

FCC TEST REPORT

REPORT NO.: RF950607L13

MODEL NO.: G-470

RECEIVED: Jun. 07, 2006

TESTED: Jun. 13 ~ Jun. 29, 2006

ISSUED: Jul. 03, 2006

APPLICANT: ZyXEL Communications Corporation

ADDRESS: No. 6, Innovation Road II, Science Park,
Hsinchu 300 Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: 47 14th Lin, Chiapau Tsun, Linko, Taipei,
Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Kueishan, Taoyuan,
Taiwan, R.O.C.

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Table of Contents

1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	5
3	GENERAL INFORMATION	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES	7
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST	7
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	8
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	10
3.4	DESCRIPTION OF SUPPORT UNITS.....	10
4	TEST TYPES AND RESULTS	11
4.1	CONDUCTED EMISSION MEASUREMENT	11
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	11
4.1.2	TEST INSTRUMENTS	11
4.1.3	TEST PROCEDURES	12
4.1.4	DEVIATION FROM TEST STANDARD	12
4.1.5	TEST SETUP	13
4.1.6	EUT OPERATING CONDITIONS.....	13
4.1.7	TEST RESULTS	14
4.2	RADIATED EMISSION MEASUREMENT.....	26
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	26
4.2.2	TEST INSTRUMENTS	27
4.2.3	TEST PROCEDURES	28
4.2.4	DEVIATION FROM TEST STANDARD	28
4.2.5	TEST SETUP	29
4.2.6	EUT OPERATING CONDITIONS.....	29
4.2.7	TEST RESULTS	30
4.3	6dB BANDWIDTH MEASUREMENT	39
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	39
4.3.2	TEST INSTRUMENTS	39
4.3.3	TEST PROCEDURE	40
4.3.4	DEVIATION FROM TEST STANDARD	40
4.3.5	TEST SETUP	40
4.3.6	EUT OPERATING CONDITIONS.....	40
4.3.7	TEST RESULTS	41
4.4	MAXIMUM PEAK OUTPUT POWER.....	47
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	47
4.4.2	TEST INSTRUMENTS	47
4.4.3	TEST PROCEDURES	48

4.4.4	DEVIATION FROM TEST STANDARD	48
4.4.5	TEST SETUP	48
4.4.6	EUT OPERATING CONDITIONS.....	48
4.4.7	TEST RESULTS	49
4.5	POWER SPECTRAL DENSITY MEASUREMENT	58
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT.....	58
4.5.2	TEST INSTRUMENTS	58
4.5.3	TEST PROCEDURE	59
4.5.4	DEVIATION FROM TEST STANDARD	59
4.5.5	TEST SETUP	59
4.5.6	EUT OPERATING CONDITIONS.....	59
4.5.7	TEST RESULTS	60
4.6	BAND EDGES MEASUREMENT	66
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	66
4.6.2	TEST INSTRUMENTS	66
4.6.3	TEST PROCEDURE	66
4.6.4	DEVIATION FROM TEST STANDARD	66
4.6.5	EUT OPERATING CONDITION	66
4.6.6	TEST RESULTS	67
4.7	ANTENNA REQUIREMENT	75
4.7.1	STANDARD APPLICABLE	75
4.7.2	ANTENNA CONNECTED CONSTRUCTION.....	75
5	INFORMATION ON THE TESTING LABORATORIES.....	76
APPENDIX-A	A-1

1 CERTIFICATION

PRODUCT : 802.11g Wireless Ethernet Adapter
MODEL NO.: G-470
BRAND: ZyXEL
APPLICANT : ZyXEL Communications Corporation
TESTED: Jun. 13 ~ Jun. 29, 2006
TEST SAMPLE: R&D SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment have 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 : Jessie Wang , **DATE:** Jul. 03, 2006
Jessie Wang

TECHNICAL
ACCEPTANCE : Long Chen , **DATE:** Jul. 03, 2006
Responsible for RF Long Chen

APPROVED BY : Gary Chang , **DATE:** Jul. 03, 2006
Gary Chang / Supervisor

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.56dB at 0.755MHz.
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)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -1.00dB at 82.48 / 2386.00 / 2499.00MHz.
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement Limit: 20 dB 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:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.71 dB
	200MHz ~1000MHz	3.73 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11g Wireless Ethernet Adapter
MODEL NO.	G-470
FCC ID	I88G470
POWER SUPPLY	5Vdc from AC Adapter 48Vdc from POE
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
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	615.177mW
ANTENNA TYPE	Dipole antenna with 4dBi gain Print PCB antenna with 0dBi gain
I/O PORTS	RJ45
DATA CABLE	NA

NOTE:

1. After pre-test both antenna, dipole antenna was the worst one. Therefore, this report only presented all the result of dipole, only the most margin channel of printed antenna has been shown for reference.
2. The EUT was powered with following adapter:

Brand	DVE
Model	DSA-12W-05 FUS
Input Power	100-240Vac, 50/60Hz, 0.3A
Output Power	5Vdc, 2A
Power Line	1.8m non-shielded cable without core

3. The POE is for support unit only.
4. The EUT complies with IEEE 802.11g standards and backwards compatible with IEEE 802.11b products.
5. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
6. 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.

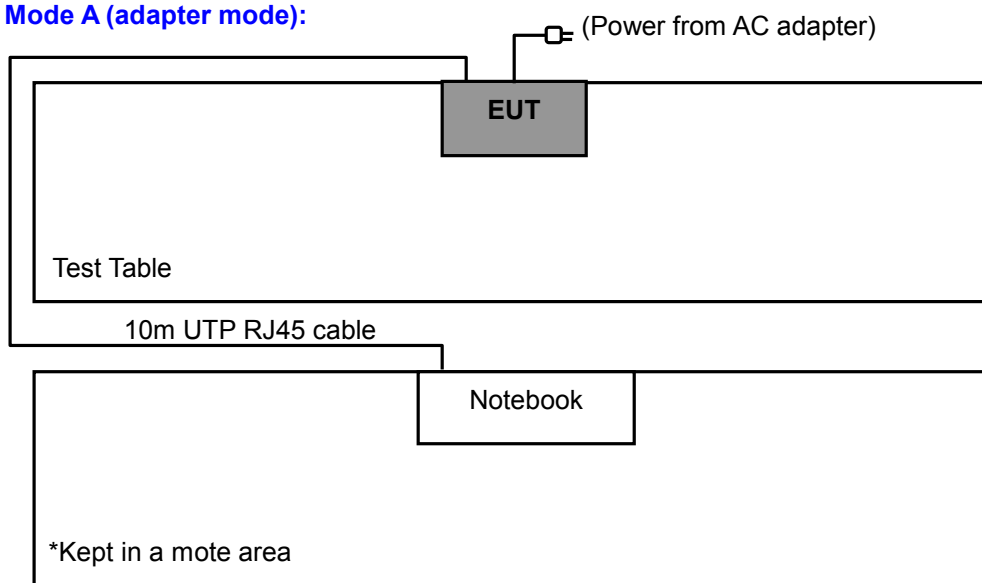
3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT for normal mode.

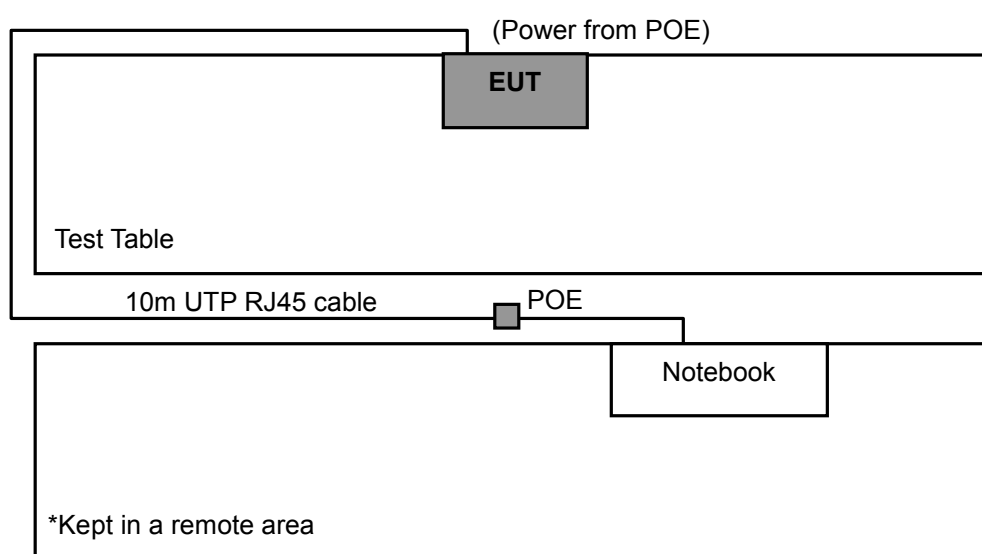
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Test Mode A (adapter mode):



Test Mode B (POE mode):



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
A	√	√	-	-	Adapter mode
B	√	√	√	√	POE mode

Where **PLC**: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: “-“ means no effect.

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.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

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.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11g	1 to 11	11	OFDM	BPSK	6
B	802.11g	1 to 11	11	OFDM	BPSK	6

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.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

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.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
B	802.11b	1 to 11	1, 11	DSSS	DBPSK	1
B	802.11g	1 to 11	1, 11	OFDM	BPSK	6

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.

EUT configure mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)
ANSI C63.4-2003

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	PP05L	9954115984	E2K24CLNS
2	POE	BUFFALO	BIJ-POE-4P	NA	NA

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

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 is acted as a communication partner to transfer data.

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 11, 2006
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 06, 2007
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 15, 2007
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Feb. 07, 2007
Software ADT	ADT_Cond_V3	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 HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

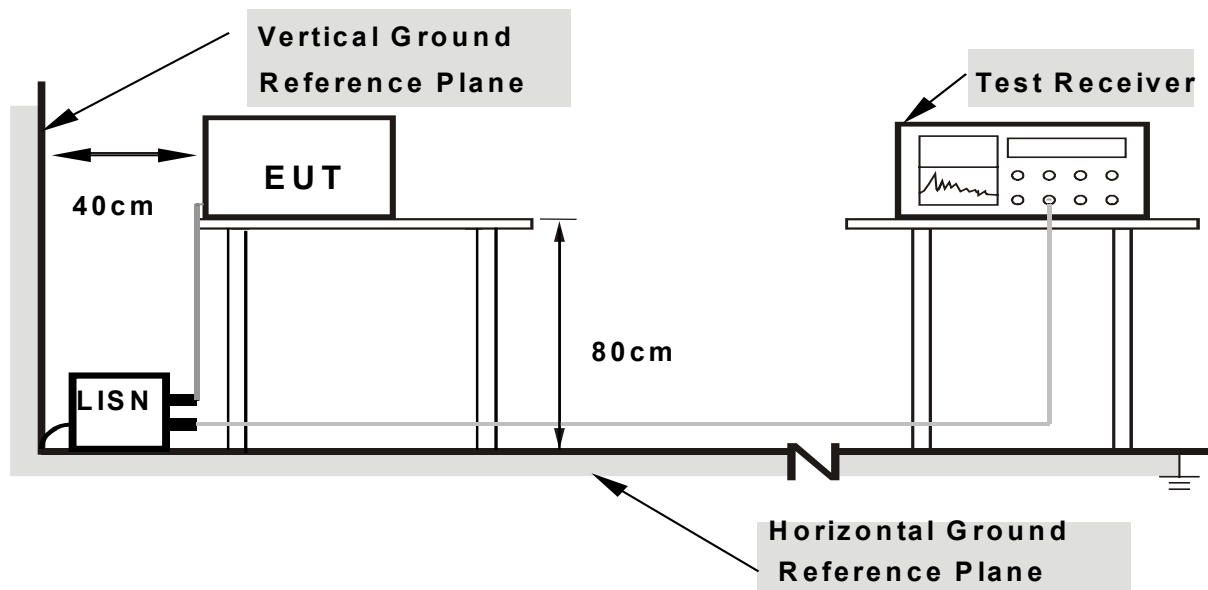
4.1.3 TEST PROCEDURES

- 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 was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared another notebook system to act as a communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a UTP cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency via an RJ45 cable.
- d. The communication partner sent data to EUT by command "PING".

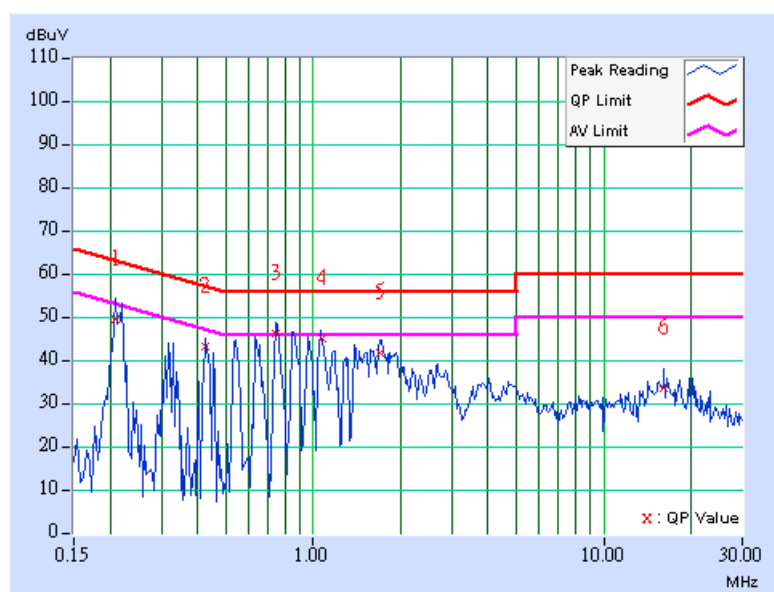
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA FOR ADAPTER MODE:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	A
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.10	49.13	-	49.23	-	63.26	53.26	-14.03	
2	0.423	0.10	42.70	-	42.80	-	57.38	47.38	-14.58	
3	0.744	0.16	45.74	-	45.90	-	56.00	46.00	-10.10	
4	1.071	0.20	44.39	-	44.59	-	56.00	46.00	-11.41	
5	1.708	0.20	41.30	-	41.50	-	56.00	46.00	-14.50	
6	16.168	0.68	32.88	-	33.56	-	60.00	50.00	-26.44	

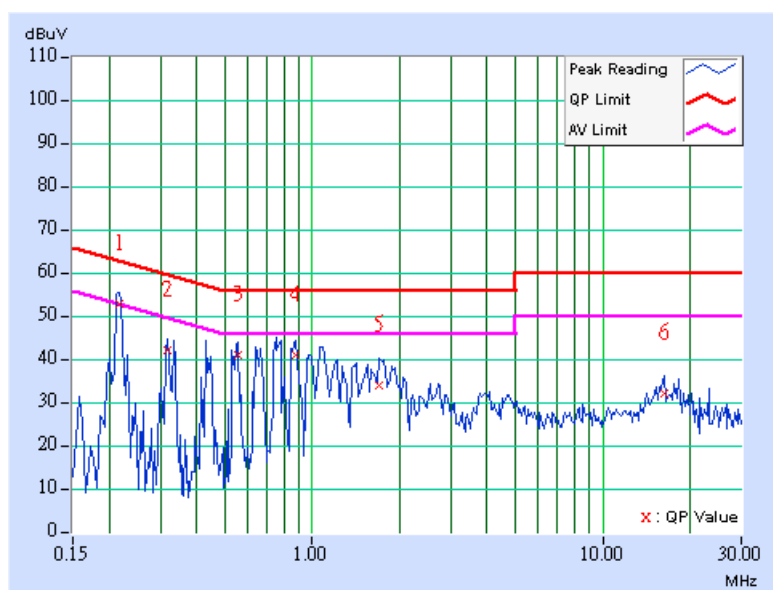
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	A
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.216	0.10	52.50	-	52.60	-	62.96	52.96	-10.36	-
2	0.318	0.10	41.73	-	41.83	-	59.76	49.76	-17.93	-
3	0.552	0.10	40.66	-	40.76	-	56.00	46.00	-15.24	-
4	0.877	0.10	40.58	-	40.68	-	56.00	46.00	-15.32	-
5	1.703	0.17	33.42	-	33.59	-	56.00	46.00	-22.41	-
6	16.230	0.55	31.66	-	32.21	-	60.00	50.00	-27.79	-

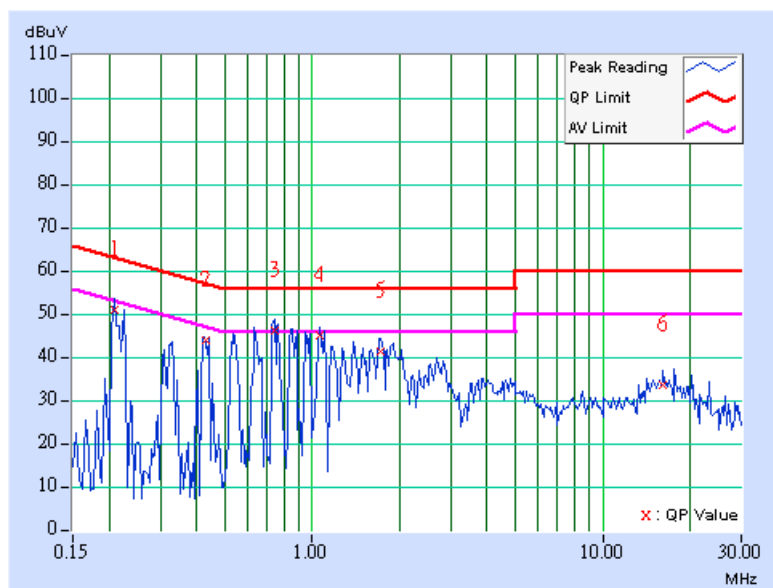
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 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	A
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.209	0.10	50.26	-	50.36	-	63.26	53.26	-12.90	-
2	0.428	0.10	43.23	-	43.33	-	57.28	47.28	-13.95	-
3	0.740	0.16	45.46	-	45.62	-	56.00	46.00	-10.38	-
4	1.066	0.20	44.45	-	44.65	-	56.00	46.00	-11.35	-
5	1.723	0.20	40.72	-	40.92	-	56.00	46.00	-15.08	-
6	16.168	0.68	33.21	-	33.89	-	60.00	50.00	-26.11	-

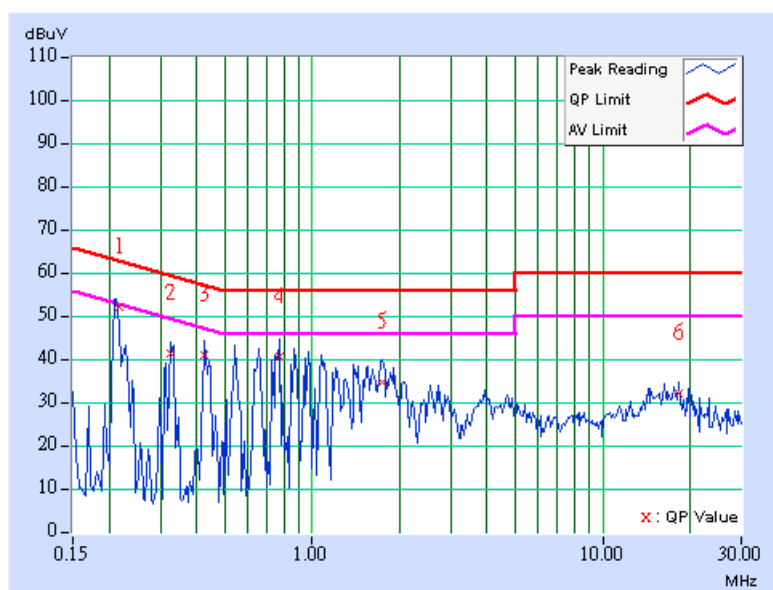
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	A
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.217	0.10	51.76	-	51.86	-	62.91	52.91	-11.05	-
2	0.326	0.10	41.03	-	41.13	-	59.56	49.56	-18.43	-
3	0.427	0.10	40.55	-	40.65	-	57.30	47.30	-16.65	-
4	0.771	0.10	40.01	-	40.11	-	56.00	46.00	-15.89	-
5	1.734	0.17	34.29	-	34.46	-	56.00	46.00	-21.54	-
6	18.242	0.59	31.76	-	32.35	-	60.00	50.00	-27.65	-

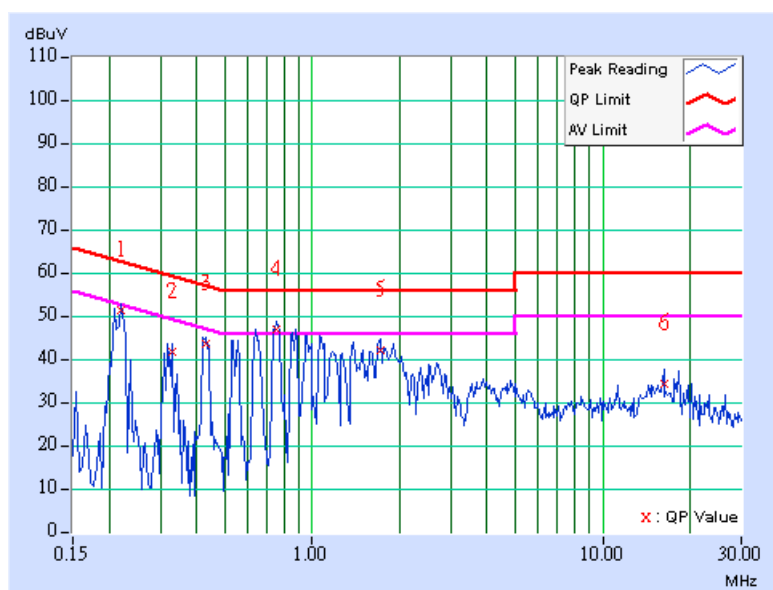
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 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	A
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.220	0.10	50.90	-	51.00	-	62.81	52.81	-11.81	-
2	0.330	0.10	41.05	-	41.15	-	59.46	49.46	-18.31	-
3	0.431	0.11	42.95	-	43.06	-	57.23	47.23	-14.17	-
4	0.755	0.16	46.28	34.53	46.44	34.69	56.00	46.00	-9.56	-11.31
5	1.715	0.20	41.38	-	41.58	-	56.00	46.00	-14.42	-
6	16.230	0.68	33.65	-	34.33	-	60.00	50.00	-25.67	-

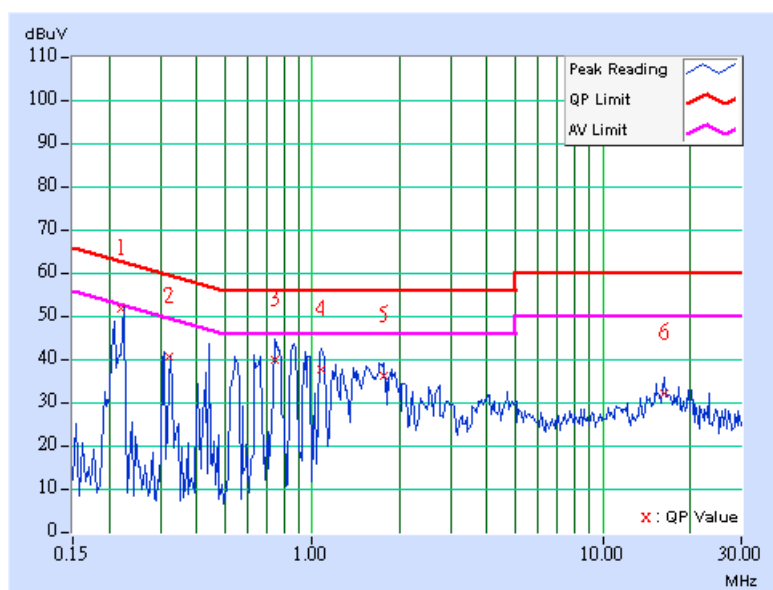
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	A
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.219	0.10	51.44	-	51.54	-	62.85	52.85	-11.31	-
2	0.323	0.10	40.32	-	40.42	-	59.63	49.63	-19.21	-
3	0.748	0.10	39.47	-	39.57	-	56.00	46.00	-16.43	-
4	1.074	0.11	37.21	-	37.32	-	56.00	46.00	-18.68	-
5	1.762	0.18	35.85	-	36.03	-	56.00	46.00	-19.97	-
6	16.230	0.55	31.68	-	32.23	-	60.00	50.00	-27.77	-

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

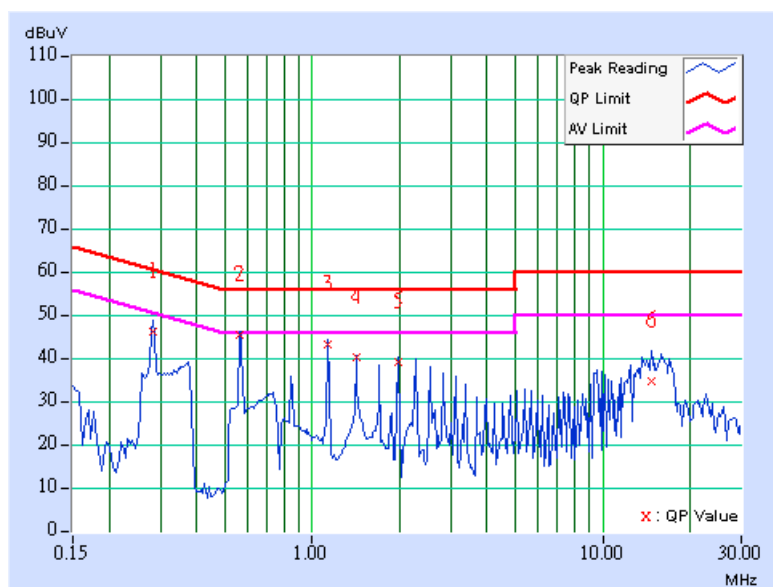


FOR POE MODE:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	B
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.283	0.10	45.61	-	45.71	-	60.73	50.73	-15.02	-
2	0.564	0.13	44.89	-	45.02	-	56.00	46.00	-10.98	-
3	1.133	0.20	42.61	-	42.81	-	56.00	46.00	-13.19	-
4	1.414	0.20	39.72	-	39.92	-	56.00	46.00	-16.08	-
5	1.980	0.20	38.48	-	38.68	-	56.00	46.00	-17.32	-
6	14.750	0.62	34.18	-	34.80	-	60.00	50.00	-25.20	-

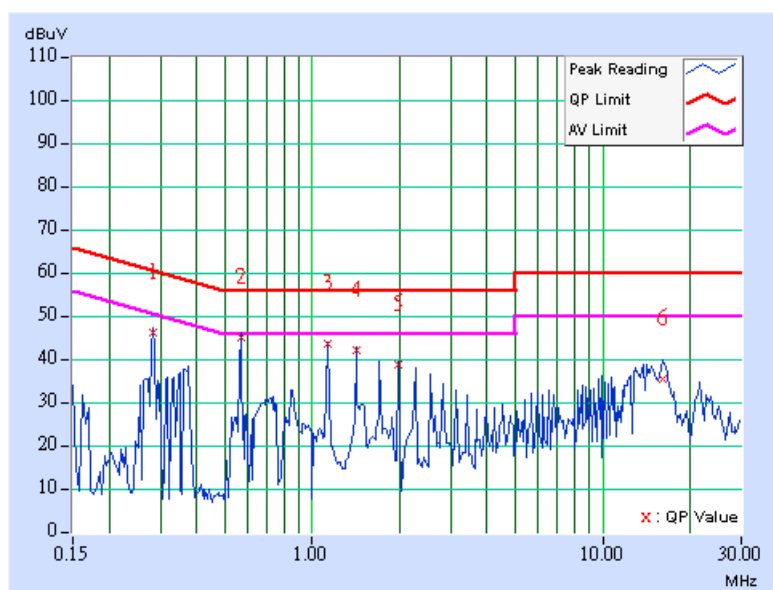
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	B
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.283	0.10	45.67	-	45.77	-	60.73	50.73	-14.96	-
2	0.568	0.10	44.53	-	44.63	-	56.00	46.00	-11.37	-
3	1.133	0.11	43.30	-	43.41	-	56.00	46.00	-12.59	-
4	1.414	0.14	41.75	-	41.89	-	56.00	46.00	-14.11	-
5	1.980	0.20	38.32	-	38.52	-	56.00	46.00	-17.48	-
6	16.184	0.55	35.02	-	35.57	-	60.00	50.00	-24.43	-

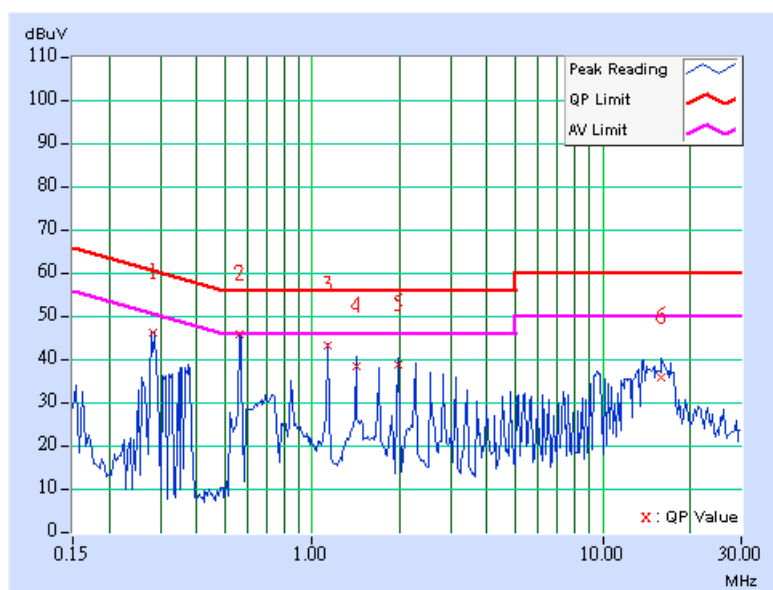
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 6	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	B
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.284	0.10	45.65	-	45.75	-	60.69	50.69	-14.94	-
2	0.564	0.13	45.15	-	45.28	-	56.00	46.00	-10.72	-
3	1.133	0.20	42.65	-	42.85	-	56.00	46.00	-13.15	-
4	1.418	0.20	37.72	-	37.92	-	56.00	46.00	-18.08	-
5	1.980	0.20	38.38	-	38.58	-	56.00	46.00	-17.42	-
6	15.898	0.67	35.36	-	36.03	-	60.00	50.00	-23.97	-

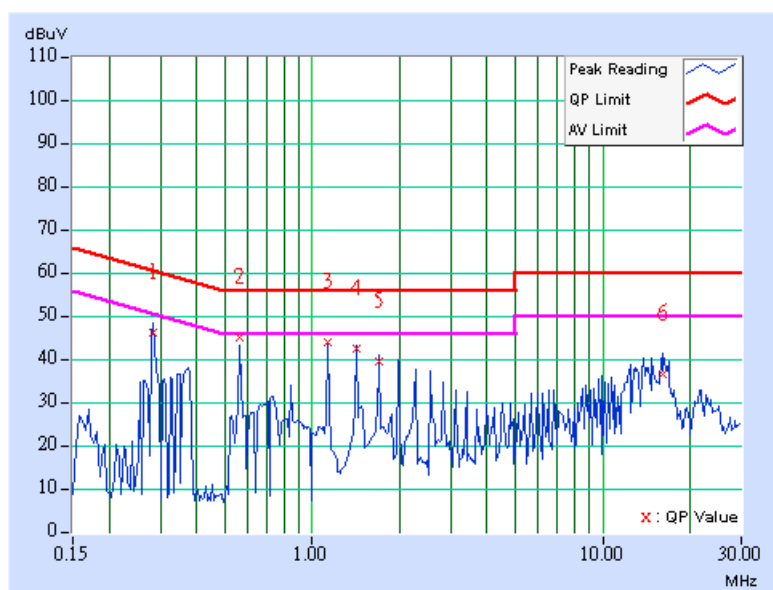
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 6	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	B
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.283	0.10	45.71	-	45.81	-	60.73	50.73	-14.92	-
2	0.564	0.10	44.45	-	44.55	-	56.00	46.00	-11.45	-
3	1.133	0.11	43.36	-	43.47	-	56.00	46.00	-12.53	-
4	1.414	0.14	41.87	-	42.01	-	56.00	46.00	-13.99	-
5	1.695	0.17	39.04	-	39.21	-	56.00	46.00	-16.79	-
6	16.164	0.55	36.07	-	36.62	-	60.00	50.00	-23.38	-

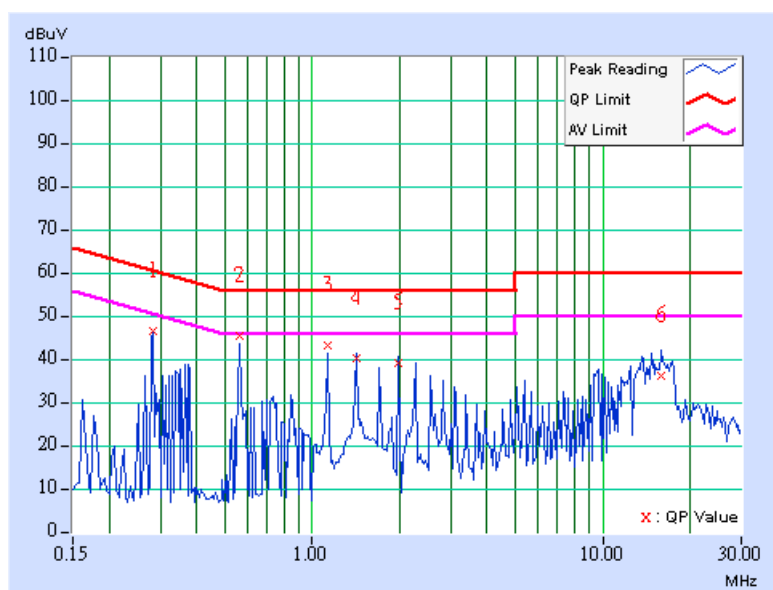
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 1
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	B
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.283	0.10	45.83	-	45.93	-	60.73	50.73	-14.80	-
2	0.564	0.13	45.01	-	45.14	-	56.00	46.00	-10.86	-
3	1.134	0.20	42.55	-	42.75	-	56.00	46.00	-13.25	-
4	1.414	0.20	39.78	-	39.98	-	56.00	46.00	-16.02	-
5	1.980	0.20	38.54	-	38.74	-	56.00	46.00	-17.26	-
6	15.898	0.67	35.54	-	36.21	-	60.00	50.00	-23.79	-

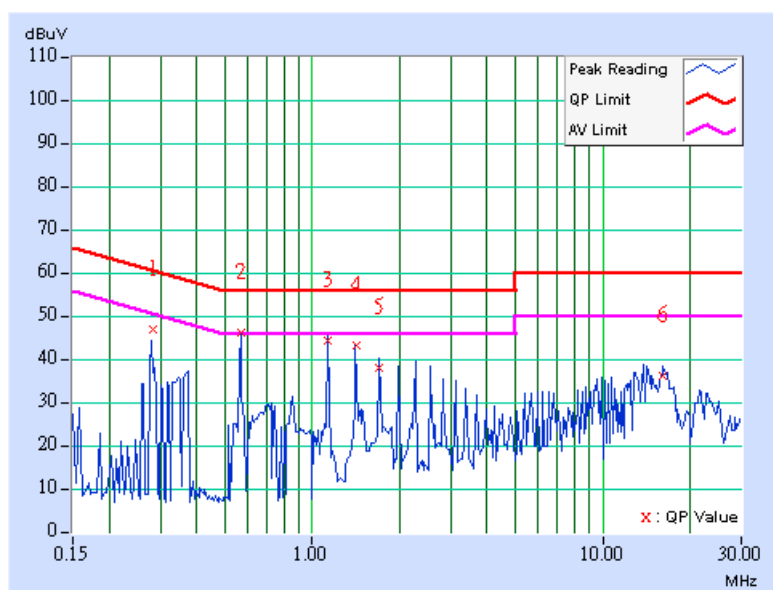
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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 11	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TEST MODE	B
TESTED BY	Match Tsui		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.282	0.10	46.37	-	46.47	-	60.77	50.77	-14.30	-
2	0.567	0.10	45.72	-	45.82	-	56.00	46.00	-10.18	-
3	1.133	0.11	43.93	-	44.04	-	56.00	46.00	-11.96	-
4	1.413	0.14	42.84	-	42.98	-	56.00	46.00	-13.02	-
5	1.703	0.17	37.77	-	37.94	-	56.00	46.00	-18.06	-
6	16.156	0.55	35.85	-	36.40	-	60.00	50.00	-23.60	-

- 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
Test Receiver ROHDE & SCHWARZ	ESI7	100033	May. 22, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100025	Dec. 05, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	May 31, 2007
HORN Antenna SCHWARZBECK	9120D	9120D-408	Jan. 08, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Jan. 19, 2007
Preamplifier Agilent	8447D	2944A10633	Nov. 04, 2006
Preamplifier Agilent	8449B	3008A01964	Oct. 30, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	214377/4	Dec. 13, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219272/4	Dec. 13, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA
Turn Table ADT.	TT100.	TT93021703	NA
Turn Table Controller ADT.	SC100.	SC93021703	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 HwaYa Chamber 2.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The VCCI Site Registration No. is R-237.
 5. The IC Site Registration No. is IC4924-3.

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 meters semi-anechoic chamber. 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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

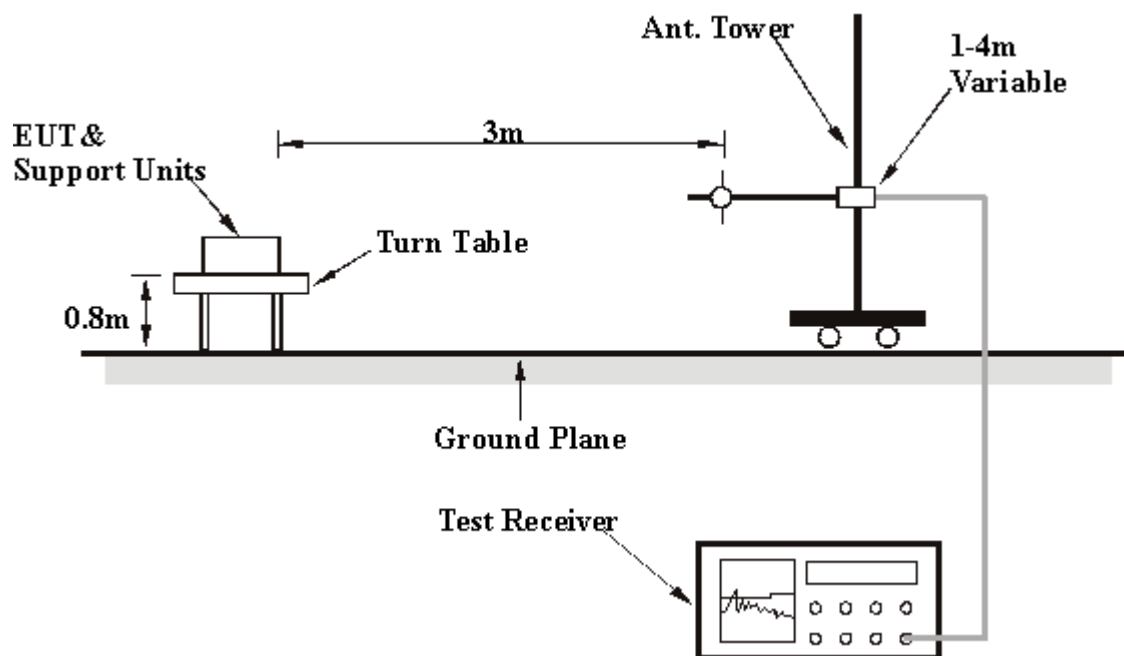
NOTE:

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 and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz 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

Same as 4.1.6

4.2.7 TEST RESULTS

RADIATED WORST-CASE DATA: BELOW 1GHz FOR ADAPTER MODE:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa	TESTED BY	Morgan Chen
TEST MODE	A	ANTENNA TYPE	Dipole Antenna

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	80.54	24.07 QP	40.00	-15.93	1.00 H	277	13.61	10.46
2	183.57	28.17 QP	43.50	-15.33	1.00 H	277	15.48	12.69
3	249.66	37.85 QP	46.00	-8.15	1.00 H	277	24.38	13.47
4	274.93	35.04 QP	46.00	-10.96	1.00 H	271	20.49	14.56
5	624.83	30.07 QP	46.00	-15.93	1.25 H	34	7.21	22.86
6	751.18	34.12 QP	46.00	-11.88	1.00 H	247	8.67	25.46
7	828.94	32.42 QP	46.00	-13.58	1.00 H	271	6.15	26.27

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	47.49	38.40 QP	40.00	-1.60	1.25 V	178	23.87	14.53
2	80.54	33.75 QP	40.00	-6.25	1.25 V	178	23.29	10.46
3	105.81	30.02 QP	43.50	-13.48	1.00 V	127	19.12	10.90
4	183.57	28.44 QP	43.50	-15.06	1.25 V	217	15.75	12.69
5	249.66	35.77 QP	46.00	-10.23	1.25 V	217	22.29	13.47
6	307.98	30.22 QP	46.00	-15.78	1.25 V	178	14.87	15.35
7	368.24	30.52 QP	46.00	-15.48	1.00 V	223	13.62	16.90
8	624.83	32.10 QP	46.00	-13.90	1.00 V	301	9.24	22.86
9	751.18	36.05 QP	46.00	-9.95	1.25 V	145	10.60	25.46
10	828.94	32.00 QP	46.00	-14.00	1.25 V	178	5.73	26.27

- 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.

FOR POE MODE:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	59.16	26.88 QP	40.00	-13.12	1.25 H	106	12.83	14.05
2	82.48	30.05 QP	40.00	-9.95	1.25 H	31	19.90	10.14
3	123.31	29.98 QP	43.50	-13.52	1.25 H	274	17.15	12.82
4	142.75	30.76 QP	43.50	-12.74	1.25 H	307	16.91	13.85
5	168.02	28.28 QP	43.50	-15.22	1.00 H	307	14.37	13.90
6	249.66	38.79 QP	46.00	-7.21	1.25 H	97	25.31	13.47
7	274.93	33.59 QP	46.00	-12.41	1.25 H	307	19.04	14.56
8	500.42	30.52 QP	46.00	-15.48	1.00 H	292	10.35	20.17
9	624.83	33.16 QP	46.00	-12.84	1.00 H	307	10.30	22.86
10	751.18	40.08 QP	46.00	-5.92	1.25 H	106	14.62	25.46
11	828.94	33.45 QP	46.00	-12.55	1.25 H	307	7.18	26.27

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	59.16	38.50 QP	40.00	-1.50	1.25 V	157	24.45	14.05
2	82.48	39.00 QP	40.00	-1.00	1.25 V	265	28.85	10.15
3	96.09	32.48 QP	43.50	-11.02	1.00 V	307	22.79	9.69
4	142.75	35.43 QP	43.50	-8.07	1.25 V	52	21.57	13.85
5	183.57	31.94 QP	43.50	-11.56	1.25 V	250	19.25	12.69
6	249.66	33.85 QP	46.00	-12.15	1.25 V	250	20.37	13.47
7	500.42	30.93 QP	46.00	-15.07	1.25 V	4	10.76	20.17
8	624.83	31.00 QP	46.00	-15.00	1.00 V	307	8.14	22.86
9	751.18	38.54 QP	46.00	-7.46	1.25 V	157	13.09	25.46
10	828.94	30.46 QP	46.00	-15.54	1.25 V	52	4.19	26.27

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.

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	2386.00	55.11 PK	74.00	-18.89	1.03 H	181	23.72	31.39
1	2386.00	47.65 AV	54.00	-6.35	1.03 H	181	16.26	31.39
2	*2412.00	103.25 PK			1.05 H	181	71.78	31.47
2	*2412.00	98.98 AV			1.05 H	181	67.51	31.47
3	4824.00	46.69 PK	74.00	-27.31	1.08 H	212	9.46	37.23
3	4824.00	40.86 AV	54.00	-13.14	1.08 H	212	3.63	37.23

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	2386.00	62.24 PK	74.00	-11.76	1.30 V	225	30.85	31.39
1	2386.00	53.00 AV	54.00	-1.00	1.30 V	225	21.61	31.39
2	*2412.00	110.59 PK			1.09 V	169	79.12	31.47
2	*2412.00	106.65 AV			1.09 V	169	75.18	31.47
3	4824.00	49.01 PK	74.00	-24.99	1.03 V	203	11.78	37.23
3	4824.00	43.17 AV	54.00	-10.83	1.03 V	203	5.94	37.23

- RMARKS:**
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
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	106.11 PK			1.03 H	174	74.55	31.56
1	*2437.00	102.02 AV			1.03 H	174	70.46	31.56
2	2483.50	55.22 PK	74.00	-18.78	1.04 H	174	23.49	31.73
2	2483.50	47.71 AV	54.00	-6.29	1.04 H	174	15.98	31.73
3	4874.00	49.55 PK	74.00	-24.45	1.05 H	205	12.20	37.35
3	4874.00	43.88 AV	54.00	-10.12	1.05 H	205	6.53	37.35

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	113.53 PK			1.09 V	141	81.97	31.56
1	*2437.00	109.52 AV			1.09 V	141	77.96	31.56
2	2483.50	63.34 PK	74.00	-10.66	1.03 V	222	31.61	31.73
2	2483.50	52.84 AV	54.00	-1.16	1.03 V	222	21.11	31.73
3	4874.00	51.51 PK	74.00	-22.49	1.08 V	345	14.16	37.35
3	4874.00	46.27 AV	54.00	-7.73	1.08 V	345	8.92	37.35

- 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
MODULATION TYPE	DBPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	102.78 PK			1.06 H	196	71.13	31.65
1	*2462.00	98.46 AV			1.06 H	196	66.81	31.65
2	2488.00	54.55 PK	74.00	-19.45	1.03 H	185	22.80	31.75
2	2488.00	47.05 AV	54.00	-6.95	1.03 H	185	15.30	31.75
3	2499.00	55.68 PK	74.00	-18.32	1.05 H	189	23.90	31.79
3	2499.00	48.12 AV	54.00	-5.88	1.05 H	189	16.33	31.79
4	4924.00	47.18 PK	74.00	-26.82	1.05 H	208	9.72	37.46
4	4924.00	41.43 AV	54.00	-12.57	1.05 H	208	3.97	37.46

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	*2462.00	110.08 PK			1.11 V	174	78.43	31.65
1	*2462.00	106.11 AV			1.11 V	174	74.46	31.65
2	2488.00	63.12 PK	74.00	-10.88	1.05 V	312	31.37	31.75
2	2488.00	52.89 AV	54.00	-1.11	1.05 V	312	21.14	31.75
3	2499.00	63.37 PK	74.00	-10.63	1.02 V	303	31.59	31.79
3	2499.00	53.00 AV	54.00	-1.00	1.02 V	303	21.21	31.79
4	4924.00	49.33 PK	74.00	-24.67	1.08 V	210	11.87	37.46
4	4924.00	43.55 AV	54.00	-10.45	1.08 V	210	6.09	37.46

- 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.
 5. “ * ” : Fundamental frequency.

802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	66.42 PK	74.00	-7.58	1.01 H	236	34.51	31.91
1	2390.00	46.33 AV	54.00	-7.67	1.01 H	236	14.42	31.91
2	*2412.00	104.98 PK			1.05 H	213	72.94	32.04
2	*2412.00	94.75 AV			1.05 H	213	62.71	32.04
3	4824.00	44.06 PK	74.00	-29.94	1.00 H	8	6.55	37.51
3	4824.00	32.41 AV	54.00	-21.59	1.00 H	8	-5.10	37.51

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	71.88 PK	74.00	-2.12	1.11 V	225	39.97	31.91
1	2390.00	52.91 AV	54.00	-1.09	1.11 V	225	21.00	31.91
2	*2412.00	111.98 PK			1.09 V	35	79.94	32.04
2	*2412.00	101.27 AV			1.09 V	35	69.23	32.04
3	4824.00	45.12 PK	74.00	-28.88	1.00 V	3	7.61	37.51
3	4824.00	33.55 AV	54.00	-20.45	1.00 V	3	-3.96	37.51

- RMARKS:**
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
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	67.32 PK	74.00	-6.68	1.02 H	255	35.41	31.91
1	2390.00	47.21 AV	54.00	-6.79	1.02 H	255	15.30	31.91
2	*2437.00	109.00 PK			1.08 H	203	76.80	32.20
2	*2437.00	98.88 AV			1.08 H	203	66.68	32.20
3	2483.50	68.12 PK	74.00	-5.88	1.05 H	212	35.63	32.49
3	2483.50	48.08 AV	54.00	-5.92	1.05 H	212	15.59	32.49
4	4874.00	47.01 PK	74.00	-26.99	1.03 H	318	9.46	37.55
4	4874.00	34.12 AV	54.00	-19.88	1.03 H	318	-3.43	37.55

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	71.08 PK	74.00	-2.92	1.09 V	352	39.17	31.91
1	2390.00	51.12 AV	54.00	-2.88	1.09 V	352	19.21	31.91
2	*2437.00	115.25 PK			1.11 V	34	83.05	32.20
2	*2437.00	105.21 AV			1.11 V	34	73.01	32.20
3	2483.50	72.07 PK	74.00	-1.93	1.25 V	315	39.58	32.49
3	2483.50	52.87 AV	54.00	-1.13	1.25 V	315	20.38	32.49
4	4874.00	48.00 PK	74.00	-26.00	1.00 V	0	10.45	37.55
4	4874.00	35.07 AV	54.00	-18.93	1.00 V	0	-2.48	37.55

- 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
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Dipole Antenna

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	104.61 PK			1.03 H	200	72.26	32.35
1	*2462.00	94.52 AV			1.03 H	200	62.17	32.35
2	2483.50	66.03 PK	74.00	-7.97	1.05 H	243	33.54	32.49
2	2483.50	46.11 AV	54.00	-7.89	1.05 H	243	13.62	32.49
3	4924.00	43.98 PK	74.00	-30.02	1.00 H	2	6.40	37.58
3	4924.00	32.08 AV	54.00	-21.92	1.00 H	2	-5.50	37.58

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.59 PK			1.13 V	13	79.24	32.35
1	*2462.00	101.11 AV			1.13 V	13	68.76	32.35
2	2483.50	70.82 PK	74.00	-3.18	1.02 V	305	38.33	32.49
2	2483.50	52.97 AV	54.00	-1.03	1.02 V	305	20.48	32.49
3	4924.00	45.33 PK	74.00	-28.67	1.00 V	8	7.75	37.58
3	4924.00	33.62 AV	54.00	-20.38	1.00 V	8	-3.96	37.58

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	24deg. C, 69%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan Chen
TEST MODE	B	ANTENNA TYPE	Print PCB Antenna

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.88 PK	74.00	-4.12	1.11 H	225	37.97	31.91
1	2390.00	50.91 AV	54.00	-3.09	1.11 H	225	19.00	31.91
2	*2412.00	110.28 PK			1.09 H	35	78.24	32.04
2	*2412.00	100.17 AV			1.09 H	35	68.13	32.04
3	4824.00	44.12 PK	74.00	-29.88	1.00 H	3	6.61	37.51
3	4824.00	32.55 AV	54.00	-21.45	1.00 H	3	-4.96	37.51

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	65.11 PK	74.00	-8.89	1.08 V	258	33.20	31.91
1	2390.00	45.88 AV	54.00	-8.12	1.08 V	258	13.97	31.91
2	*2412.00	101.33 PK			1.08 V	205	69.29	32.04
2	*2412.00	91.65 AV			1.08 V	205	59.61	32.04
3	4824.00	43.11 PK	74.00	-30.89	1.00 V	9	5.60	37.51
3	4824.00	31.52 AV	54.00	-22.48	1.00 V	9	-5.99	37.51

- 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.

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
SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

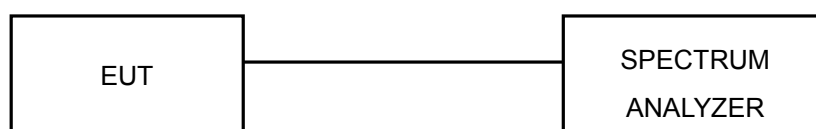
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz 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



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

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.

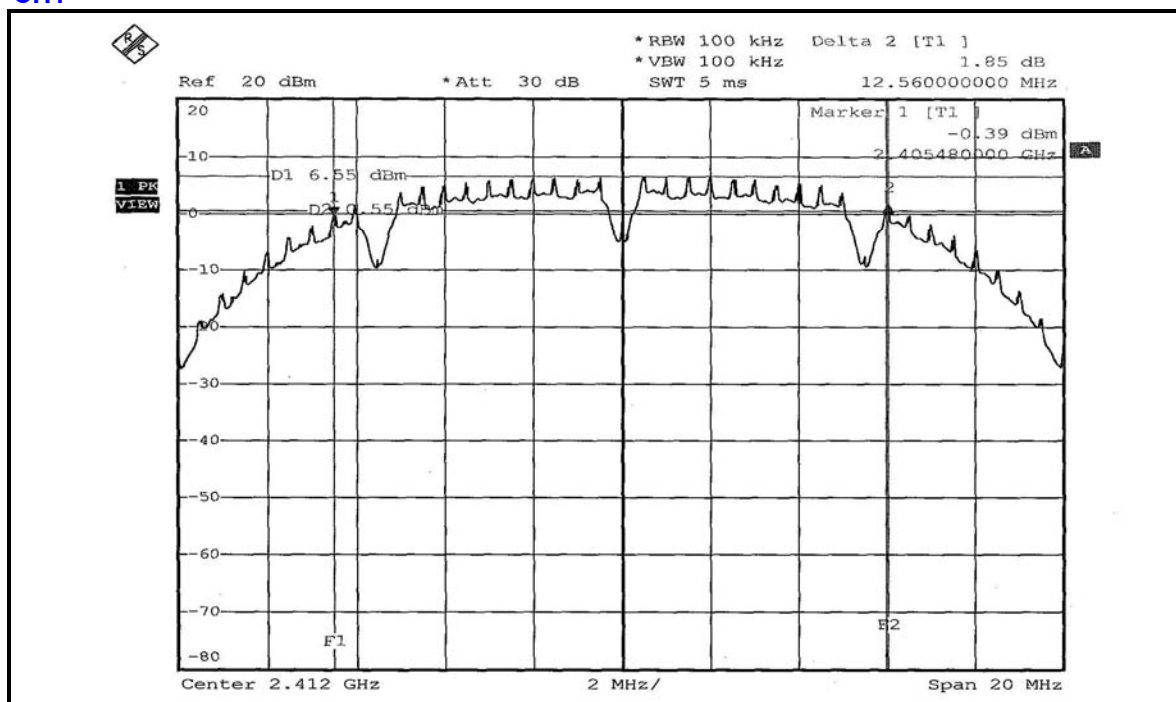
4.3.7 TEST RESULTS

802.11b DSSS MODULATION

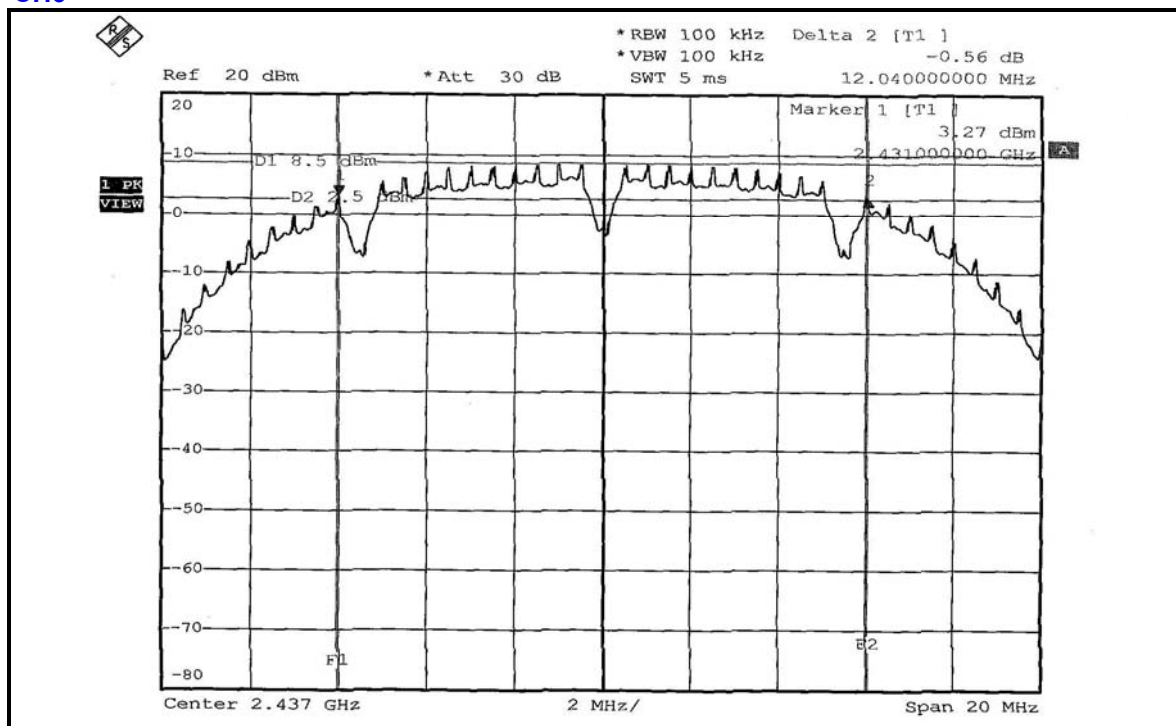
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.56	0.5	PASS
6	2437	12.04	0.5	PASS
11	2462	12.08	0.5	PASS

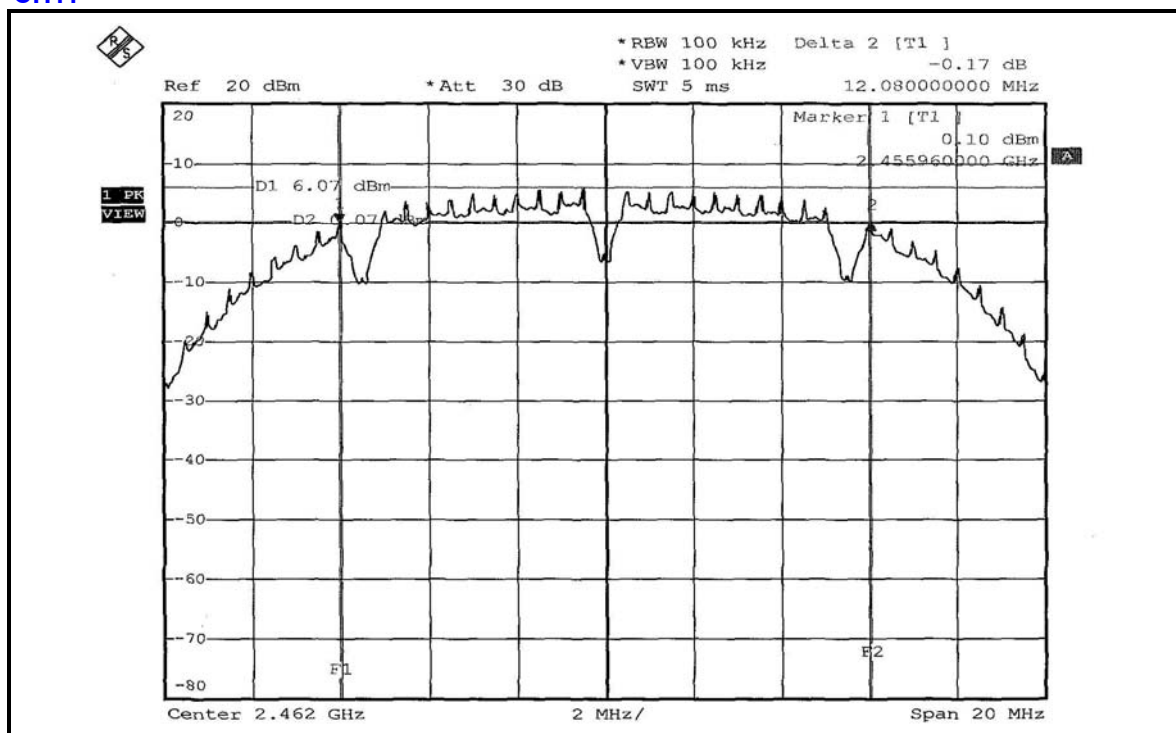
CH1



CH6



CH11

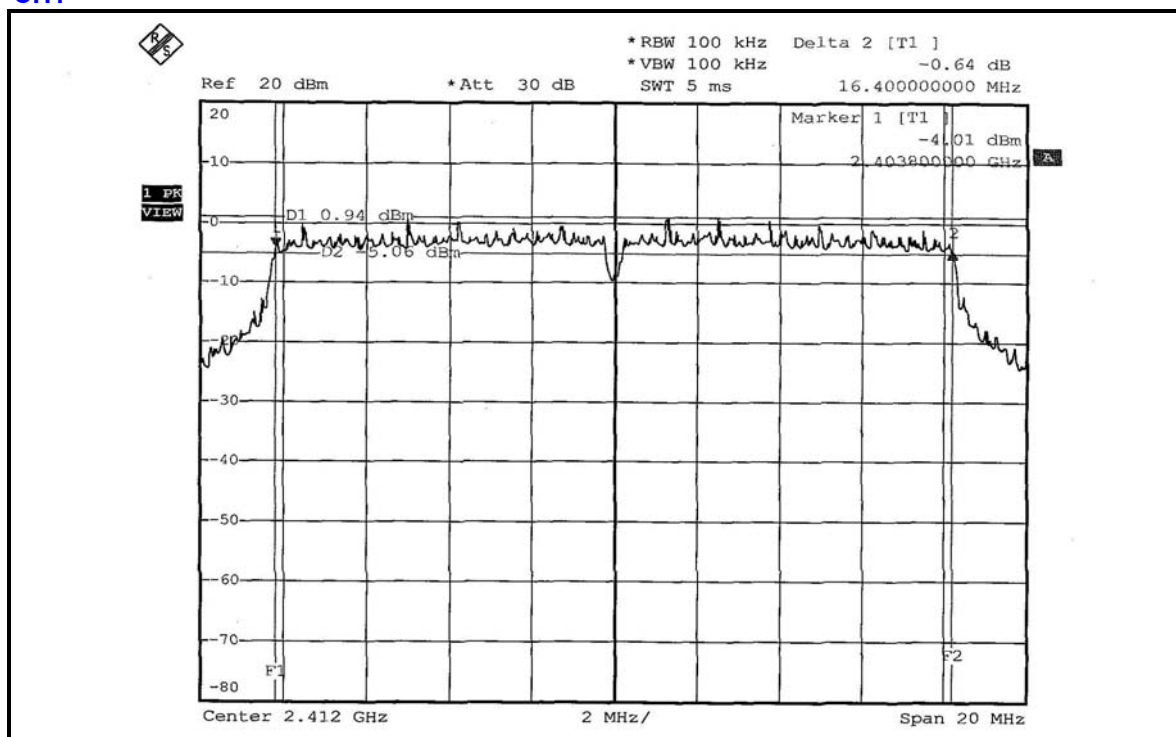


802.11g OFDM MODULATION

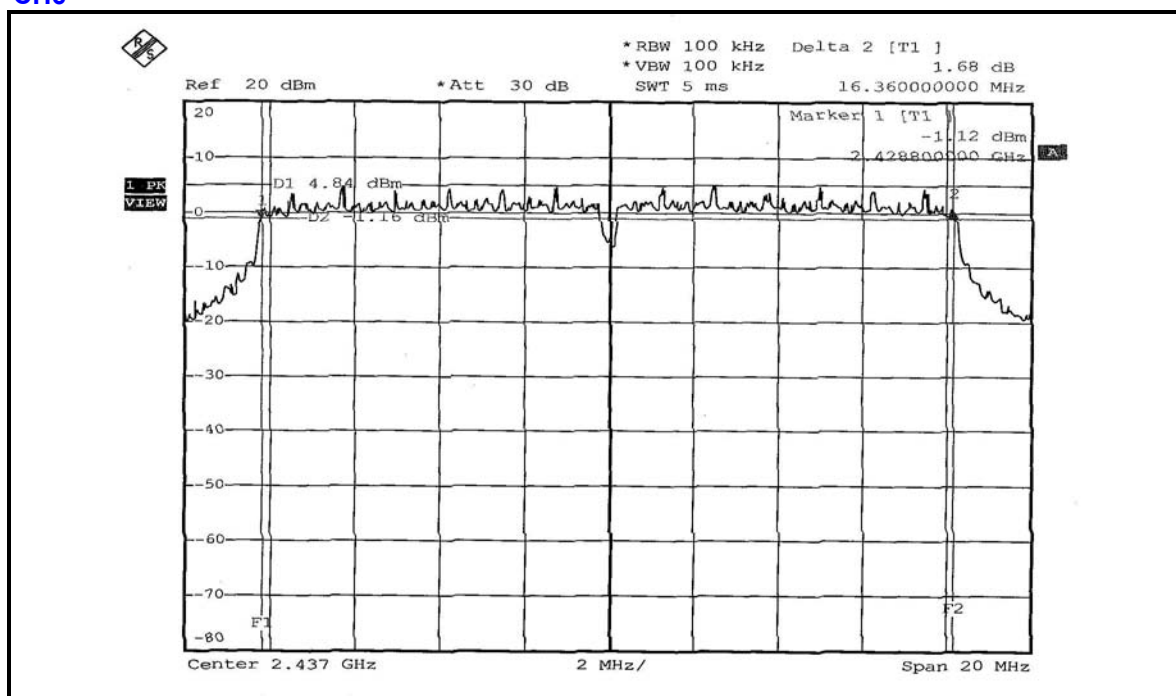
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.40	0.5	PASS
6	2437	16.36	0.5	PASS
11	2462	16.40	0.5	PASS

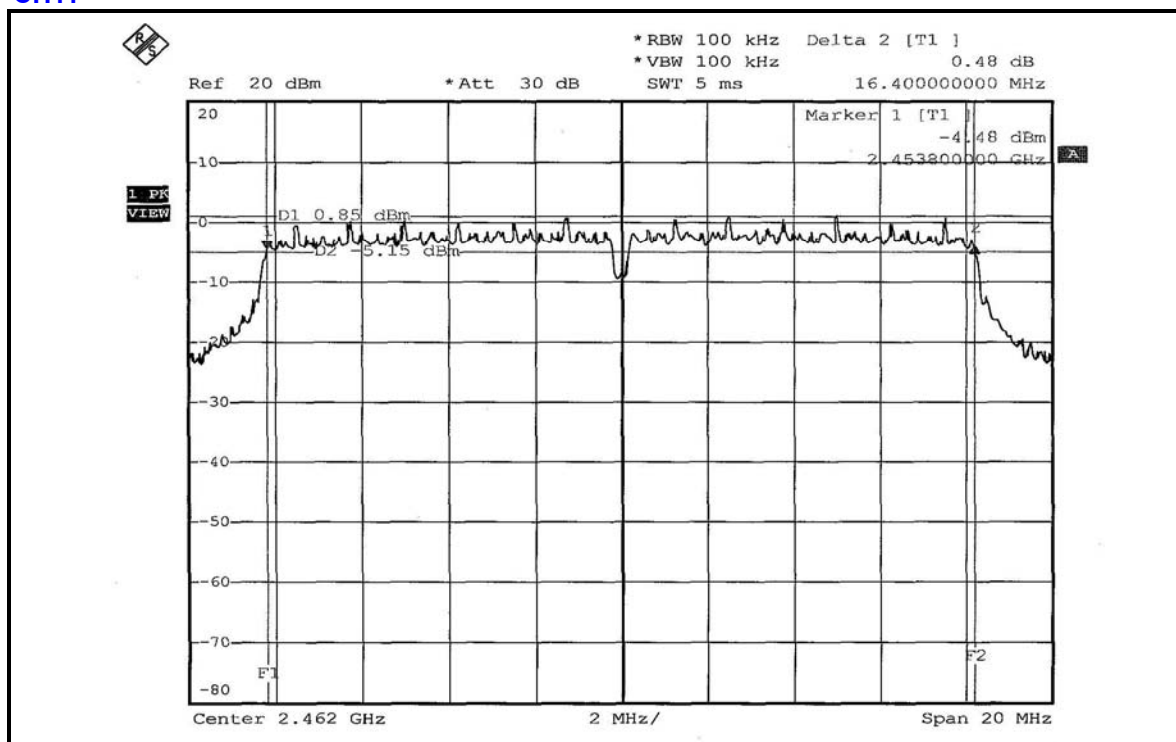
CH1



CH6



CH11



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 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 06, 2006
DIGITAL RT OSCILLOSCOPE	TDS1012	C037299	Dec. 07, 2006
NARDA DETECTOR	4503A	FSCM99899	NA

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

NOTE:

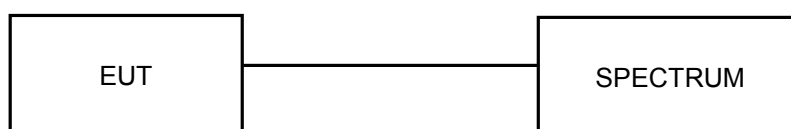
The test is performed in accordance with measurement of digital transmission systems operating under Section 15.247 March 23, 2005.

The transmitter output operates continuously therefore Method # 3 is used.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS/FAIL
1	2412	180.302	22.56	30	19.12	PASS
6	2437	334.195	25.24	30	19.04	PASS
11	2462	152.757	21.84	30	19.04	PASS

802.11g OFDM MODULATION

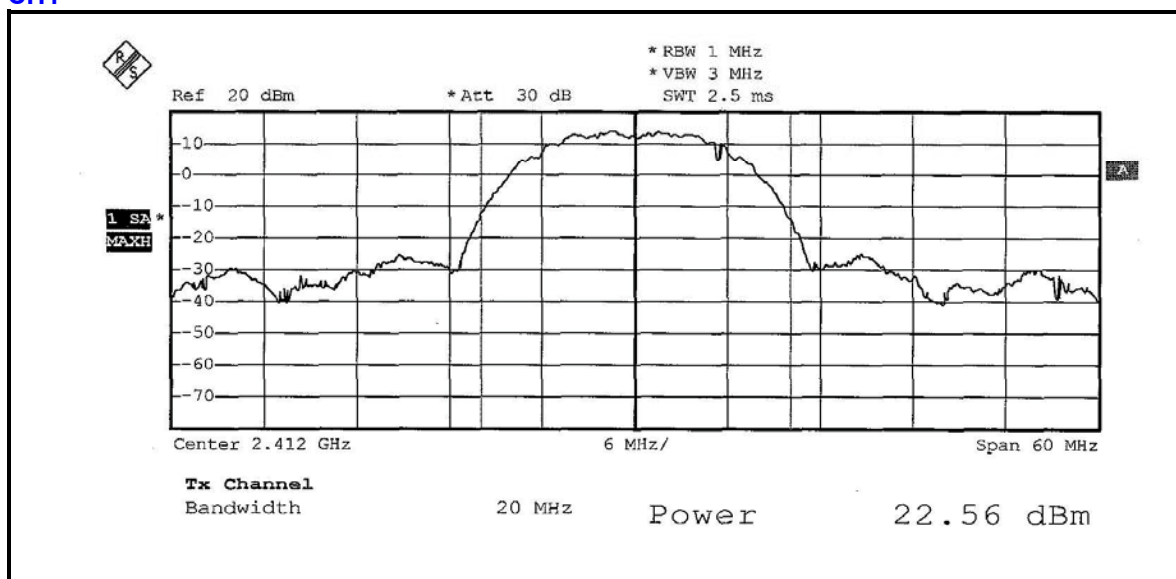
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc OCCUPIED BANDWIDTH (MHz)	PASS/FAIL
1	2412	229.615	23.61	30	21.76	PASS
6	2437	615.177	27.89	30	22.08	PASS
11	2462	205.116	23.12	30	21.68	PASS

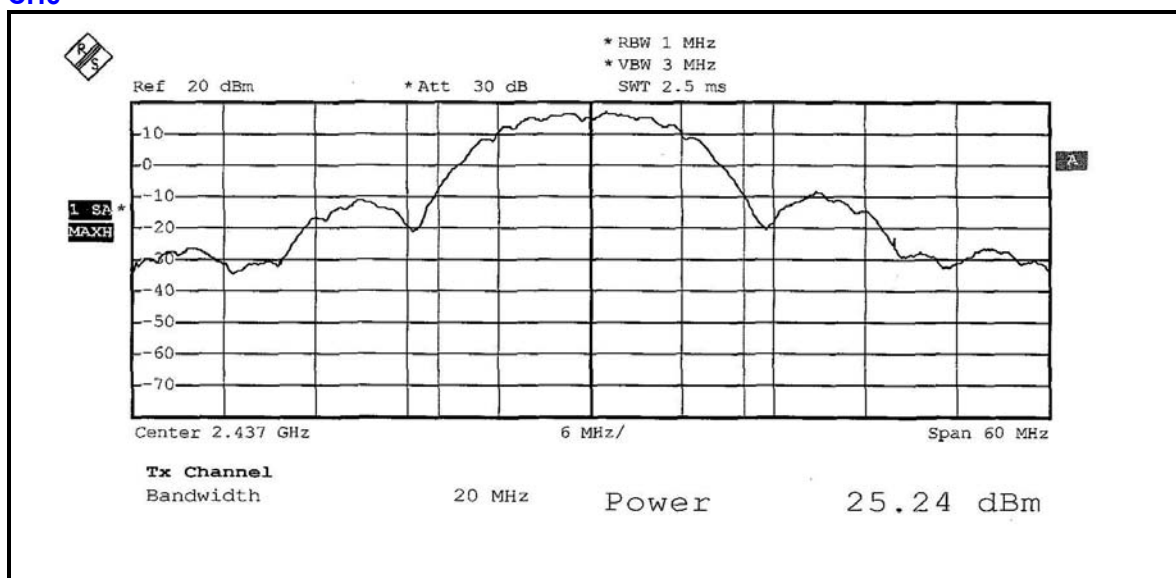
802.11b DSSS MODULATION

PEAK POWER OUTPUT

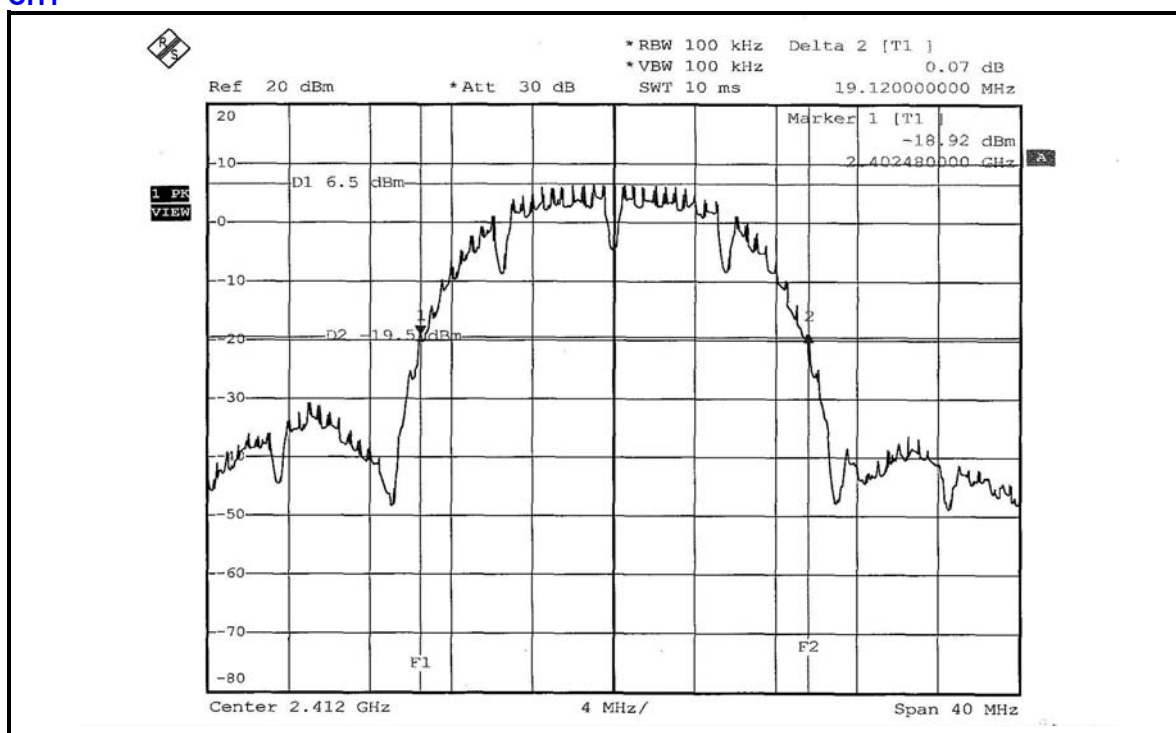
CH1



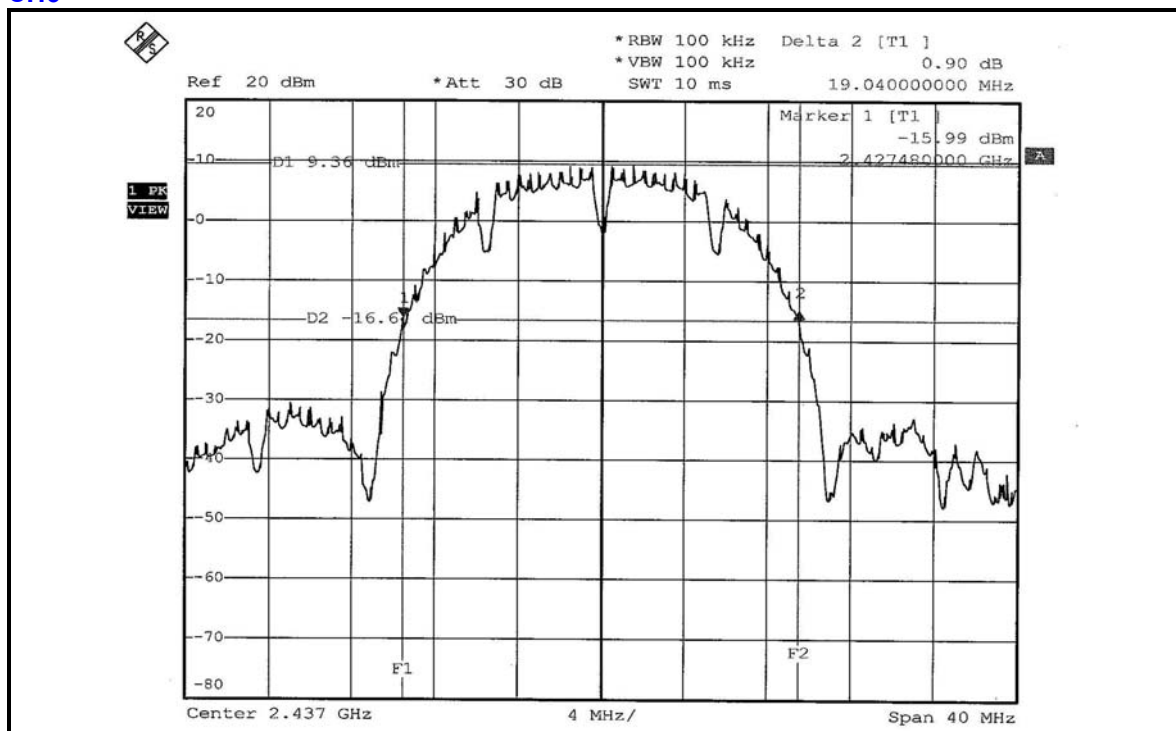
CH6



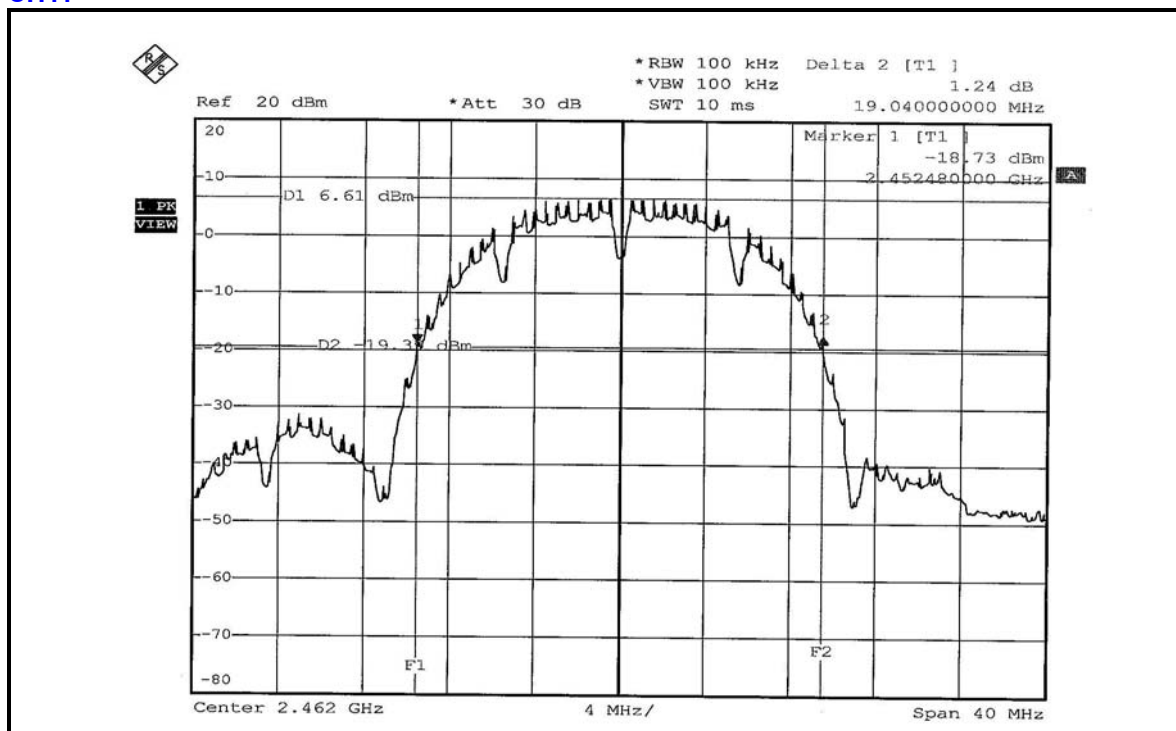
26dB OCCUPIED BANDWIDTH CH1



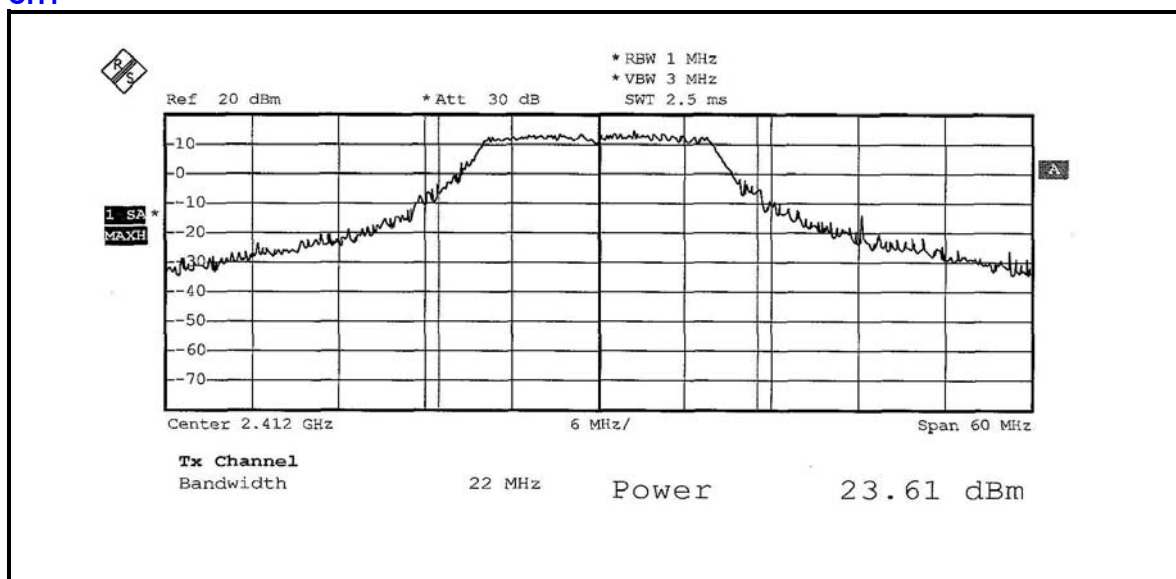
CH6



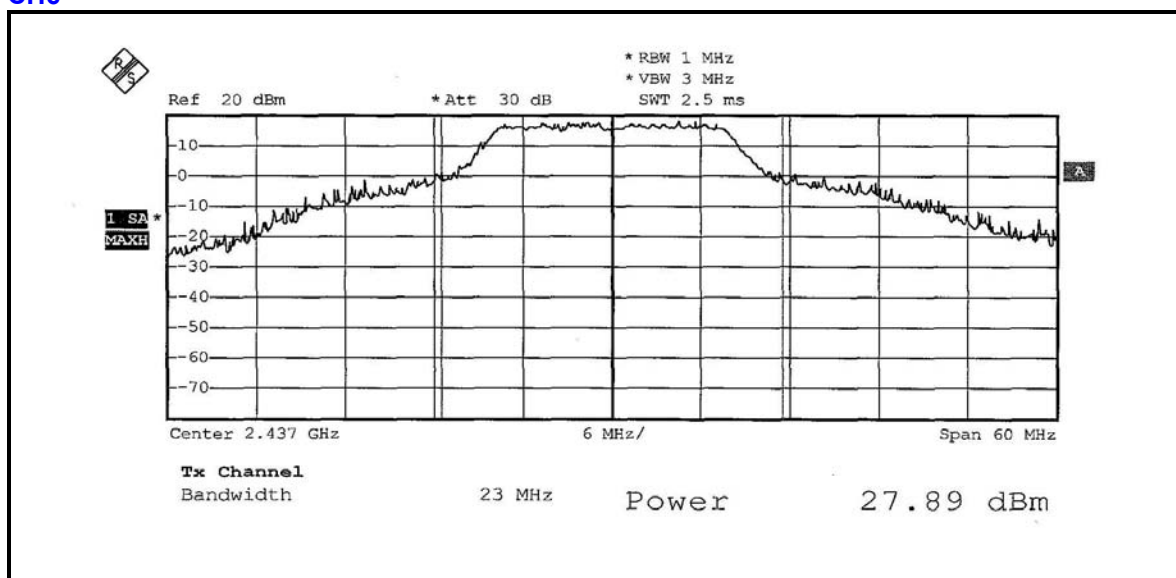
CH11



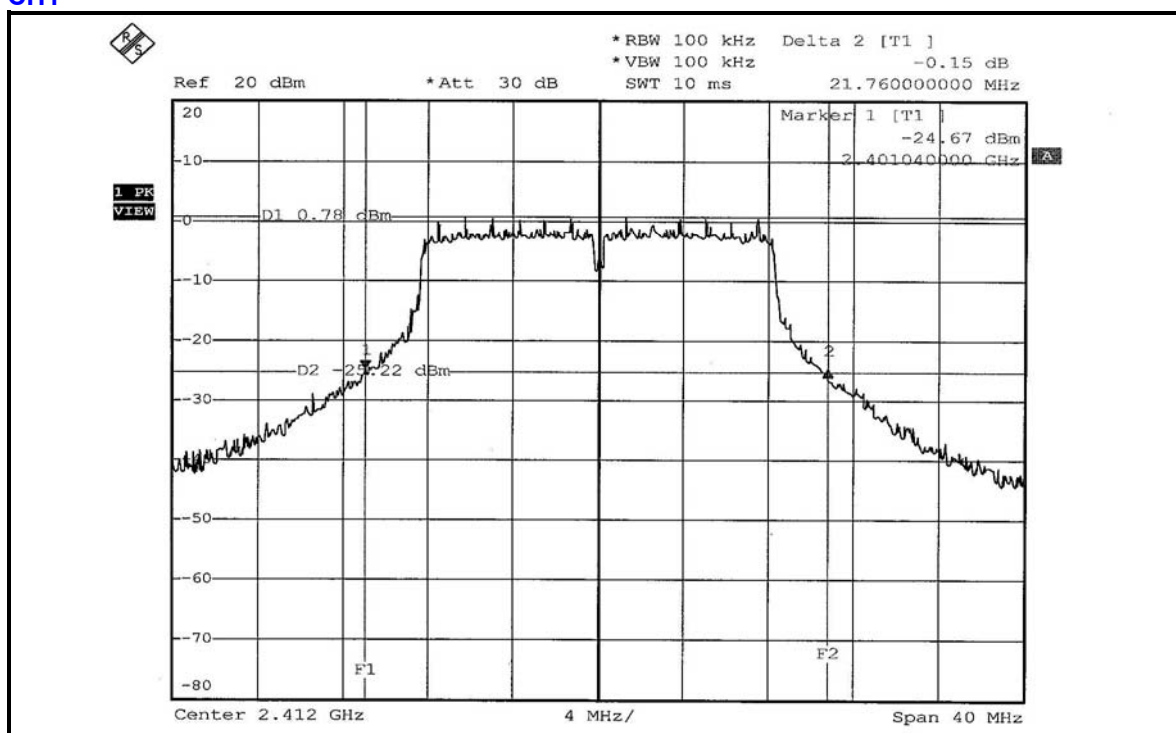
802.11g OFDM MODULATION PEAK POWER OUTPUT CH1



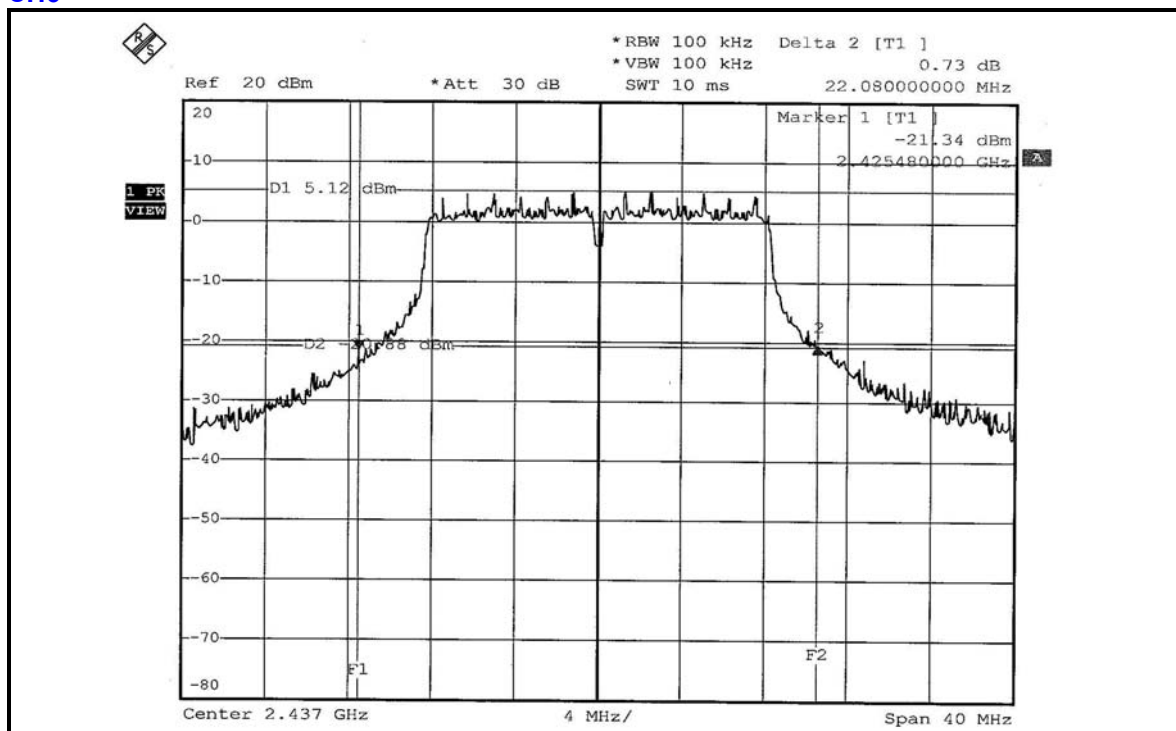
CH6



26dB OCCUPIED BANDWIDTH CH1



CH6



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 UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

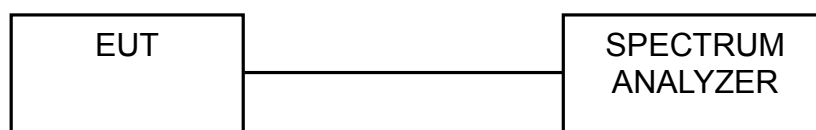
4.5.3 TEST PROCEDURE

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6

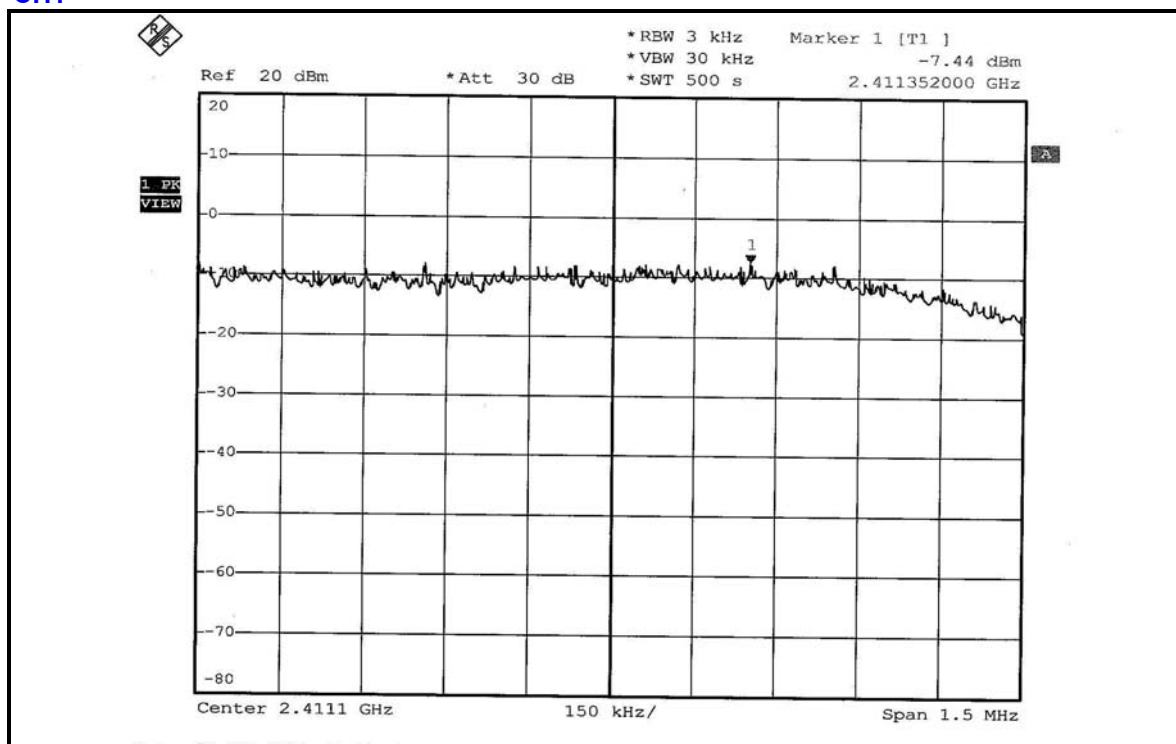
4.5.7 TEST RESULTS

802.11b DSSS MODULATION

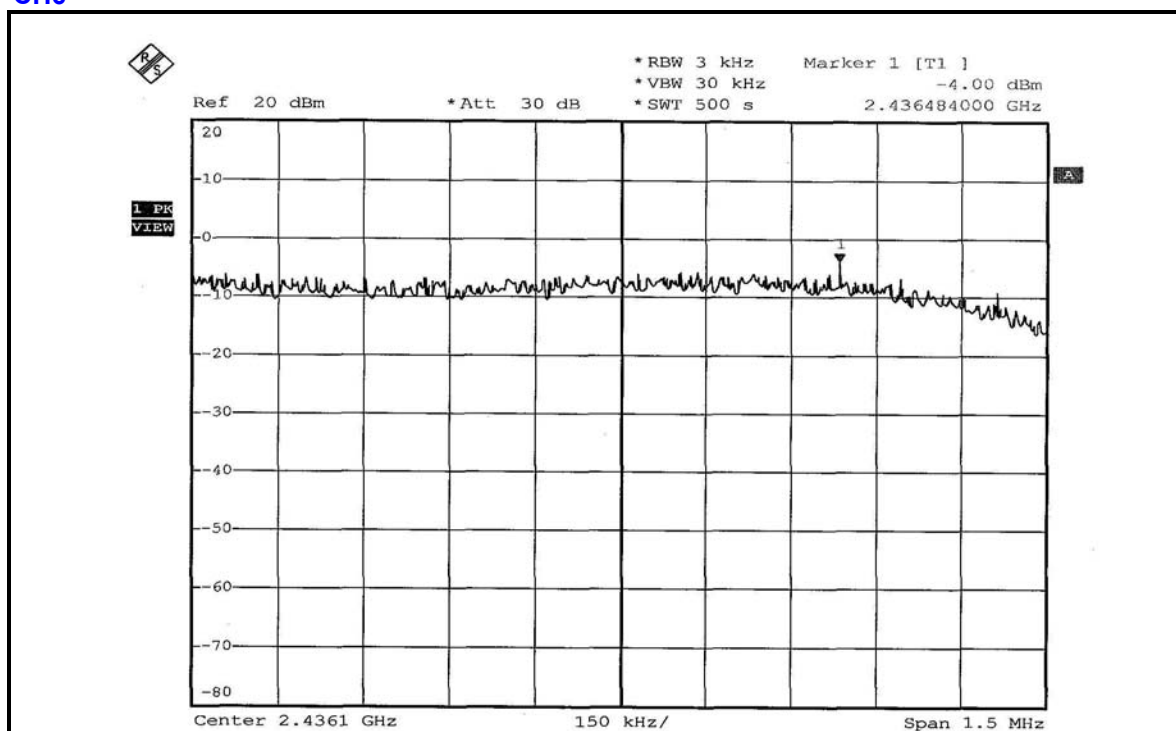
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-7.44	8	PASS
6	2437	-4.00	8	PASS
11	2462	-8.03	8	PASS

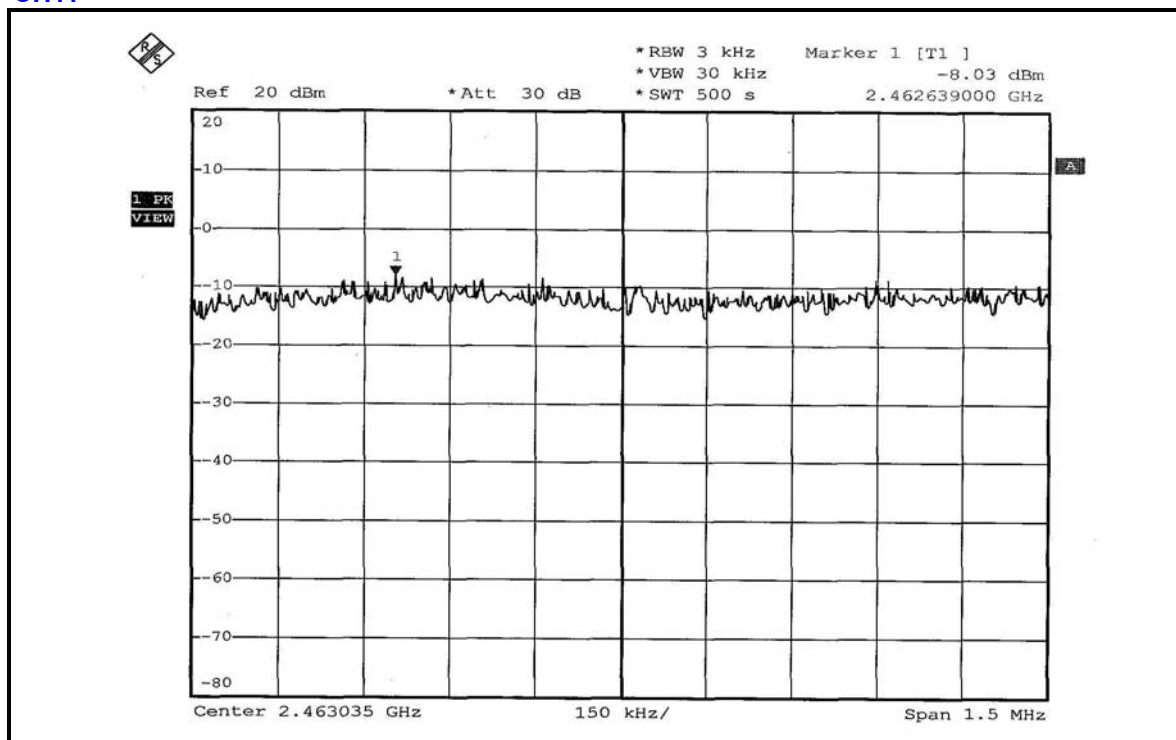
CH1



CH6



CH11

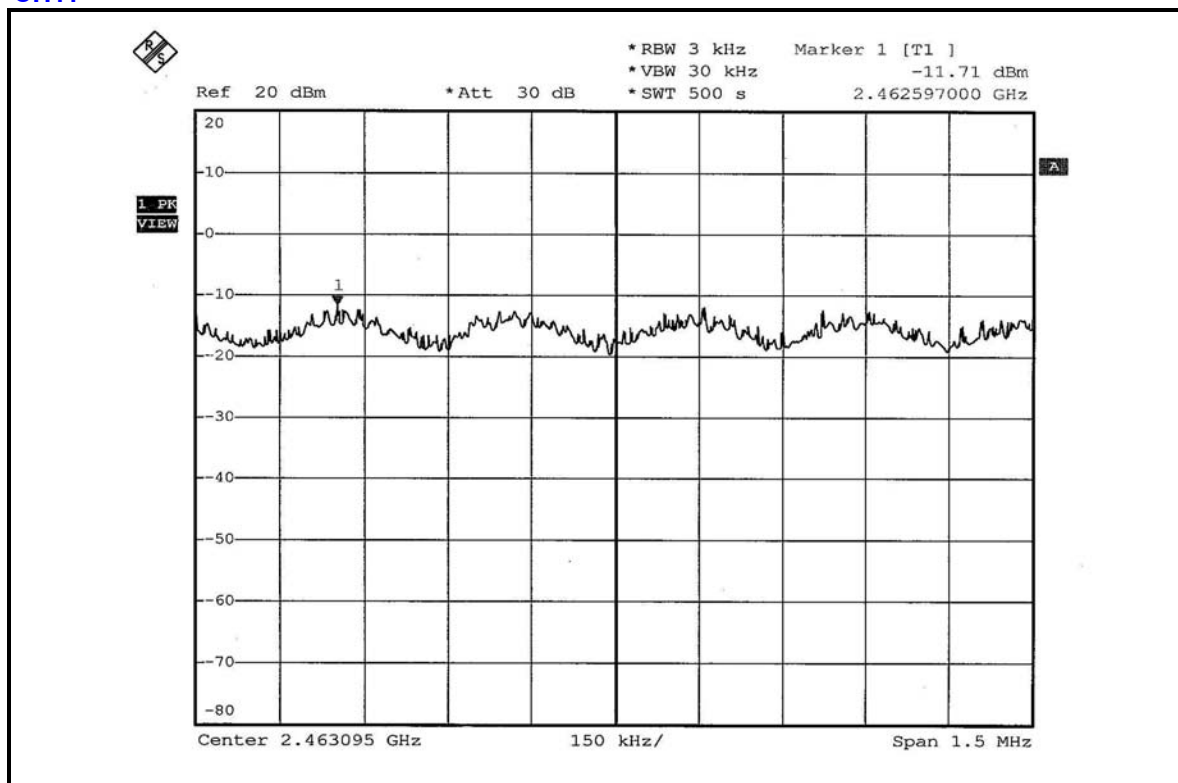


802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 66%RH, 991hPa
TESTED BY	Morgan Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.59	8	PASS
6	2437	-7.65	8	PASS
11	2462	-11.71	8	PASS

CH11



4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES 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 UNTIL
SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded. The spectrum plots (Peak RBW=VBW=100kHz; Average RBW=1MHz, VBW=10Hz) 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 12 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

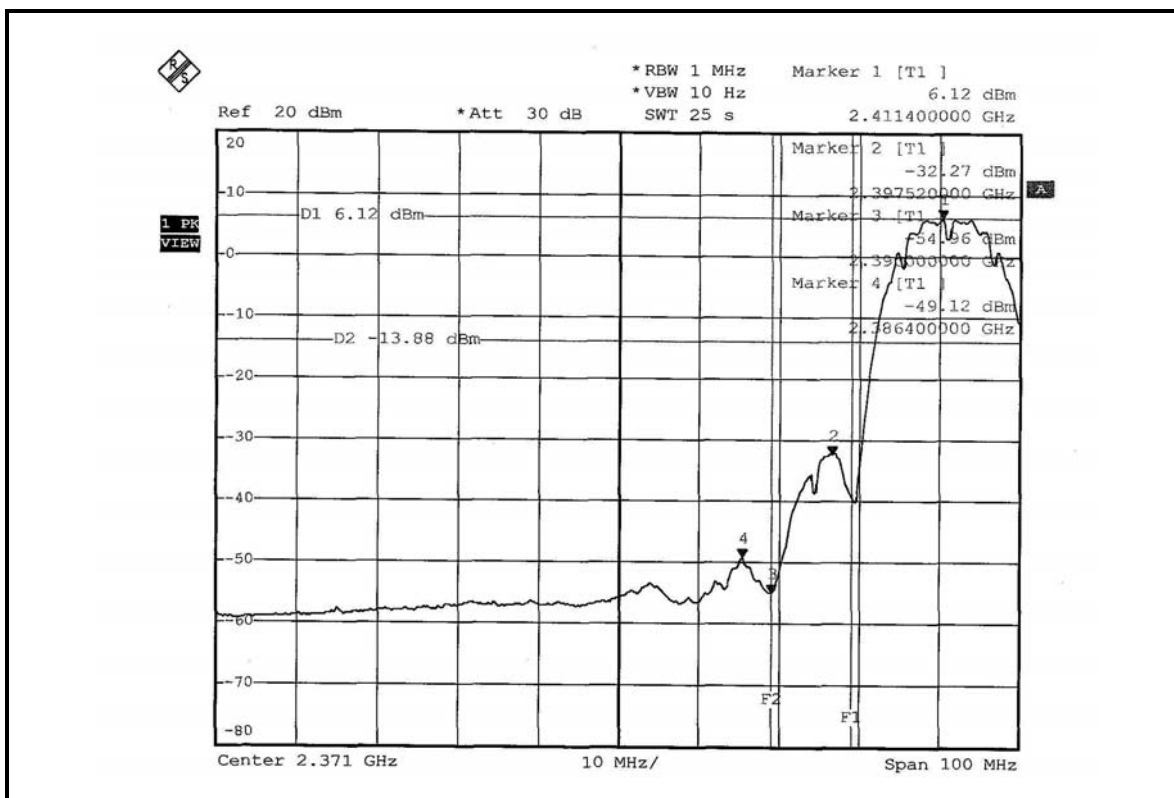
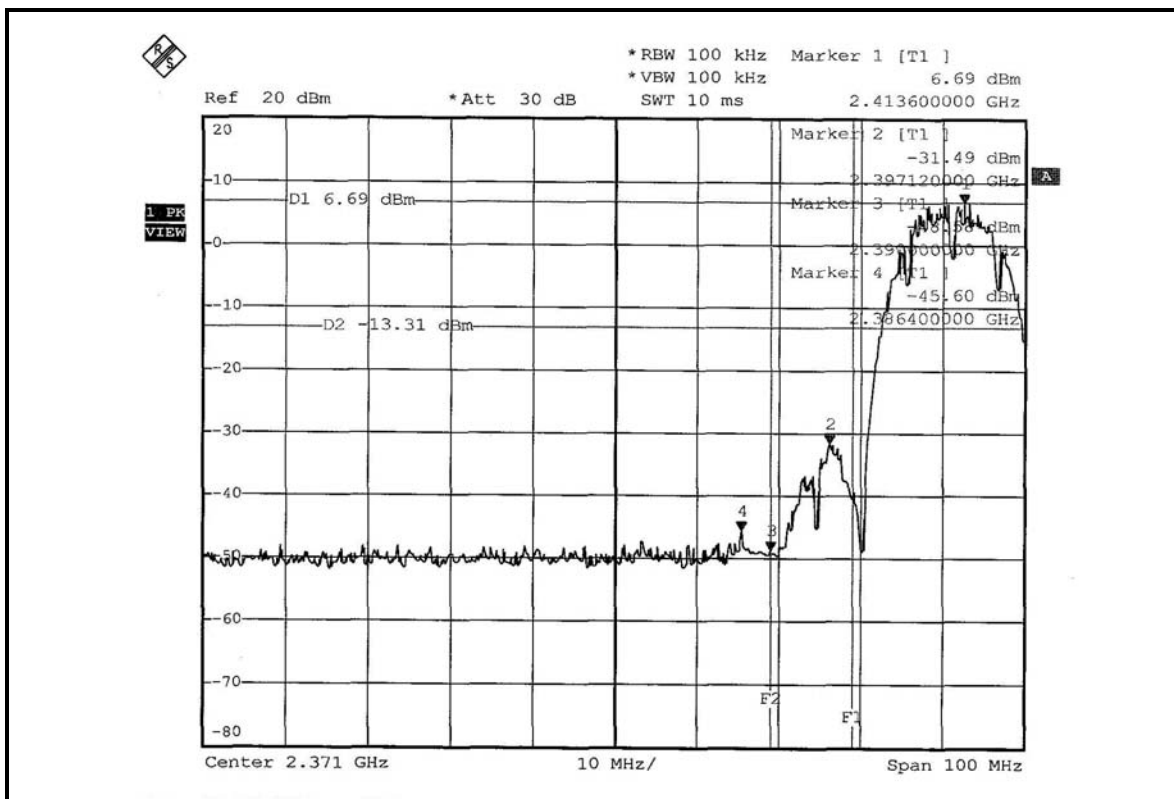
NOTE 1: The band edge emission plot of DSSS technique on the next page shows 52.29dBc between carrier maximum power and local maximum emission in restrict band (2.38640GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 110.59dBuV/m (Peak), so the maximum field strength in restrict band is $110.59 - 52.29 = 58.30\text{dBuV/m}$ which is under 74dBuV/m limit.

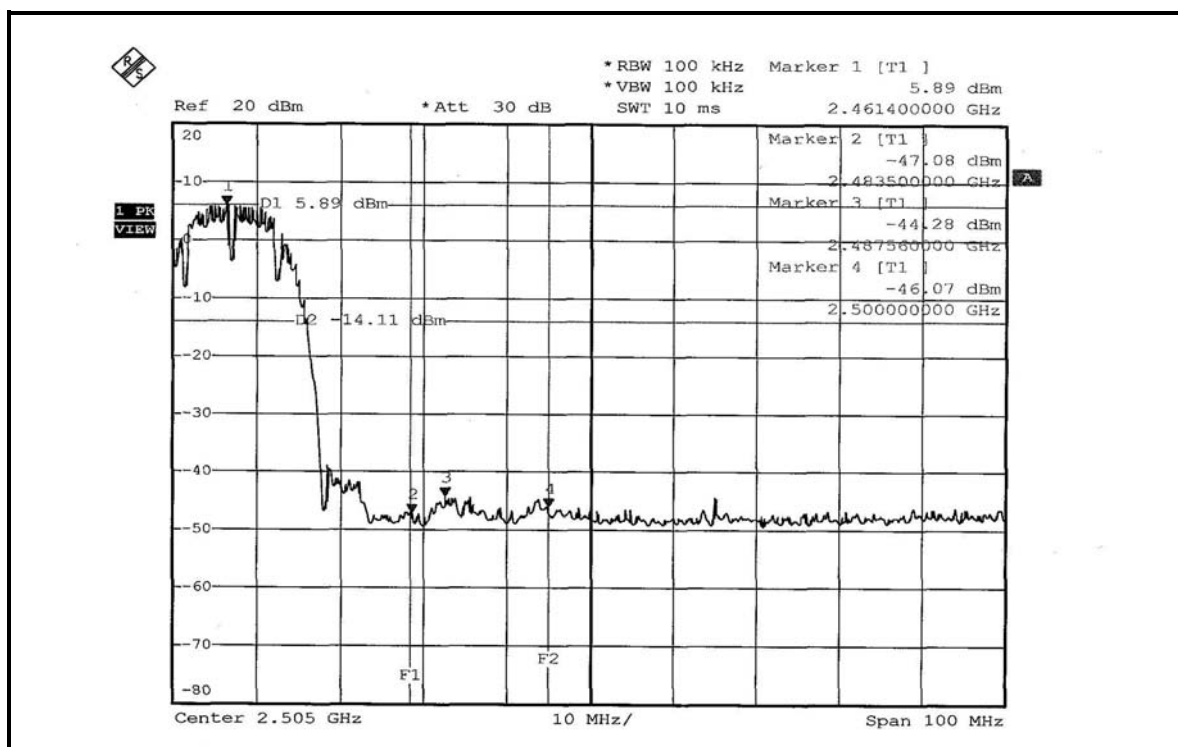
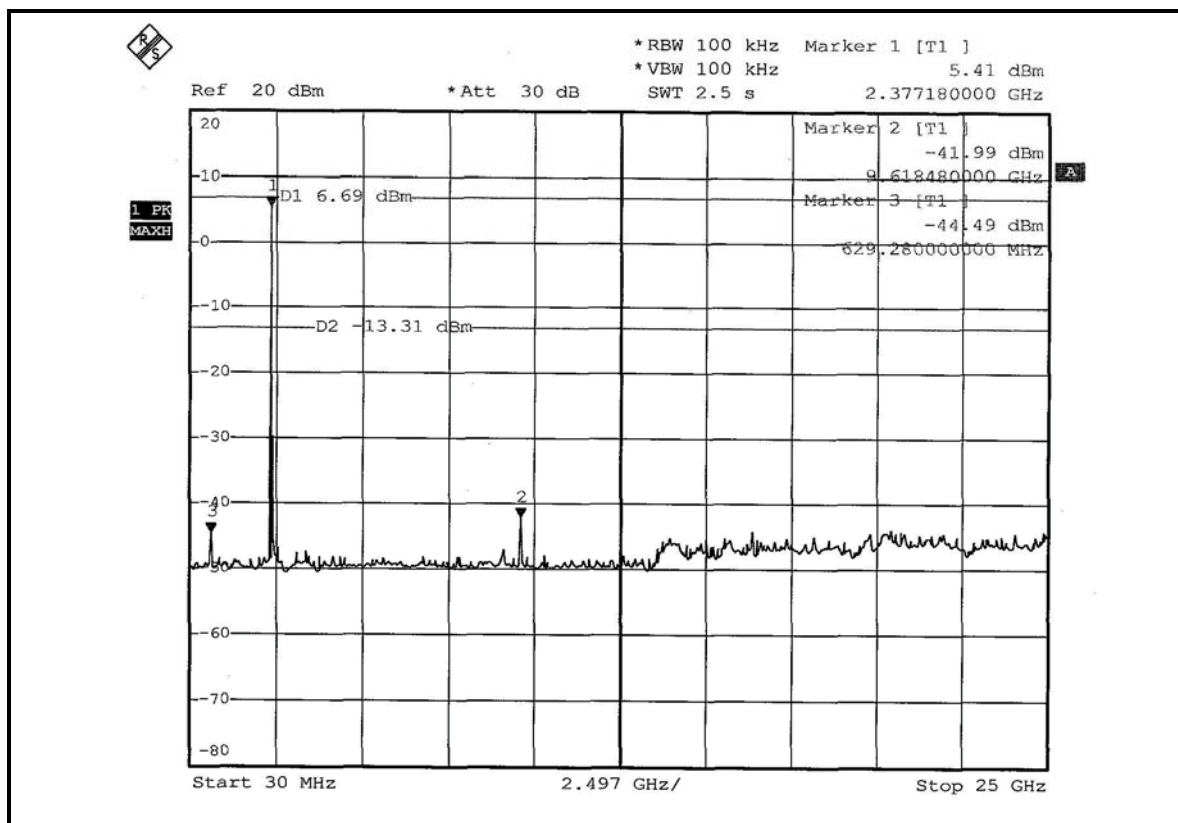
The band edge emission plot of DSSS technique on the next page shows 55.24dBc between carrier maximum power and local maximum emission in restrict band (2.38640GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 106.65dBuV/m (Average), so the maximum field strength in restrict band is $106.65 - 55.24 = 51.41\text{dBuV/m}$ which is under 54dBuV/m limit.

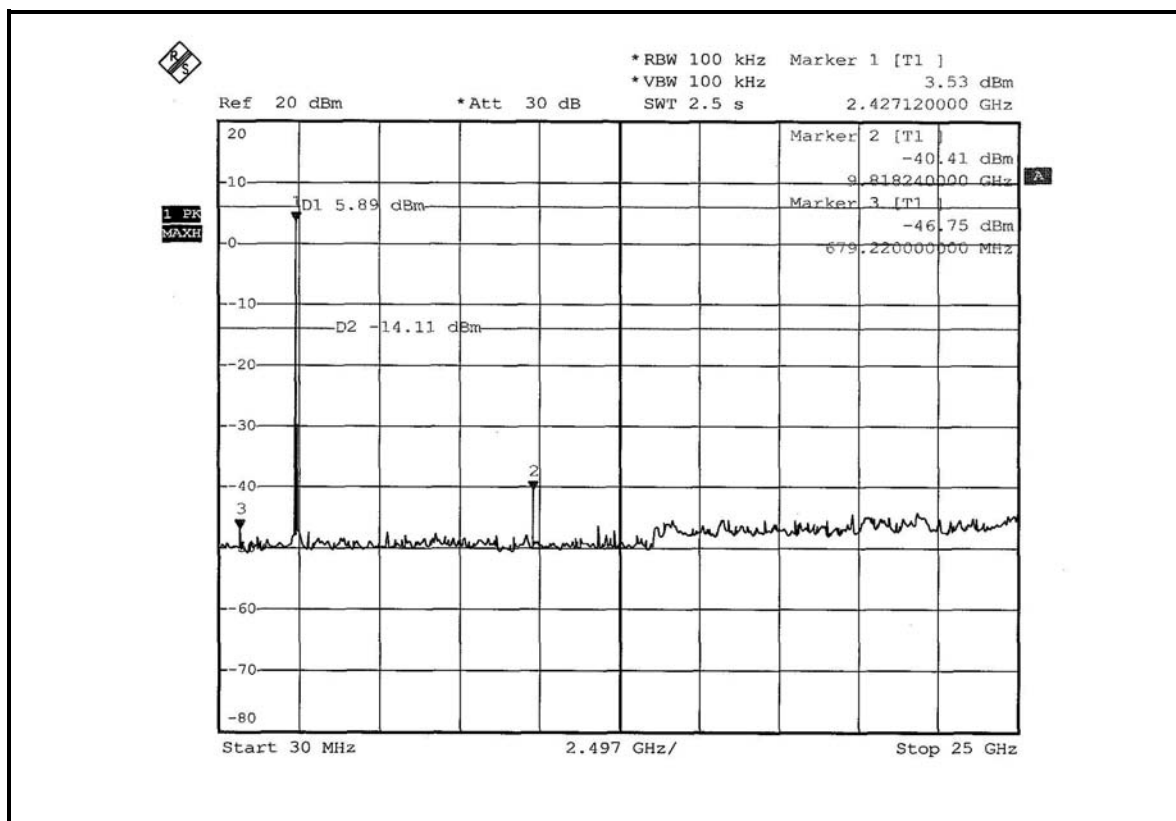
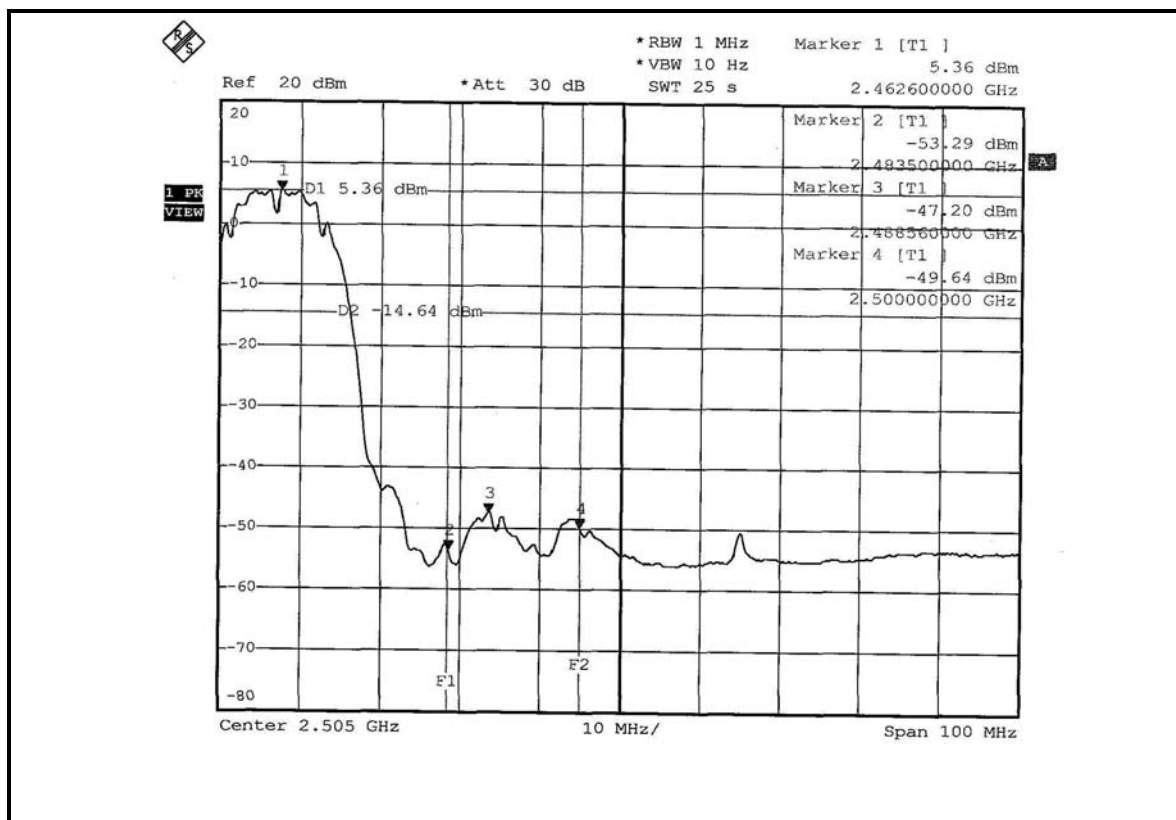
NOTE 2: The band edge emission plot of DSSS technique on the next second page shows 50.17dBc between carrier maximum power and local maximum emission in restrict band (2.48756GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.08dBuV/m (Peak), so the maximum field strength in restrict band is $110.08 - 50.17 = 59.91\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot of DSSS technique on the next third page shows 52.56dBc between carrier maximum power and local maximum emission in restrict band (2.48856GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 106.11dBuV/m (Average), so the maximum field strength in restrict band is $106.11 - 52.56 = 53.55\text{dBuV/m}$ which is under 54dBuV/m limit.

802.11b DSSS MODULATION







802.11g OFDM MODULATION

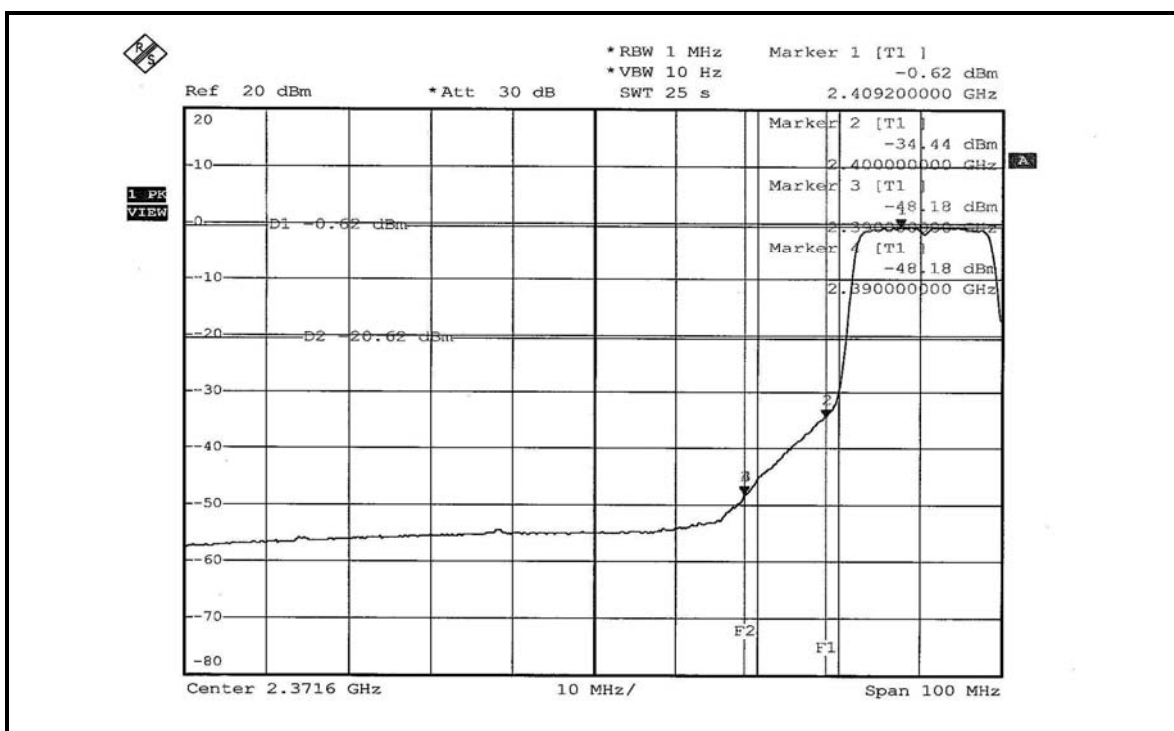
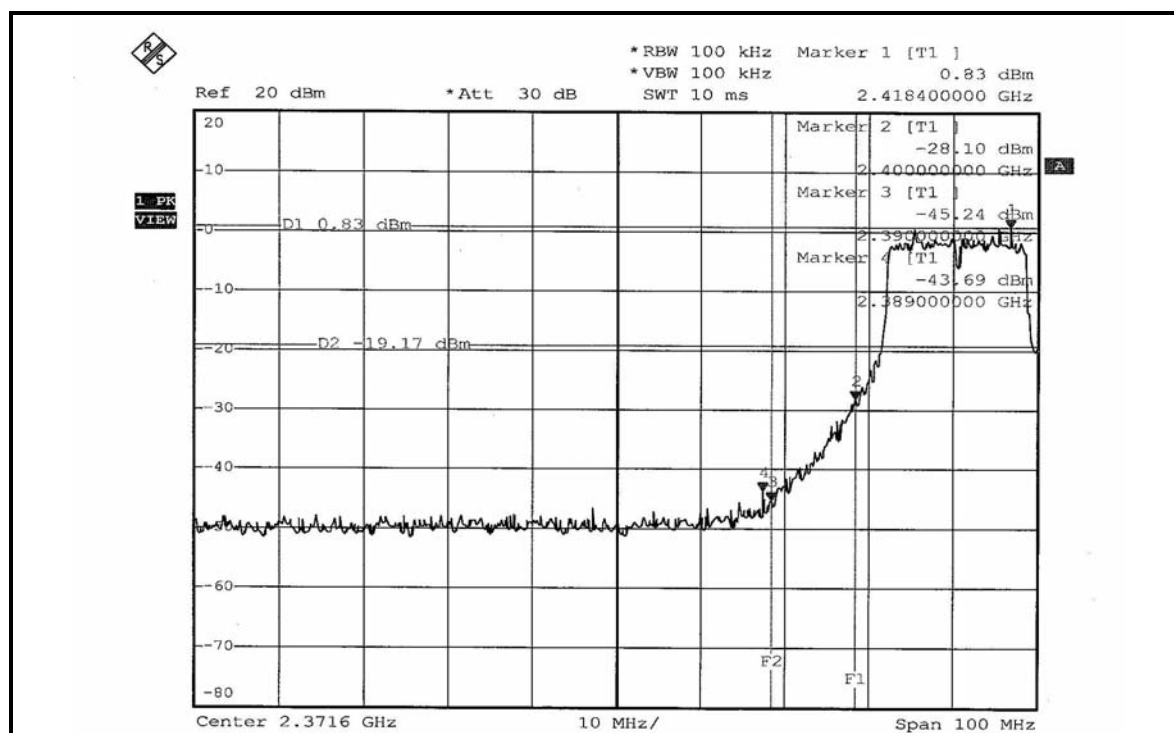
NOTE 1: The band edge emission plot of OFDM technique on the next page shows 44.52dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.98dBuV/m (Peak), so the maximum field strength in restrict band is $111.98 - 44.52 = 67.46\text{dBuV/m}$ which is under 74dBuV/m limit.

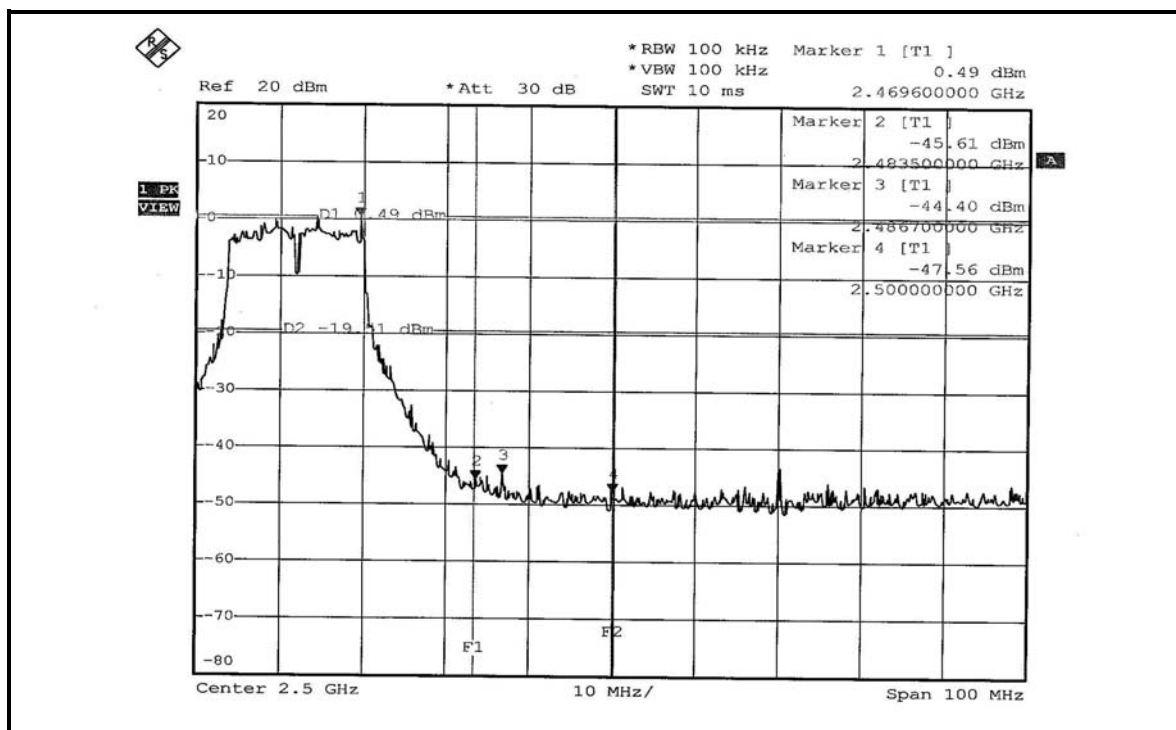
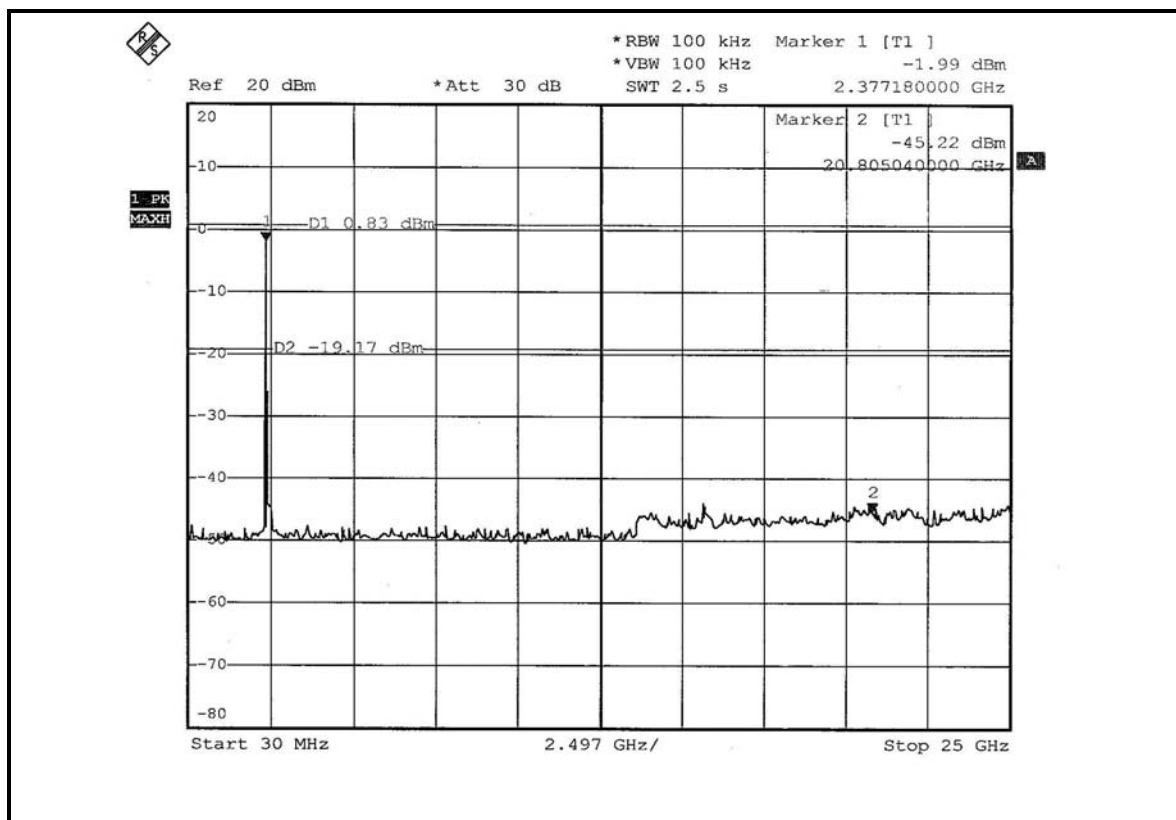
The band edge emission plot of OFDM technique on the next page shows 47.56dBc between carrier maximum power and local maximum emission in restrict band (2.39000GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.27dBuV/m (Average), so the maximum field strength in restrict band is $101.27 - 47.56 = 53.71\text{dBuV/m}$ which is under 54dBuV/m limit.

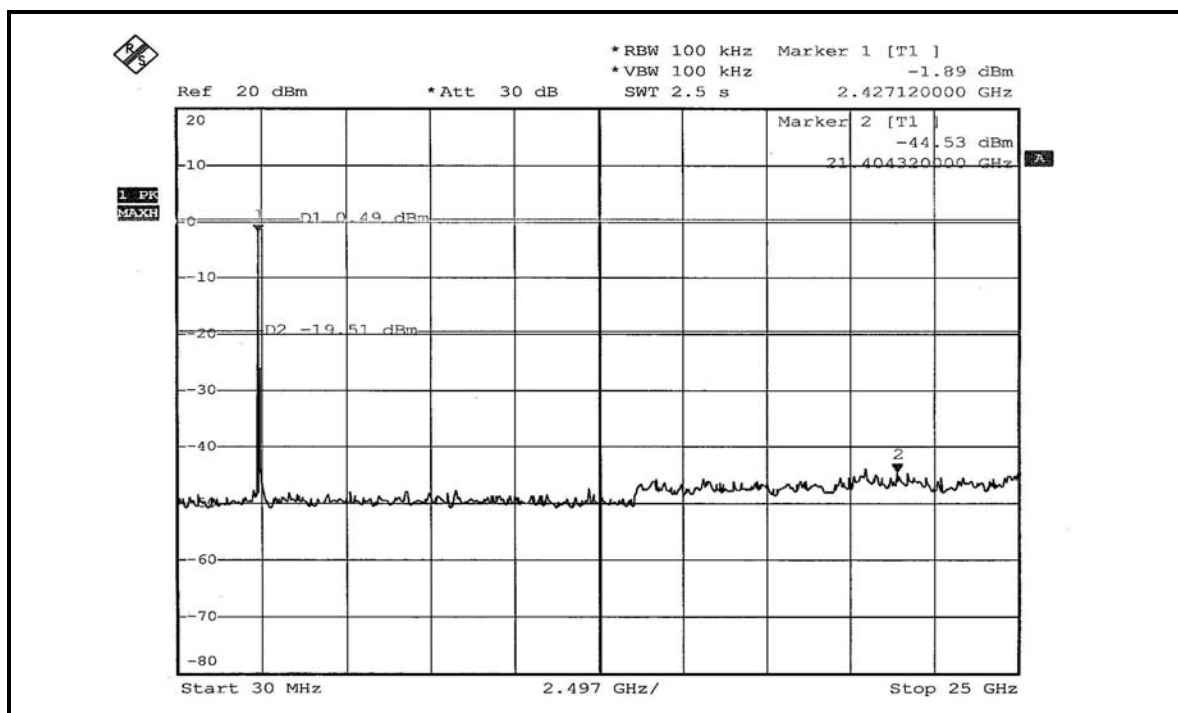
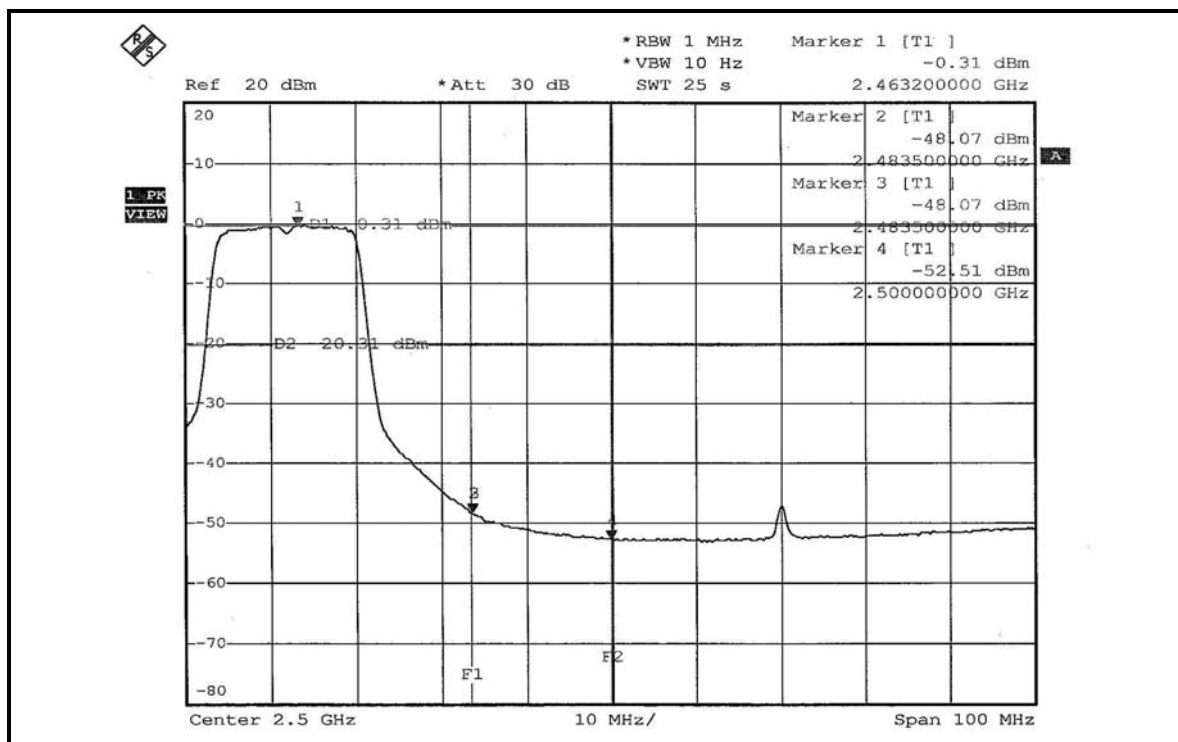
NOTE 2: The band edge emission plot of OFDM technique on the next second page shows 44.89dBc between carrier maximum power and local maximum emission in restrict band (2.48670GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 111.59dBuV/m (Peak), so the maximum field strength in restrict band is $111.59 - 44.89 = 66.70\text{dBuV/m}$ which is under 74dBuV/m limit.

The band edge emission plot of OFDM technique on the next third page shows 47.76dBc between carrier maximum power and local maximum emission in restrict band (2.48350GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.11dBuV/m (Average), so the maximum field strength in restrict band is $101.11 - 47.76 = 53.35\text{dBuV/m}$ which is under 54dBuV/m limit.

802.11g OFDM MODULATION







4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antennas used in this product are Dipole antenna with R-SMA connector and Print PCB antenna without connector. The maximum Gain of the antenna is 4dBi.

5 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., 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, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , 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: 886-2-26051924

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

Linko RF Lab.

Tel: 886-3-3270910

Fax: 886-3-3270892

Web Site: www.adt.com.tw

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

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.