

FCC TEST REPORT (15.407)

REPORT NO.: RF950517L02
MODEL NO.: WLAG-1302
RECEIVED: May 19, 2006
TESTED: May 20 ~ Jun. 12, 2006
ISSUED: Jun. 15, 2006

APPLICANT: CAMEO COMMUNICATIONS, INC.

ADDRESS: 5F, No. 42, Sec. 6, Mincyuan E. Rd., Neihu District, Taipei City 114, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This test report consists of 53 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, A2LA or any government agencies. The test results in the report only apply to the tested sample.



No. 2177-01





Table of Contents

1.	CERTIFICATION.....	4
2.	SUMMARY OF TEST RESULTS.....	5
2.1	MEASUREMENT UNCERTAINTY.....	5
3.	GENERAL INFORMATION.....	6
3.1	GENERAL DESCRIPTION OF EUT.....	6
3.2	DESCRIPTION OF TEST MODES.....	7
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST.....	7
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:.....	8
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS.....	10
3.4	DESCRIPTION OF SUPPORT UNITS.....	10
4.	TEST TYPES AND RESULTS.....	11
4.1	CONDUCTED EMISSION MEASUREMENT.....	11
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	11
4.1.2	TEST INSTRUMENTS.....	11
4.1.3	TEST PROCEDURES.....	12
4.1.4	DEVIATION FROM TEST STANDARD.....	12
4.1.5	TEST SETUP.....	13
4.1.6	EUT OPERATING CONDITIONS.....	13
4.1.7	TEST RESULTS.....	14
4.2	RADIATED EMISSION MEASUREMENT.....	16
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	16
4.2.2	LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS.....	17
4.2.3	TEST INSTRUMENTS.....	18
4.2.4	TEST PROCEDURES.....	19
4.2.5	DEVIATION FROM TEST STANDARD.....	19
4.2.6	TEST SETUP.....	20
4.2.7	EUT OPERATING CONDITION.....	20
4.2.8	TEST RESULTS.....	21
4.3	PEAK TRANSMIT POWER MEASUREMENT.....	26
4.3.1	LIMITS OF PEAK TRANSMIT POWER MEASUREMENT.....	26
4.3.2	TEST INSTRUMENTS.....	26
4.3.3	TEST PROCEDURE.....	27
4.3.4	DEVIATION FROM TEST STANDARD.....	27
4.3.5	TEST SETUP.....	27
4.3.6	EUT OPERATING CONDITIONS.....	27
4.3.7	TEST RESULTS.....	28
4.4	PEAK POWER EXCURSION MEASUREMENT.....	33
4.4.1	LIMITS OF PEAK POWER EXCURSION MEASUREMENT.....	33
4.4.2	TEST INSTRUMENTS.....	33
4.4.3	TEST PROCEDURE.....	34
4.4.4	DEVIATION FROM TEST STANDARD.....	34
4.4.5	TEST SETUP.....	34
4.4.6	EUT OPERATING CONDITIONS.....	34
4.4.7	TEST RESULTS.....	35
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT.....	38
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT.....	38



4.5.2	TEST INSTRUMENTS	38
4.5.3	TEST PROCEDURES	39
4.5.4	DEVIATION FROM TEST STANDARD	39
4.5.5	TEST SETUP	39
4.5.6	EUT OPERATING CONDITIONS	39
4.5.7	TEST RESULTS.....	40
4.6	FREQUENCY STABILITY.....	43
4.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	43
4.6.2	TEST INSTRUMENTS	43
4.6.3	TEST PROCEDURE.....	43
4.6.4	DEVIATION FROM TEST STANDARD	43
4.6.5	TEST SETUP	44
4.6.6	EUT OPERATING CONDITION.....	44
4.6.7	TEST RESULTS.....	45
4.7	BAND EDGES MEASUREMENT	46
4.7.1	TEST INSTRUMENTS	46
4.7.2	TEST PROCEDURE.....	46
4.7.3	EUT OPERATING CONDITION.....	46
4.7.4	TEST RESULTS.....	46
4.8	ANTENNA REQUIREMENT	51
4.8.1	STANDARD APPLICABLE	51
4.8.2	ANTENNA CONNECTED CONSTRUCTION.....	51
5.	INFORMATION ON THE TESTING LABORATORIES.....	52
	APPENDIX-A.....	A-1



1. CERTIFICATION

PRODUCT: 802.11a/b/g mini PCI Adapter
MODEL: WLAG-1302
BRAND: Cameo
APPLICANT: CAMEO COMMUNICATIONS, INC.
TEST SAMPLE: ENGINEERING SAMPLE
TESTED: May 20 ~ Jun. 12, 2006
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
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:** Jun. 15, 2006
Andrea Hsia

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Jun. 15, 2006
Responsible for RF Long Chen

APPROVED BY : Gary Chang , **DATE:** Jun. 15, 2006
Gary Chang / Supervisor

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -18.98dB at 0.209MHz
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -1.11 dB at 10640.00MHz
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.55 dB
	200MHz ~1000MHz	3.58 dB
	1GHz ~ 18GHz	1.10 dB
	18GHz ~ 40GHz	0.91 dB

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



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	802.11a/b/g mini PCI Adapter
MODEL NO.	WLAG-1302
FCC ID	NHPWLAG1302
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 802.11a: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.180 ~ 5.320GHz, 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 802.11a: 13
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz
OUTPUT POWER	44.668mW for 802.11b 39.902mW for 802.11g 40.272mW for 5.180 ~ 5.320GHz 31.915mW for 5.745 ~ 5.825GHz
ANTENNA TYPE	PIFA antenna with 1.96dBi gain (for 2.4GHz) PIFA antenna with 1.12dBi gain (for 5.0GHz)
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

NOTE:

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

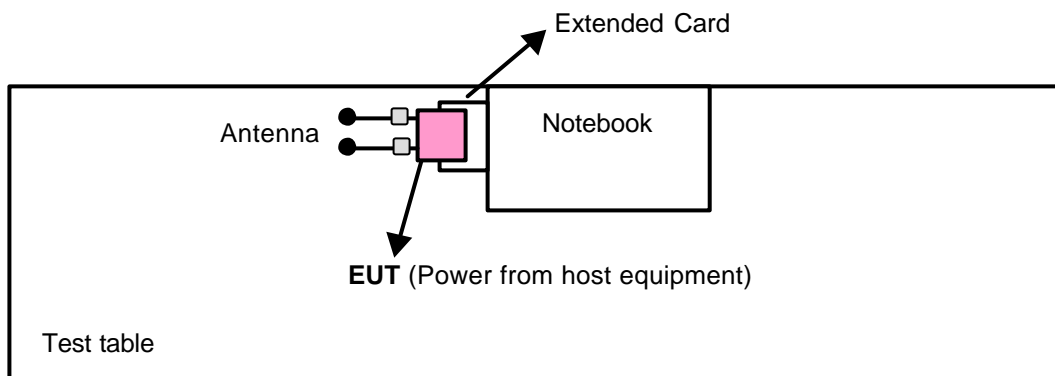
3.2 DESCRIPTION OF TEST MODES

Operated in 5180 ~ 5320MHz

8 channels are provided to this EUT.

CHANNEL	FREQUENCY
1	5180 MHz
2	5200 MHz
3	5220 MHz
4	5240 MHz
5	5260 MHz
6	5280 MHz
7	5300 MHz
8	5320 MHz

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL :

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE<1G	RE ^{>} 1G	APCM	
-	v	v	v	v	-

Where **PLC**: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

RE[>]1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: “-“ means no effect.

Power Line Conducted Emission Test:

- ? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	1 to 8	5	OFDM	BPSK	6

Radiated Emission Test (Below 1 GHz):

- ? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	1 to 8	5	OFDM	BPSK	6

Radiated Emission Test (Above 1 GHz):

- ? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	1 to 8	1, 4, 5, 8	OFDM	BPSK	6



Bandedge Measurement:

- ? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	1 to 8	1, 8	OFDM	BPSK	6

Antenna Port Conducted Measurement:

- ? Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	1 to 8	1, 4, 5, 8	OFDM	BPSK	6



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

ANSI C63.4-2003

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	HP	CLV4001AP	2CE525057W	NA

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

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

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 11, 2006
RF signal cable Woken	5D-FB	Cable-HYC01-01	Jan. 06, 2007
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Feb. 15, 2007
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Feb. 07, 2007
Software ADT	ADT_Cond_V3	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1.
 3. The VCCI Site Registration No. is C-2040.

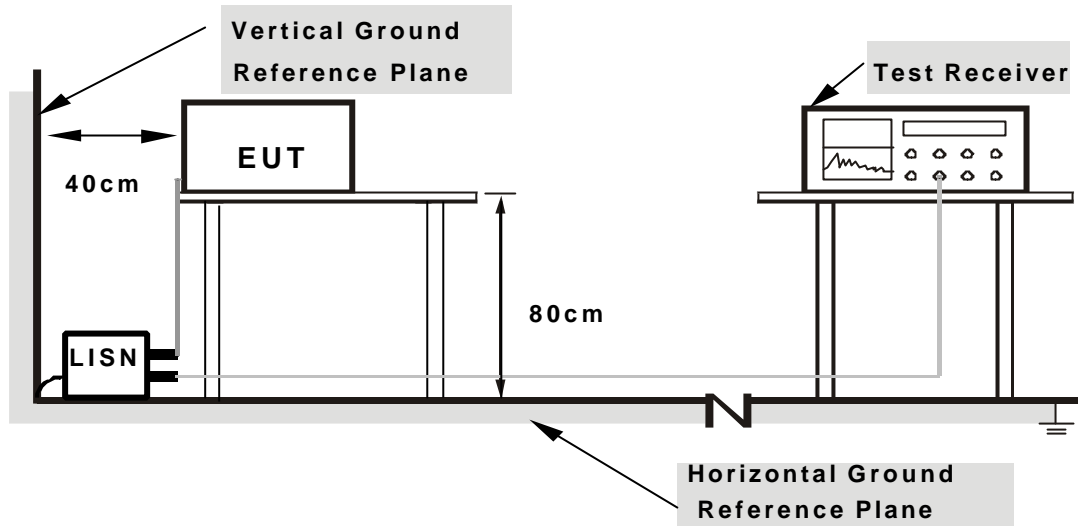
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

- a. Plugged the EUT to the notebook system via the extension card.
- b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- c. The notebook system sent "H" messages to its screen.

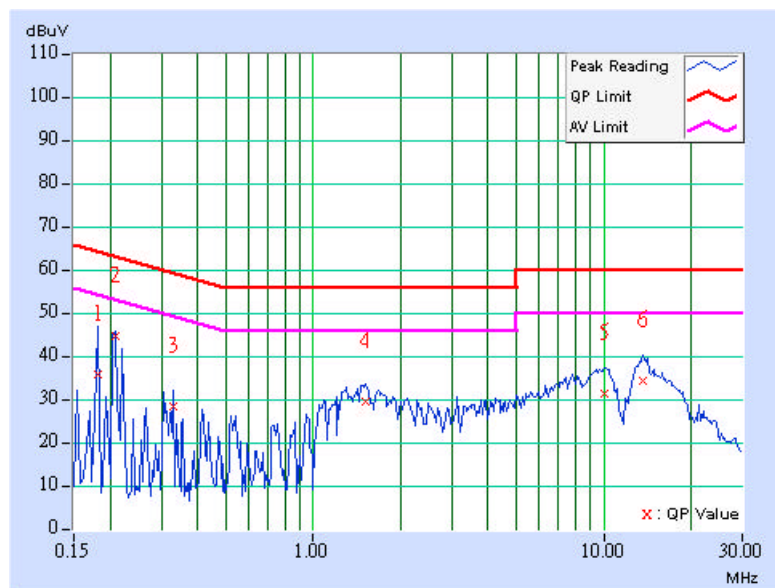
4.1.7 TEST RESULTS

Conducted Worst-Case Data

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

No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.10	35.46	-	35.56	-	64.43	54.43	-28.87	-
2	0.209	0.10	44.18	-	44.28	-	63.26	53.26	-18.98	-
3	0.330	0.10	27.92	-	28.02	-	59.46	49.46	-31.44	-
4	1.512	0.20	29.16	-	29.36	-	56.00	46.00	-26.64	-
5	10.012	0.46	30.80	-	31.26	-	60.00	50.00	-28.74	-
6	13.652	0.58	33.96	-	34.54	-	60.00	50.00	-25.46	-

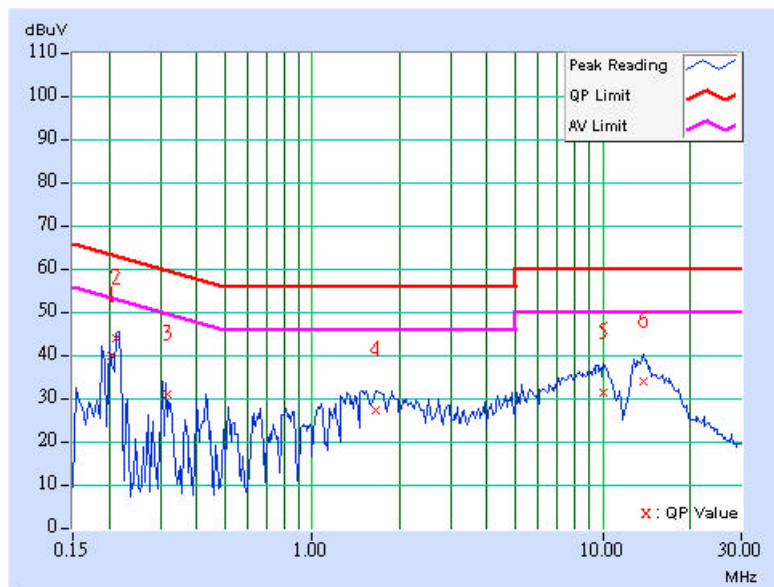
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



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

No	Freq. [MHz]	Corr. Factor [dB]	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.203	0.10	39.43	-	39.53	-	63.49	53.49	-23.96	-
2	0.211	0.10	43.49	-	43.59	-	63.18	53.18	-19.59	-
3	0.319	0.10	30.70	-	30.80	-	59.73	49.73	-28.93	-
4	1.664	0.17	26.77	-	26.94	-	56.00	46.00	-29.06	-
5	10.117	0.46	30.97	-	31.43	-	60.00	50.00	-28.57	-
6	13.824	0.51	33.70	-	34.21	-	60.00	50.00	-25.79	-

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



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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts)}$$



4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Dec. 20, 2006
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 27, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Jan. 15, 2007
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Jan. 22, 2007
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170147	Jan. 26, 2007
Preamplifier Agilent	8449B	3008A01961	Oct. 23, 2006
Preamplifier Agilent	8447D	2944A10629	Oct. 27, 2006
RF signal cable HUBER+SUHNER	SUCOFLEX 104	214380/4	Jan. 16, 2007
RF signal cable HUBER+SUHNER	SUCOFLEX 104	219266/4	Jan. 16, 2007
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower ADT.	AT100	AT93021702	NA
Turn Table ADT.	TT100.	TT93021702	NA
Controller ADT.	SC100.	SC93021702	NA
26GHz ~ 40GHz Amplifier	AMF-6F-2600400	900619	Nov. 13, 2006

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 1.
 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 IC4924-2.

4.2.4 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

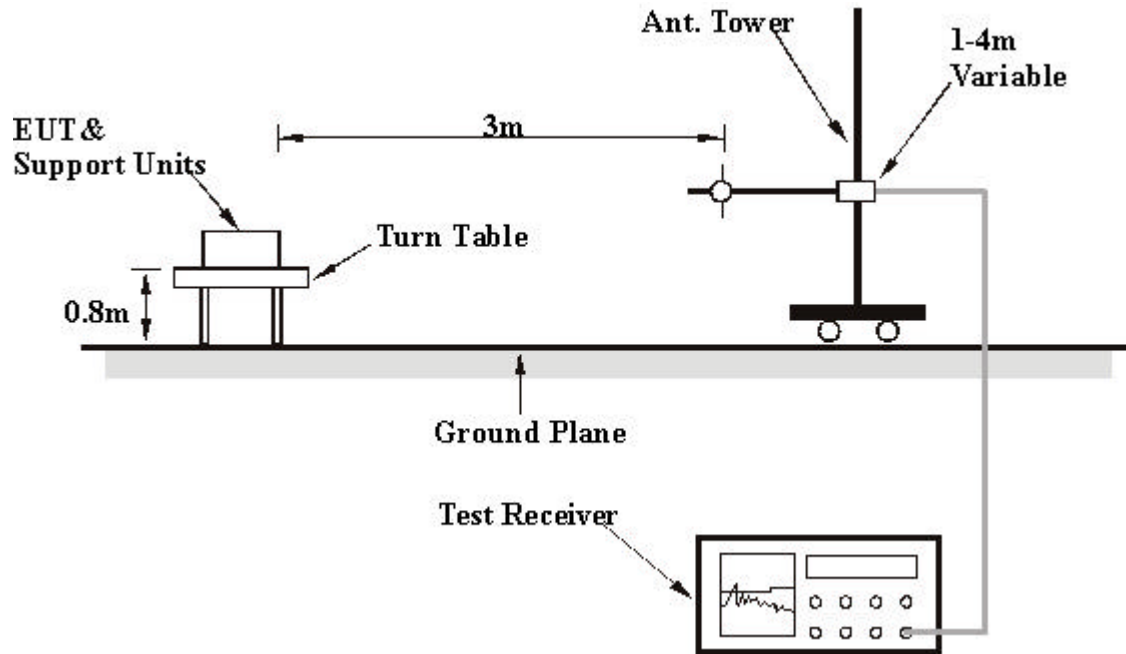
NOTE:

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

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6



4.2.8 TEST RESULTS

Below 1GHz Worst-Case Data

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Quasi-Peak
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 70%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	99.98	33.49 QP	43.50	-10.01	2.00 H	205	24.50	8.99
2	133.03	41.64 QP	43.50	-1.86	2.00 H	205	29.11	12.53
3	166.43	37.12 QP	43.50	-6.38	1.72 H	162	24.11	13.01
4	199.12	42.27 QP	43.50	-1.23	2.00 H	205	31.38	10.89
5	232.16	36.94 QP	46.00	-9.06	2.00 H	205	25.06	11.88
6	265.21	35.16 QP	46.00	-10.84	2.00 H	205	21.82	13.34
7	698.70	37.56 QP	46.00	-8.44	2.00 H	211	13.45	24.11
8	836.71	37.69 QP	46.00	-8.31	1.00 H	169	11.19	26.50
9	945.57	44.01 QP	46.00	-1.99	1.50 H	295	14.80	29.21

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	133.03	35.08 QP	43.50	-8.42	1.00 V	121	22.55	12.53
2	166.07	35.78 QP	43.50	-7.72	1.00 V	121	22.75	13.03
3	199.12	40.11 QP	43.50	-3.39	1.00 V	121	29.22	10.89
4	298.26	34.41 QP	46.00	-11.59	1.00 V	121	18.88	15.53
5	500.42	34.56 QP	46.00	-11.44	1.00 V	145	14.49	20.07
6	562.63	36.14 QP	46.00	-9.86	1.00 V	121	14.64	21.50
7	836.71	39.06 QP	46.00	-6.94	1.50 V	139	12.57	26.50
8	850.32	36.98 QP	46.00	-9.02	1.00 V	121	10.30	26.68
9	949.46	44.21 QP	46.00	-1.79	1.00 V	76	14.81	29.39

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

802.11a OFDM modulation

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 72%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	3453.00	49.07 PK	68.30	-19.23	1.33 H	1	15.32	33.75
2	#5150.00	61.62 PK	74.00	-12.38	1.27 H	238	23.80	37.82
2	#5150.00	51.64 AV	54.00	-2.36	1.27 H	238	13.82	37.82
3	*5180.00	109.41 PK			1.27 H	238	71.55	37.86
3	*5180.00	99.43 AV			1.27 H	238	61.57	37.86
4	10360.00	62.40 PK	68.30	-5.90	1.62 H	109	12.94	49.46
5	#15540.00	62.85 PK	74.00	-11.15	1.49 H	131	14.52	48.33
5	#15540.00	49.92 AV	54.00	-4.08	1.49 H	131	1.59	48.33

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3453.00	48.96 PK	68.30	-19.34	1.49 V	290	15.21	33.75
2	#5150.00	57.29 PK	74.00	-16.71	1.91 V	69	19.47	37.82
2	#5150.00	47.63 AV	54.00	-6.37	1.91 V	69	9.81	37.82
3	*5180.00	105.08 PK			1.91 V	69	67.22	37.86
3	*5180.00	95.42 AV			1.91 V	69	57.56	37.86
4	10360.00	65.58 PK	68.30	-2.72	1.61 V	112	16.12	49.46
5	#15540.00	65.62 PK	74.00	-8.38	1.29 V	69	17.29	48.33
5	#15540.00	51.79 AV	54.00	-2.21	1.29 V	69	3.46	48.33

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C, 72%RH, 991 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	3494.00	48.82 PK	68.30	-19.48	1.48 H	279	14.97	33.85
2	*5240.00	109.87 PK			1.00 H	306	71.97	37.90
2	*5240.00	100.40 AV			1.00 H	306	62.50	37.90
3	10480.00	65.41 PK	68.30	-2.89	1.23 H	93	15.67	49.74
4	#15720.00	59.12 PK	74.00	-14.88	1.22 H	103	10.76	48.36
4	#15720.00	46.74 AV	54.00	-7.26	1.22 H	103	-1.62	48.36

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	3494.00	49.59 PK	68.30	-18.71	1.34 V	12	15.74	33.85
2	*5240.00	105.85 PK			1.03 V	186	67.95	37.90
2	*5240.00	95.58 AV			1.03 V	186	57.68	37.90
3	10480.00	67.09 PK	68.30	-1.21	1.61 V	106	17.35	49.74
3	#15720.00	63.62 AV	74.00	-10.38	1.44 V	75	15.26	48.36
4	#15720.00	50.53 PK	54.00	-3.47	1.44 V	75	2.17	48.36

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



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C,72%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	*5260.00	109.39 PK			1.40 H	219	71.48	37.91
1	*5260.00	99.64 AV			1.40 H	219	61.73	37.91
2	10520.00	65.90 PK	68.30	-2.40	1.47 H	339	16.03	49.87
2	#15780.00	59.81 AV	74.00	-14.19	1.46 H	321	11.50	48.31
3	#15780.00	47.52 PK	54.00	-6.48	1.46 H	321	-0.79	48.31

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	3506.00	49.86 PK	68.30	-18.44	1.42 V	254	15.98	33.88
2	*5260.00	105.60 PK			1.34 V	123	67.69	37.91
2	*5260.00	95.94 AV			1.34 V	123	58.03	37.91
3	10520.00	66.97 PK	68.30	-1.33	1.58 V	104	17.10	49.87
3	#15780.00	61.08 AV	74.00	-12.92	1.36 V	55	12.77	48.31
4	#15780.00	48.36 PK	54.00	-5.64	1.36 V	55	0.05	48.31

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 8	FREQUENCY RANGE	1 ~ 40 GHz
MODULATION TYPE	BPSK	DETECTOR FUNCTION	Peak(PK) Average (AV)
TRANSFER RATE	6Mbps	ENVIRONMENTAL CONDITIONS	26deg. C,72%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Lori Chiu

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	3546.00	49.10 PK	68.30	-19.20	1.33 H	15	15.14	33.96
2	*5320.00	108.36 PK			1.30 H	211	70.42	37.94
2	*5320.00	98.18 AV			1.30 H	211	60.24	37.94
3	#5350.00	60.56 PK	74.00	-13.44	1.30 H	211	22.60	37.96
3	#5350.00	50.38 AV	54.00	-3.62	1.30 H	211	12.42	37.96
4	#10640.00	68.41 PK	74.00	-5.59	1.39 H	75	18.25	50.15
4	#10640.00	52.76 AV	54.00	-1.24	1.39 H	75	2.60	50.15
5	#15960.00	57.78 PK	74.00	-16.22	1.39 H	150	9.51	48.27
5	#15960.00	45.64 AV	54.00	-8.36	1.39 H	150	-2.63	48.27

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3546.00	48.76 PK	68.30	-19.54	1.50 V	292	14.80	33.96
2	*5320.00	104.75 PK			1.53 V	290	66.81	37.94
2	*5320.00	94.65 AV			1.53 V	290	56.71	37.94
3	#5350.00	56.95 PK	74.00	-17.05	1.53 V	290	18.99	37.96
3	#5350.00	46.85 AV	54.00	-7.15	1.53 V	290	8.89	37.96
4	#10640.00	68.69 PK	74.00	-5.31	1.26 V	96	18.53	50.15
4	#10640.00	52.89 AV	54.00	-1.11	1.26 V	96	2.74	50.15
5	#15960.00	59.81 PK	74.00	-14.19	1.39 V	108	11.54	48.27
5	#15960.00	47.32 AV	54.00	-6.68	1.39 V	108	-0.95	48.27

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



4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 ~ 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 ~ 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST INSTRUMENTS

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

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

4.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

NOTE:

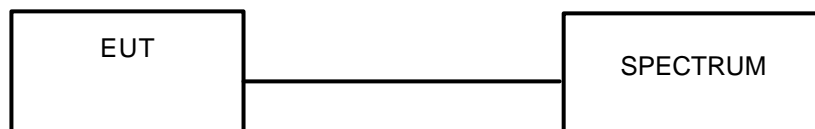
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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



4.3.7 TEST RESULTS

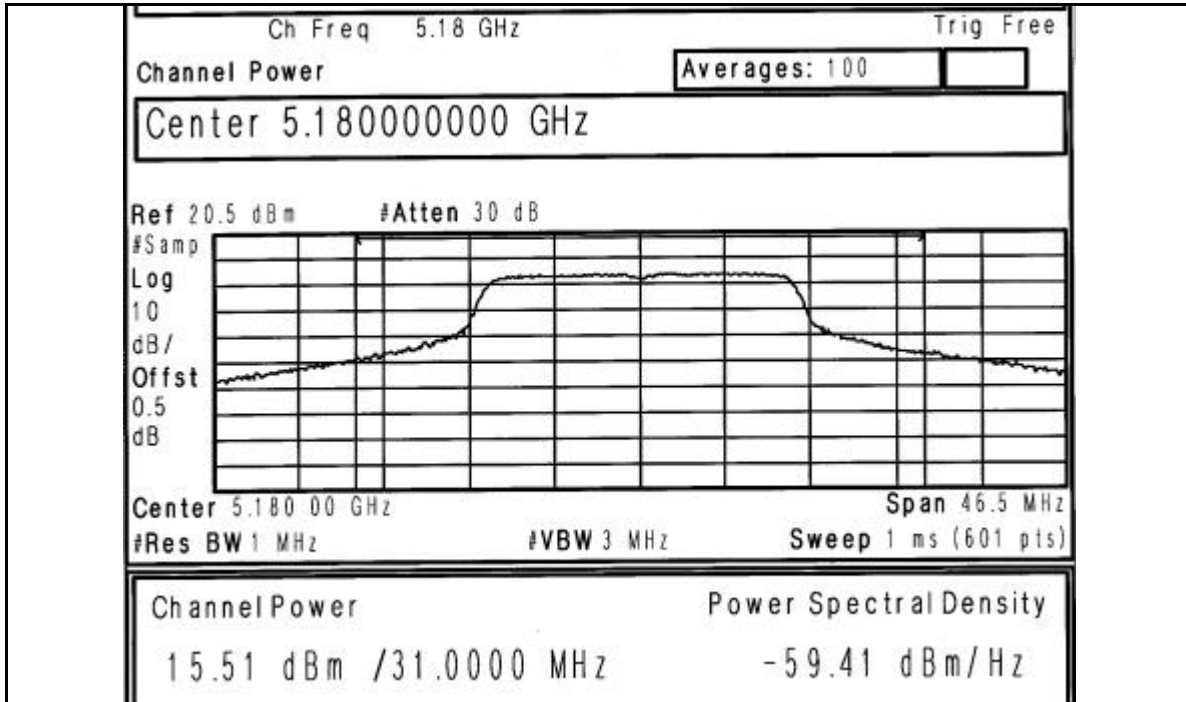
802.11a OFDM Modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

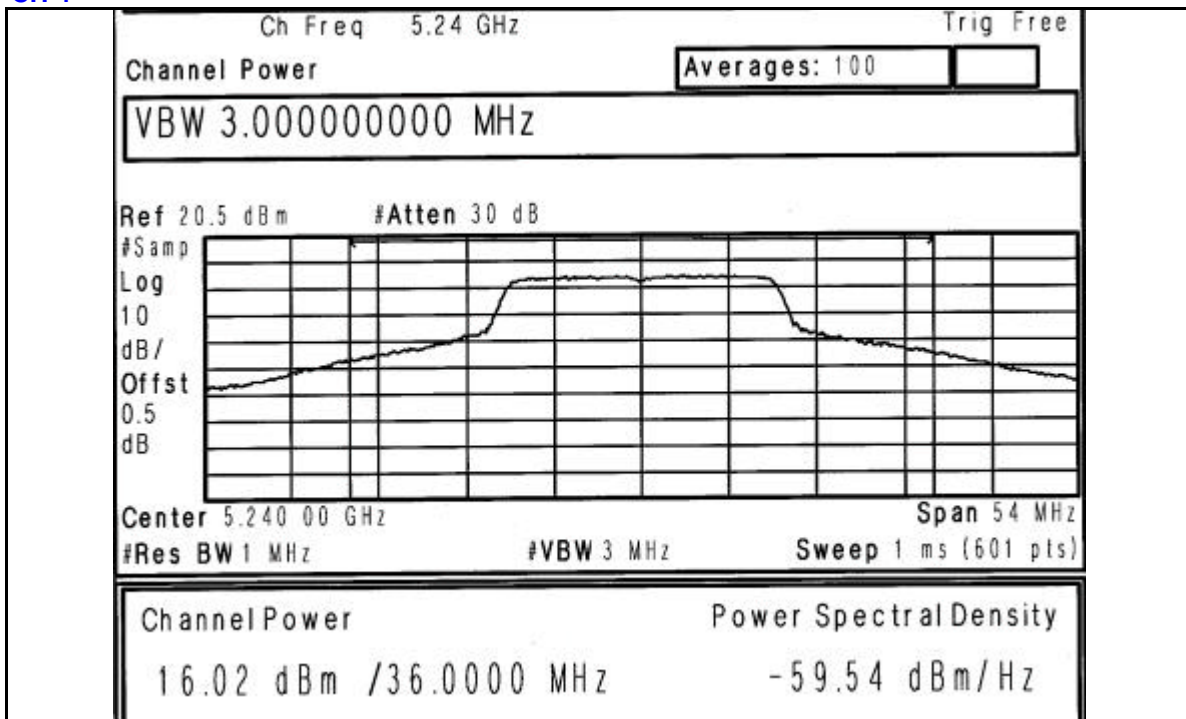
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	35.563	15.51	17.00	30.08	PASS
4	5240	39.994	16.02	17.00	35.60	PASS
5	5260	40.272	16.05	24.00	35.84	PASS
8	5320	40.087	16.03	24.00	38.16	PASS

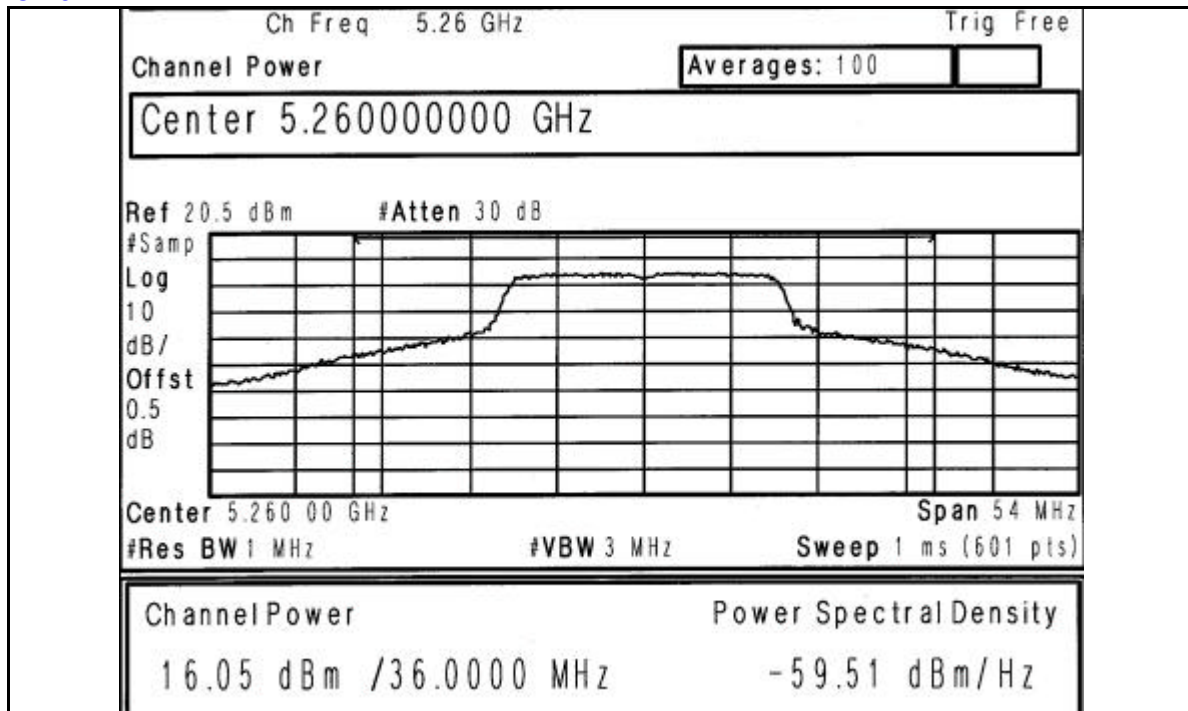
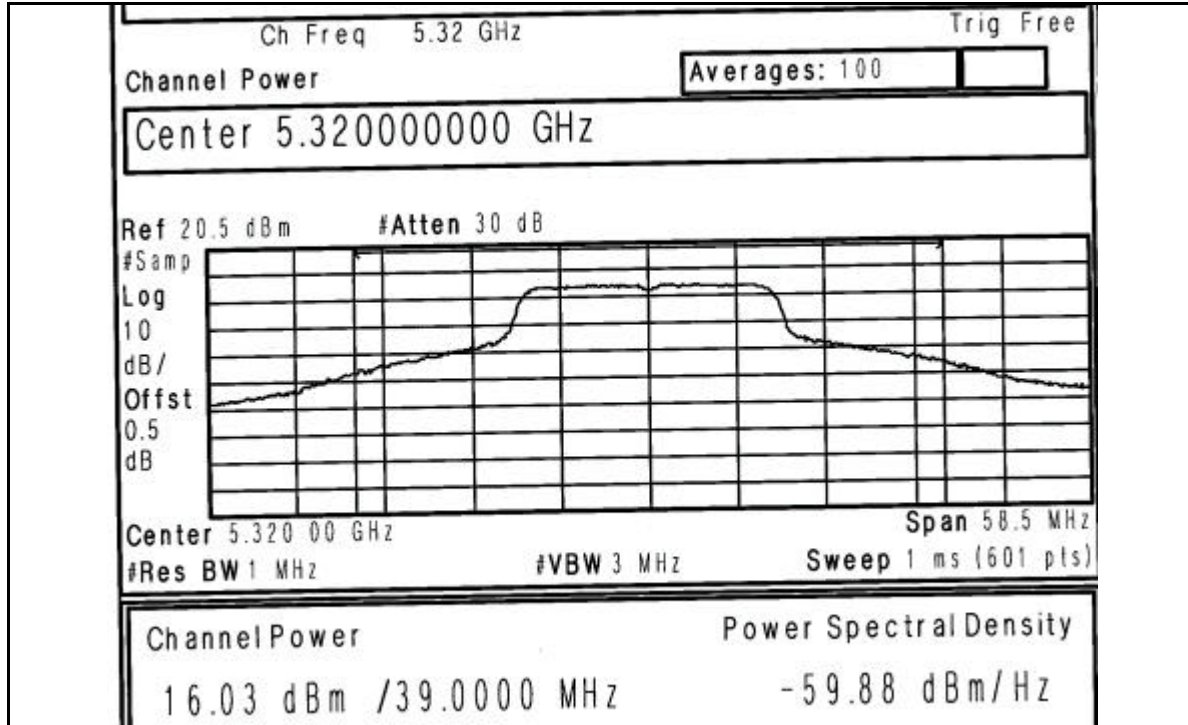
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

Peak Power Output:
CH 1

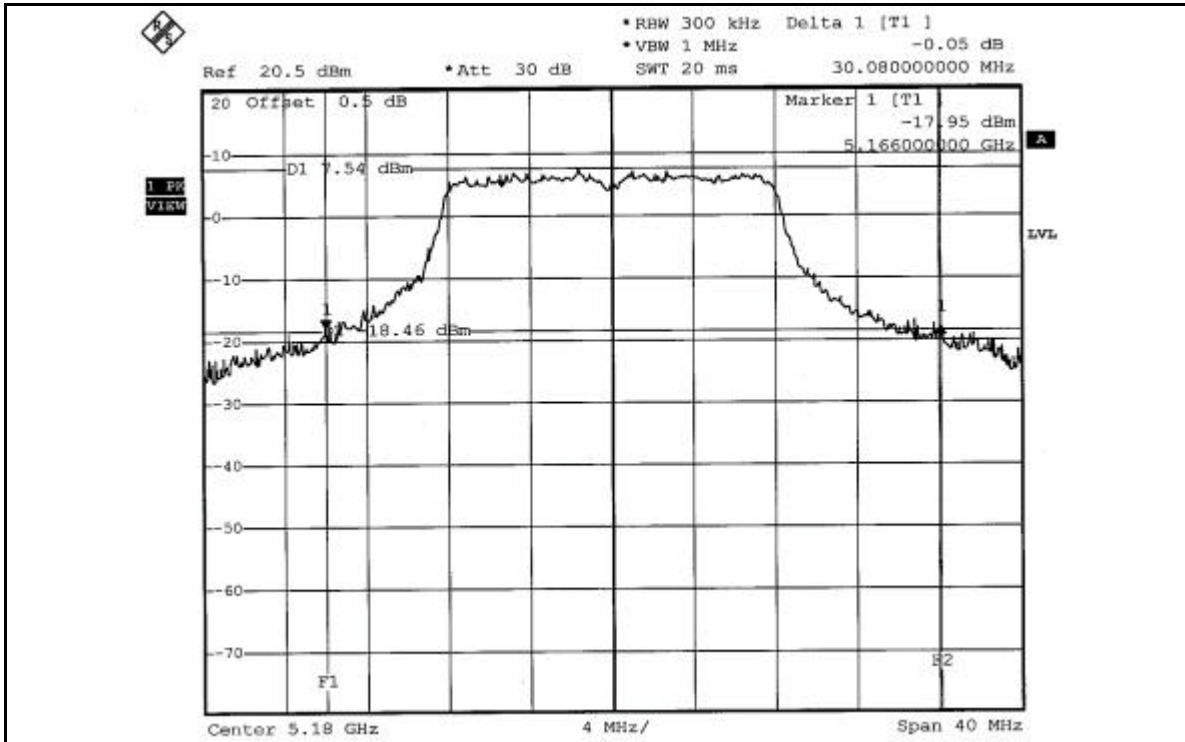


CH 4

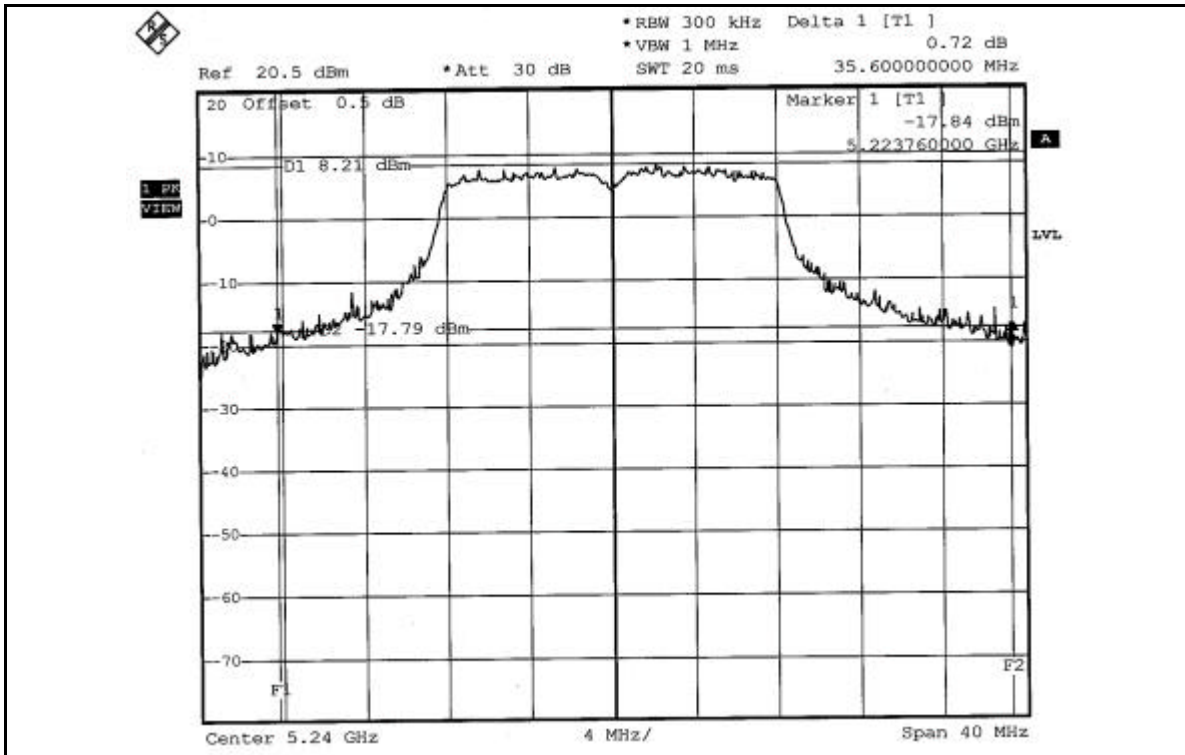


CH 5

CH 8


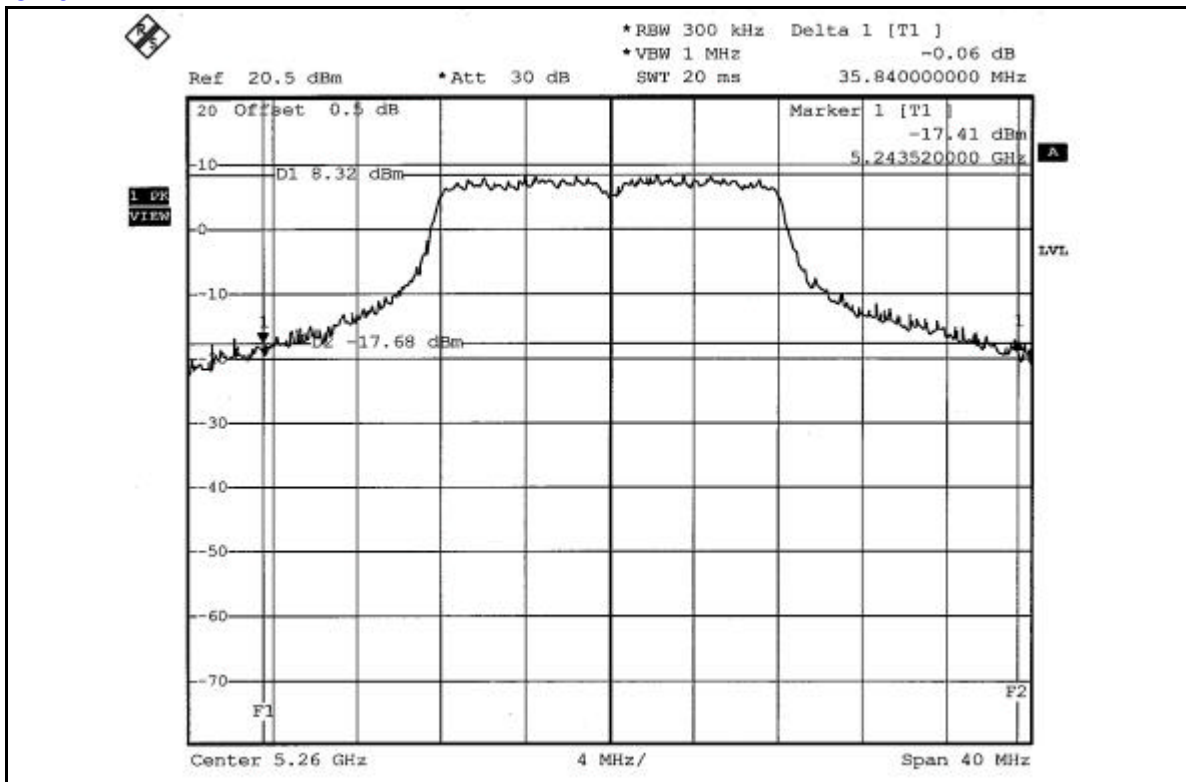
26dB Occupied Bandwidth:
CH 1



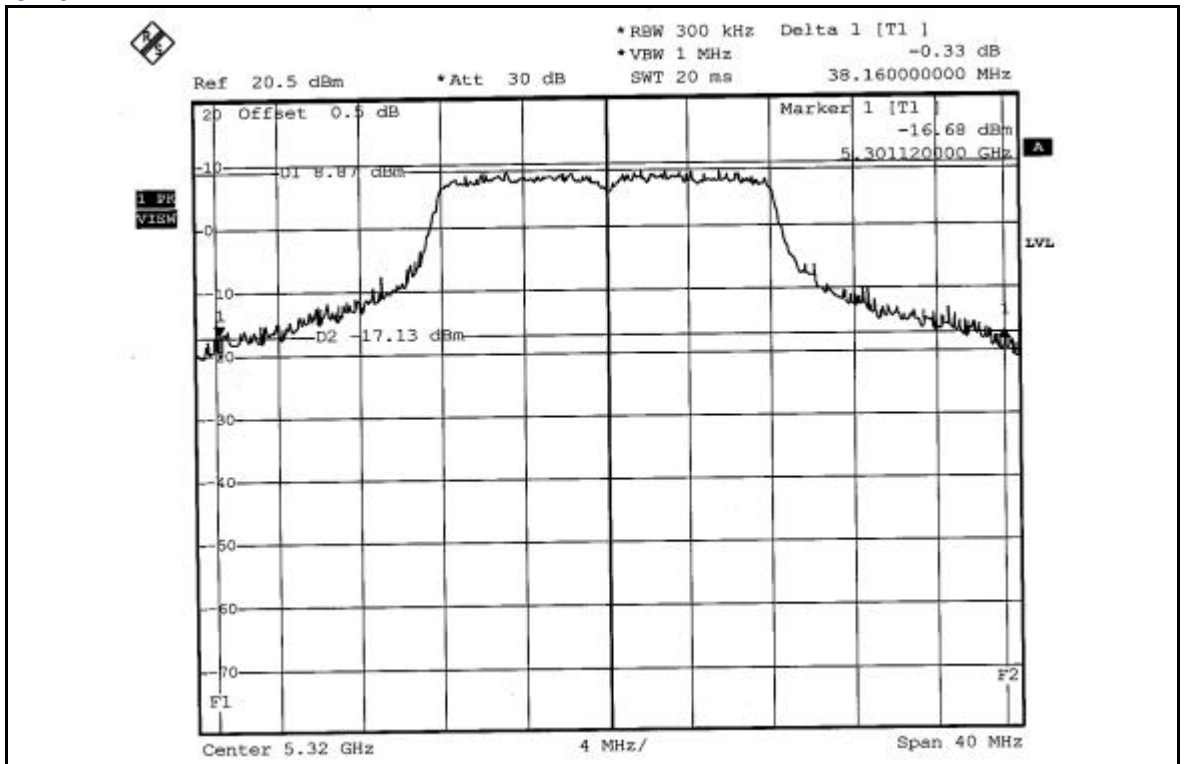
CH 4



CH 5



CH 8





4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25 GHz	13dB
5.25 ~ 5.35 GHz	13dB
5.725 ~ 5.825 GHz	13dB

4.4.2 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.

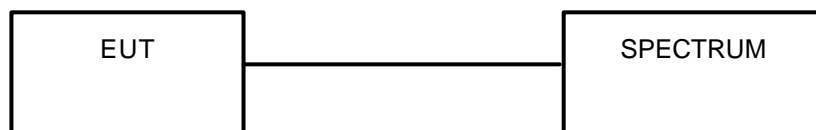
4.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300kHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

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



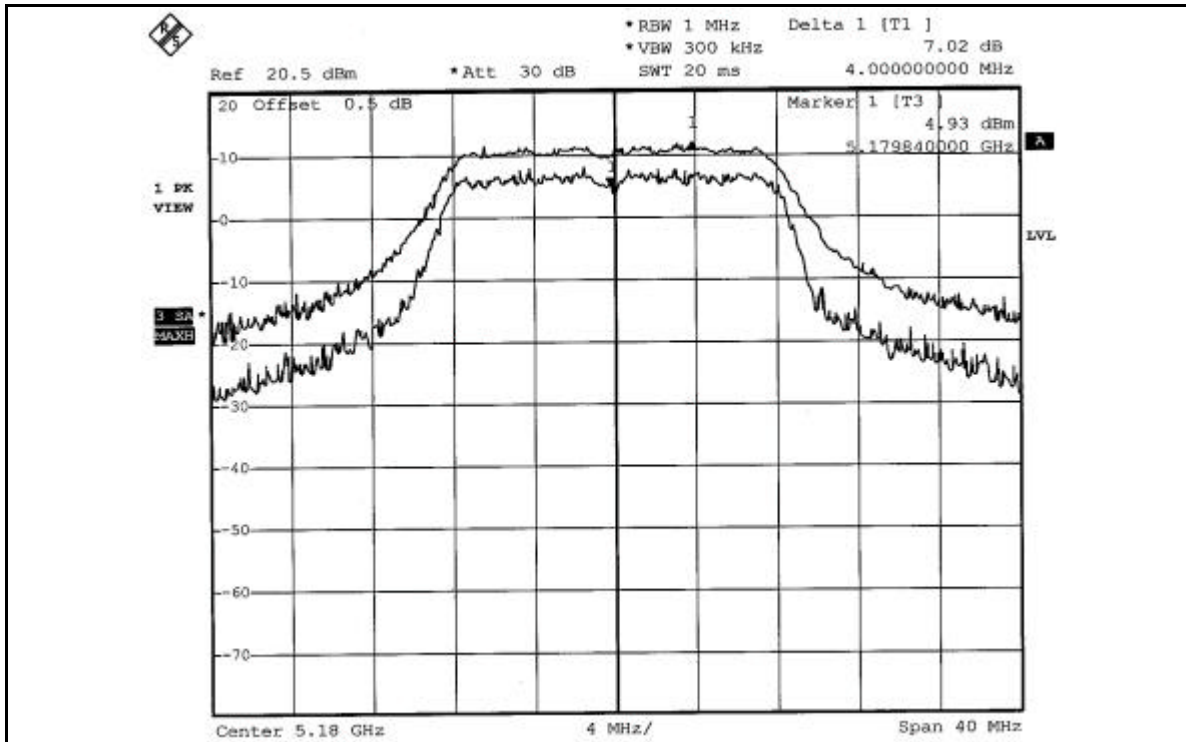
4.4.7 TEST RESULTS

802.11a OFDM modulation

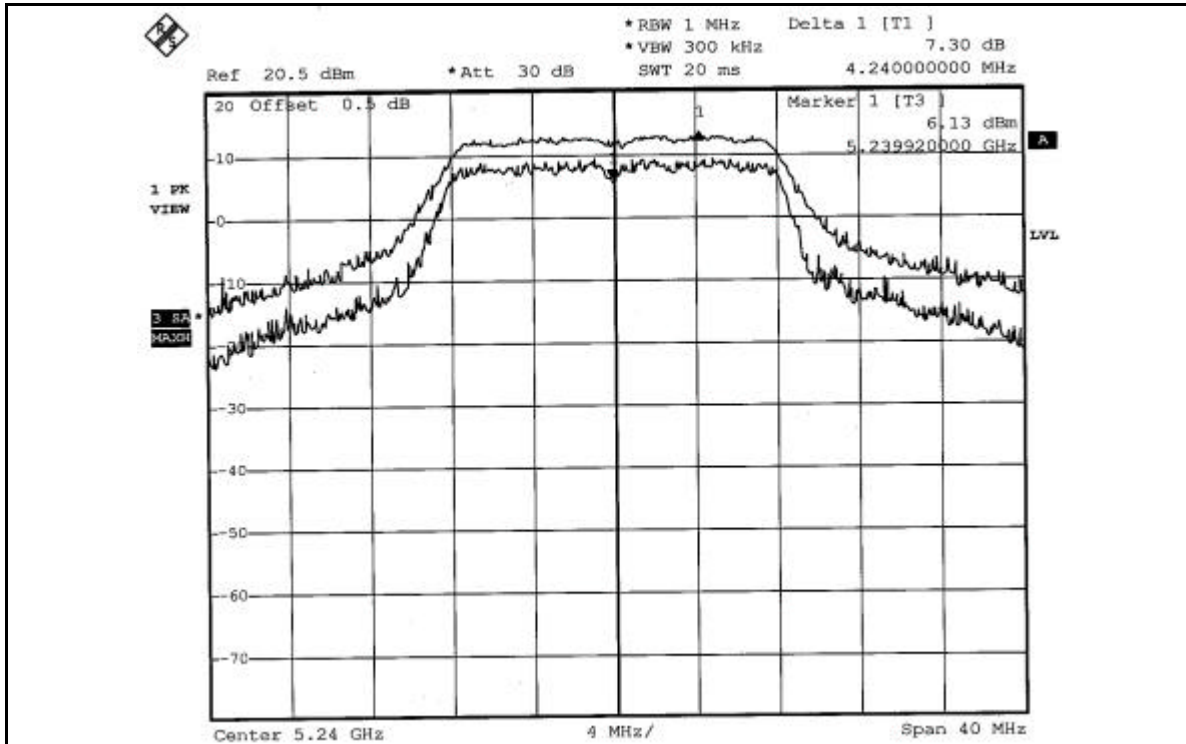
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	7.02	13	PASS
4	5240	7.30	13	PASS
5	5260	7.33	13	PASS
8	5320	7.25	13	PASS

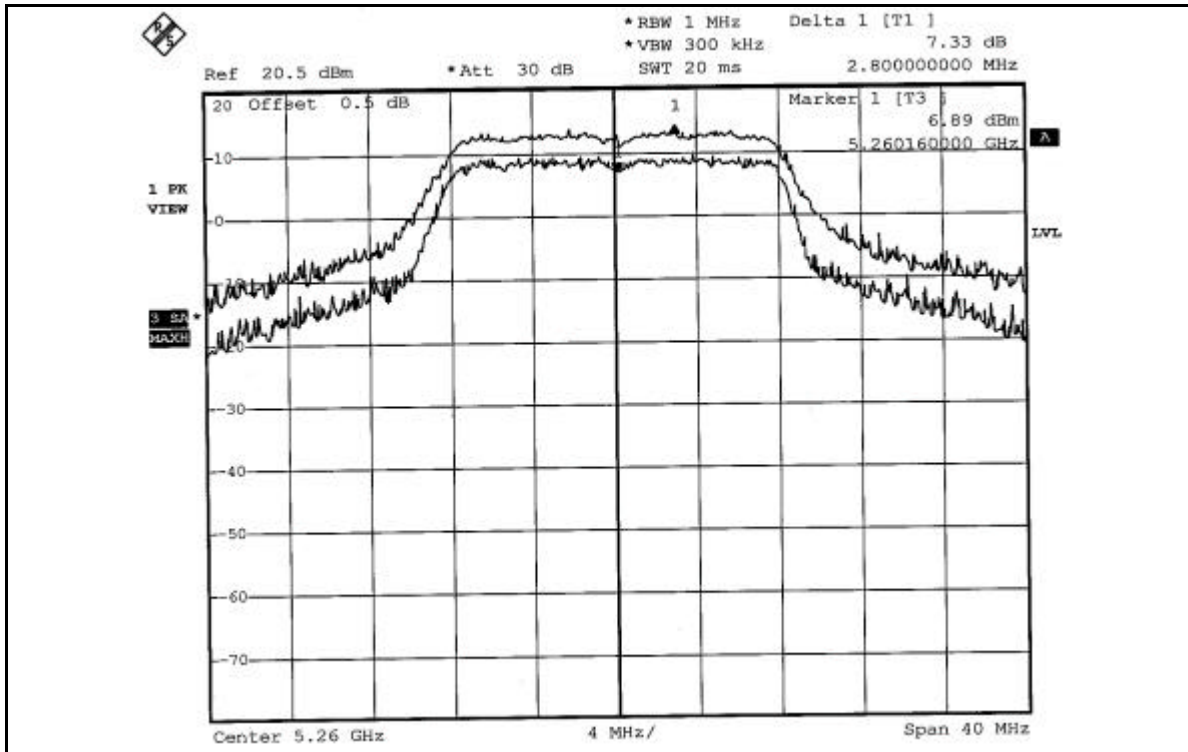
CH 1



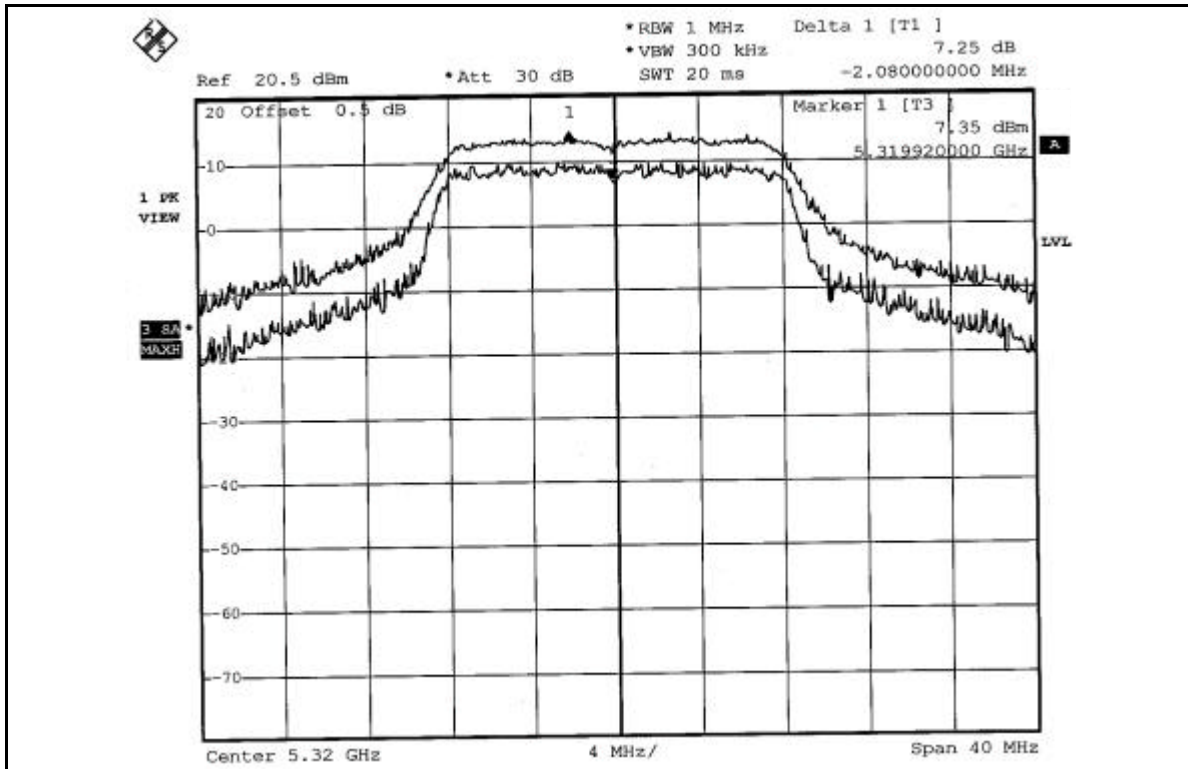
CH 4



CH 5



CH 8





4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.725 ~ 5.825GHz	17dBm

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.

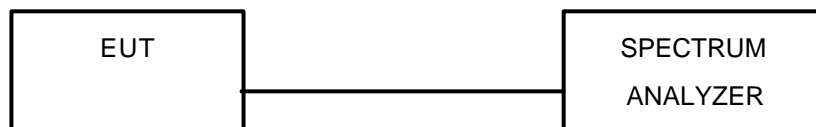
4.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6



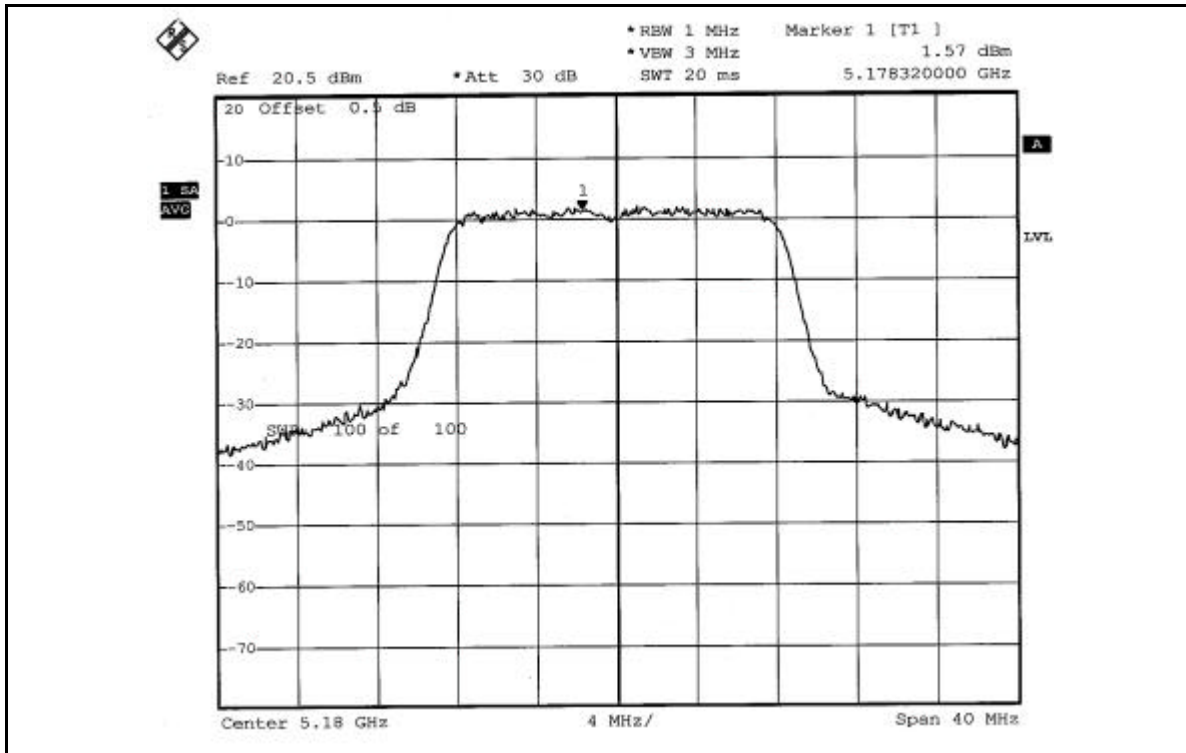
4.5.7 TEST RESULTS

802.11a OFDM modulation

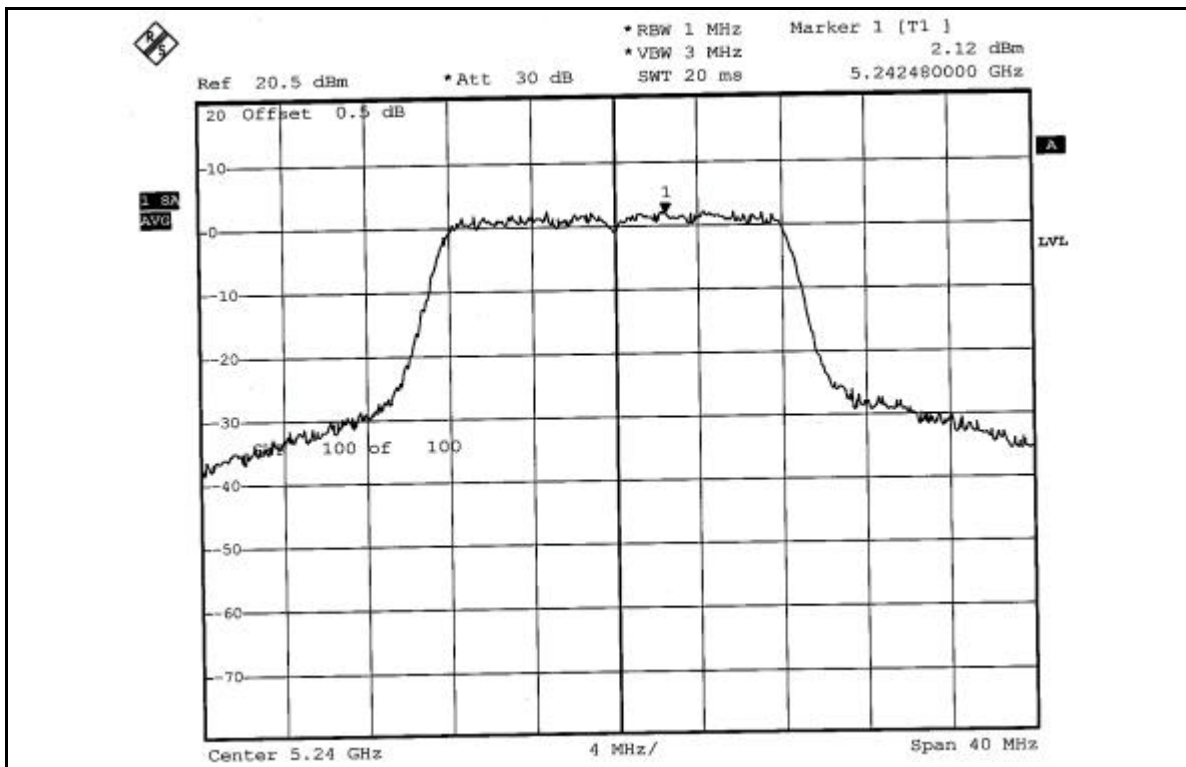
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 70%RH, 991hPa
TESTED BY	Lori Chiu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	1.57	4	PASS
4	5240	2.12	4	PASS
5	5260	2.19	11	PASS
8	5320	2.42	11	PASS

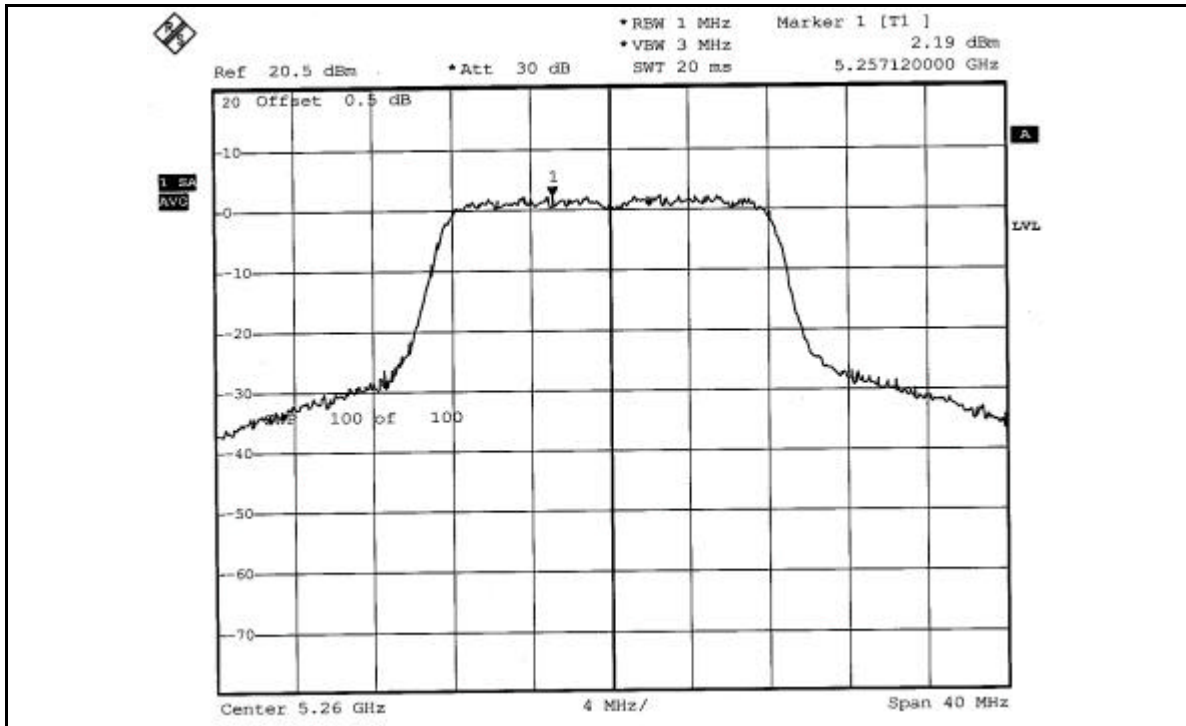
CH 1



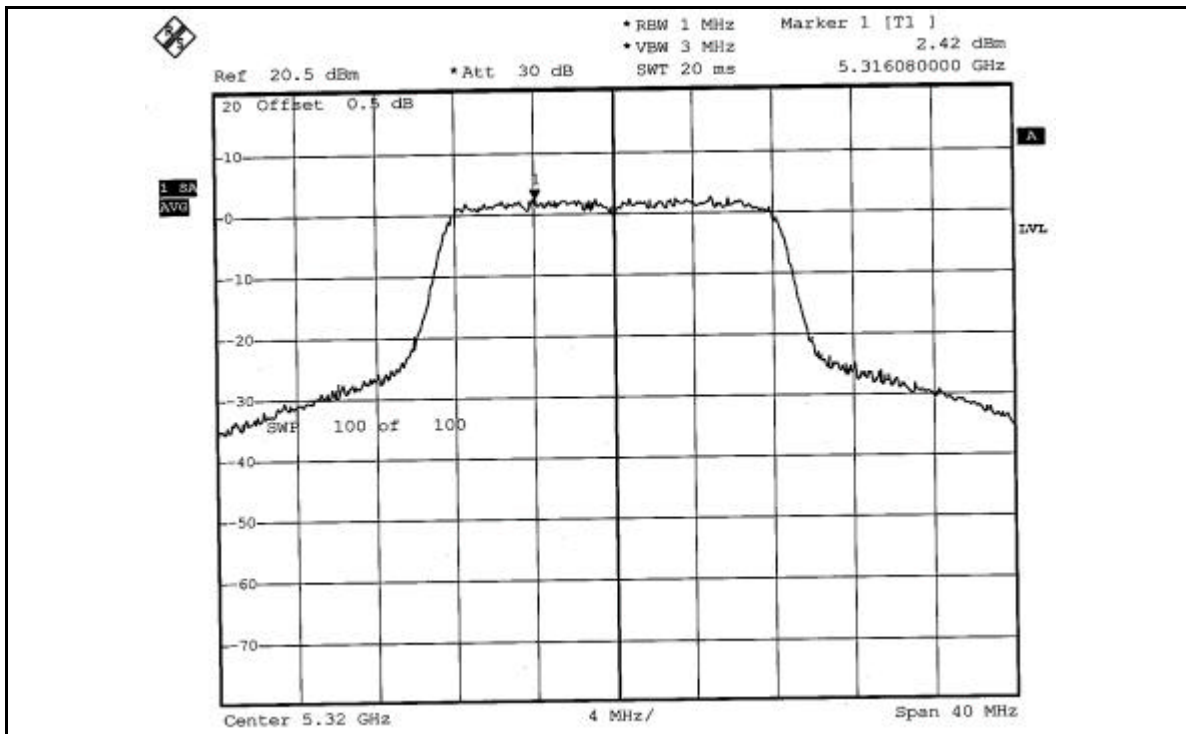
CH 4



CH 5



CH 8





4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Mar. 08, 2007
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W981030	Jul. 18, 2006

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

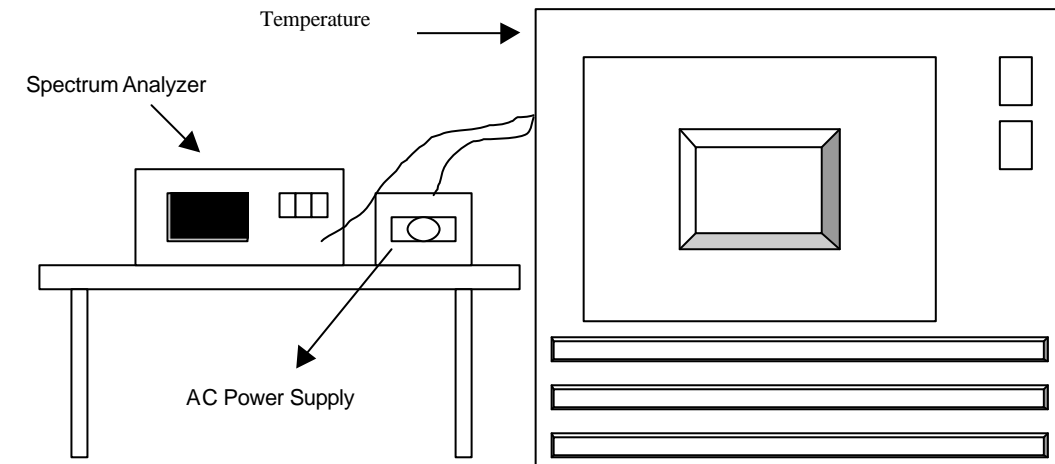
4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6



4.6.7 TEST RESULTS

		Operating frequency: 5320MHz				Limit : $\pm 0.01\%$			
Temp. ()	Power supply (Vac)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	138	5320.03967	0.0007457	5320.03926	0.0007380	5320.03935	0.0007397	5320.03957	0.0007438
	120	5320.03922	0.0007372	5320.03992	0.0007504	5320.03925	0.0007378	5320.03935	0.0007397
	102	5320.03913	0.0007355	5320.0392	0.0007368	5320.03927	0.0007382	5320.03938	0.0007402
40	138	5320.04785	0.0008994	5320.0487	0.0009154	5320.04784	0.0008992	5320.04878	0.0009169
	120	5320.04715	0.0008863	5320.04652	0.0008744	5320.04645	0.0008731	5320.04636	0.0008714
	102	5320.04737	0.0008904	5320.04735	0.0008900	5320.04736	0.0008902	5320.04733	0.0008897
30	138	5320.03641	0.0006844	5320.03631	0.0006825	5320.03641	0.0006844	5320.03611	0.0006788
	120	5320.03528	0.0006632	5320.03532	0.0006639	5320.03535	0.0006645	5320.03539	0.0006652
	102	5320.03539	0.0006652	5320.03534	0.0006643	5320.03532	0.0006639	5320.03538	0.0006650
20	138	5320.02569	0.0004829	5320.02457	0.0004618	5320.02555	0.0004803	5320.02555	0.0004803
	120	5320.02549	0.0004791	5320.02553	0.0004799	5320.02544	0.0004782	5320.02546	0.0004786
	102	5320.02559	0.0004810	5320.02524	0.0004744	5320.02551	0.0004795	5320.02551	0.0004795
10	138	5320.02369	0.0004453	5320.02411	0.0004532	5320.02455	0.0004615	5320.02455	0.0004615
	120	5320.02449	0.0004603	5320.02453	0.0004611	5320.02444	0.0004594	5320.02446	0.0004598
	102	5320.02459	0.0004622	5320.02434	0.0004575	5320.02441	0.0004588	5320.02451	0.0004607
0	138	5320.02429	0.0004566	5320.02457	0.0004618	5320.02455	0.0004615	5320.02455	0.0004615
	120	5320.02429	0.0004566	5320.02452	0.0004609	5320.02441	0.0004588	5320.02445	0.0004596
	102	5320.02359	0.0004434	5320.02454	0.0004613	5320.02451	0.0004607	5320.02451	0.0004607
-10	138	5320.02459	0.0004622	5320.02437	0.0004581	5320.02455	0.0004615	5320.02455	0.0004615
	120	5320.02449	0.0004603	5320.02453	0.0004611	5320.02444	0.0004594	5320.02446	0.0004598
	102	5320.02439	0.0004585	5320.02454	0.0004613	5320.02451	0.0004607	5320.02451	0.0004607
-20	138	5320.02459	0.0004622	5320.02457	0.0004618	5320.02455	0.0004615	5320.02455	0.0004615
	120	5320.02439	0.0004585	5320.02453	0.0004611	5320.02444	0.0004594	5320.02446	0.0004598
	102	5320.02359	0.0004434	5320.02454	0.0004613	5320.02451	0.0004607	5320.02451	0.0004607
-30	138	5320.02465	0.0004633	5320.02457	0.0004618	5320.02455	0.0004615	5320.02455	0.0004615
	120	5320.02445	0.0004596	5320.02453	0.0004611	5320.02444	0.0004594	5320.02446	0.0004598
	102	5320.02451	0.0004607	5320.02454	0.0004613	5320.02451	0.0004607	5320.02451	0.0004607



4.7 BAND EDGES MEASUREMENT

4.7.1 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.

4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

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

4.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.35GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW=VBW=1MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

Channel 1 (5180MHz)

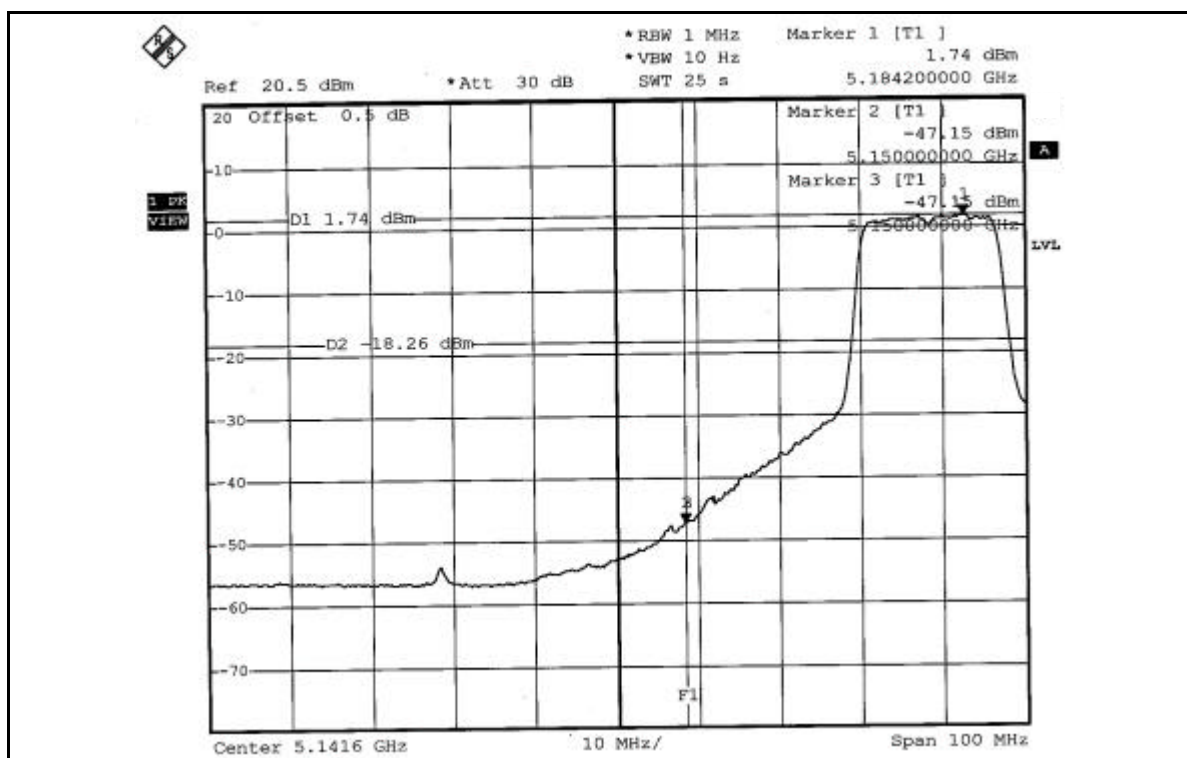
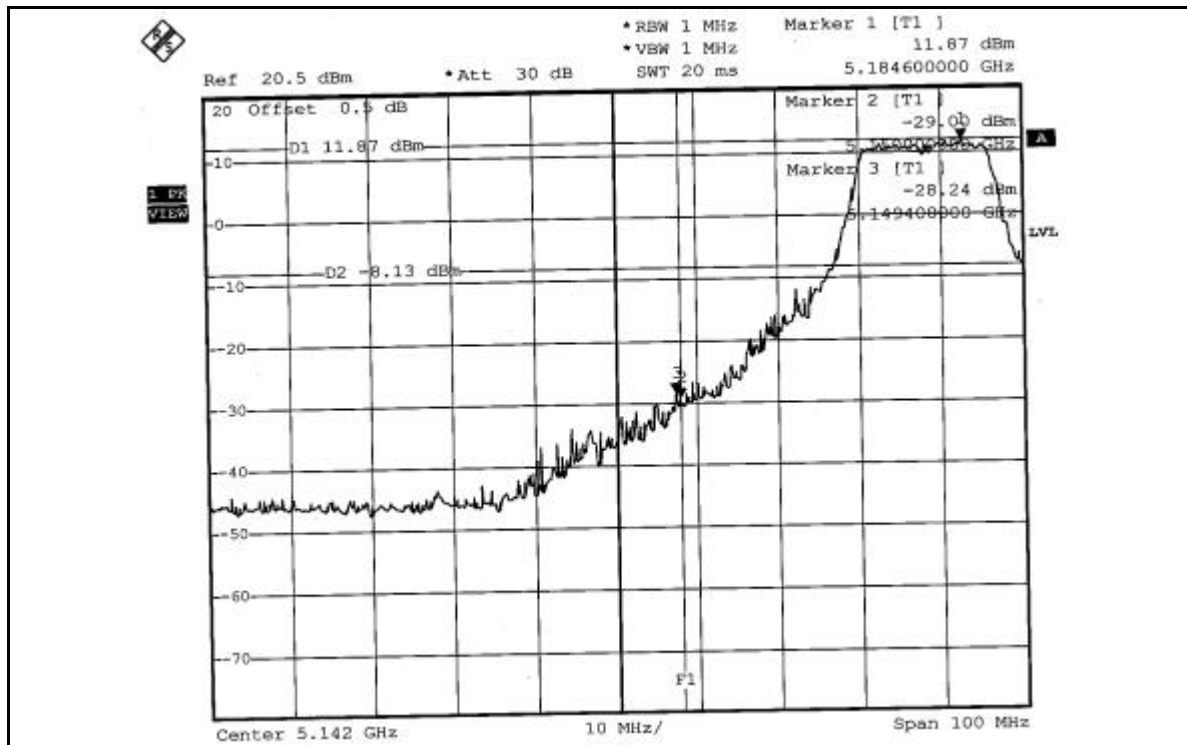
The band edge emission plot on the next page shows 40.11dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 109.41dBuV/m (Peak), so the maximum field strength in restrict band is $109.41-40.11=69.30$ dBuV/m which is under 74dBuV/m limit.

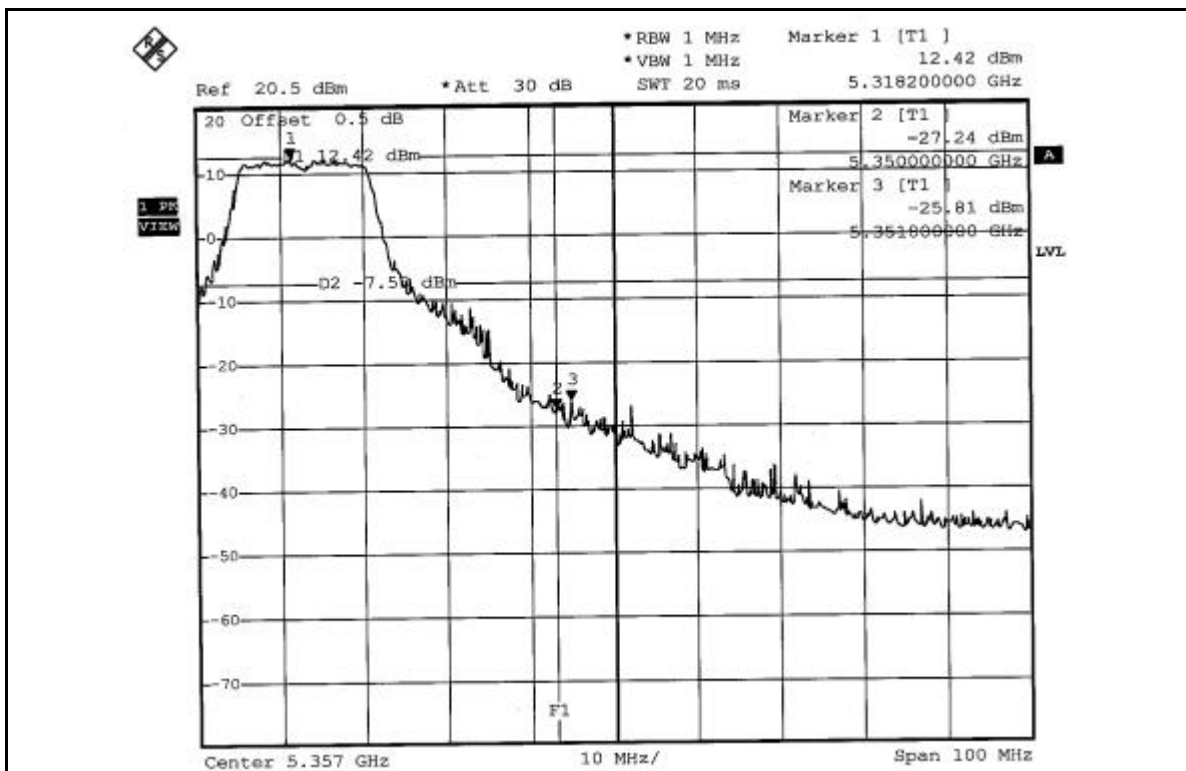
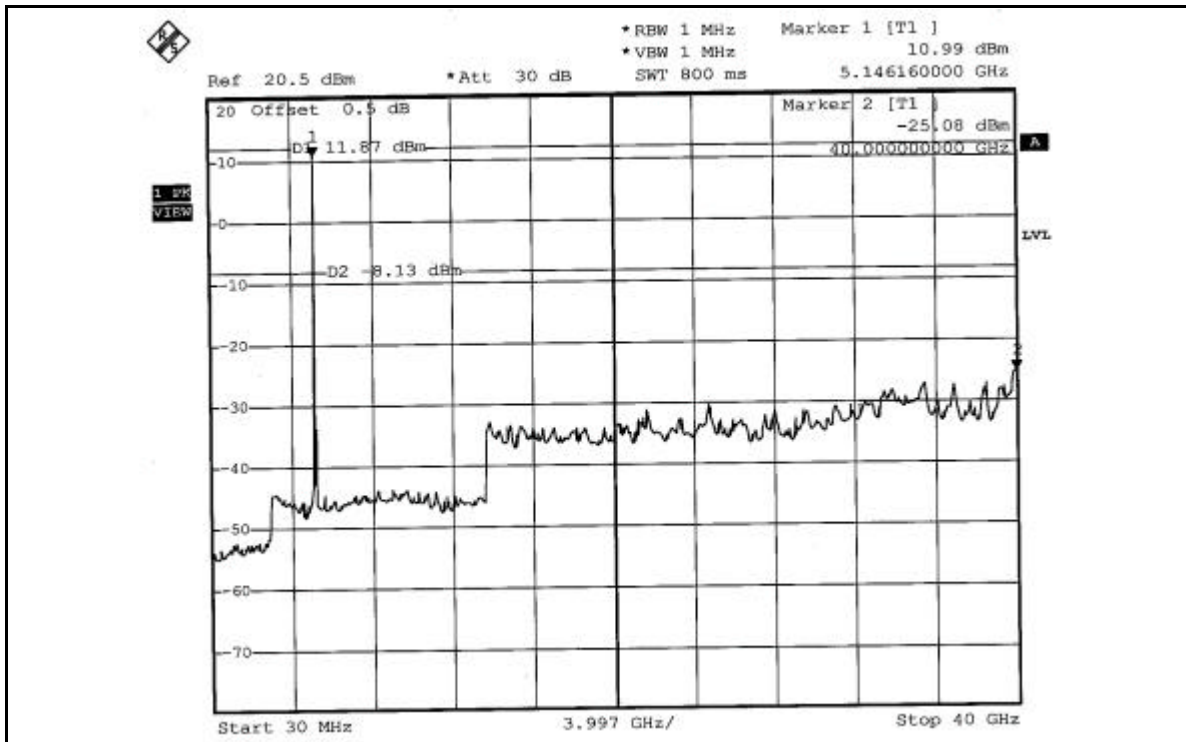
The band edge emission plot on the next page shows 48.89dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 is 99.43dBuV/m (Average), so the maximum field strength in restrict band is $99.43-48.89=50.54$ dBuV/m which is under 54dBuV/m limit.

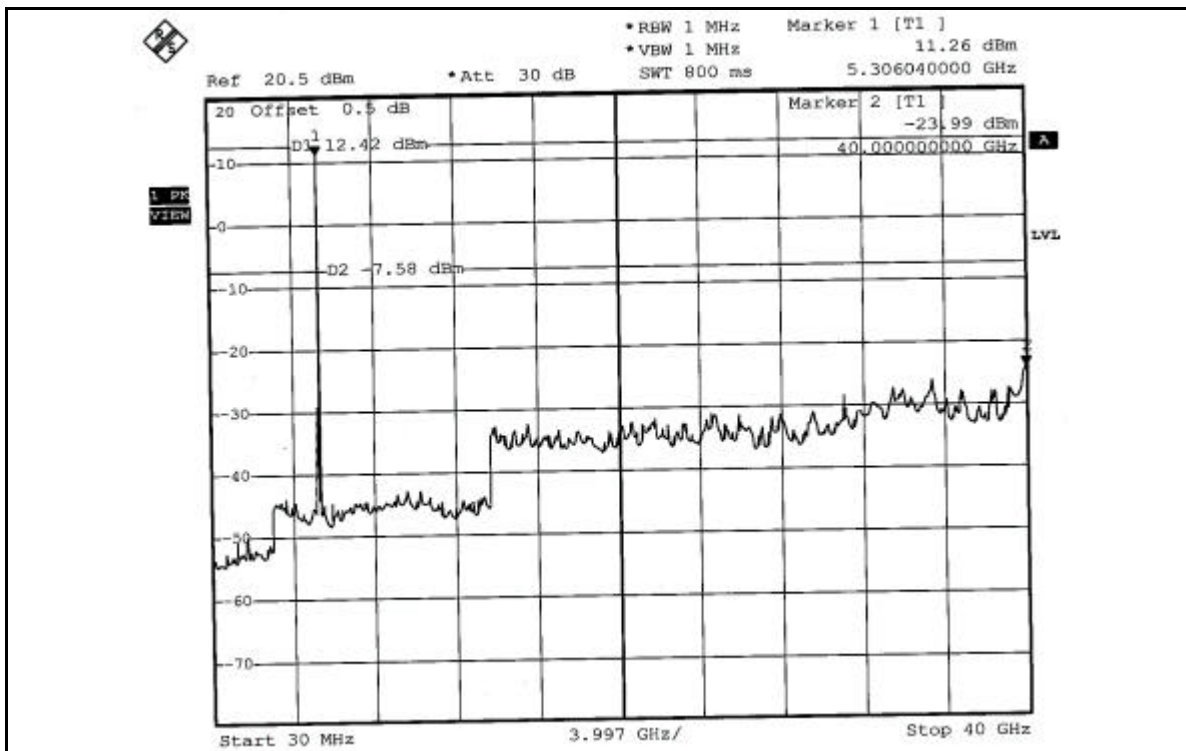
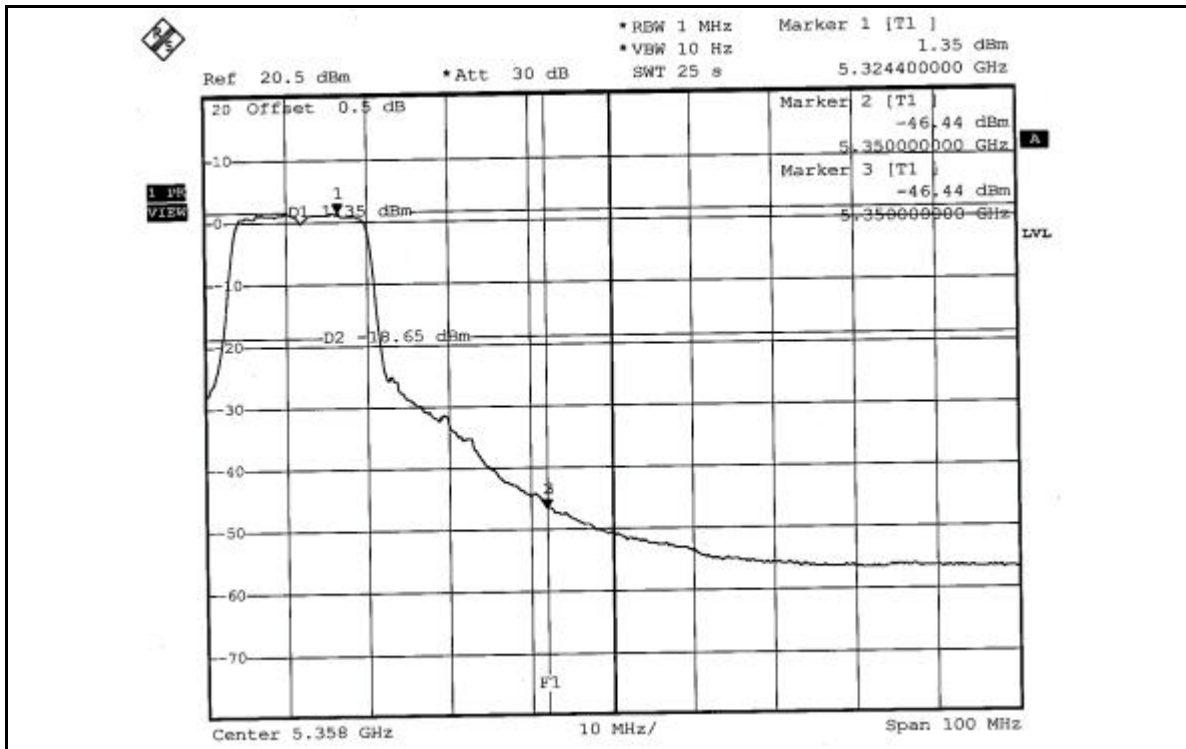
Channel 8 (5320MHz)

The band edge emission plot on the next second page shows 38.23dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 is 108.36dBuV/m (Peak), so the maximum field strength in restrict band is $108.36-38.23=70.13$ dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 47.79dBc between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 is 98.18dBuV/m (Average), so the maximum field strength in restrict band is $98.18-47.79=50.39$ dBuV/m which is under 54dBuV/m limit.









4.8 ANTENNA REQUIREMENT

4.8.1 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 15.407(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.8.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is PIFA antenna with UFL connector. The maximum Gain of the antenna is 1.12dBi.



5. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

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.