FCC TEST REPORT

REPORT NO.: RF990806E05

MODEL NO.: DIR-627

FCC ID: KA2IR627A1

RECEIVED: Aug. 06, 2010

TESTED: Aug. 27 to Sep. 02, 2010

ISSUED DATE : Oct. 29, 2010

APPLICANT: D-Link Corporation

ADDRESS: No. 289, Sinhu 3rd Rd., Neihu District, Taipei City 114, Taiwan, R.O.C.

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

LAB ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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1. CERTIFICATION

PRODUCT:	Wireless N 300 Open Source Router
BRAND NAME:	D-Link
MODEL NO.:	DIR-627
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Aug. 27 to Sep. 02, 2010
APPLICANT:	D-Link Corporation
STANDARDS:	FCC Part 15, Subpart C (Section 15.247) ANSI C63.4-2003

The above equipment (Model: DIR-627) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** *Oct. 29, 2010*
(Claire Kuan, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** *Oct. 29, 2010*
(Hank Chung, Deputy Manager)

APPROVED BY : _____ , **DATE:** *Oct. 29, 2010*
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.98dB at 12.145MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 4824.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is SMA Straight Plug Reverse not a standard connector.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless N 300 Open Source Router
MODEL NO.	DIR-627
FCC ID	KA2IR627A1
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11g: 54/48/36/24/18/12/9/6Mbps. 802.11b: 11/5.5/2/1Mbps HT20 MCS0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps. HT20 MCS8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps. HT40 MCS0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps. HT40 MCS8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps. HT20 MCS0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps. HT20 MCS8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps. HT40 MCS0~7 (400ns GI): 15.0Mbps, 30.0Mbps, 45.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 135.0Mbps, 150.0Mbps. HT40 MCS8~15 (400ns GI): 30.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 180.0Mbps, 240.0Mbps, 270.0Mbps, 300.0Mbps.
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 218.8mW 802.11g: 458.3mW 802.11n (20MHz): 442.6mW 802.11n (40MHz): 336.3mW
ANTENNA TYPE	Please see note 1
DATA CABLE	Ethernet cable (unshielded, 1.5m)

I/O PORTS	USB port x 1 IO port x 1 WAN port (10, 100Mbps) port x 1 LAN port (10, 100Mbps) port x 4
ASSOCIATED DEVICES	Adapter x 1

NOTE:

1. There are two antennas provided to this EUT, please refer to the following table:

No.	Manufacture	Model No.	Antenna Type	Gain (dBi)	Cable Loss (dB)	Net Gain (dB)	Cable length (mm)	Antenna Connector
Chain (0)	WANSHIH ELECTRONIC CO., LTD.	C037-510982-A	Dipole	2	0.8	1.2	210	SMA Straight Plug Reverse
Chain (1)			Dipole	2	NA	NA	NA	

2. The EUT must be supplied with a power adapter as following table:

BRAND	D-Link
MANUFACTURE	JENTEC
MODEL	CH1812-B IW
INPUT POWER	AC 100-120V, 50-60Hz, 0.4A
OUTPUT POWER	DC 12V, 1.25A DC Cable: 1.5m unshielded

3. The EUT was pre-tested in chamber under the following modes:

TEST MODE	DESCRIPTION
Mode A	**Level-set (Put on tabletop)**
Mode B	Tower-set (Wall-mounted)

For radiated test worse case was found in **Mode A**. Therefore only the test data of the mode was recorded in this report.

4. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmitters and two completed receivers.

5. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Dipole antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11b legacy mode is limited to single transmitter only.

6. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.

7. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.

8. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

Seven channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
-	√	√	√	√	-

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11b	√	
B	802.11g	√	√
C	802.11n (20MHz) for MCS 0~7	√	√
D	802.11n (20MHz) for MCS 8~15	√	√
E	802.11n (40MHz) for MCS 0~7	√	√
F	802.11n (40MHz) for MCS 8~15	√	√

Note:
1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Mode A, B, C & E the worst modes, were selected as representative mode for the report.

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11g	1 to 11	6	OFDM	BPSK	6	B

RADIATED EMISSION TEST (BELOW 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATIO N TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11g	1 to 11	6	OFDM	BPSK	6	B

RADIATED EMISSION TEST (ABOVE 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	C
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	E

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	13	C
802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	27	E

※ After verification, conducted out band emission as show worst chain in report by investigations.

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ The EUT have MIMO power save mode, one transmitter may be active (chain 0) while other is inactive (chain 1). Output power is no different compared to operation when both transmitter chains are active. Transmitter power is not increased or decreased for chain 0 when in single chain mode, compared to dual chain active mode.

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	13	C
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	E

※ After verification, bandwidth as show worst chain in report by investigations.

※ TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	30deg. C, 80%RH, 1012 hPa	120Vac, 60Hz	Frank Liu
RE<1G	32deg. C, 63%RH, 1012 hPa	120Vac, 60Hz	Frank Liu
PLC	27deg. C, 64%RH, 1013 hPa	120Vac, 60Hz	Timmy Hu
APCM	25deg. C, 60%RH, 1013 hPa	120Vac, 60Hz	Kent Liu

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)
ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

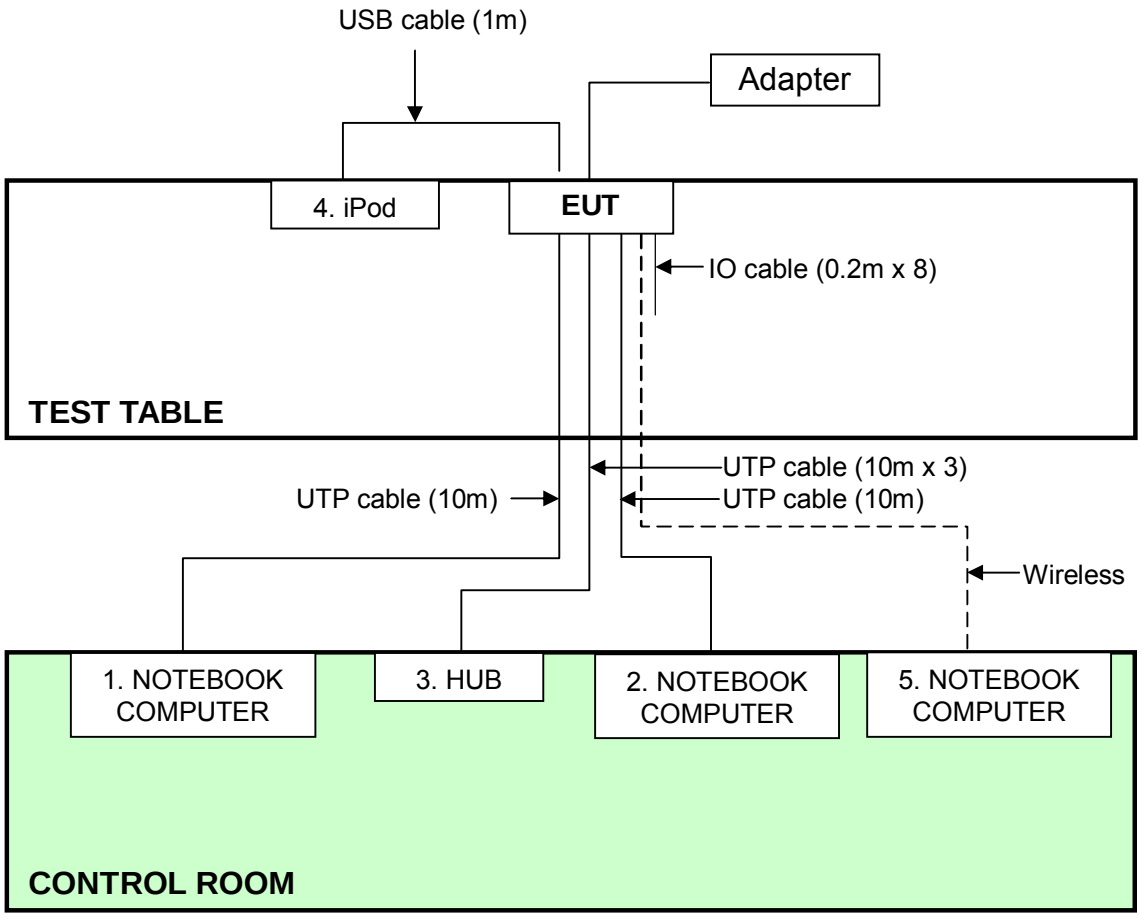
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643-7AV-0124	FCC DoC
2	NOTEBOOK COMPUTER	DELL	D531	CN-0XM006-48643-86L-4472	QDS-BRCM1019
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
4	iPod	Apple	A1137	6U6078FMUPR	FCC DoC
5	NOTEBOOK COMPUTER	DELL	PP21L	CN-0GD366-70166-5B3-09ZX	QDS-BRCM1016

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10 m UTP cable.
2	10 m UTP cable.
3	10 m UTP cable.
4	1 m shielded cable, terminated with USB connector, w/o core.
5	NA

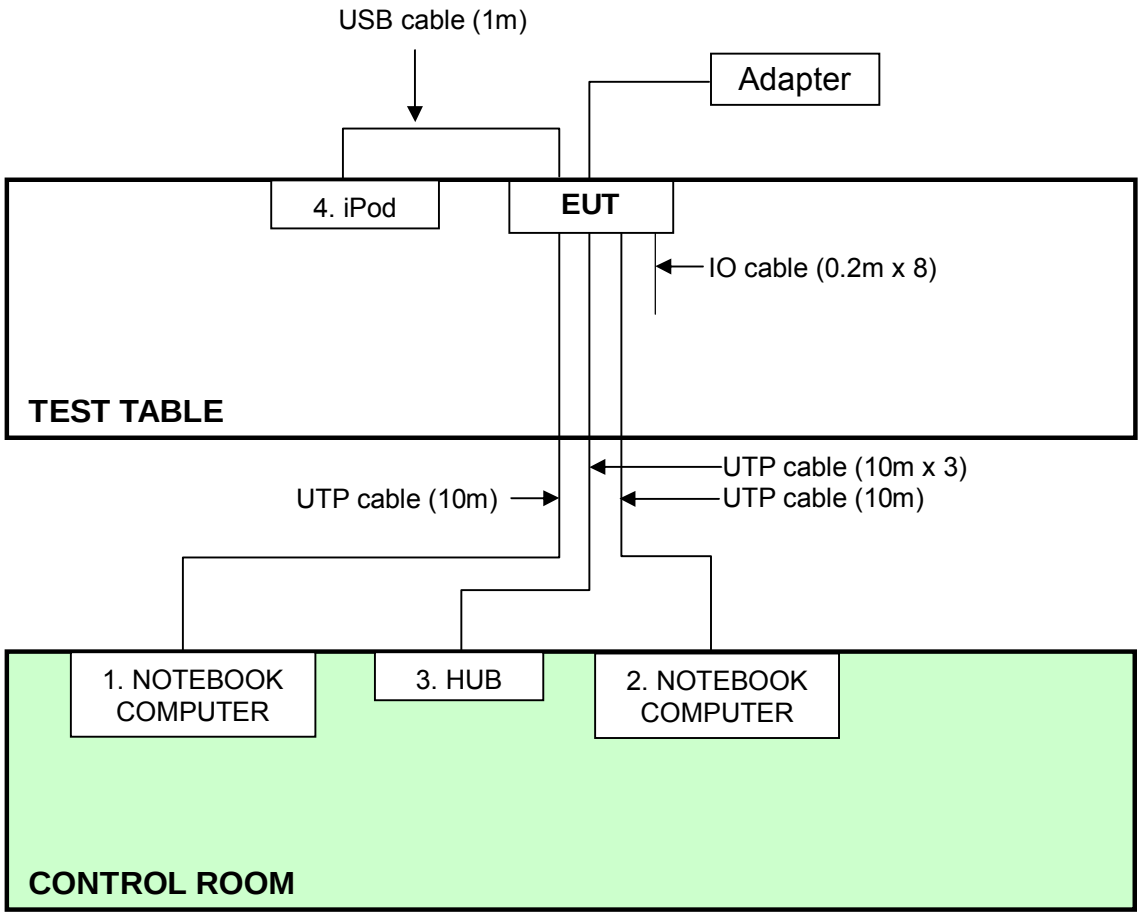
NOTE: 1. All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For conducted test:



For other test:



4.TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
0.15-0.5 0.5-5 5-30	Quasi-peak	Average
	66 to 56 56 60	56 to 46 46 50

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

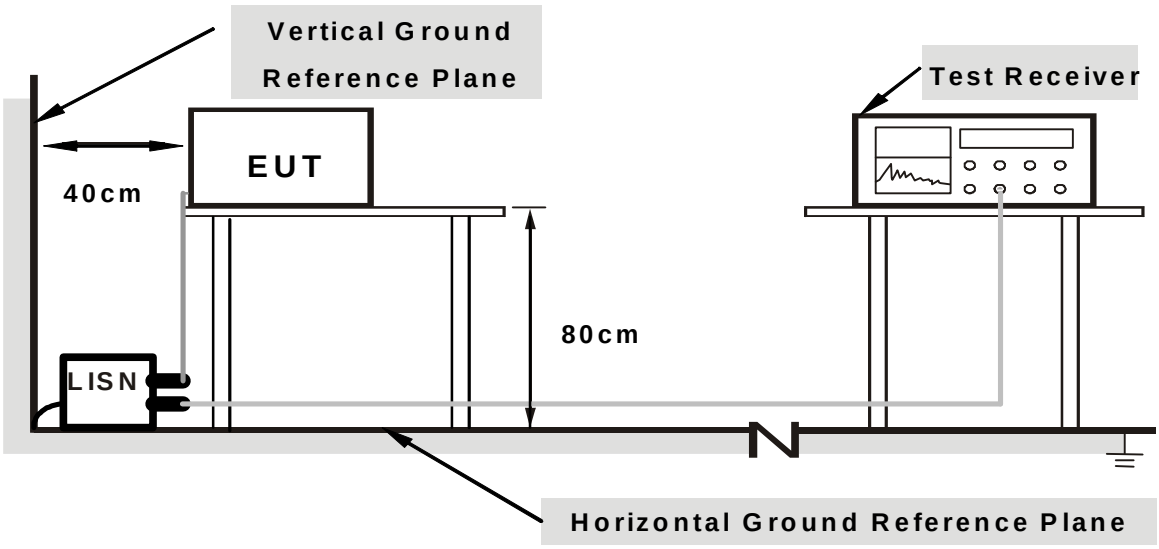
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1, 2 & 5) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “WinTG.exe” & “Ping.exe” to enable EUT under transmission/receiving condition continuously via UTP cables and wireless transmission.

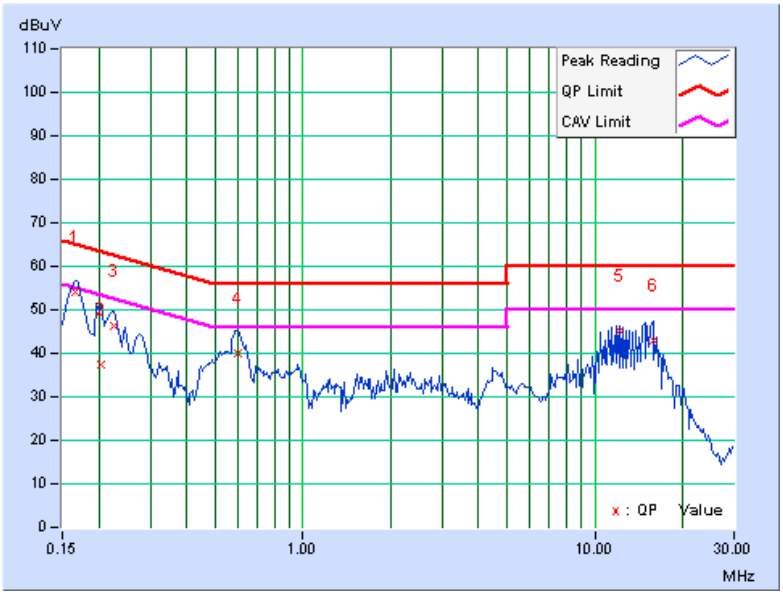
4.1.7 TEST RESULTS

802.11n (20MHz) OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.03	53.88	45.41	53.91	45.44	65.18	55.18	-11.27	-9.74
2	0.205	0.03	37.52	26.95	37.55	26.98	63.42	53.42	-25.87	-26.44
3	0.224	0.03	46.43	37.90	46.46	37.93	62.66	52.66	-16.20	-14.73
4	0.599	0.06	39.86	34.29	39.92	34.35	56.00	46.00	-16.08	-11.65
5	**12.145**	**0.37**	**44.88**	**42.65**	**45.25**	**43.02**	**60.00**	**50.00**	**-14.75**	**-6.98**
6	15.856	0.53	42.36	39.16	42.89	39.69	60.00	50.00	-17.11	-10.31

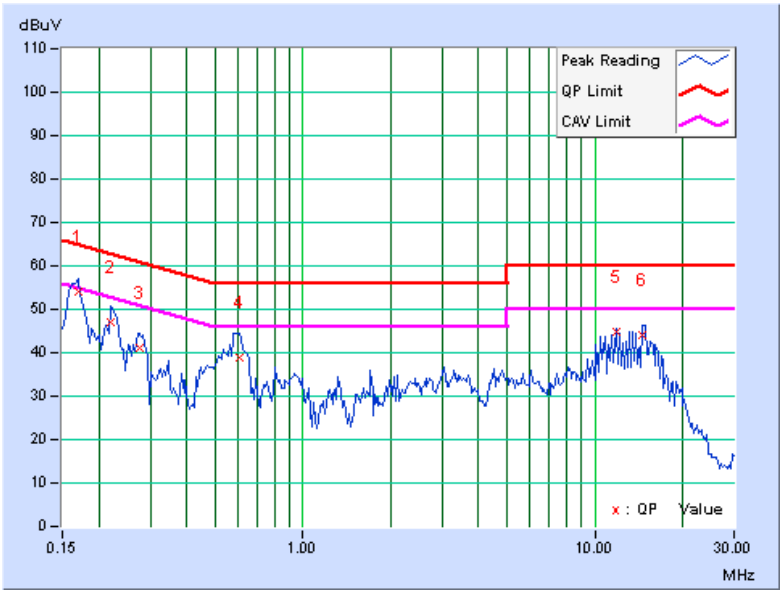
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.04	53.88	44.45	53.92	44.49	64.98	54.98	-11.06	-10.49
2	0.220	0.04	47.04	38.28	47.08	38.32	62.81	52.81	-15.73	-14.49
3	0.275	0.04	41.03	32.53	41.07	32.57	60.97	50.97	-19.89	-18.39
4	0.607	0.07	38.71	33.27	38.78	33.34	56.00	46.00	-17.22	-12.66
5	11.801	0.36	44.50	40.88	44.86	41.24	60.00	50.00	-15.14	-8.76
6	14.493	0.51	43.65	39.66	44.16	40.17	60.00	50.00	-15.84	-9.83

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
4. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

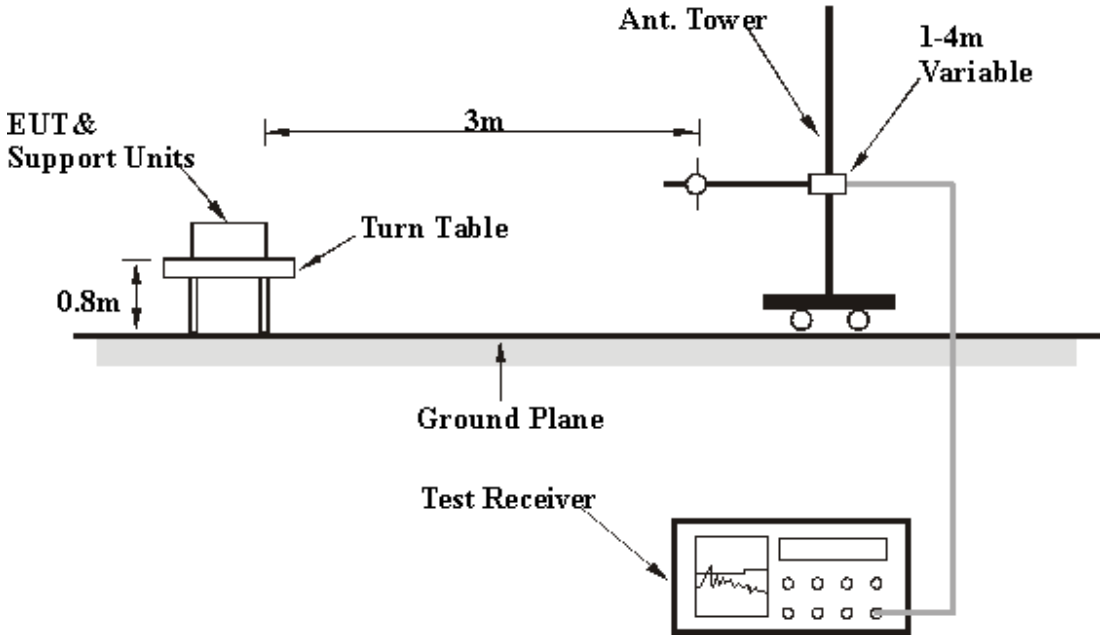
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1, 2) to act as communication partners and placed them outside of testing area.
3. The support unit 1 (Notebook Computer) runs test program “Duck 1.1.8” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA：802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	141.20	31.8 QP	43.50	-11.7	1.73 H	256	17.04	14.76
2	200.00	28.9 QP	43.50	-14.7	1.00 H	250	17.90	10.95
3	209.00	31.1 QP	43.50	-12.5	1.10 H	274	19.63	11.42
4	250.01	33.1 QP	46.00	-13.0	1.00 H	150	19.48	13.57
5	375.00	28.9 QP	46.00	-17.1	1.00 H	6	11.31	17.55
6	600.05	27.4 QP	46.00	-18.6	1.29 H	72	4.09	23.27
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	69.54	32.9 QP	40.00	-7.1	1.00 V	195	20.87	11.99
2	250.00	30.9 QP	46.00	-15.1	1.00 V	269	17.30	13.57
3	375.00	31.2 QP	46.00	-14.8	1.58 V	338	13.61	17.55
4	500.00	32.5 QP	46.00	-13.5	1.00 V	330	11.76	20.76
5	750.00	27.0 QP	46.00	-19.0	1.10 V	191	1.99	25.04
6	1000.00	27.8 QP	54.00	-26.2	1.00 V	3	-0.82	28.61

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.6 PK	74.00	-18.4	2.13 H	75	24.63	30.97
2	2390.00	43.7 AV	54.00	-10.3	2.13 H	75	12.73	30.97
3	*2412.00	100.2 PK			2.13 H	307	69.13	31.07
4	*2412.00	97.5 AV			2.13 H	307	66.43	31.07
5	4824.00	50.0 PK	74.00	-24.0	1.81 H	292	12.89	37.11
6	4824.00	46.0 AV	54.00	-8.0	1.81 H	292	8.89	37.11
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.6 PK	74.00	-12.4	1.00 V	162	30.63	30.97
2	2390.00	50.3 AV	54.00	-3.7	1.00 V	162	19.33	30.97
3	*2412.00	111.4 PK			1.00 V	150	80.33	31.07
4	*2412.00	108.9 AV			1.00 V	150	77.83	31.07
5	4824.00	55.8 PK	74.00	-18.2	1.36 V	0	18.69	37.11
6	**4824.00**	**53.5 AV**	**54.00**	**-0.5**	**1.36 V**	**0**	**16.39**	**37.11**

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.4 PK			1.24 H	287	70.23	31.17
2	*2437.00	98.1 AV			1.24 H	287	66.93	31.17
3	4874.00	55.2 PK	74.00	-18.8	1.84 H	283	17.97	37.23
4	4874.00	43.4 AV	54.00	-10.6	1.84 H	283	6.17	37.23
5	7311.00	51.3 PK	74.00	-22.7	1.37 H	285	6.94	44.36
6	7311.00	42.8 AV	54.00	-11.2	1.37 H	285	-1.56	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2378.00	57.8 PK	74.00	-16.2	1.00 V	150	26.88	30.92
2	2378.00	48.9 AV	54.00	-5.1	1.00 V	150	17.98	30.92
3	*2437.00	111.2 PK			1.00 V	149	80.03	31.17
4	*2437.00	109.0 AV			1.00 V	149	77.83	31.17
5	4874.00	55.6 PK	74.00	-18.4	1.36 V	342	18.37	37.23
6	4874.00	53.3 AV	54.00	-0.7	1.36 V	342	16.07	37.23
7	7311.00	53.1 PK	74.00	-20.9	1.48 V	199	8.74	44.36
8	7311.00	46.3 AV	54.00	-7.7	1.48 V	199	1.94	44.36

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.6 PK			1.28 H	289	70.32	31.28
2	*2462.00	98.4 AV			1.28 H	289	67.12	31.28
3	2483.50	56.1 PK	74.00	-17.9	1.28 H	289	24.71	31.37
4	2483.50	43.6 AV	54.00	-10.5	1.28 H	289	12.18	31.37
5	4924.00	49.4 PK	74.00	-24.6	1.82 H	124	12.06	37.34
6	4924.00	45.1 AV	54.00	-8.9	1.82 H	124	7.76	37.34
7	7386.00	52.7 PK	74.00	-21.3	1.37 H	286	8.11	44.59
8	7386.00	42.9 AV	54.00	-11.1	1.37 H	286	-1.69	44.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.9 PK			1.00 V	150	80.62	31.28
2	*2462.00	109.5 AV			1.00 V	150	78.22	31.28
3	2483.56	60.1 PK	74.00	-13.9	1.00 V	149	28.73	31.37
4	2483.56	48.4 AV	54.00	-5.6	1.00 V	149	17.03	31.37
5	4924.00	55.5 PK	74.00	-18.5	1.37 V	339	18.16	37.34
6	4924.00	53.3 AV	54.00	-0.7	1.37 V	339	15.96	37.34
7	7386.00	54.2 PK	74.00	-19.8	1.49 V	194	9.61	44.59
8	7386.00	47.0 AV	54.00	-7.0	1.49 V	194	2.41	44.59

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

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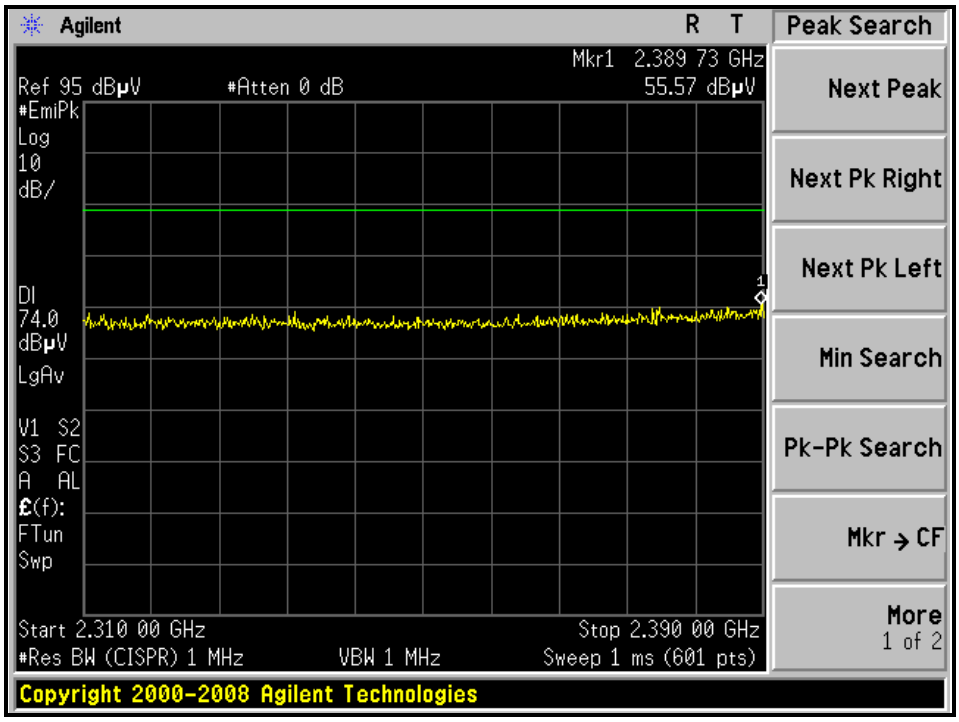

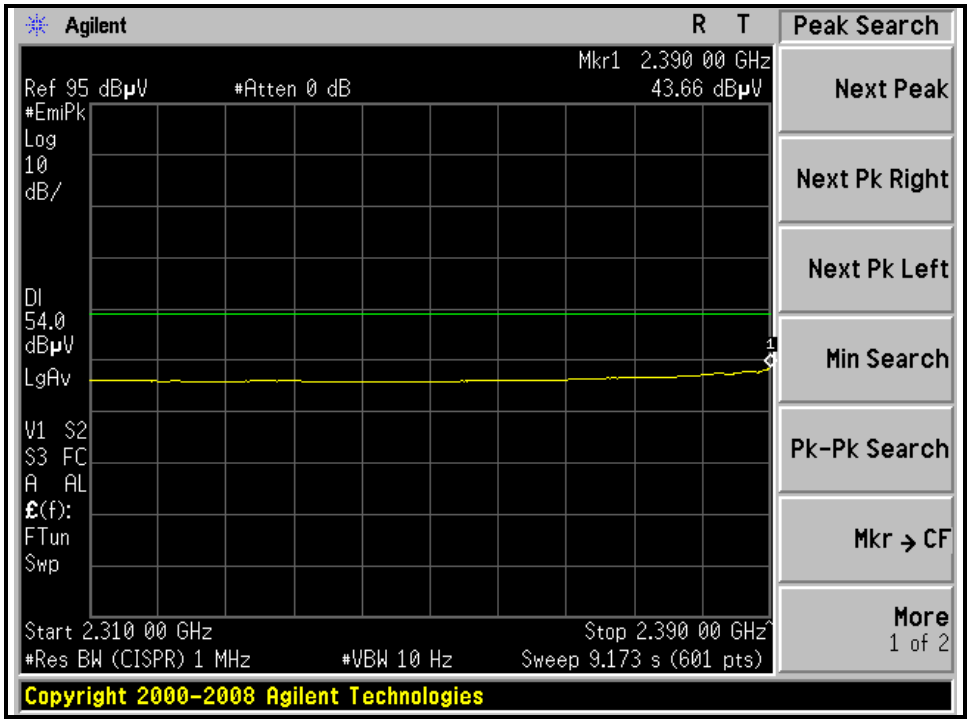

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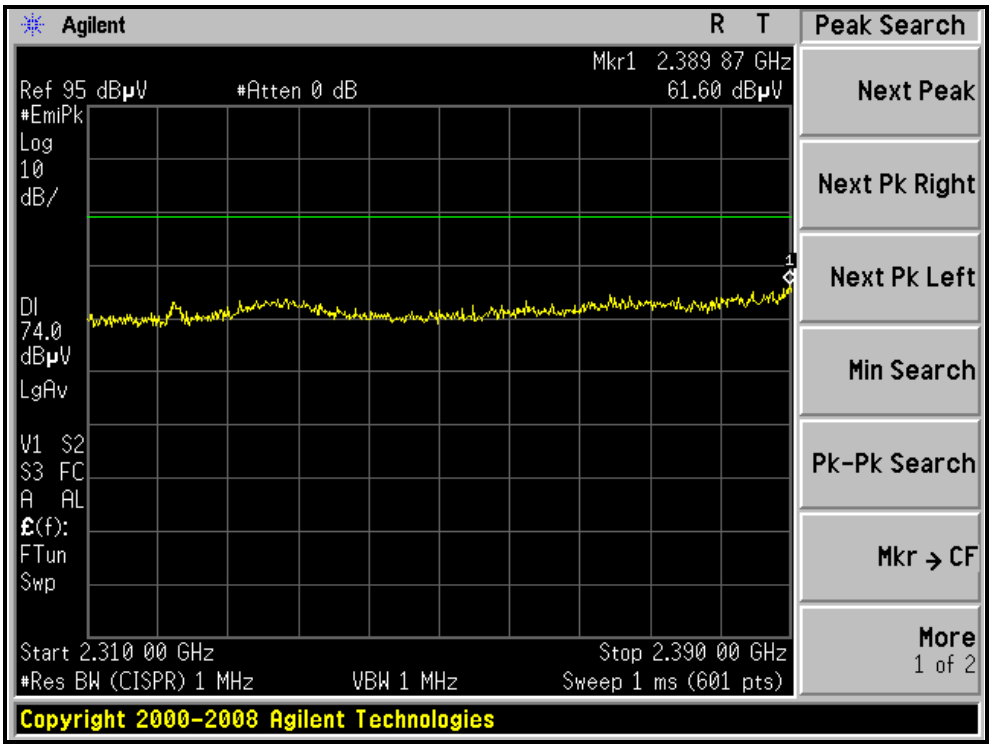

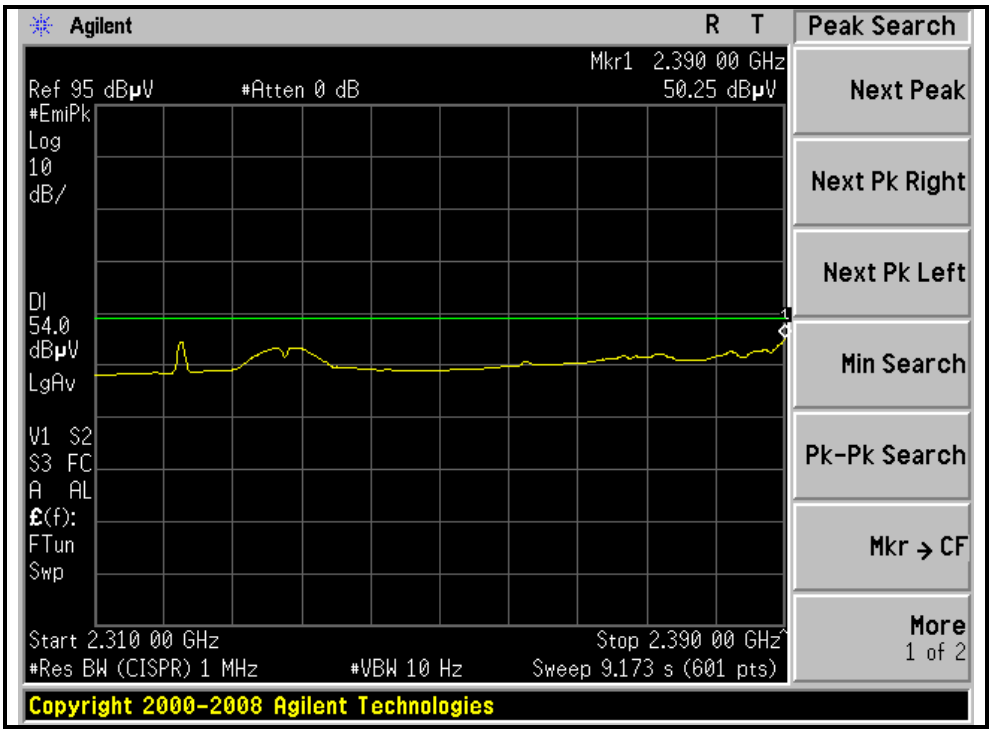

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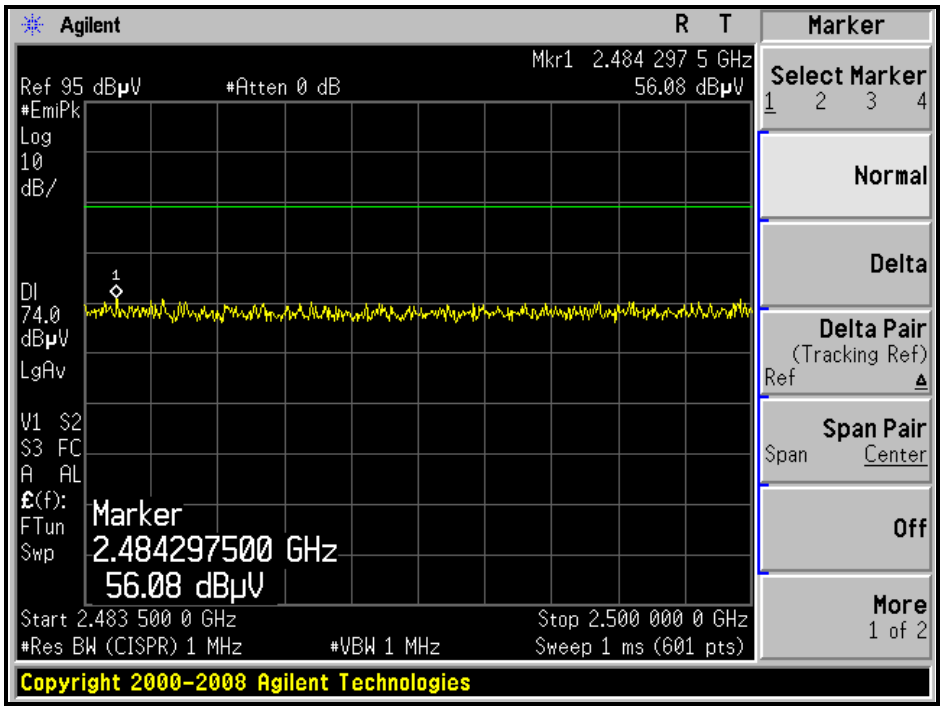

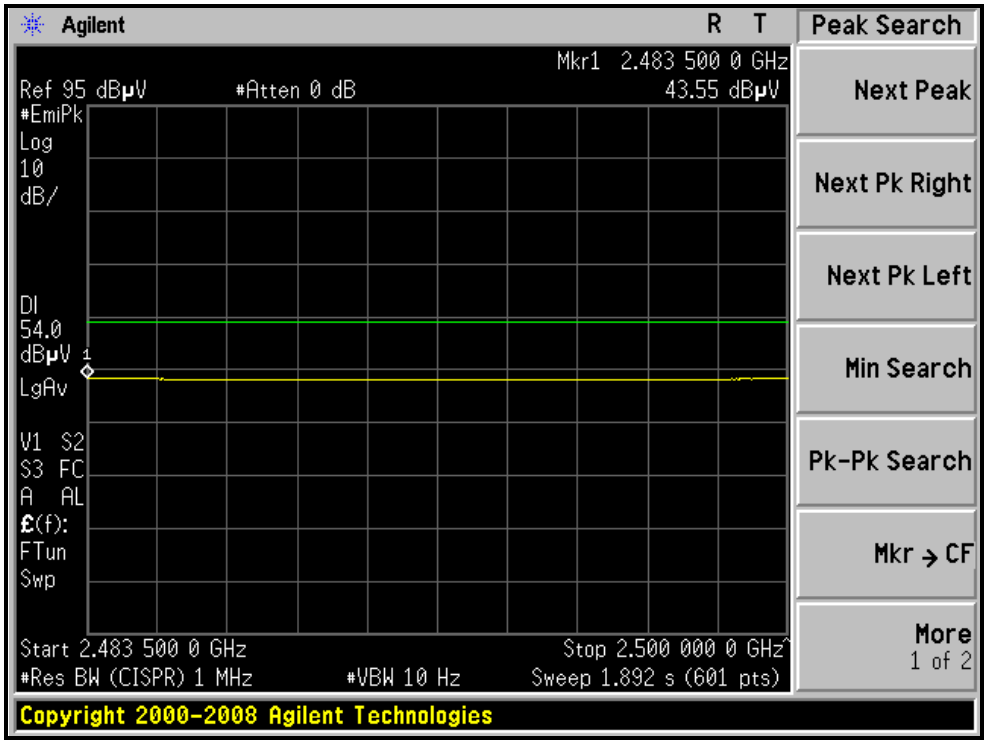

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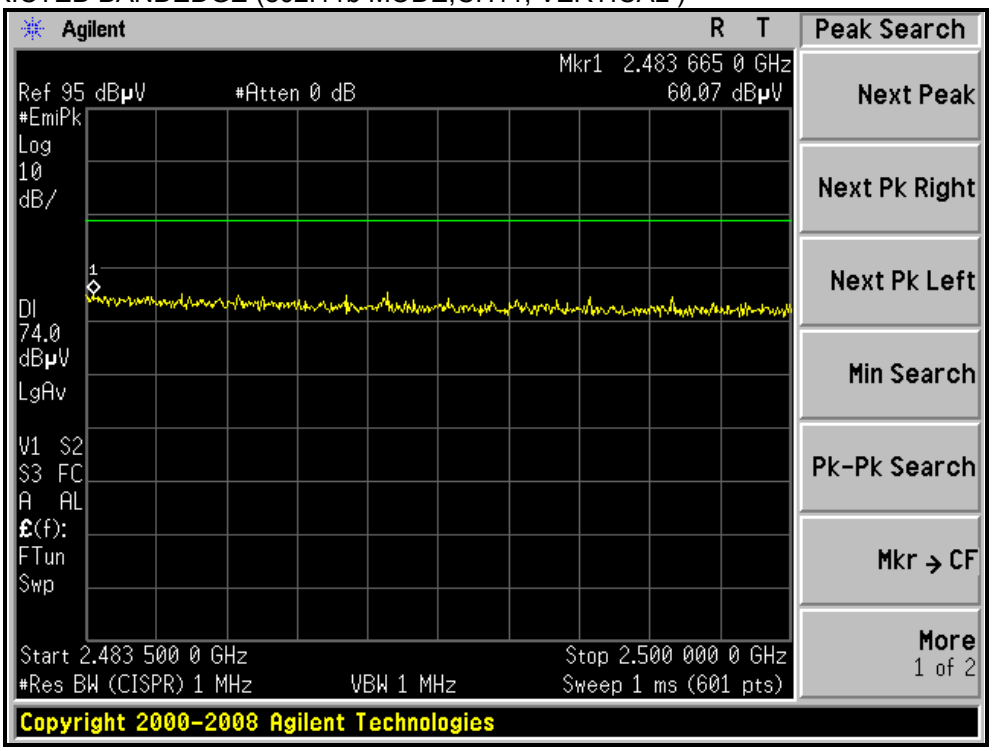
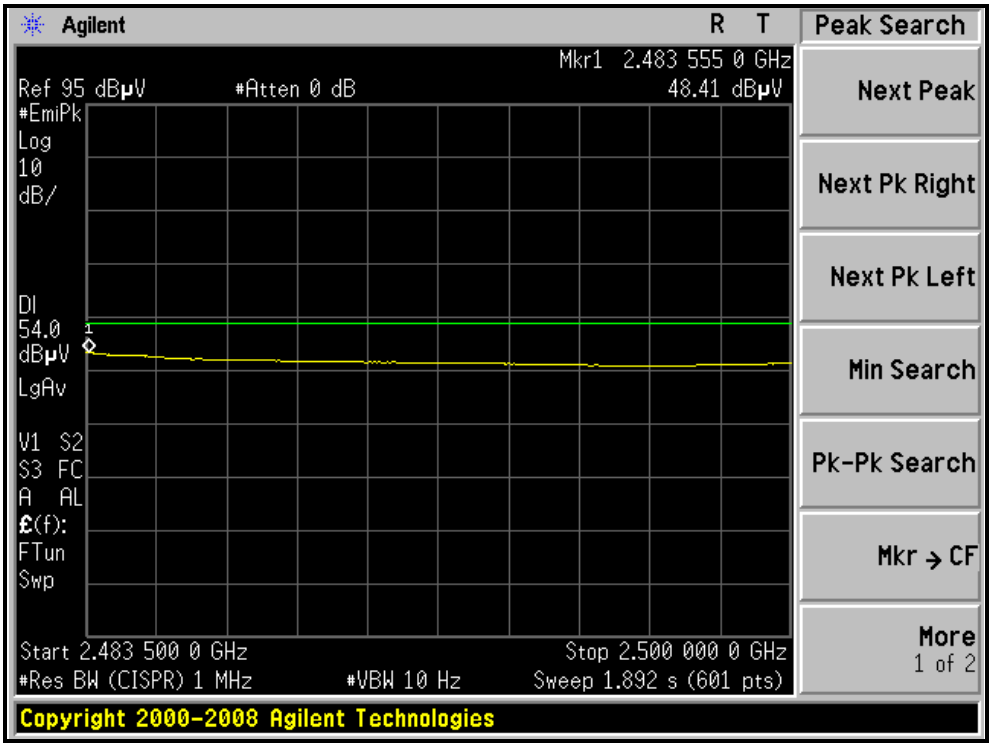




802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.8 PK	74.00	-18.2	1.30 H	288	24.82	30.97
2	2390.00	43.9 AV	54.00	-10.1	1.30 H	288	12.90	30.97
3	*2412.00	98.2 PK			1.30 H	288	67.13	31.07
4	*2412.00	89.1 AV			1.30 H	288	58.03	31.07
5	4824.00	46.5 PK	74.00	-27.5	1.24 H	59	9.39	37.11
6	4824.00	33.6 AV	54.00	-20.4	1.24 H	59	-3.51	37.11
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.9 PK	74.00	-6.1	1.00 V	156	36.93	30.97
2	2390.00	53.5 AV	54.00	-0.5	1.00 V	156	22.53	30.97
3	*2412.00	109.4 PK			1.00 V	150	78.33	31.07
4	*2412.00	100.3 AV			1.00 V	150	69.23	31.07
5	4824.00	47.6 PK	74.00	-26.4	1.13 V	74	10.49	37.11
6	4824.00	34.1 AV	54.00	-19.9	1.13 V	74	-3.01	37.11

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	100.1 PK			1.30 H	273	68.93	31.17
2	*2437.00	91.4 AV			1.30 H	273	60.23	31.17
3	4874.00	47.2 PK	74.00	-26.8	1.26 H	57	9.97	37.23
4	4874.00	34.1 AV	54.00	-19.9	1.26 H	57	-3.13	37.23
5	7311.00	50.3 PK	74.00	-23.7	1.27 H	31	5.94	44.36
6	7311.00	38.2 AV	54.00	-15.8	1.27 H	31	-6.16	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.7 PK			1.00 V	151	80.53	31.17
2	*2437.00	102.5 AV			1.00 V	151	71.33	31.17
3	4874.00	48.2 PK	74.00	-25.8	1.12 V	80	10.97	37.23
4	4874.00	35.9 AV	54.00	-18.1	1.12 V	80	-1.37	37.23
5	7311.00	50.4 PK	74.00	-23.6	1.40 V	190	6.04	44.36
6	7311.00	38.5 AV	54.00	-15.5	1.40 V	190	-5.86	44.36

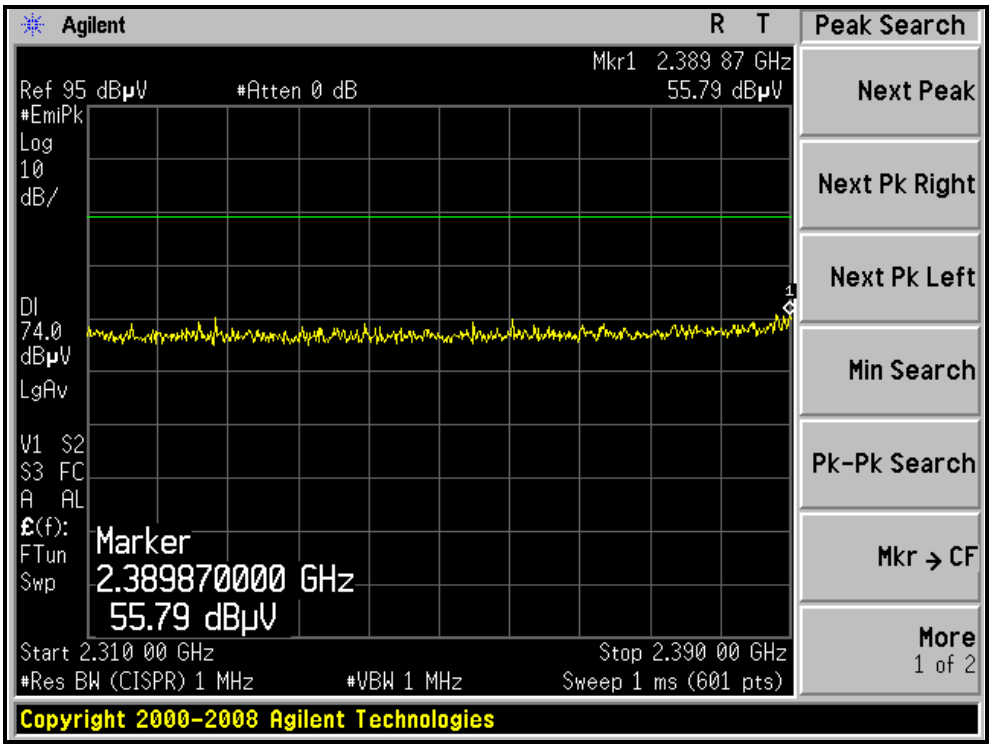
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

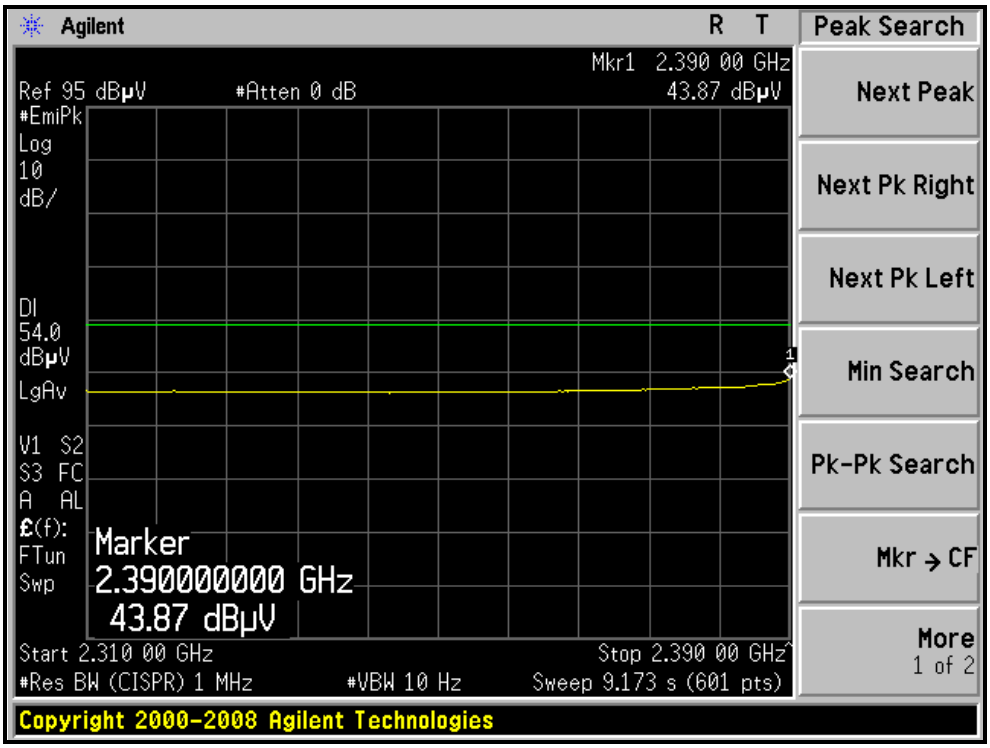
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.2 PK			1.30 H	284	66.92	31.28
2	*2462.00	89.9 AV			1.30 H	284	58.62	31.28
3	2483.50	58.3 PK	74.00	-15.8	1.30 H	284	26.88	31.37
4	2483.50	45.7 AV	54.00	-8.3	1.30 H	284	14.31	31.37
5	4924.00	45.9 PK	74.00	-28.1	1.24 H	67	8.56	37.34
6	4924.00	32.6 AV	54.00	-21.4	1.24 H	67	-4.74	37.34
7	7386.00	50.1 PK	74.00	-23.9	1.24 H	56	5.51	44.59
8	7386.00	38.1 AV	54.00	-15.9	1.24 H	56	-6.49	44.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.9 PK			1.00 V	150	77.62	31.28
2	*2462.00	99.8 AV			1.00 V	150	68.52	31.28
3	2483.50	65.9 PK	74.00	-8.1	1.00 V	152	34.53	31.37
4	2483.50	53.1 AV	54.00	-0.9	1.00 V	152	21.73	31.37
5	4924.00	46.3 PK	74.00	-27.7	1.12 V	64	8.96	37.34
6	4924.00	33.4 AV	54.00	-20.6	1.12 V	64	-3.94	37.34
7	7386.00	50.1 PK	74.00	-23.9	1.41 V	188	5.51	44.59
8	7386.00	38.3 AV	54.00	-15.7	1.41 V	188	-6.29	44.59

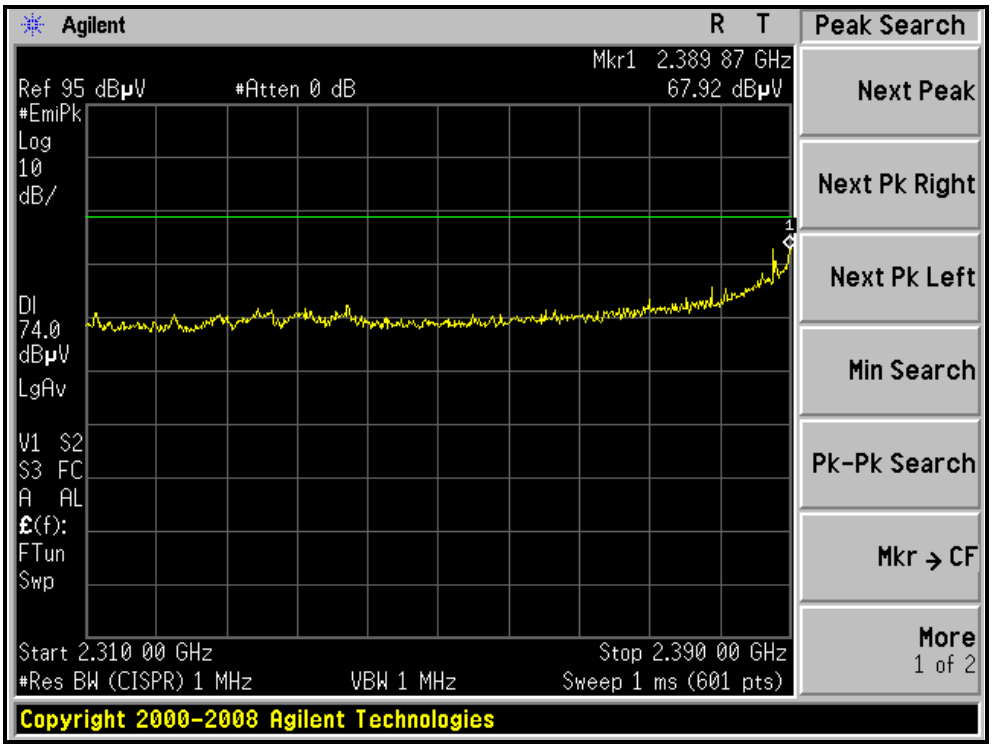
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

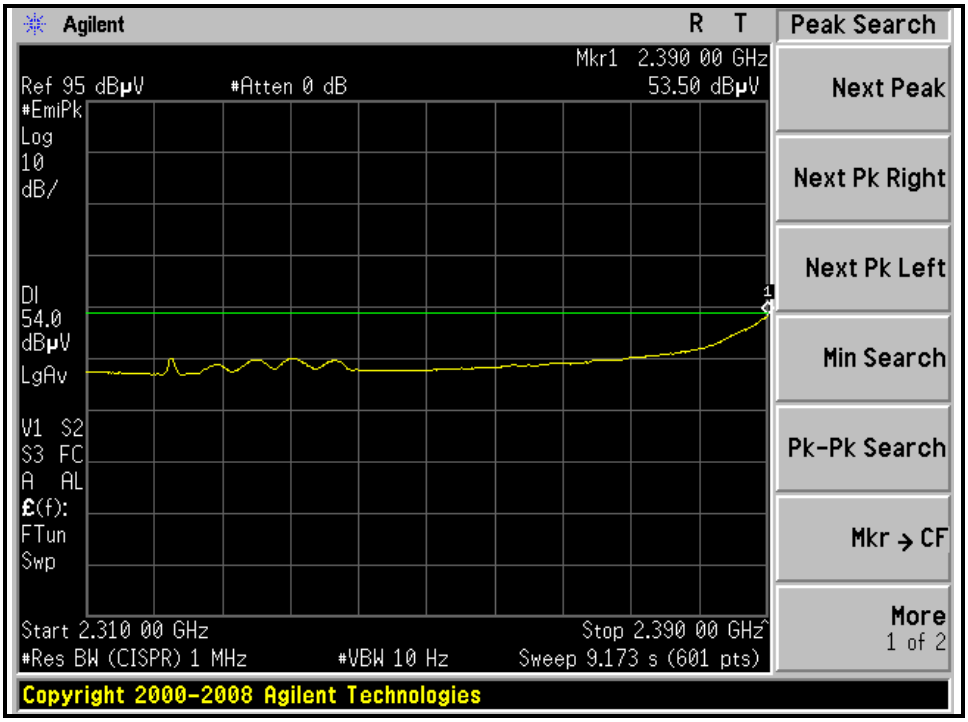
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



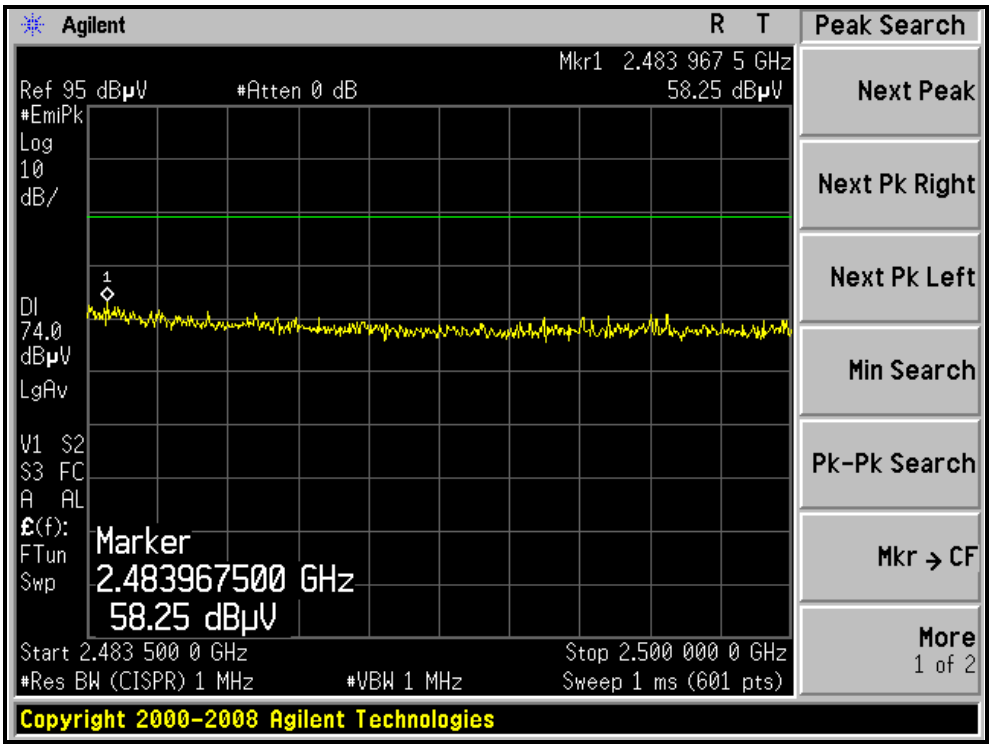


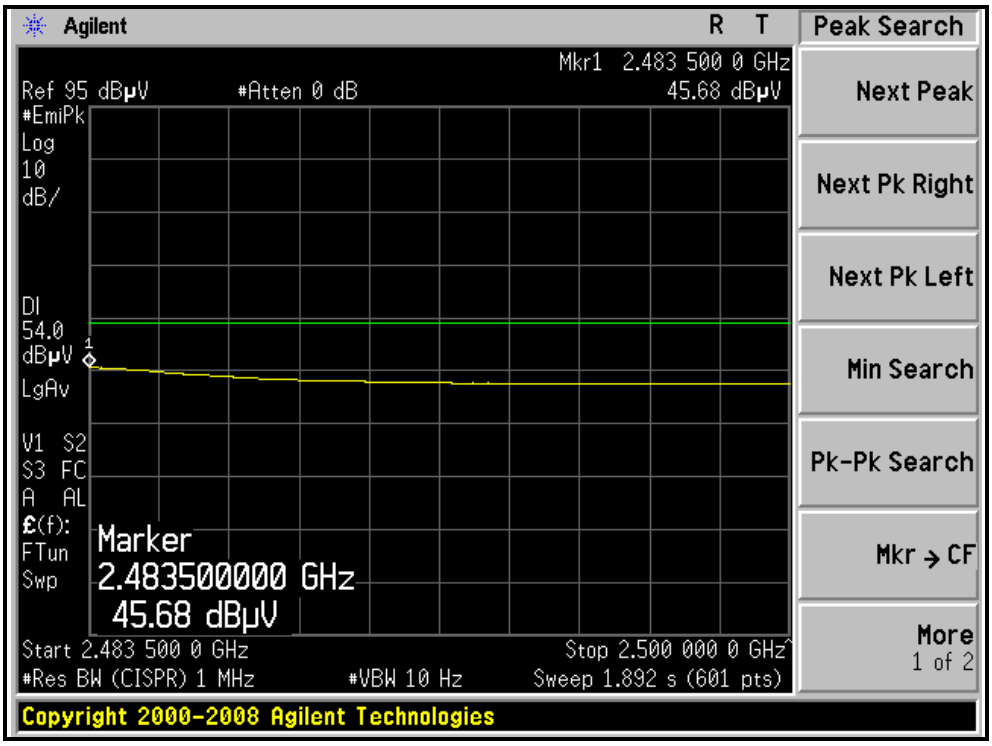
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





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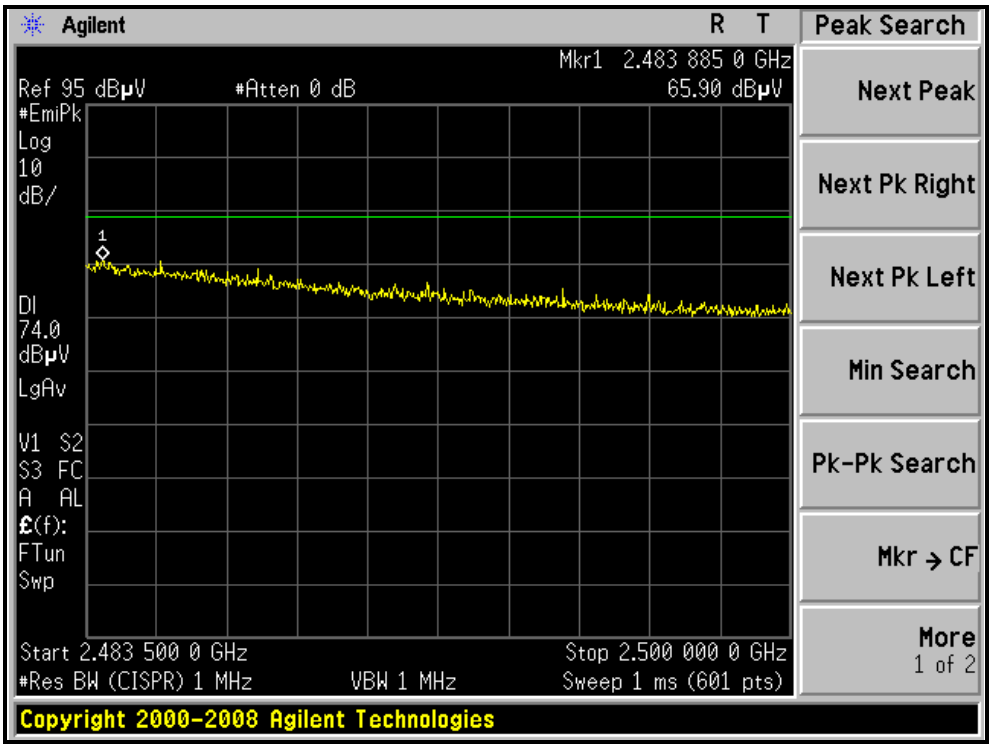
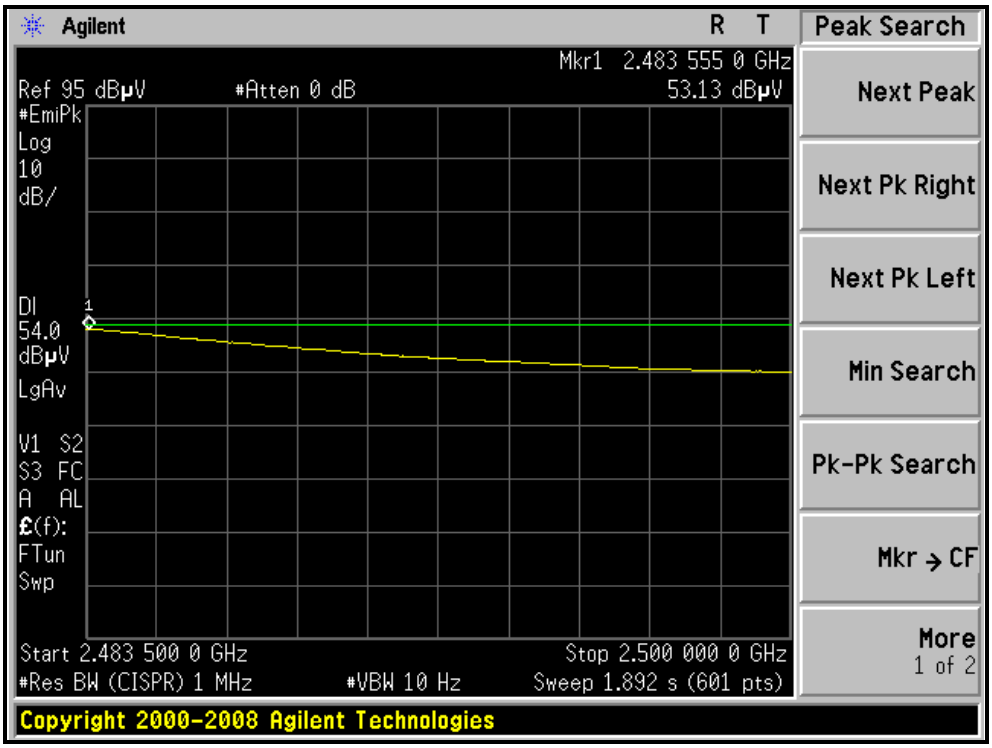




802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.4 PK	74.00	-15.7	1.30 H	274	27.38	30.97
2	2390.00	43.5 AV	54.00	-10.5	1.30 H	274	12.50	30.97
3	*2412.00	98.1 PK			1.27 H	248	67.03	31.07
4	*2412.00	89.3 AV			1.27 H	248	58.23	31.07
5	4824.00	46.9 PK	74.00	-27.1	1.21 H	59	9.79	37.11
6	4824.00	33.1 AV	54.00	-20.9	1.21 H	59	-4.01	37.11
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.2 PK	74.00	-1.8	1.00 V	259	41.23	30.97
2	2390.00	53.3 AV	54.00	-0.7	1.00 V	259	22.33	30.97
3	*2412.00	108.3 PK			1.00 V	149	77.23	31.07
4	*2412.00	99.5 AV			1.00 V	149	68.43	31.07
5	4824.00	47.2 PK	74.00	-26.8	1.13 V	64	10.09	37.11
6	4824.00	33.9 AV	54.00	-20.1	1.13 V	64	-3.21	37.11

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.4 PK			1.34 H	253	77.23	31.17
2	*2437.00	91.3 AV			1.34 H	253	60.13	31.17
3	4874.00	47.6 PK	74.00	-26.4	1.21 H	59	10.37	37.23
4	4874.00	34.3 AV	54.00	-19.7	1.21 H	59	-2.93	37.23
5	7311.00	50.5 PK	74.00	-23.5	1.26 H	43	6.14	44.36
6	7311.00	38.4 AV	54.00	-15.6	1.26 H	43	-5.96	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.3 PK			1.00 V	149	80.13	31.17
2	*2437.00	102.1 AV			1.00 V	149	70.93	31.17
3	4874.00	48.4 PK	74.00	-25.6	1.10 V	73	11.17	37.23
4	4874.00	35.4 AV	54.00	-18.6	1.10 V	73	-1.83	37.23
5	7311.00	50.9 PK	74.00	-23.1	1.41 V	183	6.54	44.36
6	7311.00	38.6 AV	54.00	-15.4	1.41 V	183	-5.76	44.36

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.2 PK			1.31 H	254	67.92	31.28
2	*2462.00	89.4 AV			1.31 H	254	58.12	31.28
3	2483.50	58.8 PK	74.00	-15.2	1.31 H	254	27.47	31.37
4	2483.50	46.1 AV	54.00	-7.9	1.31 H	254	14.72	31.37
5	4924.00	45.4 PK	74.00	-28.6	1.29 H	57	8.06	37.34
6	4924.00	32.1 AV	54.00	-21.9	1.29 H	57	-5.24	37.34
7	7386.00	50.4 PK	74.00	-23.6	1.26 H	79	5.81	44.59
8	7386.00	38.2 AV	54.00	-15.8	1.26 H	79	-6.39	44.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.0 PK			1.00 V	151	76.72	31.28
2	*2462.00	99.2 AV			1.00 V	151	67.92	31.28
3	2483.69	67.0 PK	74.00	-7.0	1.00 V	207	35.63	31.37
4	2483.69	53.5 AV	54.00	-0.5	1.00 V	207	22.13	31.37
5	4924.00	45.9 PK	74.00	-28.1	1.13 V	57	8.56	37.34
6	4924.00	33.1 AV	54.00	-20.9	1.13 V	57	-4.24	37.34
7	7386.00	50.4 PK	74.00	-23.6	1.49 V	182	5.81	44.59
8	7386.00	38.4 AV	54.00	-15.6	1.49 V	182	-6.19	44.59

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

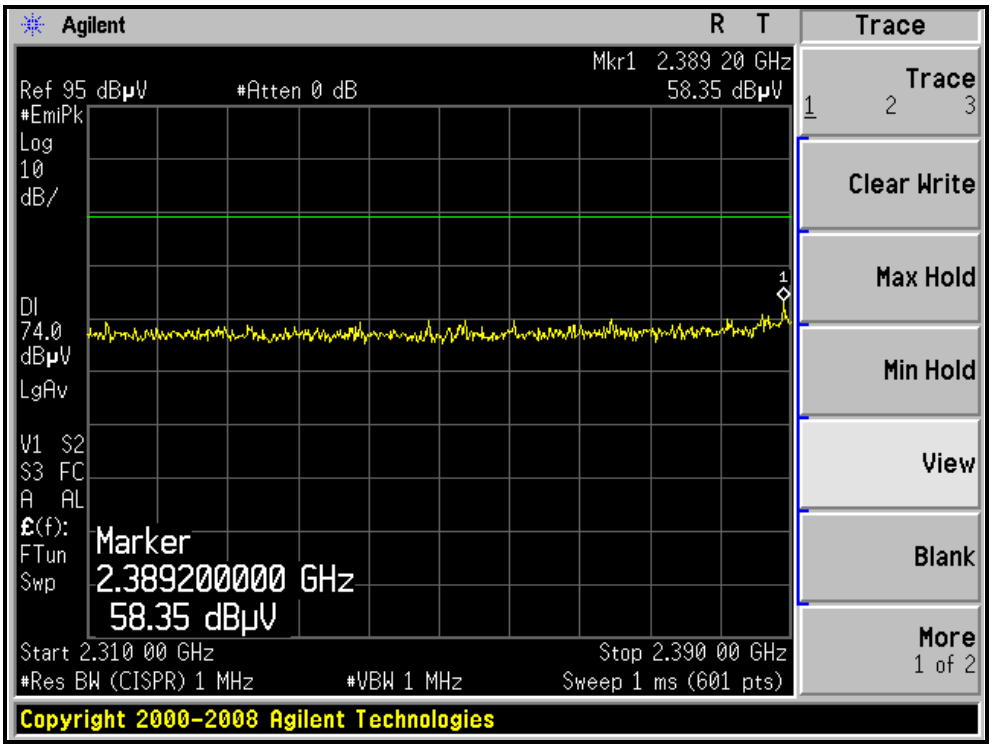
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

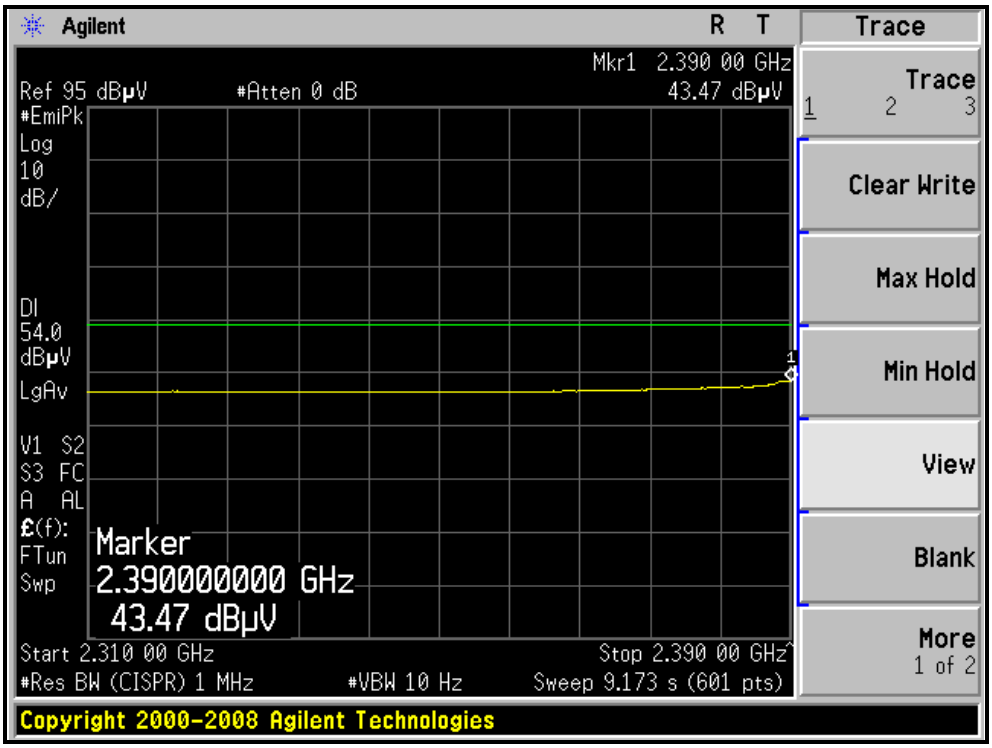
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

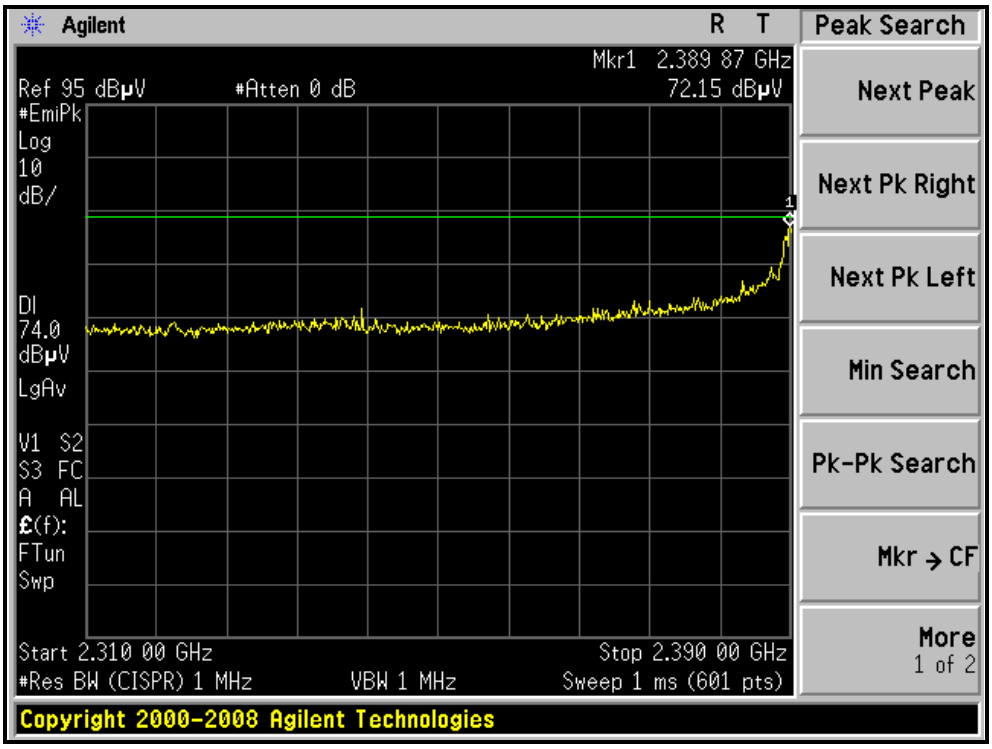
5. " * ": Fundamental frequency.

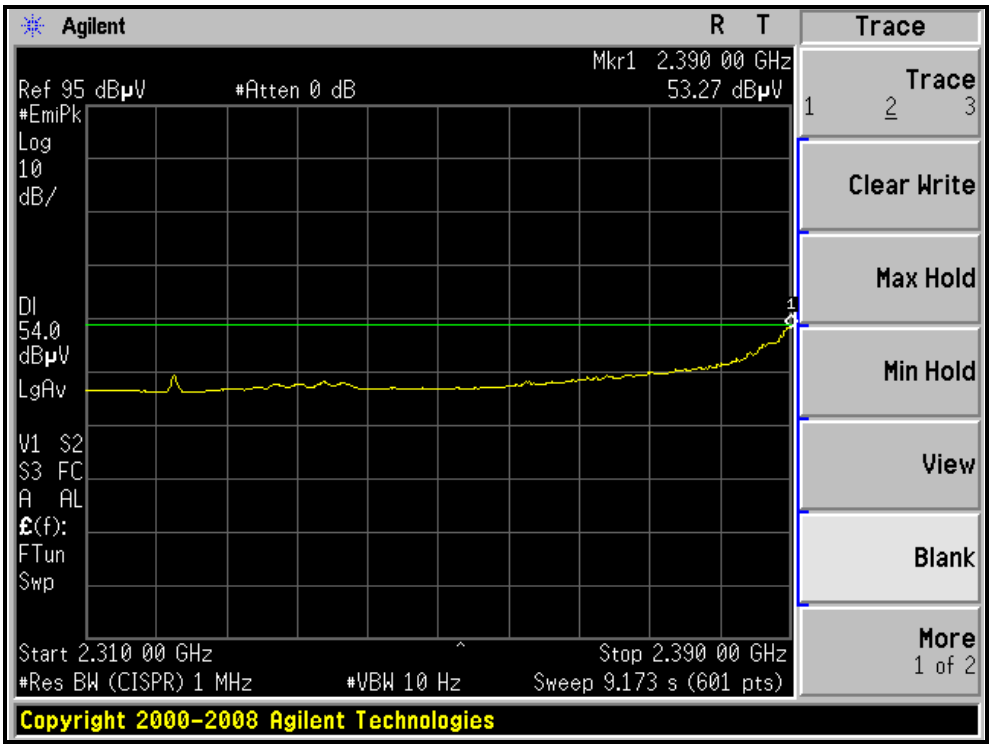
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)





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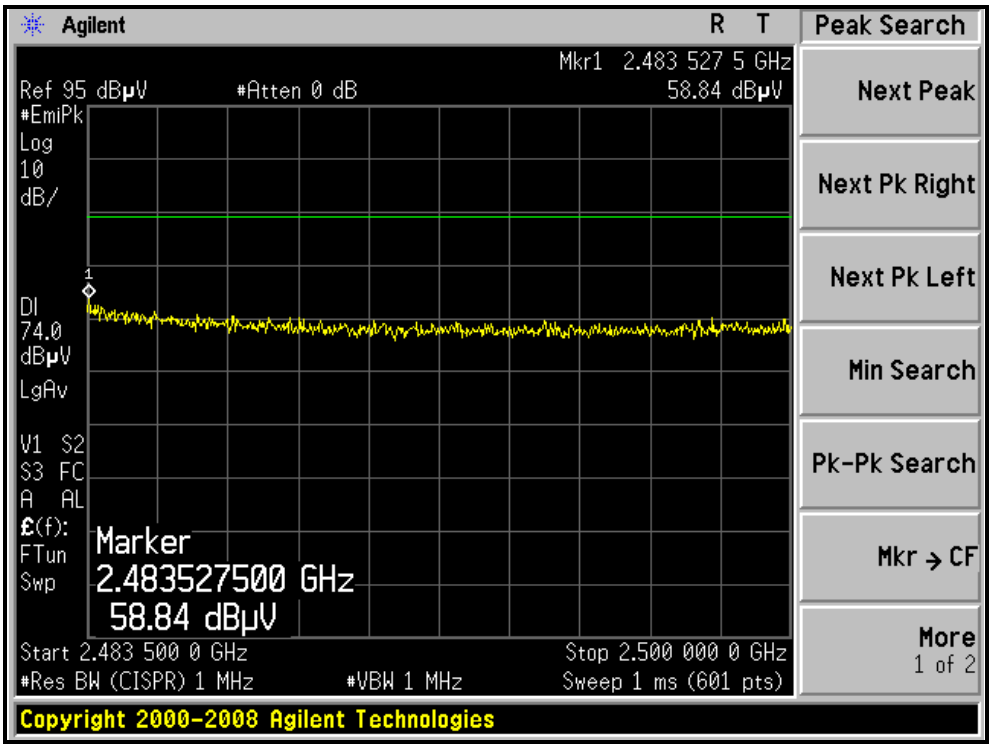
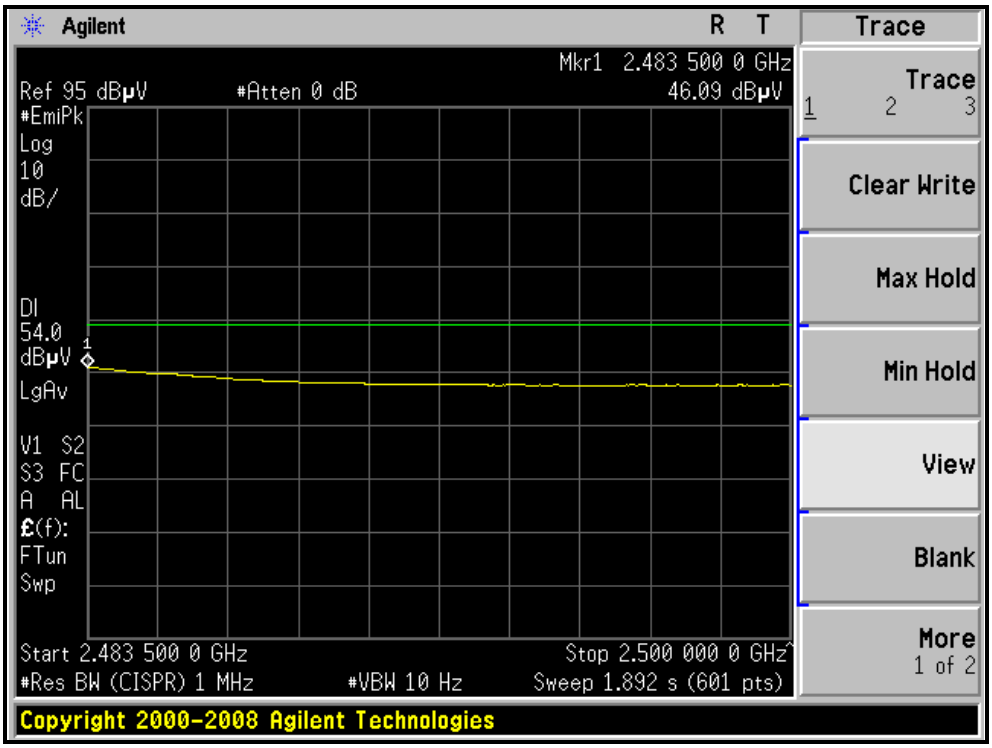
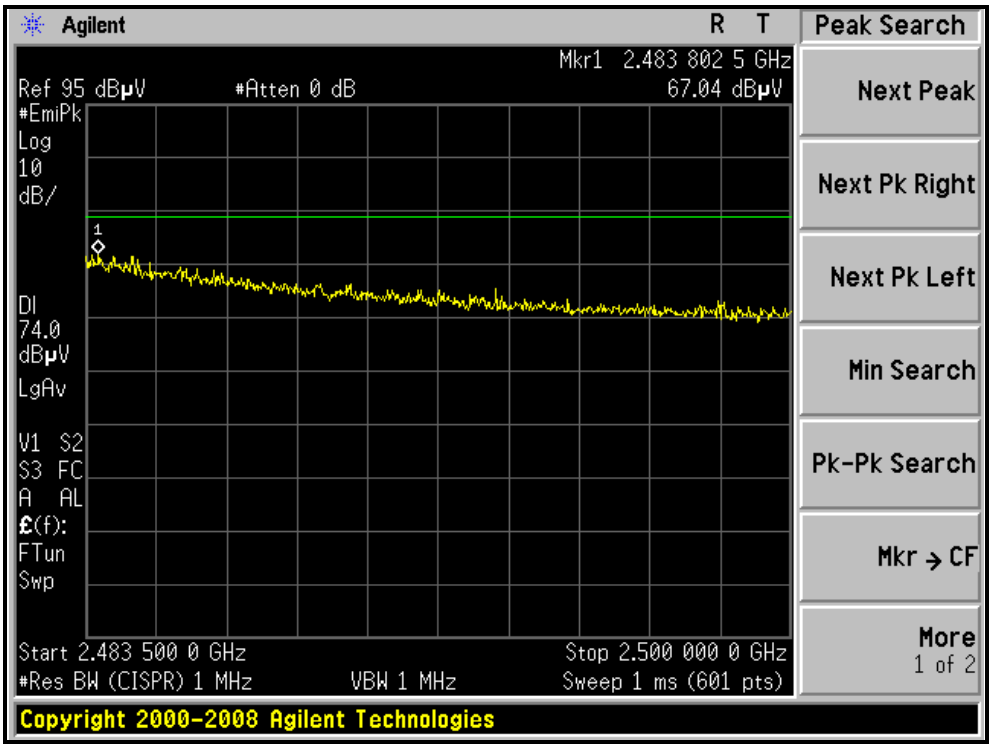
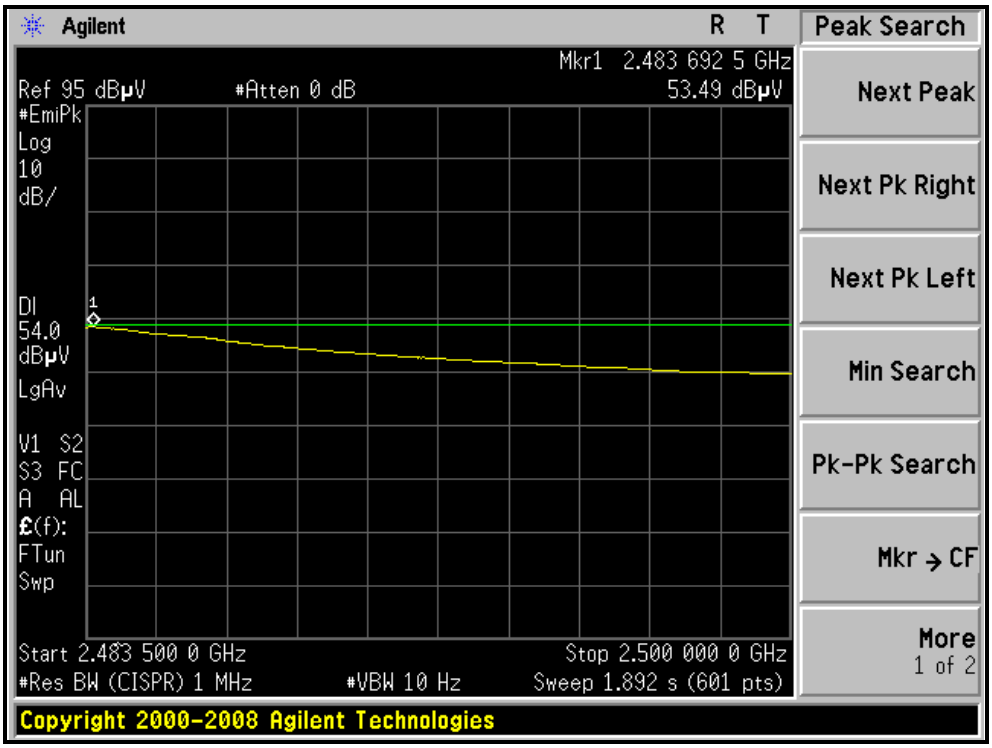




RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, VERTICAL)





802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2388.80	58.9 PK	74.00	-15.1	1.21 H	256	27.89	30.97
2	2388.80	44.4 AV	54.00	-9.7	1.21 H	256	13.38	30.97
3	*2422.00	96.1 PK			1.24 H	153	64.99	31.11
4	*2422.00	85.9 AV			1.24 H	153	54.79	31.11
5	4844.00	45.1 PK	74.00	-28.9	1.24 H	57	7.94	37.16
6	4844.00	32.4 AV	54.00	-21.6	1.24 H	57	-4.76	37.16
7	7266.00	50.4 PK	74.00	-23.6	1.03 H	62	6.18	44.22
8	7266.00	38.2 AV	54.00	-15.8	1.03 H	62	-6.02	44.22
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2388.00	70.3 PK	74.00	-3.7	1.00 V	196	39.34	30.96
2	2388.00	52.9 AV	54.00	-1.1	1.00 V	196	21.94	30.96
3	*2422.00	105.6 PK			1.00 V	150	74.49	31.11
4	*2422.00	95.3 AV			1.00 V	150	64.19	31.11
5	4844.00	45.9 PK	74.00	-28.1	1.13 V	84	8.74	37.16
6	4844.00	32.8 AV	54.00	-21.2	1.13 V	84	-4.36	37.16
7	7266.00	50.7 PK	74.00	-23.3	1.44 V	129	6.48	44.22
8	7266.00	38.5 AV	54.00	-15.5	1.44 V	129	-5.72	44.22

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	98.2 PK			1.21 H	164	67.03	31.17
2	*2437.00	88.4 AV			1.21 H	164	57.23	31.17
3	4874.00	45.7 PK	74.00	-28.3	1.26 H	69	8.47	37.23
4	4874.00	33.1 AV	54.00	-20.9	1.26 H	69	-4.13	37.23
5	7311.00	50.2 PK	74.00	-23.8	1.24 H	53	5.84	44.36
6	7311.00	38.1 AV	54.00	-15.9	1.24 H	53	-6.26	44.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.73	72.0 PK	74.00	-2.0	1.00 V	108	41.03	30.97
2	2389.73	53.4 AV	54.00	-0.6	1.00 V	108	22.43	30.97
3	*2437.00	107.8 PK			1.00 V	151	76.63	31.17
4	*2437.00	97.4 AV			1.00 V	151	66.23	31.17
5	4874.00	46.3 PK	74.00	-27.7	1.14 V	79	9.07	37.23
6	4874.00	33.6 AV	54.00	-20.4	1.14 V	79	-3.63	37.23
7	7311.00	50.6 PK	74.00	-23.4	1.42 V	173	6.24	44.36
8	7311.00	38.3 AV	54.00	-15.7	1.42 V	173	-6.06	44.36

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

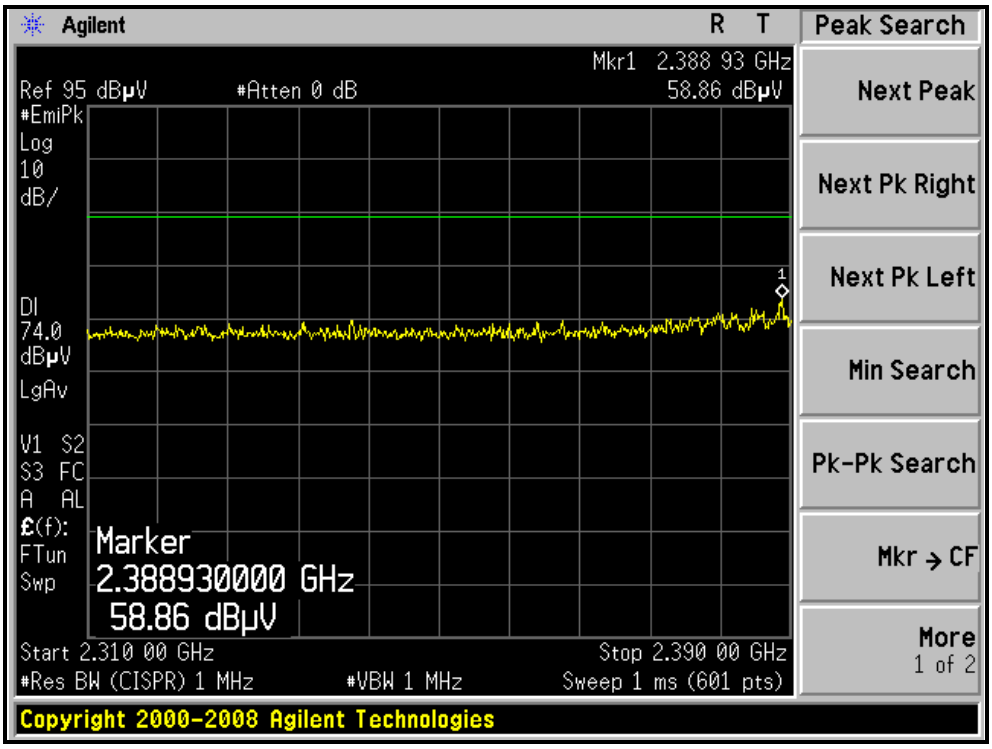
5. " * ": Fundamental frequency.

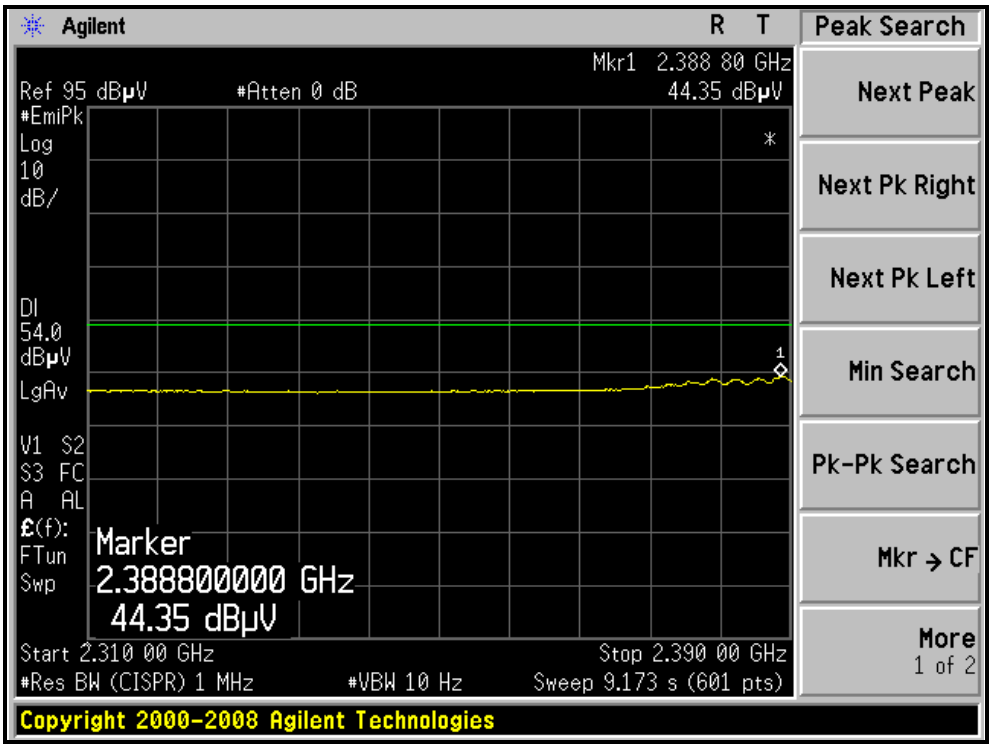
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1013 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	96.7 PK			1.26 H	160	65.46	31.24
2	*2452.00	86.4 AV			1.26 H	160	55.16	31.24
3	2483.50	59.6 PK	74.00	-14.4	1.26 H	160	28.26	31.37
4	2483.50	45.8 AV	54.00	-8.2	1.26 H	160	14.47	31.37
5	4904.00	45.7 PK	74.00	-28.3	1.21 H	64	8.40	37.30
6	4904.00	32.9 AV	54.00	-21.1	1.21 H	64	-4.40	37.30
7	7356.00	50.1 PK	74.00	-23.9	1.26 H	62	5.60	44.50
8	7356.00	38.2 AV	54.00	-15.8	1.26 H	62	-6.30	44.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.0 PK			1.00 V	149	73.76	31.24
2	*2452.00	95.1 AV			1.00 V	149	63.86	31.24
3	2483.50	69.5 PK	74.00	-4.5	1.00 V	64	38.13	31.37
4	2483.50	52.8 AV	54.00	-1.2	1.00 V	64	21.43	31.37
5	4904.00	46.1 PK	74.00	-27.9	1.03 V	84	8.80	37.30
6	4904.00	33.1 AV	54.00	-20.9	1.03 V	84	-4.20	37.30
7	7356.00	50.7 PK	74.00	-23.3	1.57 V	124	6.20	44.50
8	7356.00	38.2 AV	54.00	-15.8	1.57 V	124	-6.30	44.50

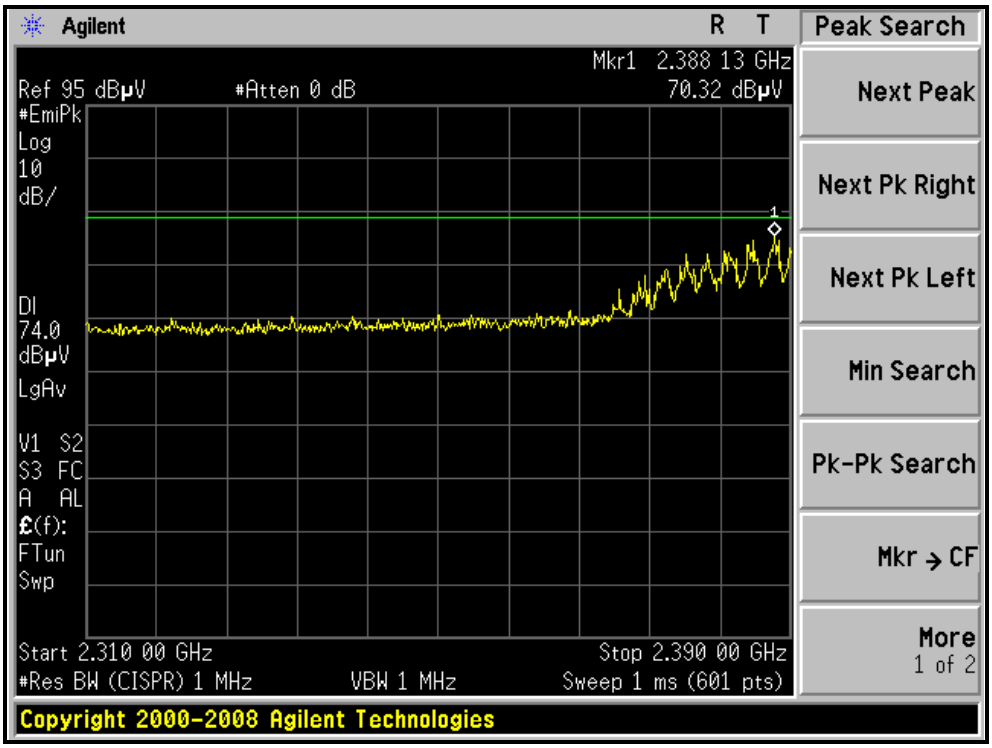
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

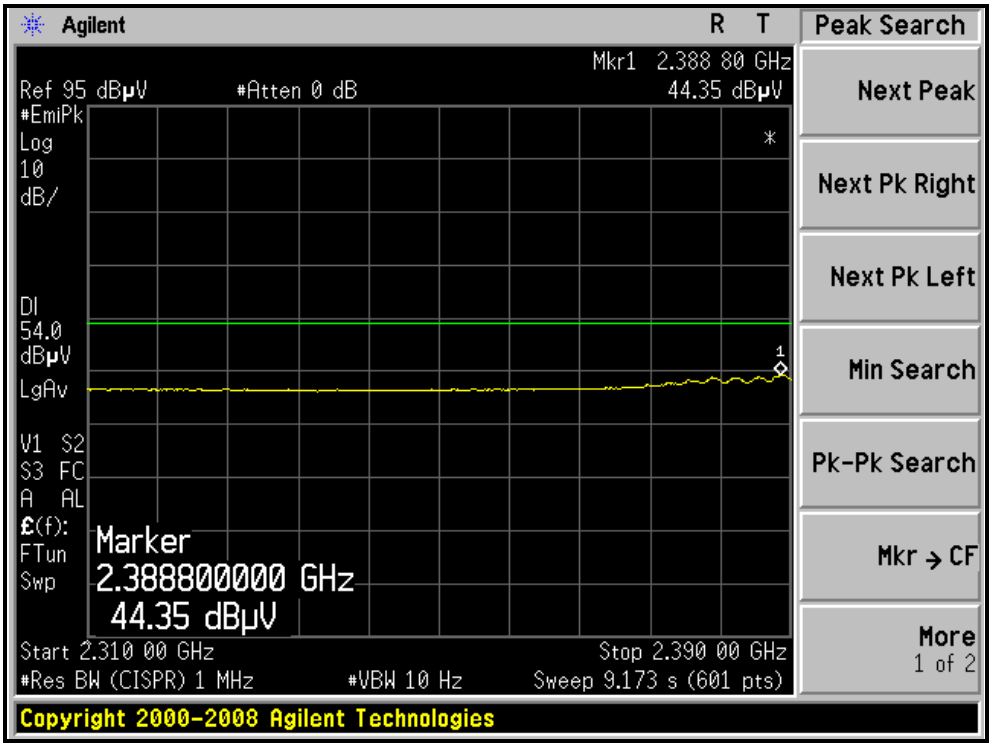
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



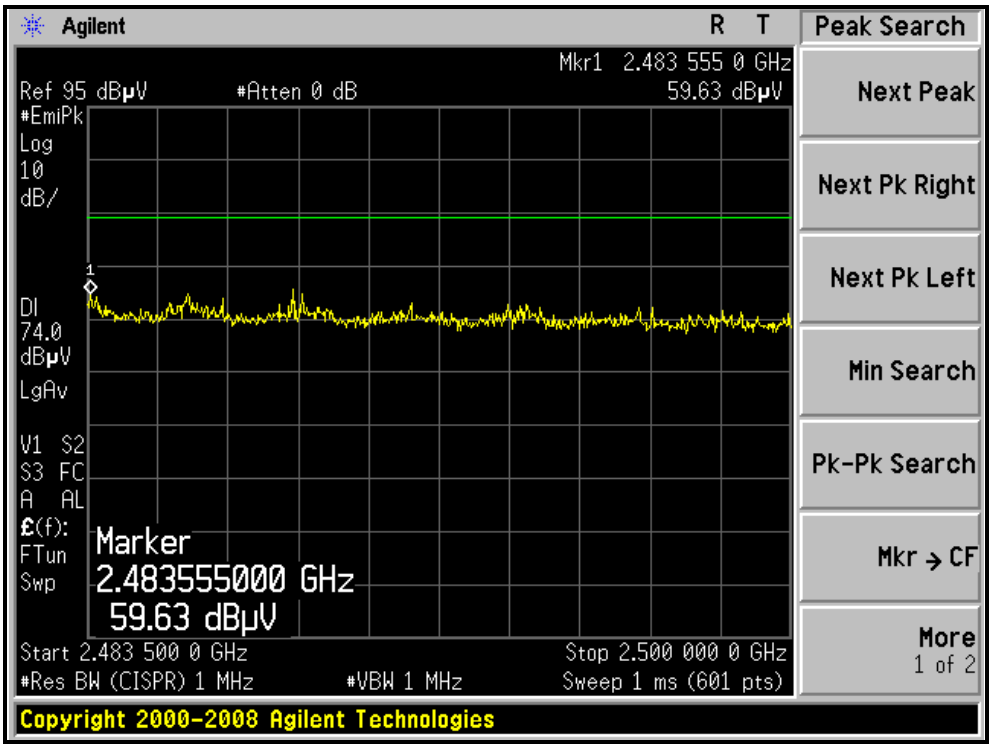


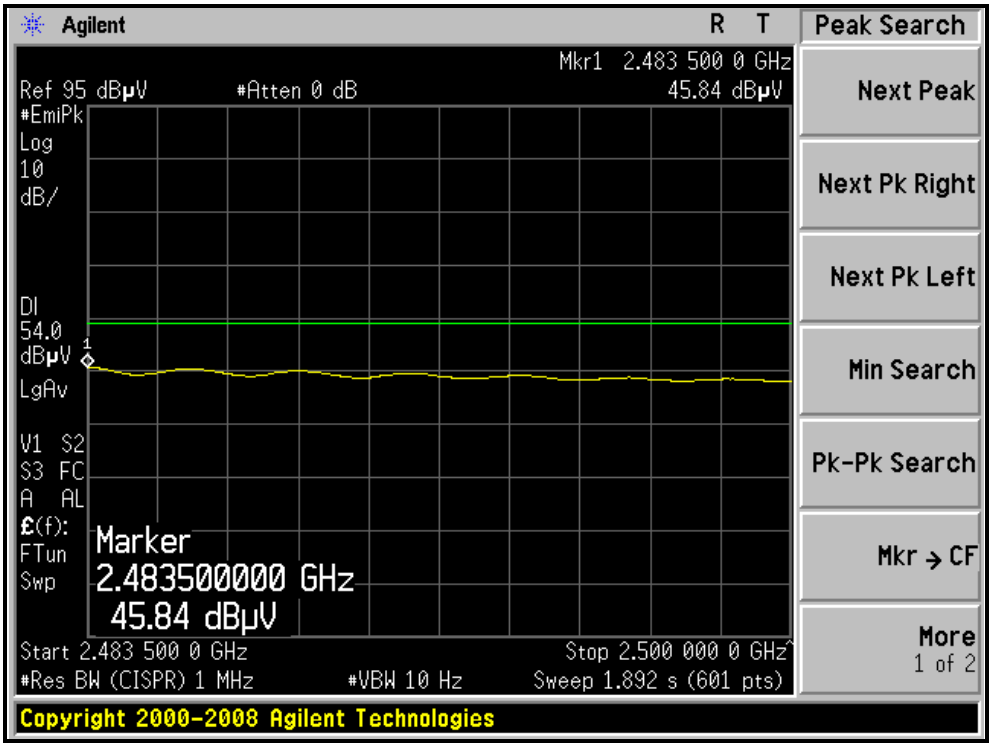
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



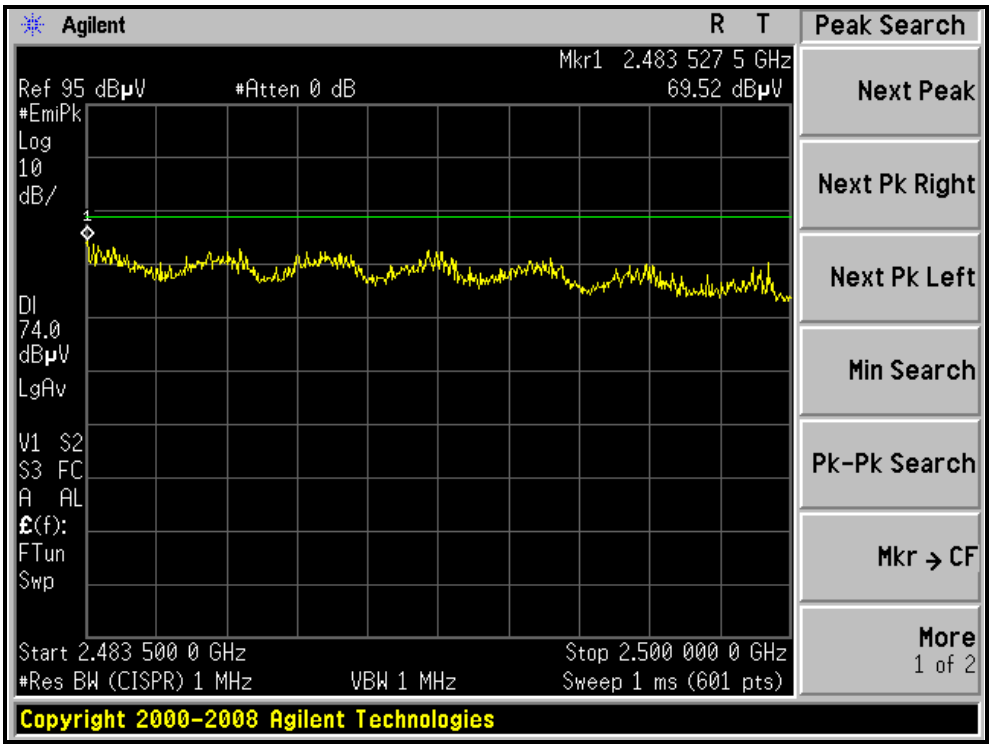


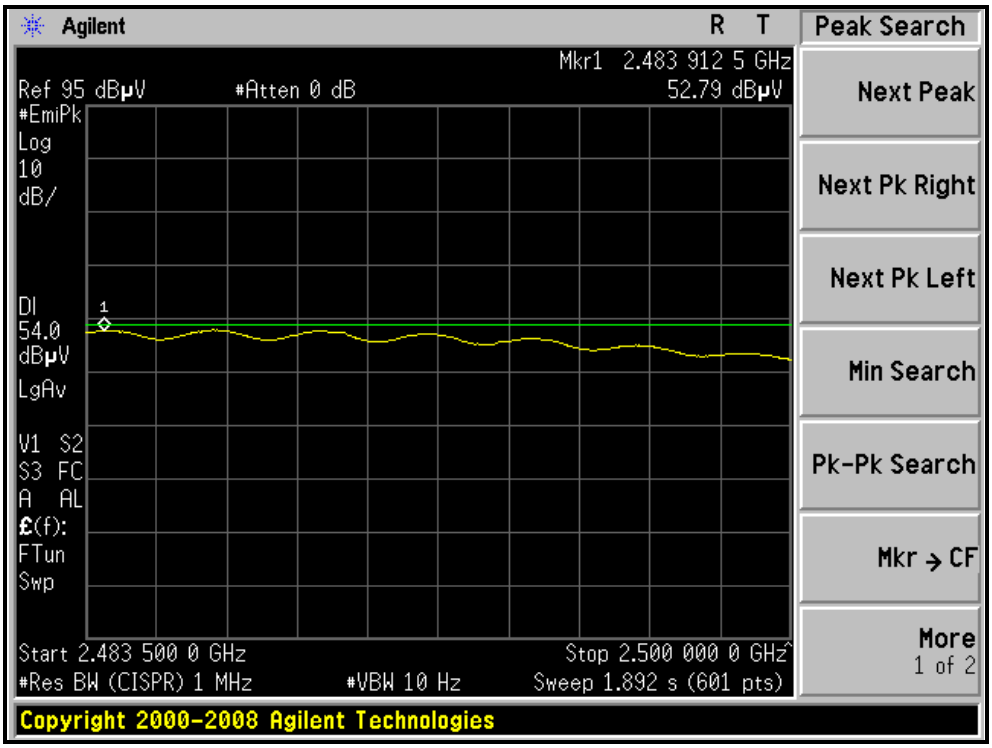
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, VERTICAL)





4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 2011

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

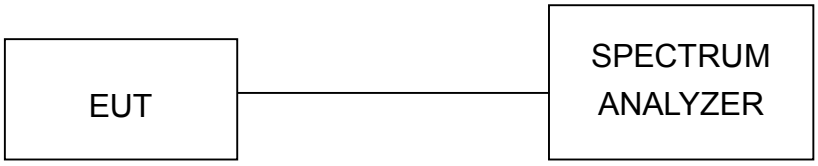
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

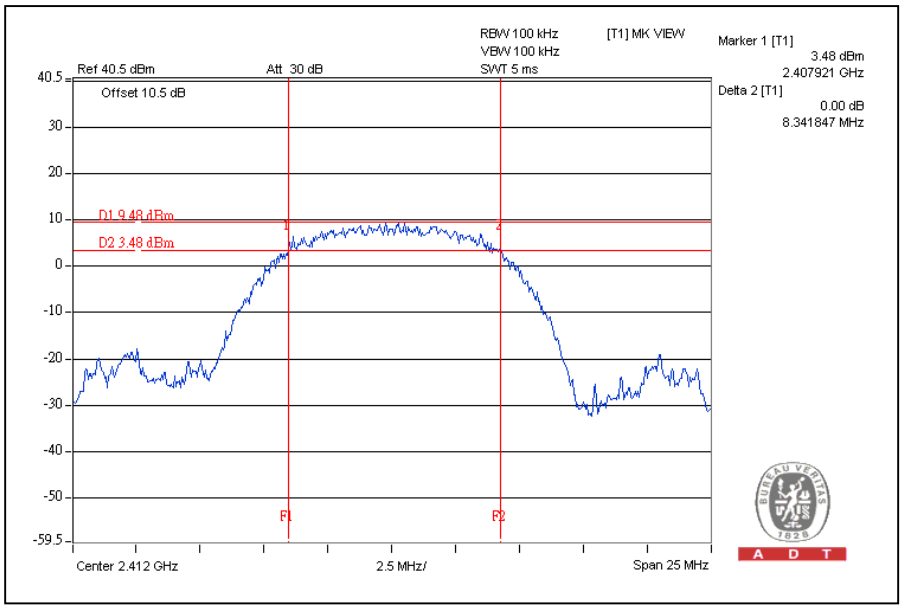
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.34	0.5	PASS
6	2437	8.04	0.5	PASS
11	2462	7.44	0.5	PASS

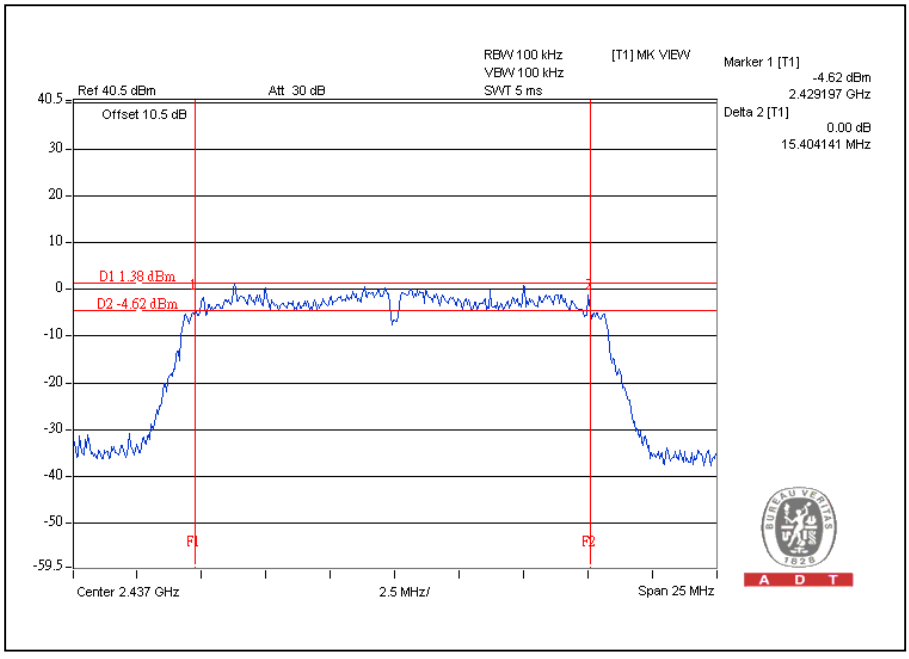
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	14.80	0.5	PASS
6	2437	15.40	0.5	PASS
11	2462	15.16	0.5	PASS

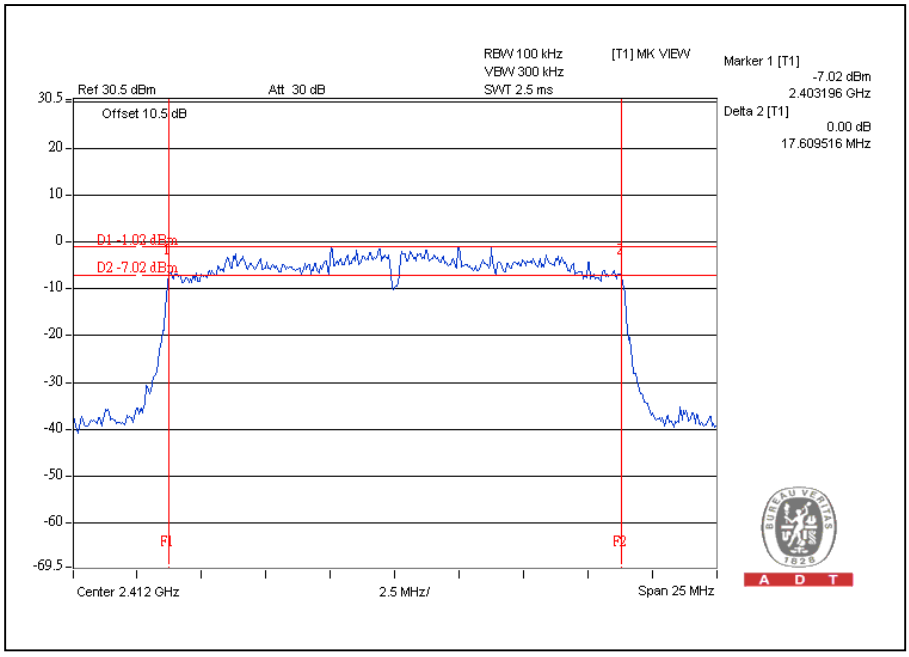
CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.60	0.5	PASS
6	2437	15.12	0.5	PASS
11	2462	15.11	0.5	PASS

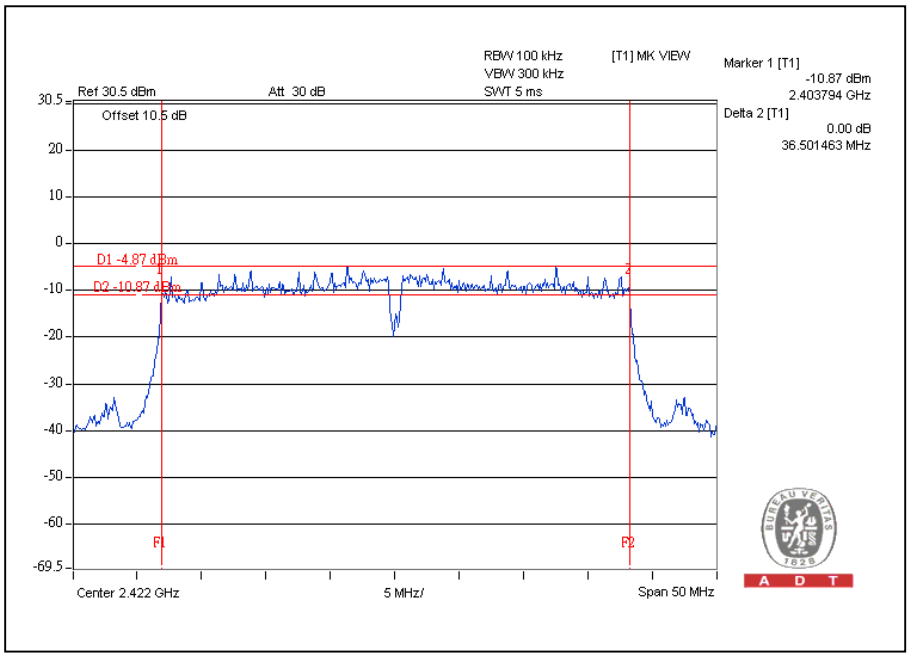
CH1



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.50	0.5	PASS
4	2437	36.48	0.5	PASS
7	2452	36.25	0.5	PASS

CH1



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Anritsu Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Pulse Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

NOTE:
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

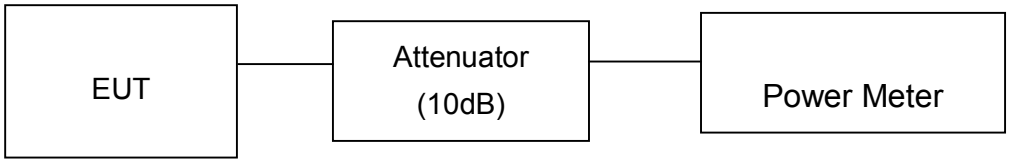
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	23.4	218.8	30	PASS
6	2437	22.6	182.0	30	PASS
11	2462	22.0	158.5	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	22.3	22.4	343.6	25.4	30	PASS
6	2437	23.5	23.7	458.3	26.6	30	PASS
11	2462	20.1	21.0	228.2	23.6	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	22.2	22.3	335.8	25.3	30	PASS
6	2437	23.4	23.5	442.6	26.5	30	PASS
11	2462	20.1	20.4	212.0	23.3	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2422	19.5	20.7	206.6	23.2	30	PASS
4	2437	22.0	22.5	336.3	25.3	30	PASS
7	2452	19.5	20.1	191.5	22.8	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 2011

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

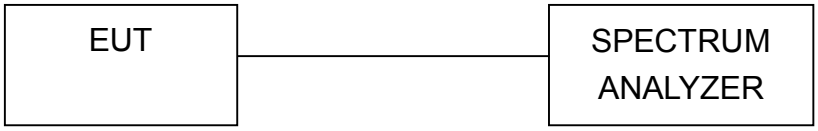
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

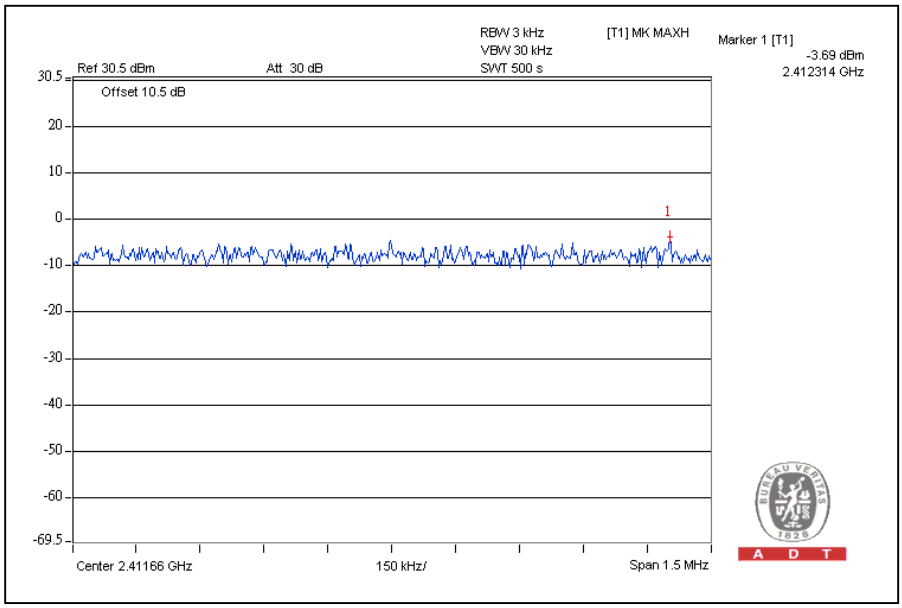
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-3.7	8	PASS
6	2437	-4.1	8	PASS
11	2462	-5.0	8	PASS

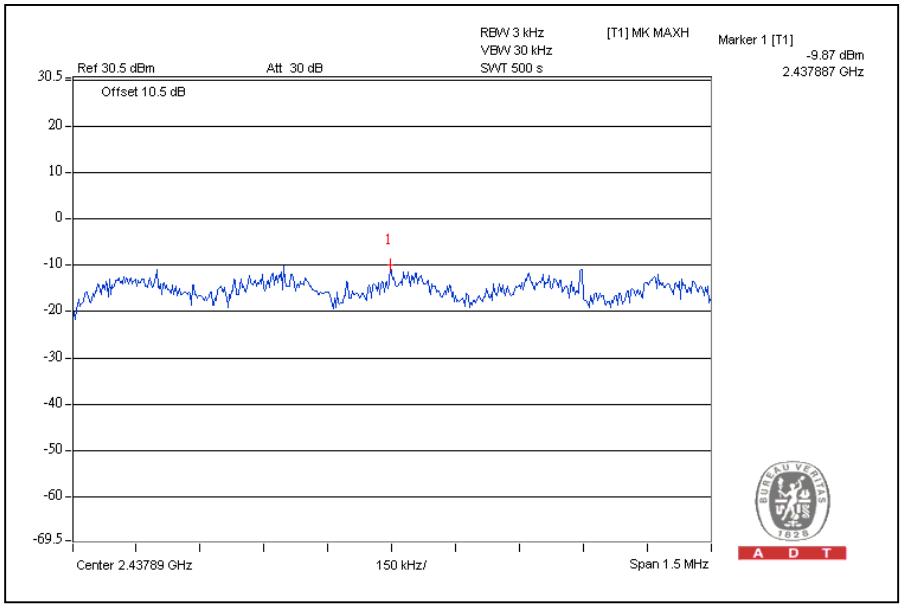
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
1	2412	-12.9	-12.5	-9.7	8	PASS
6	2437	-9.9	-10.3	-7.1	8	PASS
11	2462	-14.7	-13.1	-10.8	8	PASS

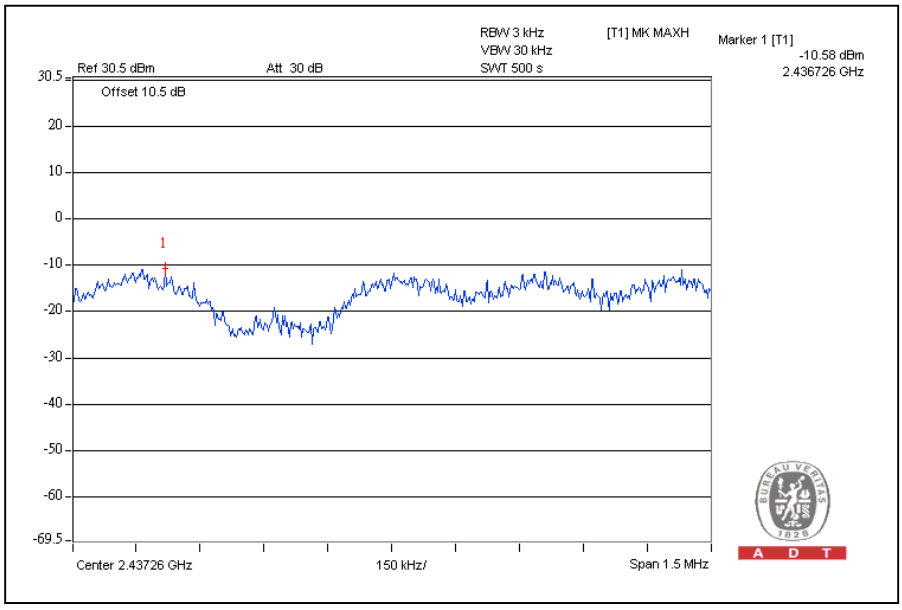
For Chain(0): CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
1	2412	-13.5	-12.6	-10.0	8	PASS
6	2437	-11.9	-10.6	-8.2	8	PASS
11	2462	-14.9	-12.7	-10.7	8	PASS

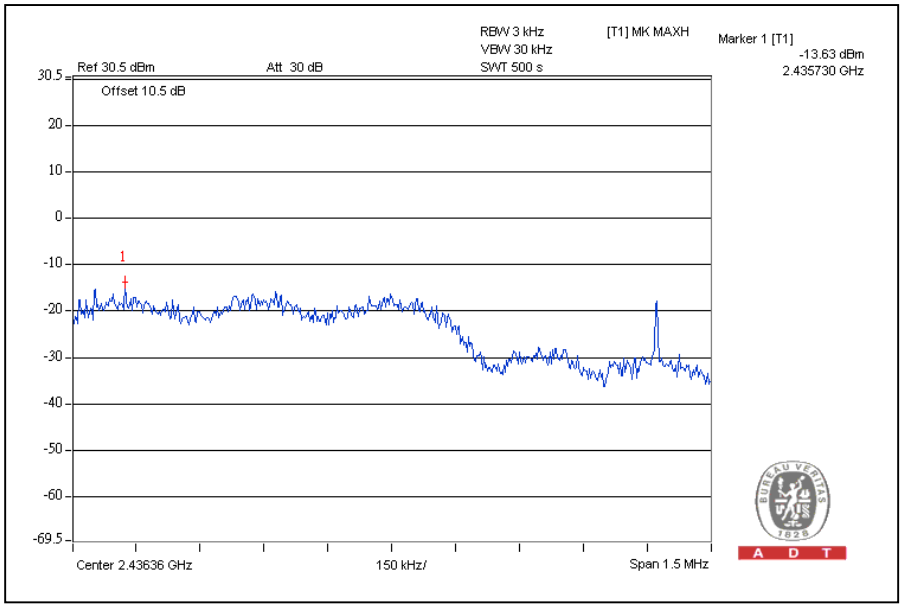
For Chain(1): CH6



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
1	2422	-17.1	-17.6	-14.3	8	PASS
4	2437	-13.6	-14.0	-10.8	8	PASS
7	2452	-21.4	-18.3	-16.6	8	PASS

For Chain (0): CH4



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 2011

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz or 200 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

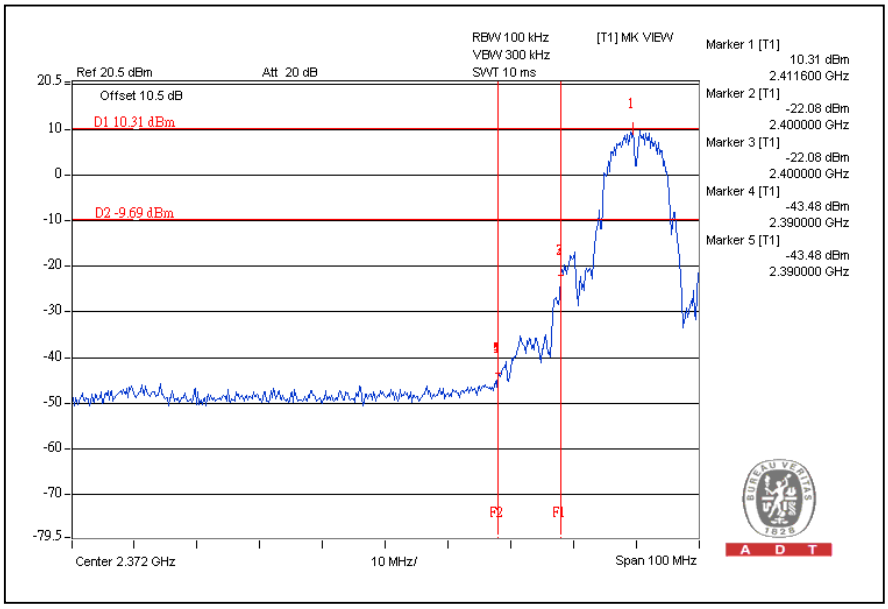
Same as Item 4.3.6

4.6.6 TEST RESULTS

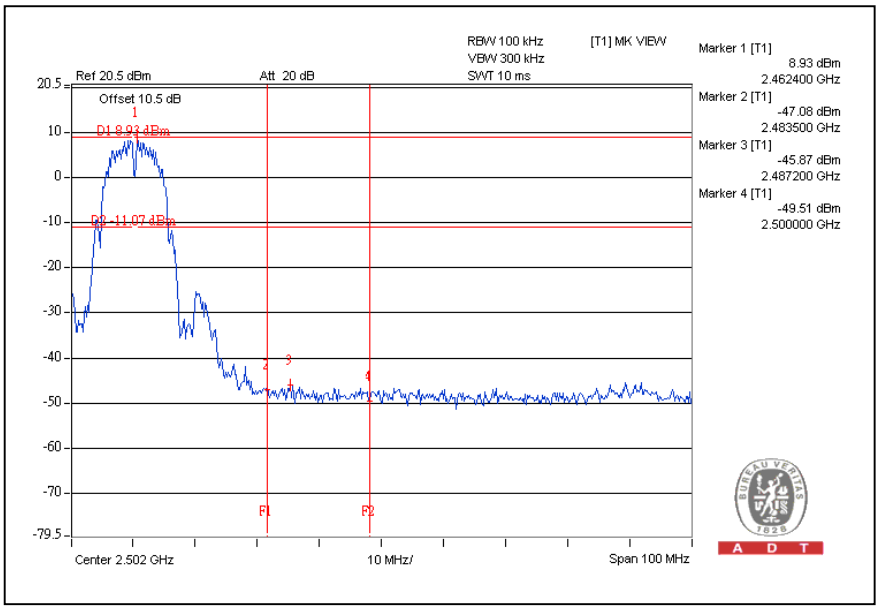
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

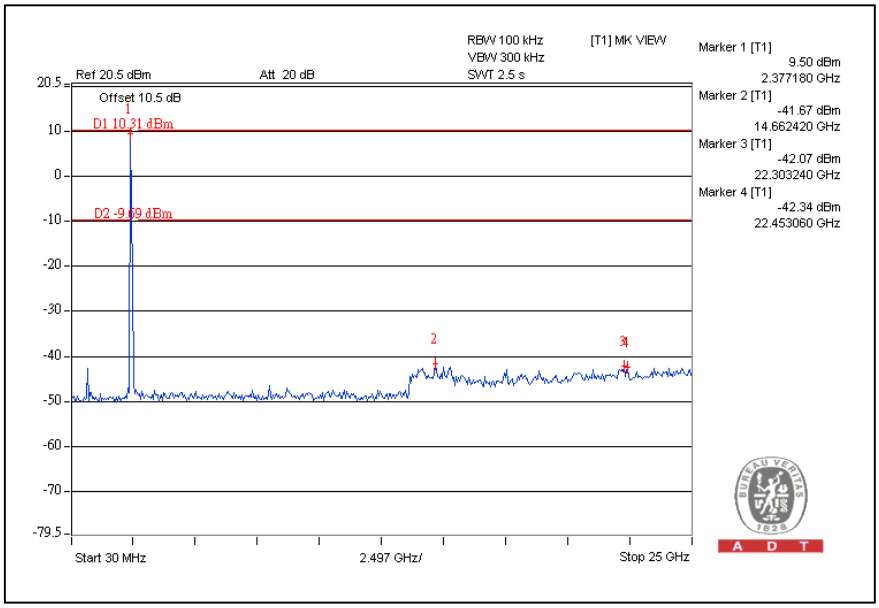
CH1



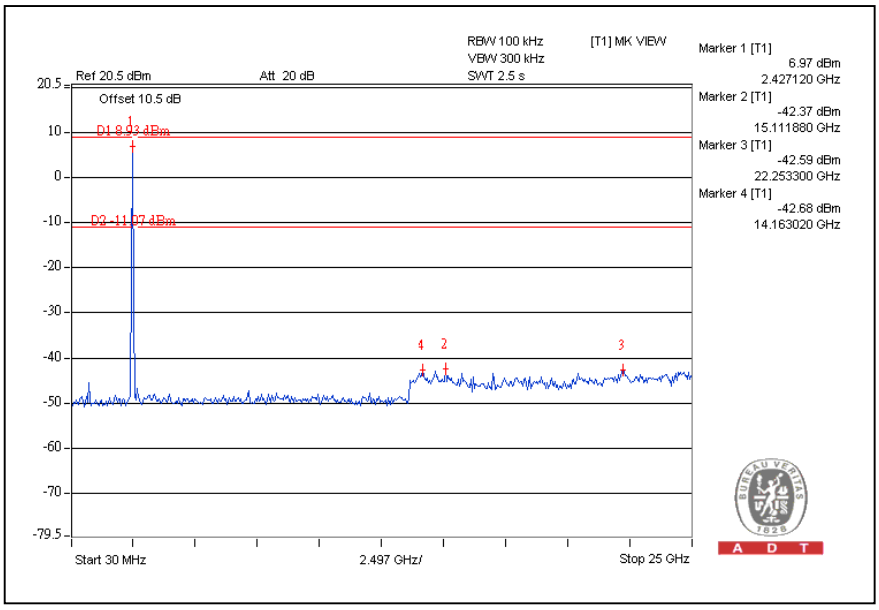
CH11



CH1

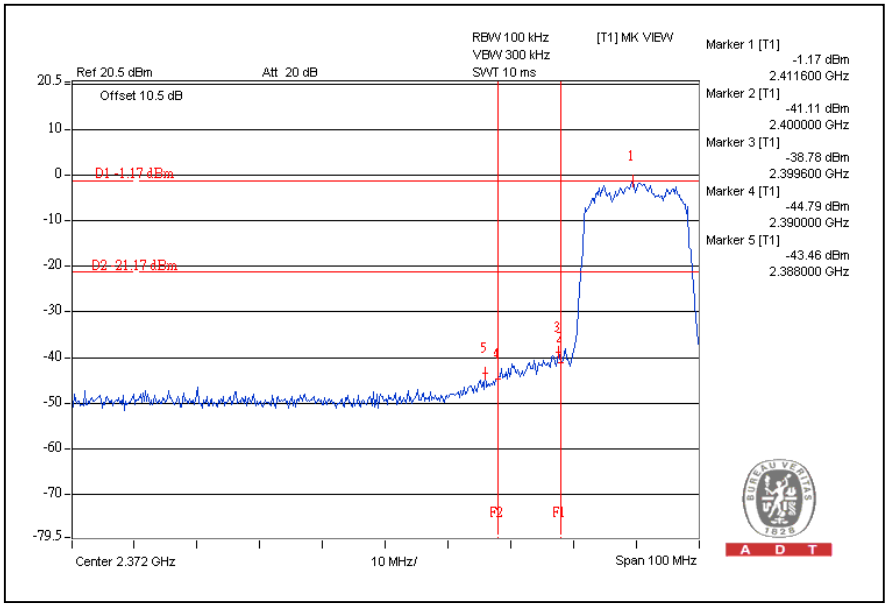

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 10.31 dBm
D2 -9.69 dBm
Marker 1 [T1]
9.50 dBm
2.377180 GHz
Marker 2 [T1]
-41.67 dBm
14.662420 GHz
Marker 3 [T1]
-42.07 dBm
22.303240 GHz
Marker 4 [T1]
-42.34 dBm
22.453060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

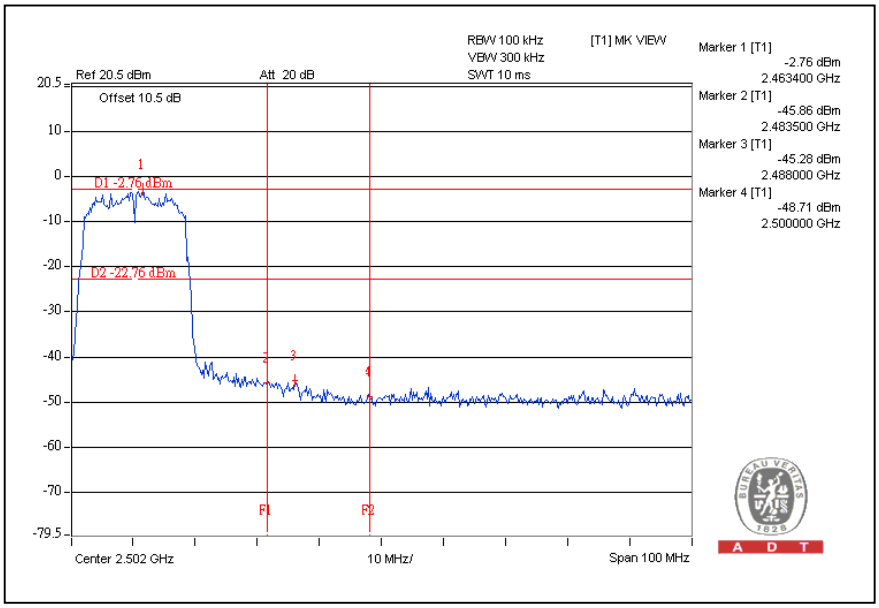

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 8.93 dBm
D2 -11.07 dBm
Marker 1 [T1]
6.97 dBm
2.427120 GHz
Marker 2 [T1]
-42.37 dBm
15.111880 GHz
Marker 3 [T1]
-42.59 dBm
22.253300 GHz
Marker 4 [T1]
-42.68 dBm
14.163020 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION:

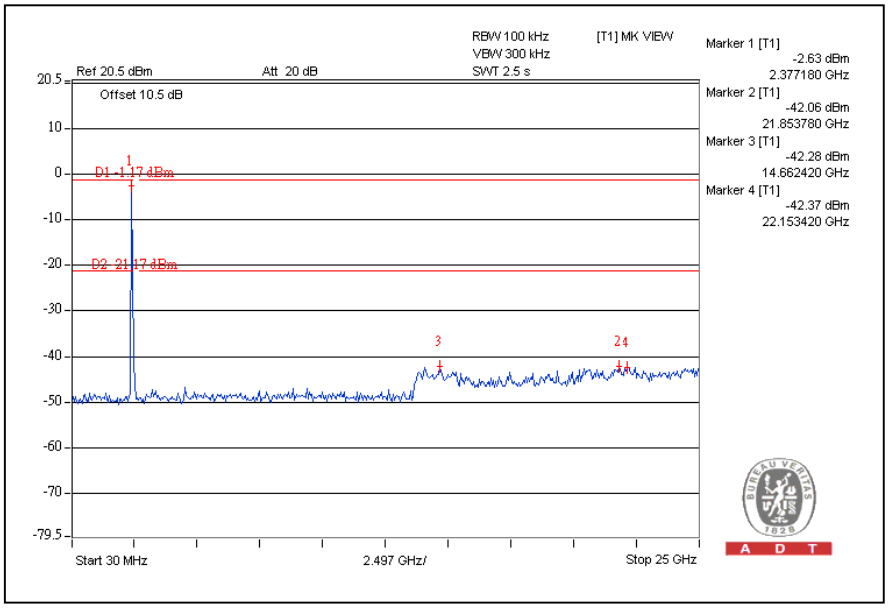
CH1



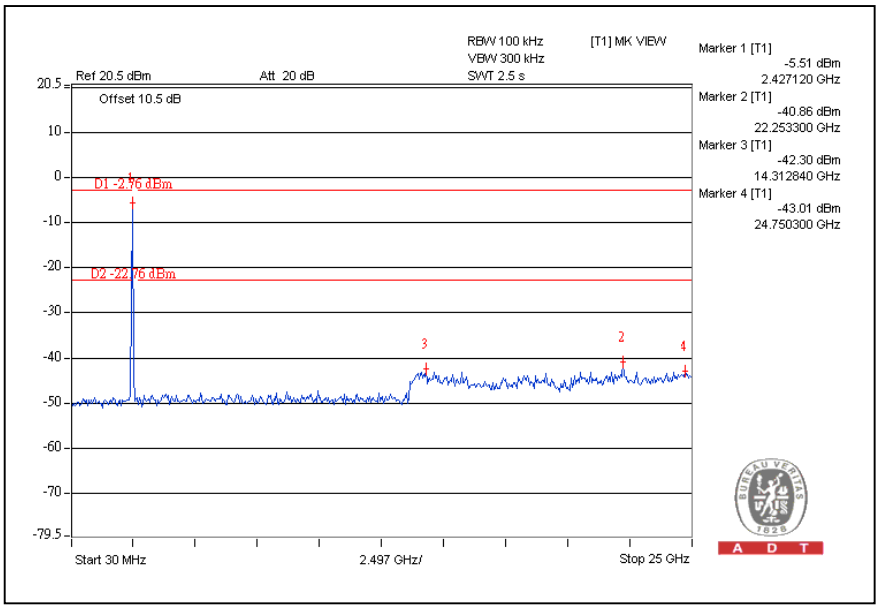
CH11



CH1

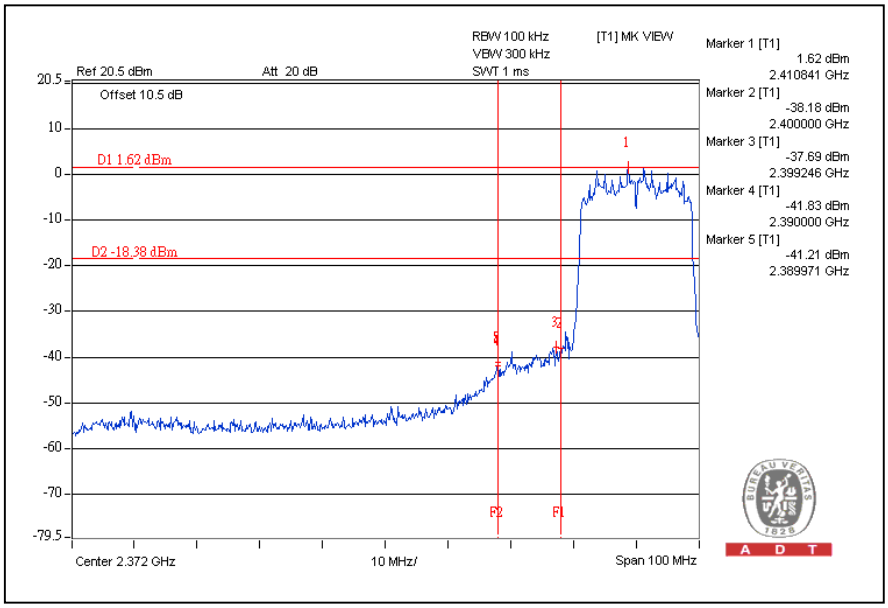

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 -1.17 dBm
D2 -21.17 dBm
Marker 1 [T1]
-2.63 dBm
2.377180 GHz
Marker 2 [T1]
-42.06 dBm
21.853780 GHz
Marker 3 [T1]
-42.28 dBm
14.662420 GHz
Marker 4 [T1]
-42.37 dBm
22.153420 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

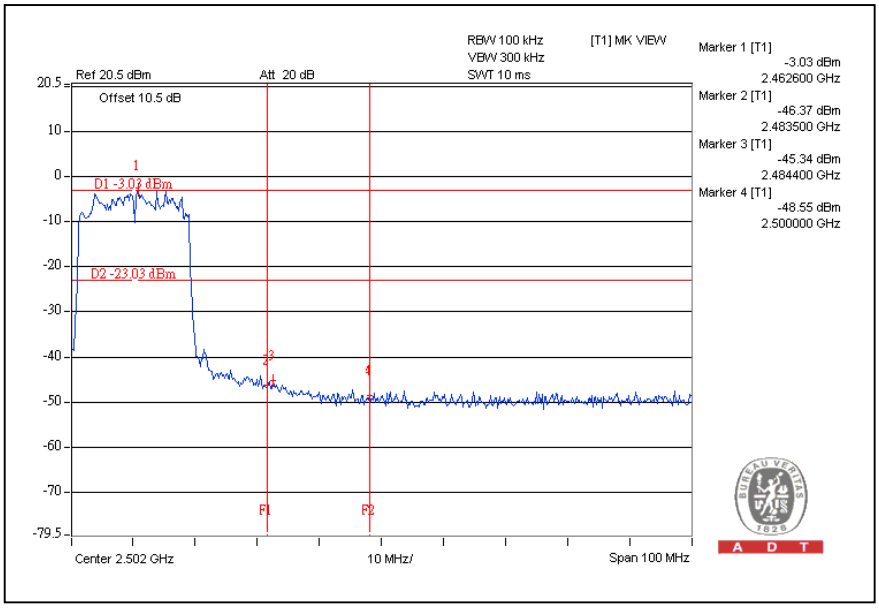

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 -2.76 dBm
D2 -22.76 dBm
Marker 1 [T1]
-5.51 dBm
2.427120 GHz
Marker 2 [T1]
-40.86 dBm
22.253300 GHz
Marker 3 [T1]
-42.30 dBm
14.312840 GHz
Marker 4 [T1]
-43.01 dBm
24.750300 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (20MHz) OFDM MODULATION:

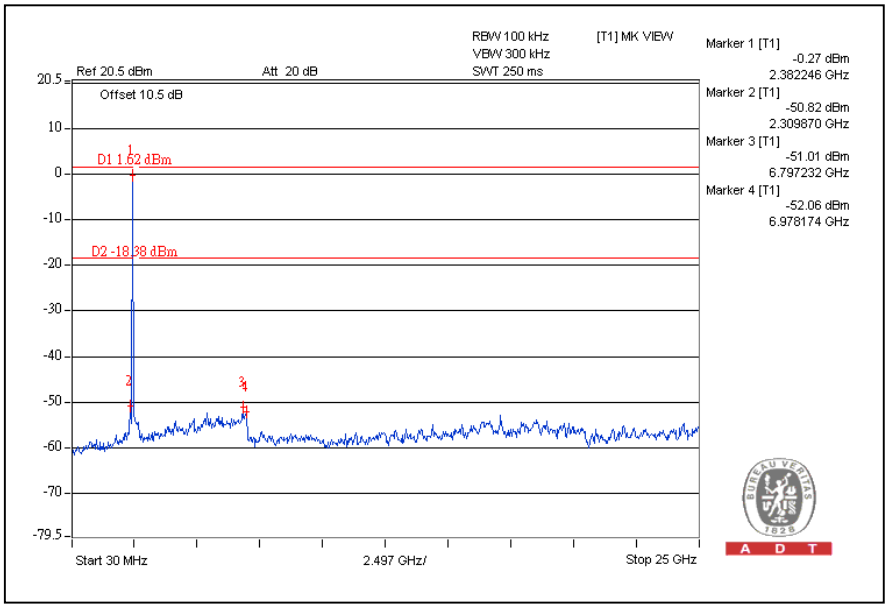
CH1



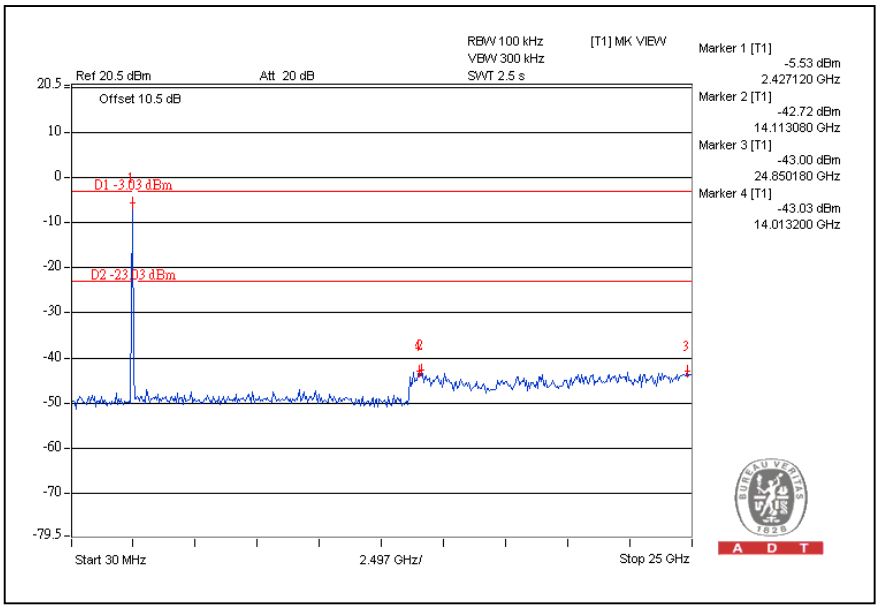
CH11



CH1

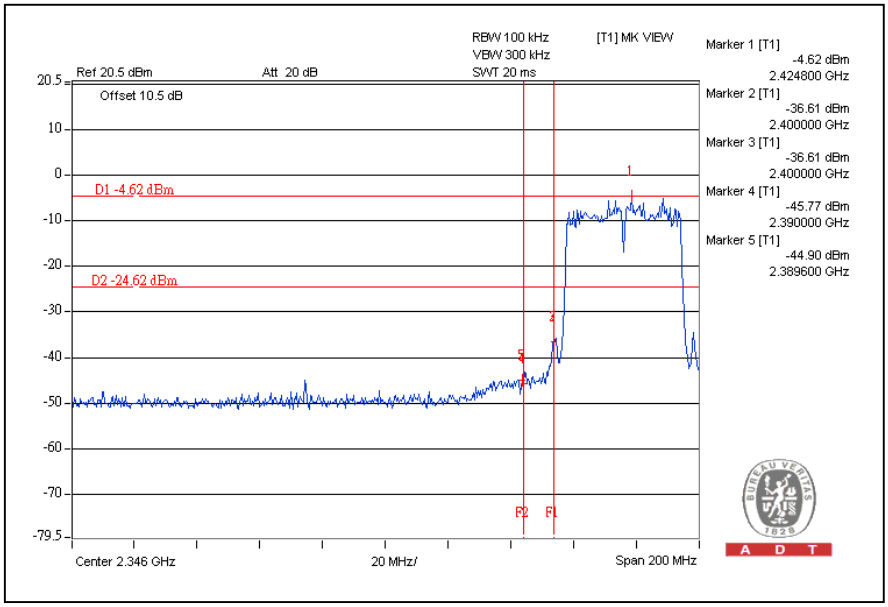

RBW 100 kHz
VBW 300 kHz
SWT 250 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 1.62 dBm
D2 -18.38 dBm
Marker 1 [T1]
-0.27 dBm
2.382246 GHz
Marker 2 [T1]
-50.82 dBm
2.309870 GHz
Marker 3 [T1]
-51.01 dBm
6.797232 GHz
Marker 4 [T1]
-52.06 dBm
6.978174 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

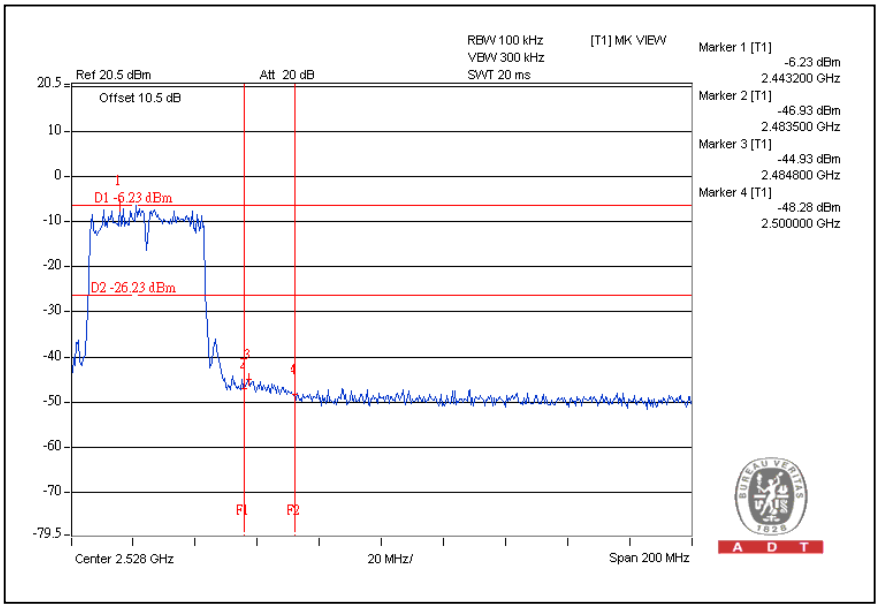

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 -3.03 dBm
D2 -23.03 dBm
Marker 1 [T1]
-5.53 dBm
2.427120 GHz
Marker 2 [T1]
-42.72 dBm
14.113080 GHz
Marker 3 [T1]
-43.00 dBm
24.850180 GHz
Marker 4 [T1]
-43.03 dBm
14.013200 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (40MHz) OFDM MODULATION:

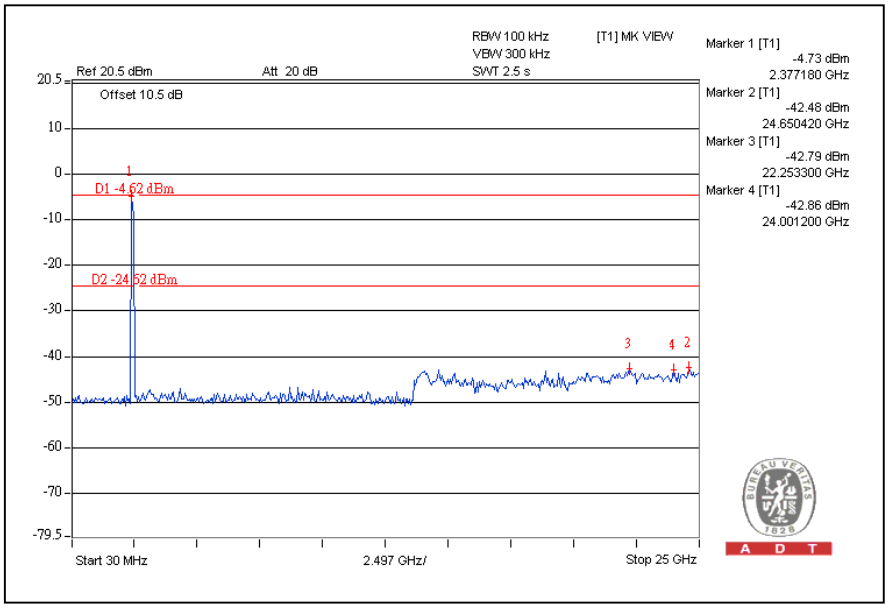
CH1



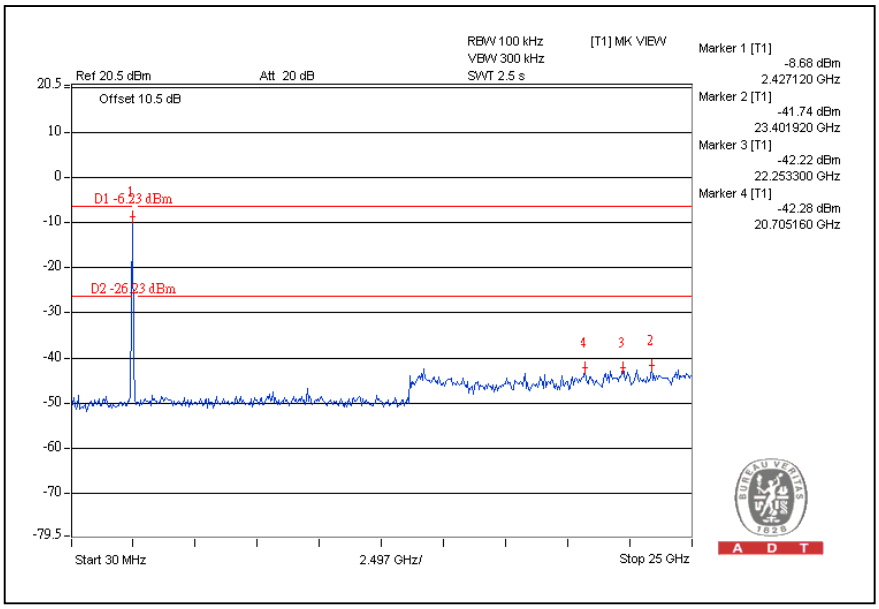
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 -4.62 dBm
D2 -24.62 dBm
Marker 1 [T1]
-4.73 dBm
2.377180 GHz
Marker 2 [T1]
-42.48 dBm
24.650420 GHz
Marker 3 [T1]
-42.79 dBm
22.253300 GHz
Marker 4 [T1]
-42.86 dBm
24.001200 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.5 dBm
Att 20 dB
Offset 10.5 dB
D1 -6.23 dBm
D2 -26.23 dBm
Marker 1 [T1]
-8.68 dBm
2.427120 GHz
Marker 2 [T1]
-41.74 dBm
23.401920 GHz
Marker 3 [T1]
-42.22 dBm
22.253300 GHz
Marker 4 [T1]
-42.28 dBm
20.705160 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

5.INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025:

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Email: service@adt.com.tw
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

6.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

--- END ---