FCC TEST REPORT

REPORT NO.: RF941228L06
MODEL NO.: WMP54GX4
RECEIVED: Dec. 30, 2005
TESTED: Dec. 30, 2005 ~ Feb. 10, 2006
ISSUED: Feb. 15, 2006

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive Irvine, CA 92617 (USA)

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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No. 2177-01

0528

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1. CERTIFICATION

PRODUCT :	Wireless-G PCI Adapter with SRX400
MODEL NO.:	WMP54GX4
BRAND:	Linksys
APPLICANT :	Cisco-Linksys LLC
TESTED:	Dec. 30, 2005 ~ Feb. 10, 2006
TEST SAMPLE:	ENGINEERING SAMPLE
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:**	Feb. 15, 2006
TECHNICAL ACCEPTANCE Responsible for RF	: Long Chen	, **DATE:**	Feb. 15, 2006
APPROVED BY	: Gary Chang / Supervisor	, **DATE:**	Feb. 15, 2006

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 –6.21dB at 19.832MHz.
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 –1.21dB at 2383.00MHz.
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	3.73 dB
	200MHz ~1000MHz	3.74 dB
	1GHz ~ 18GHz	2.20 dB
	18GHz ~ 40GHz	1.88 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	Wireless-G PCI Adapter with SRX400
MODEL NO.	WMP54GX4
FCC ID	Q87-WMP54GX4
POWER SUPPLY	3.3Vdc from host equipment
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 (SIMO) 802.11g: 126/120/108/96/80/72/48/40/36/24Mbps (MIMO) ACE OFDM (see note 3, 4, 5): 126/120/108/96/80/72/48/40/36/24/18/12Mbps (SIMO) 240/216/192/168/160/144/96/80/72/48Mbps (MIMO)
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11 for normal / 7 for ACE OFDM
MAXIMUM OUTPUT POWER (DSSS)	52.915mW
MAXIMUM OUTPUT POWER (FOR OFDM)	51.472mW
MAXIMUM OUTPUT POWER (FOR ACE-OFDM)	65.324mW
ANTENNA TYPE	Dipole antenna with –0.48dBi gain
DATA CABLE	1.2m non-shielded antenna cable without core
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT incorporates a MIMO function with IEEE 802.11b/g. Physically, the card provides two complete transmitter and three receivers.
2. The EUT is 2*3 spatial MIMO (2TX & 3RX) without beam forming function that only operate dual chain configuration (both chain 0 and chain 1 transceivers are operational).
3. When the EUT operates in OFDM (SIMO) mode, the transfer rate of transmitting is up to 54Mbps. When the EUT operates in OFDM (MIMO) mode, the transfer rate of transmitting is up to 126Mbps.
4. When the EUT operates in ACE-OFDM (SIMO) mode, the transfer rate of transmitting is up to 126Mbps. When the EUT operates in ACE-OFDM (MIMO) mode, the transfer rate of transmitting is up to 240Mbps. (ACET: Adaptive Channel Expansion Technology)
5. The "SIMO" mean both TX chains transfer same packet data during operating and " MIMO " mean both TX chains transfer different packet data.
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

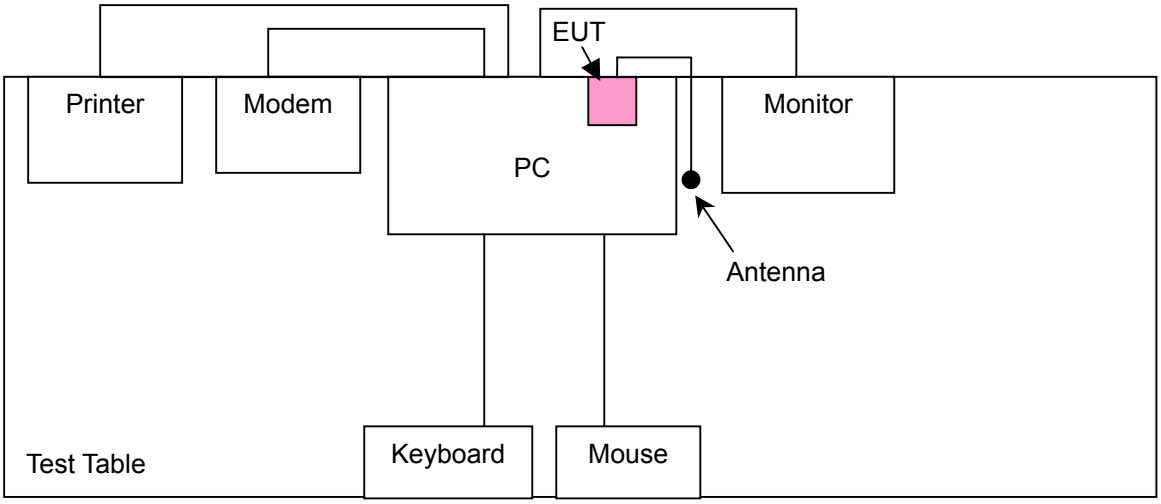
For 802.11b/g: Eleven channels are provided to this EUT for normal mode.

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		

For Adaptive Channel Expansion technology (ACE):
Seven channels are provided to this EUT.

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

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

APPLICABLE TO				DESCRIPTION
PLC	RE<1G	RE≥1G	APCM	
v	v	v	v	NA

Where **PLC:** Power Line Conducted Emission **RE<1G RE:** 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	OFDM	BPSK	6
ACE OFDM	1 to 7	1, 4, 7	OFDM	QPSK	12

RADIATED EMISSION TEST (BELOW 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	6
ACE OFDM	1 to 7	1	OFDM	QPSK	12

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
ACE OFDM	1 to 7	1, 4, 7	OFDM	QPSK	12

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
ACE OFDM	1 to 7	1, 7	OFDM	QPSK	12

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
ACE OFDM	1 to 7	1, 4, 7	OFDM	QPSK	12

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	PC	Microstart	Hetis 865G	380125734	FCC DoC Approved
2	KEYBOARD	DELL	SK-8110	MY-05N456-71619-3C1-1898	FCC DoC Approved
3	MOUSE	HP	M-S69	M4-010565	INZ211443
4	LCD MONITOR	ACER	AL1721	ET.L0408.01040400 1E6PK00	FCC DoC Approved
5	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
6	MODEM	ACEEX	1414V/3	0401008269	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	2.0m shielded cable without core.
3	1.8m shielded cable without core.
4	1.8m shielded cable with 2 cores.
5	1.2m shielded cable without core.
6	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

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

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	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 SCHWARZBECK	NNBL 8226-2	8226-142	May 02, 2006
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.

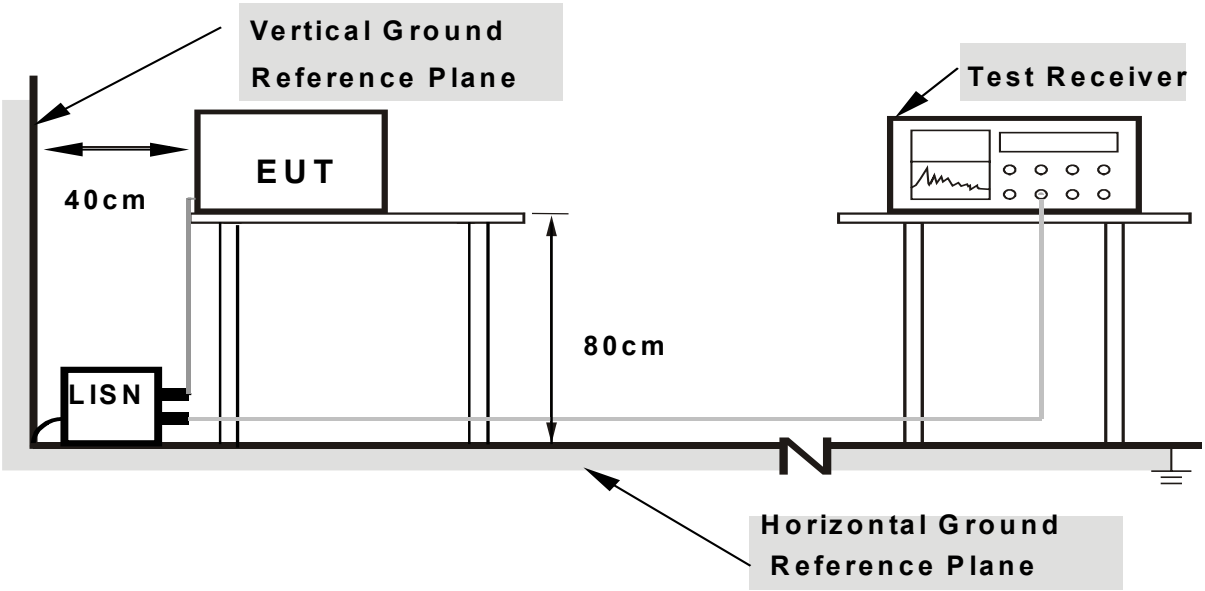
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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. Connected the EUT into the computer system and placed on a testing table.
b. The computer system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
c. The computer system sent “H” messages to monitor and monitor displayed it on its screen.
d. The computer system show “H” messages to modem.
e. The computer system sent "H" messages to printer and the printer prints them on paper.
f. Repeated item c ~e.

4.1.7 TEST RESULTS

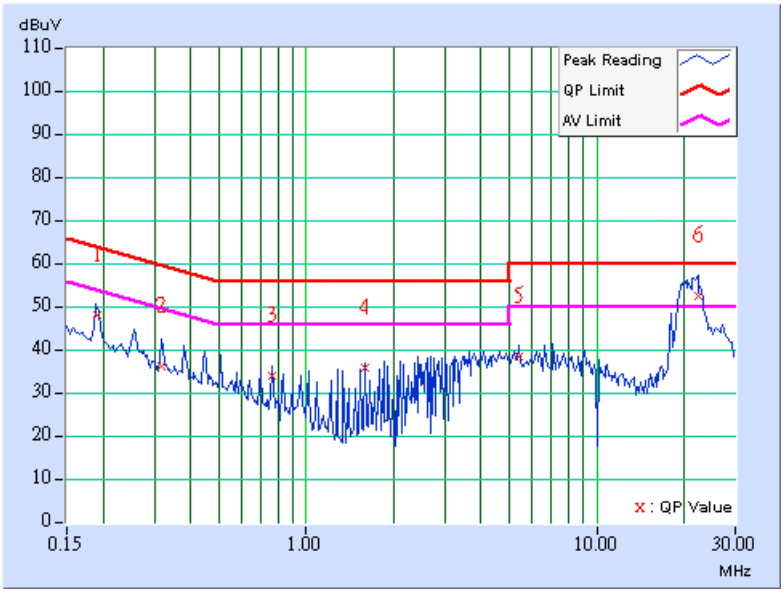
CONDUCTED WORST CASE DATA

802.11g OFDM MODULATION

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

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	0.191	0.10	47.02	-	47.12	-	64.00	54.00	-16.88	-
2	0.318	0.10	35.20	-	35.30	-	59.76	49.76	-24.46	-
3	0.767	0.16	32.85	-	33.01	-	56.00	46.00	-22.99	-
4	1.594	0.20	34.81	-	35.01	-	56.00	46.00	-20.99	-
5	5.427	0.49	37.42	-	37.91	-	60.00	50.00	-22.09	-
6	22.285	1.27	51.36	42.22	52.63	43.49	60.00	50.00	-7.37	-6.51

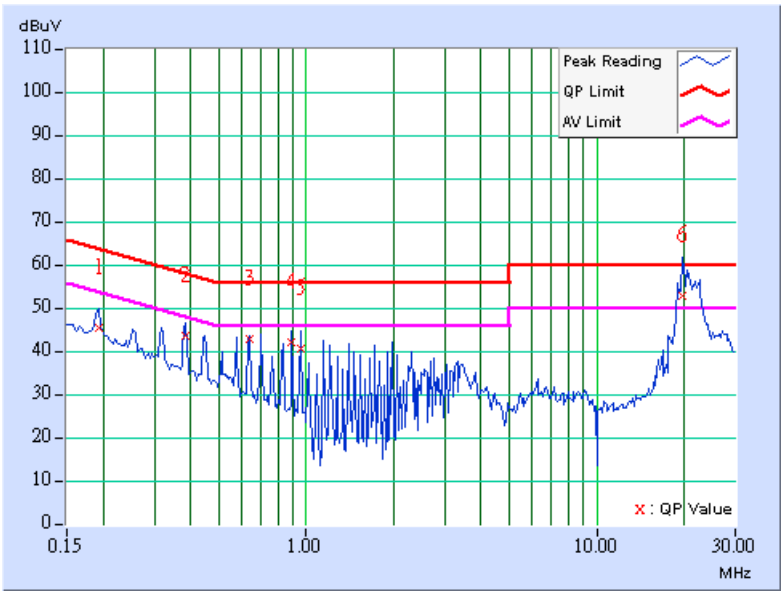
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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

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	0.193	0.10	44.92	-	45.02	-	63.91	53.91	-18.89	-
2	0.382	0.10	42.75	-	42.85	-	58.23	48.23	-15.38	-
3	0.638	0.14	42.30	-	42.44	-	56.00	46.00	-13.56	-
4	0.892	0.18	41.51	-	41.69	-	56.00	46.00	-14.31	-
5	0.955	0.19	39.93	-	40.12	-	56.00	46.00	-15.88	-
6	19.719	0.82	52.23	34.62	53.05	35.44	60.00	50.00	-6.95	-14.56

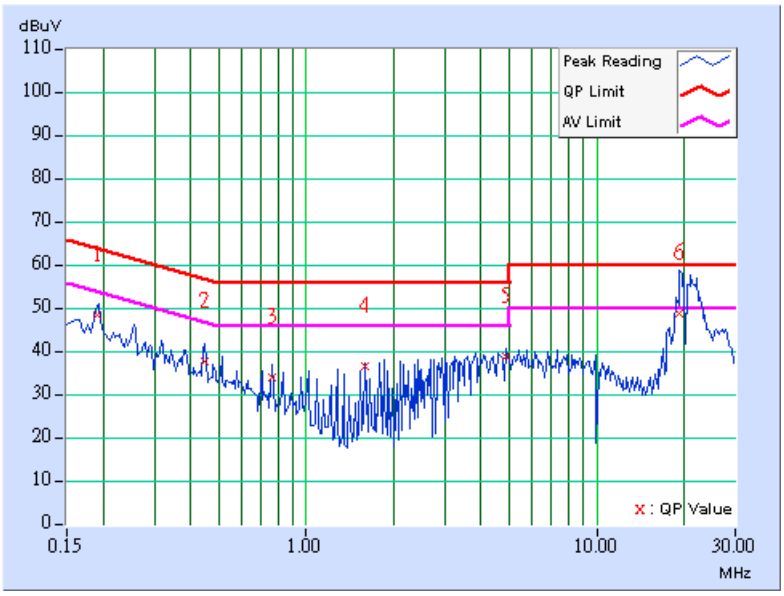
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



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

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	0.192	0.10	47.27	-	47.37	-	63.96	53.96	-16.59	-
2	0.447	0.11	36.67	-	36.78	-	56.93	46.93	-20.16	-
3	0.767	0.16	32.89	-	33.05	-	56.00	46.00	-22.95	-
4	1.598	0.20	35.71	-	35.91	-	56.00	46.00	-20.09	-
5	4.855	0.48	37.99	-	38.47	-	56.00	46.00	-17.53	-
6	19.289	1.07	47.99	-	49.06	-	60.00	50.00	-10.94	-

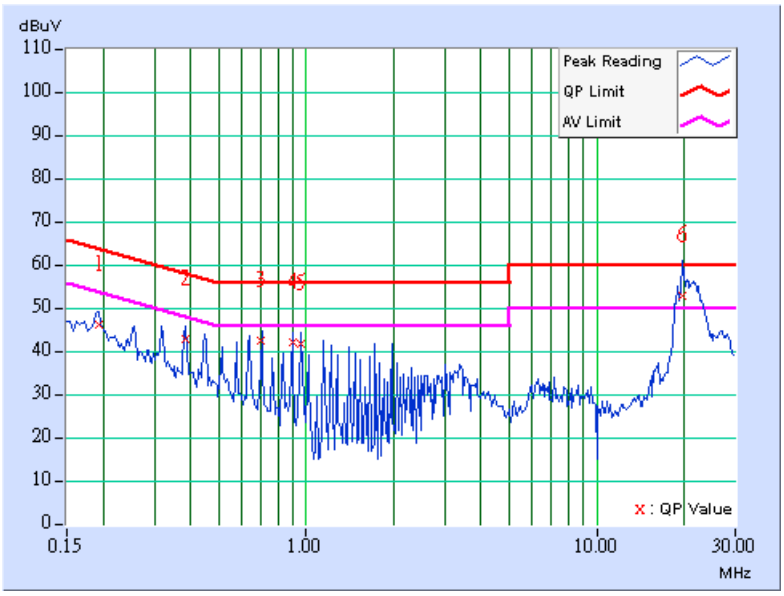
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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

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	0.193	0.10	45.59	-	45.69	-	63.92	53.92	-18.23	-
2	0.383	0.10	42.27	-	42.37	-	58.21	48.21	-15.84	-
3	0.702	0.15	41.67	-	41.82	-	56.00	46.00	-14.18	-
4	0.896	0.18	41.54	-	41.72	-	56.00	46.00	-14.28	-
5	0.959	0.19	41.12	-	41.31	-	56.00	46.00	-14.69	-
6	19.813	0.82	52.26	36.10	53.08	36.92	60.00	50.00	-6.92	-13.08

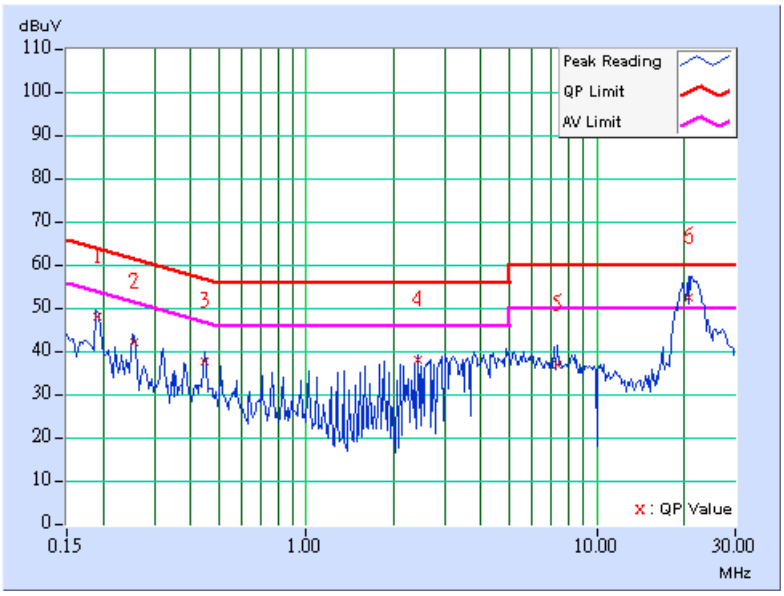
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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

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	0.190	0.10	47.02	-	47.12	-	64.02	54.02	-16.90	-
2	0.254	0.10	40.91	-	41.01	-	61.61	51.61	-20.60	-
3	0.447	0.11	36.53	-	36.64	-	56.93	46.93	-20.30	-
4	2.430	0.26	36.80	-	37.06	-	56.00	46.00	-18.94	-
5	7.289	0.52	36.03	-	36.55	-	60.00	50.00	-23.45	-
6	20.656	1.17	51.43	40.39	52.60	41.56	60.00	50.00	-7.40	-8.44

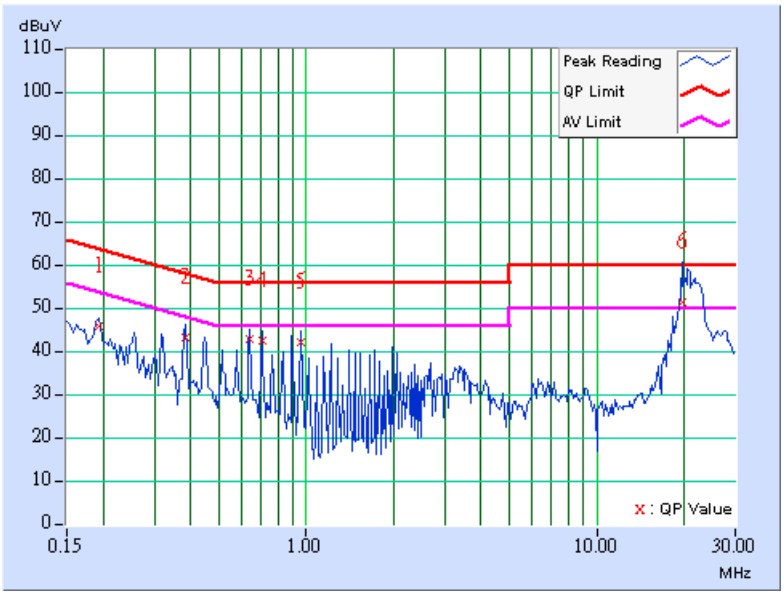
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	PHASE	Line 2
TRANSFER RATE	6Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	BPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.193	0.10	45.00	-	45.10	-	63.91	53.91	-18.81	-
2	0.384	0.10	42.69	-	42.79	-	58.18	48.18	-15.39	-
3	0.638	0.14	42.10	-	42.24	-	56.00	46.00	-13.76	-
4	0.703	0.15	41.69	-	41.84	-	56.00	46.00	-14.16	-
5	0.959	0.19	41.27	-	41.46	-	56.00	46.00	-14.54	-
6	19.621	0.81	50.52	32.96	51.33	33.77	60.00	50.00	-8.67	-16.23

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.

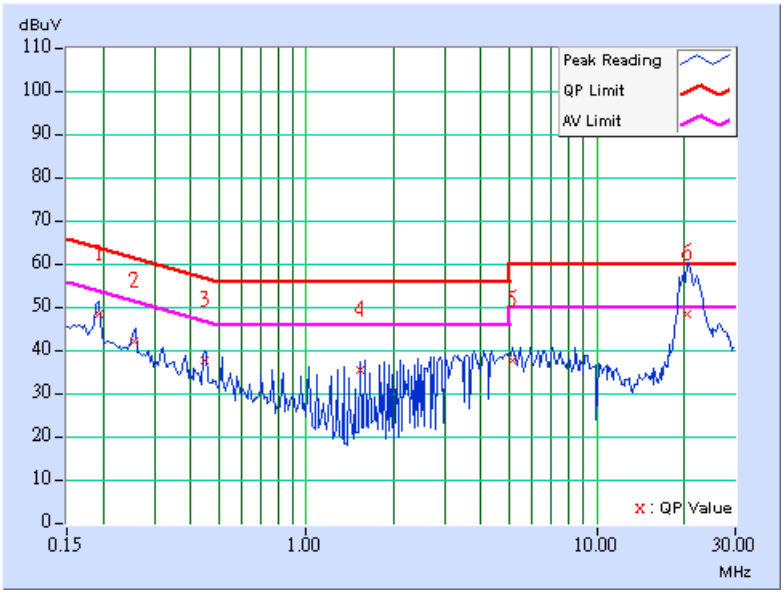


ACE OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line 1
TRANSFER RATE	12Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	QPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.192	0.10	47.19	-	47.29	-	63.93	53.93	-16.64	-
2	0.256	0.10	41.23	-	41.33	-	61.57	51.57	-20.24	-
3	0.447	0.11	36.59	-	36.70	-	56.93	46.93	-20.24	-
4	1.535	0.20	34.23	-	34.43	-	56.00	46.00	-21.57	-
5	5.117	0.49	36.61	-	37.10	-	60.00	50.00	-22.90	-
6	20.520	1.16	47.22	-	48.38	-	60.00	50.00	-11.62	-

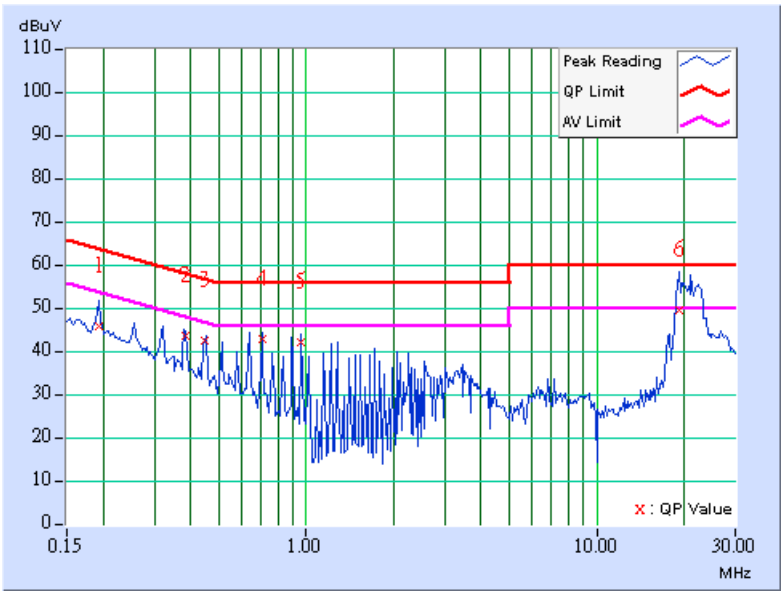
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission 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
TRANSFER RATE	12Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	QPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.193	0.10	45.23	-	45.33	-	63.91	53.91	-18.58	-
2	0.384	0.10	43.05	-	43.15	-	58.18	48.18	-15.03	-
3	0.447	0.11	41.73	-	41.84	-	56.93	46.93	-15.09	-
4	0.703	0.15	42.04	-	42.19	-	56.00	46.00	-13.81	-
5	0.959	0.19	41.57	-	41.76	-	56.00	46.00	-14.24	-
6	19.246	0.80	48.79	-	49.59	-	60.00	50.00	-10.41	-

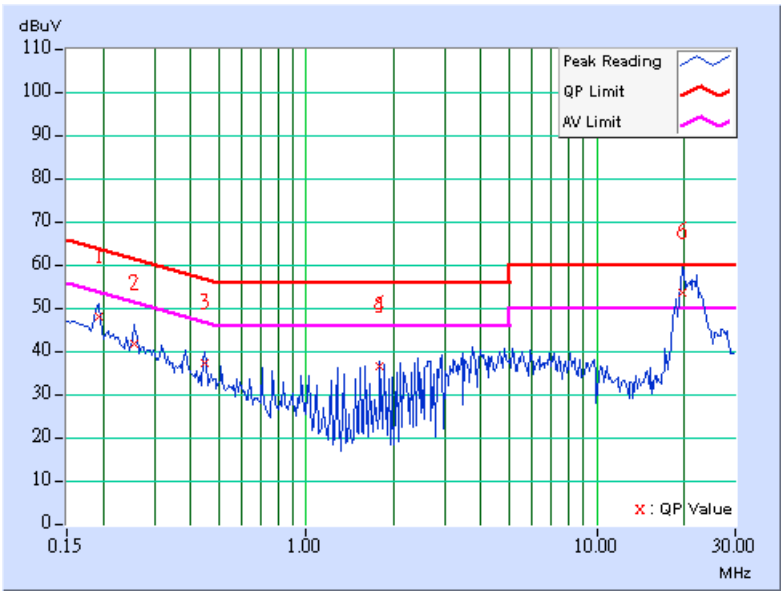
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	PHASE	Line 1
TRANSFER RATE	12Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	QPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.193	0.10	46.92	-	47.02	-	63.91	53.91	-16.89	-
2	0.255	0.10	40.69	-	40.79	-	61.58	51.58	-20.79	-
3	0.447	0.11	36.27	-	36.38	-	56.93	46.93	-20.56	-
4	1.793	0.20	35.68	-	35.88	-	56.00	46.00	-20.12	-
5	1.793	0.20	35.64	-	35.84	-	56.00	46.00	-20.16	-
6	**19.832**	**1.12**	**52.67**	**35.79**	**53.79**	**36.91**	**60.00**	**50.00**	**-6.21**	**-13.09**

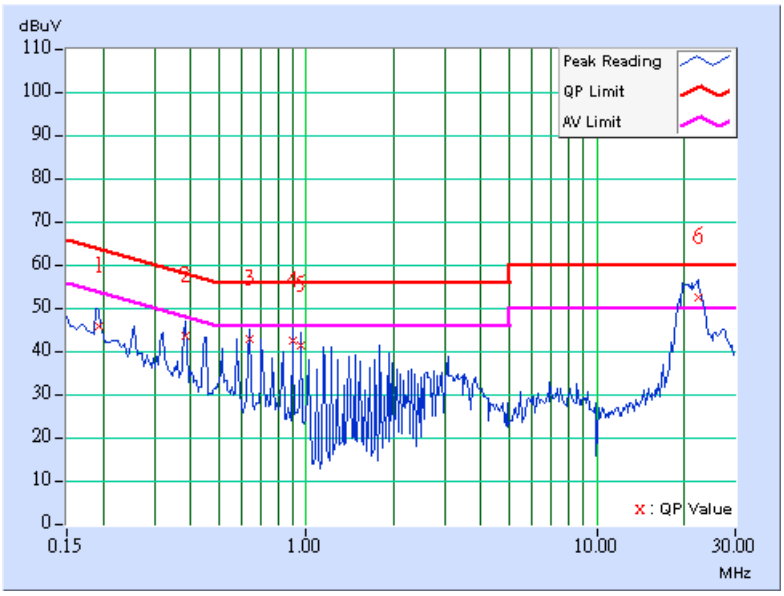
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	PHASE	Line 2
TRANSFER RATE	12Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	QPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.193	0.10	45.12	-	45.22	-	63.91	53.91	-18.69	-
2	0.384	0.10	42.79	-	42.89	-	58.18	48.18	-15.29	-
3	0.638	0.14	42.10	-	42.24	-	56.00	46.00	-13.76	-
4	0.896	0.18	41.79	-	41.97	-	56.00	46.00	-14.03	-
5	0.959	0.19	40.67	-	40.86	-	56.00	46.00	-15.14	-
6	22.266	0.88	51.78	42.15	52.66	43.03	60.00	50.00	-7.34	-6.97

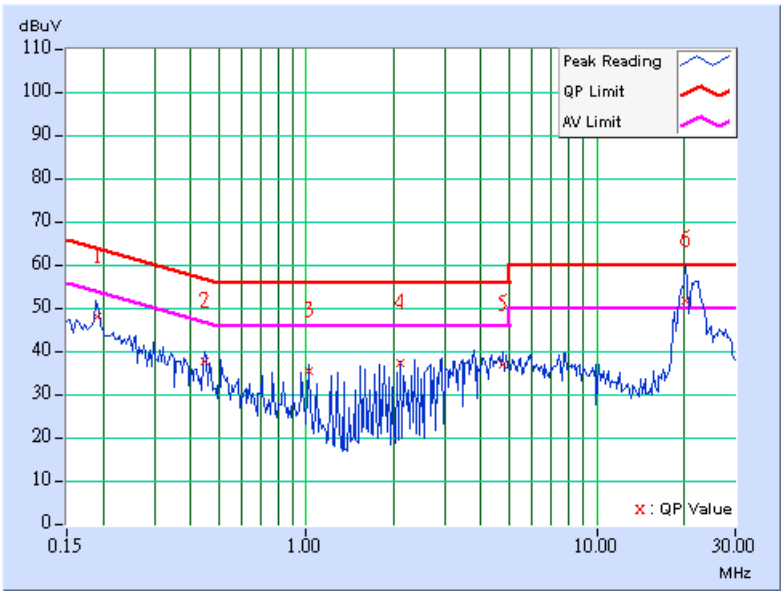
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	PHASE	Line 1
TRANSFER RATE	12Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	QPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.191	0.10	46.98	-	47.08	-	64.01	54.01	-16.93	-
2	0.447	0.11	36.51	-	36.62	-	56.93	46.93	-20.32	-
3	1.023	0.20	34.50	-	34.70	-	56.00	46.00	-21.30	-
4	2.113	0.22	36.32	-	36.54	-	56.00	46.00	-19.46	-
5	4.738	0.48	35.89	-	36.37	-	56.00	46.00	-19.63	-
6	20.168	1.14	50.63	36.13	51.77	37.27	60.00	50.00	-8.23	-12.73

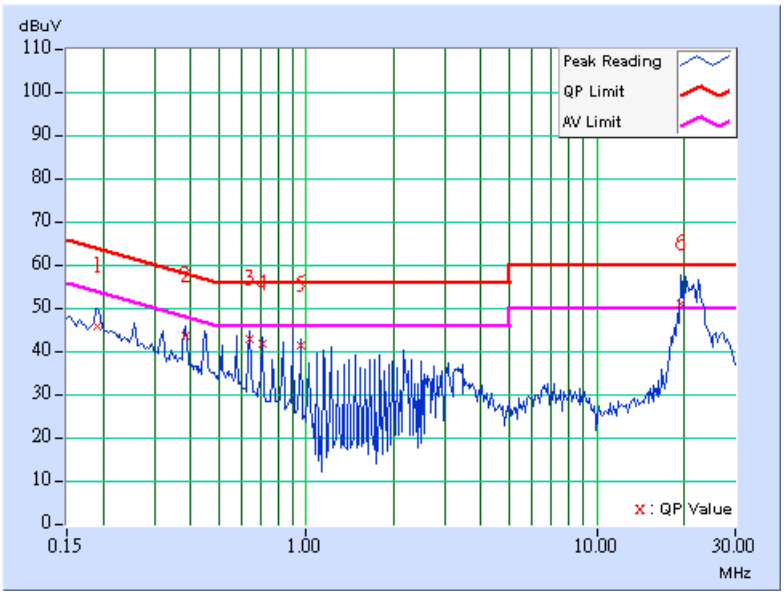
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	PHASE	Line 2
TRANSFER RATE	12Mbps	6dB BANDWIDTH	9 kHz
MODULATION TYPE	QPSK	ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	0.191	0.10	45.18	-	45.28	-	64.01	54.01	-18.73	-
2	0.384	0.10	42.91	-	43.01	-	58.18	48.18	-15.17	-
3	0.638	0.14	42.04	-	42.18	-	56.00	46.00	-13.82	-
4	0.705	0.15	41.15	-	41.30	-	56.00	46.00	-14.70	-
5	0.960	0.19	40.77	-	40.96	-	56.00	46.00	-15.04	-
6	19.582	0.81	50.12	31.29	50.93	32.10	60.00	50.00	-9.07	-17.90

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

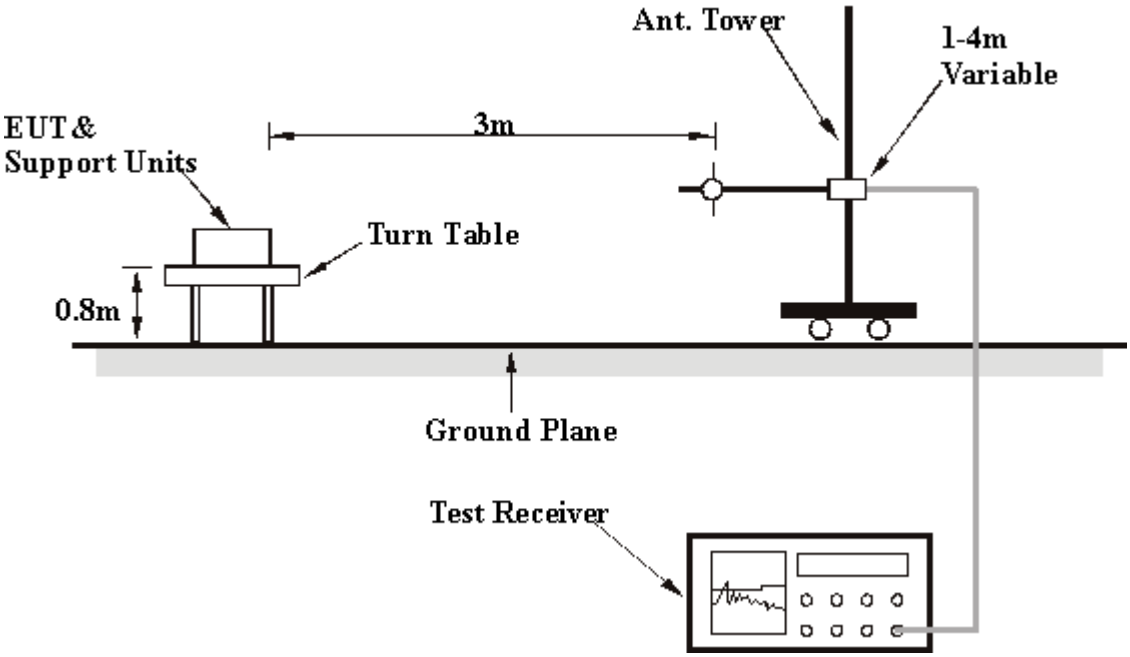
NOTE:

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 10Hz or 300Hz 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

802.11g OFDM MODULATION

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	25deg. C, 65%RH, 991hPa	**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	61.10	23.67 QP	40.00	-16.33	1.50 H	301	10.78	12.89
2	302.14	25.18 QP	46.00	-20.82	1.25 H	202	9.77	15.41
3	399.34	27.06 QP	46.00	-18.94	2.00 H	124	9.21	17.84
4	488.76	32.85 QP	46.00	-13.15	1.75 H	271	13.02	19.83
5	675.37	37.16 QP	46.00	-8.84	1.25 H	199	13.36	23.80
6	739.52	34.25 QP	46.00	-11.75	1.00 H	133	9.26	24.99

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	61.10	28.86 QP	40.00	-11.14	1.00 V	130	15.97	12.89
2	144.69	30.75 QP	43.50	-12.75	1.00 V	223	17.80	12.95
3	422.67	31.39 QP	46.00	-14.61	1.25 V	7	13.13	18.27
4	496.53	33.27 QP	46.00	-12.73	1.00 V	46	13.23	20.05
5	675.37	37.56 QP	46.00	-8.44	1.50 V	163	13.76	23.80
6	760.90	33.90 QP	46.00	-12.10	1.50 V	7	8.59	25.31

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.

ACE OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	Below 1000MHz
MODULATION TYPE	QPSK	**DETECTOR FUNCTION**	Quasi-Peak
TRANSFER RATE	12Mbps	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 68%RH, 991hPa	**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	166.07	31.11 QP	43.50	-12.39	1.25 H	337	17.80	13.31
2	203.01	33.93 QP	43.50	-9.57	1.25 H	313	22.67	11.26
3	302.14	31.16 QP	46.00	-14.84	1.25 H	313	15.23	15.92
4	399.34	33.92 QP	46.00	-12.08	1.25 H	40	15.64	18.28
5	539.30	33.86 QP	46.00	-12.14	1.25 H	319	12.69	21.17
6	580.12	34.35 QP	46.00	-11.65	1.00 H	358	11.91	22.44
7	655.93	31.17 QP	46.00	-14.83	1.00 H	214	7.53	23.64
8	665.65	32.83 QP	46.00	-13.17	1.25 H	313	9.04	23.78
9	731.74	31.27 QP	46.00	-14.73	1.25 H	352	5.71	25.56
10	933.91	33.11 QP	46.00	-12.89	1.50 H	64	5.01	28.10
11	947.52	31.85 QP	46.00	-14.15	1.25 H	313	3.55	28.30

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	57.21	32.36 QP	40.00	-7.64	1.50 V	289	18.61	13.75
2	64.99	31.10 QP	40.00	-8.90	1.50 V	322	18.18	12.91
3	203.01	37.02 QP	43.50	-6.48	1.25 V	61	25.76	11.26
4	665.65	36.92 QP	46.00	-9.08	1.25 V	61	13.14	23.78
5	731.74	38.53 QP	46.00	-7.47	1.00 V	52	12.97	25.56
6	933.91	36.56 QP	46.00	-9.44	1.25 V	295	8.46	28.10
7	947.52	36.09 QP	46.00	-9.91	1.25 V	61	7.79	28.30

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.

RADIATED WORST CASE DATA: ABOVE 1GHz

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	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**	Brad Wu

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	2383.00	47.42 PK	74.00	-26.58	1.10 H	120	14.99	32.43
1	2383.00	44.23 AV	54.00	-9.77	1.10 H	120	11.80	32.43
2	*2412.00	100.06 PK			1.10 H	120	67.56	32.50
2	*2412.00	96.87 AV			1.10 H	120	64.37	32.50
3	3912.00	52.20 PK	74.00	-21.80	1.12 H	173	15.30	36.90
3	3912.00	48.13 AV	54.00	-5.87	1.12 H	173	11.23	36.90
4	4824.00	51.69 PK	74.00	-22.31	1.00 H	147	11.92	39.77
4	4824.00	40.82 AV	54.00	-13.18	1.00 H	147	1.05	39.77

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	2383.00	56.62 PK	74.00	-17.38	1.18 V	1	24.19	32.43
1	**2383.00**	**52.79 AV**	**54.00**	**-1.21**	**1.18 V**	**1**	**20.36**	**32.43**
2	*2412.00	108.98 PK			1.18 V	1	76.48	32.50
2	*2412.00	104.63 AV			1.18 V	1	72.13	32.50
3	3912.00	54.79 PK	74.00	-19.21	1.00 V	151	17.89	36.90
3	3912.00	51.36 AV	54.00	-2.64	1.00 V	151	14.46	36.90
4	4824.00	51.61 PK	74.00	-22.39	1.12 V	186	11.84	39.77
4	4824.00	42.89 AV	54.00	-11.11	1.12 V	186	3.12	39.77

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	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	100.27 PK			1.11 H	120	67.71	32.56
1	*2437.00	97.05 AV			1.11 H	120	64.49	32.56
2	3920.00	51.58 PK	74.00	-22.42	1.01 H	211	14.65	36.93
2	3920.00	47.56 AV	54.00	-6.44	1.01 H	211	10.63	36.93
3	4874.00	51.29 PK	74.00	-22.71	1.07 H	226	11.30	39.99
3	4874.00	40.42 AV	54.00	-13.58	1.07 H	226	0.43	39.99

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	108.78 PK			1.18 V	2	76.22	32.56
1	*2437.00	105.08 AV			1.18 V	2	72.52	32.56
2	3920.00	55.39 PK	74.00	-18.61	1.20 V	165	18.46	36.93
2	3920.00	51.07 AV	54.00	-2.93	1.20 V	165	14.14	36.93
3	4874.00	52.69 PK	74.00	-21.31	1.09 V	217	12.70	39.99
3	4874.00	43.86 AV	54.00	-10.14	1.09 V	217	3.87	39.99

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	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	100.19 PK			1.08 H	123	67.56	32.62
1	*2462.00	96.93 AV			1.08 H	123	64.31	32.62
2	2483.50	46.12 PK	74.00	-27.88	1.08 H	123	13.44	32.68
2	2483.50	42.86 AV	54.00	-11.14	1.08 H	123	10.18	32.68
3	3960.00	51.32 PK	74.00	-22.68	1.07 H	224	14.20	37.12
3	3960.00	47.24 AV	54.00	-6.76	1.07 H	224	10.12	37.12
4	4924.00	51.35 PK	74.00	-22.65	1.03 H	219	11.15	40.20
4	4924.00	40.57 AV	54.00	-13.43	1.03 H	219	0.37	40.20

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	108.66 PK			1.18 V	0	76.03	32.62
1	*2462.00	104.83 AV			1.18 V	0	72.20	32.62
2	2483.50	54.59 PK	74.00	-19.41	1.18 V	0	21.91	32.68
2	2483.50	51.76 AV	54.00	-2.24	1.18 V	0	19.08	32.68
3	3960.00	54.93 PK	74.00	-19.07	1.23 V	187	17.81	37.12
3	3960.00	50.59 AV	54.00	-3.41	1.23 V	187	13.47	37.12
4	4924.00	52.74 PK	74.00	-21.26	1.04 V	209	12.54	40.20
4	4924.00	43.92 AV	54.00	-10.08	1.04 V	209	3.72	40.20

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	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	TESTED BY	Brad Wu

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	55.49 PK	74.00	-18.51	1.00 H	141	23.05	32.44
1	2390.00	46.24 AV	54.00	-7.76	1.00 H	141	13.80	32.44
2	*2412.00	103.66 PK			1.00 H	141	71.16	32.50
2	*2412.00	94.41 AV			1.00 H	141	61.91	32.50
3	3912.00	52.47 PK	74.00	-21.53	1.13 H	175	15.57	36.90
3	3912.00	48.46 AV	54.00	-5.54	1.13 H	175	11.56	36.90
4	4824.00	51.17 PK	74.00	-22.83	1.09 H	167	11.40	39.77
4	4824.00	38.14 AV	54.00	-15.86	1.09 H	167	-1.63	39.77

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	60.64 PK	74.00	-13.36	1.16 V	355	28.20	32.44
1	2390.00	51.63 AV	54.00	-2.37	1.16 V	355	19.19	32.44
2	*2412.00	108.81 PK			1.16 V	355	76.31	32.50
2	*2412.00	99.80 AV			1.16 V	355	67.30	32.50
3	3912.00	54.79 PK	74.00	-19.21	1.00 V	150	17.89	36.90
3	3912.00	52.03 AV	54.00	-1.97	1.00 V	150	15.13	36.90
4	4824.00	51.92 PK	74.00	-22.08	1.02 V	217	12.15	39.77
4	4824.00	38.91 AV	54.00	-15.09	1.02 V	217	-0.86	39.77

REMARKS:
1. Emission level BuV/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	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	103.98 PK			1.04 H	144	71.42	32.56
1	*2437.00	94.72 AV			1.04 H	144	62.16	32.56
2	3920.00	52.71 PK	74.00	-21.29	1.11 H	165	15.78	36.93
2	3920.00	48.69 AV	54.00	-5.31	1.11 H	165	11.76	36.93
3	4874.00	51.27 PK	74.00	-22.73	1.14 H	172	11.28	39.99
3	4874.00	38.25 AV	54.00	-15.75	1.14 H	172	-1.74	39.99

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	109.25 PK			1.15 V	356	76.69	32.56
1	*2437.00	100.22 AV			1.15 V	356	67.66	32.56
2	3920.00	55.14 PK	74.00	-18.86	1.17 V	159	18.21	36.93
2	3920.00	50.86 AV	54.00	-3.14	1.17 V	159	13.93	36.93
3	4874.00	51.87 PK	74.00	-22.13	1.06 V	237	11.88	39.99
3	4874.00	38.81 AV	54.00	-15.19	1.06 V	237	-1.18	39.99

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	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**	Brad Wu

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	104.37 PK			1.02 H	146	71.75	32.62
1	*2462.00	95.13 AV			1.02 H	146	62.50	32.62
2	2483.50	54.19 PK	74.00	-19.81	1.02 H	146	21.51	32.68
2	2483.50	44.95 AV	54.00	-9.05	1.02 H	146	12.27	32.68
3	3960.00	52.68 PK	74.00	-21.32	1.11 H	162	15.56	37.12
3	3960.00	48.61 AV	54.00	-5.39	1.11 H	162	11.49	37.12
4	4924.00	51.39 PK	74.00	-22.61	1.03 H	326	11.19	40.20
4	4924.00	38.35 AV	54.00	-15.65	1.03 H	326	-1.85	40.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	109.27 PK			1.17 V	354	76.64	32.62
1	*2462.00	100.28 AV			1.17 V	354	67.66	32.62
2	2483.50	59.73 PK	74.00	-14.27	1.17 V	354	27.05	32.68
2	2483.50	50.46 AV	54.00	-3.54	1.17 V	354	17.78	32.68
3	3960.00	54.82 PK	74.00	-19.18	1.20 V	117	17.70	37.12
3	3960.00	50.47 AV	54.00	-3.53	1.20 V	117	13.35	37.12
4	4924.00	51.83 PK	74.00	-22.17	1.05 V	236	11.63	40.20
4	4924.00	38.77 AV	54.00	-15.23	1.05 V	236	-1.43	40.20

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.

ACE OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	QPSK	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
TRANSFER RATE	12Mbps	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 991hPa	**TESTED BY**	Brad Wu

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	55.84 PK	74.00	-18.16	1.21 H	227	23.40	32.44
1	2390.00	46.06 AV	54.00	-7.94	1.21 H	227	13.62	32.44
2	*2422.00	101.56 PK			1.21 H	227	69.03	32.52
2	*2422.00	91.78 AV			1.21 H	227	59.25	32.52
3	3896.00	52.40 PK	74.00	-21.60	1.02 H	159	15.58	36.82
3	3896.00	48.61 AV	54.00	-5.39	1.02 H	159	11.79	36.82
4	4844.00	50.87 PK	74.00	-23.13	1.09 H	167	11.02	39.85
4	4844.00	38.46 AV	54.00	-15.54	1.09 H	167	-1.39	39.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.06 PK	74.00	-11.94	1.18 V	21	29.62	32.44
1	2390.00	51.84 AV	54.00	-2.16	1.18 V	21	19.40	32.44
2	*2422.00	108.78 PK			1.18 V	21	76.25	32.52
2	*2422.00	98.56 AV			1.18 V	21	66.03	32.52
3	3896.00	54.52 PK	74.00	-19.48	1.01 V	147	17.70	36.82
3	3896.00	51.90 AV	54.00	-2.10	1.01 V	147	15.08	36.82
4	4844.00	51.53 PK	74.00	-22.47	1.03 V	231	11.68	39.85
4	4844.00	39.01 AV	54.00	-14.99	1.03 V	231	-0.84	39.85

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	QPSK	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
TRANSFER RATE	12Mbps	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 991hPa	**TESTED BY**	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	101.83 PK			1.21 H	236	69.27	32.56
1	*2437.00	92.04 AV			1.21 H	236	59.48	32.56
2	3920.00	52.64 PK	74.00	-21.36	1.03 H	172	15.71	36.93
2	3920.00	48.95 AV	54.00	-5.05	1.03 H	172	12.02	36.93
3	4874.00	50.89 PK	74.00	-23.11	1.01 H	62	10.90	39.99
3	4874.00	38.56 AV	54.00	-15.44	1.01 H	62	-1.43	39.99

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	109.17 PK			1.20 V	211	76.61	32.56
1	*2437.00	98.95 AV			1.20 V	211	66.39	32.56
2	3920.00	54.63 PK	74.00	-19.37	1.05 V	152	17.70	36.93
2	3920.00	51.96 AV	54.00	-2.04	1.05 V	152	15.03	36.93
3	4874.00	51.69 PK	74.00	-22.31	1.07 V	266	11.70	39.99
3	4874.00	39.23 AV	54.00	-14.77	1.07 V	266	-0.76	39.99

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	**FREQUENCY RANGE**	1 ~ 25GHz
MODULATION TYPE	QPSK	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
TRANSFER RATE	12Mbps	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 62%RH, 991hPa	**TESTED BY**	Brad Wu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	100.67 PK			1.20 H	229	68.07	32.60
1	*2452.00	91.46 AV			1.20 H	229	58.86	32.60
2	2483.50	55.23 PK	74.00	-18.77	1.20 H	229	22.55	32.68
2	2483.50	45.42 AV	54.00	-8.58	1.20 H	229	12.74	32.68
3	3944.00	52.54 PK	74.00	-21.46	1.07 H	162	15.50	37.04
3	3944.00	48.86 AV	54.00	-5.14	1.07 H	162	11.82	37.04
4	4904.00	50.69 PK	74.00	-23.31	1.05 H	42	10.57	40.12
4	4904.00	38.33 AV	54.00	-15.67	1.05 H	42	-1.79	40.12

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	107.24 PK			1.23 V	218	74.64	32.60
1	*2452.00	97.02 AV			1.23 V	218	64.42	32.60
2	2483.50	61.80 PK	74.00	-12.20	1.23 V	218	29.12	32.68
2	2483.50	51.58 AV	54.00	-2.42	1.23 V	218	18.90	32.68
3	3944.00	53.77 PK	74.00	-20.23	1.02 V	140	16.73	37.04
3	3944.00	50.04 AV	54.00	-3.96	1.02 V	140	13.00	37.04
4	4904.00	52.36 PK	74.00	-21.64	1.00 V	166	12.24	40.12
4	4904.00	39.60 AV	54.00	-14.40	1.00 V	166	-0.52	40.12

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.

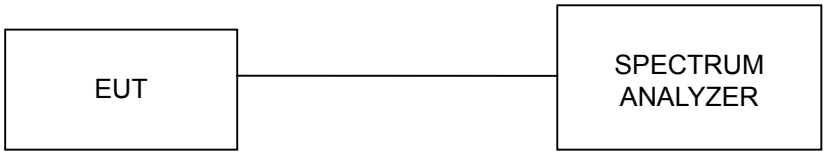
4.3.3 TEST PROCEDURE

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

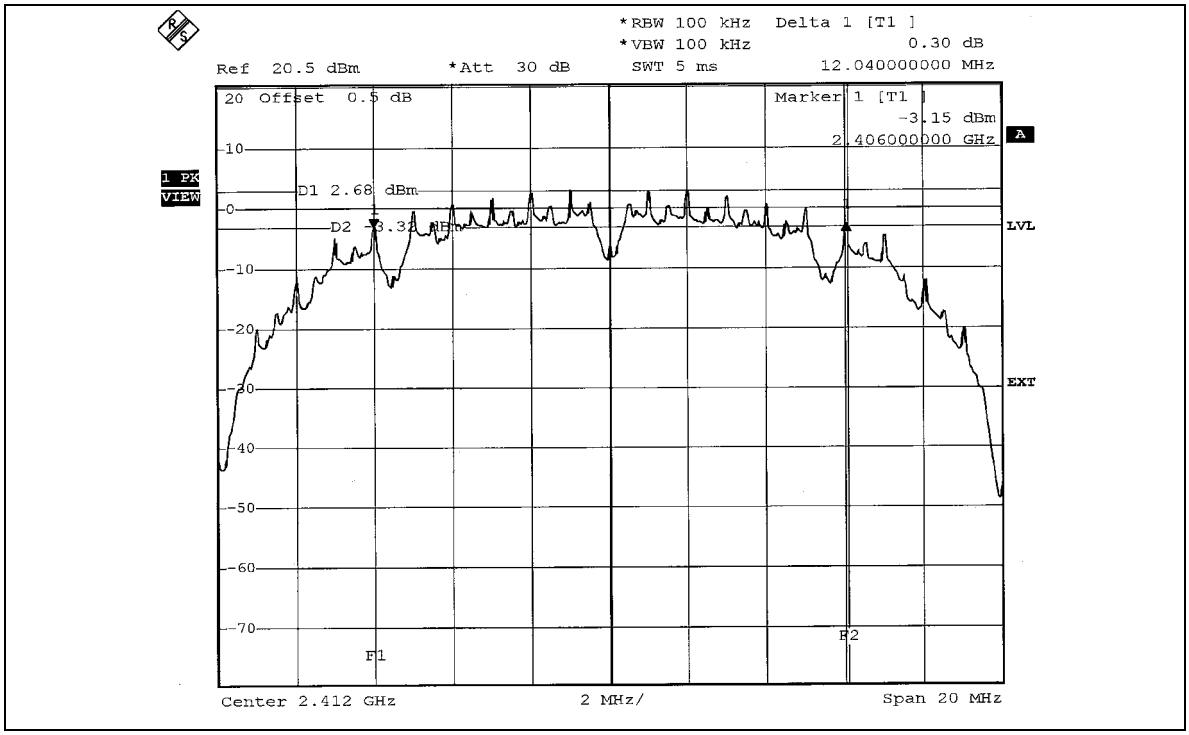
802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

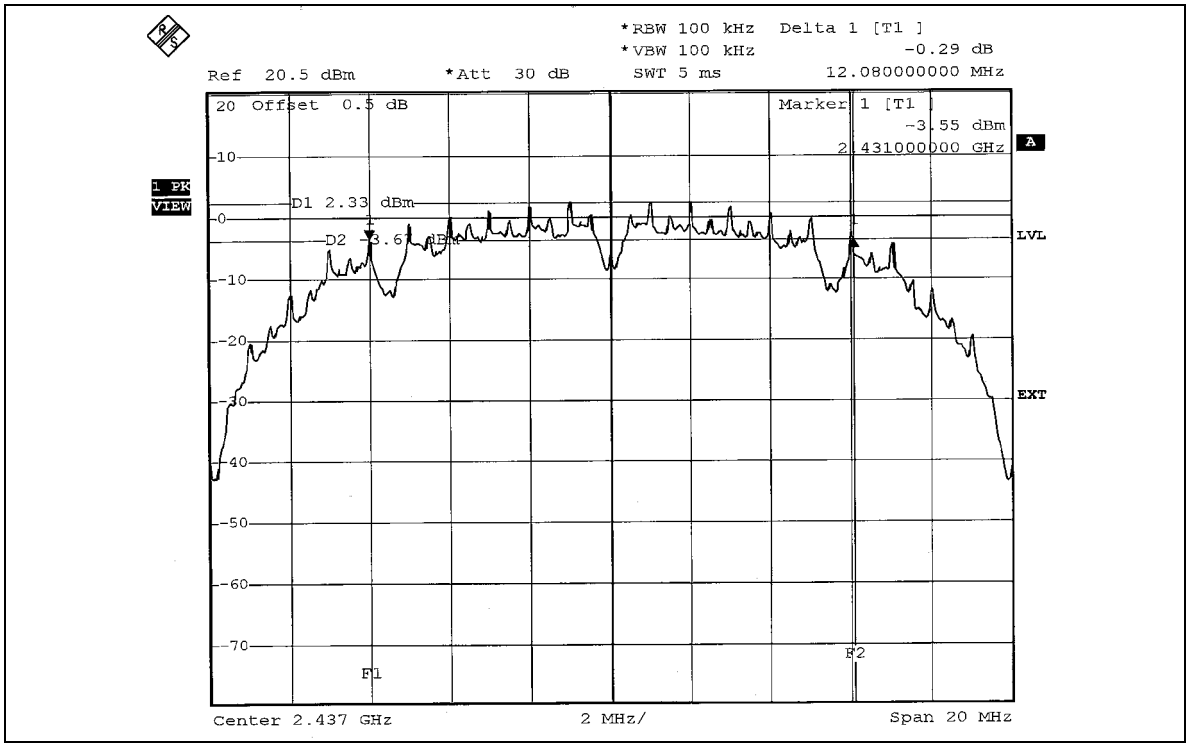
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2412	12.04	12.00	0.5	PASS
6	2437	12.08	12.08	0.5	PASS
11	2462	12.04	12.04	0.5	PASS

FOR CHAIN 0:

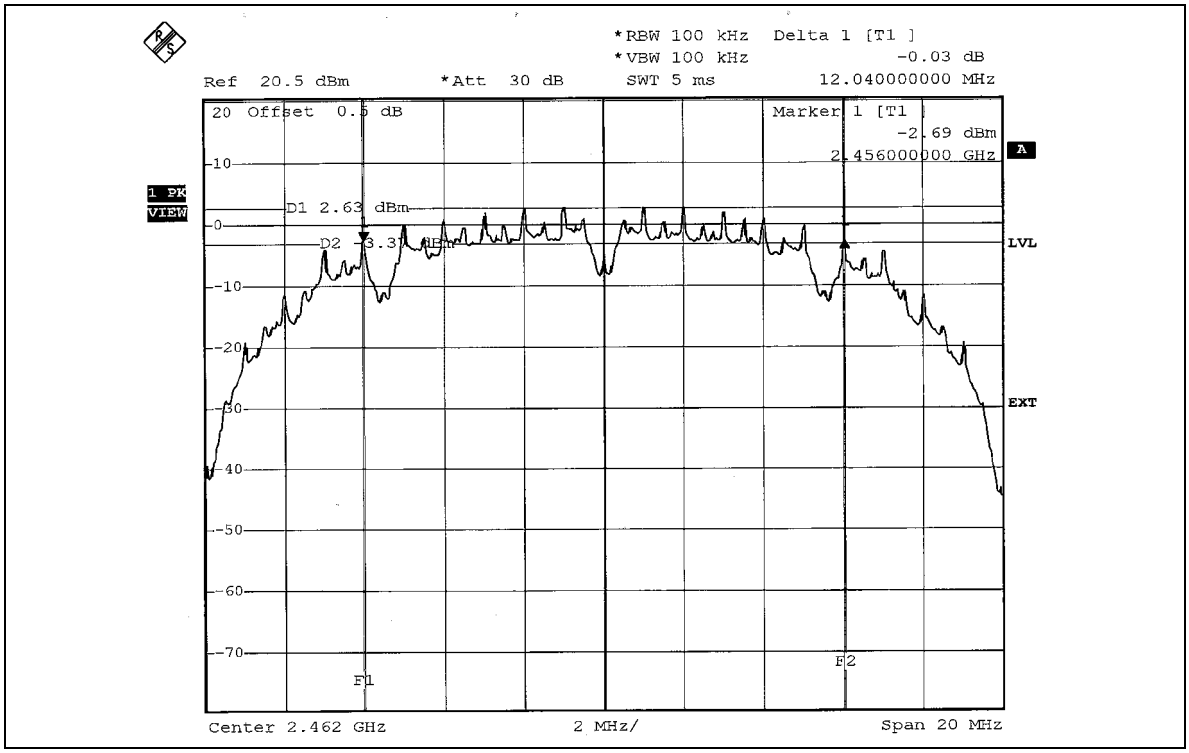
CH1



CH6

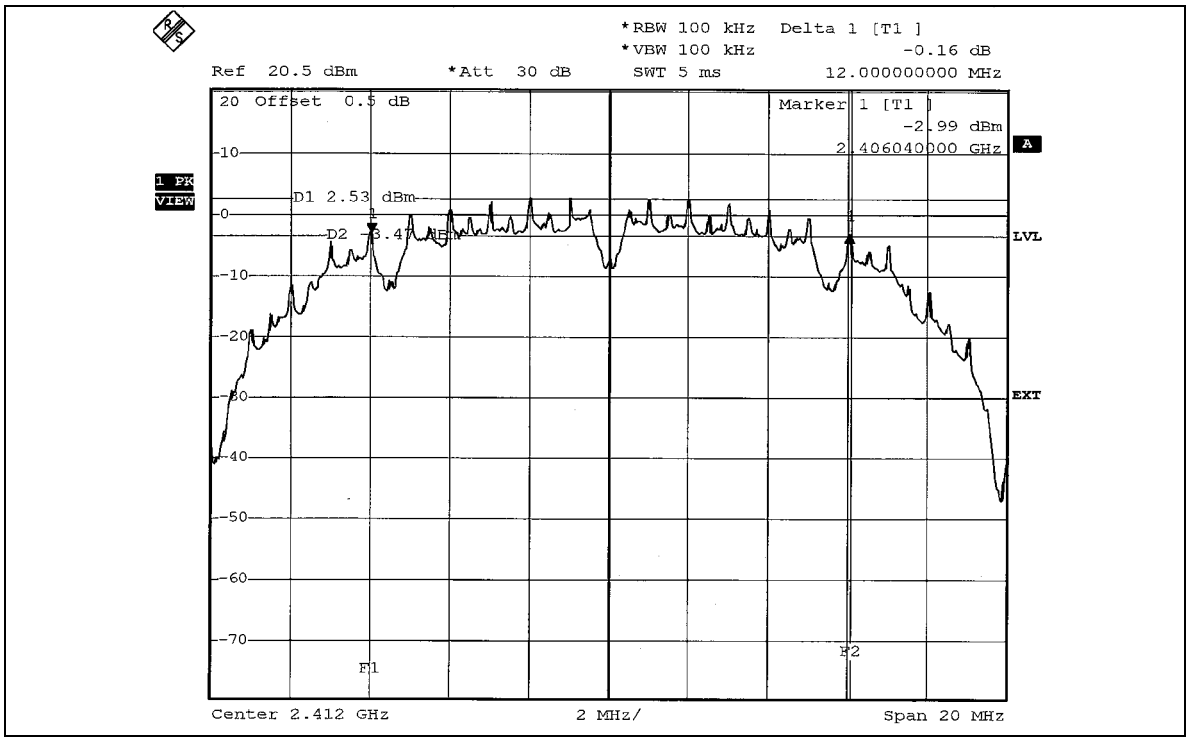


CH11

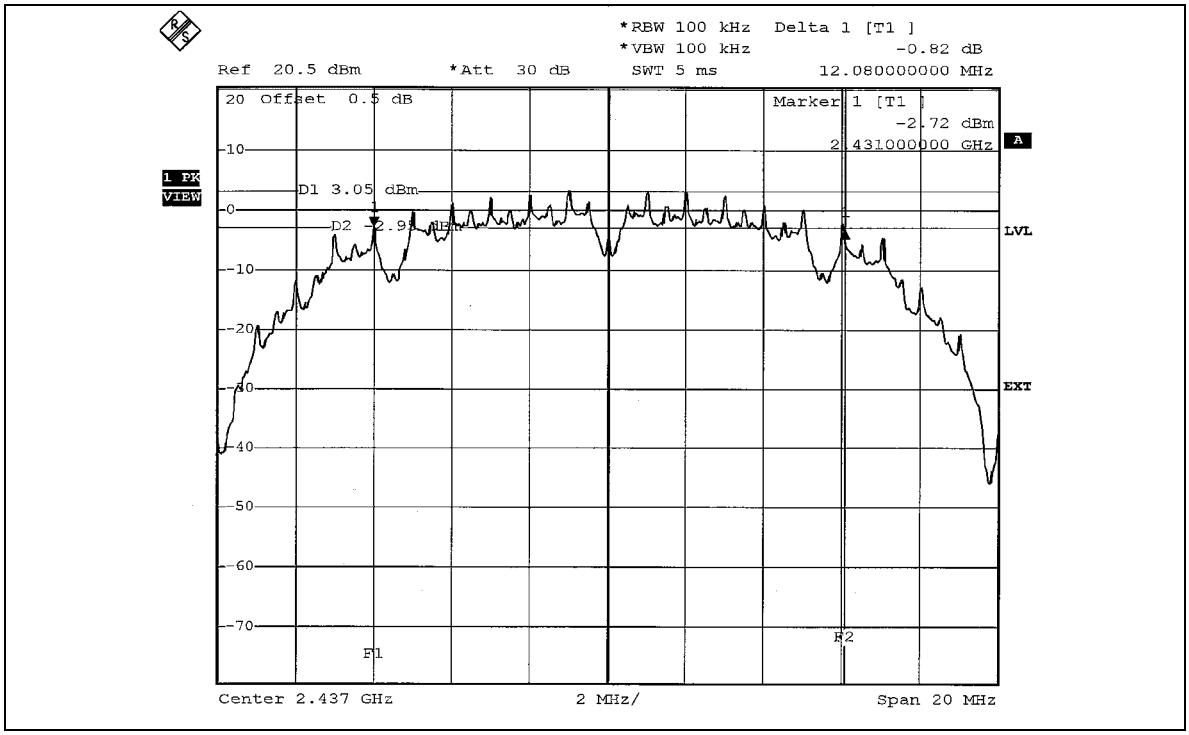


FOR CHAIN 1:

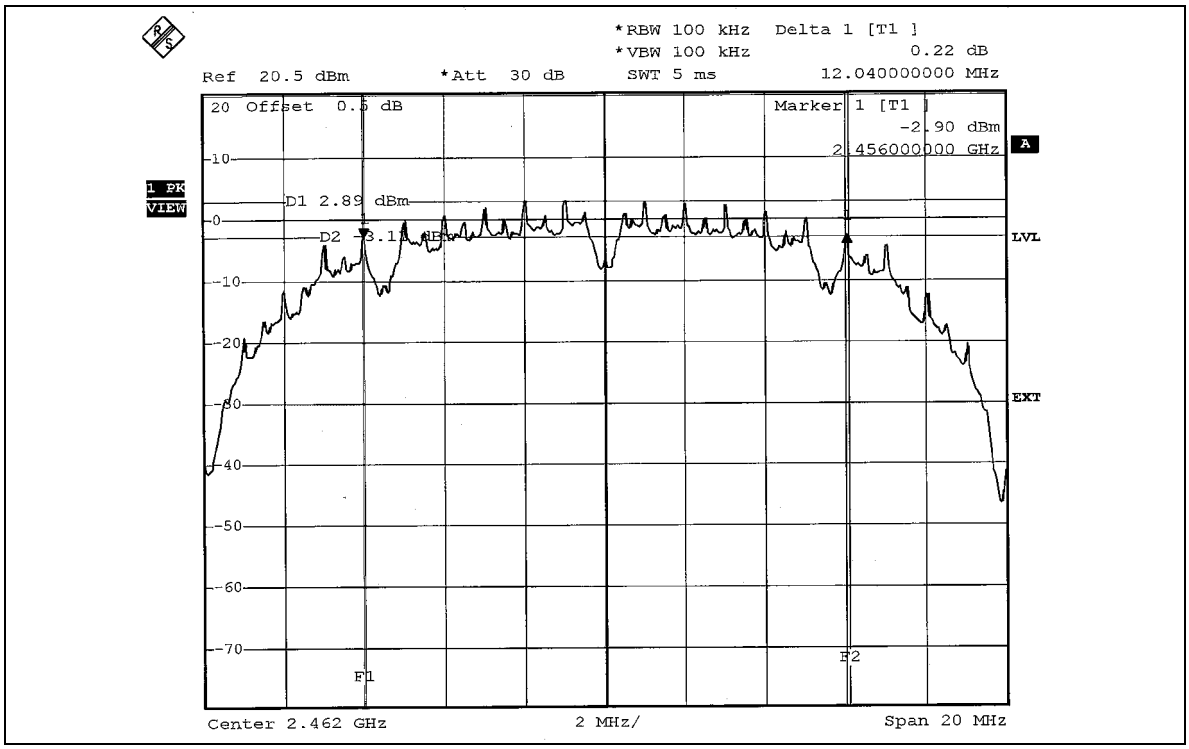
CH1



CH6


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
-0.82 dB
12.080000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-2.72 dBm
2.431000000 GHz
1 PK
VIEW
D1 3.05 dBm
D2 -2.91 dBm
LVL
EXT
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH11


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
0.22 dB
12.040000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-2.90 dBm
2.456000000 GHz
1 PK
VIEW
D1 2.89 dBm
D2 -3.11 dBm
LVL
EXT
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

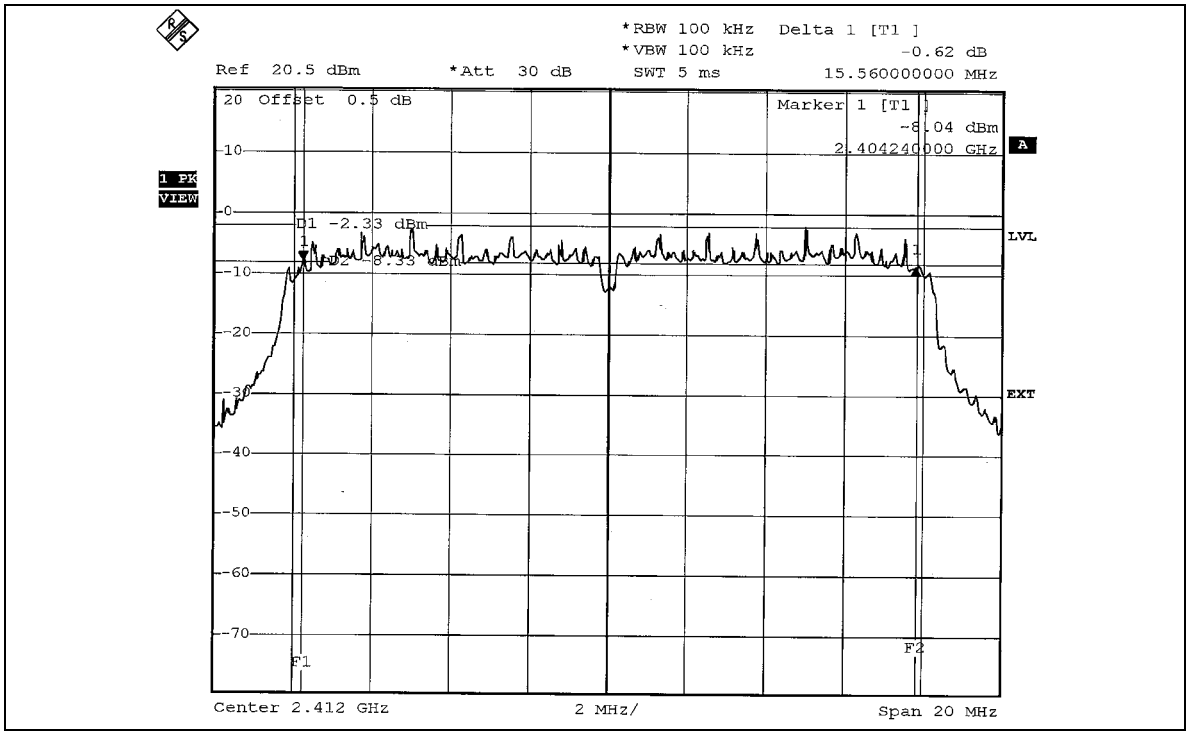
802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

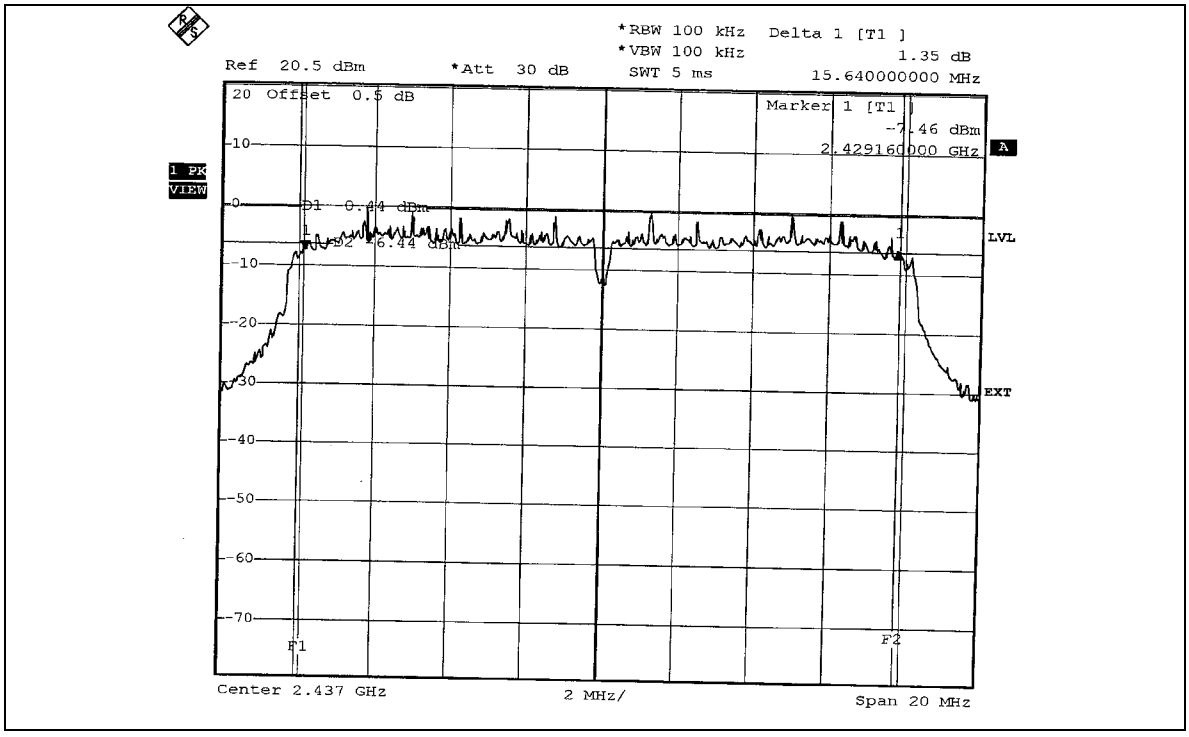
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.56	15.80	0.5	PASS
6	2437	15.64	15.64	0.5	PASS
11	2462	15.80	15.84	0.5	PASS

FOR CHAIN 0:

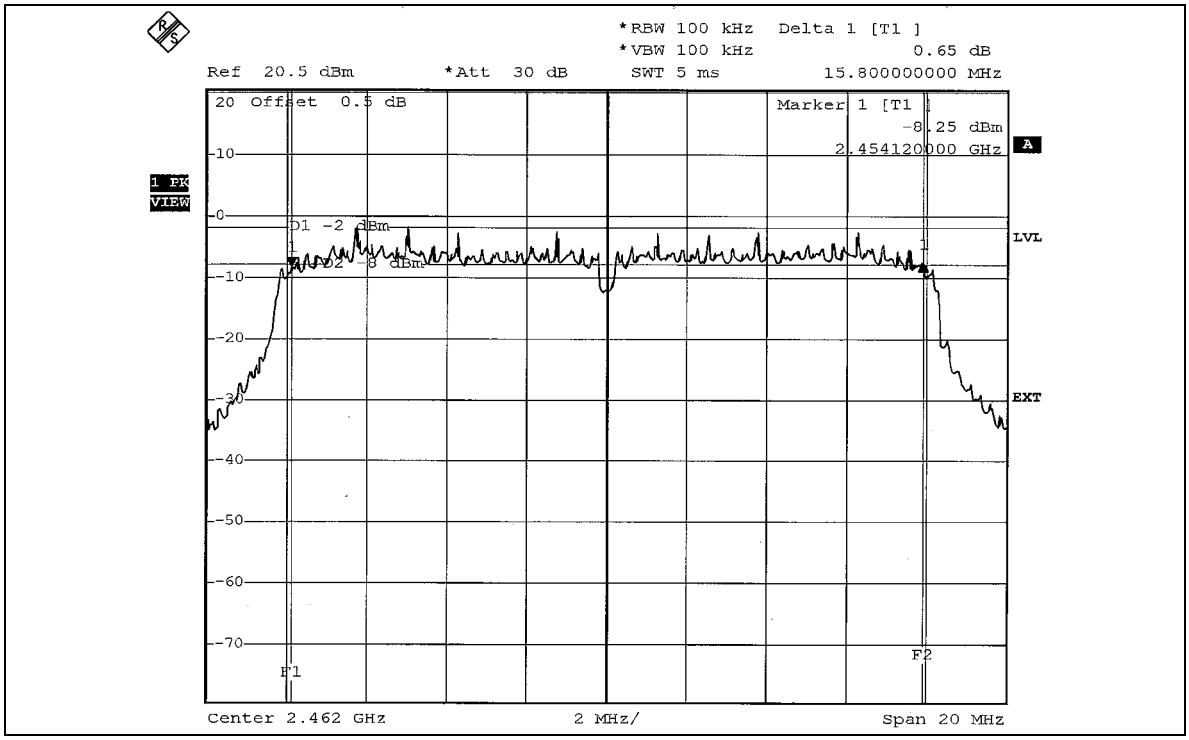
CH1



CH6

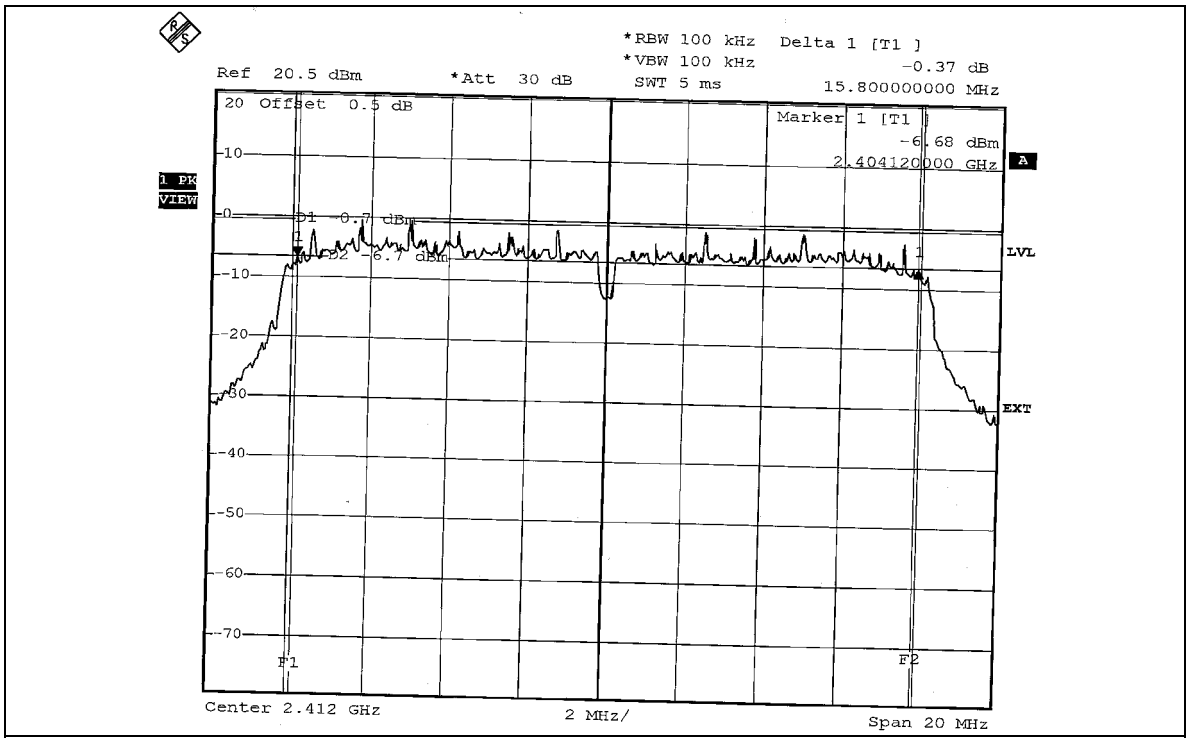


CH11

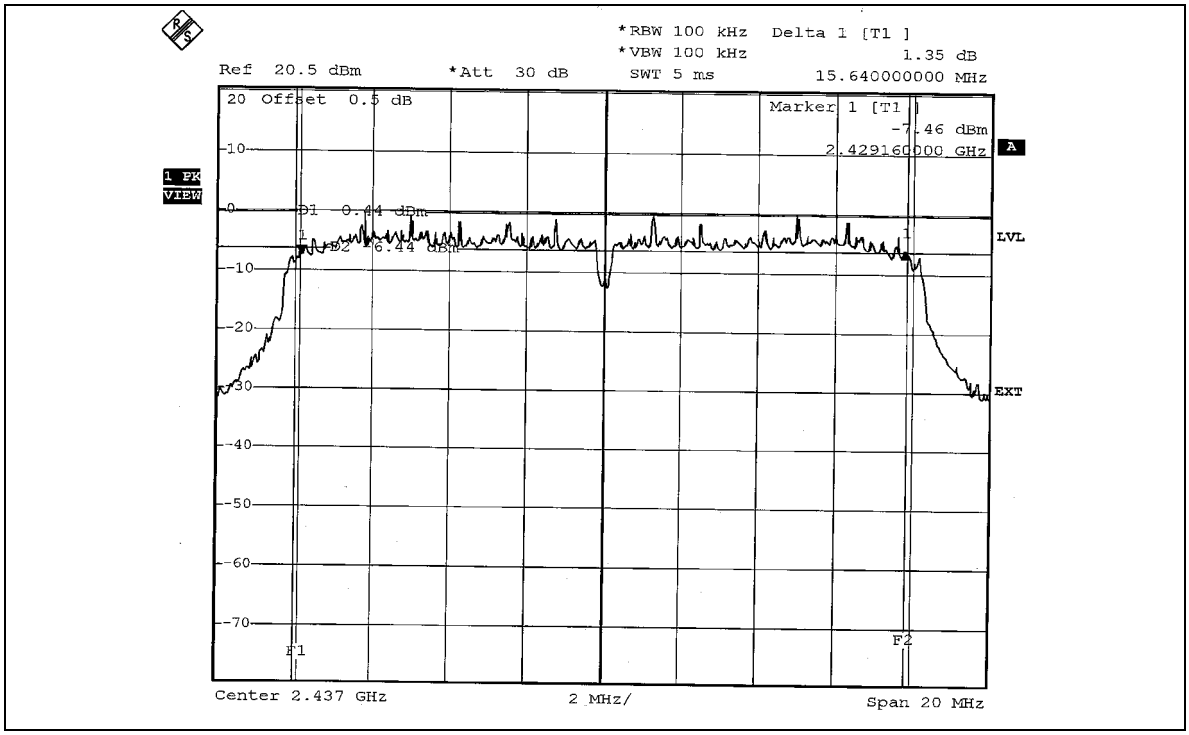


FOR CHAIN 1:

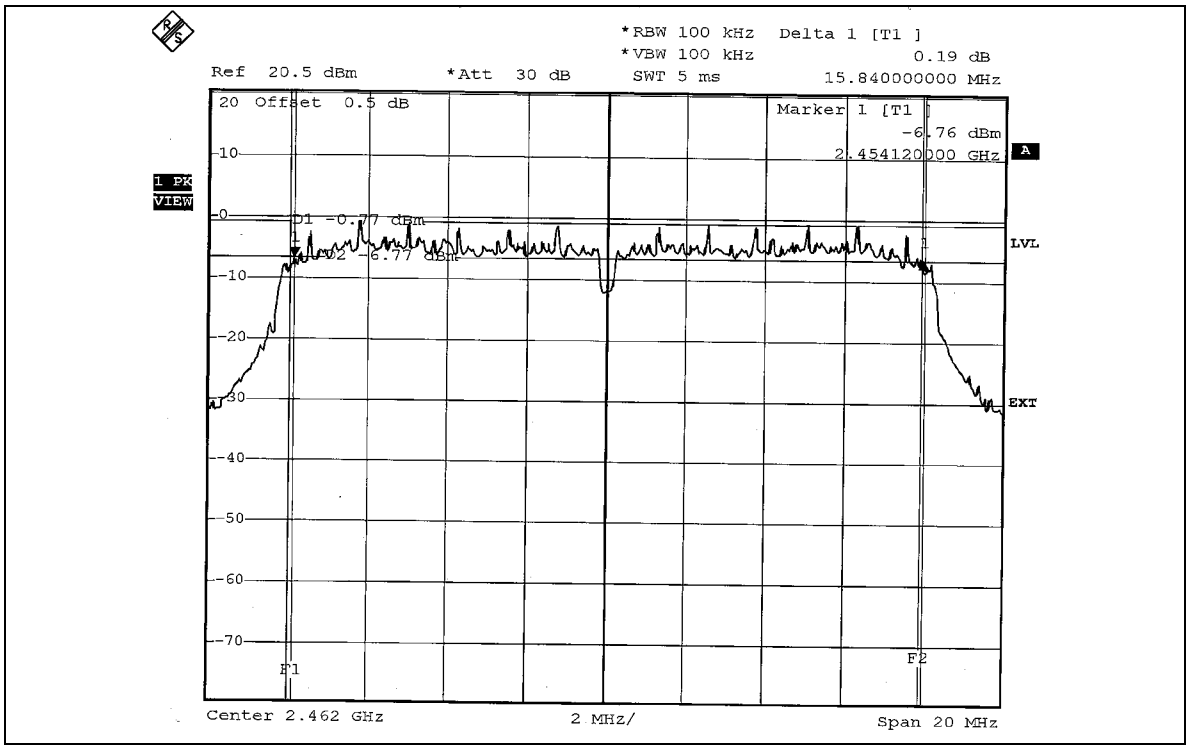
CH1



CH6


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
1.35 dB
15.640000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-7.46 dBm
2.429160000 GHz
D1 -0.44 dBm
D2 -6.44 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz

CH11


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
0.19 dB
15.840000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-6.76 dBm
2.454120000 GHz
D1 -0.77 dBm
D2 -6.77 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

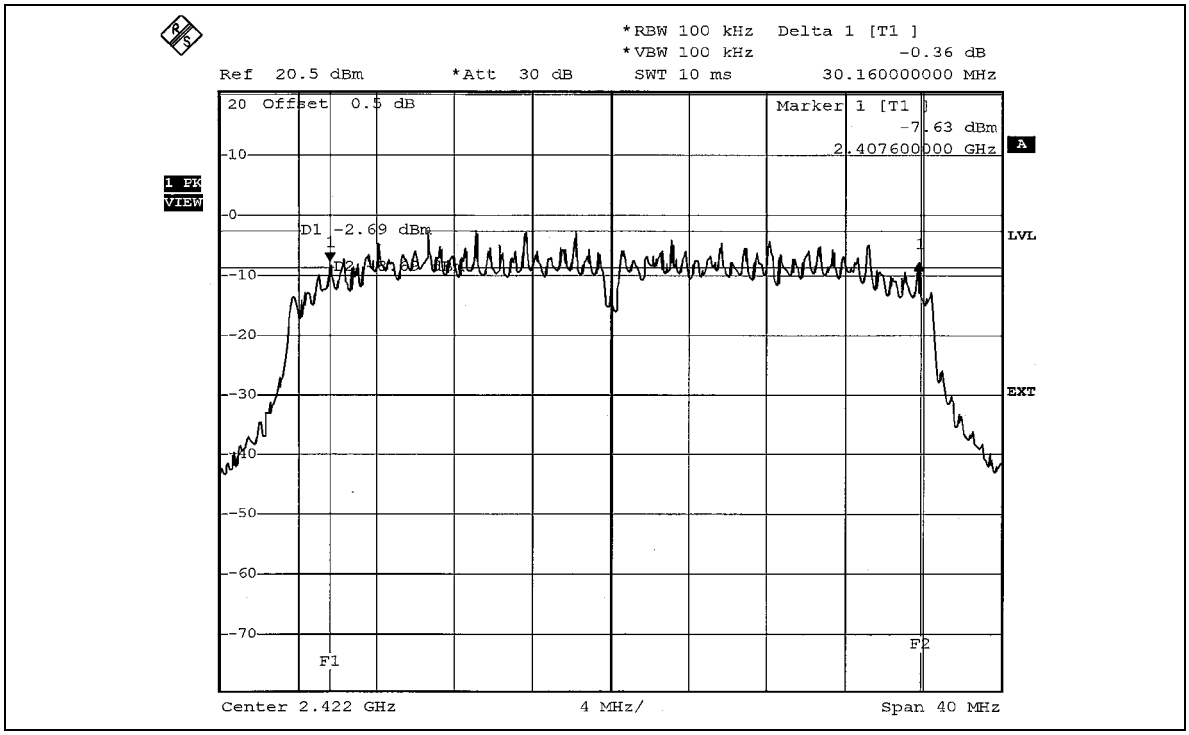
ACD OFDM MODULATION

MODULATION TYPE	QPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

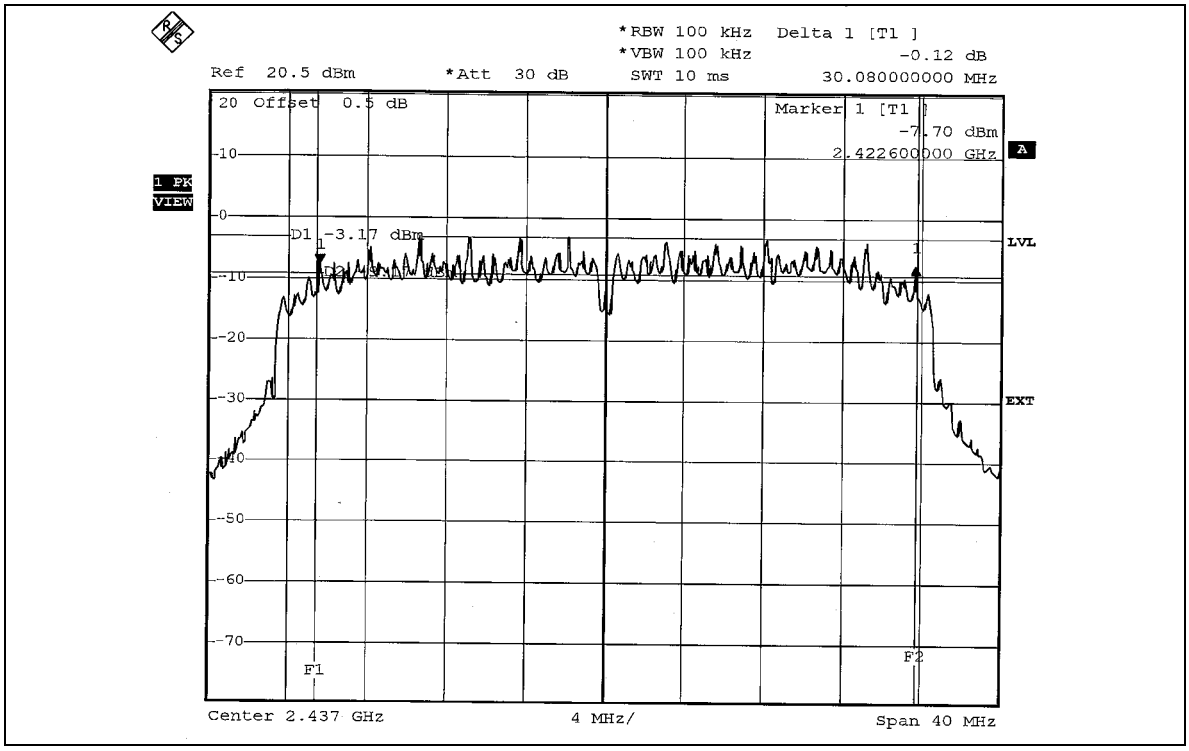
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2422	30.16	30.16	0.5	PASS
4	2437	30.08	30.00	0.5	PASS
7	2452	30.24	30.24	0.5	PASS

FOR CHAIN 0:

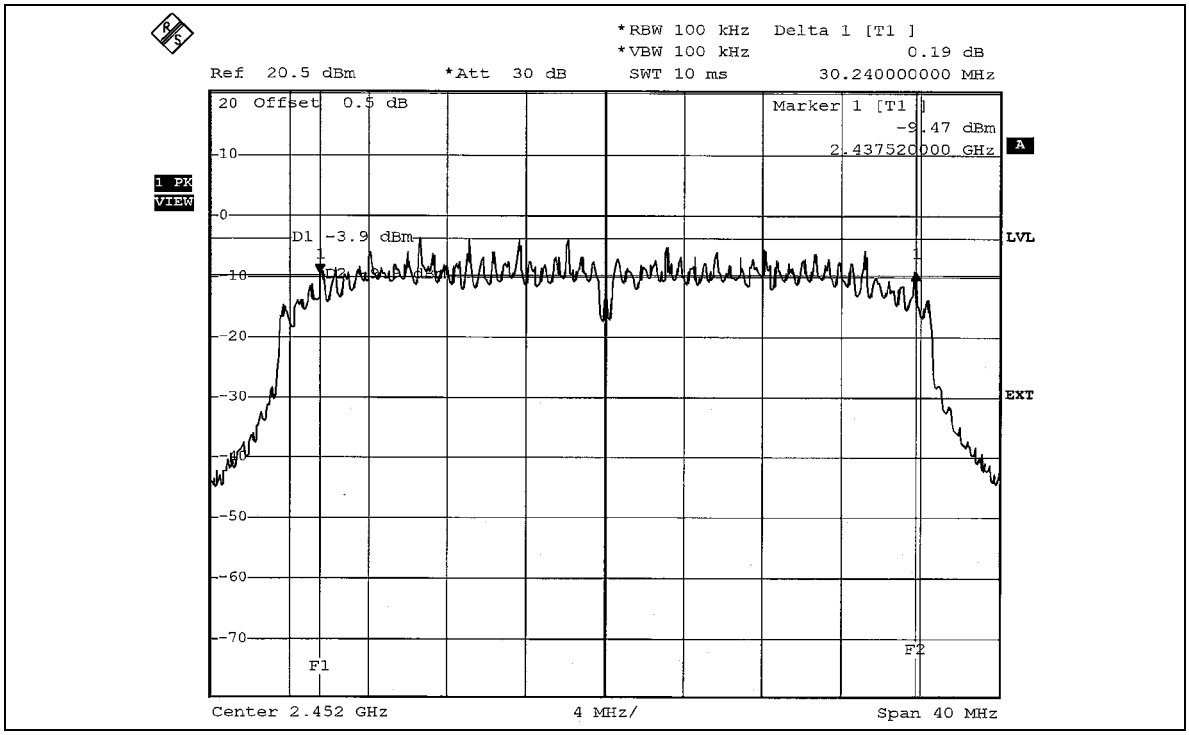
CH1



CH4

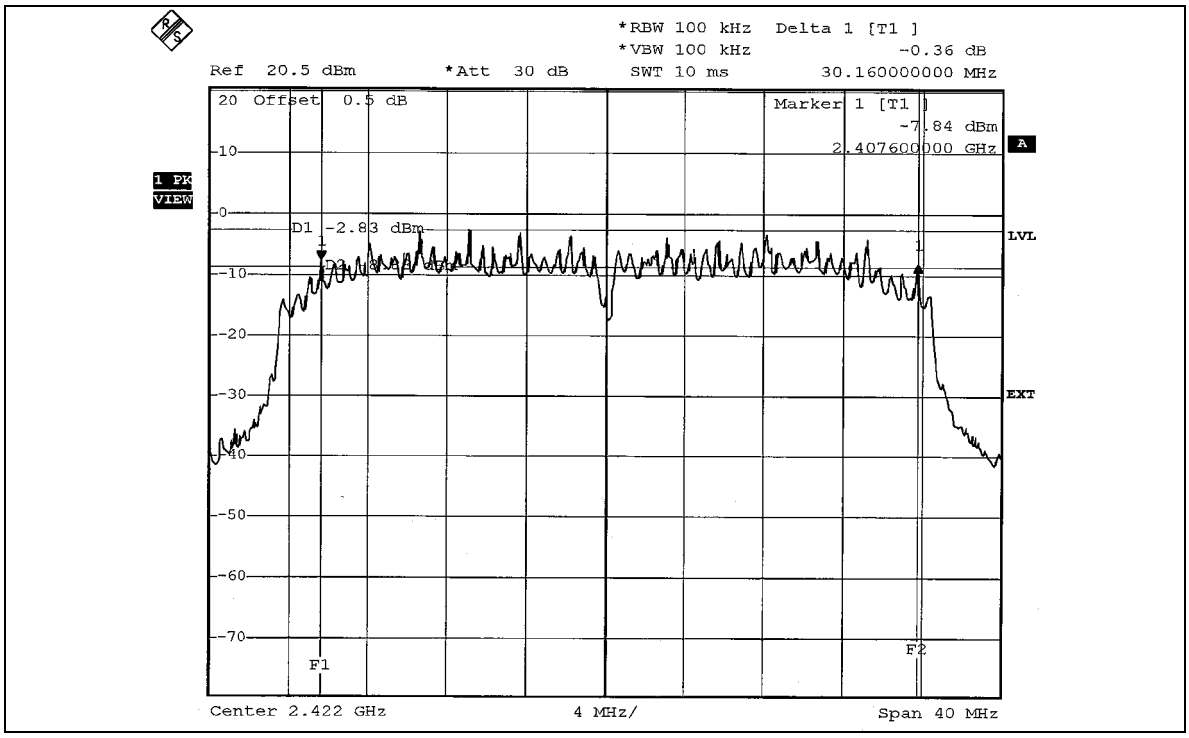


CH7

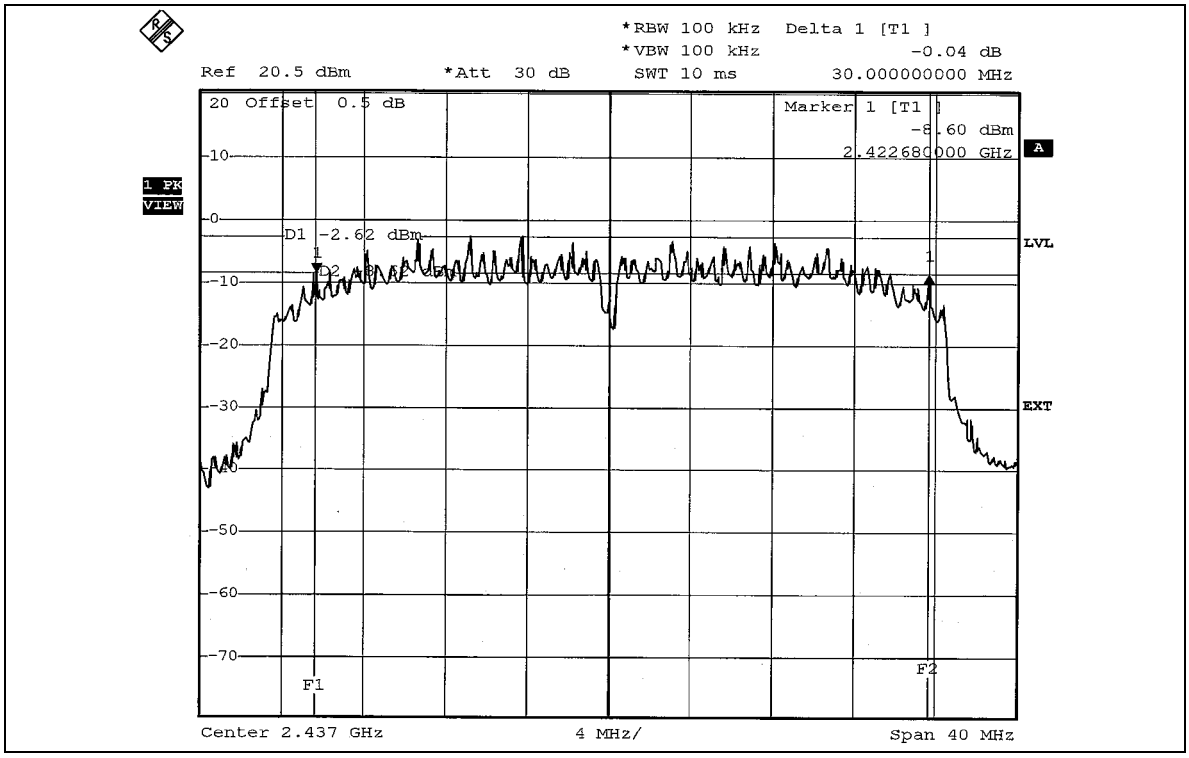


FOR CHAIN 1:

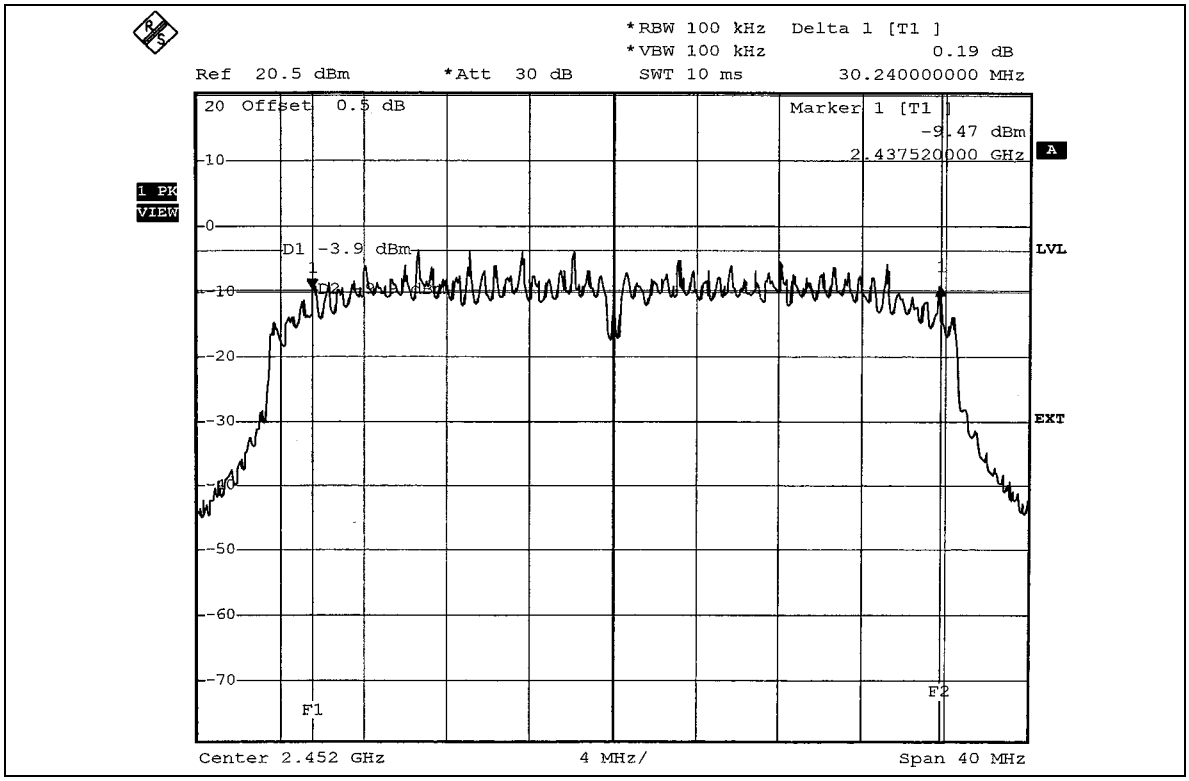
CH1



CH4


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
-0.04 dB
30.000000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-8.60 dBm
2.422680000 GHz
1 PK
VIEW
A
LVL
EXT
D1 -2.62 dBm
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz

CH7


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.19 dB
30.240000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-9.47 dBm
2.437520000 GHz
1 PK
VIEW
A
LVL
EXT
D1 -3.9 dBm
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz

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. A detector was used on the output port of the EUT. An oscilloscope was used to peak 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 peak reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP

4.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	26.002	26.792	14.15	14.28	52.794	17.22	30	PASS
6	2437	26.062	26.853	14.16	14.29	52.915	17.23	30	PASS
11	2462	25.942	26.853	14.14	14.29	52.795	17.22	30	PASS

802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	25.235	26.002	14.02	14.15	51.237	17.09	30	PASS
6	2437	25.410	26.062	14.05	14.16	51.472	17.11	30	PASS
11	2462	25.293	26.002	14.03	14.15	51.295	17.10	30	PASS

ACE OFDM MODULATION

MODULATION TYPE	QPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2422	32.211	33.113	15.08	15.20	65.324	18.15	30	PASS
4	2437	31.769	32.961	15.02	15.18	64.730	18.11	30	PASS
7	2452	20.184	20.654	13.05	13.15	40.838	16.11	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
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

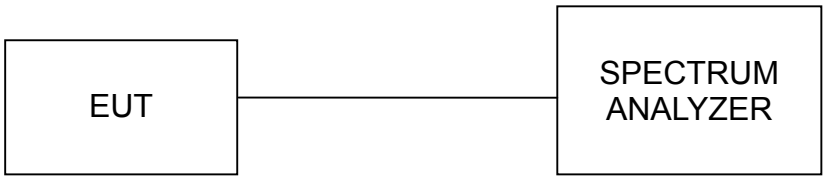
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.

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

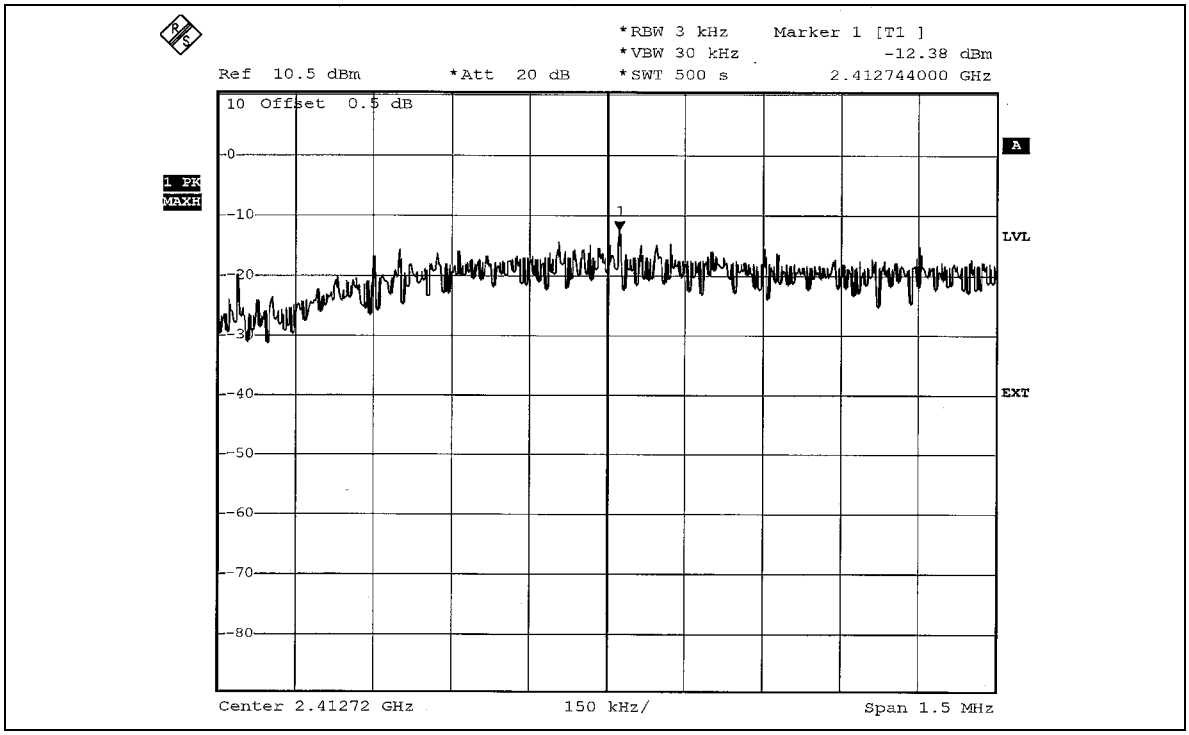
802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	**TRANSFER RATE**	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

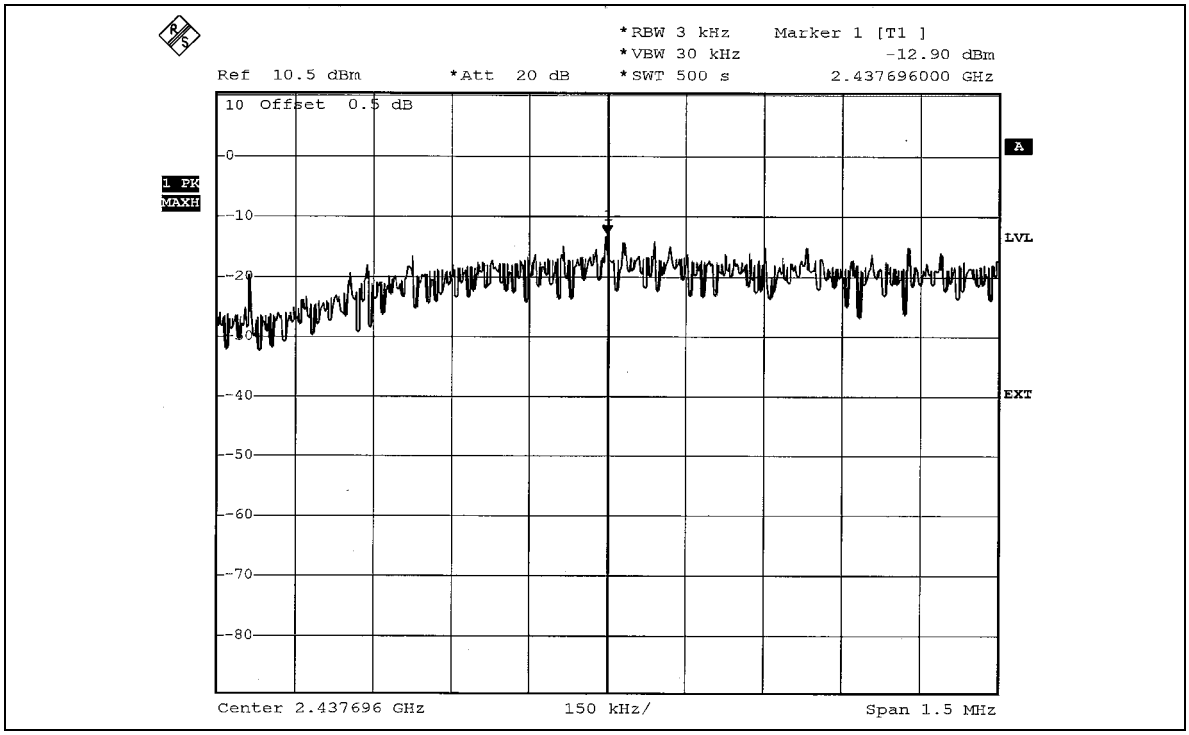
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2412	-12.38	-12.80	8	PASS
6	2437	-12.90	-12.91	8	PASS
11	2462	-12.25	-12.14	8	PASS

FOR CHAIN 0:

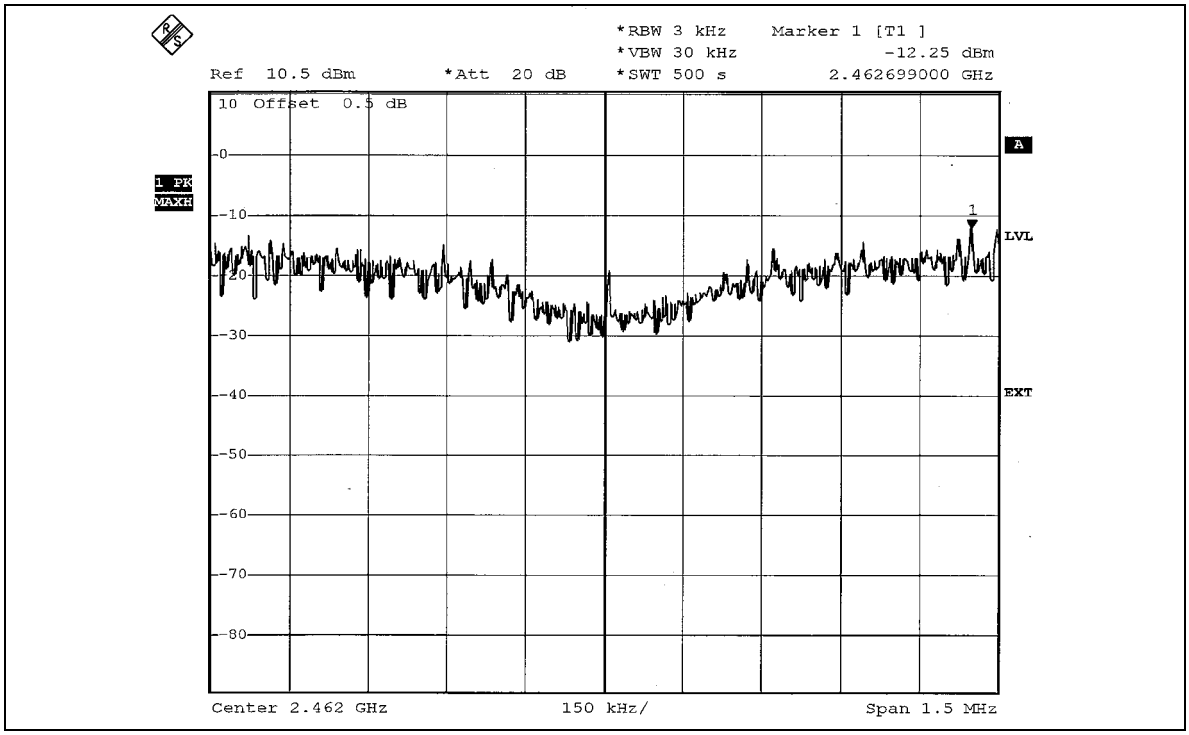
CH1



CH6

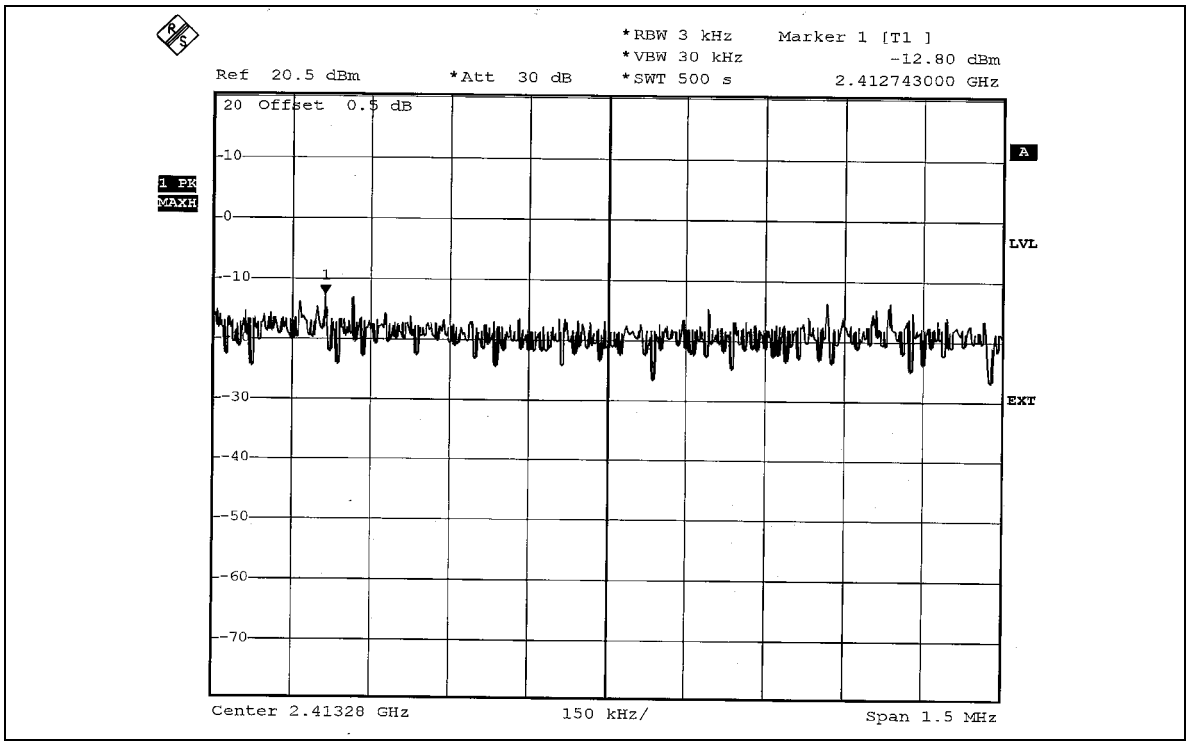


CH11

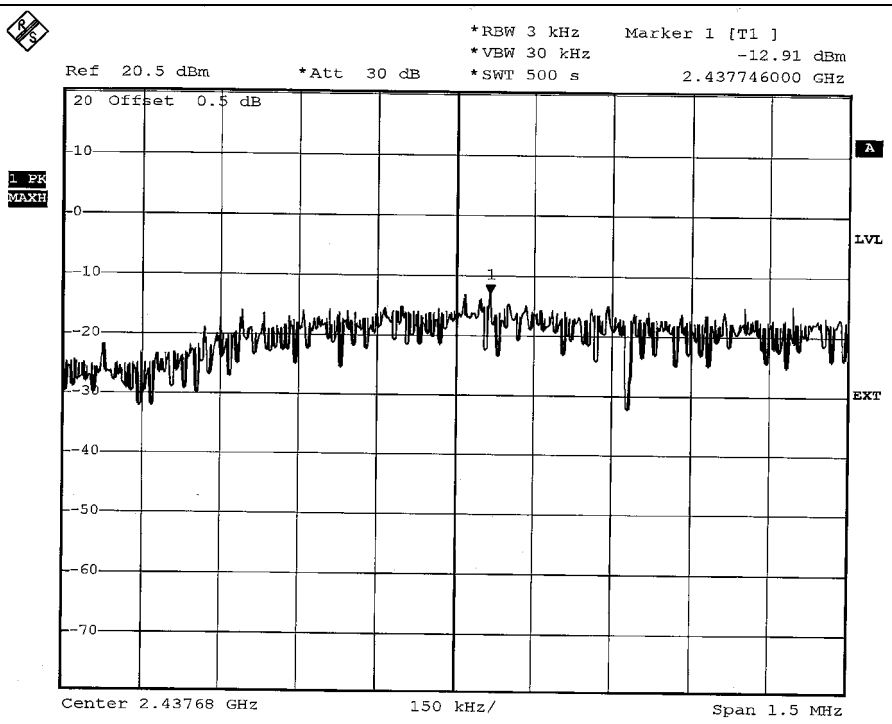


FOR CHAIN 1:

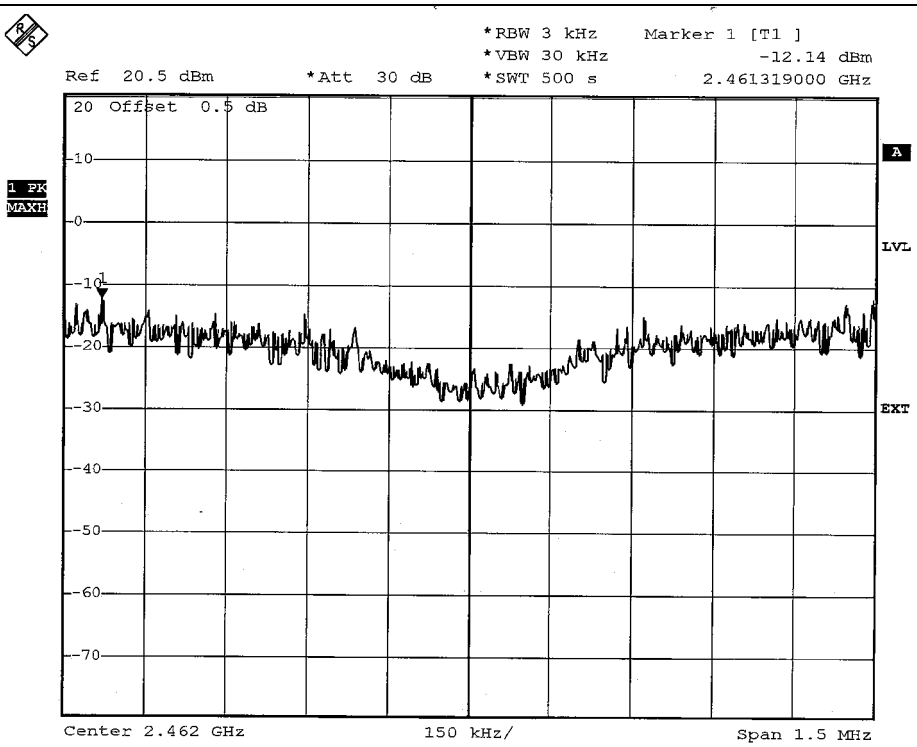
CH1



CH6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-12.91 dBm
2.437746000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
EXT
Center 2.43768 GHz
150 kHz/
Span 1.5 MHz

CH11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-12.14 dBm
2.461319000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
EXT
Center 2.462 GHz
150 kHz/
Span 1.5 MHz

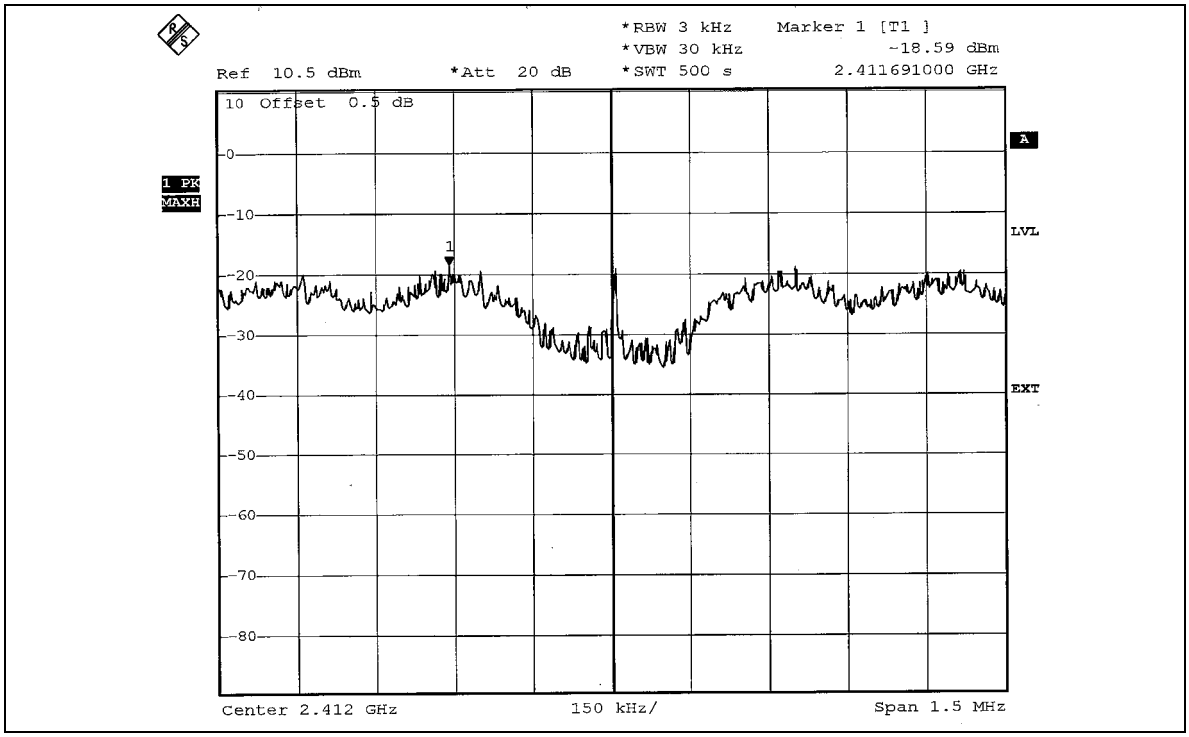
802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

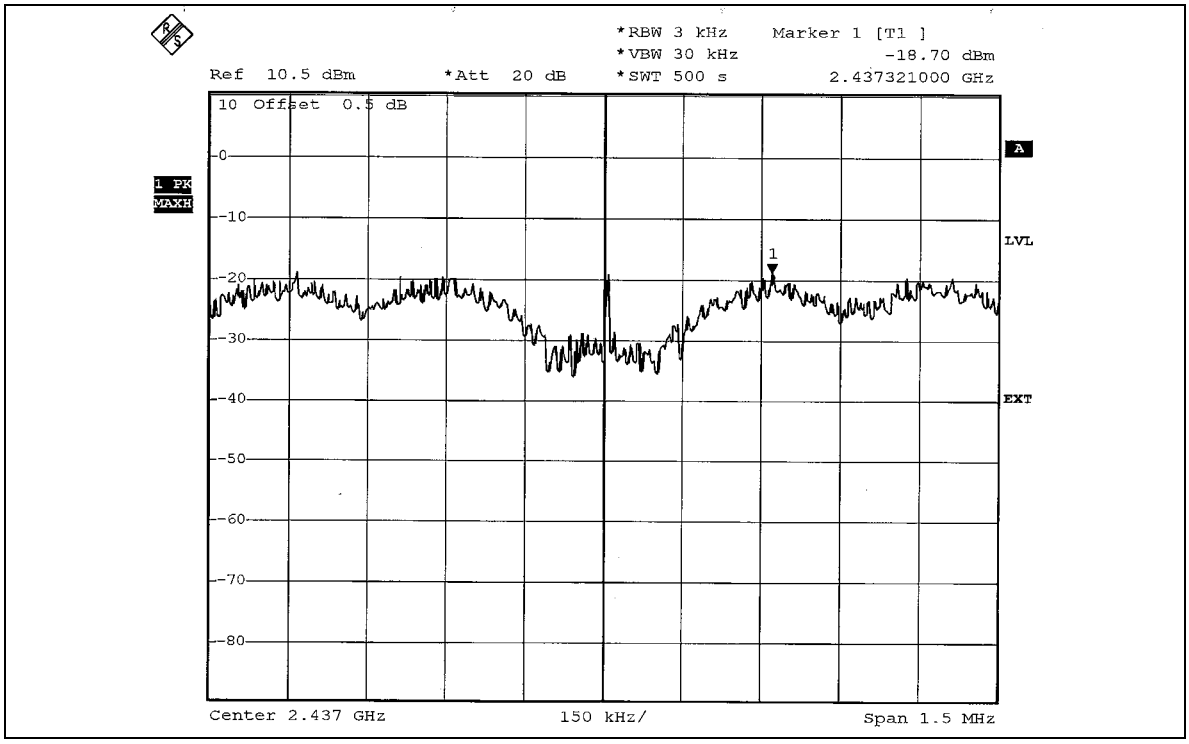
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2412	-18.59	-17.54	8	PASS
6	2437	-18.70	-17.29	8	PASS
11	2462	-18.59	-17.78	8	PASS

FOR CHAIN 0:

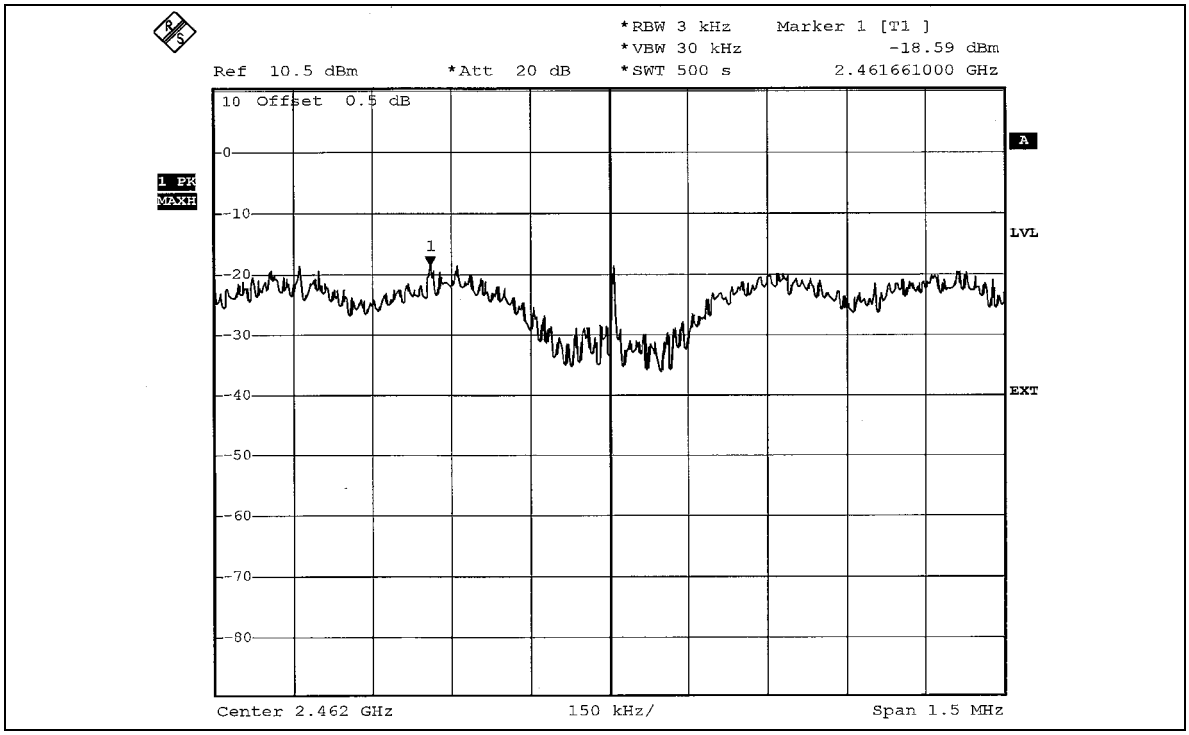
CH1



CH6

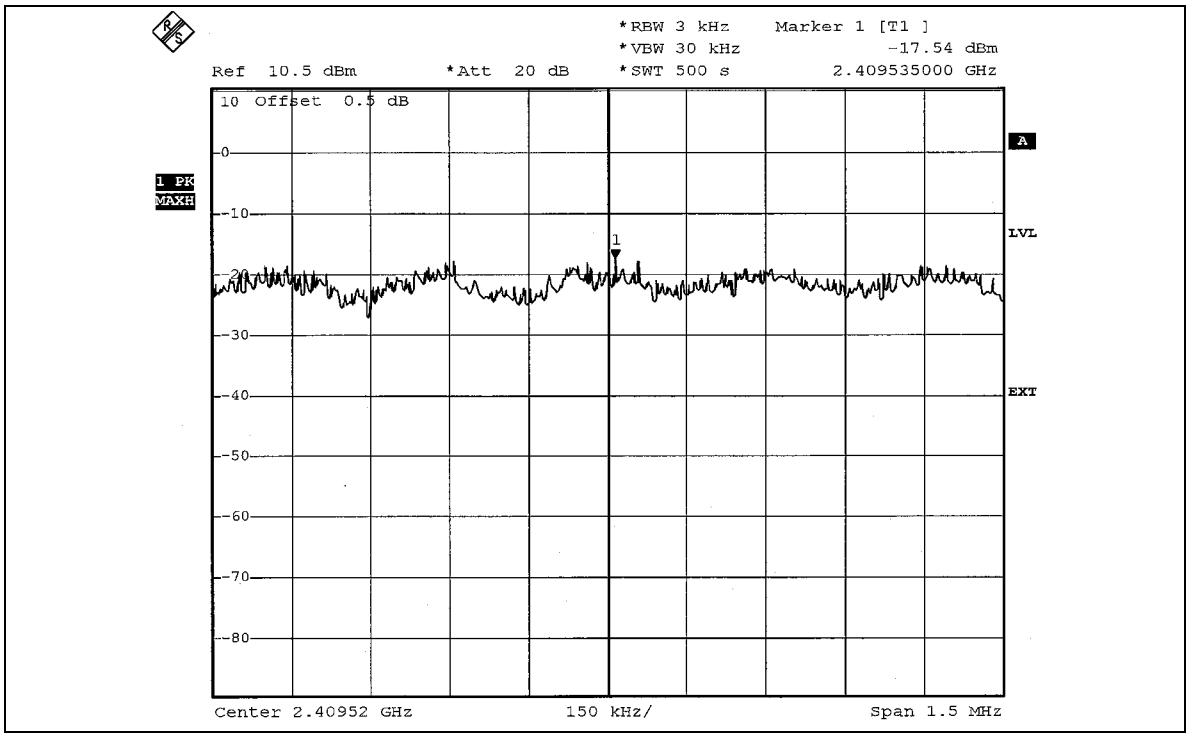


CH11

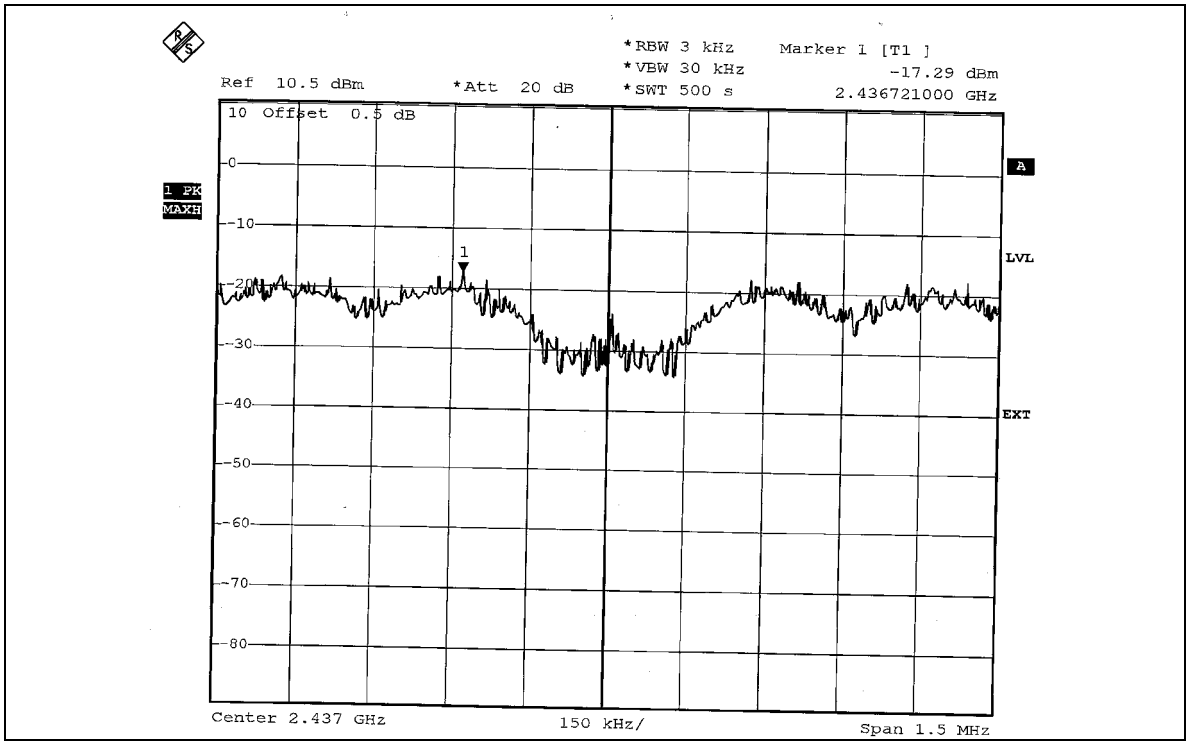


FOR CHAIN 1:

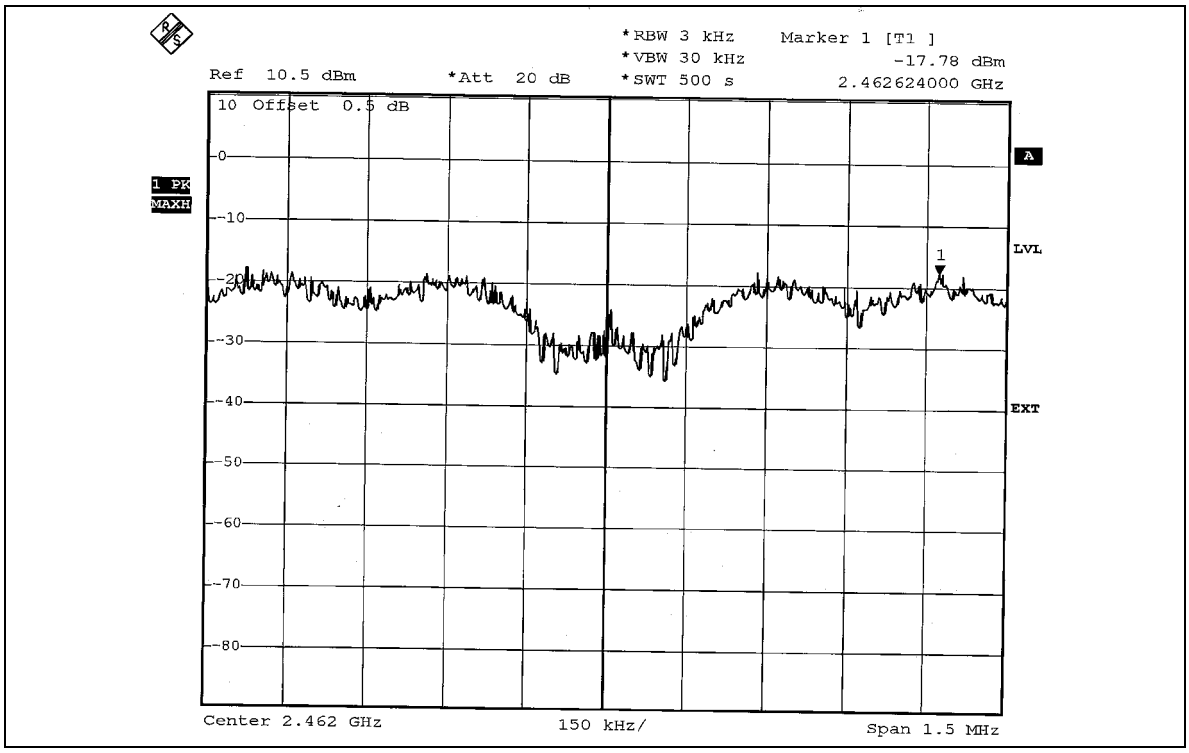
CH1



CH6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-17.29 dBm
2.436721000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
EXT
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.437 GHz
150 kHz/
Span 1.5 MHz

CH11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-17.78 dBm
2.462624000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
EXT
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.462 GHz
150 kHz/
Span 1.5 MHz

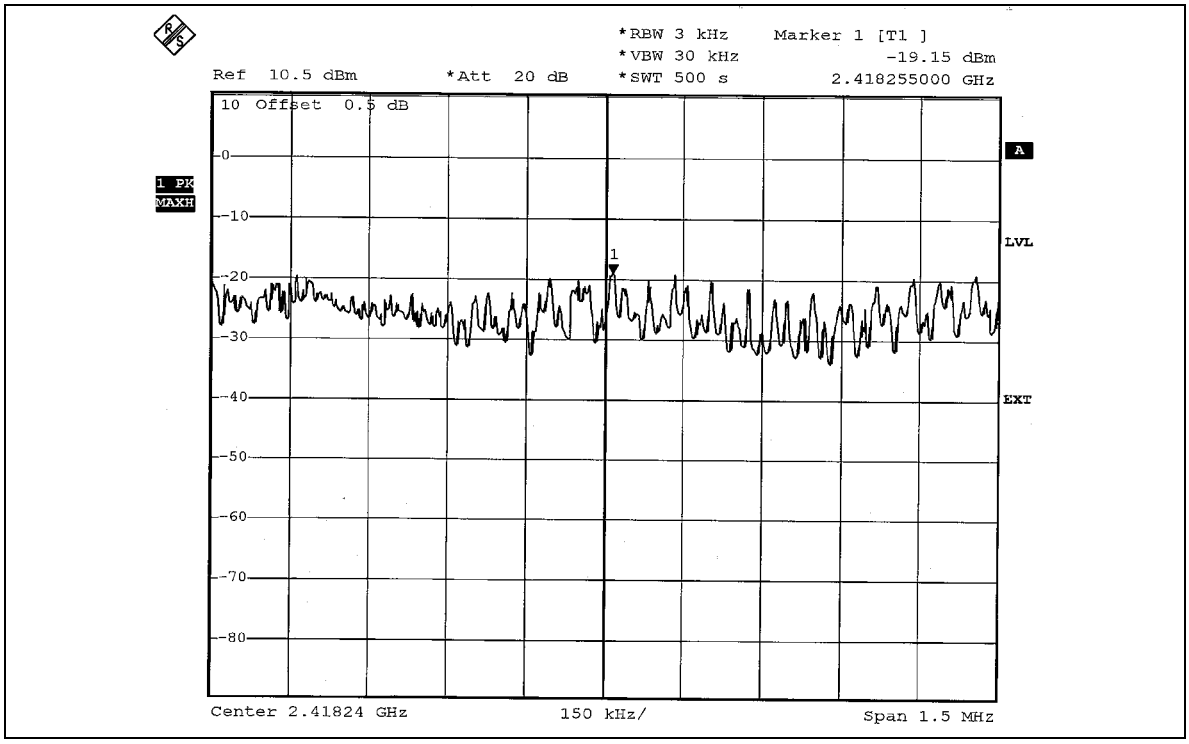
ACE OFDM MODULATION

MODULATION TYPE	QPSK	TRANSFER RATE	12Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY	Match Tsui		

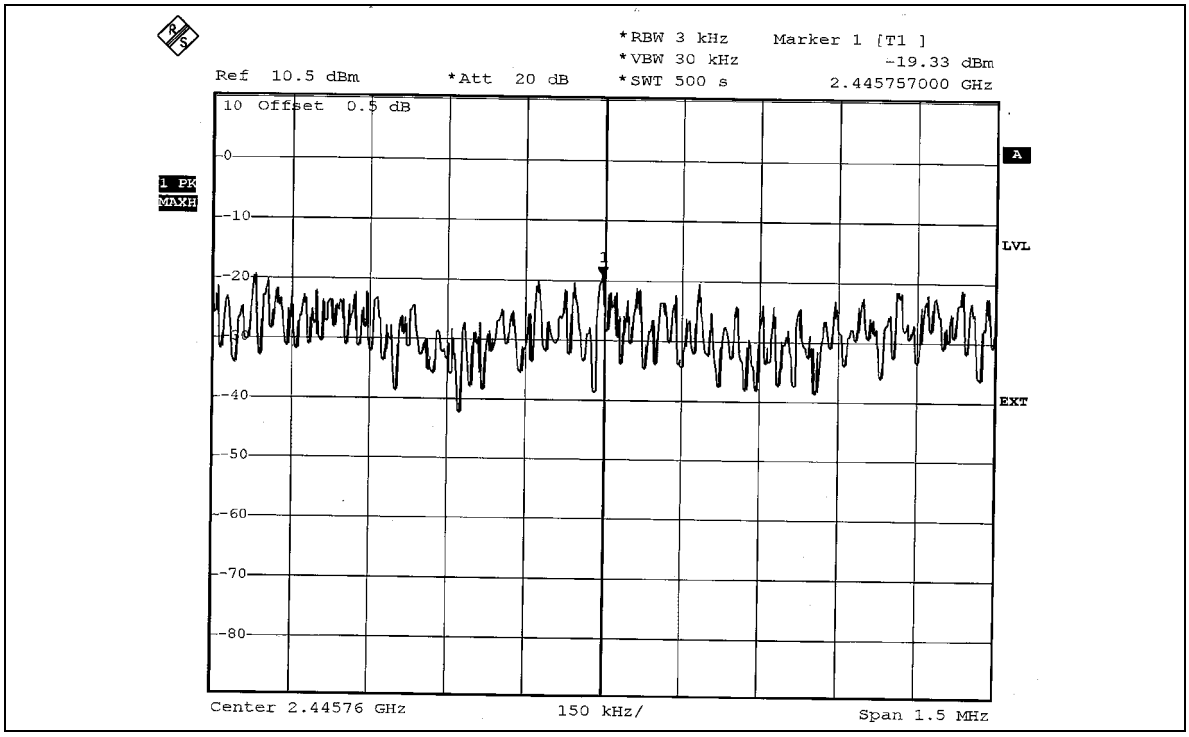
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)		MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1		
1	2422	-19.15	-18.59	8	PASS
4	2437	-19.33	-18.58	8	PASS
7	2452	-21.16	-20.01	8	PASS

FOR CHAIN 0:

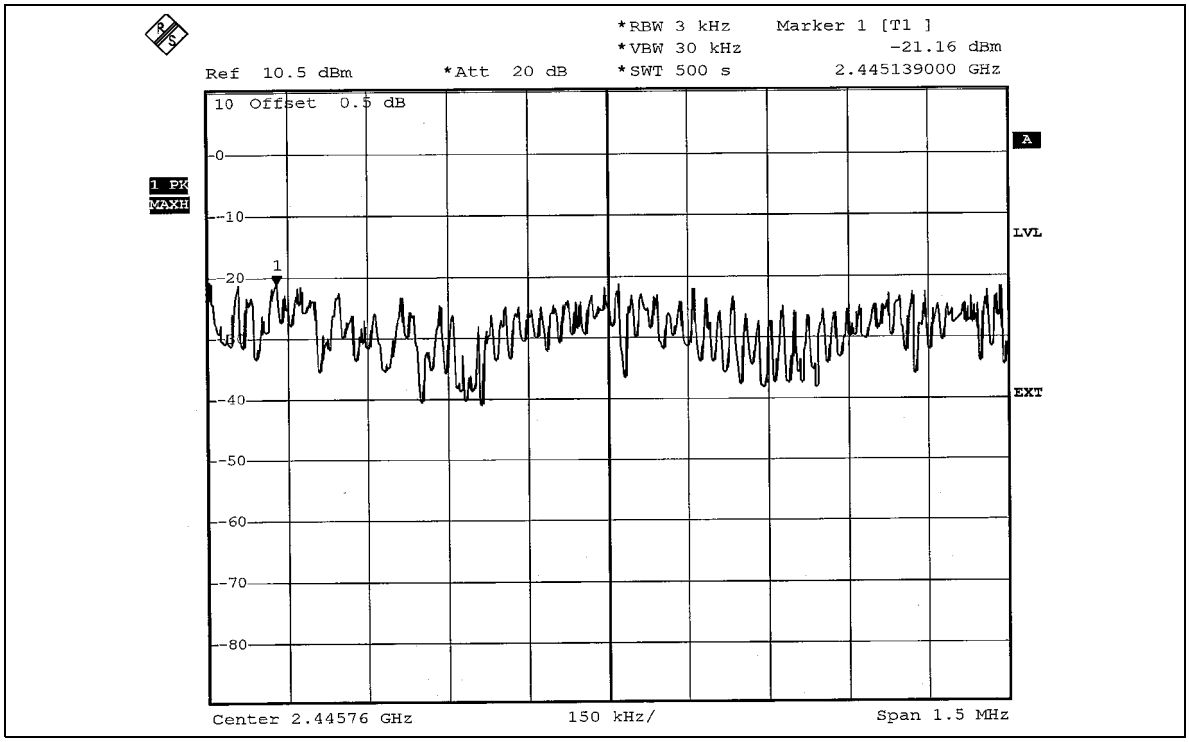
CH1



CH4

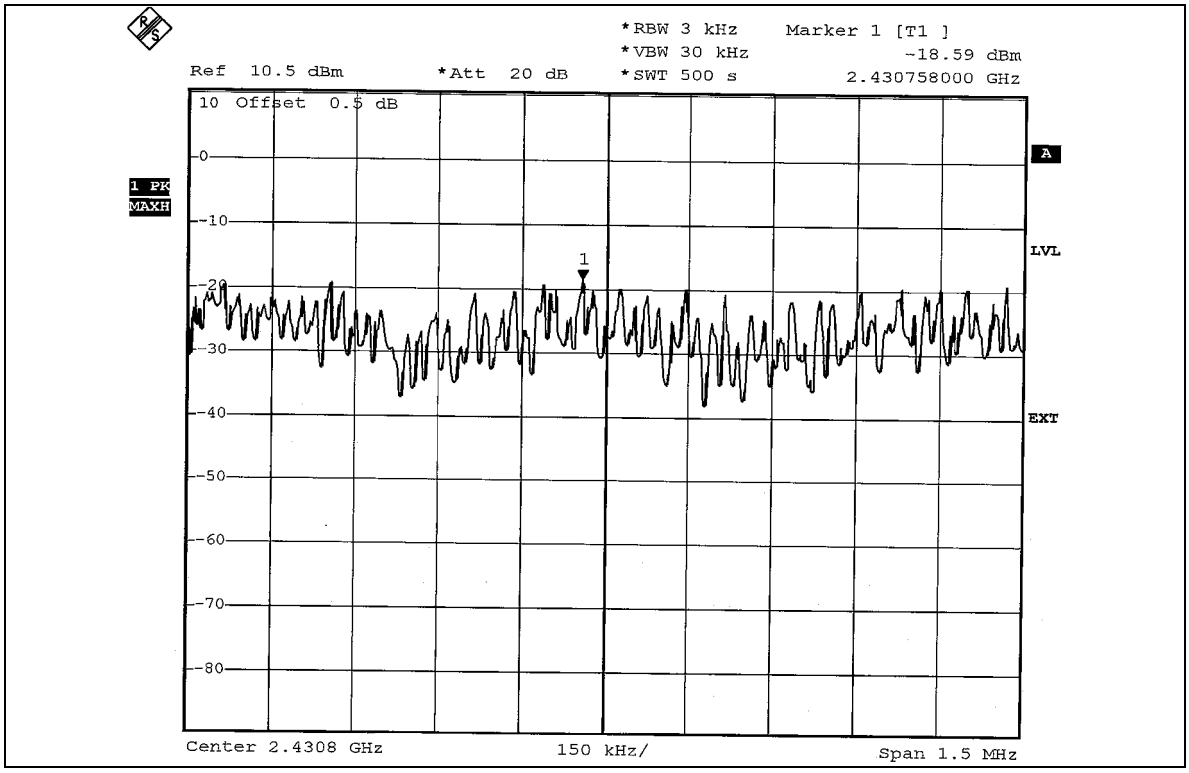


CH7

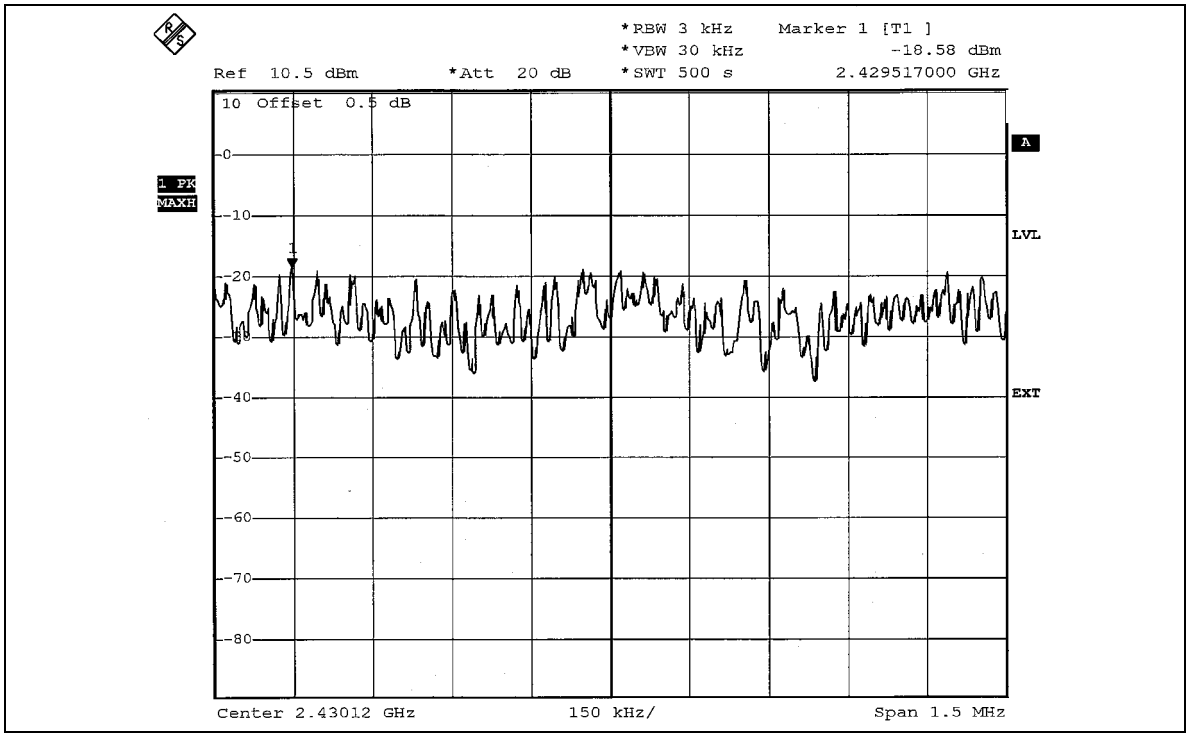


FOR CHAIN 1:

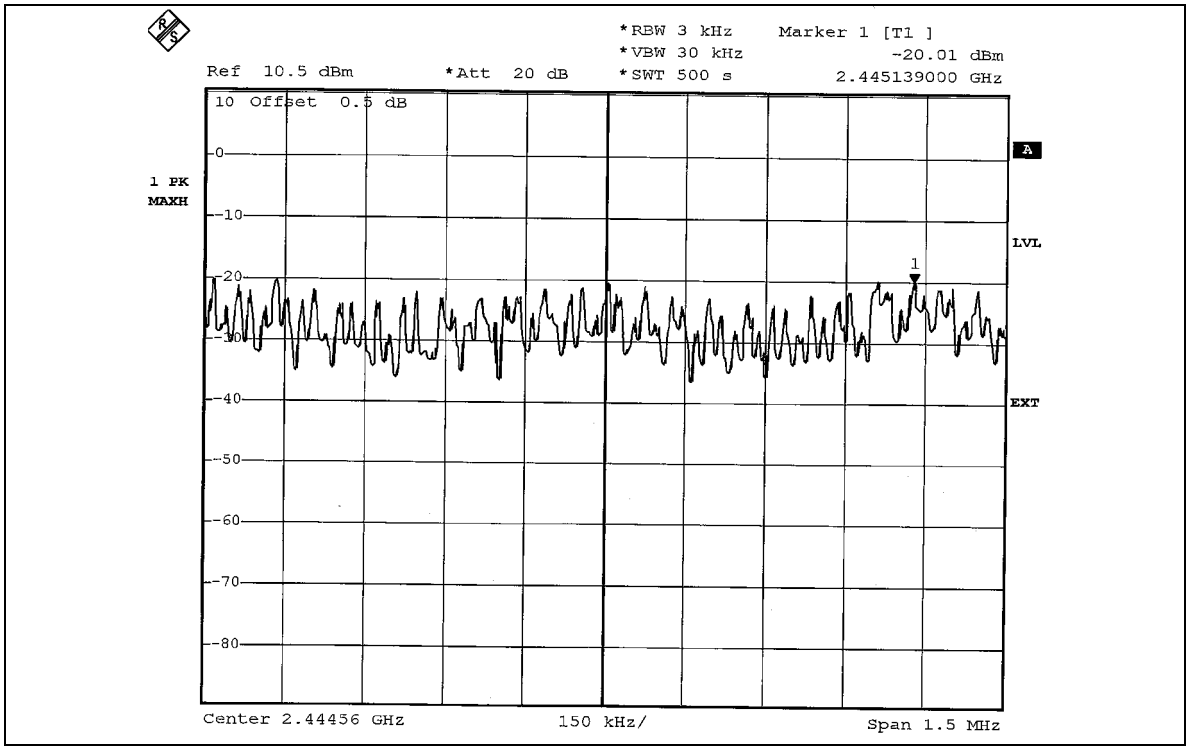
CH1



CH4


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-18.58 dBm
2.429517000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
EXT
Center 2.43012 GHz
150 kHz/
Span 1.5 MHz

CH7


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-20.01 dBm
2.445139000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
EXT
Center 2.44456 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
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

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter 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. 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) (For 802.11b & 802.11g)

(Peak RBW = VBW = 100kHz; Average RBW = 1MHz, VBW = 300Hz) (For ACE OFDM)

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10Hz or 300Hz for Average detection (AV) at frequency above 1GHz.

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 18 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).

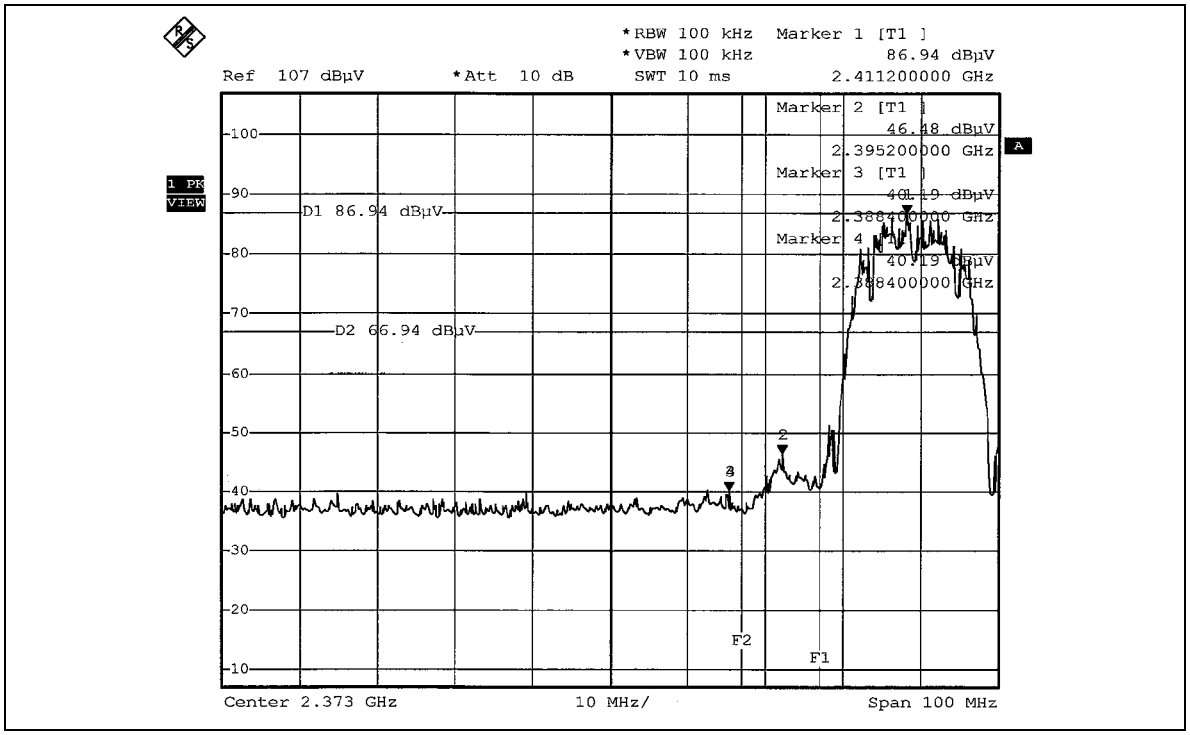
802.11b DSSS MODULATION

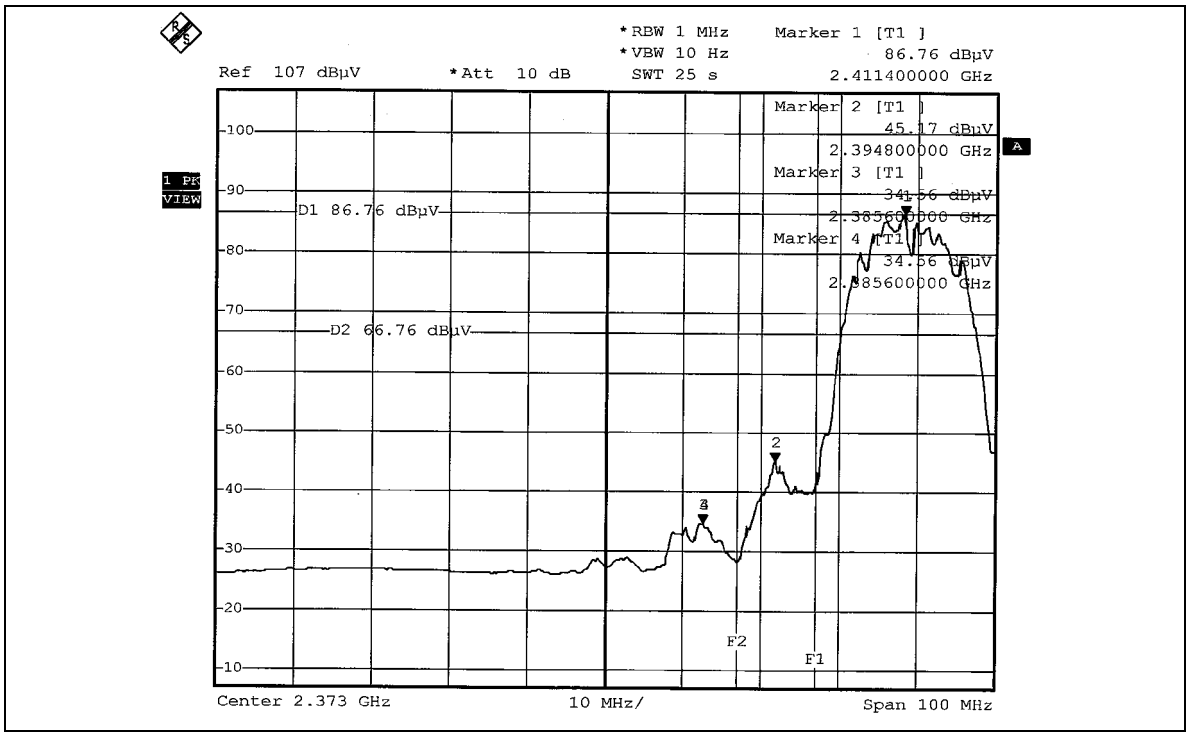
NOTE 1: The band edge emission plot on page 76 shows 46.75dBc between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 108.98dBuV/m (Peak), so the maximum field strength in restrict band is 108.98 – 46.75 = 62.23dBuV/m, which is under 74dBuV/m limit.

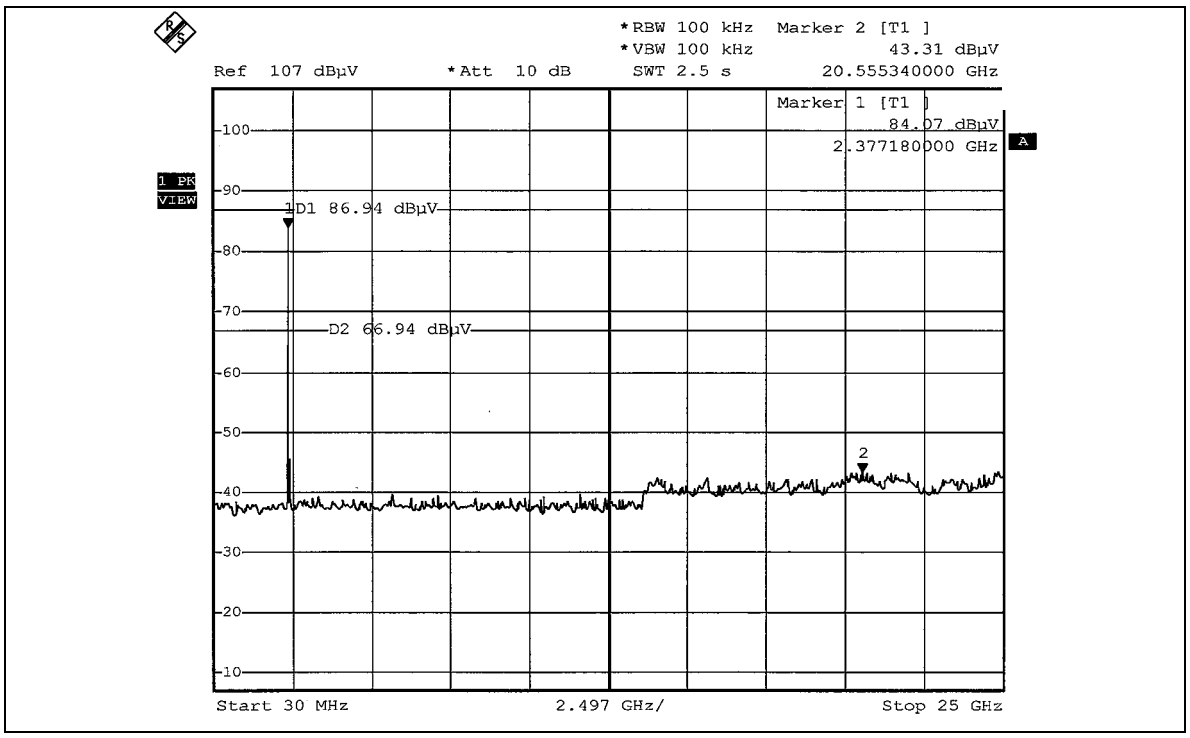
The band edge emission plot on page 76 shows 52.20dBc between carrier maximum power and local maximum emission in restrict band (2.3856GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 104.63dBuV/m (Average), so the maximum field strength in restrict band is 104.63 – 52.20 = 52.43dBuV/m, which is under 54dBuV/m limit.

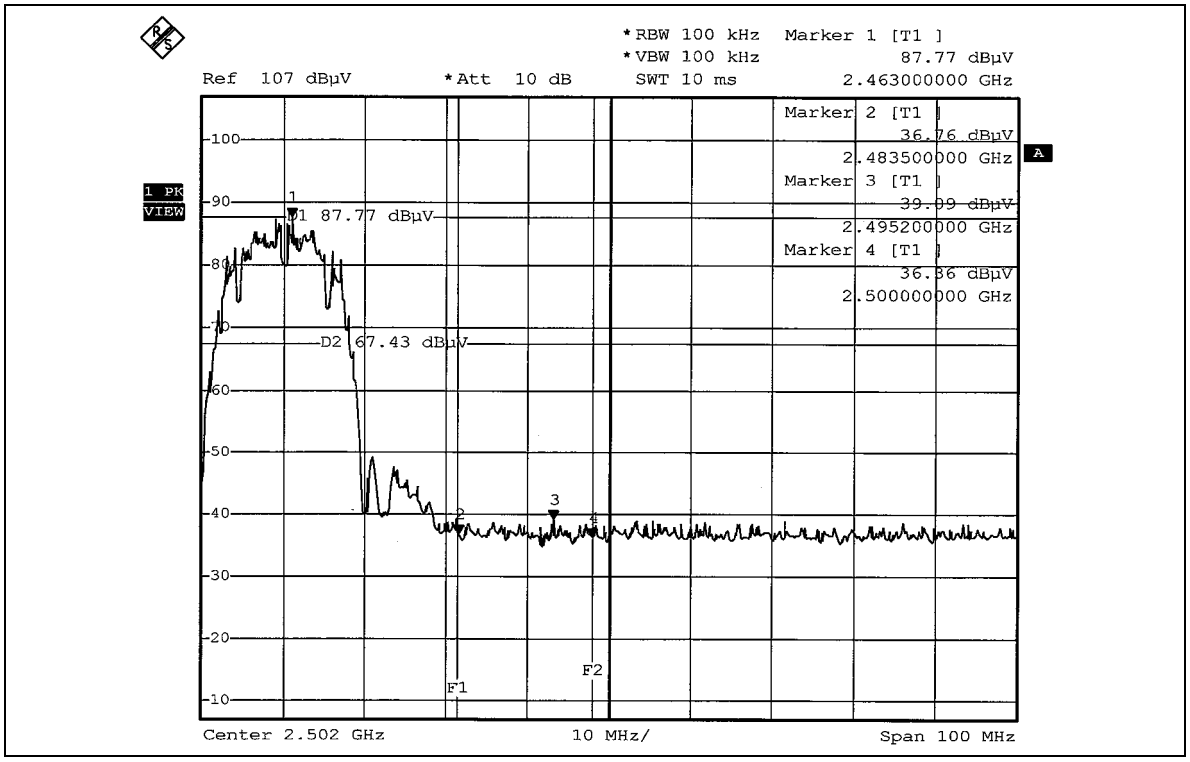
NOTE 2: The band edge emission plot on page 77 shows 48.68dBc between carrier maximum power and local maximum emission in restrict band (2.4952GHz). The emission of carrier strength list in the test result of channel 11 at the item 5.2.7 is 108.66dBuV/m (Peak), so the maximum field strength in restrict band is 108.66 –48.68 = 59.98dBuV/m, which is under 74dBuV/m limit.

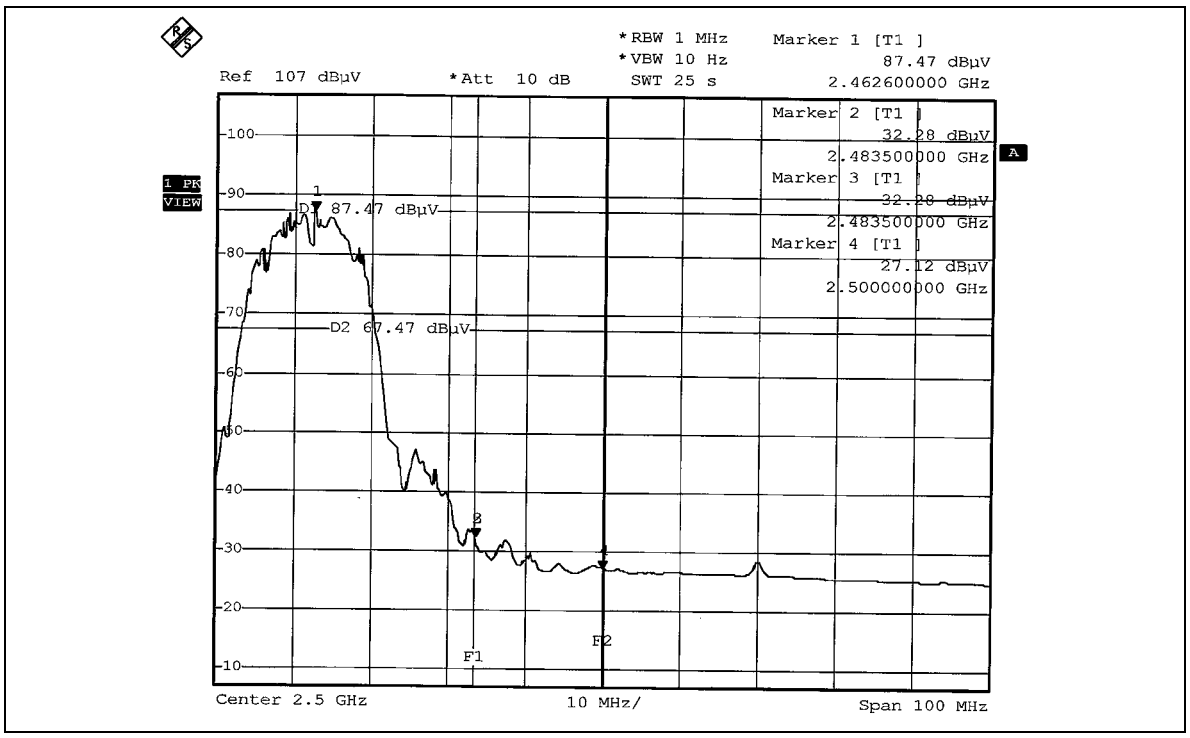
The band edge emission plot on page 78 shows 55.19dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 5.2.7 is 104.83dBuV/m (Average), so the maximum field strength in restrict band is 104.83 –55.19 = 49.64dBuV/m, which is under 54dBuV/m limit.

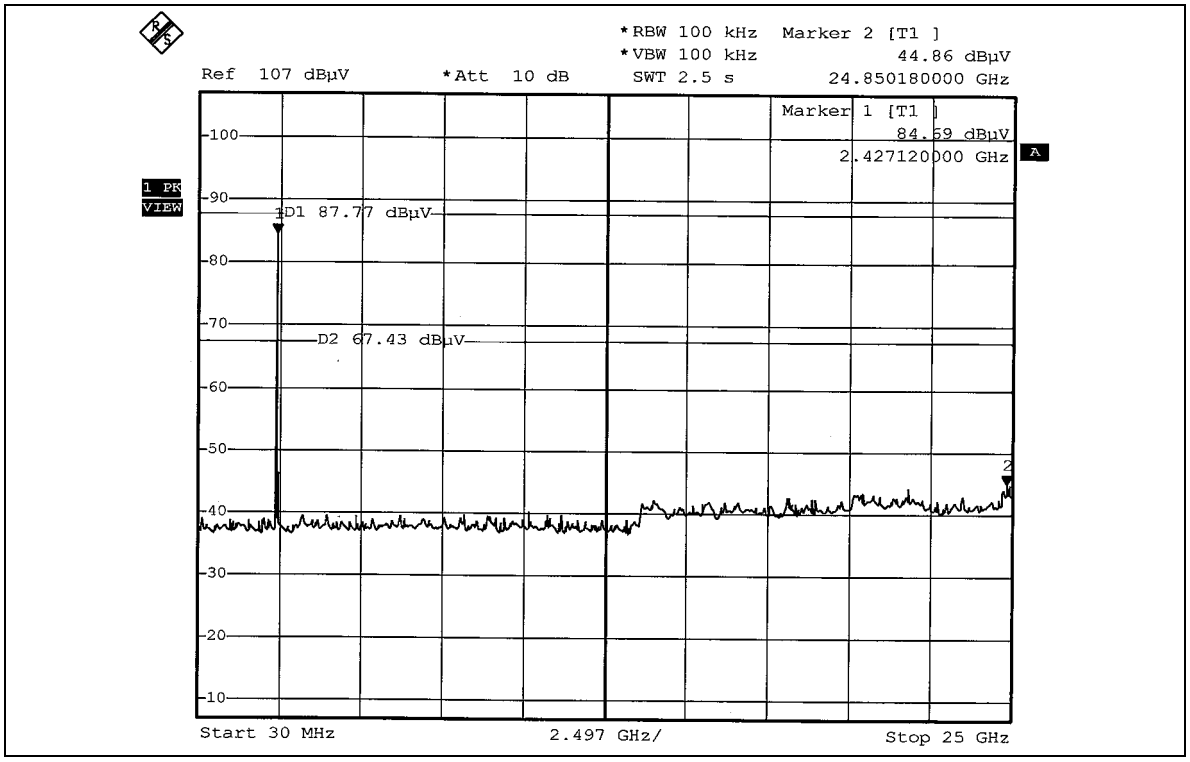

*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
86.94 dBµV
2.411200000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
46.48 dBµV
2.395200000 GHz
Marker 3 [T1]
40.19 dBµV
2.388400000 GHz
Marker 4 [T1]
40.19 dBµV
2.388400000 GHz
1 PK
VIEW
A
D1 86.94 dBµV
D2 66.94 dBµV
F2
F1
Center 2.373 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
86.76 dBµV
2.411400000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
45.17 dBµV
2.394800000 GHz
Marker 3 [T1]
34.56 dBµV
2.385600000 GHz
Marker 4 [T1]
34.56 dBµV
2.385600000 GHz
1 PK
VIEW
A
D1 86.76 dBµV
D2 66.76 dBµV
F2
F1
Center 2.373 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 2 [T1]
43.31 dBµV
20.555340000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 1 [T1]
84.07 dBµV
2.377180000 GHz
1 PK
VIEW
A
1D1 86.94 dBµV
D2 66.94 dBµV
Start 30 MHz
2.497 GHz/
Stop 25 GHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
87.77 dBµV
2.463000000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
36.76 dBµV
2.483500000 GHz
Marker 3 [T1]
39.09 dBµV
2.495200000 GHz
Marker 4 [T1]
36.36 dBµV
2.500000000 GHz
1 PK
VIEW
A
D1 87.77 dBµV
D2 67.43 dBµV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
87.47 dBµV
2.462600000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
32.28 dBµV
2.483500000 GHz
Marker 3 [T1]
32.28 dBµV
2.483500000 GHz
Marker 4 [T1]
27.12 dBµV
2.500000000 GHz
1 PK
VIEW
D1 87.47 dBµV
D2 67.47 dBµV
F1
F2
Center 2.5 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 2 [T1]
44.86 dBµV
24.850180000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 1 [T1]
84.59 dBµV
2.427120000 GHz
1 PK
VIEW
D1 87.77 dBµV
D2 67.43 dBµV
Start 30 MHz
2.497 GHz/
Stop 25 GHz

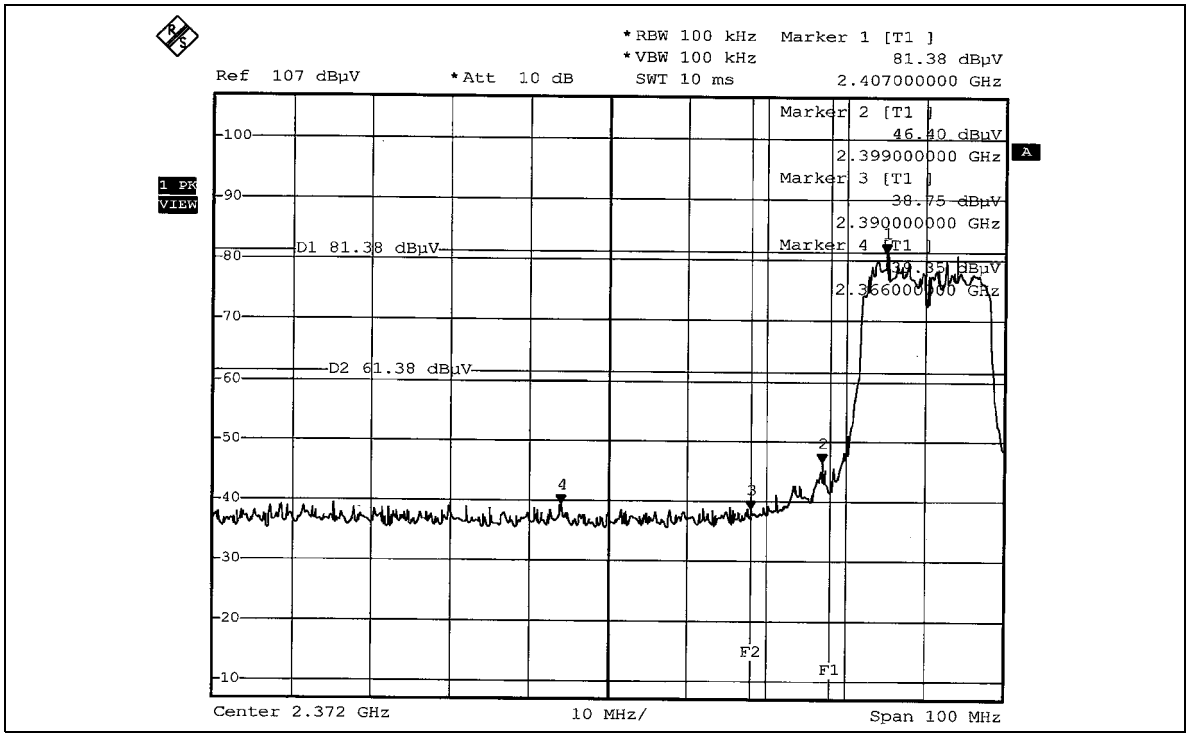
802.11g OFDM MODULATION

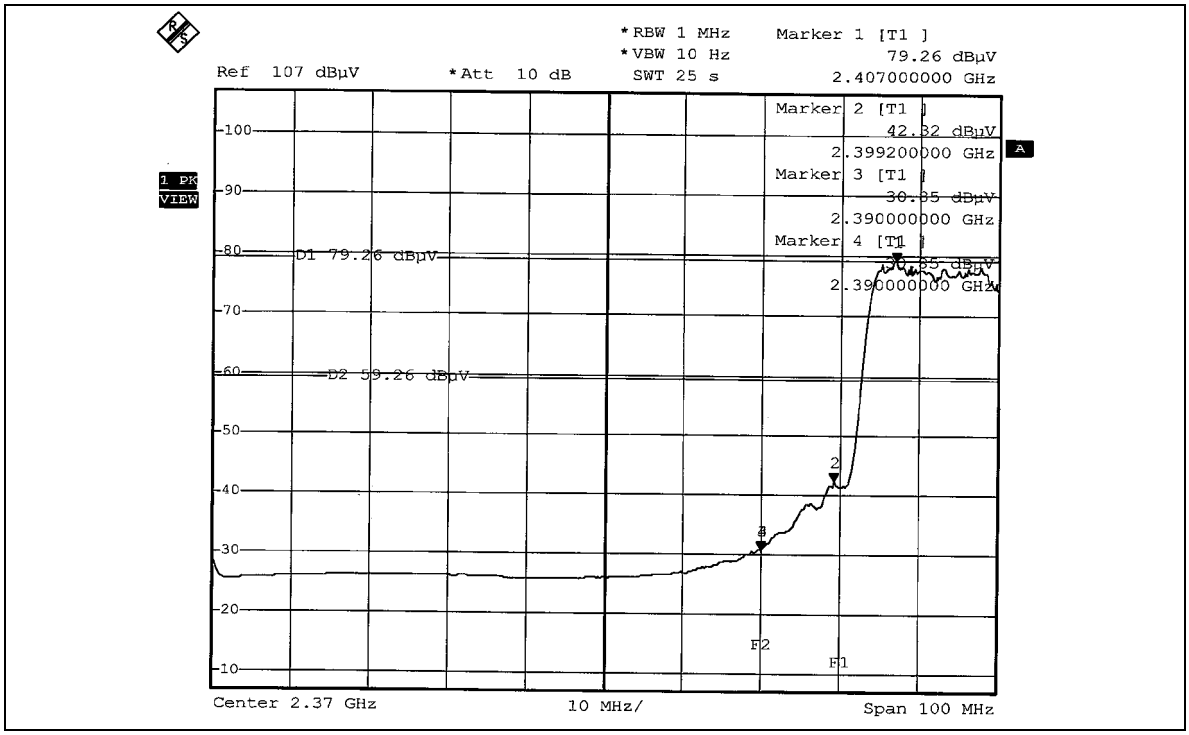
NOTE 1: The band edge emission plot on page 80 shows 42.03dBc between carrier maximum power and local maximum emission in restrict band (2.3660GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 108.81dBuV/m (Peak), so the maximum field strength in restrict band is 108.81 – 42.03 = 66.78dBuV/m, which is under 74dBuV/m limit.

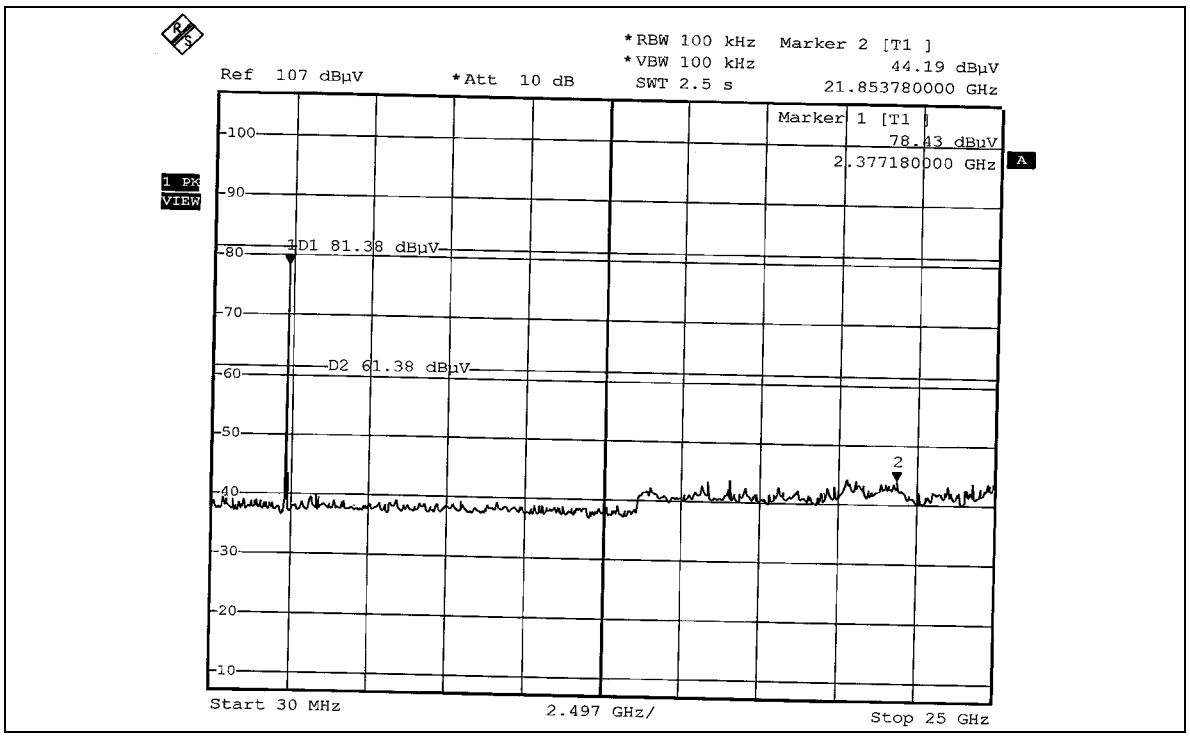
The band edge emission plot on page 80 shows 48.41dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 99.80dBuV/m (Average), so the maximum field strength in restrict band is 99.80 – 48.41 = 51.39dBuV/m, which is under 54dBuV/m limit.

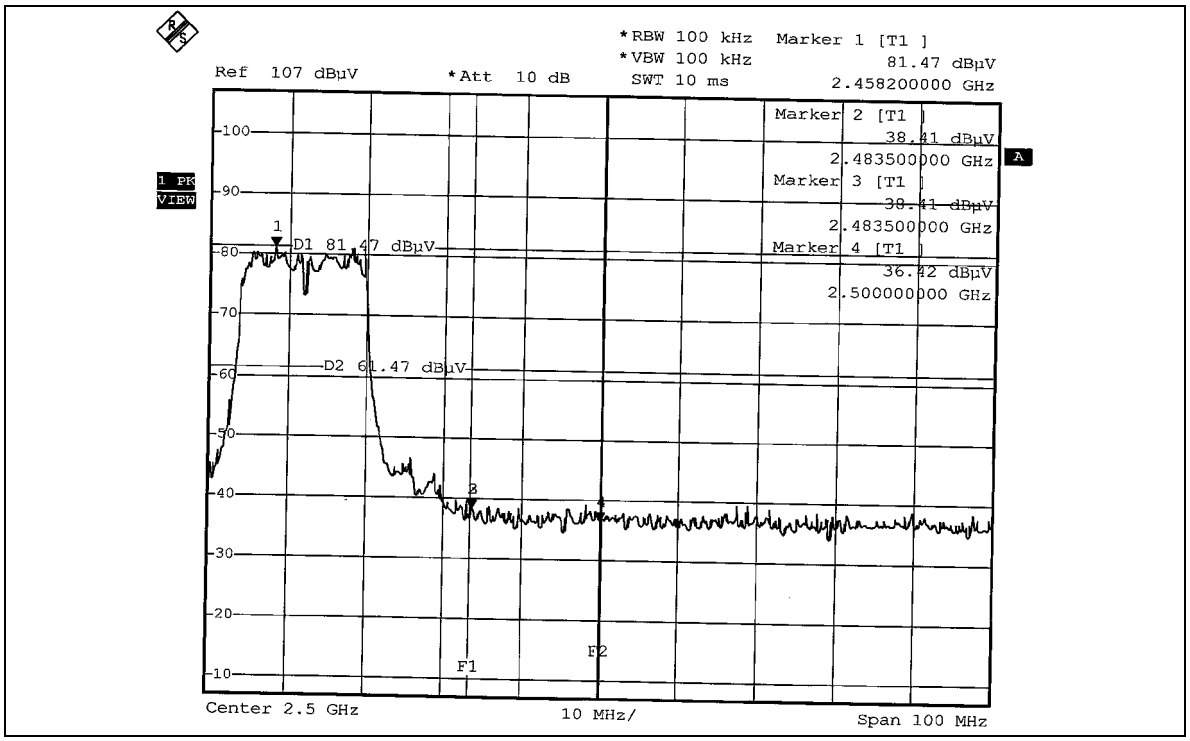
NOTE 2: The band edge emission plot on page 81 shows 43.06 dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 5.2.7 is 109.27dBuV/m (Peak), so the maximum field strength in restrict band is 109.27 – 43.06 = 66.21dBuV/m, which is under 74dBuV/m limit.

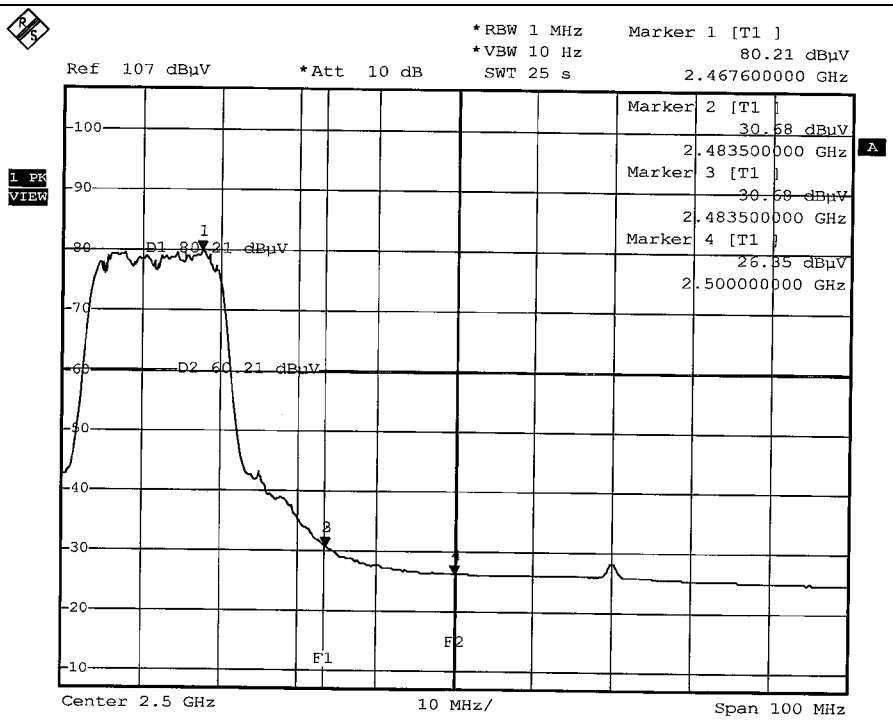
The band edge emission plot on page 82 shows 49.53dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 5.2.7 is 100.28dBuV/m (Average), so the maximum field strength in restrict band is 100.28 – 49.53 = 50.75dBuV/m, which is under 54dBuV/m limit.

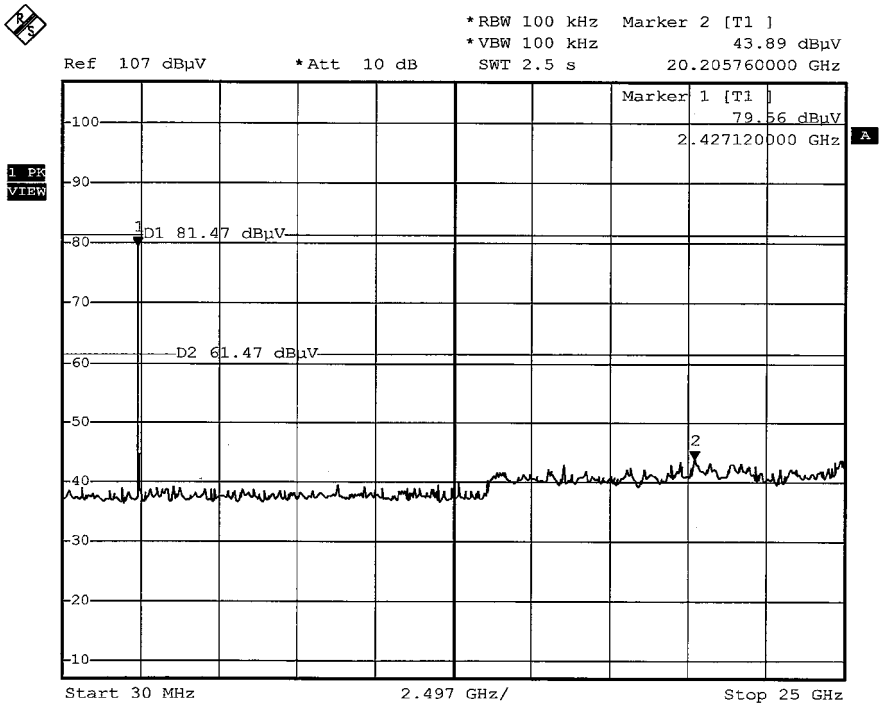

*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
81.38 dBµV
2.407000000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
46.40 dBµV
2.399000000 GHz
Marker 3 [T1]
38.75 dBµV
2.390000000 GHz
Marker 4 [T1]
D1 81.38 dBµV
D2 61.38 dBµV
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
79.26 dBµV
2.407000000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
42.32 dBµV
2.399200000 GHz
Marker 3 [T1]
30.35 dBµV
2.390000000 GHz
Marker 4 [T1]
D1 79.26 dBµV
D2 59.26 dBµV
F2
F1
Center 2.37 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 2 [T1]
44.19 dBµV
21.853780000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 1 [T1]
78.43 dBµV
2.377180000 GHz
1 PK VIEW
A
D1 81.38 dBµV
D2 61.38 dBµV
Start 30 MHz
2.497 GHz/
Stop 25 GHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 1 [T1]
81.47 dBµV
2.458200000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
38.41 dBµV
2.483500000 GHz
Marker 3 [T1]
38.41 dBµV
2.483500000 GHz
Marker 4 [T1]
36.42 dBµV
2.500000000 GHz
1 PK VIEW
A
D1 81.47 dBµV
D2 61.47 dBµV
F1
F2
Center 2.5 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 10 Hz
SWT 25 s
Marker 1 [T1]
80.21 dBµV
2.467600000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
30.68 dBµV
2.483500000 GHz
Marker 3 [T1]
30.68 dBµV
2.483500000 GHz
Marker 4 [T1]
26.35 dBµV
2.500000000 GHz
1 PK
VIEW
A
D1 80.21 dBµV
D2 60.21 dBµV
F1
F2
Center 2.5 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 2 [T1]
43.89 dBµV
20.205760000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 1 [T1]
79.56 dBµV
2.427120000 GHz
1 PK
VIEW
A
D1 81.47 dBµV
D2 61.47 dBµV
Start 30 MHz
2.497 GHz/
Stop 25 GHz

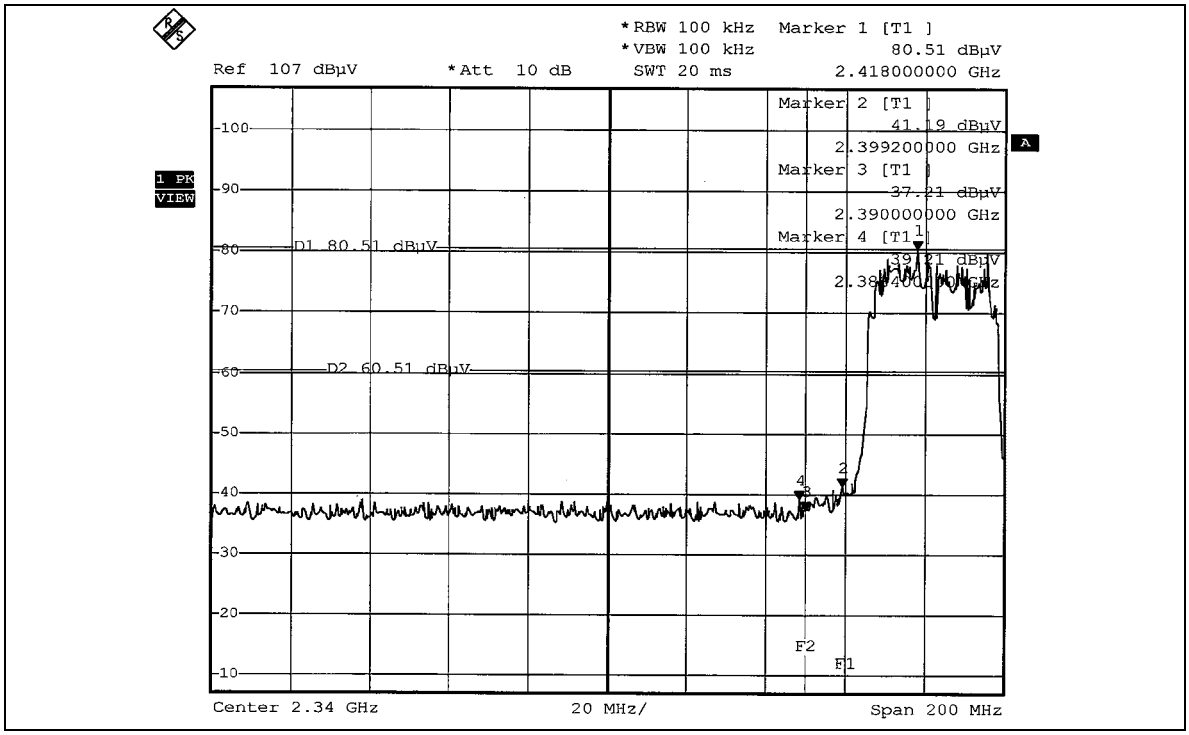
ACE OFDM MODULATION

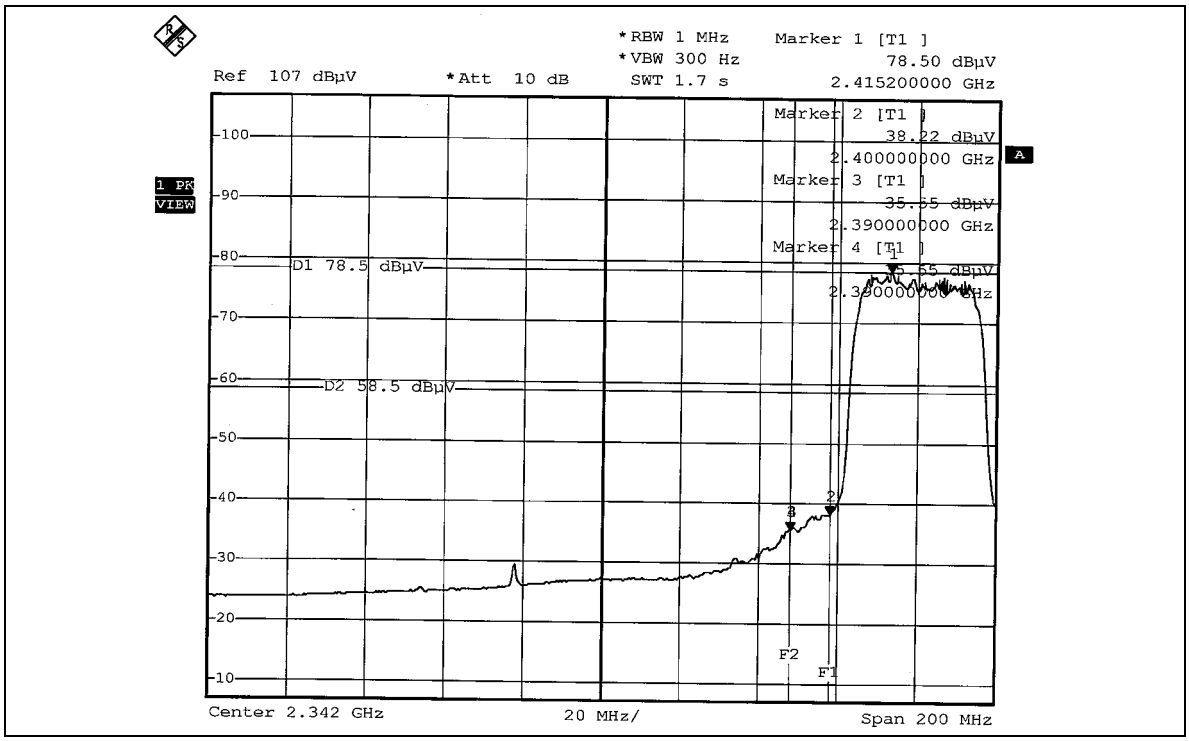
NOTE 1: The band edge emission plot on page 84 shows 41.30dBc between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 108.78dBuV/m (Peak), so the maximum field strength in restrict band is 108.78 – 41.30 = 67.48dBuV/m, which is under 74dBuV/m limit.

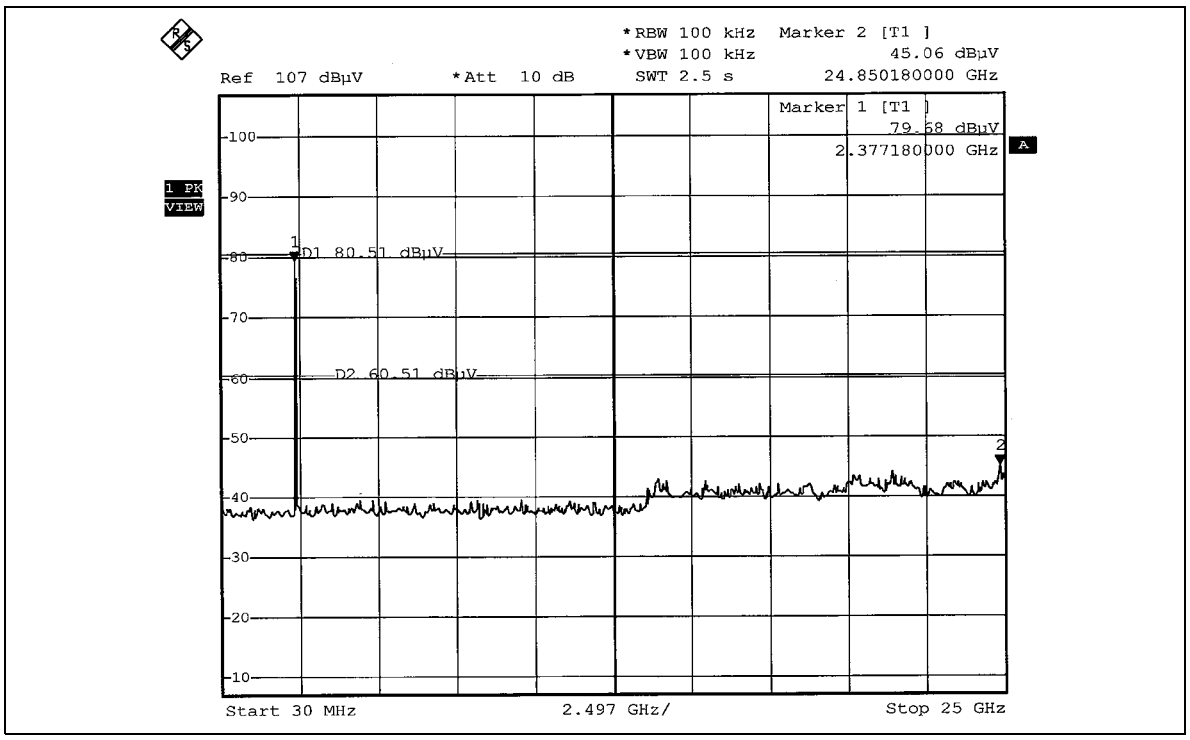
The band edge emission plot on page 84 shows 42.95dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 5.2.7 is 98.56dBuV/m (Average), so the maximum field strength in restrict band is 98.56– 42.95 = 55.61dBuV/m, which is under 54dBuV/m limit.

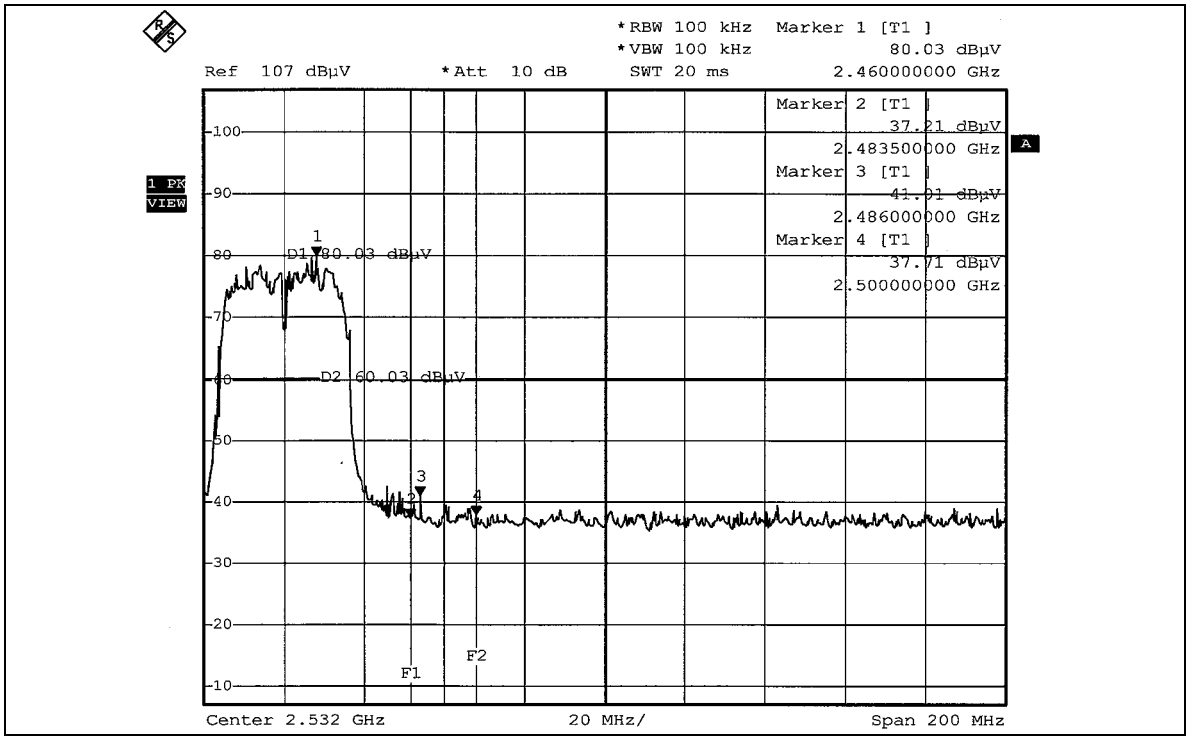
NOTE 2: The band edge emission plot on page 85 shows 39.02dBc between carrier maximum power and local maximum emission in restrict band (2.4860GHz). The emission of carrier strength list in the test result of channel 7 at the item 5.2.7 is 107.24dBuV/m (Peak), so the maximum field strength in restrict band is 107.24 – 39.02 = 68.22dBuV/m, which is under 74dBuV/m limit.

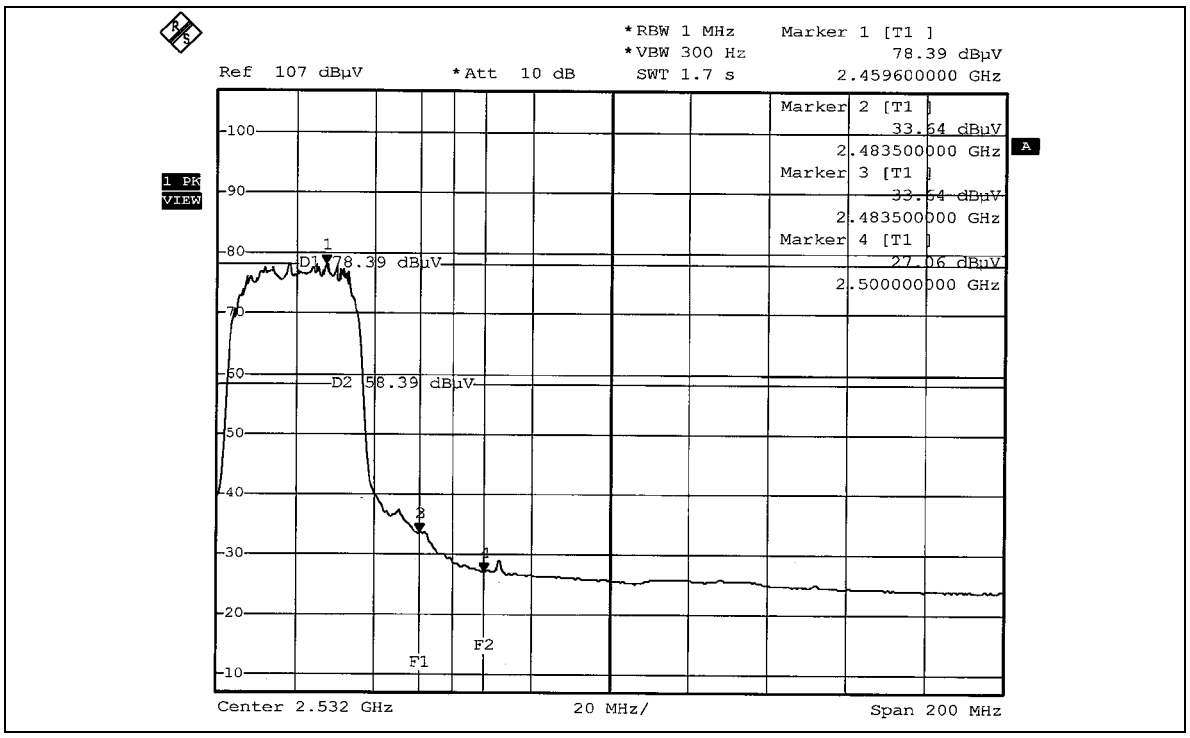
The band edge emission plot on page 86 shows 44.75dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 5.2.7 is 97.02dBuV/m (Average), so the maximum field strength in restrict band is 97.02 – 44.75 = 52.27dBuV/m, which is under 54dBuV/m limit.

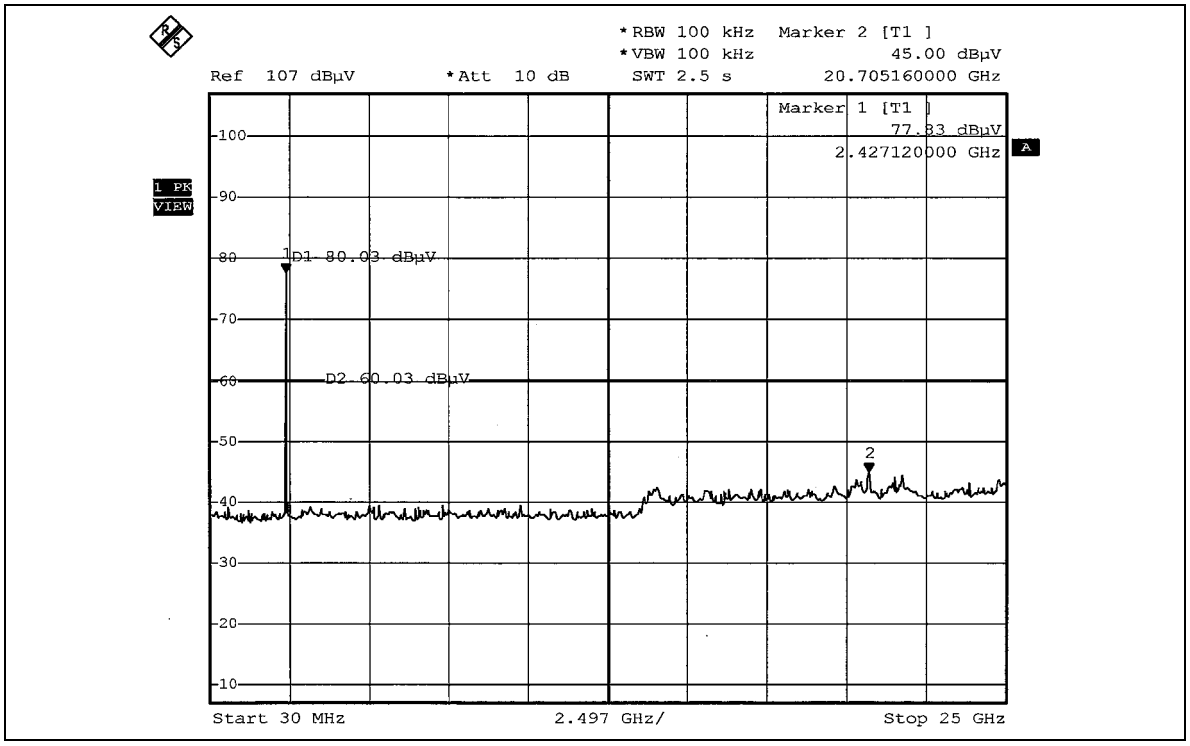

*RBW 100 kHz
*VBW 100 kHz
SWT 20 ms
Marker 1 [T1]
80.51 dBµV
2.418000000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
41.19 dBµV
2.399200000 GHz
Marker 3 [T1]
37.21 dBµV
2.390000000 GHz
Marker 4 [T1]
39.21 dBµV
1 PK
VIEW
A
D1 80.51 dBµV
D2 60.51 dBµV
F2
F1
Center 2.34 GHz
20 MHz/
Span 200 MHz


*RBW 1 MHz
*VBW 300 Hz
SWT 1.7 s
Marker 1 [T1]
78.50 dBµV
2.415200000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
38.22 dBµV
2.400000000 GHz
Marker 3 [T1]
35.55 dBµV
2.390000000 GHz
Marker 4 [T1]
1 PK
VIEW
A
D1 78.5 dBµV
D2 58.5 dBµV
F2
F1
Center 2.342 GHz
20 MHz/
Span 200 MHz


*RBW 100 kHz
*VBW 100 kHz
Marker 2 [T1]
45.06 dBµV
Ref 107 dBµV
*Att 10 dB
SWT 2.5 s
24.850180000 GHz
Marker 1 [T1]
79.68 dBµV
2.377180000 GHz
1 PK
VIEW
D1 80.51 dBµV
D2 60.51 dBµV
Start 30 MHz
2.497 GHz/
Stop 25 GHz


*RBW 100 kHz
*VBW 100 kHz
Marker 1 [T1]
80.03 dBµV
Ref 107 dBµV
*Att 10 dB
SWT 20 ms
2.460000000 GHz
Marker 2 [T1]
37.21 dBµV
2.483500000 GHz
Marker 3 [T1]
41.01 dBµV
2.486000000 GHz
Marker 4 [T1]
37.71 dBµV
2.500000000 GHz
1 PK
VIEW
D1 80.03 dBµV
D2 60.03 dBµV
F1
F2
Center 2.532 GHz
20 MHz/
Span 200 MHz


*RBW 1 MHz
*VBW 300 Hz
SWT 1.7 s
Marker 1 [T1]
78.39 dBµV
2.459600000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 2 [T1]
33.64 dBµV
2.483500000 GHz
Marker 3 [T1]
33.64 dBµV
2.483500000 GHz
Marker 4 [T1]
27.06 dBµV
2.500000000 GHz
1 PK
VIEW
A
D1 78.39 dBµV
D2 58.39 dBµV
F1
F2
Center 2.532 GHz
20 MHz/
Span 200 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 2.5 s
Marker 2 [T1]
45.00 dBµV
20.705160000 GHz
Ref 107 dBµV
*Att 10 dB
Marker 1 [T1]
77.33 dBµV
2.427120000 GHz
1 PK
VIEW
A
D1 80.03 dBµV
D2 60.03 dBµV
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.

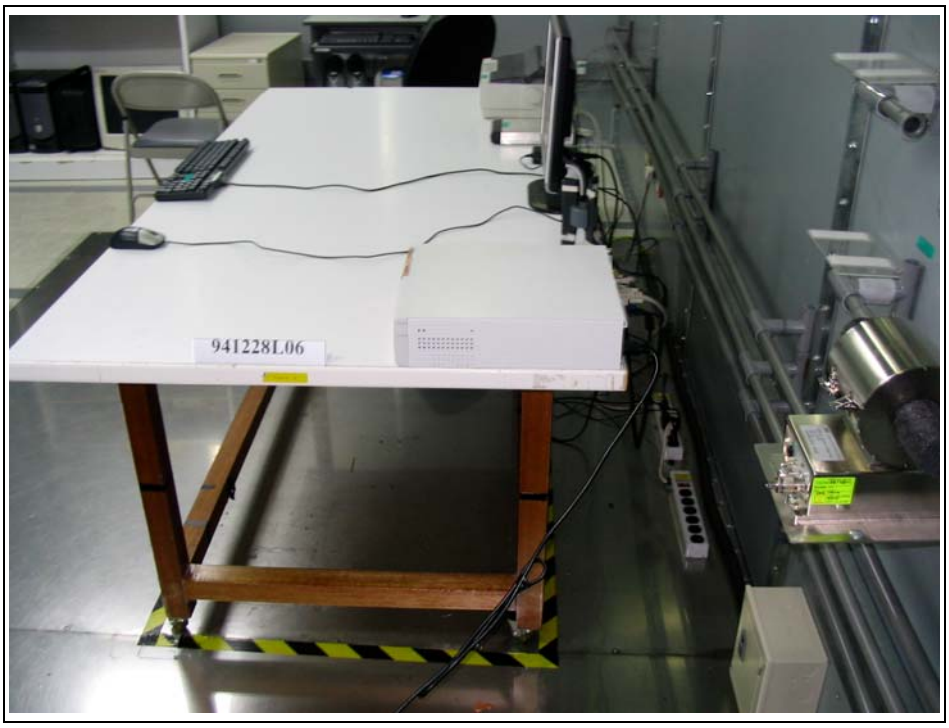
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

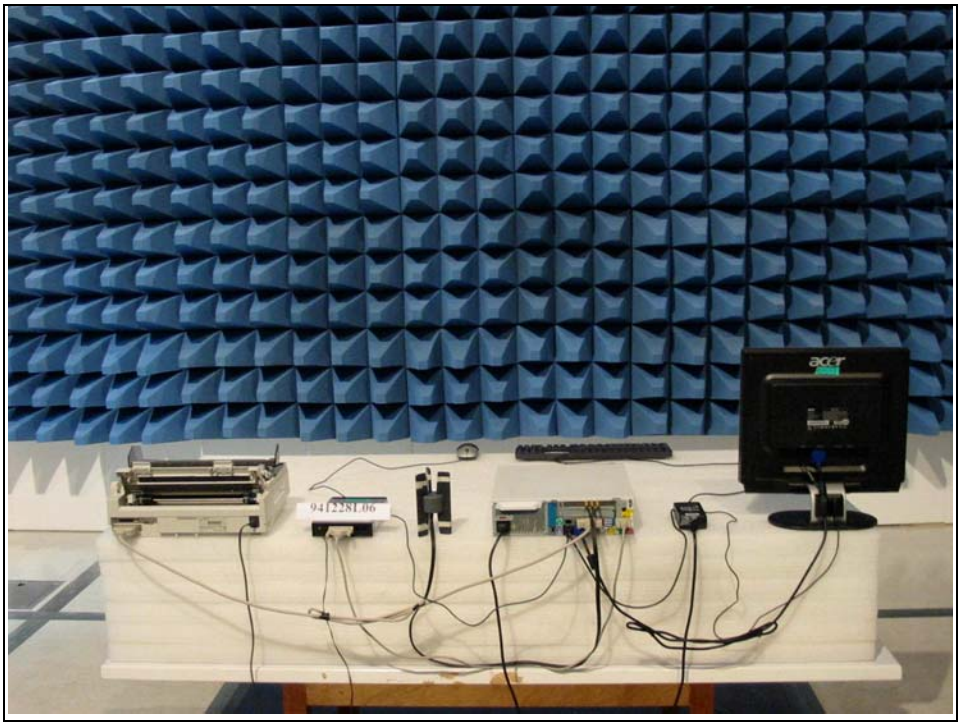
The antenna type used in this product is Dipole antenna with RSMA connector. The maximum Gain of this antenna is only –0.48dBi.

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



6. 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.