



FCC TEST REPORT

REPORT NO.: RF920517R02

MODEL NO.: A13QBF-PC

PLATFORM: AP-2000, **BRAND:** Proxim

RECEIVED: May 17, 2003

TESTED: May 22 to 26, 2003

APPLICANT: Proxim Corporation

ADDRESS: 935 Stewart Drive, Sunnyvale, CA 94085, USA

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Lab Code: 200376-0



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1. CERTIFICATION

PRODUCT : 802.11a Cardbus
BRAND NAME : Proxim
PLATFORM: AP-2000, **BRAND:** Proxim
MODEL NO. : A13QBF-PC
APPLICANT : Proxim Corporation
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
Subpart E (Section 15.407), ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from May 22 to 26, 2003. The test record data evaluation and Equipment under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

PREPARED BY: Amanda Chu, **DATE:** May 27, 2003
(Amanda Chu)

APPROVED BY: Eric Lin, **DATE:** May 27, 2003
(Eric Lin, Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

for freq. 5.15~5.35GHz :

APPLIED STANDARD: 47 CFR Part 15, Subpart E			
Standard Section	Test Type	Result	REMARK
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -16.77dBuV at 1.030MHz
15.407(b/1/2/3)(b)(5)	Electric Field Strength Spurious Emissions, 30 MHz – 40000 MHz	PASS	Meet the requirement of limit Minimum passing margin is -1.2dBuV at 5150.00MHz
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

for freq. 5.725~5.850GHz :

APPLIED STANDARD: 47 CFR 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 -16.77dBuV at 1.030MHz
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)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -1.3dBuV at 5408.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11a Cardbus
MODEL NO.	A13QBF-PC
PLATFORM:	AP-2000, BRAND: Proxim
POWER SUPPLY	3.3VDC from host equipment
MODULATION	OFDM
TRANSFER RATE	6 to 54Mbps *(Turbo mode : up to 108Mbps)
FREQUENCY RANGE	5.15GHz ~ 5.35GHz, 5.725GHz ~ 5.850GHz
BAND WIDTH OF EACH CHANNEL	20MHz (Normal mode) 40MHz (Turbo mode)
NUMBER OF CHANNEL	13 for Normal mode / 5 for Turbo mode
CHANNEL SPACING	20MHz for Normal mode / 40MHz for Turbo mode
OUTPUT POWER	17.11dBm
DATA CABLE	NA
ANTENNA TYPE	Omni-direction Antenna
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. Platforms was operated with an AC/DC power adapter:

BRAND:	AKII
MODEL:	A25B1-05 MB
INPUT	100-240 Vac 0.6A 47-63Hz
OUTPUT:	5Vdc 5A

2. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Twelve channels are provided to this EUT for Normal mode.

Channel	Frequency	Channel	Frequency
1	5180 MHz	8	5320 MHz
2	5200 MHz	9	5745MHz
3	5220 MHz	10	5765MHz
4	5240 MHz	11	5785MHz
5	5260 MHz	12	5805MHz
6	5280 MHz	13	5825MHz
7	5300 MHz		

Five channels are provided to this EUT for Turbo Mode.

Channel	Frequency	Channel	Frequency
1	5210 MHz	4	5760MHz
2	5250 MHz	5	5800MHz
3	5290 MHz		

NOTE:

1. The EUT was tested in both normal mode (channel bandwidth of approximately 30MHz) and turbo mode (channel bandwidth of approximately 60MHz).
2. "Normal Mode" allows data rates of up to 54Mbps. The device was, therefore, tested in Normal mode at the data rate that produced the highest output power for normal mode (6Mbps).
3. "Turbo Mode" allows data rates of up to 108Mbps. At data rates higher than 12Mbps the PA gain is reduced to improve signal fidelity. The device was, therefore, tested in turbo mode at the data rate that produced the highest output power for turbo mode (12Mbps).
4. Channel 1, 4, 5, 8, 9, 11 and 13 are the closest frequencies to the band edge, were chosen for final test of Normal Mode.
5. Channel 1 ~ 5 were chosen for final test of turbo mode.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**47 CFR Part 15, Subpart C. (15.247),
Subpart E (15.407). ANSI C63.4 : 1992**

All tests 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 47 CFR Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



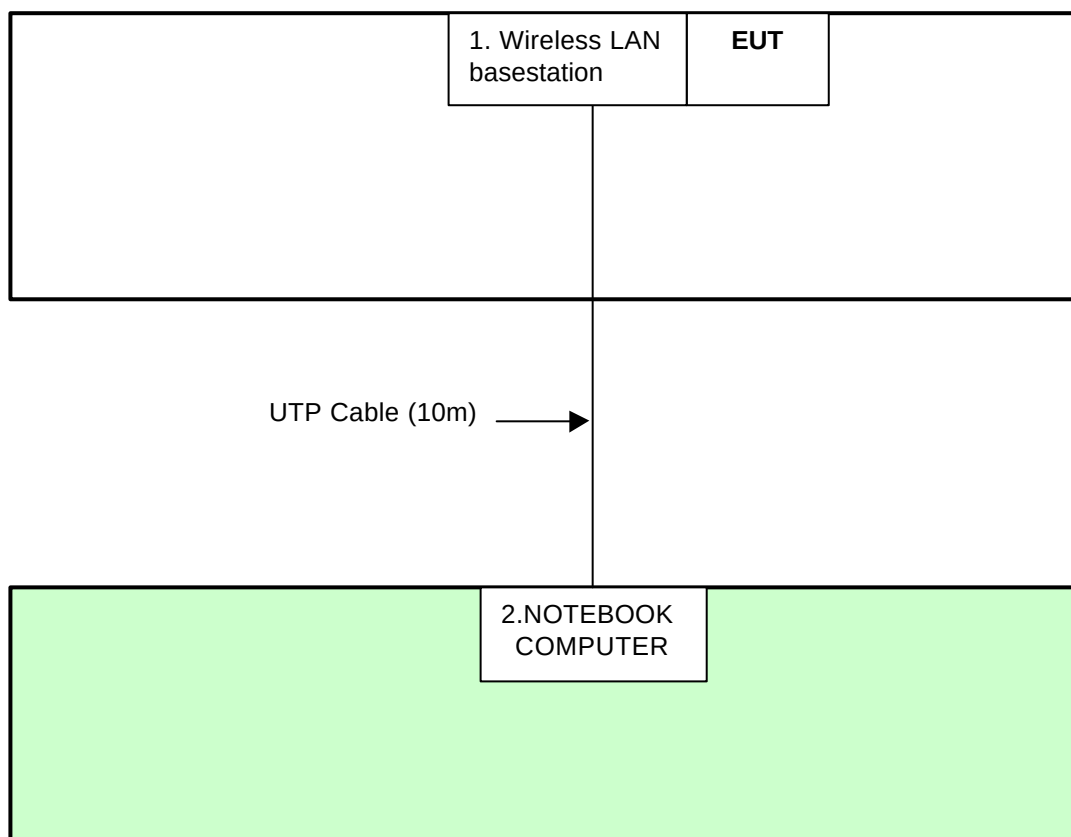
3.4 DESCRIPTION OF SUPPORT UNITS

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	Wireless LAN basestation	Proxim	AP-2000	NA	FCC DoC
2	NOTEBOOK	DELL	PP01L	TW-09C748-12800-17Q-C504	FCC DoC

No.	Signal cable description
1	NA
2	NA

Note: 1. All power cords of the above support units are unshielded (1.8m).



NOTE: 1. Support unit 2 was kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 5 also.

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
ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Nov. 17, 2003
ROHDE & SCHWARZ LISN (for EUT)	ESHS-Z5	848773/004	Nov. 13, 2003
KYORITSU LISN (for peripheral)	KNW-407	8/1395/12	Jul. 23, 2003
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 03, 2003
Terminator(for KYORITSU)	50	3	Apr. 11, 2004
Software	Cond-V2e	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 ADT Shielded Room No. A.
 3. The VCCI Con A Registration No. is C-817.



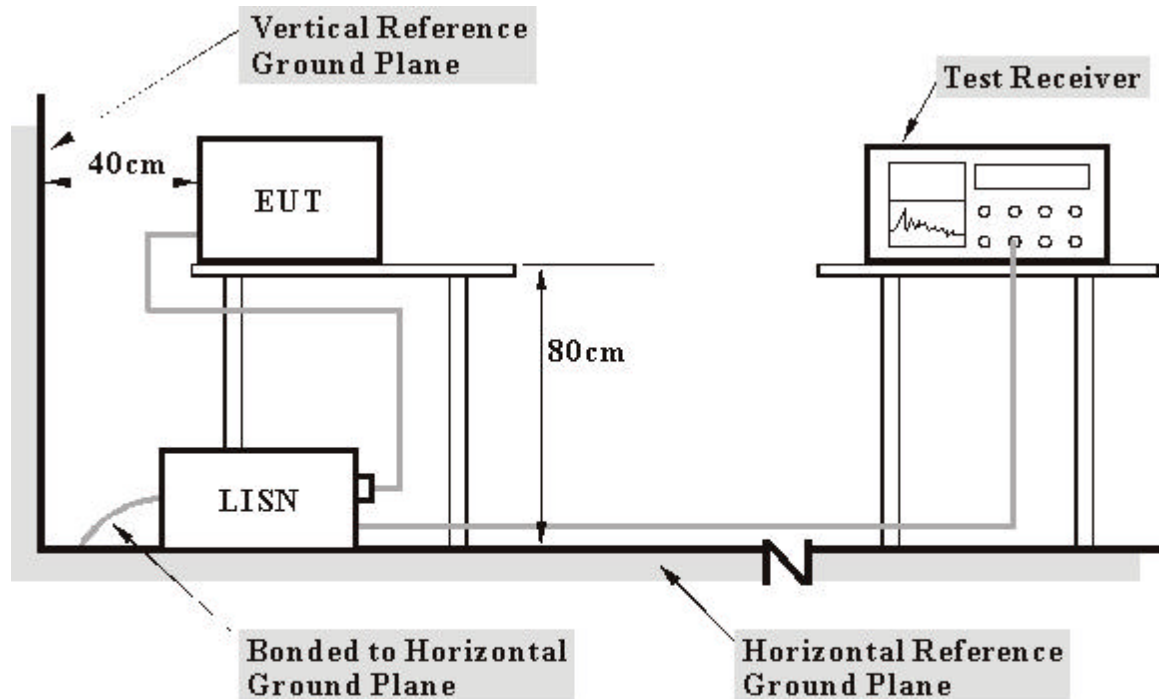
4.1.3 TEST PROCEDURES

- 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 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

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) 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

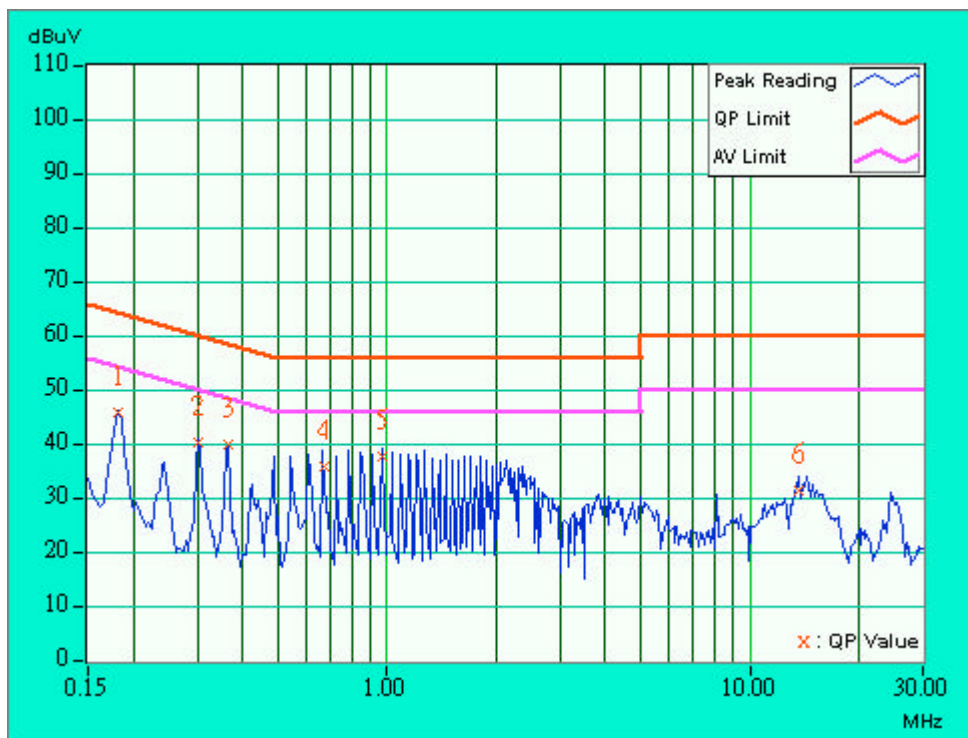
- a. Plug the EUT into the Wireless LAN basestation placed on a testing table.
- b. The computer system ran a test program to enable EUT under transmission condition continuously at specific channel frequency.
- c. The communication partner sent data to EUT by command "PING".

4.1.7 TEST RESULTS

EUT	802.11a Cardbus	MODEL	A13QBF-PC
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	27deg. C, 63RH, 976 hPa	TESTED BY	Jay Chen

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.183	0.10	45.12	-	45.22	-	64.37	54.37	-19.15	-
2	0.304	0.10	39.71	-	39.81	-	60.14	50.14	-20.33	-
3	0.365	0.10	39.17	-	39.27	-	58.62	48.62	-19.35	-
4	0.668	0.10	35.14	-	35.24	-	56.00	46.00	-20.76	-
5	0.970	0.10	37.16	-	37.26	-	56.00	46.00	-18.74	-
6	13.716	0.75	30.63	-	31.38	-	60.00	50.00	-28.62	-

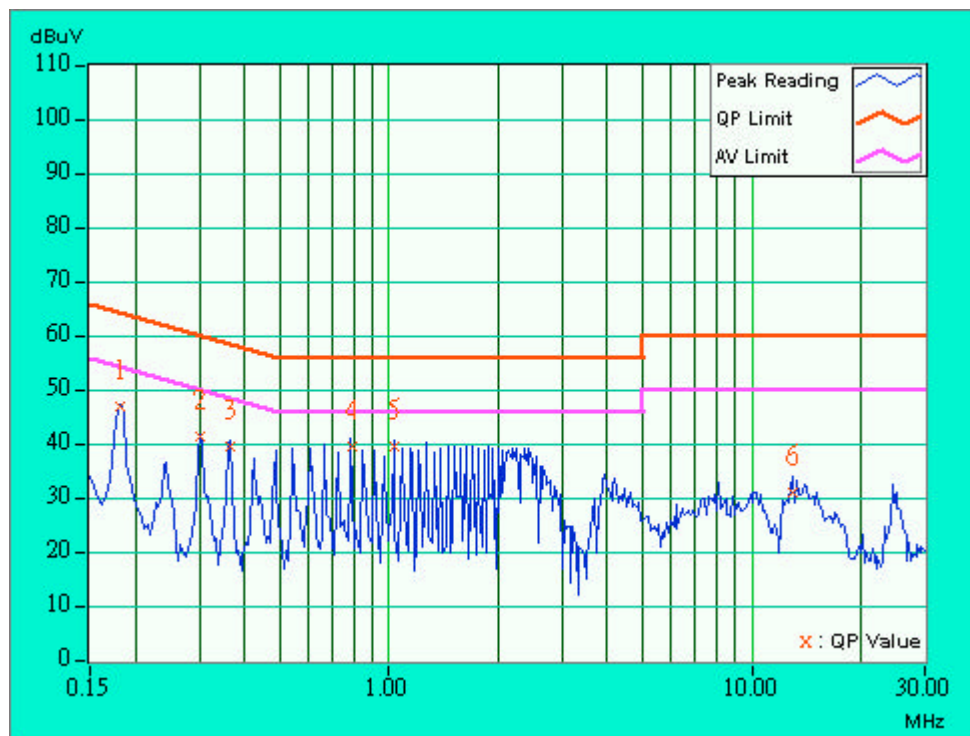
- NOTES: (1) "-": Undetectable
(2) Q.P. and AV. are abbreviations of quasi-peak and average.
(3) "-": The Quasi-peak reading value also meets an average limit, thus measurement with the average detector is unnecessary.
(4) The emission levels of other frequencies were very low against the limit.
(5)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



EUT	802.11a Cardbus	MODEL	A13QBF-PC
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	27deg. C, 63RH, 976 hPa	TESTED BY	Jay Chen

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.10	46.38	-	46.48	-	64.43	54.43	-17.95	-
2	0.304	0.10	40.86	-	40.96	-	60.14	50.14	-19.18	-
3	0.365	0.10	38.95	-	39.05	-	58.62	48.62	-19.57	-
4	0.788	0.10	39.02	-	39.12	-	56.00	46.00	-16.88	-
5	1.030	0.10	39.13	-	39.23	-	56.00	46.00	-16.77	-
6	12.915	0.56	30.71	-	31.27	-	60.00	50.00	-28.73	-

- NOTES: (1) "x": Undetectable
(2) Q.P. and AV. are abbreviations of quasi-peak and average.
(3) "-": The Quasi-peak reading value also meets an average limit, thus measurement with the average detector is unnecessary.
(4) The emission levels of other frequencies were very low against the limit.
(5) Correction Factor = Insertion loss + Cable loss
(6) Margin value = Emission level - Limit 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

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



4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
HP Spectrum Analyzer	8594ER	3829U04676	Jul. 14, 2003
ADVANTEST Spectrum Analyzer	R3271A	85060311	May 21, 2004
CHASE RF Pre_Amplifier	CPA9232	1057	Apr. 24, 2004
HP Pre_Amplifier	8449B	3008A01281	June 27, 2004
ROHDE & SCHWARZ Test Receiver	ESVS 10	849231 /019	Nov. 03, 2003
CHASE Broadband Antenna	CBL6111c	2730	Jul 17, 2003
Schwarzbeck Horn_Antenna	BBHA9120-D1	D123	Jul. 31, 2003
SCHWARZBECK Tunable Dipole Antenna	UHAP	897	Mar. 07, 2005
SCHWARZBECK Tunable Dipole Antenna	VHAP	880	Mar. 07, 2005
RF Switches (ARNITSU)	CS-201	1565157	Jul. 29, 2003
RF CABLE (Chaintek) 1GHz-20GHz	Ak 9515-D	001	Aug, 20.2003
RF Cable(RICHTEC)	9913-30M	STCCAB-30M- 1GHz-021	Nov. 5, 2003
Software	AS60P8	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Tunable Dipole Antenna) and the calibrations are traceable to NML/ROC and NIST/USA.

2. * = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. C.
5. The FCC Site Registration No. is 656396.
6. The VCCI Site Registration No. is R-1626.



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 10 meter open area test site. 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.

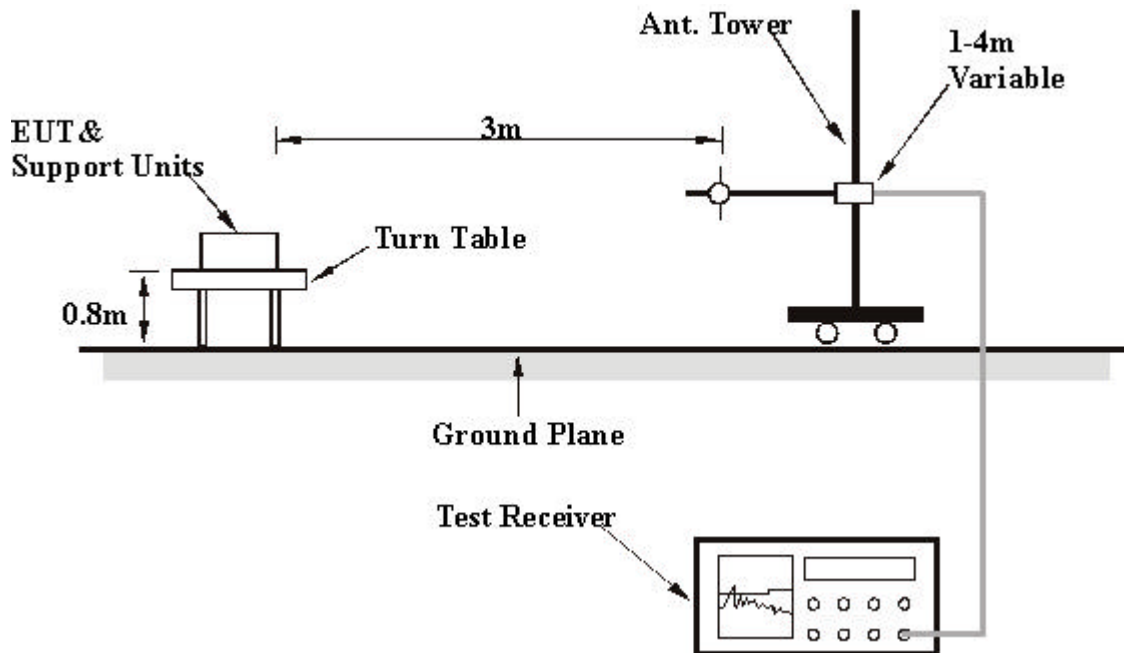
NOTE:

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 300 Hz 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 CONDITIONS

Same as 4.1.6.

4.2.8 TEST RESULTS

EUT	802.11a Cardbus	MODEL	A13QBF-PC
FREQUENCY RANGE	Below 1000MHz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	61.13	21.8 QP	40.00	-18.20	1.38 H	15	16.50	5.30
2	125.53	39.9 QP	43.50	-3.60	1.35 H	58	27.70	12.10
3	161.85	40.5 QP	43.50	-3.00	1.43 H	250	30.20	10.30
4	175.28	37.6 QP	43.50	-5.90	1.02 H	202	28.30	9.30
5	250.50	30.9 QP	46.00	-15.10	1.43 H	73	17.70	13.30
6	375.01	30.0 QP	46.00	-16.00	1.04 H	121	13.80	16.20
7	500.13	30.9 QP	46.00	-15.10	1.37 H	66	11.60	19.30
8	519.75	32.2 QP	46.00	-13.80	1.17 H	119	12.70	19.50
9	576.01	34.9 QP	46.00	-11.10	1.43 H	92	13.50	21.40
10	584.42	33.9 QP	46.00	-12.10	1.44 H	69	12.70	21.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	69.50	34.0 QP	40.00	-6.00	1.07 V	0	28.10	5.90
2	126.04	38.3 QP	43.50	-5.20	1.01 V	295	26.20	12.10
3	175.25	38.2 QP	43.50	-5.30	1.20 V	181	28.90	9.30
4	176.75	33.5 QP	43.50	-10.00	1.47 V	147	24.30	9.20
5	199.26	37.2 QP	43.50	-6.30	1.23 V	237	28.10	9.00
6	249.89	25.7 QP	46.00	-20.30	1.07 V	297	12.50	13.20
7	375.01	30.5 QP	46.00	-15.50	1.11 V	165	14.30	16.20
8	500.00	31.8 QP	46.00	-14.20	1.22 V	355	12.50	19.30
9	507.45	31.4 QP	46.00	-14.60	1.71 V	175	12.00	19.40
10	519.77	32.3 QP	46.00	-13.70	1.73 V	43	12.80	19.50
11	583.03	37.0 QP	46.00	-9.00	1.01 V	0	15.70	21.20
12	627.29	35.7 QP	46.00	-10.30	1.03 V	235	13.90	21.80

- 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. The limit value is defined as per 15.247

4.2.9 TEST RESULTS

STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	1
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5150.00	54.5 PK	74.00	-19.50	1.49 H	100	17.50	37.00
1	#5150.00	42.7 AV	54.00	-11.30	1.49 H	100	5.70	37.00
2	*5180.00	97.9 PK			1.23 H	89	60.90	37.00
2	*5180.00	89.3 AV			1.23 H	89	52.20	37.00
3	#5408.00	49.1 PK	74.00	-24.90	1.24 H	254	12.00	37.00
4	10360.00	50.6 PK	73.30	-22.70	1.54 H	103	5.80	44.70

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	#5150.00	65.8 PK	74.00	-8.20	1.48 V	177	28.70	37.00
1	#5150.00	52.8 AV	54.00	-1.20	1.48 V	177	15.80	37.00
2	*5180.00	105.2 PK			1.23 V	76	68.20	37.00
2	*5180.00	97.7 AV			1.23 V	76	60.70	37.00
3	#5408.00	54.0 PK	74.00	-20.00	1.35 V	270	17.00	37.00
3	#5408.00	47.3 AV	54.00	-6.70	1.35 V	270	10.20	37.00
4	10360.00	52.2 PK	73.30	-21.10	1.28 V	352	7.50	44.70

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	4
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5056.00	49.2 PK	74.00	-24.80	1.54 H	247	12.20	37.00
2	*5240.00	98.6 PK			1.33 H	6	61.50	37.00
2	*5240.00	89.6 AV			1.33 H	6	52.60	37.00
3	#5376.00	45.9 PK	74.00	-28.10	1.23 H	150	8.90	37.00
4	10480.00	51.2 PK	73.30	-22.10	1.54 H	249	6.20	45.00

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	#5056.00	62.2 PK	74.00	-11.80	1.54 V	236	25.20	37.00
1	#5056.00	49.2 AV	54.00	-4.80	1.54 V	236	12.20	37.00
2	*5240.00	105.3 PK			1.30 V	158	68.20	37.00
2	*5240.00	97.6 AV			1.30 V	158	60.60	37.00
3	#5376.00	58.0 PK	74.00	-16.00	1.54 V	254	21.00	37.00
3	#5376.00	47.1 AV	54.00	-6.90	1.54 V	254	10.10	37.00
4	10480.00	52.5 PK	73.30	-20.80	1.24 V	359	7.50	45.00

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	5
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5088.00	50.2 PK	74.00	-23.80	1.26 H	326	13.20	37.00
2	*5260.00	99.9 PK			1.14 H	57	62.90	37.00
2	*5260.00	91.2 AV			1.14 H	57	54.10	37.00
3	#5376.00	48.0 PK	74.00	-26.00	1.46 H	297	11.00	37.00
4	10520.00	54.5 PK	73.30	-18.80	1.03 H	257	9.30	45.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5088.00	56.1 PK	74.00	-17.90	1.18 V	324	19.10	37.00
1	#5088.00	51.0 AV	54.00	-3.00	1.18 V	324	14.00	37.00
2	*5260.00	107.8 PK			1.32 V	251	70.80	37.00
2	*5260.00	99.5 AV			1.32 V	251	62.50	37.00
3	#5376.00	60.0 PK	74.00	-14.00	1.03 V	354	23.00	37.00
3	#5376.00	50.7 AV	54.00	-3.30	1.03 V	354	13.60	37.00
4	10520.00	54.4 PK	73.30	-18.90	1.32 V	54	9.20	45.20

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	8
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5120.00	48.2 PK	74.00	-25.80	1.09 H	57	11.10	37.00
2	*5320.00	100.0 PK			1.34 H	257	63.00	37.00
2	*5320.00	91.8 AV			1.34 H	257	54.70	37.00
3	#5350.00	60.4 PK	74.00	-13.60	1.31 H	40	23.40	37.00
3	#5350.00	49.8 AV	54.00	-4.20	1.31 H	40	12.80	37.00
4	#5408.00	51.8 PK	74.00	-22.20	1.30 H	53	14.80	37.00
4	#5408.00	44.5 AV	54.00	-9.50	1.30 H	53	7.40	37.00
5	#10640.00	23.6 PK	74.00	-50.40	1.20 H	333	-22.60	46.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5120.00	62.2 PK	74.00	-11.80	1.24 V	21	25.20	37.00
1	#5120.00	49.2 AV	54.00	-4.80	1.24 V	21	12.20	37.00
2	*5320.00	107.8 PK			1.36 V	134	70.80	37.00
2	*5320.00	99.1 AV			1.36 V	134	62.00	37.00
3	#5350.00	57.5 PK	74.00	-16.50	1.35 V	82	20.40	37.00
3	#5350.00	52.6 AV	54.00	-1.40	1.35 V	82	15.60	37.00
4	#5408.00	57.5 PK	74.00	-16.50	1.31 V	219	20.50	37.00
4	#5408.00	50.3 AV	54.00	-3.70	1.31 V	219	13.20	37.00
5	#10640.00	53.3 PK	74.00	-20.70	1.36 V	25	7.10	46.30

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "#" : The radiated frequency falling in the restricted band.



STANDARD SECTION 15.247

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	9
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5088.00	50.2 PK	74.00	-23.80	1.11 H	7	13.20	37.00
2	#5408.00	52.2 PK	74.00	-21.80	1.52 H	302	15.20	37.00
2	#5408.00	44.0 AV	54.00	-10.00	1.52 H	302	6.90	37.00
3	*5745.00	102.0 PK			1.23 H	86	64.40	37.60
3	*5745.00	92.5 AV			1.23 H	86	55.00	37.00
4	#11490.00	59.0 PK	74.00	-15.00	1.54 H	27	7.70	51.30
4	#11490.00	47.6 AV	54.00	-6.40	1.54 H	27	-3.80	37.60

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	#5088.00	57.2 PK	74.00	-16.80	1.02 V	360	20.20	37.00
1	#5088.00	52.2 AV	54.00	-1.80	1.02 V	360	15.20	37.00
2	#5408.00	56.8 PK	74.00	-17.20	1.14 V	210	19.70	37.00
2	#5408.00	50.0 AV	54.00	-4.00	1.14 V	210	12.90	37.00
3	*5745.00	107.8 PK			1.30 V	260	70.20	37.60
3	*5745.00	100.3 AV			1.30 V	260	62.70	37.60
4	#11490.00	58.7 PK	74.00	-15.30	1.59 V	24	7.40	51.30
4	#11490.00	47.6 AV	54.00	-6.40	1.59 V	24	-3.70	51.30

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*": Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

STANDARD SECTION 15.247

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	11
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5088.00	52.3 PK	74.00	-21.70	1.00 H	2	15.30	37.00
1	#5088.00	46.2 AV	54.00	-7.80	1.00 H	2	9.20	37.00
2	#5408.00	53.1 PK	74.00	-20.90	1.35 H	74	16.10	37.00
2	#5408.00	46.0 AV	54.00	-8.00	1.35 H	74	9.00	37.00
3	*5785.00	94.8 PK			1.26 H	354	57.20	37.60
3	*5785.00	91.5 AV			1.26 H	354	53.90	37.60
4	#11570.00	59.1 PK	74.00	-14.90	1.32 H	54	8.00	51.10
4	#11570.00	48.0 AV	54.00	-6.00	1.32 H	54	-3.10	51.10

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	#5088.00	58.2 PK	74.00	-15.80	1.23 V	358	21.20	37.00
1	#5088.00	52.9 AV	54.00	-1.10	1.23 V	358	15.90	37.00
2	#5408.00	59.1 PK	74.00	-14.90	1.30 V	244	22.10	37.00
2	#5408.00	52.7 AV	54.00	-1.30	1.30 V	244	15.70	37.00
3	*5785.00	107.0 PK			1.18 V	96	69.40	37.60
3	*5785.00	100.1 AV			1.18 V	96	62.50	37.60
4	#11570.00	62.1 PK	74.00	-11.90	1.28 V	6	11.00	51.10
4	#11570.00	50.1 AV	54.00	-3.90	1.28 V	6	-1.00	51.10

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*": Fundamental frequency
6. "#": The radiated frequency falling in the restricted band.

STANDARD SECTION 15.247

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal Mode	CHANNEL	13
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5024.00	55.3 PK	74.00	-18.70	1.30 H	320	18.20	37.00
1	#5024.00	44.2 AV	54.00	-9.80	1.30 H	320	7.20	37.00
2	#5408.00	53.1 PK	74.00	-20.90	1.02 H	22	16.00	37.00
2	#5408.00	47.0 AV	54.00	-7.00	1.02 H	22	9.90	37.00
3	*5825.00	100.7 PK			1.39 H	86	63.00	37.70
3	*5825.00	93.0 AV			1.39 H	86	55.20	37.70
4	#11650.00	57.7 PK	74.00	-16.30	1.03 H	254	6.80	50.80
4	#11650.00	46.9 AV	54.00	-7.10	1.03 H	254	-3.90	50.80

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	#5024.00	57.4 PK	74.00	-16.60	1.22 V	29	20.40	37.00
1	#5024.00	51.2 AV	54.00	-2.80	1.22 V	29	14.20	37.00
2	#5408.00	56.1 PK	74.00	-17.90	1.19 V	215	19.10	37.00
2	#5408.00	51.8 AV	54.00	-2.20	1.19 V	215	14.80	37.00
3	*5825.00	109.0 PK			1.23 V	301	71.20	37.70
3	*5825.00	100.2 AV			1.23 V	301	62.50	37.70
4	#11650.00	57.6 PK	74.00	-16.40	1.36 V	24	6.80	50.80
4	#11650.00	47.9 AV	54.00	-6.10	1.36 V	24	-2.90	50.80

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*": Fundamental frequency
6. "#": The radiated frequency falling in the restricted band.

STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Turbo Mode	CHANNEL	1
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5056.00	47.2 PK	74.00	-26.80	1.49 H	48	10.20	37.00
2	#5120.00	46.1 PK	74.00	-27.90	1.47 H	2	9.00	37.00
3	#5150.00	48.7 PK	74.00	-25.30	1.34 H	230	11.70	37.00
4	*5210.00	92.1 PK			1.29 H	33	55.00	37.00
4	*5210.00	83.9 AV			1.29 H	33	46.90	37.00
5	10420.00	51.4 PK	73.30	-21.90	1.54 H	247	6.60	44.80

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	#5056.00	57.8 PK	74.00	-16.20	1.49 V	129	20.70	37.00
1	#5056.00	52.7 AV	54.00	-1.30	1.49 V	129	15.70	37.00
2	#5120.00	58.6 PK	74.00	-15.40	1.47 V	131	21.60	37.00
2	#5120.00	47.3 AV	54.00	-6.70	1.47 V	131	10.20	37.00
3	#5150.00	61.5 PK	74.00	-12.50	1.32 V	198	24.50	37.00
3	#5150.00	50.8 AV	54.00	-3.20	1.32 V	198	13.80	37.00
4	*5210.00	103.2 PK			1.34 V	255	66.10	37.00
4	*5210.00	95.0 AV			1.34 V	255	58.00	37.00
5	10420.00	51.0 PK	73.30	-22.30	1.54 V	247	6.10	44.80

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency



STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Turbo Mode	CHANNEL	2
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5150.00	51.6 PK	74.00	-22.40	1.54 H	79	14.60	37.00
1	#5150.00	41.2 AV	54.00	-12.80	1.54 H	79	4.10	37.00
2	*5250.00	93.5 PK			1.32 H	26	56.40	37.00
2	*5250.00	85.2 AV			1.32 H	26	48.20	37.00
3	#5350.00	46.2 PK	74.00	-27.80	1.47 H	129	9.10	37.00
4	10500.00	50.0 PK	73.30	-23.30	1.06 H	20	5.00	45.00

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	#5150.00	59.6 PK	74.00	-14.40	1.33 V	62	22.50	37.00
1	#5150.00	47.1 AV	54.00	-6.90	1.33 V	62	10.10	37.00
2	*5250.00	104.3 PK			1.36 V	253	67.30	37.00
2	*5250.00	96.6 AV			1.36 V	253	59.60	37.00
3	#5350.00	58.4 PK	74.00	-15.60	1.32 V	223	21.40	37.00
3	#5350.00	48.0 AV	54.00	-6.00	1.32 V	223	11.00	37.00
4	10500.00	54.1 PK	73.30	-19.20	1.06 V	239	9.10	45.00

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

STANDARD SECTION 15.407

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Turbo Mode	CHANNEL	3
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5150.00	51.3 PK	74.00	-22.70	1.50 H	101	14.30	37.00
1	#5150.00	40.5 AV	54.00	-13.50	1.50 H	101	3.40	37.00
2	*5290.00	93.8 PK			1.26 H	43	56.70	37.00
2	*5290.00	85.1 AV			1.26 H	43	48.00	37.00
3	#5408.00	49.4 PK	74.00	-24.60	1.32 H	53	12.30	37.00
4	10580.00	52.8 PK	73.30	-20.50	1.54 H	244	7.10	45.70

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	#5088.00	53.3 PK	74.00	-20.70	1.19 V	324	16.30	37.00
1	#5088.00	48.0 AV	54.00	-6.00	1.19 V	324	11.00	37.00
2	*5290.00	105.0 PK			1.34 V	238	68.00	37.00
2	*5290.00	97.0 AV			1.34 V	238	60.00	37.00
3	#5408.00	56.4 PK	74.00	-17.60	1.50 V	265	19.40	37.00
3	#5408.00	49.0 AV	54.00	-5.00	1.50 V	265	12.00	37.00
4	10580.00	53.8 PK	73.30	-21.50	1.03 V	24	8.10	45.70

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency

STANDARD SECTION 15.247

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Turbo Mode	CHANNEL	4
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5088.00	55.3 PK	74.00	-18.70	1.63 H	288	18.30	37.00
1	#5088.00	46.6 AV	54.00	-7.40	1.63 H	288	9.60	37.00
2	#5408.00	51.8 PK	74.00	-22.20	1.00 H	54	14.80	37.00
2	#5408.00	47.0 AV	54.00	-7.00	1.00 H	54	10.00	37.00
3	*5760.00	93.6 PK			1.32 H	15	56.00	37.60
3	*5760.00	85.6 AV			1.32 H	15	48.00	37.60
4	#11520.00	58.7 PK	74.00	-15.30	1.14 H	354	7.40	51.30
4	#11520.00	47.2 AV	54.00	-6.80	1.14 H	354	-4.10	51.30

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5088.00	57.2 PK	74.00	-16.80	1.03 V	247	20.20	37.00
1	#5088.00	51.2 AV	54.00	-2.80	1.03 V	247	14.20	37.00
2	#5408.00	54.4 PK	74.00	-19.60	1.35 V	24	17.40	37.00
2	#5408.00	50.0 AV	54.00	-4.00	1.35 V	24	12.90	37.00
3	*5760.00	104.9 PK			1.31 V	254	67.30	37.60
3	*5760.00	97.1 AV			1.31 V	254	59.50	37.60
4	#11520.00	61.3 PK	74.00	-12.70	1.03 V	269	10.00	51.30
4	#11520.00	48.5 AV	54.00	-5.50	1.03 V	269	-2.80	51.30

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

STANDARD SECTION 15.247

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Turbo Mode	CHANNEL	5
FREQUENCY RANGE	Above 1000 MHz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21 deg. C, 62%RH, 976 hPa	INPUT POWER (SYSTEM)	120Vac, 60Hz
TESTED BY	Eric Lee		

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	#5088.00	55.3 PK	74.00	-18.70	1.03 H	359	18.30	37.00
1	#5088.00	48.6 AV	54.00	-5.40	1.03 H	359	11.60	37.00
2	#5408.00	53.4 PK	74.00	-20.60	1.36 H	247	16.40	37.00
2	#5408.00	46.0 AV	54.00	-8.00	1.36 H	247	9.00	37.00
3	*5800.00	93.7 PK			1.30 H	19	56.00	37.70
3	*5800.00	86.3 AV			1.30 H	19	48.60	37.70
4	#11600.00	58.4 PK	74.00	-15.60	1.03 H	269	7.40	51.00
4	#11600.00	47.4 AV	54.00	-6.60	1.03 H	269	-3.60	51.00

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	#5088.00	55.6 PK	74.00	-18.40	1.65 V	47	18.50	37.00
1	#5088.00	51.2 AV	54.00	-2.80	1.65 V	47	14.20	37.00
2	#5408.00	57.1 PK	74.00	-16.90	1.68 V	125	20.00	37.00
2	#5408.00	50.0 AV	54.00	-4.00	1.68 V	125	13.00	37.00
3	*5800.00	105.5 PK			1.29 V	222	67.80	37.70
3	*5800.00	97.8 AV			1.29 V	222	60.20	37.70
4	#11600.00	59.4 PK	74.00	-14.60	1.36 V	254	8.40	51.00
4	#11600.00	48.4 AV	54.00	-5.60	1.36 V	254	-2.60	51.00

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.
5. "*" : Fundamental frequency
6. "# " : The radiated frequency falling in the restricted band.

FOR FREQUENCY 5.15~5.35GHz

4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35 GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825 GHz	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
SPECTRUM ANALYZER	FSEK30	100049	July 24, 2003

NOTE:

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

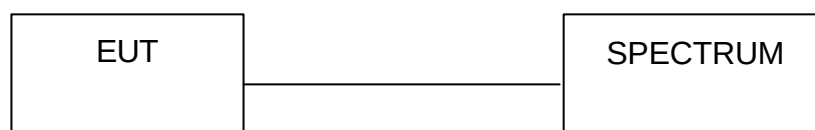
4.3.3 TEST PROCEDURE

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

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

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25eg. C, 66RH, 976 hPa	TESTED BY	Hank Chung

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	16.32	17	28.64	PASS
4	5240	16.45	17	30.48	PASS
5	5260	17.02	24	30.00	PASS
8	5320	17.11	24	31.44	PASS

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

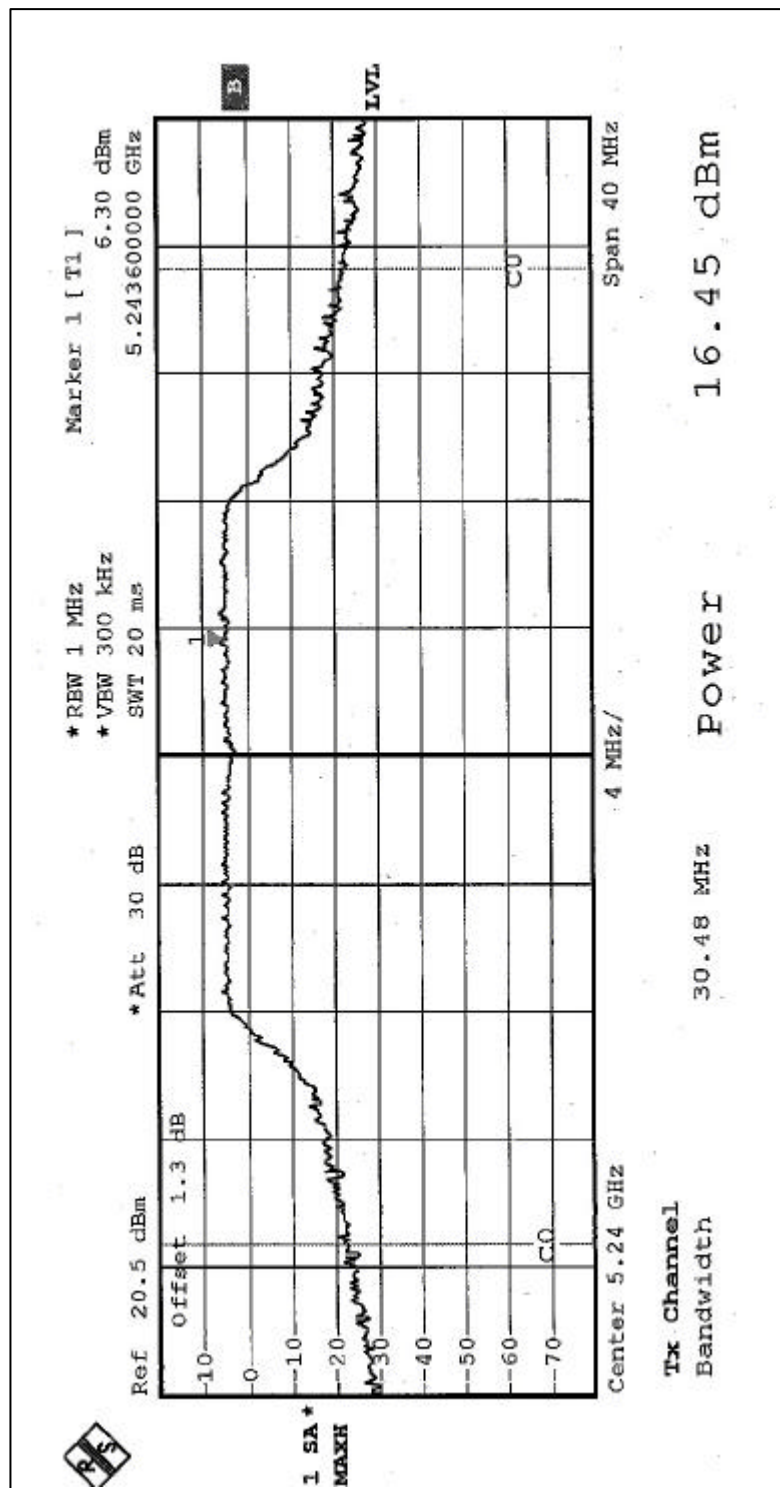
*RBW 1 MHz
 *VBW 300 kHz
 *Att 30 dB
 Ref 20.5 dBm
 Marker 1 [T1]
 4.80 dBm
 5.18520000 GHz

Offset 1.3 dB
 -10
 -0
 -10
 -20
 -30
 -40
 -50
 -60
 -70

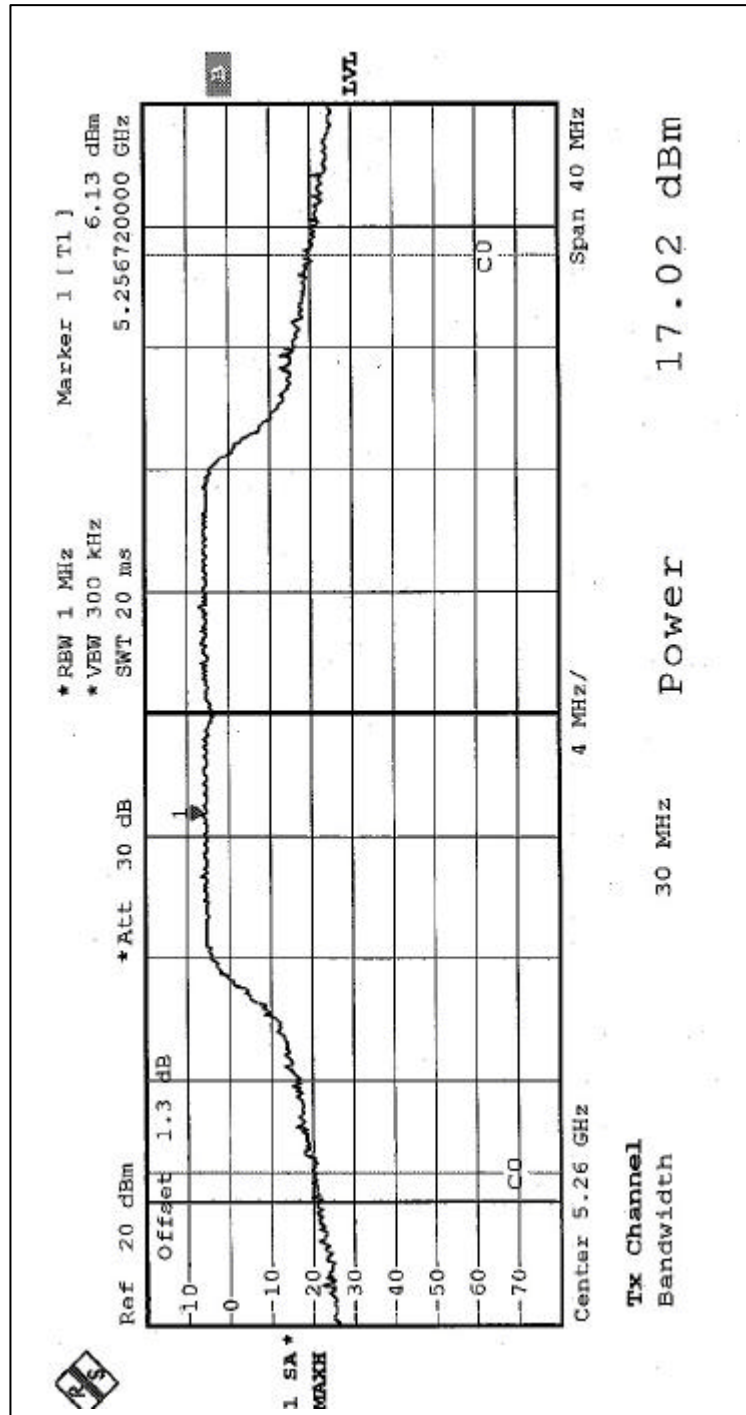
Center 5.18 GHz
 Span 40 MHz
 4 MHz/

1 SA *
 MAXH

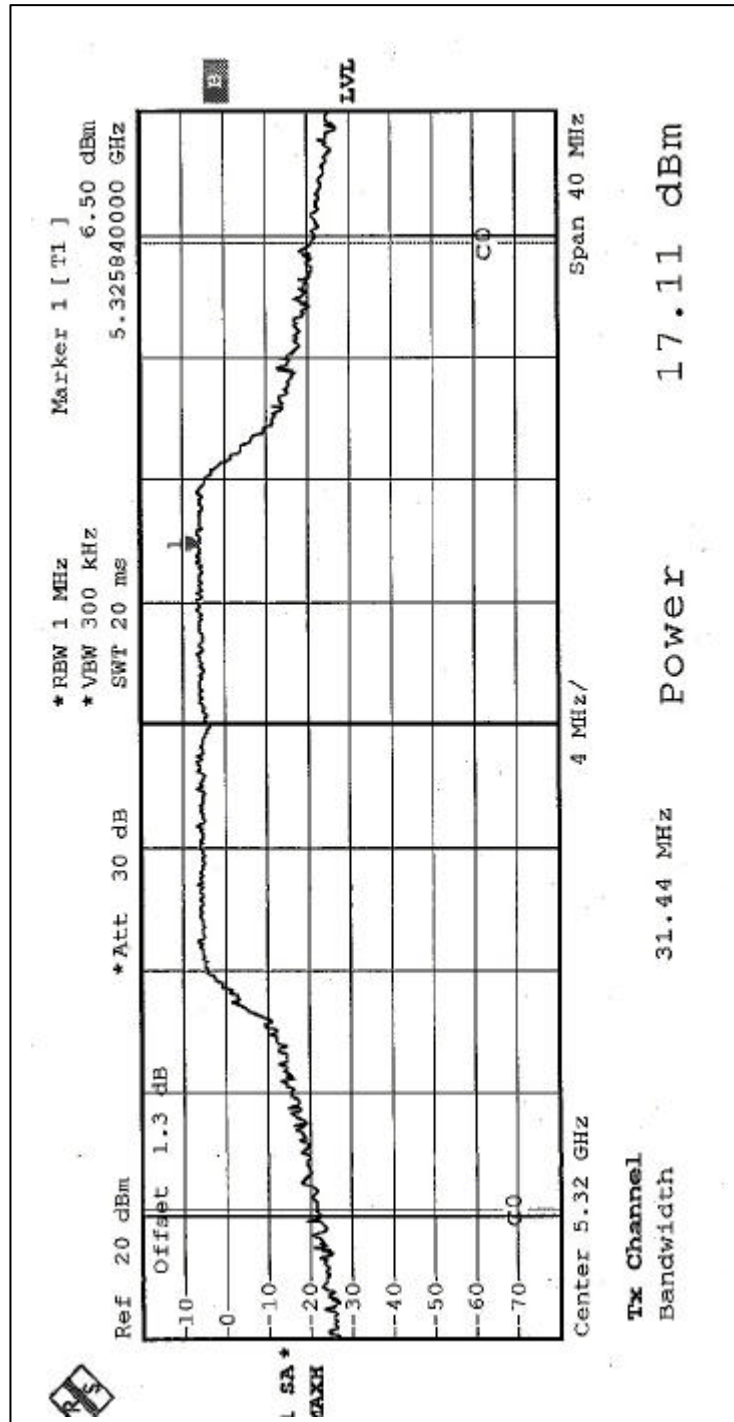
CHANNEL 4



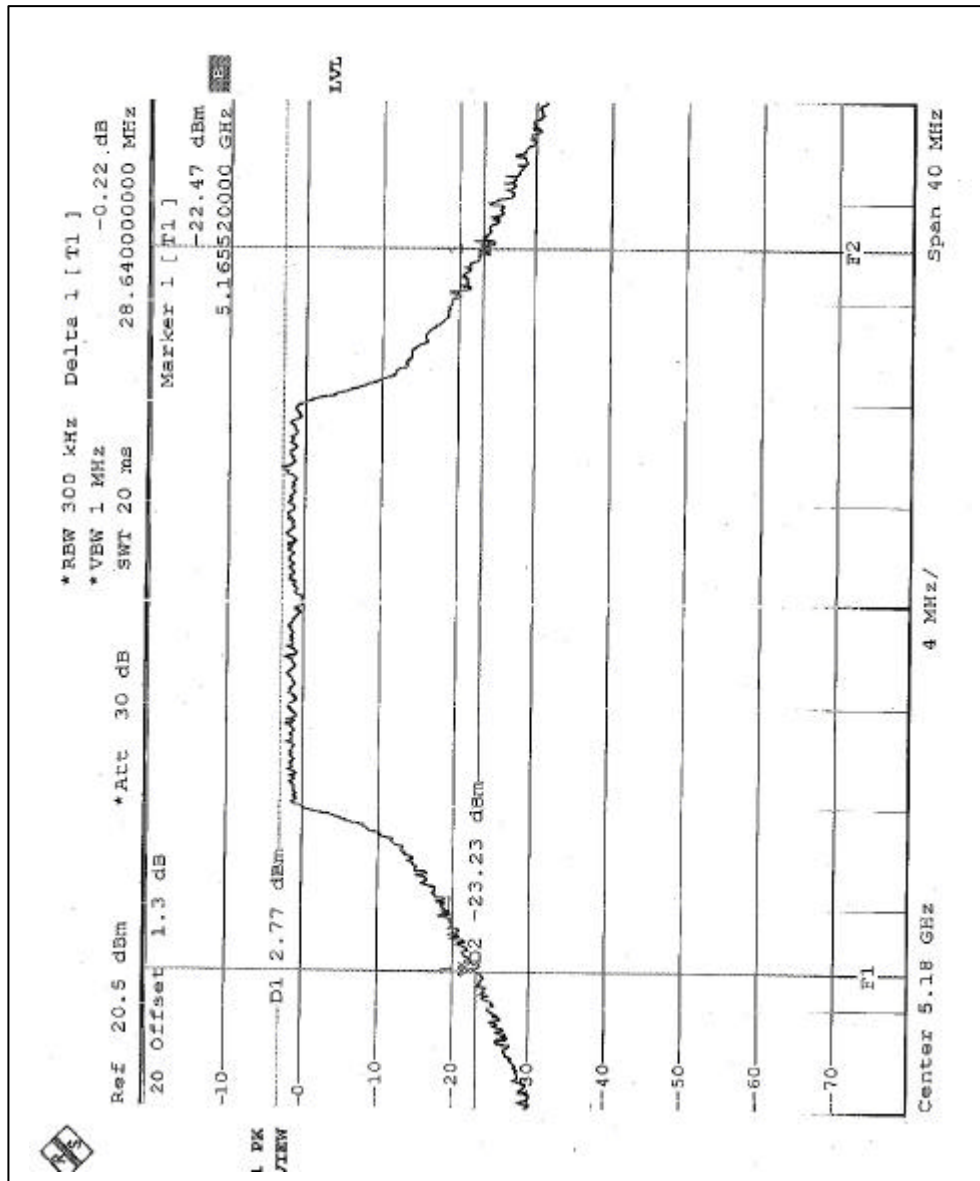
CHANNEL 5



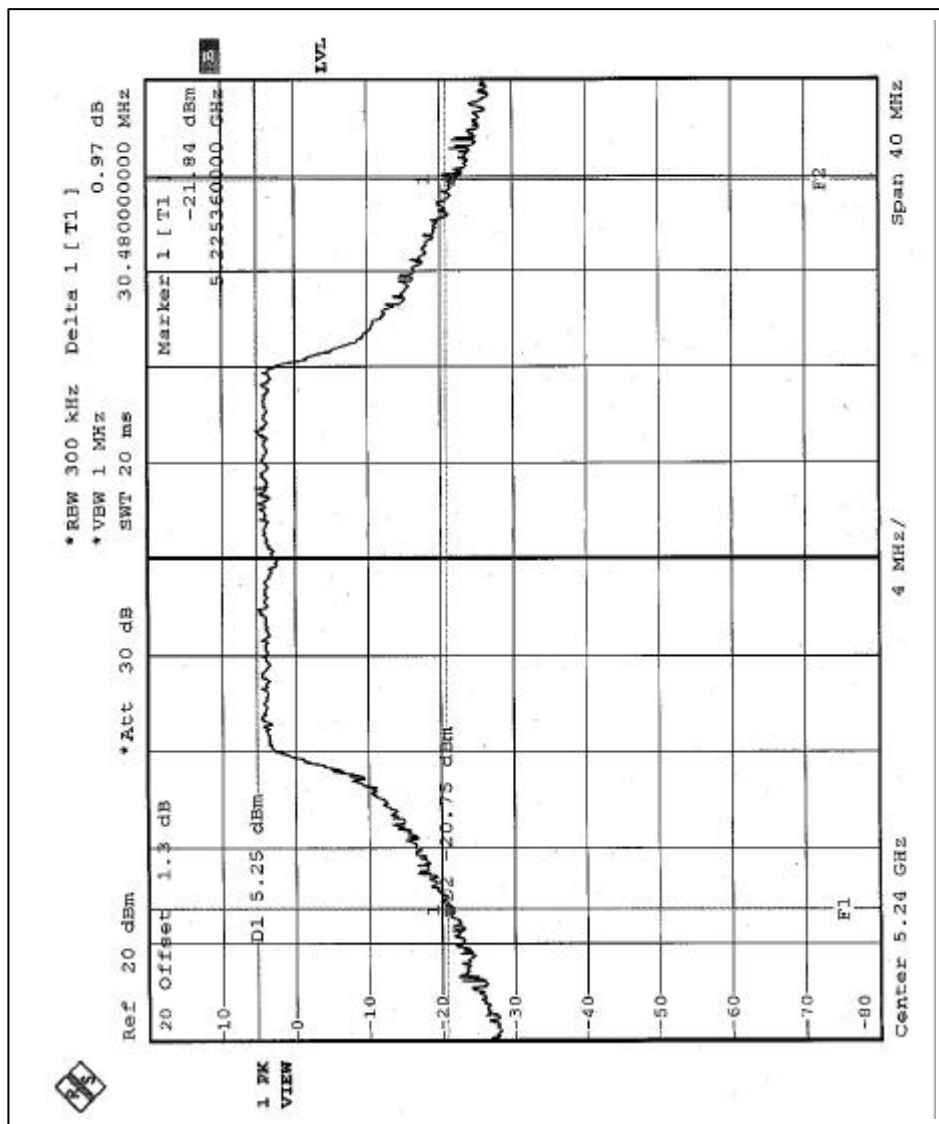
CHANNEL 8



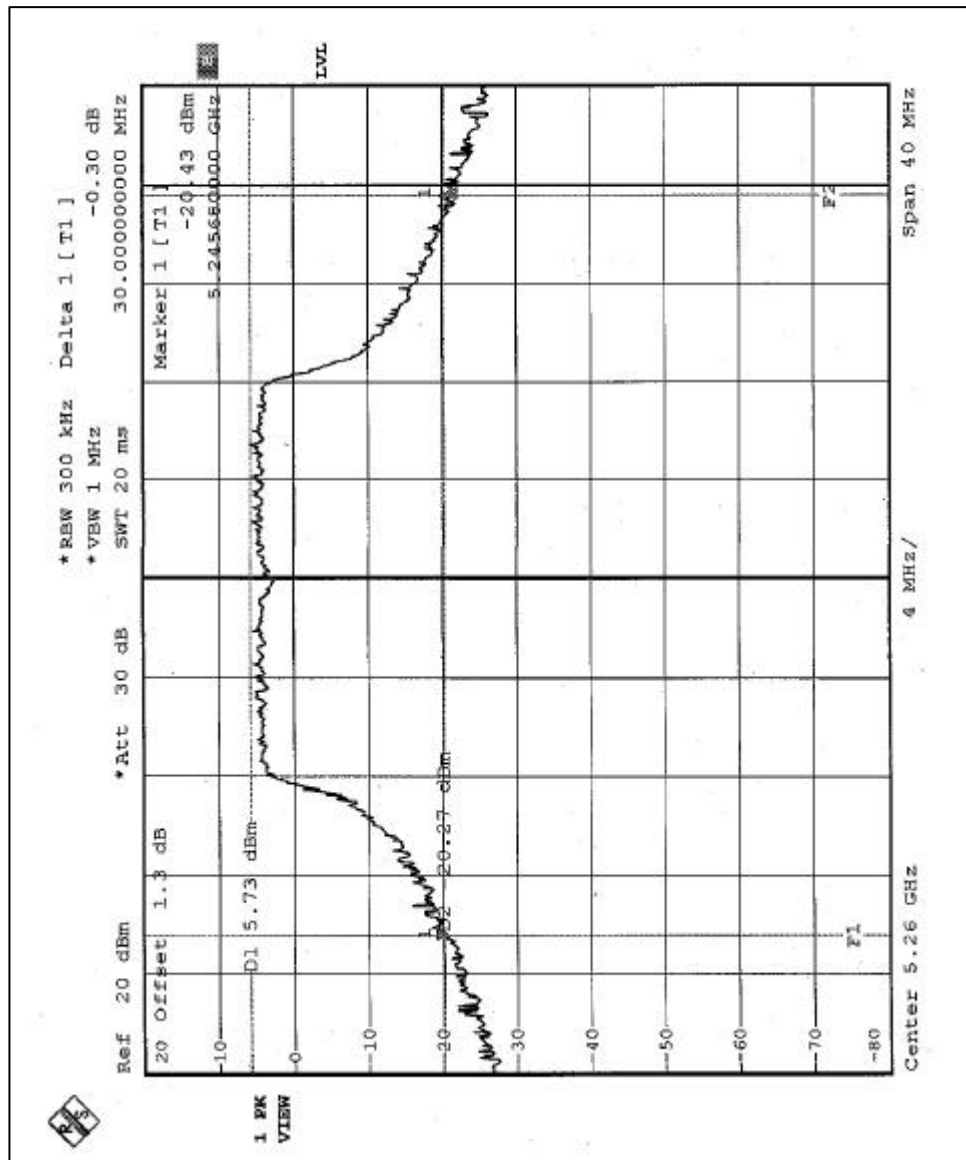
CHANNEL 1



CHANNEL 4



CHANNEL 5



*RBW 300 kHz Delta 1 [T1]
 *VBW 1 MHz 0.33 dB
 *Att 30 dB
 Ref 20 dBm
 20 Offset 1.3 dB
 D1 6.06 dBm
 19.94 dBm
 Marker 1 [T1]
 -19.86 dBm
 5.304640000 GHz
 LVL
 F1
 F2
 Center 5.32 GHz
 Span 40 MHz
 4 MHz/

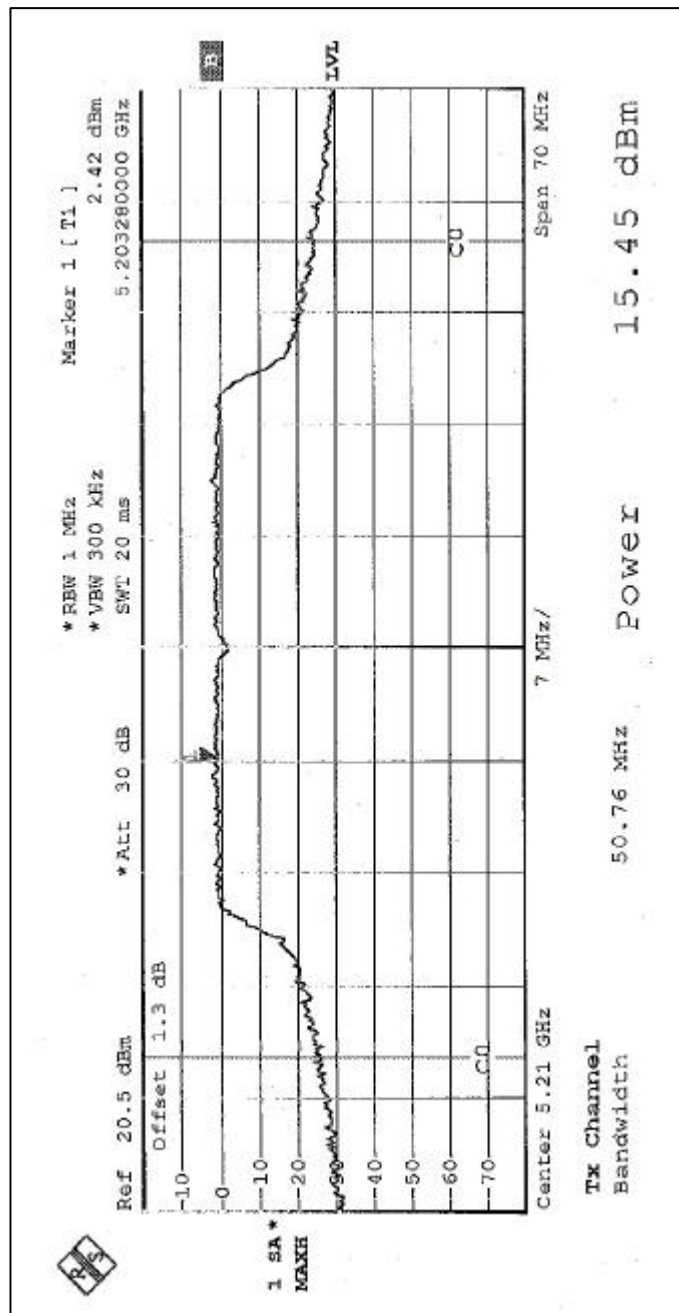


EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Turbo	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25eg. C, 66RH, 976 hPa	TESTED BY	Hank Chung

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5210	15.45	17	50.76	PASS
2	5250	16.07	17	58.38	PASS
3	5290	16.60	24	60.48	PASS

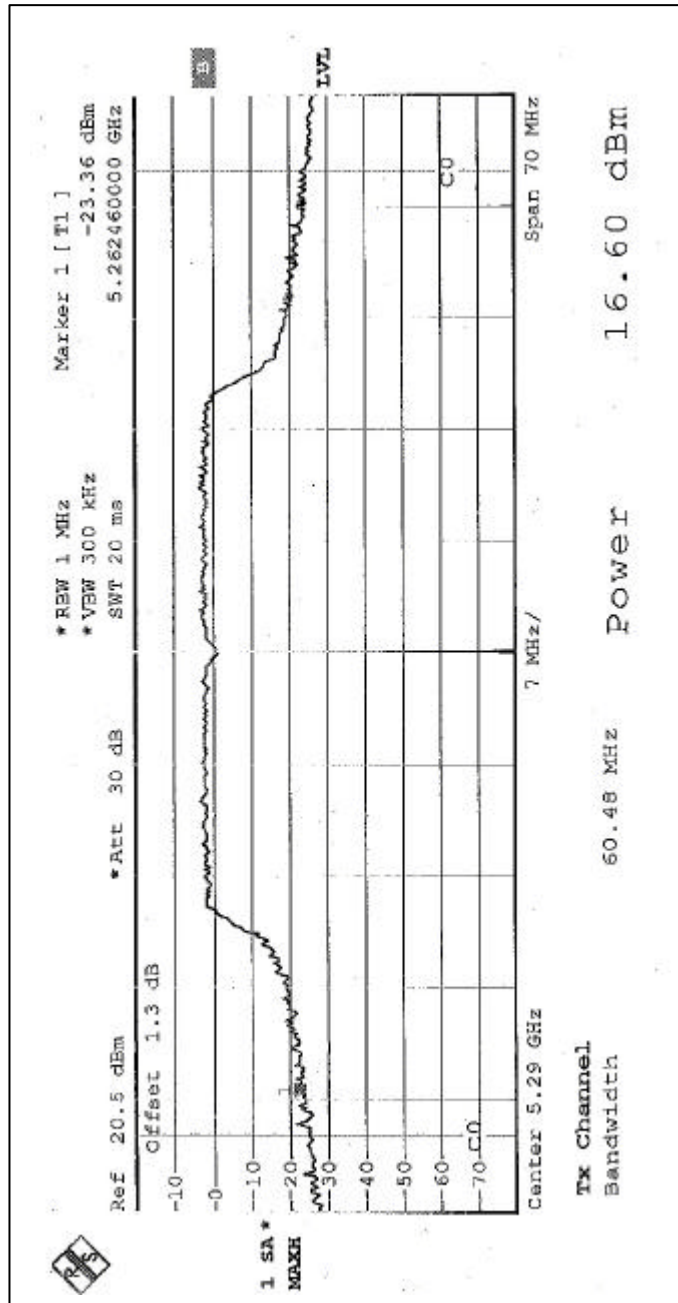
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

CHANNEL 1

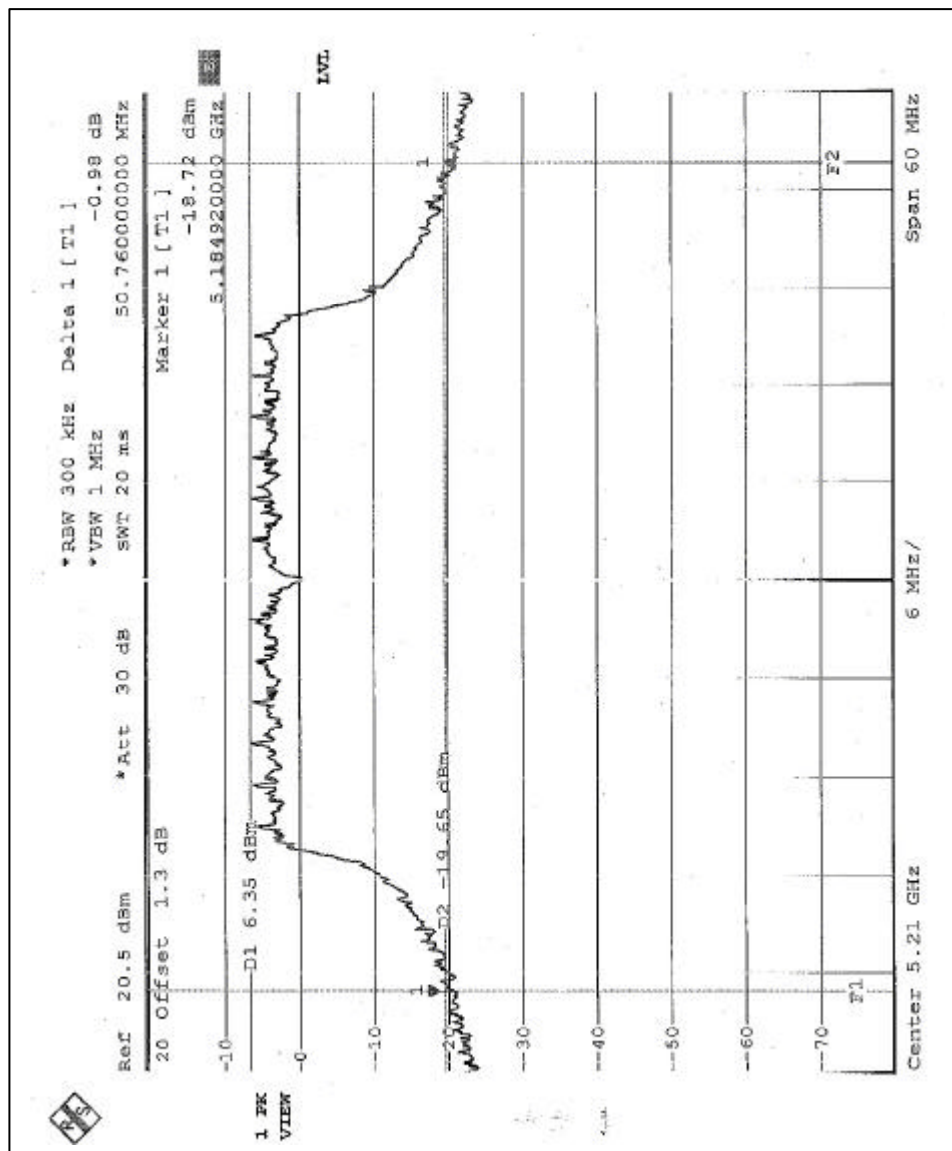


*RBW 1 MHz
 *VBW 300 kHz
 *Att 30 dB
 *Offset 1.3 dB
 Ref 20.5 dBm
 SWT 20 ms
 Marker 1 [T1]
 1.96 dBm
 5.25322000 GHz
 1 SA +
 MAXH
 -10
 -0
 -20
 -30
 -40
 -50
 -60
 -70
 Center 5.25 GHz
 7 MHz/
 Span 70 MHz
 Tx Channel
 Bandwidth
 58.38 MHz
 Power
 16.07 dBm

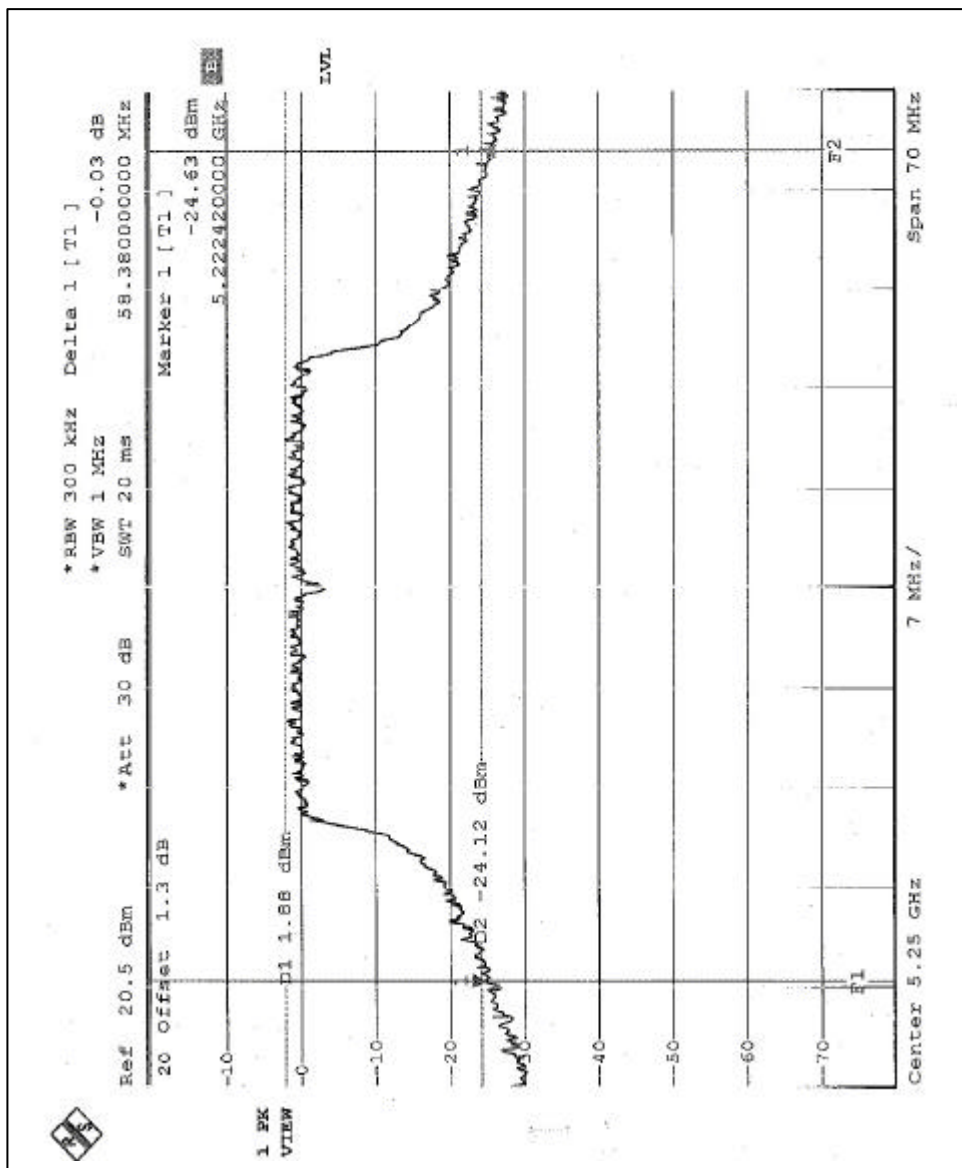
CHANNEL 3



CHANNEL 1



CHANNEL 2



1 PK
VIEW

*RBW 300 kHz Delta 1 [T1]
 *VBW 1 MHz
 *Att 30 dB
 SWT 20 ms
 Ref 20.5 dBm
 20 Offset 1.3 dB
 Marker 1 [T1]
 5.26156000 GHz

D1 2.14 dBm
 D2 -23.85 dBm

Center 5.29 GHz
 Span 70 MHz

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	July 24, 2003

NOTE:

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

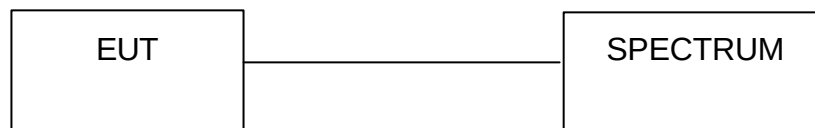
4.4.3 TEST PROCEDURE

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

EUT	802.11a Cardbus	MODEL	A13QBF-PC
MODE	Normal	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25eg. C, 66RH, 976 hPa	TESTED BY	Hank Chung

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	8.02	13	PASS
4	5240	6.56	13	PASS
5	5260	7.91	13	PASS
8	5320	7.79	13	PASS