ADT CORP.

FCC TEST REPORT

REPORT NO.: RF910322R02
MODEL NO.: WN3601A
WN3601A-EL
WN3101A
RECEIVED: March 22, 2002
TESTED: March 11 ~ April 1, 2002

APPLICANT: ACCTON TECHNOLOGY CORPORATION
ADDRESS: No. 1, Creation Rd., III, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation
LAB LOCATION: 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

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1 CERTIFICATION

PRODUCT :	Wireless LAN Modem MiniPCI Combo Card
BRAND NAME :	Accton
MODEL NO. :	WN3601A, WN3601A-EL, WN3101A
APPLICANT :	ACCTON TECHNOLOGY CORPORATION
STANDARDS :	47 CFR Part 15, Subpart C (Section 15.247), ANSI C63.4-1992, Canada RSS 210, New Zealand RFS 29

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from March 11, 2002 to April 1, 2001, 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.

TESTED BY : Gary Chang, DATE: April 8, 2002
Gary Chang

CHECKED BY : Emily Lu, DATE: April 8, 2002
Emily Lu

APPROVED BY : Alan Lane, DATE: April 8, 2002
Dr. Alan Lane, Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**REMARK**
15.207	AC Power Conducted Emission Limit: 48dBuV	PASS	Meet the requirement of limit Minimum passing margin is –10.77dBuV at 10.094MHz
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 –2.6dBuV at 396.00MHz
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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless LAN Modem MiniPCI Combo Card
MODEL NO.	WN3601A, WN3601A-EL, WN3101A
POWER SUPPLY	3.3VDC from host equipment
MODULATION TYPE	CCK, DBPSK, DQPSK
RADIO TECHNOLOGY	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	14.3dBm
ANTENNA TYPE	Printed Antenna and Chip Antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. Model WN3601A and WN3601A-EL are identical except for model no. and the model WN3101A is designed without modem part.
2. Model WN3601A, the worst case, was chosen for the test.
3. There are two antenna types provided to this EUT, printed antenna and chip antenna.
4. For a 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 in 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 1 GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 1, 6, and 11 were tested individually.
3. Test result (A) is for Printed antenna and test result (B) is for Chip antenna.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless LAN Modem MiniPCI Combo Card. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR 47 Part 15, Subpart C. (15.247)
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 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	PERSONAL COMPUTER	NTI	PII-233T	H9801	FCC DoC APPROVED
2	COLOR MONITOR	ADI	CM100	026058T10200611 A	FCC DoC APPROVED
3	PS/2 KEYBOARD	FORWARD	FDA-104GA	FDKB8110111	F4ZDA-104G
4	PS/2 MOUSE	LOGITECH	M-S43	LZE00703207	DZL211106
5	PRINTER	HP	2225C+	3123S97230	DSI6XU2225
6	MODEM	ACEEX	1414	980020510	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
4	1.8 m foil shielded wire, terminated with PS/2 connector via drain wire, w/o core.
5	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
6	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

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

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.45 – 30	48	-

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class 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	ESCS30	834115/016	Mar. 3, 2003
ROHDE & SCHWARZ Artificial Mains Network (For EUT)	ESH3-Z5	847265/023	Jan. 10, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Dec. 10, 2002
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Dec. 10, 2002
EMCO L.I.S.N. (For peripherals)	3825/2	9504-2359	July 10, 2002
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C03.01	July 11, 2002
Terminator (For EMCO LISN)	NA	E1-01-300	Feb. 20, 2003
Terminator (For EMCO LISN)	NA	E1-01-301	Feb. 20, 2003
Shielded Room	Site 3	ADT-C03	NA
VCCI Site Registration No.	Site 3	C-274	NA

NOTE: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.

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

3. "*": These equipment are used for conducted telecom port test only (if tested).

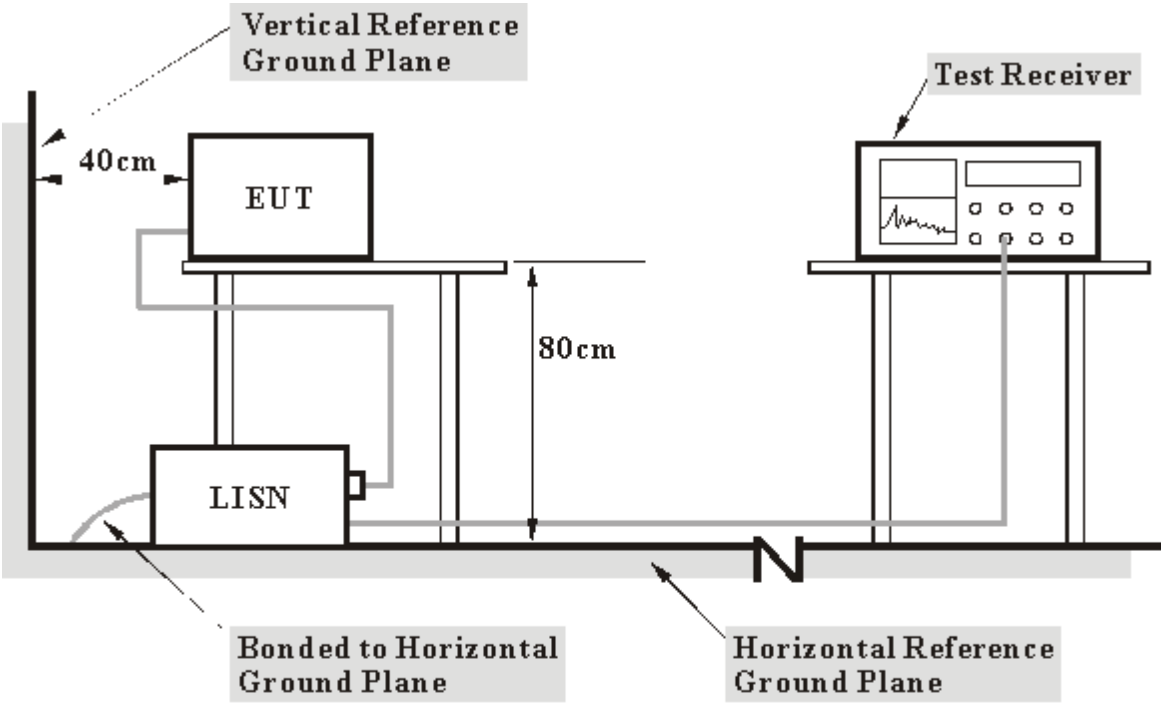
4.1.3 TEST PROCEDURES

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

4.1.4 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.

4.1.5 EUT OPERATING CONDITIONS

a. Plug the EUT into the PCI extender which connected to a computer system placed on a testing table.
b. The computer system ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.
c. The computer system sent "H" messages to its screen.
d. The computer system sent “H” messages to modem.
e. The computer system sent "H" messages to printer, and the printer prints them on paper.

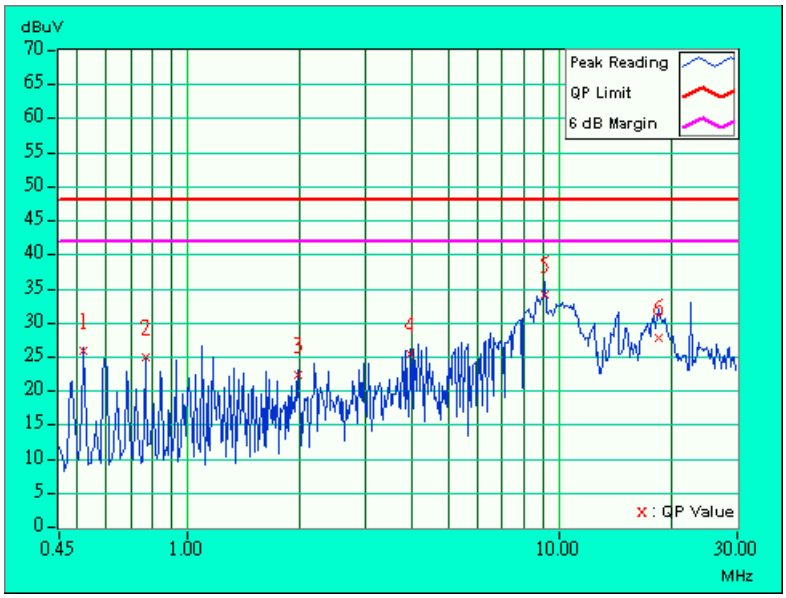
4.1.6 TEST RESULTS (A)

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.524	0.10	25.01	-	25.11	-	48.00	-	-22.89	-
2	0.766	0.10	24.01	-	24.11	-	48.00	-	-23.89	-
3	1.977	0.10	21.47	-	21.57	-	48.00	-	-26.43	-
4	3.957	0.30	24.65	-	24.95	-	48.00	-	-23.05	-
5	9.105	0.47	33.28	-	33.75	-	48.00	-	-14.25	-
6	18.535	0.87	26.90	-	27.77	-	48.00	-	-20.23	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

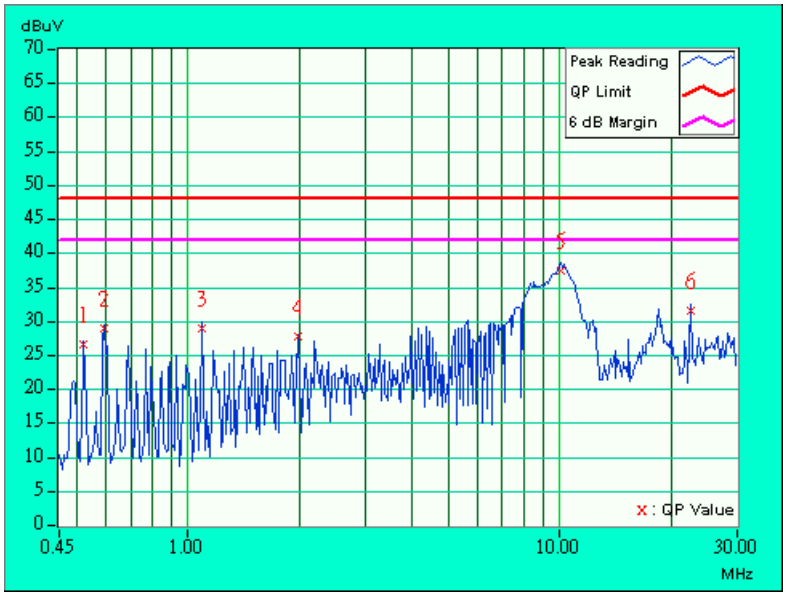


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.524	0.10	25.86	-	25.96	-	48.00	-	-22.04	-
2	0.595	0.10	28.29	-	28.39	-	48.00	-	-19.61	-
3	1.090	0.10	28.35	-	28.45	-	48.00	-	-19.55	-
4	1.977	0.10	26.99	-	27.09	-	48.00	-	-20.91	-
5	10.094	0.40	36.83	-	37.23	-	48.00	-	-10.77	-
6	22.570	0.75	30.72	-	31.47	-	48.00	-	-16.53	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

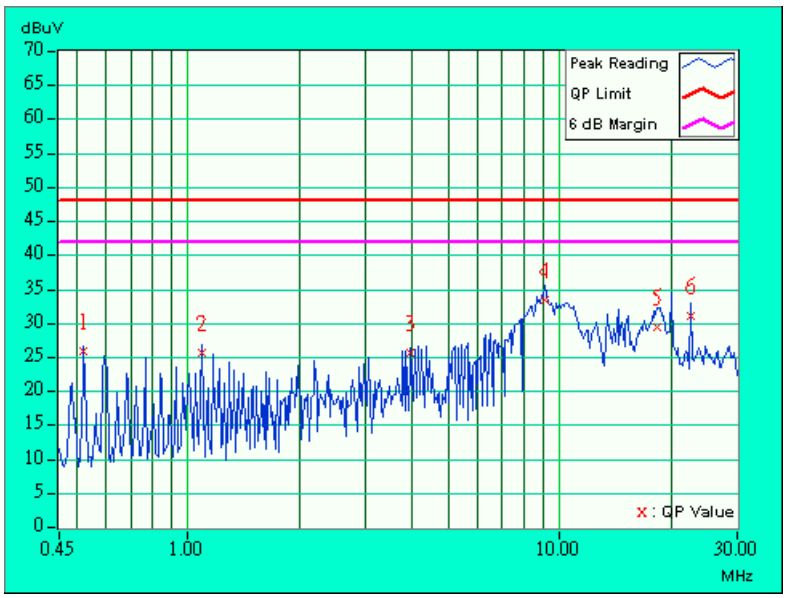


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.524	0.10	24.97	-	25.07	-	48.00	-	-22.93	-
2	1.086	0.10	24.70	-	24.80	-	48.00	-	-23.20	-
3	3.957	0.30	24.67	-	24.97	-	48.00	-	-23.03	-
4	9.105	0.47	32.35	-	32.82	-	48.00	-	-15.18	-
5	18.219	0.86	28.49	-	29.35	-	48.00	-	-18.65	-
6	22.570	1.00	30.18	-	31.18	-	48.00	-	-16.82	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

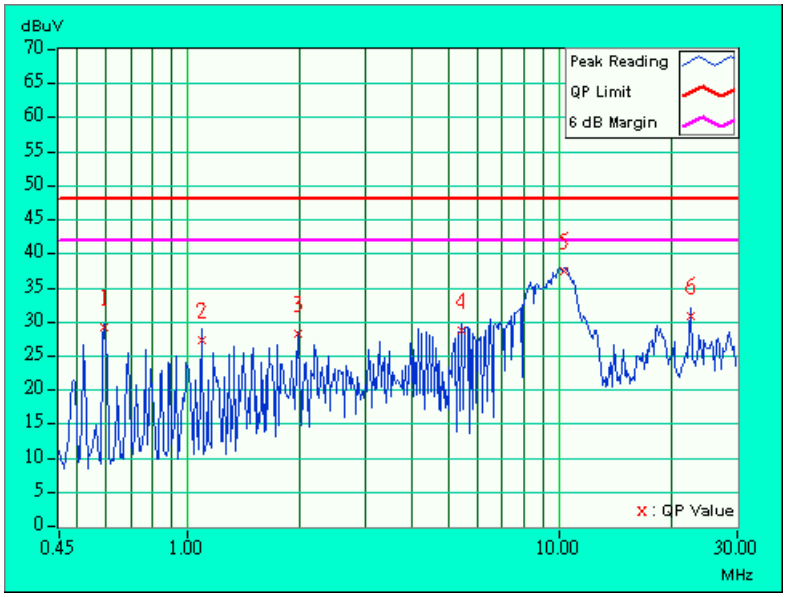


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.595	0.10	28.39	-	28.49	-	48.00	-	-19.51	-
2	1.086	0.10	26.64	-	26.74	-	48.00	-	-21.26	-
3	1.977	0.10	27.54	-	27.64	-	48.00	-	-20.36	-
4	5.441	0.32	27.91	-	28.23	-	48.00	-	-19.77	-
5	10.289	0.41	36.65	-	37.06	-	48.00	-	-10.94	-
6	22.570	0.75	30.14	-	30.89	-	48.00	-	-17.11	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

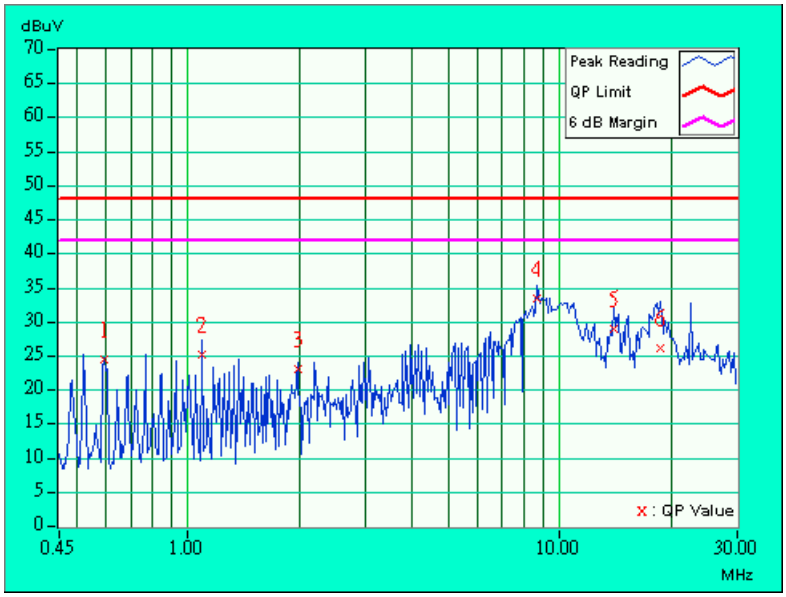


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.595	0.10	23.54	-	23.64	-	48.00	-	-24.36	-
2	1.086	0.10	24.43	-	24.53	-	48.00	-	-23.47	-
3	1.977	0.10	22.22	-	22.32	-	48.00	-	-25.68	-
4	8.707	0.46	32.67	-	33.13	-	48.00	-	-14.87	-
5	13.949	0.74	28.14	-	28.88	-	48.00	-	-19.12	-
6	18.703	0.87	25.34	-	26.21	-	48.00	-	-21.79	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

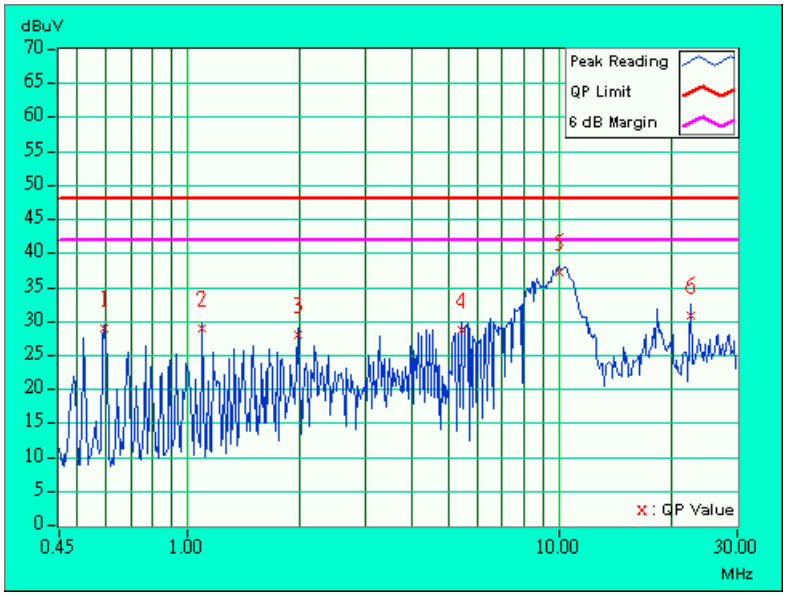


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Netural (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.595	0.10	28.35	-	28.45	-	48.00	-	-19.55	-
2	1.090	0.10	28.23	-	28.33	-	48.00	-	-19.67	-
3	1.977	0.10	27.21	-	27.31	-	48.00	-	-20.69	-
4	5.441	0.32	27.99	-	28.31	-	48.00	-	-19.69	-
5	9.992	0.40	36.49	-	36.89	-	48.00	-	-11.11	-
6	22.570	0.75	30.15	-	30.90	-	48.00	-	-17.10	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



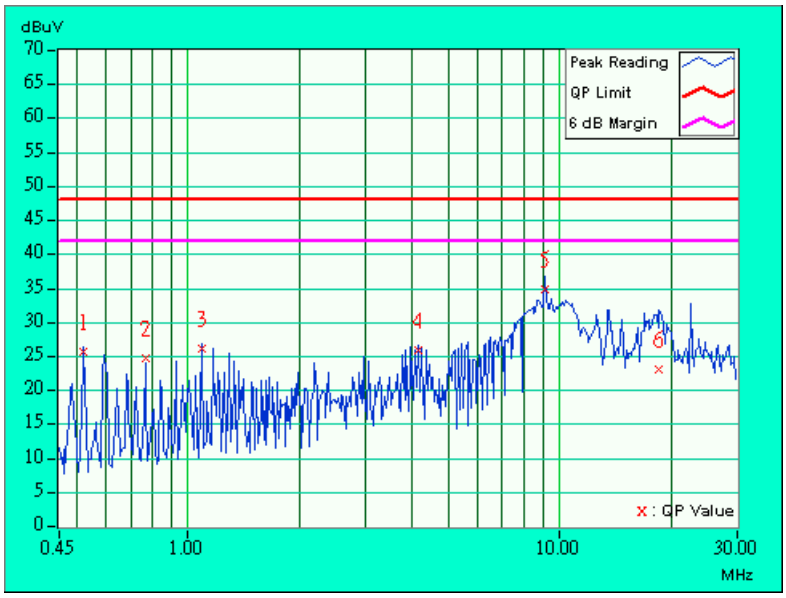
4.1.7 TEST RESULTS (B)

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.524	0.10	24.93	-	25.03	-	48.00	-	-22.97	-
2	0.766	0.10	23.95	-	24.05	-	48.00	-	-23.95	-
3	1.086	0.10	25.27	-	25.37	-	48.00	-	-22.63	-
4	4.156	0.31	25.08	-	25.39	-	48.00	-	-22.61	-
5	9.105	0.47	33.98	-	34.45	-	48.00	-	-13.55	-
6	18.527	0.87	22.33	-	23.20	-	48.00	-	-24.80	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

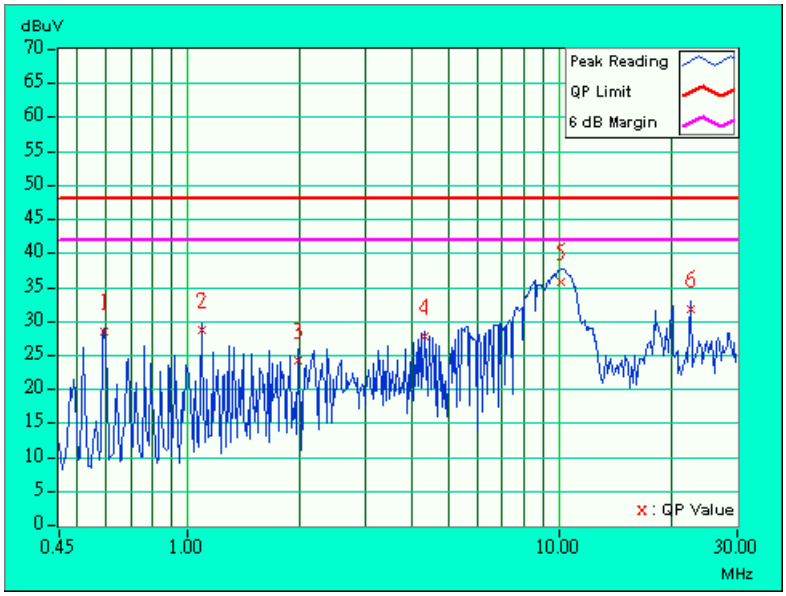


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.595	0.10	27.78	-	27.88	-	48.00	-	-20.12	-
2	1.086	0.10	28.06	-	28.16	-	48.00	-	-19.84	-
3	1.973	0.10	23.57	-	23.67	-	48.00	-	-24.33	-
4	4.348	0.31	26.99	-	27.30	-	48.00	-	-20.70	-
5	10.078	0.40	35.14	-	35.54	-	48.00	-	-12.46	-
6	22.570	0.75	31.13	-	31.88	-	48.00	-	-16.12	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

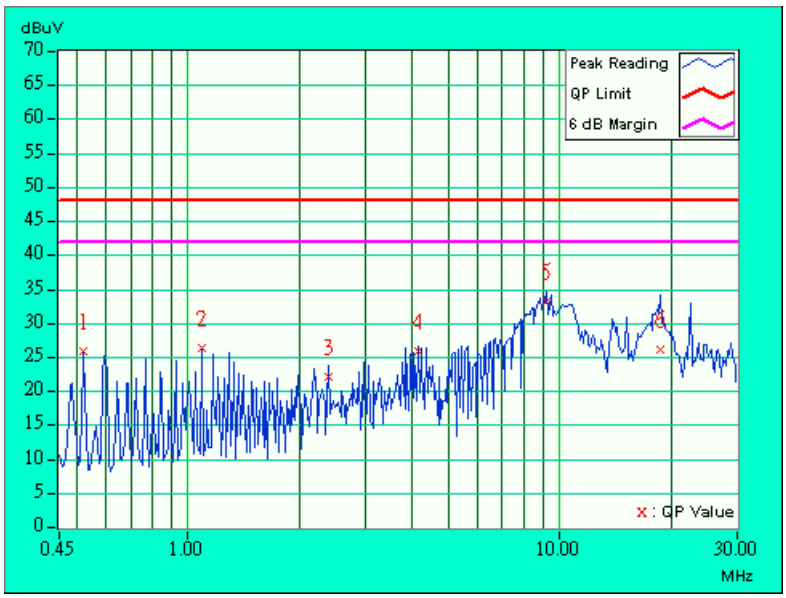


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.524	0.10	25.03	-	25.13	-	48.00	-	-22.87	-
2	1.086	0.10	25.49	-	25.59	-	48.00	-	-22.41	-
3	2.375	0.14	21.18	-	21.32	-	48.00	-	-26.68	-
4	4.156	0.31	25.06	-	25.37	-	48.00	-	-22.63	-
5	9.203	0.47	32.27	-	32.74	-	48.00	-	-15.26	-
6	18.602	0.87	25.25	-	26.12	-	48.00	-	-21.88	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

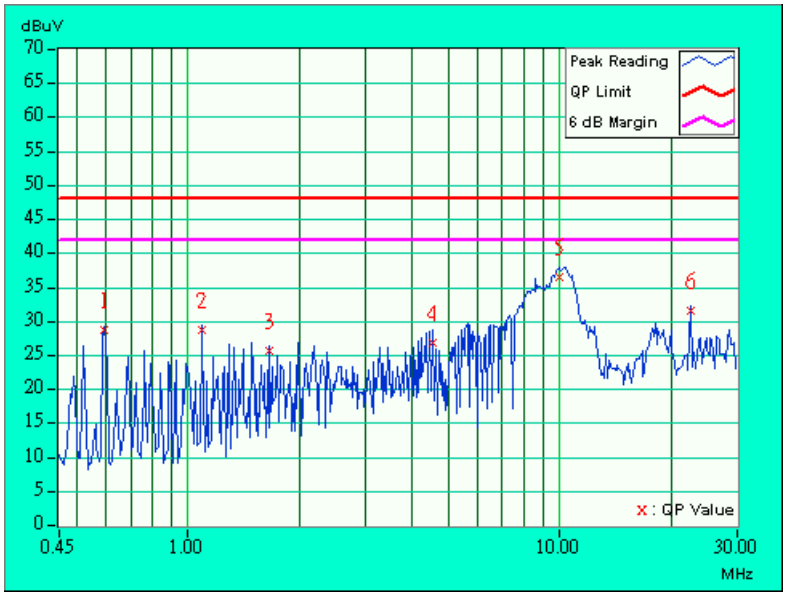


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.595	0.10	28.10	-	28.20	-	48.00	-	-19.80	-
2	1.086	0.10	28.12	-	28.22	-	48.00	-	-19.78	-
3	1.648	0.10	24.92	-	25.02	-	48.00	-	-22.98	-
4	4.547	0.31	26.18	-	26.49	-	48.00	-	-21.51	-
5	9.984	0.40	35.68	-	36.08	-	48.00	-	-11.92	-
6	22.570	0.75	30.79	-	31.54	-	48.00	-	-16.46	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

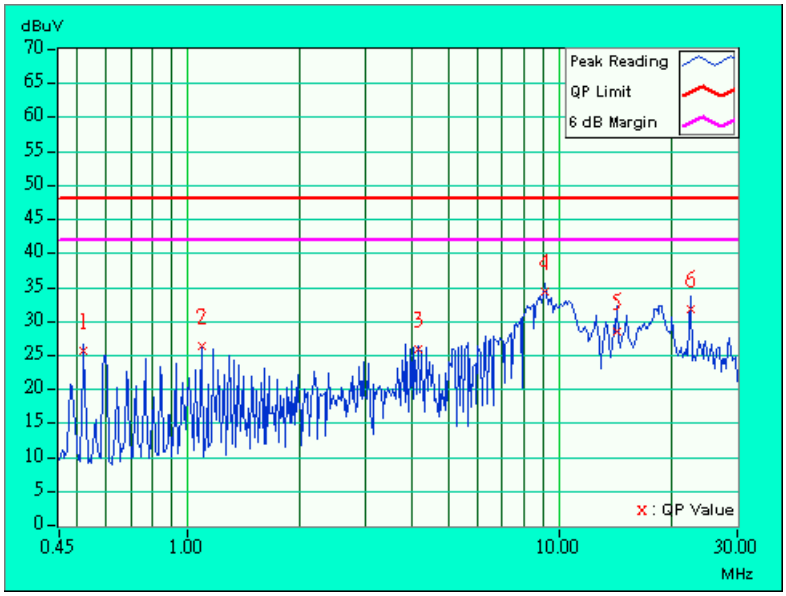


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.524	0.10	24.77	-	24.87	-	48.00	-	-23.13	-
2	1.086	0.10	25.51	-	25.61	-	48.00	-	-22.39	-
3	4.156	0.31	25.00	-	25.31	-	48.00	-	-22.69	-
4	9.102	0.47	33.52	-	33.99	-	48.00	-	-14.01	-
5	14.246	0.75	27.43	-	28.18	-	48.00	-	-19.82	-
6	22.570	1.00	30.87	-	31.87	-	48.00	-	-16.13	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.

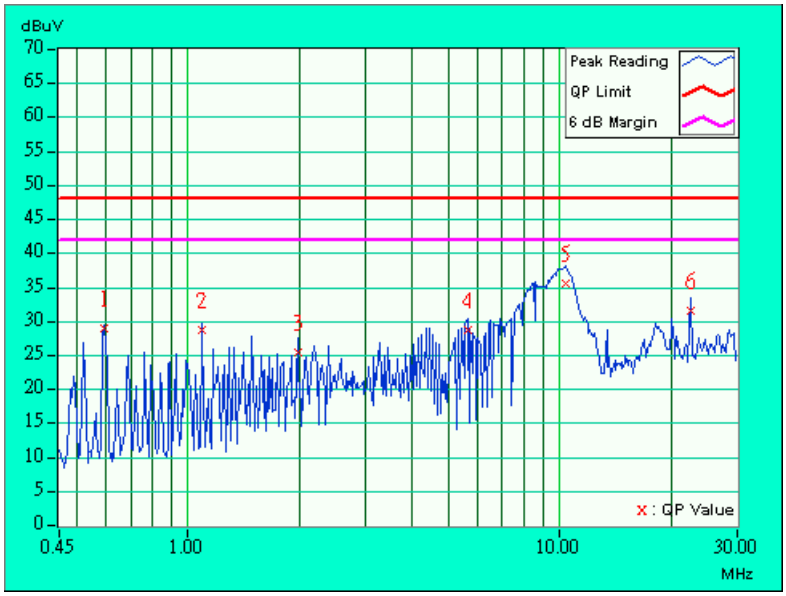


EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Netural (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	**TESTED BY**: Bruce Shiau	

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	0.595	0.10	28.25	-	28.35	-	48.00	-	-19.65	-
2	1.086	0.10	27.96	-	28.06	-	48.00	-	-19.94	-
3	1.973	0.10	24.79	-	24.89	-	48.00	-	-23.11	-
4	5.637	0.33	27.97	-	28.30	-	48.00	-	-19.70	-
5	10.383	0.42	34.78	-	35.20	-	48.00	-	-12.80	-
6	22.570	0.75	30.81	-	31.56	-	48.00	-	-16.44	-

NOTE:

1. QP. and AV. are abbreviations of quasi-peak and average individually.
2. "-": NA
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Reading Value + Correction Factor.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field Strength of Fundamental	
	uV/m	dBuV/m
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

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
* HP Spectrum Analyzer	8590L	3544A01176	May 7, 2002
* HP Preamplifier	8447D	2944A08485	May 7, 2002
* HP Preamplifier	8449B	3008A01201	Dec. 06, 2002
* HP Preamplifier	8449B	3008A01292	Aug. 21, 2002
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 27, 2003
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2002
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2002
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 6, 2002
* EMCO Horn Antenna	3115	9312-4192	April 15, 2002
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D4	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Aug. 2, 2002
* TIMES RF cable	LMR-600	CABLE-ST5-01	Aug. 2, 2002
Antenna (Horn)	BBHA9120-D	D130	July 10, 2002
Open Field Test Site	Site 5	ADT-R05	July 28, 2002
VCCI Site Registration No.	Site 5	R-1039	NA
Site Registration No.	FCC: 90422 Canada IC: IC 3789 VCCI : R-1039		

NOTE: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.

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

3. "*" = These equipment are used for the final measurement.

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

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 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.

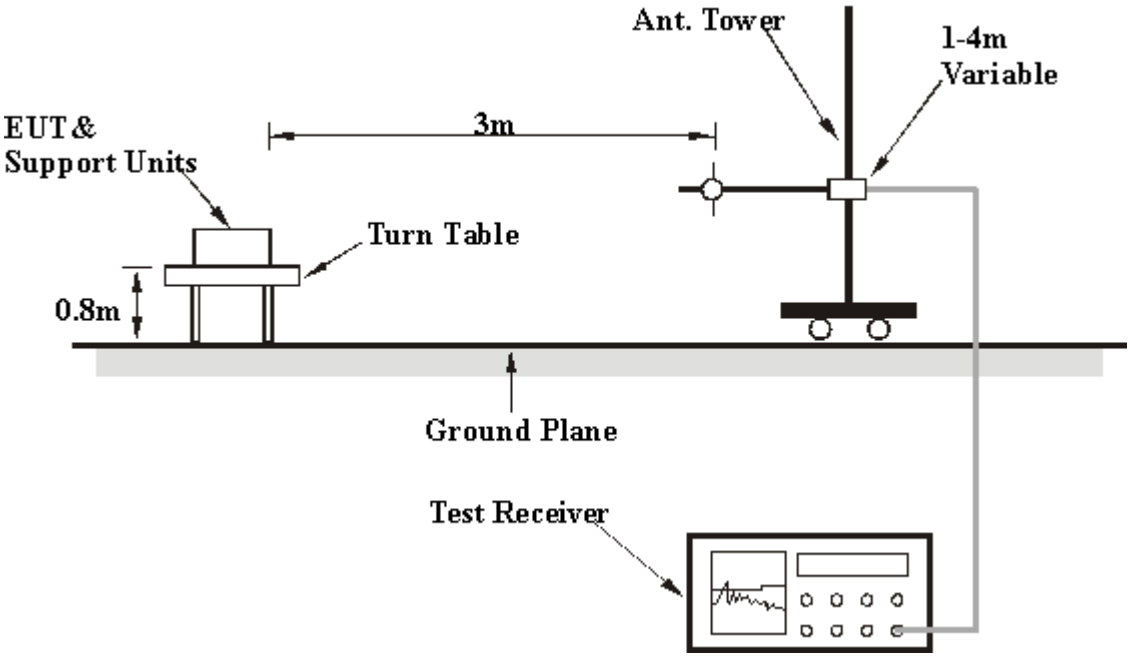
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 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 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 TEST SETUP



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

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5.

4.2.6 TEST RESULTS (A)

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	220.00	31.6 QP	46.00	-14.40	1.14H	178	20.00	10.12	1.51	0.00	-11.63
2	264.00	41.4 QP	46.00	-4.60	1.17H	230	26.80	12.89	1.70	0.00	-14.58
3	308.00	33.3 QP	46.00	-12.70	1.10H	274	18.00	13.38	1.91	0.00	-15.29
4	352.00	37.4 QP	46.00	-8.60	1.06H	330	21.00	14.31	2.05	0.00	-16.37
5	396.00	41.2 QP	46.00	-4.80	1.02H	253	23.00	15.96	2.22	0.00	-18.19
6	440.00	34.7 QP	46.00	-11.30	1.05H	160	16.00	16.32	2.38	0.00	-18.69
7	528.00	35.2 QP	46.00	-10.80	1.10H	67	15.00	17.62	2.60	0.00	-20.23
8	660.00	36.3 QP	46.00	-9.70	1.07H	30	14.00	19.25	3.05	0.00	-22.29
9	748.00	35.4 QP	46.00	-10.60	1.03H	81	12.00	20.14	3.26	0.00	-23.41
10	792.00	34.9 QP	46.00	-11.10	1.05H	125	11.00	20.60	3.31	0.00	-23.91
11	924.00	35.1 QP	46.00	-10.90	1.08H	132	10.40	21.00	3.68	0.00	-24.69

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	264.00	37.6 QP	46.00	-8.40	2.44V	184	23.00	12.89	1.70	0.00	-14.58
2	308.00	32.3 QP	46.00	-13.70	1.53V	66	17.00	13.38	1.91	0.00	-15.29
3	352.00	34.4 QP	46.00	-11.60	2.37V	248	18.00	14.31	2.05	0.00	-16.36
4	396.00	40.2 QP	46.00	-5.80	1.21V	28	22.00	15.96	2.22	0.00	-18.18
5	440.00	34.7 QP	46.00	-11.30	1.19V	308	16.00	16.32	2.38	0.00	-18.69
6	528.00	35.2 QP	46.00	-10.80	1.21V	319	15.00	17.62	2.60	0.00	-20.22
7	572.00	36.2 QP	46.00	-9.80	1.45V	92	15.20	18.25	2.75	0.00	-21.00
8	704.00	36.5 QP	46.00	-9.50	1.48V	286	14.00	19.38	3.16	0.00	-22.54
9	748.00	36.4 QP	46.00	-9.60	1.34V	49	13.00	20.14	3.26	0.00	-23.40
10	792.00	35.9 QP	46.00	-10.10	1.52V	330	12.00	20.60	3.31	0.00	-23.91

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.

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	50.2 PK	74.00	-23.80	1.49H	88	55.00	25.20	4.86	34.90	4.84
2	*2413.00	99.2 PK	-	-	1.67H	286	67.00	27.11	5.10	0.00	-32.21
3	*2413.00	92.6 AV	-	-	1.67H	286	60.40	27.11	5.10	0.00	-32.21
4	4076.00	46.4 PK	74.00	-27.60	1.19H	31	44.00	30.13	6.78	34.52	-2.39
5	4824.00	49.0 PK	74.00	-25.00	1.52H	250	45.00	31.43	7.23	34.63	-4.02

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	46.2 PK	74.00	-27.80	1.11V	355	51.00	25.20	4.86	34.90	4.84
2	*2463.00	96.2 PK	-	-	2.10V	13	63.80	27.33	5.08	0.00	-32.41
3	*2463.00	89.4 AV	-	-	2.10V	13	57.00	27.33	5.08	0.00	-32.41
4	4076.00	49.4 PK	74.00	-24.60	1.45V	27	47.00	30.13	6.78	34.52	-2.39
5	4824.00	49.5 PK	74.00	-24.50	1.41V	349	45.50	31.43	7.23	34.63	-4.02
6	6113.00	49.8 PK	74.00	-24.20	1.48V	259	43.40	32.80	8.23	34.60	-6.43

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. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	46.7 PK	74.00	-27.30	1.50H	43	51.20	25.41	4.96	34.90	4.53
2	*2437.00	95.8 PK	-	-	1.59H	300	63.40	27.33	5.08	0.00	-32.40
3	*2437.00	89.9 AV	-	-	1.59H	300	57.50	27.33	5.08	0.00	-32.40
4	4126.00	49.3 PK	74.00	-24.70	1.04H	263	46.80	30.32	6.70	34.56	-2.46
5	4874.00	49.3 PK	74.00	-24.70	1.60H	112	45.20	31.47	7.21	34.63	-4.05
6	6188.00	49.0 PK	74.00	-25.00	1.49H	70	42.50	33.14	8.01	34.60	-6.55

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	48.5 PK	74.00	-25.50	1.64V	357	53.00	25.41	4.96	34.90	4.53
2	*2437.00	96.4 PK	-	-	1.46V	9	64.00	27.33	5.08	0.00	-32.40.
3	*2437.00	90.4 AV	-	-	1.46V	9	58.00	27.33	5.08	0.00	-32.40.
4	4126.00	48.5 PK	74.00	-25.50	1.53V	11	46.00	30.32	6.70	34.56	-2.46
5	4924.00	49.1 PK	74.00	-24.90	1.15V	357	45.00	31.51	7.21	34.62	-4.10
6	6188.00	48.5 PK	74.00	-25.50	1.26V	337	42.00	33.14	8.01	34.60	-6.55

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. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	46.7 PK	74.00	-27.30	1.39H	320	51.00	25.62	5.02	34.90	4.26
2	*2463.00	100.4 PK	-	-	1.00H	114	68.00	27.33	5.08	0.00	-32.41
3	*2463.00	94.4 AV	-	-	1.00H	114	62.00	27.33	5.08	0.00	-32.41
4	2486.40	46.7 PK	74.00	-27.30	1.27H	106	49.00	27.54	5.06	34.90	2.31
5	4176.00	46.5 PK	74.00	-27.50	1.35H	186	44.00	30.41	6.68	34.58	-2.51
6	4924.00	49.1 PK	74.00	-24.90	1.38H	136	45.00	31.51	7.21	34.62	-4.10
7	6263.00	49.4 PK	74.00	-24.60	1.16H	351	42.40	33.48	8.13	34.60	-7.01

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	46.7 PK	74.00	-27.30	1.18V	139	51.00	25.62	5.02	34.90	4.26
2	*2463.00	99.4 PK	-	-	1.90V	248	67.00	27.33	5.08	0.00	-32.41
3	*2463.00	93.4 AV	-	-	1.90V	248	61.00	27.33	5.08	0.00	-32.41
4	2491.00	47.7 PK	74.00	-26.30	1.45V	3	50.00	27.54	5.06	34.90	2.31
5	4176.00	48.5 PK	74.00	-25.50	1.33V	142	46.00	30.41	6.68	34.58	-2.51
6	4924.00	49.1 PK	74.00	-24.90	1.39V	78	45.00	31.51	7.21	34.62	-4.10
7	6263.00	50.0 PK	74.00	-24.00	1.31V	295	43.00	33.48	8.13	34.60	-7.01

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. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

4.2.7 TEST RESULTS (B)

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	33.2 QP	43.50	-10.20	2.19H	262	20.96	11.16	1.13	0.00	-12.29
2	176.00	32.0 QP	43.50	-11.50	1.91H	235	21.59	9.08	1.33	0.00	-10.42
3	264.00	34.2 pk	46.00	-11.80	2.17H	355	46.61	12.89	1.70	27.00	12.42
4	308.00	32.3 QP	46.00	-13.70	1.56H	66	17.00	13.38	1.91	0.00	-15.29
5	352.00	34.4 QP	46.00	-11.60	1.13H	354	18.00	14.31	2.05	0.00	-16.36
6	396.00	40.2 QP	46.00	-5.80	1.28H	6	22.00	15.96	2.22	0.00	-18.18.
7	440.00	35.6 QP	46.00	-10.40	1.00H	200	16.93	16.32	2.38	0.00	-18.69
8	484.00	40.2 QP	46.00	-5.80	1.03H	352	20.77	16.96	2.47	0.00	-19.44
9	528.00	37.2 QP	46.00	-8.80	1.06H	95	16.95	17.62	2.60	0.00	-20.22
10	572.00	31.3 QP	46.00	-14.70	1.32H	172	10.33	18.25	2.75	0.00	-21.00
11	704.00	32.2 QP	46.00	-13.80	1.09H	182	9.68	19.38	3.16	0.00	-22.54
12	748.00	32.6 QP	46.00	-13.40	1.62H	91	9.24	20.14	3.26	0.00	-23.40
13	792.00	32.5 QP	46.00	-13.50	1.68H	262	8.62	20.60	3.31	0.00	-23.91

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	31.3 QP	43.50	-12.20	1.26V	343	19.00	11.16	1.13	0.00	-12.29
2	176.00	31.4 QP	43.50	-12.10	1.28V	2	21.00	9.08	1.33	0.00	-10.41.
3	264.00	33.6 QP	46.00	-12.40	1.65V	353	19.00	12.89	1.70	0.00	-14.58
4	352.00	32.4 QP	46.00	-13.60	2.16V	213	16.00	14.31	2.05	0.00	-16.36
5	396.00	43.4 QP	46.00	-2.60	1.20V	151	25.20	15.96	2.22	0.00	-18.19
6	440.00	35.7 QP	46.00	-10.30	1.71V	356	17.00	16.32	2.38	0.00	-18.69
7	484.00	39.4 QP	46.00	-6.60	1.32V	53	20.00	16.96	2.47	0.00	-19.44
8	528.00	34.2 QP	46.00	-11.80	1.44V	300	14.00	17.62	2.60	0.00	-20.22
9	572.00	36.0 QP	46.00	-10.00	1.32V	87	15.00	18.25	2.75	0.00	-21.00
10	704.00	36.5 QP	46.00	-9.50	1.48V	350	14.00	19.38	3.16	0.00	-22.54
11	748.00	35.4 QP	46.00	-10.60	1.05V	5	12.00	20.14	3.26	0.00	-23.40
12	792.00	34.9 QP	46.00	-11.10	1.07V	267	11.00	20.60	3.31	0.00	-23.91

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.

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	44.2 PK	74.00	-29.80	1.38H	267	49.00	25.20	4.86	34.90	4.84
2	*2413.00	95.7 PK	-	-	1.68H	112	63.50	27.11	5.10	0.00	-32.21
3	*2413.00	90.2 AV	-	-	1.68H	112	58.00	27.11	5.10	0.00	-32.21
4	4076.00	49.4 PK	74.00	-24.60	1.17H	303	47.00	30.13	6.78	34.52	-2.39
5	4824.00	49.0 PK	74.00	-25.00	1.35H	4	45.00	31.43	7.23	34.63	-4.02
6	6115.00	49.6 PK	74.00	-24.40	1.33H	168	43.20	32.80	8.23	34.60	-6.43

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	46.2 PK	74.00	-27.80	1.11V	355	51.00	25.20	4.86	34.90	4.84
2	*2463.00	96.2 PK	-	-	2.10V	13	63.80	27.33	5.08	0.00	-32.41
3	*2463.00	89.4 AV	-	-	2.10V	13	57.00	27.33	5.08	0.00	-32.41
4	4076.00	49.4 PK	74.00	-24.60	1.45V	27	47.00	30.13	6.78	34.52	-2.39
5	4824.00	49.5 PK	74.00	-24.50	1.41V	349	45.50	31.43	7.23	34.63	-4.02
6	6113.00	49.8 PK	74.00	-24.20	1.48V	259	43.40	32.80	8.23	34.60	-6.43

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. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	46.5 PK	74.00	-27.50	1.23H	99	51.00	25.41	4.96	34.90	4.53
2	*2436.00	94.2 PK	-	-	1.62H	353	61.78	27.33	5.08	0.00	-32.40
3	*2436.00	89.4 AV	-	-	1.62H	353	57.00	27.33	5.08	0.00	-32.40
4	4126.00	48.5 PK	74.00	-25.50	1.23H	307	46.00	30.32	6.70	34.56	-2.46
5	4874.00	49.1 PK	74.00	-24.90	1.36H	6	45.00	31.47	7.21	34.63	-4.05
6	6188.00	49.5 PK	74.00	-24.50	1.18H	73	43.00	33.14	8.01	34.60	-6.56

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	45.5 PK	74.00	-28.50	1.85V	4	50.00	25.41	4.96	34.90	4.53
2	*2463.00	97.2 PK	-	-	1.12V	320	64.75	27.33	5.08	0.00	-32.40
3	*2463.00	90.4 AV	-	-	1.12V	320	58.00	27.33	5.08	0.00	-32.40
4	4126.00	50.5 PK	74.00	-23.50	1.35V	10	48.00	30.32	6.70	34.56	-2.46
5	4874.00	48.1 PK	74.00	-25.90	1.36V	250	44.00	31.47	7.21	34.63	-4.05
6	6188.00	49.5 PK	74.00	-24.50	1.42V	5	43.00	33.14	8.01	34.60	-6.55

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. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1050 hPa	**TESTED BY**: Gary 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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	46.7 PK	74.00	-27.30	1.74H	11	51.00	25.62	5.02	34.90	4.26
2	*2463.00	91.4 PK	-	-	1.83H	7	59.00	27.33	5.08	0.00	-32.40
3	*2463.00	86.4 AV	-	-	1.83H	7	54.00	27.33	5.08	0.00	-32.40
4	2491.00	45.7 PK	74.00	-28.30	1.76H	344	48.00	27.54	5.06	34.90	2.31
5	4176.00	48.5 PK	74.00	-25.50	1.42H	255	46.00	30.41	6.68	34.58	-2.51
6	4924.00	49.3 PK	74.00	-24.70	1.22H	59	45.20	31.51	7.21	34.62	-4.10
7	6263.00	50.0 PK	74.00	-24.00	1.41H	5	43.00	33.48	8.13	34.60	-7.01

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	45.7 PK	74.00	-28.30	1.22V	316	50.00	25.62	5.02	34.90	4.26
2	*2463.00	92.4 PK	-	-	1.26V	299	60.00	27.33	5.08	0.00	-32.41
3	*2463.00	87.4 AV	-	-	1.26V	299	55.00	27.33	5.08	0.00	-32.41
4	2485.00	46.7 PK	74.00	-27.30	1.27V	330	49.00	27.54	5.06	34.90	2.31
5	4176.00	52.5 PK	74.00	-21.50	1.56V	27	50.00	30.41	6.68	34.58	-2.51
6	4924.00	48.1 PK	74.00	-25.90	1.53V	353	44.00	31.51	7.21	34.62	-4.10
7	6263.00	49.0 PK	74.00	-25.00	1.67V	323	42.00	33.48	8.13	34.60	-7.01

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. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

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
R&S SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

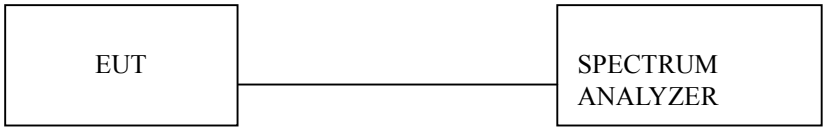
NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 TEST SETUP



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

4.3.5 EUT OPERATING CONDITIONS

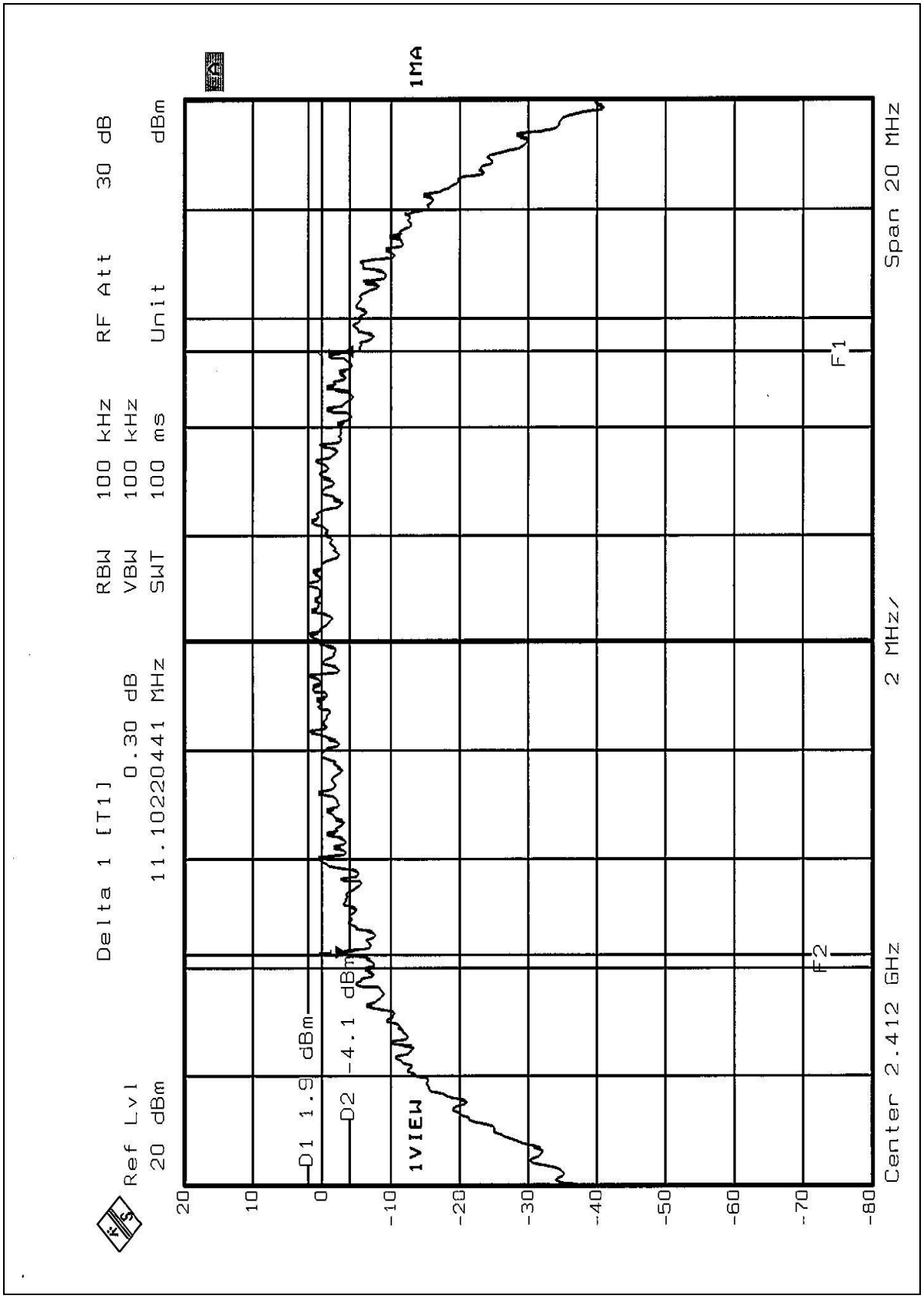
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25 deg. C, 50%RH, 1005 hPa
TESTED BY: Bunny Yao			

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.102	0.5	PASS
6	2437	11.142	0.5	PASS
11	2462	11.703	0.5	PASS

CH1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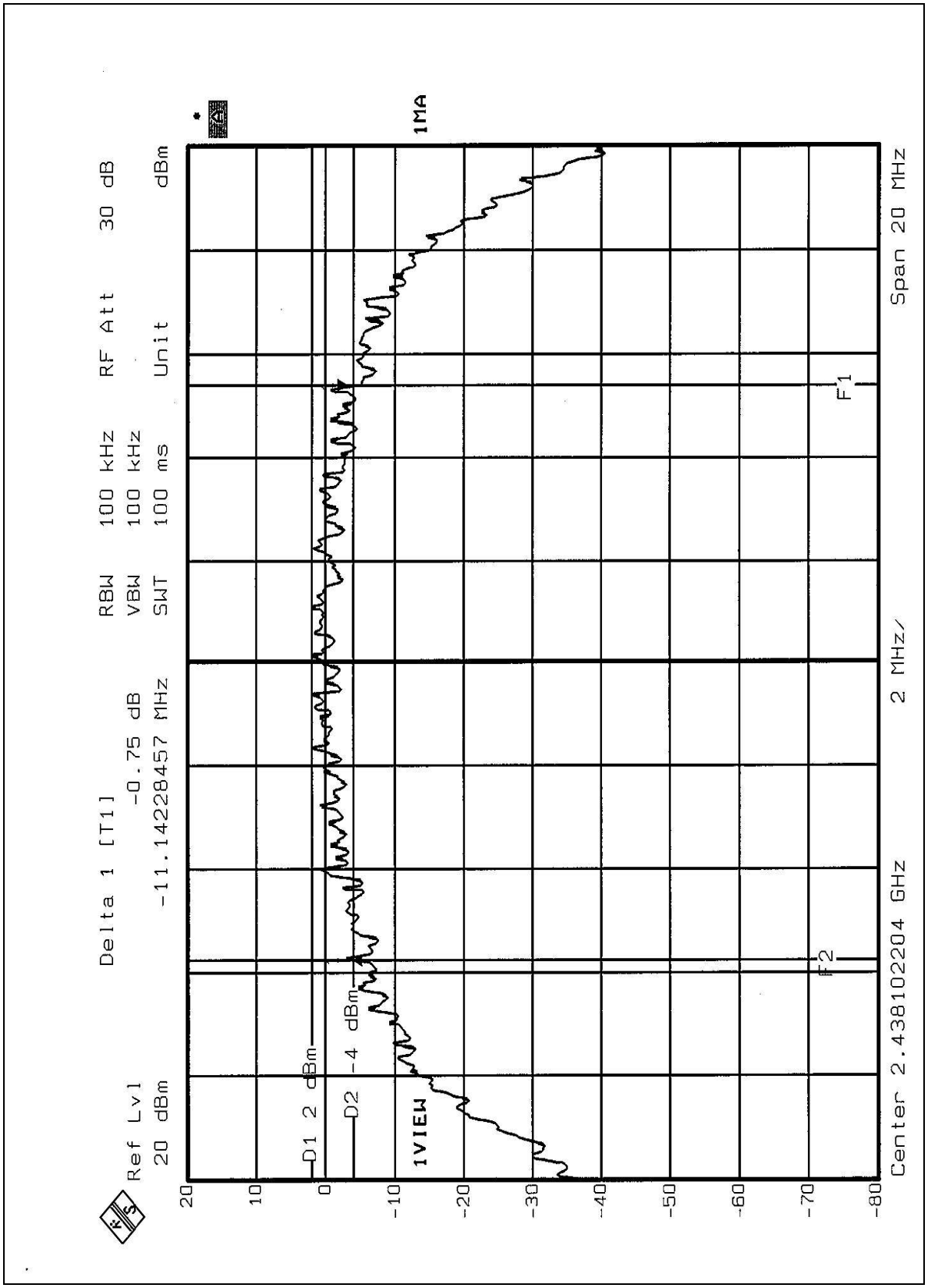
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
D1 1.9 dBm
D2 -4.1 dBm
1VIEW
1MA
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

CH6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RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
1MA
D1 2 dBm
D2 -4 dBm
1VIEW
F1
F2
Center 2.438102204 GHz
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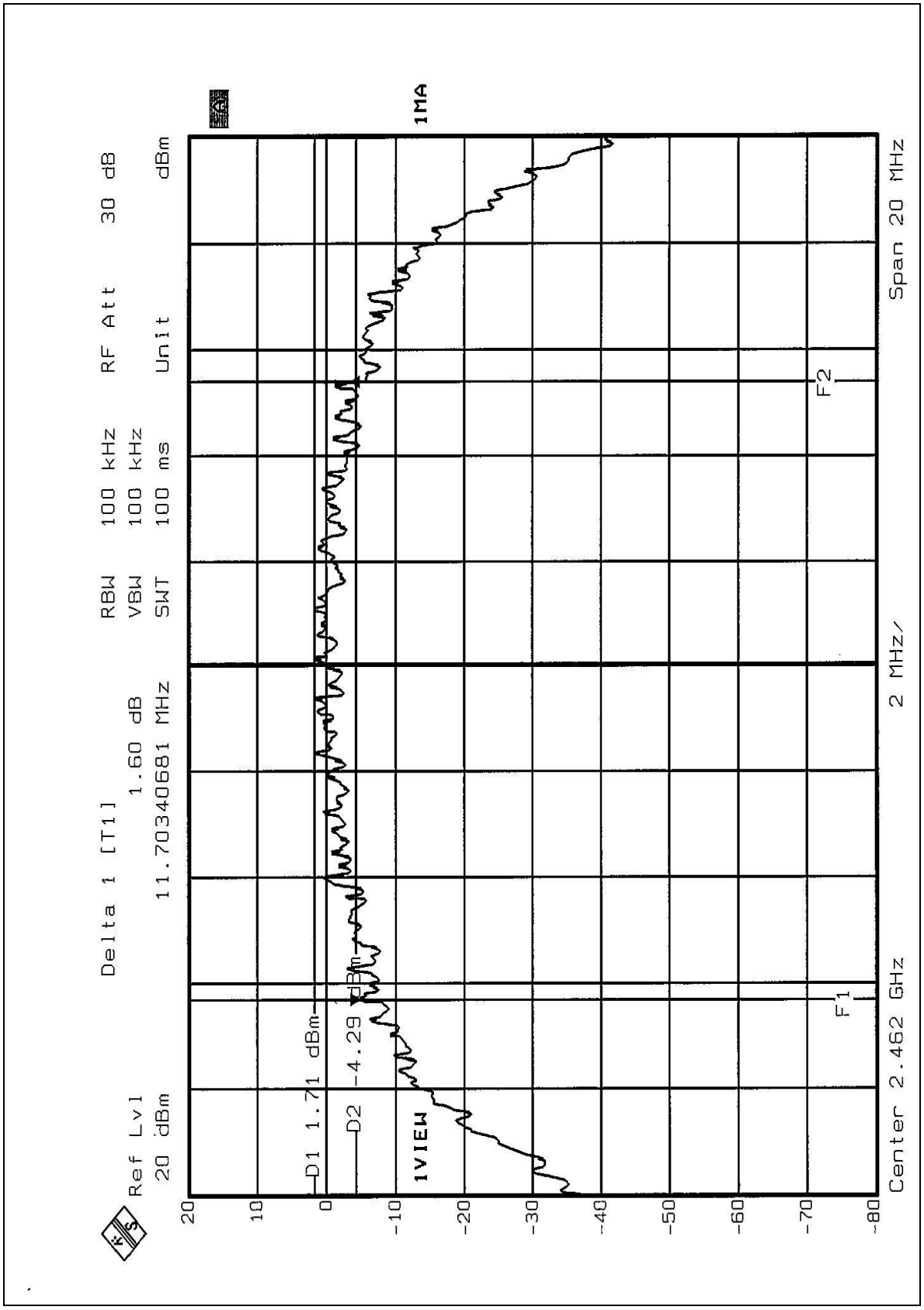
Span 20 MHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

CH11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RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
D1 1.71 dBm
D2 -4.29 dBm
1VIEW
1MA
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
PEAK POWER SENSOR	NRV-Z32	100013	Feb. 21, 2003
POWER METER	NRVS	100026	Feb. 21, 2003

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. 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

The transmitter output was connected to the peak power meter.

4.4.4 TEST SETUP

4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5

4.4.6 TEST RESULTS

EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25 deg. C, 50%RH, 1005 hPa
TESTED BY: Bunny Yao			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	14.33	30	PASS
6	2437	14.30	30	PASS
11	2462	14.00	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

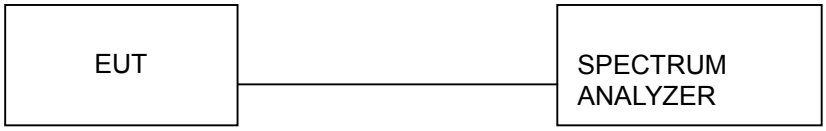
NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

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

4.5.4 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

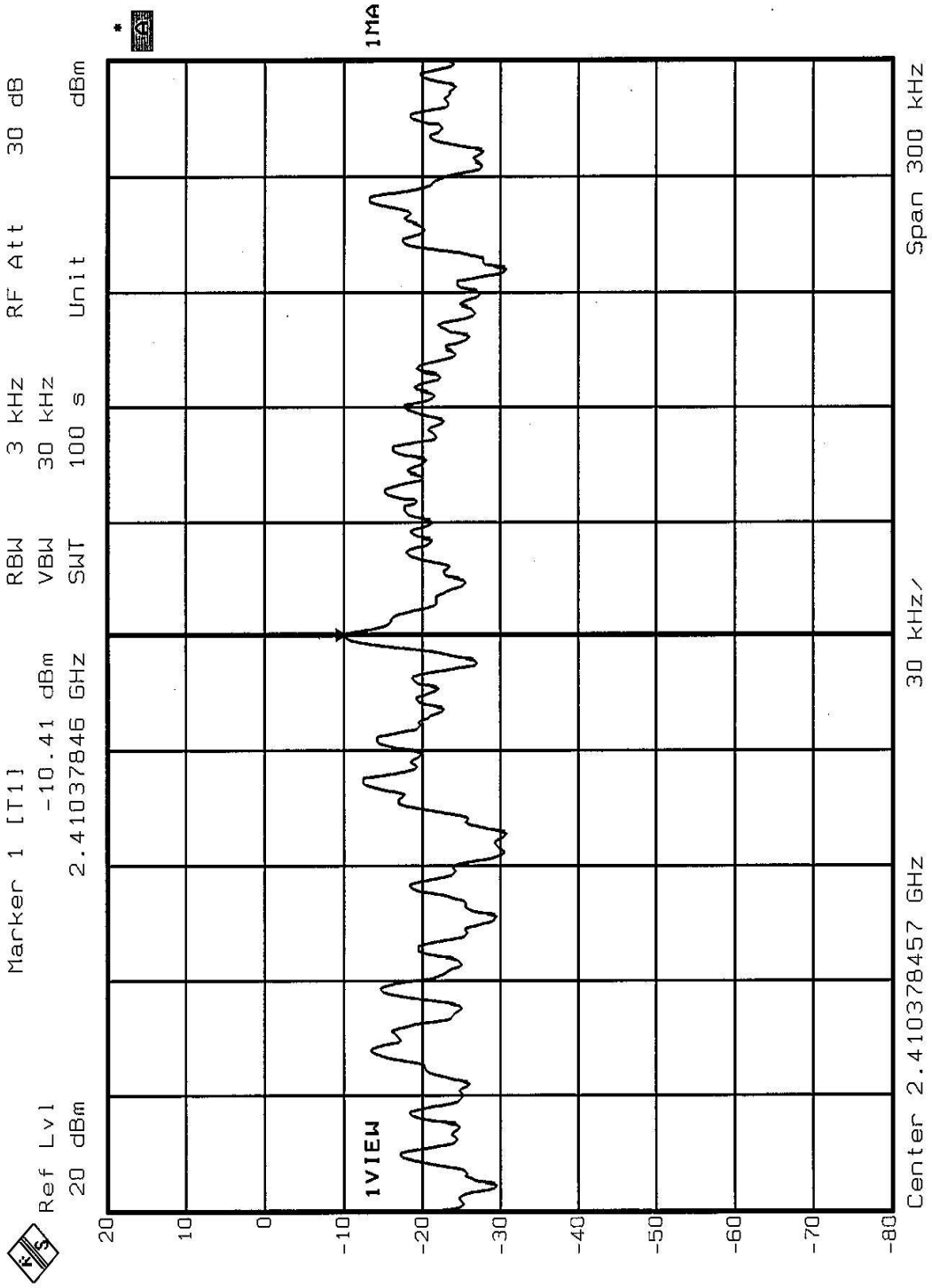
Same as 4.3.5

4.5.6 TEST RESULTS

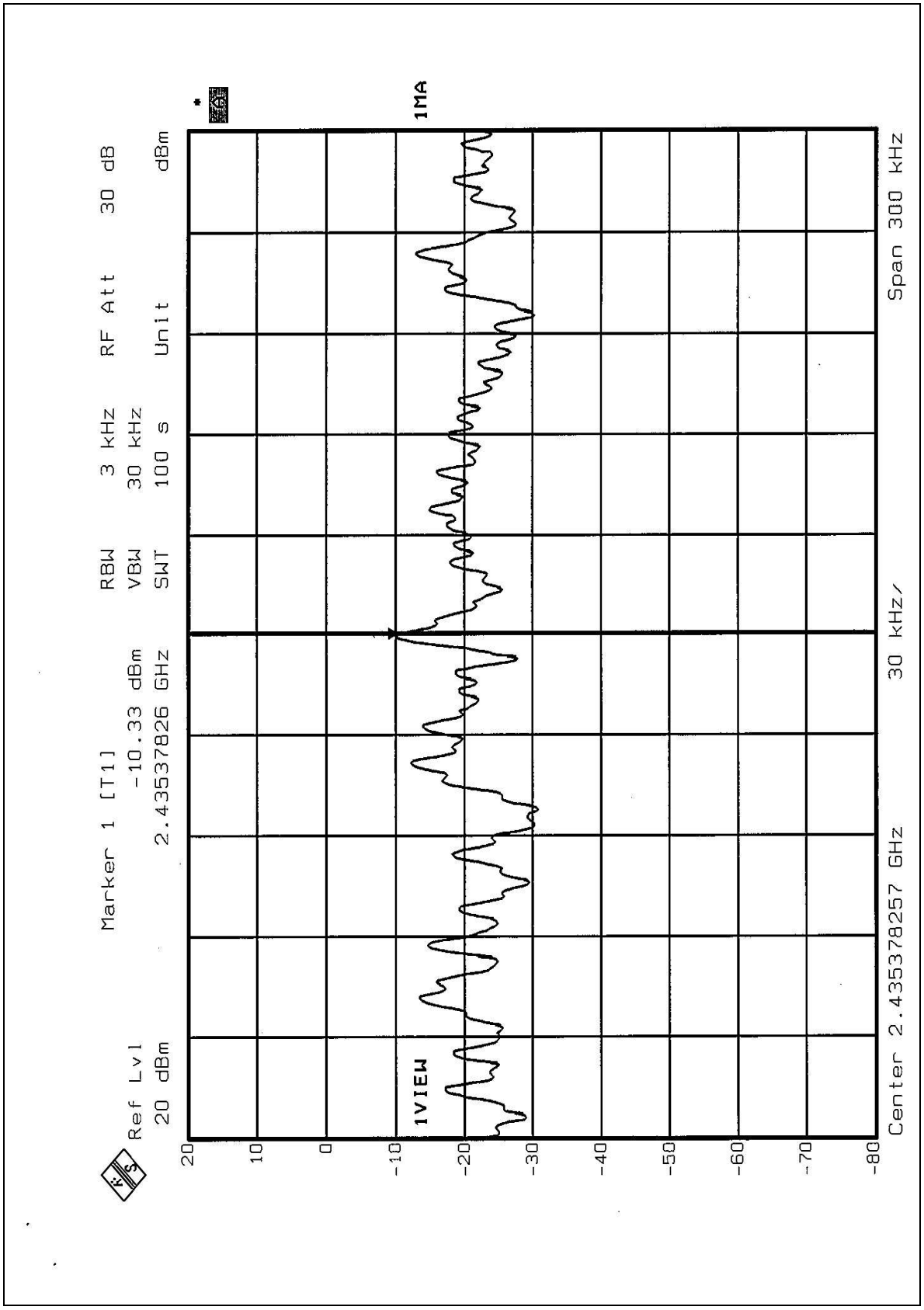
EUT	Wireless LAN Modem MiniPCI Combo Card	**MODEL**	WN3601A
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	25 deg. C, 50%RH, 1005 hPa
TESTED BY: Bunny Yao			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.41	8	PASS
6	2437	-10.33	8	PASS
11	2462	-10.62	8	PASS

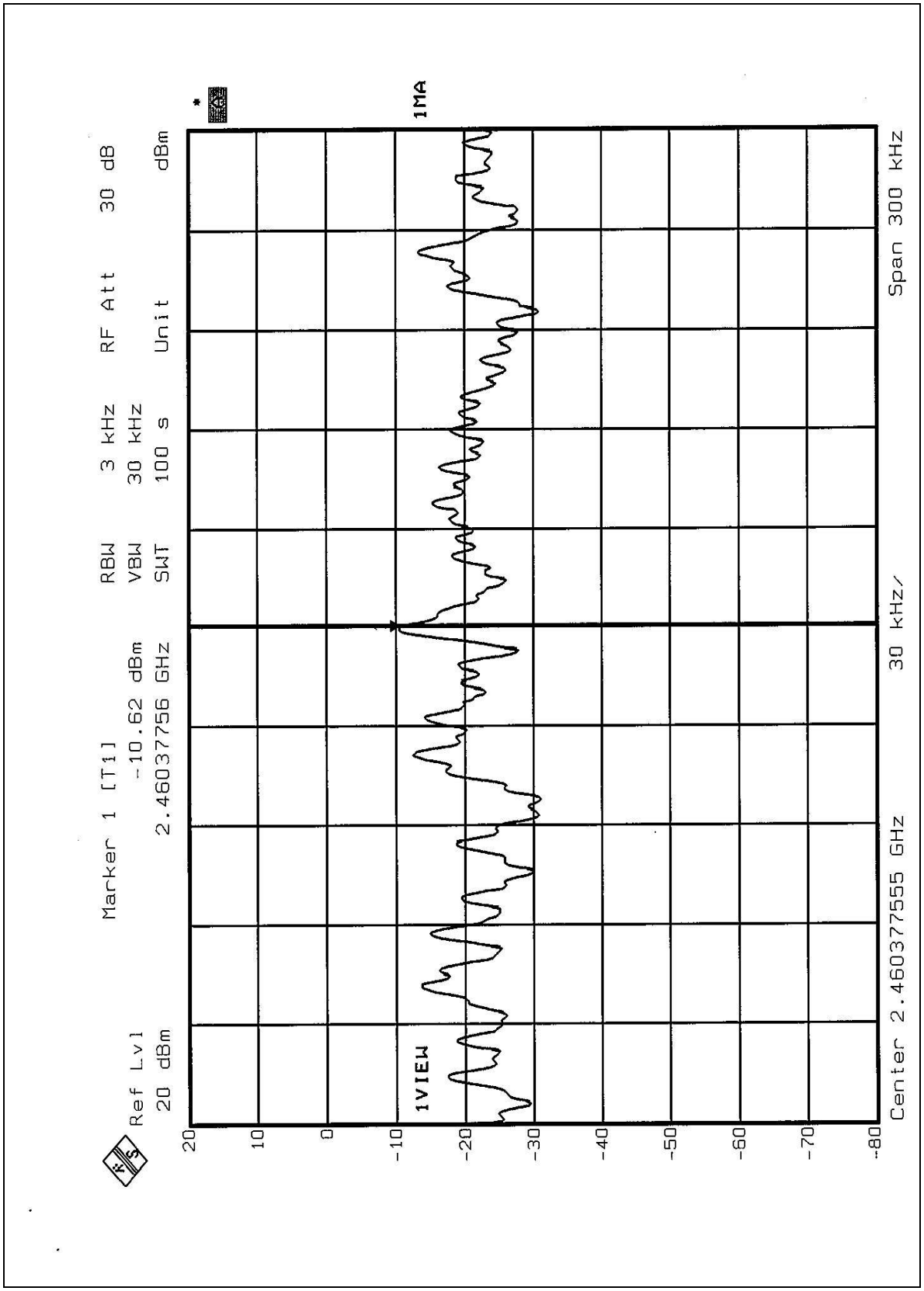
CH1


Ref Lvl
20 dBm
Marker 1 [T1]
-10.41 dBm
2.410378 46 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1MA
1VIEW
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.410378457 GHz
30 kHz/
Span 300 kHz

CH6


Ref Lvl
20 dBm
Marker 1 [T1]
-10.33 dBm
2.43537826 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1VIEW
1MA
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.435378257 GHz
30 kHz/
Span 300 kHz

CH11


Ref Lvl
20 dBm
Marker 1 [T1]
-10.62 dBm
2.46037756 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1VIEW
1MA
Center 2.460377555 GHz
30 kHz/
Span 300 kHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80