FCC TEST REPORT

REPORT NO.:	RF990526E01
MODEL NO.:	CDP-PCK2005
RECEIVED:	May 26, 2010
TESTED:	June 04 to 09, 2010
ISSUED:	June 22, 2010

APPLICANT:	Cradlepoint, Inc.
ADDRESS:	805 W. Franklin Street, Boise, ID 83702

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
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (2):	No.49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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1. CERTIFICATION

PRODUCT:	Portable WiFi WiMAX Router
BRAND NAME:	Cradlepoint
MODEL NO.:	CDP-PCK2005
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	June 04 to 09, 2010
APPLICANT:	Cradlepoint, Inc.
STANDARDS:	FCC Part 15, Subpart C (Section 15.247) ANSI C63.4-2003

The above equipment (Model: CDP-PCK2005) 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:** *June 22, 2010*
(Claire Kuan, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** *June 22, 2010*
(Hank Chung, Deputy Manager)

APPROVED BY : _____ , **DATE:** *June 22, 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 -12.84dB at 0.180MHz
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 -7.8dB at 144.03MHz
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	No antenna connector is used.

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)	3.76 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Portable WiFi WiMAX Router
MODEL NO.	CDP-PCK2005
FCC ID	UXX-PCK2005
POWER SUPPLY	DC 5V from adapter and car charger or DC 3.7V from battery
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11n (20MHz, 800ns GI):130 / 117 / 104 / 78 / 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps 802.11n (40MHz, 800ns GI): 270 / 243 / 216 / 162 /135 / 121.5 / 108 / 81 / 54 / 40.5 / 27 / 13.5Mbps
OPERATING FREQUENCY	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 26.9mW 802.11g: 55.0mW 802.11n (20MHz): 46.8mW 802.11n (40MHz): 42.7mW
ANTENNA TYPE	Please see note 2
DATA CABLE	Micro USB cable (Shielded, 1.0m) Micro USB cable (Unshielded, 1.0m)
I/O PORTS	Micro USB port x 1
ASSOCIATED DEVICES	Adapter x 1 Battery x 1 Micro USB cable x 1 Car charger x 1

NOTE:

1. The EUT is Portable WiFi WiMAX Router, this report was recorded the **WiFi** test data. For the WiMAX test data was recorded in another test report<RF990526E01-1>.

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

Set 1 for WiMAX antenna						
Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(cm)	Frequency range (MHz)	Diversity Function
1	PCB	I-PEX	4.5	3	2500~2700	YES
2	PCB	I-PEX	5	9	2500~2700	YES
Set 2 for WIFI antenna						
Antenna	Antenna Type	Antenna Connector	Gain (dBi)	Cable Length(cm)	Frequency range (MHz)	Diversity Function
1	Printed PCB	NA	2.7	-	2412~2472	YES
2	Printed PCB	NA	1.7	-	2412~2472	YES

3. The EUT could be supplied with 3.7V battery, car charger or the following power adapter which will be sold together with the EUT :

Item	Brand	Model No.	Spec.
Adapter 1	TenPao	S005SU0500070	AC I/P: 100-240V, 50/60Hz, 150mA DC O/P: 5V, 700mA
Adapter 2	Maxtela	MUC-5EJ1	AC I/P: 100-240V, 50/60Hz, 0.15A DC O/P: 5V, 1A
Battery	ETI CA	0340-1371080001 (BP08-000720)	DC 3.7V, 1900mAh
Car charger 1	Atech	CC615-0510A21	AC I/P: 12-24V, 1A MAX DC O/P: 5V, 1A
Car charger 2	Maxtela	MCC-5K	AC I/P: 12-24V, 600mA DC O/P: 5V, 1A

4. The EUT must be supplied with a USB cable and following two different USB cable could be chosen:

Cable	Description
Cable 1	Micro USB cable (Shielded, 1.0m)
Cable 2	Micro USB cable (Unshielded, 1.0m)

5. The EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	EUT + Battery
Mode B	EUT + Battery + Adapter 1 with cable 1
Mode C	EUT + Battery + Adapter 2 with cable 1
Mode D	EUT + Battery + Car Charger 1 with cable 1
Mode E	EUT + Battery + Car Charger 2 with cable 1
Mode F	**EUT + Battery + Adapter 2 with cable 2**

The worst radiated emission was found in **Mode F**. Therefore only the test data of the mode was recorded in this report individually.

6. The EUT incorporates a SIMO function with 802.11b, 802.11g, 802.11n. Physically, the EUT provides one completed transmitter and two receivers.

7. The EUT is 1 * 2 spatial SIMO without beam forming function. The antenna configuration is one transmitter antenna and two receiver antennas, as there are 2 Printed PCB antennas.

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

9. The EUT, operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b and 802.11n technique devices to the network.

10. The above EUT information was declared by the 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	
MODE 1	√	√	√	√	EUT + Battery + Adapter 1 with cable 2
MODE 2	√	-	-	-	EUT + Battery + Adapter 2 with cable 2

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

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

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)
802.11g	1 to 11	1	OFDM	BPSK	6

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)
802.11g	1 to 11	1	OFDM	BPSK	6

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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

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)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

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

☒ 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)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5

※ TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	23deg. C, 72%RH, 1011 hPa	120Vac, 60Hz	Eric Lee
RE<1G	23deg. C, 72%RH, 1011 hPa	120Vac, 60Hz	Eric Lee
PLC	28deg. C, 70%RH, 1012 hPa	120Vac, 60Hz	Eric Lee
APCM	25deg. C, 60%RH, 1012 hPa	120Vac, 60Hz	Eric Lee

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

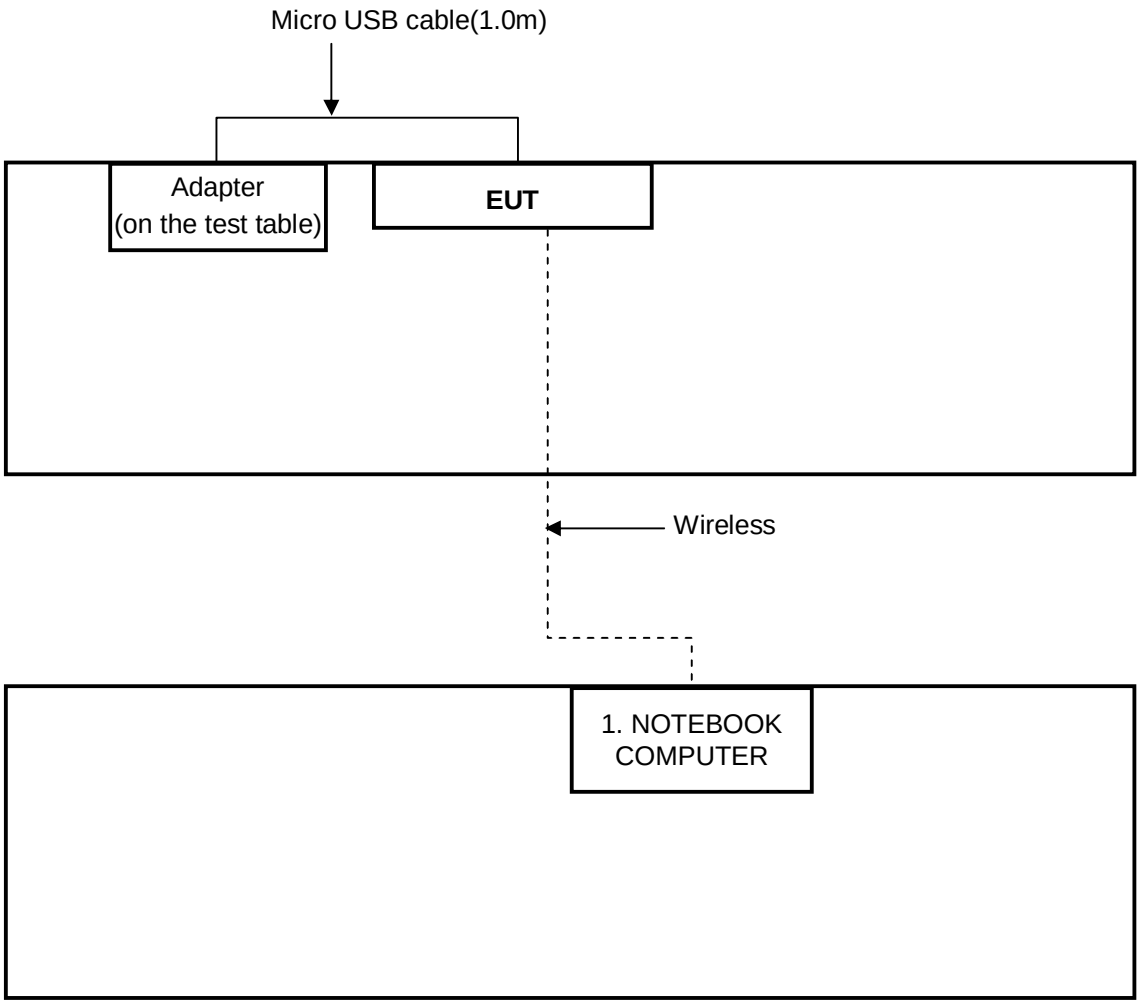
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	HP	HSTNN-S19C	JP96X-4Y88K-BXX Y8-K27B3-M86FT	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER 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 08, 2009	June 07, 2010
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.

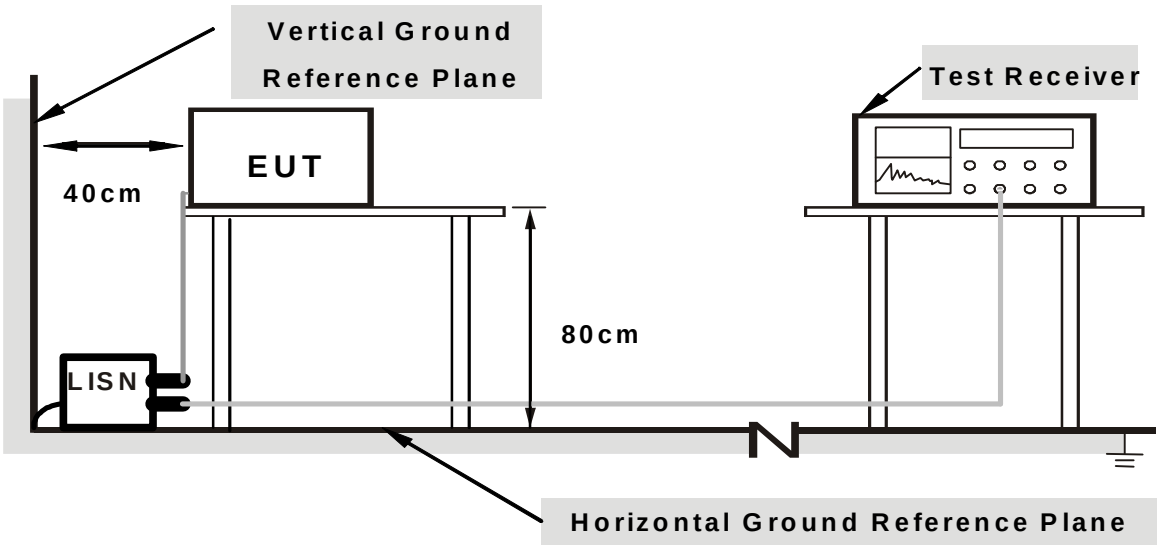
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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 unit 1) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test programs “Ping.exe” to enable EUT under transmission/receiving condition continuously via wireless.

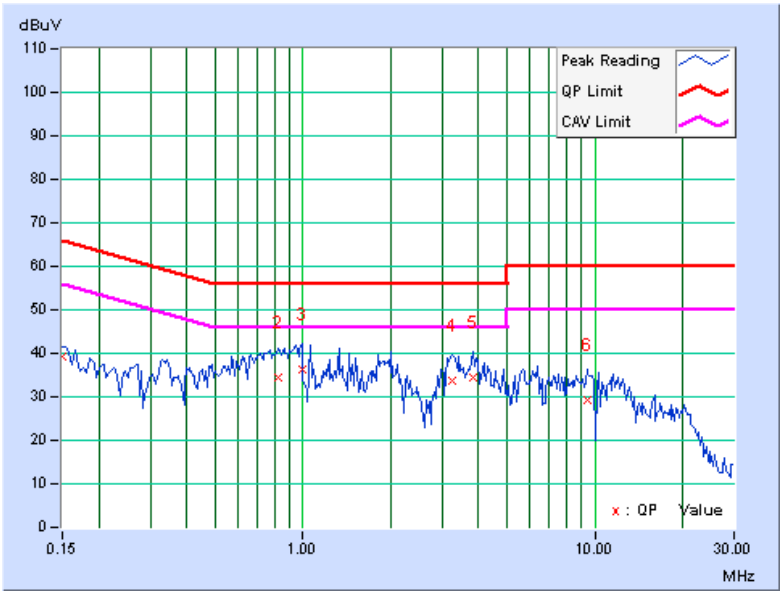
4.1.7 TEST RESULTS (MODE 1)

802.11g 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	0.150	0.03	39.23	-	39.26	-	66.00	56.00	-26.74	-
2	0.822	0.16	34.46	-	34.62	-	56.00	46.00	-21.38	-
3	0.990	0.21	36.08	-	36.29	-	56.00	46.00	-19.71	-
4	3.262	0.20	33.56	-	33.76	-	56.00	46.00	-22.24	-
5	3.820	0.19	34.37	-	34.56	-	56.00	46.00	-21.44	-
6	9.387	0.55	28.70	-	29.25	-	60.00	50.00	-30.75	-

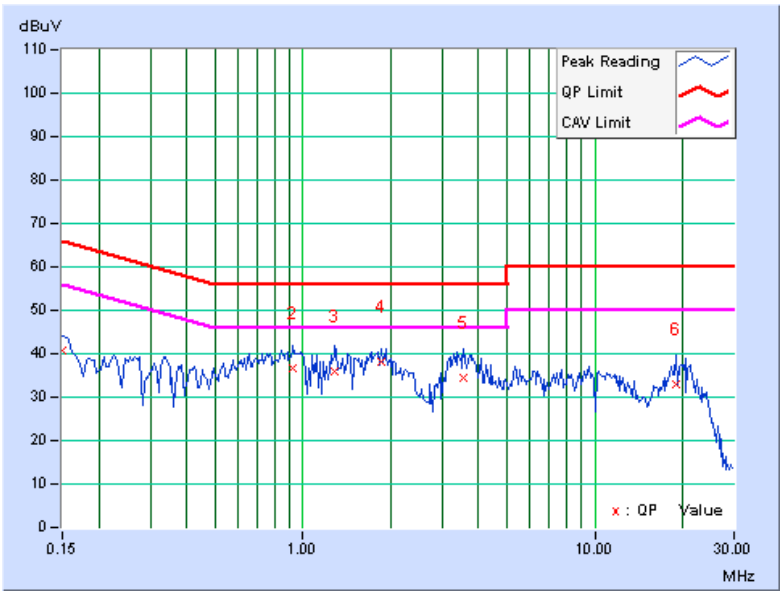
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	0.150	0.04	40.67	-	40.71	-	66.00	56.00	-25.29	-
2	0.923	0.20	36.45	-	36.65	-	56.00	46.00	-19.35	-
3	1.285	0.23	35.87	-	36.10	-	56.00	46.00	-19.90	-
4	1.848	0.24	37.88	-	38.12	-	56.00	46.00	-17.88	-
5	3.570	0.22	34.16	-	34.38	-	56.00	46.00	-21.62	-
6	19.063	0.59	32.27	-	32.86	-	60.00	50.00	-27.14	-

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.



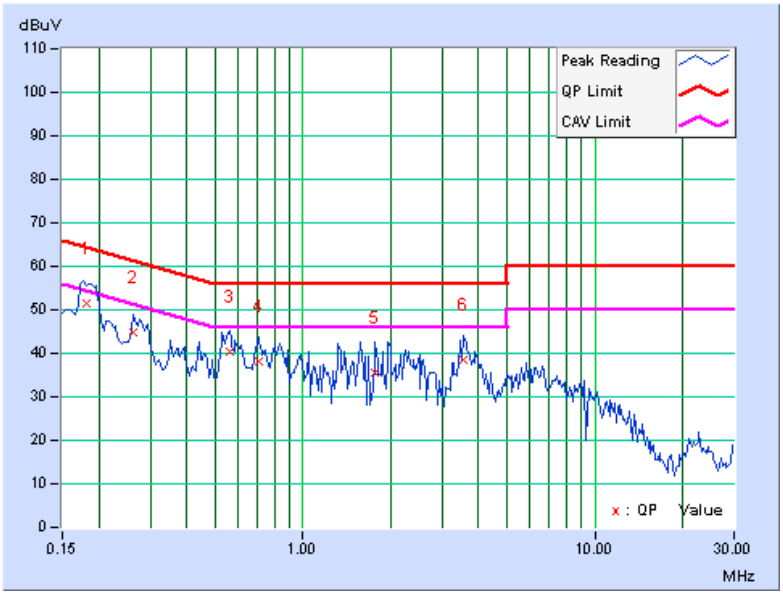
4.1.8 TEST RESULTS (MODE 2)

802.11g 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	**0.180**	**0.04**	**51.59**	**-**	**51.63**	**-**	**64.46**	**54.46**	**-12.84**	**-**
2	0.263	0.04	44.80	-	44.84	-	61.33	51.33	-16.48	-
3	0.564	0.09	40.22	-	40.31	-	56.00	46.00	-15.69	-
4	0.705	0.13	38.19	-	38.32	-	56.00	46.00	-17.68	-
5	1.766	0.23	35.31	-	35.54	-	56.00	46.00	-20.46	-
6	3.559	0.20	38.43	-	38.63	-	56.00	46.00	-17.37	-

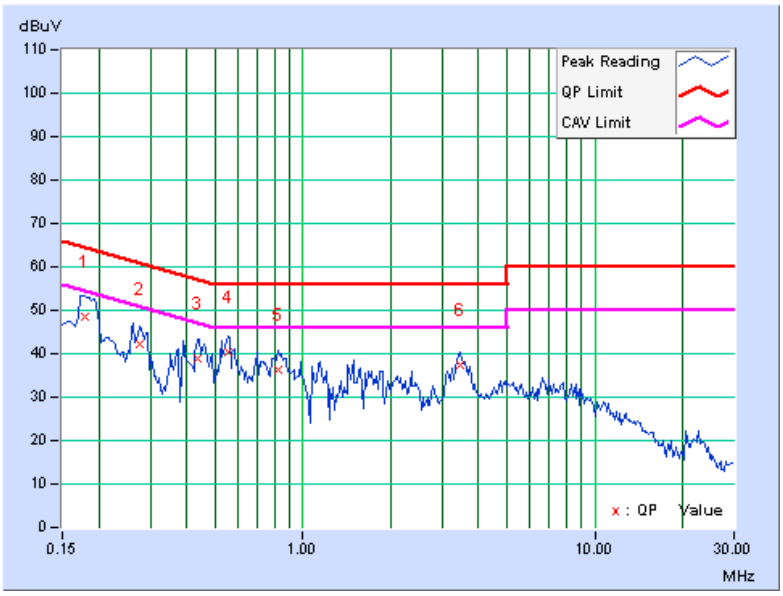
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	0.179	0.05	48.41	-	48.46	-	64.52	54.52	-16.07	-
2	0.275	0.05	42.24	-	42.29	-	60.97	50.97	-18.67	-
3	0.435	0.07	38.70	-	38.77	-	57.15	47.15	-18.38	-
4	0.556	0.10	40.12	-	40.22	-	56.00	46.00	-15.78	-
5	0.822	0.17	36.14	-	36.31	-	56.00	46.00	-19.69	-
6	3.457	0.22	37.27	-	37.49	-	56.00	46.00	-18.51	-

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.

4.2.2 TEST INSTRUMENTS

For below 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	U3751	160200410	July 17, 2009	July 16, 2010
ADVANTEST Spectrum Analyzer	U3772	160100280	Sep. 21, 2009	Sep. 20, 2010
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2009	Sep. 24, 2010
ROHDE & SCHWARZ Test Receiver	ESVS 30	841977/002	Nov. 28, 2009	Nov. 27, 2010
SCHAFFNER(CHASE) Broadband Antenna	CBL6112B	2798	Apr. 29, 2010	Apr. 28, 2011
Schwarzbeck Horn_Antenna	BBHA9120-D1	D123	Sep. 21, 2009	Sep. 20, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	9170-424	Sep. 30, 2009	Sep. 29, 2010
RF Switches	MP59B	6100175593	Sep. 01, 2009	Aug. 31, 2010
RF Cable	8DFB	STBCAB-001	Sep. 01, 2009	Aug. 31, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA
CORCOM AC Filter	MRI2030	024/019	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: U3772) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. B.
4. The VCCI Site Registration No. is R-847.
5. The FCC Site Registration No. is 92753.
6. The CANADA Site Registration No. is IC 7450G-2.

For above 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	Aug. 03, 2009	Aug. 02, 2010
Agilent Pre-Selector	N9039A	MY46520310	Aug. 18, 2009	Aug. 17, 2010
Agilent Signal Generator	N5181A	MY49060347	July 18, 2009	July 17, 2010
LIG NEX1 Test Receiver	ER-265	L09068005	Aug. 31, 2009	Aug. 30, 2010
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 18, 2009	Nov. 17, 2010
Agilent Pre-Amplifier	8449B	3008A02465	Mar. 01, 2010	Feb. 28, 2011
Miteq Pre-Amplifier	AFS33-18002650-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Sep. 30, 2009	Sep. 29, 2010
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 16, 2009	Nov. 15, 2010
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Sep. 30, 2009	Sep. 29, 2010
RF CABLE	NA	RF104-205 RF104-207 RF104-208	Dec. 24, 2009	Dec. 23, 2010
RF Cable	NA	CHHCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	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) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
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 7450H-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 a 10-meter open field site for below 1GHz test and at 3 meters chamber room for above 1GHz test. 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:

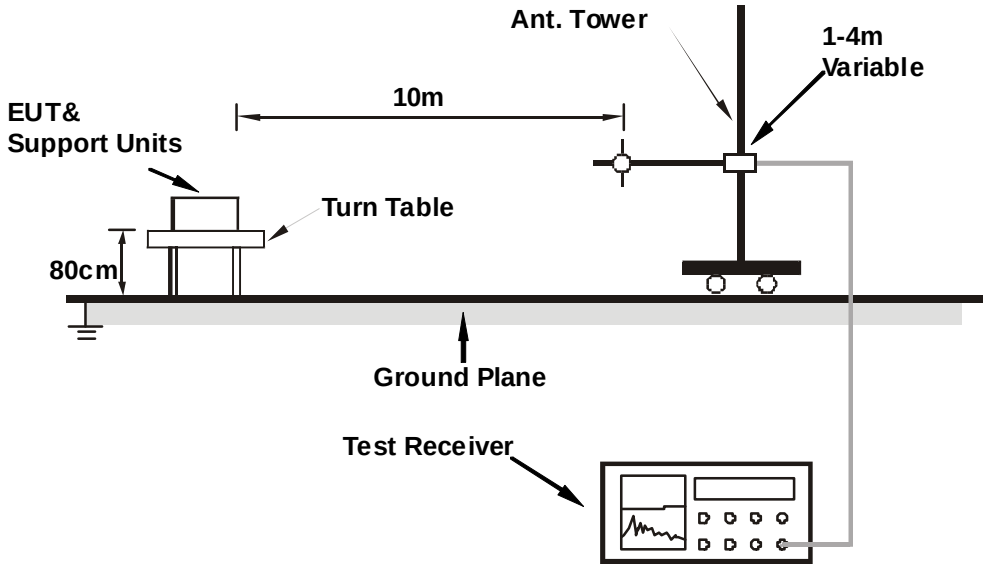
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the interference-receiving antenna.

4.2.4 DEVIATION FROM TEST STANDARD

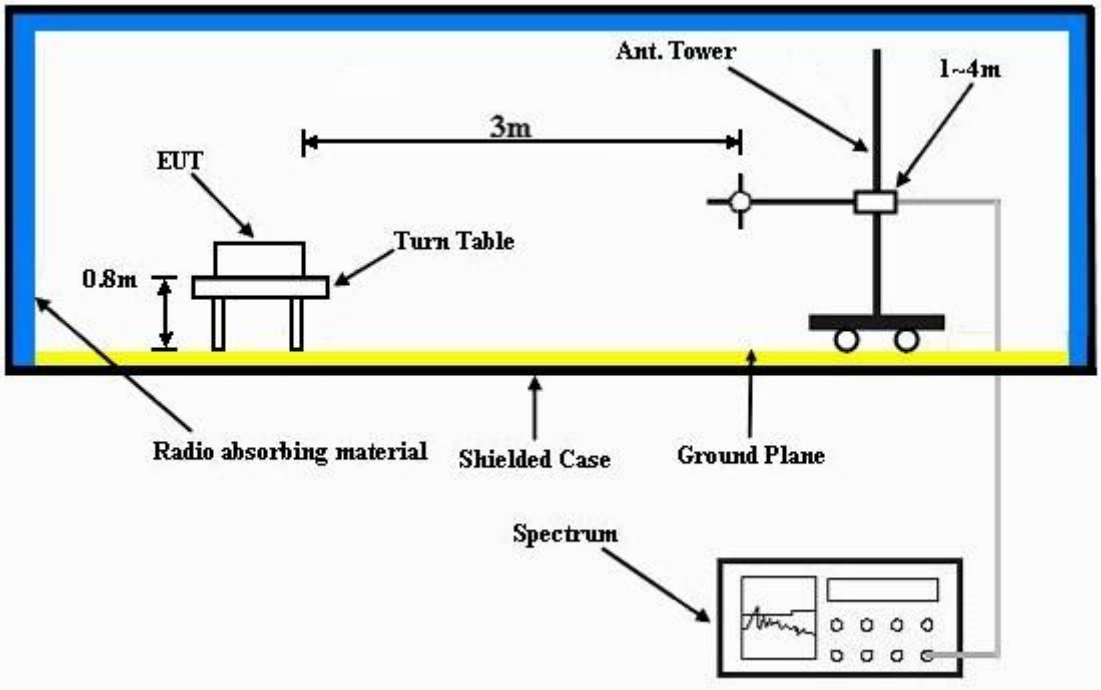
No deviation

4.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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 unit 1) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “RT3052QA.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency via wireless.

4.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	28deg. C, 75%RH 1011 hPa	**TESTED BY**	Timmy Hu

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	50.50	31.2 QP	40.00	-8.8	1.46 H	35	21.16	10.03
2	76.61	31.2 QP	40.00	-8.8	1.35 H	326	23.16	8.07
3	**144.03**	**35.7 QP**	**43.50**	**-7.8**	**1.05 H**	**14**	**22.91**	**12.78**
4	184.31	29.0 QP	43.50	-14.5	4.00 H	31	17.49	11.50
5	216.30	31.1 QP	46.00	-14.9	1.25 H	233	18.77	12.36
6	479.25	33.4 QP	46.00	-12.6	1.30 H	198	13.03	20.41
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	52.27	30.0 QP	40.00	-10.0	1.00 V	266	20.51	9.53
2	73.22	29.2 QP	40.00	-10.8	1.00 V	36	21.39	7.77
3	114.95	30.4 QP	43.50	-13.1	1.00 V	66	17.39	12.98
4	145.43	29.1 QP	43.50	-14.4	1.00 V	36	16.59	12.53
5	233.31	36.0 QP	46.00	-10.0	1.00 V	70	22.81	13.21
6	479.25	31.6 QP	46.00	-14.5	1.02 V	130	11.14	20.41

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	55.4 PK	74.00	-18.6	1.14 H	143	24.19	31.21
2	2390.00	43.8 AV	54.00	-10.2	1.14 H	143	12.59	31.21
3	*2412.00	95.8 PK			1.13 H	149	64.53	31.27
4	*2412.00	92.6 AV			1.13 H	149	61.33	31.27
5	4824.00	48.4 PK	74.00	-25.6	1.00 H	211	8.98	39.42
6	4824.00	38.6 AV	54.00	-15.4	1.00 H	211	-0.82	39.42
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	55.8 PK	74.00	-18.2	1.01 V	30	24.59	31.21
2	2390.00	43.8 AV	54.00	-10.2	1.01 V	30	12.59	31.21
3	*2412.00	93.5 PK			1.00 V	31	62.23	31.27
4	*2412.00	89.6 AV			1.00 V	31	58.33	31.27
5	4824.00	48.1 PK	74.00	-25.9	1.02 V	270	8.68	39.42
6	4824.00	36.2 AV	54.00	-17.8	1.02 V	270	-3.22	39.42

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	96.2 PK			1.15 H	20	64.86	31.34
2	*2437.00	93.1 AV			1.15 H	20	61.76	31.34
3	4874.00	47.2 PK	74.00	-26.8	1.01 H	204	7.58	39.62
4	4874.00	38.7 AV	54.00	-15.3	1.01 H	204	-0.92	39.62
5	7311.00	51.7 PK	74.00	-22.3	1.14 H	22	7.60	44.10
6	7311.00	40.0 AV	54.00	-14.0	1.14 H	22	-4.10	44.10
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	93.1 PK			1.01 V	88	61.76	31.34
2	*2437.00	89.1 AV			1.01 V	88	57.76	31.34
3	4874.00	47.2 PK	74.00	-26.8	1.01 V	264	7.58	39.62
4	4874.00	36.1 AV	54.00	-17.9	1.01 V	264	-3.52	39.62
5	7311.00	51.5 PK	74.00	-22.5	1.19 V	190	7.40	44.10
6	7311.00	39.2 AV	54.00	-14.8	1.19 V	190	-4.90	44.10

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	96.7 PK			1.14 H	15	65.30	31.40
2	*2462.00	93.4 AV			1.14 H	15	62.00	31.40
3	2483.50	54.8 PK	74.00	-19.2	1.15 H	20	23.34	31.46
4	2483.50	43.5 AV	54.00	-10.5	1.15 H	20	12.04	31.46
5	4924.00	47.1 PK	74.00	-26.9	1.00 H	110	7.28	39.82
6	4924.00	38.8 AV	54.00	-15.2	1.00 H	110	-1.02	39.82
7	7386.00	51.8 PK	74.00	-22.2	1.13 H	11	7.62	44.18
8	7386.00	39.9 AV	54.00	-14.1	1.13 H	11	-4.28	44.18
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	92.8 PK			1.00 V	93	61.40	31.40
2	*2462.00	89.4 AV			1.00 V	93	58.00	31.40
3	2483.50	54.1 PK	74.00	-19.9	1.01 V	94	22.64	31.46
4	2483.50	42.7 AV	54.00	-11.3	1.01 V	94	11.24	31.46
5	4924.00	46.6 PK	74.00	-27.4	1.00 V	242	6.78	39.82
6	4924.00	35.9 AV	54.00	-18.1	1.00 V	242	-3.92	39.82
7	7386.00	51.6 PK	74.00	-22.4	1.22 V	183	7.42	44.18
8	7386.00	39.3 AV	54.00	-14.7	1.22 V	183	-4.88	44.18

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

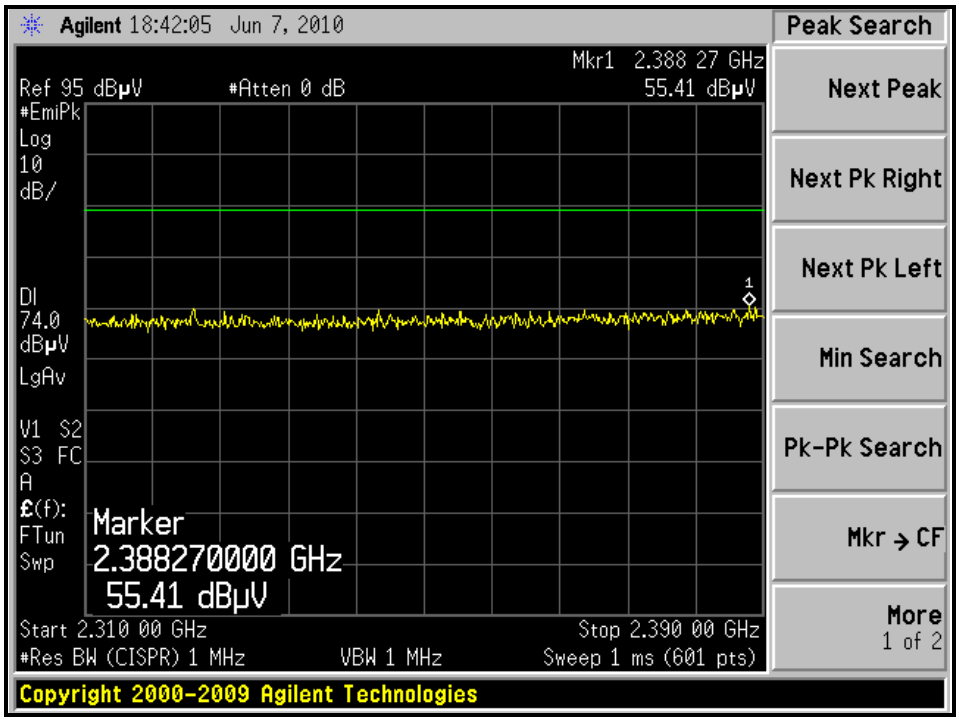
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

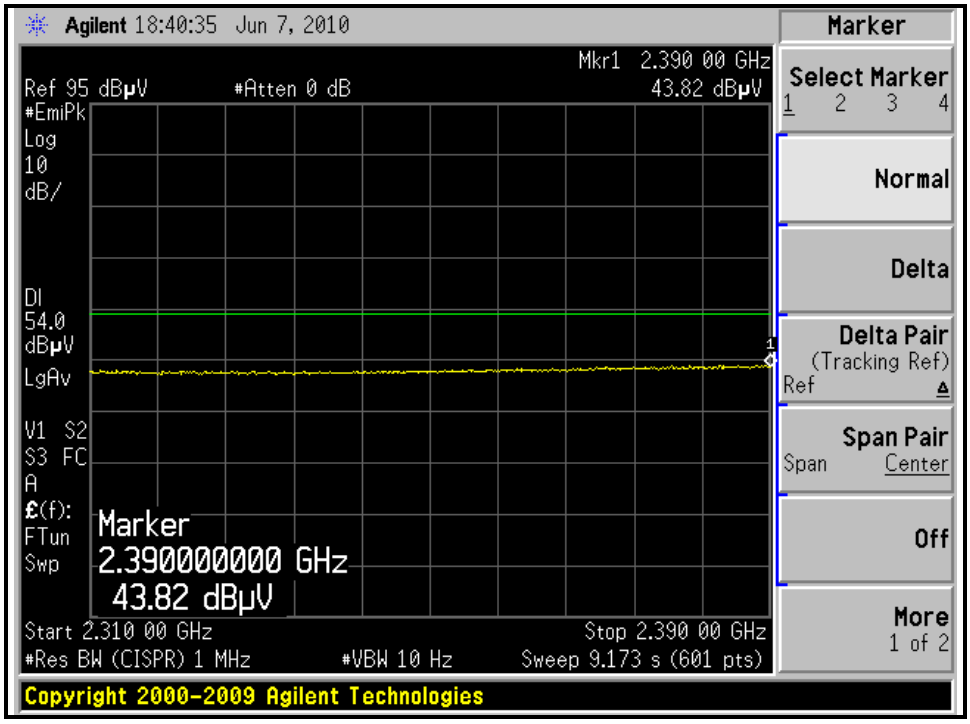
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)





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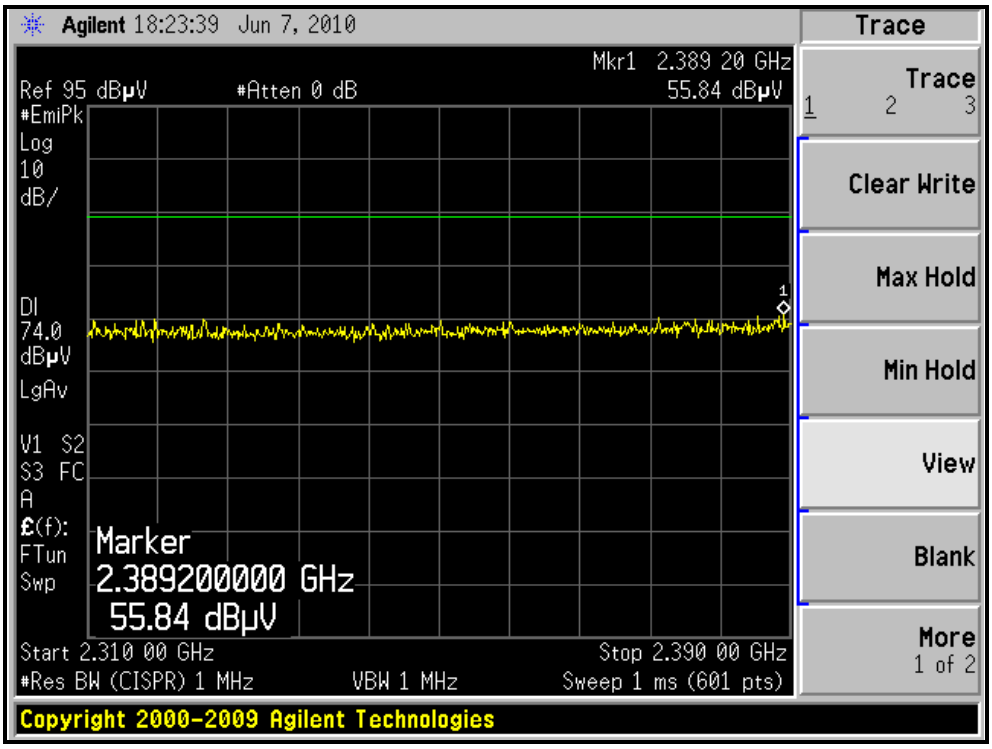

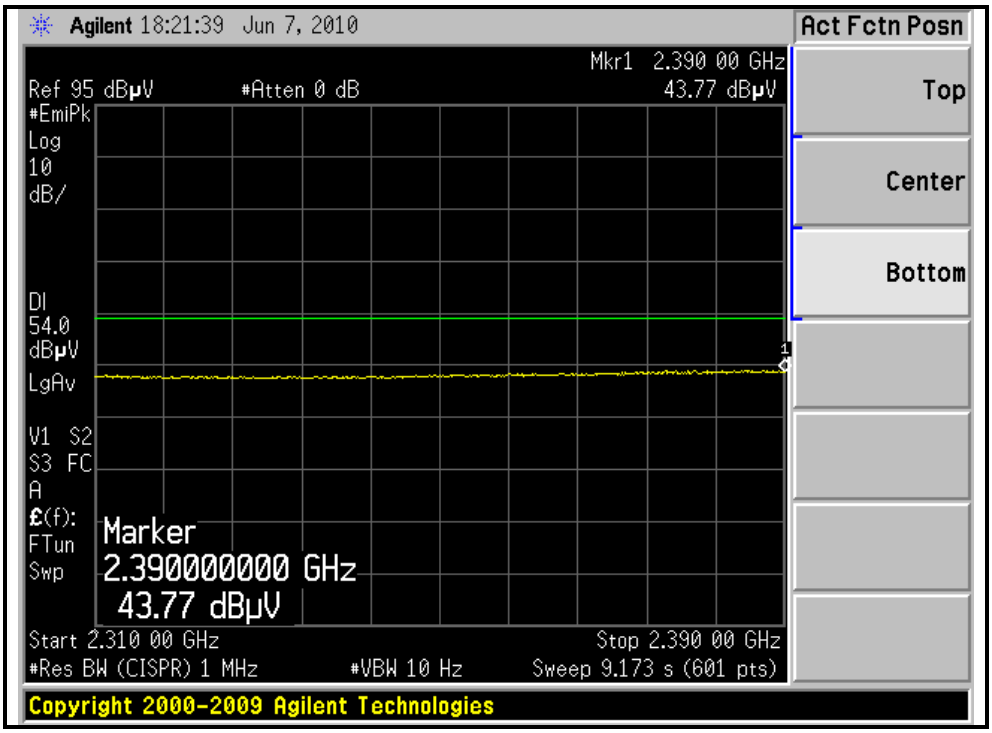

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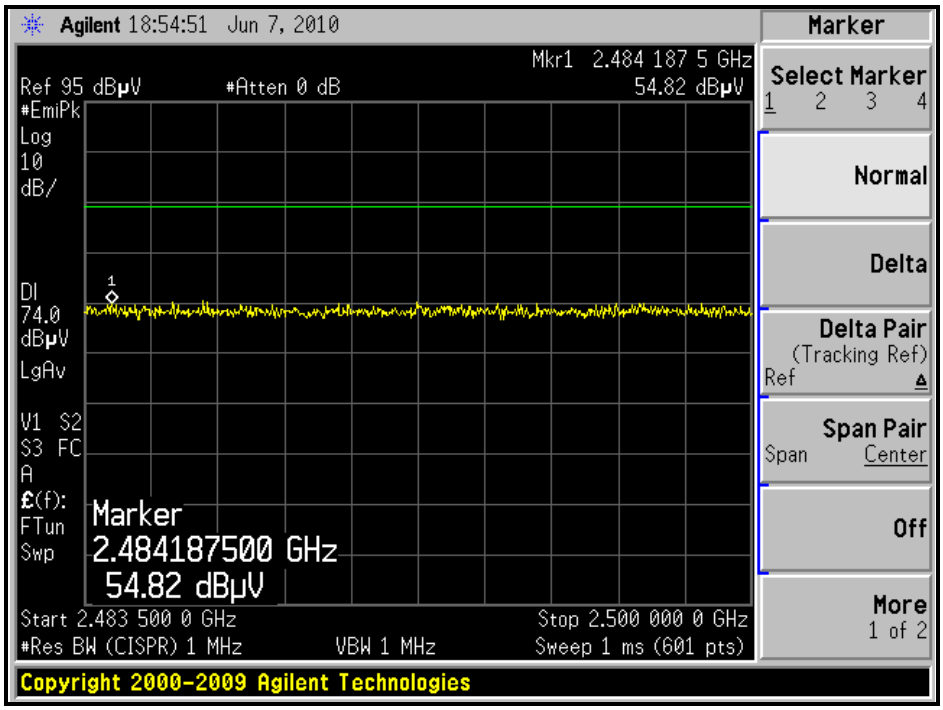

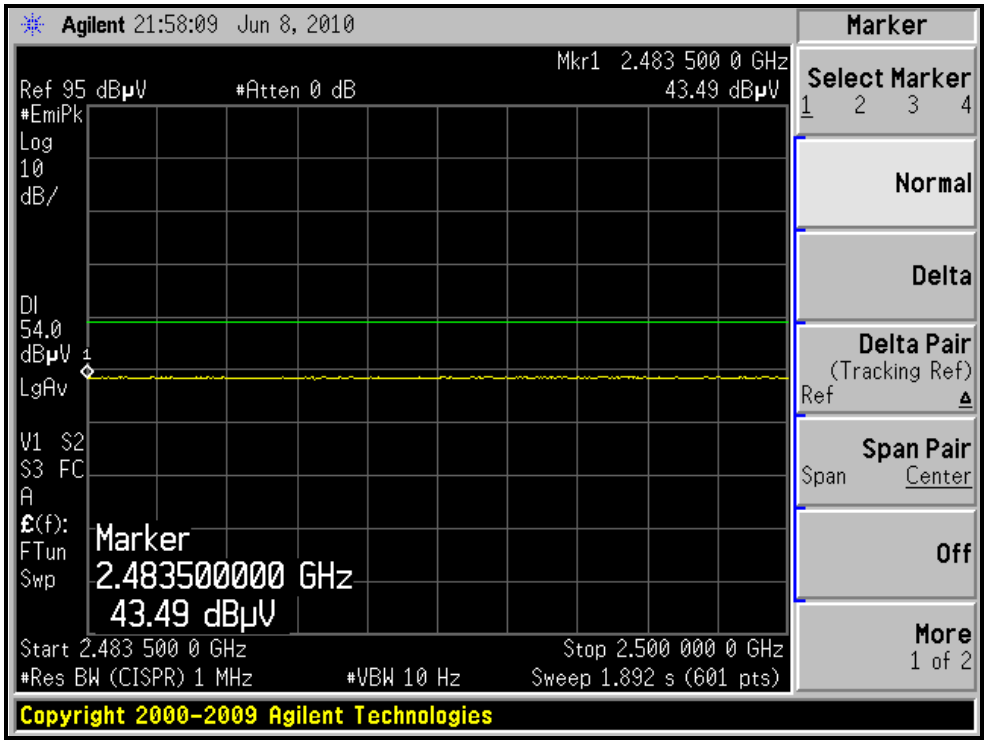

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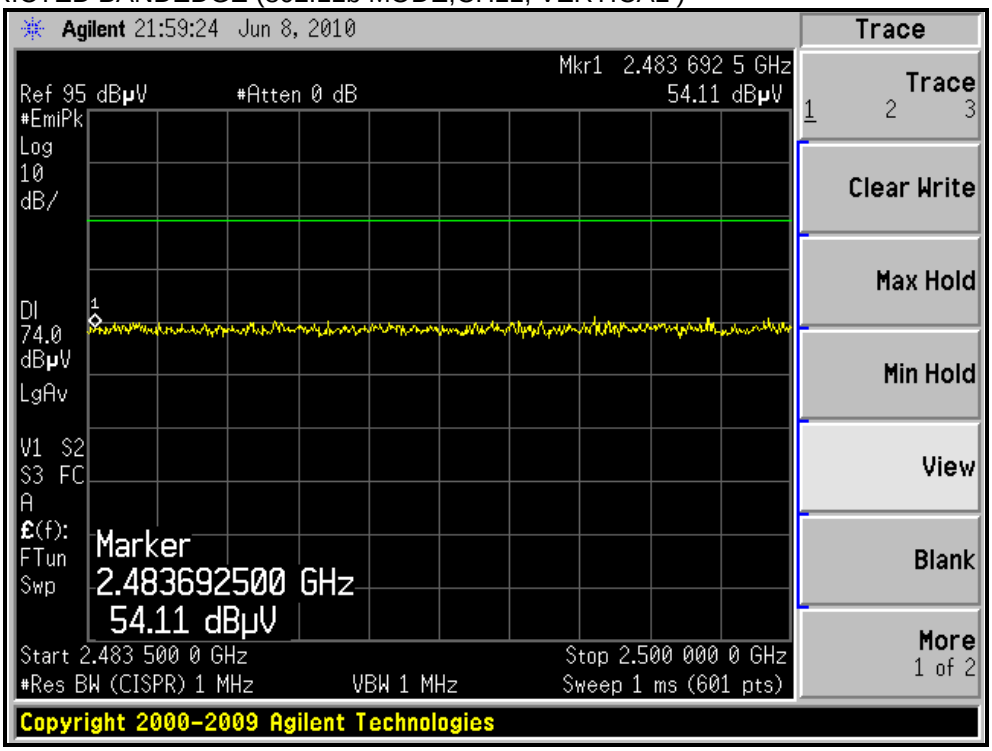
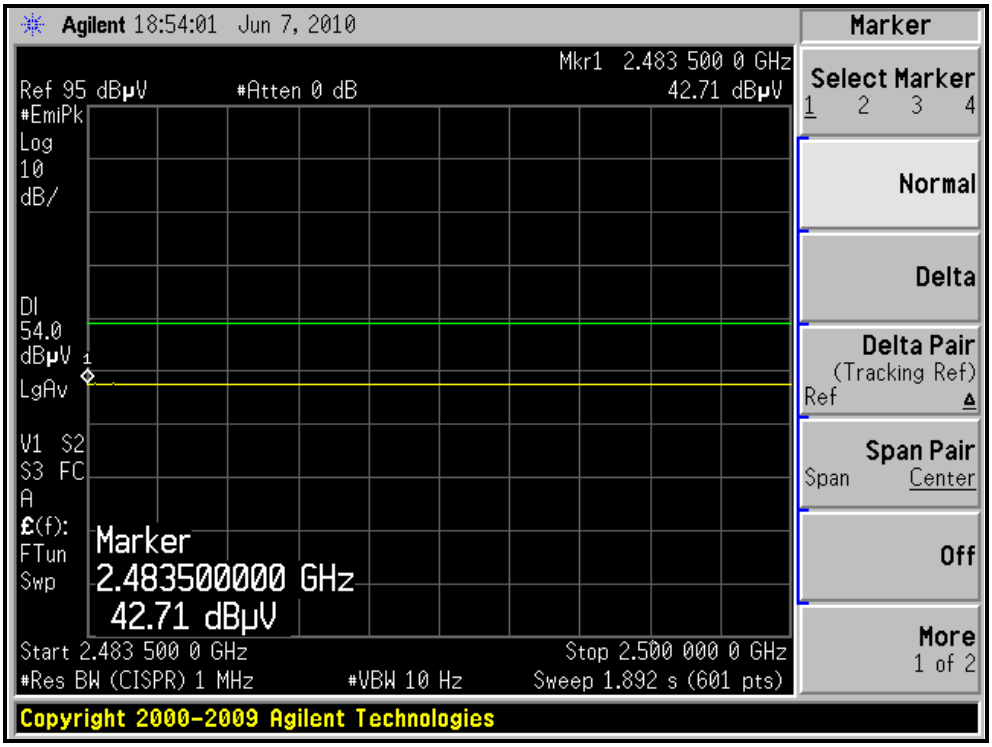




802.11g OFDM MODULATION

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	56.3 PK	74.00	-17.7	1.14 H	15	25.09	31.21
2	2390.00	43.0 AV	54.00	-11.0	1.14 H	15	11.79	31.21
3	*2412.00	94.1 PK			1.13 H	61	62.83	31.27
4	*2412.00	85.5 AV			1.13 H	61	54.23	31.27
5	4824.00	46.1 PK	74.00	-27.9	1.29 H	152	6.68	39.42
6	4824.00	34.3 AV	54.00	-19.7	1.29 H	152	-5.12	39.42
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	55.2 PK	74.00	-18.8	1.01 V	84	23.99	31.21
2	2390.00	43.6 AV	54.00	-10.4	1.01 V	84	12.39	31.21
3	*2412.00	89.8 PK			1.00 V	88	58.53	31.27
4	*2412.00	81.4 AV			1.00 V	88	50.13	31.27
5	4824.00	45.2 PK	74.00	-28.8	1.17 V	3	5.78	39.42
6	4824.00	34.2 AV	54.00	-19.8	1.17 V	3	-5.22	39.42

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	94.8 PK			1.19 H	20	63.46	31.34
2	*2437.00	85.6 AV			1.19 H	20	54.26	31.34
3	4874.00	46.2 PK	74.00	-27.8	1.30 H	160	6.58	39.62
4	4874.00	34.1 AV	54.00	-19.9	1.30 H	160	-5.52	39.62
5	7311.00	52.9 PK	74.00	-21.1	1.41 H	199	8.80	44.10
6	7311.00	39.8 AV	54.00	-14.2	1.41 H	199	-4.30	44.10
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	89.9 PK			1.01 V	101	58.56	31.34
2	*2437.00	81.6 AV			1.01 V	101	50.26	31.34
3	4874.00	46.1 PK	74.00	-27.9	1.19 V	200	6.48	39.62
4	4874.00	32.8 AV	54.00	-21.2	1.19 V	200	-6.82	39.62
5	7311.00	52.1 PK	74.00	-21.9	1.29 V	171	8.00	44.10
6	7311.00	39.4 AV	54.00	-14.6	1.29 V	171	-4.70	44.10

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	94.6 PK			1.13 H	22	63.20	31.40
2	*2462.00	85.7 AV			1.13 H	22	54.30	31.40
3	2483.50	55.5 PK	74.00	-18.5	1.14 H	11	24.04	31.46
4	2483.50	44.8 AV	54.00	-9.2	1.14 H	11	13.34	31.46
5	4924.00	46.5 PK	74.00	-27.5	1.24 H	160	6.68	39.82
6	4924.00	34.5 AV	54.00	-19.5	1.24 H	160	-5.32	39.82
7	7386.00	52.6 PK	74.00	-21.4	1.31 H	188	8.42	44.18
8	7386.00	39.9 AV	54.00	-14.1	1.31 H	188	-4.28	44.18
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	89.6 PK			1.00 V	92	58.20	31.40
2	*2462.00	81.1 AV			1.00 V	92	49.70	31.40
3	2483.50	55.4 PK	74.00	-18.6	1.01 V	99	23.94	31.46
4	2483.50	43.4 AV	54.00	-10.6	1.01 V	99	11.94	31.46
5	4924.00	46.3 PK	74.00	-27.7	1.19 V	159	6.48	39.82
6	4924.00	33.9 AV	54.00	-20.1	1.19 V	159	-5.92	39.82
7	7386.00	52.2 PK	74.00	-21.8	1.29 V	201	8.02	44.18
8	7386.00	39.7 AV	54.00	-14.3	1.29 V	201	-4.48	44.18

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

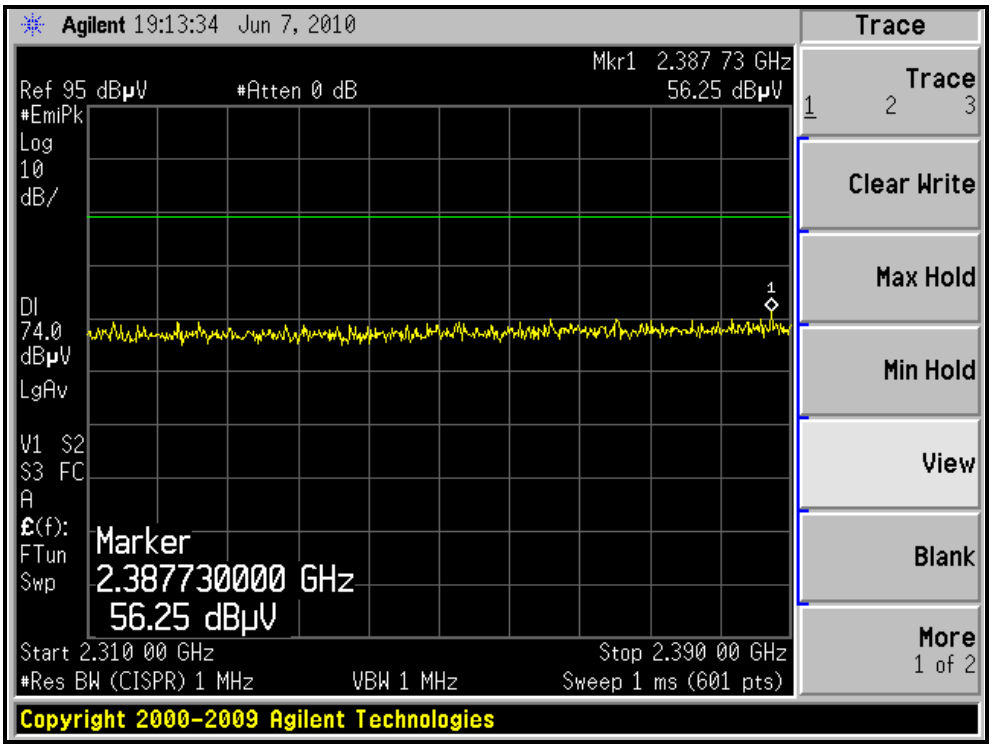
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

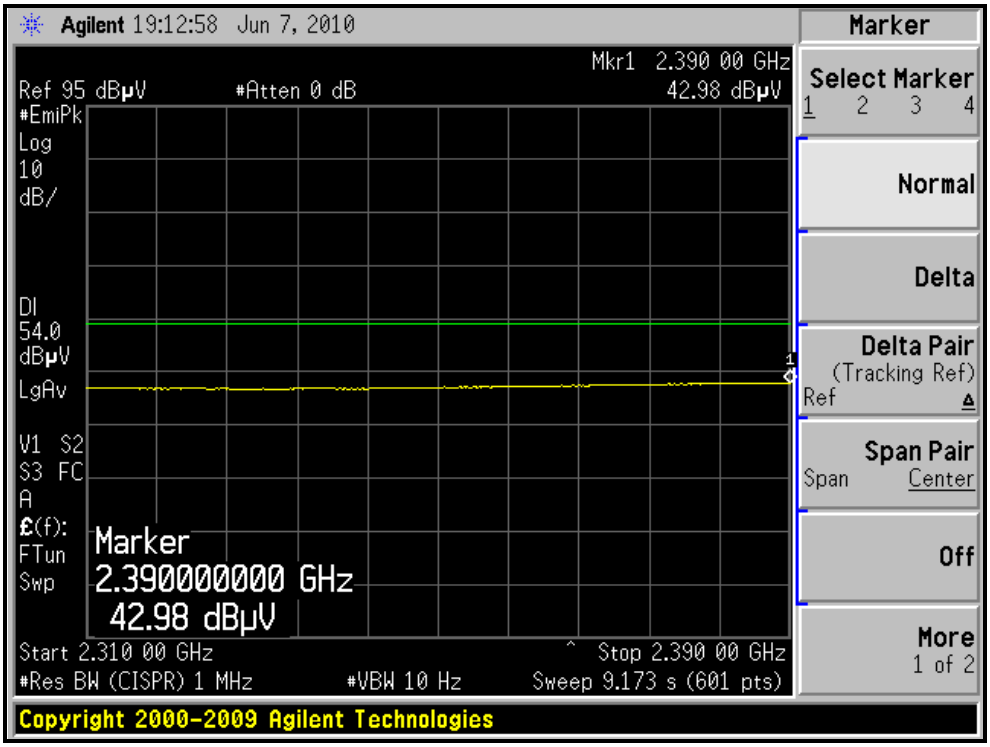
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

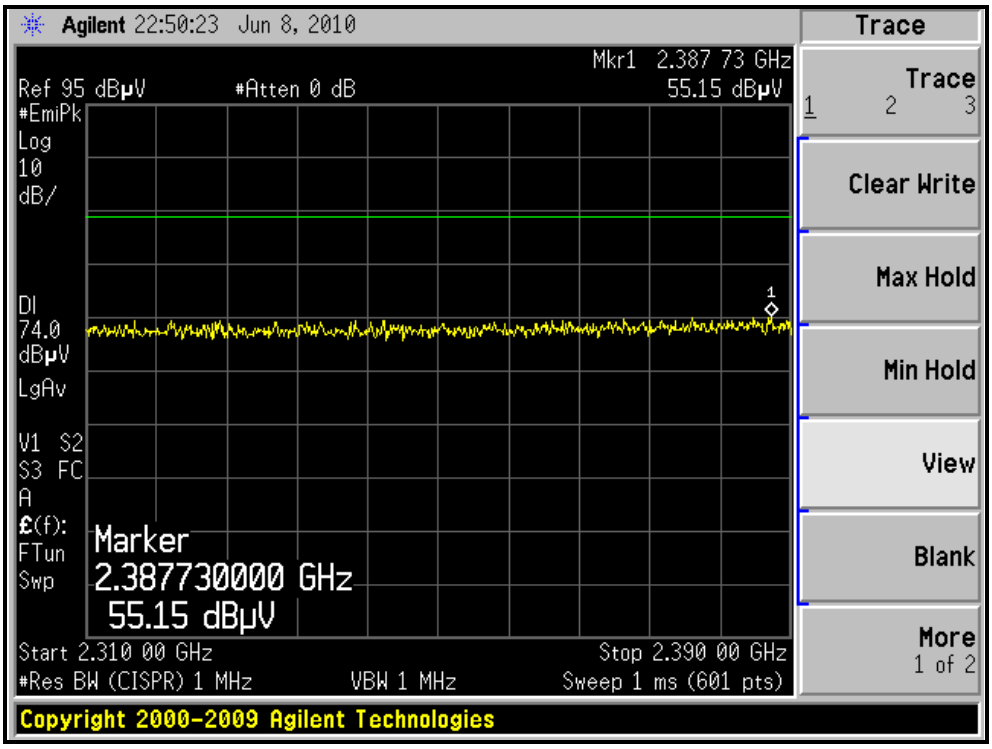
5. " * ": Fundamental frequency.

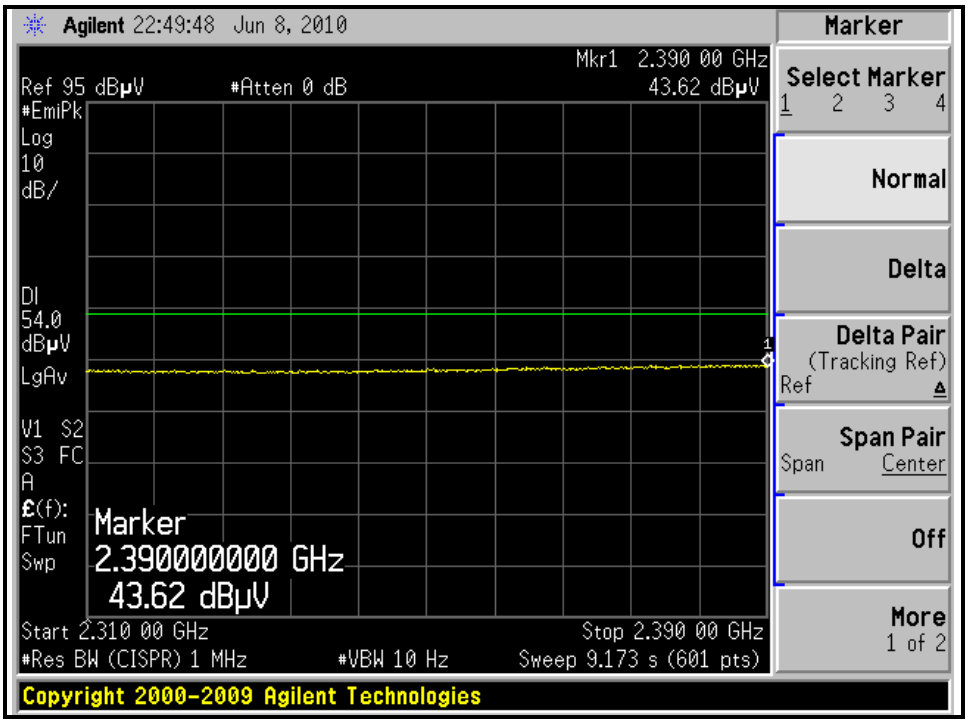
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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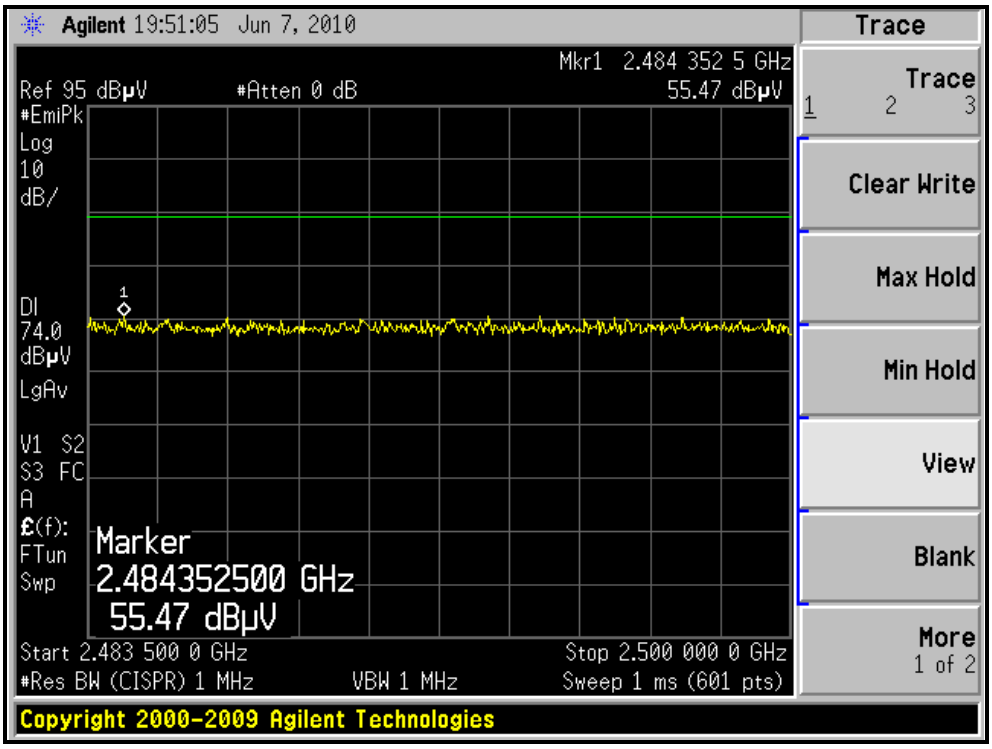
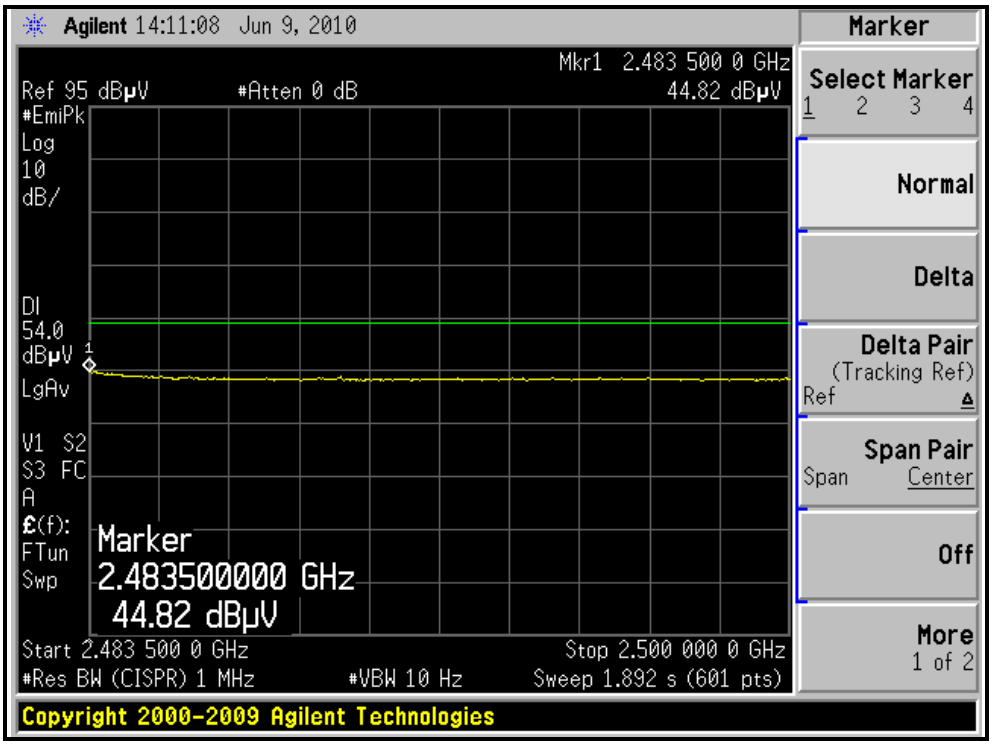
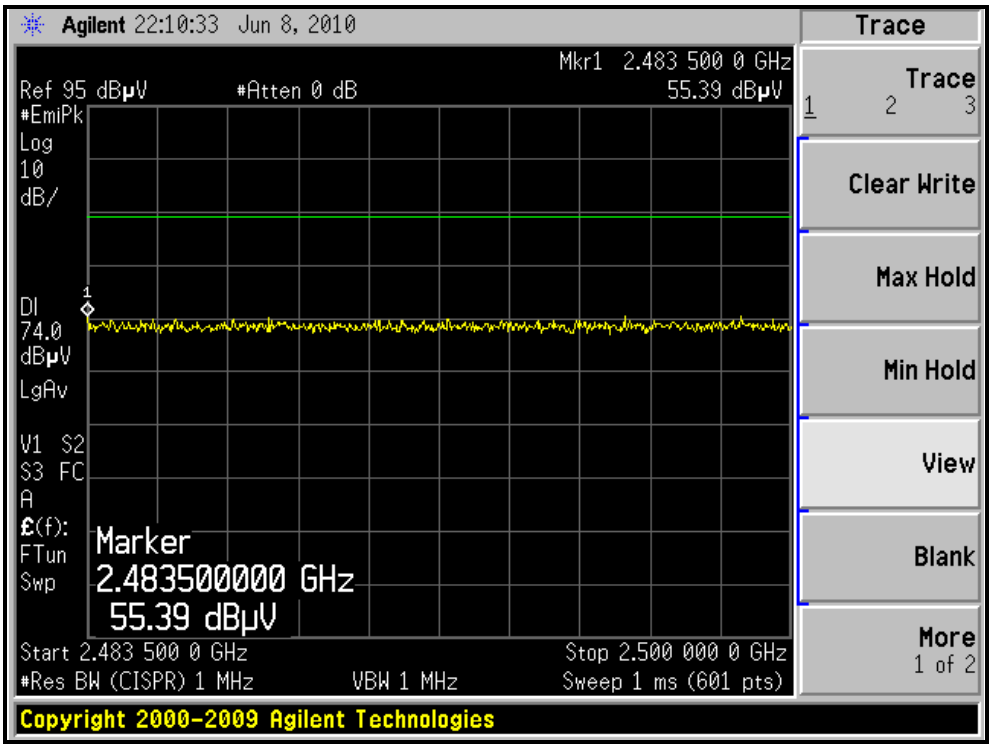
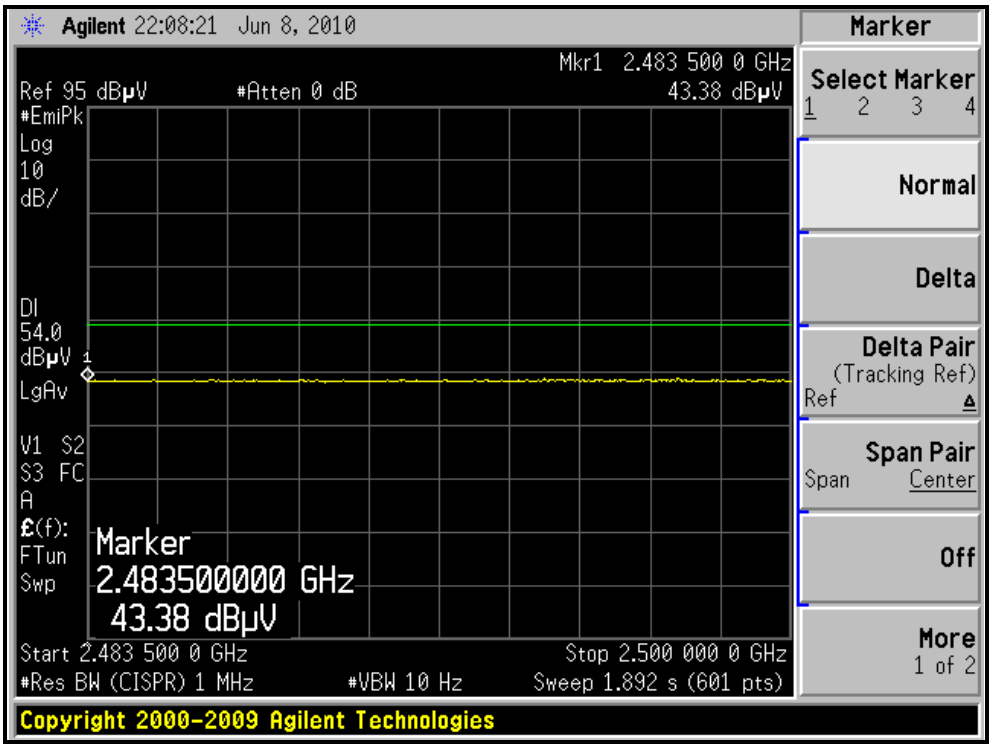




RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





DRAFT 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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	55.2 PK	74.00	-18.8	1.16 H	20	23.99	31.21
2	2390.00	44.5 AV	54.00	-9.5	1.16 H	20	13.29	31.21
3	*2412.00	93.9 PK			1.14 H	13	62.63	31.27
4	*2412.00	85.1 AV			1.14 H	13	53.83	31.27
5	4824.00	46.9 PK	74.00	-27.1	1.12 H	70	7.48	39.42
6	4824.00	33.5 AV	54.00	-20.5	1.12 H	70	-5.92	39.42
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	55.2 PK	74.00	-18.8	1.01 V	88	23.99	31.21
2	2390.00	43.8 AV	54.00	-10.2	1.01 V	88	12.59	31.21
3	*2412.00	89.7 PK			1.00 V	77	58.43	31.27
4	*2412.00	81.2 AV			1.00 V	77	49.93	31.27
5	4824.00	45.8 PK	74.00	-28.2	1.04 V	102	6.38	39.42
6	4824.00	33.2 AV	54.00	-20.8	1.04 V	102	-6.22	39.42

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	95.5 PK			1.15 H	20	64.16	31.34
2	*2437.00	86.1 AV			1.15 H	20	54.76	31.34
3	4874.00	47.1 PK	74.00	-26.9	1.11 H	195	7.48	39.62
4	4874.00	33.4 AV	54.00	-20.6	1.11 H	195	-6.22	39.62
5	7311.00	51.2 PK	74.00	-22.8	1.69 H	58	7.10	44.10
6	7311.00	39.5 AV	54.00	-14.5	1.69 H	58	-4.60	44.10
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	89.9 PK			1.01 V	76	58.56	31.34
2	*2437.00	81.4 AV			1.01 V	76	50.06	31.34
3	4874.00	45.6 PK	74.00	-28.4	1.05 V	100	5.98	39.62
4	4874.00	33.3 AV	54.00	-20.7	1.05 V	100	-6.32	39.62
5	7311.00	51.0 PK	74.00	-23.0	1.31 V	200	6.90	44.10
6	7311.00	39.2 AV	54.00	-14.8	1.31 V	200	-4.90	44.10

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	95.2 PK			1.13 H	19	63.80	31.40
2	*2462.00	85.7 AV			1.13 H	19	54.30	31.40
3	2483.50	54.5 PK	74.00	-19.5	1.14 H	22	23.04	31.46
4	2483.50	43.6 AV	54.00	-10.4	1.14 H	22	12.14	31.46
5	4924.00	46.1 PK	74.00	-27.9	1.00 H	69	6.28	39.82
6	4924.00	33.3 AV	54.00	-20.7	1.00 H	69	-6.52	39.82
7	7386.00	51.1 PK	74.00	-22.9	1.05 H	305	6.92	44.18
8	7386.00	39.2 AV	54.00	-14.8	1.05 H	305	-4.98	44.18
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	89.6 PK			1.00 V	84	58.20	31.40
2	*2462.00	81.3 AV			1.00 V	84	49.90	31.40
3	2483.50	54.6 PK	74.00	-19.4	1.01 V	93	23.14	31.46
4	2483.50	43.5 AV	54.00	-10.5	1.01 V	93	12.04	31.46
5	4924.00	45.8 PK	74.00	-28.2	1.11 V	78	5.98	39.82
6	4924.00	33.2 AV	54.00	-20.8	1.11 V	78	-6.62	39.82
7	7386.00	50.9 PK	74.00	-23.1	1.41 V	201	6.72	44.18
8	7386.00	39.1 AV	54.00	-14.9	1.41 V	201	-5.08	44.18

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

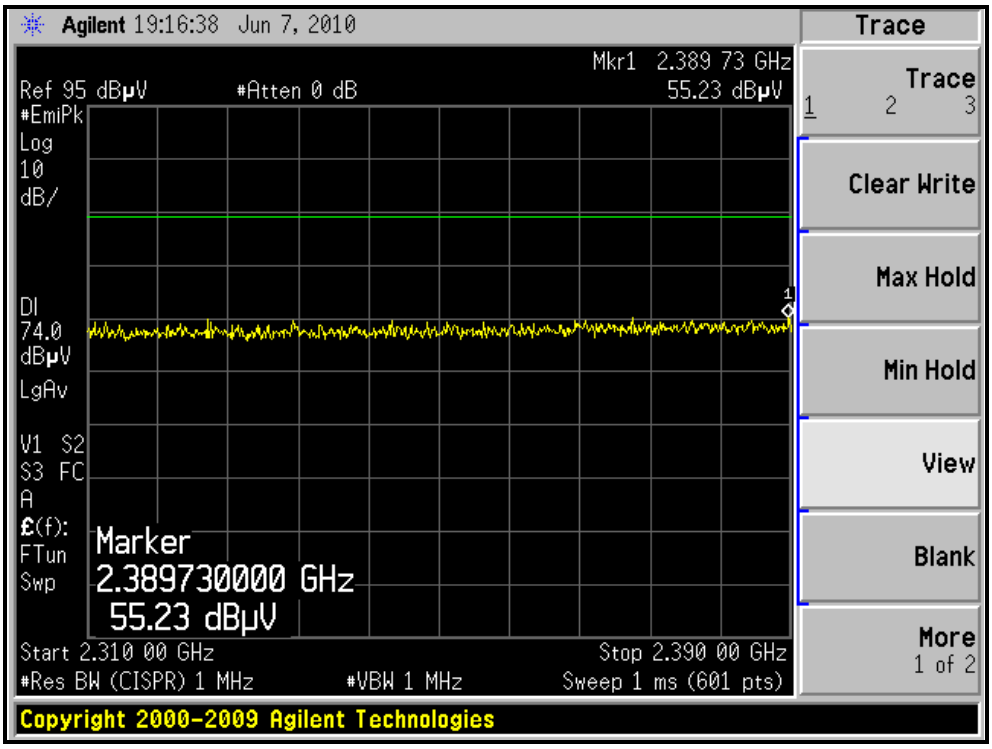
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

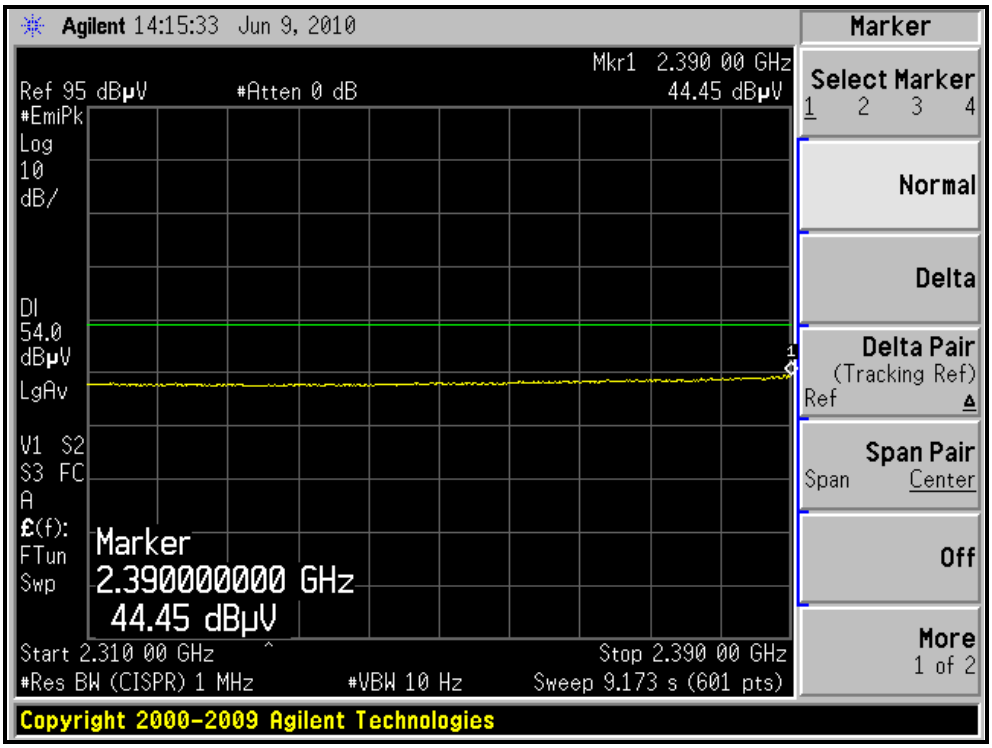
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

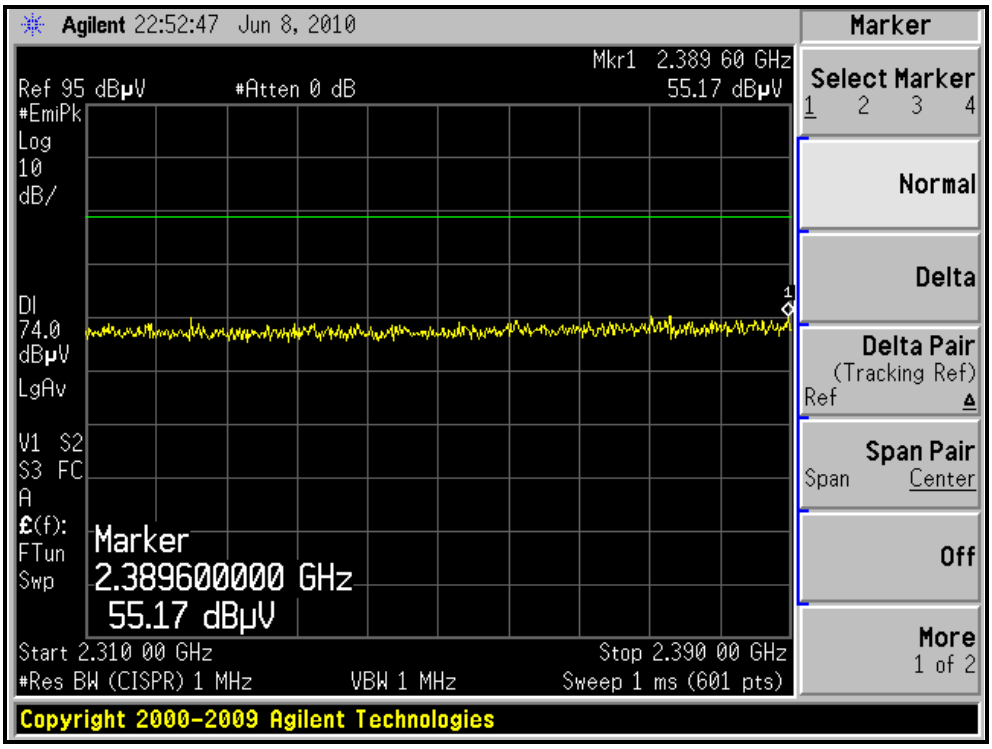
5. " * ": Fundamental frequency.

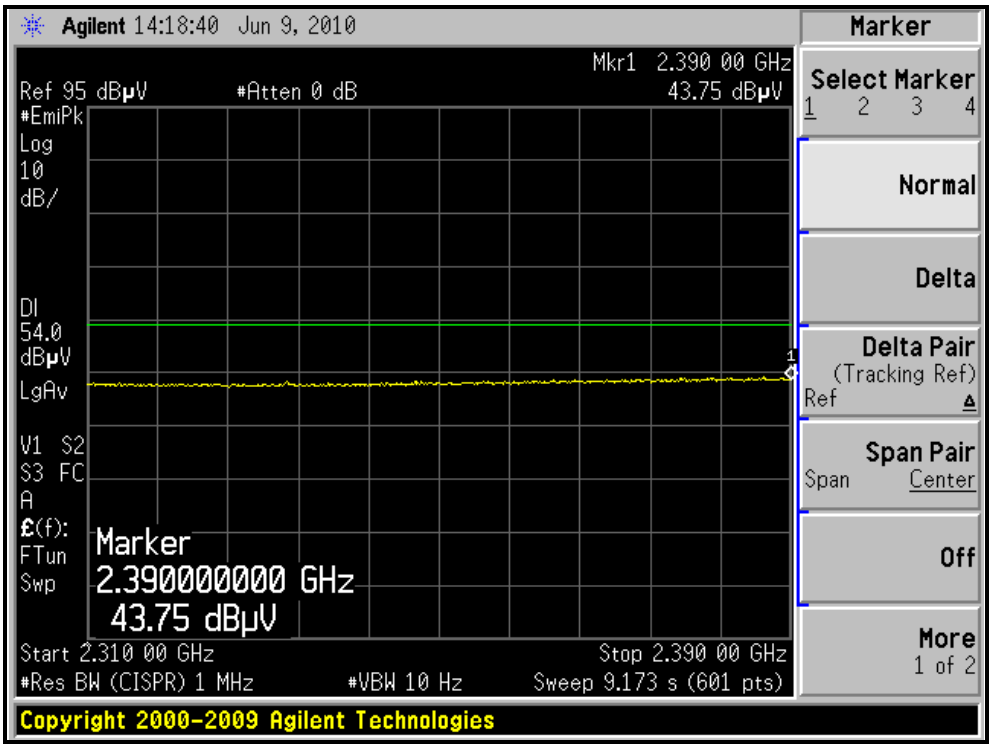
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



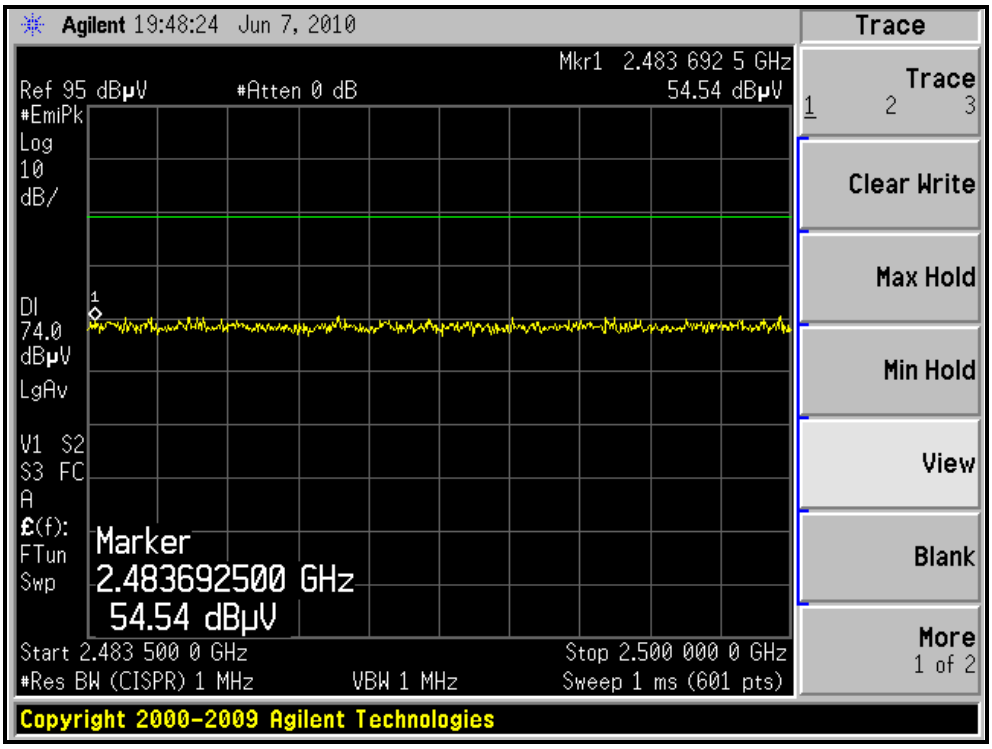


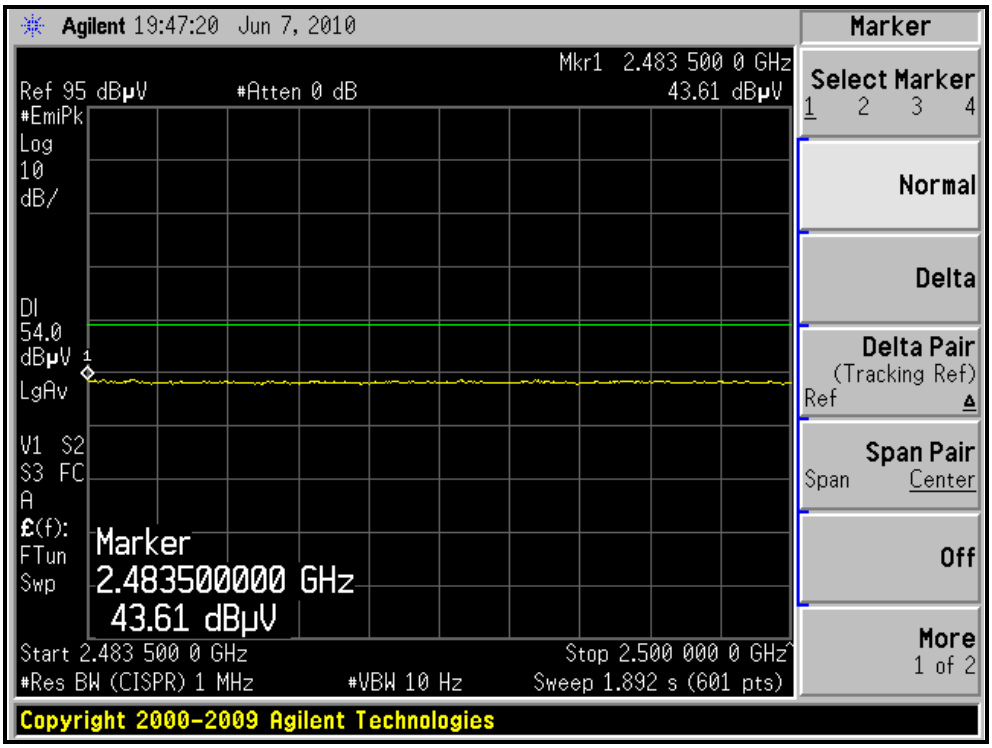
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



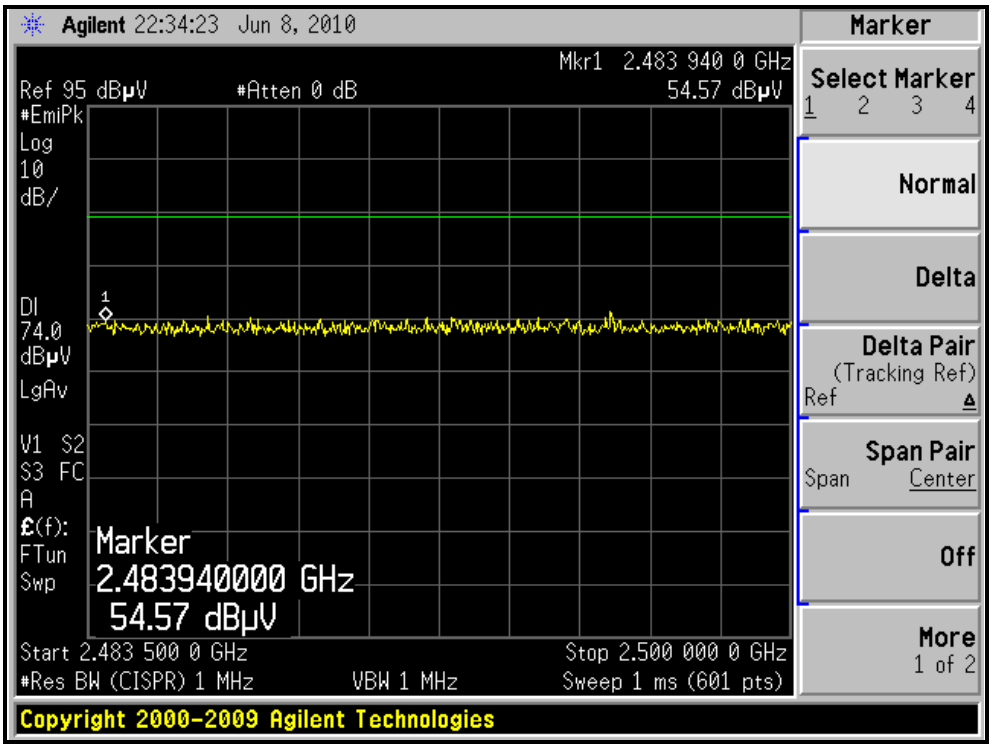


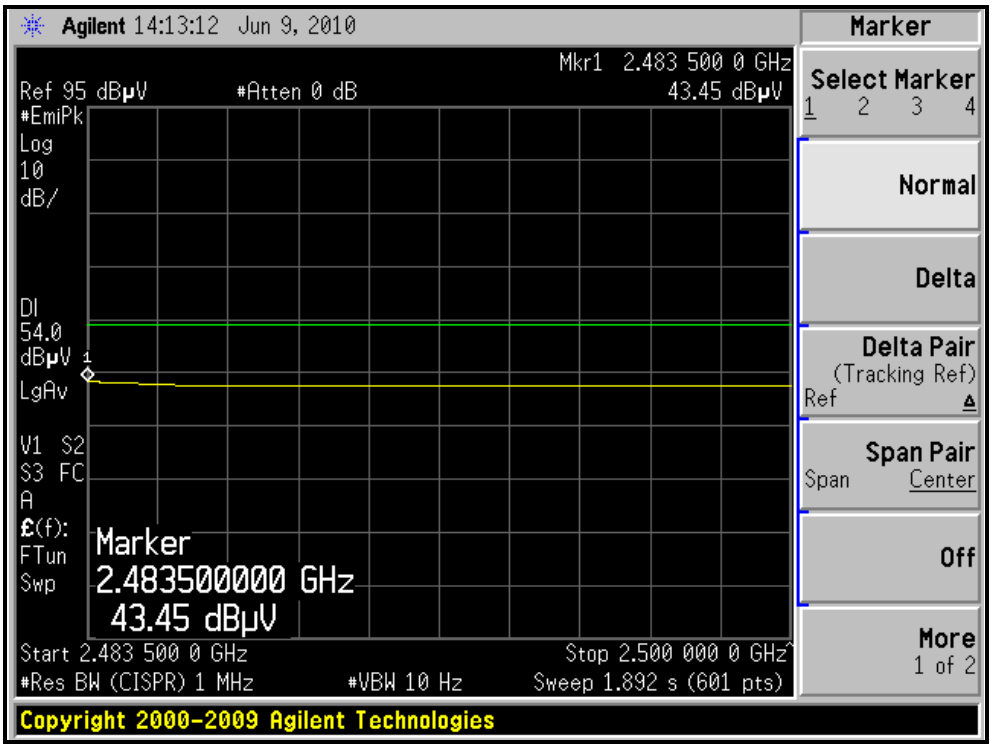
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)





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





DRAFT 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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	2388.70	55.0 PK	74.00	-19.0	1.16 H	20	23.79	31.21
2	2388.70	43.9 AV	54.00	-10.1	1.16 H	20	12.69	31.21
3	*2422.00	93.2 PK			1.15 H	11	61.90	31.30
4	*2422.00	82.8 AV			1.15 H	11	51.50	31.30
5	4844.00	46.1 PK	74.00	-27.9	1.02 H	21	6.60	39.50
6	4844.00	33.2 AV	54.00	-20.8	1.02 H	21	-6.30	39.50
7	7266.00	52.1 PK	74.00	-21.9	1.02 H	14	8.04	44.06
8	7266.00	39.2 AV	54.00	-14.8	1.02 H	14	-4.86	44.06
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	53.3 PK	74.00	-20.7	1.00 V	80	22.09	31.21
2	2390.00	43.5 AV	54.00	-10.5	1.00 V	80	12.29	31.21
3	*2422.00	88.5 PK			1.01 V	71	57.20	31.30
4	*2422.00	78.8 AV			1.01 V	71	47.50	31.30
5	4844.00	45.6 PK	74.00	-28.4	1.65 V	24	6.10	39.50
6	4844.00	32.9 AV	54.00	-21.1	1.65 V	24	-6.60	39.50
7	7266.00	50.8 PK	74.00	-23.2	1.47 V	47	6.74	44.06
8	7266.00	39.0 AV	54.00	-15.0	1.47 V	47	-5.06	44.06

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	93.4 PK			1.16 H	20	62.06	31.34
2	*2437.00	83.4 AV			1.16 H	20	52.06	31.34
3	4874.00	45.9 PK	74.00	-28.1	1.65 H	32	6.28	39.62
4	4874.00	33.3 AV	54.00	-20.7	1.65 H	32	-6.32	39.62
5	7311.00	51.9 PK	74.00	-22.1	1.11 H	20	7.80	44.10
6	7311.00	39.1 AV	54.00	-14.9	1.11 H	20	-5.00	44.10
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	88.6 PK			1.02 V	80	57.26	31.34
2	*2437.00	78.9 AV			1.02 V	80	47.56	31.34
3	4874.00	45.3 PK	74.00	-28.7	1.25 V	47	5.68	39.62
4	4874.00	32.8 AV	54.00	-21.2	1.25 V	47	-6.82	39.62
5	7311.00	51.1 PK	74.00	-22.9	1.62 V	356	7.00	44.10
6	7311.00	39.1 AV	54.00	-14.9	1.62 V	356	-5.00	44.10

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	23deg. C, 72%RH 1011 hPa	TESTED BY	Eric Lee

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	93.1 PK			1.15 H	20	61.72	31.38
2	*2452.00	83.5 AV			1.15 H	20	52.12	31.38
3	2483.70	56.2 PK	74.00	-17.8	1.16 H	50	24.74	31.46
4	2483.70	43.8 AV	54.00	-10.2	1.16 H	50	12.34	31.46
5	4904.00	46.0 PK	74.00	-28.0	1.54 H	24	6.26	39.74
6	4904.00	33.1 AV	54.00	-20.9	1.54 H	24	-6.64	39.74
7	7356.00	51.5 PK	74.00	-22.5	1.25 H	47	7.35	44.15
8	7356.00	39.2 AV	54.00	-14.8	1.25 H	47	-4.95	44.15
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	88.1 PK			1.01 V	79	56.72	31.38
2	*2452.00	78.2 AV			1.01 V	79	46.82	31.38
3	2483.50	54.6 PK	74.00	-19.4	1.00 V	84	23.14	31.46
4	2483.50	43.6 AV	54.00	-10.4	1.00 V	84	12.14	31.46
5	4904.00	45.8 PK	74.00	-28.2	1.25 V	24	6.06	39.74
6	4904.00	33.1 AV	54.00	-20.9	1.25 V	24	-6.64	39.74
7	7356.00	50.9 PK	74.00	-23.1	1.47 V	54	6.75	44.15
8	7356.00	38.9 AV	54.00	-15.1	1.47 V	54	-5.25	44.15

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

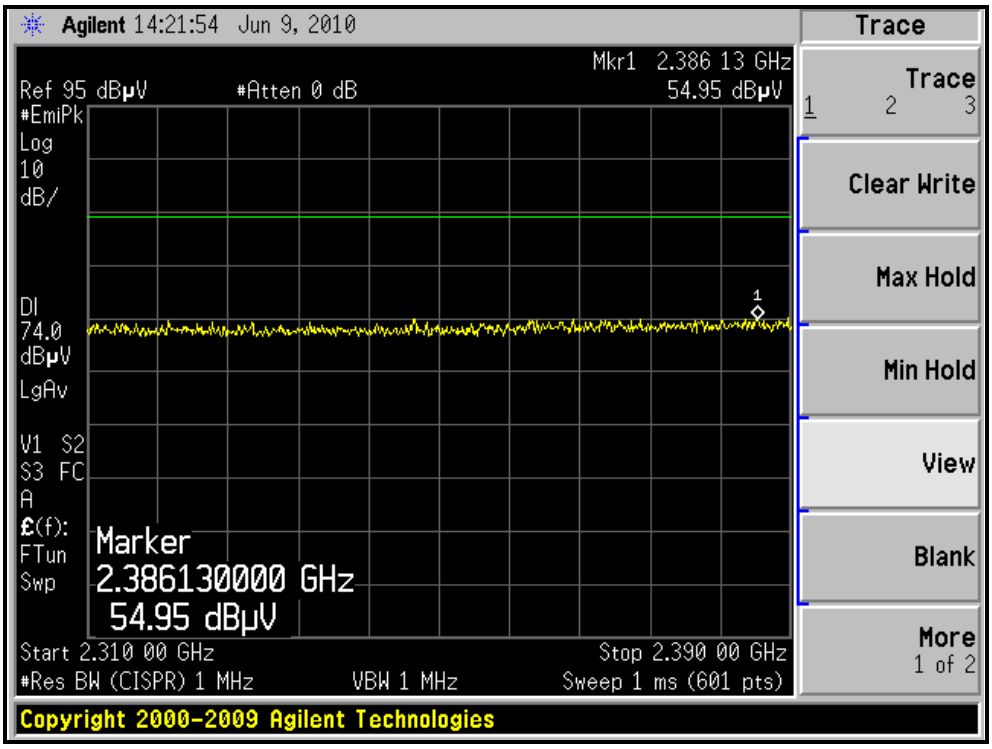
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

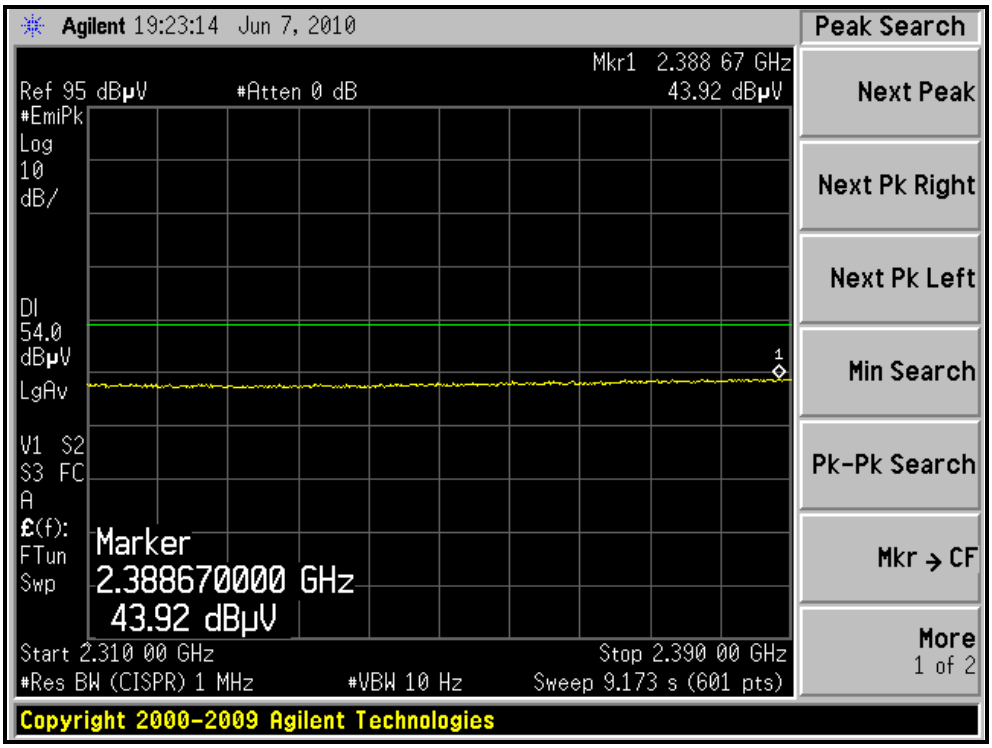
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

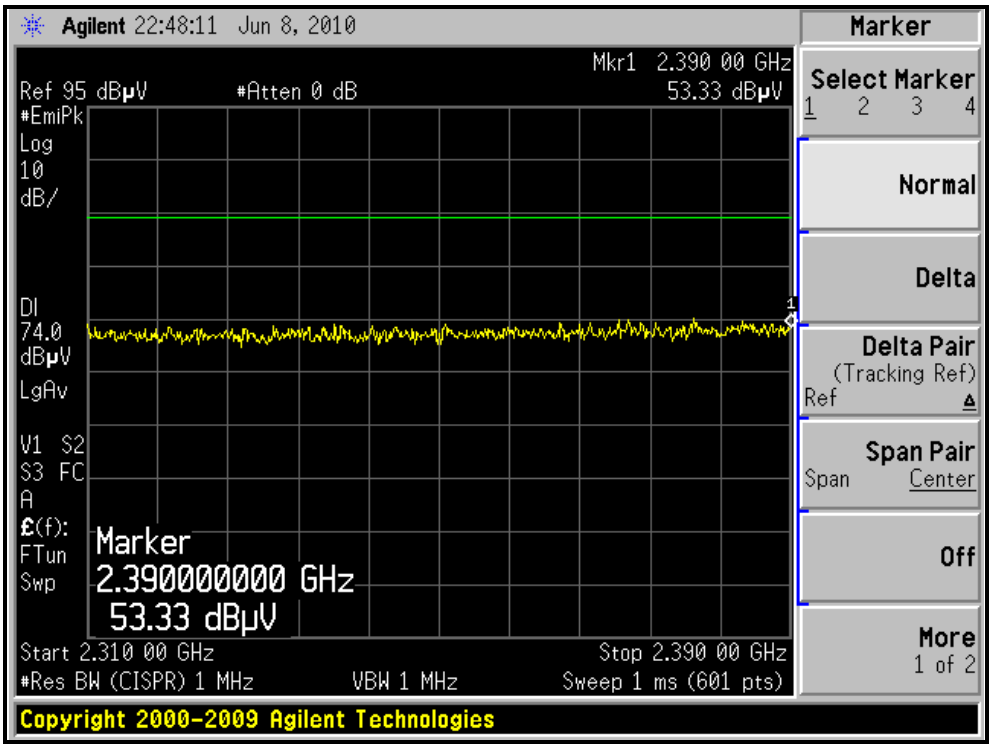
5. " * ": Fundamental frequency.

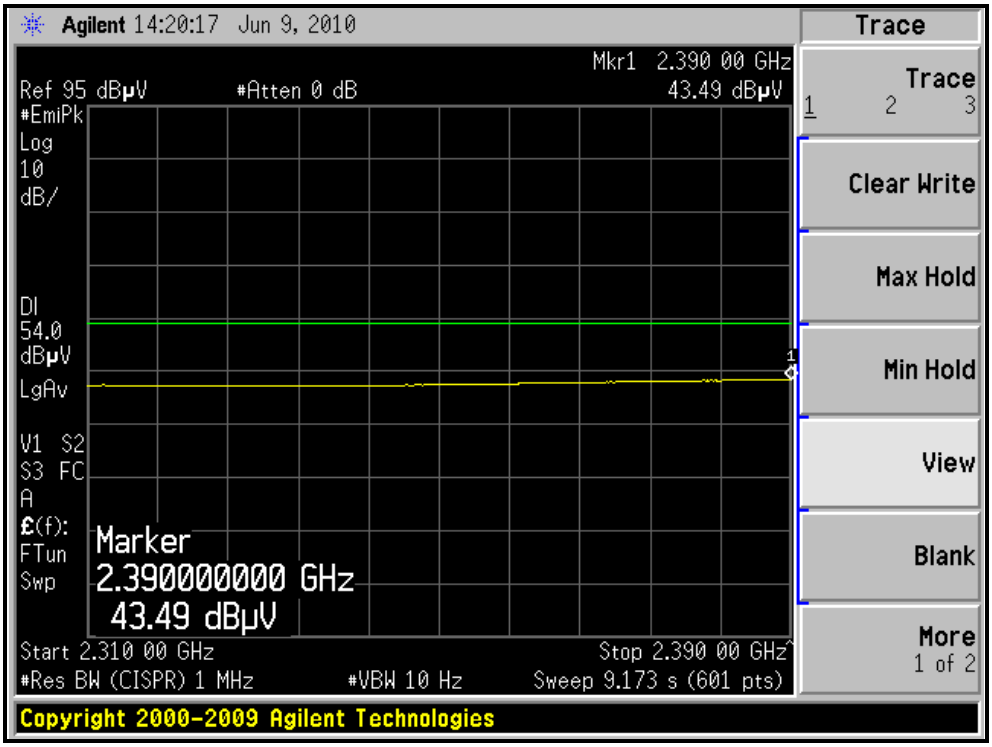
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



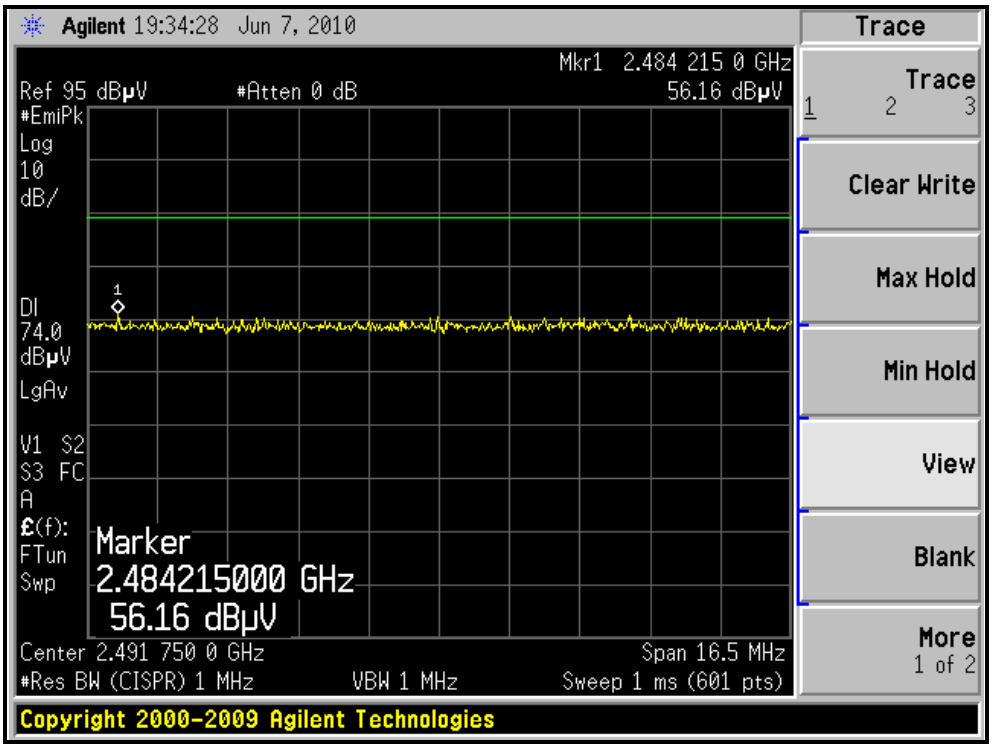


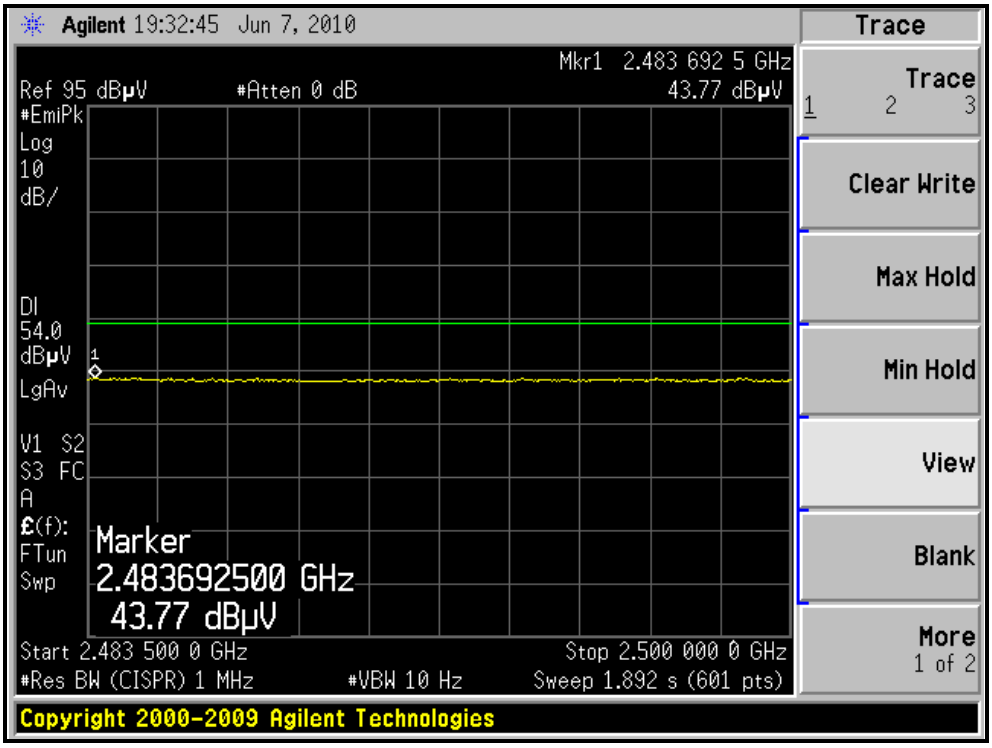
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



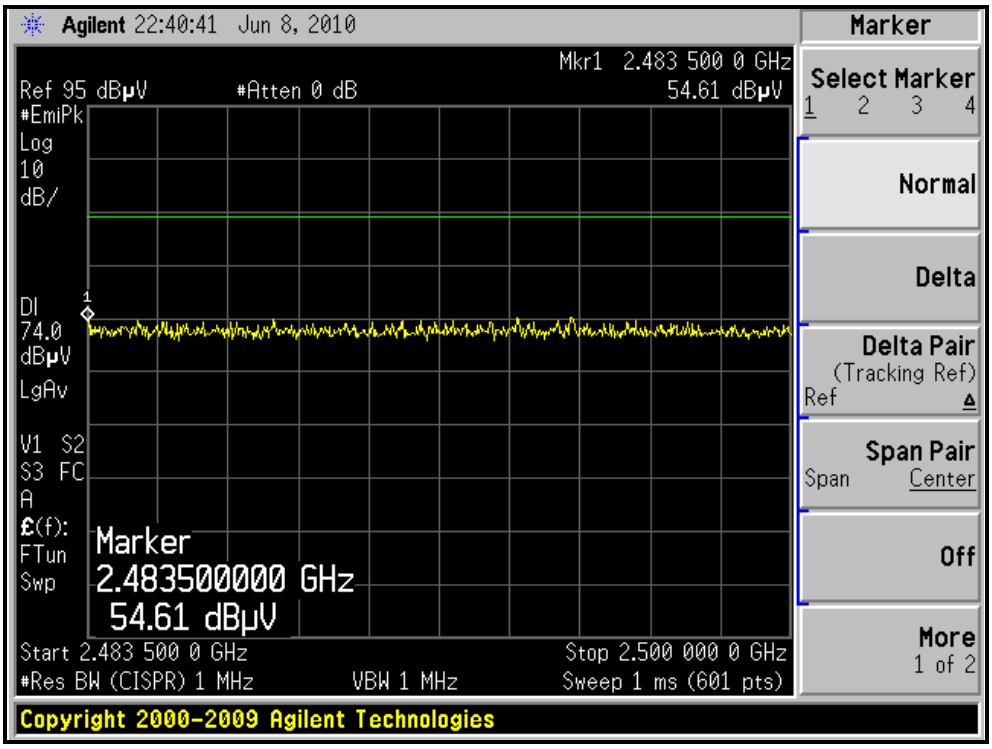


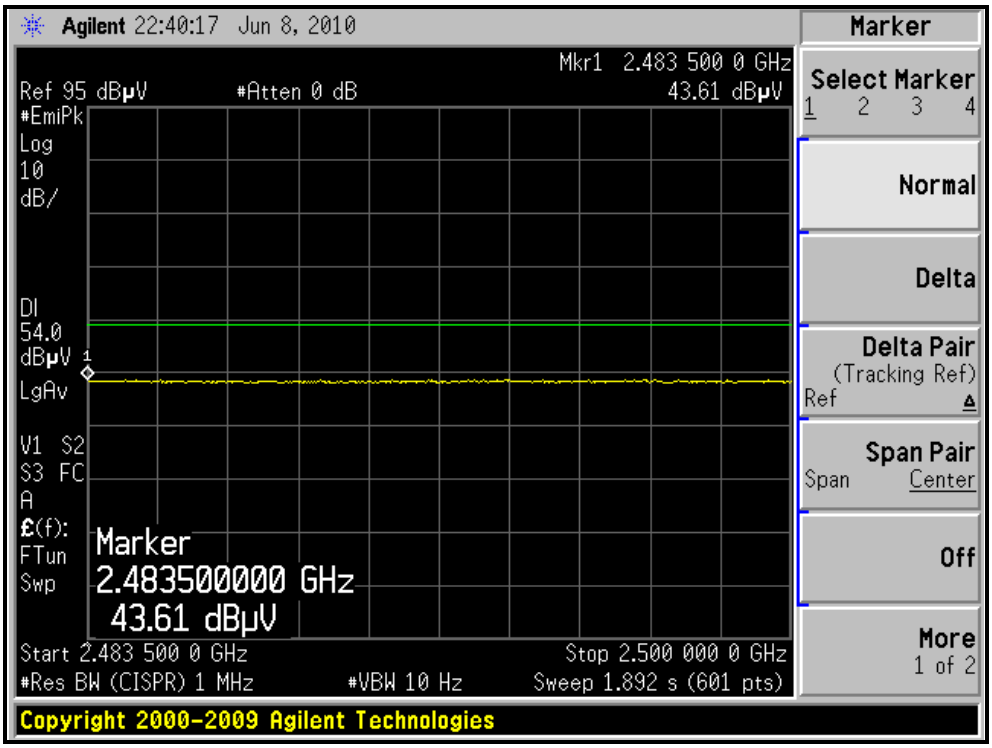
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)





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	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

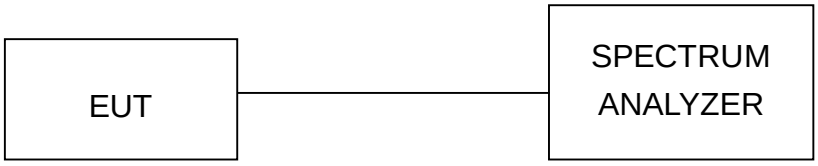
4.3.3 TEST PROCEDURE

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

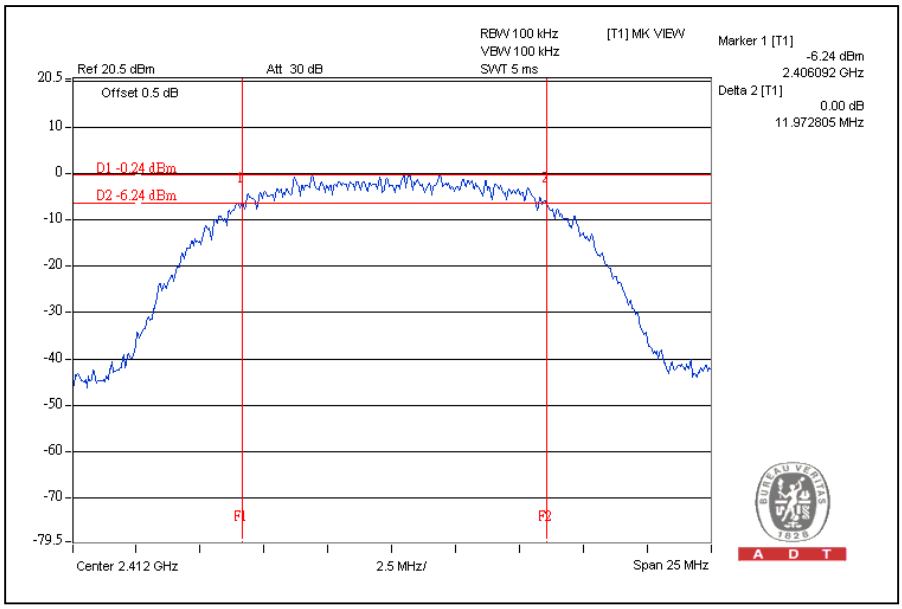
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.97	0.5	PASS
6	2437	11.57	0.5	PASS
11	2462	11.77	0.5	PASS

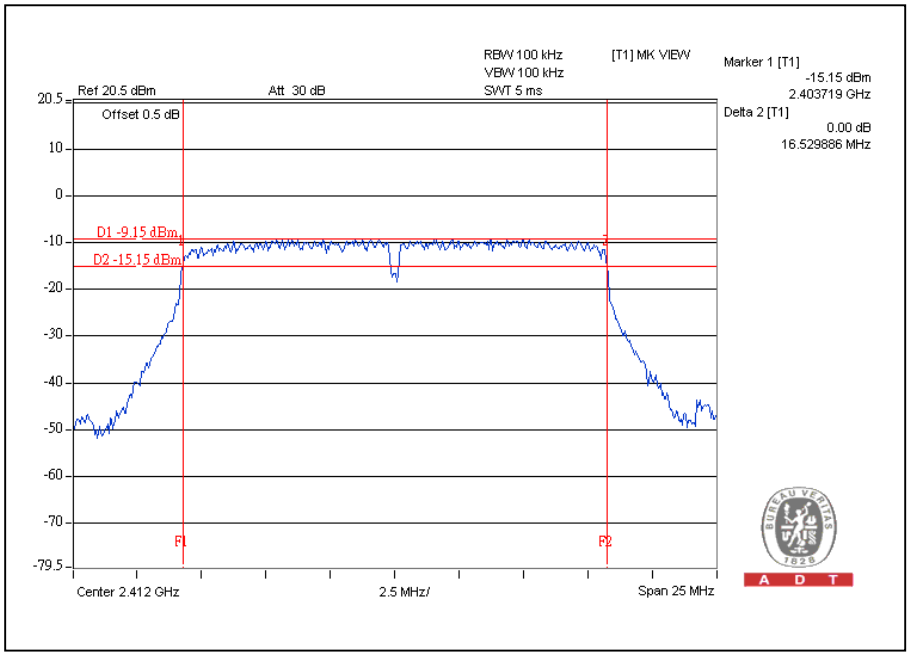
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.52	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.52	0.5	PASS

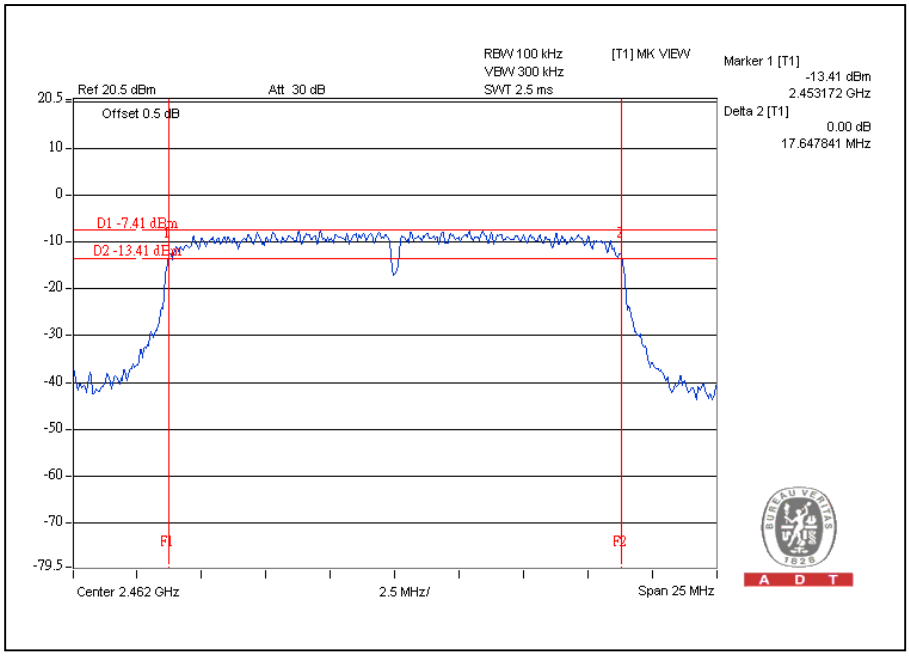
CH1



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.61	0.5	PASS
6	2437	17.32	0.5	PASS
11	2462	17.64	0.5	PASS

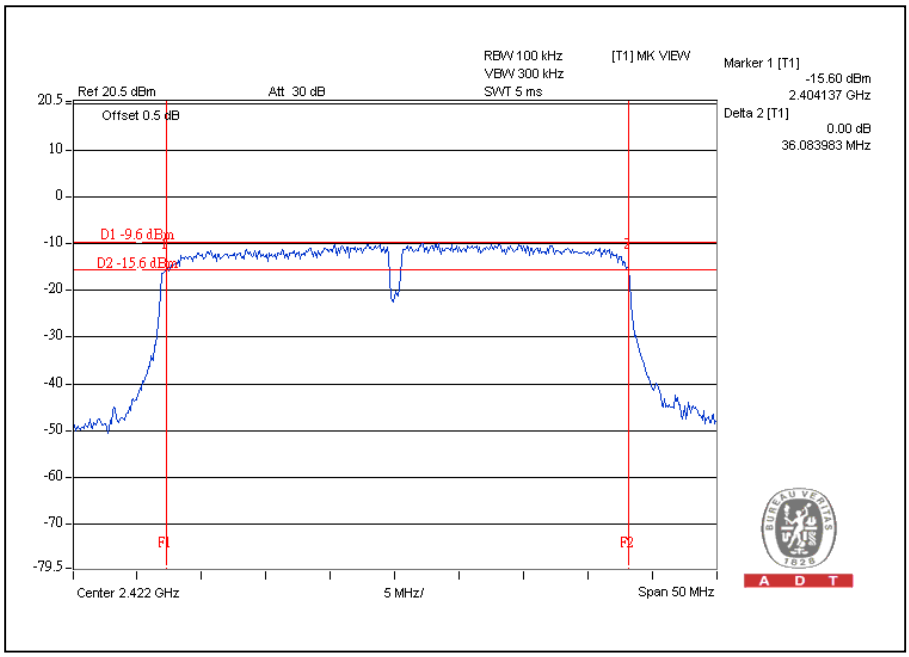
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.08	0.5	PASS
4	2437	35.35	0.5	PASS
7	2452	35.83	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	April 24, 2010	April 23, 2011
Pulse Power Sensor	MA2411B	0738172	April 24, 2010	April 23, 2011

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

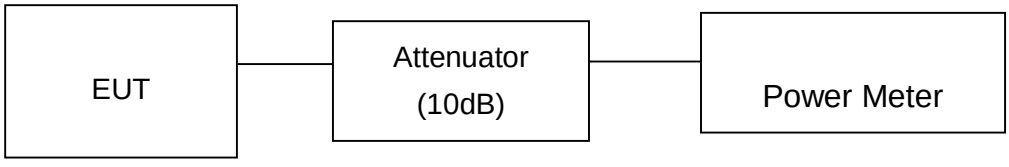
4.4.3 TEST PROCEDURES

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	14.0	25.1	30	PASS
6	2437	14.3	26.9	30	PASS
11	2462	14.0	25.1	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	17.4	55.0	30	PASS
6	2437	17.4	55.0	30	PASS
11	2462	16.8	47.9	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	16.7	46.8	30	PASS
6	2437	16.4	43.7	30	PASS
11	2462	16.0	39.8	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2422	16.3	42.7	30	PASS
4	2437	16.3	42.7	30	PASS
7	2452	16.1	40.7	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	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

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

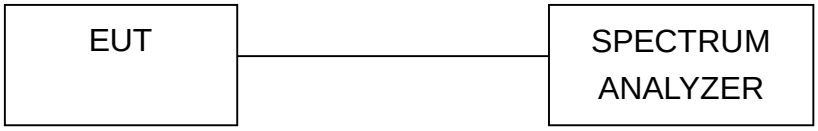
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

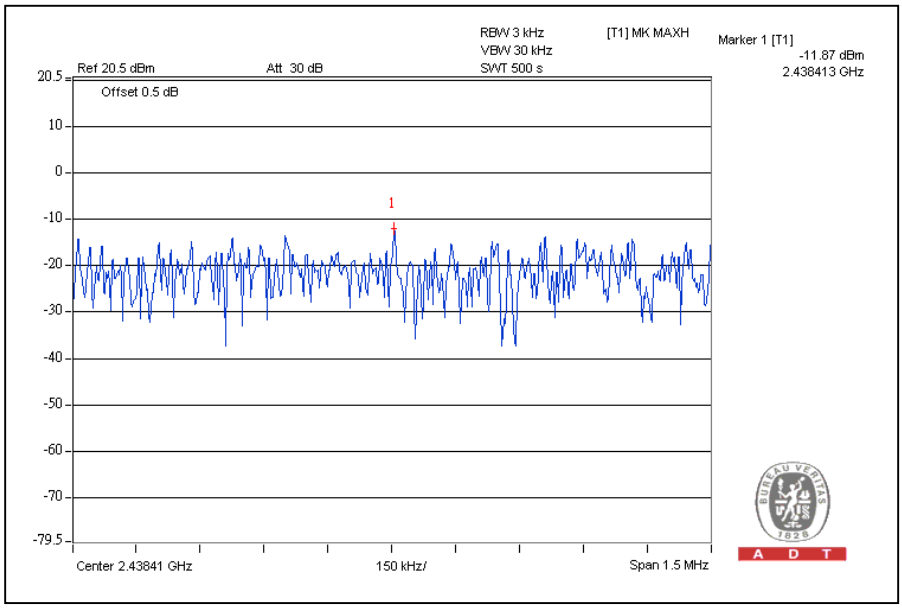
Same as Item 4.3.6

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	-13.2	8	PASS
6	2437	-11.9	8	PASS
11	2462	-12.8	8	PASS

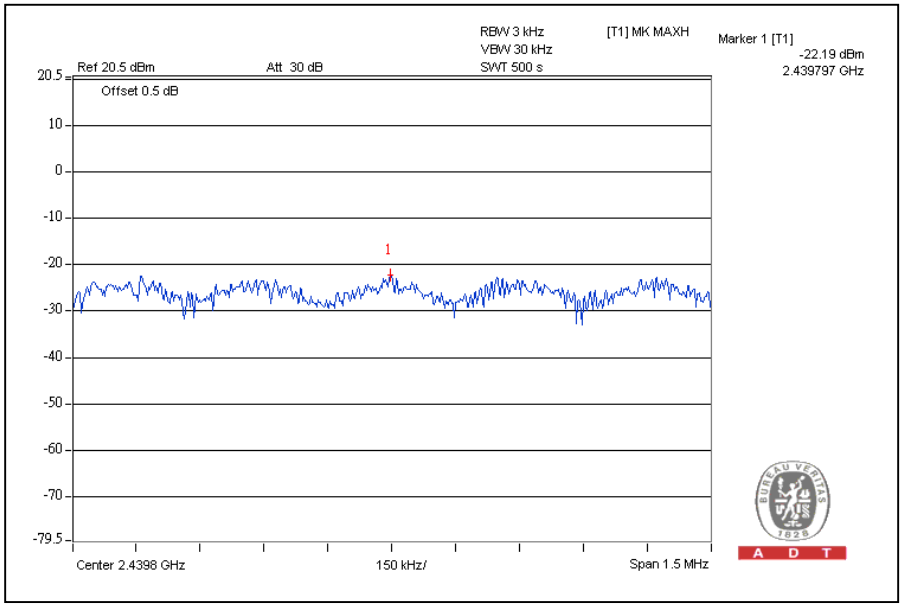
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-22.5	8	PASS
6	2437	-22.2	8	PASS
11	2462	-22.3	8	PASS

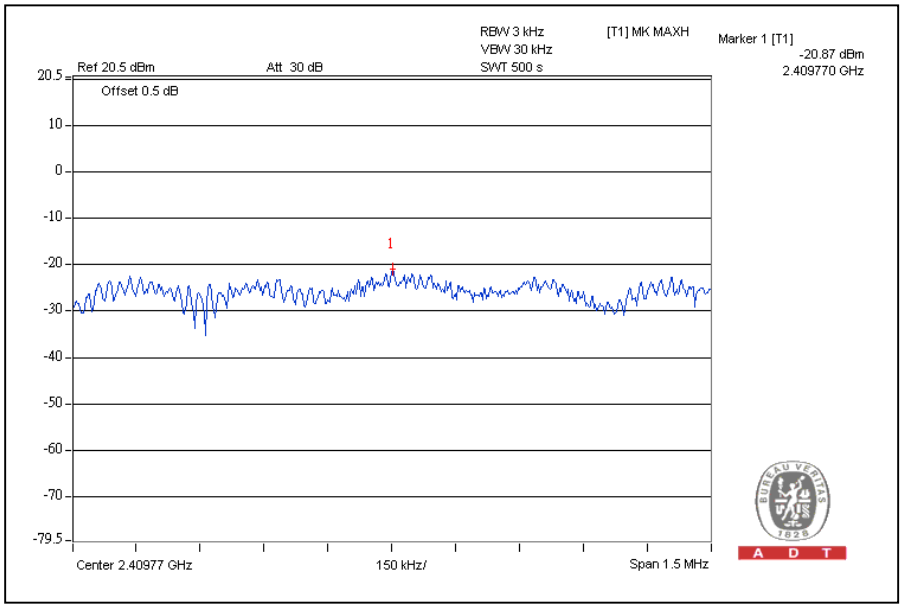
CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-20.9	8	PASS
6	2437	-21.1	8	PASS
11	2462	-21.0	8	PASS

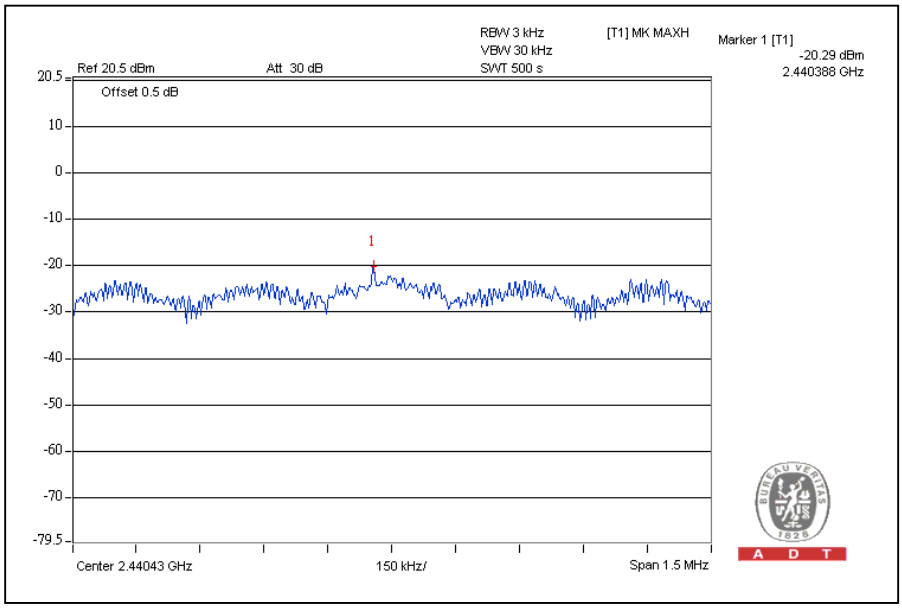
CH1



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2422	-23.5	8	PASS
4	2437	-20.3	8	PASS
7	2452	-22.7	8	PASS

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	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

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 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

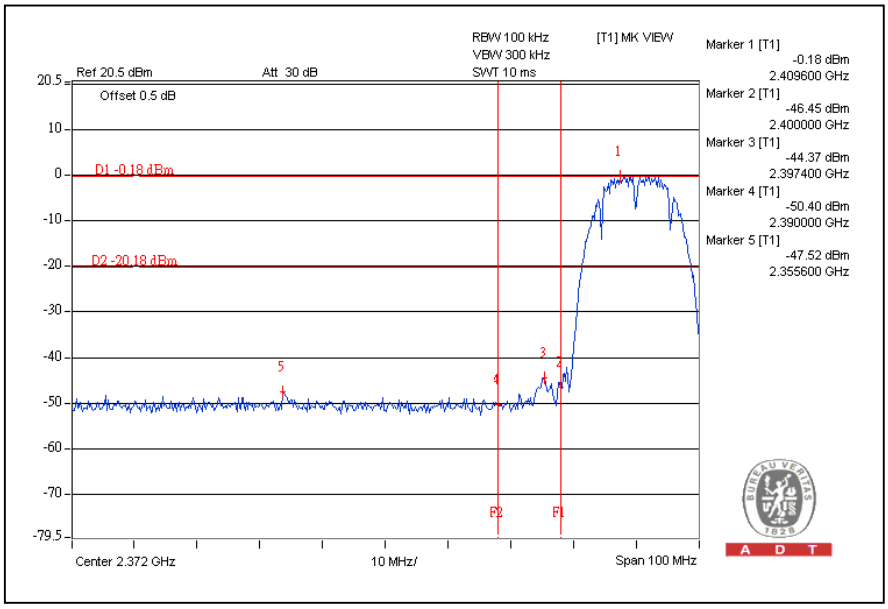
Same as Item 4.3.6

4.6.6 TEST RESULTS

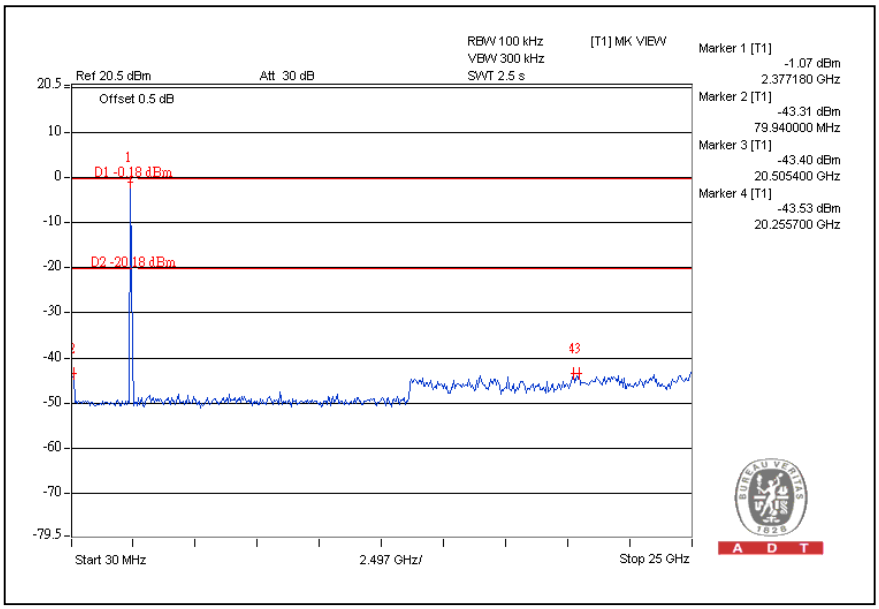
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

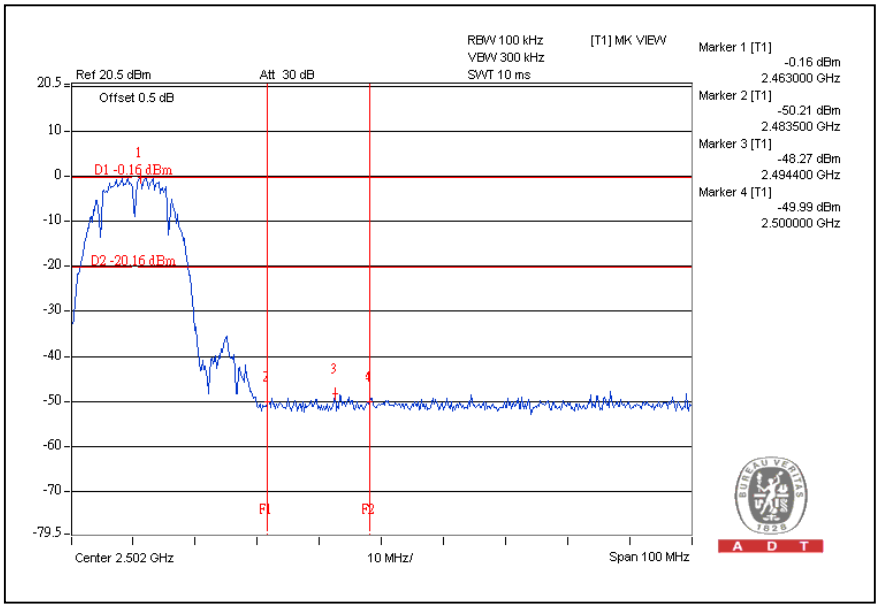
CH1



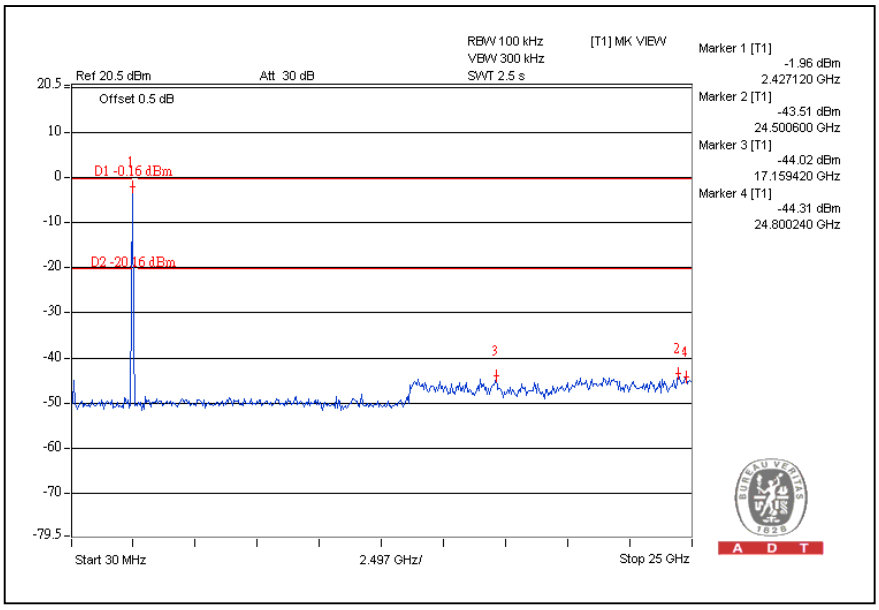
CH11



CH1

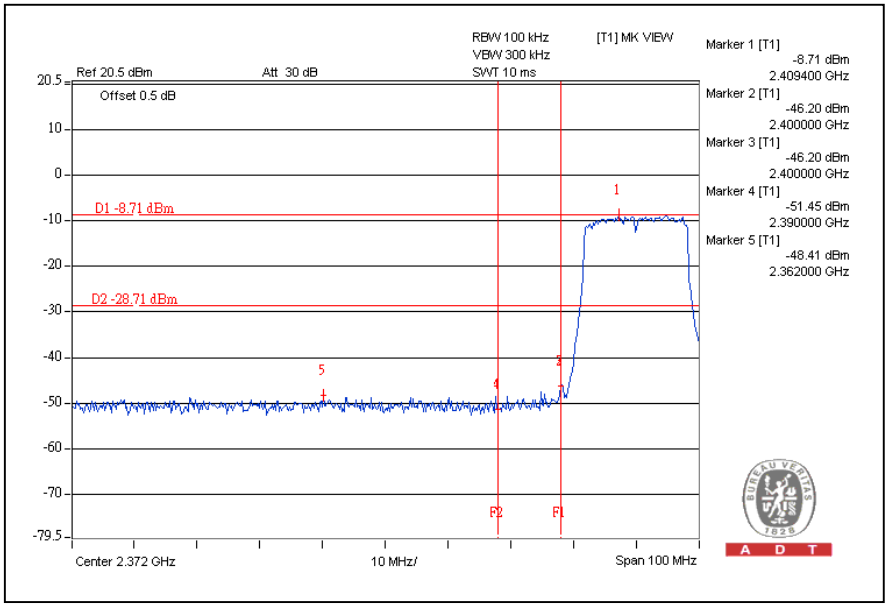

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Marker 1 [T1]
-0.16 dBm
2.463000 GHz
Marker 2 [T1]
-50.21 dBm
2.483500 GHz
Marker 3 [T1]
-48.27 dBm
2.494400 GHz
Marker 4 [T1]
-49.99 dBm
2.500000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.16 dBm
D2 -20.16 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

CH11

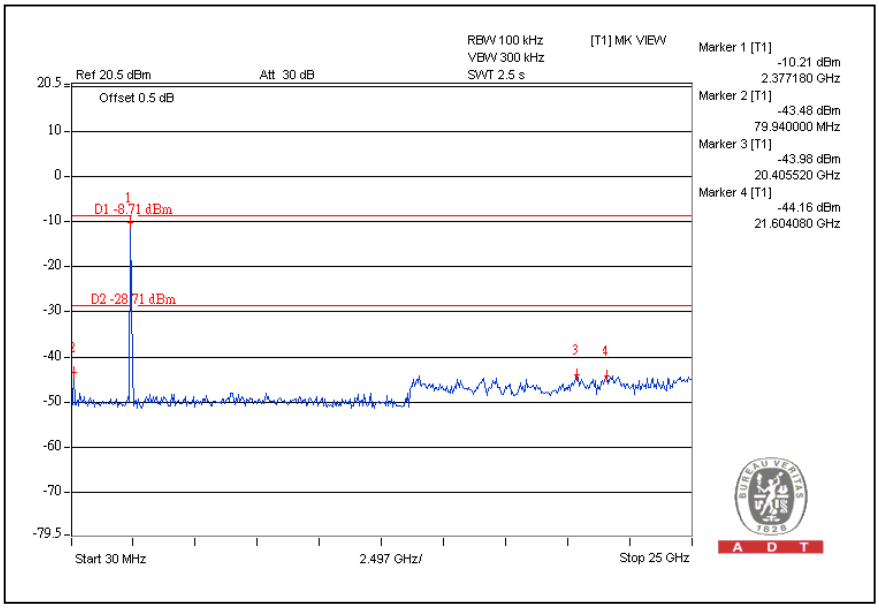

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-1.96 dBm
2.427120 GHz
Marker 2 [T1]
-43.51 dBm
24.500600 GHz
Marker 3 [T1]
-44.02 dBm
17.159420 GHz
Marker 4 [T1]
-44.31 dBm
24.800240 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.16 dBm
D2 -20.16 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION:

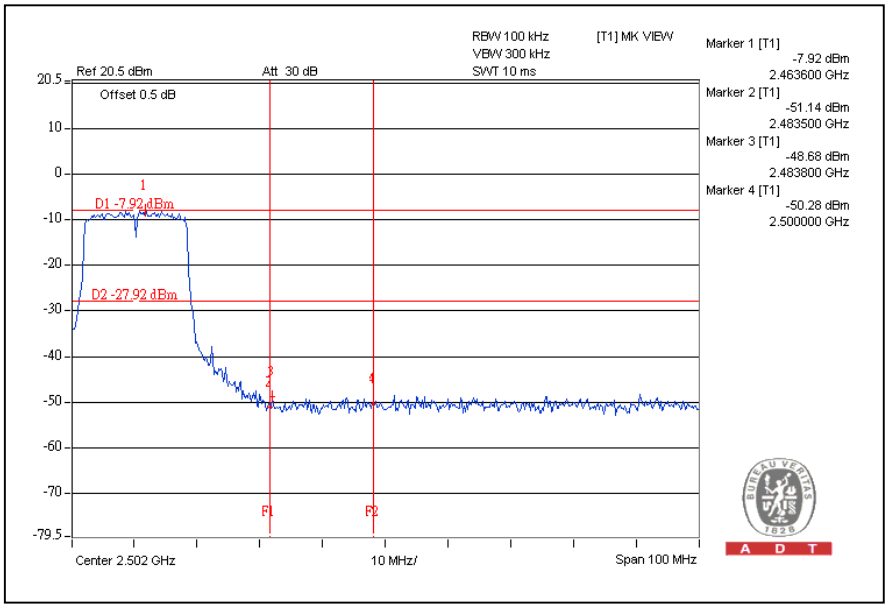
CH1



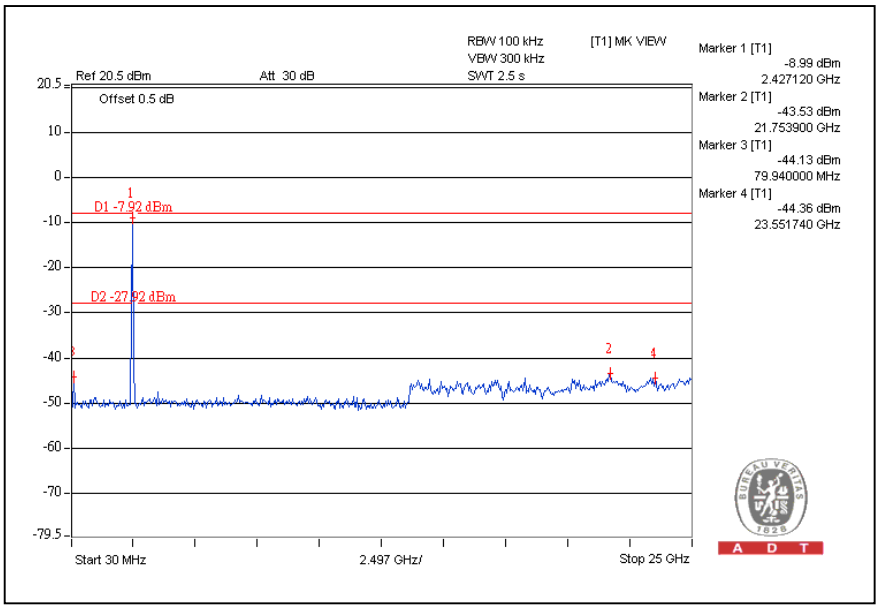
CH11



CH1

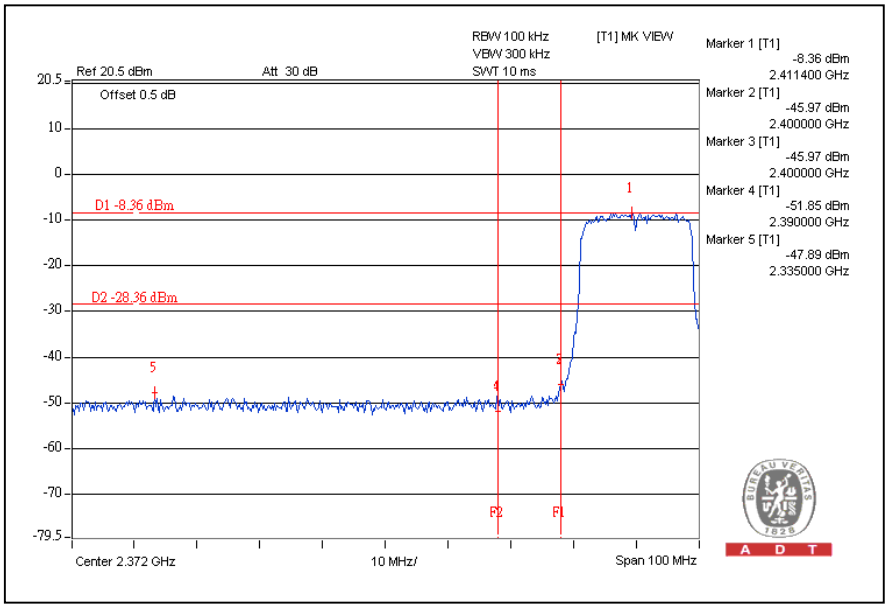

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Marker 1 [T1]
-7.92 dBm
2.463600 GHz
Marker 2 [T1]
-51.14 dBm
2.483500 GHz
Marker 3 [T1]
-48.68 dBm
2.483800 GHz
Marker 4 [T1]
-50.28 dBm
2.500000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7.92 dBm
D2 -27.92 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

CH11

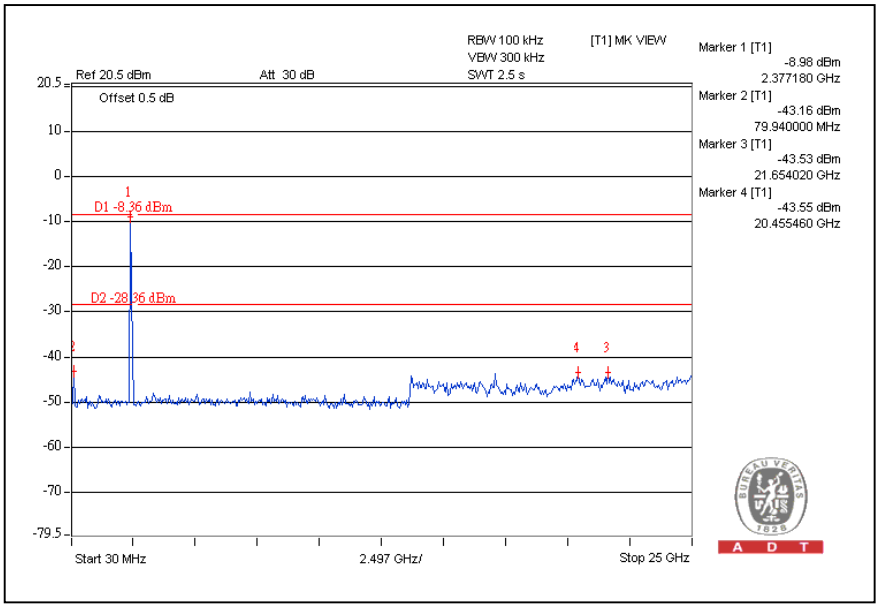

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-8.99 dBm
2.427120 GHz
Marker 2 [T1]
-43.53 dBm
21.753900 GHz
Marker 3 [T1]
-44.13 dBm
79.940000 MHz
Marker 4 [T1]
-44.36 dBm
23.551740 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7.92 dBm
D2 -27.92 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (20MHz) OFDM MODULATION:

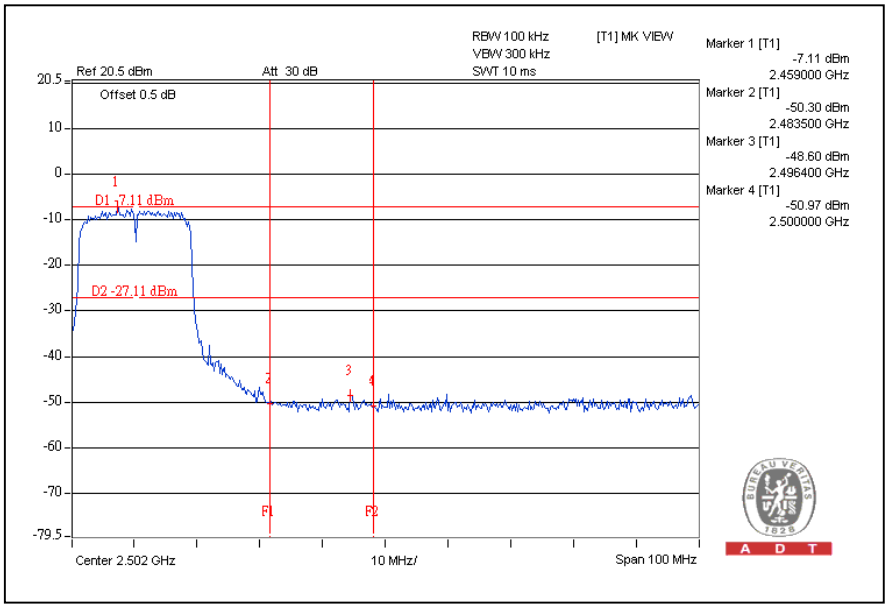
CH1



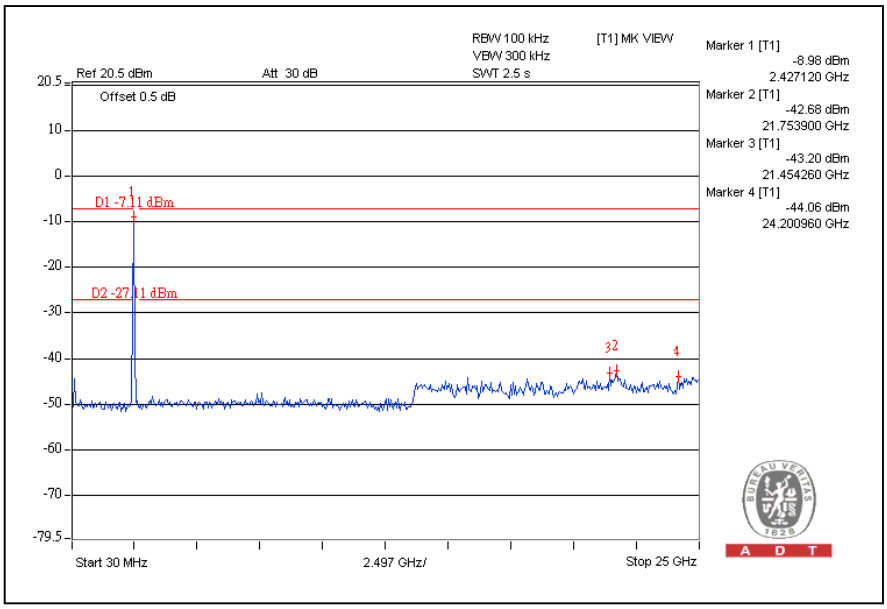
CH11



CH1

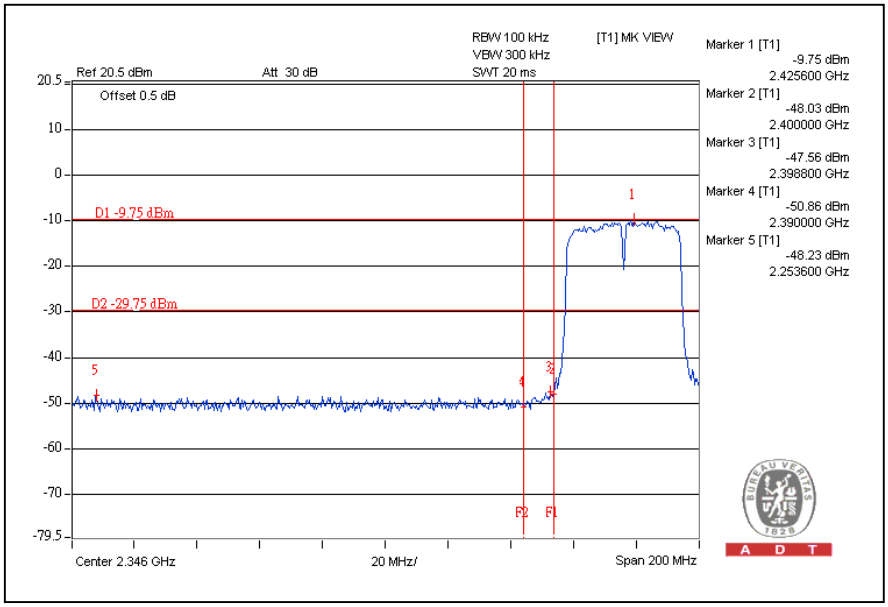

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Marker 1 [T1]
-7.11 dBm
2.459000 GHz
Marker 2 [T1]
-50.30 dBm
2.483500 GHz
Marker 3 [T1]
-48.60 dBm
2.496400 GHz
Marker 4 [T1]
-50.97 dBm
2.500000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7.11 dBm
D2 -27.11 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 2.502 GHz
10 MHz/
Span 100 MHz

CH11

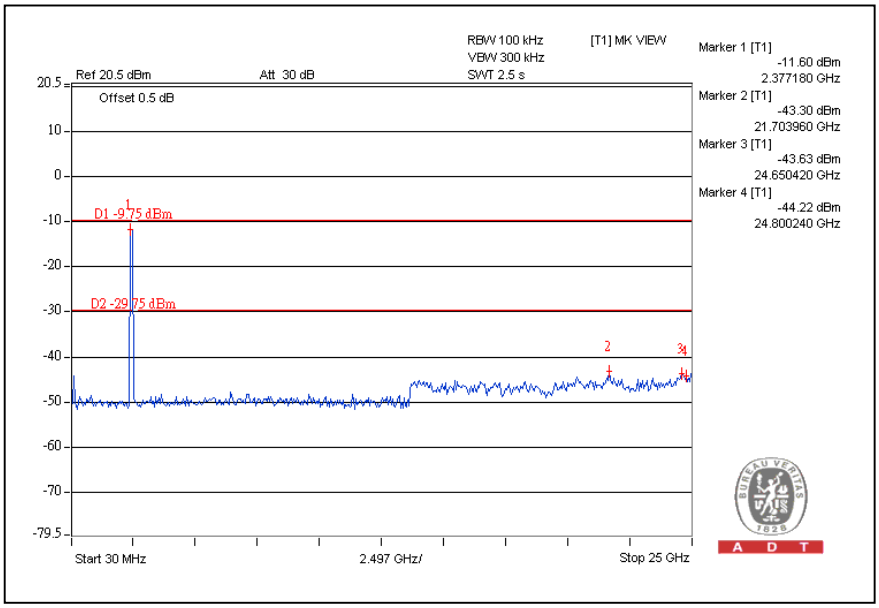

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-8.98 dBm
2.427120 GHz
Marker 2 [T1]
-42.68 dBm
21.753900 GHz
Marker 3 [T1]
-43.20 dBm
21.454260 GHz
Marker 4 [T1]
-44.06 dBm
24.200960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7.11 dBm
D2 -27.11 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (40MHz) OFDM MODULATION:

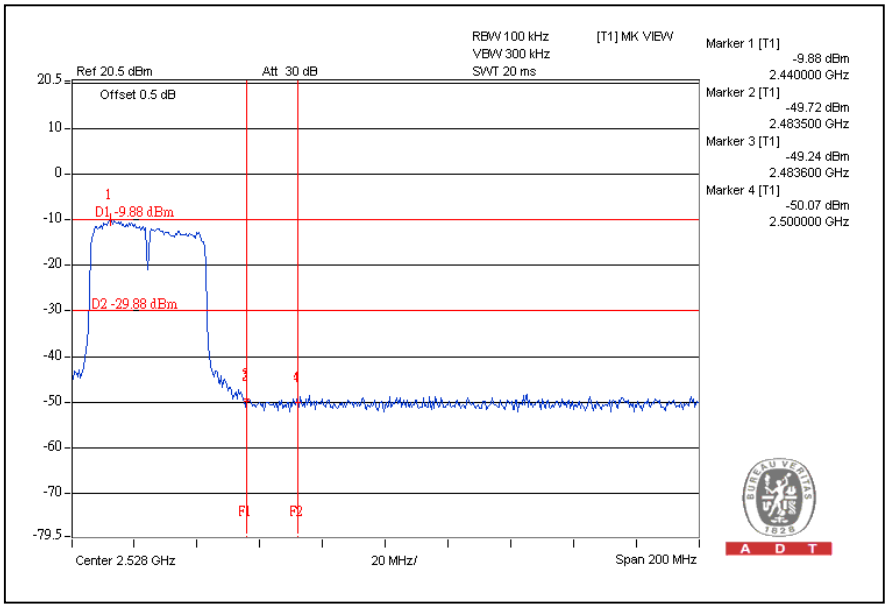
CH1



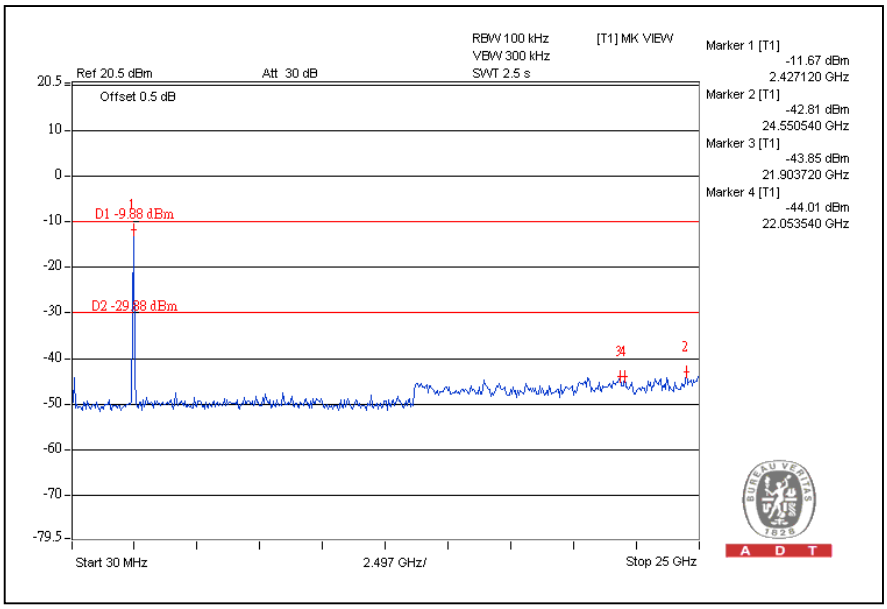
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-9.88 dBm
2.440000 GHz
Marker 2 [T1]
-49.72 dBm
2.483500 GHz
Marker 3 [T1]
-49.24 dBm
2.483600 GHz
Marker 4 [T1]
-50.07 dBm
2.500000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -9.88 dBm
D2 -29.88 dBm
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz

CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-11.67 dBm
2.427120 GHz
Marker 2 [T1]
-42.81 dBm
24.550540 GHz
Marker 3 [T1]
-43.85 dBm
21.903720 GHz
Marker 4 [T1]
-44.01 dBm
22.053540 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -9.88 dBm
D2 -29.88 dBm
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 ---