FCC TEST REPORT (15.247)

REPORT NO.: RF981007H02

MODEL NO.: WiFi Mon 150

RECEIVED: Oct. 07, 2009

TESTED: Oct. 19 to Nov. 03, 2009

ISSUED: Nov. 17, 2009

APPLICANT: Echostar Technologies LLC

ADDRESS: 90 Inverness Circle East Englewood, CO 80112 United States.

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

ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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1. CERTIFICATION

PRODUCT:	WiFi Monitor
BRAND NAME:	Sling Media
MODEL NO.:	WiFi Mon 150
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Oct. 19 to Nov. 03, 2009
APPLICANT:	Echostar Technologies LLC
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment (Model: WiFi Mon 150) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** Nov. 17, 2009
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** Nov. 17, 2009
(Hank Chung, Deputy Manager)

APPROVED BY : _____ , **DATE:** Nov. 17, 2009
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 802.11b & g, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –14.51dB at 0.185MHz
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 –3.1dB at 2388.8MHz
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 U.FL not a standard connector.

For 802.11a, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –15.92dB at 0.185MHz
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 –3.1dB at 619.5MHz
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 U.FL 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	WiFi Monitor
MODEL NO.	WiFi Mon 150
FCC ID	DKNWIFIMON150
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11a/g: 54/48/36/24/18/12/9/6Mbps， 802.11b:11/5.5/2/1Mbps。 802.11n (20MHz): 130 / 117 / 104 / 78 / 52 / 39 / 26/ 13 / 65 / 58.5 / 52 / 39 / 26 / 19.5 /13 / 6.5Mbps 802.11n (40MHz): 270 / 243 / 216 / 162 / 108 /81 / 54 / 27 /135 / 121.5 / 108 / 81 /54 / 40.5 / 27 / 13.5Mbps
FREQUENCY RANGE	**For 15.407** 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b & 802.11g: 2412 ~ 2462MHz 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: 38.9mW 802.11n (20MHz): 34.3mW 802.11n (40MHz): 47.7mW **For 15.247(2.4GHz)** 802.11b: 117.5mW 802.11g: 208.9mW 802.11n (20MHz): 432.6mW 802.11n (40MHz): 274.4mW **For 15.247(5GHz)** 802.11a: 158.5mW 802.11n (20MHz): 324.7mW 802.11n (40MHz): 313.6mW
ANTENNA TYPE	Please see note 1
ANTENNA CONNECTOR	Please see note 1
DATA CABLE	NA
I/O PORTS	Earphone port x1 RJ-45 port x1
ASSOCIATED DEVICES	Remote control x1 Power adapter x1

NOTE:

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

Chain	Antenna Gain		Antenna Type	Connector	Cable Length
	For 2.4GHz Gain (dBi) (Include cable lose)	For 5GHz Gain (dBi) (Include cable lose)			
Chain (0)	3	6	Internal Di-pole	U.FL	45cm
Chain (1)	3	6	Internal Di-pole	U.FL	22cm

2. The EUT must be supplied with a power adapter.

Brand	Model No.	Specification
Bestec	BPA-3601WW-01A	AC I/P: 100-240V, 1.5A, 50/60Hz AC input cable: 1.8m unshielded DC O/P: 12V / 3A DC output cable: 1.8m unshielded, with one core

3. The EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	Audio function via speaker + Wireless
Mode B	Audio function via earphone+ Wireless

From the above modes, the worse case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

4. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmitters and two completed receivers.
5. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmitter antennas and two receiver antennas, as there are 2 Internal Di-pole antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11a/b/g legacy mode is limited to single transmitter only.
6. The EUT complies with 802.11n standards and backwards compatible with 802. 11a, 802.11b, 802.11g products.
7. The above EUT information was declared by 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
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	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 ≥ 1G	APCM	
-	√	√	√	√	-

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

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

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11 a	√	
B	802.11 b	√	
C	802.11 g	√	
D	802.11n(20MHz)	√	√
E	802.11n(40MHz)	√	√

Note:
1. The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
For 2.4 GHz 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5	D

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)	TX COMBINATION
For 2.4 GHz 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5	D

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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
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)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	A
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)	TX COMBINATION
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 11	OFDM	BPSK	6	C
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	D
For 2.4 GHz 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 165	OFDM	BPSK	6	A
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

※ After verification, conducted out band emission as show worst chain in report by investigations.

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)	TX COMBINATION
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	B
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	C
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)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	A
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

※ After verification, bandwidth as show worst chain in report by investigations.

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	28deg. C, 61%RH, 1012 hPa	120Vac, 60Hz	Rex Huang
RE<1G	29deg. C, 67%RH, 1012 hPa	120Vac, 60Hz	Kent Liu
PLC	26deg. C,57%RH, 1012 hPa	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH, 1012 hPa	120Vac, 60Hz	Eric Lee

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a WiFi Monitor. 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

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It 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

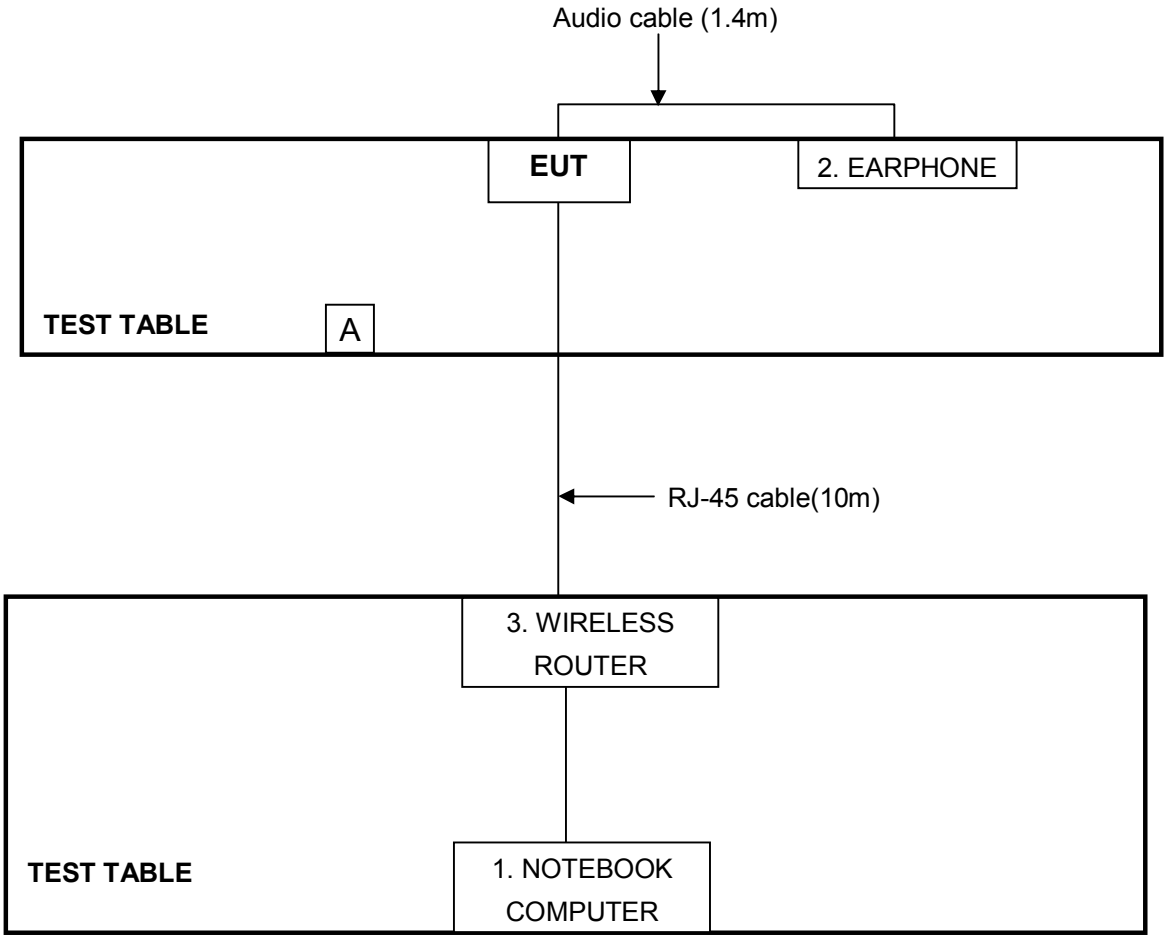
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP18L	12252644560	FCC DoC
2	EARPHONE	NA	NA	NA	NA
3	WIRELESS ROUTER	LINKSYS	WRT610N	CTG01J307252	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	RJ-45 cable unshielded, 10m
2	1.4 m wrapped shielded wire, terminal by drain wire, with 3.5 mm phone plug, w/o core.
3	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



Note : The item A is remote control

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 05, 2009	Mar. 04, 2010
Line-Impedance Stabilization Network (for EUT)	KNW-407	8-1395-12	May 04, 2009	May 03, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 08, 2009	June 07, 2010
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec 15, 2008	Dec 14, 2009
50 ohms Terminator	50	3	Nov. 05, 2009	Nov. 04, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

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

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

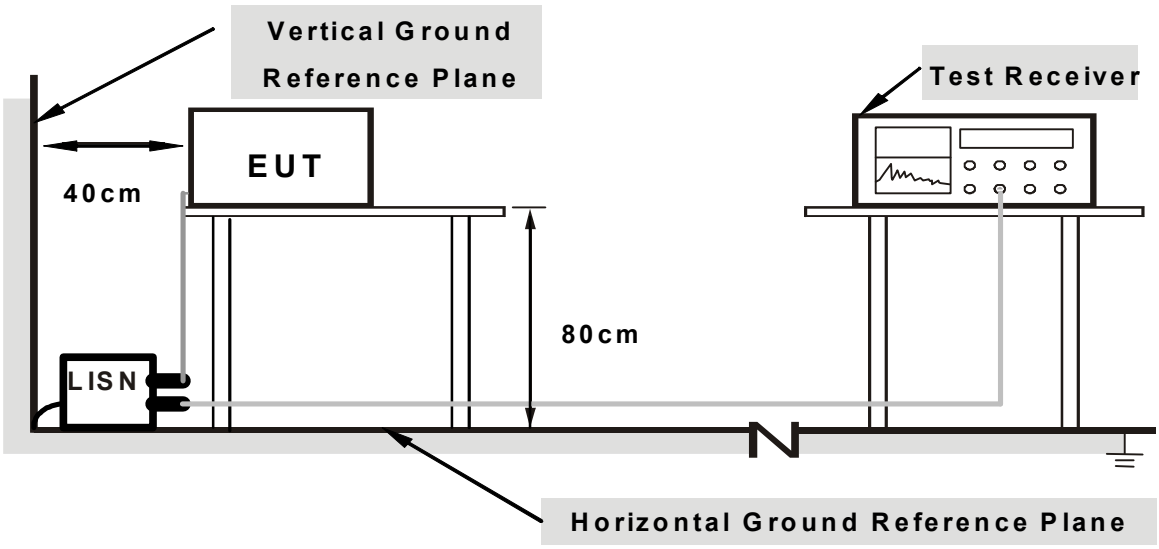
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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 the testing table.
2. Prepared the computer systems (support units 1 & 3) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program" vlc.exe" to enable EUT under transmission/receiving condition continuously via UTP cable.
4. Support unit 1(Notebook Computer) sends audio messages to Support unit 2 (Earphone) via EUT.

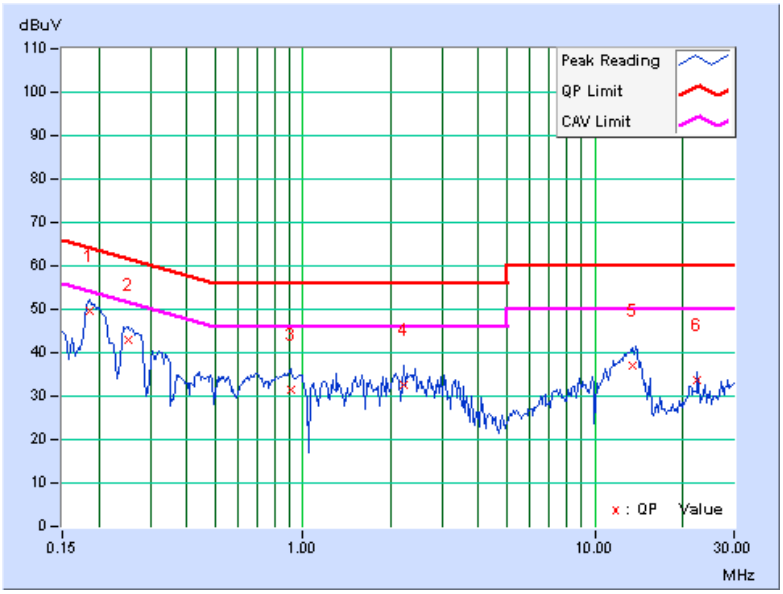
4.1.7 TEST RESULTS

802.11n (20MHz) OFDM MODULATION:

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.185**	**0.20**	**49.54**	**-**	**49.74**	**-**	**64.25**	**54.25**	**-14.51**	**-**
2	0.252	0.15	42.87	-	43.02	-	61.71	51.71	-18.69	-
3	0.908	0.06	31.30	-	31.36	-	56.00	46.00	-24.64	-
4	2.219	0.08	32.36	-	32.44	-	56.00	46.00	-23.56	-
5	13.457	0.32	36.79	-	37.11	-	60.00	50.00	-22.89	-
6	22.524	0.53	33.20	-	33.73	-	60.00	50.00	-26.27	-

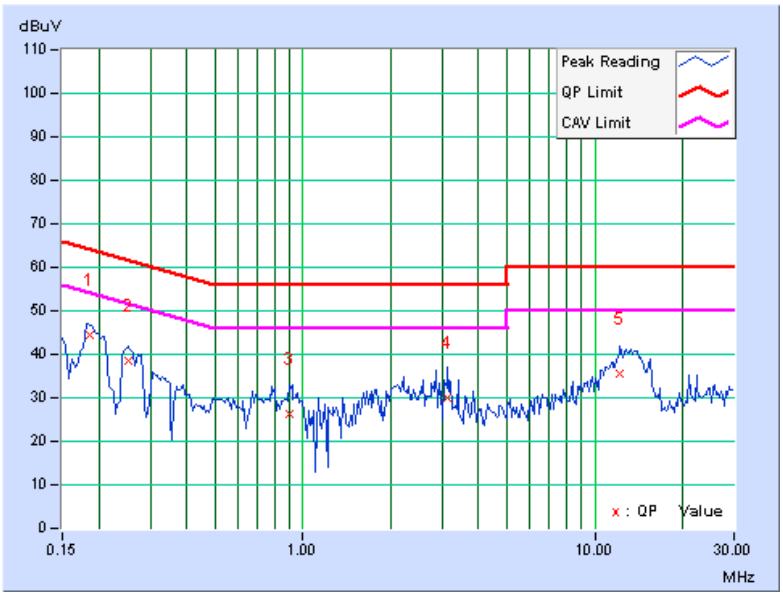
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.186	0.21	44.31	-	44.52	-	64.23	54.23	-19.71	-
2	0.252	0.16	38.30	-	38.46	-	61.71	51.71	-23.25	-
3	0.896	0.08	26.28	-	26.36	-	56.00	46.00	-29.64	-
4	3.129	0.13	29.95	-	30.08	-	56.00	46.00	-25.92	-
5	12.211	0.32	35.18	-	35.50	-	60.00	50.00	-24.50	-

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.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
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, HP 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 area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. The antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

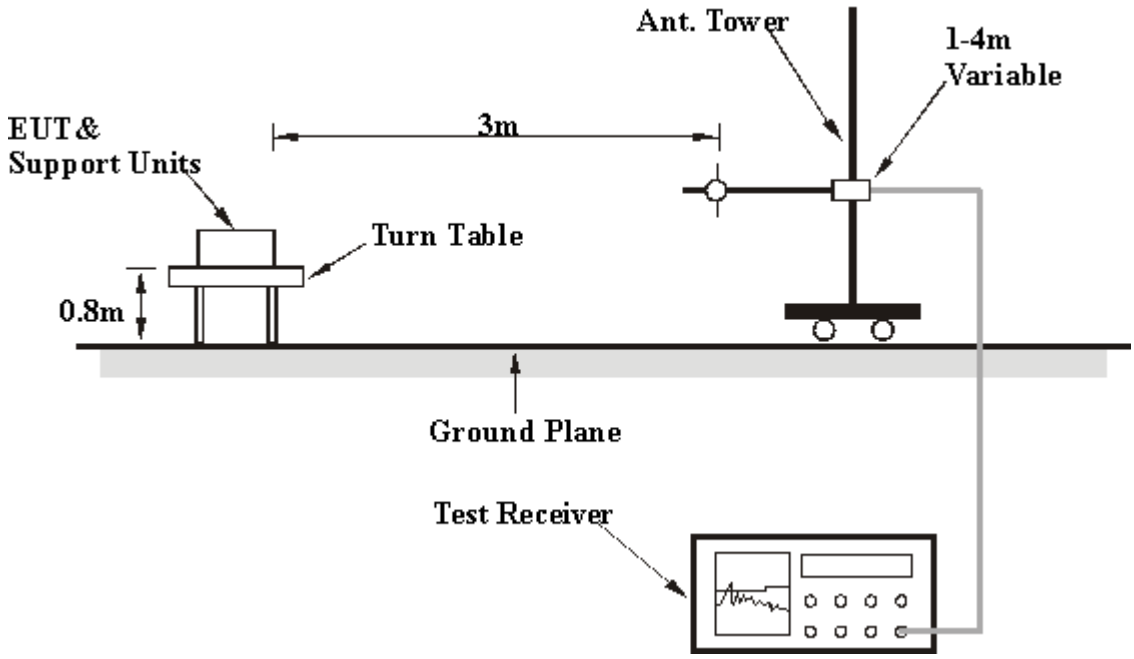
NOTE:

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

4.2.4 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 the testing table.
2. Prepared the computer systems (support unit 1) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program" Telnet 192.168.1.120 & Broadcom Command" to enable EUT under transmission condition continuously at specific channel frequency.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA：DRAFT 802.11n (20MHz) 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	29deg. C, 67%RH 1012 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	166.67	31.6 QP	43.50	-11.9	1.56 H	345	16.91	14.66
2	180.00	32.8 QP	43.50	-10.7	1.34 H	85	19.76	13.08
3	300.00	42.8 QP	46.00	-3.2	1.18 H	203	26.77	16.01
4	333.34	41.4 QP	46.00	-4.6	1.18 H	330	24.53	16.85
5	460.80	34.9 QP	46.00	-11.1	1.46 H	192	14.72	20.20
6	468.00	34.9 QP	46.00	-11.2	1.37 H	183	14.45	20.40
7	619.20	42.2 QP	46.00	-3.8	1.36 H	194	18.15	24.06
8	933.34	40.7 QP	46.00	-5.3	1.60 H	20	12.21	28.46
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	166.67	28.8 QP	43.50	-14.7	1.00 V	245	14.15	14.66
2	180.00	33.7 QP	43.50	-9.8	1.00 V	217	20.63	13.08
3	300.00	41.1 QP	46.00	-4.9	1.51 V	169	25.08	16.01
4	333.33	40.3 QP	46.00	-5.7	1.45 V	335	23.44	16.85
5	460.80	41.4 QP	46.00	-4.6	1.00 V	243	21.24	20.20
6	468.00	41.8 QP	46.00	-4.2	1.00 V	237	21.39	20.40
7	619.20	42.7 QP	46.00	-3.3	1.00 V	310	18.68	24.06
8	933.34	41.0 QP	46.00	-5.0	1.00 V	150	12.51	28.46

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.13	54.0 PK	74.00	-20.0	1.07 H	38	23.76	30.27
2	2386.13	42.8 AV	54.00	-11.2	1.07 H	38	12.56	30.27
3	*2412.00	105.0 PK			1.21 H	73	74.60	30.36
4	*2412.00	100.3 AV			1.21 H	73	69.95	30.36
5	4824.00	48.5 PK	74.00	-25.5	1.00 H	225	11.69	36.79
6	4824.00	45.6 AV	54.00	-8.4	1.00 H	225	8.82	36.79
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	56.4 PK	74.00	-17.6	1.03 V	266	26.09	30.28
2	2390.00	45.0 AV	54.00	-9.0	1.03 V	266	14.75	30.28
3	*2412.00	105.2 PK			1.04 V	268	74.85	30.36
4	*2412.00	100.6 AV			1.04 V	268	70.22	30.36
5	4824.00	53.6 PK	74.00	-20.4	1.00 V	192	16.83	36.79
6	4824.00	50.8 AV	54.00	-3.2	1.00 V	192	14.03	36.79

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.7 PK			1.03 H	281	75.25	30.46
2	*2437.00	101.2 AV			1.03 H	281	70.78	30.46
3	4874.00	48.1 PK	74.00	-25.9	1.12 H	31	11.19	36.92
4	4874.00	44.3 AV	54.00	-9.7	1.12 H	31	7.39	36.92
5	7311.00	51.2 PK	74.00	-22.8	1.09 H	38	8.10	43.14
6	7311.00	39.0 AV	54.00	-15.0	1.09 H	38	-4.18	43.14
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	105.5 PK			1.06 V	277	75.08	30.46
2	*2437.00	101.3 AV			1.06 V	277	70.84	30.46
3	4874.00	52.4 PK	74.00	-21.7	1.00 V	188	15.43	36.92
4	4874.00	49.0 AV	54.00	-5.1	1.00 V	188	12.03	36.92
5	7311.00	51.2 PK	74.00	-22.8	1.07 V	241	8.09	43.14
6	7311.00	39.1 AV	54.00	-15.0	1.07 V	241	-4.09	43.14

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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.9 PK			1.07 H	147	75.32	30.55
2	*2462.00	100.7 AV			1.07 H	147	70.19	30.55
3	2483.50	57.8 PK	74.00	-16.2	1.07 H	145	27.13	30.63
4	2483.50	46.0 AV	54.00	-8.0	1.07 H	145	15.38	30.63
5	4924.00	49.2 PK	74.00	-24.8	1.09 H	138	12.17	37.06
6	4924.00	44.1 AV	54.00	-9.9	1.09 H	138	7.06	37.06
7	7386.00	50.6 PK	74.00	-23.4	1.21 H	296	7.51	43.13
8	7386.00	39.2 AV	54.00	-14.8	1.21 H	296	-3.96	43.13
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	*2462.00	107.6 PK			1.08 V	235	77.04	30.55
2	*2462.00	102.1 AV			1.08 V	235	71.53	30.55
3	2483.50	59.5 PK	74.00	-14.5	1.09 V	202	28.91	30.63
4	2483.50	47.2 AV	54.00	-6.8	1.09 V	202	16.60	30.63
5	4924.00	51.7 PK	74.00	-22.3	1.09 V	187	14.62	37.06
6	4924.00	48.1 AV	54.00	-5.9	1.09 V	187	11.02	37.06
7	7386.00	51.4 PK	74.00	-22.6	1.14 V	237	8.27	43.13
8	7386.00	39.2 AV	54.00	-14.8	1.14 V	237	-3.89	43.13

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.

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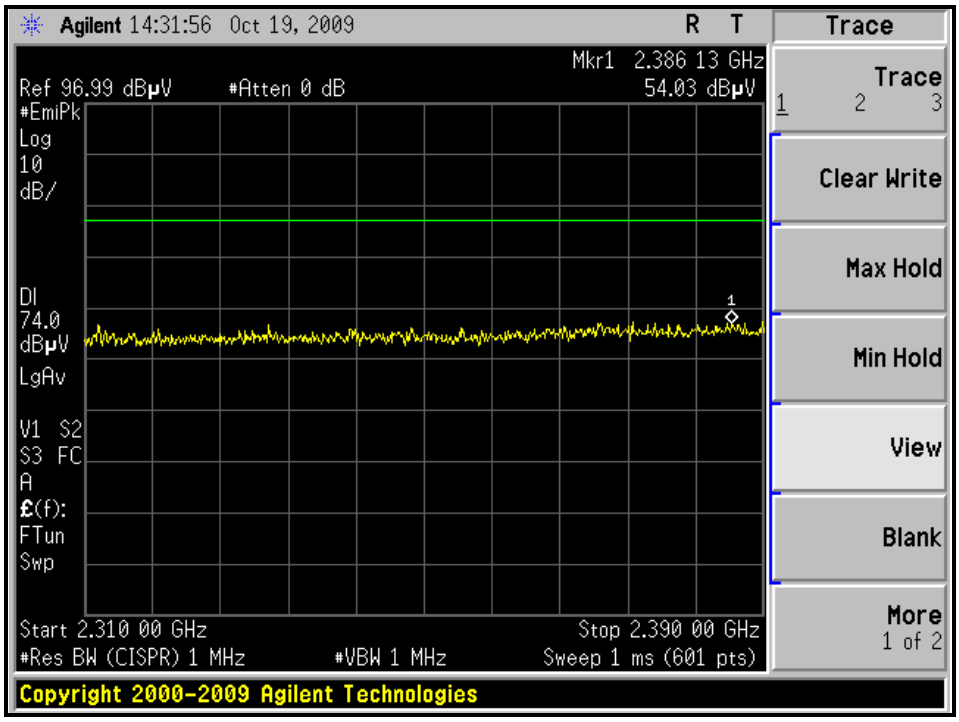

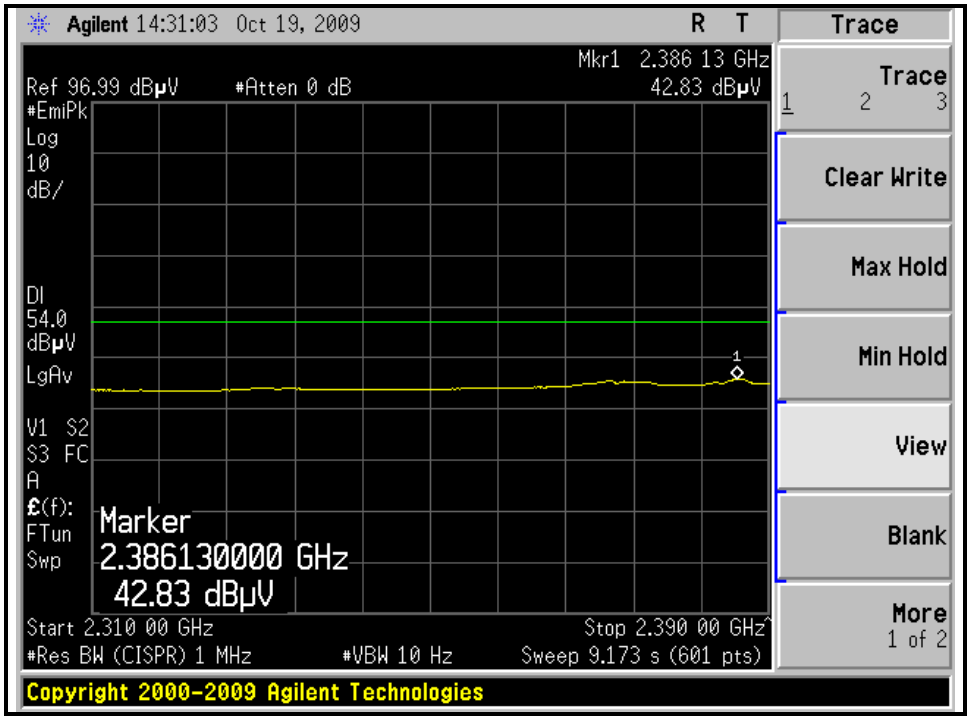

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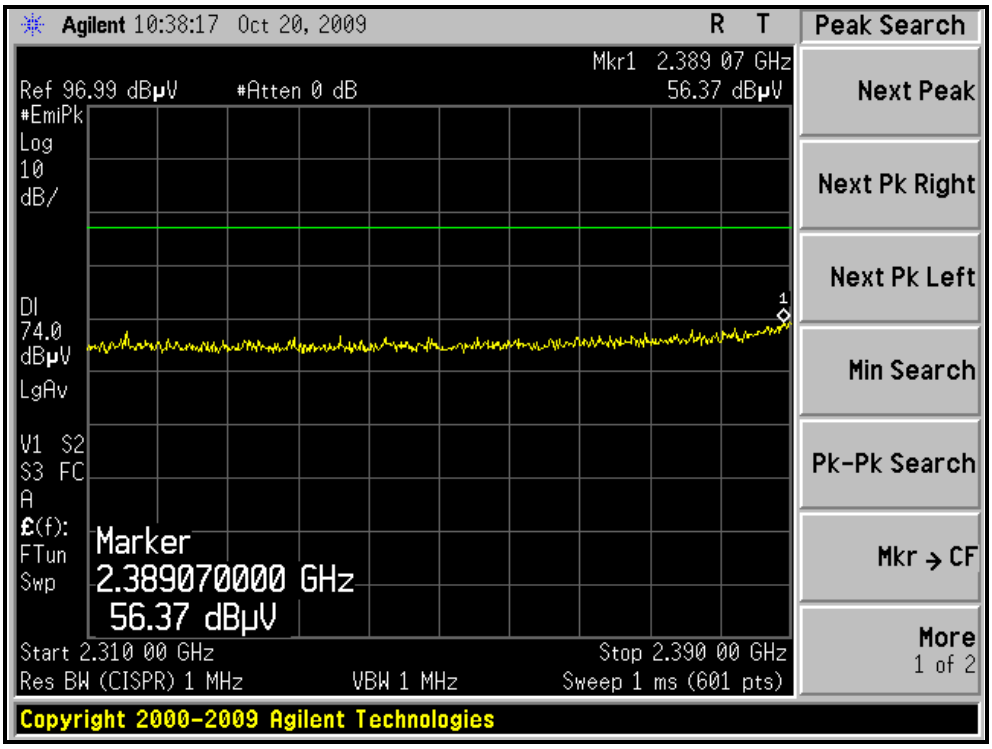

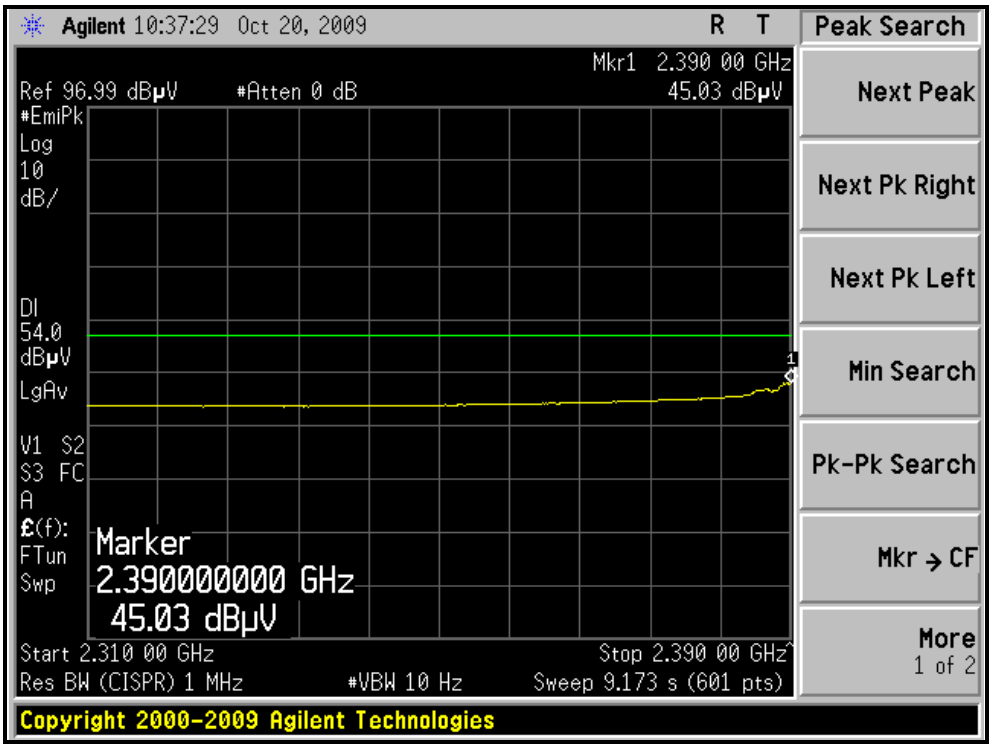

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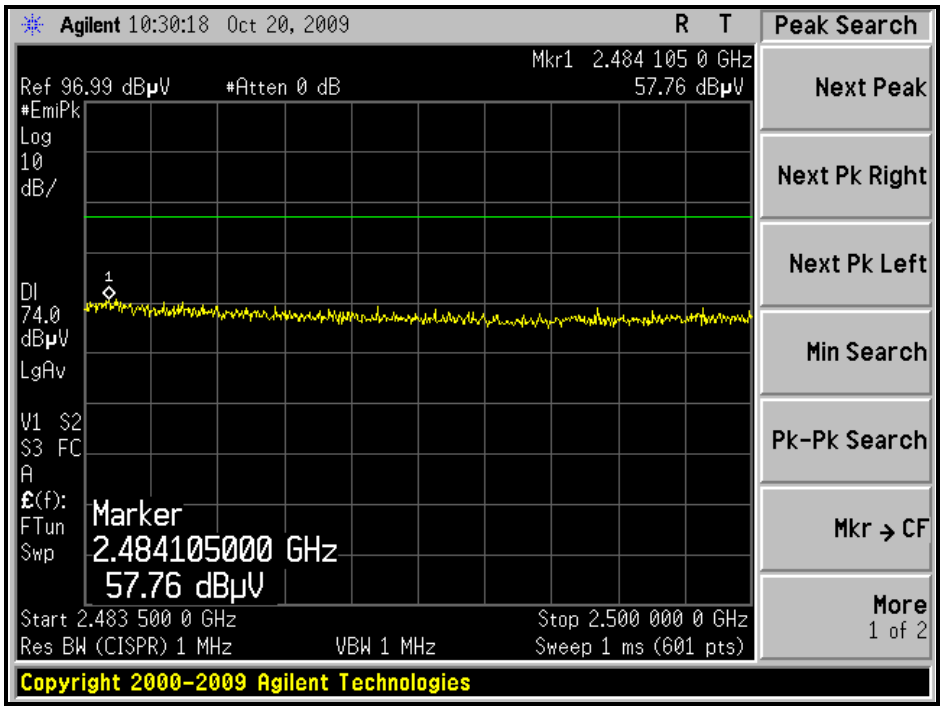

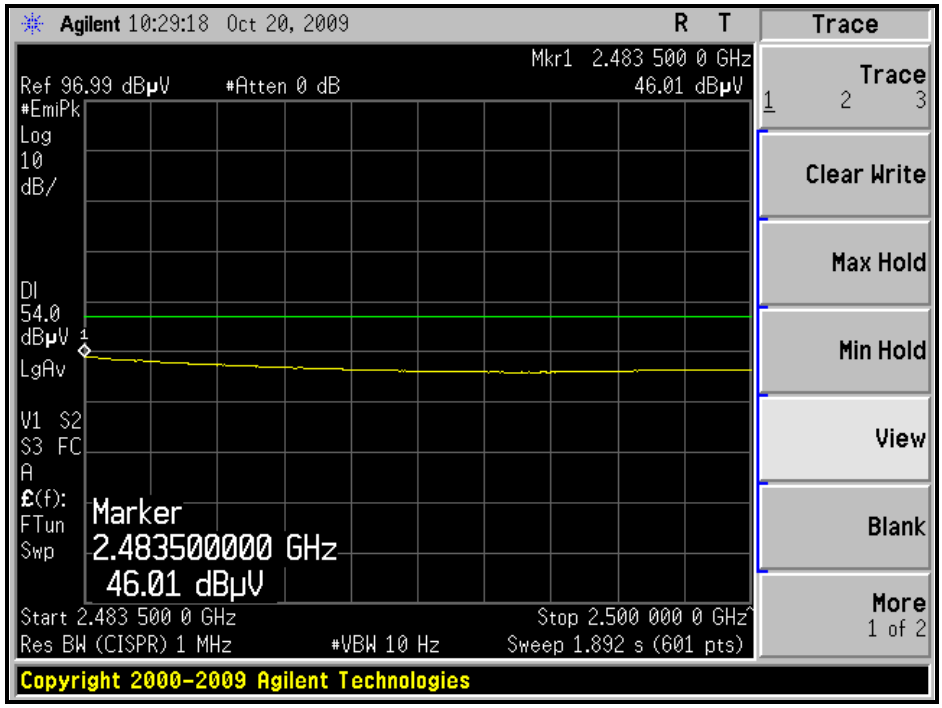

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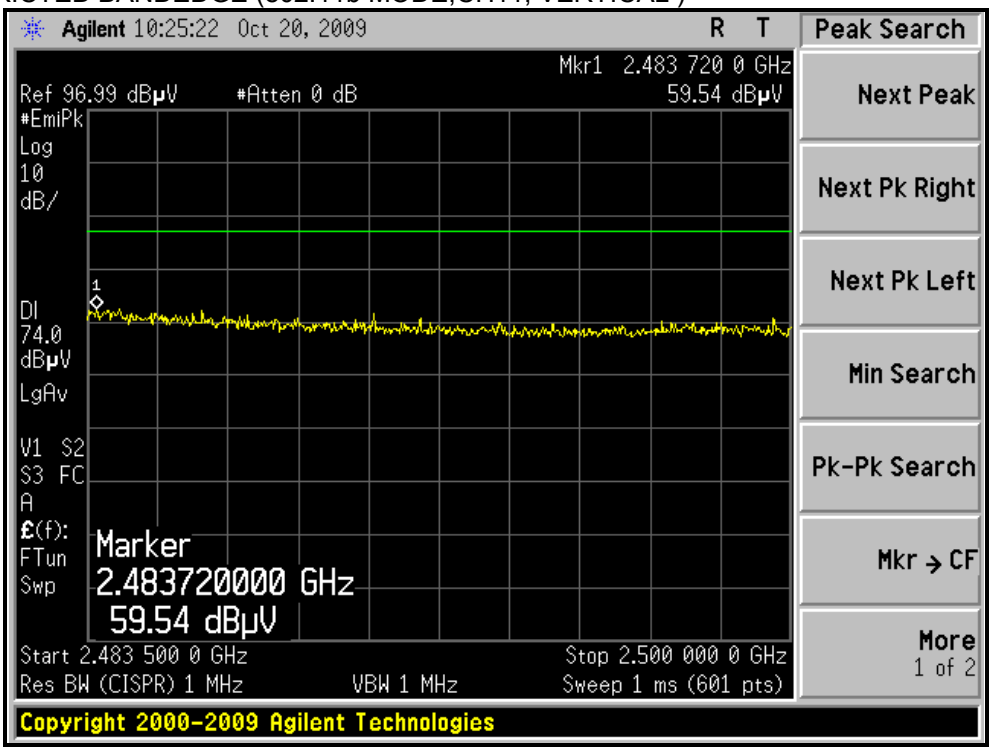
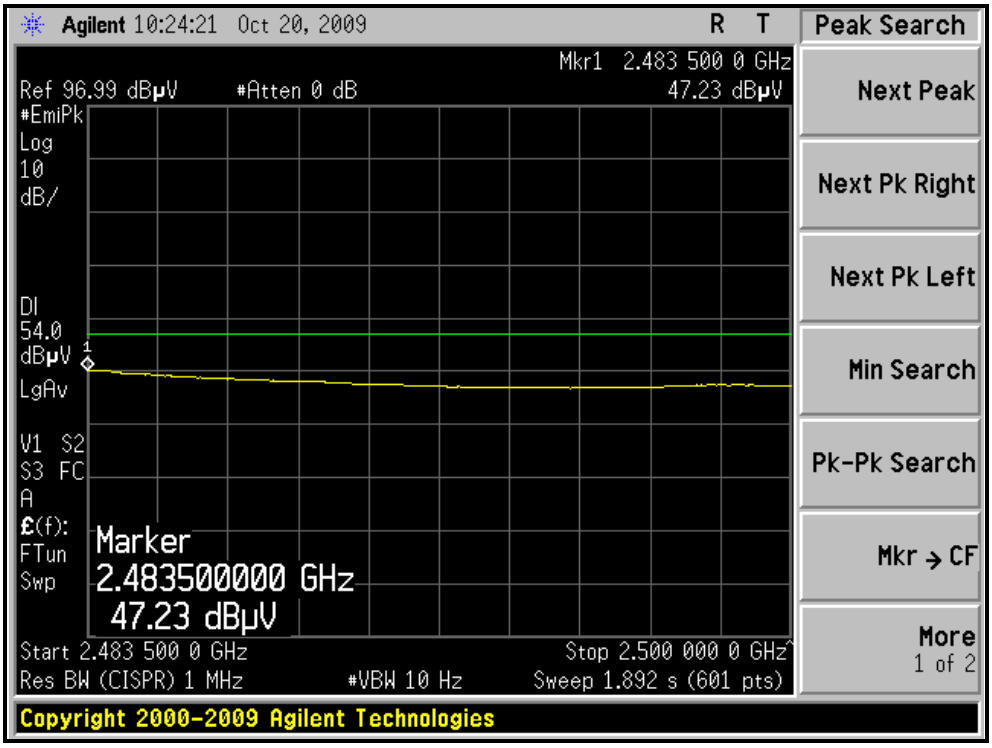




802.11g OFDM MODULATION

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.7 PK	74.00	-10.4	1.58 H	173	33.37	30.28
2	2390.00	50.3 AV	54.00	-3.7	1.58 H	173	20.00	30.28
3	*2412.00	106.0 PK			1.56 H	179	75.59	30.36
4	*2412.00	95.4 AV			1.56 H	179	65.03	30.36
5	4824.00	43.7 PK	74.00	-30.3	1.26 H	38	6.94	36.79
6	4824.00	31.1 AV	54.00	-22.9	1.26 H	38	-5.65	36.79
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	65.1 PK	74.00	-8.9	1.59 V	173	34.79	30.28
2	2390.00	50.8 AV	54.00	-3.3	1.59 V	173	20.47	30.28
3	*2412.00	108.0 PK			1.06 V	164	77.65	30.36
4	*2412.00	96.7 AV			1.06 V	164	66.37	30.36
5	4824.00	43.2 PK	74.00	-30.8	1.10 V	269	6.45	36.79
6	4824.00	31.2 AV	54.00	-22.8	1.10 V	269	-5.56	36.79

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.7 PK			1.41 H	27	73.25	30.46
2	*2437.00	93.8 AV			1.41 H	27	63.38	30.46
3	4874.00	43.3 PK	74.00	-30.7	1.30 H	136	6.38	36.92
4	4874.00	32.0 AV	54.00	-22.0	1.30 H	136	-4.96	36.92
5	7311.00	49.2 PK	74.00	-24.8	1.53 H	171	6.06	43.14
6	7311.00	36.4 AV	54.00	-17.6	1.53 H	171	-6.75	43.14
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	105.3 PK			1.23 V	126	74.87	30.46
2	*2437.00	94.3 AV			1.23 V	126	63.80	30.46
3	4874.00	44.3 PK	74.00	-29.7	1.07 V	281	7.36	36.92
4	4874.00	31.8 AV	54.00	-22.2	1.07 V	281	-5.14	36.92
5	7311.00	49.4 PK	74.00	-24.6	1.03 V	291	6.23	43.14
6	7311.00	36.8 AV	54.00	-17.2	1.03 V	291	-6.30	43.14

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 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.0 PK			1.37 H	150	71.43	30.55
2	*2462.00	91.3 AV			1.37 H	150	60.75	30.55
3	2483.50	65.6 PK	74.00	-8.4	1.37 H	145	34.99	30.63
4	2483.50	46.8 AV	54.00	-7.2	1.37 H	145	16.20	30.63
5	4924.00	44.5 PK	74.00	-29.5	1.10 H	149	7.48	37.06
6	4924.00	32.1 AV	54.00	-21.9	1.10 H	149	-4.96	37.06
7	7386.00	49.1 PK	74.00	-24.9	1.00 H	310	5.93	43.13
8	7386.00	36.4 AV	54.00	-17.6	1.00 H	310	-6.76	43.13
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	*2462.00	102.7 PK			1.54 V	171	72.11	30.55
2	*2462.00	92.3 AV			1.54 V	171	61.72	30.55
3	2483.50	63.3 PK	74.00	-10.8	1.50 V	173	32.62	30.63
4	2483.50	46.9 AV	54.00	-7.1	1.50 V	173	16.23	30.63
5	4924.00	42.8 PK	74.00	-31.2	1.03 V	27	5.72	37.06
6	4924.00	31.8 AV	54.00	-22.2	1.03 V	27	-5.26	37.06
7	7386.00	48.8 PK	74.00	-25.2	1.27 V	108	5.66	43.13
8	7386.00	36.4 AV	54.00	-17.6	1.27 V	108	-6.72	43.13

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

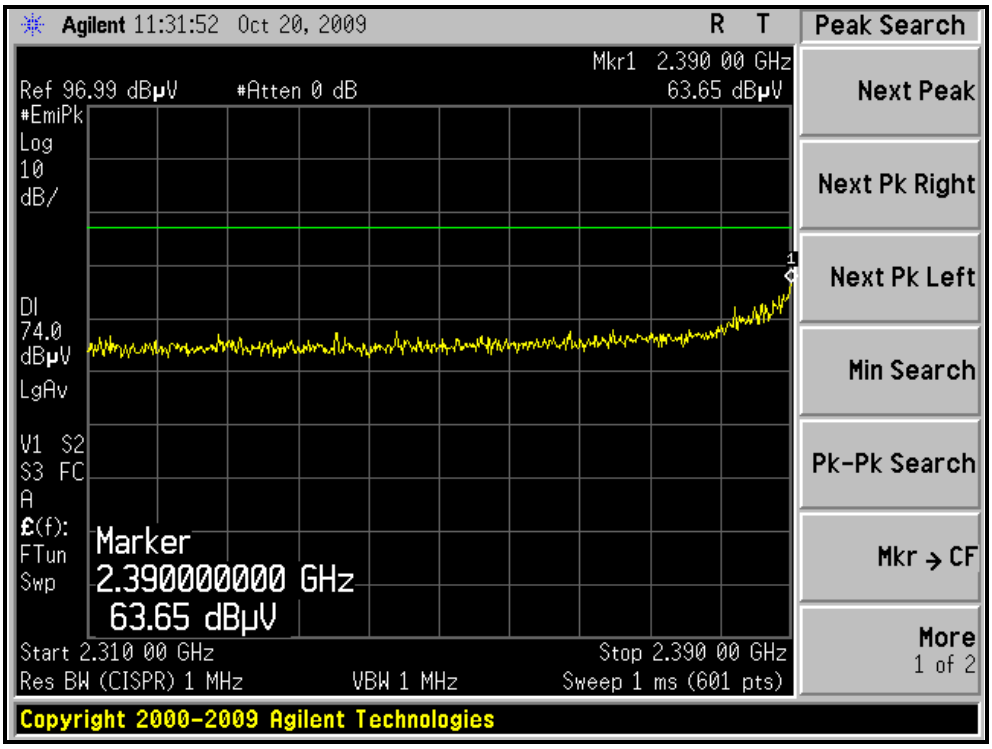
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

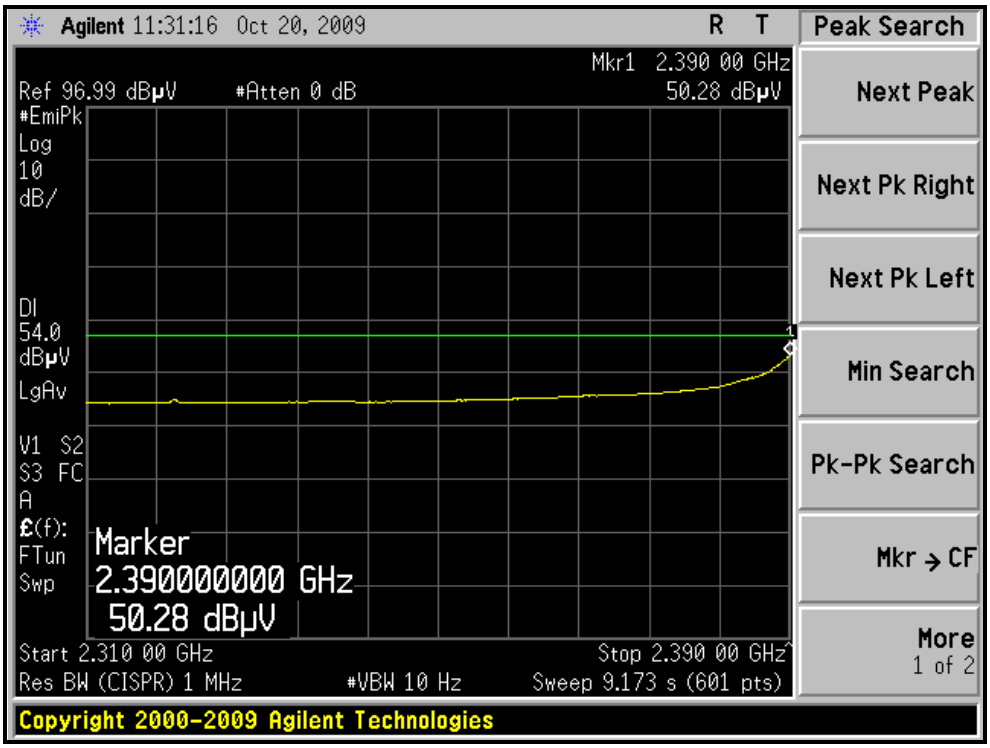
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

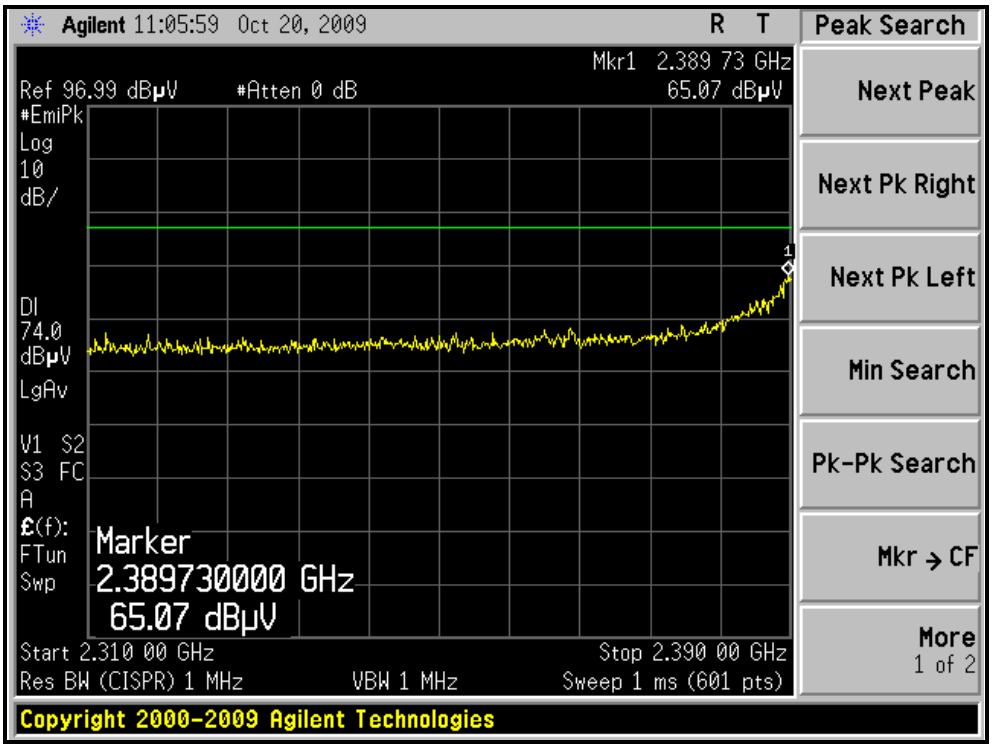
5. " * ": Fundamental frequency.

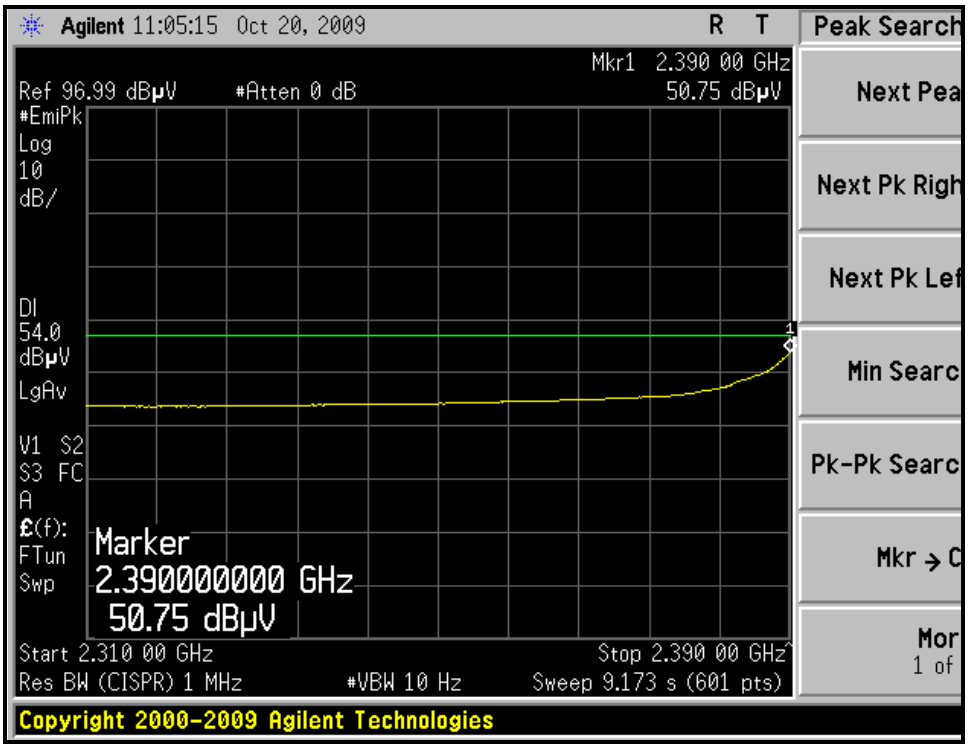
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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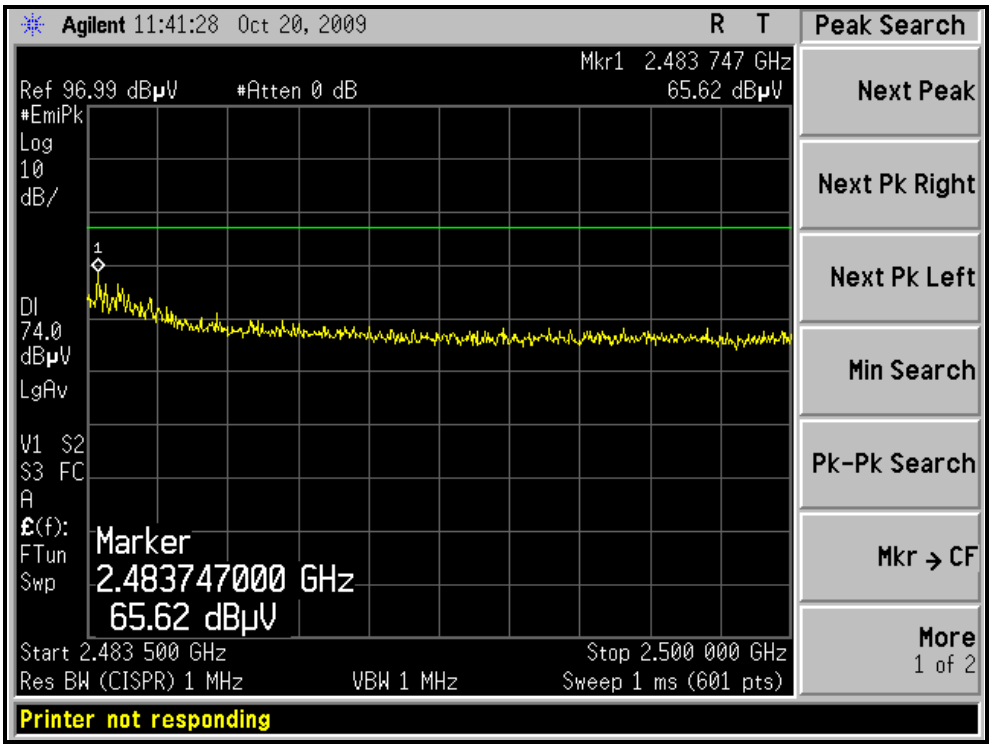

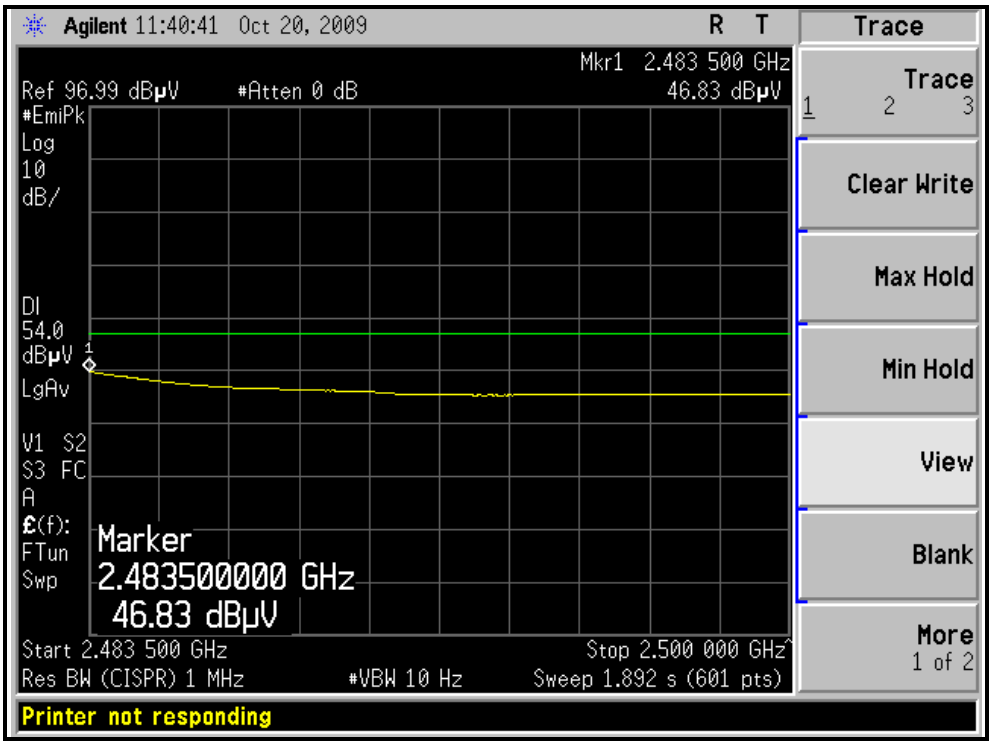

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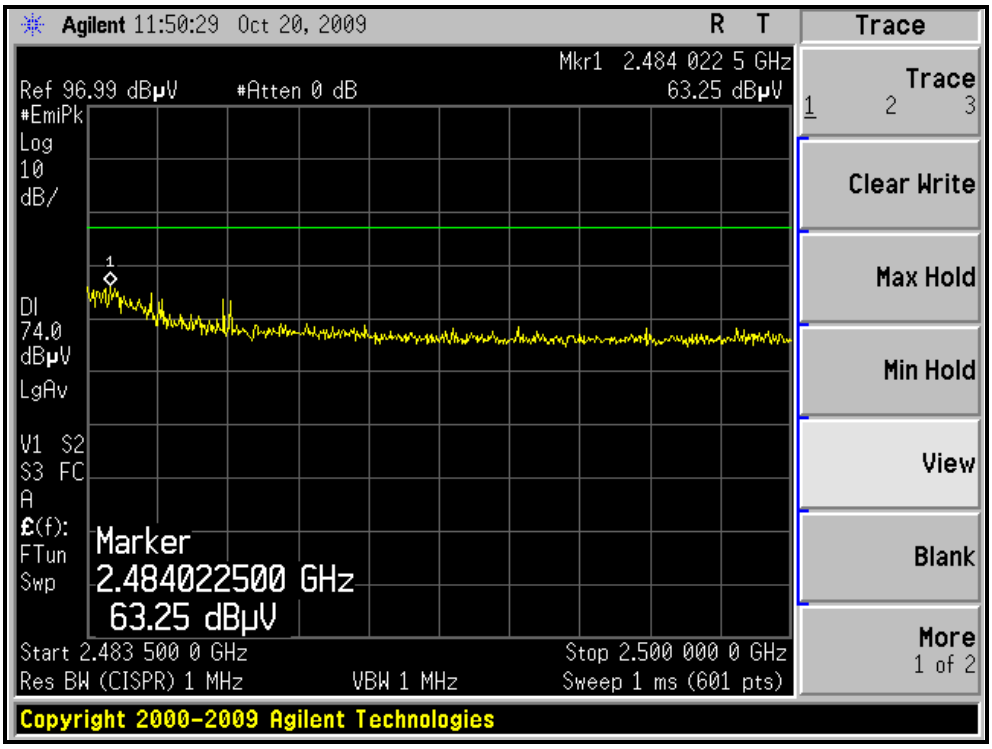
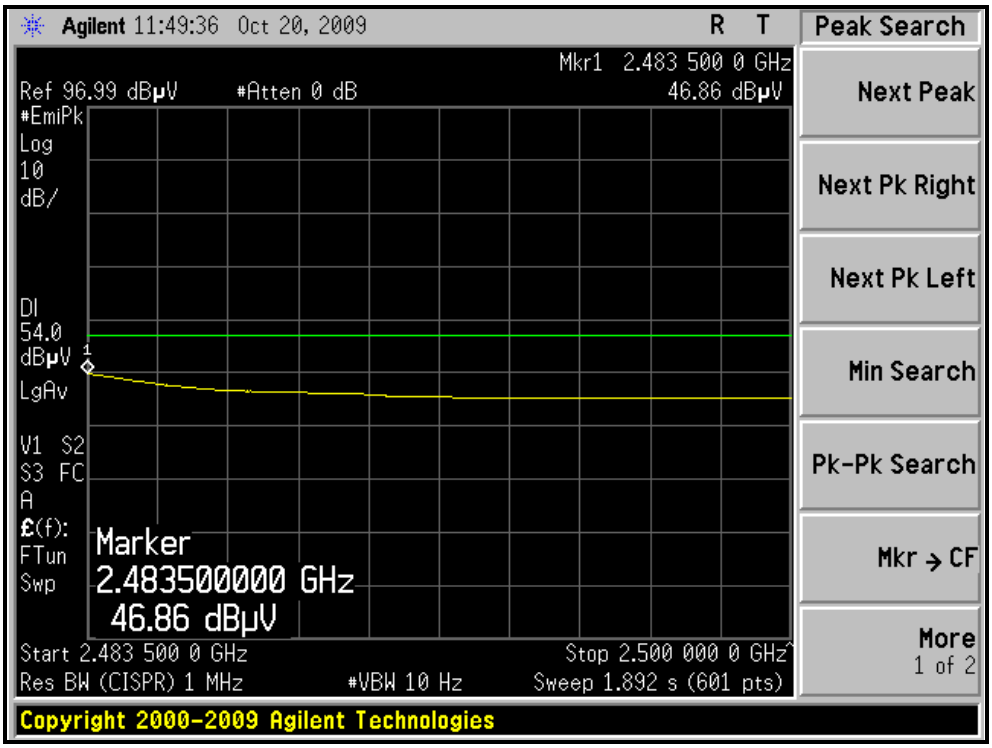




802.11n (20MHz) OFDM MODULATION

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.0 PK	74.00	-8.0	1.68 H	228	35.71	30.28
2	2390.00	49.1 AV	54.00	-4.9	1.68 H	228	18.85	30.28
3	*2412.00	103.7 PK			2.00 H	218	73.38	30.36
4	*2412.00	94.1 AV			2.00 H	218	63.72	30.36
5	4824.00	43.7 PK	74.00	-30.3	1.07 H	360	6.92	36.79
6	4824.00	31.3 AV	54.00	-22.7	1.07 H	360	-5.49	36.79
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	68.7 PK	74.00	-5.3	1.27 V	116	38.38	30.28
2	2390.00	50.6 AV	54.00	-3.4	1.27 V	116	20.34	30.28
3	*2412.00	108.7 PK			1.27 V	116	78.33	30.36
4	*2412.00	97.5 AV			1.27 V	116	67.18	30.36
5	4824.00	44.0 PK	74.00	-30.0	1.02 V	127	7.19	36.79
6	4824.00	31.9 AV	54.00	-22.1	1.02 V	127	-4.89	36.79

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.6 PK			1.23 H	306	74.14	30.46
2	*2437.00	95.4 AV			1.23 H	306	64.92	30.46
3	4874.00	44.7 PK	74.00	-29.3	1.08 H	100	7.78	36.92
4	4874.00	32.0 AV	54.00	-22.0	1.08 H	100	-4.96	36.92
5	7311.00	51.2 PK	74.00	-22.8	1.03 H	37	8.06	43.14
6	7311.00	37.9 AV	54.00	-16.1	1.03 H	37	-5.24	43.14
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	108.3 PK			1.30 V	281	77.85	30.46
2	*2437.00	97.7 AV			1.30 V	281	67.20	30.46
3	4874.00	44.1 PK	74.00	-29.9	1.21 V	207	7.19	36.92
4	4874.00	31.8 AV	54.00	-22.2	1.21 V	207	-5.12	36.92
5	7311.00	51.0 PK	74.00	-23.0	1.30 V	230	7.90	43.14
6	7311.00	38.1 AV	54.00	-16.0	1.30 V	230	-5.09	43.14

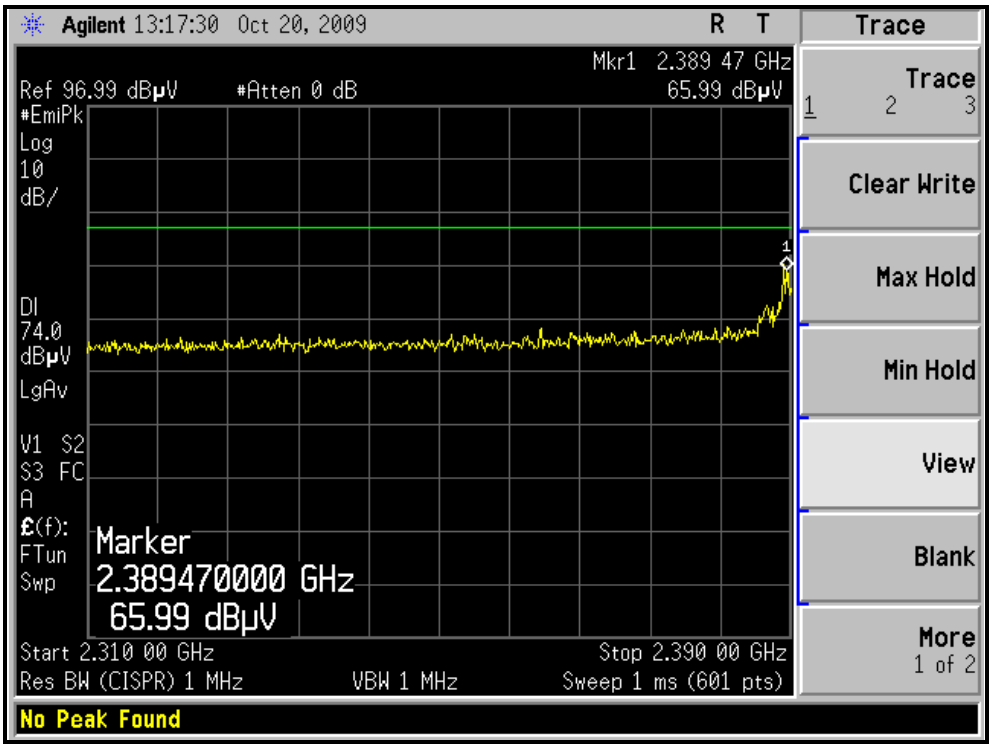
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

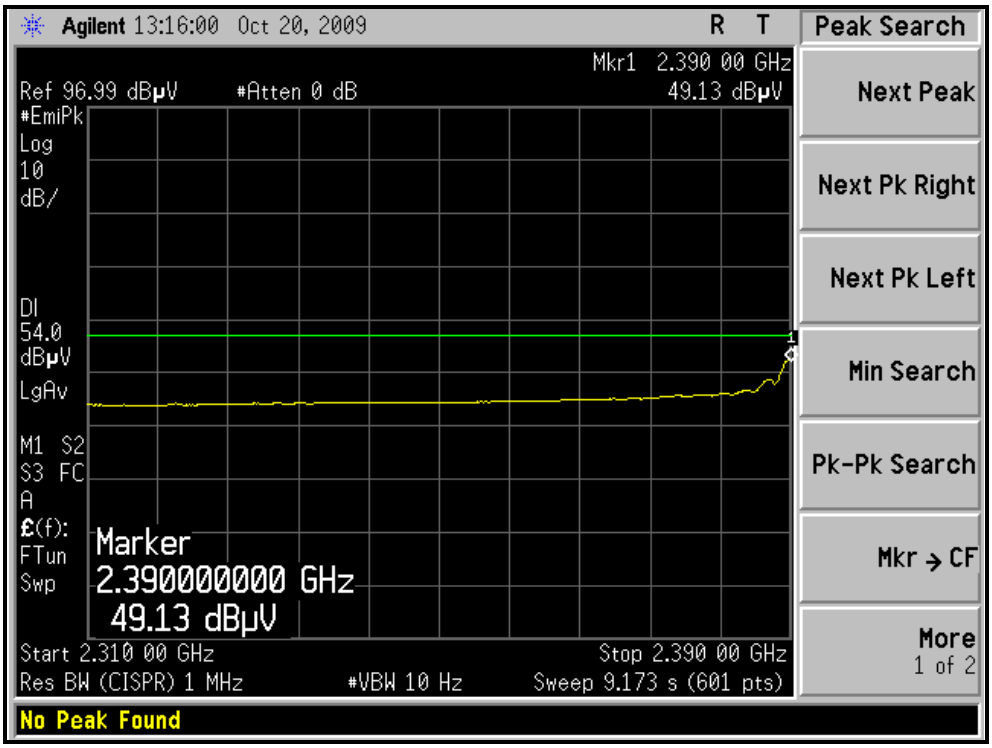
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.0 PK			1.33 H	161	77.40	30.55
2	*2462.00	97.0 AV			1.33 H	161	66.44	30.55
3	2484.24	69.2 PK	74.00	-4.8	1.31 H	360	38.53	30.63
4	2484.24	49.8 AV	54.00	-4.2	1.31 H	360	19.16	30.63
5	4924.00	45.1 PK	74.00	-28.9	1.33 H	168	8.02	37.06
6	4924.00	31.9 AV	54.00	-22.1	1.33 H	168	-5.13	37.06
7	7386.00	51.4 PK	74.00	-22.6	1.23 H	106	8.27	43.13
8	7386.00	38.3 AV	54.00	-15.7	1.23 H	106	-4.83	43.13
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	*2462.00	109.2 PK			1.25 V	120	78.60	30.55
2	*2462.00	97.9 AV			1.25 V	120	67.34	30.55
3	2483.50	70.2 PK	74.00	-3.8	1.25 V	120	39.60	30.63
4	2483.50	50.6 AV	54.00	-3.4	1.25 V	120	19.97	30.63
5	4924.00	44.7 PK	74.00	-29.3	1.05 V	49	7.63	37.06
6	4924.00	31.2 AV	54.00	-22.8	1.05 V	49	-5.82	37.06
7	7386.00	50.9 PK	74.00	-23.1	1.25 V	138	7.75	43.13
8	7386.00	38.1 AV	54.00	-15.9	1.25 V	138	-5.01	43.13

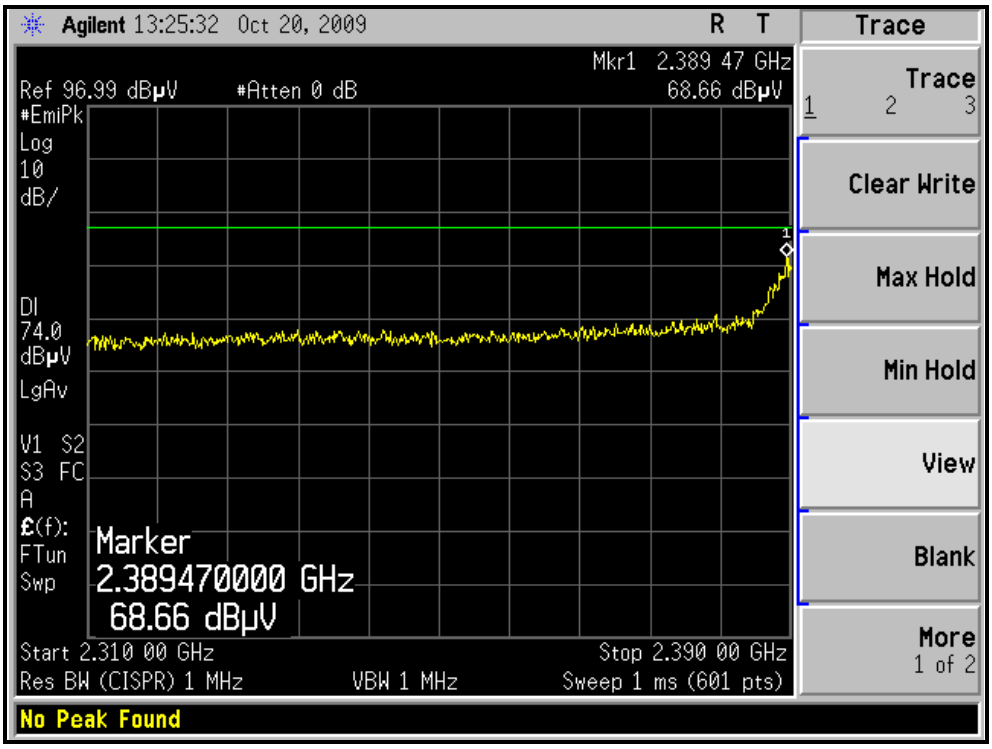
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

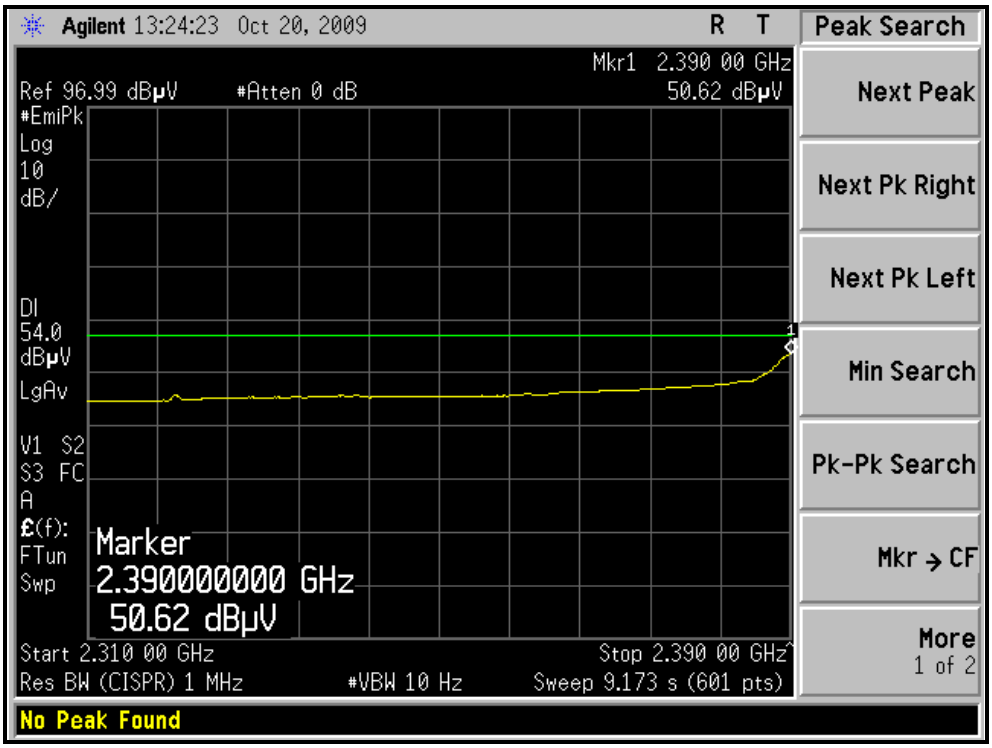
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



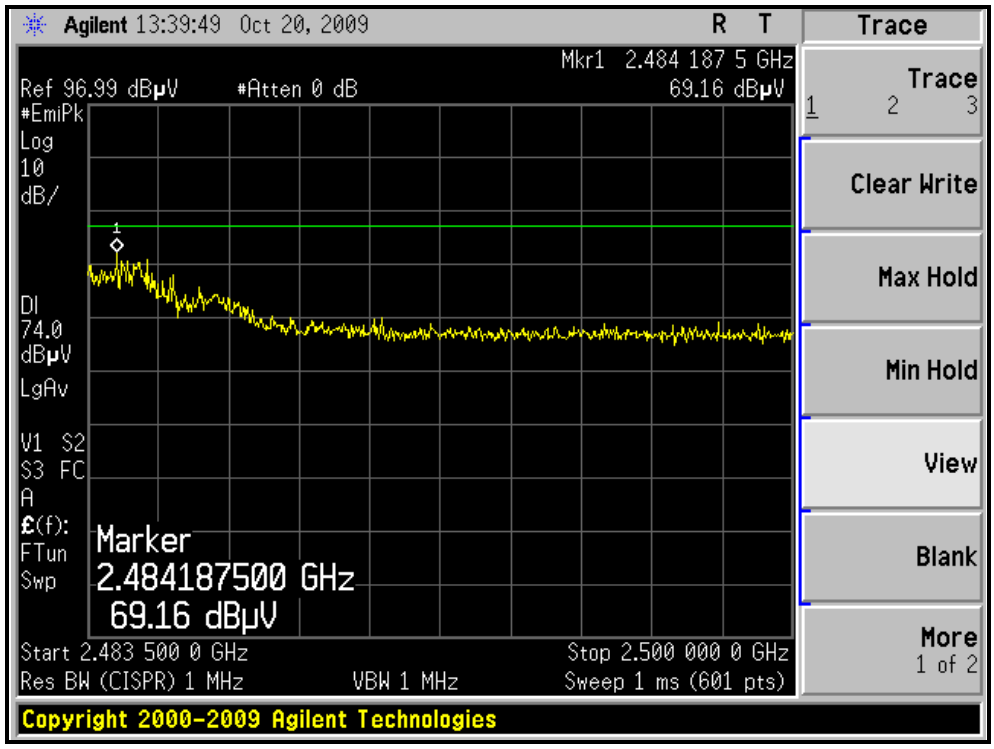


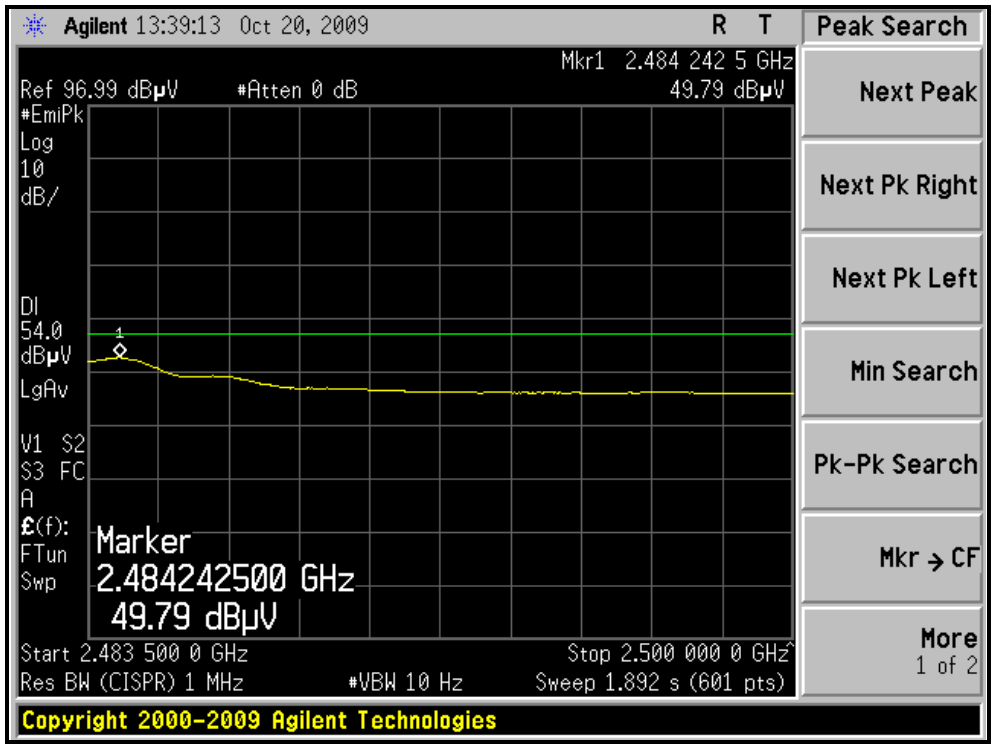
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



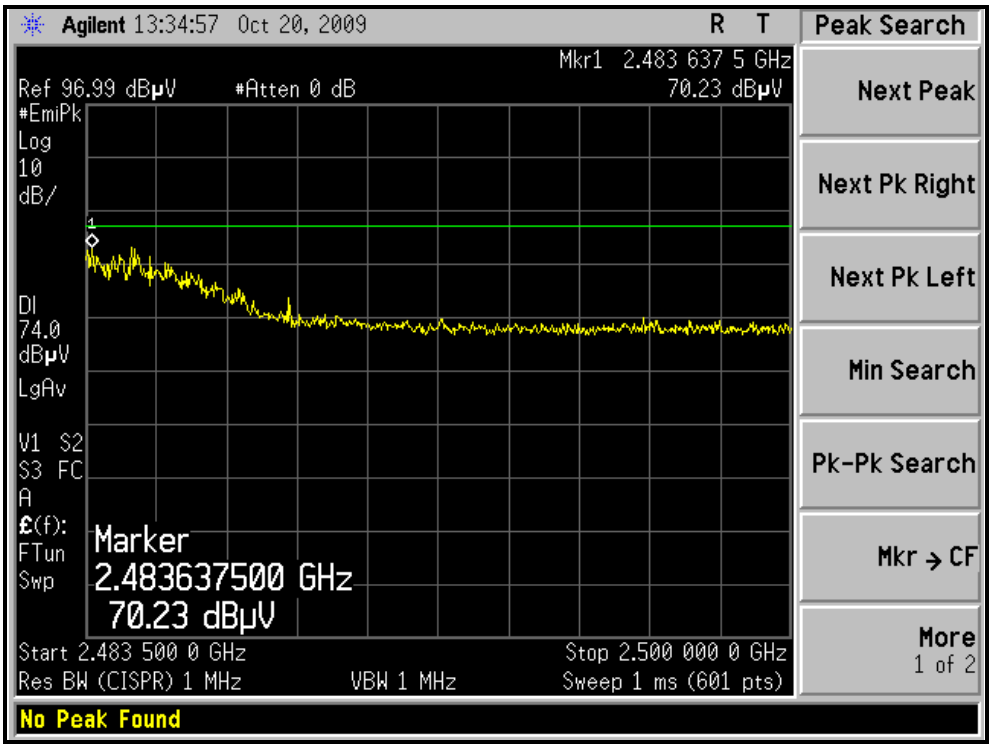


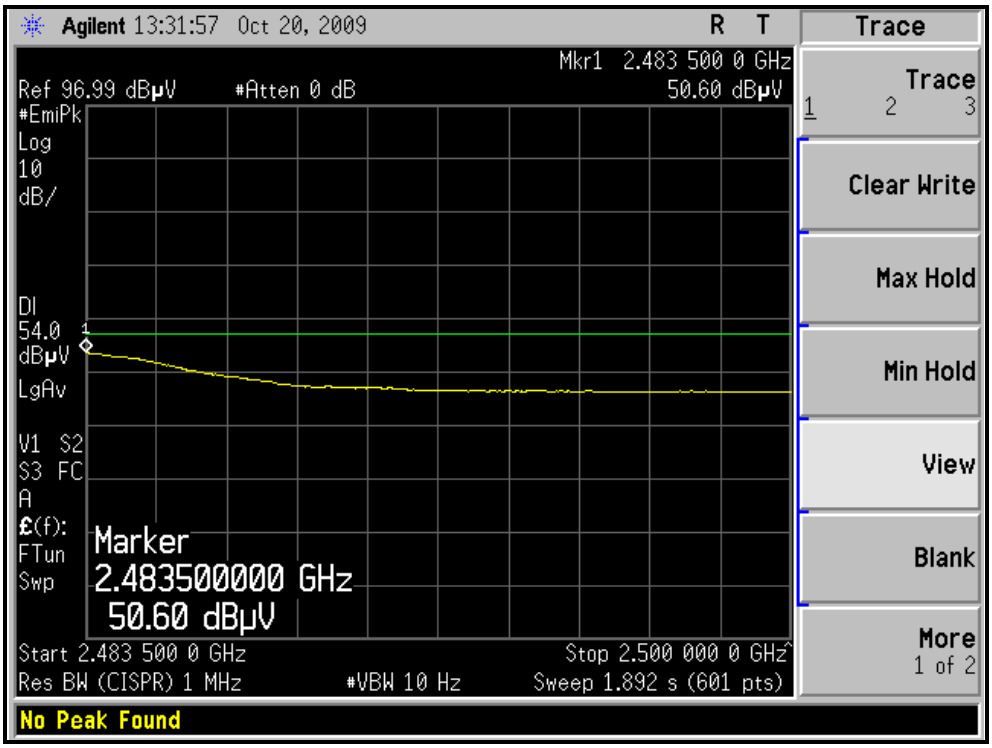
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)





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





802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2389.07	65.0 PK	74.00	-9.0	1.00 H	156	34.69	30.28
2	2389.07	49.4 AV	54.00	-4.6	1.00 H	156	19.12	30.28
3	*2422.00	101.4 PK			1.10 H	150	71.03	30.40
4	*2422.00	91.1 AV			1.10 H	150	60.73	30.40
5	4844.00	44.3 PK	74.00	-29.7	1.09 H	126	7.42	36.84
6	4844.00	31.9 AV	54.00	-22.1	1.09 H	126	-4.94	36.84
7	7266.00	51.2 PK	74.00	-22.8	1.31 H	26	8.06	43.14
8	7266.00	37.2 AV	54.00	-16.8	1.31 H	26	-5.91	43.14
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	2388.80	67.3 PK	74.00	-6.7	1.07 V	116	37.00	30.28
2	**2388.80**	**50.9 AV**	**54.00**	**-3.1**	**1.07 V**	**116**	**20.66**	**30.28**
3	*2422.00	104.6 PK			1.08 V	118	74.23	30.40
4	*2422.00	92.5 AV			1.08 V	118	62.13	30.40
5	4844.00	44.6 PK	74.00	-29.4	1.13 V	274	7.76	36.84
6	4844.00	31.9 AV	54.00	-22.2	1.13 V	274	-4.99	36.84
7	7266.00	51.3 PK	74.00	-22.7	1.09 V	306	8.16	43.14
8	7266.00	37.4 AV	54.00	-16.6	1.09 V	306	-5.73	43.14

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 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.4 PK			1.00 H	135	70.91	30.46
2	*2437.00	90.6 AV			1.00 H	135	60.17	30.46
3	2483.50	64.0 PK	74.00	-10.1	1.03 H	164	33.32	30.63
4	2483.50	48.7 AV	54.00	-5.3	1.03 H	164	18.07	30.63
5	4874.00	44.4 PK	74.00	-29.6	1.00 H	360	7.46	36.92
6	4874.00	31.7 AV	54.00	-22.3	1.00 H	360	-5.18	36.92
7	7311.00	51.4 PK	74.00	-22.6	1.07 H	103	8.22	43.14
8	7311.00	38.2 AV	54.00	-15.8	1.07 H	103	-4.94	43.14
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	62.6 PK	74.00	-11.4	1.09 V	119	32.28	30.28
2	2390.00	47.8 AV	54.00	-6.2	1.09 V	119	17.49	30.28
3	*2437.00	103.7 PK			1.08 V	129	73.25	30.46
4	*2437.00	91.9 AV			1.08 V	129	61.47	30.46
5	2483.50	64.3 PK	74.00	-9.7	1.14 V	212	33.68	30.63
6	2483.50	48.5 AV	54.00	-5.6	1.14 V	212	17.82	30.63
7	4874.00	44.8 PK	74.00	-29.2	1.96 V	108	7.91	36.92
8	4874.00	31.7 AV	54.00	-22.3	1.96 V	108	-5.18	36.92
9	7311.00	52.2 PK	74.00	-21.8	1.23 V	236	9.02	43.14
10	7311.00	38.0 AV	54.00	-16.0	1.23 V	236	-5.10	43.14

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

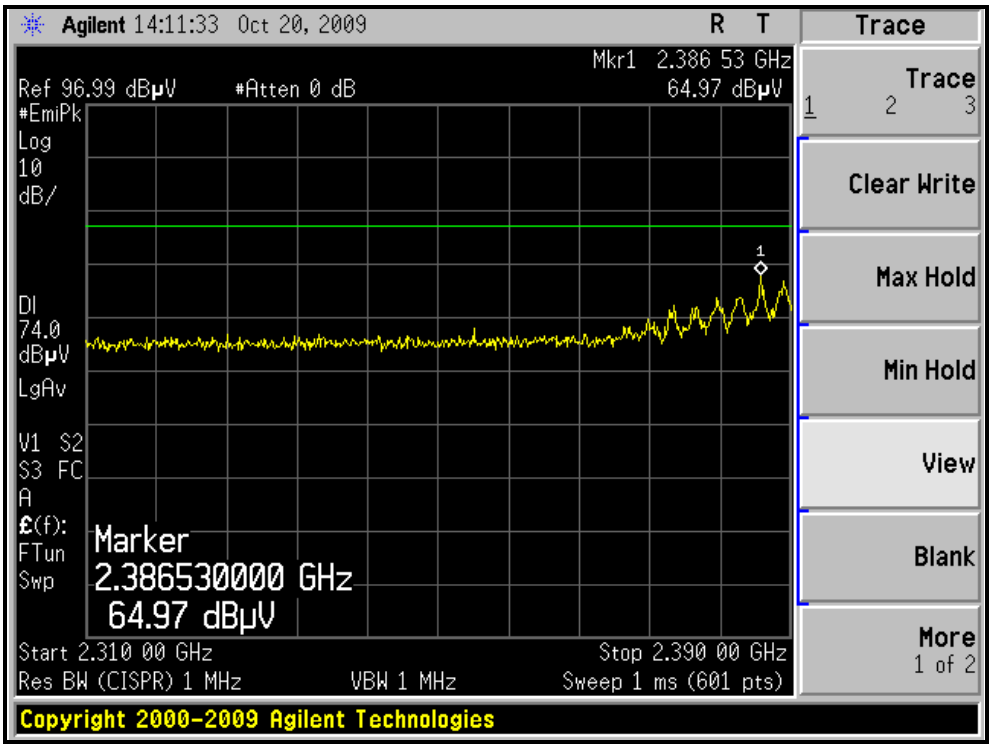
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

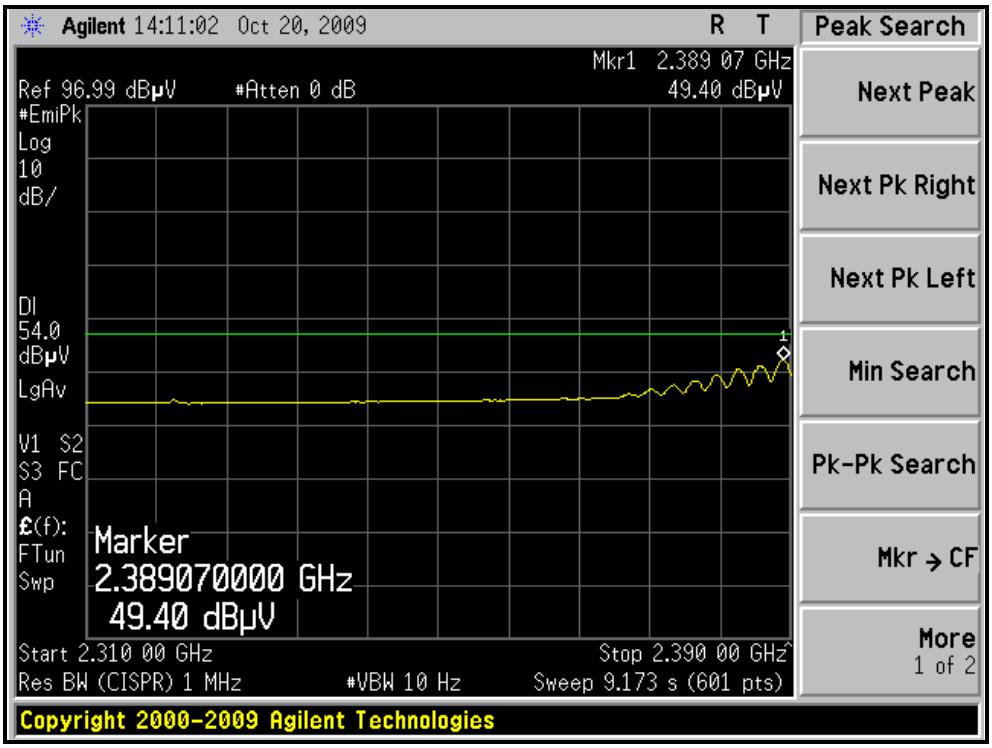
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.4 PK			1.03 H	165	71.90	30.51
2	*2452.00	91.5 AV			1.03 H	165	61.01	30.51
3	2484.24	66.8 PK	74.00	-7.2	1.03 H	159	36.14	30.63
4	2484.24	50.8 AV	54.00	-3.2	1.03 H	159	20.19	30.63
5	4904.00	44.7 PK	74.00	-29.3	1.07 H	264	7.69	37.00
6	4904.00	31.9 AV	54.00	-22.1	1.07 H	264	-5.07	37.00
7	7356.00	51.7 PK	74.00	-22.3	1.03 H	137	8.57	43.13
8	7356.00	38.5 AV	54.00	-15.5	1.03 H	137	-4.63	43.13
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	*2452.00	103.8 PK			1.09 V	121	73.27	30.51
2	*2452.00	91.8 AV			1.09 V	121	61.31	30.51
3	2484.88	66.0 PK	74.00	-8.0	1.02 V	122	35.41	30.63
4	2484.88	50.2 AV	54.00	-3.8	1.02 V	122	19.60	30.63
5	4904.00	44.4 PK	74.00	-29.6	1.09 V	241	7.37	37.00
6	4904.00	31.8 AV	54.00	-22.2	1.09 V	241	-5.23	37.00
7	7356.00	51.5 PK	74.00	-22.5	1.09 V	23	8.35	43.13
8	7356.00	38.2 AV	54.00	-15.8	1.09 V	23	-4.93	43.13

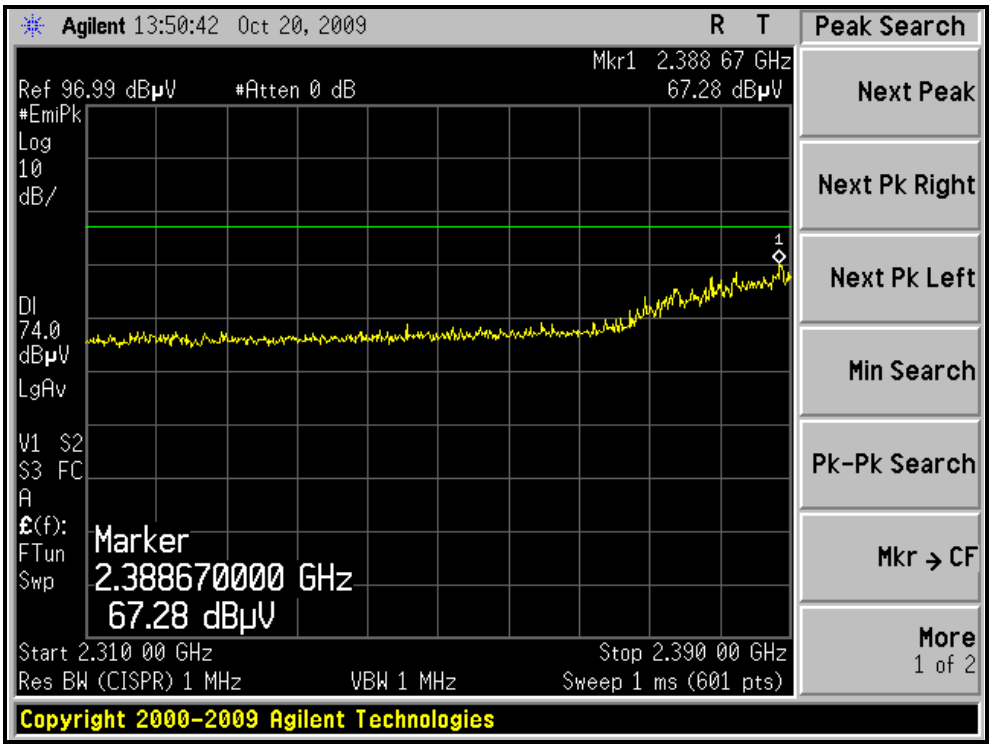
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

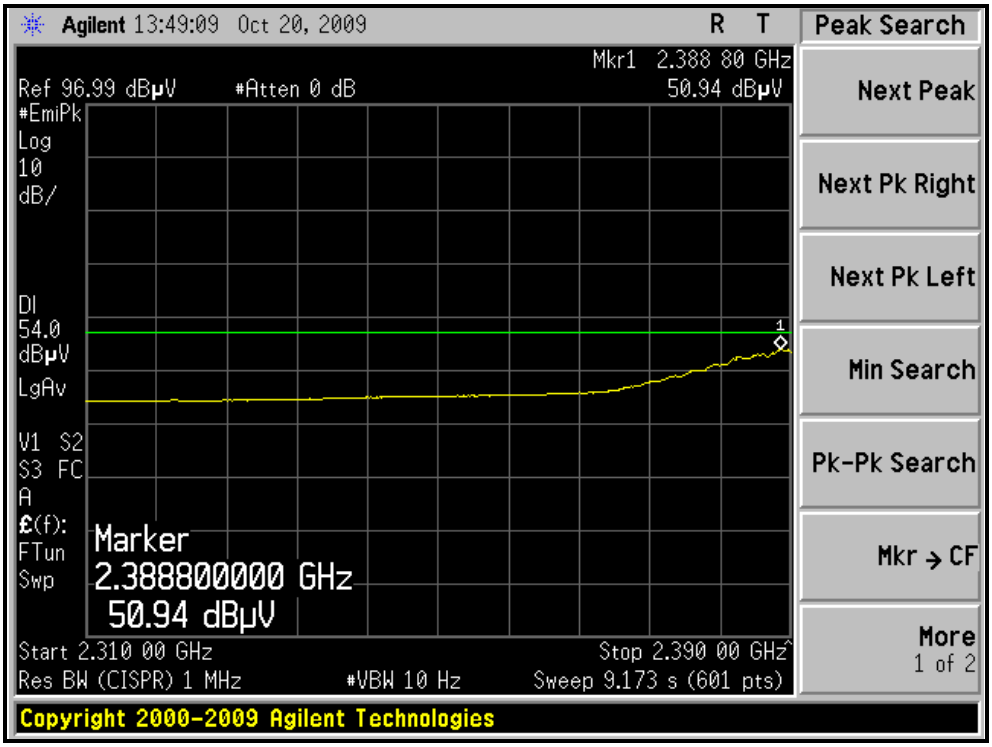
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, HORIZONTAL)



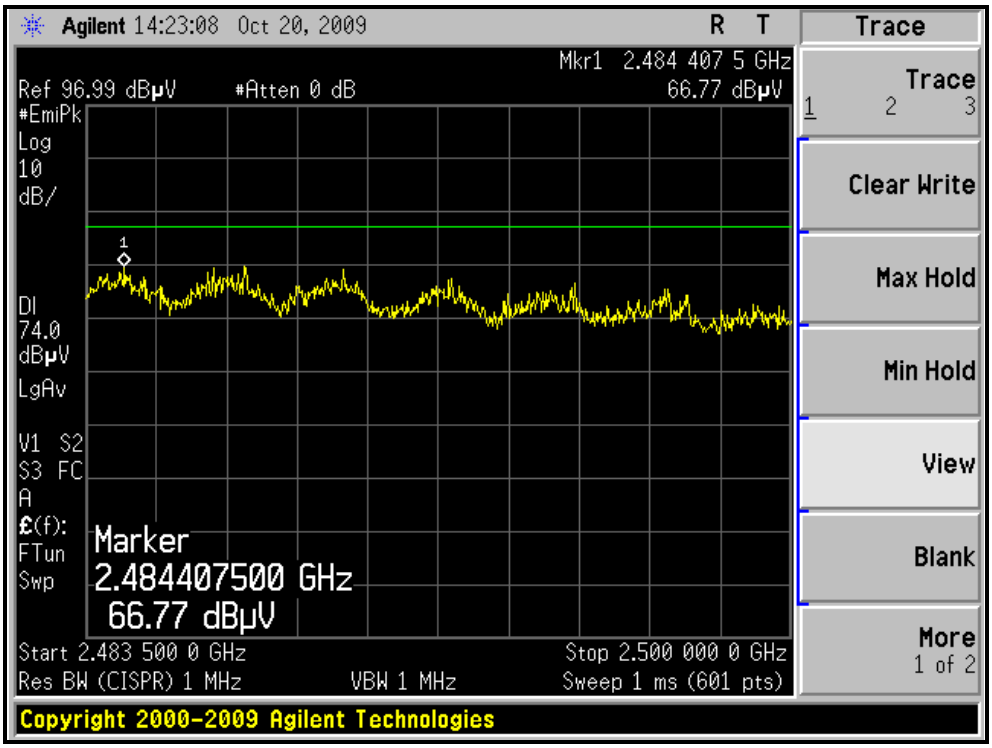


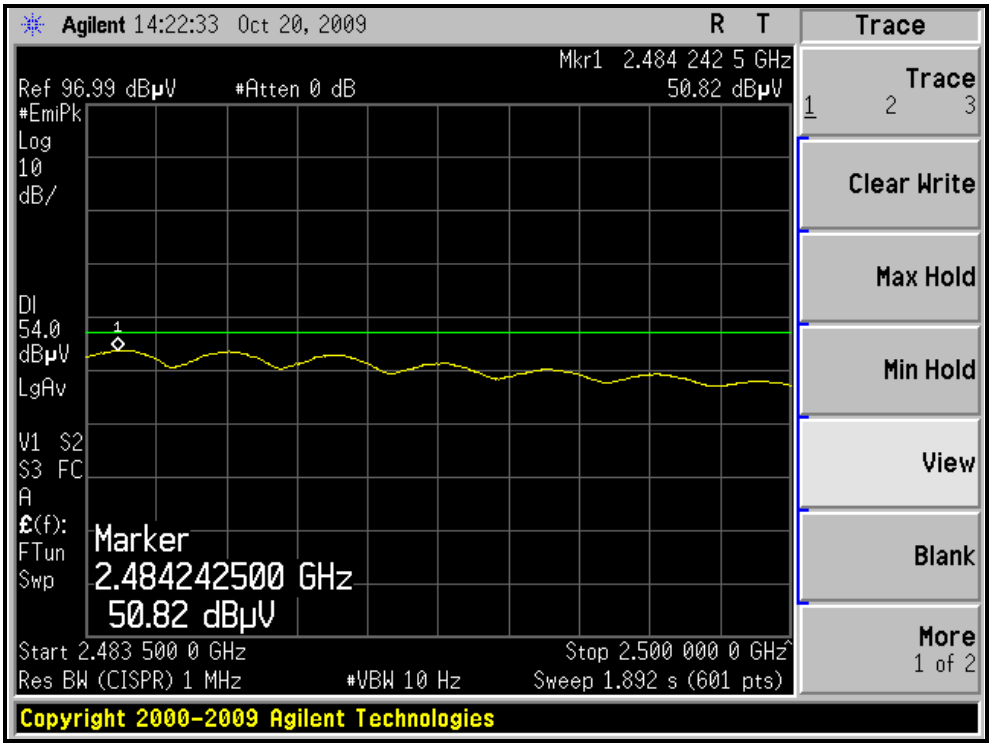
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH1, VERTICAL)



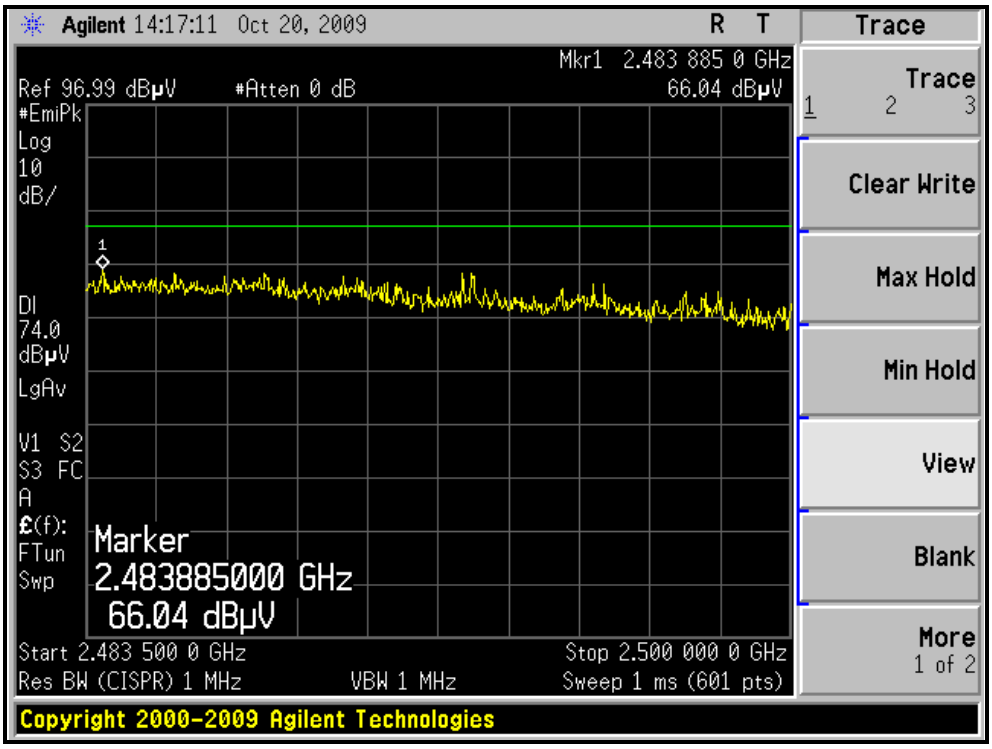


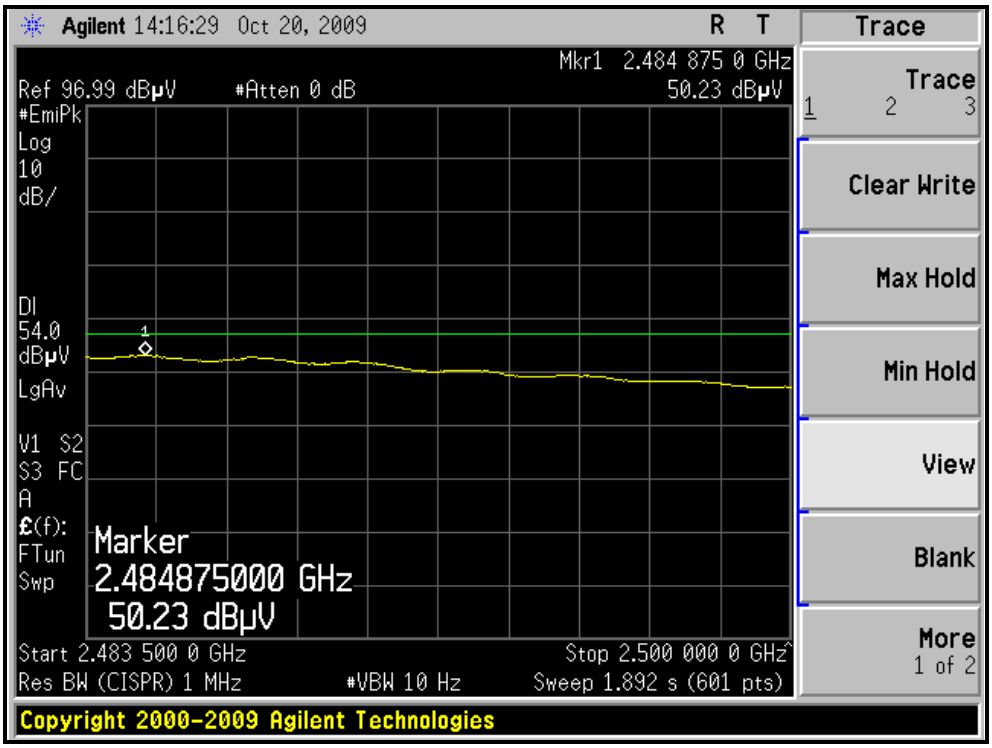
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH7, 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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

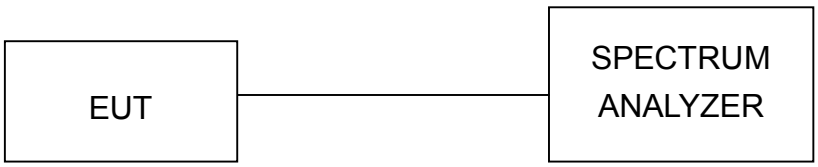
4.3.3 TEST PROCEDURE

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 100kHz 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

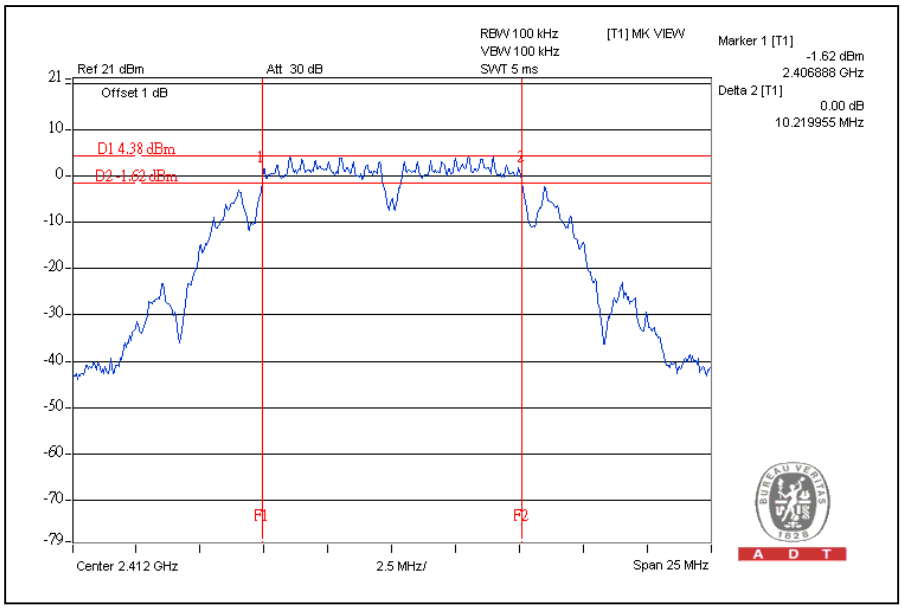
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.22	0.5	PASS
6	2437	10.19	0.5	PASS
11	2462	10.14	0.5	PASS

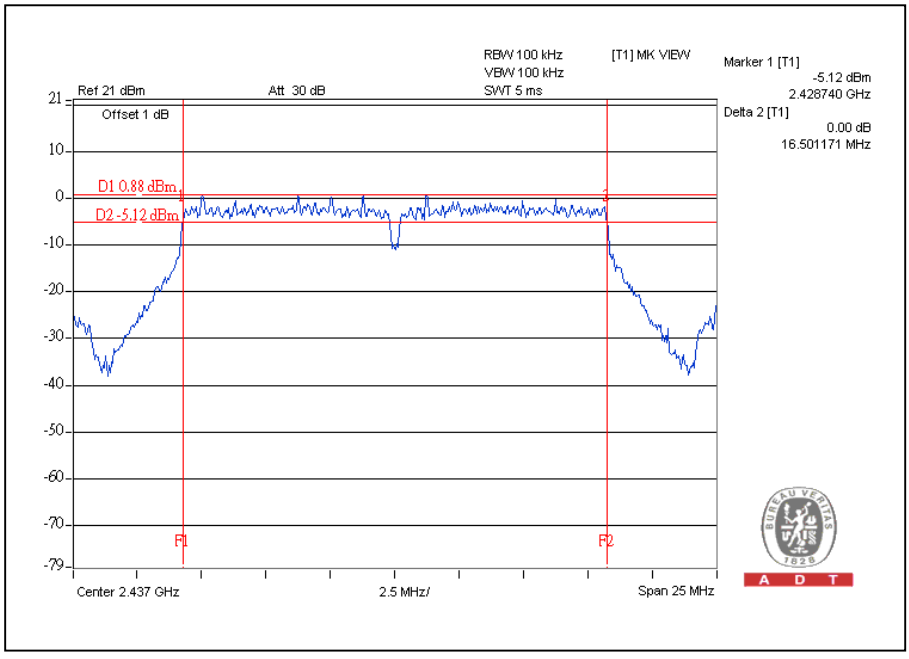
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.50	0.5	PASS
6	2437	16.50	0.5	PASS
11	2462	16.49	0.5	PASS

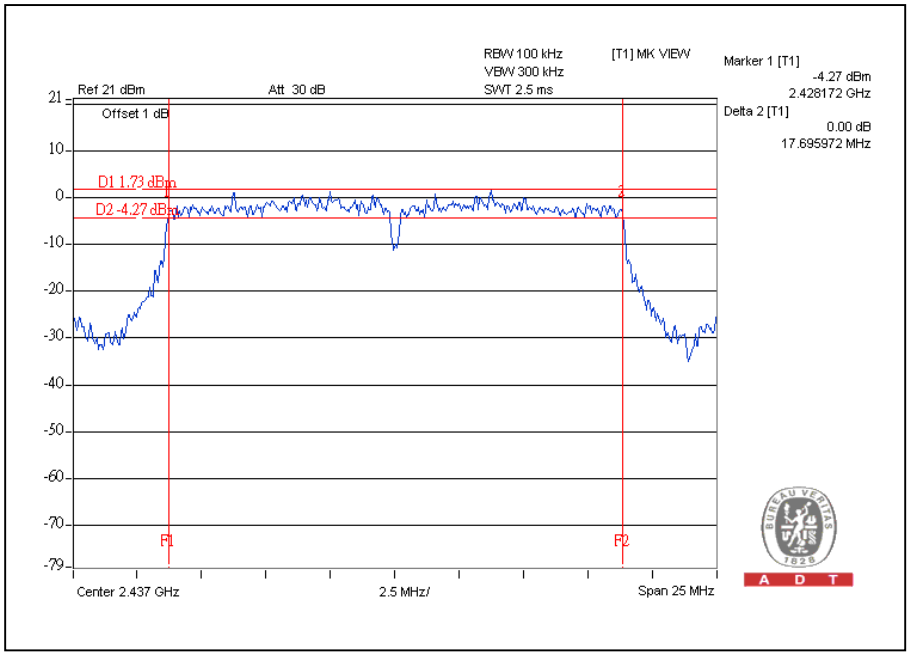
CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.64	0.5	PASS
6	2437	17.70	0.5	PASS
11	2462	17.68	0.5	PASS

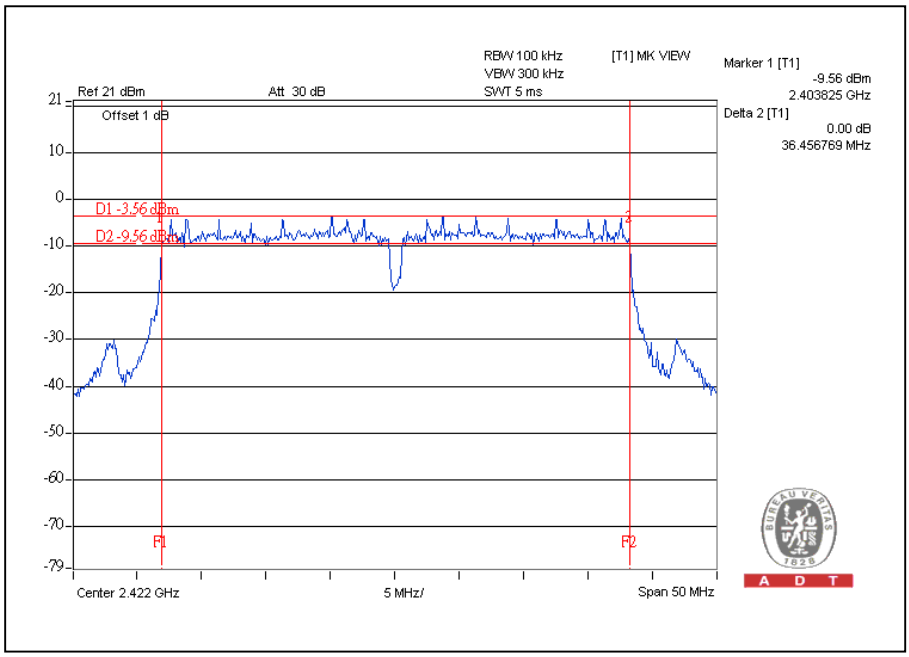
CH6



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2422	36.46	0.5	PASS
4	2437	35.54	0.5	PASS
7	2452	36.45	0.5	PASS

CH1



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
Anritsu Power Meter	ML2495A	0824006	April 25, 2009	April 24, 2010
Pulse Power Sensor	MA2411B	0738172	April 25, 2009	April 24, 2010

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

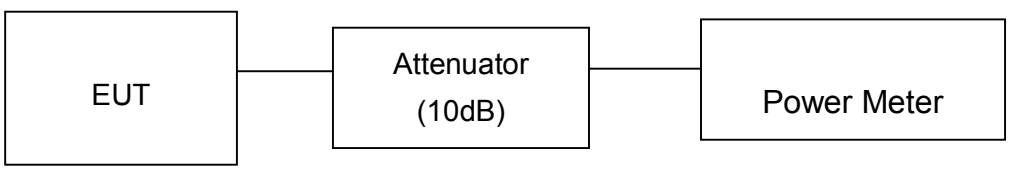
4.4.3 TEST PROCEDURES

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)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	19.6	91.2	30	PASS
6	2437	20.5	112.2	30	PASS
11	2462	20.7	117.5	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	23.1	204.2	30	PASS
6	2437	23.2	208.9	30	PASS
11	2462	23.0	199.5	30	PASS

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	22.4	22.8	364.3	25.6	30	PASS
6	2437	23.3	23.4	432.6	26.4	30	PASS
11	2462	22.2	22.5	343.8	25.4	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)				
1	2422	20.4	19.3	194.7	22.9	30	PASS
4	2437	21.8	20.9	274.4	24.4	30	PASS
7	2452	20.1	19.2	185.5	22.7	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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

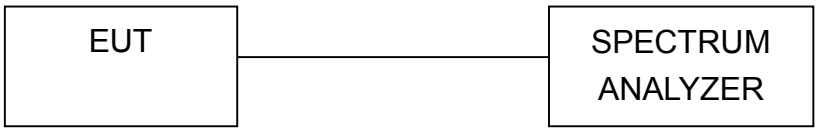
4.5.3 TEST PROCEDURE

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

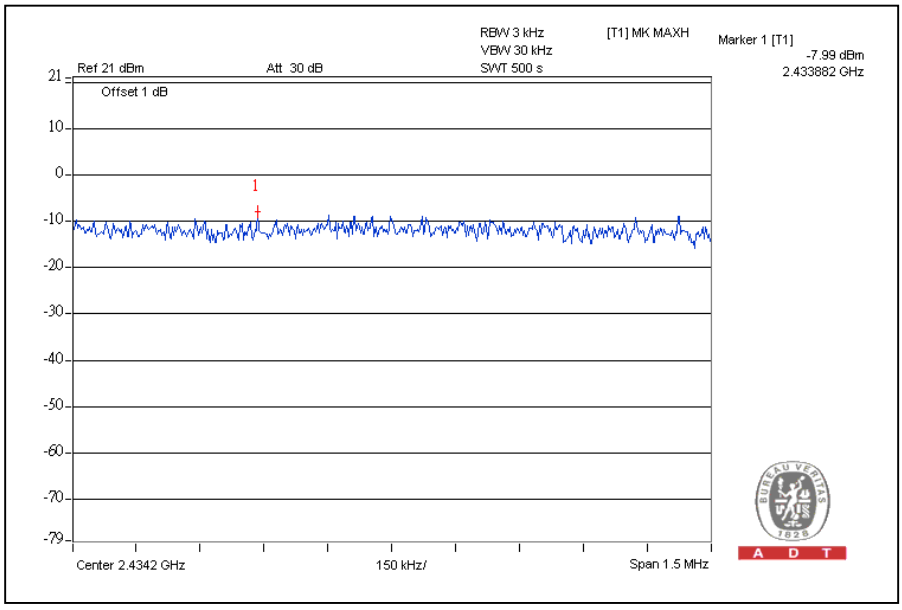
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-9.50	8	PASS
6	2437	-7.90	8	PASS
11	2462	-9.20	8	PASS

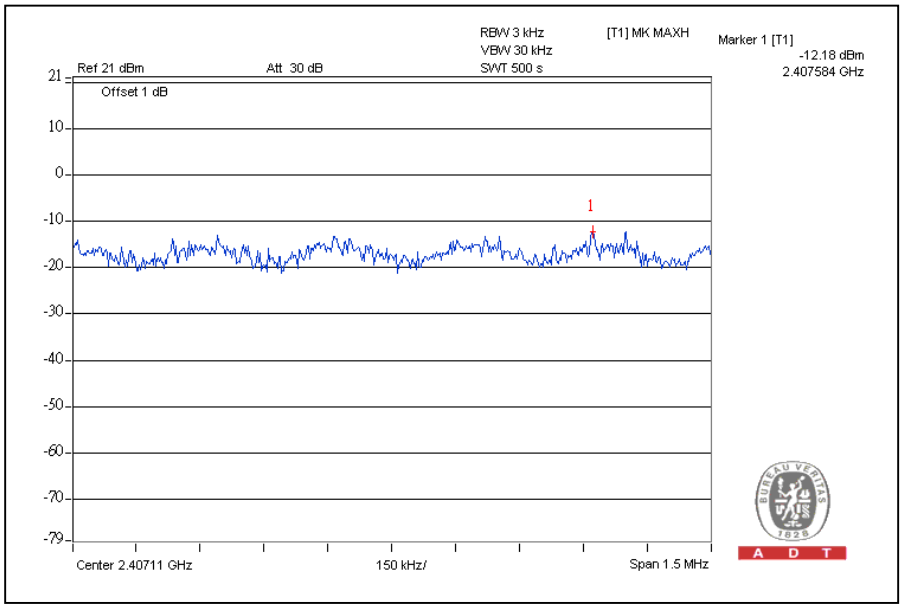
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-12.1	8	PASS
6	2437	-12.5	8	PASS
11	2462	-12.6	8	PASS

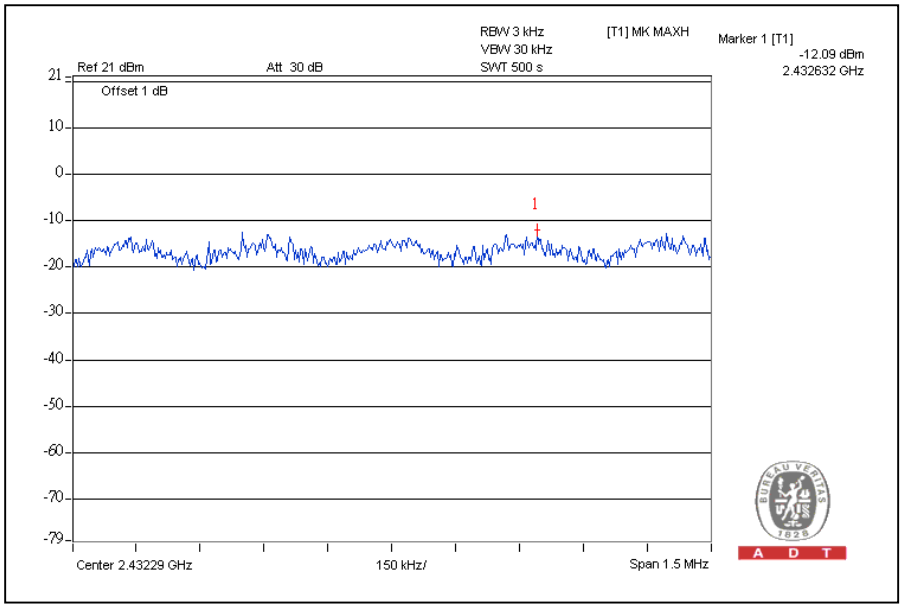
CH1



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	-13.5	-15.2	0.1	-10.0	8	PASS
6	2437	-12.0	-13.1	0.1	-10.0	8	PASS
11	2462	-14.2	-14.5	0.1	-10.0	8	PASS

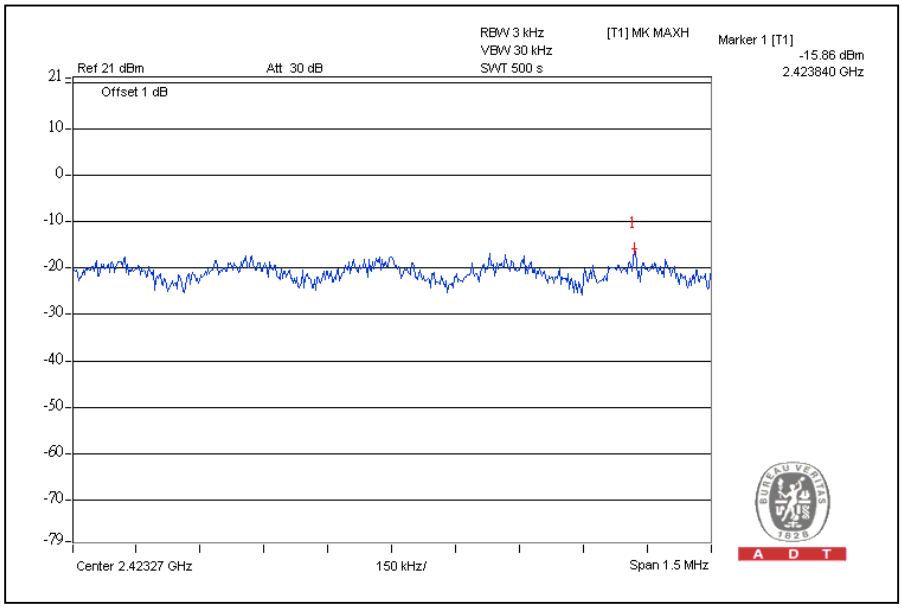
CH6



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2422	-17.3	-18.2	0.03	-15.2	8	PASS
4	2437	-15.8	-15.8	0.10	-10.0	8	PASS
7	2452	-18.9	-17.0	0.03	-15.2	8	PASS

CH4



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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. 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 lose cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was 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

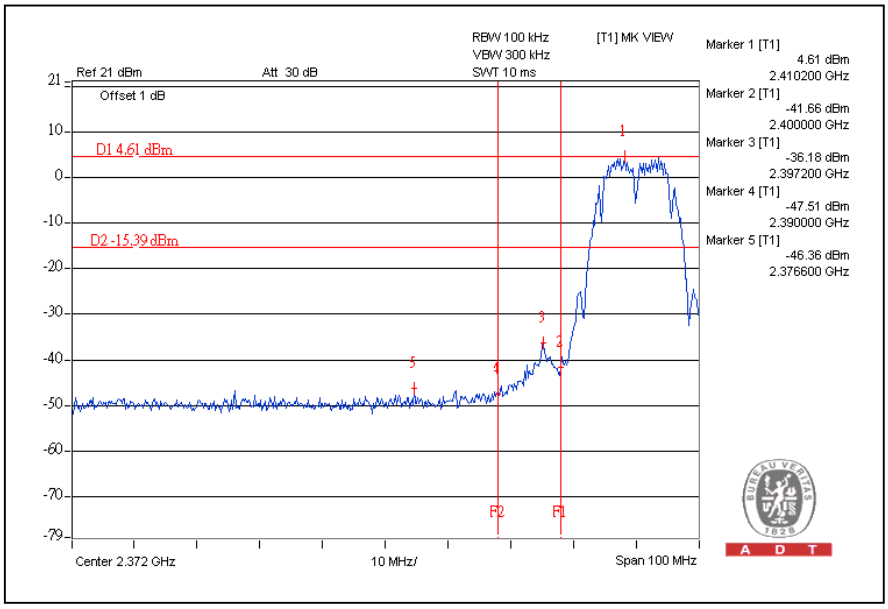
Same as Item 4.3.6

4.6.6 TEST RESULTS

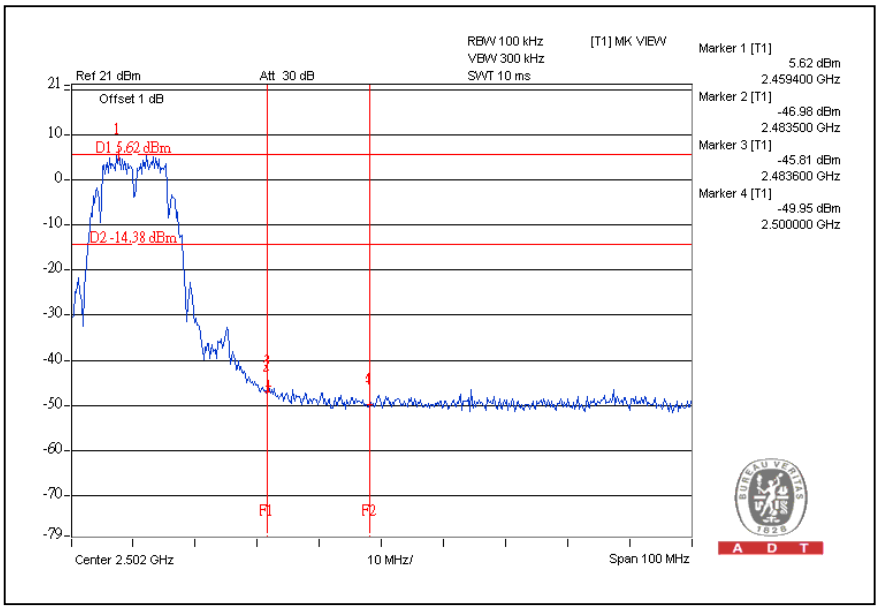
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

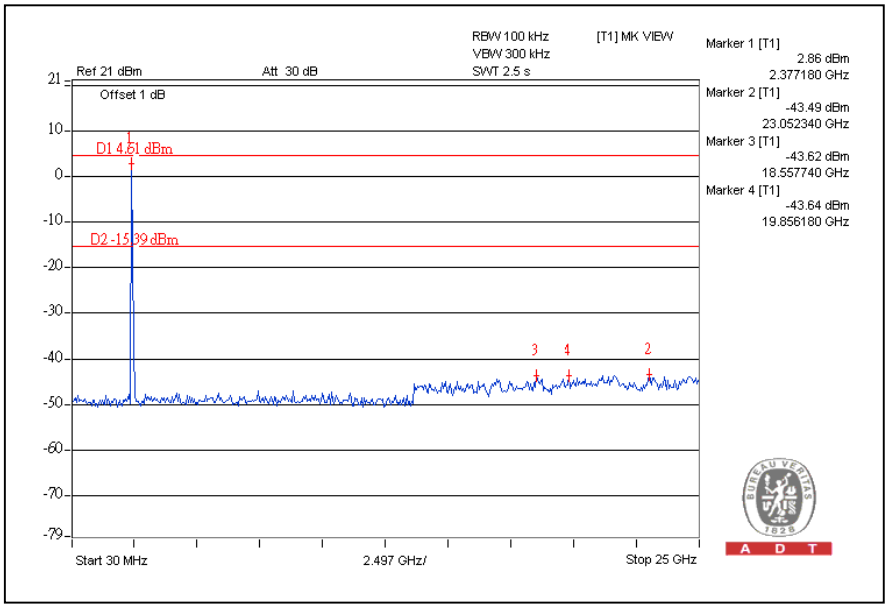
CH1



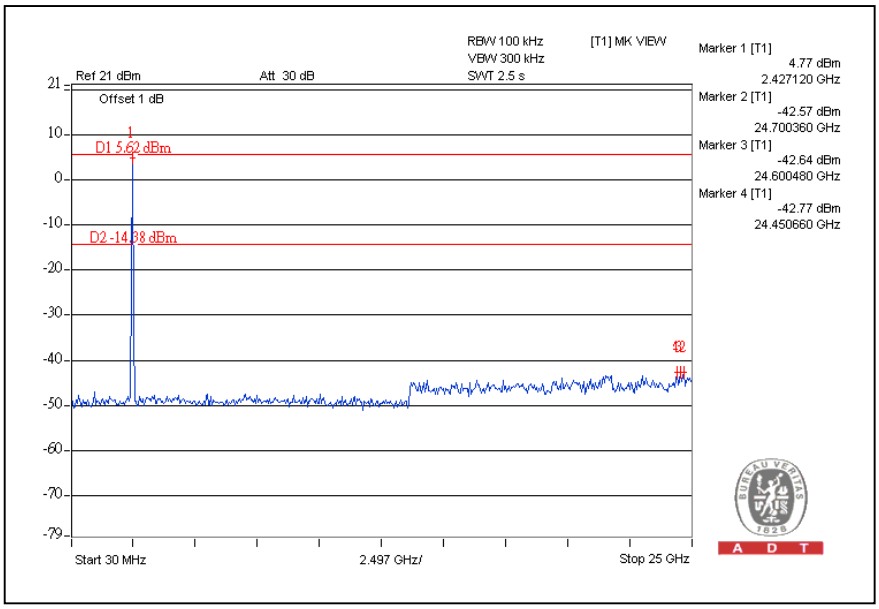
CH11



CH1

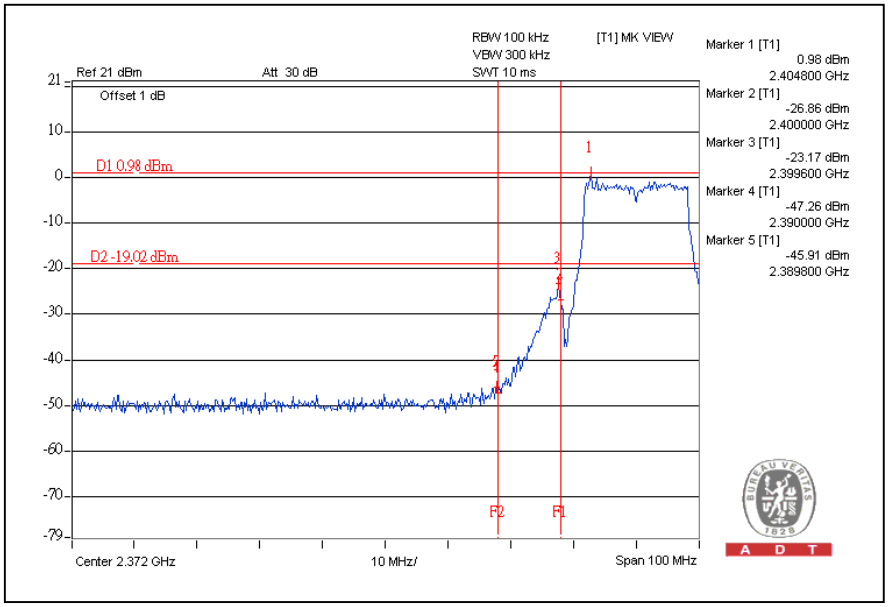

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 4.61 dBm
D2 -15.39 dBm
Marker 1 [T1]
2.86 dBm
2.377180 GHz
Marker 2 [T1]
-43.49 dBm
23.052340 GHz
Marker 3 [T1]
-43.62 dBm
18.557740 GHz
Marker 4 [T1]
-43.64 dBm
19.856180 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

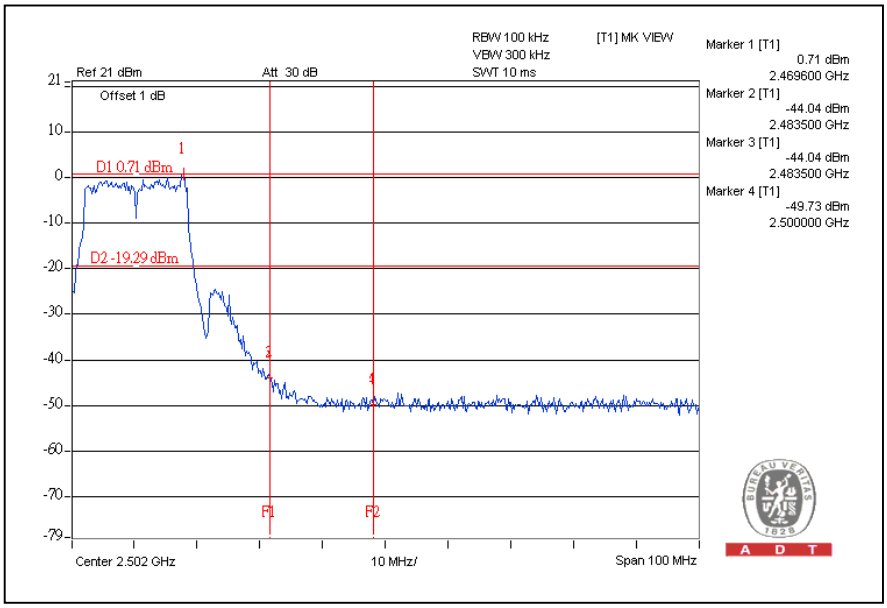

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 5.62 dBm
D2 -14.38 dBm
Marker 1 [T1]
4.77 dBm
2.427120 GHz
Marker 2 [T1]
-42.57 dBm
24.700360 GHz
Marker 3 [T1]
-42.64 dBm
24.600480 GHz
Marker 4 [T1]
-42.77 dBm
24.450660 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION::

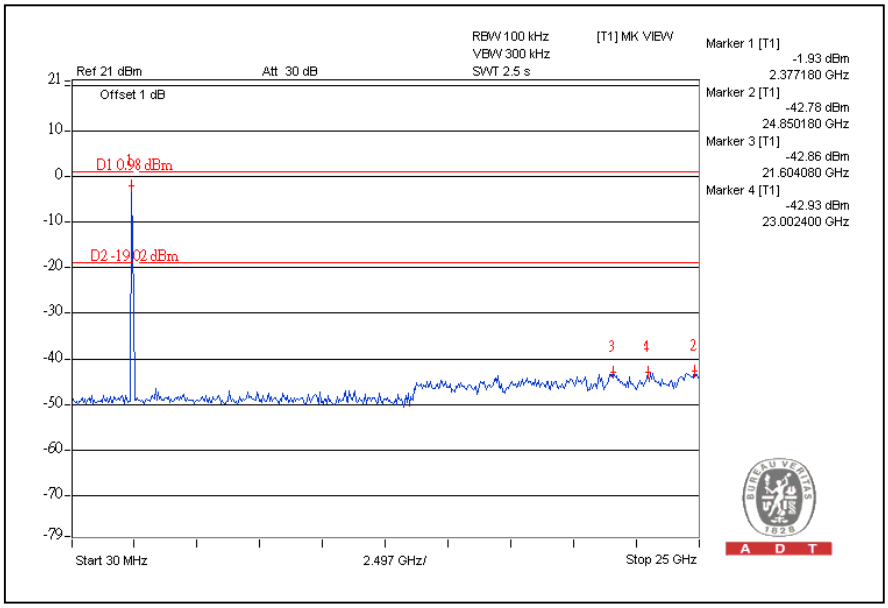
CH1



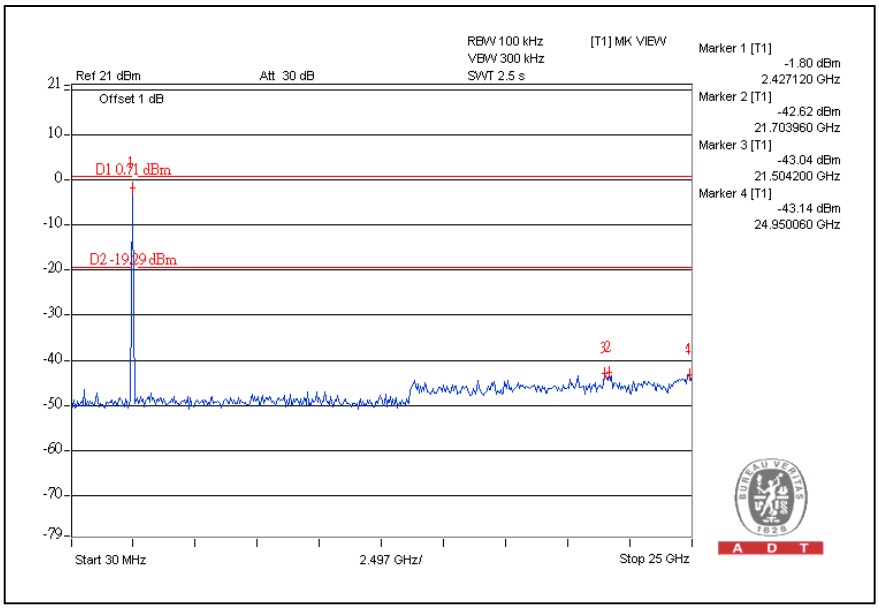
CH11



CH1

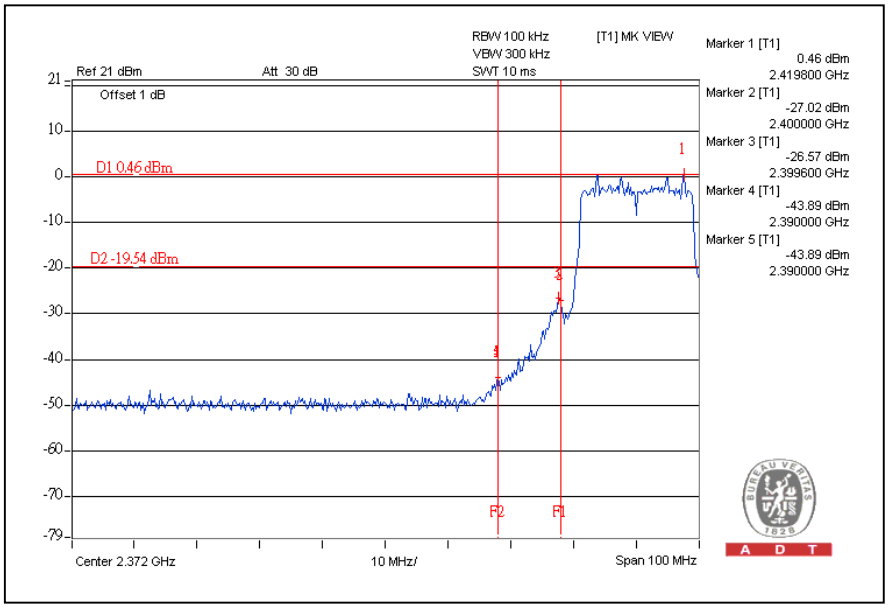

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.98 dBm
D2 -19.02 dBm
Marker 1 [T1]
-1.93 dBm
2.377180 GHz
Marker 2 [T1]
-42.78 dBm
24.850180 GHz
Marker 3 [T1]
-42.86 dBm
21.604080 GHz
Marker 4 [T1]
-42.93 dBm
23.002400 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

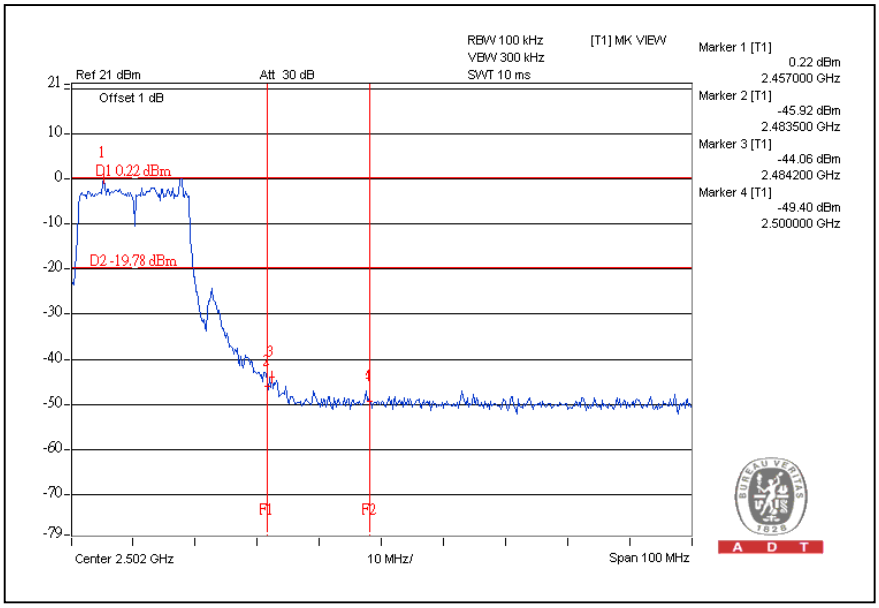

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.71 dBm
D2 -19.29 dBm
Marker 1 [T1]
-1.80 dBm
2.427120 GHz
Marker 2 [T1]
-42.62 dBm
21.703960 GHz
Marker 3 [T1]
-43.04 dBm
21.504200 GHz
Marker 4 [T1]
-43.14 dBm
24.950060 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (20MHz) OFDM MODULATION:

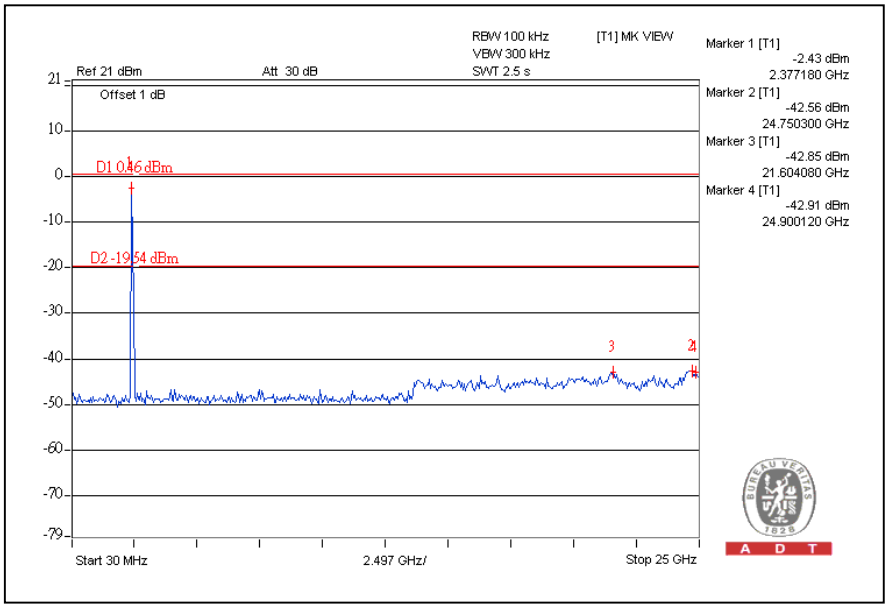
CH1



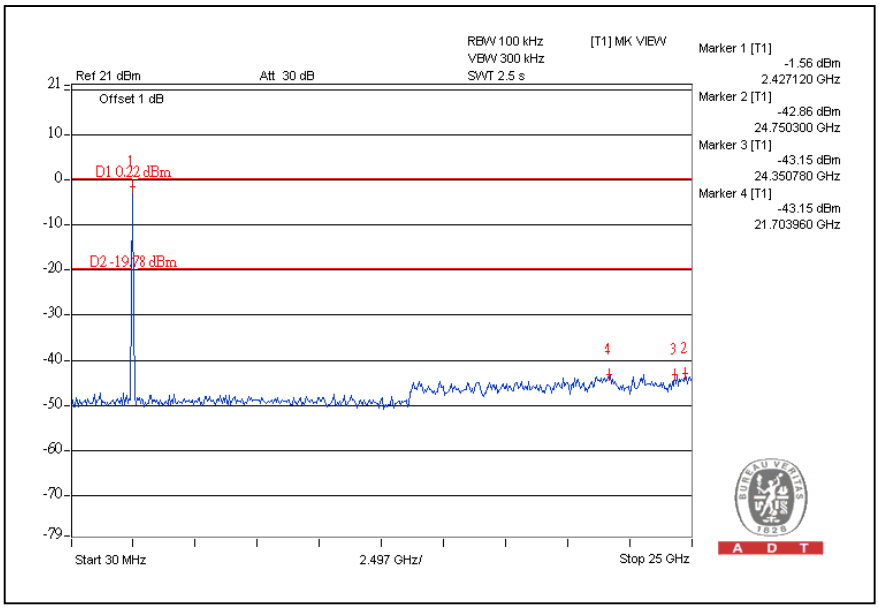
CH11



CH1

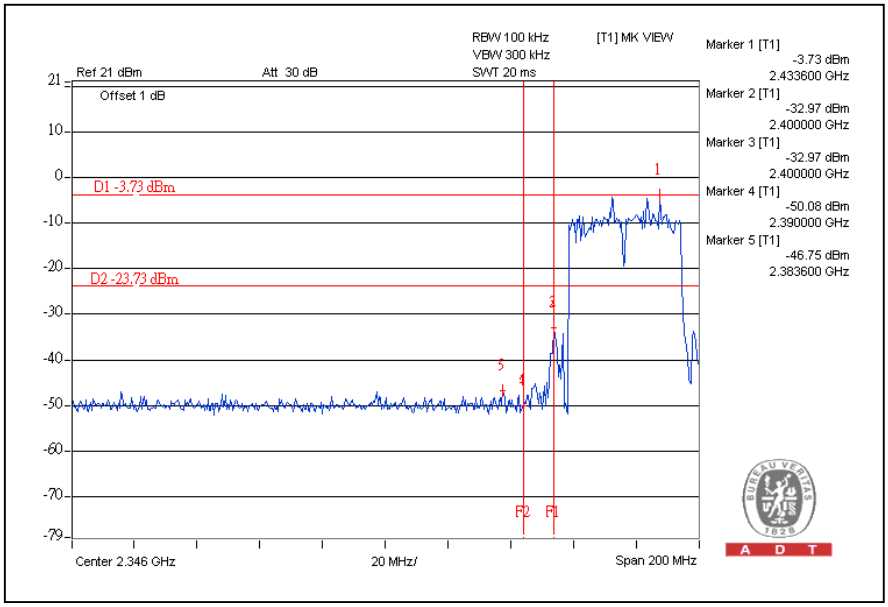

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.46 dBm
D2 -19.54 dBm
Marker 1 [T1]
-2.43 dBm
2.377180 GHz
Marker 2 [T1]
-42.56 dBm
24.750300 GHz
Marker 3 [T1]
-42.85 dBm
21.604080 GHz
Marker 4 [T1]
-42.91 dBm
24.900120 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

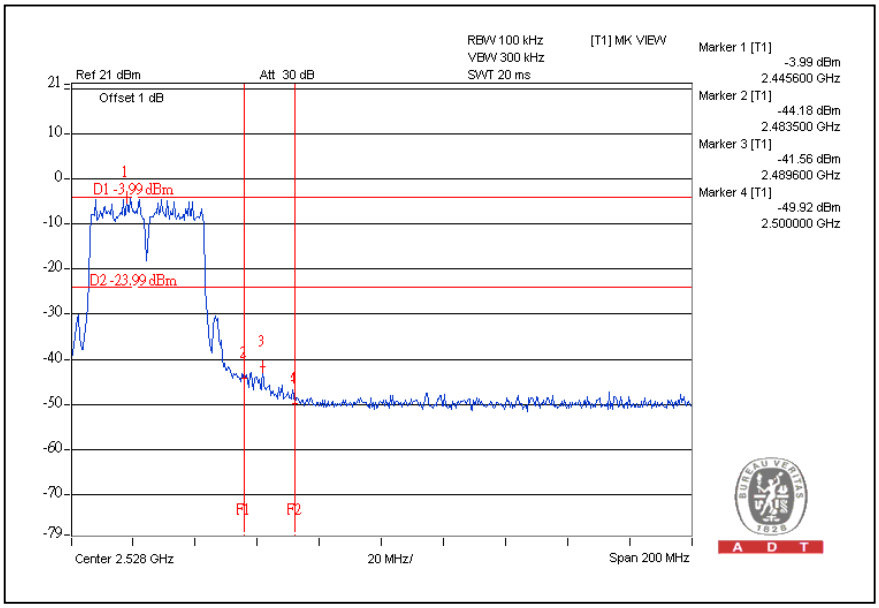

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 0.22 dBm
D2 -19.78 dBm
Marker 1 [T1]
-1.56 dBm
2.427120 GHz
Marker 2 [T1]
-42.86 dBm
24.750300 GHz
Marker 3 [T1]
-43.15 dBm
24.350780 GHz
Marker 4 [T1]
-43.15 dBm
21.703960 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11n (40MHz) OFDM MODULATION:

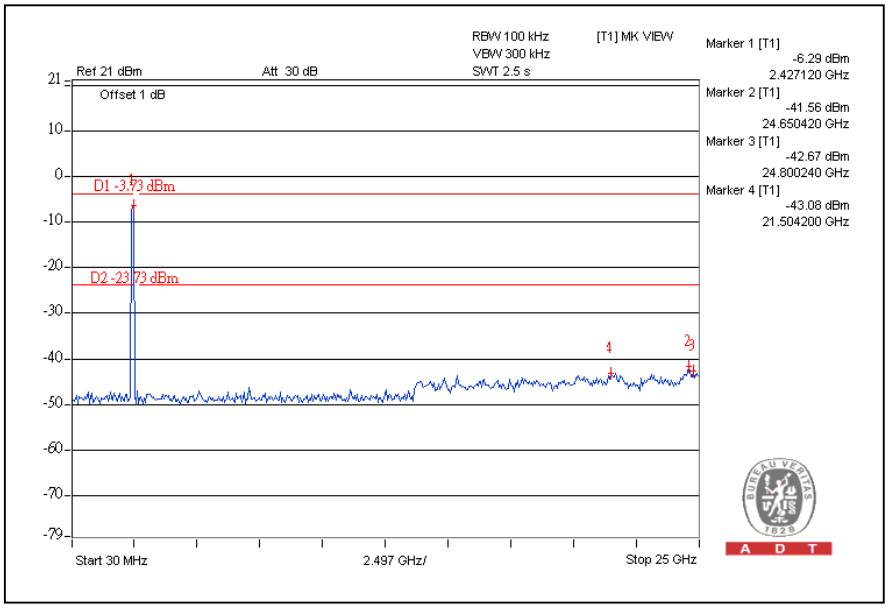
CH1



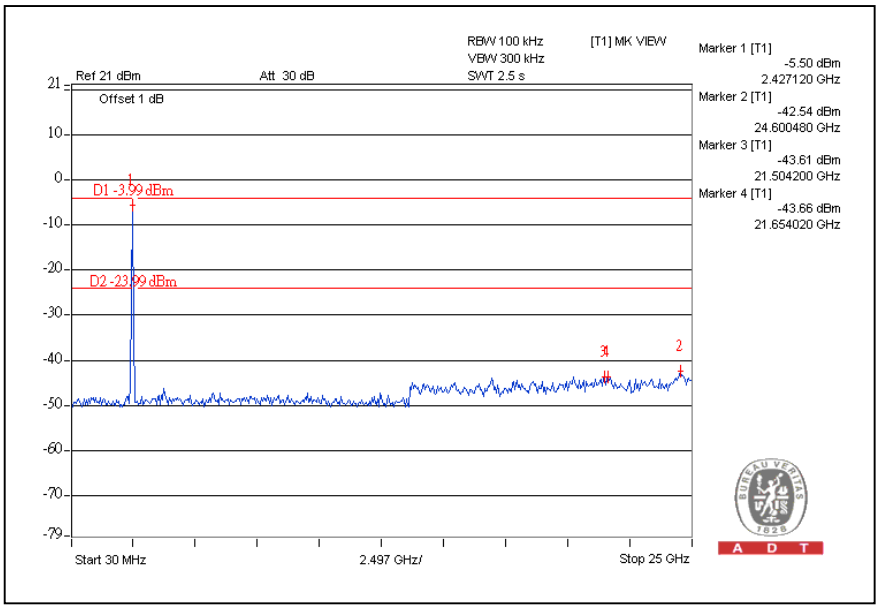
CH7



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -3.73 dBm
D2 -23.73 dBm
Marker 1 [T1]
-6.29 dBm
2.427120 GHz
Marker 2 [T1]
-41.56 dBm
24.650420 GHz
Marker 3 [T1]
-42.67 dBm
24.800240 GHz
Marker 4 [T1]
-43.08 dBm
21.504200 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH7


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -3.99 dBm
D2 -23.99 dBm
Marker 1 [T1]
-5.50 dBm
2.427120 GHz
Marker 2 [T1]
-42.54 dBm
24.600480 GHz
Marker 3 [T1]
-43.61 dBm
21.504200 GHz
Marker 4 [T1]
-43.66 dBm
21.654020 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 05, 2009	Mar. 04, 2010
Line-Impedance Stabilization Network (for EUT)	KNW-407	8-1395-12	May 04, 2009	May 03, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 08, 2009	June 07, 2010
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec 15, 2008	Dec 14, 2009
50 ohms Terminator	50	3	Nov. 05, 2009	Nov. 04, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

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

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.

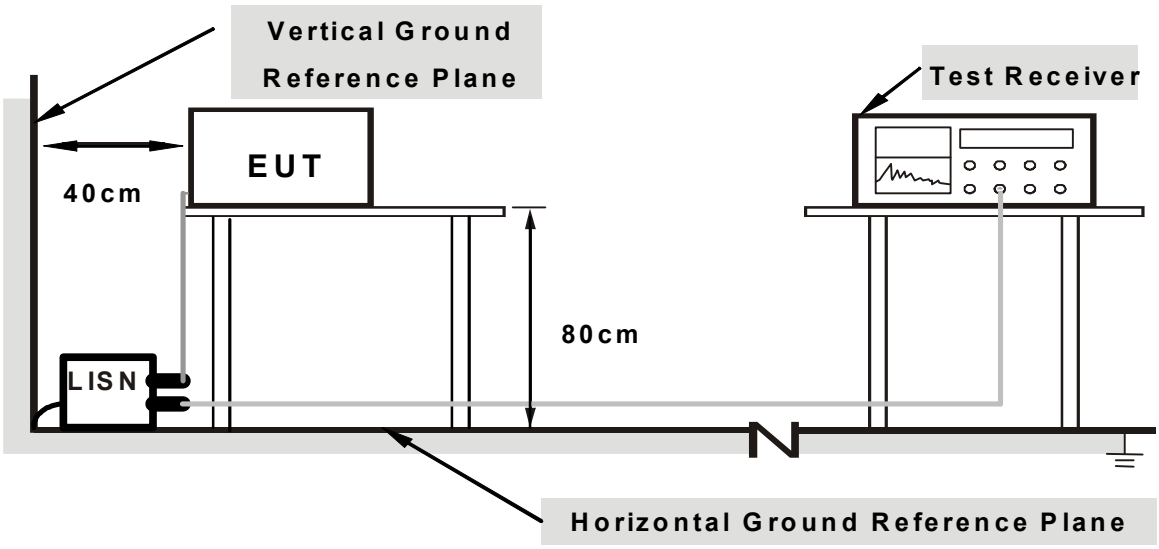
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

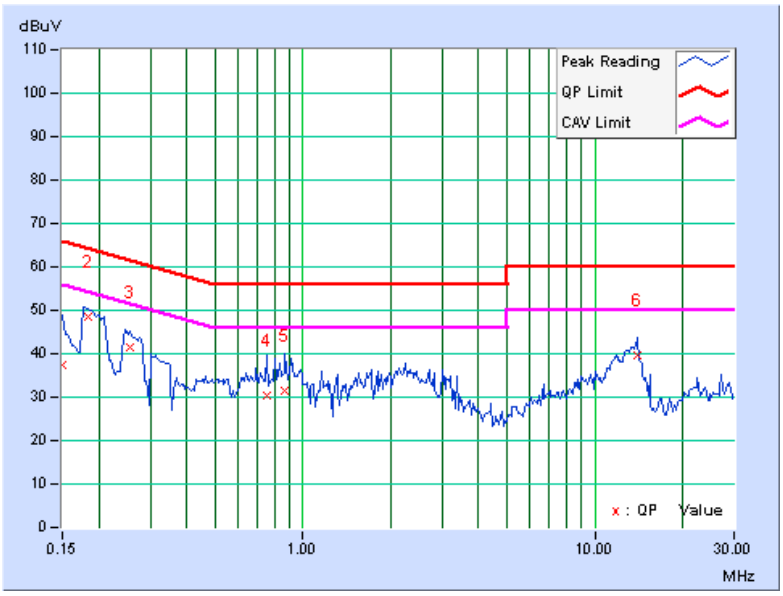
5.1.7 TEST RESULTS

802.11n (20MHz) OFDM MODULATION::

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.28	37.09	-	37.37	-	66.00	56.00	-28.63	-
2	**0.185**	**0.20**	**48.14**	**-**	**48.34**	**-**	**64.27**	**54.27**	**-15.92**	**-**
3	0.255	0.15	41.28	-	41.43	-	61.58	51.58	-20.15	-
4	0.752	0.07	30.32	-	30.39	-	56.00	46.00	-25.61	-
5	0.869	0.06	31.34	-	31.40	-	56.00	46.00	-24.60	-
6	14.059	0.33	39.40	-	39.73	-	60.00	50.00	-20.27	-

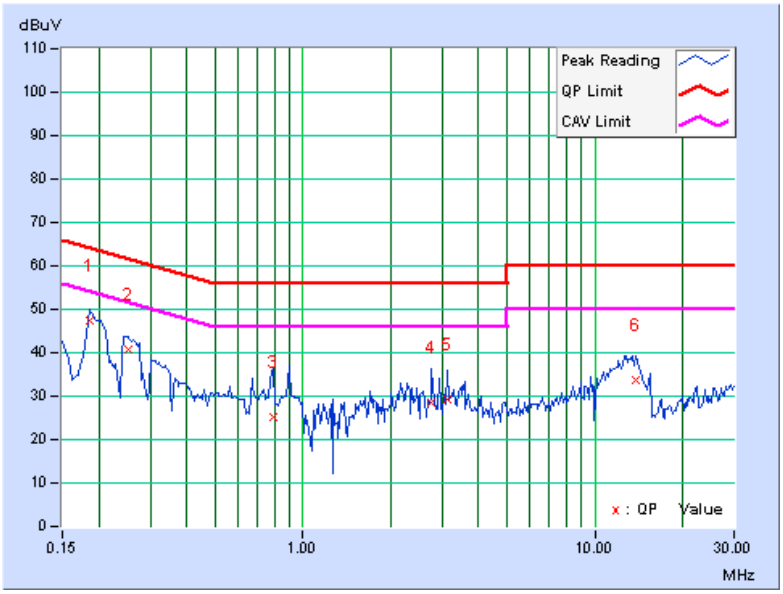
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	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	0.187	0.21	47.13	-	47.34	-	64.19	54.19	-16.85	-
2	0.252	0.16	40.68	-	40.84	-	61.71	51.71	-20.87	-
3	0.791	0.08	25.03	-	25.11	-	56.00	46.00	-30.89	-
4	2.766	0.12	28.37	-	28.49	-	56.00	46.00	-27.51	-
5	3.117	0.13	29.04	-	29.17	-	56.00	46.00	-26.83	-
6	13.746	0.35	33.40	-	33.75	-	60.00	50.00	-26.25	-

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.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
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, HP 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 area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

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

c. The antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

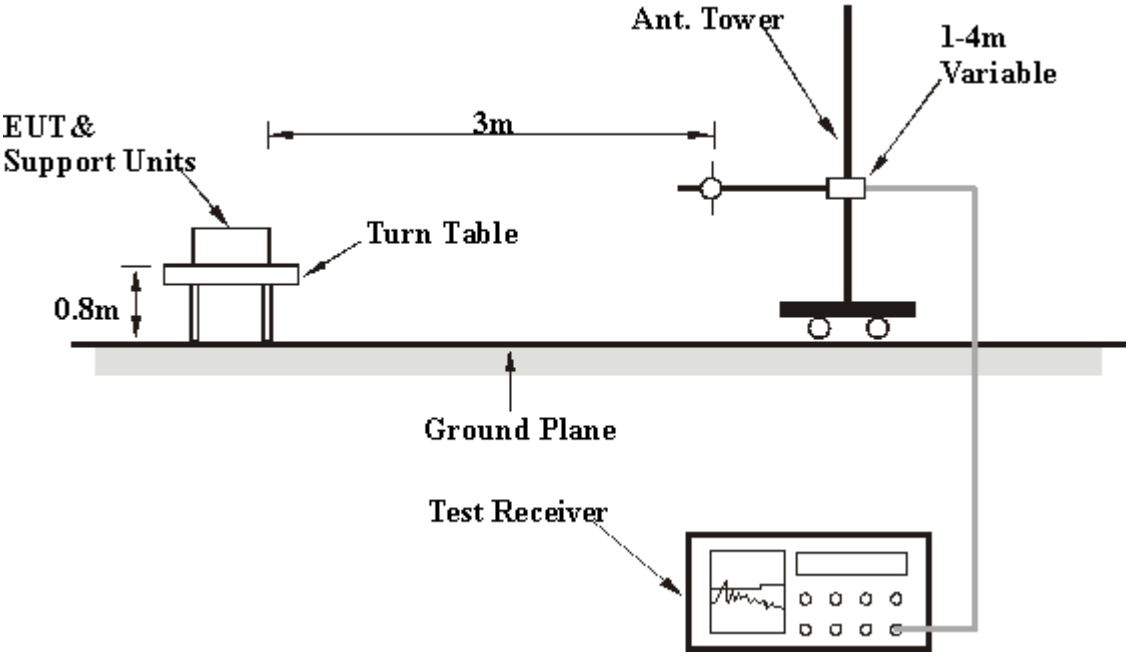
NOTE:

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

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 4.2.6

5.2.7 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	29deg. C, 67%RH 1012 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	166.59	31.7 QP	43.50	-11.8	1.48 H	339	17.06	14.66
2	180.12	32.9 QP	43.50	-10.6	1.41 H	92	19.86	13.07
3	300.05	42.8 QP	46.00	-3.2	1.07 H	216	26.81	16.01
4	333.32	41.4 QP	46.00	-4.6	1.11 H	324	24.58	16.85
5	460.74	35.0 QP	46.00	-11.0	1.42 H	167	14.79	20.20
6	468.02	35.1 QP	46.00	-10.9	1.32 H	175	14.66	20.40
7	619.14	42.5 QP	46.00	-3.5	1.33 H	185	18.45	24.06
8	933.26	40.9 QP	46.00	-5.1	1.54 H	34	12.42	28.46
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	166.61	29.0 QP	43.50	-14.5	1.05 V	244	14.36	14.66
2	180.01	33.8 QP	43.50	-9.7	1.05 V	201	20.74	13.08
3	300.02	41.3 QP	46.00	-4.7	1.44 V	352	25.26	16.01
4	333.37	41.0 QP	46.00	-5.1	1.49 V	336	24.10	16.85
5	460.45	41.6 QP	46.00	-4.4	1.02 V	152	21.43	20.19
6	468.02	42.0 QP	46.00	-4.1	1.05 V	239	21.55	20.40
7	**619.50**	**42.9 QP**	**46.00**	**-3.1**	**1.00 V**	**302**	**18.86**	**24.07**
8	933.27	41.2 QP	46.00	-4.9	1.09 V	142	12.69	28.46

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 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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	101.2 PK			1.61 H	78	63.23	37.96
2	*5745.00	90.4 AV			1.61 H	78	52.47	37.96
3	11490.00	53.8 PK	74.00	-20.2	1.01 H	145	6.54	47.23
4	11490.00	42.6 AV	54.00	-11.4	1.01 H	145	-4.61	47.23
5	#17235.00	61.1 PK	81.20	-20.1	1.19 H	218	8.72	52.33
6	#17235.00	49.5 AV	70.40	-20.9	1.19 H	218	-2.88	52.33
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	100.9 PK			1.07 V	138	62.92	37.96
2	*5745.00	91.5 AV			1.07 V	138	53.51	37.96
3	11490.00	55.4 PK	74.00	-18.6	1.24 V	135	8.16	47.23
4	11490.00	43.4 AV	54.00	-10.6	1.24 V	135	-3.81	47.23
5	#17235.00	61.1 PK	80.90	-19.8	1.20 V	212	8.76	52.33
6	#17235.00	49.3 AV	71.50	-22.2	1.20 V	212	-3.04	52.33

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

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	101.6 PK			1.61 H	81	63.53	38.07
2	*5785.00	91.7 AV			1.61 H	81	53.62	38.07
3	11570.00	54.5 PK	74.00	-19.6	1.02 H	148	7.23	47.22
4	11570.00	43.3 AV	54.00	-10.7	1.02 H	148	-3.95	47.22
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	101.8 PK			1.06 V	140	63.70	38.07
2	*5785.00	92.1 AV			1.06 V	140	54.05	38.07
3	11570.00	56.4 PK	74.00	-17.6	1.21 V	141	9.14	47.22
4	11570.00	43.7 AV	54.00	-10.3	1.21 V	141	-3.51	47.22

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	99.8 PK			1.61 H	74	61.62	38.18
2	*5825.00	90.1 AV			1.61 H	74	51.94	38.18
3	11650.00	55.6 PK	74.00	-18.4	1.05 H	152	8.39	47.22
4	11650.00	44.3 AV	54.00	-9.7	1.05 H	152	-2.96	47.22
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	99.9 PK			1.07 V	140	61.68	38.18
2	*5825.00	90.3 AV			1.07 V	140	52.16	38.18
3	11650.00	58.9 PK	74.00	-15.1	1.19 V	136	11.67	47.22
4	11650.00	45.6 AV	54.00	-8.4	1.19 V	136	-1.63	47.22

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5745.00	102.7 PK			1.54 H	88	64.73	37.96
2	*5745.00	93.2 AV			1.54 H	88	55.26	37.96
3	11490.00	61.7 PK	74.00	-12.3	1.05 H	137	14.48	47.23
4	11490.00	45.6 AV	54.00	-8.4	1.05 H	137	-1.61	47.23
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	*5745.00	103.9 PK			1.20 V	90	65.97	37.96
2	*5745.00	94.6 AV			1.20 V	90	56.59	37.96
3	11490.00	61.2 PK	74.00	-12.9	1.37 V	146	13.92	47.23
4	11490.00	45.3 AV	54.00	-8.7	1.37 V	146	-1.95	47.23

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.
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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	103.6 PK			1.53 H	77	65.54	38.07
2	*5785.00	94.3 AV			1.53 H	77	56.18	38.07
3	11570.00	62.0 PK	74.00	-12.0	1.03 H	142	14.81	47.22
4	11570.00	46.1 AV	54.00	-7.9	1.03 H	142	-1.08	47.22
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	105.3 PK			1.20 V	90	67.22	38.07
2	*5785.00	95.6 AV			1.20 V	90	57.51	38.07
3	11570.00	61.2 PK	74.00	-12.8	1.35 V	143	13.99	47.22
4	11570.00	45.7 AV	54.00	-8.3	1.35 V	143	-1.55	47.22

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	103.0 PK			1.53 H	77	64.79	38.18
2	*5825.00	93.0 AV			1.53 H	77	54.85	38.18
3	11650.00	57.5 PK	74.00	-16.5	1.02 H	131	10.29	47.22
4	11650.00	45.4 AV	54.00	-8.6	1.02 H	131	-1.84	47.22
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	103.1 PK			1.20 V	89	64.91	38.18
2	*5825.00	93.9 AV			1.20 V	89	55.71	38.18
3	11650.00	61.7 PK	74.00	-12.3	1.34 V	138	14.52	47.22
4	11650.00	48.2 AV	54.00	-5.8	1.34 V	138	1.01	47.22

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5755.00	100.6 PK			1.54 H	77	62.65	37.98
2	*5755.00	89.9 AV			1.54 H	77	51.94	37.98
3	11510.00	54.1 PK	74.00	-19.9	1.05 H	141	6.90	47.23
4	11510.00	42.4 AV	54.00	-11.6	1.05 H	141	-4.82	47.23
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	*5755.00	102.1 PK			1.20 V	90	64.12	37.98
2	*5755.00	91.4 AV			1.20 V	90	53.39	37.98
3	11510.00	54.3 PK	74.00	-19.7	1.34 V	143	7.03	47.23
4	11510.00	42.4 AV	54.00	-11.6	1.34 V	143	-4.80	47.23

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.
6. The limit value is defined as per 15.247.

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	28deg. C, 61%RH 1012 hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	99.5 PK			1.53 H	77	61.43	38.10
2	*5795.00	89.8 AV			1.53 H	77	51.70	38.10
3	11590.00	54.0 PK	74.00	-20.0	1.04 H	136	6.74	47.22
4	11590.00	42.8 AV	54.00	-11.2	1.04 H	136	-4.43	47.22
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	103.5 PK			1.20 V	91	65.40	38.10
2	*5795.00	91.0 AV			1.20 V	91	52.87	38.10
3	11590.00	54.5 PK	74.00	-19.5	1.37 V	142	7.27	47.22
4	11590.00	43.7 AV	54.00	-10.3	1.37 V	142	-3.55	47.22

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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. 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 100kHz 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

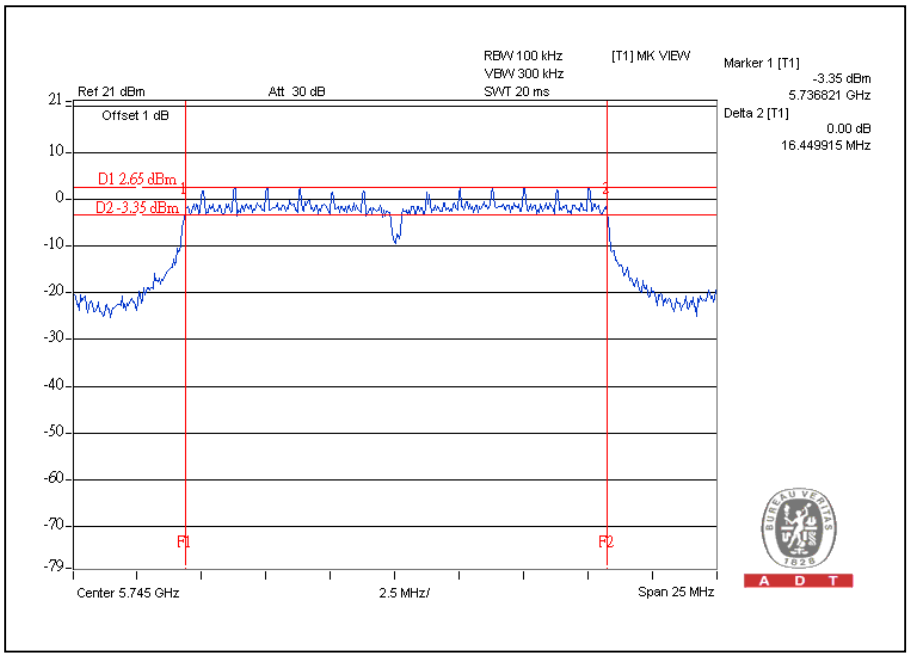
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.45	0.5	PASS
157	5785	16.44	0.5	PASS
165	5825	16.42	0.5	PASS

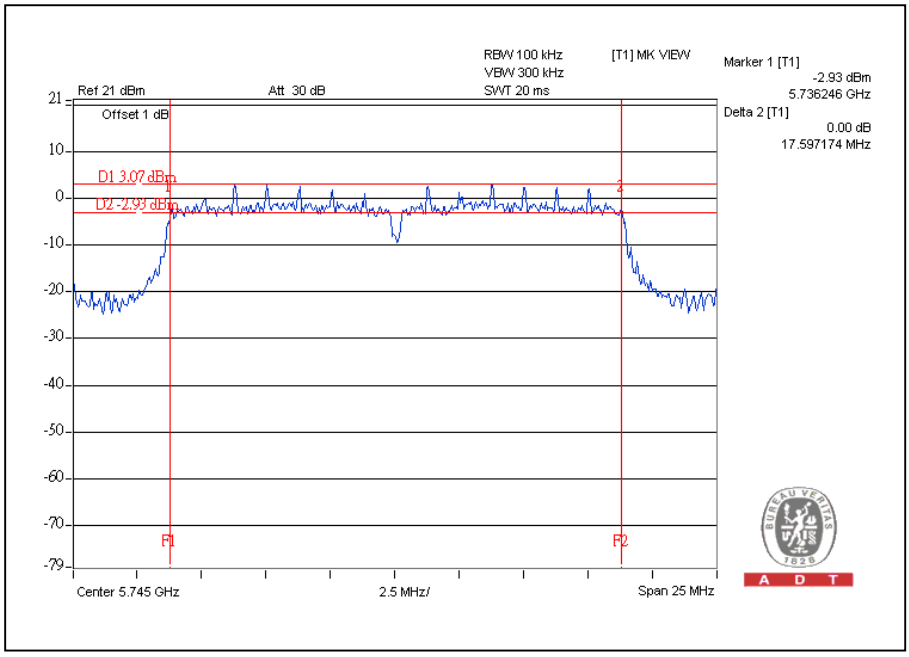
CH149



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.60	0.5	PASS
157	5785	17.59	0.5	PASS
165	5825	17.37	0.5	PASS

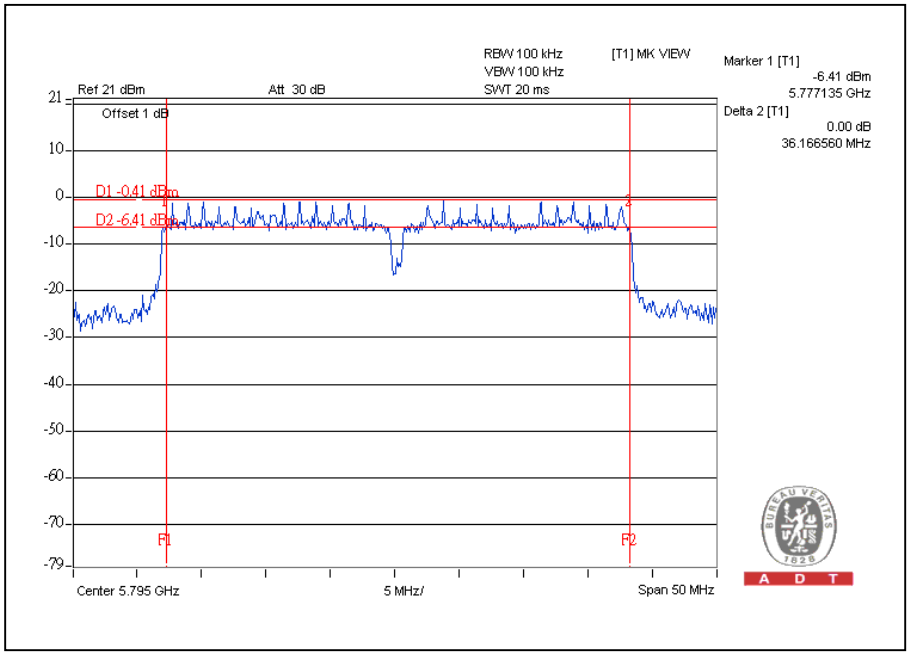
CH149



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.08	0.5	PASS
159	5795	36.17	0.5	PASS

CH159



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
Anritsu Power Meter	ML2495A	0824006	April 25, 2009	April 24, 2010
Pulse Power Sensor	MA2411B	0738172	April 25, 2009	April 24, 2010

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

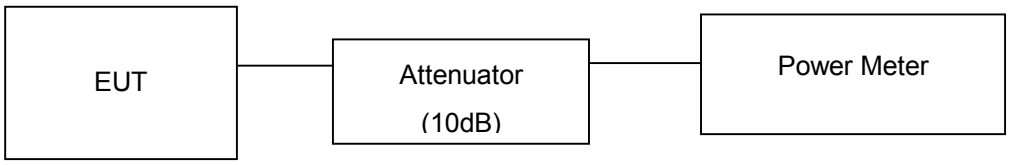
5.4.3 TEST PROCEDURES

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)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	21.2	131.8	30	PASS
157	5785	22.0	158.5	30	PASS
165	5825	21.2	131.8	30	PASS

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	21.9	22.3	324.7	25.1	30	PASS
157	5785	21.8	22.1	313.6	25.0	30	PASS
165	5825	21.7	22.0	306.4	24.9	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	21.8	22.1	313.6	25.0	30	PASS
159	5795	21.4	22.2	304.0	24.8	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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

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

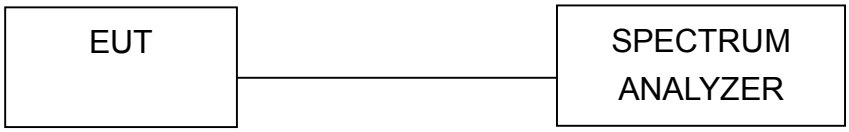
5.5.3 TEST PROCEDURE

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

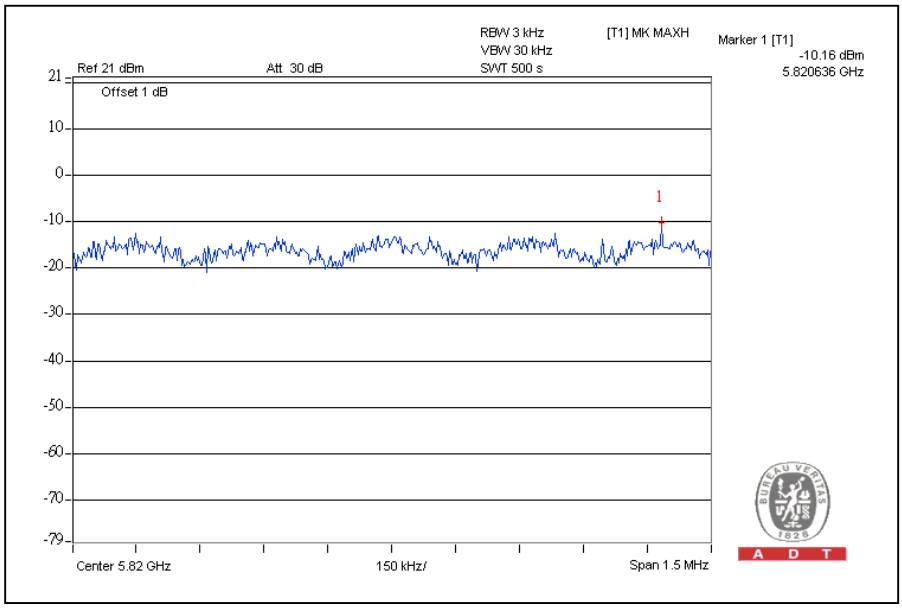
Same as Item 4.3.6

5.5.7 TEST RESULTS

802.11a OFDM modulation

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-12.3	8	PASS
157	5785	-12.1	8	PASS
165	5825	-10.1	8	PASS

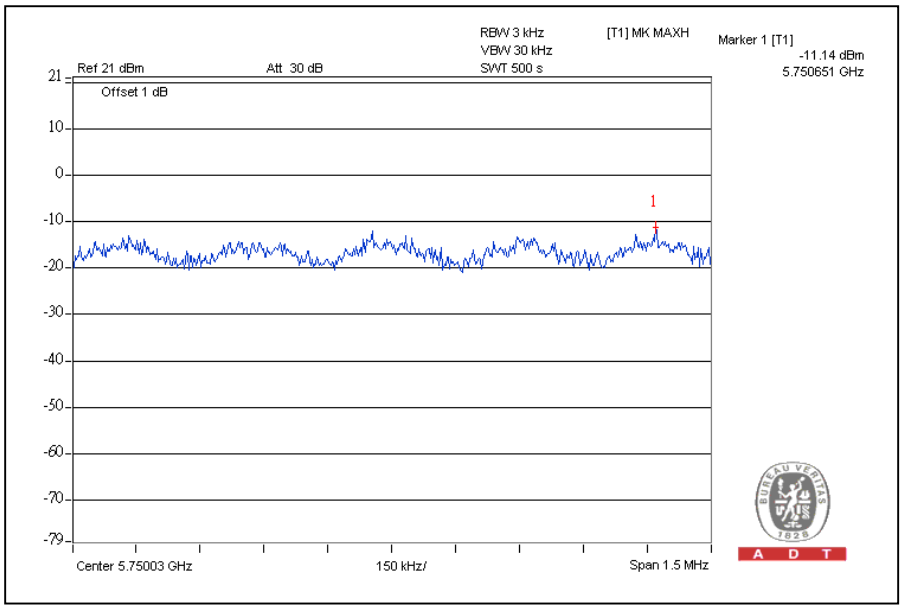
CH165



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	-11.10	-12.70	-8.8	8	PASS
157	5785	-12.30	-11.20	-8.7	8	PASS
165	5825	-11.90	-12.30	-9.1	8	PASS

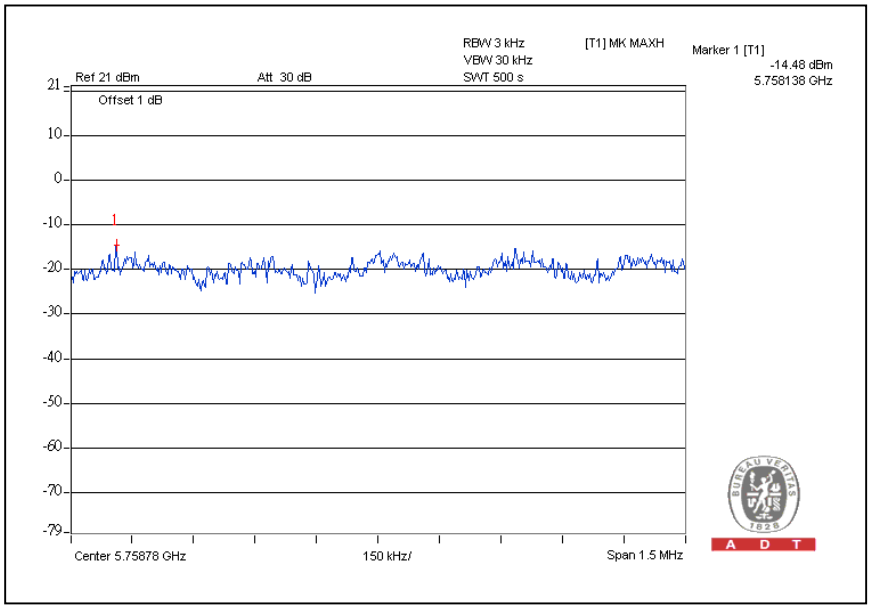
CH149



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	-14.4	-15.9	-12.08	8	PASS
159	5795	-15.3	-15.9	-12.58	8	PASS

CH151



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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 03, 2009	Aug. 02, 2010

NOTE:

1. 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 lose cable. Set RBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz 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

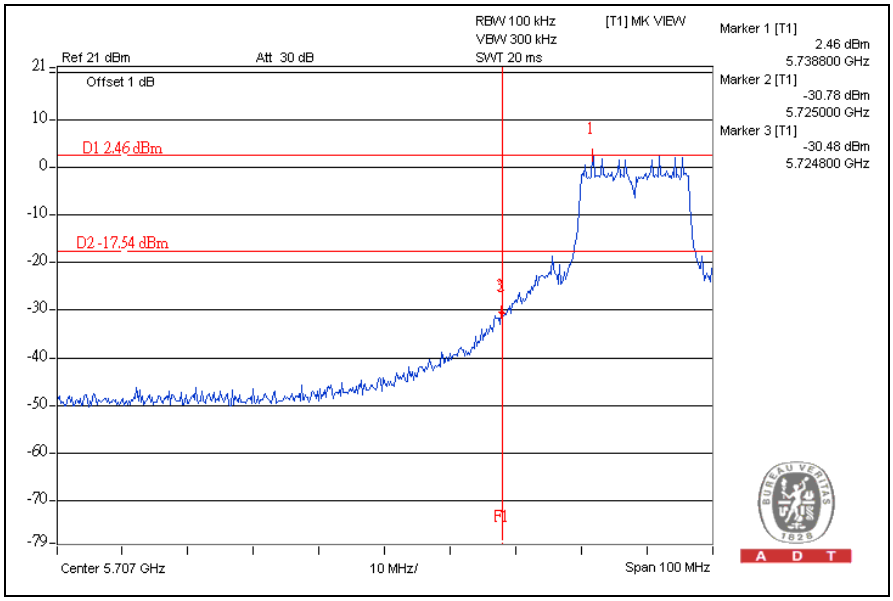
Same as Item 4.3.6

5.6.6 TEST RESULTS

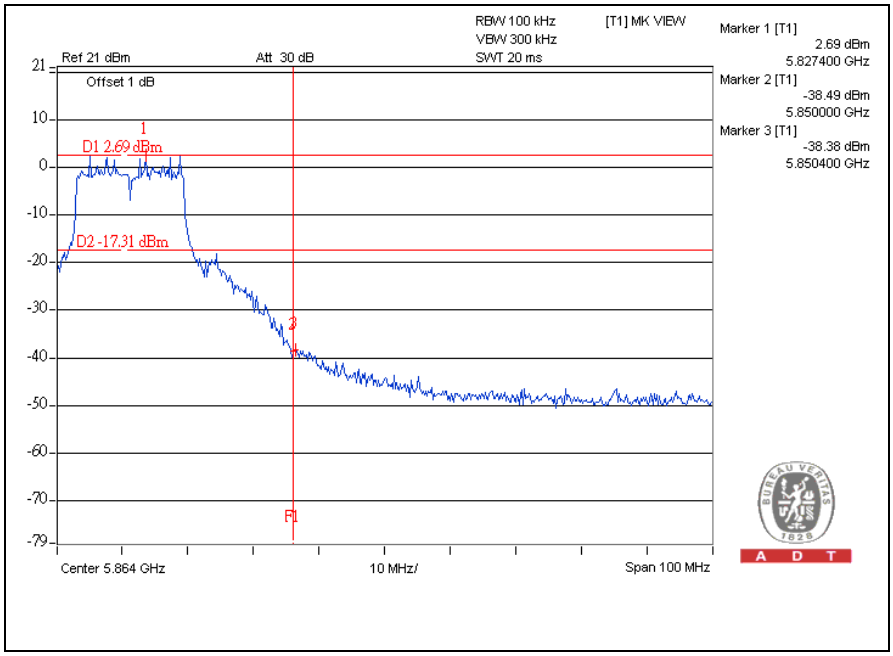
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

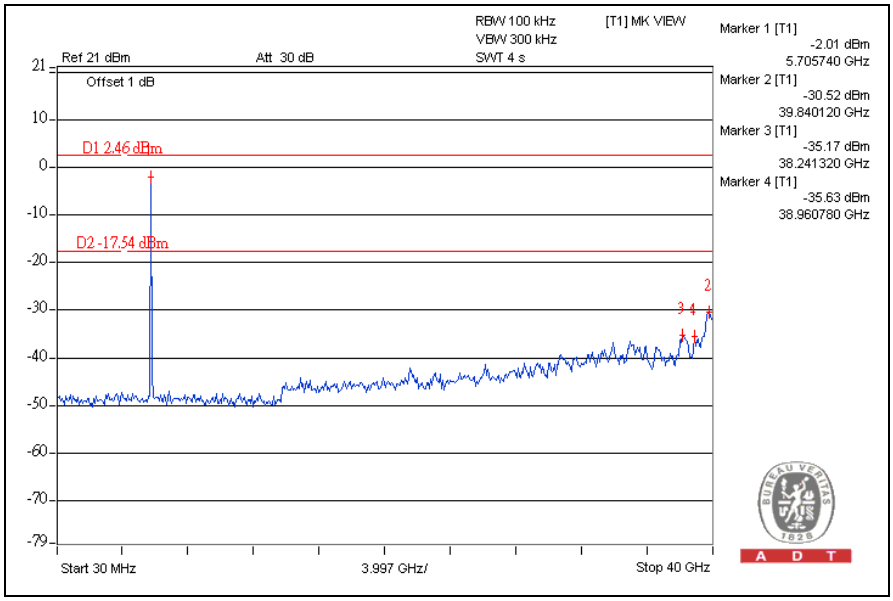
CH149



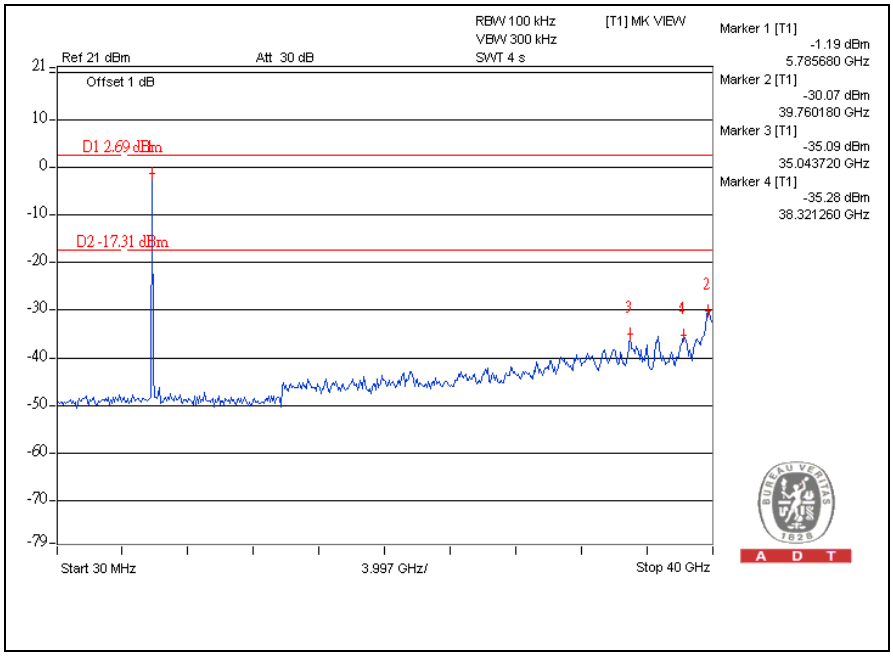
CH165



CH149

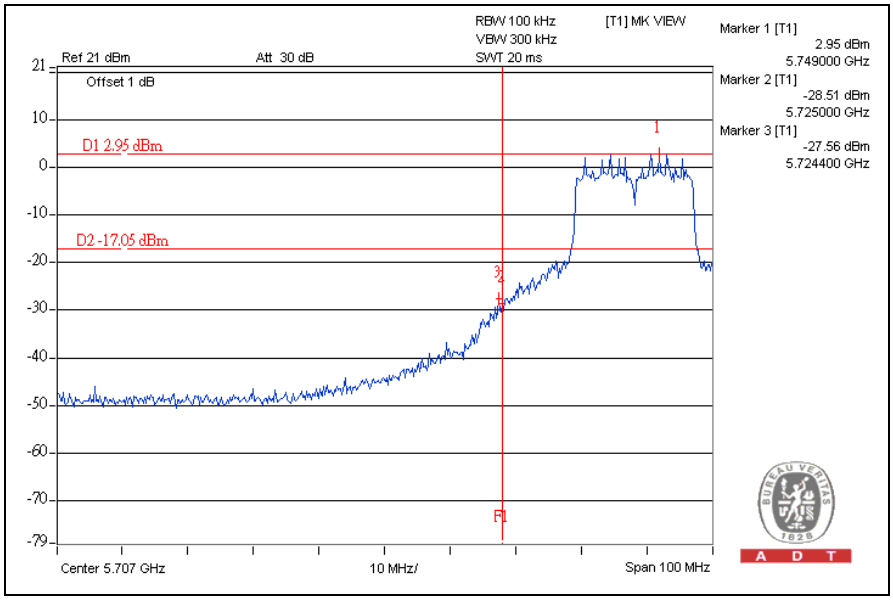

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 2.46 dBm
D2 -17.54 dBm
Marker 1 [T1]
-2.01 dBm
5.705740 GHz
Marker 2 [T1]
-30.52 dBm
39.840120 GHz
Marker 3 [T1]
-35.17 dBm
38.241320 GHz
Marker 4 [T1]
-35.63 dBm
38.960780 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH165

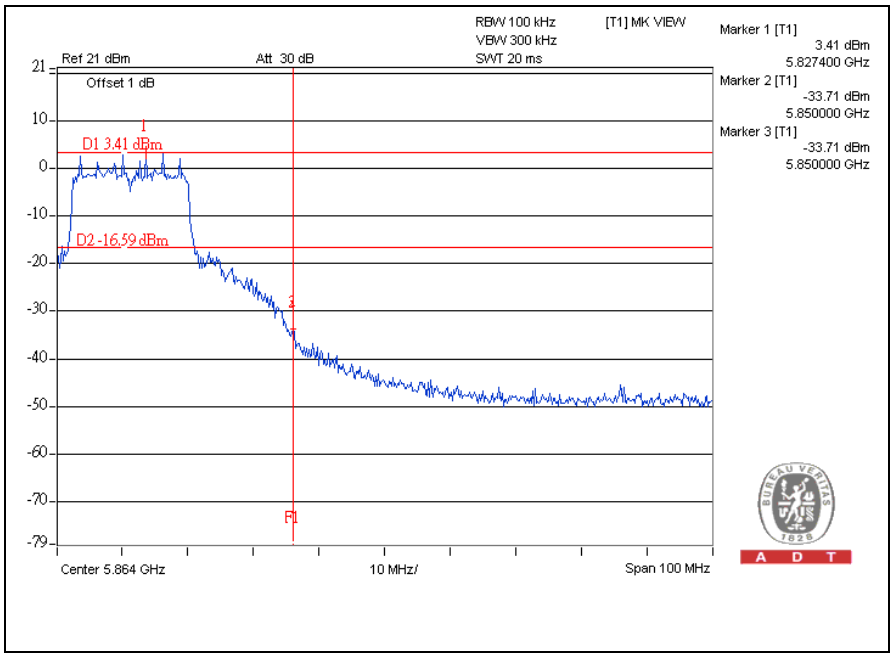

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 2.69 dBm
D2 -17.31 dBm
Marker 1 [T1]
-1.19 dBm
5.785680 GHz
Marker 2 [T1]
-30.07 dBm
39.760180 GHz
Marker 3 [T1]
-35.09 dBm
35.043720 GHz
Marker 4 [T1]
-35.28 dBm
38.321260 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (20MHz) OFDM MODULATION:

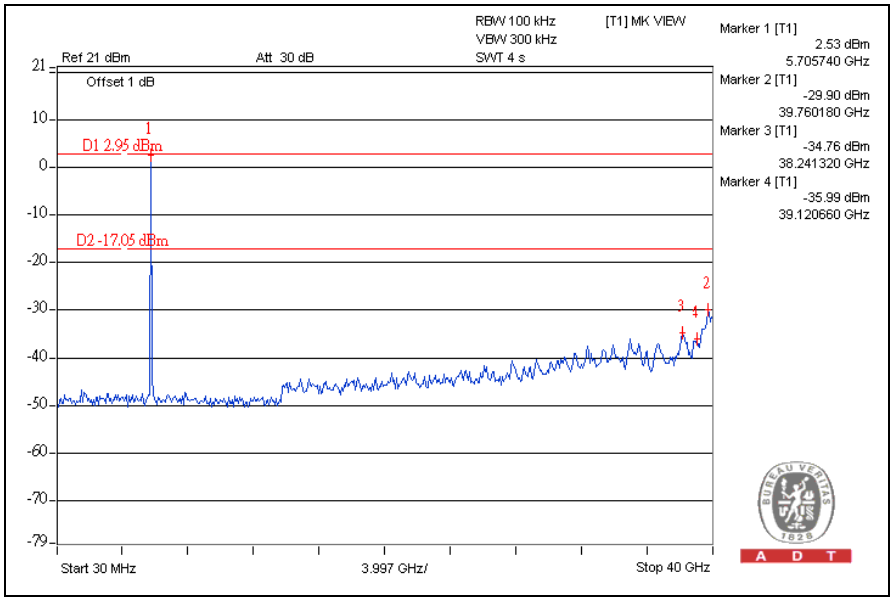
CH149



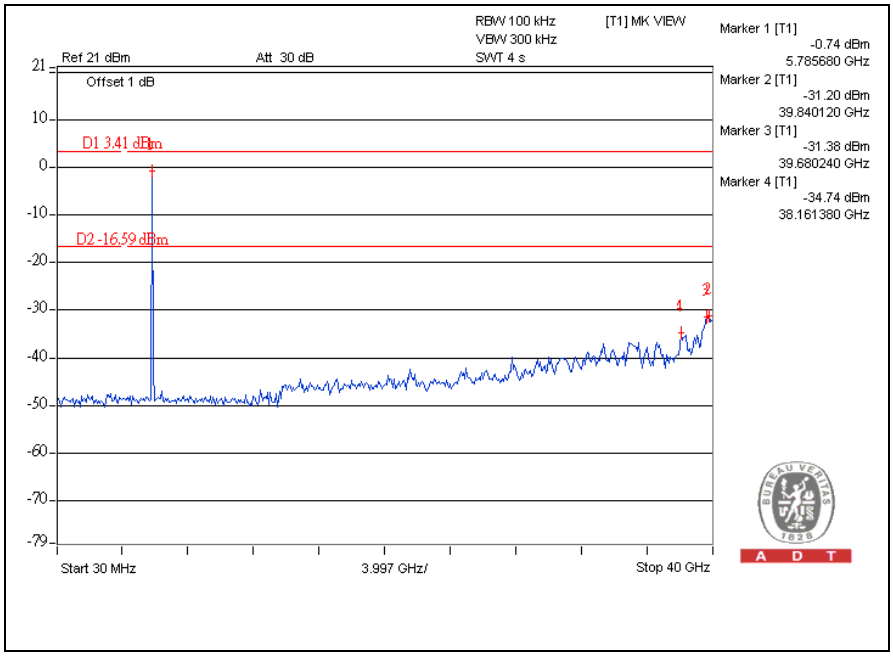
CH165



CH149

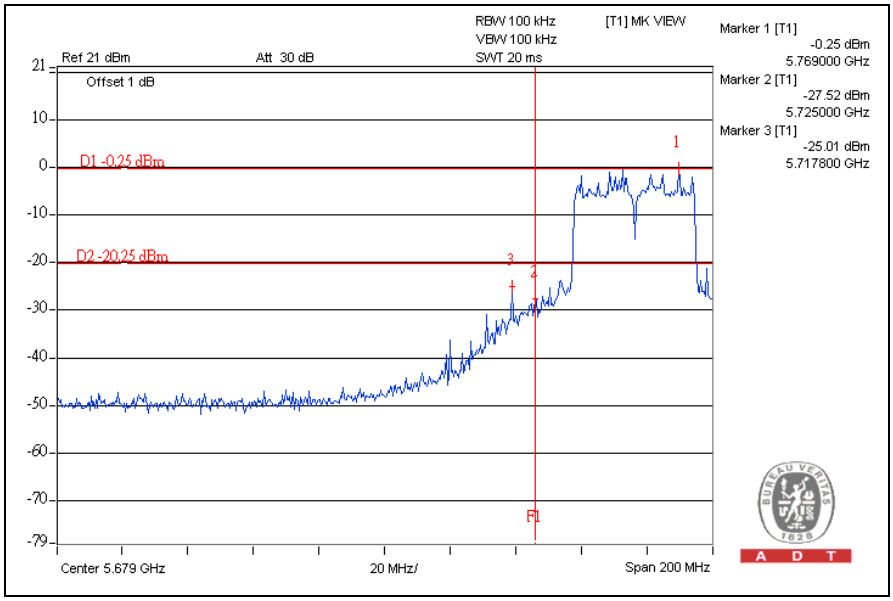

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 2.95 dBm
D2 -17.05 dBm
Marker 1 [T1]
2.53 dBm
5.705740 GHz
Marker 2 [T1]
-29.90 dBm
39.760180 GHz
Marker 3 [T1]
-34.76 dBm
38.241320 GHz
Marker 4 [T1]
-35.99 dBm
39.120660 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH165

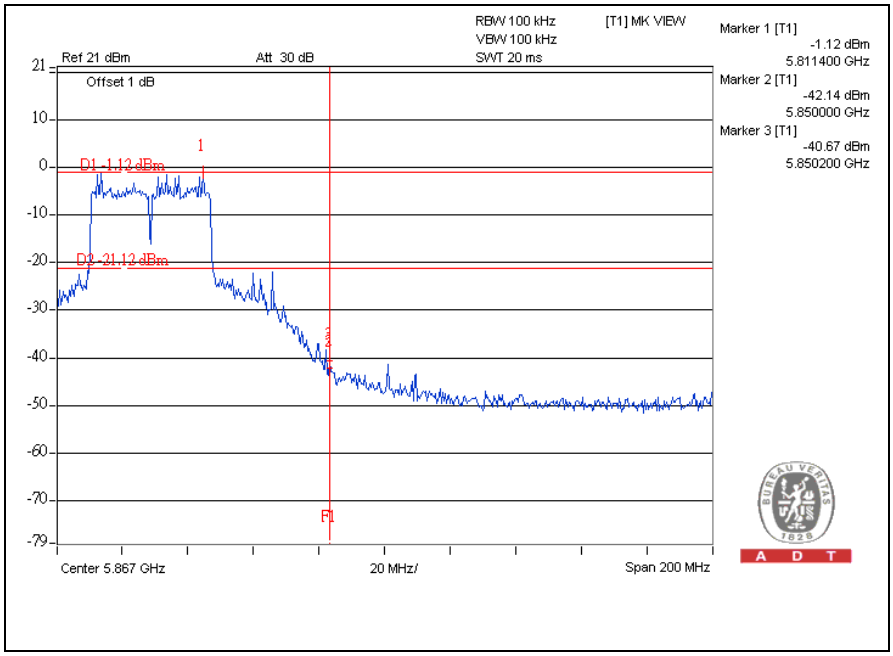

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 3.41 dBm
D2 -16.59 dBm
Marker 1 [T1]
-0.74 dBm
5.785680 GHz
Marker 2 [T1]
-31.20 dBm
39.840120 GHz
Marker 3 [T1]
-31.38 dBm
39.680240 GHz
Marker 4 [T1]
-34.74 dBm
38.161380 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (40MHz) OFDM MODULATION:

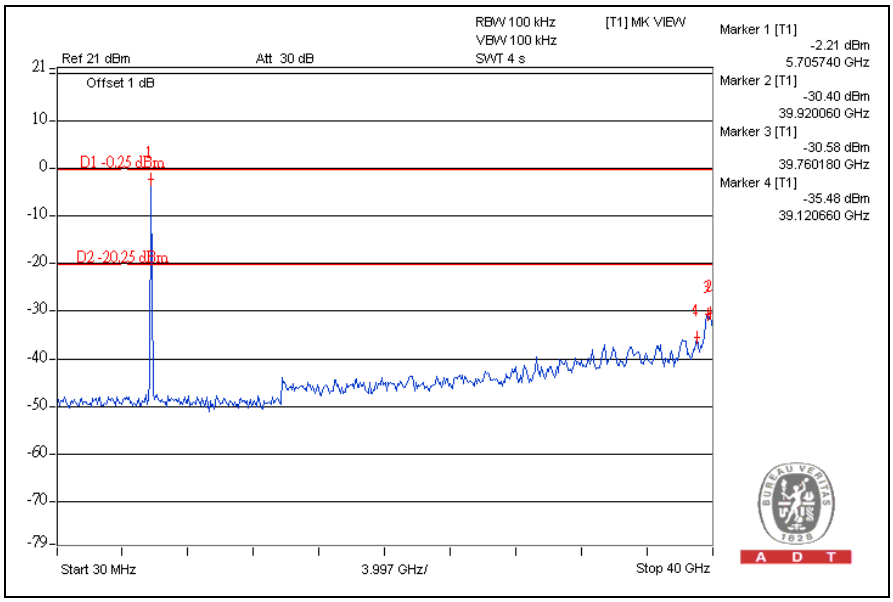
CH151



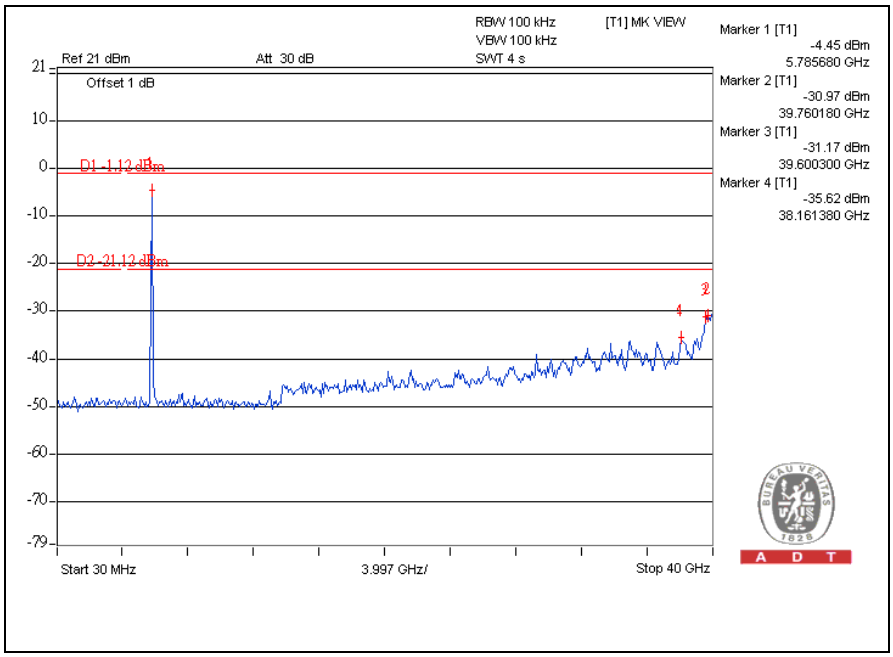
CH159



CH151


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -0.25 dBm
D2 -20.25 dBm
Marker 1 [T1]
-2.21 dBm
5.705740 GHz
Marker 2 [T1]
-30.40 dBm
39.920060 GHz
Marker 3 [T1]
-30.58 dBm
39.760180 GHz
Marker 4 [T1]
-35.48 dBm
39.120660 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH159


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 -1.12 dBm
D2 -21.12 dBm
Marker 1 [T1]
-4.45 dBm
5.785680 GHz
Marker 2 [T1]
-30.97 dBm
39.760180 GHz
Marker 3 [T1]
-31.17 dBm
39.600300 GHz
Marker 4 [T1]
-35.62 dBm
38.161380 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

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 by the following approval agencies according to ISO/IEC 17025:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA (MOU)
Russia	CERTIS (MOU)

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

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---