



FCC TEST REPORT (15.407)

REPORT NO.: RF110131E05-1

MODEL NO.: DAP-1525

FCC ID: KA2AP1525A1

RECEIVED: Jan. 31, 2011

TESTED: Feb. 17 to Mar. 21, 2011

ISSUED: Apr. 18, 2011

APPLICANT: D-Link Corporation

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ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Apr. 18, 2011



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1. CERTIFICATION

PRODUCT: Wi-Fi Booster
BRAND NAME: D-Link
MODEL NO.: DAP-1525
TEST SAMPLE: MASS-PRODUCTION
APPLICANT: D-Link Corporation
TESTED: Feb. 17 to Mar. 21, 2011
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: DAP-1525) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Carol Liao , **DATE:** Apr. 18, 2011
(Carol Liao, Specialist)

APPROVED BY : May Chen , **DATE:** Apr. 18, 2011
(May Chen, Deputy Manager)



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2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For [802.11a](#)

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.87dB at 14.681MHz
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 -5.0dB 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	Antenna connector is UFL not a standard connector.

NOTE:

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



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



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wi-Fi Booster
MODEL NO.	DAP-1525
FCC ID	KA2AP1525A1
POWER SUPPLY	DC 5V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11b: 11 / 5.5 / 2 / 1Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps HT20 MCS0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps, HT20 MCS8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps. HT40 MCS0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps. HT40 MCS8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps. HT20 MCS0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps, HT20 MCS8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps. HT40 MCS0~7 (400ns GI): 15.0Mbps, 30.0Mbps, 45.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 135.0Mbps, 150.0Mbps, HT40 MCS8~15 (400ns GI): 30.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 180.0Mbps, 240.0Mbps, 270.0Mbps, 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



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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: 20.9mW 802.11n (20MHz): 21.4mW 802.11n (40MHz): 37.7 mW For 15.247(2.4GHz) 802.11b: 333.0mW 802.11g: 632.2mW 802.11n (20MHz): 526.6mW 802.11n (40MHz): 544.6mW For 15.247(5GHz) 802.11a: 396.6mW 802.11n (20MHz): 403.7mW 802.11n (40MHz): 418.3mW
ANTENNA TYPE	Please see note
DATA CABLE	Ethernet cable (unshielded, 1.5m)
I/O PORTS	USB port x 1 LAN port (10, 100, 1000Mbps) port x 4
ASSOCIATED DEVICES	Adapter x 1

NOTE:

- There are six of antennas provided to this EUT, please refer to the following table:

Antenna 1						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Vertical	Alpha	WAP-N10S	2.95	5G Band1: 4.00 5G Band4: 3.89	Dipole	UFL



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Antenna 2						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Vertical	Alpha	WAP-N10S	3.98	5G Band1: 4.01 5G Band4: 3.00	Dipole	UFL
Antenna 3						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Horizontal	Alpha	WAP-N10S	3.23	5G Band1: 2.91 5G Band4: 3.10	Dipole	UFL
Antenna 4						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Horizontal	Alpha	WAP-N10S	4.20	5G Band1: 4.10 5G Band4: 3.63	Dipole	UFL
Antenna 5						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Horizontal	Alpha	WAP-N10S	2.65	5G Band1: 3.30 5G Band4: 4.19	Dipole	UFL
Antenna 6						
Layout	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Vertical	Alpha	WAP-N10S	3.45	5G Band1: 3.94 5G Band4: 3.32	Dipole	UFL

2. According to the above antennas, there are two antennas will transmit simultaneously (one is Horizontal and the other one is Vertical). As the antenna combination must be supplied with one Horizontal and one Vertical antennas, therefore the following antenna combination modes could be chosen as below table:

COMBINATION MODE	Antenna Configuration	
	CHAIN(1)	CHAIN(0)
1	Antenna 3 - H	Antenna 1 - V
2	Antenna 3 - H	Antenna 2 - V
3	Antenna 3 - H	Antenna 6 - V
4	Antenna 4 - H	Antenna 1 - V
5	Antenna 4 - H	Antenna 2 - V
6	Antenna 4 - H	Antenna 6 - V
7	Antenna 5 - H	Antenna 1 - V
8	Antenna 5 - H	Antenna 2 - V
9	Antenna 5 - H	Antenna 6 - V

Note: 1. This report chose the max. Antenna gain to do final test.
 2. For 2.4GHz: Antenna 2, 4 were selected as representative antennas for the test.
 3. For 5GHz Band1: Antenna 1, 5 were selected as representative antennas for the test.
 4. For 5GHz Band4: Antenna 2, 4 were selected as representative antennas for the test.

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

BRAND	D-Link
MANUFACTURE	JENTEC
MODEL	CF1505-B
INPUT POWER	AC 100-240V, 50-60Hz, 0.4A
OUTPUT POWER	DC 5V, 2.5A DC Cable: 1.5m unshielded

4. The EUT incorporates CDD function with 802.11a, 802.11b, 802.11g and MIMO function with 802.11n.
5. 2.4GHz and 5GHz technology cannot transmit at same time.
6. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) with beam forming function.
7. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
8. 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.



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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



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3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ≥ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	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: 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
802.11n (40MHz)	38 to 46	38	OFDM	BPSK	13.5	C

RADIATED EMISSION TEST (BELOW 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11n (40MHz)	38 to 46	38	OFDM	BPSK	13.5	C



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RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

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, 40, 48	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5	B
802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5	C

※ Conducted out band emission as show worst chain in report base on preliminary measurement.

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
802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	6.5	B
802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	13.5	C

※ Bandwidth as show worst chain in report base on preliminary measurement.



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	18deg. C, 60%RH, 1023 hPa	120Vac, 60Hz	Wen Yu
RE<1G	20deg. C, 75%RH, 1023 hPa	120Vac, 60Hz	Evan Huang
PLC	15deg. C, 67%RH, 1023 hPa	120Vac, 60Hz	Frank Liu
APCM	21 deg. C, 60%RH, 1023 hPa	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.



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3.4 DESCRIPTION OF SUPPORT UNITS

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

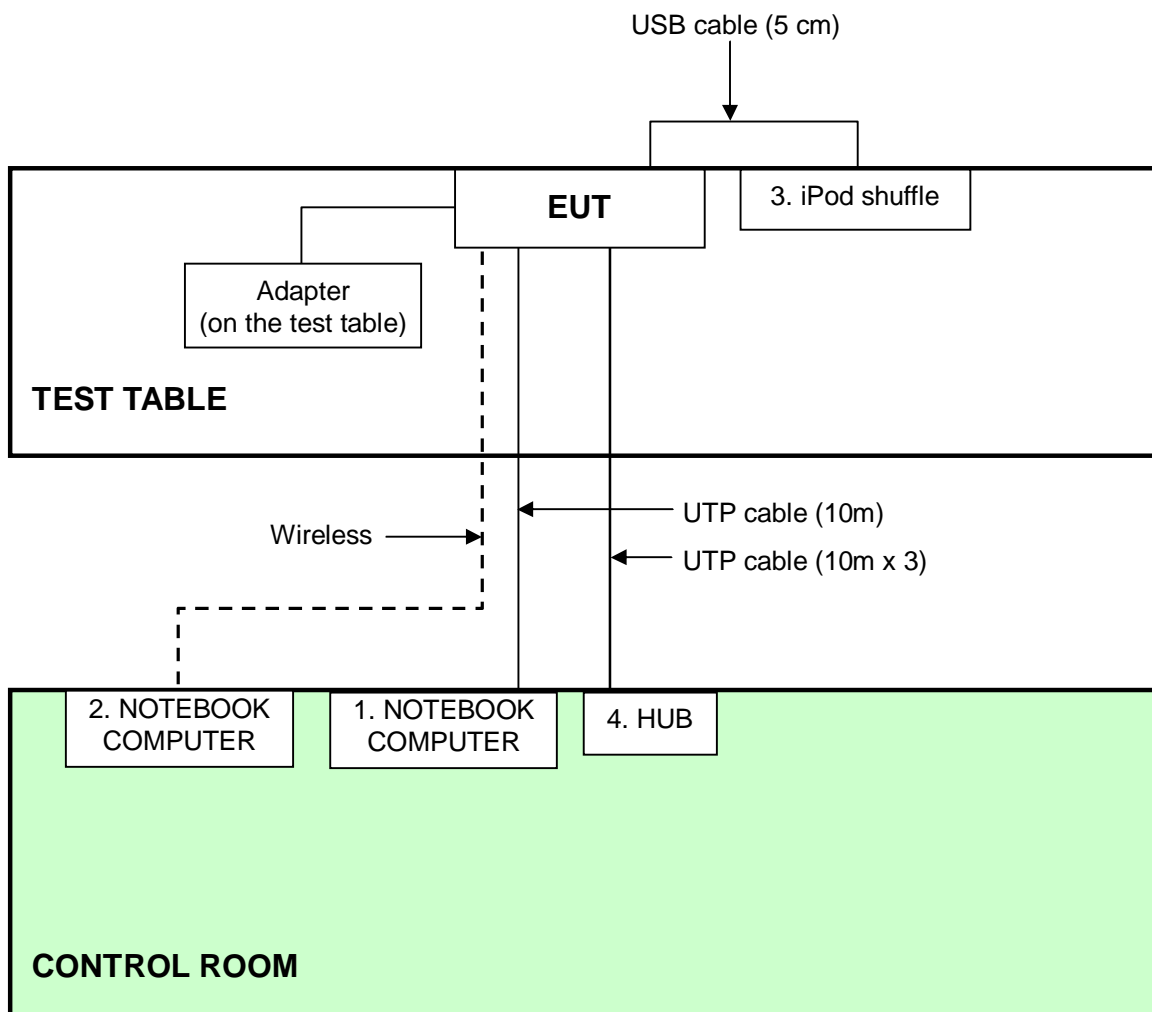
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6400	D814C A00 APCC	NA
2	NOTEBOOK COMPUTER	DELL	PP32LA	DSL32S	FCC DoC
3	iPod shuffle	Apple	MC749TA/A	CC4DM9M8DFDM	FCC DoC
4	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC

No.	Signal cable description
1	UTP Cable (10m)
2	NA
3	USB Cable (5 cm)
4	UTP Cable (10m)

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

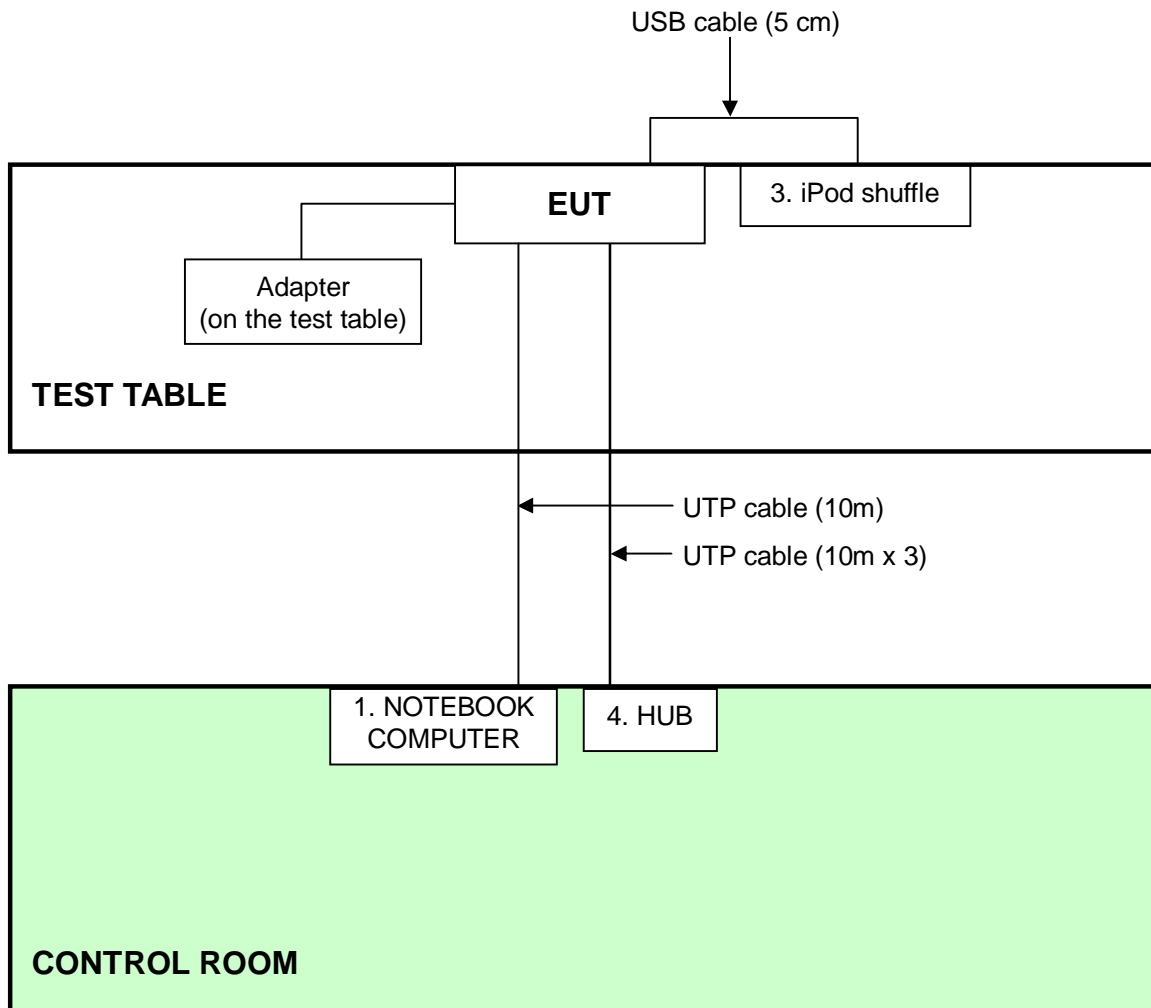
3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted test:



NOTE: 1. The test configuration was defined by the applicant's requirement.

For Radiated test:



NOTE: 1. The test configuration was defined by the applicant's requirement.



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4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Test date: Mar. 21, 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	Nov. 03, 2010	Nov. 02, 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.



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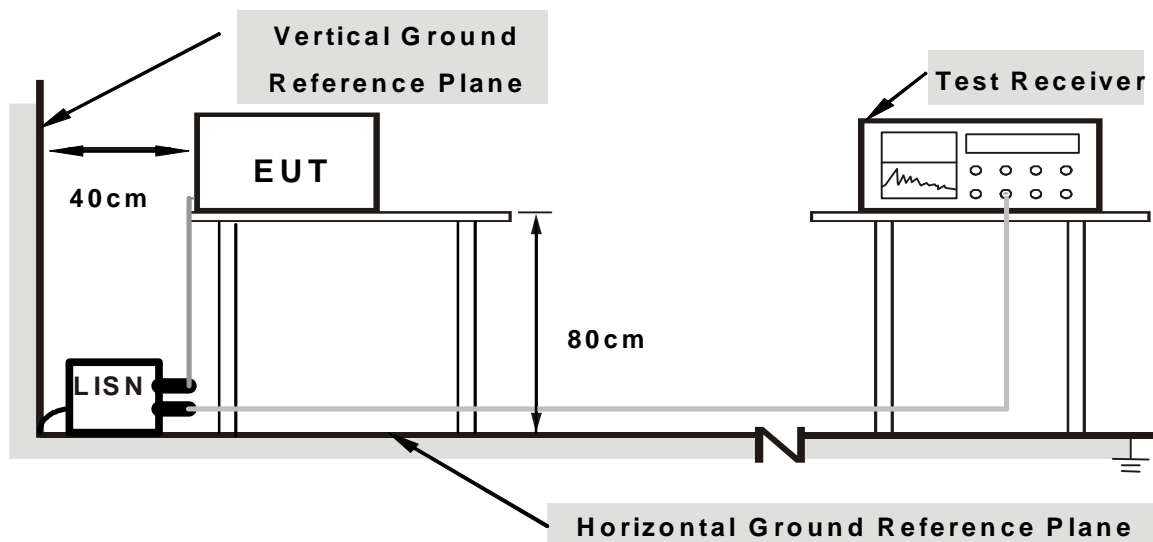
4.1.3 TEST PROCEDURES

- 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

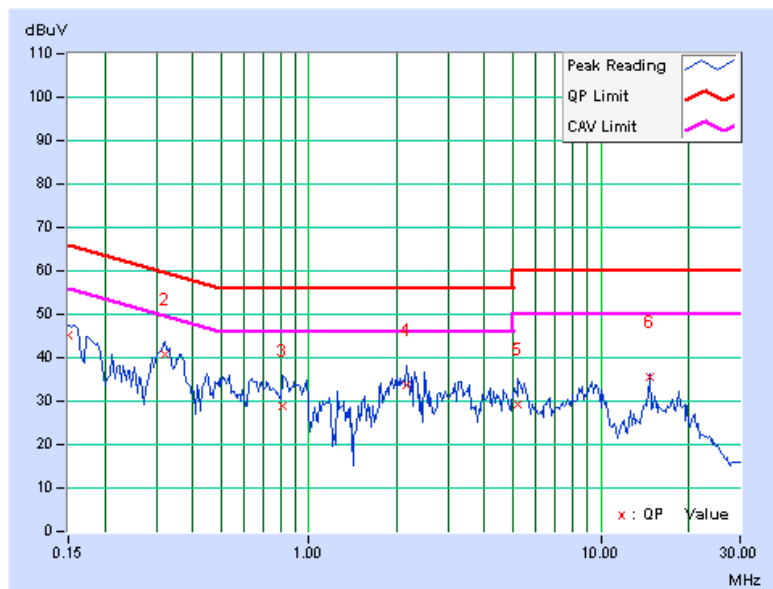
1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 & 2) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “WinTG.exe” & “Ping.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable and wireless transmission.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.150	0.10	45.08	35.04	45.18	35.14	66.00
2	0.322	0.13	40.56	30.39	40.69	30.52	59.66	49.66	-18.97	-19.14
3	0.818	0.14	28.80	20.19	28.94	20.33	56.00	46.00	-27.06	-25.67
4	2.152	0.16	33.54	24.24	33.70	24.40	56.00	46.00	-22.30	-21.60
5	5.227	0.26	28.85	20.89	29.11	21.15	60.00	50.00	-30.89	-28.85
6	14.680	0.56	34.95	30.22	35.51	30.78	60.00	50.00	-24.49	-19.22

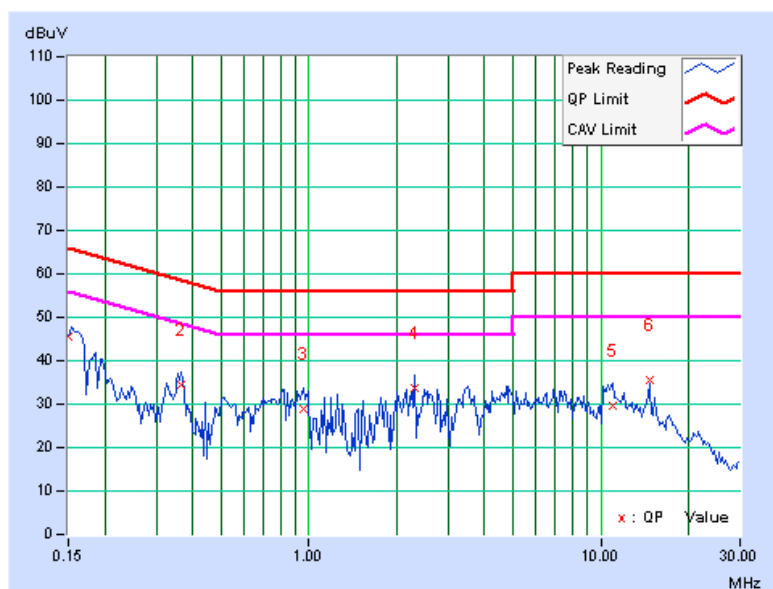
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.12	45.32	32.56	45.44	32.68	66.00	56.00	-20.56	-23.32
2	0.365	0.15	34.25	25.65	34.40	25.80	58.62	48.62	-24.22	-22.82
3	0.959	0.16	28.70	18.17	28.86	18.33	56.00	46.00	-27.14	-27.67
4	2.309	0.20	33.61	22.13	33.81	22.33	56.00	46.00	-22.19	-23.67
5	10.930	0.88	28.92	23.50	29.80	24.38	60.00	50.00	-30.20	-25.62
6	14.681	1.10	34.64	30.03	35.74	31.13	60.00	50.00	-24.26	-18.87

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



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4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

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

NOTE:

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

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



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4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12, 2010	May 11, 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2011	Jan. 16, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M- 1GHz	NA	NA
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room for below 1GHz and 10 meter open site for above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The 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.

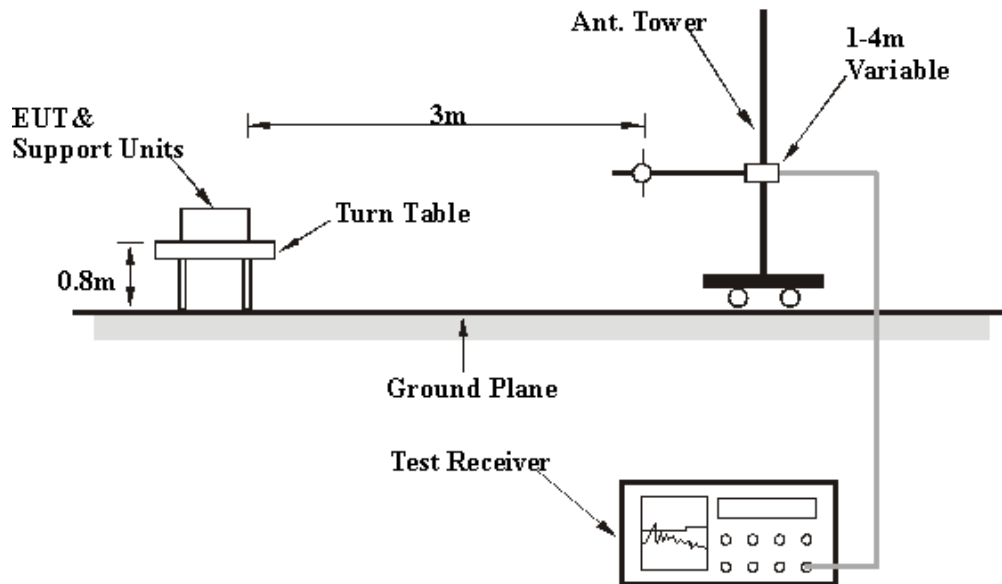
NOTE:

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. Placed the EUT on testing table.
2. Prepared other computer system (support unit 1) to act as communication partner and placed it outside of testing area.
3. The communication partners ran test program “QA_RT3883-AP-V1.0.4.5” to enable EUT under transmission/receiving condition continuously via one UTP cable transmission.

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 75%RH 1023 hPa	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	125.02	26.3 QP	43.5	-17.2	4.00 H	38	13.16	13.16
2	208.90	31.9 QP	43.5	-11.6	3.67 H	274	20.24	11.68
3	250.03	33.1 QP	46.0	-12.9	3.15 H	300	19.23	13.89
4	375.00	36.0 QP	46.0	-10.1	2.86 H	113	17.97	17.98
5	500.00	39.0 QP	46.0	-7.0	2.21 H	347	17.76	21.26
6	750.00	36.8 QP	46.0	-9.2	1.45 H	234	10.50	26.32
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	125.06	37.1 QP	43.5	-6.5	1.01 V	221	23.89	13.16
2	149.24	36.2 QP	43.5	-7.3	1.00 V	94	21.81	14.43
3	209.46	37.1 QP	43.5	-6.4	1.00 V	94	25.43	11.71
4	250.12	37.0 QP	46.0	-9.0	1.00 V	69	23.12	13.90
5	375.26	40.2 QP	46.0	-5.8	1.00 V	36	22.22	17.99
6	499.69	43.2 QP	46.0	-2.8	1.01 V	104	21.96	21.25

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



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ABOVE 1GHz WORST-CASE DATA

802.11a 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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	4800.00	60.6 PK	74.0	-13.4	1.02 H	41	23.01	37.59
2	4800.00	51.7 AV	54.0	-2.3	1.02 H	41	14.11	37.59
3	5150.00	65.8 PK	74.0	-8.2	1.02 H	45	27.07	38.73
4	5150.00	53.4 AV	54.0	-0.6	1.02 H	45	14.67	38.73
5	*5180.00	112.7 PK			1.03 H	45	73.90	38.80
6	*5180.00	102.7 AV			1.03 H	45	63.90	38.80
7	#10360.00	52.9 PK	68.3	-15.4	1.26 H	273	7.79	45.11
8	15540.00	59.6 PK	74.0	-14.4	1.24 H	122	13.02	46.58
9	15540.00	46.9 AV	54.0	-7.1	1.24 H	122	0.32	46.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.4 PK	74.0	-7.6	1.00 V	273	27.67	38.73
2	5150.00	53.5 AV	54.0	-0.5	1.00 V	273	14.77	38.73
3	*5180.00	114.2 PK			1.00 V	273	75.40	38.80
4	*5180.00	103.8 AV			1.00 V	273	65.00	38.80
5	#10360.00	53.7 PK	68.3	-14.6	1.09 V	112	8.59	45.11
6	15540.00	58.3 PK	74.0	-15.7	1.33 V	215	11.72	46.58
7	15540.00	46.1 AV	54.0	-7.9	1.33 V	215	-0.48	46.58

- REMARKS:**
- Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 - Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 - The other emission levels were very low against the limit.
 - Margin value = Emission level – Limit value.
 - * *: Fundamental frequency.
 - # #: The radiated frequency is out the restricted band.



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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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	5148.00	64.1 PK	74.0	-9.9	1.02 H	42	25.37	38.73
2	5148.00	52.1 AV	54.0	-1.9	1.02 H	42	13.37	38.73
3	*5200.00	112.1 PK			1.02 H	42	73.25	38.85
4	*5200.00	102.1 AV			1.02 H	42	63.25	38.85
5	#10400.00	54.1 PK	68.3	-14.2	1.28 H	217	8.91	45.19
6	15600.00	64.7 PK	74.0	-9.3	1.21 H	111	18.37	46.33
7	15600.00	51.3 AV	54.0	-2.7	1.21 H	111	4.97	46.33

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	5147.60	64.8 PK	74.0	-9.2	1.00 V	270	26.08	38.72
2	5147.60	52.9 AV	54.0	-1.1	1.00 V	270	14.18	38.72
3	*5200.00	114.9 PK			1.00 V	263	76.05	38.85
4	*5200.00	104.5 AV			1.00 V	263	65.65	38.85
5	#10400.00	53.8 PK	68.3	-14.5	1.09 V	115	8.61	45.19
6	15600.00	58.2 PK	74.0	-15.8	1.33 V	221	11.87	46.33
7	15600.00	46.2 AV	54.0	-7.8	1.33 V	221	-0.13	46.33

- 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.



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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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	4800.00	60.6 PK	74.0	-13.4	1.01 H	28	23.01	37.59
2	4800.00	49.9 AV	54.0	-4.1	1.01 H	28	12.31	37.59
3	*5240.00	110.7 PK			1.04 H	56	71.75	38.95
4	*5240.00	100.6 AV			1.04 H	56	61.65	38.95
5	5395.60	60.7 PK	74.0	-13.3	1.04 H	54	21.41	39.29
6	5395.60	49.6 AV	54.0	-4.4	1.04 H	54	10.31	39.29
7	#10480.00	53.1 PK	68.3	-15.2	1.27 H	24	7.94	45.16
8	15720.00	62.8 PK	74.0	-11.2	1.00 H	115	16.55	46.25
9	15720.00	51.3 AV	54.0	-2.7	1.00 H	115	5.05	46.25

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

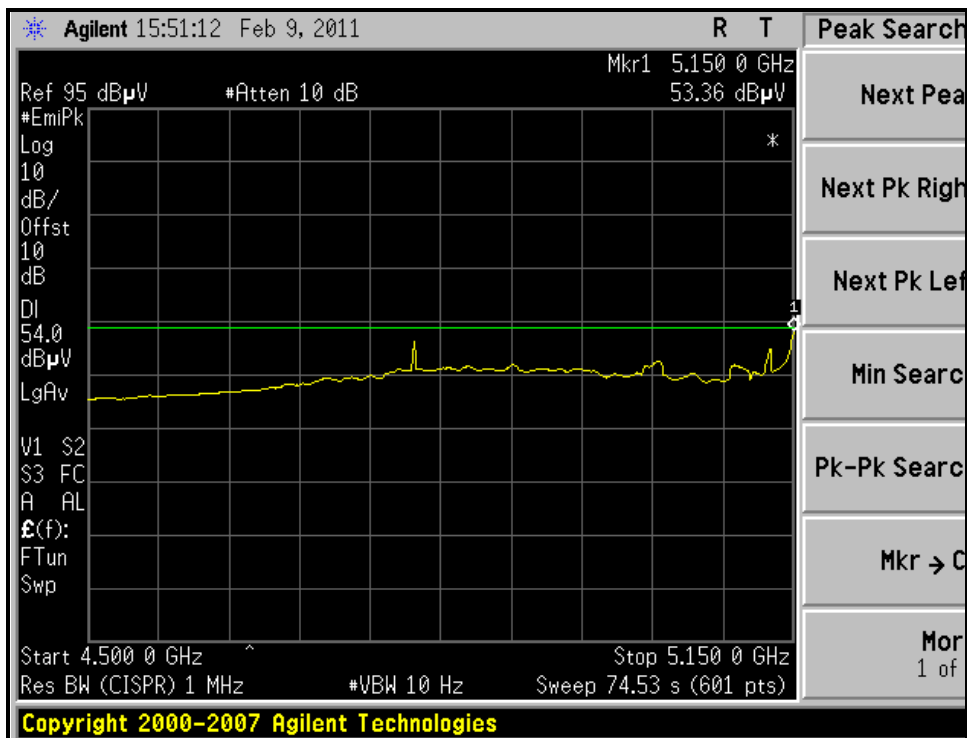
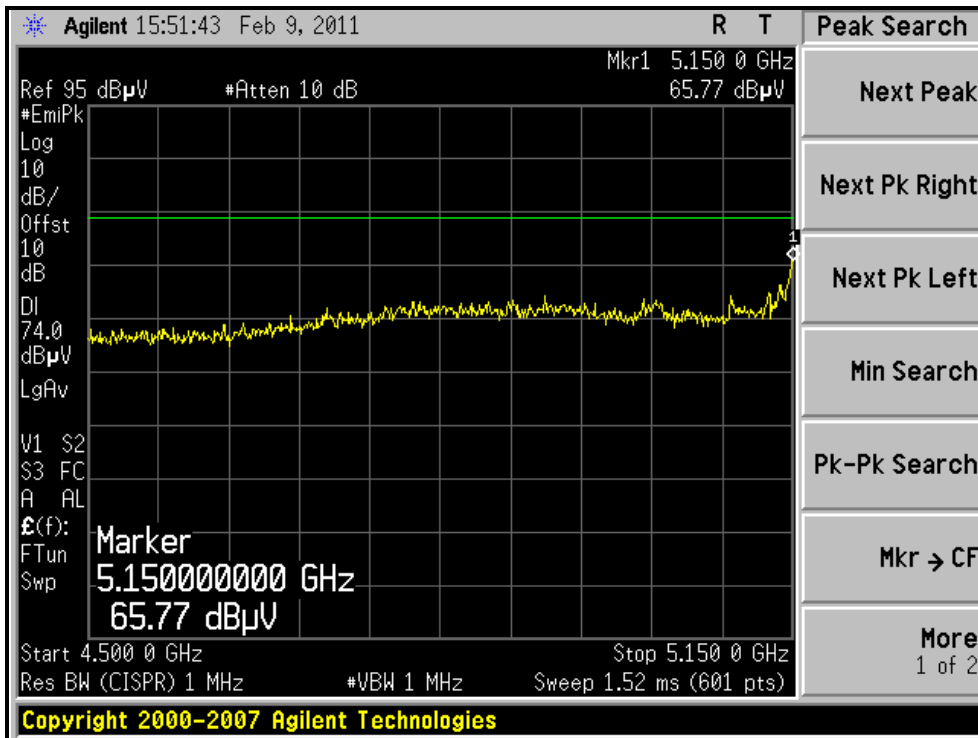
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1	*5240.00	116.5 PK			1.00 V	265	77.55	38.95
2	*5240.00	106.3 AV			1.00 V	265	67.35	38.95
3	5352.50	62.4 PK	74.0	-11.6	1.07 V	270	23.20	39.20
4	5352.50	49.5 AV	54.0	-4.5	1.07 V	270	10.30	39.20
5	#10480.00	54.1 PK	68.3	-14.2	1.08 V	114	8.94	45.16
6	15720.00	58.5 PK	74.0	-15.5	1.30 V	219	12.25	46.25
7	15720.00	46.4 AV	54.0	-7.6	1.30 V	219	0.15	46.25

- 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.



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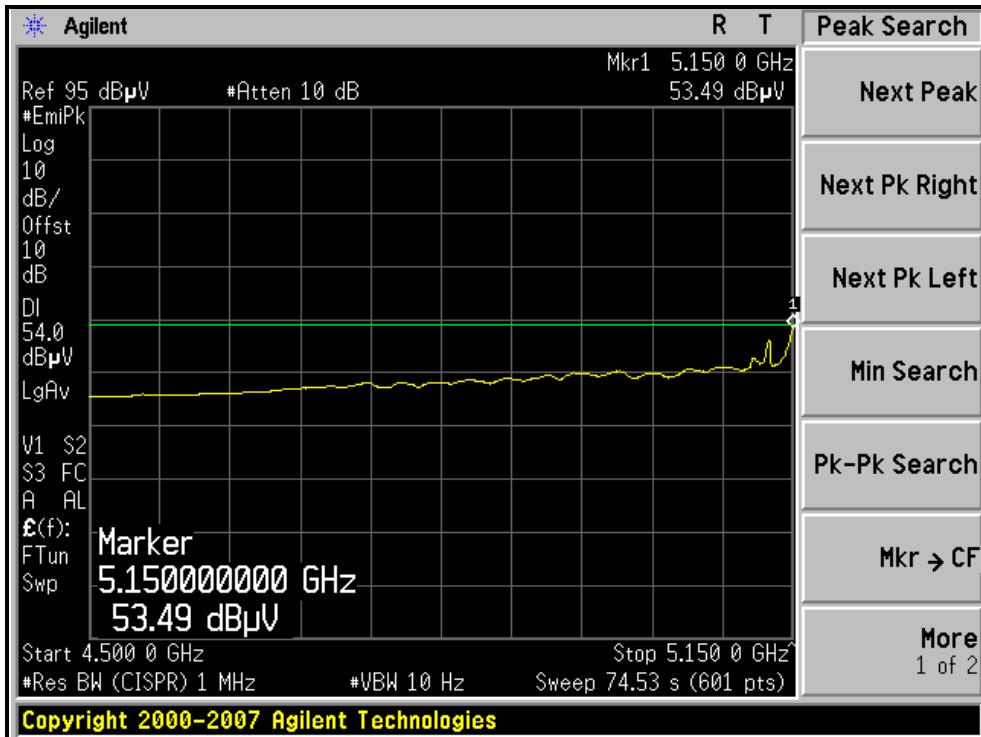
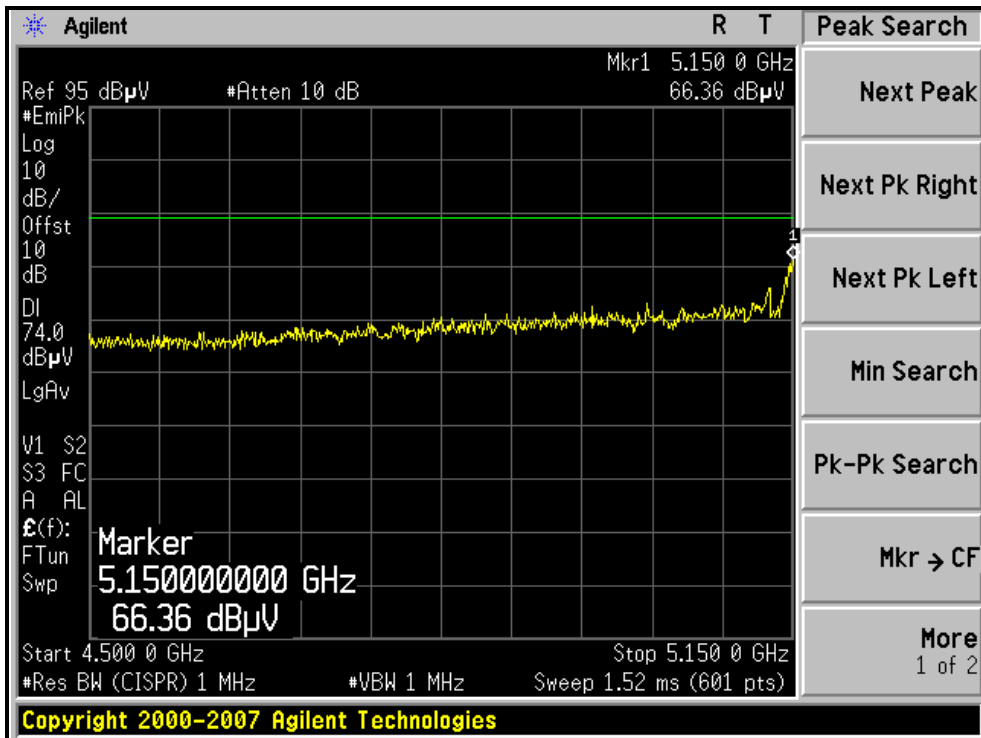
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





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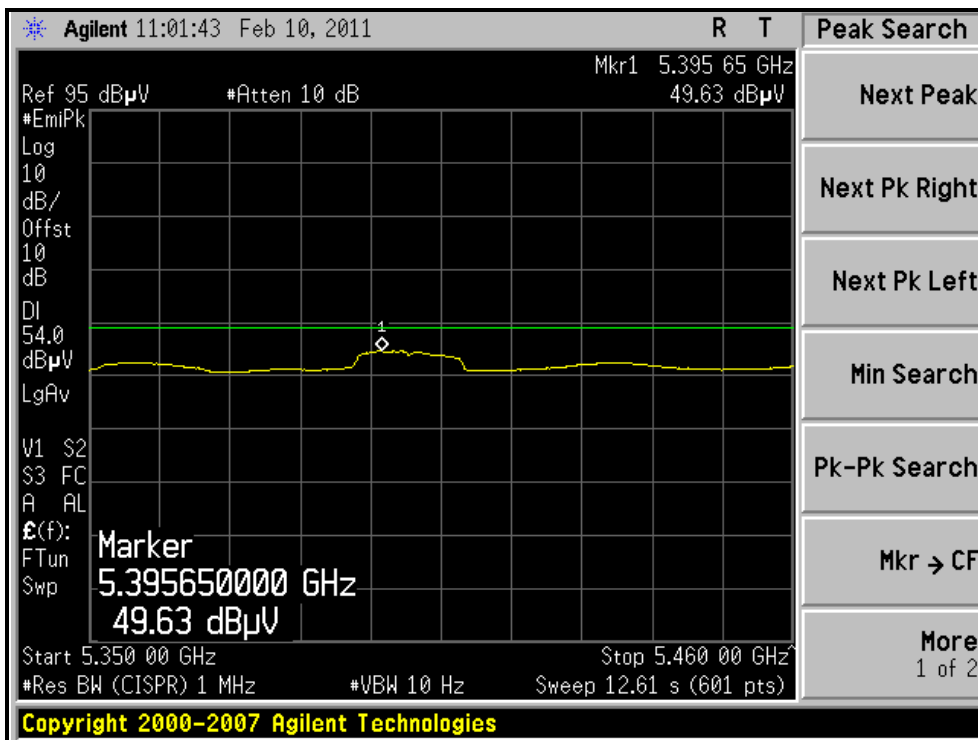
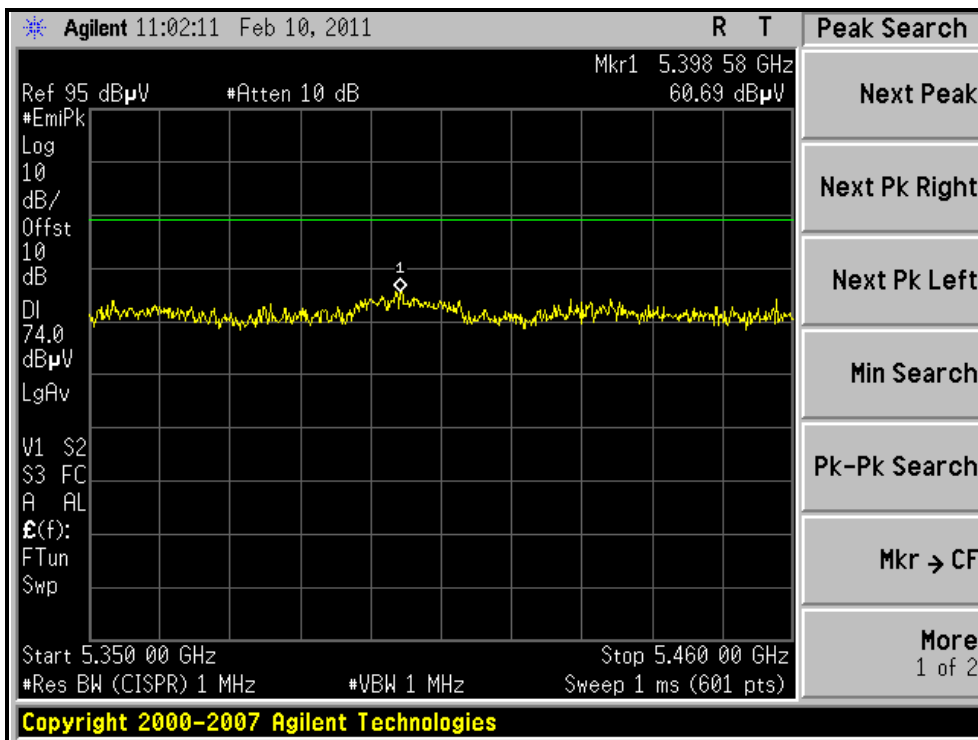
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





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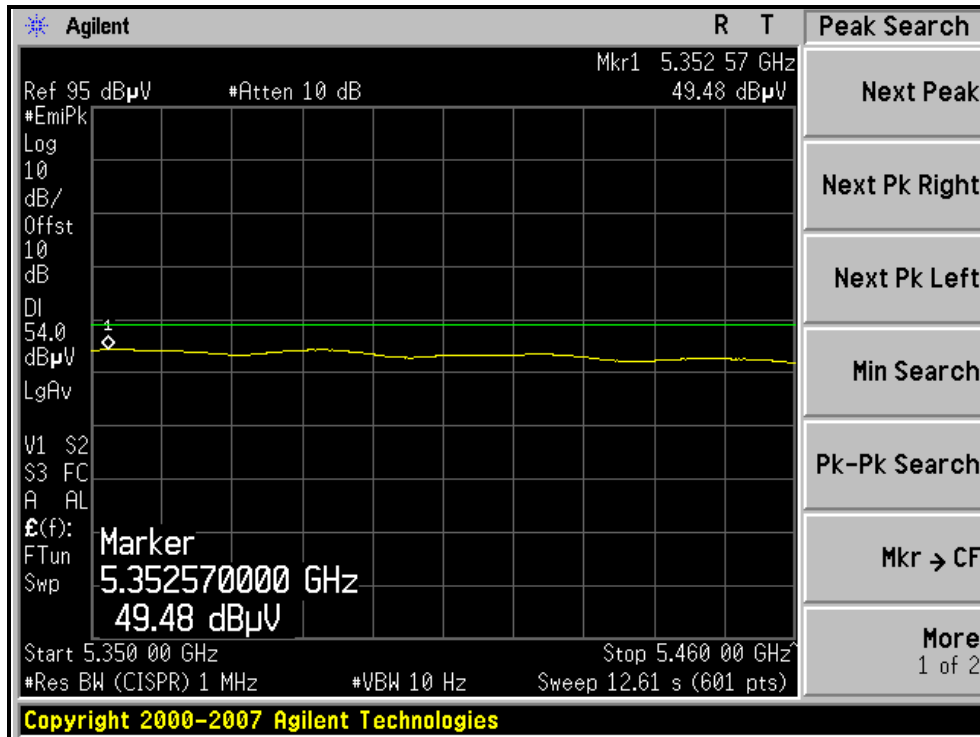
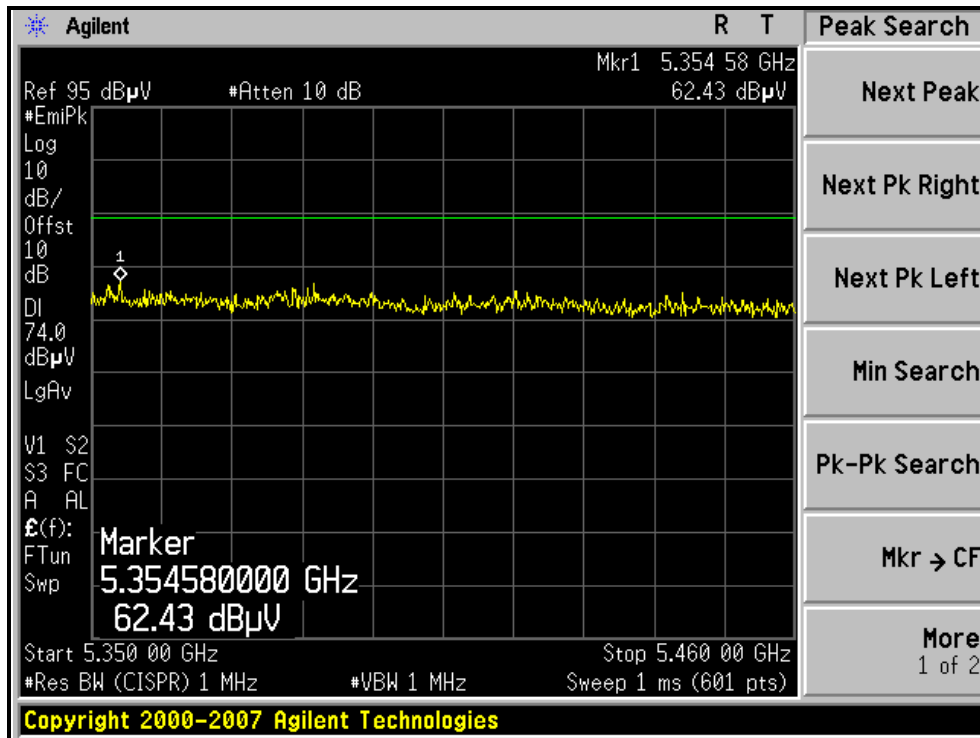
RESTRICTED BANDEDGE (802.11a MODE, CH48, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11a MODE, CH48, VERTICAL)





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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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	66.8 PK	74.0	-7.2	1.02 H	43	28.07	38.73
2	5150.00	51.9 AV	54.0	-2.1	1.02 H	43	13.17	38.73
3	*5180.00	109.5 PK			1.02 H	43	70.70	38.80
4	*5180.00	99.9 AV			1.02 H	43	61.10	38.80
5	#10360.00	52.1 PK	68.3	-16.2	1.12 H	220	6.99	45.11
6	15540.00	60.9 PK	74.0	-13.1	1.75 H	264	14.32	46.58
7	15540.00	46.8 AV	54.0	-7.2	1.75 H	264	0.22	46.58

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	4800.00	61.1 PK	74.0	-12.9	1.00 V	44	23.51	37.59
2	4800.00	51.3 AV	54.0	-2.7	1.00 V	44	13.71	37.59
3	5150.00	66.9 PK	74.0	-7.1	1.06 V	289	28.17	38.73
4	5150.00	53.0 AV	54.0	-1.0	1.06 V	289	14.27	38.73
5	*5180.00	111.5 PK			1.06 V	289	72.70	38.80
6	*5180.00	101.9 AV			1.06 V	289	63.10	38.80
7	#10360.00	53.4 PK	68.3	-14.9	1.22 V	271	8.29	45.11
8	15540.00	62.0 PK	74.0	-12.0	1.26 V	93	15.42	46.58
9	15540.00	47.9 AV	54.0	-6.1	1.26 V	93	1.32	46.58

- 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.



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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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	109.7 PK			1.00 H	49	70.85	38.85
2	*5200.00	99.9 AV			1.00 H	49	61.05	38.85
3	#10400.00	51.3 PK	68.3	-17.0	1.12 H	221	6.11	45.19
4	15600.00	60.4 PK	74.0	-13.6	1.79 H	265	14.07	46.33
5	15600.00	46.1 AV	54.0	-7.9	1.79 H	265	-0.23	46.33
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	5148.00	61.0 PK	74.0	-13.0	1.00 V	43	22.27	38.73
2	5148.00	51.4 AV	54.0	-2.6	1.00 V	43	12.67	38.73
3	*5200.00	112.2 PK			1.02 V	243	73.35	38.85
4	*5200.00	102.9 AV			1.02 V	243	64.05	38.85
5	#10400.00	53.5 PK	68.3	-14.8	1.26 V	295	8.31	45.19
6	15600.00	62.2 PK	74.0	-11.8	1.27 V	98	15.87	46.33
7	15600.00	48.1 AV	54.0	-5.9	1.27 V	98	1.77	46.33

- 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.



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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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

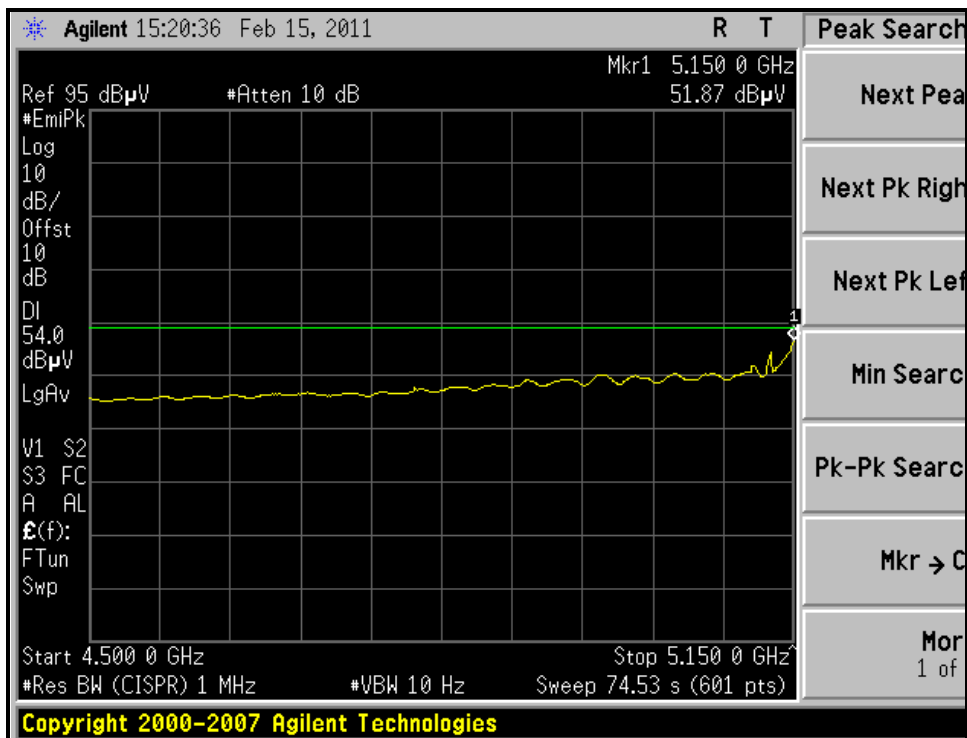
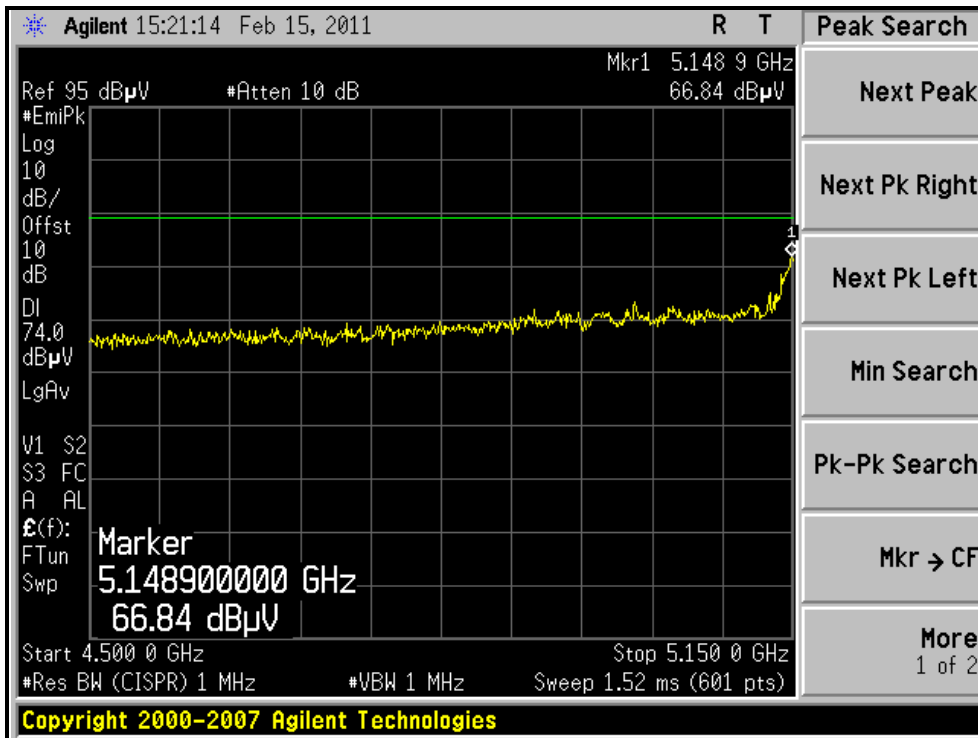
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.2 PK			1.00 H	50	70.25	38.95
2	*5240.00	98.9 AV			1.00 H	50	59.95	38.95
3	5392.70	59.0 PK	74.0	-15.0	1.00 H	50	19.71	39.29
4	5392.70	47.5 AV	54.0	-6.5	1.00 H	50	8.21	39.29
5	#10480.00	52.1 PK	68.3	-16.2	1.10 H	220	6.94	45.16
6	15720.00	60.3 PK	74.0	-13.7	1.80 H	264	14.05	46.25
7	15720.00	46.2 AV	54.0	-7.8	1.80 H	264	-0.05	46.25
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	112.2 PK			1.02 V	242	73.25	38.95
2	*5240.00	102.6 AV			1.02 V	242	63.65	38.95
3	5398.70	61.7 PK	74.0	-12.3	1.00 V	257	22.40	39.30
4	5398.70	49.8 AV	54.0	-4.2	1.00 V	257	10.50	39.30
5	#10480.00	53.4 PK	68.3	-14.9	1.22 V	298	8.24	45.16
6	15720.00	62.5 PK	74.0	-11.5	1.26 V	95	16.25	46.25
7	15720.00	48.3 AV	54.0	-5.7	1.26 V	95	2.05	46.25

- 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.



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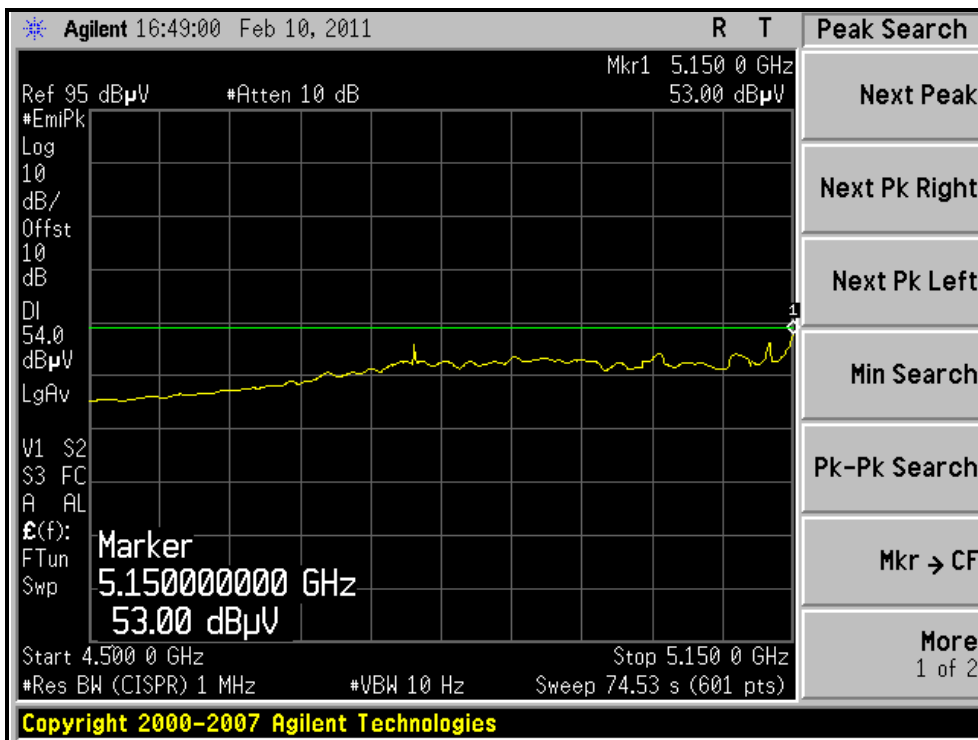
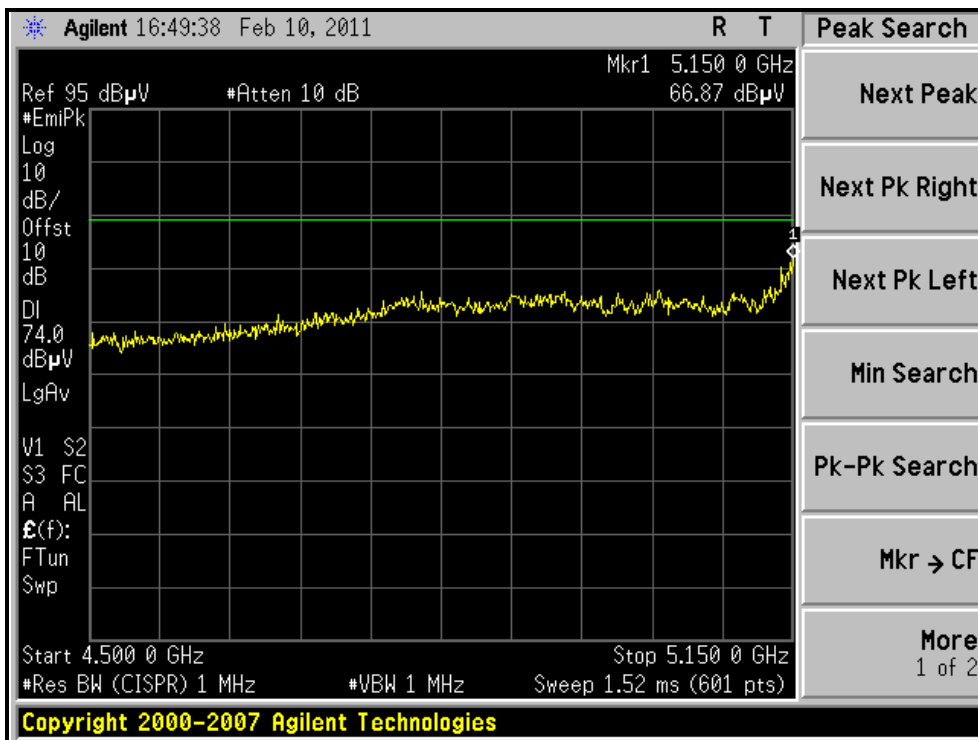
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)





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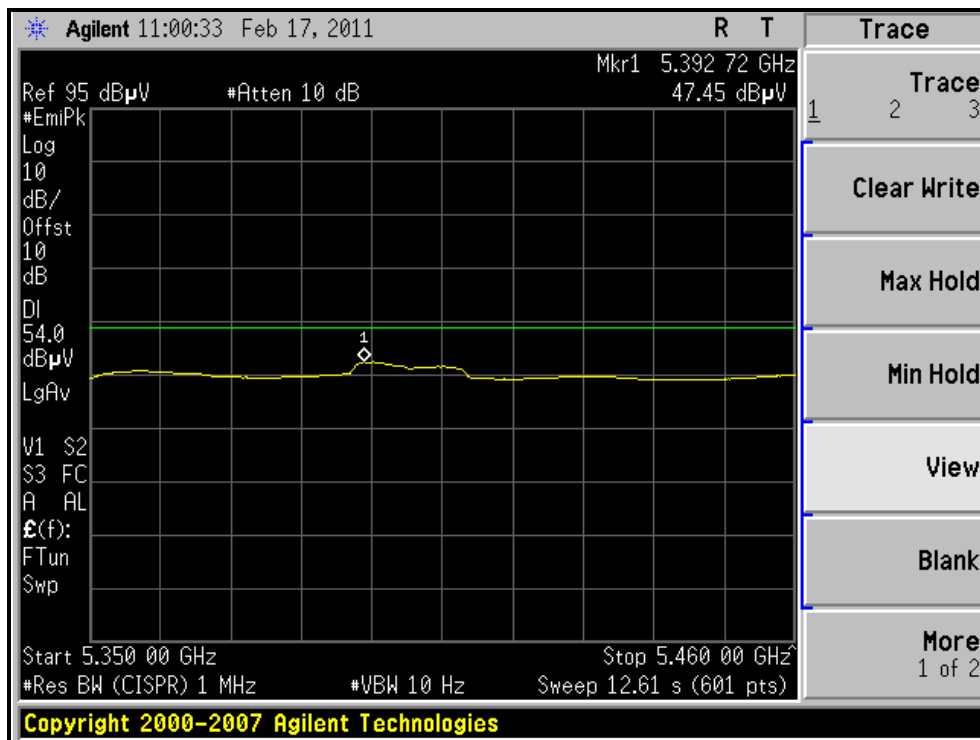
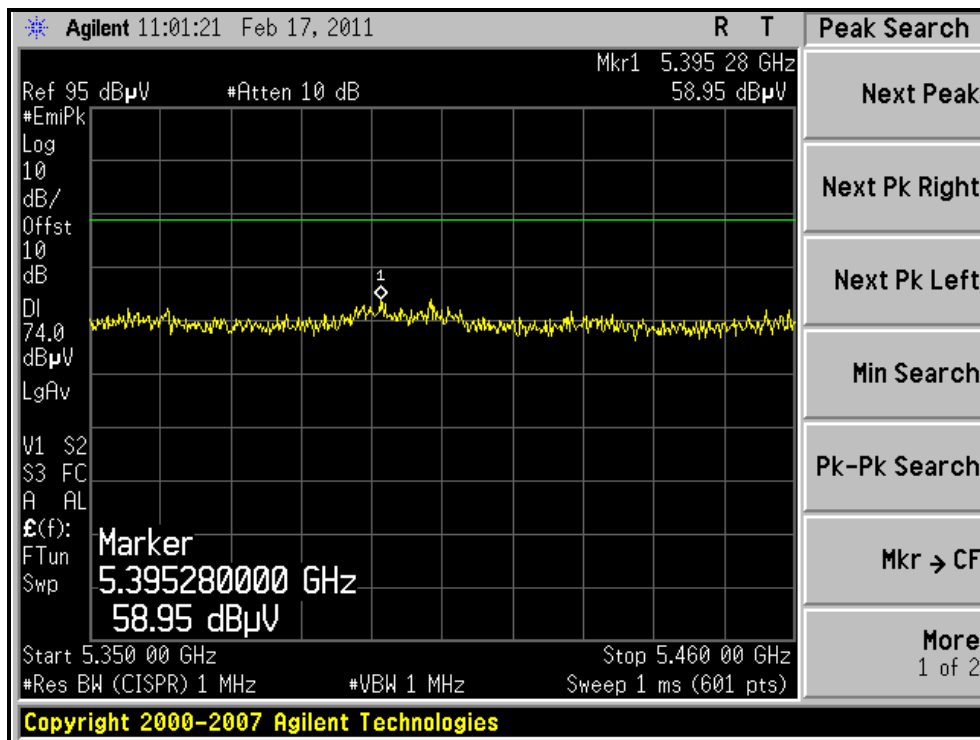
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)





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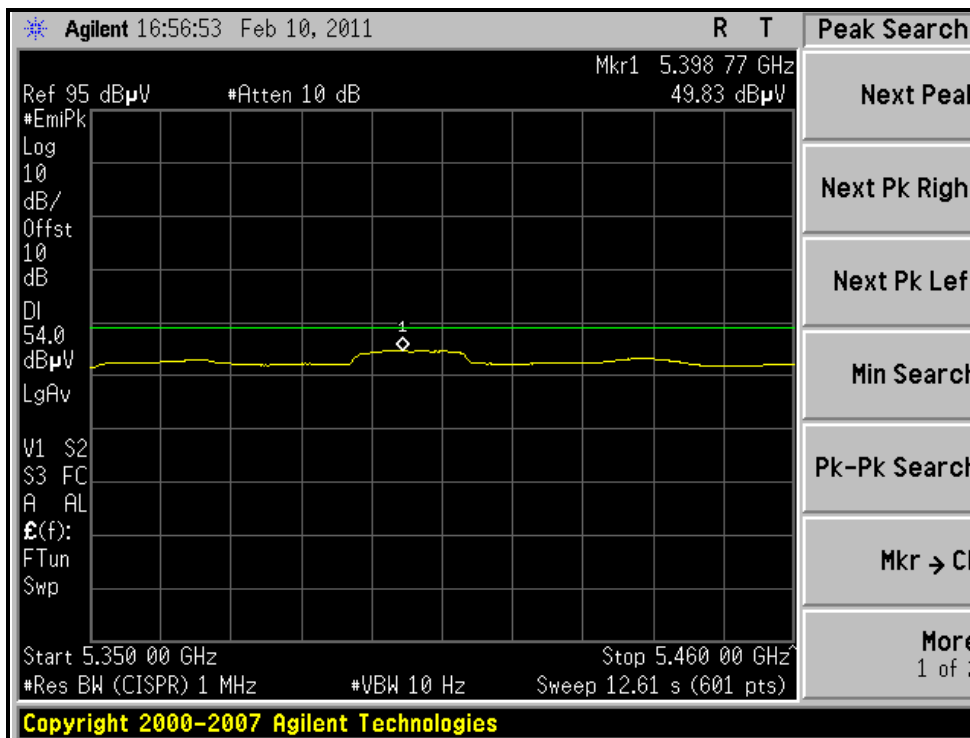
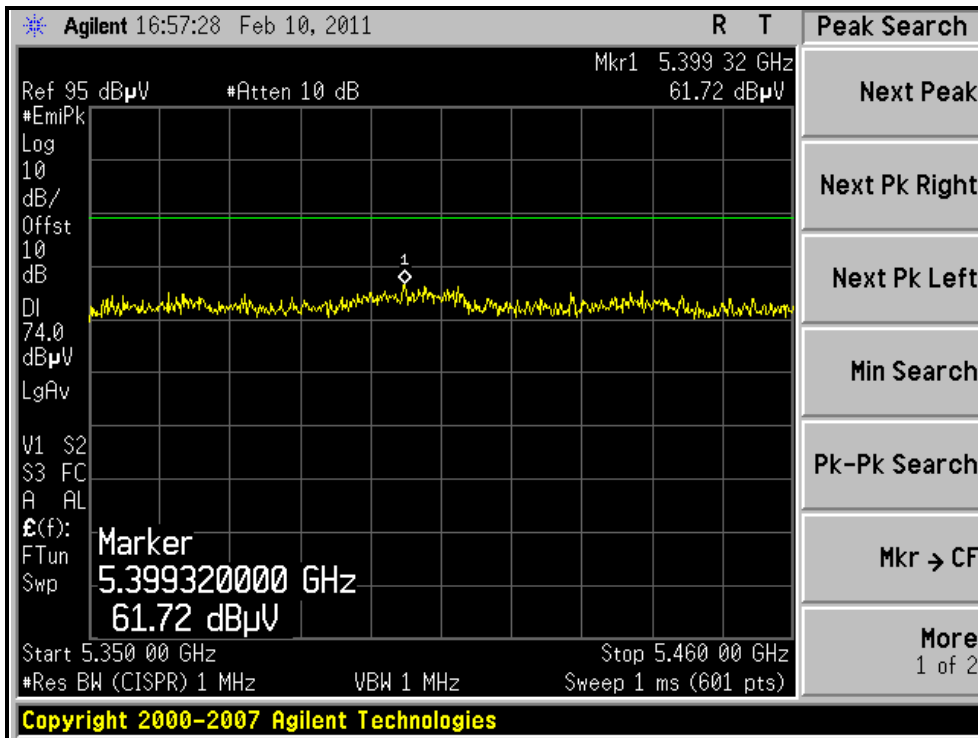
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH48, HORIZONTAL)





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





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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	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	4800.00	59.3 PK	74.0	-14.7	1.00 H	23	21.71	37.59
2	4800.00	49.7 AV	54.0	-4.3	1.00 H	23	12.11	37.59
3	5150.00	64.8 PK	74.0	-9.2	1.00 H	43	26.07	38.73
4	5150.00	47.2 AV	54.0	-6.8	1.00 H	43	8.47	38.73
5	*5190.00	104.7 PK			1.00 H	43	65.87	38.83
6	*5190.00	94.2 AV			1.00 H	43	55.37	38.83
7	11380.00	52.7 PK	74.0	-21.3	1.31 H	74	6.51	46.19
8	15570.00	56.4 PK	74.0	-17.6	1.62 H	101	9.95	46.45
9	15570.00	44.6 AV	54.0	-9.4	1.62 H	101	-1.85	46.45

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	4800.00	58.4 PK	74.0	-15.6	1.10 V	33	20.81	37.59
2	4800.00	49.1 AV	54.0	-4.9	1.10 V	33	11.51	37.59
3	5150.00	71.2 PK	74.0	-2.8	1.02 V	266	32.47	38.73
4	5150.00	53.4 AV	54.0	-0.6	1.02 V	266	14.67	38.73
5	*5190.00	105.5 PK			1.02 V	266	66.67	38.83
6	*5190.00	96.7 AV			1.02 V	266	57.87	38.83
7	11380.00	53.2 PK	74.0	-20.8	1.22 V	294	7.01	46.19
8	15570.00	57.3 PK	74.0	-16.7	1.00 V	82	10.85	46.45
9	15570.00	45.7 AV	54.0	-8.3	1.00 V	82	-0.75	46.45

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 60%RH 1023 hPa	TESTED BY	Wen Yu

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	103.3 PK			1.00 H	47	64.37	38.93
2	*5230.00	94.4 AV			1.00 H	47	55.47	38.93
3	5394.00	57.9 PK	74.0	-16.1	1.00 H	47	18.61	39.29
4	5394.00	46.0 AV	54.0	-8.0	1.00 H	47	6.71	39.29
5	#10460.00	52.9 PK	68.3	-15.4	1.30 H	75	7.73	45.17
6	15690.00	56.1 PK	74.0	-17.9	1.61 H	103	9.81	46.29
7	15690.00	44.9 AV	54.0	-9.1	1.61 H	103	-1.39	46.29

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

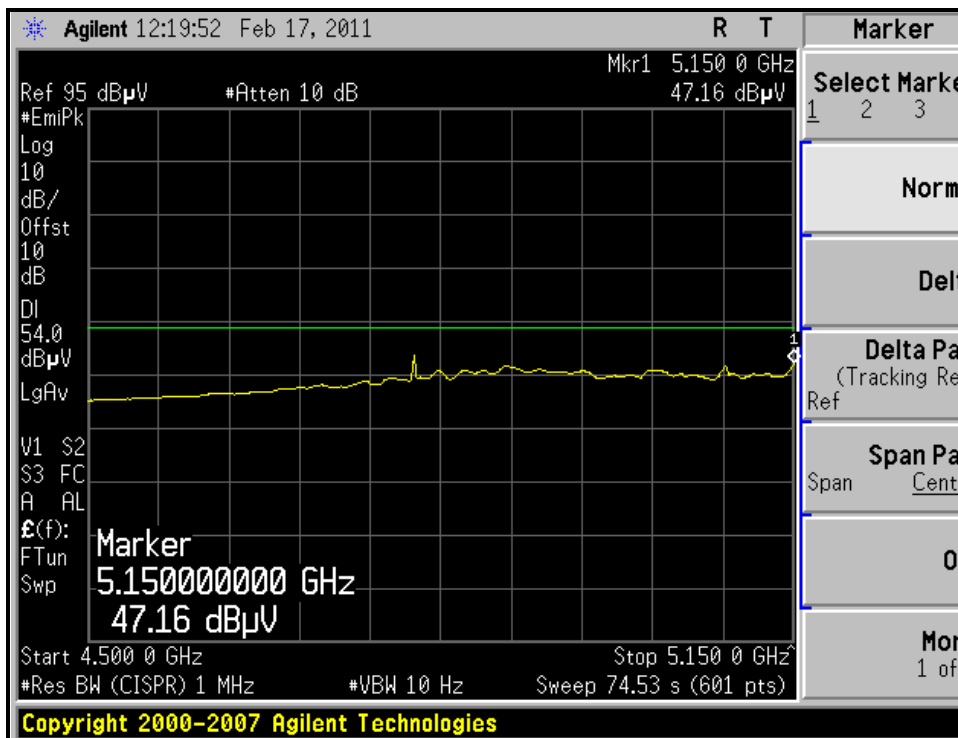
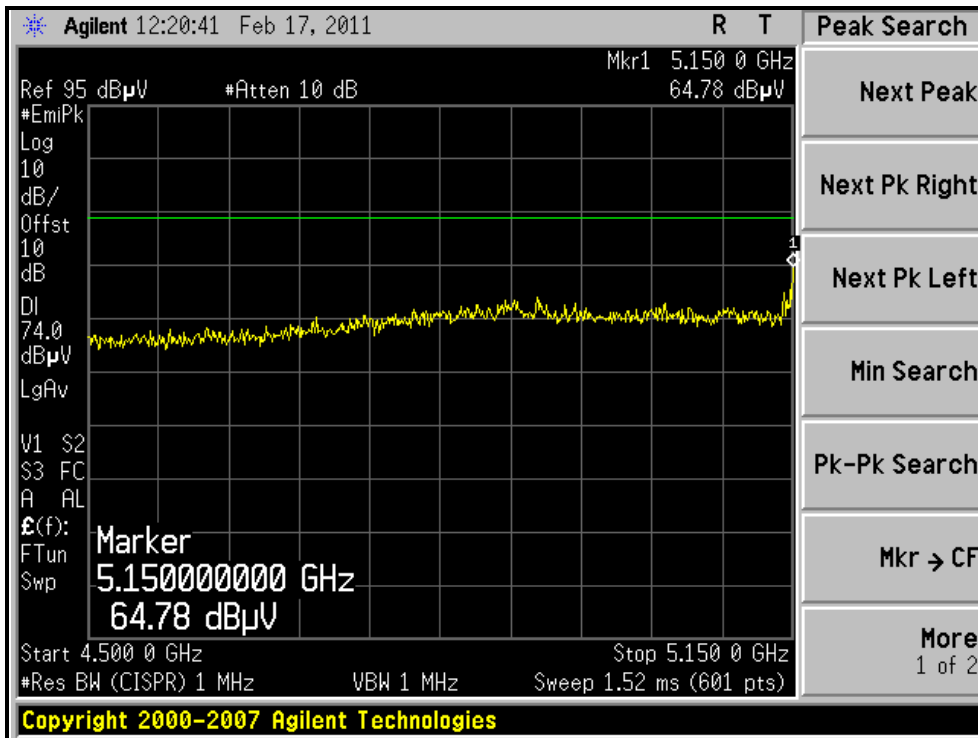
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4800.00	58.8 PK	74.0	-15.2	1.02 V	43	21.21	37.59
2	4800.00	48.6 AV	54.0	-5.4	1.02 V	43	11.01	37.59
3	*5230.00	107.2 PK			1.02 V	267	68.27	38.93
4	*5230.00	96.3 AV			1.02 V	267	57.37	38.93
5	5365.00	58.8 PK	74.0	-15.2	1.00 V	267	19.57	39.23
6	5365.00	46.7 AV	54.0	-7.3	1.00 V	267	7.47	39.23
7	#10460.00	53.2 PK	68.3	-15.1	1.22 V	295	8.03	45.17
8	15690.00	57.2 PK	74.0	-16.8	1.00 V	129	10.91	46.29
9	15690.00	45.6 AV	54.0	-8.4	1.00 V	129	-0.69	46.29

- 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.



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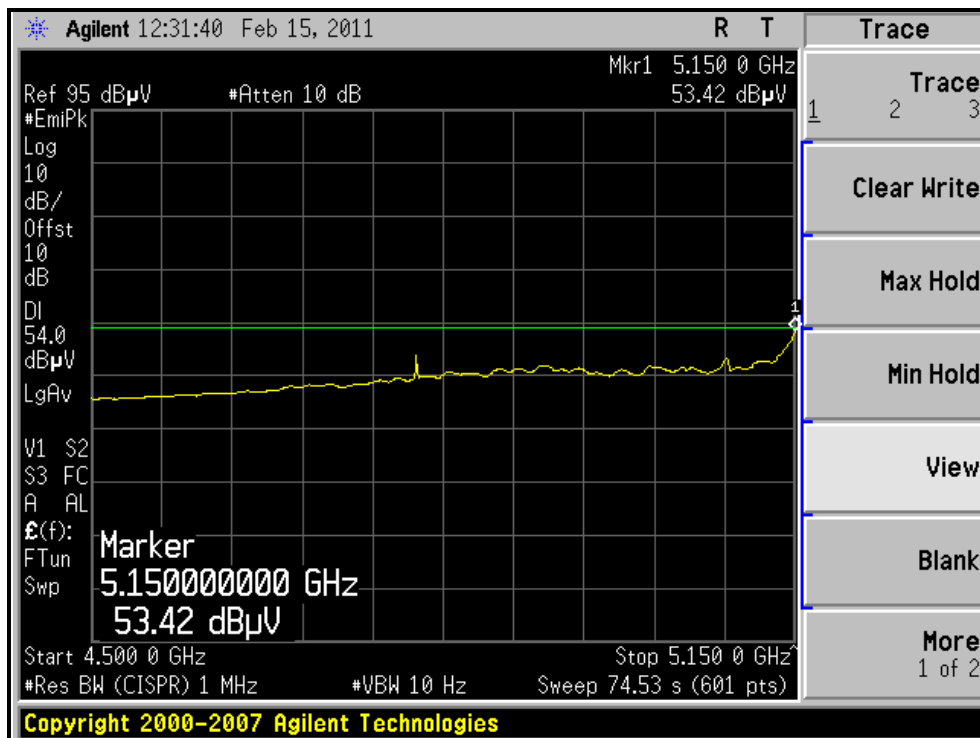
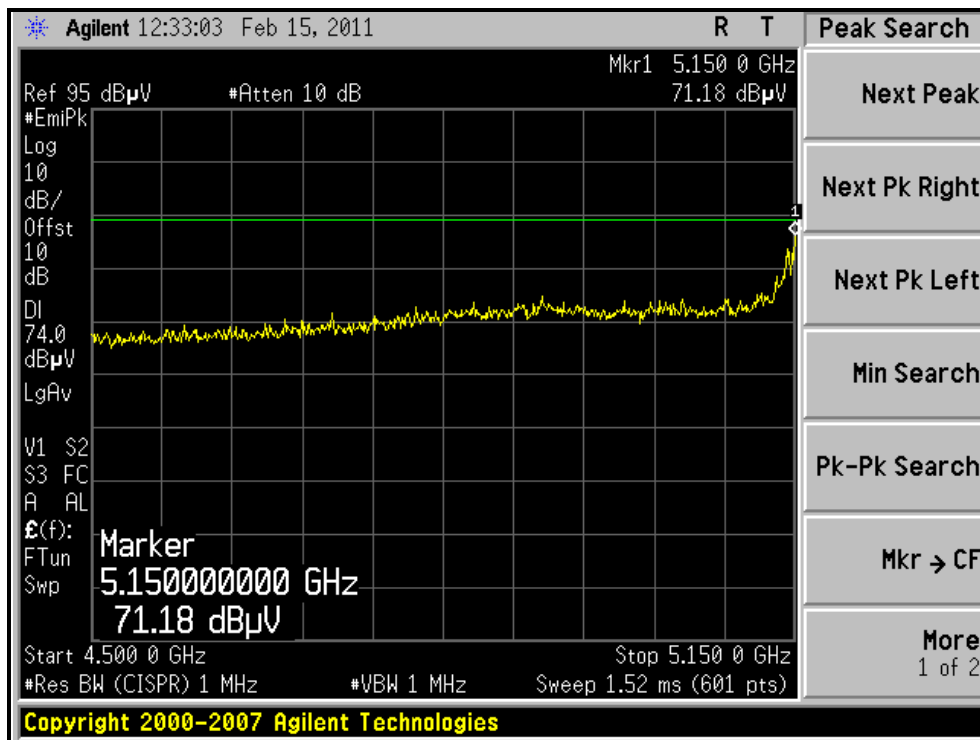
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH38, HORIZONTAL)





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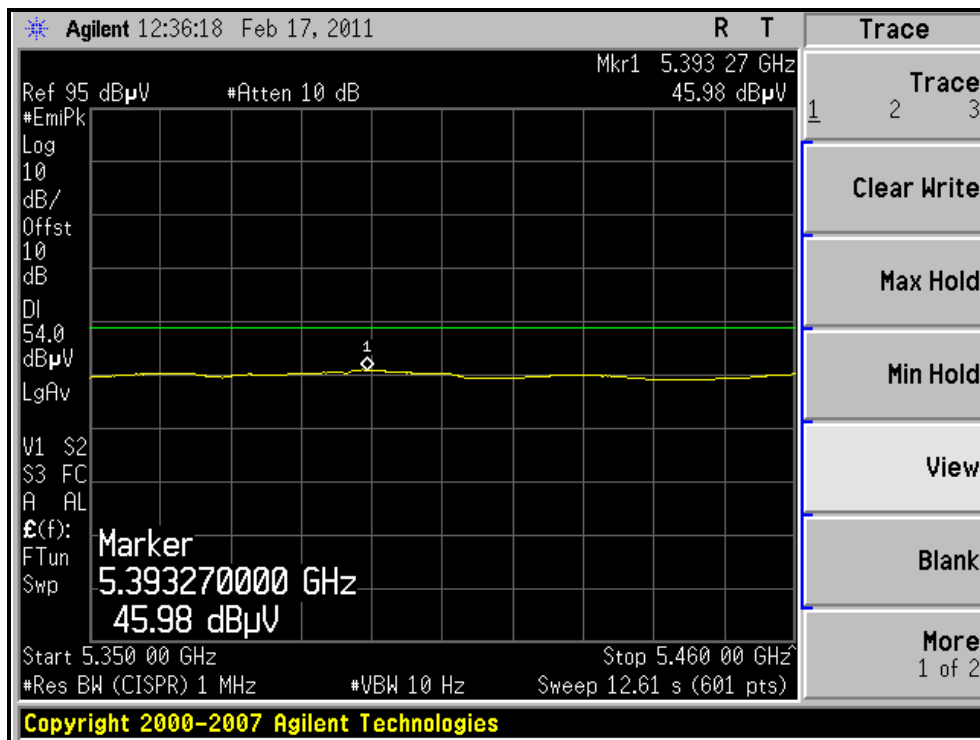
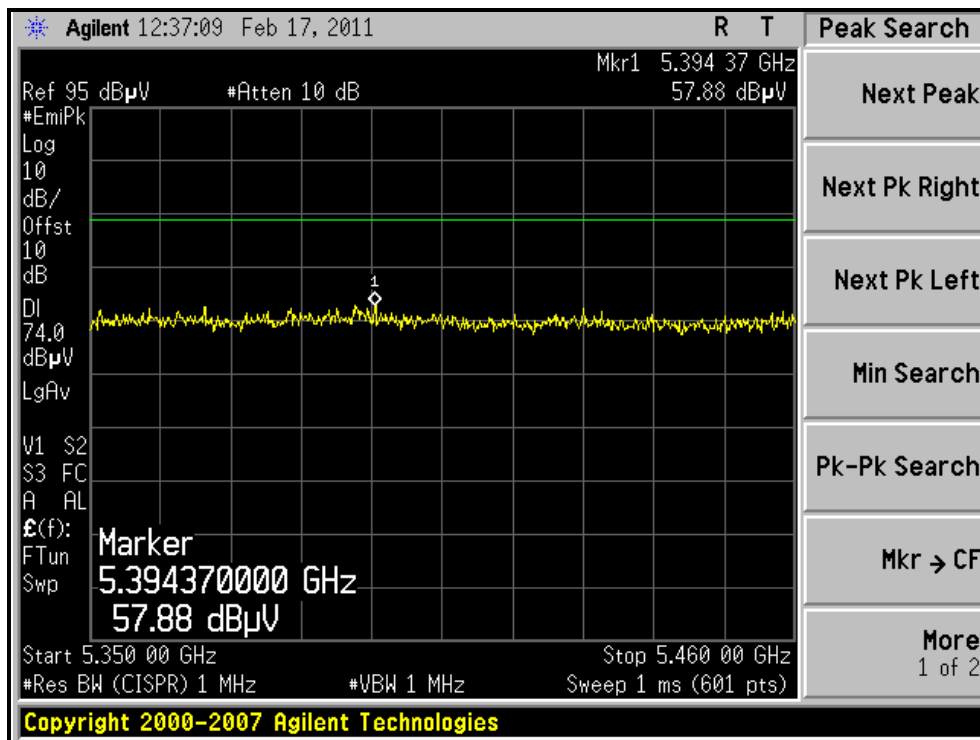
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH38, VERTICAL)





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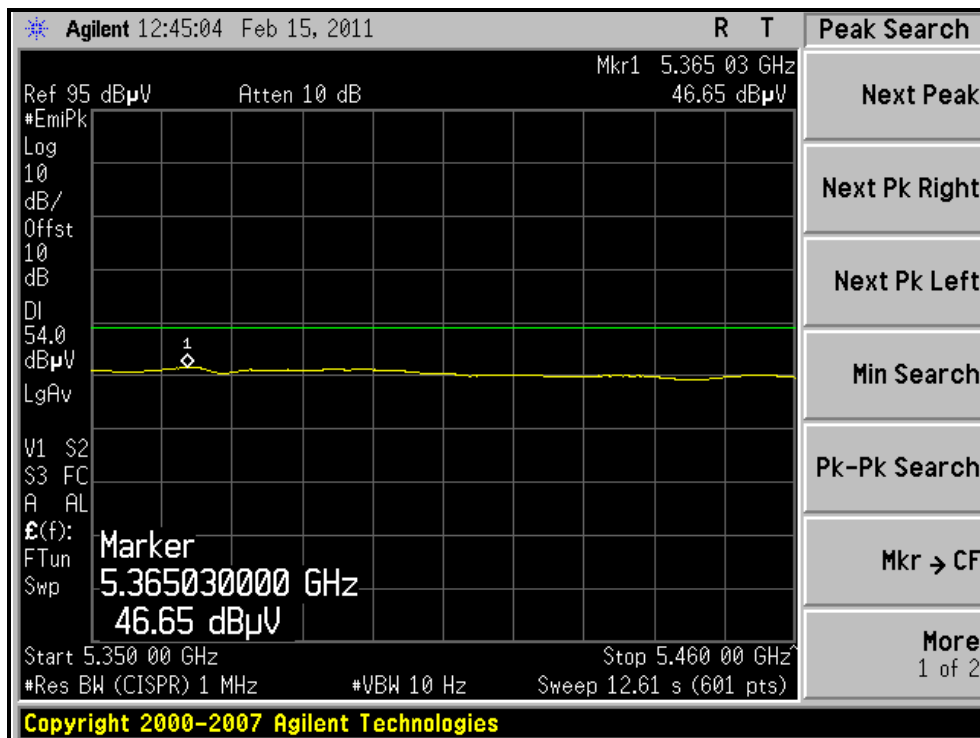
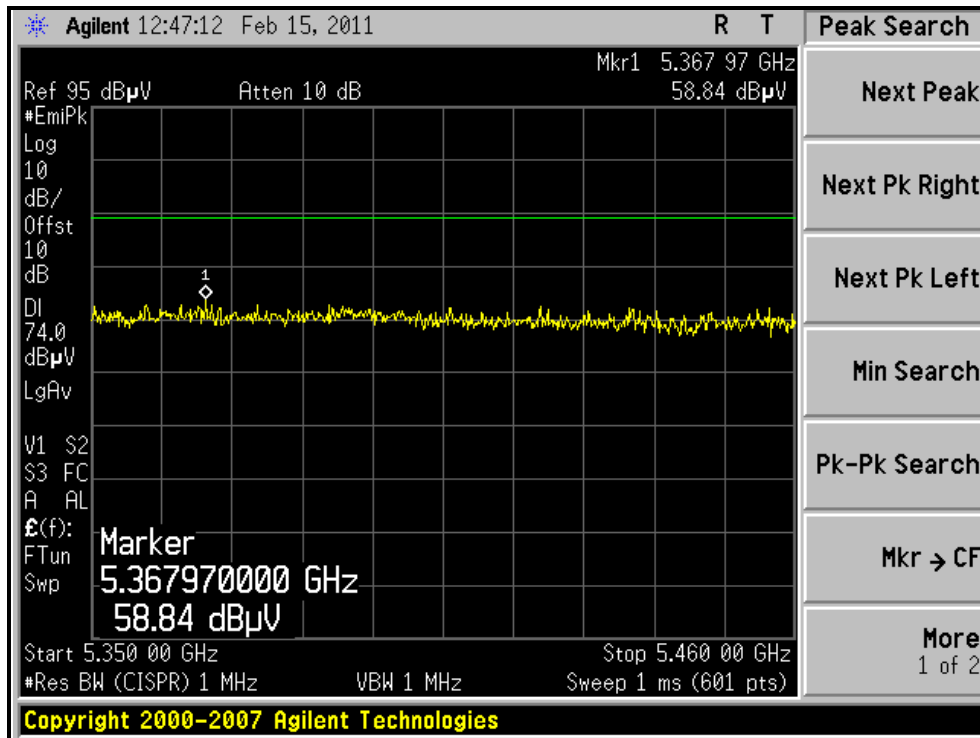
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH46, HORIZONTAL)





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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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

4.3.3 TEST PROCEDURE

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

NOTE:

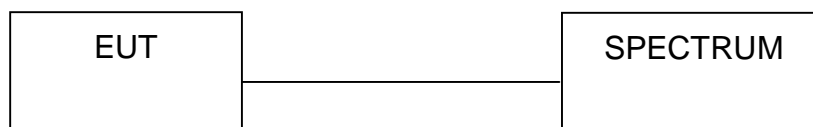
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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



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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)					
36	5180	10.3	10.1	20.9	13.2	15.9	19.33	PASS
40	5200	10.3	9.8	20.3	13.1	15.9	19.08	PASS
48	5240	10.0	10.0	20.0	13.0	15.9	18.75	PASS

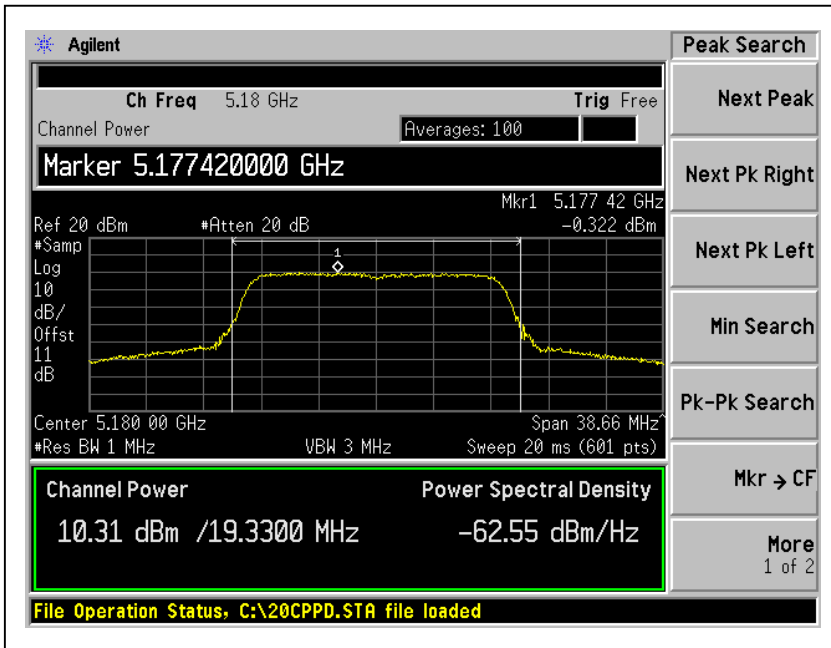
$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

Effective Legacy Gain (dBi) = 7.1

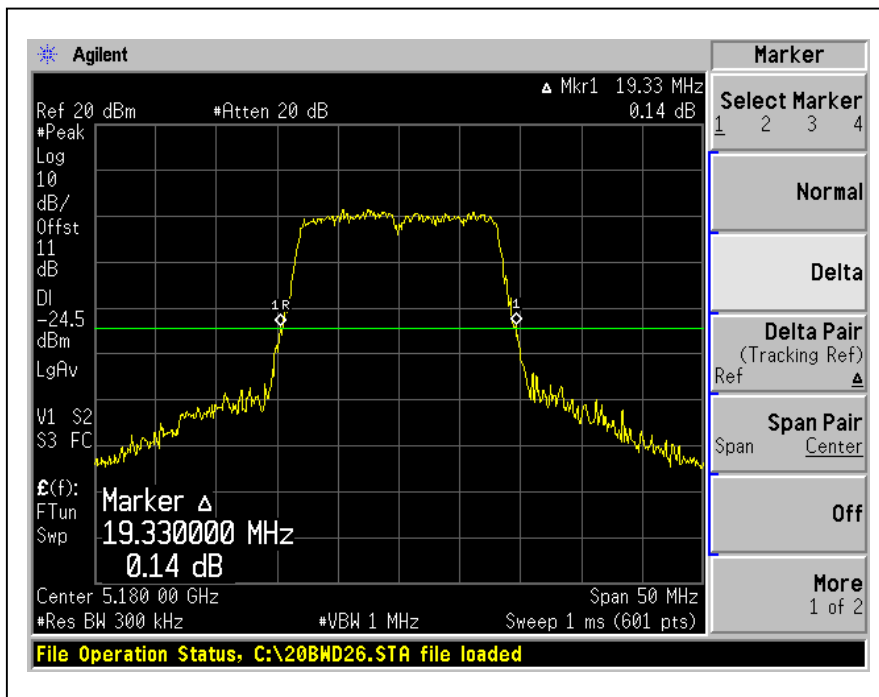
The effective legacy gain is 7.1dBi, therefore the limit needs to reduce.

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

Power Output:
For Chain(0) : CH36



26dB Occupied Bandwidth:
CH36





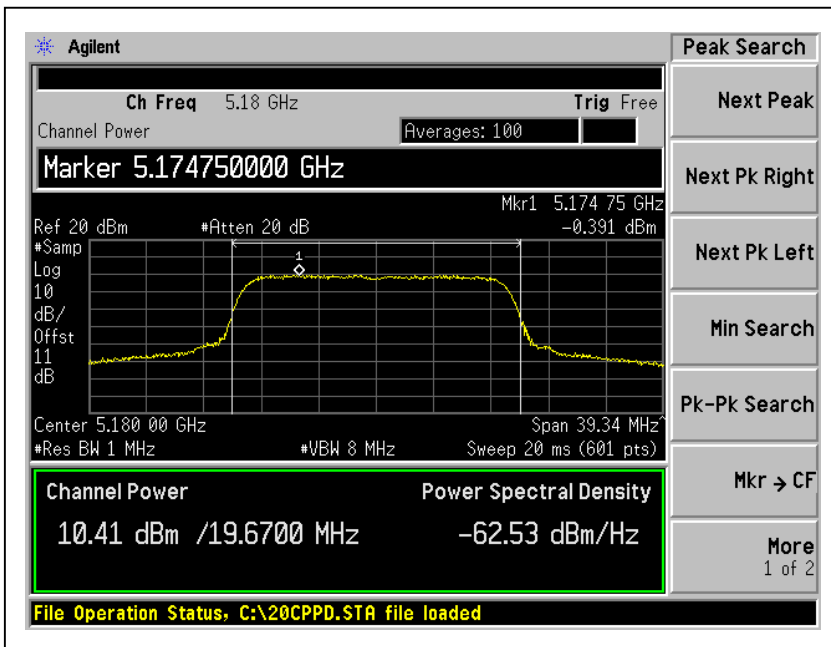
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802.11n (20MHz) OFDM MODULATION:

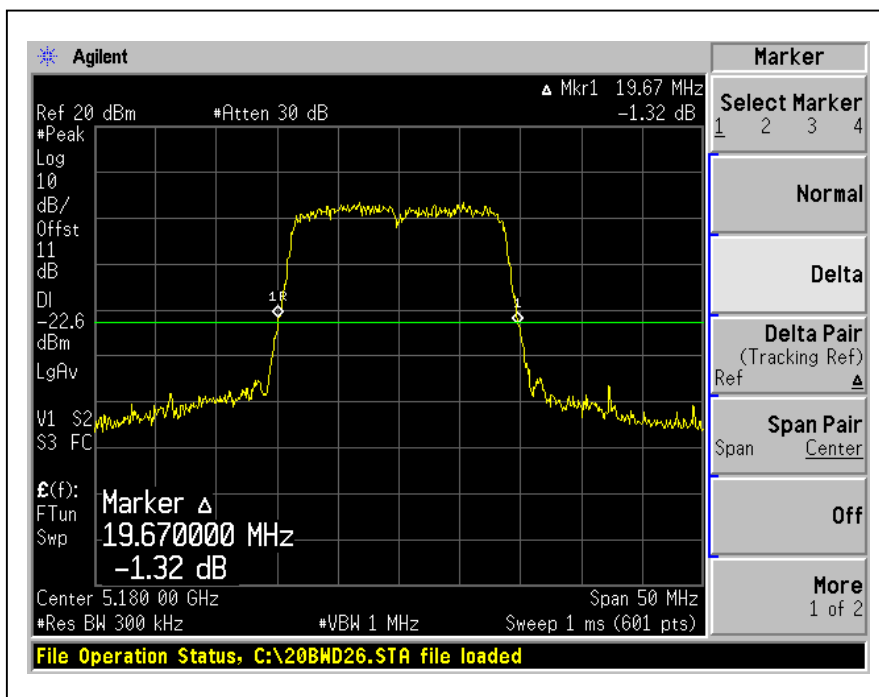
CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)					
36	5180	10.4	10.2	21.4	13.3	17	19.67	PASS
40	5200	9.6	9.7	18.5	12.7	17	19.67	PASS
48	5240	9.9	9.8	19.3	12.9	17	19.75	PASS

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

Power Output:
For Chain(0) : CH36



26dB Occupied Bandwidth:
CH36





802.11n (40MHz) OFDM MODULATION:

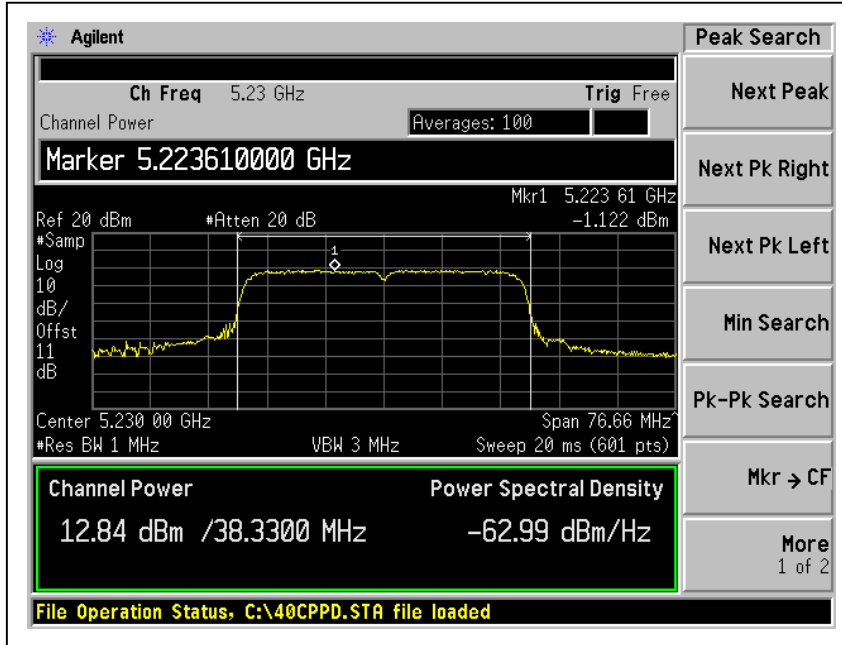
CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)					
38	5190	12.8	12.7	37.7	15.8	17	38.5	PASS
46	5230	12.8	12.5	36.8	15.7	17	38.33	PASS

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

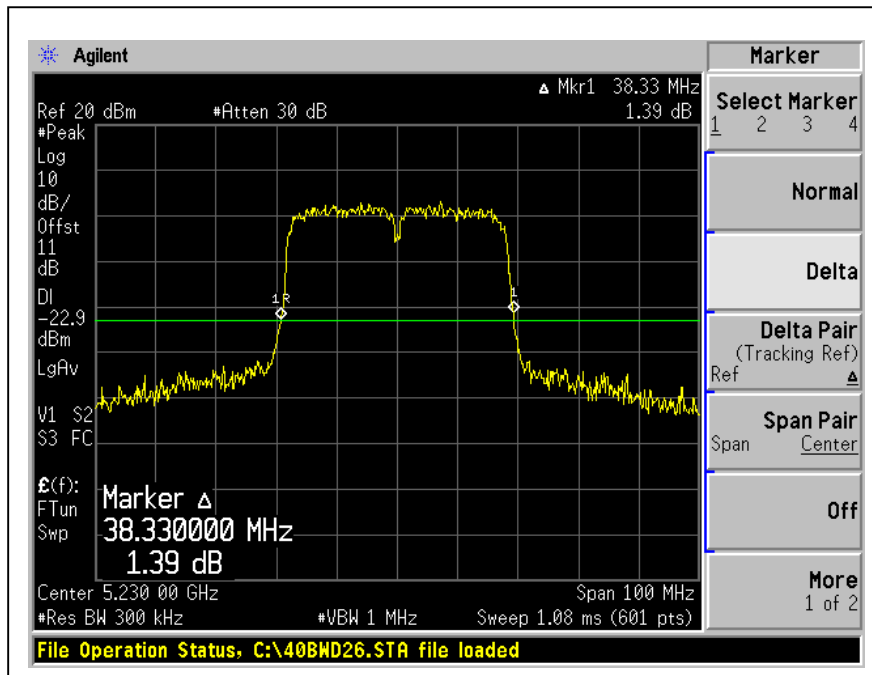


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Power Output: For Chain(0) :CH46



26dB Occupied Bandwidth: CH46





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4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

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

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

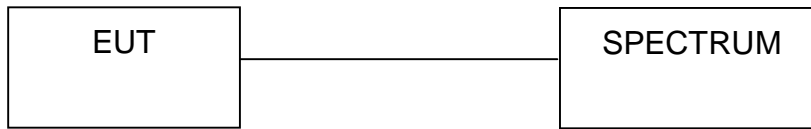
4.4.3 TEST PROCEDURE

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 than 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

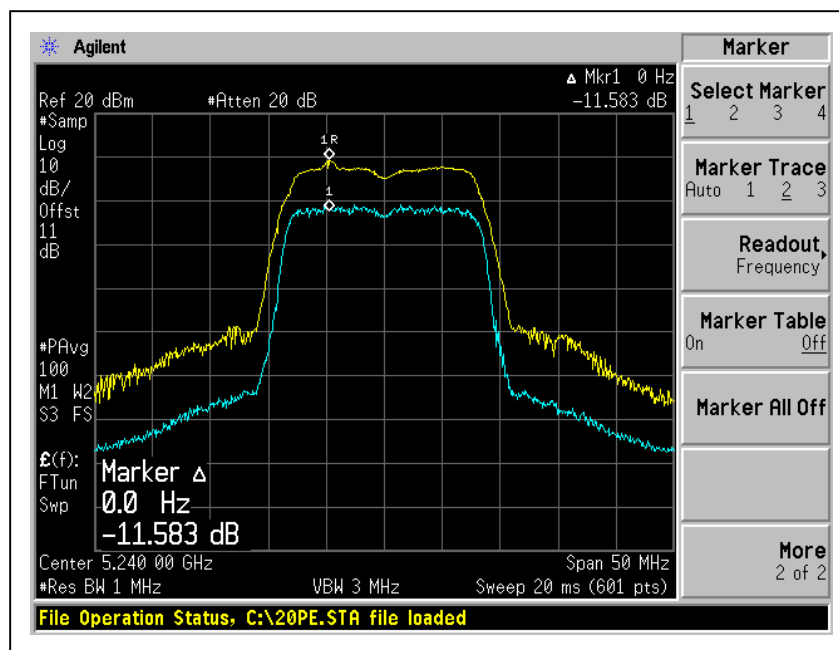
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

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
36	5180	11.2	13	PASS
40	5200	10.8	13	PASS
48	5240	11.6	13	PASS

CH48



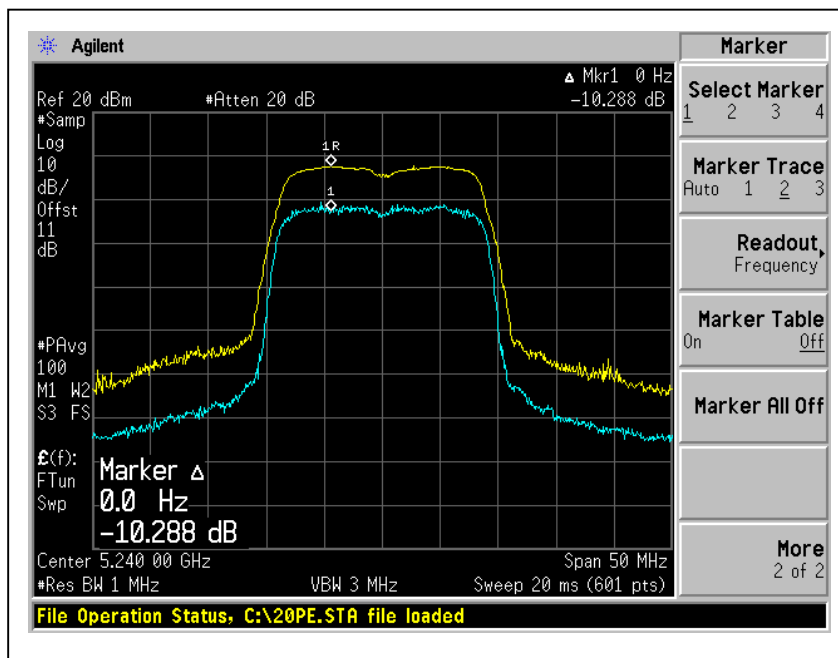


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802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	8.4	13	PASS
40	5200	9.5	13	PASS
48	5240	10.3	13	PASS

CH48



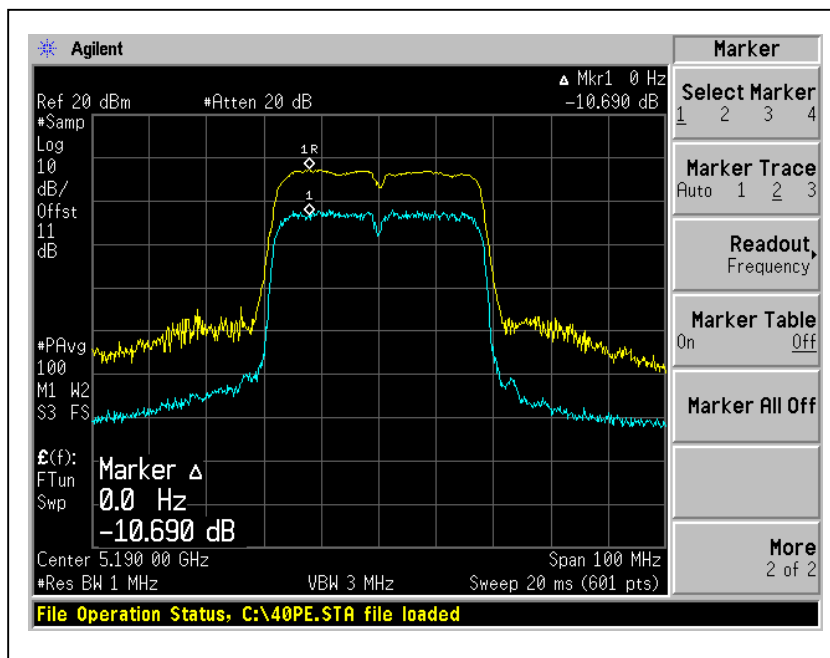


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802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
38	5190	10.7	13	PASS
46	5230	9.8	13	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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

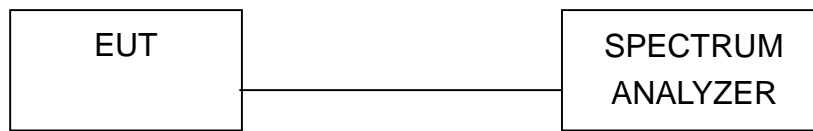
4.5.3 TEST PROCEDURES

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



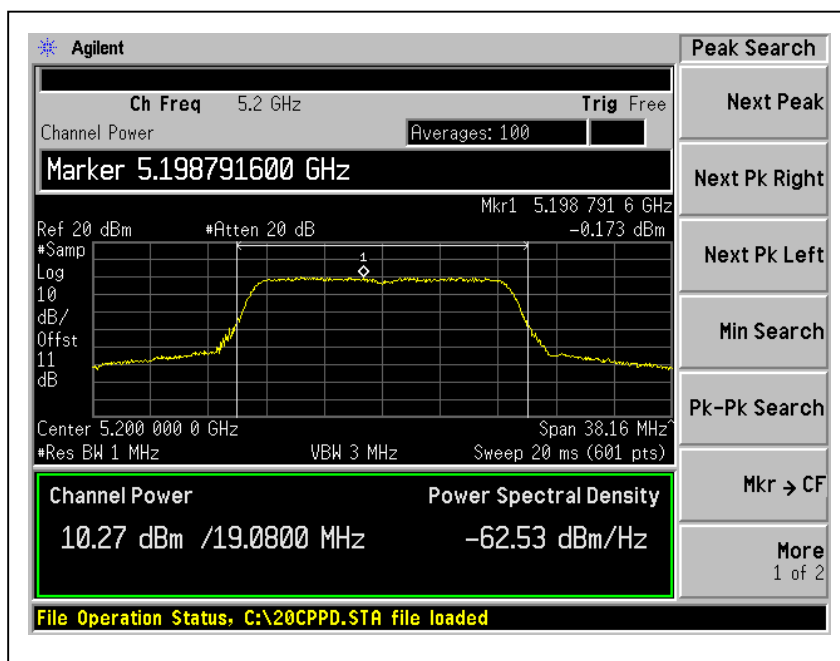
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4.5.7 TEST RESULTS

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	-0.3	-0.3	2.7	2.9	PASS
40	5200	-0.2	-0.6	2.6	2.9	PASS
48	5240	-0.4	-0.5	2.6	2.9	PASS

For Chain (0) : CH40



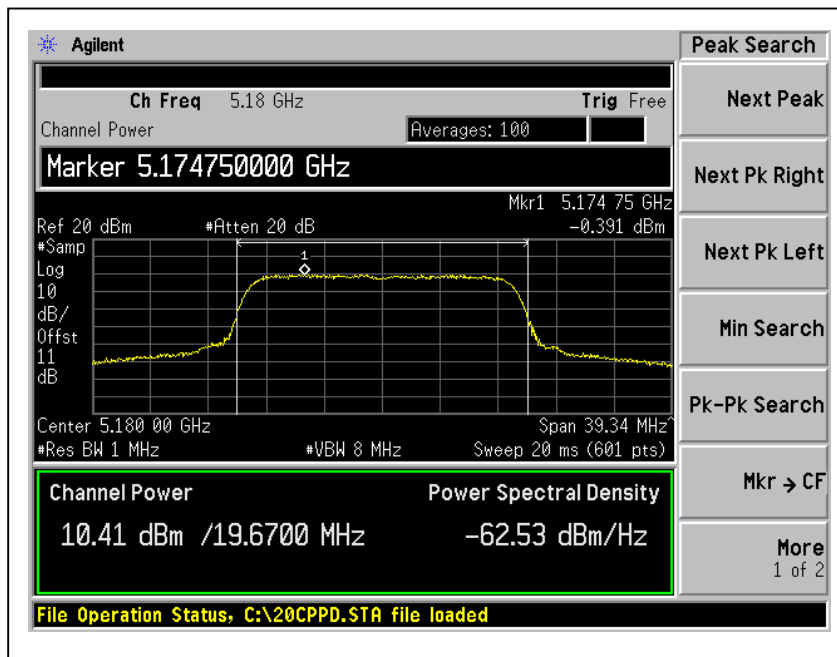


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802.11n (20MHz) OFDM MODULATION:

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	-0.4	-0.4	2.6	4	PASS
40	5200	-0.8	-0.4	2.4	4	PASS
48	5240	-0.7	-0.7	2.3	4	PASS

For Chain (0) : CH36



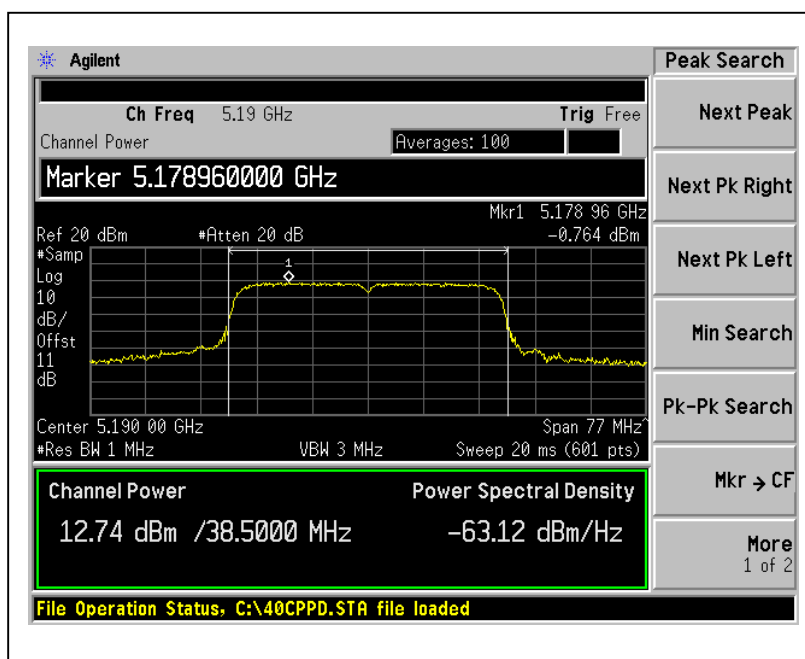


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802.11n (40MHz) OFDM MODULATION:

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	-1.0	-0.8	2.1	4	PASS
46	5230	-1.1	-1.2	1.9	4	PASS

For Chain (1) : CH38





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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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

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

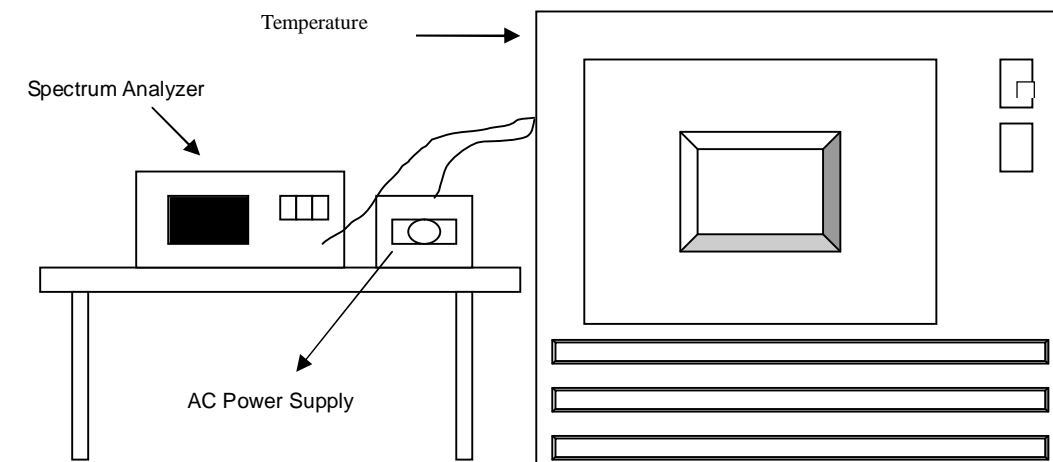
4.6.3 TEST PROCEDURE

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.



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4.6.7 TEST RESULTS

Operating frequency: 5240MHz									
Temp. (°C)	Power supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	138	5239.9896	-1.9847	5239.9918	-1.5649	5239.9873	-2.4237	5239.9826	-3.3206
	120	5239.9896	-1.9847	5239.9907	-1.7748	5239.9872	-2.4427	5239.9838	-3.0916
	102	5239.99	-1.9084	5239.9907	-1.7748	5239.9886	-2.1756	5239.9837	-3.1107
40	138	5240.0063	1.2023	5240.0039	0.7443	5240.0058	1.1069	5240.0078	1.4885
	120	5240.0072	1.3740	5240.0039	0.7443	5240.0058	1.1069	5240.0077	1.4695
	102	5240.0078	1.4885	5240.0029	0.5534	5240.0056	1.0687	5240.0075	1.4313
30	138	5240.0059	1.1260	5240.0098	1.8702	5240.0128	2.4427	5240.0099	1.8893
	120	5240.0058	1.1069	5240.0102	1.9466	5240.0128	2.4427	5240.0097	1.8511
	102	5240.0063	1.2023	5240.0097	1.8511	5240.012	2.2901	5240.0114	2.1756
20	138	5239.9859	-2.6908	5239.9904	-1.8321	5239.9873	-2.4237	5239.9891	-2.0802
	120	5239.9863	-2.6145	5239.9908	-1.7557	5239.9873	-2.4237	5239.9885	-2.1947
	102	5239.9862	-2.6336	5239.9907	-1.7748	5239.9883	-2.2328	5239.9888	-2.1374
10	138	5240.0175	3.3397	5240.0191	3.6450	5240.021	4.0076	5240.0166	3.1679
	120	5240.0166	3.1679	5240.0185	3.5305	5240.0213	4.0649	5240.0173	3.3015
	102	5240.0166	3.1679	5240.0174	3.3206	5240.0213	4.0649	5240.0173	3.3015
0	138	5240.0014	0.2672	5240.0059	1.1260	5240.0069	1.3168	5240.0038	0.7252
	120	5240.0011	0.2099	5240.0055	1.0496	5240.0066	1.2595	5240.0036	0.6870
	102	5240.0012	0.2290	5240.0063	1.2023	5240.0061	1.1641	5240.0042	0.8015
-10	138	5240.0177	3.3779	5240.0213	4.0649	5240.0239	4.5611	5240.0224	4.2748
	120	5240.0181	3.4542	5240.0206	3.9313	5240.0245	4.6756	5240.0225	4.2939
	102	5240.019	3.6260	5240.0205	3.9122	5240.0241	4.5992	5240.0222	4.2366
-20	138	5239.991	-1.7176	5239.9879	-2.3092	5239.9849	-2.8817	5239.986	-2.6718
	120	5239.9908	-1.7557	5239.9886	-2.1756	5239.9837	-3.1107	5239.9871	-2.4618
	102	5239.9904	-1.8321	5239.9891	-2.0802	5239.9852	-2.8244	5239.9876	-2.3664
-30	138	5239.9829	-3.2634	5239.9845	-2.9580	5239.9821	-3.4160	5239.987	-2.4809
	120	5239.9834	-3.1679	5239.984	-3.0534	5239.983	-3.2443	5239.9873	-2.4237
	102	5239.9832	-3.2061	5239.9843	-2.9962	5239.9832	-3.2061	5239.9867	-2.5382

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 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 loss 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:

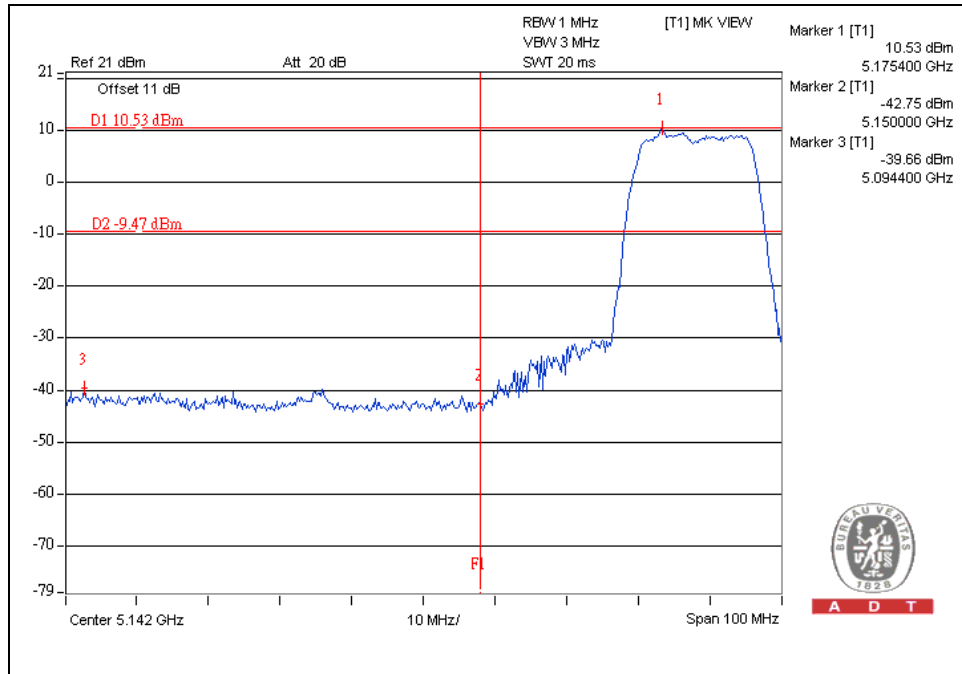
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



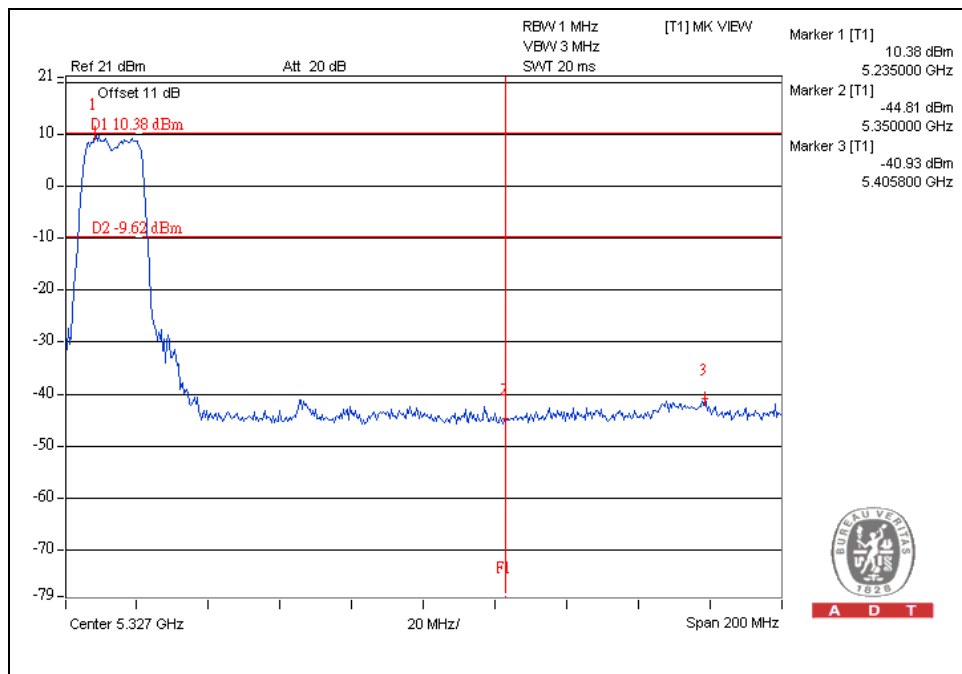
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802.11a OFDM modulation

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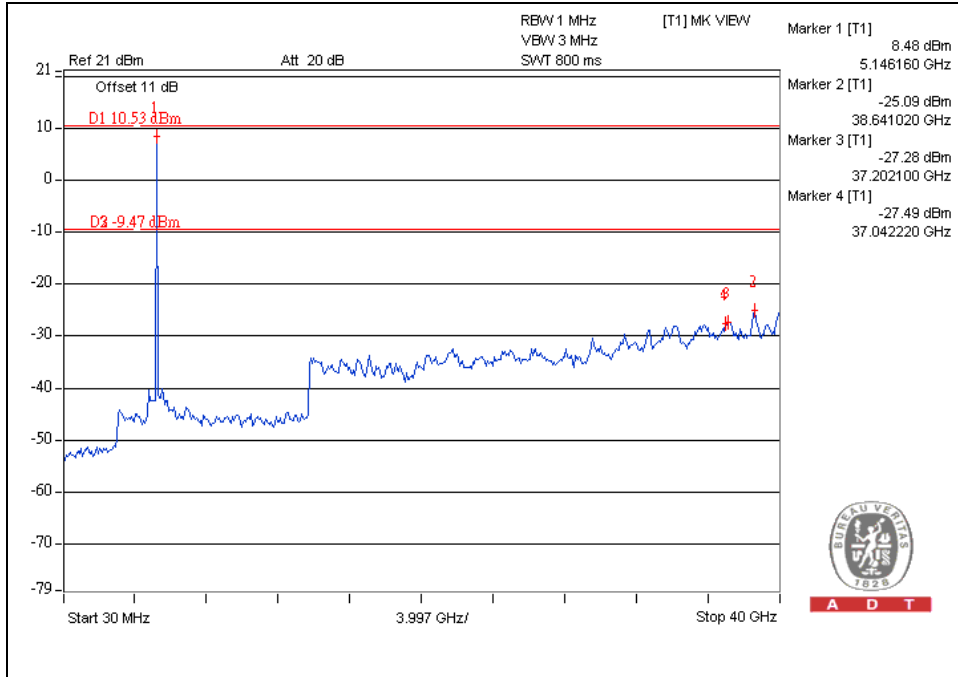
CH 48



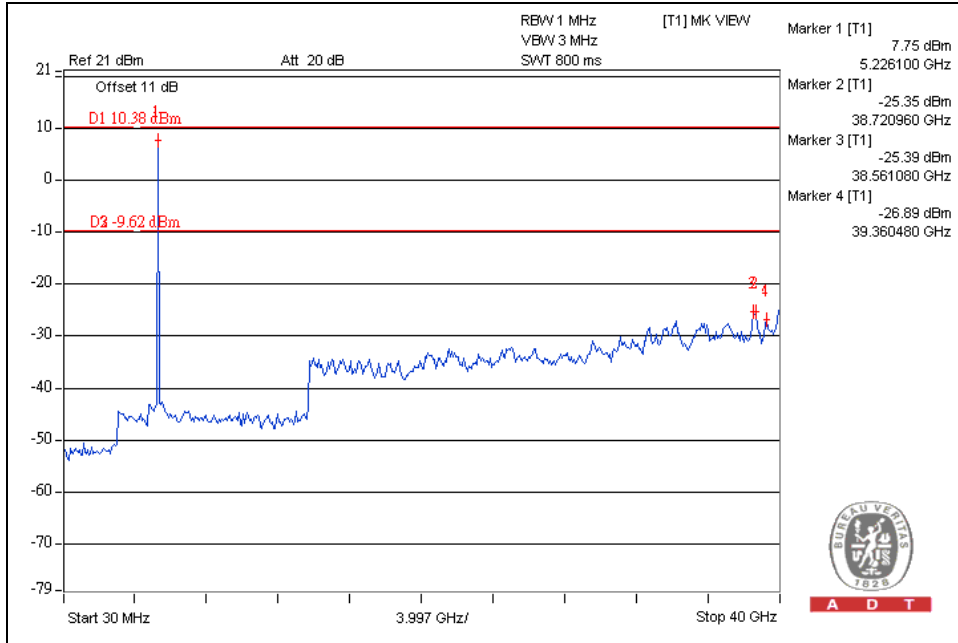


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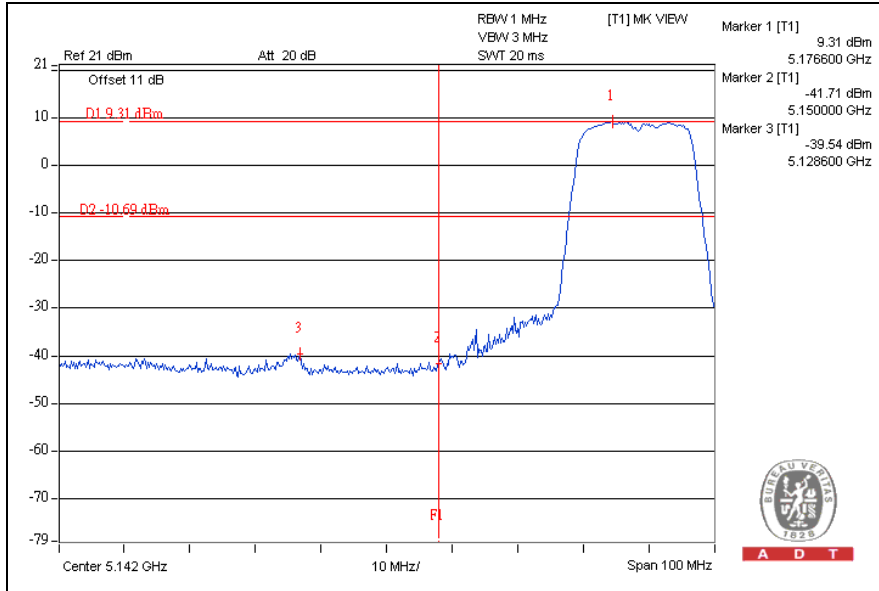




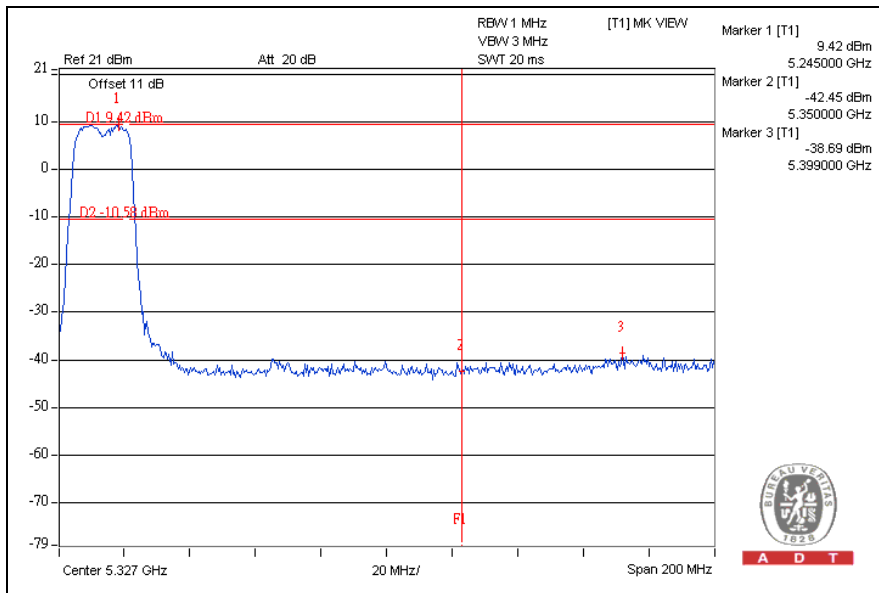
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802.11n (20MHz) OFDM MODULATION:

CH36



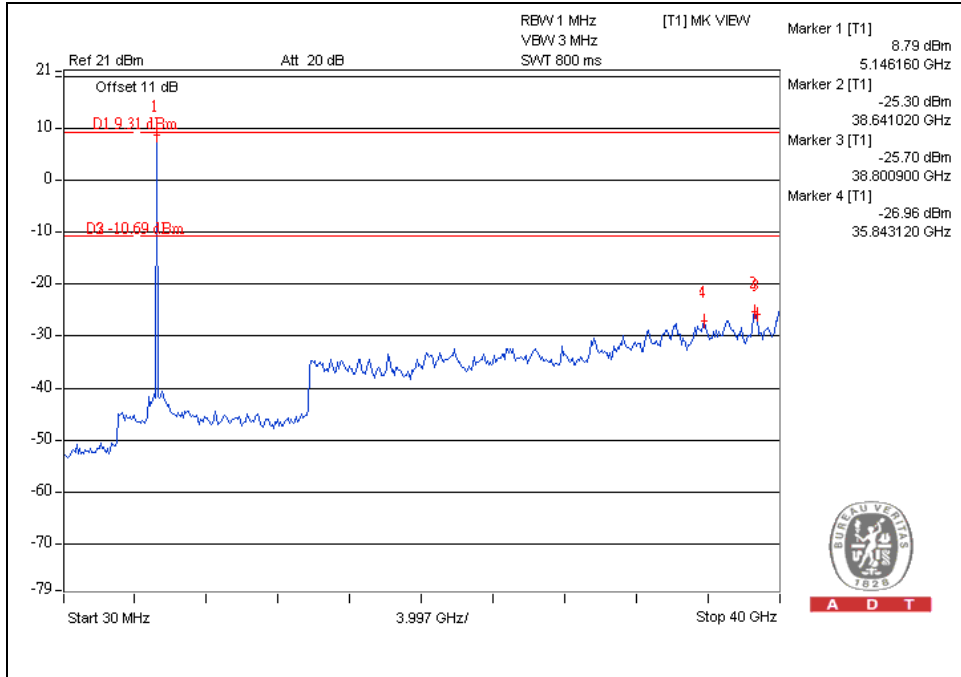
CH48



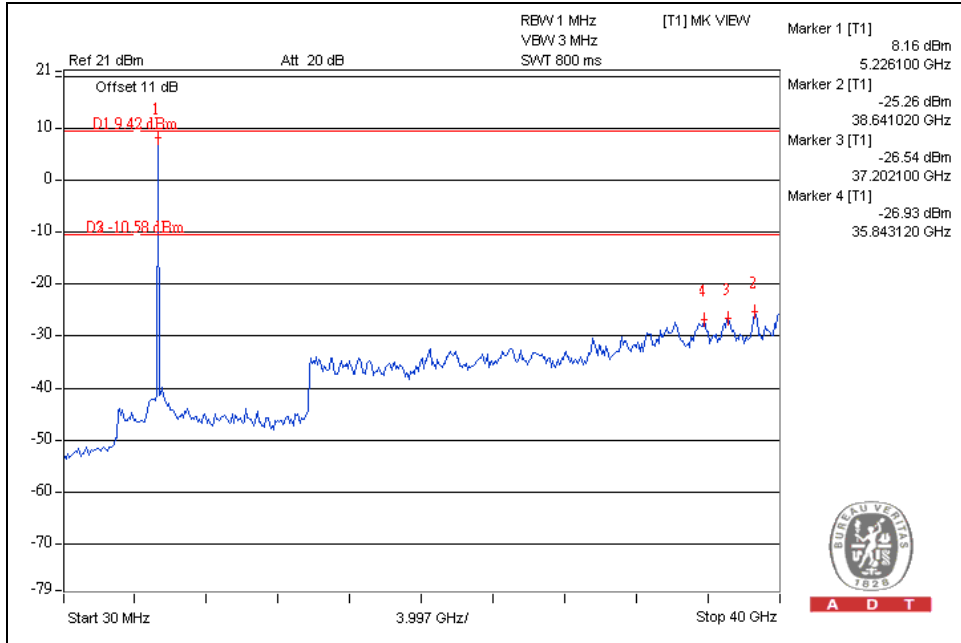


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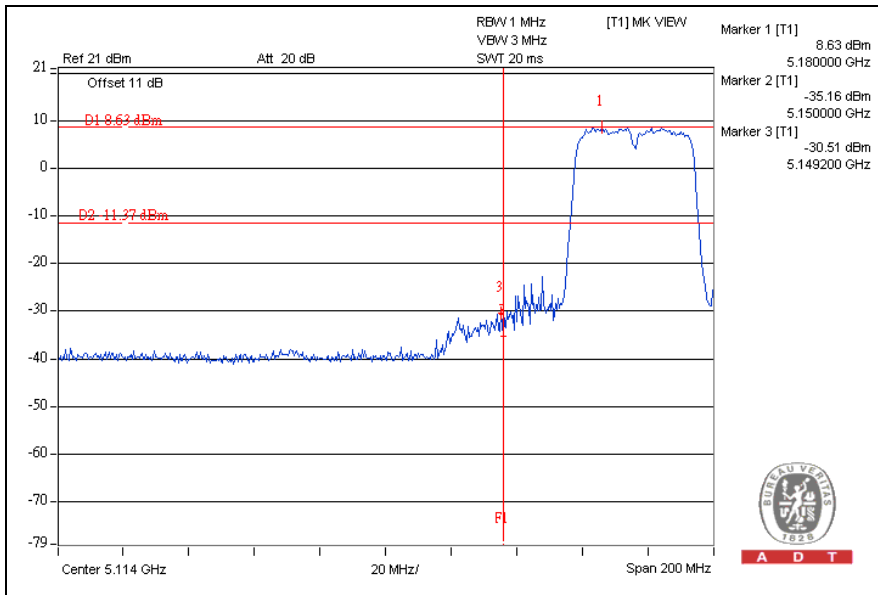


CH48



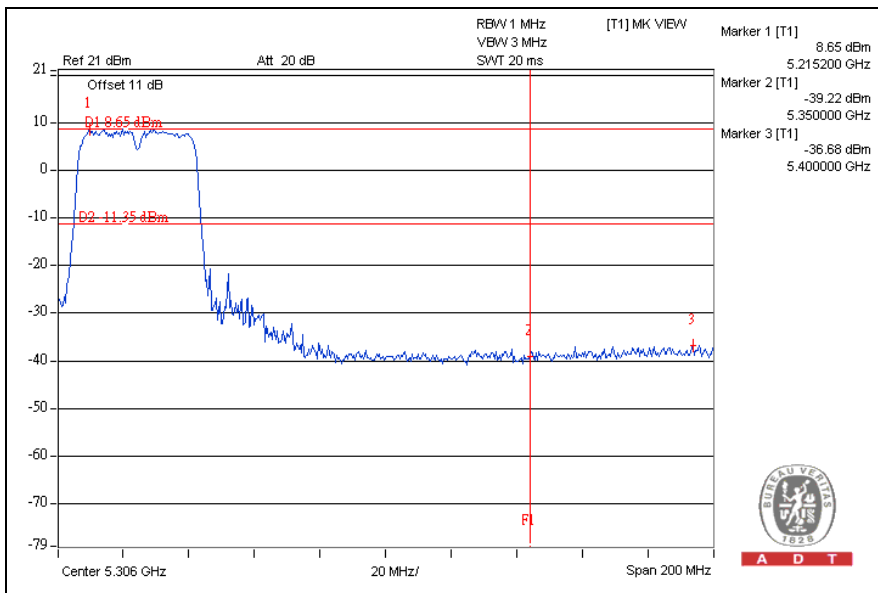
802.11n (40MHz) OFDM MODULATION:

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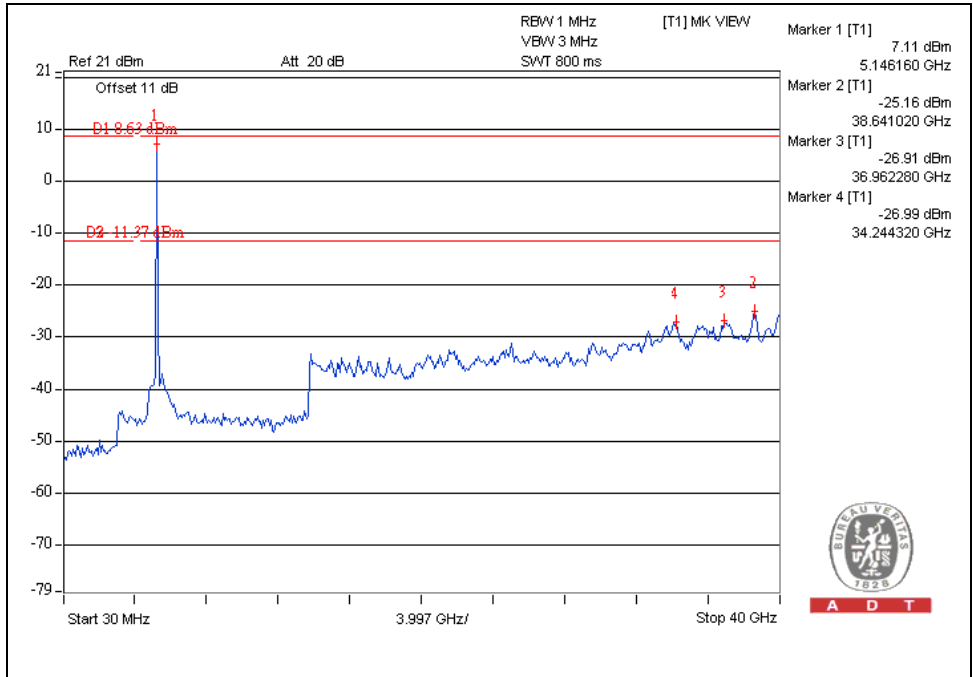


A D T

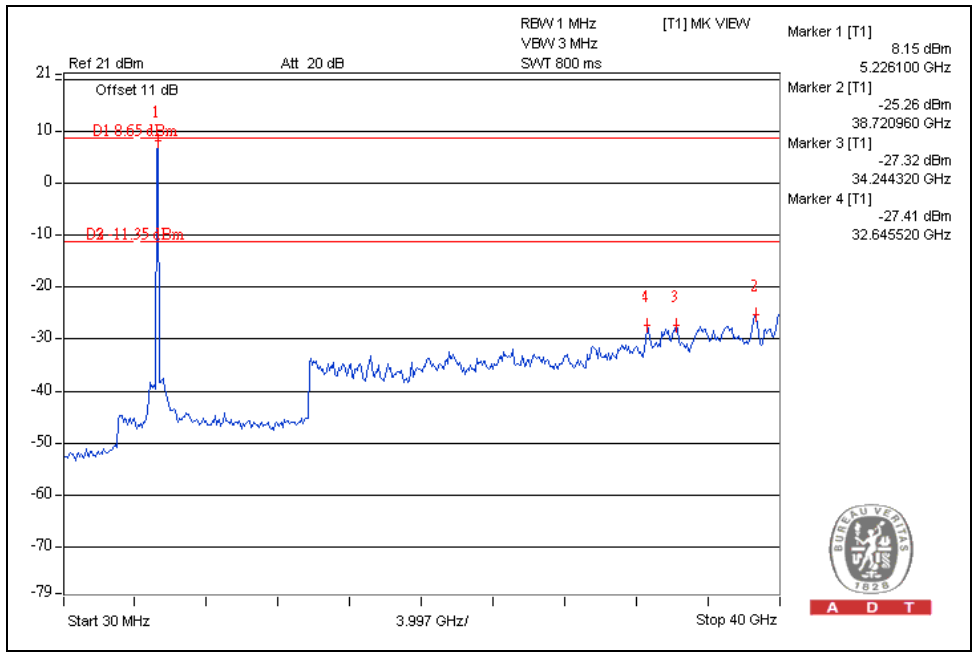


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5. INFORMATION ON THE TESTING LABORATORIES

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Email: service@adt.com.tw

Web Site: www.adt.com.tw

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



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

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