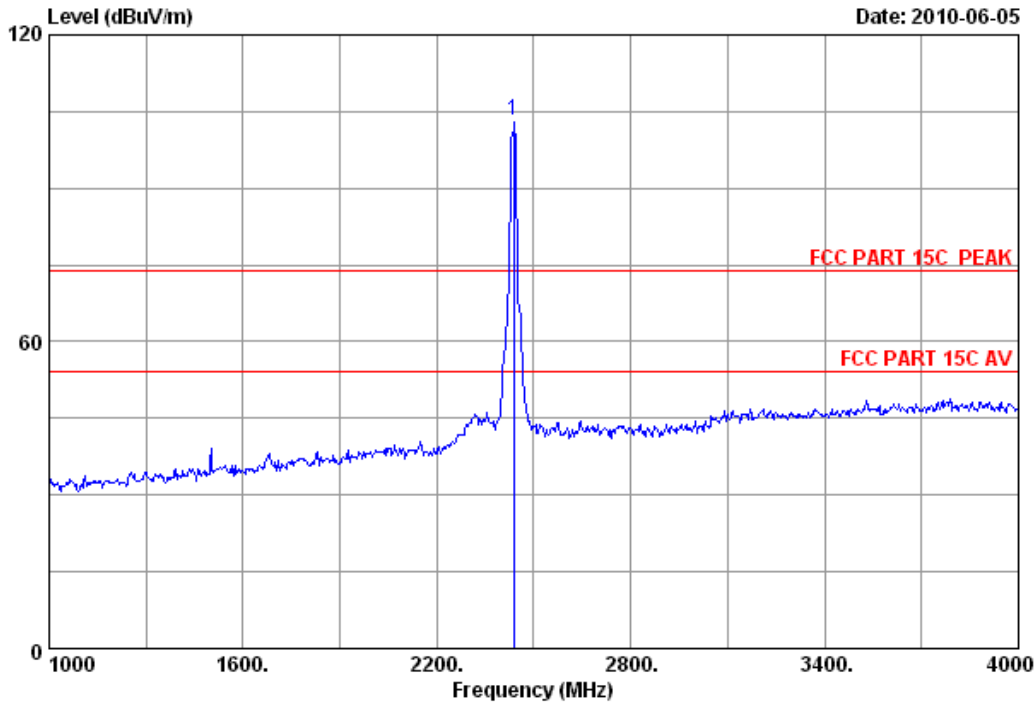
Remarks:

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



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Data: 10 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 10
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH6 2437MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2437.000	29.47	8.77	36.06	101.12	103.30	74.00	-29.30	Peak

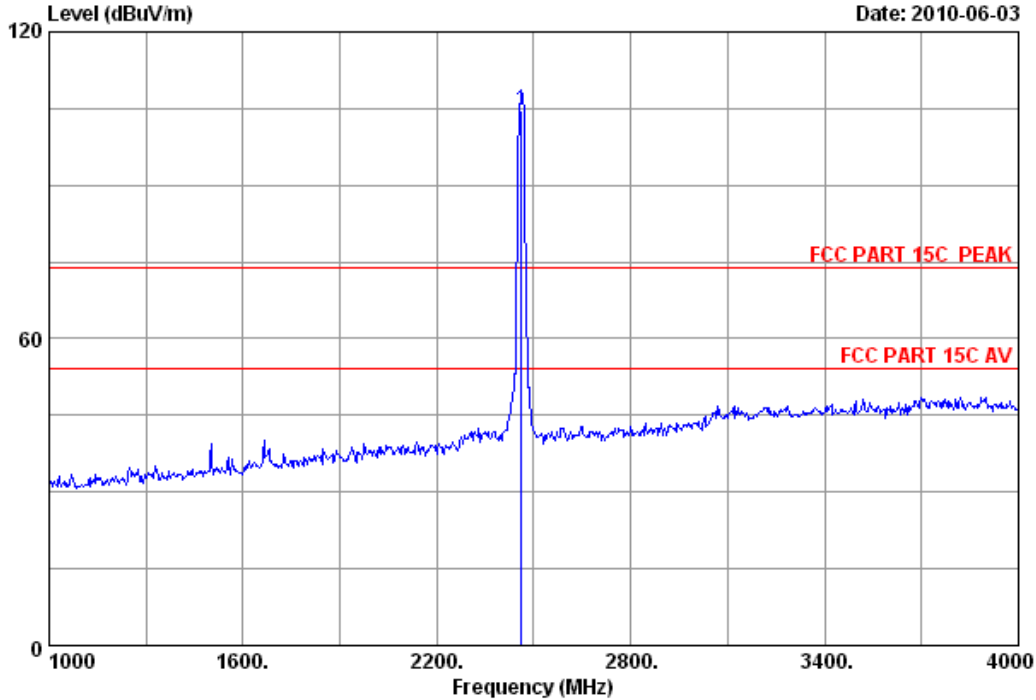
Remarks:

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



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Data: 11 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 11
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.000	29.48	8.82	36.02	102.48	104.76	74.00	-30.76	Peak

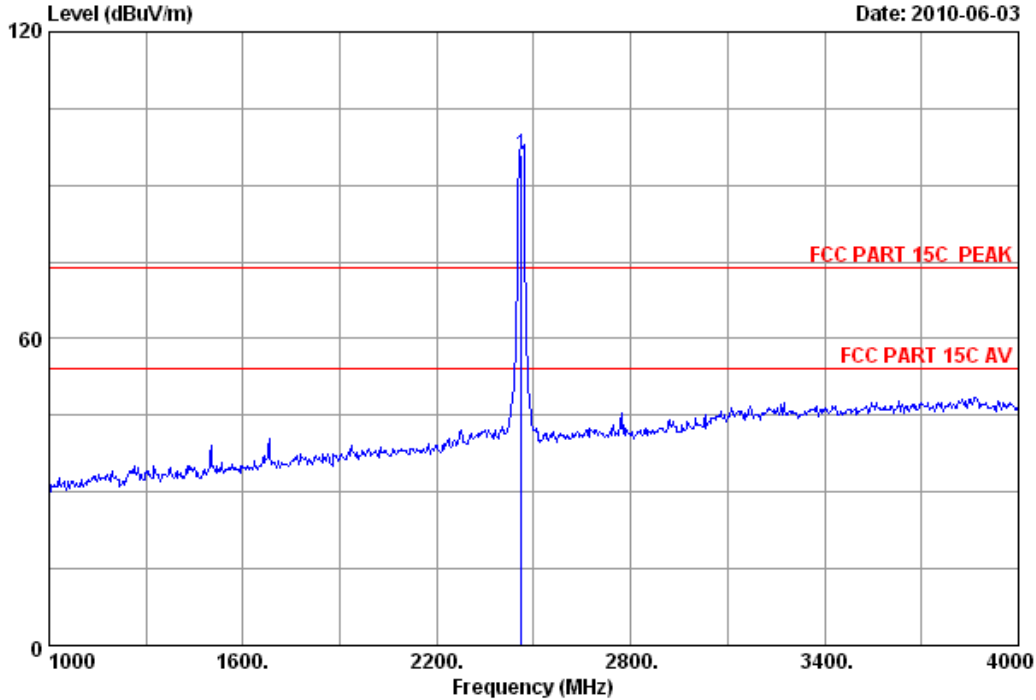
Remarks:

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



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Data: 12 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 12
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

	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	2462.000	29.48	8.82	36.02	93.56	95.84	74.00	-21.84	Peak

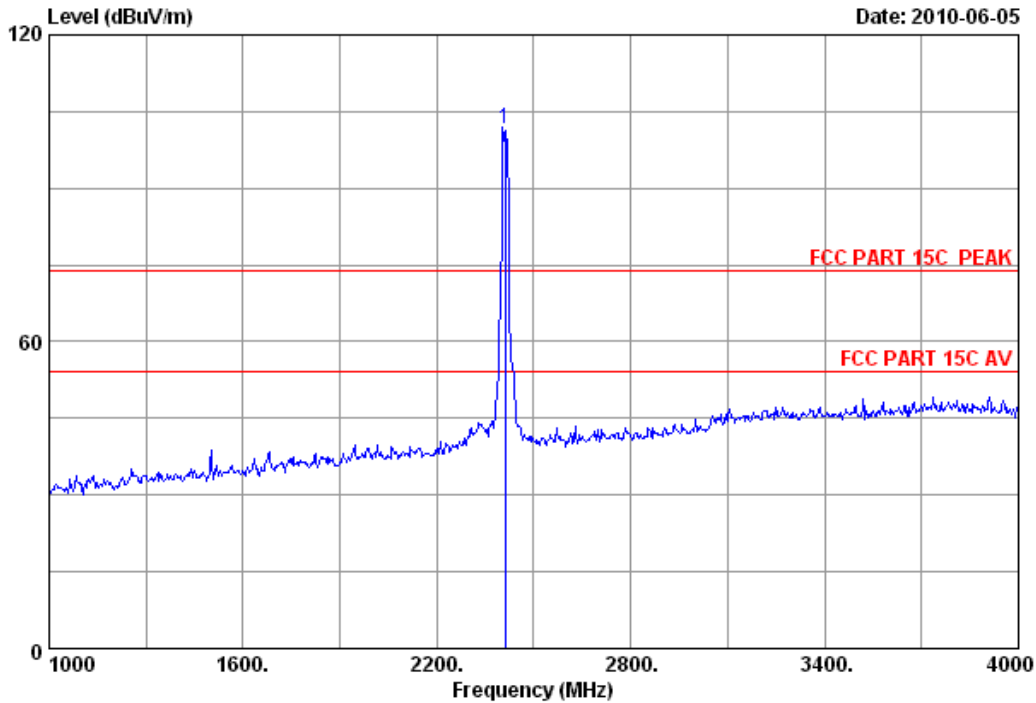
Remarks:

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



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Data: 13 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 13
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2412.000	29.45	8.72	35.95	99.35	101.57	74.00	-27.57	Peak

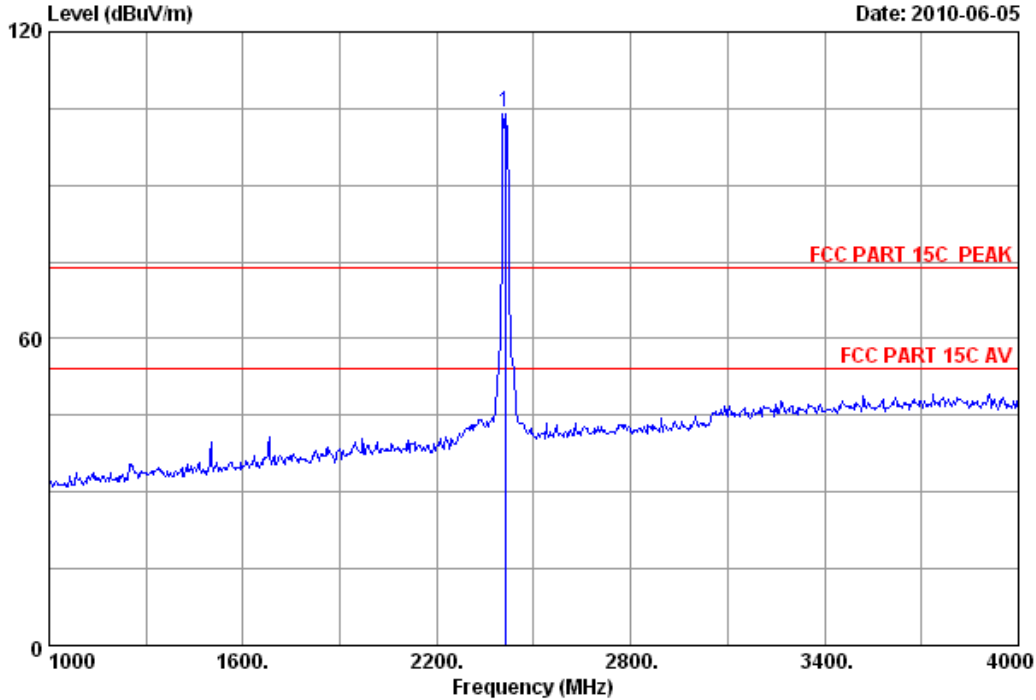
Remarks:

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



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Data: 14 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 14
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2412.000	29.45	8.72	35.95	101.95	104.17	74.00	-30.17	Peak

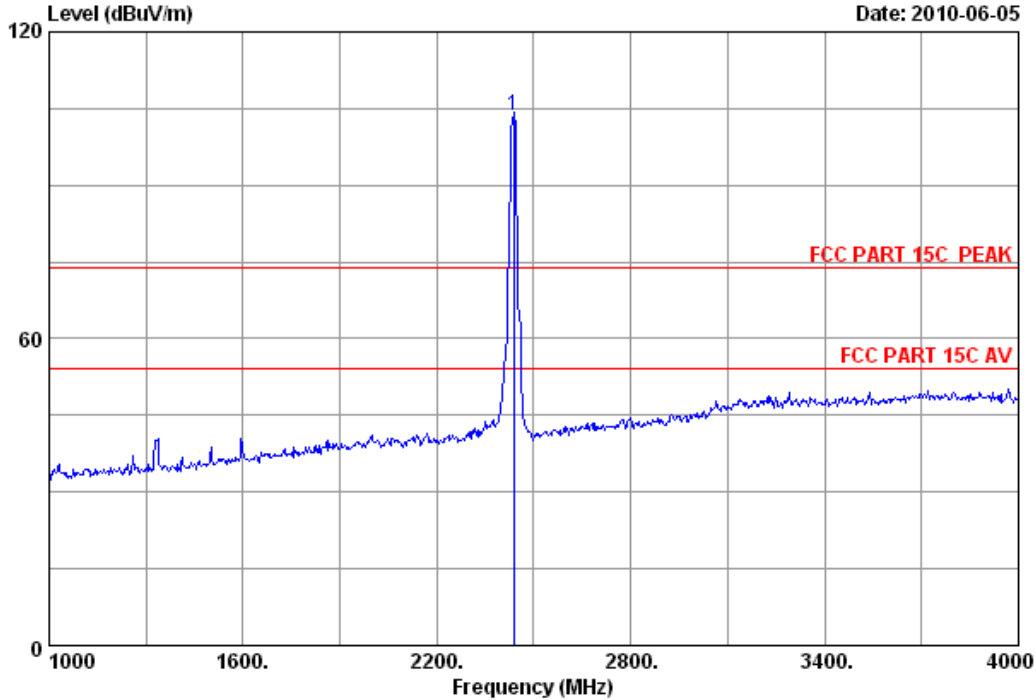
Remarks:

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



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Data: 15 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 15
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH6 2437MHz

	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	2437.000	29.47	8.77	36.06	101.58	103.76	74.00	-29.76	Peak

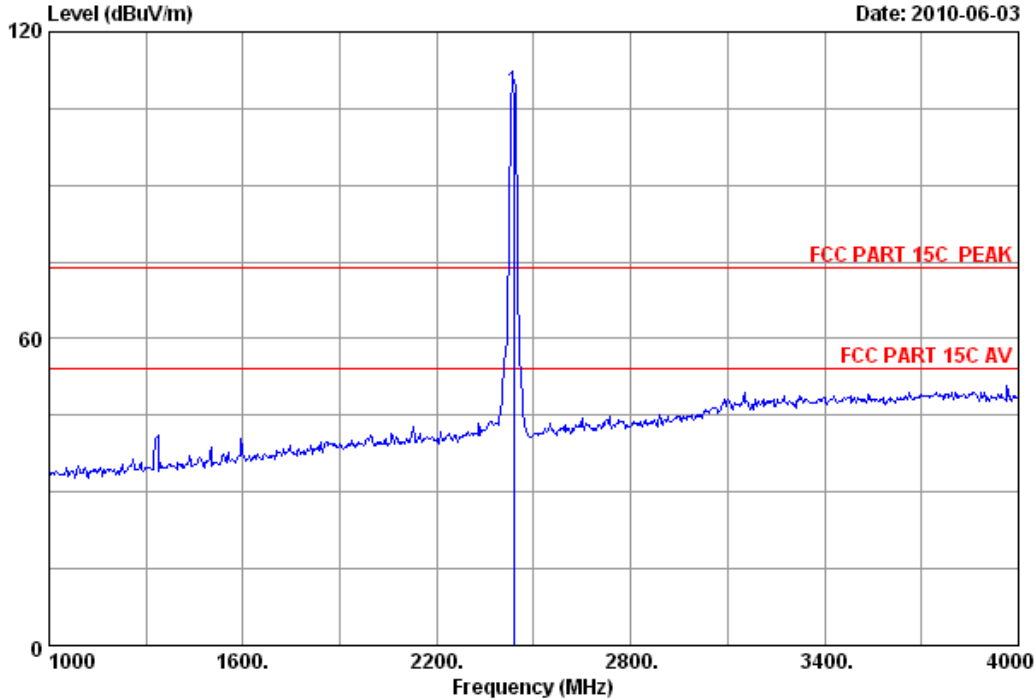
Remarks:

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



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Data: 16 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 16
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH6 2437MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2437.000	29.47	8.77	36.06	106.28	108.46	74.00	-34.46	Peak

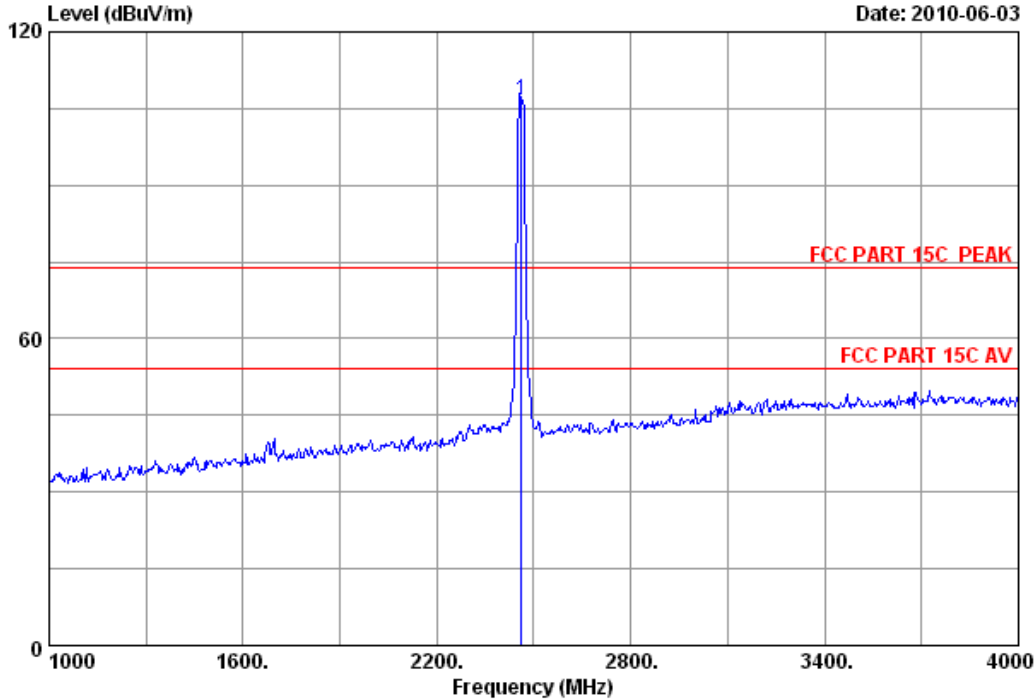
Remarks:

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



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Data: 17 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 17
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2462.000	29.48	8.82	36.02	104.20	106.48	74.00	-32.48	Peak

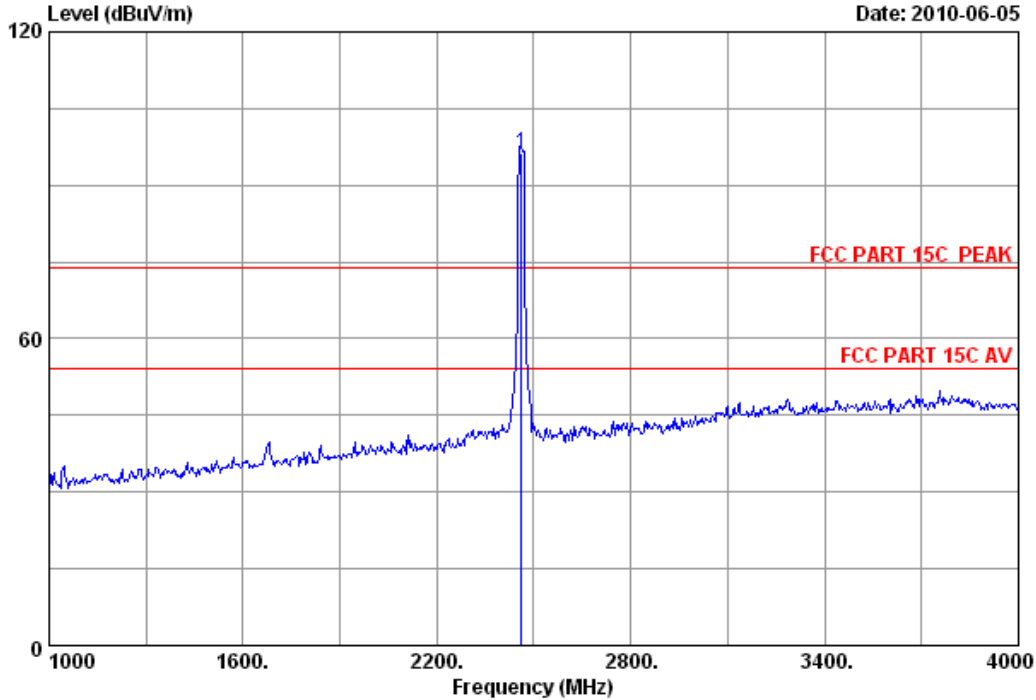
Remarks:

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



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Data: 18 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 18
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2462.000	29.48	8.82	36.02	94.05	96.33	74.00	-22.33	Peak

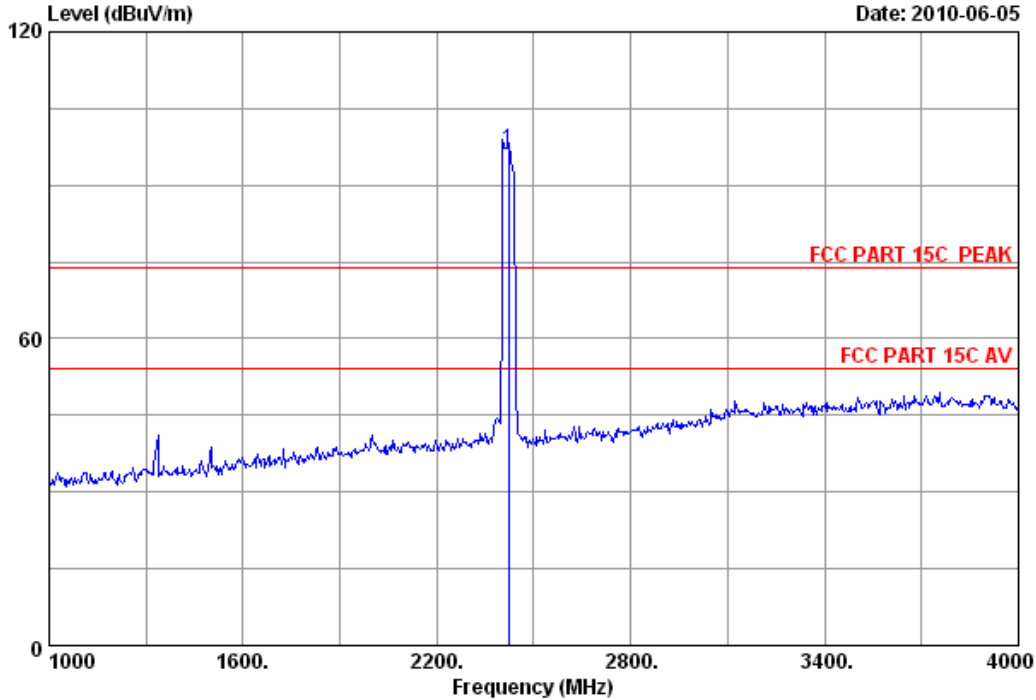
Remarks:

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



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Data: 19 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 19
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH1 2422MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2422.000	29.46	8.77	36.01	94.83	97.05	74.00	-23.05	Peak

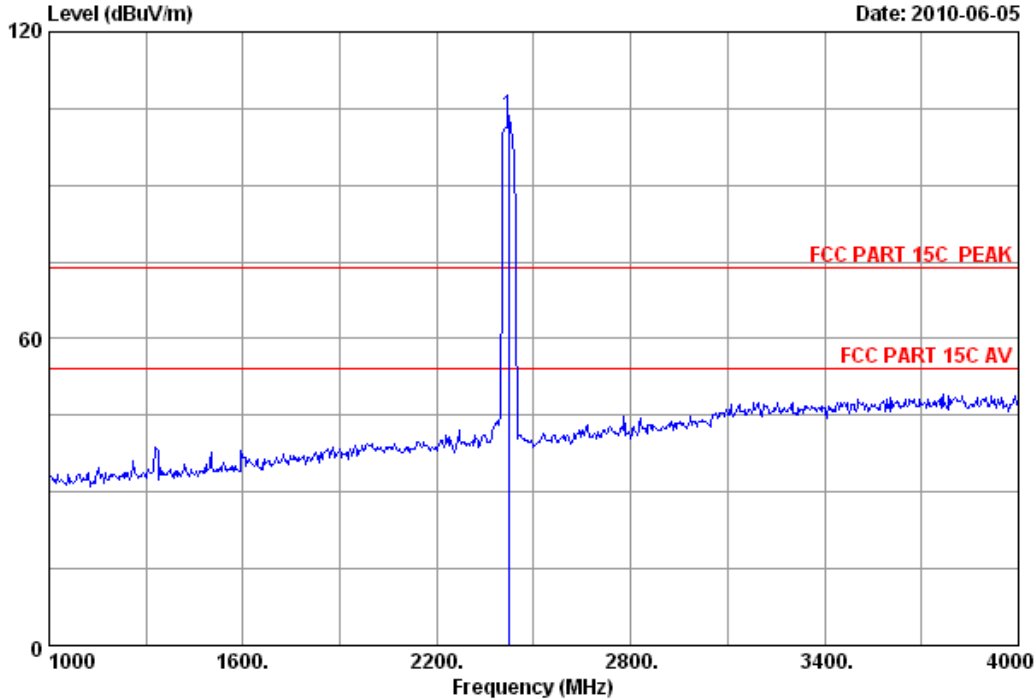
Remarks:

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



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Data: 20 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 20
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH1 2422MHz

	Ant.	Cable	Amp.	Emission				
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)	
1 2422.000	29.46	8.77	36.01	101.25	103.47	74.00	-29.47	Peak

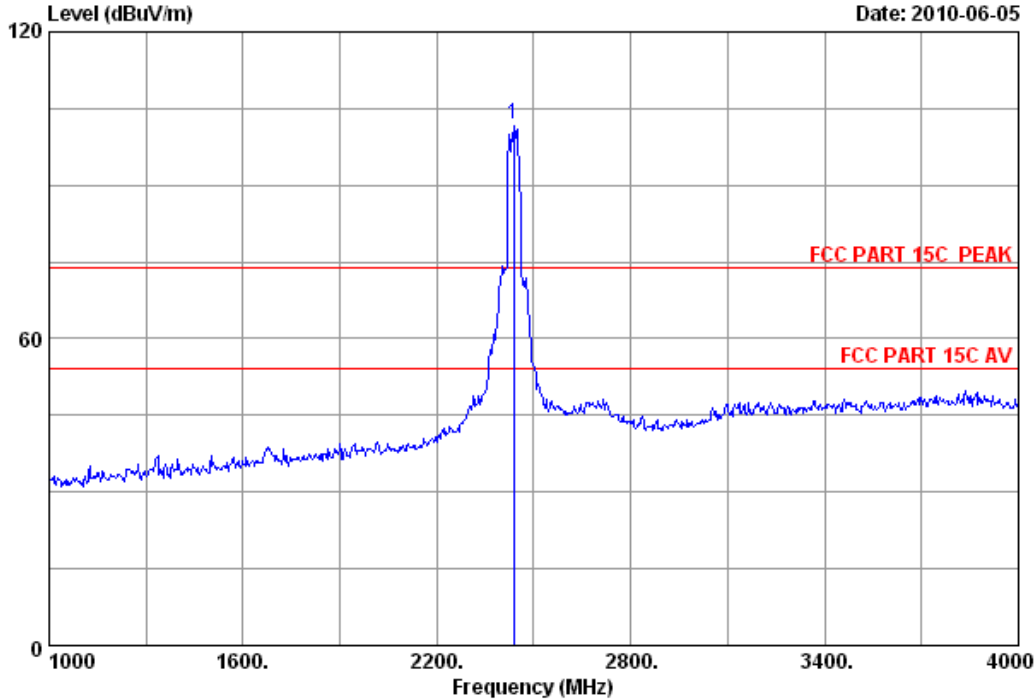
Remarks:

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



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Data: 21 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 21
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH4 2437MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission			
						Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	
1	2437.000	29.47	8.77	36.06	99.68	101.86	74.00	-27.86	Peak

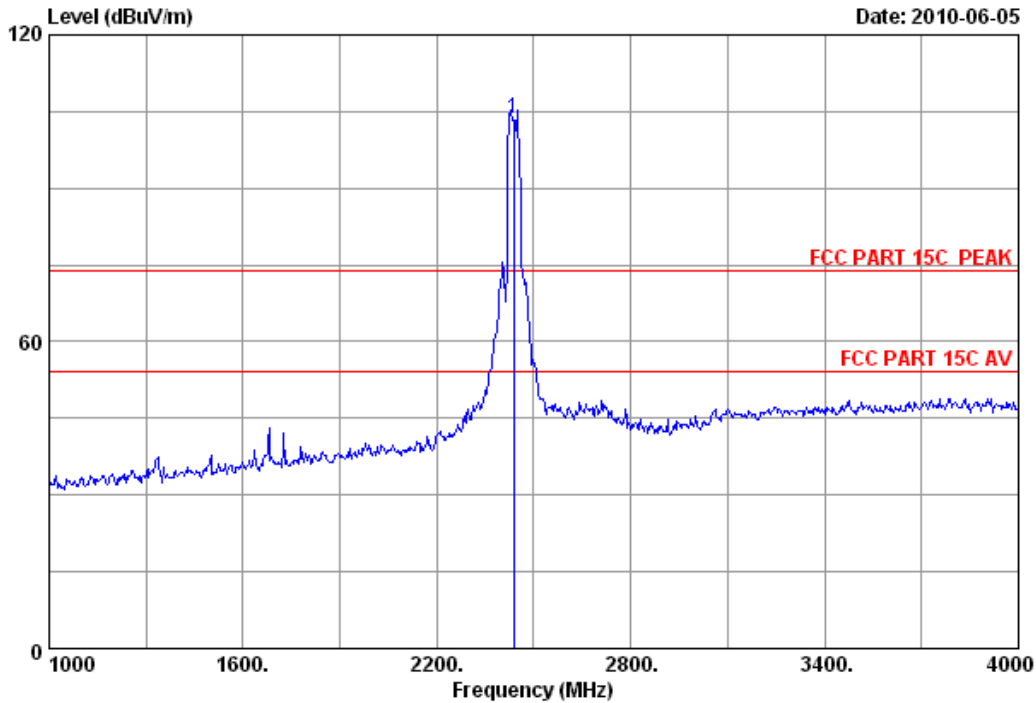
Remarks:

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



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Data: 22 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 22
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH4 2437MHz

	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	2437.000	29.47	8.77	36.06	101.60	103.78	74.00	-29.78	Peak

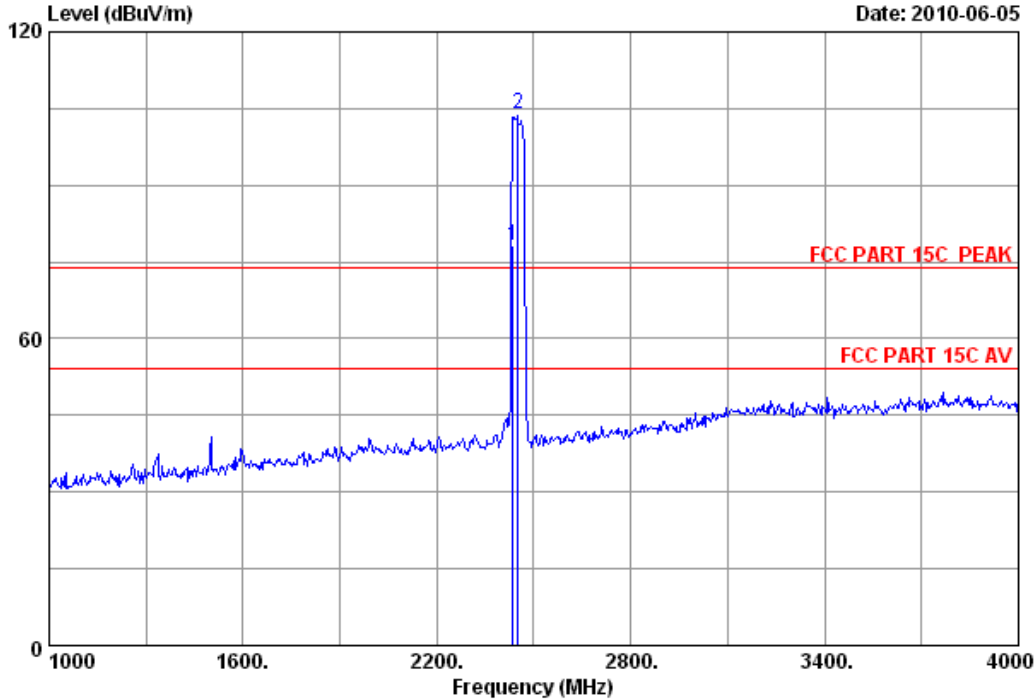
Remarks:

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



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Data: 23 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 23
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

	Ant. 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	2434.000	29.46	8.77	36.01	76.03	78.25	74.00	-4.25	Peak
2	2452.000	29.47	8.82	36.06	101.58	103.81	74.00	-29.81	Peak

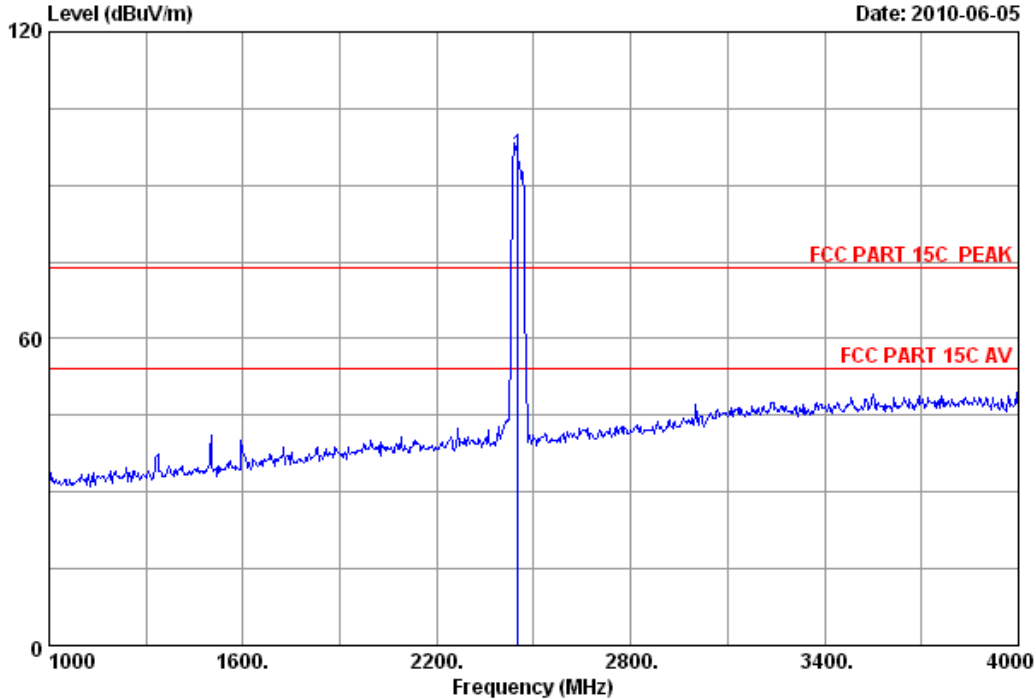
Remarks:

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



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Data: 24 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 24
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.000	29.47	8.82	36.06	93.69	95.92	74.00	-21.92	Peak

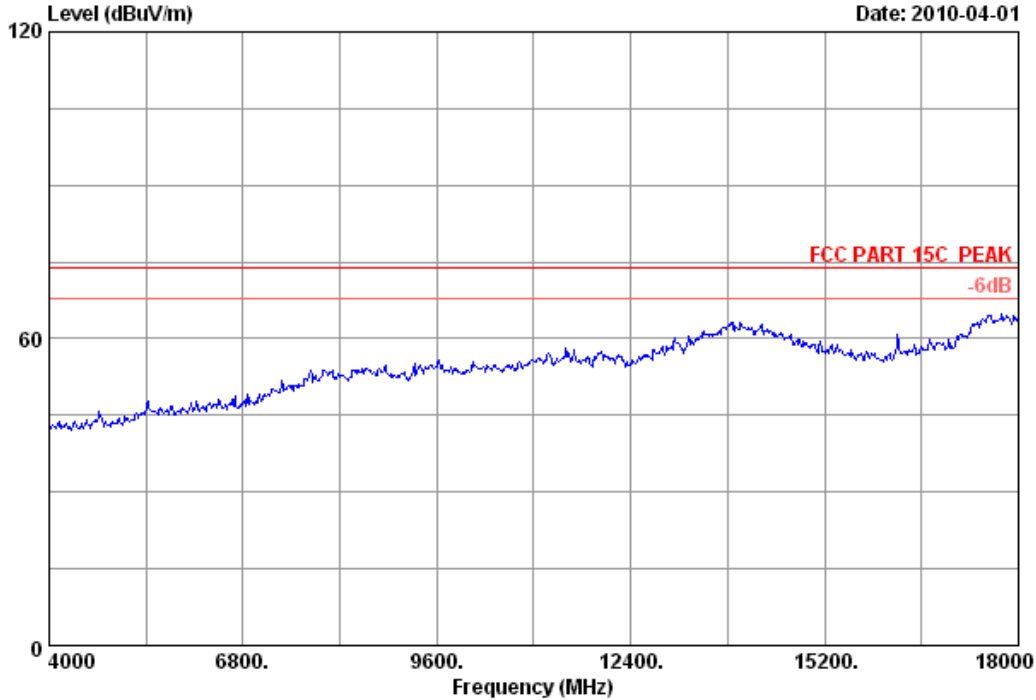
Remarks:

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



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Data: 25 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

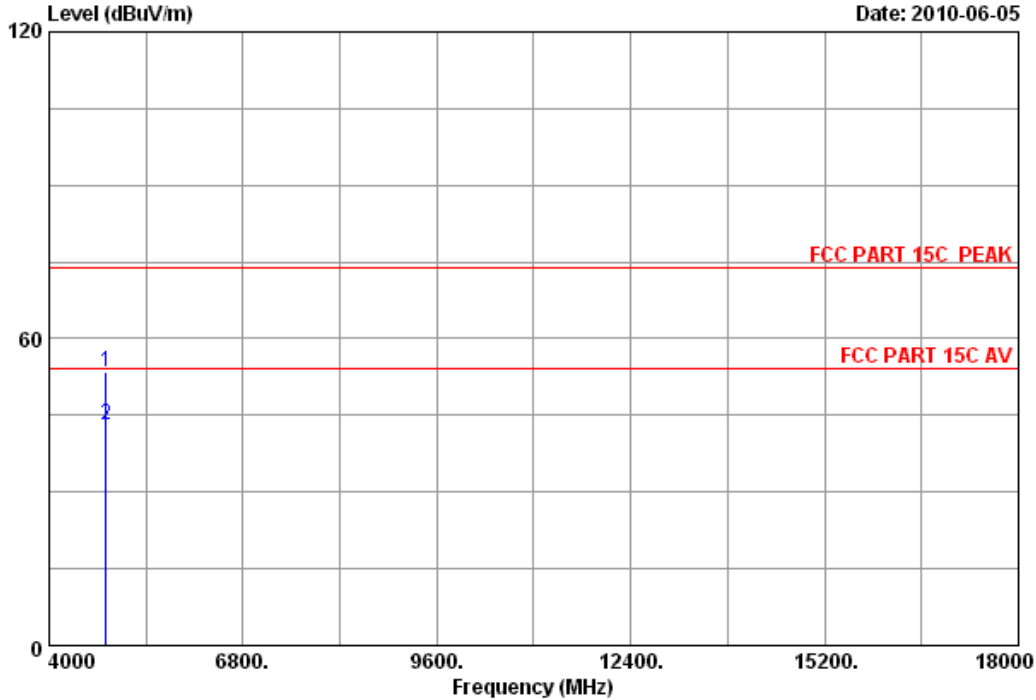


Site no. : RF Chamber Data no. : 25
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz



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Data: 26 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 26
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz

	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.000	34.32	12.38	35.25	41.89	53.34	74.00	20.66	Peak
2	4824.000	34.32	12.38	35.25	31.81	43.26	54.00	10.74	Average

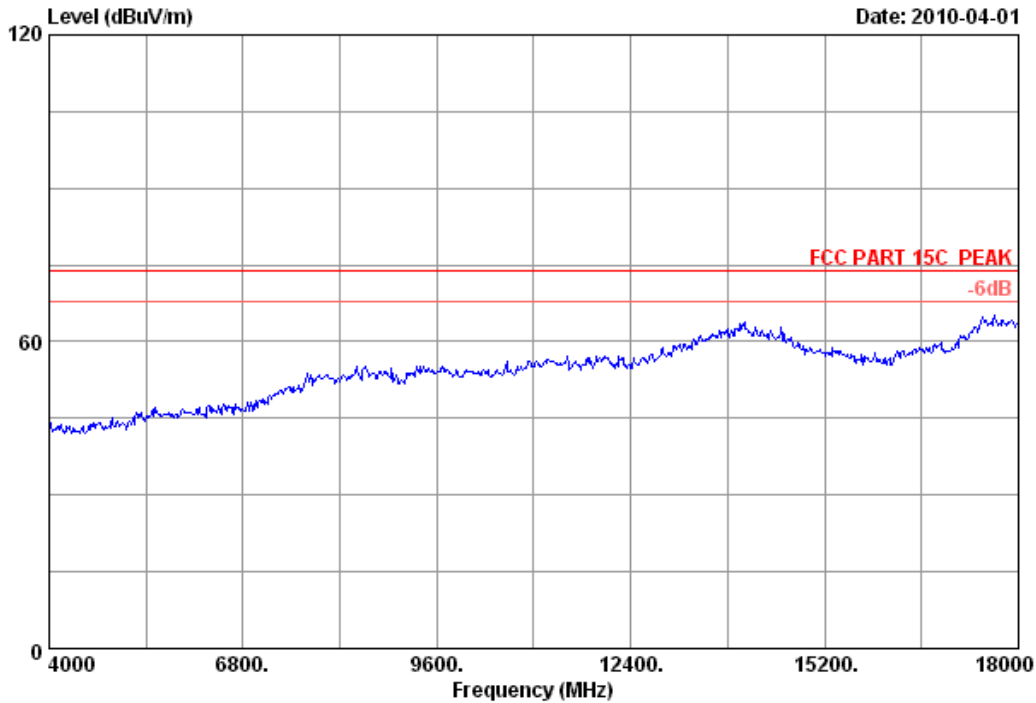
Remarks:

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



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Data: 27 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

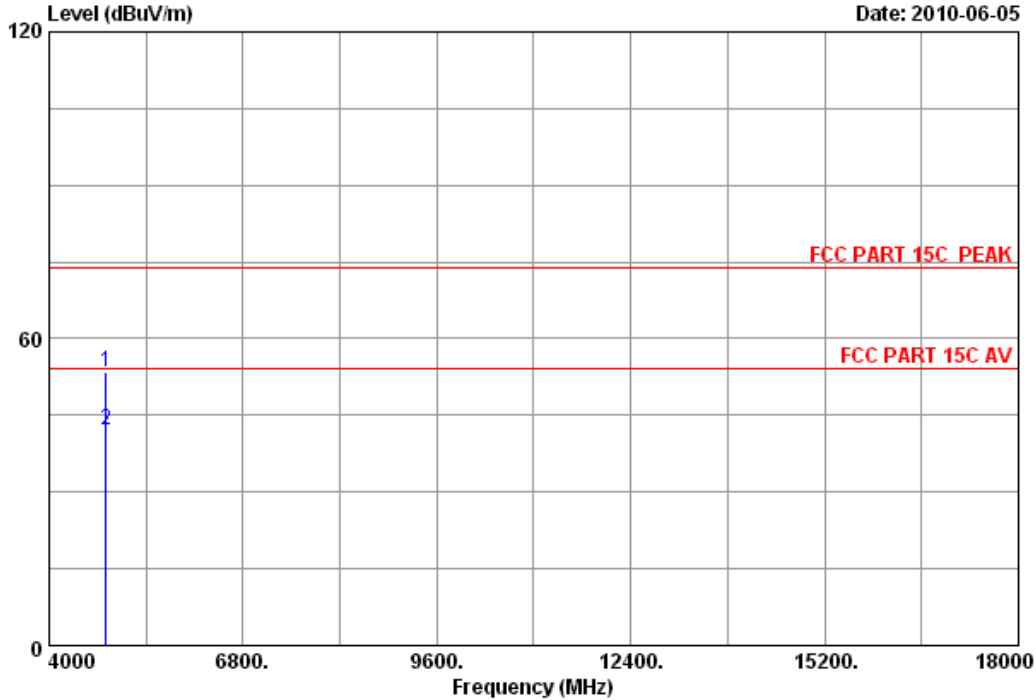


Site no.	: RF Chamber	Data no.	: 27
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH1 2412MHz		



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Data: 28 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 28
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz

	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	4824.000	34.32	12.38	35.25	42.11	53.56	74.00	20.44	Peak
2	4824.000	34.32	12.38	35.25	30.76	42.21	54.00	11.79	Average

Remarks:

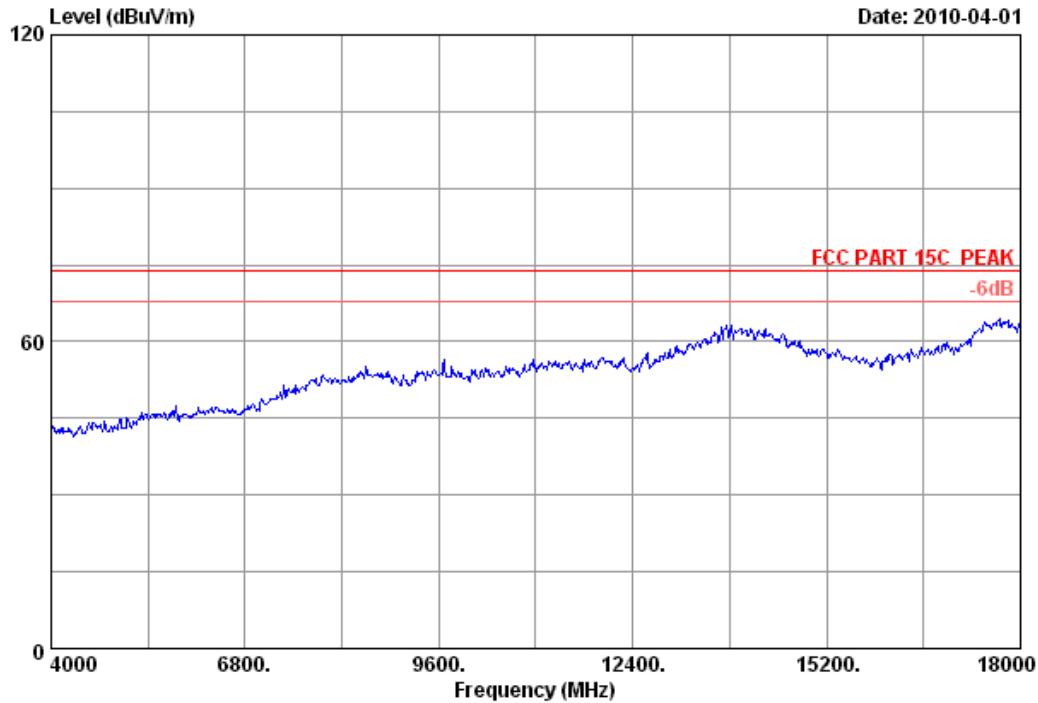
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 29

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

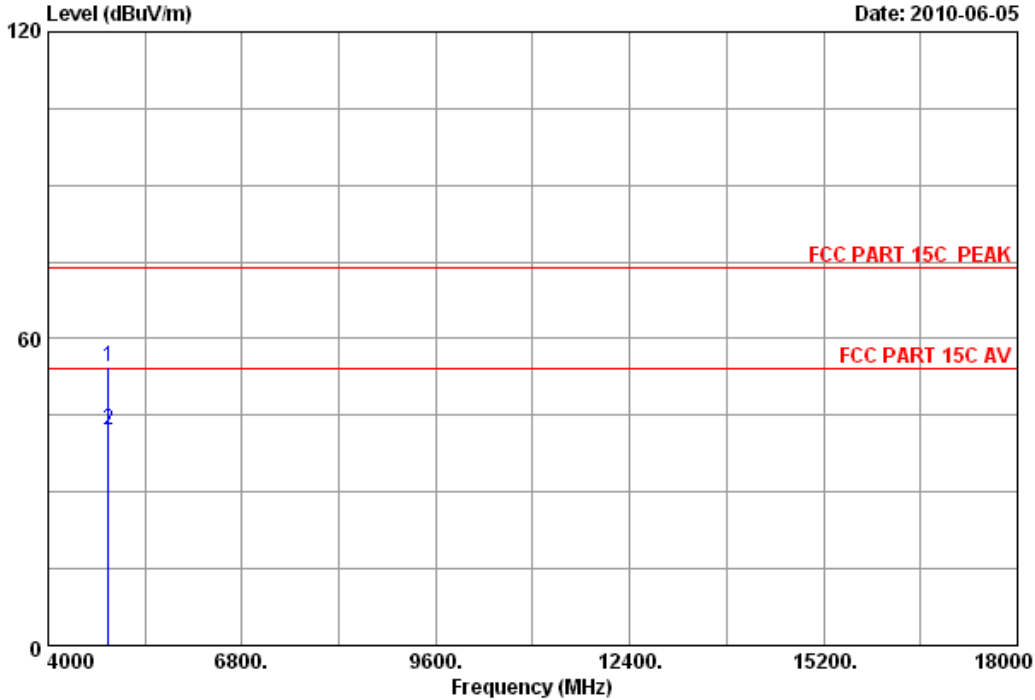


Site no.	: RF Chamber	Data no.	: 29
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH6 2437MHz		



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Data: 30 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 30
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH6 2437MHz

	Ant. 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	4874.000	34.41	12.44	35.36	43.15	54.64	74.00	19.36	Peak
2	4874.000	34.41	12.44	35.36	30.71	42.20	54.00	11.80	Average

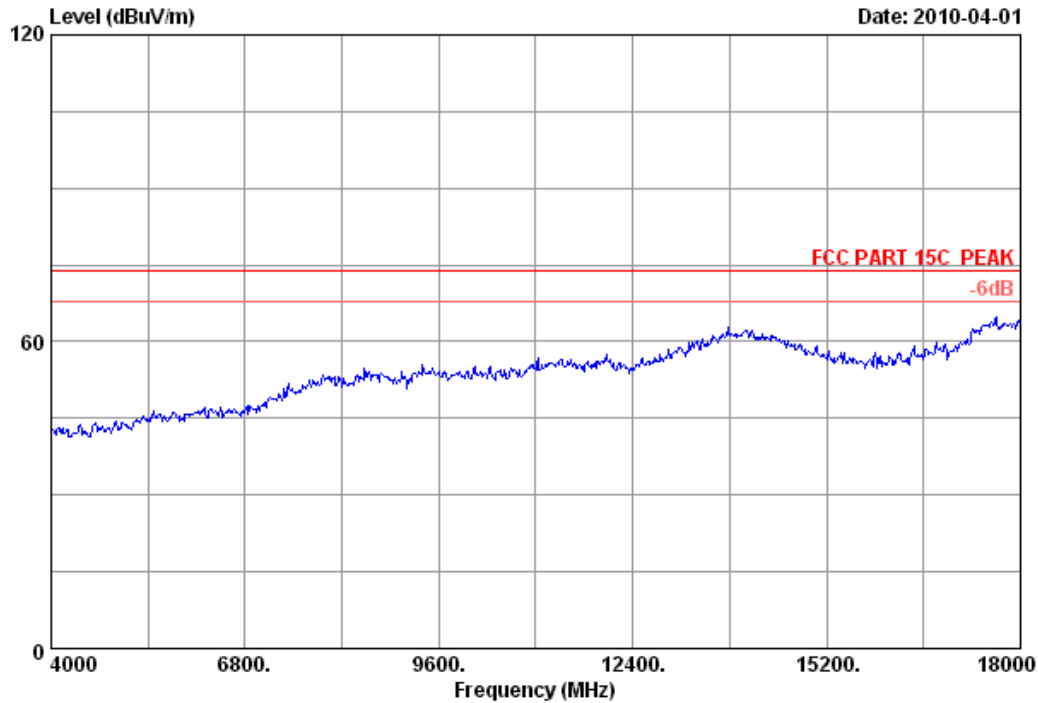
Remarks:

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



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Data: 31 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

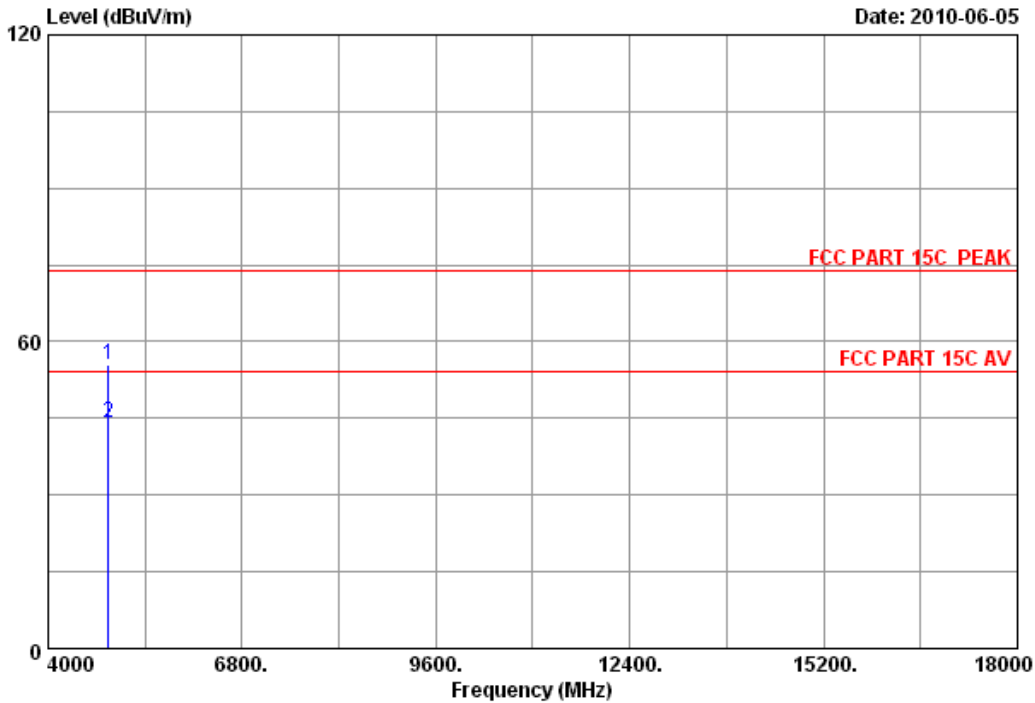


Site no.	: RF Chamber	Data no.	: 31
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH6	2437MHz	



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Data: 32 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 32
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH6 2437MHz

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.000	34.41	12.44	35.36	43.85	55.34	74.00	18.66	Peak
2	4874.000	34.41	12.44	35.36	32.75	44.24	54.00	9.76	Average

Remarks:

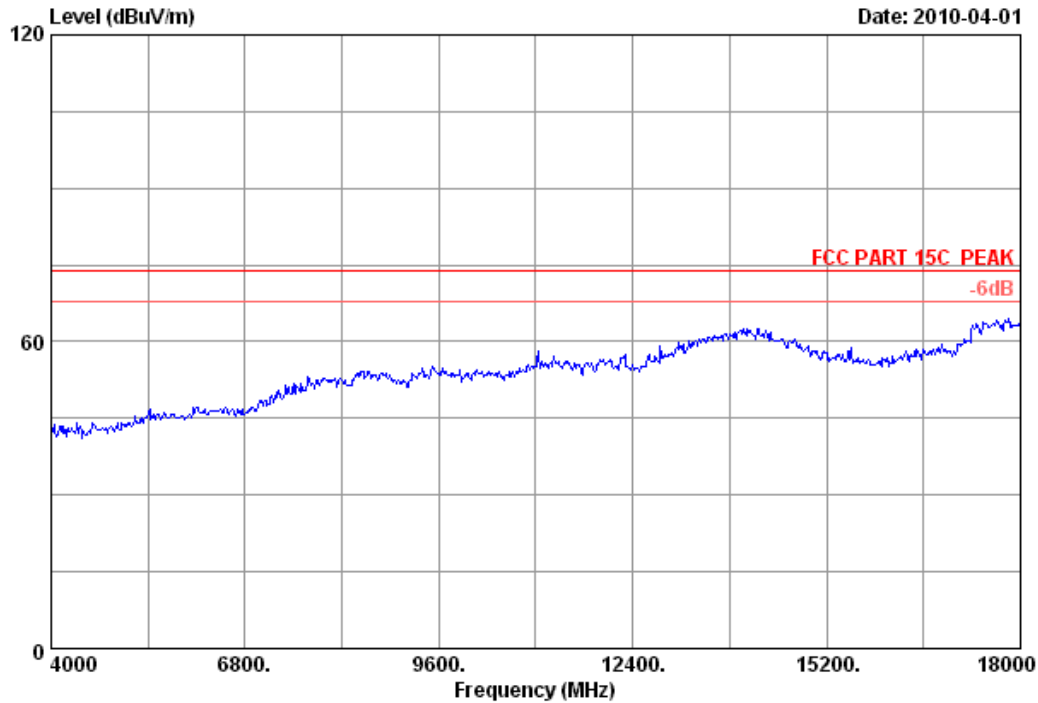
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 33

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

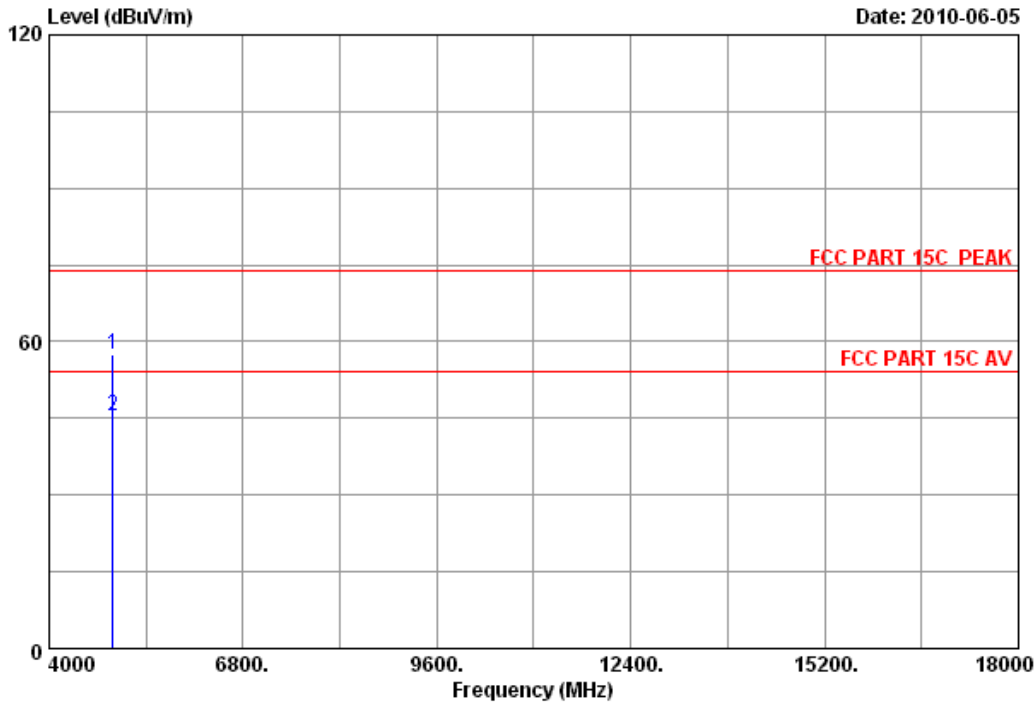


Site no.	: RF Chamber	Data no.	: 33
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH11	2462MHz	



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Data: 34 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 34
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

	Ant. 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	4924.000	34.49	12.50	35.34	45.91	57.56	74.00	16.44	Peak
2	4924.000	34.49	12.50	35.34	33.67	45.32	54.00	8.68	Average

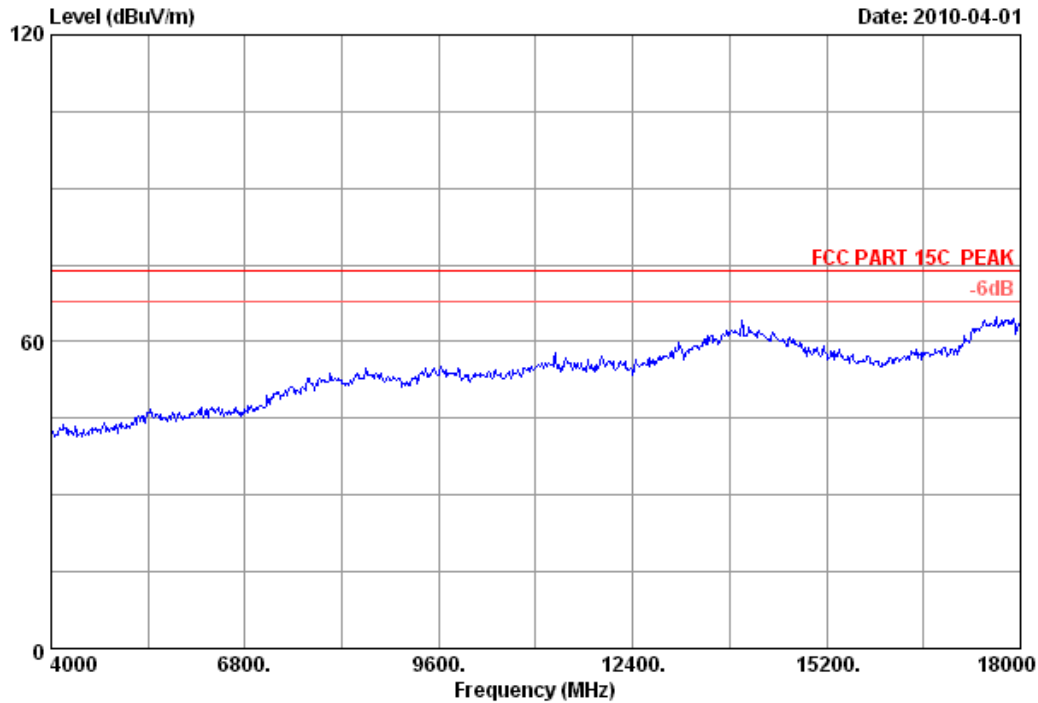
Remarks:
 1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 35

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

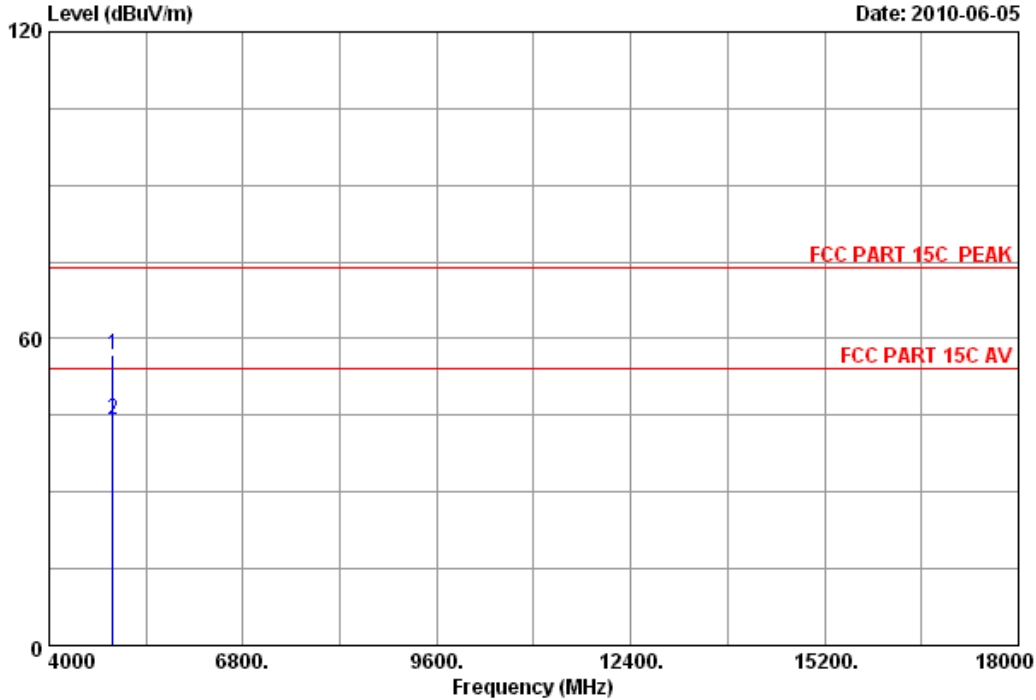


Site no.	: RF Chamber	Data no.	: 35
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH11	2462MHz	



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Data: 36 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 36
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

	Ant. 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	4924.000	34.49	12.50	35.34	45.26	56.91	74.00	17.09	Peak
2	4924.000	34.49	12.50	35.34	32.46	44.11	54.00	9.89	Average

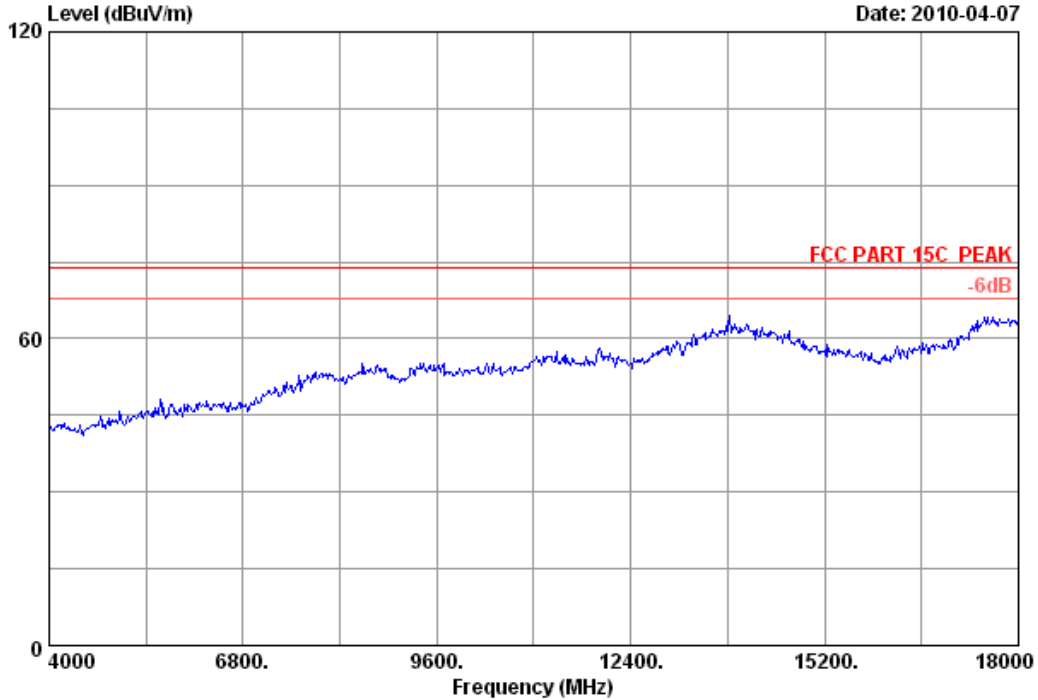
Remarks:

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



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Data: 37 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

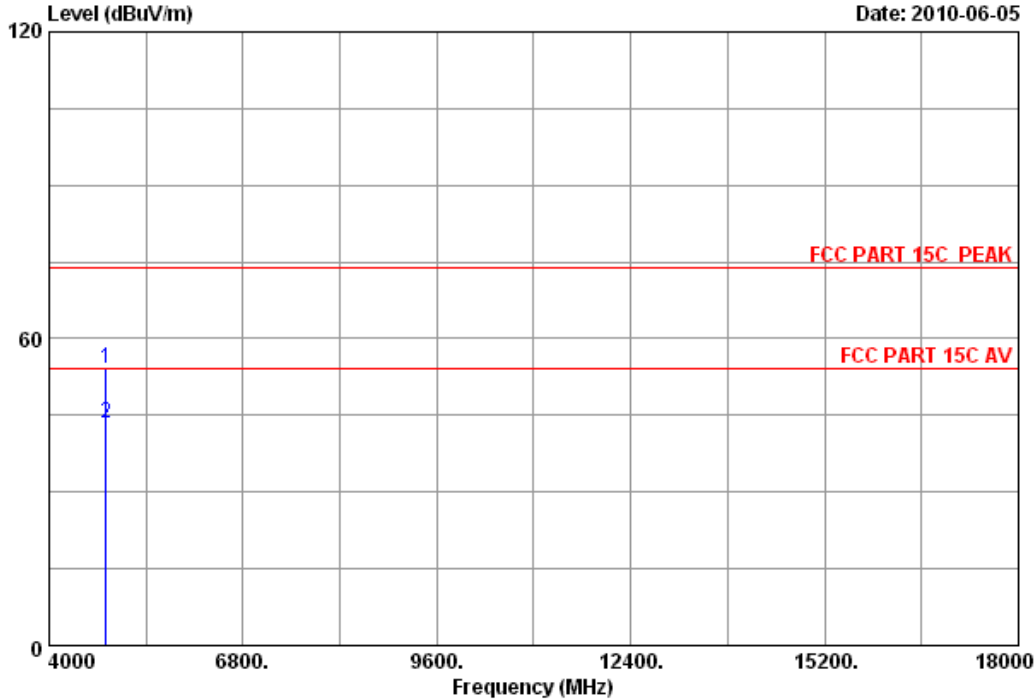


Site no.	: RF Chamber	Data no.	: 37
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH1 2412MHz		



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Data: 38 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 38
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4824.000	34.32	12.38	35.25	42.67	54.12	74.00	19.88	Peak	
2 4824.000	34.32	12.38	35.25	32.10	43.55	54.00	10.45	Average	

Remarks:

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

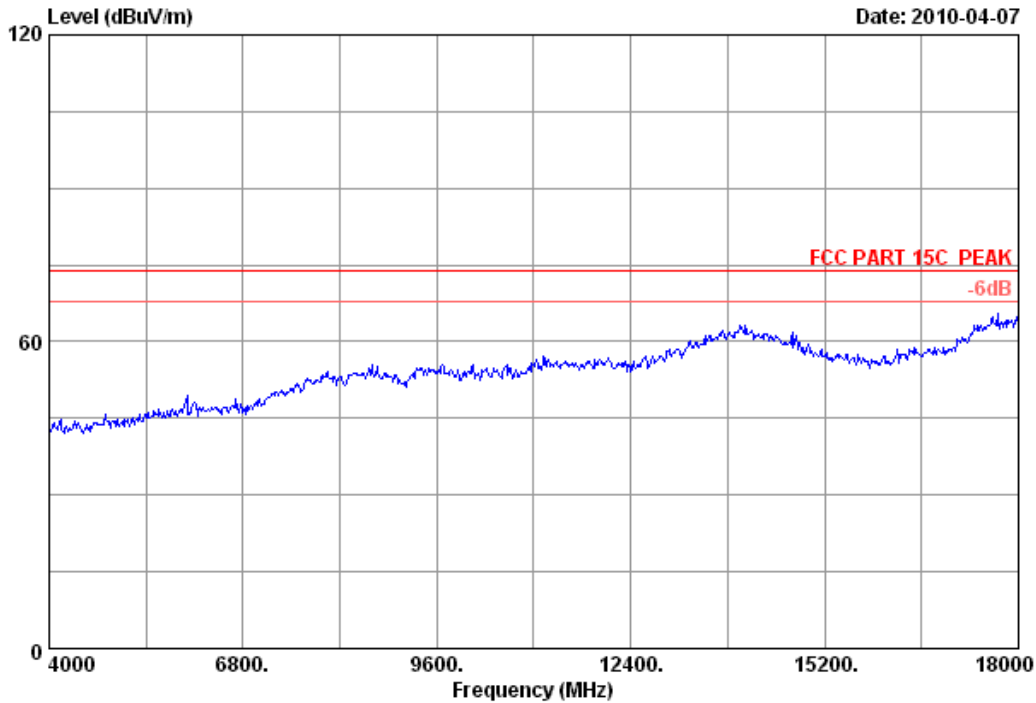


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Data: 39

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

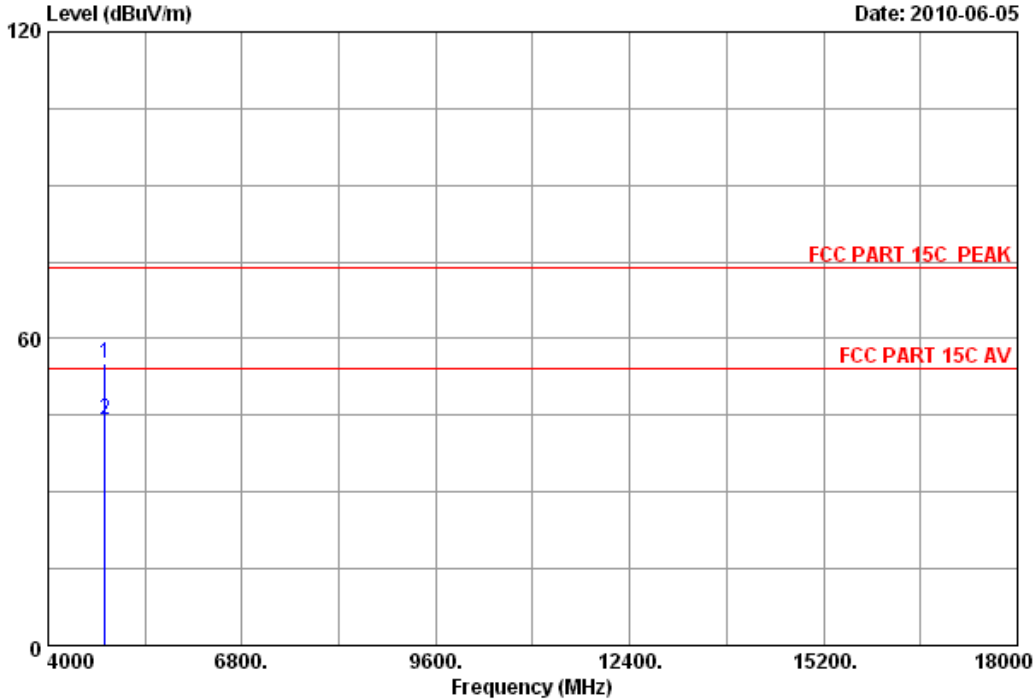


Site no.	: RF Chamber	Data no.	: 39
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH1 2412MHz		



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Site no. : RF Chamber Data no. : 40
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 4824.000	34.32	12.38	35.25	43.58	55.03	74.00	18.97	Peak	
2 4824.000	34.32	12.38	35.25	32.61	44.06	54.00	9.94	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.

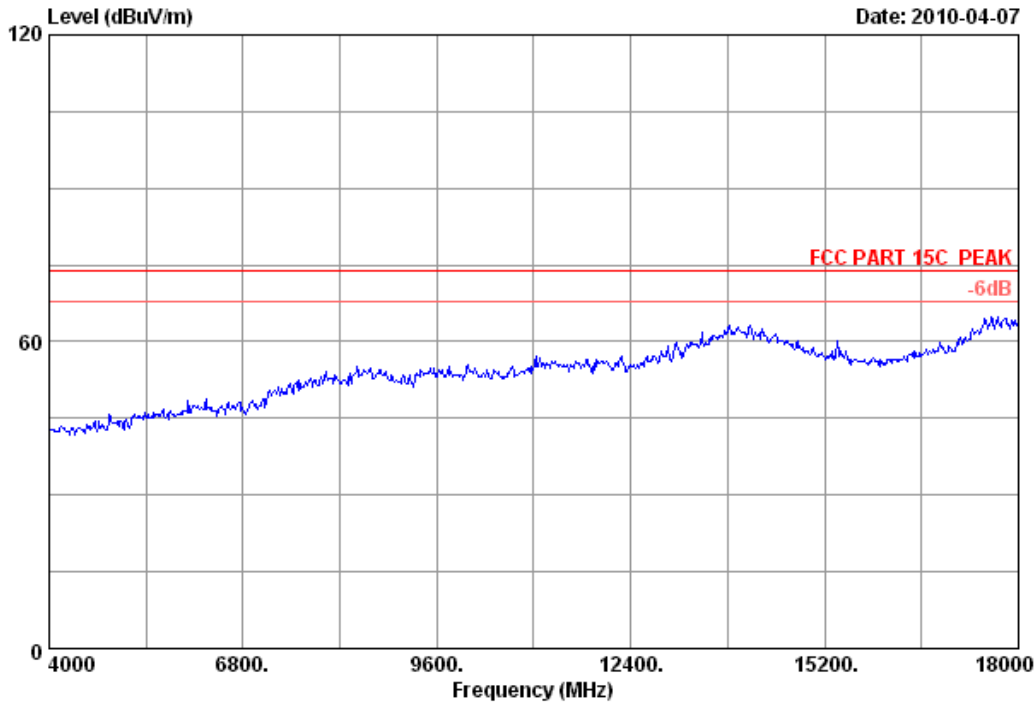


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Data: 41

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

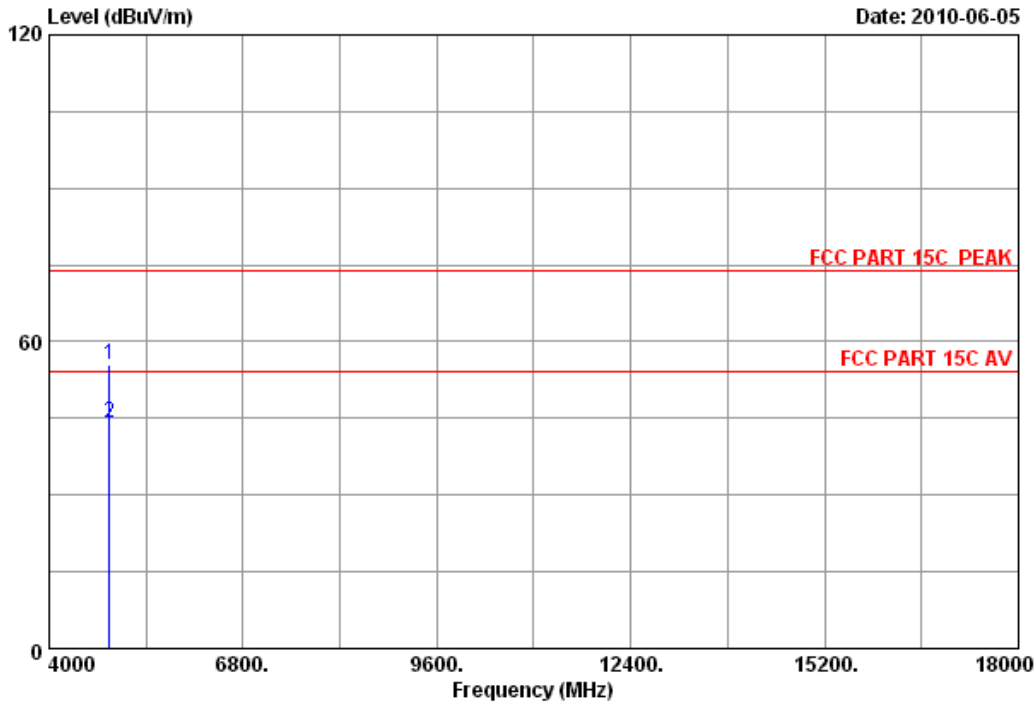


Site no.	: RF Chamber	Data no.	: 41
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH6 2437MHz		



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Data: 42 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 42
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH6 2437MHz

	Ant. 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	4874.000	34.41	12.44	35.36	44.16	55.65	74.00	18.35	Peak
2	4874.000	34.41	12.44	35.36	32.75	44.24	54.00	9.76	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.

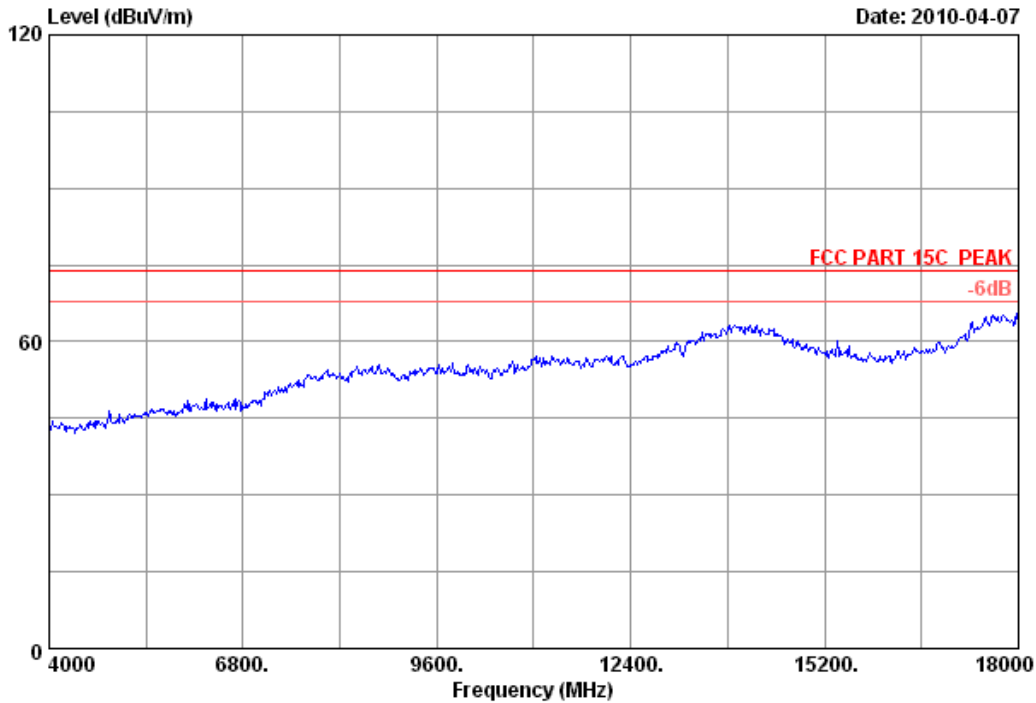


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Data: 43

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

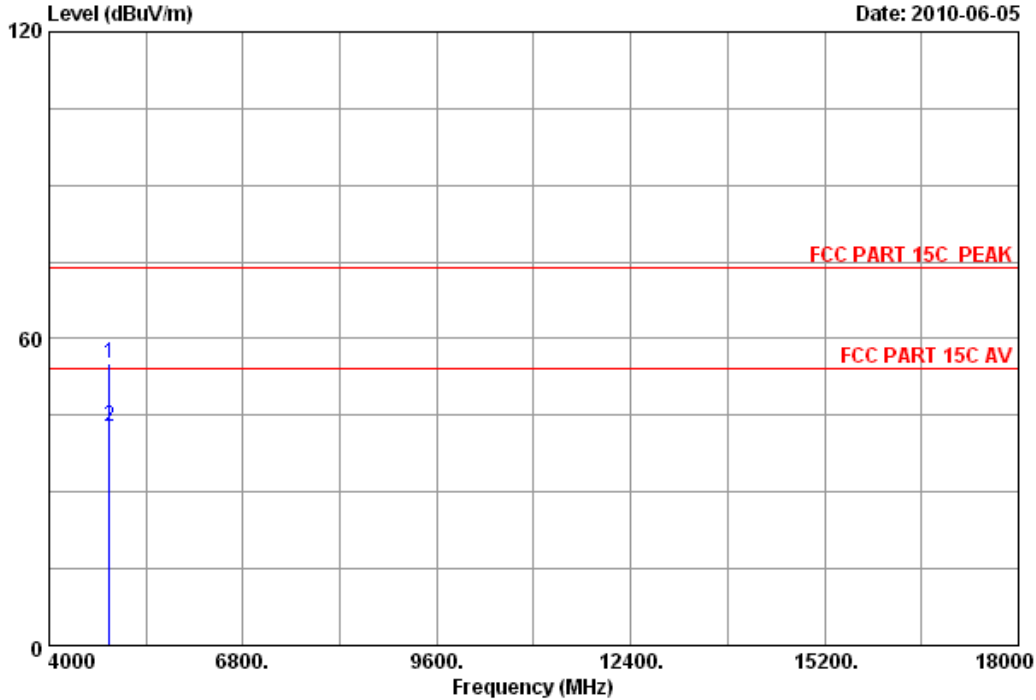


Site no.	: RF Chamber	Data no.	: 43
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH6 2437MHz		



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Data: 44 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 44
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH6 2437MHz

	Ant. 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	4874.000	34.41	12.44	35.36	43.71	55.20	74.00	18.80	Peak
2	4874.000	34.41	12.44	35.36	31.40	42.89	54.00	11.11	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.

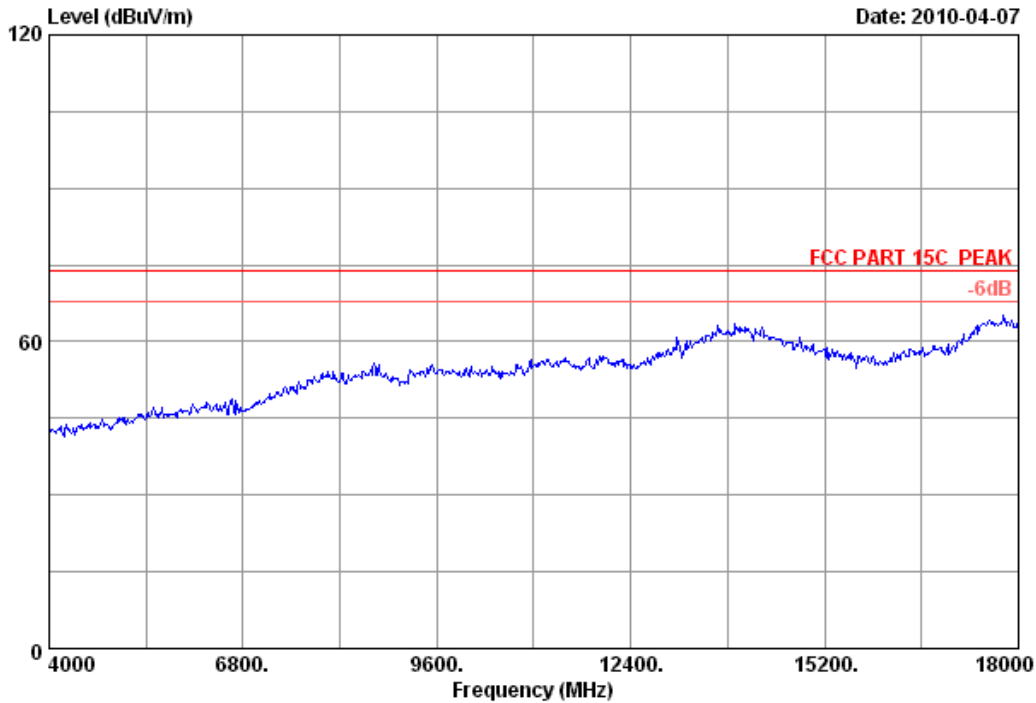


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Data: 45

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

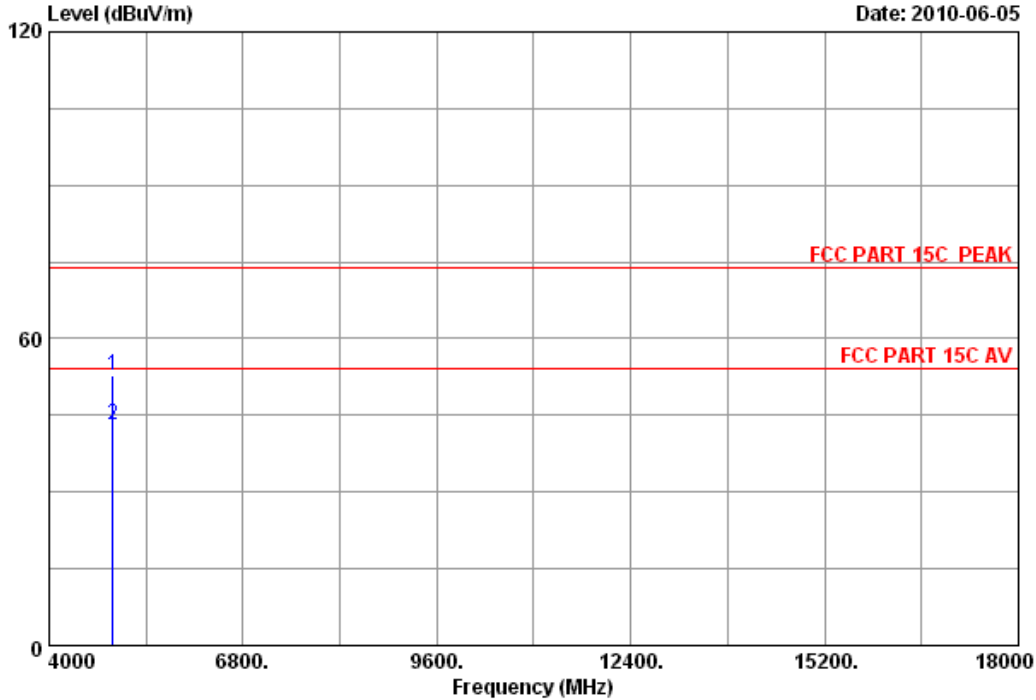


Site no.	: RF Chamber	Data no.	: 45
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH11 2462MHz		



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Data: 46 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 46
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

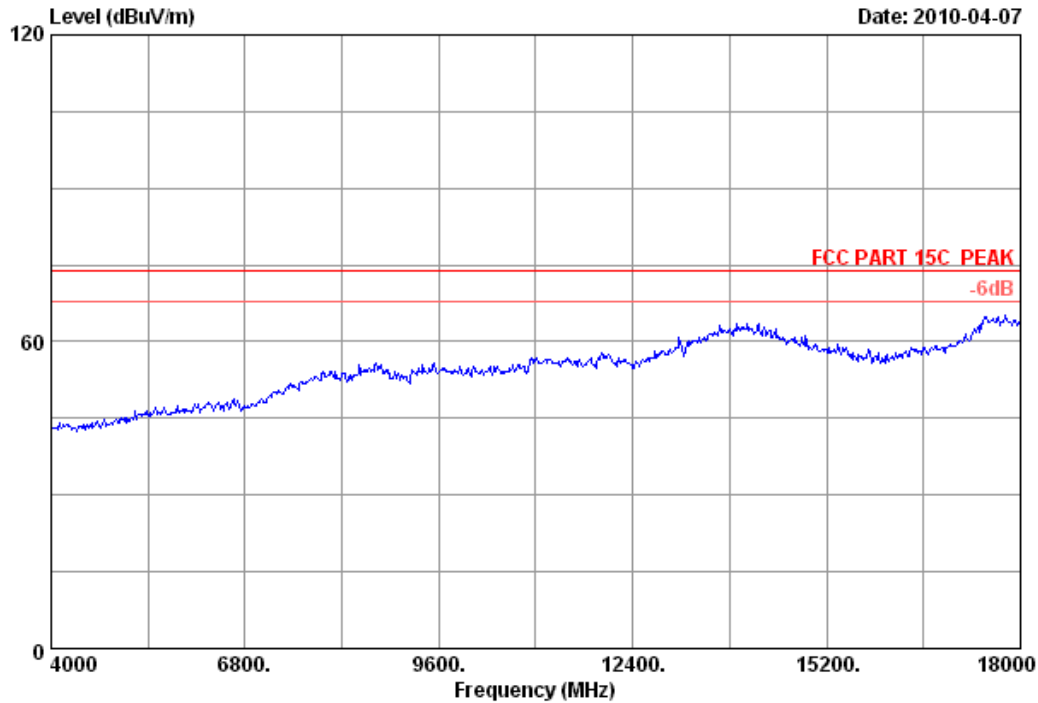
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4924.000	34.49	12.50	35.34	41.23	52.88	74.00	21.12	Peak
2	4924.000	34.49	12.50	35.34	31.43	43.08	54.00	10.92	Average

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



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Data: 47 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

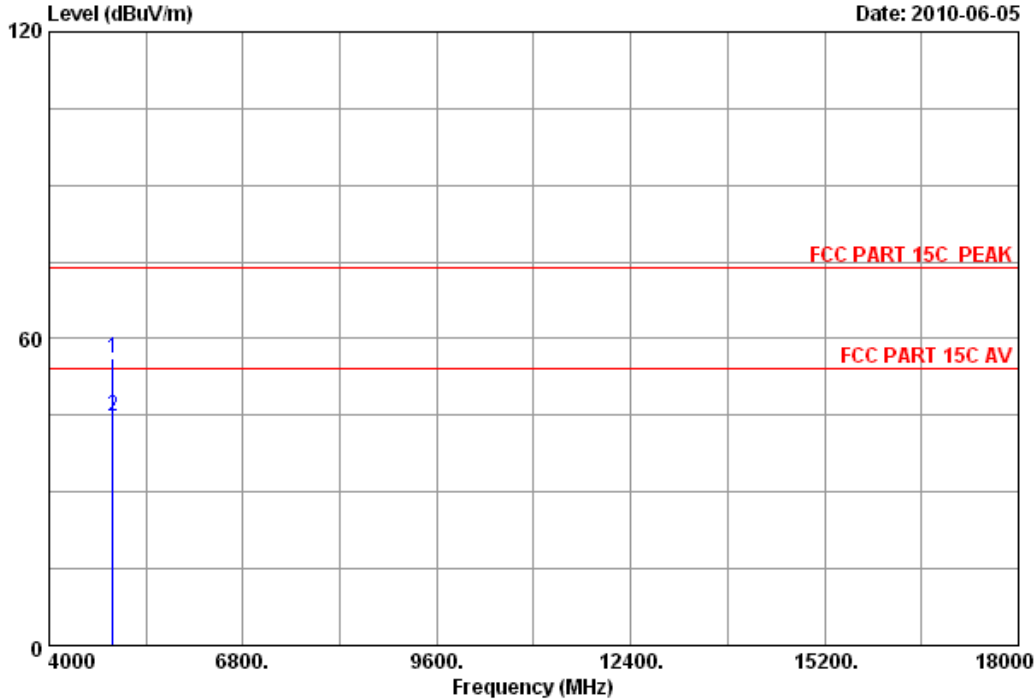


Site no.	: RF Chamber	Data no.	: 47
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH11 2462MHz		



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Site no. : RF Chamber Data no. : 48
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

	Ant. 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	4924.000	34.49	12.50	35.34	44.61	56.26	74.00	17.74	Peak
2	4924.000	34.49	12.50	35.34	33.12	44.77	54.00	9.23	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.

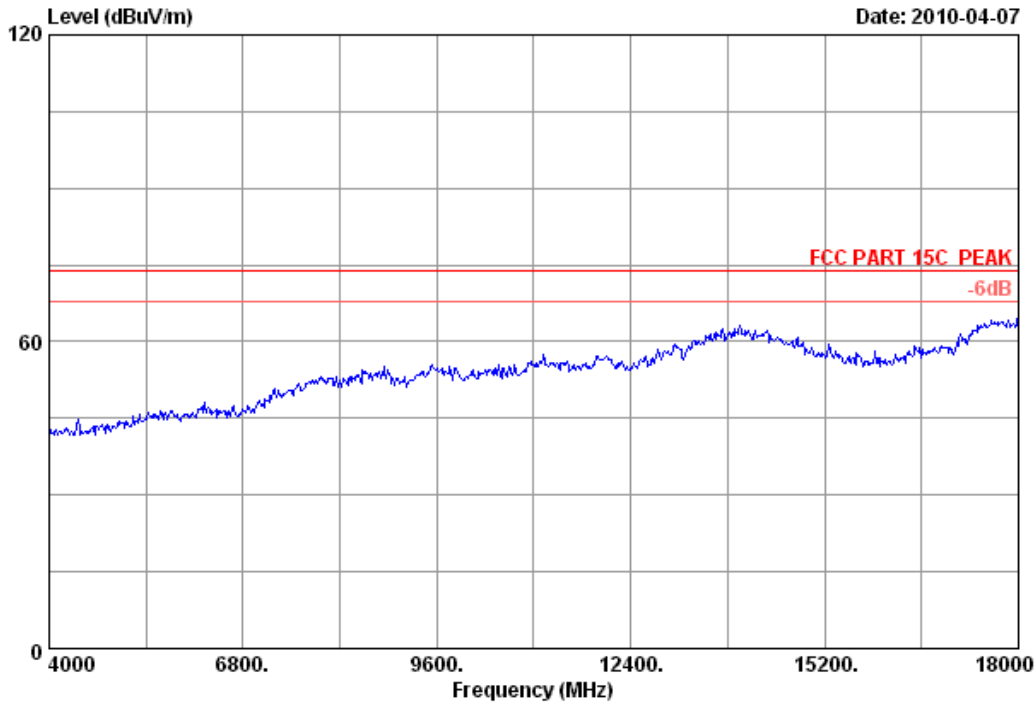


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Data: 49

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

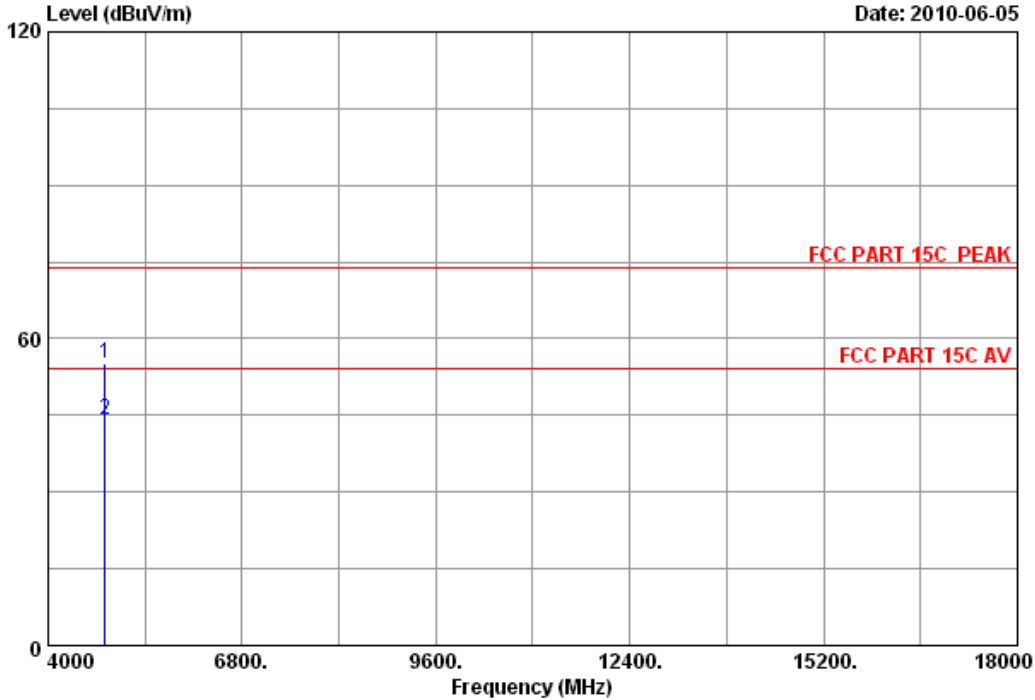


Site no.	: RF Chamber	Data no.	: 49
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT20 CH1 2412MHz		



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 Postcode:518057

Data: 50 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 50
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	Ant. 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	4824.000	34.32	12.38	35.25	43.64	55.09	74.00	18.91	Peak
2	4824.000	34.32	12.38	35.25	32.71	44.16	54.00	9.84	Average

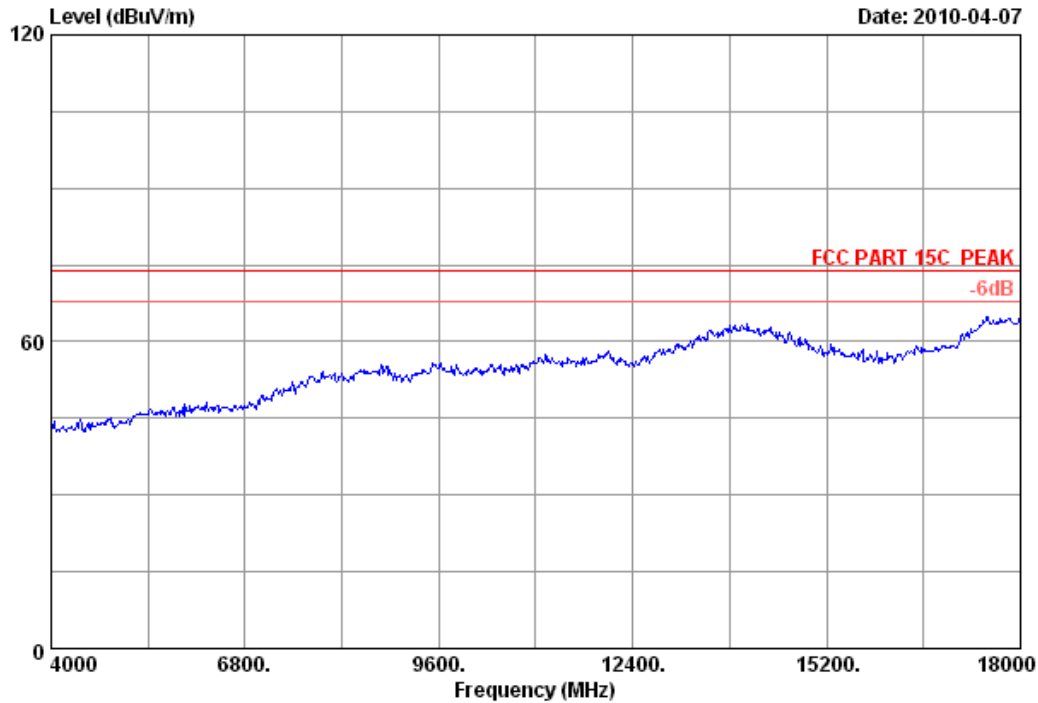
Remarks:

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



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Data: 51 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

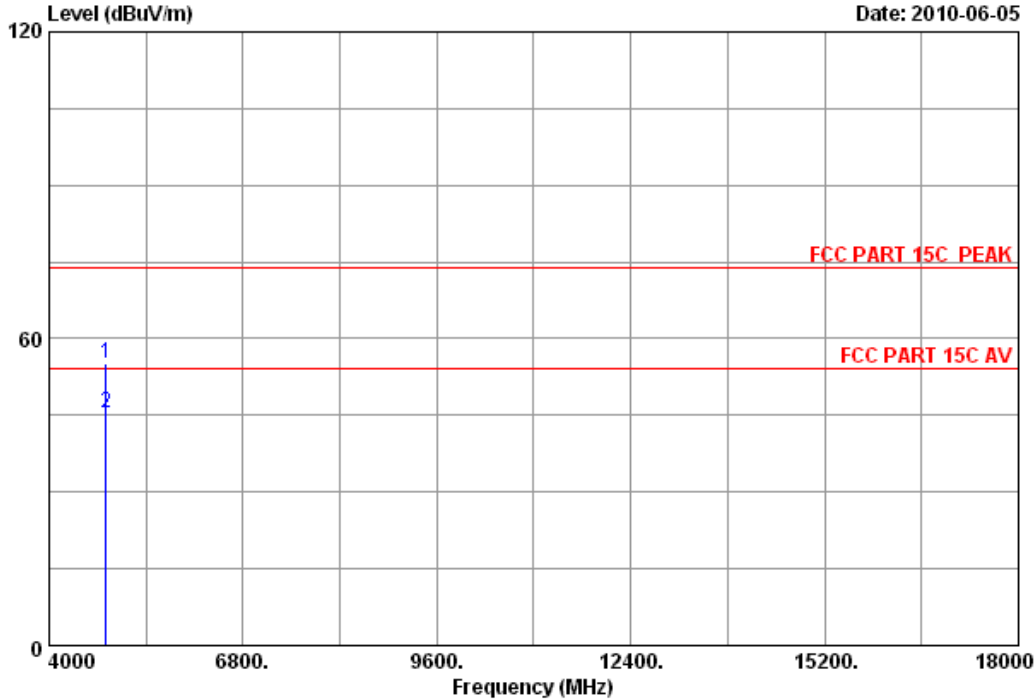


Site no.	: RF Chamber	Data no.	: 51
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT20 CH1 2412MHz		



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Data: 52 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 52
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4824.000	34.32	12.38	35.25	43.81	55.26	74.00	18.74	Peak
2	4824.000	34.32	12.38	35.25	34.12	45.57	54.00	8.43	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.

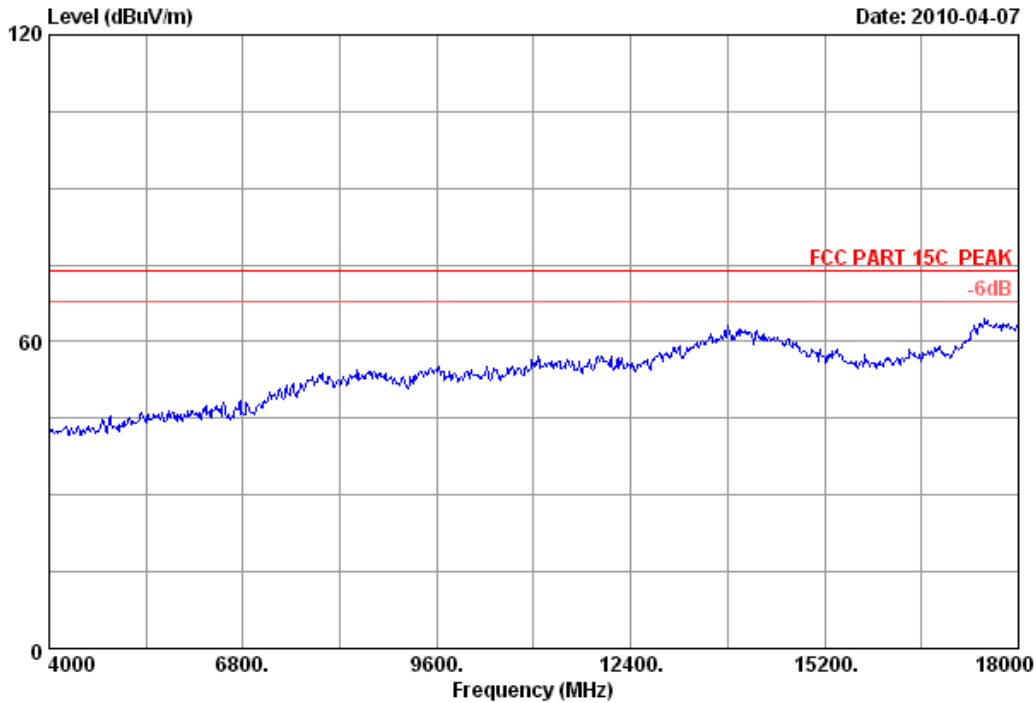


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Data: 53

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

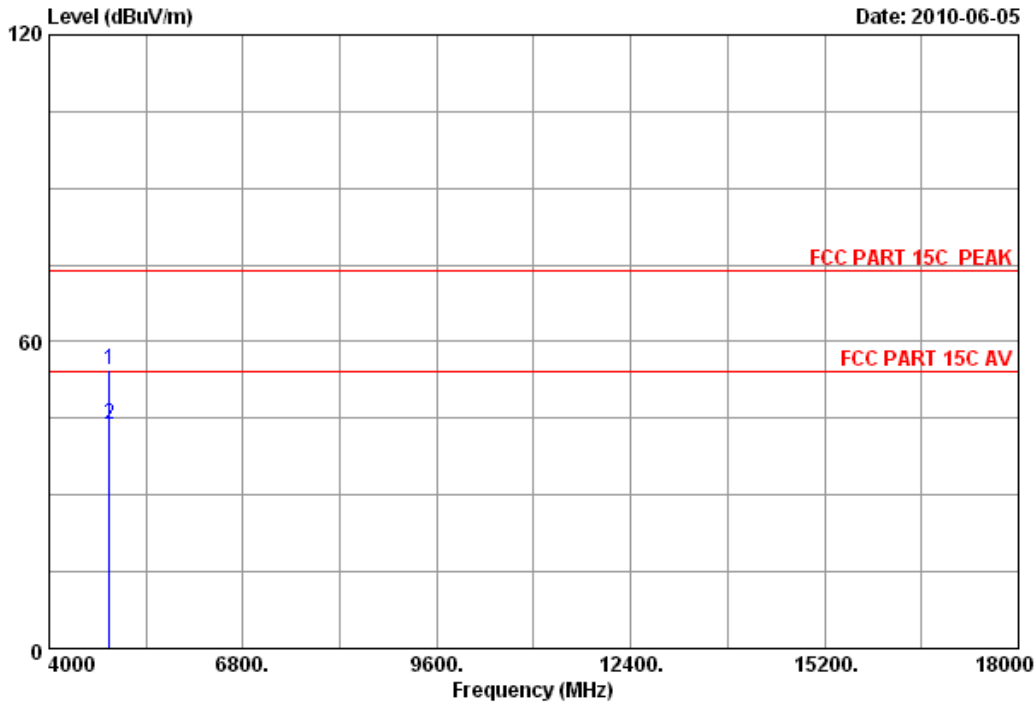


Site no.	: RF Chamber	Data no.	: 53
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT20 CH6 2437MHz		



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Data: 54 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 54
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH6 2437MHz

	Ant. Freq. (MHz)	Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4874.000	34.41	12.44	35.36	43.15	54.64	74.00	19.36	Peak
2	4874.000	34.41	12.44	35.36	32.39	43.88	54.00	10.12	Average

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

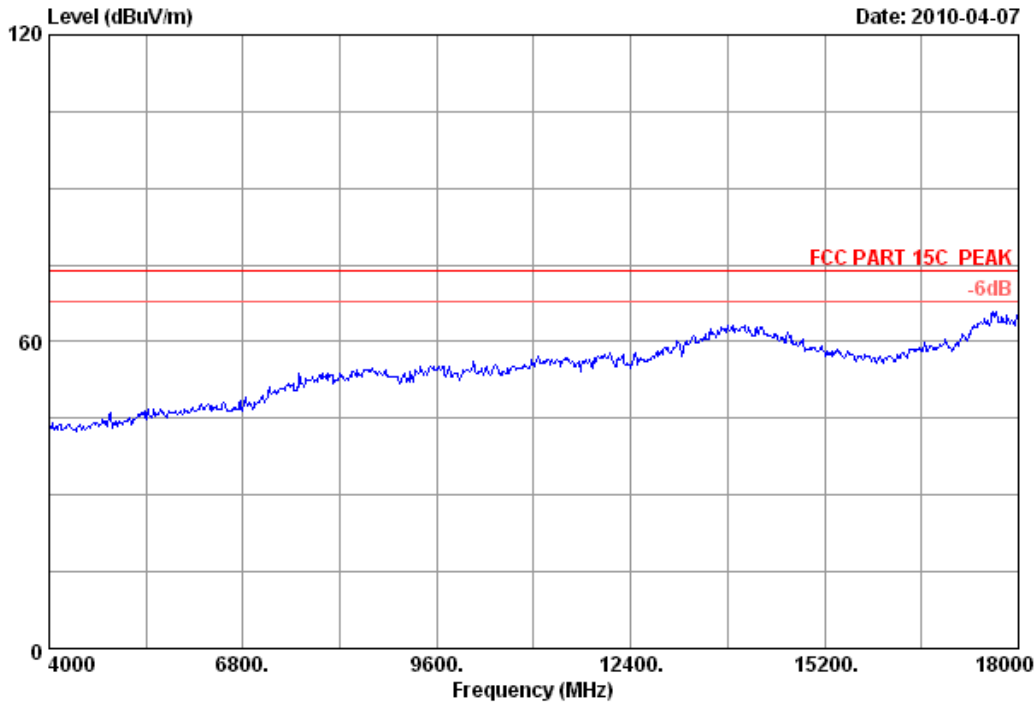


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Data: 55

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

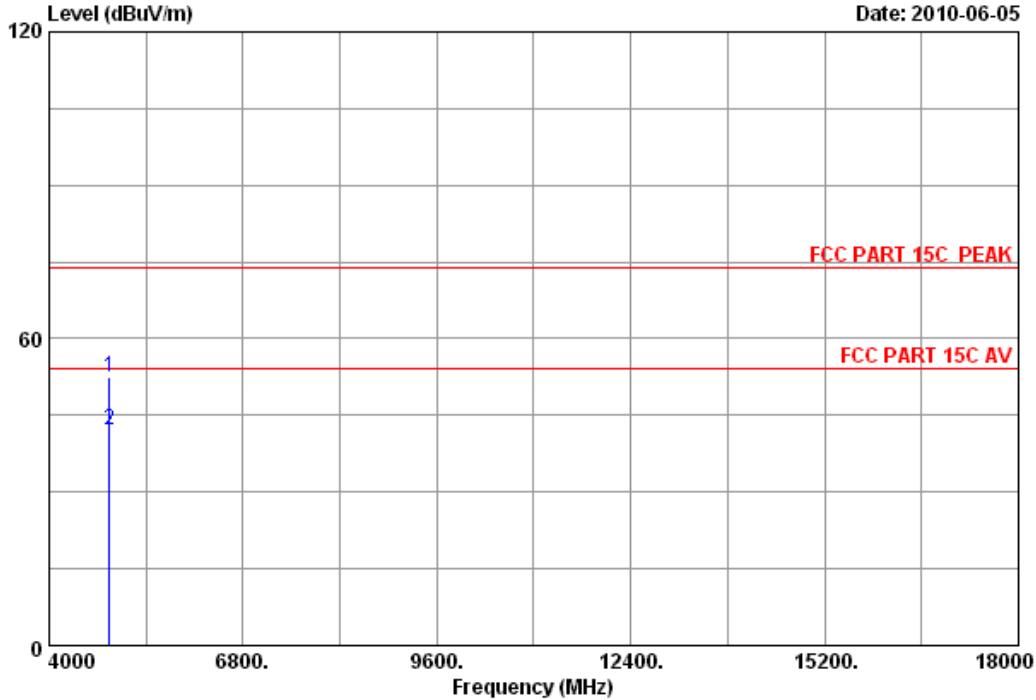


Site no.	: RF Chamber	Data no.	: 55
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT20 CH6 2437MHz		



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Data: 56 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 56
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH6 2437MHz

	Ant. 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	4874.000	34.41	12.44	35.36	41.15	52.64	74.00	21.36	Peak
2	4874.000	34.41	12.44	35.36	30.75	42.24	54.00	11.76	Average

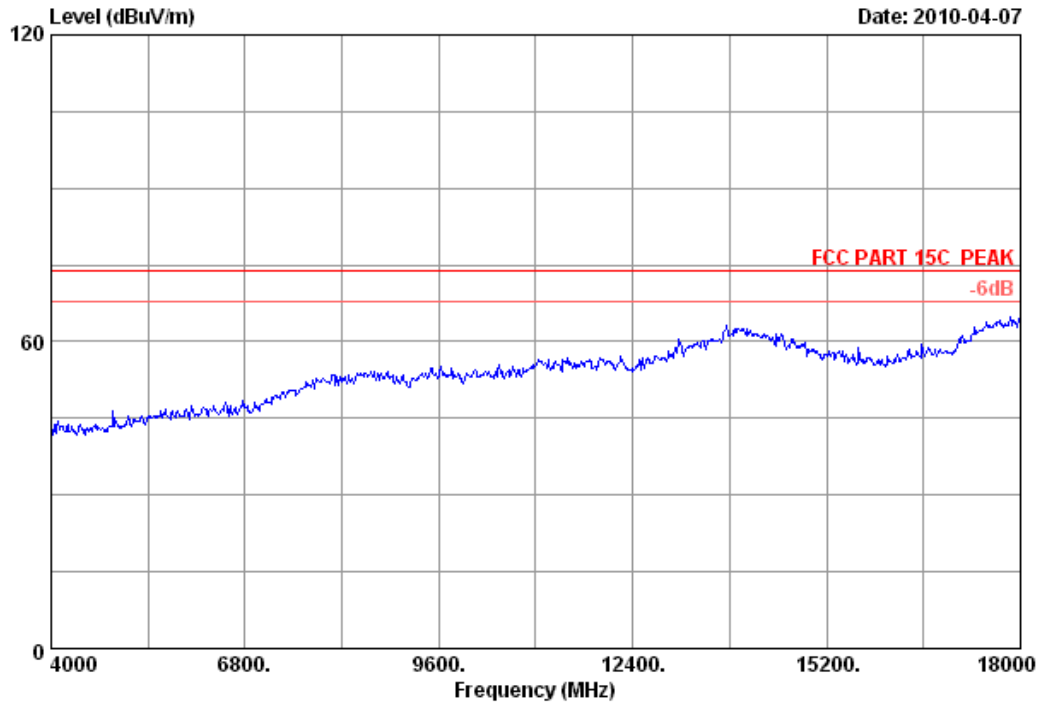
Remarks:

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



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Data: 57 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

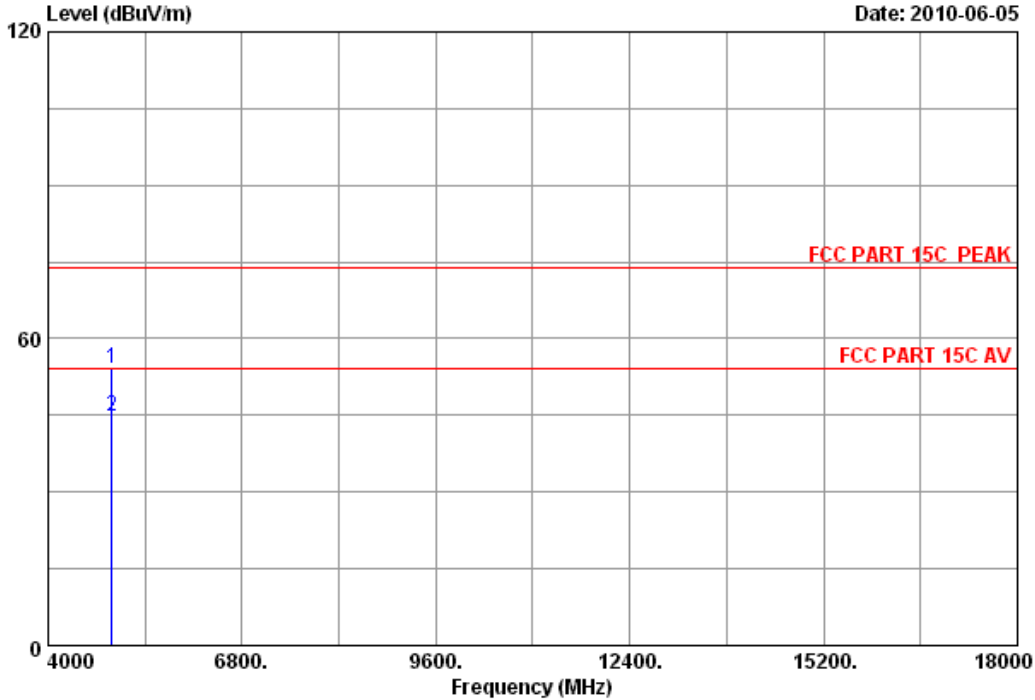


Site no.	: RF Chamber	Data no.	: 57
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT20 CH11 2462MHz		



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Site no. : RF Chamber Data no. : 58
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

	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	4924.000	34.49	12.50	35.34	42.65	54.30	74.00	19.70	Peak
2	4924.000	34.49	12.50	35.34	33.07	44.72	54.00	9.28	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.

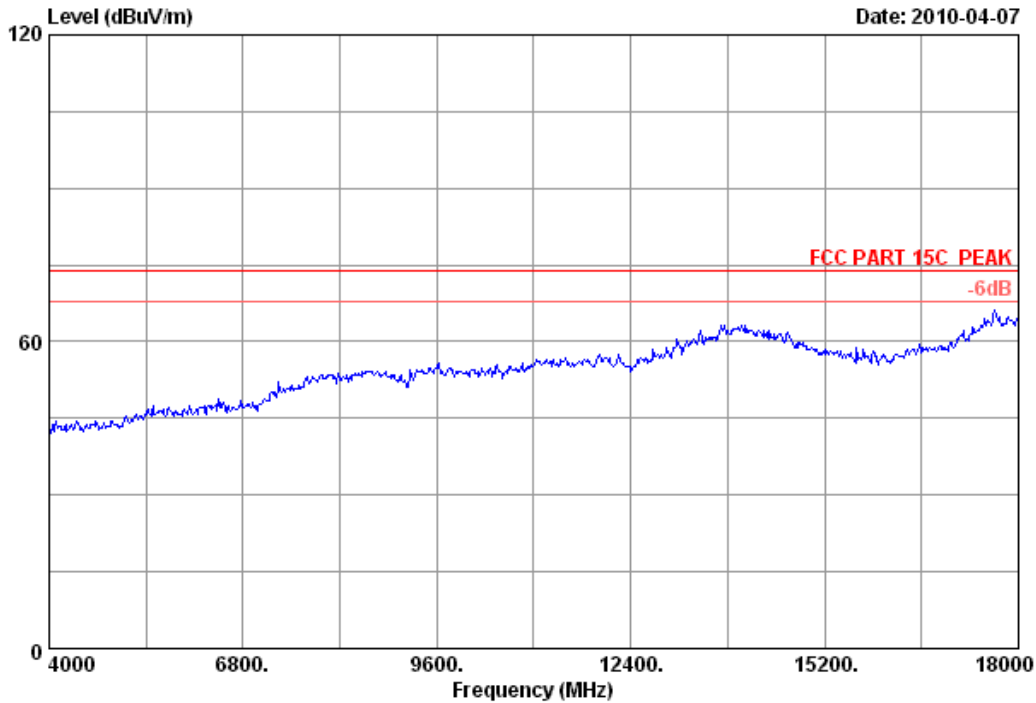


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Data: 59

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-04-07

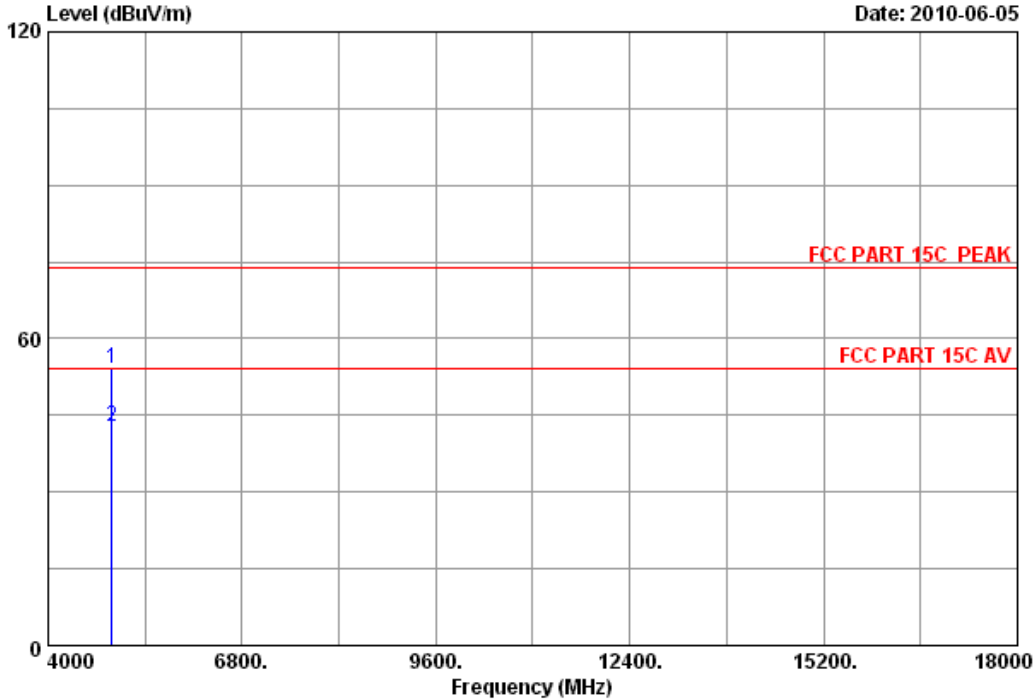


Site no.	: RF Chamber	Data no.	: 59
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT20 CH11 2462MHz		



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Data: 60 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 60
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

	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	4924.000	34.49	12.50	35.34	42.41	54.06	74.00	19.94	Peak
2	4924.000	34.49	12.50	35.34	31.28	42.93	54.00	11.07	Average

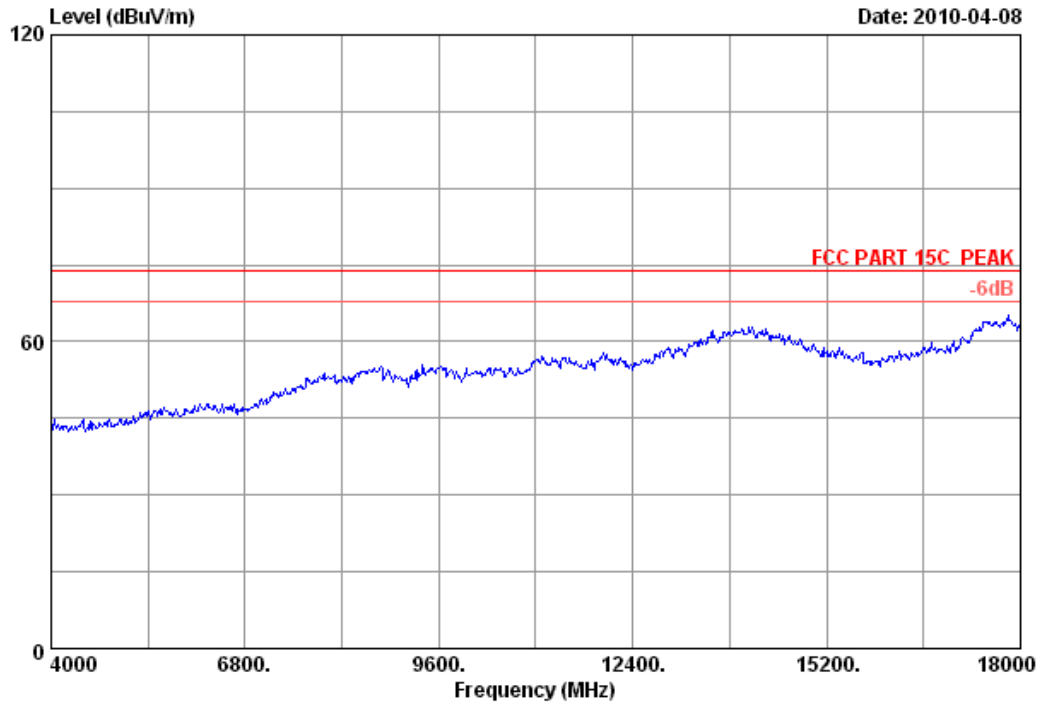
Remarks:

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



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Data: 61 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

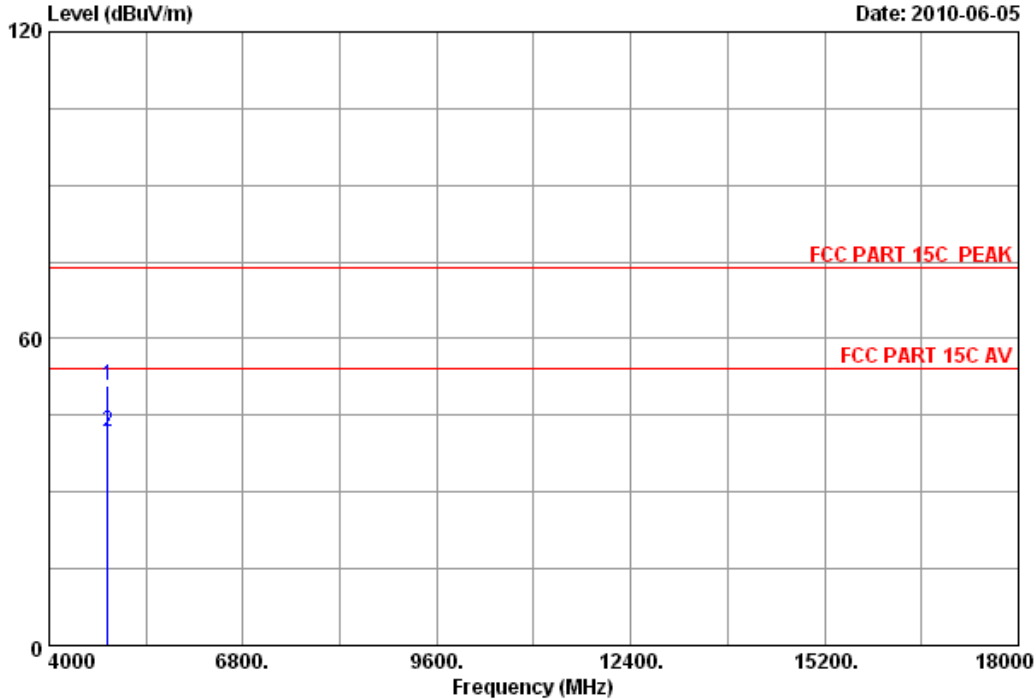


Site no.	: RF Chamber	Data no.	: 61
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40 CH1 2422MHz		



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Data: 62 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 62
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blur-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

	Ant. 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	4844.000	34.35	12.38	35.25	39.35	50.83	74.00	23.17	Peak
2	4844.000	34.35	12.38	35.25	30.25	41.73	54.00	12.27	Average

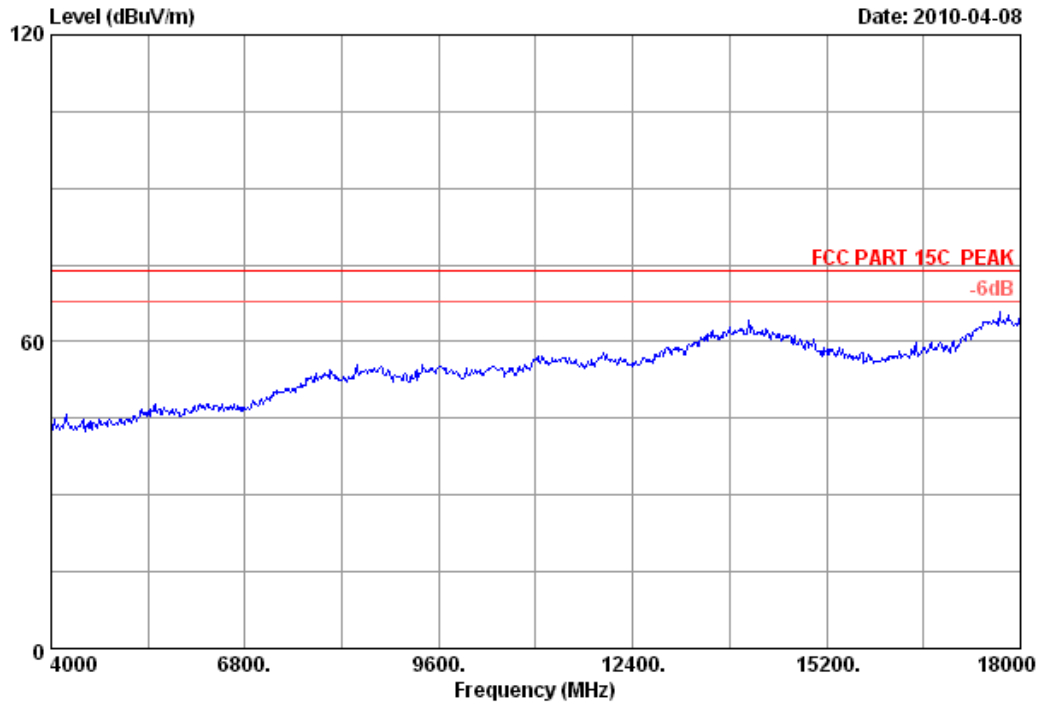
Remarks:

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



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Data: 63 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

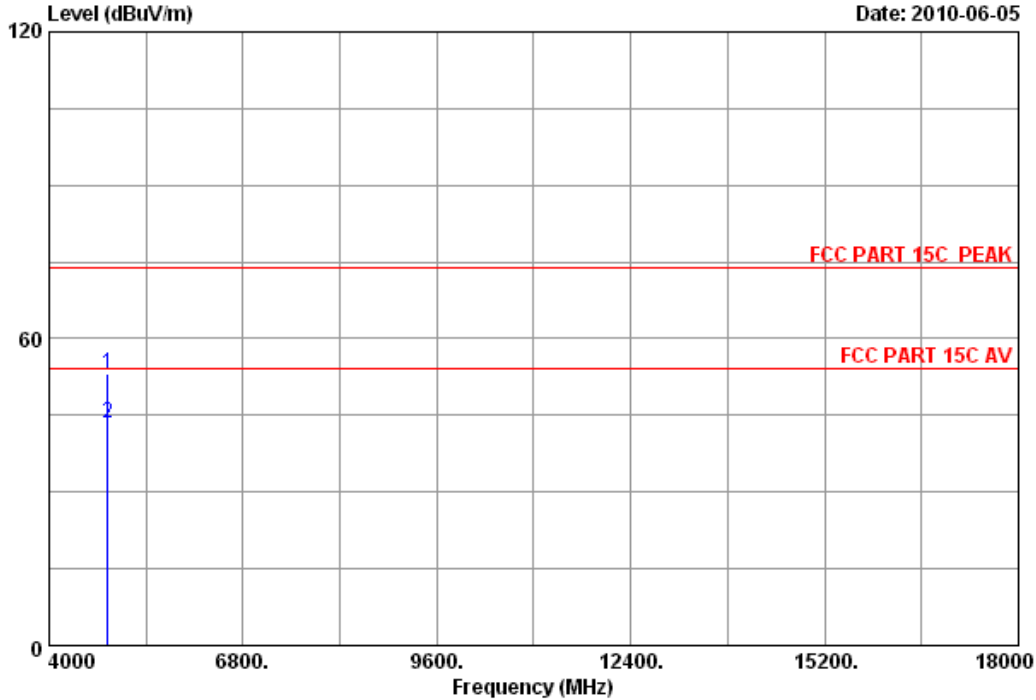


Site no.	: RF Chamber	Data no.	: 63
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40 CH1 2422MHz		



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Site no. : RF Chamber Data no. : 64
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH1 2422MHz

	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	4844.000	34.35	12.38	35.25	41.58	53.06	74.00	20.94	Peak
2	4844.000	34.35	12.38	35.25	32.03	43.51	54.00	10.49	Average

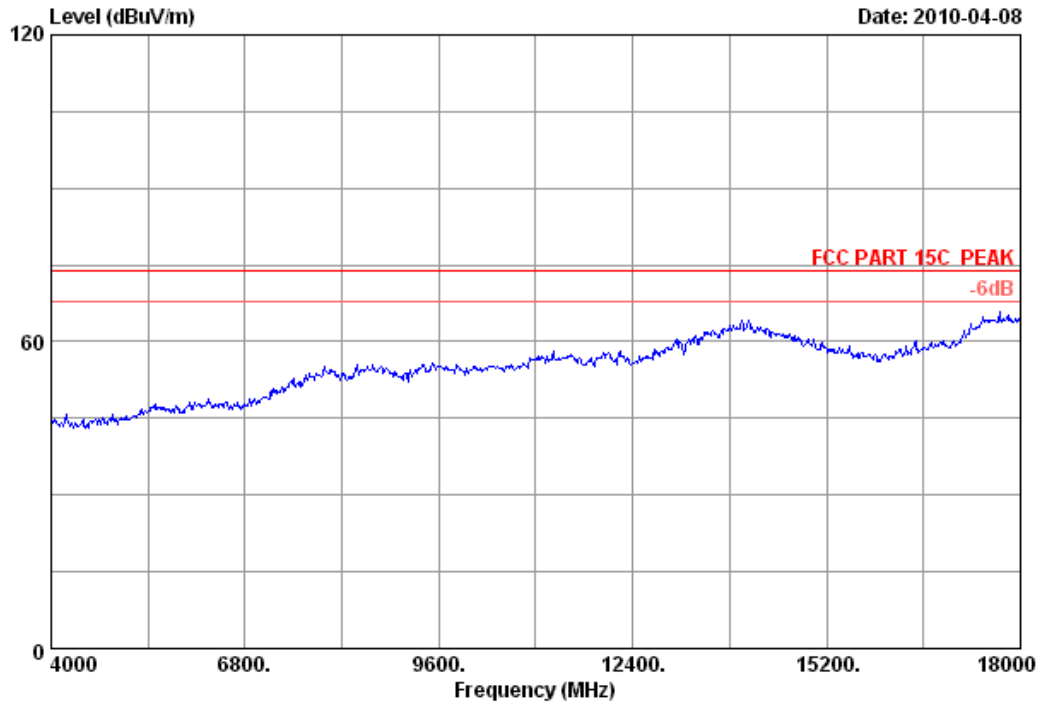
Remarks:

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



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Data: 65 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

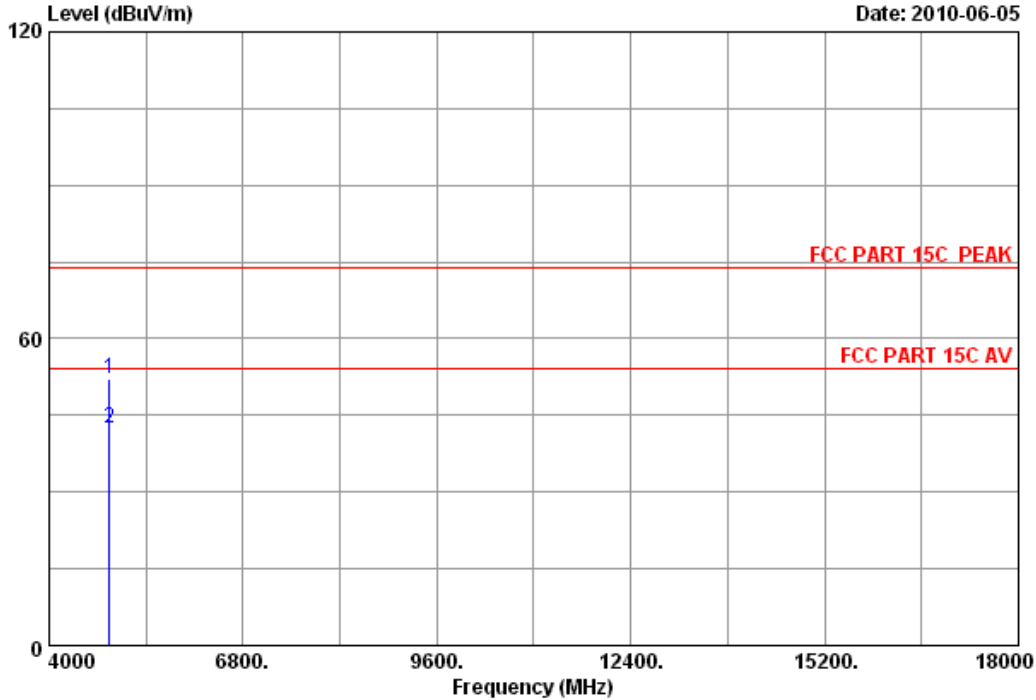


Site no.	: RF Chamber	Data no.	: 65
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40 CH4	2437MHz	



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Site no. : RF Chamber Data no. : 66
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH4 2437MHz

	Ant. 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	4874.000	34.41	12.44	35.36	40.82	52.31	74.00	21.69	Peak
2	4874.000	34.41	12.44	35.36	31.03	42.52	54.00	11.48	Average

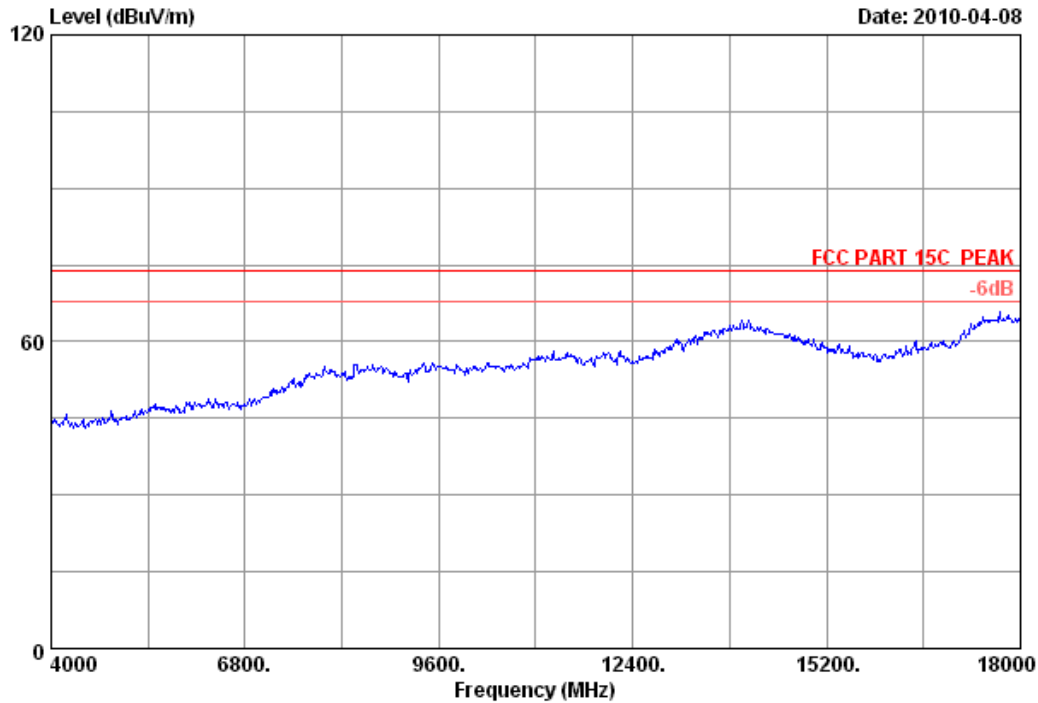
Remarks:

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



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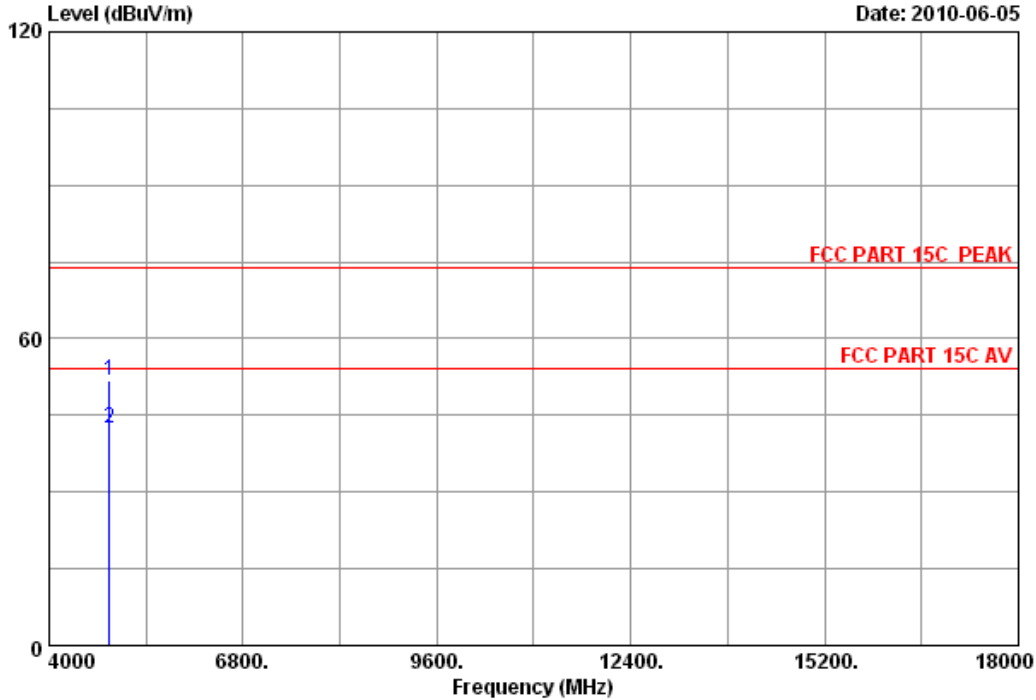


Site no.	: RF Chamber	Data no.	: 67
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40 CH4	2437MHz	



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Data: 68 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 68
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH4 2437MHz

	Ant. 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	4874.000	34.41	12.44	35.36	40.27	51.76	74.00	22.24	Peak
2	4874.000	34.41	12.44	35.36	31.03	42.52	54.00	11.48	Average

Remarks:

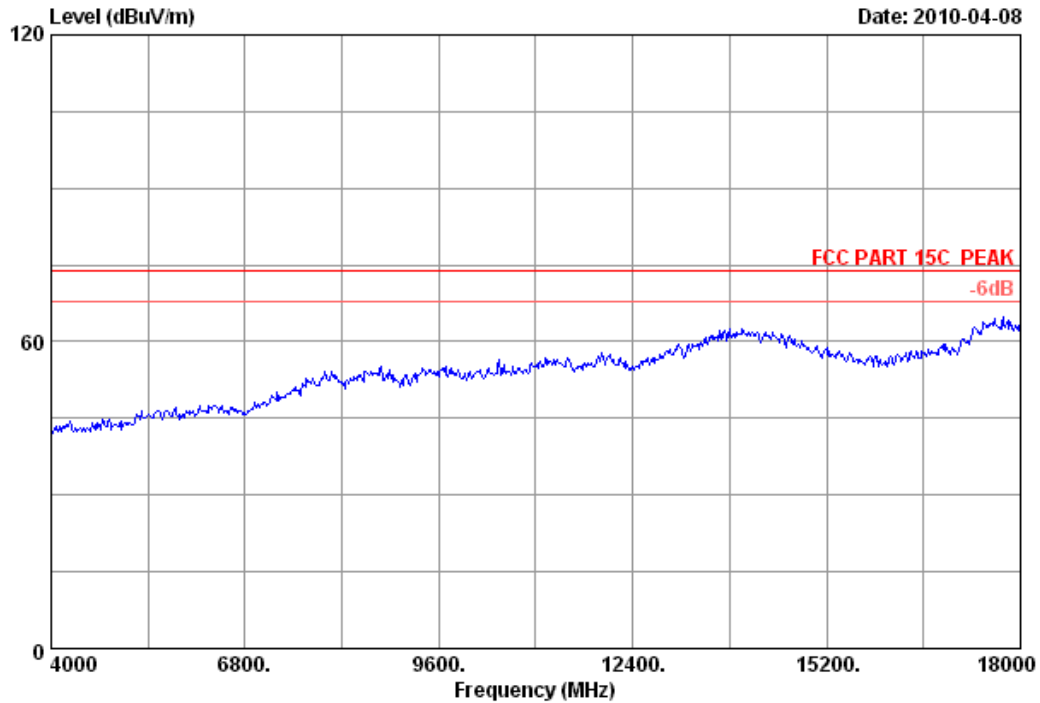
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 69

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

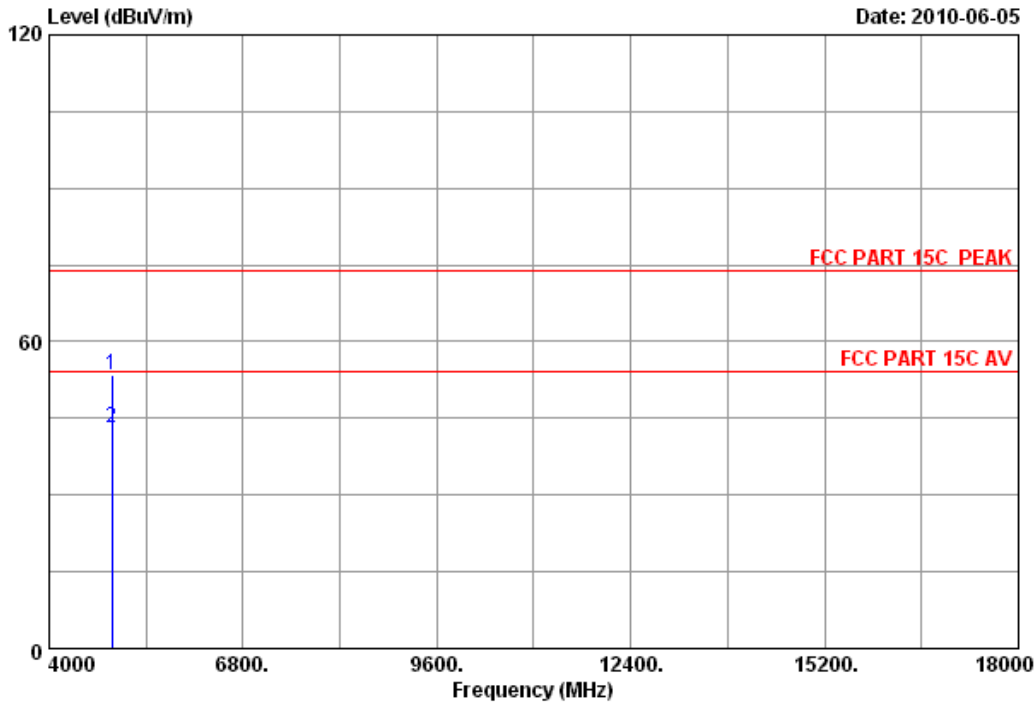


Site no.	: RF Chamber	Data no.	: 69
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40 CH7 2452MHz		



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Site no. : RF Chamber Data no. : 70
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

	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	4904.000	34.46	12.47	35.27	41.94	53.60	74.00	20.40	Peak
2	4904.000	34.46	12.47	35.27	31.52	43.18	54.00	10.82	Average

Remarks:

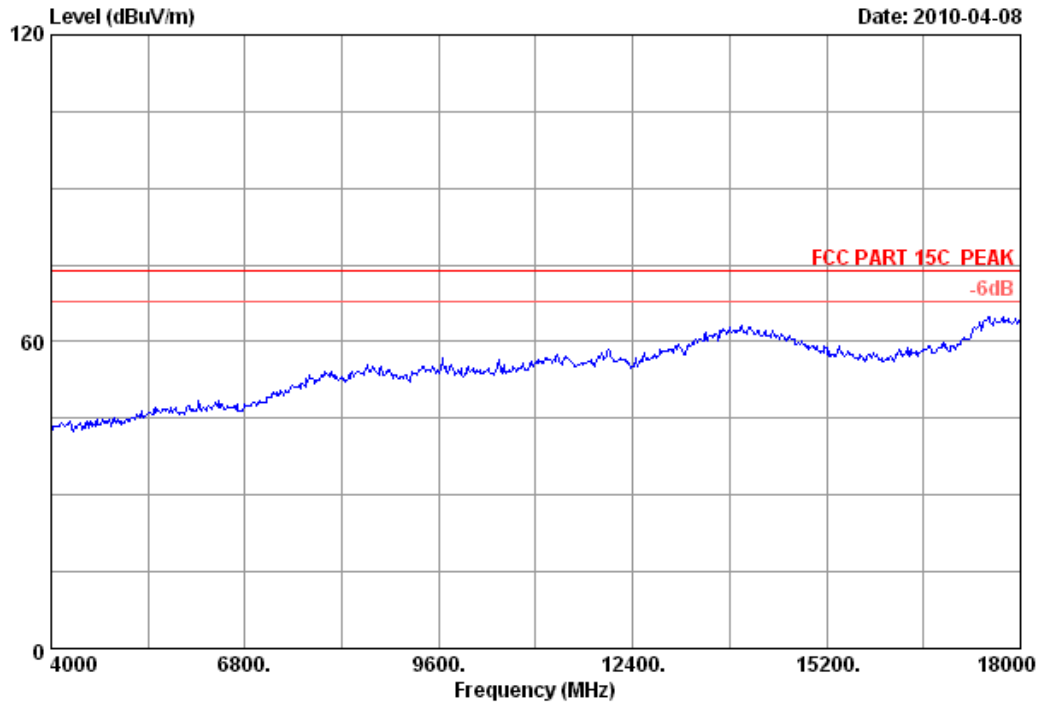
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Postcode:518057

Data: 71

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

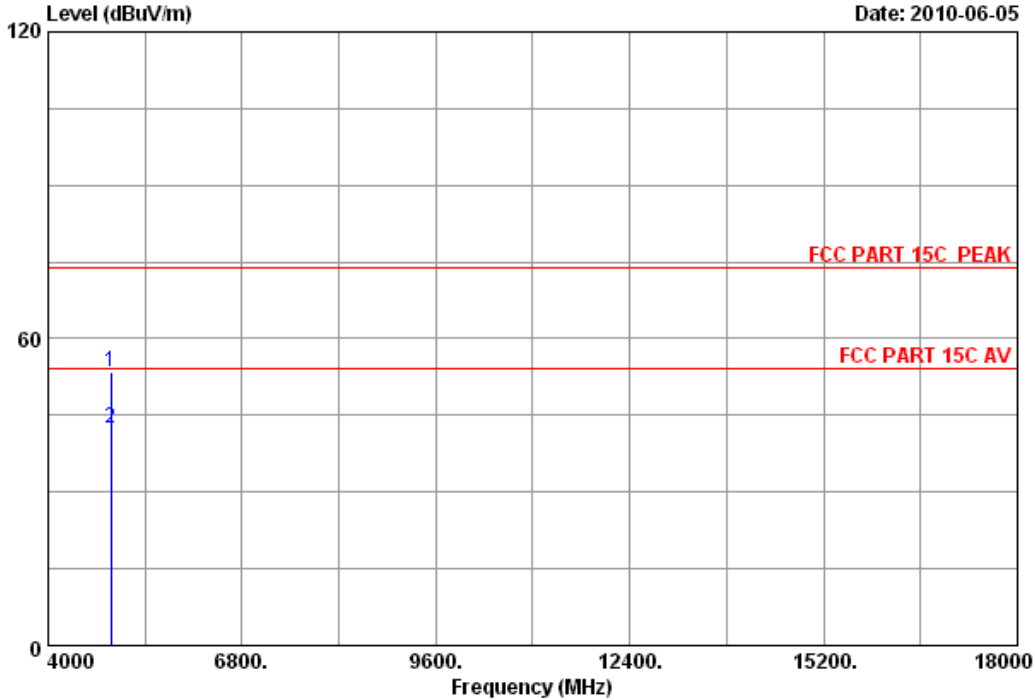


Site no.	: RF Chamber	Data no.	: 71
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: Blu-ray Disc Player M/N:VBR220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40 CH7	2452MHz	



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Data: 72 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : RF Chamber Data no. : 72
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : Blu-ray Disc Player M/N:VBR220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

	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	4904.000	34.46	12.47	35.27	41.96	53.62	74.00	20.38	Peak
2	4904.000	34.46	12.47	35.27	30.86	42.52	54.00	11.48	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.

5. CONDUCTED SPURIOUS EMISSIONS

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 10	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May.08, 10	1Year

5.2. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

5.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

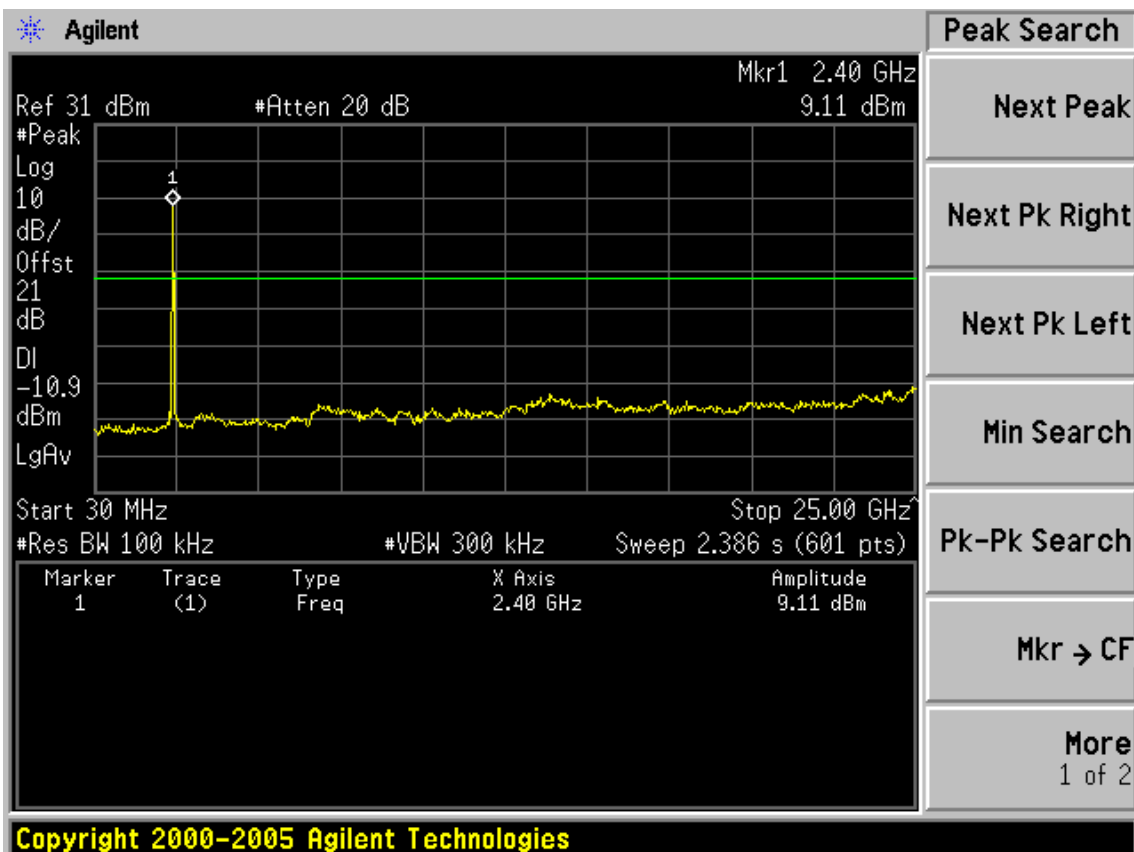
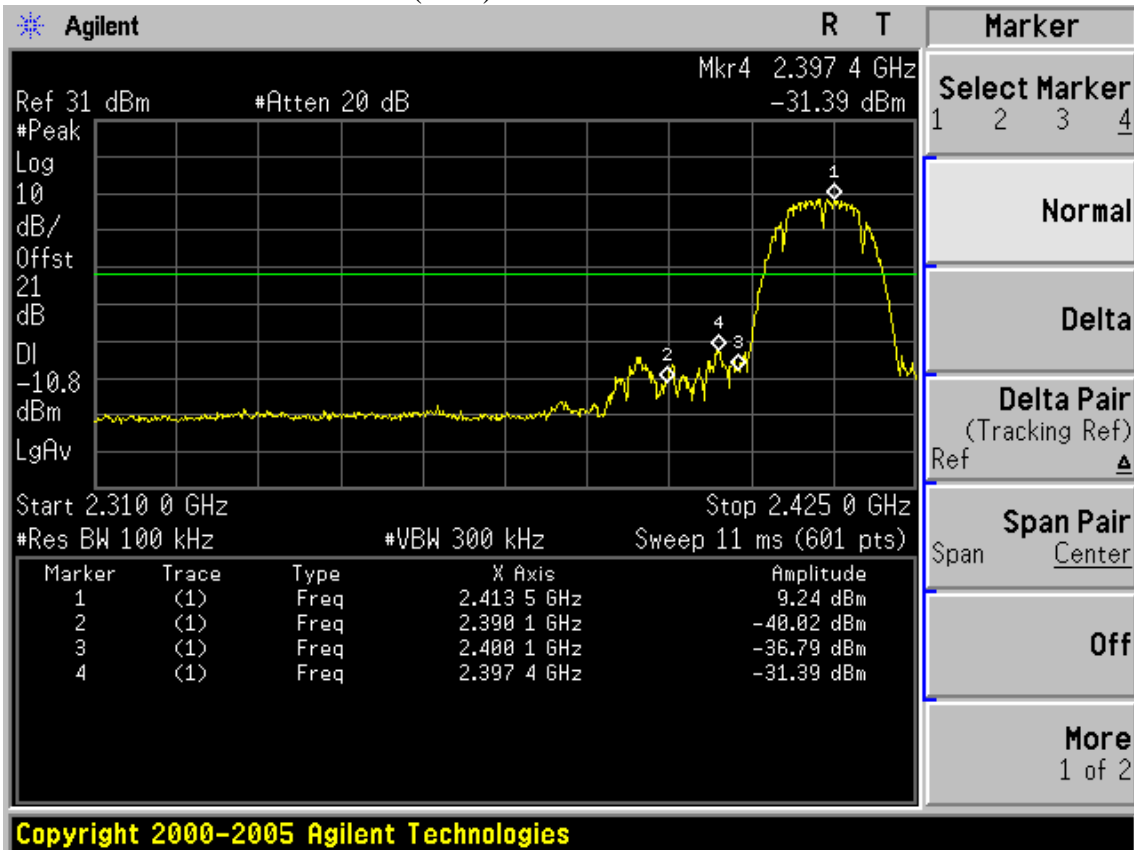
5.4. Test result

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

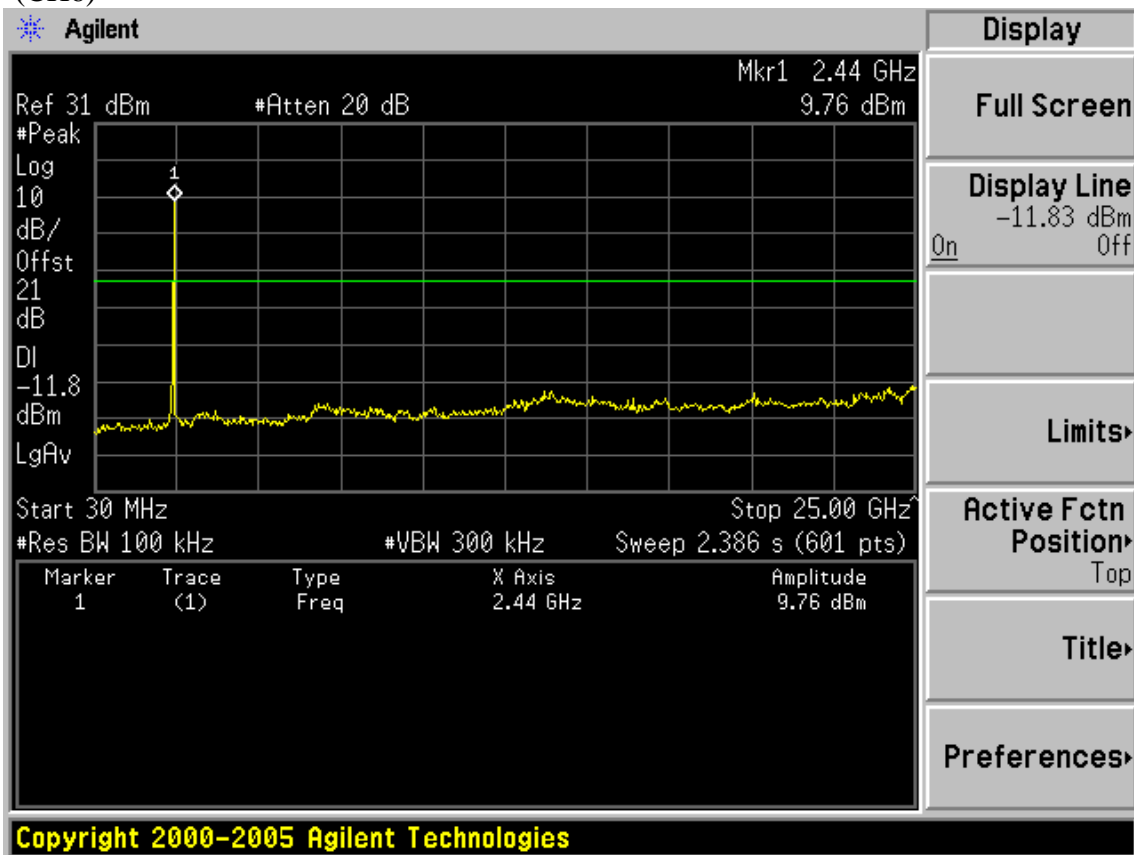
Conducted emission test data:

Chain 1:

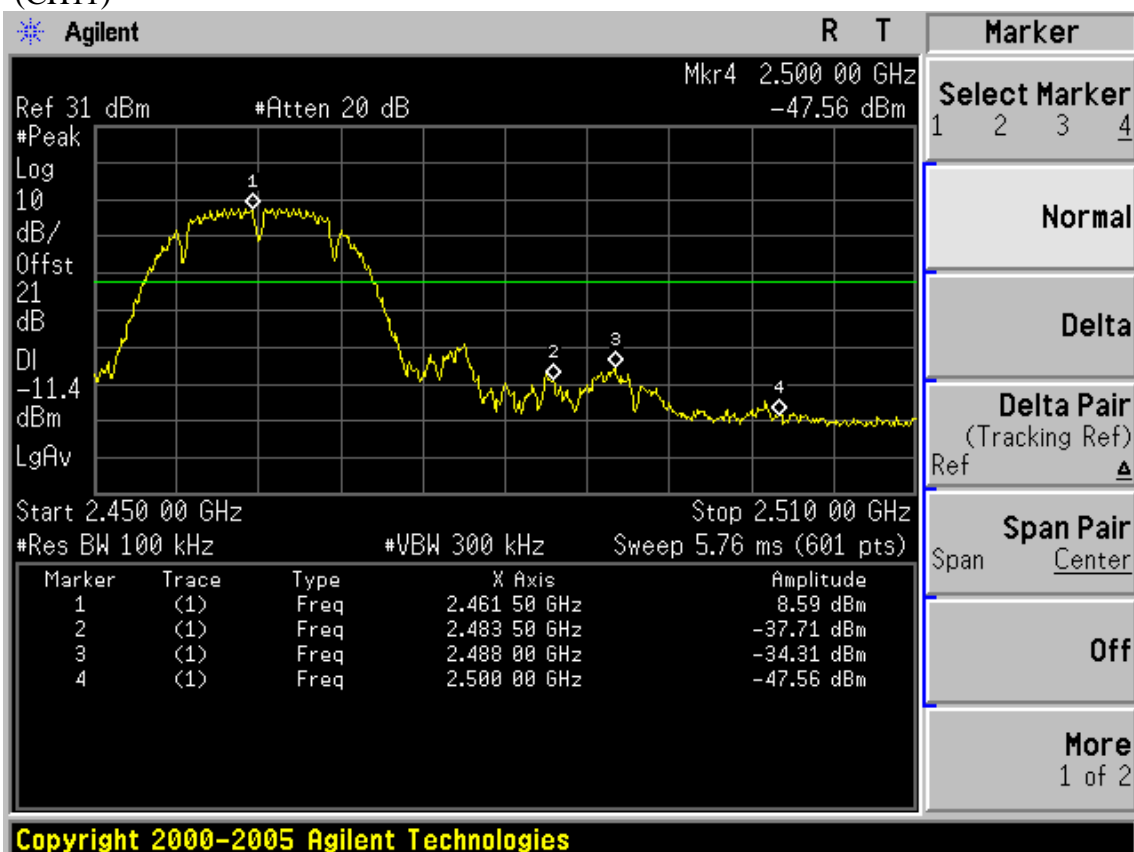
Test Mode: IEEE 802.11b TX (CH1)

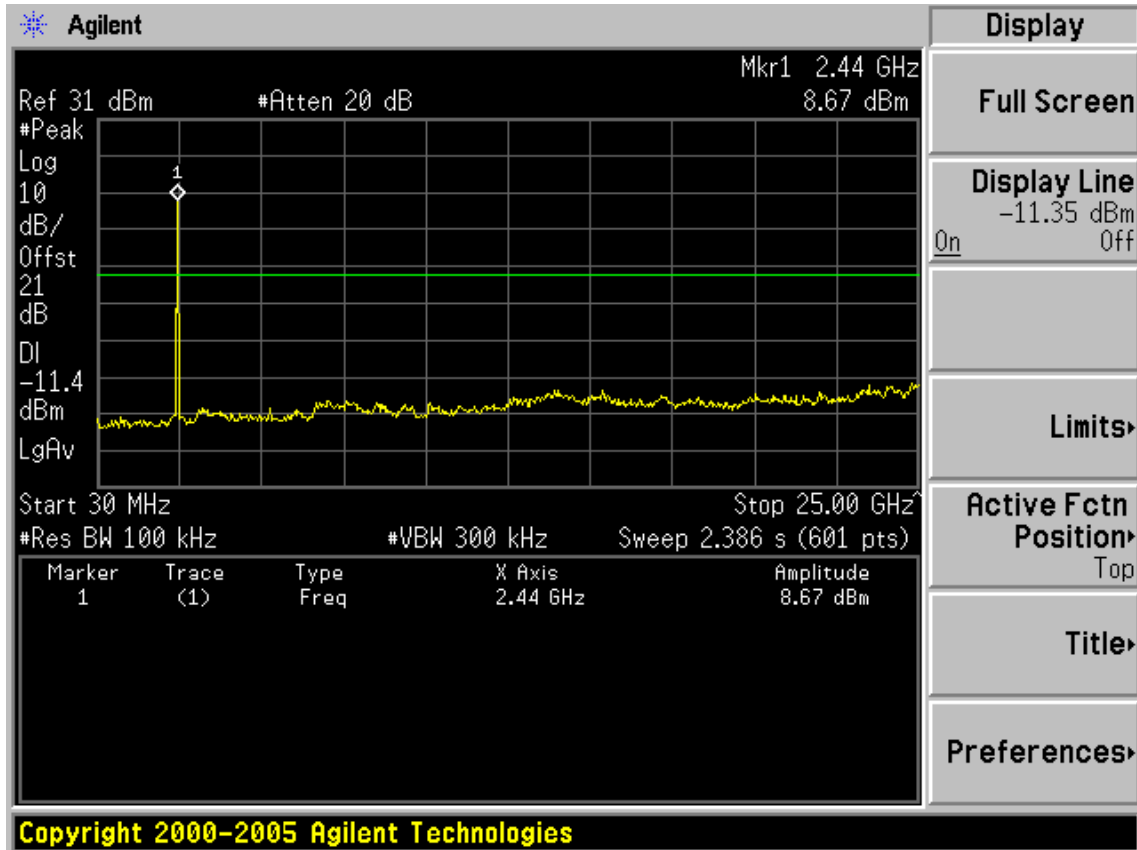


(CH6)

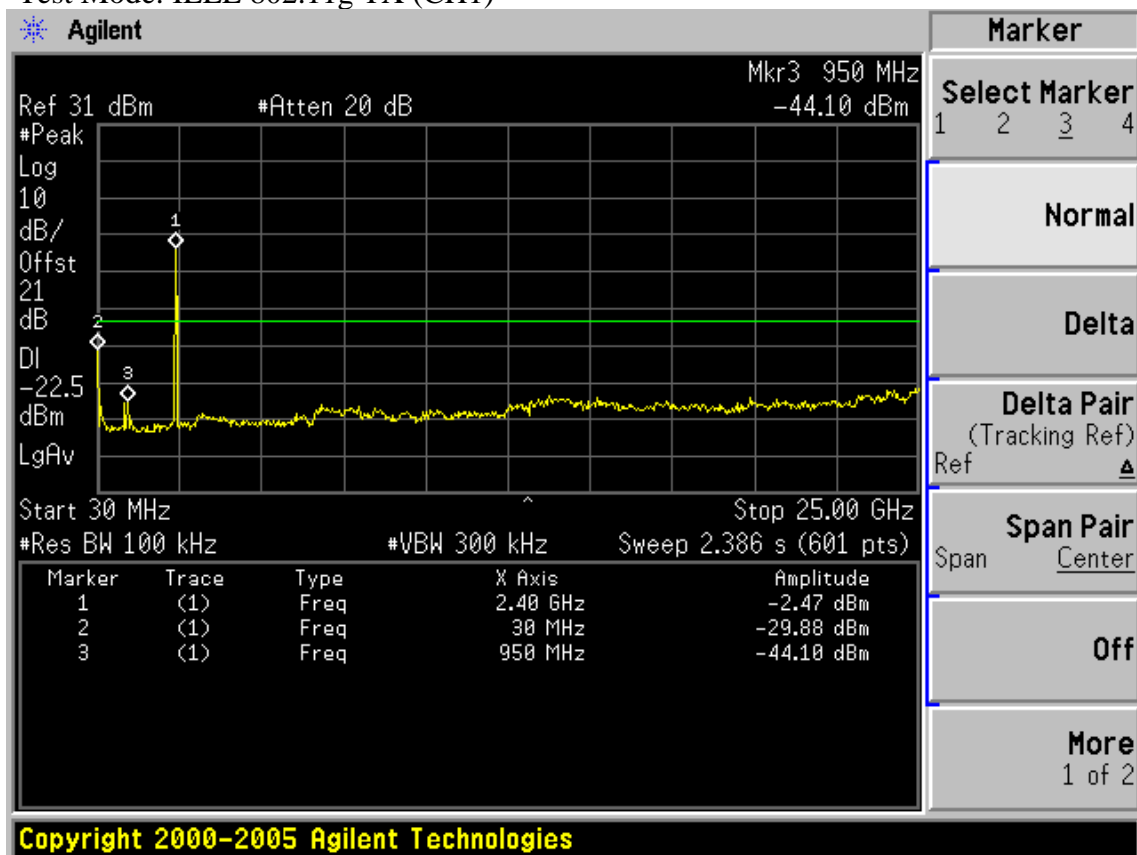


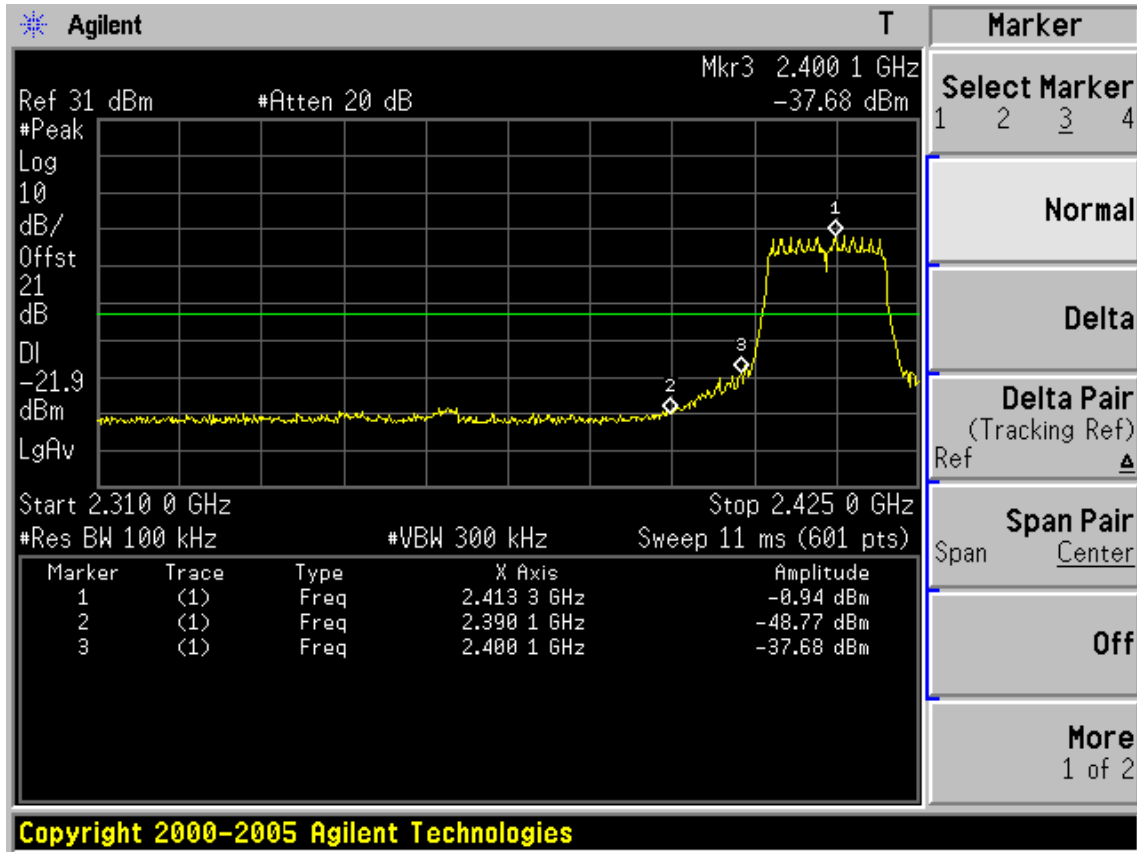
(CH11)



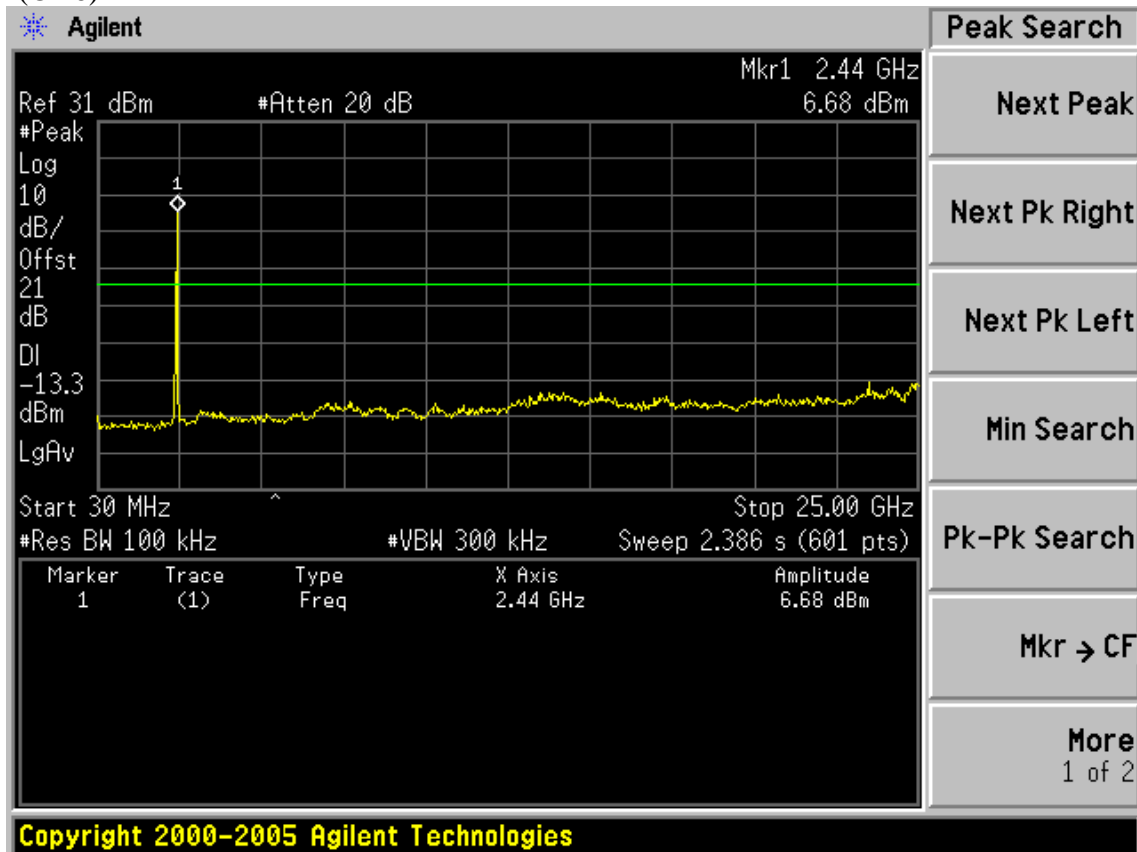


Test Mode: IEEE 802.11g TX (CH1)

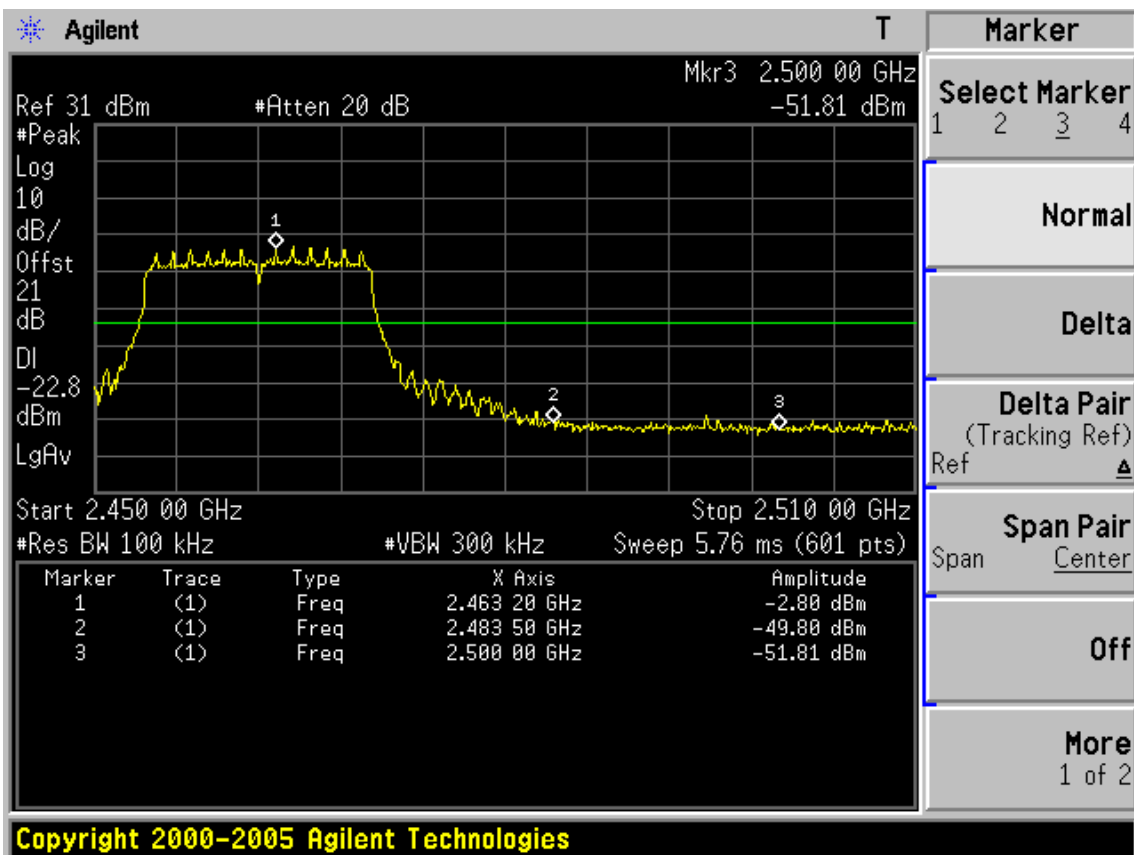
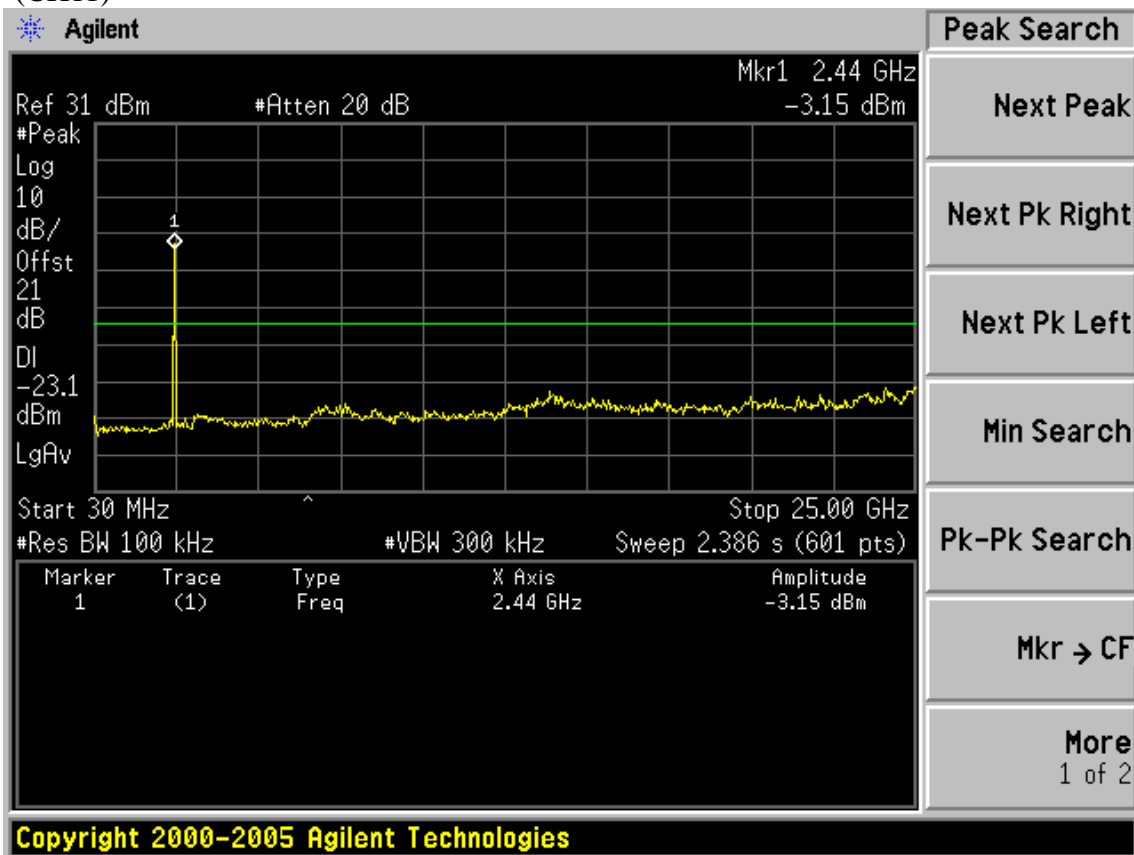




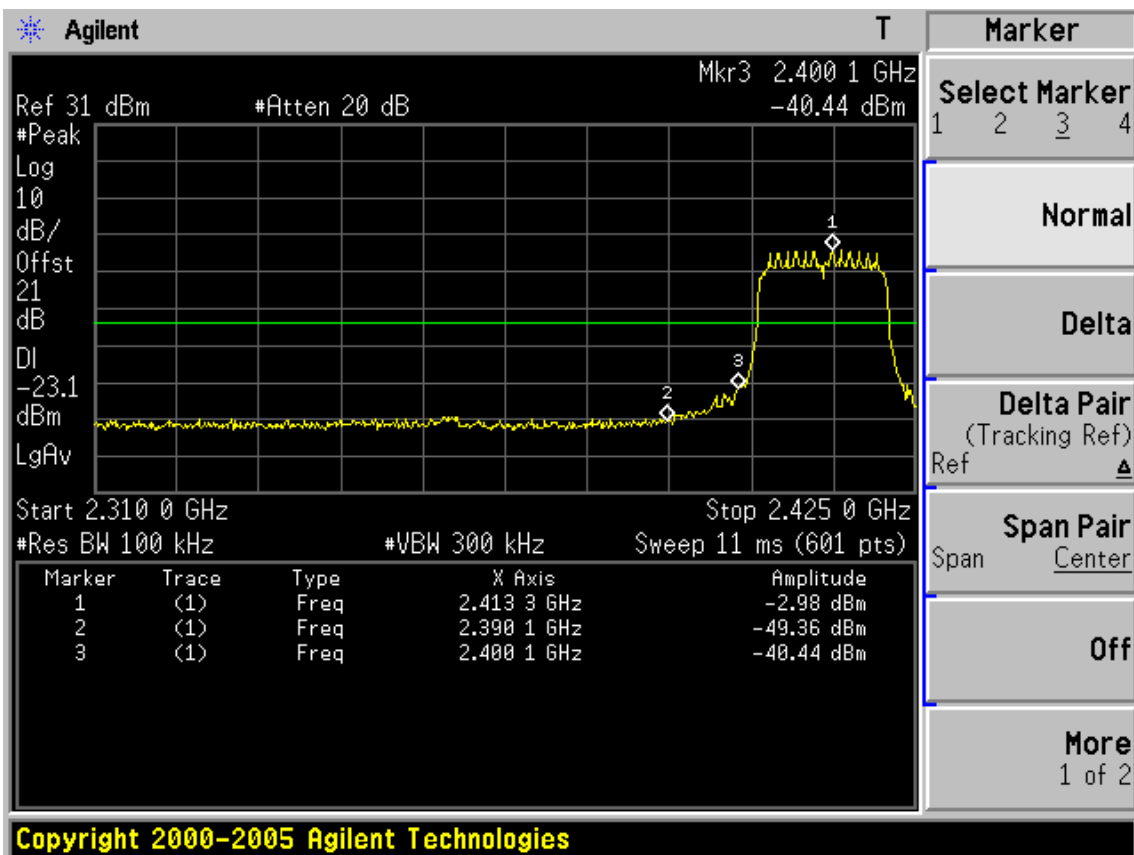
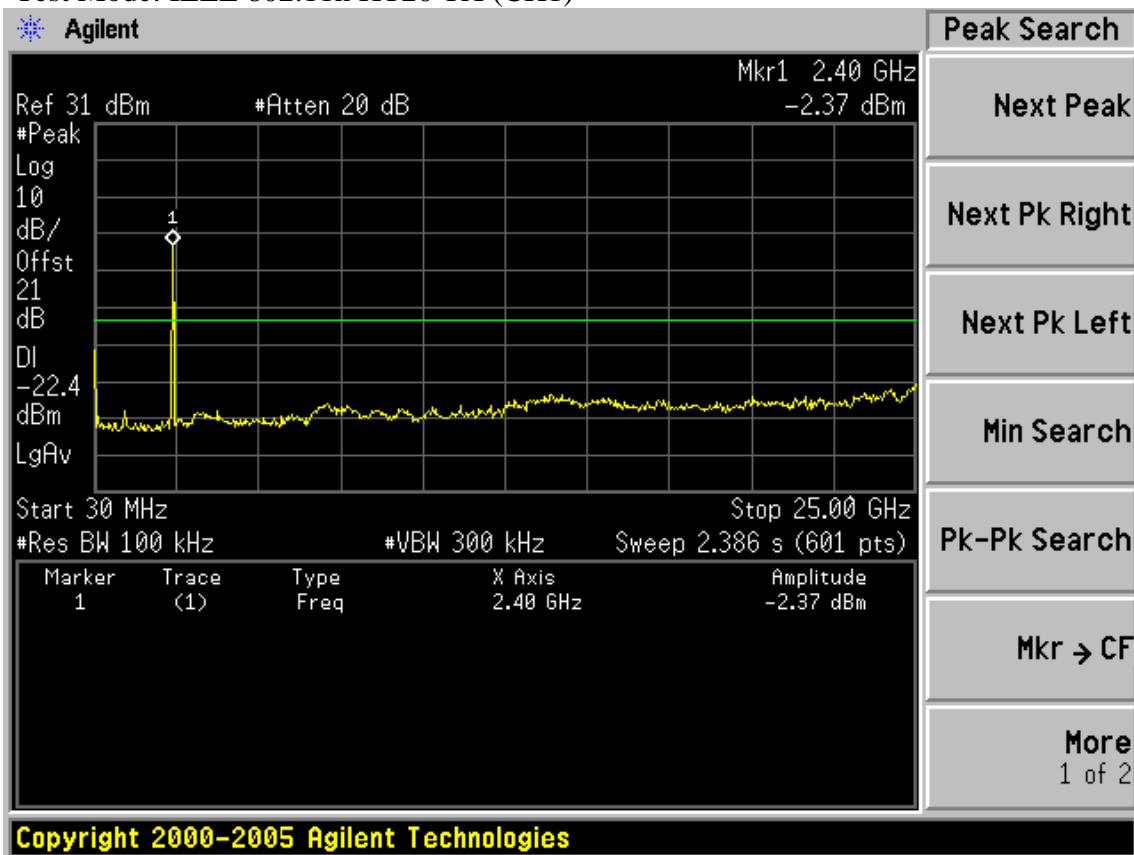
(CH6)



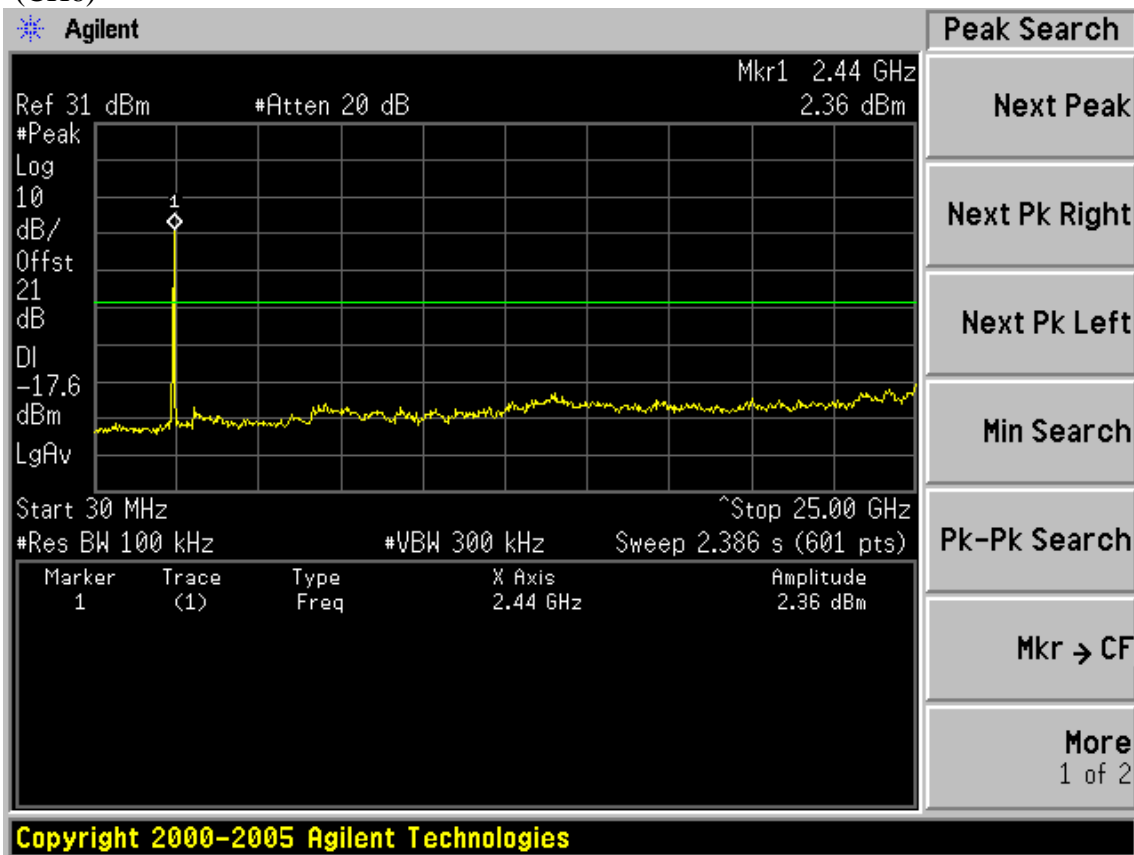
(CH11)



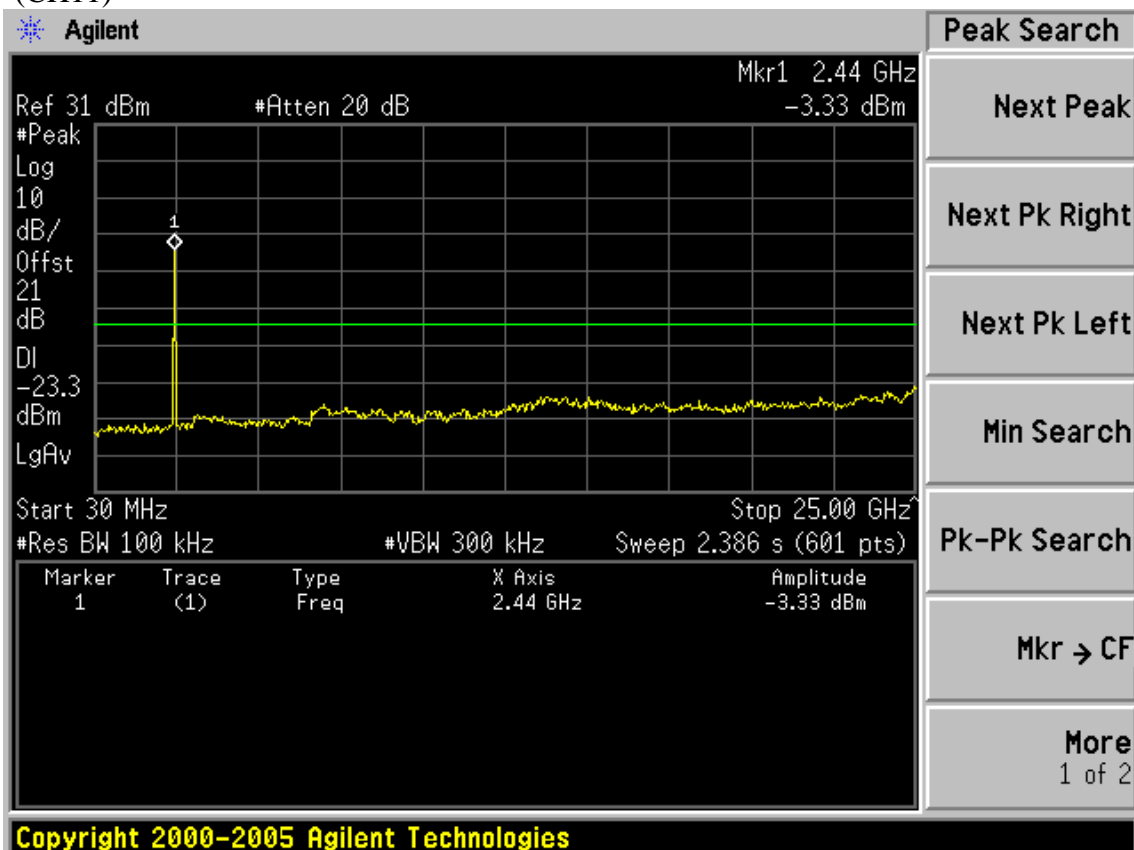
Test Mode: IEEE 802.11n HT20 TX (CH1)

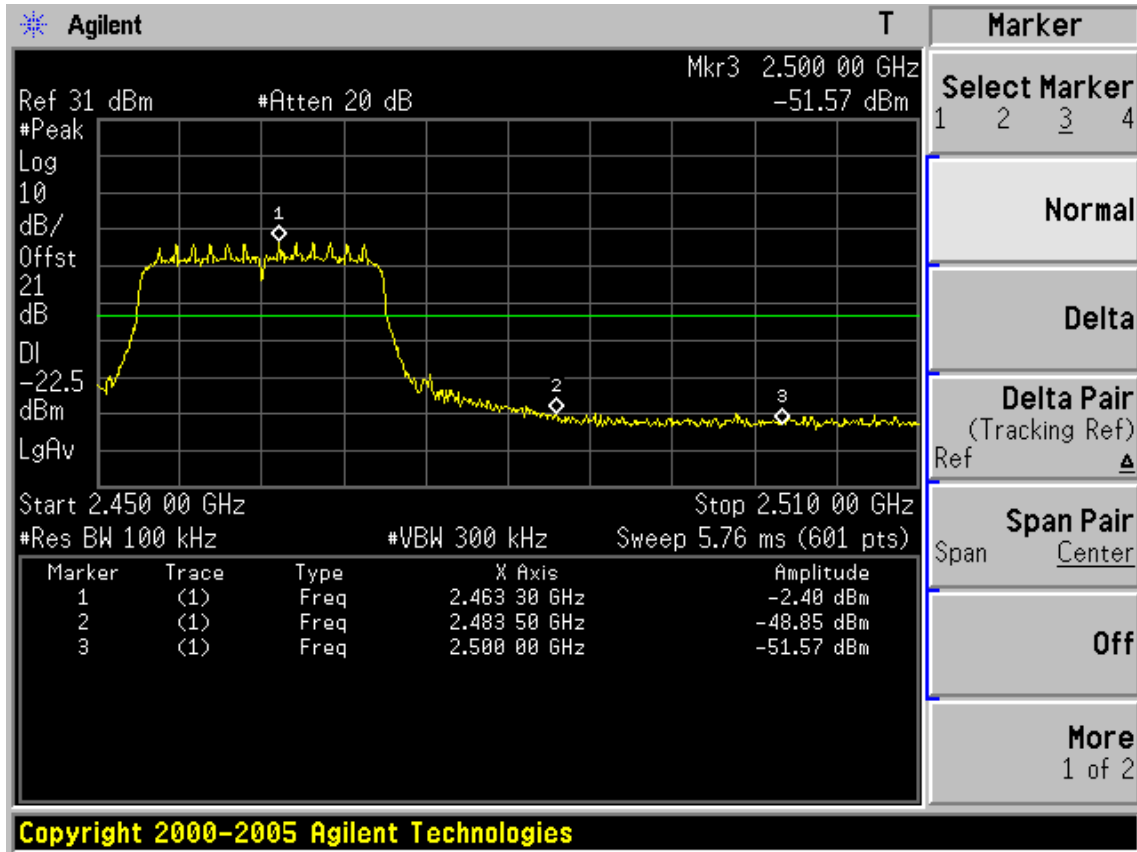


(CH6)

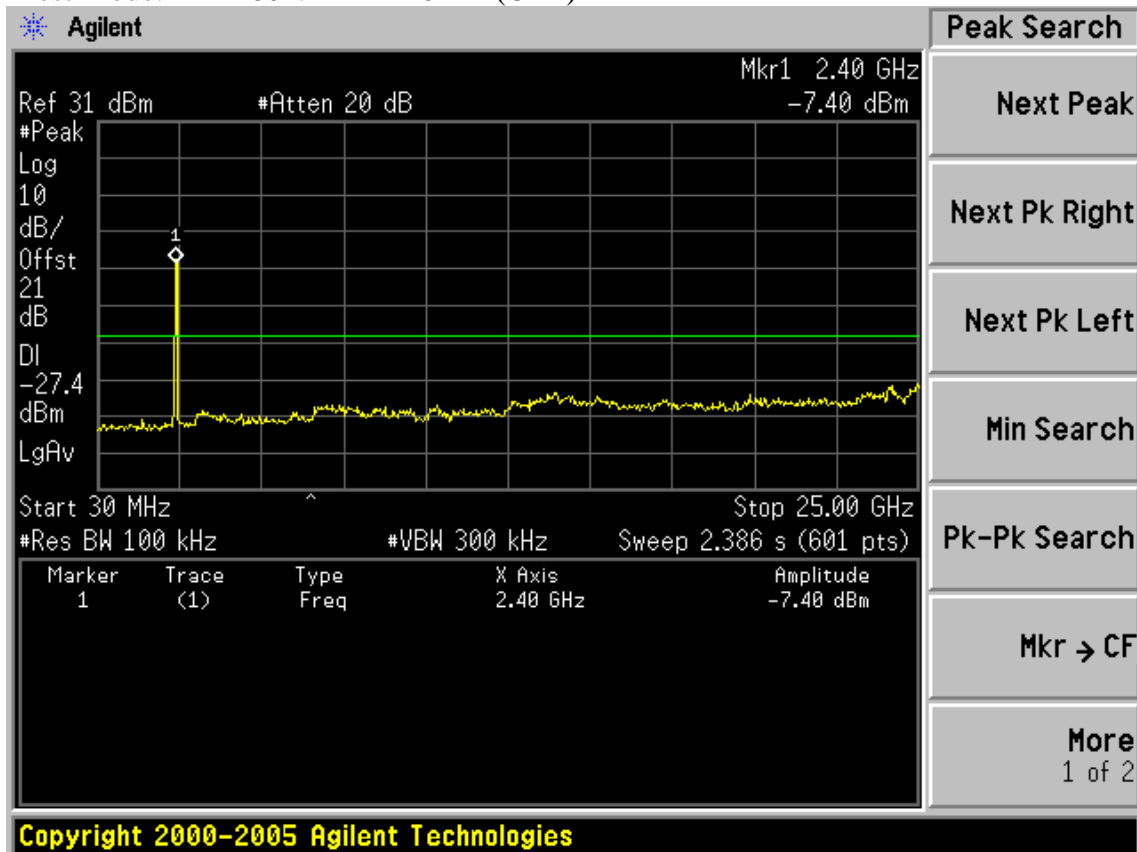


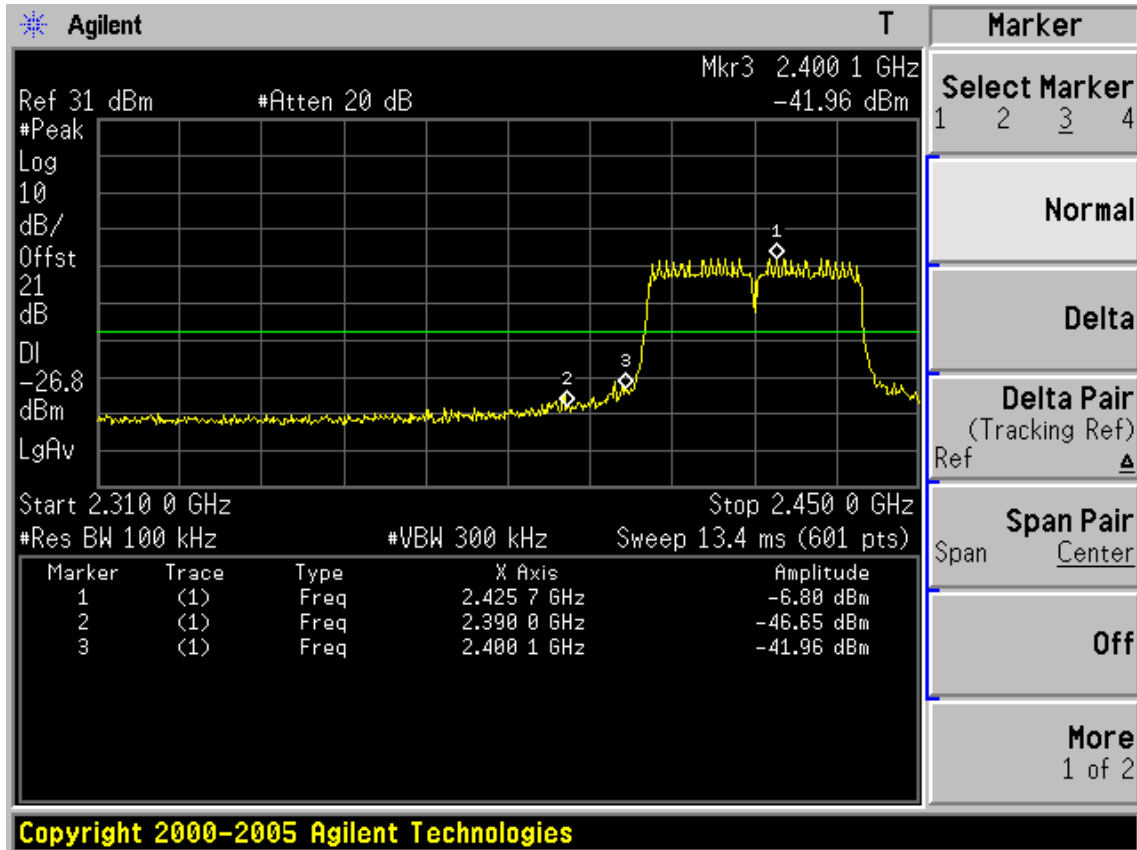
(CH11)



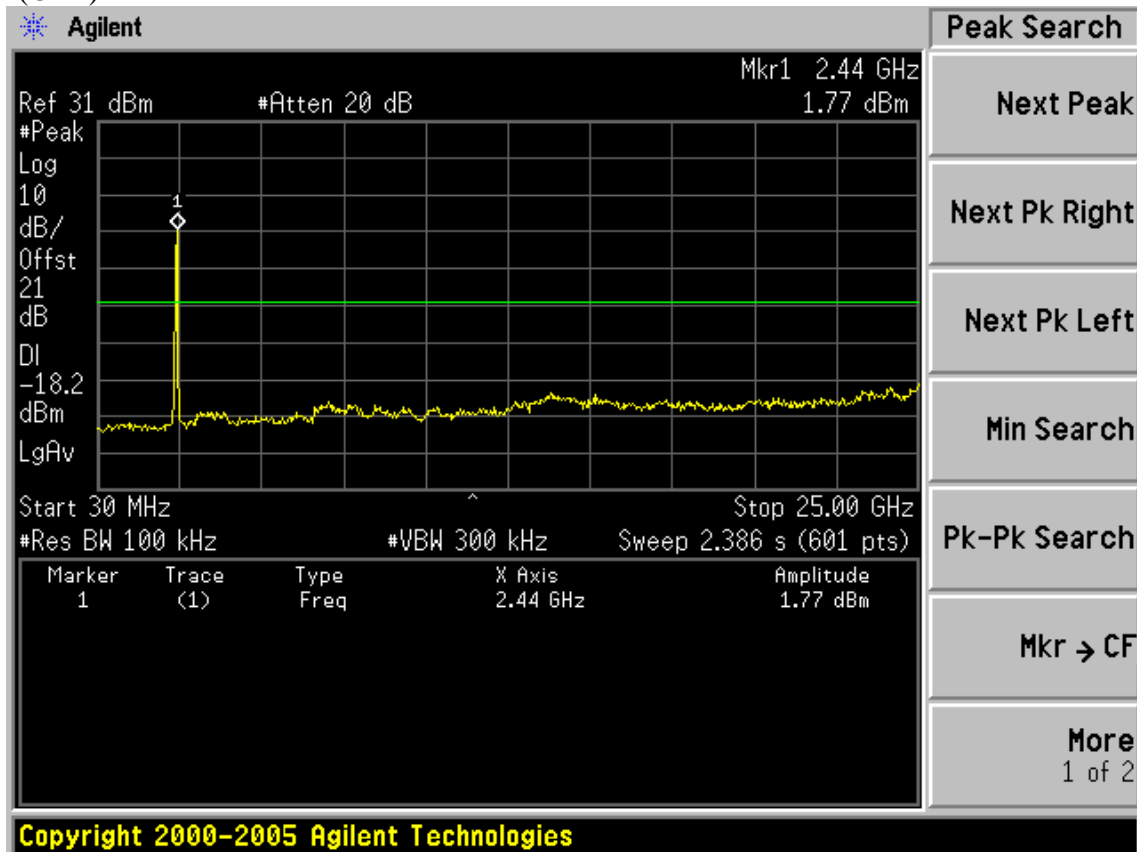


Test Mode: IEEE 802.11n HT40 TX (CH1)

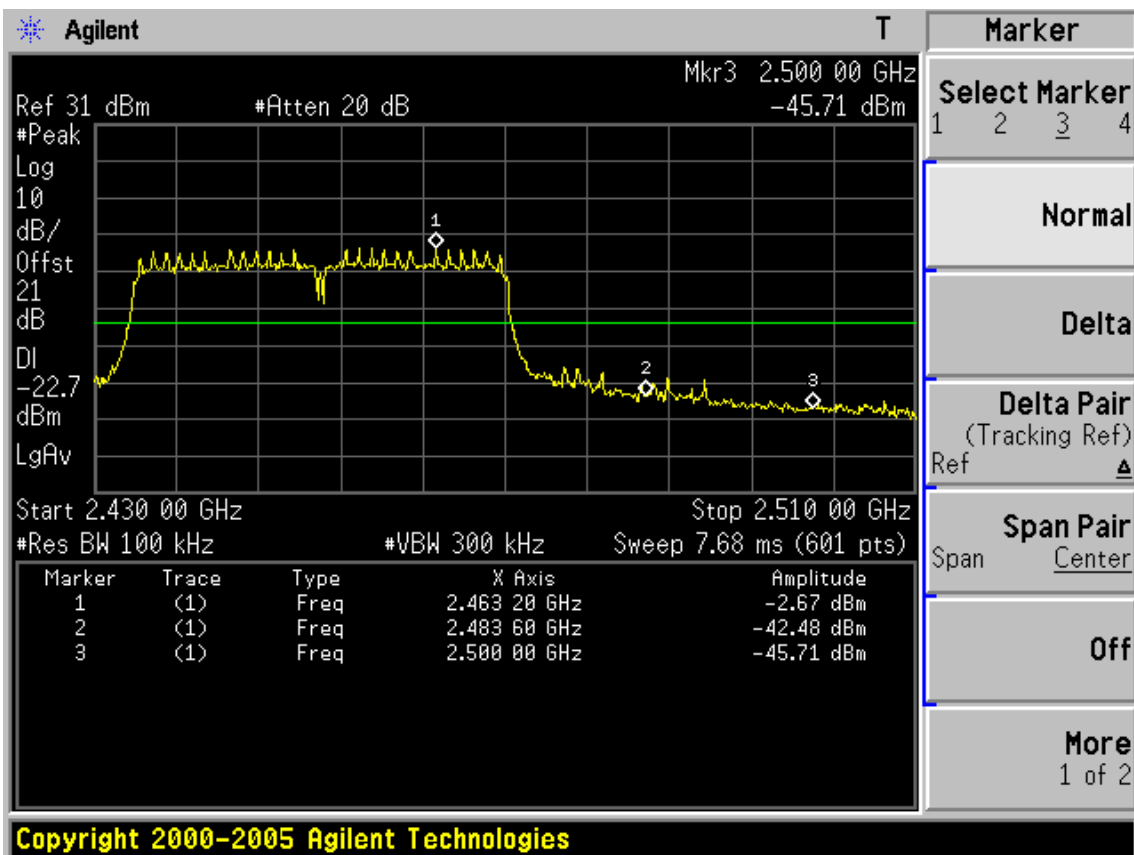
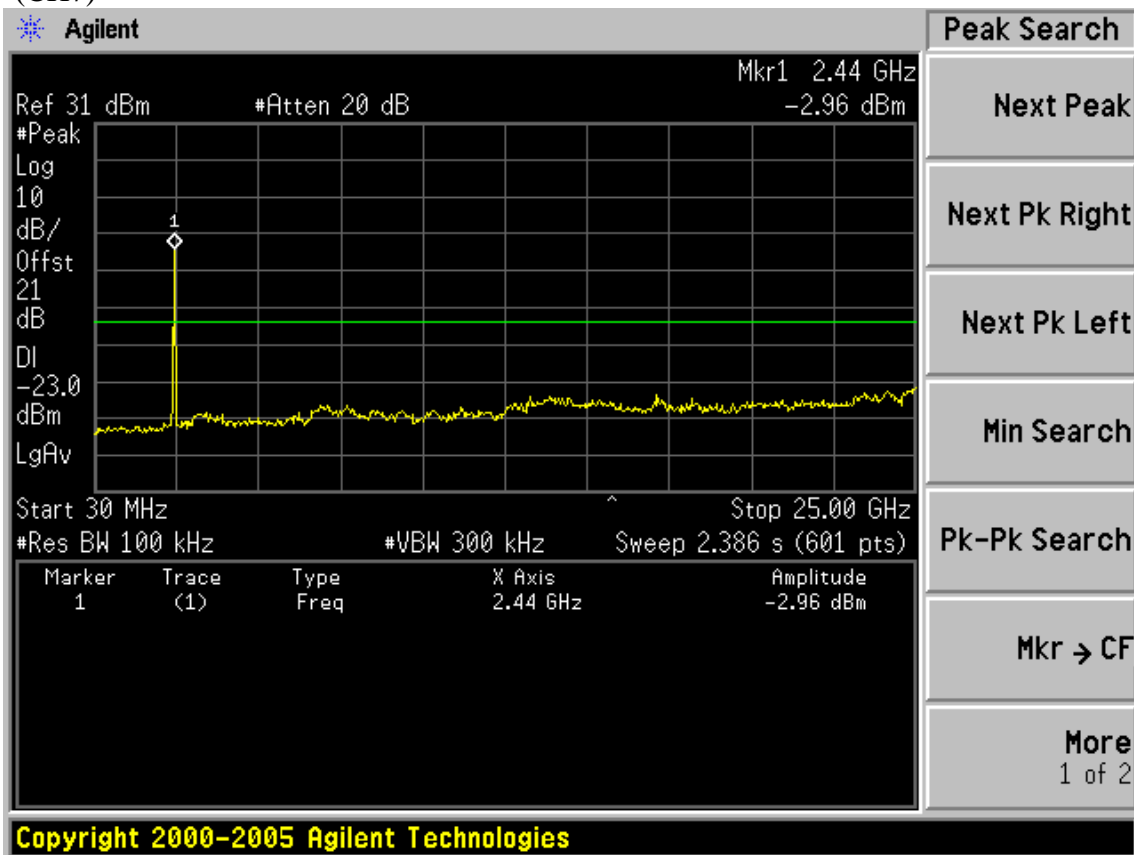




(CH4)

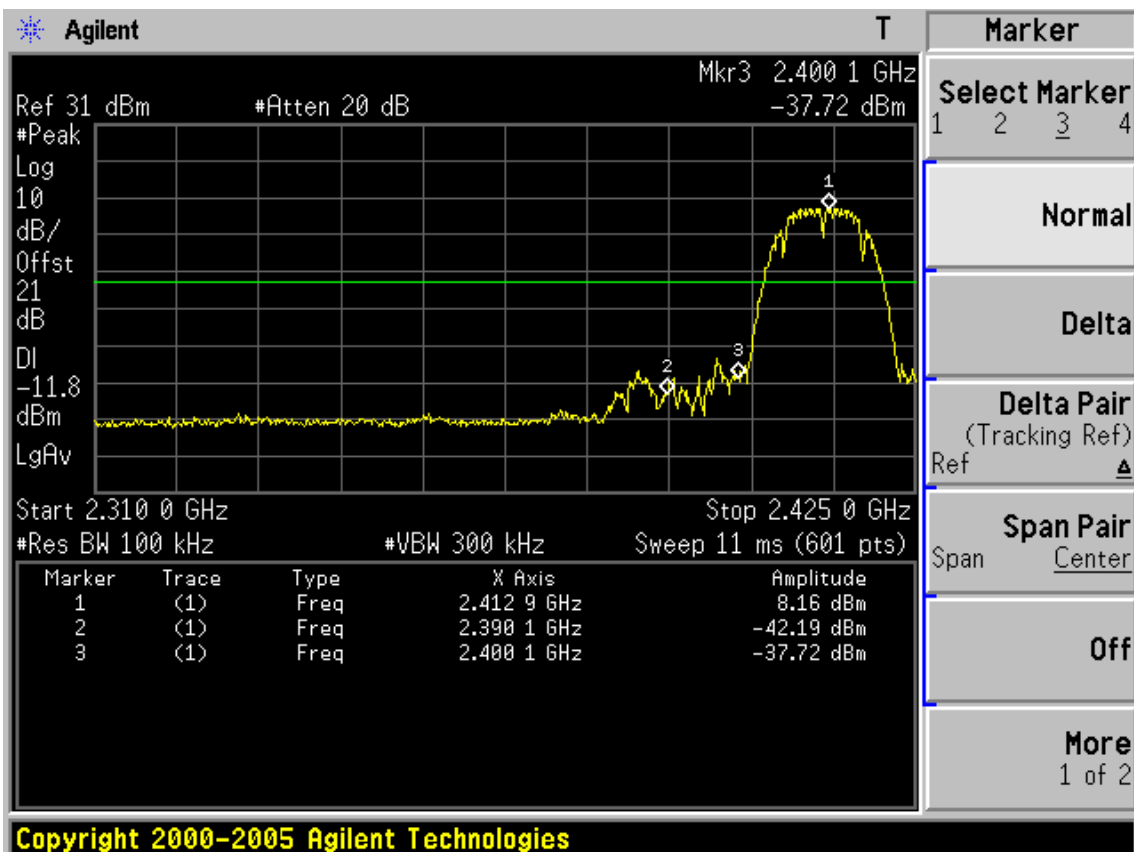
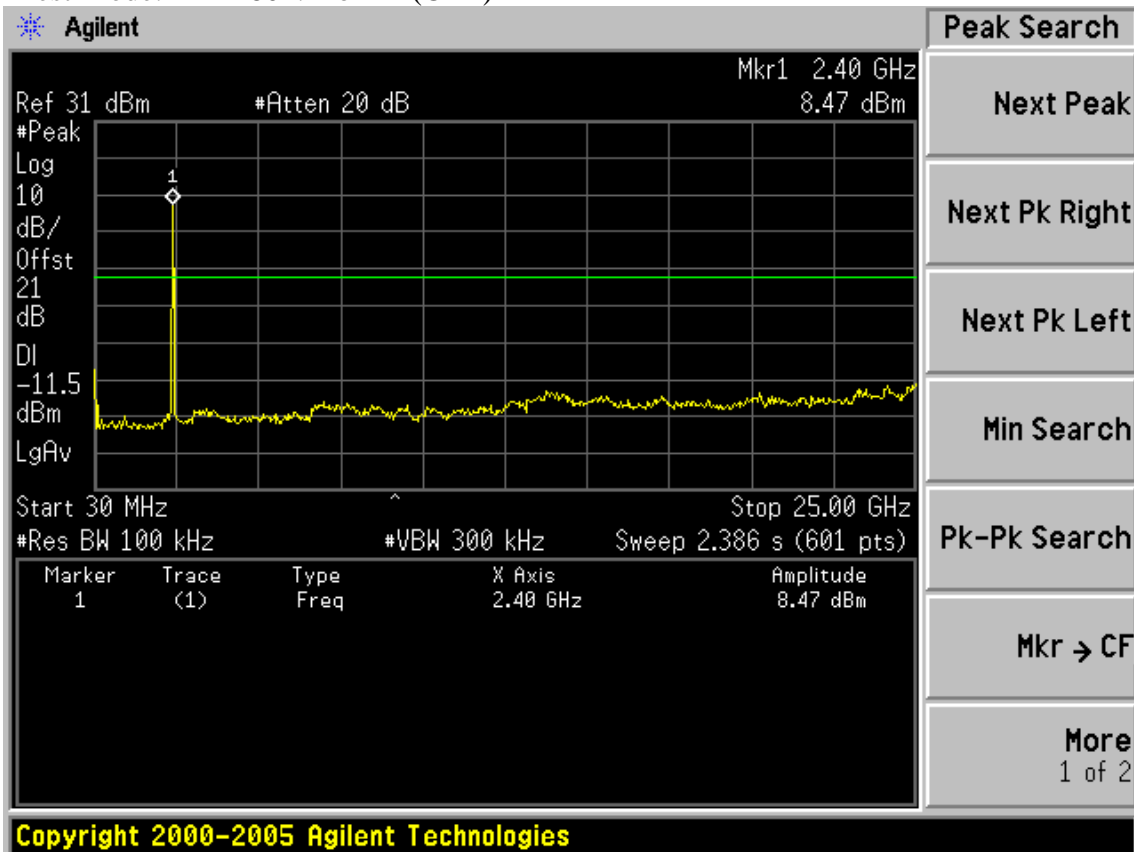


(CH7)

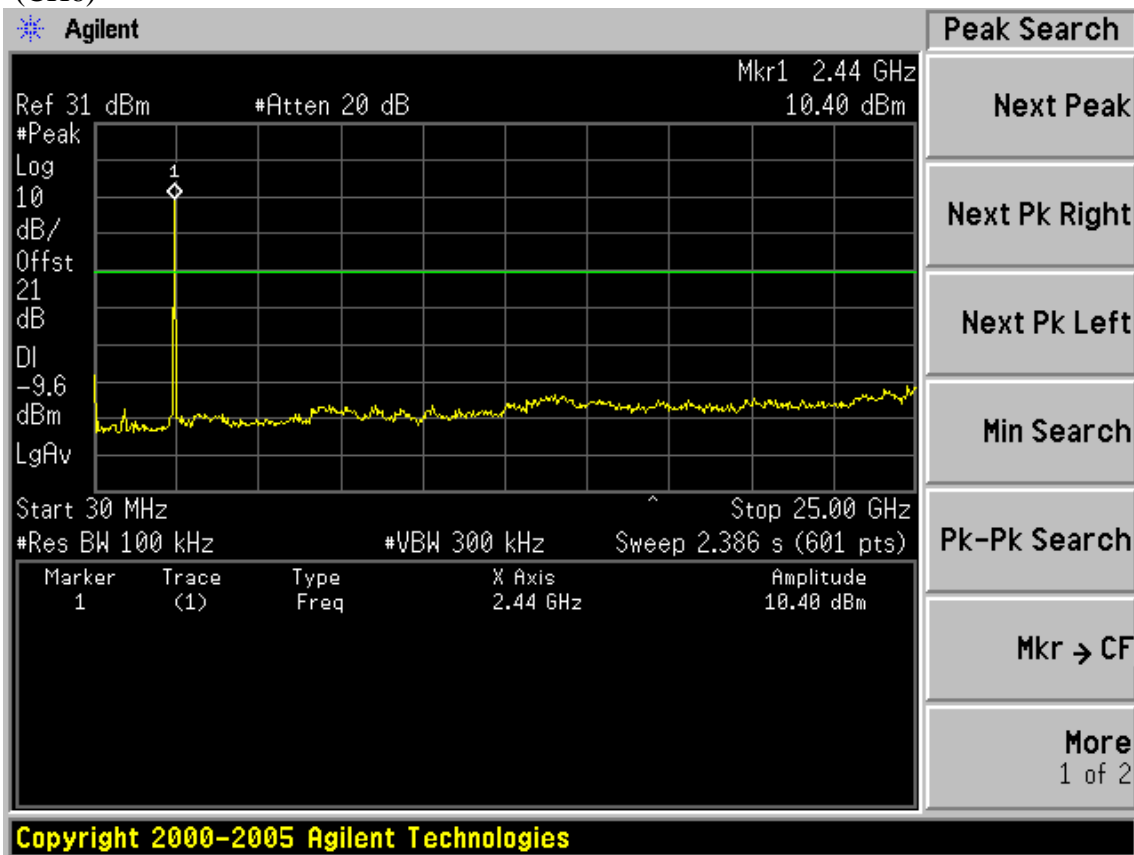


Chain 2:

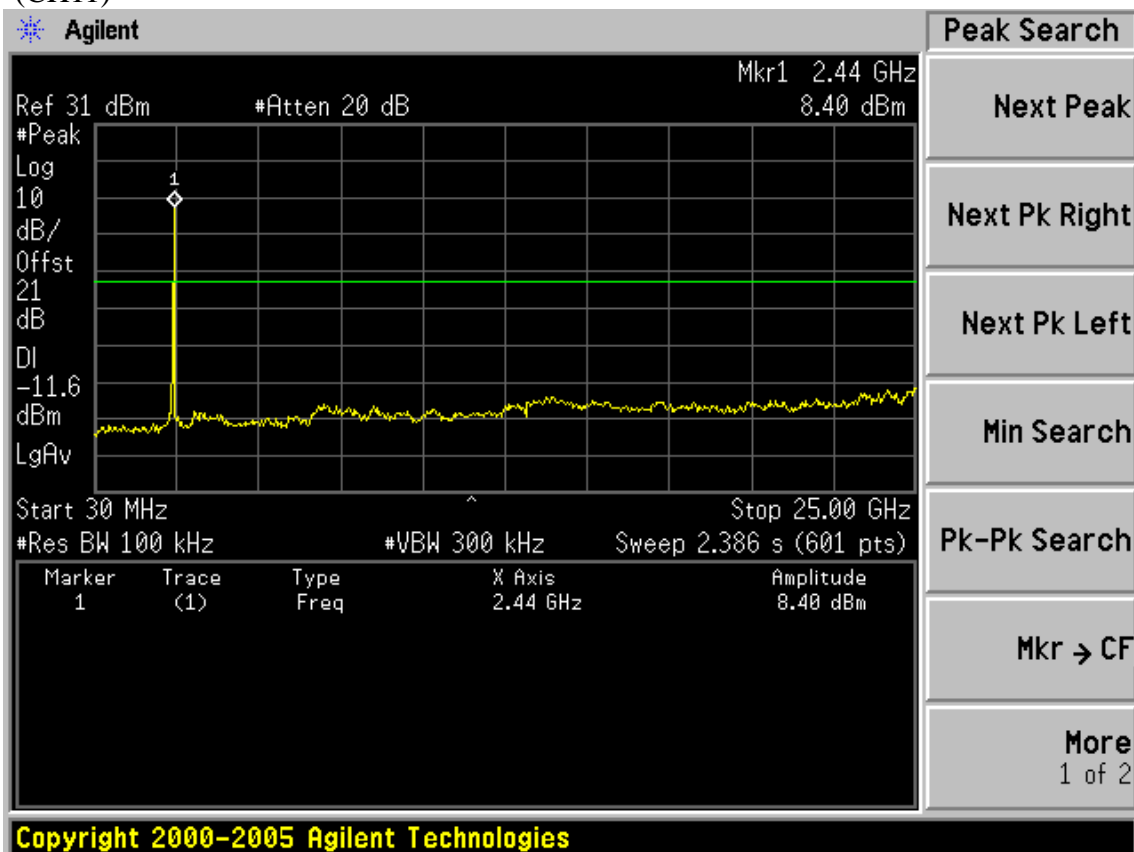
Test Mode: IEEE 802.11b TX (CH1)

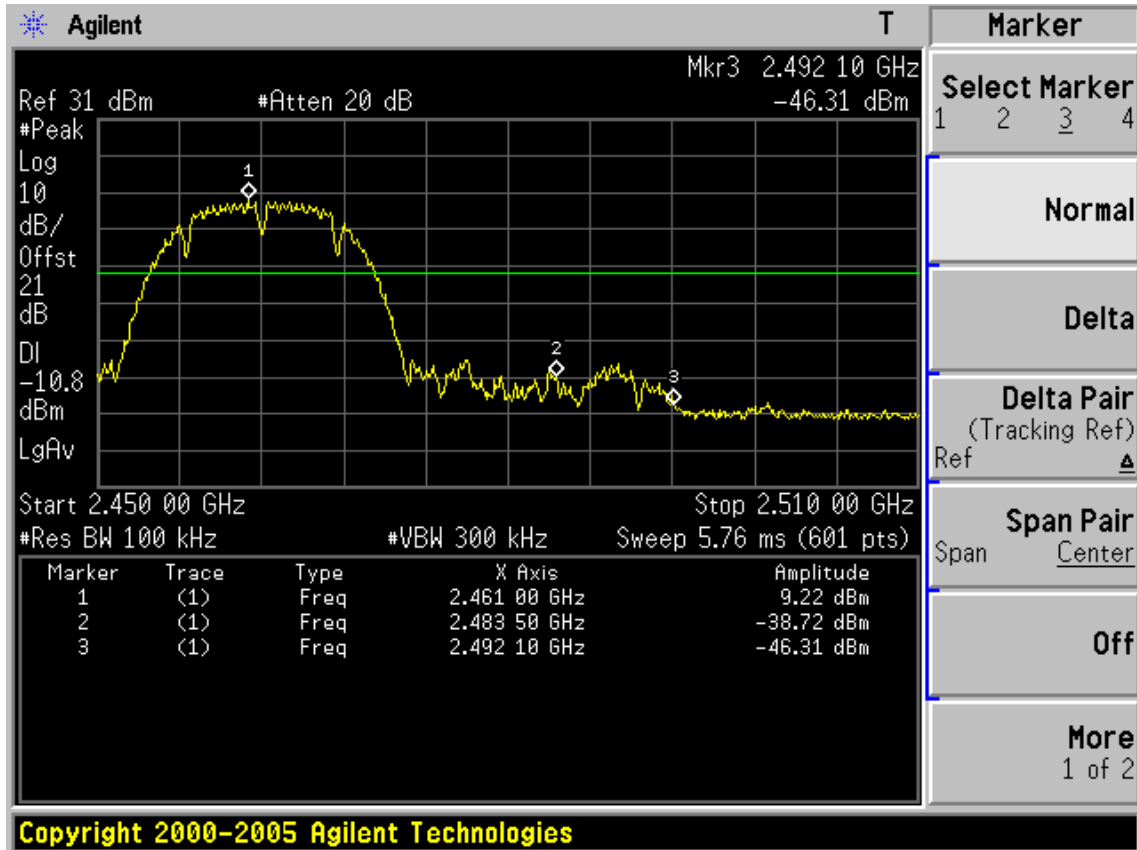


(CH6)

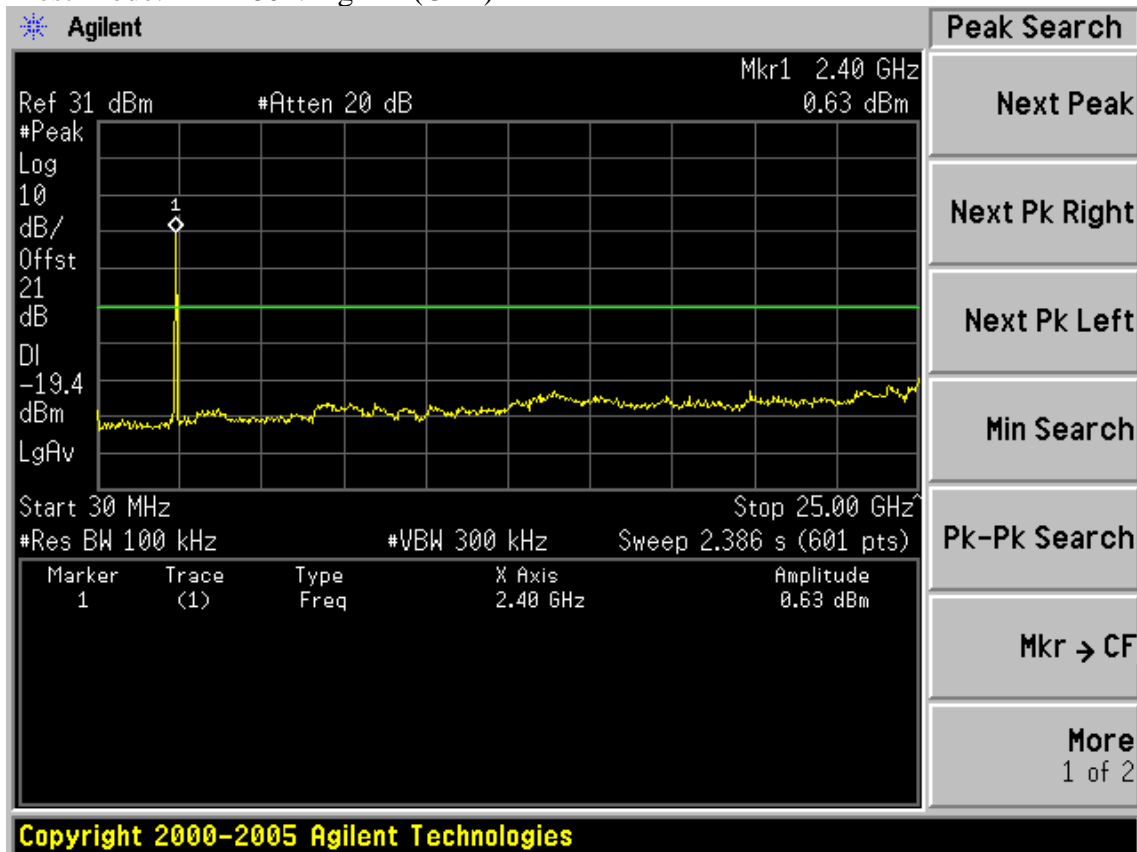


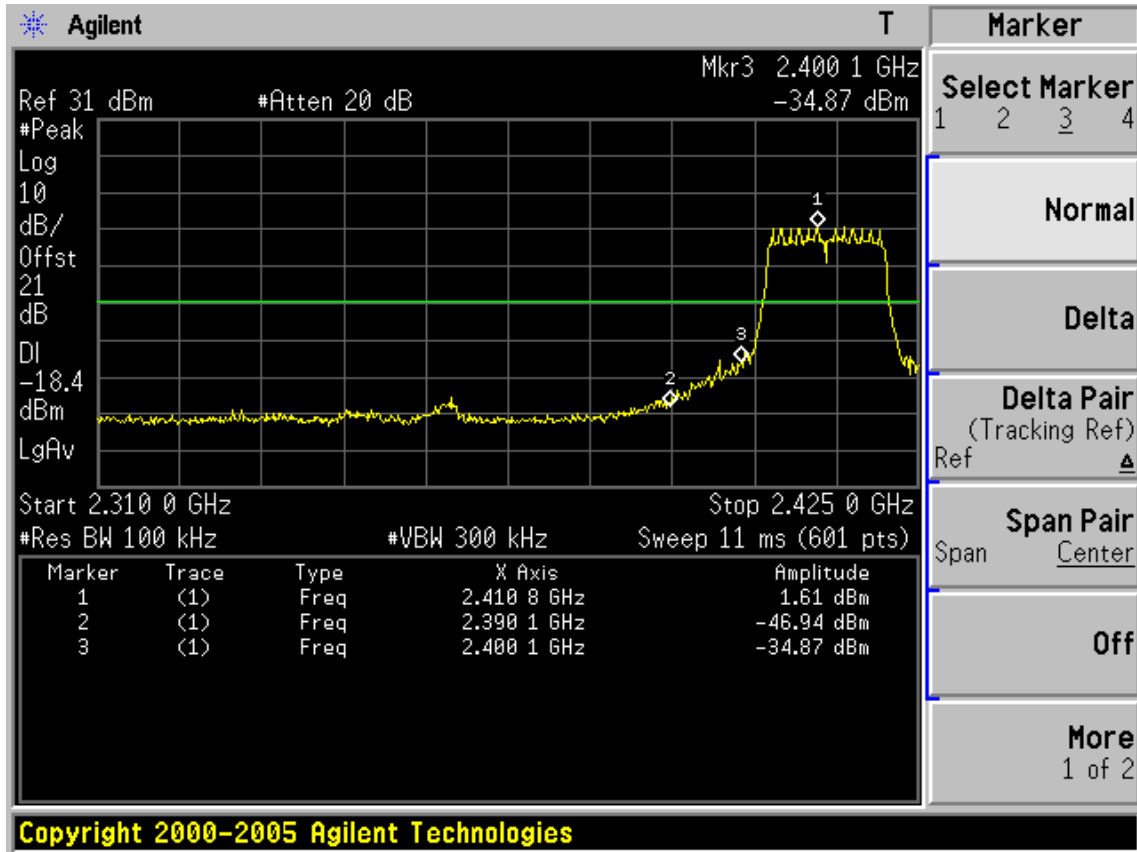
(CH11)



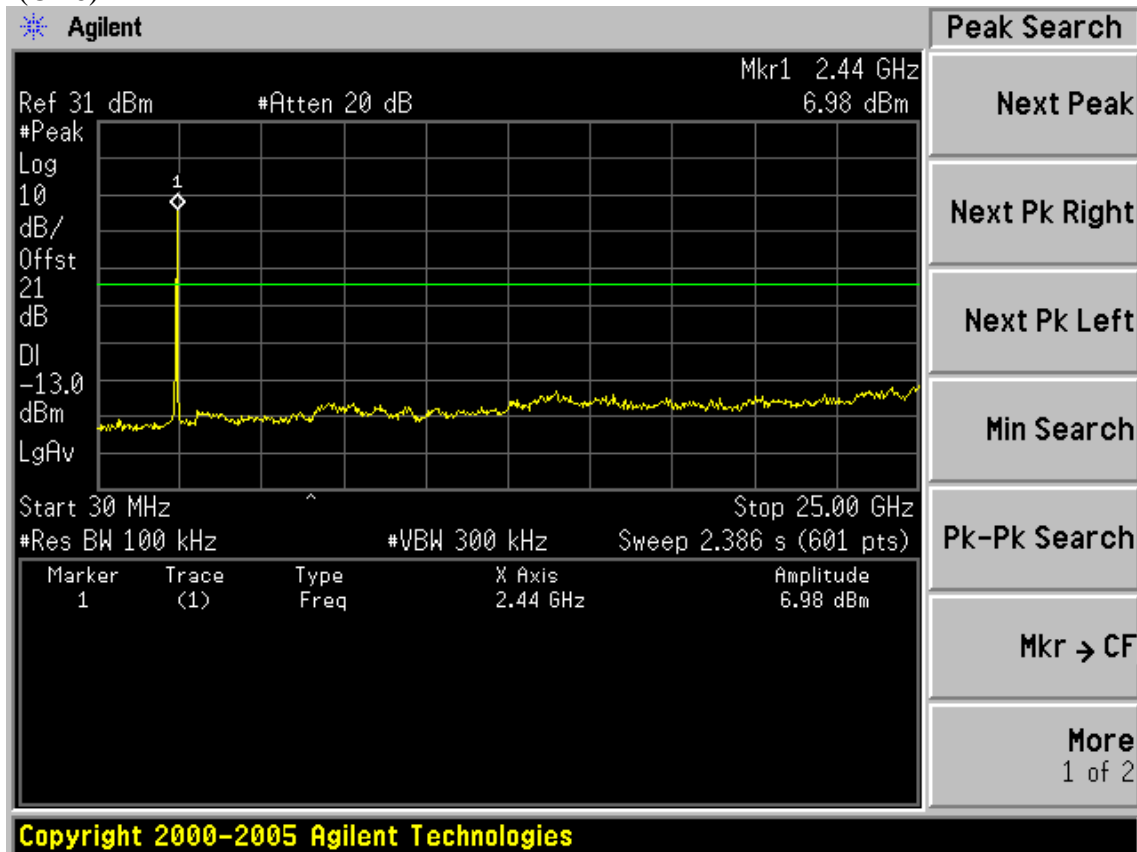


Test Mode: IEEE 802.11g TX (CH1)

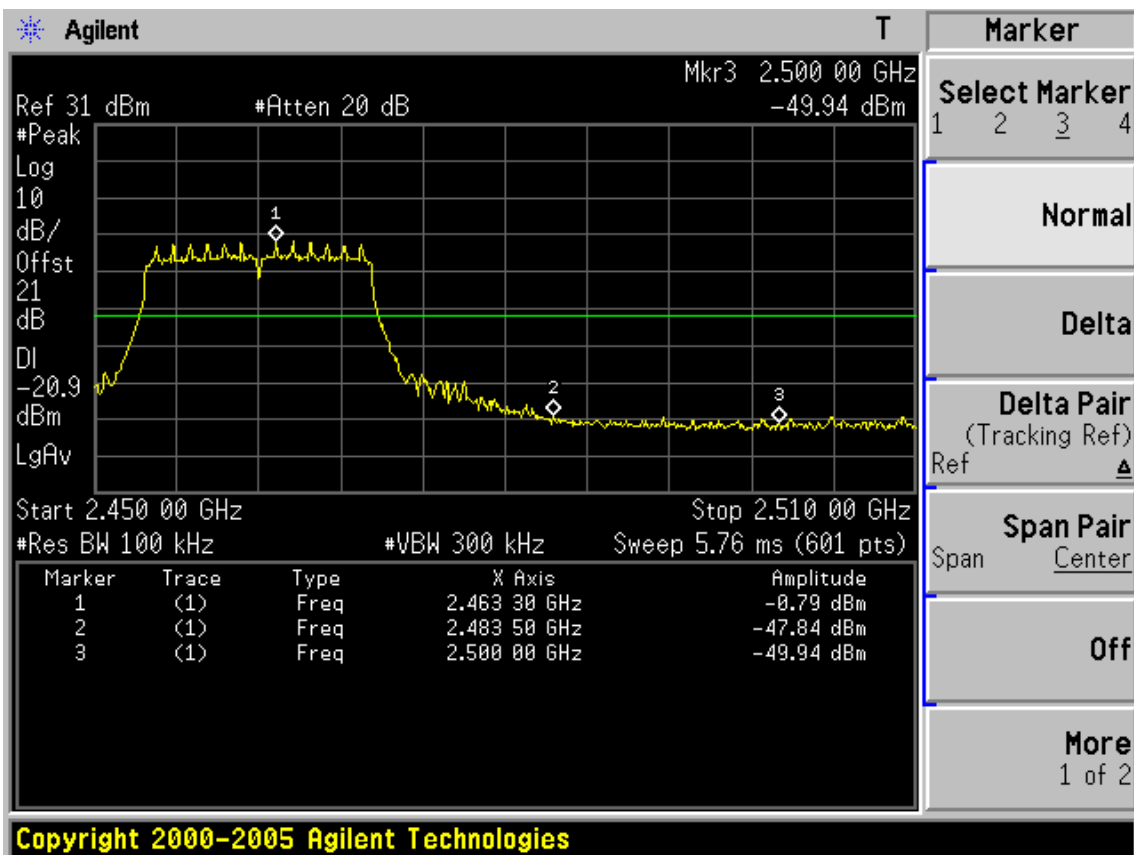
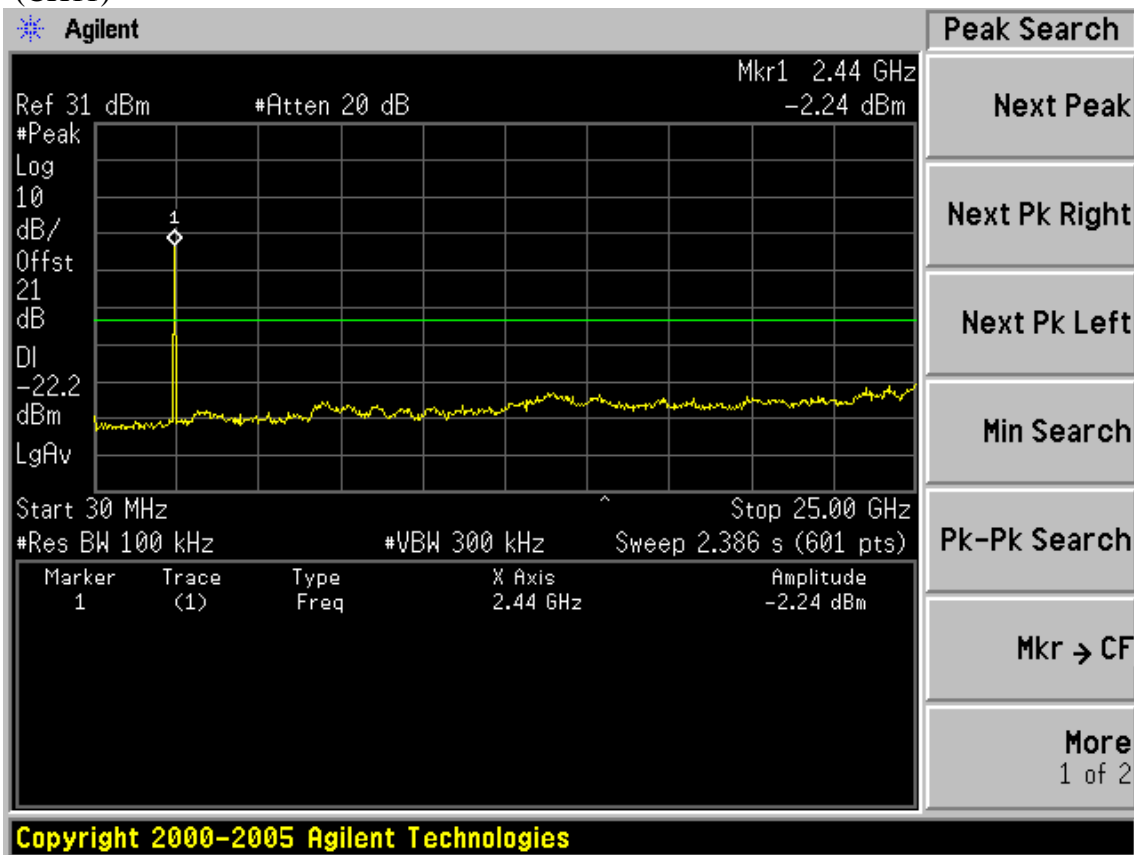




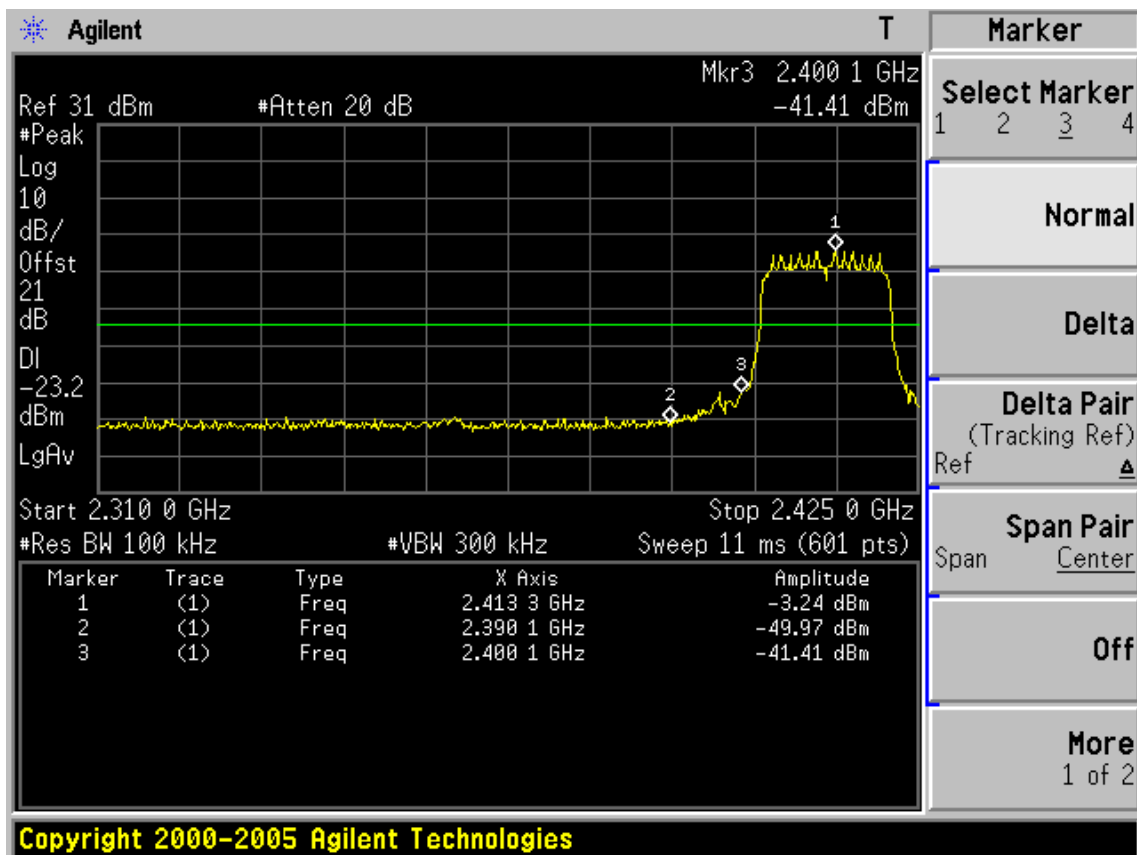
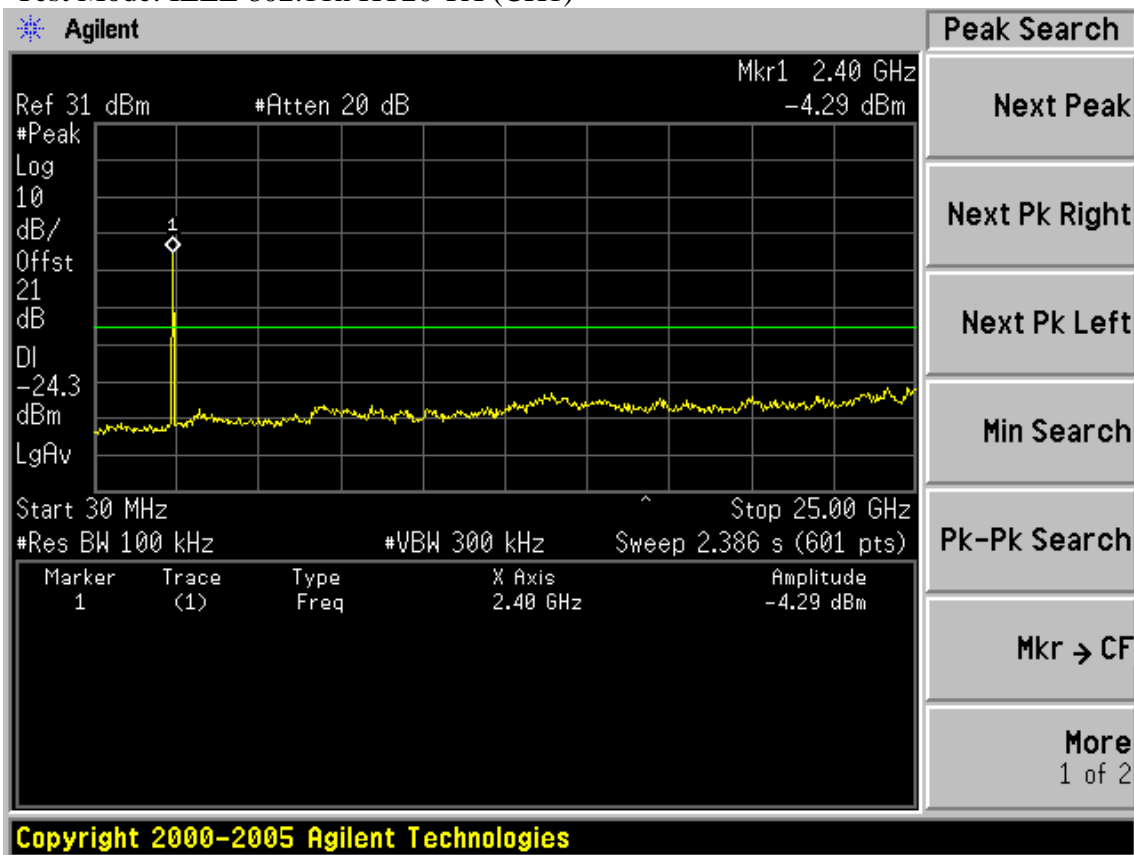
(CH6)



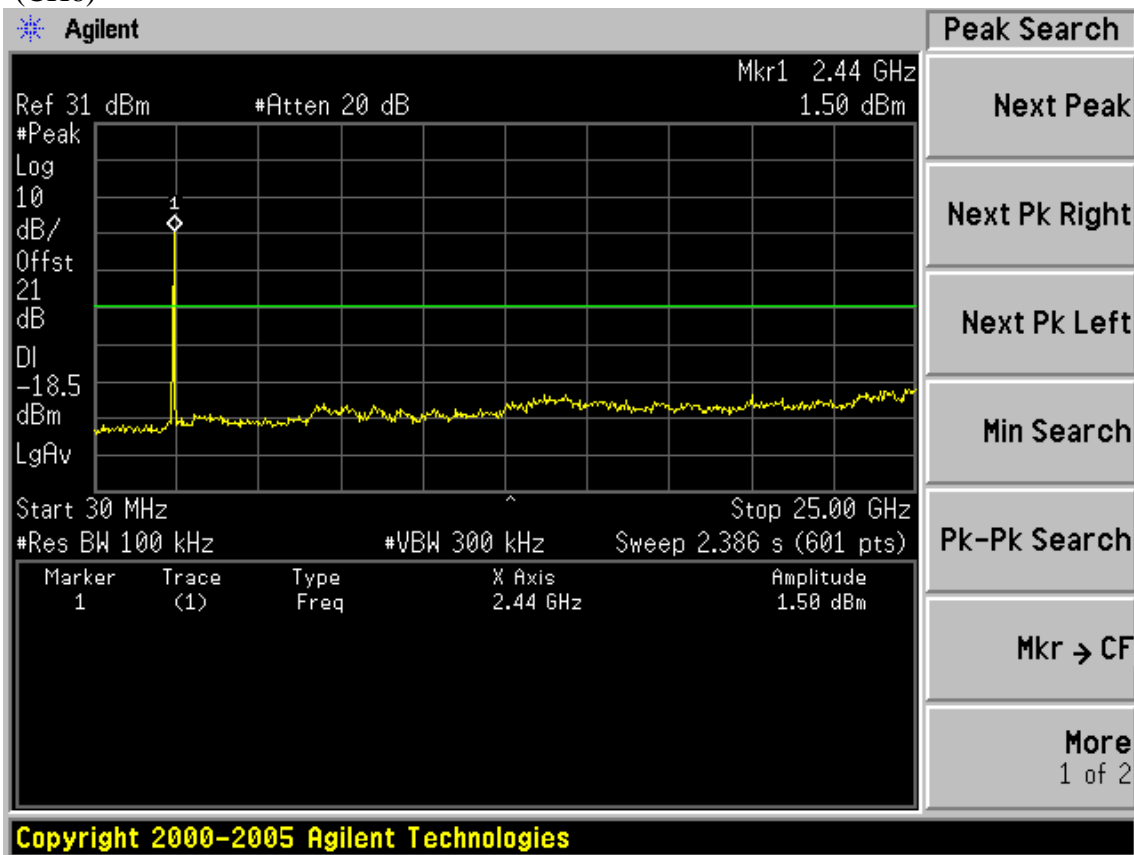
(CH11)



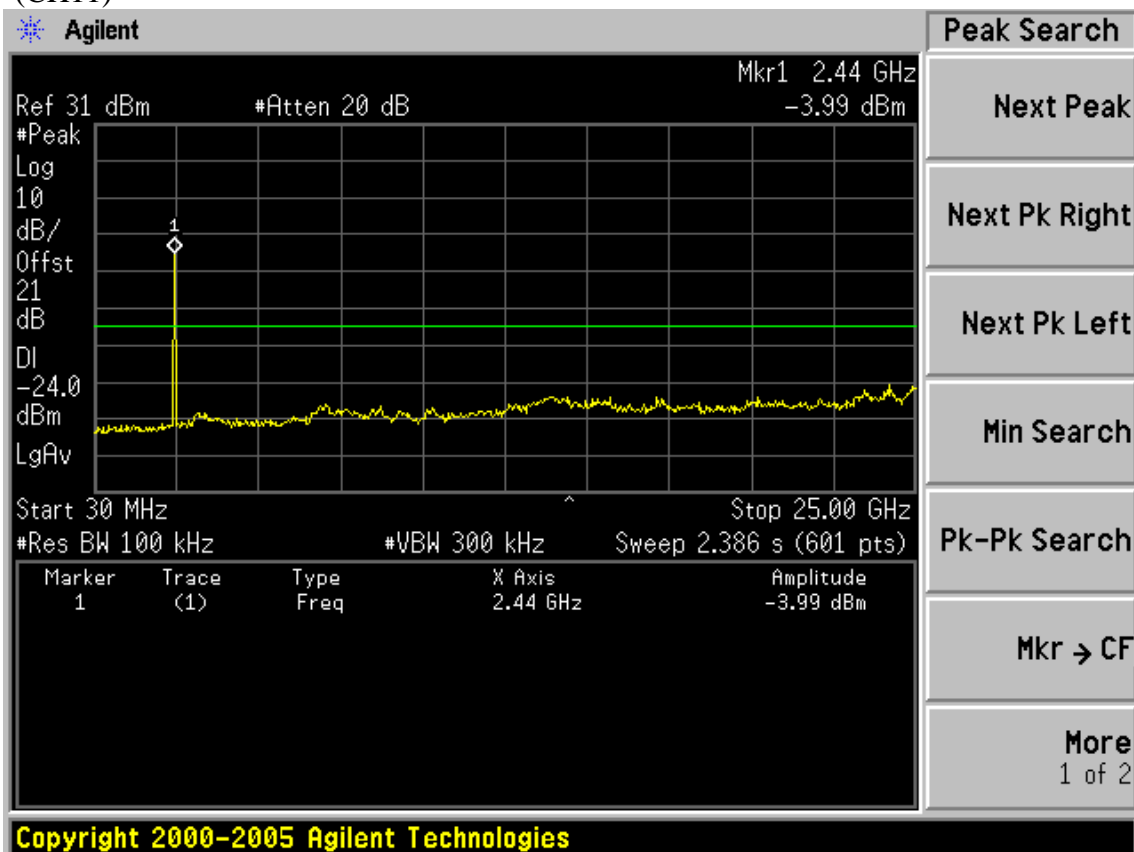
Test Mode: IEEE 802.11n HT20 TX (CH1)

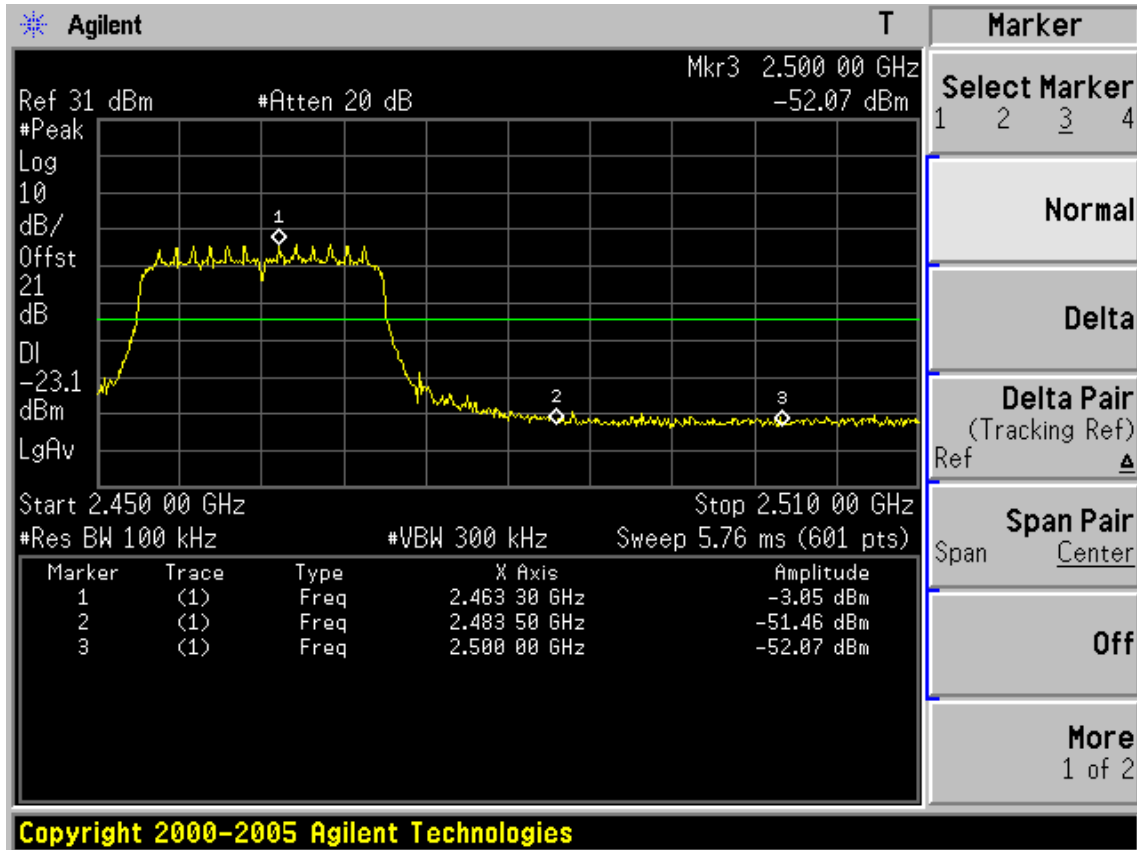


(CH6)

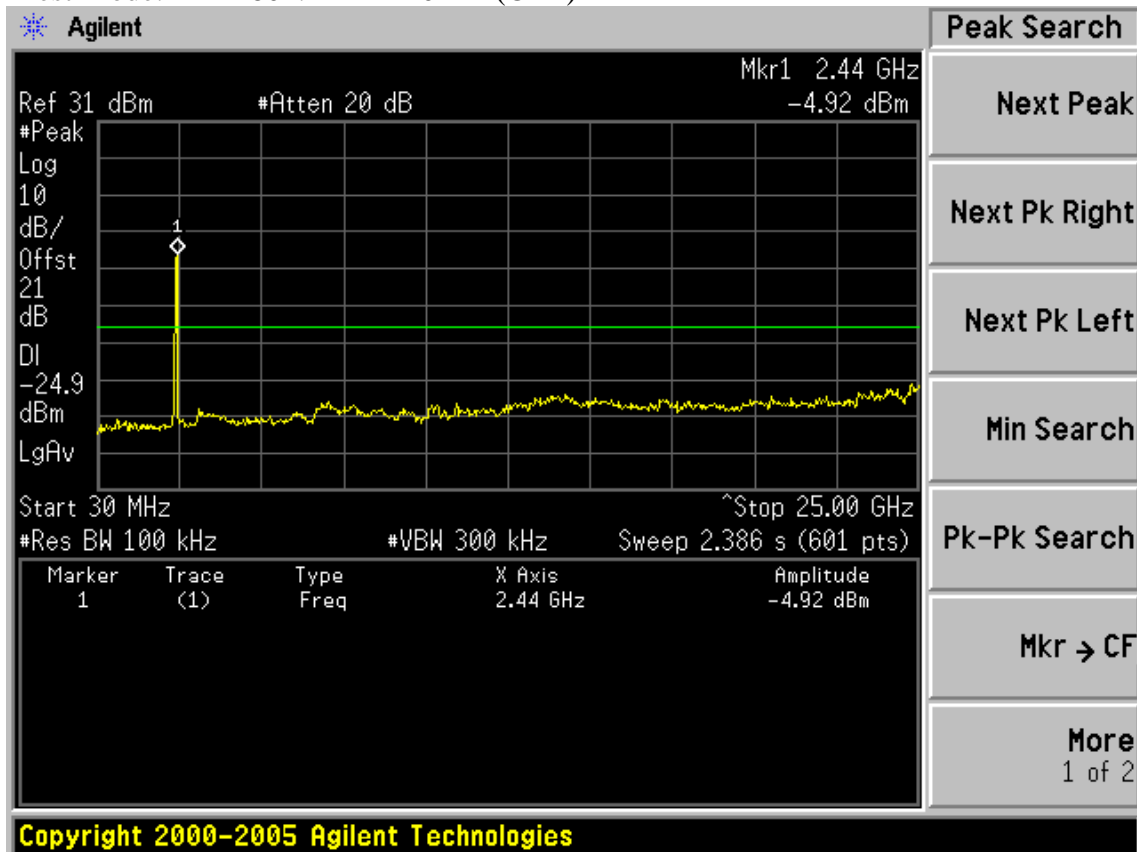


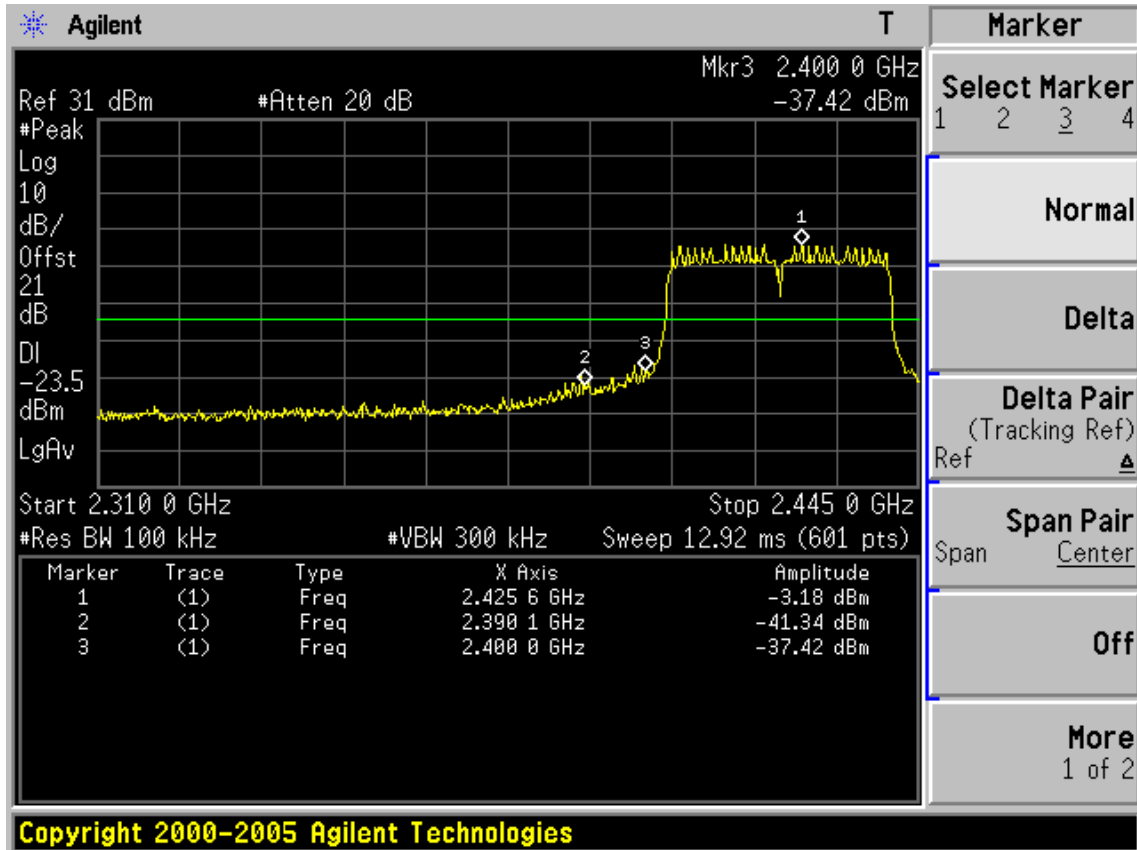
(CH11)



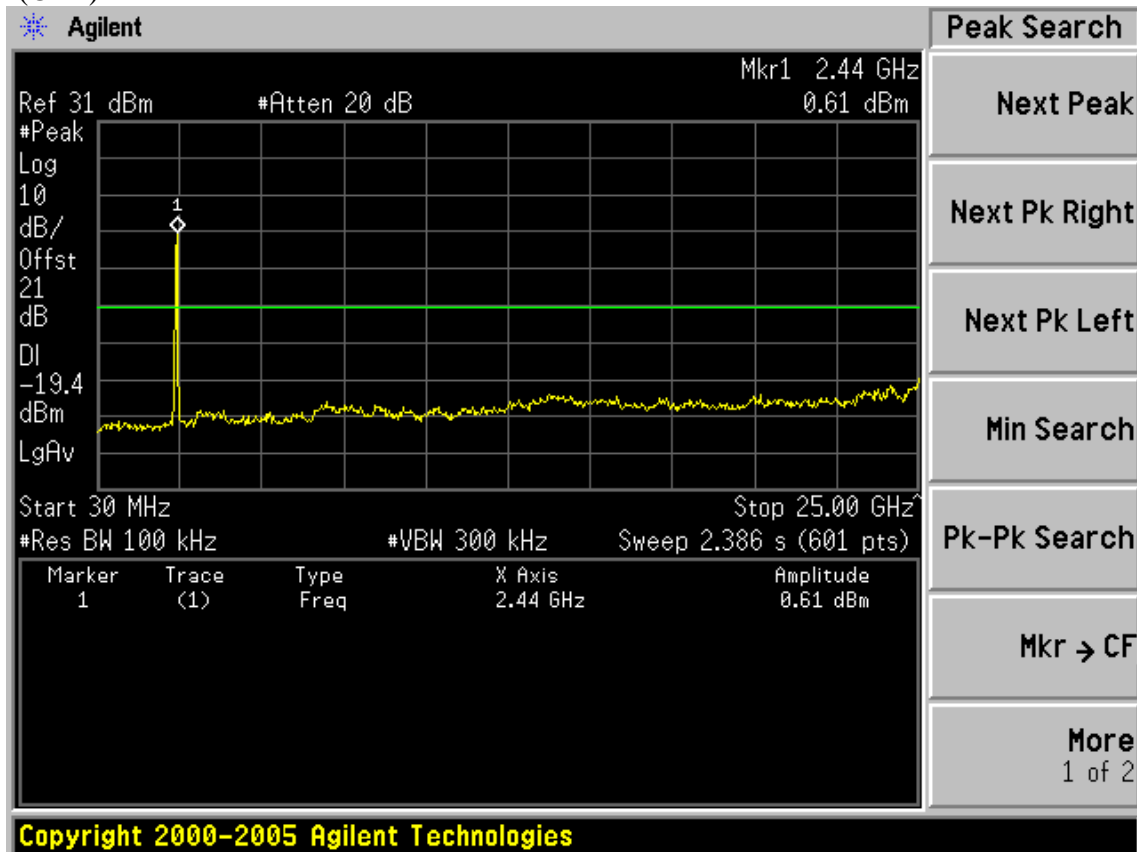


Test Mode: IEEE 802.11n HT40 TX (CH1)

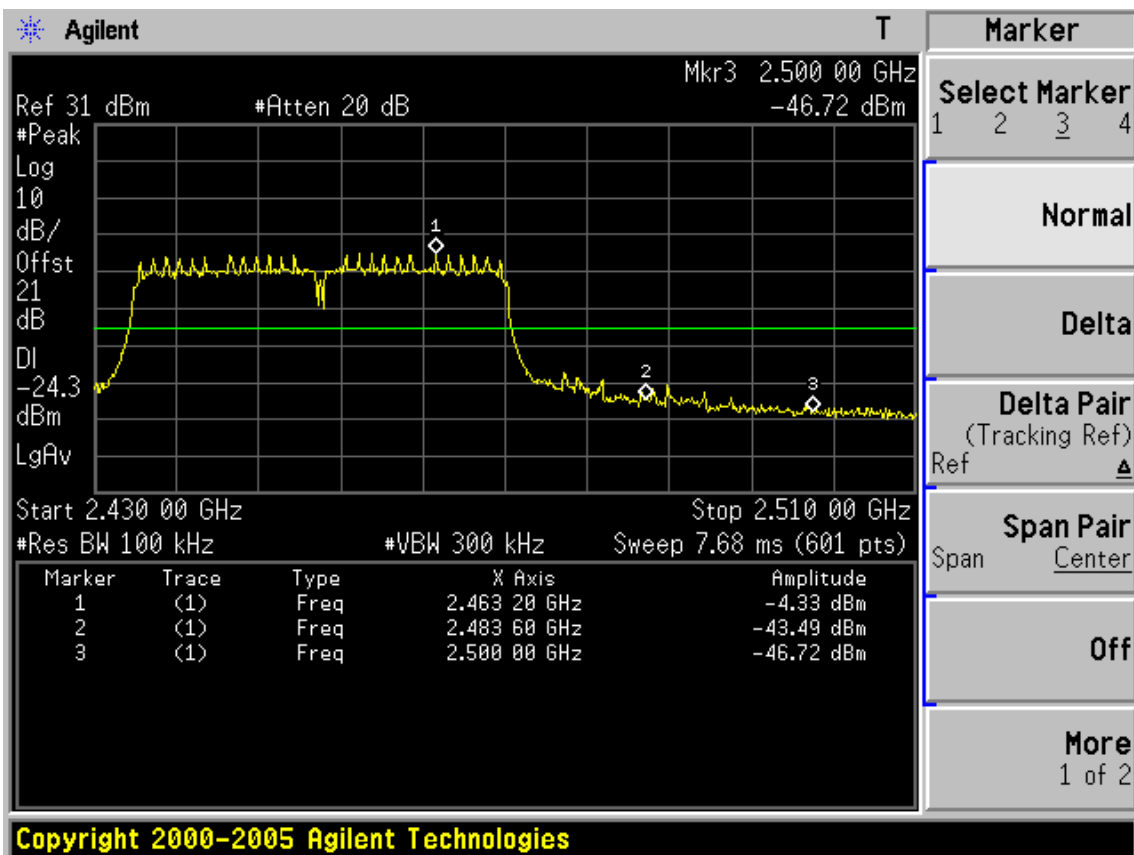
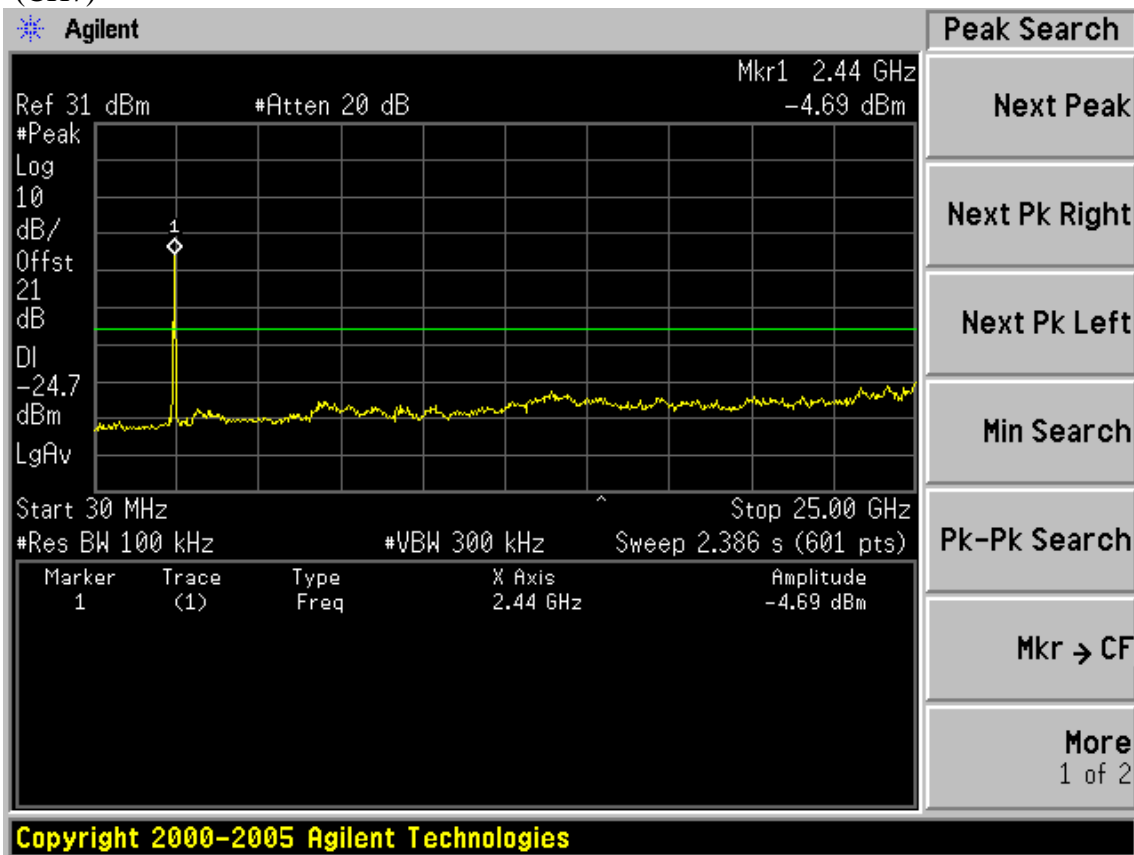




(CH4)



(CH7)



6. BAND EDGE COMPLIANCE TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	Nov.25, 09	1.5 Year
3.	Amplifier	Agilent	8449B	3008A02495	May.08, 10	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May.08, 10	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX 102	271471/4	May.08, 10	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX 102	29086/2	May.08, 10	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 upperband-edges of the emission:
 - (a) PEAK: RBW=1MHz; VBW=3MHz ;Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz ;VBW=10Hz ; Sweep=AUTO

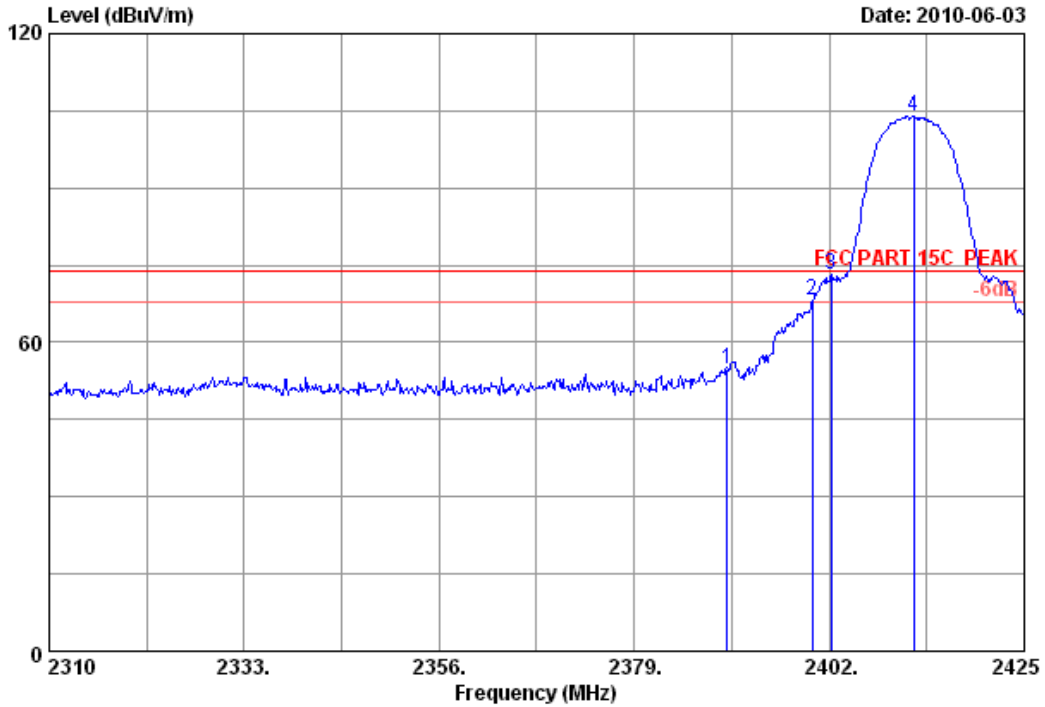
6.4. Test Results

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



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Data: 3 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz

	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	8.67	36.09	52.89	54.91	74.00	19.09	Peak
2	2400.000	29.44	8.72	36.09	66.05	68.12	74.00	5.88	Peak
3	2402.230	29.44	8.72	36.09	71.16	73.23	74.00	0.77	Peak
4	2412.005	29.45	8.72	35.95	101.71	103.93	74.00	-29.93	Peak

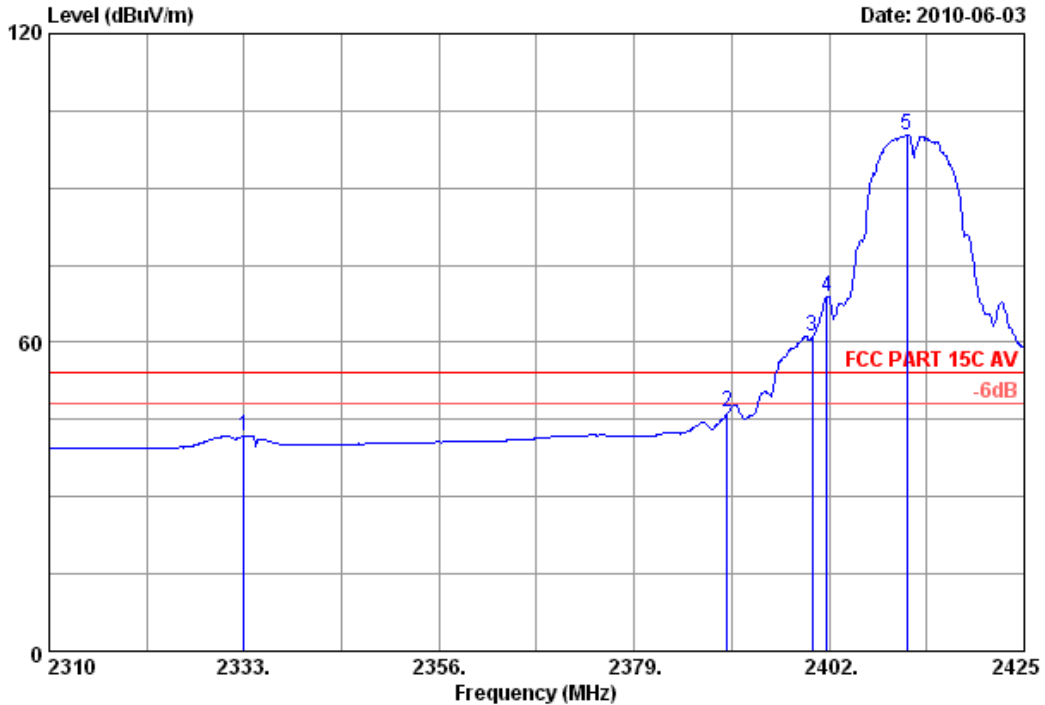
Remarks:

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



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Data: 4 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no.	: 3m Chamber	Data no.	: 4
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C AV		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: RF Module M/N:W220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH1 2412MHz		

	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	8.57	36.06	39.87	41.78	54.00	12.22	Average
2	2390.000	29.44	8.67	36.09	44.29	46.31	54.00	7.69	Average
3	2400.000	29.44	8.72	36.09	59.19	61.26	54.00	-7.26	Average
4	2401.770	29.44	8.72	36.09	66.88	68.95	54.00	-14.95	Average
5	2411.200	29.45	8.72	35.95	98.12	100.34	54.00	-46.34	Average

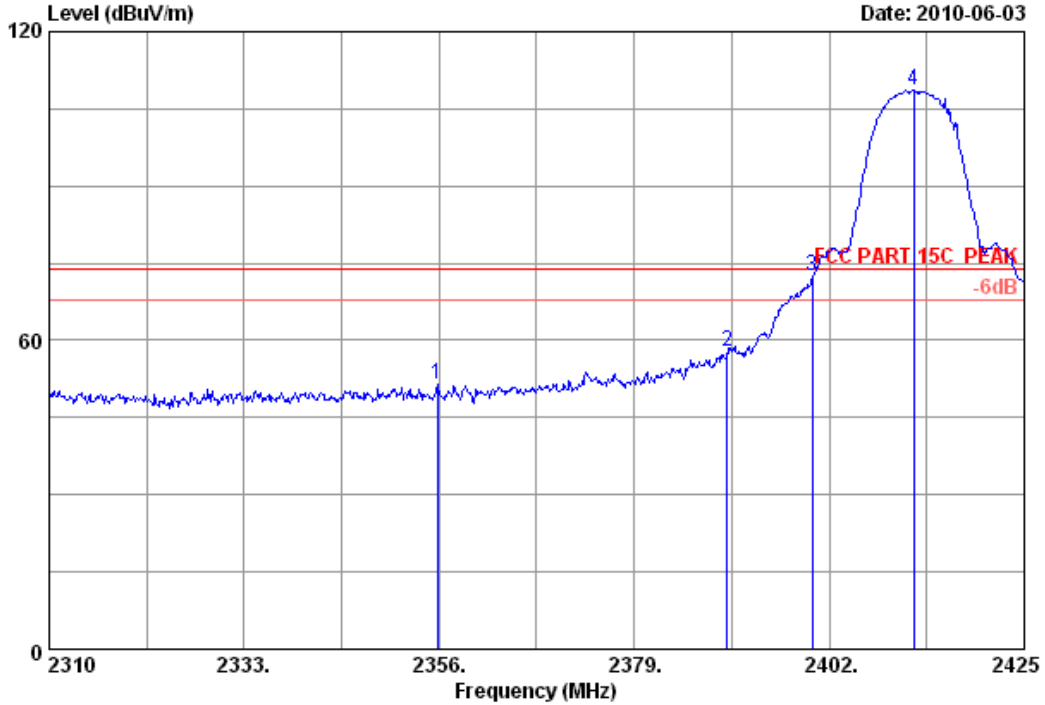
Remarks:

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



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Data: 5 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11b CH1 2412MHz

	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	2355.770	29.42	8.62	35.91	49.26	51.39	74.00	22.61	Peak
2	2390.000	29.44	8.67	36.09	55.67	57.69	74.00	16.31	Peak
3	2400.000	29.44	8.72	36.09	70.45	72.52	74.00	1.48	Peak
4	2412.005	29.45	8.72	35.95	106.39	108.61	74.00	-34.61	Peak

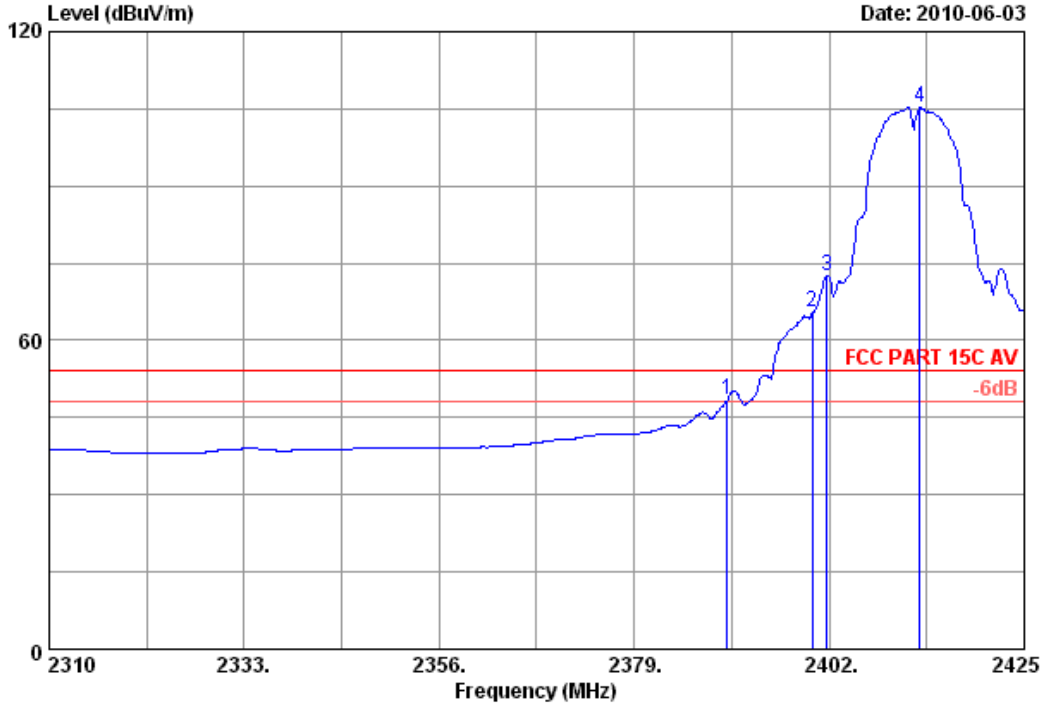
Remarks:

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



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Postcode:518057

Data: 6 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no.	: 3m Chamber	Data no.	: 6
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C AV		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: RF Module M/N:W220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH1 2412MHz		

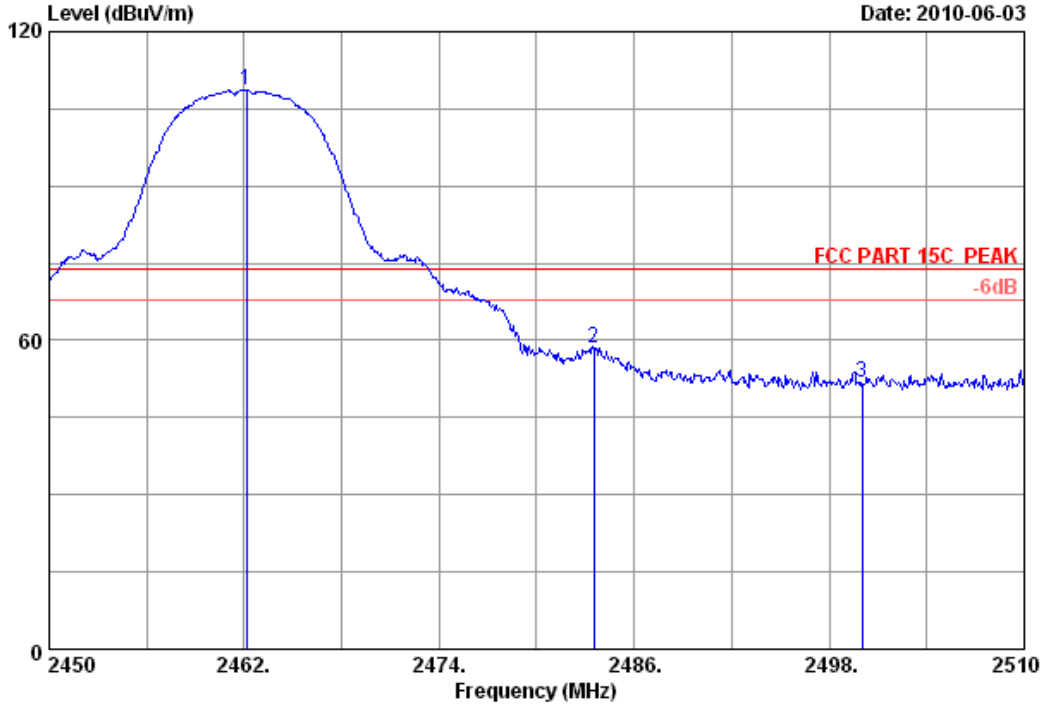
	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	29.44	8.67	36.09	46.46	48.48	54.00	5.52	Average
2	29.44	8.72	36.09	63.40	65.47	54.00	-11.47	Average
3	29.44	8.72	36.09	70.54	72.61	54.00	-18.61	Average
4	29.45	8.72	35.95	102.99	105.21	54.00	-51.21	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.



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Postcode:518057

Data: 11 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 11
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

	Ant. 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	2462.120	29.48	8.82	36.02	106.41	108.69	74.00	-34.69	Peak
2	2483.500	29.49	8.87	35.97	56.03	58.42	74.00	15.58	Peak
3	2500.000	29.50	8.92	36.00	49.23	51.65	74.00	22.35	Peak

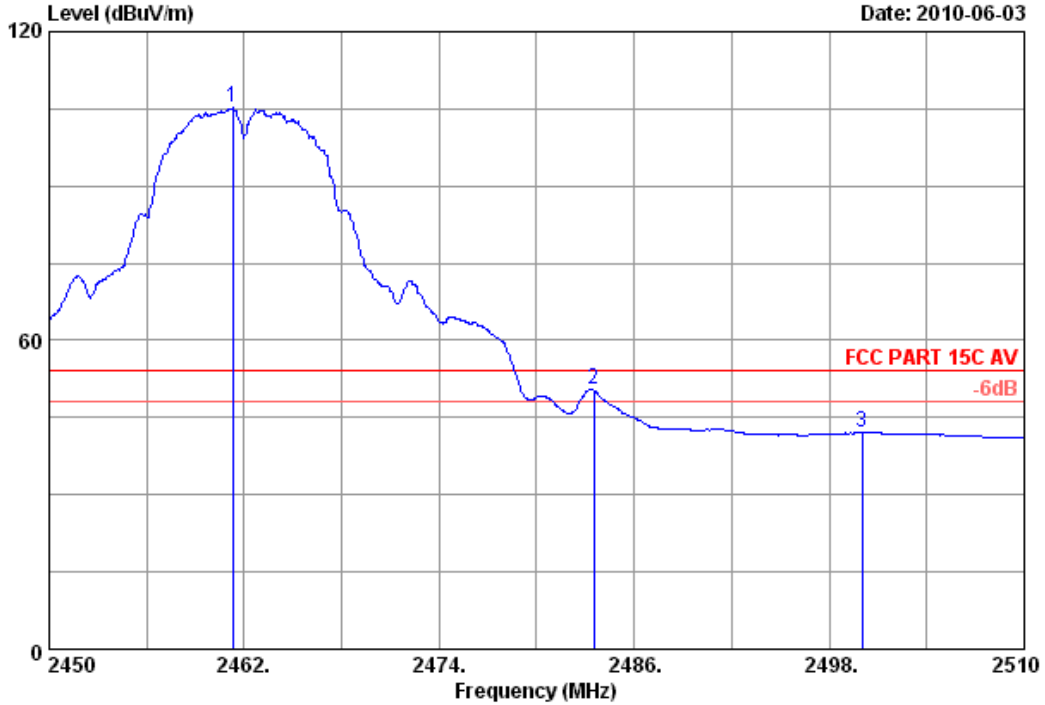
Remarks:

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



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Data: 12 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no.	: 3m Chamber	Data no.	: 12
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C AV		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: RF Module M/N:W220		
Power	: DC 5V		
Test mode	: Tx Mode 11b CH11 2462MHz		

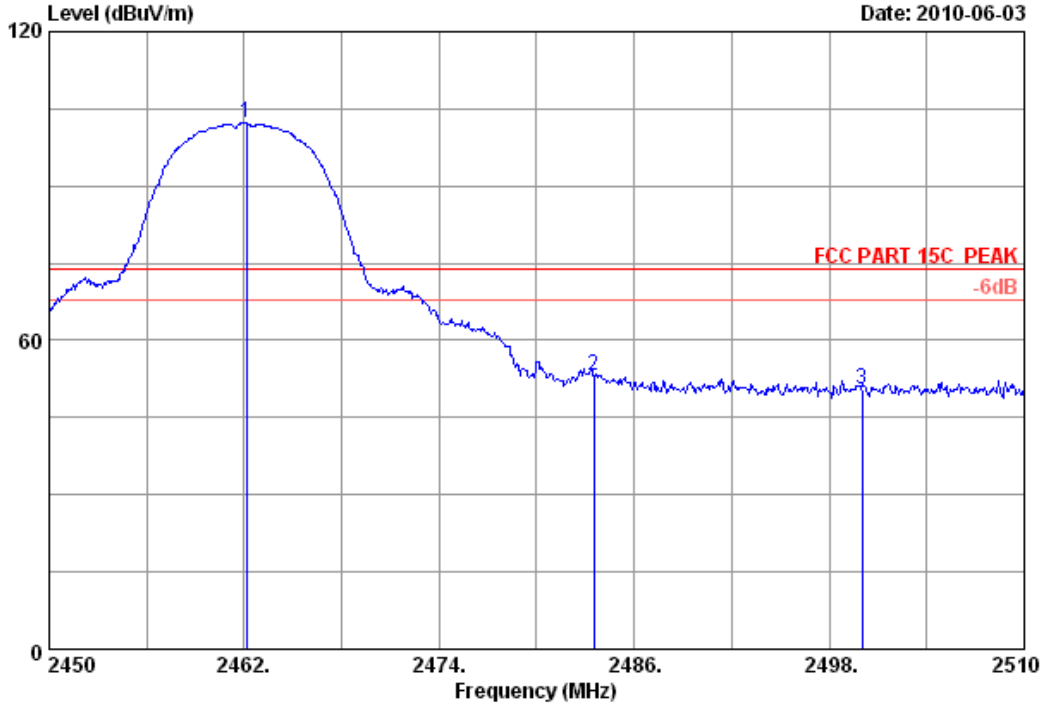
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.280	29.48	8.82	36.02	102.91	105.19	54.00	-51.19	Average
2	2483.500	29.49	8.87	35.97	47.95	50.34	54.00	3.66	Average
3	2500.000	29.50	8.92	36.00	39.56	41.98	54.00	12.02	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.



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Data: 13 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 13
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

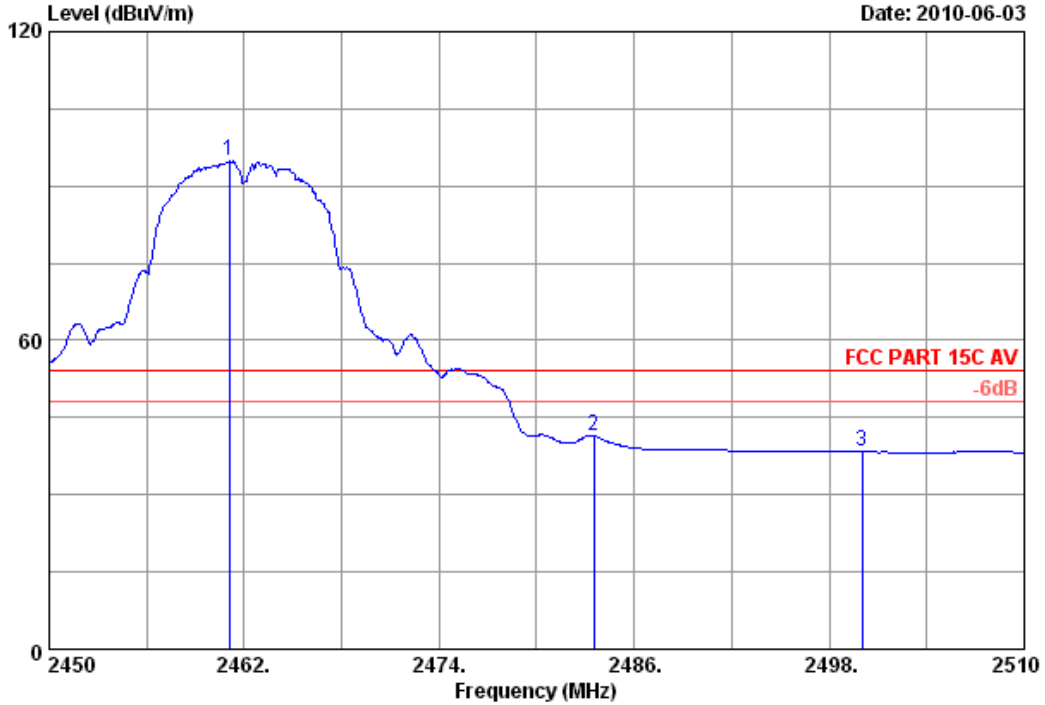
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.120	29.48	8.82	36.02	99.97	102.25	74.00	-28.25	Peak
2	2483.500	29.49	8.87	35.97	50.62	53.01	74.00	20.99	Peak
3	2500.000	29.50	8.92	36.00	48.18	50.60	74.00	23.40	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.



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Data: 14 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 14
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11b CH11 2462MHz

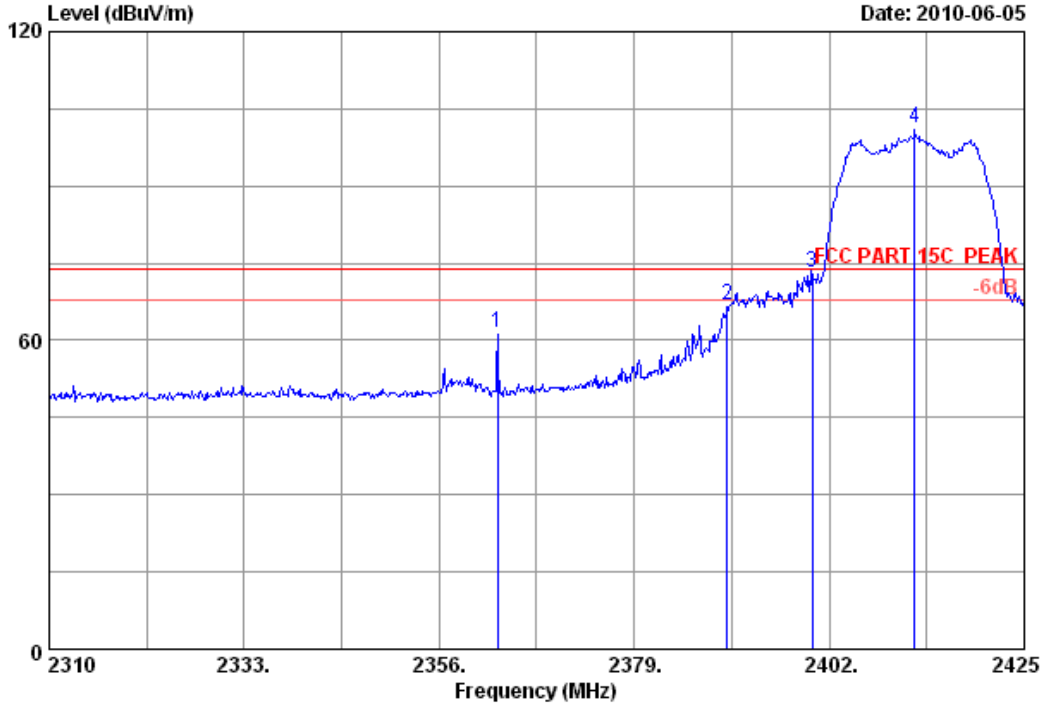
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.100	29.48	8.82	36.02	92.57	94.85	54.00	-40.85	Average
2	2483.500	29.49	8.87	35.97	39.16	41.55	54.00	12.45	Average
3	2500.000	29.50	8.92	36.00	35.96	38.38	54.00	15.62	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.



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Data: 17 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 17
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

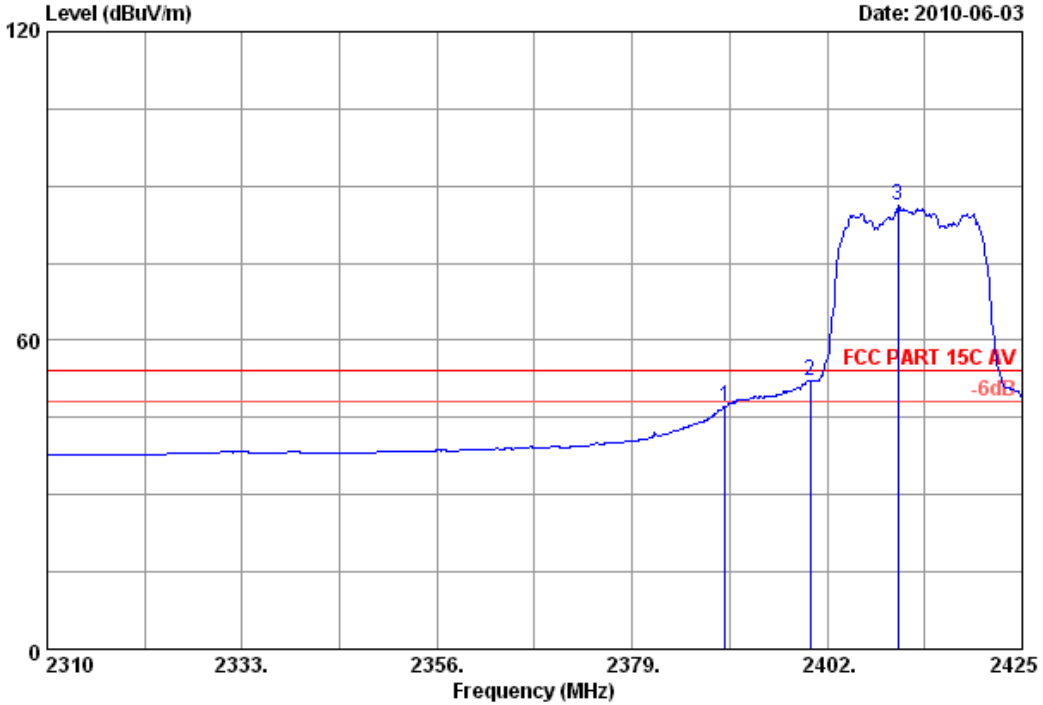
	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2362.900	29.42	8.62	35.91	59.51	61.64	74.00	12.36	Peak
2	2390.000	29.44	8.67	36.09	64.86	66.88	74.00	7.12	Peak
3	2400.000	29.44	8.72	36.09	71.00	73.07	74.00	0.93	Peak
4	2412.120	29.45	8.72	35.95	99.03	101.25	74.00	-27.25	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.



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Data: 18 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no.	: 3m Chamber	Data no.	: 18
Dis. / Ant.	: 3m 3115(0911)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C AV		
Env. / Ins.	: 23°C/54%	Engineer	: Paul
EUT	: RF Module M/N:W220		
Power	: DC 5V		
Test mode	: Tx Mode 11g CH1 2412MHz		

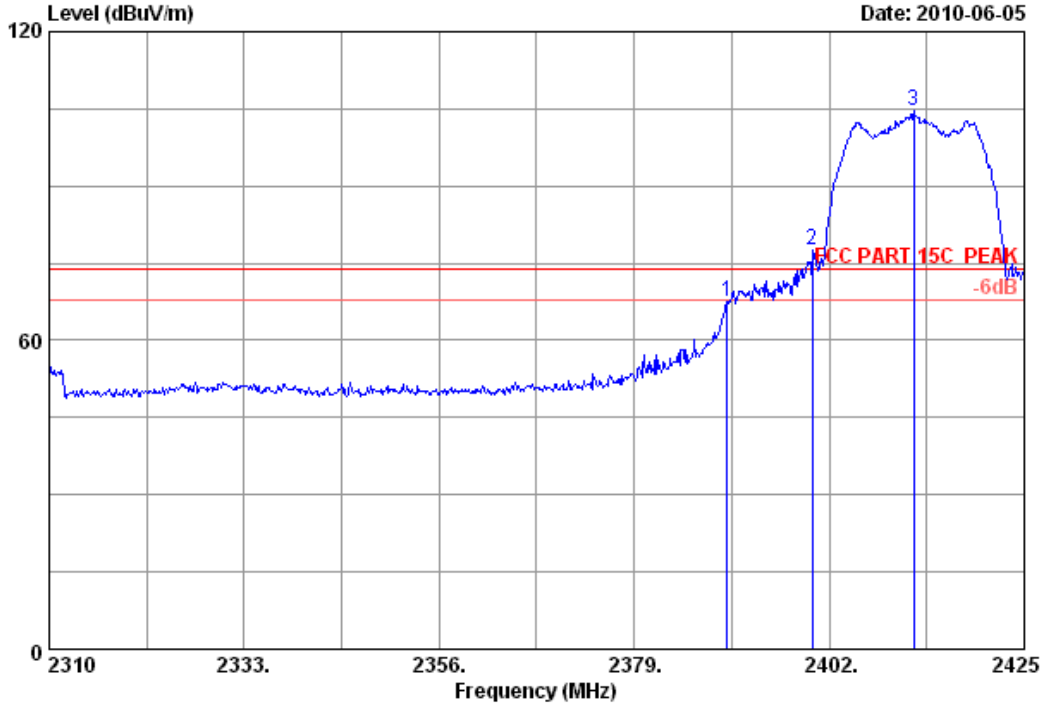
	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	29.44	8.67	36.09	45.15	47.17	54.00	6.83	Average
2	29.44	8.72	36.09	50.13	52.20	54.00	1.80	Average
3	29.45	8.72	35.95	83.94	86.16	54.00	-32.16	Average

- 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.



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Data: 19 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 19
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	29.44	8.67	36.09	65.38	67.40	74.00	6.60	Peak	
2	29.44	8.72	36.09	75.31	77.38	74.00	-3.38	Peak	
3	29.45	8.72	35.95	102.33	104.55	74.00	-30.55	Peak	

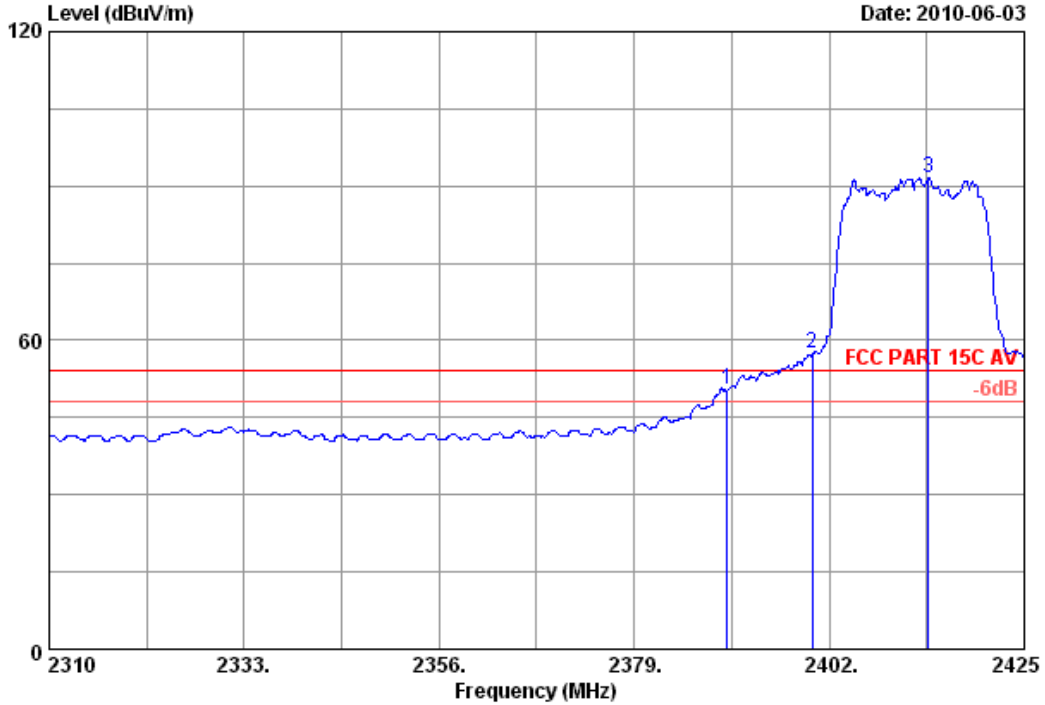
Remarks:

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



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Data: 20 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 20
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH1 2412MHz

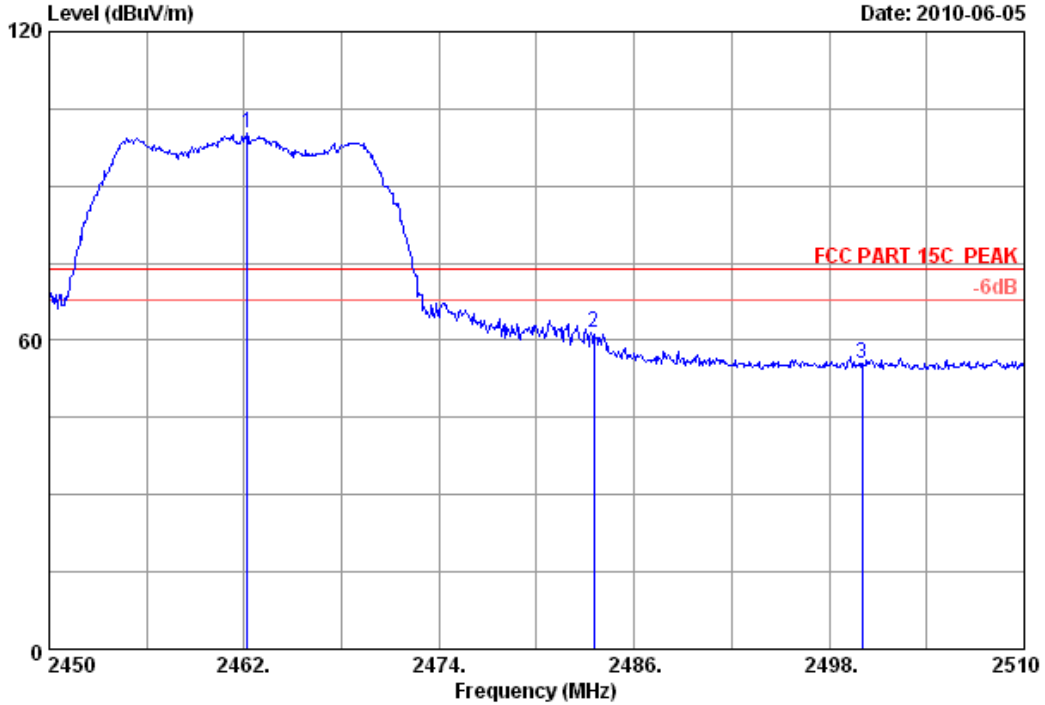
	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2390.000	29.44	8.67	36.09	48.40	50.42	54.00	3.58	Average
2	2400.000	29.44	8.72	36.09	55.34	57.41	54.00	-3.41	Average
3	2413.730	29.45	8.72	35.95	89.38	91.60	54.00	-37.60	Average

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



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Data: 23 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 23
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

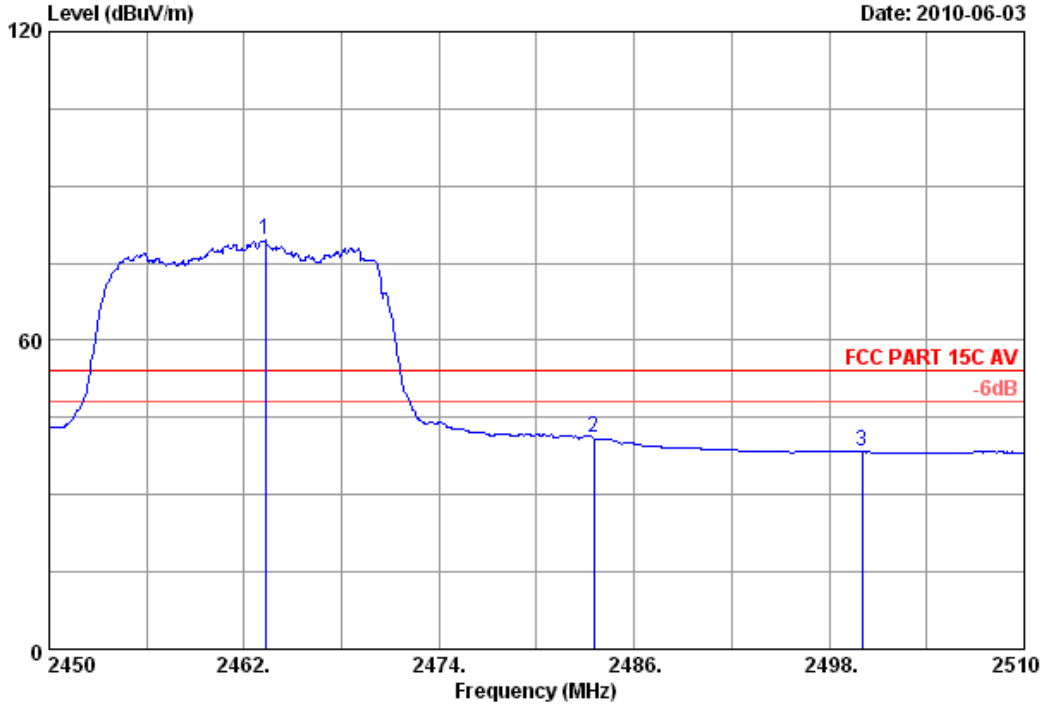
	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 2462.180	29.48	8.82	36.02	98.03	100.31	74.00	-26.31	Peak	
2 2483.500	29.49	8.87	35.97	58.95	61.34	74.00	12.66	Peak	
3 2500.000	29.50	8.92	36.00	53.16	55.58	74.00	18.42	Peak	

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



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Data: 24 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 24
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

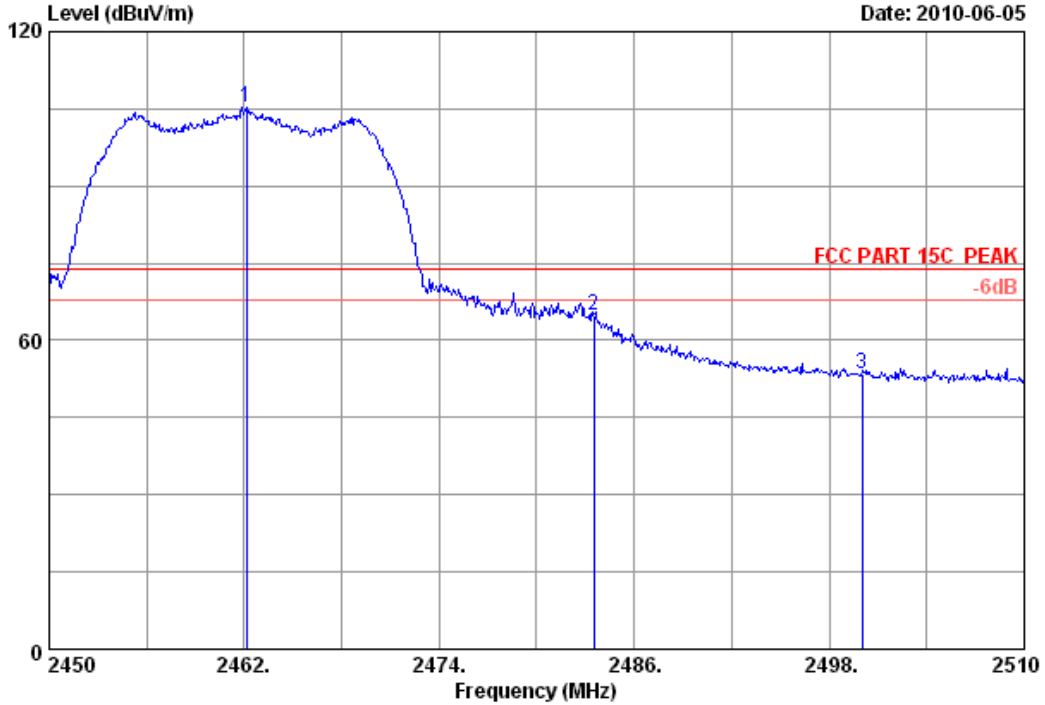
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.320	29.48	8.82	36.02	77.25	79.53	54.00	-25.53	Average
2	2483.500	29.49	8.87	35.97	38.76	41.15	54.00	12.85	Average
3	2500.000	29.50	8.92	36.00	35.88	38.30	54.00	15.70	Average

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



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Data: 25 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 25
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

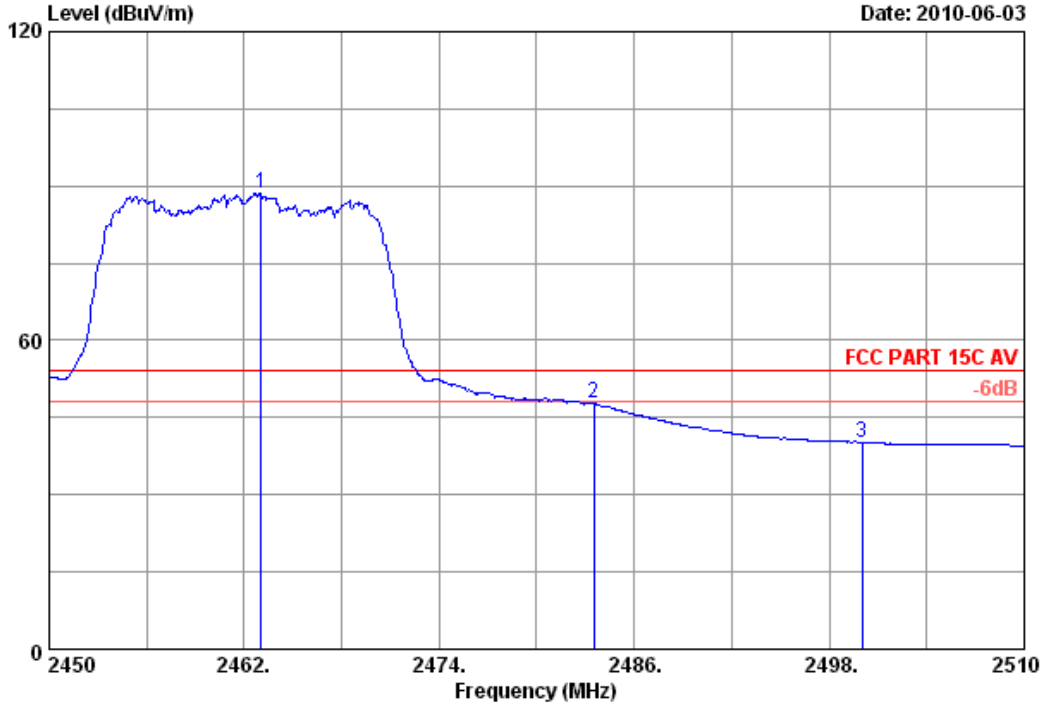
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.120	29.48	8.82	36.02	102.94	105.22	74.00	-31.22	Peak
2	2483.500	29.49	8.87	35.97	62.52	64.91	74.00	9.09	Peak
3	2500.000	29.50	8.92	36.00	51.09	53.51	74.00	20.49	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.



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Data: 26 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 26
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11g CH11 2462MHz

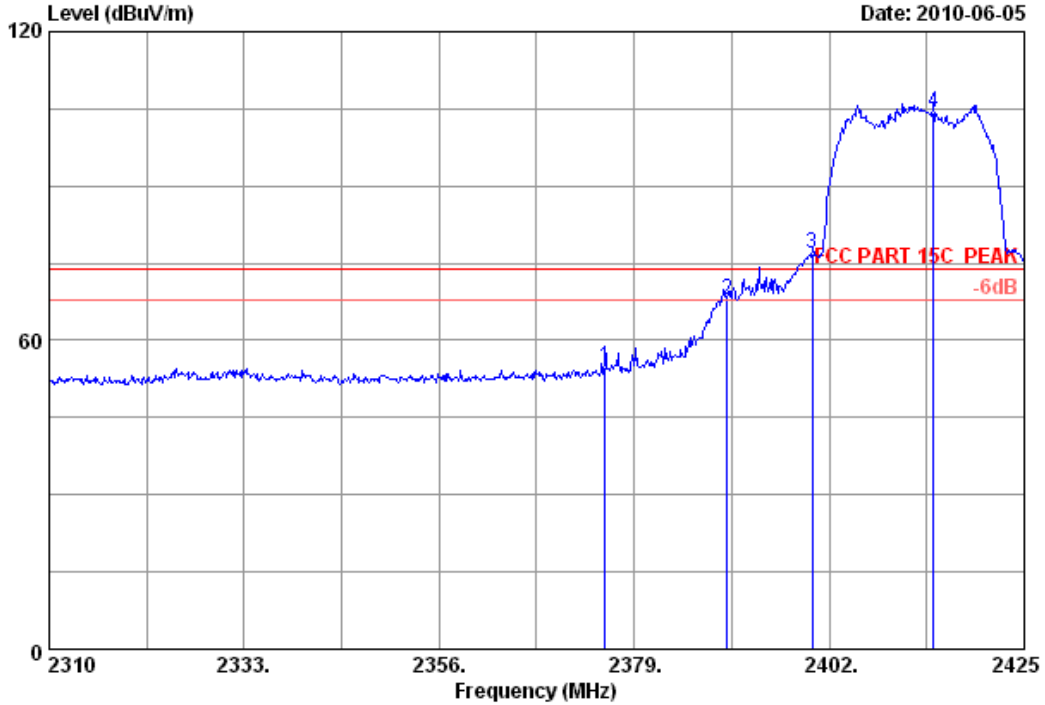
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.020	29.48	8.82	36.02	86.32	88.60	54.00	-34.60	Average
2	2483.500	29.49	8.87	35.97	45.49	47.88	54.00	6.12	Average
3	2500.000	29.50	8.92	36.00	37.82	40.24	54.00	13.76	Average

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



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Data: 31 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 31
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

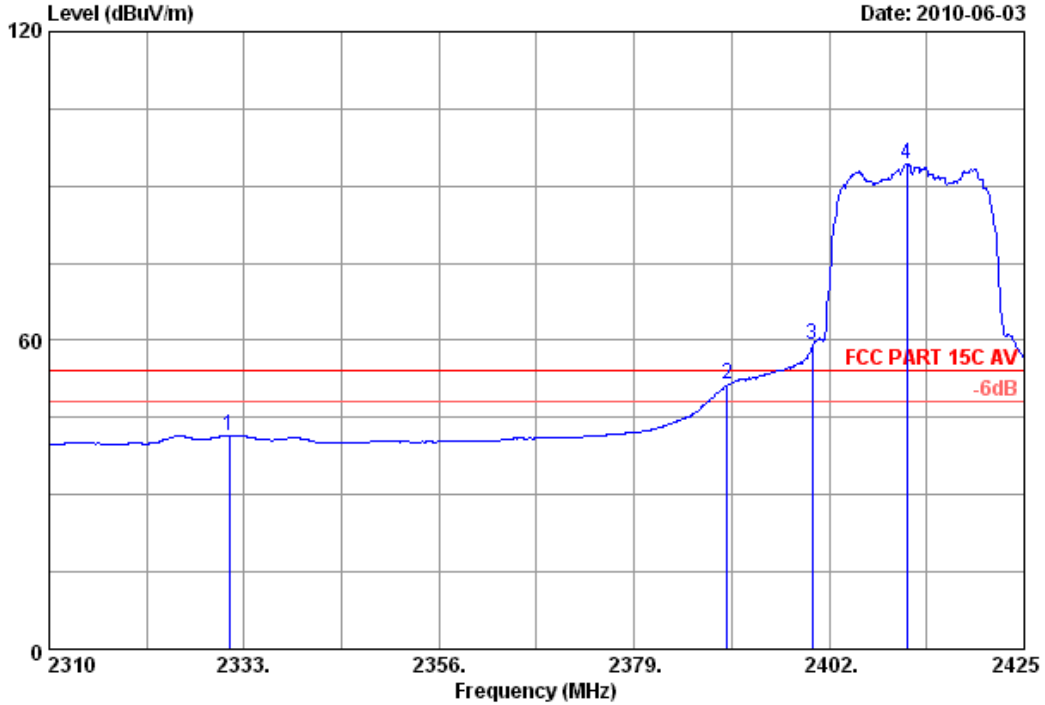
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2375.550	29.43	8.67	36.00	52.73	54.83	74.00	19.17	Peak
2	2390.000	29.44	8.67	36.09	65.90	67.92	74.00	6.08	Peak
3	2400.000	29.44	8.72	36.09	74.67	76.74	74.00	-2.74	Peak
4	2414.305	29.45	8.72	35.95	102.13	104.35	74.00	-30.35	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.



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Data: 32 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 32
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	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	8.57	36.06	39.61	41.52	54.00	12.48	Average
2	2390.000	29.44	8.67	36.09	49.34	51.36	54.00	2.64	Average
3	2400.000	29.44	8.72	36.09	56.93	59.00	54.00	-5.00	Average
4	2411.200	29.45	8.72	35.95	92.04	94.26	54.00	-40.26	Average

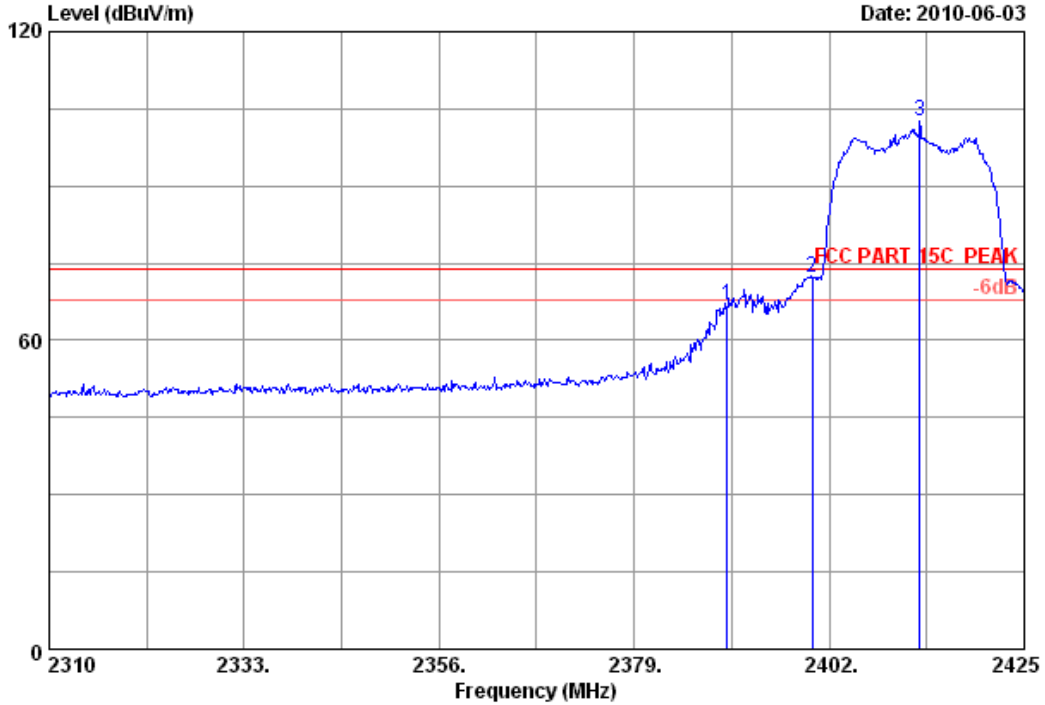
Remarks:

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



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Data: 33 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 33
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1	2390.000	29.44	8.67	36.09	64.86	66.88	74.00	7.12	Peak
2	2400.000	29.44	8.72	36.09	70.24	72.31	74.00	1.69	Peak
3	2412.695	29.45	8.72	35.95	100.27	102.49	74.00	-28.49	Peak

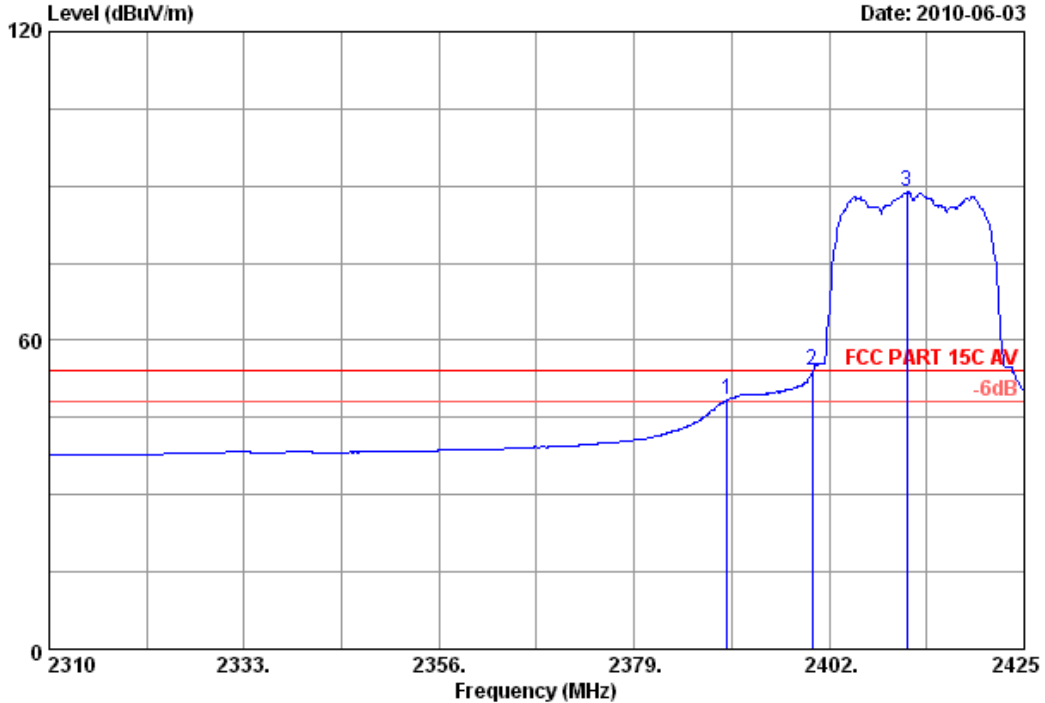
Remarks:

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



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Data: 34 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 34
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH1 2412MHz

	Ant. 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	8.67	36.09	46.47	48.49	54.00	5.51	Average
2	2400.000	29.44	8.72	36.09	52.21	54.28	54.00	-0.28	Average
3	2411.200	29.45	8.72	35.95	86.55	88.77	54.00	-34.77	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.

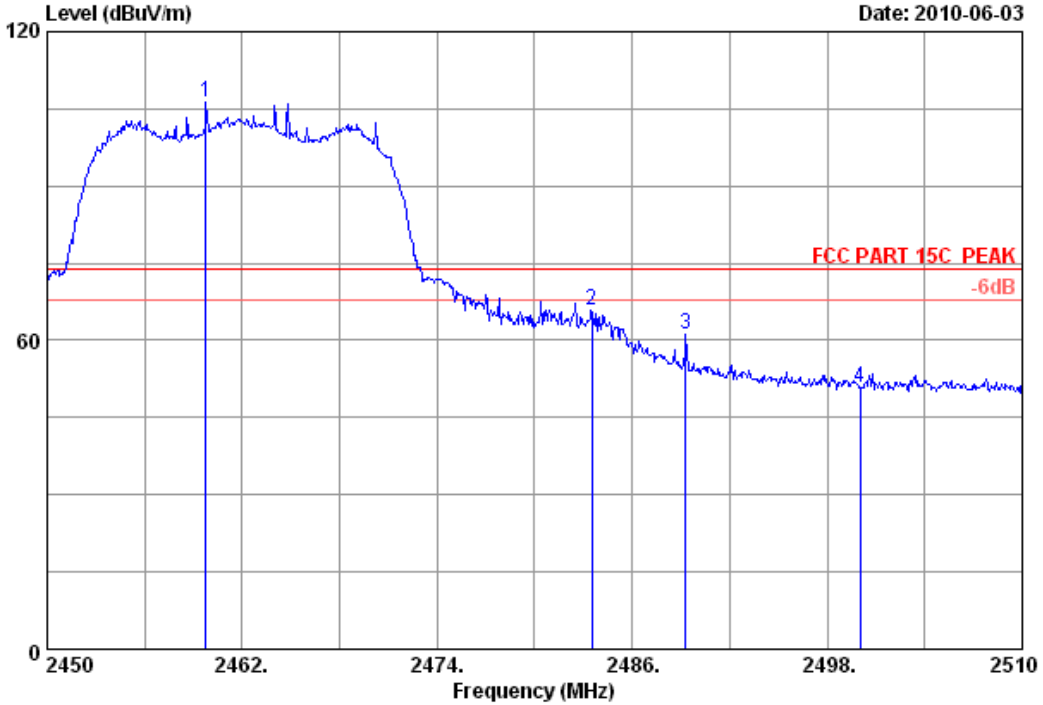


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Postcode:518057

Data: 39

File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)

Date: 2010-06-03



Site no. : 3m Chamber Data no. : 39
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

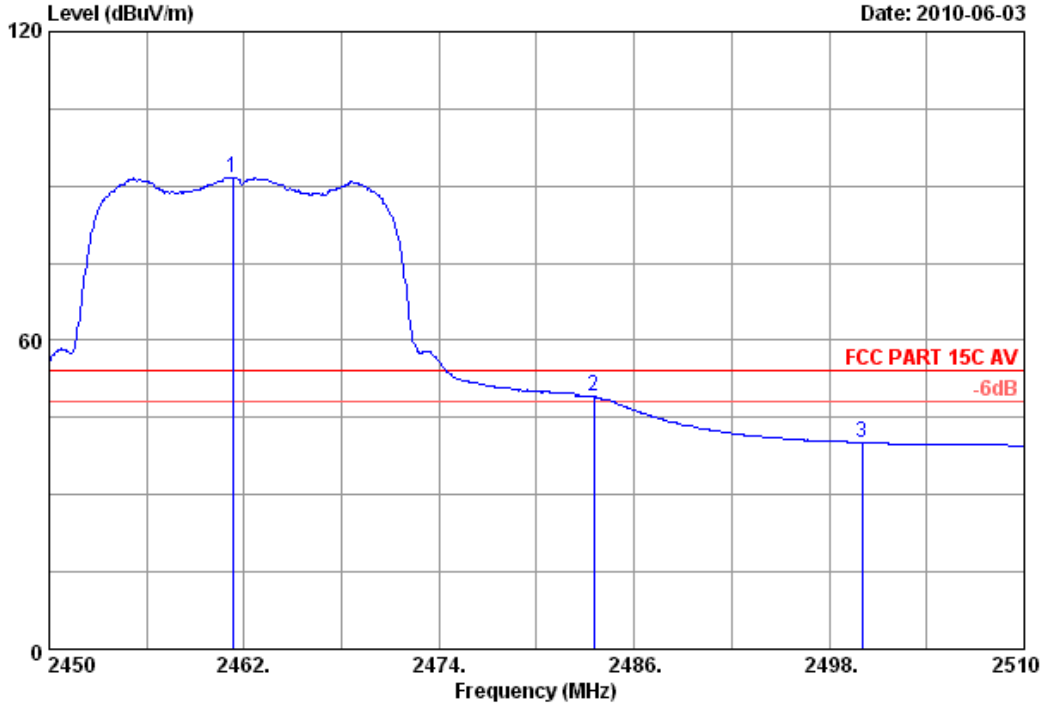
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2459.780	29.48	8.82	36.02	103.99	106.27	74.00	-32.27	Peak
2	2483.500	29.49	8.87	35.97	63.41	65.80	74.00	8.20	Peak
3	2489.300	29.50	8.87	36.00	58.75	61.12	74.00	12.88	Peak
4	2500.000	29.50	8.92	36.00	48.36	50.78	74.00	23.22	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.



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Data: 40 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 40
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

	Ant. 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	2461.280	29.48	8.82	36.02	89.38	91.66	54.00	-37.66	Average
2	2483.500	29.49	8.87	35.97	46.64	49.03	54.00	4.97	Average
3	2500.000	29.50	8.92	36.00	37.78	40.20	54.00	13.80	Average

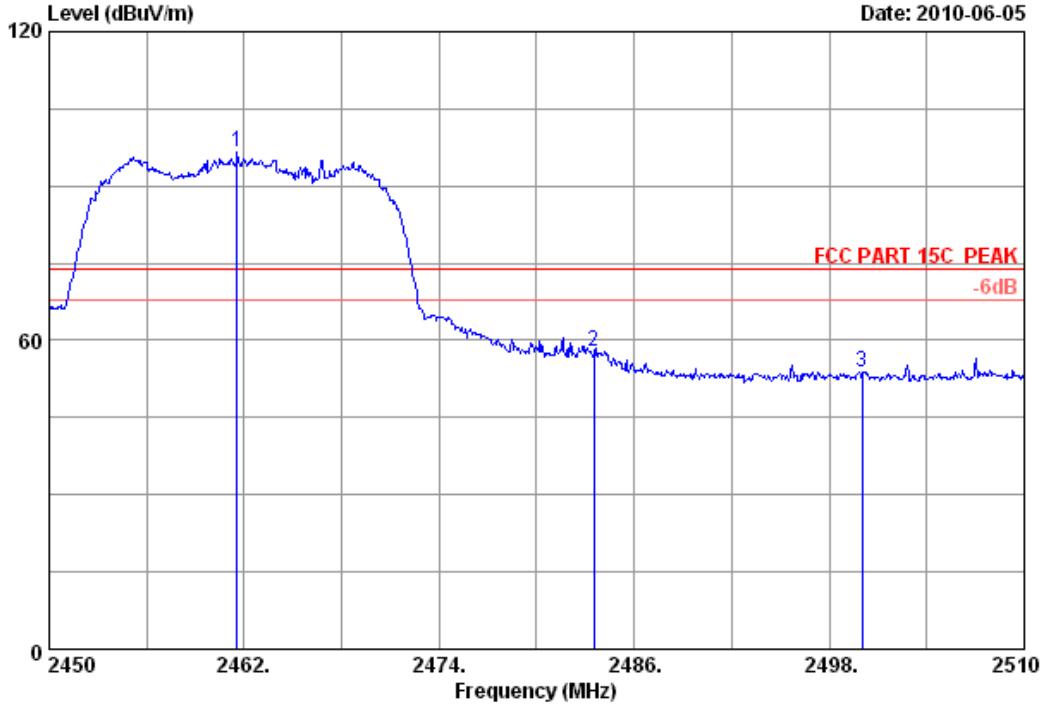
Remarks:

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



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Data: 41 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 41
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

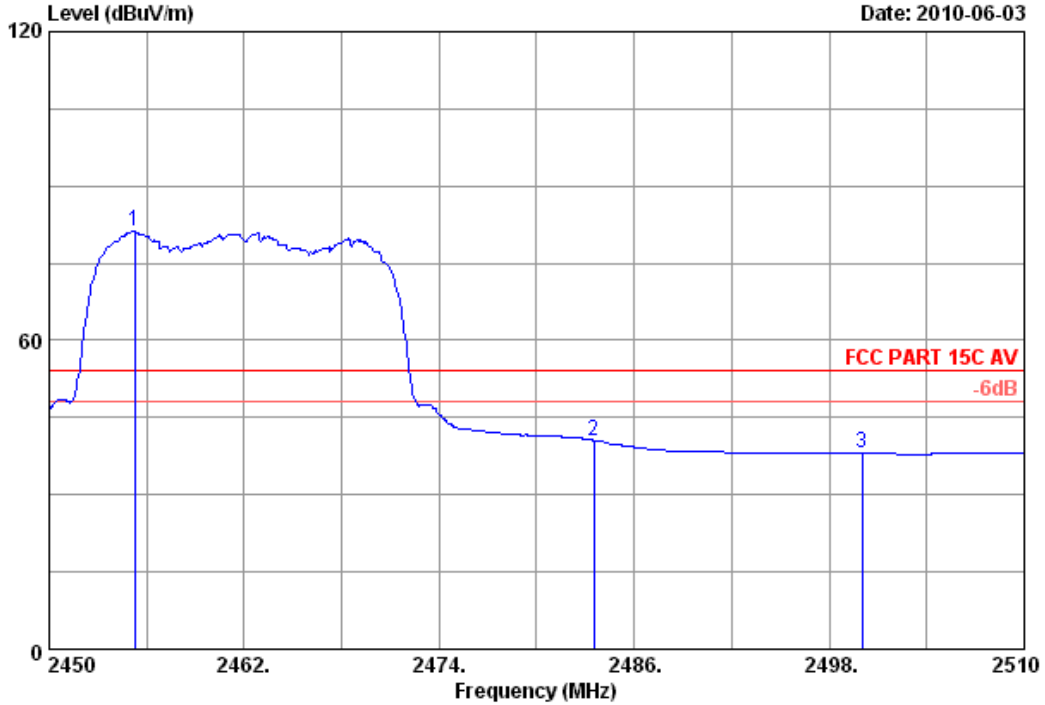
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.580	29.48	8.82	36.02	94.37	96.65	74.00	-22.65	Peak
2	2483.500	29.49	8.87	35.97	55.51	57.90	74.00	16.10	Peak
3	2500.000	29.50	8.92	36.00	51.36	53.78	74.00	20.22	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.



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Data: 42 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 42
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT20 CH11 2462MHz

	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	2455.280	29.48	8.82	36.02	78.98	81.26	54.00	-27.26	Average
2	2483.500	29.49	8.87	35.97	38.19	40.58	54.00	13.42	Average
3	2500.000	29.50	8.92	36.00	35.67	38.09	54.00	15.91	Average

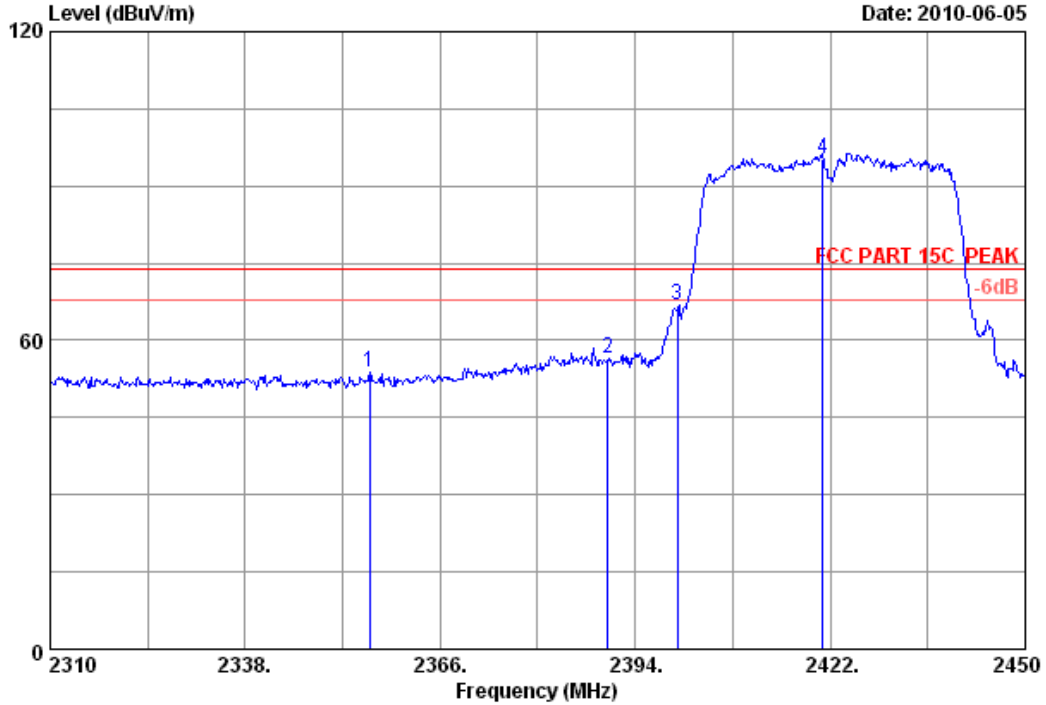
Remarks:

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



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Data: 45 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



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 : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH1 2422MHz

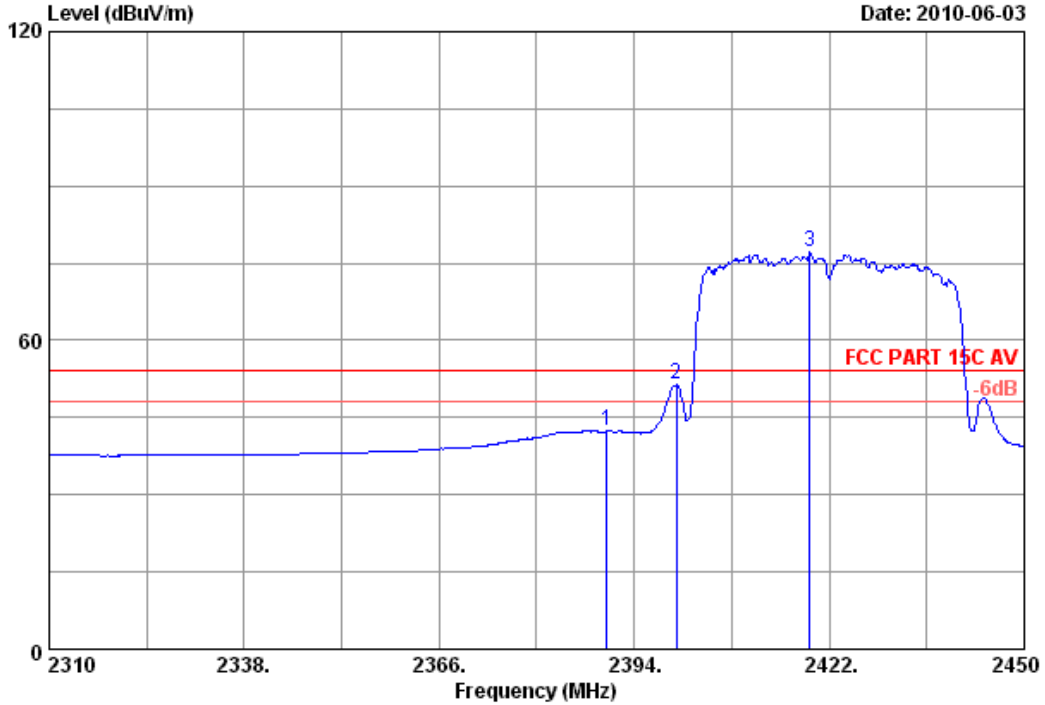
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2355.920	29.42	8.62	35.91	51.53	53.66	74.00	20.34	Peak
2	2390.000	29.44	8.67	36.09	54.60	56.62	74.00	17.38	Peak
3	2400.000	29.44	8.72	36.09	64.67	66.74	74.00	7.26	Peak
4	2420.880	29.46	8.72	36.01	93.12	95.29	74.00	-21.29	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.



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Data: 46 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



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	: Paul
EUT	: RF Module M/N:W220		
Power	: DC 5V		
Test mode	: Tx Mode 11nHT40	CH1	: 2422MHz

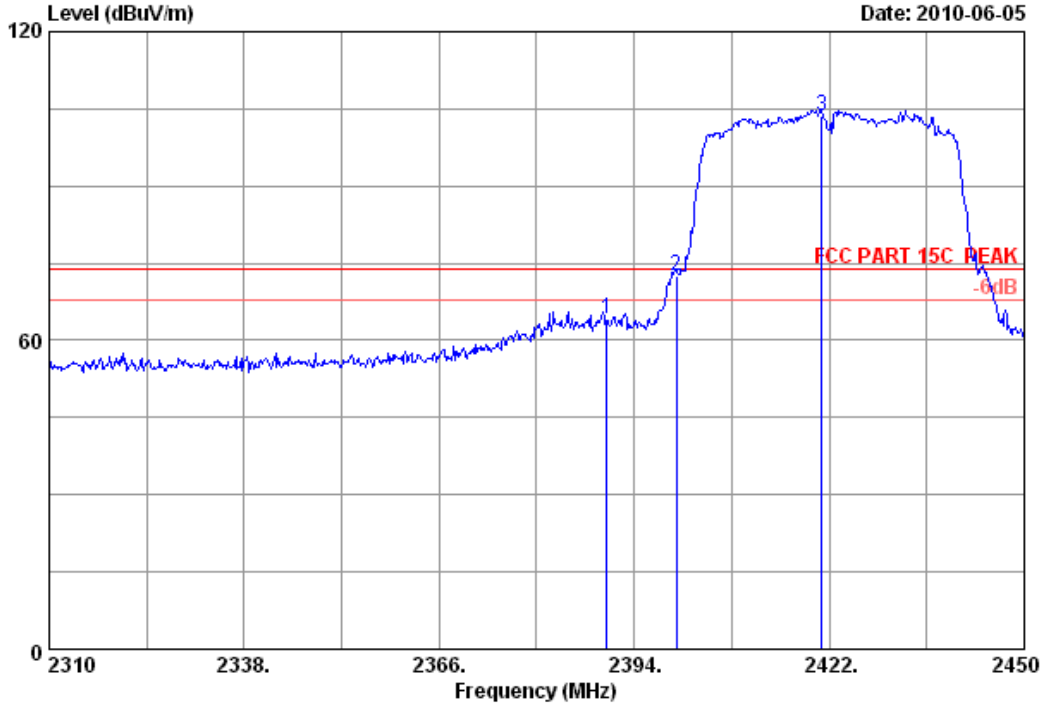
	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	29.44	8.67	36.09	40.27	42.29	54.00	11.71	Average
2	29.44	8.72	36.09	49.38	51.45	54.00	2.55	Average
3	29.45	8.72	35.95	74.87	77.09	54.00	-23.09	Average

- 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.



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Data: 47 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 47
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH1 2422MHz

	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	8.67	36.09	62.19	64.21	74.00	9.79	Peak
2	2400.000	29.44	8.72	36.09	70.55	72.62	74.00	1.38	Peak
3	2420.880	29.46	8.72	36.01	101.58	103.75	74.00	-29.75	Peak

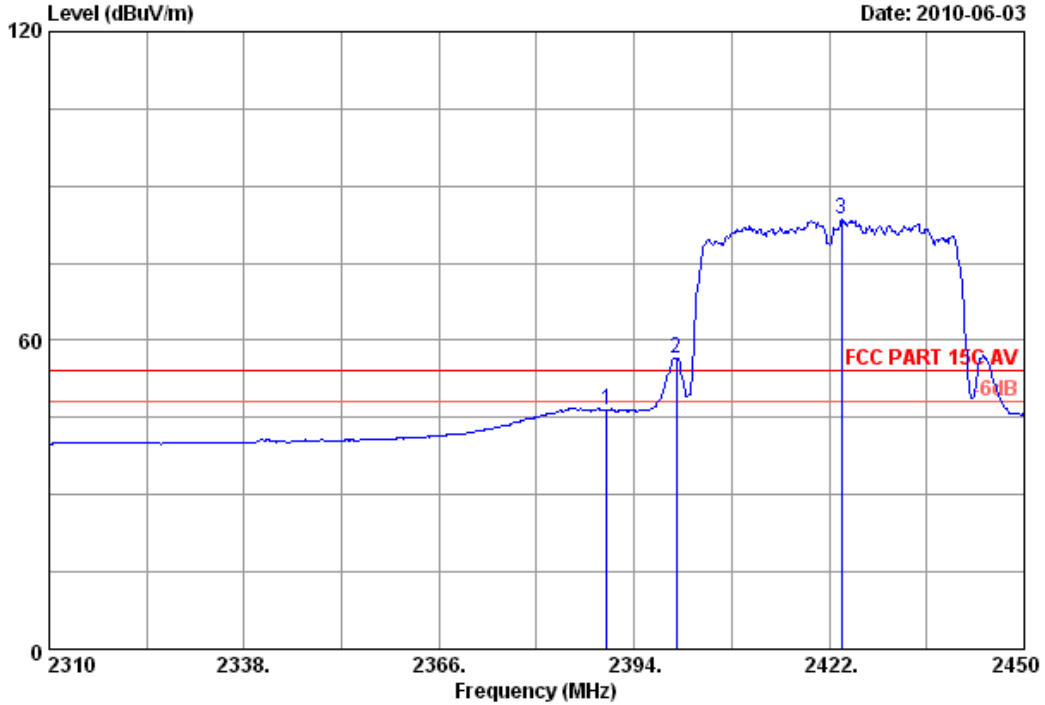
Remarks:

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



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Data: 48 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 48
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH1 2422MHz

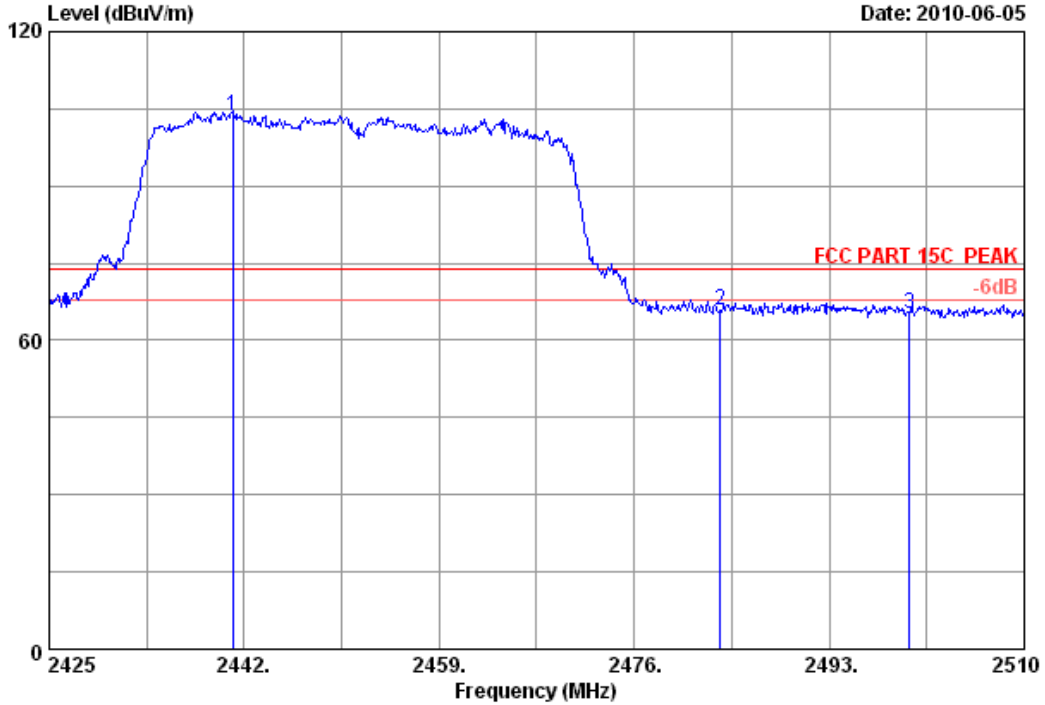
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	29.44	8.67	36.09	44.45	46.47	54.00	7.53	Average
2	2400.000	29.44	8.72	36.09	54.38	56.45	54.00	-2.45	Average
3	2423.820	29.46	8.77	36.01	81.31	83.53	54.00	-29.53	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.



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Data: 53 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 53
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

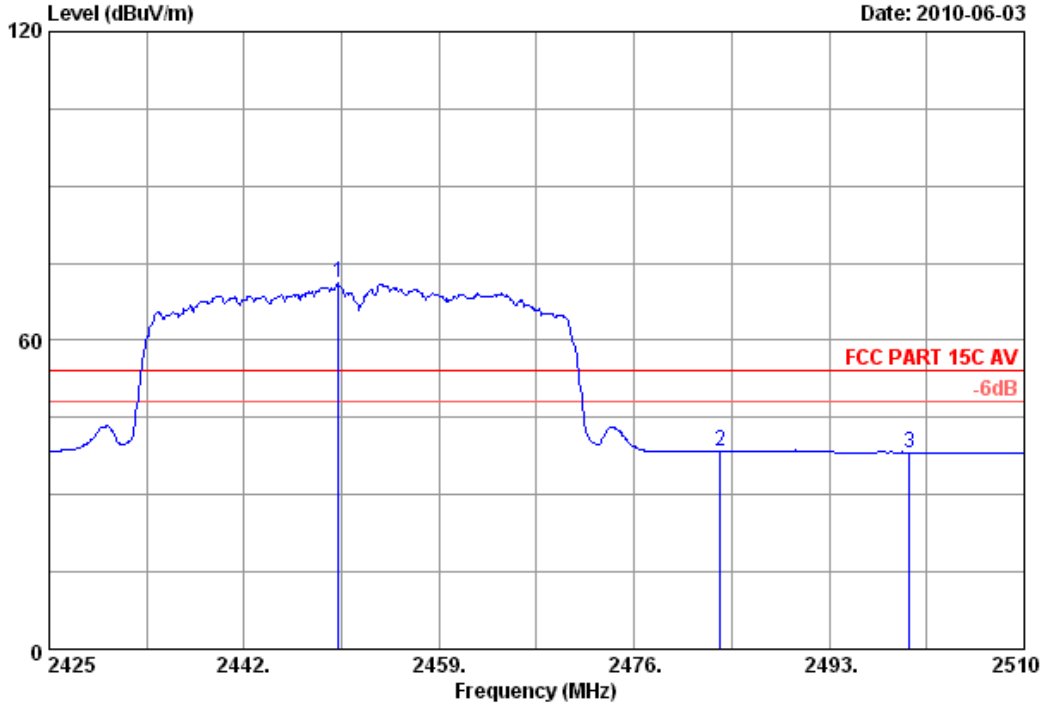
	Ant. Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.980	29.47	8.77	36.06	101.28	103.46	74.00	-29.46	Peak
2	2483.500	29.49	8.87	35.97	63.58	65.97	74.00	8.03	Peak
3	2500.000	29.50	8.92	36.00	62.92	65.34	74.00	8.66	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.



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Data: 54 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 54
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

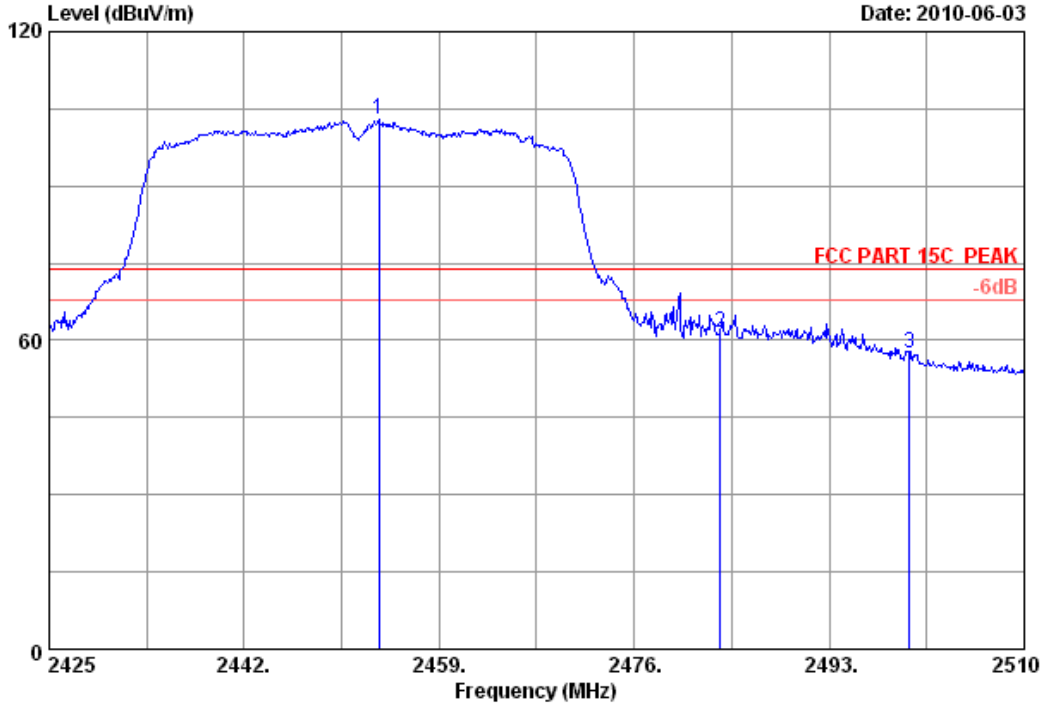
	Ant.	Cable	Amp.	Emission					
Freq.	Factor	loss	Factor	Reading	Level	Limits	Margin	Remark	
(MHz)	(dB/m)	(dB)	(dB)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)		
1 2450.245	29.47	8.82	36.06	68.80	71.03	54.00	-17.03	Average	
2 2483.500	29.49	8.87	35.97	36.10	38.49	54.00	15.51	Average	
3 2500.000	29.50	8.92	36.00	35.81	38.23	54.00	15.77	Average	

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



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Data: 55 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 55
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

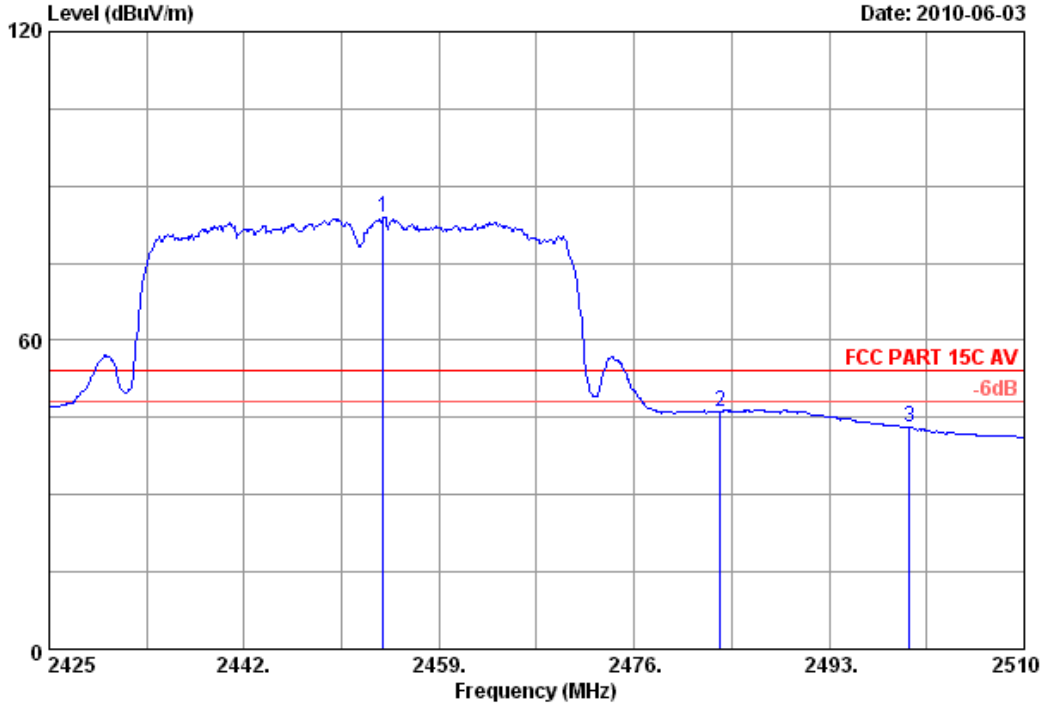
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2453.730	29.48	8.82	36.02	100.56	102.84	74.00	-28.84	Peak
2	2483.500	29.49	8.87	35.97	59.15	61.54	74.00	12.46	Peak
3	2500.000	29.50	8.92	36.00	54.97	57.39	74.00	16.61	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.



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Data: 56 File: E:\2010 report data\C\contel\ACS10Q0934.EM6 (104)



Site no. : 3m Chamber Data no. : 56
 Dis. / Ant. : 3m 3115(0911) Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23°C/54% Engineer : Paul
 EUT : RF Module M/N:W220
 Power : DC 5V
 Test mode : Tx Mode 11nHT40 CH7 2452MHz

	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	2454.155	29.48	8.82	36.02	81.63	83.91	54.00	-29.91	Average
2	2483.500	29.49	8.87	35.97	43.66	46.05	54.00	7.95	Average
3	2500.000	29.50	8.92	36.00	40.63	43.05	54.00	10.95	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 Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 10	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08, 10	1Year

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

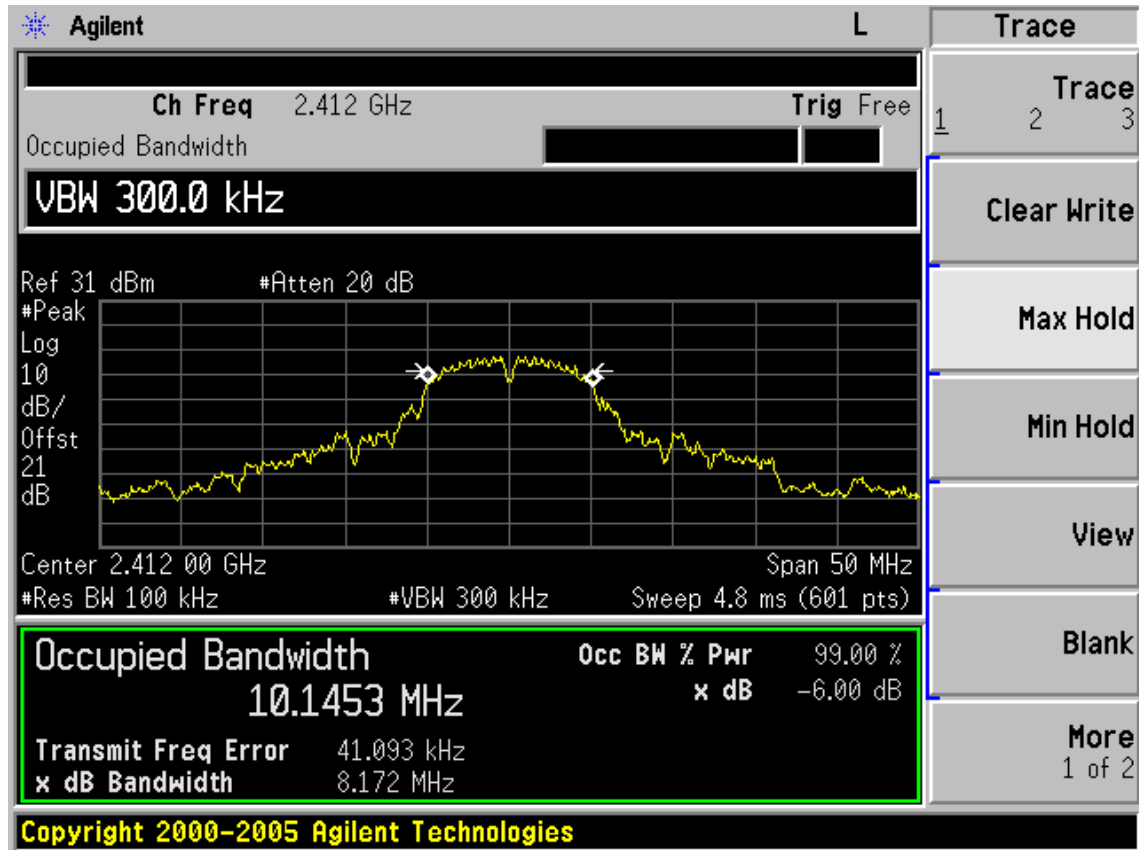
EUT:RF module		
M/N:W220		
Test date:2010-06-02	Pressure: 100.6 kpa	Humidity: 54 %
Tested by:Paul Tian	Test site: RF site	Temperature:25℃

Cable loss: 1.0 dB		Attenuator loss: 20.0 dB		Antenna Gain: 1.74 dBi	
Test Mode	CH	Result		Limit (KHz)	
		Chain1 6dB bandwidth (KHz)	Chain2 6dB bandwidth (KHz)		
11b	CH1	8172	8154	>500	
	CH6	8126	8134	>500	
	CH11	8146	8093	>500	
11g	CH1	16169	15531	>500	
	CH6	15195	15151	>500	
	CH11	15526	16335	>500	
11n HT20	CH1	16367	16038	>500	
	CH6	15852	15195	>500	
	CH11	15782	15743	>500	
11n HT40	CH1	32702	32544	>500	
	CH4	35233	35193	>500	
	CH7	35151	30151	>500	
Conclusion : PASS					

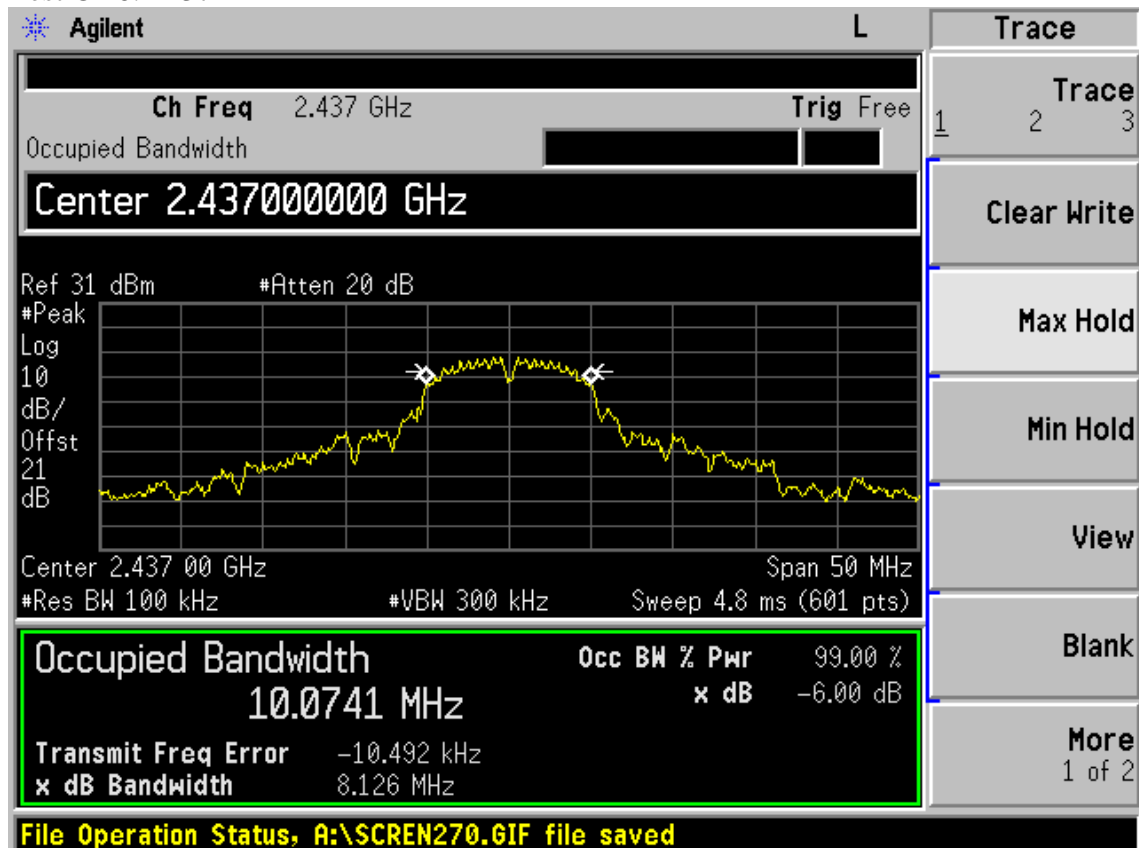
Chain 1:

Test Mode: IEEE 802.11b TX

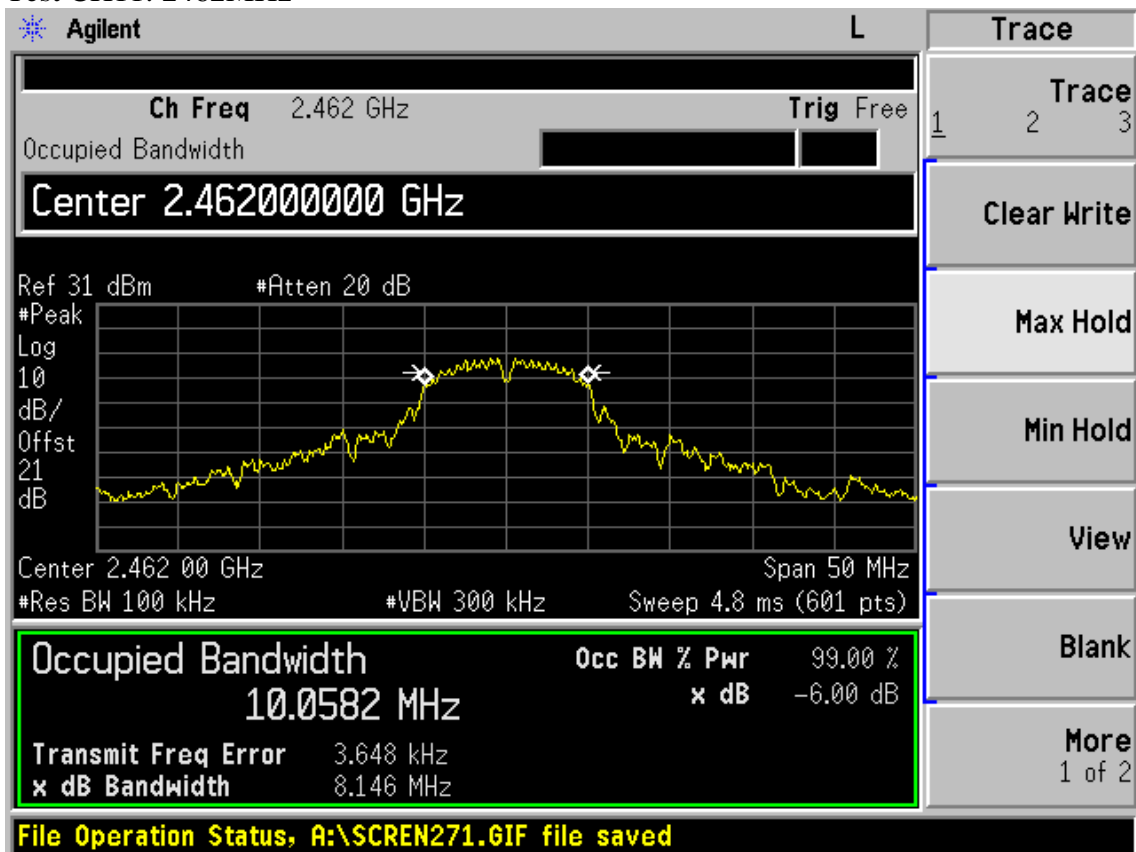
Test CH1: 2412MHz



Test CH6: 2437MHz

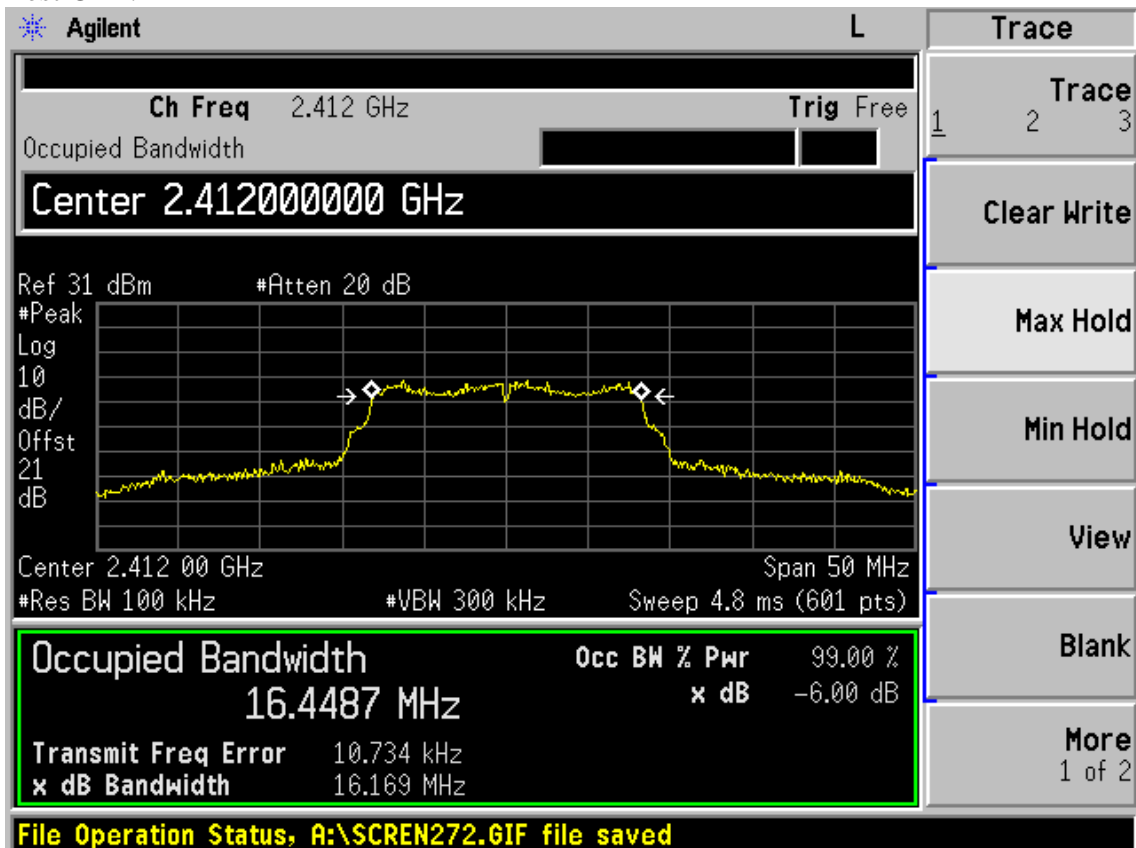


Test CH1: 2462MHz

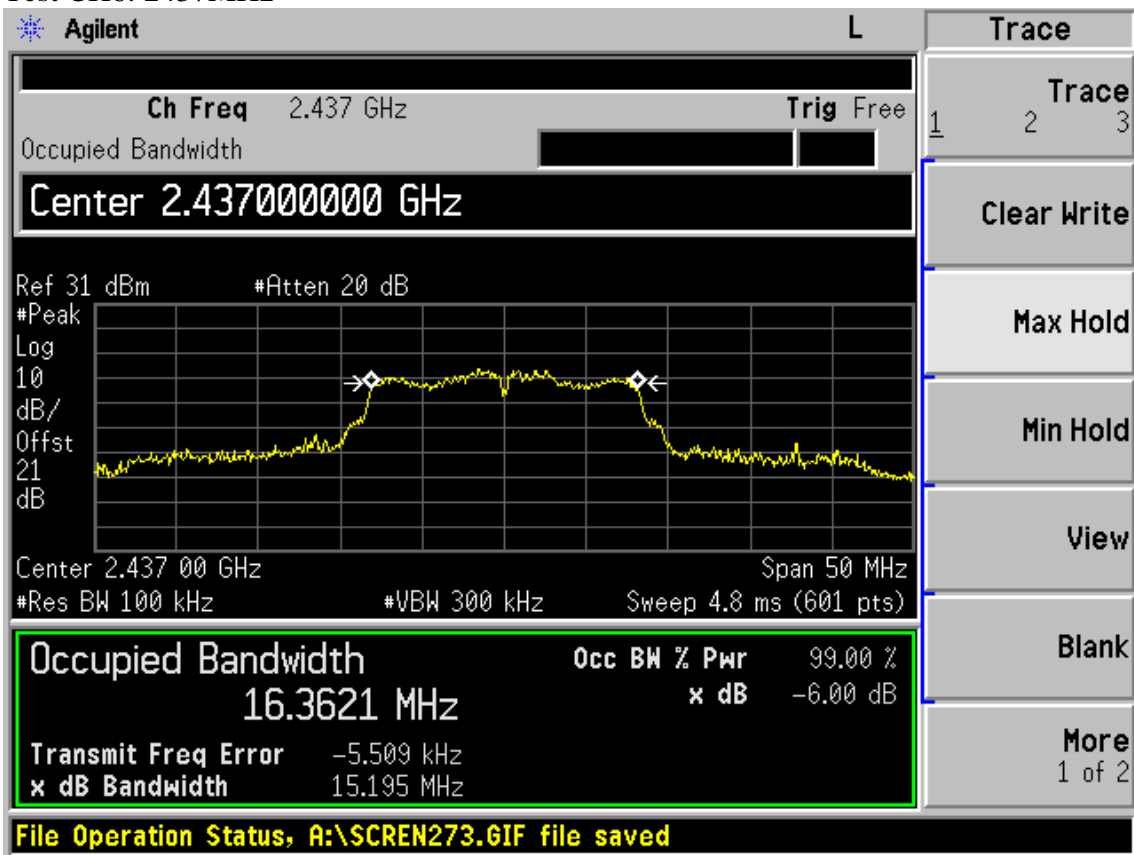


Test Mode: IEEE 802.11g TX

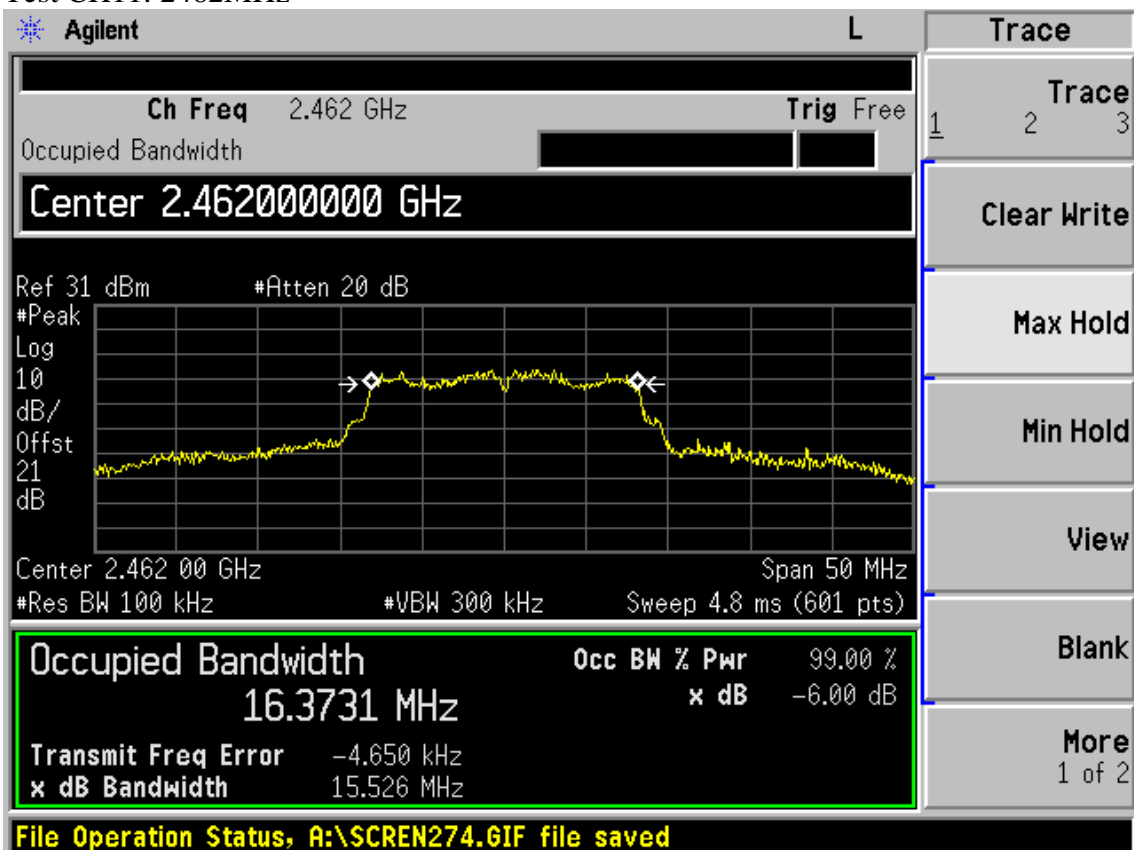
Test CH1: 2412MHz



Test CH6: 2437MHz

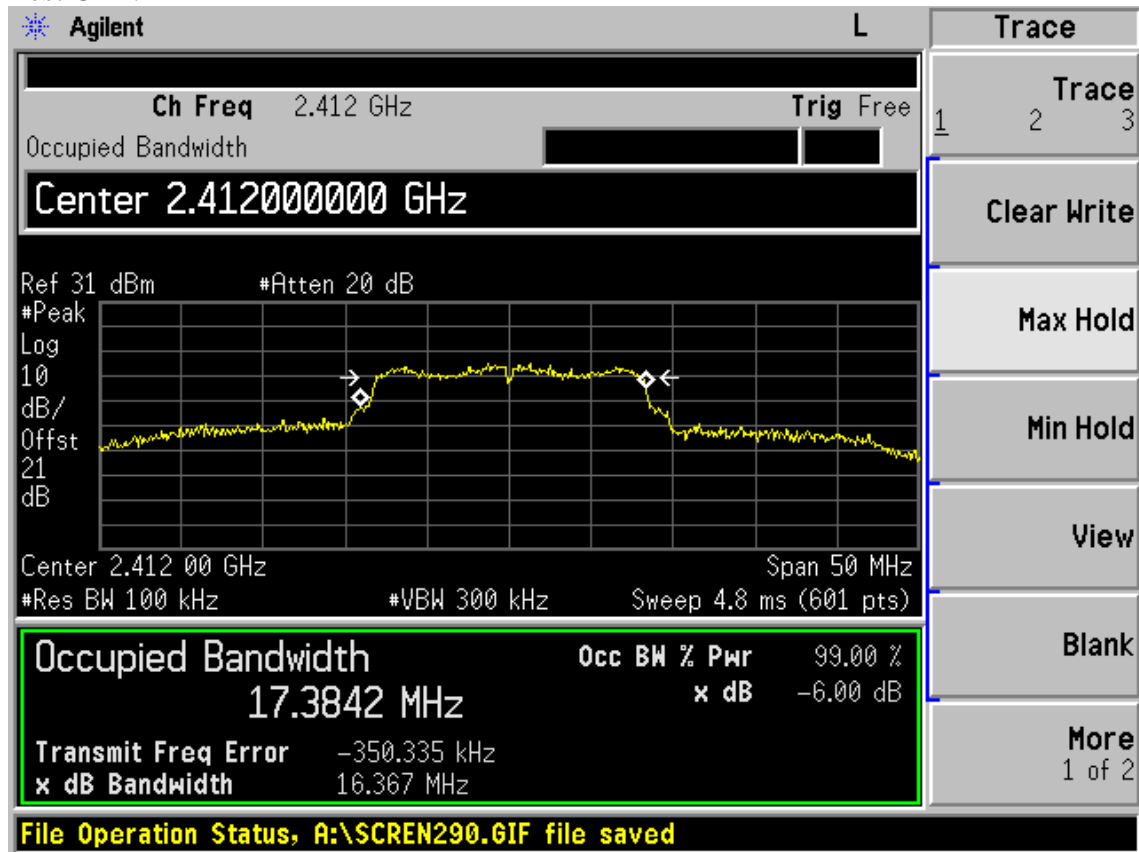


Test CH11: 2462MHz

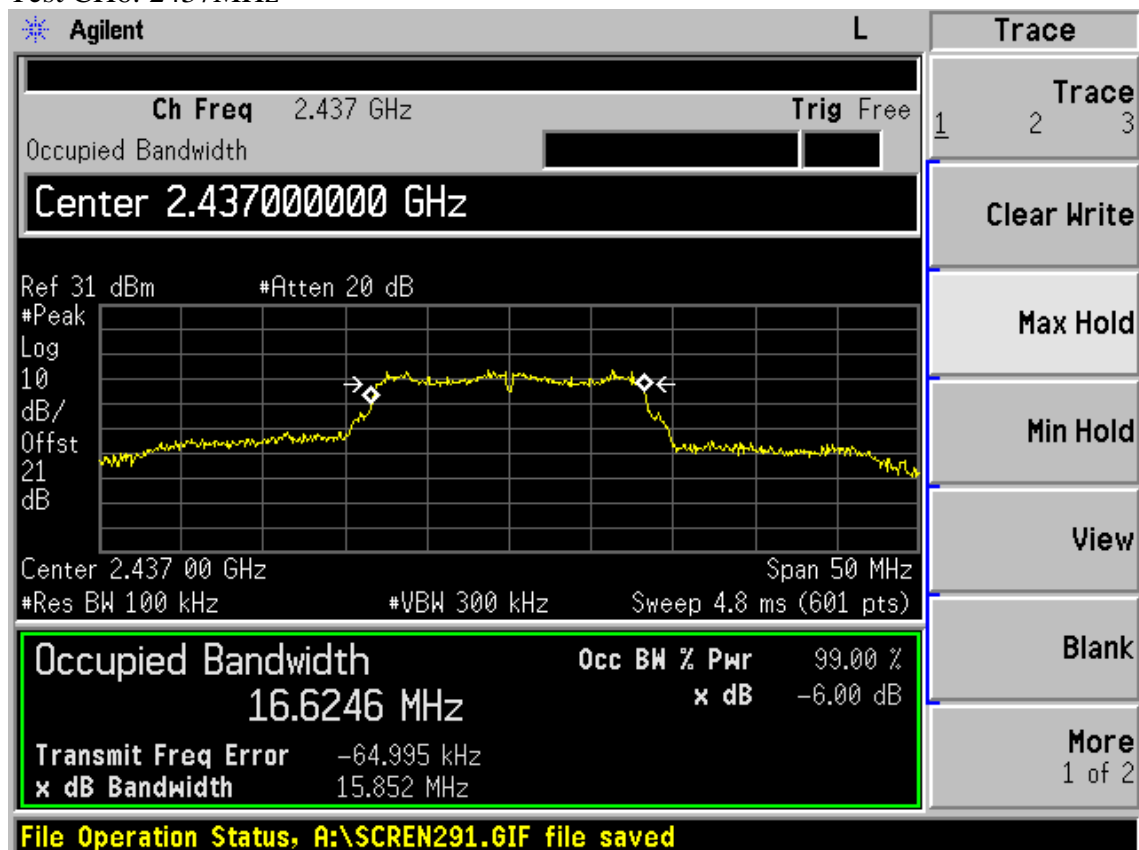


Test Mode: IEEE 802.11n HT20 TX

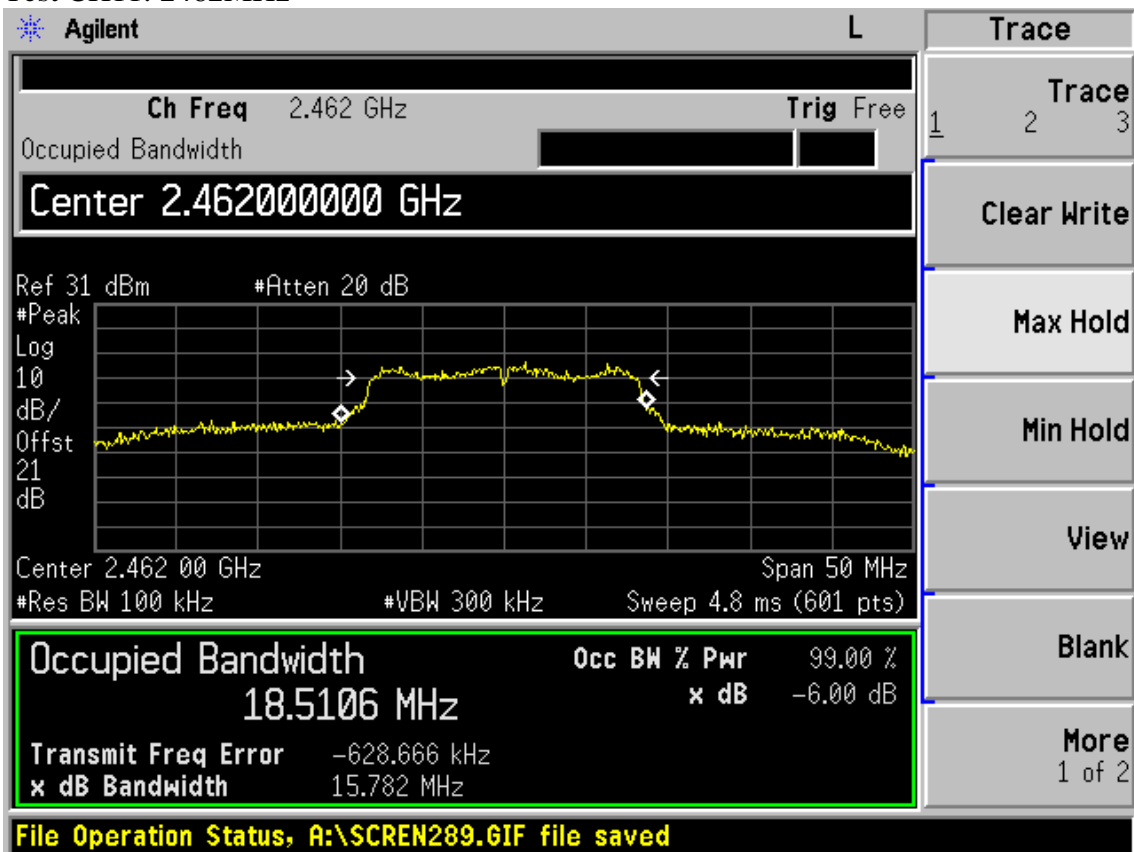
Test CH1: 2412MHz



Test CH6: 2437MHz

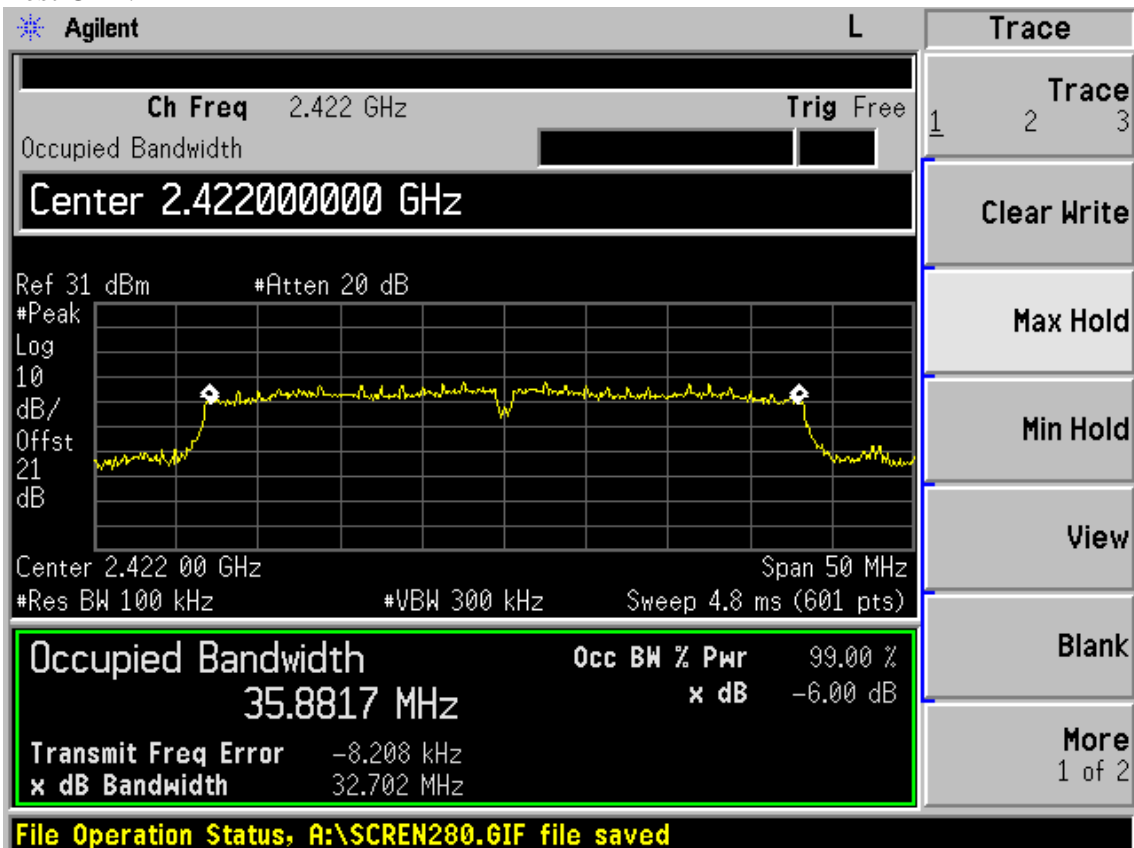


Test CH1: 2462MHz

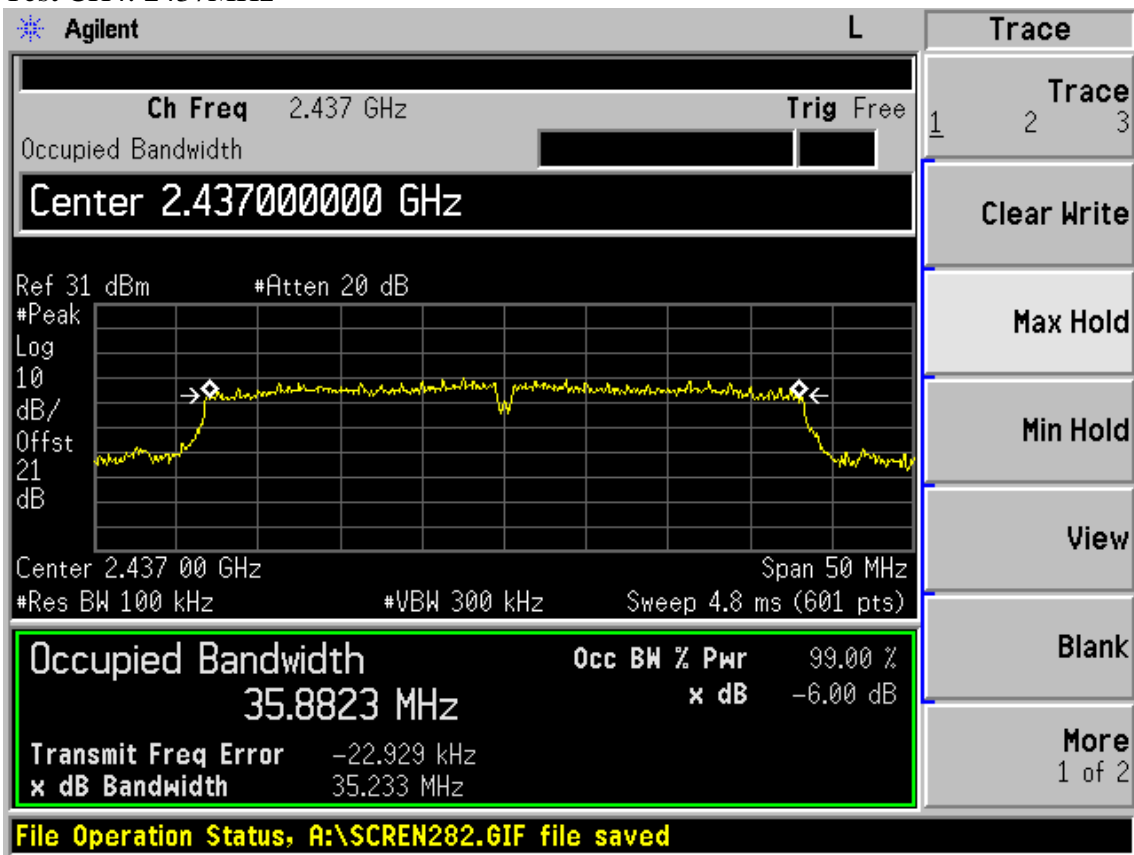


Test Mode: IEEE 802.11n HT40 TX

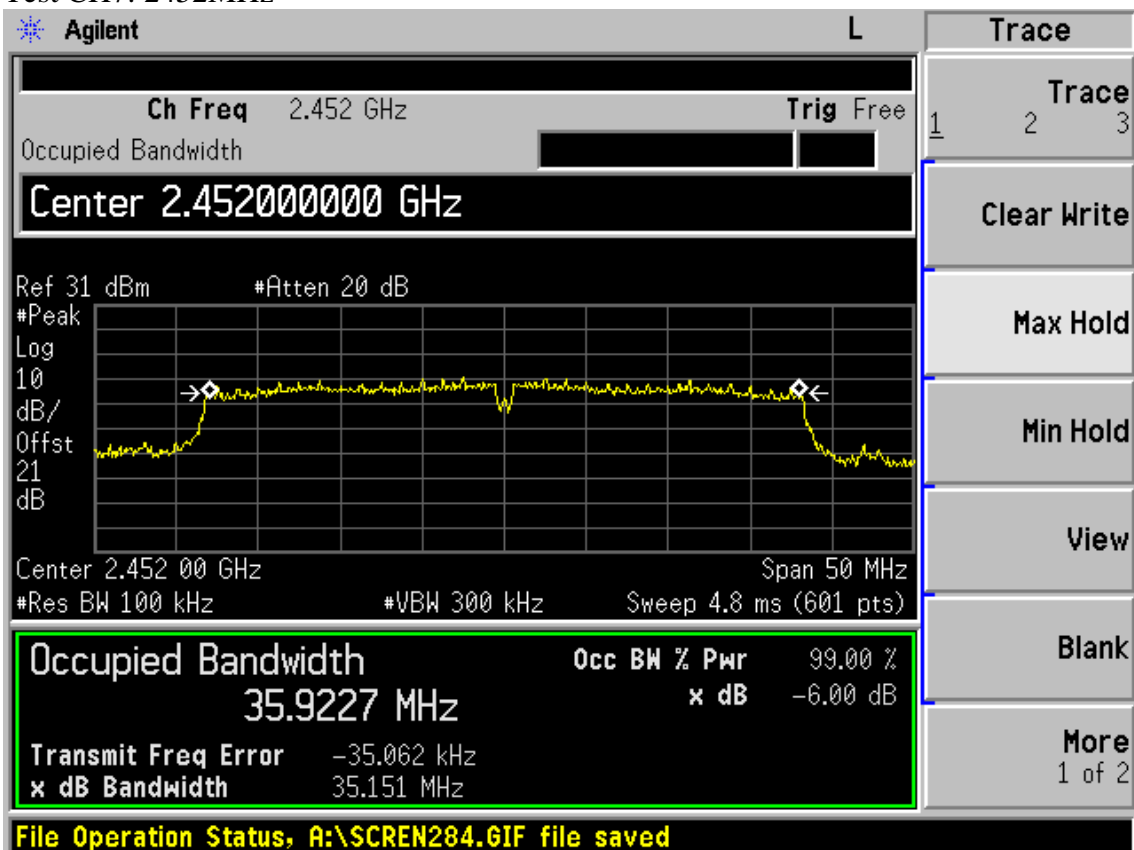
Test CH1: 2422MHz



Test CH4: 2437MHz



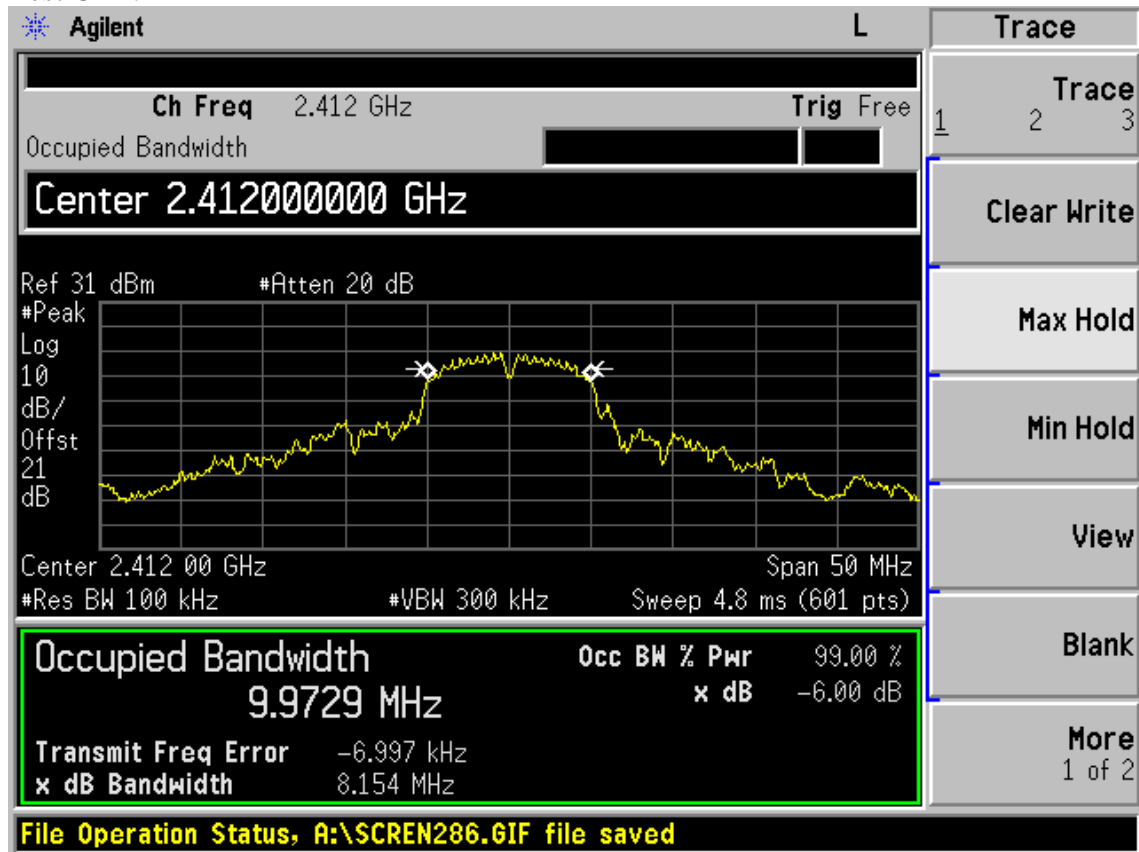
Test CH7: 2452MHz



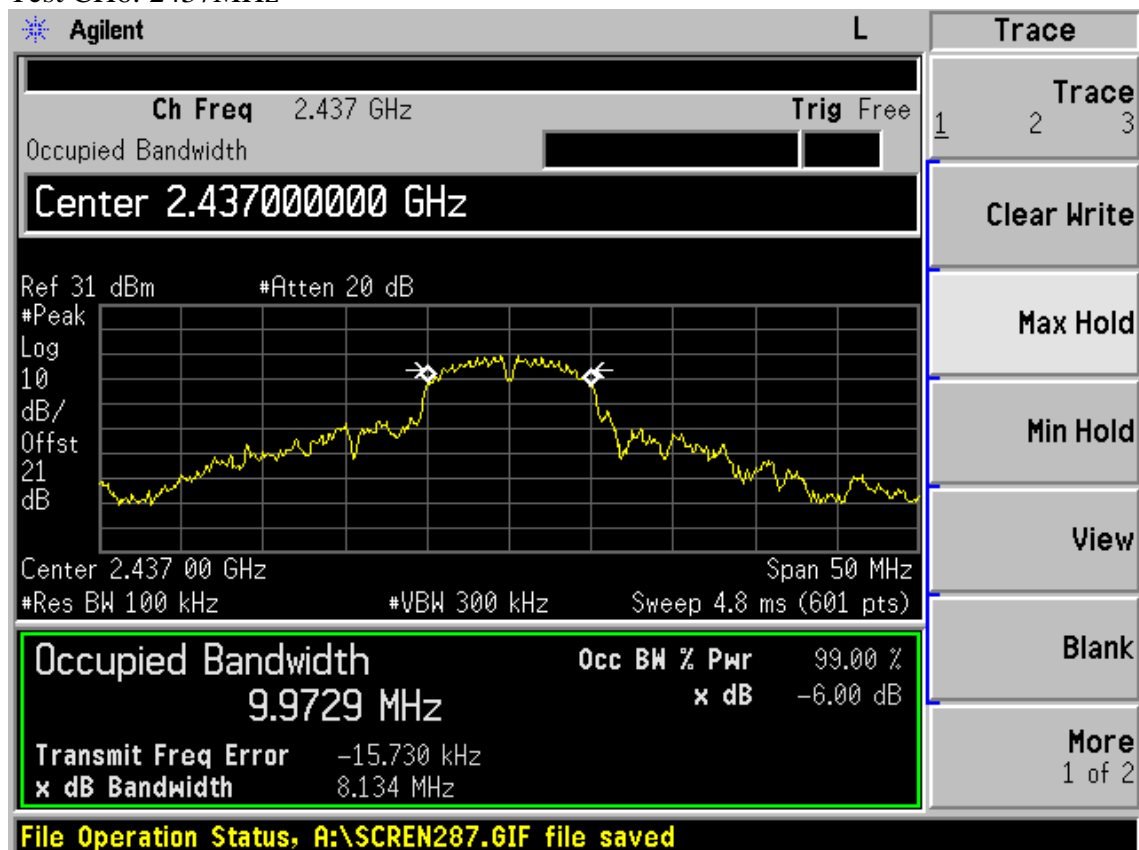
Chain 2:

Test Mode: IEEE 802.11b TX

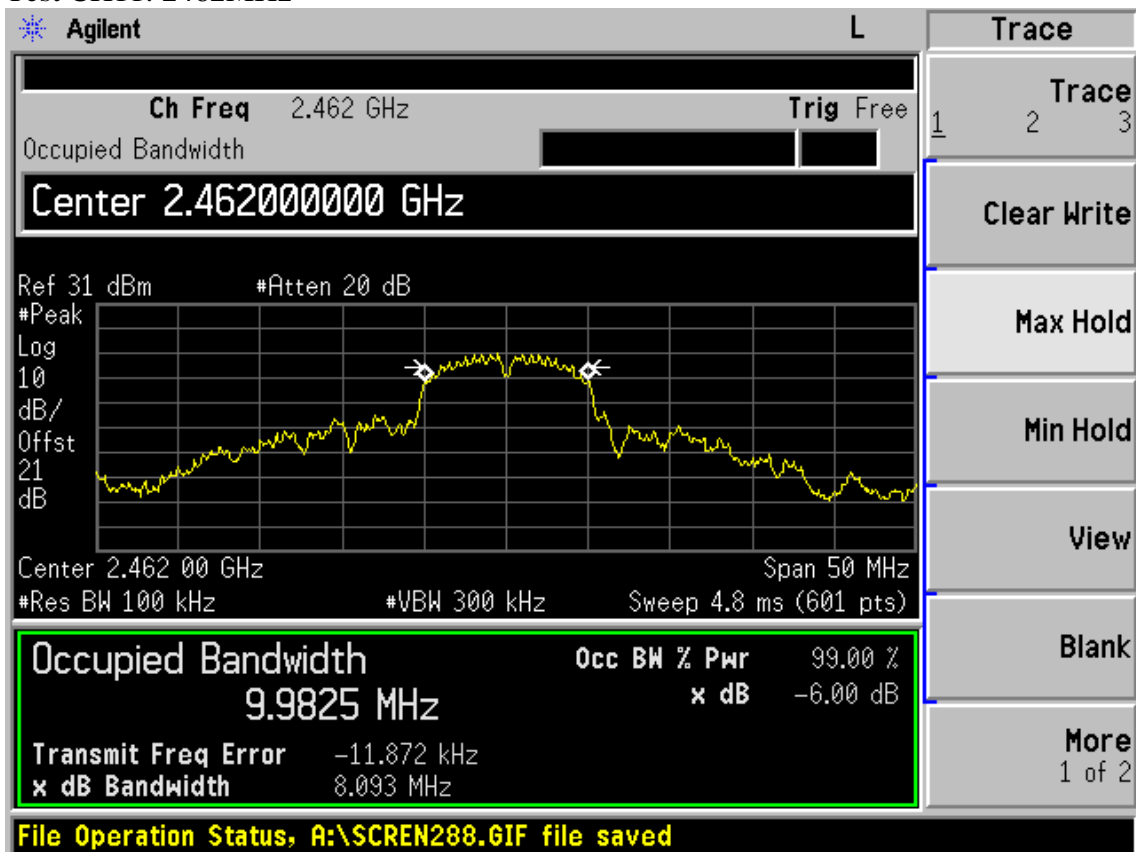
Test CH1: 2412MHz



Test CH6: 2437MHz

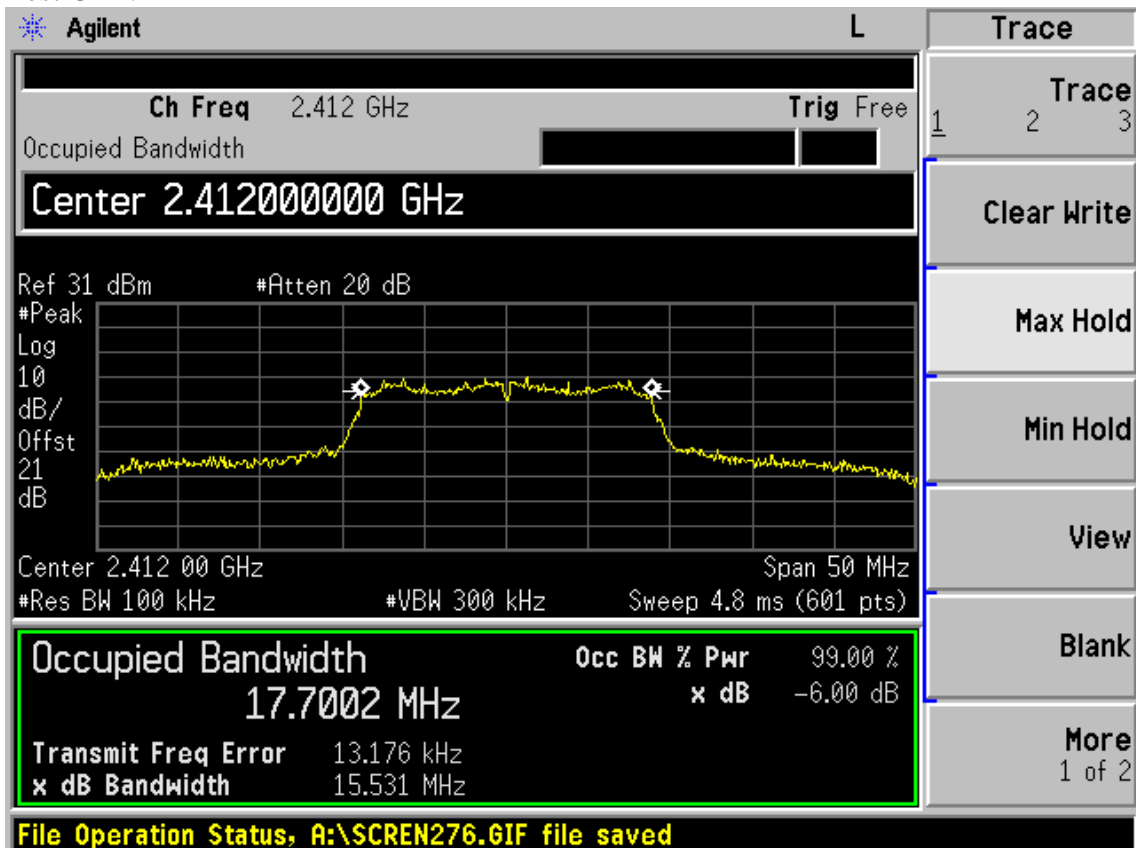


Test CH1: 2462MHz

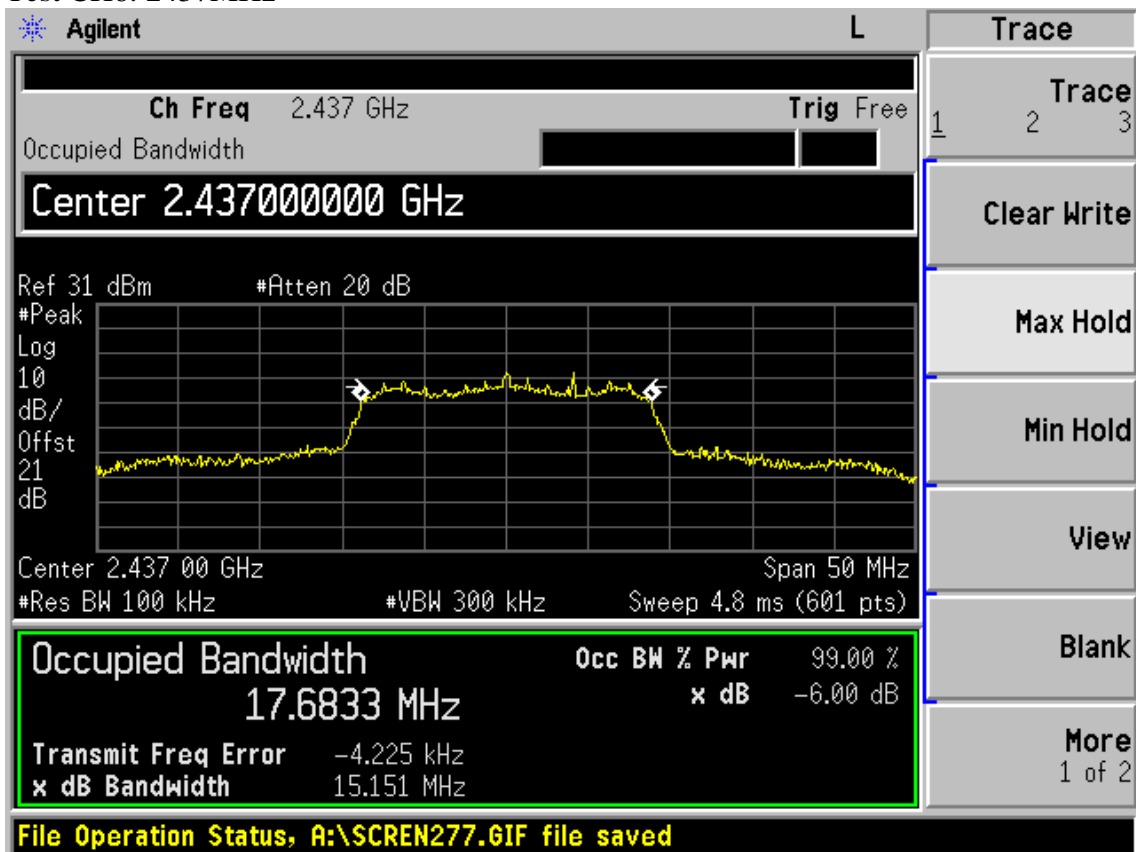


Test Mode: IEEE 802.11g TX

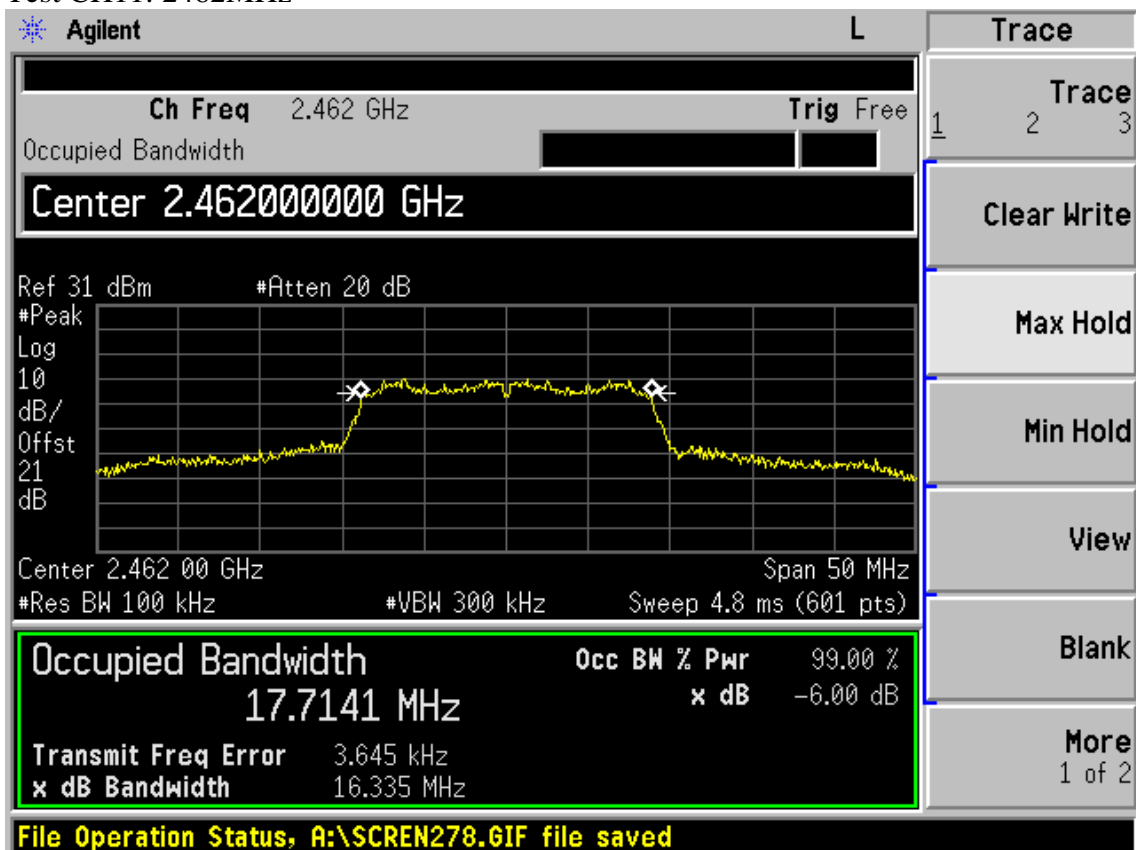
Test CH1: 2412MHz



Test CH6: 2437MHz

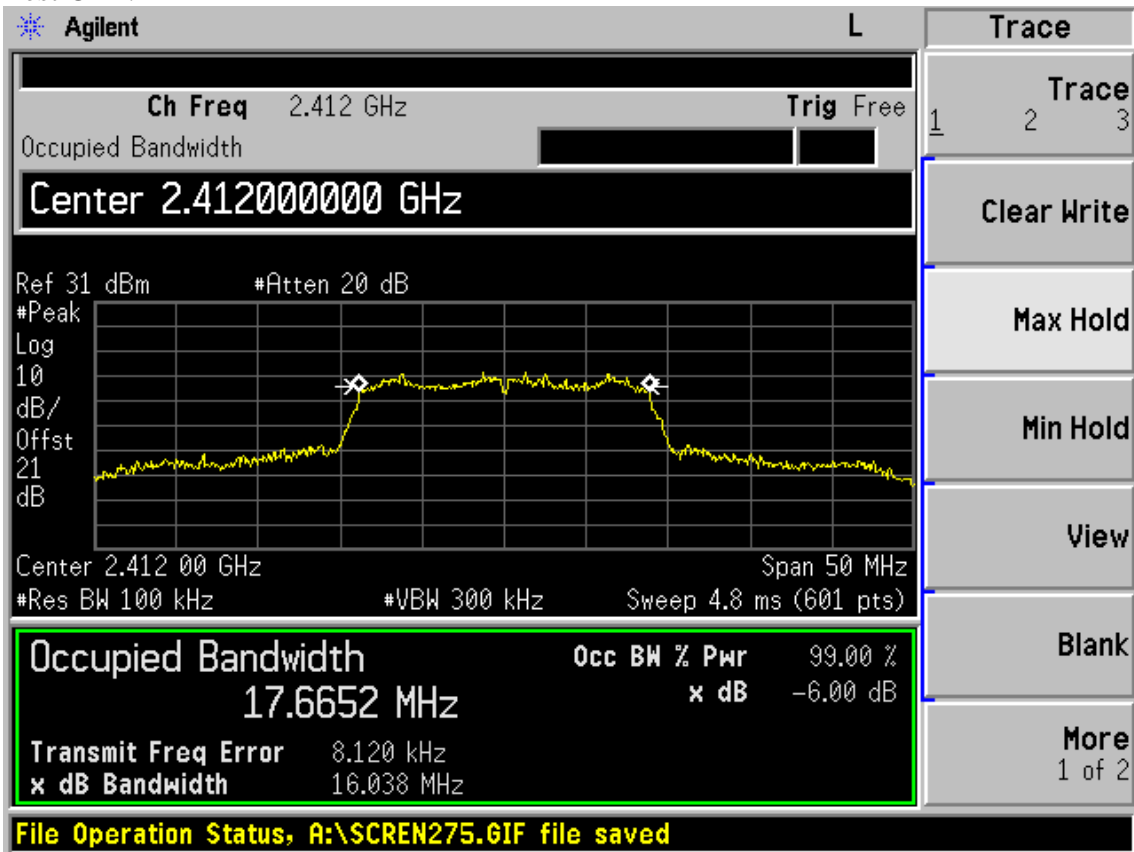


Test CH11: 2462MHz

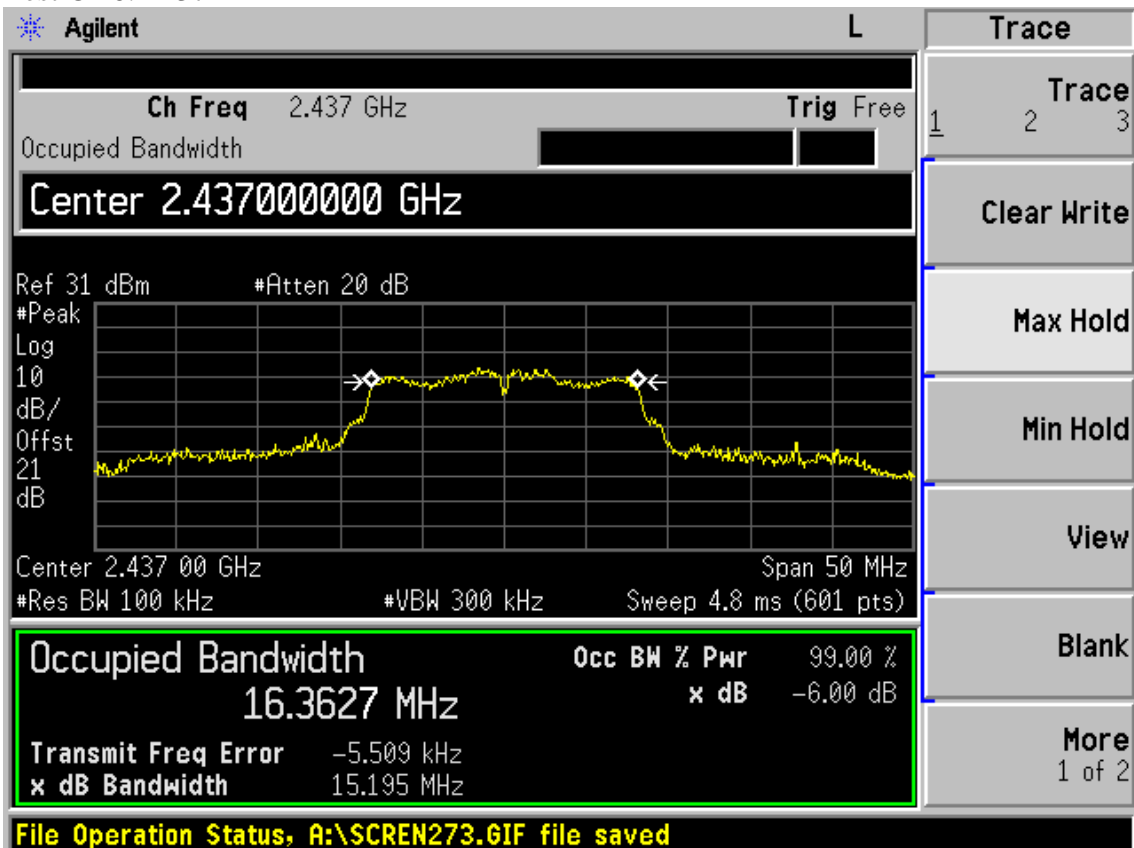


Test Mode: IEEE 802.11n HT20 TX

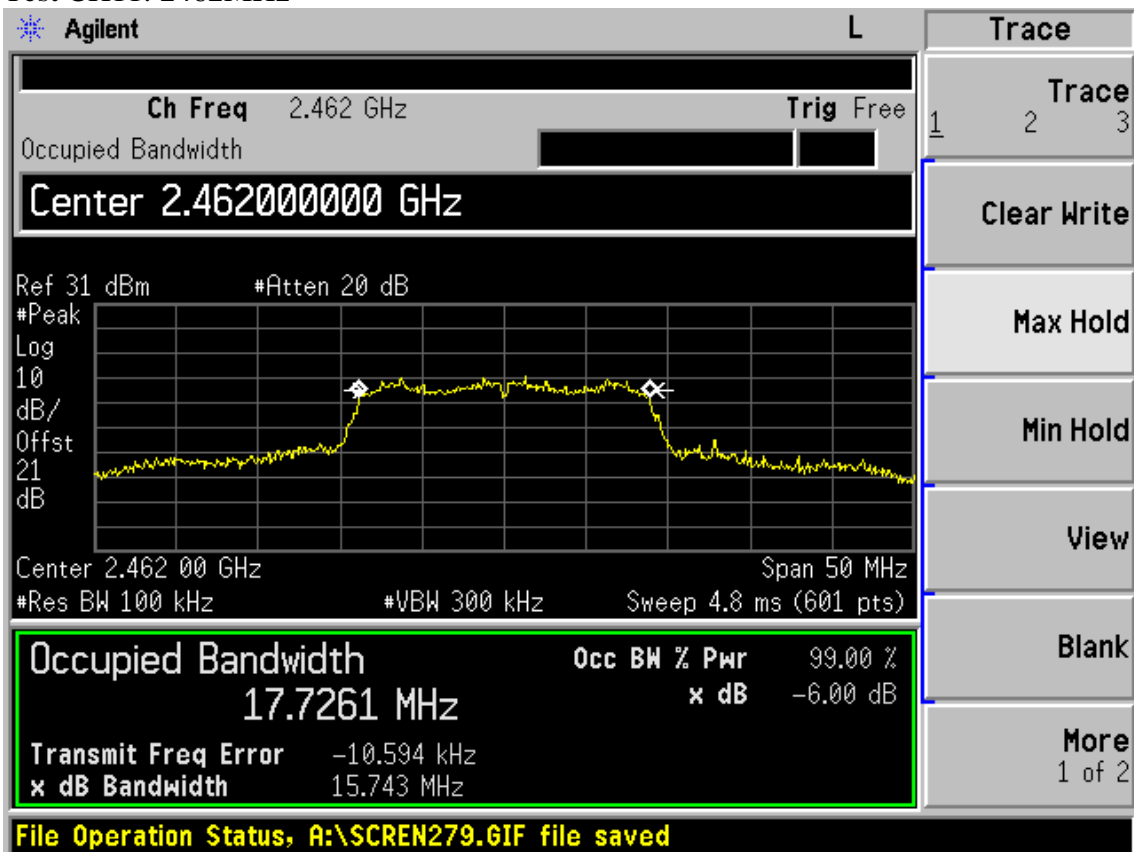
Test CH1: 2412MHz



Test CH6: 2437MHz

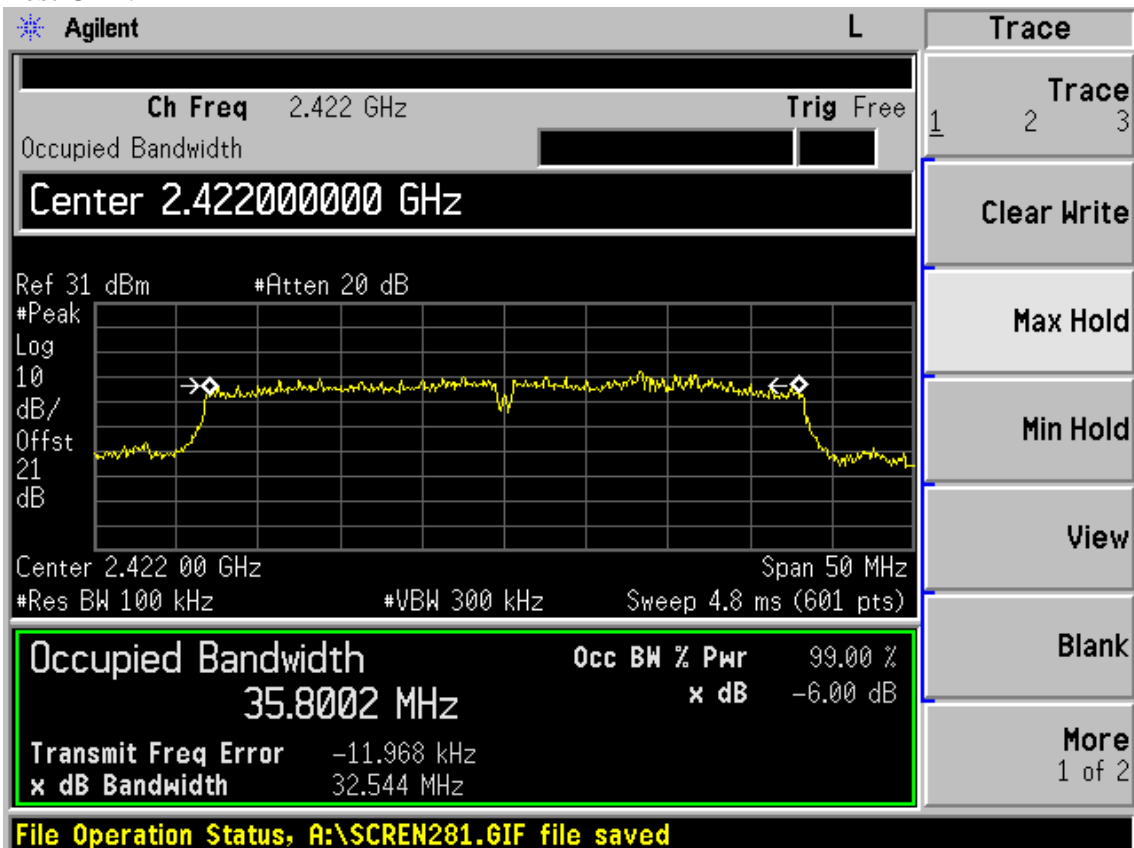


Test CH1: 2462MHz

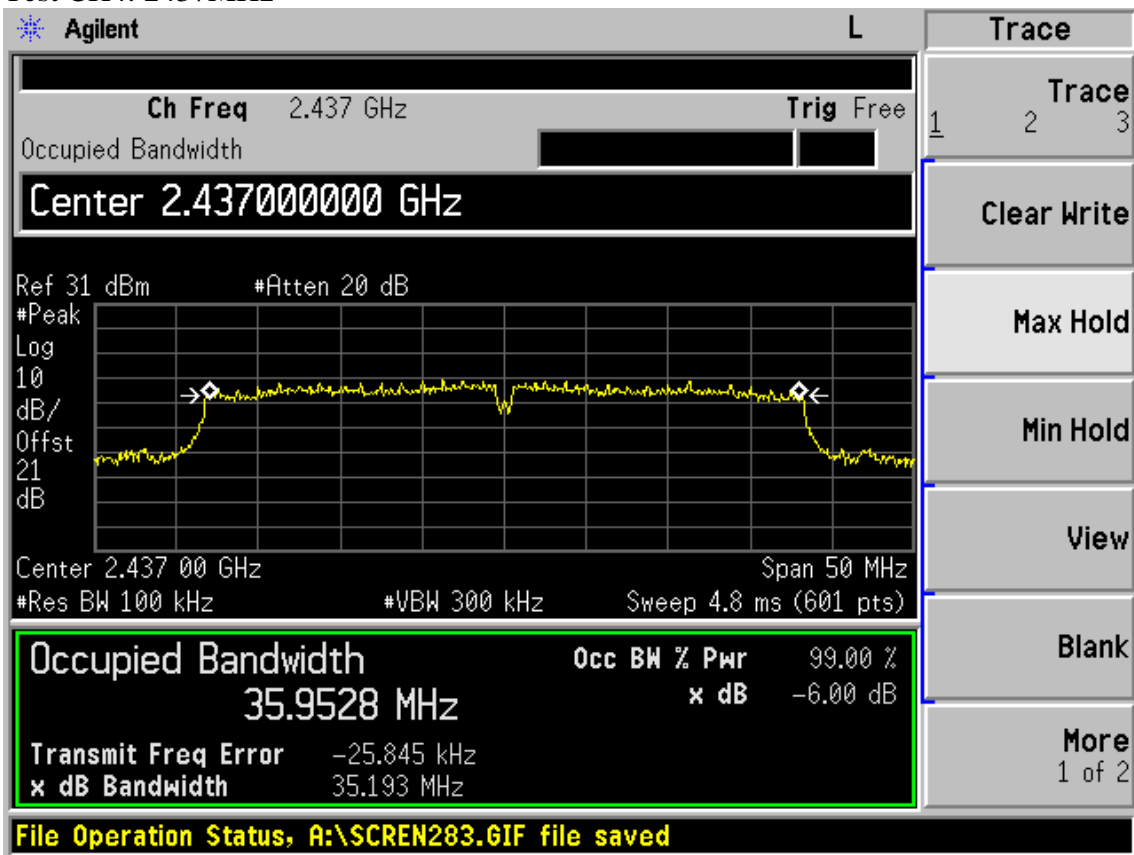


Test Mode: IEEE 802.11n HT40 TX

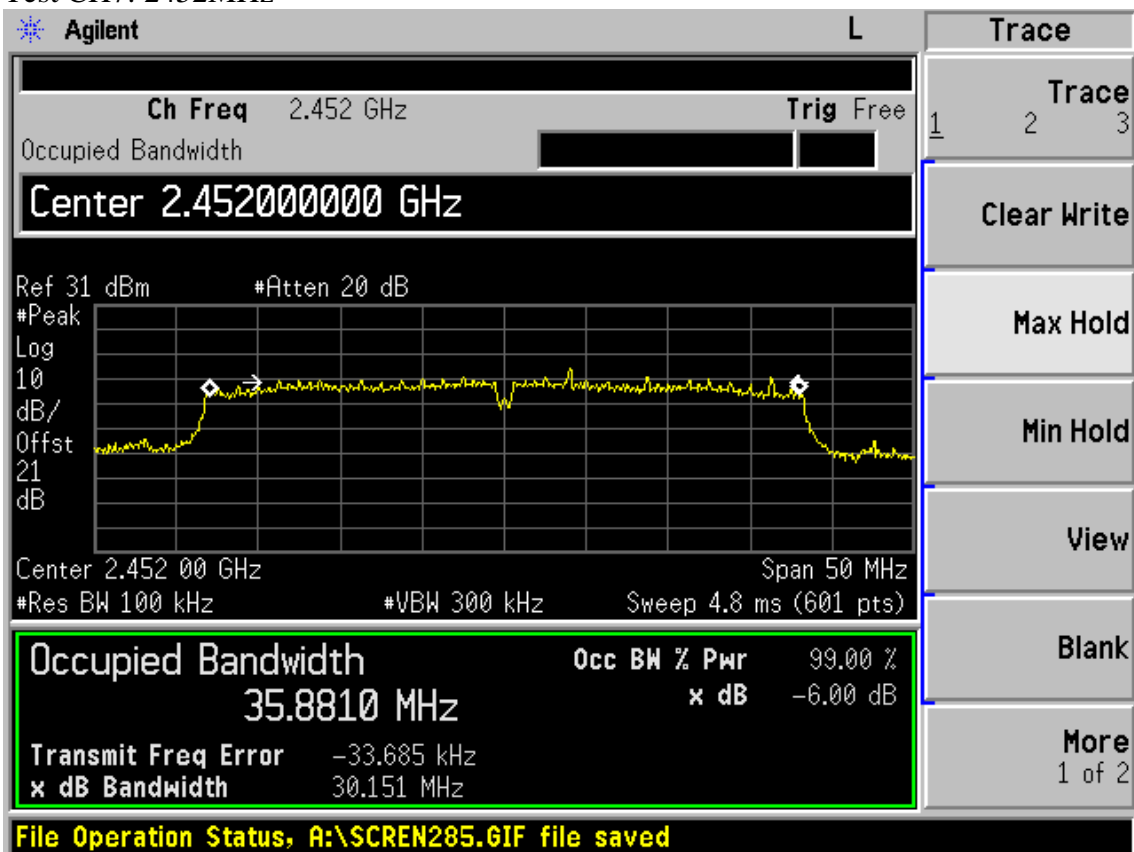
Test CH1: 2422MHz



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 Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2	Power meter	Anritsu	ML2487A	6K00002472	Oct.20.09	1Year
3	Power sensor	Anritsu	MA2491A	0033005	Oct.20.09	1Year
4	Attenuator	Agilent	8491B	MY39262165	May.08, 10	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May.08, 10	1Year

8.2. Limit

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 20dB attenuator.
- 2, For IEEE 802.11b/g and IEEE802.11n HT20 mode, use a PK power meter which's bandwidth is above 6dB bandwidth of signal to measure out each test modes and chain's 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 the channel power measure function of Spectrum Analyzer was used to measure out the PK output power of each test modes and chain's.
- 4, For IEEE802.11n mode, it's MIMO technology, so account total PK output power by add each chain's PK output power.

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

8.4. Test Results

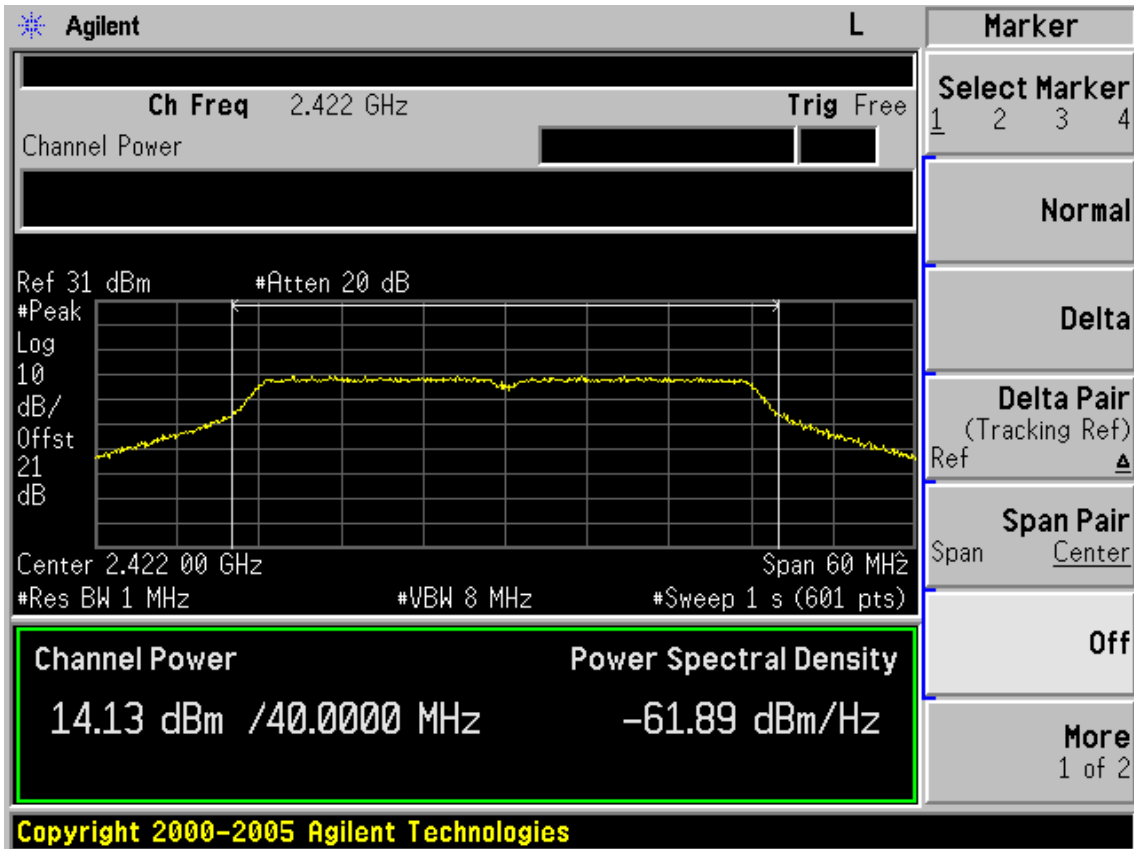
EUT: RF Module		
M/N:W220		
Test date:2010-06-02	Pressure:100.7 kpa	Humidity:60%
Tested by: Paul Tian	Test site: RF site	Temperature : 24°C

Cable loss: 1.0dB		Attenuator loss:20dB		Antenna Gain: 1.74dBi	
Mode	CH	Result			Limit
		Chain 1 PK Output power(dBm)	Chain 2 PK Output power(dBm)	Total PK Output power(dBm)	(dBm)
11b	CH1	21.12	22.52	N/A	30
	CH6	21.43	22.63	N/A	30
	CH11	21.68	23.48	N/A	30
11g	CH1	19.76	20.69	N/A	30
	CH6	24.53	25.37	N/A	30
	CH11	20.15	18.61	N/A	30
11n HT20	CH1	18.88	17.72	21.35	30
	CH6	24.42	22.21	26.46	30
	CH11	16.36	16.77	19.58	30
11n HT40	CH1	14.13	15.82	18.07	30
	CH4	22.24	24.40	26.46	30
	CH7	13.57	15.17	17.45	30
Conclusion: PASS					

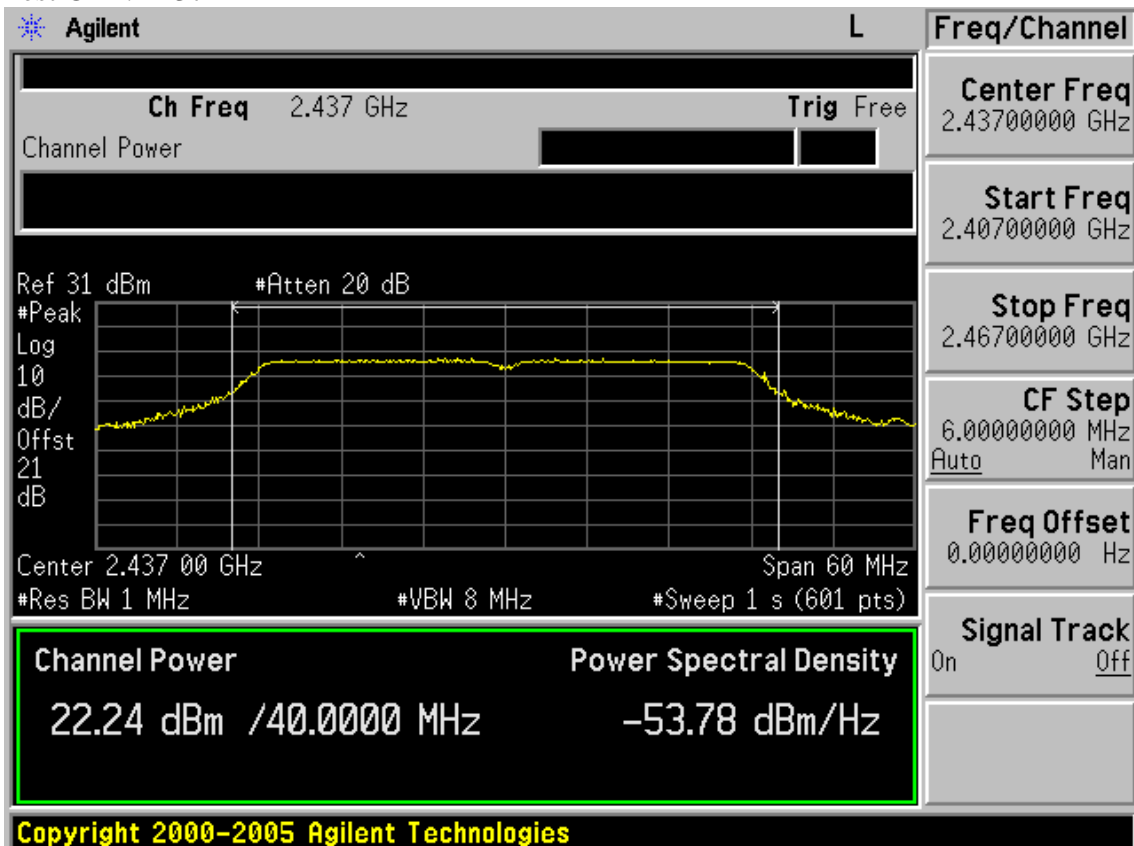
Test Mode: IEEE 802.11n HT40

Chain 1:

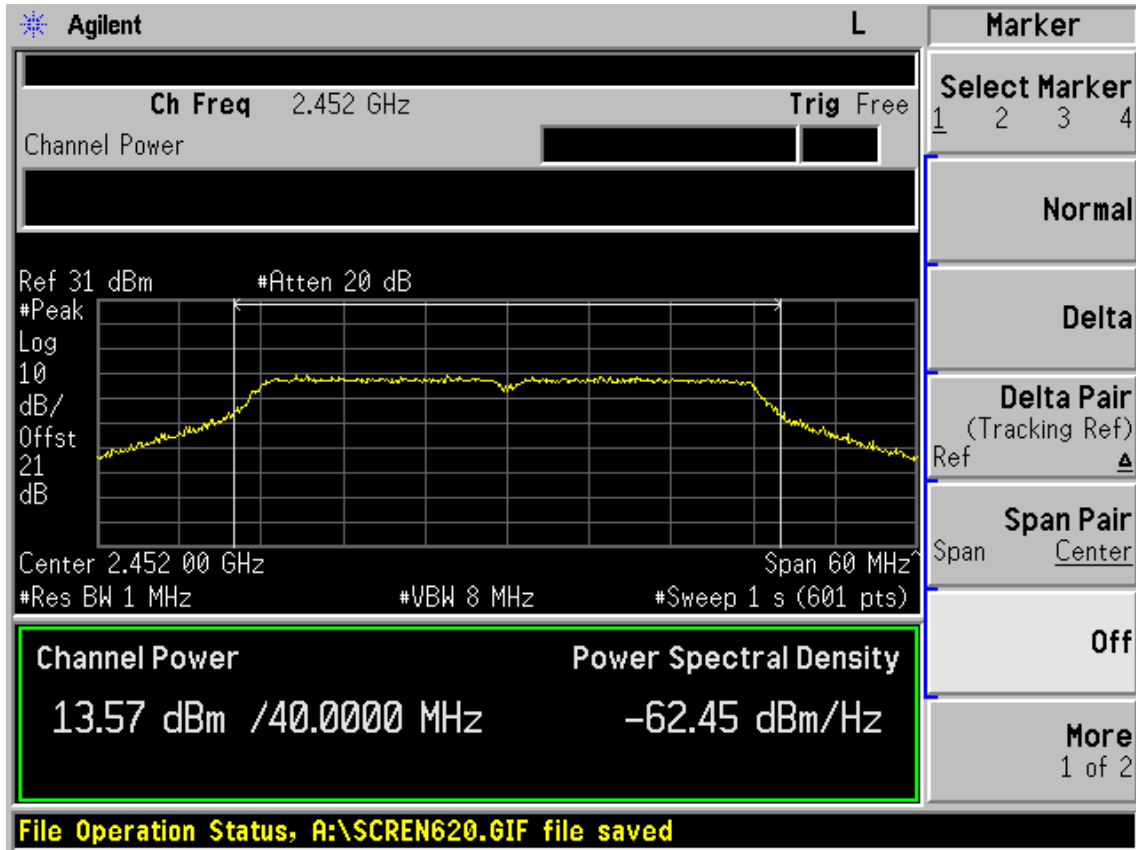
Test CH1: 2422MHz



Test CH1: 2437MHz

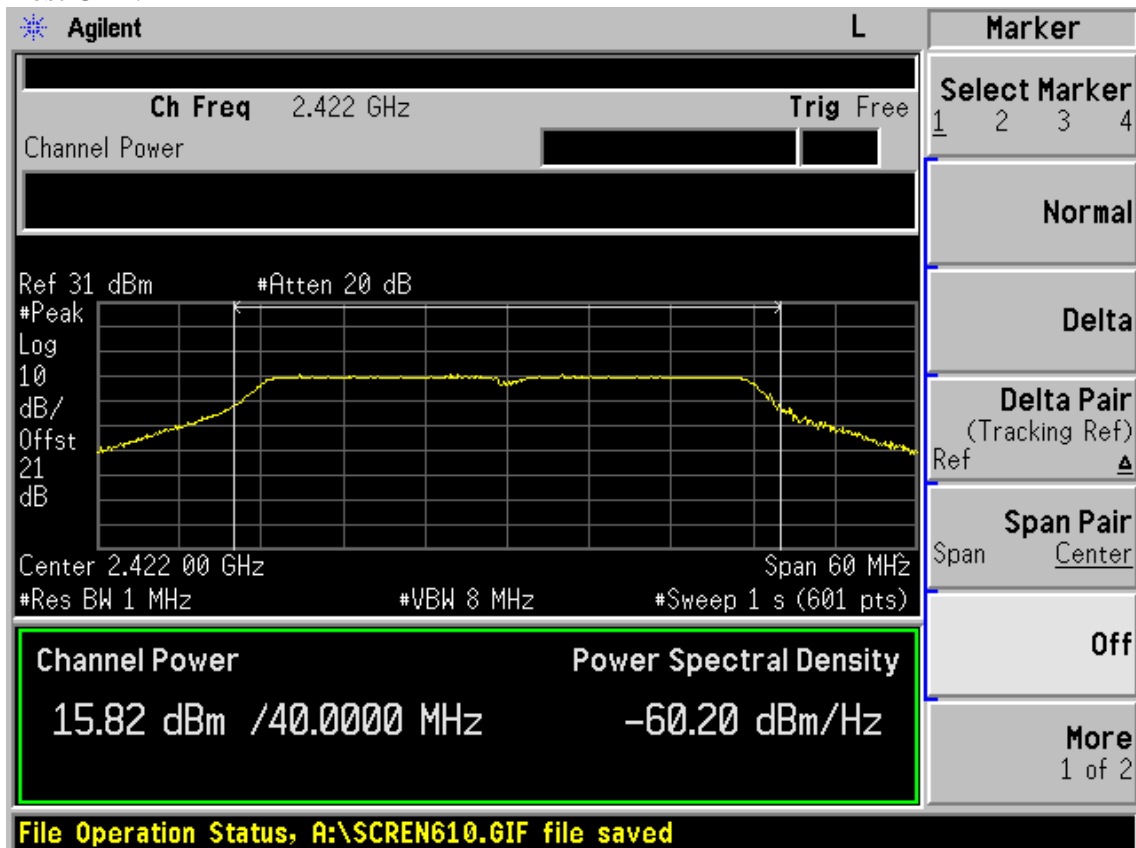


Test CH1: 2452MHz

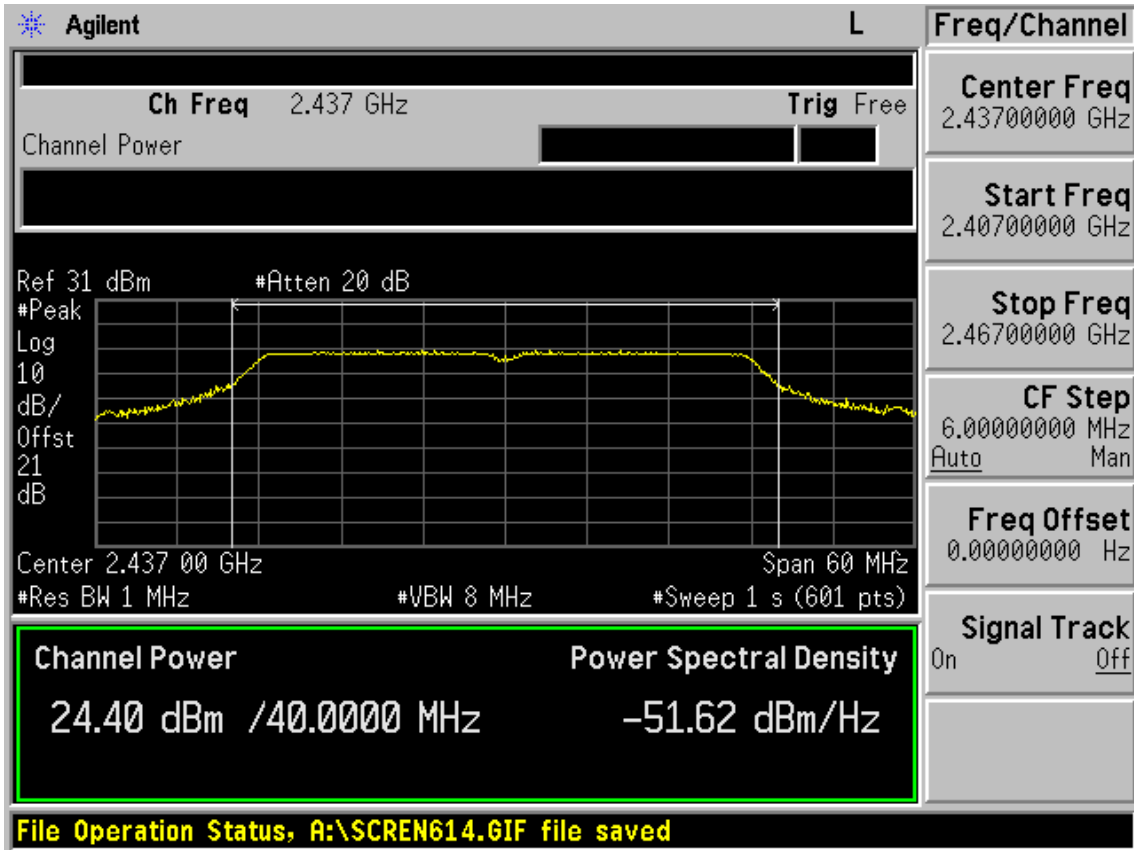


Chain 2:

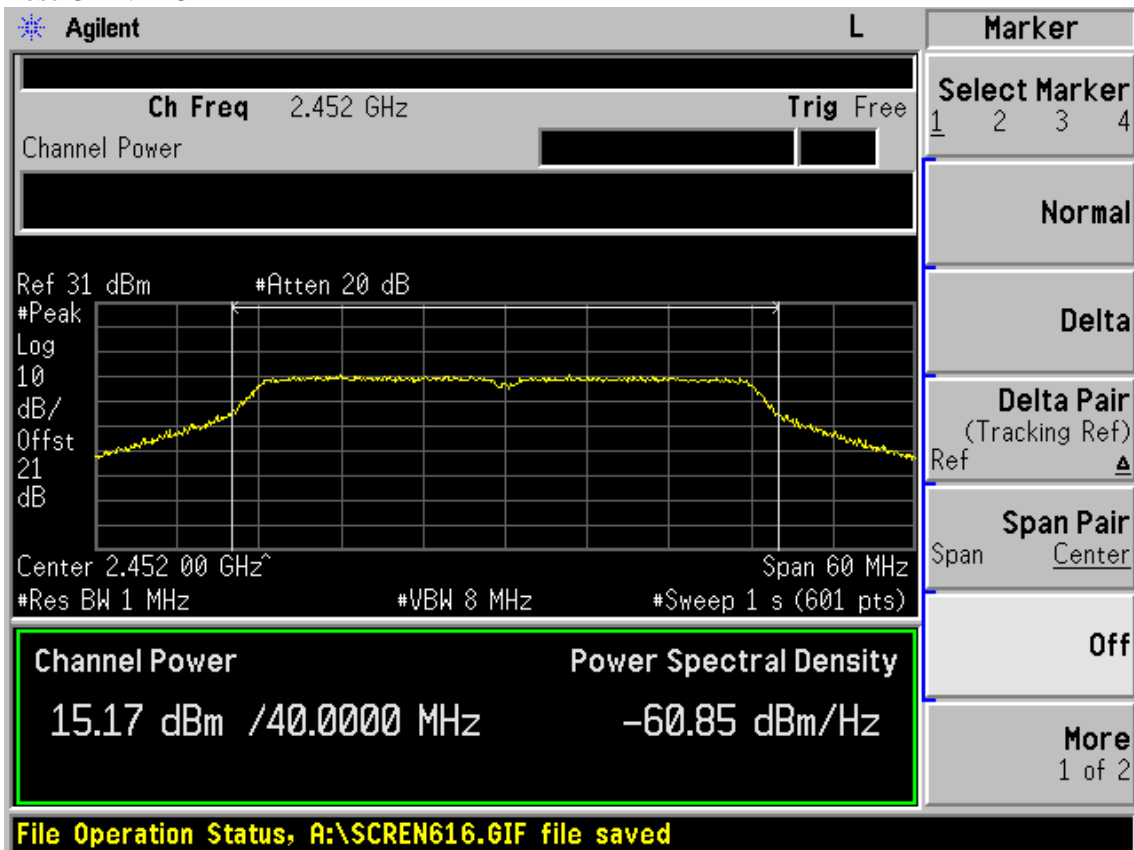
Test CH1: 2422MHz



Test CH1: 2437MHz



Test CH1: 2452MHz



9. POWER SPECTRAL DENSITY TEST

9.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 10	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 10	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May.08, 10	1Year

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, Follow the test procedure as described in ANSI C.10: 2009 Clause 6.11.2.3 to measure out each test modes and chain's power density with 3KHz.
- 3, For IEEE802.11n mode, it's MIMO technology, so account total power density by add each chain's power density.

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

9.4. Test Results

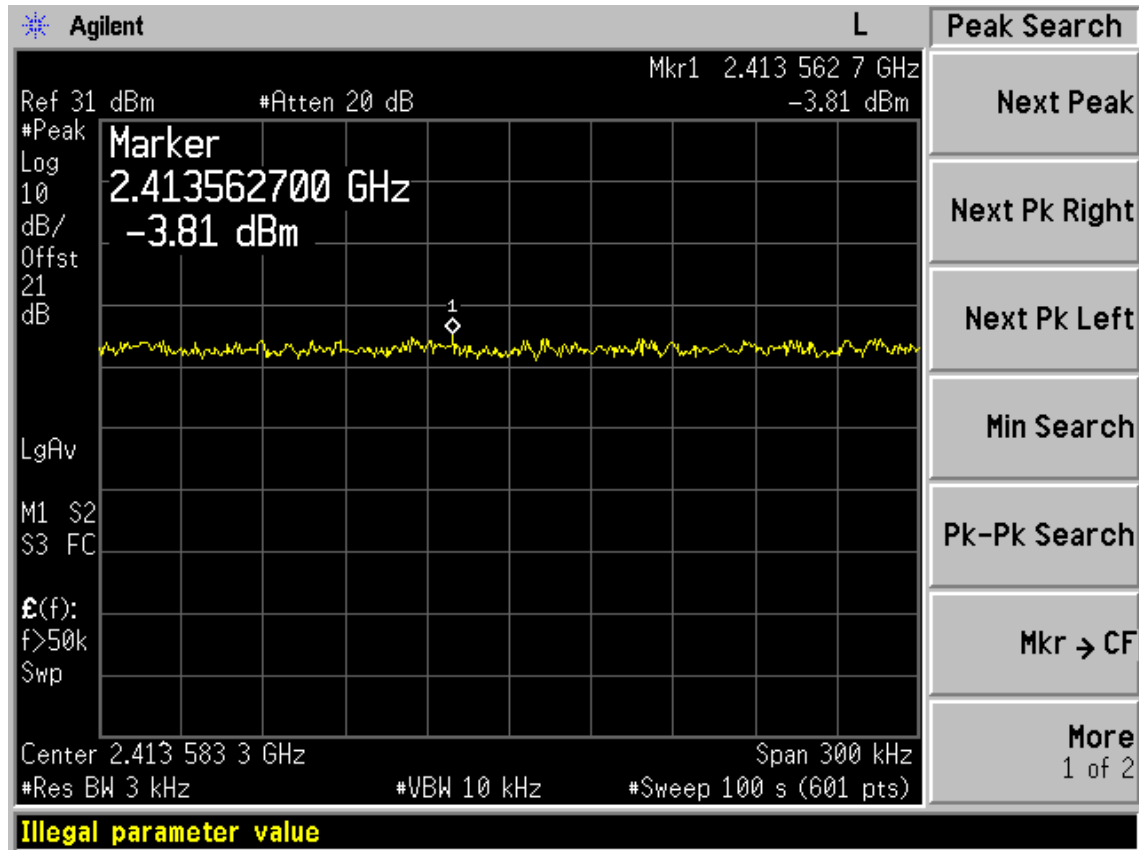
EUT:RF Module		
M/N: W220		
Test date:2010-06-02	Pressure:100.8kpa	Humidity:69%
Tested by: Paul Tian	Test site: RF site	Temperature : 25°C

Cable loss:1.0dB		Attenuator loss: 20dB		Antenna Gain: 1.74dBi	
Mode	CH	Result			Limit
		Chain1 Power density (dBm/3KHz)	Chain2 Power density (dBm/3KHz)	Total Power density (dBm/3KHz)	(dBm/3KHz)
11b	CH1	-3.81	-4.01	N/A	8.00
	CH6	-3.01	-2.49	N/A	8.00
	CH11	-1.13	-1.17	N/A	8.00
11g	CH1	-10.8	-10.63	N/A	8.00
	CH6	-6.93	-6.84	N/A	8.00
	CH11	-11.04	-12.78	N/A	8.00
11n HT20	CH1	-13.0	-13.07	-10.02	8.00
	CH6	-9.23	-8.39	-5.78	8.00
	CH11	-14.02	-14.11	-11.05	8.00
11n HT40	CH1	-17.82	-18.50	-15.14	8.00
	CH5	-11.80	-11.28	-8.52	8.00
	CH9	-18.07	-17.73	-14.89	8.00
Conclusion: PASS					

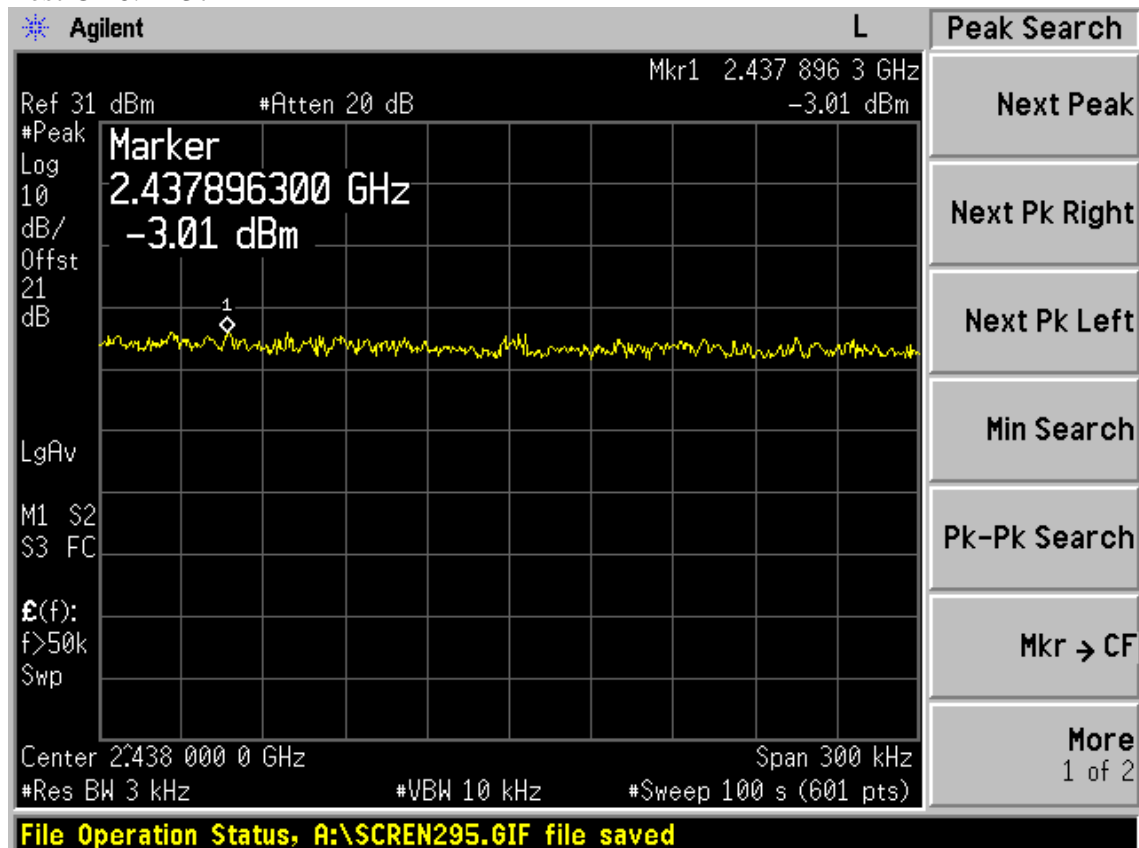
Chain 1:

Test Mode: IEEE 802.11b TX

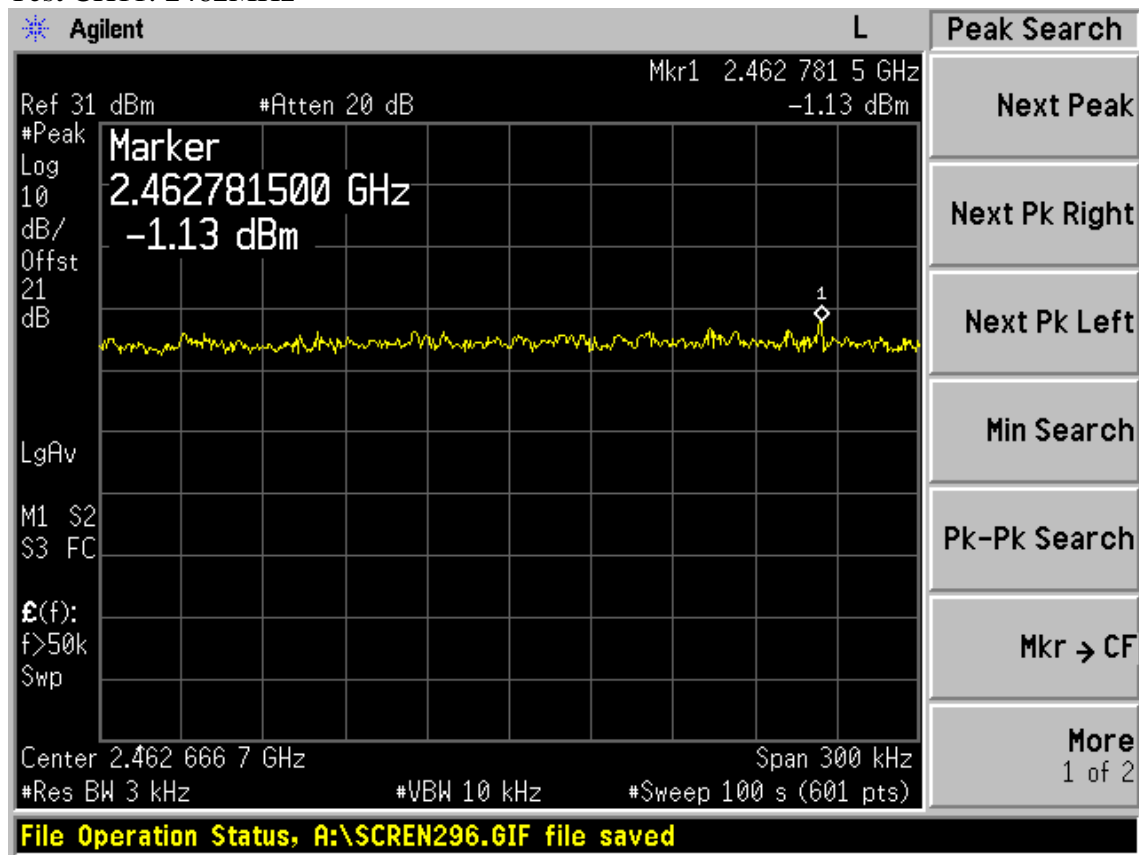
Test CH1: 2412MHz



Test CH6: 2437MHz

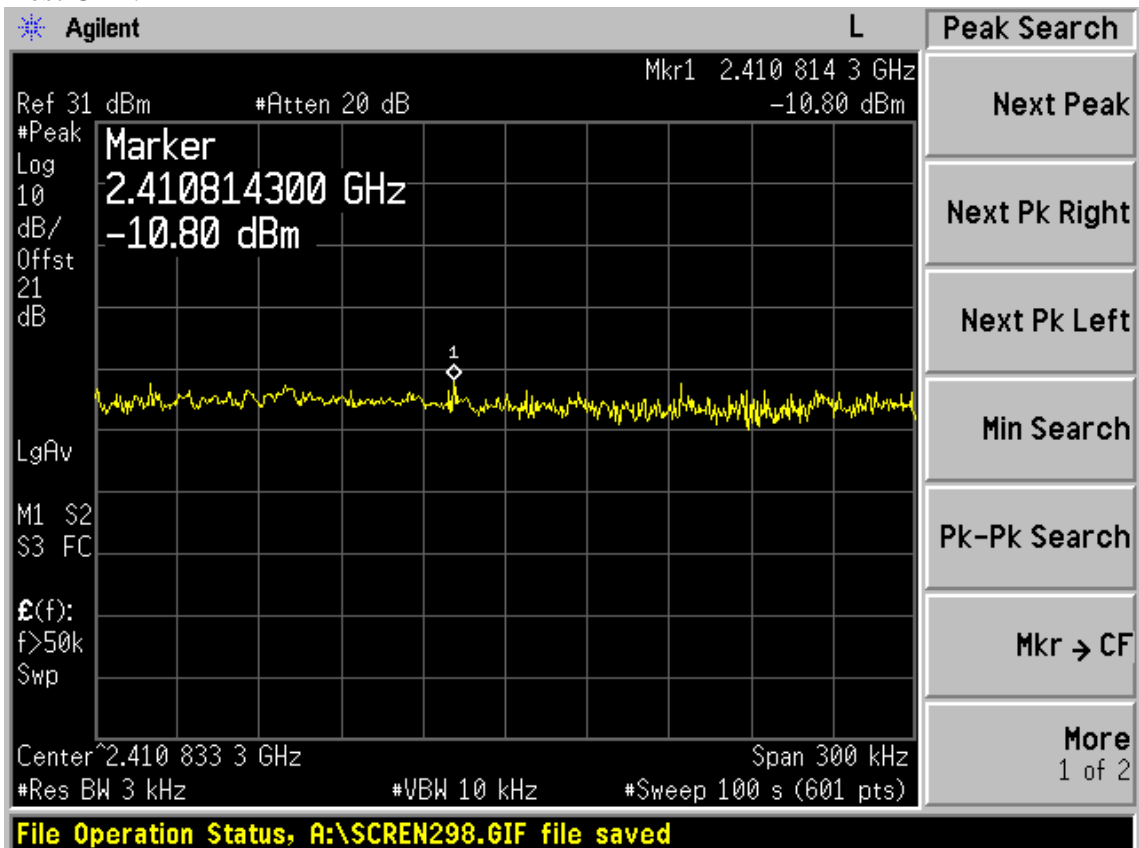


Test CH1: 2462MHz

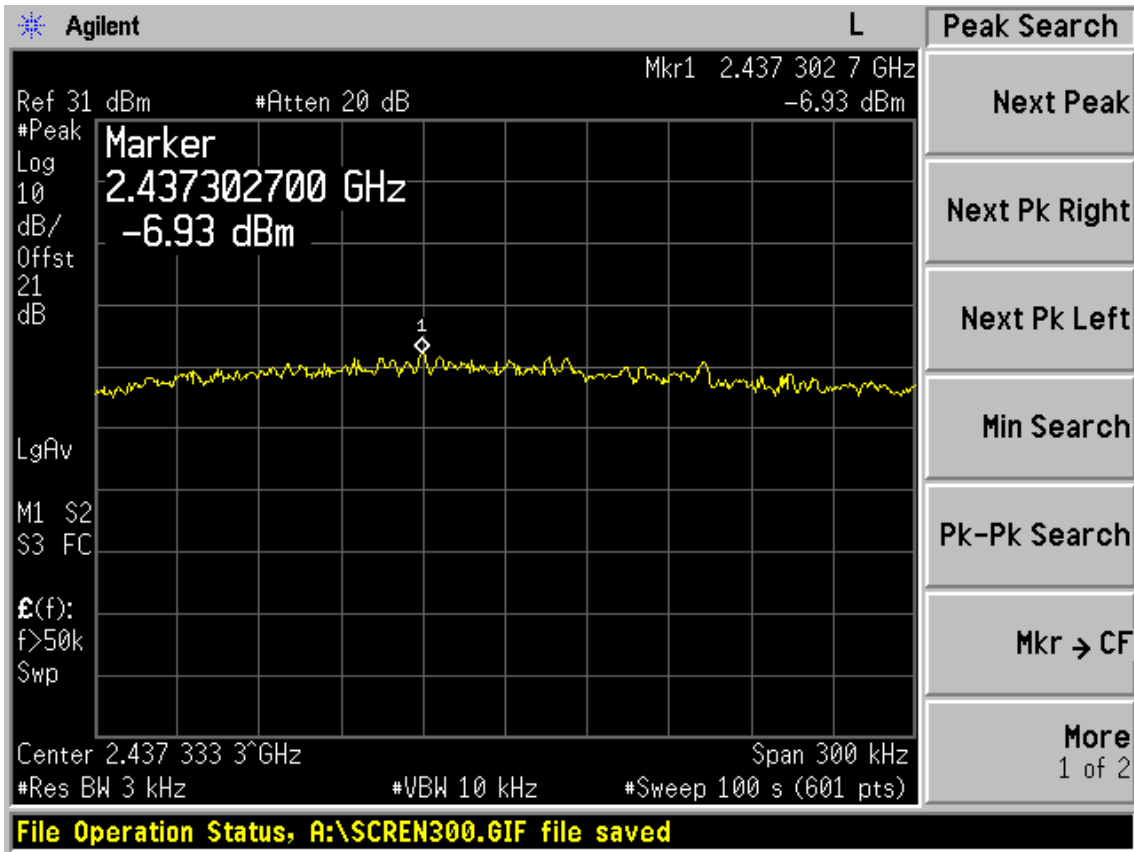


Test Mode: IEEE 802.11g TX

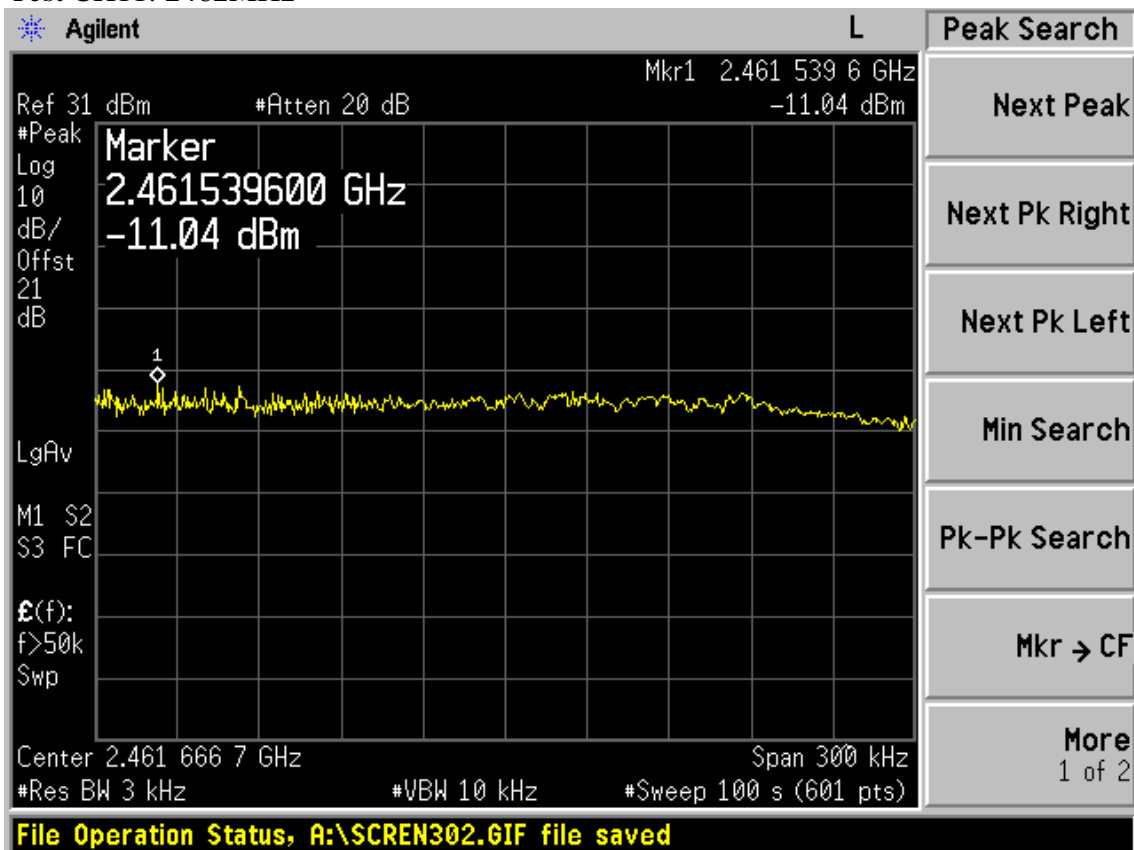
Test CH1: 2412MHz



Test CH6: 2437MHz

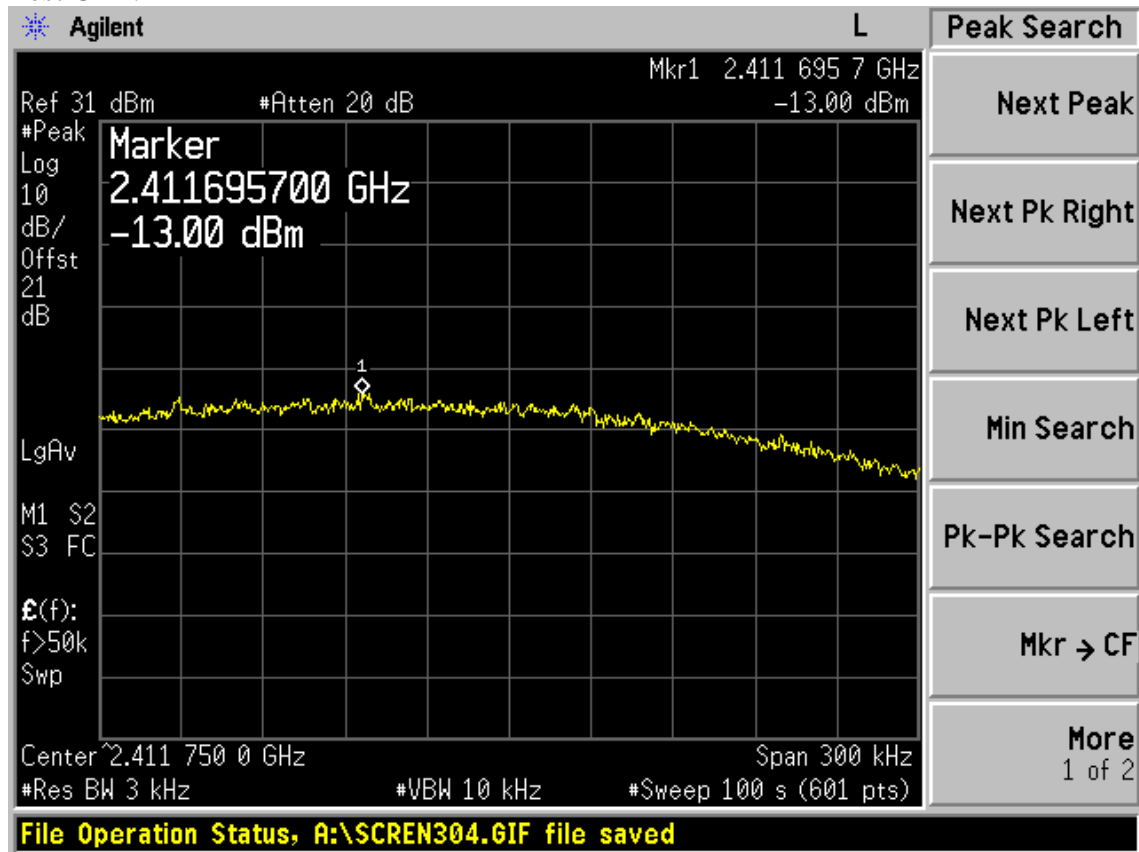


Test CH11: 2462MHz

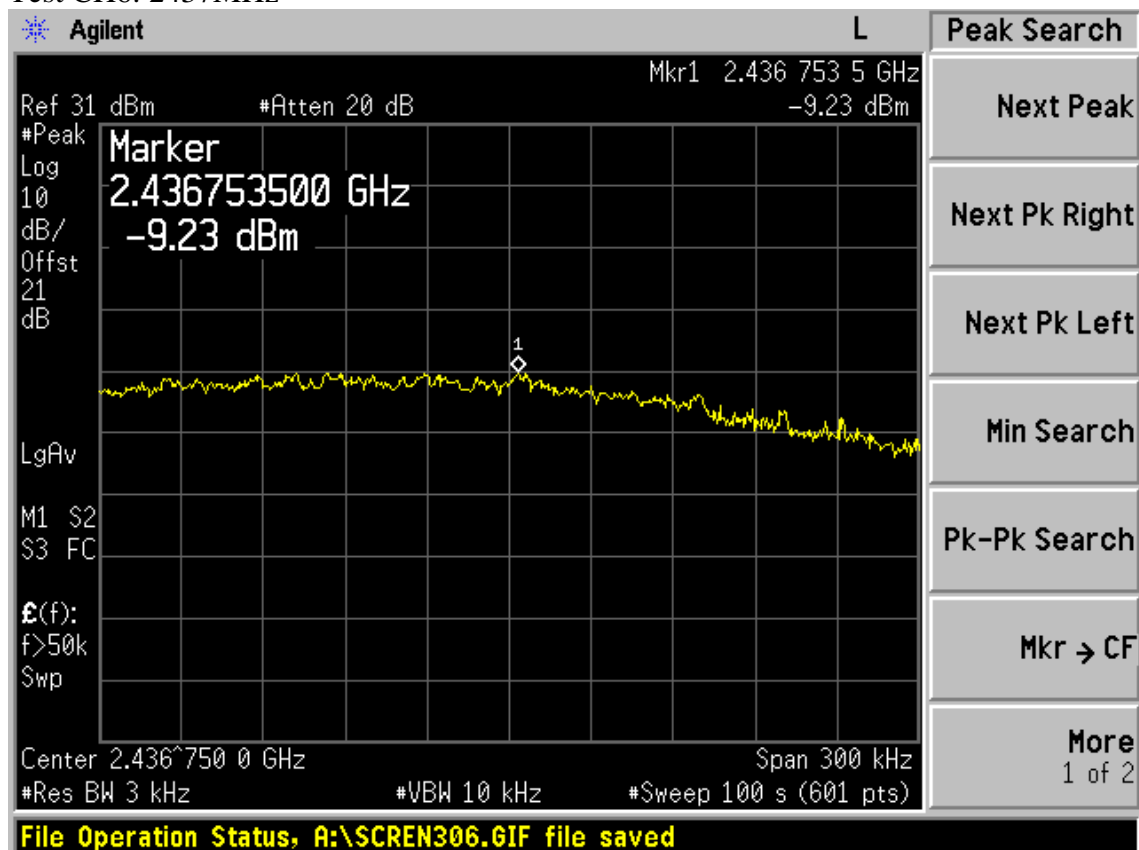


Test Mode: IEEE 802.11n HT20 TX

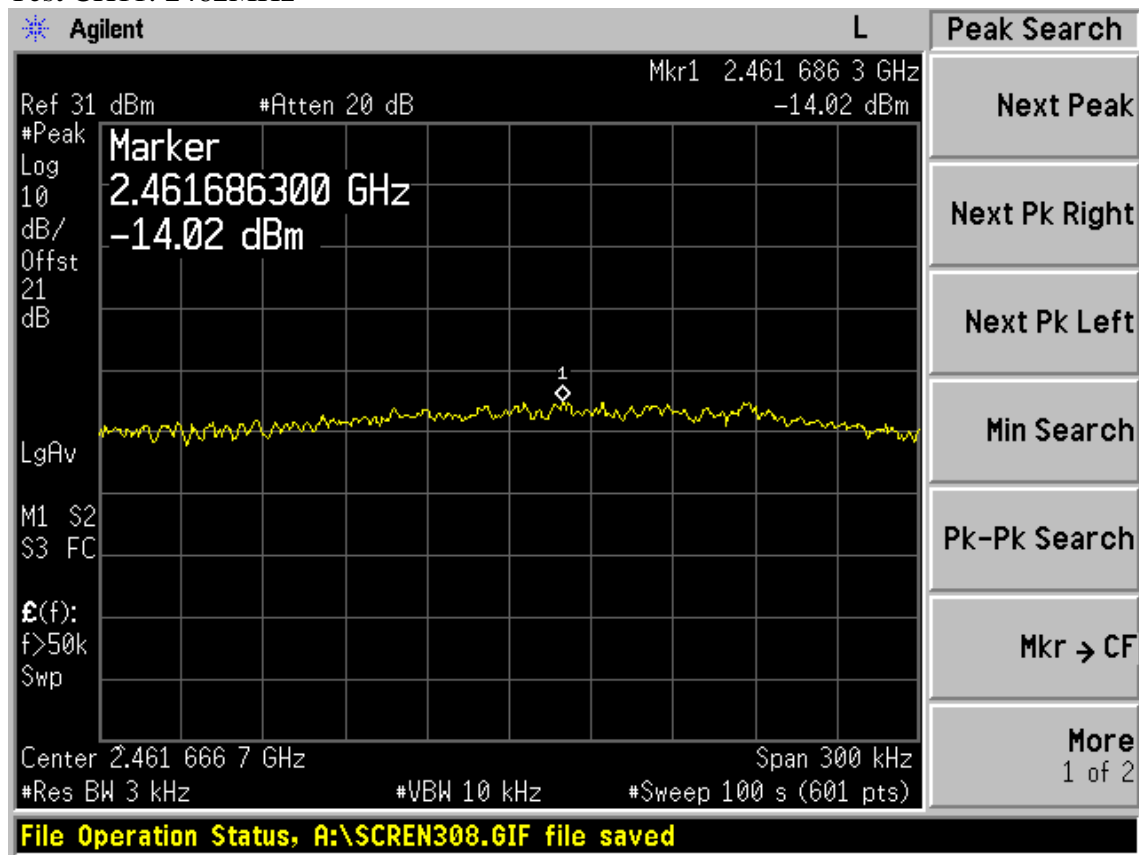
Test CH1: 2412MHz



Test CH6: 2437MHz

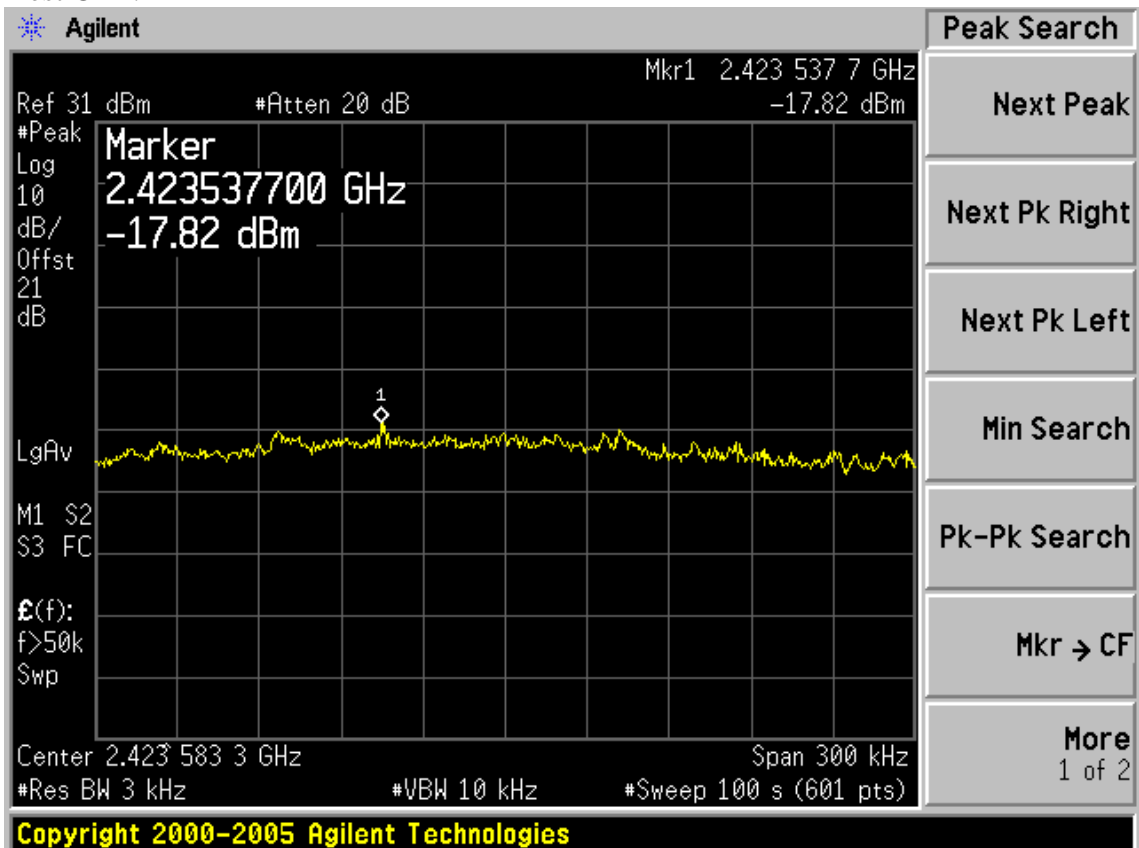


Test CH1: 2462MHz

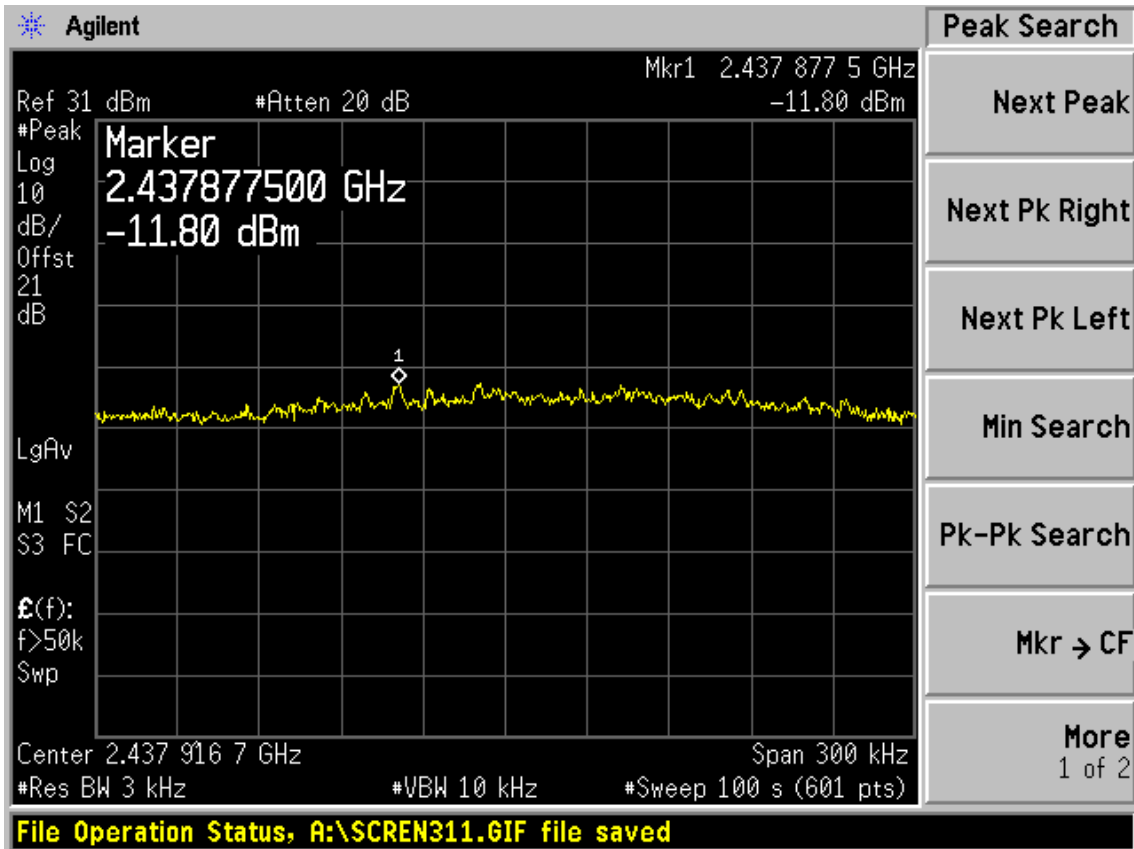


Test Mode: IEEE 802.11n HT40 TX

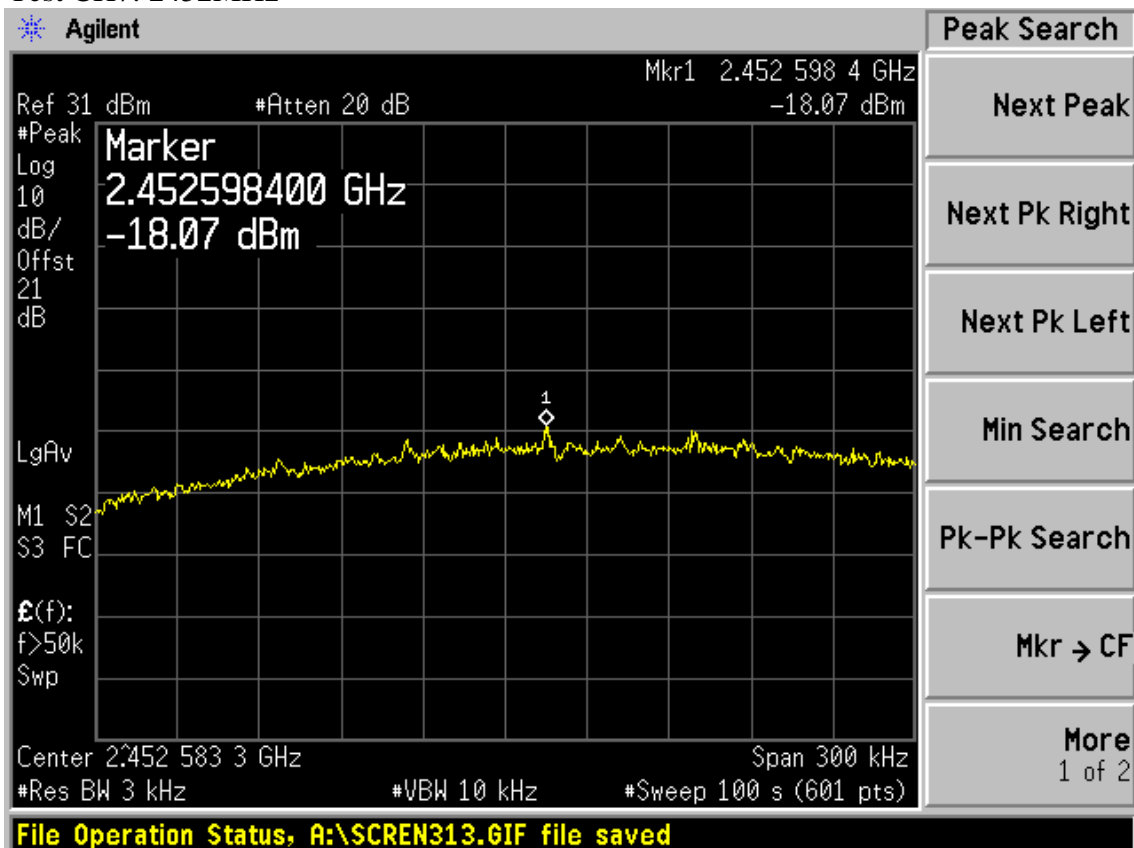
Test CH1: 2422MHz



Test CH4: 2437MHz



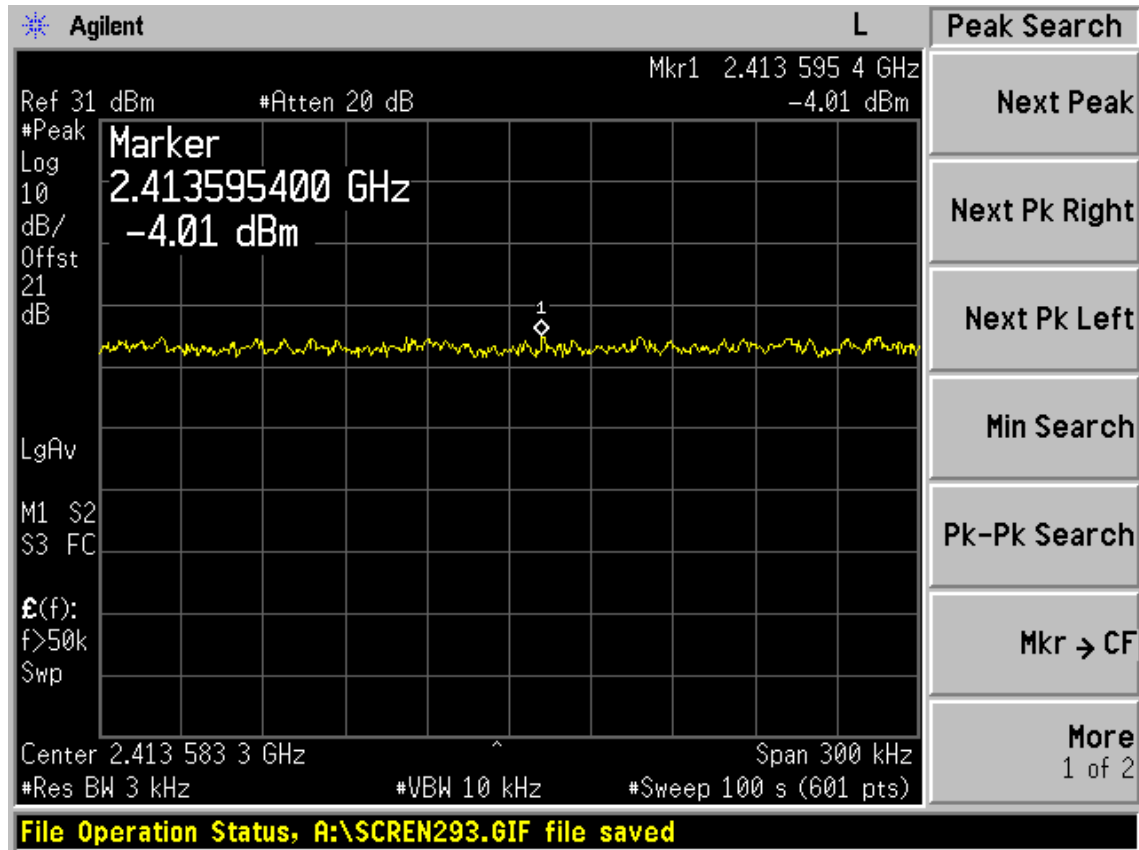
Test CH7: 2452MHz



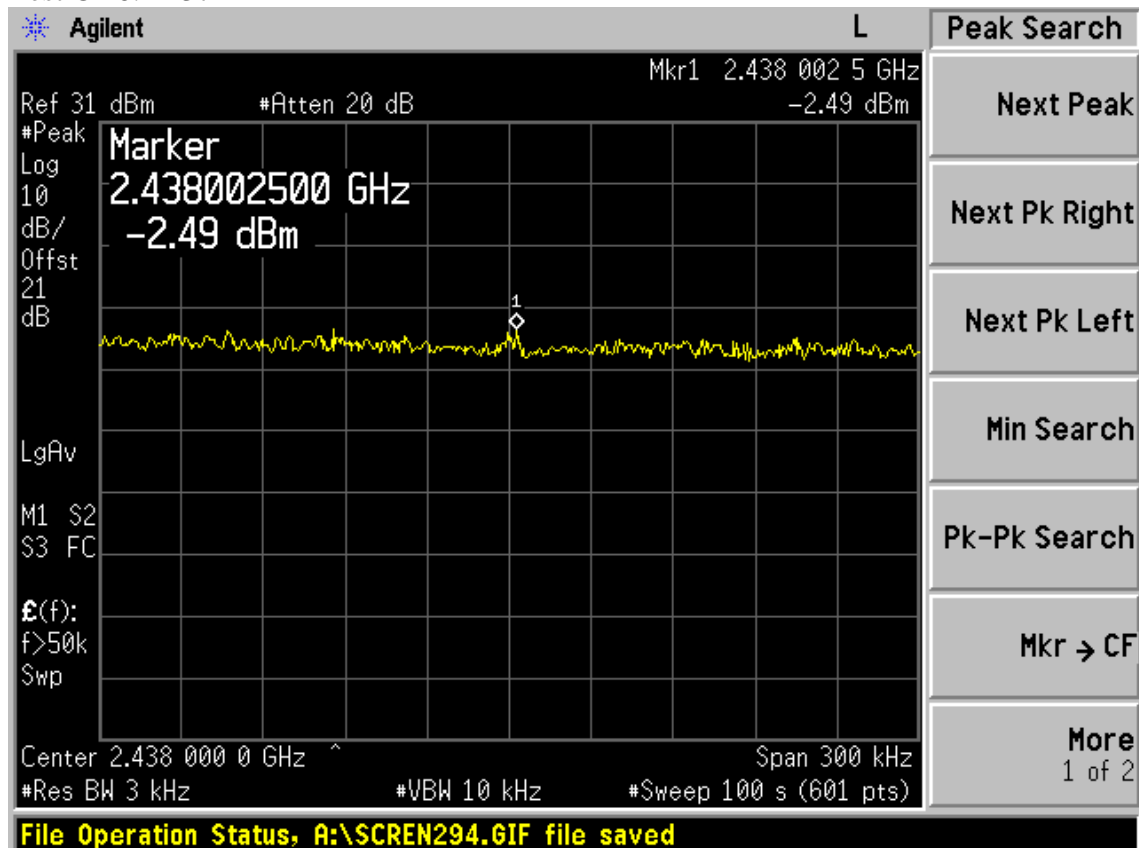
Chain 2:

Test Mode: IEEE 802.11b TX

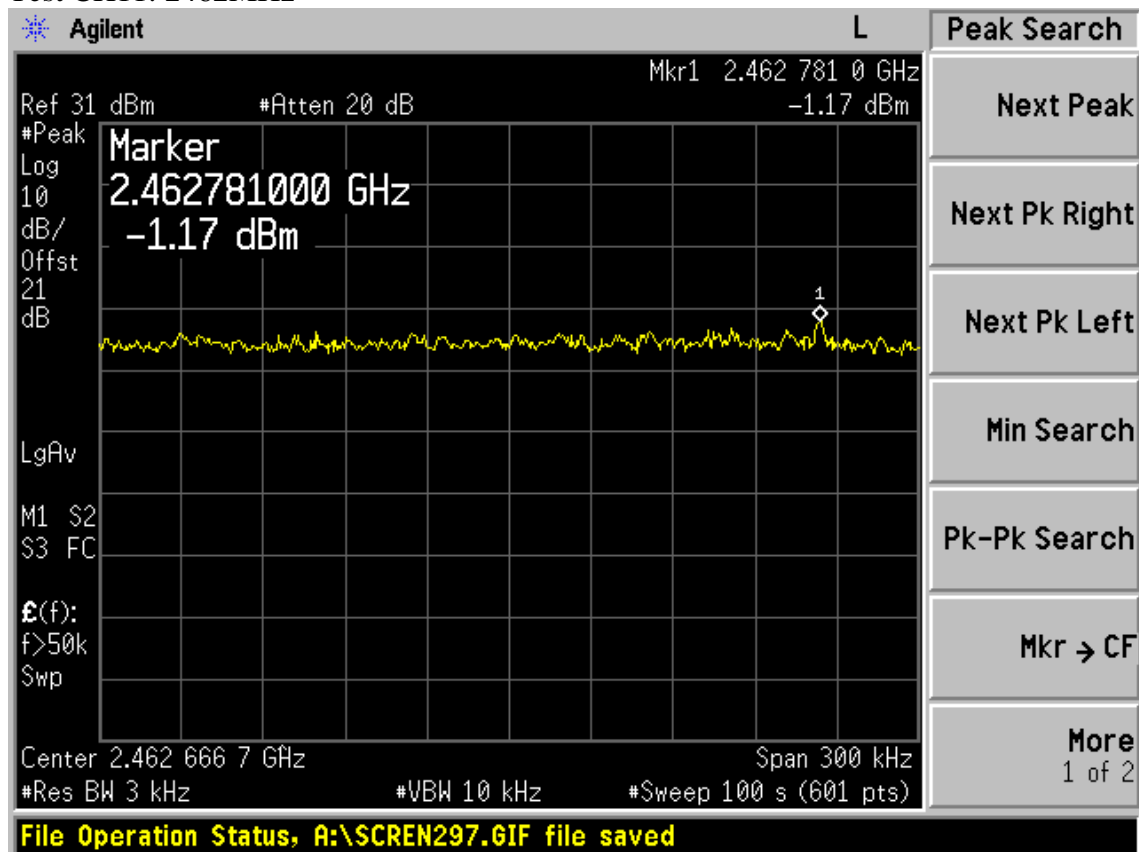
Test CH1: 2412MHz



Test CH6: 2437MHz

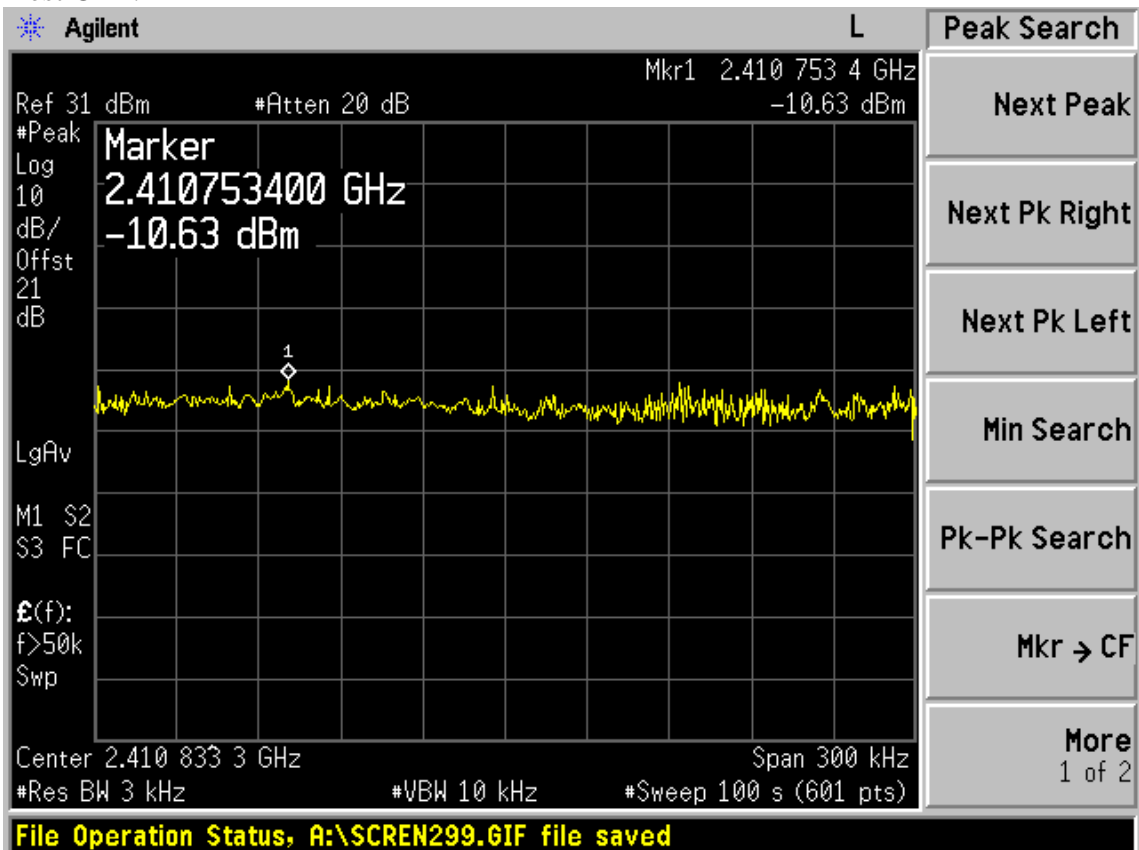


Test CH1: 2462MHz

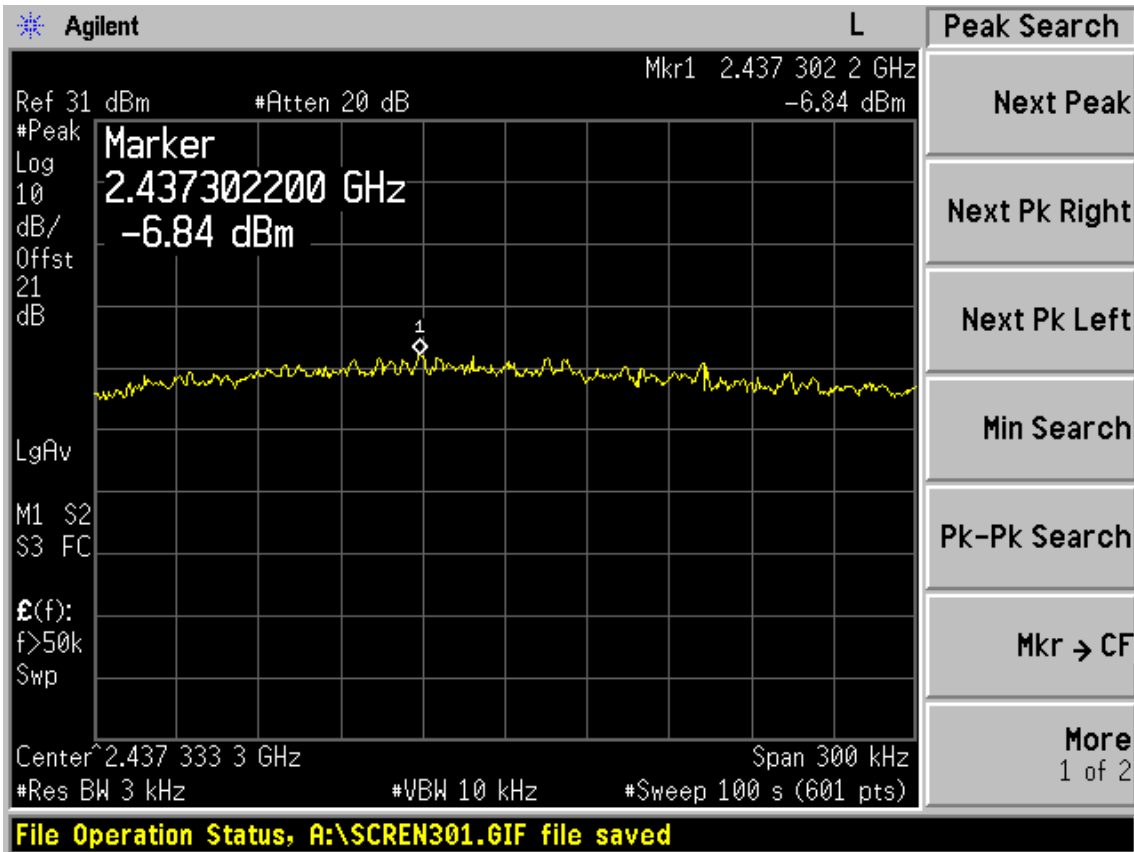


Test Mode: IEEE 802.11g TX

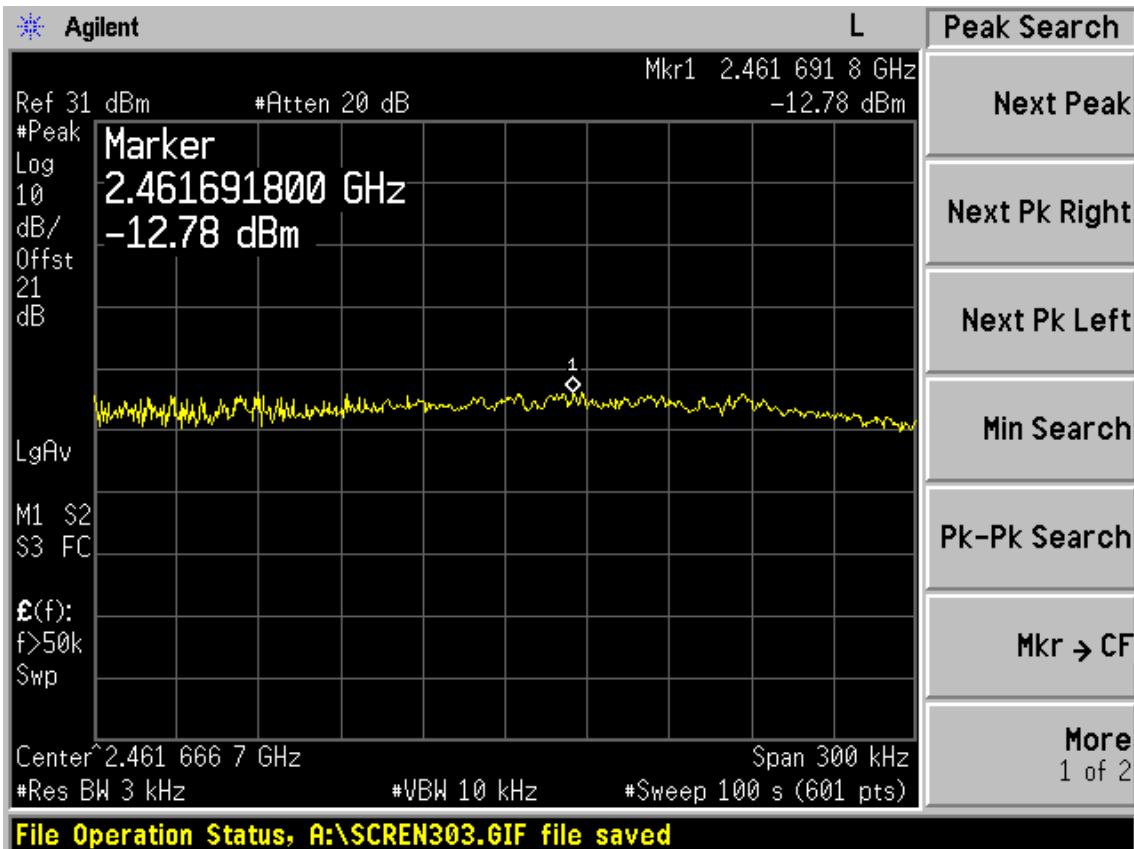
Test CH1: 2412MHz



Test CH6: 2437MHz

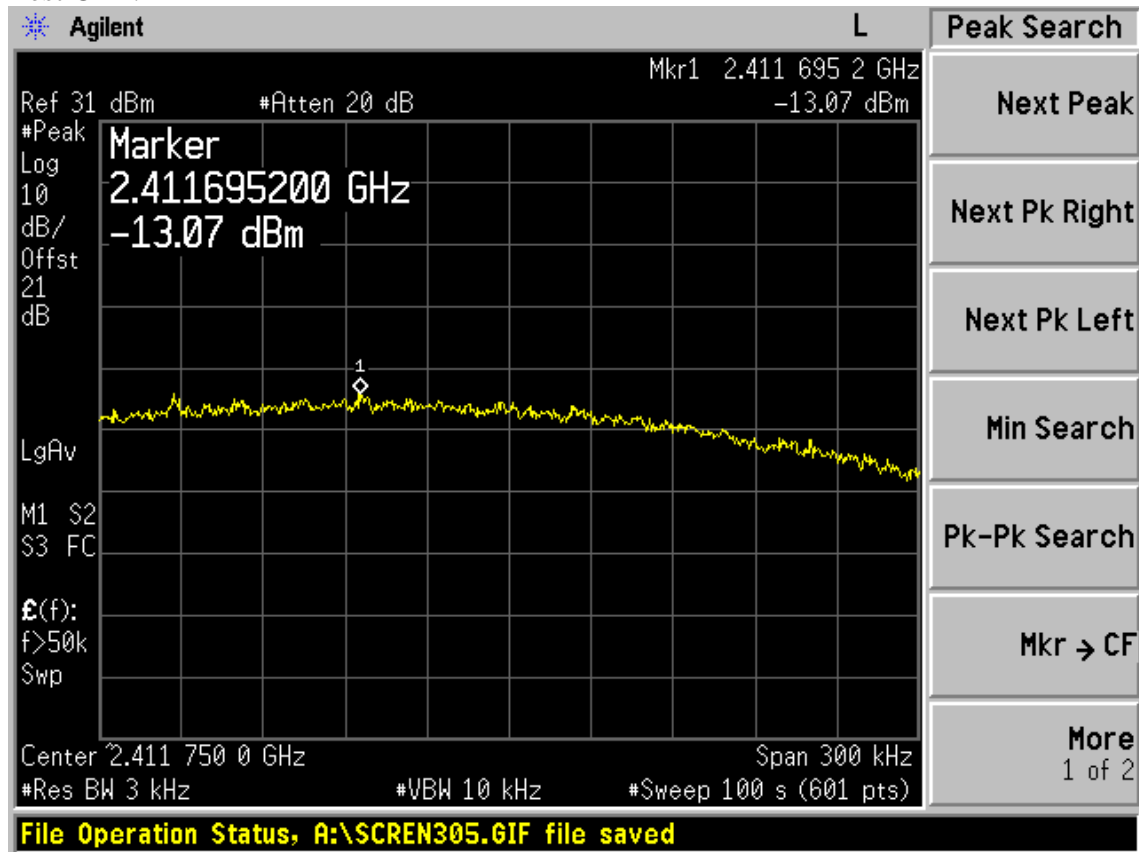


Test CH11: 2462MHz

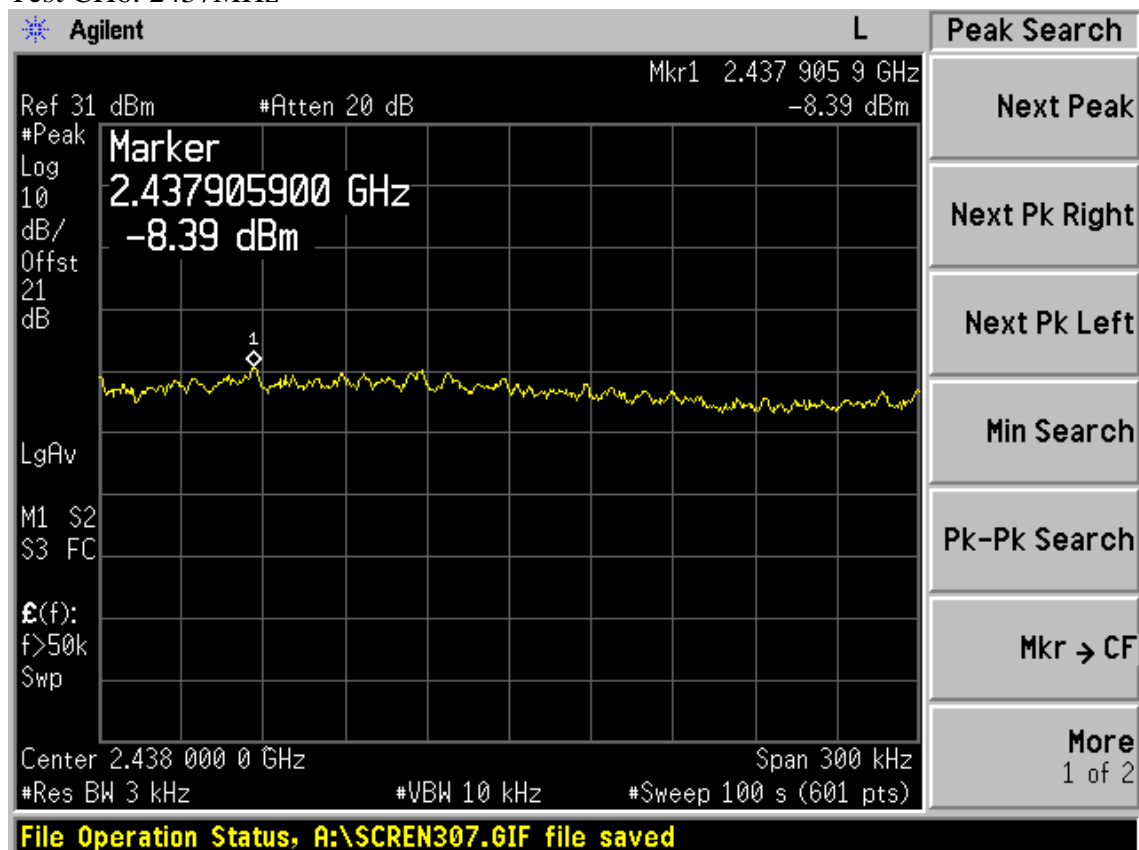


Test Mode: IEEE 802.11n HT20 TX

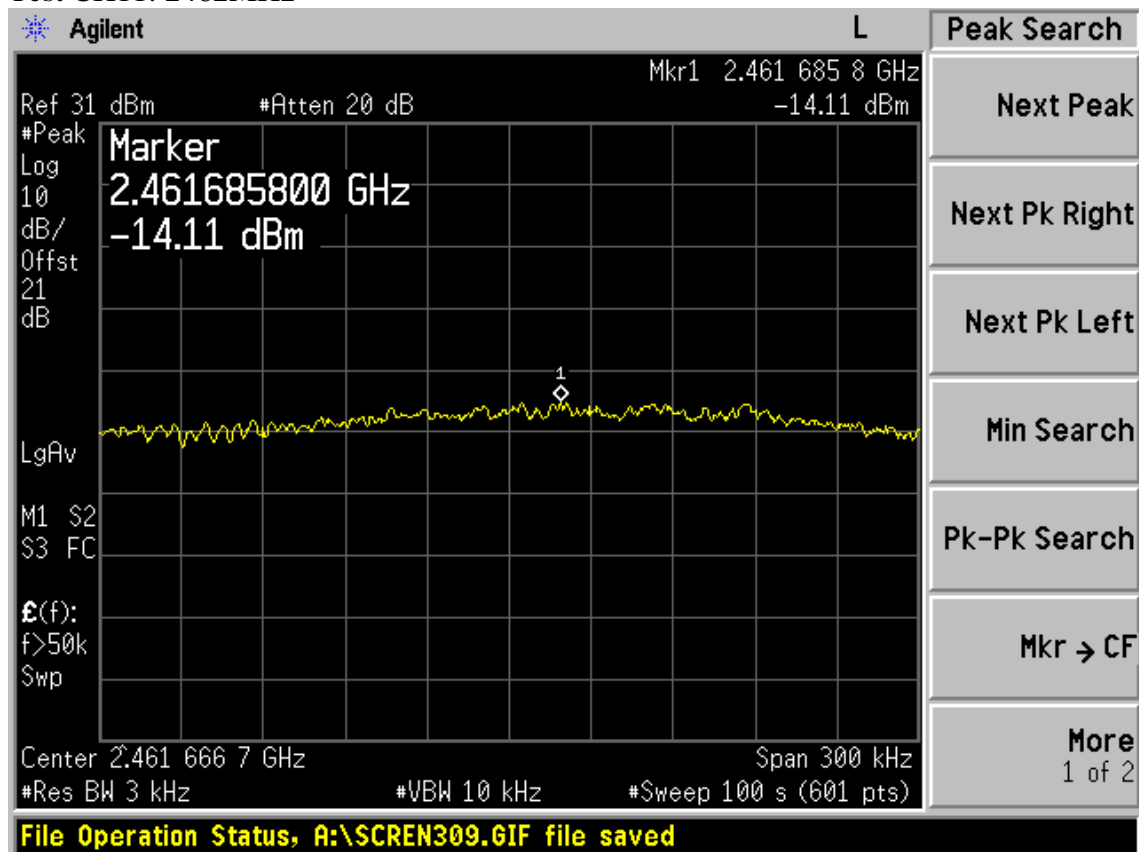
Test CH1: 2412MHz



Test CH6: 2437MHz

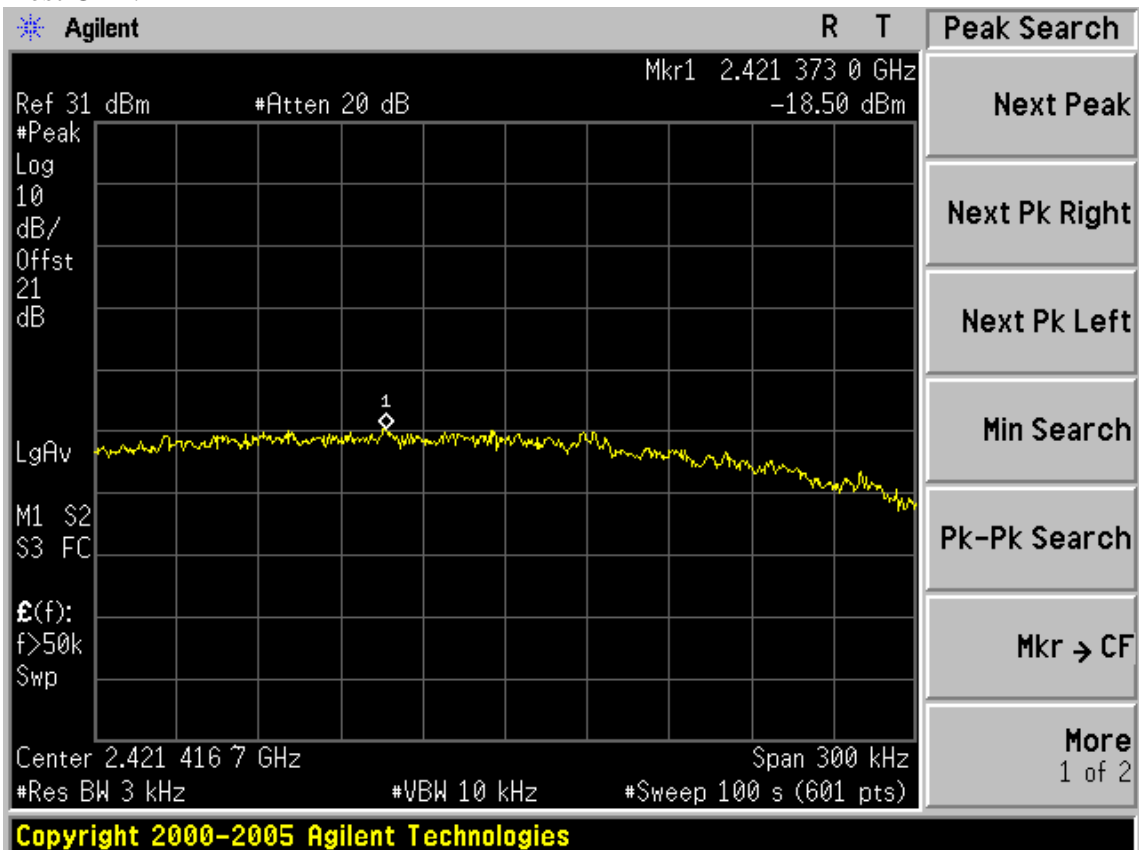


Test CH1: 2462MHz

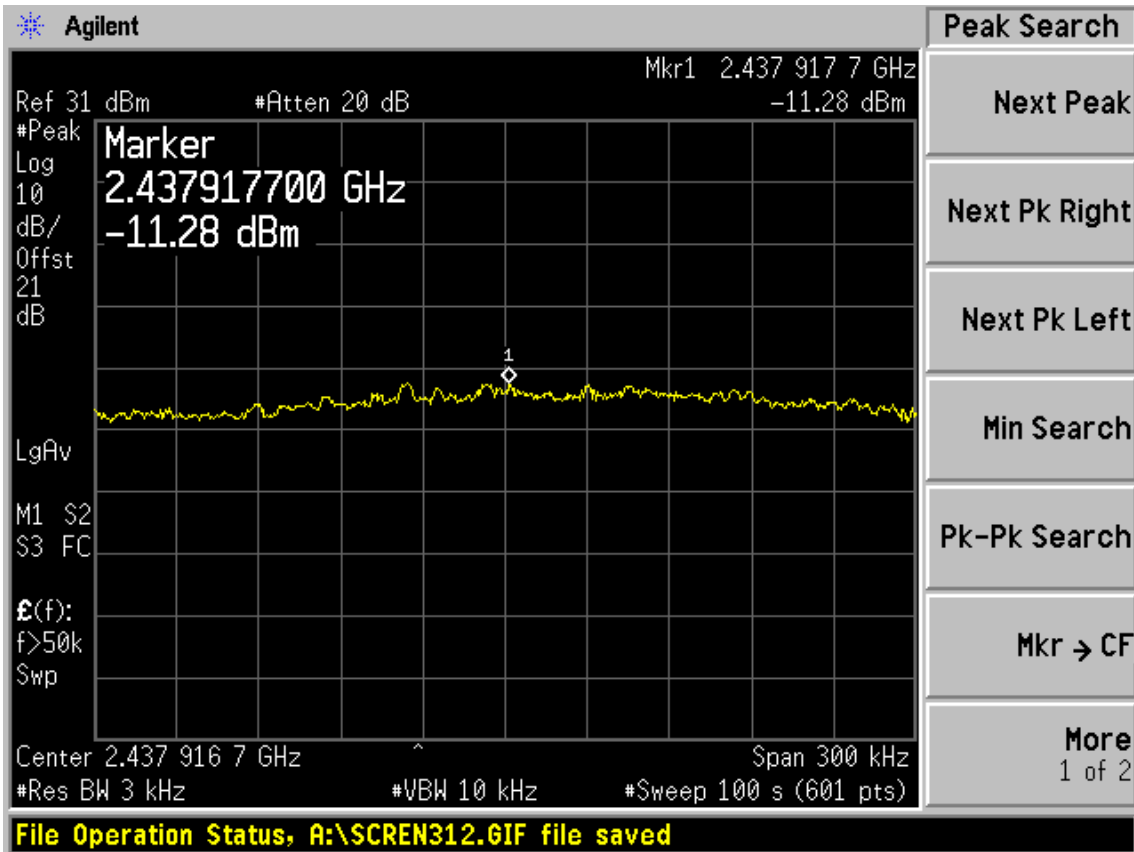


Test Mode: IEEE 802.11n HT40 TX

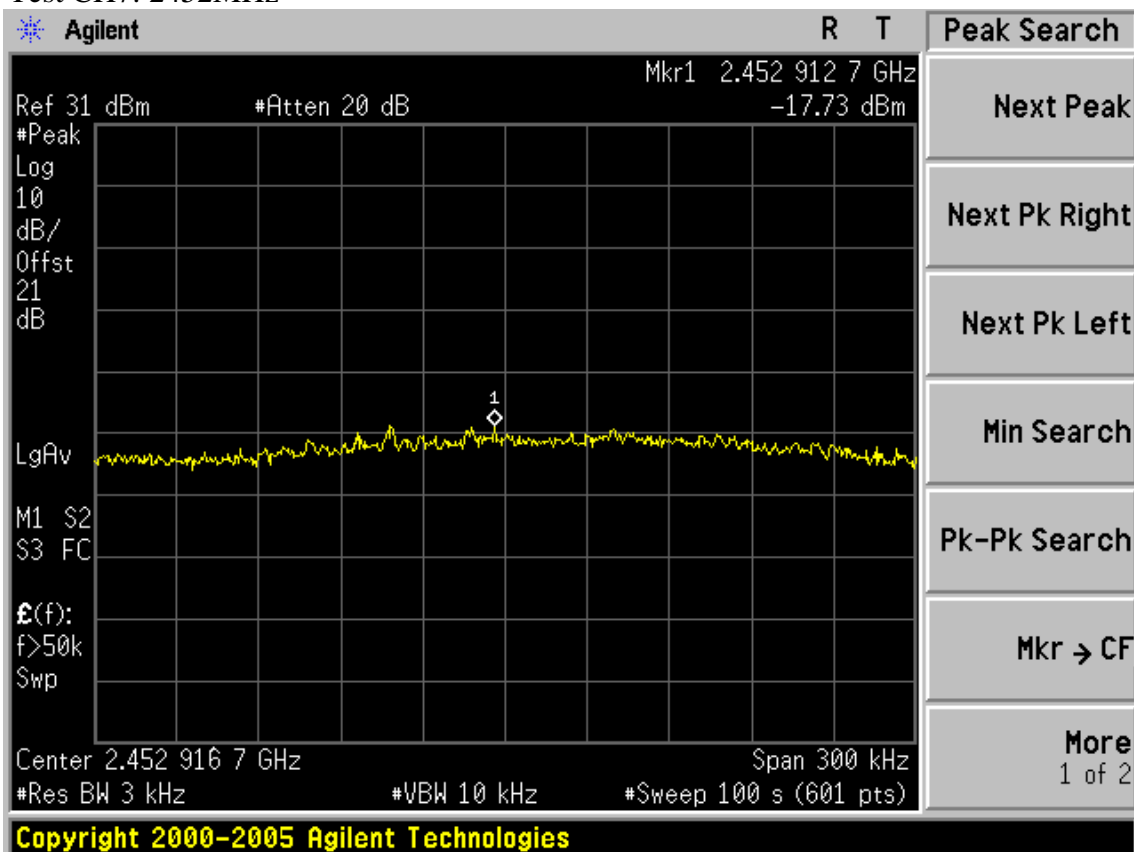
Test CH1: 2422MHz



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 integrated MIMO 2X2 PCB 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 only 1.74dBi.

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

Mode	CH	Frequency (MHz)	PK Output power (dBm)	Output power (mW)	antenna Gain (dBi)	antenna Gain(linear)	MPE
11b	1	2412	22.52	178.65	1.74	1.49	0.0531
	6	2437	22.63	183.23	1.74	1.49	0.0544
	11	2462	23.48	222.84	1.74	1.49	0.0662
11g	1	2412	20.69	117.22	1.74	1.49	0.0348
	6	2437	25.37	344.35	1.74	1.49	0.1023
	11	2462	20.15	103.51	1.74	1.49	0.0308
11n HT20	1	2412	21.35	136.46	1.74	1.49	0.0405
	6	2437	26.46	442.59	1.74	1.49	0.1315
	11	2462	19.58	90.78	1.74	1.49	0.0270
11n HT40	1	2422	18.07	64.12	1.74	1.49	0.0191
	4	2437	26.46	442.59	1.74	1.49	0.1315
	7	2452	17.45	55.59	1.74	1.49	0.0165

Note: The estimation distance is 20cm

12.DEVIATION TO TEST SPECIFICATIONS

[NONE]