



A D T

FCC TEST REPORT (15.407)

REPORT NO.: RF990614E03-1

MODEL NO.: DWG875T,
DWG875XX (The "X" of Model Name could be A~Z)

FCC ID: H8NPKE938

RECEIVED: June 14, 2010

TESTED: June 15 to July 14, 2010

ISSUED: July 23, 2010

APPLICANT: ASKEY COMPUTER CORP.

ADDRESS: 10F, No.119, ChienKang RD., Chungho,
Taipei, Taiwan

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

This test report consists of 80 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by any government agencies. The test results in the report only apply to the tested sample.



Table of Contents

1.	CERTIFICATION	4
2.	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY.....	6
3.	GENERAL INFORMATION.....	7
3.1	GENERAL DESCRIPTION OF EUT	7
3.2	DESCRIPTION OF TEST MODES	11
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:	12
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	15
3.4	DESCRIPTION OF SUPPORT UNITS.....	16
3.5	CONFIGURATION OF SYSTEM UNDER TEST	17
4.	TEST TYPES AND RESULTS	18
4.1	CONDUCTED EMISSION MEASUREMENT	18
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	18
4.1.2	TEST INSTRUMENTS.....	18
4.1.3	TEST PROCEDURES	19
4.1.4	DEVIATION FROM TEST STANDARD	19
4.1.5	TEST SETUP	20
4.1.6	EUT OPERATING CONDITIONS	20
4.1.7	TEST RESULTS	21
4.2	RADIATED EMISSION MEASUREMENT	25
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	25
4.2.2	LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS.....	26
4.2.3	TEST INSTRUMENTS.....	27
4.2.4	TEST PROCEDURES	29
4.2.5	DEVIATION FROM TEST STANDARD	29
4.2.6	TEST SETUP	30
4.2.7	EUT OPERATING CONDITION.....	31
4.2.8	TEST RESULTS	32
4.3	PEAK TRANSMIT POWER MEASUREMENT	53
4.3.1	LIMITS OF PEAK TRANSMIT POWER MEASUREMENT	53
4.3.2	TEST INSTRUMENTS.....	53
4.3.3	TEST PROCEDURE.....	54
4.3.4	DEVIATION FROM TEST STANDARD	54
4.3.5	TEST SETUP	54
4.3.6	EUT OPERATING CONDITIONS	54
4.3.7	TEST RESULTS	55
4.4	PEAK POWER EXCURSION MEASUREMENT	61
4.4.1	LIMITS OF PEAK POWER EXCURSION MEASUREMENT	61
4.4.2	TEST INSTRUMENTS.....	61
4.4.3	TEST PROCEDURE.....	61



A D T

4.4.4	DEVIATION FROM TEST STANDARD	61
4.4.5	TEST SETUP	61
4.4.6	EUT OPERATING CONDITIONS	61
4.4.7	TEST RESULTS	62
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT	65
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	65
4.5.2	TEST INSTRUMENTS.....	65
4.5.3	TEST PROCEDURES	65
4.5.4	DEVIATION FROM TEST STANDARD	65
4.5.5	TEST SETUP	65
4.5.6	EUT OPERATING CONDITIONS	65
4.5.7	TEST RESULTS	66
4.6	FREQUENCY STABILITY.....	69
4.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	69
4.6.2	TEST INSTRUMENTS.....	69
4.6.3	TEST PROCEDURE.....	69
4.6.4	DEVIATION FROM TEST STANDARD	70
4.6.5	TEST SETUP	70
4.6.6	EUT OPERATING CONDITION.....	70
4.6.7	TEST RESULTS	71
4.7	CONDUCTED OUT-BAND EMISSION MEASUREMENT	72
4.7.1	TEST INSTRUMENTS.....	72
4.7.2	TEST PROCEDURE.....	72
4.7.3	EUT OPERATING CONDITION.....	72
4.7.4	TEST RESULTS	72
5.	INFORMATION ON THE TESTING LABORATORIES	79
6.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	80



1. CERTIFICATION

PRODUCT: Cable Modem
BRAND NAME: THOMSON
MODEL NO.: DWG875T,
DWG875XX (The "X" of Model Name could be A~Z)
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: June 15 to July 14, 2010
APPLICANT: ASKEY COMPUTER CORP.
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003

The above equipment (Model: DWG875T) 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 : Carol Liao , **DATE:** July 23, 2010
(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** July 23, 2010
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** July 23, 2010
(May Chen, Deputy Manager)



A D T

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

[For 802.11a](#)

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.93dB at 2.973MHz
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -0.7dB at 5150.00MHz
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is I-PEX not a standard connector.

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 5.15~5.25GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report.



A D T

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



A D T

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Cable Modem
MODEL NO.	DWG875T, DWG875XX (The "X" of Model Name could be A~Z)
FCC ID	H8NPKE938
POWER SUPPLY	Internal power supply or Battery
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 HT20 MCS0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps, HT20 MCS8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps. HT40 MCS0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps. HT40 MCS8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps.
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 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)



A D T

MAXIMUM OUTPUT POWER	For 15.407 802.11a: 24.5mW 802.11n (20MHz): 23.1mW 802.11n (40MHz): 26.1mW For 15.247(2.4GHz) 802.11b: 218.8mW 802.11g: 346.7mW 802.11n (20MHz): 647.4mW 802.11n (40MHz): 382.4mW For 15.247(5GHz) 802.11a: 223.9mW 802.11n (20MHz): 458.2mW 802.11n (40MHz): 418.0mW
ANTENNA TYPE	Please see note 4
ANTENNA CONNECTOR	Please see note 4
DATA CABLE	LAN cable x 1 (Unshielded, 1.5m) AC input cable x 1 (Unshielded, 1.8m)
I/O PORTS	Phone(RJ11) port x 2 LAN(RJ45) port x 4 (10/100/1000Mbps) USB port x 1 Coaxial port x 1
ASSOCIATED DEVICES	Battery x 1

NOTE:

1. The EUT has below brand name and model names which are identical to each other in all aspects except for the following :

Brand	Model No.	Description
THOMSON	DWG875T	For marketing requirement (The "X" of Model Name could be A~Z)
	DWG875XX	

From the above models, model: **DWG875T** was selected as representative model for the test and its data was recorded in this report.

2. The EUT must be supplied with a battery or an internal power supply and following two different model numbers could be chosen:

Battery		
Brand	Model No.	Spec.
GETAC TECHNOLOGY CORP	BP-PKE9-31/2600 S	11V, 2.6Ah, 28.9Wh. Max charge voltage : 12.6V
Internal power supply 1		
Brand	Model No.	Spec.
AMIGO	AMS56-1502400F	Input: 100-240V, 50/60Hz, 1A Output: 15V, 2.4A
Internal power supply 2		
Brand	Model No.	Spec.
LEI	SU36-2150240-I3	Input: 100-240V, 50/60Hz, 1.2A Output: 15V, 2.4A

3. For radiated test, the EUT was pre-tested under following test modes :

Pre-test Mode	Description
Mode A	Battery x 1 + Internal power supply 1
Mode B	Battery x 1 + Internal power supply 2
Mode C	Battery x 2 + Internal power supply 1

The worse radiated emission was found in **Mode C**. Therefore only the test data of the mode was recorded in this report.



A D T

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

No.	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Cable loss(dB)	Net Gain (dBi)	Cable Length (mm)	Frequency range (GHz)
1	PIFA	I-PEX	2.45	0.45	2	150	1~6
2	PIFA	I-PEX	2.56	0.56	2	200	1~6

5. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmitters and two completed receivers.
6. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11abg legacy mode is limited to single transmitter only.
7. The EUT complies with 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.
8. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5250MHz bands:

Four channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz

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

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz



A D T

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
1	√	√	√	√	with Internal power supply 1
2	√				with Internal power supply 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:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11 a	√	
B	802.11n(20MHz) for MCS0~7	√	
C	802.11n(20MHz) for MCS8~15	√	√
D	802.11n(40MHz) for MCS0~7	√	
E	802.11n(40MHz) for MCS8~15	√	√

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, C and E the worst modes, were selected as representative mode for the report.

POWER LINE CONDUCTED EMISSION TEST:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11n (40MHz)	38 to 46	46	OFDM	BPSK	27	E

RADIATED EMISSION TEST (BELOW 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11n (40MHz)	38 to 46	46	OFDM	BPSK	27	E

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
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	13	C
802.11n (40MHz)	38 to 46	38,46	OFDM	BPSK	27	E

CONDUCTED OUT-BAND EMISSION MEASUREMENT :

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION
802.11a	36 to 48	36, 48	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 48	36, 48	OFDM	BPSK	13	C
802.11n (40MHz)	38 to 46	38,46	OFDM	BPSK	27	E

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



A D T

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
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	13	C
802.11n (40MHz)	38 to 46	38,46	OFDM	BPSK	27	E

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	27deg. C, 74%RH, 1014 hPa	120Vac, 60Hz	Frank Liu
RE<1G	26deg. C, 81%RH, 1014 hPa	120Vac, 60Hz	Eagle Chen
PLC	28deg. C, 55%RH, 1014 hPa	120Vac, 60Hz	Timmy Hu
APCM	27deg. C, 72%RH, 1014 hPa	120Vac, 60Hz	Eric Lee

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

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.



A D T

3.4 DESCRIPTION OF SUPPORT UNITS

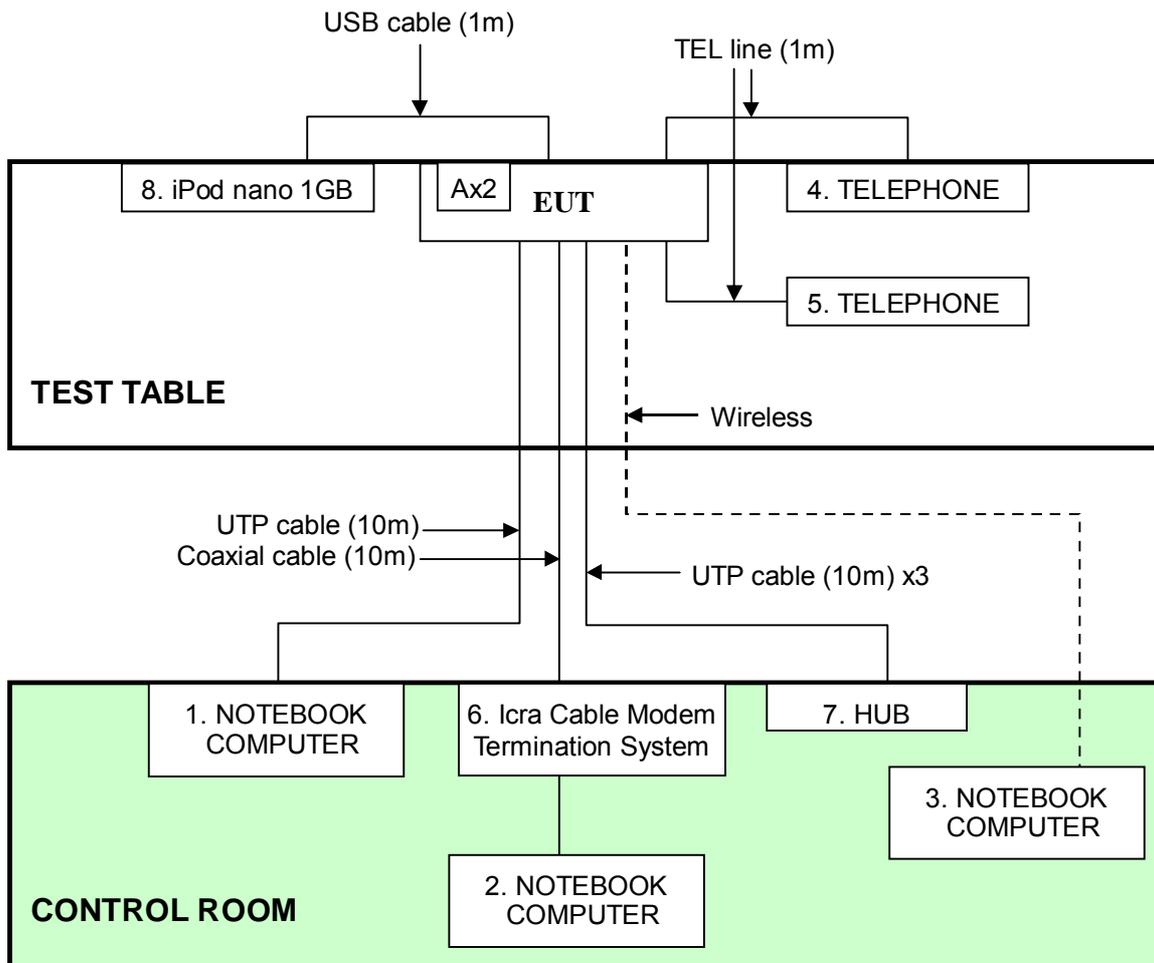
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	NOTEBOOK COMPUTER	Acer	TravelMate270	NA	NA
4	TELEPHONE	WONDER	WD-303	6C17FA00515	NA
5	TELEPHONE	WONDER	WD-303	6C17FA00774	NA
6	Icra Cable Modem Termination System	ARRIS	CMT1000	NA	NA
7	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
8	iPod nano 1GB	Apple	A1137	5K7170JBUPR	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	RJ-45 cable (10m)
2	RJ-45 cable (3m)
3	NA
4	RJ-11 cable (1m)
5	RJ-11 cable (1m)
6	Coaxial cable (10m)
7	RJ-45 cable (10m)
8	1 m shielded cable, terminated with USB connector, w/o core.

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



NOTE: 1. Item A is the battery.



A D T

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_ Cond_V7.3.7	NA	NA	NA

Note:

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



A D T

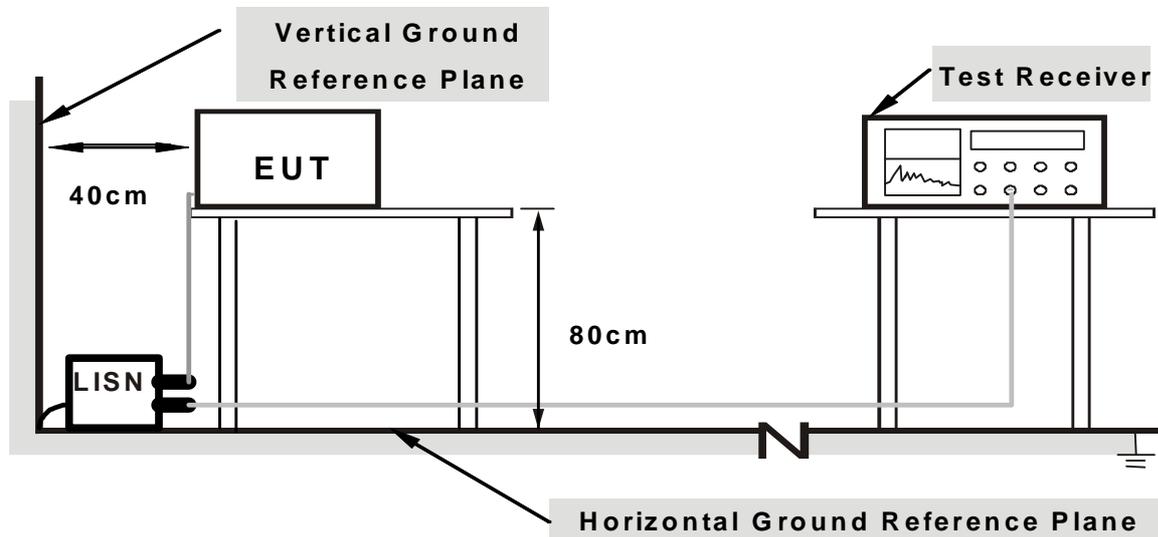
4.1.3 TEST PROCEDURES

- 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
- b. provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was 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

- a. Placed the EUT on testing table.
- b. Prepared other computer systems (support units 1 ~ 3) to act as communication partners and placed them outside of testing area.
- c. The communication partners ran test program “Ping.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable, one coaxial cable and wireless transmission.
- d. The support units 4~5 (Telephone) called to each other via EUT.
- e. Support unit 8 (iPod nano 1G) was connected to EUT via one USB cable to simulate real connection.

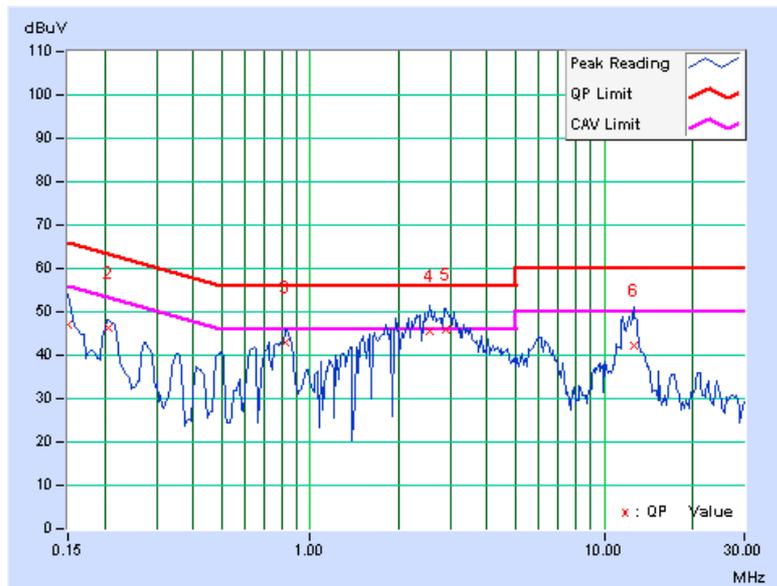
4.1.7 TEST RESULTS

802.11n (40MHz) OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
TEST MODE	With Internal power supply 1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.03	46.96	-	46.99	-	66.00	56.00	-19.01	-
2	0.205	0.04	46.11	-	46.15	-	63.41	53.41	-17.26	-
3	0.826	0.16	42.74	-	42.90	-	56.00	46.00	-13.10	-
4	2.535	0.22	45.26	-	45.48	-	56.00	46.00	-10.52	-
5	2.895	0.21	45.58	-	45.79	-	56.00	46.00	-10.21	-
6	12.574	0.52	41.67	-	42.19	-	60.00	50.00	-17.81	-

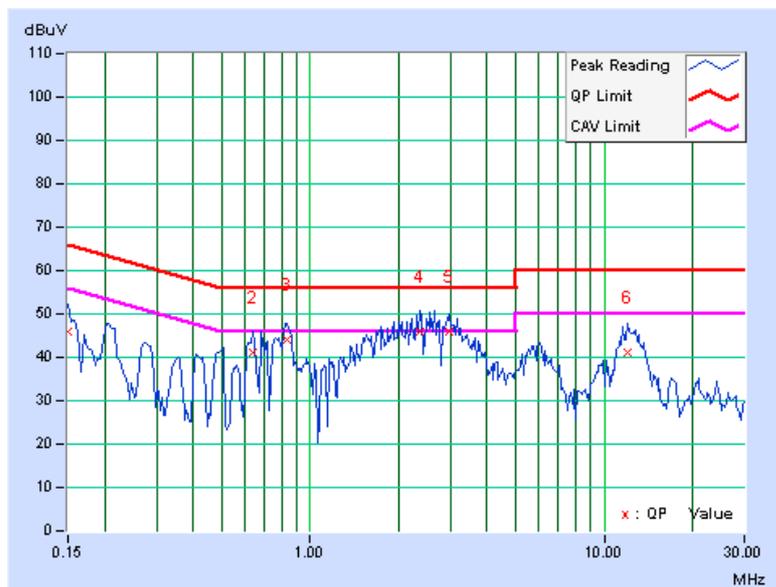
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
TEST MODE	With Internal power supply 1		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.04	45.85	-	45.89	-	66.00	56.00	-20.11	-
2	0.642	0.12	40.97	-	41.09	-	56.00	46.00	-14.91	-
3	0.834	0.18	43.92	-	44.10	-	56.00	46.00	-11.90	-
4	2.371	0.23	45.67	-	45.90	-	56.00	46.00	-10.10	-
5	2.973	0.23	45.84	31.69	46.07	31.92	56.00	46.00	-9.93	-14.08
6	12.047	0.54	40.66	-	41.20	-	60.00	50.00	-18.80	-

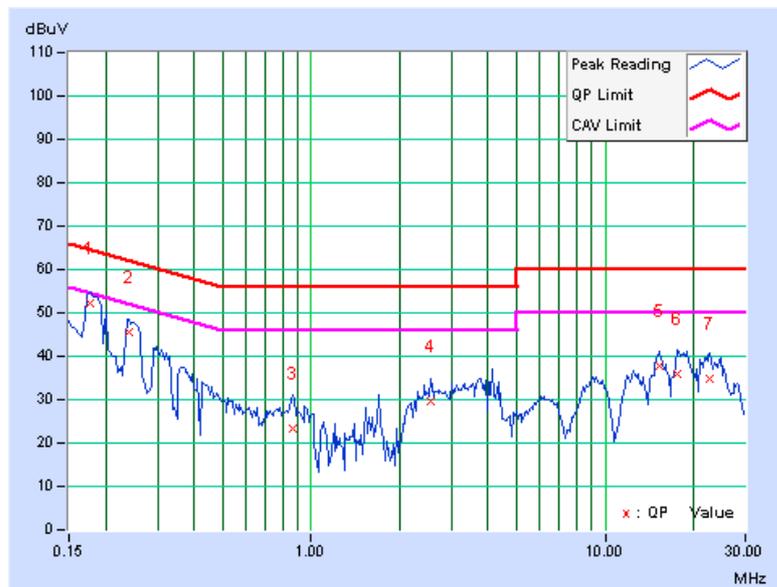
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Line (L)	6dB BANDWIDTH	9 kHz
TEST MODE	With Internal power supply 2		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.04	52.25	-	52.29	-	64.60	54.60	-12.32	-
2	0.240	0.04	45.57	-	45.61	-	62.10	52.10	-16.49	-
3	0.869	0.18	22.98	-	23.16	-	56.00	46.00	-32.84	-
4	2.563	0.22	29.46	-	29.68	-	56.00	46.00	-26.32	-
5	15.395	0.46	37.47	-	37.93	-	60.00	50.00	-22.07	-
6	17.641	0.53	35.38	-	35.91	-	60.00	50.00	-24.09	-
7	22.746	0.63	34.15	-	34.78	-	60.00	50.00	-25.22	-

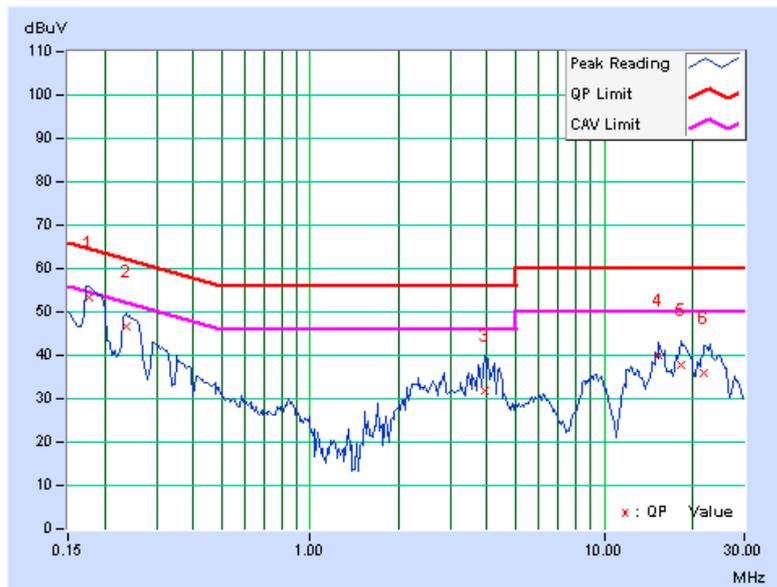
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
TEST MODE	With Internal power supply 2		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.178	0.05	53.26	-	53.31	-	64.59	54.59	-11.28	-
2	0.236	0.05	46.63	-	46.68	-	62.24	52.24	-15.55	-
3	3.926	0.21	31.74	-	31.95	-	56.00	46.00	-24.05	-
4	15.356	0.47	39.69	-	40.16	-	60.00	50.00	-19.84	-
5	18.203	0.56	37.26	-	37.82	-	60.00	50.00	-22.18	-
6	21.836	0.64	35.37	-	36.01	-	60.00	50.00	-23.99	-

- 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.



A D T

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dB μ V/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$



A D T

4.2.3 TEST INSTRUMENTS

Below 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	U3751	170100022	Nov. 18, 2009	Nov. 17, 2010
PSA Seviés Spectrum Analyzer	E4446A	MY46180622 111 115 UK6	May 12, 2010	May 11, 2011
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2009	Sep. 24, 2010
ROHDE & SCHWARZ Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
SCHWARZBECK Broadband Antenna	VULB-9168	263	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D123	Sep. 21, 2009	Sep. 20, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 23, 2010	Jan. 22, 2011
RF Switches	EM-H-01-1	1009	Aug. 10, 2009	Aug. 08, 2010
RF Cable	8DFB	STACAB-30M-1GHz-091	Nov. 20, 2009	Nov. 19, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	TT100	ADT01	NA	NA
CORCOM AC Filter	MRI2030	107/108	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: E4446A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. A.
4. The VCCI Site Registration No. is R-782.
5. The FCC Site Registration No. is 91097.
6. The CANADA Site Registration No. is IC 7450G-1.



A D T

Above 1GHz test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	Aug. 03, 2009	Aug. 02, 2010
Agilent Pre-Selector	N9039A	MY46520310	Aug. 18, 2009	Aug. 17, 2010
Agilent Signal Generator	N5181A	MY49060347	July 18, 2009	July 17, 2010
LIG NEX1 Test Receiver	ER-265	L09068005	Aug. 31, 2009	Aug. 30, 2010
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 18, 2009	Nov. 17, 2010
Agilent Pre-Amplifier	8449B	3008A02465	Mar. 01, 2010	Feb. 28, 2011
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Sep. 30, 2009	Sep. 29, 2010
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 16, 2009	Nov. 15, 2010
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Sep. 30, 2009	Sep. 29, 2010
RF CABLE	NA	RF104-205 RF104-207 RF104-208	Dec. 24, 2009	Dec. 23, 2010
RF Cable	NA	CHHCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in 966 Chamber No. H.
 4. The FCC Site Registration No. is 797305.
 5. The CANADA Site Registration No. is IC 7450H-3.

4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters open field site for below 1GHz test and 3 meters chamber room for above 1GHz test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

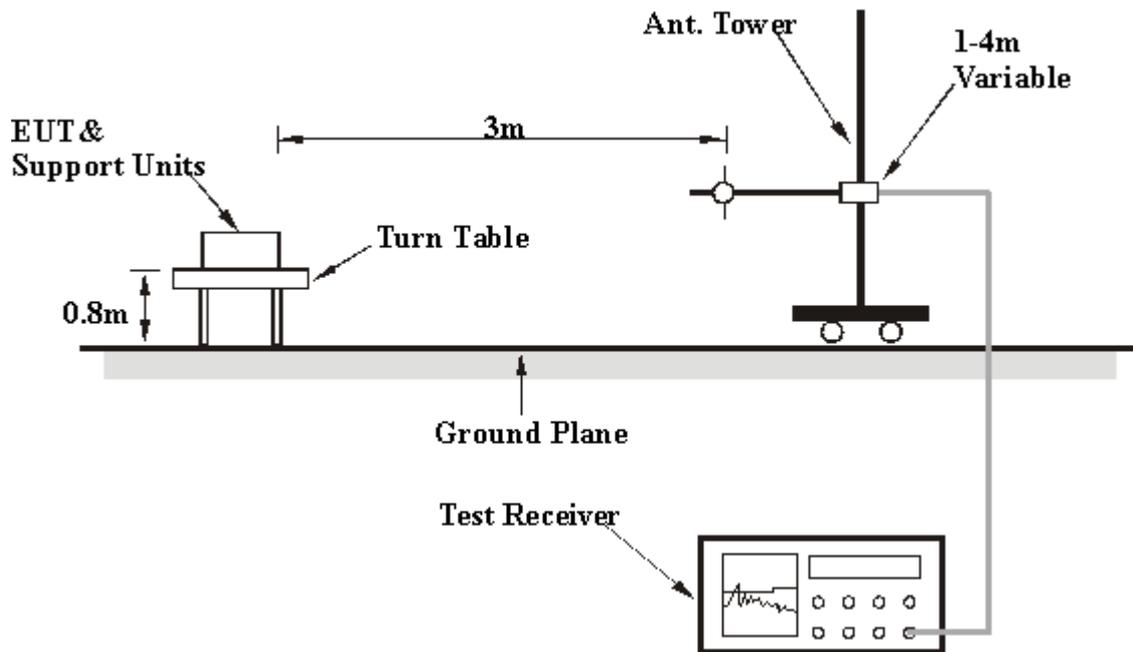
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK)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

4.2.5 DEVIATION FROM TEST STANDARD

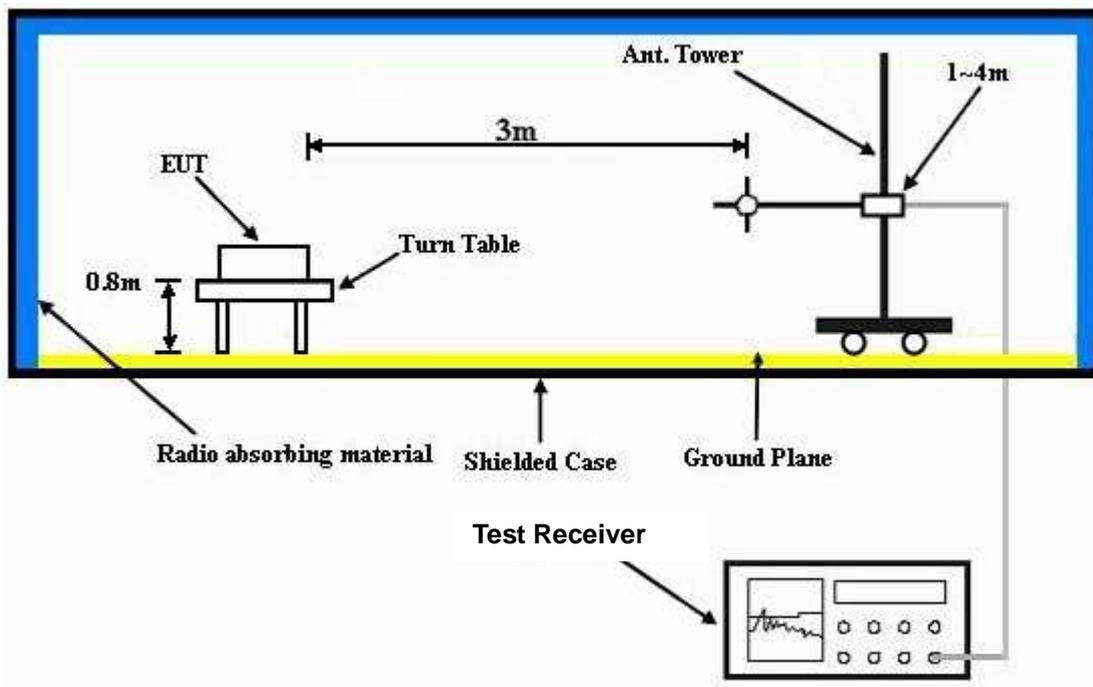
No deviation

4.2.6 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.2.7 EUT OPERATING CONDITION

1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 ~ 2) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “Console Broadcom command” to enable EUT under transmission/receiving condition continuously at specific channel frequency via one UTP cable and one coaxial cable.
4. The support units 4~5 (Telephone) called to each other via EUT.



A D T

4.2.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 81%RH 1014 hPa	TESTED BY	Eagle Chen

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	125.00	29.2 QP	43.5	-14.3	2.78 H	343	15.66	13.58
2	220.00	30.8 QP	46.0	-15.3	2.88 H	31	17.85	12.90
3	250.00	29.6 QP	46.0	-16.4	2.63 H	345	15.92	13.65
4	396.61	29.8 QP	46.0	-16.2	2.47 H	174	11.07	18.75
5	500.01	30.1 QP	46.0	-15.9	1.88 H	43	8.67	21.45
6	875.02	31.5 QP	46.0	-14.5	1.00 H	301	3.45	28.01
7	1000.00	42.8 QP	54.0	-11.2	1.00 H	302	13.25	29.52
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	125.00	34.8 QP	43.5	-8.7	1.00 V	35	21.19	13.58
2	220.00	31.4 QP	46.0	-14.7	1.00 V	55	18.45	12.90
3	250.01	34.3 QP	46.0	-11.7	1.00 V	351	20.68	13.65
4	375.01	33.8 QP	46.0	-12.2	1.00 V	104	15.77	18.04
5	500.01	35.2 QP	46.0	-10.9	1.00 V	52	13.70	21.45
6	875.00	34.6 QP	46.0	-11.4	2.51 V	35	6.56	28.01
7	1000.00	38.1 QP	54.0	-15.9	2.15 V	345	8.59	29.52

- 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.



A D T

ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	73.0 PK	74.0	-1.0	1.18 H	282	32.59	40.40
2	5150.00	53.0 AV	54.0	-1.0	1.18 H	282	12.57	40.40
3	*5180.00	106.3 PK			1.18 H	282	65.85	40.45
4	*5180.00	97.3 AV			1.18 H	282	56.83	40.45
5	#10360.00	54.6 PK	68.3	-13.7	1.22 H	138	7.79	46.81
6	15540.00	58.1 PK	74.0	-15.9	1.04 H	29	6.93	51.17
7	15540.00	47.6 AV	54.0	-6.4	1.04 H	29	-3.57	51.17
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	5150.00	66.4 PK	74.0	-7.6	1.06 V	37	26.00	40.40
2	5150.00	48.7 AV	54.0	-5.3	1.06 V	37	8.34	40.40
3	*5180.00	105.4 PK			1.05 V	38	64.95	40.45
4	*5180.00	95.0 AV			1.05 V	38	54.55	40.45
5	#10360.00	54.1 PK	68.3	-14.2	1.38 V	42	7.29	46.81
6	15540.00	57.9 PK	74.0	-16.1	1.36 V	20	6.73	51.17
7	15540.00	47.3 AV	54.0	-6.7	1.36 V	20	-3.87	51.17

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	106.9 PK			1.14 H	281	66.41	40.49
2	*5200.00	97.6 AV			1.14 H	281	57.11	40.49
3	#10400.00	55.3 PK	68.3	-13.0	1.24 H	117	8.45	46.85
4	15600.00	58.4 PK	74.0	-15.6	1.09 H	36	7.12	51.28
5	15600.00	48.1 AV	54.0	-5.9	1.09 H	36	-3.18	51.28
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	*5200.00	105.9 PK			1.07 V	46	65.41	40.49
2	*5200.00	95.4 AV			1.07 V	46	54.91	40.49
3	#10400.00	54.6 PK	68.3	-13.7	1.39 V	49	7.75	46.85
4	15600.00	58.1 PK	74.0	-15.9	1.34 V	35	6.82	51.28
5	15600.00	47.6 AV	54.0	-6.4	1.34 V	35	-3.68	51.28

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	107.4 PK			1.00 H	116	66.84	40.56
2	*5240.00	97.9 AV			1.00 H	116	57.34	40.56
3	5350.00	59.1 PK	74.0	-14.9	1.18 H	279	18.37	40.77
4	5350.00	46.5 AV	54.0	-7.5	1.18 H	279	5.70	40.77
5	#10480.00	55.6 PK	68.3	-12.7	1.29 H	112	8.69	46.91
6	15720.00	58.7 PK	74.0	-15.3	1.04 H	27	7.08	51.62
7	15720.00	48.6 AV	54.0	-5.4	1.04 H	27	-3.02	51.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

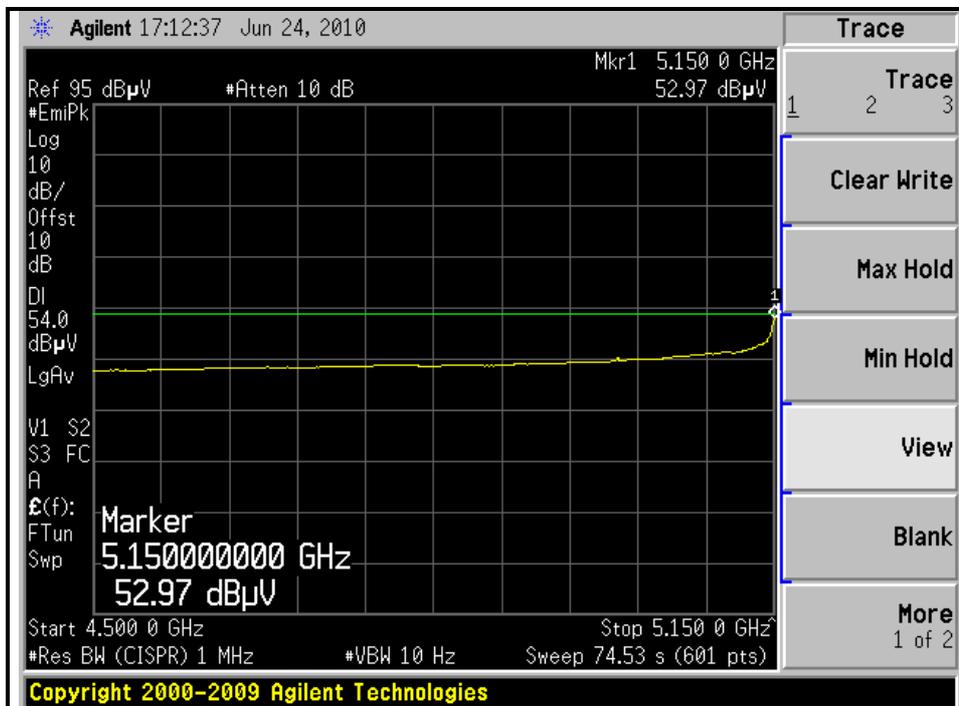
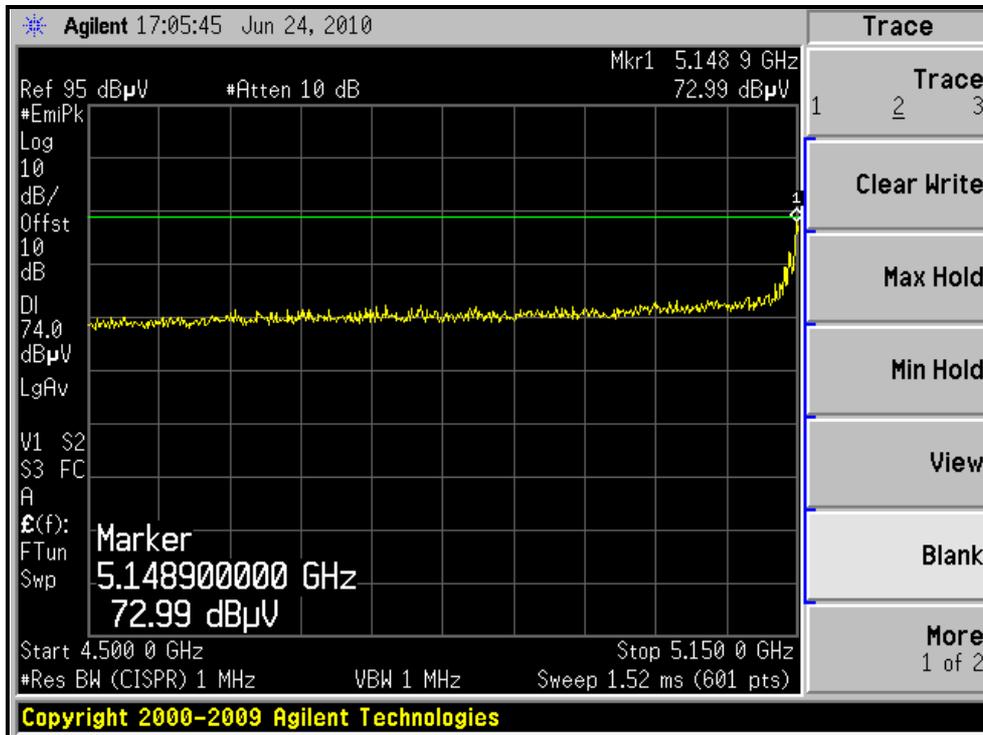
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	106.4 PK			1.06 V	79	65.84	40.56
2	*5240.00	95.8 AV			1.06 V	79	55.24	40.56
3	5350.00	56.3 PK	74.0	-17.7	1.18 V	279	15.49	40.77
4	5350.00	45.3 AV	54.0	-8.8	1.18 V	279	4.48	40.77
5	#10480.00	55.2 PK	68.3	-13.1	1.34 V	53	8.29	46.91
6	15720.00	58.4 PK	74.0	-15.6	1.27 V	46	6.78	51.62
7	15720.00	48.1 AV	54.0	-5.9	1.27 V	46	-3.52	51.62

- 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 radiated frequency is out the restricted band.



A D T

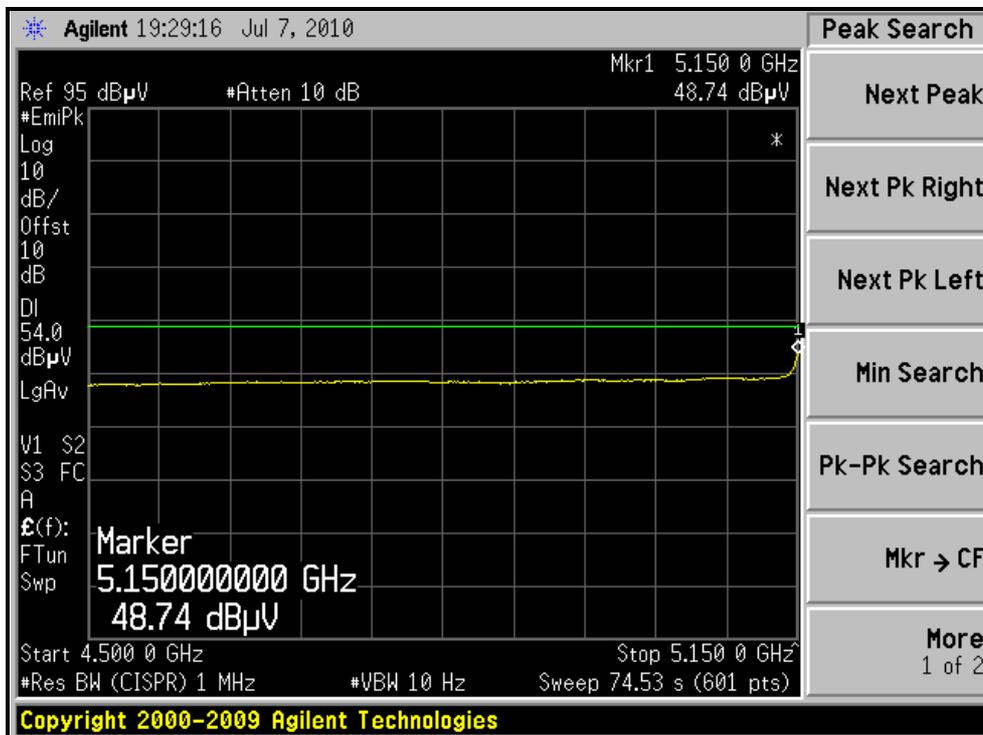
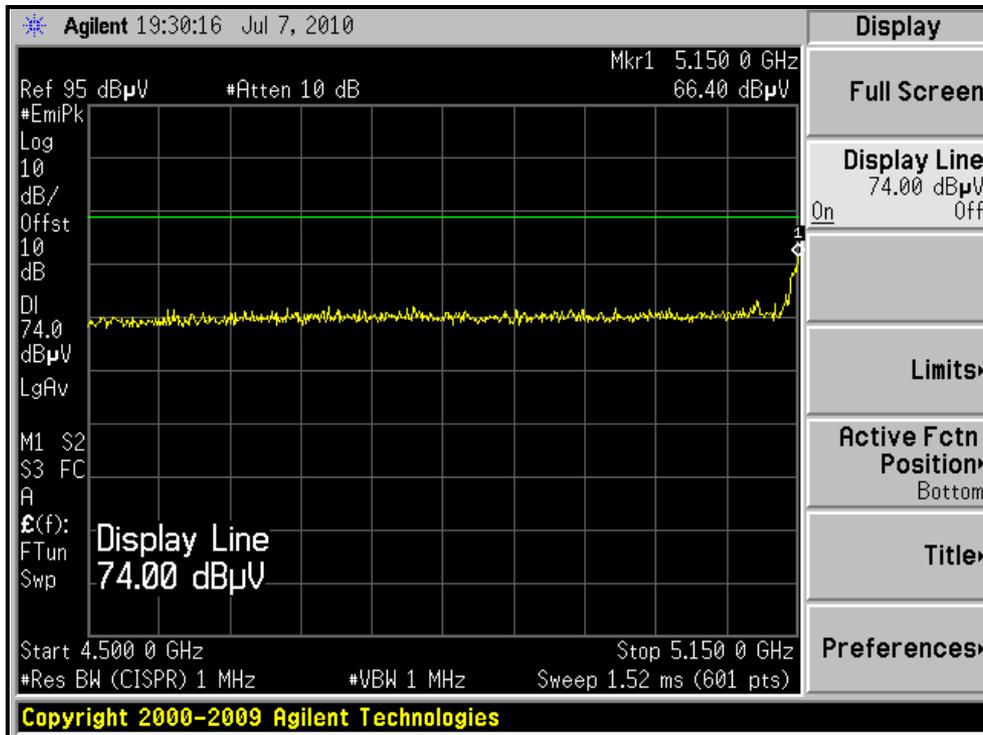
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





A D T

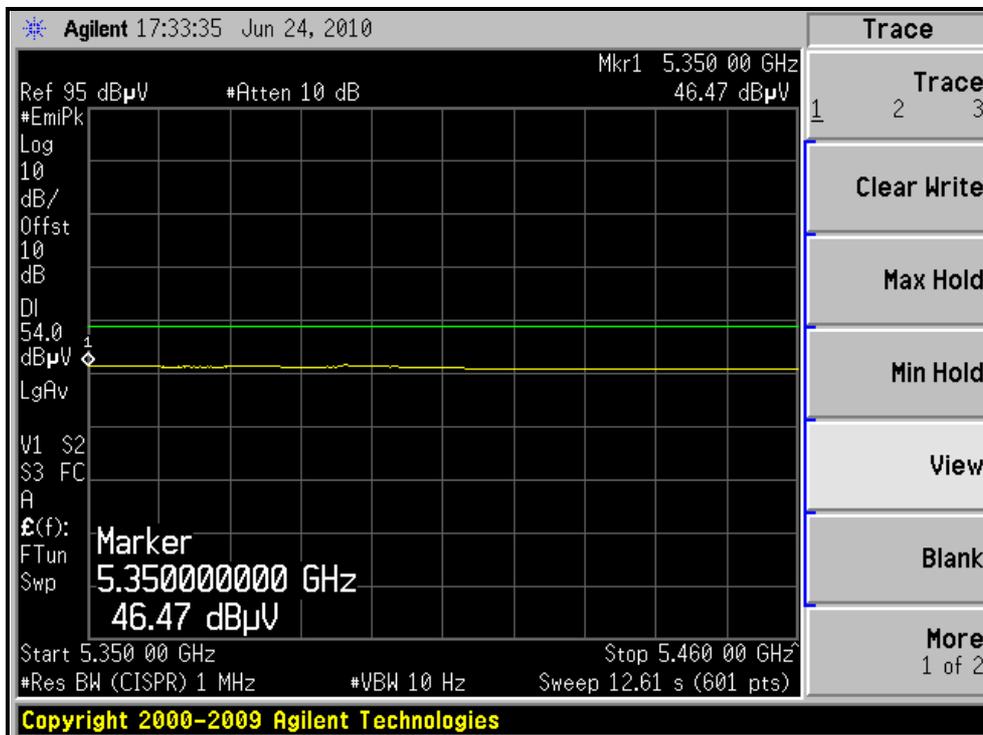
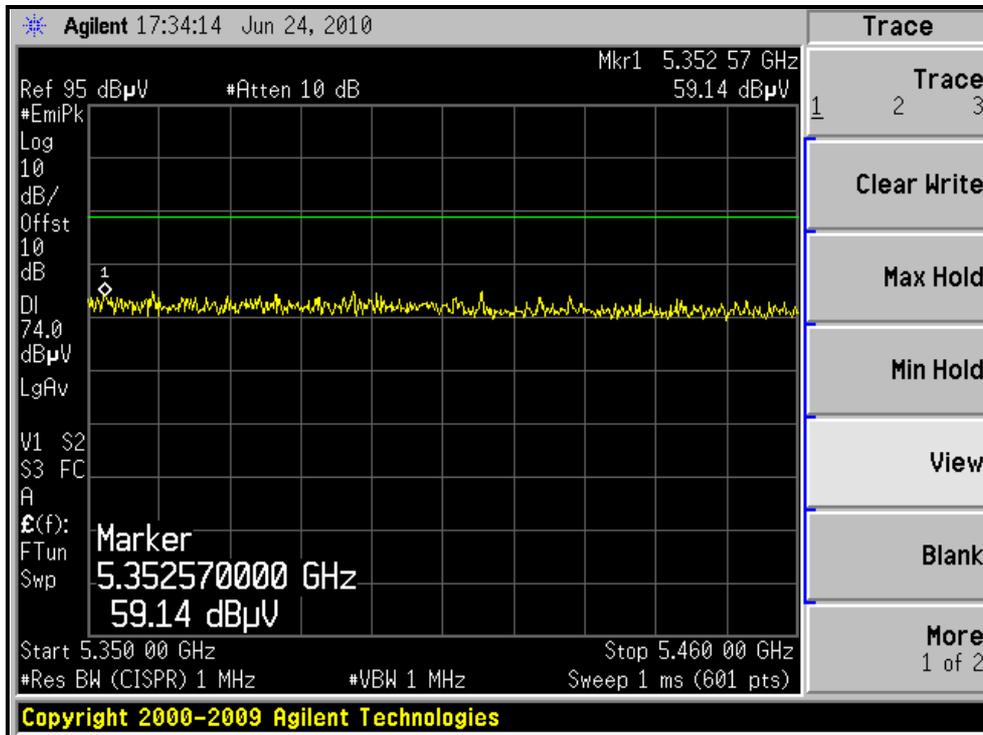
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





A D T

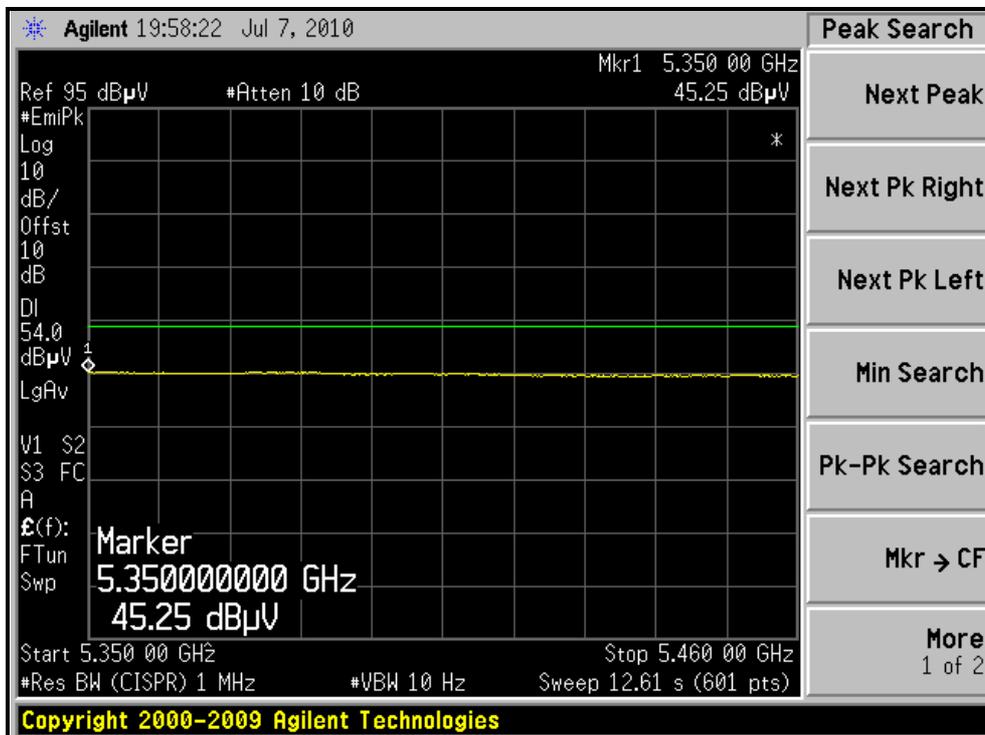
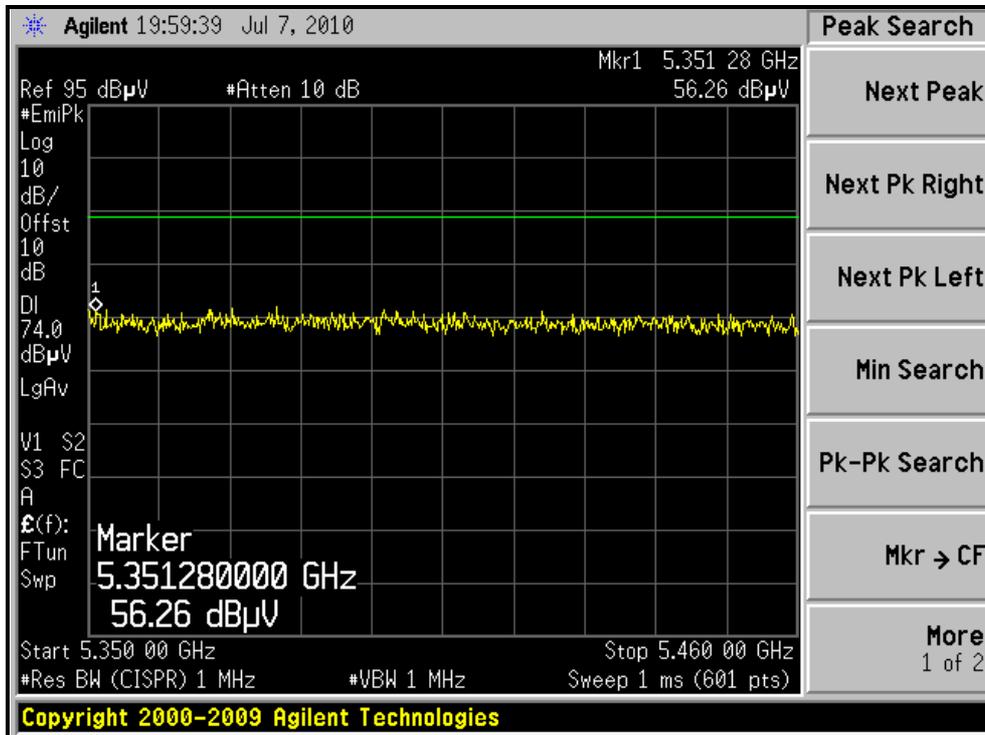
RESTRICTED BANDEDGE (802.11a MODE, CH48, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11a MODE, CH48, VERTICAL)





A D T

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.9 PK	74.0	-10.1	1.06 H	284	23.49	40.40
2	5150.00	49.1 AV	54.0	-4.9	1.06 H	284	8.69	40.40
3	*5180.00	107.6 PK			1.07 H	285	67.15	40.45
4	*5180.00	89.2 AV			1.07 H	285	48.75	40.45
5	#10360.00	55.7 PK	68.3	-12.6	1.24 H	117	8.89	46.81
6	15540.00	60.2 PK	74.0	-13.8	1.14 H	27	9.03	51.17
7	15540.00	48.4 AV	54.0	-5.6	1.14 H	27	-2.77	51.17
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	5150.00	70.7 PK	74.0	-3.3	1.02 V	231	30.33	40.40
2	5150.00	50.9 AV	54.0	-3.2	1.02 V	231	10.45	40.40
3	*5180.00	107.3 PK			1.06 V	220	66.85	40.45
4	*5180.00	92.5 AV			1.06 V	220	52.00	40.45
5	#10360.00	53.6 PK	68.3	-14.7	1.31 V	69	6.79	46.81
6	15540.00	59.3 PK	74.0	-14.7	1.04 V	213	8.13	51.17
7	15540.00	47.8 AV	54.0	-6.2	1.04 V	213	-3.37	51.17

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	107.8 PK			1.04 H	288	67.31	40.49
2	*5200.00	89.4 AV			1.04 H	288	48.91	40.49
3	#10400.00	55.8 PK	68.3	-12.5	1.24 H	111	8.95	46.85
4	15600.00	59.3 PK	74.0	-14.7	1.12 H	69	8.02	51.28
5	15600.00	48.1 AV	54.0	-5.9	1.12 H	69	-3.18	51.28
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	*5200.00	107.6 PK			1.08 V	231	67.11	40.49
2	*5200.00	92.7 AV			1.08 V	231	52.21	40.49
3	#10400.00	53.4 PK	68.3	-14.9	1.29 V	11	6.55	46.85
4	15600.00	59.7 PK	74.0	-14.3	1.03 V	245	8.42	51.28
5	15600.00	47.7 AV	54.0	-6.3	1.03 V	245	-3.58	51.28

- 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 radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	108.2 PK			1.01 H	243	67.64	40.56
2	*5240.00	89.6 AV			1.01 H	243	49.04	40.56
3	5350.00	56.0 PK	74.0	-18.0	1.04 H	281	15.26	40.77
4	5350.00	44.4 AV	54.0	-9.7	1.04 H	281	3.58	40.77
5	#10480.00	56.1 PK	68.3	-12.2	1.31 H	108	9.19	46.91
6	15720.00	60.4 PK	74.0	-13.6	1.03 H	57	8.78	51.62
7	15720.00	48.4 AV	54.0	-5.6	1.03 H	57	-3.22	51.62

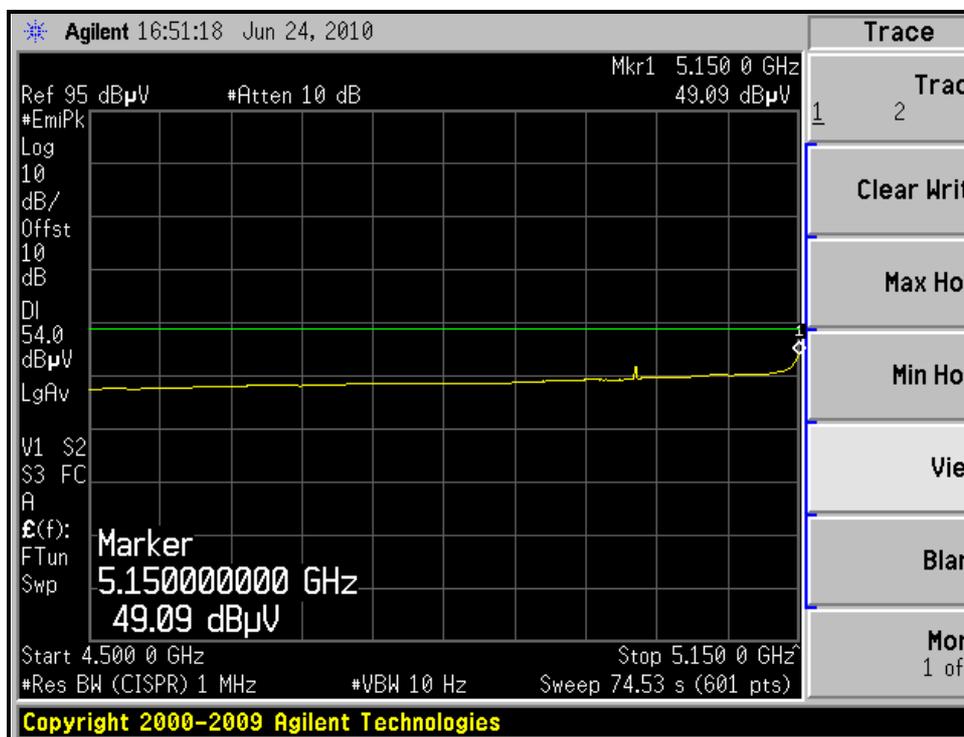
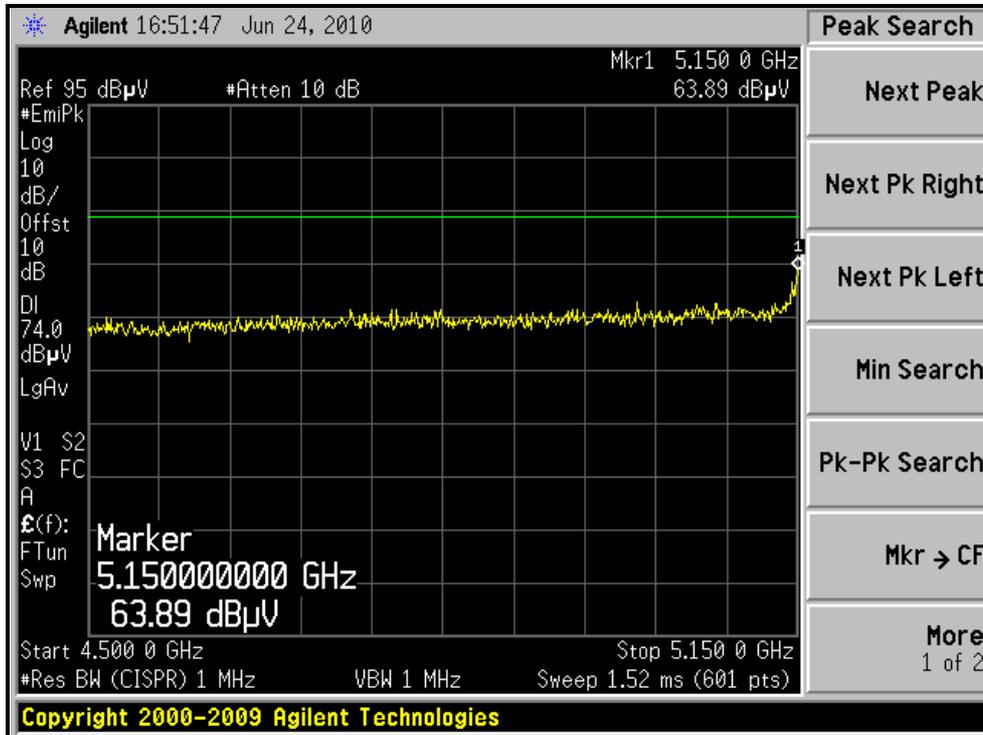
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	107.4 PK			1.07 V	45	66.84	40.56
2	*5240.00	93.1 AV			1.07 V	45	52.54	40.56
3	5350.00	59.6 PK	74.0	-14.4	1.07 V	292	18.86	40.77
4	5350.00	46.4 AV	54.0	-7.6	1.07 V	292	5.64	40.77
5	#10480.00	53.1 PK	68.3	-15.2	1.24 V	12	6.19	46.91
6	15720.00	60.4 PK	74.0	-13.6	1.07 V	251	8.78	51.62
7	15720.00	48.2 AV	54.0	-5.8	1.07 V	251	-3.42	51.62

- 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 radiated frequency is out the restricted band.



A D T

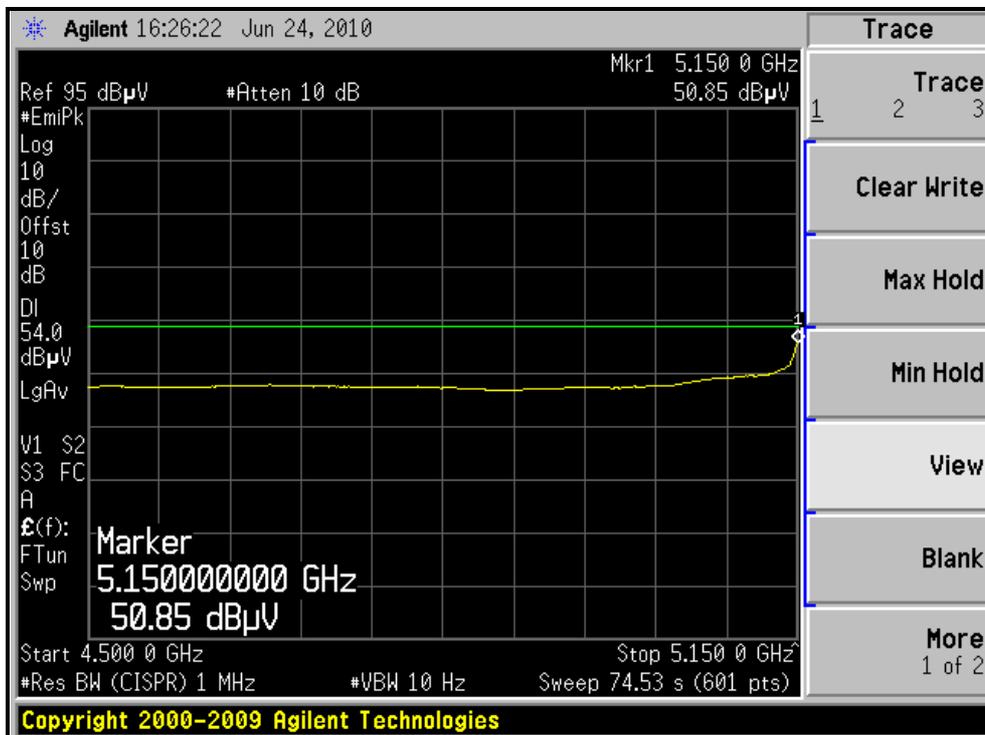
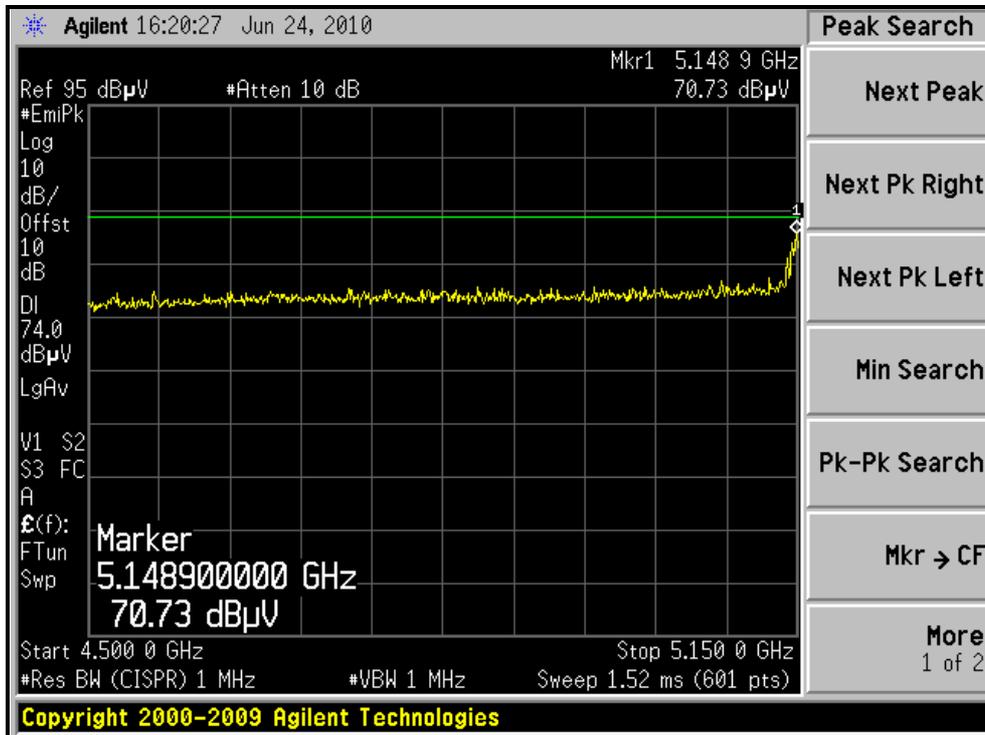
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)





A D T

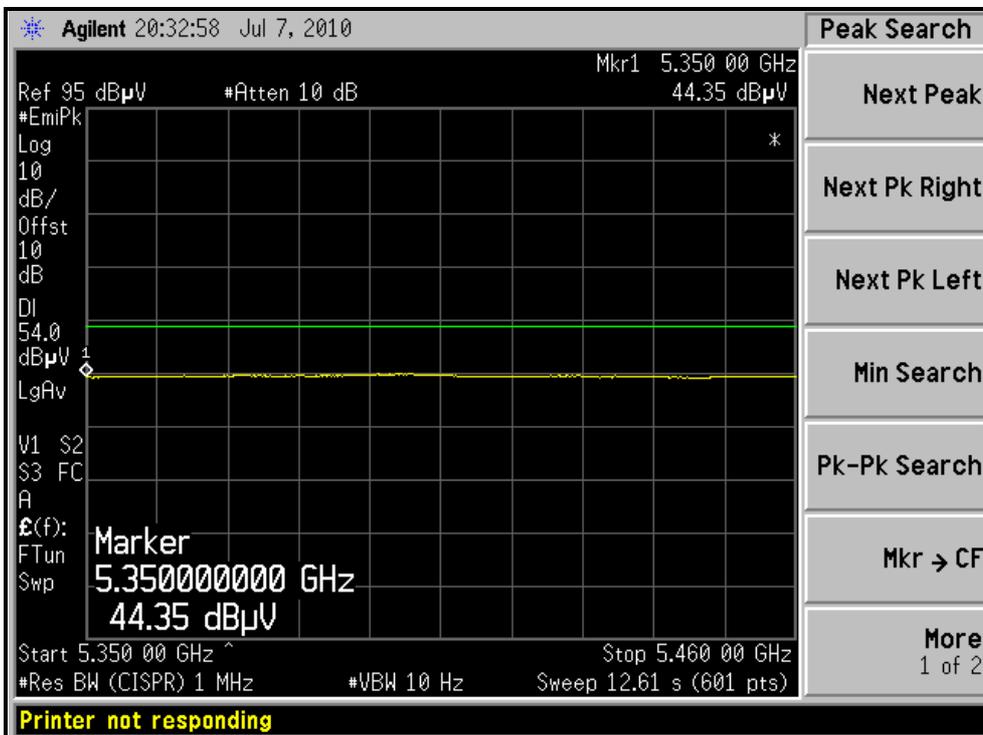
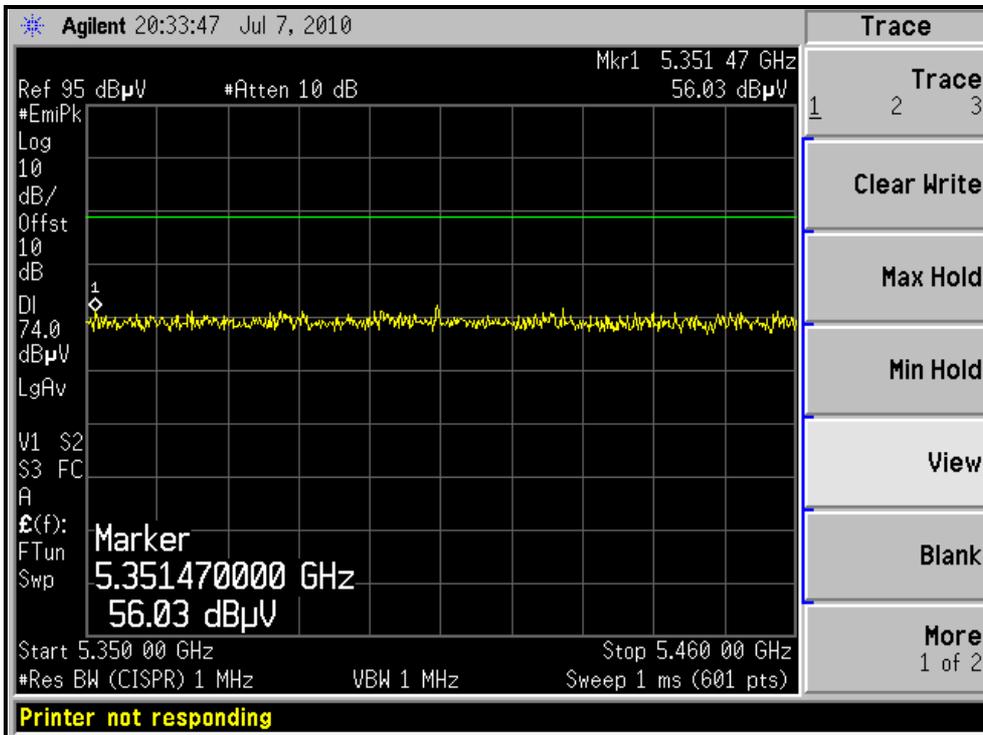
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)





A D T

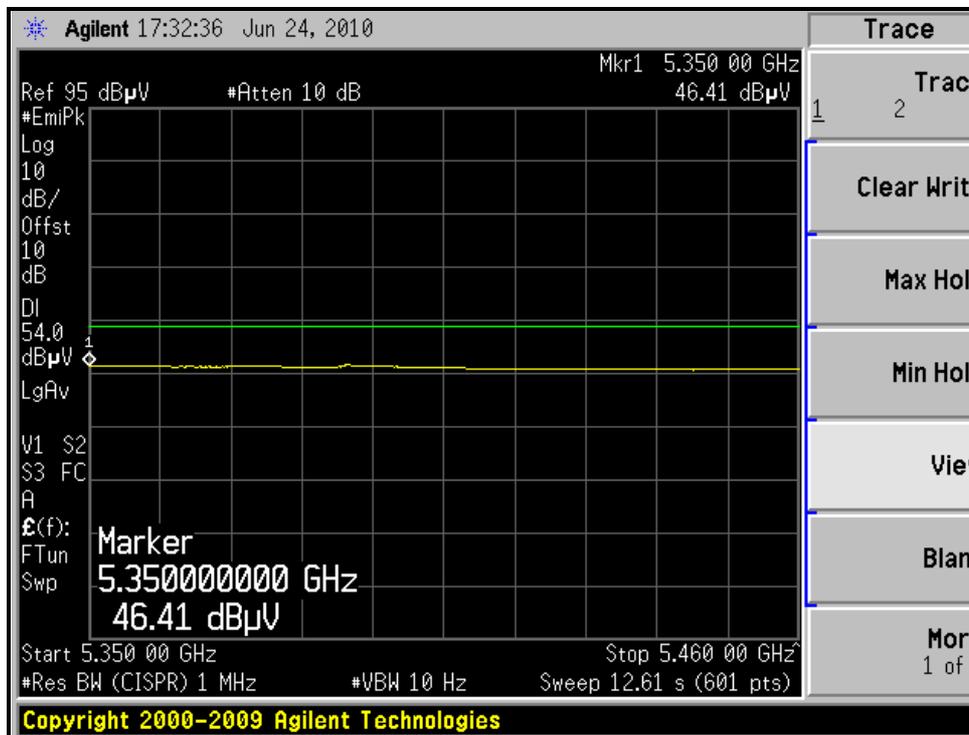
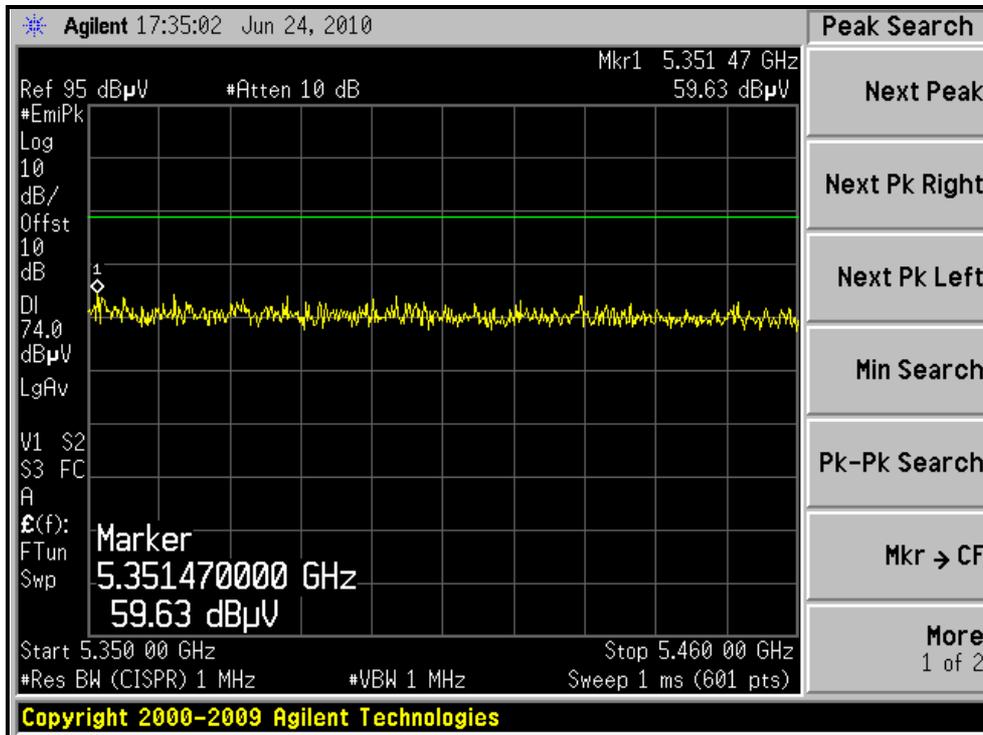
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH48, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH48, VERTICAL)





A D T

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	70.5 PK	74.0	-3.6	1.01 H	293	30.05	40.40
2	5150.00	51.8 AV	54.0	-2.2	1.01 H	293	11.41	40.40
3	*5190.00	101.3 PK			1.01 H	47	60.83	40.47
4	*5190.00	76.4 AV			1.01 H	47	35.93	40.47
5	#10380.00	56.4 PK	68.3	-11.9	1.34 H	107	9.57	46.83
6	15570.00	60.7 PK	74.0	-13.3	1.04 H	60	9.48	51.22
7	15570.00	48.9 AV	54.0	-5.1	1.04 H	60	-2.32	51.22
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	5150.00	73.3 PK	74.0	-0.7	1.04 V	281	32.94	40.40
2	5150.00	52.0 AV	54.0	-2.0	1.04 V	281	11.57	40.40
3	*5190.00	104.0 PK			1.14 V	251	63.53	40.47
4	*5190.00	77.0 AV			1.14 V	251	36.53	40.47
5	#10380.00	53.4 PK	68.3	-14.9	1.08 V	29	6.57	46.83
6	15570.00	60.7 PK	74.0	-13.3	1.04 V	243	9.48	51.22
7	15570.00	48.4 AV	54.0	-5.6	1.04 V	243	-2.82	51.22

- 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.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 74%RH 1014 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	102.0 PK			1.00 H	42	61.46	40.54
2	*5230.00	77.1 AV			1.00 H	42	36.56	40.54
3	5350.00	55.2 PK	74.0	-18.8	1.00 H	243	14.41	40.77
4	5350.00	45.2 AV	54.0	-8.8	1.00 H	243	4.45	40.77
5	#10460.00	56.7 PK	68.3	-11.6	1.24 H	109	9.80	46.90
6	15690.00	60.8 PK	74.0	-13.2	1.07 H	54	9.26	51.54
7	15690.00	49.3 AV	54.0	-4.7	1.07 H	54	-2.24	51.54

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

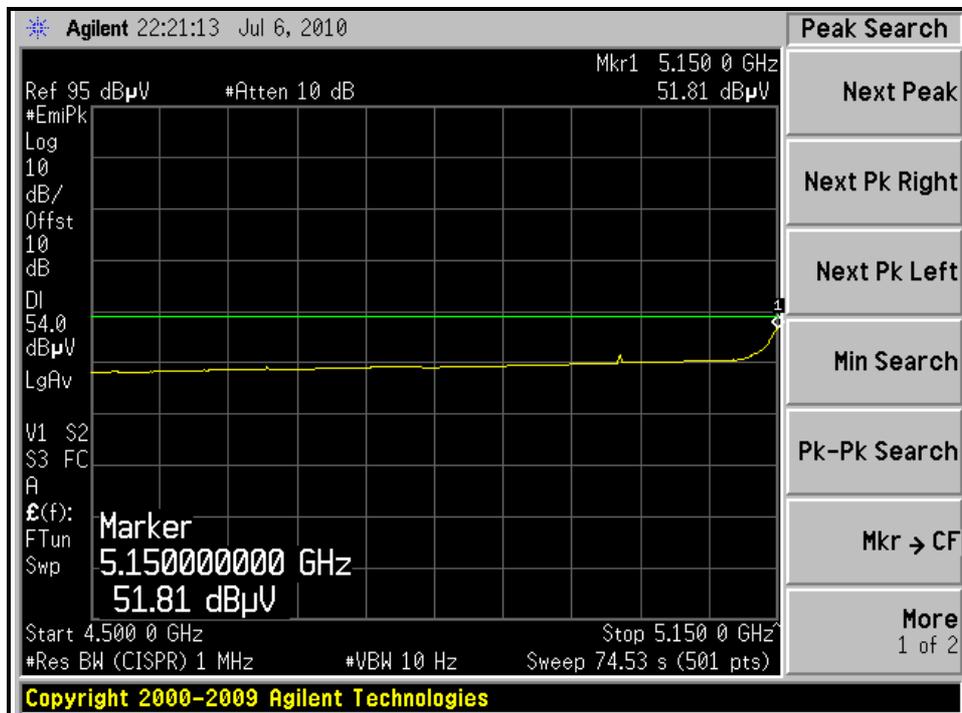
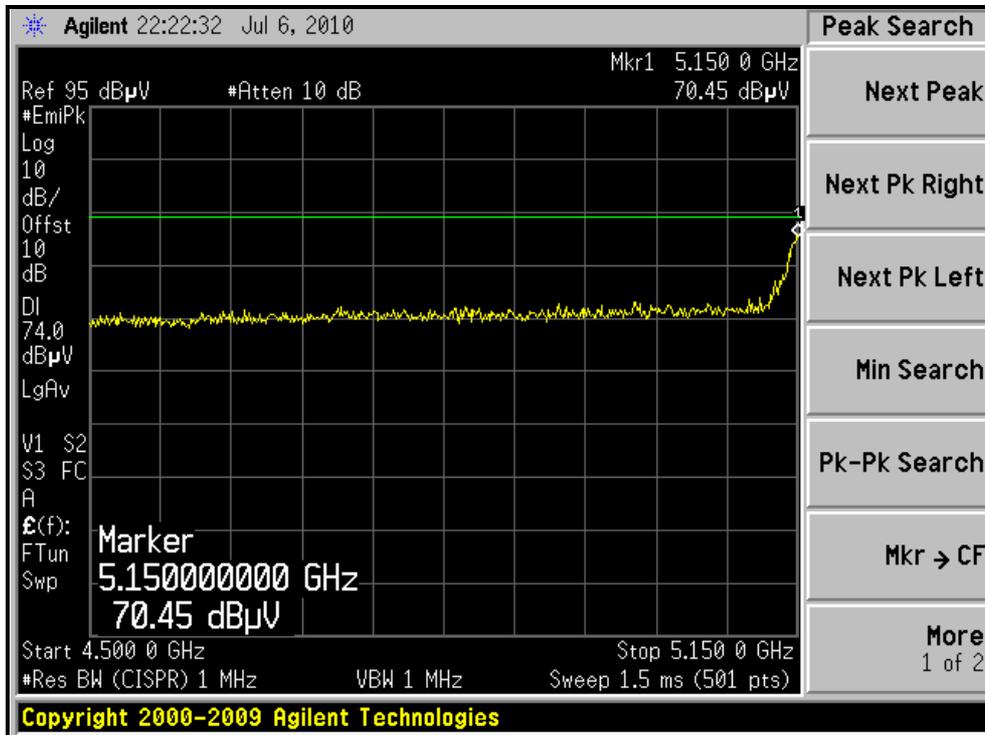
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	104.3 PK			1.17 V	265	63.76	40.54
2	*5230.00	77.6 AV			1.17 V	265	37.06	40.54
3	5350.00	59.8 PK	74.0	-14.2	1.07 V	243	19.00	40.77
4	5350.00	46.5 AV	54.0	-7.5	1.07 V	243	5.74	40.77
5	#10460.00	53.9 PK	68.3	-14.4	1.04 V	32	7.00	46.90
6	15690.00	60.9 PK	74.0	-13.1	1.07 V	249	9.36	51.54
7	15690.00	48.7 AV	54.0	-5.3	1.07 V	249	-2.84	51.54

- 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 radiated frequency is out the restricted band.



A D T

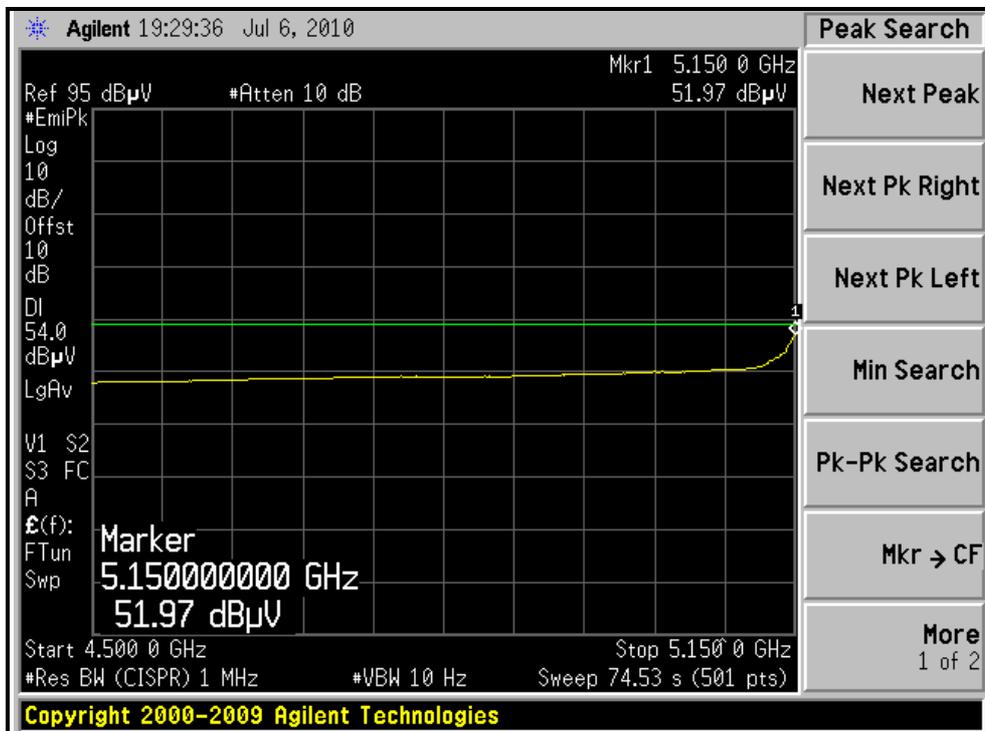
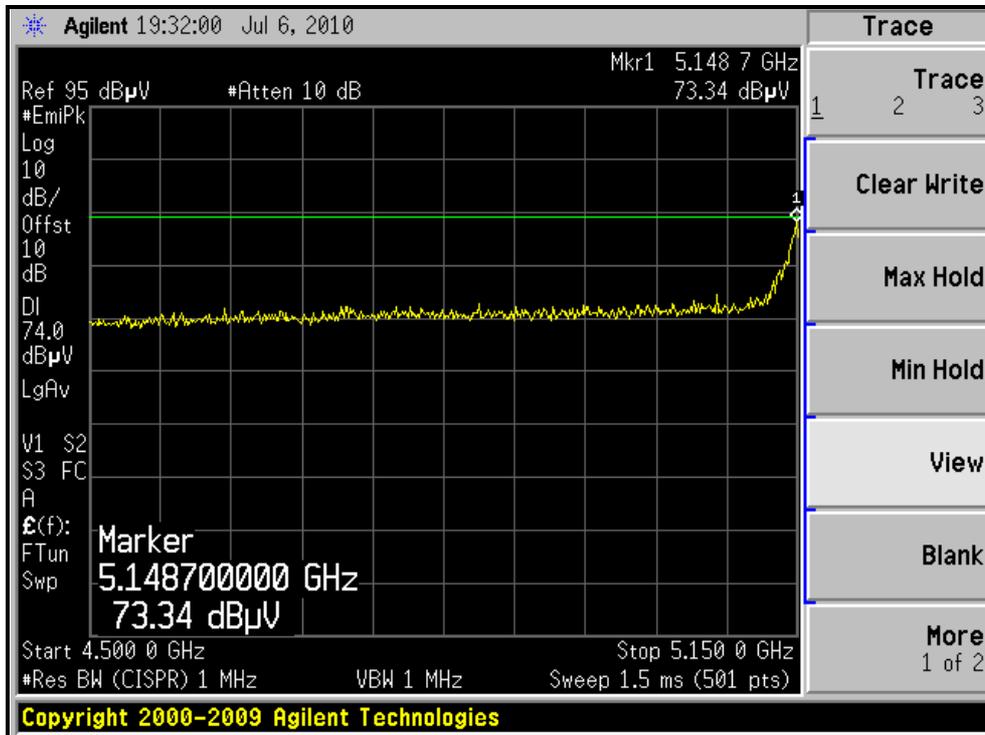
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH38, HORIZONTAL)





A D T

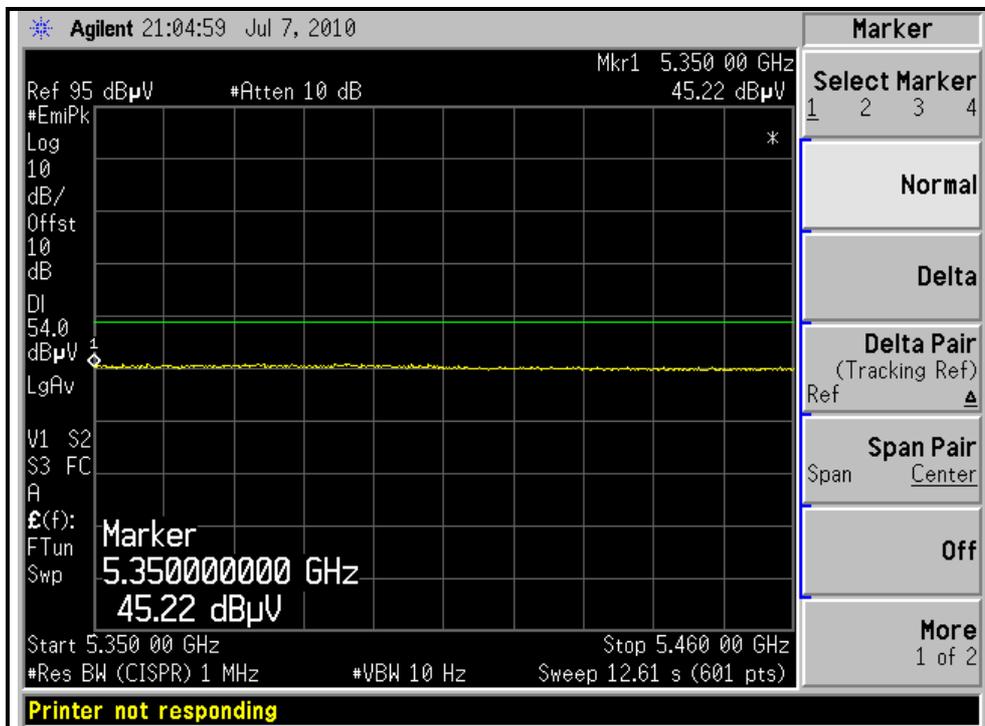
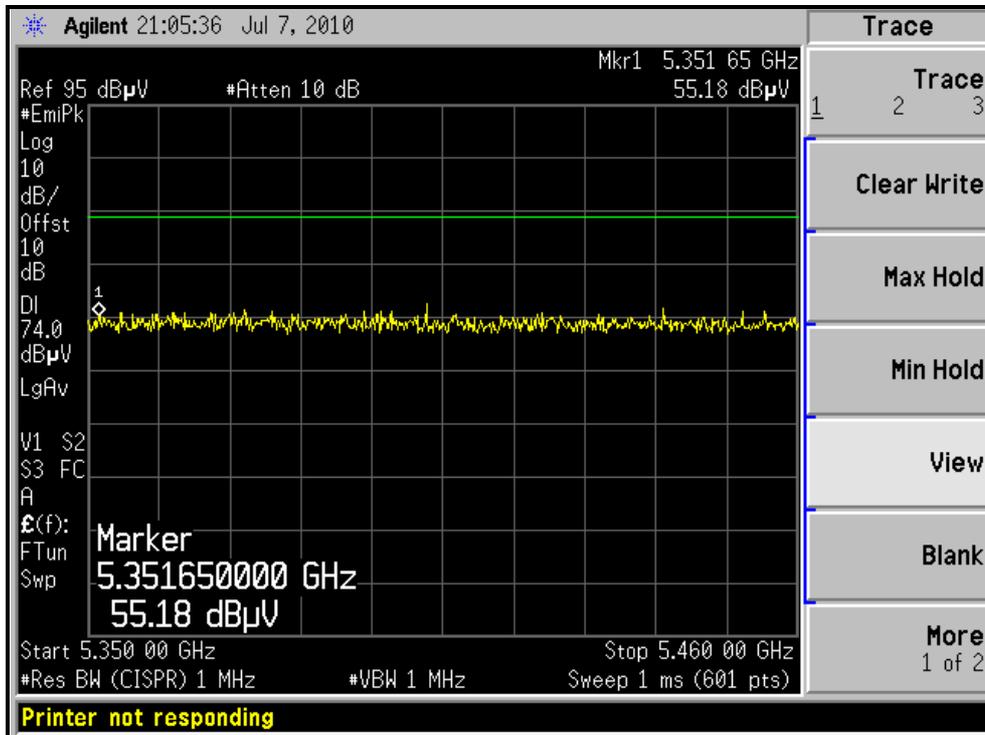
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH38, VERTICAL)





A D T

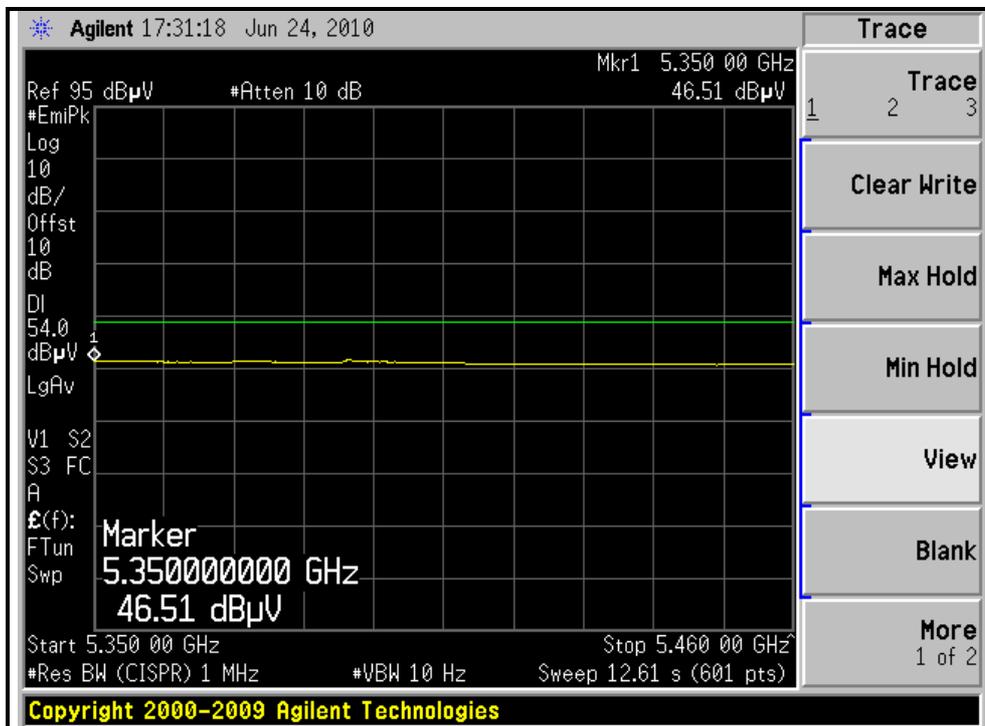
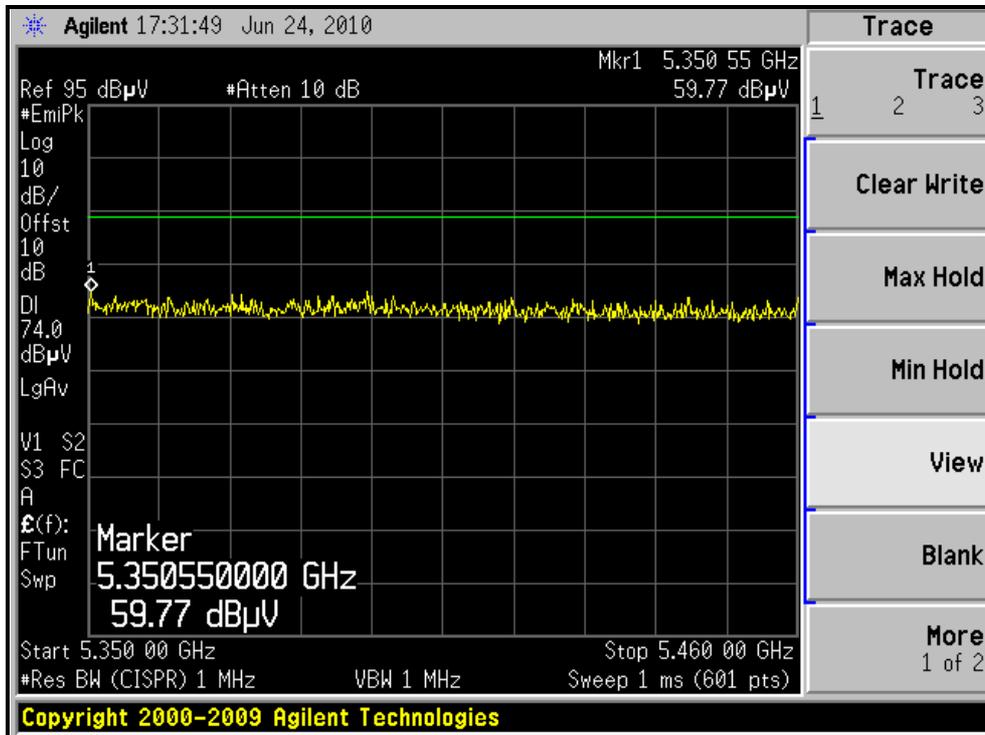
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH46, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH46, VERTICAL)





A D T

4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST SPECTRUM ANALYZER	U3772	160100280	Sep. 21, 2009	Sep. 20, 2010

NOTE:

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

4.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 3MHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

NOTE:

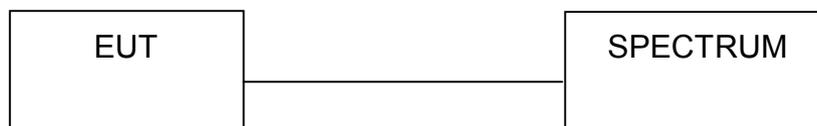
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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 specific channel frequencies individually.



A D T

4.3.7 TEST RESULTS

802.11a OFDM MODULATION:

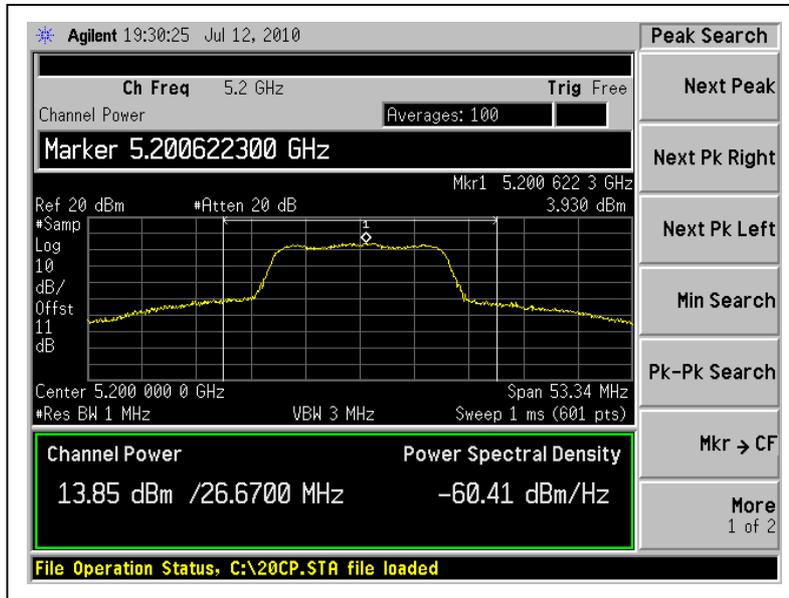
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
36	5180	13.5	22.4	17.0	19.58	PASS
40	5200	13.9	24.5	17.0	26.67	PASS
48	5240	13.6	22.9	17.0	27.50	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following page.

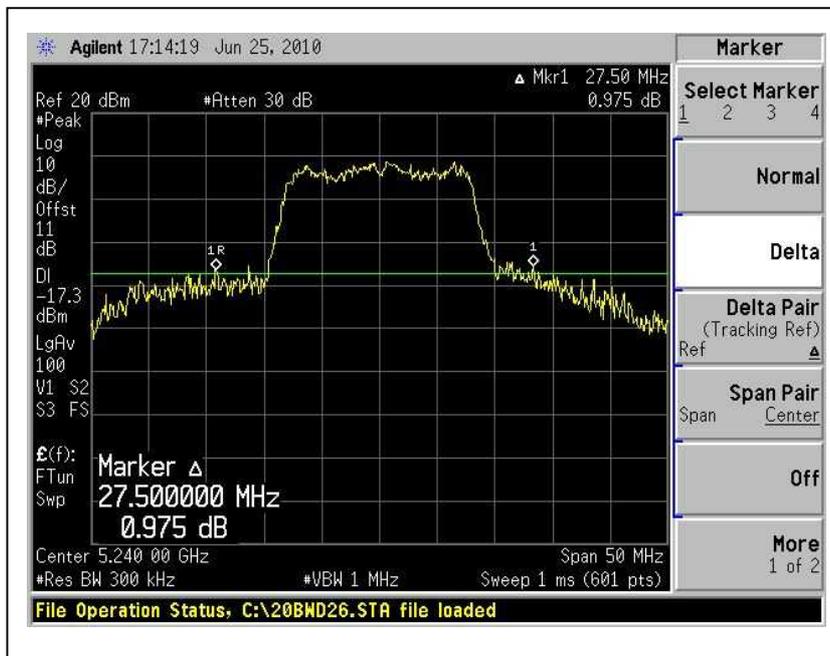


A D T

Peak Power Output: CH40



26dB Occupied Bandwidth: CH48





802.11n (20MHz) OFDM MODULATION:

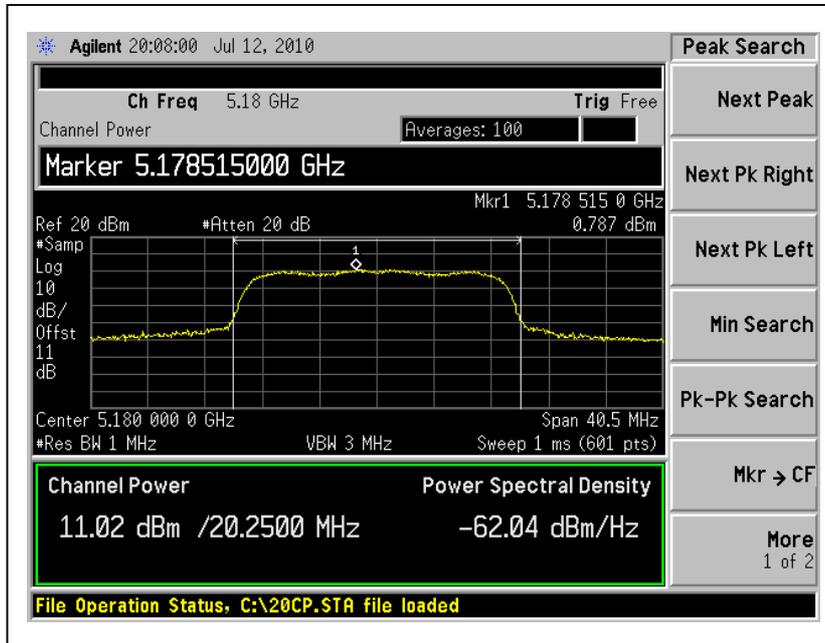
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (dBm)	TOTAL PEAK POWER (mW)	PEAK POWER LIMIT (DBM)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
		Chain 0	Chain 1					
36	5180	11.0	10.2	13.6	23.1	17.0	20.25	PASS
40	5200	10.7	10.0	13.4	21.7	17.0	19.92	PASS
48	5240	10.5	10.2	13.4	21.7	17.0	21.17	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following page.

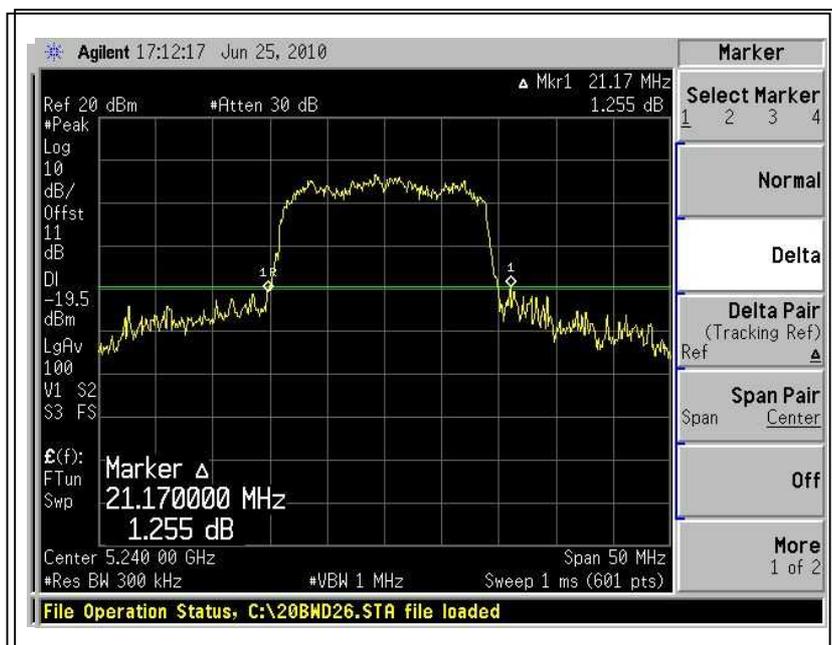


A D T

Peak Power Output: For Chain (0) :CH36



26dB Occupied Bandwidth: CH48





802.11n (40MHz) OFDM MODULATION:

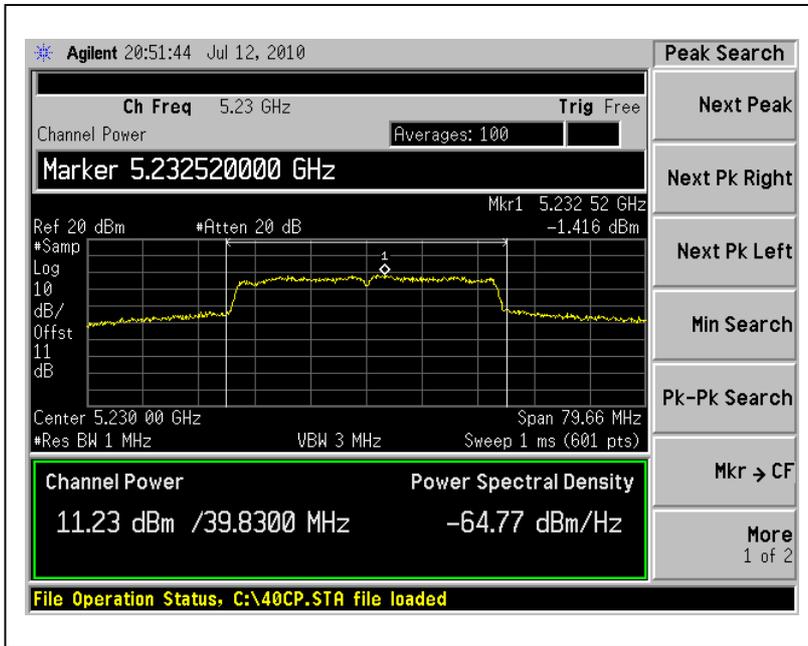
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (dBm)	TOTAL PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
		Chain 0	Chain 1					
38	5190	9.2	8.7	12.0	15.7	17.0	39.50	PASS
46	5230	11.1	11.2	14.2	26.1	17.0	39.83	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following page.

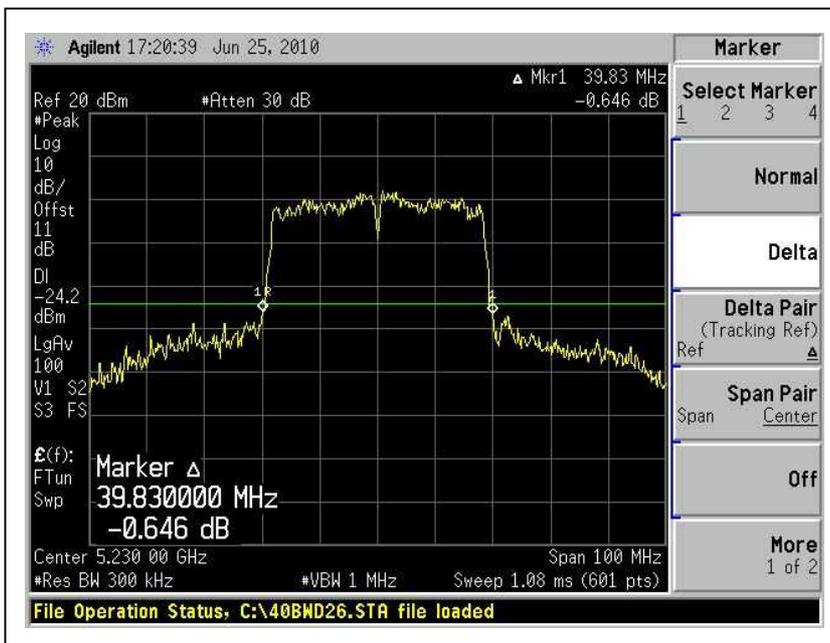


A D T

Peak Power Output: For Chain (1) :CH46



26dB Occupied Bandwidth: CH46





A D T

4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.47 – 5.725GHz	13dB
5.725 – 5.825 GHz	13dB

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST SPECTRUM ANALYZER	U3772	160100280	Sep. 21, 2009	Sep. 20, 2010

NOTE:

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

4.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

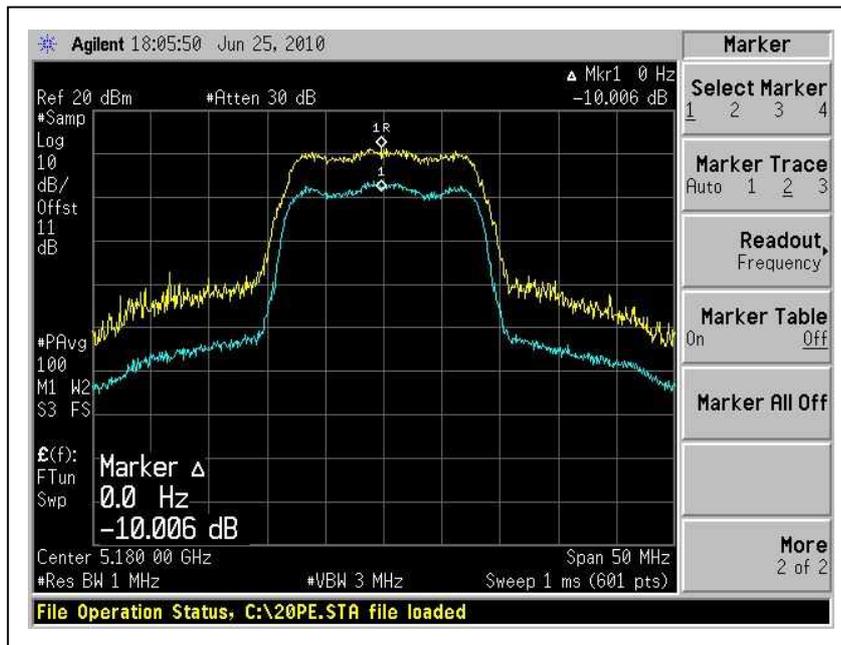
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.4.7 TEST RESULTS

802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	10.0	13	PASS
40	5200	9.3	13	PASS
48	5240	8.2	13	PASS

CH36



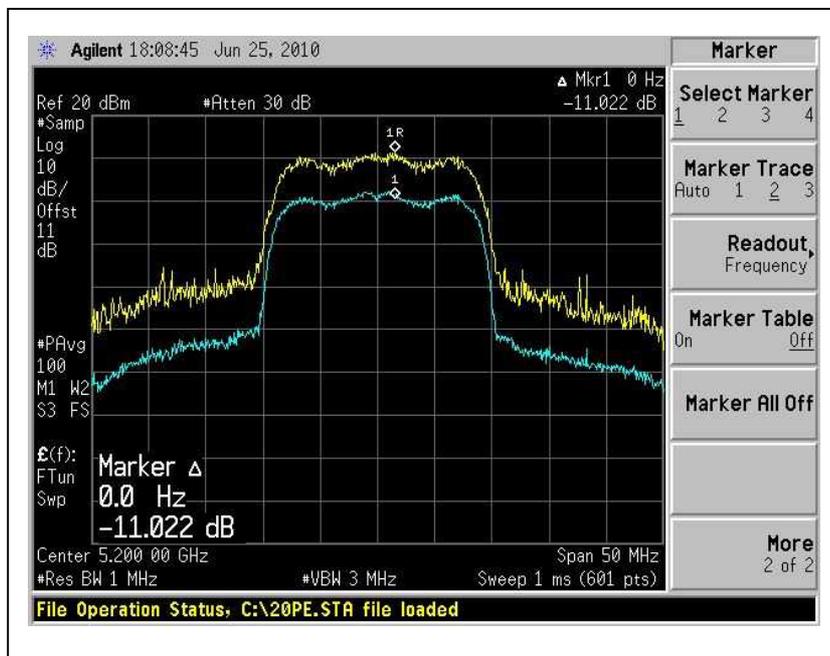


A D T

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	9.8	13	PASS
40	5200	11.0	13	PASS
48	5240	9.3	13	PASS

CH40



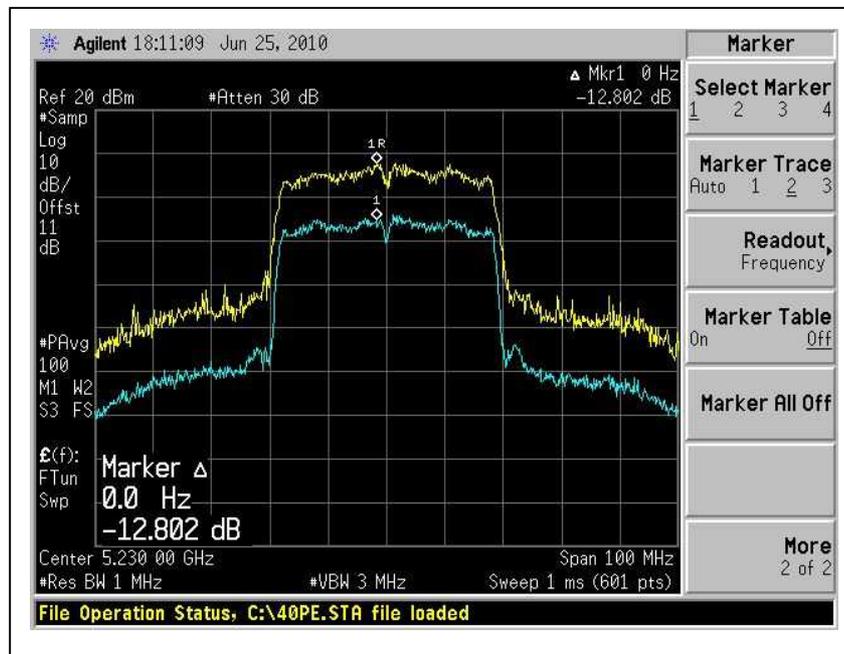


A D T

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
38	5190	12.2	13	PASS
46	5230	12.8	13	PASS

CH46





A D T

4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 ~ 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST SPECTRUM ANALYZER	U3772	160100280	Sep. 21, 2009	Sep. 20, 2010

NOTE:

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

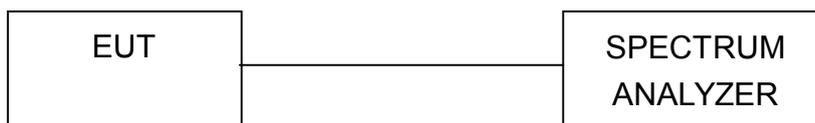
4.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6



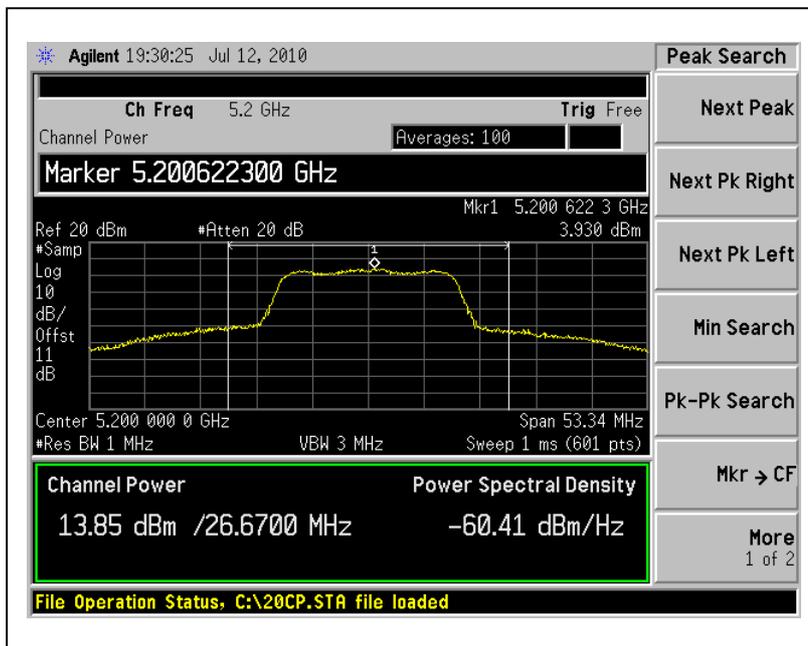
A D T

4.5.7 TEST RESULTS

802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.7	4	PASS
40	5200	3.9	4	PASS
48	5240	3.8	4	PASS

CH40



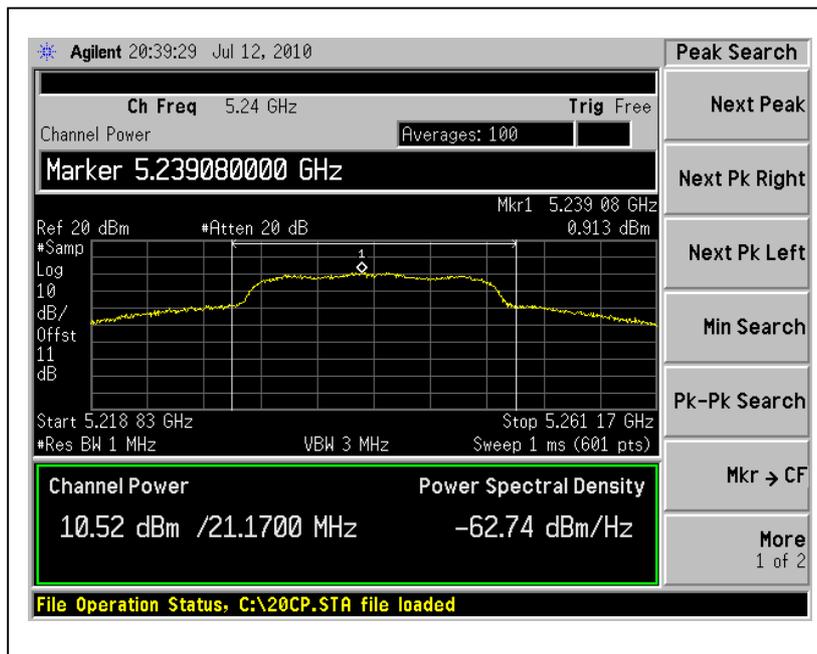


A D T

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL OUTPUT POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
		Chain (0)	Chain(1)			
36	5180	0.8	0.6	3.7	4	PASS
40	5200	0.8	-0.1	3.4	4	PASS
48	5240	0.9	0.4	3.7	4	PASS

For Chain (0) : CH48



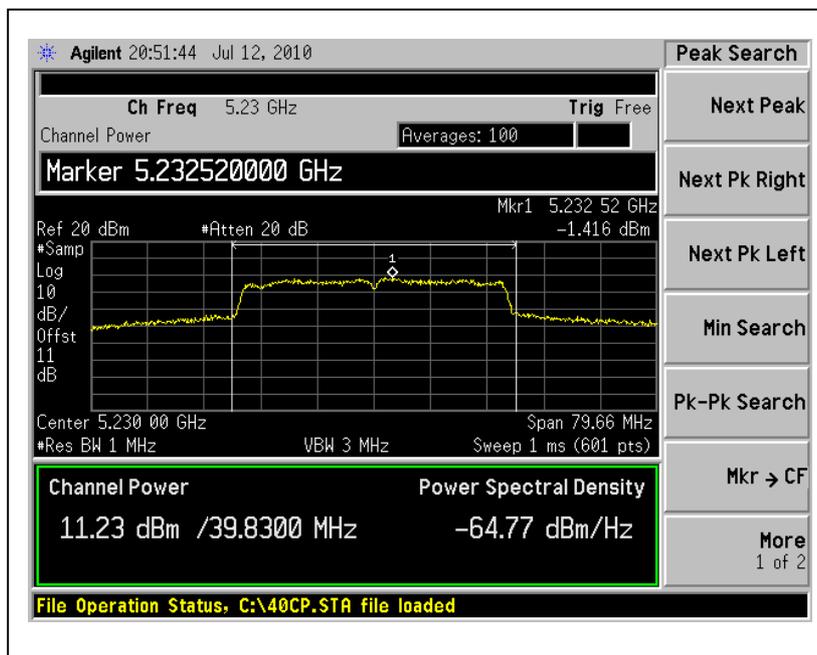


A D T

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL OUTPUT POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
		Chain (0)	Chain(1)			
38	5190	-3.1	-3.9	-0.5	4	PASS
46	5230	-1.7	-1.4	1.5	4	PASS

For Chain (1) : CH46



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

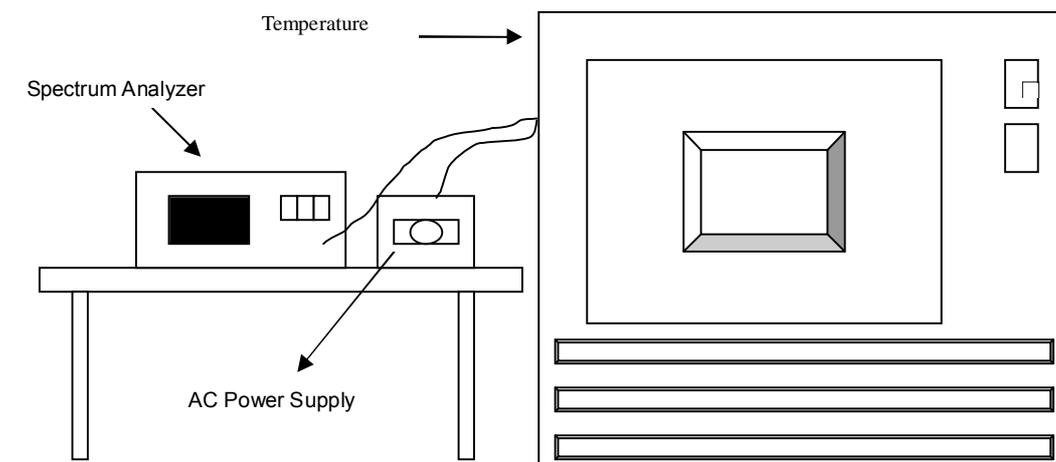
4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



A D T

4.6.7 TEST RESULTS

		Operating frequency: 5240MHz				Limit : $\pm 0.01\%$	
Temp. (°C)	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5240.0019	0.000036	5240.0018	0.000034	5240.0014	0.000027
	110	5240.002	0.000038	5240.0022	0.000042	5240.0018	0.000034
	93.5	5240.0019	0.000036	5240.0018	0.000034	5240.0014	0.000027
40	126.5	5239.987	0.000248	5239.9869	0.000250	5239.9866	0.000256
	110	5239.987	0.000248	5239.9871	0.000246	5239.9867	0.000254
	93.5	5239.987	0.000248	5239.9869	0.000250	5239.9865	0.000258
30	126.5	5239.9829	0.000326	5239.9926	0.000141	5239.9922	0.000149
	110	5239.983	0.000324	5239.9926	0.000141	5239.9924	0.000145
	93.5	5239.9929	0.000135	5239.9929	0.000135	5239.9921	0.000151
20	126.5	5240.0312	0.000595	5240.0317	0.000605	5240.0317	0.000605
	110	5240.0312	0.000595	5240.0316	0.000603	5240.0317	0.000605
	93.5	5240.0314	0.000599	5240.0314	0.000599	5240.0317	0.000605
10	126.5	5240.0178	0.000340	5240.0130	0.000248	5240.0129	0.000246
	110	5240.0178	0.000340	5240.0160	0.000305	5240.0139	0.000265
	93.5	5240.0158	0.000302	5240.0130	0.000248	5240.0129	0.000246
0	126.5	5240.0064	0.000122	5240.0061	0.000116	5240.0057	0.000109
	110	5240.0064	0.000122	5240.0063	0.000120	5240.0060	0.000115
	93.5	5240.0064	0.000122	5240.0061	0.000116	5240.0057	0.000109
-10	126.5	5240.0254	0.000485	5240.0240	0.000458	5240.0219	0.000418
	110	5240.0252	0.000481	5240.0260	0.000496	5240.0239	0.000456
	93.5	5240.0252	0.000481	5240.0230	0.000439	5240.0219	0.000418
-20	126.5	5240.0248	0.000473	5240.0200	0.000382	5240.0159	0.000303
	110	5240.0248	0.000473	5240.0230	0.000439	5240.0189	0.000361
	93.5	5240.0248	0.000473	5240.0190	0.000363	5240.0169	0.000323
-30	126.5	5240.0072	0.000137	5240.0072	0.000137	5240.0068	0.000130
	110	5240.0072	0.000137	5240.0072	0.000137	5240.0070	0.000134
	93.5	5240.0072	0.000137	5240.0071	0.000135	5240.0067	0.000128



A D T

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set RBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges were measured and recorded.

4.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.7.4 TEST RESULTS

For 5.15 to 5.25GHz band:

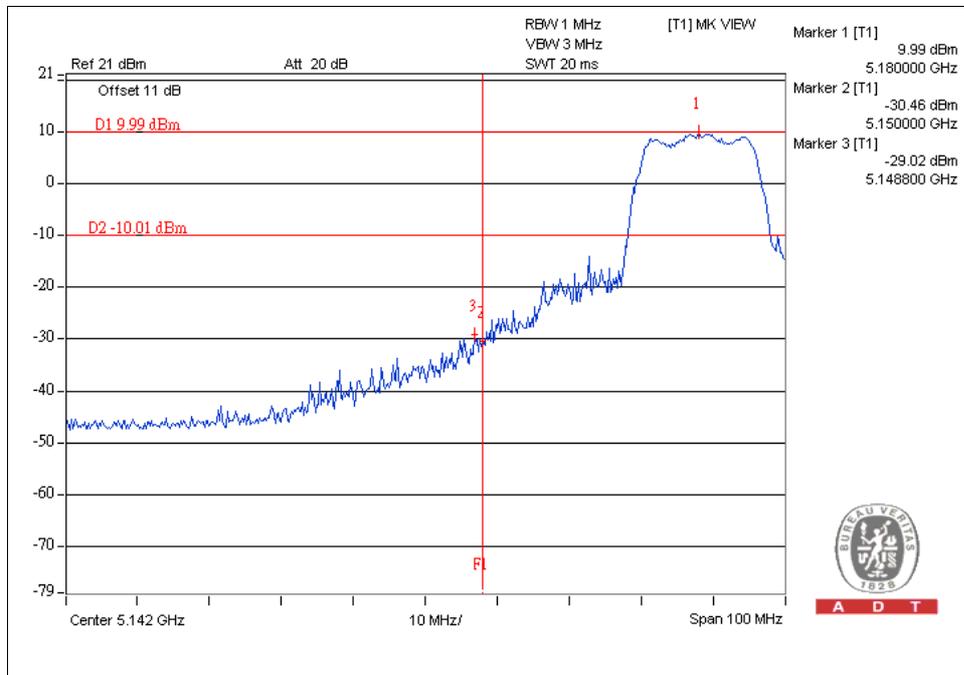
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



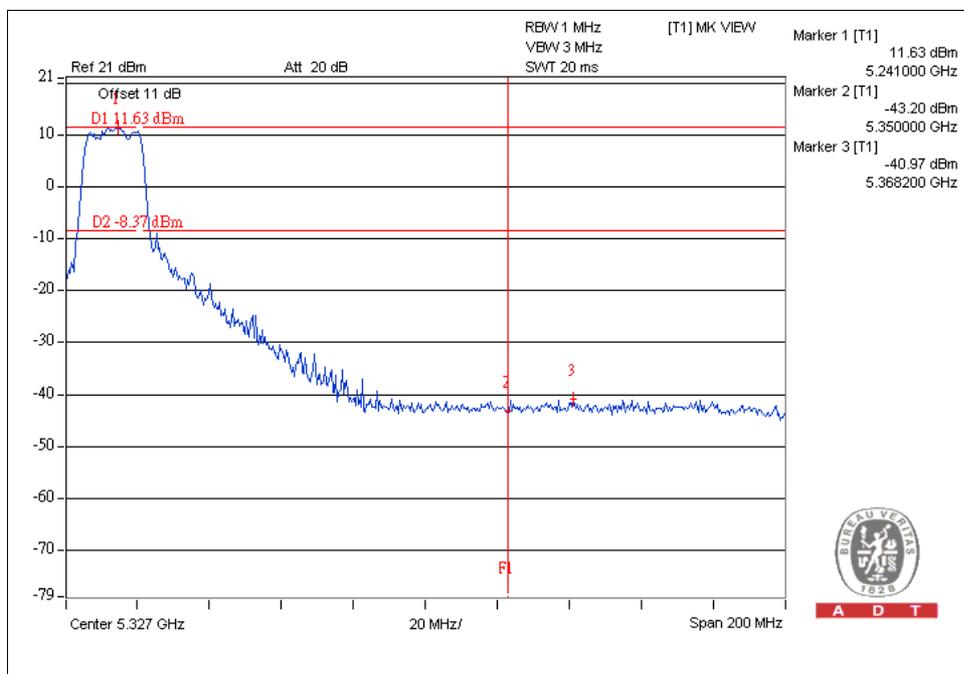
A D T

802.11a OFDM MODULATION

CH 36



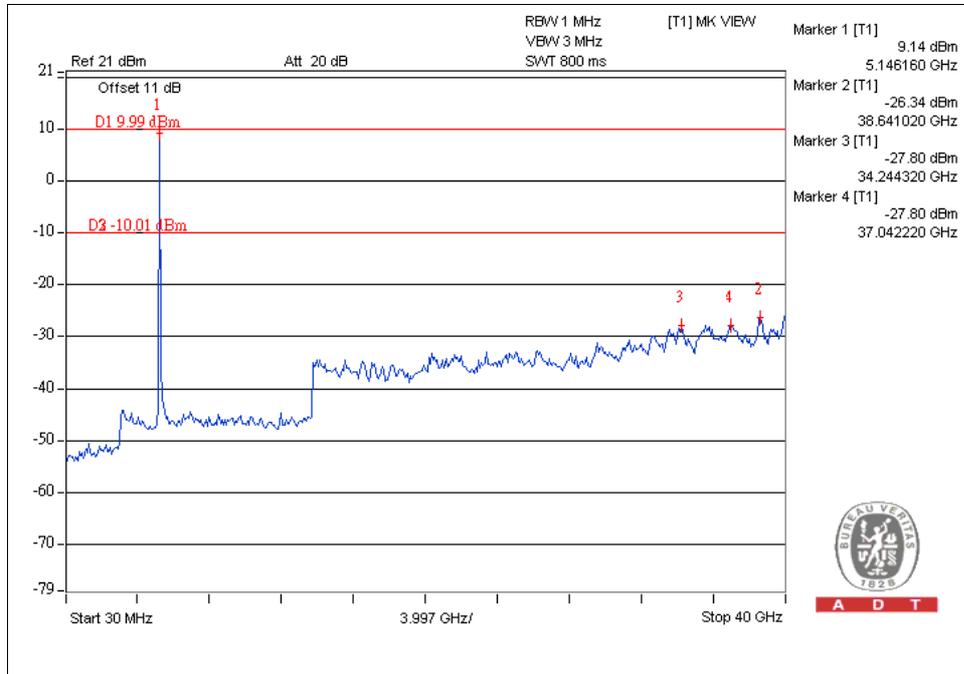
CH 48



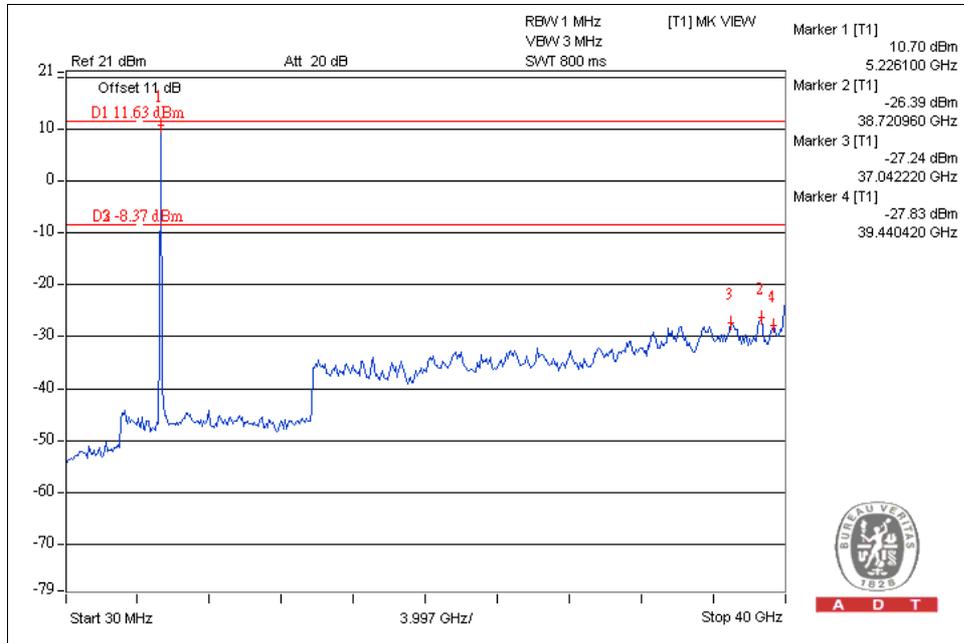


A D T

CH 36



CH 48

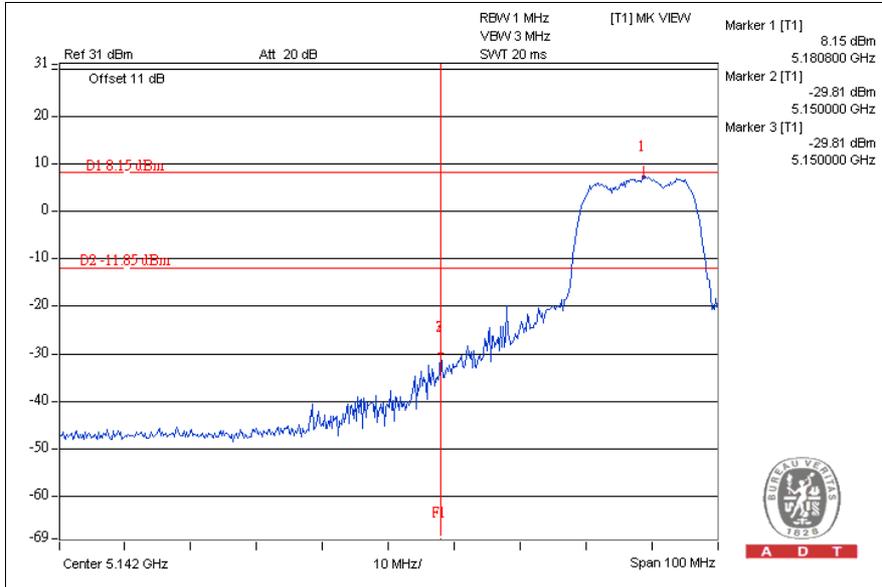




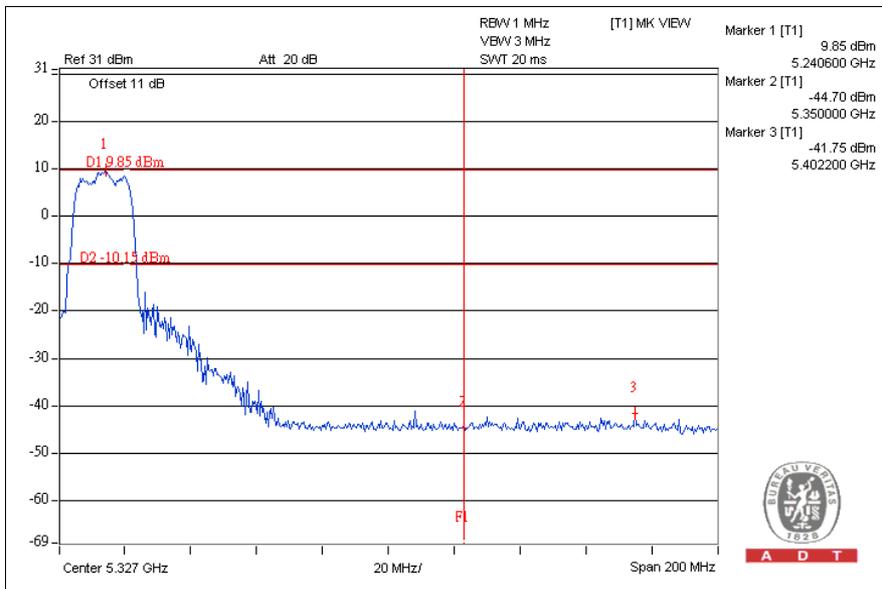
A D T

802.11n (20MHz) OFDM MODULATION:

CH36



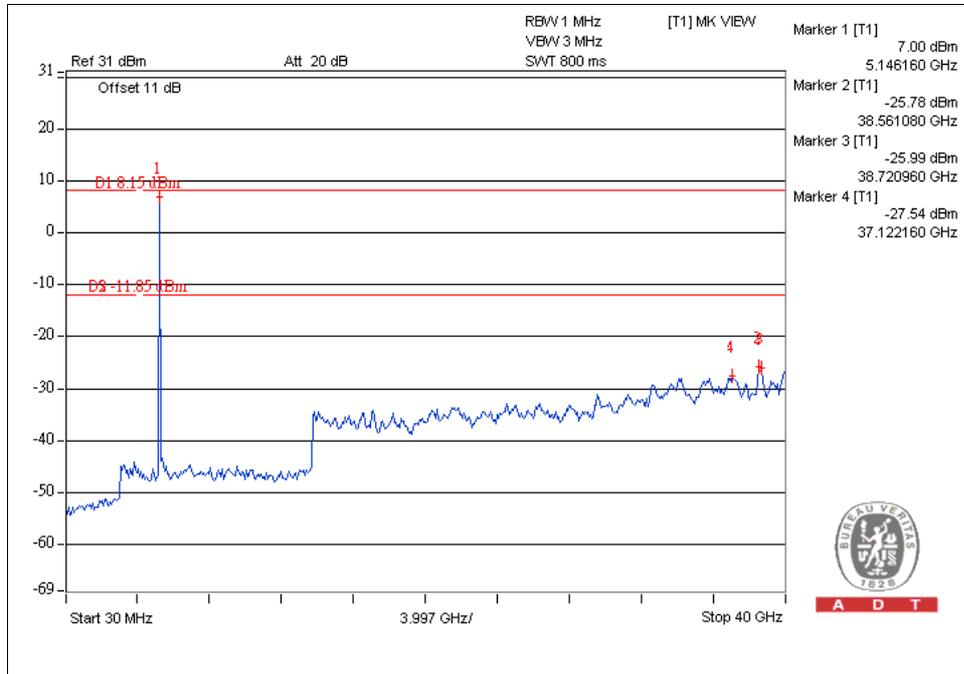
CH48



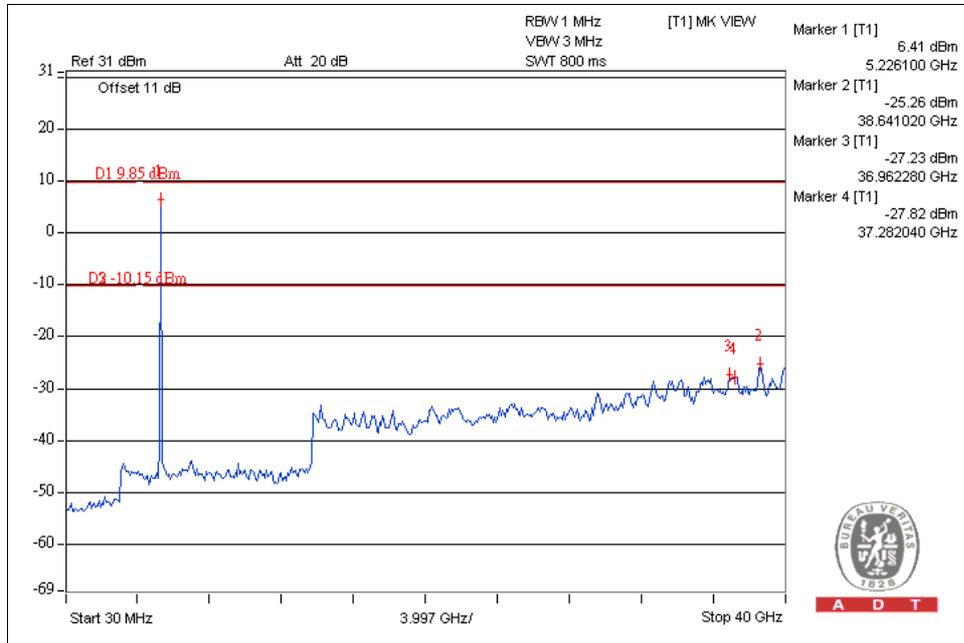


A D T

CH36

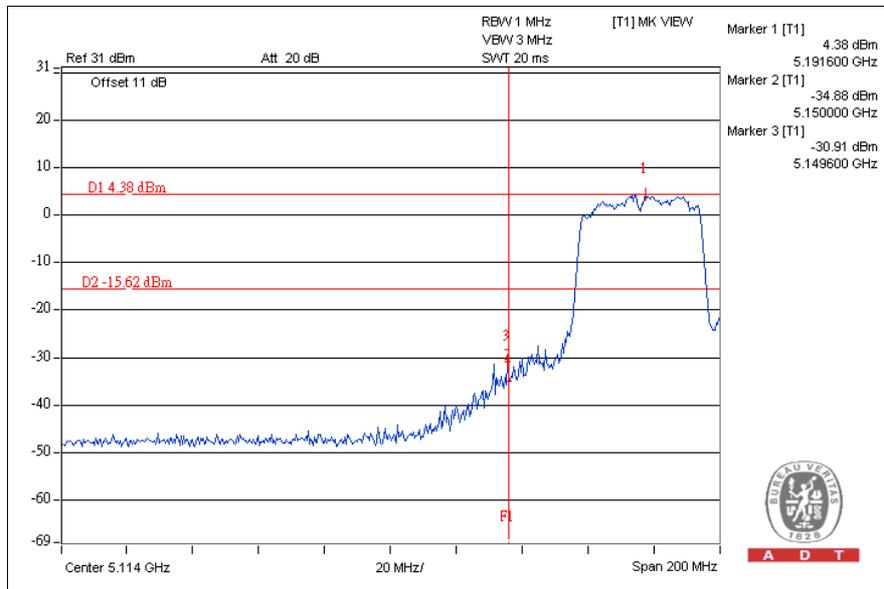


CH48

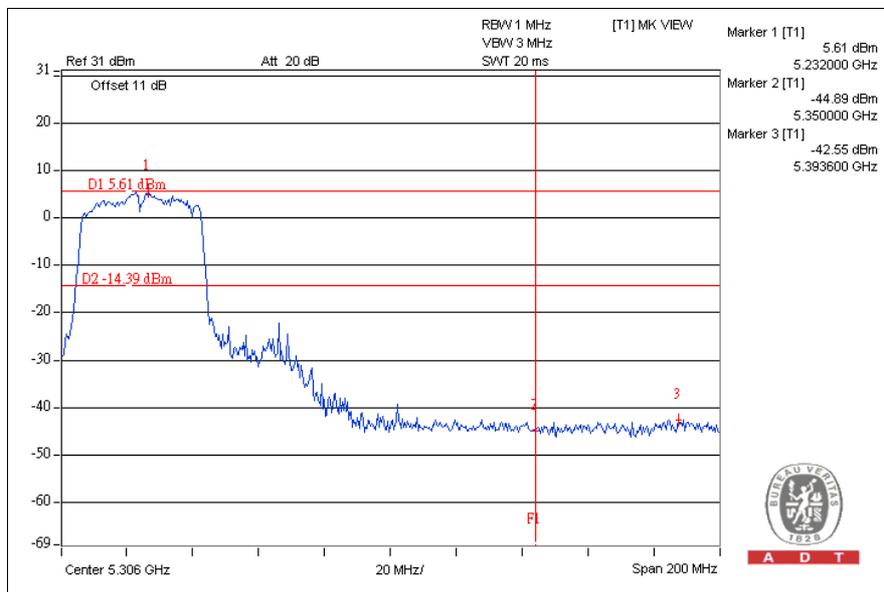


802.11n (40MHz) OFDM MODULATION:

CH38



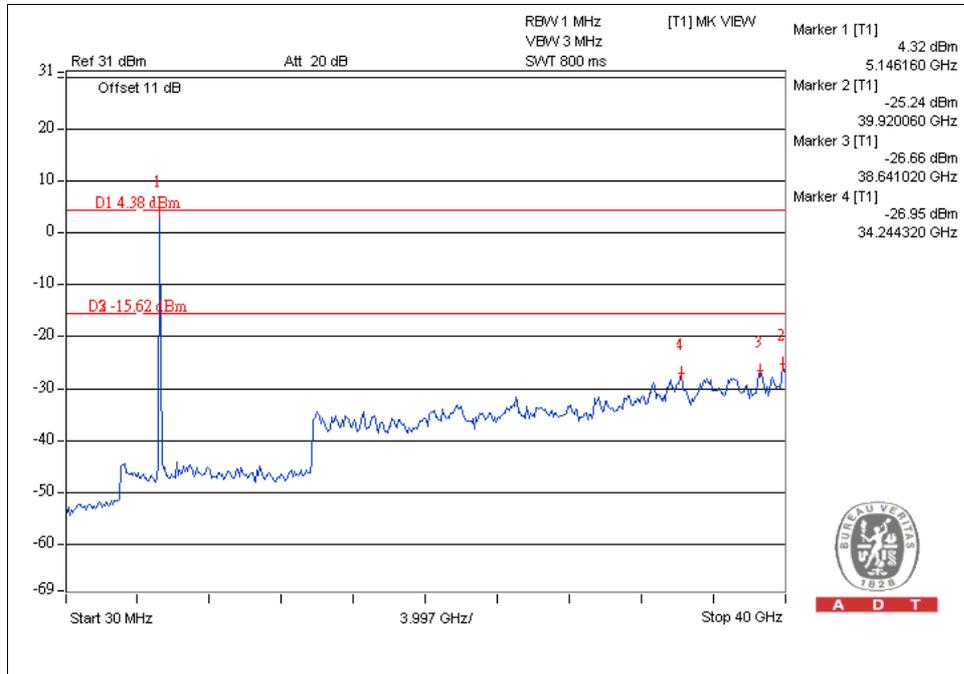
CH46



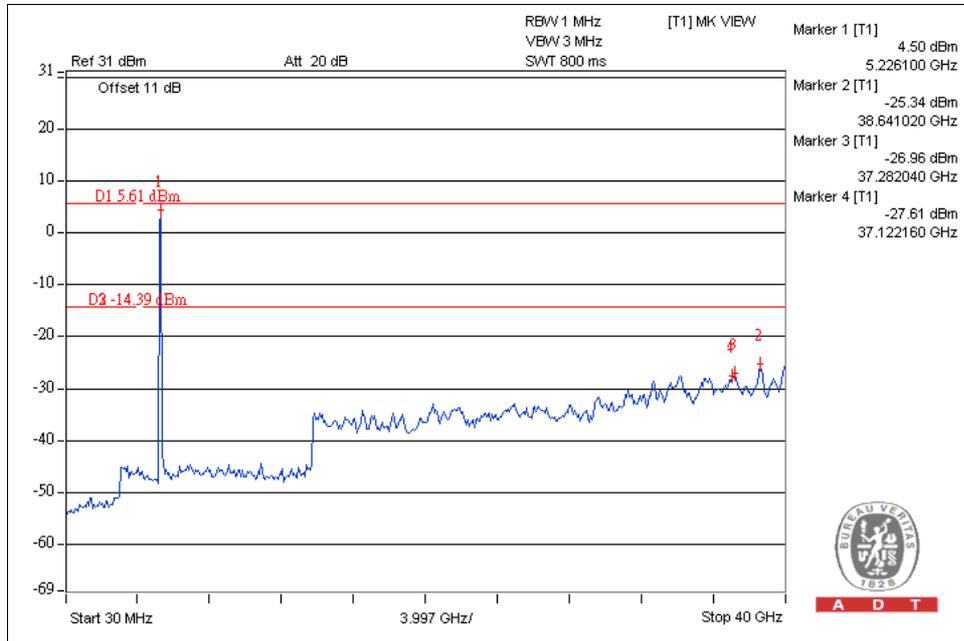


A D T

CH38



CH46





5. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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



A D T

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

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

--- END ---