FCC TEST REPORT (15.407)

REPORT NO.:	RF110718E01-1 R1
MODEL NO.:	RT-N53
FCC ID:	MSQ-RTN53
RECEIVED:	July 18, 2011
TESTED:	July 19 to Sep. 07, 2011
ISSUED:	Sep. 15, 2011
APPLICANT:	ASUSTEK Computer Inc.
ADDRESS:	No.15 Li-Te Rd., Peitou, Taipei 112, 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

Table of Contents

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110718E01-1	Original release	Aug. 19, 2011
RF110718E01-1 R1	Modified the conducted out-band emission test.	Sep. 15, 2011

1. CERTIFICATION

PRODUCT:	ASUS Dual band Wireless N Router
BRAND NAME:	ASUS
MODEL NO.:	RT-N53
TEST SAMPLE:	R&D SAMPLE
APPLICANT:	ASUSTEK Computer Inc.
TESTED:	July 19 to Sep. 07, 2011
STANDARDS:	FCC Part 15, Subpart E (Section 15.407) ANSI C63.4-2003 ANSI C63.10-2009

The above equipment (Model: RT-N53) 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:** *Sep. 15, 2011*
(Claire Kuan, Specialist)

APPROVED BY : _____ , **DATE:** *Sep. 15, 2011*
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart 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 -7.76dB at 0.150MHz
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 -0.6dB at 5150.00MHz
15.407(a/1/2/3)	Output 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	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 5.15~5.25GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz 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)	3.89 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.56 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	ASUS Dual band Wireless N Router
MODEL NO.	RT-N53
FCC ID	MSQ-RTN53
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, 400ns GI): 7.2/14.4/21.7/28.9/43.3/57.8/65.0/72.2Mbps 14.444 / 28.889 / 43.333 / 57.778 / 86.667 /115.556 / 130.000 / 144.444Mbps 802.11n (40MHz, 400ns GI): 15.0/30.0/45.0/60.0/90.0/120.0/135.0/150.0Mbps 30.0 / 60.0 / 90.0 / 120.0 / 180.0 / 240.0 / 270.0 / 300.0Mbps
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: 13.4mW 802.11n (20MHz): 19.8mW 802.11n (40MHz): 43.9mW **For 15.247(2.4GHz)** 802.11b: 151.4mW 802.11g: 649.9mW 802.11n (20MHz): 656.8mW 802.11n (40MHz): 449.6mW **For 15.247(5GHz)** 802.11a: 335.8mW 802.11n (20MHz): 335.8mW 802.11n (40MHz): 335.8mW
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	WAN port x 1 LAN port x 4
ASSOCIATED DEVICES	Adapter x 1

NOTE:

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

Transmitter Circuit	Brand	Antenna Type	2.4G Gain (dBi) Net gain	2.4G (dBi) Cable loss	5G Gain (dBi) Net gain	Antenna Connector
Chain (0)	Arcadyan	PCB Printed	1.44	1.2	3.53	NA
Chain (1)	Arcadyan	PCB Printed	3.55	2	4.52	NA

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

Adapter	Brand	Model No.	Spec.
Adapter 1	LEI	MU12-G120100-A1	AC Input: 100-240V 0.5A, 50-60Hz DC Output: 12V, 1A DC output cable: Unshielded, 1.6m
Adapter 2	DVE	DSA-12G-12 FUS 120120	AC Input: 100-240V 0.3A, 50-60Hz DC Output: 12V, 1A DC output cable: Unshielded, 1.6m
Note: 1. From the above adapters, the worst radiated test item was found in Adapter 1. Therefore only the test data of the mode was recorded in this report.			

3. The EUT incorporates CDD function with 802.11a, 802.11g.
4. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function.
5. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
6. Conducted emission and Radiated emission of the simultaneous operation has been evaluated and no non-compliance found.
7. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

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

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	OB	
1	√	√	√	√	√	With adapter 1
2	√	-	-	-	-	With adapter 2

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

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

OB: Conducted Out-Band Emission Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11 a	√	√
B	802.11n(20MHz) for MCS0~15	√	√
C	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.			

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
For 5 GHz 802.11n (20MHz)	36 to 48	48	OFDM	BPSK	7.2	B

RADIATED EMISSION TEST (BELOW 1 GHz):

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

☒ The EUT was pre-tested under the XY different axis placements and the worst case was recorded in this report. (X: laying-flat type; Y: stand-up type)

☒ 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	AXIS
For 5 GHz 802.11n (20MHz)	36 to 48	48	OFDM	BPSK	7.2	B	X

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).

☒ The EUT was pre-tested under the XY different axis placements and the worst case was recorded in this report. (X: laying-flat type; Y: stand-up type)

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION N TYPE	DATA RATE (Mbps)	COMBINATION MODE	AXIS
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6	A	Y
For 5 GHz 802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2	B	Y
For 5 GHz 802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15	C	Y

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
802.11a	36 to 48	36, 48	OFDM	BPSK	6	A
For 5 GHz 802.11n (20MHz)	36 to 48	36, 48	OFDM	BPSK	7.2	B
For 5 GHz 802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15	C

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
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6	A
For 5 GHz 802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2	B
For 5 GHz 802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15	C

※ 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, 69%RH	120Vac, 60Hz	Frank Liu / Rex Huang
RE<1G	26deg. C, 69%RH	120Vac, 60Hz	Rex Huang
PLC	26deg. C, 62%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang
OB	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang

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 (Section 15.407)

ANSI C63.4-2003

ANSI C63.10-2009

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

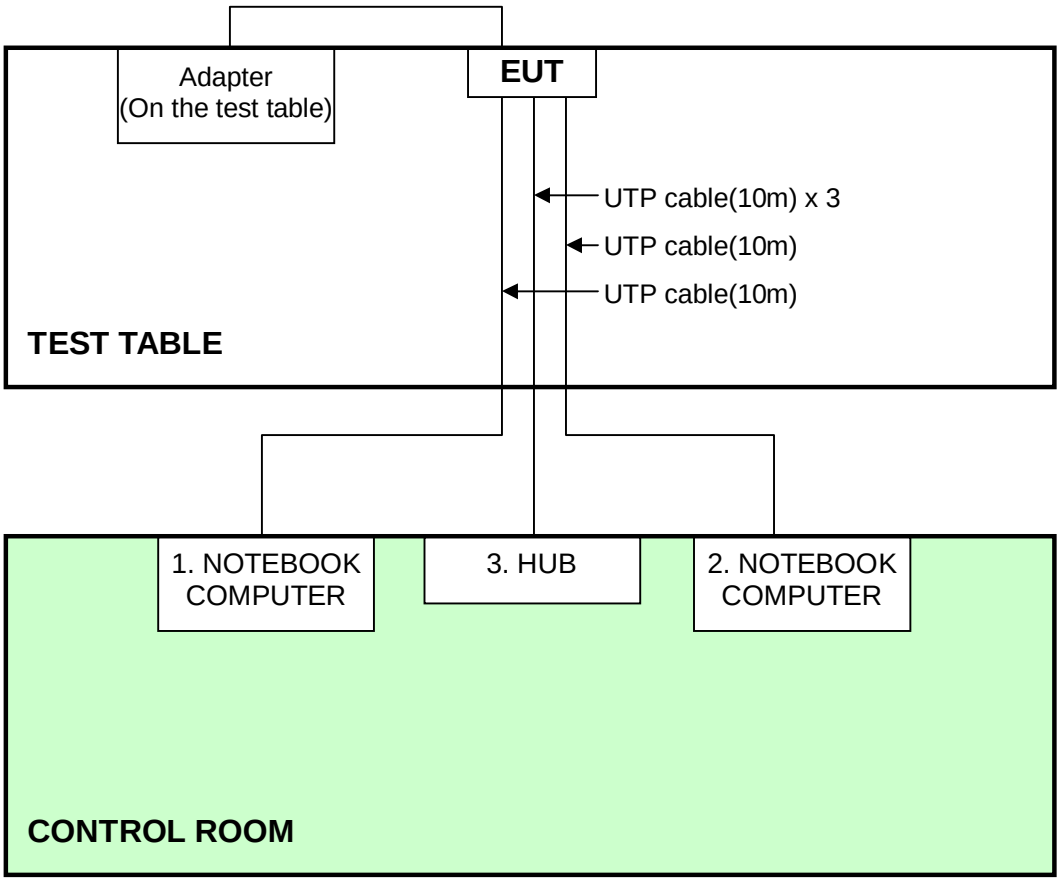
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

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

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m UTP cable
2	10m UTP cable
3	10m UTP cable

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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.

4.1.2 TEST INSTRUMENTS

Test date: July 19, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2011	Mar. 08, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 08, 2010	Sep. 07, 2011
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 03, 2010	Nov. 02, 2011
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 30, 2010	Aug. 29, 2011
50 ohms Terminator	50	3	Oct. 07, 2010	Oct. 06, 2011
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. C.
3 The VCCI Con C Registration No. is C-3611.

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.

b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

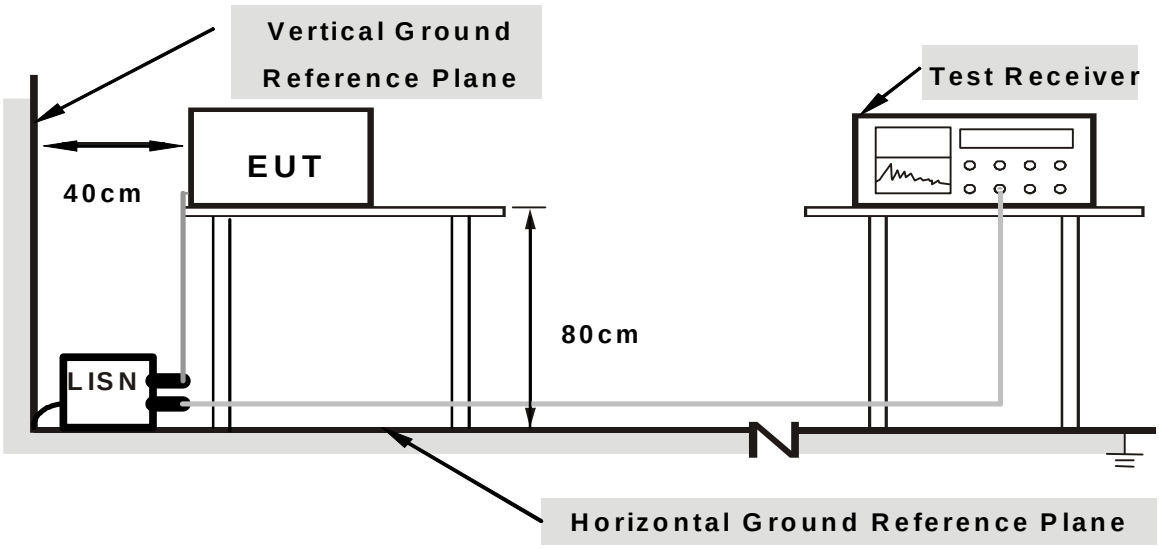
c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

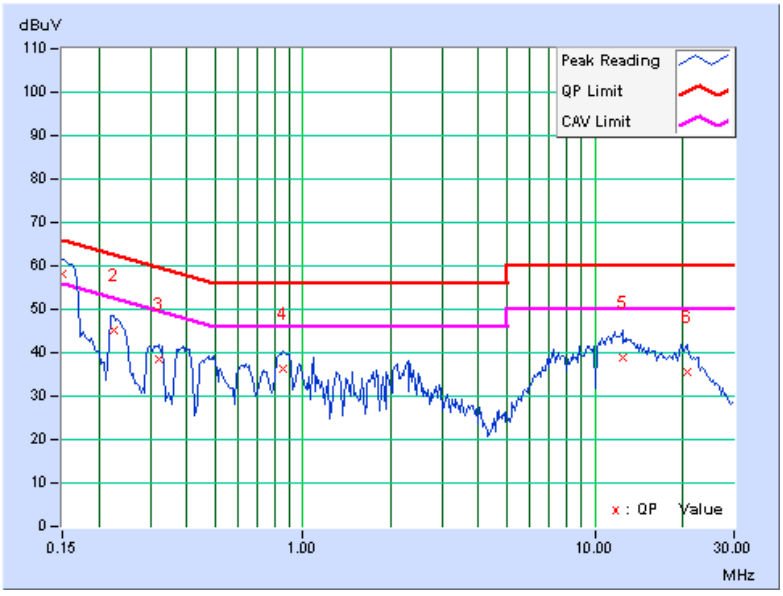
1. Placed the EUT on testing table.
2. Prepared computer system (support unit 1) to act as communication partner and placed it outside of testing area.
3. The communication partner ran test program “Broadcom WL COMMANDS.txt” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS(MODE 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	**0.150**	**0.11**	**58.12**	**47.02**	**58.23**	**47.13**	**65.99**	**55.99**	**-7.76**	**-8.86**
2	0.224	0.14	45.23	31.27	45.37	31.41	62.66	52.66	-17.29	-21.25
3	0.322	0.15	38.54	26.14	38.69	26.29	59.66	49.66	-20.97	-23.37
4	0.853	0.18	36.25	23.57	36.43	23.75	56.00	46.00	-19.57	-22.25
5	12.475	0.73	38.25	32.66	38.98	33.39	60.00	50.00	-21.02	-16.61
6	20.645	1.01	34.41	31.37	35.42	32.38	60.00	50.00	-24.58	-17.62

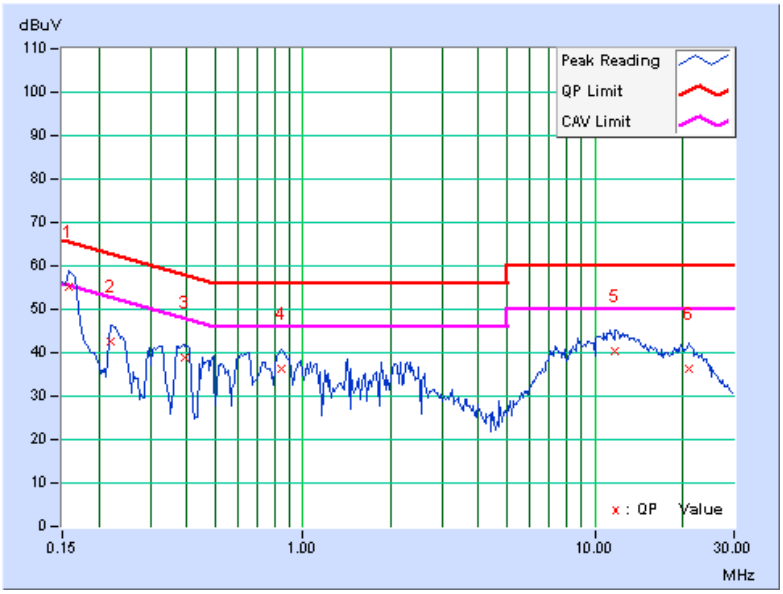
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.12	54.96	46.05	55.08	46.17	65.58	55.58	-10.50	-9.41
2	0.221	0.15	42.44	25.66	42.59	25.81	62.80	52.80	-20.21	-26.99
3	0.393	0.17	38.87	28.25	39.04	28.42	58.01	48.01	-18.97	-19.59
4	0.842	0.18	36.28	23.65	36.46	23.83	56.00	46.00	-19.54	-22.17
5	11.723	1.14	39.27	31.14	40.41	32.28	60.00	50.00	-19.59	-17.72
6	21.121	1.87	34.28	30.62	36.15	32.49	60.00	50.00	-23.85	-17.51

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

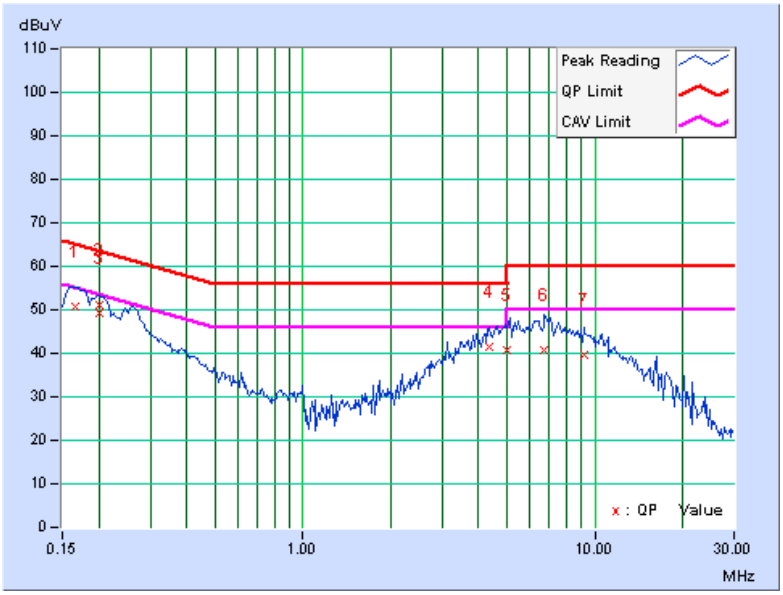


4.1.8 TEST RESULTS(MODE 2)

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	0.166	0.12	50.55	41.24	50.67	41.36	65.18	55.18	-14.51	-13.82
2	0.201	0.14	51.02	39.22	51.16	39.36	63.58	53.58	-12.42	-14.22
3	0.201	0.14	49.29	38.25	49.43	38.39	63.58	53.58	-14.15	-15.19
4	4.371	0.30	41.15	32.62	41.45	32.92	56.00	46.00	-14.55	-13.08
5	5.000	0.34	40.25	32.87	40.59	33.21	56.00	46.00	-15.41	-12.79
6	6.726	0.45	40.36	33.09	40.81	33.54	60.00	50.00	-19.19	-16.46
7	9.223	0.60	38.96	30.62	39.56	31.22	60.00	50.00	-20.44	-18.78

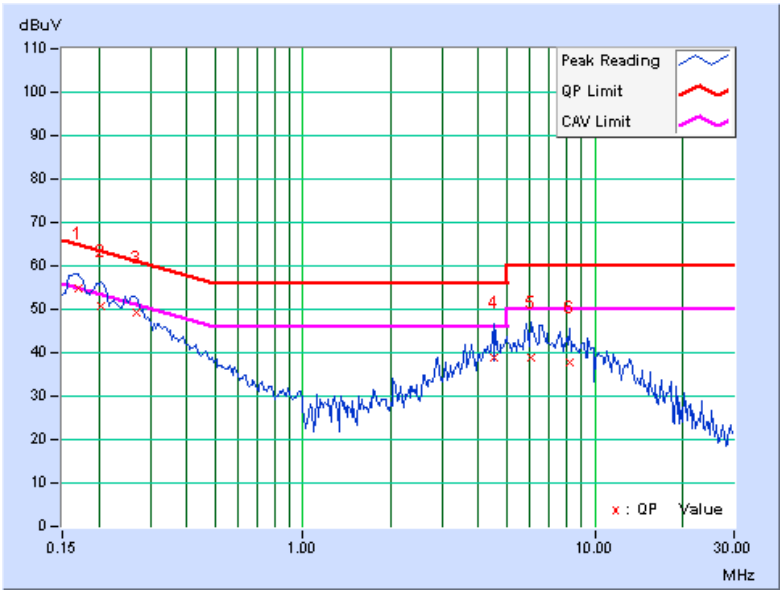
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.13	54.66	42.87	54.79	43.00	64.98	54.98	-10.20	-11.99
2	0.204	0.15	50.65	38.22	50.80	38.37	63.43	53.43	-12.63	-15.06
3	0.268	0.16	49.18	38.15	49.34	38.31	61.19	51.19	-11.86	-12.89
4	4.500	0.41	38.57	30.59	38.98	31.00	56.00	46.00	-17.02	-15.00
5	6.042	0.57	38.22	30.28	38.79	30.85	60.00	50.00	-21.21	-19.15
6	8.202	0.81	37.15	29.96	37.96	30.77	60.00	50.00	-22.04	-19.23

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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	**EIRP Limit (dBm)**	**Equivalent Field Strength at 3m (dBμV/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

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

4.2.3 TEST INSTRUMENTS

Test date: July 28, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 23, 2010	Aug. 22, 2011
Agilent Pre-Selector	N9039A	MY46520310	Aug. 23, 2010	Aug. 22, 2011
Agilent Signal Generator	N5181A	MY49060347	July 30, 2010	July 29, 2011
LIG NEX1 Test Receiver	ER-265	L09068005	Oct. 25, 2010	Oct. 24, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 28, 2011	Feb. 27, 2012
Miteq Pre-Amplifier	AFS33-18002650-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 14, 2011	Apr. 13, 2012
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 22, 2010	Nov. 21, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-205 RF104-207 RF104-202	Dec. 28, 2010	Dec. 27, 2011
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 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. The height of antenna 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.

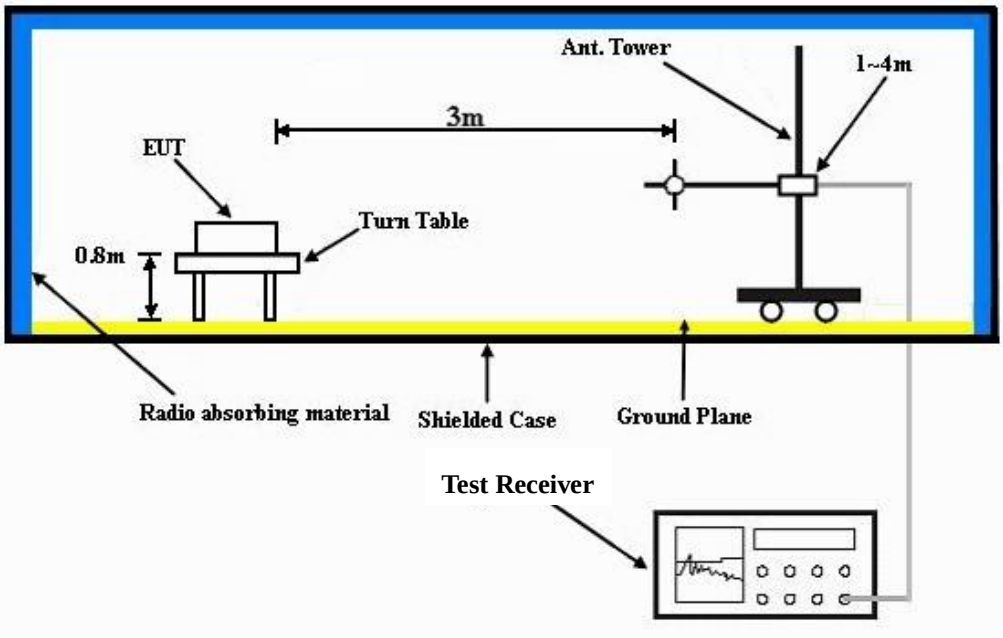
NOTE:

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.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 71%RH	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	47.65	28.2 QP	40.0	-11.8	1.50 H	231	14.04	14.20
2	116.62	33.8 QP	43.5	-9.7	1.00 H	139	21.95	11.87
3	177.51	34.0 QP	43.5	-9.6	1.50 H	130	20.94	13.01
4	228.10	35.4 QP	46.0	-10.7	1.50 H	89	23.11	12.24
5	259.98	34.9 QP	46.0	-11.1	1.00 H	311	21.40	13.47
6	710.68	28.0 QP	46.0	-18.1	1.00 H	131	5.57	22.38
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	38.51	34.5 QP	40.0	-5.5	1.00 V	59	20.71	13.81
2	108.97	36.8 QP	43.5	-6.8	1.00 V	153	26.06	10.69
3	179.20	37.3 QP	43.5	-6.2	1.00 V	238	24.50	12.82
4	251.19	39.7 QP	46.0	-6.3	1.00 V	83	26.63	13.09
5	550.12	28.9 QP	46.0	-17.1	1.25 V	88	8.30	20.61
6	710.99	28.9 QP	46.0	-17.1	1.50 V	160	6.52	22.39

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

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	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	66.3 PK	74.0	-7.7	1.14 H	97	39.27	27.03
2	5150.00	53.2 AV	54.0	-0.8	1.14 H	97	26.17	27.03
3	*5180.00	109.8 PK			1.12 H	83	82.77	27.03
4	*5180.00	100.6 AV			1.12 H	83	73.57	27.03
5	#10360.00	61.3 PK	68.3	-7.0	1.31 H	120	34.27	27.03
6	15540.00	62.6 PK	74.0	-11.4	1.24 H	150	35.57	27.03
7	15540.00	51.7 AV	54.0	-2.3	1.24 H	150	24.67	27.03
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	69.7 PK	74.0	-4.3	1.09 V	279	42.67	27.03
2	**5150.00**	**53.4 AV**	**54.0**	**-0.6**	**1.09 V**	**279**	**26.37**	**27.03**
3	*5180.00	110.5 PK			1.08 V	277	83.47	27.03
4	*5180.00	101.5 AV			1.08 V	277	74.47	27.03
5	#10360.00	56.5 PK	68.3	-11.8	1.13 V	110	29.47	27.03
6	15540.00	64.4 PK	74.0	-9.6	1.41 V	68	37.37	27.03
7	15540.00	53.2 AV	54.0	-0.8	1.41 V	68	26.17	27.03

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	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	113.6 PK			1.12 H	76	86.57	27.03
2	*5200.00	103.4 AV			1.12 H	76	76.37	27.03
3	#10400.00	60.7 PK	68.3	-7.6	1.34 H	115	33.67	27.03
4	15600.00	62.8 PK	74.0	-11.2	1.20 H	143	35.77	27.03
5	15600.00	51.8 AV	54.0	-2.2	1.20 H	143	24.77	27.03
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	113.6 PK			1.04 V	273	86.57	27.03
2	*5200.00	104.3 AV			1.04 V	273	77.27	27.03
3	#10400.00	56.8 PK	68.3	-11.5	1.09 V	115	29.77	27.03
4	15600.00	64.0 PK	74.0	-10.0	1.36 V	68	36.97	27.03
5	15600.00	52.8 AV	54.0	-1.2	1.36 V	68	25.77	27.03

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.

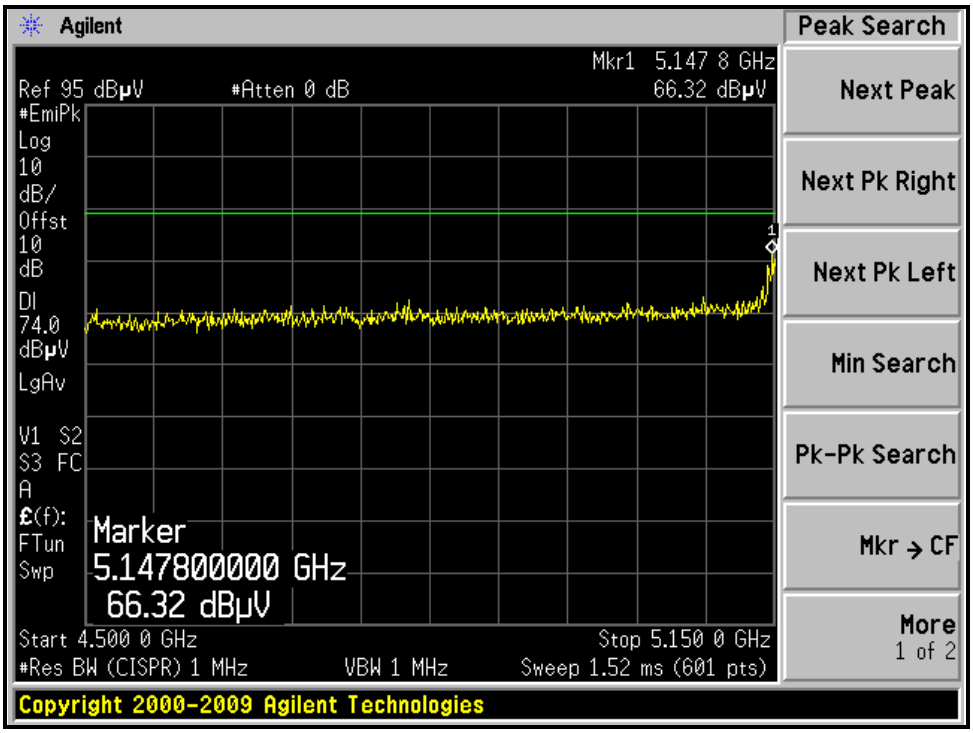
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	TESTED BY	Frank Liu

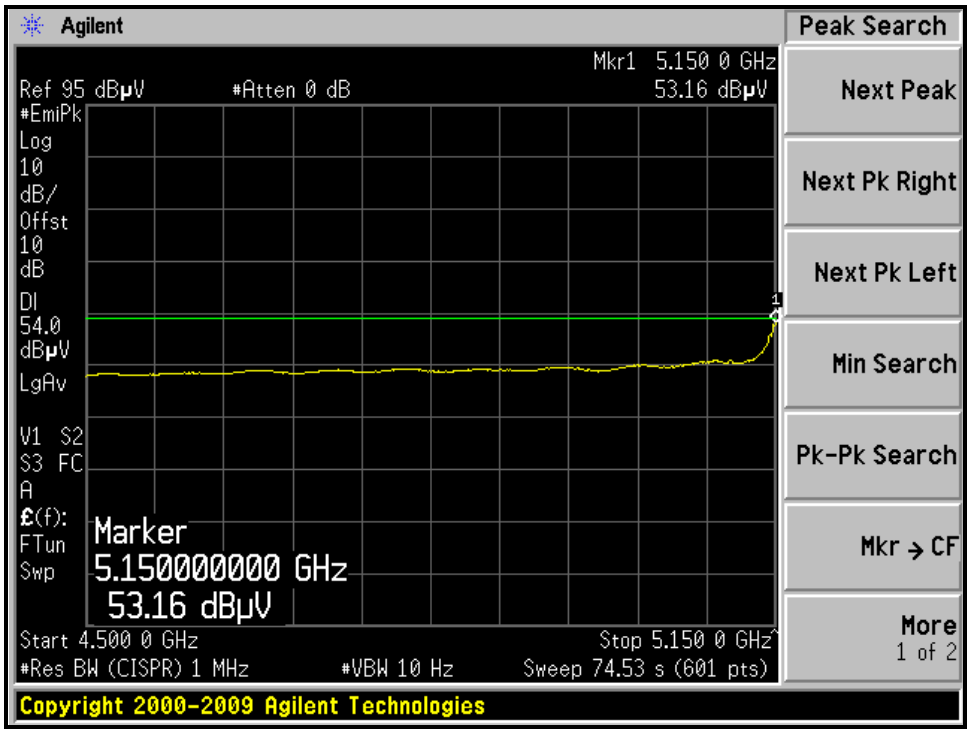
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	113.9 PK			1.13 H	79	86.87	27.03
2	*5240.00	103.5 AV			1.13 H	79	76.47	27.03
3	5350.00	57.9 PK	74.0	-16.1	1.16 H	48	30.87	27.03
4	5350.00	46.5 AV	54.0	-7.5	1.16 H	48	19.47	27.03
5	#10480.00	61.0 PK	68.3	-7.3	1.31 H	112	33.97	27.03
6	15720.00	63.1 PK	74.0	-10.9	1.24 H	149	36.07	27.03
7	15720.00	52.4 AV	54.0	-1.6	1.24 H	149	25.37	27.03
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	113.7 PK			1.03 V	279	86.67	27.03
2	*5240.00	104.6 AV			1.03 V	279	77.57	27.03
3	5350.00	56.5 PK	74.0	-17.5	1.16 V	276	29.47	27.03
4	5350.00	46.9 AV	54.0	-7.1	1.16 V	276	19.87	27.03
5	#10480.00	57.6 PK	68.3	-10.7	1.04 V	113	30.57	27.03
6	15720.00	64.6 PK	74.0	-9.4	1.31 V	72	37.57	27.03
7	15720.00	53.1 AV	54.0	-0.9	1.31 V	72	26.07	27.03

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

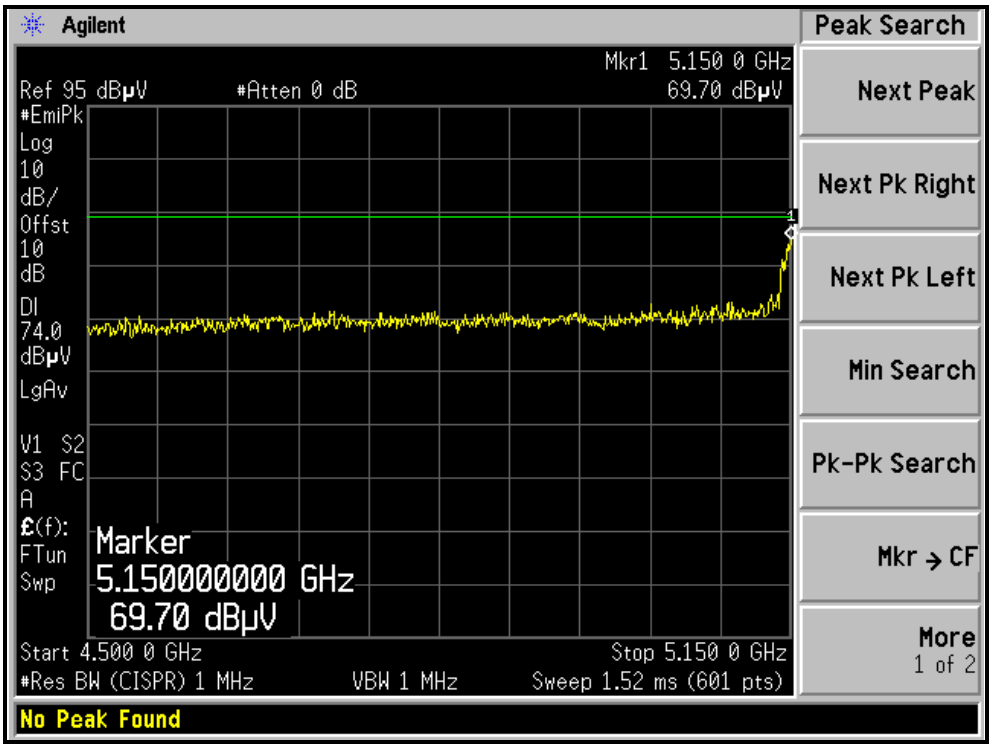
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

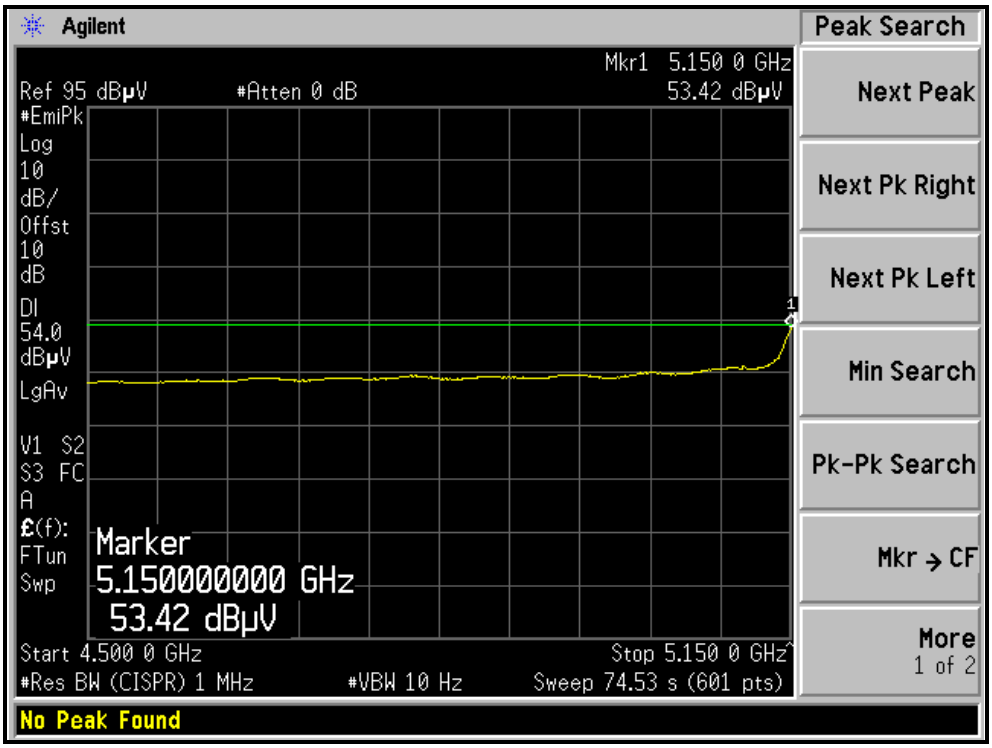
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)



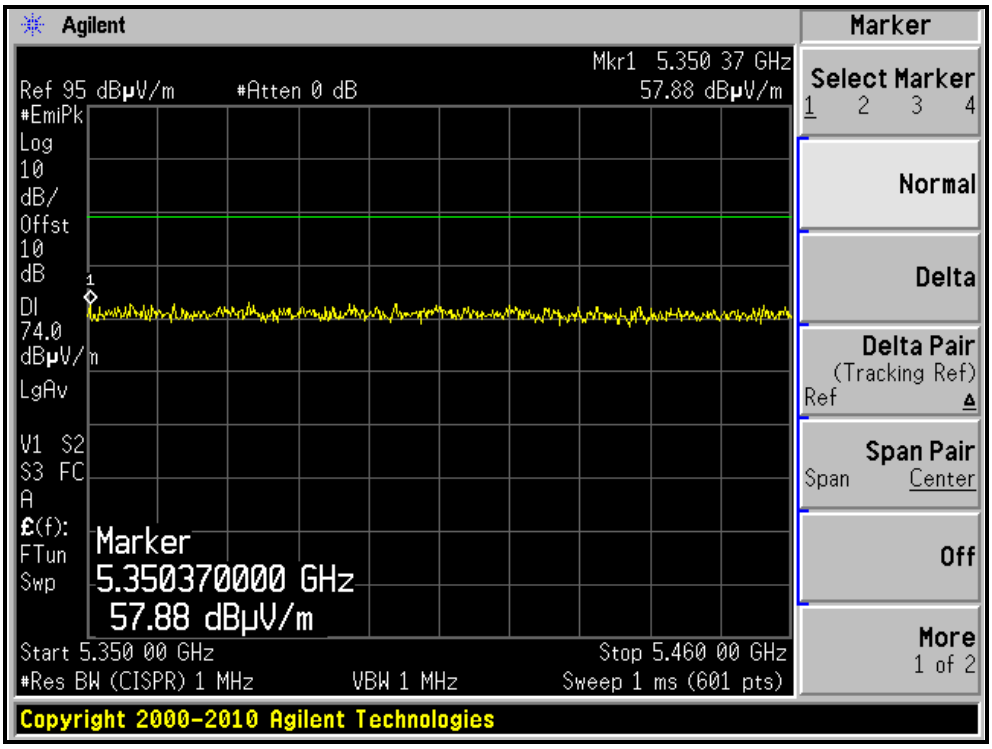


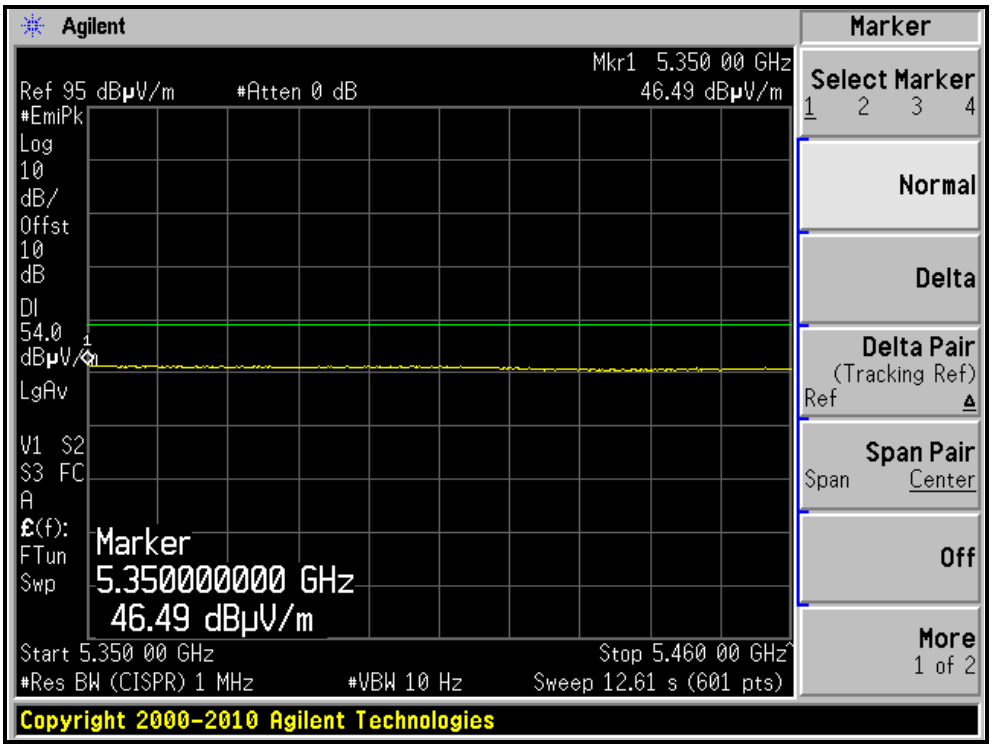
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)



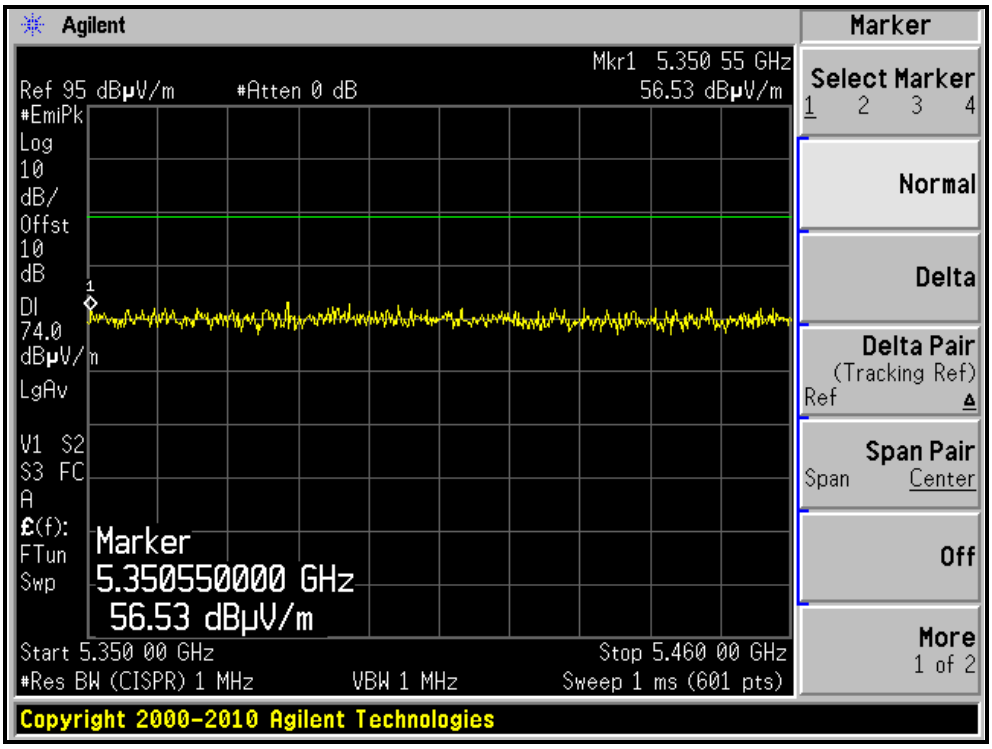


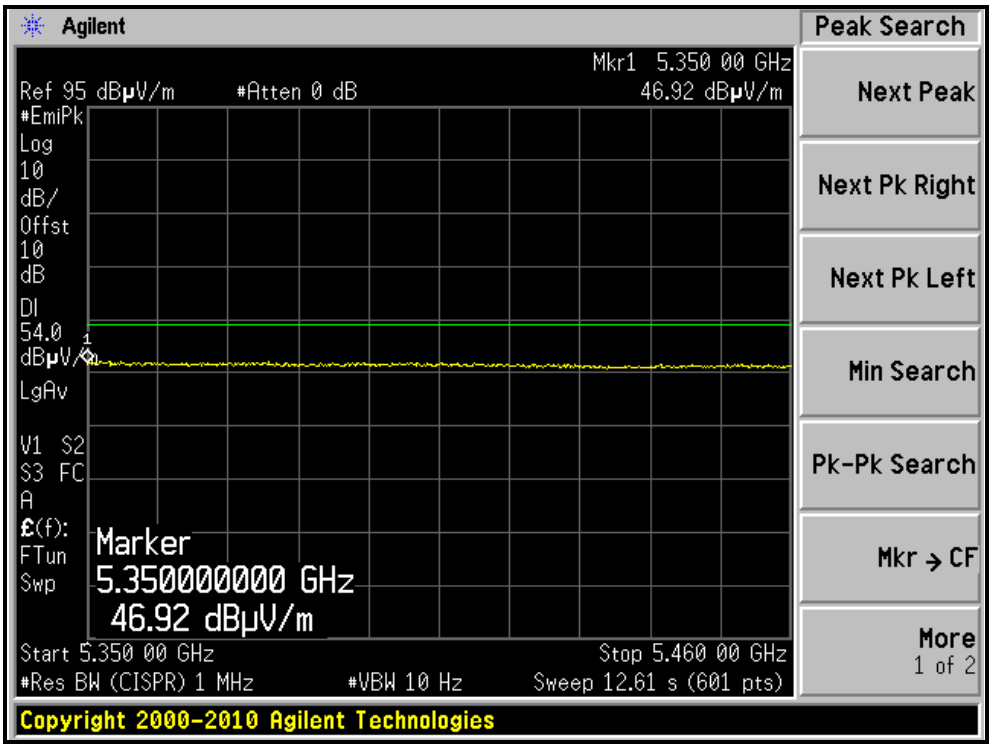
RESTRICTED BANDEDGE (802.11a MODE, CH48, HORIZONTAL)





RESTRICTED BANDEDGE (802.11a MODE, CH48, VERTICAL)





802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	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	1.16 H	56	36.87	27.03
2	5150.00	52.2 AV	54.0	-1.8	1.16 H	56	25.17	27.03
3	*5180.00	109.1 PK			1.13 H	49	82.07	27.03
4	*5180.00	100.5 AV			1.13 H	49	73.47	27.03
5	#10360.00	62.1 PK	68.3	-6.2	1.35 H	118	35.07	27.03
6	15540.00	62.8 PK	74.0	-11.2	1.29 H	143	35.77	27.03
7	15540.00	51.7 AV	54.0	-2.3	1.29 H	143	24.67	27.03
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	66.2 PK	74.0	-7.8	1.09 V	280	39.17	27.03
2	5150.00	53.3 AV	54.0	-0.7	1.09 V	280	26.27	27.03
3	*5180.00	109.6 PK			1.09 V	280	82.57	27.03
4	*5180.00	101.1 AV			1.09 V	280	74.07	27.03
5	#10360.00	57.1 PK	68.3	-11.2	1.18 V	115	30.07	27.03
6	15540.00	64.2 PK	74.0	-9.8	1.40 V	74	37.17	27.03
7	15540.00	53.2 AV	54.0	-0.8	1.40 V	74	26.17	27.03

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	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	109.3 PK			1.12 H	53	82.27	27.03
2	*5200.00	100.4 AV			1.12 H	53	73.37	27.03
3	#10400.00	62.8 PK	68.3	-5.5	1.33 H	107	35.77	27.03
4	15600.00	63.7 PK	74.0	-10.3	1.30 H	155	36.67	27.03
5	15600.00	52.4 AV	54.0	-1.6	1.30 H	155	25.37	27.03
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	110.3 PK			1.04 V	273	83.27	27.03
2	*5200.00	101.9 AV			1.04 V	273	74.87	27.03
3	#10400.00	56.5 PK	68.3	-11.8	1.14 V	123	29.47	27.03
4	15600.00	64.3 PK	74.0	-9.7	1.33 V	64	37.27	27.03
5	15600.00	53.3 AV	54.0	-0.7	1.33 V	64	26.27	27.03

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.

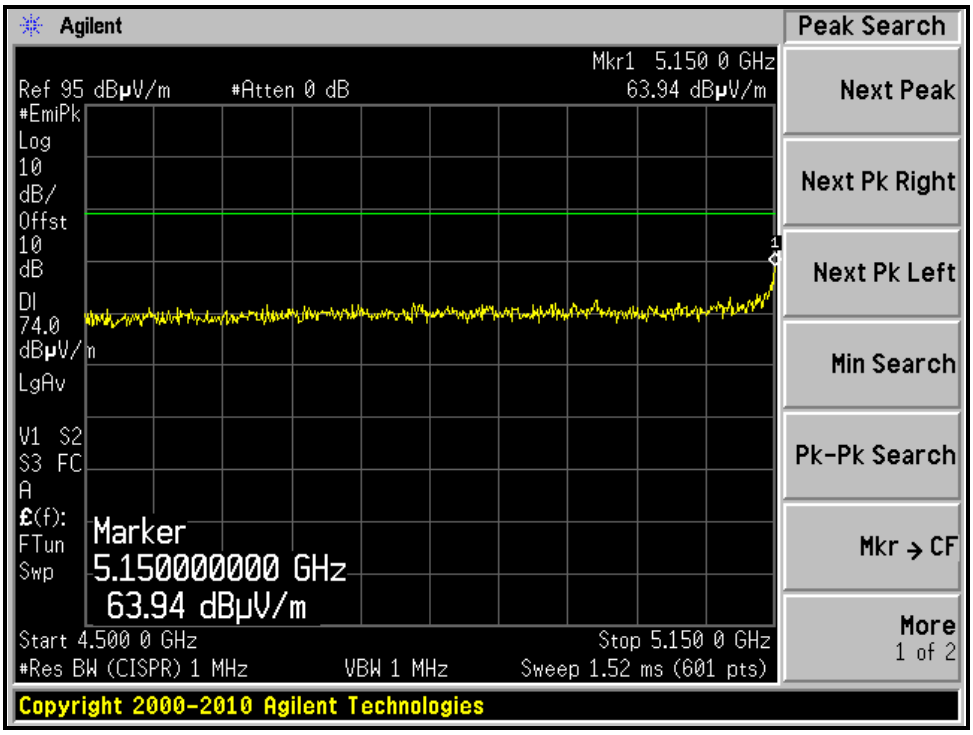
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	TESTED BY	Frank Liu

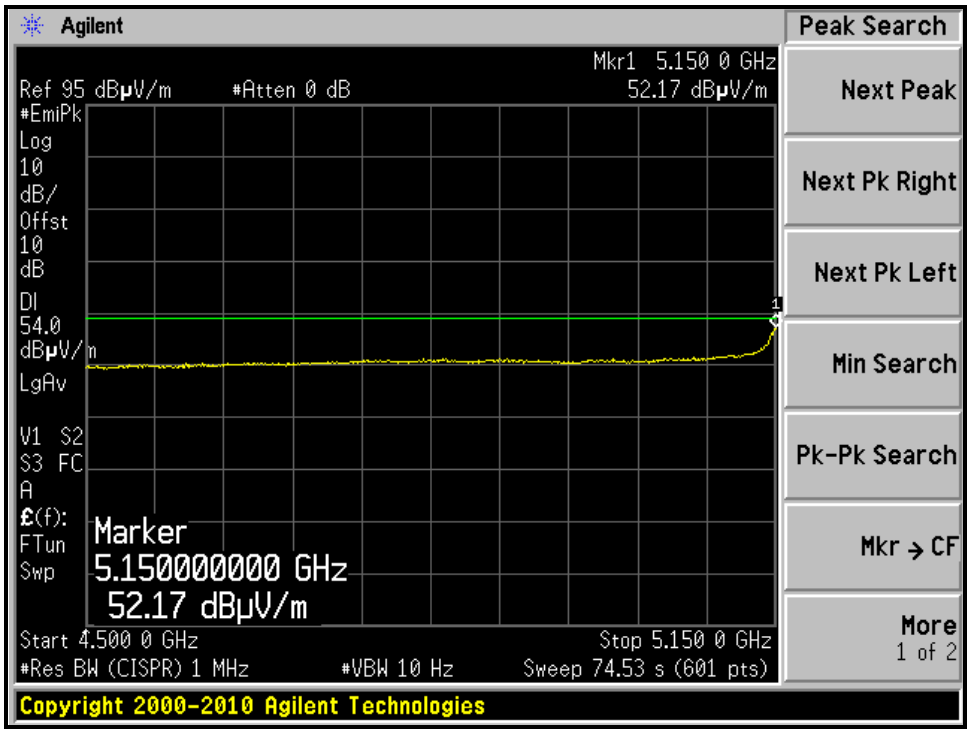
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.4 PK			1.13 H	49	82.37	27.03
2	*5240.00	100.6 AV			1.13 H	49	73.57	27.03
3	5350.00	58.1 PK	74.0	-15.9	1.13 H	274	31.07	27.03
4	5350.00	46.8 AV	54.0	-7.2	1.13 H	274	19.77	27.03
5	#10480.00	62.5 PK	68.3	-5.8	1.32 H	118	35.47	27.03
6	15720.00	62.8 PK	74.0	-11.2	1.26 H	156	35.77	27.03
7	15720.00	51.5 AV	54.0	-2.5	1.26 H	156	24.47	27.03
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	110.4 PK			1.06 V	269	83.37	27.03
2	*5240.00	101.8 AV			1.06 V	269	74.77	27.03
3	5350.00	56.7 PK	74.0	-17.3	1.00 V	243	29.67	27.03
4	5350.00	47.0 AV	54.0	-7.0	1.00 V	243	19.97	27.03
5	#10480.00	57.7 PK	68.3	-10.6	1.09 V	117	30.67	27.03
6	15720.00	64.7 PK	74.0	-9.3	1.29 V	81	37.67	27.03
7	15720.00	53.3 AV	54.0	-0.7	1.29 V	81	26.27	27.03

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

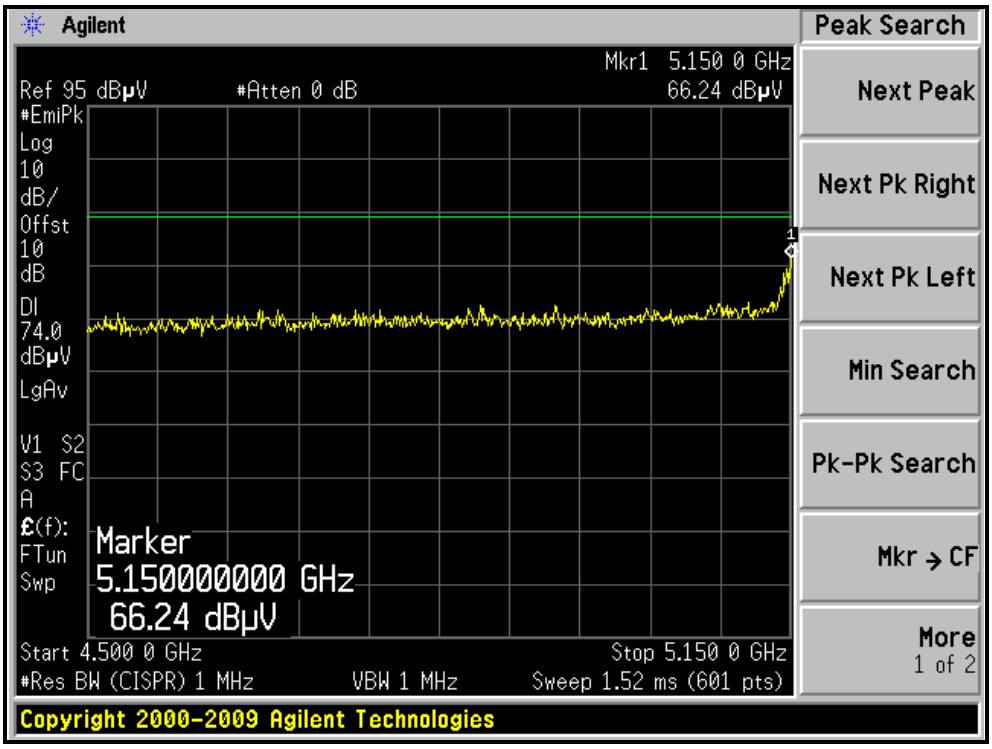
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

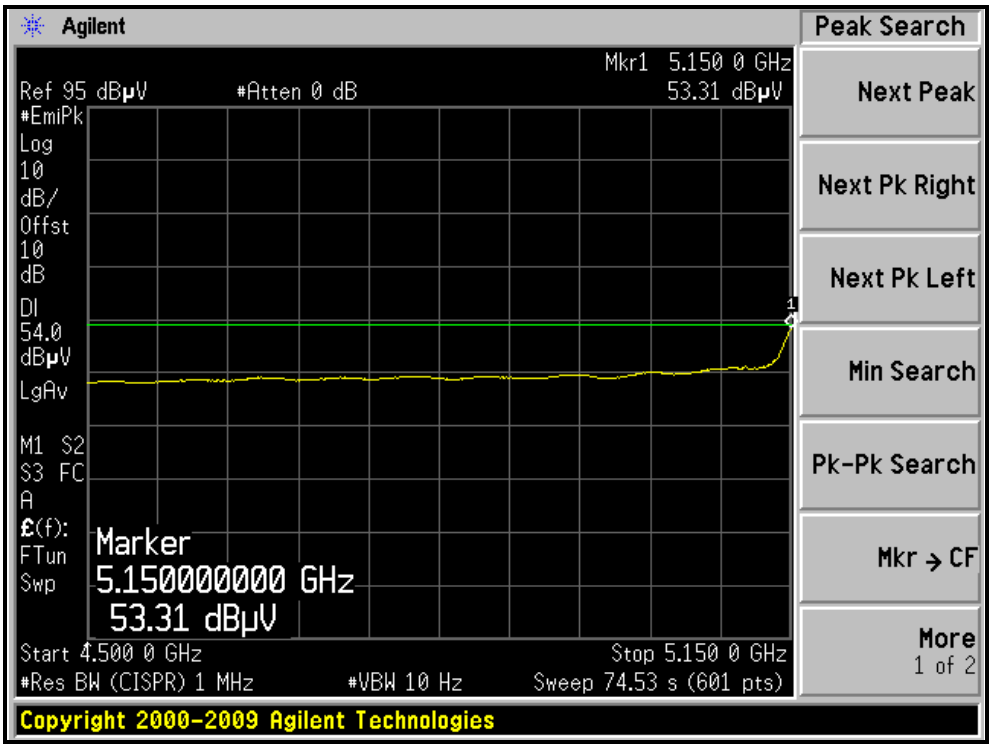
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)



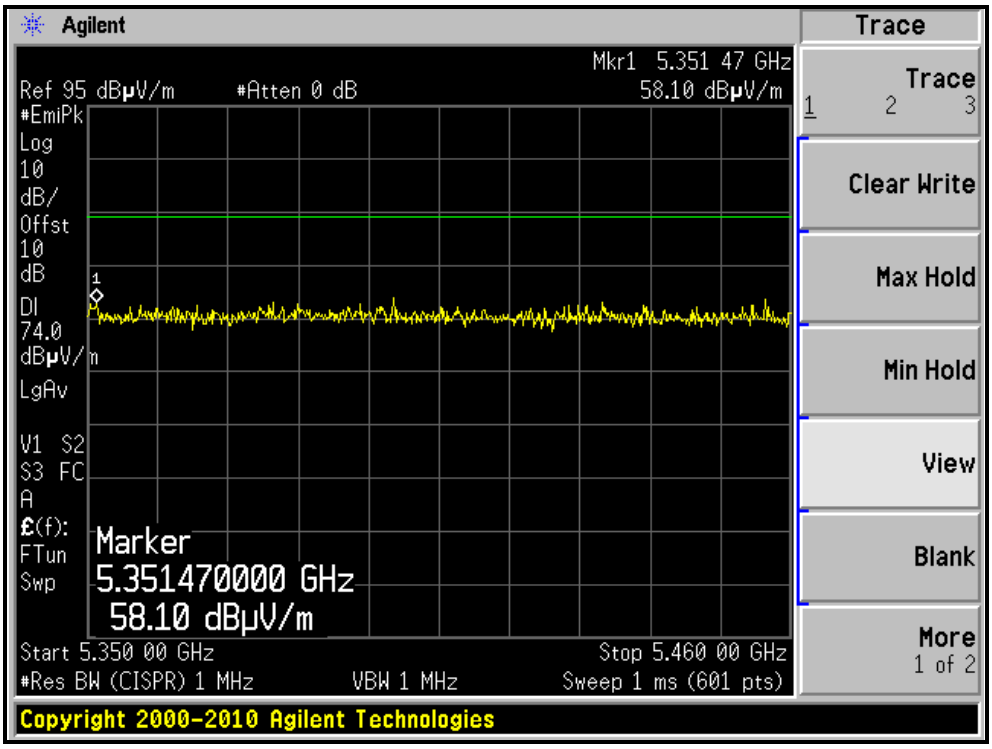


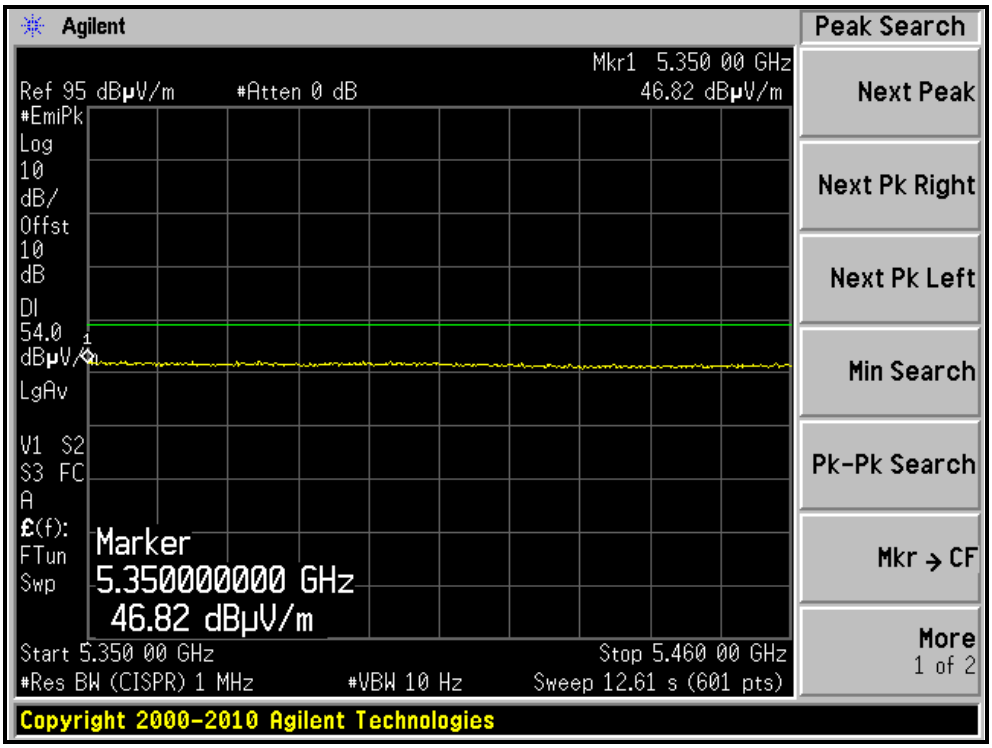
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)



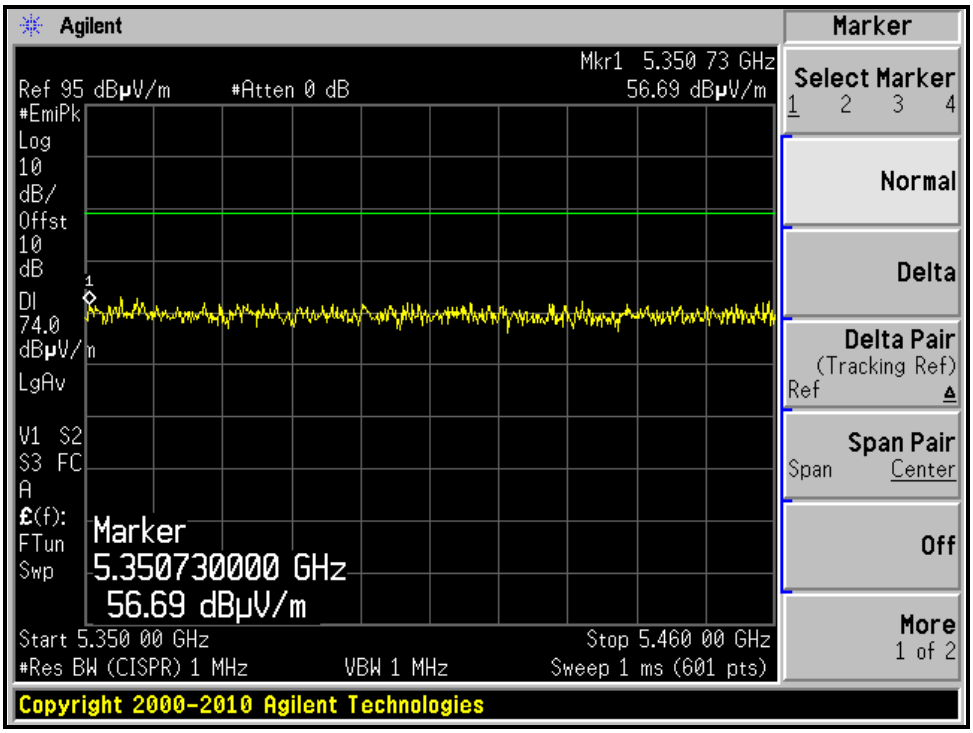


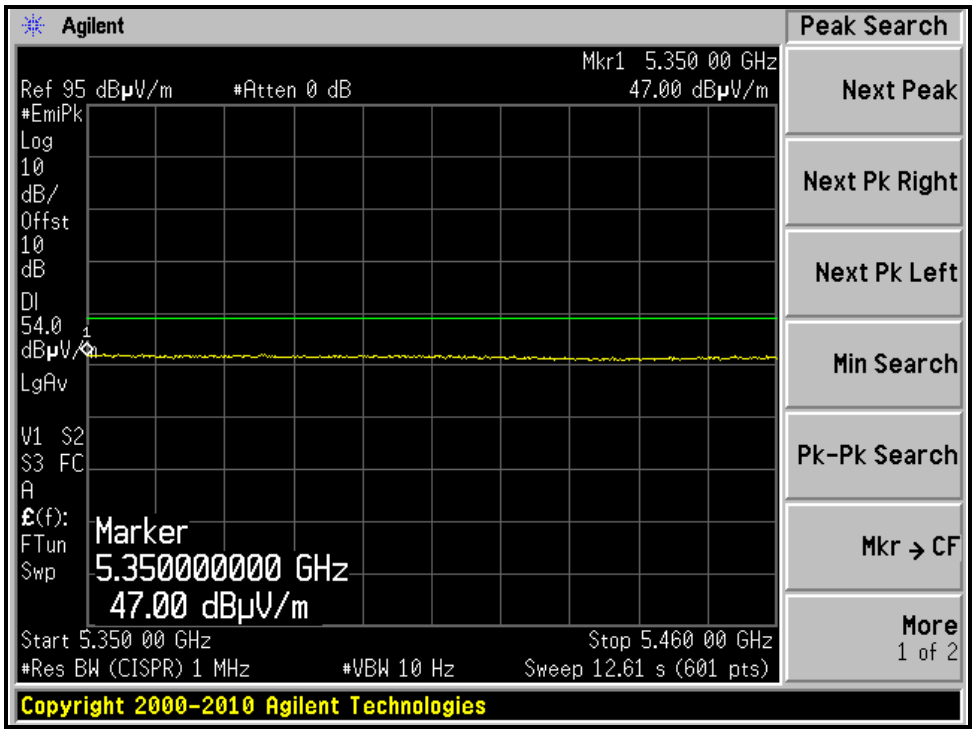
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 48, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 48, VERTICAL)





802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	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	61.9 PK	74.0	-12.1	1.13 H	79	34.87	27.03
2	5150.00	52.1 AV	54.0	-1.9	1.13 H	79	25.07	27.03
3	*5190.00	102.1 PK			1.13 H	74	75.07	27.03
4	*5190.00	92.3 AV			1.13 H	74	65.27	27.03
5	#10380.00	63.3 PK	68.3	-5.0	1.36 H	109	36.27	27.03
6	15570.00	64.5 PK	74.0	-9.5	1.24 H	167	37.47	27.03
7	15570.00	53.1 AV	54.0	-0.9	1.24 H	167	26.07	27.03
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	64.7 PK	74.0	-9.3	1.08 V	276	37.67	27.03
2	5150.00	53.2 AV	54.0	-0.8	1.08 V	276	26.17	27.03
3	*5190.00	102.3 PK			1.20 V	279	75.27	27.03
4	*5190.00	92.7 AV			1.20 V	279	65.67	27.03
5	#10380.00	56.6 PK	68.3	-11.7	1.10 V	112	29.57	27.03
6	15570.00	64.5 PK	74.0	-9.5	1.36 V	66	37.47	27.03
7	15570.00	53.2 AV	54.0	-0.8	1.36 V	66	26.17	27.03

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.

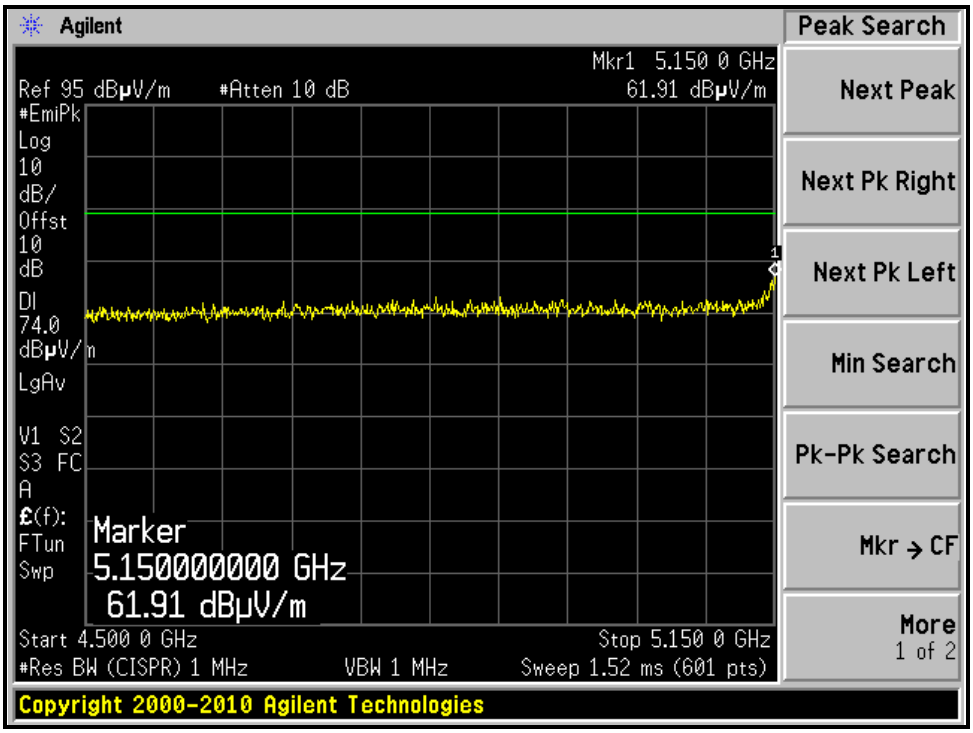
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 71%RH	TESTED BY	Frank Liu

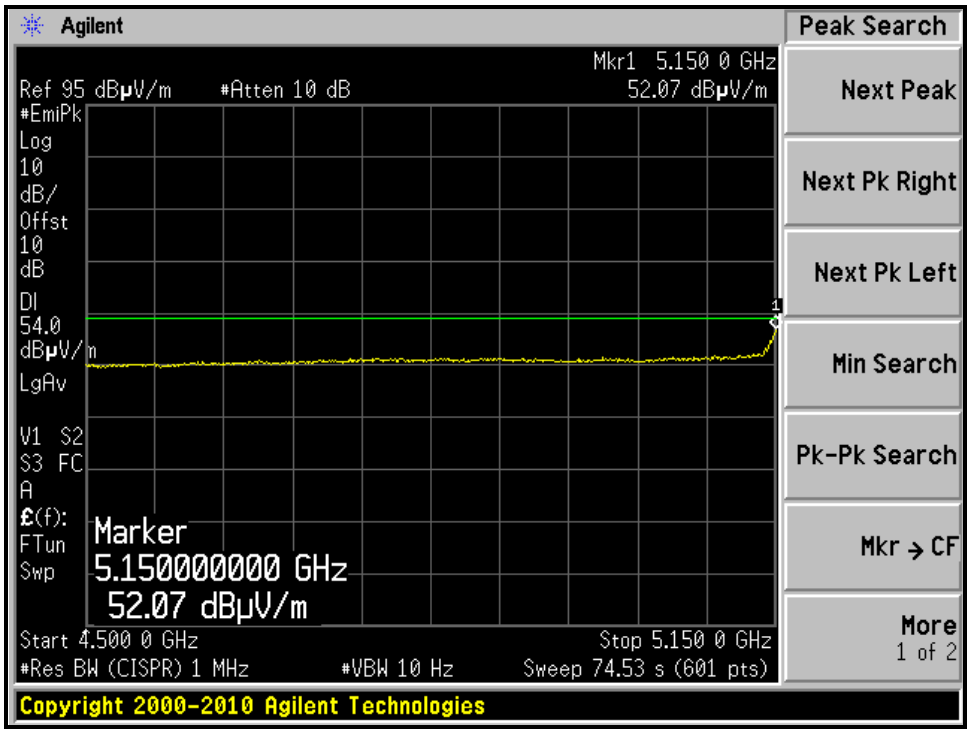
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	109.3 PK			1.12 H	73	82.27	27.03
2	*5230.00	99.4 AV			1.12 H	73	72.37	27.03
3	5350.00	58.0 PK	74.0	-16.0	1.13 H	269	30.97	27.03
4	5350.00	47.0 AV	54.0	-7.0	1.13 H	269	19.97	27.03
5	#10460.00	63.5 PK	68.3	-4.8	1.35 H	102	36.47	27.03
6	15690.00	63.6 PK	74.0	-10.4	1.32 H	162	36.57	27.03
7	15690.00	52.3 AV	54.0	-1.7	1.32 H	162	25.27	27.03
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	110.2 PK			1.13 V	273	83.17	27.03
2	*5230.00	100.0 AV			1.13 V	273	72.97	27.03
3	5350.00	59.4 PK	74.0	-14.6	1.16 V	273	32.37	27.03
4	5350.00	47.7 AV	54.0	-6.3	1.16 V	273	20.67	27.03
5	#10460.00	56.3 PK	68.3	-12.0	1.16 V	118	29.27	27.03
6	15690.00	64.2 PK	74.0	-9.8	1.33 V	56	37.17	27.03
7	15690.00	53.1 AV	54.0	-0.9	1.33 V	56	26.07	27.03

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

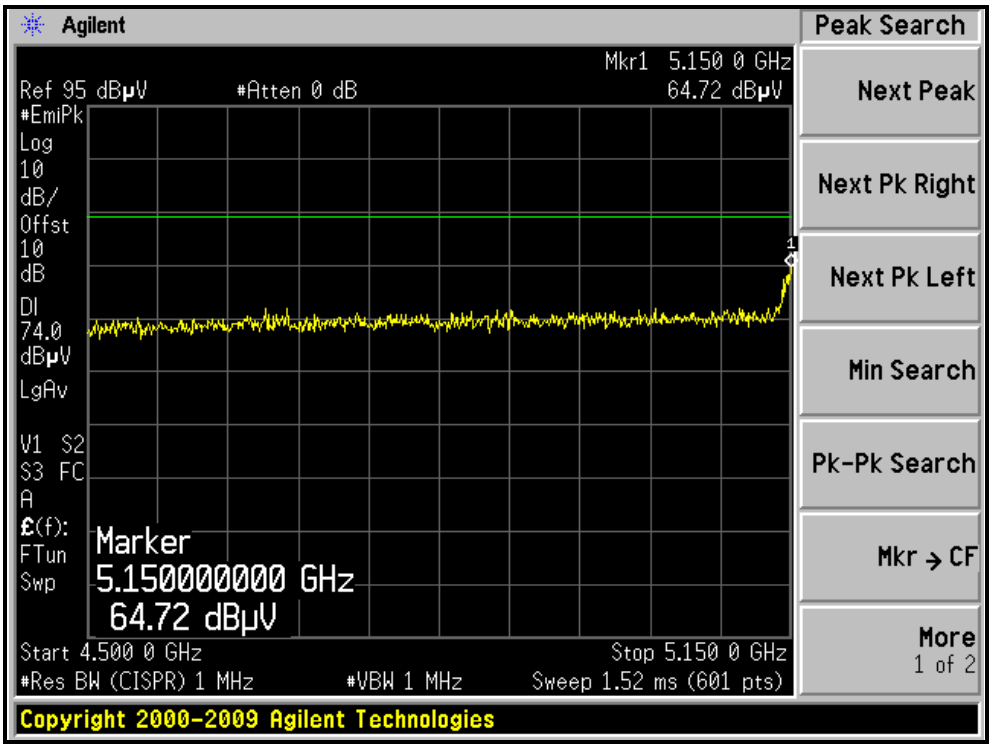
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

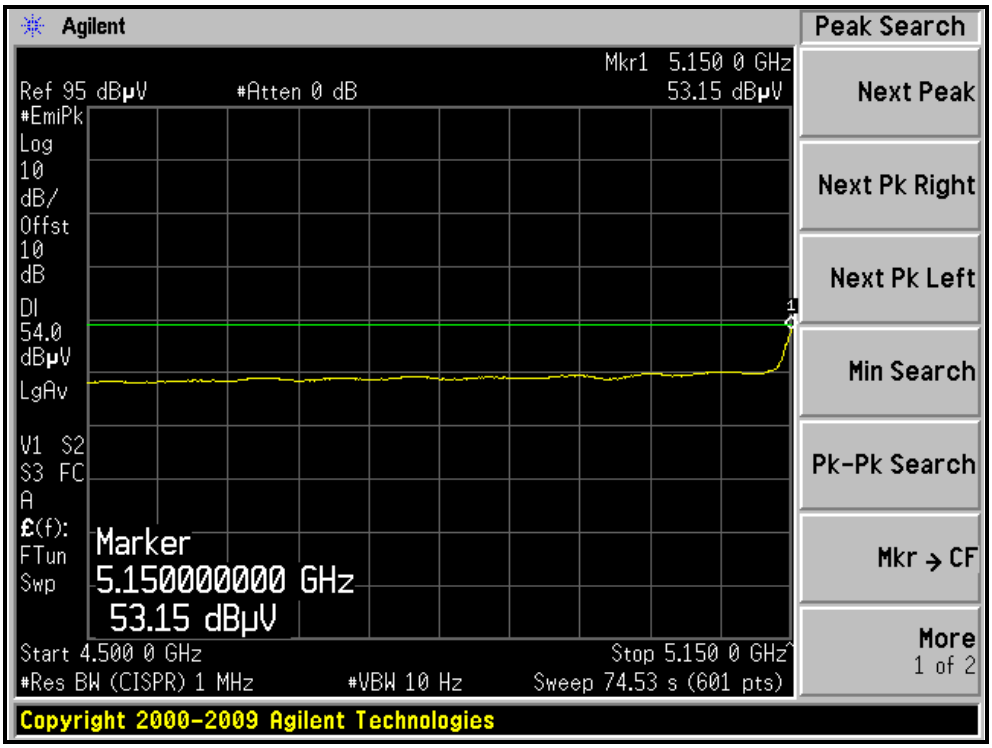
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH38, HORIZONTAL)



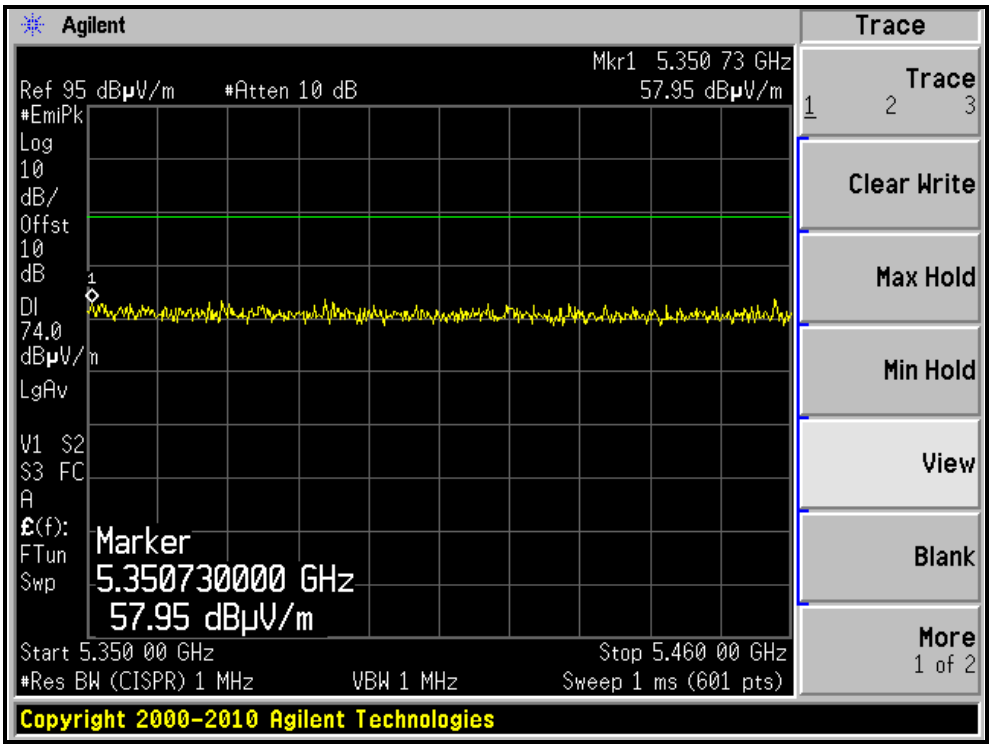


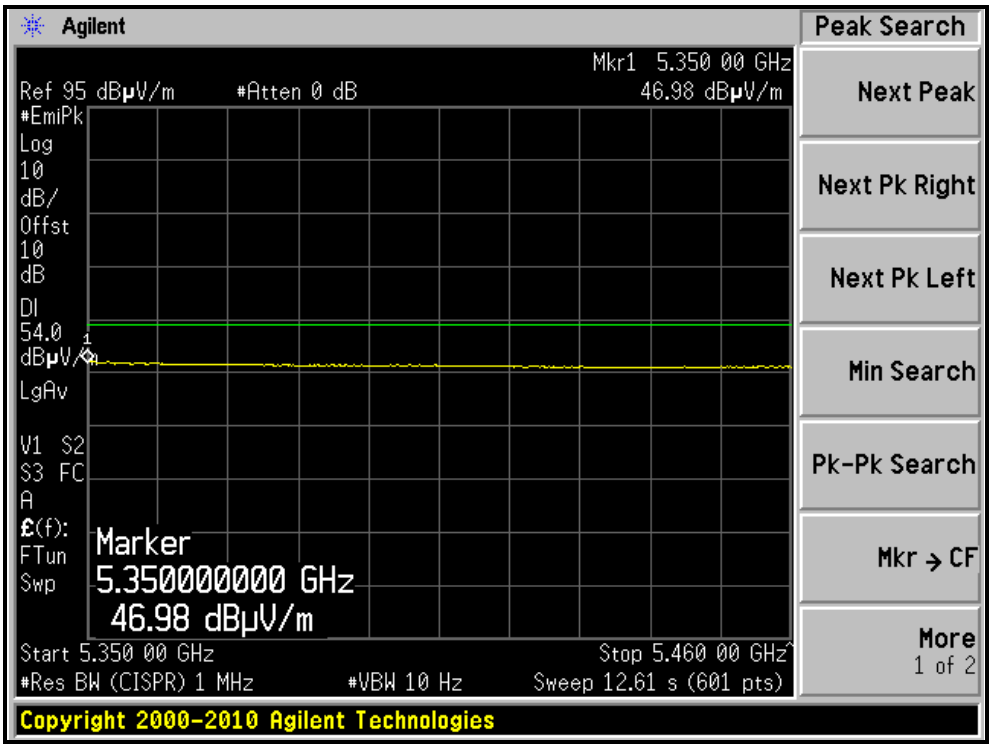
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH38, VERTICAL)



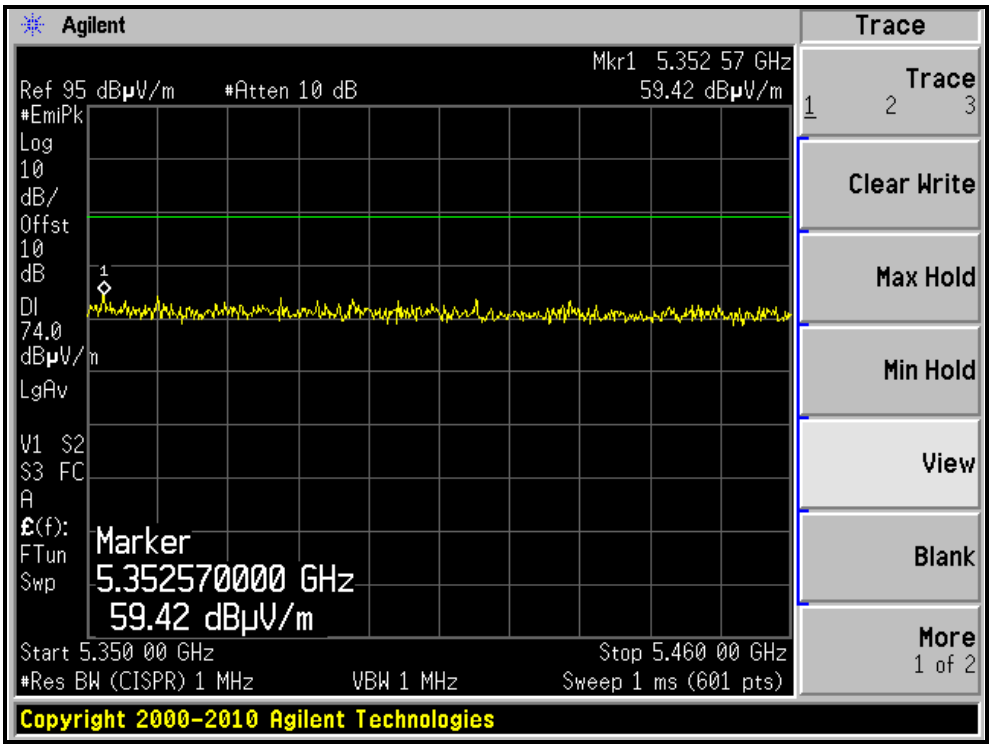


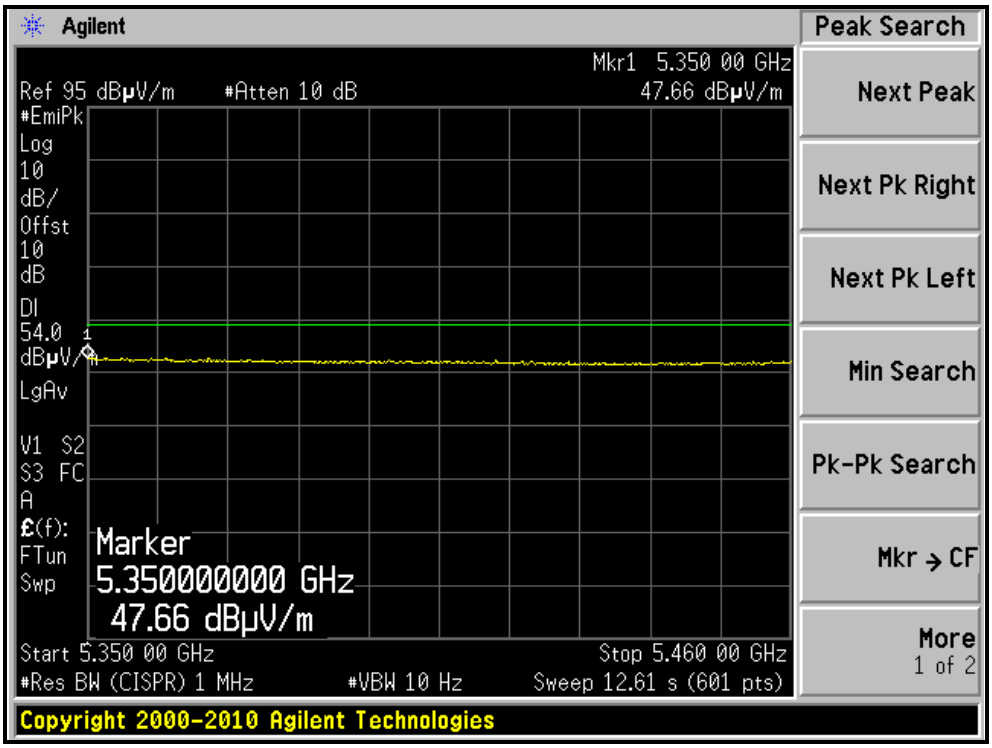
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH46, HORIZONTAL)





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





4.3 OUTPUT TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF OUTPUT 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

Test date: July 29, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

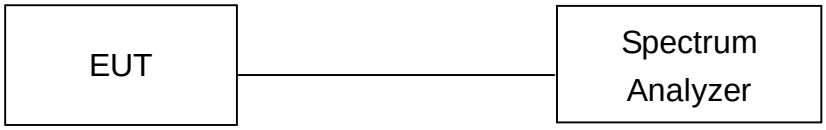
4.3.3 TEST PROCEDURE

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.

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.

4.3.7 TEST RESULTS

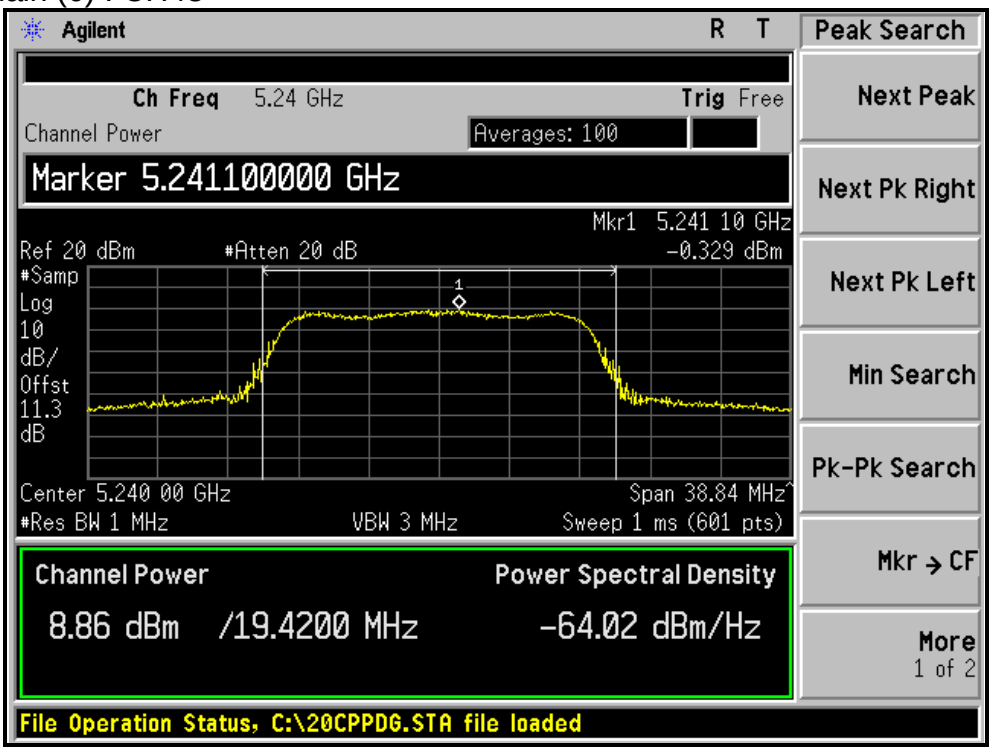
802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN(0)	CHAIN(1)				CHAIN(0)	CHAIN(1)	
36	5180	8.5	7.9	13.2	11.2	16	19.42	19.17	PASS
40	5200	8.6	7.8	13.3	11.2	16	19.33	19.17	PASS
48	5240	8.9	7.5	13.4	11.3	16	19.42	19.17	PASS

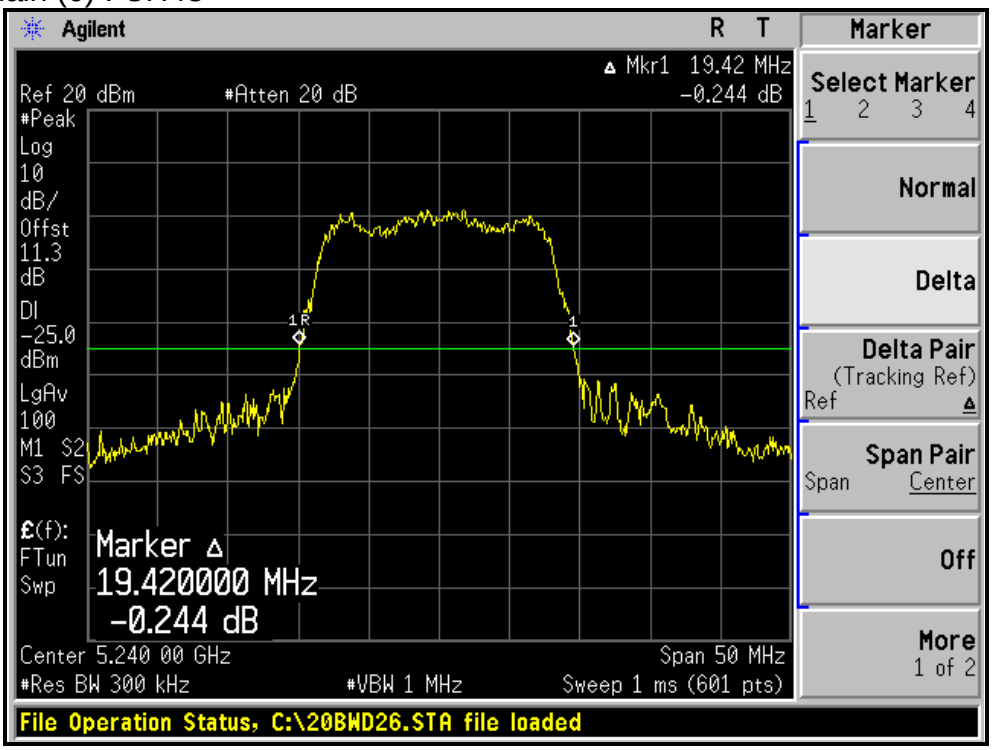
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2]
Effective Legacy Gain (dBi) = 7
The effective legacy gain is 7dBi, therefore the limit needs to reduce.

Peak Power Output:
For Chain (0) : CH48



26dB Occupied Bandwidth:
For Chain (0) : CH48

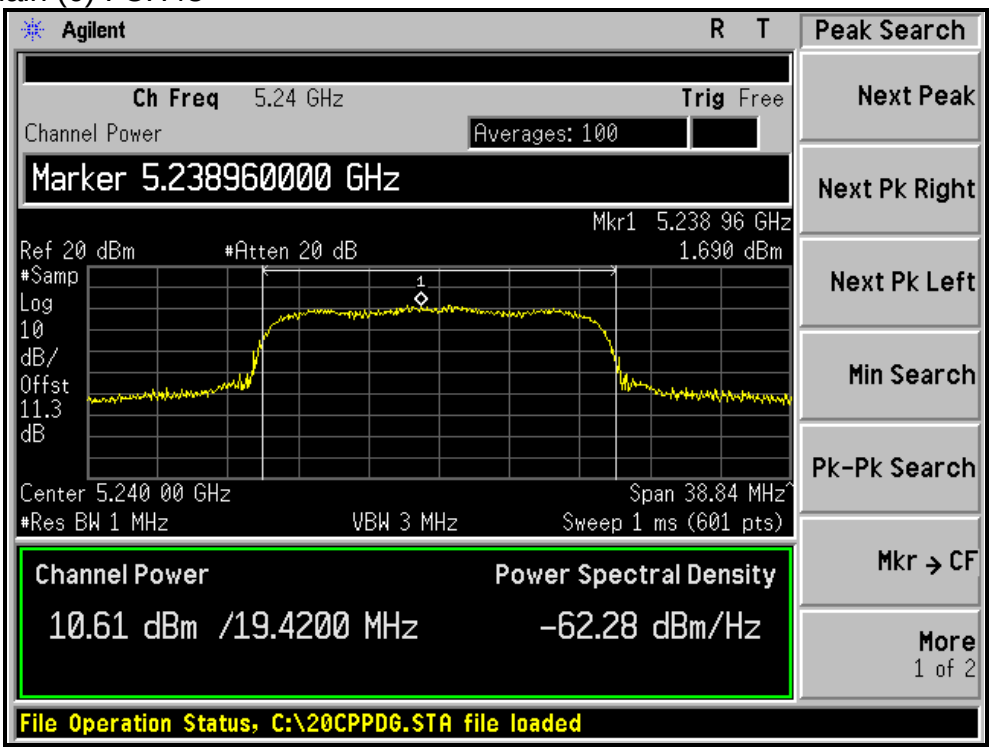


802.11n (20MHz) OFDM MODULATION:

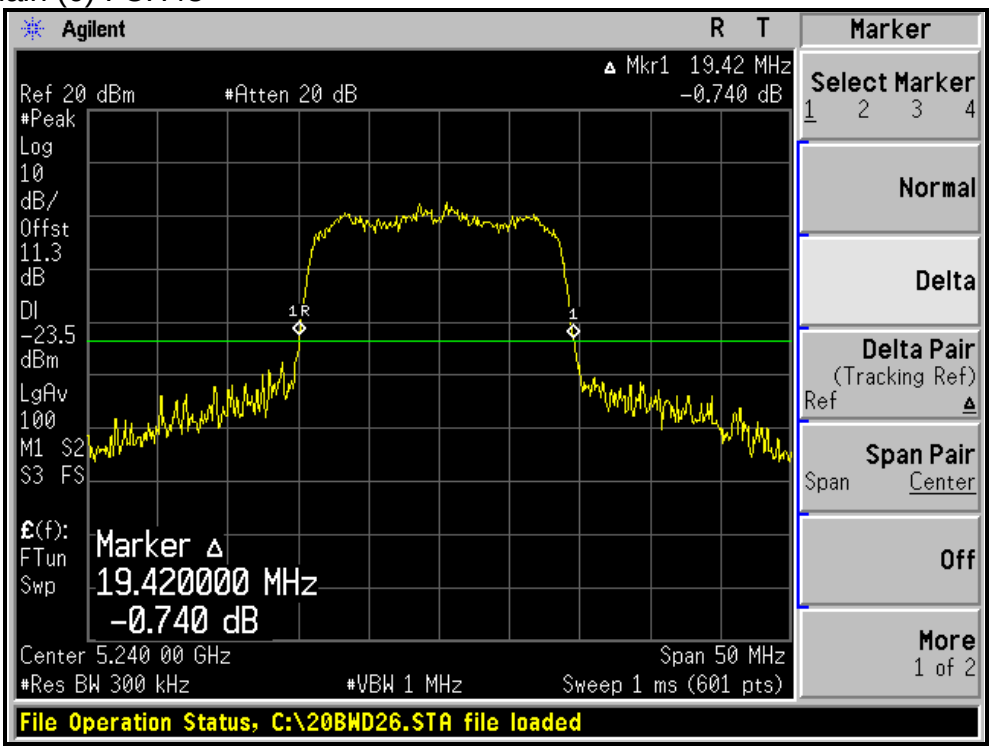
CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN(0)	CHAIN(1)				CHAIN(0)	CHAIN(1)	
36	5180	10.0	9.3	18.5	12.7	17	19.42	19.50	PASS
40	5200	10.5	9.2	19.5	12.9	17	19.42	19.25	PASS
48	5240	10.6	9.2	19.8	13.0	17	19.42	19.42	PASS

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

Peak Power Output:
For Chain (0) : CH48



26dB Occupied Bandwidth:
For Chain (0) : CH48

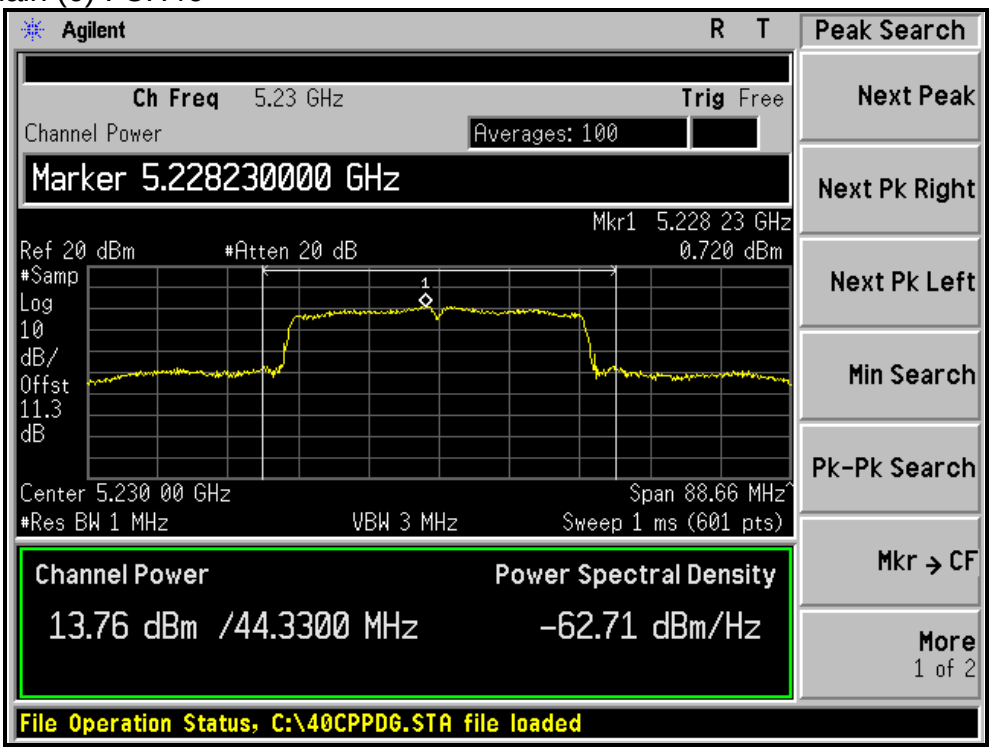


802.11n (40MHz) OFDM modulation:

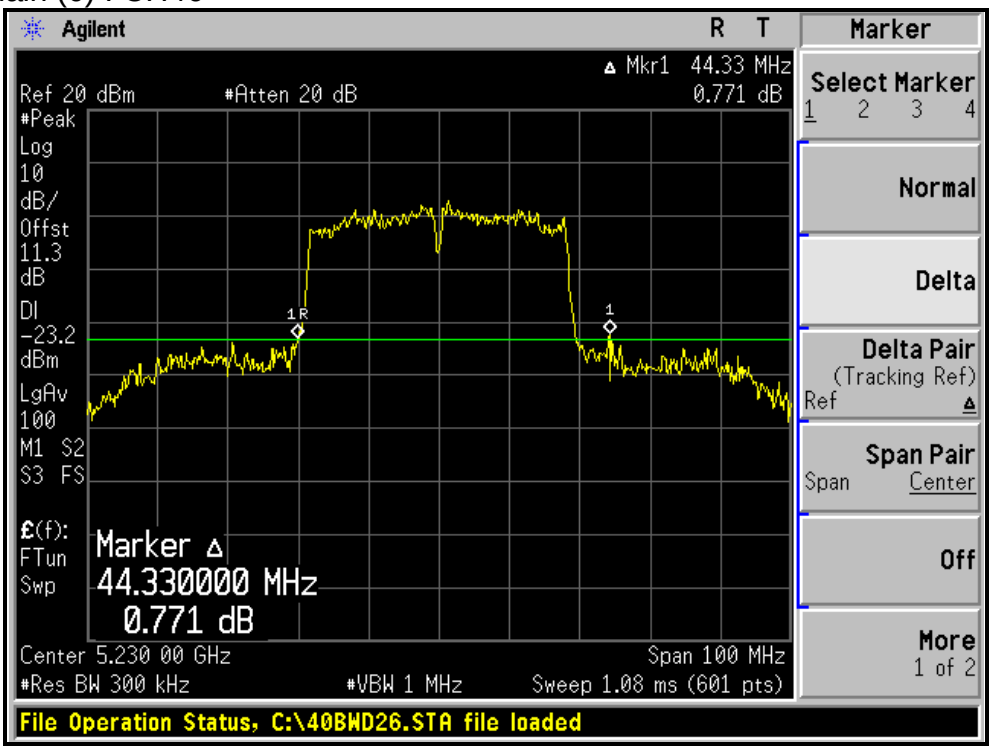
CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN(0)	CHAIN(1)				CHAIN(0)	CHAIN(1)	
38	5190	8.1	7.1	11.6	10.6	17	38.83	39.00	PASS
46	5230	13.8	13.0	43.9	16.4	17	44.33	69.00	PASS

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

Peak Power Output:
For Chain (0) : CH46



26dB Occupied Bandwidth:
For Chain (0) : CH46



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

Test date: July 29, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

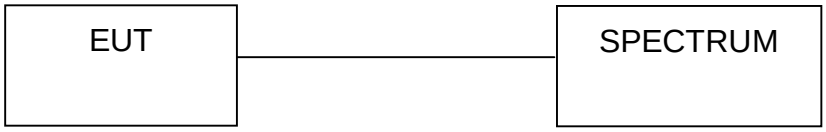
4.4.3 TEST PROCEDURE

1. Connect the cable from the spectrum analyzer to the EUT antenna port using an appropriate RF attenuator.
2. Verify the antenna port selected is the active one if the system has more then one antenna.
3. Verify the unlicensed wireless device is set to operate at 100 % duty cycle at the maximum allowed power for operation.
4. Testing shall be done on the center frequency of each U-NII band.
5. Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be 13 dB for all frequencies across the emission bandwidth.
   a. First trace: set RBW = 1 MHz, VBW = 3 MHz with peak detector and max hold settings.
   b. Second trace: set RBW = 1 MHz, VBW = 3 MHz with sample detector and trace average across 100 traces in power averaging mode.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

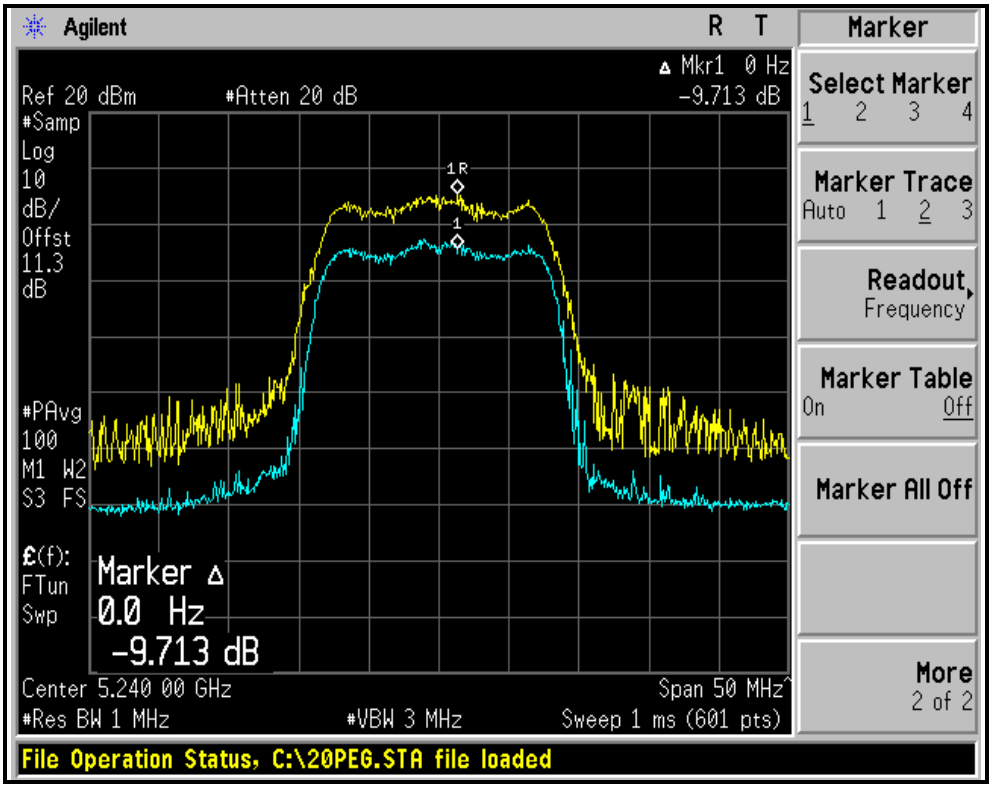
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

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
		Chain(0)	Chain(1)		
36	5180	8.2	8.7	13	PASS
40	5200	9.0	9.2	13	PASS
48	5240	8.4	9.7	13	PASS

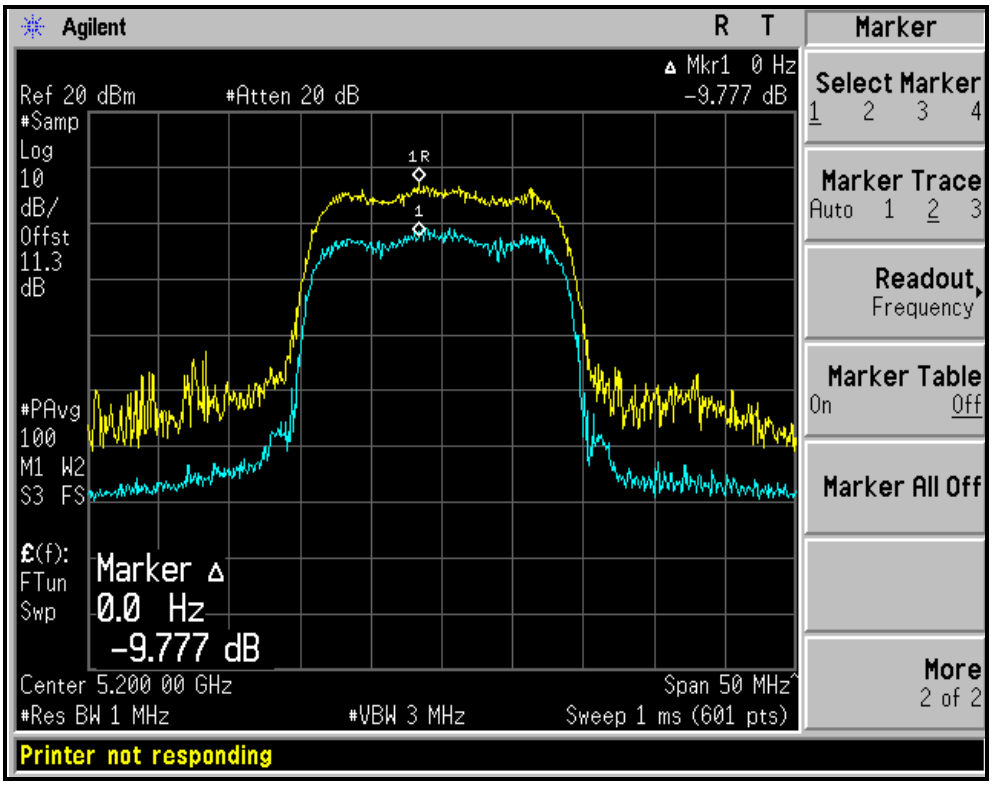
For Chain (1) : CH48



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		Chain(0)	Chain(1)		
36	5180	8.5	9.8	13	PASS
40	5200	8.0	9.8	13	PASS
48	5240	8.2	8.9	13	PASS

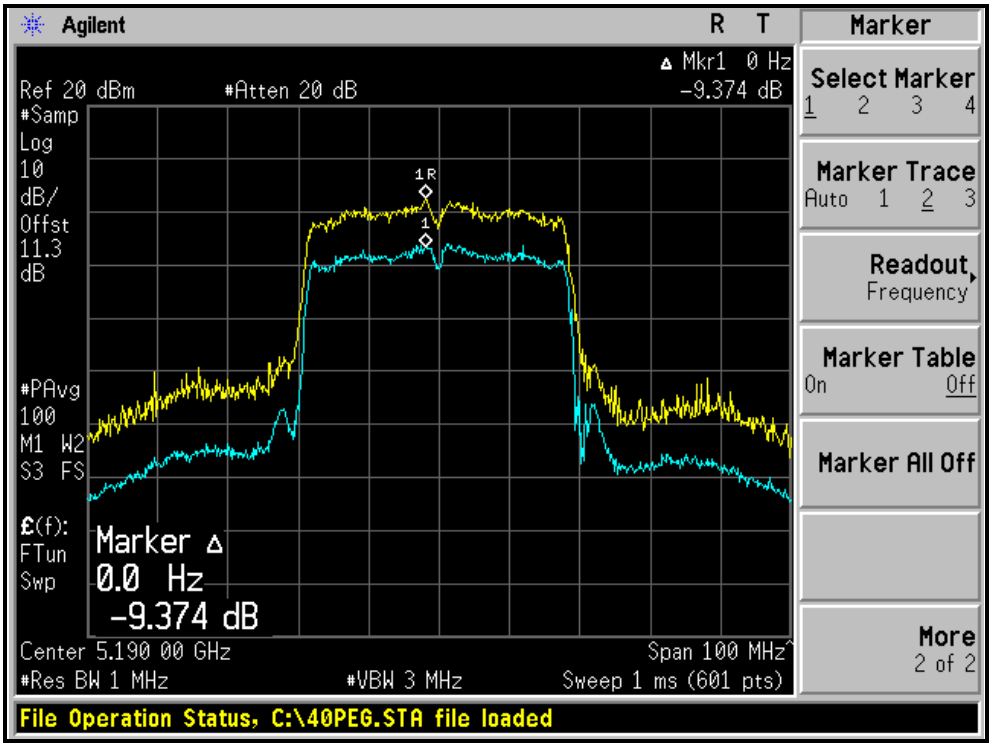
For Chain (1) : CH40



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		Chain(0)	Chain(1)		
38	5190	8.3	9.4	13	PASS
46	5230	8.1	8.5	13	PASS

For Chain (0) : CH38



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

Test date: July 29, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

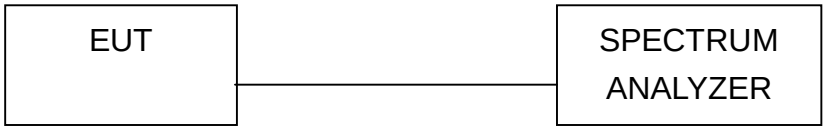
4.5.3 TEST PROCEDURES

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

4.5.7 TEST RESULTS

802.11a OFDM MODULATION

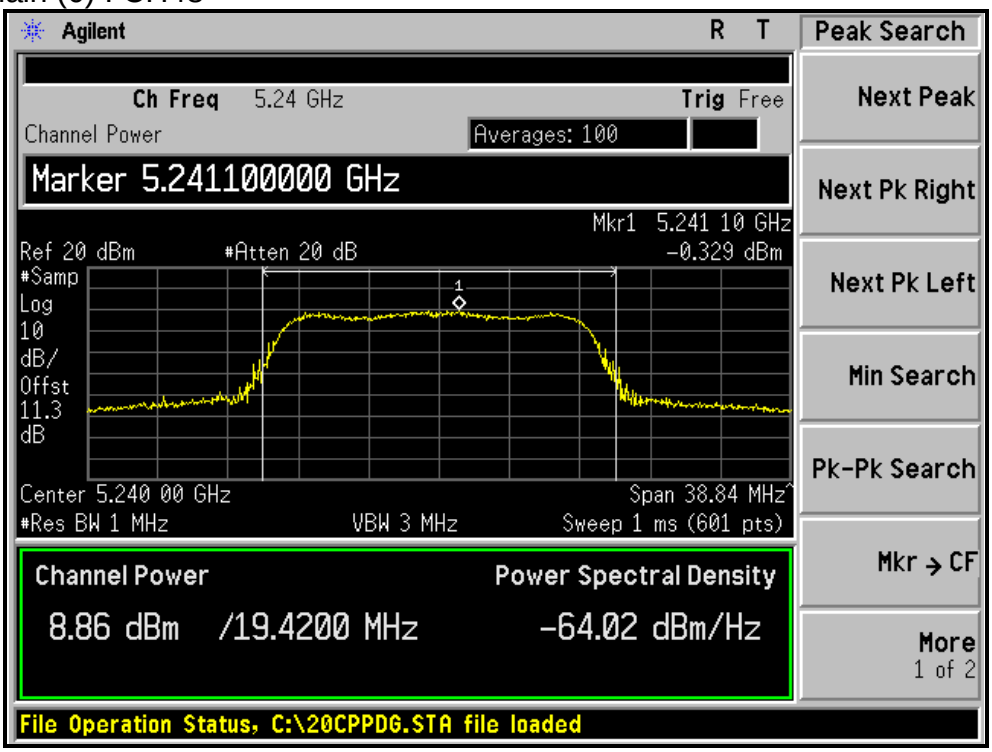
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
36	5180	-1.2	-1.6	1.6	3	PASS
40	5200	-0.9	-1.7	1.7	3	PASS
48	5240	-0.3	-2.0	1.9	3	PASS

Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$)^2 / 2]

Effective Legacy Gain (dBi) = 7

The effective legacy gain is 7dBi, therefore the limit needs to reduce.

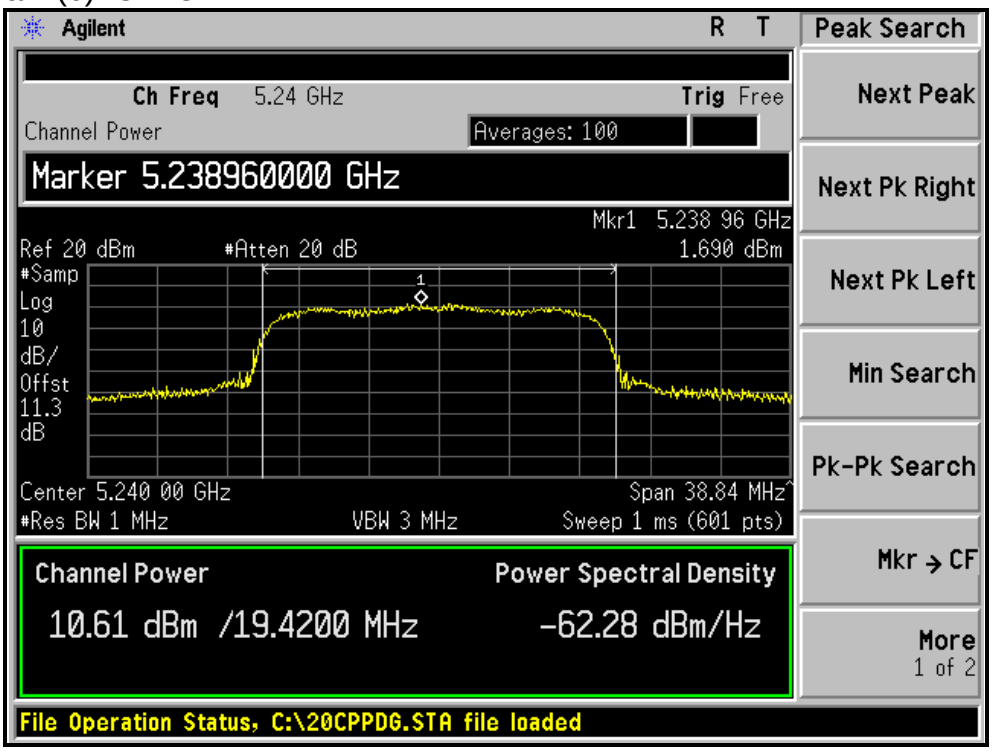
For Chain (0) : CH48



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
36	5180	1.3	0.2	3.8	4	PASS
40	5200	1.4	0.0	3.8	4	PASS
48	5240	1.7	-0.1	3.9	4	PASS

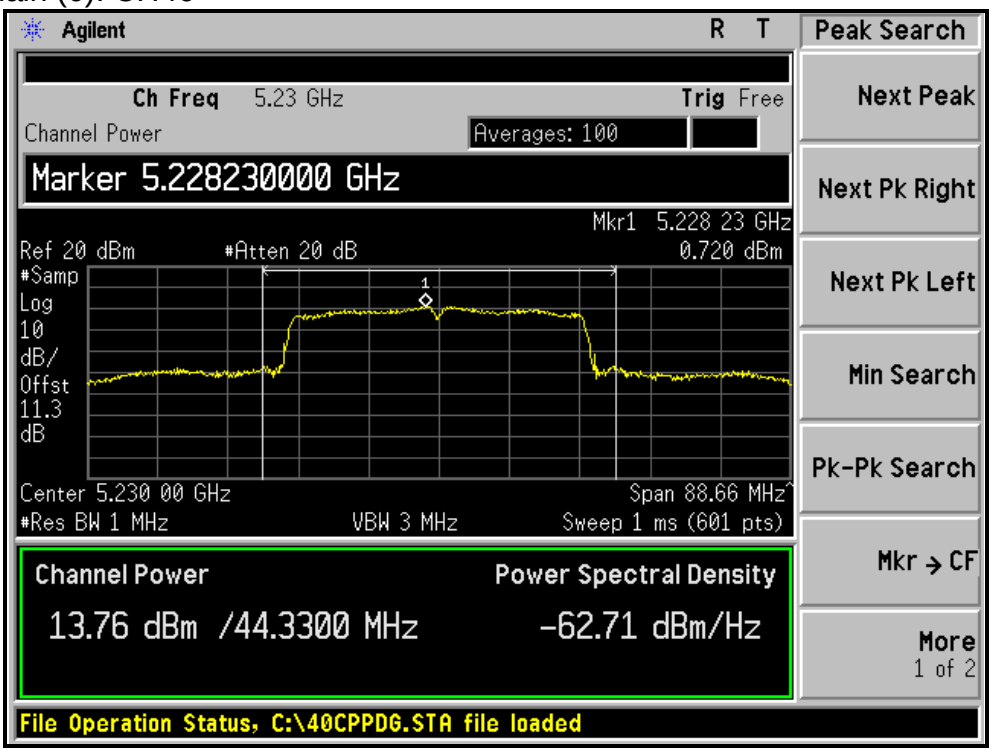
For Chain (0): CH48



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
38	5190	-4.7	-5.9	-2.2	4	PASS
46	5230	0.7	0.2	3.5	4	PASS

For Chain (0): CH46



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within the band 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

Test date: July 29, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP 40	100060	May 11, 2011	May 10, 2012

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

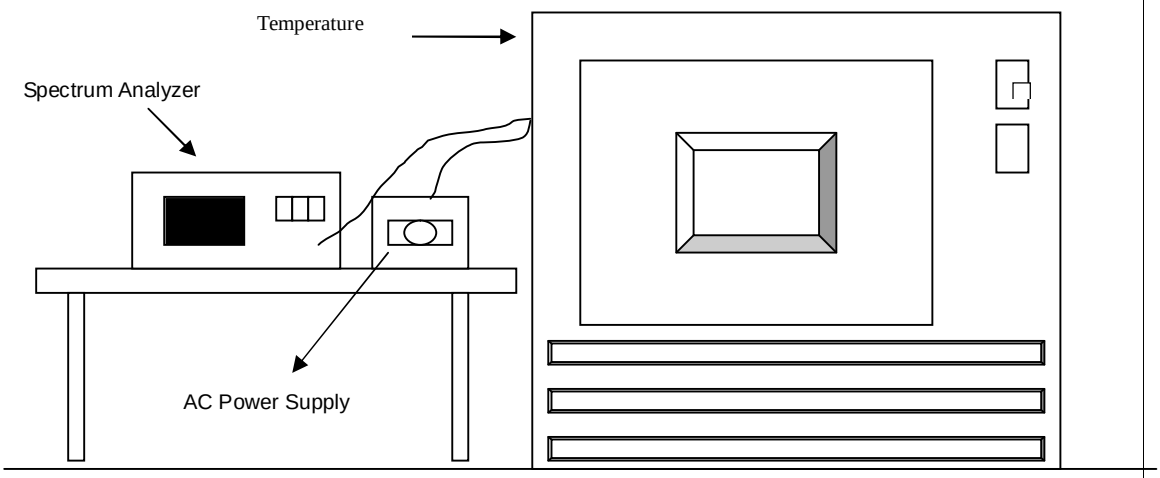
4.6.3 TEST PROCEDURE

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.

4.6.7 TEST RESULTS

Operating frequency: 5240MHz									
Temp. (℃)	Power supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
50	138	5239.9872	-2.4427	5239.9893	-2.0420	5239.9855	-2.7672	5239.9883	-2.2328
	120	5239.9885	-2.1947	5239.9898	-1.9466	5239.9863	-2.6145	5239.9874	-2.4046
	102	5239.9884	-2.2137	5239.9906	-1.7939	5239.9868	-2.5191	5239.989	-2.0992
40	138	5240.0077	1.4695	5240.0035	0.6679	5240.0067	1.2786	5240.0086	1.6412
	120	5240.0081	1.5458	5240.0029	0.5534	5240.0073	1.3931	5240.0084	1.6031
	102	5240.007	1.3359	5240.0023	0.4389	5240.006	1.1450	5240.0091	1.7366
30	138	5239.9973	-0.5153	5239.9938	-1.1832	5239.992	-1.5267	5239.9921	-1.5076
	120	5239.9985	-0.2863	5239.9934	-1.2595	5239.9935	-1.2405	5239.9911	-1.6985
	102	5239.9968	-0.6107	5239.993	-1.3359	5239.992	-1.5267	5239.9909	-1.7366
20	138	5240.0028	0.5344	5239.9973	-0.5153	5239.9999	-0.0191	5239.9956	-0.8397
	120	5240.0028	0.5344	5239.9984	-0.3053	5240.0006	0.1145	5239.9952	-0.9160
	102	5240.0027	0.5153	5239.9967	-0.6298	5240.0003	0.0573	5239.9957	-0.8206
10	138	5239.997	-0.5725	5239.9941	-1.1260	5239.9945	-1.0496	5239.9986	-0.2672
	120	5239.9974	-0.4962	5239.9931	-1.3168	5239.9945	-1.0496	5239.998	-0.3817
	102	5239.997	-0.5725	5239.9931	-1.3168	5239.9952	-0.9160	5239.9975	-0.4771
0	138	5239.9935	-1.2405	5239.9923	-1.4695	5239.9953	-0.8969	5239.9937	-1.2023
	120	5239.9936	-1.2214	5239.9924	-1.4504	5239.9959	-0.7824	5239.9939	-1.1641
	102	5239.9932	-1.2977	5239.9923	-1.4695	5239.9954	-0.8779	5239.994	-1.1450
-10	138	5240.0174	3.3206	5240.0165	3.1489	5240.0148	2.8244	5240.0112	2.1374
	120	5240.0162	3.0916	5240.0156	2.9771	5240.0158	3.0153	5240.0109	2.0802
	102	5240.0158	3.0153	5240.0162	3.0916	5240.016	3.0534	5240.0116	2.2137
-20	138	5239.9972	-0.5344	5239.9959	-0.7824	5239.992	-1.5267	5239.9876	-2.3664
	120	5239.9982	-0.3435	5239.9947	-1.0115	5239.9914	-1.6412	5239.9867	-2.5382
	102	5239.9988	-0.2290	5239.9957	-0.8206	5239.9917	-1.5840	5239.9882	-2.2519
-30	138	5239.9975	-0.4771	5239.9965	-0.6679	5239.9998	-0.0382	5239.9954	-0.8779
	120	5239.9982	-0.3435	5239.9953	-0.8969	5240.0002	0.0382	5239.9951	-0.9351
	102	5239.997	-0.5725	5239.9953	-0.8969	5239.9997	-0.0573	5239.9959	-0.7824

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

Test date : Sep. 07, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011

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

4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz or 200 MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

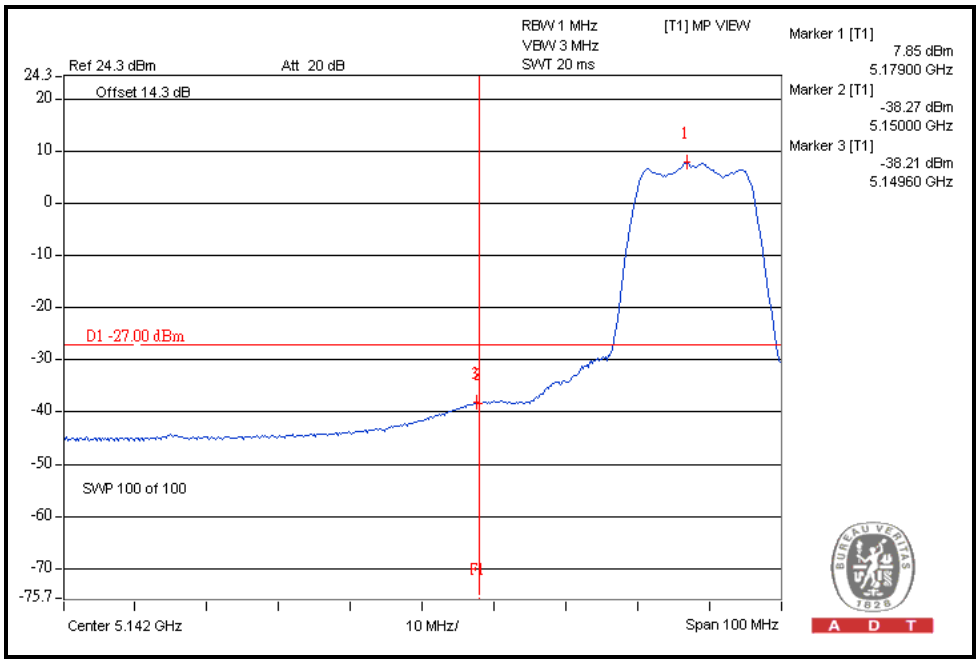
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

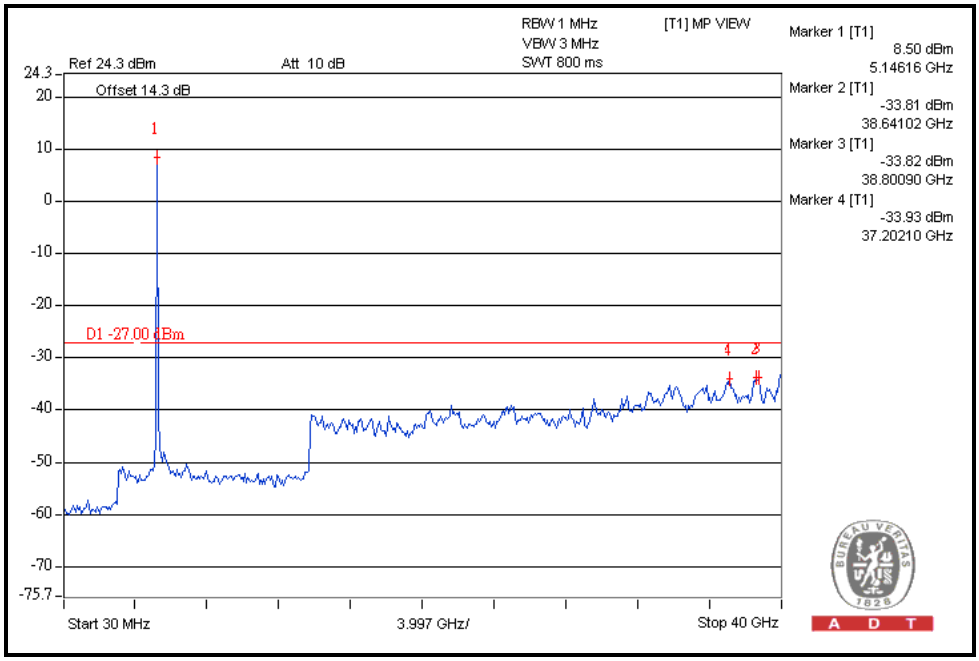
4.7.4 TEST RESULTS

For 5.15 to 5.25GHz band:
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.

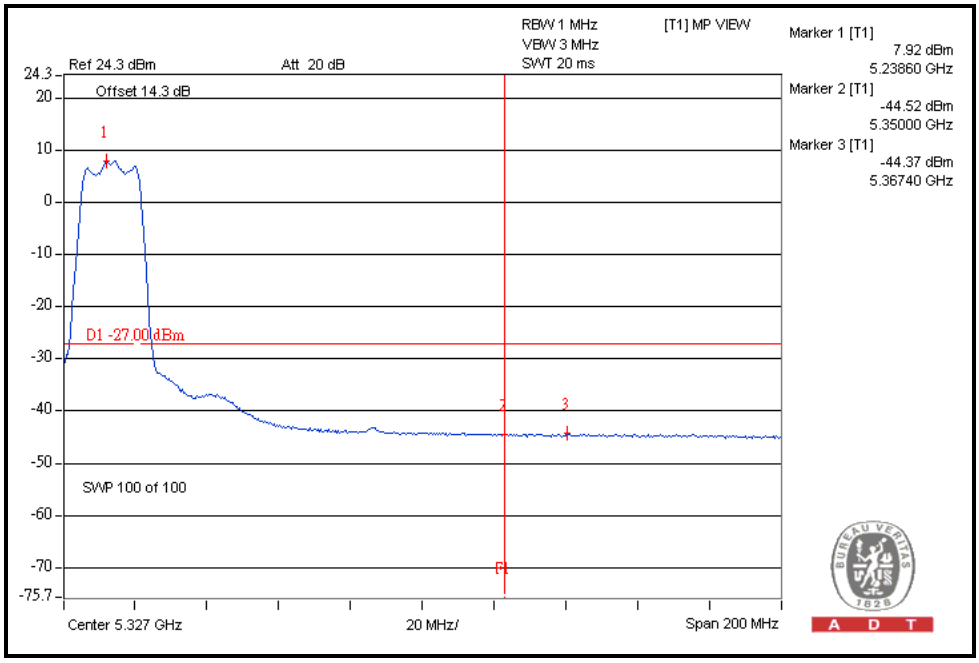
Performing measurements: Measure and add 10 log(N) dB
802.11a OFDM MODULATION

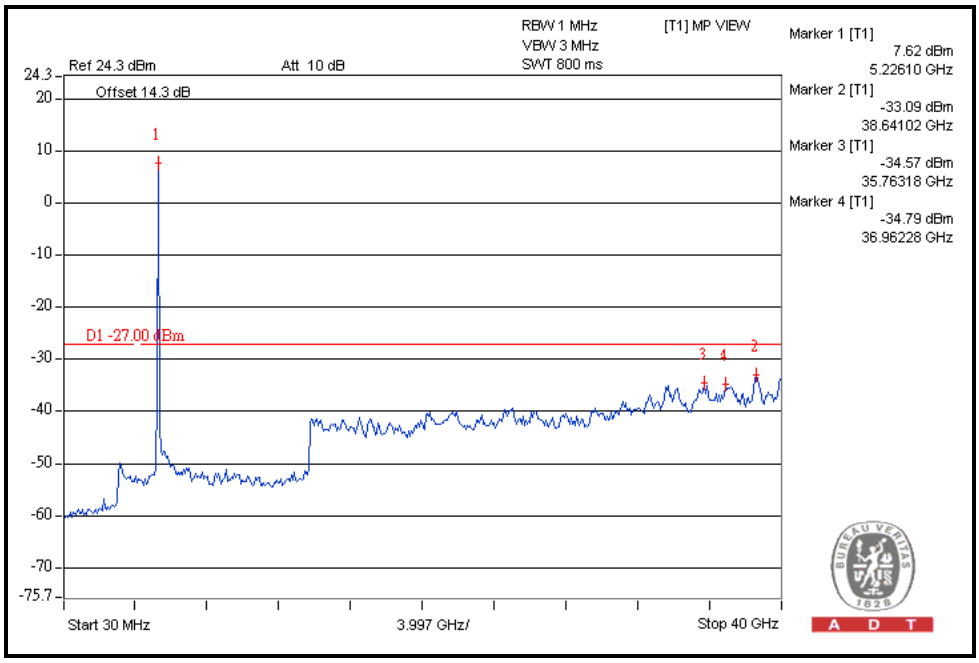
CH36





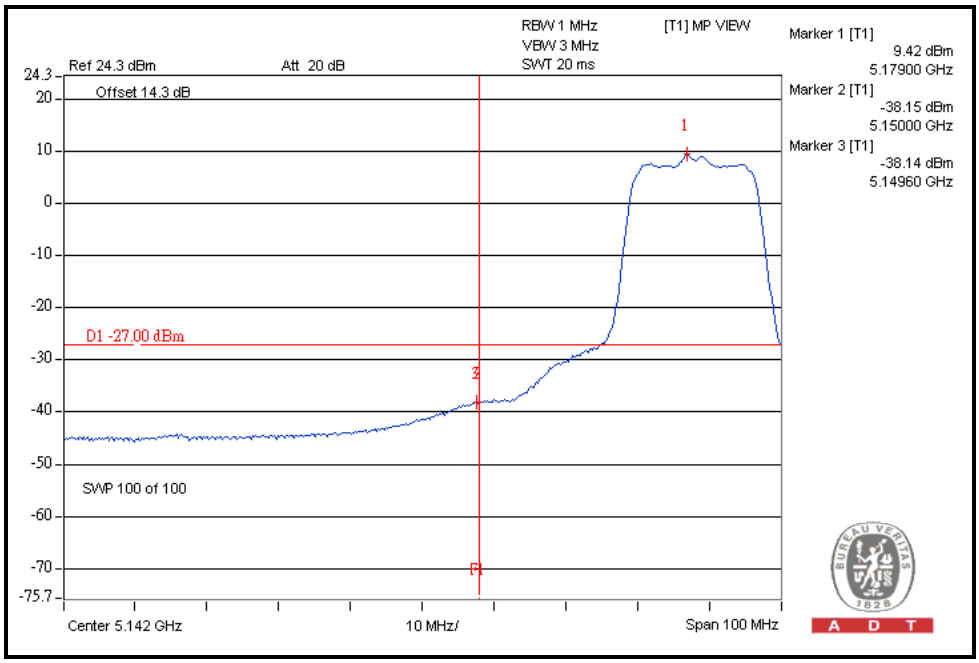
CH48

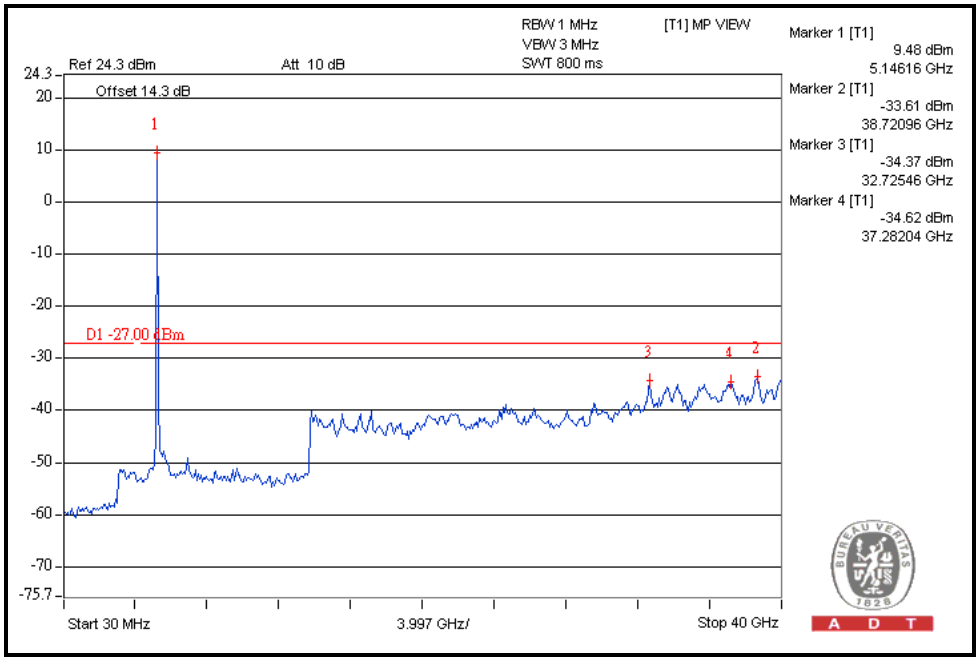

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MP VIEW
Ref 24.3 dBm
Att 20 dB
Offset 14.3 dB
Marker 1 [T1]
7.92 dBm
5.23860 GHz
Marker 2 [T1]
-44.52 dBm
5.35000 GHz
Marker 3 [T1]
-44.37 dBm
5.36740 GHz
D1 -27.00 dBm
SWP 100 of 100
Center 5.327 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MP VIEW
Ref 24.3 dBm
Att 10 dB
Offset 14.3 dB
Marker 1 [T1]
7.62 dBm
5.22610 GHz
Marker 2 [T1]
-33.09 dBm
38.64102 GHz
Marker 3 [T1]
-34.57 dBm
35.76318 GHz
Marker 4 [T1]
-34.79 dBm
36.96228 GHz
D1 -27.00 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

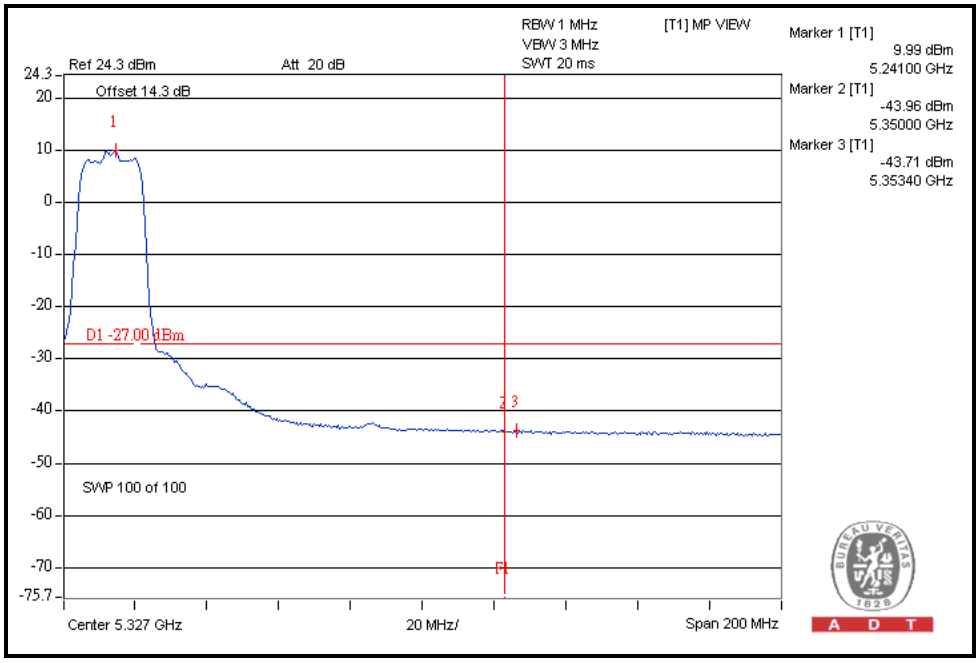
802.11n (20MHz) OFDM MODULATION:

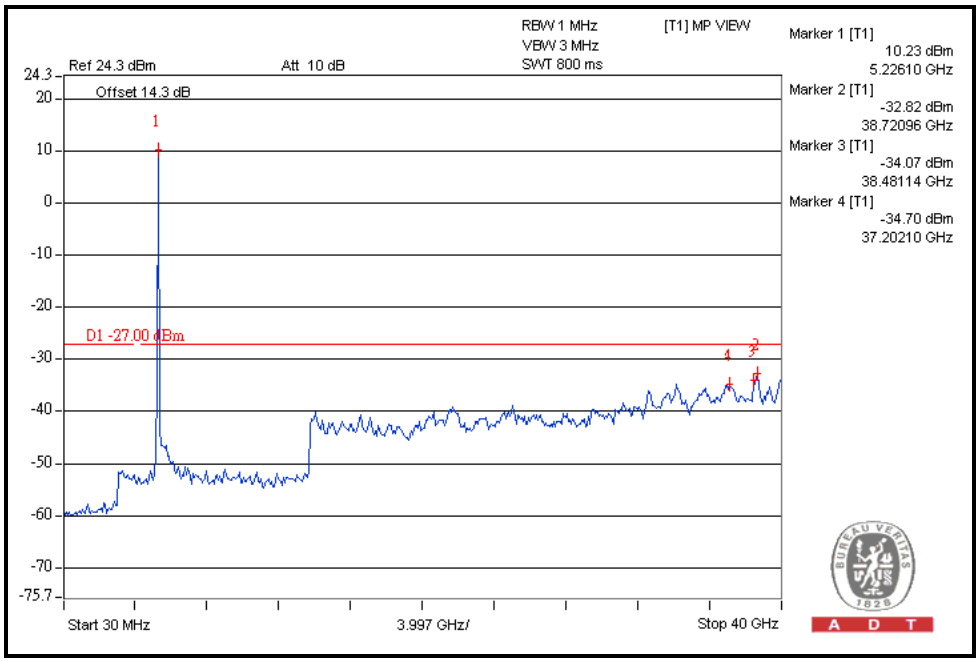
CH36





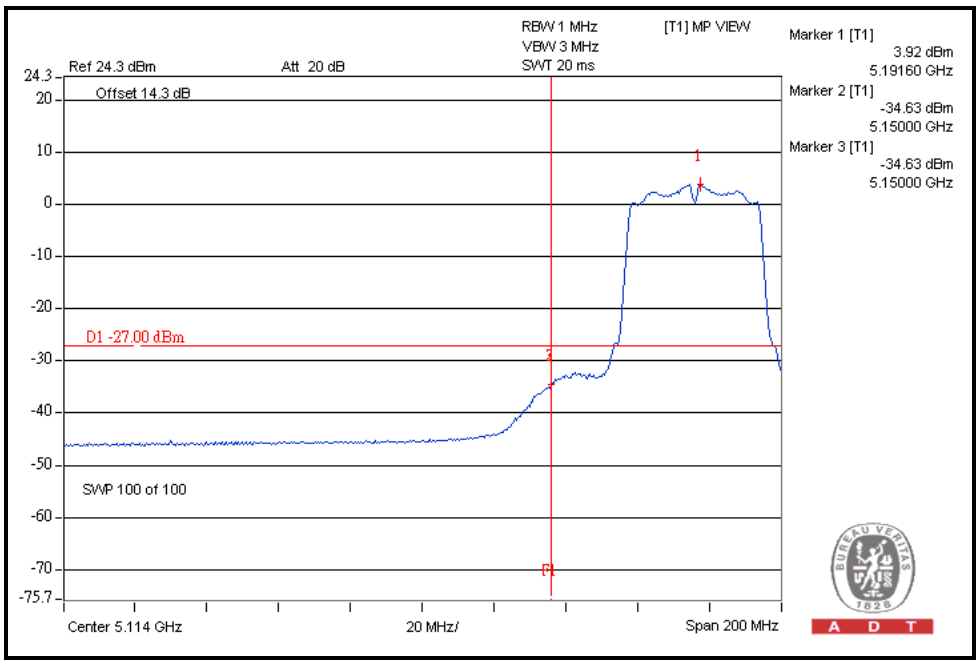
CH48

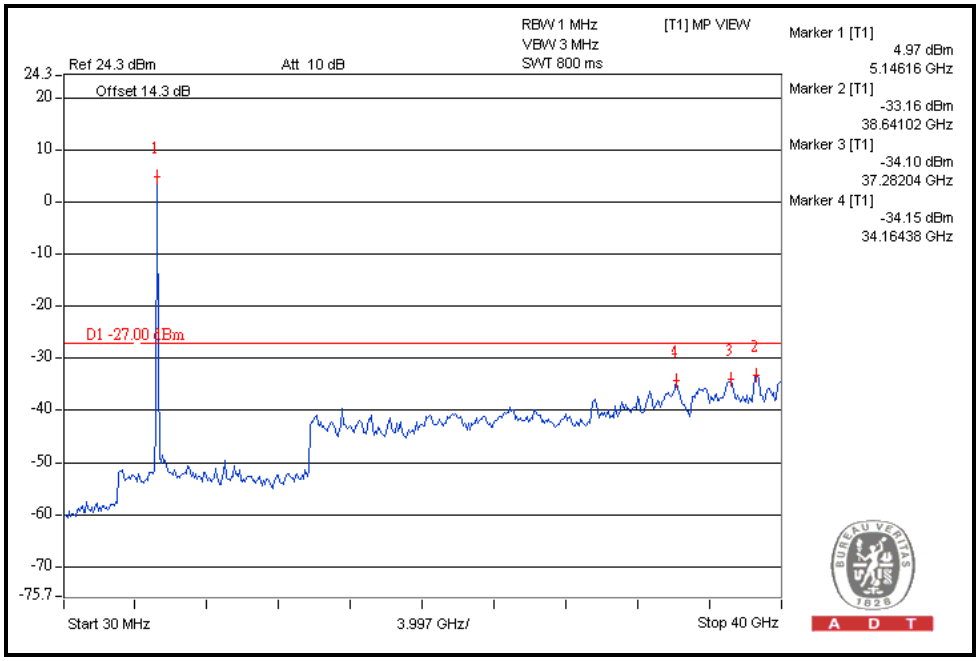

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MP VIEW
Ref 24.3 dBm
Att 20 dB
Offset 14.3 dB
Marker 1 [T1]
9.99 dBm
5.24100 GHz
Marker 2 [T1]
-43.96 dBm
5.35000 GHz
Marker 3 [T1]
-43.71 dBm
5.35340 GHz
D1 -27.00 dBm
SWP 100 of 100
Center 5.327 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MP VIEW
Ref 24.3 dBm
Att 10 dB
Offset 14.3 dB
Marker 1 [T1]
10.23 dBm
5.22610 GHz
Marker 2 [T1]
-32.82 dBm
38.72096 GHz
Marker 3 [T1]
-34.07 dBm
38.48114 GHz
Marker 4 [T1]
-34.70 dBm
37.20210 GHz
D1 -27.00 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

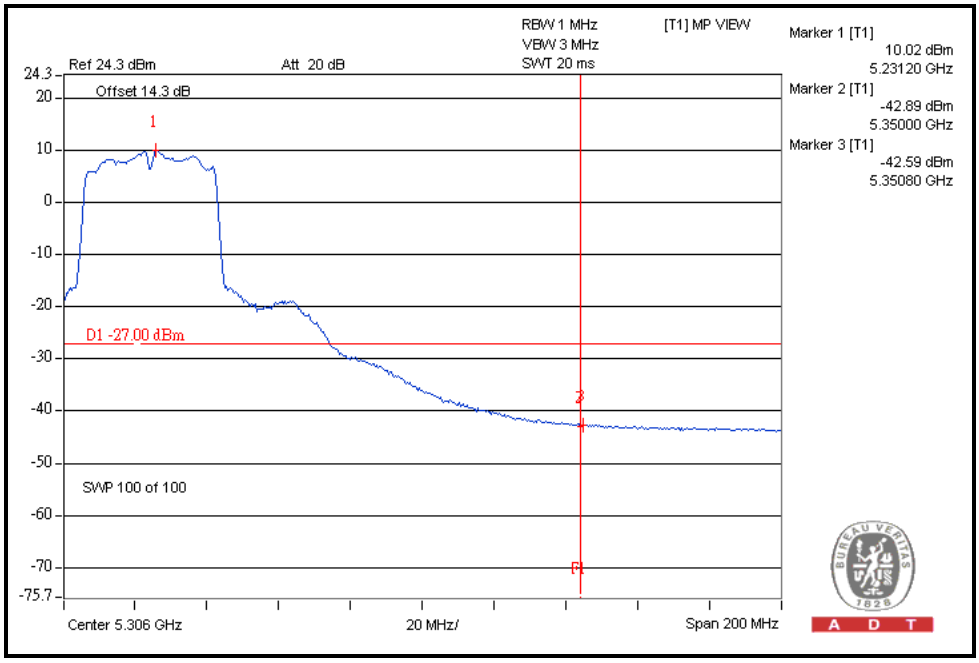
802.11n (40MHz) OFDM MODULATION:

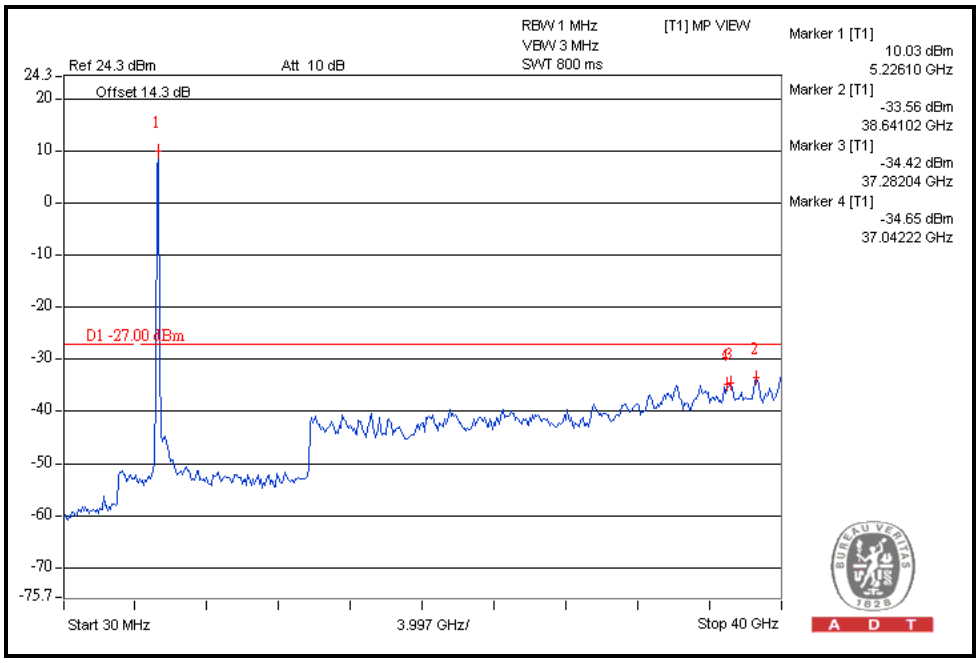
CH38





CH46


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MP VIEW
Ref 24.3 dBm
Att 20 dB
Offset 14.3 dB
Marker 1 [T1]
10.02 dBm
5.23120 GHz
Marker 2 [T1]
-42.89 dBm
5.35000 GHz
Marker 3 [T1]
-42.59 dBm
5.35080 GHz
D1 -27.00 dBm
SWP 100 of 100
Center 5.306 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MP VIEW
Ref 24.3 dBm
Att 10 dB
Offset 14.3 dB
Marker 1 [T1]
10.03 dBm
5.22610 GHz
Marker 2 [T1]
-33.56 dBm
38.64102 GHz
Marker 3 [T1]
-34.42 dBm
37.28204 GHz
Marker 4 [T1]
-34.65 dBm
37.04222 GHz
D1 -27.00 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5. INFORMATION ON THE TESTING LABORATORIES

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

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

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

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

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

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

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

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

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

--- END ---