ADT CORP.

FCC TEST REPORT

REPORT NO.: RF930702L14

MODEL NO.: BWA721
(Refer to page 7 for the other models)

RECEIVED: July 02, 2004

TESTED: July 07 ~ July 21, 2004

APPLICANT: Runtop Inc

ADDRESS: 1, Ln. 21, Hsin Hua Rd., Kueishan Industrial Park, Taoyuan City, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

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

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1   CERTIFICATION

PRODUCT :	802.11g WLAN Router
BRAND:	RunTop
MODEL NO.:	BWA721
	(Refer to page 7 for the other models)
APPLICANT :	Runtop Inc
TESTED:	July 07 ~ July 21, 2004
TEST ITEM:	ENGINEERING SAMPLE
STANDARDS :	FCC Part 15, Subpart C (Section 15.247)
	ANSI C63.4-2001

The above equipment (model: BWA721) 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 : _____ , **DATE:** July 29, 2004
(Suntee Liu)

TECHNICAL ACCEPTANCE : _____ , **DATE:** July 29, 2004
Responsible for RF
(Gary Chang)

APPROVED BY : _____ , **DATE:** July 29, 2004
(Cody Chang, Supervisor)

2   SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –12.35 dB at 0.51 MHz.
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(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is –3.14 dB at 59.16 MHz.
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.

2.1   GENERAL DESCRIPTION OF EUT

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	9k~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.65 dB
	1GHz ~ 18GHz	2.20 dB
	18GHz ~ 40GHz	1.88 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11g WLAN Router
MODEL NO.	BWA721
POWER SUPPLY	12Vdc from AC adapter
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER (FOF CCK)	18.00 dBm
MAXIMUM OUTPUT POWER (FOF OFDM)	15.00 dBm
ANTENNA TYPE	Dipole antenna with 3 dBi antenna gain
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.
2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
3. The EUT was powered by following adapter:

Brand	HON-KWANG
Model	D12-1A
Input	120Vac, 23W, 60Hz
Output	12Vdc, 1000mA

4. The models as below are identical to main model except for their model names due to marketing requirement.

Model	Remark
WR4455	Based on BWA721, the difference is the appearance
WR4456	Based on BWA721, the difference is the appearance and antenna connector (Reverse SMA)
WR4458	Based on BWA721, the difference is the appearance and antenna connector (Reverse SMA)
WR4457	Based on BWA721, the difference is the appearance

5. The antenna of EUT has 2 connectors which are fix and reverse SMA. The worst case has been found at fix antenna after pre-testing, therefore only the test data is presented in the report.

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT.

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		

NOTE:

1. Below 1GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1GHz, the channel 1, 6, and 11 were tested individually.
3. From our experience and technical viewpoint, we have chosen data rates 11Mbps for CCK technique and 6Mbps for OFDM technique, as the worst cases for the test among other data rates.
4. There are two test results presented in the following sections. The test result A is for CCK technique and the test result B is for OFDM technique.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 802.11g WLAN Router. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247)
ANSI C63.4-2001

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
2	MODEM	ACEEX	1414V/3	0401008260	IFAXDM1414
3	PRINTER	EPSON	LQ-300+	DCGY054146	FCC DoC Approved
4	PC	LEMEL	LM1H3A1	A40423-0424	FCC DoC Approved
5	LCD MONITOR	ACER	AL1721	ET.L0408.0104040 01E4PK00	FCC DoC Approved
6	KEYBOARD	DELL	SK-8110	MY-05N456-71619-3C1-1802	FCC DoC Approved
7	MOUSE	HP	M-S69	N/A	INZ211443

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2 m shielded cable without core
3	1.2 m shielded cable without core
4	NA
5	1.8 m shielded cable without core
6	2 m shielded cable without core
7	1.8 m shielded cable without core

NOTE: 1. All power cords of the above support units are non shielded (1.8m).

2. Item 4~7 acted as a communication partner to transfer data.

3.5 CONFIGURATION SYSTEM UNDER TEST

```
                                              ← 1 m UTP RJ45 Cable
                                              ← 1 m UTP RJ45 Cable x3
  ┌─────────┐  ┌──────────┐  ┌──────┐  ┌────────┐
  │ Printer │  │ Notebook │  │ EUT  │  │ Modem  │
  └─────────┘  └──────────┘  └──────┘  └────────┘

                          ← 10 m UTP RJ45 Cable

  *Test Table
```

```
                    ┌──────┐  ┌──────────┐
                    │  PC  │  │ Monitor  │
                    └──────┘  └──────────┘

  *Kept in a remote area  │ Keyboard │  │   │ ← Mouse
```
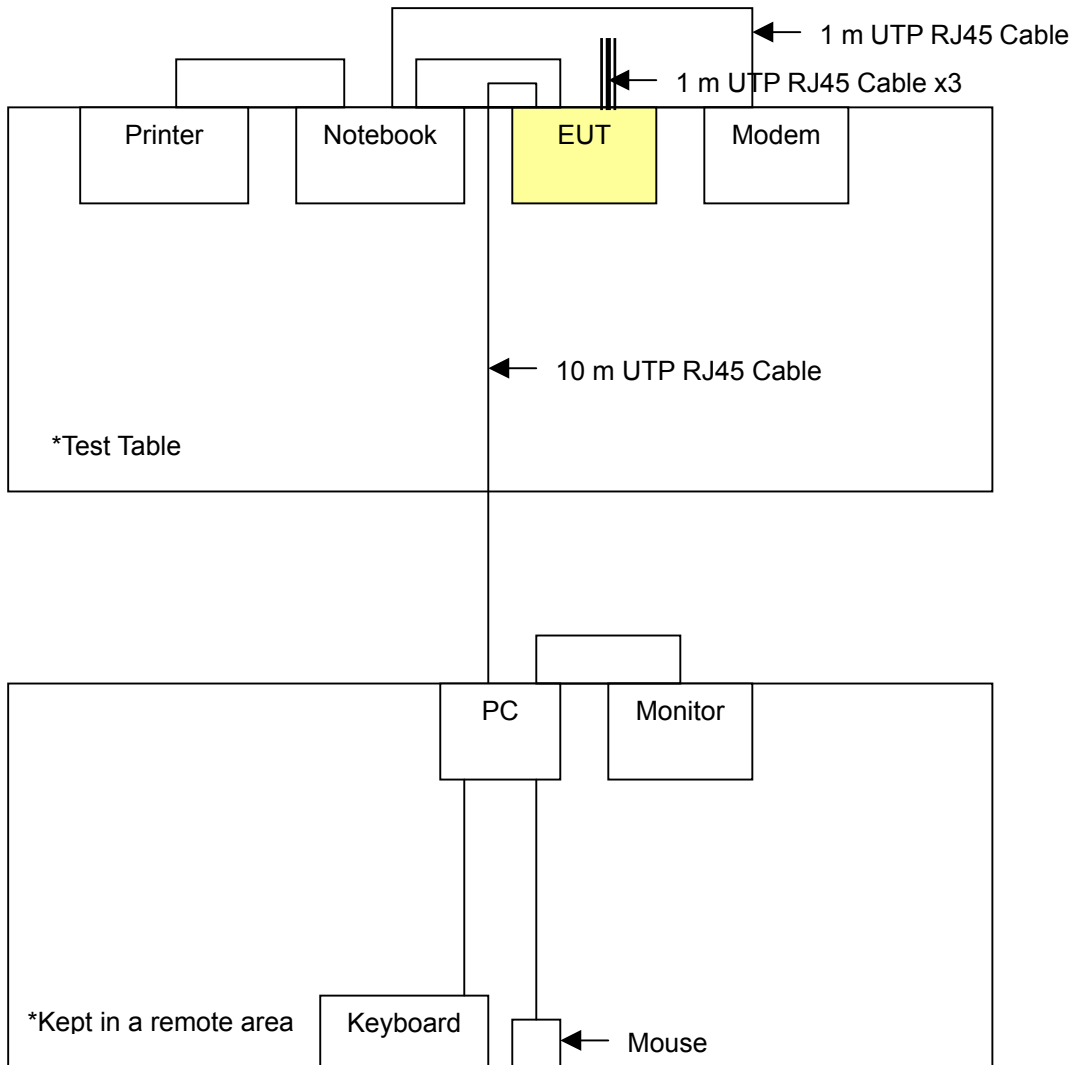
4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Dec. 12, 2004
RF signal cable Woken	5D-FB	Cable-HYC01-01	Mar. 02, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	847265/023	Oct. 22, 2004
LISN ROHDE & SCHWARZ	ESH3-Z5	100220	Dec. 10, 2004
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.Hwa Ya Global Certification Office

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


```
Vertical Reference
Ground Plane                              Test Receiver

40cm
         EUT

                    80cm

         LISN

Bonded to Horizontal        Horizontal Reference
Ground Plane                Ground Plane
```
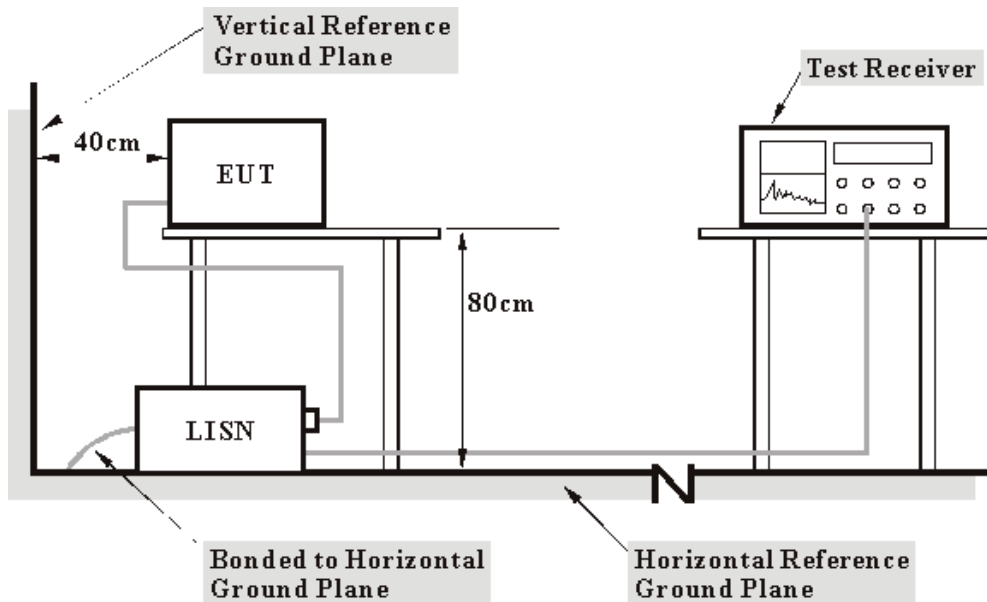
Note: 1. Support units were connected to second LISN.
      2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm
         from other units and other metal planes support units.

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

4.1.6   EUT OPERATING CONDITIONS

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

4.1.7 TEST RESULTS

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Steven Lu

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	0.193	0.12	48.15	-	48.27	-	63.91	53.91	-15.64	-
2	0.439	0.13	44.34	-	44.47	-	57.08	47.08	-12.61	-
3	4.818	0.23	37.60	-	37.83	-	56.00	46.00	-18.17	-
4	6.540	0.28	45.42	-	45.70	-	60.00	50.00	-14.30	-
5	9.293	0.30	45.56	-	45.86	-	60.00	50.00	-14.14	-
6	16.520	0.85	23.35	-	24.20	-	60.00	50.00	-35.80	-

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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Steven Lu

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	0.170	0.10	48.24	-	48.34	-	64.98	54.98	-16.64	-
2	0.343	0.11	42.27	-	42.38	-	59.13	49.13	-16.74	-
3	4.469	0.21	39.13	-	39.34	-	56.00	46.00	-16.66	-
4	5.844	0.24	44.01	-	44.25	-	60.00	50.00	-15.75	-
5	9.282	0.28	46.43	-	46.71	-	60.00	50.00	-13.29	-
6	14.094	0.57	28.26	-	28.83	-	60.00	50.00	-31.17	-

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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Steven Lu

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.11	48.96	-	49.07	-	64.98	54.98	-15.91	-
2	0.412	0.13	44.20	-	44.33	-	57.60	47.60	-13.27	-
3	4.465	0.22	39.21	-	39.43	-	56.00	46.00	-16.57	-
4	5.838	0.26	44.28	-	44.54	-	60.00	50.00	-15.46	-
5	6.870	0.29	44.60	-	44.89	-	60.00	50.00	-15.11	-
6	7.556	0.30	45.60	-	45.90	-	60.00	50.00	-14.10	-

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
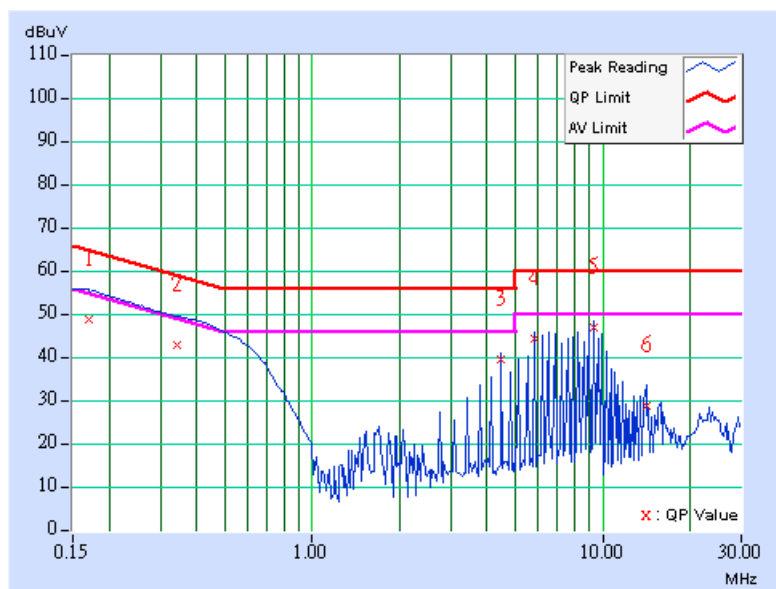6. Emission Level = Correction Factor + Reading Value.

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Steven Lu

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	0.168	0.10	48.24	-	48.34	-	65.05	55.05	-16.71	-
2	0.268	0.11	44.26	-	44.37	-	61.17	51.17	-16.79	-
3	4.466	0.21	39.25	-	39.46	-	56.00	46.00	-16.54	-
4	5.840	0.24	44.12	-	44.36	-	60.00	50.00	-15.64	-
5	7.559	0.28	46.63	-	46.91	-	60.00	50.00	-13.09	-
6	9.276	0.28	46.19	-	46.47	-	60.00	50.00	-13.53	-

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
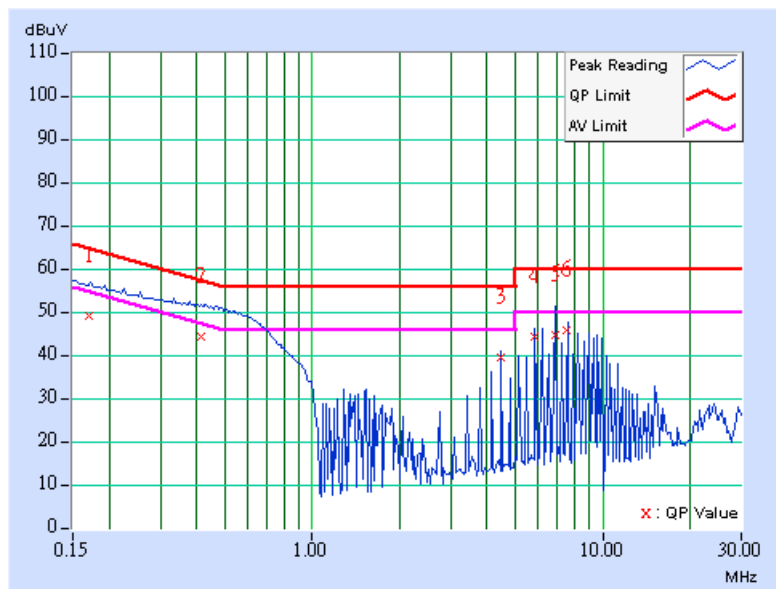   6. Emission Level = Correction Factor + Reading Value.

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Steven Lu

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.169	0.11	49.12	-	49.23	-	65.01	55.01	-15.78	-
2	**0.510**	**0.13**	**43.52**	**-**	**43.65**	**-**	**56.00**	**46.00**	**-12.35**	**-**
3	4.463	0.22	39.74	-	39.96	-	56.00	46.00	-16.04	-
4	6.180	0.27	47.19	-	47.46	-	60.00	50.00	-12.54	-
5	7.553	0.30	45.28	-	45.58	-	60.00	50.00	-14.42	-
6	8.928	0.30	45.19	-	45.49	-	60.00	50.00	-14.51	-

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
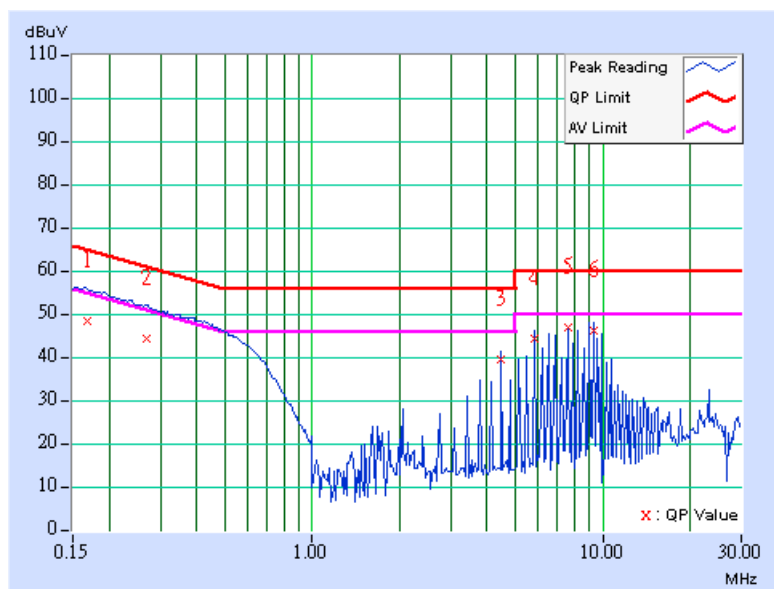6. Emission Level = Correction Factor + Reading Value.

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65% RH, 991 hPa	TESTED BY	Steven Lu

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	0.167	0.10	48.42	-	48.52	-	65.11	55.11	-16.58	-
2	0.461	0.12	39.92	-	40.04	-	56.68	46.68	-16.64	-
3	4.460	0.21	38.72	-	38.93	-	56.00	46.00	-17.07	-
4	6.182	0.25	46.79	-	47.04	-	60.00	50.00	-12.96	-
5	8.238	0.28	44.24	-	44.52	-	60.00	50.00	-15.48	-
6	9.266	0.28	45.83	-	46.11	-	60.00	50.00	-13.89	-

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
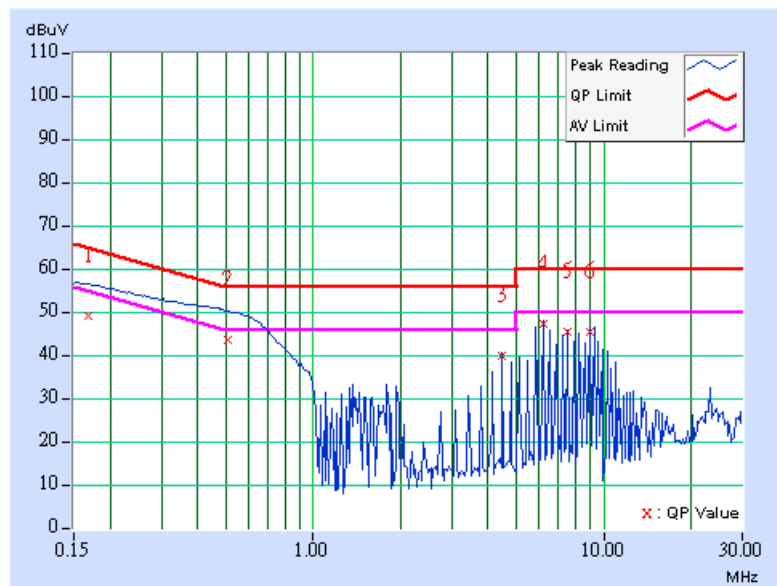6. Emission Level = Correction Factor + Reading Value.
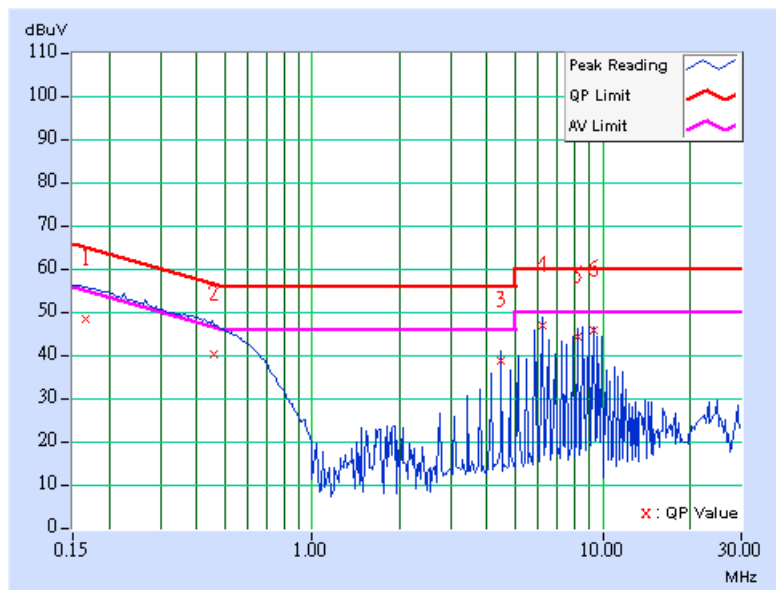
4.2 RADIATED EMISSION MEASUREMENT

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	Feb. 09, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 15, 2004
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170242	Feb. 23, 2005
Preamplifier Agilent	8447D	2944A10631	Jan. 15, 2005
Preamplifier Agilent	8449B	3008A01960	Jan. 22, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219272/4	Mar. 04, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219275/4	Mar. 04, 2005
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 maters 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 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4   DEVIATION FROM TEST STANDARD

No deviation

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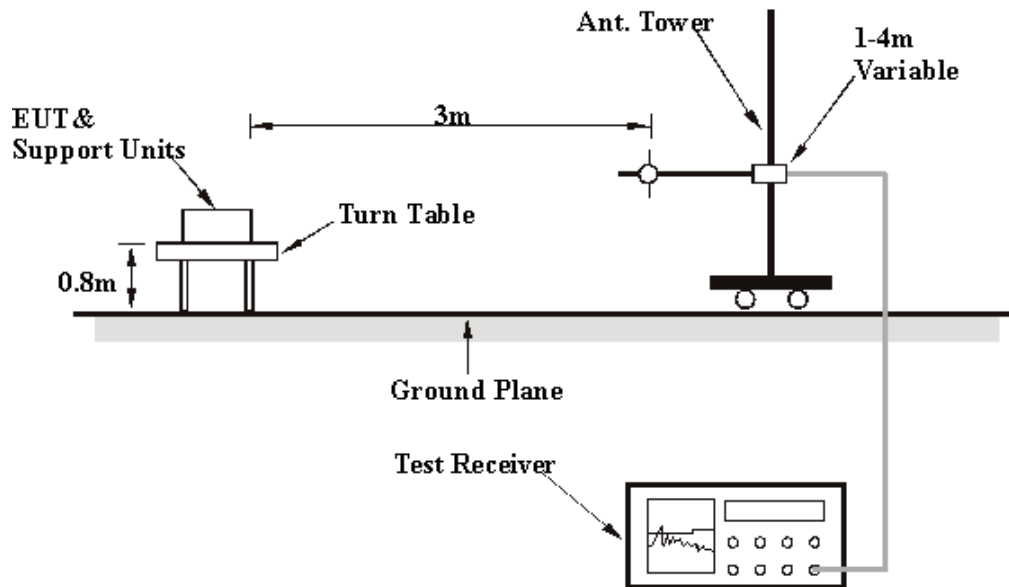
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	TESTED BY	Match Tsui

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.16	22.04 QP	40.00	-17.96	1.00 H	334	8.24	13.79
2	148.58	31.90 QP	43.50	-11.60	2.00 H	58	17.28	14.62
3	160.24	29.76 QP	43.50	-13.74	2.50 H	229	14.89	14.87
4	249.66	30.63 QP	46.00	-15.37	1.00 H	187	17.41	13.22
5	300.20	34.94 QP	46.00	-11.06	1.00 H	49	20.43	14.50
6	374.07	29.34 QP	46.00	-16.66	1.00 H	91	13.16	16.18
7	424.61	30.27 QP	46.00	-15.73	2.50 H	100	12.87	17.40
8	449.88	28.41 QP	46.00	-17.59	1.50 H	64	10.34	18.07
9	479.04	36.28 QP	46.00	-9.72	1.75 H	217	17.83	18.45
10	500.42	28.94 QP	46.00	-17.06	1.75 H	100	10.20	18.74
11	550.96	29.06 QP	46.00	-16.94	1.75 H	100	9.34	19.72
12	640.38	33.86 QP	46.00	-12.14	1.25 H	169	12.31	21.55
13	700.64	30.23 QP	46.00	-15.77	1.00 H	70	7.91	22.32
14	799.78	36.54 QP	46.00	-9.46	2.00 H	244	12.72	23.82
15	900.86	32.19 QP	46.00	-13.81	1.75 H	214	7.07	25.12
16	961.12	37.39 QP	54.00	-16.61	1.25 H	169	11.72	25.68

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

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	TESTED BY	Match Tsui

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	35.83	33.93 QP	40.00	-6.07	1.50 V	115	19.36	14.57
2	**59.16**	**36.86 QP**	**40.00**	**-3.14**	**1.00 V**	**325**	**23.06**	**13.79**
3	80.54	32.26 QP	40.00	-7.74	1.50 V	28	22.28	9.98
4	94.15	31.43 QP	43.50	-12.07	1.25 V	91	20.91	10.52
5	109.70	31.70 QP	43.50	-11.80	1.25 V	94	19.73	11.97
6	148.58	33.75 QP	43.50	-9.75	1.00 V	271	19.13	14.62
7	199.12	30.81 QP	43.50	-12.69	1.00 V	352	19.35	11.46
8	249.66	25.34 QP	46.00	-20.66	1.00 V	169	12.12	13.22
9	300.20	29.86 QP	46.00	-16.14	1.25 V	196	15.35	14.50
10	348.80	28.21 QP	46.00	-17.79	1.25 V	196	12.59	15.62
11	449.88	29.84 QP	46.00	-16.16	1.00 V	160	11.77	18.07
12	479.04	36.01 QP	46.00	-9.99	1.25 V	355	17.55	18.45
13	550.96	28.55 QP	46.00	-17.45	1.75 V	157	8.84	19.72
14	640.38	33.36 QP	46.00	-12.64	1.00 V	64	11.81	21.55
15	799.78	37.08 QP	46.00	-8.92	1.50 V	19	13.26	23.82
16	961.12	35.96 QP	54.00	-18.04	1.00 V	169	10.28	25.68

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

4.2.8 TEST RESULTS (A)

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	1	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Allen Chang

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	1120.00	41.84 PK	74.00	-32.16	1.24 H	229	12.81	29.03
1	1120.00	32.21 AV	54.00	-21.79	1.24 H	229	3.18	29.03
2	1440.00	41.47 PK	74.00	-32.53	1.32 H	182	10.87	30.60
3	1600.00	41.71 PK	74.00	-32.29	1.26 H	69	11.59	30.12
3	1600.00	32.55 AV	54.00	-21.45	1.26 H	69	2.43	30.12
4	2310.00	50.56 PK	74.00	-23.44	1.39 H	202	17.13	33.43
4	2310.00	38.70 AV	54.00	-15.30	1.39 H	202	5.27	33.43
5	2354.00	44.53 PK	74.00	-29.47	1.26 H	69	10.88	33.65
6	*2412.00	102.18 PK			1.30 H	157	68.25	33.93
6	*2412.00	94.52 AV			1.30 H	157	60.59	33.93
7	4160.00	50.00 PK	74.00	-24.00	1.75 H	108	11.14	38.86

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	1	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Allen Chang

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	1120.00	43.83 PK	74.00	-30.17	1.00 V	115	14.80	29.03
1	1120.00	36.72 AV	54.00	-17.28	1.00 V	115	7.69	29.03
2	1440.00	43.88 PK	74.00	-30.12	1.14 V	321	13.28	30.60
2	1440.00	35.17 AV	54.00	-18.83	1.14 V	321	4.57	30.60
3	1600.00	45.44 PK	74.00	-28.56	1.09 V	66	15.32	30.12
3	1600.00	39.37 AV	54.00	-14.63	1.09 V	66	9.25	30.12
4	2310.00	60.47 PK	74.00	-13.53	1.12 V	66	27.04	33.43
4	2310.00	48.49 AV	54.00	-5.51	1.12 V	66	15.06	33.43
5	2354.00	51.37 PK	74.00	-22.63	1.16 V	262	17.72	33.65
5	2354.00	43.48 AV	54.00	-10.52	1.16 V	262	9.83	33.65
6	*2412.00	112.73 PK			1.11 V	173	78.80	33.93
6	*2412.00	104.99 AV			1.11 V	173	71.06	33.93
7	4160.00	50.52 PK	74.00	-23.48	1.09 V	339	11.66	38.86

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	6	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Allen Chang

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	1120.00	42.59 PK	74.00	-31.41	1.30 H	137	13.56	29.03
1	1120.00	32.66 AV	54.00	-21.34	1.30 H	137	3.63	29.03
2	1440.00	42.03 PK	74.00	-31.97	1.34 H	181	11.43	30.60
3	1600.00	41.37 PK	74.00	-32.63	1.32 H	196	11.25	30.12
4	2310.00	44.20 PK	74.00	-29.80	1.38 H	200	10.77	33.43
5	2334.00	49.79 PK	74.00	-24.21	1.40 H	267	16.24	33.55
6	2354.00	45.81 PK	74.00	-28.19	1.42 H	274	12.16	33.65
7	*2437.00	104.37 PK			1.36 H	282	70.32	34.05
7	*2437.00	96.74 AV			1.36 H	282	62.69	34.05
8	2662.00	45.69 PK	74.00	-28.31	1.00 H	185	10.90	34.79
9	2880.00	48.32 PK	74.00	-25.68	1.32 H	154	12.98	35.34
9	2880.00	40.35 AV	54.00	-13.65	1.32 H	154	5.01	35.34

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	6	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Allen Chang

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	1120.00	42.77 PK	74.00	-31.23	1.00 V	0	13.74	29.03
1	1120.00	34.42 AV	54.00	-19.58	1.00 V	0	5.39	29.03
2	1440.00	42.46 PK	74.00	-31.54	1.17 V	57	11.86	30.60
2	1440.00	33.25 AV	54.00	-20.75	1.17 V	57	2.65	30.30
3	1600.00	45.04 PK	74.00	-28.96	1.11 V	67	14.92	30.12
3	1600.00	38.90 AV	54.00	-15.10	1.11 V	67	8.78	30.12
4	2310.00	53.81 PK	74.00	-20.19	1.12 V	65	20.38	33.43
4	2310.00	40.18 AV	54.00	-13.82	1.12 V	65	6.75	33.43
5	2334.00	59.09 PK	74.00	-14.91	1.17 V	263	25.54	33.55
5	2334.00	48.17 AV	54.00	-5.83	1.17 V	263	14.62	33.55
6	2354.00	54.38 PK	74.00	-19.62	1.15 V	261	20.73	33.65
6	2354.00	40.89 AV	54.00	-13.11	1.15 V	261	7.24	33.65
7	*2437.00	112.17 PK			1.10 V	184	78.12	34.05
7	*2437.00	104.46 AV			1.10 V	184	70.41	34.05
8	2662.00	49.72 PK	74.00	-24.28	1.00 V	178	14.93	34.79
8	2662.00	39.99 AV	54.00	-14.01	1.00 V	178	5.20	34.79
9	2880.00	51.60 PK	74.00	-22.40	1.15 V	232	16.26	35.34
9	2880.00	47.17 AV	54.00	-6.83	1.15 V	232	11.83	35.34

Table title: **NTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Allen Chang

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	1120.00	41.92 PK	74.00	-32.08	1.21 H	264	12.89	29.03
1	1120.00	31.75 AV	54.00	-22.25	1.21 H	264	2.72	29.03
2	1440.00	41.39 PK	74.00	-32.61	1.00 H	236	10.79	30.60
3	1600.00	43.38 PK	74.00	-30.62	1.73 H	326	13.26	30.12
3	1600.00	35.65 AV	54.00	-18.35	1.73 H	326	35.65	30.12
4	*2462.00	102.29 PK			1.05 H	155	68.13	34.16
4	*2462.00	94.60 AV			1.05 H	155	60.44	34.16
5	2487.00	46.30 PK	74.00	-27.70	1.02 H	155	12.02	34.28
5	2487.00	38.61 AV	54.00	-15.39	1.02 H	155	4.33	34.28
6	2880.00	47.23 PK	74.00	-26.77	1.32 H	143	11.89	35.34
6	2880.00	39.29 AV	54.00	-14.71	1.32 H	143	3.95	35.34
7	4160.00	50.32 PK	74.00	-23.68	1.54 H	261	11.46	38.86

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Allen Chang

NTENNA 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	1120.00	42.88 PK	74.00	-31.12	1.61 V	20	13.85	29.03
1	1120.00	38.15 AV	54.00	-18.85	1.61 V	20	6.12	29.03
2	1440.00	43.52 PK	74.00	-30.48	1.13 V	334	12.92	30.60
2	1440.00	34.64 AV	54.00	-19.36	1.13 V	334	4.04	30.60
3	1600.00	45.42 PK	74.00	-28.58	1.06 V	65	15.30	30.12
3	1600.00	39.03 AV	54.00	-14.97	1.06 V	65	8.91	30.12
4	*2462.00	111.11 PK			1.10 V	194	76.95	34.16
4	*2462.00	103.34 AV			1.10 V	194	69.18	34.16
5	2487.00	55.12 PK	74.00	-18.88	1.10 V	194	20.84	34.28
5	2487.00	47.35 AV	54.00	-6.65	1.10 V	194	13.07	34.28
6	2880.00	51.56 PK	74.00	-22.44	1.16 V	234	16.22	35.34
6	2880.00	46.85 AV	54.00	-7.15	1.16 V	234	11.51	35.34
7	4160.00	50.28 PK	74.00	-23.72	1.55 V	62	11.42	38.86

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

4.2.9 TEST RESULTS (B)

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	1	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Steven Lu

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	1120.00	41.79 PK	74.00	-32.21	1.32 H	170	12.76	29.03
1	1120.00	32.09 AV	54.00	-21.91	1.32 H	170	3.06	29.03
2	1440.00	41.09 PK	74.00	-32.91	1.35 H	177	10.49	30.60
3	1600.00	43.08 PK	74.00	-30.92	1.25 H	75	12.96	30.12
3	1600.00	33.56 AV	54.00	-20.44	1.25 H	75	3.44	30.12
4	2240.00	45.07 PK	74.00	-28.93	1.53 H	326	12.00	33.07
4	2240.00	36.05 AV	54.00	-17.95	1.53 H	326	2.98	33.07
5	2387.00	43.37 PK	74.00	-30.63	1.36 H	276	9.56	33.81
5	2387.00	34.15 AV	54.00	-19.85	1.36 H	276	0.34	33.81
6	*2412.00	98.57 PK			1.36 H	276	64.64	33.93
6	*2412.00	89.35 AV			1.36 H	276	55.42	33.93
7	2880.00	48.57 PK	74.00	-25.43	1.31 H	146	13.23	35.34
7	2880.00	40.79 AV	54.00	-13.21	1.31 H	146	5.45	35.34

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

FCC ID: KFY-WR4457

EUT	802.11g WLAN Router	MODEL	BWA721
CHANNEL	1	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Steven Lu

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	1120.00	42.49 PK	74.00	-31.51	1.54 V	54	13.46	29.03
1	1120.00	35.02 AV	54.00	-18.98	1.54 V	54	5.99	29.03
2	1440.00	43.34 PK	74.00	-30.66	1.17 V	316	12.74	30.60
2	1440.00	35.50 AV	54.00	-18.50	1.17 V	316	4.90	30.60
3	1600.00	46.23 PK	74.00	-27.77	1.00 V	254	16.11	30.12
3	1600.00	41.65 AV	54.00	-12.35	1.00 V	254	11.53	30.12
4	2240.00	48.38 PK	74.00	-25.62	1.51 V	60	15.31	33.07
4	2240.00	41.79 AV	54.00	-12.21	1.51 V	60	8.72	33.07
5	*2412.00	104.43 PK			1.35 V	63	70.50	33.93
5	*2412.00	95.21 AV			1.35 V	63	61.28	33.93
6	2487.00	49.23 PK	74.00	-24.77	1.35 V	63	14.95	34.28
6	2487.00	40.01 AV	54.00	-13.99	1.35 V	63	5.73	34.28
7	2880.00	51.65 PK	74.00	-22.35	1.15 V	248	16.31	35.34
7	2880.00	46.91 AV	54.00	-7.09	1.15 V	248	11.57	35.34

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	6	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Steven Lu

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)
			ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M					
1	1120.00	42.38 PK	74.00	-31.62	1.34 H	170	13.35	29.03
1	1120.00	31.98 AV	54.00	-22.02	1.34 H	170	2.95	29.03
2	1440.00	41.26 PK	74.00	-32.74	1.31 H	179	10.66	30.60
3	1600.00	42.55 PK	74.00	-31.45	1.00 H	53	12.43	30.12
3	1600.00	33.94 AV	54.00	-20.06	1.00 H	53	3.82	30.12
4	2240.00	44.54 PK	74.00	-29.46	1.53 H	303	11.47	33.07
4	2240.00	45.54 AV	54.00	-8.46	1.53 H	303	12.47	33.07
5	*2437.00	98.61 PK			1.37 H	277	64.56	34.05
5	*2437.00	89.26 AV			1.37 H	277	55.21	34.05
6	2880.00	47.93 PK	74.00	-26.07	1.30 H	144	12.59	35.34
6	2880.00	40.37 AV	54.00	-13.63	1.30 H	144	5.03	35.34

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	6	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Steven Lu

NTENNA 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	1120.00	43.95 PK	74.00	-30.05	1.00 V	31	14.92	29.03
1	1120.00	36.71 AV	54.00	-17.29	1.00 V	31	7.68	29.03
2	1440.00	43.79 PK	74.00	-30.21	1.11 V	285	13.19	30.60
2	1440.00	35.07 AV	54.00	-18.93	1.11 V	285	4.47	30.60
3	1600.00	45.67 PK	74.00	-28.33	1.04 V	42	15.55	30.12
3	1600.00	40.15 AV	54.00	-13.85	1.04 V	42	10.03	30.12
4	2240.00	48.34 PK	74.00	-25.66	1.55 V	250	15.27	33.07
4	2240.00	42.78 AV	54.00	-11.22	1.55 V	250	9.71	33.07
5	*2437.00	106.97 PK			1.10 V	183	72.92	34.05
5	*2437.00	97.63 AV			1.10 V	183	63.58	34.05
6	2880.00	50.51 PK	74.00	-23.49	1.25 V	115	15.17	35.34
6	2880.00	45.58 AV	54.00	-8.42	1.25 V	115	10.24	35.34

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Steven Lu

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	1120.00	41.80 PK	74.00	-32.20	1.26 H	166	12.77	29.03
1	1120.00	32.16 AV	54.00	-21.84	1.28 H	166	3.13	29.03
2	1440.00	41.68 PK	74.00	-32.32	1.37 H	177	11.08	30.60
3	1600.00	42.83 PK	74.00	-31.17	1.00 H	56	12.71	30.12
3	1600.00	33.86 AV	54.00	-20.14	1.00 H	56	3.74	30.12
4	2240.00	44.84 PK	74.00	-29.16	1.08 H	176	11.77	33.07
4	2240.00	35.85 AV	54.00	-18.15	1.08 H	176	2.78	33.07
5	*2462.00	99.40 PK			1.32 H	280	65.24	34.16
5	*2462.00	90.04 AV			1.32 H	280	55.88	34.16
6	2487.70	48.36 PK	74.00	-25.64	1.32 H	280	14.08	34.28
6	2487.70	39.00 AV	54.00	-15.00	1.32 H	280	4.72	34.28
7	2880.00	48.33 PK	74.00	-25.67	1.05 H	307	12.99	35.34
7	2880.00	40.59 AV	54.00	-13.41	1.05 H	307	5.25	35.34

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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	802.11g WLAN Router	MODEL	BWA721
CHANNEL	11	FREQUENCY RANGE	1 ~ 25 GHz
INPUT POWER (SYSTEM)	120 Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 60 % RH, 991 hPa	TESTED BY	Steven Lu

NTENNA 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	1120.00	43.24 PK	74.00	-30.76	1.00 V	30	14.21	29.03
1	1120.00	36.56 AV	54.00	-17.44	1.00 V	30	7.53	29.03
2	1440.00	43.02 PK	74.00	-30.98	1.14 V	286	12.42	30.60
2	1440.00	34.94 AV	54.00	-19.06	1.14 V	286	4.34	30.60
3	1600.00	45.59 PK	74.00	-28.41	1.00 V	40	15.47	30.12
3	1600.00	39.86 AV	54.00	-14.14	1.00 V	40	9.74	30.12
4	2240.00	47.49 PK	74.00	-26.51	1.16 V	61	14.42	33.07
4	2240.00	41.27 AV	54.00	-12.73	1.16 V	61	8.20	33.07
5	*2462.00	106.02 PK			1.08 V	185	71.86	34.16
5	*2462.00	96.58 AV			1.08 V	185	62.42	34.16
6	2487.70	54.98 PK	74.00	-19.02	1.08 V	185	20.70	34.28
6	2487.70	45.54 AV	54.00	-8.46	1.08 V	185	11.26	34.28
7	2880.00	51.68 PK	74.00	-22.32	1.16 V	247	16.34	35.34
7	2880.00	46.86 AV	54.00	-7.14	1.16 V	247	11.52	35.34

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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. 12, 2004

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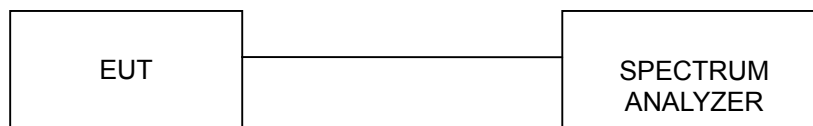
4.3.3 TEST PROCEDURE

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

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┌─────────────┐                    ┌─────────────┐
│             │                    │  SPECTRUM   │
│     EUT     │────────────────────│  ANALYZER   │
│             │                    │             │
└─────────────┘                    └─────────────┘
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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.
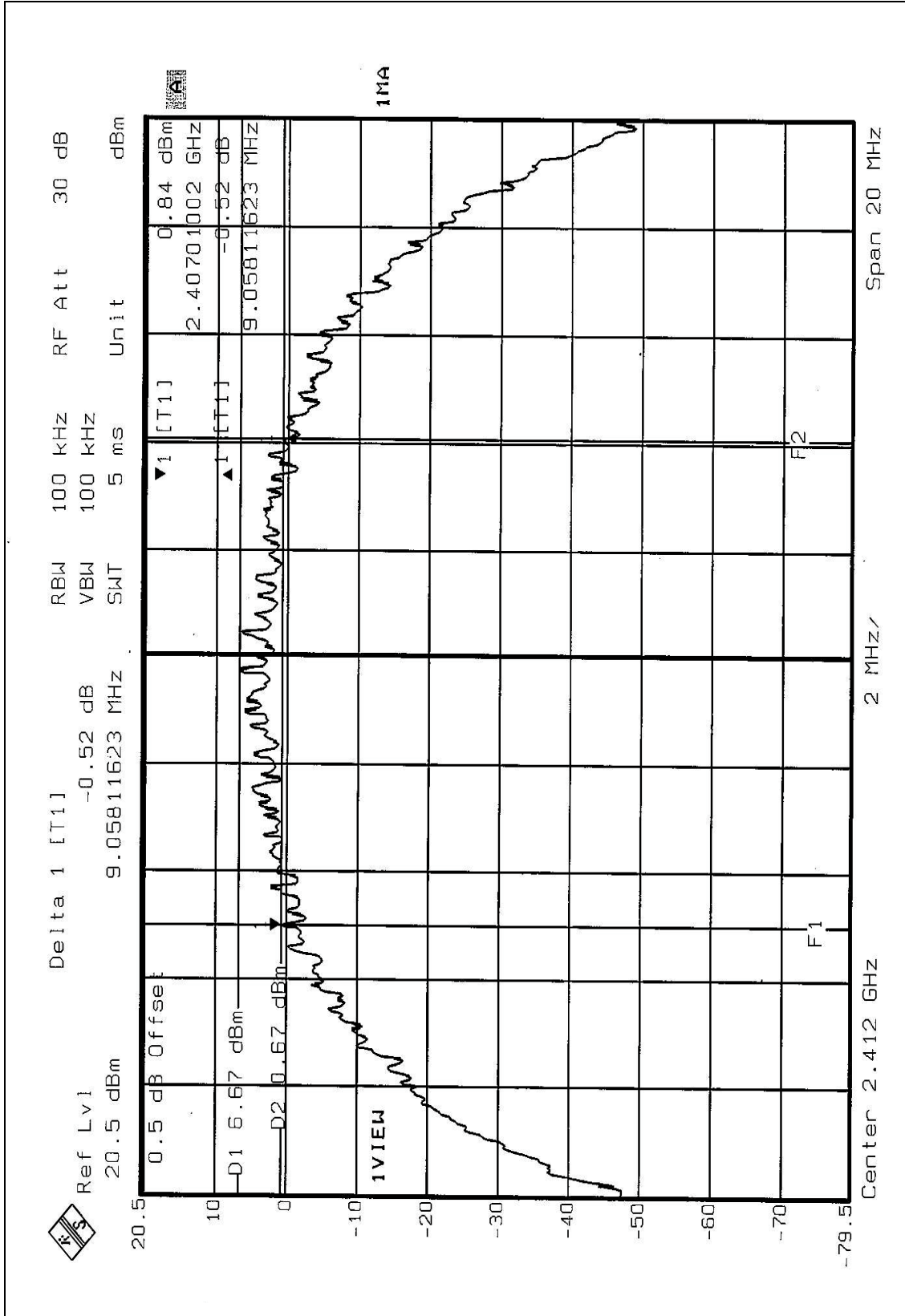
4.3.7 TEST RESULTS (A)

EUT	802.11g WLAN Router	MODEL	BWA721
ENVIRONMENTAL CONDITIONS	25 deg. C, 63% RH, 991 hPa	INPUT POWER (SYSTEM)	120 Vac, 60 Hz
TESTED BY:	Steven Lu		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.058	0.5	PASS
6	2437	9.299	0.5	PASS
11	2462	9.339	0.5	PASS

CH 1

CH 6
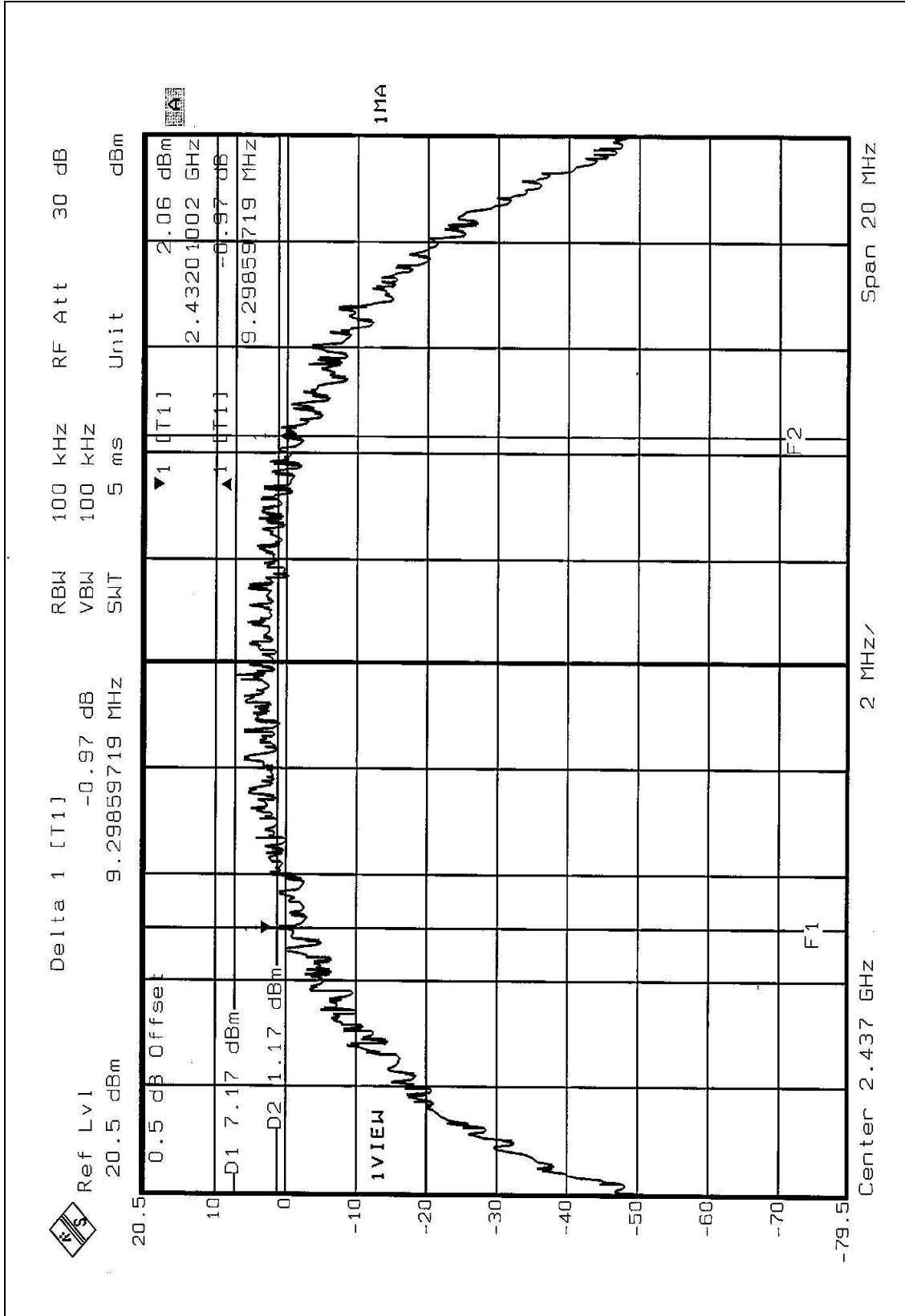
CH 11

4.3.8 TEST RESULTS (B)

EUT	802.11g WLAN Router	MODEL	BWA721
ENVIRONMENTAL CONDITIONS	25 deg. C, 63% RH, 991 hPa	INPUT POWER (SYSTEM)	120 Vac, 60 Hz
TESTED BY:	Steven Lu		

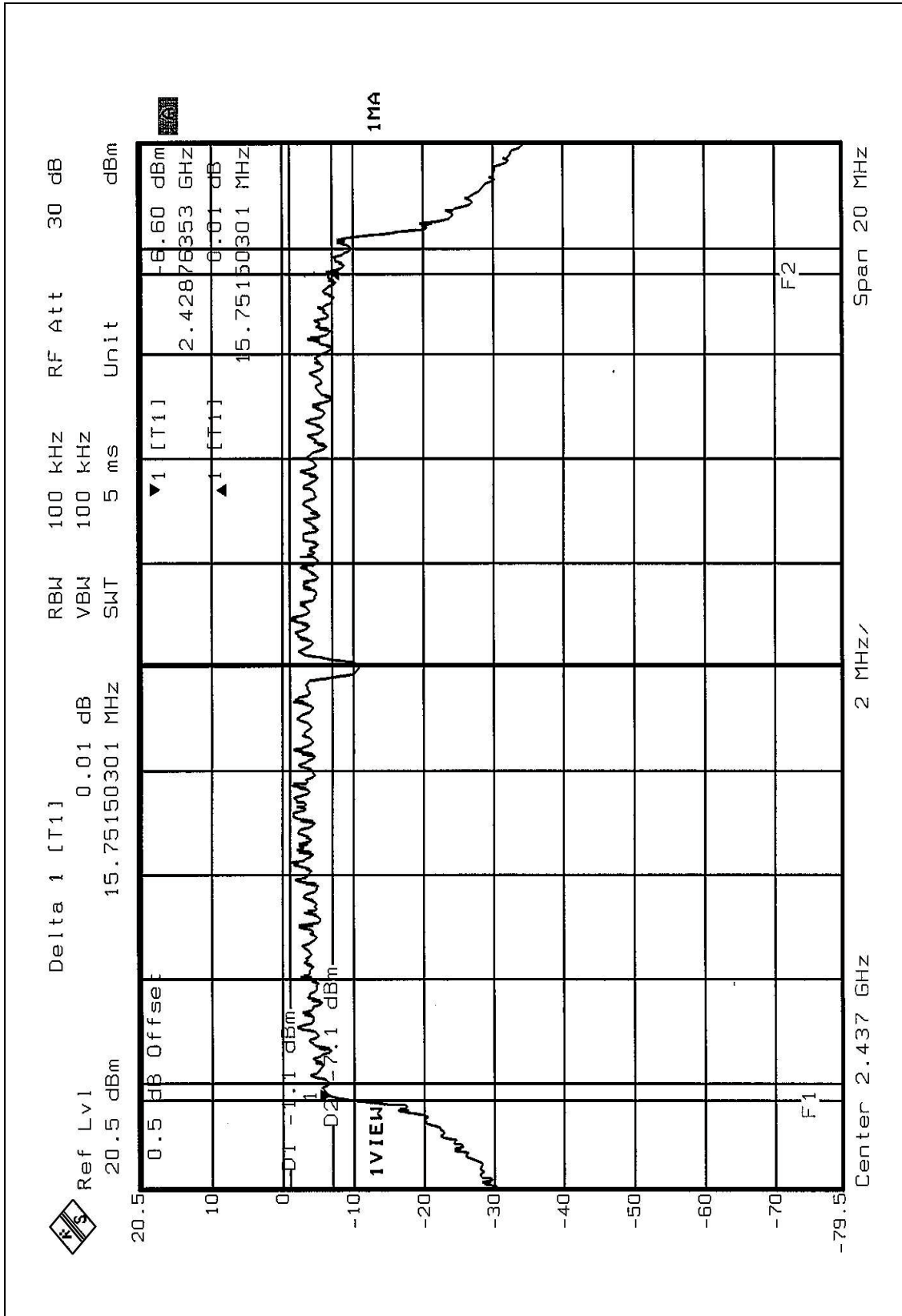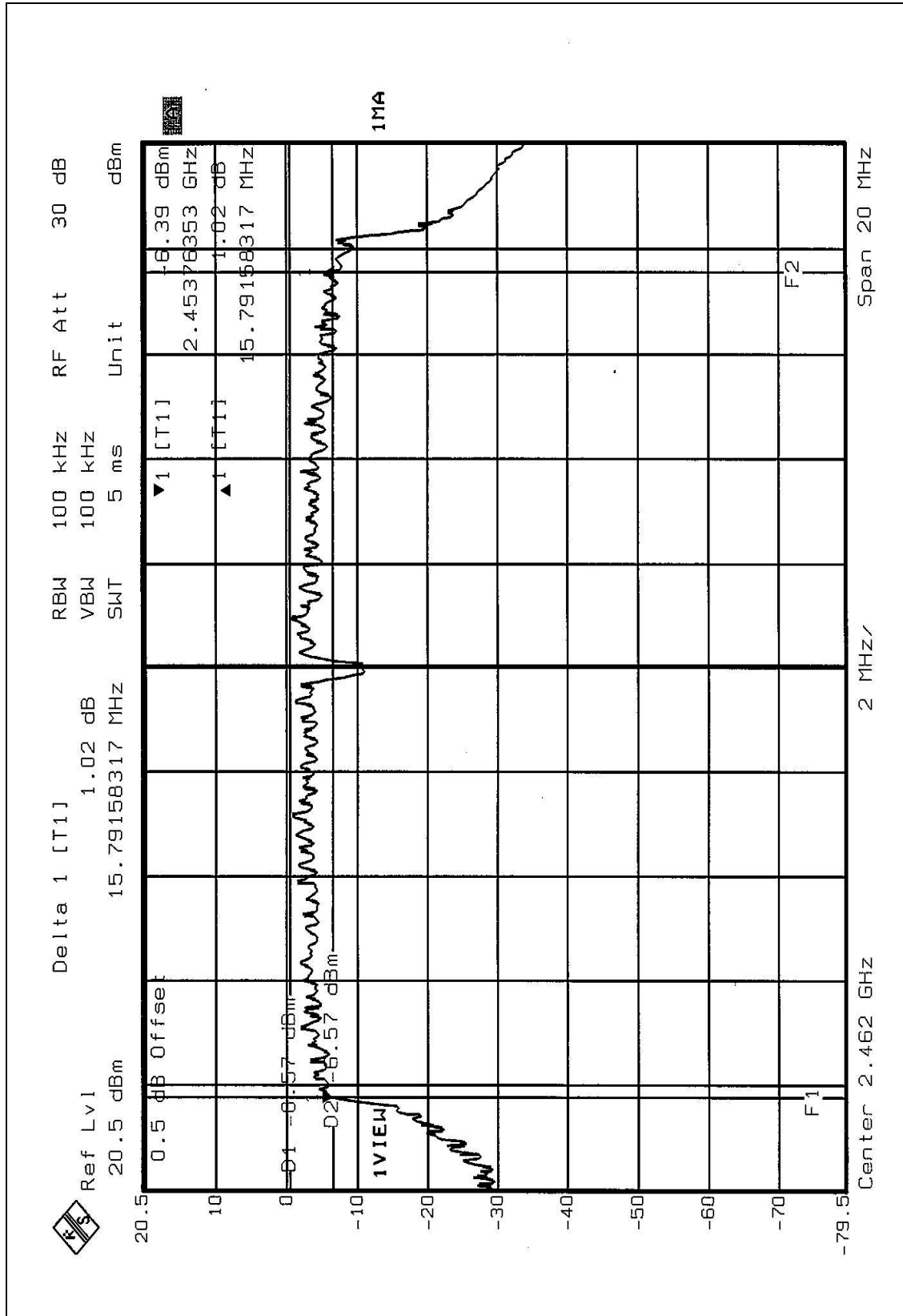| CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	15.832	0.5	PASS
6	2437	15.752	0.5	PASS
11	2462	15.792	0.5	PASS

CH 1
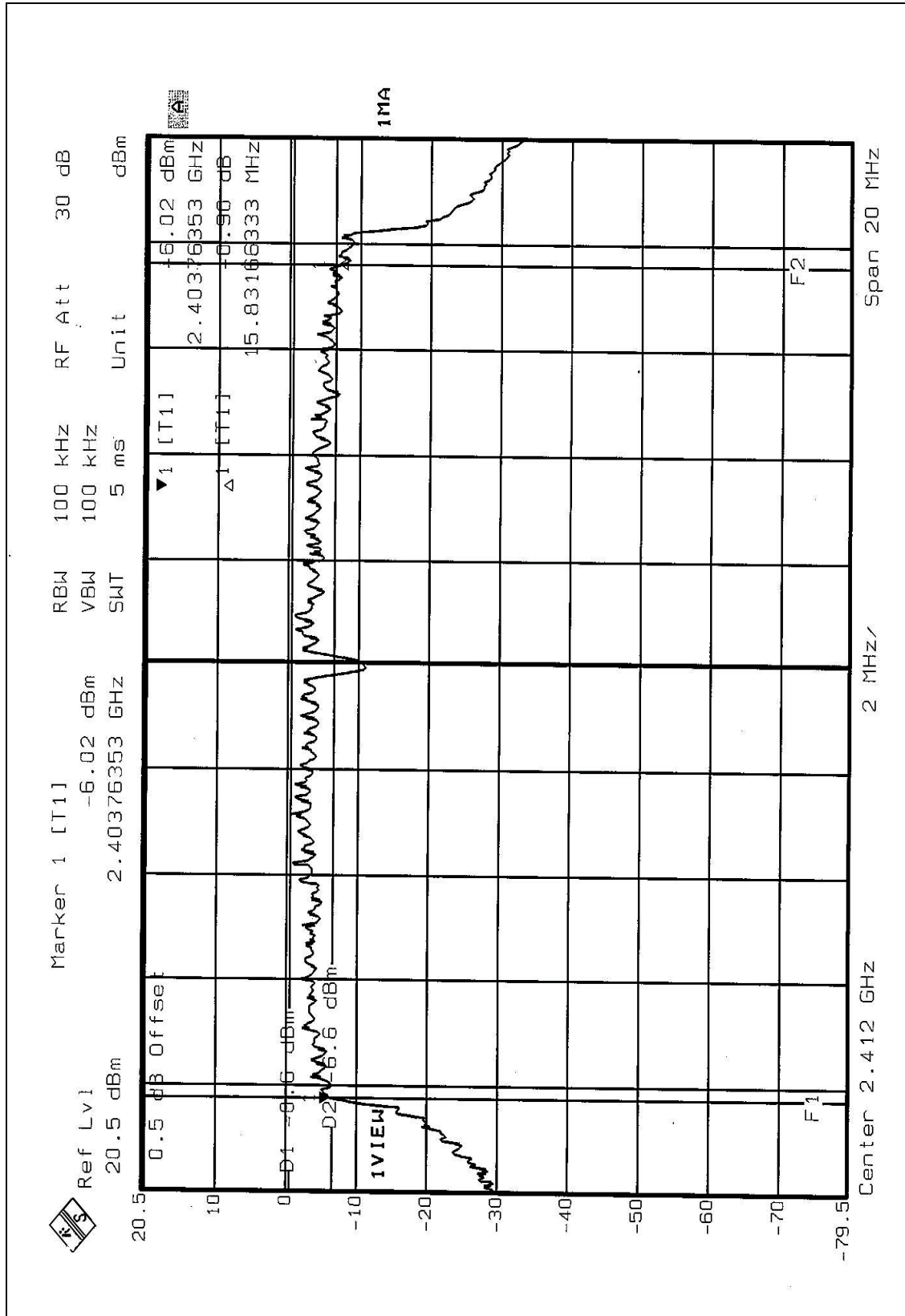
CH 6

CH 11

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	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	C019167	Feb. 01, 2005
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

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┌─────────────┐         ┌────────────┐         ┌──────────────┐
│  EUT or S.G │─────────│  DETECTOR  │─────────│ OSCILLOSCOPE │
└─────────────┘         └────────────┘         └──────────────┘
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4.4.6   EUT OPERATING CONDITIONS

Same as Item 4.3.6.

4.4.7   TEST RESULTS (A)

EUT	802.11g WLAN Router	MODEL	BWA721
ENVIRONMENTAL CONDITIONS	25 deg. C, 64% RH, 991 hPa	INPUT POWER (SYSTEM)	120 Vac, 60 Hz
TESTED BY:	Steven Lu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.00	30	PASS
6	2437	18.00	30	PASS
11	2462	18.00	30	PASS