

FCC TEST REPORT (15.247)

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MODEL NO.: DAP-1525

FCC ID: KA2AP1525A1

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APPLICANT: D-Link Corporation

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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 C (Section 15.247)
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)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -17.25dB at 0.158MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2381.60MHz & 2483.50MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is UFL not a standard connector.

For 5GHz, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -17.70dB at 0.322MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -3.8dB at 499.69MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	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 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.25GHz 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

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

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:

1. 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

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.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

Eleven channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ³ 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 b	√	√
B	802.11 g	√	√
C	802.11 a	√	√
D	802.11n(20MHz) for MCS0~15	√	√
E	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
For 2.4 GHz 802.11g	1 to 11	6	OFDM	BPSK	6	B
For 5 GHz 802.11n (40MHz)	151 to 159	159	OFDM	BPSK	13.5	E

RADIATED EMISSION TEST (BELOW 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
For 2.4 GHz 802.11g	1 to 11	6	OFDM	BPSK	6	B
For 5 GHz 802.11n (40MHz)	151 to 159	159	OFDM	BPSK	13.5	E

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz 802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	C
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	D
For 2.4 GHz 802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 165	OFDM	BPSK	6	C
For 5 GHz 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

※ 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
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	D
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	I
For 2.4 GHz 802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	L
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	E
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	G
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	J

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

※ **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE ³ 1G	18deg. C, 70%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	21deg. 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 C. (15.247)

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.

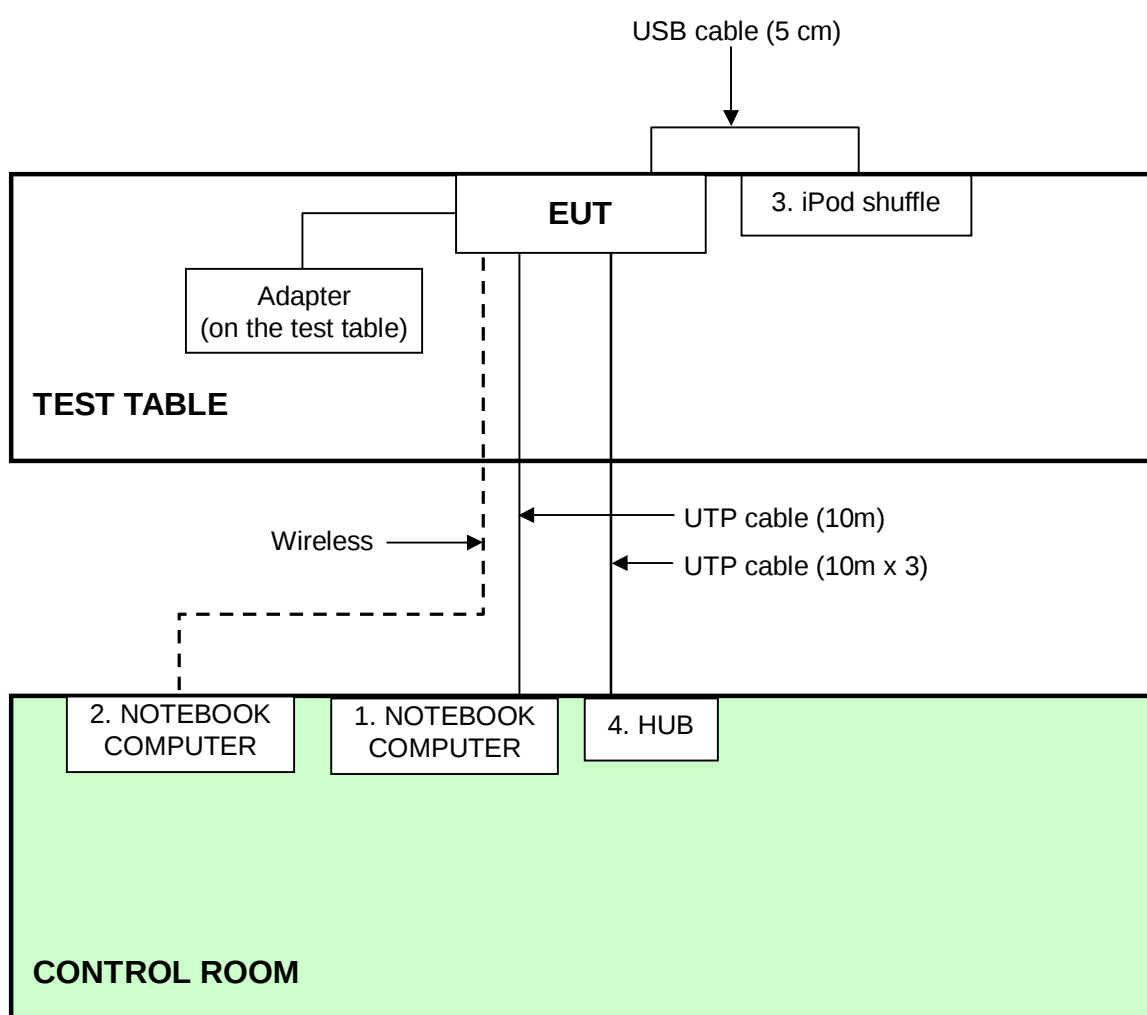
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6400	D814C A00 APCC	NA
2	NOTEBOOK COMPUTER	DELL	PP32LA	DSL32S	FCC DoC
3	iPod shuffle	Apple	MC749TA/A	CC4DM9M8DFDM	FCC DoC
4	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC

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).

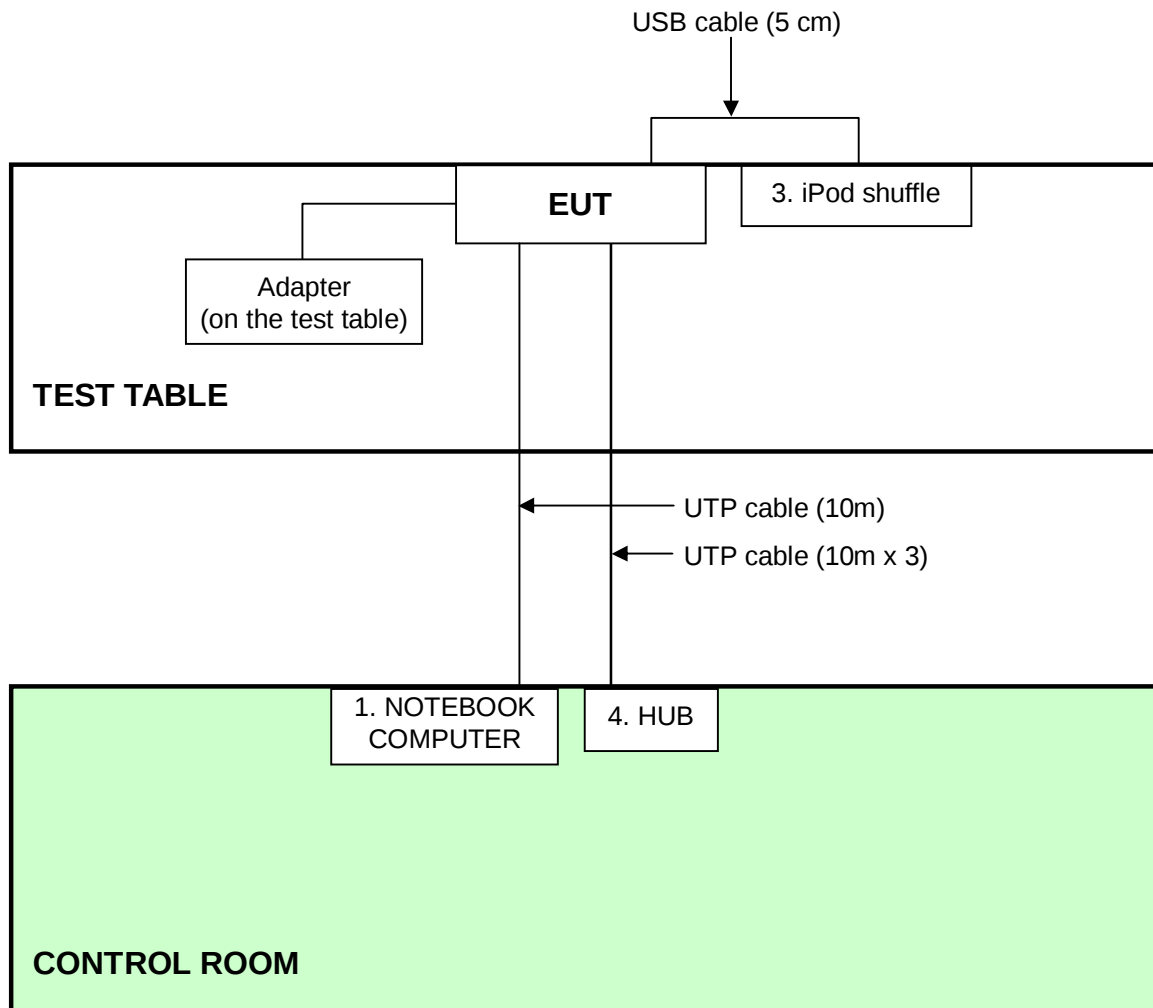
3.5 CONFIGURATION OF SYSTEM UNDER TEST

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.

4. TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

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.

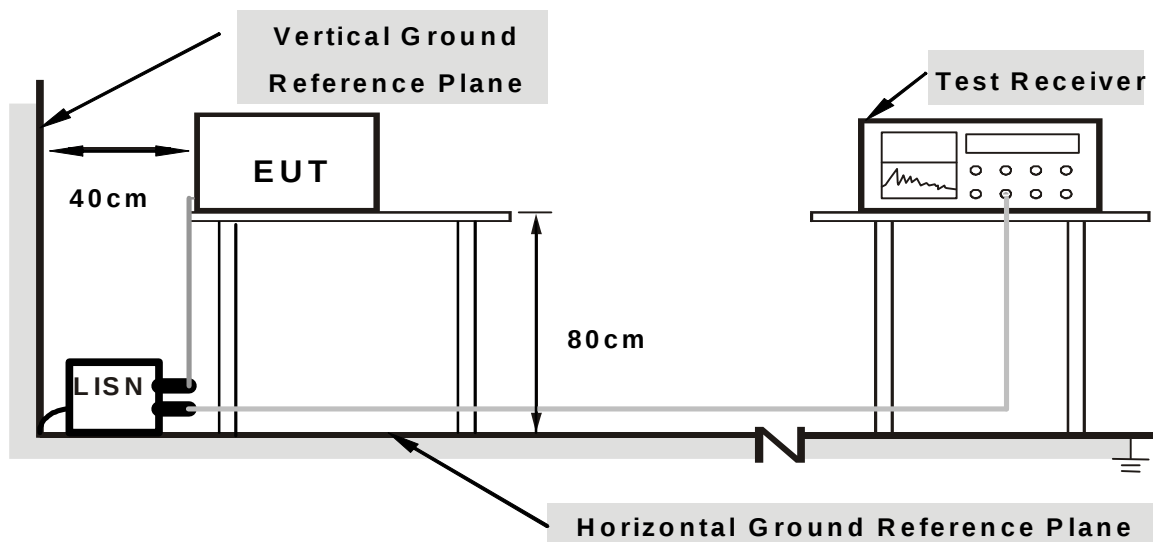
4.1.3 TEST PROCEDURES

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

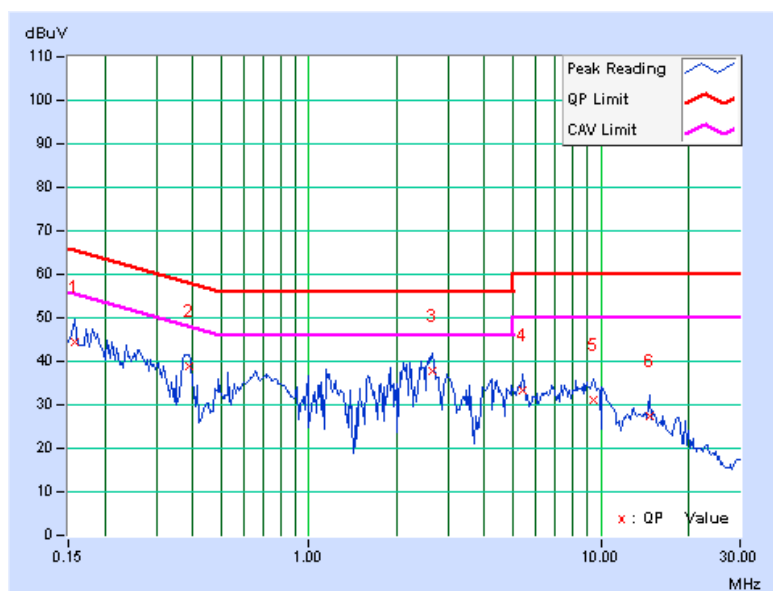
1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 & 2) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “WinTG.exe” & “Ping.exe” to enable EUT under transmission/receiving condition continuously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

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.11	44.19	38.22	44.30	38.33	65.58	55.58	-21.28	-17.25
2	0.388	0.13	38.83	28.80	38.96	28.93	58.10	48.10	-19.14	-19.17
3	2.645	0.17	37.75	25.96	37.92	26.13	56.00	46.00	-18.08	-19.87
4	5.367	0.26	33.10	25.74	33.36	26.00	60.00	50.00	-26.64	-24.00
5	9.488	0.46	30.68	23.88	31.14	24.34	60.00	50.00	-28.86	-25.66
6	14.656	0.56	26.72	21.60	27.28	22.16	60.00	50.00	-32.72	-27.84

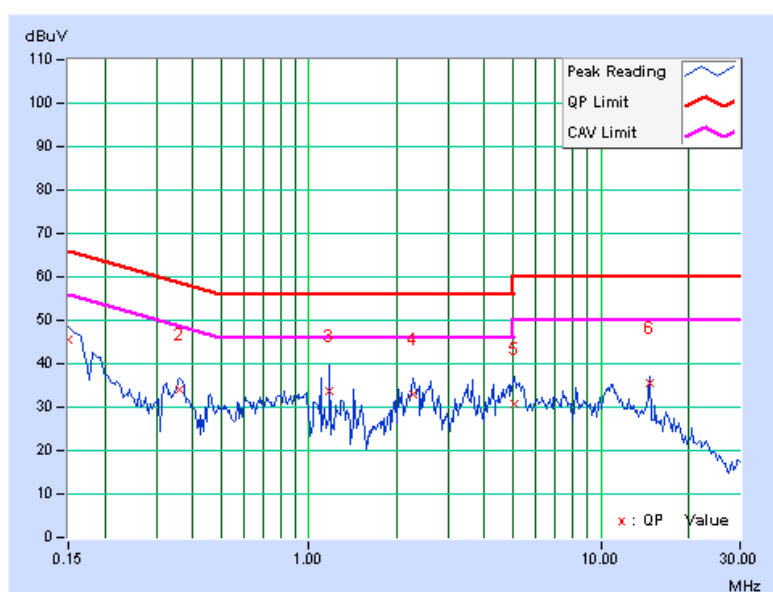
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.12	45.60	34.72	45.72	34.84	66.00	56.00	-20.28	-21.16
2	0.361	0.15	34.00	23.72	34.15	23.87	58.71	48.71	-24.56	-24.84
3	1.172	0.17	33.61	24.56	33.78	24.73	56.00	46.00	-22.22	-21.27
4	2.285	0.20	32.91	22.80	33.11	23.00	56.00	46.00	-22.89	-23.00
5	5.047	0.38	30.34	21.80	30.72	22.18	60.00	50.00	-29.28	-27.82
6	14.676	1.10	34.39	29.79	35.49	30.89	60.00	50.00	-24.51	-19.11

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.2.2 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.

4.2.3 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 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.

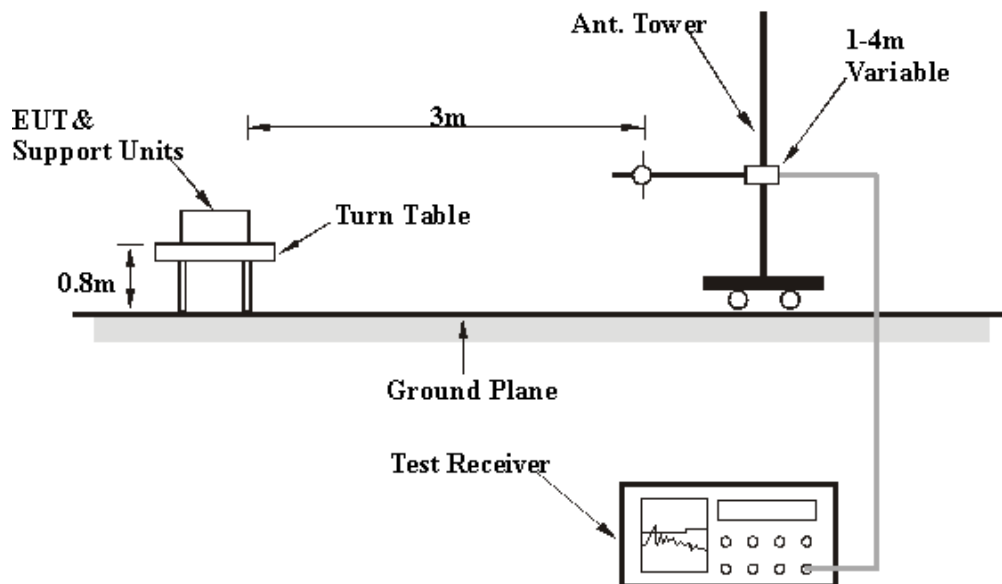
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

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.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	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	125.29	26.9 QP	43.5	-16.6	4.00 H	34	13.73	13.19
2	209.02	33.2 QP	43.5	-10.3	3.67 H	269	21.55	11.69
3	250.03	33.9 QP	46.0	-12.1	3.16 H	301	19.98	13.89
4	375.12	37.0 QP	46.0	-9.0	2.85 H	112	19.03	17.98
5	500.00	38.2 QP	46.0	-7.8	2.20 H	346	16.98	21.26
6	750.00	37.2 QP	46.0	-8.8	1.47 H	235	10.92	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	125.00	36.6 QP	43.5	-6.9	1.00 V	219	23.46	13.16
2	149.24	35.7 QP	43.5	-7.8	1.00 V	83	21.31	14.43
3	209.05	36.5 QP	43.5	-7.0	1.00 V	95	24.78	11.69
4	250.00	37.3 QP	46.0	-8.7	1.00 V	71	23.38	13.89
5	375.00	40.2 QP	46.0	-5.8	1.00 V	35	22.19	17.98
6	499.98	42.0 QP	46.0	-4.0	1.00 V	100	20.72	21.26

- 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

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2386.80	64.2 PK	74.0	-9.8	1.52 H	26	32.89	31.31
2	2386.80	53.1 AV	54.0	-0.9	1.52 H	26	21.79	31.31
3	*2412.00	112.5 PK			1.52 H	26	81.11	31.39
4	*2412.00	110.1 AV			1.52 H	26	78.71	31.39
5	4824.00	53.7 PK	74.0	-20.3	1.00 H	41	17.53	36.17
6	4824.00	51.4 AV	54.0	-2.6	1.00 H	41	15.23	36.17
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.20	61.3 PK	74.0	-12.7	1.58 V	219	29.99	31.31
2	2386.20	52.8 AV	54.0	-1.2	1.58 V	219	21.49	31.31
3	*2412.00	113.0 PK			1.53 V	253	81.61	31.39
4	*2412.00	110.5 AV			1.53 V	253	79.11	31.39
5	4824.00	55.0 PK	74.0	-19.0	1.07 V	258	18.83	36.17
6	4824.00	53.3 AV	54.0	-0.7	1.07 V	258	17.13	36.17

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	*2437.00	115.9 PK			1.42 H	43	84.41	31.49
2	*2437.00	113.1 AV			1.42 H	43	81.61	31.49
3	2483.50	58.2 PK	74.0	-15.8	1.42 H	43	26.54	31.66
4	2483.50	49.5 AV	54.0	-4.5	1.42 H	43	17.84	31.66
5	4874.00	53.8 PK	74.0	-20.2	1.00 H	40	17.49	36.31
6	4874.00	51.5 AV	54.0	-2.5	1.00 H	40	15.19	36.31
7	7311.00	47.5 PK	74.0	-26.5	1.97 H	6	5.27	42.23
8	7311.00	36.7 AV	54.0	-17.3	1.97 H	6	-5.53	42.23
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	2381.60	61.2 PK	74.0	-12.8	1.61 V	256	29.91	31.29
2	2381.60	53.5 AV	54.0	-0.5	1.61 V	256	22.21	31.29
3	*2437.00	115.8 PK			1.55 V	255	84.31	31.49
4	*2437.00	113.2 AV			1.55 V	255	81.71	31.49
5	4874.00	55.1 PK	74.0	-18.9	1.07 V	257	18.79	36.31
6	4874.00	53.5 AV	54.0	-0.5	1.07 V	257	17.19	36.31
7	7311.00	49.1 PK	74.0	-24.9	1.00 V	240	6.87	42.23
8	7311.00	38.6 AV	54.0	-15.4	1.00 V	240	-3.63	42.23

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.



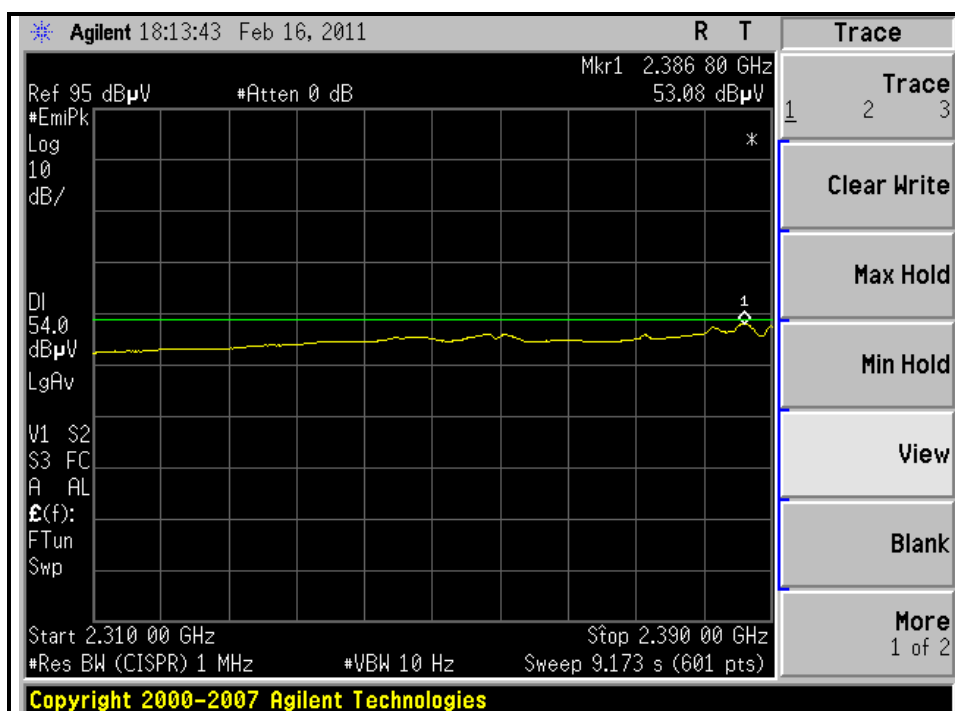
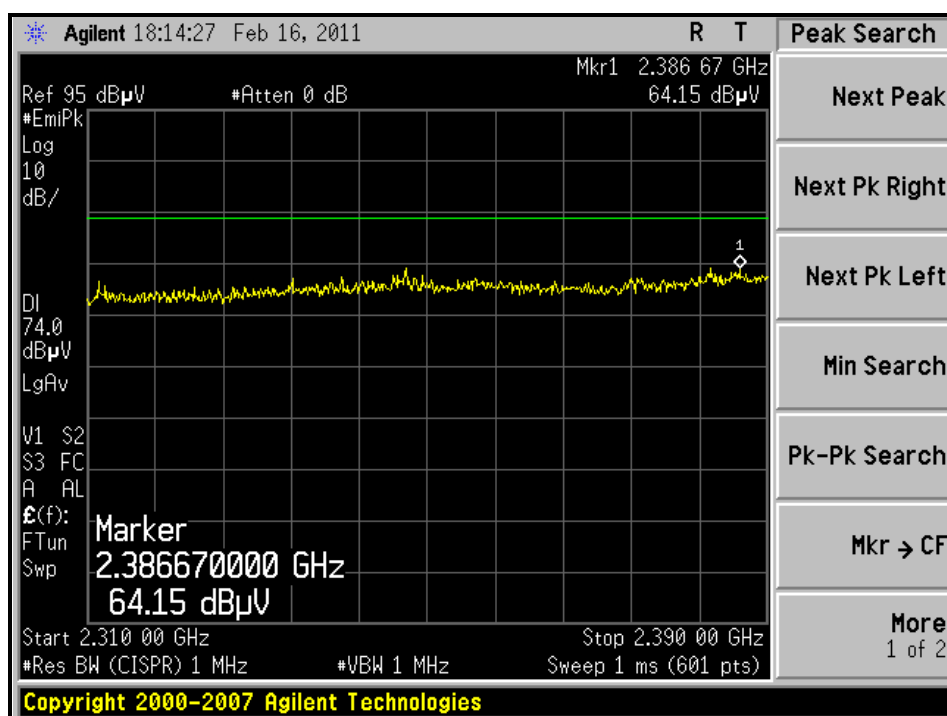
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%RH 1023 hPa	TESTED BY	Wen Yu

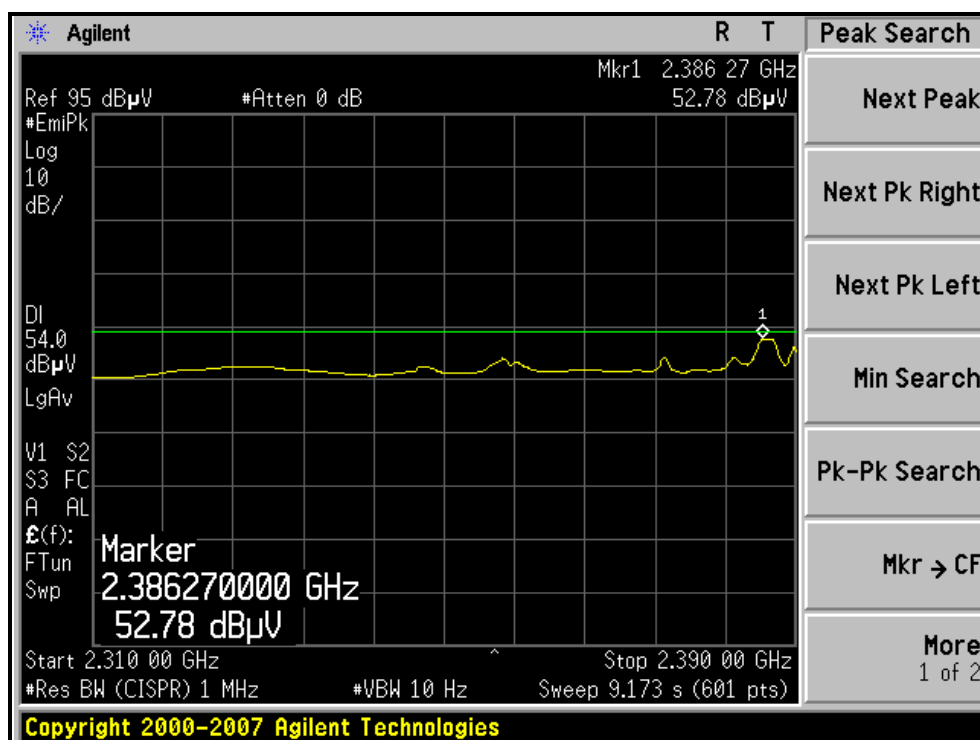
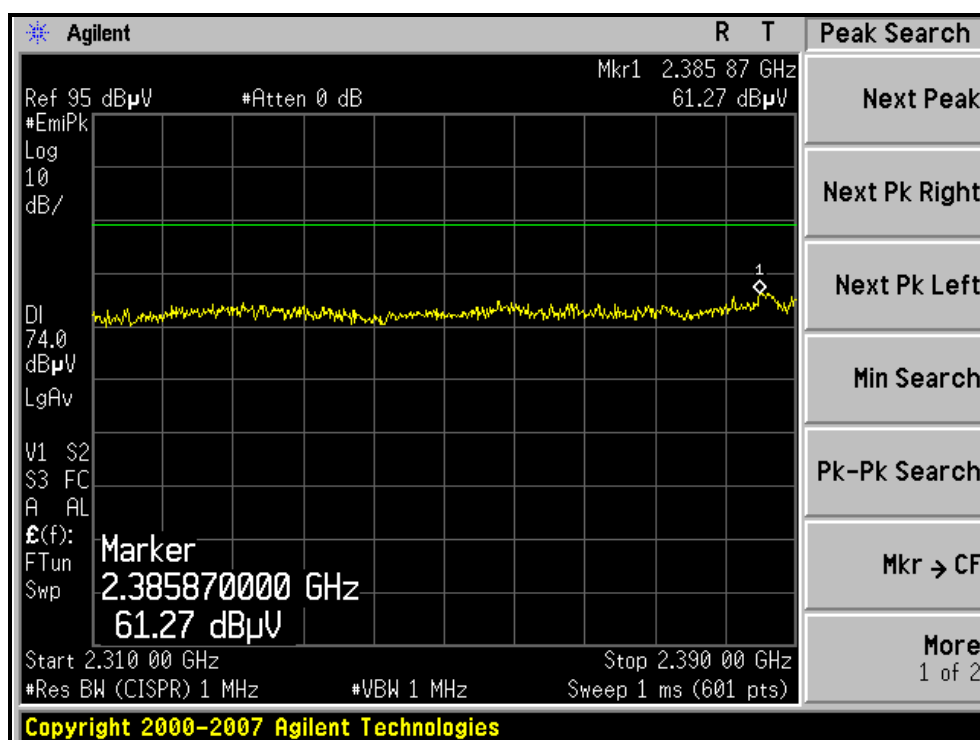
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.9 PK			1.41 H	22	82.32	31.58
2	*2462.00	111.7 AV			1.41 H	22	80.12	31.58
3	2484.10	63.9 PK	74.0	-10.1	1.41 H	18	32.24	31.66
4	2484.10	53.3 AV	54.0	-0.7	1.41 H	18	21.64	31.66
5	4924.00	52.7 PK	74.0	-21.3	1.00 H	42	16.28	36.42
6	4924.00	50.6 AV	54.0	-3.4	1.00 H	42	14.18	36.42
7	7386.00	47.6 PK	74.0	-26.4	1.95 H	5	5.08	42.52
8	7386.00	36.9 AV	54.0	-17.1	1.95 H	5	-5.62	42.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.2 PK			1.55 V	255	78.62	31.58
2	*2462.00	107.1 AV			1.55 V	255	75.52	31.58
3	2484.00	61.7 PK	74.0	-12.3	1.53 V	254	30.04	31.66
4	2484.00	51.5 AV	54.0	-2.5	1.53 V	254	19.84	31.66
5	4924.00	55.4 PK	74.0	-18.6	1.06 V	267	18.98	36.42
6	4924.00	53.3 AV	54.0	-0.7	1.06 V	267	16.88	36.42
7	7386.00	50.7 PK	74.0	-23.3	1.00 V	240	8.18	42.52
8	7386.00	40.0 AV	54.0	-14.0	1.00 V	240	-2.52	42.52

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

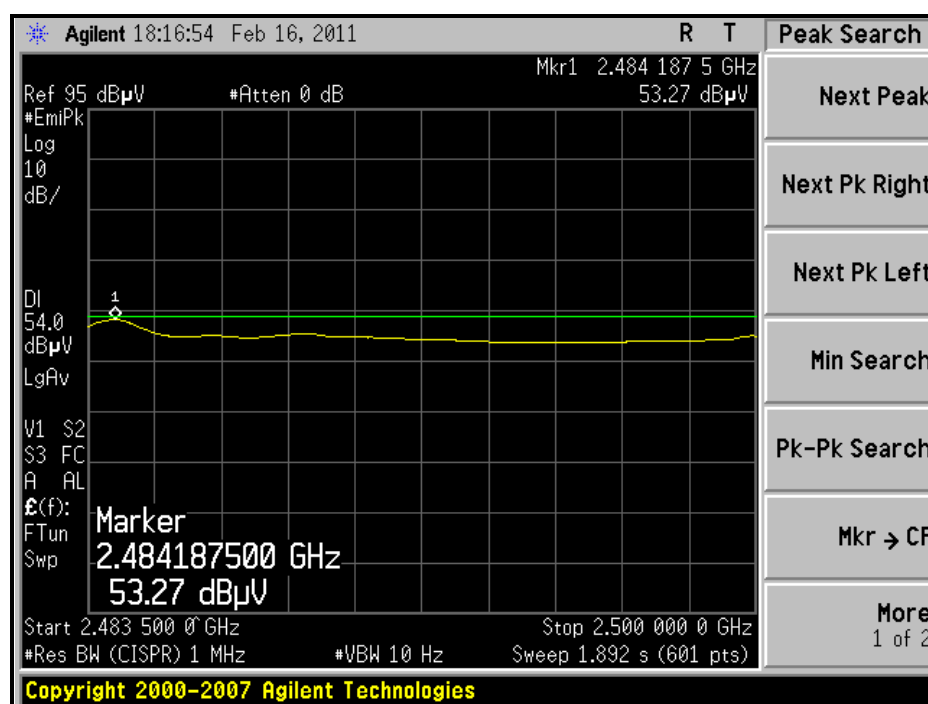
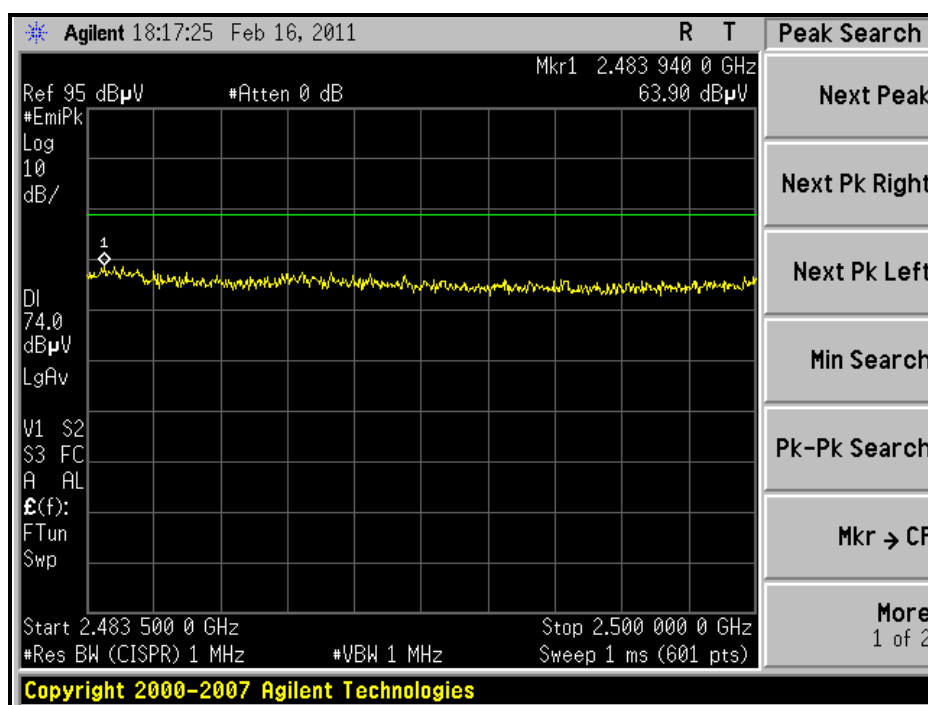
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



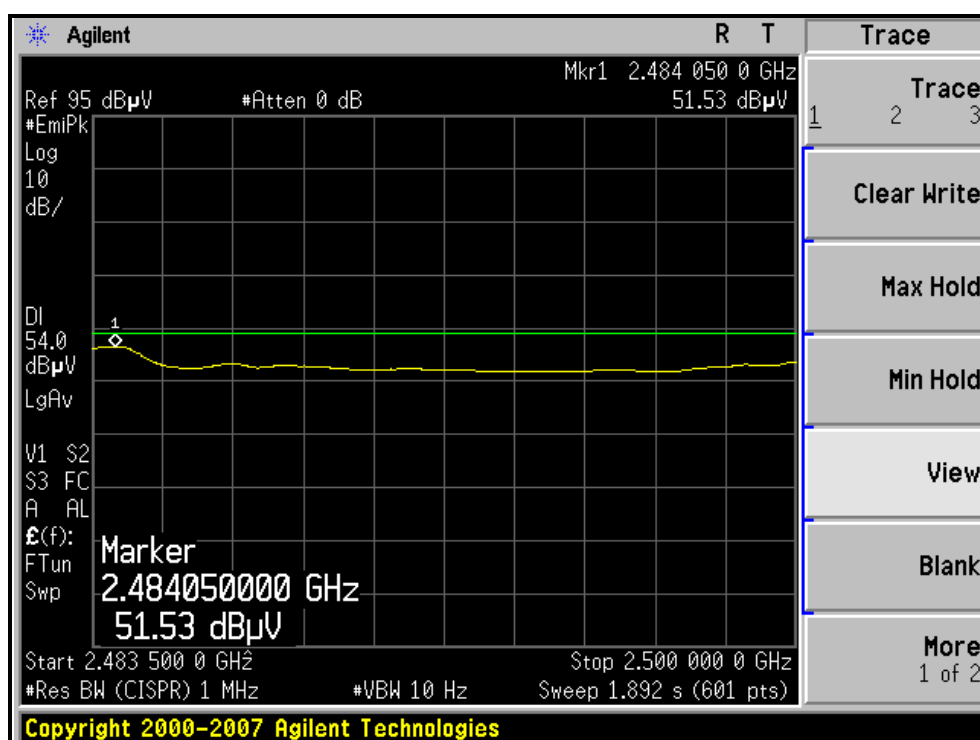
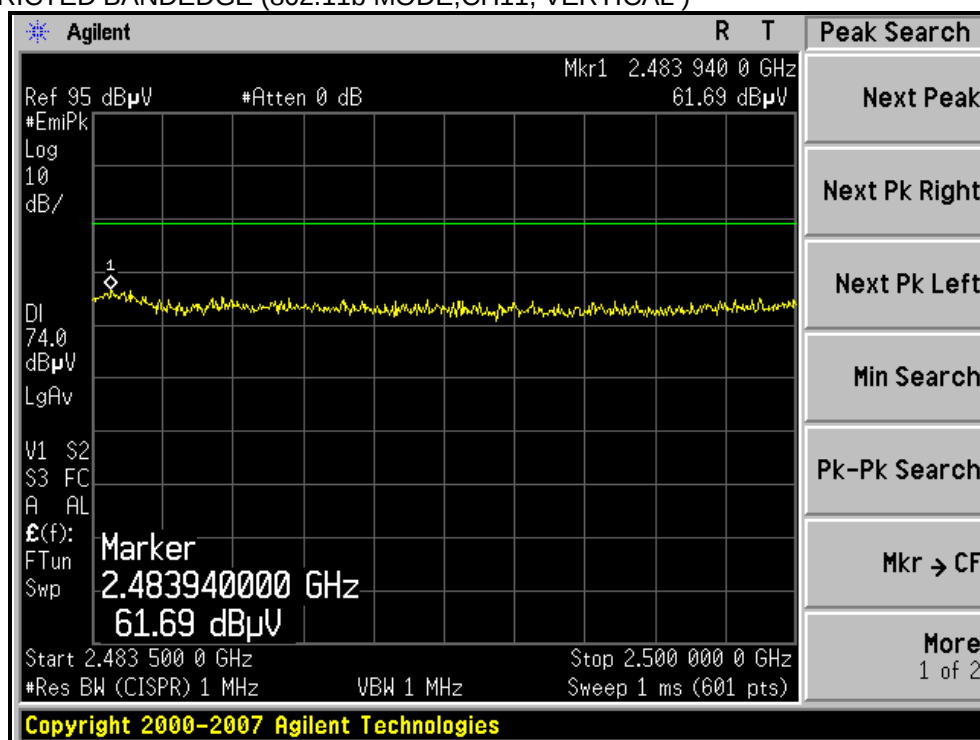
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)



802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2390.00	71.3 PK	74.0	-2.7	1.42 H	16	39.98	31.32
2	2390.00	53.0 AV	54.0	-1.0	1.42 H	16	21.68	31.32
3	*2412.00	114.6 PK			1.41 H	21	83.21	31.39
4	*2412.00	104.4 AV			1.41 H	21	73.01	31.39
5	4824.00	47.9 PK	74.0	-26.1	1.00 H	46	11.73	36.17
6	4824.00	35.6 AV	54.0	-18.4	1.00 H	46	-0.57	36.17
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.0 PK	74.0	-4.0	1.60 V	254	38.68	31.32
2	2390.00	53.4 AV	54.0	-0.6	1.60 V	254	22.08	31.32
3	*2412.00	113.8 PK			1.55 V	255	82.41	31.39
4	*2412.00	103.9 AV			1.55 V	255	72.51	31.39
5	4824.00	51.1 PK	74.0	-22.9	1.07 V	258	14.93	36.17
6	4824.00	38.2 AV	54.0	-15.8	1.07 V	258	2.03	36.17

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2384.80	62.6 PK	74.0	-11.4	1.44 H	19	31.30	31.30
2	2384.80	53.3 AV	54.0	-0.7	1.44 H	19	22.00	31.30
3	*2437.00	117.3 PK			1.41 H	18	85.81	31.49
4	*2437.00	106.8 AV			1.41 H	18	75.31	31.49
5	2489.10	62.7 PK	74.0	-11.3	1.41 H	23	31.02	31.68
6	2489.10	52.4 AV	54.0	-1.6	1.41 H	23	20.72	31.68
7	4874.00	48.4 PK	74.0	-25.6	1.00 H	43	12.09	36.31
8	4874.00	36.0 AV	54.0	-18.0	1.00 H	43	-0.31	36.31
9	7311.00	47.7 PK	74.0	-26.3	1.95 H	7	5.47	42.23
10	7311.00	36.9 AV	54.0	-17.1	1.95 H	7	-5.33	42.23
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	2384.40	64.2 PK	74.0	-9.8	1.61 V	253	32.90	31.30
2	2384.40	51.6 AV	54.0	-2.4	1.61 V	253	20.30	31.30
3	*2437.00	117.1 PK			1.56 V	277	85.61	31.49
4	*2437.00	104.7 AV			1.56 V	277	73.21	31.49
5	2489.20	61.6 PK	74.0	-12.4	1.56 V	249	29.92	31.68
6	2489.20	50.1 AV	54.0	-3.9	1.56 V	249	18.42	31.68
7	4874.00	55.6 PK	74.0	-18.4	1.07 V	257	19.29	36.31
8	4874.00	42.3 AV	54.0	-11.7	1.07 V	257	5.99	36.31
9	7311.00	52.3 PK	74.0	-21.7	1.00 V	239	10.07	42.23
10	7311.00	40.2 AV	54.0	-13.8	1.00 V	239	-2.03	42.23

- 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.



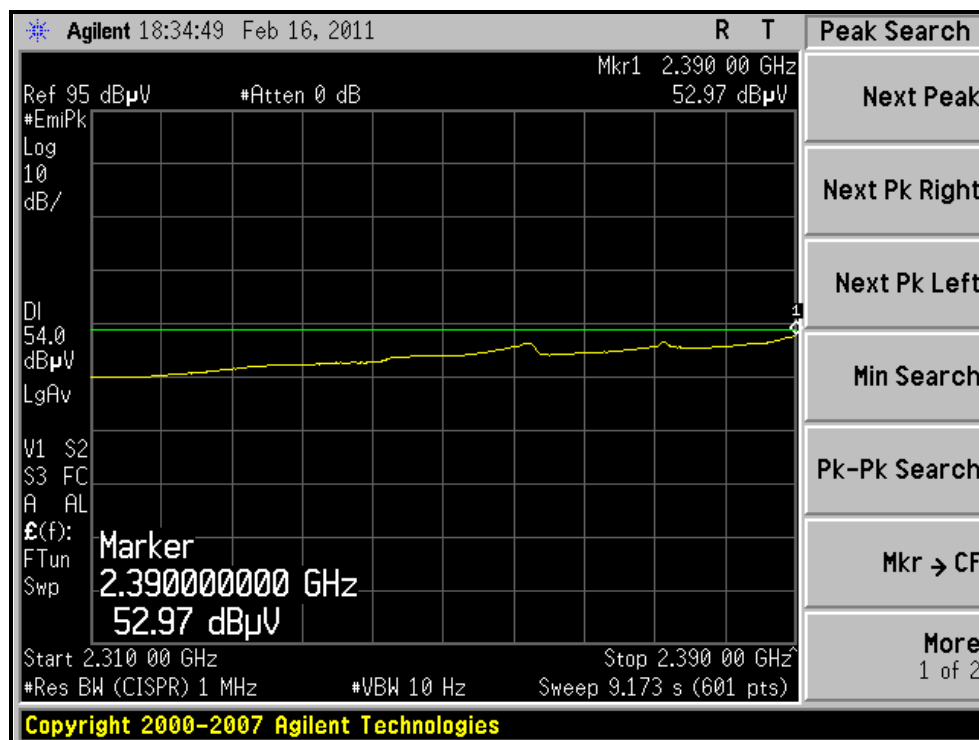
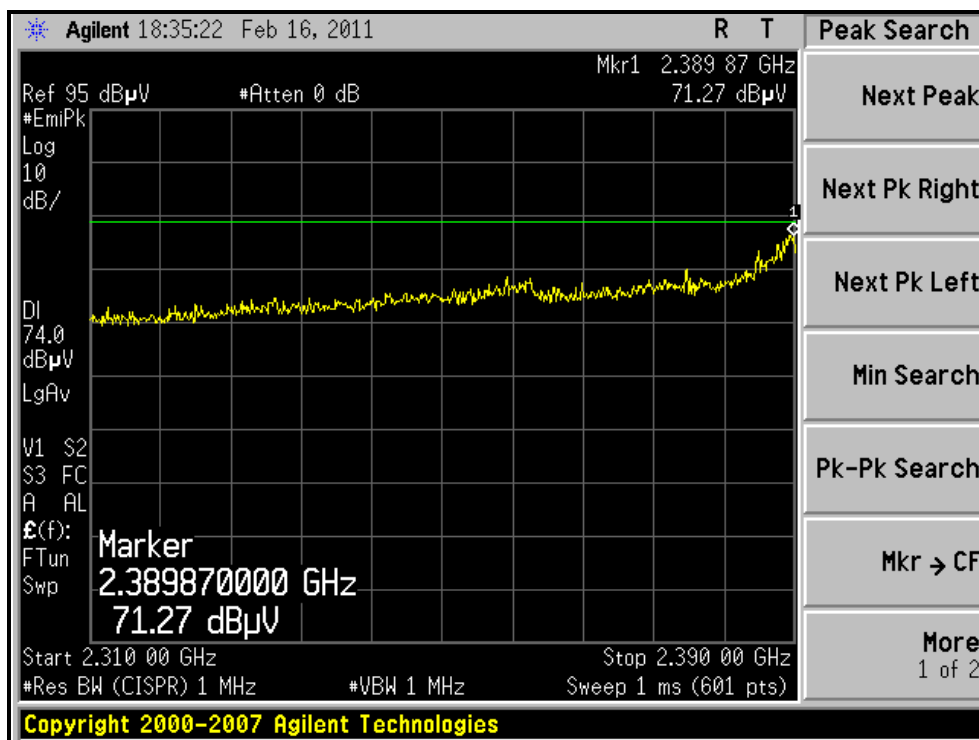
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%RH 1023 hPa	TESTED BY	Wen Yu

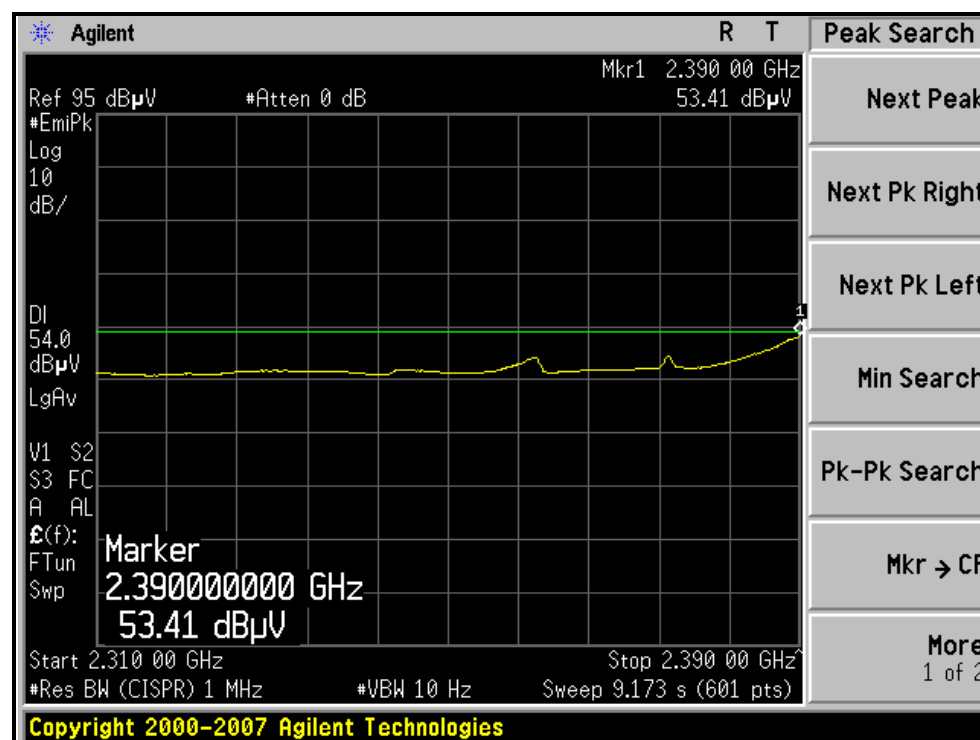
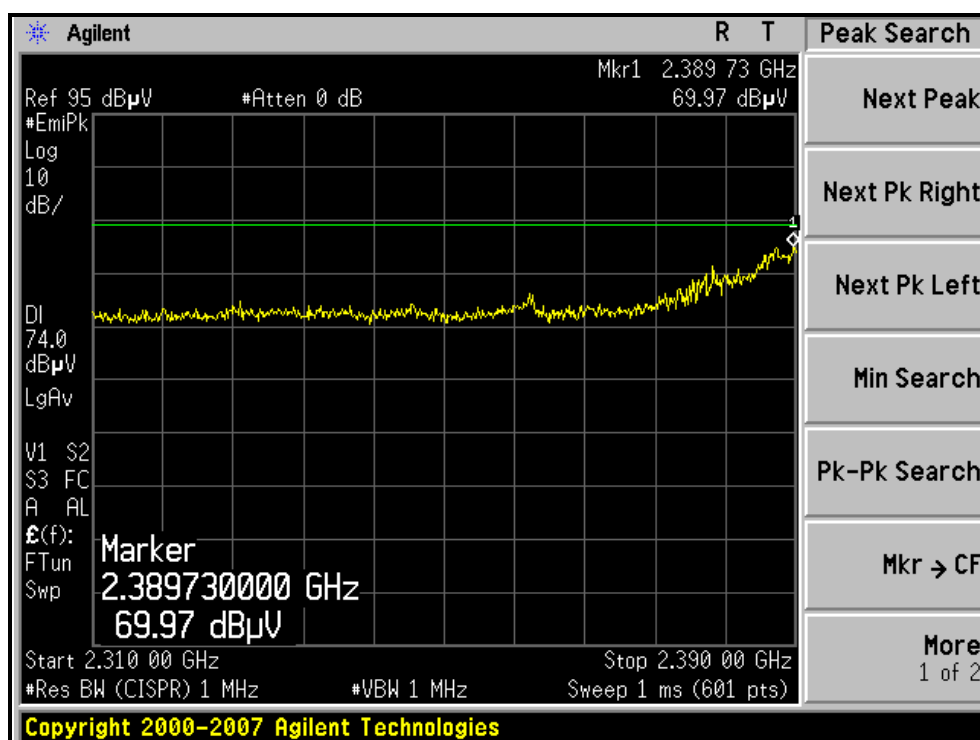
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.1 PK			1.43 H	42	81.52	31.58
2	*2462.00	103.4 AV			1.43 H	42	71.82	31.58
3	2483.50	73.5 PK	74.0	-0.5	1.42 H	26	41.84	31.66
4	2483.50	52.1 AV	54.0	-1.9	1.42 H	26	20.44	31.66
5	4924.00	47.8 PK	74.0	-26.2	1.00 H	44	11.38	36.42
6	4924.00	35.4 AV	54.0	-18.6	1.00 H	44	-1.02	36.42
7	7386.00	47.8 PK	74.0	-26.2	1.99 H	2	5.28	42.52
8	7386.00	36.8 AV	54.0	-17.2	1.99 H	2	-5.72	42.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.9 PK			1.54 V	255	78.32	31.58
2	*2462.00	99.6 AV			1.54 V	255	68.02	31.58
3	2483.50	72.3 PK	74.0	-1.7	1.53 V	255	40.64	31.66
4	2483.50	51.4 AV	54.0	-2.6	1.53 V	255	19.74	31.66
5	4924.00	49.5 PK	74.0	-24.5	1.07 V	267	13.08	36.42
6	4924.00	37.1 AV	54.0	-16.9	1.07 V	267	0.68	36.42
7	7386.00	51.1 PK	74.0	-22.9	1.00 V	240	8.58	42.52
8	7386.00	38.8 AV	54.0	-15.2	1.00 V	240	-3.72	42.52

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

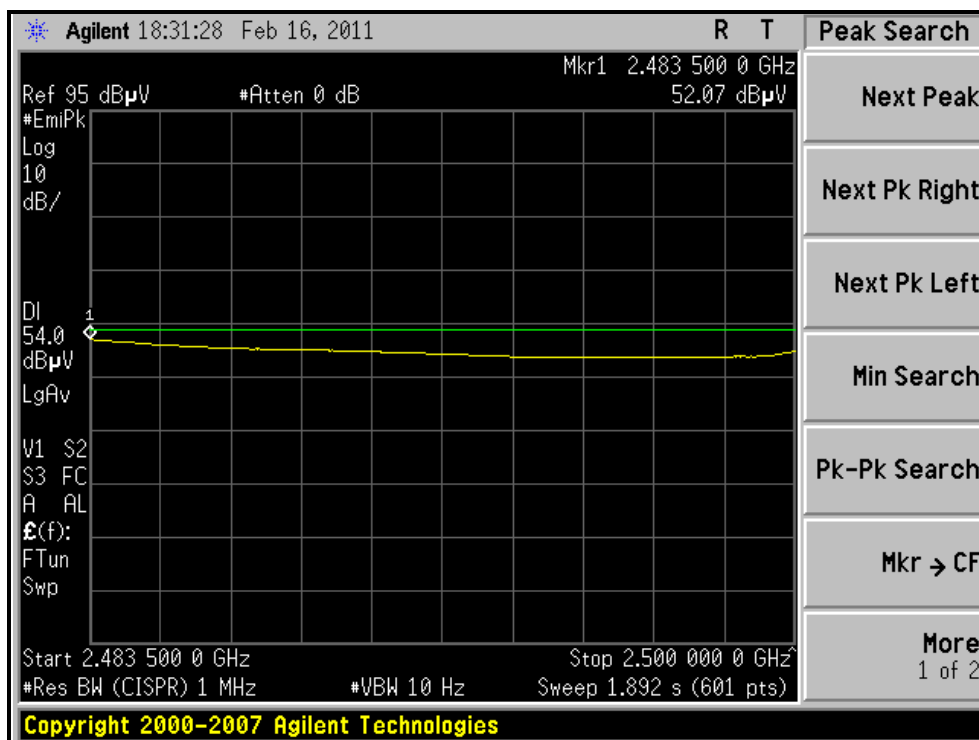
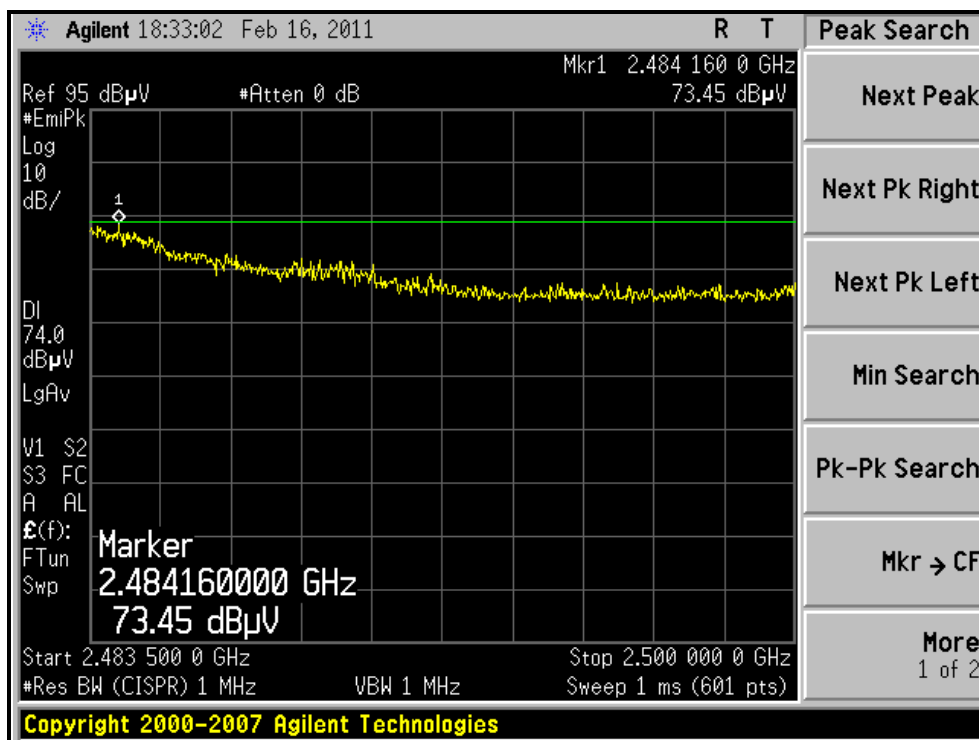
RESTRICTED BANDEDGE (802.11g MODE, CH1, HORIZONTAL)



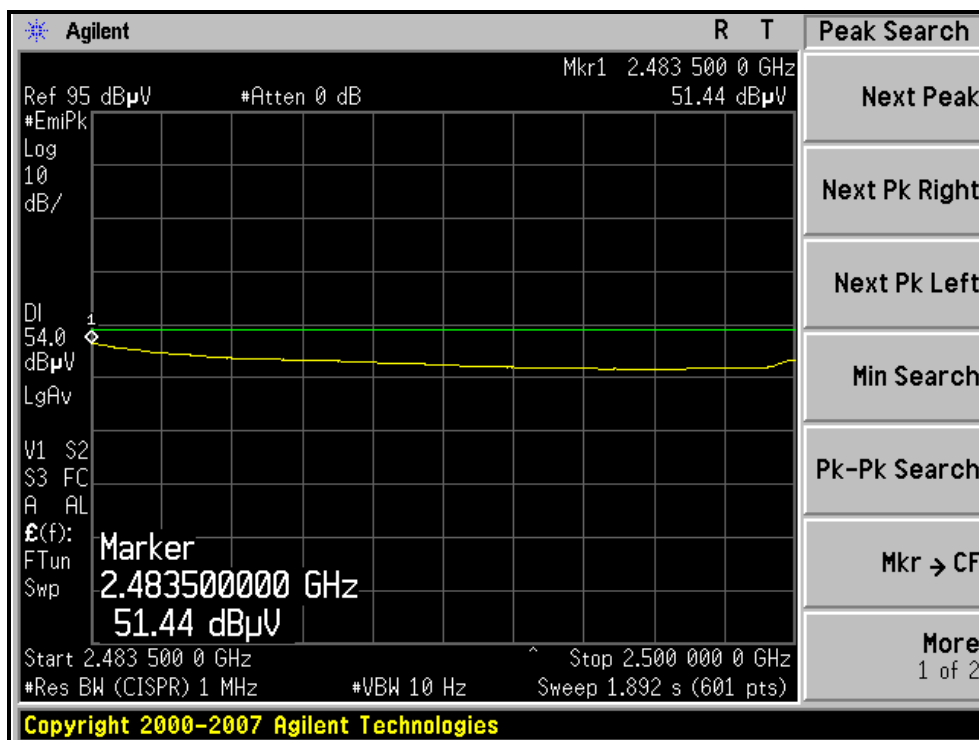
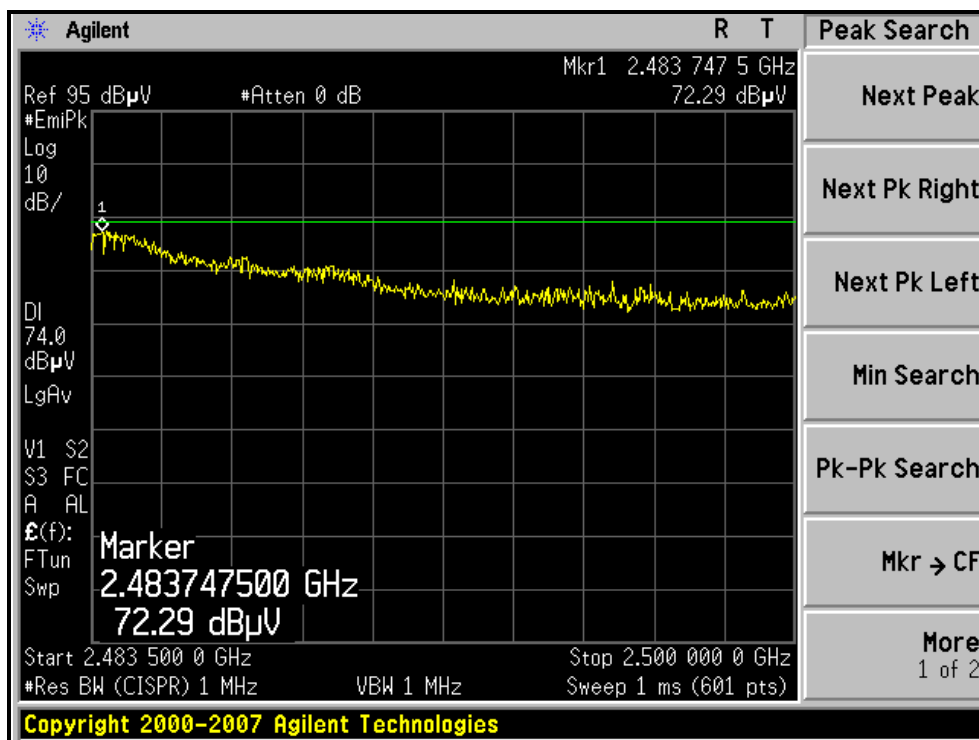
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)



802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2390.00	73.1 PK	74.0	-0.9	1.48 H	23	41.78	31.32
2	2390.00	51.5 AV	54.0	-2.5	1.48 H	23	20.18	31.32
3	*2412.00	113.2 PK			1.22 H	28	81.81	31.39
4	*2412.00	103.3 AV			1.22 H	28	71.91	31.39
5	4824.00	48.7 PK	74.0	-25.3	1.00 H	47	12.53	36.17
6	4824.00	36.3 AV	54.0	-17.7	1.00 H	47	0.13	36.17
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.0	-5.4	1.56 V	261	37.28	31.32
2	2390.00	48.7 AV	54.0	-5.3	1.56 V	261	17.38	31.32
3	*2412.00	110.8 PK			1.55 V	262	79.41	31.39
4	*2412.00	100.5 AV			1.55 V	262	69.11	31.39
5	4824.00	48.0 PK	74.0	-26.0	1.11 V	75	11.83	36.17
6	4824.00	35.6 AV	54.0	-18.4	1.11 V	75	-0.57	36.17

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2385.20	64.4 PK	74.0	-9.6	1.52 H	25	33.10	31.30
2	2385.20	53.1 AV	54.0	-0.9	1.52 H	25	21.80	31.30
3	*2437.00	116.4 PK			1.40 H	25	84.91	31.49
4	*2437.00	105.9 AV			1.40 H	25	74.41	31.49
5	2488.90	64.7 PK	74.0	-9.3	1.42 H	23	33.02	31.68
6	2488.90	53.2 AV	54.0	-0.8	1.42 H	23	21.52	31.68
7	4874.00	48.6 PK	74.0	-25.4	1.00 H	45	12.29	36.31
8	4874.00	36.2 AV	54.0	-17.8	1.00 H	45	-0.11	36.31
9	7311.00	47.9 PK	74.0	-26.1	1.99 H	5	5.67	42.23
10	7311.00	37.1 AV	54.0	-16.9	1.99 H	5	-5.13	42.23
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	*2437.00	111.0 PK			1.54 V	273	79.51	31.49
2	*2437.00	100.9 AV			1.54 V	273	69.41	31.49
3	4874.00	48.1 PK	74.0	-25.9	1.10 V	73	11.79	36.31
4	4874.00	35.7 AV	54.0	-18.3	1.10 V	73	-0.61	36.31
5	7311.00	48.3 PK	74.0	-25.7	1.44 V	287	6.07	42.23
6	7311.00	37.8 AV	54.0	-16.2	1.44 V	287	-4.43	42.23

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.



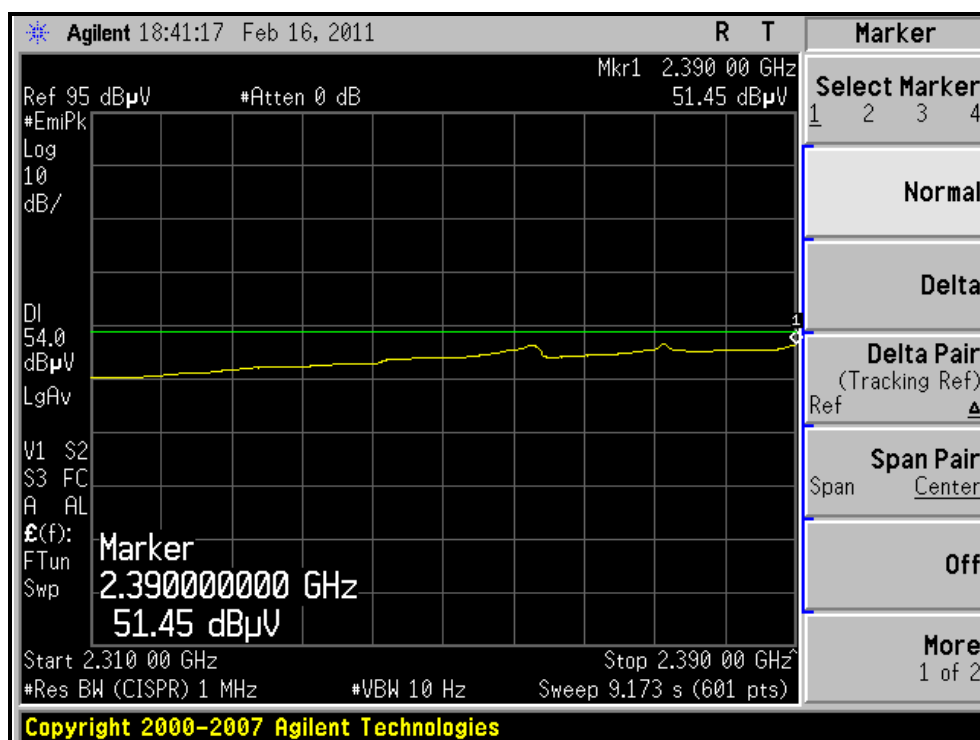
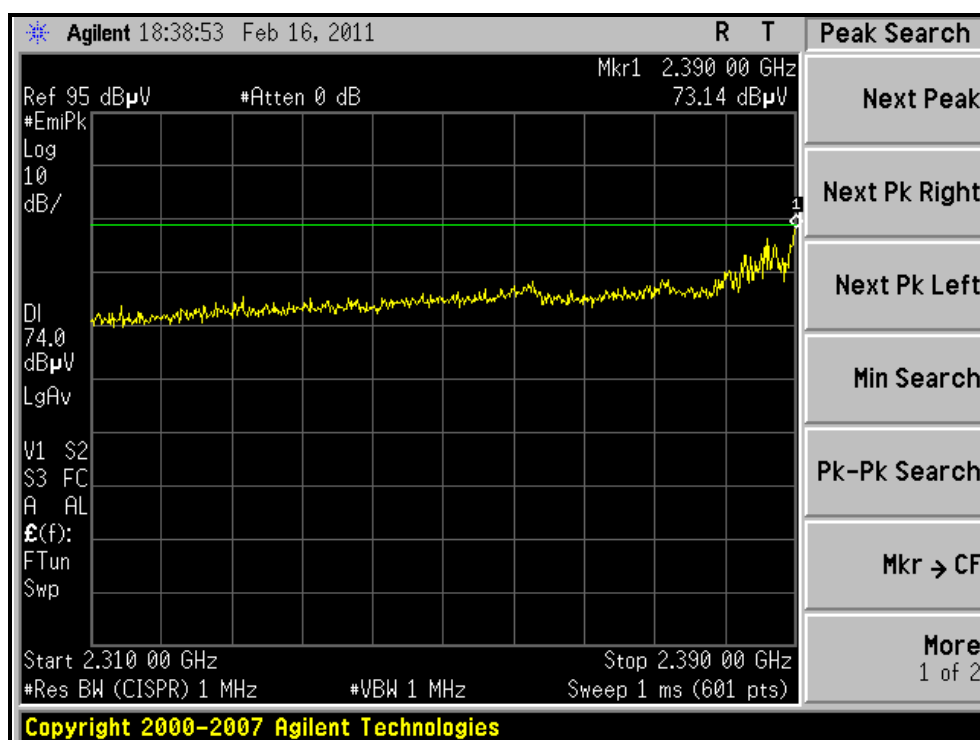
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%RH 1023 hPa	TESTED BY	Wen Yu

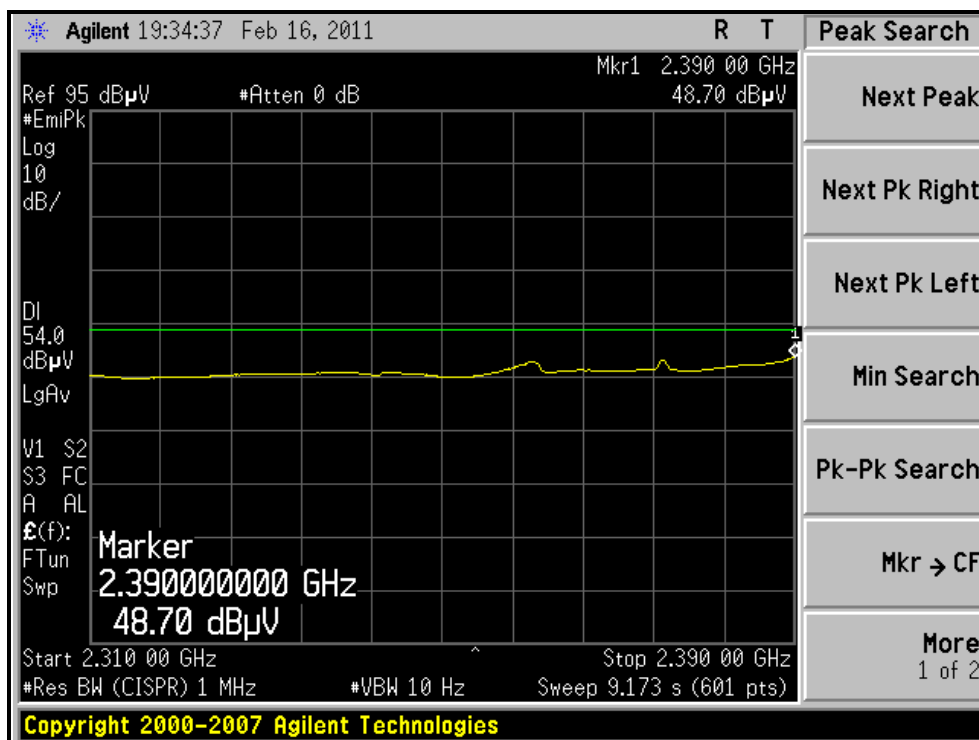
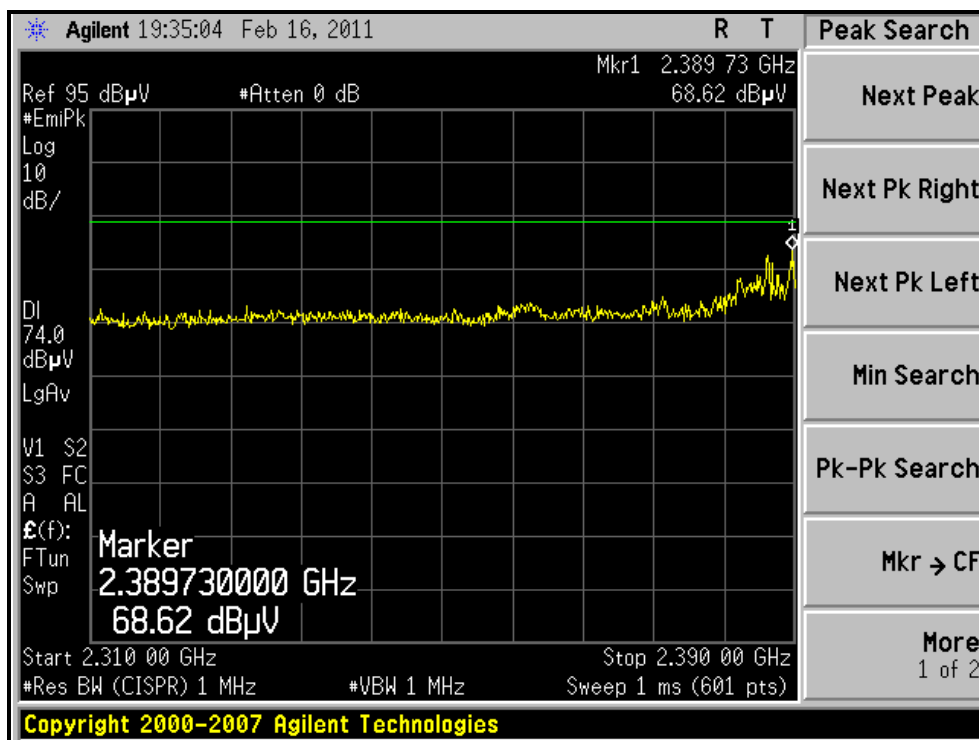
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.5 PK			1.40 H	55	82.92	31.58
2	*2462.00	103.5 AV			1.40 H	55	71.92	31.58
3	2483.50	73.0 PK	74.0	-1.0	1.41 H	21	41.34	31.66
4	2483.50	51.9 AV	54.0	-2.1	1.41 H	21	20.24	31.66
5	4924.00	48.5 PK	74.0	-25.5	1.00 H	43	12.08	36.42
6	4924.00	36.1 AV	54.0	-17.9	1.00 H	43	-0.32	36.42
7	7386.00	47.8 PK	74.0	-26.2	1.95 H	6	5.28	42.52
8	7386.00	37.1 AV	54.0	-16.9	1.95 H	6	-5.42	42.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.9 PK			1.52 V	285	78.32	31.58
2	*2462.00	100.2 AV			1.52 V	285	68.62	31.58
3	2483.50	63.1 PK	74.0	-10.9	1.51 V	262	31.44	31.66
4	2483.50	49.6 AV	54.0	-4.4	1.51 V	262	17.94	31.66
5	4924.00	47.6 PK	74.0	-26.4	1.10 V	68	11.18	36.42
6	4924.00	35.2 AV	54.0	-18.8	1.10 V	68	-1.22	36.42
7	7386.00	48.1 PK	74.0	-25.9	1.44 V	275	5.58	42.52
8	7386.00	37.6 AV	54.0	-16.4	1.44 V	275	-4.92	42.52

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

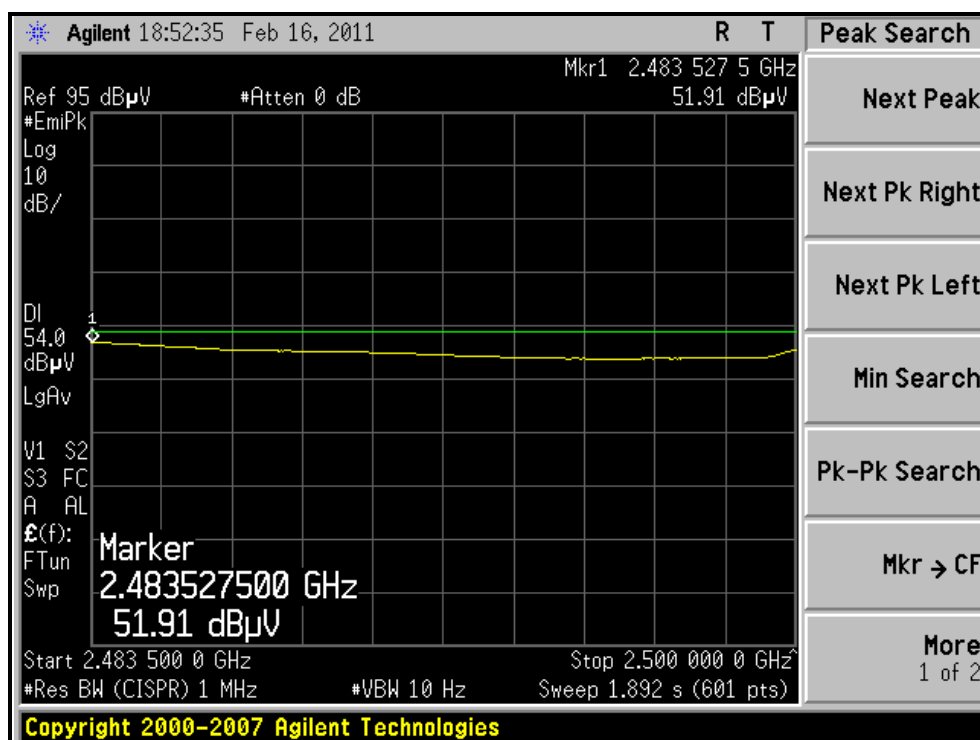
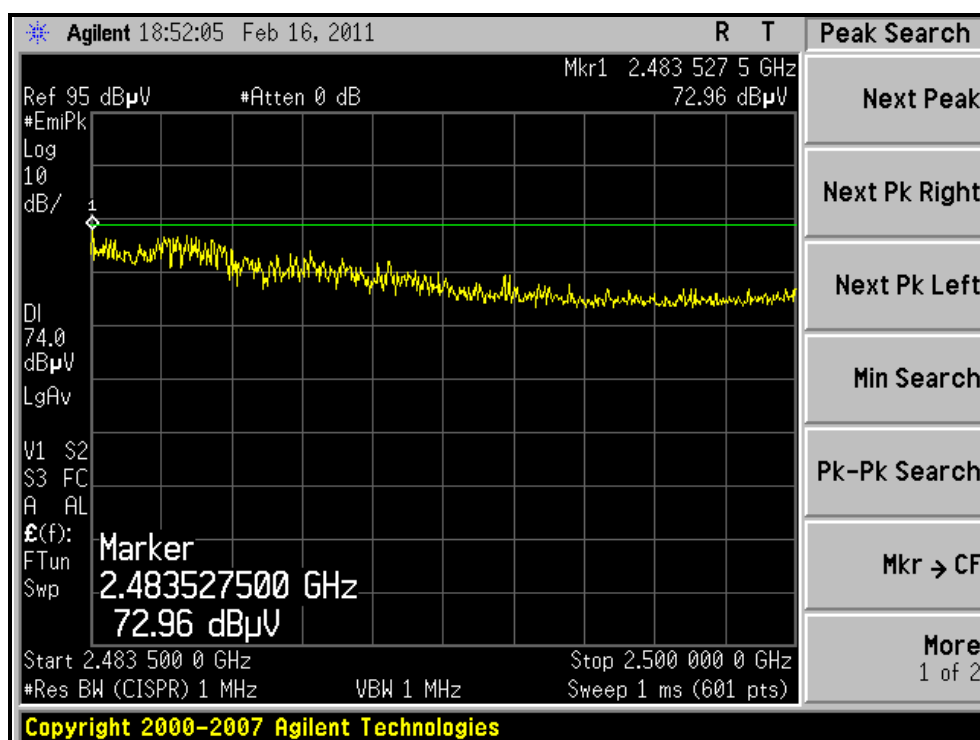
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



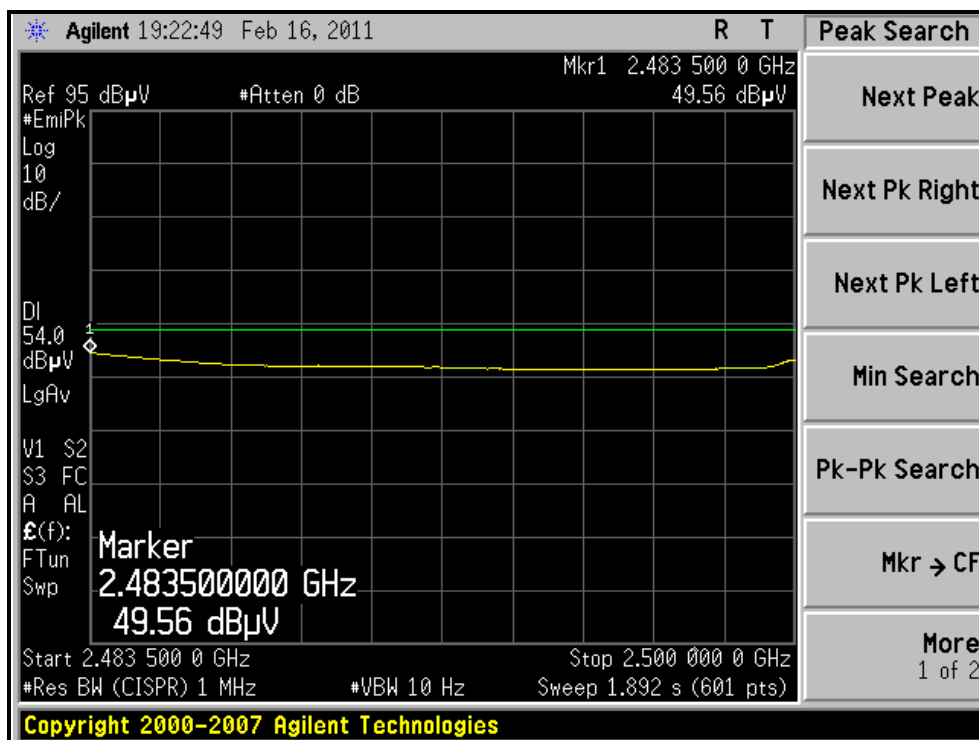
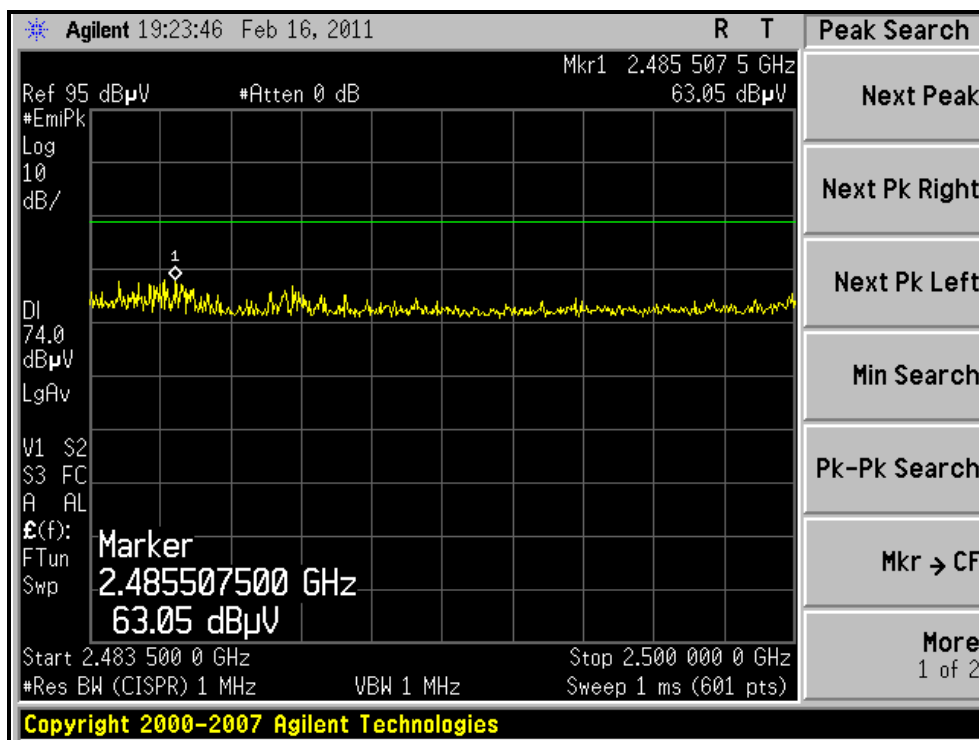
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, VERTICAL)



802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2390.00	69.2 PK	74.0	-4.8	1.52 H	25	37.88	31.32
2	2390.00	53.2 AV	54.0	-0.8	1.52 H	25	21.88	31.32
3	*2422.00	109.7 PK			1.42 H	24	78.27	31.43
4	*2422.00	100.3 AV			1.42 H	24	68.87	31.43
5	4844.00	48.8 PK	74.0	-25.2	1.00 H	41	12.58	36.22
6	4844.00	36.2 AV	54.0	-17.8	1.00 H	41	-0.02	36.22
7	7266.00	48.5 PK	74.0	-25.5	1.90 H	2	6.37	42.13
8	7266.00	37.4 AV	54.0	-16.6	1.90 H	2	-4.73	42.13
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	2390.00	68.5 PK	74.0	-5.5	1.55 V	263	37.18	31.32
2	2390.00	51.8 AV	54.0	-2.2	1.55 V	263	20.48	31.32
3	*2422.00	107.5 PK			1.54 V	285	76.07	31.43
4	*2422.00	96.1 AV			1.54 V	285	64.67	31.43
5	4844.00	47.6 PK	74.0	-26.4	1.11 V	72	11.38	36.22
6	4844.00	35.5 AV	54.0	-18.5	1.11 V	72	-0.72	36.22
7	7266.00	48.4 PK	74.0	-25.6	1.43 V	281	6.27	42.13
8	7266.00	37.8 AV	54.0	-16.2	1.43 V	281	-4.33	42.13

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 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%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	2390.00	69.3 PK	74.0	-4.7	1.55 H	27	37.98	31.32
2	2390.00	53.4 AV	54.0	-0.6	1.55 H	27	22.08	31.32
3	*2437.00	111.2 PK			1.41 H	22	79.71	31.49
4	*2437.00	102.1 AV			1.41 H	22	70.61	31.49
5	2483.50	71.1 PK	74.0	-2.9	1.41 H	19	39.44	31.66
6	2483.50	53.2 AV	54.0	-0.8	1.41 H	19	21.54	31.66
7	4874.00	48.7 PK	74.0	-25.3	1.00 H	47	12.39	36.31
8	4874.00	36.0 AV	54.0	-18.0	1.00 H	47	-0.31	36.31
9	7311.00	48.4 PK	74.0	-25.6	1.91 H	6	6.17	42.23
10	7311.00	37.5 AV	54.0	-16.5	1.91 H	6	-4.73	42.23
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	*2437.00	108.7 PK			1.55 V	261	77.21	31.49
2	*2437.00	97.7 AV			1.55 V	261	66.21	31.49
3	4874.00	47.7 PK	74.0	-26.3	1.12 V	75	11.39	36.31
4	4874.00	35.4 AV	54.0	-18.6	1.12 V	75	-0.91	36.31
5	7311.00	48.5 PK	74.0	-25.5	1.45 V	278	6.27	42.23
6	7311.00	37.9 AV	54.0	-16.1	1.45 V	278	-4.33	42.23

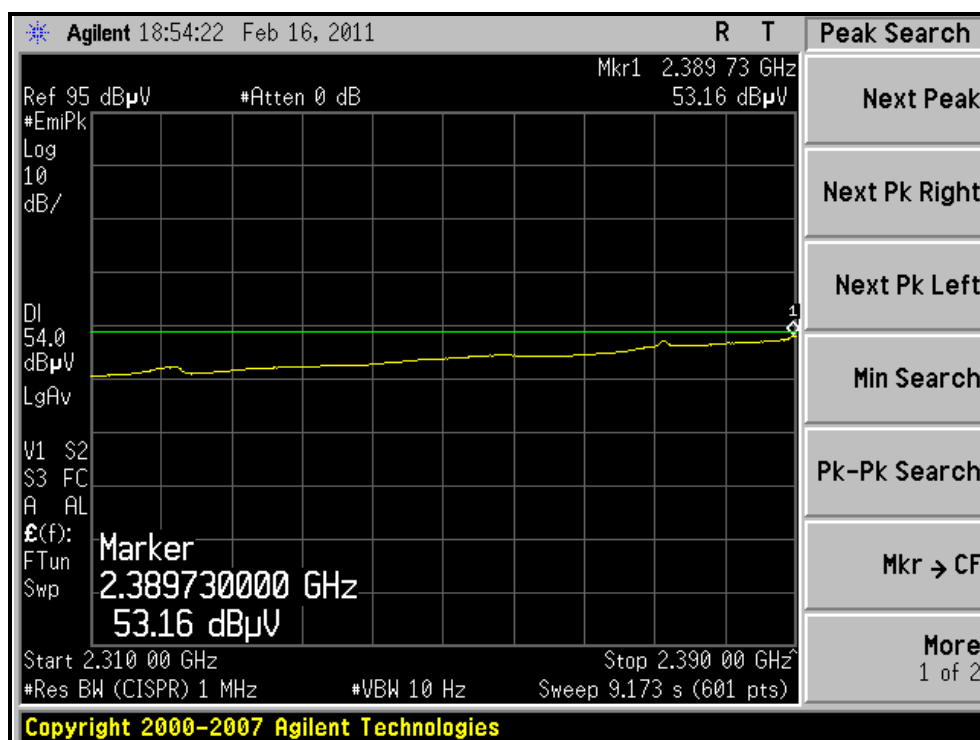
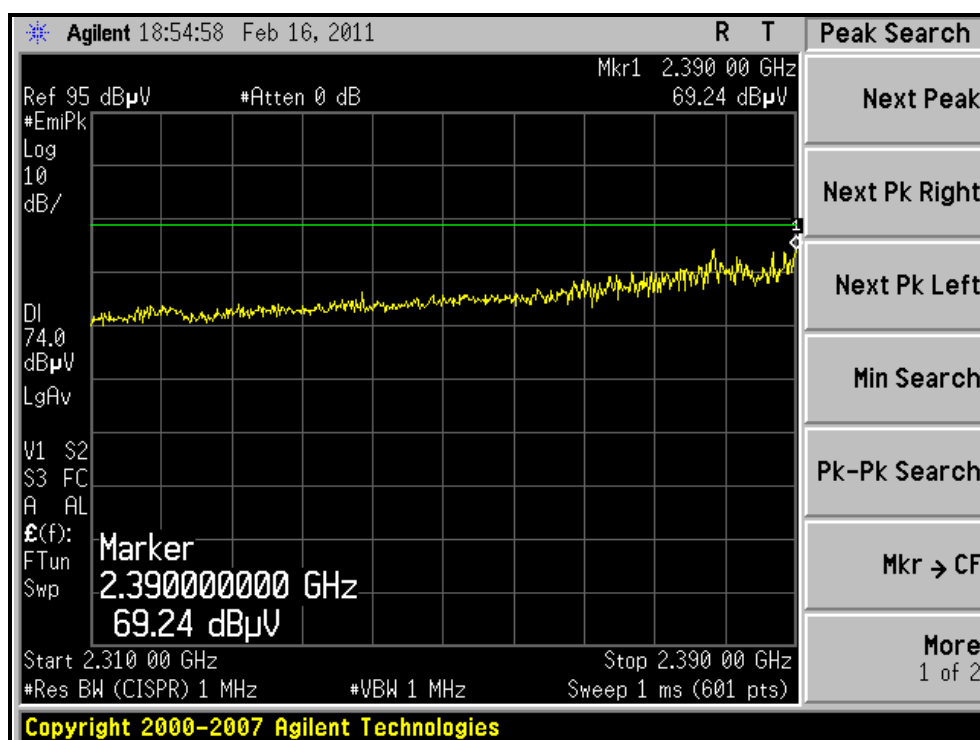
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	18deg. C, 70%RH 1023 hPa	TESTED BY	Wen Yu

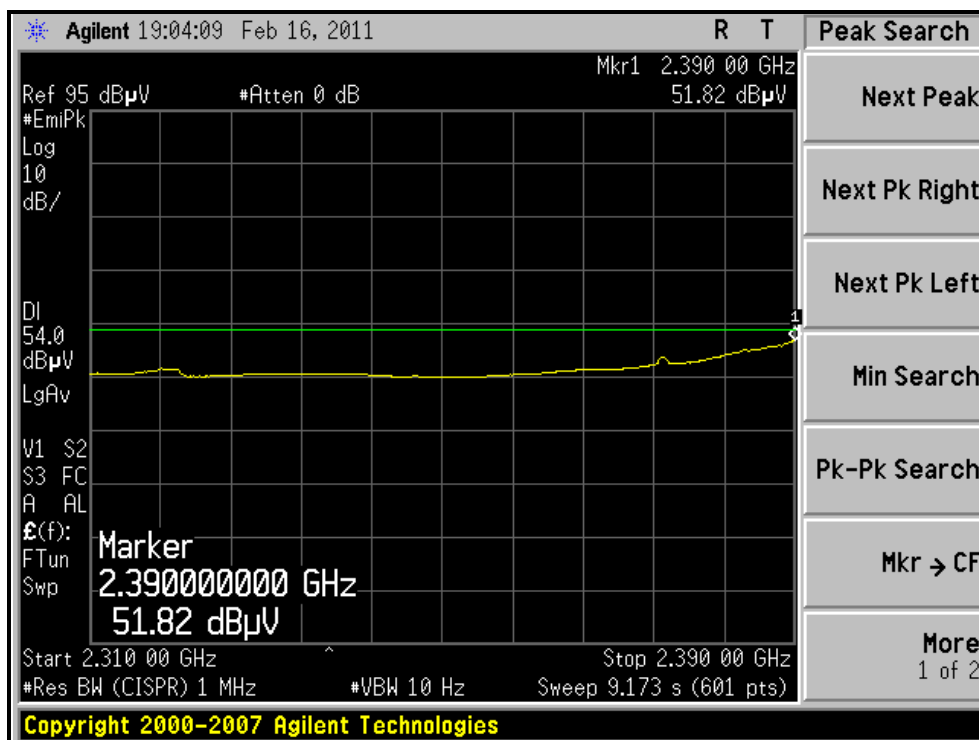
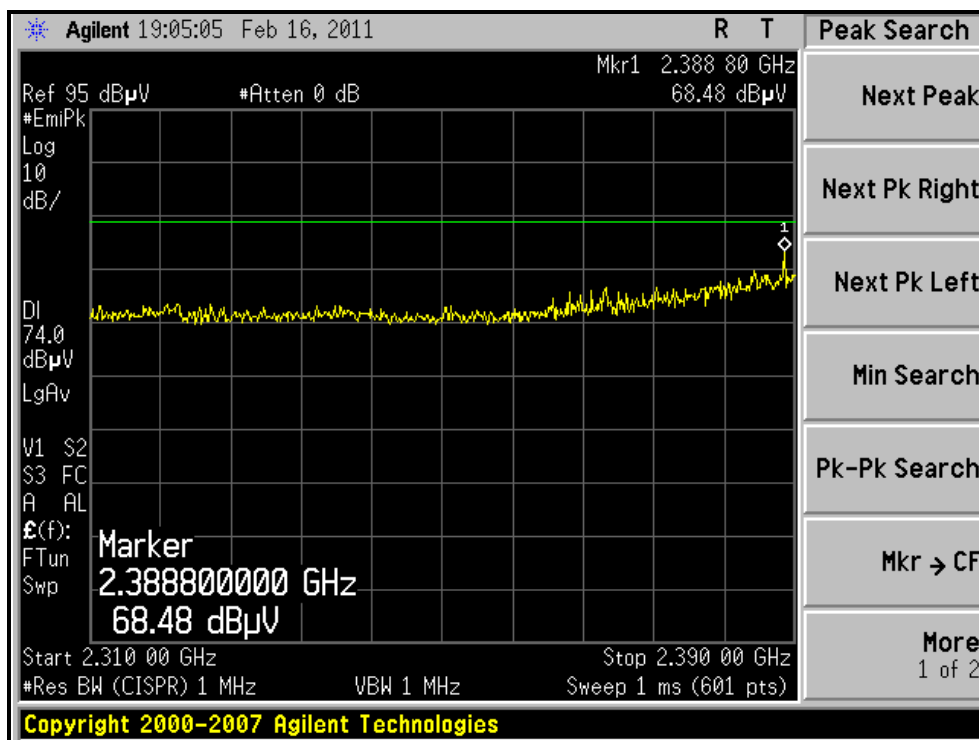
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.7 PK			1.41 H	15	77.16	31.54
2	*2452.00	99.1 AV			1.41 H	15	67.56	31.54
3	2483.50	69.5 PK	74.0	-4.5	1.43 H	14	37.84	31.66
4	2483.50	53.5 AV	54.0	-0.5	1.43 H	14	21.84	31.66
5	4904.00	48.8 PK	74.0	-25.2	1.00 H	47	12.41	36.39
6	4904.00	36.2 AV	54.0	-17.8	1.00 H	47	-0.19	36.39
7	7356.00	48.5 PK	74.0	-25.5	1.92 H	8	6.10	42.40
8	7356.00	37.6 AV	54.0	-16.4	1.92 H	8	-4.80	42.40
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	*2452.00	106.5 PK			1.54 V	264	74.96	31.54
2	*2452.00	96.0 AV			1.54 V	264	64.46	31.54
3	2483.50	66.3 PK	74.0	-7.7	1.52 V	254	34.64	31.66
4	2483.50	50.6 AV	54.0	-3.4	1.52 V	254	18.94	31.66
5	4904.00	47.8 PK	74.0	-26.2	1.10 V	73	11.41	36.39
6	4904.00	35.5 AV	54.0	-18.5	1.10 V	73	-0.89	36.39
7	7356.00	48.6 PK	74.0	-25.4	1.46 V	281	6.20	42.40
8	7356.00	38.0 AV	54.0	-16.0	1.46 V	281	-4.40	42.40

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.

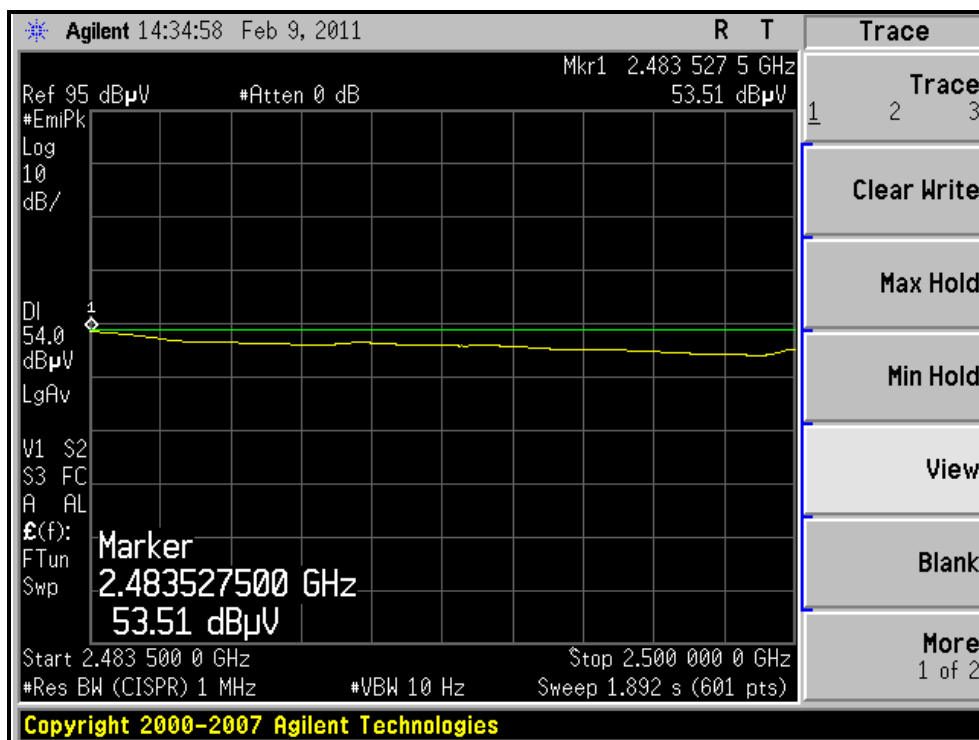
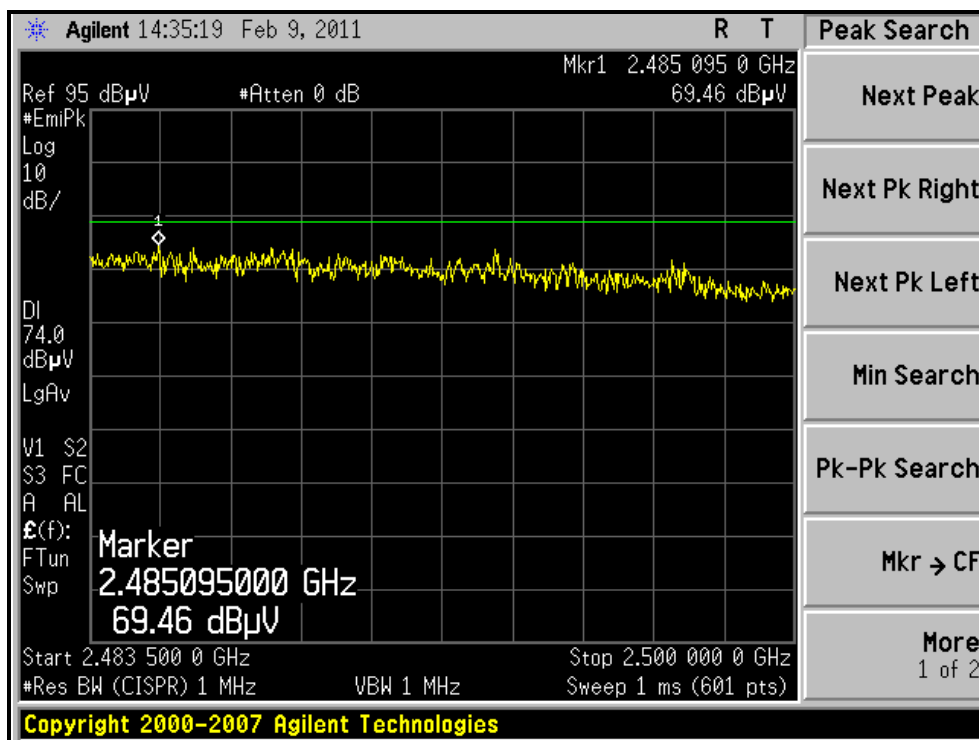
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH3, HORIZONTAL)



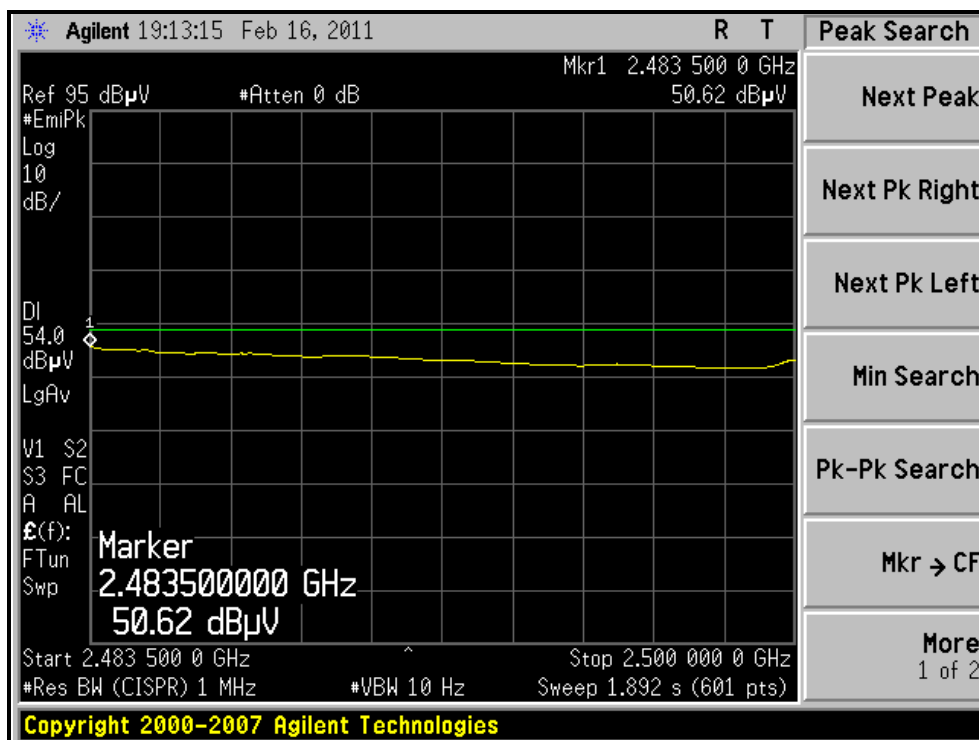
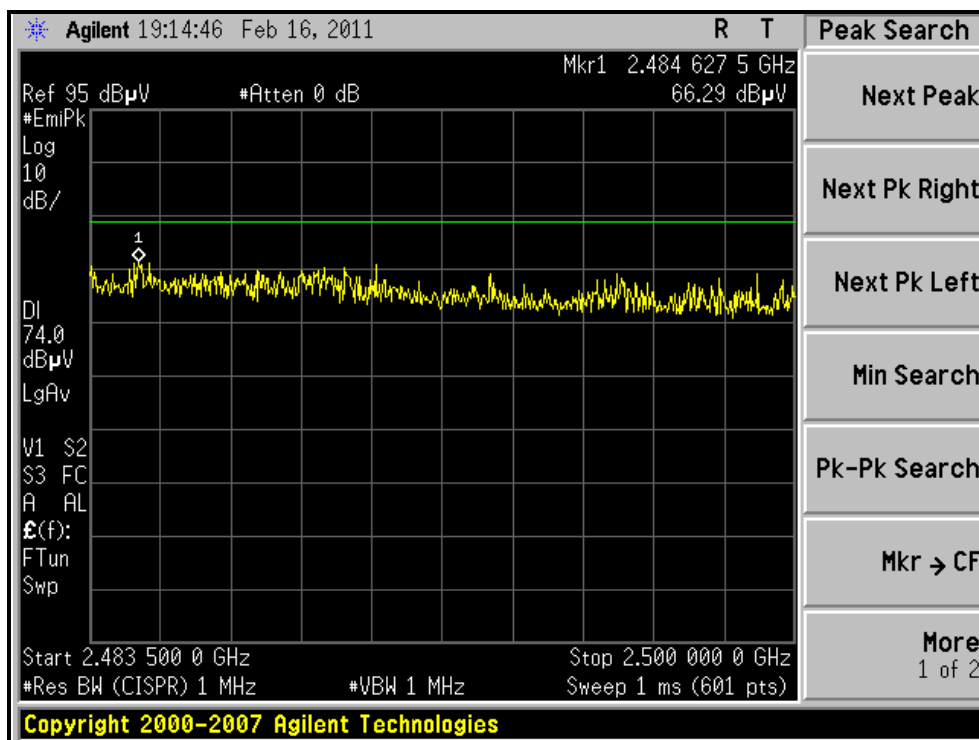
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH3, VERTICAL)



RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH9, HORIZONTAL)



RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH9, VERTICAL)



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 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.

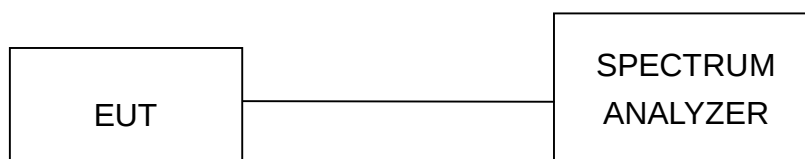
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

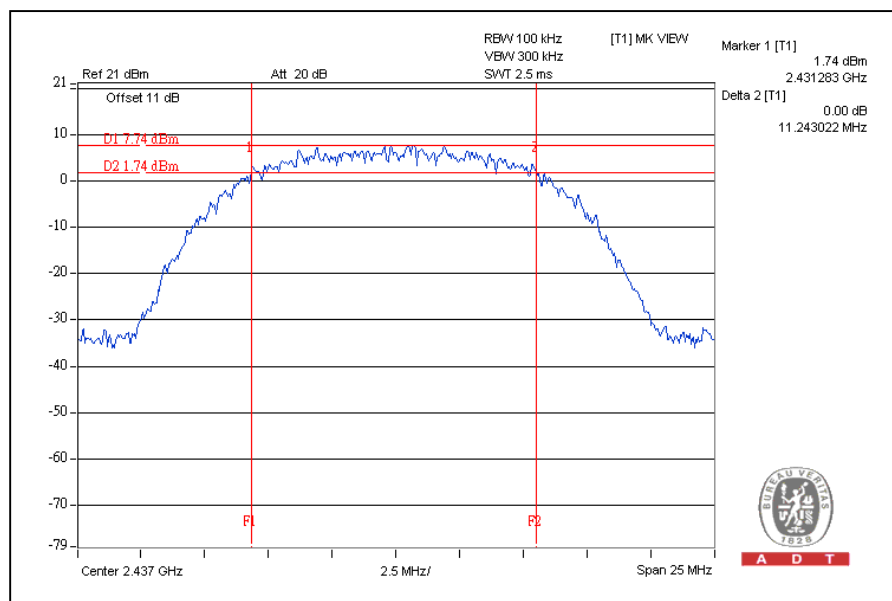
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.24	0.5	PASS
6	2437	11.24	0.5	PASS
11	2462	11.24	0.5	PASS

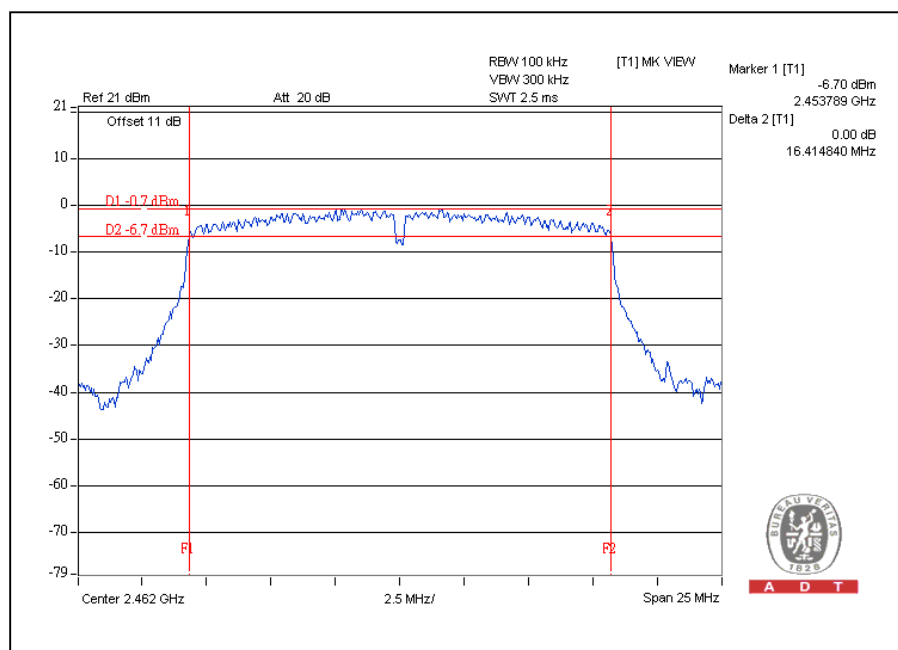
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.39	0.5	PASS
6	2437	16.38	0.5	PASS
11	2462	16.41	0.5	PASS

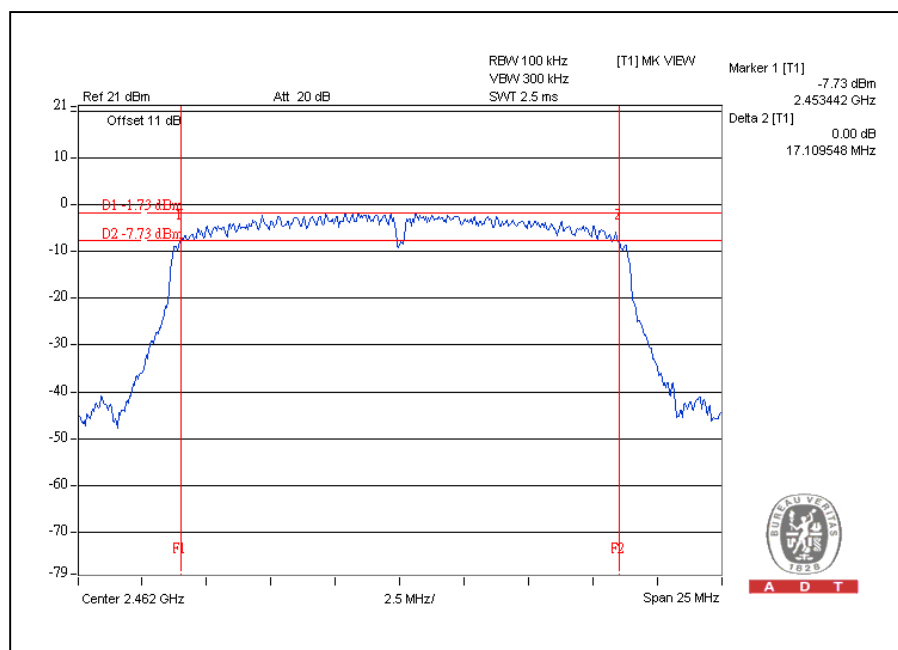
CH11



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.03	0.5	PASS
6	2437	16.97	0.5	PASS
11	2462	17.10	0.5	PASS

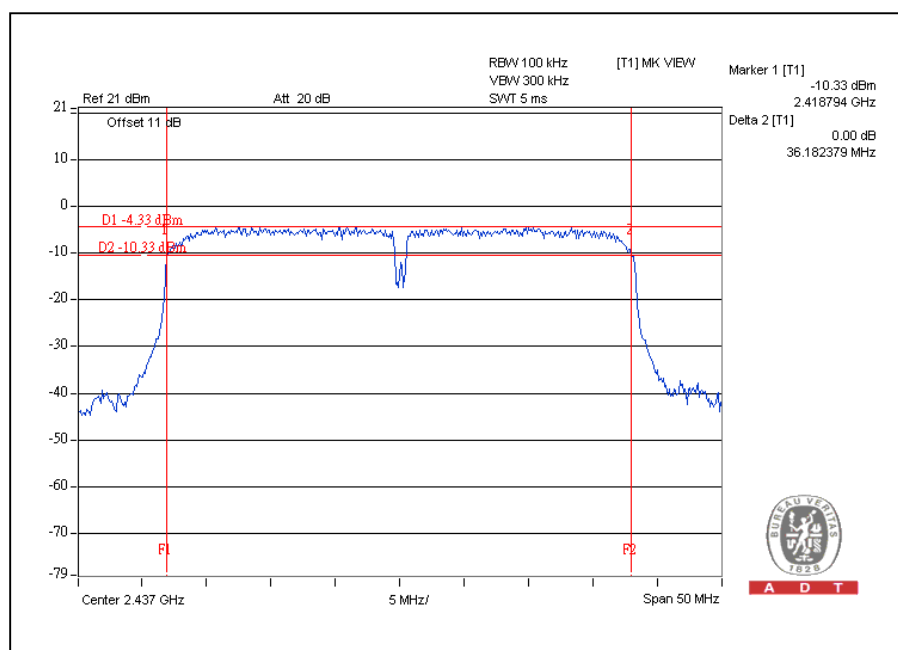
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.12	0.5	PASS
6	2437	36.18	0.5	PASS
9	2452	36.09	0.5	PASS

CH6



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

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

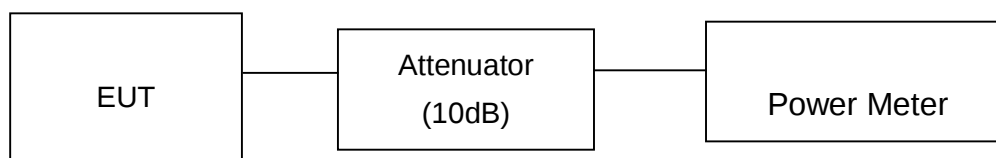
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	21.3	20.9	257.9	24.1	28.9	PASS
6	2437	23.1	21.1	333.0	25.2	28.9	PASS
11	2462	20.4	20.2	214.4	23.3	28.9	PASS

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

Effective Legacy Gain (dBi) = 7.1

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

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	24.8	24.3	571.1	27.6	28.9	PASS
6	2437	25.6	24.3	632.2	28.0	28.9	PASS
11	2462	24.3	23.6	498.2	27.0	28.9	PASS

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

Effective Legacy Gain (dBi) = 7.1

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

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	23.6	23.7	463.5	26.7	30	PASS
6	2437	24.0	24.4	526.6	27.2	30	PASS
11	2462	23.4	23.9	464.2	26.7	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
3	2422	23.7	23.7	468.8	26.7	30	PASS
6	2437	24.4	24.3	544.6	27.4	30	PASS
9	2452	22.3	22.4	343.6	25.4	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 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.

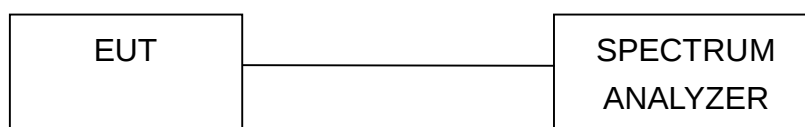
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

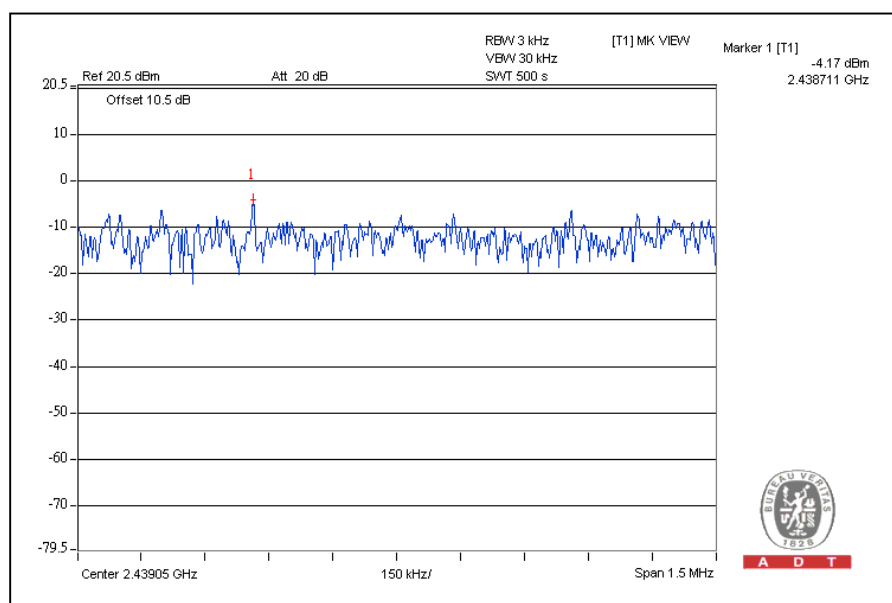
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS 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)			
1	2412	-6.3	-4.6	-2.4	8	PASS
6	2437	-5.1	-4.2	-1.6	8	PASS
11	2462	-7.8	-5.3	-3.4	8	PASS

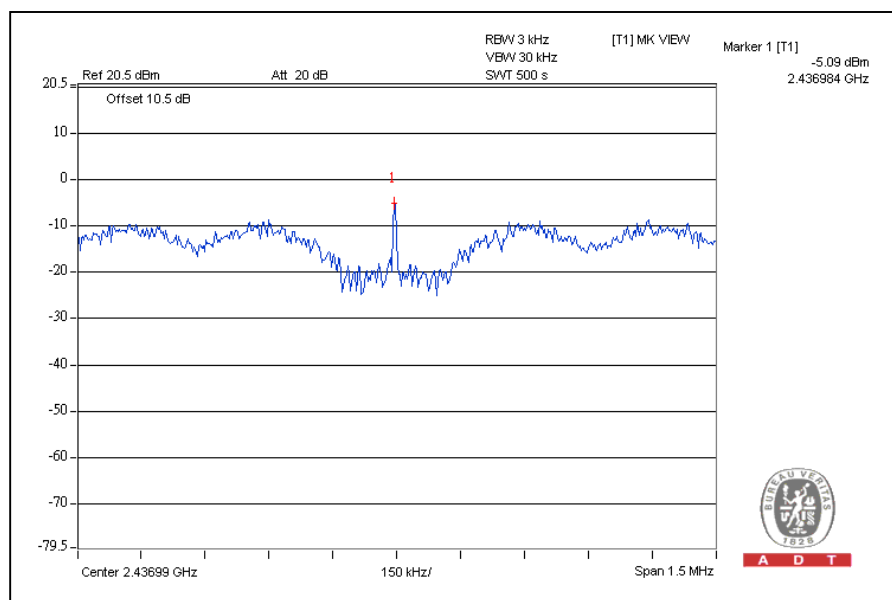
For Chain(1): CH6



802.11g 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)			
1	2412	-12.9	-7.8	-6.6	8	PASS
6	2437	-12.0	-5.1	-4.3	8	PASS
11	2462	-14.4	-8.0	-7.1	8	PASS

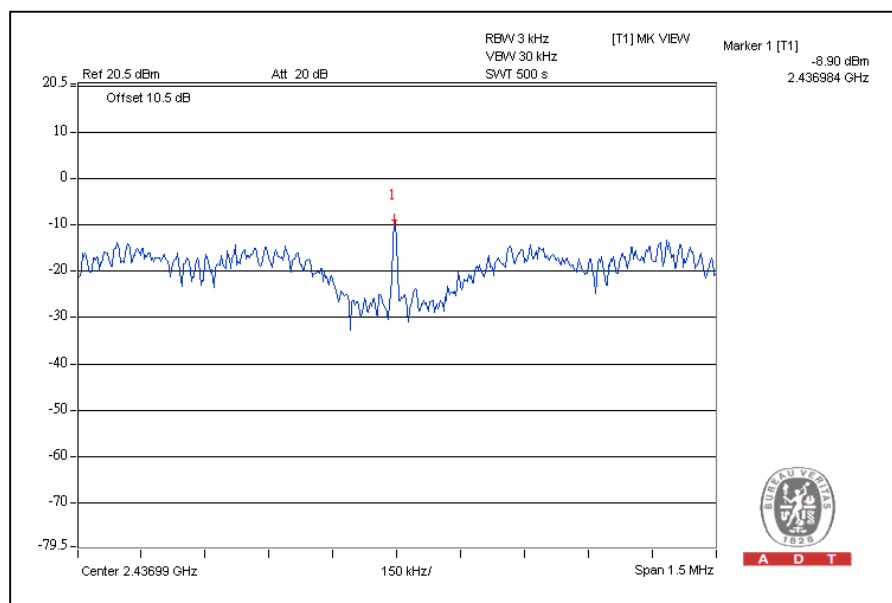
For Chain(1): CH6



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)			
1	2412	-14.6	-9.9	-8.6	8	PASS
6	2437	-13.0	-8.9	-7.5	8	PASS
11	2462	-15.3	-10.2	-9.0	8	PASS

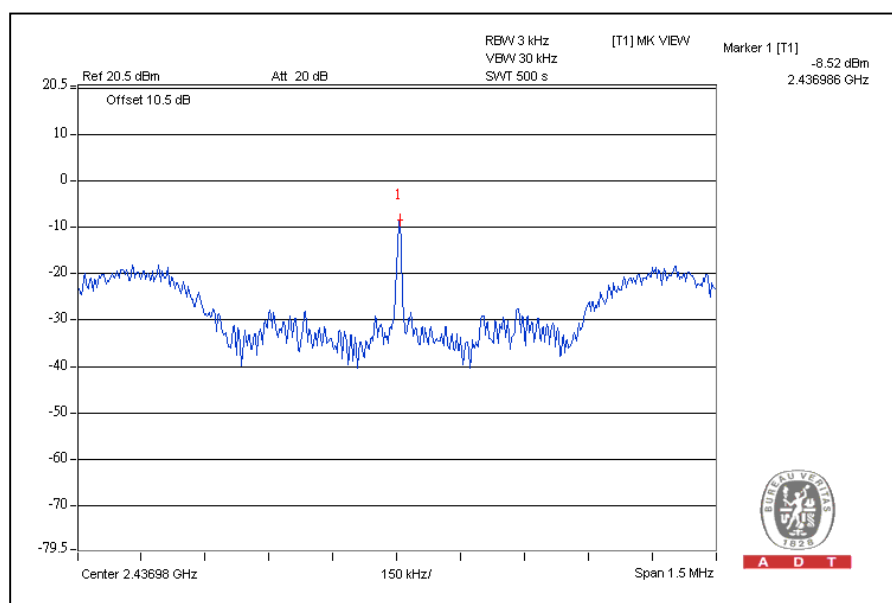
For Chain(1): CH6



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)			
3	2422	-16.6	-10.2	-9.3	8	PASS
6	2437	-15.6	-8.5	-7.7	8	PASS
9	2452	-16.6	-10.3	-9.4	8	PASS

For Chain (1): CH6



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

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

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100MHz or 200MHz bandwidth from band edge. The band edges were measured and recorded.

The spectrum plots (RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

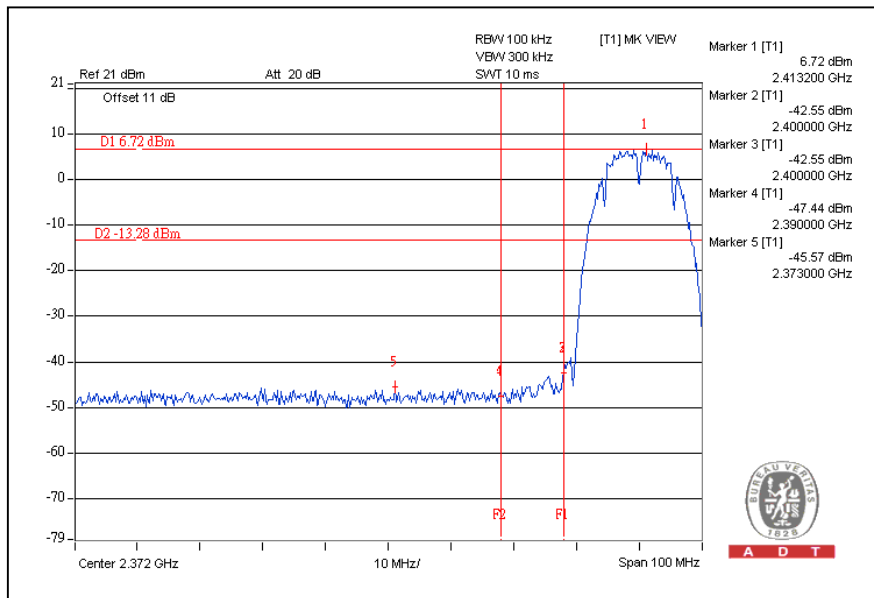
Same as Item 4.3.6

4.6.6 TEST RESULTS

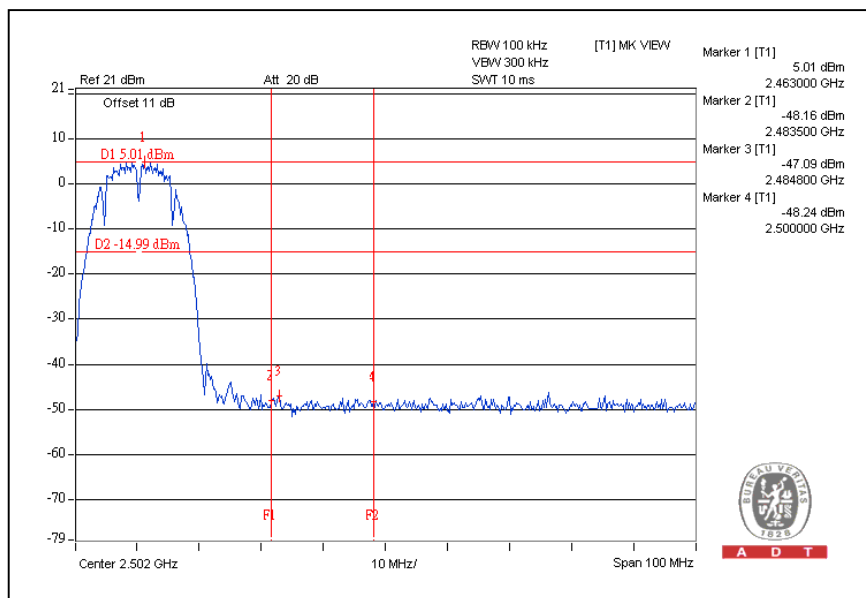
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

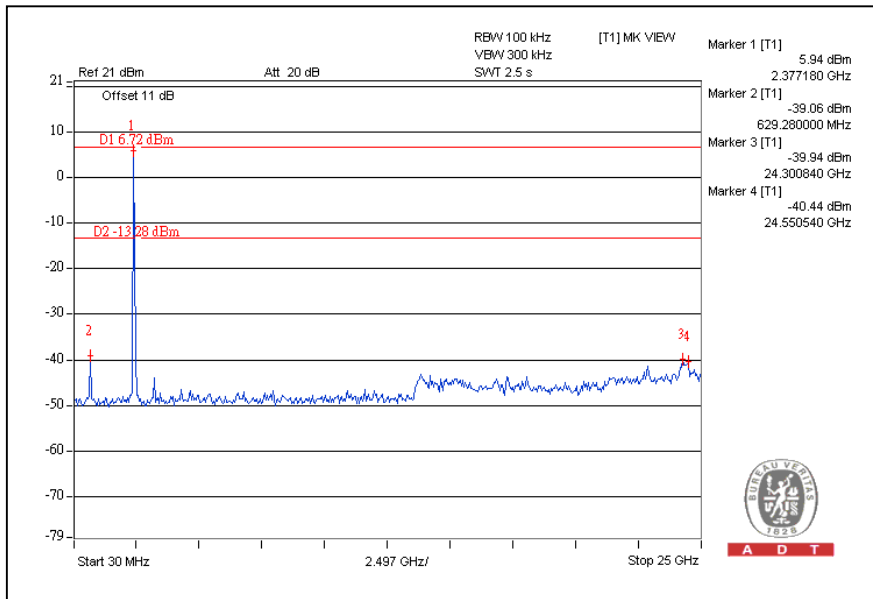
CH1



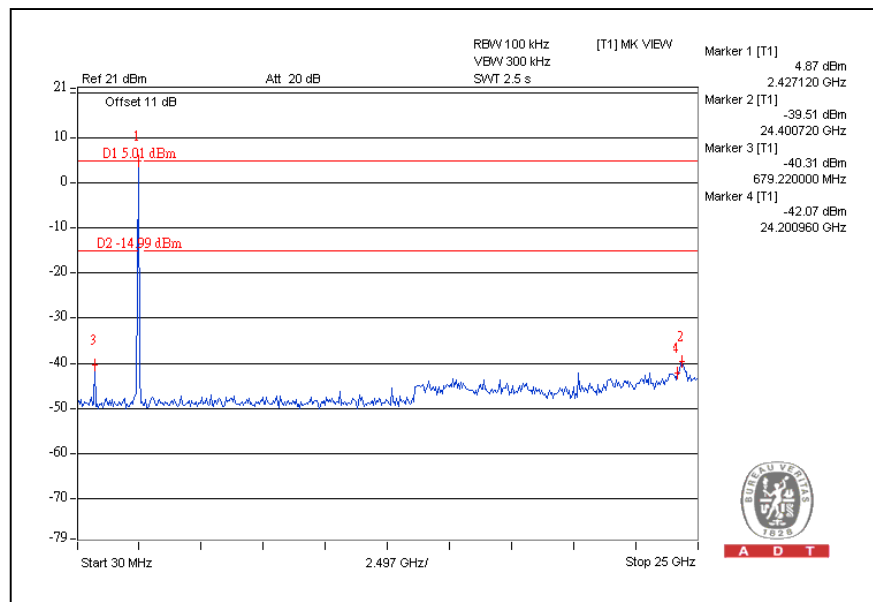
CH11



CH1

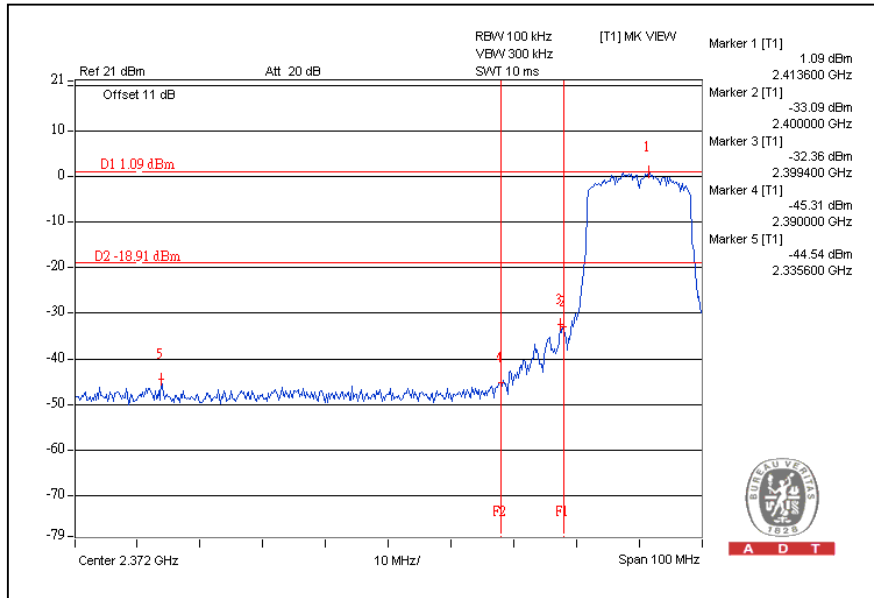


CH11

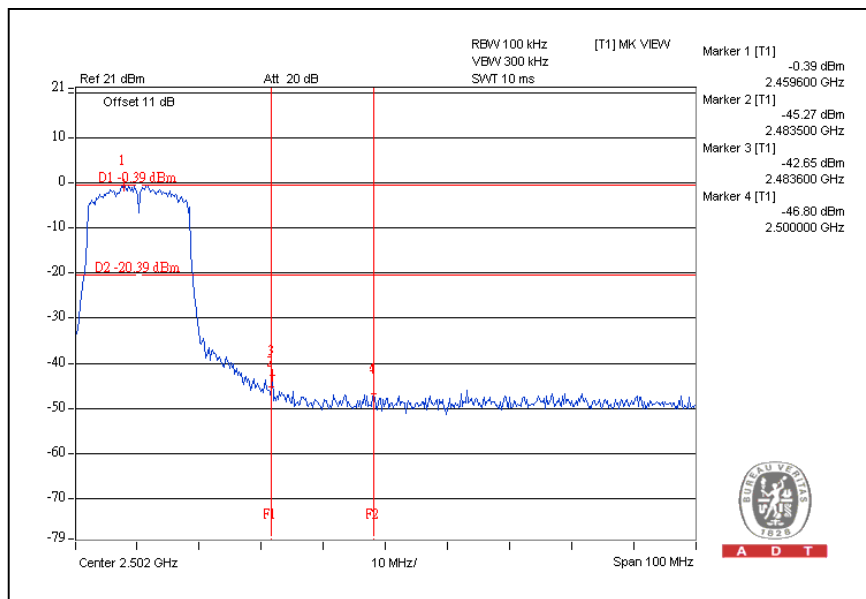


802.11g OFDM MODULATION:

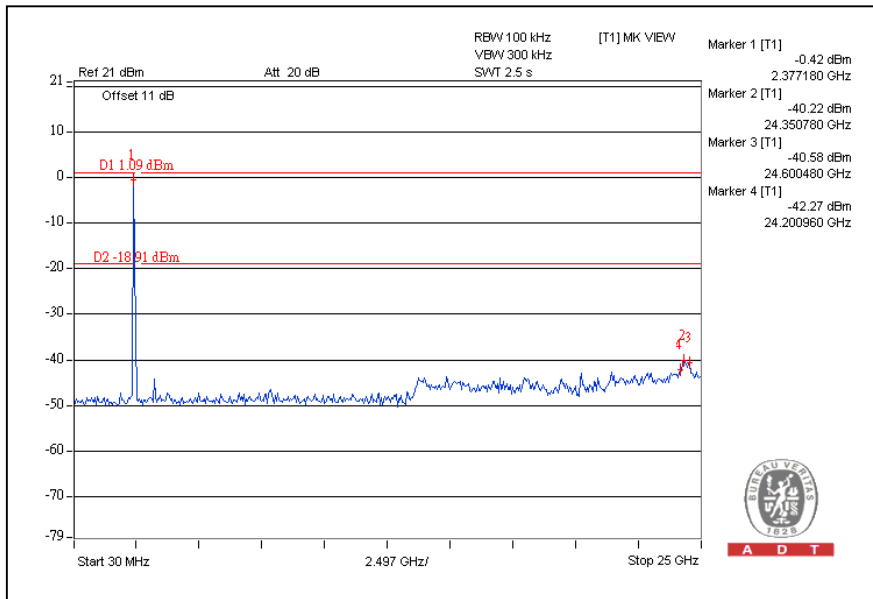
CH1



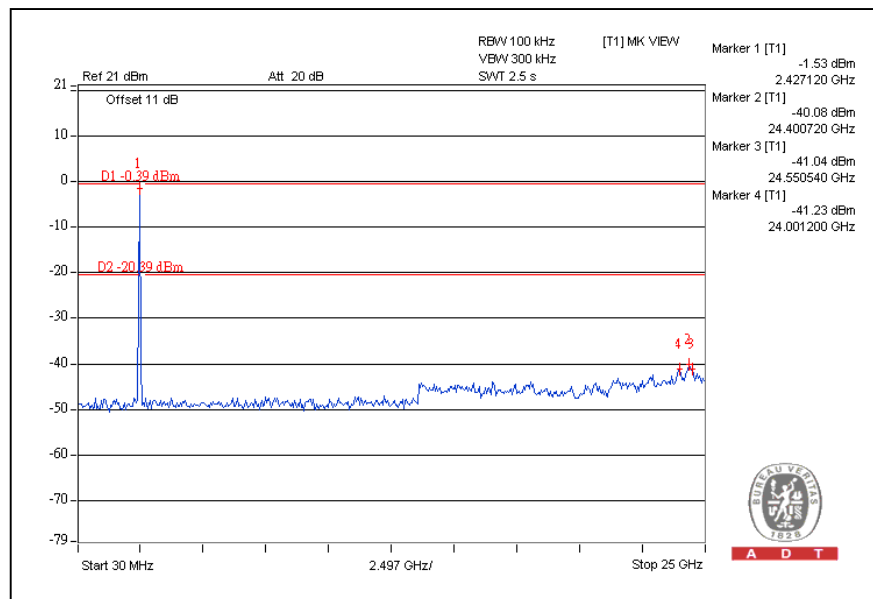
CH11



CH1

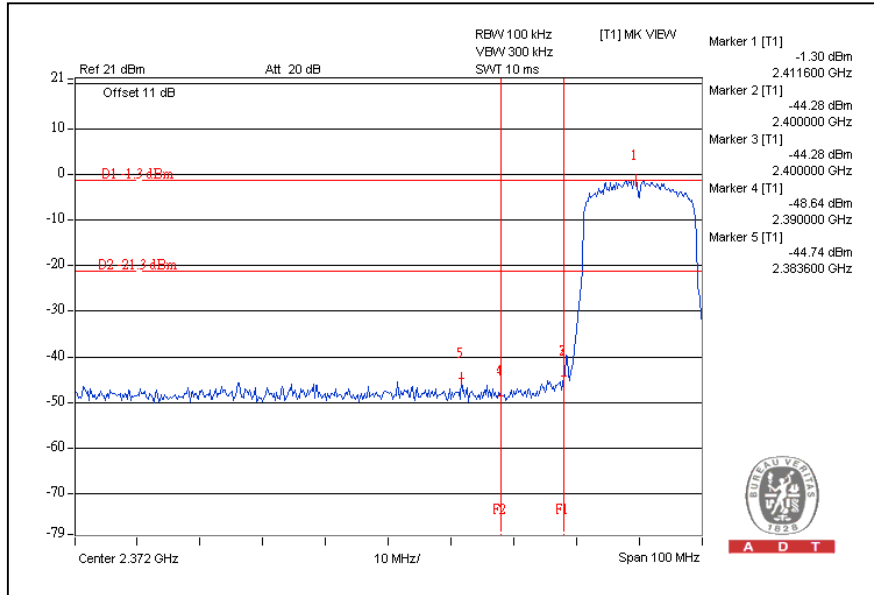


CH11

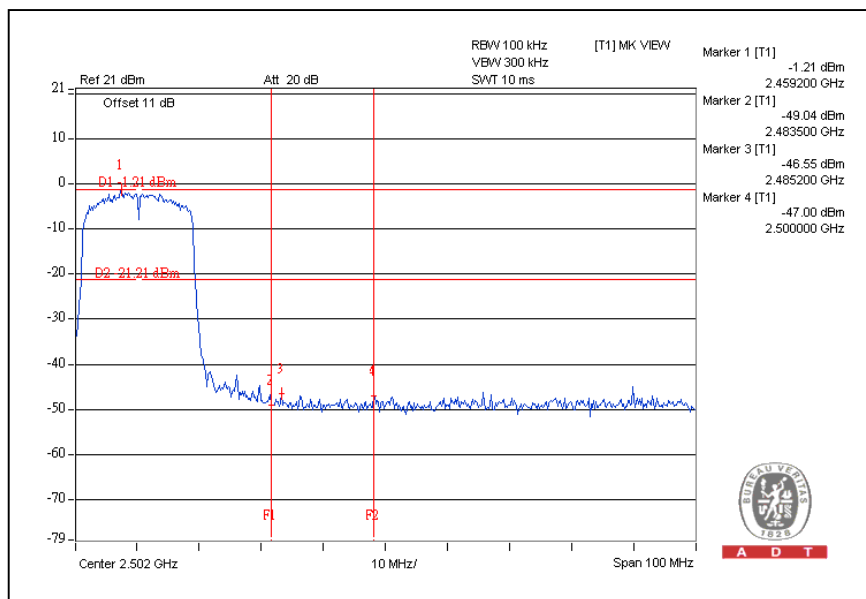


802.11n (20MHz) OFDM MODULATION:

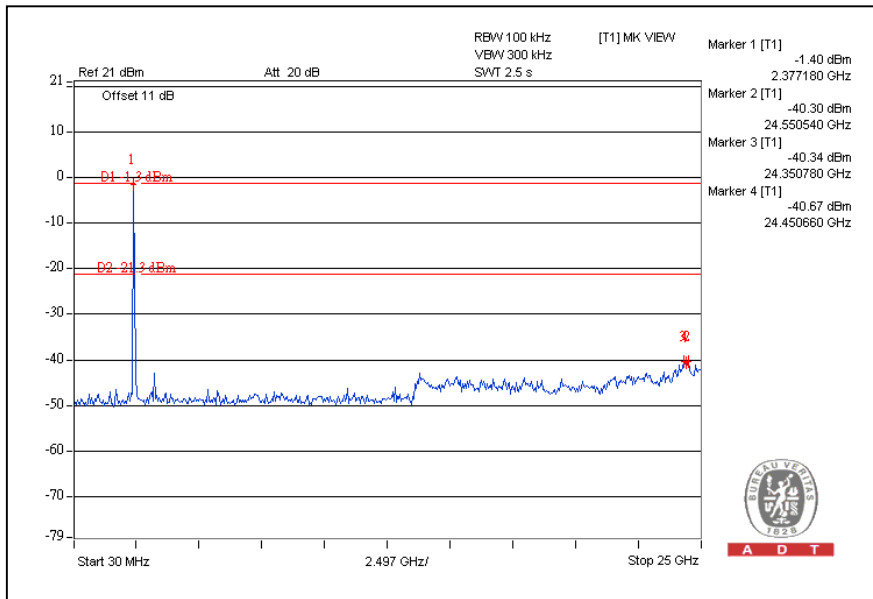
CH1



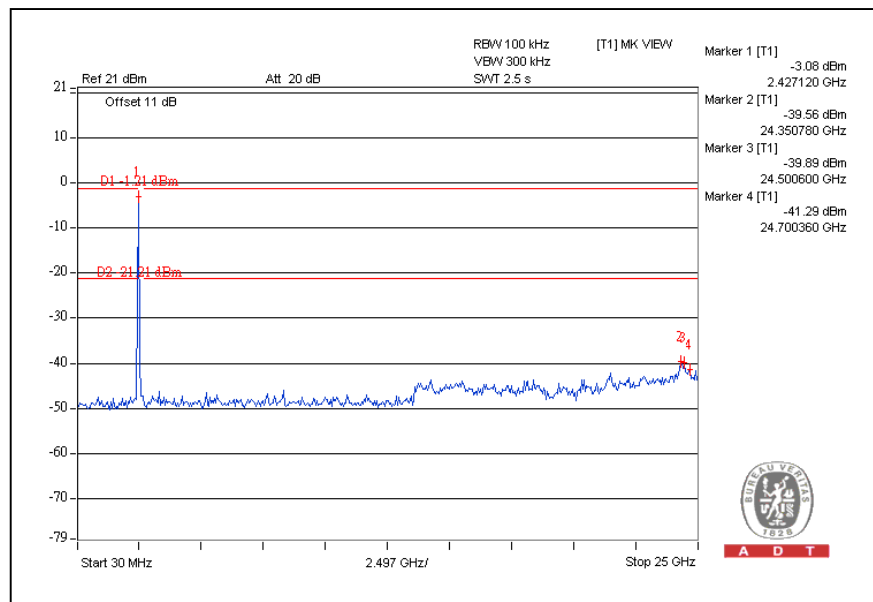
CH11



CH1

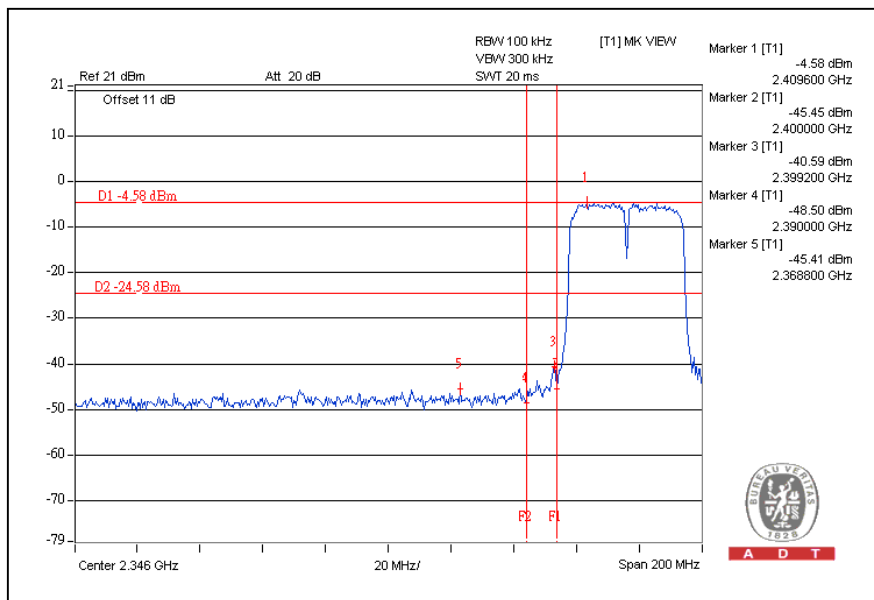


CH11

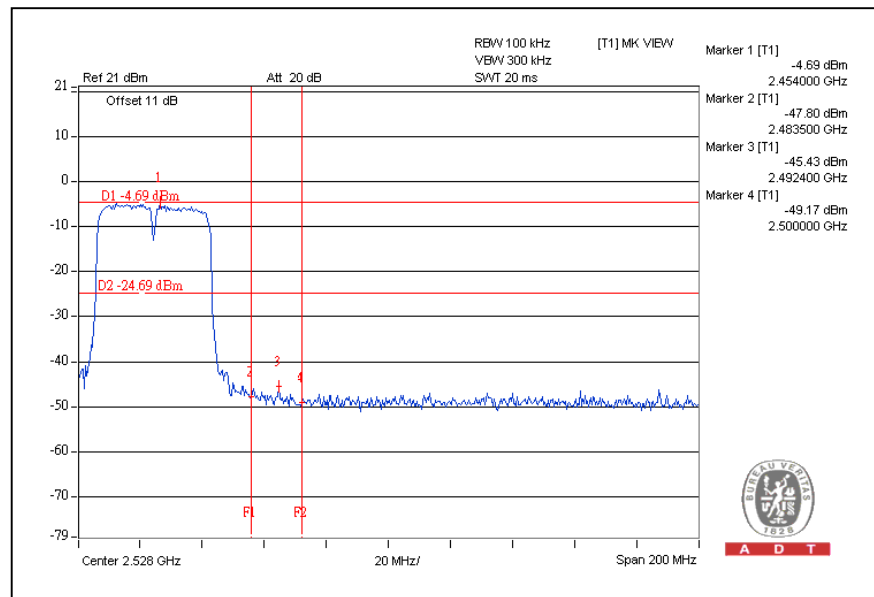


802.11n (40MHz) OFDM MODULATION:

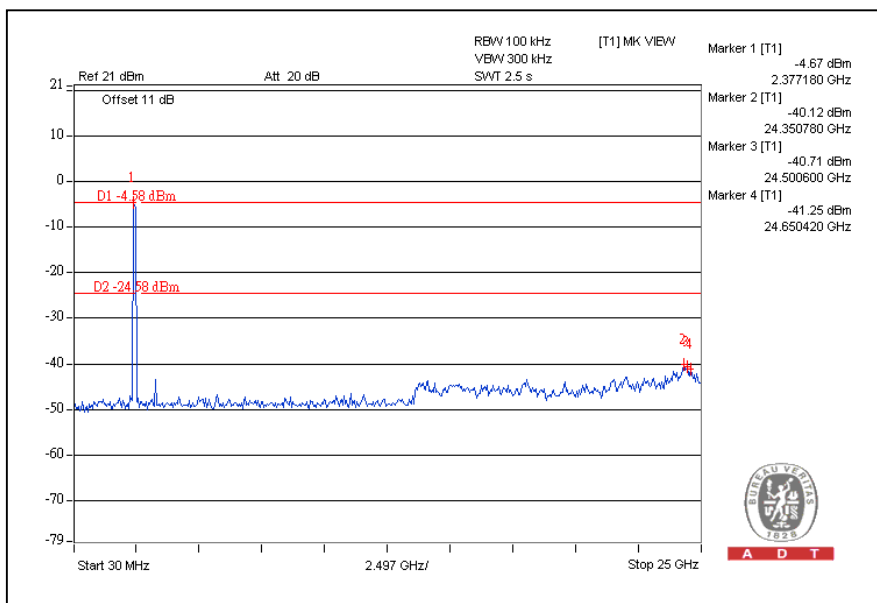
CH3



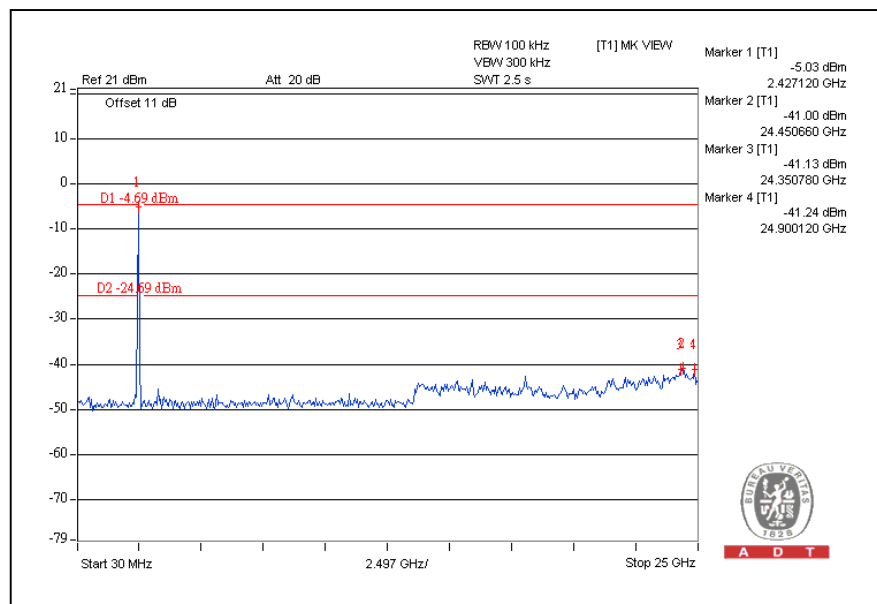
CH9



CH3



CH9



5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

5.1.2 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.

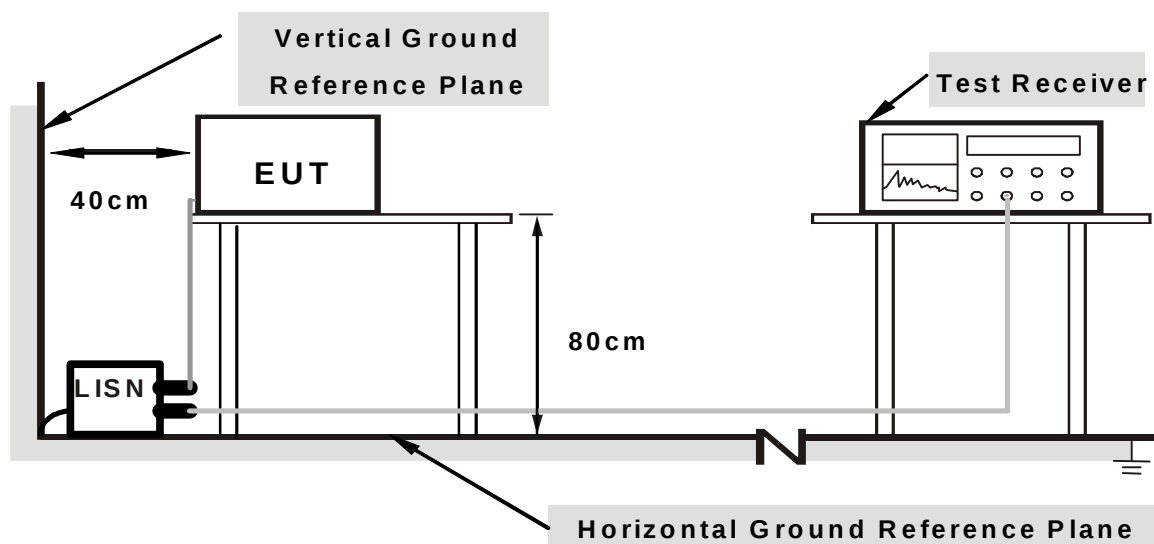
5.1.3 TEST PROCEDURES

- 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 provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 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.

5.1.6 EUT OPERATING CONDITIONS

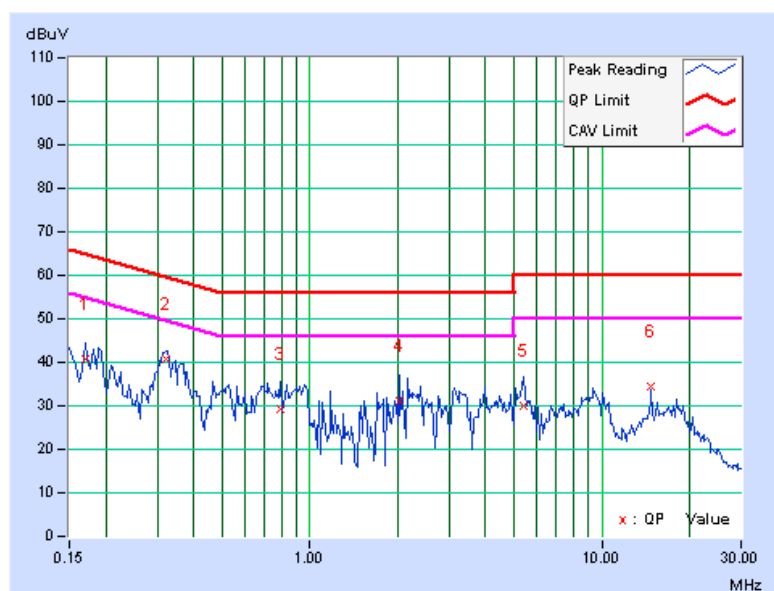
Same as the 4.1.6

5.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.11	40.56	27.55	40.67	27.66	64.98	54.98	-24.31	-27.32
2	0.322	0.13	40.71	31.83	40.84	31.96	59.66	49.66	-18.82	-17.70
3	0.795	0.14	29.12	19.44	29.26	19.58	56.00	46.00	-26.74	-26.42
4	2.020	0.16	30.93	22.32	31.09	22.48	56.00	46.00	-24.91	-23.52
5	5.387	0.26	29.83	22.25	30.09	22.51	60.00	50.00	-29.91	-27.49
6	14.683	0.56	33.97	29.67	34.53	30.23	60.00	50.00	-25.47	-19.77

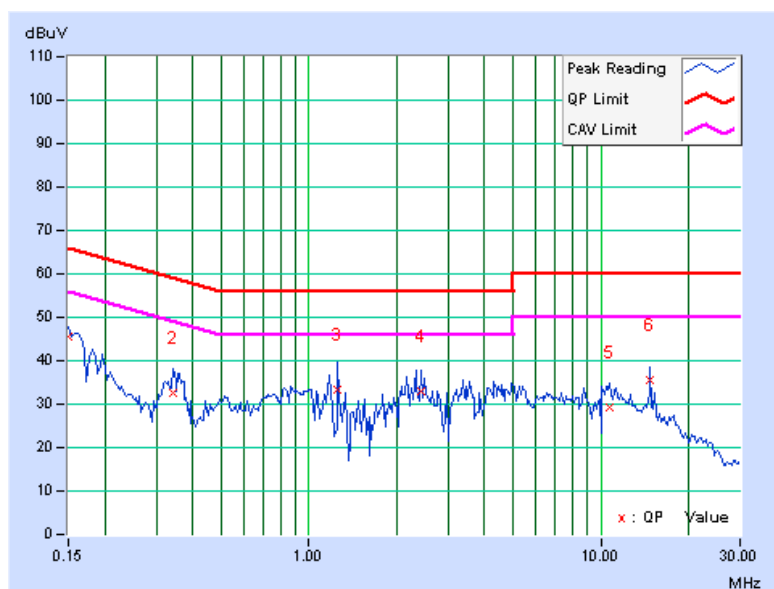
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.12	45.28	33.72	45.40	33.84	66.00	56.00	-20.60	-22.16
2	0.341	0.15	32.35	20.76	32.50	20.91	59.17	49.17	-26.67	-28.26
3	1.258	0.17	32.98	20.66	33.15	20.83	56.00	46.00	-22.85	-25.17
4	2.414	0.21	32.72	21.68	32.93	21.89	56.00	46.00	-23.07	-24.11
5	10.770	0.87	28.51	23.50	29.38	24.37	60.00	50.00	-30.62	-25.63
6	14.681	1.10	34.32	29.77	35.42	30.87	60.00	50.00	-24.58	-19.13

- 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.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.



A D T

5.2.2 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.

5.2.3 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 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.

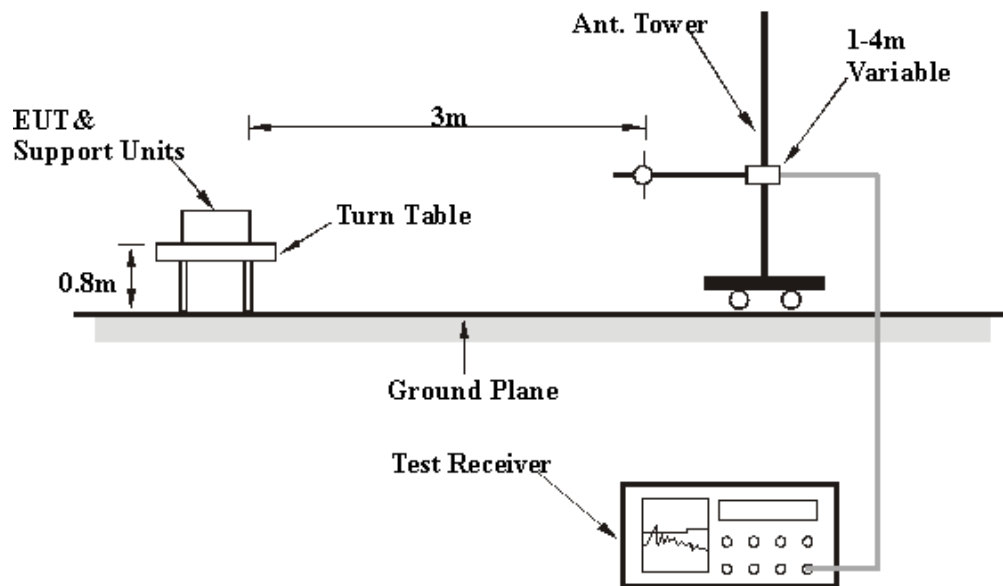
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for 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.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

5.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	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	125.14	26.5 QP	43.5	-17.0	3.99 H	36	13.37	13.17
2	209.02	32.1 QP	43.5	-11.4	3.68 H	271	20.45	11.69
3	250.03	34.0 QP	46.0	-12.0	3.14 H	298	20.13	13.89
4	375.12	36.0 QP	46.0	-10.0	2.84 H	115	18.06	17.98
5	500.00	38.9 QP	46.0	-7.1	2.20 H	344	17.63	21.26
6	750.00	37.2 QP	46.0	-8.8	1.46 H	237	10.85	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	36.4 QP	43.5	-7.1	1.00 V	219	23.21	13.16
2	149.24	36.1 QP	43.5	-7.4	1.00 V	83	21.65	14.43
3	209.18	36.6 QP	43.5	-6.9	1.01 V	96	24.88	11.69
4	249.95	37.4 QP	46.0	-8.6	1.00 V	70	23.52	13.89
5	375.26	39.9 QP	46.0	-6.2	1.00 V	34	21.86	17.99
6	499.69	42.2 QP	46.0	-3.8	1.01 V	103	20.95	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.

ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	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	*5745.00	115.1 PK			1.04 H	264	75.20	39.90
2	*5745.00	104.7 AV			1.04 H	264	64.80	39.90
3	11490.00	56.4 PK	74.0	-17.6	1.43 H	119	10.03	46.37
4	11490.00	43.8 AV	54.0	-10.2	1.43 H	119	-2.57	46.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	115.2 PK			1.00 V	279	75.30	39.90
2	*5745.00	105.3 AV			1.00 V	279	65.40	39.90
3	11490.00	55.0 PK	74.0	-19.0	1.31 V	72	8.63	46.37
4	11490.00	43.4 AV	54.0	-10.6	1.31 V	72	-2.97	46.37

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	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	*5785.00	115.3 PK			1.04 H	263	75.33	39.97
2	*5785.00	104.9 AV			1.04 H	263	64.93	39.97
3	11570.00	56.0 PK	74.0	-18.0	1.43 H	124	9.56	46.44
4	11570.00	43.7 AV	54.0	-10.3	1.43 H	124	-2.74	46.44
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	*5785.00	115.9 PK			1.00 V	278	75.93	39.97
2	*5785.00	105.8 AV			1.00 V	278	65.83	39.97
3	11570.00	55.2 PK	74.0	-18.8	1.30 V	83	8.76	46.44
4	11570.00	43.5 AV	54.0	-10.5	1.30 V	83	-2.94	46.44

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 limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	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	*5825.00	114.2 PK			1.04 H	261	74.18	40.02
2	*5825.00	104.1 AV			1.04 H	261	64.08	40.02
3	11650.00	55.5 PK	74.0	-18.5	1.44 H	92	9.01	46.49
4	11650.00	44.3 AV	54.0	-9.7	1.44 H	92	-2.19	46.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	116.3 PK			1.00 V	277	76.28	40.02
2	*5825.00	106.2 AV			1.00 V	277	66.18	40.02
3	11650.00	55.4 PK	74.0	-18.6	1.33 V	96	8.91	46.49
4	11650.00	43.7 AV	54.0	-10.3	1.33 V	96	-2.79	46.49

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	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	*5745.00	116.7 PK			1.06 H	276	76.80	39.90
2	*5745.00	105.8 AV			1.06 H	276	65.90	39.90
3	11490.00	57.4 PK	74.0	-16.6	1.43 H	100	11.03	46.37
4	11490.00	44.2 AV	54.0	-9.8	1.43 H	100	-2.17	46.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	113.7 PK			1.02 V	252	73.80	39.90
2	*5745.00	103.6 AV			1.02 V	252	63.70	39.90
3	11490.00	54.9 PK	74.0	-19.1	1.27 V	156	8.53	46.37
4	11490.00	43.2 AV	54.0	-10.8	1.27 V	156	-3.17	46.37

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.247.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	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	*5785.00	116.9 PK			1.05 H	279	76.93	39.97
2	*5785.00	105.9 AV			1.05 H	279	65.93	39.97
3	11570.00	57.3 PK	74.0	-16.7	1.43 H	94	10.86	46.44
4	11570.00	44.1 AV	54.0	-9.9	1.43 H	94	-2.34	46.44
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	*5785.00	113.2 PK			1.05 V	250	73.23	39.97
2	*5785.00	103.2 AV			1.05 V	250	63.23	39.97
3	11570.00	54.8 PK	74.0	-19.2	1.26 V	159	8.36	46.44
4	11570.00	43.0 AV	54.0	-11.0	1.26 V	159	-3.44	46.44

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 limit value is defined as per 15.247.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	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	*5825.00	116.2 PK			1.03 H	281	76.18	40.02
2	*5825.00	104.3 AV			1.03 H	281	64.28	40.02
3	11650.00	57.5 PK	74.0	-16.5	1.44 H	95	11.01	46.49
4	11650.00	45.2 AV	54.0	-8.8	1.44 H	95	-1.29	46.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	113.8 PK			1.03 V	249	73.78	40.02
2	*5825.00	103.5 AV			1.03 V	249	63.48	40.02
3	11650.00	54.6 PK	74.0	-19.4	1.28 V	155	8.11	46.49
4	11650.00	43.0 AV	54.0	-11.0	1.28 V	155	-3.49	46.49

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	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	*5755.00	113.2 PK			1.03 H	276	73.28	39.92
2	*5755.00	100.8 AV			1.03 H	276	60.88	39.92
3	11510.00	57.0 PK	74.0	-17.0	1.49 H	122	10.61	46.39
4	11510.00	45.6 AV	54.0	-8.4	1.49 H	122	-0.79	46.39
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	*5755.00	109.7 PK			1.07 V	252	69.78	39.92
2	*5755.00	99.2 AV			1.07 V	252	59.28	39.92
3	11510.00	55.1 PK	74.0	-18.9	1.56 V	123	8.71	46.39
4	11510.00	43.5 AV	54.0	-10.5	1.56 V	123	-2.89	46.39

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. The limit value is defined as per 15.247.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	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	*5795.00	113.1 PK			1.08 H	282	73.12	39.98
2	*5795.00	100.3 AV			1.08 H	282	60.32	39.98
3	11590.00	57.2 PK	74.0	-16.8	1.48 H	124	10.75	46.45
4	11590.00	45.8 AV	54.0	-8.2	1.48 H	124	-0.65	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	*5795.00	110.0 PK			1.04 V	251	70.02	39.98
2	*5795.00	99.9 AV			1.04 V	251	59.92	39.98
3	11590.00	55.2 PK	74.0	-18.8	1.55 V	125	8.75	46.45
4	11590.00	43.9 AV	54.0	-10.1	1.55 V	125	-2.55	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.
6. The limit value is defined as per 15.247.

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 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.

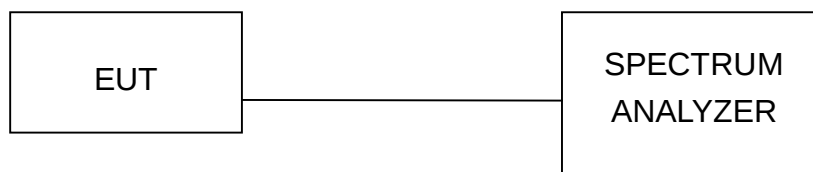
5.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

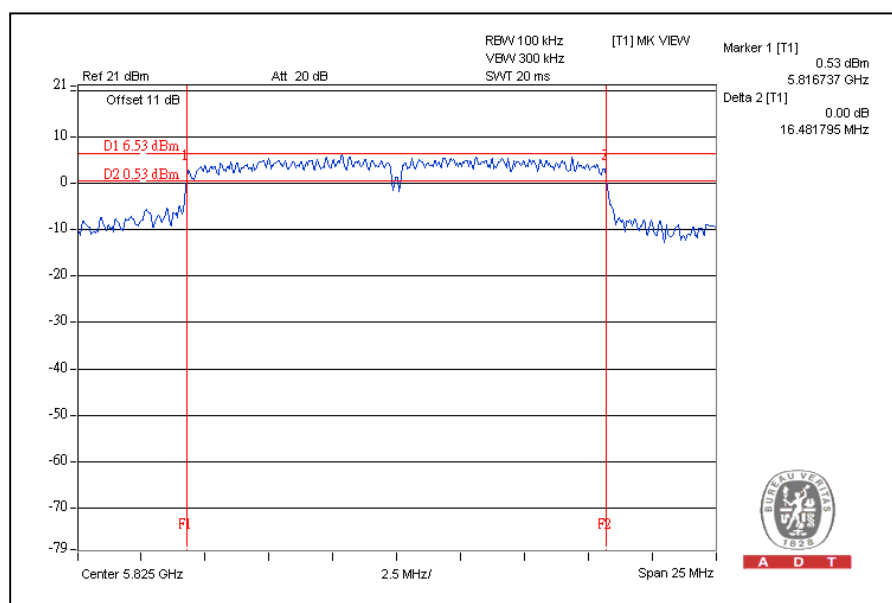
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.47	0.5	PASS
157	5785	16.46	0.5	PASS
165	5825	16.48	0.5	PASS

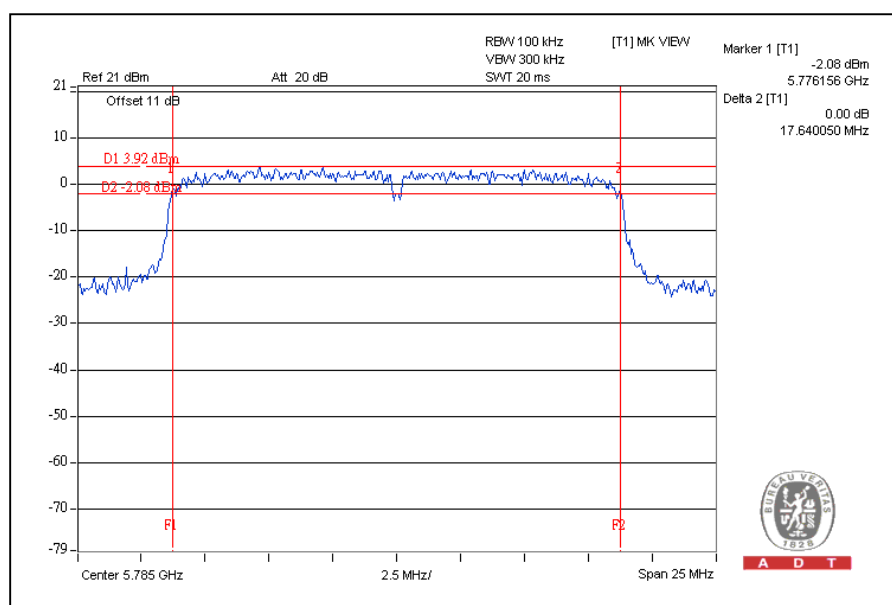
CH165



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.59	0.5	PASS
157	5785	17.64	0.5	PASS
165	5825	17.57	0.5	PASS

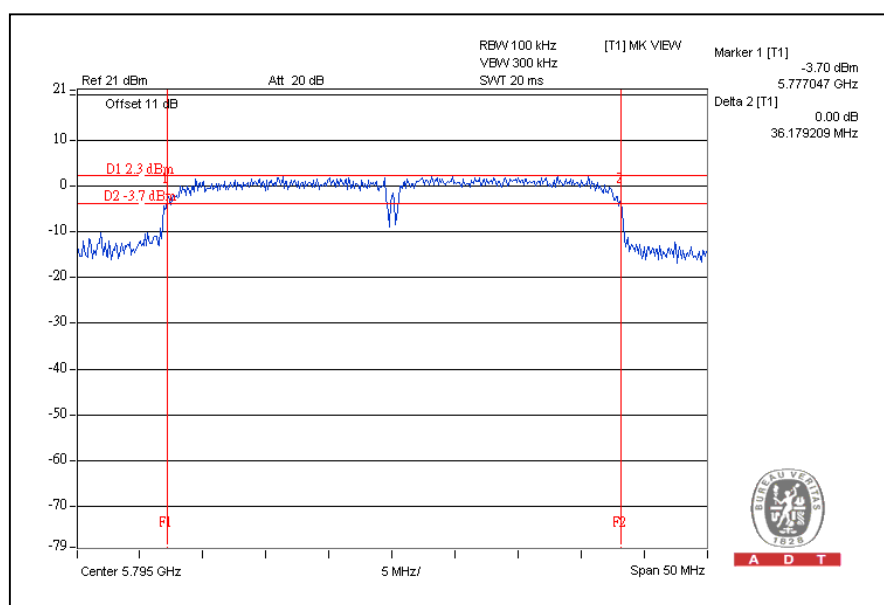
CH157



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.13	0.5	PASS
159	5795	36.17	0.5	PASS

CH159





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5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

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

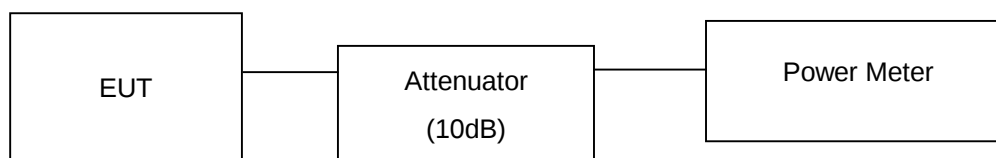
5.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	23.4	22.5	396.6	26.0	28.9	PASS
157	5785	23.1	22.6	386.1	25.9	28.9	PASS
165	5825	23.0	22.6	381.5	25.8	28.9	PASS

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.

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	23.2	22.8	399.5	26.0	30	PASS
157	5785	23.1	23.0	403.7	26.1	30	PASS
165	5825	23.1	23.0	403.7	26.1	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
151	5755	23.4	23.0	418.3	26.2	30	PASS
159	5795	23.3	23.0	413.3	26.2	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 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.

5.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

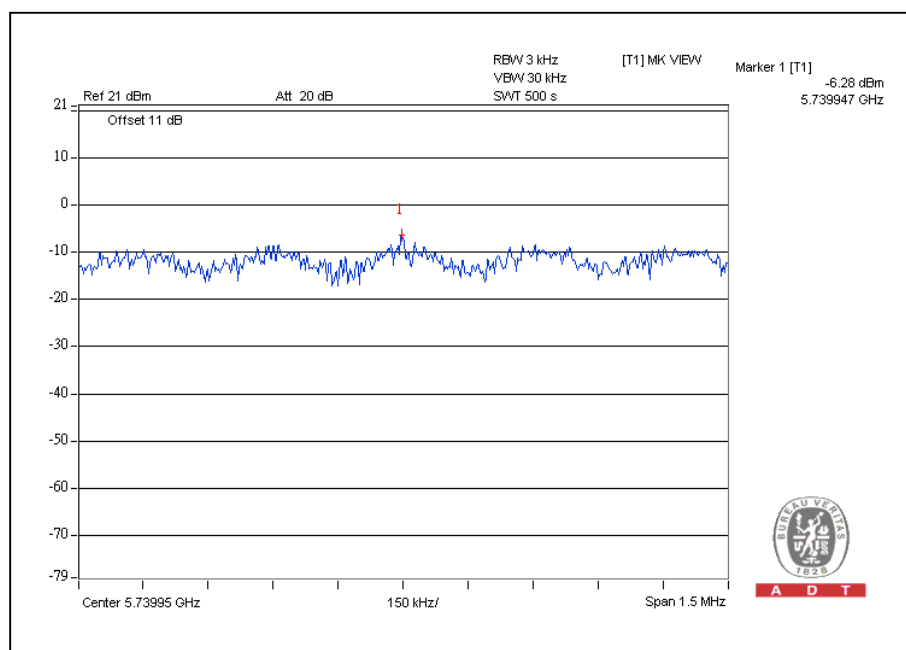
Same as Item 4.3.6

5.5.7 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)			
149	5745	-8.9	-6.3	-4.4	8	PASS
157	5785	-8.0	-7.1	-4.5	8	PASS
165	5825	-8.4	-6.8	-4.5	8	PASS

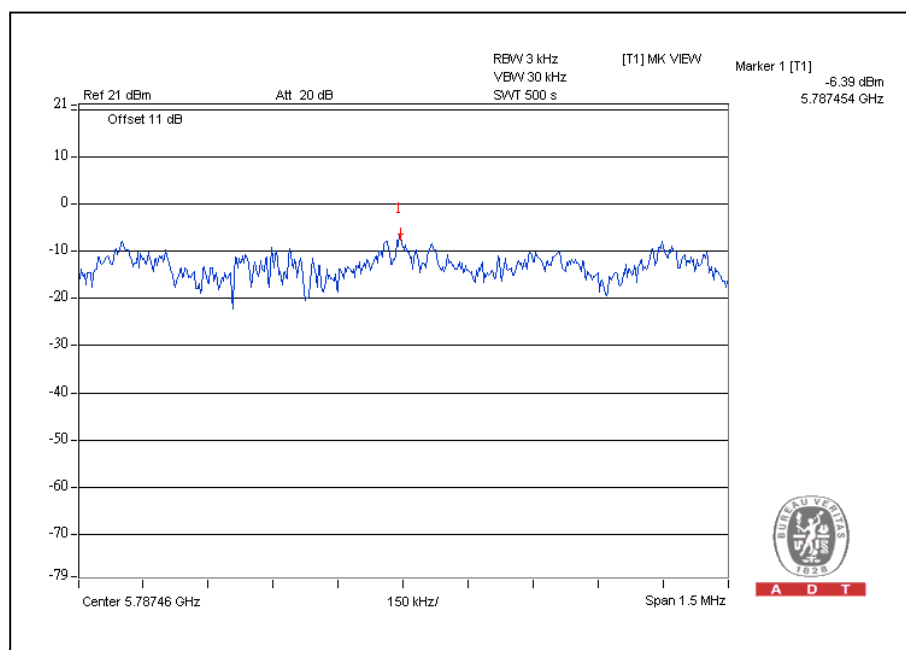
For Chain(1): CH149



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)			
149	5745	-8.6	-6.5	-4.4	8	PASS
157	5785	-9.0	-6.4	-4.5	8	PASS
165	5825	-7.9	-7.2	-4.5	8	PASS

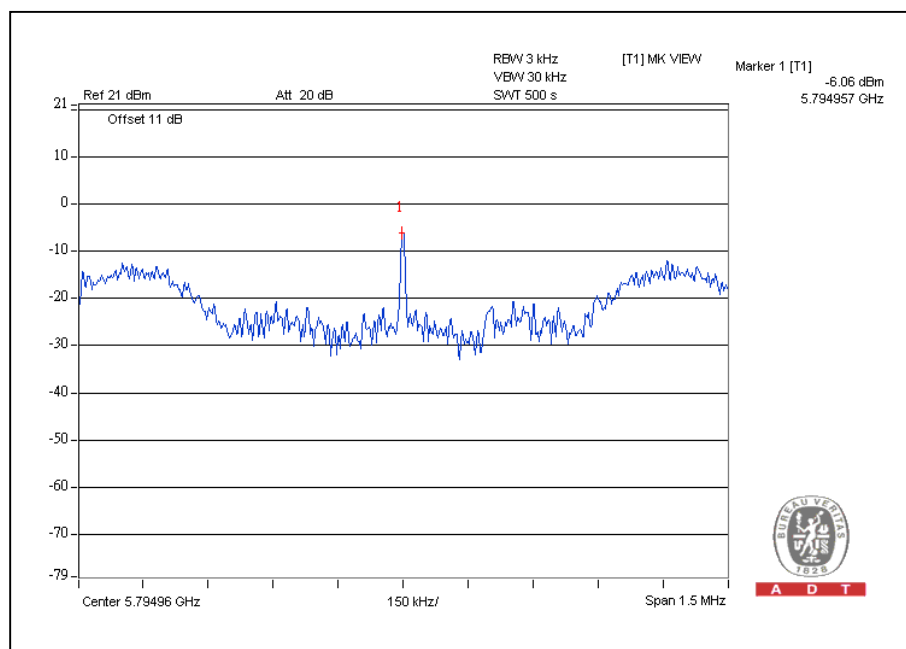
For Chain(1): CH157



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)			
151	5755	-6.6	-6.4	-3.5	8	PASS
159	5795	-6.4	-6.1	-3.2	8	PASS

For Chain(1): CH159





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5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 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.

5.6.3 TEST PROCEDURE

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

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

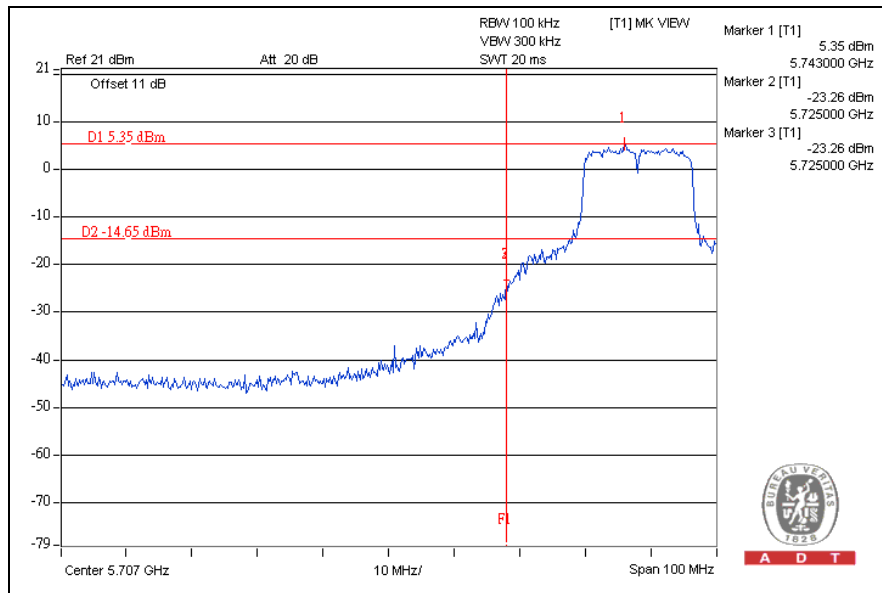
Same as Item 4.3.6

5.6.6 TEST RESULTS

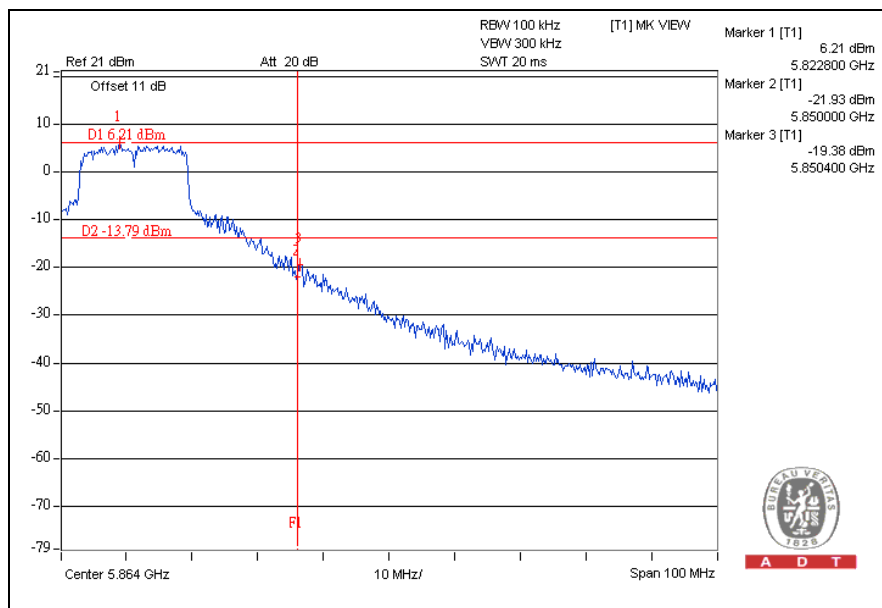
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

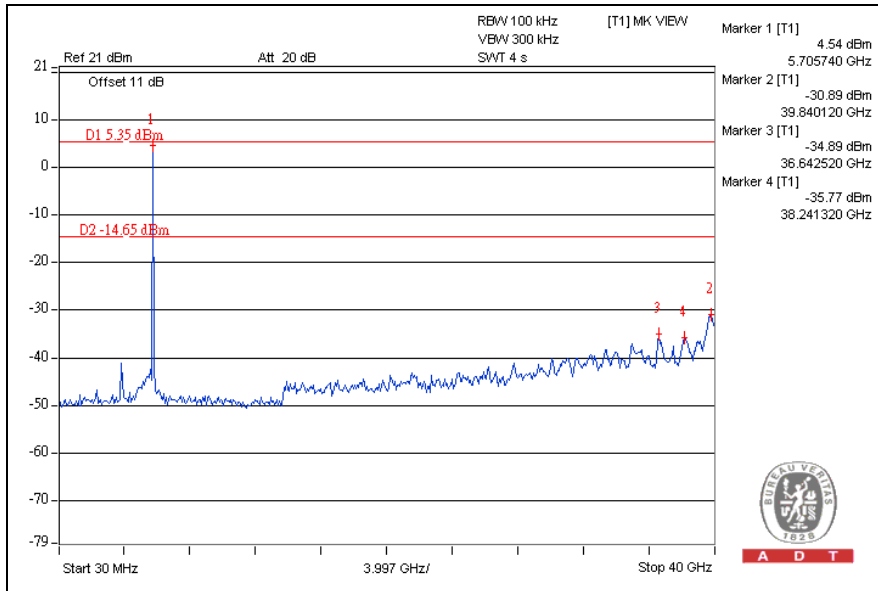
CH149



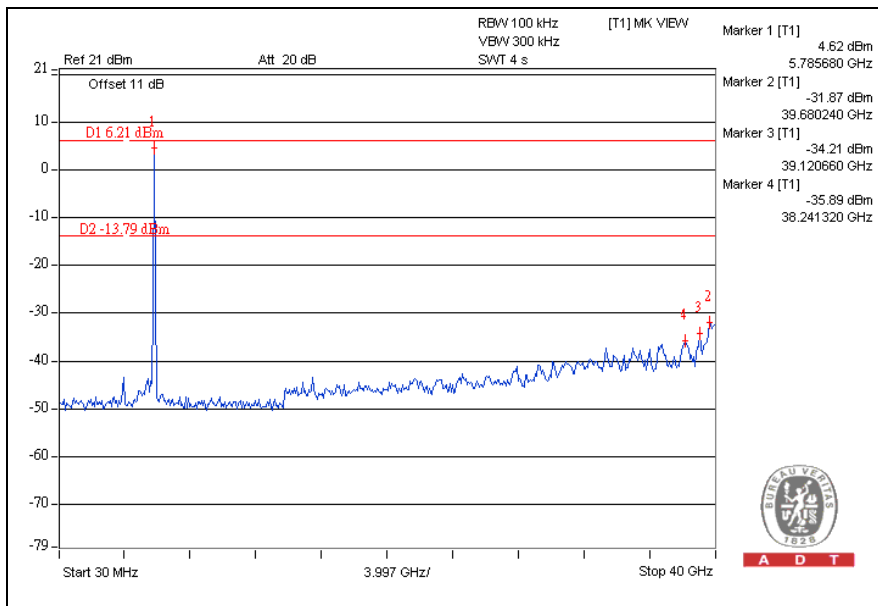
CH165



CH149

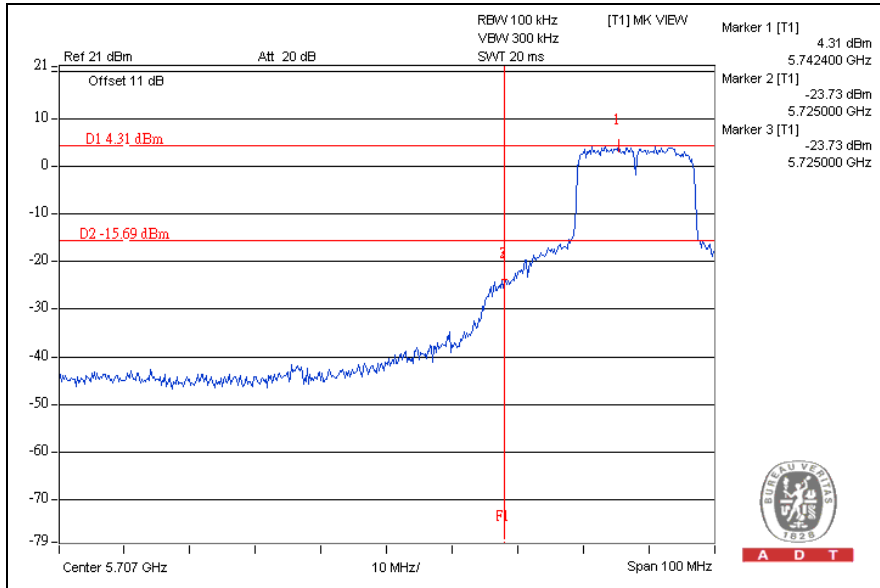


CH165

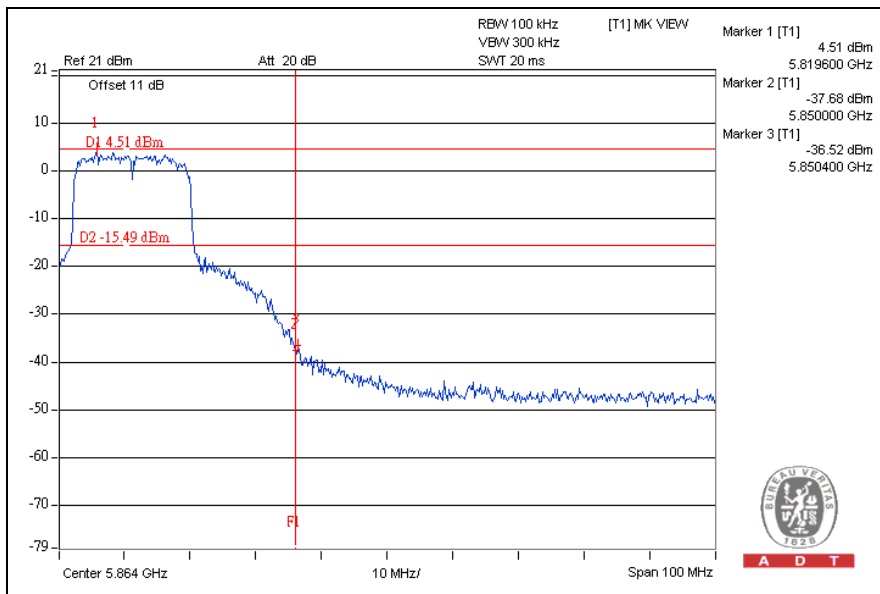


802.11n (20MHz) OFDM MODULATION:

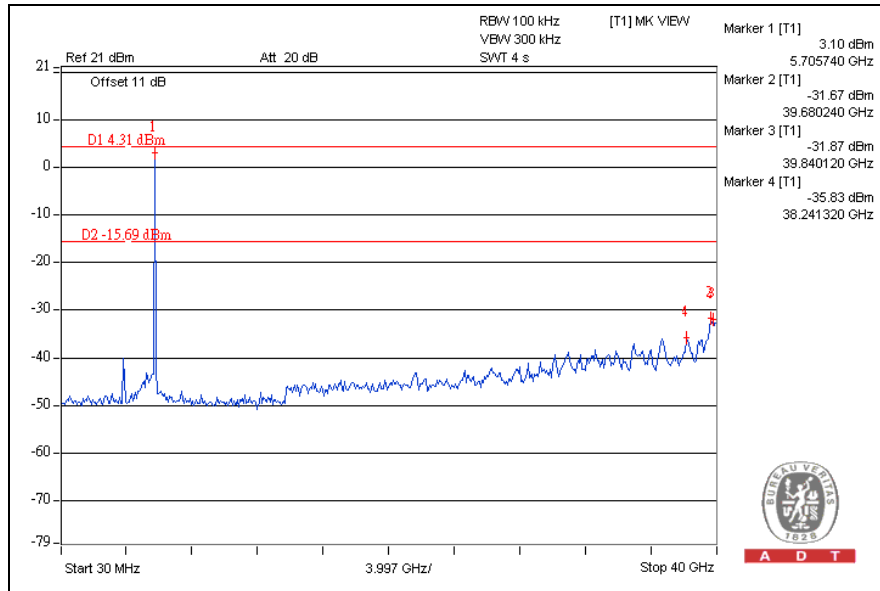
CH149



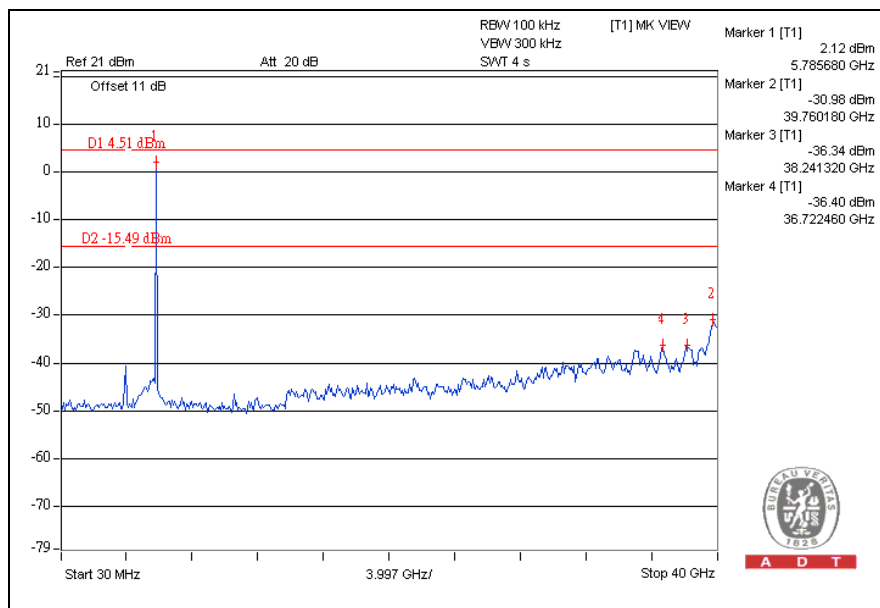
CH165



CH149

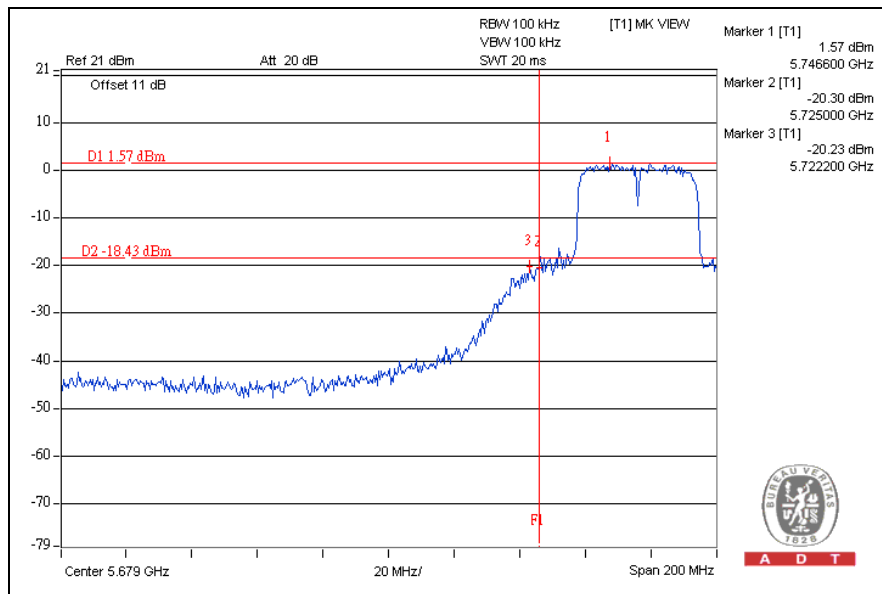


CH165

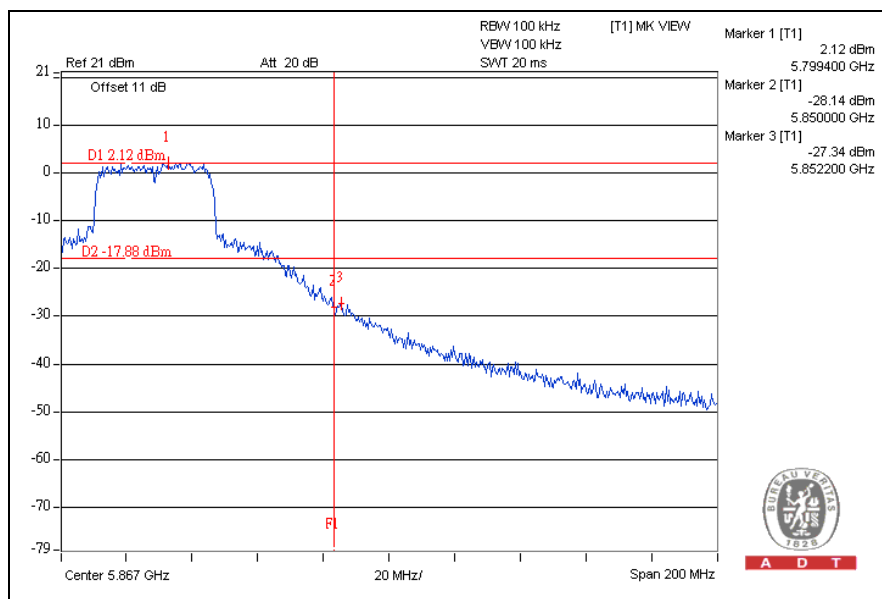


802.11n (40MHz) OFDM MODULATION:

CH151



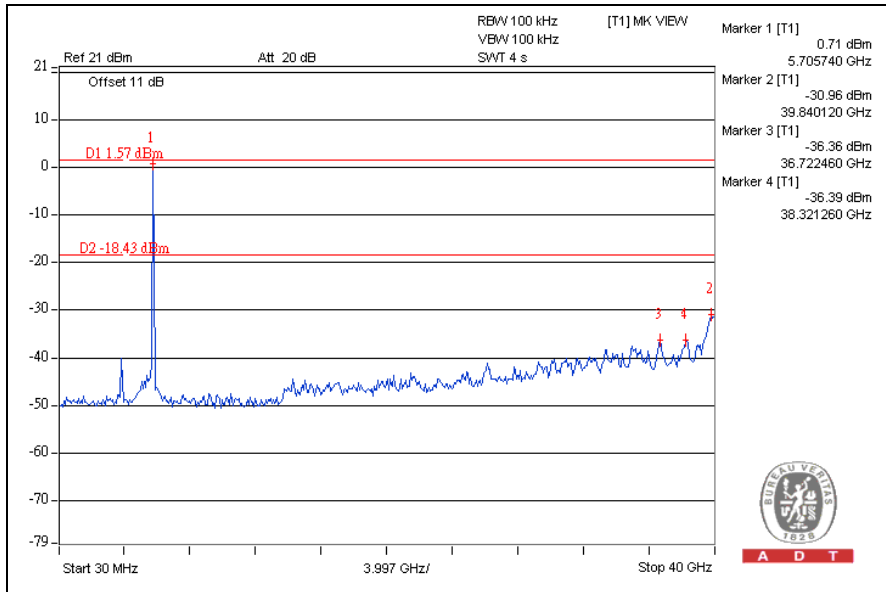
CH159





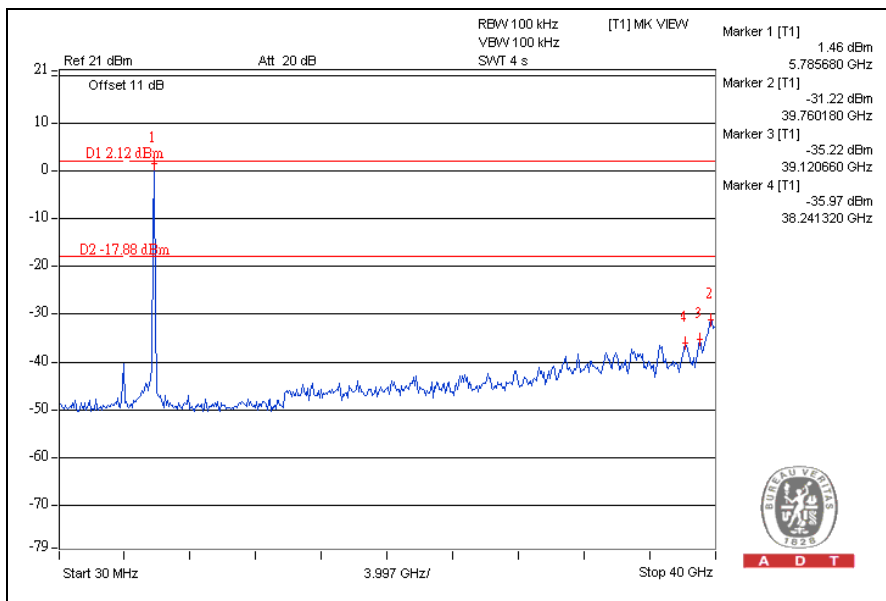
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CH151



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CH159



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6. INFORMATION ON THE TESTING LABORATORIES

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

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

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

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

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

Web Site: www.adt.com.tw

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



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

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

--- END ---