FCC TEST REPORT (15.247)

REPORT NO.:	RF990929E04
MODEL NO.:	E4200
FCC ID:	Q87-E4200
RECEIVED:	Sep. 29, 2010
TESTED:	Sep. 29 to Oct. 08, 2010
ISSUED:	Oct. 12, 2010

APPLICANT:	Cisco Consumer Products LLC
ADDRESS:	121 Theory Drive Irvine, CA 92617(USA)

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:	High Performance Wireless-N Router
BRAND NAME:	Cisco
MODEL NO.:	E4200
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Sep. 29 to Oct. 08, 2010
APPLICANT:	Cisco Consumer Products LLC
STANDARDS:	FCC Part 15, Subpart C (Section 15.247) ANSI C63.4-2003

The above equipment (Model: E4200) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** Oct. 12, 2010
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** Oct. 12, 2010
(Hank Chung, Deputy Manager)

APPROVED BY : _____ , **DATE:** Oct. 12, 2010
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2412~2462MHz Band

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 -10.04dB at 0.170MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390.0MHz
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.

For 5GHz, 5725~5850MHz Band

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 -10.04dB at 0.170MHz
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 -4.9dB at 11490.0MHz
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.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.

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)	3.3 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	High Performance Wireless-N Router
MODEL NO.	E4200
FCC ID	Q87-E4200
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11a/g: 54/48/36/24/18/12/9/6Mbps 802.11b:11/5.5/2/1Mbps 802.11n (20MHz, 800ns GI):130 / 117 / 104 / 78 / 52 / 39 / 26/ 13 / 65 / 58.5 / 52 / 39 / 26 / 19.5 /13 / 6.5Mbps 802.11n (40MHz, 800ns GI): 270 / 243 / 216 / 162 / 108 /81 / 54 / 27 /135 / 121.5 / 108 / 81 /54 / 40.5 / 27 / 13.5Mbps
OPERATING FREQUENCY	**For 15.407** 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) **For 15.247(5GHz)** 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)

MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 28.8mW 802.11n (20MHz): 29.3mW 802.11n (40MHz): 45.5mW **For 15.247(2.4GHz)** 802.11b: 316.2mW 802.11g: 562.3mW 802.11n (20MHz): 935.7mW 802.11n (40MHz): 760.4mW **For 15.247(5GHz)** 802.11a: 186.2mW 802.11n (20MHz): 533.6mW 802.11n (40MHz): 546.8mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORTS	RJ-45 port x 4 (Ethernet (10,100,1000Mbps)) RJ-45 port x 1 (Internet(10,100,1000Mbps)) USB port x 1
ASSOCIATED DEVICES	Power adapter x 1

NOTE:

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

Chain	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Frequency range (MHz to MHz)
2G0	PIFA	NA	3.6	2400 to 2483.5
2G1	PIFA	NA	3.8	2400 to 2483.5
2G2	PIFA	NA	3.8	2400 to 2483.5
J12	PIFA	NA	5.2	5150 to 5850
J13	PIFA	NA	4.8	5150 to 5850
J14	PIFA	NA	5.3	5150 to 5850

2. The EUT must be supplied with a power adapter and following two different models could be chosen:

Adapter 1	
Brand:	Leader
Model No.:	NU30-4120250-I3
Input power :	AC100-240V, 0.8A, 50/60Hz AC input cable (Unshielded, 0.4m)
Output power :	DC 12V, 2.5A DC output cable (Unshielded, 1.5m)
Adapter 2	
Brand:	Hongkwang
Model No.:	HK-AX-120A200-DH
Input power :	AC100-240V, 0.8A, 50/60Hz AC input cable (Unshielded, 0.4m)
Output power :	DC 12V, 2A DC output cable (Unshielded, 1.9m)

For radiated test, the EUT was pre-tested with above adapters, the worse case was found in adapter 2. Therefore only the test data of the adapter was recorded in this report.

3. **For 2.4GHz:** The EUT is 2 * 3 spatial MIMO (2Tx & 3Rx) without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 3 PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas. The 11b/g legacy mode is limited to single transmitter only.

4. **For 5GHz:** The EUT is 3 * 3 spatial MIMO (3Tx & 3Rx) without beam forming function. The antenna configurations are three transmitter antennas and three receiver antennas, as there are 3 PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 3 antennas, and for simultaneous receiver using 3 antennas. The 11a legacy mode is limited to single transmitter only.

5. The EUT complies with 802.11n standards and backwards compatible with 802. 11a, 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

Operated in 2400 ~ 2483.5MHz band:

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		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
1	√				With adapter 1
2	√	√	√	√	With adapter 2

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:

For 2.4GHz				
COMBINATION MODE	OPERATION MODE	TX CHAIN(2G0)	TX CHAIN(2G1)	TX CHAIN(2G2)
A	802.11 b	√		
B	802.11 g	√		
C	802.11n(20MHz) for MCS0~15	√	√	
D	802.11n(20MHz) for MCS0~15	√		√
E	802.11n(20MHz) for MCS0~15		√	√
F	802.11n(40MHz) for MCS0~15	√	√	
G	802.11n(40MHz) for MCS0~15	√		√
H	802.11n(40MHz) for MCS0~15		√	√
For 5GHz				
COMBINATION MODE	OPERATION MODE	TX CHAIN(J12)	TX CHAIN(J13)	TX CHAIN(J14)
I	802.11 a	√		
J	802.11n(20MHz) for MCS0~15	√	√	√
K	802.11n(40MHz) for MCS0~15	√	√	√

Note:
1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Mode A, B, C, F, I, J & K the worst modes, was 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)	COMBINATION MODE
Worst Channel	-	-	-	-	-	-

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)	COMBINATION MODE
For 2.4 GHz 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	1	C
For 5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5	J

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)	COMBINATION 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
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	C
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	F
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	I
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	J
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	K

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)	COMBINATION MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	C
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	F
802.11a	149 to 165	149, 165	OFDM	BPSK	6	I
For 5 GHz 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5	J
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	K

※ 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.

☒ 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)	COMBINATION 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
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	C
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	F
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	I
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	J
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	K

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

※ TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 67%RH, 1015 hPa	120Vac, 60Hz	Frank Liu
RE<1G	25deg. C, 68%RH, 1015 hPa	120Vac, 60Hz	Rex Huang
PLC	27deg. C, 60%RH, 1015 hPa	120Vac, 60Hz	Eagle Chen
APCM	25deg. C, 60%RH, 1015 hPa	120Vac, 60Hz	Kent Liu

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

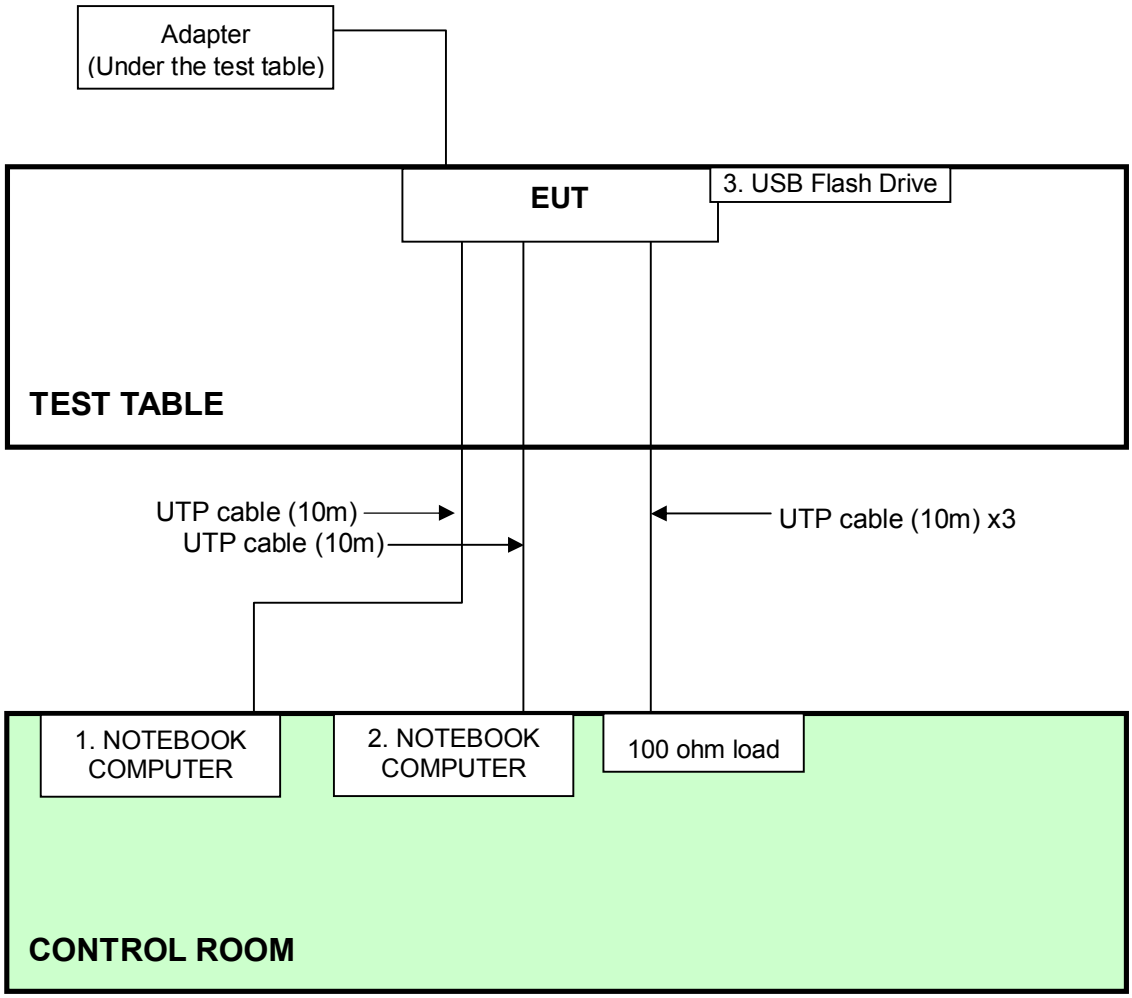
For Conducted test:					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	4799903248	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP27L	7YLB32S	FCC DoC
3	USB Flash Drive	SanDisk	SDCZ2-512-A10	5485439362	FCC DoC
For Radiated test:					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643-7AV-0124	FCC DoC
2	NOTEBOOK COMPUTER	DELL	D531	CN-0XM006-48643-86L-4472	QDS-BRCM1019
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
4	iPod nano	Apple	A1137	6U6078FMUPR	FCC DoC

For Conducted test:	
No.	Signal cable description
1	UTP cable (10m)
2	UTP cable (10m)
3	NA
For Radiated test:	
No.	Signal cable description
1	UTP cable (10m)
2	UTP cable (10m)
3	UTP cable (10m)
4	USB cable (shielded, 1m)

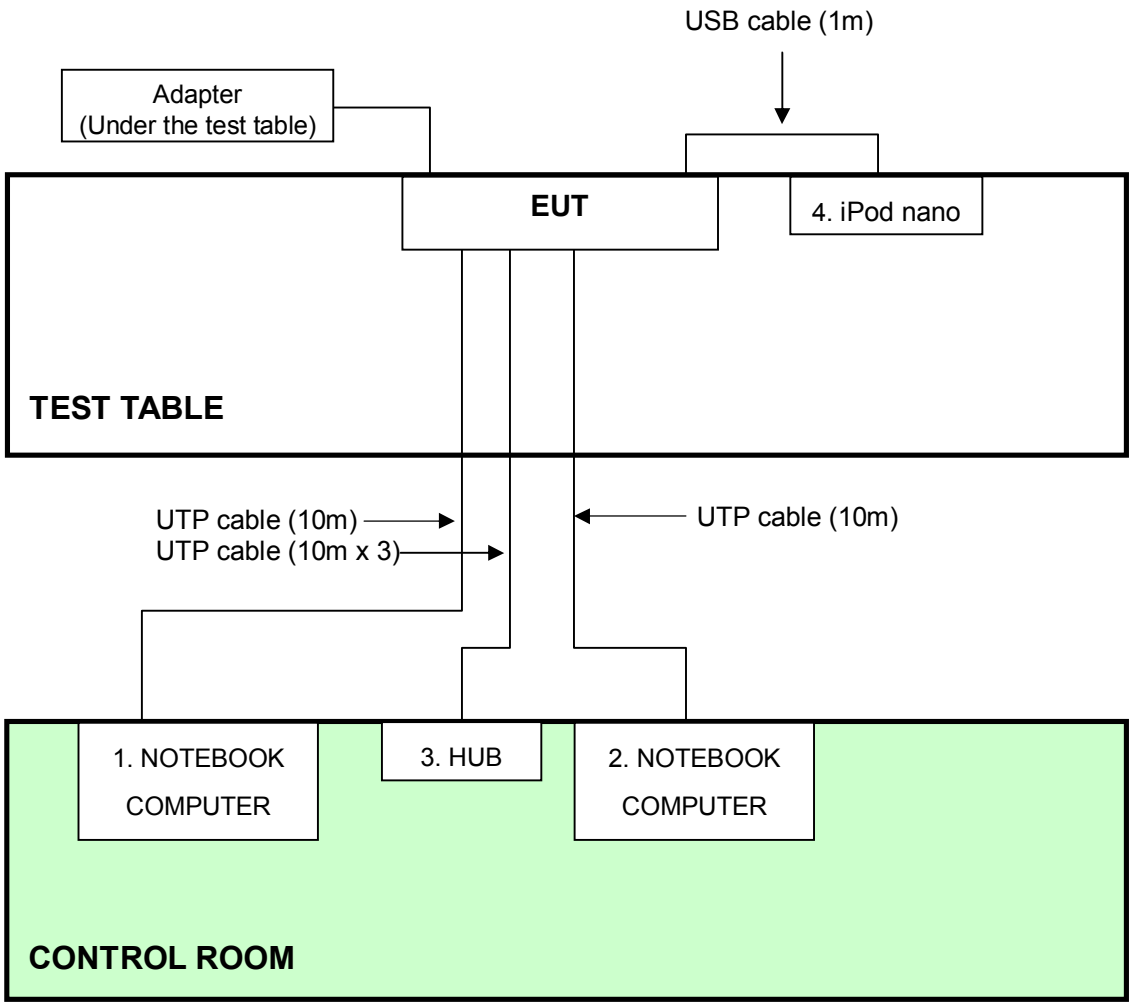
Note: The power cords of the above support units were unshielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted test:



For Radiated test:



4.TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

Test date: Oct. 08, 2010

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	Oct. 07, 2010	Oct. 06, 2011
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

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

4.1.3 TEST PROCEDURES

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

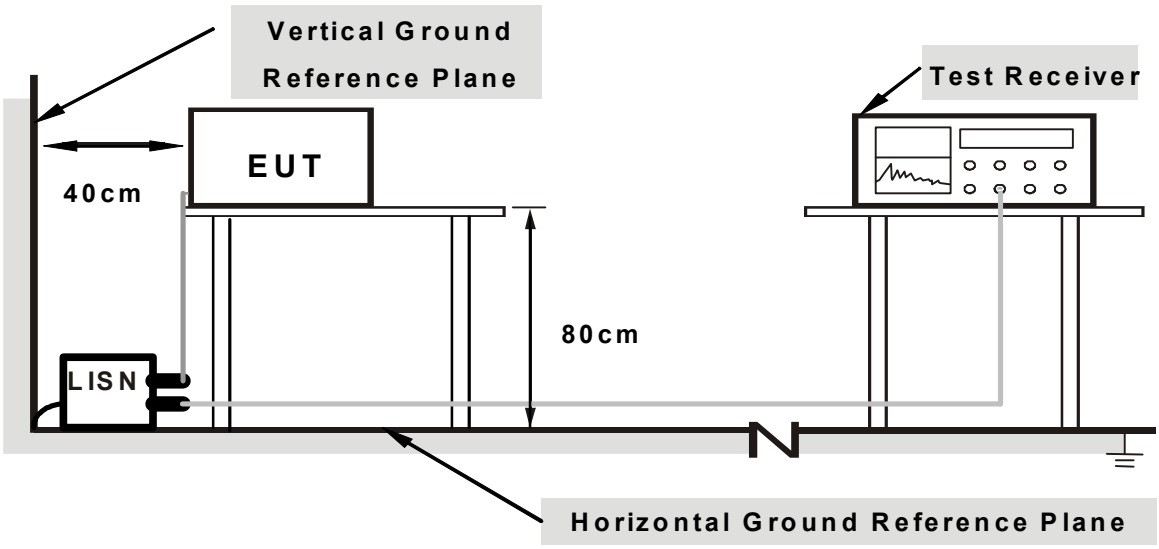
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

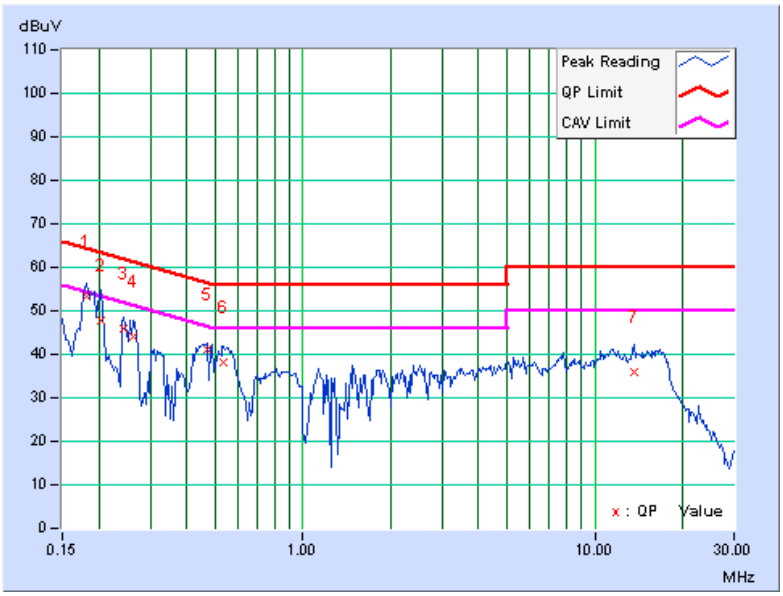
1. Turn on the power of all equipment.
2. Support units 1 ~ 2 (Notebook Computer) run a test program “Broadcom command” to enable of EUT via UTP cables continuously.

4.1.7 TEST RESULTS

TEST MODE	With adapter 1		
PHASE	Line (L)	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	0.181	0.04	53.19	-	53.23	-	64.43	54.43	-11.20	-
2	0.205	0.04	47.75	-	47.79	-	63.42	53.42	-15.63	-
3	0.244	0.04	46.05	-	46.09	-	61.97	51.97	-15.88	-
4	0.263	0.04	44.07	-	44.11	-	61.33	51.33	-17.21	-
5	0.470	0.06	41.03	-	41.09	-	56.51	46.51	-15.42	-
6	0.537	0.06	37.98	-	38.04	-	56.00	46.00	-17.96	-
7	13.563	0.45	35.54	-	35.99	-	60.00	50.00	-24.01	-

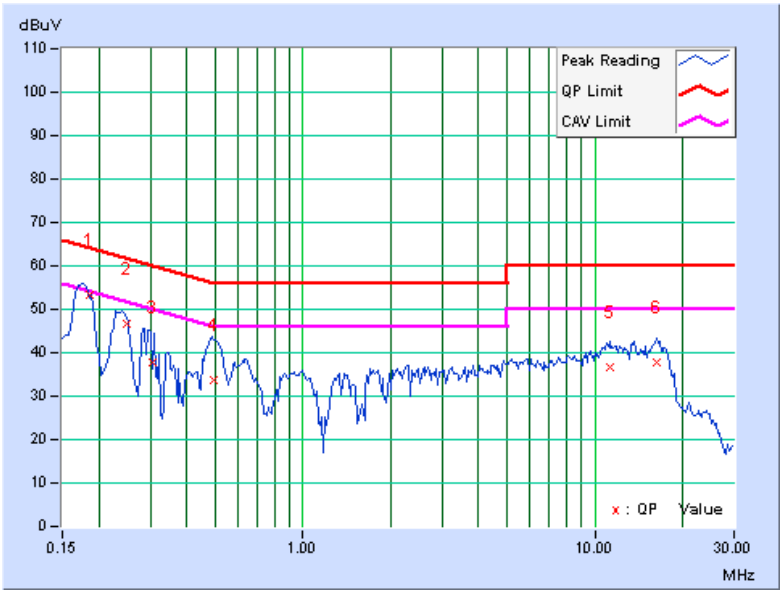
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	With adapter 1		
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	0.186	0.05	53.29	-	53.34	-	64.19	54.19	-10.85	-
2	0.250	0.05	46.49	-	46.54	-	61.75	51.75	-15.20	-
3	0.307	0.06	37.69	-	37.75	-	60.06	50.06	-22.31	-
4	0.498	0.07	33.57	-	33.64	-	56.04	46.04	-22.40	-
5	11.320	0.33	36.44	-	36.77	-	60.00	50.00	-23.23	-
6	16.223	0.54	37.15	-	37.69	-	60.00	50.00	-22.31	-

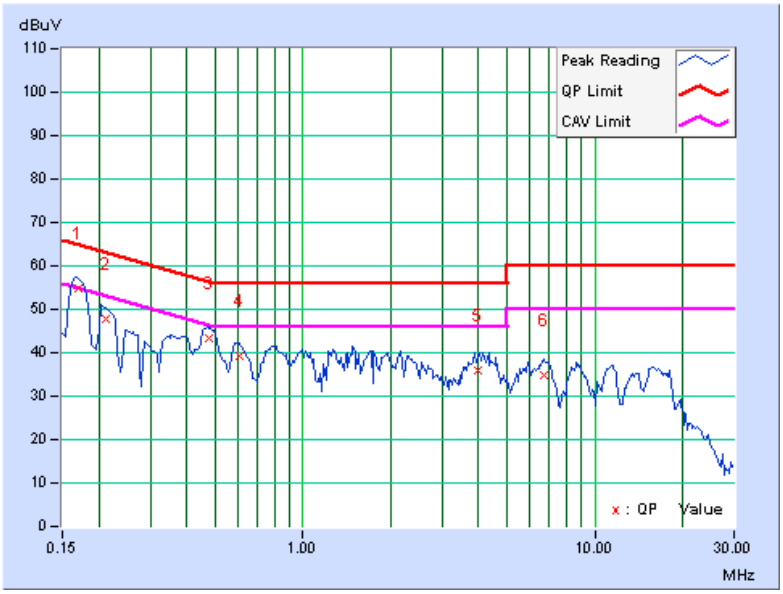
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	With adapter 2		
PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.170**	**0.04**	**54.90**	**-**	**54.94**	**-**	**64.98**	**54.98**	**-10.04**	**-**
2	0.213	0.04	47.61	-	47.65	-	63.11	53.11	-15.46	-
3	0.474	0.06	43.11	-	43.17	-	56.44	46.44	-13.27	-
4	0.607	0.07	39.11	-	39.18	-	56.00	46.00	-16.82	-
5	4.004	0.13	35.65	-	35.78	-	56.00	46.00	-20.22	-
6	6.711	0.18	34.56	-	34.74	-	60.00	50.00	-25.26	-

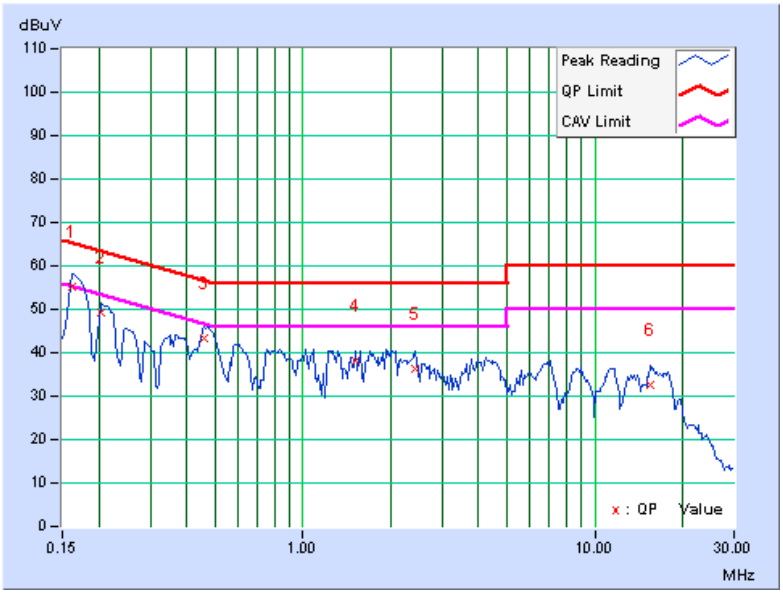
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	With adapter 2		
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	0.162	0.05	55.02	-	55.07	-	65.38	55.38	-10.31	-
2	0.205	0.05	49.04	-	49.09	-	63.42	53.42	-14.33	-
3	0.459	0.06	43.25	-	43.31	-	56.72	46.72	-13.40	-
4	1.520	0.12	37.98	-	38.10	-	56.00	46.00	-17.90	-
5	2.438	0.13	36.21	-	36.34	-	56.00	46.00	-19.66	-
6	15.523	0.54	31.88	-	32.42	-	60.00	50.00	-27.58	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.2.2 TEST INSTRUMENTS

Below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 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	AFS33-18002650-30-8P-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	Sep. 29, 2010	Sep. 28, 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.

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+RF106-101	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 a 3 meter chamber room for below 1GHz and 10 meter open area test site for above 1GHz. 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:

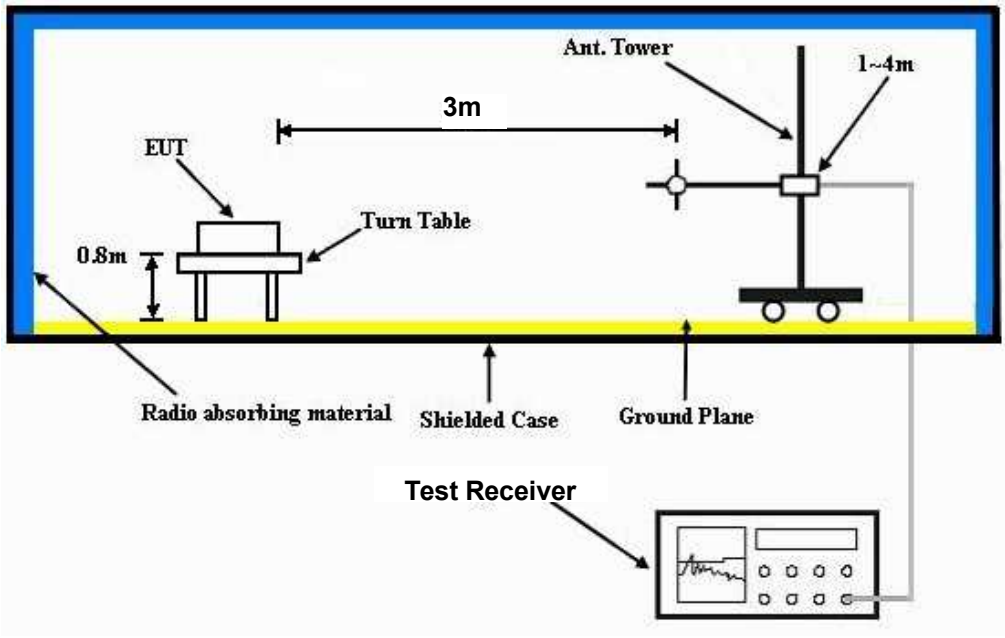
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.2.4 DEVIATION FROM TEST STANDARD

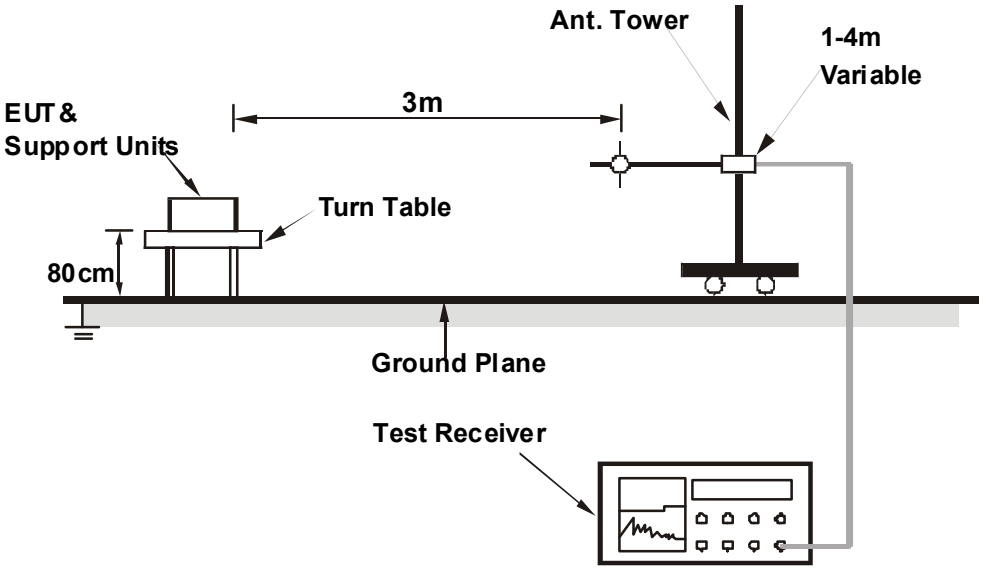
No deviation

4.2.5 TEST SETUP

Below 1GHz test:



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	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 1015 hPa	TESTED BY	Rex Huang

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	68.72	34.9 QP	40.0	-5.1	2.25 H	26	22.82	12.12
2	249.99	42.2 QP	46.0	-3.8	1.26 H	360	29.02	13.18
3	357.08	38.5 QP	46.0	-7.5	1.00 H	339	22.08	16.44
4	480.01	38.1 QP	46.0	-7.9	1.50 H	0	18.90	19.23
5	500.02	39.4 QP	46.0	-6.6	2.00 H	85	19.69	19.71
6	624.96	41.1 QP	46.0	-4.9	1.25 H	309	18.82	22.25
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	47.81	36.6 QP	40.0	-3.4	1.02 V	360	22.61	14.03
2	87.21	35.8 QP	40.0	-4.2	1.25 V	19	27.06	8.71
3	250.03	39.7 QP	46.0	-6.3	1.00 V	287	26.52	13.19
4	374.97	35.7 QP	46.0	-10.3	1.50 V	18	18.88	16.81
5	480.01	36.0 QP	46.0	-10.0	1.25 V	231	16.80	19.23
6	500.02	38.7 QP	46.0	-7.3	1.00 V	212	19.00	19.71
7	624.96	40.3 QP	46.0	-5.7	1.75 V	360	18.03	22.25
8	874.95	35.8 QP	46.0	-10.2	1.00 V	0	10.03	25.81

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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	61.7 PK	74.0	-12.3	1.36 H	282	30.73	30.97
2	2390.00	53.2 AV	54.0	-0.8	1.36 H	282	22.19	30.97
3	*2412.00	112.9 PK			1.28 H	282	81.83	31.06
4	*2412.00	110.0 AV			1.28 H	282	78.94	31.06
5	4824.00	49.6 PK	74.0	-24.4	1.35 H	181	12.48	37.12
6	4824.00	44.6 AV	54.0	-9.4	1.35 H	181	7.48	37.12
7	14472.00	62.2 PK	74.0	-11.8	1.27 H	189	9.97	52.23
8	14472.00	52.8 AV	54.0	-1.2	1.27 H	189	0.57	52.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.5 PK	74.0	-12.5	1.37 V	198	30.54	30.97
2	2390.00	52.8 AV	54.0	-1.2	1.37 V	198	21.79	30.97
3	*2412.00	110.8 PK			1.27 V	199	79.74	31.06
4	*2412.00	107.4 AV			1.27 V	199	76.34	31.06
5	4824.00	50.1 PK	74.0	-23.9	1.14 V	183	12.98	37.12
6	4824.00	46.4 AV	54.0	-7.6	1.14 V	183	9.28	37.12
7	14472.00	62.3 PK	74.0	-11.7	1.29 V	11	10.07	52.23
8	14472.00	53.4 AV	54.0	-0.6	1.29 V	11	1.17	52.23

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	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	112.4 PK			1.27 H	269	81.23	31.17
2	*2437.00	109.7 AV			1.27 H	269	78.53	31.17
3	4874.00	52.1 PK	74.0	-21.9	1.59 H	88	14.91	37.23
4	4874.00	49.1 AV	54.0	-4.9	1.59 H	88	11.87	37.23
5	7311.00	57.5 PK	74.0	-16.5	1.56 H	207	13.14	44.36
6	7311.00	52.7 AV	54.0	-1.3	1.56 H	207	8.34	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	109.3 PK			1.24 V	184	78.13	31.17
2	*2437.00	106.2 AV			1.24 V	184	75.03	31.17
3	4874.00	50.9 PK	74.0	-23.1	1.17 V	181	13.65	37.23
4	4874.00	47.0 AV	54.0	-7.0	1.17 V	181	9.77	37.23
5	7311.00	57.4 PK	74.0	-16.6	1.34 V	196	13.08	44.36
6	7311.00	53.0 AV	54.0	-1.0	1.34 V	196	8.64	44.36

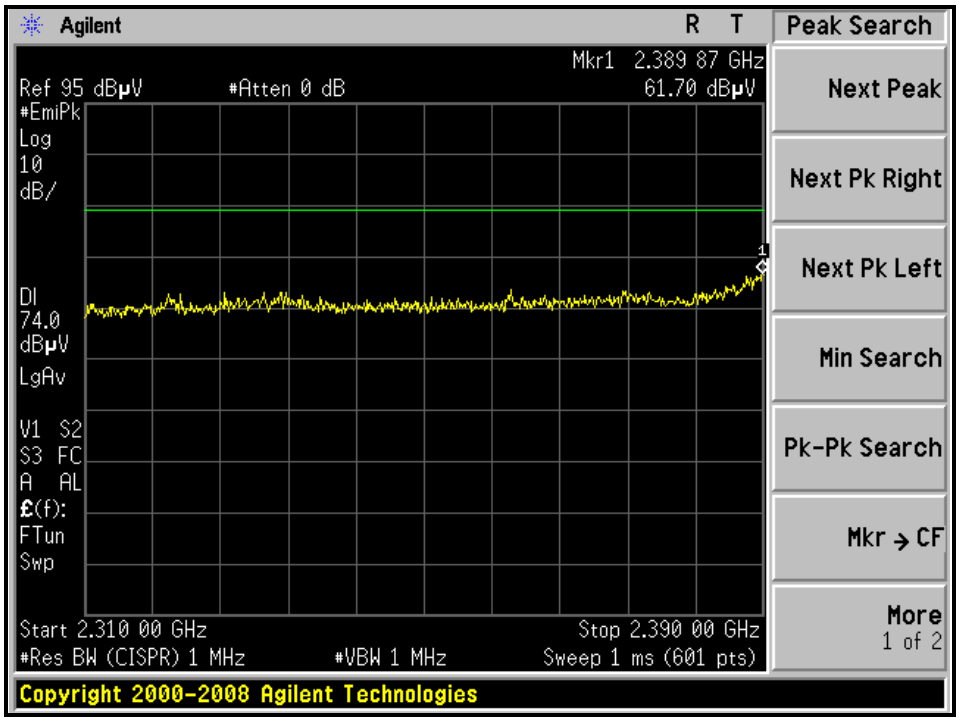
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

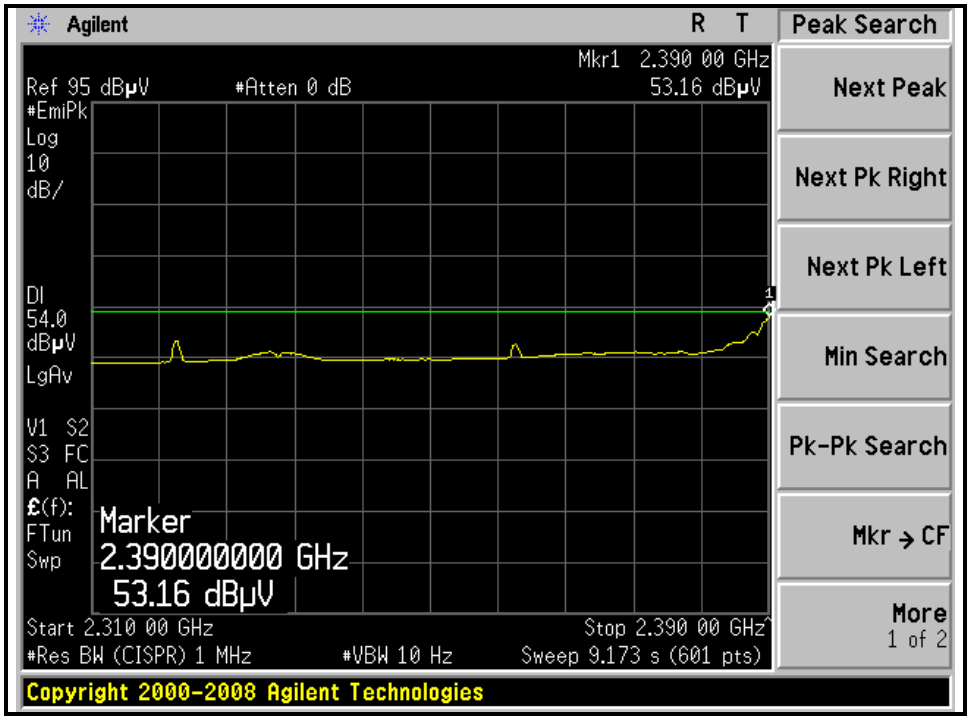
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu

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	111.0 PK			1.29 H	268	79.72	31.28
2	*2462.00	108.3 AV			1.29 H	268	77.02	31.28
3	2483.50	62.3 PK	74.0	-11.7	1.28 H	266	30.93	31.37
4	2483.50	52.4 AV	54.0	-1.6	1.28 H	266	21.03	31.37
5	4924.00	52.4 PK	74.0	-21.6	1.67 H	88	15.05	37.35
6	4924.00	49.8 AV	54.0	-4.2	1.67 H	88	12.45	37.35
7	7386.00	57.4 PK	74.0	-16.6	1.53 H	206	12.80	44.60
8	7386.00	52.6 AV	54.0	-1.4	1.53 H	206	8.00	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	109.3 PK			1.31 V	182	78.02	31.28
2	*2462.00	106.5 AV			1.31 V	182	75.22	31.28
3	2483.50	60.2 PK	74.0	-13.8	1.30 V	183	28.84	31.37
4	2483.50	49.4 AV	54.0	-4.6	1.30 V	183	18.06	31.37
5	4924.00	50.1 PK	74.0	-23.9	1.18 V	254	12.75	37.35
6	4924.00	45.8 AV	54.0	-8.2	1.18 V	254	8.45	37.35
7	7386.00	56.0 PK	74.0	-18.0	1.48 V	167	11.40	44.60
8	7386.00	51.1 AV	54.0	-2.9	1.48 V	167	6.50	44.60

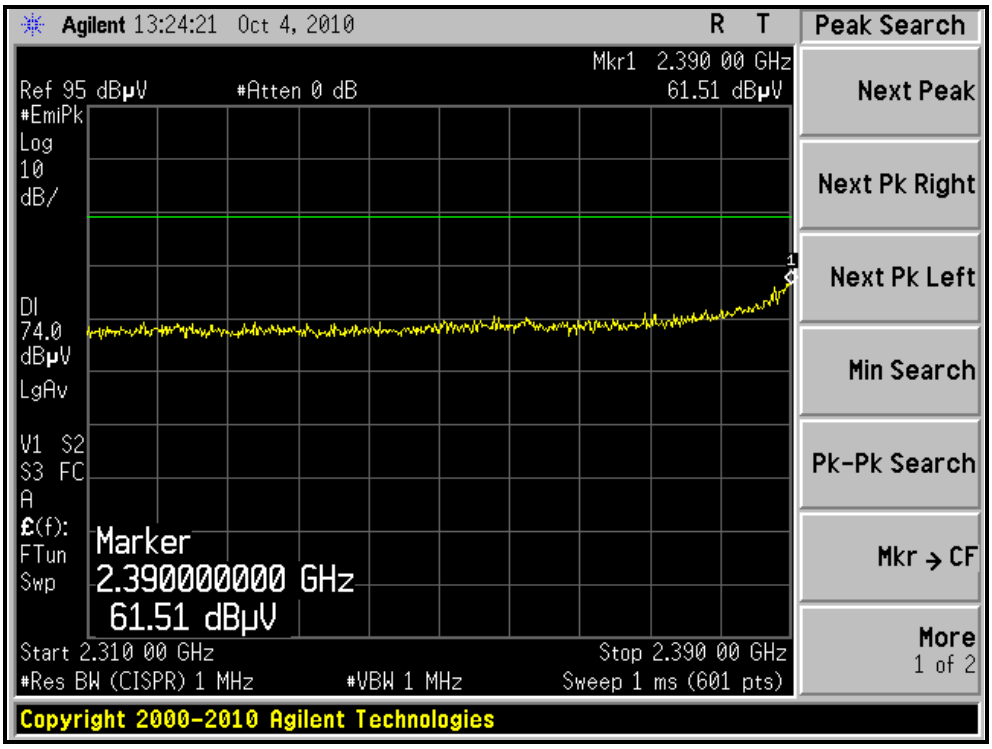
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

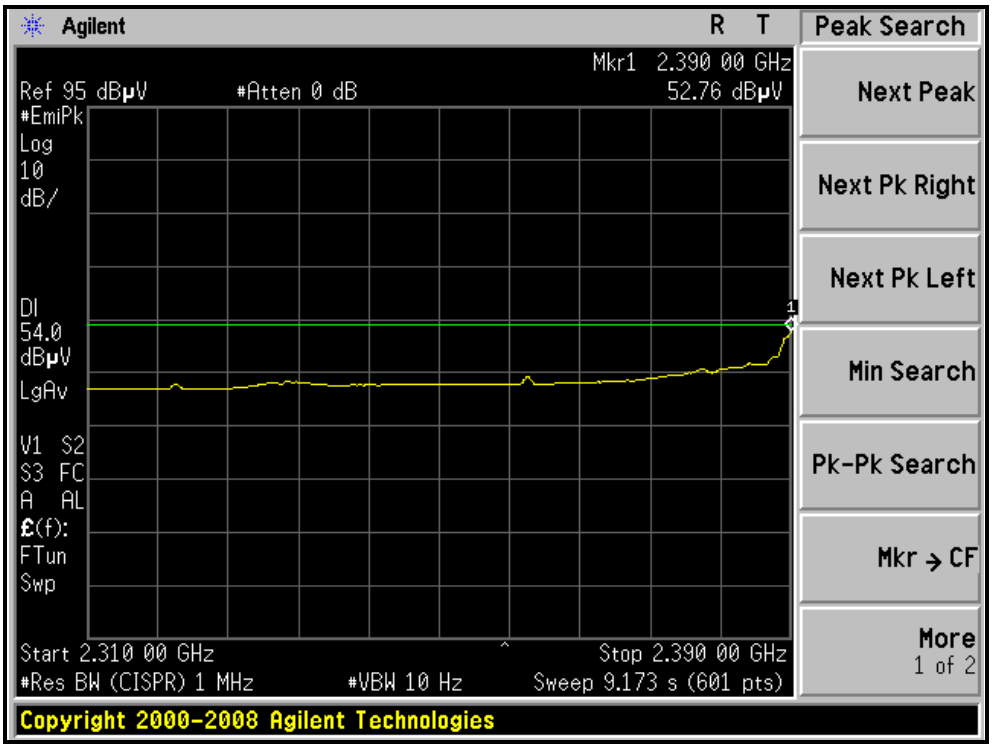
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



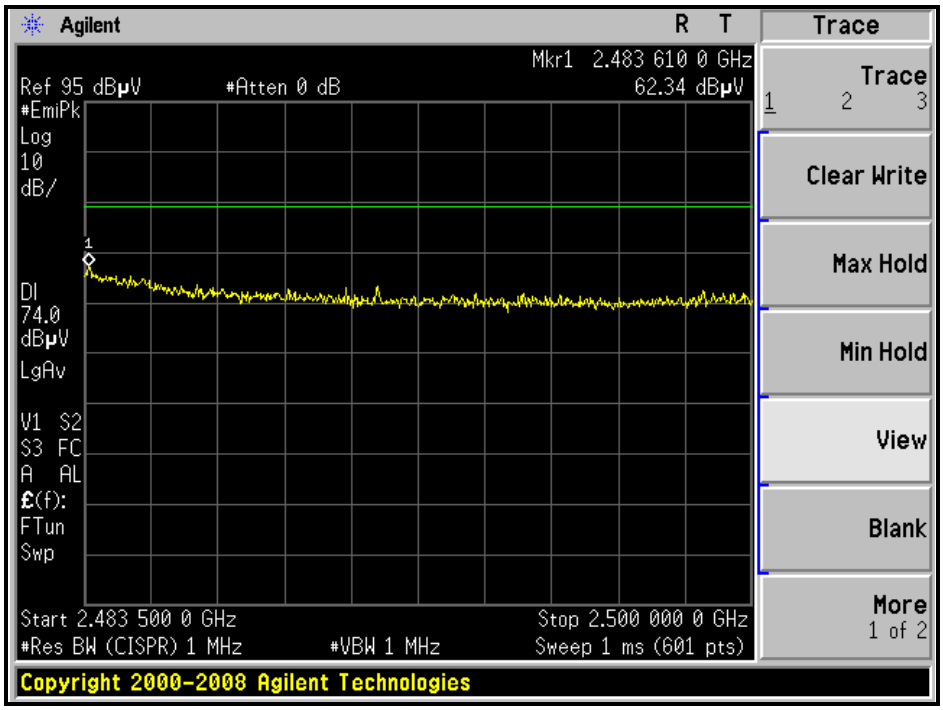


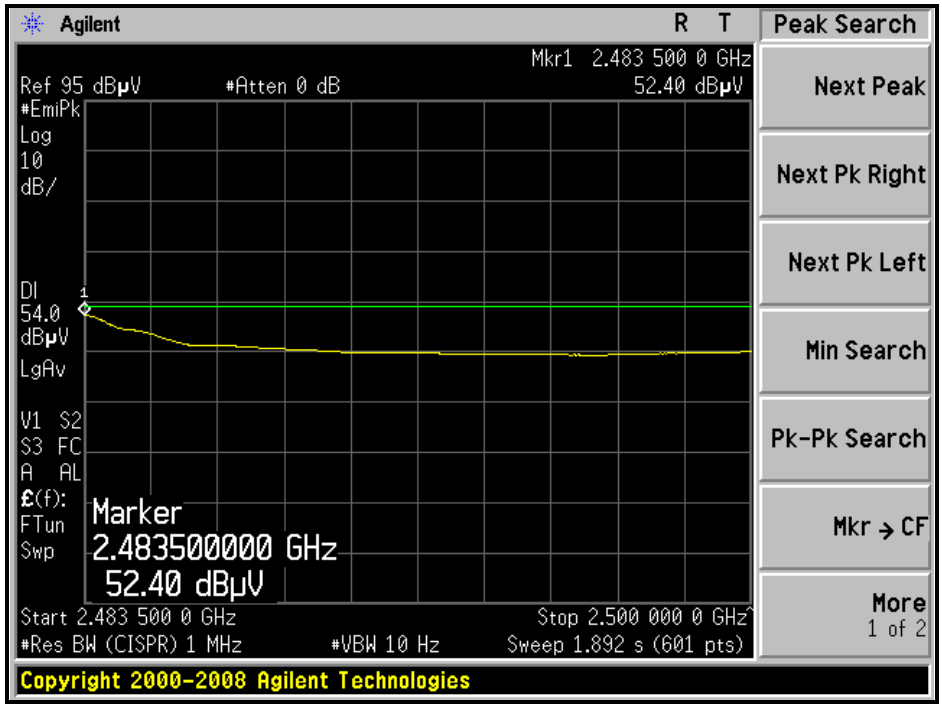
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



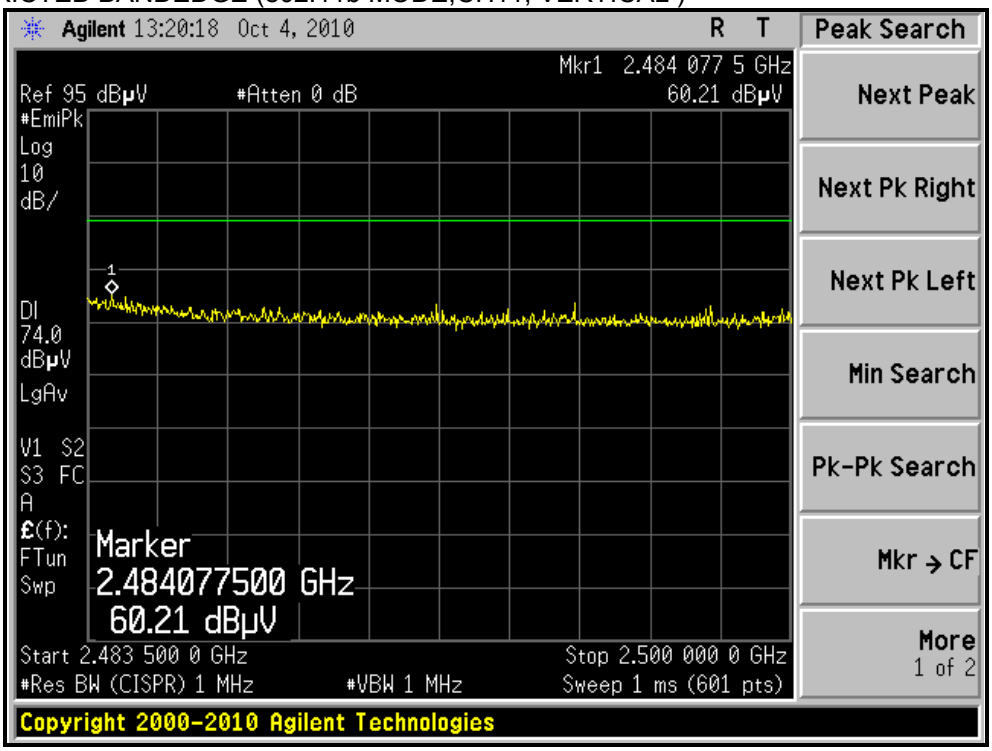


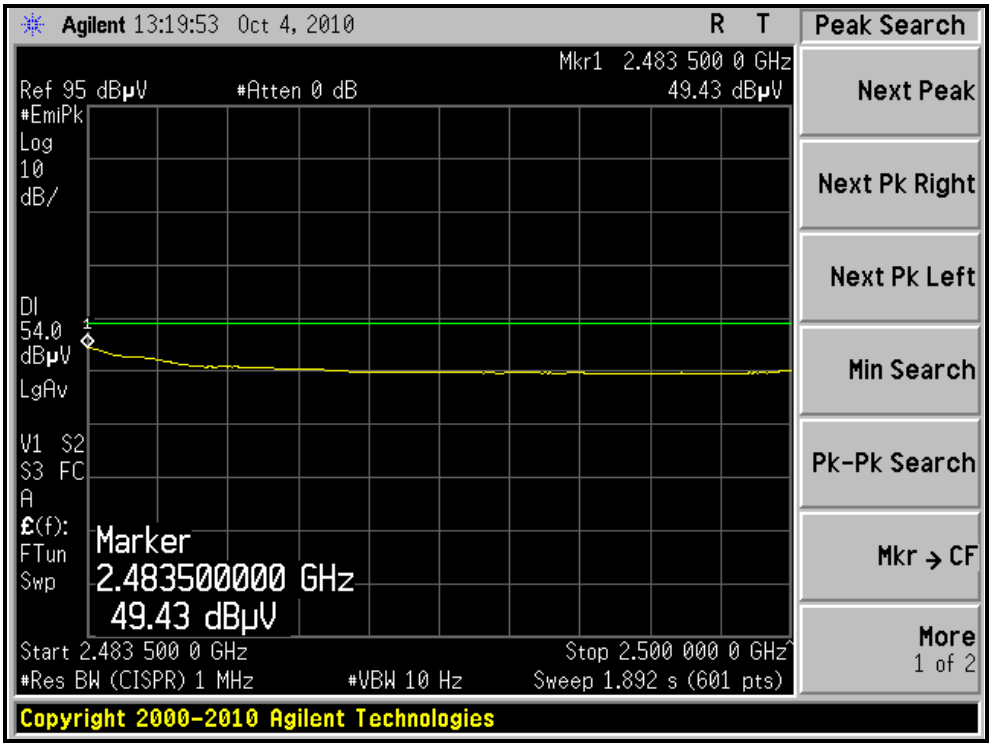
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	70.7 PK	74.0	-3.3	1.37 H	287	39.74	30.97
2	2390.00	53.0 AV	54.0	-1.0	1.37 H	287	22.05	30.97
3	*2412.00	109.8 PK			1.27 H	281	78.74	31.06
4	*2412.00	98.9 AV			1.27 H	281	67.84	31.06
5	4824.00	43.1 PK	74.0	-30.9	1.27 H	179	5.98	37.12
6	4824.00	33.2 AV	54.0	-20.8	1.27 H	179	-3.92	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	69.9 PK	74.0	-4.1	1.38 V	196	38.90	30.97
2	2390.00	50.1 AV	54.0	-3.9	1.38 V	196	19.17	30.97
3	*2412.00	106.8 PK			1.38 V	183	75.74	31.06
4	*2412.00	95.4 AV			1.38 V	183	64.34	31.06
5	4824.00	43.4 PK	74.0	-30.6	1.24 V	173	6.28	37.12
6	4824.00	33.6 AV	54.0	-20.4	1.24 V	173	-3.52	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	113.6 PK			1.38 H	290	82.43	31.17
2	*2437.00	102.4 AV			1.38 H	290	71.23	31.17
3	4874.00	45.3 PK	74.0	-28.7	1.26 H	169	8.07	37.23
4	4874.00	35.2 AV	54.0	-18.8	1.26 H	169	-2.03	37.23
5	7311.00	60.7 PK	74.0	-13.3	1.20 H	337	16.34	44.36
6	7311.00	49.7 AV	54.0	-4.3	1.20 H	337	5.34	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	110.3 PK			1.37 V	169	79.13	31.17
2	*2437.00	99.4 AV			1.37 V	169	68.23	31.17
3	4874.00	46.8 PK	74.0	-27.2	1.47 V	170	9.57	37.23
4	4874.00	36.8 AV	54.0	-17.2	1.47 V	170	-0.43	37.23
5	7311.00	61.2 PK	74.0	-12.8	1.31 V	186	16.84	44.36
6	7311.00	50.6 AV	54.0	-3.4	1.31 V	186	6.24	44.36

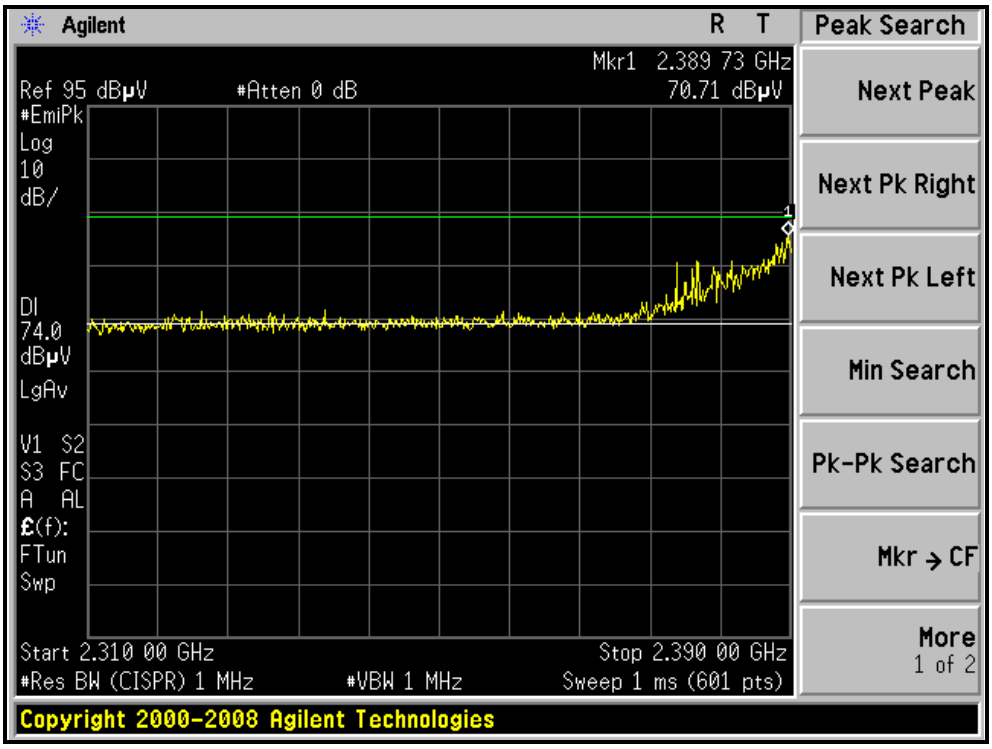
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

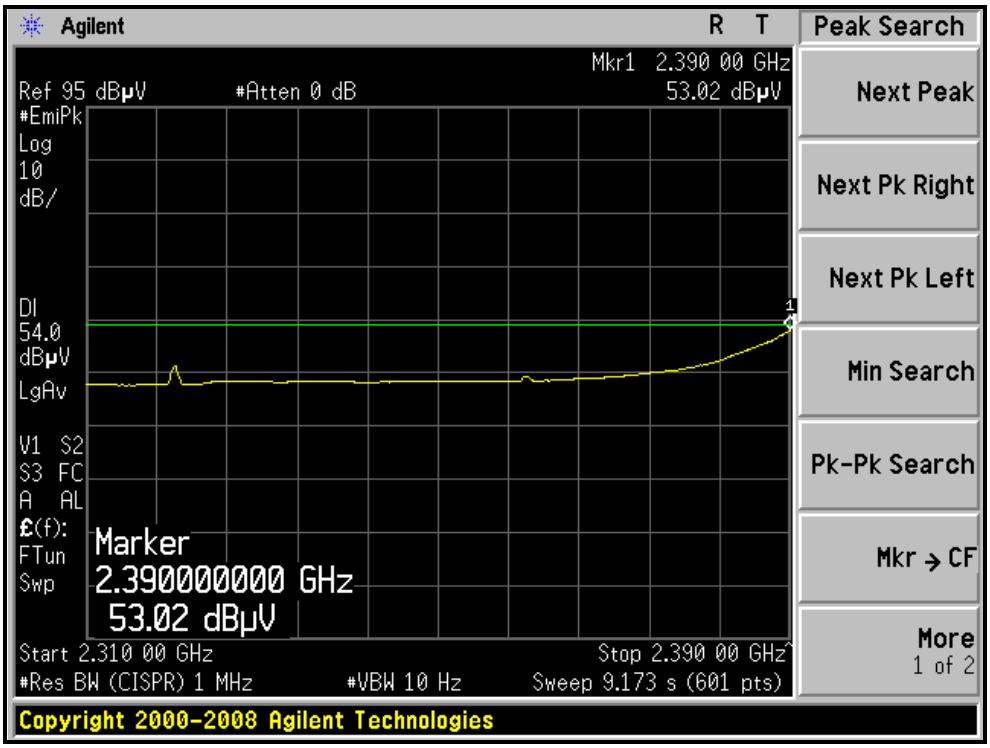
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu

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	107.9 PK			1.29 H	268	76.62	31.28
2	*2462.00	97.6 AV			1.29 H	268	66.32	31.28
3	2483.50	69.1 PK	74.0	-4.9	1.29 H	267	37.71	31.37
4	2483.50	52.8 AV	54.0	-1.2	1.29 H	267	21.46	31.37
5	4924.00	43.7 PK	74.0	-30.3	1.27 H	198	6.35	37.35
6	4924.00	33.3 AV	54.0	-20.7	1.27 H	198	-4.05	37.35
7	7386.00	52.3 PK	74.0	-21.7	1.40 H	193	7.70	44.60
8	7386.00	40.6 AV	54.0	-13.4	1.40 H	193	-4.00	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	105.9 PK			1.36 V	187	74.62	31.28
2	*2462.00	94.3 AV			1.36 V	187	63.02	31.28
3	2483.50	68.2 PK	74.0	-5.8	1.36 V	185	36.80	31.37
4	2483.50	50.2 AV	54.0	-3.8	1.36 V	185	18.82	31.37
5	4924.00	43.2 PK	74.0	-30.8	1.21 V	164	5.85	37.35
6	4924.00	33.1 AV	54.0	-20.9	1.21 V	164	-4.25	37.35
7	7386.00	51.5 PK	74.0	-22.5	1.29 V	173	6.90	44.60
8	7386.00	39.3 AV	54.0	-14.7	1.29 V	173	-5.30	44.60

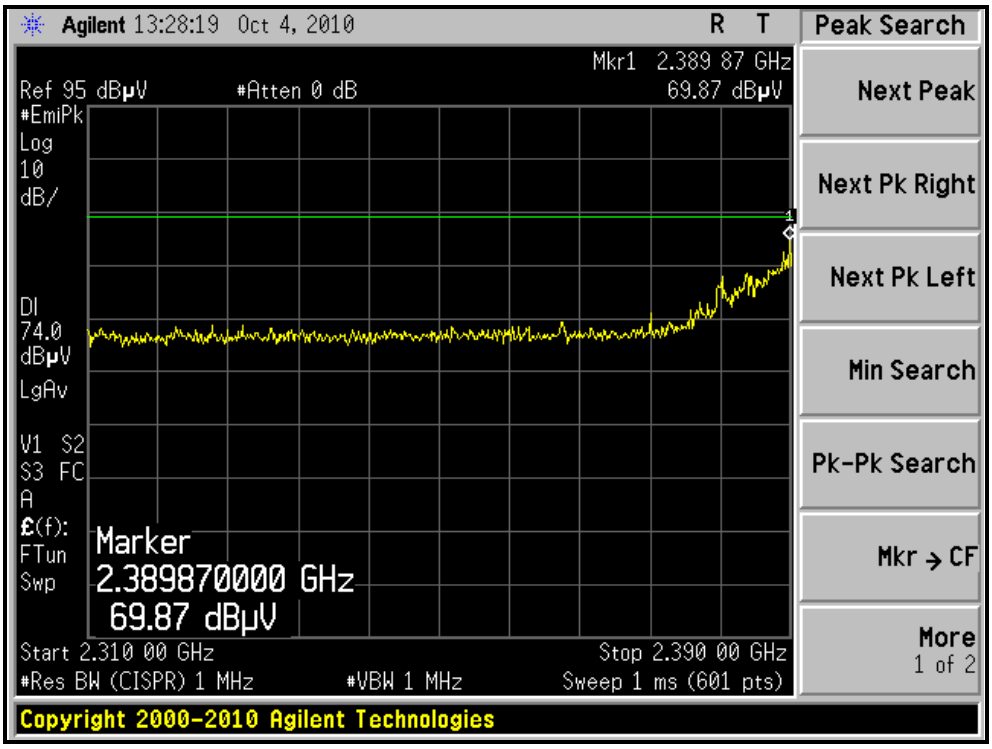
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

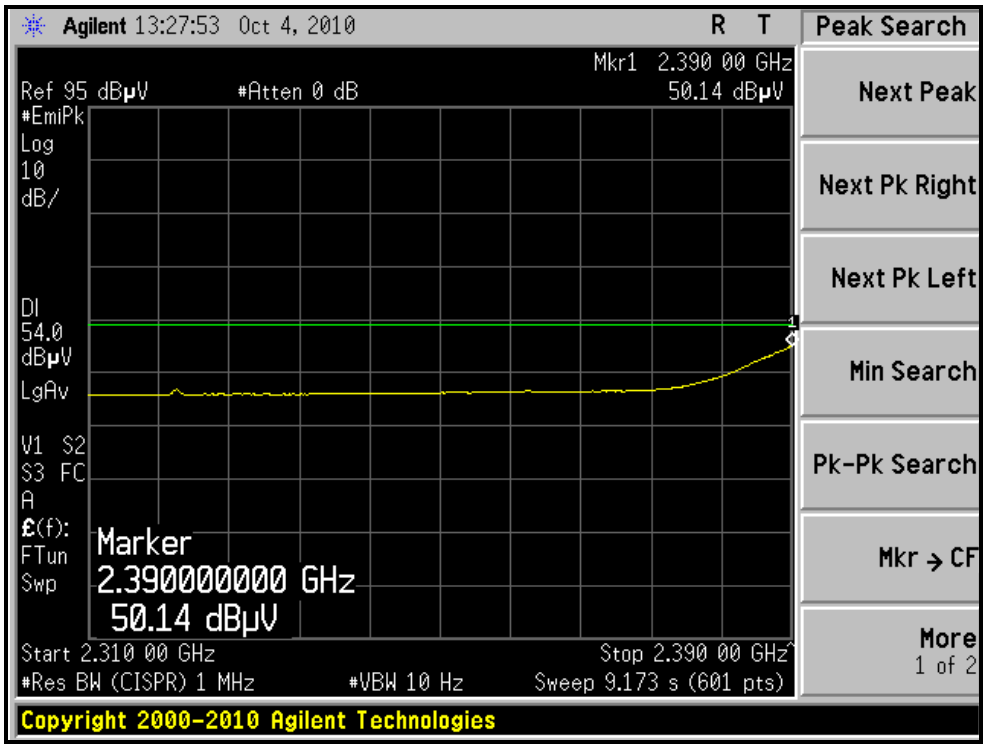
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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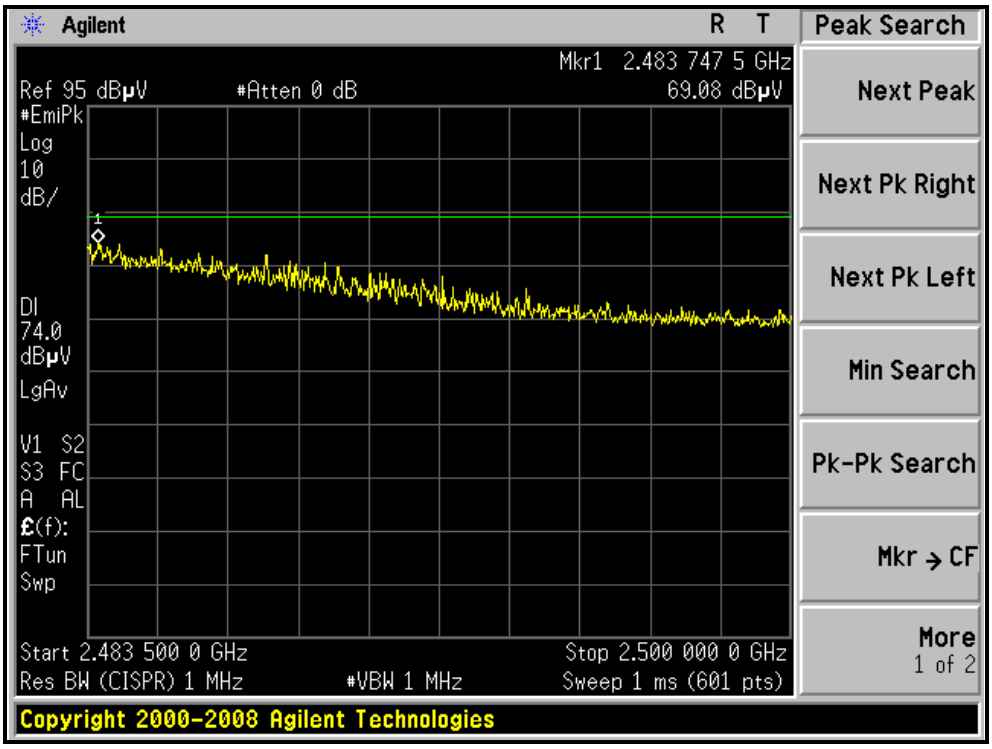
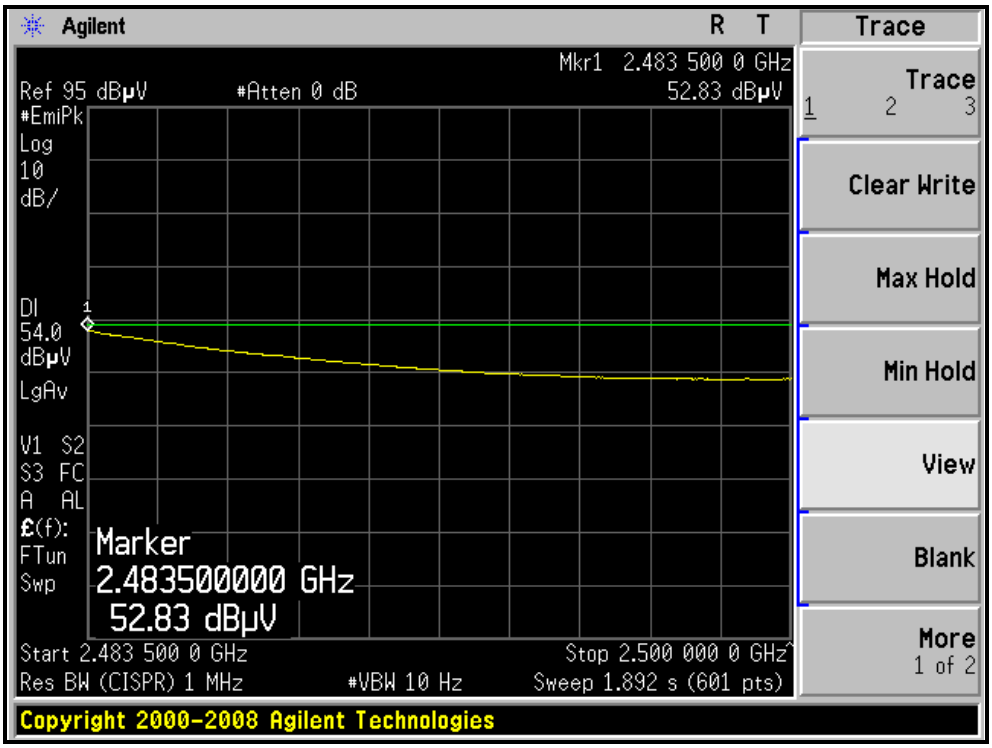
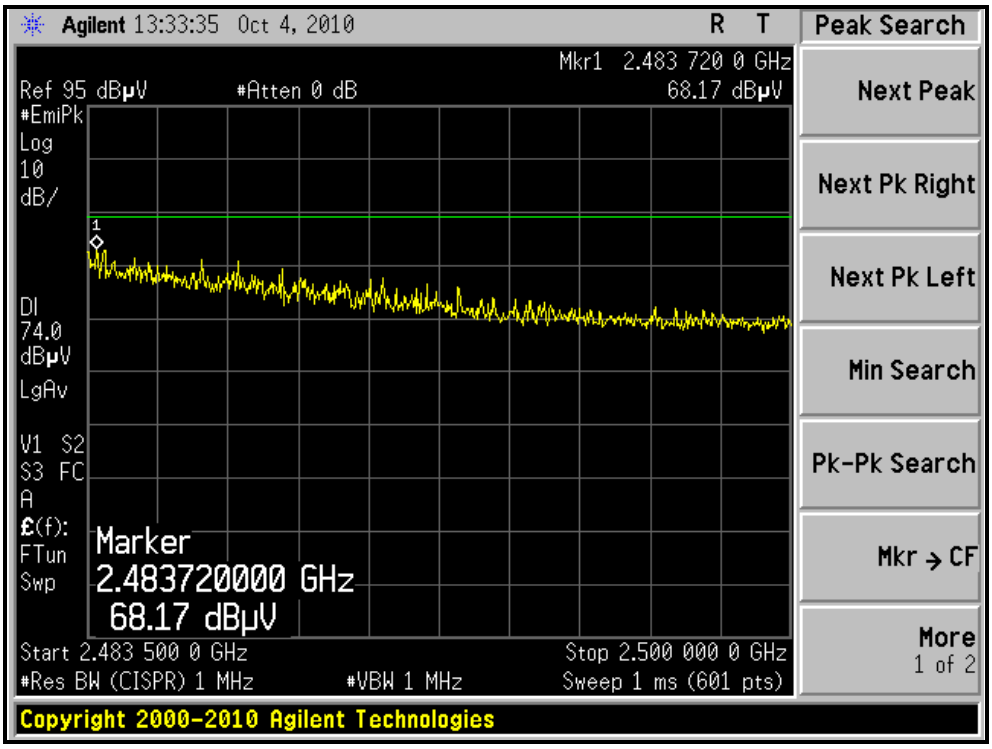
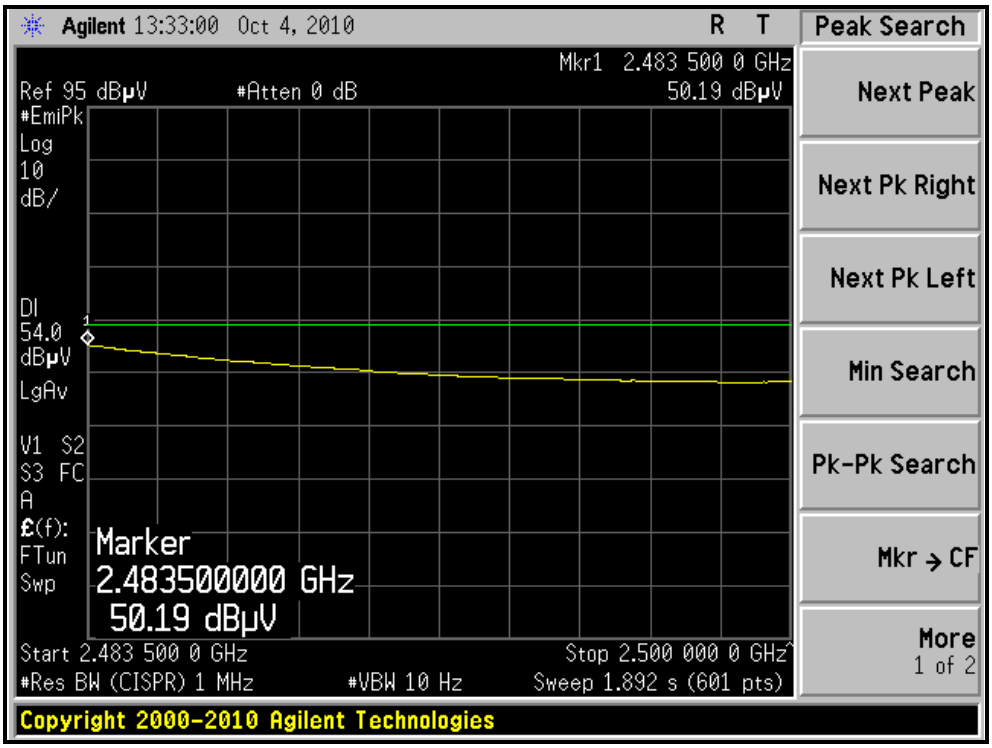




RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	71.0 PK	74.0	-3.0	1.37 H	252	40.02	30.97
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**1.37 H**	**252**	**22.52**	**30.97**
3	*2412.00	107.8 PK			1.27 H	282	76.74	31.06
4	*2412.00	97.5 AV			1.27 H	282	66.44	31.06
5	4824.00	44.2 PK	74.0	-29.8	1.37 H	154	7.08	37.12
6	4824.00	34.1 AV	54.0	-19.9	1.37 H	154	-3.02	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	69.0 PK	74.0	-5.0	1.36 V	185	38.01	30.97
2	2390.00	53.1 AV	54.0	-0.9	1.36 V	185	22.10	30.97
3	*2412.00	107.1 PK			1.39 V	174	76.04	31.06
4	*2412.00	96.6 AV			1.39 V	174	65.54	31.06
5	4824.00	43.4 PK	74.0	-30.6	1.27 V	129	6.28	37.12
6	4824.00	32.9 AV	54.0	-21.1	1.27 V	129	-4.22	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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	68.1 PK	74.0	-5.9	1.38 H	251	37.13	30.97
2	2390.00	51.0 AV	54.0	-3.0	1.38 H	251	20.03	30.97
3	*2437.00	116.2 PK			1.27 H	181	85.03	31.17
4	*2437.00	104.0 AV			1.27 H	181	72.83	31.17
5	2483.50	67.3 PK	74.0	-6.7	1.36 H	182	35.93	31.37
6	2483.50	52.0 AV	54.0	-2.0	1.36 H	182	20.63	31.37
7	4874.00	49.3 PK	74.0	-24.7	1.43 H	244	12.07	37.23
8	4874.00	38.4 AV	54.0	-15.6	1.43 H	244	1.17	37.23
9	7311.00	60.9 PK	74.0	-13.2	1.63 H	214	16.49	44.36
10	7311.00	49.7 AV	54.0	-4.3	1.63 H	214	5.30	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	115.4 PK			1.37 V	164	84.23	31.17
2	*2437.00	102.9 AV			1.37 V	164	71.73	31.17
3	4874.00	48.2 PK	74.0	-25.8	1.27 V	109	10.97	37.23
4	4874.00	37.4 AV	54.0	-16.6	1.27 V	109	0.17	37.23
5	7311.00	59.3 PK	74.0	-14.7	1.35 V	167	14.94	44.36
6	7311.00	48.2 AV	54.0	-5.8	1.35 V	167	3.84	44.36

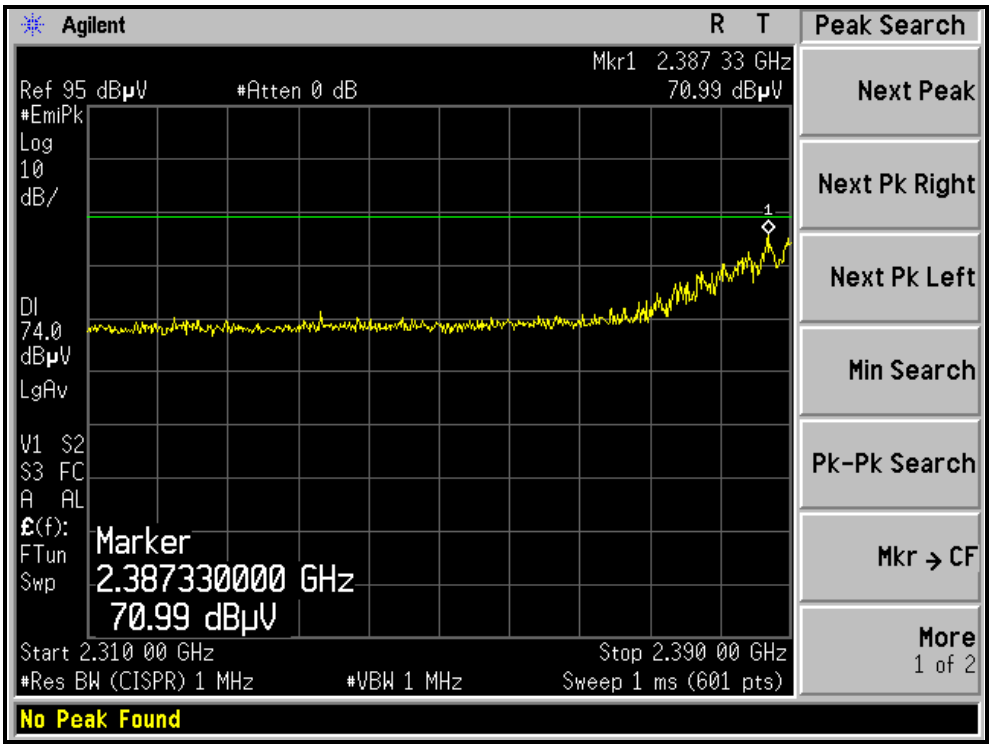
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

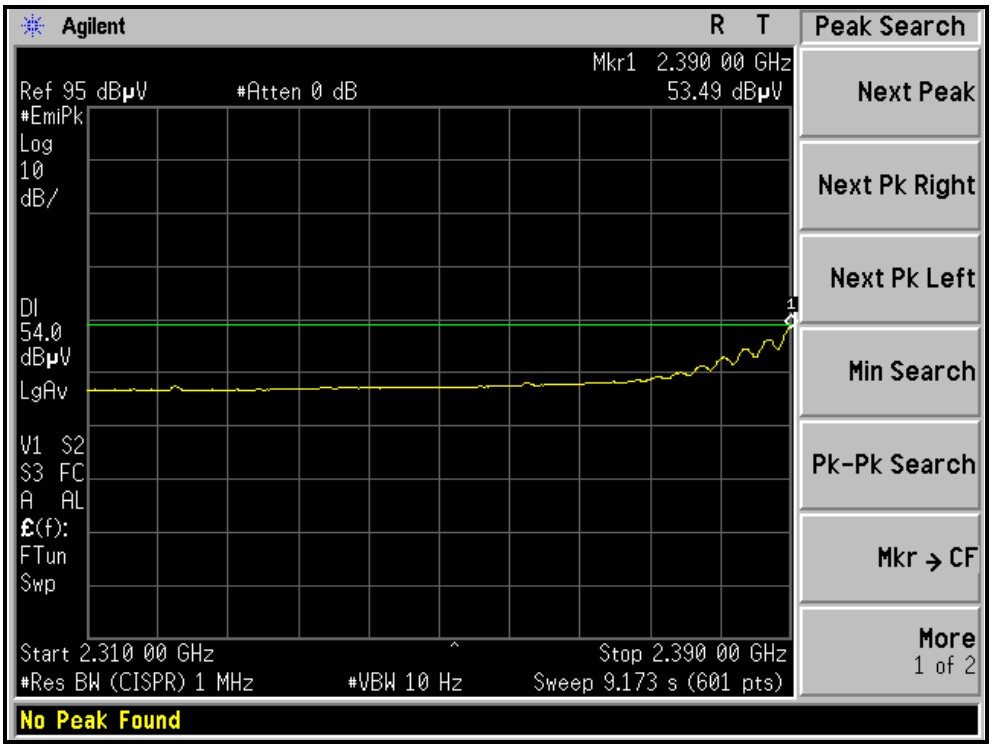
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu

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	109.1 PK			1.28 H	195	77.82	31.28
2	*2462.00	97.3 AV			1.28 H	195	65.99	31.28
3	2483.50	68.8 PK	74.0	-5.2	1.28 H	194	37.42	31.37
4	2483.50	53.4 AV	54.0	-0.6	1.28 H	194	22.04	31.37
5	4924.00	43.6 PK	74.0	-30.4	1.29 H	231	6.25	37.35
6	4924.00	33.4 AV	54.0	-20.6	1.29 H	231	-3.95	37.35
7	7386.00	52.2 PK	74.0	-21.8	1.29 H	173	7.60	44.60
8	7386.00	39.3 AV	54.0	-14.7	1.29 H	173	-5.30	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	108.4 PK			1.27 V	169	77.12	31.28
2	*2462.00	96.2 AV			1.27 V	169	64.92	31.28
3	2483.50	68.4 PK	74.0	-5.6	1.29 V	185	37.00	31.37
4	2483.50	52.4 AV	54.0	-1.7	1.29 V	185	20.98	31.37
5	4924.00	43.1 PK	74.0	-30.9	1.29 V	133	5.75	37.35
6	4924.00	32.7 AV	54.0	-21.3	1.29 V	133	-4.65	37.35
7	7386.00	51.7 PK	74.0	-22.3	1.35 V	169	7.10	44.60
8	7386.00	38.6 AV	54.0	-15.4	1.35 V	169	-6.00	44.60

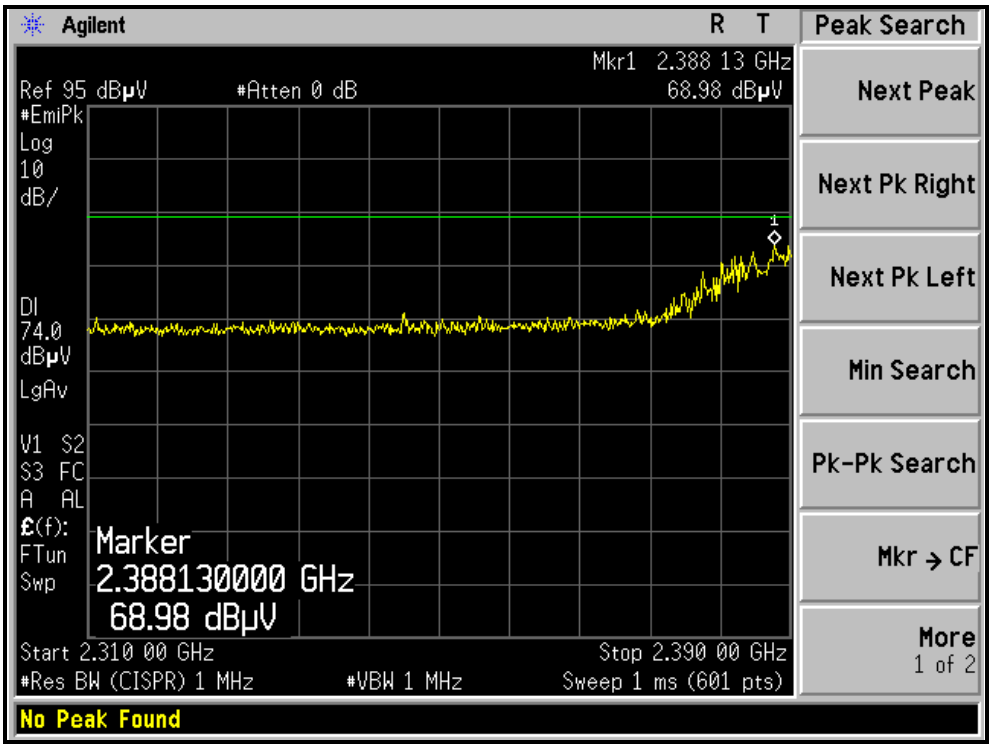
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

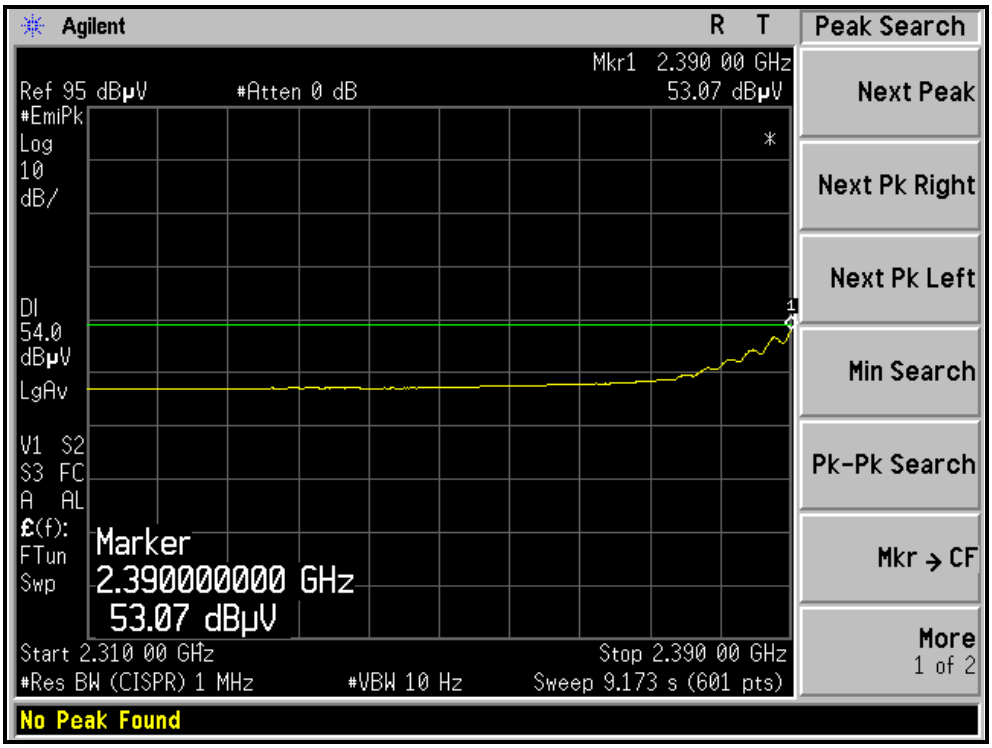
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



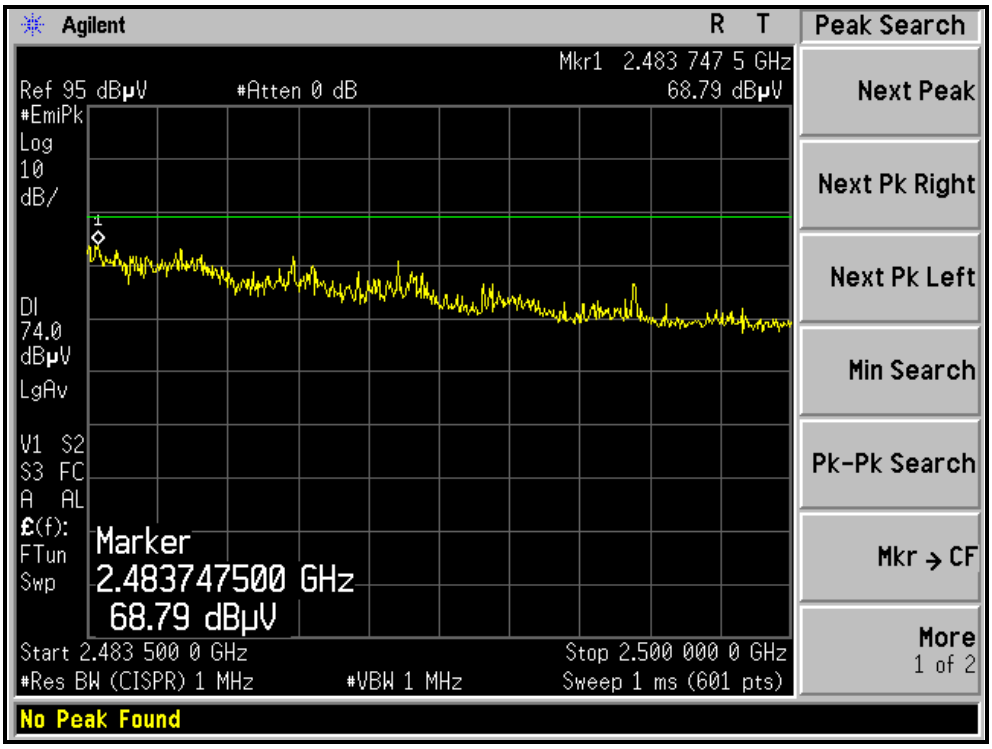


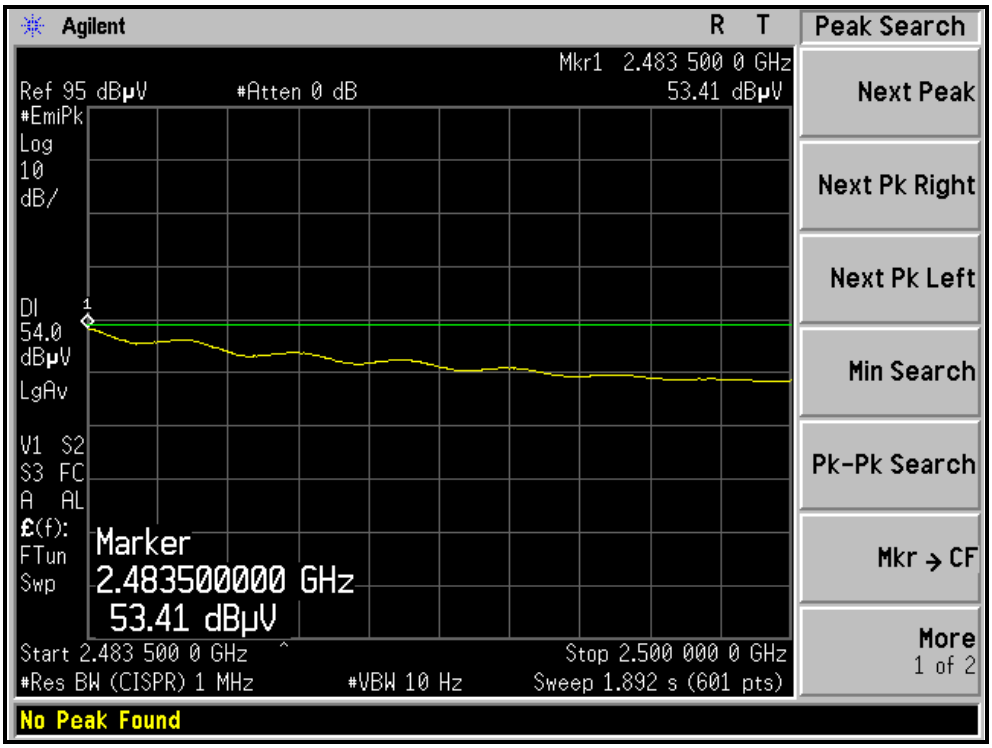
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



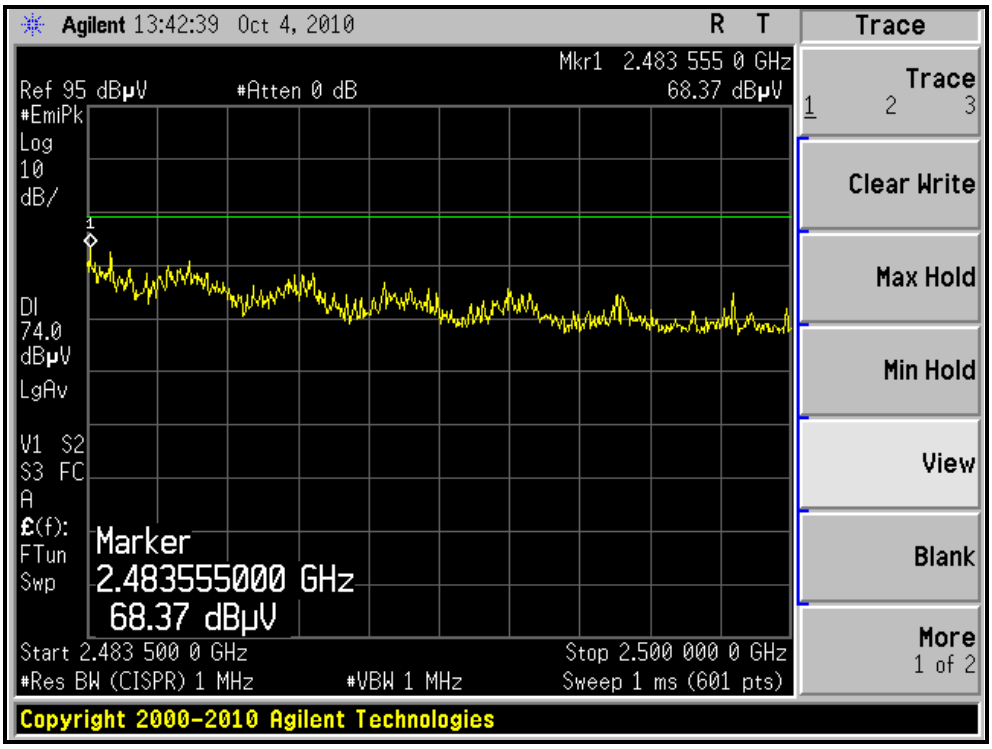


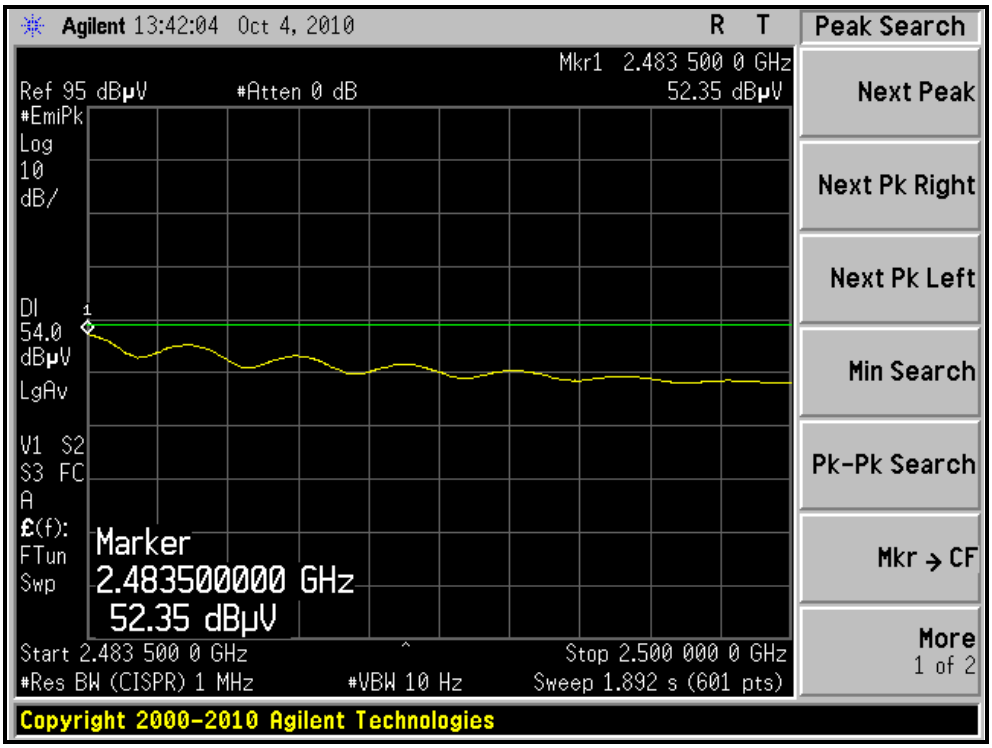
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)





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





802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	67.4 PK	74.0	-6.7	1.34 H	197	36.38	30.97
2	2390.00	53.3 AV	54.0	-0.7	1.34 H	197	22.36	30.97
3	*2422.00	105.7 PK			1.31 H	184	74.60	31.10
4	*2422.00	95.3 AV			1.31 H	184	64.20	31.10
5	4844.00	43.7 PK	74.0	-30.3	1.55 H	131	6.54	37.16
6	4844.00	32.1 AV	54.0	-21.9	1.55 H	131	-5.06	37.16
7	7266.00	50.9 PK	74.0	-23.1	1.26 H	177	6.68	44.22
8	7266.00	38.6 AV	54.0	-15.4	1.26 H	177	-5.62	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	66.9 PK	74.0	-7.1	1.27 V	174	35.89	30.97
2	2390.00	53.3 AV	54.0	-0.7	1.27 V	174	22.32	30.97
3	*2422.00	104.4 PK			1.07 V	151	73.30	31.10
4	*2422.00	94.6 AV			1.07 V	151	63.50	31.10
5	4844.00	44.1 PK	74.0	-29.9	1.59 V	27	6.94	37.16
6	4844.00	33.2 AV	54.0	-20.8	1.59 V	27	-3.96	37.16
7	7266.00	51.3 PK	74.0	-22.7	1.37 V	109	7.08	44.22
8	7266.00	38.4 AV	54.0	-15.6	1.37 V	109	-5.82	44.22

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	69.4 PK	74.0	-4.6	1.35 H	253	38.43	30.97
2	2390.00	53.1 AV	54.0	-0.9	1.35 H	253	22.13	30.97
3	*2437.00	107.4 PK			1.29 H	176	76.23	31.17
4	*2437.00	97.3 AV			1.29 H	176	66.13	31.17
5	2483.50	70.2 PK	74.0	-3.8	1.26 H	194	38.83	31.37
6	2483.50	52.9 AV	54.0	-1.1	1.26 H	194	21.53	31.37
7	4874.00	43.5 PK	74.0	-30.5	1.57 H	119	6.27	37.23
8	4874.00	32.0 AV	54.0	-22.0	1.57 H	119	-5.23	37.23
9	7311.00	51.8 PK	74.0	-22.2	1.37 H	128	7.44	44.36
10	7311.00	39.7 AV	54.0	-14.3	1.37 H	128	-4.66	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	2388.70	67.3 PK	74.0	-6.7	1.01 V	104	36.34	30.96
2	2388.70	53.1 AV	54.0	-0.9	1.01 V	104	22.14	30.96
3	*2437.00	106.4 PK			1.03 V	154	75.23	31.17
4	*2437.00	96.2 AV			1.03 V	154	65.03	31.17
5	4874.00	44.0 PK	74.0	-30.0	1.65 V	20	6.77	37.23
6	4874.00	33.1 AV	54.0	-20.9	1.65 V	20	-4.13	37.23
7	7311.00	52.3 PK	74.0	-21.7	1.24 V	106	7.94	44.36
8	7311.00	39.5 AV	54.0	-14.5	1.24 V	106	-4.87	44.36

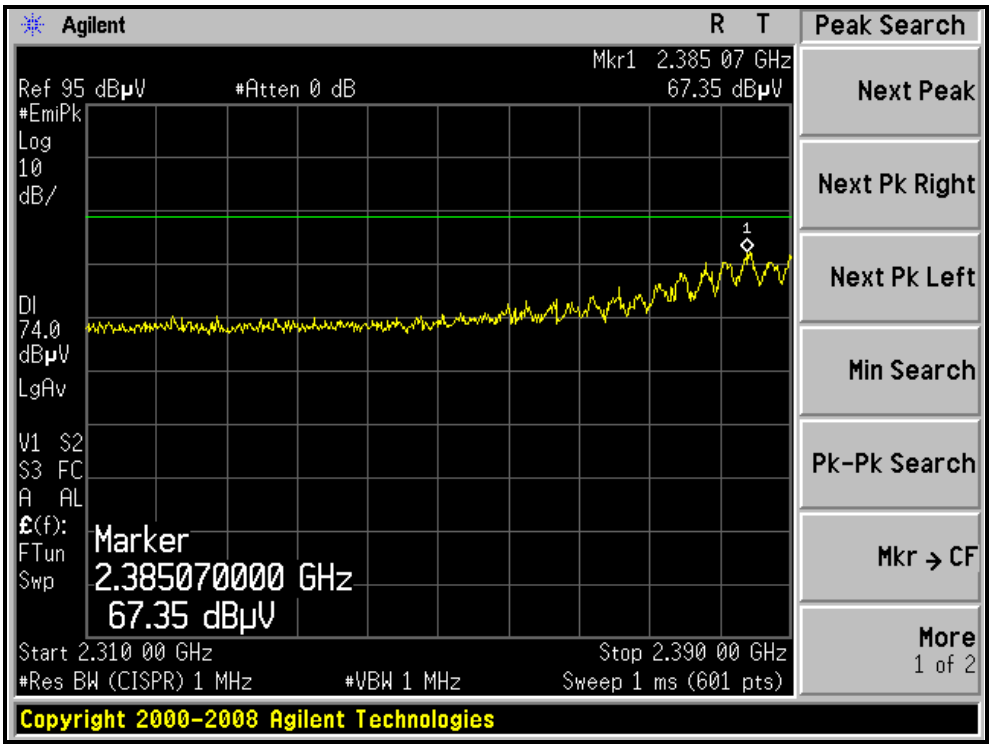
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

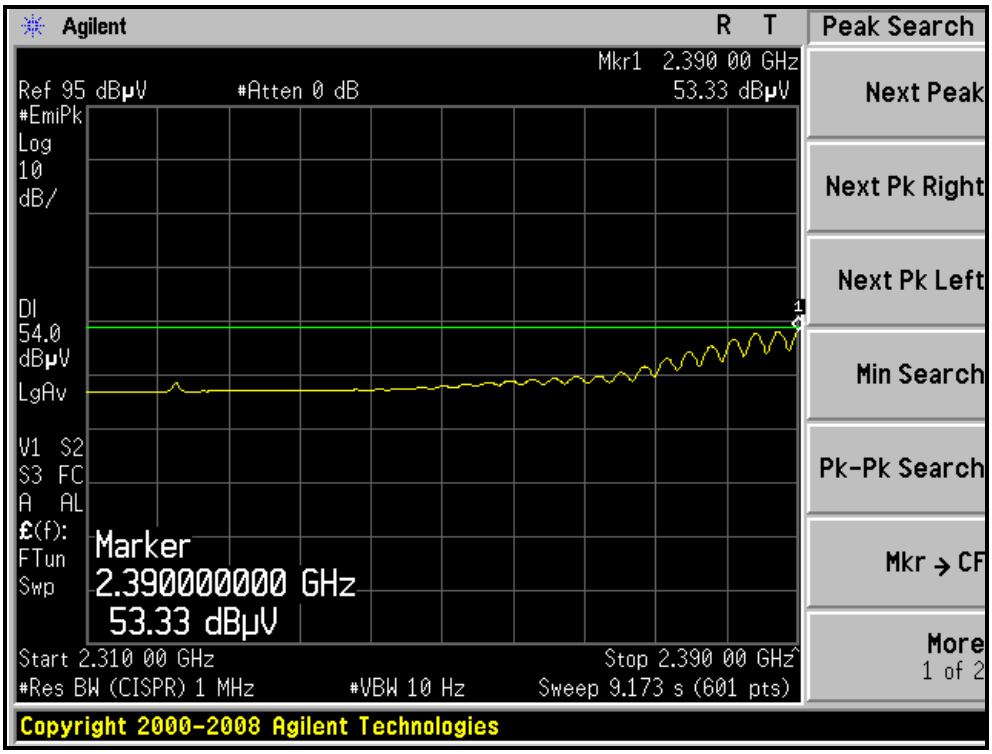
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 hPa	TESTED BY	Frank Liu

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	104.2 PK			1.29 H	174	72.97	31.23
2	*2452.00	94.4 AV			1.29 H	174	63.17	31.23
3	2483.61	67.0 PK	74.0	-7.0	1.26 H	175	35.59	31.37
4	2483.61	53.2 AV	54.0	-0.8	1.26 H	175	21.85	31.37
5	4904.00	43.1 PK	74.0	-30.9	1.54 H	123	5.80	37.30
6	4904.00	32.3 AV	54.0	-21.7	1.54 H	123	-5.00	37.30
7	7356.00	50.1 PK	74.0	-23.9	1.27 H	104	5.60	44.50
8	7356.00	38.4 AV	54.0	-15.6	1.27 H	104	-6.10	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	103.7 PK			1.02 V	149	72.47	31.23
2	*2452.00	93.2 AV			1.02 V	149	61.97	31.23
3	2483.85	67.0 PK	74.0	-7.1	1.29 V	185	35.58	31.37
4	2483.85	53.4 AV	54.0	-0.6	1.29 V	185	22.05	31.37
5	4904.00	43.7 PK	74.0	-30.3	1.54 V	32	6.40	37.30
6	4904.00	32.7 AV	54.0	-21.3	1.54 V	32	-4.60	37.30
7	7356.00	50.9 PK	74.0	-23.1	1.29 V	107	6.40	44.50
8	7356.00	38.2 AV	54.0	-15.8	1.29 V	107	-6.30	44.50

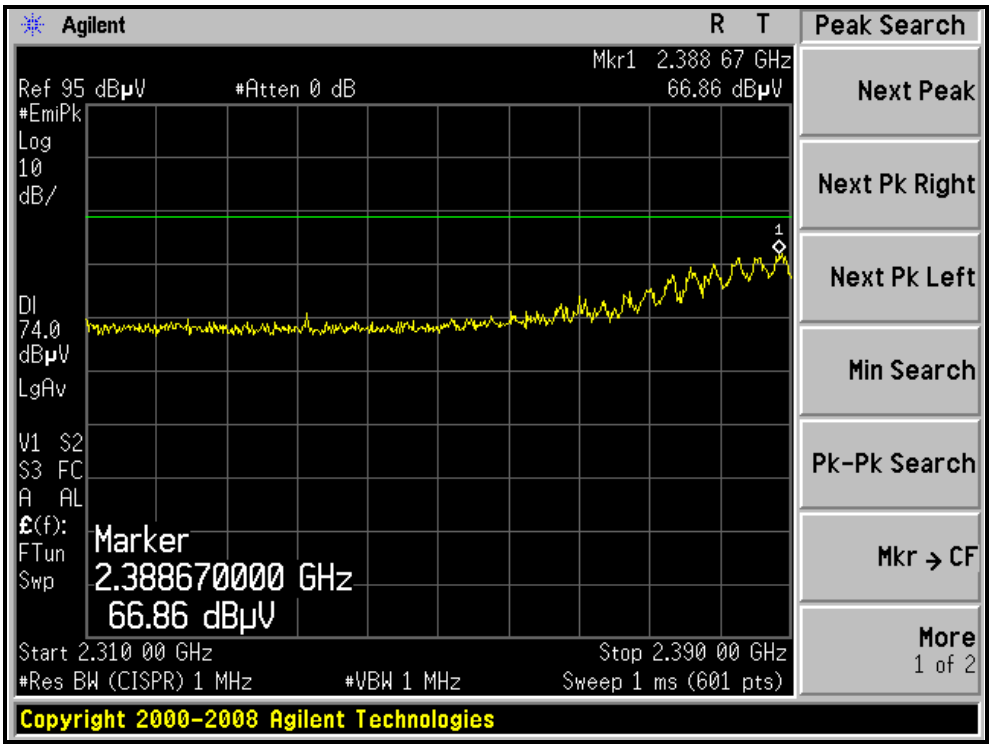
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

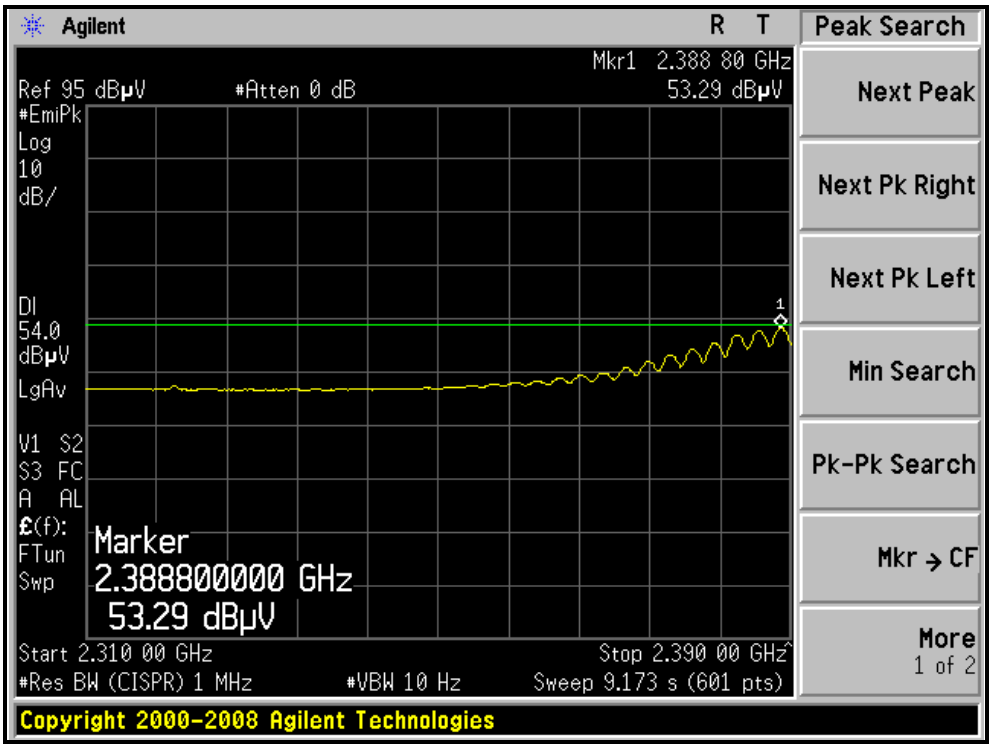
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



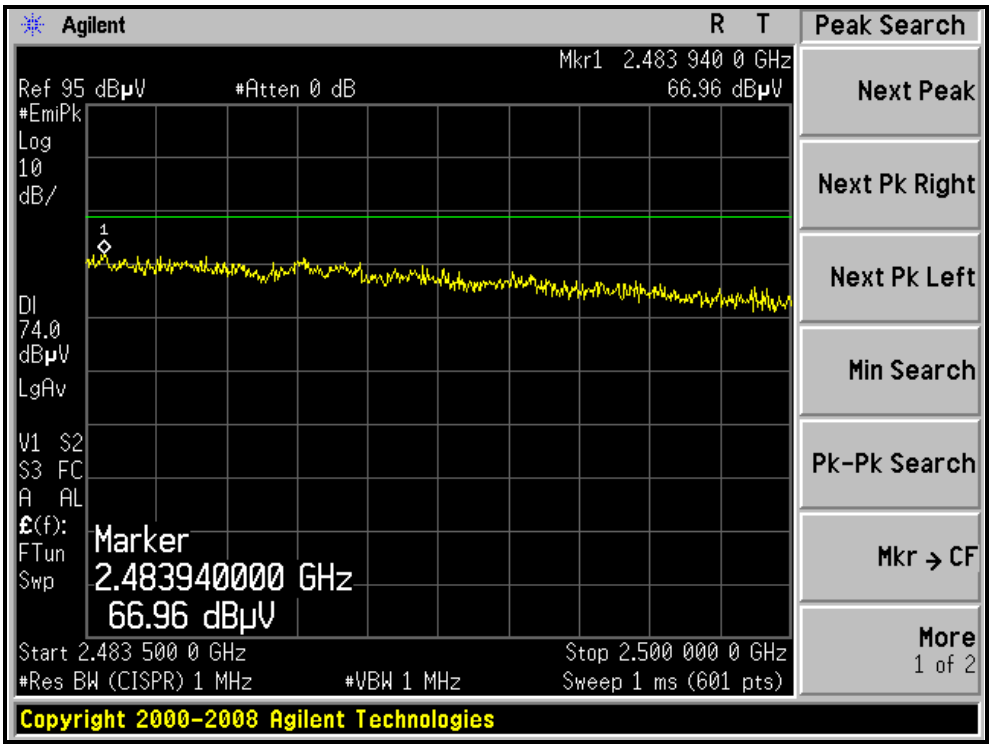


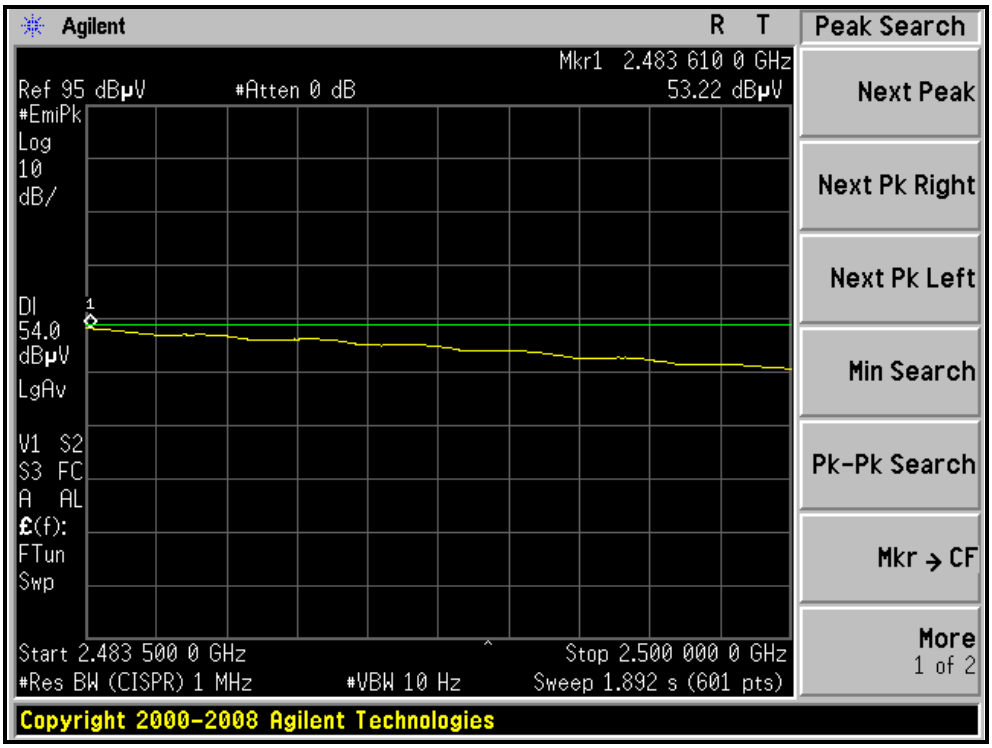
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



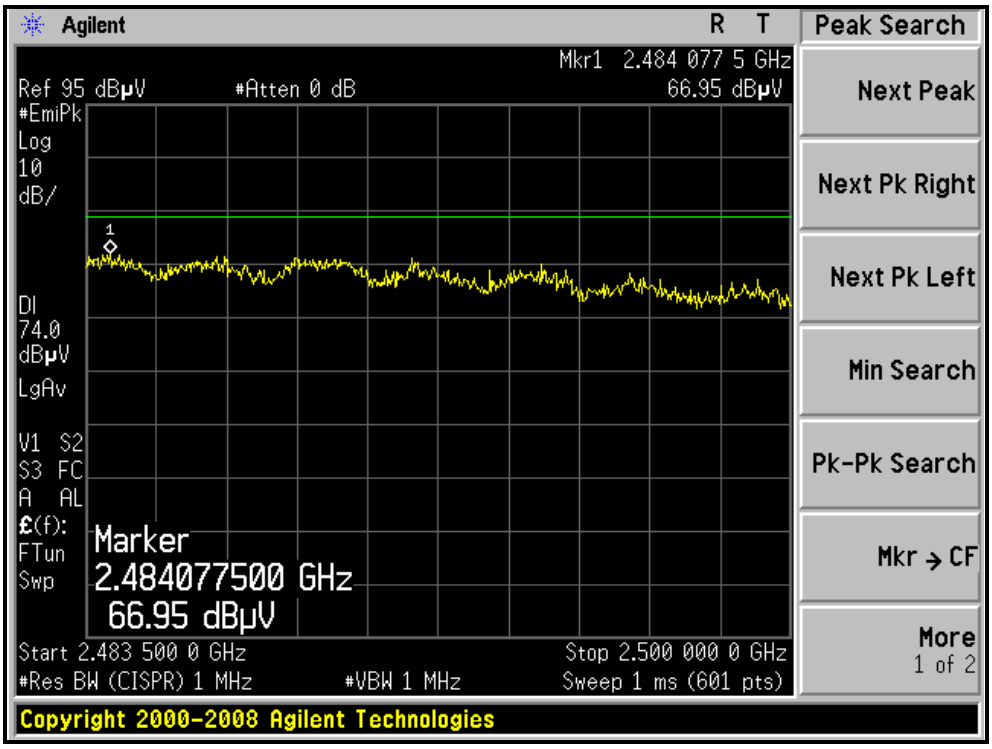


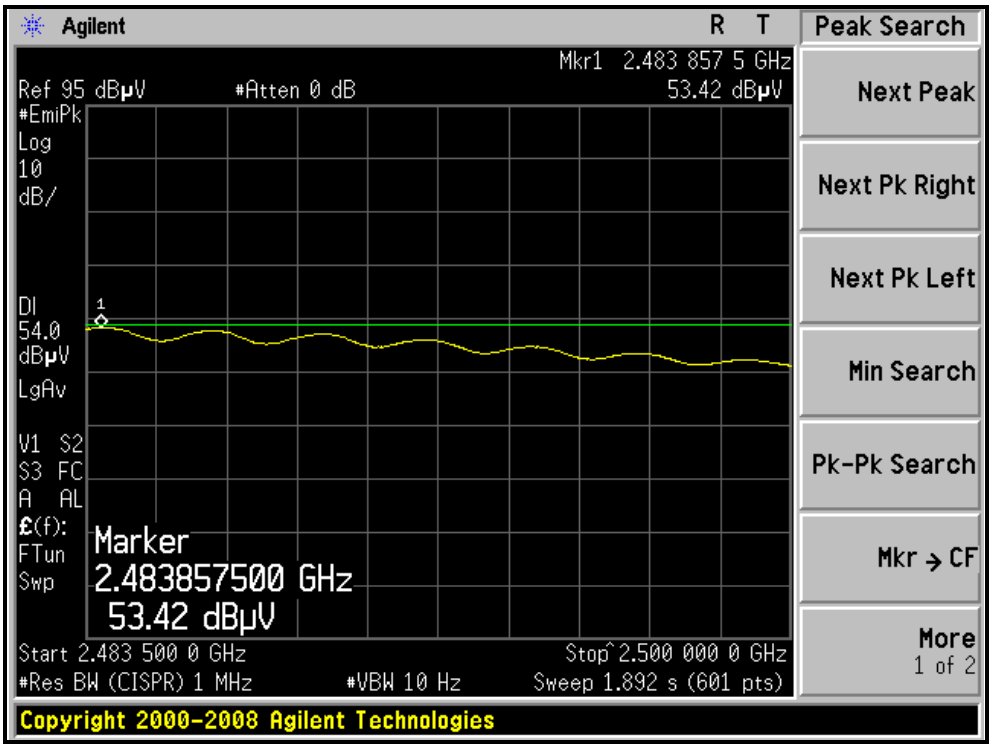
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)





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





4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

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

4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP

4.3.6 EUT OPERATING CONDITIONS

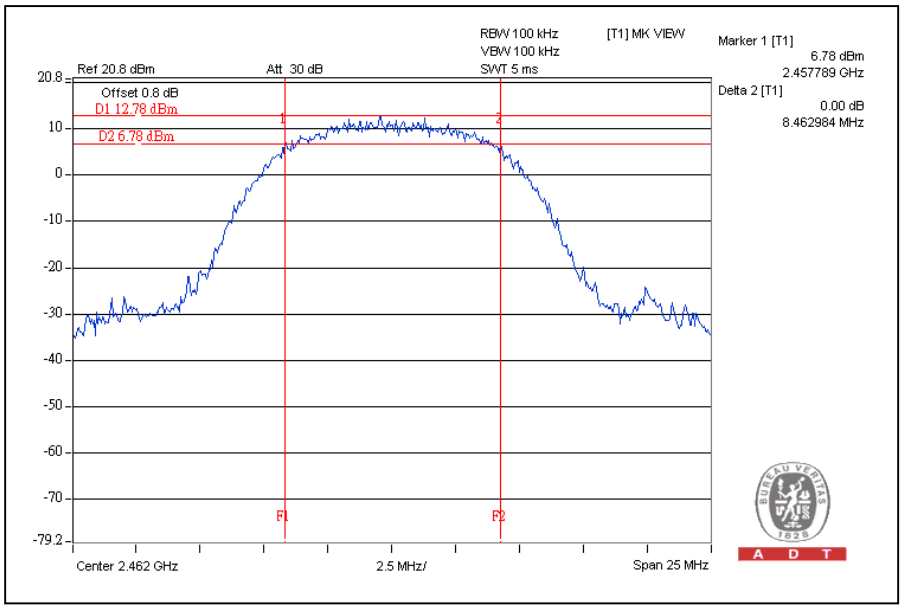
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.23	0.5	PASS
6	2437	8.27	0.5	PASS
11	2462	8.46	0.5	PASS

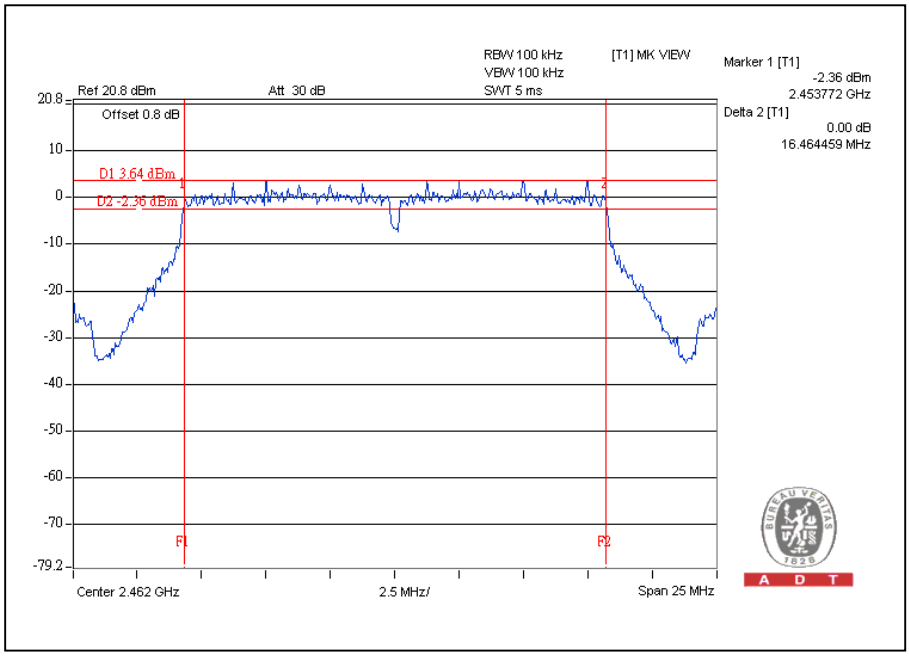
CH11



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.44	0.5	PASS
6	2437	16.44	0.5	PASS
11	2462	16.46	0.5	PASS

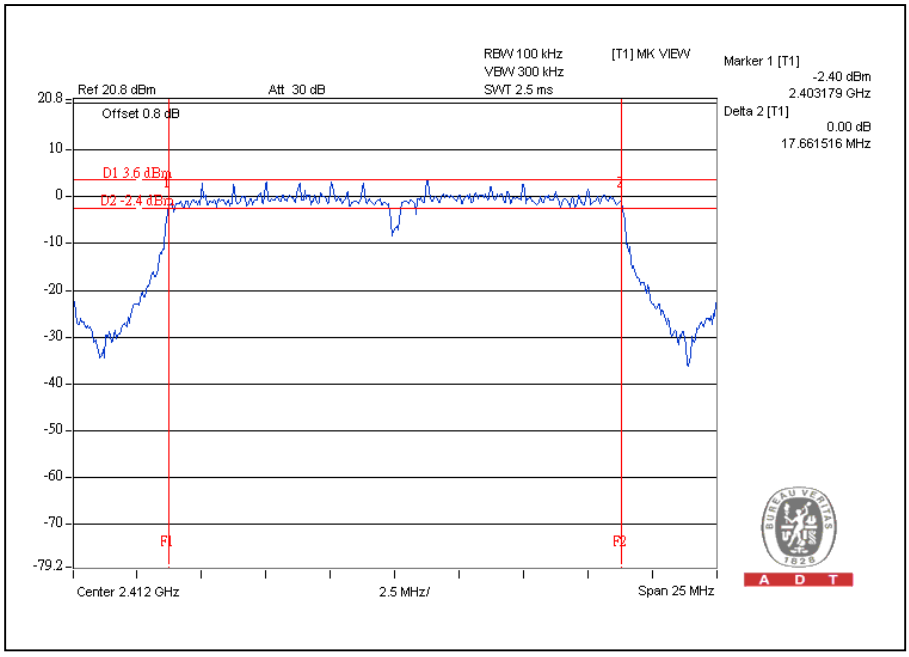
CH11



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.66	0.5	PASS
6	2437	17.63	0.5	PASS
11	2462	17.65	0.5	PASS

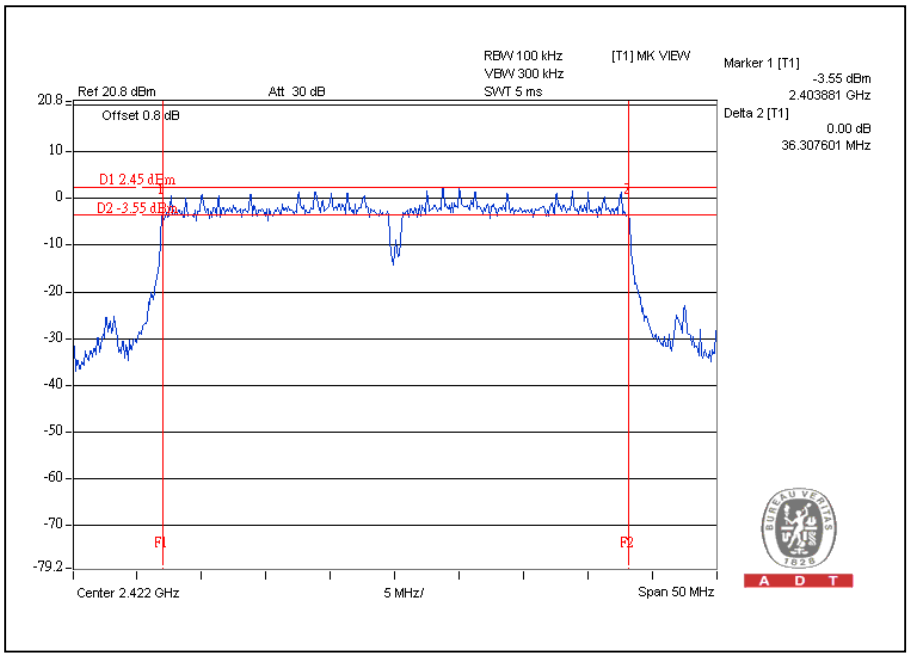
CH1



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.30	0.5	PASS
4	2437	36.18	0.5	PASS
7	2452	36.05	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
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
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.

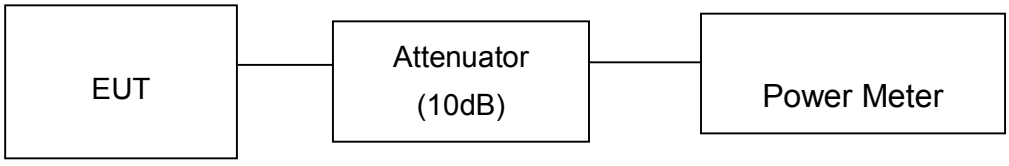
4.4.3 TEST PROCEDURES

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	218.8	23.4	30	PASS
6	2437	295.1	24.7	30	PASS
11	2462	316.2	25.0	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	316.2	25.0	30	PASS
6	2437	562.3	27.5	30	PASS
11	2462	309.0	24.9	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(2G0)	CHAIN(2G1)				
1	2412	25.2	25.5	685.9	28.4	30	PASS
6	2437	26.8	26.6	935.7	29.7	30	PASS
11	2462	24.1	25.0	573.3	27.6	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(2G0)	CHAIN(2G1)				
1	2422	24.1	24.7	552.2	27.4	30	PASS
4	2437	25.8	25.8	760.4	28.8	30	PASS
7	2452	22.4	23.3	387.6	25.9	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	100036	Dec. 18, 2009	Dec. 17, 2010

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

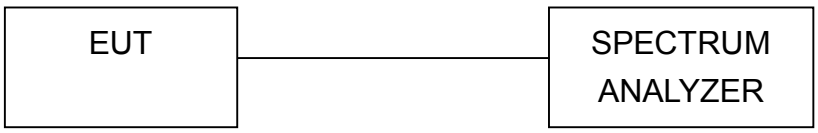
4.5.3 TEST PROCEDURE

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

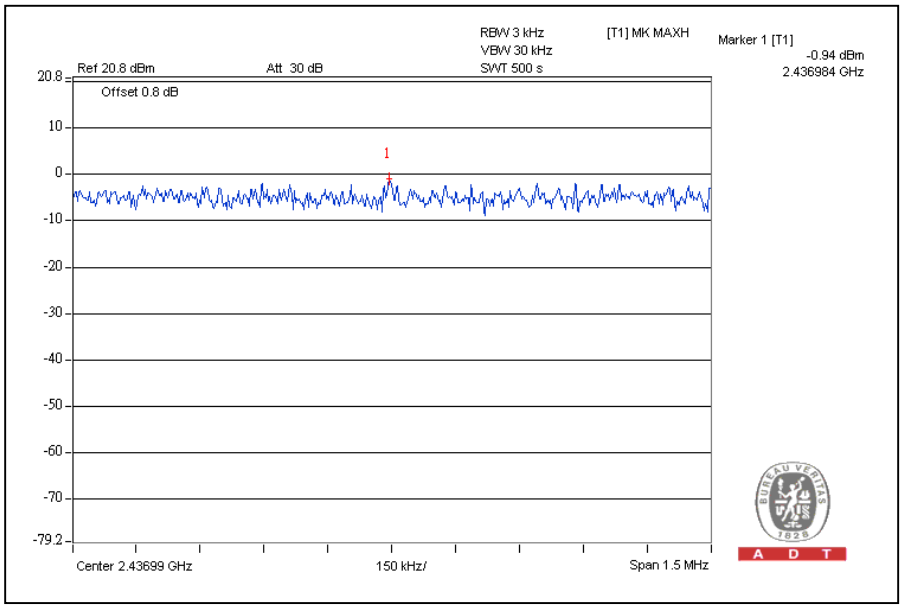
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-3.1	8	PASS
6	2437	-0.9	8	PASS
11	2462	-2.3	8	PASS

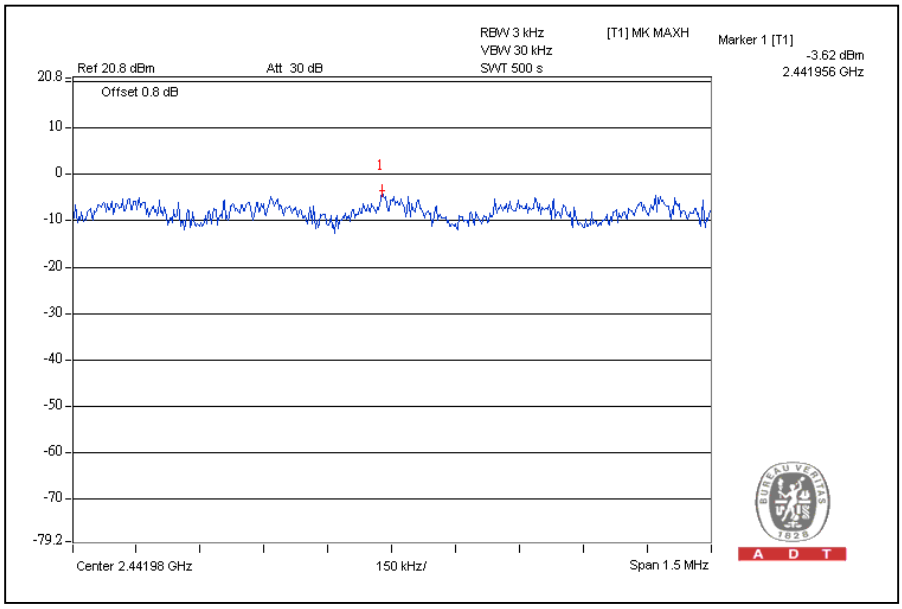
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-7.3	8	PASS
6	2437	-3.6	8	PASS
11	2462	-9.7	8	PASS

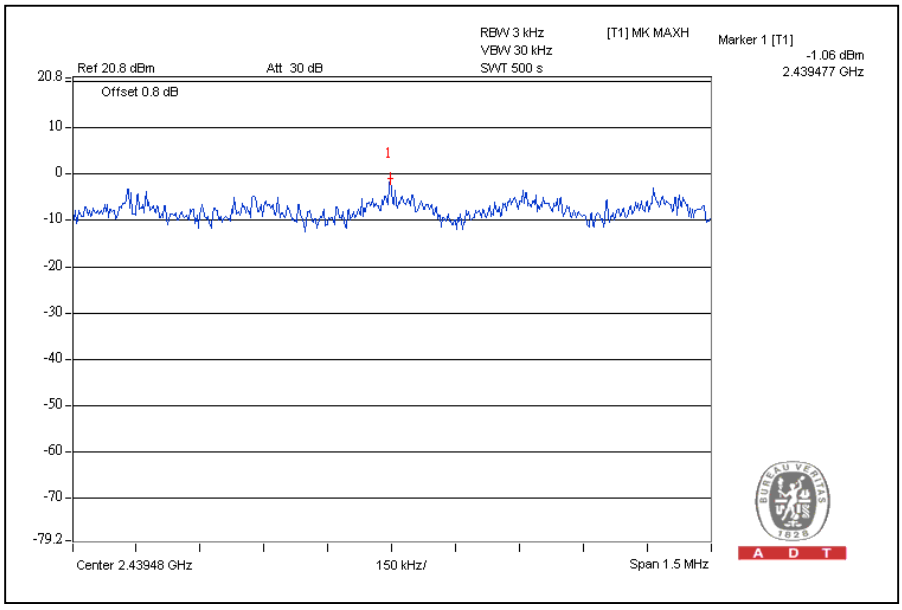
CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(2G0)	CHAIN(2G1)			
1	2412	-10.0	-8.8	-6.3	8	PASS
6	2437	-3.10	-1.1	1.0	8	PASS
11	2462	-8.7	-11.9	-7.0	8	PASS

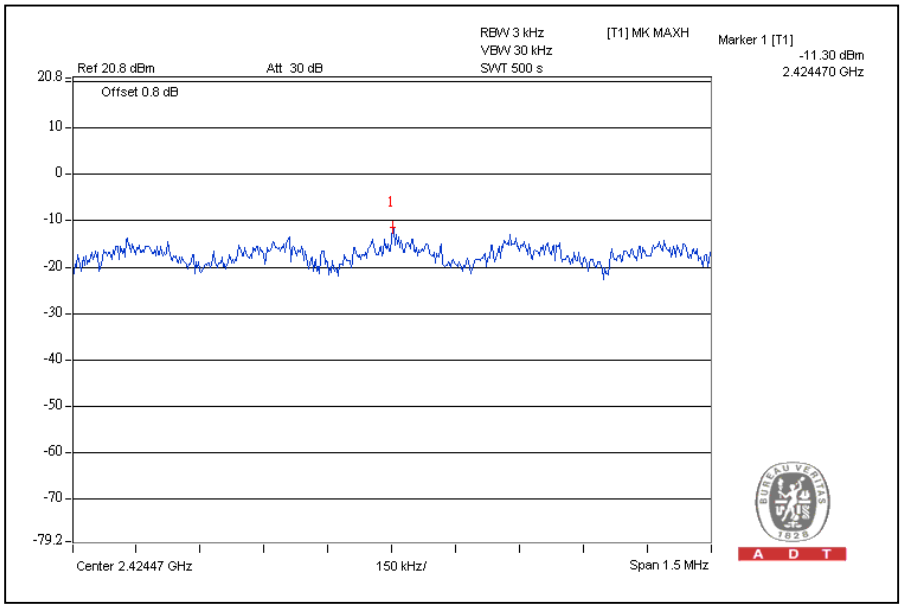
For Chain(2G1): CH6



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(2G0)	CHAIN(2G1)			
1	2422	-12.50	-11.30	-8.8	8	PASS
4	2437	-12.40	-11.80	-9.1	8	PASS
7	2452	-12.80	-11.70	-9.2	8	PASS

For Chain (2G1): 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
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

NOTE: 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 100MHz or 200MHz bandwidth from band edge. The band edges was measured and recorded.

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

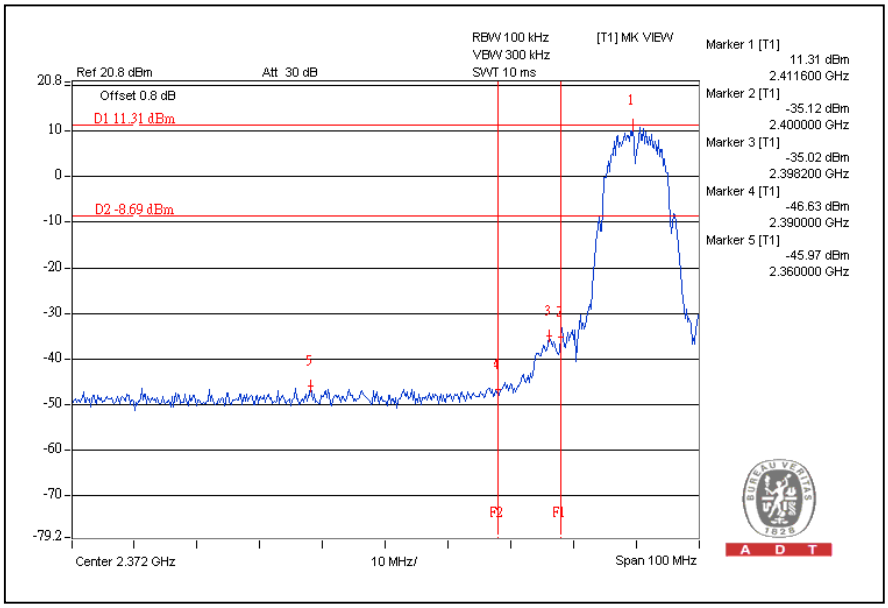
Same as Item 4.3.6

4.6.6 TEST RESULTS

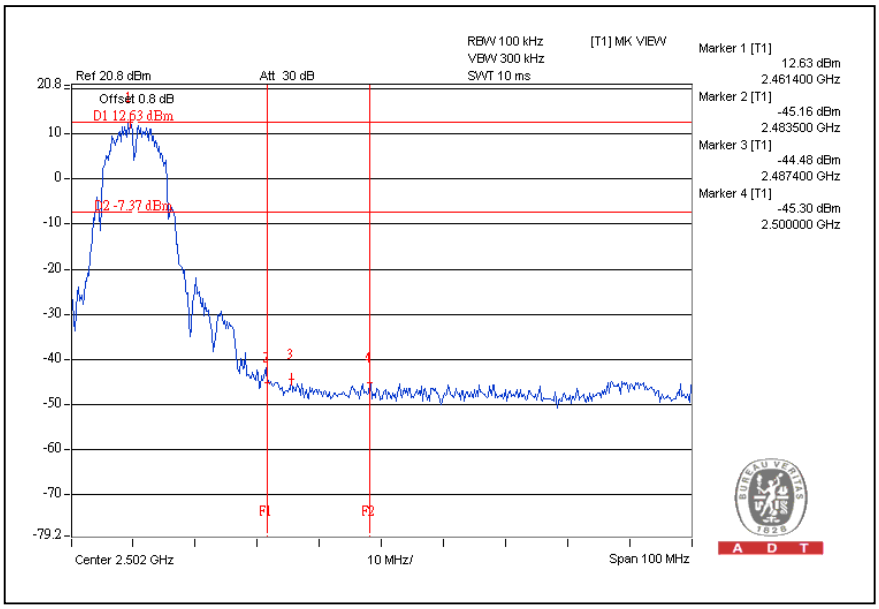
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

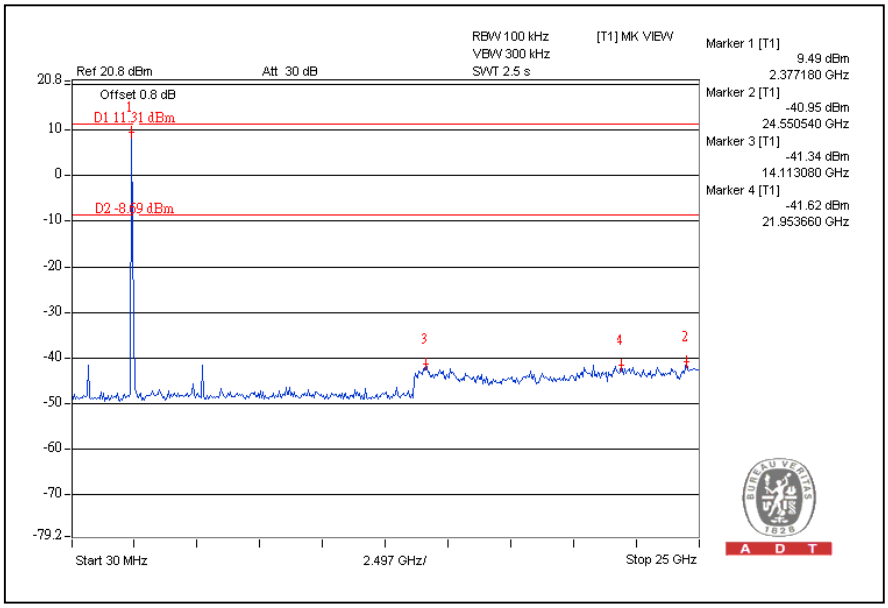
CH1



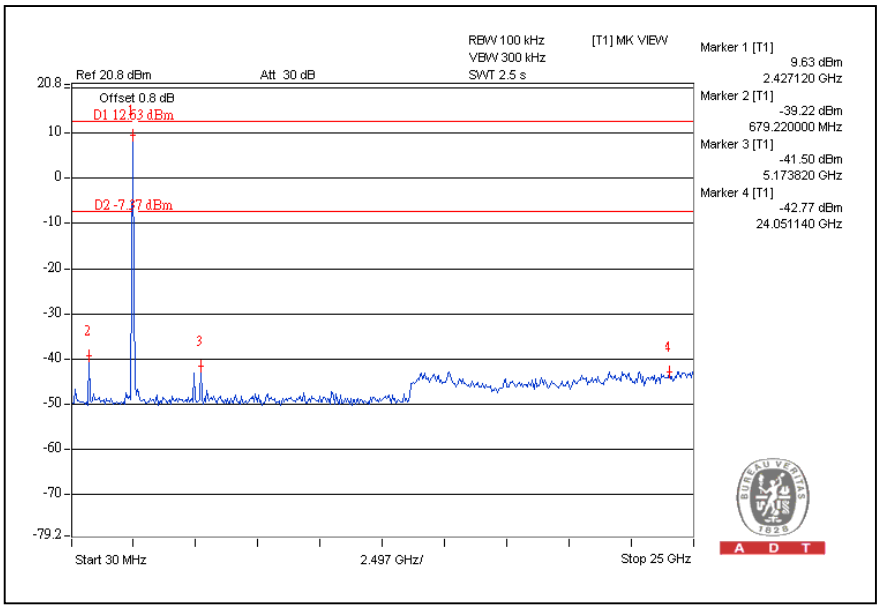
CH11



CH1

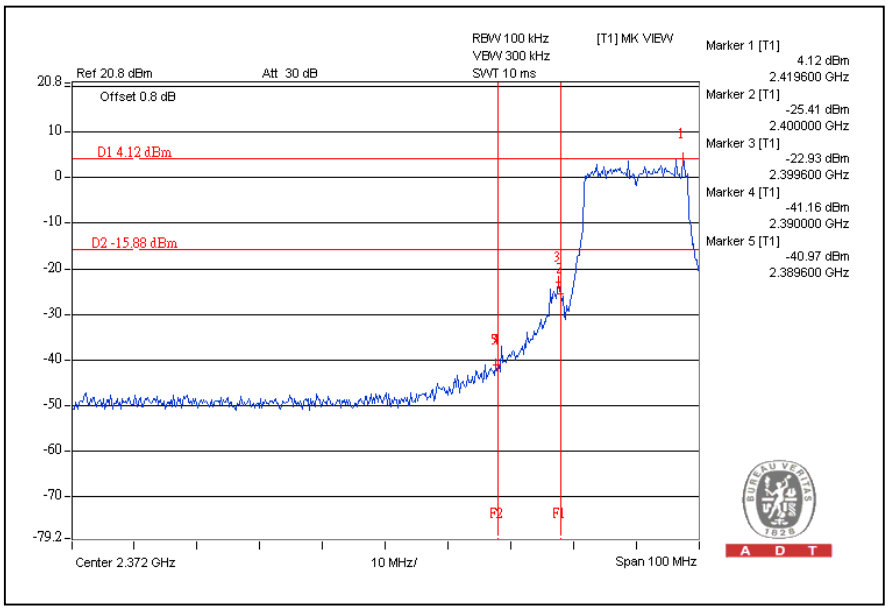

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
9.49 dBm
2.377180 GHz
Marker 2 [T1]
-40.95 dBm
24.550540 GHz
Marker 3 [T1]
-41.34 dBm
14.113080 GHz
Marker 4 [T1]
-41.62 dBm
21.953660 GHz
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 11.31 dBm
D2 -8.69 dBm
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

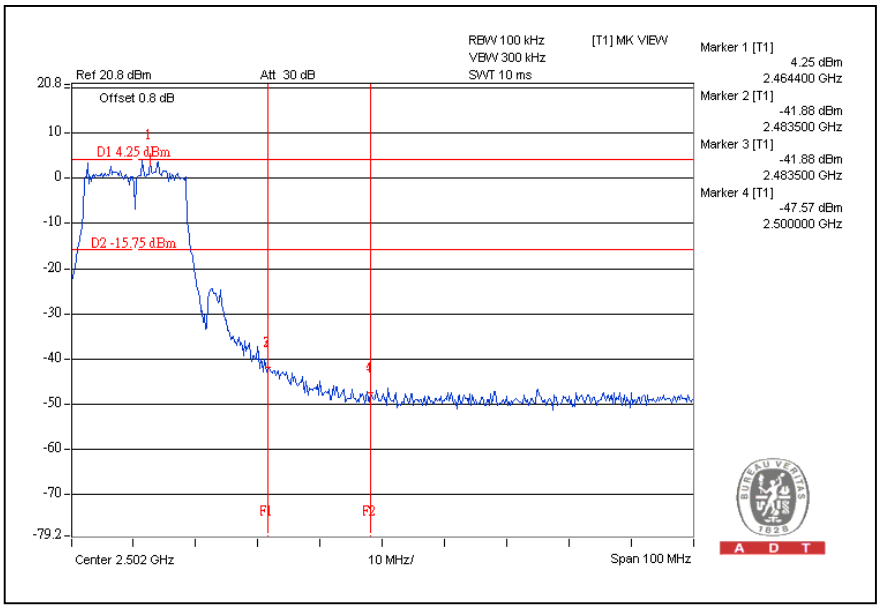

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
9.63 dBm
2.427120 GHz
Marker 2 [T1]
-39.22 dBm
679.220000 MHz
Marker 3 [T1]
-41.50 dBm
5.173820 GHz
Marker 4 [T1]
-42.77 dBm
24.051140 GHz
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 12.53 dBm
D2 -7.47 dBm
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION:

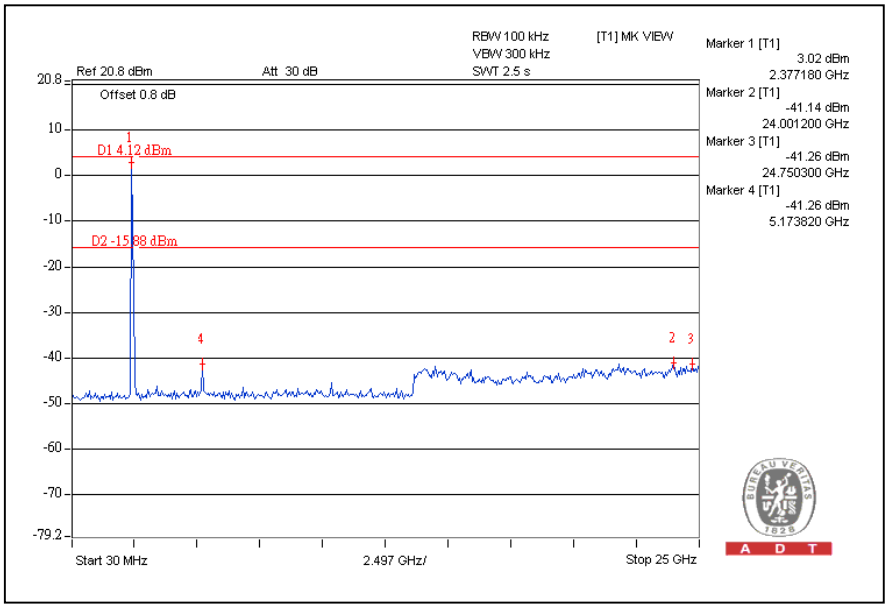
CH1



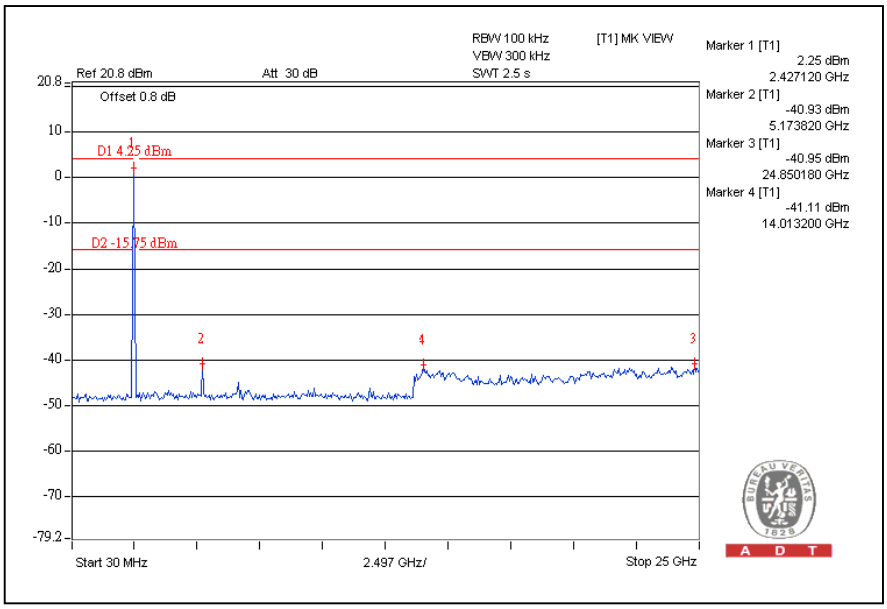
CH11



CH1

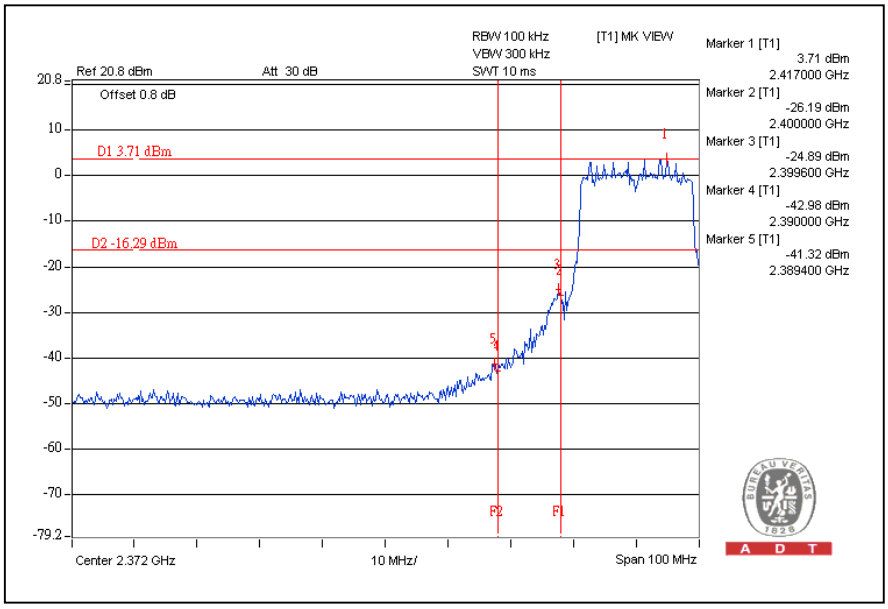

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 4.12 dBm
D2 -15.88 dBm
Marker 1 [T1]
3.02 dBm
2.377180 GHz
Marker 2 [T1]
-41.14 dBm
24.001200 GHz
Marker 3 [T1]
-41.26 dBm
24.750300 GHz
Marker 4 [T1]
-41.26 dBm
5.173820 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

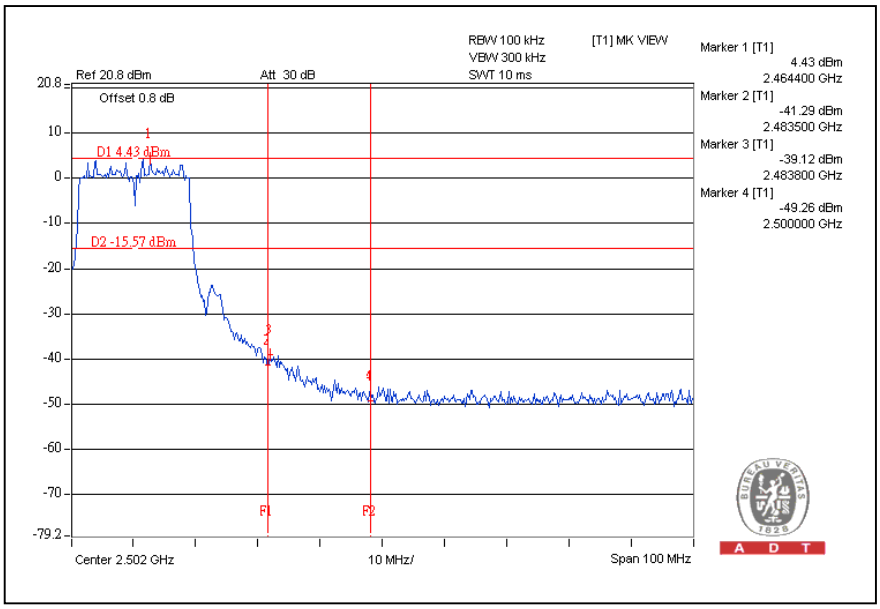

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 4.25 dBm
D2 -15.75 dBm
Marker 1 [T1]
2.25 dBm
2.427120 GHz
Marker 2 [T1]
-40.93 dBm
5.173820 GHz
Marker 3 [T1]
-40.95 dBm
24.850180 GHz
Marker 4 [T1]
-41.11 dBm
14.013200 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (20MHz) OFDM MODULATION:

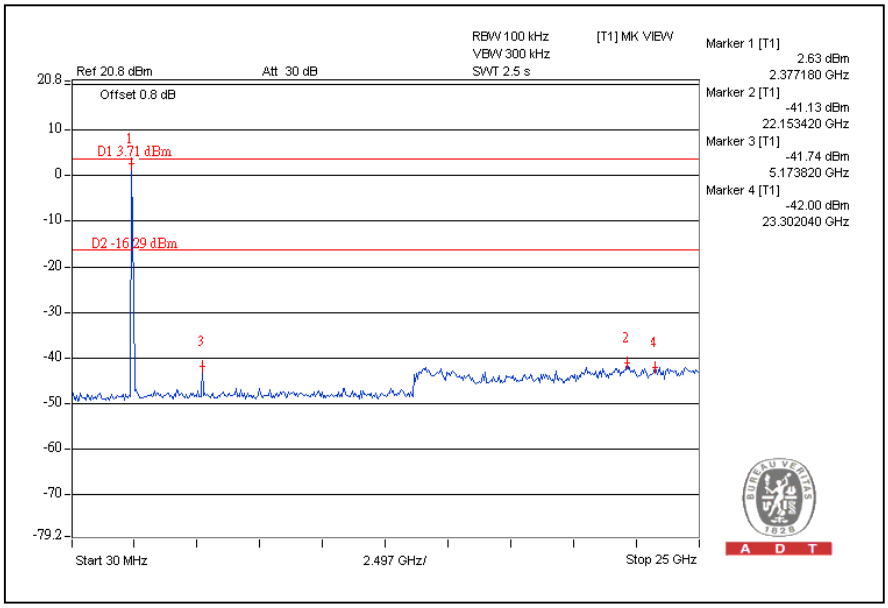
CH1



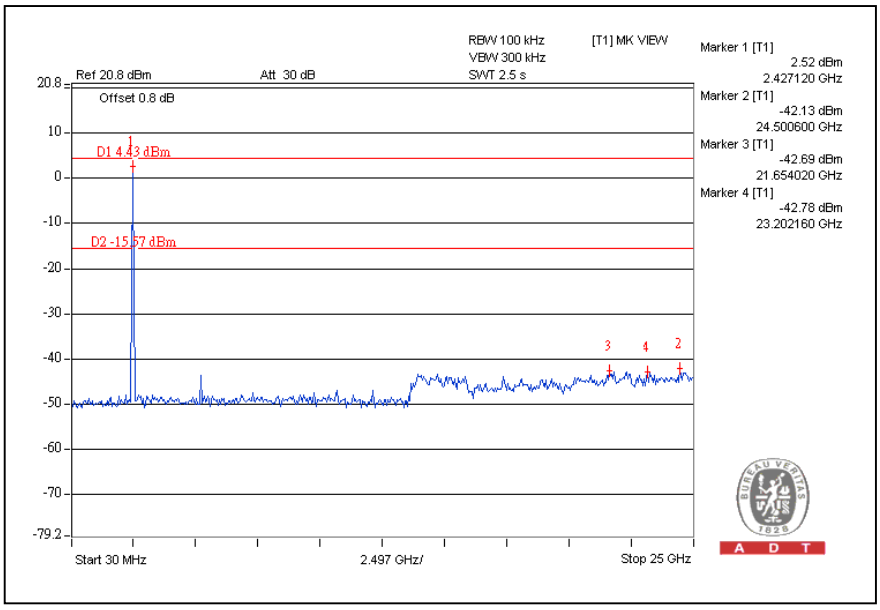
CH11



CH1

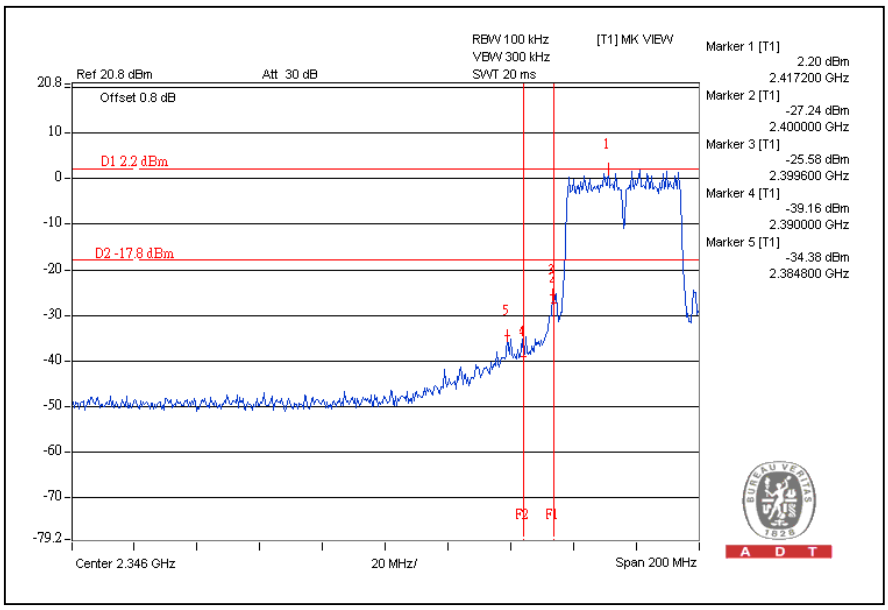

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 3.71 dBm
D2 -16.29 dBm
Marker 1 [T1]
2.63 dBm
2.377180 GHz
Marker 2 [T1]
-41.13 dBm
22.153420 GHz
Marker 3 [T1]
-41.74 dBm
5.173820 GHz
Marker 4 [T1]
-42.00 dBm
23.302040 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

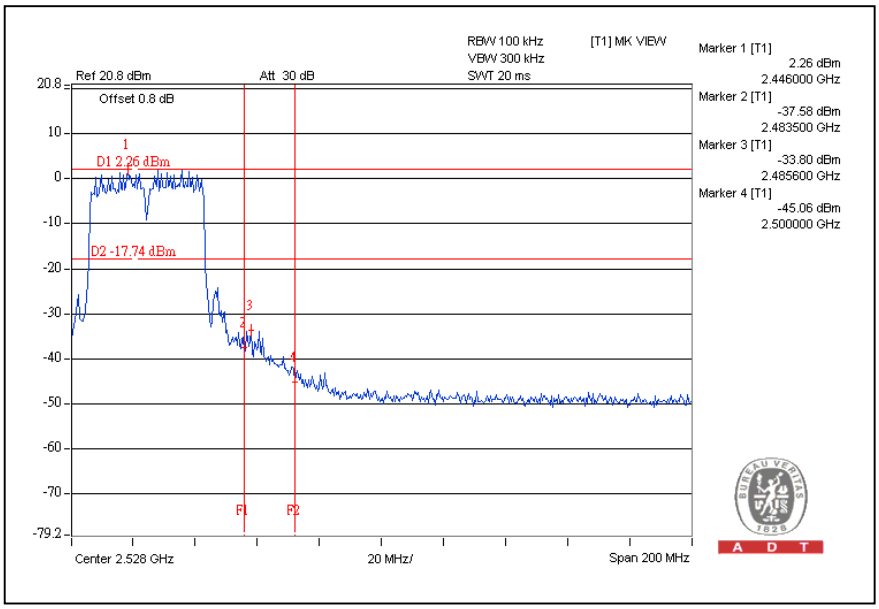

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 4.43 dBm
D2 -15.57 dBm
Marker 1 [T1]
2.52 dBm
2.427120 GHz
Marker 2 [T1]
-42.13 dBm
24.500600 GHz
Marker 3 [T1]
-42.69 dBm
21.654020 GHz
Marker 4 [T1]
-42.78 dBm
23.202160 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (40MHz) OFDM MODULATION:

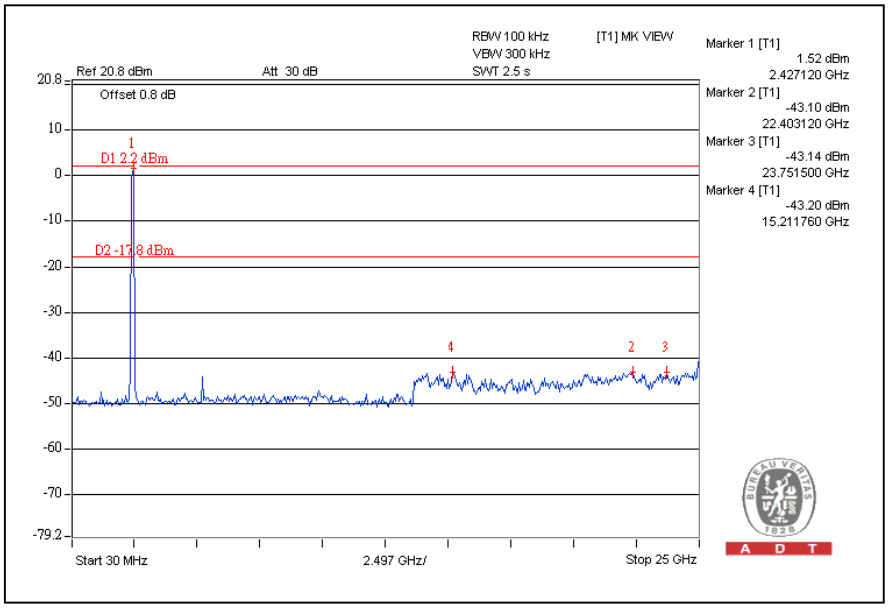
CH1



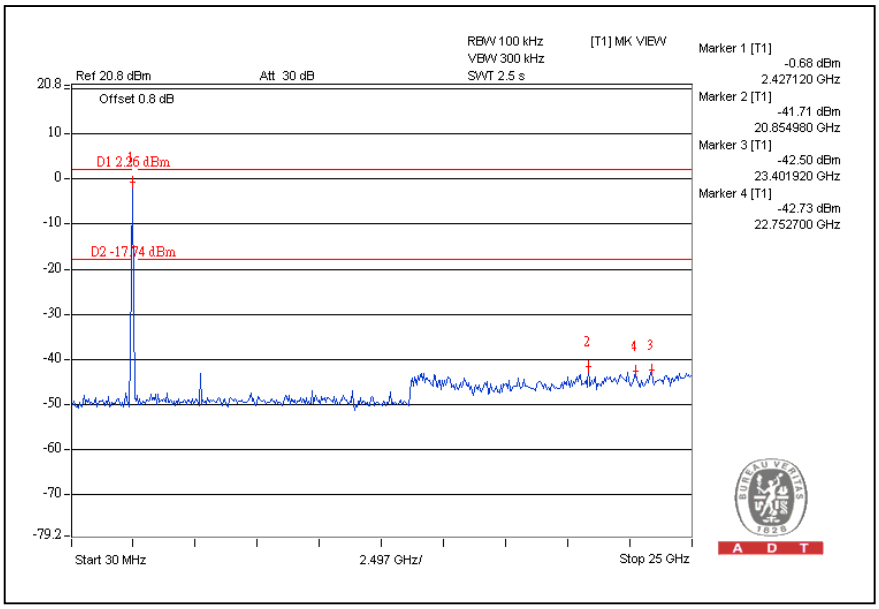
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 2.2 dBm
D2 -17.8 dBm
Marker 1 [T1]
1.52 dBm
2.427120 GHz
Marker 2 [T1]
-43.10 dBm
22.403120 GHz
Marker 3 [T1]
-43.14 dBm
23.751500 GHz
Marker 4 [T1]
-43.20 dBm
15.211760 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 30 dB
Offset 0.8 dB
D1 2.26 dBm
D2 -17.74 dBm
Marker 1 [T1]
-0.68 dBm
2.427120 GHz
Marker 2 [T1]
-41.71 dBm
20.854980 GHz
Marker 3 [T1]
-42.50 dBm
23.401920 GHz
Marker 4 [T1]
-42.73 dBm
22.752700 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	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.

5.1.2 TEST INSTRUMENTS

Test date: Oct. 08, 2010

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	Oct. 07, 2010	Oct. 06, 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.

5.1.3 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.

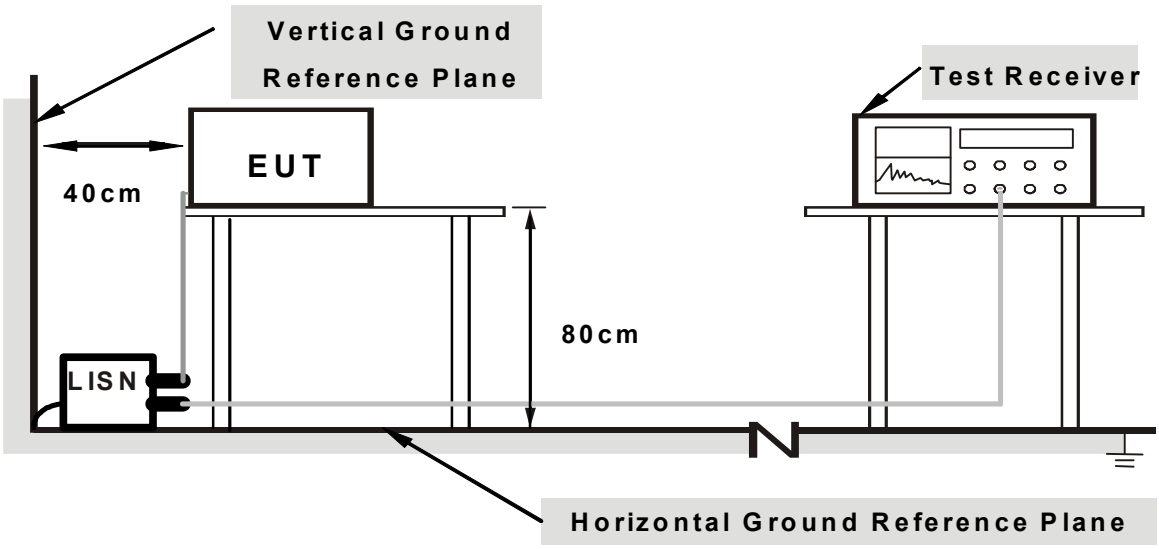
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 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.

5.1.6 EUT OPERATING CONDITIONS

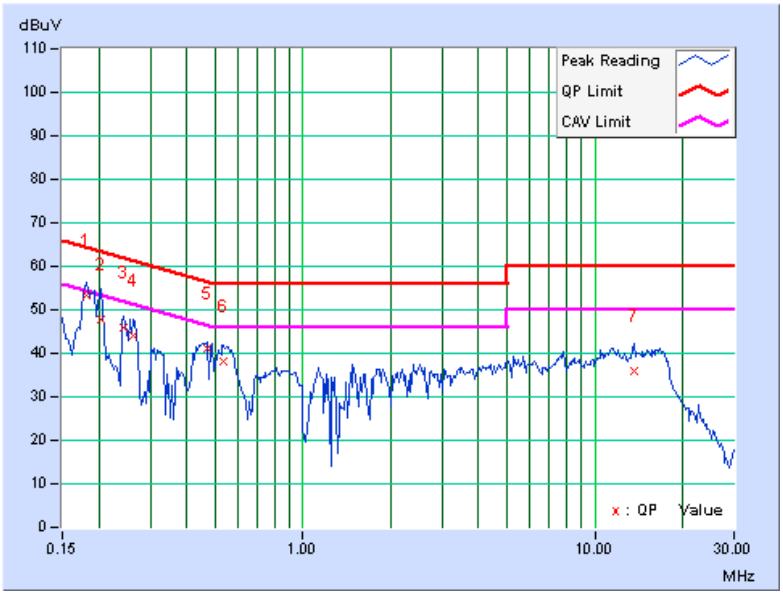
Same as the 4.1.6

5.1.7 TEST RESULTS

TEST MODE	With adapter 1		
PHASE	Line (L)	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	0.181	0.04	53.19	-	53.23	-	64.43	54.43	-11.20	-
2	0.205	0.04	47.75	-	47.79	-	63.42	53.42	-15.63	-
3	0.244	0.04	46.05	-	46.09	-	61.97	51.97	-15.88	-
4	0.263	0.04	44.07	-	44.11	-	61.33	51.33	-17.21	-
5	0.470	0.06	41.03	-	41.09	-	56.51	46.51	-15.42	-
6	0.537	0.06	37.98	-	38.04	-	56.00	46.00	-17.96	-
7	13.563	0.45	35.54	-	35.99	-	60.00	50.00	-24.01	-

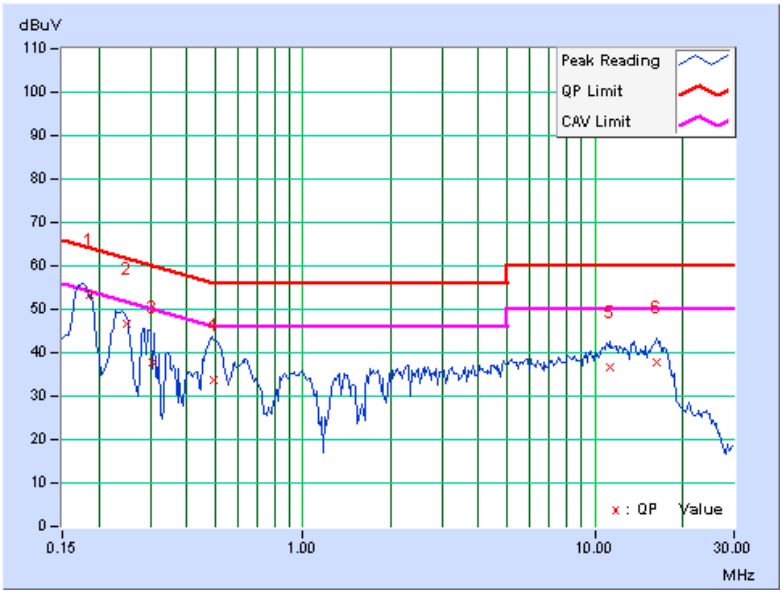
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	With adapter 1		
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	0.186	0.05	53.29	-	53.34	-	64.19	54.19	-10.85	-
2	0.250	0.05	46.49	-	46.54	-	61.75	51.75	-15.20	-
3	0.307	0.06	37.69	-	37.75	-	60.06	50.06	-22.31	-
4	0.498	0.07	33.57	-	33.64	-	56.04	46.04	-22.40	-
5	11.320	0.33	36.44	-	36.77	-	60.00	50.00	-23.23	-
6	16.223	0.54	37.15	-	37.69	-	60.00	50.00	-22.31	-

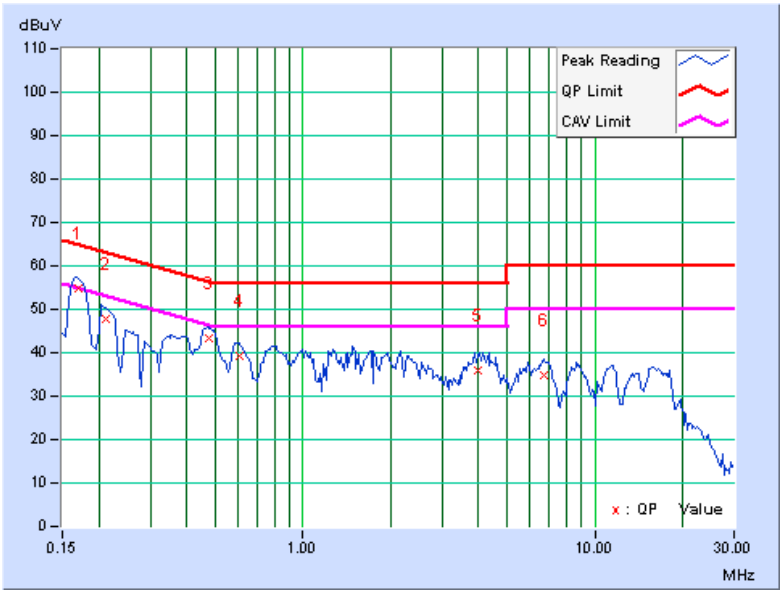
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	With adapter 2		
PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.170**	**0.04**	**54.90**	**-**	**54.94**	**-**	**64.98**	**54.98**	**-10.04**	**-**
2	0.213	0.04	47.61	-	47.65	-	63.11	53.11	-15.46	-
3	0.474	0.06	43.11	-	43.17	-	56.44	46.44	-13.27	-
4	0.607	0.07	39.11	-	39.18	-	56.00	46.00	-16.82	-
5	4.004	0.13	35.65	-	35.78	-	56.00	46.00	-20.22	-
6	6.711	0.18	34.56	-	34.74	-	60.00	50.00	-25.26	-

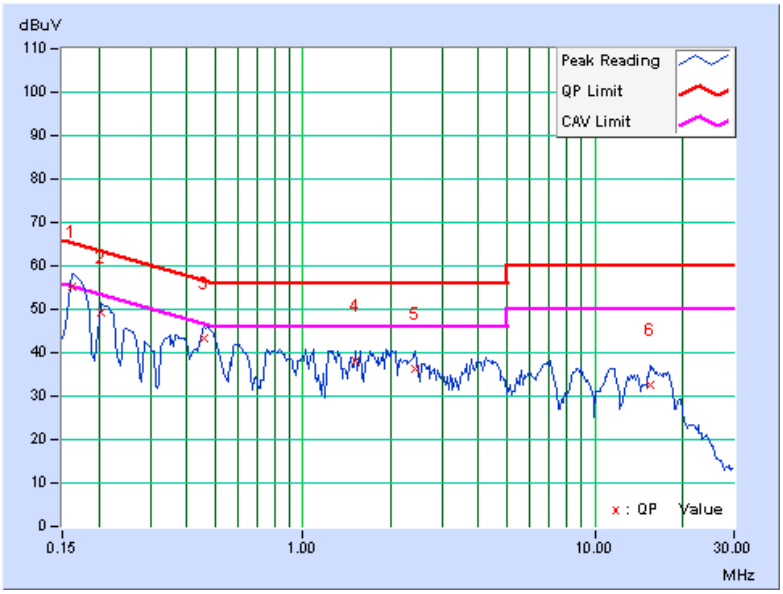
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



TEST MODE	With adapter 2		
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	0.162	0.05	55.02	-	55.07	-	65.38	55.38	-10.31	-
2	0.205	0.05	49.04	-	49.09	-	63.42	53.42	-14.33	-
3	0.459	0.06	43.25	-	43.31	-	56.72	46.72	-13.40	-
4	1.520	0.12	37.98	-	38.10	-	56.00	46.00	-17.90	-
5	2.438	0.13	36.21	-	36.34	-	56.00	46.00	-19.66	-
6	15.523	0.54	31.88	-	32.42	-	60.00	50.00	-27.58	-

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.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.
5. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.

5.2.2 TEST INSTRUMENTS

Below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 02, 2010	Aug. 01, 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	AFS33-18002650-30-8P-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	Sep. 29, 2010	Sep. 28, 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.

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+RF106-101	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.

5.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room for below 1GHz and 10 meter open area test site for above 1GHz. 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:

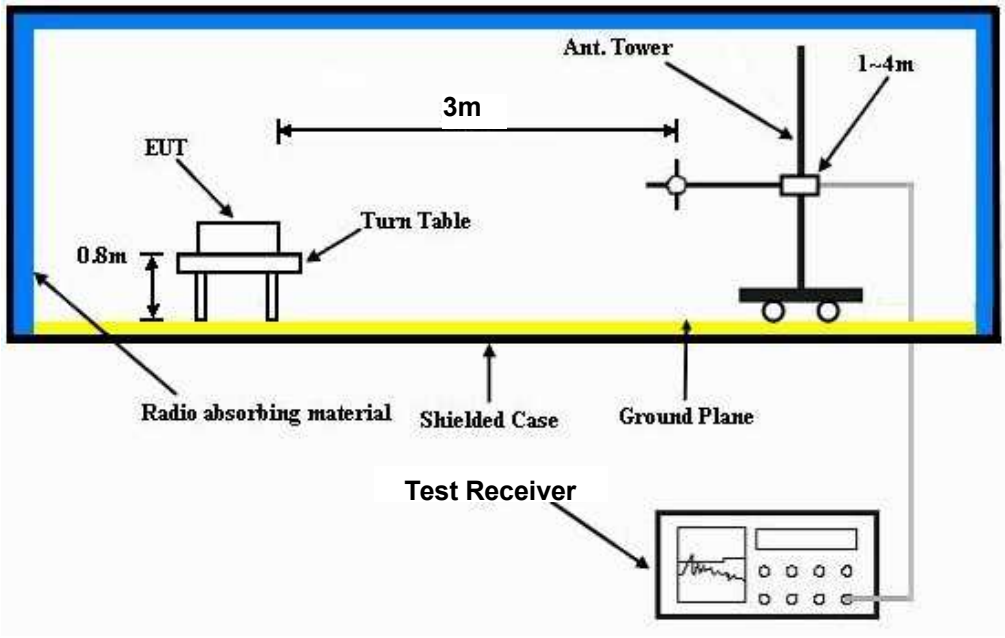
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

5.2.4 DEVIATION FROM TEST STANDARD

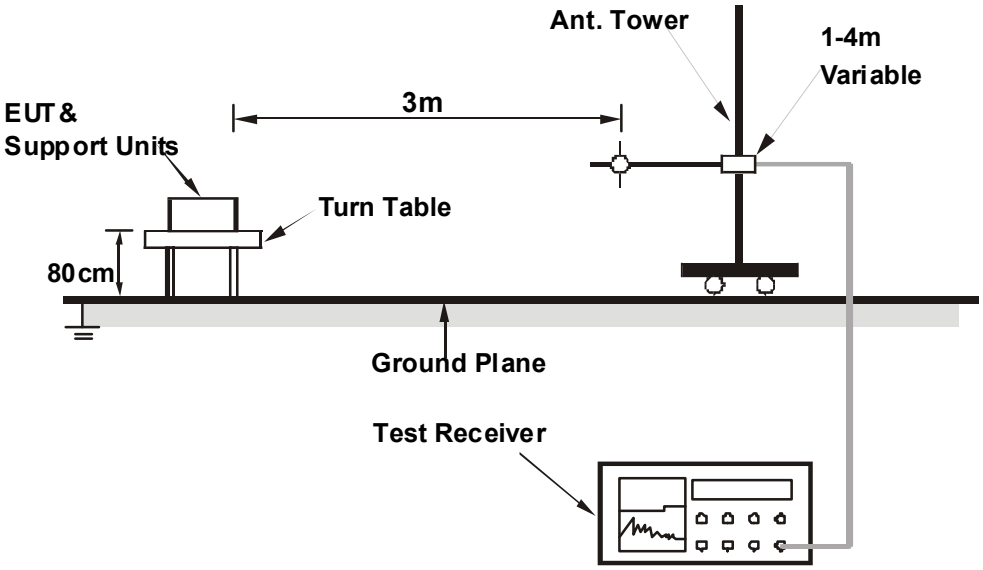
No deviation

5.2.5 TEST SETUP

Below 1GHz test:



Above 1GHz test:



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

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

5.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH 1015 hPa	TESTED BY	Rex Huang

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	68.80	35.0 QP	40.0	-5.0	1.85 H	254	22.89	12.11
2	250.01	42.1 QP	46.0	-3.9	1.11 H	223	28.91	13.19
3	357.01	38.6 QP	46.0	-7.4	2.00 H	87	22.17	16.43
4	479.97	38.5 QP	46.0	-7.6	1.98 H	359	19.22	19.23
5	500.01	39.6 QP	46.0	-6.4	2.50 H	219	19.89	19.71
6	624.99	41.6 QP	46.0	-4.4	1.68 H	94	19.35	22.25
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	47.90	36.2 QP	40.0	-3.8	1.24 V	58	22.17	14.03
2	87.30	36.2 QP	40.0	-3.8	1.02 V	247	27.49	8.71
3	250.00	40.0 QP	46.0	-6.0	1.47 V	54	26.81	13.19
4	375.01	35.9 QP	46.0	-10.1	1.68 V	96	19.09	16.81
5	479.96	35.8 QP	46.0	-10.2	1.25 V	236	16.55	19.23
6	500.02	38.4 QP	46.0	-7.6	1.00 V	47	18.69	19.71
7	624.99	41.2 QP	46.0	-4.8	1.54 V	74	18.95	22.25
8	875.02	35.7 QP	46.0	-10.3	1.47 V	84	9.85	25.81

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 DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5745.00	111.5 PK			1.53 H	24	72.26	39.24
2	*5745.00	100.5 AV			1.53 H	24	61.26	39.24
3	11490.00	57.4 PK	74.0	-16.6	1.10 H	6	5.73	51.67
4	11490.00	47.2 AV	54.0	-6.8	1.10 H	6	-4.47	51.67
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	*5745.00	106.2 PK			1.24 V	308	66.96	39.24
2	*5745.00	95.3 AV			1.24 V	308	56.06	39.24
3	11490.00	58.3 PK	74.0	-15.7	1.42 V	251	6.63	51.67
4	11490.00	47.8 AV	54.0	-6.2	1.42 V	251	-3.87	51.67

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5785.00	111.7 PK			1.56 H	39	72.36	39.34
2	*5785.00	100.4 AV			1.56 H	39	61.06	39.34
3	11570.00	57.8 PK	74.0	-16.2	1.14 H	7	6.37	51.43
4	11570.00	47.6 AV	54.0	-6.4	1.14 H	7	-3.83	51.43
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	*5785.00	106.4 PK			1.26 V	307	67.06	39.34
2	*5785.00	95.6 AV			1.26 V	307	56.26	39.34
3	11570.00	57.9 PK	74.0	-16.1	1.42 V	244	6.47	51.43
4	11570.00	48.1 AV	54.0	-5.9	1.42 V	244	-3.33	51.43

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5825.00	111.9 PK			1.53 H	78	72.46	39.44
2	*5825.00	100.2 AV			1.53 H	78	60.76	39.44
3	11650.00	58.1 PK	74.0	-15.9	1.13 H	9	6.96	51.14
4	11650.00	47.9 AV	54.0	-6.1	1.13 H	9	-3.24	51.14
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	*5825.00	106.2 PK			1.27 V	303	66.76	39.44
2	*5825.00	95.4 AV			1.27 V	303	55.96	39.44
3	11650.00	57.5 PK	74.0	-16.5	1.40 V	241	6.36	51.14
4	11650.00	48.4 AV	54.0	-5.6	1.40 V	241	-2.74	51.14

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.
6. The limit value is defined as per 15.247.

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5745.00	114.8 PK			1.69 H	79	75.56	39.24
2	*5745.00	102.8 AV			1.69 H	79	63.56	39.24
3	11490.00	59.9 PK	74.0	-14.1	1.36 H	282	8.23	51.67
4	11490.00	48.4 AV	54.0	-5.6	1.36 H	282	-3.27	51.67
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	*5745.00	110.9 PK			1.22 V	185	71.66	39.24
2	*5745.00	99.5 AV			1.22 V	185	60.26	39.24
3	11490.00	61.0 PK	74.0	-13.0	1.24 V	252	9.33	51.67
4	**11490.00**	**49.1 AV**	**54.0**	**-4.9**	**1.24 V**	**252**	**-2.57**	**51.67**

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5785.00	114.3 PK			1.68 H	69	74.96	39.34
2	*5785.00	102.4 AV			1.68 H	69	63.06	39.34
3	11570.00	59.1 PK	74.0	-14.9	1.34 H	273	7.67	51.43
4	11570.00	47.5 AV	54.0	-6.5	1.34 H	273	-3.93	51.43
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	*5785.00	110.4 PK			1.23 V	179	71.06	39.34
2	*5785.00	99.4 AV			1.23 V	179	60.06	39.34
3	11570.00	60.3 PK	74.0	-13.7	1.24 V	254	8.87	51.43
4	11570.00	48.4 AV	54.0	-5.6	1.24 V	254	-3.03	51.43

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5825.00	114.2 PK			1.64 H	74	74.76	39.44
2	*5825.00	102.1 AV			1.64 H	74	62.66	39.44
3	11650.00	58.7 PK	74.0	-15.3	1.31 H	269	7.56	51.14
4	11650.00	47.2 AV	54.0	-6.8	1.31 H	269	-3.94	51.14
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	*5825.00	110.6 PK			1.21 V	183	71.16	39.44
2	*5825.00	99.1 AV			1.21 V	183	59.66	39.44
3	11650.00	60.4 PK	74.0	-13.6	1.29 V	257	9.26	51.14
4	11650.00	48.2 AV	54.0	-5.8	1.29 V	257	-2.94	51.14

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.
6. The limit value is defined as per 15.247.

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5755.00	112.3 PK			1.57 H	74	73.06	39.27
2	*5755.00	98.0 AV			1.57 H	74	58.73	39.27
3	11510.00	60.2 PK	74.0	-13.8	1.29 H	254	8.55	51.65
4	11510.00	46.3 AV	54.0	-7.7	1.29 H	254	-5.35	51.65
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	*5755.00	109.4 PK			1.21 V	184	70.13	39.27
2	*5755.00	95.2 AV			1.21 V	184	55.93	39.27
3	11510.00	61.4 PK	74.0	-12.6	1.47 V	121	9.75	51.65
4	11510.00	47.1 AV	54.0	-6.9	1.47 V	121	-4.55	51.65

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.
6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 67%RH 1015 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	*5795.00	111.7 PK			1.54 H	89	72.33	39.37
2	*5795.00	97.8 AV			1.54 H	89	58.43	39.37
3	11590.00	59.1 PK	74.0	-14.9	1.27 H	243	7.74	51.36
4	11590.00	46.1 AV	54.0	-7.9	1.27 H	243	-5.26	51.36
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	*5795.00	109.1 PK			1.26 V	179	69.73	39.37
2	*5795.00	95.1 AV			1.26 V	179	55.73	39.37
3	11590.00	60.3 PK	74.0	-13.7	1.43 V	124	8.94	51.36
4	11590.00	46.9 AV	54.0	-7.1	1.43 V	124	-4.46	51.36

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.
6. The limit value is defined as per 15.247.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

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

5.3.3 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.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP

5.3.6 EUT OPERATING CONDITIONS

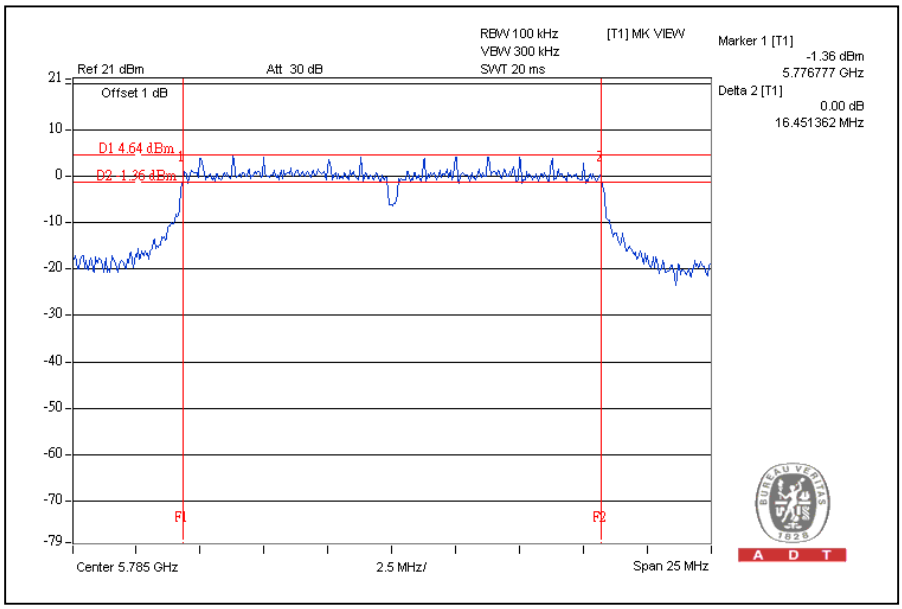
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.43	0.5	PASS
157	5785	16.45	0.5	PASS
165	5825	16.41	0.5	PASS

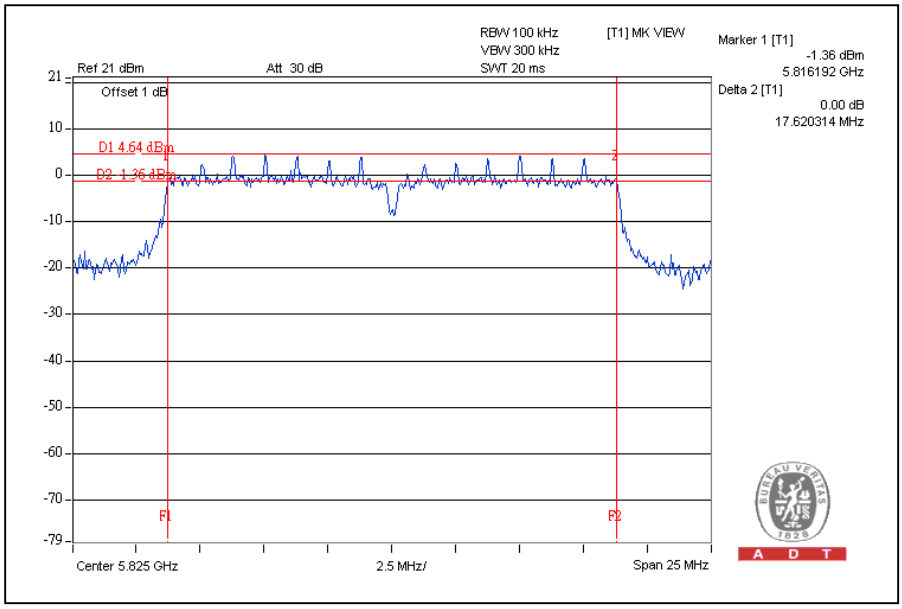
CH157



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.30	0.5	PASS
157	5785	17.55	0.5	PASS
165	5825	17.62	0.5	PASS

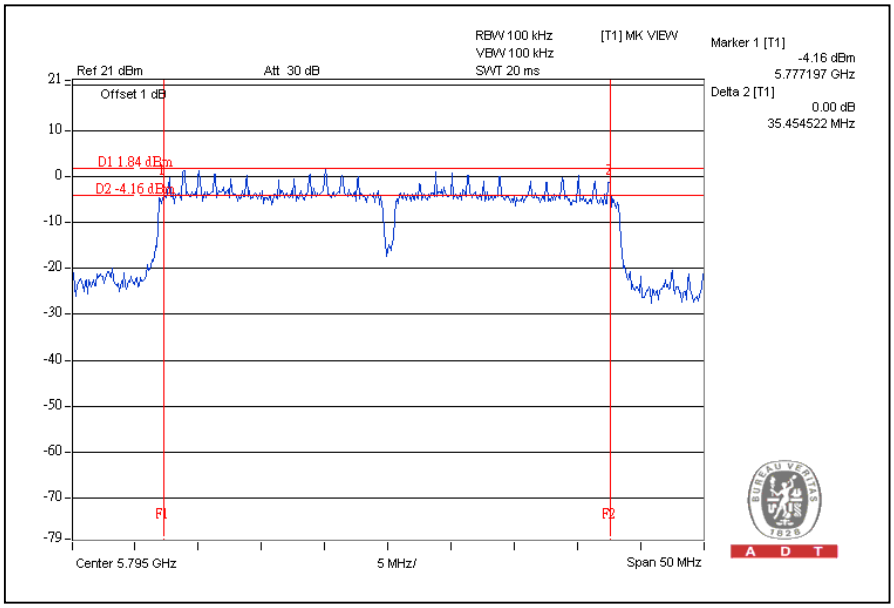
CH165



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.22	0.5	PASS
159	5795	35.45	0.5	PASS

CH159



5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
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.

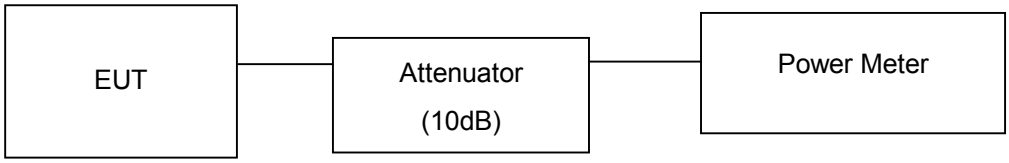
5.4.3 TEST PROCEDURES

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.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	173.8	22.4	30	PASS
157	5785	177.8	22.5	30	PASS
165	5825	186.2	22.7	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(J12)	CHAIN(J13)	CHAIN(J14)				
149	5745	22.5	22.6	22.4	533.6	27.3	30	PASS
157	5785	22.4	22.4	22.5	525.4	27.2	30	PASS
165	5825	22.3	22.2	22.4	509.6	27.1	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(J12)	CHAIN(J13)	CHAIN(J14)				
151	5755	22.3	22.9	22.6	546.8	27.4	30	PASS
159	5795	22.4	22.2	22.2	505.7	27.0	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

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

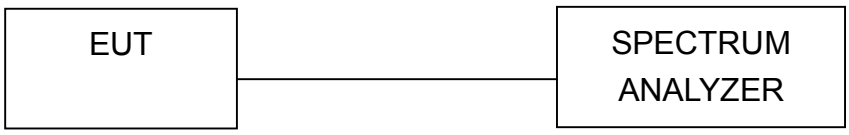
5.5.3 TEST PROCEDURE

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 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

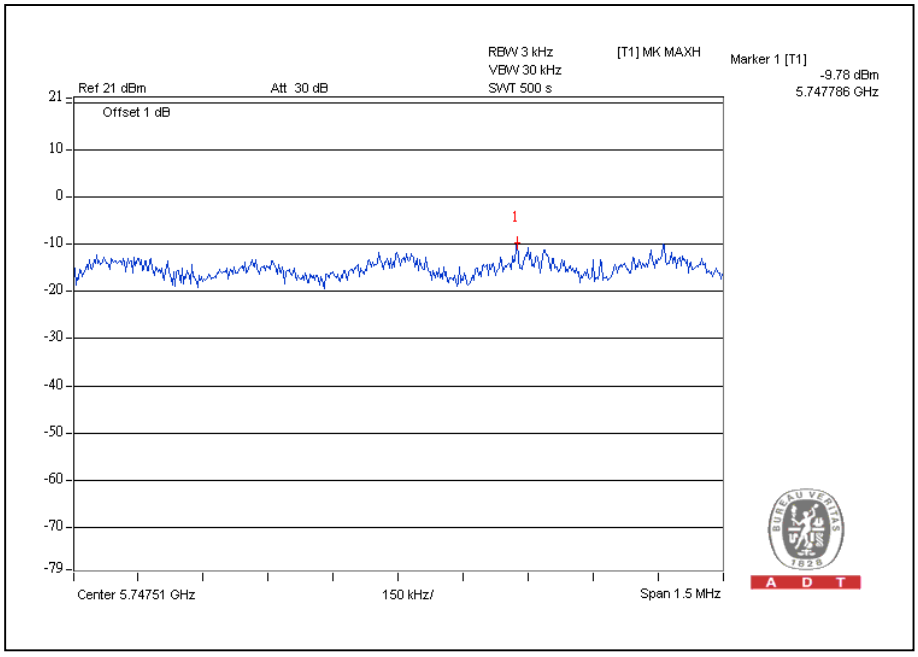
Same as Item 4.3.6

5.5.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-9.8	8	PASS
157	5785	-10.5	8	PASS
165	5825	-10.2	8	PASS

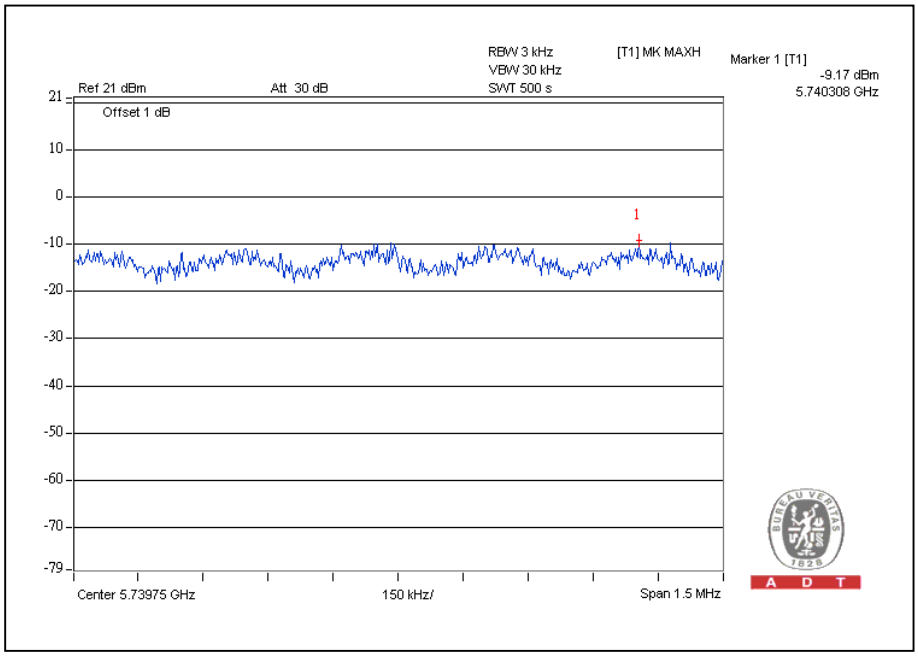
CH149



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(J12)	CHAIN(J13)	CHAIN(J14)			
149	5745	-9.2	-10.4	-10.4	-5.2	8	PASS
157	5785	-10.6	-10.1	-11.6	-6.0	8	PASS
165	5825	-11.7	-12.2	-11.9	-7.2	8	PASS

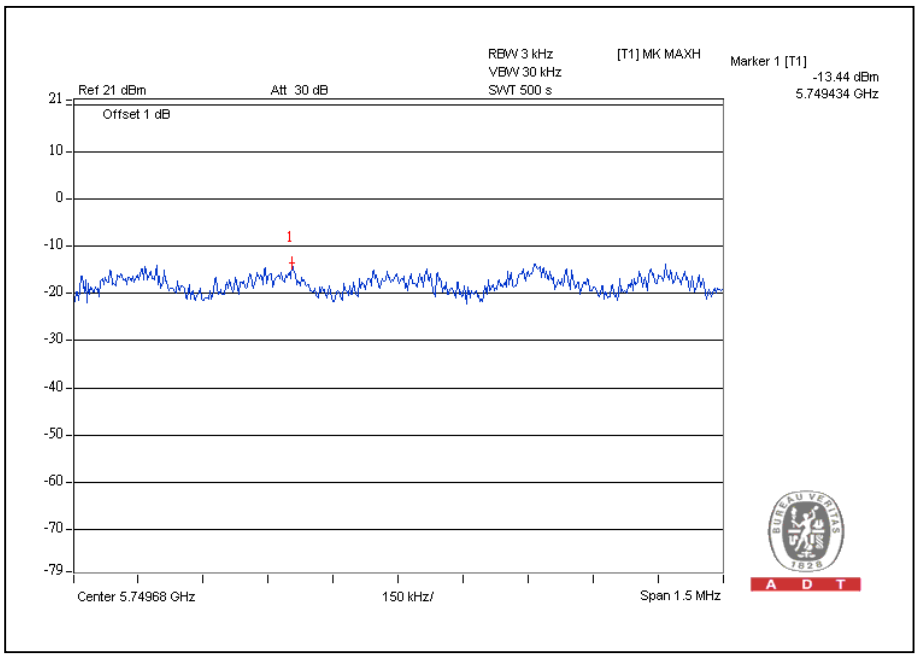
For Chain(J12): CH149



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(J12)	CHAIN(J13)	CHAIN(J14)			
151	5755	-13.4	-13.9	-15.1	-9.3	8	PASS
159	5795	-14.4	-15.8	-14.4	-10.0	8	PASS

For Chain(J12): CH151



5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

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

5.6.3 TEST PROCEDURE

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

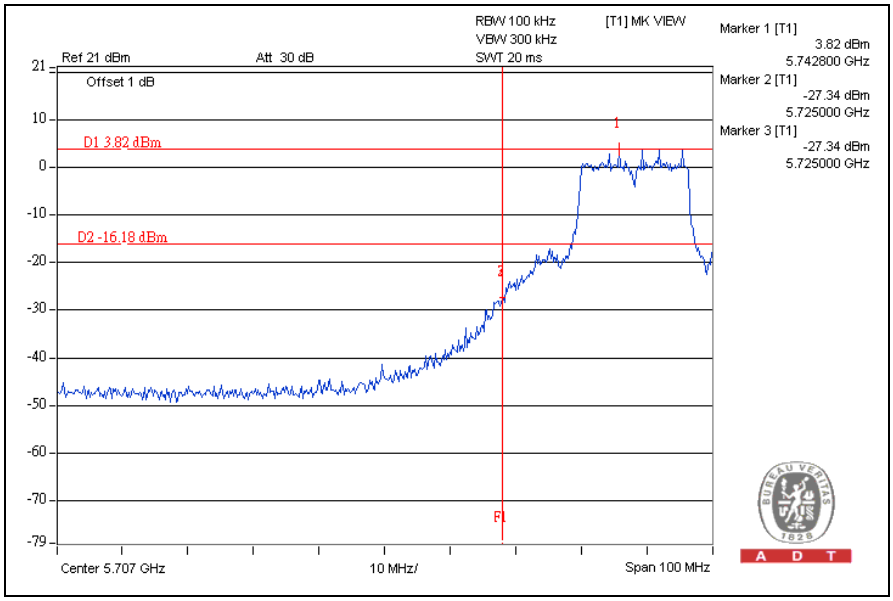
Same as Item 4.3.6

5.6.6 TEST RESULTS

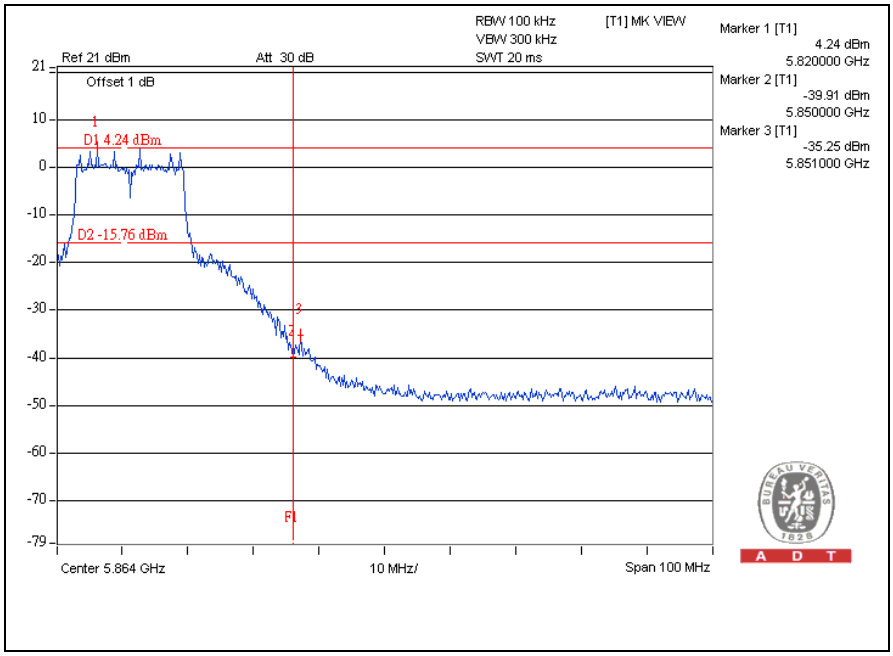
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

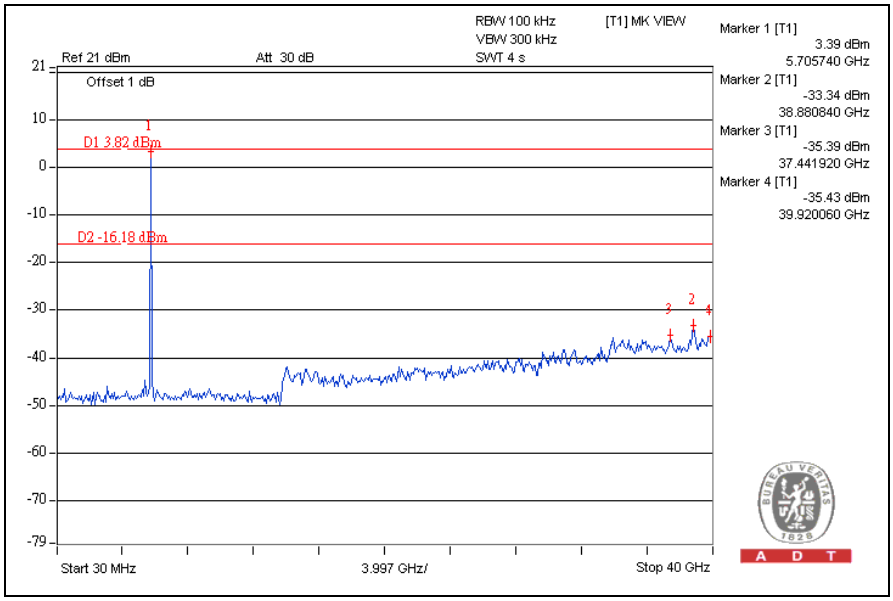
CH149



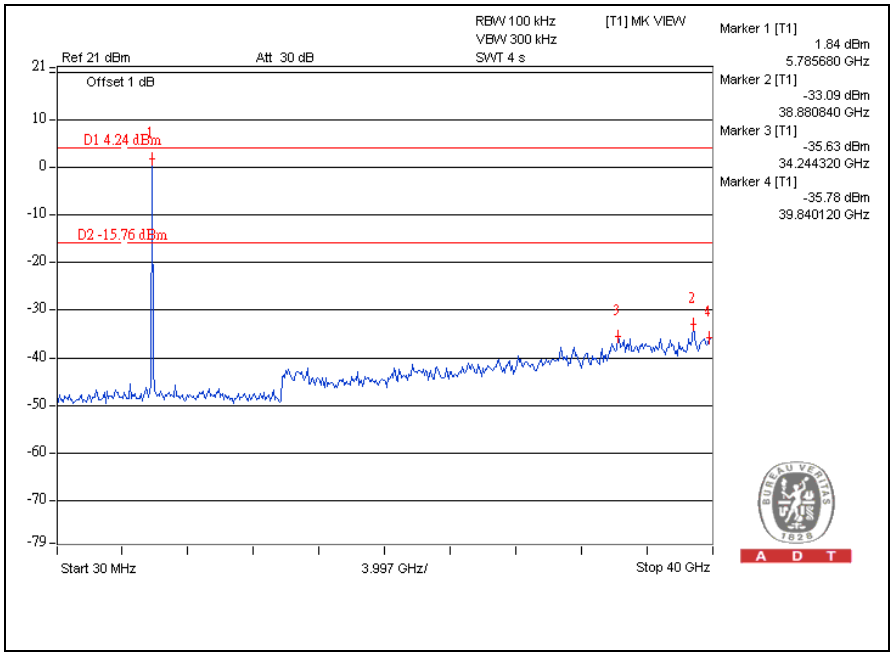
CH165



CH149

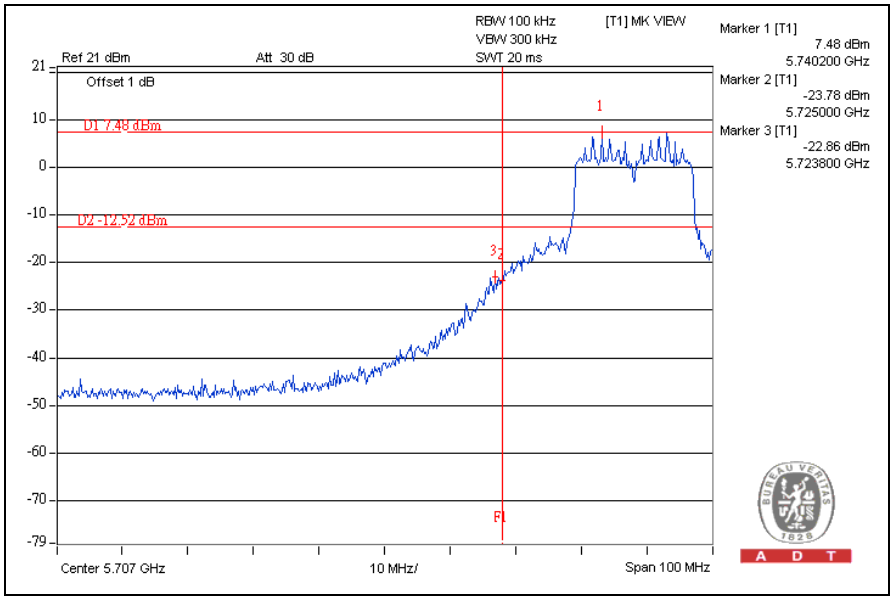

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 3.82 dBm
D2 -16.18 dBm
Marker 1 [T1]
3.39 dBm
5.705740 GHz
Marker 2 [T1]
-33.34 dBm
38.880840 GHz
Marker 3 [T1]
-35.39 dBm
37.441920 GHz
Marker 4 [T1]
-35.43 dBm
39.920060 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH165

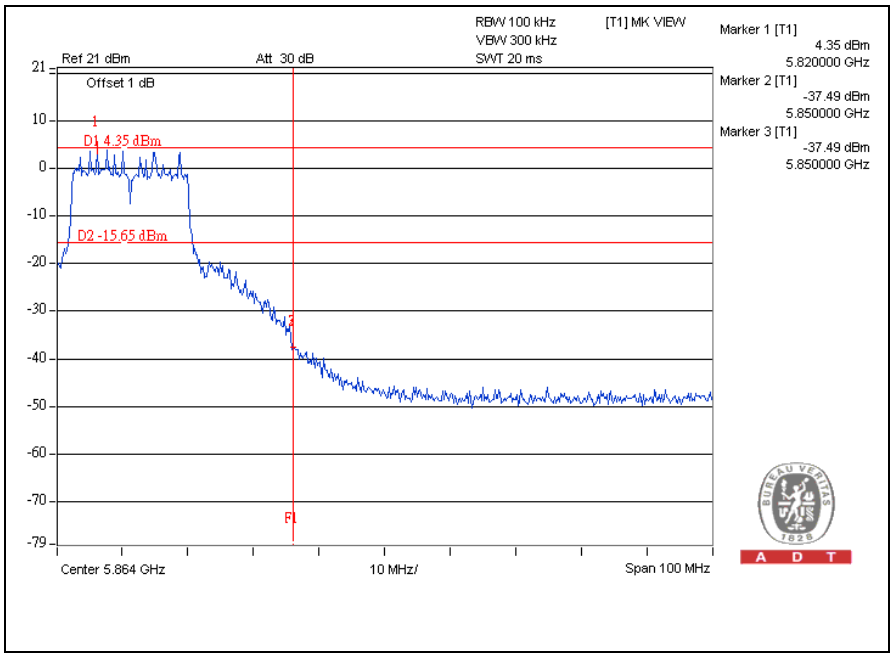

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 4.24 dBm
D2 -15.76 dBm
Marker 1 [T1]
1.84 dBm
5.785680 GHz
Marker 2 [T1]
-33.09 dBm
38.880840 GHz
Marker 3 [T1]
-35.63 dBm
34.244320 GHz
Marker 4 [T1]
-35.78 dBm
39.840120 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (20MHz) OFDM MODULATION:

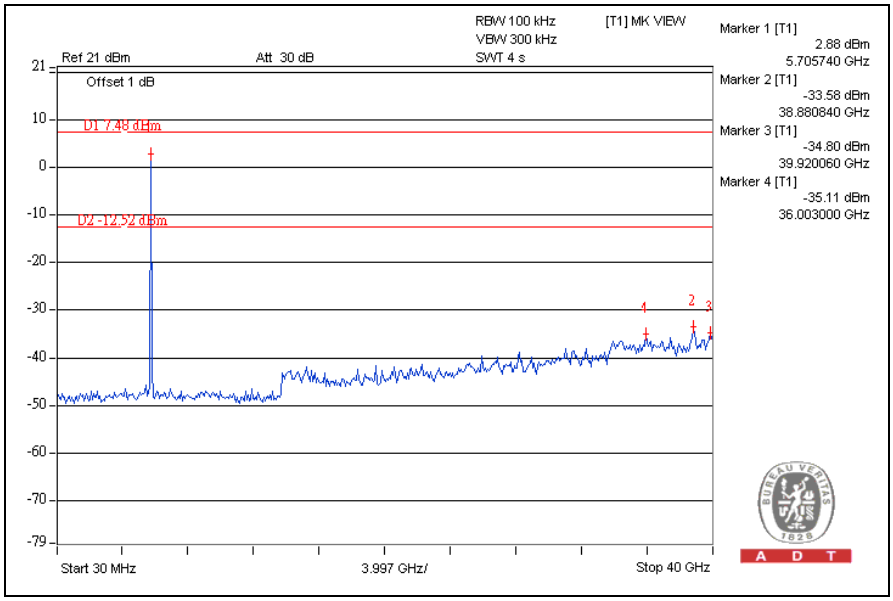
CH149



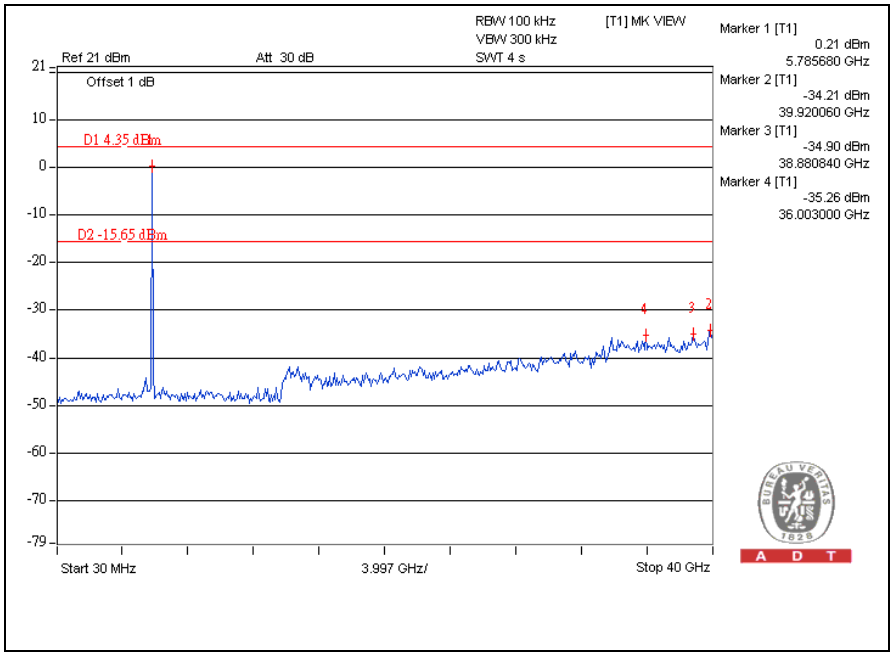
CH165



CH149

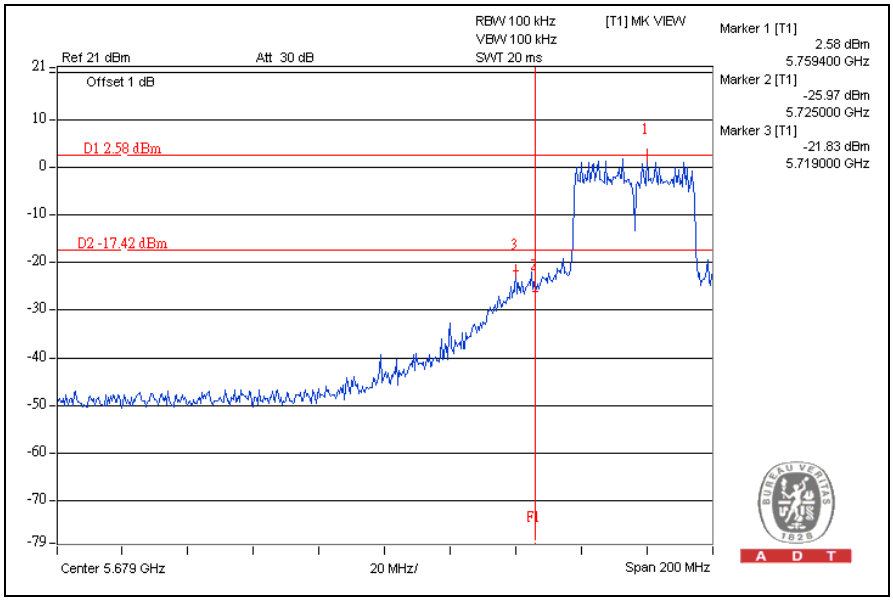

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 7.48 dBm
D2 -12.52 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
2.88 dBm
5.705740 GHz
Marker 2 [T1]
-33.58 dBm
38.880840 GHz
Marker 3 [T1]
-34.80 dBm
39.920060 GHz
Marker 4 [T1]
-35.11 dBm
36.003000 GHz

CH165

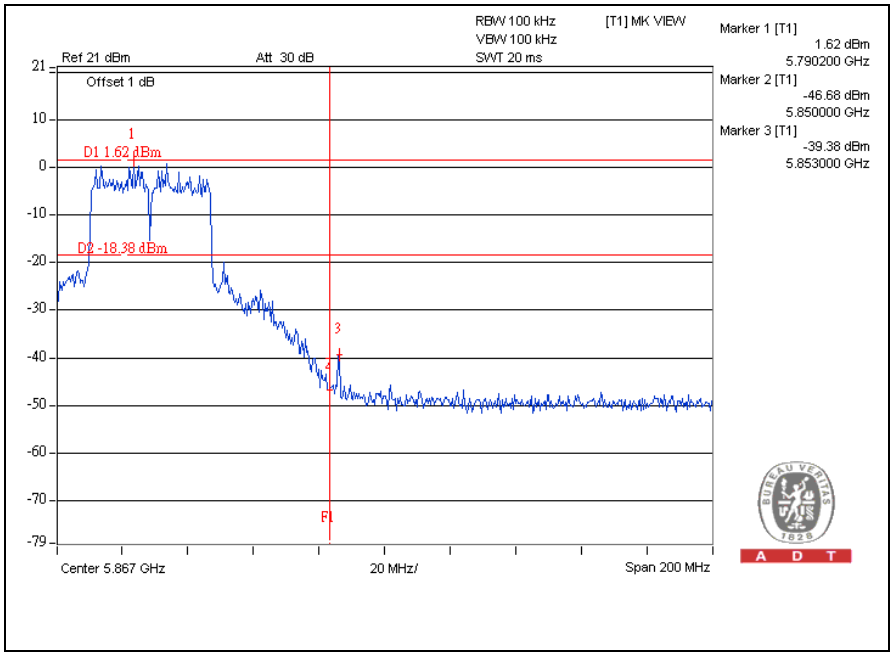

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 4.35 dBm
D2 -15.65 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
0.21 dBm
5.785680 GHz
Marker 2 [T1]
-34.21 dBm
39.920060 GHz
Marker 3 [T1]
-34.90 dBm
38.880840 GHz
Marker 4 [T1]
-35.26 dBm
36.003000 GHz

802.11n (40MHz) OFDM MODULATION:

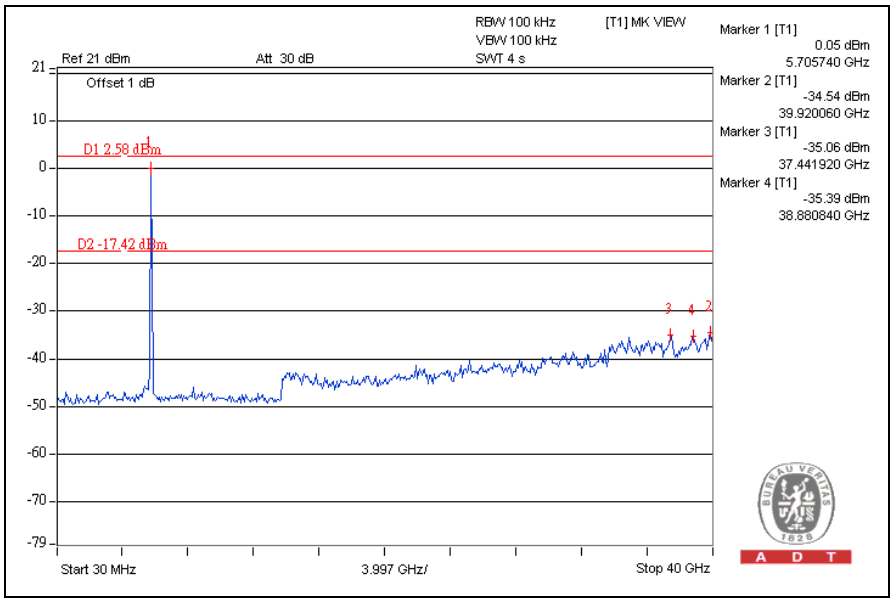
CH151



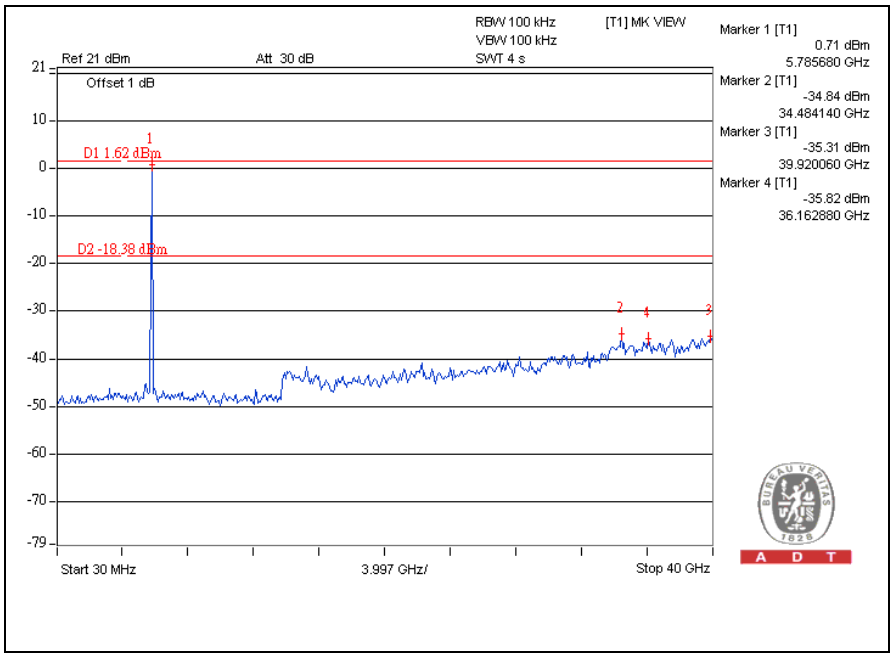
CH159



CH151


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 2.58 dBm
D2 -17.42 dBm
Marker 1 [T1]
0.05 dBm
5.705740 GHz
Marker 2 [T1]
-34.54 dBm
39.920060 GHz
Marker 3 [T1]
-35.06 dBm
37.441920 GHz
Marker 4 [T1]
-35.39 dBm
38.880840 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH159


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 1.62 dBm
D2 -18.38 dBm
Marker 1 [T1]
0.71 dBm
5.785680 GHz
Marker 2 [T1]
-34.84 dBm
34.484140 GHz
Marker 3 [T1]
-35.31 dBm
39.920060 GHz
Marker 4 [T1]
-35.82 dBm
36.162880 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

6.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

Web Site: www.adt.com.tw

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

7.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 ---