FCC TEST REPORT

REPORT NO.: RF960726H09
MODEL NO.: SMC7904WBRA-N
RECEIVED: July 26, 2007
TESTED: Aug. 09 to Nov. 06, 2007
ISSUED: Nov. 08, 2007

APPLICANT: Arcadyan Technology Corporation

ADDRESS: 4F, No. 9, Park Avenue II, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

TEST LOCATION: No. 81-1, Lu Liao Keng, 9 Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien, Taiwan, R.O.C.

Testing Laboratory
0536

No. 2177-01

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1. CERTIFICATION

PRODUCT:	Draft 11n Wireless 4-Port Annex A ADSL2/2+ Modem Router
BRAND NAME:	SMC
MODEL NO.:	SMC7904WBRA-N
TEST SAMPLE:	R&D SAMPLE
TESTED:	Aug. 09 to Nov. 06, 2007
APPLICANT:	Arcadyan Technology Corporation
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment (Model: SMC7904WBRA-N) has been tested by **Advance Data Technology Corporation**, 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 : Claire Kuan , **DATE:** Nov. 08, 2007
(Claire Kuan, Specialist)

TECHNICAL ACCEPTANCE : , **DATE:** Nov. 08, 2007
Responsible for RF
(Hank Chung, Deputy Manager)

APPROVED BY : , **DATE:** Nov. 08, 2007
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart 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 –2.05dB at 16.305MHz
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 –1.17dB at 2390.00MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

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:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.41 dB
Radiated emissions (30MHz-1GHz)	3.89 dB
Radiated emissions (1GHz -18GHz)	2.21 dB
Radiated emissions (18GHz -40GHz)	1.88 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Draft 11n Wireless 4-Port Annex A ADSL2/2+ Modem Router
MODEL NO.	SMC7904WBRA-N
FCC ID	RAX7904WBRA-N
POWER SUPPLY	DC 15V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps Draft 802.11n (20MHz): 130 / 117 / 104 / 78 / 65 / 58.5 / 52 / 39 / 26 / 19.5 /13 / 6.5Mbps Draft 802.11n (40MHz): 270 / 243 / 216 / 162 / 135 / 121.5 / 108 / 81 /54 / 40.5 / 27 / 13.5Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2412 ~ 2462MHz
NUMBER OF CHANNEL	11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11b: 131.826mW 802.11g: 107.152mW draft 802.11n (20MHz): 176.23mW draft 802.11n (40MHz): 151.75mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORT	ADSL Port x 1, LAN Port x 4

NOTE:

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

Transmitter Circuit	Antenna Type	Antenna Connector	Gain(dBi)
Chain(0)	Dipole	NA	3.5
Chain(1)	PIFA	NA	2
Chain(2)	Dipole	NA	3.5

2. The EUT incorporates a MIMO function with 802.11b, 802.11g, draft 802.11n. Physically, the card provides two completed transmit and two completed receivers.

3. The EUT is 2 * 3 spatial MIMO without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 2 dipole antennas and 1 PIFA antenna. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas.

4. When the EUT operating in draft 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.

5. The EUT complies with draft 802.11n standards and backwards compatible with 802.11b, 802.11g products.

6. The EUT operates in the 2.4GHz frequency spectrum with data rate up to 270Mbps.

7. The EUT must be supplied with a power adapter and following two different models could be chosen:

Adapter 1	
Brand:	Leader
Model No.:	MU12-2150080-A1
Input power :	AC100-240V, 0.5A, 50-60Hz
Output power :	15VDC, 0.8A
Adapter 2	
Brand:	Leader
Model No.:	481508OO3CT
Input power :	AC120V, 220mA, 60Hz
Output power :	15VDC, 0.8A

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

9. 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

Eleven channels are provided for 802.11b, 802.11g, draft 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 draft 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

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

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

RE ³ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)	TX CHAIN(2)
A	802.11 b, g	ü		
B	DRAFT 802.11n(20MHz)	ü		ü
C	DRAFT 802.11n(40MHz)	ü		ü

Note:

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

POWER LINE CONDUCTED EMISSION TEST:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX COMBINATION
802.11g	1 to 11	1	OFDM	BPSK	6	A

☒ For conducted emissions, the EUT was pre-tested in chamber as the following test modes:

Test Mode	Description
Mode A	Adapter 1
Mode B	Adapter 2

Mode A is the worse case one and the **Mode B** is newly adapter, both were chosen for final test.

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
802.11b	1 to 11	1	DSSS	CCK	1	A

☒ For spurious emissions, the EUT was pre-tested in chamber as the following test modes:

Test Mode	Description
Mode A	Adapter 1
Mode B	Adapter 2

The worst adapter was found in Adapter 1. Their test data were recorded in this report individually.

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	CCK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	B
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	C

☒ For spurious emissions, the EUT was pre-tested in chamber as the following test modes:

Test Mode	Description
Mode A	Adapter 1
Mode B	Adapter 2

The worst adapter was found in Adapter 1. Their test data were recorded in this report individually.

BANDEDGE 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	CCK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	A
Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	B
Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	13.5	C

ANTENNA PORT CONDUCTED 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, 6, 11	DSSS	CCK	11	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	A
Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	B
Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	13.5	C

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Draft 11n Wireless 4-Port Annex A ADSL2/2+ Modem Router. 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.

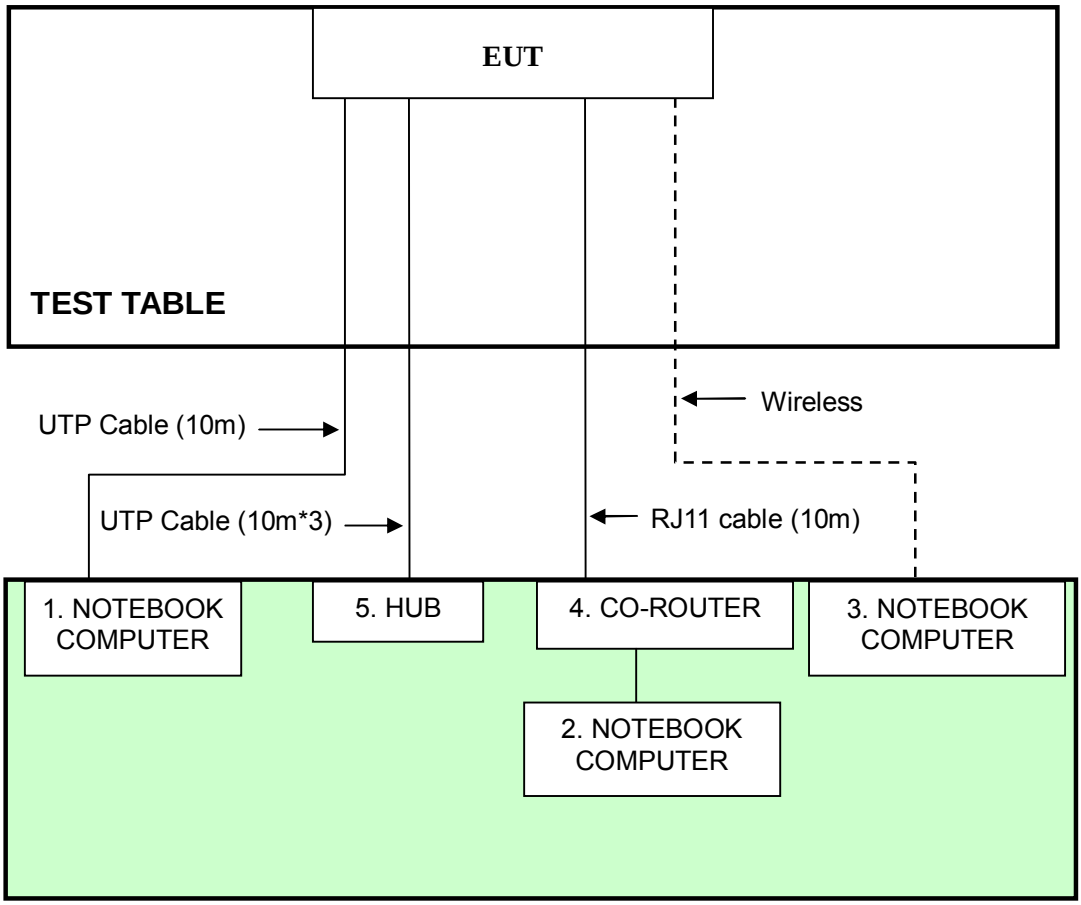
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5CA-0448	PIW632500516610
2	NOTEBOOK COMPUTER	DELL	PP21L	CN-0GD366-70166-5B3-09ZX	QDS-BRCM1016
3	NOTEBOOK COMPUTER (for conducted test only)	DELL	PP18L	6976685584	FCC Doc
4	CO-ROUTER	ZyXEL	IES-1000	S4Z3112558	FCC Doc
5	Switch HUB	AVSYS	110H8	01-20E-000002	FCC Doc

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	NA
4	NA
5	NA

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

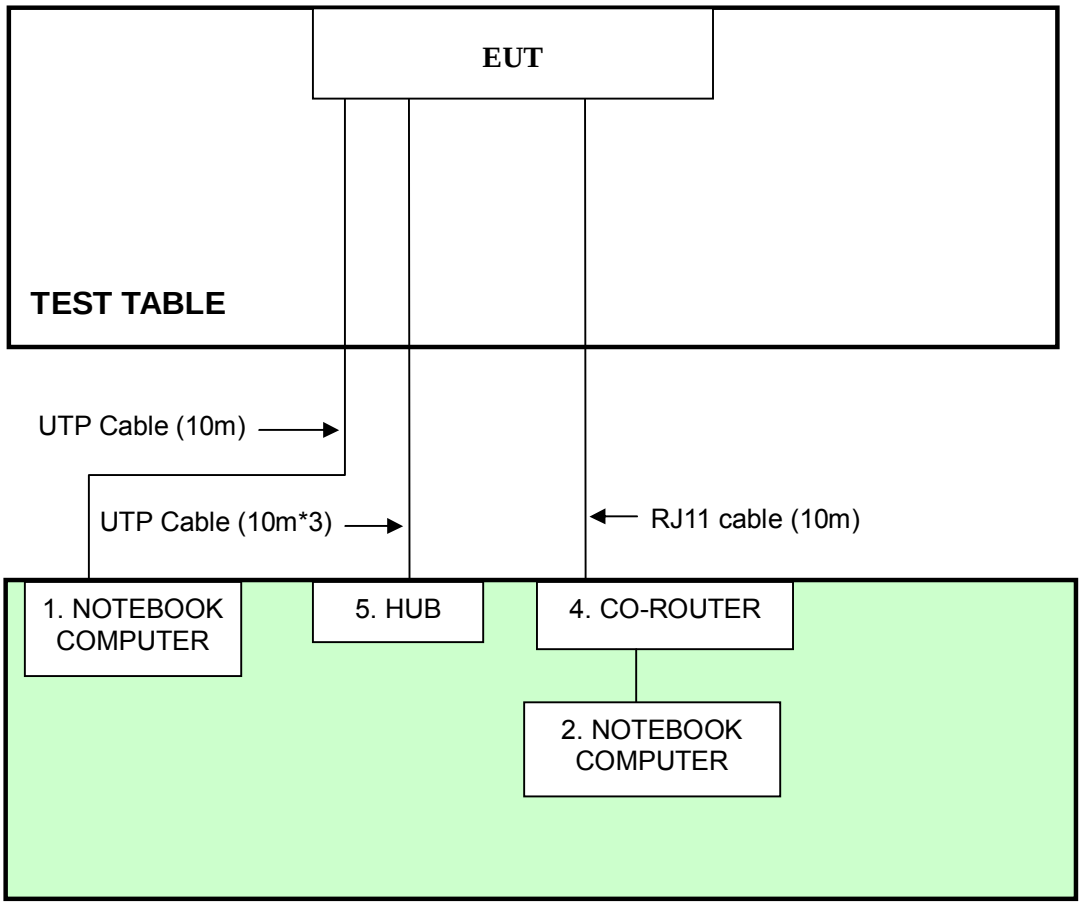
3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted test:



NOTE: 1. Support units 1-5 were kept in the control room during the test.

For Other test:



NOTE: 1. Support units 1-2, 4-5 were kept in the control room during the test.

4.TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
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 UNTIL
Test Receiver	ESCS 30	847124/029	Mar. 28, 2008
Line-Impedance Stabilization Network(for EUT)	ENV-216	100071	Nov. 26, 2007
Line-Impedance Stabilization Network(for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2008
RF Cable (JETBAO)	RG233/U	Cable_CB_01	Dec. 09, 2007
Terminator	50	2	Oct. 30, 2008
Software	ADT_Cond_V7.3.2	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 ADT Shielded Room No. B.
3. The VCCI Con B Registration No. is C-2193.

4.1.3 TEST PROCEDURES

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

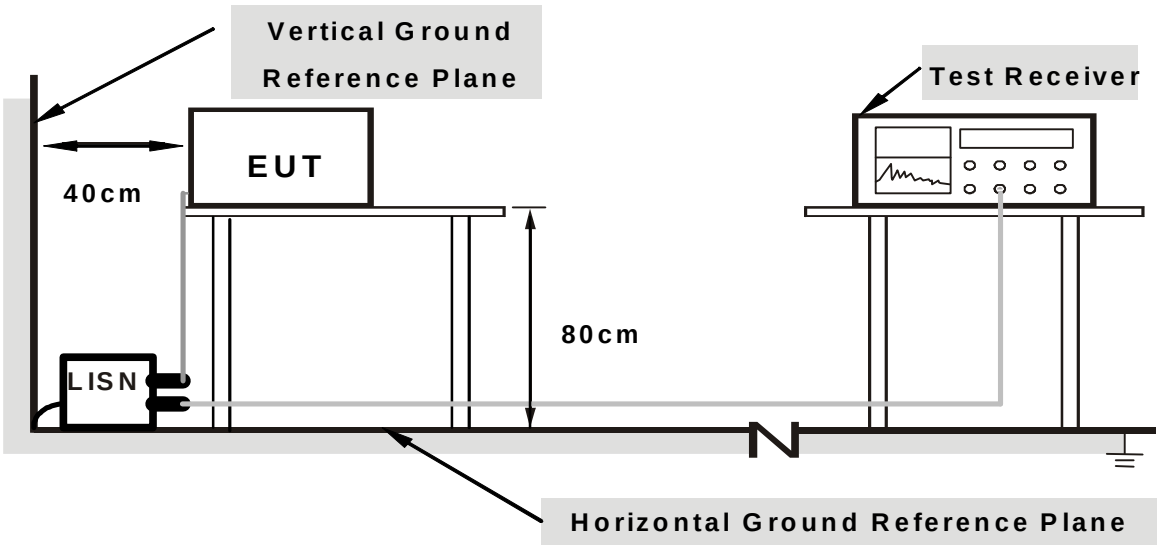
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer systems (support unit 1 ~ 5) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “Ping Test & ArcMfgTool 2.0.0.9” to enable EUT under transmission/receiving condition continuously via UTP cables, RJ11 cable and wireless transmission.

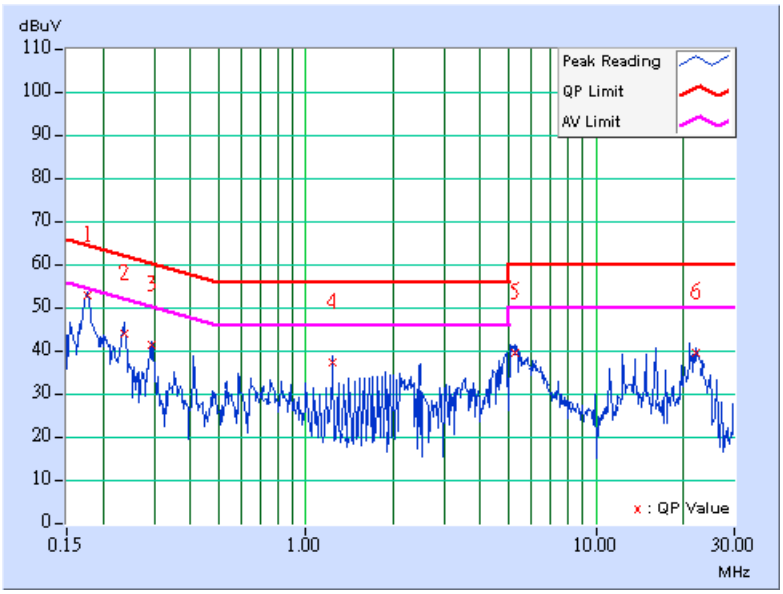
4.1.7 TEST RESULTS

802.11g OFDM MODULATION: WITH ADAPTER 1

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH, 955hPa	TESTED BY	Sky Liao

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	0.177	0.40	52.06	-	52.46	-	64.61	54.61	-12.15	-
2	0.236	0.40	43.25	-	43.65	-	62.24	52.24	-18.59	-
3	0.295	0.40	40.52	-	40.92	-	60.40	50.40	-19.48	-
4	1.236	0.42	36.33	-	36.75	-	56.00	46.00	-19.25	-
5	5.238	0.64	38.46	-	39.10	-	60.00	50.00	-20.90	-
6	22.238	1.00	38.79	-	39.79	-	60.00	50.00	-20.21	-

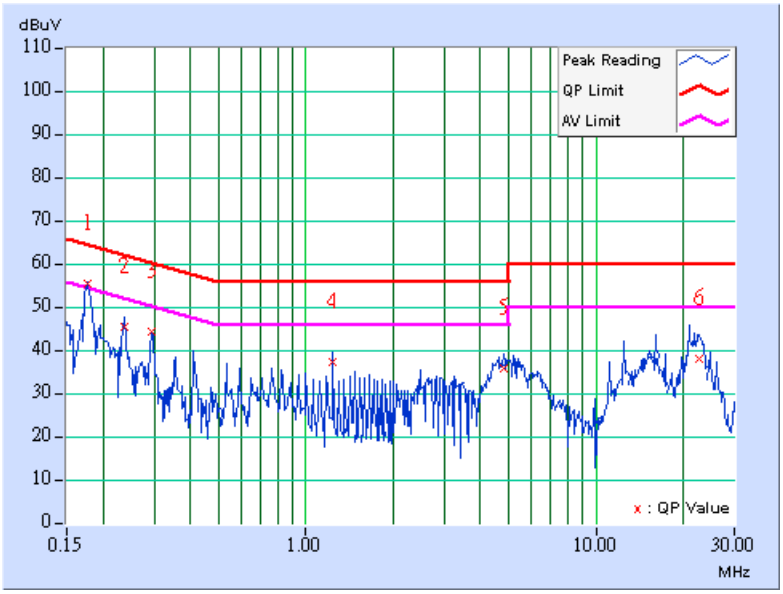
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 62%RH, 955hPa	TESTED BY	Sky Liao

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	**0.177**	**0.20**	**54.25**	**-**	**54.45**	**-**	**64.61**	**54.61**	**-10.16**	**-**
2	0.236	0.20	44.20	-	44.40	-	62.24	52.24	-17.84	-
3	0.295	0.20	43.20	-	43.40	-	60.40	50.40	-17.00	-
4	1.240	0.32	36.17	-	36.49	-	56.00	46.00	-19.51	-
5	4.835	0.56	34.39	-	34.95	-	56.00	46.00	-21.05	-
6	22.794	1.36	36.95	-	38.31	-	60.00	50.00	-21.69	-

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.

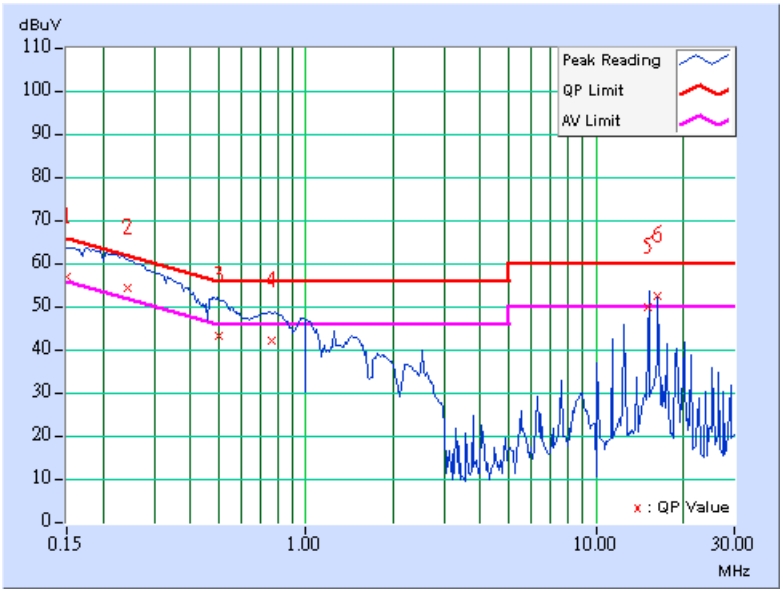


802.11g OFDM MODULATION: WITH ADAPTER 2

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 962hPa	TESTED BY	Rex Huang

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	0.150	0.40	55.85	29.21	56.25	29.61	66.00	56.00	-9.75	-26.39
2	0.243	0.40	53.52	25.75	53.92	26.15	61.98	51.98	-8.06	-25.83
3	0.500	0.40	42.24	-	42.64	-	56.00	46.00	-13.36	-
4	0.763	0.40	41.19	-	41.59	-	56.00	46.00	-14.41	-
5	15.051	1.10	48.80	-	49.90	-	60.00	50.00	-10.10	-
6	16.303	1.07	51.35	46.80	52.42	47.87	60.00	50.00	-7.58	-2.13

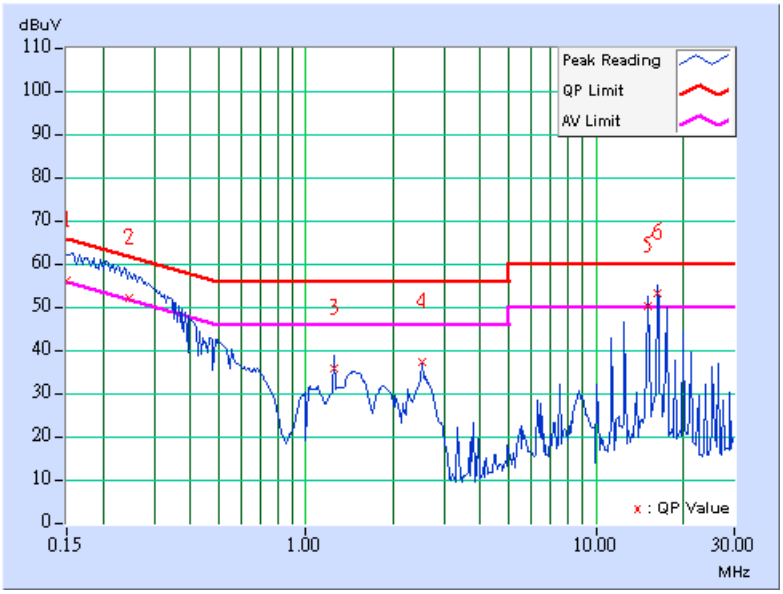
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 962hPa	TESTED BY	Rex Huang

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	0.150	0.20	55.03	-	55.23	-	66.00	56.00	-10.77	-
2	0.245	0.20	51.04	-	51.24	-	61.93	51.93	-10.69	-
3	1.255	0.33	34.61	-	34.94	-	56.00	46.00	-21.06	-
4	2.509	0.43	36.23	-	36.66	-	56.00	46.00	-19.34	-
5	15.053	1.20	49.30	44.06	50.50	45.26	60.00	50.00	-9.50	-4.74
6	**16.305**	**1.23**	**52.18**	**46.72**	**53.41**	**47.95**	**60.00**	**50.00**	**-6.59**	**-2.05**

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 UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 15, 2008
HP Pre_Amplifier	8449B	3008A01922	Sep. 18, 2008
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	Sep. 20, 2008
CHASE Broadband Antenna	VULB 9168	138	July 26, 2008
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jan. 01, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 25, 2008
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 08, 2009
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 08, 2009
R&S Loop Antenna	HFH2-Z2	881058/15	Nov. 29, 2007
RF Switches (ARNITSU)	CS-201	1565157	Aug. 13, 2008
RF CABLE (Chaintek)	SF102	22054-2	Nov. 14. 2007
RF Cable(RICHTEC)	9913-30M N-N Cable	STCCAB-30M-1 GHz	Aug. 13, 2008
Software	ADT_Radiated_V 7.6.15.7	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Biconical and Periodic Antenna)and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT 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 4824A-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 3 meter semi- anechoic. 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 10 dB 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 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

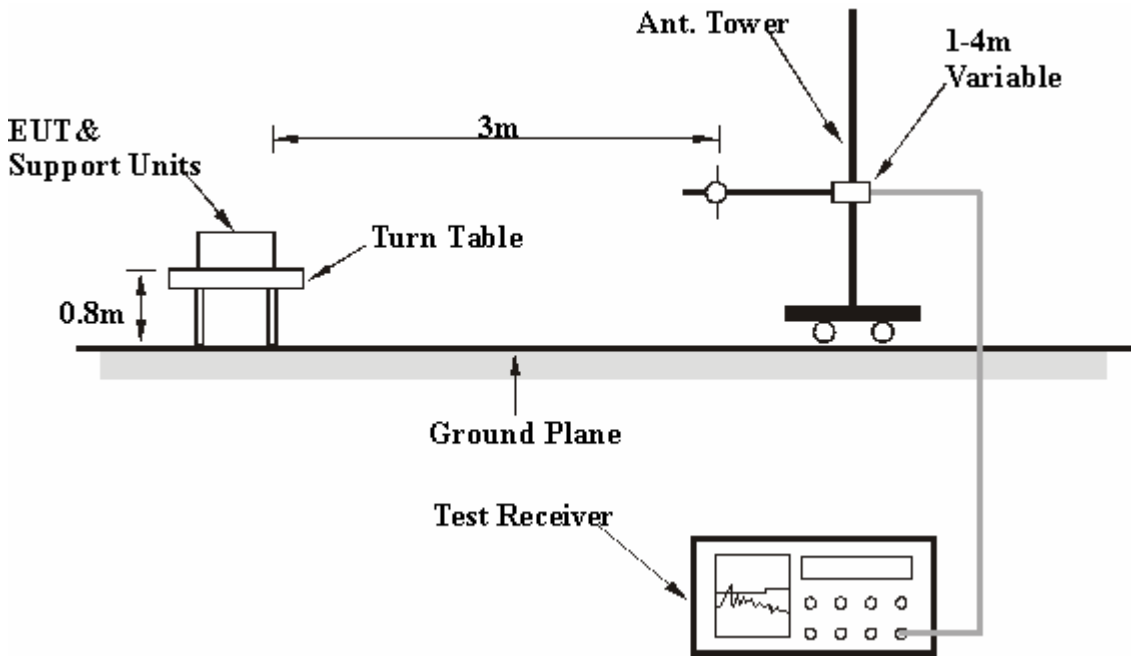
NOTE:

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 testing table.
2. Prepared other computer systems (support unit 1 ~ 5) to act as communication partners and placed them outside of testing area.
3. The communication partners run test program “Ping Test & ArcMfgTool 2.0.0.9” to enable EUT under transmission/receiving condition continuously via UTP cables, RJ11 cable and wireless transmission.

Below 1GHz Test Data

4.2.7 TEST RESULTS

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	802.11b	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 59%RH, 955hPa	TESTED BY	Tony Chen

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	177.32	30.60 QP	43.50	-12.90	1.27 H	104	16.70	13.90
2	250.00	36.50 QP	46.00	-9.50	1.42 H	169	22.40	14.10
3	375.01	40.40 QP	46.00	-5.60	1.26 H	44	22.40	17.90
4	500.01	42.30 QP	46.00	-3.70	1.24 H	126	21.40	20.80
5	625.01	40.30 QP	46.00	-5.70	1.62 H	201	17.00	23.30
6	750.00	39.50 QP	46.00	-6.50	1.10 H	196	13.90	25.60
7	866.66	44.00 QP	46.00	-2.00	1.27 H	140	17.40	26.50
8	875.00	41.20 QP	46.00	-4.80	1.07 H	63	14.60	26.60
9	900.00	43.20 QP	46.00	-2.80	1.00 H	58	16.50	26.70
10	1000.00	43.70 QP	54.00	-10.30	1.04 H	113	16.20	27.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	33.20 QP	43.50	-10.30	1.75 V	256	19.90	13.30
2	169.99	29.30 QP	43.50	-14.20	1.27 V	56	14.90	14.40
3	200.00	33.70 QP	43.50	-9.80	1.62 V	45	21.40	12.20
4	250.00	40.30 QP	46.00	-5.70	1.24 V	321	26.20	14.10
5	375.01	38.20 QP	46.00	-7.80	1.20 V	111	20.30	17.90
6	500.01	41.30 QP	46.00	-4.70	1.32 V	118	20.50	20.80
7	625.01	41.30 QP	46.00	-4.70	1.04 V	143	18.00	23.30
8	750.00	40.40 QP	46.00	-5.60	1.10 V	102	14.70	25.60
9	875.01	41.40 QP	46.00	-4.60	1.00 V	196	14.80	26.60
10	1000.00	42.40 QP	54.00	-11.60	1.07 V	112	14.80	27.50

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 Test Data

4.2.8 TEST RESULTS

802.11b DSSS MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	1Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

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	56.88 PK	74.00	-17.12	1.43 H	267	26.56	30.32
2	2390.00	45.20 AV	54.00	-8.80	1.43 H	267	14.88	30.32
3	*2412.00	100.10 PK			1.43 H	267	69.69	30.41
4	*2412.00	94.20 AV			1.43 H	267	63.79	30.41
5	4824.00	47.13 PK	74.00	-26.87	1.79 H	79	11.34	35.79
6	4824.00	36.90 AV	54.00	-17.10	1.79 H	79	1.11	35.79
7	7236.00	52.48 PK	74.00	-21.52	1.00 H	360	10.88	41.60
8	7236.00	39.50 AV	54.00	-14.50	1.00 H	360	-2.10	41.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.16 PK	74.00	-12.84	1.00 V	25	30.84	30.32
2	2390.00	52.78 AV	54.00	-1.22	1.00 V	25	22.46	30.32
3	*2412.00	112.20 PK			1.00 V	25	81.79	30.41
4	*2412.00	107.50 AV			1.00 V	25	77.09	30.41
5	4824.00	41.60 PK	74.00	-32.40	1.38 V	67	5.81	35.79
6	4824.00	49.25 AV	54.00	-4.75	1.38 V	67	13.46	35.79
7	7236.00	39.68 PK	74.00	-34.32	1.00 V	360	-1.92	41.60
8	7236.00	52.71 AV	54.00	-1.29	1.00 V	360	11.11	41.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	1Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

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	101.20 PK			1.40 H	268	70.68	30.52
2	*2437.00	95.80 AV			1.40 H	268	65.28	30.52
3	4874.00	48.60 PK	74.00	-25.40	1.45 H	250	12.68	35.92
4	4874.00	39.80 AV	54.00	-14.20	1.45 H	250	3.88	35.92
5	7311.00	51.80 PK	74.00	-22.20	1.35 H	288	9.99	41.81
6	7311.00	38.20 AV	54.00	-15.80	1.35 H	288	-3.61	41.81

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	114.40 PK			1.45 V	82	83.88	30.52
2	*2437.00	109.50 AV			1.45 V	82	78.98	30.52
3	4874.00	52.00 PK	74.00	-22.00	1.36 V	68	16.08	35.92
4	4874.00	46.60 AV	54.00	-7.40	1.36 V	68	10.68	35.92
5	7311.00	53.40 PK	74.00	-20.60	1.50 V	105	11.59	41.81
6	7311.00	39.40 AV	54.00	-14.60	1.50 V	105	-2.41	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

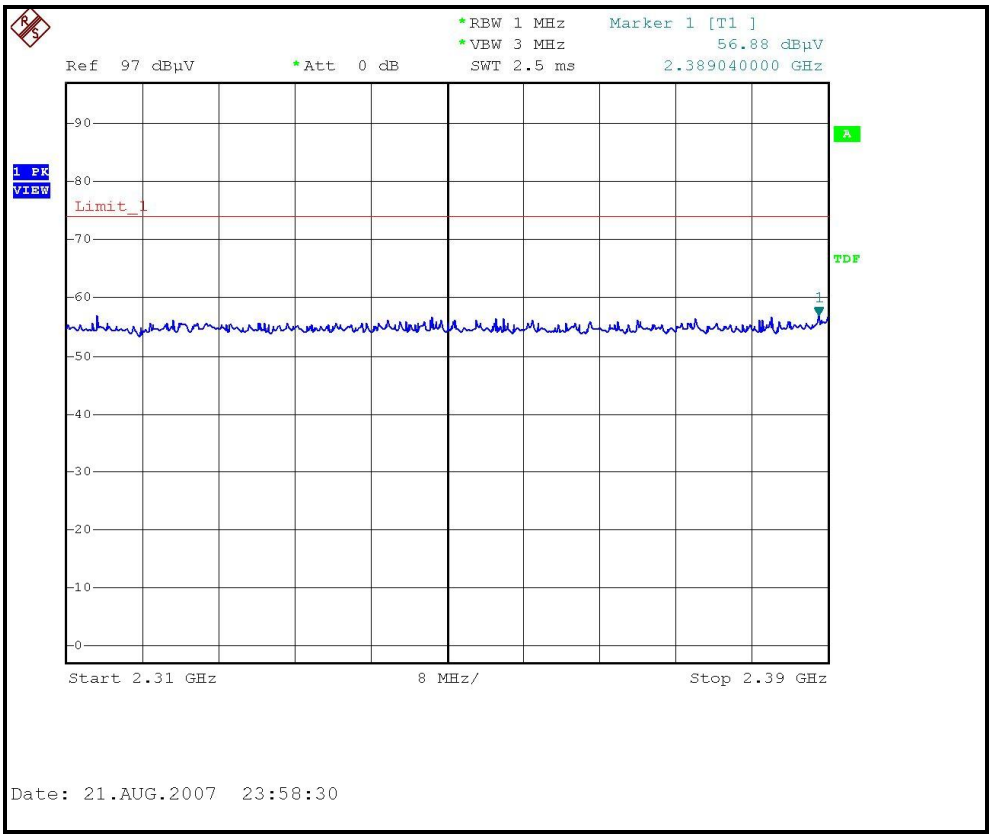
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	CCK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	1Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	TESTED BY	Sky Liao

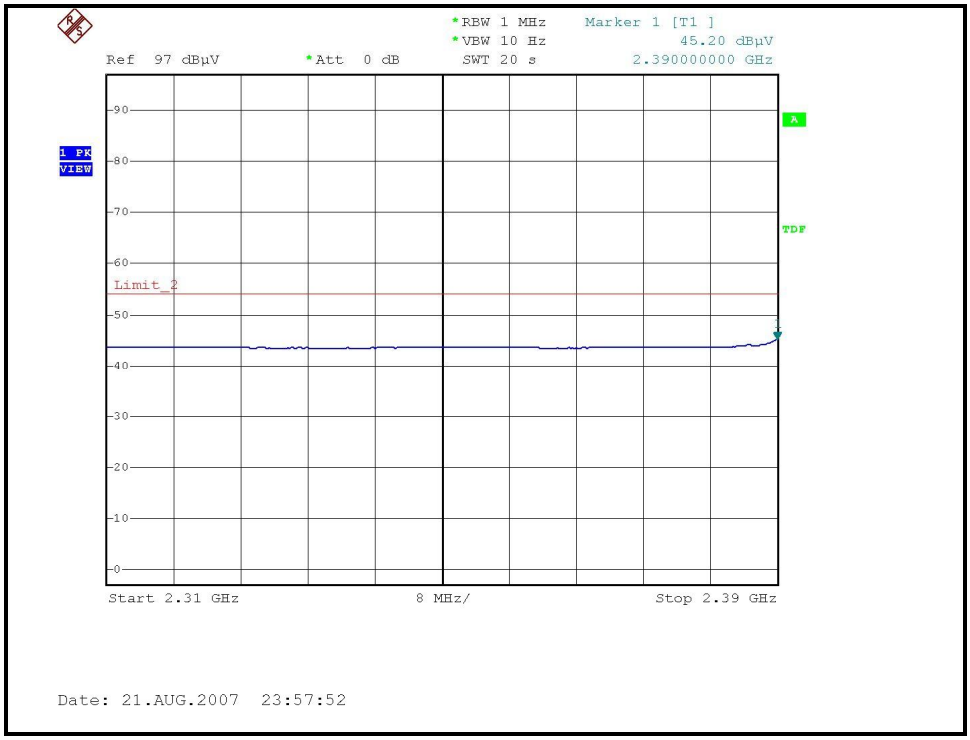
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	100.70 PK			1.03 H	255	70.07	30.63
2	*2462.00	95.30 AV			1.03 H	255	64.67	30.63
3	2483.50	55.65 PK	74.00	-18.35	1.03 H	255	24.93	30.72
4	2483.50	45.67 AV	54.00	-8.33	1.03 H	255	14.95	30.72
5	4924.00	47.81 PK	74.00	-26.19	1.80 H	131	11.75	36.06
6	4924.00	37.80 AV	54.00	-16.20	1.80 H	131	1.74	36.06
7	7386.00	52.39 PK	74.00	-21.61	1.00 H	360	10.38	42.01
8	7386.00	39.16 AV	54.00	-14.84	1.00 H	360	-2.85	42.01

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	114.00 PK			1.00 V	77	83.37	30.63
2	*2462.00	109.30 AV			1.00 V	77	78.67	30.63
3	2483.79	64.83 PK	74.00	-9.17	1.40 V	77	34.11	30.72
4	2483.79	52.21 AV	54.00	-1.79	1.40 V	77	21.49	30.72
5	4924.00	44.83 PK	74.00	-29.17	1.41 V	116	8.77	36.06
6	4924.00	50.73 AV	54.00	-3.27	1.41 V	116	14.67	36.06
7	7386.00	39.36 PK	74.00	-34.64	1.00 V	360	-2.65	42.01
8	7386.00	52.28 AV	54.00	-1.72	1.00 V	360	10.27	42.01

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)





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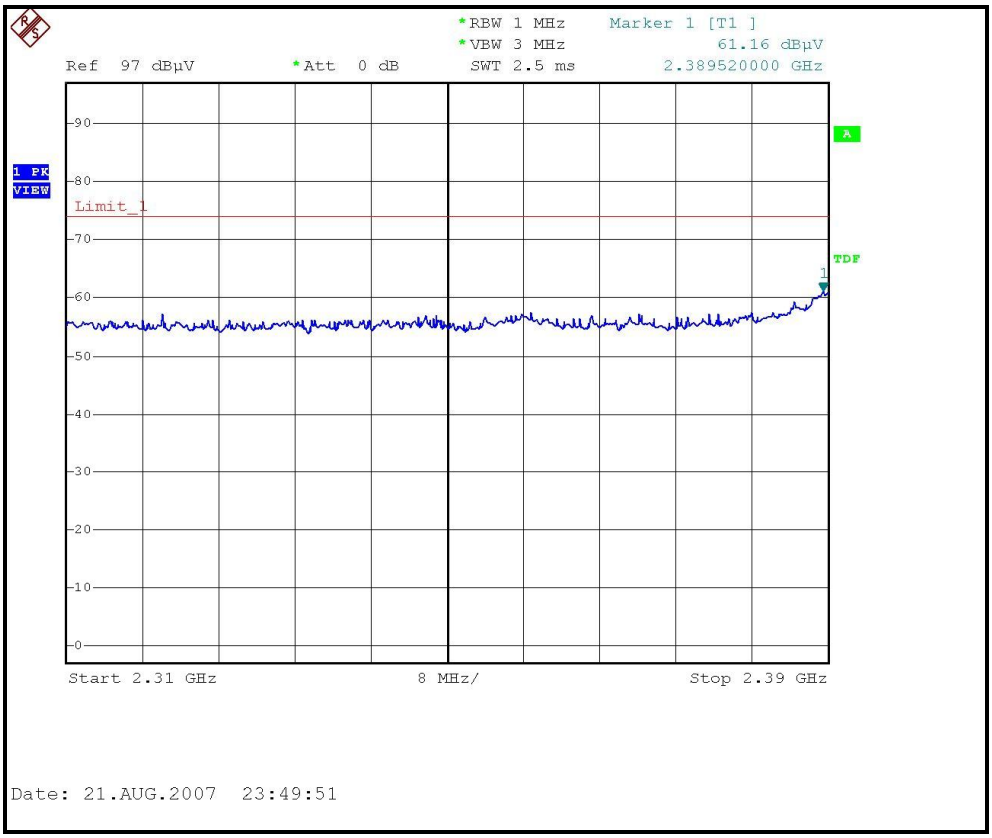
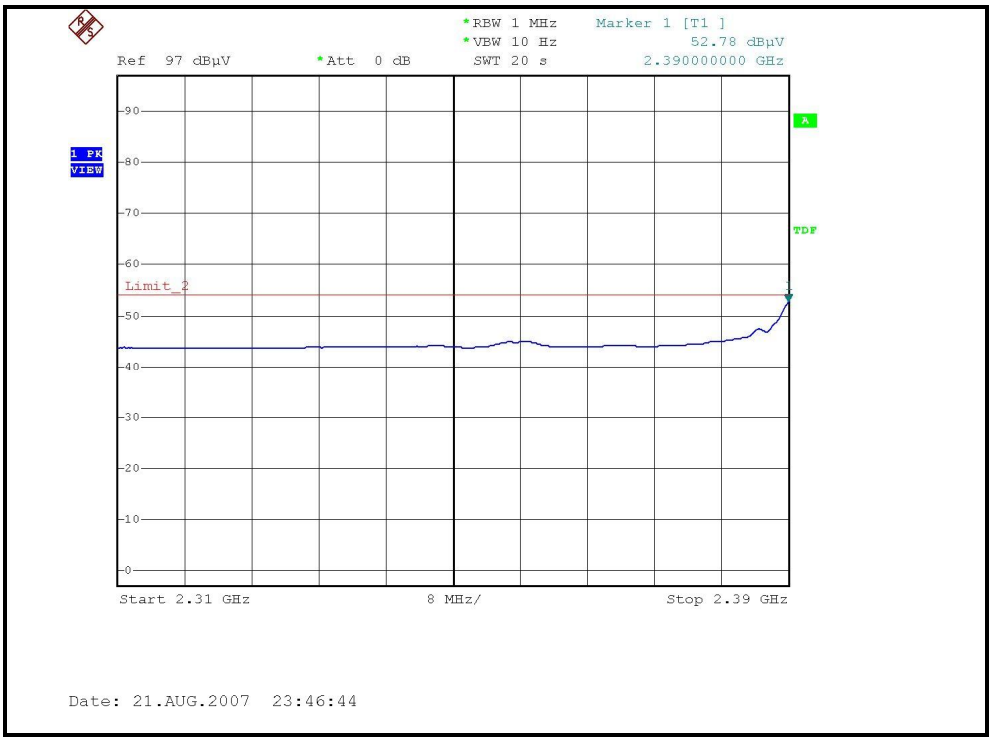
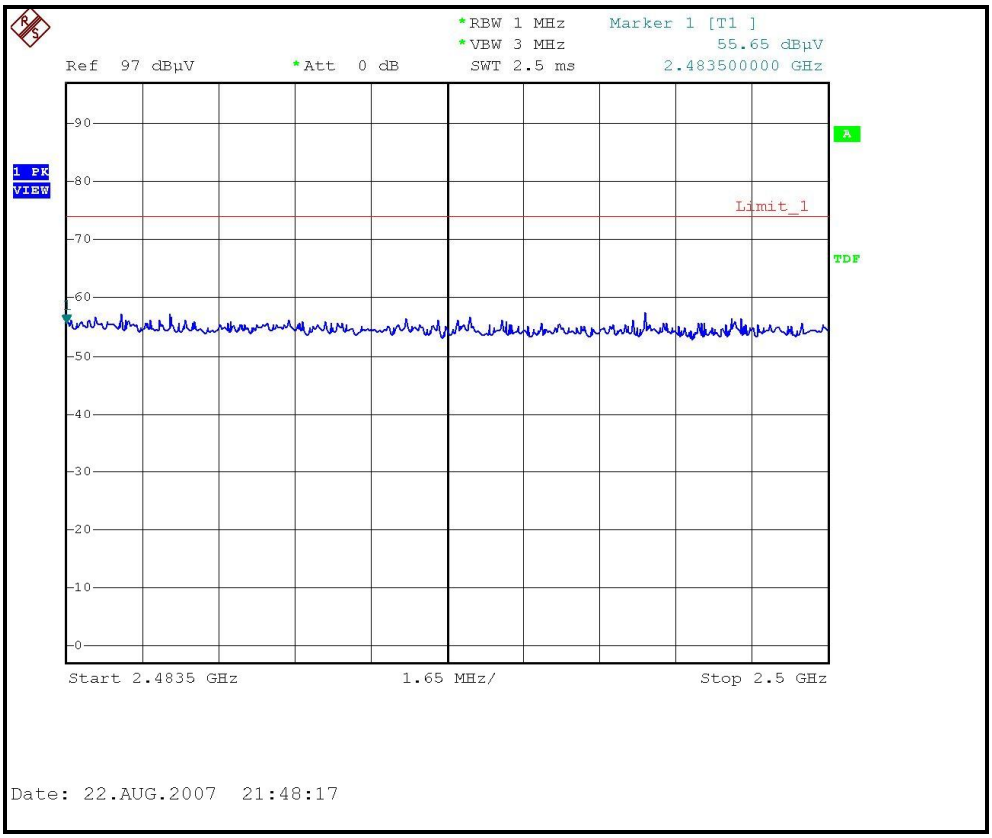
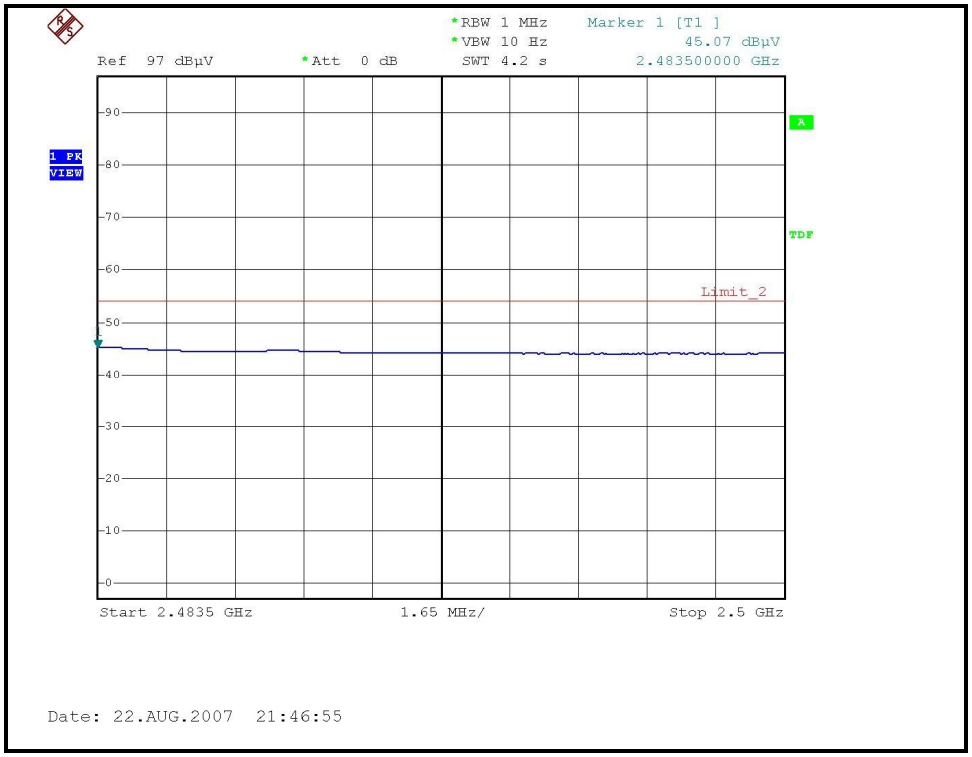




RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





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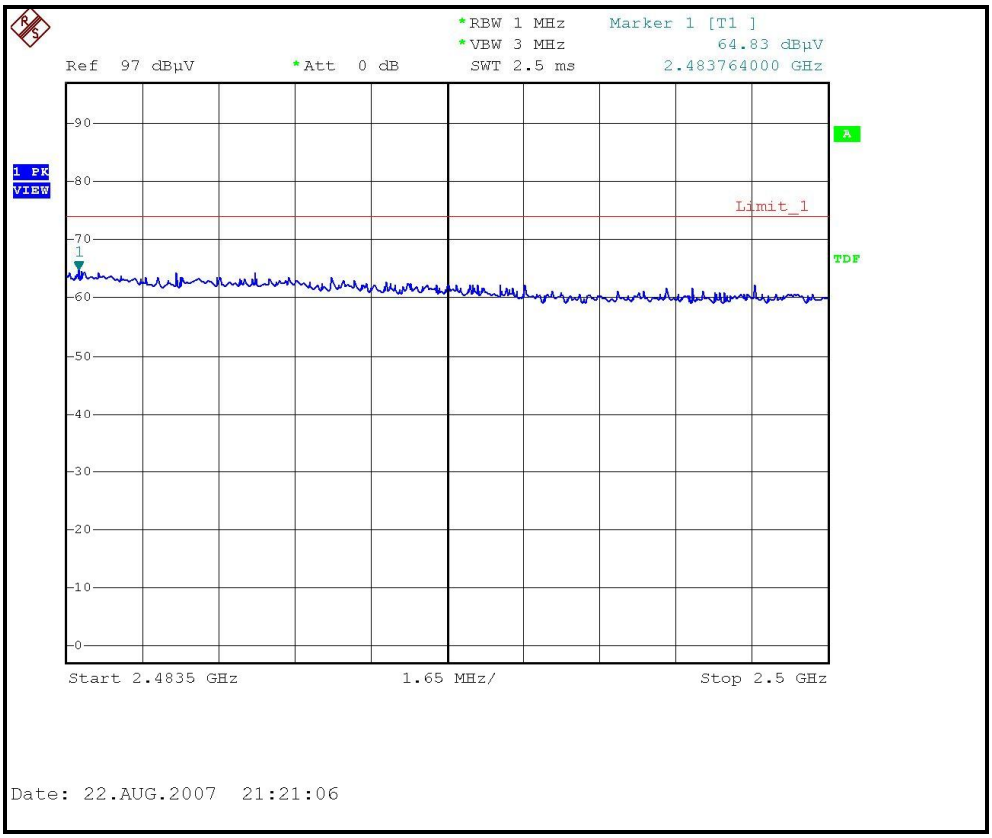
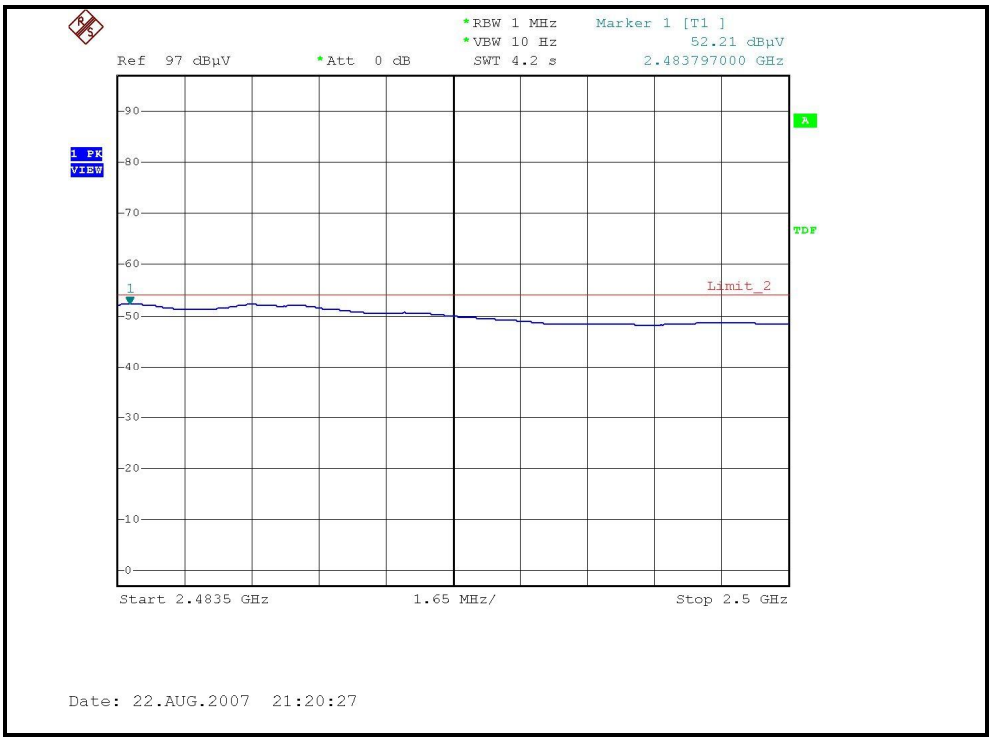




802.11g OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	TESTED BY	Sky Liao

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	57.40 PK	74.00	-16.60	1.48 H	350	27.08	30.32
2	2390.00	44.44 AV	54.00	-9.56	1.48 H	350	14.12	30.32
3	*2412.00	100.00 PK			1.00 H	300	69.59	30.41
4	*2412.00	89.10 AV			1.00 H	300	58.69	30.41
5	4824.00	46.33 PK	74.00	-27.67	1.48 H	350	10.54	35.79
6	4824.00	33.15 AV	54.00	-20.85	1.48 H	350	-2.64	35.79
7	7236.00	52.70 PK	74.00	-21.30	1.00 H	360	11.10	41.60
8	7236.00	39.60 AV	54.00	-14.40	1.00 H	360	-2.00	41.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	70.16 PK	74.00	-3.84	1.00 V	25	39.84	30.32
2	2390.00	51.56 AV	54.00	-2.44	1.00 V	25	21.24	30.32
3	*2412.00	111.60 PK			1.00 V	63	81.19	30.41
4	*2412.00	101.20 AV			1.00 V	63	70.79	30.41
5	4824.00	47.17 PK	74.00	-26.83	1.37 V	101	11.38	35.79
6	4824.00	33.61 AV	54.00	-20.39	1.37 V	101	-2.18	35.79
7	7236.00	52.23 PK	74.00	-21.77	1.00 V	360	10.63	41.60
8	7236.00	39.68 AV	54.00	-14.32	1.00 V	360	-1.92	41.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

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	100.60 PK			1.00 H	320	70.08	30.52
2	*2437.00	89.80 AV			1.00 H	320	59.28	30.52
3	4874.00	42.17 PK	74.00	-31.83	1.31 H	170	6.25	35.92
4	4874.00	33.43 AV	54.00	-20.57	1.31 H	170	-2.49	35.92
5	7311.00	53.20 PK	74.00	-20.80	1.00 H	360	11.39	41.81
6	7311.00	39.64 AV	54.00	-14.36	1.00 H	360	-2.17	41.81

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	112.00 PK			1.00 V	70	81.48	30.52
2	*2437.00	101.50 AV			1.00 V	70	70.98	30.52
3	4874.00	44.56 PK	74.00	-29.44	1.33 V	36	8.64	35.92
4	4874.00	33.67 AV	54.00	-20.33	1.33 V	36	-2.25	35.92
5	7311.00	53.04 PK	74.00	-20.96	1.00 V	360	11.23	41.81
6	7311.00	39.77 AV	54.00	-14.23	1.00 V	360	-2.04	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

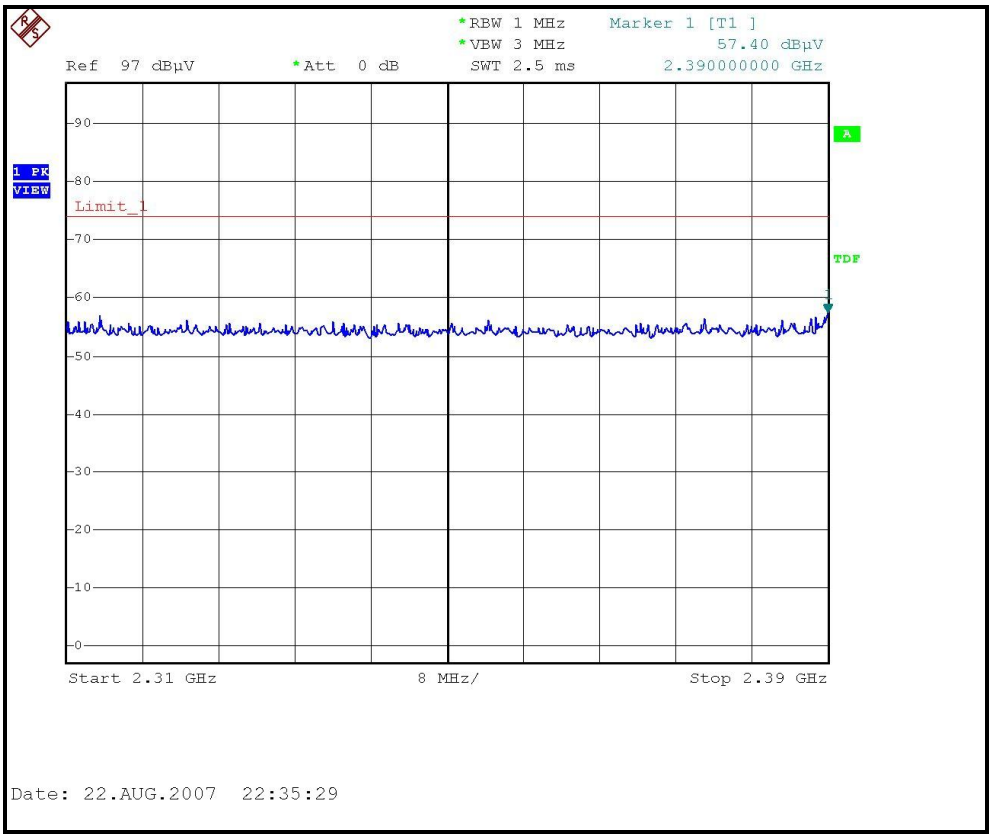
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	99.40 PK			1.00 H	337	68.77	30.63
2	*2462.00	88.50 AV			1.00 H	337	57.87	30.63
3	2483.50	56.63 PK	74.00	-17.37	1.00 H	300	25.91	30.72
4	2483.50	44.37 AV	54.00	-9.63	1.00 H	300	13.65	30.72
5	4924.00	47.20 PK	74.00	-26.80	1.63 H	90	11.14	36.06
6	4924.00	33.50 AV	54.00	-20.50	1.63 H	90	-2.56	36.06
7	7386.00	52.80 PK	74.00	-21.20	1.00 H	360	10.79	42.01
8	7386.00	39.27 AV	54.00	-14.73	1.00 H	360	-2.74	42.01

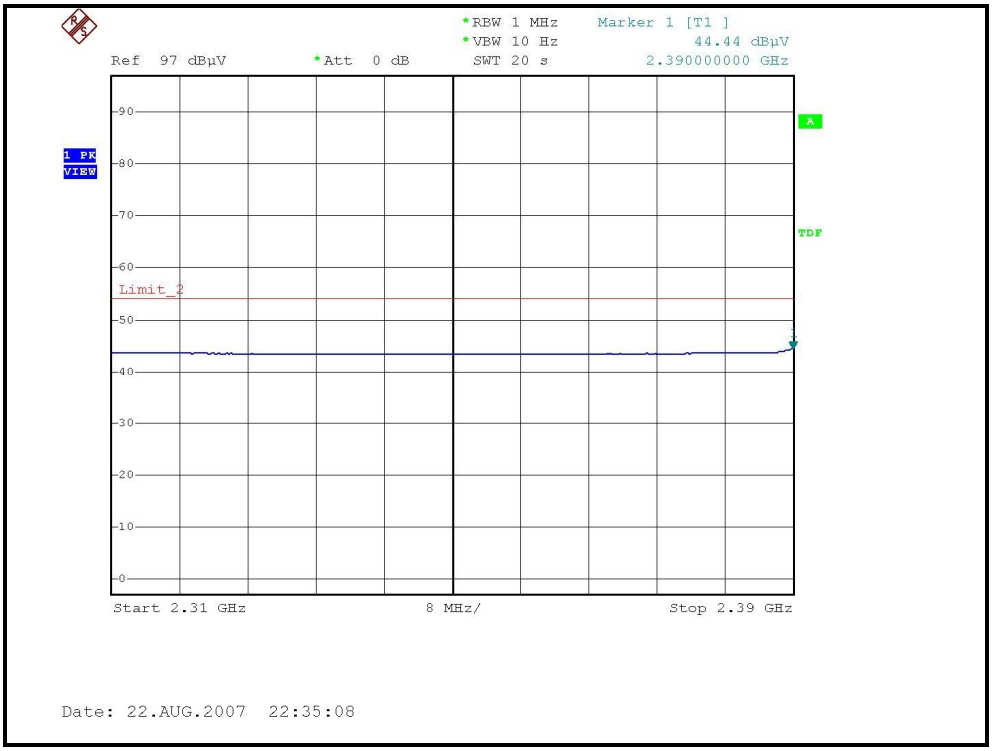
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	111.80 PK			1.00 V	77	81.17	30.63
2	*2462.00	101.20 AV			1.00 V	77	70.57	30.63
3	2483.50	69.25 PK	74.00	-4.75	1.00 V	77	38.53	30.72
4	2483.50	52.31 AV	54.00	-1.69	1.00 V	77	21.59	30.72
5	4924.00	46.79 PK	74.00	-27.21	1.36 V	271	10.73	36.06
6	4924.00	33.49 AV	54.00	-20.51	1.36 V	271	-2.57	36.06
7	7386.00	52.14 PK	74.00	-21.86	1.00 V	360	10.13	42.01
8	7386.00	39.54 AV	54.00	-14.46	1.00 V	360	-2.47	42.01

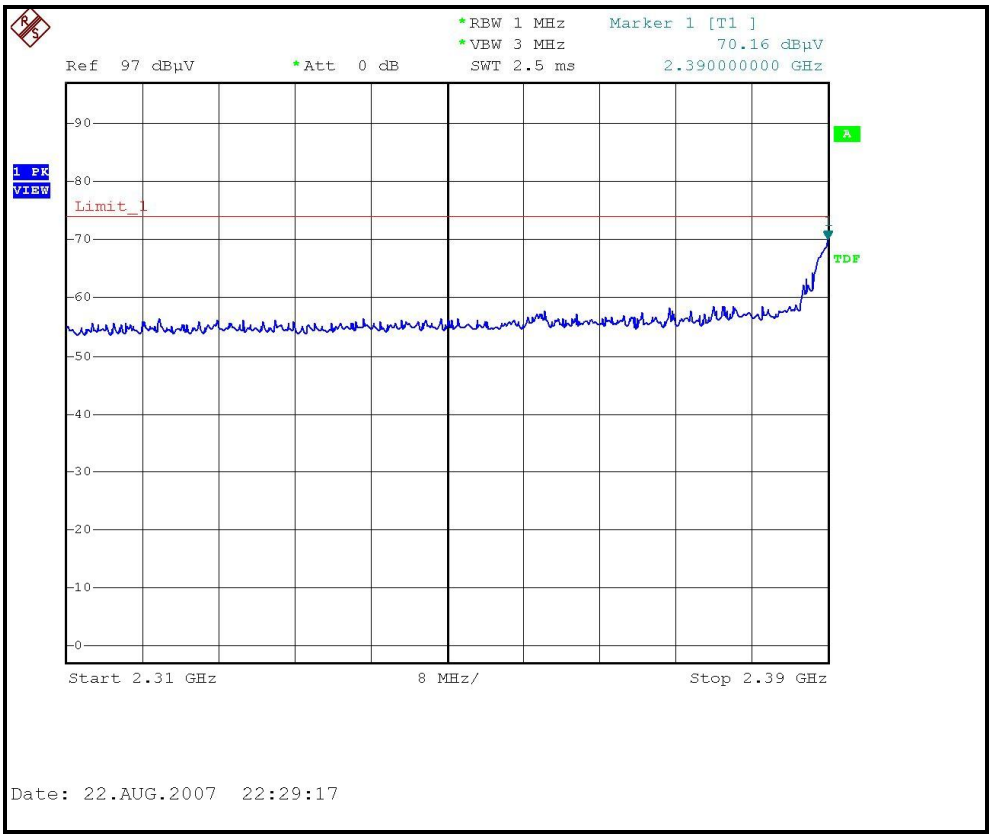
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

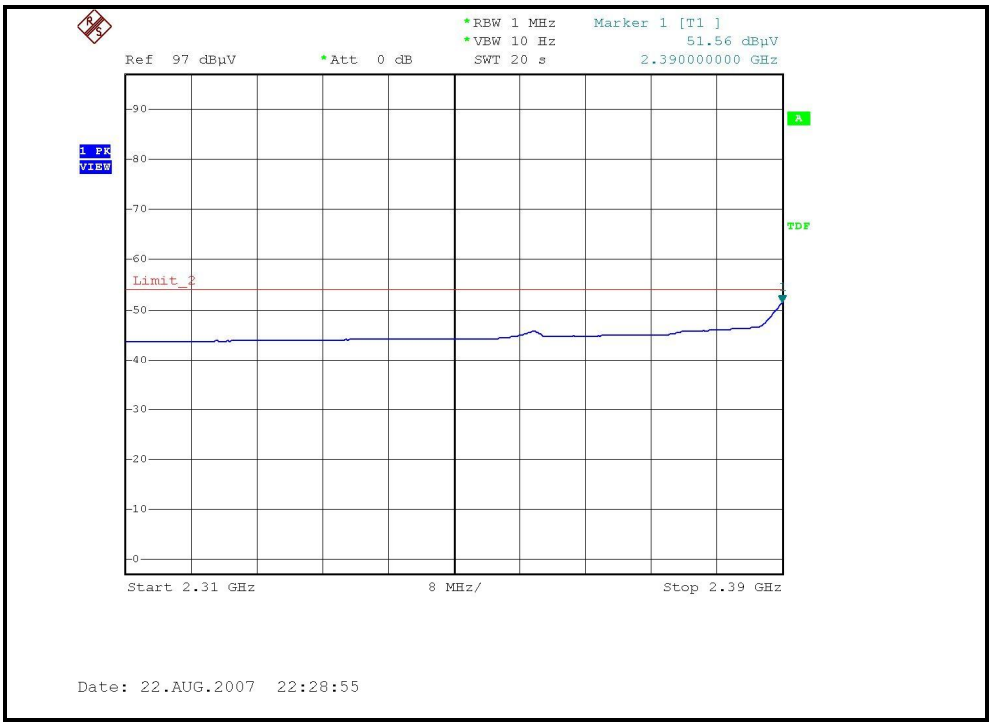
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)





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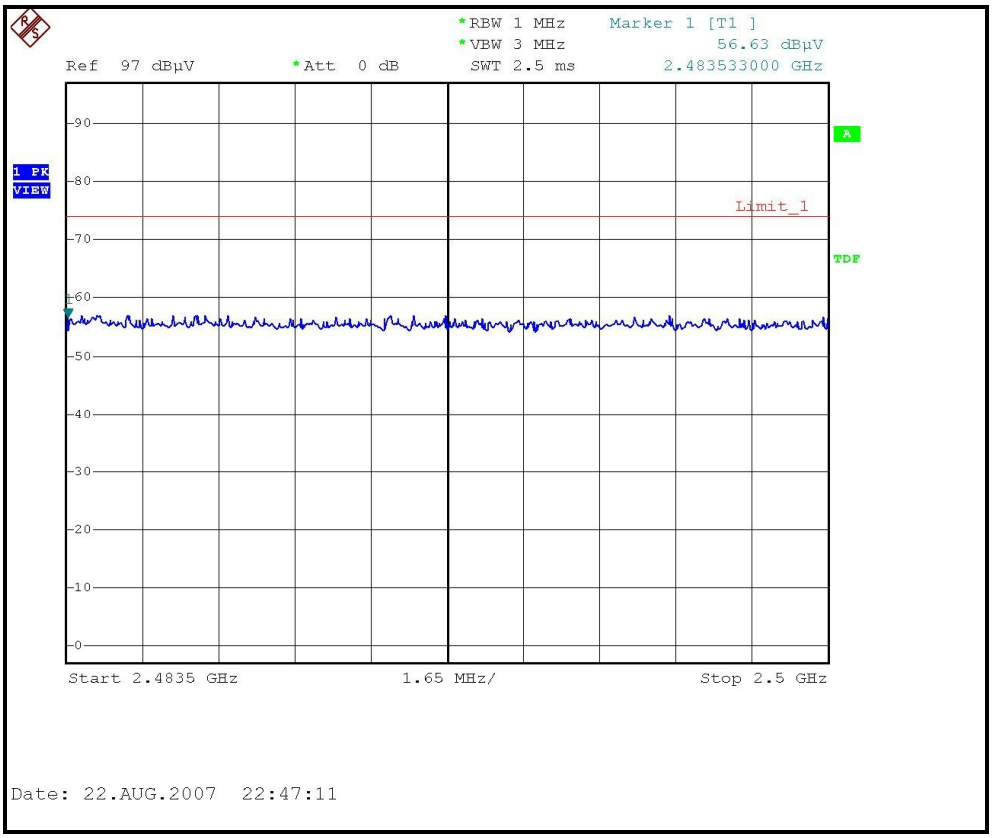
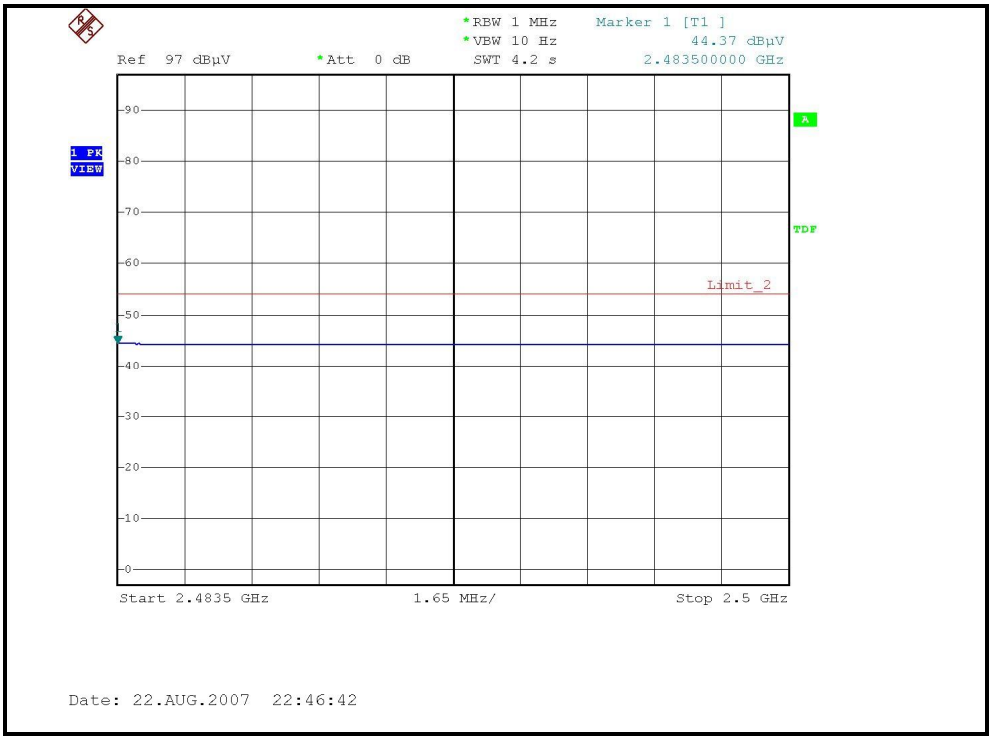
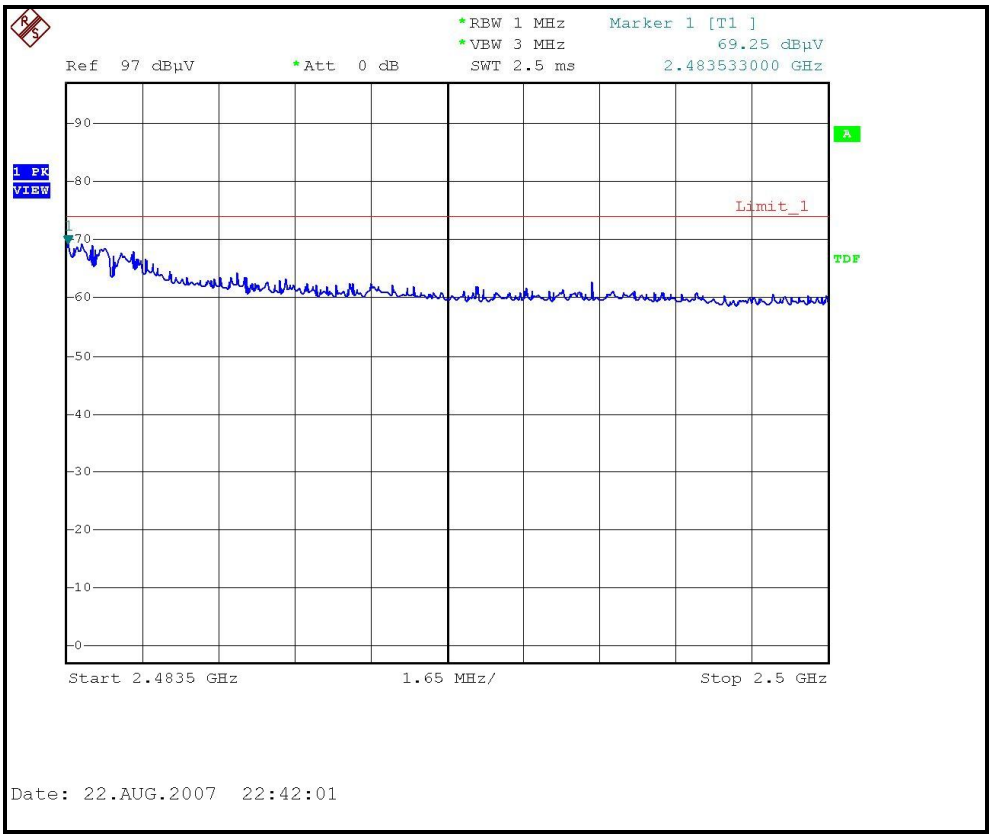
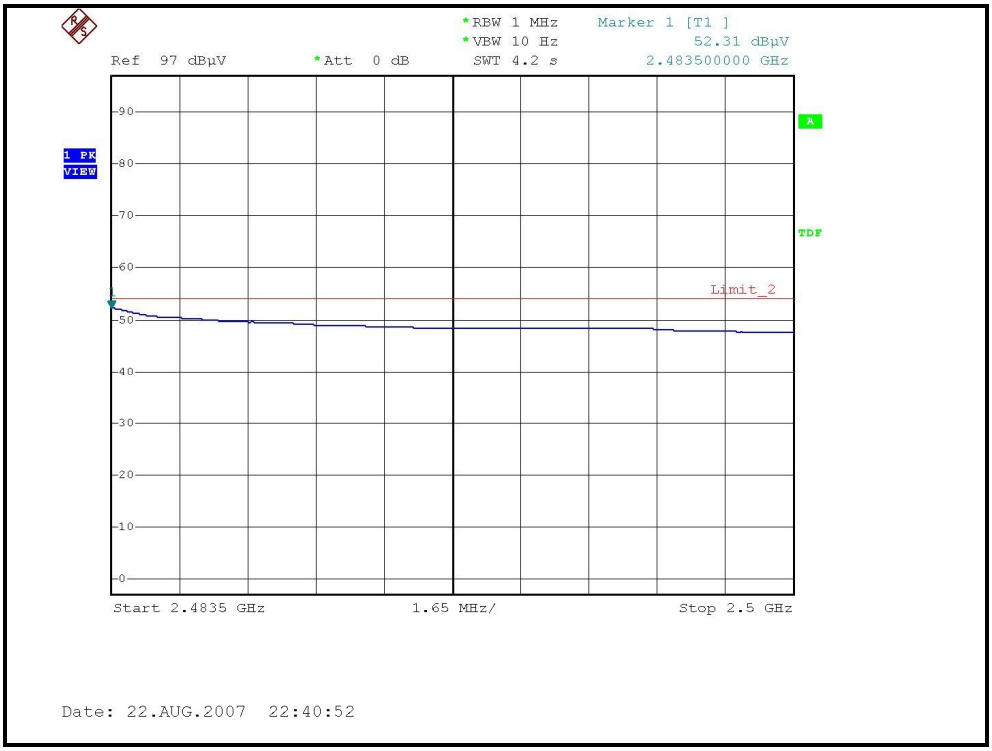




RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





DRAFT 802.11n (20MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	TESTED BY	Sky Liao

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	58.03 PK	74.00	-15.97	1.80 H	60	27.71	30.32
2	2390.00	44.59 AV	54.00	-9.41	1.80 H	60	14.27	30.32
3	*2412.00	102.00 PK			1.80 H	60	71.59	30.41
4	*2412.00	91.70 AV			1.80 H	60	61.29	30.41
5	4824.00	47.07 PK	74.00	-26.93	1.93 H	130	11.28	35.79
6	4824.00	33.44 AV	54.00	-20.56	1.93 H	130	-2.35	35.79
7	7236.00	52.78 PK	74.00	-21.22	1.00 H	360	11.18	41.60
8	7236.00	39.46 AV	54.00	-14.54	1.00 H	360	-2.14	41.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	70.40 PK	74.00	-3.60	1.00 V	63	40.08	30.32
2	2390.00	52.63 AV	54.00	-1.37	1.00 V	63	22.31	30.32
3	*2412.00	115.10 PK			1.00 V	63	84.69	30.41
4	*2412.00	104.50 AV			1.00 V	63	74.09	30.41
5	4824.00	48.94 PK	74.00	-25.06	1.40 V	277	13.15	35.79
6	4824.00	35.24 AV	54.00	-18.76	1.40 V	277	-0.55	35.79
7	7236.00	52.53 PK	74.00	-21.47	1.00 V	360	10.93	41.60
8	7236.00	39.65 AV	54.00	-14.35	1.00 V	360	-1.95	41.60

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

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	102.40 PK			1.42 H	55	71.88	30.52
2	*2437.00	92.00 AV			1.42 H	55	61.48	30.52
3	4874.00	46.74 PK	74.00	-27.26	1.85 H	100	10.82	35.92
4	4874.00	33.59 AV	54.00	-20.41	1.85 H	100	-2.33	35.92
5	7311.00	53.01 PK	74.00	-20.99	1.00 H	360	11.20	41.81
6	7311.00	39.93 AV	54.00	-14.07	1.00 H	360	-1.88	41.81

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	115.20 PK			1.00 V	63	84.68	30.52
2	*2437.00	104.60 AV			1.00 V	63	74.08	30.52
3	4874.00	48.23 PK	74.00	-25.77	1.14 V	150	12.31	35.92
4	4874.00	34.91 AV	54.00	-19.09	1.14 V	150	-1.01	35.92
5	7311.00	53.40 PK	74.00	-20.60	1.00 V	360	11.59	41.81
6	7311.00	39.70 AV	54.00	-14.30	1.00 V	360	-2.11	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	6.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

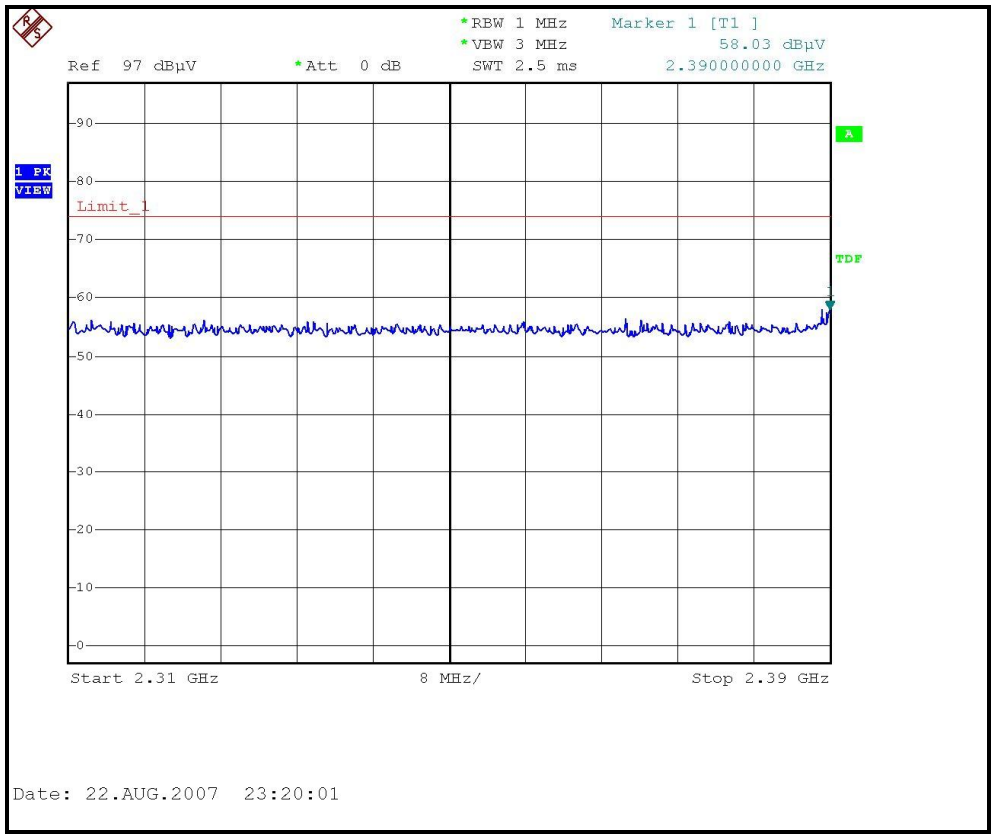
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	101.80 PK			1.33 H	40	71.17	30.63
2	*2462.00	90.90 AV			1.33 H	40	60.27	30.63
3	2483.50	55.97 PK	74.00	-18.03	1.33 H	40	25.25	30.72
4	2483.50	44.82 AV	54.00	-9.18	1.33 H	40	14.10	30.72
5	4924.00	46.49 PK	74.00	-27.51	1.31 H	235	10.43	36.06
6	4924.00	33.51 AV	54.00	-20.49	1.31 H	235	-2.55	36.06
7	7386.00	52.62 PK	74.00	-21.38	1.00 H	360	10.61	42.01
8	7386.00	39.51 AV	54.00	-14.49	1.00 H	360	-2.50	42.01

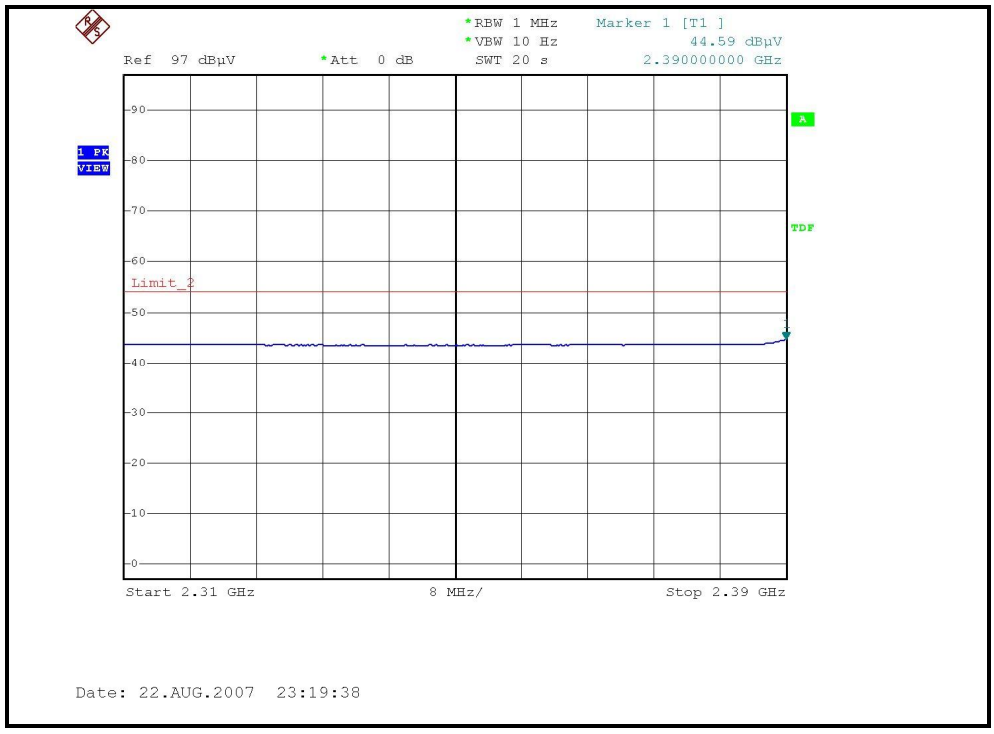
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	115.00 PK			1.00 V	296	84.37	30.63
2	*2462.00	104.20 AV			1.00 V	296	73.57	30.63
3	2483.50	67.73 PK	74.00	-6.27	1.00 V	260	37.01	30.72
4	2483.50	52.66 AV	54.00	-1.34	1.00 V	260	21.94	30.72
5	4924.00	48.30 PK	74.00	-25.70	1.42 V	154	12.24	36.06
6	4924.00	35.01 AV	54.00	-18.99	1.42 V	154	-1.05	36.06
7	7386.00	51.99 PK	74.00	-22.01	1.00 V	360	9.98	42.01
8	7386.00	39.38 AV	54.00	-14.62	1.00 V	360	-2.63	42.01

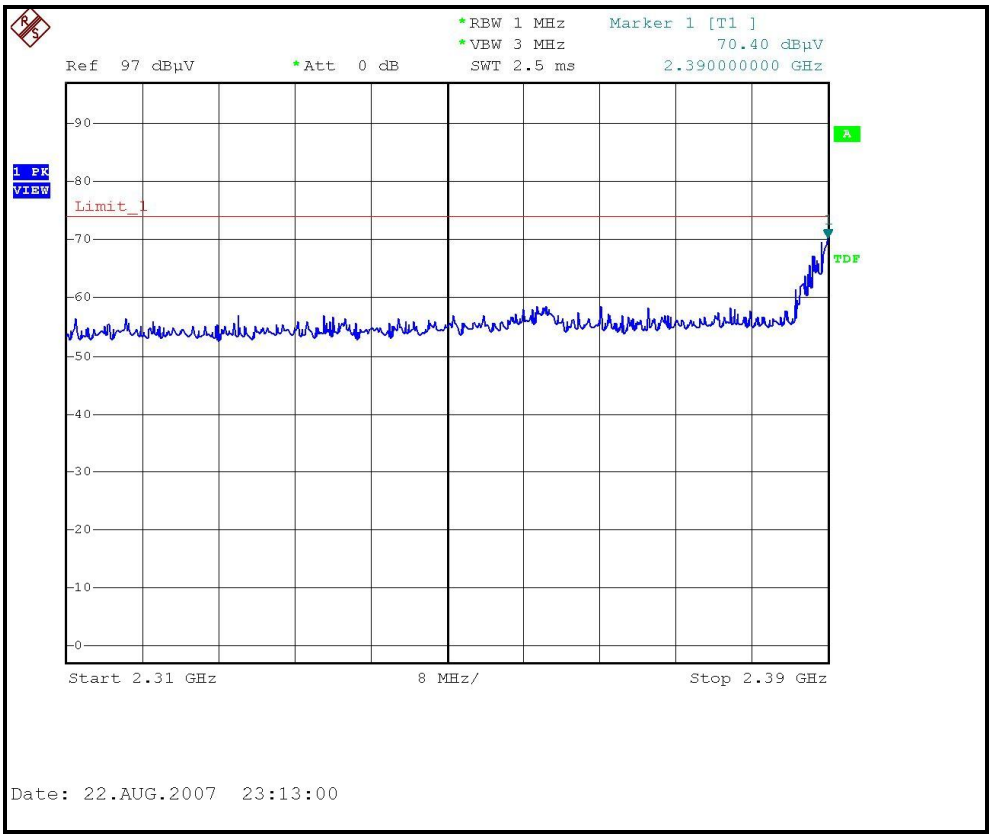
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

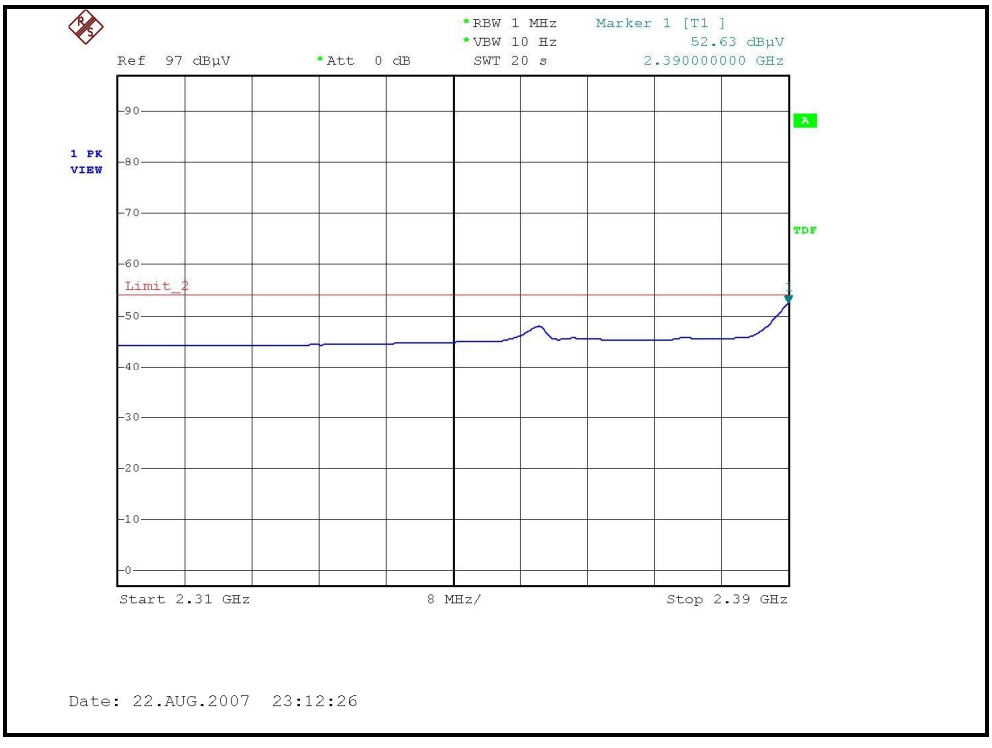
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



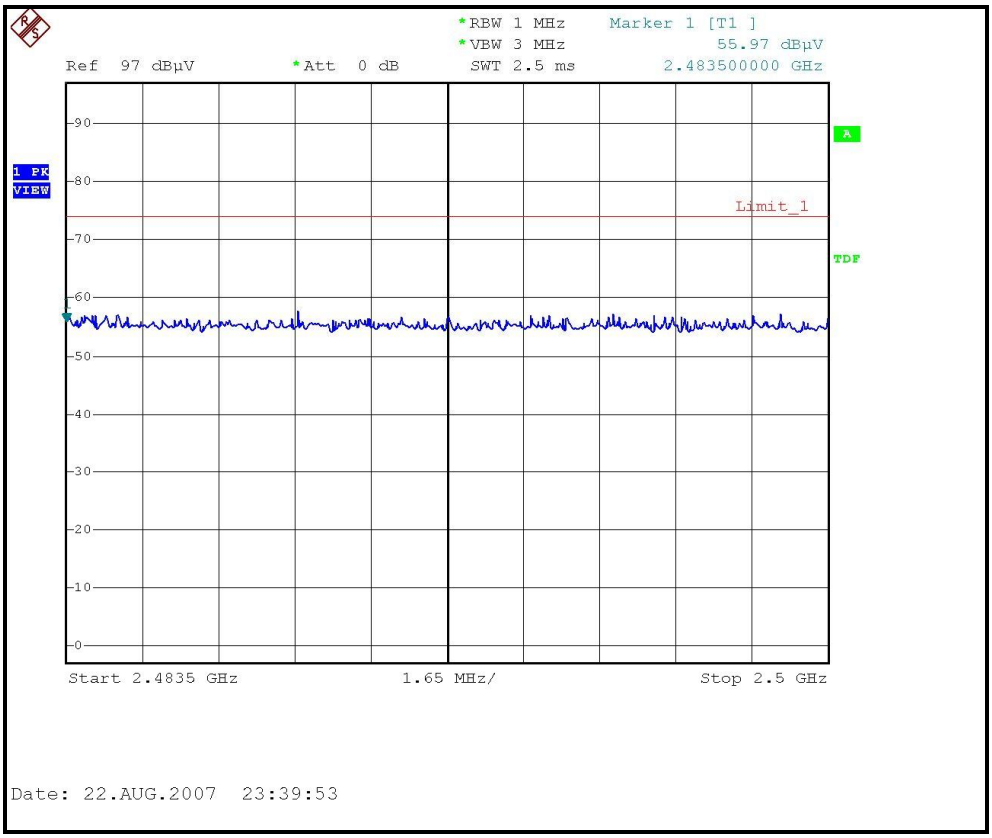


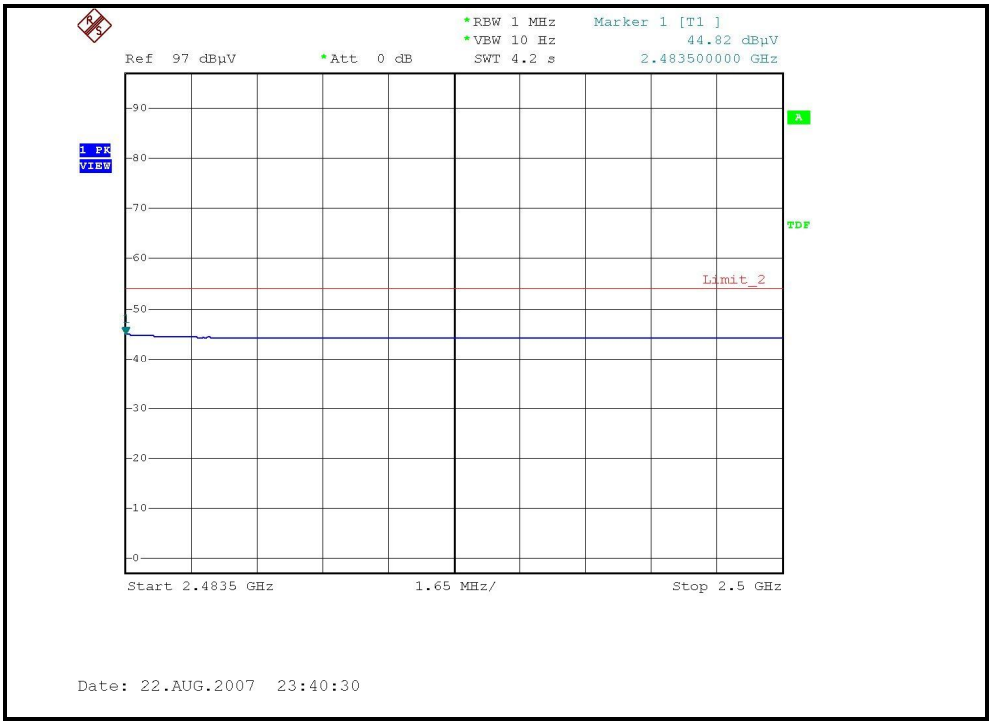
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



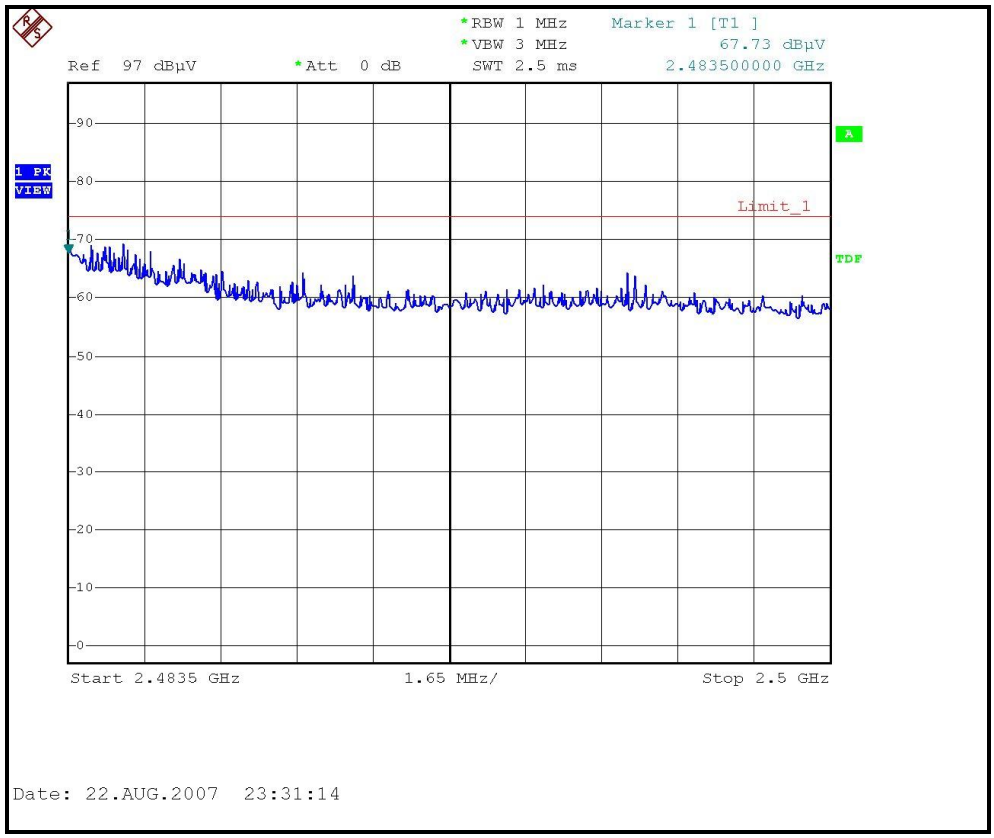


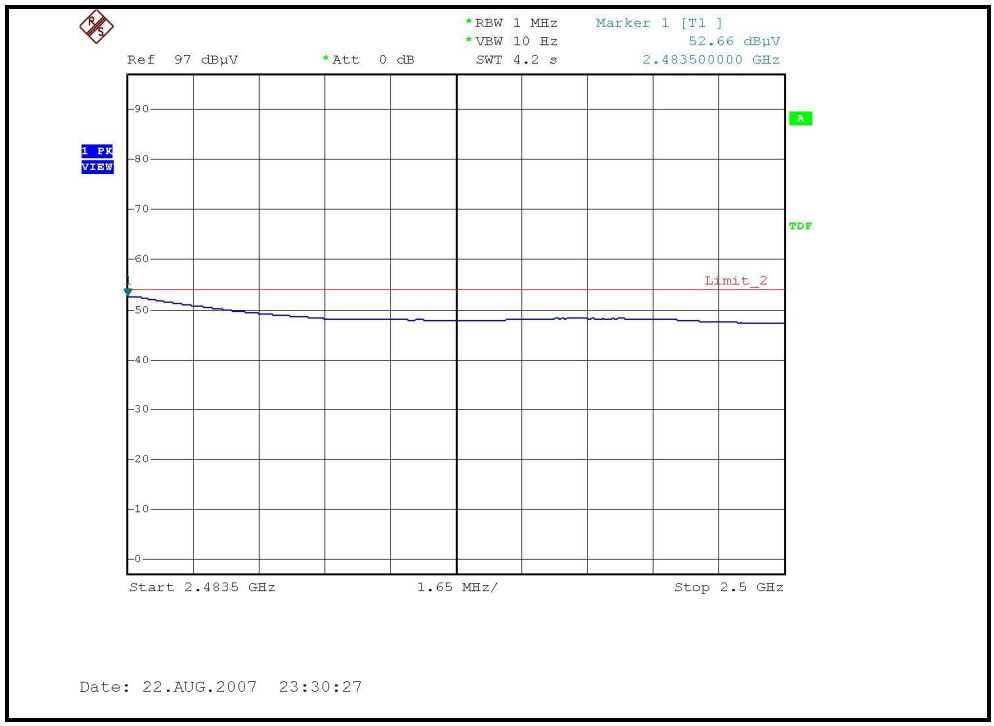
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)





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





DRAFT 802.11n (40MHz) OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	TESTED BY	Sky Liao

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	57.28 PK	74.00	-16.72	1.80 H	62	26.96	30.32
2	2390.00	44.06 AV	54.00	-9.94	1.80 H	62	13.74	30.32
3	*2422.00	99.20 PK			1.80 H	62	68.75	30.45
4	*2422.00	88.30 AV			1.80 H	62	57.85	30.45
5	4844.00	46.90 PK	74.00	-27.10	1.41 H	250	11.06	35.84
6	4844.00	33.40 AV	54.00	-20.60	1.41 H	250	-2.44	35.84
7	7266.00	52.62 PK	74.00	-21.38	1.00 H	360	10.94	41.68
8	7266.00	39.43 AV	54.00	-14.57	1.00 H	360	-2.25	41.68

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	64.83 PK	74.00	-9.17	1.00 V	25	34.51	30.32
2	**2390.00**	**52.83 AV**	**54.00**	**-1.17**	**1.00 V**	**25**	**22.51**	**30.32**
3	*2422.00	100.50 PK			1.00 V	63	70.05	30.45
4	*2422.00	99.90 AV			1.00 V	63	69.45	30.45
5	4844.00	46.41 PK	74.00	-27.59	1.08 V	337	10.57	35.84
6	4844.00	33.50 AV	54.00	-20.50	1.08 V	337	-2.34	35.84
7	7266.00	52.04 PK	74.00	-21.96	1.00 V	360	10.36	41.68
8	7266.00	39.45 AV	54.00	-14.55	1.00 V	360	-2.23	41.68

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	TESTED BY	Sky Liao

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	100.20 PK			1.76 H	62	69.68	30.52
2	*2437.00	89.20 AV			1.76 H	62	58.68	30.52
3	4874.00	46.50 PK	74.00	-27.50	1.16 H	60	10.58	35.92
4	4874.00	33.53 AV	54.00	-20.47	1.16 H	60	-2.39	35.92
5	7311.00	52.97 PK	74.00	-21.03	1.00 H	360	11.16	41.81
6	7311.00	39.77 AV	54.00	-14.23	1.00 H	360	-2.04	41.81

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	111.50 PK			1.00 V	63	80.98	30.52
2	*2437.00	100.90 AV			1.00 V	63	70.38	30.52
3	4874.00	47.69 PK	74.00	-26.31	1.39 V	157	11.77	35.92
4	4874.00	34.80 AV	54.00	-19.20	1.39 V	157	-1.12	35.92
5	7311.00	52.93 PK	74.00	-21.07	1.00 V	360	11.12	41.81
6	7311.00	39.76 AV	54.00	-14.24	1.00 V	360	-2.05	41.81

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. The limit value is defined as per 15.247.
6. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	BPSK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
TRANSFER RATE	13.5Mbps	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 68%RH, 955hPa	**TESTED BY**	Sky Liao

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

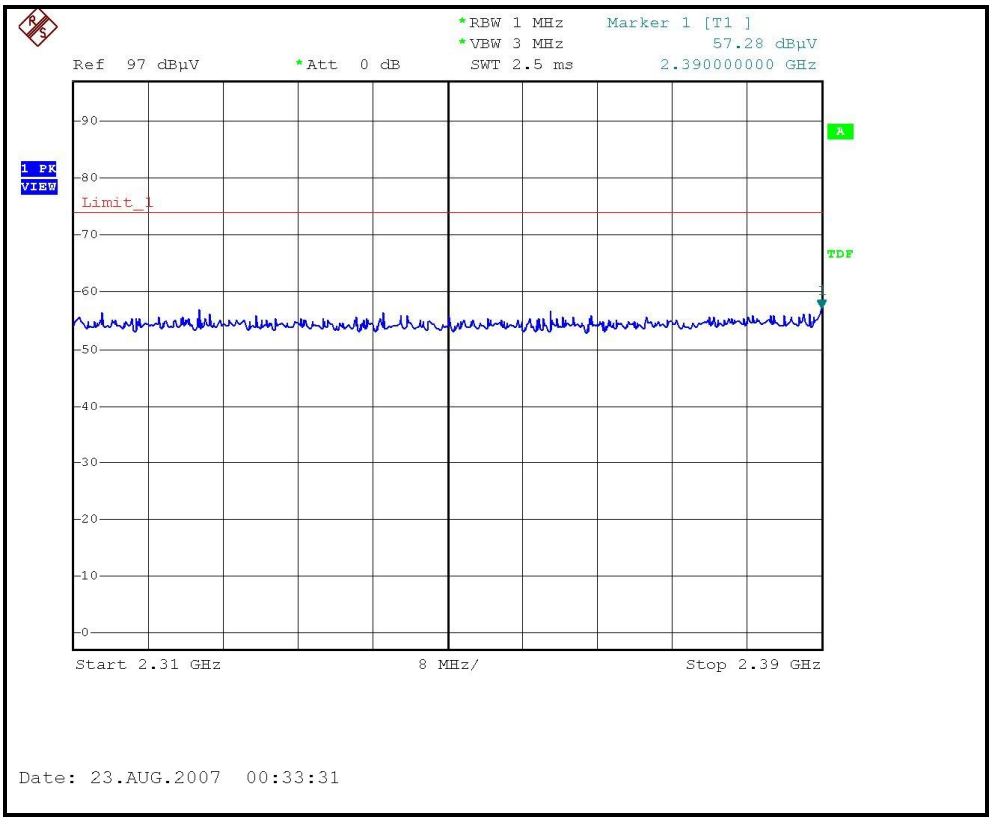
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2452.00	98.30 PK			1.70 H	62	67.72	30.58
2	2452.00	87.10 AV			1.70 H	62	56.52	30.58
3	2483.50	57.04 PK	74.00	-16.96	1.70 H	62	26.32	30.72
4	2483.50	45.54 AV	54.00	-8.46	1.70 H	62	14.82	30.72
5	4904.00	46.74 PK	74.00	-27.26	1.82 H	0	10.74	36.00
6	4904.00	33.79 AV	54.00	-20.21	1.82 H	0	-2.21	36.00
7	7356.00	52.52 PK	74.00	-21.48	1.00 H	360	10.59	41.93
8	7356.00	39.37 AV	54.00	-14.63	1.00 H	360	-2.56	41.93

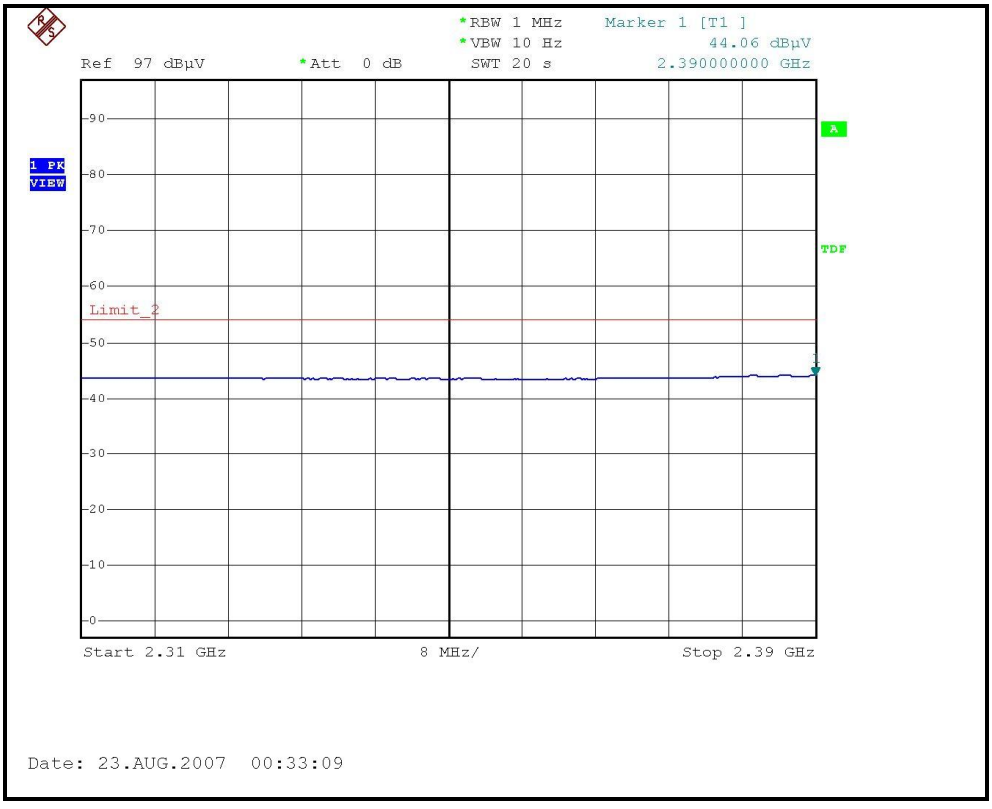
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	109.50 PK			1.00 V	64	78.92	30.58
2	2452.00	98.80 AV			1.00 V	64	68.22	30.58
3	2484.06	65.90 PK	74.00	-8.10	1.00 V	64	35.18	30.72
4	2484.06	52.81 AV	54.00	-1.19	1.00 V	64	22.09	30.72
5	4904.00	49.74 PK	74.00	-24.26	1.33 V	285	13.74	36.00
6	4904.00	33.69 AV	54.00	-20.31	1.33 V	285	-2.31	36.00
7	7356.00	52.76 PK	74.00	-21.24	1.00 V	360	10.83	41.93
8	7356.00	39.15 AV	54.00	-14.85	1.00 V	360	-2.78	41.93

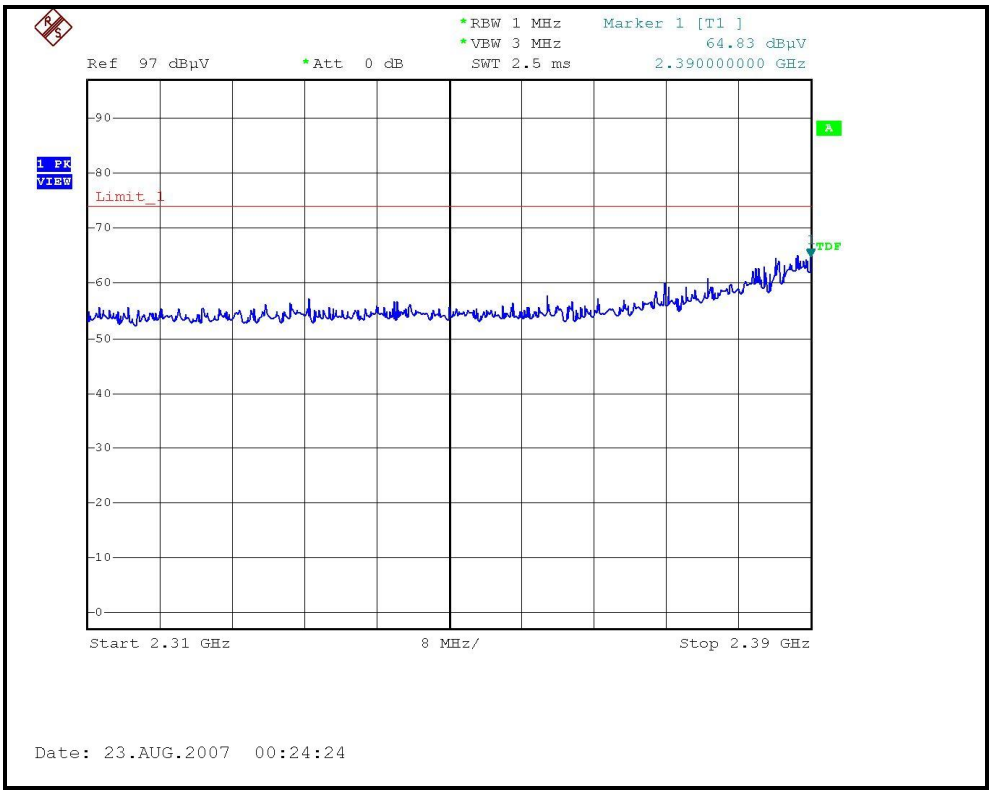
REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per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

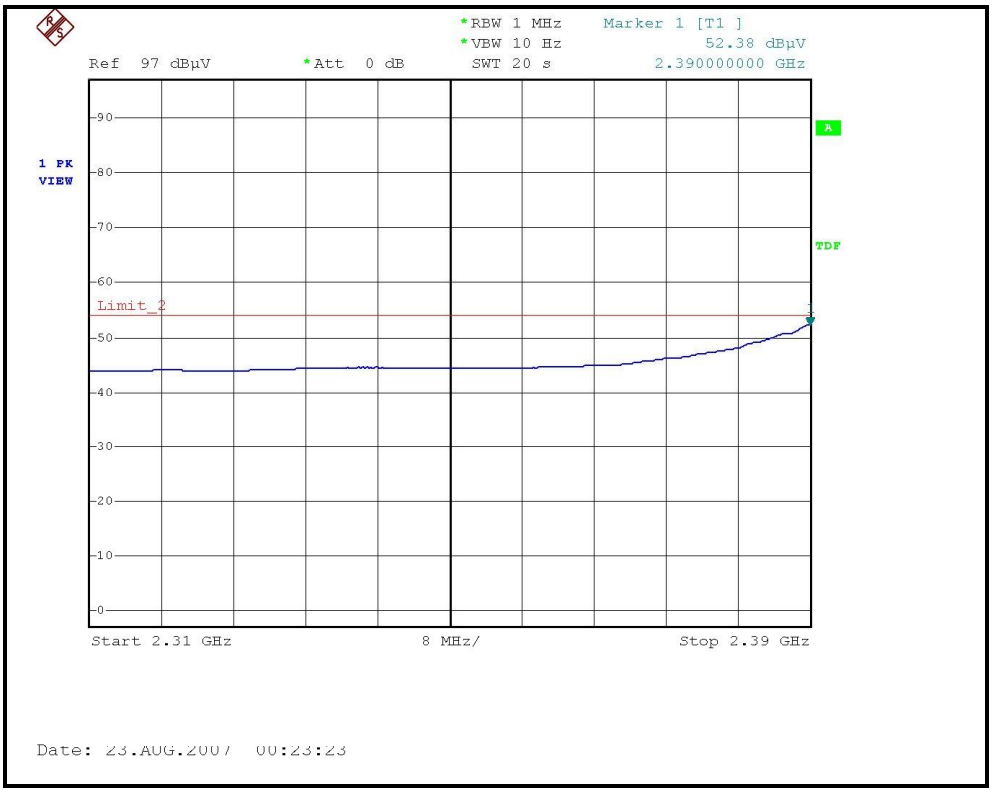
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)



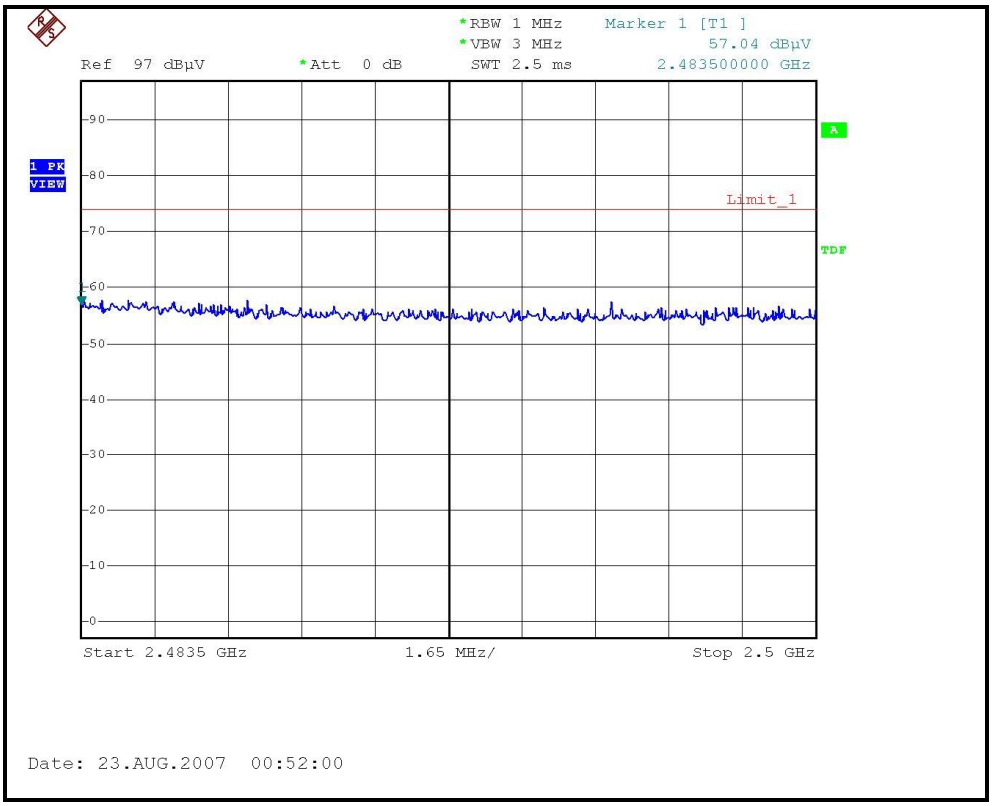


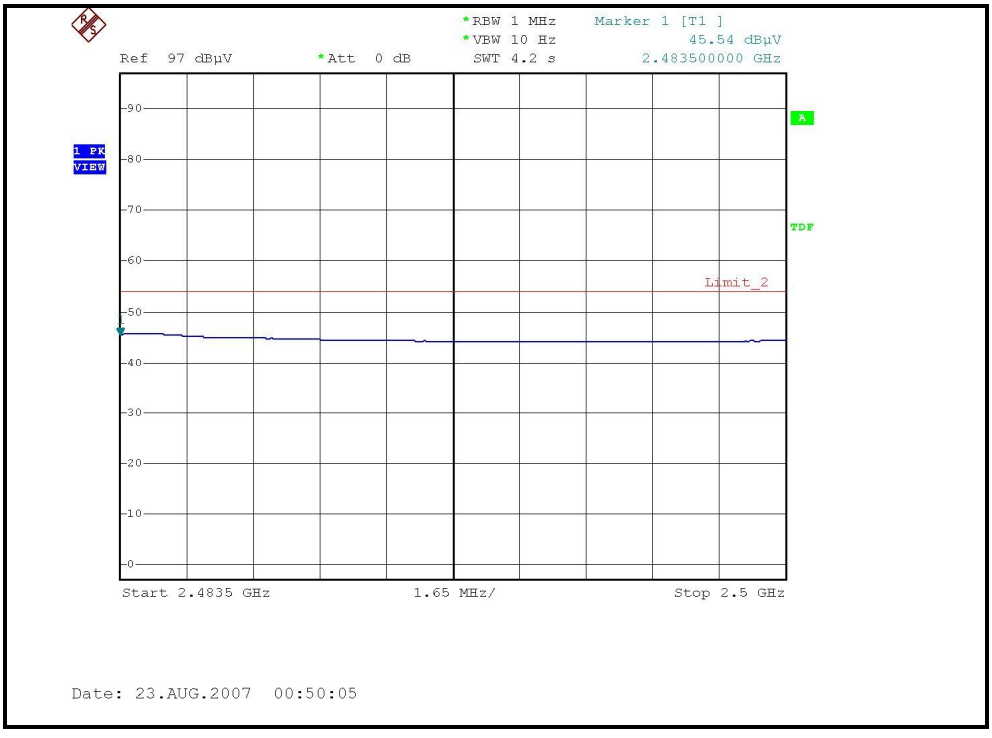
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



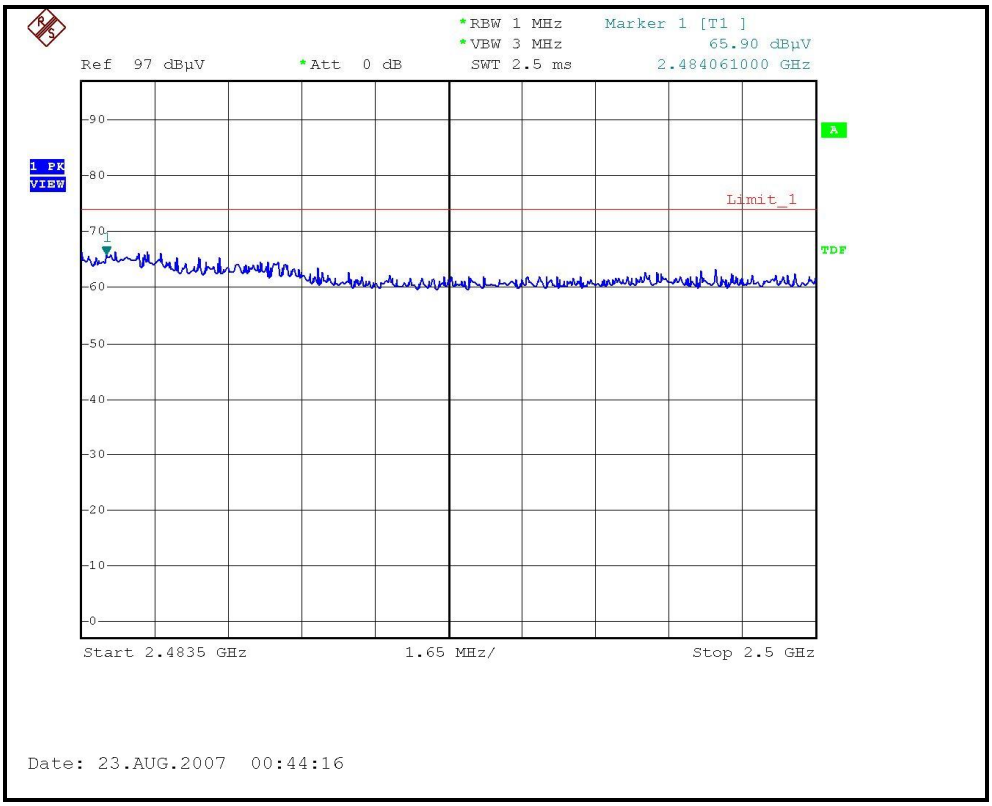


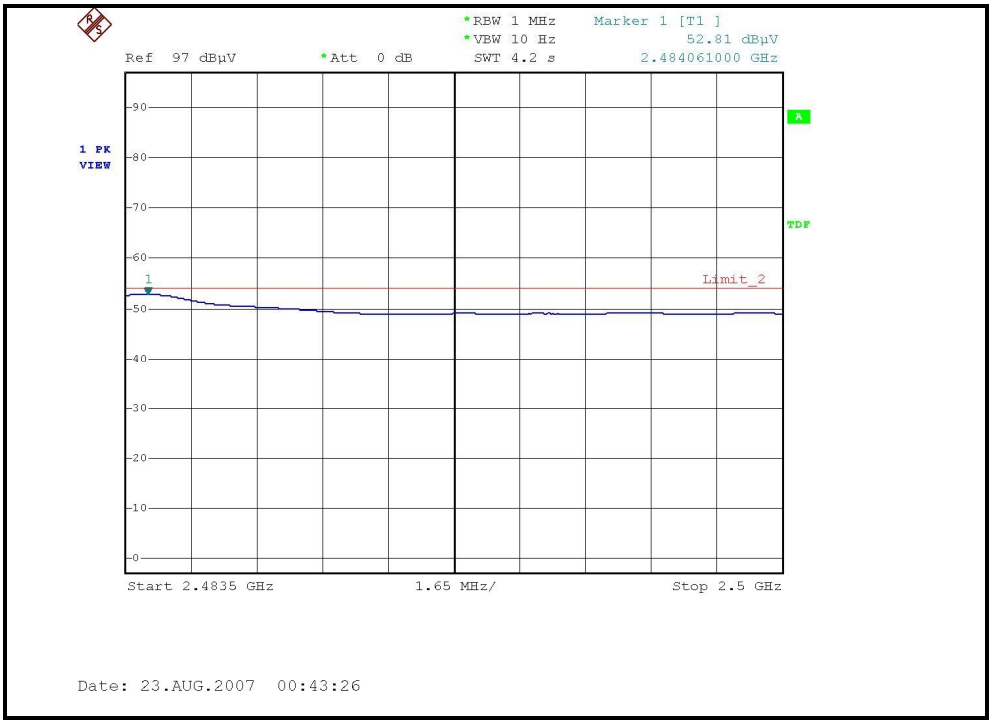
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)





RESTRICTED BANDEDGE (DRAFT 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 Until
R&S SPECTRUM ANALYZER	FSP40	100037	Nov. 08, 2007

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. 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:

MODULATION TYPE	CCK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 68%RH, 955hPa
TESTED BY	Phoenix Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.45	0.5	PASS
6	2437	12.5	0.5	PASS
11	2462	12.85	0.5	PASS

CH1