

FCC TEST REPORT

REPORT NO.: RF990915E04

MODEL NO.: MZK-WG300FF14

FCC ID: SJ9-20100921-0

RECEIVED: Sep. 15, 2010

TESTED: Sep. 21 to Oct 18, 2010

ISSUED: Dec. 03, 2010

APPLICANT: Planex Communications Inc.

ADDRESS: F Nissei Ebisu Bldg 2F, 16-3 Higashi 3-chome,
Shibuya-ku, Tokyo 150-0011, Japan

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: Gigabit wireless LAN router
BRAND: PCI
MODEL NO.: MZK-WG300FF14
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: Sep. 21 to Oct 18, 2010
APPLICANT: Planex Communications Inc.
STANDARDS: FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003

The above equipment (Model: MZK-WG300FF14) 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 : Sunny Wen , **DATE:** Dec. 03, 2010
(Sunny Wen, Specialist)

**TECHNICAL
ACCEPTANCE** : Hank Chung , **DATE:** Dec. 03, 2010
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Dec. 03, 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 -9.51dB at 0.358MHz
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 -0.7dB at 2483.81MHz
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) – Chamber G	3.30 dB
Radiated emissions (1GHz -18GHz) – Site C	2.49 dB
Radiated emissions (18GHz -40GHz) – Site C	2.70 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Gigabit wireless LAN router
MODEL NO.	MZK-WG300FF14
FCC ID	SJ9-20100921-0
POWER SUPPLY	DC 5V from power adapter
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 HT20 MCS 0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps HT20 MCS 8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps HT40 MCS 0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps HT40 MCS 8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps HT20 MCS 0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps HT20 MCS 8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps HT40 MCS 0~7 (400ns GI): 15.0Mbps, 30.0Mbps, 45.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 135.0Mbps, 150.0Mbps HT40 MCS 8~15 (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: 107.2mW 802.11g: 316.2mW 802.11n (20MHz): 632.6mW 802.11n (40MHz): 339.7mW
ANTENNA TYPE	Please see note 1
DATA CABLE	Ethernet cable (Unshielded, 1.0m)
I/O PORTS	USB port x 1 Internet (10/100/1000Mbps) port x 1 LAN (10/100/1000Mbps) port x 4
ASSOCIATED DEVICES	Adapter

NOTE:

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

Chain	Manufacture	Model No.	Antenna Gain (dBi)	Cable Length (mm)	Antenna Type	Connector
Chain (0)	WHA YU GROUP	C037-511093-A (SSR-01454)	4.7	40	PCB	NA
Chain (1)	WHA YU GROUP	C037-511092-A (SSR-01453)	2.9	70	PCB	NA

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

Brand:	APD
Model No.:	WA-13A05R
Input power :	AC100-240V, 50-60Hz, 0.3A Max
Output power :	DC 5V, 2.5A DC output cable (Unshielded, 1.5m)

3. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmitters and two completed receivers.
4. 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 PCB antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11b/g legacy mode is limited to single transmitter only.
5. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.
6. 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 ≥ 1G	APCM	
-	√	√	√	√	-

Where PLC: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	CHAIN(0) (TX)	CHAIN(1) (TX)
A	802.11b	√	
B	802.11g	√	
C	802.11g		√
D	802.11n (20MHz) for MCS 0~7	√	
E	802.11n (20MHz) for MCS 0~7		√
F	802.11n (20MHz) for MCS 8~15	√	√
G	802.11n (40MHz) for MCS 0~7	√	
H	802.11n (40MHz) for MCS 0~7		√
I	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, F & I 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)	CONFIGURE MODE
802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	F

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	MODULATION TYPE	DATA RATE (Mbps)	CONFIGURE MODE
802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	F

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)	CONFIGURE MODE
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	6.5	F
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	I

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)	CONFIGURE MODE
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	6.5	F
802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	I

✘ 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)	CONFIGURE MODE
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	F
802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	27	I

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (system)	TESTED BY
RE ³ 1G	25deg. C, 67%RH, 1014 hPa	120Vac, 60Hz	Frank Liu
RE<1G	26deg. C, 75%RH, 1014 hPa	120Vac, 60Hz	Frank Liu
PLC	26deg. C, 56%RH, 1014 hPa	120Vac, 60Hz	Anderson Chen
APCM	25deg. C, 60%RH, 1014 hPa	120Vac, 60Hz	Wen Yu

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.



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3.4 DESCRIPTION OF SUPPORT UNITS

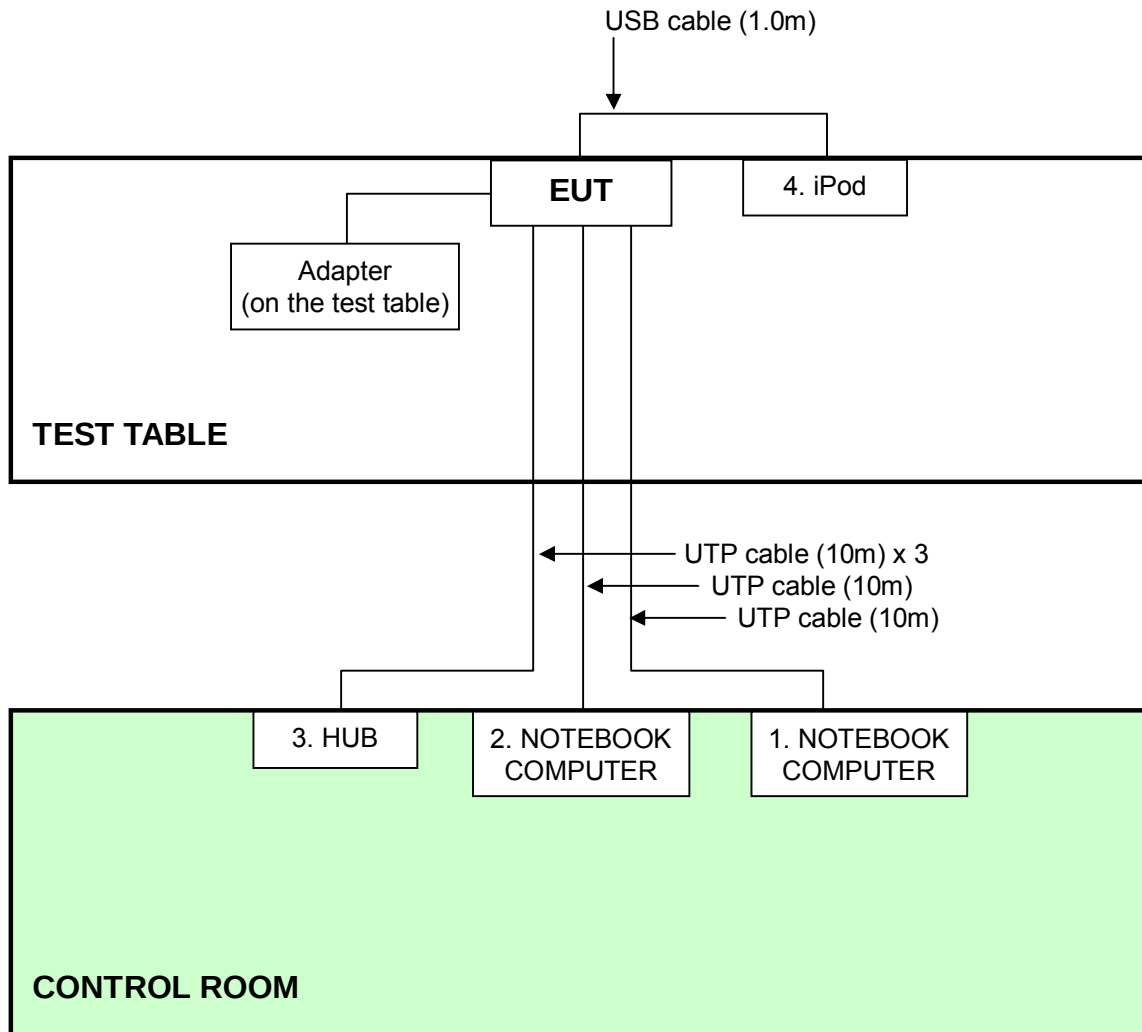
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
4	iPod	Apple	A1137	6U6078FMUPR	FCC DoC

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	1.0 m shielded cable, terminated with USB connector, w/o core.

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	Quasi-peak	Average
0.5-5	66 to 56	56 to 46
5-30	56	46
	60	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

Tested Date: Sep. 21

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.

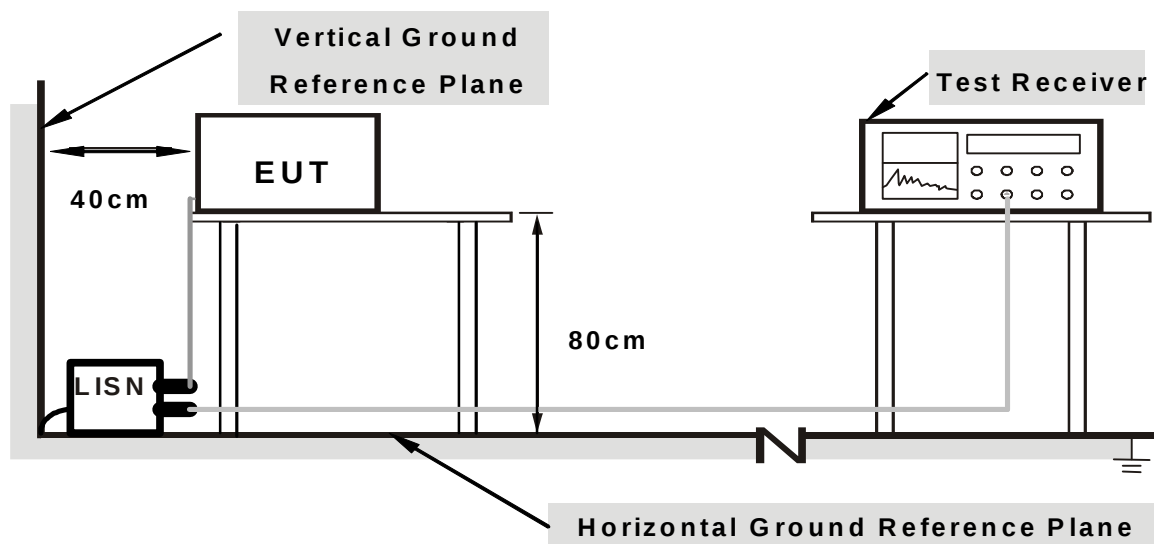
4.1.3 TEST PROCEDURES

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

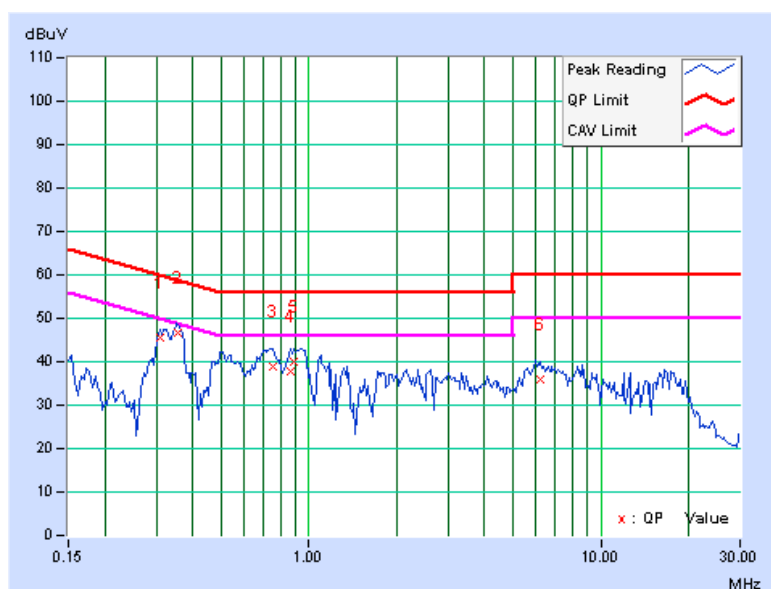
1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 & 2) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “MP_Test V1.3.8.0” to enable EUT under transmission/receiving condition continuously at specific channel frequency via UTP cables.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.310	0.05	45.45	36.33	45.50	36.38	59.97	49.97	-14.47	-13.59
2	0.358	0.05	46.70	39.22	46.75	39.27	58.78	48.78	-12.03	-9.51
3	0.752	0.08	38.66	31.33	38.74	31.41	56.00	46.00	-17.26	-14.59
4	0.861	0.09	37.84	29.82	37.93	29.91	56.00	46.00	-18.07	-16.09
5	0.884	0.09	39.96	32.67	40.05	32.76	56.00	46.00	-15.95	-13.24
6	6.184	0.17	35.70	28.69	35.87	28.86	60.00	50.00	-24.13	-21.14

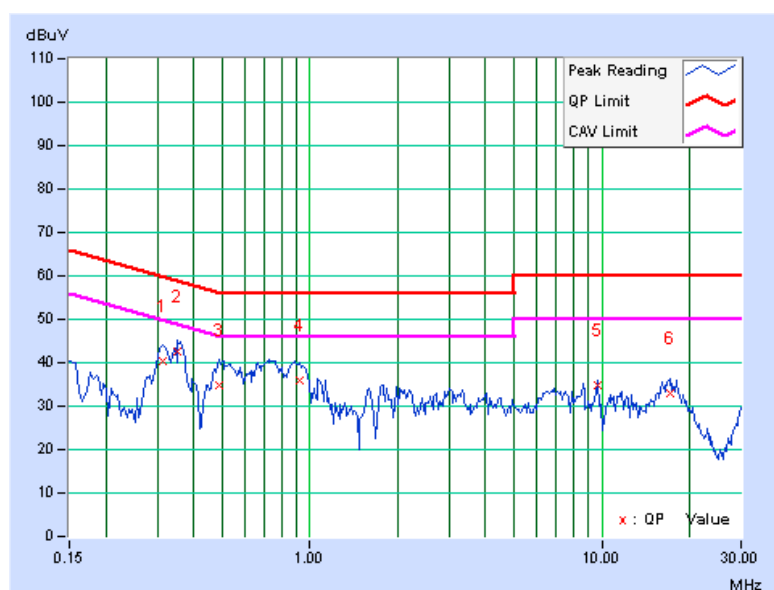
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.314	0.06	40.41	28.01	40.47	28.07	59.86	49.86	-19.40	-21.80
2	0.353	0.06	42.35	32.56	42.41	32.62	58.89	48.89	-16.48	-16.27
3	0.486	0.07	34.73	23.43	34.80	23.50	56.24	46.24	-21.44	-22.74
4	0.923	0.10	35.76	25.35	35.86	25.45	56.00	46.00	-20.14	-20.55
5	9.629	0.25	34.54	28.55	34.79	28.80	60.00	50.00	-25.21	-21.20
6	17.156	0.54	32.27	24.34	32.81	24.88	60.00	50.00	-27.19	-25.12

- 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.



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4.2.2 TEST INSTRUMENTS

For below 1GHz test, tested date: Oct. 14

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 18, 2009	Nov. 17, 2010
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 16, 2009	Nov. 15, 2010
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 24, 2009	Dec. 23, 2010
RF Cable	NA	CHGCAB_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. G.

4. The FCC Site Registration No. is 966073.

5. The VCCI Site Registration No. is G-137.

6. The CANADA Site Registration No. is IC 7450H-2.



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For above 1GHz test

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 for below 1GHz test and at 10 meters open site for above 1 GHz 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:

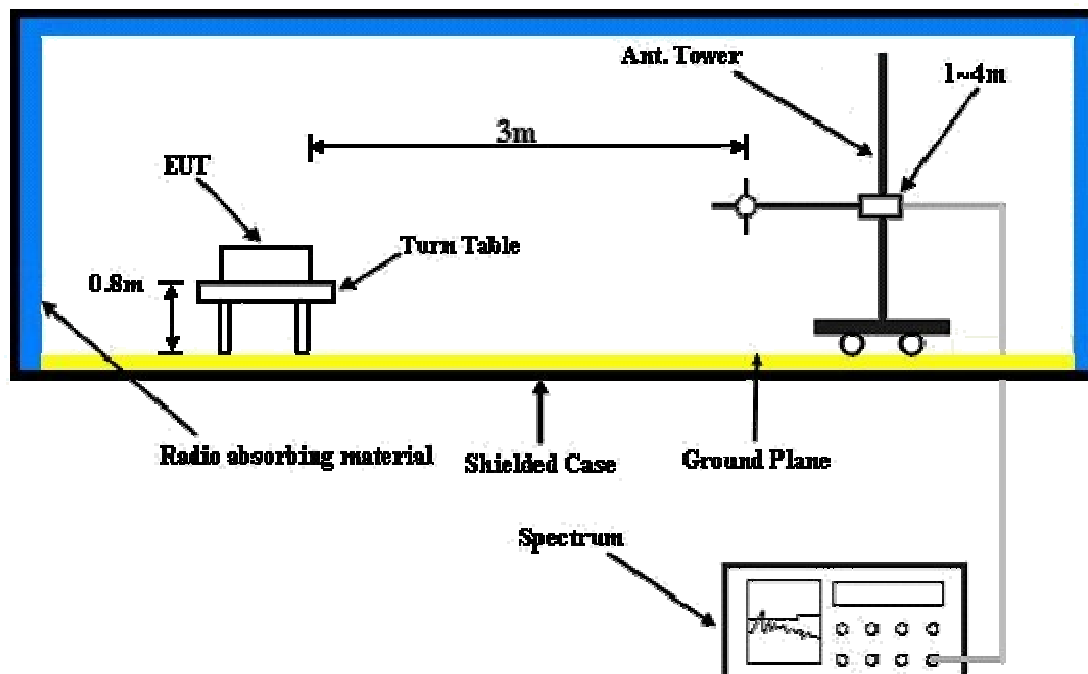
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

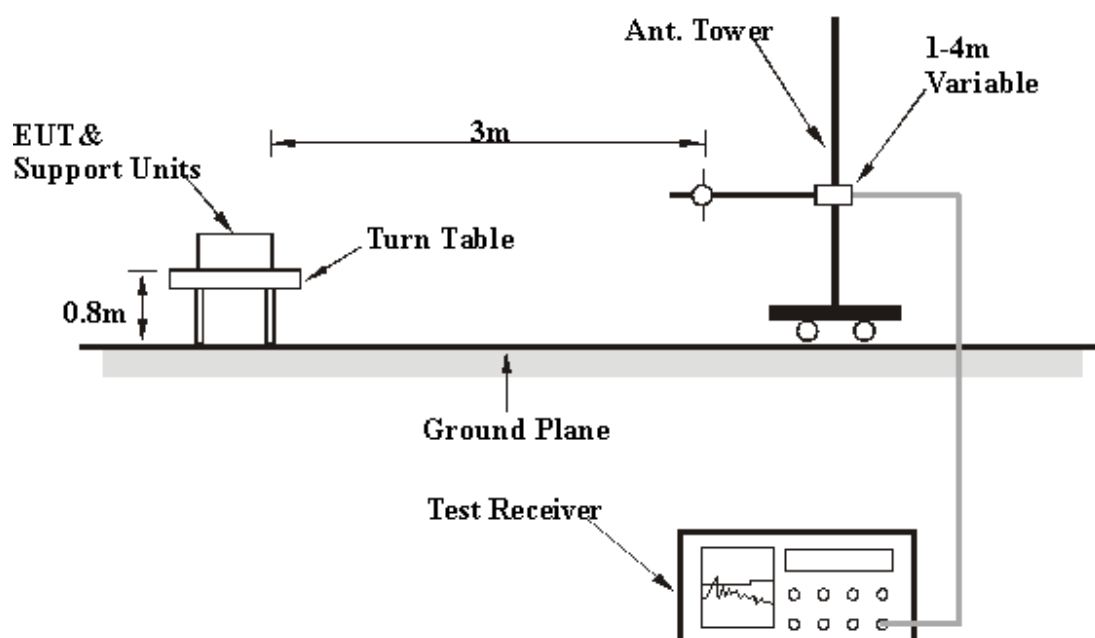
No deviation

4.2.5 TEST SETUP

For below 1GHz test



For above 1GHz test



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 75%RH 1014 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	124.97	35.1 QP	43.5	-8.4	1.50 H	302	22.34	12.79
2	249.91	35.7 QP	46.0	-10.3	1.25 H	271	22.48	13.18
3	375.08	31.1 QP	46.0	-14.9	1.00 H	312	14.29	16.82
4	506.30	34.6 QP	46.0	-11.4	1.75 H	267	14.79	19.85
5	752.73	29.8 QP	46.0	-16.2	1.00 H	34	5.97	23.87
6	843.68	33.4 QP	46.0	-12.6	1.00 H	106	8.09	25.27
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	64.22	34.0 QP	40.0	-6.0	1.25 V	360	21.21	12.79
2	124.97	33.7 QP	43.5	-9.8	1.50 V	0	20.90	12.79
3	249.91	28.3 QP	46.0	-17.7	2.00 V	356	15.14	13.18
4	375.08	30.5 QP	46.0	-15.5	1.50 V	232	13.64	16.82
5	506.30	33.3 QP	46.0	-12.7	1.00 V	72	13.49	19.85
6	831.01	35.7 QP	46.0	-10.3	1.00 V	88	10.63	25.04

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.



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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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	2386.20	59.1 PK	74.0	-14.9	1.41 H	118	28.15	30.95
2	2386.20	52.3 AV	54.0	-1.7	1.41 H	118	21.35	30.95
3	*2412.00	111.8 PK			1.41 H	109	80.74	31.06
4	*2412.00	109.6 AV			1.41 H	109	78.54	31.06
5	4824.00	52.6 PK	74.0	-21.4	1.11 H	272	15.48	37.12
6	4824.00	49.9 AV	54.0	-4.1	1.11 H	272	12.78	37.12
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	2386.53	53.8 PK	74.0	-20.7	1.24 V	143	22.85	30.95
2	2386.53	42.7 AV	54.0	-11.3	1.24 V	143	11.75	30.95
3	*2412.00	102.3 PK			1.24 V	143	71.24	31.06
4	*2412.00	100.4 AV			1.24 V	143	69.34	31.06
5	4824.00	54.0 PK	74.0	-20.0	1.12 V	80	16.88	37.12
6	4824.00	51.9 AV	54.0	-2.1	1.12 V	80	14.78	37.12

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	112.3 PK			1.54 H	107	81.13	31.17
2	*2437.00	110.3 AV			1.54 H	107	79.13	31.17
3	4874.00	53.6 PK	74.0	-20.4	1.04 H	309	16.37	37.23
4	4874.00	51.3 AV	54.0	-2.7	1.04 H	309	14.07	37.23
5	7311.00	50.1 PK	74.0	-23.9	1.00 H	29	5.74	44.36
6	7311.00	39.2 AV	54.0	-14.8	1.00 H	29	-5.16	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	103.6 PK			1.24 V	129	72.43	31.17
2	*2437.00	101.4 AV			1.24 V	129	70.23	31.17
3	4874.00	54.2 PK	74.0	-19.8	1.08 V	78	16.97	37.23
4	4874.00	52.1 AV	54.0	-1.9	1.08 V	78	14.87	37.23
5	7311.00	50.3 PK	74.0	-23.7	1.04 V	23	5.94	44.36
6	7311.00	39.4 AV	54.0	-14.6	1.04 V	23	-4.96	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.



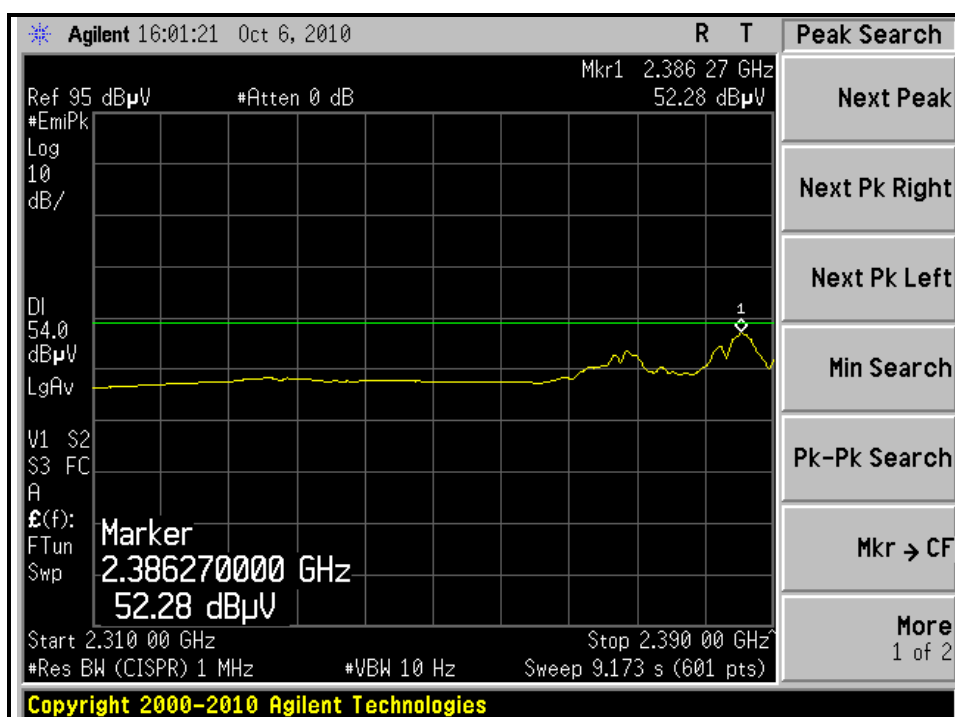
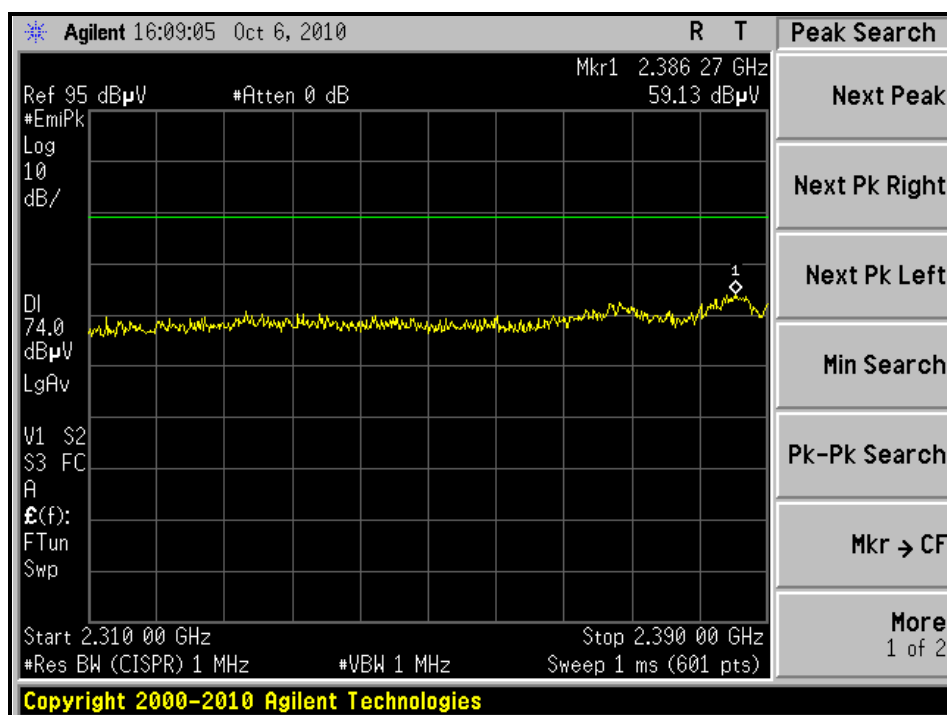
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 hPa	TESTED BY	Frank Liu

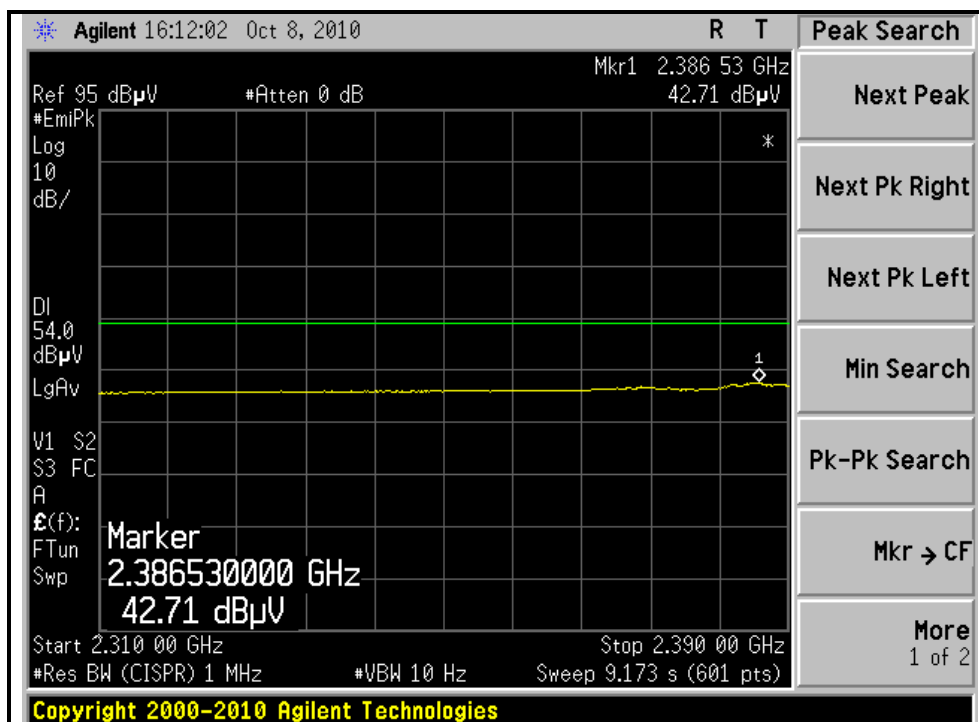
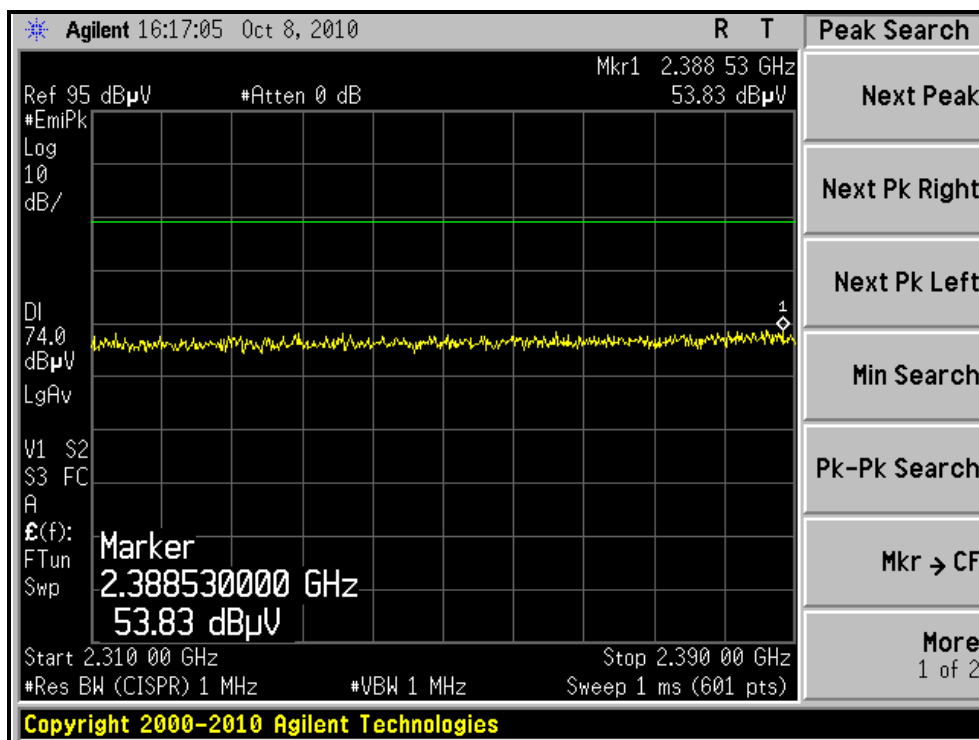
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.6 PK			1.42 H	115	80.32	31.28
2	*2462.00	109.5 AV			1.42 H	115	78.22	31.28
3	2486.82	60.2 PK	74.0	-13.8	1.42 H	117	28.82	31.38
4	2486.82	52.4 AV	54.0	-1.6	1.42 H	117	21.02	31.38
5	4924.00	54.1 PK	74.0	-19.9	1.08 H	303	16.75	37.35
6	4924.00	51.7 AV	54.0	-2.3	1.08 H	303	14.35	37.35
7	7386.00	50.4 PK	74.0	-23.6	1.02 H	37	5.80	44.60
8	7386.00	39.4 AV	54.0	-14.6	1.02 H	37	-5.20	44.60
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	102.5 PK			1.29 V	108	71.22	31.28
2	*2462.00	100.3 AV			1.29 V	108	69.02	31.28
3	2487.74	55.9 PK	74.0	-18.1	1.29 V	360	24.51	31.39
4	2487.74	44.6 AV	54.0	-9.4	1.29 V	360	13.21	31.39
5	4924.00	54.7 PK	74.0	-19.3	1.08 V	78	17.35	37.35
6	4924.00	52.5 AV	54.0	-1.5	1.08 V	78	15.15	37.35
7	7386.00	50.8 PK	74.0	-23.2	1.02 V	73	6.20	44.60
8	7386.00	39.6 AV	54.0	-14.4	1.02 V	73	-5.00	44.60

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.

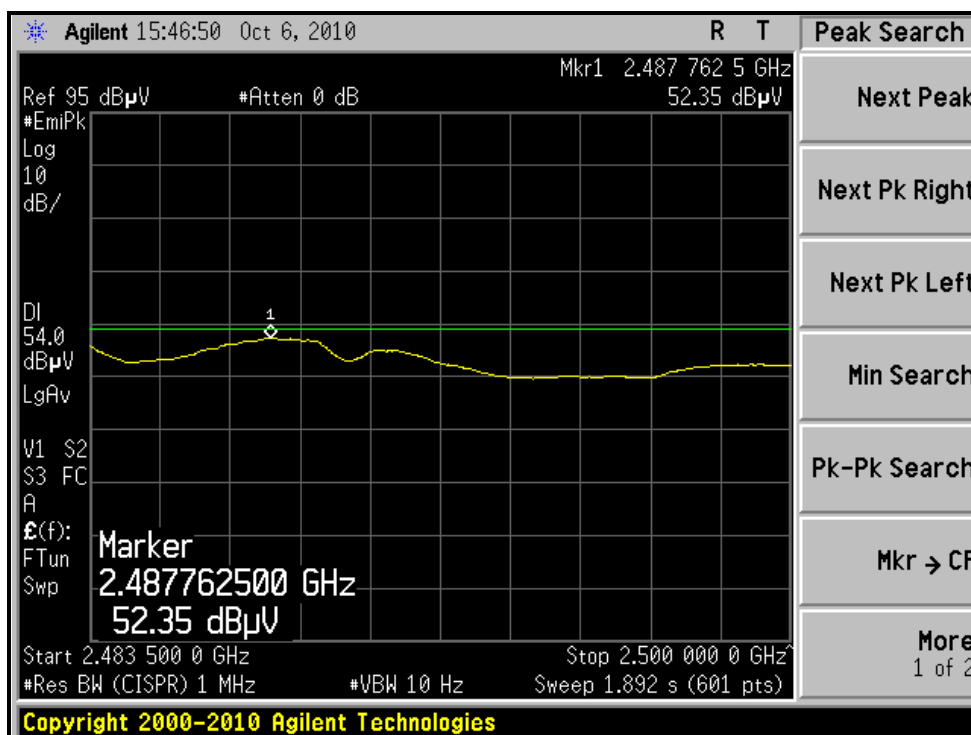
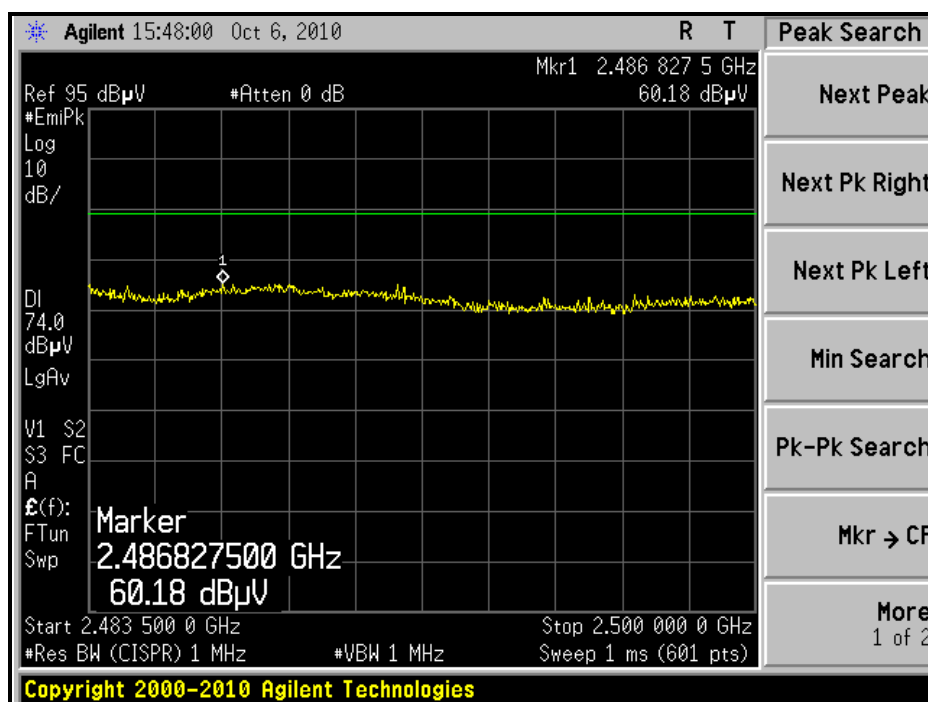
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



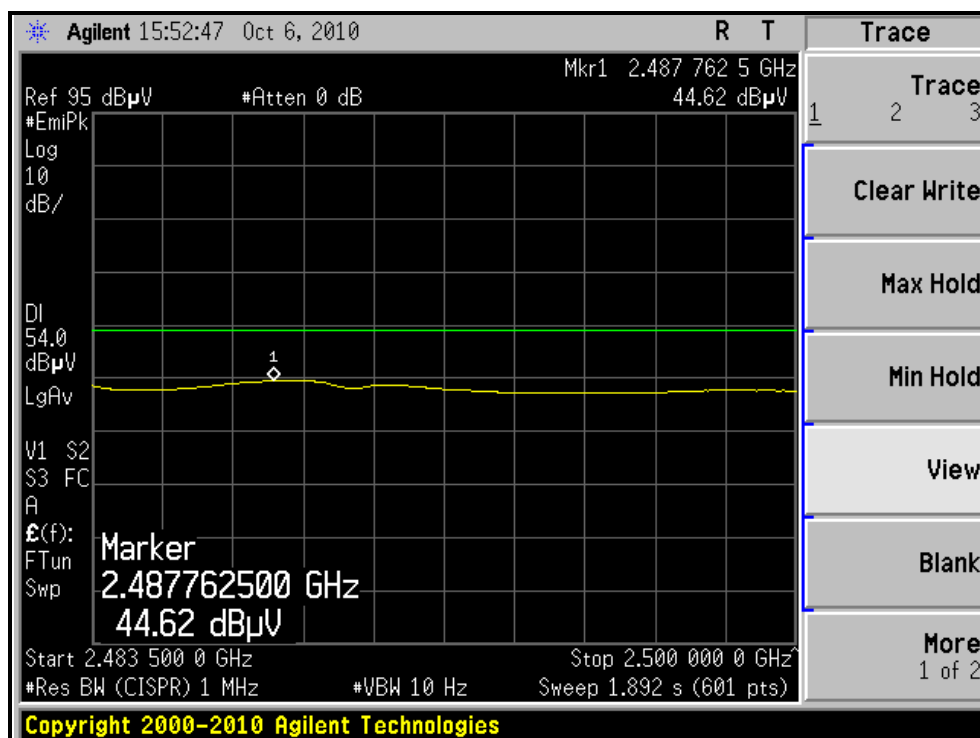
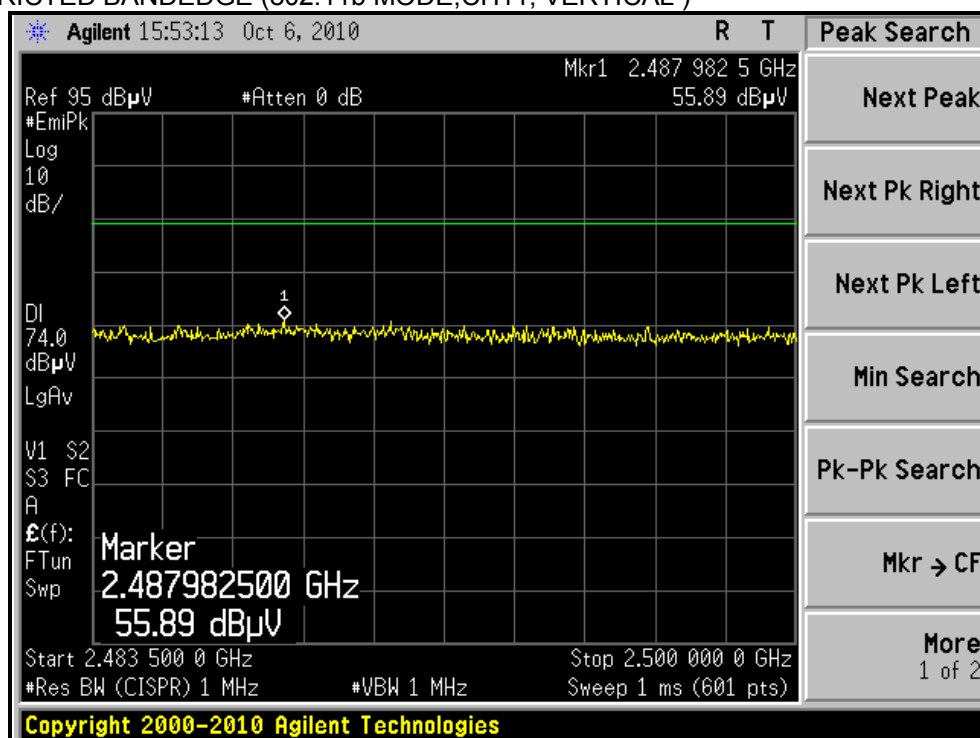
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





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802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	66.4 PK	74.0	-7.6	1.41 H	125	35.43	30.97
2	2390.00	52.4 AV	54.0	-1.6	1.41 H	125	21.43	30.97
3	*2412.00	112.9 PK			1.40 H	125	81.84	31.06
4	*2412.00	103.7 AV			1.40 H	125	72.64	31.06
5	4824.00	48.7 PK	74.0	-25.3	1.11 H	263	11.58	37.12
6	4824.00	42.1 AV	54.0	-11.9	1.11 H	263	4.98	37.12
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	55.4 PK	74.0	-18.6	1.24 V	148	24.43	30.97
2	2390.00	42.6 AV	54.0	-11.4	1.24 V	148	11.63	30.97
3	*2412.00	105.0 PK			1.21 V	144	73.94	31.06
4	*2412.00	94.1 AV			1.21 V	144	63.04	31.06
5	4824.00	51.6 PK	74.0	-22.4	1.06 V	74	14.48	37.12
6	4824.00	44.6 AV	54.0	-9.4	1.06 V	74	7.48	37.12

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	113.4 PK			1.41 H	129	82.23	31.17
2	*2437.00	104.2 AV			1.41 H	129	73.03	31.17
3	4874.00	49.3 PK	74.0	-24.7	1.00 H	269	12.07	37.23
4	4874.00	43.4 AV	54.0	-10.6	1.00 H	269	6.17	37.23
5	7311.00	49.3 PK	74.0	-24.7	1.11 H	32	4.94	44.36
6	7311.00	39.4 AV	54.0	-14.6	1.11 H	32	-4.96	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	106.2 PK			1.24 V	157	75.03	31.17
2	*2437.00	95.3 AV			1.24 V	157	64.13	31.17
3	4874.00	51.3 PK	74.0	-22.7	1.02 V	69	14.07	37.23
4	4874.00	44.2 AV	54.0	-9.8	1.02 V	69	6.97	37.23
5	7311.00	50.6 PK	74.0	-23.4	1.05 V	29	6.24	44.36
6	7311.00	39.7 AV	54.0	-14.3	1.05 V	29	-4.66	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.



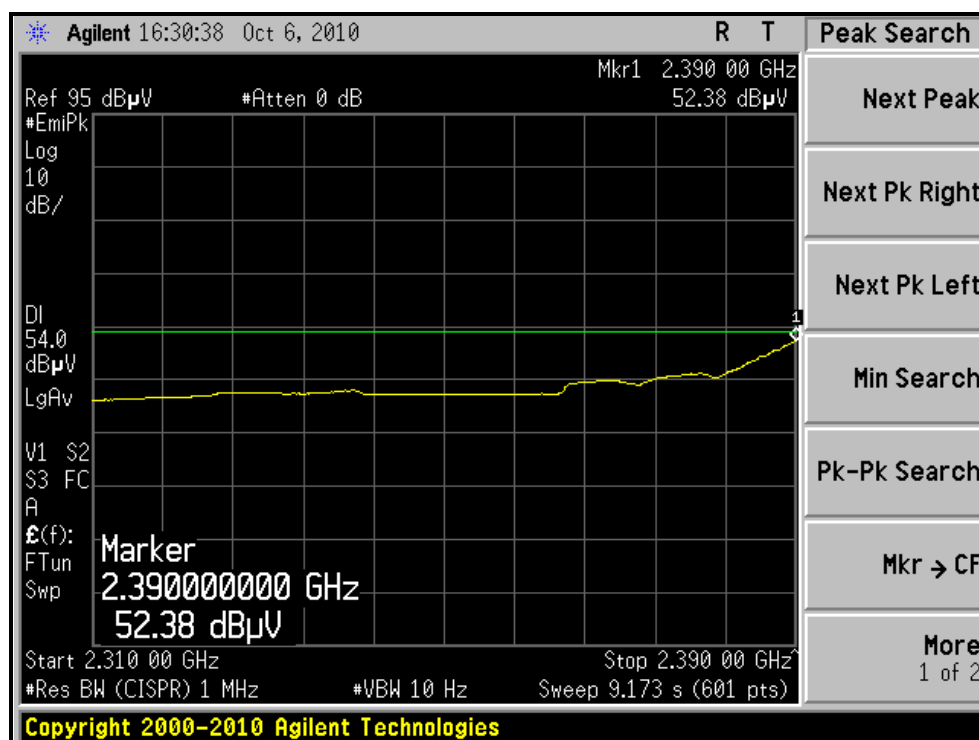
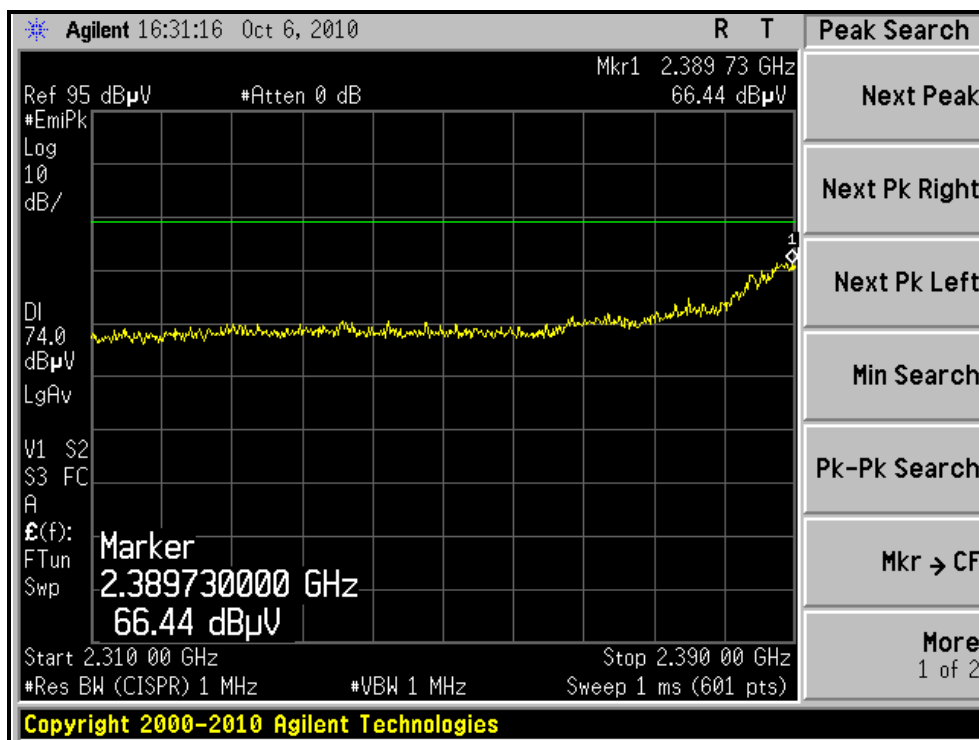
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 hPa	TESTED BY	Frank Liu

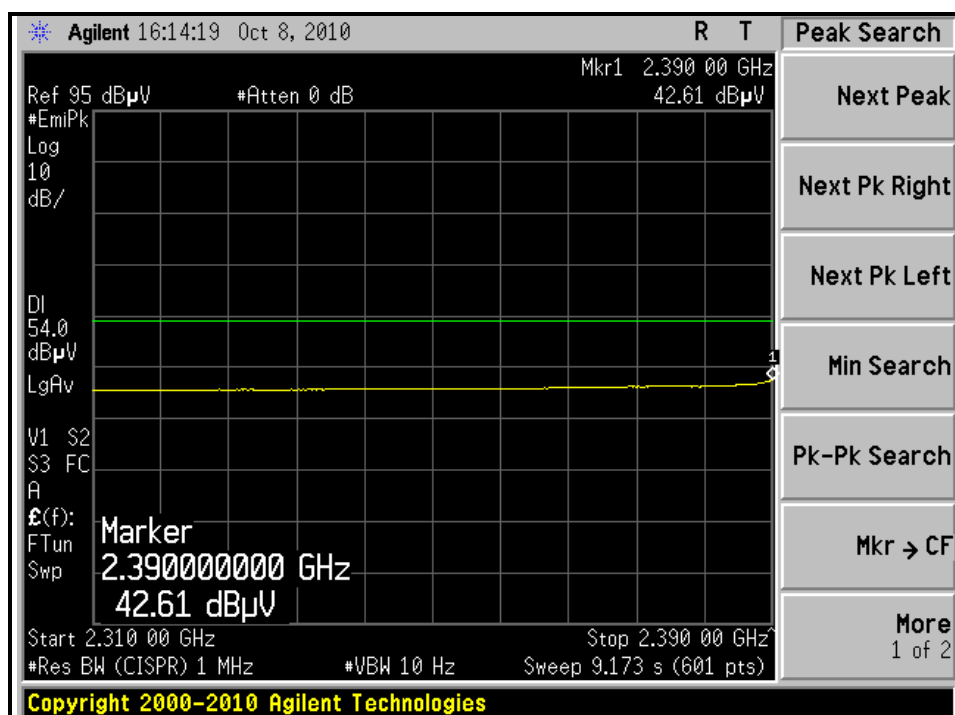
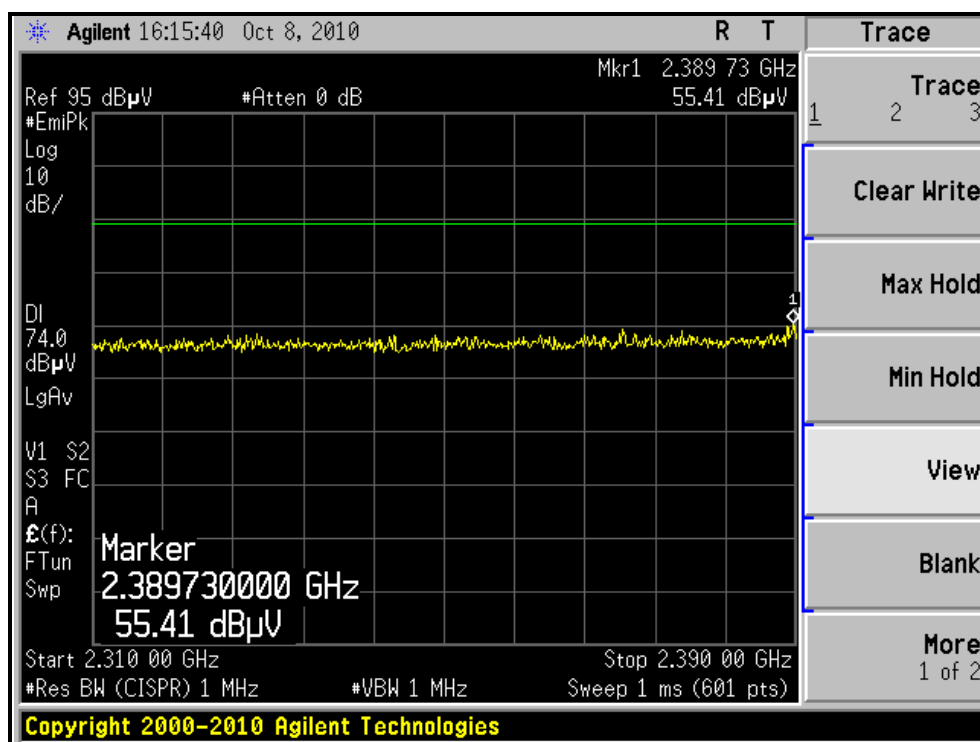
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.3 PK			1.42 H	116	80.02	31.28
2	*2462.00	102.3 AV			1.42 H	116	71.02	31.28
3	2483.50	68.9 PK	74.0	-5.1	1.42 H	117	37.53	31.37
4	2483.50	52.8 AV	54.0	-1.2	1.42 H	117	21.43	31.37
5	4924.00	48.2 PK	74.0	-25.8	1.00 H	254	10.85	37.35
6	4924.00	43.1 AV	54.0	-10.9	1.00 H	254	5.75	37.35
7	7386.00	49.4 PK	74.0	-24.6	1.14 H	37	4.80	44.60
8	7386.00	39.2 AV	54.0	-14.8	1.14 H	37	-5.40	44.60
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	105.2 PK			1.20 V	155	73.92	31.28
2	*2462.00	94.1 AV			1.20 V	155	62.82	31.28
3	2483.50	57.5 PK	74.0	-16.5	1.24 V	159	26.13	31.37
4	2483.50	45.9 AV	54.0	-8.1	1.24 V	159	14.53	31.37
5	4924.00	51.1 PK	74.0	-22.9	1.04 V	57	13.75	37.35
6	4924.00	44.1 AV	54.0	-9.9	1.04 V	57	6.75	37.35
7	7386.00	49.7 PK	74.0	-24.3	1.02 V	63	5.10	44.60
8	7386.00	39.8 AV	54.0	-14.2	1.02 V	63	-4.80	44.60

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)



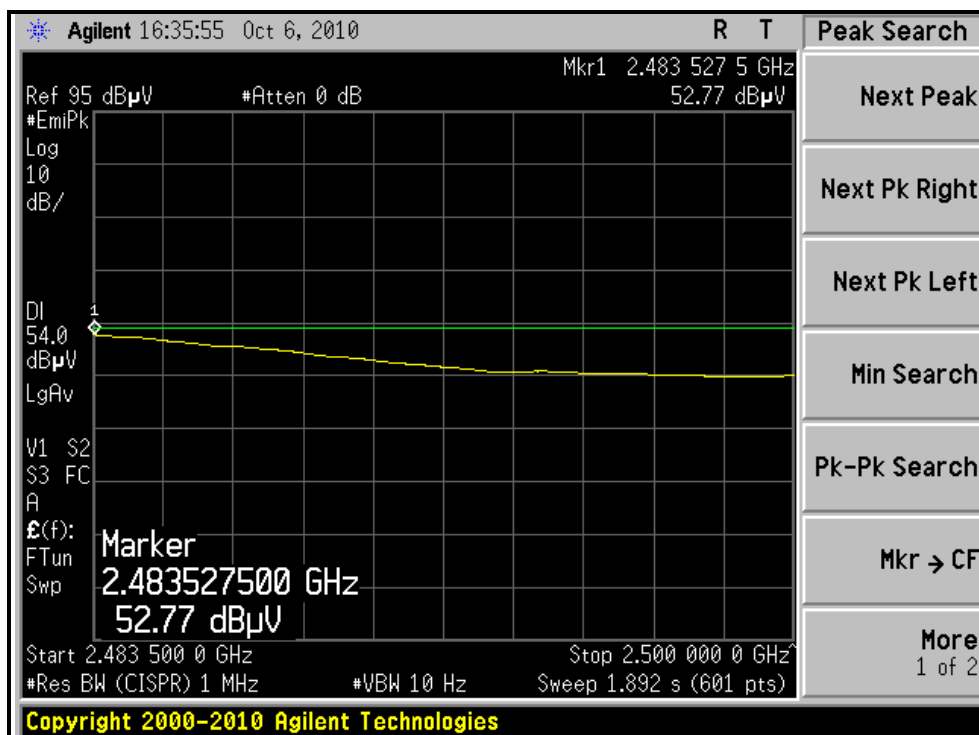
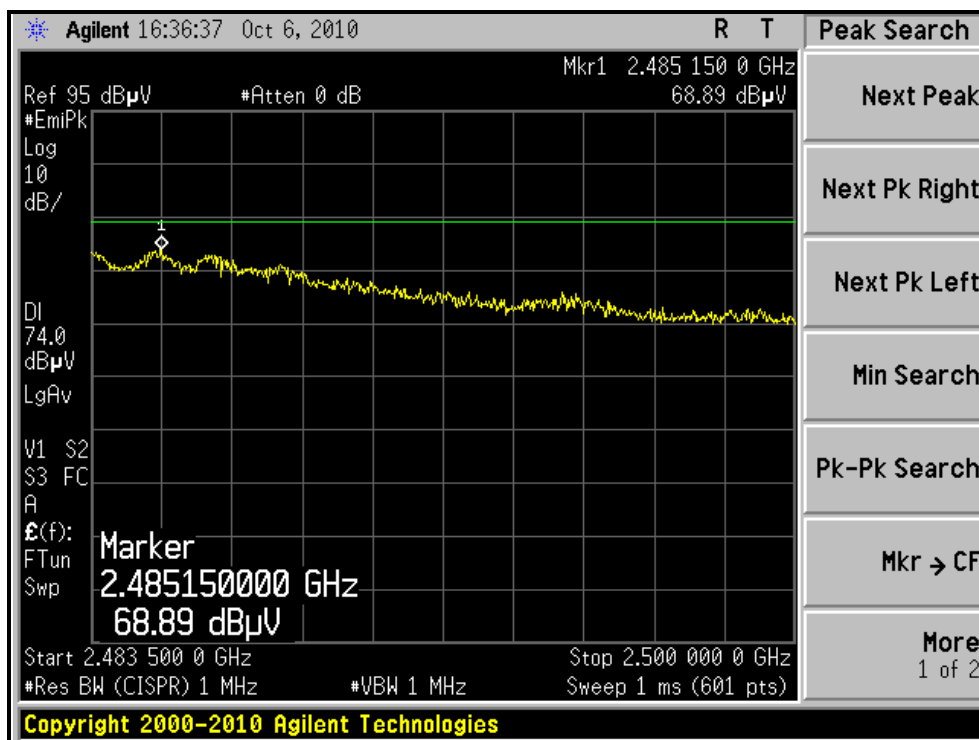
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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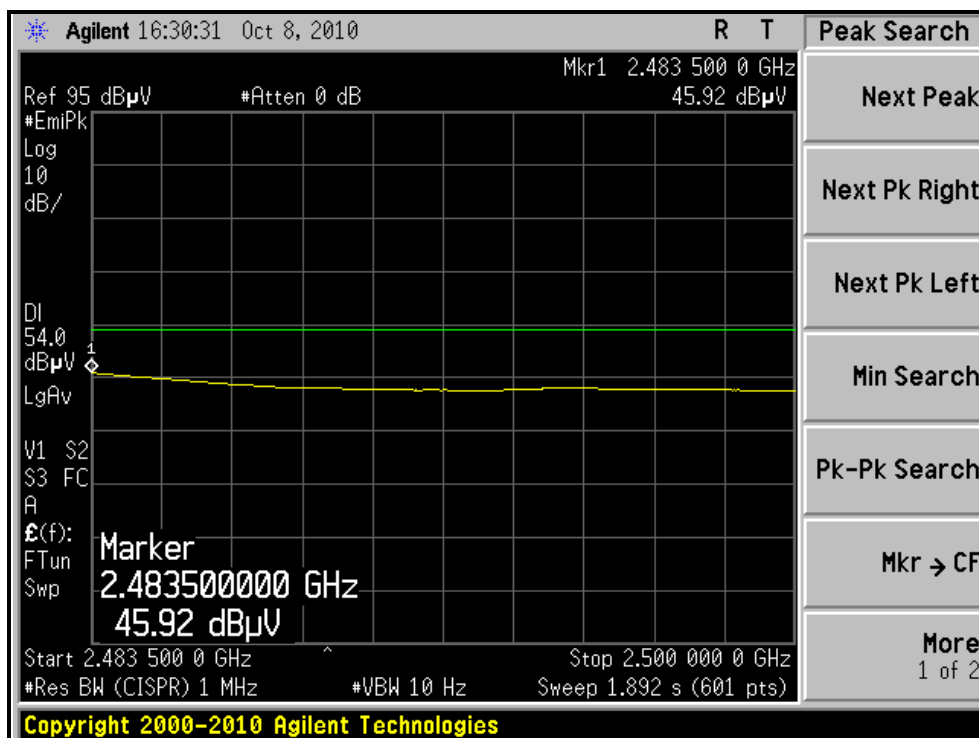
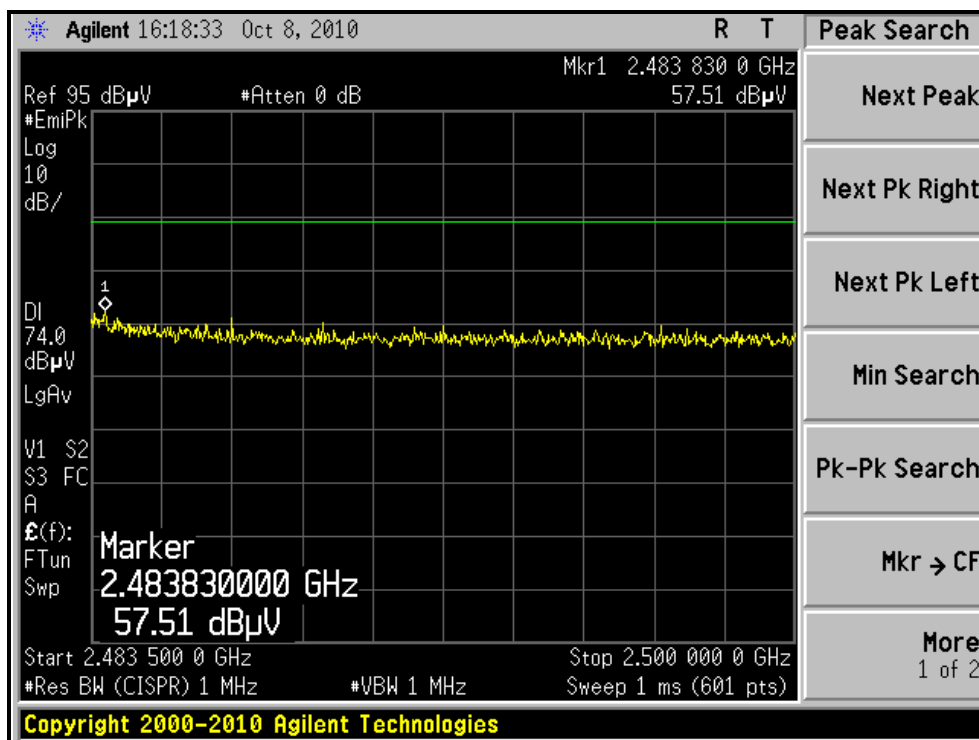
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





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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, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	66.9 PK	74.0	-7.1	1.43 H	121	35.93	30.97
2	2390.00	52.3 AV	54.0	-1.7	1.43 H	121	21.33	30.97
3	*2412.00	112.8 PK			1.41 H	126	81.74	31.06
4	*2412.00	103.4 AV			1.41 H	126	72.34	31.06
5	4824.00	48.5 PK	74.0	-25.5	1.00 H	259	11.38	37.12
6	4824.00	43.6 AV	54.0	-10.4	1.00 H	259	6.48	37.12
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	54.4 PK	74.0	-19.6	1.46 V	112	23.43	30.97
2	2390.00	42.2 AV	54.0	-11.8	1.46 V	112	11.23	30.97
3	*2412.00	105.2 PK			1.45 V	119	74.14	31.06
4	*2412.00	94.3 AV			1.45 V	119	63.24	31.06
5	4824.00	52.1 PK	74.0	-21.9	1.06 V	73	14.98	37.12
6	4824.00	44.9 AV	54.0	-9.1	1.06 V	73	7.78	37.12

- 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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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	113.9 PK			1.49 H	137	82.73	31.17
2	*2437.00	105.4 AV			1.49 H	137	74.23	31.17
3	4874.00	48.4 PK	74.0	-25.6	1.00 H	254	11.17	37.23
4	4874.00	43.1 AV	54.0	-10.9	1.00 H	254	5.87	37.23
5	7311.00	49.2 PK	74.0	-24.8	1.13 H	72	4.84	44.36
6	7311.00	39.4 AV	54.0	-14.6	1.13 H	72	-4.96	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	106.4 PK			1.57 V	123	75.23	31.17
2	*2437.00	96.2 AV			1.57 V	123	65.03	31.17
3	4874.00	51.9 PK	74.0	-22.1	1.07 V	63	14.67	37.23
4	4874.00	44.7 AV	54.0	-9.3	1.07 V	63	7.47	37.23
5	7311.00	50.8 PK	74.0	-23.2	1.06 V	72	6.44	44.36
6	7311.00	39.9 AV	54.0	-14.1	1.06 V	72	-4.46	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.



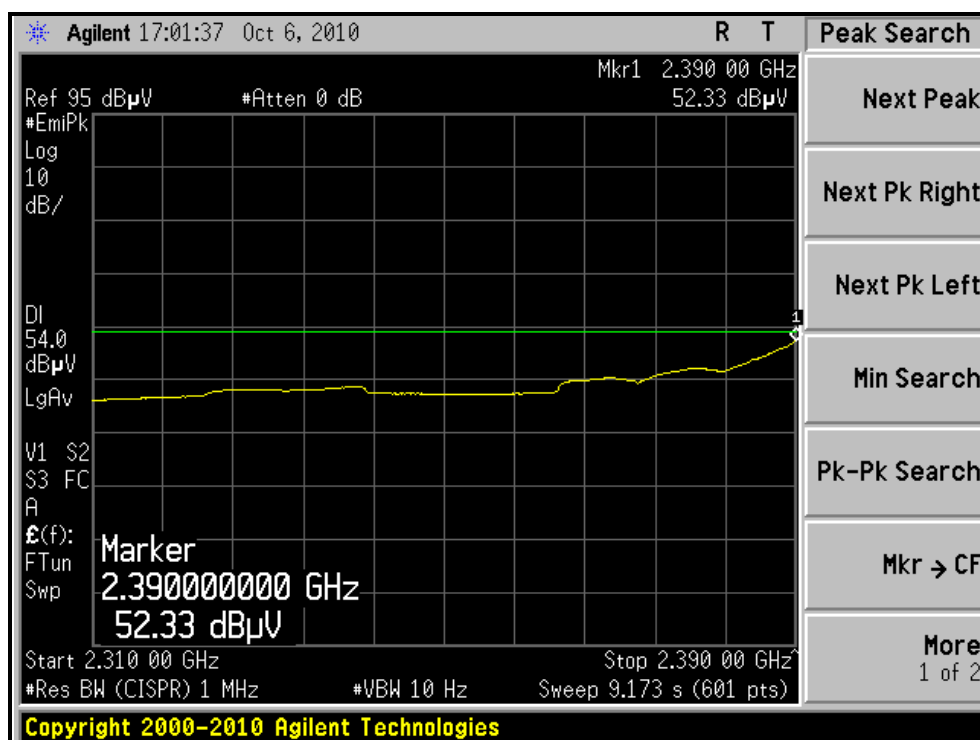
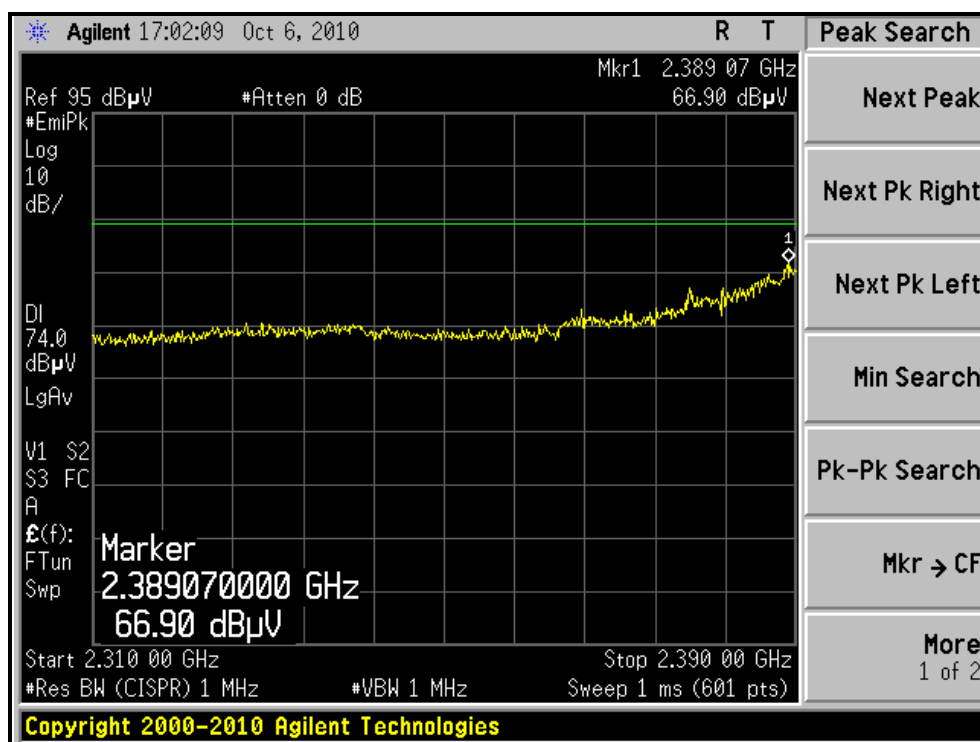
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 hPa	TESTED BY	Frank Liu

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	111.9 PK			1.43 H	117	80.62	31.28
2	*2462.00	101.6 AV			1.43 H	117	70.32	31.28
3	2483.50	67.5 PK	74.0	-6.5	1.42 H	117	36.13	31.37
4	2483.50	52.9 AV	54.0	-1.1	1.42 H	117	21.53	31.37
5	4924.00	48.7 PK	74.0	-25.3	1.00 H	257	11.35	37.35
6	4924.00	43.4 AV	54.0	-10.6	1.00 H	257	6.05	37.35
7	7386.00	49.6 PK	74.0	-24.4	1.14 H	69	5.00	44.60
8	7386.00	39.7 AV	54.0	-14.3	1.14 H	69	-4.90	44.60
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	103.5 PK			1.46 V	120	72.22	31.28
2	*2462.00	92.5 AV			1.46 V	120	61.22	31.28
3	2483.50	57.7 PK	74.0	-16.3	1.42 V	283	26.33	31.37
4	2483.50	44.4 AV	54.0	-9.6	1.42 V	283	13.03	31.37
5	4924.00	51.6 PK	74.0	-22.4	1.05 V	59	14.25	37.35
6	4924.00	44.3 AV	54.0	-9.7	1.05 V	59	6.95	37.35
7	7386.00	50.4 PK	74.0	-23.6	1.04 V	66	5.80	44.60
8	7386.00	39.7 AV	54.0	-14.3	1.04 V	66	-4.90	44.60

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.

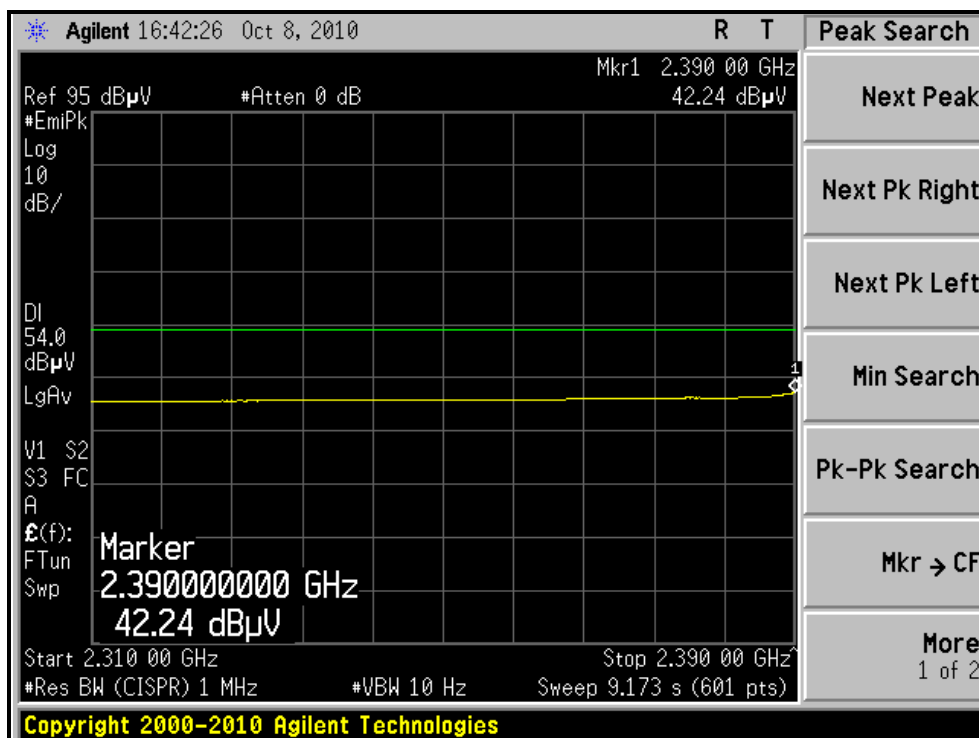
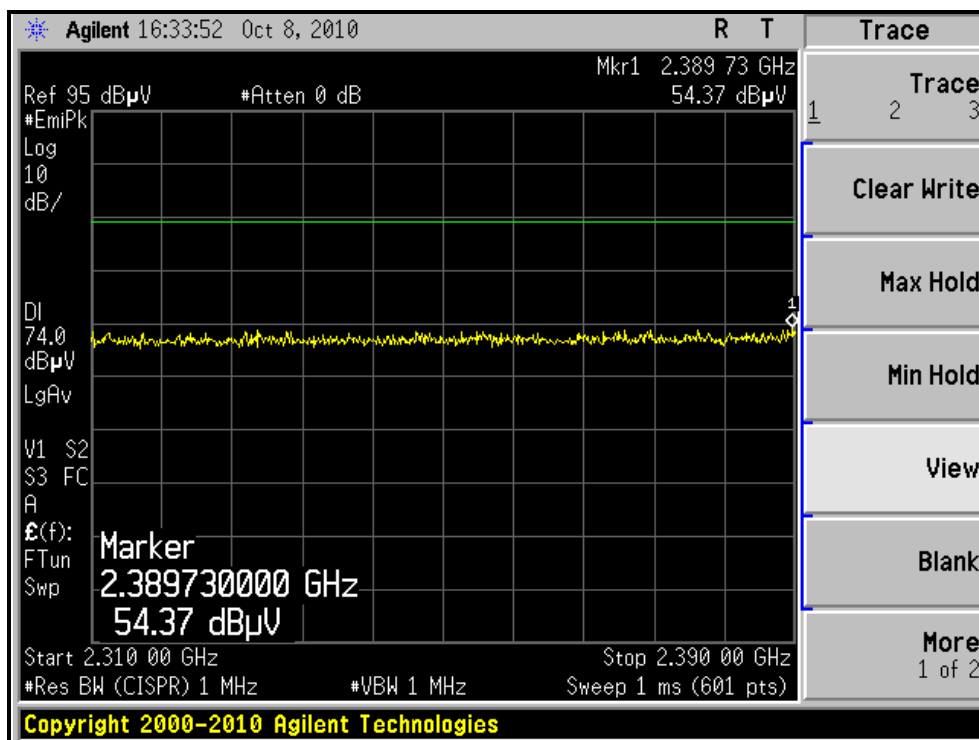
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



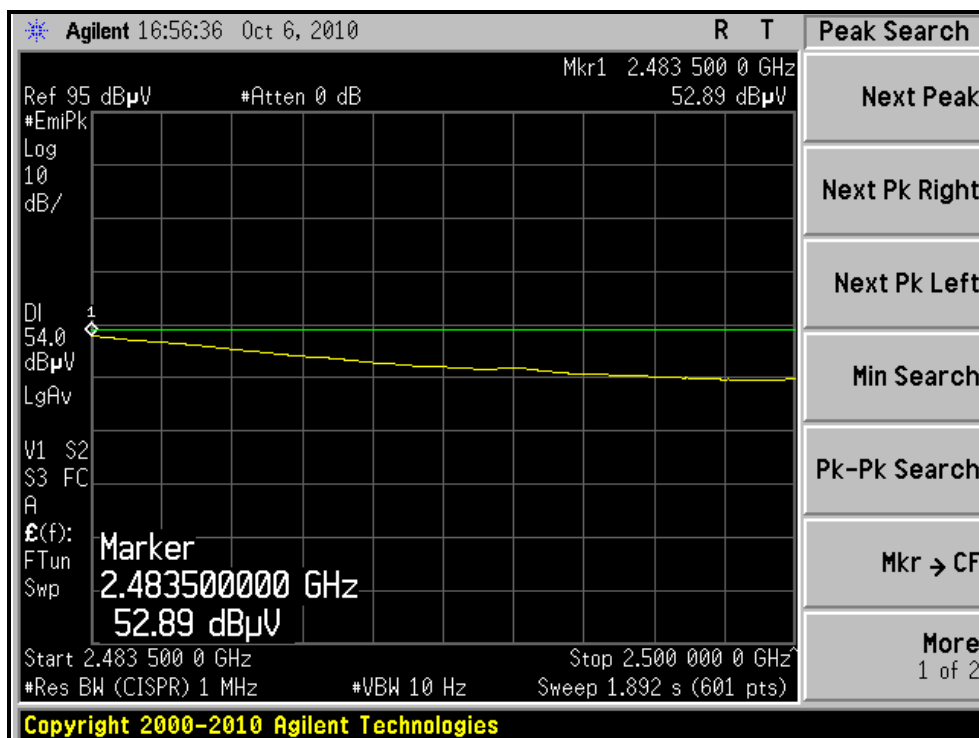
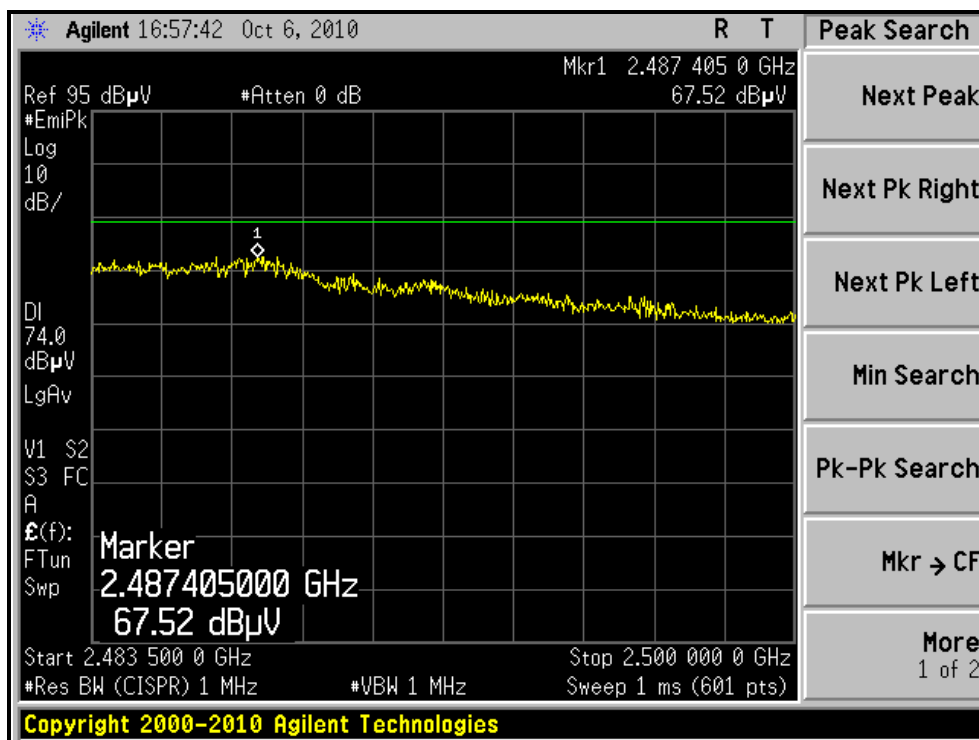


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RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



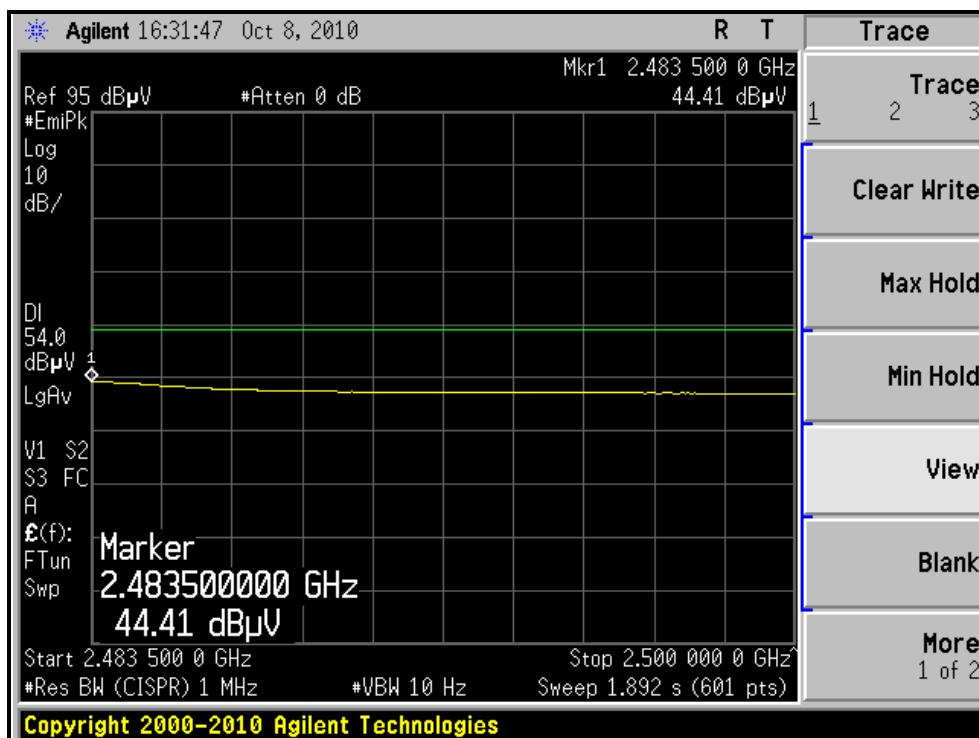
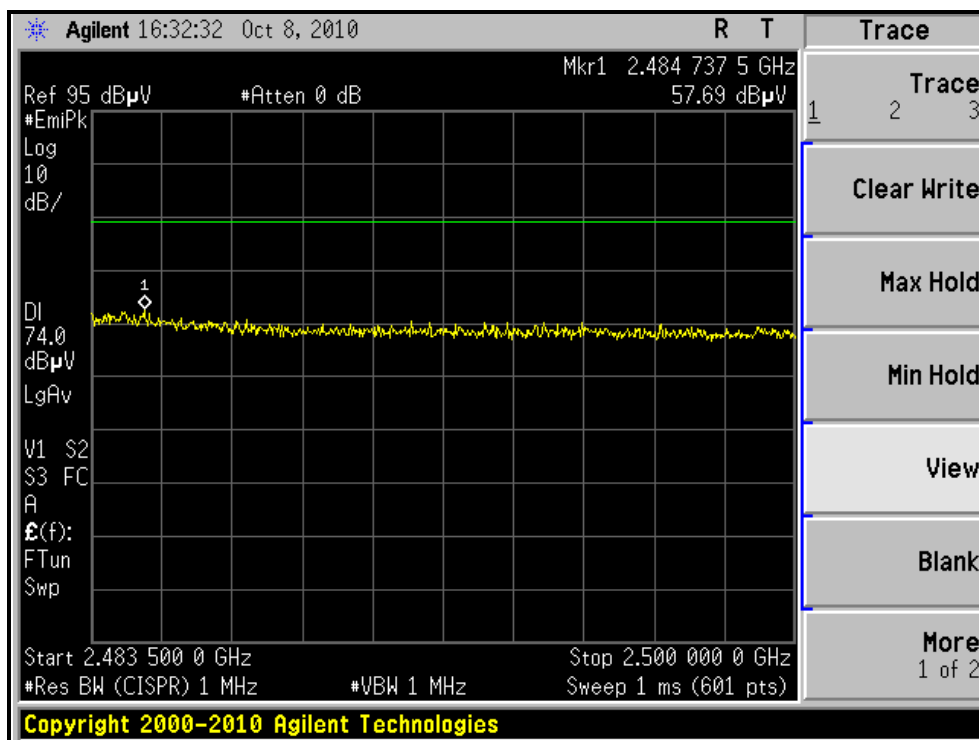
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)





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





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802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	68.2 PK	74.0	-5.8	1.42 H	121	37.23	30.97
2	2390.00	52.7 AV	54.0	-1.3	1.42 H	121	21.73	30.97
3	*2422.00	111.2 PK			1.40 H	111	80.10	31.10
4	*2422.00	100.9 AV			1.40 H	111	69.80	31.10
5	4844.00	46.2 PK	74.0	-27.8	1.10 H	213	9.04	37.16
6	4844.00	40.4 AV	54.0	-13.6	1.10 H	213	3.24	37.16
7	7266.00	49.9 PK	74.0	-24.1	1.10 H	89	5.68	44.22
8	7266.00	39.4 AV	54.0	-14.6	1.10 H	89	-4.82	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	2390.00	55.2 PK	74.0	-18.8	1.49 V	161	24.23	30.97
2	2390.00	44.1 AV	54.0	-9.9	1.49 V	161	13.13	30.97
3	*2422.00	104.4 PK			1.43 V	159	73.30	31.10
4	*2422.00	91.6 AV			1.43 V	159	60.50	31.10
5	4844.00	47.6 PK	74.0	-26.4	1.07 V	69	10.44	37.16
6	4844.00	41.3 AV	54.0	-12.7	1.07 V	69	4.14	37.16
7	7266.00	50.7 PK	74.0	-23.3	1.04 V	57	6.48	44.22
8	7266.00	39.8 AV	54.0	-14.2	1.04 V	57	-4.42	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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 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	60.4 PK	74.0	-13.6	1.42 H	120	29.43	30.97
2	2390.00	47.4 AV	54.0	-6.6	1.42 H	120	16.43	30.97
3	*2437.00	109.3 PK			1.41 H	111	78.13	31.17
4	*2437.00	99.4 AV			1.41 H	111	68.23	31.17
5	2483.50	67.5 PK	74.0	-6.5	1.41 H	118	36.13	31.37
6	2483.50	53.0 AV	54.0	-1.0	1.41 H	118	21.63	31.37
7	4874.00	46.4 PK	74.0	-27.6	1.00 H	209	9.17	37.23
8	4874.00	40.2 AV	54.0	-13.8	1.00 H	209	2.97	37.23
9	7311.00	49.8 PK	74.0	-24.2	1.14 H	73	5.44	44.36
10	7311.00	39.6 AV	54.0	-14.4	1.14 H	73	-4.76	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	103.7 PK			1.42 V	144	72.53	31.17
2	*2437.00	90.7 AV			1.42 V	144	59.53	31.17
3	4874.00	47.3 PK	74.0	-26.7	1.06 V	74	10.07	37.23
4	4874.00	41.4 AV	54.0	-12.6	1.06 V	74	4.17	37.23
5	7311.00	50.4 PK	74.0	-23.6	1.09 V	62	6.04	44.36
6	7311.00	39.4 AV	54.0	-14.6	1.09 V	62	-4.96	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.



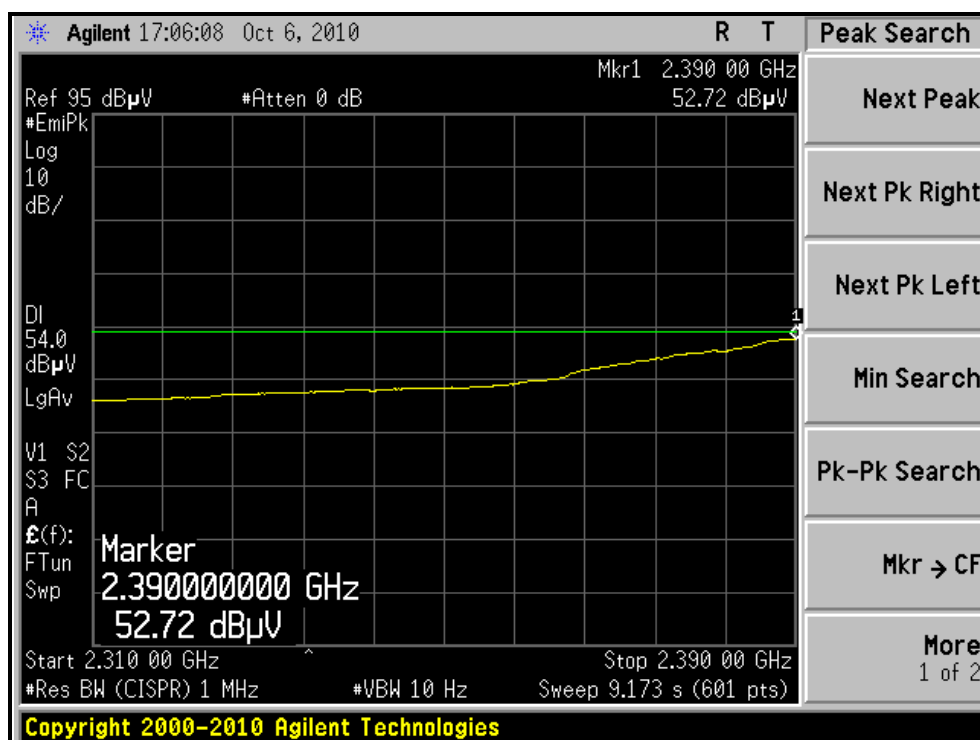
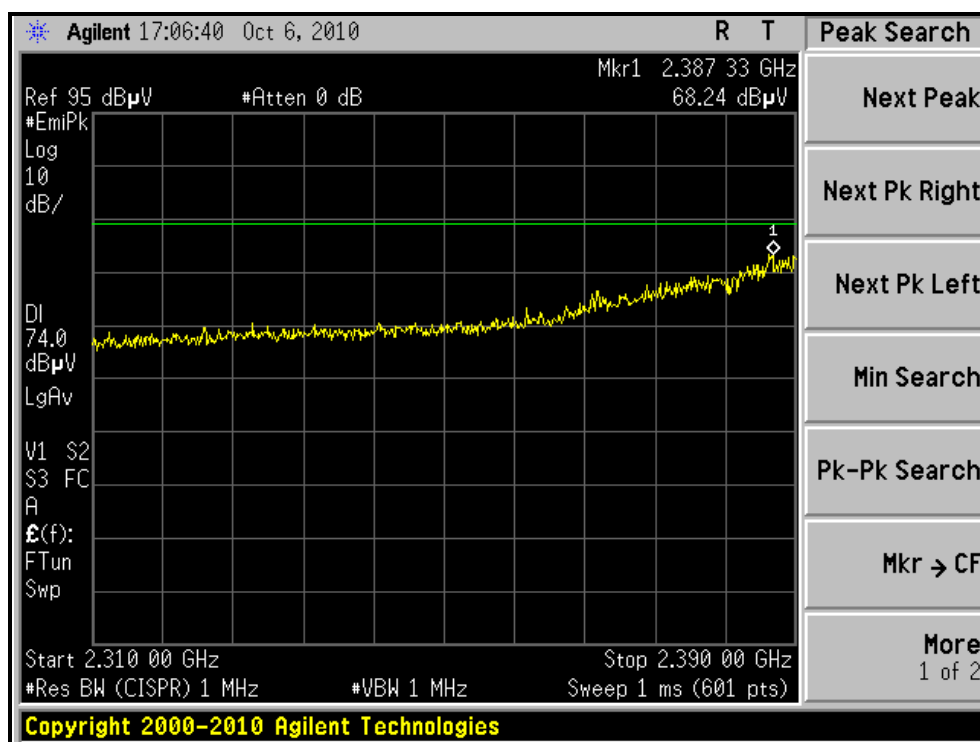
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1014 hPa	TESTED BY	Frank Liu

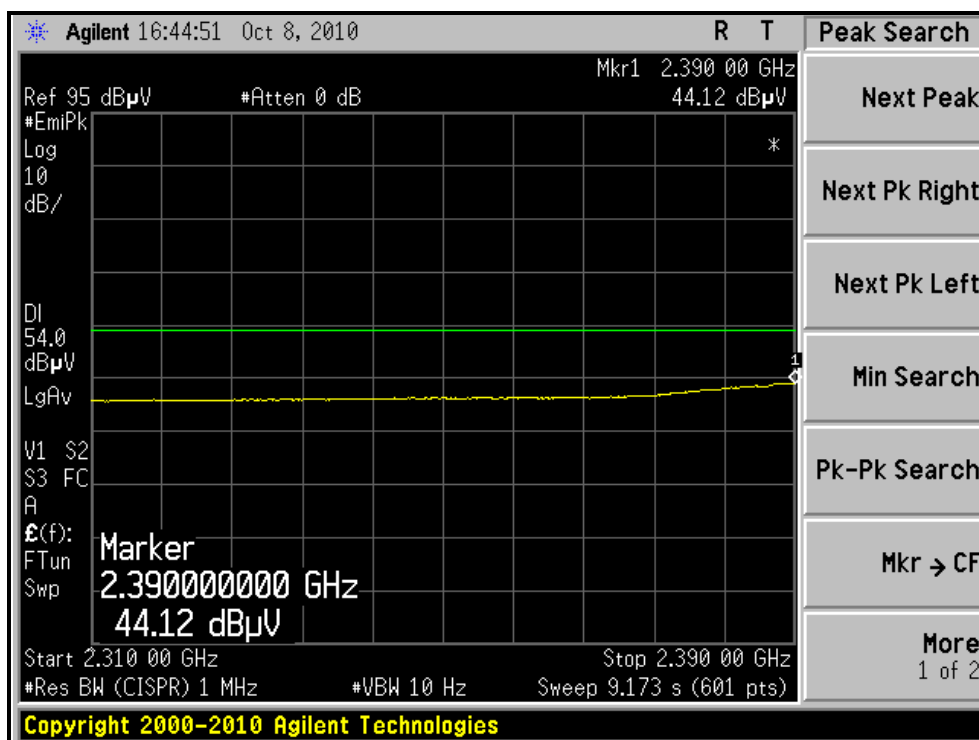
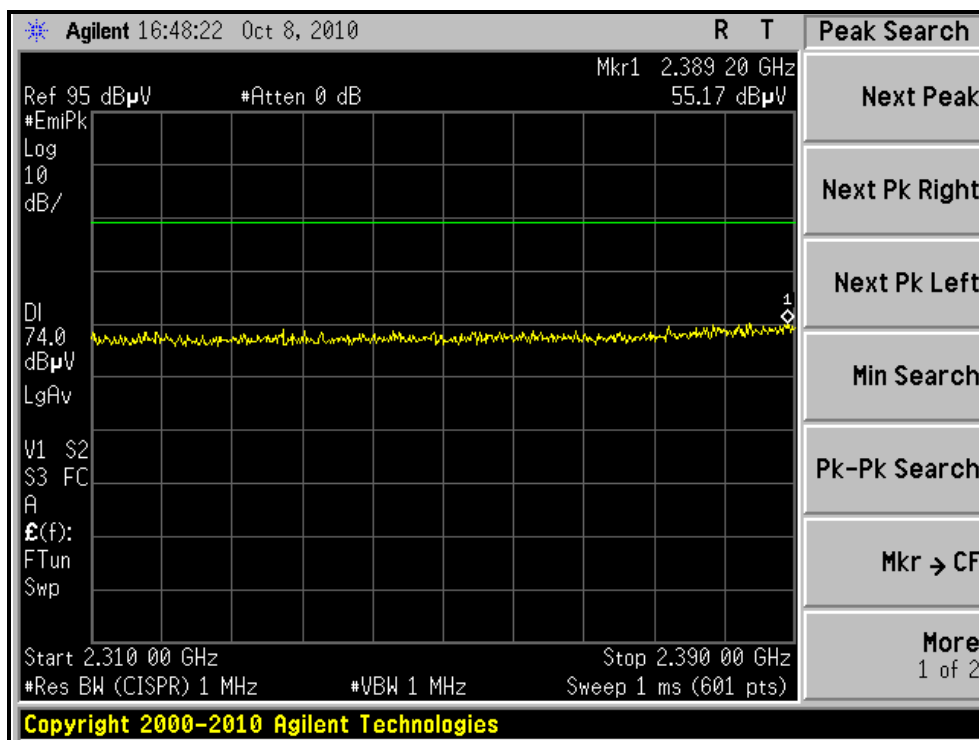
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.6 PK			1.42 H	116	76.37	31.23
2	*2452.00	97.7 AV			1.42 H	116	66.47	31.23
3	2483.81	66.3 PK	74.0	-7.7	1.41 H	203	34.93	31.37
4	2483.81	53.3 AV	54.0	-0.7	1.41 H	203	21.93	31.37
5	4904.00	46.2 PK	74.0	-27.8	1.00 H	203	8.90	37.30
6	4904.00	40.1 AV	54.0	-13.9	1.00 H	203	2.80	37.30
7	7356.00	46.1 PK	74.0	-27.9	1.17 H	69	1.60	44.50
8	7356.00	39.2 AV	54.0	-14.8	1.17 H	69	-5.30	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	104.2 PK			1.42 V	154	72.97	31.23
2	*2452.00	91.3 AV			1.42 V	154	60.07	31.23
3	2485.23	57.5 PK	74.0	-16.5	1.42 V	157	26.55	31.38
4	2485.23	44.2 AV	54.0	-9.8	1.42 V	157	13.25	31.38
5	4904.00	47.2 PK	74.0	-26.8	1.03 V	89	9.90	37.30
6	4904.00	41.1 AV	54.0	-12.9	1.03 V	89	3.80	37.30
7	7356.00	50.7 PK	74.0	-23.3	1.04 V	73	6.20	44.50
8	7356.00	39.6 AV	54.0	-14.4	1.04 V	73	-4.90	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.

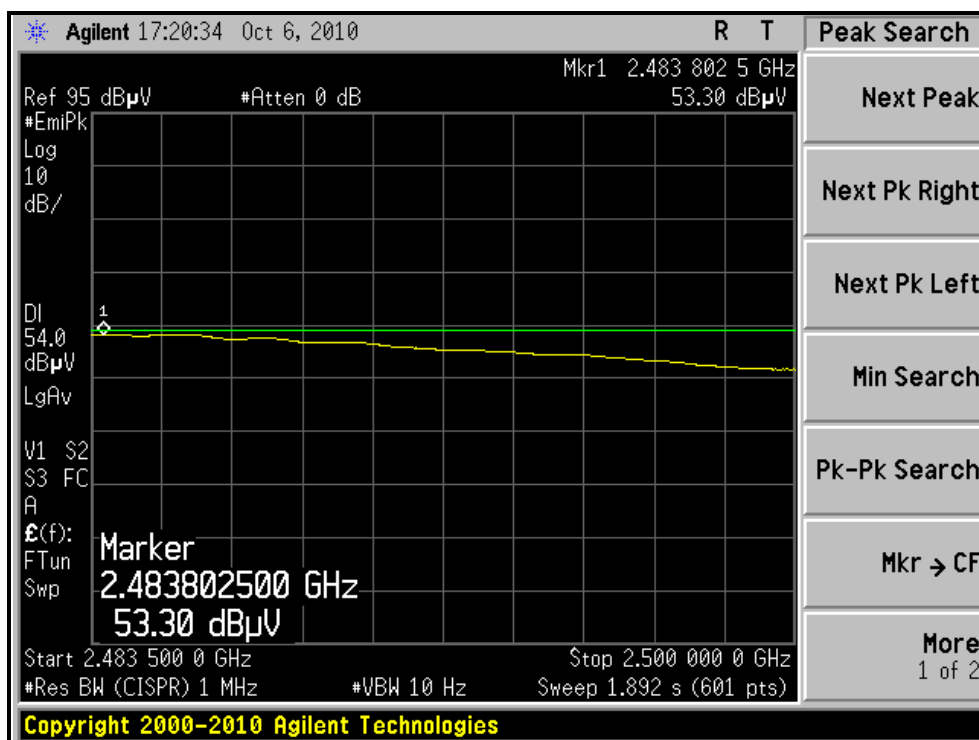
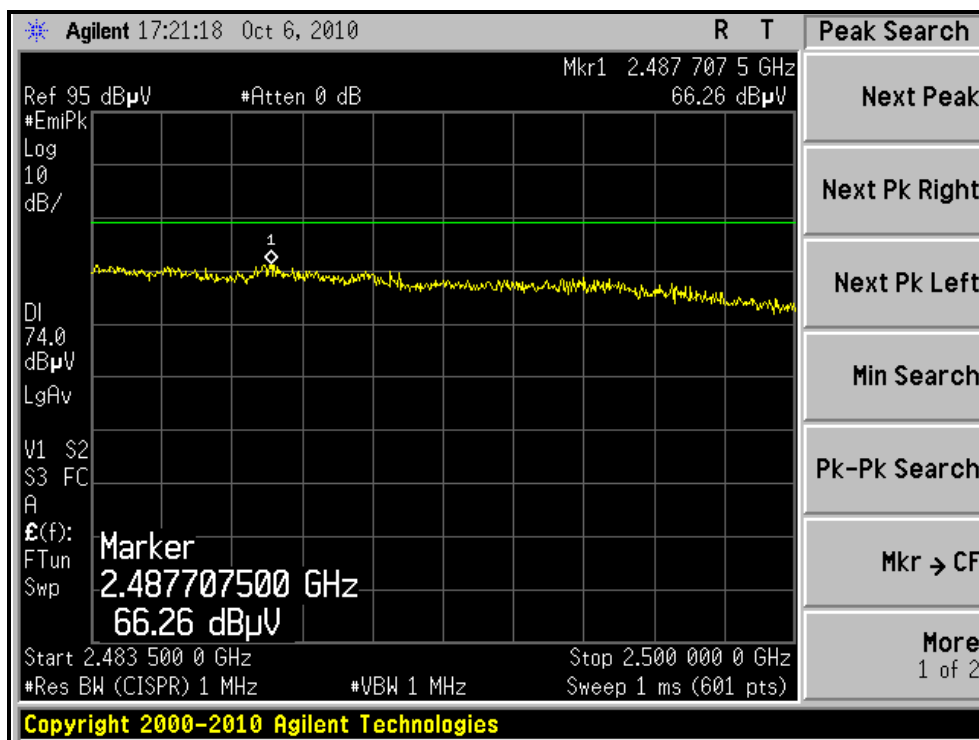
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



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



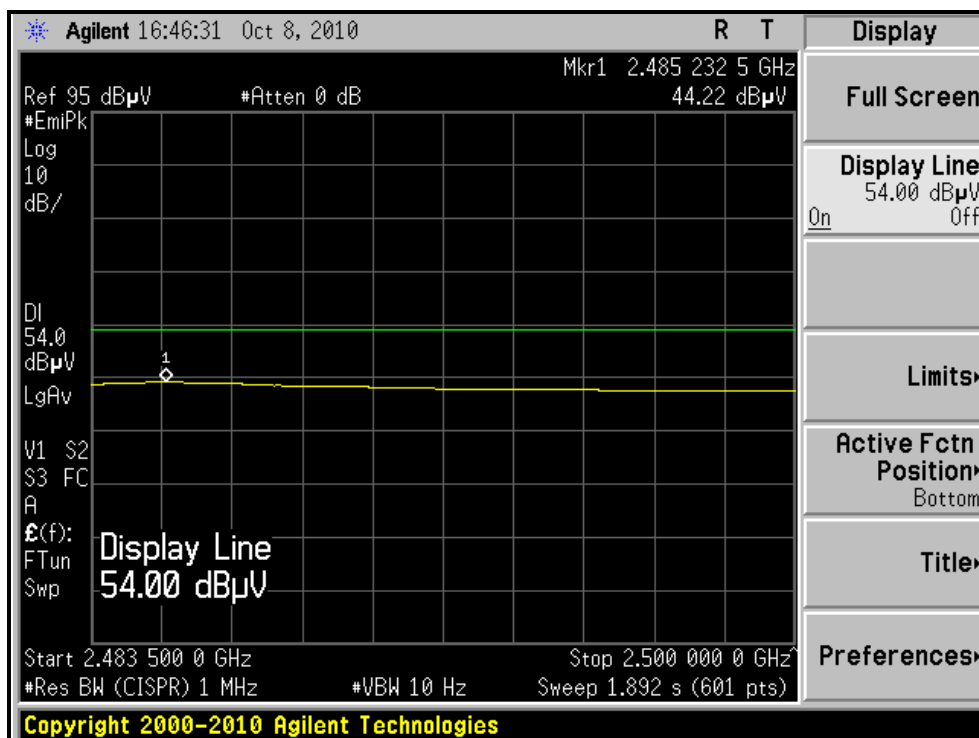
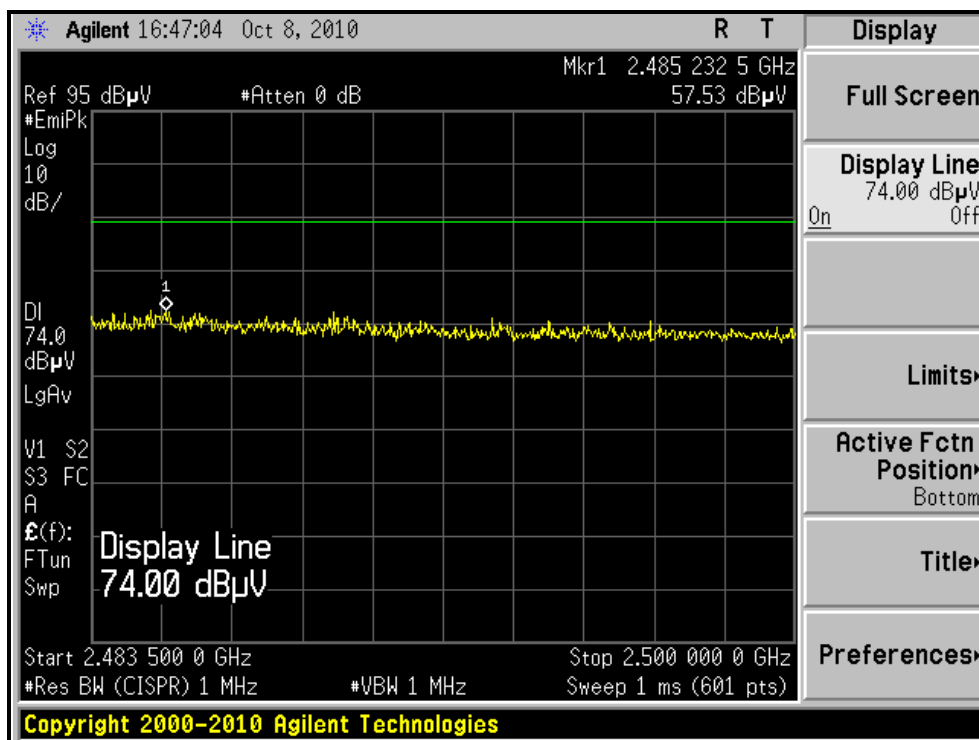
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)





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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
Spectrum Analyzer	FSP 40	100036	Dec. 18, 2009	Dec. 17, 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.

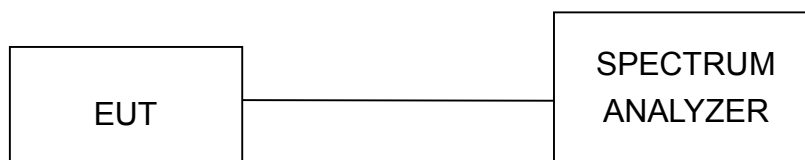
4.3.3 TEST PROCEDURE

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 or 300kHz 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

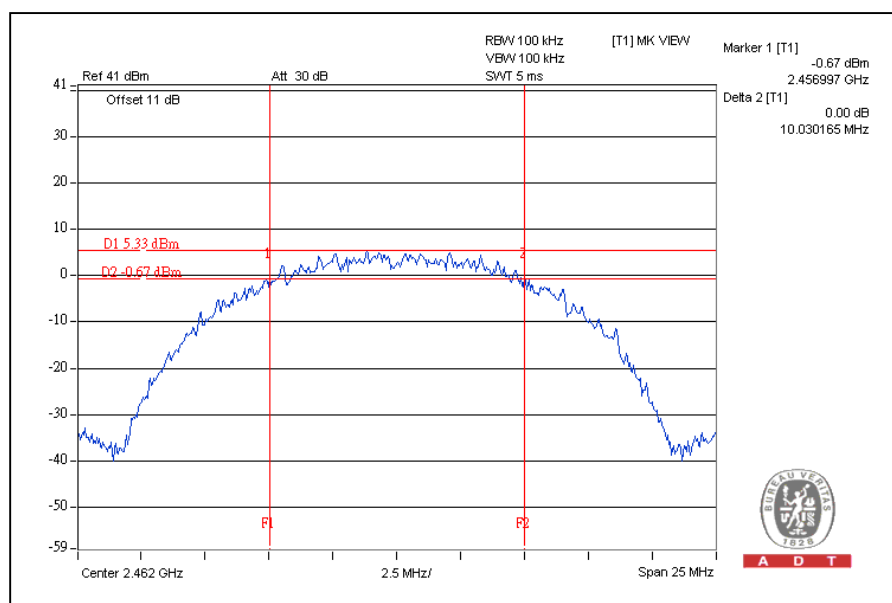
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.58	0.5	PASS
6	2437	8.57	0.5	PASS
11	2462	10.03	0.5	PASS

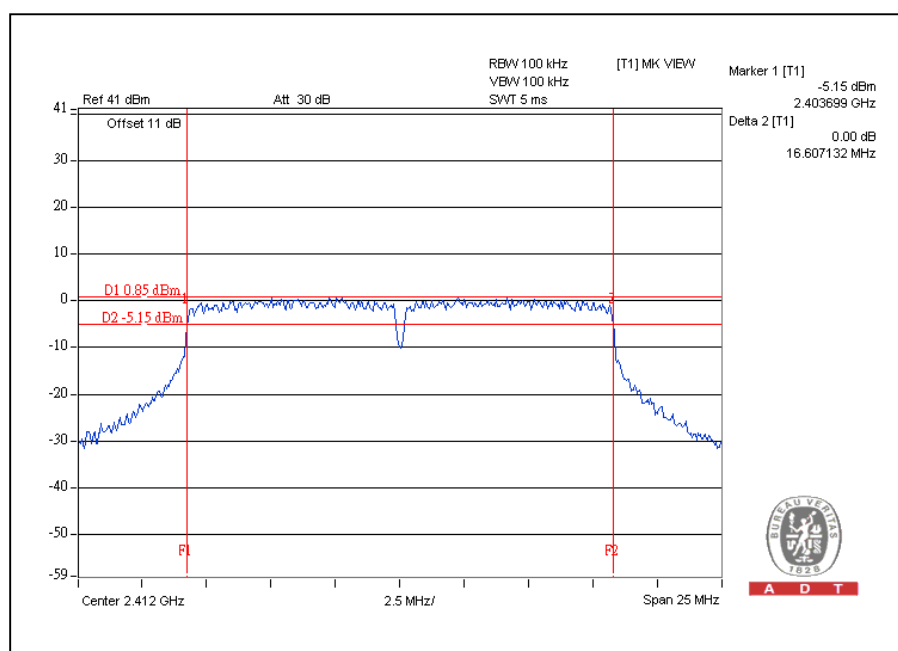
CH11



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.60	0.5	PASS
6	2437	16.59	0.5	PASS
11	2462	16.56	0.5	PASS

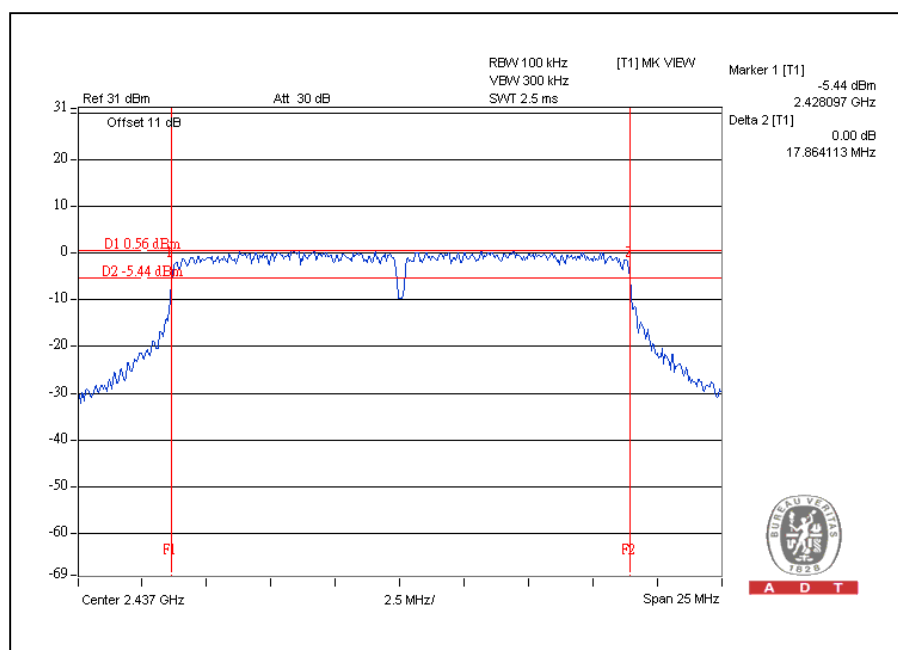
CH1



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.82	0.5	PASS
6	2437	17.86	0.5	PASS
11	2462	17.86	0.5	PASS

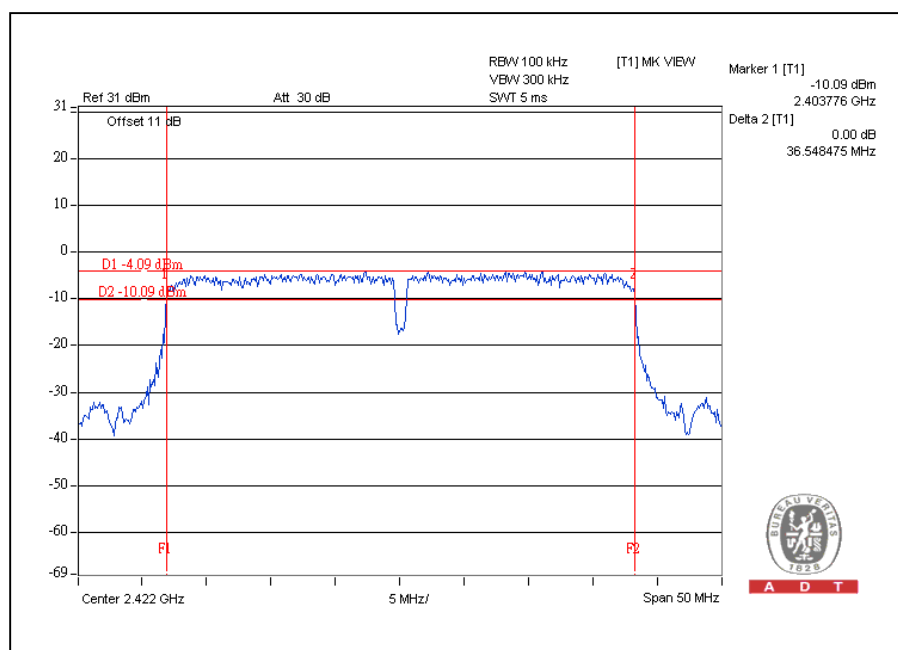
CH6



802.11n (40MHz) OFDM modulation:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.54	0.5	PASS
4	2437	36.52	0.5	PASS
7	2452	36.54	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.

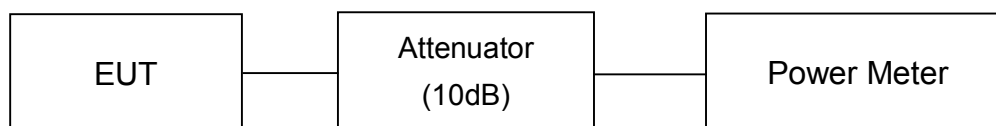
4.4.3 TEST PROCEDURES

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 (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	93.3	19.7	30	PASS
6	2437	107.2	20.3	30	PASS
11	2462	83.2	19.2	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	288.4	24.6	30	PASS
6	2437	316.2	25.0	30	PASS
11	2462	234.4	23.7	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	23.4	23.6	447.9	26.5	30	PASS
6	2437	25.1	24.9	632.6	28.0	30	PASS
11	2462	21.5	21.9	296.1	24.7	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	22.4	22.2	339.7	25.30	30	PASS
4	2437	22.3	21.9	324.7	25.10	30	PASS
7	2452	22.4	22.0	332.3	25.20	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
Spectrum Analyzer	FSP 40	100036	Dec. 18, 2009	Dec. 17, 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.

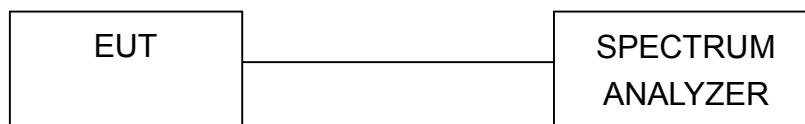
4.5.3 TEST PROCEDURE

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

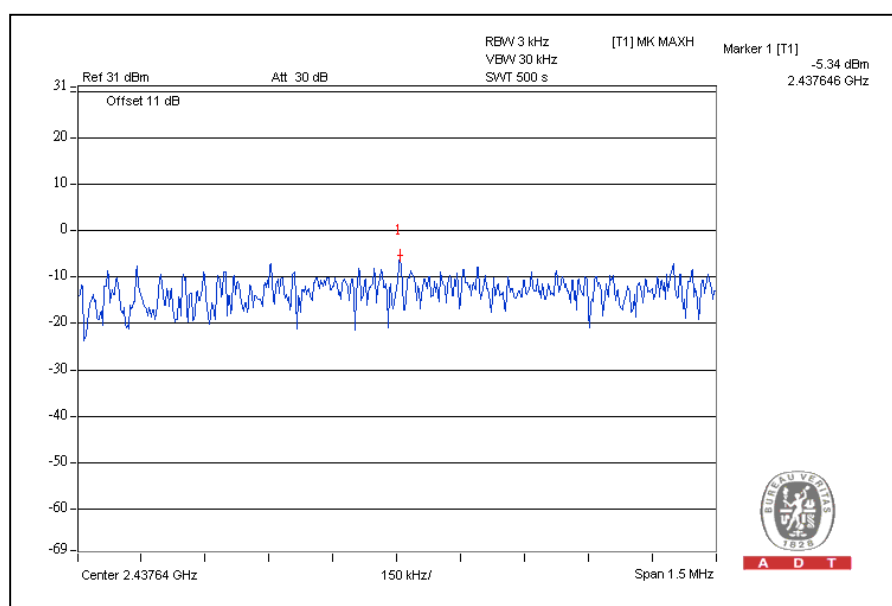
Same as Item 4.3.6

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	-5.4	8	PASS
6	2437	-5.3	8	PASS
11	2462	-6.5	8	PASS

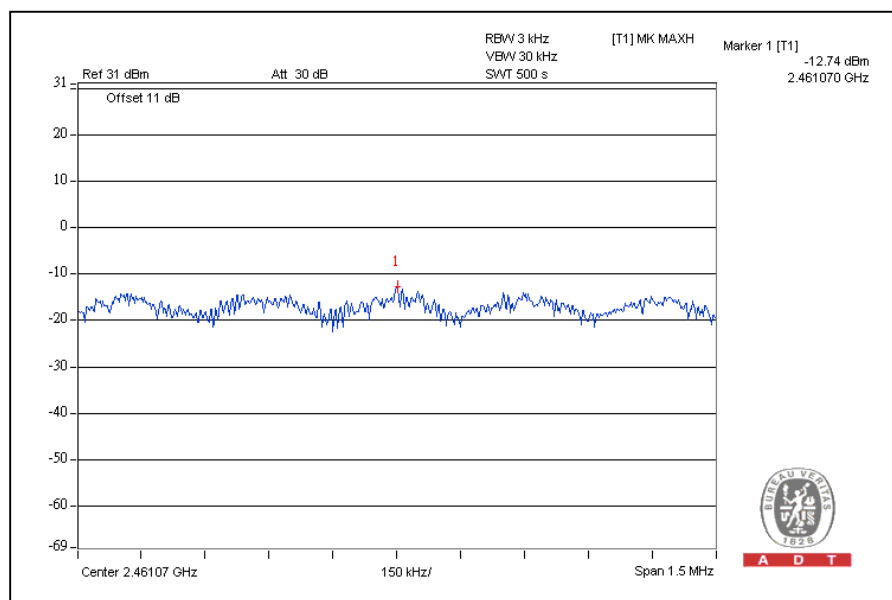
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-13.5	8	PASS
6	2437	-12.8	8	PASS
11	2462	-12.7	8	PASS

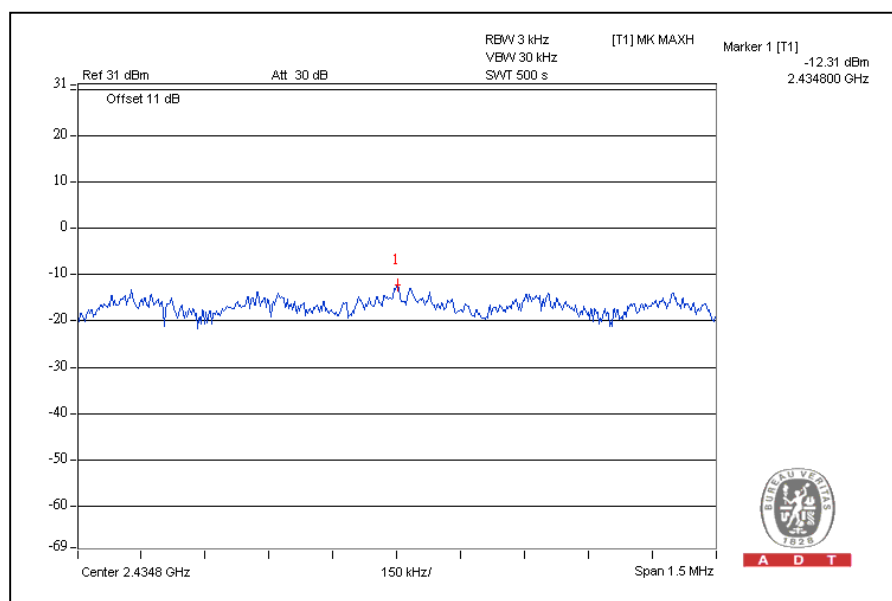
CH11



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	-13.4	-12.8	-10.1	8	PASS
6	2437	-12.5	-12.3	-9.4	8	PASS
11	2462	-15.8	-15.5	-12.6	8	PASS

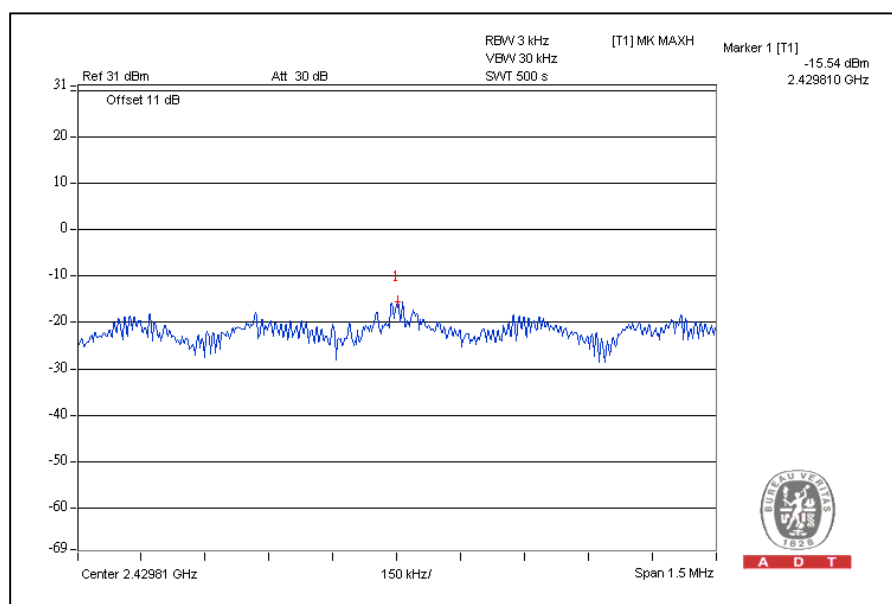
For Chain(1): CH6



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	-15.5	-17.0	-13.2	8	PASS
4	2437	-16.1	-18.0	-13.9	8	PASS
7	2452	-17.7	-18.4	-15.0	8	PASS

For Chain (0): CH1



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
Spectrum Analyzer	FSP 40	100036	Dec. 18, 2009	Dec. 17, 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 loss cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100MHz or 200MHz bandwidth from band edge. The band edges were 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

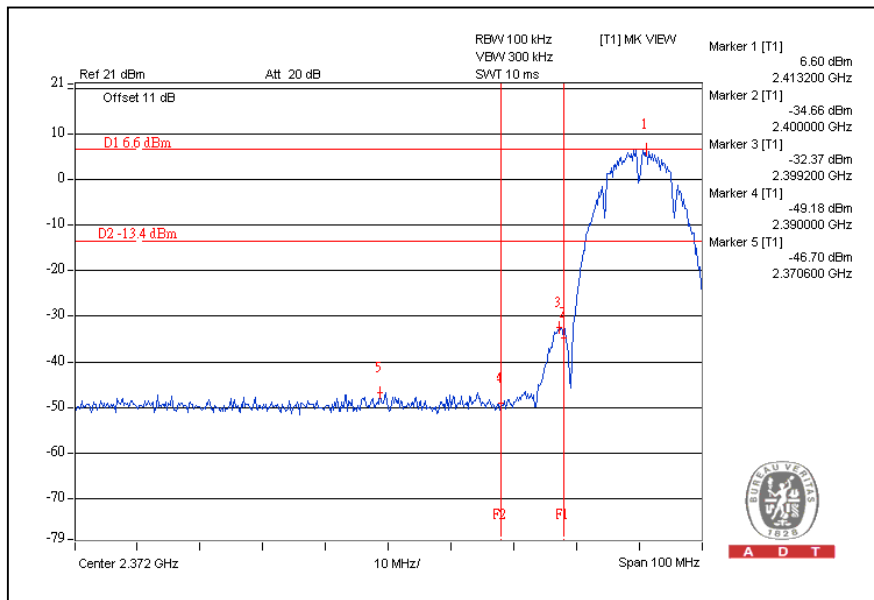
Same as Item 4.3.6

4.6.6 TEST RESULTS

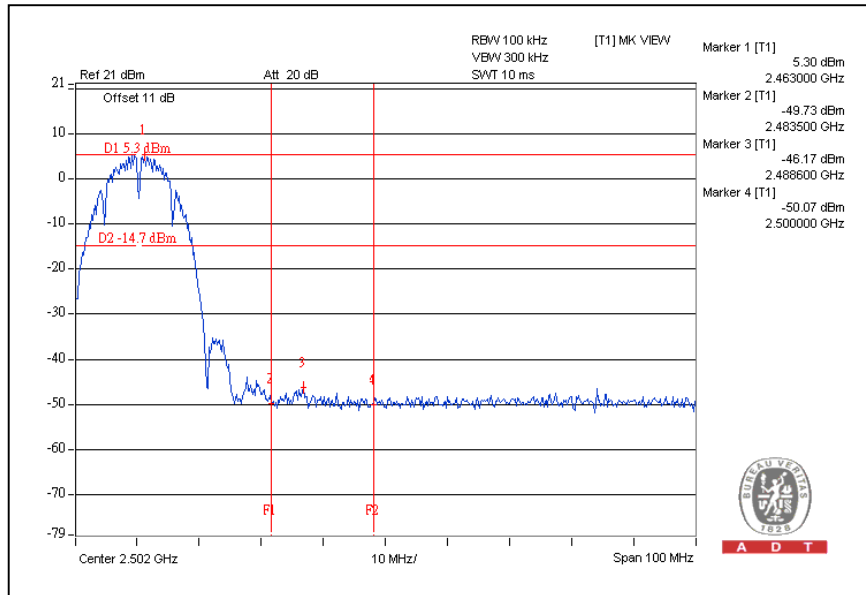
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

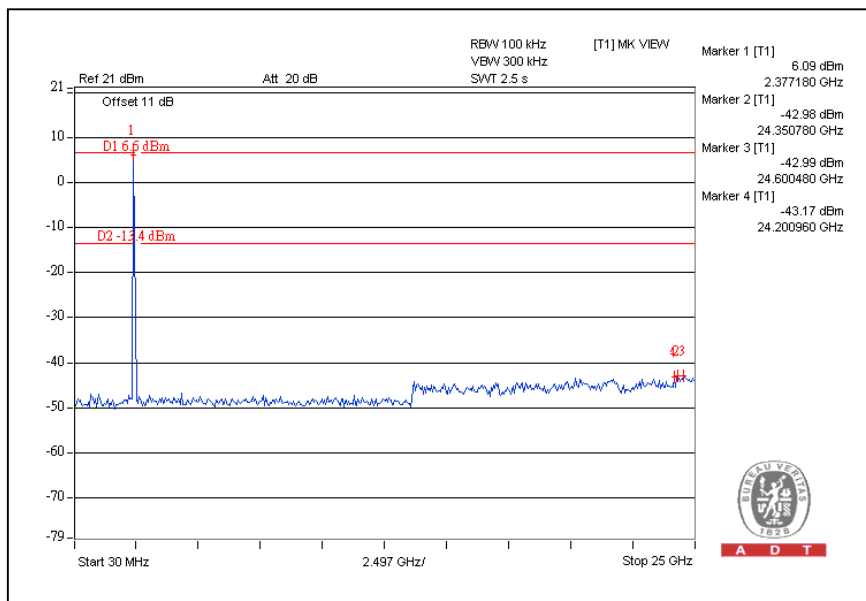
CH1



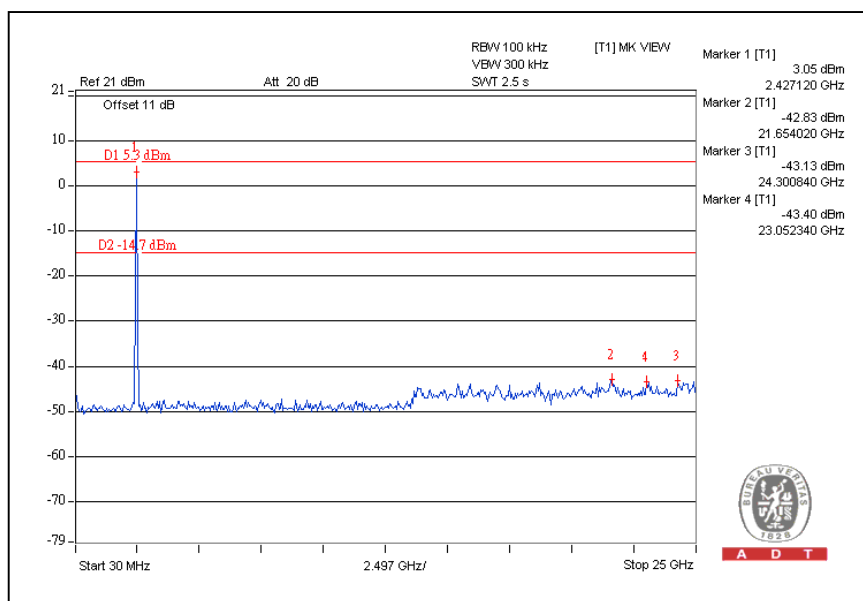
CH11



CH1

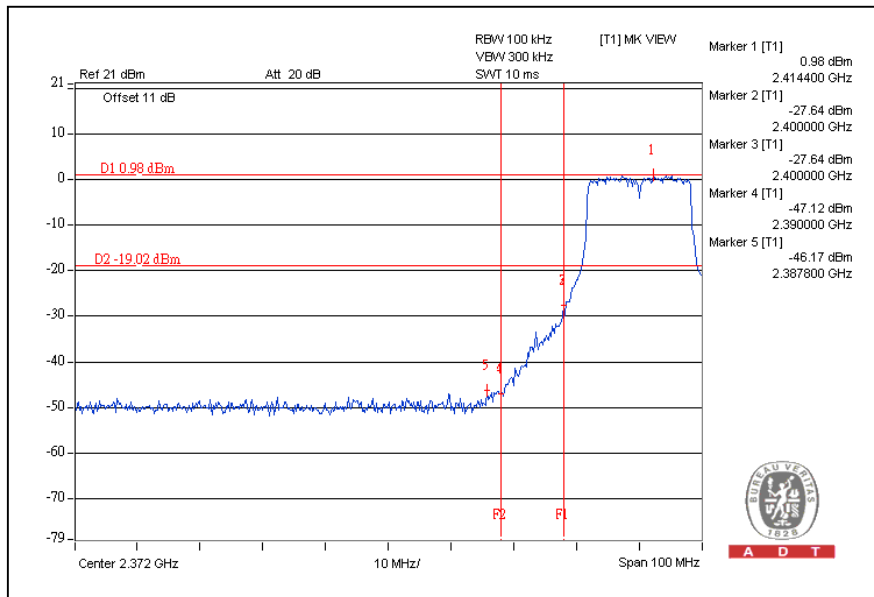


CH11

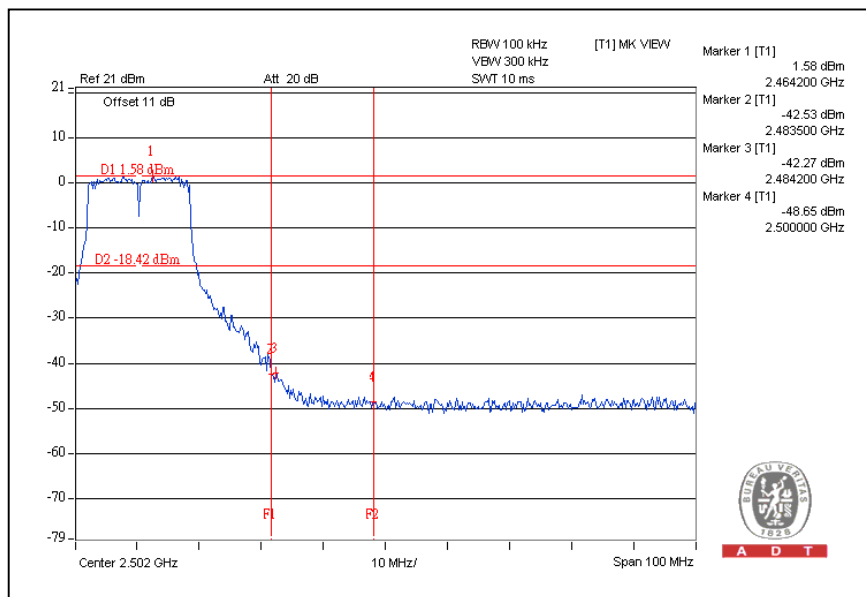


802.11g OFDM MODULATION:

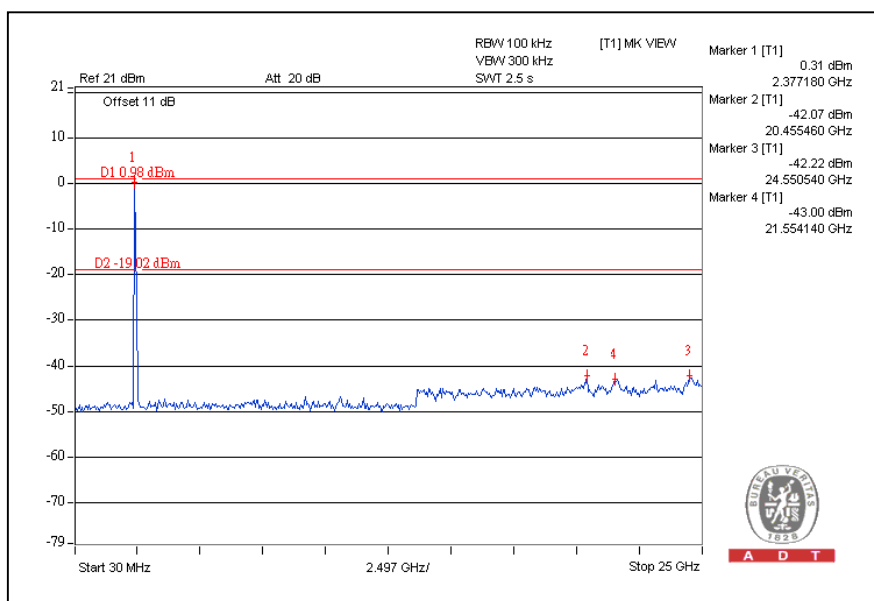
CH1



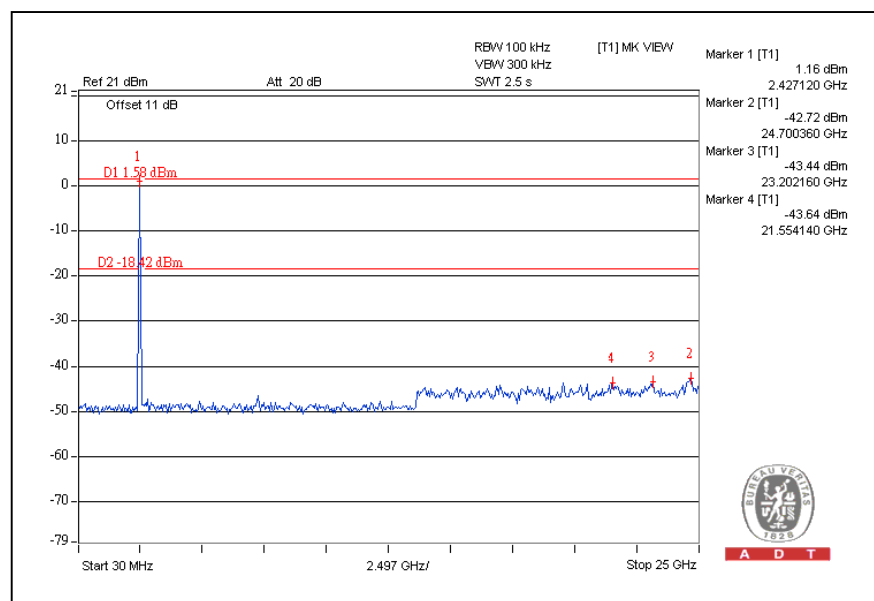
CH11



CH1

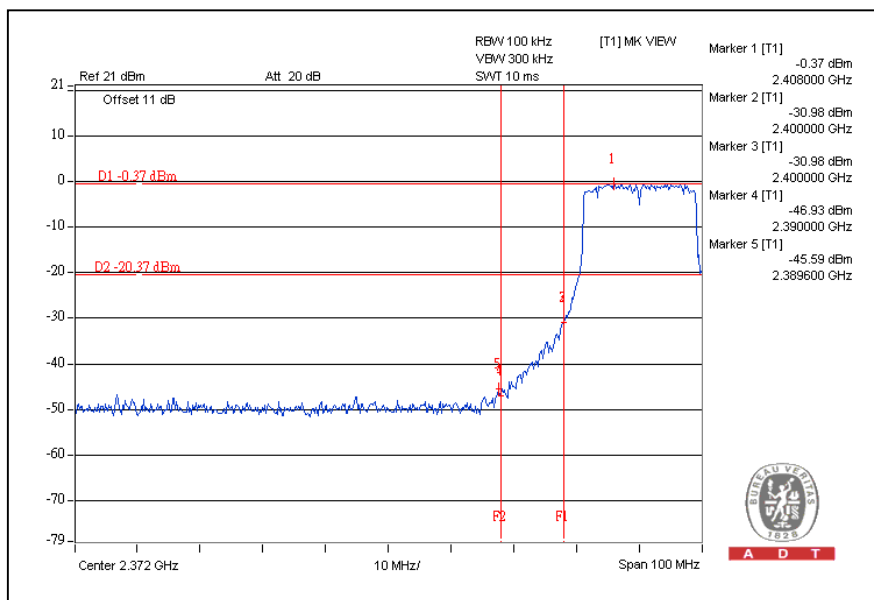


CH11

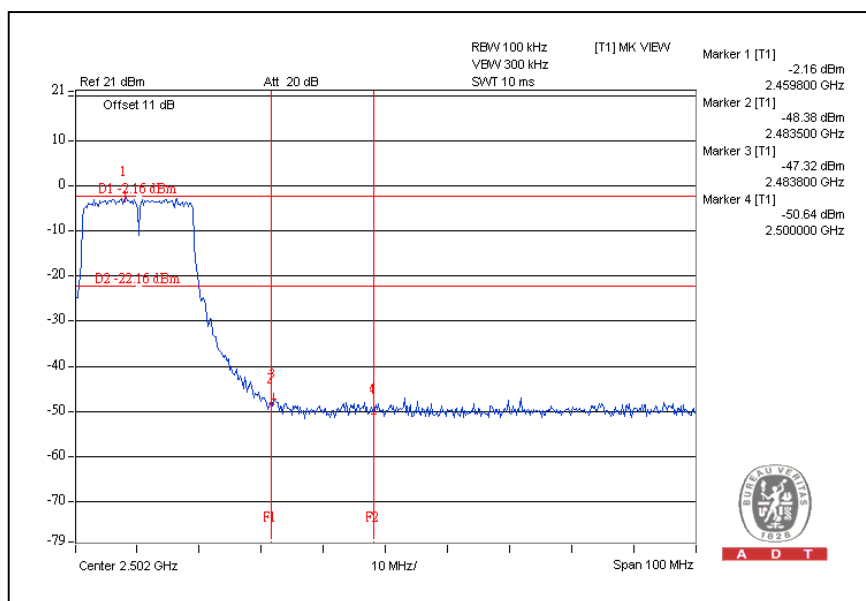


802.11n (20MHz) OFDM MODULATION:

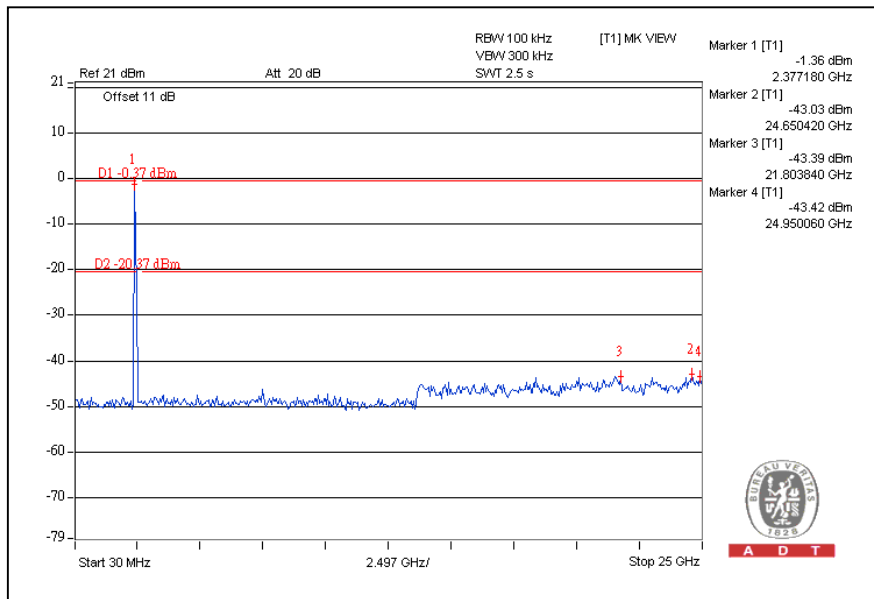
CH1



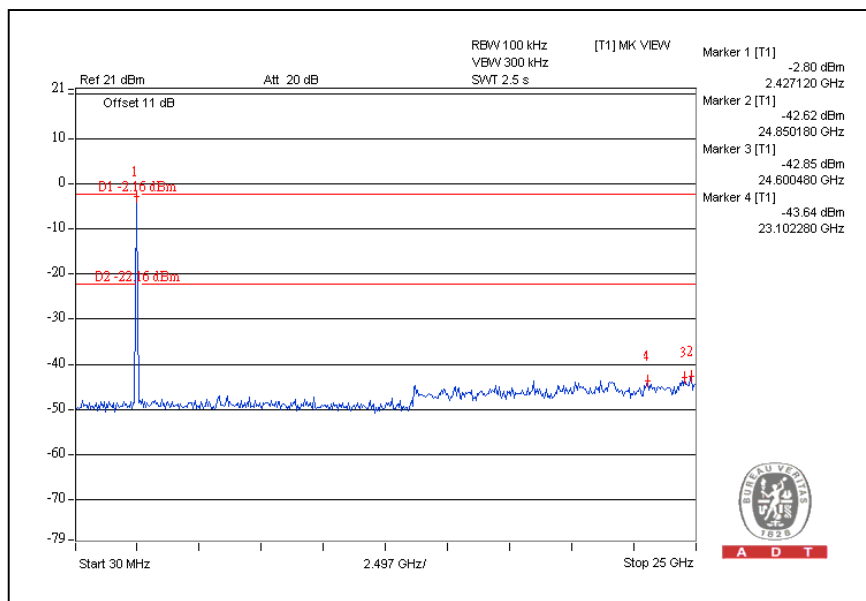
CH11



CH1

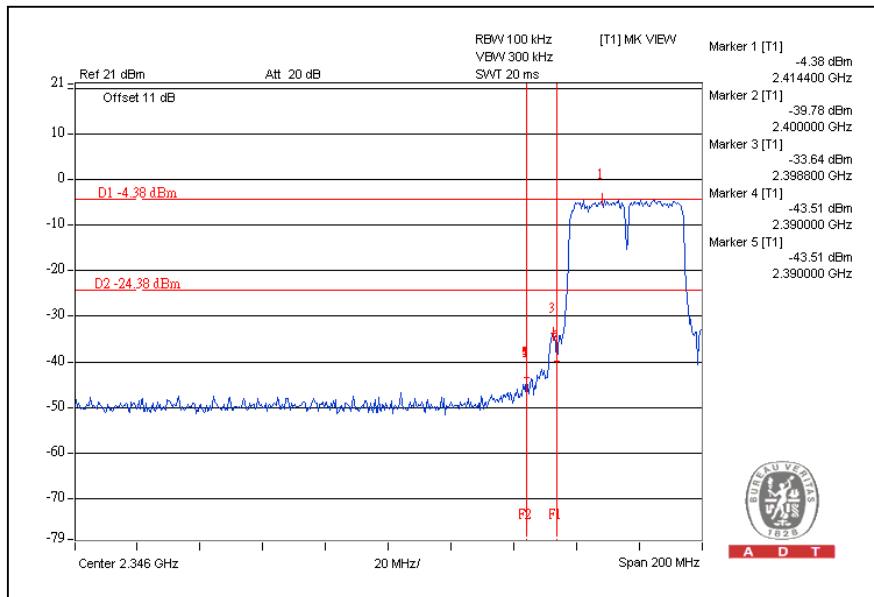


CH11

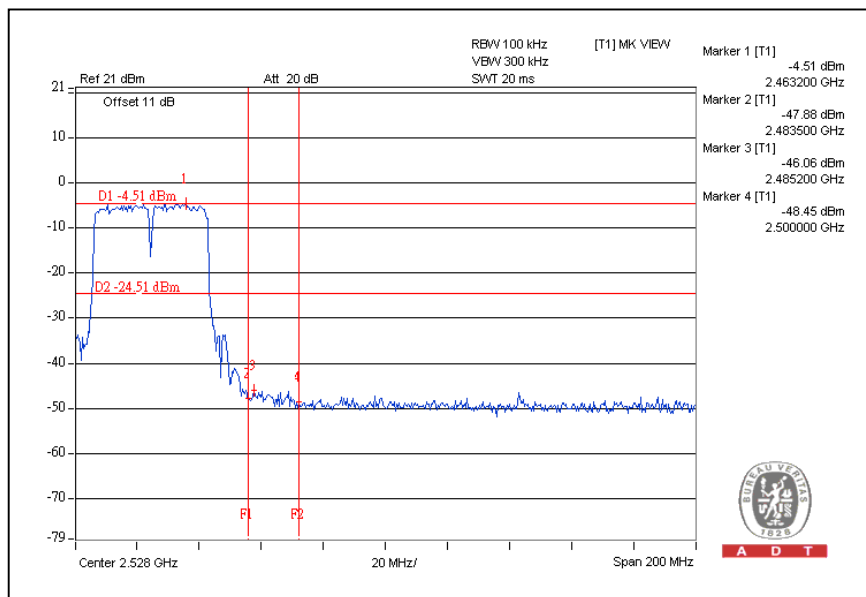


802.11n (40MHz) OFDM MODULATION:

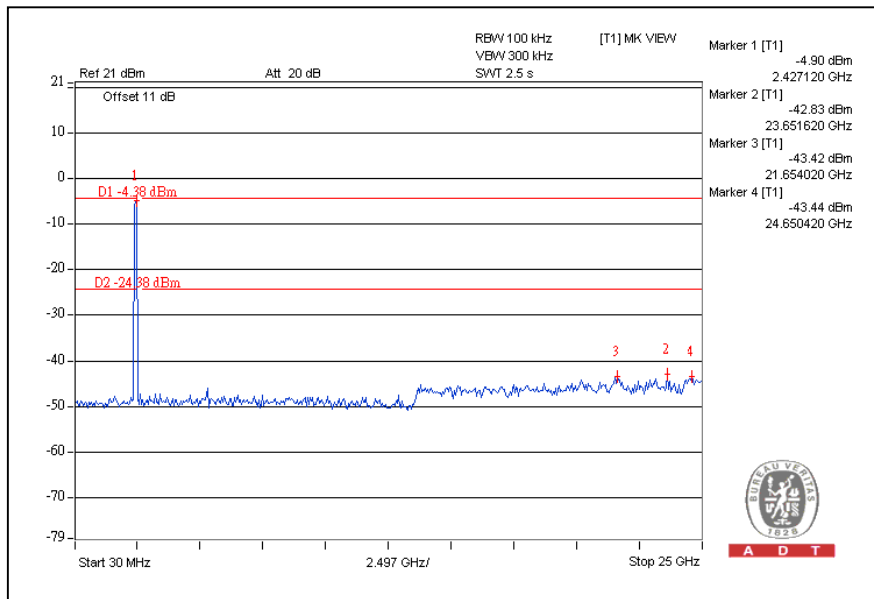
CH1



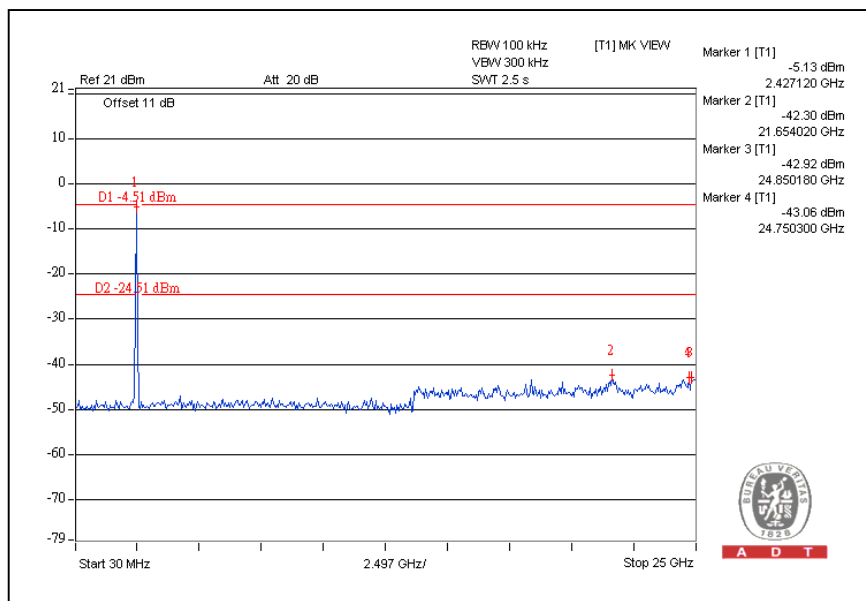
CH7



CH1



CH7



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.



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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 ---