FCC TEST REPORT (15.247)

REPORT NO.:	RF950313L02
MODEL NO.:	R1F
RECEIVED:	Mar. 14, 2006
TESTED:	Mar. 15 ~ Mar. 27, 2006
ISSUED:	Mar. 28, 2006

APPLICANT:	ASUSTeK COMPUTER INC.
ADDRESS:	4F. NO. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN, R.O.C.

ISSUED BY:	Advance Data Technology Corporation
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

No. 2177-01

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1. CERTIFICATION

PRODUCT:	Notebook PC
MODEL:	R1F
BRAND:	ASUS
APPLICANT:	ASUSTeK COMPUTER INC.
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	Mar. 15 ~ Mar. 27, 2006
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment 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 : Andrea Hsia , **DATE:** Mar. 28, 2006
Andrea Hsia

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Mar. 28, 2006
Responsible for RF
Long Chen

APPROVED BY : Gary Chang , **DATE:** Mar. 28, 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 (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 –16.58dB at 0.205MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is –3.11dB at 11650.00MHz
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:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.55 dB
	200MHz ~1000MHz	3.58 dB
	1GHz ~ 18GHz	1.10 dB
	18GHz ~ 40GHz	0.91 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

EUT	Notebook PC
MODEL NO.	R1F
FCC ID	MSQR1F
POWER SUPPLY	19.0Vdc from AC Adapter
MODULATION TYPE	Wireless LAN: CCK, DQPSK,DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM Bluetooth: GFSK, π /4-DQPSK, 8DPSK
MODULATION TECHNOLOGY	DSSS, OFDM, FHSS
TRANSFER RATE	Wireless LAN: 802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps Bluetooth: 1/2/3Mbps
FREQUENCY RANGE	Wireless LAN: 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.180 ~ 5.320GHz , 5.745 ~ 5.825GHz Bluetooth: 2.402 ~ 2.480GHz
NUMBER OF CHANNEL	Wireless LAN: 802.11b & 802.11g: 11 802.11a: 13 Bluetooth: 79
CHANNEL SPACING	Wireless LAN: 802.11b & 802.11g: 5MHz 802.11a: 20MHz Bluetooth: 1MHz
OUTPUT POWER	Wireless LAN: 50.350mW for 802.11b 40.179mW for 802.11g 32.063mW for 5.180 ~ 5.320GHz 39.902mW for 5.745 ~ 5.825GHz Bluetooth: 1.774mW
ANTENNA TYPE	Refer to Note 3 as below
DATA CABLE	NA
I/O PORTS	Refer to user's manual

NOTE:

1. The EUT is a Notebook PC with wireless LAN and bluetooth functions.
2. The adapter were operated with following power adapters:

For 2 pin power adapter

BRAND:	Delta Electronic Inc.
MODEL:	SADP-65KB A
INPUT:	100-240Vac, 50-60Hz, 1.5A
OUTPUT:	19Vdc, 3.42A
POWER LINE:	AC 1.8m non-shielded cable without core DC 2.0m shielded cable with one core

For 3 pin power adapter

BRAND:	Delta Electronic Inc.
MODEL:	SADP-65KB B
INPUT:	100-240Vac, 50-60Hz, 1.5A
OUTPUT:	19Vdc, 3.42A
POWER LINE:	AC 1.8m non-shielded cable without core DC 2.0m shielded cable with one core

* Two of those adapters are only different to pin type so only adapter: SADP-65KB B was for final test and presented in the test report.

3. The following antennas were provided to the EUT.

FOR WLAN FUNCTION				
ITEM	**MODEL NAME**	**ANTENNA TYPE**	**MAXIMUM GAIN (dBi)**	
			2.40GHz	**5.0GHz**
1	CAN4313 537 012501B	PIFA	**-0.24**	**0.04**
2	81.EE615.004	PIFA	-1.68	-1.37
FOR BLUETOOTH FUNCTION				
ITEM	**MODEL NAME**	**ANTENNA TYPE**	**MAXIMUM GAIN (dBi)**	
1	BT-183	Chip	**2.00**	

*After pre-testing each antenna, highest one was chosen for the final test and recorded in the report.

4. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.
5. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

11 channels are provided to the EUT for wireless LAN function:

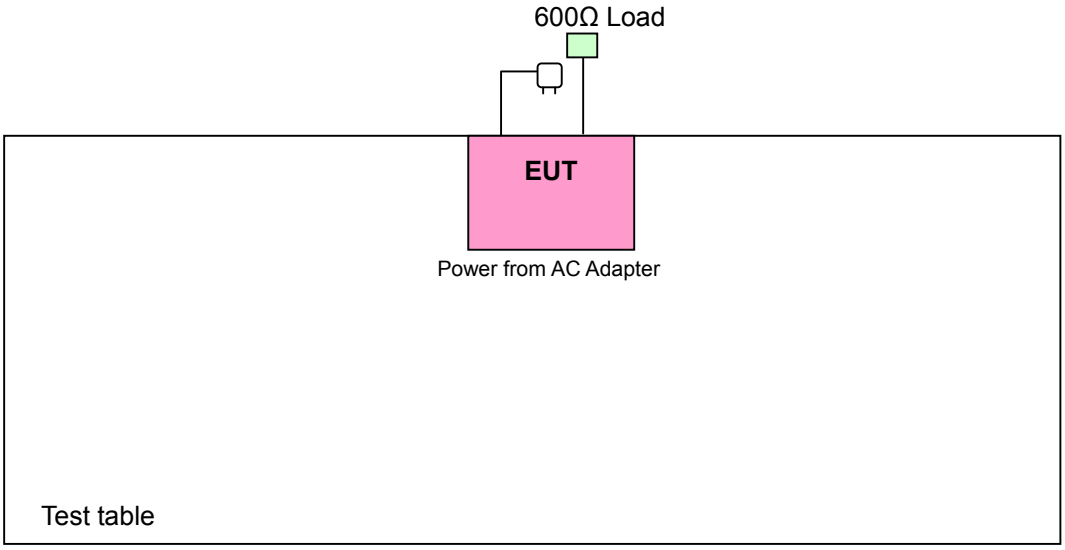
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

Operated in 5745 ~ 5825MHz band:

5 channels are provided to this EUT for wireless LAN function:

CHANNEL	FREQUENCY
1	5745 MHz
2	5765 MHz
3	5785 MHz
4	5805 MHz
5	5825 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
-	√	√	√	√	-

Where **PLC:** Power Line Conducted Emission **RE<1G:** Radiated Emission below 1GHz
RE≥1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

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)
802.11g	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11a	1 to 5	5	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, 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)
802.11g	1 to 11	11	OFDM	BPSK	6
802.11a	1 to 5	5	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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11a	1 to 5	1, 3, 5	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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 11	OFDM	BPSK	6
802.11a	1 to 5	1, 5	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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11a	1 to 5	1, 3, 5	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	600Ω Load	NA	NA	NA	NA

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

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

4. TEST TYPES AND RESULTS (FOR 802.11b & g 2412~2462MHz BAND)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 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 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.

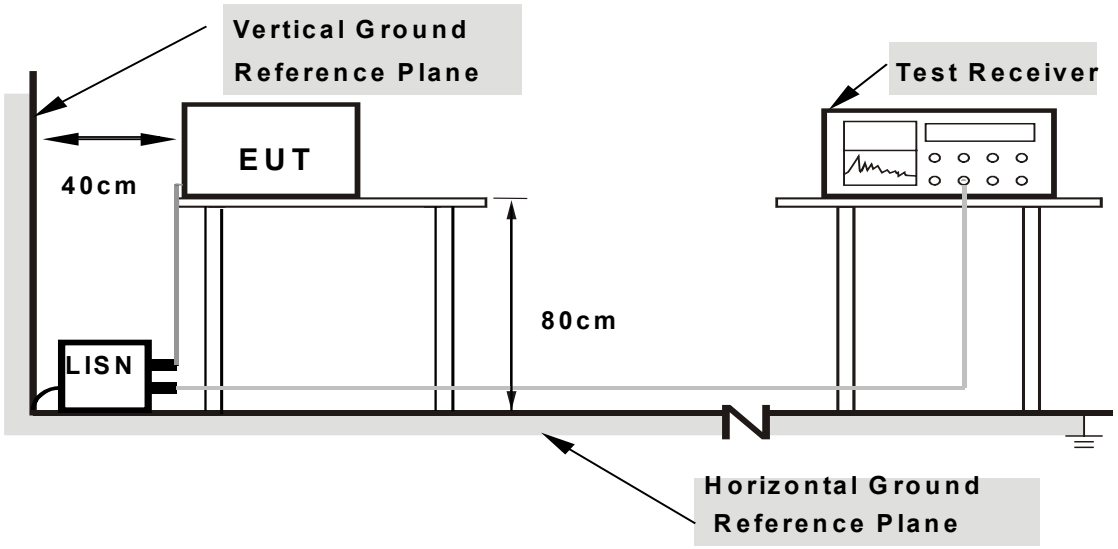
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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 a testing table.
b. The EUT ran a test program (provided by manufacturer) to enable all functions under transmission condition continuously at specific channel frequency.
c. The EUT sent "H" messages to monitor.
d. Step c was repeated.

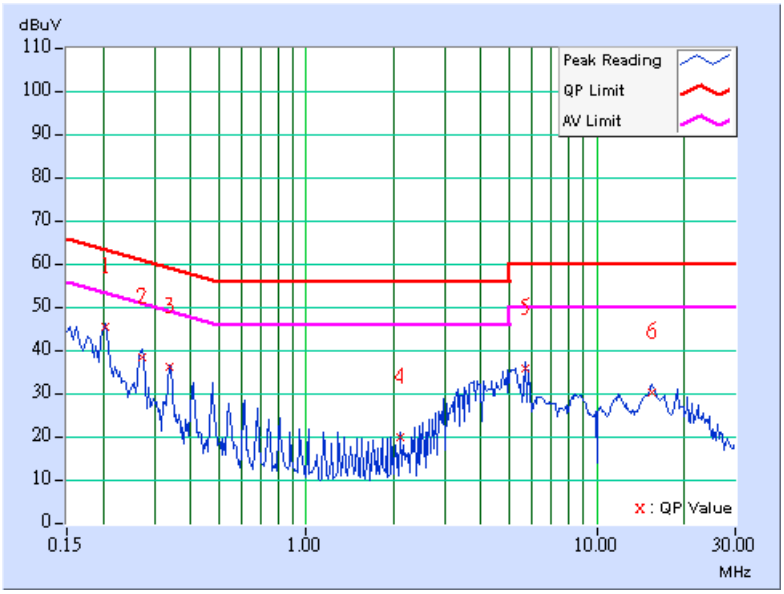
4.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**PHASE**	Line 1
MODULATION TYPE	DBPSK	**6dB BANDWIDTH**	9 kHz
TRANSFER RATE	1Mbps	**ENVIRONMENTAL CONDITIONS**	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Jacky Lee

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	0.204	0.10	44.74	-	44.84	-	63.43	53.43	-18.59	-
2	0.271	0.10	38.04	-	38.14	-	61.08	51.08	-22.94	-
3	0.340	0.10	35.70	-	35.80	-	59.21	49.21	-23.41	-
4	2.102	0.21	19.29	-	19.50	-	56.00	46.00	-36.50	-
5	5.692	0.47	35.31	-	35.78	-	60.00	50.00	-24.22	-
6	15.519	0.65	29.79	-	30.44	-	60.00	50.00	-29.56	-

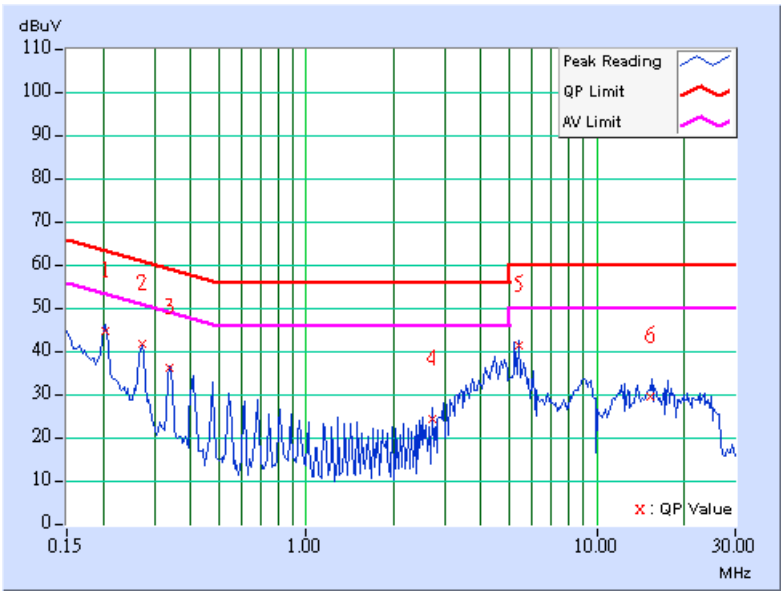
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Jacky Lee

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.204	0.10	44.40	-	44.50	-	63.45	53.45	-18.95	-
2	0.271	0.10	41.22	-	41.32	-	61.08	51.08	-19.76	-
3	0.339	0.10	35.84	-	35.94	-	59.22	49.22	-23.28	-
4	2.712	0.26	23.89	-	24.15	-	56.00	46.00	-31.85	-
5	5.423	0.39	40.97	-	41.36	-	60.00	50.00	-18.64	-
6	15.389	0.54	29.11	-	29.65	-	60.00	50.00	-30.35	-

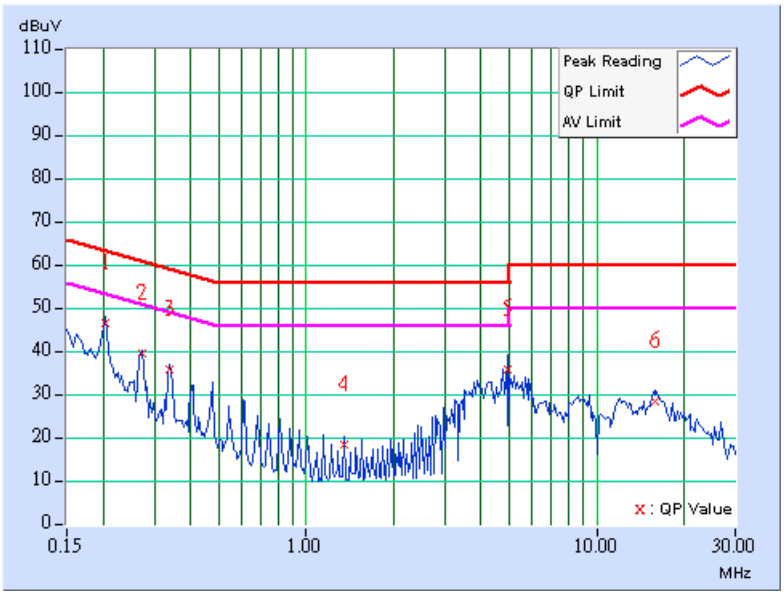
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Jacky Lee

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	0.203	0.10	46.11	-	46.21	-	63.48	53.48	-17.27	-
2	0.271	0.10	38.81	-	38.91	-	61.08	51.08	-22.17	-
3	0.339	0.10	35.11	-	35.21	-	59.23	49.23	-24.02	-
4	1.352	0.20	17.71	-	17.91	-	56.00	46.00	-38.09	-
5	4.933	0.47	35.39	-	35.86	-	56.00	46.00	-20.14	-
6	15.892	0.67	28.03	-	28.70	-	60.00	50.00	-31.30	-

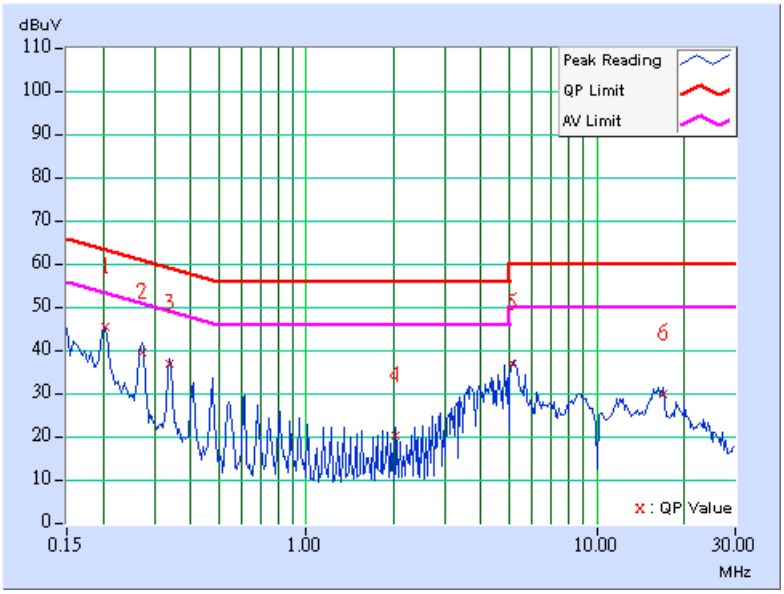
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Jacky Lee

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	0.203	0.10	45.08	-	45.18	-	63.47	53.47	-18.29	-
2	0.271	0.10	38.96	-	39.06	-	61.08	51.08	-22.02	-
3	0.340	0.10	36.56	-	36.66	-	59.20	49.20	-22.54	-
4	2.030	0.20	19.95	-	20.15	-	56.00	46.00	-35.85	-
5	5.141	0.39	36.35	-	36.74	-	60.00	50.00	-23.26	-
6	16.847	0.57	29.35	-	29.92	-	60.00	50.00	-30.08	-

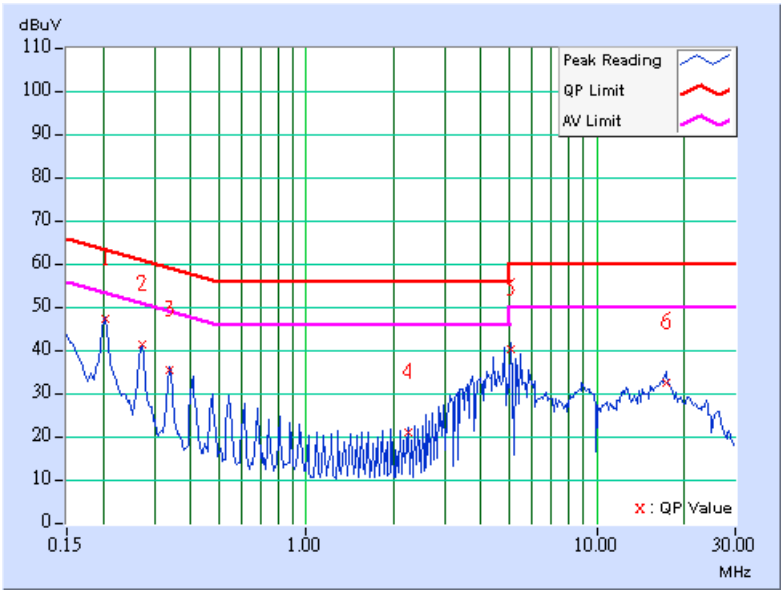
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Jacky Lee

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	**0.205**	**0.10**	**46.74**	**-**	**46.84**	**-**	**63.42**	**53.42**	**-16.58**	**-**
2	0.271	0.10	40.88	-	40.98	-	61.08	51.08	-20.10	-
3	0.340	0.10	35.00	-	35.10	-	59.20	49.20	-24.10	-
4	2.236	0.23	20.41	-	20.64	-	56.00	46.00	-35.36	-
5	5.081	0.47	39.77	-	40.24	-	60.00	50.00	-19.76	-
6	17.345	0.72	31.91	-	32.63	-	60.00	50.00	-27.37	-

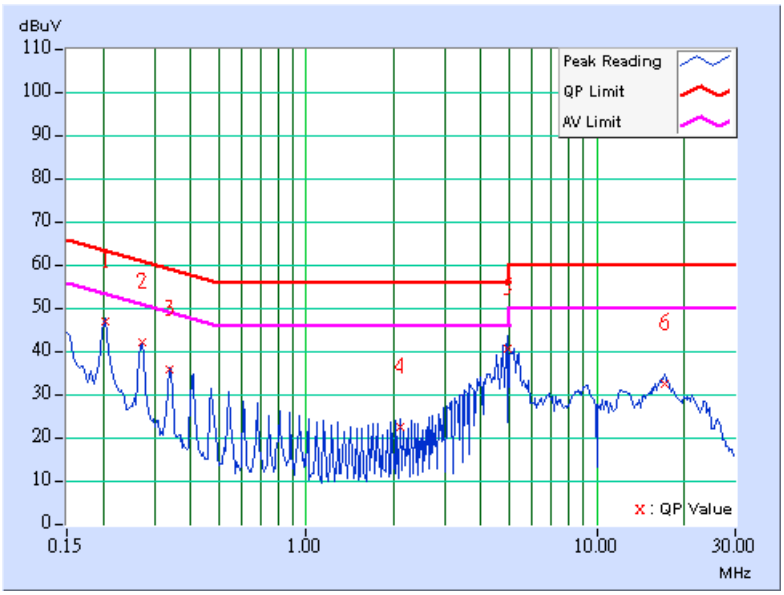
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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	DBPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	1Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Jacky Lee

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.205	0.10	46.50	-	46.60	-	63.42	53.42	-16.82	-
2	0.271	0.10	41.48	-	41.58	-	61.08	51.08	-19.50	-
3	0.339	0.10	35.28	-	35.38	-	59.22	49.22	-23.84	-
4	2.100	0.21	21.87	-	22.08	-	56.00	46.00	-33.92	-
5	4.945	0.38	40.13	-	40.51	-	56.00	46.00	-15.49	-
6	17.074	0.57	32.11	-	32.68	-	60.00	50.00	-27.32	-

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	838496/016	Jan. 01, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 04, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 15, 2007
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Jan. 01, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 19, 2007
Preamplifier Agilent	8449B	3008A01960	Nov. 09, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219268/4	Dec. 20, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	230129/4	Dec. 20, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The IC Site Registration No. is IC4924-4.

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.

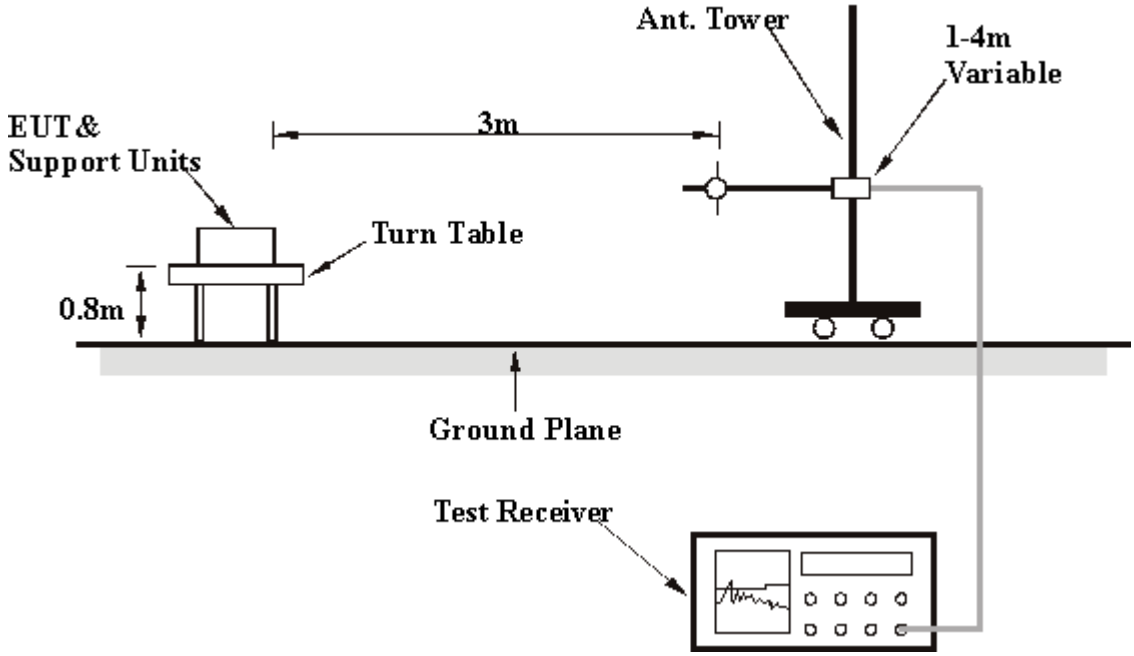
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 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 1kHz 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

Below 1GHz Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	**FREQUENCY RANGE**	Below 1000MHz
MODULATION TYPE	BPSK	**DETECTOR FUNCTION**	Quasi-Peak
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	25deg. C, 62%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Jay Hsu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	166.07	29.00 QP	43.50	-14.50	1.50 H	304	16.17	12.83
2	599.56	30.82 QP	46.00	-15.18	1.50 H	85	8.28	22.54
3	630.66	32.11 QP	46.00	-13.89	1.00 H	103	9.21	22.90
4	667.60	31.72 QP	46.00	-14.28	1.25 H	310	8.24	23.48
5	700.64	34.04 QP	46.00	-11.96	1.25 H	310	9.89	24.16
6	949.46	34.61 QP	46.00	-11.39	1.25 H	310	4.85	29.76

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	166.07	28.66 QP	43.50	-14.84	1.00 V	31	15.82	12.83
2	432.38	36.52 QP	46.00	-9.48	1.00 V	37	18.14	18.38
3	599.56	31.50 QP	46.00	-14.50	1.00 V	241	8.96	22.54
4	632.61	29.27 QP	46.00	-16.73	1.00 V	124	6.35	22.92
5	700.64	31.09 QP	46.00	-14.91	1.00 V	265	6.93	24.16
6	955.29	33.96 QP	46.00	-12.04	1.25 V	160	4.29	29.67

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	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Morgan 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	2312.00	52.40 PK	74.00	-21.60	1.37 H	30	20.94	31.46
1	2312.00	48.77 AV	54.00	-5.23	1.37 H	30	17.31	31.46
2	*2412.00	107.40 PK			1.37 H	30	75.36	32.04
2	*2412.00	103.77 AV			1.37 H	30	71.73	32.04
3	4824.00	46.15 PK	74.00	-27.85	1.22 H	23	8.64	37.51
3	4824.00	39.02 AV	54.00	-14.98	1.22 H	23	1.51	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	2312.00	51.95 PK	74.00	-22.05	1.02 V	326	20.49	31.46
1	2312.00	48.29 AV	54.00	-5.71	1.02 V	326	16.83	31.46
2	*2412.00	106.93 PK			1.02 V	326	74.89	32.04
2	*2412.00	103.46 AV			1.02 V	326	71.42	32.04
3	4824.00	45.98 PK	74.00	-28.02	1.08 V	335	8.47	37.51
3	4824.00	38.79 AV	54.00	-15.21	1.08 V	335	1.28	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.

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**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	2336.00	52.38 PK	74.00	-21.62	1.35 H	31	20.78	31.60
1	2336.00	48.71 AV	54.00	-5.29	1.35 H	31	17.11	31.60
2	*2437.00	107.11 PK			1.35 H	31	74.91	32.20
2	*2437.00	103.35 AV			1.35 H	31	71.15	32.20
3	4874.00	46.08 PK	74.00	-27.92	1.20 H	18	8.53	37.55
3	4874.00	38.89 AV	54.00	-15.11	1.20 H	18	1.34	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	2336.00	51.88 PK	74.00	-22.12	1.03 V	312	20.28	31.60
1	2336.00	48.19 AV	54.00	-5.18	1.03 V	312	16.59	31.60
2	2437.00	106.62 PK			1.05 V	318	74.42	23.20
2	2437.00	103.15 AV			1.05 V	318	70.95	32.20
3	4874.00	45.83 PK	74.00	-28.17	1.03 V	328	8.28	37.55
3	4874.00	38.65AV	54.00	-15.35	1.03 V	328	1.10	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	DBPSK	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
TRANSFER RATE	1Mbps	**ENVIRONMENTAL CONDITIONS**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	2360.00	52.45 PK	74.00	-21.55	1.26 H	22	20.71	31.74
1	2360.00	48.81 AV	54.00	-5.19	1.26 H	22	17.07	31.74
2	*2462.00	107.29 PK			1.28 H	25	74.94	32.35
2	*2462.00	103.62 AV			1.28 H	25	71.27	32.35
3	2483.50	50.22 PK	74.00	-23.78	1.28 H	28	17.73	32.49
3	2483.50	46.76 AV	54.00	-7.24	1.28 H	28	14.27	32.49
4	4924.00	46.21 PK	74.00	-27.79	1.26 H	15	8.63	37.58
4	4924.00	39.09 AV	54.00	-14.91	1.26 H	15	1.51	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	2360.00	51.92 PK	74.00	-22.08	1.06 V	321	20.18	31.74
1	2360.00	48.39 AV	54.00	-5.61	1.06 V	321	16.65	31.74
2	*2462.00	106.88 PK			1.08 V	329	74.53	32.35
2	*2462.00	103.32 AV			1.08 V	329	70.97	32.35
3	2483.50	49.75 PK	74.00	-24.25	1.08 V	329	17.26	32.49
3	2483.50	46.23 AV	54.00	-7.77	1.08 V	329	13.74	32.49
4	4924.00	45.98 PK	74.00	-28.02	1.03 V	335	8.40	37.58
4	4924.00	38.75 AV	54.00	-15.25	1.03 V	335	1.17	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.

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**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	2312.00	56.80 PK	74.00	-17.20	1.12 H	29	25.34	31.46
1	2312.00	47.78 AV	54.00	-6.22	1.12 H	29	16.32	31.46
2	2390.00	57.89 PK	74.00	-16.11	1.15 H	32	25.98	31.91
2	2390.00	47.82 AV	54.00	-6.18	1.15 H	32	15.91	31.91
3	*2412.00	104.80 PK			1.12 H	29	72.76	32.04
3	*2412.00	95.78 AV			1.12 H	29	63.74	32.04
4	4824.00	45.49 PK	74.00	-28.51	1.18 H	39	7.98	37.51
4	4824.00	33.45 AV	54.00	-20.55	1.18 H	39	-4.06	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	2312.00	56.30 PK	74.00	-17.70	1.02 V	322	24.84	31.46
1	2312.00	47.26 AV	54.00	-6.74	1.02 V	322	15.80	31.46
2	2390.00	57.38 PK	74.00	-16.62	1.03 V	309	25.47	31.91
2	2390.00	47.30 AV	54.00	-6.70	1.03 V	309	15.39	31.91
3	*2412.00	104.28 PK			1.03 V	312	72.24	32.04
3	*2412.00	95.26 AV			1.03 V	312	63.22	32.04
4	4824.00	45.55 PK	74.00	-28.45	1.18 V	325	8.04	37.51
4	4824.00	33.58 AV	54.00	-20.42	1.18 V	325	-3.93	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.

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**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	2336.00	56.82 PK	74.00	-17.18	1.14 H	32	25.22	31.60
1	2336.00	47.80 AV	54.00	-6.20	1.14 H	32	16.20	31.60
2	*2437.00	104.92 PK			1.16 H	22	72.72	32.20
2	*2437.00	95.83 AV			1.16 H	22	63.63	32.20
3	4874.00	45.57 PK	74.00	-28.43	1.08 H	315	8.02	37.55
3	4874.00	33.59 AV	54.00	-20.41	1.08 H	315	-3.96	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	2336.00	56.33 PK	74.00	-17.67	1.01 V	307	24.73	31.60
1	2336.00	47.29 AV	54.00	-6.71	1.01 V	307	15.69	31.60
2	*2437.00	104.33 PK			1.01 V	324	72.13	32.20
2	*2437.00	95.29 AV			1.01 V	324	63.09	32.20
3	4874.00	45.59 PK	74.00	-28.41	1.05 V	338	8.04	37.55
3	4874.00	33.62 AV	54.00	-20.38	1.05 V	338	-3.93	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**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	2360.00	56.79 PK	74.00	-17.21	1.11 H	22	25.05	31.74
1	2360.00	47.78 AV	54.00	-6.22	1.11 H	22	16.04	31.74
2	*2462.00	104.98 PK			1.22 H	36	72.63	32.35
2	*2462.00	95.90 AV			1.22 H	36	63.55	32.35
3	2483.50	55.68 PK	74.00	-18.32	1.22 H	36	23.19	32.49
3	2483.50	46.67 AV	54.00	-7.33	1.22 H	36	14.18	32.49
4	4924.00	45.55 PK	74.00	-28.45	1.13 H	29	7.97	37.58
4	4924.00	33.52 AV	54.00	-20.48	1.13 H	29	-4.06	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	2360.00	56.25 PK	74.00	-17.75	1.02 V	352	24.51	31.74
1	2360.00	47.26 AV	54.00	-6.74	1.02 V	352	15.52	31.74
2	*2462.00	104.29 PK			1.03 V	316	71.94	32.35
2	*2462.00	95.18 AV			1.03 V	316	62.83	32.35
3	2483.50	55.33 PK	74.00	-18.67	1.03 V	325	22.84	32.49
3	2483.50	46.29 AV	54.00	-7.71	1.03 V	325	13.80	32.49
4	4924.00	45.75 PK	74.00	-28.25	1.08 V	315	8.17	37.58
4	4924.00	33.66 AV	54.00	-20.34	1.08 V	315	-3.92	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.

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	FSEK 30	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 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.

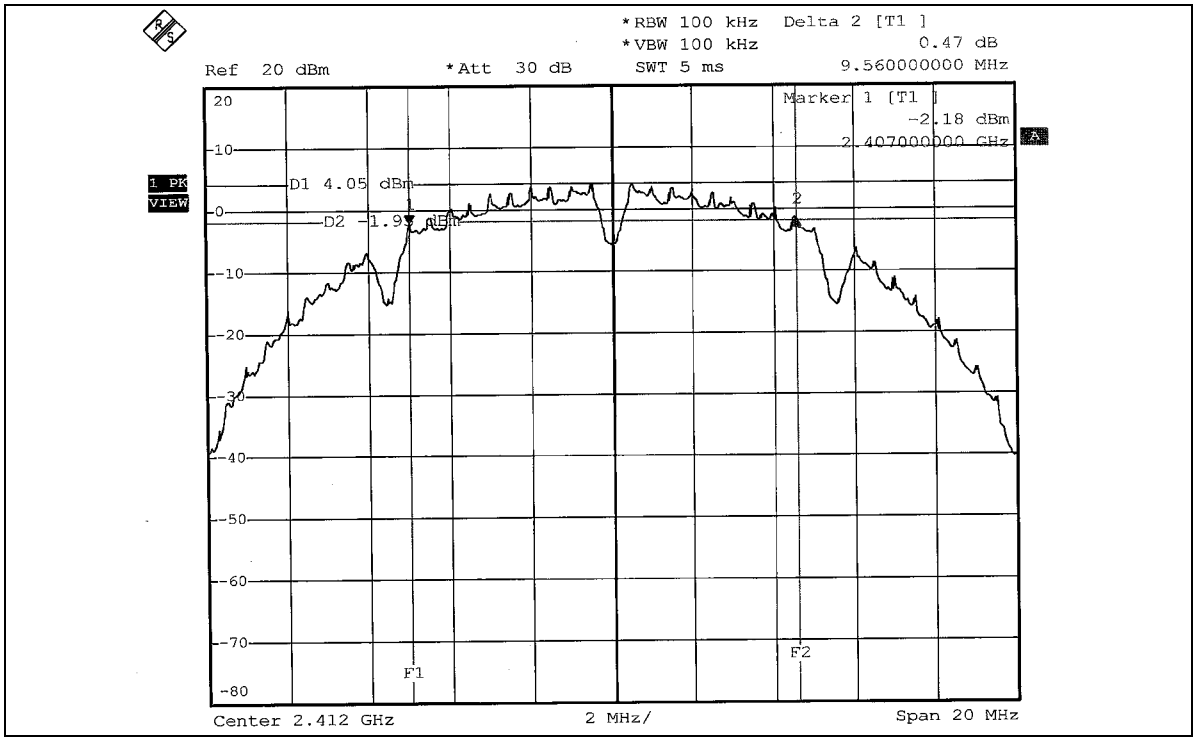
4.3.7 TEST RESULTS

802.11b DSSS modulation

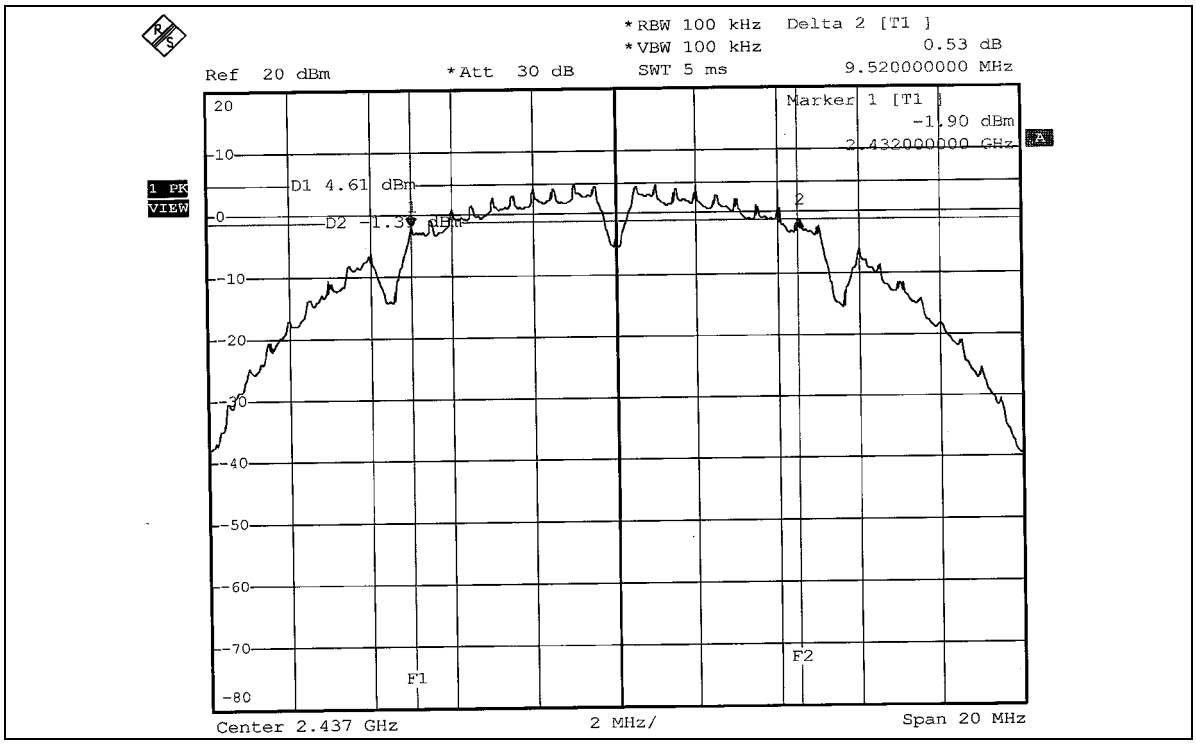
MODULATION TYPE	DBPSK	**TRANSFER RATE**	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.56	0.5	PASS
6	2437	9.52	0.5	PASS
11	2462	9.56	0.5	PASS

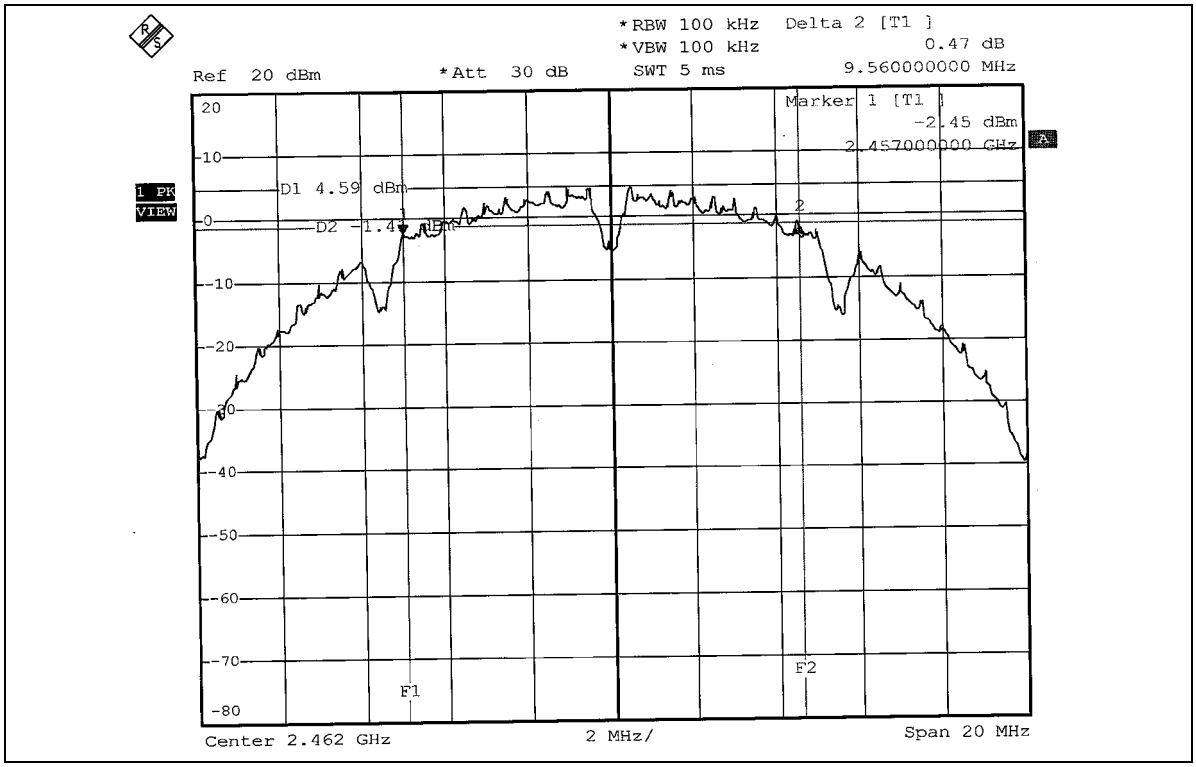
CH 1


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 2 [T1]
0.47 dB
9.560000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-2.18 dBm
2.407000000 GHz
1 PK VIEW
D1 4.05 dBm
D2 -1.95 dBm
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz

CH 6


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 2 [T1]
0.53 dB
9.520000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-1.90 dBm
2.432000000 GHz
1 PK VIEW
D1 4.61 dBm
D2 -1.39 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH 11

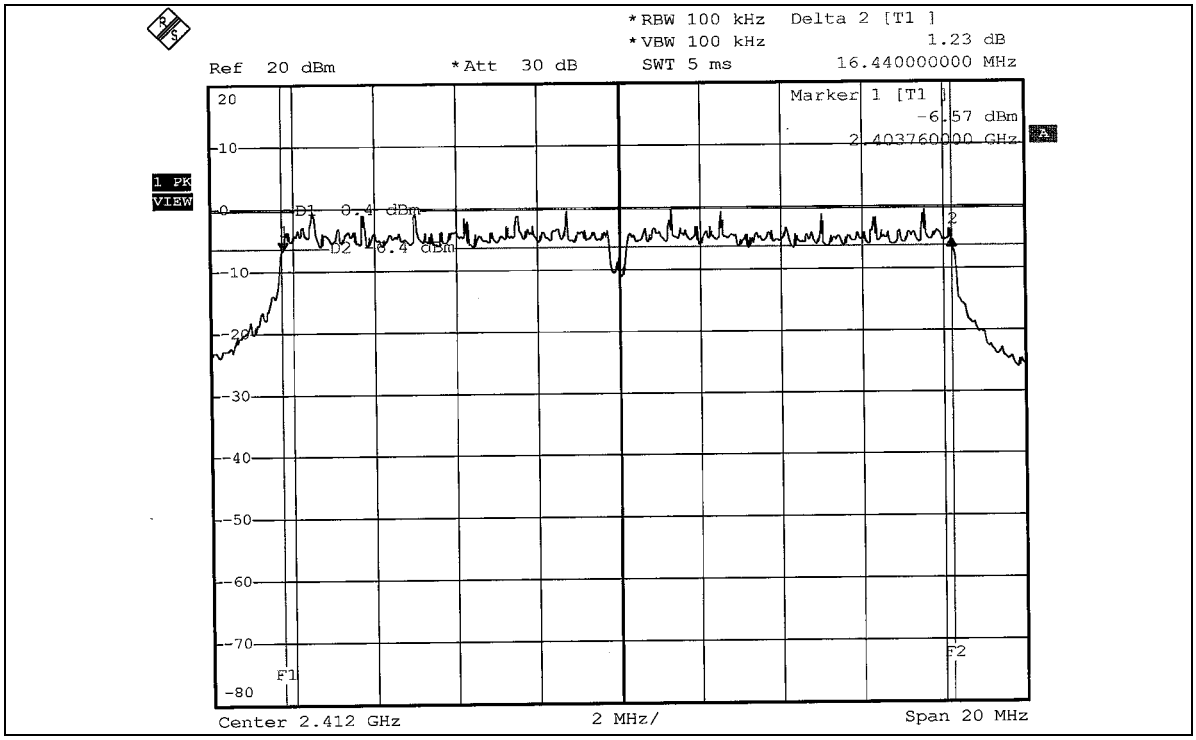

*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 2 [T1]
0.47 dB
9.560000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-2.45 dBm
2.457000000 GHz
1 PK
VIEW
D1 4.59 dBm
D2 -1.41 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

802.11g OFDM modulation

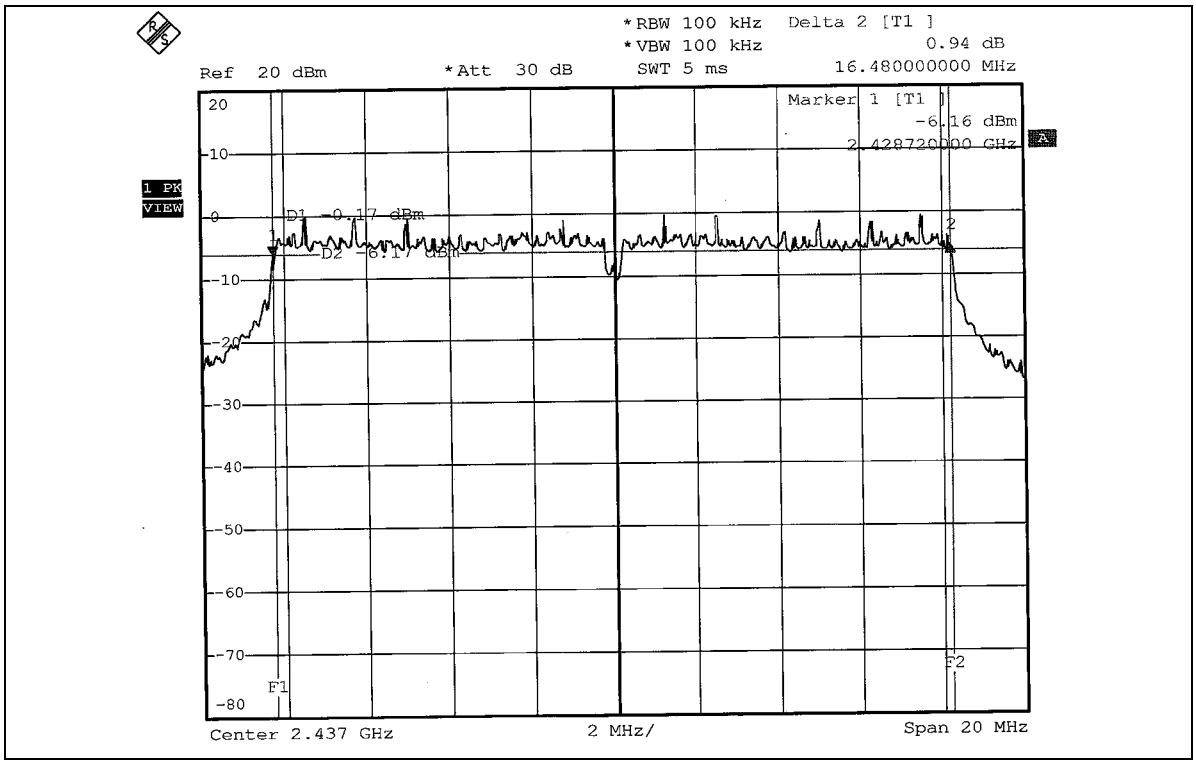
MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.44	0.5	PASS
6	2437	16.48	0.5	PASS
11	2462	16.48	0.5	PASS

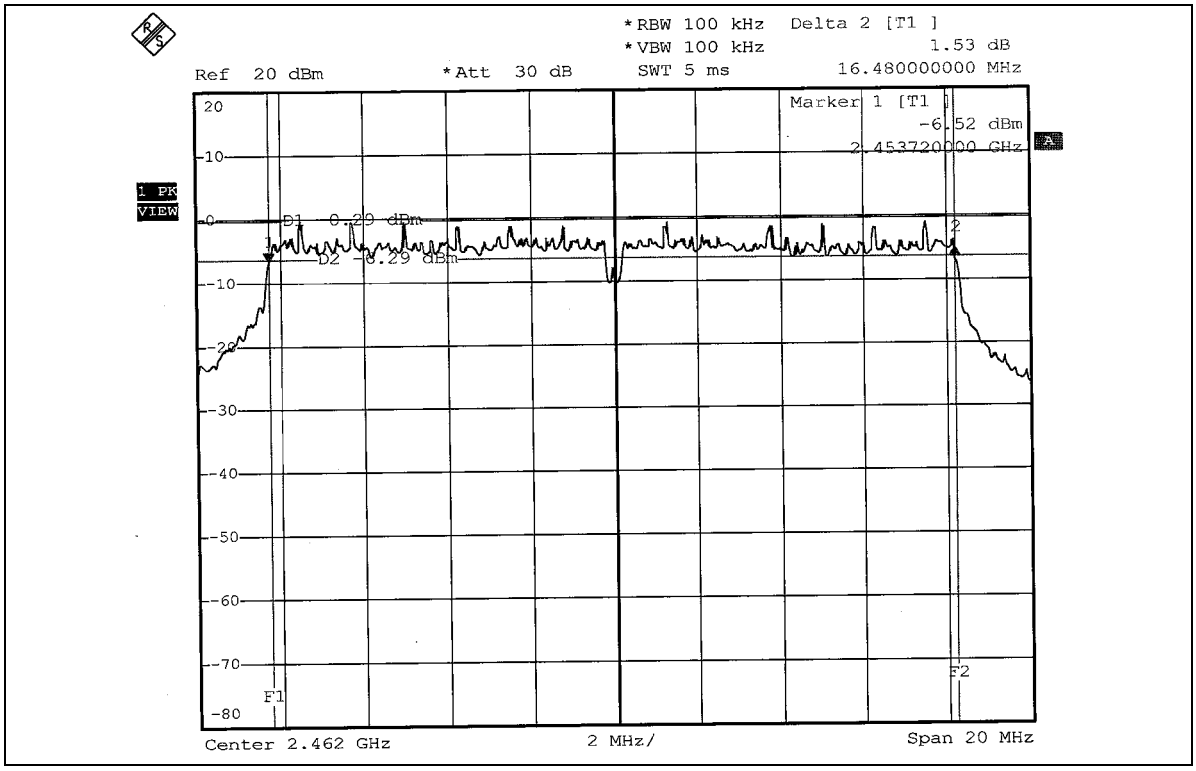
CH 1


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 2 [T1]
1.23 dB
16.440000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-6.57 dBm
2.403760000 GHz
1 PK
VIEW
D1 0.4 dBm
D2 0.4 dBm
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz

CH 6


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 2 [T1]
0.94 dB
16.480000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-6.16 dBm
2.428720000 GHz
1 PK
VIEW
D1 -0.17 dBm
D2 -6.17 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH 11


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 2 [T1]
1.53 dB
16.480000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-6.52 dBm
2.453720000 GHz
1 PK
VIEW
D1 0.29 dBm
D2 -8.29 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
F1
F2

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 30, 2006
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Jan. 16, 2007
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.

4.4.1 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.4.2 DEVIATION FROM TEST STANDARD

No deviation

4.4.3 TEST SETUP

4.4.4 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.3 TEST RESULTS

802.11b DSSS modulation

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	50.119	17.00	30	PASS
6	2437	50.350	17.02	30	PASS
11	2462	50.119	17.00	30	PASS

802.11g OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	39.811	16.00	30	PASS
6	2437	40.179	16.04	30	PASS
11	2462	39.811	16.00	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S 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.

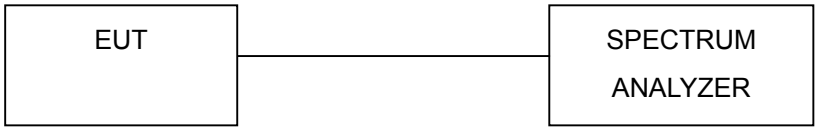
4.5.3 TEST PROCEDURE

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 CONDITION

Same as Item 4.3.6

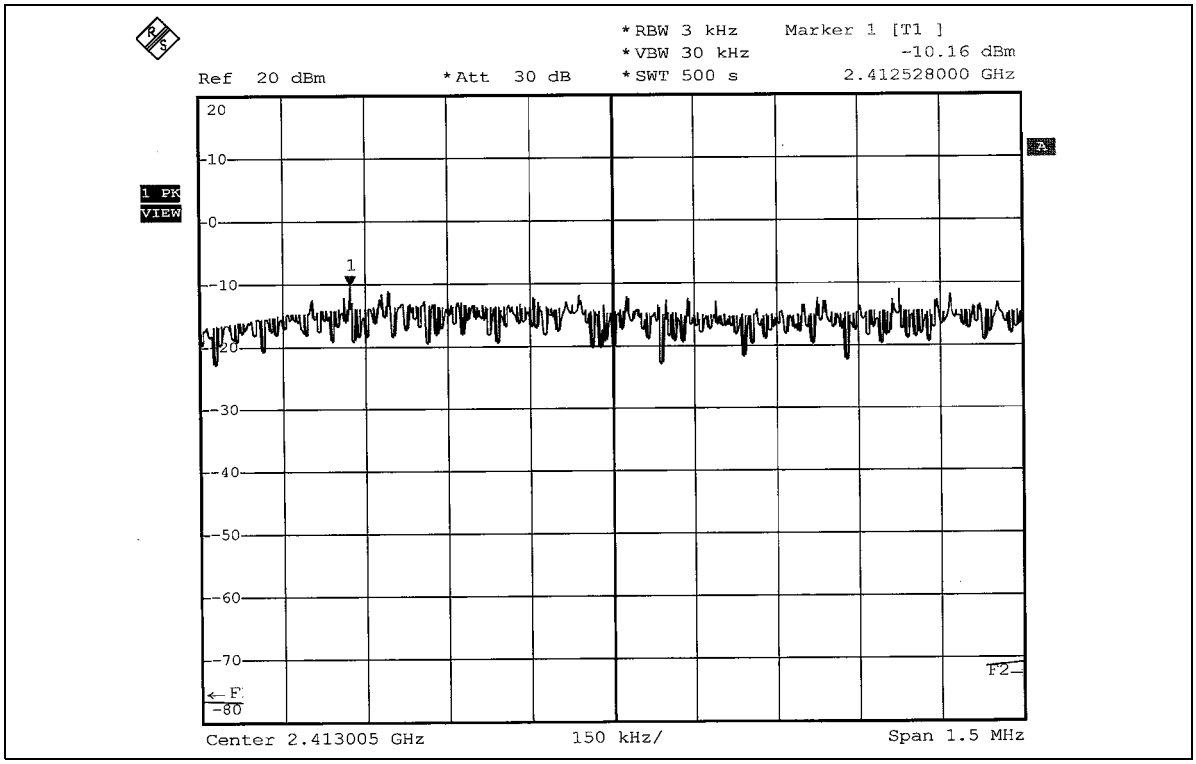
4.5.7 TEST RESULTS

802.11b DSSS modulation

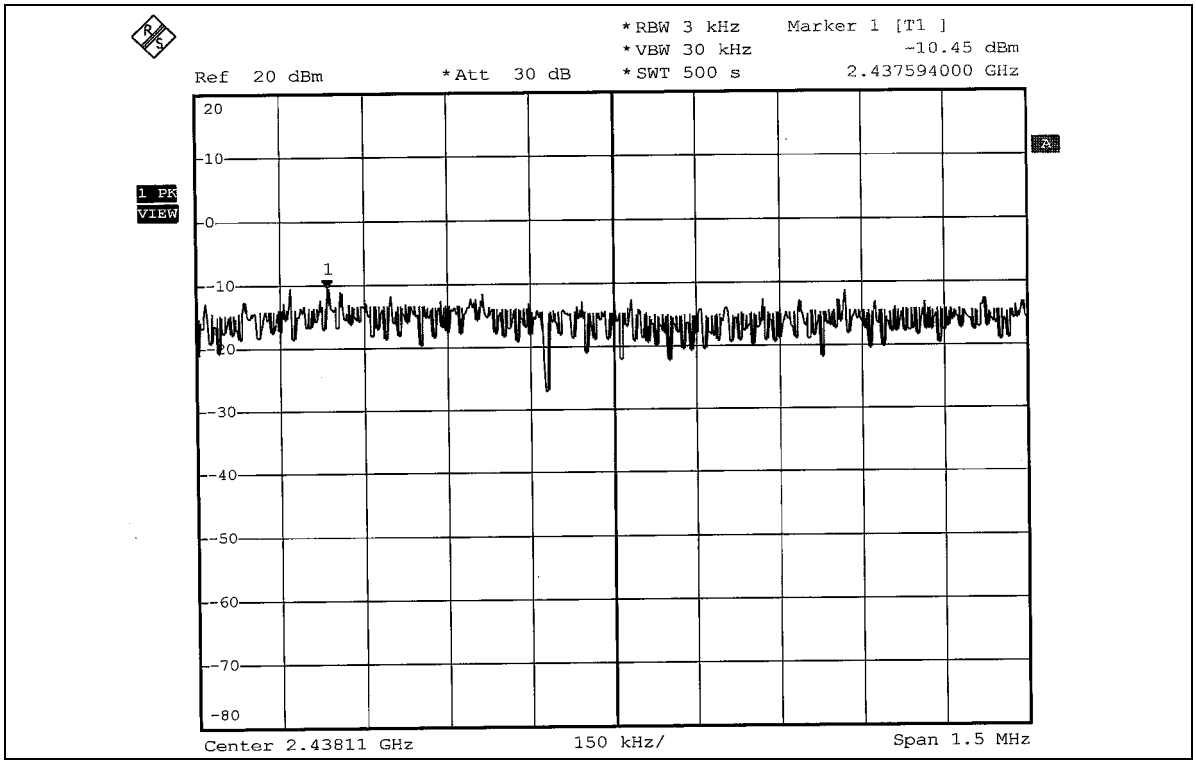
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.16	8	PASS
6	2437	-10.45	8	PASS
11	2462	-10.38	8	PASS

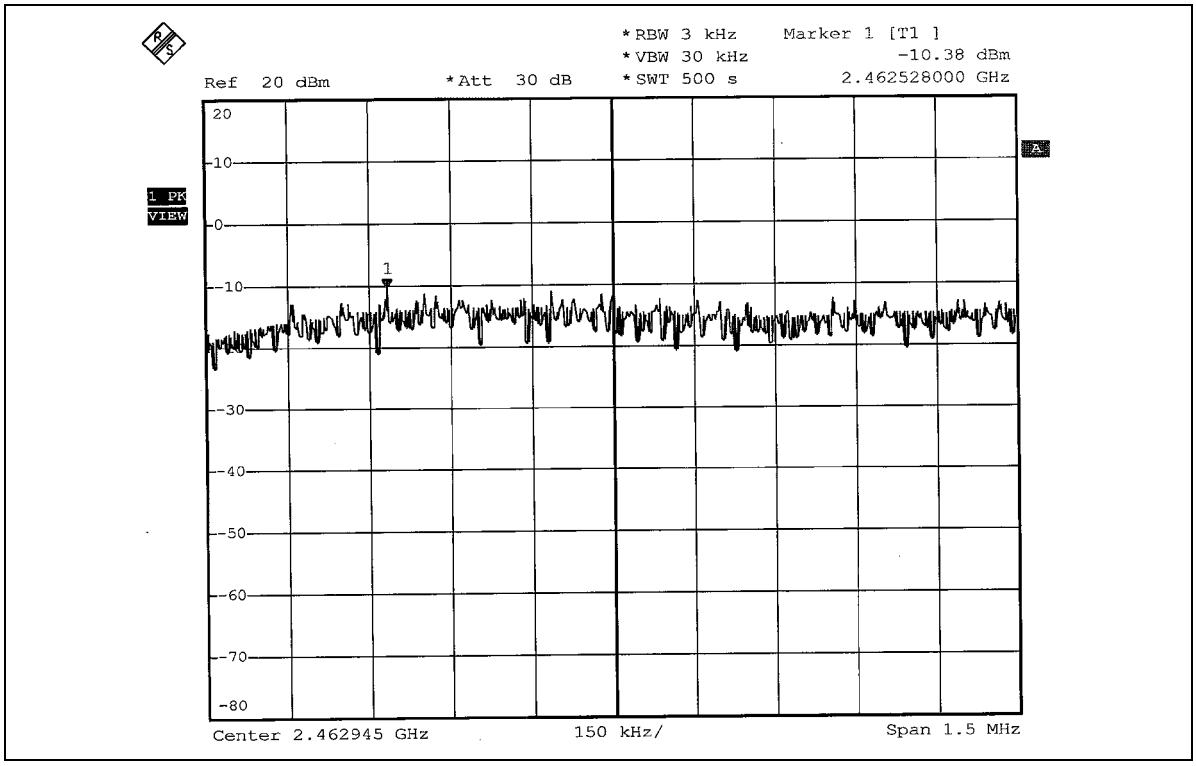
CH 1


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-10.16 dBm
2.412528000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
A
F2
Center 2.413005 GHz
150 kHz/
Span 1.5 MHz

CH 6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-10.45 dBm
2.437594000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
A
Center 2.43811 GHz
150 kHz/
Span 1.5 MHz

CH 11

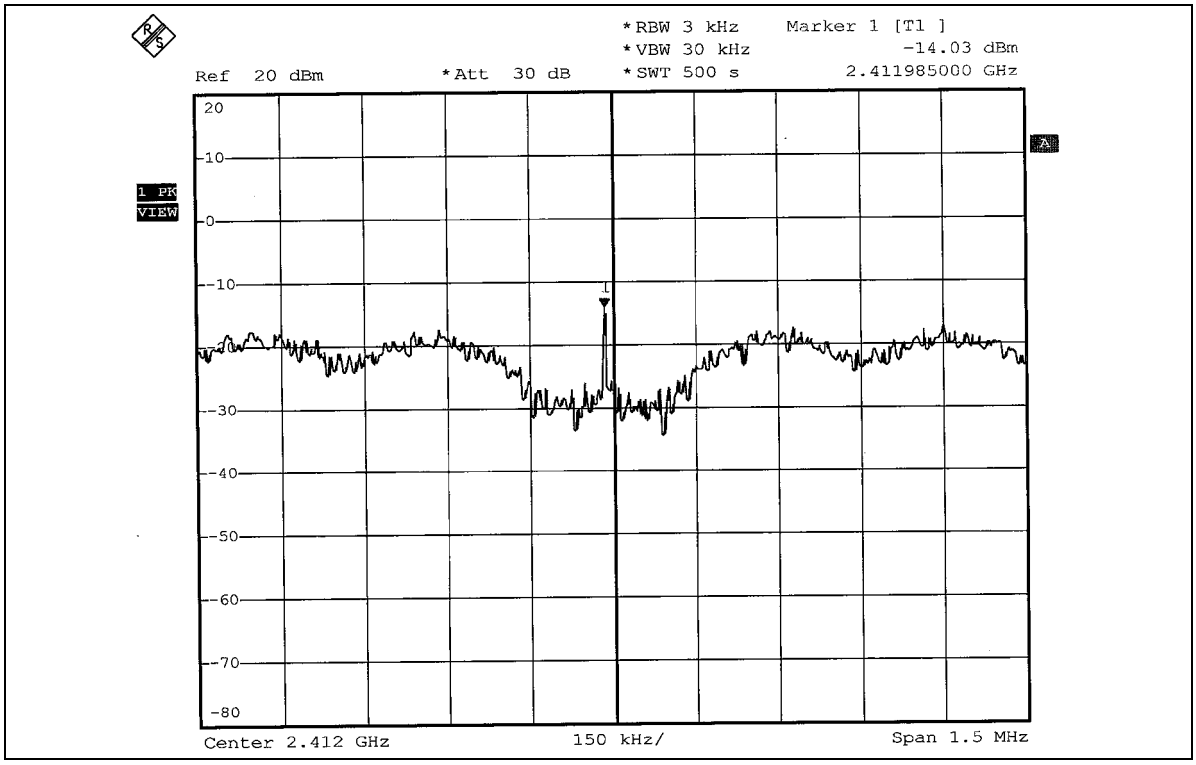

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-10.38 dBm
2.462528000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
A
20
-10
0
-10
-30
-40
-50
-60
-70
-80
1
Center 2.462945 GHz
150 kHz/
Span 1.5 MHz

802.11g OFDM modulation

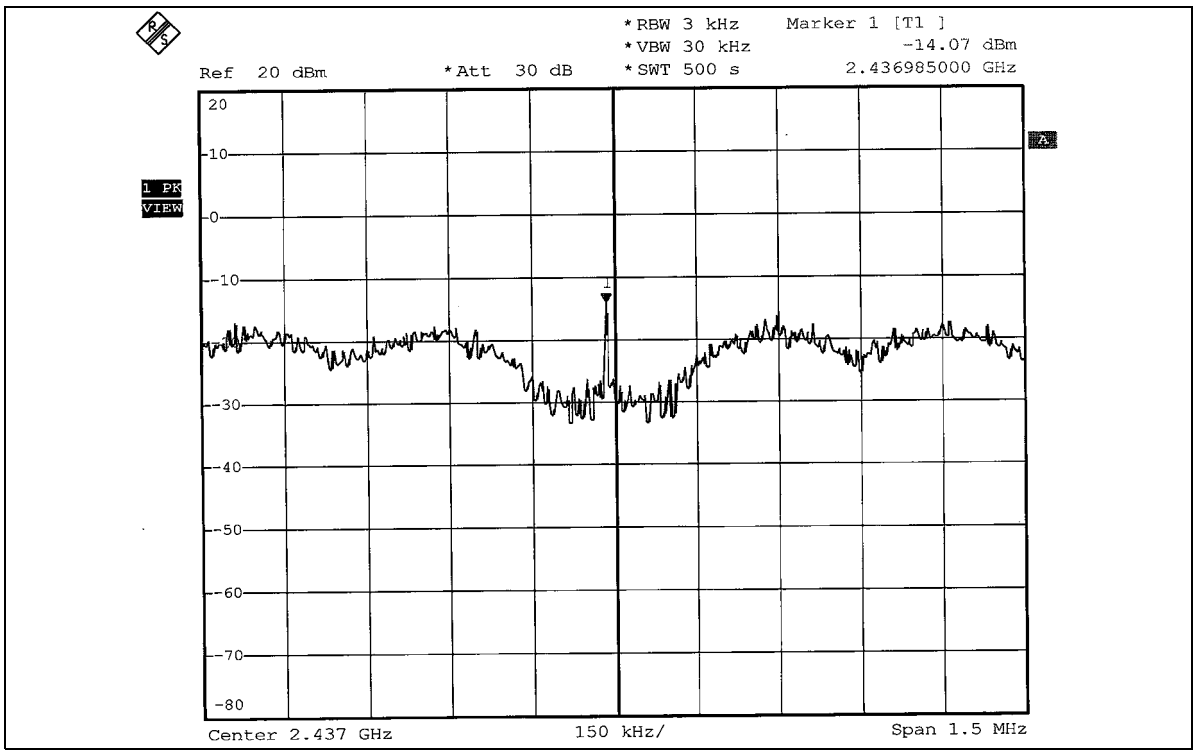
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-14.03	8	PASS
6	2437	-14.07	8	PASS
11	2462	-14.11	8	PASS

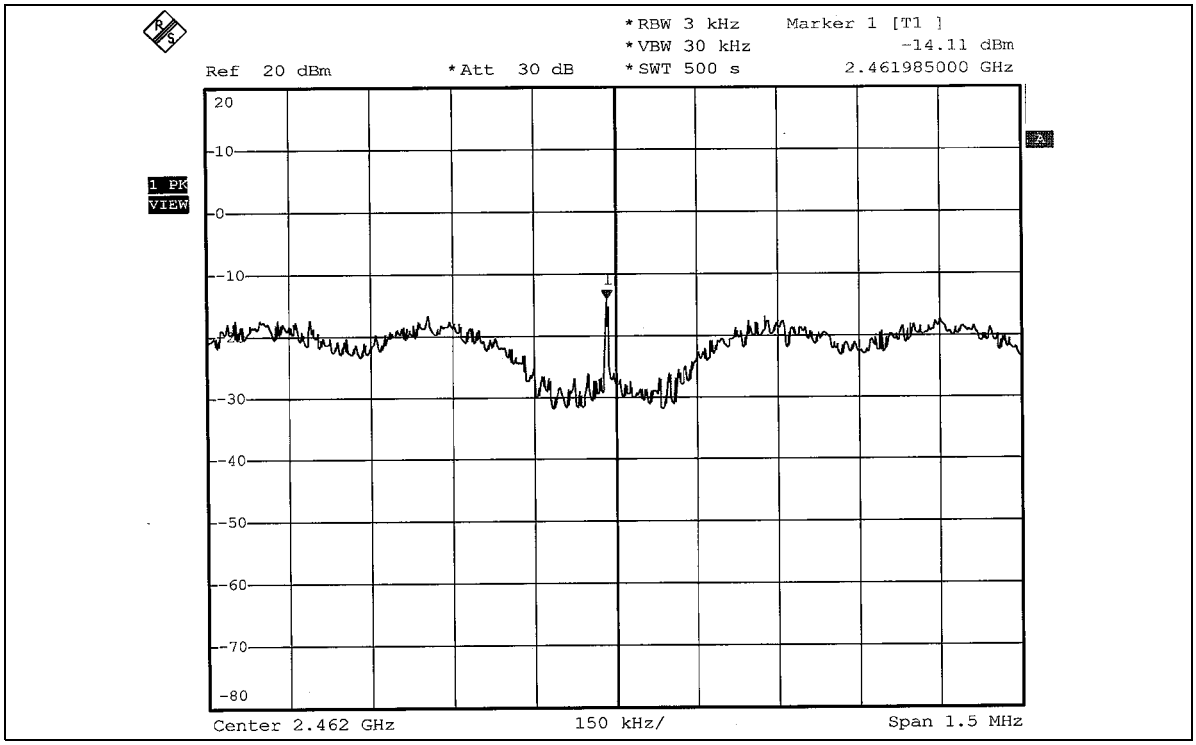
CH 1


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-14.03 dBm
2.411985000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
20
10
0
-10
-30
-40
-50
-60
-70
-80
Center 2.412 GHz
150 kHz/
Span 1.5 MHz

CH 6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-14.07 dBm
2.436985000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
20
10
0
-10
-30
-40
-50
-60
-70
-80
Center 2.437 GHz
150 kHz/
Span 1.5 MHz

CH 11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-14.11 dBm
2.461985000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
20
10
0
-10
-30
-40
-50
-60
-70
-80
Center 2.462 GHz
150 kHz/
Span 1.5 MHz

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
R&S 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 100 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=VBW=100kHz; Average RBW=1MHz, VBW= 1kHz 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).

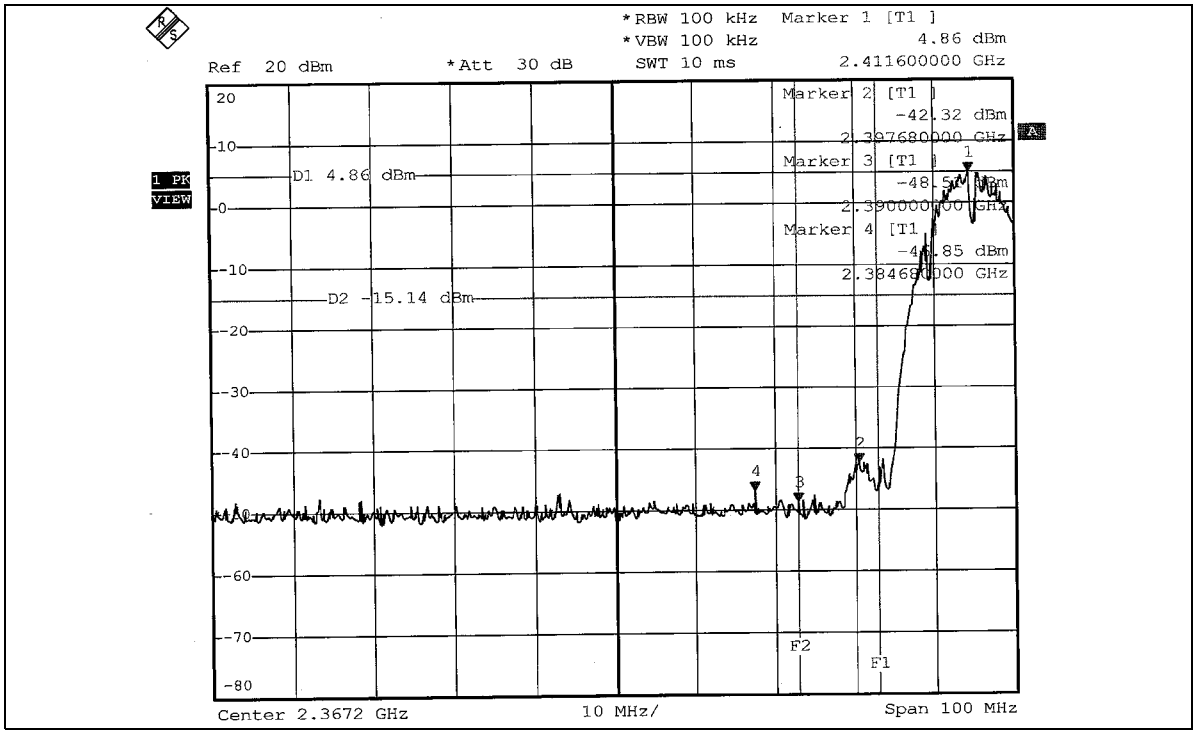
802.11b DSSS modulation

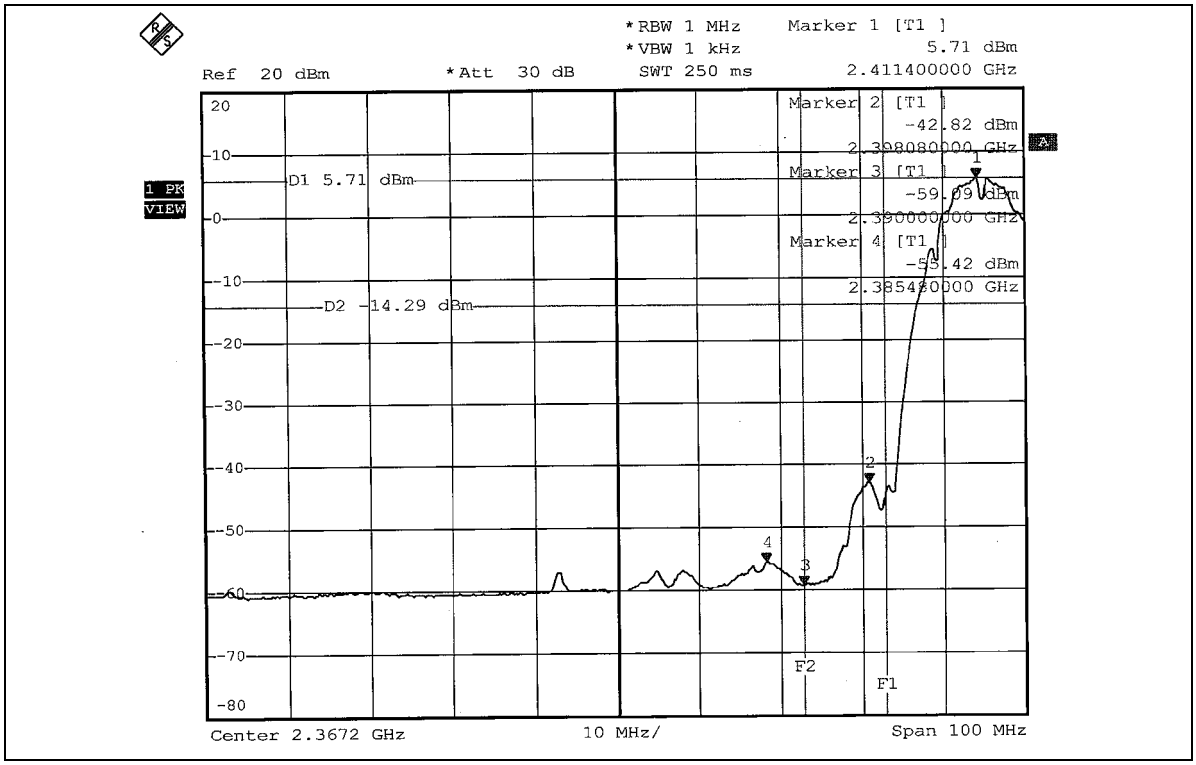
NOTE 1: The band edge emission plot on the next page shows 51.71dBc between carrier maximum power and local maximum emission in restrict band (2.38468GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.40dBuV/m (Peak), so the maximum field strength in restrict band is 107.40-51.71=55.69dBuV/m which is under 74dBuV/m limit.

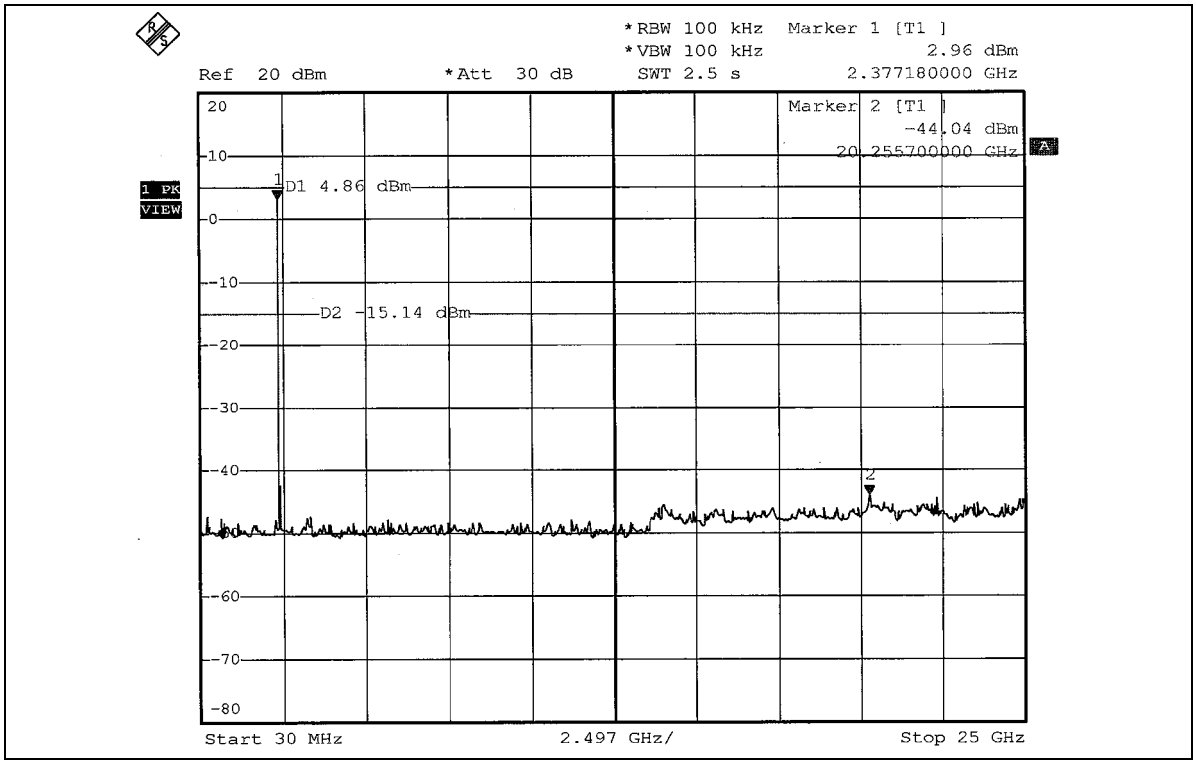
The band edge emission plot of on the next page shows 61.13dBc between carrier maximum power and local maximum emission in restrict band (2.38548GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 103.77dBuV/m (Average), so the maximum field strength in restrict band is 103.77-61.13=42.64dBuV/m which is under 54dBuV/m limit.

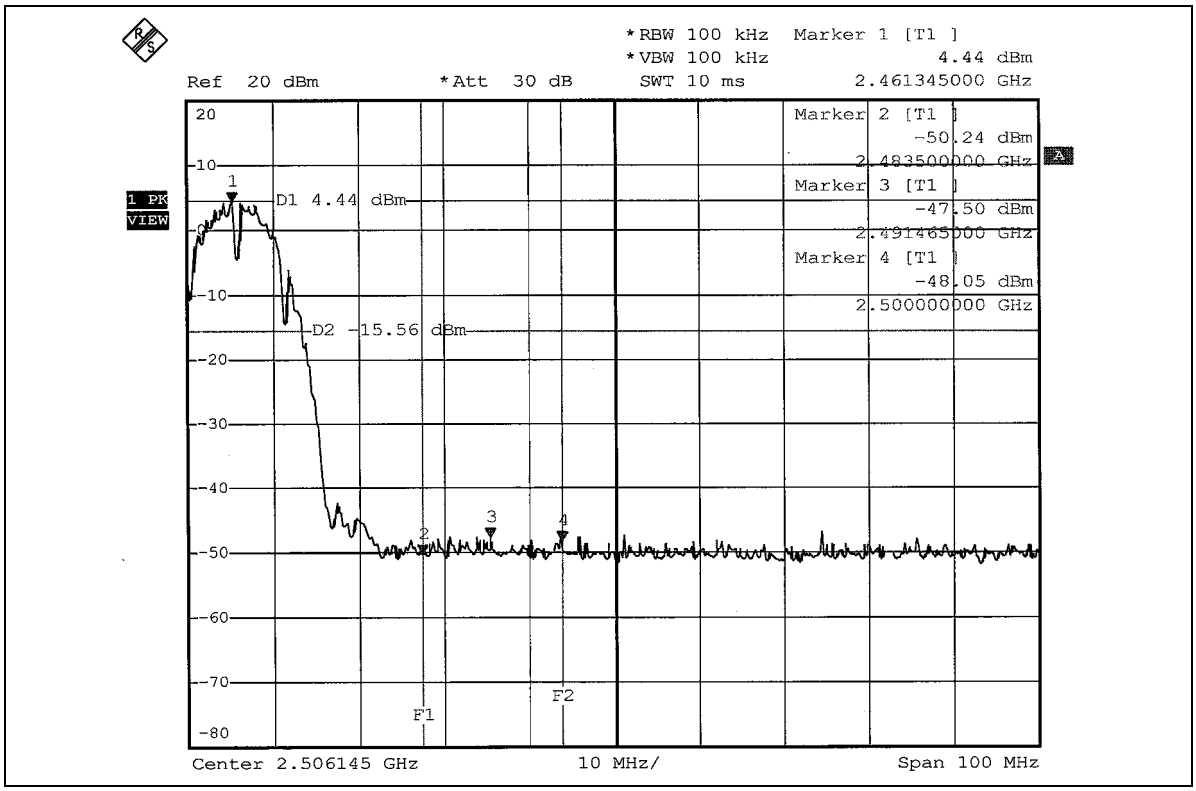
NOTE 2: The band edge emission plot on the next second page shows 51.94dBc between carrier maximum power and local maximum emission in restrict band (2.491465GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 107.29dBuV/m (Peak), so the maximum field strength in restrict band is 107.29-51.94=55.35dBuV/m which is under 74dBuV/m limit.

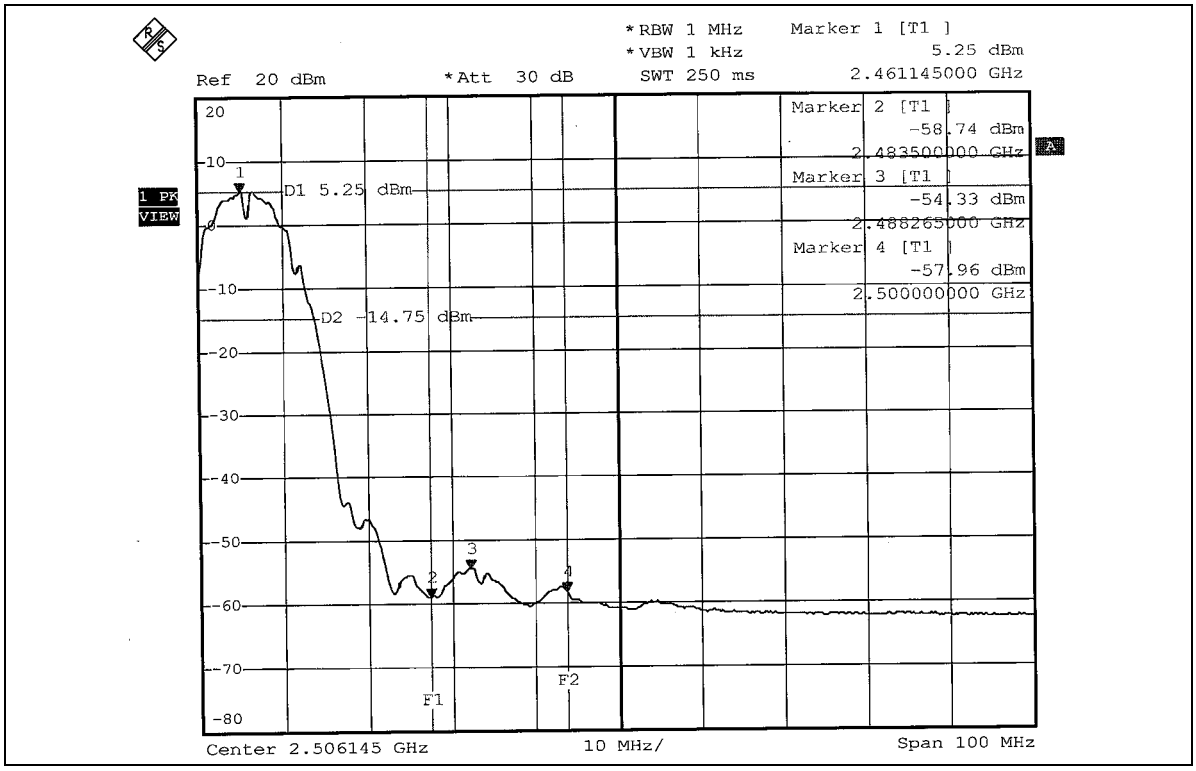
The band edge emission plot on the next third page shows 59.58dBc between carrier maximum power and local maximum emission in restrict band (2.488265GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 103.62dBuV/m (Average), so the maximum field strength in restrict band is 103.62-59.58=44.04dBuV/m which is under 54dBuV/m limit.

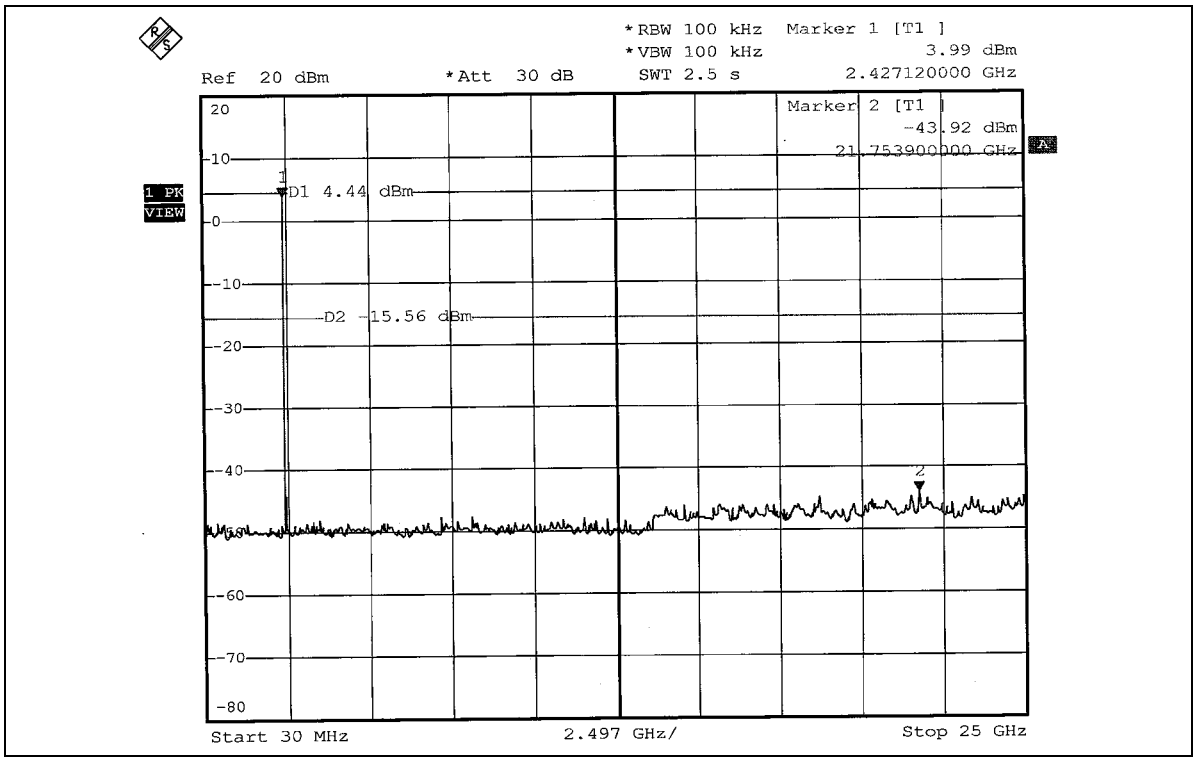

*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
4.86 dBm
2.411600000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-42.32 dBm
2.397680000 GHz
Marker 3 [T1]
-48.57 dBm
2.390000000 GHz
Marker 4 [T1]
-48.85 dBm
2.384680000 GHz
1 PK
VIEW
D1 4.86 dBm
D2 -15.14 dBm
F2
F1
Center 2.3672 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
5.71 dBm
2.411400000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-42.82 dBm
2.398080000 GHz
Marker 3 [T1]
-59.09 dBm
2.390000000 GHz
Marker 4 [T1]
-55.42 dBm
2.385480000 GHz
1 PK
VIEW
D1 5.71 dBm
D2 -14.29 dBm
F2
F1
Center 2.3672 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 1 [T1]
2.96 dBm
2.377180000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-44.04 dBm
20.255700000 GHz
1 PK
VIEW
D1 4.86 dBm
D2 -15.14 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
4.44 dBm
2.461345000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-50.24 dBm
2.483500000 GHz
Marker 3 [T1]
-47.50 dBm
2.491465000 GHz
Marker 4 [T1]
-48.05 dBm
2.500000000 GHz
1 PK
VIEW
D1 4.44 dBm
D2 -15.56 dBm
F1
F2
Center 2.506145 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
5.25 dBm
2.461145000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-58.74 dBm
2.483500000 GHz
Marker 3 [T1]
-54.33 dBm
2.488265000 GHz
Marker 4 [T1]
-57.96 dBm
2.500000000 GHz
1 PK
VIEW
D1 5.25 dBm
D2 -14.75 dBm
F1
F2
Center 2.506145 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 1 [T1]
3.99 dBm
2.427120000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-43.92 dBm
21.753900000 GHz
1 PK
VIEW
D1 4.44 dBm
D2 -15.56 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

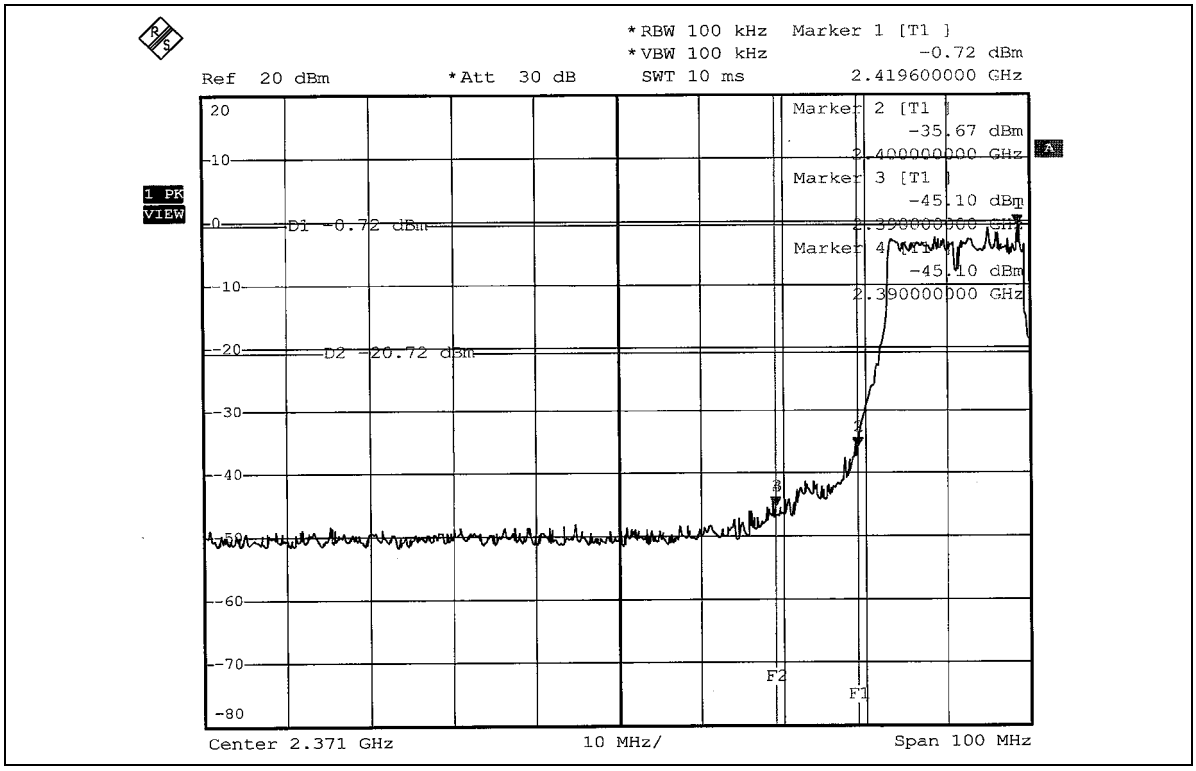
802.11g OFDM modulation

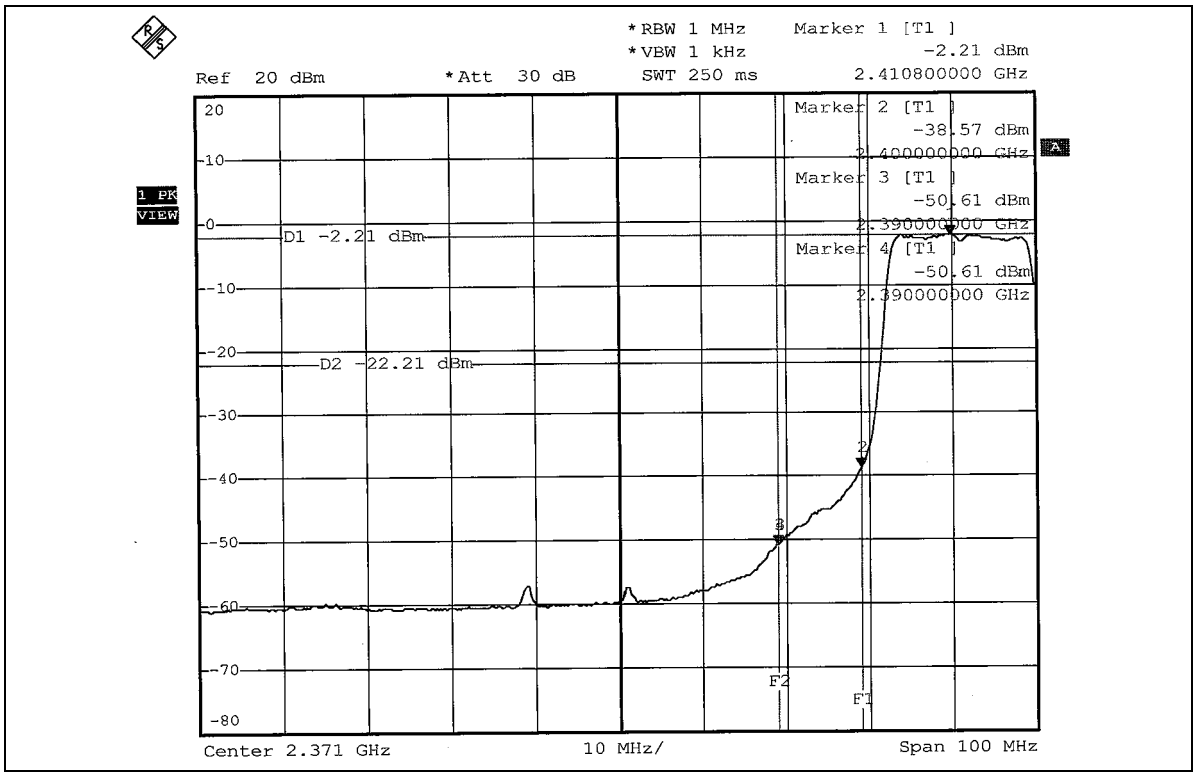
NOTE 1: The band edge emission plot on the next page shows 44.38dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 104.80dBuV/m (Peak), so the maximum field strength in restrict band is 104.80-44.38=60.42dBuV/m which is under 74dBuV/m limit.

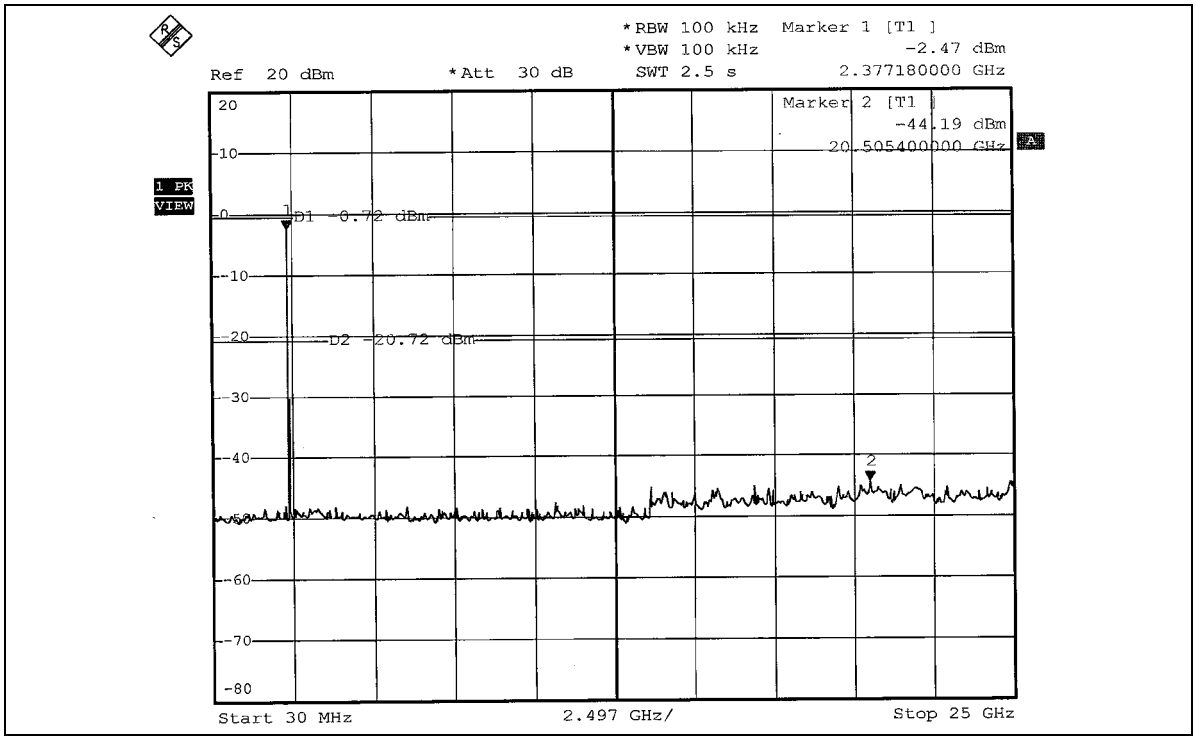
The band edge emission plot of on the next page shows 48.40dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 95.78dBuV/m (Average), so the maximum field strength in restrict band is 95.78-48.40=47.38dBuV/m which is under 54dBuV/m limit.

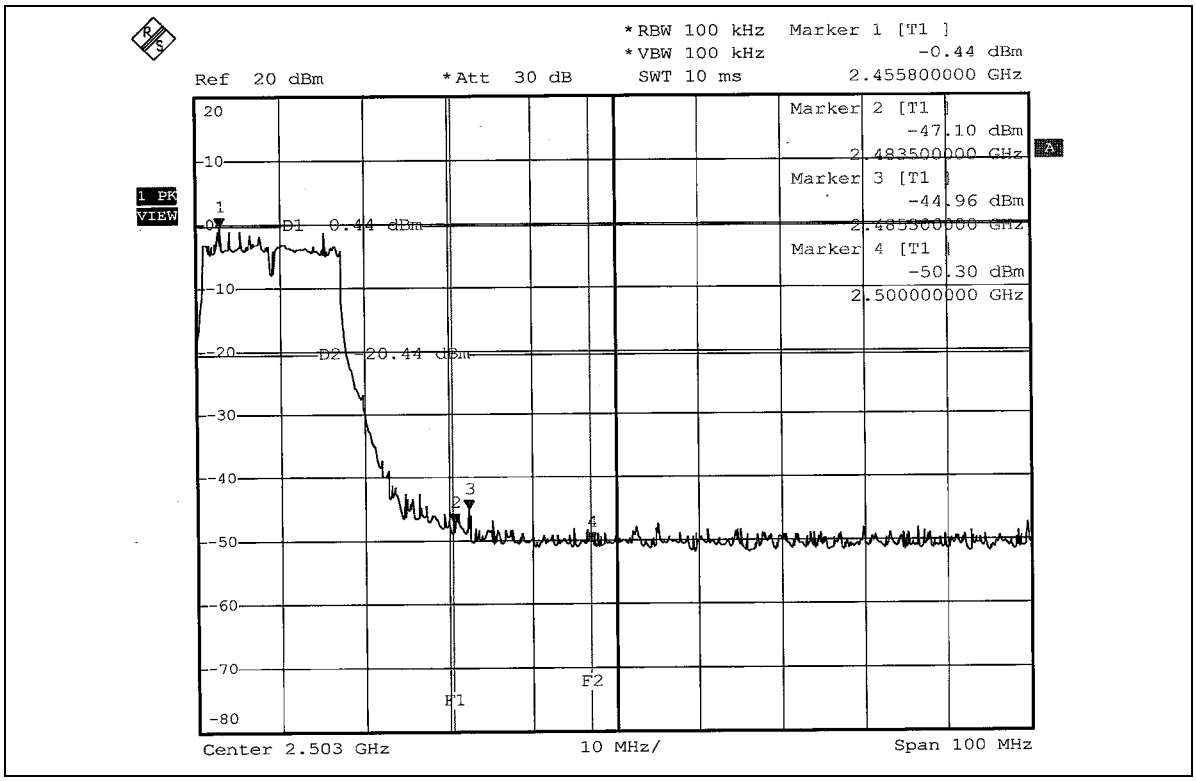
NOTE 2: The band edge emission plot on the next second page shows 44.52dBc between carrier maximum power and local maximum emission in restrict band (2.4853GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 104.98dBuV/m (Peak), so the maximum field strength in restrict band is 104.98-44.52=60.46dBuV/m which is under 74dBuV/m limit.

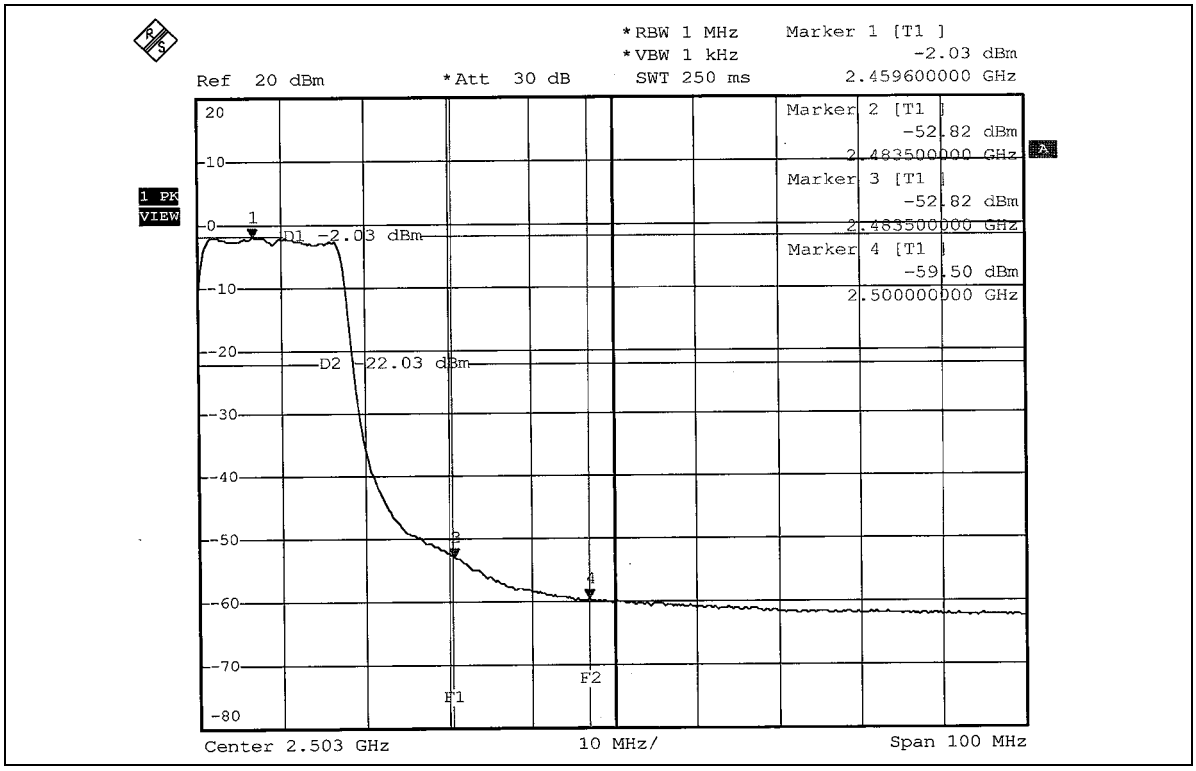
The band edge emission plot on the next third page shows 50.79dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 95.90dBuV/m (Average), so the maximum field strength in restrict band is 95.90-50.79=45.11dBuV/m which is under 54dBuV/m limit.

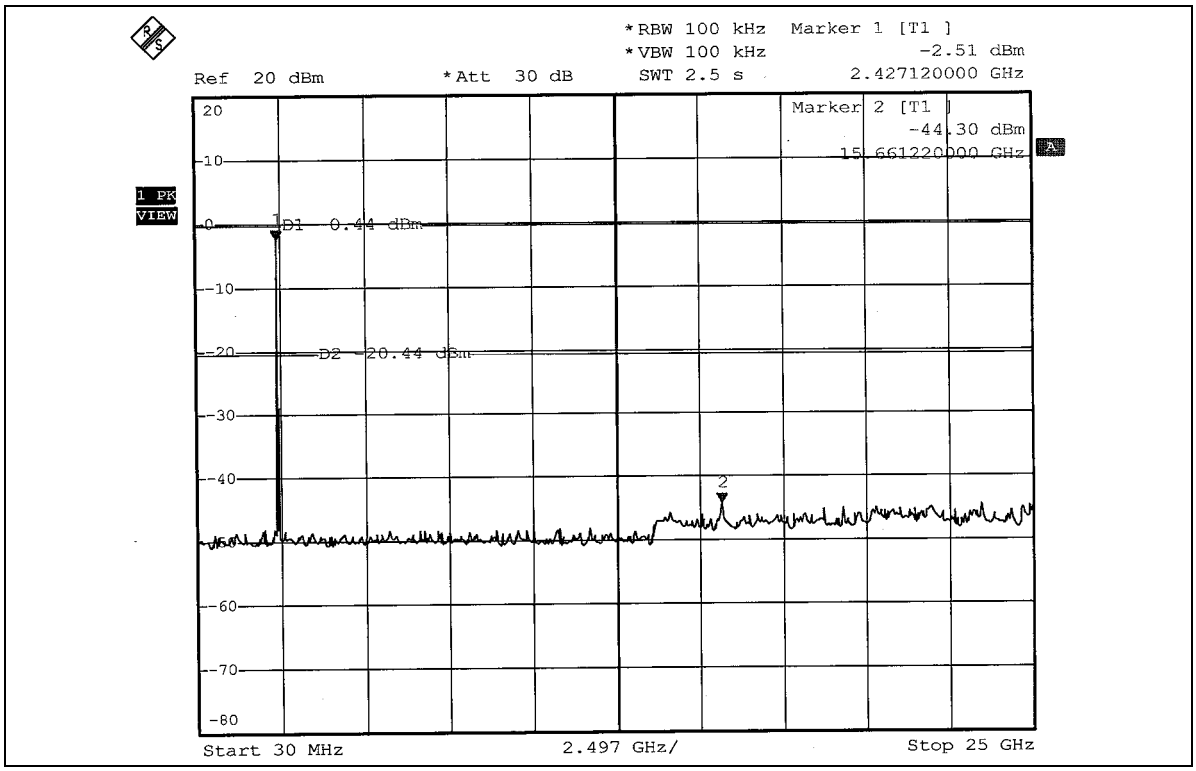

*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
-0.72 dBm
2.419600000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-35.67 dBm
2.400000000 GHz
Marker 3 [T1]
-45.10 dBm
2.390000000 GHz
Marker 4 [T1]
-45.10 dBm
2.390000000 GHz
1 PK
VIEW
D1 -0.72 dBm
D2 -20.72 dBm
F2
F1
Center 2.371 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
-2.21 dBm
2.410800000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-38.57 dBm
2.400000000 GHz
Marker 3 [T1]
-50.61 dBm
2.390000000 GHz
Marker 4 [T1]
-50.61 dBm
2.390000000 GHz
1 PK
VIEW
D1 -2.21 dBm
D2 -22.21 dBm
F2
F1
Center 2.371 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 1 [T1]
-2.47 dBm
2.377180000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-44.19 dBm
20.505400000 GHz
1 PK
VIEW
D1 -0.72 dBm
D2 -20.72 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
-0.44 dBm
2.455800000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-47.10 dBm
2.483500000 GHz
Marker 3 [T1]
-44.96 dBm
2.485300000 GHz
Marker 4 [T1]
-50.30 dBm
2.500000000 GHz
1 PK
VIEW
D1 0.44 dBm
D2 -20.44 dBm
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
-2.03 dBm
2.459600000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-52.82 dBm
2.483500000 GHz
Marker 3 [T1]
-52.82 dBm
2.483500000 GHz
Marker 4 [T1]
-59.50 dBm
2.500000000 GHz
1 PK
VIEW
D1 -2.03 dBm
D2 -22.03 dBm
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 1 [T1]
-2.51 dBm
2.427120000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-44.30 dBm
15.661220000 GHz
1 PK
VIEW
D1 0.44 dBm
D2 -20.44 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz

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 antenna used in this product is PIFA antenna with UFL connector. The maximum Gain of the antenna is –0.24dBi.

5. TEST TYPES AND RESULTS (FOR 802.11a 5745~5825MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 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.

5.1.2 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.

5.1.3 TEST PROCEDURES

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

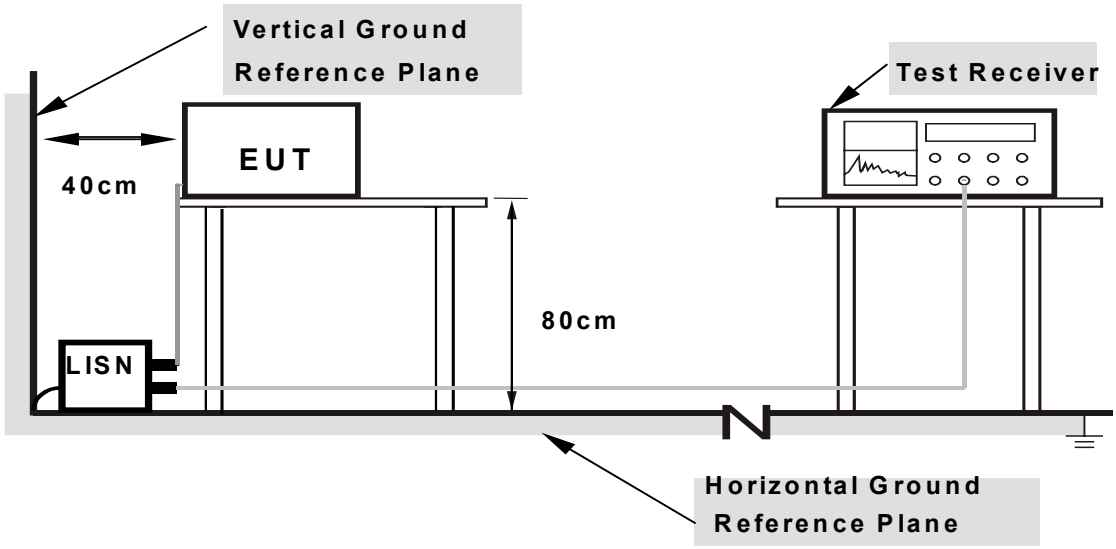
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



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

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

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6

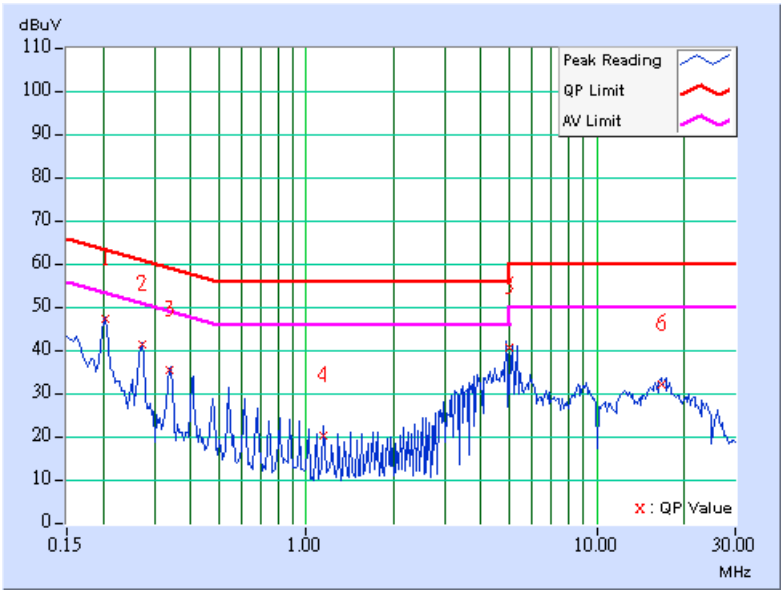
5.1.7 TEST RESULTS

Conducted Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	**PHASE**	Line 1
MODULATION TYPE	BPSK	**6dB BANDWIDTH**	9 kHz
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Jacky Lee

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	0.205	0.10	46.62	-	46.72	-	63.42	53.42	-16.70	-
2	0.271	0.10	40.88	-	40.98	-	61.08	51.08	-20.10	-
3	0.340	0.10	34.80	-	34.90	-	59.20	49.20	-24.30	-
4	1.152	0.20	19.65	-	19.85	-	56.00	46.00	-36.15	-
5	5.012	0.47	40.01	-	40.48	-	60.00	50.00	-19.52	-
6	16.668	0.70	31.35	-	32.05	-	60.00	50.00	-27.95	-

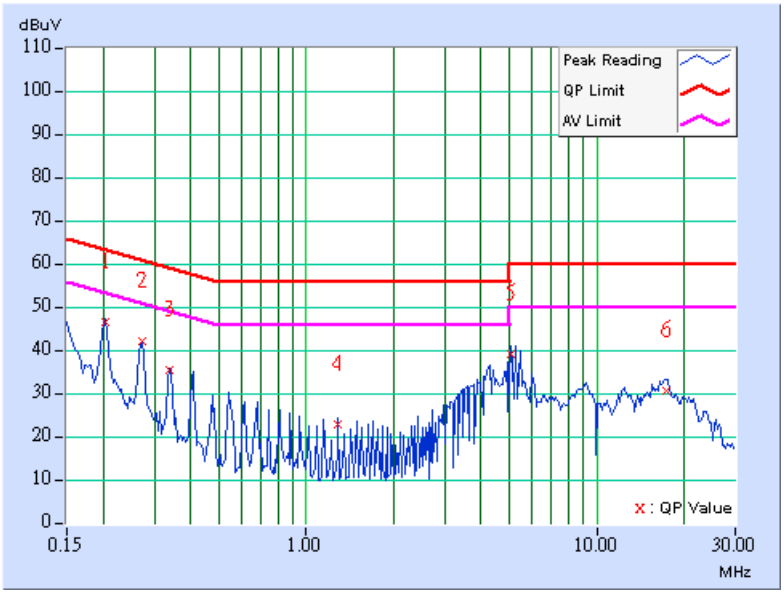
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	PHASE	Line 2
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	20deg. C, 73%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Jacky Lee

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	0.205	0.10	46.24	-	46.34	-	63.42	53.42	-17.08	-
2	0.271	0.10	41.60	-	41.70	-	61.08	51.08	-19.38	-
3	0.339	0.10	34.98	-	35.08	-	59.23	49.23	-24.15	-
4	1.287	0.13	22.21	-	22.34	-	56.00	46.00	-33.66	-
5	5.082	0.39	38.69	-	39.08	-	60.00	50.00	-20.92	-
6	17.481	0.58	30.13	-	30.71	-	60.00	50.00	-29.29	-

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



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	100033	May. 19, 2006
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100025	Dec. 05, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Jun. 01, 2006
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
26GHz ~ 40GHz Amplifier	AMF-6F-2600400	900619	Nov. 13, 2006

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.

5.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic camber. 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.

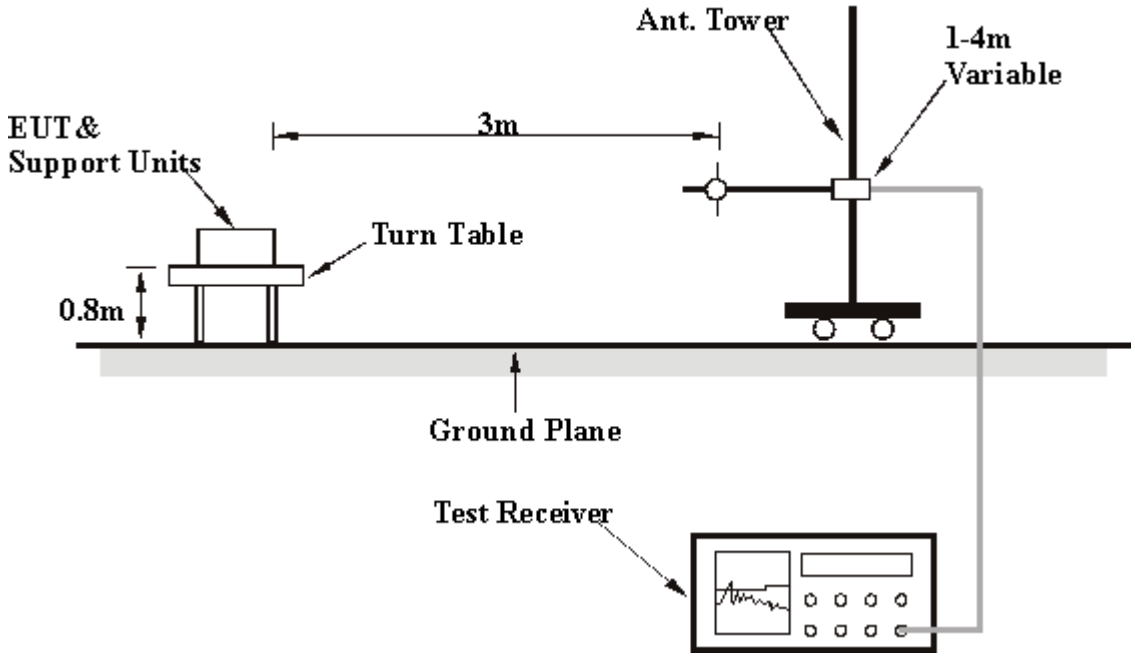
NOTE:

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 1 MHz and the video bandwidth is 1 kHz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



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

5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

5.2.7 TEST RESULTS

Below 1GHz Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	**FREQUENCY RANGE**	Below 1000MHz
MODULATION TYPE	BPSK	**DETECTOR FUNCTION**	Quasi-Peak
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	22deg. C, 62%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Jay Hsu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	166.07	27.67 QP	43.50	-15.83	1.00 H	250	14.84	12.83
2	247.72	31.28 QP	46.00	-14.72	1.00 H	91	18.92	12.36
3	430.44	30.54 QP	46.00	-15.46	1.50 H	250	12.19	18.35
4	663.71	31.09 QP	46.00	-14.91	1.00 H	313	7.69	23.40
5	696.75	34.39 QP	46.00	-11.61	1.00 H	313	10.32	24.07
6	953.35	33.80 QP	46.00	-12.20	1.25 H	313	4.08	29.72

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	166.07	28.54 QP	43.50	-14.96	1.00 V	91	15.71	12.83
2	432.38	36.06 QP	46.00	-9.94	1.25 V	133	17.68	18.38
3	498.48	28.91 QP	46.00	-17.09	1.00 V	208	9.01	19.90
4	597.62	31.16 QP	46.00	-14.84	1.00 V	133	8.69	22.48
5	700.64	27.78 QP	46.00	-18.22	1.00 V	154	3.62	24.16
6	953.35	34.06 QP	46.00	-11.94	1.25 V	82	4.34	29.72

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

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

802.11a OFDM modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	1 ~ 40 GHz
MODULATION TYPE	BPSK	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	5725.00	68.33 PK	83.71	-15.38	1.16 H	18	29.30	39.03
1	5725.00	56.35 AV	75.01	-16.66	1.16 H	18	17.32	39.03
2	*5745.00	103.71 PK			1.16 H	18	64.66	39.05
2	*5745.00	95.01 AV			1.16 H	18	55.96	39.05
3	#11490.00	63.11 PK	74.00	-10.89	1.15 H	34	13.05	50.06
3	#11490.00	50.37 AV	54.00	-3.63	1.15 H	34	0.31	50.06

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5725.00	67.72 PK	83.02	-15.30	1.03 V	325	28.69	39.03
1	5725.00	55.76 AV	74.32	-18.56	1.03 V	325	16.73	39.03
2	*5745.00	103.02 PK			1.08 V	352	63.97	39.05
2	*5745.00	94.32 AV			1.08 V	352	55.27	39.05
3	#11490.00	63.68 PK	74.00	-10.32	1.04 V	326	13.62	50.06
3	#11490.00	50.83 AV	54.00	-3.17	1.04 V	326	0.77	50.06

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	**FREQUENCY RANGE**	1 ~ 40 GHz
MODULATION TYPE	BPSK	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	*5785.00	103.76 PK			1.15 H	16	64.70	39.06
1	*5785.00	95.21 AV			1.15 H	16	56.15	39.06
2	#11490.00	63.25 PK	74.00	-10.75	1.23 H	26	13.19	50.06
2	#11490.00	50.46 AV	54.00	-3.54	1.23 H	26	0.40	50.06

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5785.00	103.12 PK			1.03 V	315	64.03	39.09
1	*5785.00	94.43 AV			1.03 V	315	55.34	39.09
2	#11490.00	63.71 PK	74.00	-10.29	1.02 V	312	14.05	49.66
2	#11490.00	50.87 AV	54.00	-3.13	1.02 V	312	1.21	49.66

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	**FREQUENCY RANGE**	1 ~ 40 GHz
MODULATION TYPE	BPSK	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	**ENVIRONMENTAL CONDITIONS**	25deg. C, 68%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Morgan 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	*5825.00	103.79 PK			1.19 H	25	64.65	39.14
1	*5825.00	95.22 AV			1.19 H	25	56.08	39.14
2	5850.00	68.55 PK	83.79	-15.24	1.12 H	23	29.37	39.17
2	5850.00	56.57 AV	75.22	-18.65	1.12 H	23	17.40	39.17
3	#11650.00	63.22 PK	74.00	-10.78	1.20 H	325	13.82	49.40
3	#11650.00	50.43 AV	54.00	-3.57	1.20 H	325	1.03	49.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5825.00	103.22 PK			1.05 V	314	64.08	39.14
1	*5825.00	94.71 AV			1.05 V	314	55.57	39.14
2	5850.00	68.02 PK	83.22	-15.20	1.23 V	33	28.84	39.17
2	5850.00	56.01 AV	74.71	-18.70	1.23 V	33	16.84	39.17
3	#11650.00	63.79 PK	74.00	-10.21	1.18 V	327	14.39	49.40
3	**#11650.00**	**50.89 AV**	**54.00**	**-3.11**	**1.18 V**	**327**	**1.49**	**49.40**

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

5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

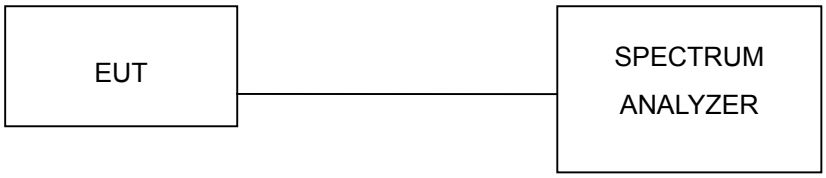
5.3.3 TEST PROCEDURE

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

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

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

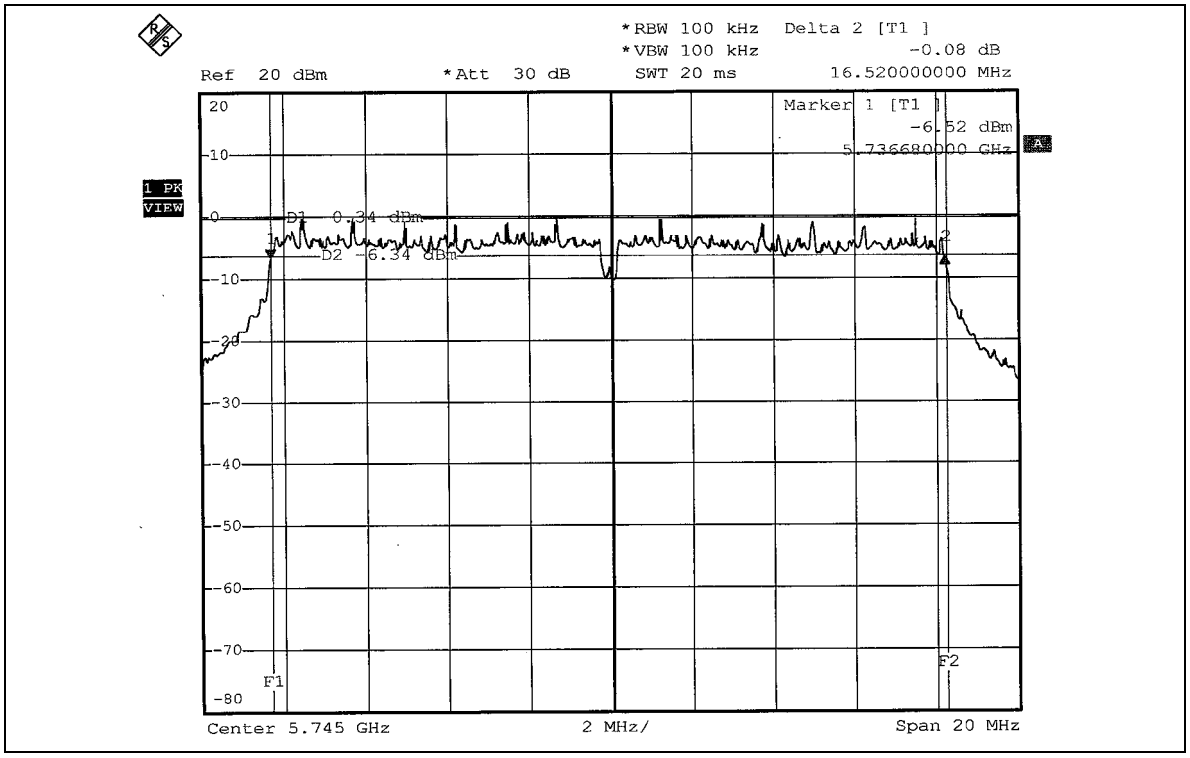
5.3.7 TEST RESULTS

802.11a OFDM modulation

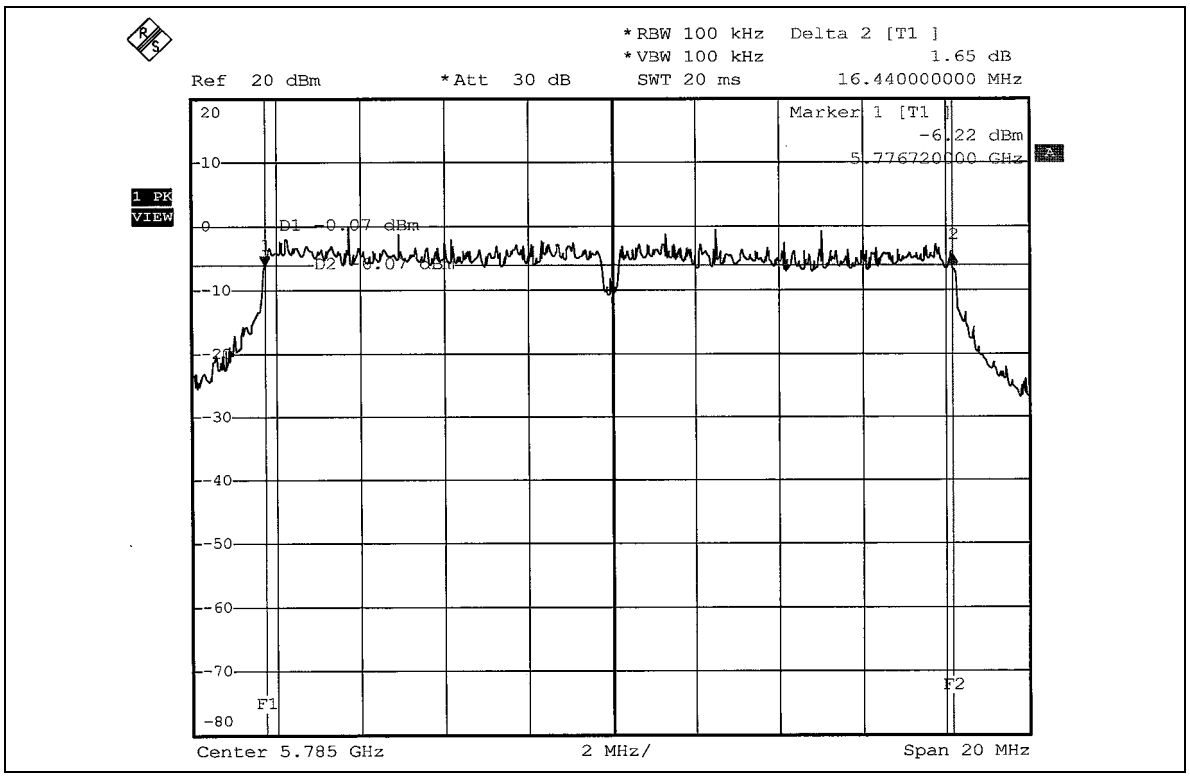
MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	16.52	0.5	PASS
3	5785	16.44	0.5	PASS
5	5825	16.48	0.5	PASS

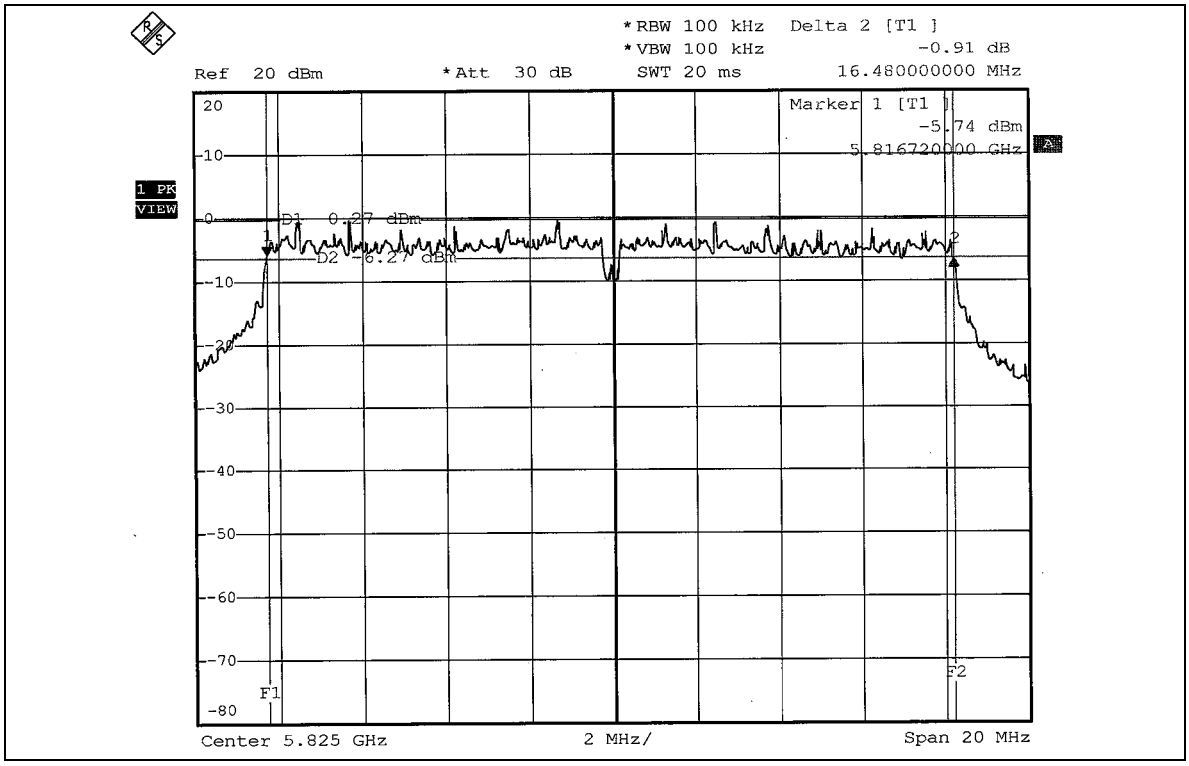
CH 1


*RBW 100 kHz
*VBW 100 kHz
SWT 20 ms
Delta 2 [T1]
-0.08 dB
16.520000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-6.52 dBm
5.736680000 GHz
1 PK
VIEW
D1 0.34 dBm
D2 -6.34 dBm
F1
F2
Center 5.745 GHz
2 MHz/
Span 20 MHz

CH 3


*RBW 100 kHz
*VBW 100 kHz
SWT 20 ms
Delta 2 [T1]
1.65 dB
16.440000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-6.22 dBm
5.776720000 GHz
1 PK
VIEW
D1 -0.07 dBm
D2 -6.07 dBm
F1
F2
Center 5.785 GHz
2 MHz/
Span 20 MHz

CH 5


*RBW 100 kHz
*VBW 100 kHz
SWT 20 ms
Delta 2 [T1]
-0.91 dB
16.480000000 MHz
Ref 20 dBm
*Att 30 dB
Marker 1 [T1]
-5.74 dBm
5.816720000 GHz
1 PK
VIEW
D1 0.27 dBm
D2 -6.27 dBm
F1
F2
Center 5.825 GHz
2 MHz/
Span 20 MHz

5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 30, 2006
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Jan. 16, 2007
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..

5.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator . The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP

5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	39.902	16.01	30	PASS
3	5785	39.811	16.00	30	PASS
5	5825	39.902	16.01	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

5.5.3 TEST PROCEDURE

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

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP

5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6

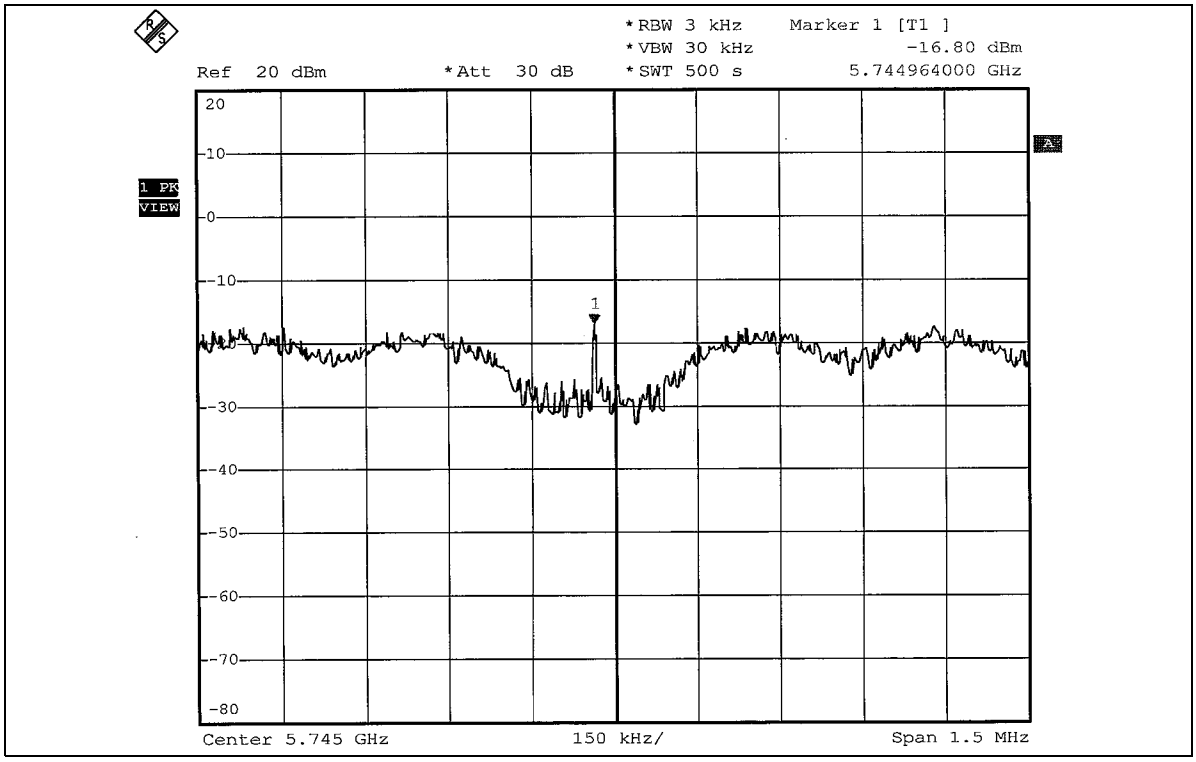
5.5.7 TEST RESULTS

802.11a OFDM modulation

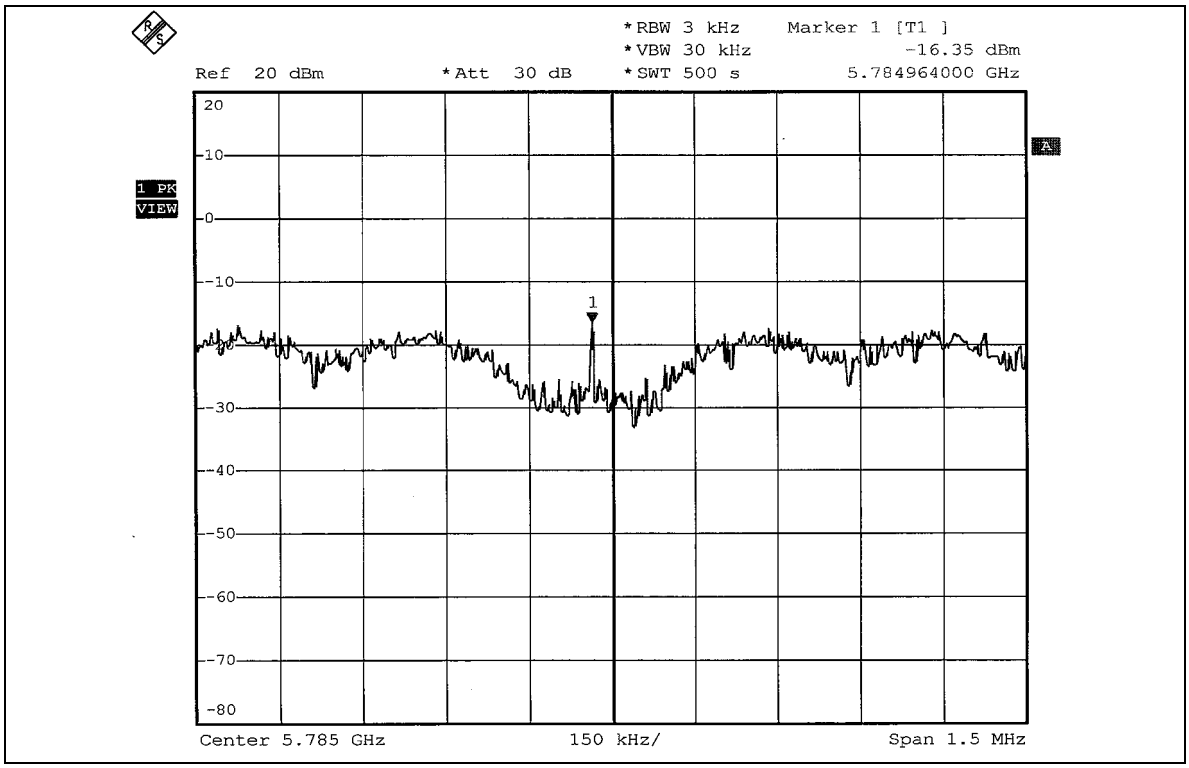
MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 68%RH, 991hPa
TESTED BY	Long Chen		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	-16.80	8	PASS
3	5785	-16.35	8	PASS
5	5825	-16.20	8	PASS

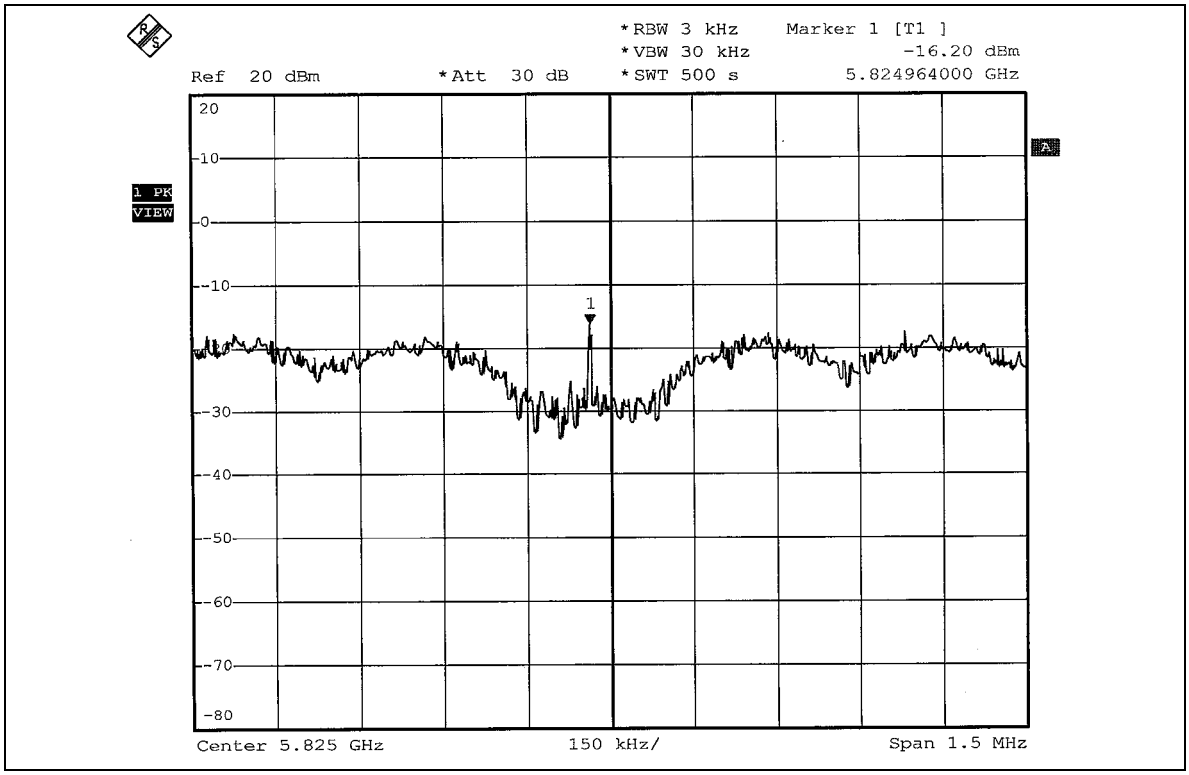
CH 1


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-16.80 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.744964000 GHz
1 PK
VIEW
A
20
10
0
-10
-30
-40
-50
-60
-70
-80
Center 5.745 GHz
150 kHz/
Span 1.5 MHz

CH 3


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-16.35 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.784964000 GHz
1 PK
VIEW
A
20
10
0
-10
-30
-40
-50
-60
-70
-80
Center 5.785 GHz
150 kHz/
Span 1.5 MHz

CH 5


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-16.20 dBm
5.824964000 GHz
Ref 20 dBm
*Att 30 dB
1 PK
VIEW
A
20
-10
0
-10
-30
-40
-50
-60
-70
-80
1
Center 5.825 GHz
150 kHz/
Span 1.5 MHz

5.6 BAND EDGES MEASUREMENT

5.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

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

5.6.3 TEST PROCEDURE

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

5.6.4 DEVIATION FROM TEST STANDARD

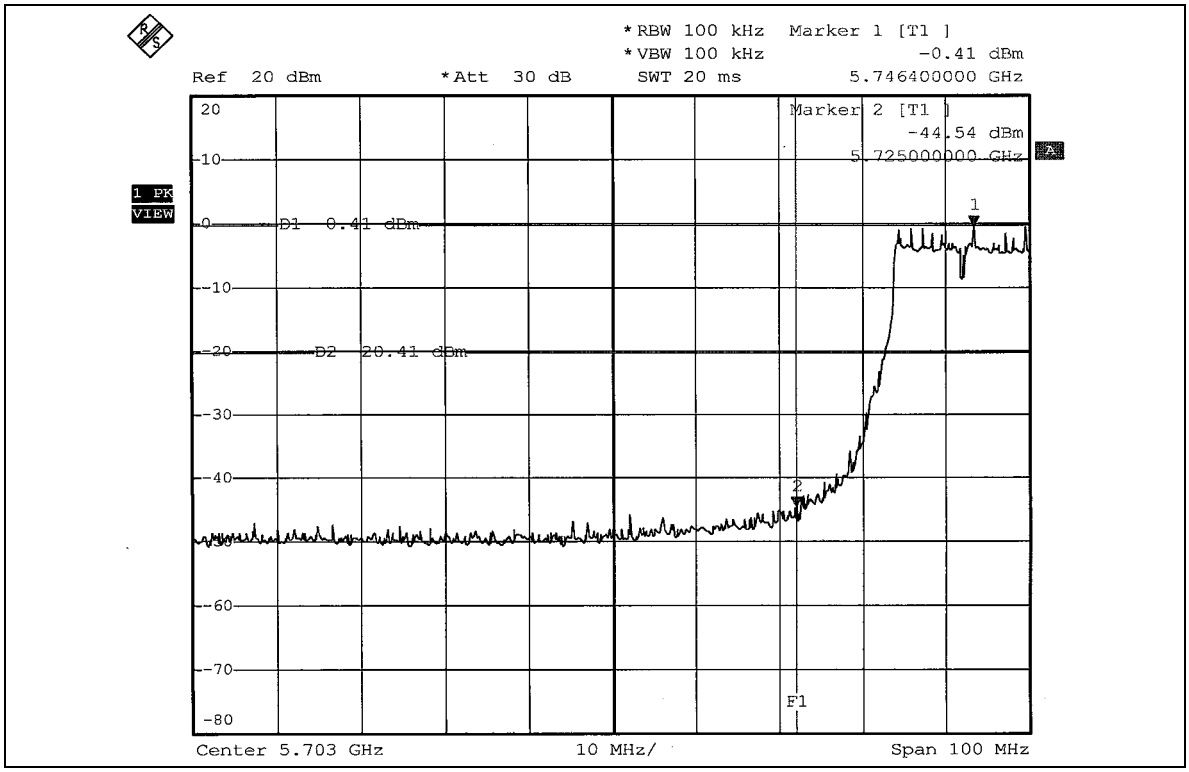
No deviation

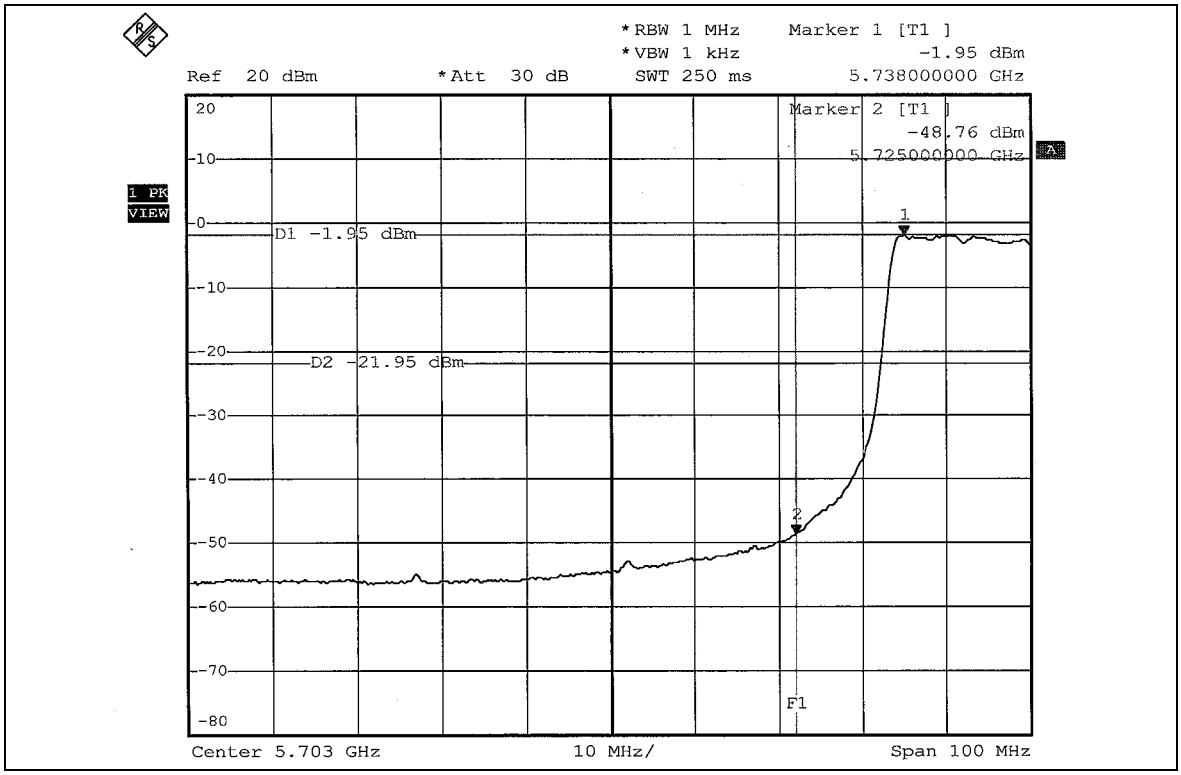
5.6.5 EUT OPERATING CONDITION

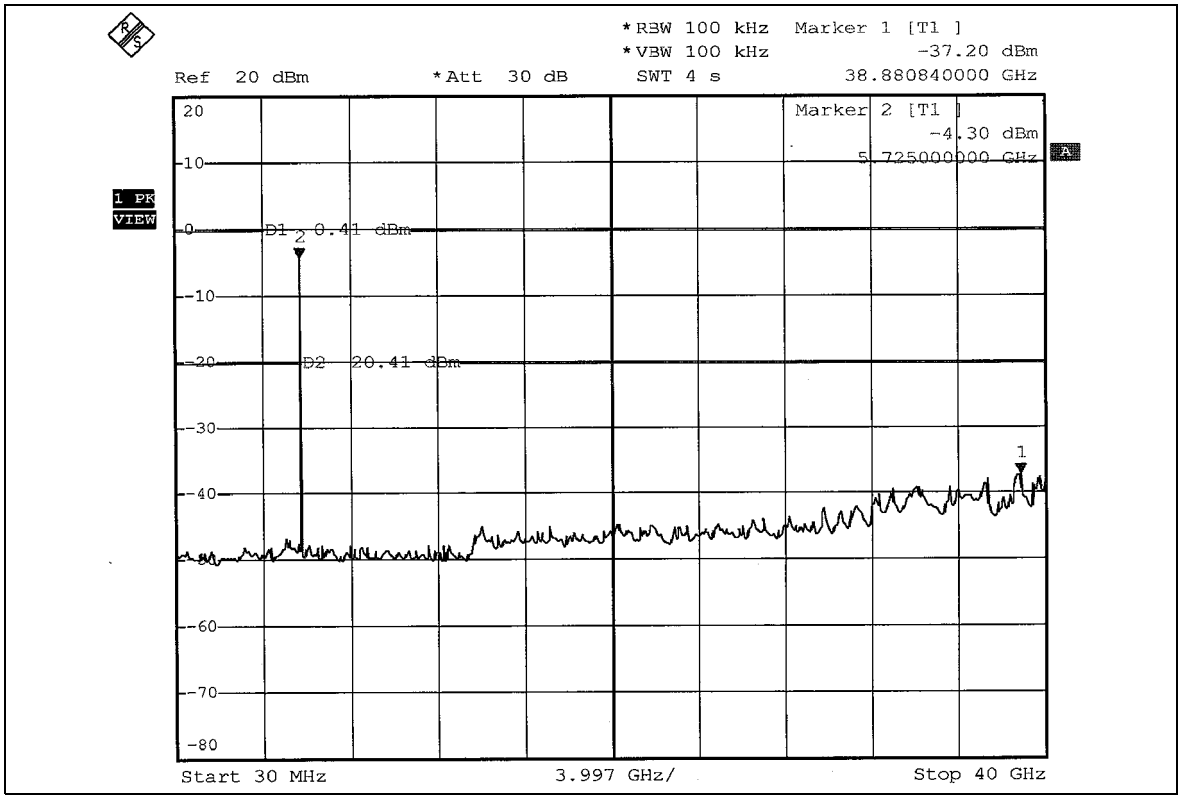
Same as Item 5.9.6

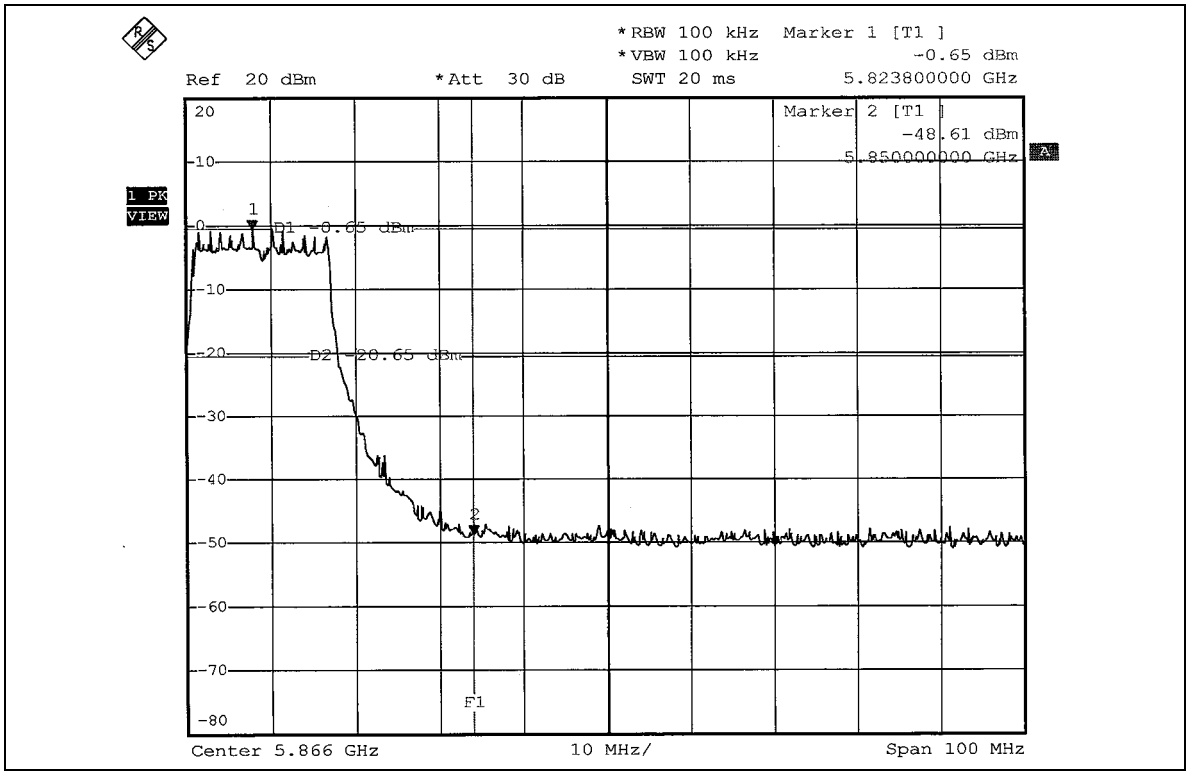
5.6.6 TEST RESULTS

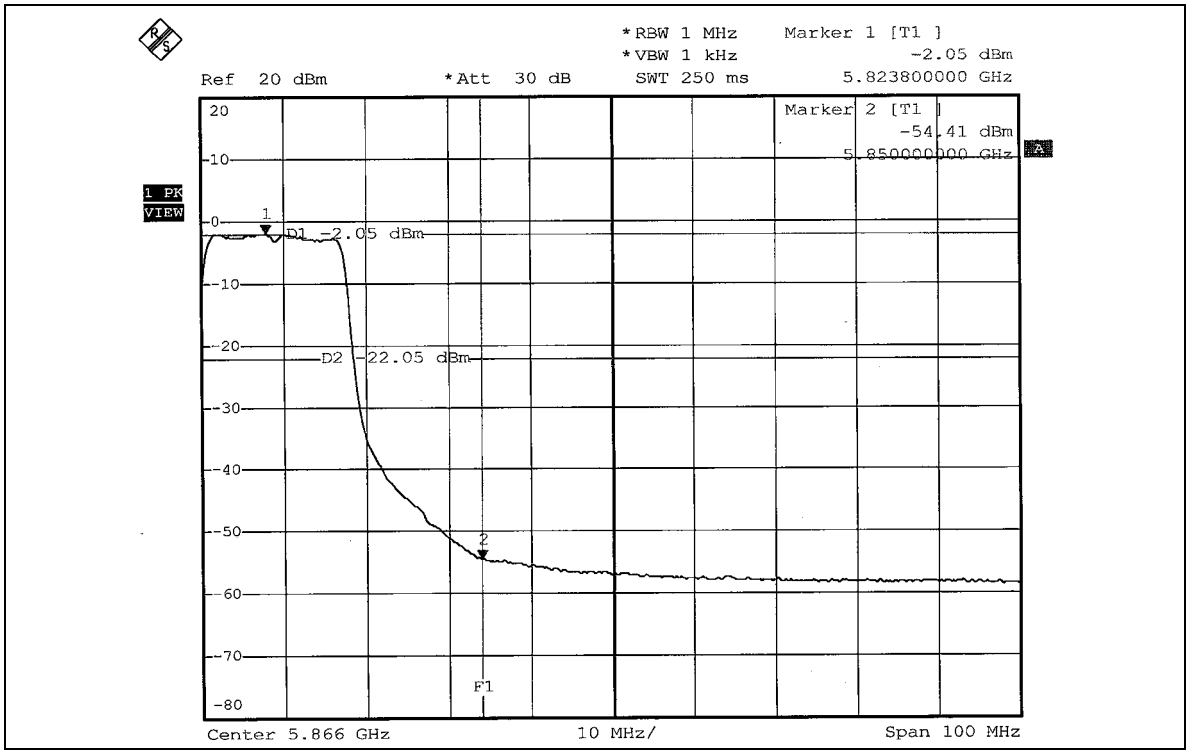
The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

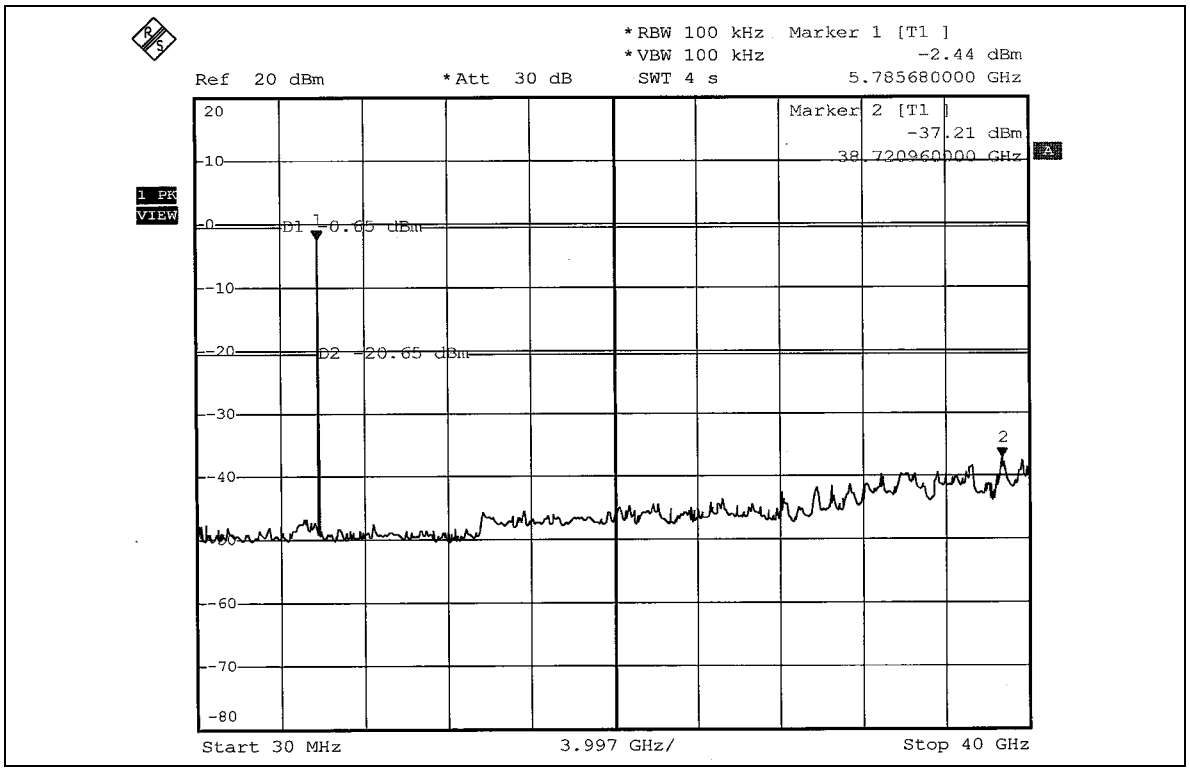

*RBW 100 kHz
*VBW 100 kHz
Ref 20 dBm
*Att 30 dB
SWT 20 ms
Marker 1 [T1]
-0.41 dBm
5.746400000 GHz
Marker 2 [T1]
-44.54 dBm
5.725000000 GHz
1 PK
VIEW
D1 -0.41 dBm
D2 -20.41 dBm
F1
Center 5.703 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
Ref 20 dBm
*Att 30 dB
SWT 250 ms
Marker 1 [T1]
-1.95 dBm
5.738000000 GHz
Marker 2 [T1]
-48.76 dBm
5.725000000 GHz
1 PK
VIEW
D1 -1.95 dBm
D2 -21.95 dBm
F1
Center 5.703 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
Marker 1 [T1]
-37.20 dBm
38.880840000 GHz
Ref 20 dBm
*Att 30 dB
SWT 4 s
Marker 2 [T1]
-4.30 dBm
5.725000000 GHz
1 PK
VIEW
D1 0.41 dBm
D2 -20.41 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz


*RBW 100 kHz
*VBW 100 kHz
Marker 1 [T1]
-0.65 dBm
5.823800000 GHz
Ref 20 dBm
*Att 30 dB
SWT 20 ms
Marker 2 [T1]
-48.61 dBm
5.850000000 GHz
1 PK
VIEW
D1 -0.65 dBm
D2 -20.65 dBm
F1
Center 5.866 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
-2.05 dBm
5.823800000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-54.41 dBm
5.850000000 GHz
1 PK
VIEW
D1 -2.05 dBm
D2 -22.05 dBm
F1
Center 5.866 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 4 s
Marker 1 [T1]
-2.44 dBm
5.785680000 GHz
Ref 20 dBm
*Att 30 dB
Marker 2 [T1]
-37.21 dBm
38.720960000 GHz
1 PK
VIEW
D1 -0.65 dBm
D2 -20.65 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.7 ANTENNA REQUIREMENT

5.7.1 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(a), 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.

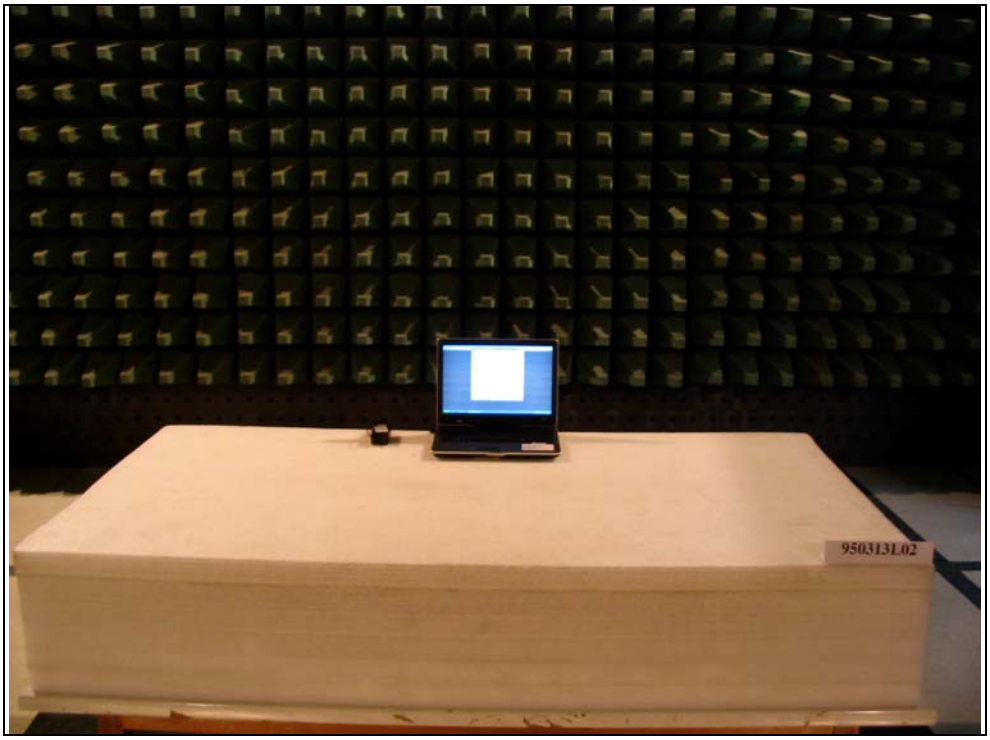
5.7.2 ANTENNA CONNECTED CONSTRUCTION

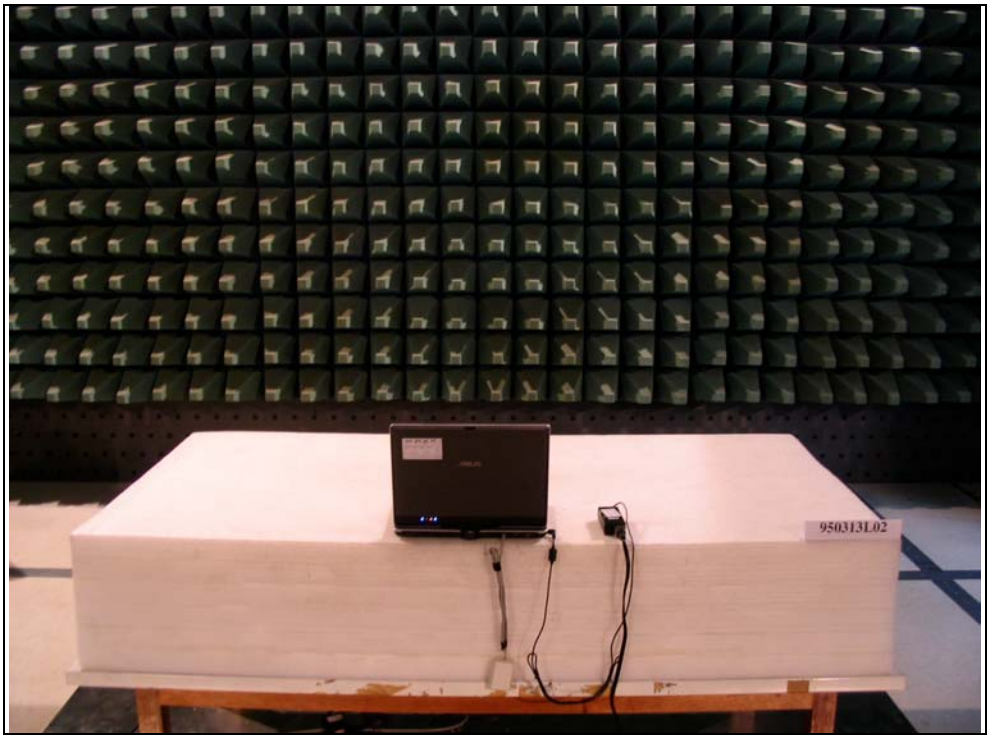
The antenna used in this product is PIFA antenna with UFL connector. The maximum Gain of the antenna is –0.32dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST





7. 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: 886-2-26052943

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

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

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.