FCC TEST REPORT (15.407)

REPORT NO.:	RF991025E08-1
MODEL NO.:	ARG-1220
FCC ID:	VYXWIFI-011
RECEIVED:	Oct. 25, 2010
TESTED:	Aug. 31 to Dec. 05, 2011
ISSUED:	Dec.. 30, 2011
APPLICANT:	Argtek Communication Inc.
ADDRESS:	8F-9,No. 4, Lane 609,Sec. 5, Chung Hsin Rd. San Chung City, Taipei Hsien
ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS :	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF991025E08-1	Original release	Dec. 30, 2011

1. CERTIFICATION

PRODUCT:	802.11a/b/g/n 300Mbps AP Router
BRAND NAME:	ARGtek
MODEL NO.:	ARG-1220
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	Argtek Communication Inc.
TESTED:	Aug. 31 to Dec. 05, 2011
STANDARDS:	FCC Part 15, Subpart E (Section 15.407) ANSI C63.4-2003 ANSI C63.10-2009

The above equipment (Model: ARG-1220) 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:** *Dec. 30, 2011*
(Lori Chung, Specialist)

APPROVED BY : _____ , **DATE:** *Dec. 30, 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 -5.50dB at 0.509MHz
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 -0.5dB at 5456.83MHz
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	Antenna connector is RP-SMA not 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.

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)	3.81 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	802.11a/b/g/n 300Mbps AP Router
MODEL NO.	ARG-1220
FCC ID	VYXWIFI-011
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	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11a: up to 54Mbps 802.11n(20MHz): up to 135Mbps 802.11n(40MHz): up to 150Mbps
OPERATING FREQUENCY	**For 15.407** 5GHz: 5.18 ~ 5.24GHz
	For 15.247 2.4GHz: 2.412 ~ 2.462GHz 5GHz: 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: 7.9mW 802.11n (20MHz): 8.1mW 802.11n (40MHz): 6.5mW **For 15.247(2.4GHz)** 802.11b: 14.1mW 802.11g: 144.5mW 802.11n (20MHz): 134.9mW 802.11n (40MHz): 128.8mW **For 15.247(5GHz)** 802.11a: 1.3mW 802.11n (20MHz): 2.0mW 802.11n (40MHz): 1.9mW
ANTENNA TYPE	Please see note

DATA CABLE	NA
I/O PORTS	LAN port × 4 WAN port × 1
ASSOCIATED DEVICES	Adapter × 1

NOTE:

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

Set	Antenna Type	Gain (dBi)	Antenna Connector	Frequency Range	Function
1	Dipole	5	RP-SMA	2400 ~ 2483	Tx / Rx
2	Dipole	5	RP-SMA	5725 ~ 5850	Tx / Rx
3	PCB	0	RP-SMA	5725 ~ 5850	Rx only

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

BRAND	SINO-AMERICAN
MODEL	SA110C-12HS-I
INPUT POWER	AC 100-240V, 50-60Hz, 0.3A
OUTPUT POWER	DC 12V, 1A DC output cable: 2m, unshielded with one core

3. 2.4GHz and 5GHz technology can not transmit at same time.
4. The EUT is 1 * 2 spatial SIMO (1Tx & 2Rx) without beam forming function.
5. 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	
-	√	√	√	√	√	-

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

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (MBPS)
802.11n (20MHz)	36 to 48	36	OFDM	BPSK	6.5

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)
802.11n (20MHz)	36 to 48	36	OFDM	BPSK	6.5

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 75%RH	120Vac, 60Hz	Kyle Huang
RE≥1G	26deg. C, 69%RH	120Vac, 60Hz	Nelson Teng
RE<1G	23deg. C, 70%RH	120Vac, 60Hz	Evan Huang
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 (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.

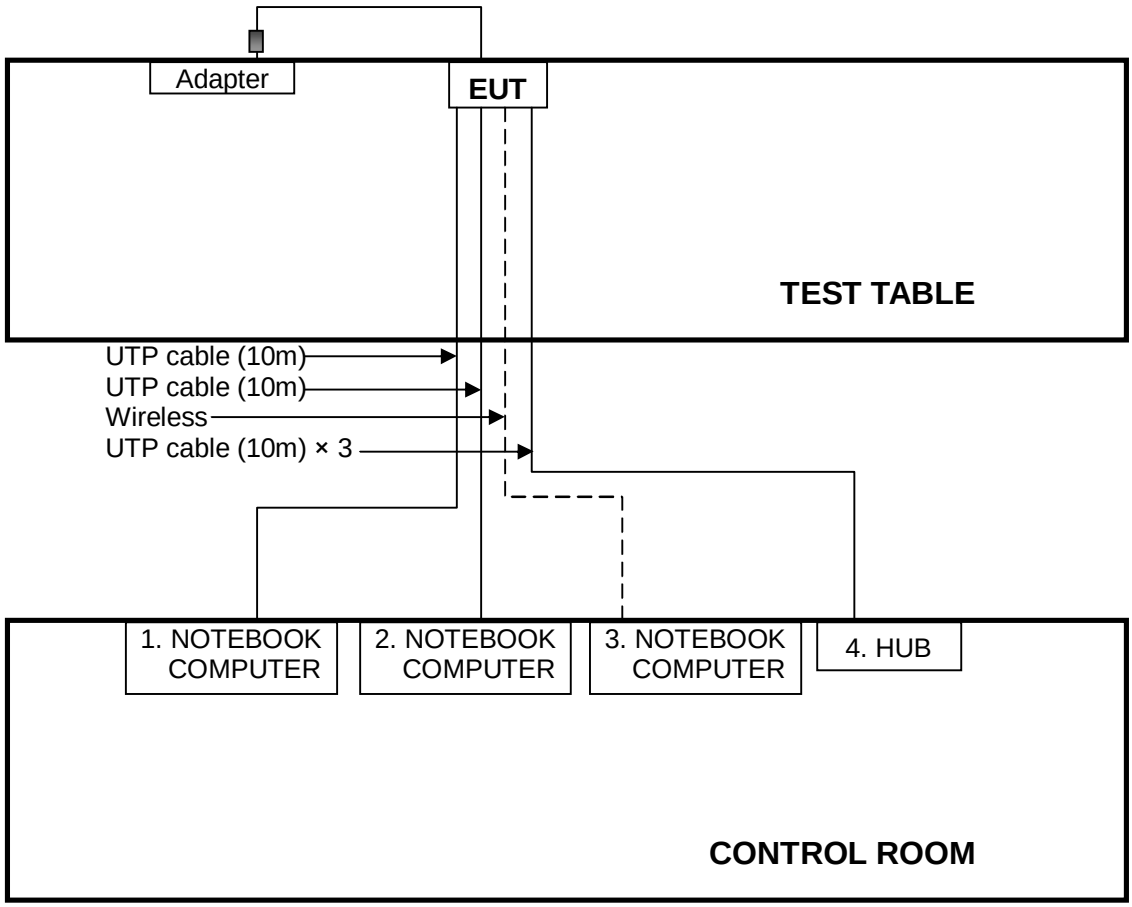
For conducted test					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	12252644560	FCC DoC
2	NOTEBOOK COMPUTER	DELL	D600	N09-00319	FCC DoC
3	NOTEBOOK COMPUTER	DELL	E6420	B92T3R1	FCC DoC
4	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC
For other test items					
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP27L	6YLB32S	FCC DoC
3	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC

For conducted test	
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable(10m)
2	UTP cable(10m)
3	NA
4	UTP cable(10m)
For other test items	
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable(1.8m)
2	UTP cable(1.8m)
3	UTP cable(10m)

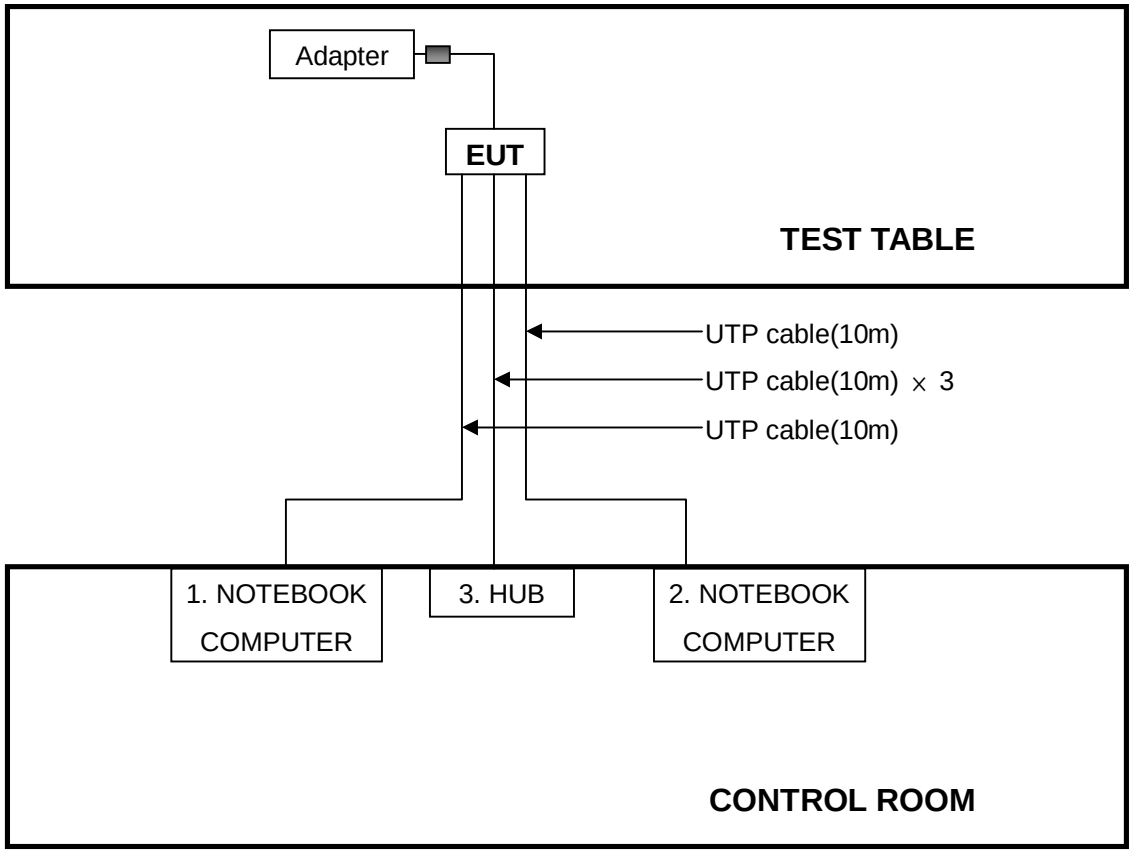
NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For conducted emission test



For other test items:



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.

4.1.2 TEST INSTRUMENTS

Test date: Nov. 29, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 02, 2011	Mar. 01, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 16, 2011	Sep. 15, 2012
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 10, 2011	June 09, 2012
RF Cable (JYEBAO)	5DFB	CONCAB-003	Aug. 05, 2011	Aug. 04, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

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

4.1.3 TEST PROCEDURES

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

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

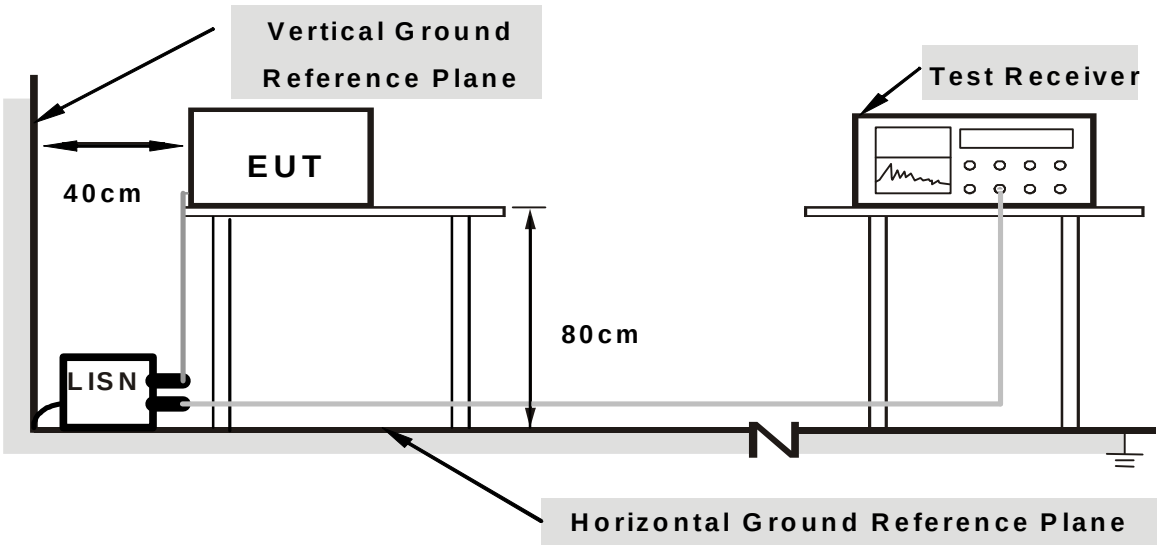
c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

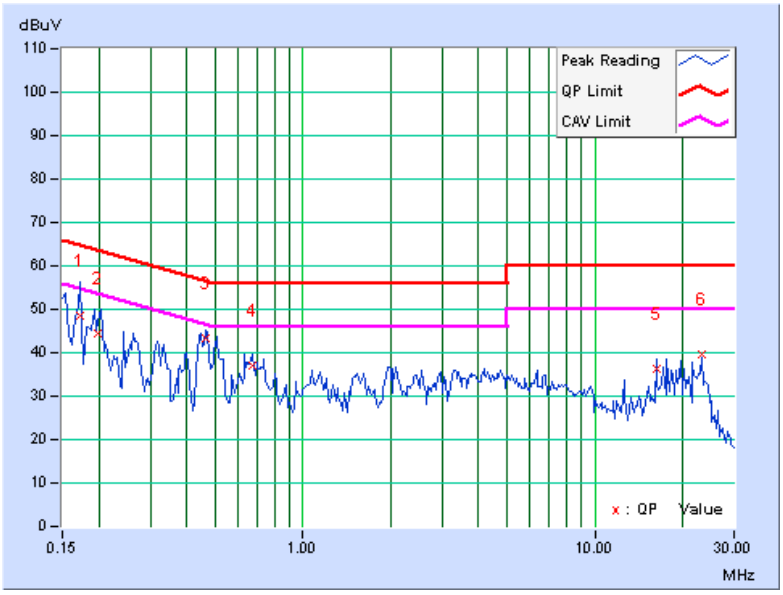
1. Placed the EUT on testing table.
2. The support units 1-3(NB) ran test program “Ping.exe” to enable EUT under transmission/receiving condition continuously via wireless and UTP cables.
3. Support unit 4 (HUB) was connected to EUT via UTP cables to simulate real connection.

4.1.7 TEST RESULTS

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	0.173	0.06	48.39	25.21	48.45	25.27	64.79	54.79	-16.34	-29.52
2	0.197	0.06	44.27	37.00	44.33	37.06	63.72	53.72	-19.39	-16.66
3	0.466	0.08	43.20	40.60	43.28	40.68	56.58	46.58	-13.30	-5.90
4	0.670	0.09	37.03	33.98	37.12	34.07	56.00	46.00	-18.88	-11.93
5	16.230	0.87	35.51	30.96	36.38	31.83	60.00	50.00	-23.62	-18.17
6	23.129	1.09	38.55	37.33	39.64	38.42	60.00	50.00	-20.36	-11.58

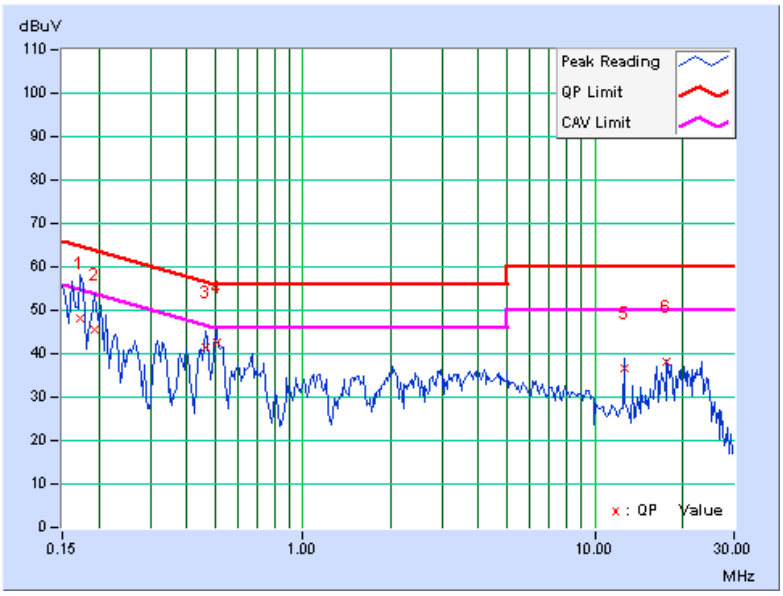
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading 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	0.173	0.07	48.04	23.15	48.11	23.22	64.79	54.79	-16.68	-31.57
2	0.193	0.08	45.31	40.44	45.39	40.52	63.91	53.91	-18.52	-13.39
3	0.466	0.09	41.34	38.79	41.43	38.88	56.58	46.58	-15.15	-7.70
4	**0.509**	**0.09**	**42.42**	**40.41**	**42.51**	**40.50**	**56.00**	**46.00**	**-13.49**	**-5.50**
5	12.629	0.69	36.05	32.50	36.74	33.19	60.00	50.00	-23.26	-16.81
6	17.695	0.92	37.39	33.59	38.31	34.51	60.00	50.00	-21.69	-15.49

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.



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

For below 1GHz: test date: Dec. 05, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 14, 2011	Apr. 13, 2012
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
Software	ADT_Radiated_ V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.

For above 1GHz: test date: Aug. 31, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 16, 2010	Nov. 15, 2011
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 14, 2011	Apr. 13, 2012
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 15, 2010	Nov. 14, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	Oct. 08, 2010	Oct. 07, 2011
Software	ADT_Radiated_ V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.

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 meters chamber 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 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.

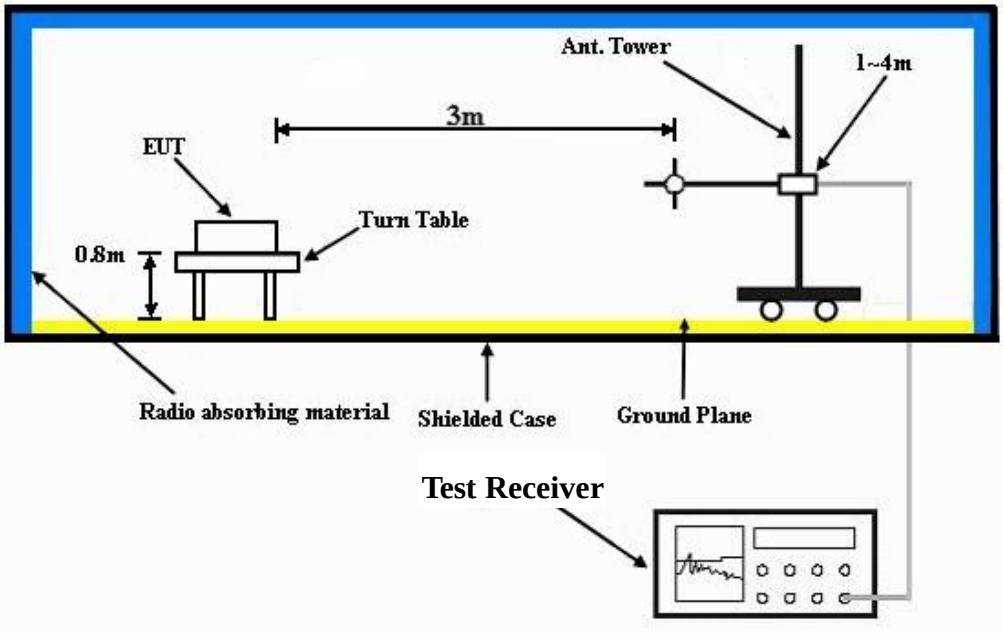
NOTE:

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

1. Turn on the power of all equipment.
2. Support units 1 (Notebook Computer) run a test program “RT2880QA.exe” to enable of EUT via UTP cables continuously.

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	TESTED BY	Evan 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	38.00	28.5 QP	40.0	-11.5	1.22 H	32	14.64	13.87
2	120.00	34.1 QP	43.5	-9.4	1.02 H	112	21.45	12.64
3	125.00	35.9 QP	43.5	-7.6	1.00 H	108	22.88	13.06
4	250.00	42.7 QP	46.0	-3.3	1.03 H	111	29.48	13.26
5	500.00	44.3 QP	46.0	-1.7	1.25 H	236	24.34	19.92
6	750.00	42.1 QP	46.0	-3.9	1.01 H	360	18.27	23.87
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	38.00	28.4 QP	40.0	-11.7	1.25 V	30	14.48	13.87
2	120.00	34.4 QP	43.5	-9.1	1.02 V	110	21.72	12.64
3	125.00	35.9 QP	43.5	-7.6	1.01 V	109	22.88	13.06
4	250.00	43.0 QP	46.0	-3.0	1.03 V	111	29.75	13.26
5	500.00	44.3 QP	46.0	-1.7	1.25 V	236	24.34	19.92
6	750.00	41.6 QP	46.0	-4.4	1.02 V	222	17.69	23.87

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	26deg. C, 69%RH	TESTED BY	Nelson Teng

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	4144.00	55.6 PK	74.0	-18.4	1.42 H	35	19.05	36.55
2	4144.00	46.3 AV	54.0	-7.7	1.42 H	35	9.75	36.55
3	5150.00	57.7 PK	74.0	-16.3	1.28 H	246	17.76	39.94
4	5150.00	45.1 AV	54.0	-8.9	1.28 H	246	5.16	39.94
5	*5180.00	91.2 PK			1.28 H	246	51.18	40.02
6	*5180.00	81.2 AV			1.28 H	246	41.18	40.02
7	#10360.00	50.5 PK	68.3	-17.8	1.22 H	81	3.97	46.53
8	15540.00	62.5 PK	74.0	-11.5	1.22 H	103	11.13	51.37
9	15540.00	49.1 AV	54.0	-4.9	1.22 H	103	-2.27	51.37
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	4144.00	55.6 PK	74.0	-18.4	1.65 V	39	19.05	36.55
2	4144.00	50.3 AV	54.0	-3.7	1.65 V	39	13.75	36.55
3	5150.00	67.6 PK	74.0	-6.4	1.27 V	306	27.66	39.94
4	5150.00	52.2 AV	54.0	-1.8	1.27 V	306	12.26	39.94
5	*5180.00	105.8 PK			1.25 V	305	65.78	40.02
6	*5180.00	95.6 AV			1.25 V	305	55.58	40.02
7	#10360.00	52.9 PK	68.3	-15.4	1.23 V	115	6.37	46.53
8	15540.00	62.2 PK	74.0	-11.8	1.20 V	103	10.83	51.37
9	15540.00	49.7 AV	54.0	-4.3	1.20 V	103	-1.67	51.37

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	26deg. C, 69%RH	TESTED BY	Nelson Teng

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	4160.00	55.7 PK	74.0	-18.3	1.43 H	62	19.09	36.61
2	4160.00	46.4 AV	54.0	-7.6	1.43 H	62	9.79	36.61
3	*5200.00	87.6 PK			1.20 H	242	47.53	40.07
4	*5200.00	77.9 AV			1.20 H	242	37.83	40.07
5	#10400.00	50.7 PK	68.3	-17.6	1.19 H	94	4.13	46.57
6	15600.00	62.5 PK	74.0	-11.5	1.23 H	95	11.03	51.47
7	15600.00	48.8 AV	54.0	-5.2	1.23 H	95	-2.67	51.47
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	4160.00	55.7 PK	74.0	-18.3	1.61 V	43	19.09	36.61
2	4160.00	50.7 AV	54.0	-3.3	1.61 V	43	14.09	36.61
3	*5200.00	102.4 PK			1.10 V	255	62.33	40.07
4	*5200.00	92.4 AV			1.10 V	255	52.33	40.07
5	5453.00	63.7 PK	74.0	-10.3	1.33 V	330	22.96	40.74
6	5453.00	53.1 AV	54.0	-0.9	1.33 V	330	12.36	40.74
7	#10400.00	53.2 PK	68.3	-15.1	1.20 V	110	6.63	46.57
8	15600.00	62.4 PK	74.0	-11.6	1.21 V	116	10.93	51.47
9	15600.00	50.0 AV	54.0	-4.0	1.21 V	116	-1.47	51.47

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.

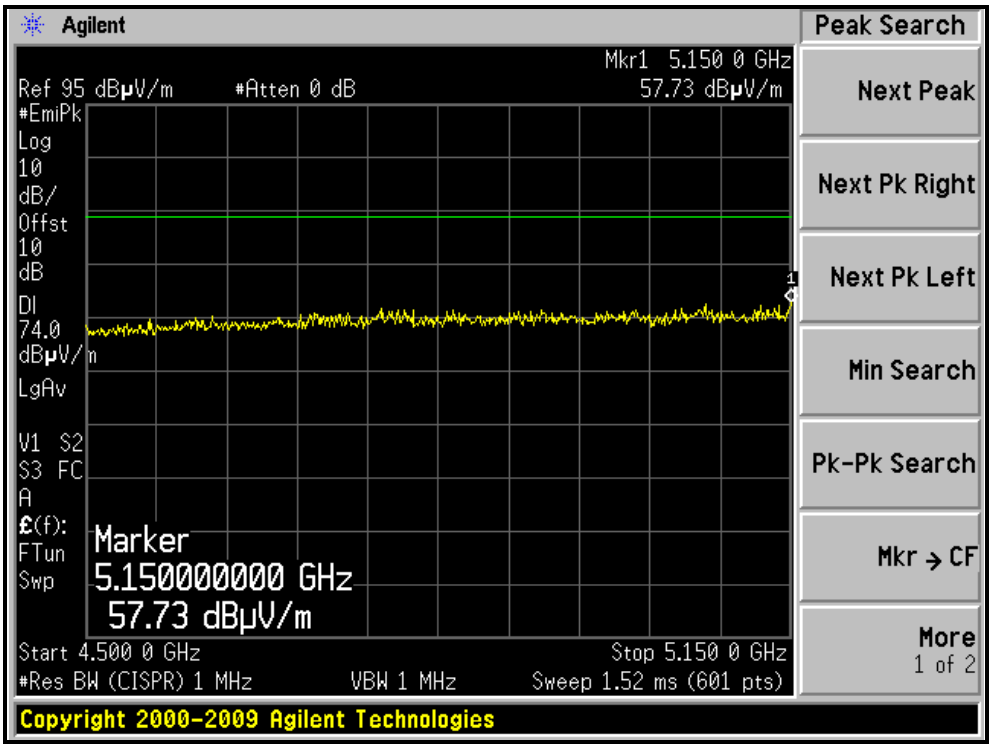
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 69%RH	TESTED BY	Nelson Teng

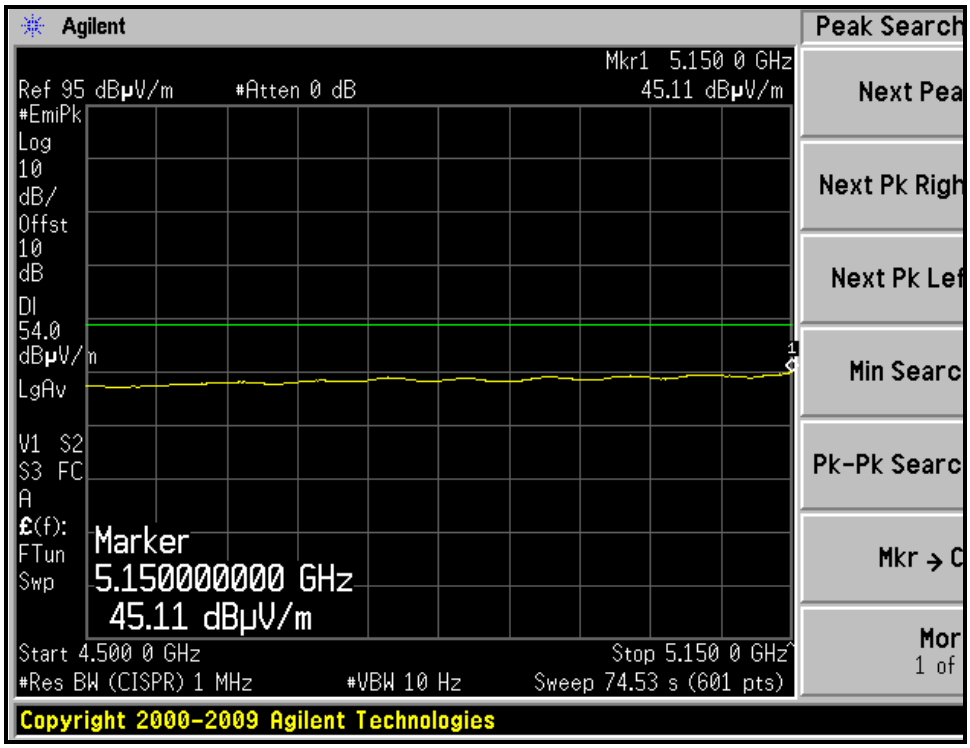
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4192.00	55.4 PK	74.0	-18.6	1.44 H	57	18.67	36.73
2	4192.00	46.9 AV	54.0	-7.1	1.44 H	57	10.17	36.73
3	*5240.00	89.2 PK			1.25 H	237	49.03	40.17
4	*5240.00	79.1 AV			1.25 H	237	38.93	40.17
5	5460.00	57.6 PK	74.0	-16.4	1.25 H	237	16.84	40.76
6	5460.00	45.5 AV	54.0	-8.5	1.25 H	237	4.74	40.76
7	#10480.00	51.5 PK	68.3	-16.8	1.22 H	97	4.83	46.67
8	15720.00	62.8 PK	74.0	-11.2	1.23 H	91	11.29	51.51
9	15720.00	49.2 AV	54.0	-4.8	1.23 H	91	-2.31	51.51
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	4192.00	56.1 PK	74.0	-17.9	1.84 V	29	19.37	36.73
2	4192.00	50.4 AV	54.0	-3.6	1.84 V	29	13.67	36.73
3	*5240.00	104.2 PK			1.26 V	319	64.03	40.17
4	*5240.00	93.7 AV			1.26 V	319	53.53	40.17
5	5455.23	59.8 PK	74.0	-14.2	1.23 V	327	19.05	40.75
6	5455.23	48.1 AV	54.0	-5.9	1.23 V	327	7.35	40.75
7	#10480.00	52.7 PK	68.3	-15.6	1.18 V	118	6.03	46.67
8	15720.00	62.5 PK	74.0	-11.5	1.22 V	109	10.99	51.51
9	15720.00	50.3 AV	54.0	-3.7	1.22 V	109	-1.21	51.51

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

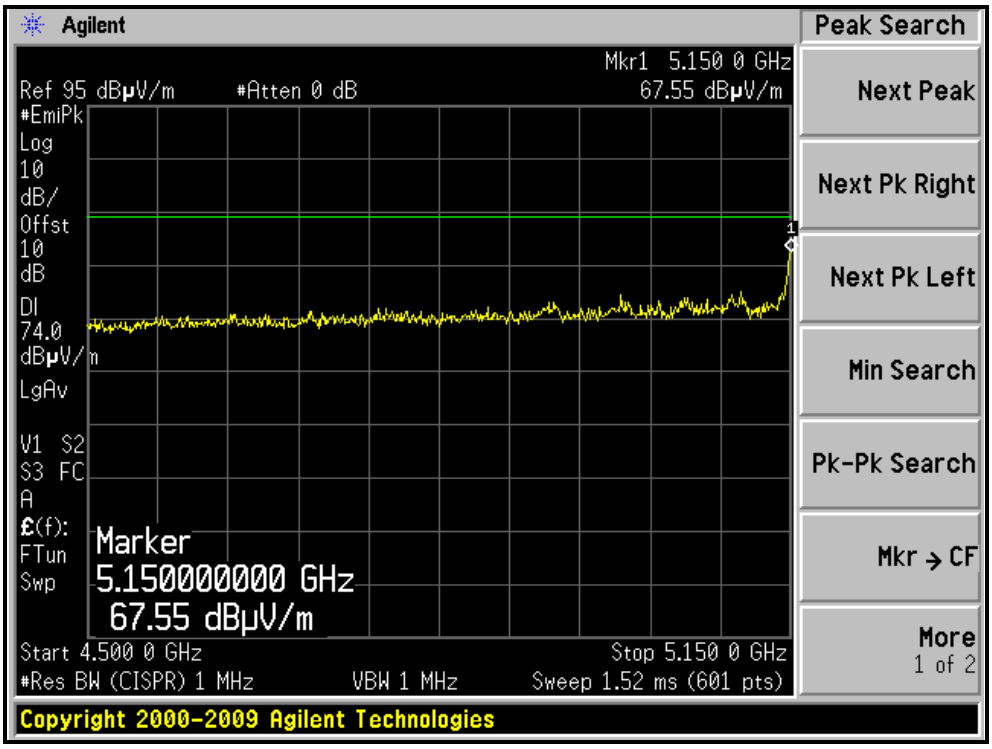
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

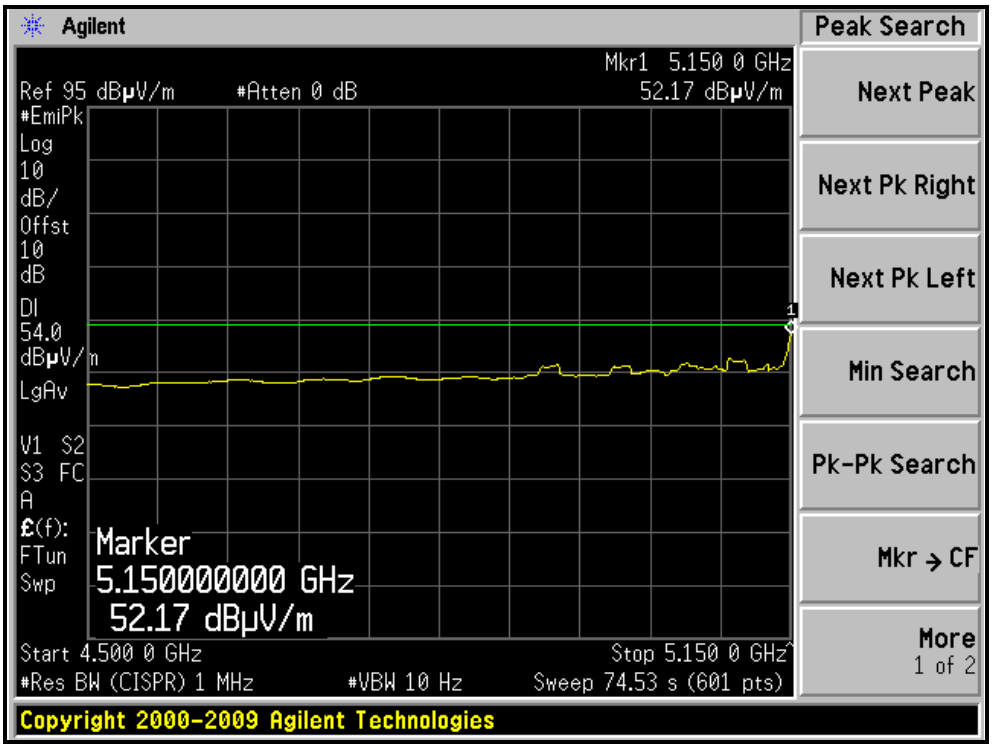
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)



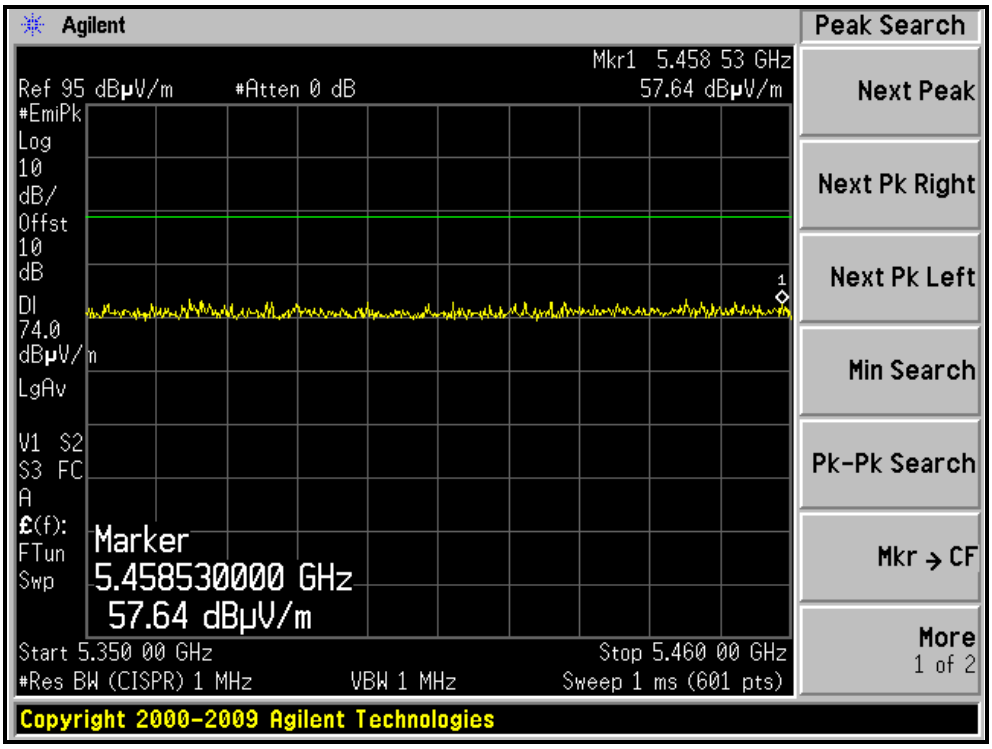


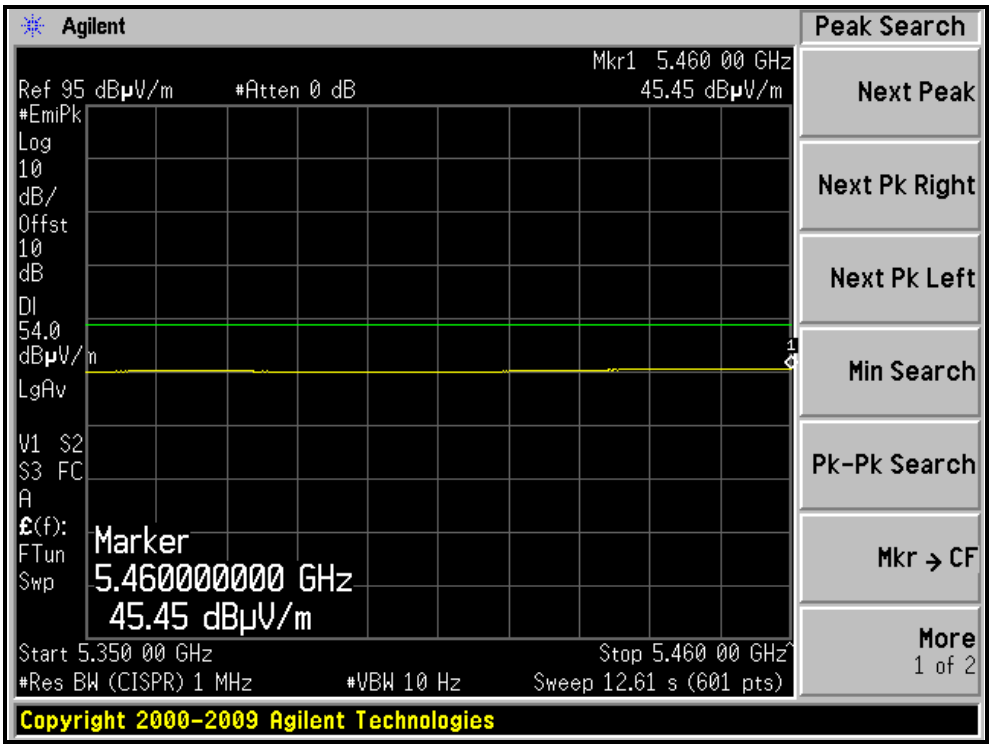
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





RESTRICTED BANDEDGE (802.11a MODE, CH48, HORIZONTAL)





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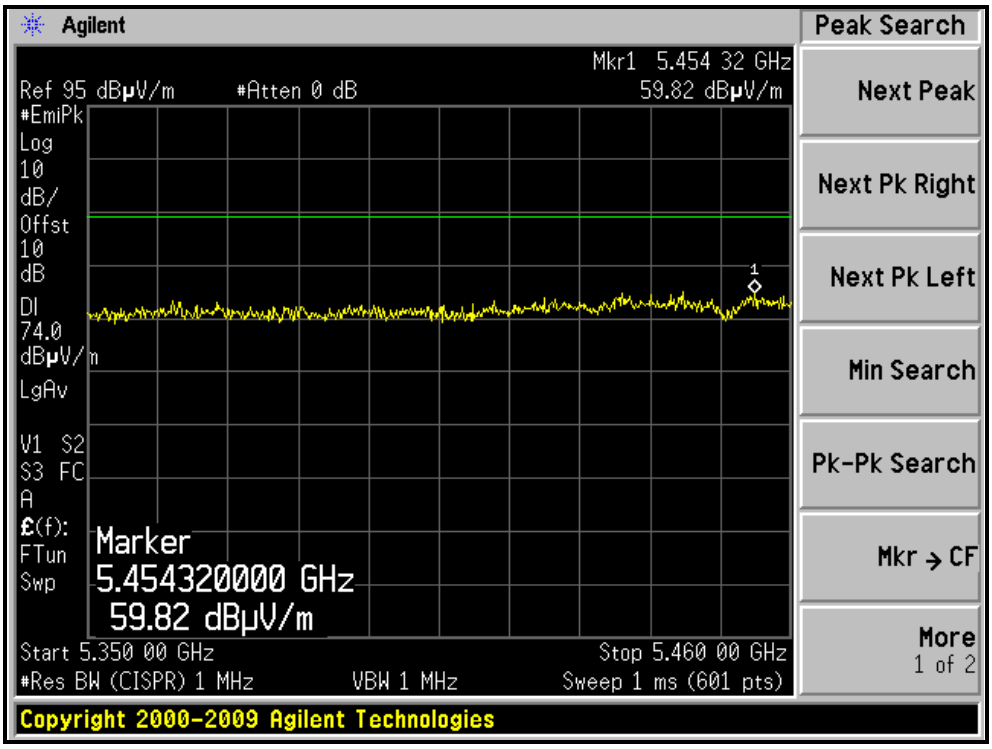
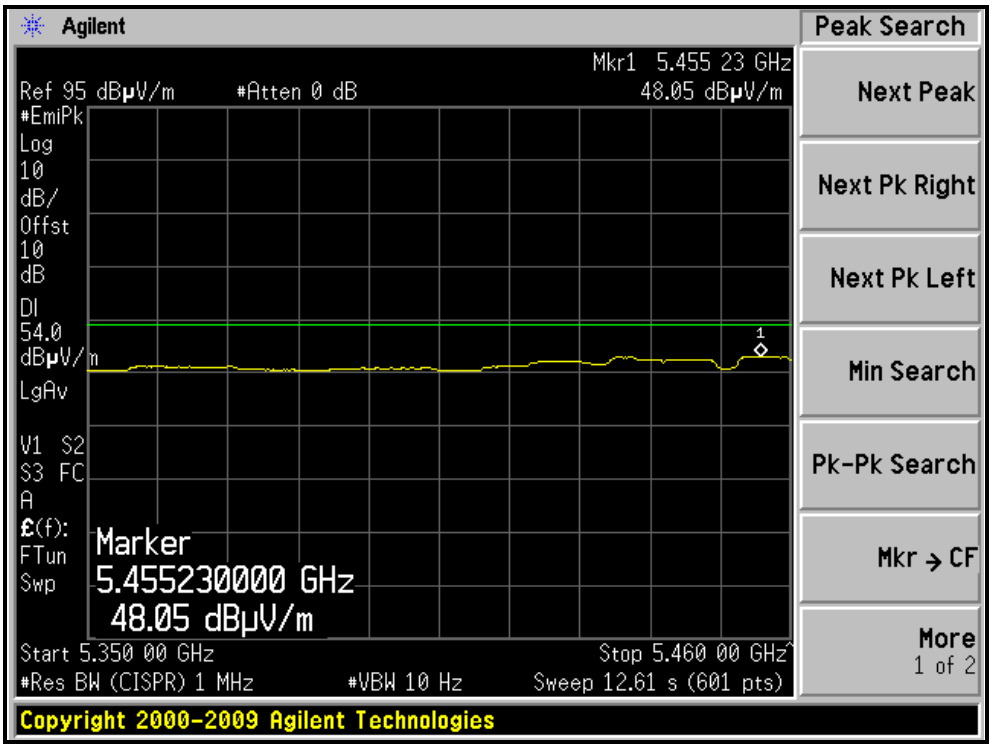




802.11n (20MHz) OFDM MODULATION

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	26deg. C, 69%RH	TESTED BY	Nelson Teng

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	4144.00	55.6 PK	74.0	-18.4	1.47 H	44	19.05	36.55
2	4144.00	46.4 AV	54.0	-7.6	1.47 H	44	9.85	36.55
3	5150.00	57.6 PK	74.0	-16.4	1.29 H	245	17.66	39.94
4	5150.00	45.3 AV	54.0	-8.7	1.29 H	245	5.36	39.94
5	*5180.00	88.7 PK			1.29 H	245	48.68	40.02
6	*5180.00	79.1 AV			1.29 H	245	39.08	40.02
7	#10360.00	50.9 PK	68.3	-17.4	1.18 H	81	4.37	46.53
8	15540.00	62.3 PK	74.0	-11.7	1.23 H	91	10.93	51.37
9	15540.00	48.8 AV	54.0	-5.2	1.23 H	91	-2.57	51.37
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	4144.00	56.4 PK	74.0	-17.6	1.66 V	37	19.85	36.55
2	4144.00	50.7 AV	54.0	-3.3	1.66 V	37	14.15	36.55
3	5150.00	70.5 PK	74.0	-3.5	1.37 V	181	30.56	39.94
4	5150.00	52.4 AV	54.0	-1.6	1.37 V	181	12.46	39.94
5	*5180.00	103.6 PK			1.32 V	171	63.58	40.02
6	*5180.00	94.2 AV			1.32 V	171	54.18	40.02
7	#10360.00	52.7 PK	68.3	-15.6	1.25 V	128	6.17	46.53
8	15540.00	62.7 PK	74.0	-11.3	1.17 V	95	11.33	51.37
9	15540.00	50.0 AV	54.0	-4.0	1.17 V	95	-1.37	51.37

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	26deg. C, 69%RH	TESTED BY	Nelson Teng

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	4160.00	55.9 PK	74.0	-18.1	1.36 H	22	19.29	36.61
2	4160.00	46.3 AV	54.0	-7.7	1.36 H	22	9.69	36.61
3	*5200.00	87.4 PK			1.27 H	238	47.33	40.07
4	*5200.00	77.7 AV			1.27 H	238	37.63	40.07
5	#10400.00	51.0 PK	68.3	-17.3	1.18 H	75	4.43	46.57
6	15600.00	62.2 PK	74.0	-11.8	1.26 H	105	10.73	51.47
7	15600.00	48.9 AV	54.0	-5.1	1.26 H	105	-2.57	51.47
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	4160.00	56.2 PK	74.0	-17.8	1.67 V	44	19.59	36.61
2	4160.00	50.6 AV	54.0	-3.4	1.67 V	44	13.99	36.61
3	*5200.00	101.8 PK			1.10 V	147	61.73	40.07
4	*5200.00	92.4 AV			1.10 V	147	52.33	40.07
5	5456.83	62.3 PK	74.0	-11.7	1.33 V	186	21.55	40.75
6	**5456.83**	**53.5 AV**	**54.0**	**-0.5**	**1.33 V**	**186**	**12.75**	**40.75**
7	#10400.00	53.6 PK	68.3	-14.7	1.26 V	125	7.03	46.57
8	15600.00	62.6 PK	74.0	-11.4	1.16 V	106	11.13	51.47
9	15600.00	50.4 AV	54.0	-3.6	1.16 V	106	-1.07	51.47

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.

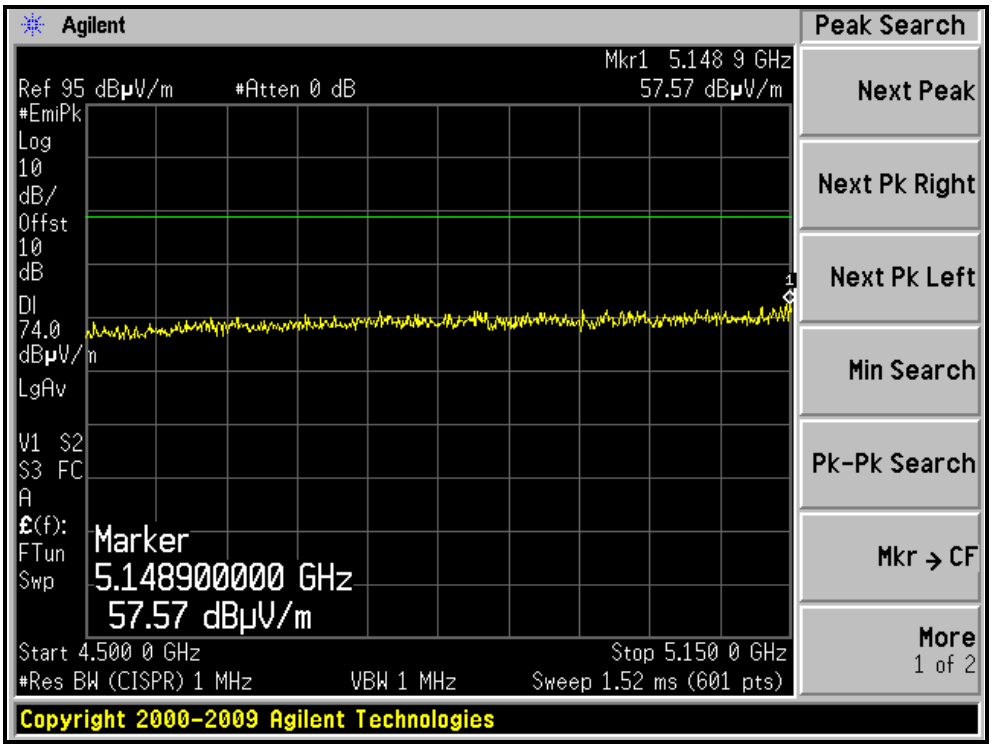
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 69%RH	TESTED BY	Nelson Teng

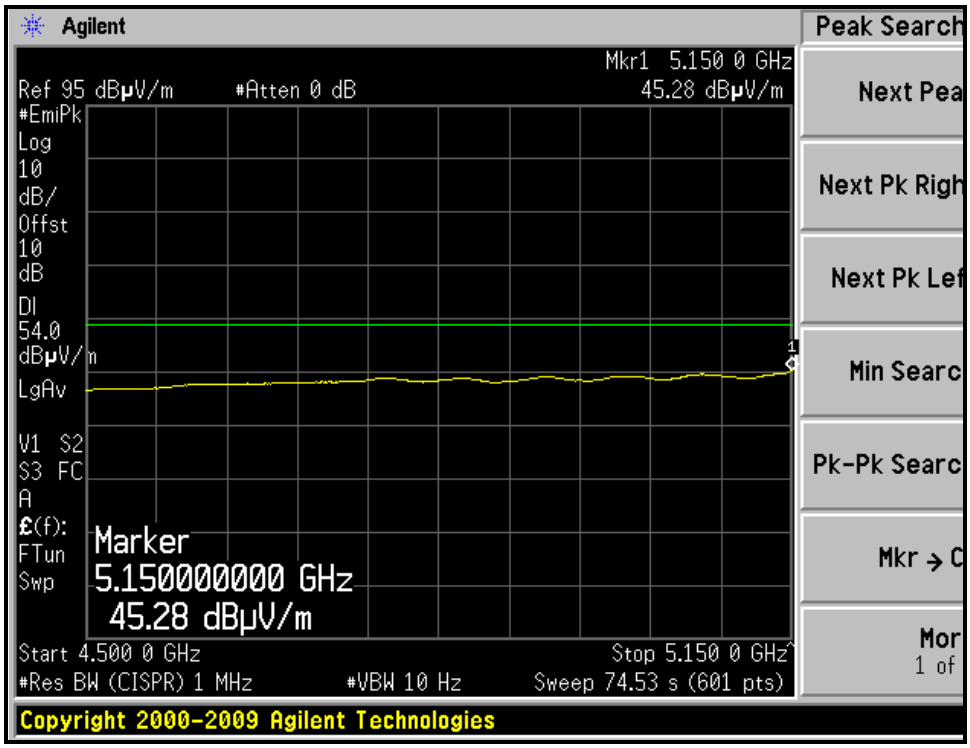
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4192.00	55.2 PK	74.0	-18.8	1.36 H	41	18.47	36.73
2	4192.00	46.2 AV	54.0	-7.8	1.36 H	41	9.47	36.73
3	*5240.00	88.7 PK			1.26 H	246	48.53	40.17
4	*5240.00	79.1 AV			1.26 H	246	38.93	40.17
5	5460.00	58.7 PK	74.0	-15.3	1.26 H	246	17.94	40.76
6	5460.00	45.4 AV	54.0	-8.6	1.26 H	246	4.64	40.76
7	#10480.00	50.5 PK	68.3	-17.8	1.24 H	108	3.83	46.67
8	15720.00	62.7 PK	74.0	-11.3	1.24 H	96	11.19	51.51
9	15720.00	48.8 AV	54.0	-5.2	1.24 H	96	-2.71	51.51
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	4192.00	55.9 PK	74.0	-18.1	1.60 V	51	19.17	36.73
2	4192.00	50.3 AV	54.0	-3.7	1.60 V	51	13.57	36.73
3	*5240.00	103.1 PK			1.32 V	169	62.93	40.17
4	*5240.00	93.3 AV			1.32 V	169	53.13	40.17
5	5456.52	59.2 PK	74.0	-14.8	1.32 V	177	18.45	40.75
6	5456.52	47.5 AV	54.0	-6.5	1.32 V	177	6.75	40.75
7	#10480.00	53.9 PK	68.3	-14.4	1.25 V	109	7.23	46.67
8	15720.00	62.4 PK	74.0	-11.6	1.18 V	104	10.89	51.51
9	15720.00	49.8 AV	54.0	-4.2	1.18 V	104	-1.71	51.51

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

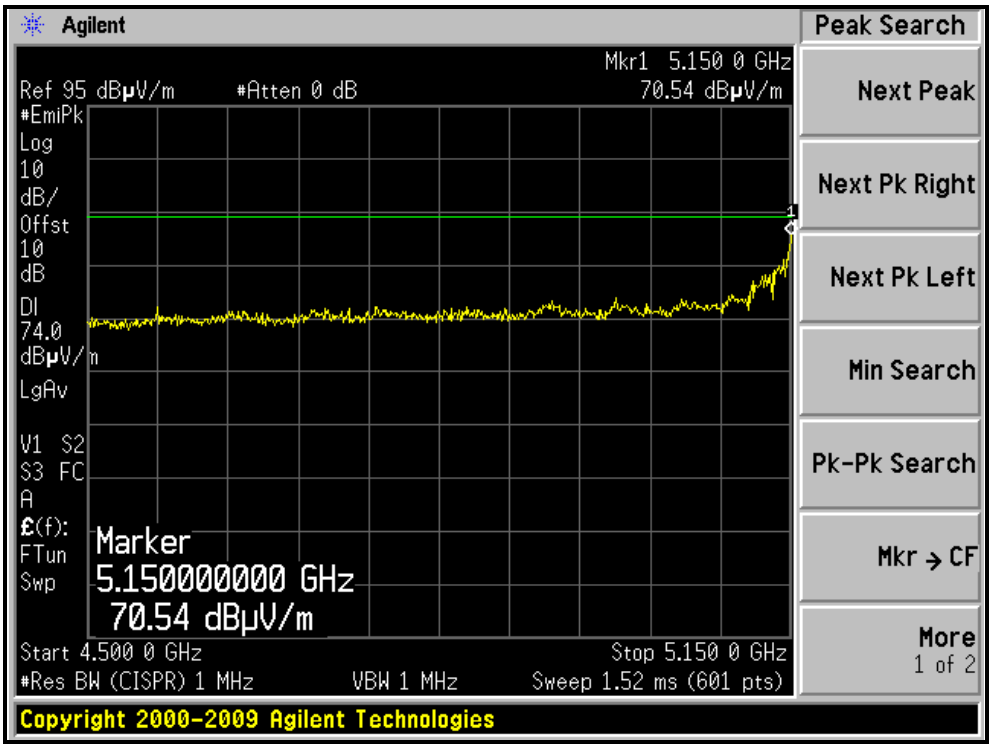
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

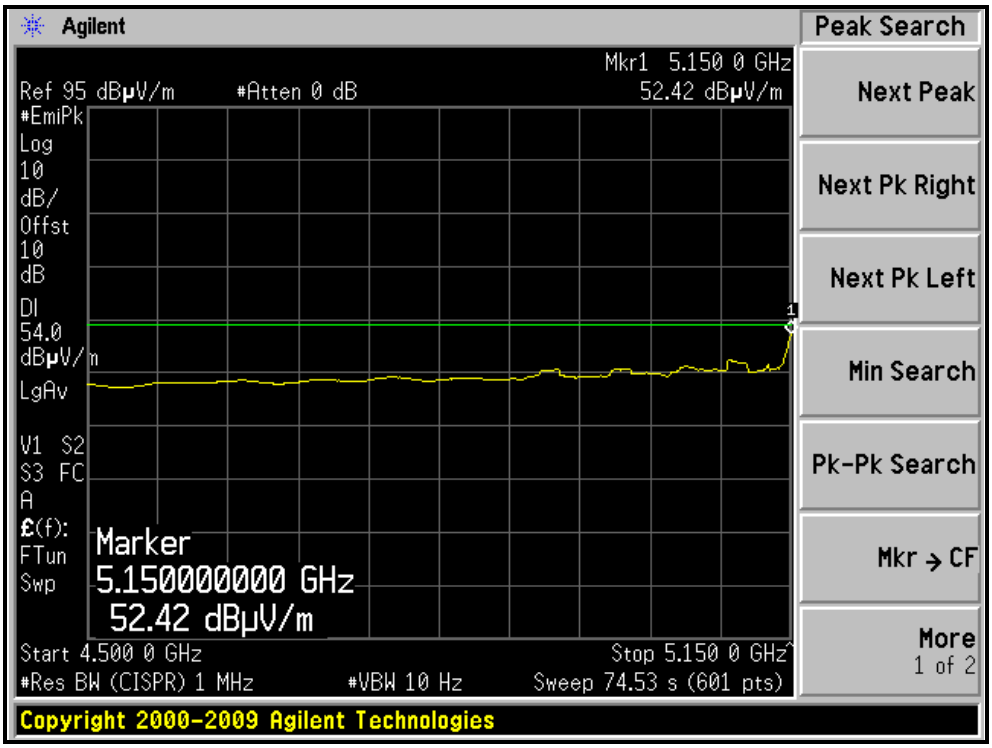
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)



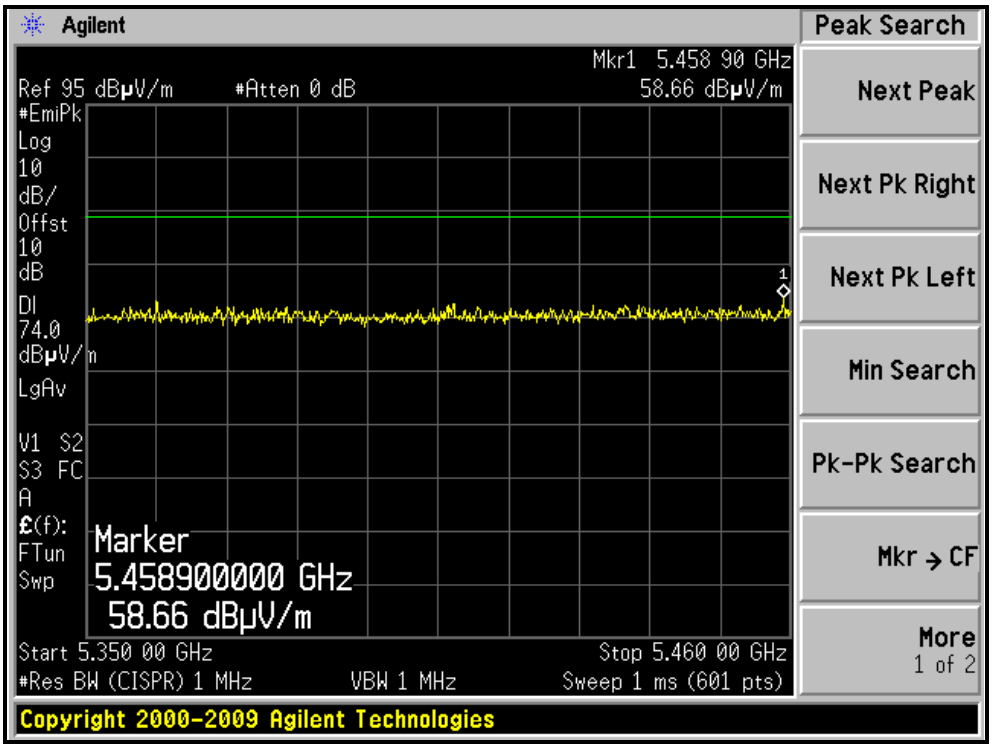


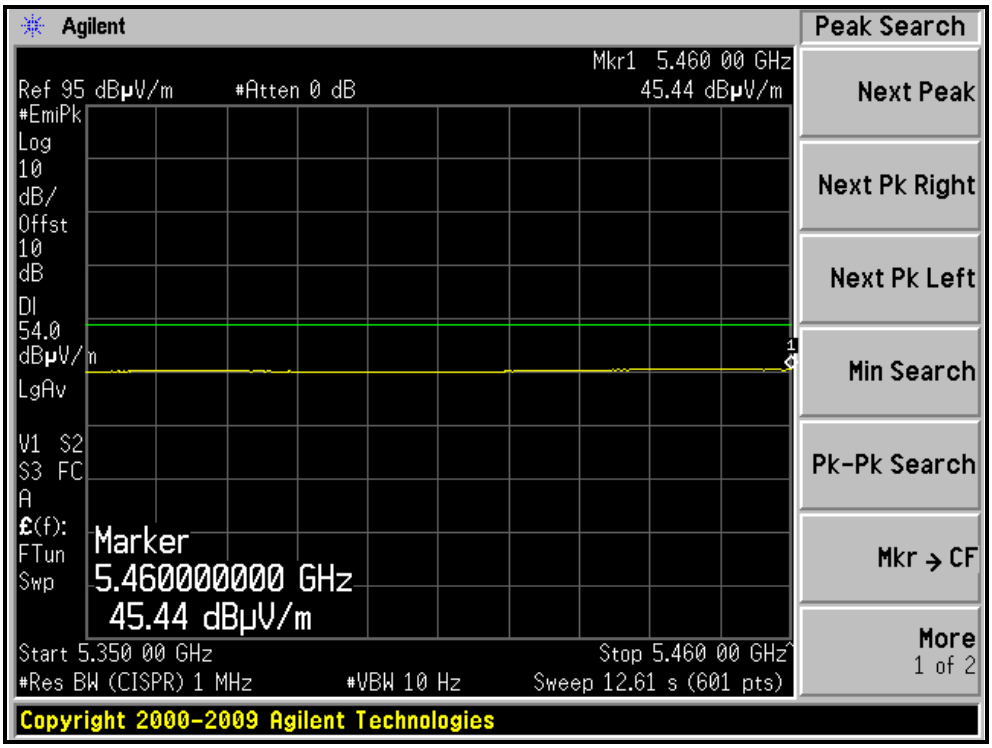
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)



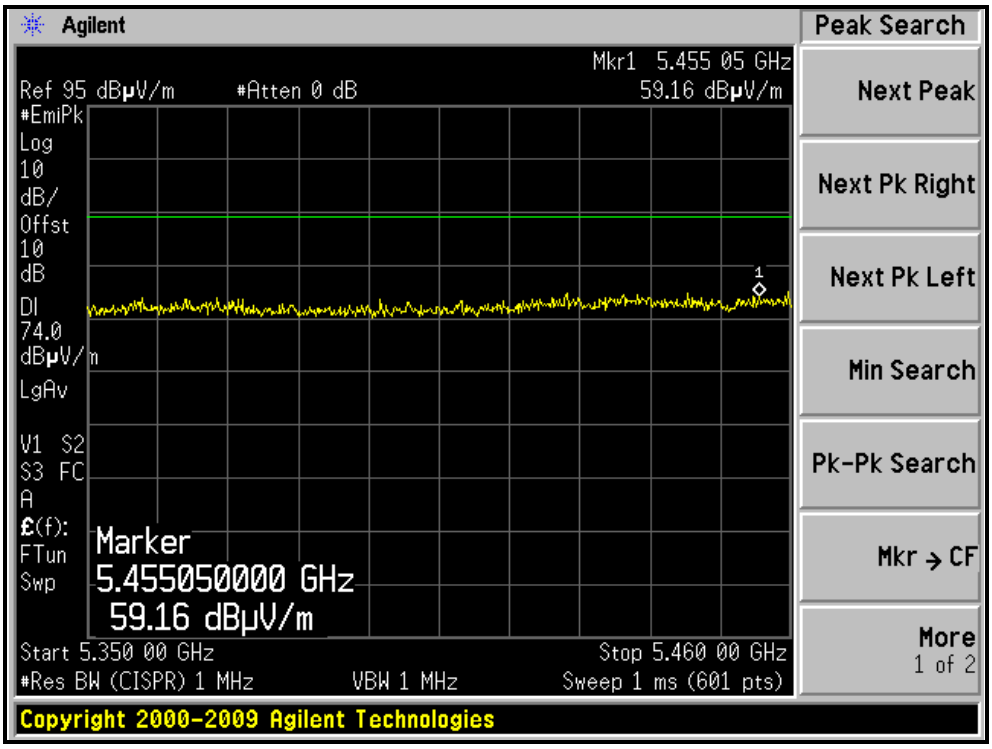


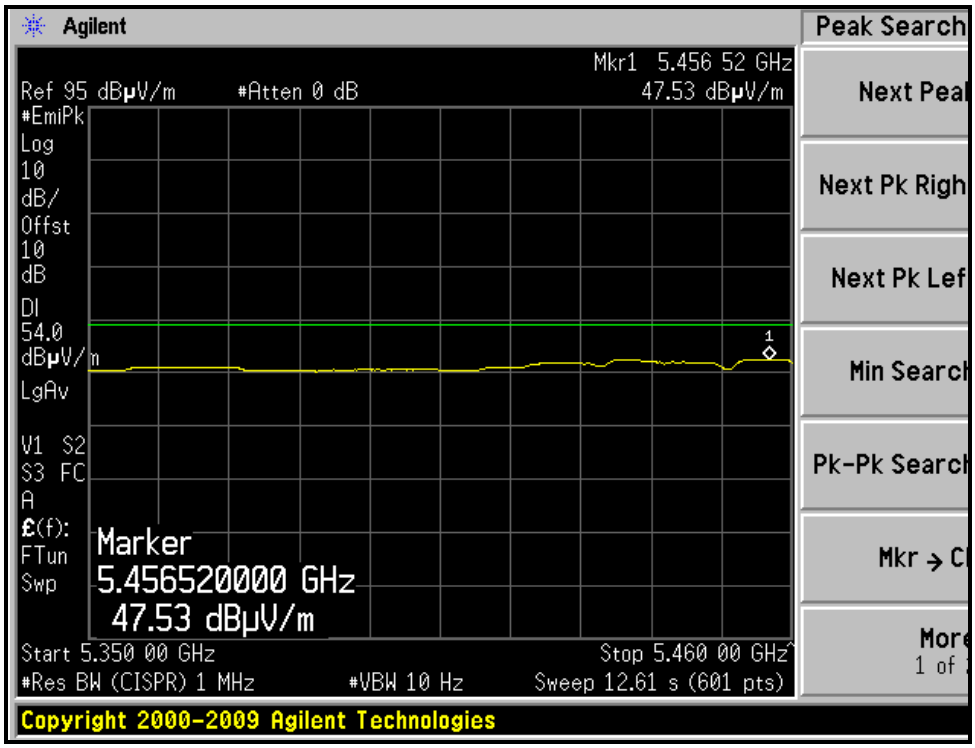
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH48, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH48, 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	26deg. C, 69%RH	TESTED BY	Nelson Teng

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	4152.00	55.8 PK	74.0	-18.2	1.45 H	43	19.22	36.58
2	4152.00	46.3 AV	54.0	-7.7	1.45 H	43	9.72	36.58
3	5150.00	57.4 PK	74.0	-16.6	1.00 H	262	17.46	39.94
4	5150.00	45.0 AV	54.0	-9.0	1.00 H	262	5.06	39.94
5	*5190.00	79.6 PK			1.00 H	262	39.56	40.04
6	*5190.00	71.3 AV			1.00 H	262	31.26	40.04
7	#10380.00	47.2 PK	68.3	-21.1	1.22 H	75	0.65	46.55
8	15570.00	62.6 PK	74.0	-11.4	1.15 H	81	11.18	51.42
9	15570.00	49.7 AV	54.0	-4.3	1.15 H	81	-1.72	51.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4152.00	62.4 PK	74.0	-11.6	1.25 V	104	25.82	36.58
2	4152.00	50.0 AV	54.0	-4.0	1.25 V	104	13.42	36.58
3	5150.00	65.6 PK	74.0	-8.4	1.37 V	183	25.66	39.94
4	5150.00	51.6 AV	54.0	-2.4	1.37 V	183	11.66	39.94
5	*5190.00	101.3 PK			1.33 V	176	61.26	40.04
6	*5190.00	91.1 AV			1.33 V	176	51.06	40.04
7	#10380.00	47.2 PK	68.3	-21.1	1.20 V	313	0.65	46.55
8	15570.00	62.6 PK	74.0	-11.4	1.27 V	298	11.18	51.42
9	15570.00	49.9 AV	54.0	-4.1	1.27 V	298	-1.52	51.42

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

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

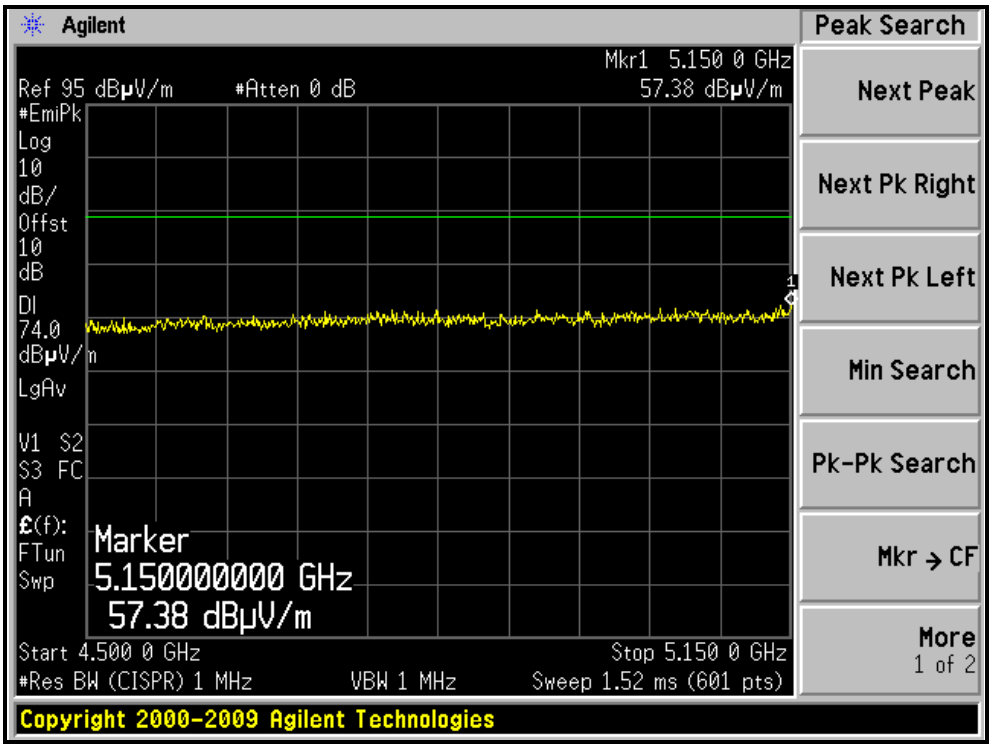
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 69%RH	TESTED BY	Nelson Teng

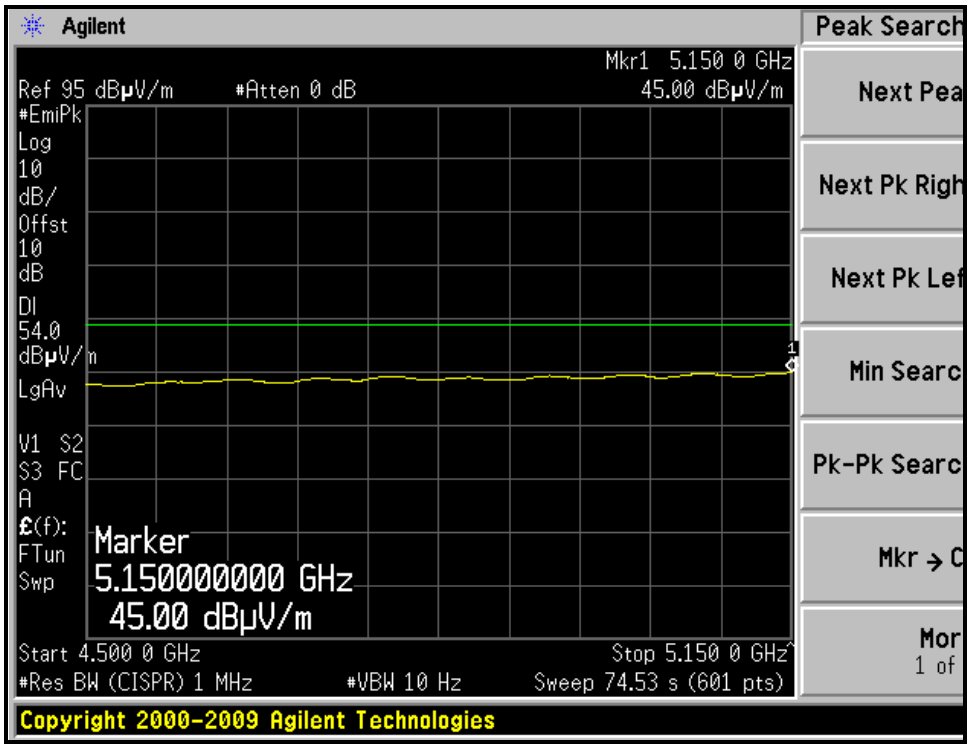
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4184.00	55.2 PK	74.0	-18.8	1.46 H	26	18.50	36.70
2	4184.00	46.2 AV	54.0	-7.8	1.46 H	26	9.50	36.70
3	*5230.00	85.7 PK			1.27 H	246	45.55	40.15
4	*5230.00	76.3 AV			1.27 H	246	36.15	40.15
5	5460.00	57.4 PK	74.0	-16.6	1.27 H	246	16.64	40.76
6	5460.00	45.4 AV	54.0	-8.6	1.27 H	246	4.64	40.76
7	#10460.00	49.0 PK	68.3	-19.3	1.18 H	86	2.35	46.65
8	15690.00	61.1 PK	74.0	-12.9	1.10 H	88	9.61	51.49
9	15690.00	49.0 AV	54.0	-5.0	1.10 H	88	-2.49	51.49
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	4184.00	55.9 PK	74.0	-18.1	1.69 V	42	19.20	36.70
2	4184.00	50.9 AV	54.0	-3.1	1.69 V	42	14.20	36.70
3	*5230.00	100.6 PK			1.36 V	168	60.45	40.15
4	*5230.00	90.5 AV			1.36 V	168	50.35	40.15
5	5458.72	59.8 PK	74.0	-14.2	1.36 V	180	19.04	40.76
6	5458.72	48.1 AV	54.0	-5.9	1.36 V	180	7.34	40.76
7	#10460.00	50.9 PK	68.3	-17.4	1.00 V	292	4.25	46.65
8	15690.00	61.8 PK	74.0	-12.2	1.08 V	293	10.31	51.49
9	15690.00	49.3 AV	54.0	-4.7	1.08 V	293	-2.19	51.49

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

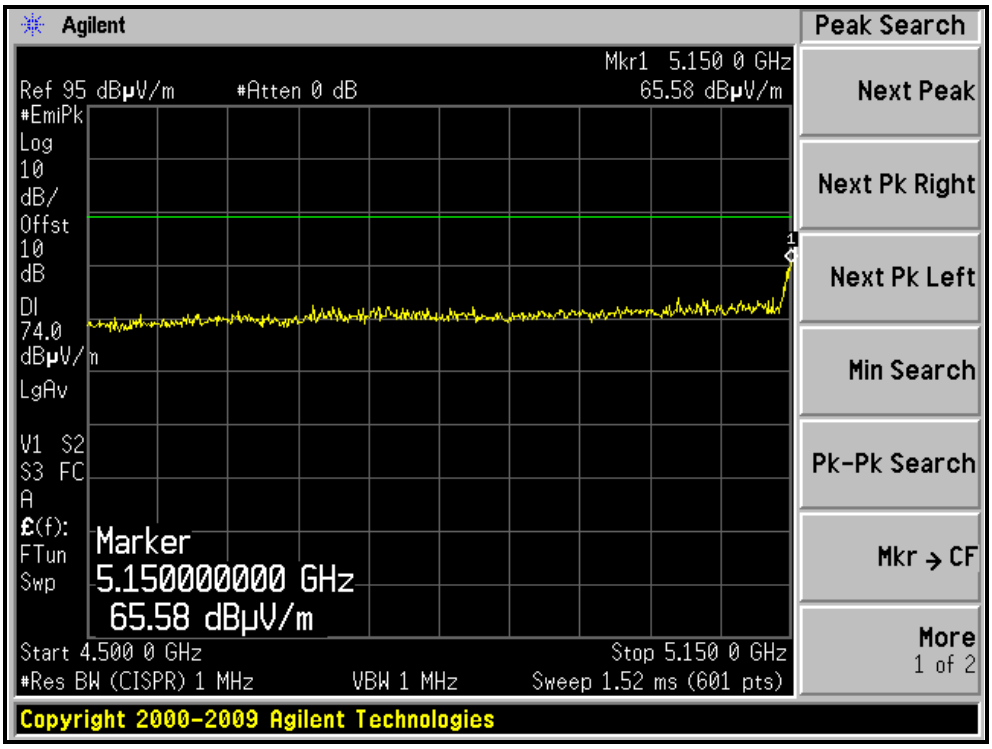
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

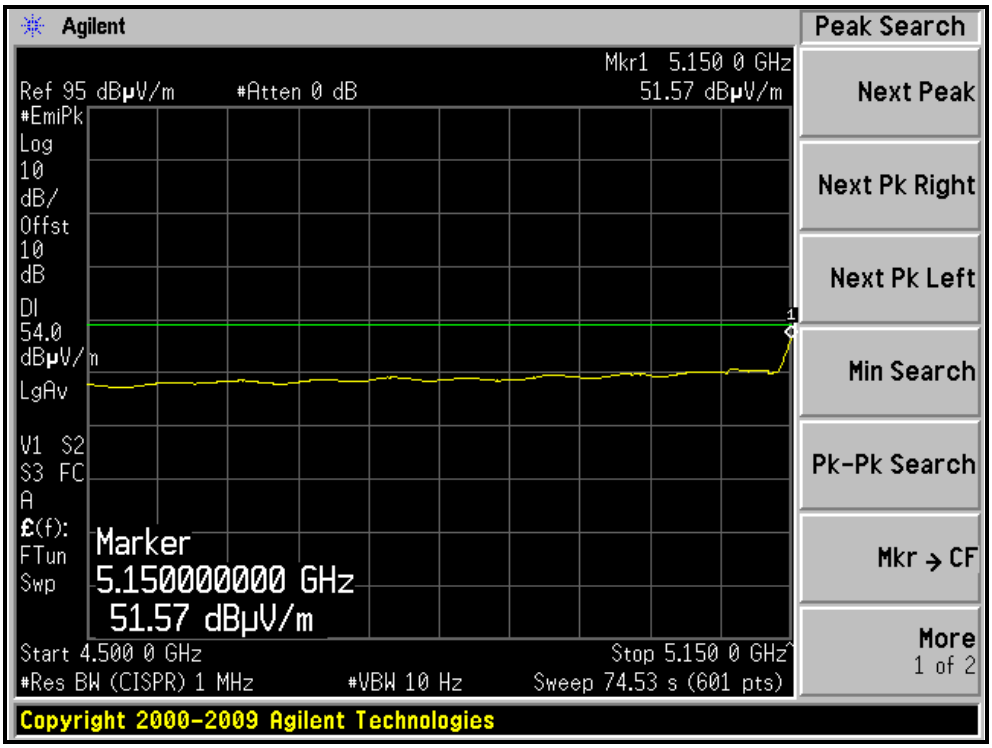
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH38, HORIZONTAL)



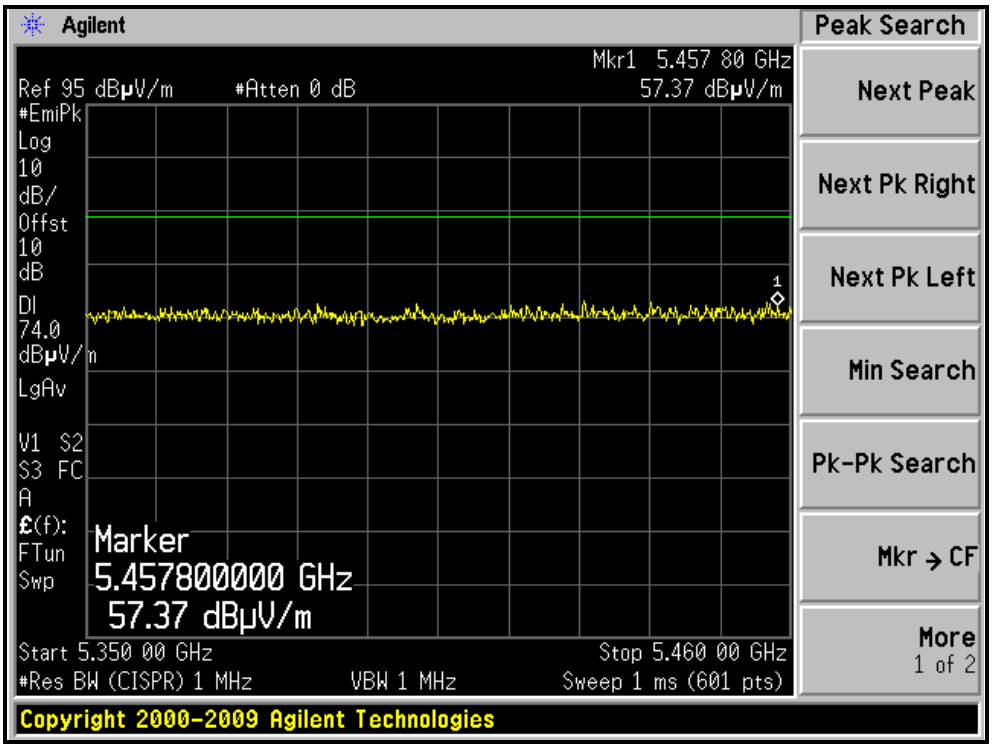


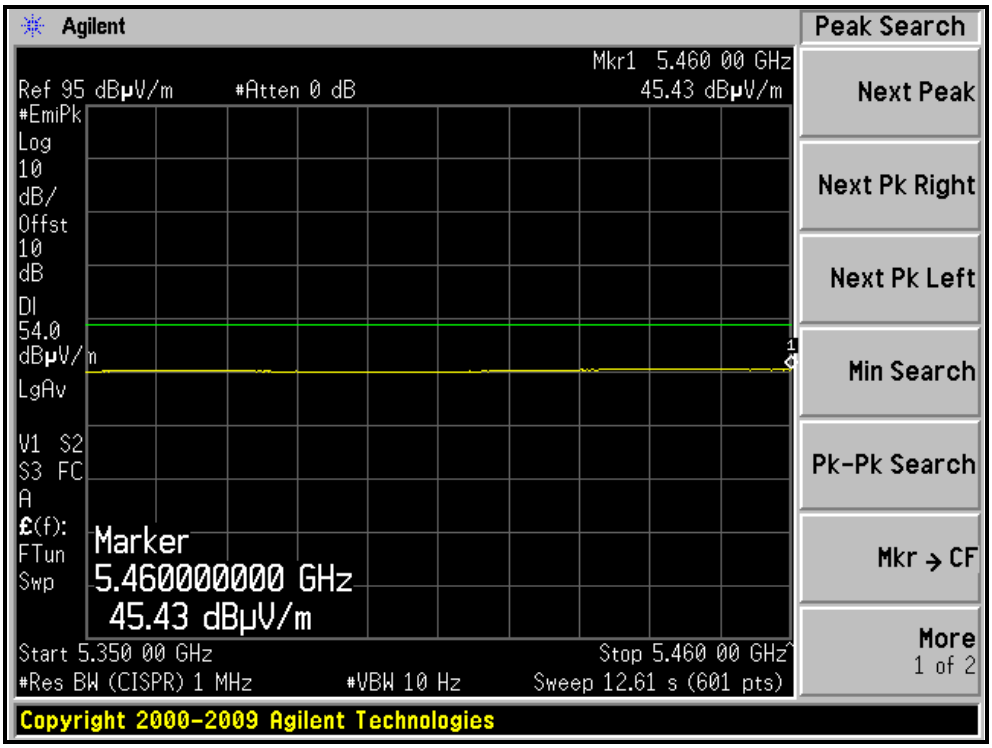
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH38, VERTICAL)



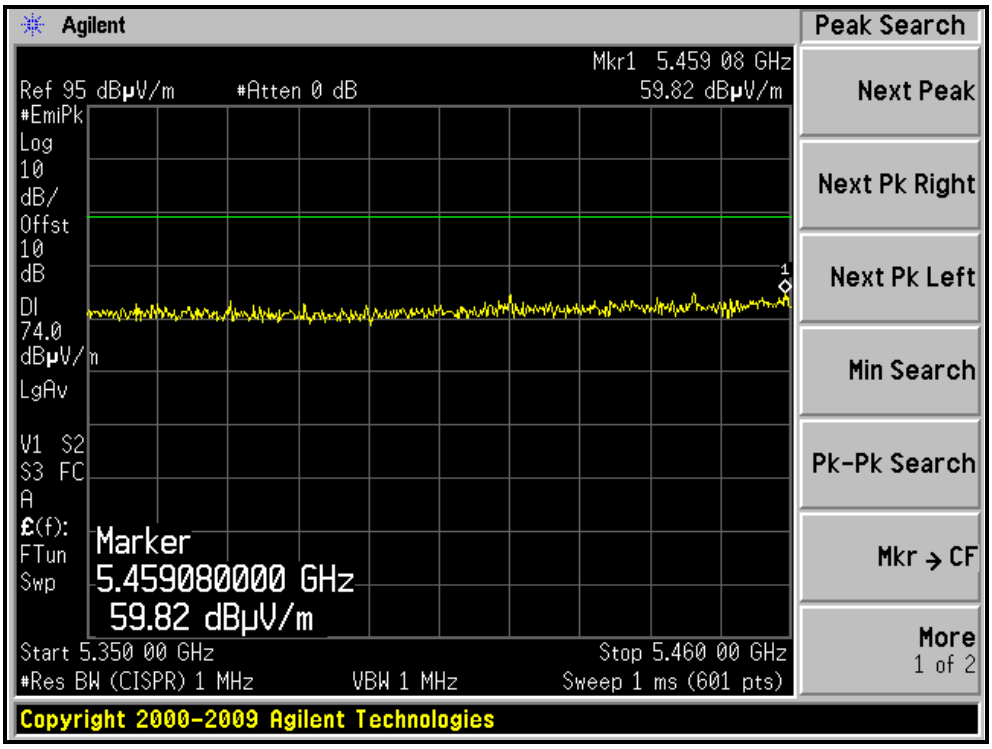


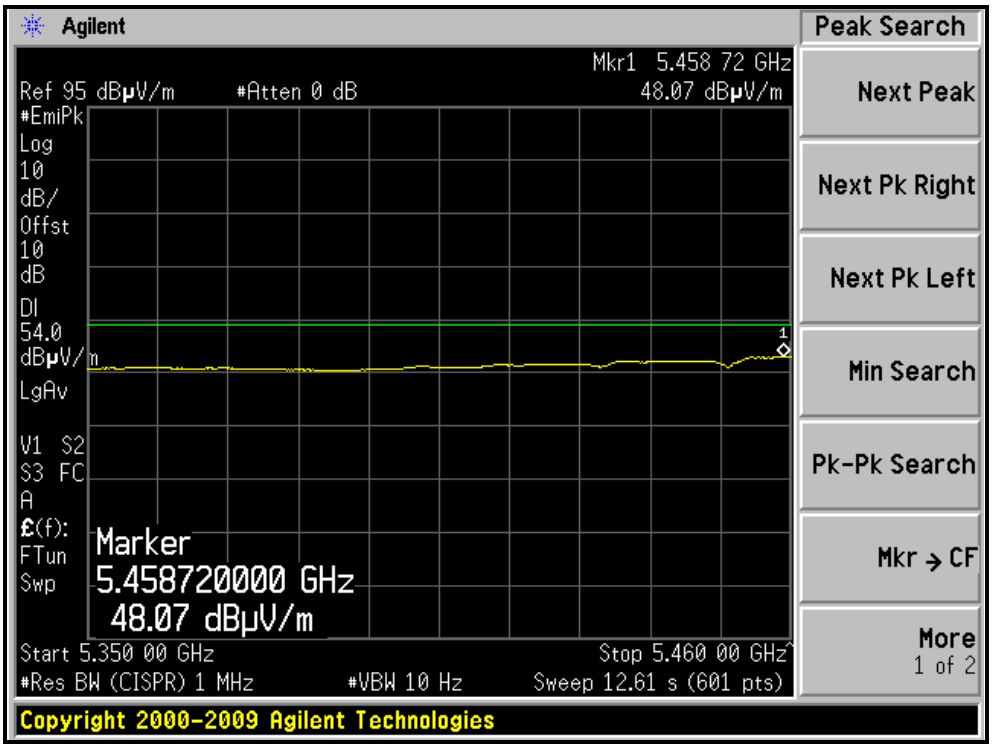
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH46, HORIZONTAL)





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

FOR POWER OUTPUT MEASUREMENT

Test date: Aug. 31, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2011	May 03, 2012
Power Sensor	MA2411B	0738172	May 03, 2011	May 02, 2012

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

FOR 26dB OCCUPIED BANDWIDTH

Test date: Aug. 31, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
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

FOR POWER OUTPUT MEASUREMENT

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

FOR 26dB OCCUPIED BANDWIDTH

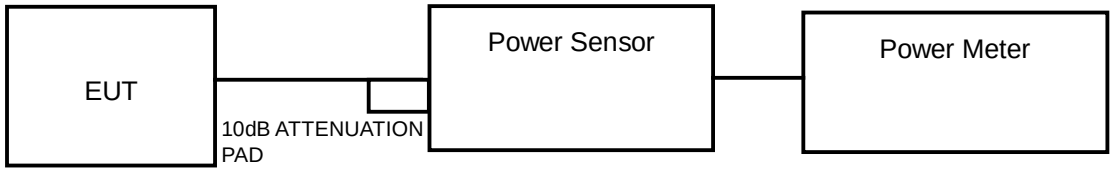
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

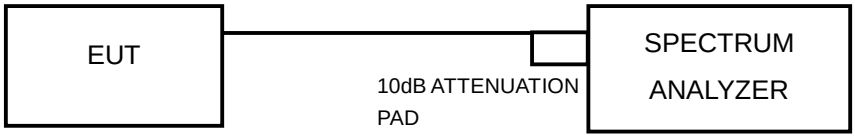
No deviation

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



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)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
36	5180	7.9	9.0	30	PASS
40	5200	5.4	7.3	30	PASS
48	5240	6.5	8.1	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
36	5180	8.1	9.1	30	PASS
40	5200	5.4	7.3	30	PASS
48	5240	6.5	8.1	30	PASS

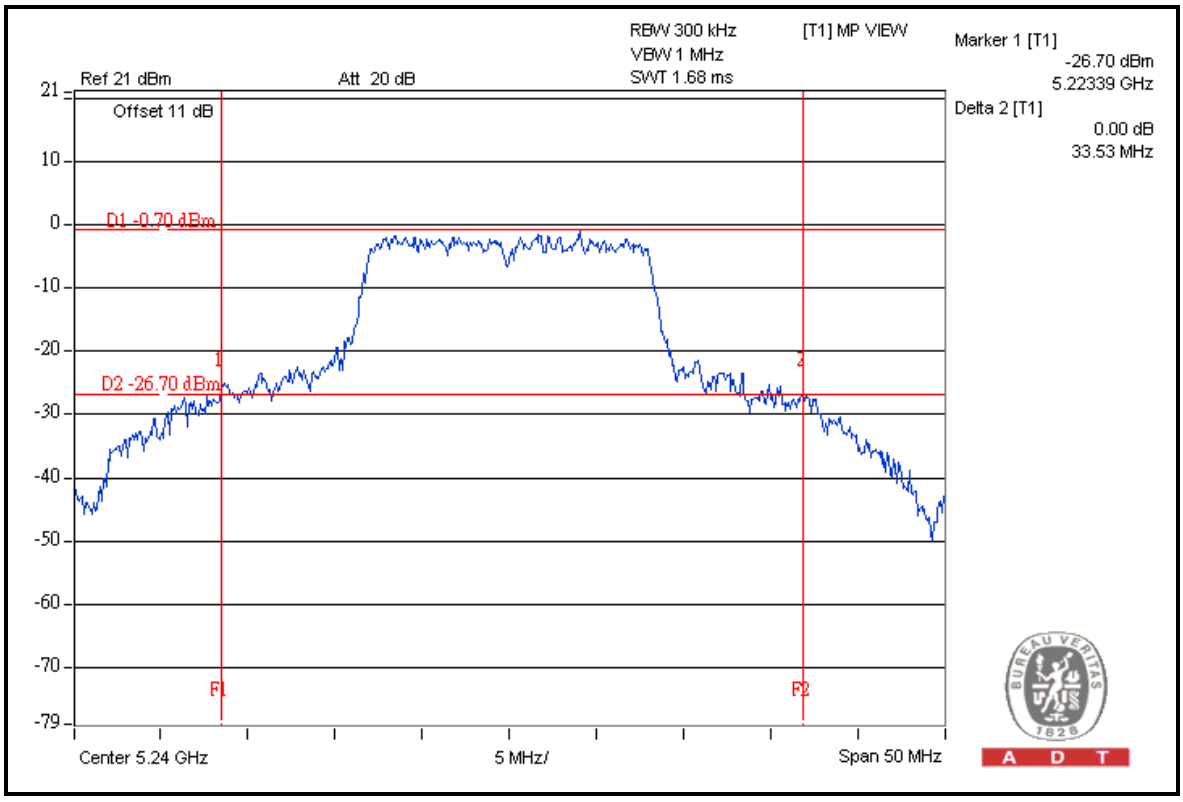
802.11n (40MHz) OFDM modulation:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
38	5190	1.5	1.8	30	PASS
46	5230	6.5	8.1	30	PASS

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
36	5180	32.46
40	5200	27.89
48	5240	33.53

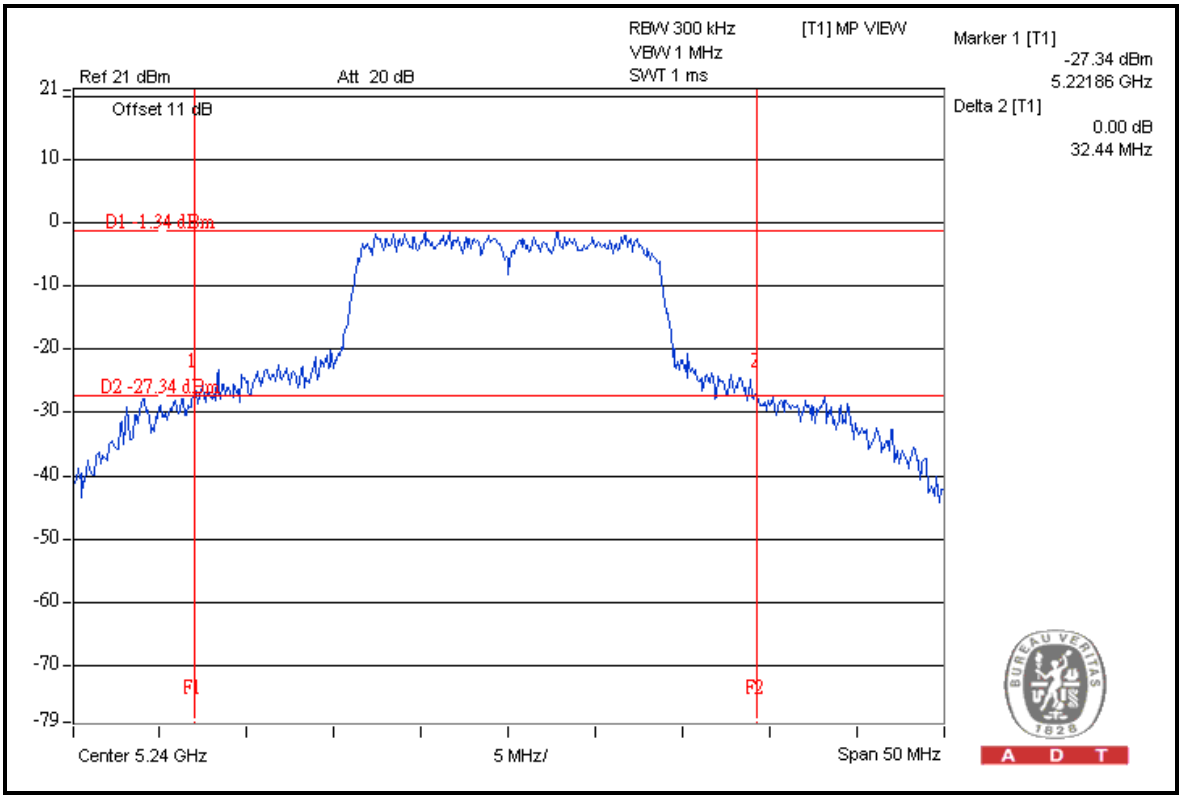
CH 48



802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
36	5180	30.76
40	5200	31.55
48	5240	32.44

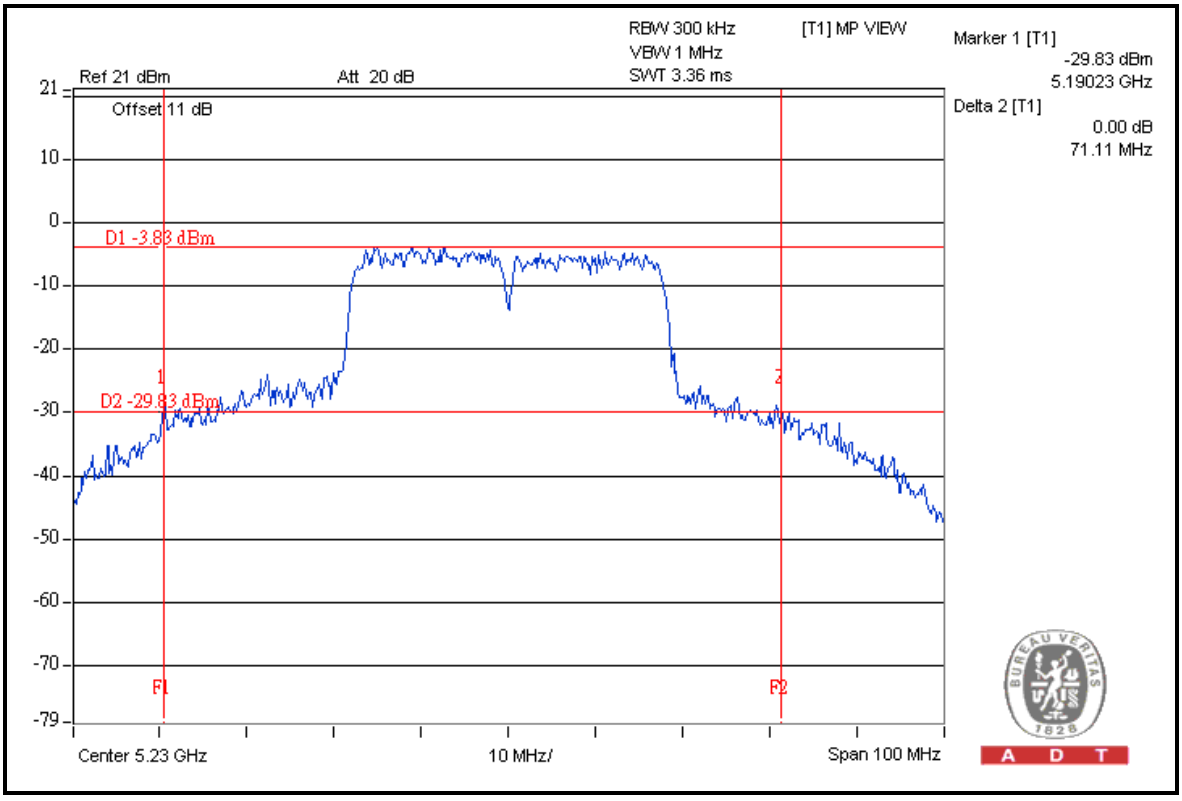
CH 48



802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
38	5190	39.36
46	5230	71.11

CH 46



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: Aug. 31, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
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.

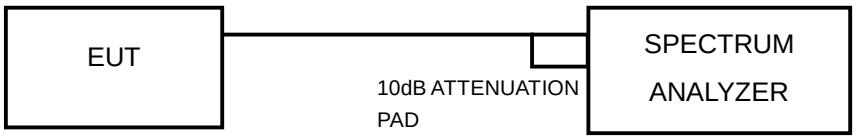
4.4.3 TEST PROCEDURE

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

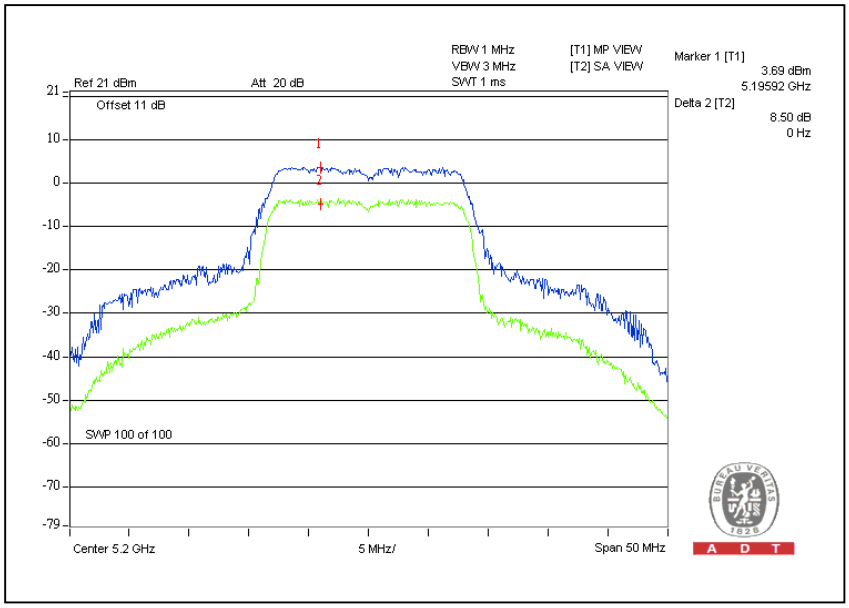
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.4.7 TEST RESULTS

802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER EXCURSION (dBm)	PEAK to AVERAGE EXCURSION LIMIT (dBm)	PASS / FAIL
36	5180	8.3	13	PASS
40	5200	8.5	13	PASS
48	5240	8.0	13	PASS

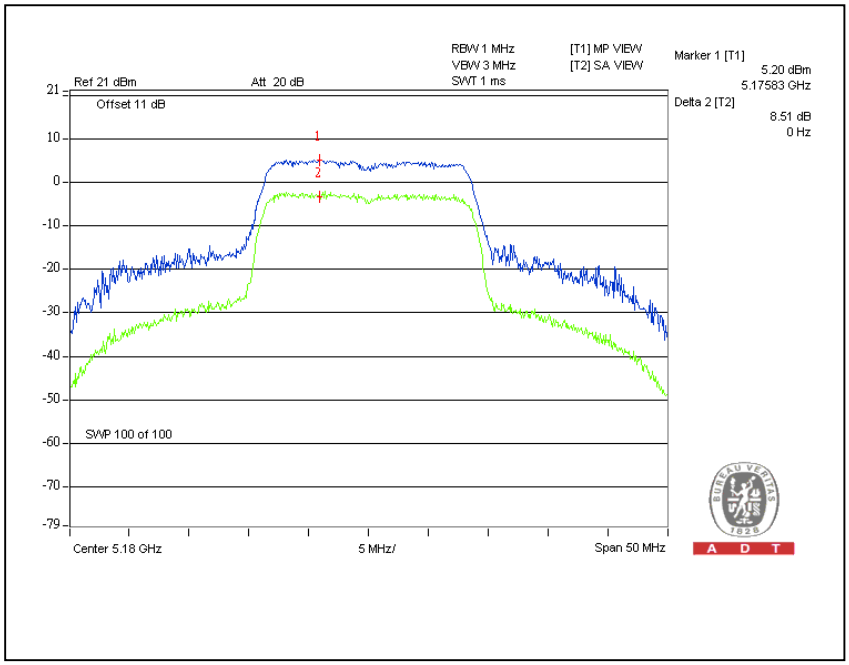
CH40



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER EXCURSION (dBm)	PEAK to AVERAGE EXCURSION LIMIT (dBm)	PASS / FAIL
36	5180	8.5	13	PASS
40	5200	7.6	13	PASS
48	5240	8.0	13	PASS

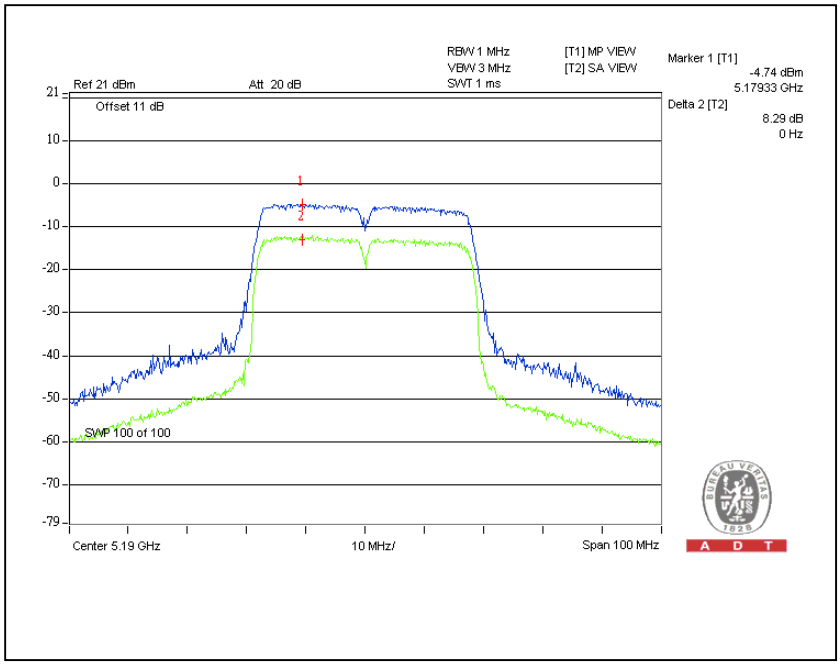
CH36



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER EXCURSION (dBm)	PEAK to AVERAGE EXCURSION LIMIT (dBm)	PASS / FAIL
38	5190	8.3	8	PASS
46	5230	8.2	8	PASS

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: Aug. 31, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
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.

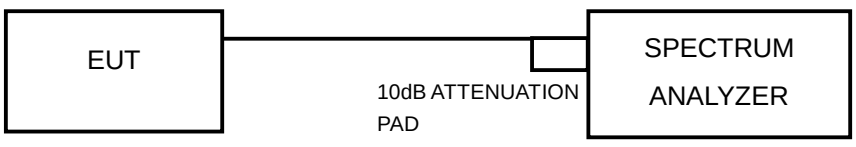
4.5.3 TEST PROCEDURES

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

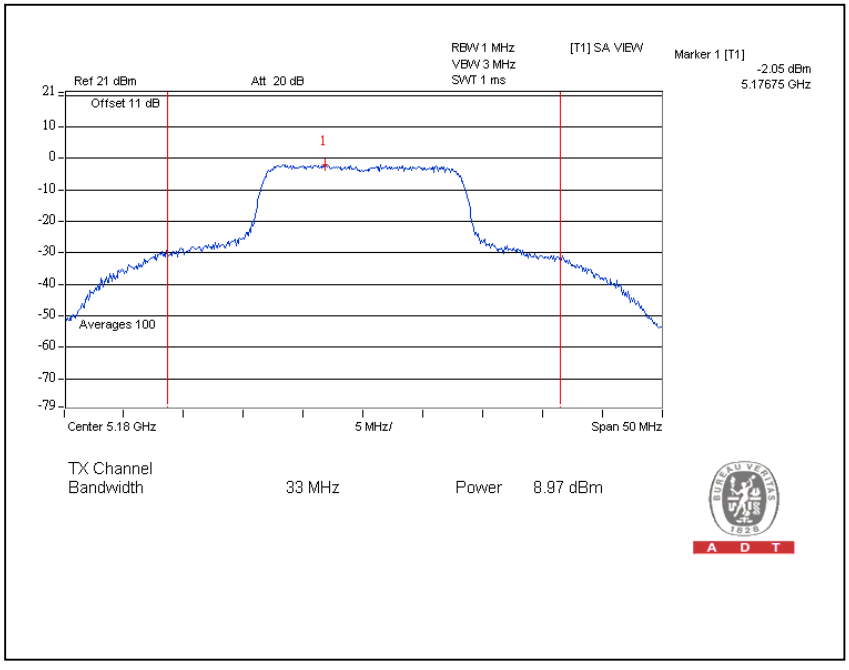
Same as 4.3.6

4.5.7 TEST RESULTS

802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	-2.1	8	PASS
40	5200	-3.5	8	PASS
48	5240	-2.9	8	PASS

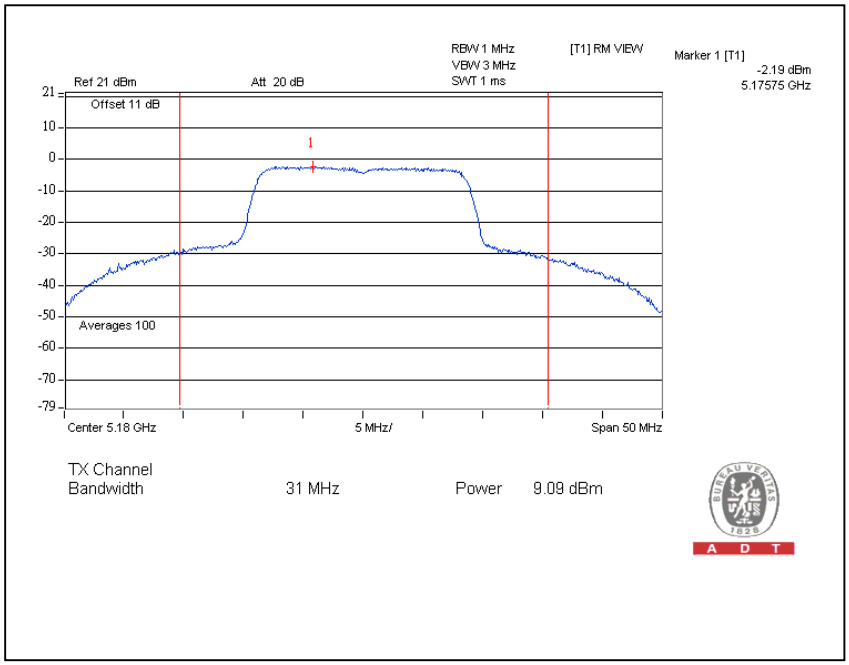
CH36



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
36	5180	-2.2	8	PASS
40	5200	-4.2	8	PASS
48	5240	-3.4	8	PASS

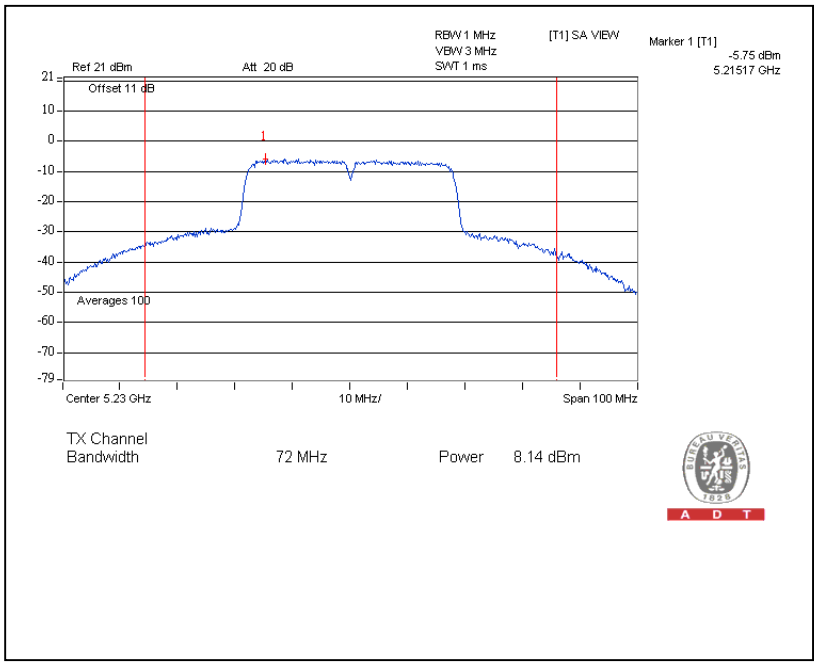
CH36



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
38	5190	-12.0	8	PASS
46	5230	-5.8	8	PASS

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: Aug. 31, 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.

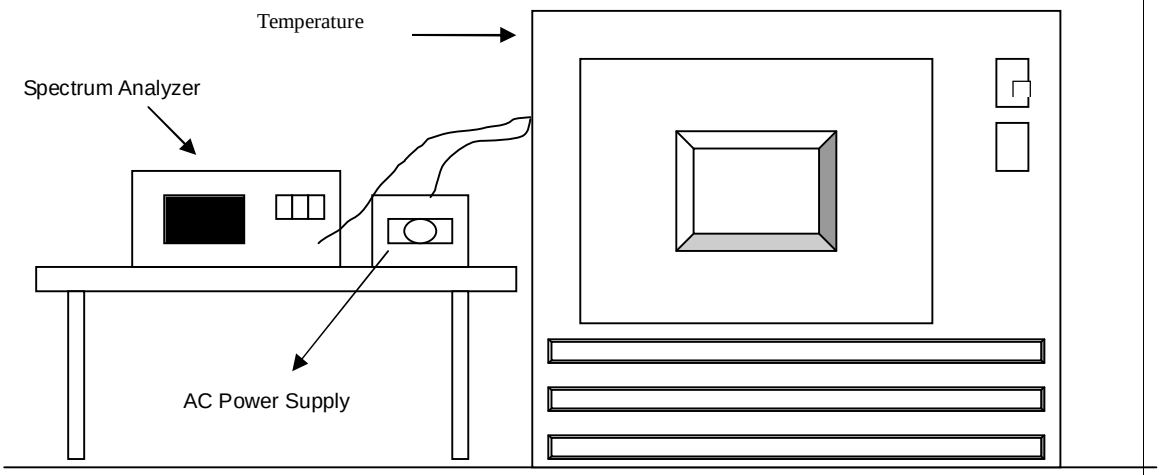
4.6.3 TEST PROCEDURE

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	5240.0159	3.0344	5240.016	3.0534	5240.0132	2.5191	5240.0166	3.1679
	120	5240.0156	2.9771	5240.0158	3.0153	5240.013	2.4809	5240.0176	3.3588
	102	5240.0161	3.0725	5240.0162	3.0916	5240.012	2.2901	5240.0172	3.2824
40	138	5239.985	-2.8626	5239.9853	-2.8053	5239.9895	-2.0038	5239.9925	-1.4313
	120	5239.9838	-3.0916	5239.9852	-2.8244	5239.9886	-2.1756	5239.9914	-1.6412
	102	5239.9846	-2.9389	5239.9864	-2.5954	5239.9889	-2.1183	5239.9919	-1.5458
30	138	5240.0153	2.9198	5240.0138	2.6336	5240.013	2.4809	5240.0107	2.0420
	120	5240.0155	2.9580	5240.013	2.4809	5240.0125	2.3855	5240.0106	2.0229
	102	5240.0155	2.9580	5240.0126	2.4046	5240.0136	2.5954	5240.0124	2.3664
20	138	5240.0022	0.4198	5239.9981	-0.3626	5240.0008	0.1527	5240.0052	0.9924
	120	5240.0009	0.1718	5239.9985	-0.2863	5239.9994	-0.1145	5240.0044	0.8397
	102	5240.0007	0.1336	5239.9993	-0.1336	5239.9994	-0.1145	5240.0044	0.8397
10	138	5240.0056	1.0687	5240.0072	1.3740	5240.0031	0.5916	5240.0061	1.1641
	120	5240.0052	0.9924	5240.0075	1.4313	5240.0038	0.7252	5240.0072	1.3740
	102	5240.005	0.9542	5240.0071	1.3550	5240.004	0.7634	5240.0072	1.3740
0	138	5240.0178	3.3969	5240.0165	3.1489	5240.0155	2.9580	5240.0141	2.6908
	120	5240.017	3.2443	5240.0162	3.0916	5240.0148	2.8244	5240.0152	2.9008
	102	5240.0184	3.5115	5240.0163	3.1107	5240.0153	2.9198	5240.0138	2.6336
-10	138	5239.9903	-1.8511	5239.9928	-1.3740	5239.9875	-2.3855	5239.9919	-1.5458
	120	5239.9906	-1.7939	5239.9924	-1.4504	5239.9864	-2.5954	5239.9916	-1.6031
	102	5239.9921	-1.5076	5239.992	-1.5267	5239.9875	-2.3855	5239.9905	-1.8130
-20	138	5239.984	-3.0534	5239.9829	-3.2634	5239.9808	-3.6641	5239.9857	-2.7290
	120	5239.9821	-3.4160	5239.984	-3.0534	5239.9806	-3.7023	5239.9845	-2.9580
	102	5239.9835	-3.1489	5239.984	-3.0534	5239.9818	-3.4733	5239.9849	-2.8817
-30	138	5239.9905	-1.8130	5239.9878	-2.3282	5239.9843	-2.9962	5239.9899	-1.9275
	120	5239.9888	-2.1374	5239.9881	-2.2710	5239.9856	-2.7481	5239.9883	-2.2328
	102	5239.9904	-1.8321	5239.9892	-2.0611	5239.9859	-2.6908	5239.9888	-2.1374

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

Test date: Aug. 31, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
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.

4.7.2 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 100MHz or 200MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

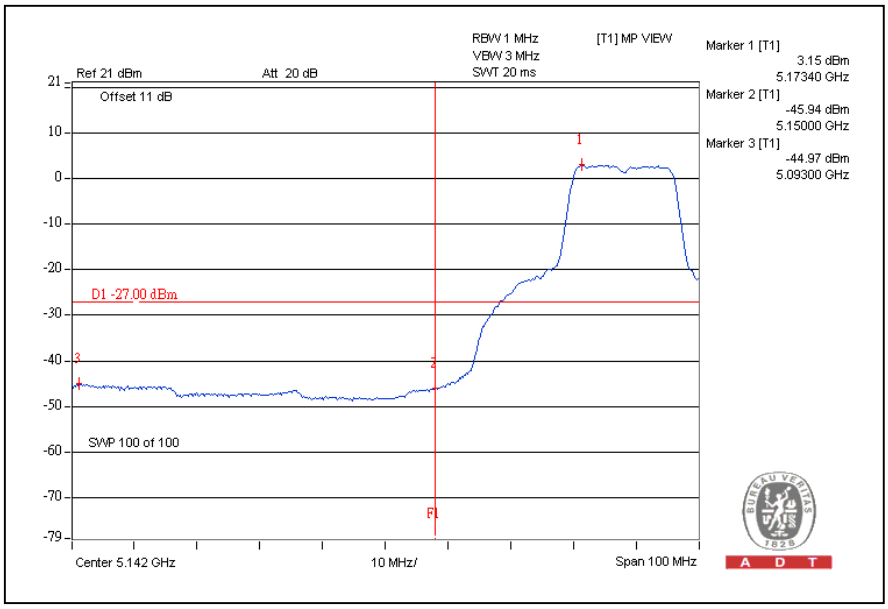
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

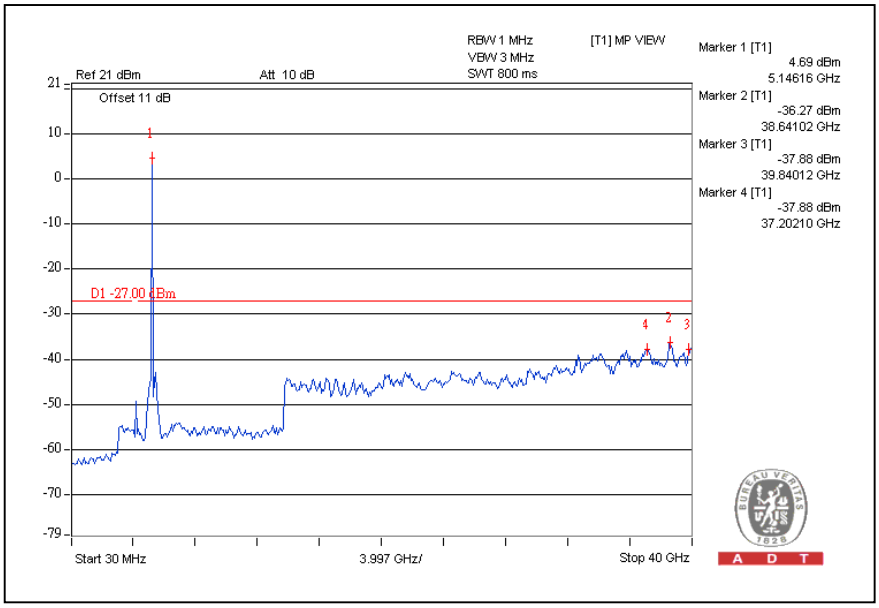
4.7.4 TEST RESULTS

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

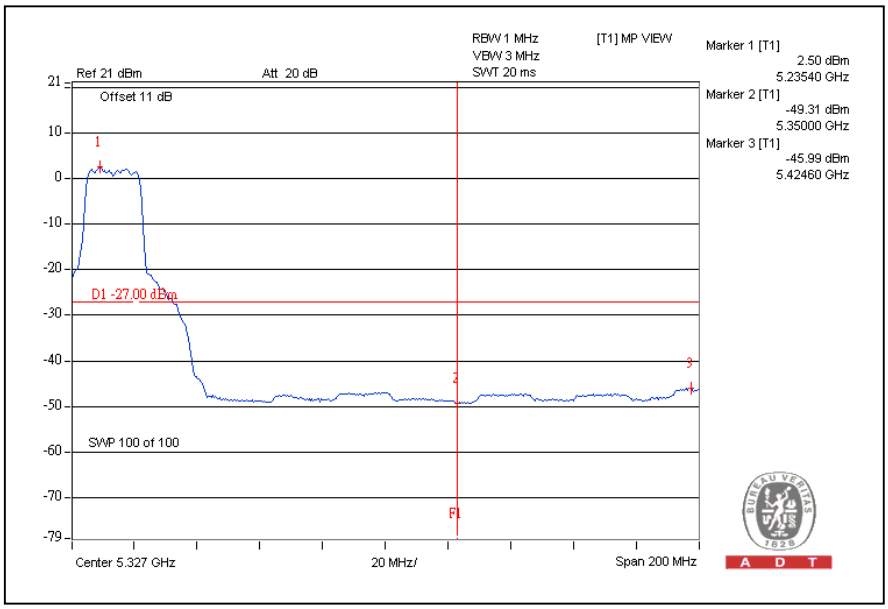
802.11a OFDM modulation

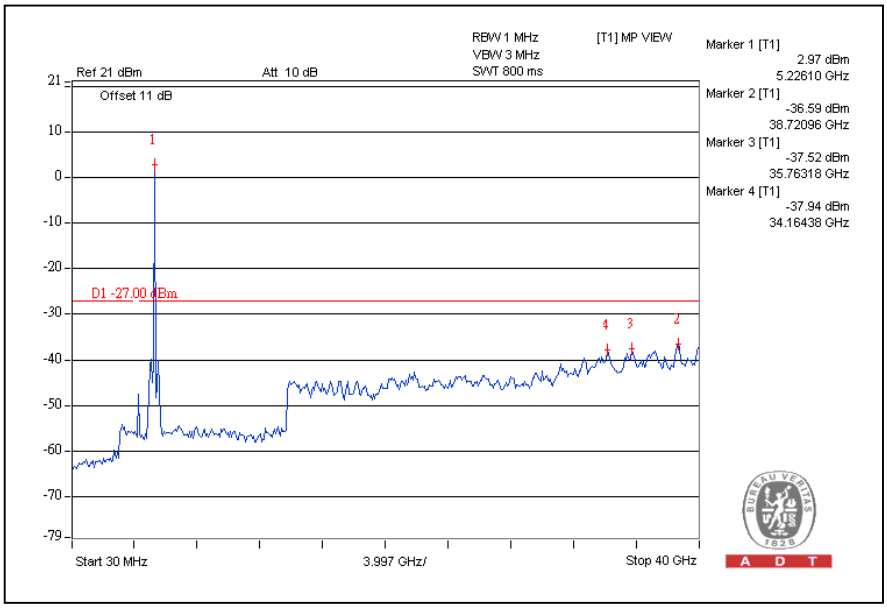
CH36





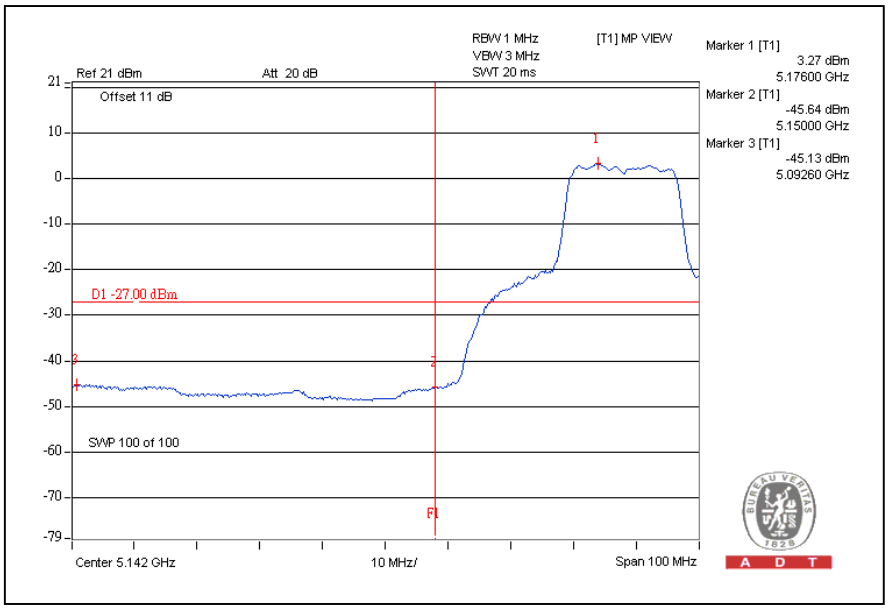
CH48

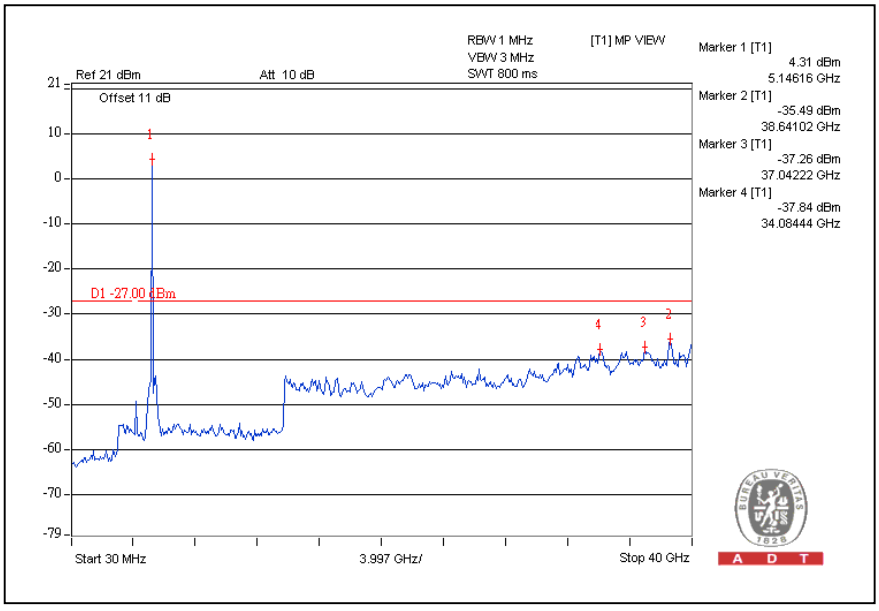

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MP VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
Marker 1 [T1]
2.50 dBm
5.23540 GHz
Marker 2 [T1]
-49.31 dBm
5.35000 GHz
Marker 3 [T1]
-45.99 dBm
5.42460 GHz
D1 -27.00 dBm
SWP 100 of 100
Center 5.327 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MP VIEW
Ref 21 dBm
Att 10 dB
Offset 11 dB
Marker 1 [T1]
2.97 dBm
5.22610 GHz
Marker 2 [T1]
-36.59 dBm
38.72096 GHz
Marker 3 [T1]
-37.52 dBm
35.76318 GHz
Marker 4 [T1]
-37.94 dBm
34.16438 GHz
D1 -27.00 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

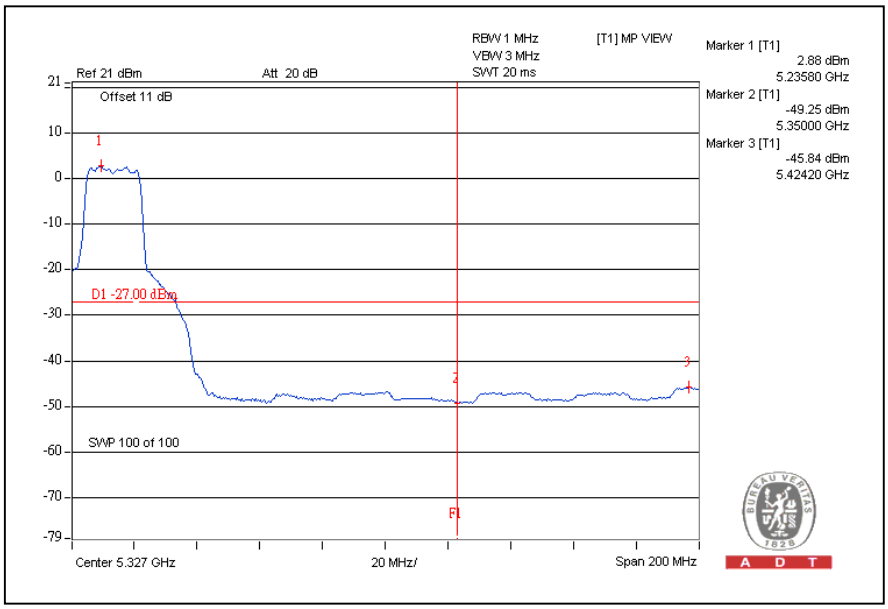
802.11n (20MHz) OFDM MODULATION:

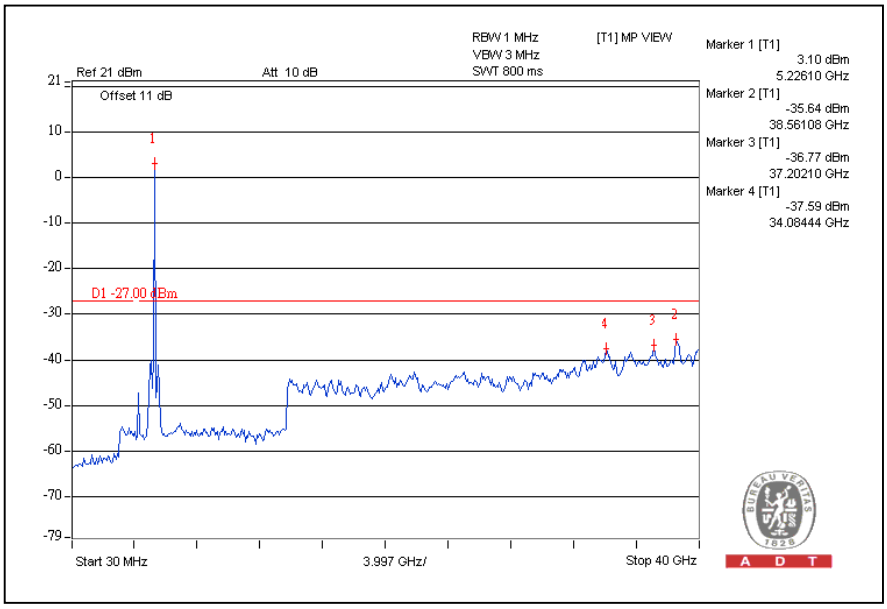
CH36





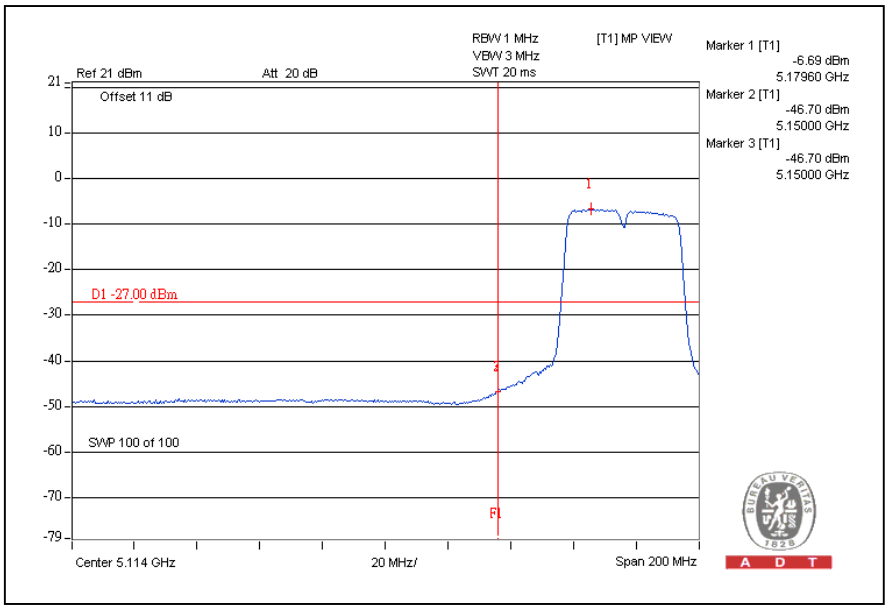
CH48

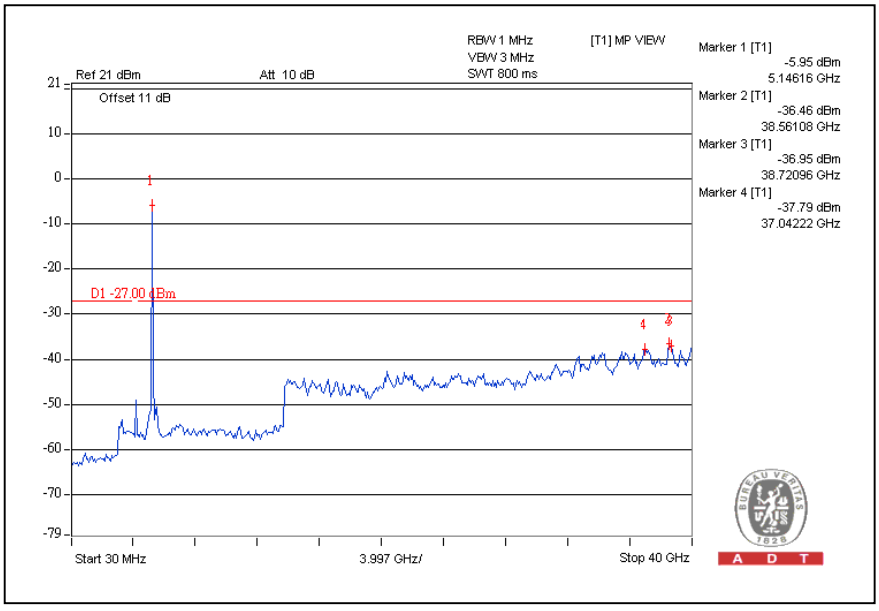

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MP VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
Marker 1 [T1]
2.88 dBm
5.23580 GHz
Marker 2 [T1]
-49.25 dBm
5.35000 GHz
Marker 3 [T1]
-45.84 dBm
5.42420 GHz
D1 -27.00 dBm
SWP 100 of 100
Center 5.327 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MP VIEW
Ref 21 dBm
Att 10 dB
Offset 11 dB
Marker 1 [T1]
3.10 dBm
5.22610 GHz
Marker 2 [T1]
-35.64 dBm
38.56108 GHz
Marker 3 [T1]
-36.77 dBm
37.20210 GHz
Marker 4 [T1]
-37.59 dBm
34.08444 GHz
D1 -27.00 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

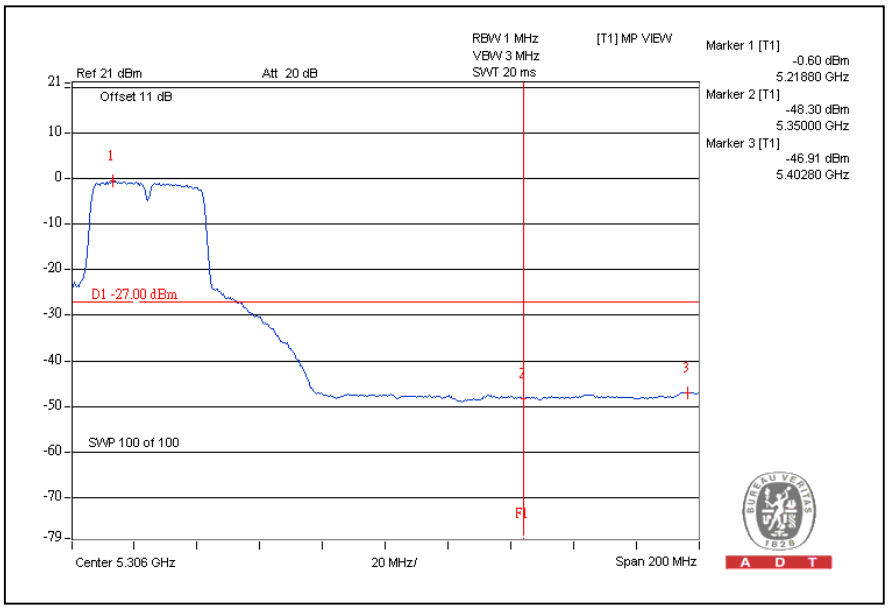
802.11n (40MHz) OFDM MODULATION:

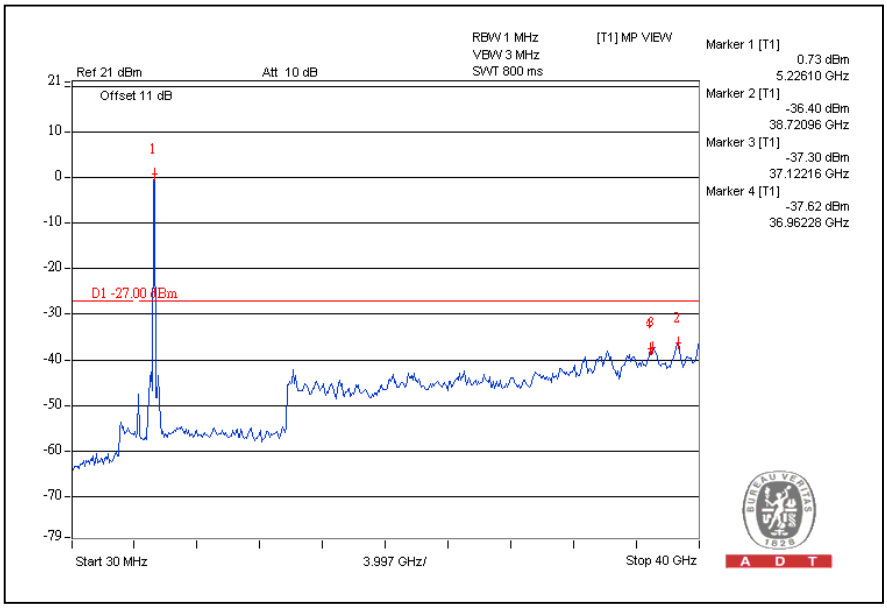
CH38





CH46


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MP VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
Marker 1 [T1]
-0.60 dBm
5.21880 GHz
Marker 2 [T1]
-48.30 dBm
5.35000 GHz
Marker 3 [T1]
-46.91 dBm
5.40280 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 21 dBm
Att 10 dB
Offset 11 dB
Marker 1 [T1]
0.73 dBm
5.22610 GHz
Marker 2 [T1]
-36.40 dBm
38.72096 GHz
Marker 3 [T1]
-37.30 dBm
37.12216 GHz
Marker 4 [T1]
-37.62 dBm
36.96228 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 and authorization 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 modifications were made to the EUT by the lab during the test.

--- END ---