



FCC TEST REPORT (15.407)

REPORT NO.: RF991223E06B-2

MODEL NO.: AW-NH930

FCC ID: TLZ-NH930

RECEIVED: Feb. 24, 2011

TESTED: Mar. 04 to 15, 2011

ISSUED: Apr. 08, 2011

APPLICANT: AzureWave Technologies, Inc.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Apr. 08, 2011



1. CERTIFICATION

PRODUCT: IEEE 802.11 a/b/g/n Wireless LAN, Bluetooth and FM Combo Half Mini Card

BRAND NAME: AzureWave

MODEL NO.: AW-NH930

TEST SAMPLE: ENGINEERING SAMPLE

APPLICANT: AzureWave Technologies, Inc.

TESTED: Mar. 04 to 15, 2011

STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: AW-NH930) 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:** Apr. 08, 2011
(Claire Kaun, Specialist)

APPROVED BY :  , **DATE:** Apr. 08, 2011
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For [802.11a](#)

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.13dB at 0.224MHz
15.407(b)(1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -0.6dB at 5725.00MHz
15.407(a)(1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz and 5.47~5.725GHz. 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)	3.94 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	IEEE 802.11 a/b/g/n Wireless LAN, Bluetooth and FM Combo Half Mini Card
MODEL NO.	AW-NH930
FCC ID	TLZ-NH930
POWER SUPPLY	DC 1.8-3.3V from host equipment DC 2.3-5.5V from internal PMU
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 802.11n (20MHz, 800ns GI): 65 / 58.5 / 52 / 39 / 26 / 19.5 / 13 / 6.5Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 19 for 802.11a, 802.11n (20MHz) For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) For 15.247(5GHz) 5 for 802.11a, 802.11n (20MHz)



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MAXIMUM OUTPUT POWER	For 15.407 802.11a: 17.4mW 802.11n (20MHz): 17.4mW For 15.247(2.4GHz) 802.11b: 75.9mW 802.11g: 154.9mW 802.11n (20MHz): 151.4mW For 15.247(5GHz) 802.11a: 85.1mW 802.11n (20MHz): 81.3mW
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There are Bluetooth technology (Bluetooth 2.1+Enhanced Data Rate (EDR) / BT3.0+HS), WLAN and FM technology used for the EUT:

Technology	Report No.
WLAN(FCC 15.247)	RF991223E06B
Bluetooth	RF991223E06B-1
WLAN(FCC 15.407)	RF991223E06B-2
DFS	RF991223E06B-3

2. Spurious emission of the simultaneous operation (WLAN & Bluetooth) has been evaluated and no non-compliance found.



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3. The below antennas provided to this EUT, please refer to the following table:

No.	Brand	Model No.	Gain (dBi) Include cable loss	Antenna Type	Connector Type	Frequency Range (MHz to MHz)	Cable Loss (dB)	Cable Length (cm)
1	MAGLAYERS	MSA-4008-25GC1-A1	2.98 5.16	PIFA	I-PEX	2400~2483.5 4900~5900	0.6 1	15
2	MAGLAYERS	MSA-3305-2G4C1-A1	2.28	PIFA	I-PEX	2400~2483.5	0.6	4
3	INPAQ	WA-P-LA-02-019	2.3	PIFA	I-PEX	2400~2483.5	0.24	6
4	INPAQ	EAMS13001	1.05	PIFA	I-PEX	2400~2483.5	1.3	31.6
5	WNC	81XCAE15.G07	-2.5	PIFA	I-PEX	2400~2483.5	4	61.5
6	WNC	NA	1.67	PIFA	I-PEX	2400~2483.5	4.5	69.4
7	Etertronics Inc.	6036B0067403	0.26 2.07	PIFA	I-PEX	2400~2483.5 4900~5900	0.81 1.17	36.7
8	Walsin Tech.Corp	RFPCA2207101FABE01	1.39	PIFA	I-PEX	2400~2483.5	0.5	10
9	Anden	150872-30	1.25	PIFA	I-PEX	2400~2483.5	0.4	6.2
10	Whayu	C1335-520058-A	-1.68	PIFA	I-PEX	2400~2483.5	1.29	19.5
11	Whayu	C1335-520059-A	0.65	PIFA	I-PEX	2400~2483.5	1.43	8.0

From the above antennas, **Antenna 1** was selected as representative antenna for the test and its data was recorded in this report.

4. The EUT was pre-tested under the following test modes for three different axes placements:

Test Mode	Description
Mode A	X-Z plane
Mode B	X-Y plane
Mode C	Y-Z plane

From the above modes, the radiated emission worst case was found in Mode B. Therefore only the test data of the modes were recorded in this report.

5. The EUT incorporates a SISO function with 802.11n.

6. The EUT is 1 * 1 spatial SISO without beam forming function.

7. The EUT, operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b and 802.11n technique devices to the network.

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.

3.2 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5350MHz bands:

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

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

Operated in 5470MHz ~ 5725MHz bands:

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

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
108	5540 MHz
112	5560 MHz
116	5580 MHz
120	5600 MHz
124	5620 MHz
128	5640 MHz
132	5660 MHz
136	5680 MHz
140	5700 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	802.11 a		√
C	802.11n (20MHz) for MCS0~7	√	
D	802.11n (20MHz) for MCS0~7		√

Note:
1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.
2. Mode A and C the worst modes, were selected as representative mode for the report.

POWER LINE CONDUCTED EMISSION TEST:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (MBPS)	COMBINATION MODE
802.11n (20MHz)	36 to 140	36	OFDM	BPSK	6.5	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 (20MHz)	36 to 140	36	OFDM	BPSK	6.5	C

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 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	6.5	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 140	36, 64, 100, 140	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 140	36, 64, 100, 140	OFDM	BPSK	6.5	C



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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 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	6	A
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 100, 120, 140	OFDM	BPSK	6.5	C

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	18deg. C, 62%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
RE<1G	23deg. C, 60%RH, 1024 hPa	120Vac, 60Hz	Evan Huang
PLC	21deg. C, 50%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
APCM	15deg. C, 60%RH, 1024 hPa	120Vac, 60Hz	Wen Yu



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

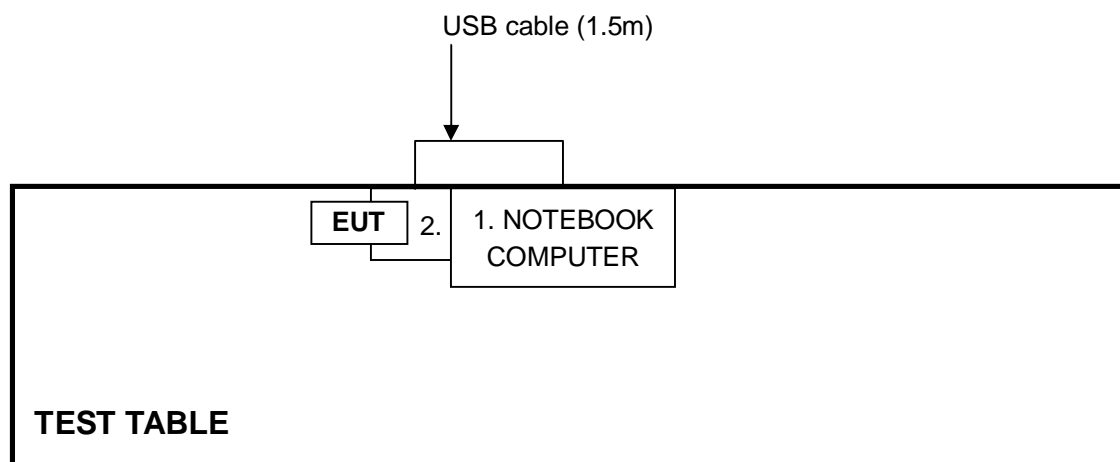
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	DSL32S	FCC DoC
2	TEST TOOL	AzureWave	NA	NA	NA

No.	Signal cable description
1	NA
2	1.5m USB cable.

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (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. 15, 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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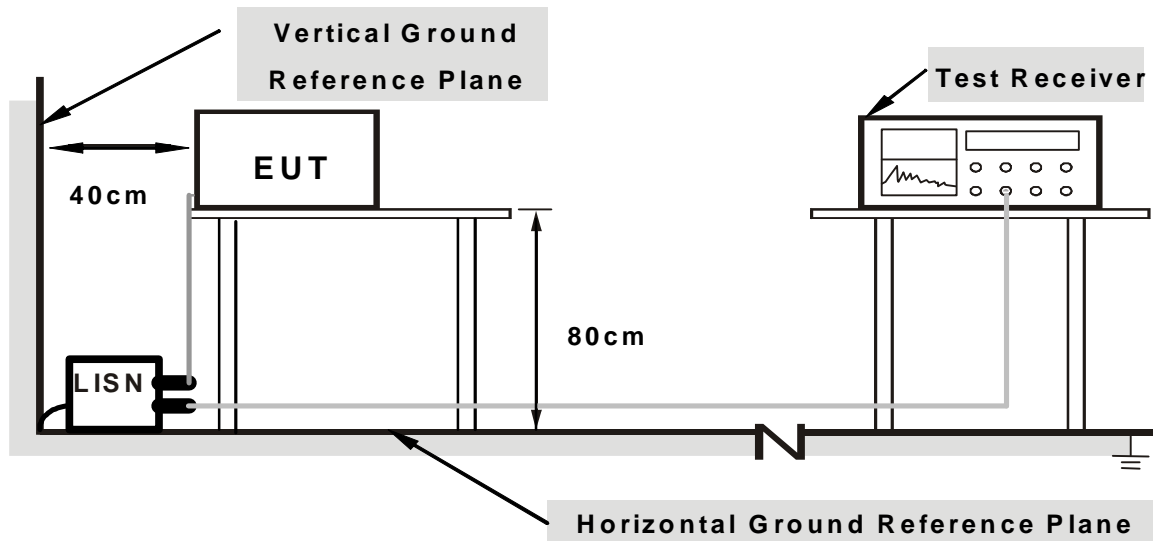
4.1.3 TEST PROCEDURES

- 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

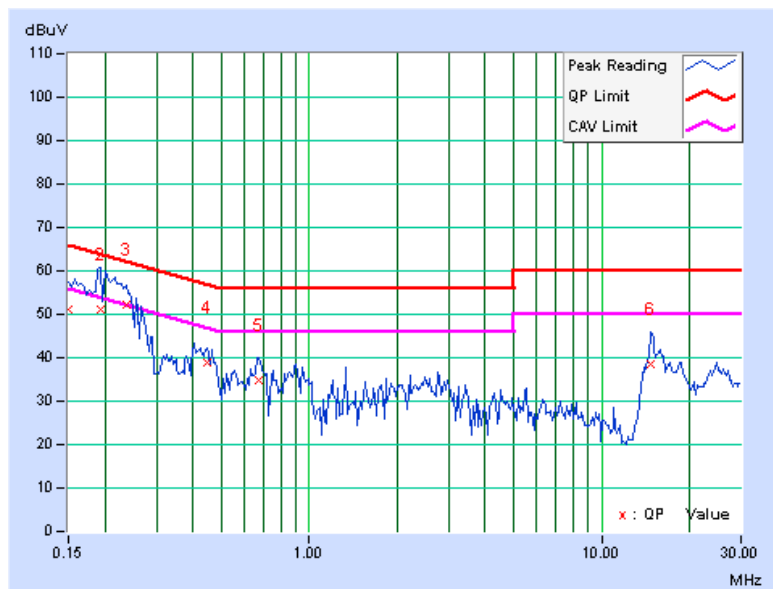
1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed in test table.
2. The support unit 1 (Notebook Computer) runs test program “Broadcom WL Command” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

PHASE	Line (L)	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	0.37	50.87	-	51.24	-	66.00	56.00	-14.76	-
2	0.193	0.36	50.67	-	51.03	-	63.91	53.91	-12.88	-
3	0.236	0.36	52.04	42.09	52.40	42.45	62.24	52.24	-9.84	-9.79
4	0.447	0.36	38.37	-	38.73	-	56.93	46.93	-18.20	-
5	0.673	0.38	34.51	-	34.89	-	56.00	46.00	-21.11	-
6	14.805	0.99	37.40	-	38.39	-	60.00	50.00	-21.61	-

- 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.



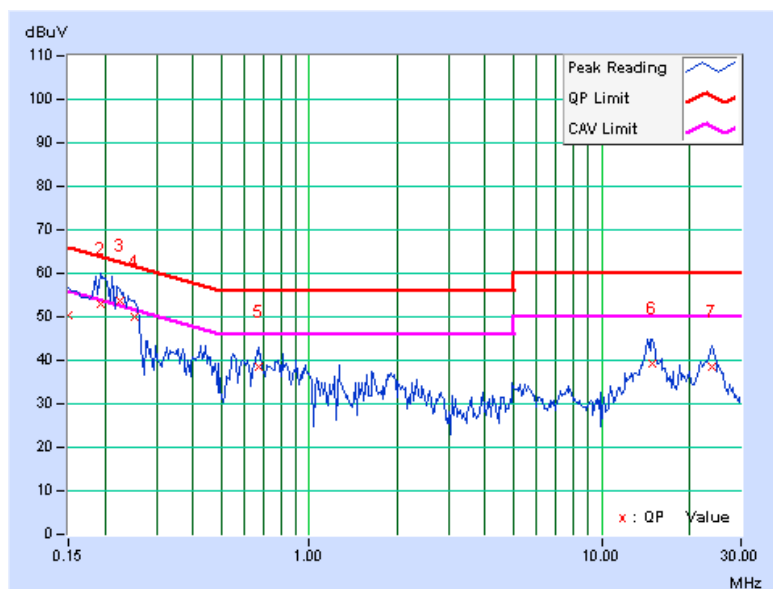


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PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	50.28	-	50.38	-	66.00	56.00	-15.62	-
2	0.193	0.10	52.82	-	52.92	-	63.91	53.91	-10.99	-
3	0.224	0.10	53.43	43.34	53.53	43.44	62.66	52.66	-9.13	-9.22
4	0.252	0.10	49.99	-	50.09	-	61.71	51.71	-11.61	-
5	0.670	0.13	38.33	-	38.46	-	56.00	46.00	-17.54	-
6	14.980	0.94	38.33	-	39.27	-	60.00	50.00	-20.73	-
7	23.844	1.46	36.96	-	38.42	-	60.00	50.00	-21.58	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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



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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 10 meter open area test site. 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.

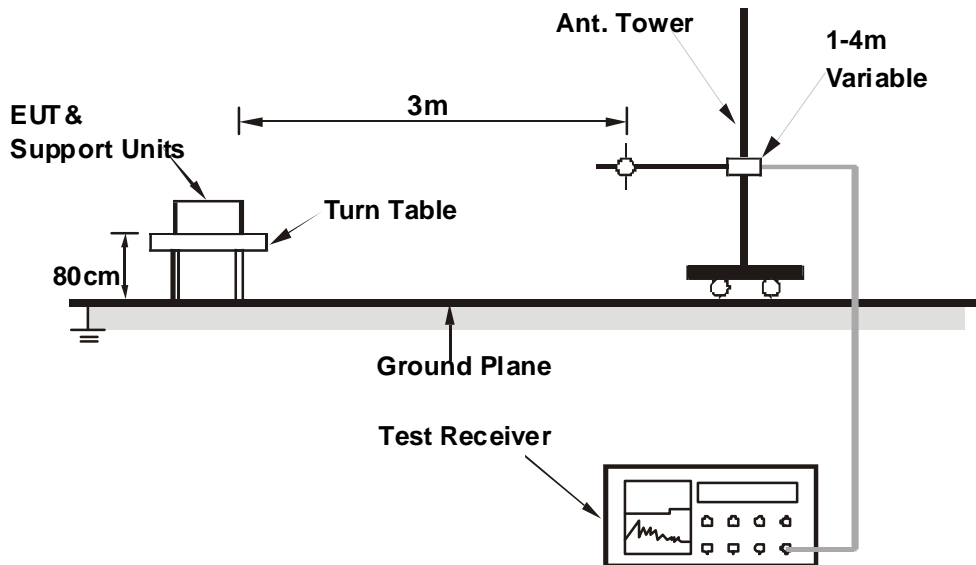
NOTE:

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

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6



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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, 60%RH 1024 hPa	TESTED BY	Even 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	168.24	38.5 QP	43.50	-5.0	1.23 H	21	23.82	14.65
2	240.47	42.2 QP	46.00	-3.9	1.76 H	250	28.77	13.38
3	264.30	42.2 QP	46.00	-3.9	1.74 H	256	27.63	14.52
4	312.15	45.1 QP	46.00	-1.0	1.25 H	35	28.70	16.35
5	336.50	45.1 QP	46.00	-0.9	2.03 H	108	28.12	16.98
6	408.00	39.2 QP	46.00	-6.8	1.05 H	265	20.36	18.84
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	32.70	32.2 QP	40.00	-7.9	1.24 V	24	19.28	12.87
2	71.90	32.9 QP	40.00	-7.1	1.23 V	52	21.12	11.75
3	108.10	39.9 QP	43.50	-3.6	1.74 V	250	29.22	10.65
4	170.00	35.7 QP	43.50	-7.8	1.74 V	215	21.26	14.42
5	311.87	37.2 QP	46.00	-8.8	1.01 V	210	20.90	16.34
6	337.10	37.5 QP	46.00	-8.5	1.00 V	125	20.48	16.99

- 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	65.4 PK	74.00	-8.6	1.66 H	241	28.69	36.71
2	5150.00	48.0 AV	54.00	-6.0	1.66 H	241	11.29	36.71
3	*5180.00	107.2 PK			1.66 H	241	70.44	36.76
4	*5180.00	91.5 AV			1.66 H	241	54.74	36.76
5	#10360.00	55.0 PK	68.30	-13.3	1.40 H	152	8.64	46.36
6	15540.00	57.9 PK	74.00	-16.1	1.32 H	280	9.75	48.15
7	15540.00	46.2 AV	54.00	-7.8	1.32 H	280	-1.95	48.15
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	59.8 PK	74.00	-14.2	1.53 V	269	23.09	36.71
2	5150.00	45.8 AV	54.00	-8.2	1.53 V	269	9.09	36.71
3	*5180.00	106.1 PK			1.52 V	274	69.34	36.76
4	*5180.00	90.7 AV			1.52 V	274	53.94	36.76
5	#10360.00	54.3 PK	68.30	-14.0	1.33 V	305	7.94	46.36
6	15540.00	58.8 PK	74.00	-15.2	1.09 V	206	10.65	48.15
7	15540.00	46.2 AV	54.00	-7.8	1.09 V	206	-1.95	48.15

- 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	106.8 PK			1.60 H	147	70.01	36.79
2	*5200.00	91.1 AV			1.60 H	147	54.31	36.79
3	5360.00	61.9 PK	74.00	-12.1	1.59 H	134	24.90	37.00
4	5360.00	50.9 AV	54.00	-3.1	1.59 H	134	13.90	37.00
5	#10400.00	55.3 PK	68.30	-13.0	1.41 H	153	8.81	46.49
6	15600.00	58.2 PK	74.00	-15.8	1.33 H	283	10.35	47.85
7	15600.00	46.4 AV	54.00	-7.6	1.33 H	283	-1.45	47.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	105.6 PK			1.41 V	90	68.81	36.79
2	*5200.00	88.7 AV			1.41 V	90	51.91	36.79
3	#10400.00	55.4 PK	68.30	-12.9	1.34 V	310	8.91	46.49
4	15600.00	58.2 PK	74.00	-15.8	1.12 V	216	10.35	47.85
5	15600.00	46.3 AV	54.00	-7.7	1.12 V	216	-1.55	47.85

- 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	106.6 PK			1.61 H	145	69.73	36.87
2	*5240.00	91.0 AV			1.61 H	145	54.13	36.87
3	5400.00	63.2 PK	74.00	-10.8	1.58 H	154	26.18	37.02
4	5400.00	52.2 AV	54.00	-1.8	1.58 H	154	15.18	37.02
5	#10480.00	55.4 PK	68.30	-12.9	1.42 H	158	8.96	46.44
6	15720.00	58.3 PK	74.00	-15.7	1.33 H	285	10.24	48.06
7	15720.00	46.6 AV	54.00	-7.4	1.33 H	285	-1.46	48.06
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	104.5 PK			1.32 V	89	67.63	36.87
2	*5240.00	88.3 AV			1.32 V	89	51.43	36.87
3	#10480.00	55.5 PK	68.30	-12.8	1.33 V	302	9.06	46.44
4	15720.00	58.1 PK	74.00	-15.9	1.11 V	220	10.04	48.06
5	15720.00	46.3 AV	54.00	-7.7	1.11 V	220	-1.76	48.06

- 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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5260.00	106.9 PK			1.62 H	147	70.00	36.90
2	*5260.00	91.2 AV			1.62 H	147	54.30	36.90
3	5420.00	62.8 PK	74.00	-11.2	1.53 H	155	25.75	37.05
4	5420.00	52.2 AV	54.00	-1.8	1.53 H	155	15.15	37.05
5	#10520.00	55.5 PK	68.30	-12.8	1.43 H	160	8.98	46.52
6	15780.00	58.9 PK	74.00	-15.1	1.31 H	256	10.85	48.05
7	15780.00	46.7 AV	54.00	-7.3	1.31 H	256	-1.35	48.05
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	*5260.00	104.1 PK			1.33 V	88	67.20	36.90
2	*5260.00	88.6 AV			1.33 V	88	51.70	36.90
3	#10520.00	55.6 PK	68.30	-12.7	1.32 V	305	9.08	46.52
4	15780.00	58.7 PK	74.00	-15.3	1.12 V	227	10.65	48.05
5	15780.00	46.5 AV	54.00	-7.5	1.12 V	227	-1.55	48.05

- 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 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5300.00	107.2 PK			1.64 H	143	70.22	36.98
2	*5300.00	91.4 AV			1.64 H	143	54.42	36.98
3	5460.00	63.6 PK	74.00	-10.4	1.52 H	157	26.48	37.12
4	5460.00	52.5 AV	54.00	-1.5	1.52 H	157	15.38	37.12
5	10600.00	55.7 PK	74.00	-18.3	1.40 H	163	8.80	46.90
6	10600.00	45.2 AV	54.00	-8.8	1.40 H	163	-1.70	46.90
7	15900.00	58.6 PK	74.00	-15.4	1.32 H	246	11.06	47.54
8	15900.00	46.8 AV	54.00	-7.2	1.32 H	246	-0.74	47.54
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	104.5 PK			1.30 V	89	67.52	36.98
2	*5300.00	88.2 AV			1.30 V	89	51.22	36.98
3	10600.00	55.8 PK	74.00	-18.2	1.30 V	306	8.90	46.90
4	10600.00	45.3 AV	54.00	-8.7	1.30 V	306	-1.60	46.90
5	15900.00	58.4 PK	74.00	-15.6	1.12 V	230	10.86	47.54
6	15900.00	46.5 AV	54.00	-7.5	1.12 V	230	-1.04	47.54

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5320.00	106.2 PK			1.60 H	140	69.21	36.99
2	*5320.00	90.2 AV			1.60 H	140	53.21	36.99
3	5400.00	60.2 PK	74.00	-13.8	1.58 H	154	23.18	37.02
4	5400.00	49.7 AV	54.00	-4.3	1.58 H	154	12.68	37.02
5	10640.00	55.1 PK	74.00	-18.9	1.40 H	153	8.19	46.91
6	10640.00	45.9 AV	54.00	-8.1	1.40 H	153	-1.01	46.91
7	15960.00	58.6 PK	74.00	-15.4	1.32 H	280	11.02	47.58
8	15960.00	47.2 AV	54.00	-6.8	1.32 H	280	-0.38	47.58
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	*5320.00	104.8 PK			1.33 V	90	67.81	36.99
2	*5320.00	87.9 AV			1.33 V	90	50.91	36.99
3	5400.00	57.6 PK	74.00	-16.4	1.33 V	89	20.58	37.02
4	5400.00	46.7 AV	54.00	-7.3	1.33 V	89	9.68	37.02
5	10640.00	55.1 PK	74.00	-18.9	1.33 V	304	8.19	46.91
6	10640.00	45.3 AV	54.00	-8.7	1.33 V	304	-1.61	46.91
7	15960.00	58.6 PK	74.00	-15.4	1.09 V	267	11.02	47.58
8	15960.00	47.0 AV	54.00	-7.0	1.09 V	267	-0.58	47.58

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	5419.80	56.4 PK	74.00	-17.6	1.54 H	154	19.35	37.05
2	5419.80	45.2 AV	54.00	-8.8	1.54 H	154	8.15	37.05
3	#5470.00	66.3 PK	68.30	-2.0	1.53 H	154	29.17	37.13
4	*5500.00	107.7 PK			1.52 H	155	70.52	37.18
5	*5500.00	92.0 AV			1.52 H	155	54.82	37.18
6	11000.00	55.4 PK	74.00	-18.6	1.39 H	155	7.90	47.50
7	11000.00	46.8 AV	54.00	-7.2	1.39 H	155	-0.70	47.50
8	#16500.00	58.2 PK	68.30	-10.1	1.32 H	275	10.60	47.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.5 PK	74.00	-18.5	1.41 V	88	18.38	37.12
2	5460.00	41.8 AV	54.00	-12.2	1.41 V	88	4.68	37.12
3	#5470.00	61.1 PK	68.30	-7.2	1.41 V	88	23.97	37.13
4	*5500.00	103.9 PK			1.41 V	88	66.72	37.18
5	*5500.00	87.6 AV			1.41 V	88	50.42	37.18
6	11000.00	55.2 PK	74.00	-18.8	1.37 V	102	7.70	47.50
7	11000.00	45.2 AV	54.00	-8.8	1.37 V	102	-2.30	47.50
8	#16500.00	58.7 PK	68.30	-9.6	1.10 V	260	11.10	47.60

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5600.00	107.9 PK			1.51 H	156	70.44	37.46
2	*5600.00	92.2 AV			1.51 H	156	54.74	37.46
3	11200.00	55.6 PK	74.00	-18.4	1.39 H	158	8.24	47.36
4	11200.00	46.9 AV	54.00	-7.1	1.39 H	158	-0.46	47.36
5	#16800.00	59.1 PK	68.30	-9.2	1.31 H	280	10.38	48.72
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	*5600.00	104.3 PK			1.43 V	84	66.84	37.46
2	*5600.00	88.2 AV			1.43 V	84	50.74	37.46
3	11200.00	55.4 PK	74.00	-18.6	1.30 V	90	8.04	47.36
4	11200.00	45.6 AV	54.00	-8.4	1.30 V	90	-1.76	47.36
5	#16800.00	58.7 PK	68.30	-9.6	1.15 V	267	9.98	48.72

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 hPa	TESTED BY	Wen Yu

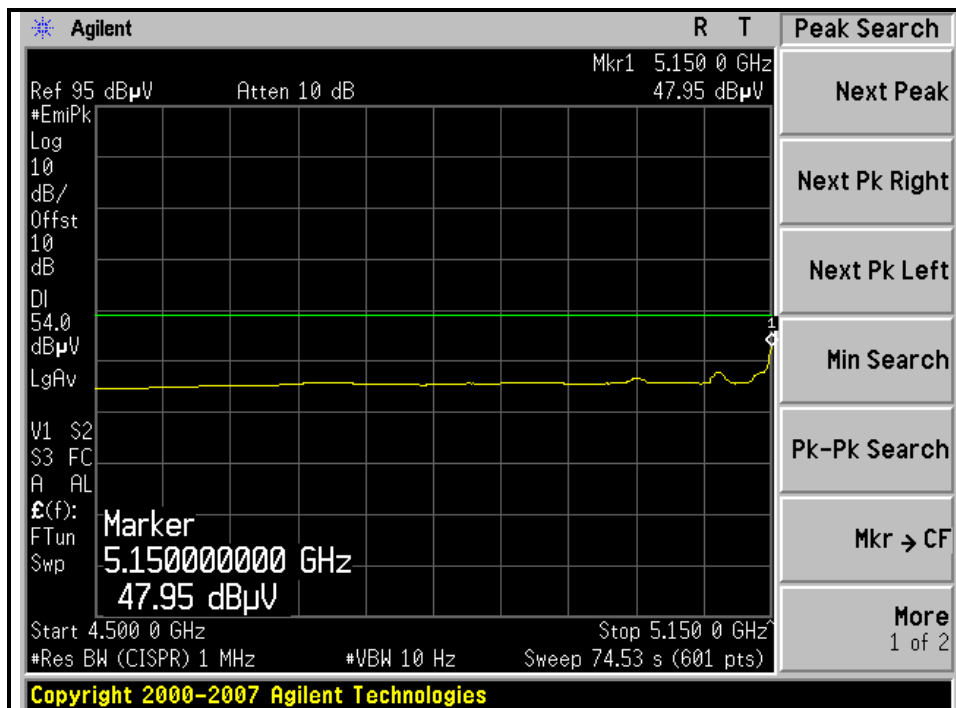
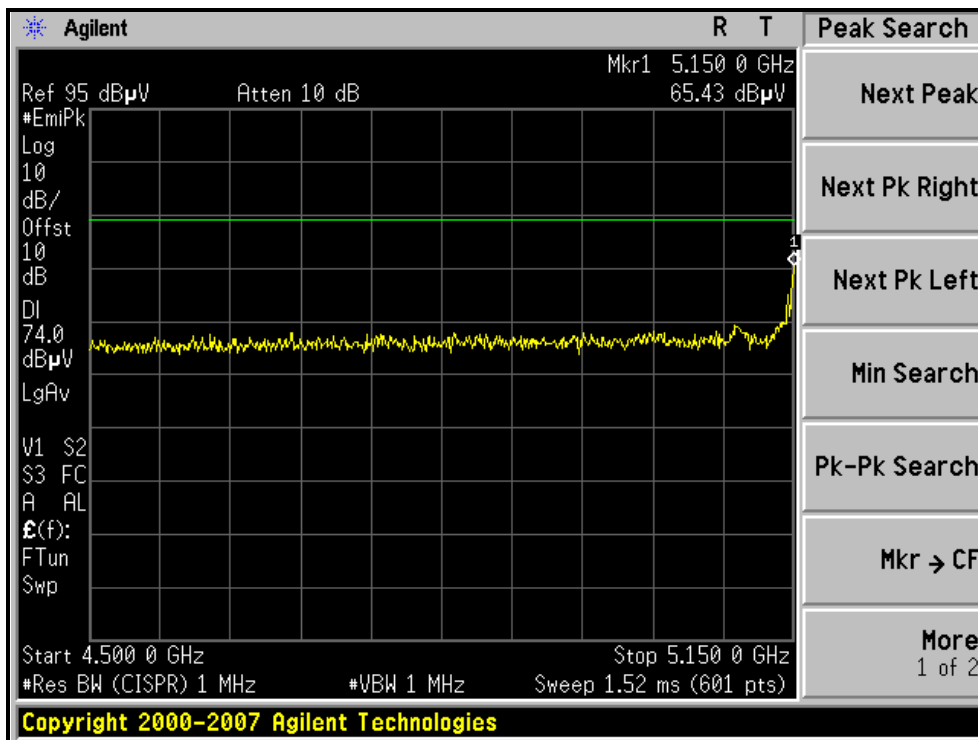
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	109.3 PK			1.63 H	151	71.64	37.66
2	*5700.00	93.3 AV			1.63 H	151	55.64	37.66
3	#5725.00	67.6 PK	68.30	-0.7	1.63 H	151	29.88	37.72
4	11400.00	56.1 PK	74.00	-17.9	1.38 H	158	8.44	47.66
5	11400.00	47.0 AV	54.00	-7.0	1.38 H	158	-0.66	47.66
6	#17100.00	59.2 PK	68.30	-9.1	1.36 H	280	9.64	49.56
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	*5700.00	104.9 PK			1.46 V	82	67.24	37.66
2	*5700.00	89.1 AV			1.46 V	82	51.44	37.66
3	#5725.00	64.0 PK	68.30	-4.3	1.46 V	82	26.28	37.72
4	11400.00	55.7 PK	74.00	-18.3	1.30 V	90	8.04	47.66
5	11400.00	43.1 AV	54.00	-10.9	1.30 V	90	-4.56	47.66
6	#17100.00	58.6 PK	68.30	-9.7	1.18 V	260	9.04	49.56

- 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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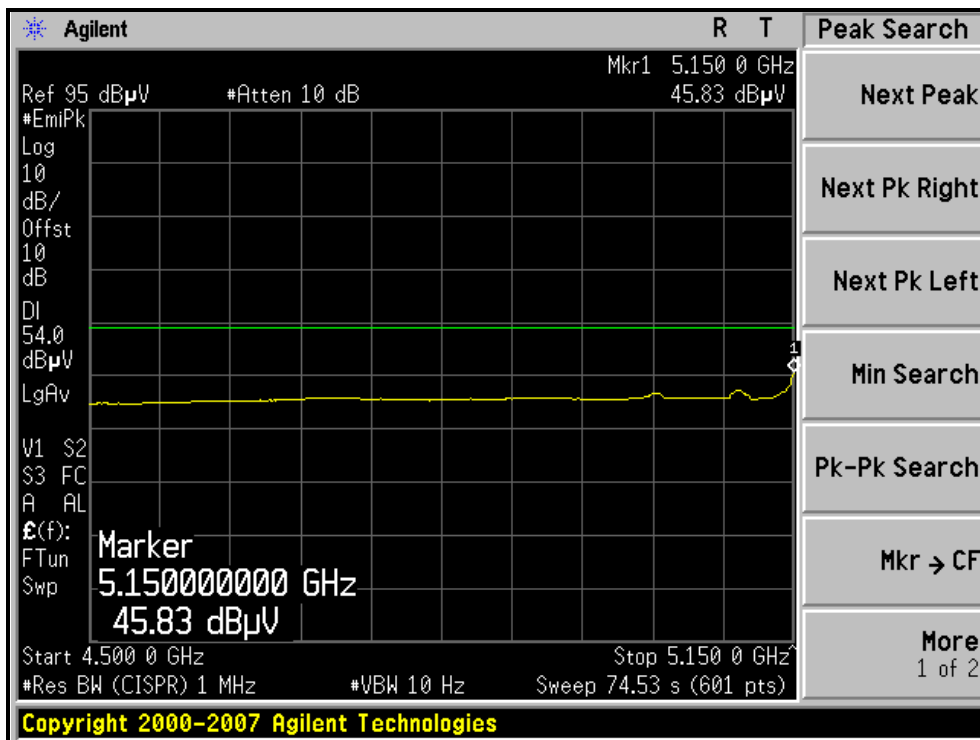
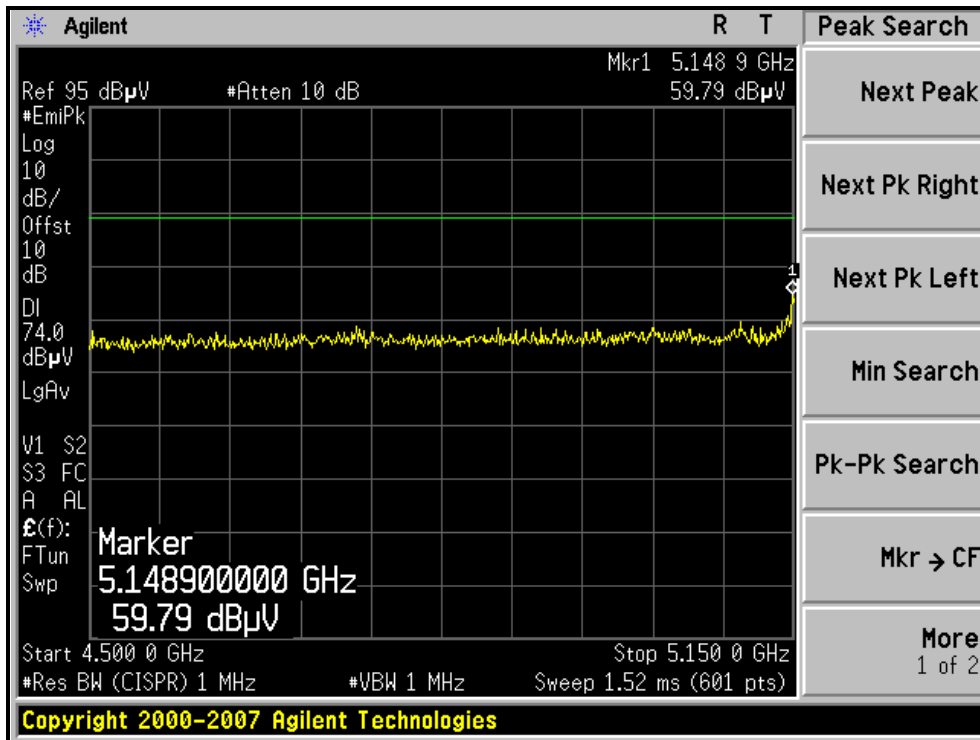
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





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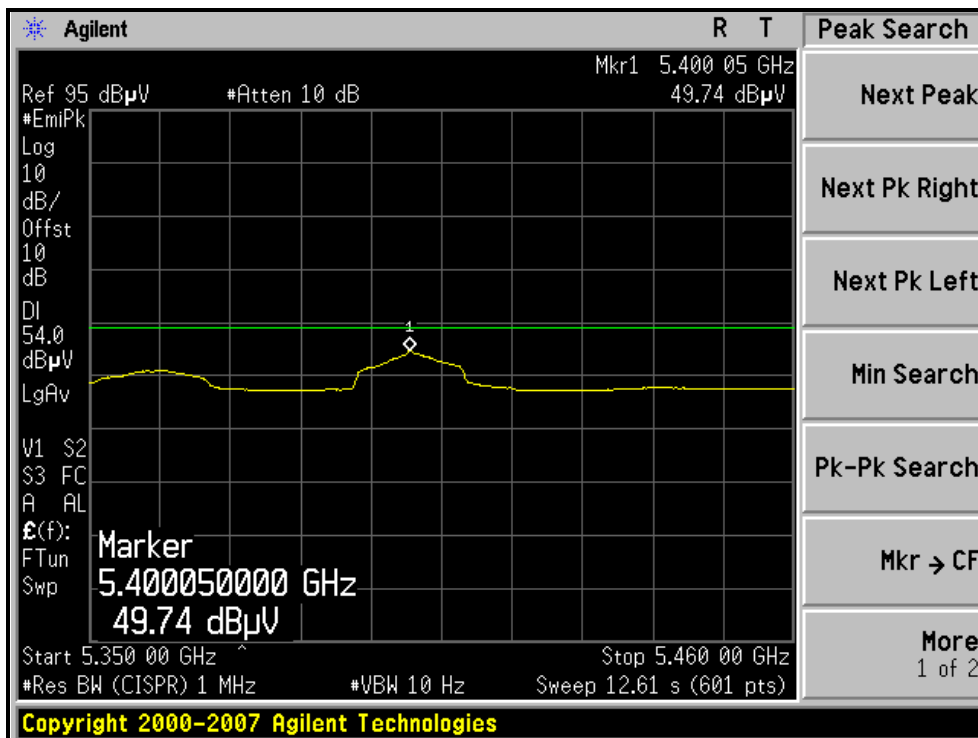
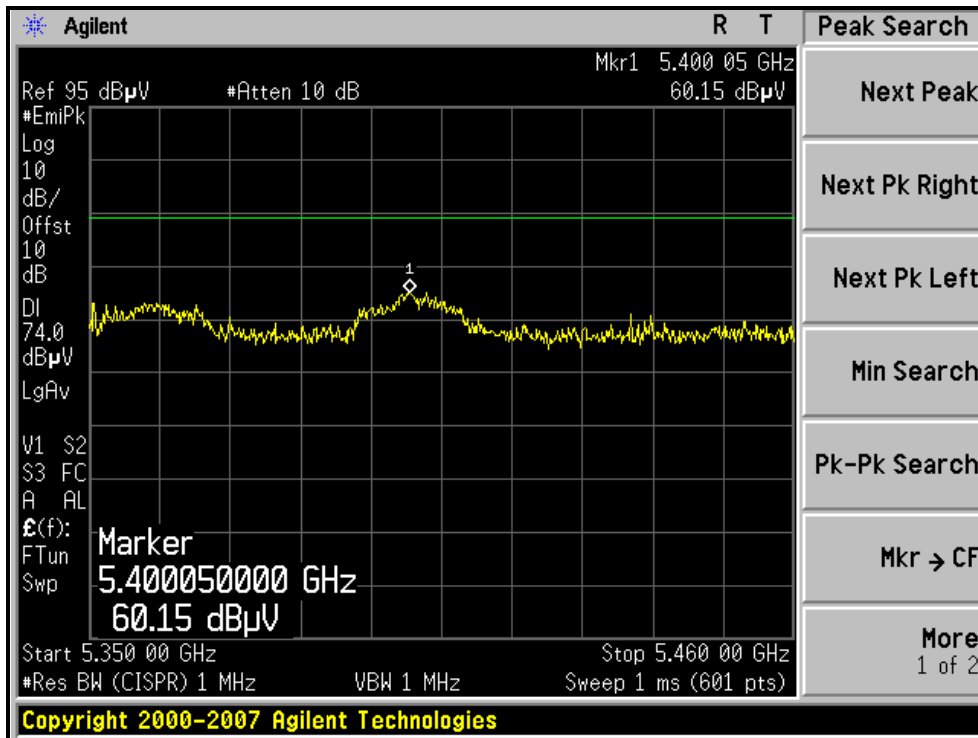
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





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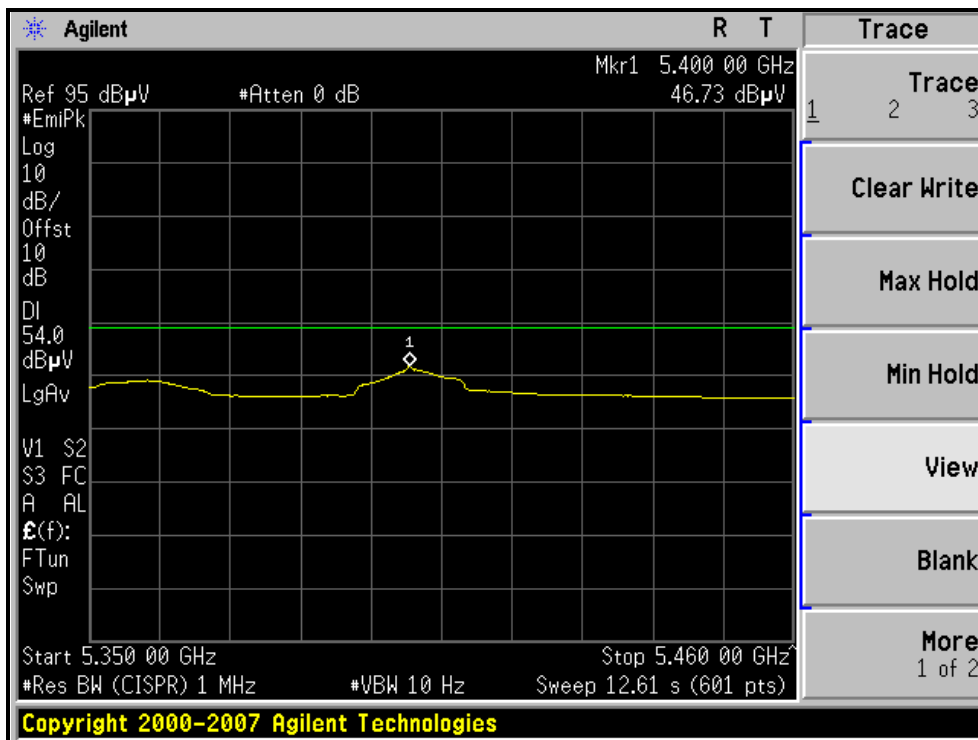
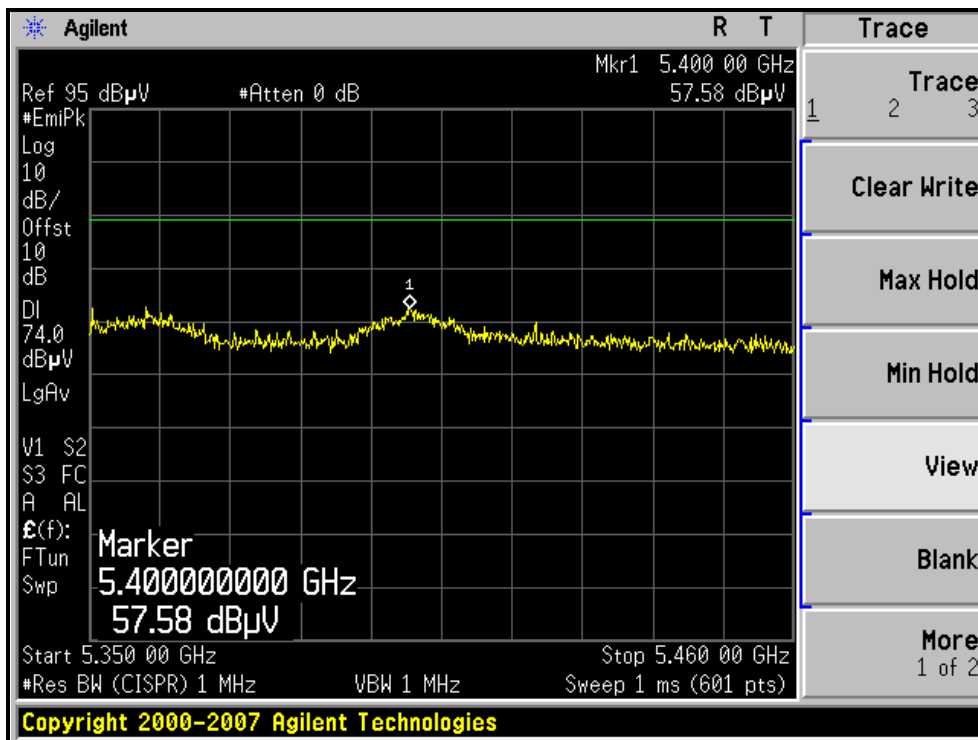
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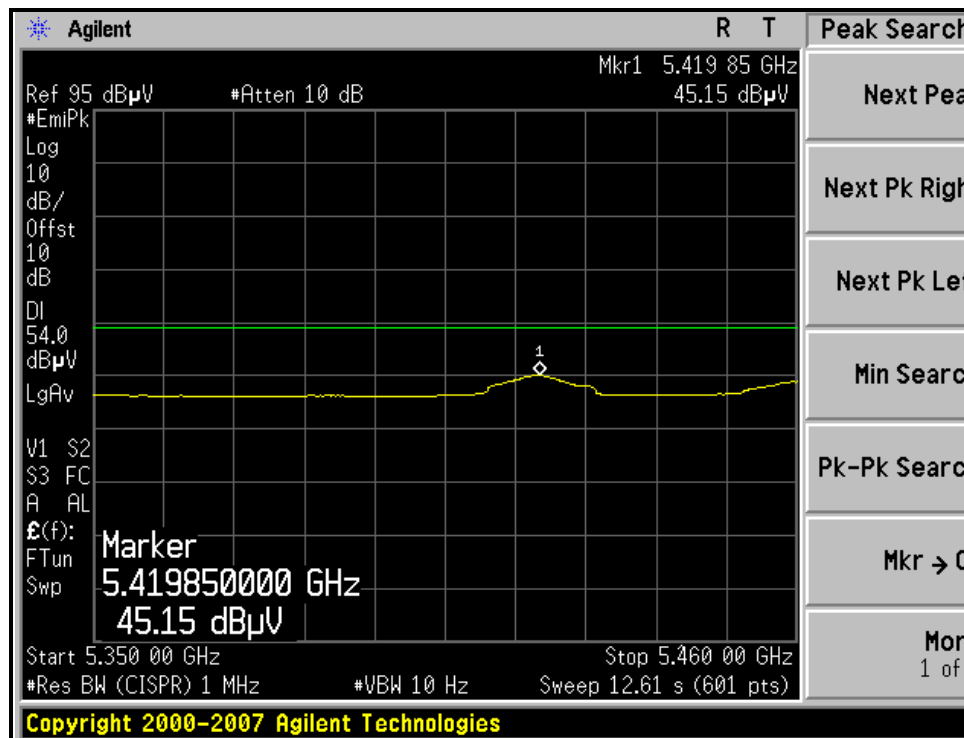
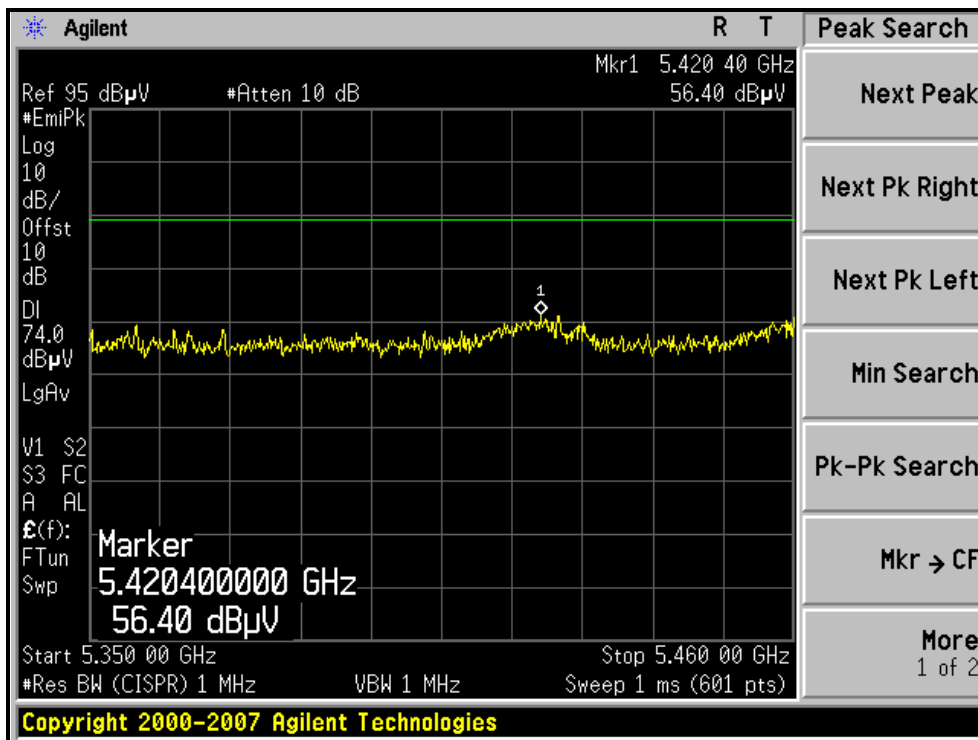
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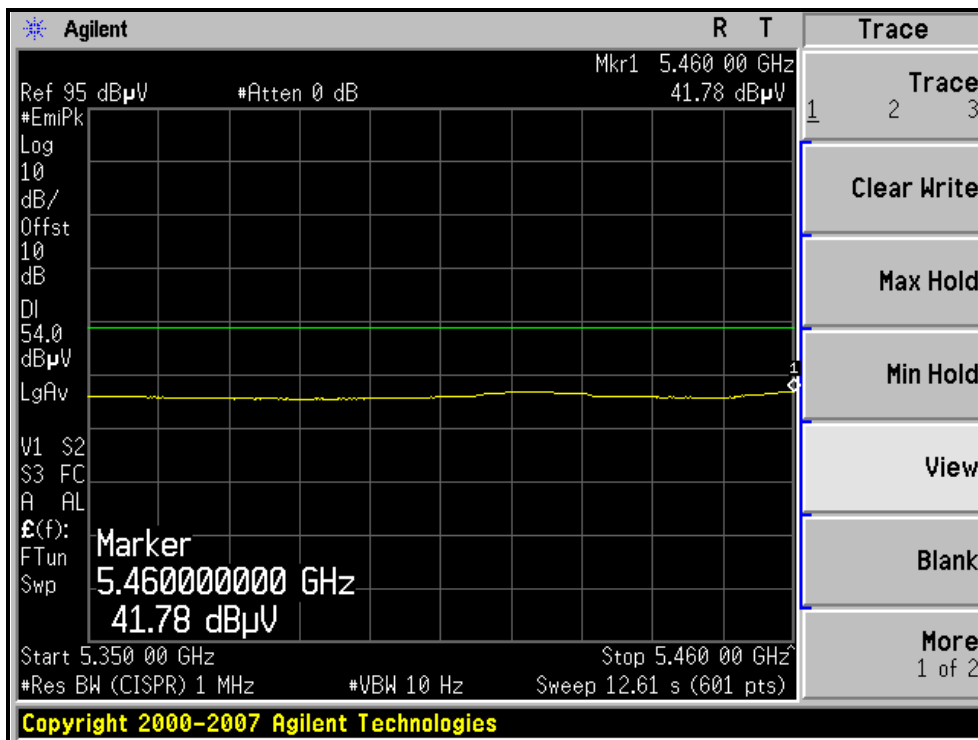
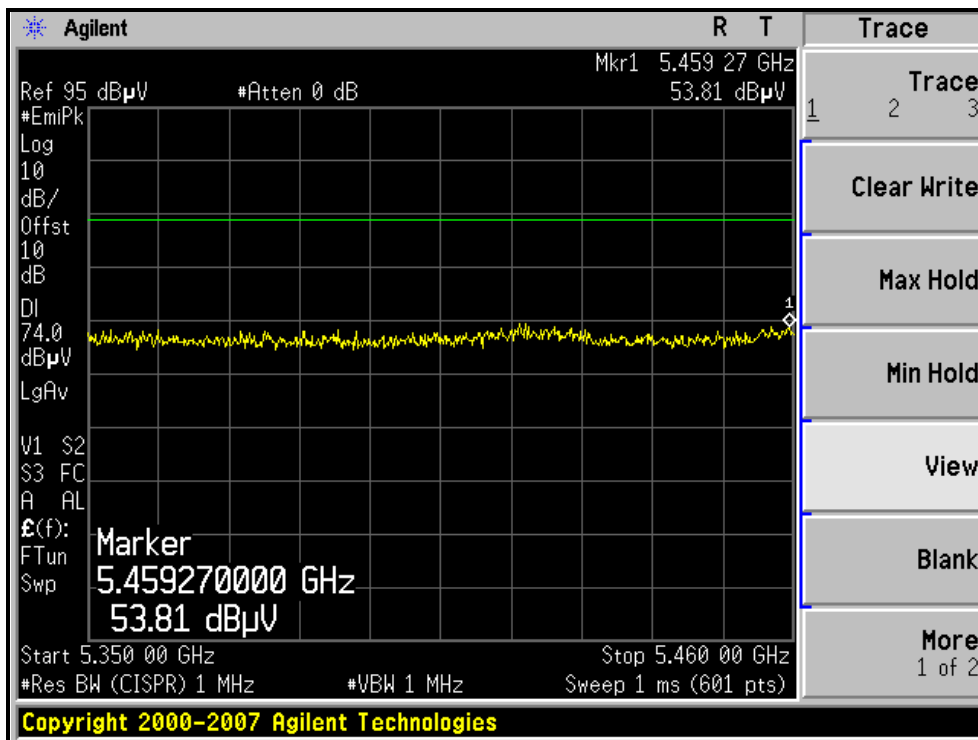
RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)





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802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	56.7 PK	74.00	-17.3	1.32 H	166	19.99	36.71
2	5150.00	42.2 AV	54.00	-11.8	1.32 H	166	5.49	36.71
3	*5180.00	102.6 PK			1.32 H	166	65.84	36.76
4	*5180.00	86.8 AV			1.32 H	166	50.04	36.76
5	#10360.00	55.7 PK	68.30	-12.6	1.35 H	157	9.34	46.36
6	15540.00	56.8 PK	74.00	-17.2	1.38 H	104	8.65	48.15
7	15540.00	46.2 AV	54.00	-7.8	1.38 H	104	-1.95	48.15
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	60.8 PK	74.00	-13.2	1.41 V	81	24.09	36.71
2	5150.00	42.3 AV	54.00	-11.7	1.41 V	81	5.59	36.71
3	*5180.00	100.8 PK			1.41 V	81	64.04	36.76
4	*5180.00	84.6 AV			1.41 V	81	47.84	36.76
5	#10360.00	54.7 PK	68.30	-13.6	1.41 V	82	8.34	46.36
6	15540.00	55.9 PK	74.00	-18.1	1.41 V	83	7.75	48.15
7	15540.00	44.1 AV	54.00	-9.9	1.41 V	83	-4.05	48.15

- 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	103.1 PK			1.32 H	164	66.31	36.79
2	*5200.00	87.4 AV			1.32 H	164	50.61	36.79
3	5360.00	61.5 PK	74.00	-12.5	1.59 H	135	24.50	37.00
4	5360.00	51.2 AV	54.00	-2.8	1.59 H	135	14.20	37.00
5	#10400.00	55.8 PK	68.30	-12.5	1.35 H	157	9.31	46.49
6	15600.00	56.9 PK	74.00	-17.1	1.38 H	105	9.05	47.85
7	15600.00	46.5 AV	54.00	-7.5	1.38 H	105	-1.35	47.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.2 PK			1.42 V	83	64.41	36.79
2	*5200.00	84.9 AV			1.42 V	83	48.11	36.79
3	#10400.00	53.6 PK	68.30	-14.7	1.41 V	82	7.11	46.49
4	15600.00	55.8 PK	74.00	-18.2	1.41 V	84	7.95	47.85
5	15600.00	44.2 AV	54.00	-9.8	1.41 V	84	-3.65	47.85

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	103.0 PK			1.33 H	168	66.13	36.87
2	*5240.00	87.2 AV			1.33 H	168	50.33	36.87
3	5400.00	61.7 PK	74.00	-12.3	1.52 H	141	24.68	37.02
4	5400.00	50.9 AV	54.00	-3.1	1.52 H	141	13.88	37.02
5	#10480.00	55.8 PK	68.30	-12.5	1.35 H	150	9.36	46.44
6	15720.00	56.8 PK	74.00	-17.2	1.38 H	102	8.74	48.06
7	15720.00	46.7 AV	54.00	-7.3	1.38 H	102	-1.36	48.06
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	101.7 PK			1.41 V	88	64.83	36.87
2	*5240.00	84.5 AV			1.41 V	88	47.63	36.87
3	#10480.00	53.8 PK	68.30	-14.5	1.40 V	86	7.36	46.44
4	15720.00	55.9 PK	74.00	-18.1	1.43 V	89	7.84	48.06
5	15720.00	44.3 AV	54.00	-9.7	1.43 V	89	-3.76	48.06

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5260.00	104.0 PK			1.35 H	151	67.10	36.90
2	*5260.00	87.9 AV			1.35 H	151	51.00	36.90
3	5420.00	62.9 PK	74.00	-11.1	1.53 H	158	25.85	37.05
4	5420.00	52.0 AV	54.00	-2.0	1.53 H	158	14.95	37.05
5	#10520.00	55.9 PK	68.30	-12.4	1.35 H	150	9.38	46.52
6	15780.00	57.2 PK	74.00	-16.8	1.38 H	100	9.15	48.05
7	15780.00	46.7 AV	54.00	-7.3	1.38 H	100	-1.35	48.05
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	*5260.00	102.3 PK			1.40 V	84	65.40	36.90
2	*5260.00	85.3 AV			1.40 V	84	48.40	36.90
3	#10520.00	53.7 PK	68.30	-14.6	1.40 V	82	7.18	46.52
4	15780.00	55.7 PK	74.00	-18.3	1.40 V	83	7.65	48.05
5	15780.00	44.9 AV	54.00	-9.1	1.40 V	83	-3.15	48.05

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5300.00	104.7 PK			1.31 H	149	67.72	36.98
2	*5300.00	88.2 AV			1.31 H	149	51.22	36.98
3	5460.00	63.5 PK	74.00	-10.5	1.54 H	156	26.38	37.12
4	5460.00	52.3 AV	54.00	-1.7	1.54 H	156	15.18	37.12
5	10600.00	55.7 PK	74.00	-18.3	1.35 H	150	8.80	46.90
6	10600.00	45.2 AV	54.00	-8.8	1.35 H	150	-1.70	46.90
7	15900.00	56.9 PK	74.00	-17.1	1.38 H	100	9.36	47.54
8	15900.00	46.8 AV	54.00	-7.2	1.38 H	100	-0.74	47.54
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.1 PK			1.36 V	89	66.12	36.98
2	*5300.00	86.6 AV			1.36 V	89	49.62	36.98
3	10600.00	53.6 PK	74.00	-20.4	1.40 V	87	6.70	46.90
4	10600.00	42.1 AV	54.00	-11.9	1.40 V	87	-4.80	46.90
5	15900.00	55.8 PK	74.00	-18.2	1.39 V	89	8.26	47.54
6	15900.00	44.9 AV	54.00	-9.1	1.39 V	89	-2.64	47.54

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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5320.00	105.2 PK			1.58 H	139	68.21	36.99
2	*5320.00	88.4 AV			1.58 H	139	51.41	36.99
3	5399.80	61.0 PK	74.00	-13.0	1.58 H	153	23.98	37.02
4	5399.80	49.4 AV	54.00	-4.6	1.58 H	153	12.38	37.02
5	10640.00	55.0 PK	74.00	-19.0	1.52 H	140	8.09	46.91
6	10640.00	44.2 AV	54.00	-9.8	1.52 H	140	-2.71	46.91
7	15960.00	56.2 PK	74.00	-17.8	1.53 H	141	8.62	47.58
8	15960.00	46.1 AV	54.00	-7.9	1.53 H	141	-1.48	47.58
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	*5320.00	103.8 PK			1.33 V	90	66.81	36.99
2	*5320.00	87.1 AV			1.33 V	90	50.11	36.99
3	5400.00	57.7 PK	74.00	-16.3	1.33 V	89	20.68	37.02
4	5400.00	46.4 AV	54.00	-7.6	1.33 V	89	9.38	37.02
5	10640.00	54.0 PK	74.00	-20.0	1.32 V	90	7.09	46.91
6	10640.00	42.1 AV	54.00	-11.9	1.32 V	90	-4.81	46.91
7	15960.00	55.5 PK	74.00	-18.5	1.33 V	92	7.92	47.58
8	15960.00	44.6 AV	54.00	-9.4	1.33 V	92	-2.98	47.58

- 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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	5418.70	56.1 PK	74.00	-17.9	1.54 H	154	19.05	37.05
2	5418.70	44.7 AV	54.00	-9.3	1.54 H	154	7.65	37.05
3	#5470.00	64.0 PK	68.30	-4.3	1.54 H	154	26.87	37.13
4	*5500.00	106.6 PK			1.53 H	156	69.42	37.18
5	*5500.00	90.4 AV			1.53 H	156	53.22	37.18
6	11000.00	54.9 PK	74.00	-19.1	1.53 H	142	7.40	47.50
7	11000.00	44.1 AV	54.00	-9.9	1.53 H	142	-3.40	47.50
8	#16500.00	56.1 PK	68.30	-12.2	1.53 H	143	8.50	47.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.8 PK	74.00	-20.2	1.41 V	88	16.68	37.12
2	5460.00	41.8 AV	54.00	-12.2	1.41 V	88	4.68	37.12
3	#5470.00	60.6 PK	68.30	-7.7	1.41 V	88	23.47	37.13
4	*5500.00	103.9 PK			1.41 V	88	66.72	37.18
5	*5500.00	88.2 AV			1.41 V	88	51.02	37.18
6	11000.00	54.1 PK	74.00	-19.9	1.41 V	89	6.60	47.50
7	11000.00	43.0 AV	54.00	-11.0	1.41 V	89	-4.50	47.50
8	#16500.00	55.4 PK	68.30	-12.9	1.45 V	98	7.80	47.60

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 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	*5600.00	107.3 PK			1.53 H	157	69.84	37.46
2	*5600.00	90.9 AV			1.53 H	157	53.44	37.46
3	11200.00	55.0 PK	74.00	-19.0	1.52 H	144	7.64	47.36
4	11200.00	44.6 AV	54.00	-9.4	1.52 H	144	-2.76	47.36
5	#16800.00	56.1 PK	68.30	-12.2	1.55 H	120	7.38	48.72
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	*5600.00	104.3 PK			1.46 V	86	66.84	37.46
2	*5600.00	88.0 AV			1.46 V	86	50.54	37.46
3	11200.00	54.1 PK	74.00	-19.9	1.45 V	89	6.74	47.36
4	11200.00	43.1 AV	54.00	-10.9	1.45 V	89	-4.26	47.36
5	#16800.00	55.4 PK	68.30	-12.9	1.46 V	82	6.68	48.72

- 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.



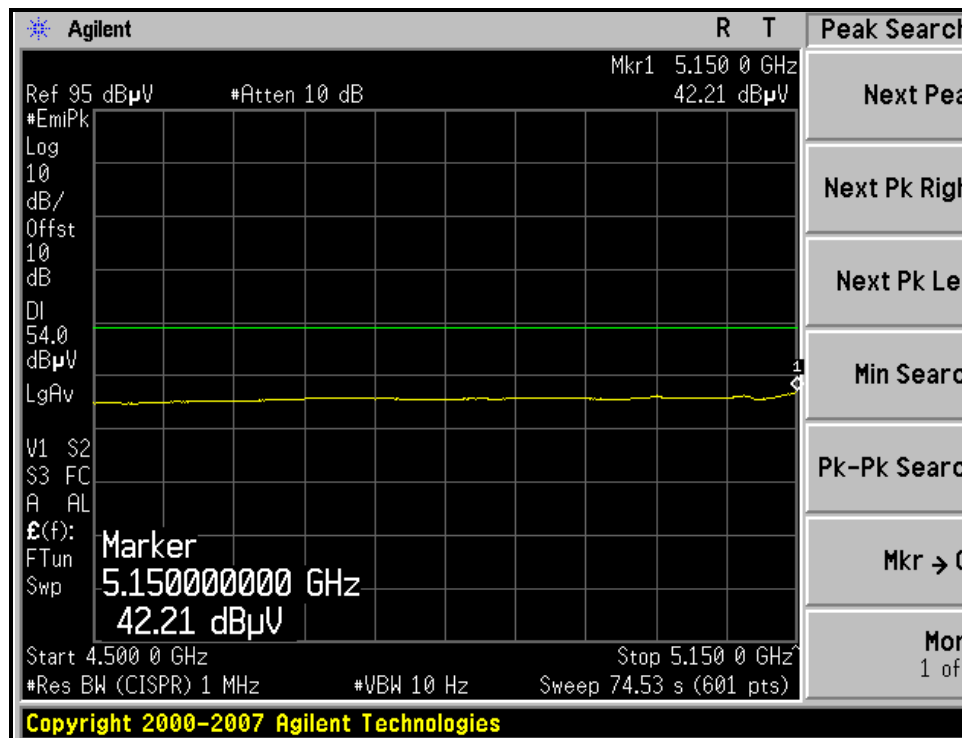
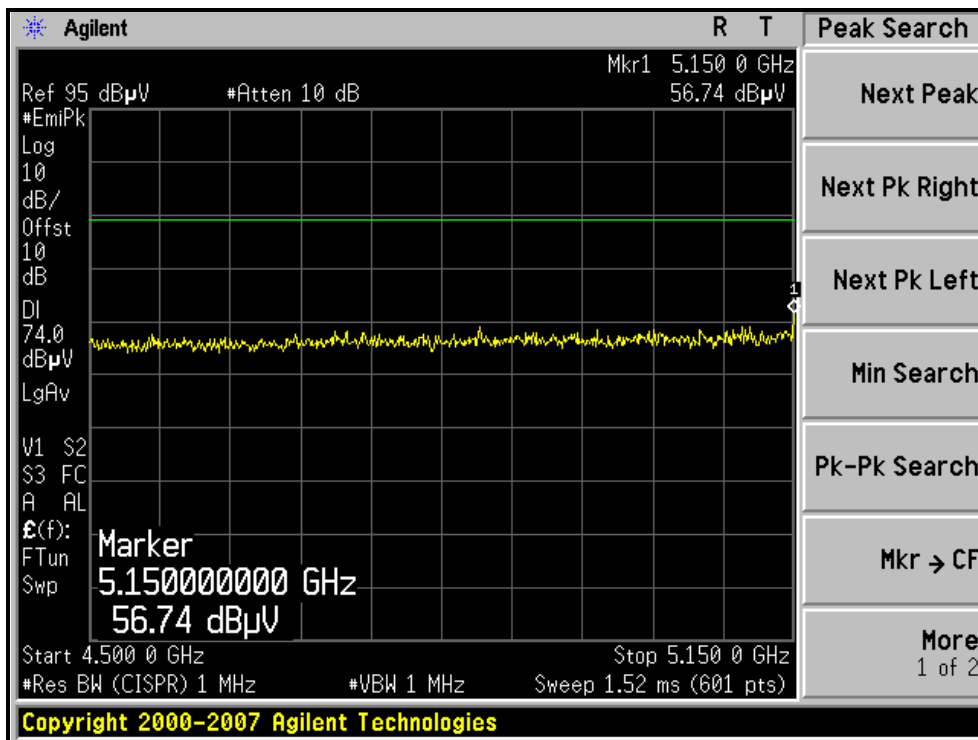
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 62%RH 1024 hPa	TESTED BY	Wen Yu

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	*5700.00	107.5 PK			1.64 H	150	69.84	37.66
2	*5700.00	91.3 AV			1.64 H	150	53.64	37.66
3	#5725.00	67.7 PK	68.30	-0.6	1.63 H	151	29.98	37.72
4	11400.00	55.1 PK	74.00	-18.9	1.55 H	146	7.44	47.66
5	11400.00	44.5 AV	54.00	-9.5	1.55 H	146	-3.16	47.66
6	#17100.00	56.2 PK	68.30	-12.1	1.62 H	115	6.64	49.56
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	*5700.00	104.2 PK			1.47 V	84	66.54	37.66
2	*5700.00	87.6 AV			1.47 V	84	49.94	37.66
3	#5725.00	66.3 PK	68.30	-2.0	1.47 V	82	28.58	37.72
4	11400.00	54.2 PK	74.00	-19.8	1.47 V	85	6.54	47.66
5	11400.00	43.2 AV	54.00	-10.8	1.47 V	85	-4.46	47.66
6	#17100.00	55.3 PK	68.30	-13.0	1.42 V	165	5.74	49.56

- 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.

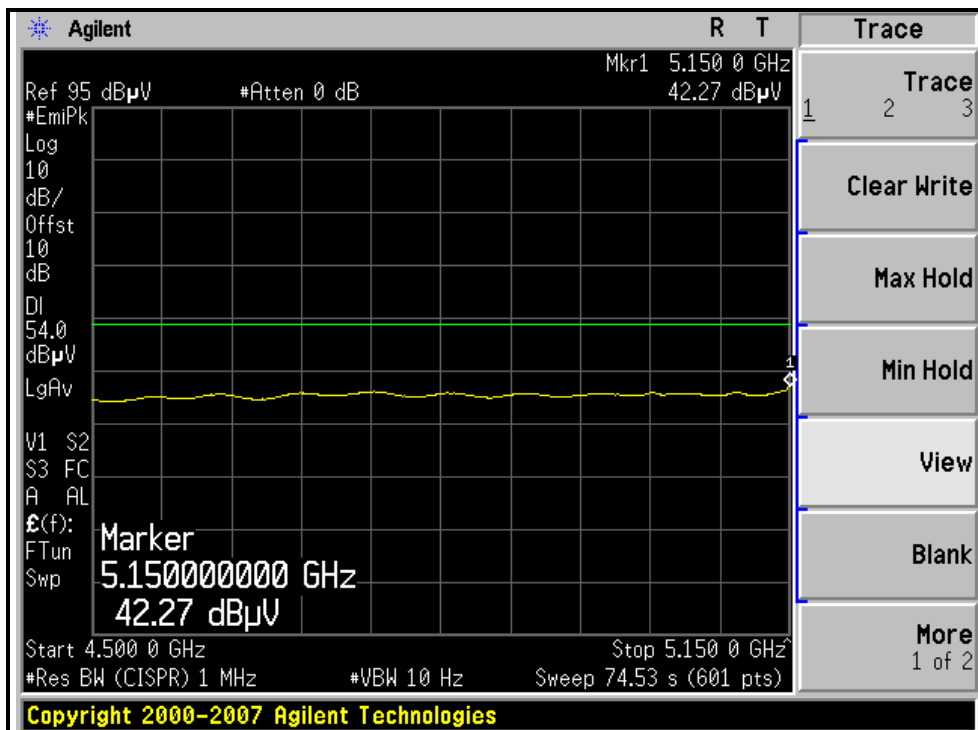
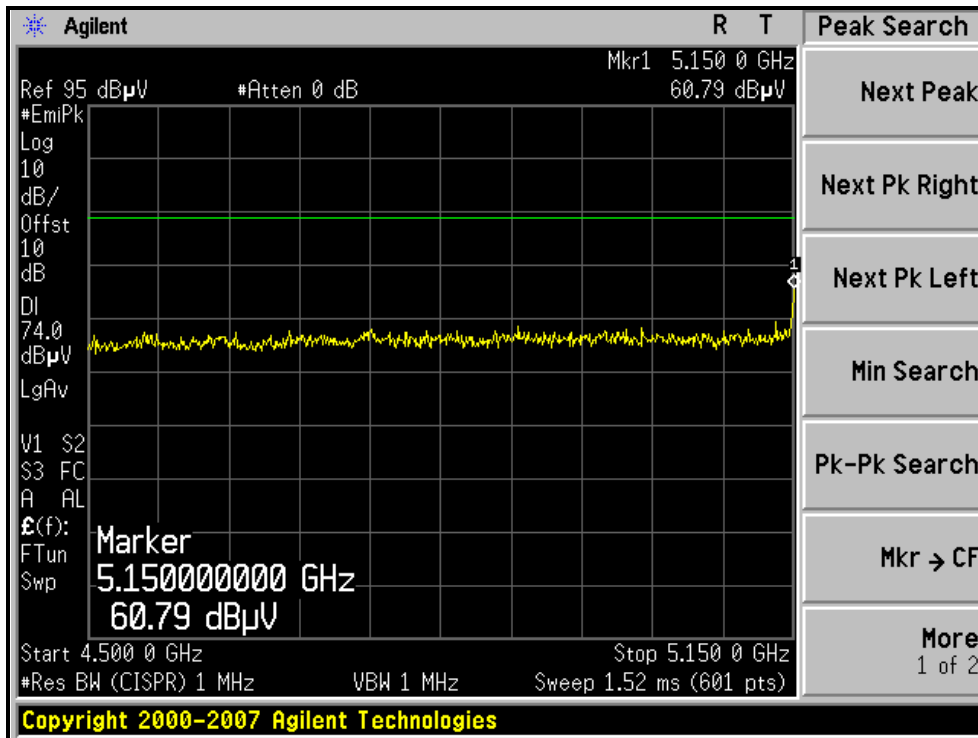
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)





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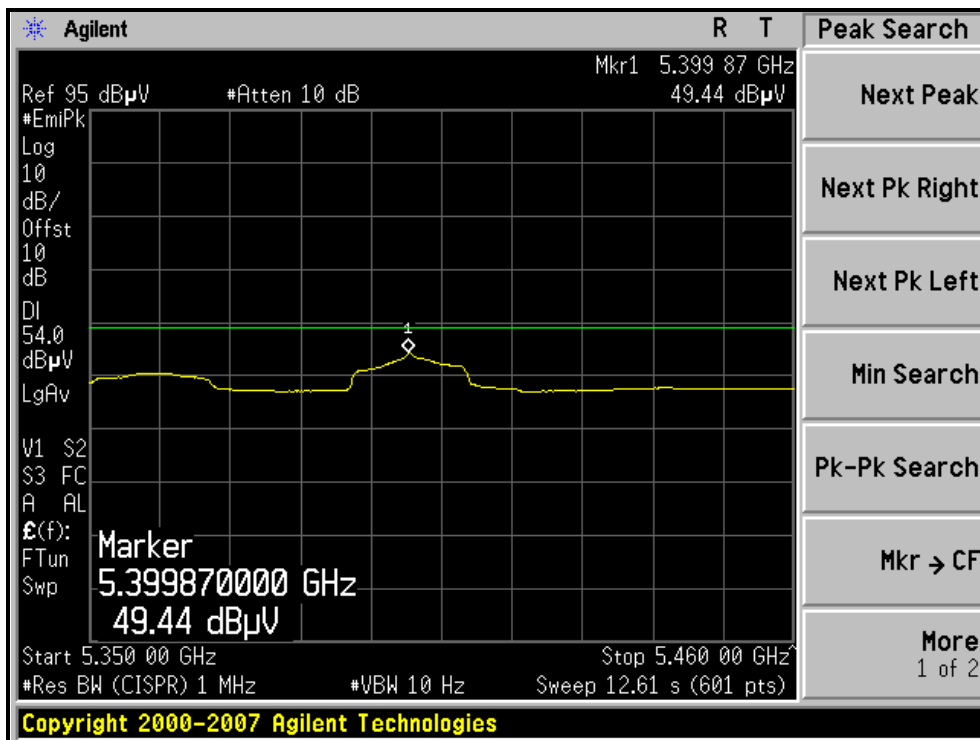
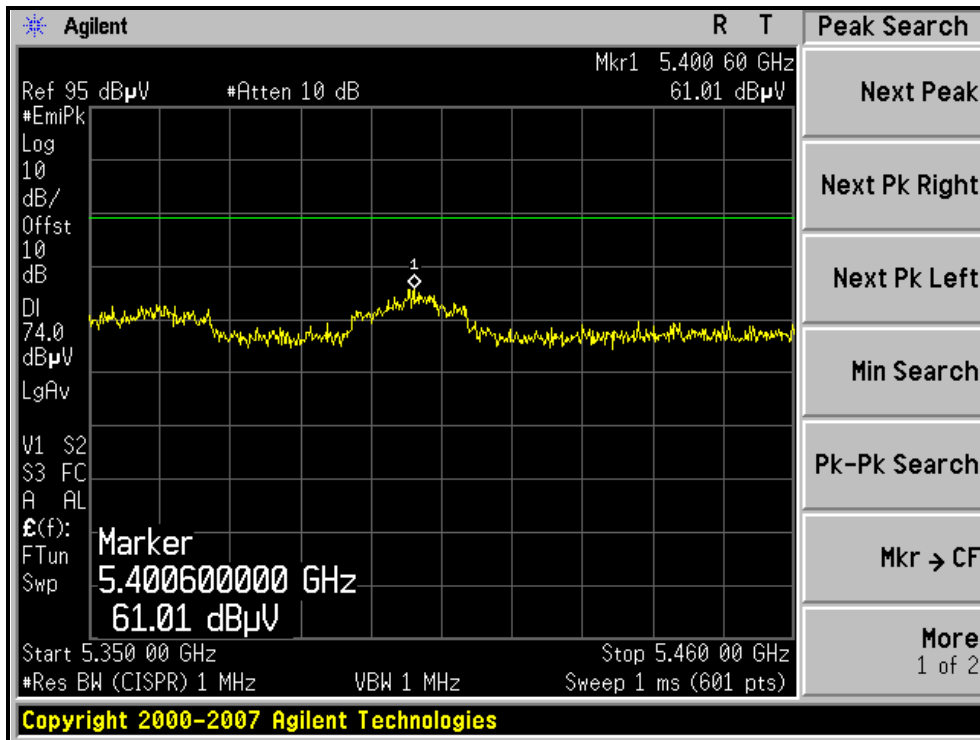
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)





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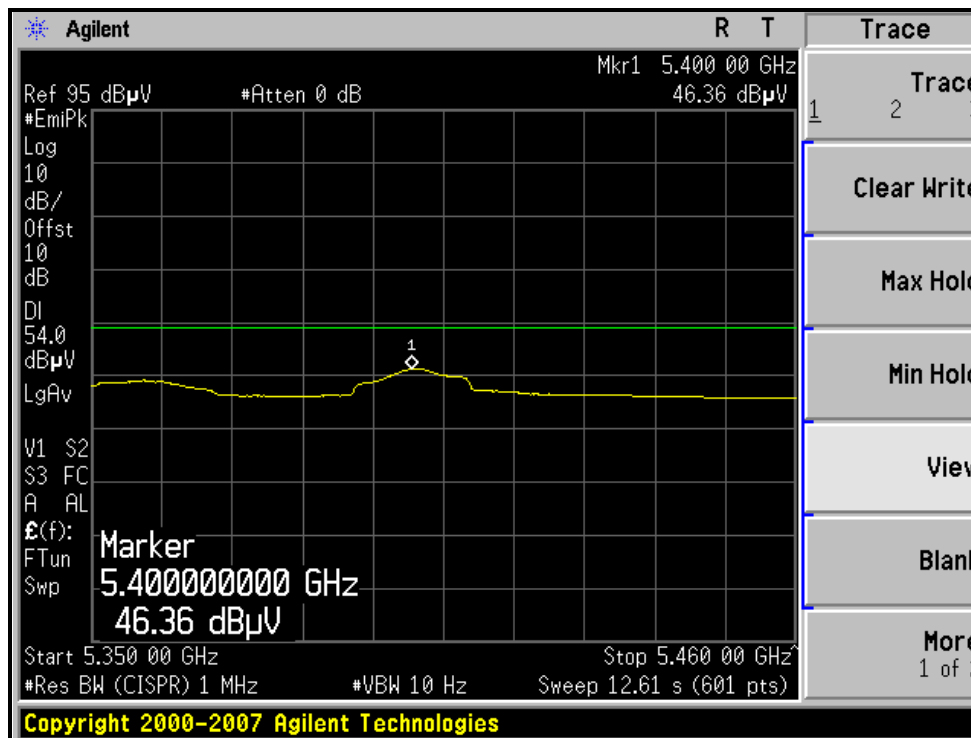
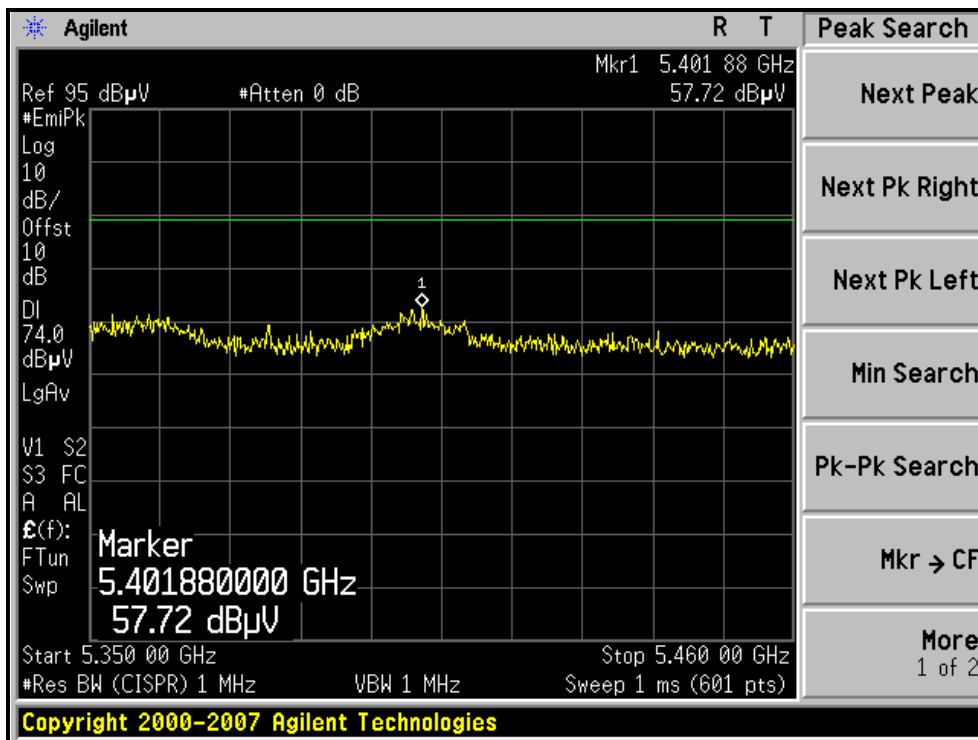
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH64, HORIZONTAL)



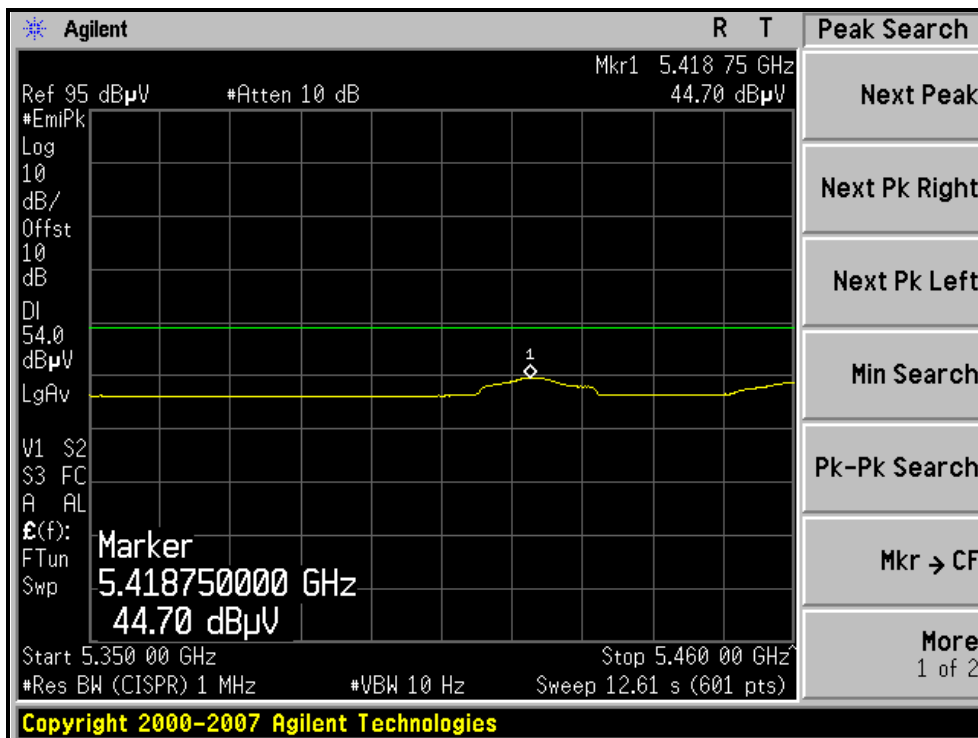
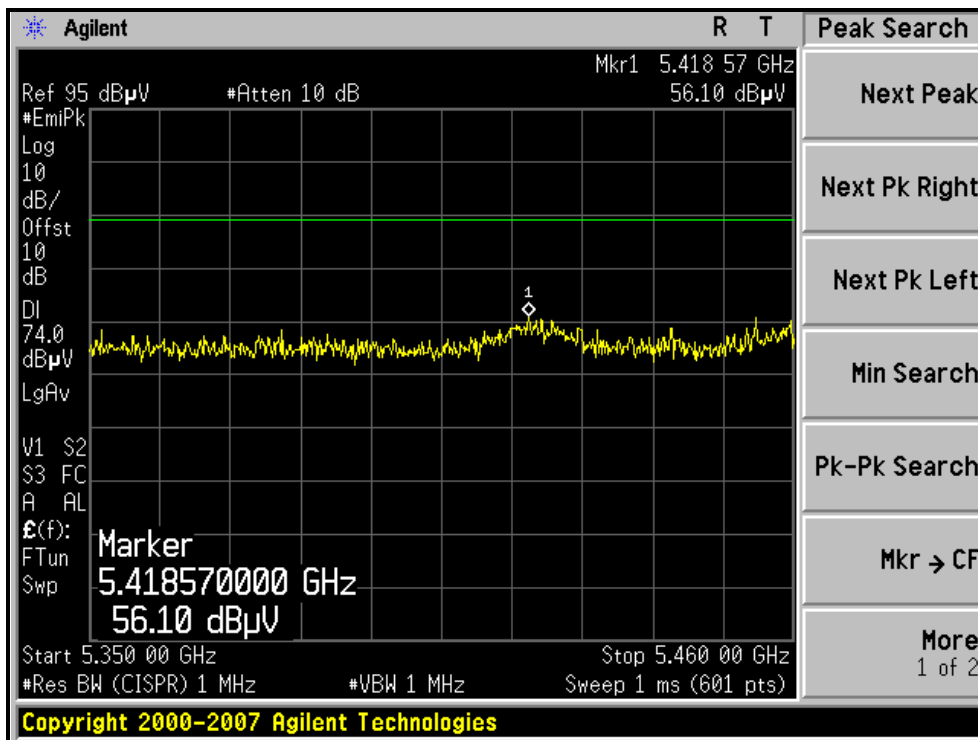


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RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH64, VERTICAL)



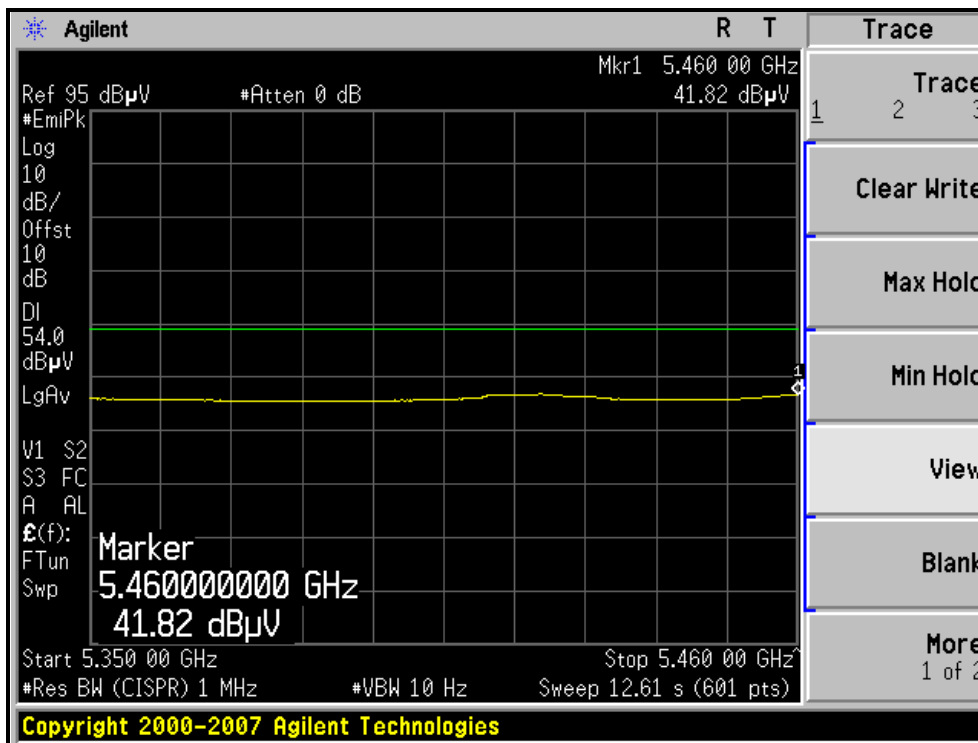
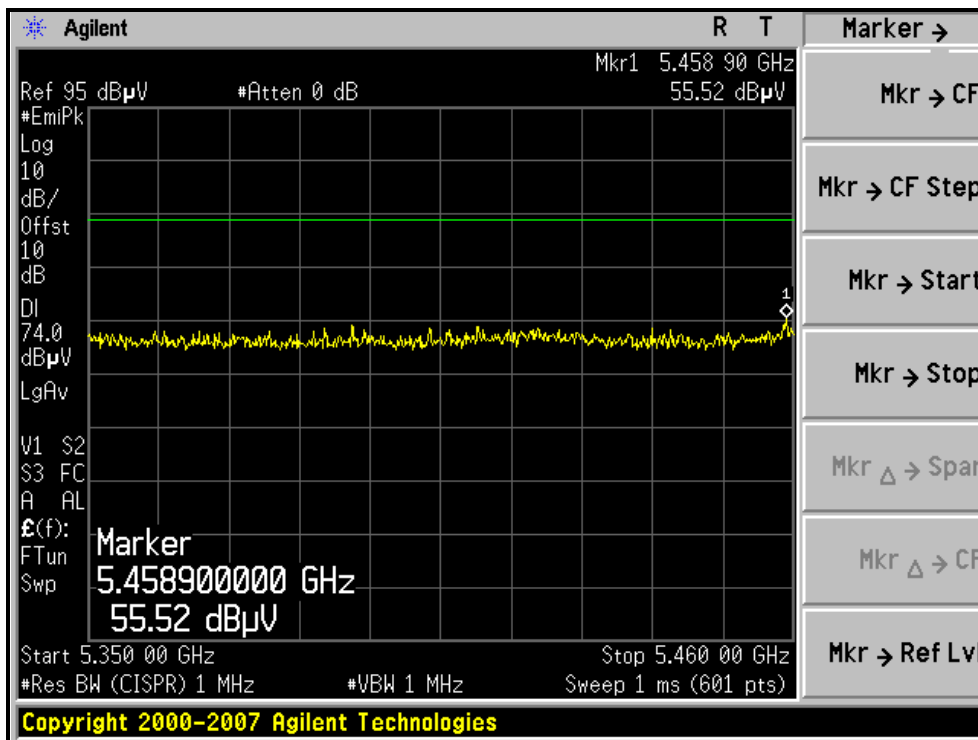
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH100, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH100, VERTICAL)



4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

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

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

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
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 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

NOTE:

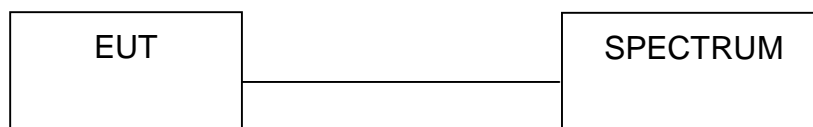
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

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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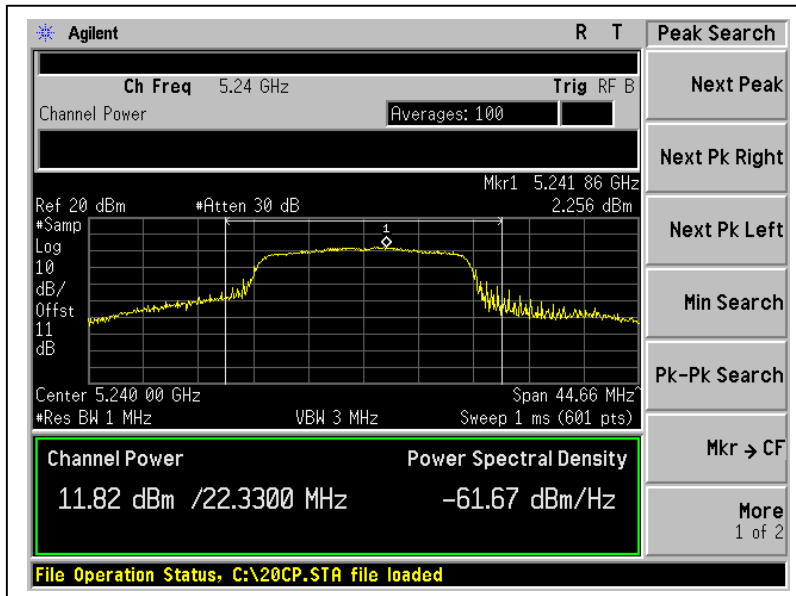
4.3.7 TEST RESULTS

802.11a OFDM MODULATION:

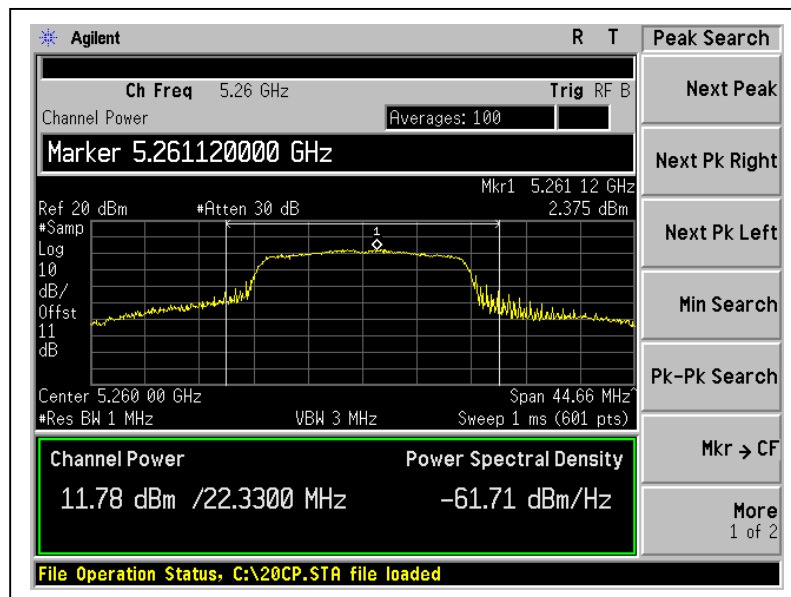
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
36	5180	14.1	11.5	17	25.92	PASS
40	5200	14.1	11.5	17	24.92	PASS
48	5240	15.1	11.8	17	22.33	PASS
52	5260	15.1	11.8	24	22.33	PASS
60	5300	14.5	11.6	24	20.17	PASS
64	5320	14.8	11.7	24	21.25	PASS
100	5500	16.6	12.2	24	22.42	PASS
120	5600	17.4	12.4	24	21.5	PASS
140	5700	16.6	12.2	24	21.08	PASS

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

Peak Power Output: CH48



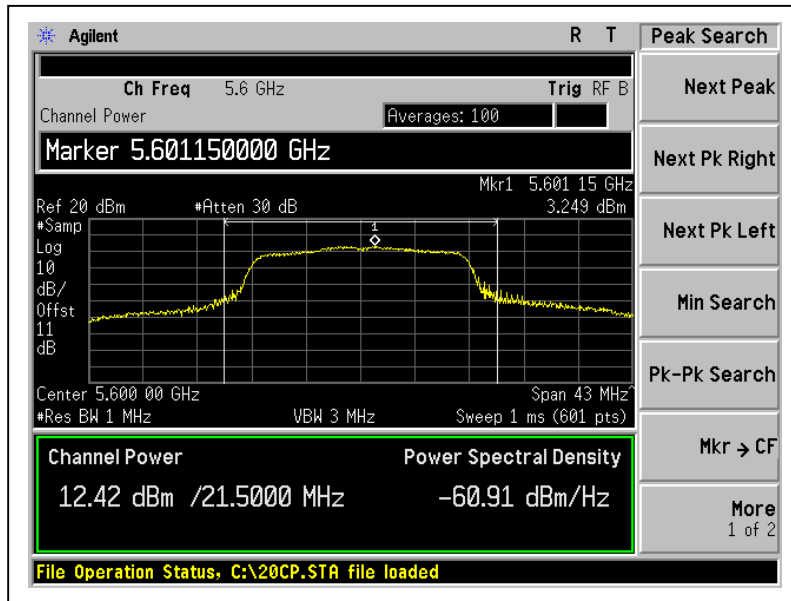
CH52





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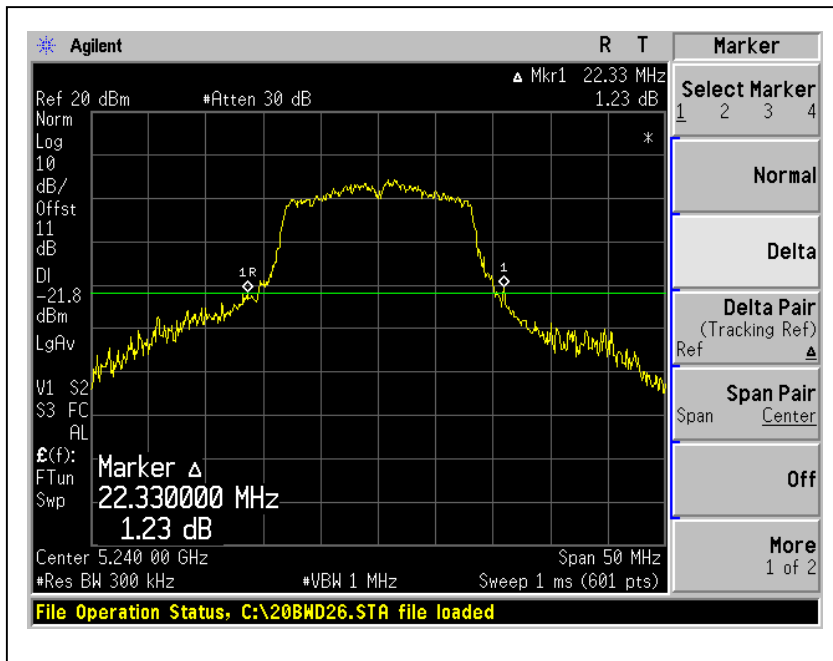
CH120



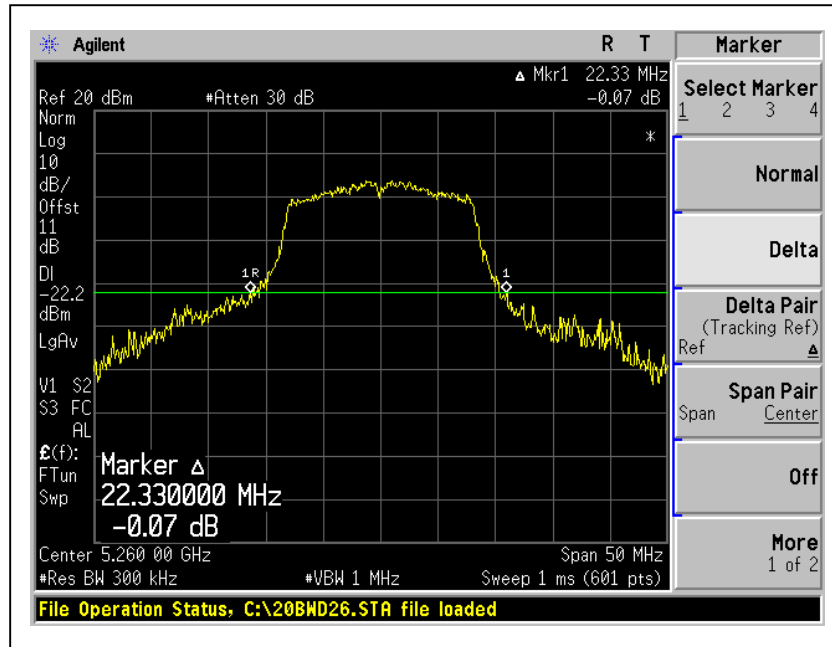


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26dB Occupied Bandwidth: CH48



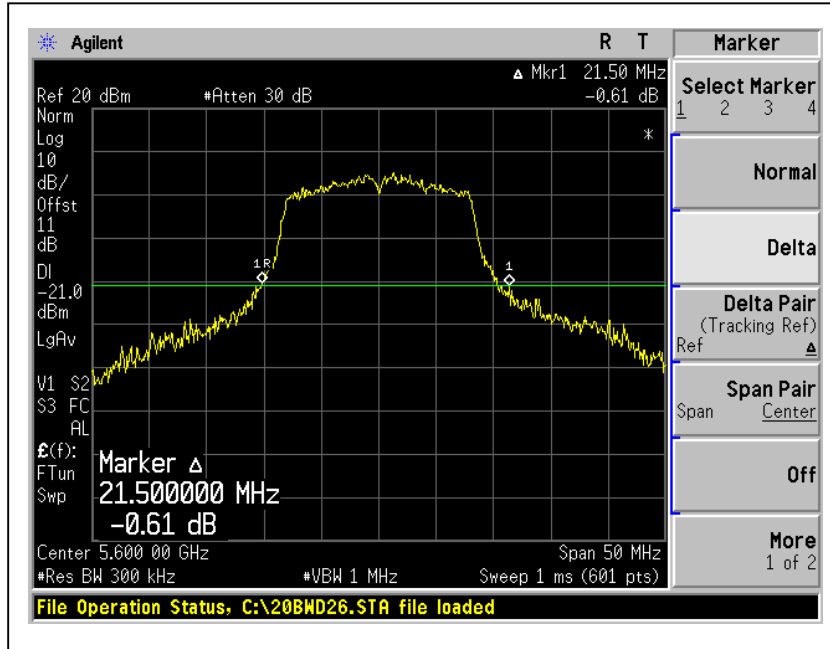
CH52





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CH120





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802.11n (20MHz) OFDM MODULATION:

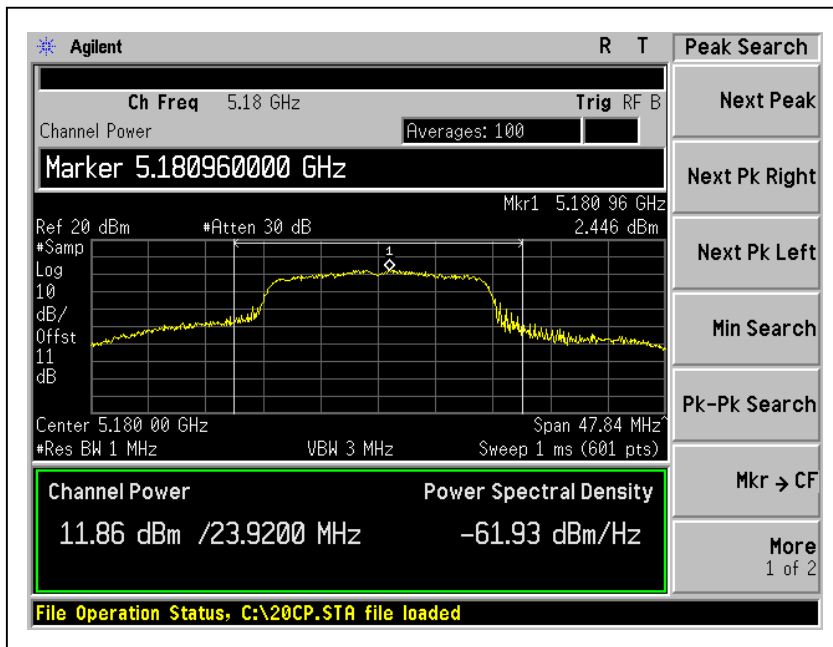
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
36	5180	15.5	11.9	17	23.92	PASS
40	5200	13.2	11.2	17	27.08	PASS
48	5240	14.5	11.6	17	22.58	PASS
52	5260	14.5	11.6	24	21.92	PASS
60	5300	14.5	11.6	24	21.92	PASS
64	5320	14.1	11.5	24	21.42	PASS
100	5500	15.8	12.0	24	24.58	PASS
120	5600	17.4	12.4	24	22.58	PASS
140	5700	14.8	11.7	24	22.08	PASS

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

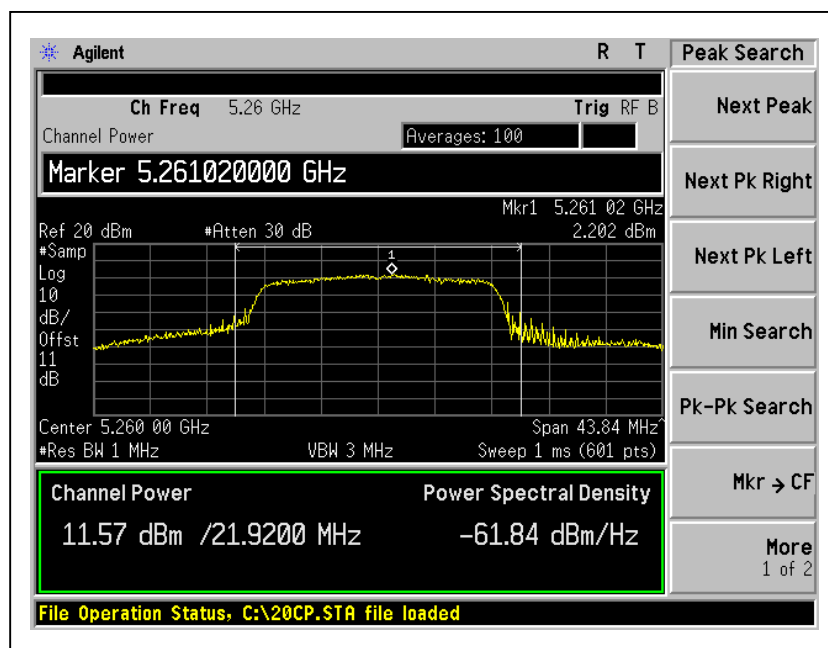


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Peak Power Output: CH36



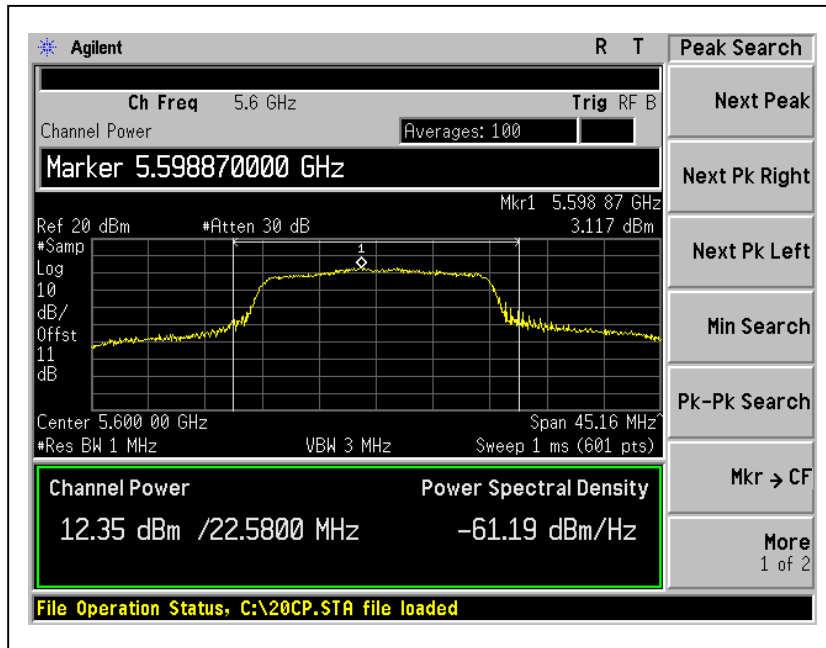
CH52



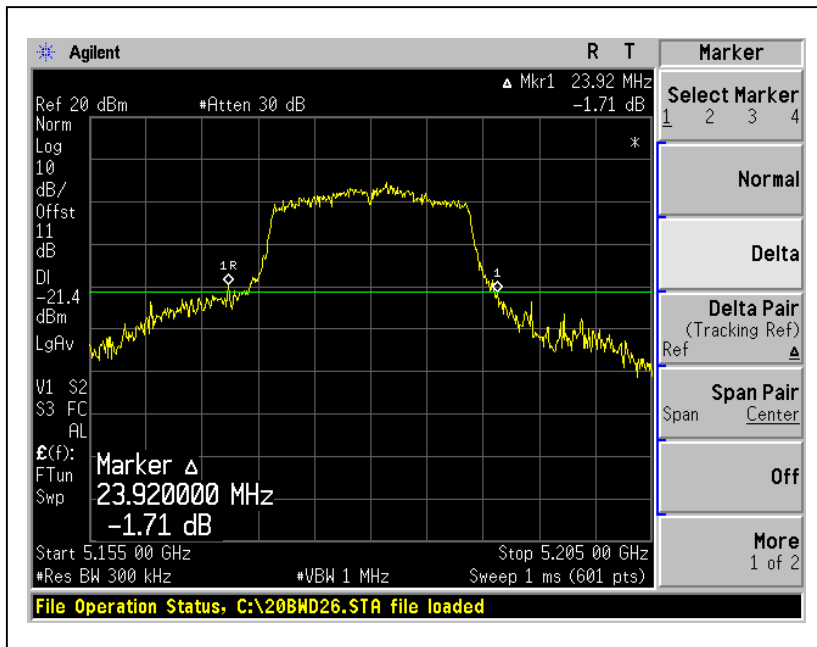


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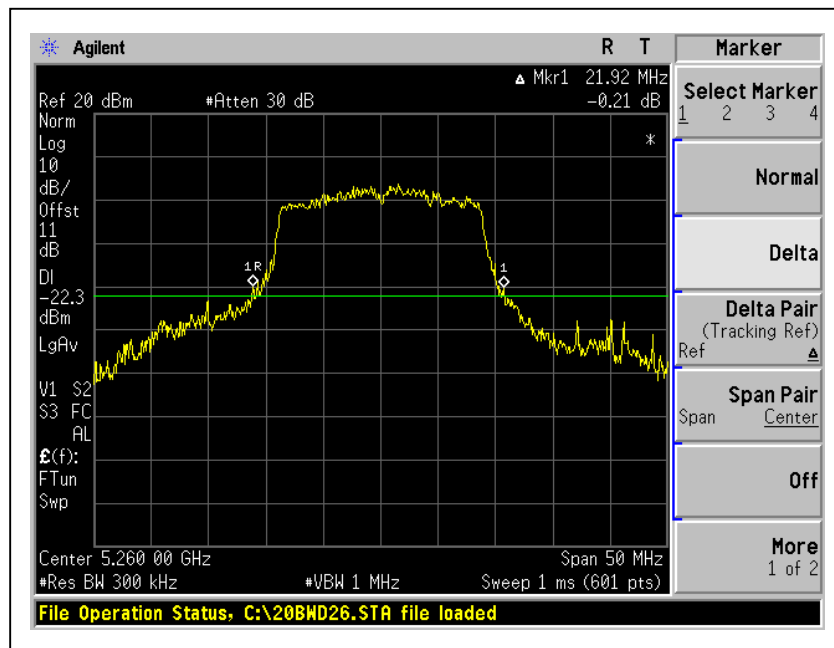
CH120



26dB Occupied Bandwidth: CH36



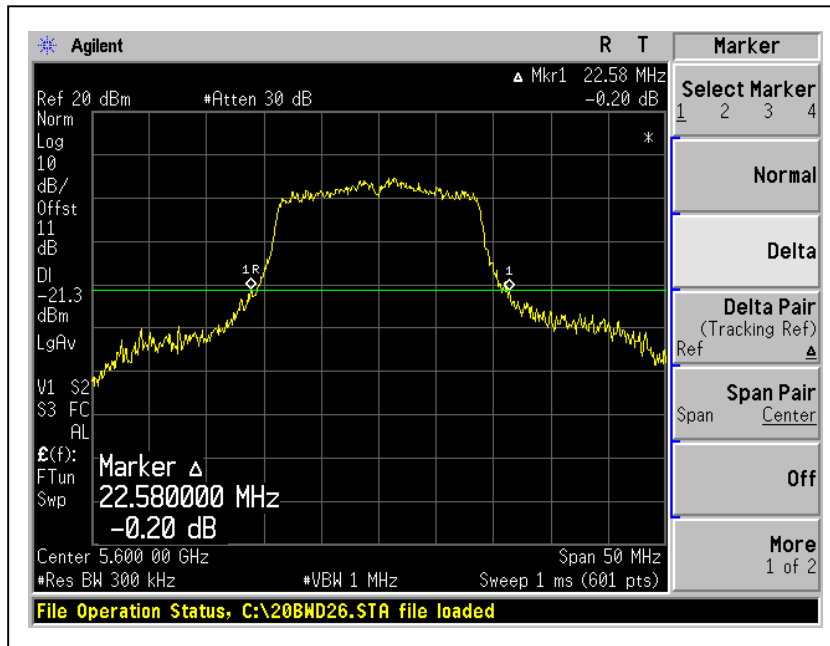
CH52





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CH120



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.

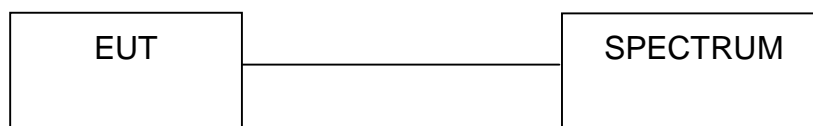
4.4.3 TEST PROCEDURE

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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



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4.4.7 TEST RESULTS

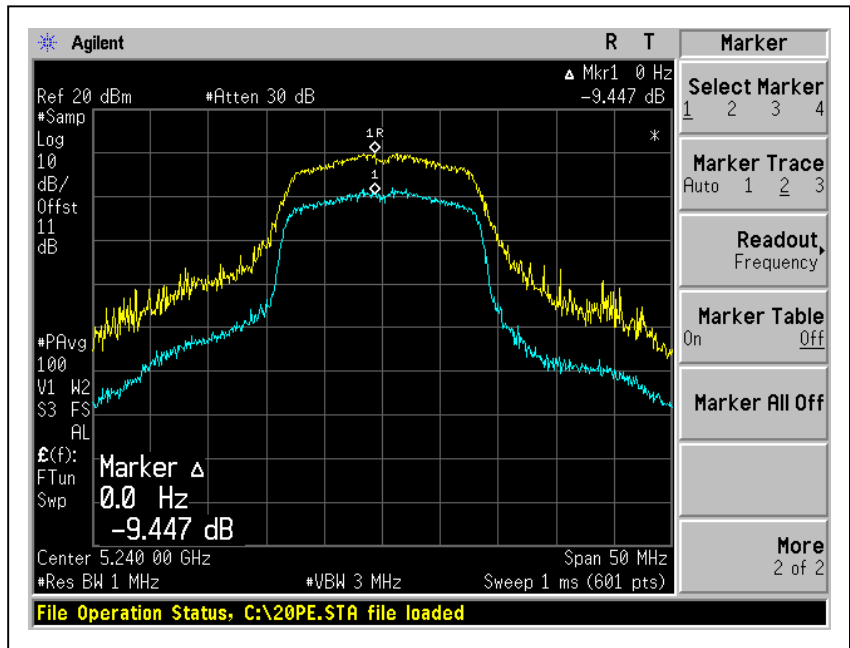
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	8.7	13	PASS
40	5200	9.3	13	PASS
48	5240	9.4	13	PASS
52	5260	9.1	13	PASS
60	5300	8.5	13	PASS
64	5320	9	13	PASS
100	5500	9.4	13	PASS
120	5600	8.4	13	PASS
140	5700	9.7	13	PASS

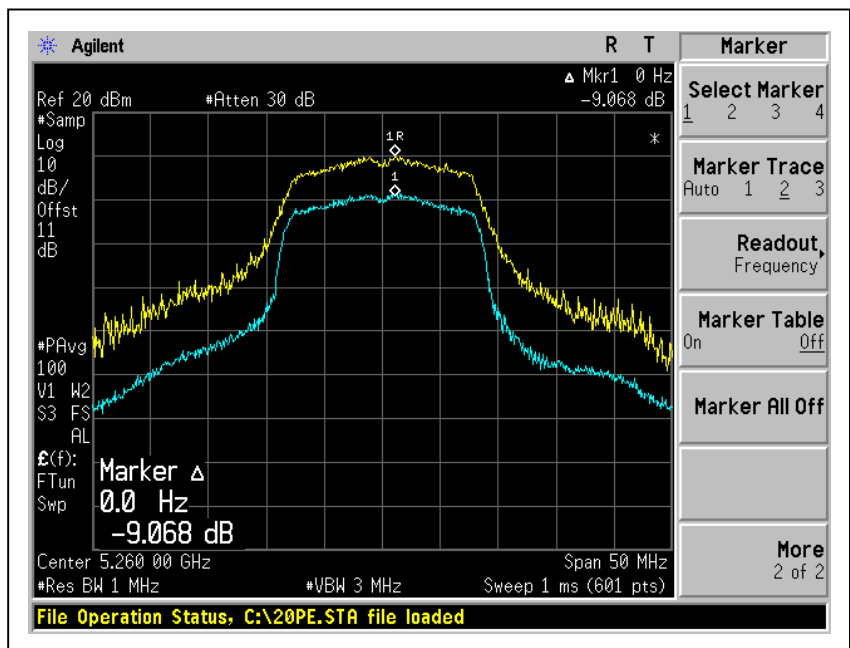


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CH48



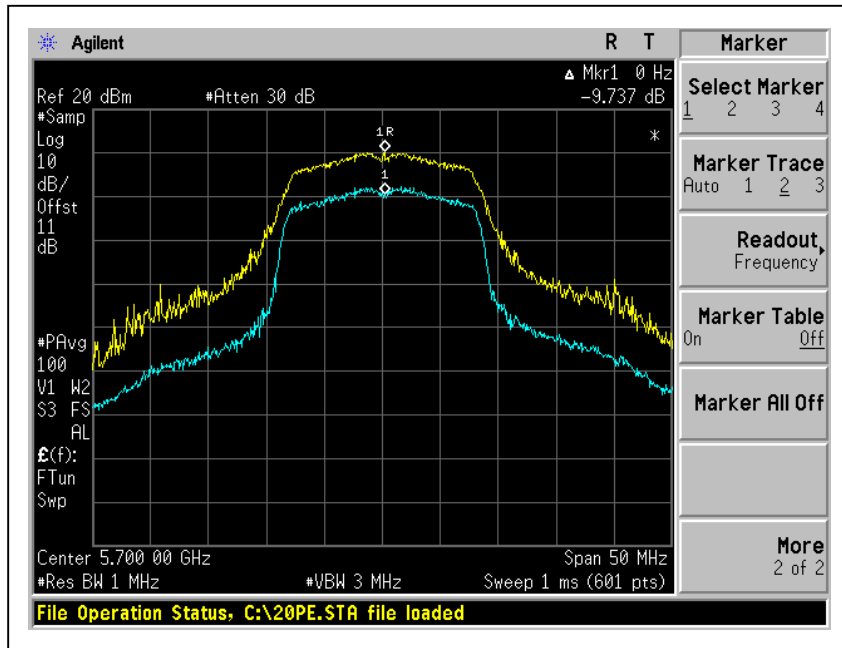
CH52





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CH140





A D T

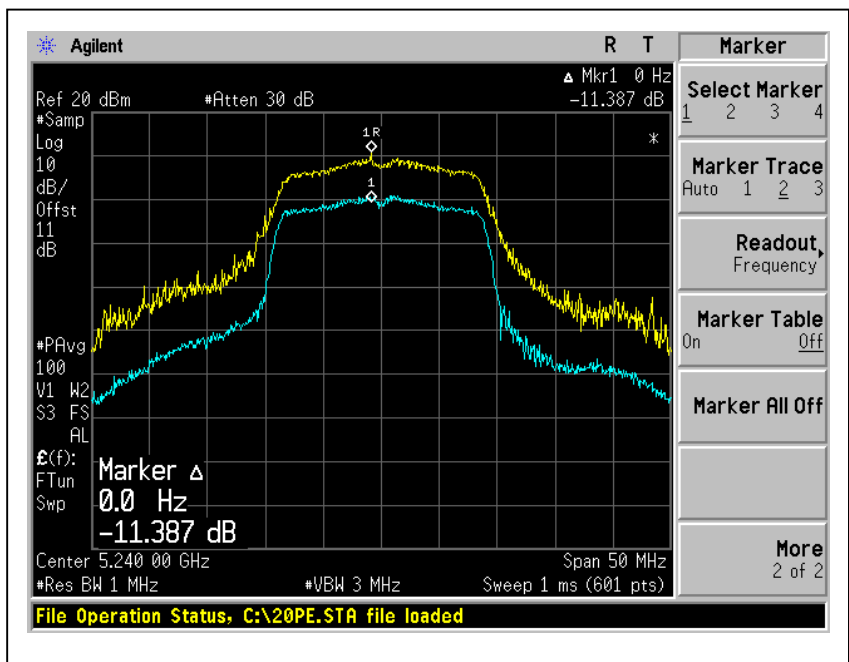
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	9.8	13	PASS
40	5200	9.4	13	PASS
48	5240	11.4	13	PASS
52	5260	9.8	13	PASS
60	5300	9.1	13	PASS
64	5320	8.9	13	PASS
100	5500	9.9	13	PASS
120	5600	8.4	13	PASS
140	5700	9.4	13	PASS

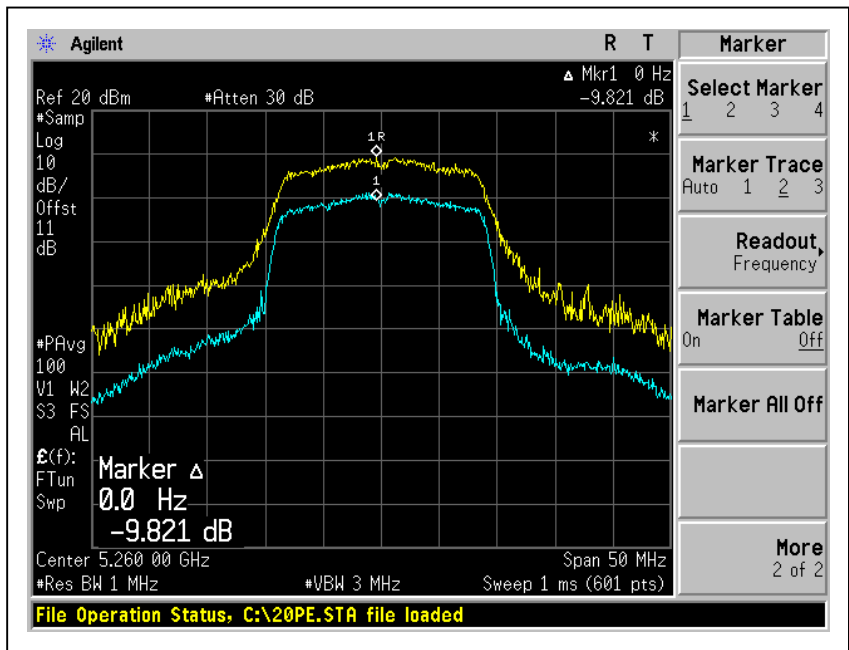


A D T

CH48



CH52





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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.

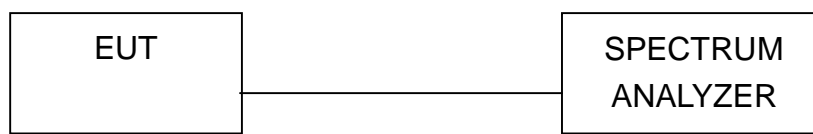
4.5.3 TEST PROCEDURES

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



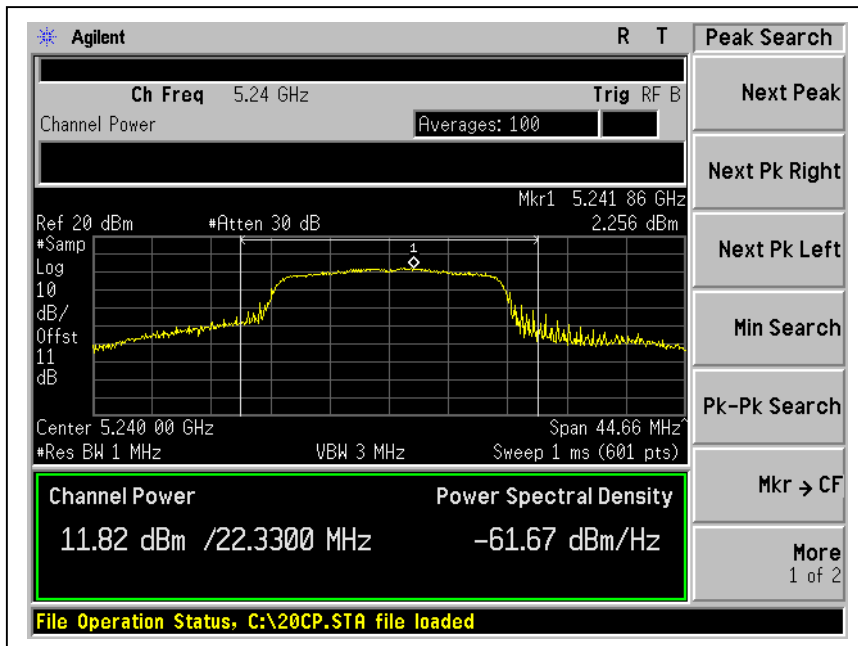
A D T

4.5.7 TEST RESULTS

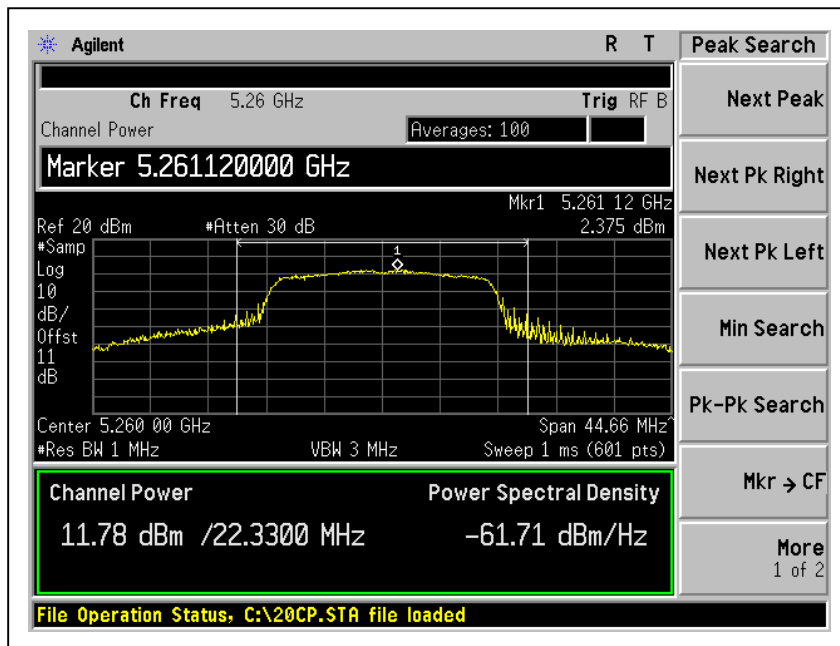
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	1.5	4	PASS
40	5200	2.1	4	PASS
48	5240	2.3	4	PASS
52	5260	2.4	11	PASS
60	5300	2.3	11	PASS
64	5320	2.3	11	PASS
100	5500	2.6	11	PASS
120	5600	3.2	11	PASS
140	5700	3.0	11	PASS

CH48



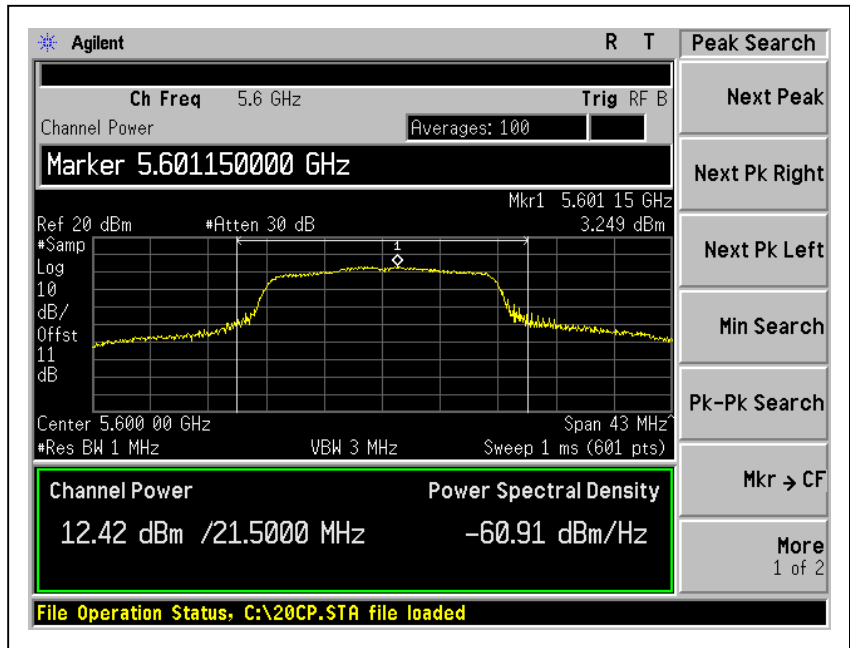
CH52





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CH120





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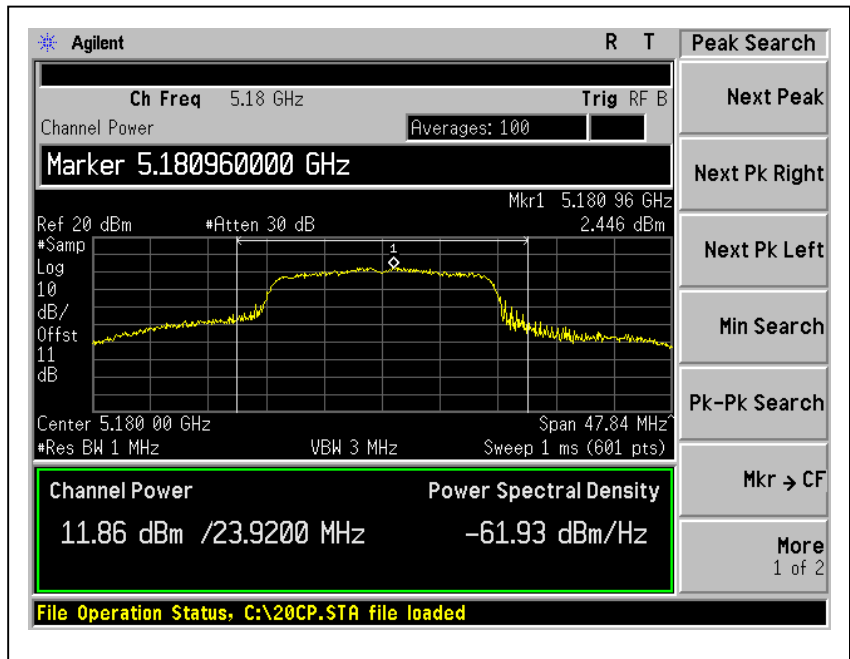
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	2.4	4	PASS
40	5200	-0.3	4	PASS
48	5240	2.4	4	PASS
52	5260	2.2	11	PASS
60	5300	2.7	11	PASS
64	5320	2.6	11	PASS
100	5500	3.3	11	PASS
120	5600	3.1	11	PASS
140	5700	2.2	11	PASS

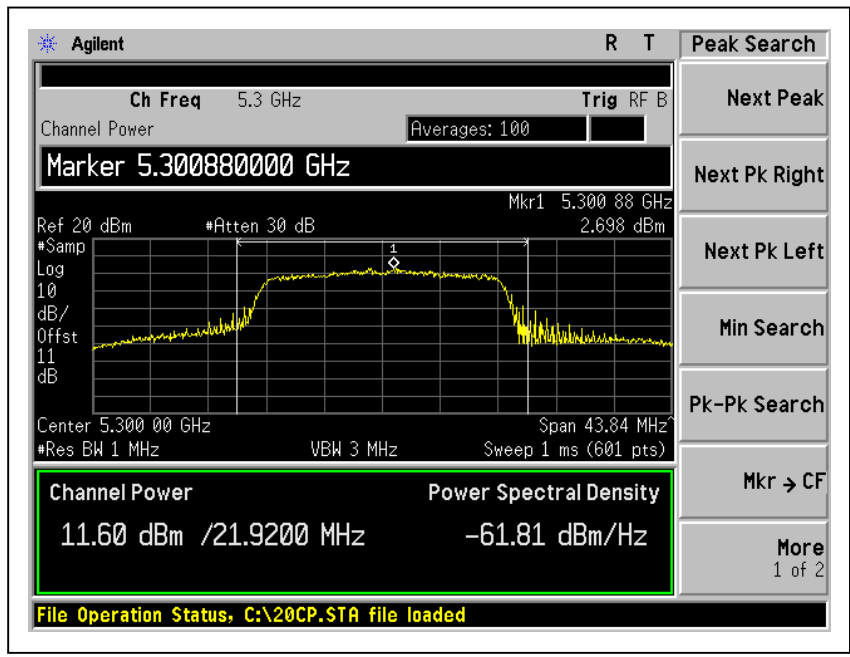


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CH36



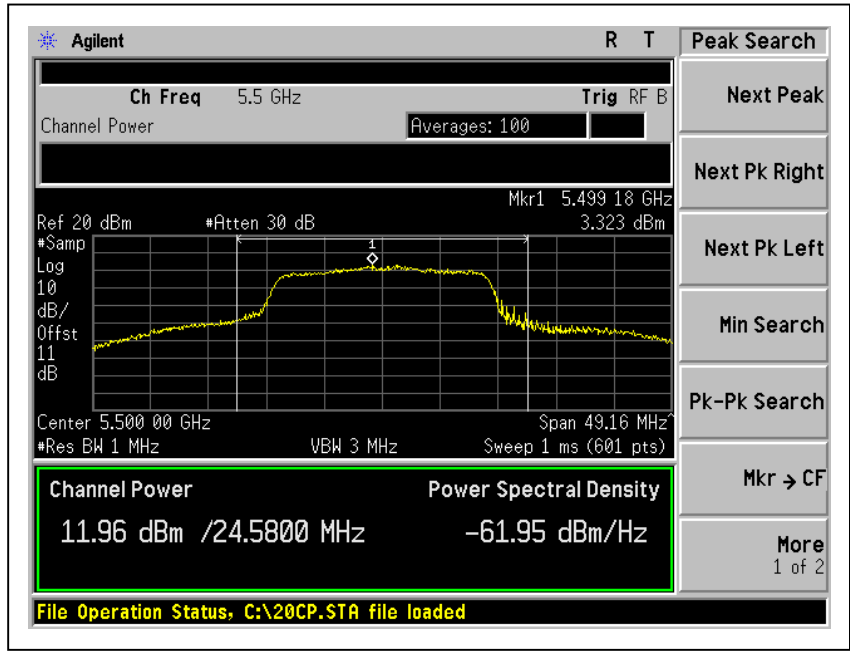
CH60





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CH100



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% 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	E4446A	MY482502 54	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.

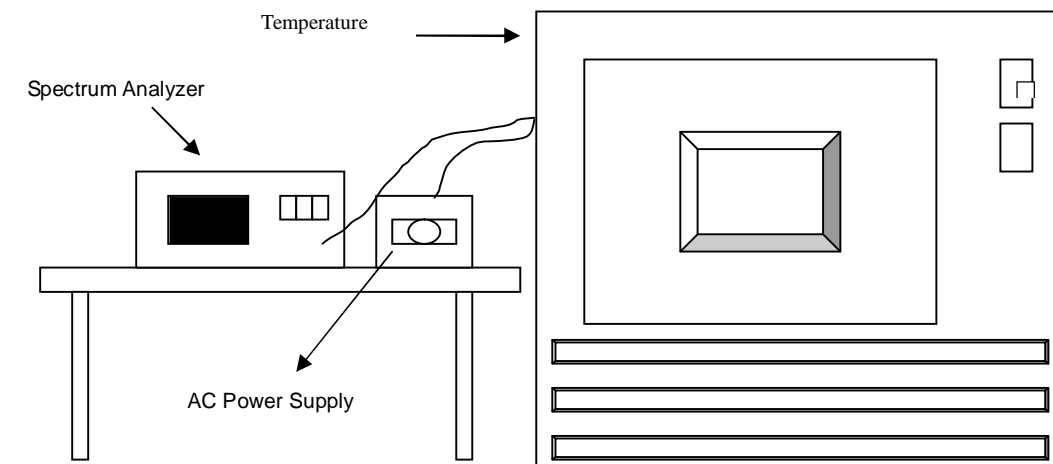
4.6.3 TEST PROCEDURE

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: 5320MHz				Limit : ± 0.02%			
Temp. (°C)	Power supply (Vac)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	138	5320.0197	3.7030	5320.0224	4.2105	5320.0178	3.3459	5320.0168	3.1579
	120	5320.0202	3.7970	5320.0218	4.0977	5320.019	3.5714	5320.0161	3.0263
	102	5320.0204	3.8346	5320.0214	4.0226	5320.0178	3.3459	5320.017	3.1955
40	138	5319.9915	-1.5977	5319.9897	-1.9361	5319.9856	-2.7068	5319.9851	-2.8008
	120	5319.9903	-1.8233	5319.991	-1.6917	5319.9868	-2.4812	5319.9856	-2.7068
	102	5319.9913	-1.6353	5319.9898	-1.9173	5319.985	-2.8195	5319.9854	-2.7444
30	138	5320.0193	3.6278	5320.0201	3.7782	5320.0206	3.8722	5320.0225	4.2293
	120	5320.0191	3.5902	5320.0201	3.7782	5320.0193	3.6278	5320.0228	4.2857
	102	5320.0203	3.8158	5320.0191	3.5902	5320.0208	3.9098	5320.0232	4.3609
20	138	5319.9973	-0.5075	5319.9953	-0.8835	5319.9959	-0.7707	5319.9949	-0.9586
	120	5319.9975	-0.4699	5319.9953	-0.8835	5319.9952	-0.9023	5319.9948	-0.9774
	102	5319.9967	-0.6203	5319.9952	-0.9023	5319.9952	-0.9023	5319.9946	-1.0150
10	138	5319.9989	-0.2068	5319.9994	-0.1128	5319.9997	-0.0564	5320.0023	0.4323
	120	5319.999	-0.1880	5320.0001	0.0188	5319.9996	-0.0752	5320.0024	0.4511
	102	5319.9991	-0.1692	5320.0005	0.0940	5319.9982	-0.3383	5320.0013	0.2444
0	138	5320.0141	2.6504	5320.0103	1.9361	5320.0076	1.4286	5320.012	2.2556
	120	5320.0138	2.5940	5320.0091	1.7105	5320.0075	1.4098	5320.0122	2.2932
	102	5320.0138	2.5940	5320.0101	1.8985	5320.0082	1.5414	5320.0114	2.1429
-10	138	5320.011	2.0677	5320.0116	2.1805	5320.0091	1.7105	5320.0129	2.4248
	120	5320.0112	2.1053	5320.0113	2.1241	5320.0095	1.7857	5320.0125	2.3496
	102	5320.011	2.0677	5320.0124	2.3308	5320.0101	1.8985	5320.0139	2.6128
-20	138	5319.9891	-2.0489	5319.9917	-1.5602	5319.986	-2.6316	5319.9825	-3.2895
	120	5319.9879	-2.2744	5319.9905	-1.7857	5319.9855	-2.7256	5319.9821	-3.3647
	102	5319.9874	-2.3684	5319.9915	-1.5977	5319.9854	-2.7444	5319.9821	-3.3647
-30	138	5320.0096	1.8045	5320.0102	1.9173	5320.0069	1.2970	5320.0098	1.8421
	120	5320.0114	2.1429	5320.0106	1.9925	5320.0063	1.1842	5320.009	1.6917
	102	5320.0108	2.0301	5320.0111	2.0865	5320.0064	1.2030	5320.0089	1.6729



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4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

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

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

4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low 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 5.35GHz band:

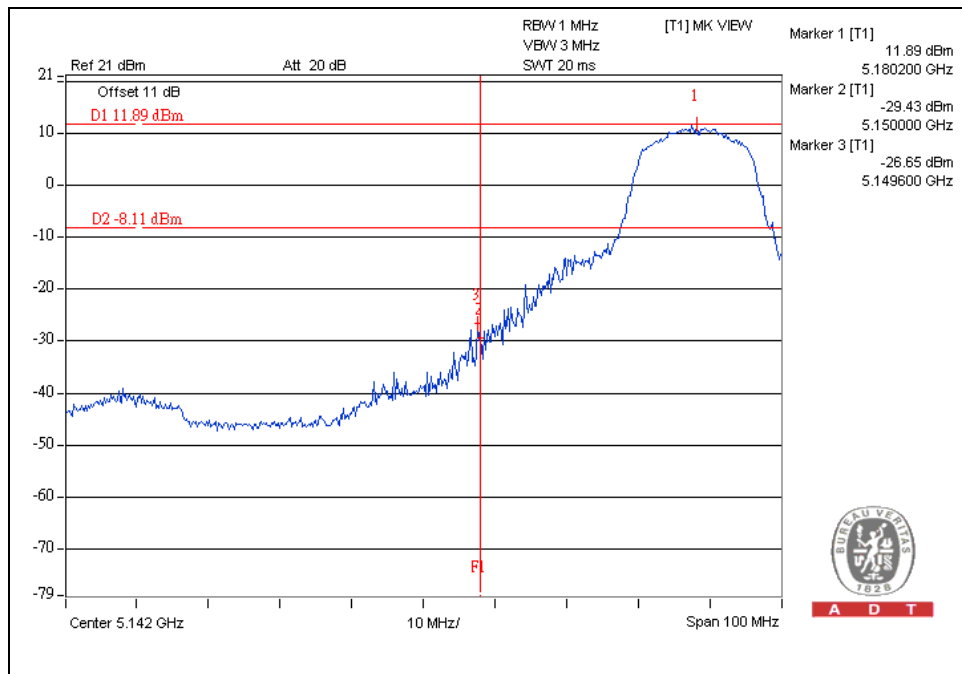
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



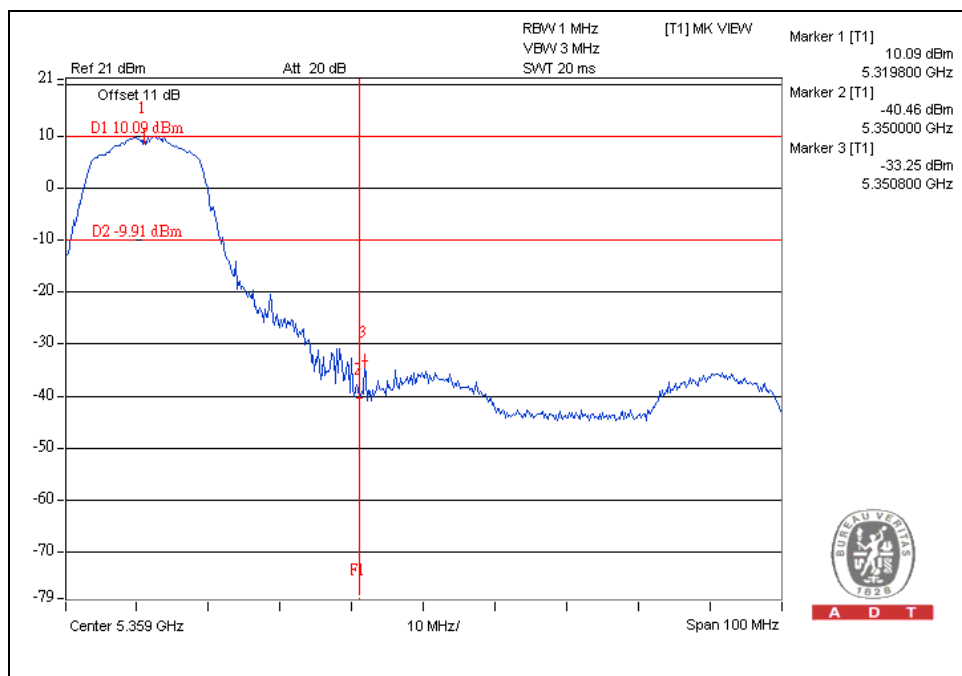
A D T

802.11a OFDM modulation

CH 36



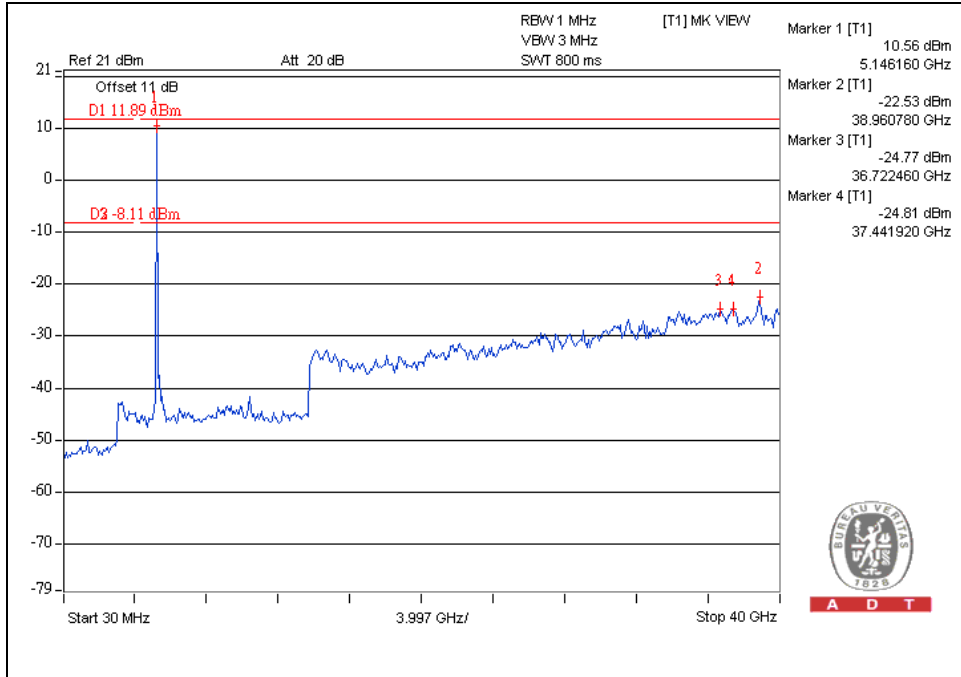
CH 64





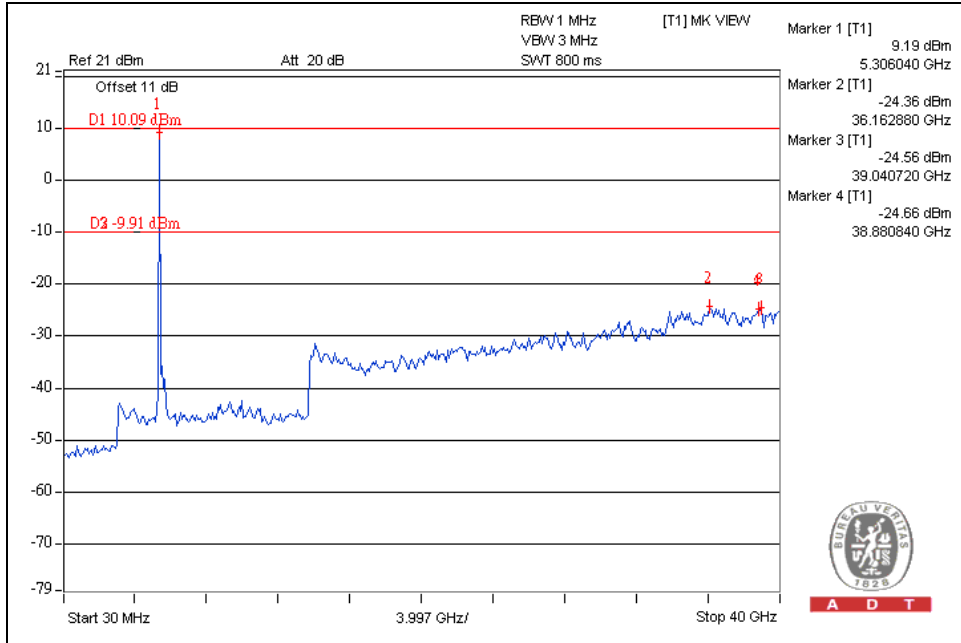
A D T

CH 36



A D T

CH 64



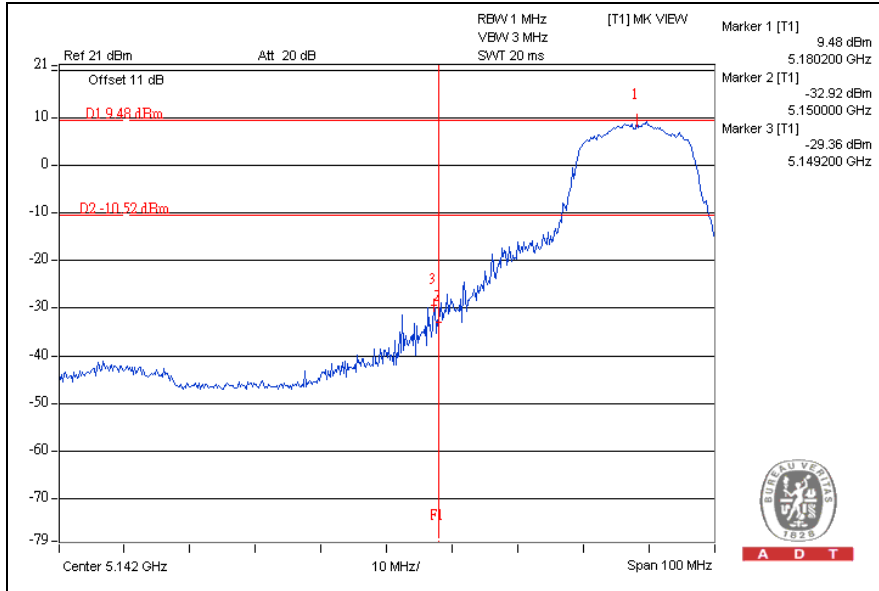
A D T



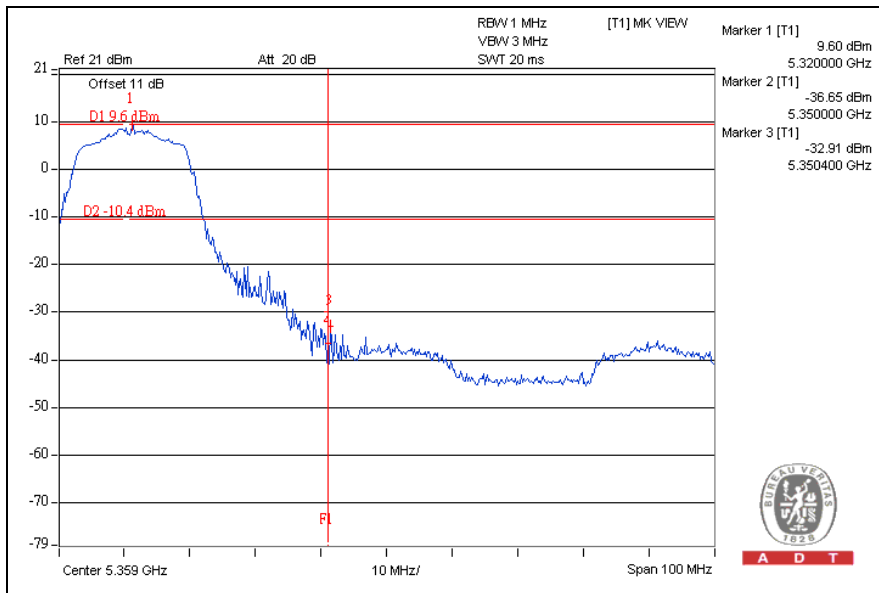
A D T

802.11n (20MHz) OFDM MODULATION:

CH36



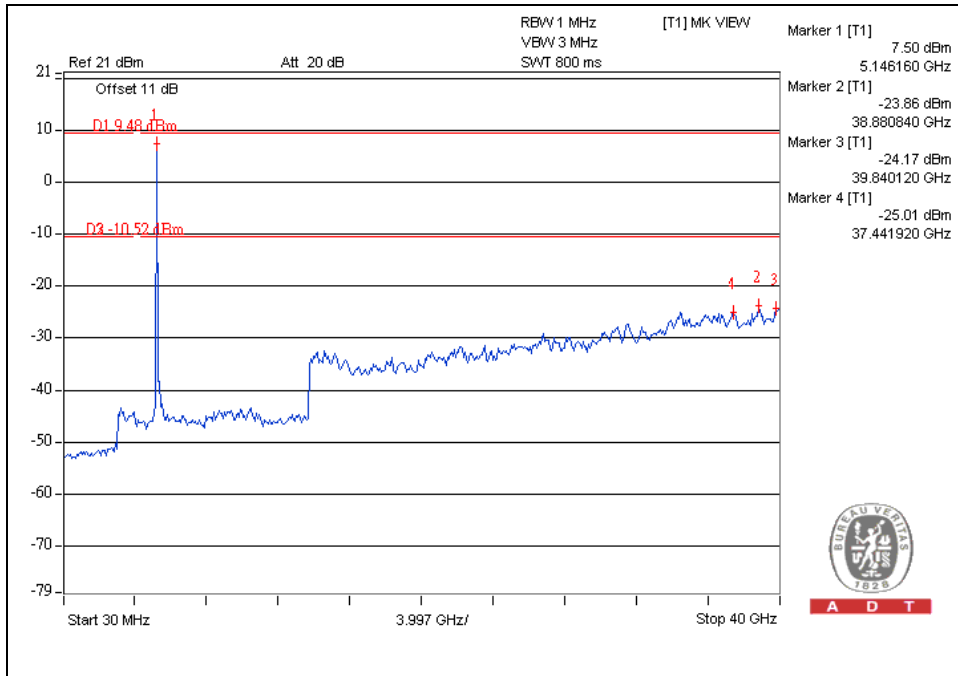
CH64



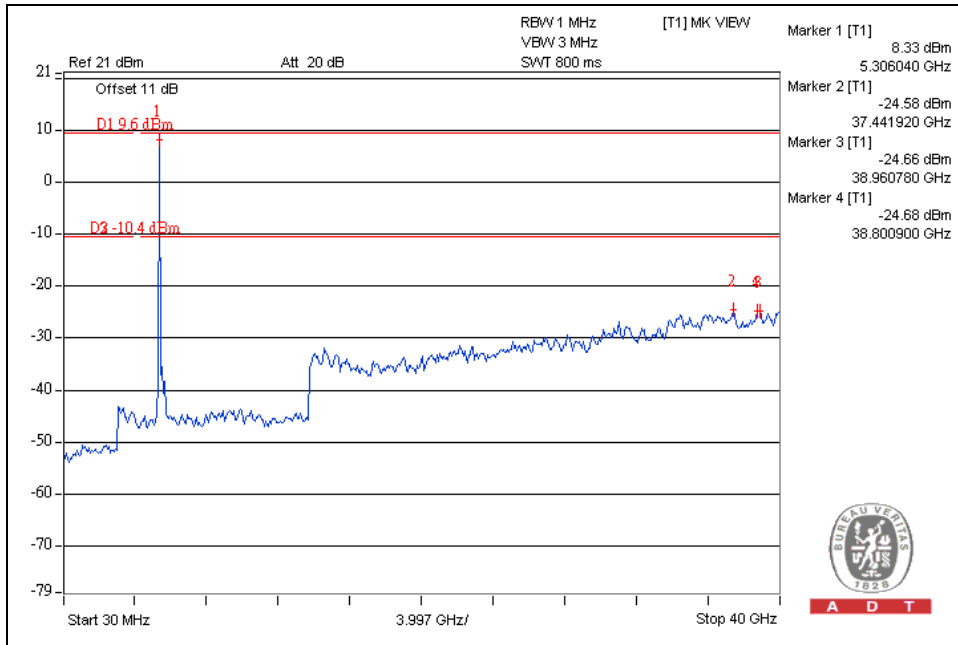


A D T

CH36



CH64





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For 5.47 to 5.725GHz band:

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

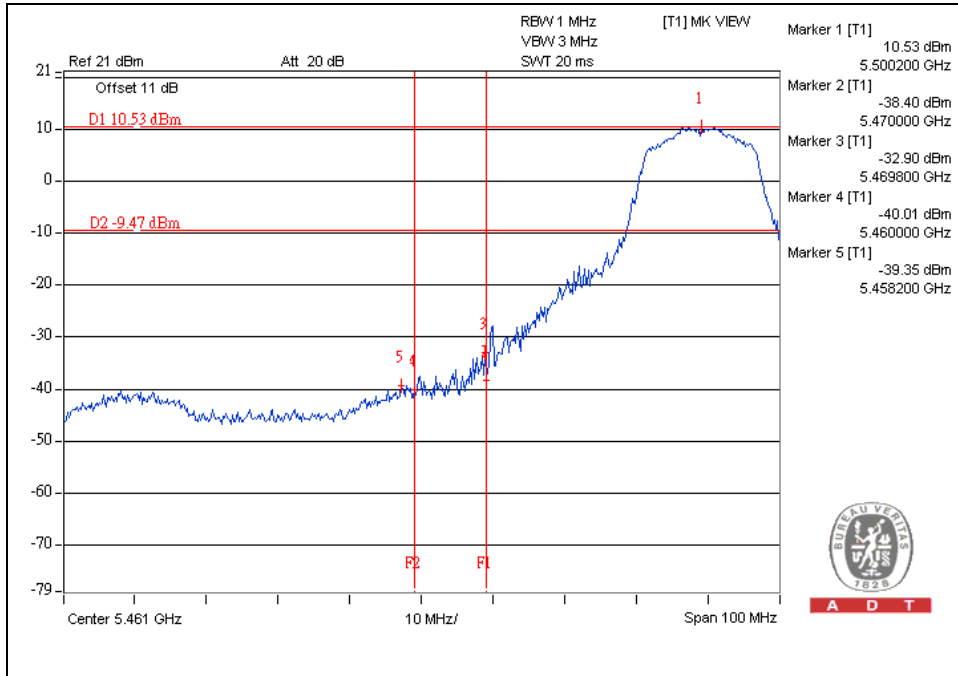




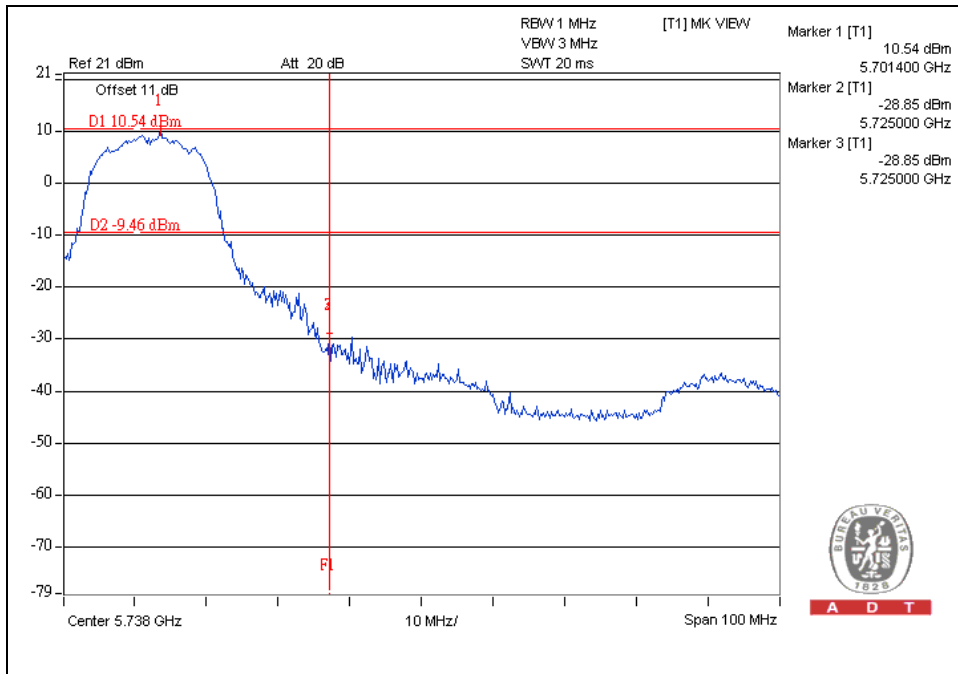
A D T

802.11a OFDM MODULATION

CH 100



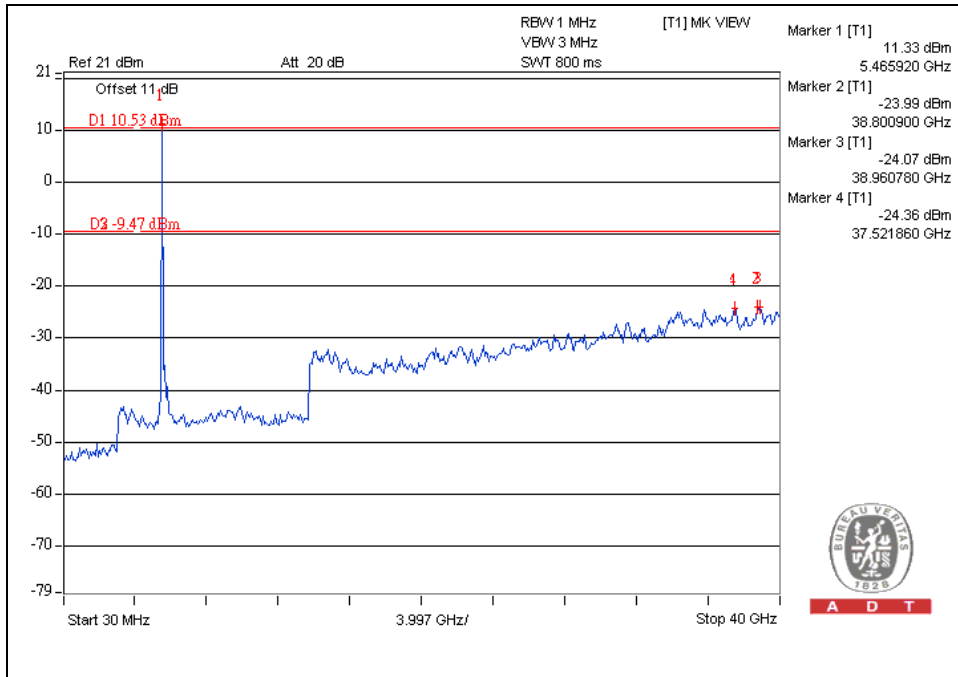
CH 140



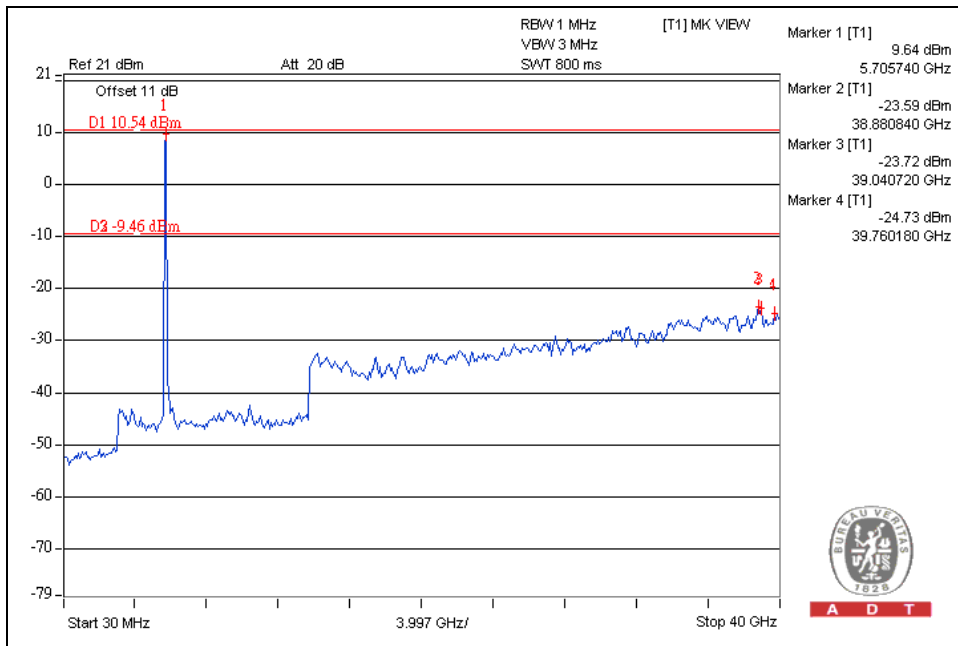


A D T

CH 100

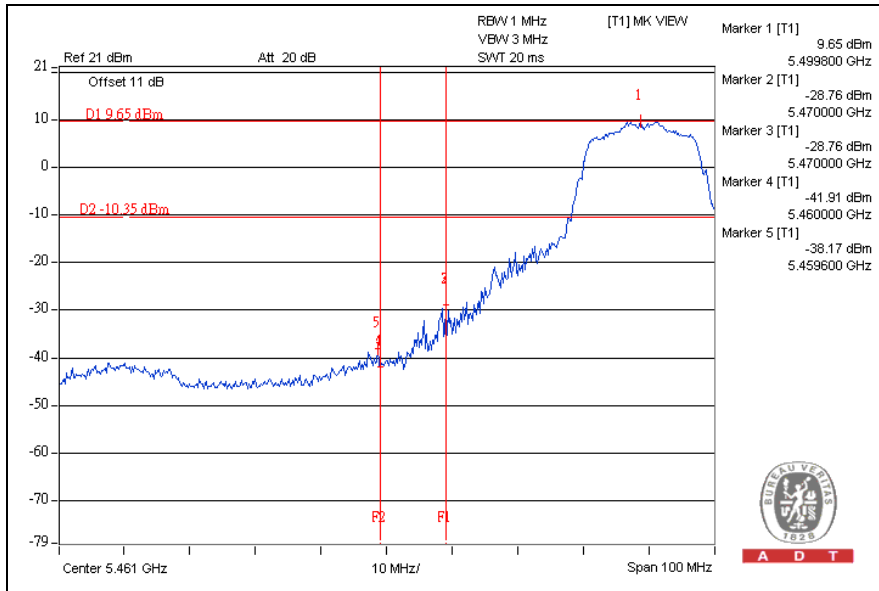


CH 140

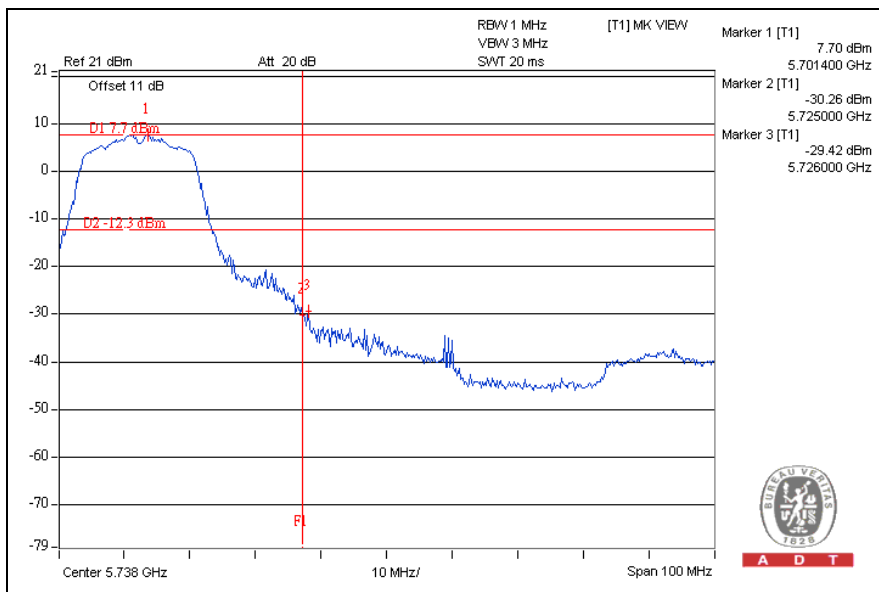


802.11n (20MHz) OFDM MODULATION:

CH100



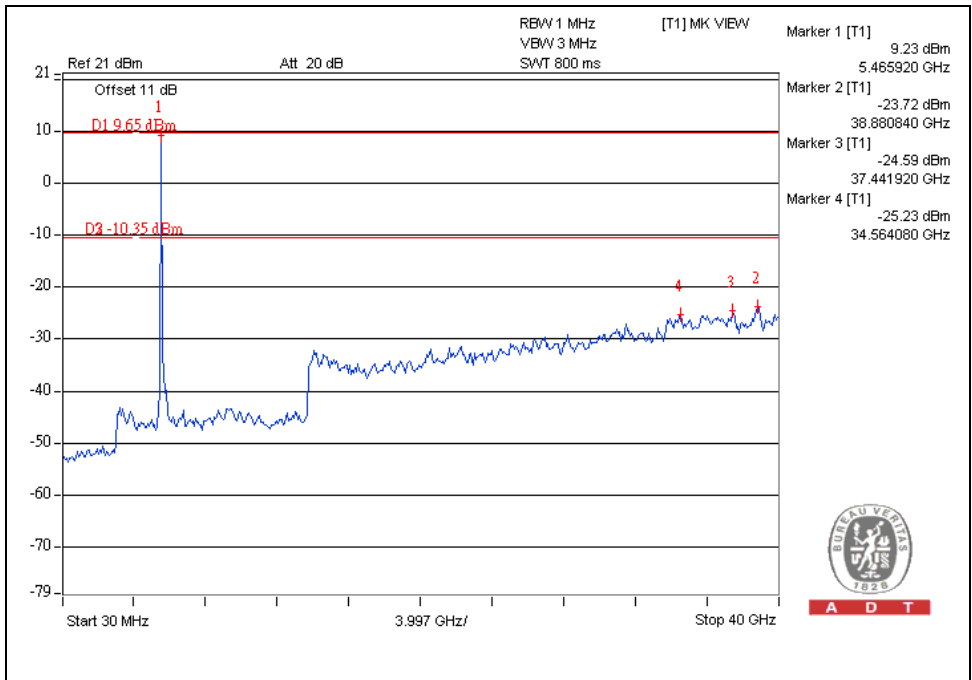
CH140





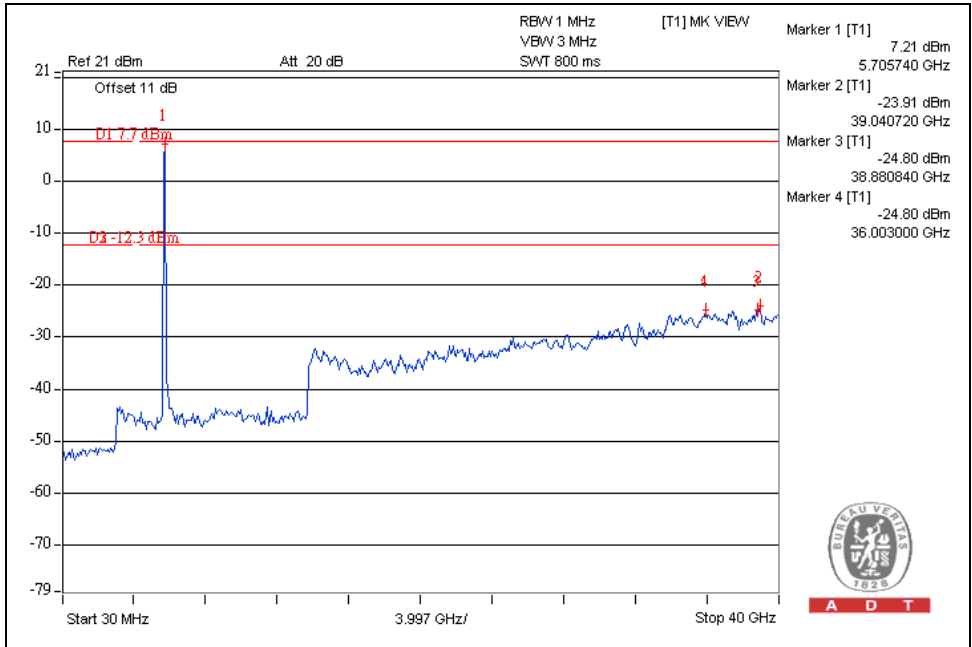
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CH100



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CH140



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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.