



FCC TEST REPORT

REPORT NO.: RF910321R01

MODEL NO.: WL-383F

RECEIVED: March 21, 2002

TESTED: May 6 ~ May 9, 2002

APPLICANT: GEMTEK TECHNOLOGY CO., LTD.

ADDRESS: No. 1, Jen Ai Road, Hsinchu Industrial Park Hukou,
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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0528
ILAC MRA



Lab Code: 200102-0



Table of Contents

1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS	5
3	GENERAL INFORMATION	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES	7
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	7
3.4	DESCRIPTION OF SUPPORT UNITS	8
4	TEST TYPES AND RESULTS	9
4.1	CONDUCTED EMISSION MEASUREMENT	9
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	9
4.1.2	TEST INSTRUMENTS	9
4.1.3	TEST PROCEDURES	11
4.1.4	TEST SETUP	11
4.1.5	EUT OPERATING CONDITIONS	12
4.1.6	TEST RESULTS	13
4.2	RADIATED EMISSION MEASUREMENT	19
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	19
4.2.2	TEST INSTRUMENTS	20
4.2.3	TEST PROCEDURES	21
4.2.4	TEST SETUP	22
4.2.5	EUT OPERATING CONDITIONS	22
4.2.6	TEST RESULTS	23
4.3	6DB BANDWIDTH MEASUREMENT	28
4.3.1	LIMITS OF 6DB BANDWIDTH MEASUREMENT	28
4.3.2	TEST INSTRUMENTS	28
4.3.3	TEST PROCEDURE	29
4.3.4	TEST SETUP	29
4.3.5	EUT OPERATING CONDITIONS	29
4.3.6	TEST RESULTS	30
4.4	MAXIMUM PEAK OUTPUT POWER	34
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	34
4.4.2	INSTRUMENTS	34
4.4.3	TEST PROCEDURES	35
4.4.4	TEST SETUP	35
4.4.5	EUT OPERATING CONDITIONS	35
4.4.6	TEST RESULTS	36
4.5	POWER SPECTRAL DENSITY MEASUREMENT	37
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	37
4.5.2	TEST INSTRUMENTS	37
4.5.3	TEST PROCEDURE	38
4.5.4	TEST SETUP	38
4.5.5	EUT OPERATING CONDITION	38
4.5.6	TEST RESULTS	39
4.6	BAND EDGES MEASUREMENT	43
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	43



4.6.2	TEST INSTRUMENTS	43
4.6.3	TEST PROCEDURE	43
4.6.4	EUT OPERATING CONDITION	44
4.6.5	TEST RESULTS	44
4.7	ANTENNA REQUIREMENT	47
4.7.1	STANDARD APPLICABLE	47
4.7.2	ANTENNA CONNECTED CONSTRUCTION	47
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	48
6	INFORMATION ON THE TESTING LABORATORIES.....	52



1 CERTIFICATION

PRODUCT : 11Mbps Wireless mini USB Module
BRAND NAME : Gemtek
MODEL NO. : WL-383F
APPLICANT : GEMTEK TECHNOLOGY CO., LTD.
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
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 6 ~ May 9, 2002. 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: Bunny Yao, DATE: May 15, 2002
Bunny Yao

CHECKED BY: Rennie Wang, DATE: MAY 15, 2002
Rennie Wang

APPROVED BY: Alan Lane, DATE: May 15, 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 -11.96dBuV at 0.45781MHz
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 -6.80dBuV at 352.00MHz
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	11Mbps Wireless mini USB Module
MODEL NO.	WL-383F
POWER SUPPLY	5VDC from Notebook
MODULATION TYPE	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	14.44dBm
ANTENNA TYPE	Dipole Antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. 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. This device is seeking limited module approval specific to mobile host equipment. The testing has been carried out in a stand-alone configuration.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an 11Mbps Wireless mini USB Module. 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	NOTEBOOK	DELL	PP01L	TW-09C748-12800-190-B220	FCC DoC APPROVED
2	MODEM	ACEEX	1414	980020503	IFAXDM1414
3	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED

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

m

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



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (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	845552/004	May. 22, 2002
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	828075/003	July 19, 2002
ROHDE & SCHWARZ 200-A Four-line V-Network	ENV4200	830326/018	Oct. 25, 2002
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Dec. 2, 2002
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Dec. 2, 2002
EMCO-L.I.S.N. (for peripheral)	3825/2	90031627	July 19, 2002
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C05.01	July 19, 2002
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-305	Feb. 20, 2003
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-306	Feb. 20, 2003
Shielded Room	Site 5	ADT-C05	NA
VCCI Site Registration No.	Site 5	C-1093	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



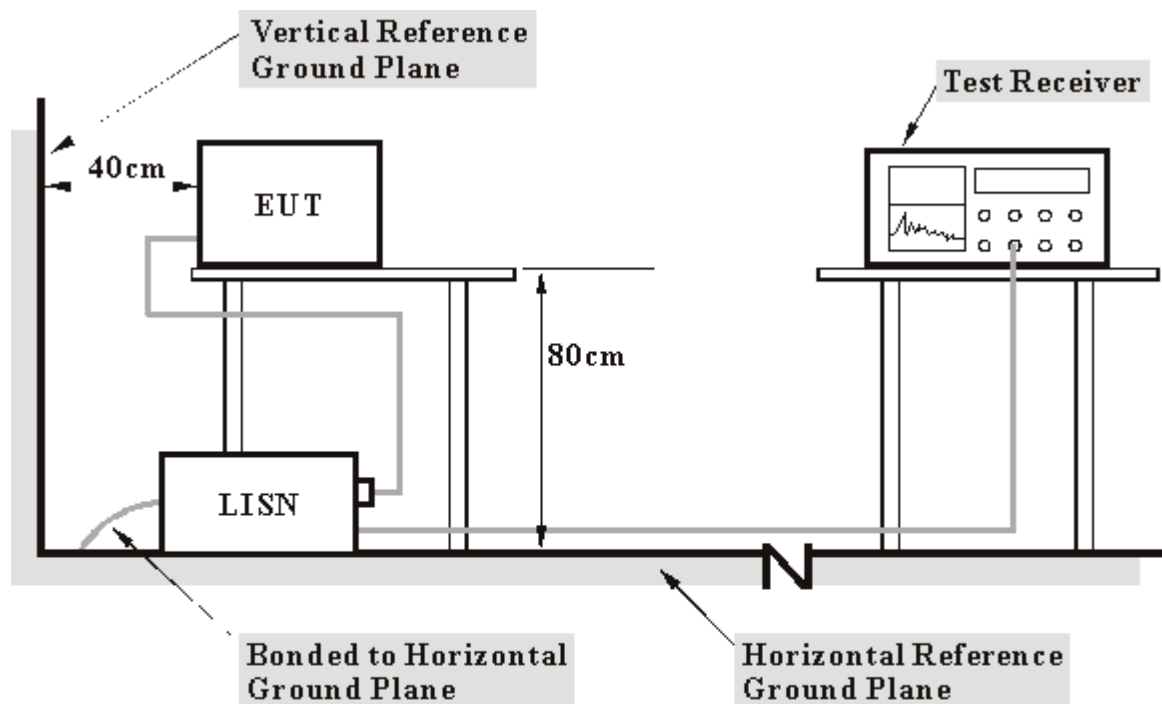
calibrations are traceable to NML/ROC and NIST/USA.

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. Connected the EUT 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.

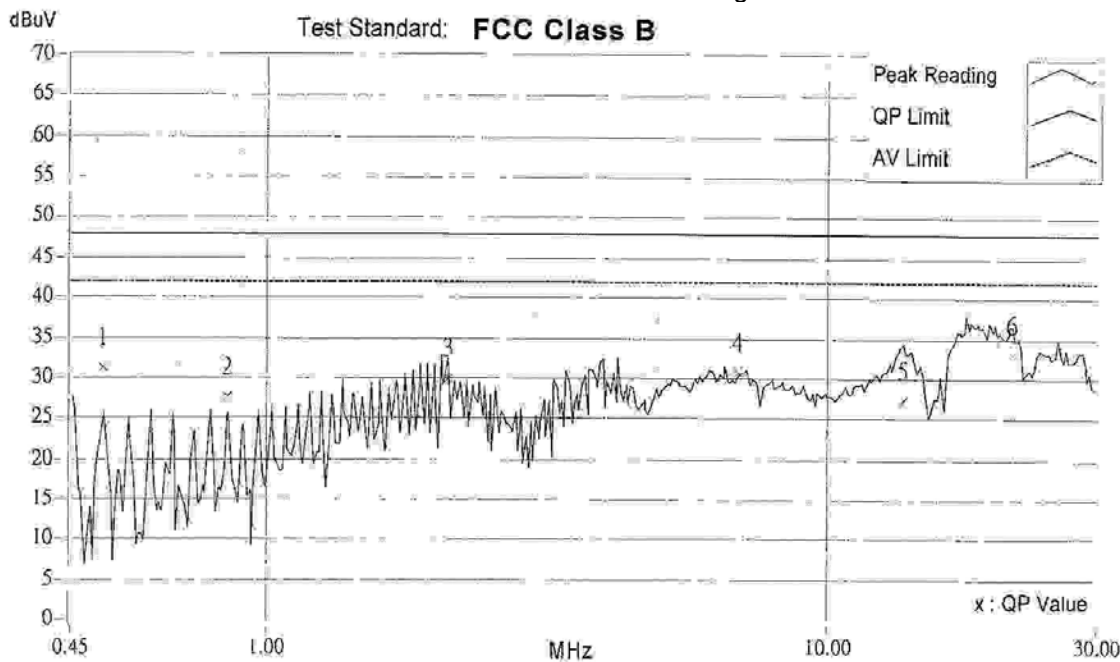


4.1.6 TEST RESULTS

EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	TESTED BY: Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.51250	0.12	30.15	-	30.27	-	48.00	-	-17.73	-
2	0.85625	0.18	26.47	-	26.65	-	48.00	-	-21.35	-
3	2.10547	0.21	28.88	-	29.09	-	48.00	-	-18.91	-
4	6.95313	0.50	29.80	-	30.30	-	48.00	-	-17.70	-
5	13.62891	0.67	26.26	-	26.93	-	48.00	-	-21.07	-
6	21.25391	1.05	32.11	-	33.16	-	48.00	-	-14.84	-

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

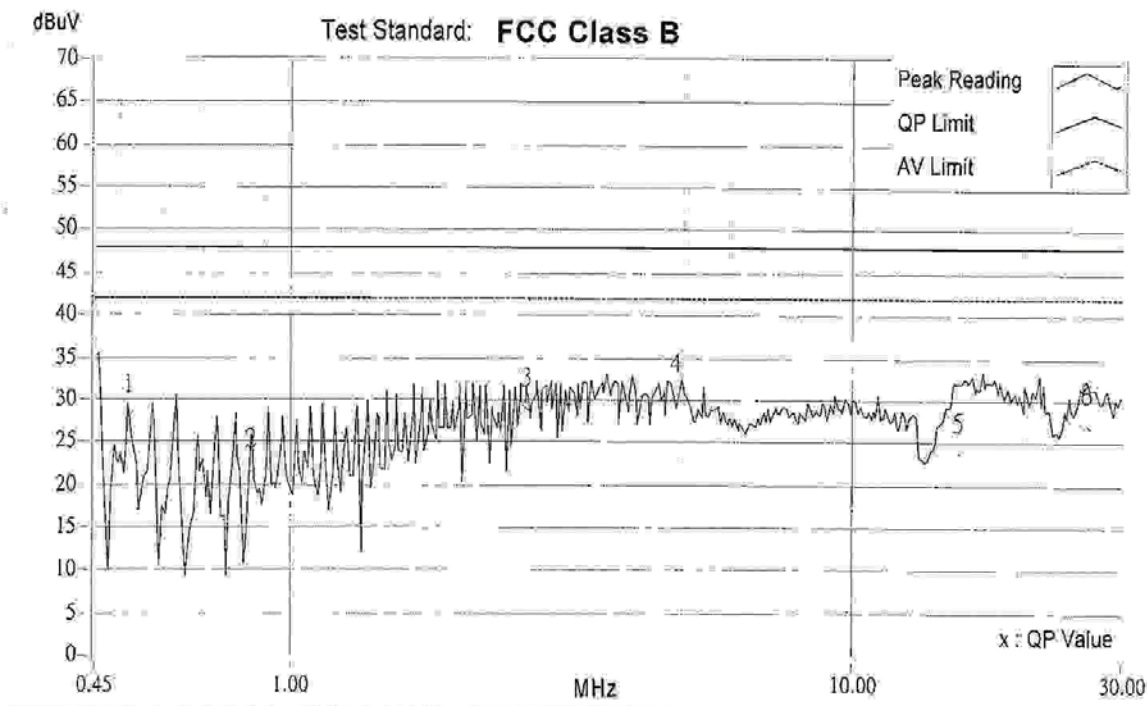




EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	TESTED BY: Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.51641	0.12	27.40	-	27.52	-	48.00	-	-20.48	-
2	0.85234	0.18	21.05	-	21.23	-	48.00	-	-26.77	-
3	2.62500	0.23	28.24	-	28.47	-	48.00	-	-19.53	-
4	4.85547	0.31	30.05	-	30.36	-	48.00	-	-17.64	-
5	15.37109	0.52	23.15	-	23.67	-	48.00	-	-24.33	-
6	25.98828	0.72	26.39	-	27.11	-	48.00	-	-20.89	-

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

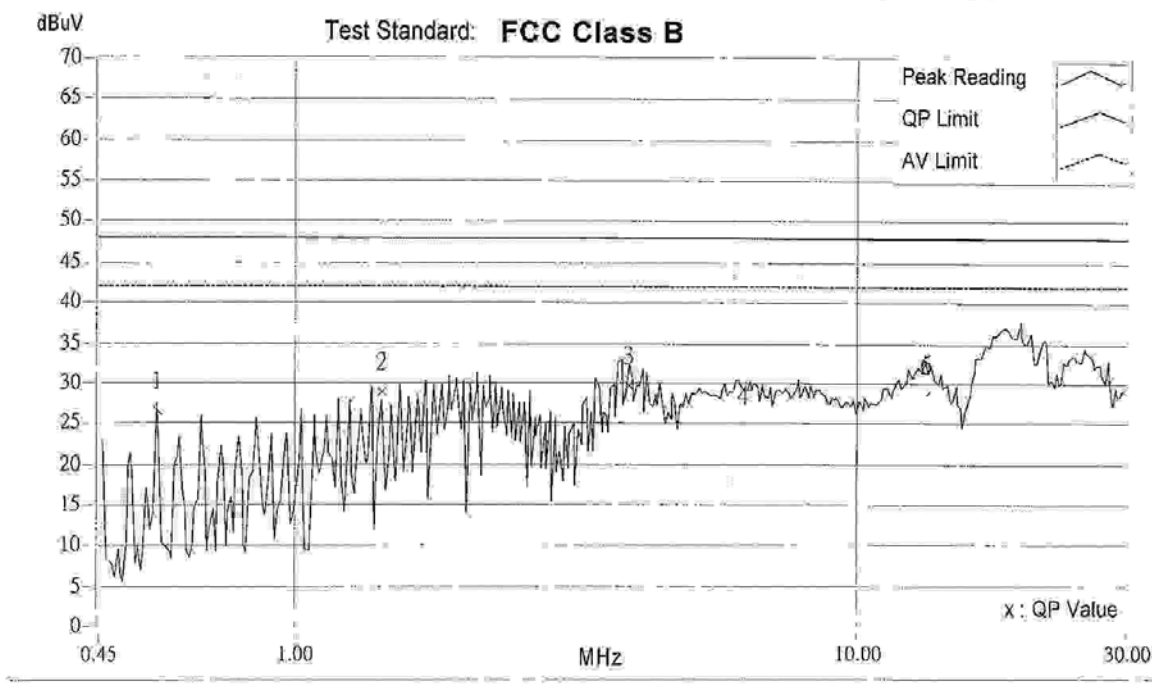




EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	TESTED BY: Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.57109	0.13	26.01	-	26.14	-	48.00	-	-21.86	-
2	1.42578	0.20	28.30	-	28.50	-	48.00	-	-19.50	-
3	3.93750	0.39	29.09	-	29.48	-	48.00	-	-18.52	-
4	6.31250	0.48	24.16	-	24.64	-	48.00	-	-23.36	-
5	13.21484	0.66	28.07	-	28.73	-	48.00	-	-19.27	-
6	13.21484	0.66	28.13	-	28.79	-	48.00	-	-19.21	-

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

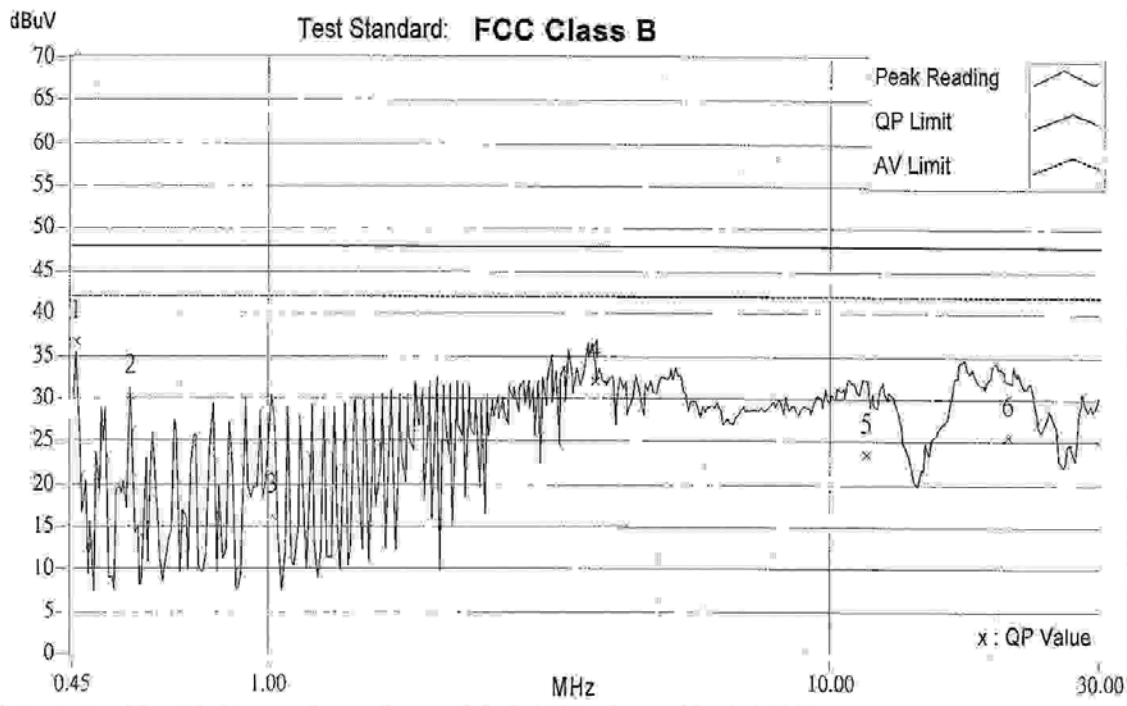




EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	TESTED BY: Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.45781	0.11	35.93	-	36.04	-	48.00	-	-11.96	-
2	0.57109	0.13	29.44	-	29.57	-	48.00	-	-18.43	-
3	1.01563	0.20	15.46	-	15.66	-	48.00	-	-32.34	-
4	3.82813	0.29	31.15	-	31.44	-	48.00	-	-16.56	-
5	11.65234	0.43	22.84	-	23.27	-	48.00	-	-24.73	-
6	20.68359	0.79	24.75	-	25.54	-	48.00	-	-22.46	-

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

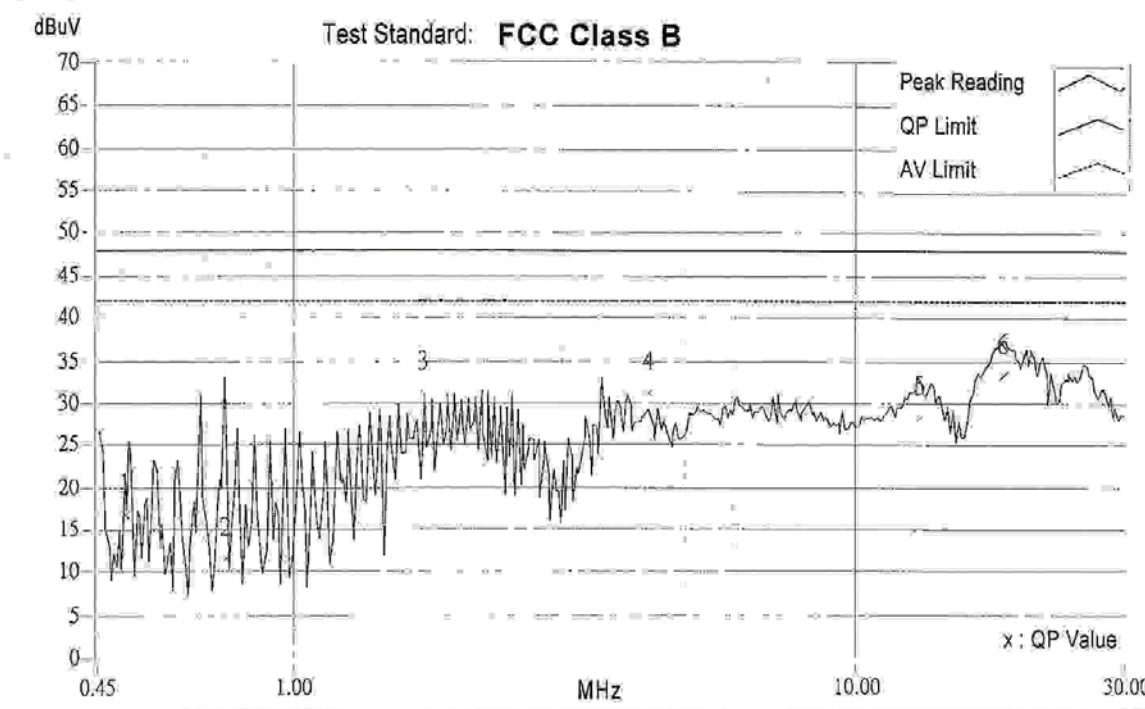




EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	TESTED BY: Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.50469	0.12	16.00	-	16.12	-	48.00	-	-31.88	-
2	0.75859	0.16	10.63	-	10.79	-	48.00	-	-37.21	-
3	1.71094	0.20	30.30	-	30.50	-	48.00	-	-17.50	-
4	4.28125	0.41	30.48	-	30.89	-	48.00	-	-17.11	-
5	13.03516	0.66	27.56	-	28.22	-	48.00	-	-19.78	-
6	18.22656	0.89	32.37	-	33.26	-	48.00	-	-14.74	-

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

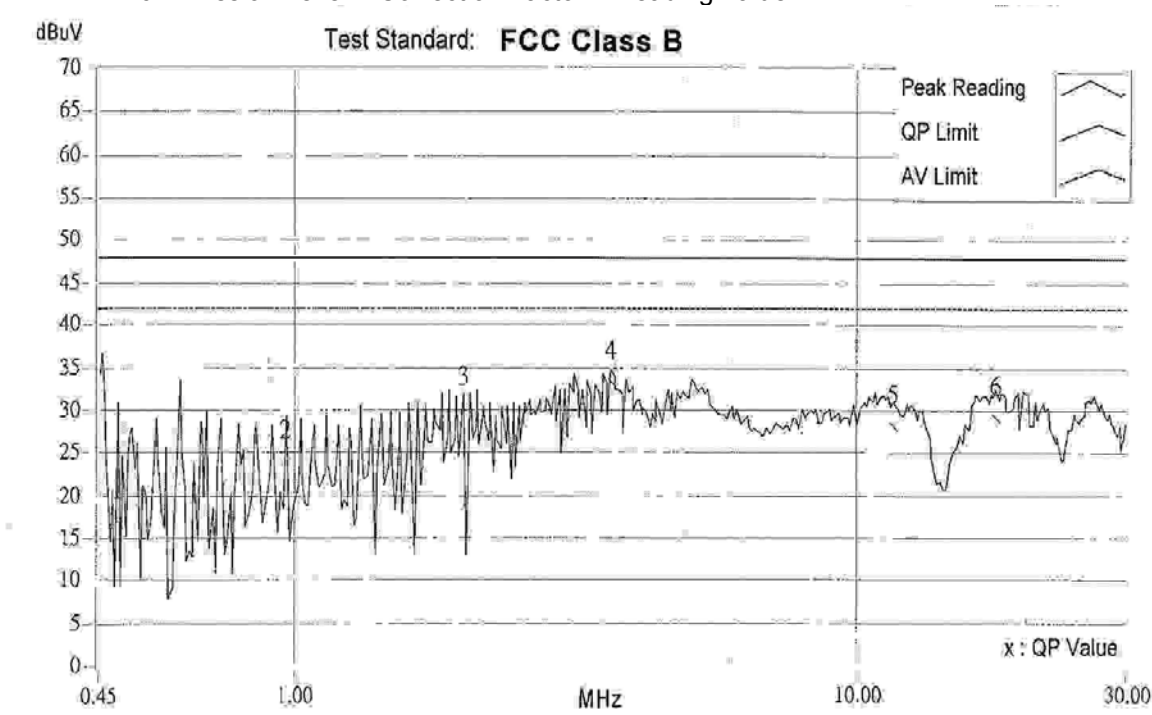




EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	TESTED BY: Bunny Yao	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.48906	0.11	16.37	-	16.48	-	48.00	-	-31.52	-
2	0.96562	0.19	23.43	-	23.62	-	48.00	-	-24.38	-
3	1.99609	0.20	29.56	-	29.76	-	48.00	-	-18.24	-
4	3.65234	0.28	32.58	-	32.86	-	48.00	-	-15.14	-
5	11.65234	0.43	27.56	-	27.99	-	48.00	-	-20.01	-
6	17.56641	0.65	28.42	-	29.07	-	48.00	-	-18.93	-

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





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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 14, 2003
* HP Preamplifier	8447D	2944A08485	Oct. 29, 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 09, 2003
* 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.



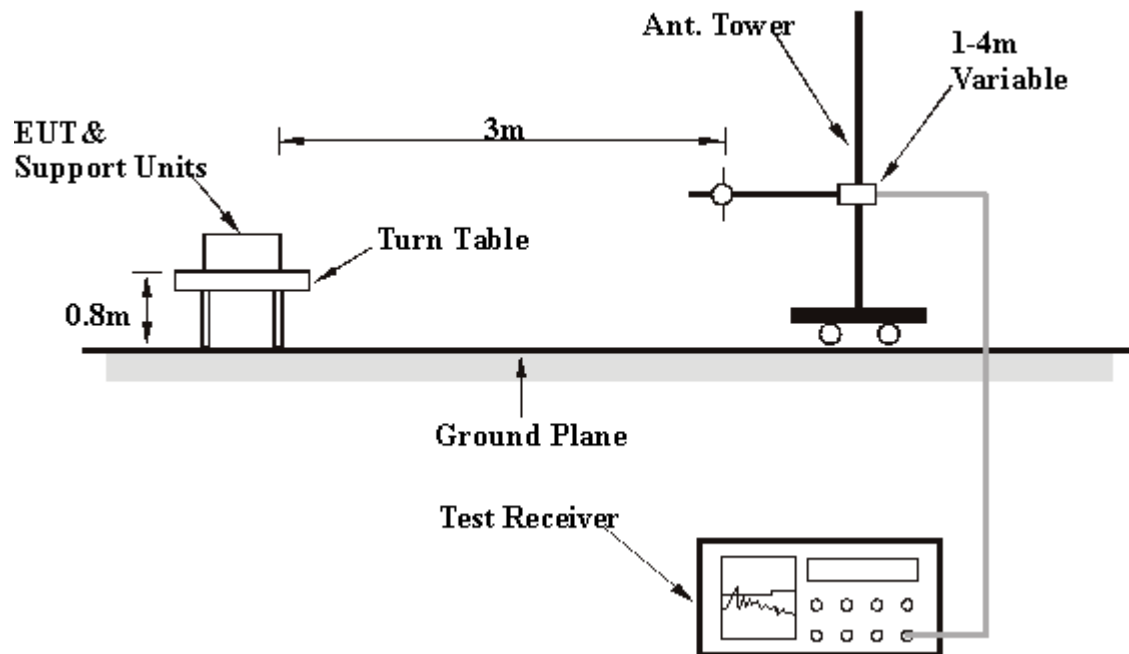
4.2.3 TEST PROCEDURES

- 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 the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

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

EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20 deg. C, 60%RH, 1005 hPa	TESTED BY: Bunny Yao	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Frequency (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	36.00	29.7 QP	40.00	-10.30	1.43V	269	40.71	15.19	0.80	27.00	11.01	
2	144.00	23.5 QP	43.50	-20.00	1.40V	282	38.64	10.58	1.28	27.00	15.14	
3	192.00	19.0 QP	43.50	-24.50	1.47V	317	35.66	8.95	1.39	27.00	16.66	
4	240.00	26.8 QP	46.00	-19.20	1.08V	124	40.72	11.41	1.67	27.00	13.92	
5	264.00	24.0 QP	46.00	-22.00	1.29V	244	36.38	12.89	1.73	27.00	12.38	
6	288.00	23.5 QP	46.00	-22.50	1.35V	63	35.78	12.88	1.83	27.00	12.29	
7	308.00	29.3 QP	46.00	-16.70	2.07V	149	41.00	13.38	1.92	27.00	11.70	
8	312.00	20.7 QP	46.00	-25.30	1.03V	73	32.34	13.43	1.93	27.00	11.64	
9	336.00	25.3 QP	46.00	-20.70	1.30V	100	36.33	13.92	2.05	27.00	11.03	
10	352.00	39.2 QP	46.00	-6.80	1.00V	122	49.77	14.31	2.12	27.00	10.57	
11	360.00	22.5 QP	46.00	-23.50	1.86V	69	32.79	14.58	2.13	27.00	10.29	
12	384.00	21.8 QP	46.00	-24.20	1.56V	86	31.15	15.50	2.15	27.00	9.36	
13	396.00	29.8 QP	46.00	-16.20	1.59V	219	38.68	15.96	2.17	27.00	8.88	
14	420.00	22.6 QP	46.00	-23.40	1.76V	231	31.15	16.21	2.24	27.00	8.55	
15	432.00	24.7 QP	46.00	-21.30	1.76V	308	33.14	16.28	2.28	27.00	8.44	
16	440.00	29.6 QP	46.00	-16.40	1.64V	167	37.98	16.32	2.31	27.00	8.38	
17	480.00	22.8 QP	46.00	-23.20	1.88H	24	30.45	16.92	2.43	27.00	7.66	
18	484.00	21.5 QP	46.00	-24.50	1.81V	72	29.10	16.96	2.44	27.00	7.61	
19	528.00	23.3 QP	46.00	-22.70	1.05V	71	30.06	17.62	2.62	27.00	6.77	
20	748.00	23.6 QP	46.00	-22.40	1.57V	159	27.12	20.14	3.34	27.00	3.52	


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Frequency (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	48.00	26.8 QP	40.00	-13.20	1.11V	217	43.56	9.44	0.79	27.00	16.76
2	96.00	23.0 QP	43.50	-20.50	1.14V	93	39.39	9.52	1.10	27.00	16.40
3	144.00	28.5 QP	43.50	-15.00	1.35V	63	43.64	10.58	1.28	27.00	15.14
4	192.00	22.8 QP	43.50	-20.70	1.18V	88	39.46	8.95	1.39	27.00	16.66
5	240.00	23.4 QP	46.00	-22.60	1.00V	134	37.32	11.41	1.67	27.00	13.92
6	264.00	19.1 QP	46.00	-26.90	1.95V	51	31.48	12.89	1.73	27.00	12.38
7	288.00	20.5 QP	46.00	-25.50	1.38V	226	32.78	12.88	1.83	27.00	12.28
8	308.00	23.8 QP	46.00	-22.20	1.34V	90	35.50	13.38	1.92	27.00	11.71
9	336.00	16.8 QP	46.00	-29.20	1.03V	69	27.81	13.92	2.05	27.00	11.04
10	352.00	28.7 QP	46.00	-17.30	1.40V	54	39.27	14.31	2.12	27.00	10.58
11	384.00	25.6 QP	46.00	-20.40	1.26V	75	34.95	15.50	2.15	27.00	9.36
12	396.00	28.5 QP	46.00	-17.50	1.29V	84	37.38	15.96	2.17	27.00	8.89
13	432.00	21.8 QP	46.00	-24.20	1.25V	71	30.24	16.28	2.28	27.00	8.45
14	440.00	22.9 QP	46.00	-23.10	1.07V	61	31.28	16.32	2.31	27.00	8.39
15	440.00	27.1 QP	46.00	-18.90	1.07V	2	35.48	16.32	2.31	27.00	8.39
16	480.00	25.3 QP	46.00	-20.70	1.00V	89	32.95	16.92	2.43	27.00	7.66
17	484.00	24.3 QP	46.00	-21.70	1.01V	81	31.90	16.96	2.44	27.00	7.61
18	528.00	21.1 QP	46.00	-24.90	1.23V	75	27.86	17.62	2.62	27.00	6.77
19	704.00	19.6 QP	46.00	-26.40	1.01V	3	23.97	19.38	3.25	27.00	4.38
20	748.00	20.3 QP	46.00	-25.70	1.01V	351	23.82	20.14	3.34	27.00	3.53

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.



EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
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, 60%RH, 1005 hPa	TESTED BY: Bunny Yao	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Frequency (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	44.0 PK	74.00	-30.00	1.08H	74	48.88	25.20	4.86	34.90	4.84	
2	*2412.00	105.0 PK	-	-	1.02H	239	72.78	27.11	5.10	0.00	-32.21	
3	*2412.00	98.6 AV	-	-	1.02H	288	66.40	27.11	5.10	0.00	-32.21	
4	4076.00	46.6 PK	74.00	-27.40	1.71H	245	44.22	30.13	6.78	34.52	-2.39	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
No.	Frequency (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	43.3 PK	74.00	-30.70	1.23V	14	48.10	25.20	4.86	34.90	4.84	
2	*2412.00	99.5 PK	-	-	1.81V	165	67.30	27.11	5.10	0.00	-32.21	
3	*2412.00	93.6 AV	-	-	1.81V	8	61.41	27.11	5.10	0.00	-32.21	
4	4076.00	45.7 PK	74.00	-28.30	1.05V	87	43.31	30.13	6.78	34.52	-2.39	

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.
 6. “ * “ = Fundamental frequency



EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
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, 60%RH, 1005 hPa	TESTED BY: Bunny Yao	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Frequency (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	44.3 PK	74.00	-29.70	1.06H	360	48.83	25.41	4.96	34.90	4.53
2	*2437.00	106.0 PK	-	-	1.00H	289	73.60	27.33	5.08	0.00	-32.40
3	*2437.00	97.6 AV	-	-	1.00H	245	65.20	27.33	5.08	0.00	-32.40
4	4126.00	47.1 PK	74.00	-26.90	1.77H	337	44.64	30.32	6.70	34.56	-2.46

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Frequency (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	42.5 PK	74.00	-31.50	1.55V	238	47.03	25.41	4.96	34.90	4.53
2	*2437.00	103.7 PK	-	-	1.23V	36	71.30	27.33	5.08	0.00	-32.40
3	*2437.00	96.2 AV	-	-	1.23V	36	63.80	27.33	5.08	0.00	-32.40
4	4126.00	47.2 PK	74.00	-26.80	1.09V	110	44.74	30.32	6.70	34.56	-2.46

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.
 6. “ * “ = Fundamental frequency



EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
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, 60%RH, 1005 hPa	TESTED BY: Bunny Yao	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Frequency (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	44.3 PK	74.00	-29.70	1.00H	176	48.56	25.62	5.02	34.90	4.26
2	*2462.00	106.7 PK	-	-	1.00H	95	74.25	27.33	5.08	0.00	-32.40
3	*2462.00	101.3 AV	-	-	1.00H	144	68.90	27.33	5.08	0.00	-32.41
4	4176.00	45.4 PK	74.00	-28.60	1.72H	134	42.90	30.41	6.68	34.58	-2.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Frequency (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	42.5 PK	74.00	-31.50	2.01V	81	46.80	25.62	5.02	34.90	4.26
2	*2462.00	101.3 PK	-	-	1.83V	18	68.90	27.33	5.08	0.00	-32.40
3	*2462.00	96.1 AV	-	-	1.83V	18	63.70	27.33	5.08	0.00	-32.40
4	4176.00	46.4 PK	74.00	-27.60	1.09V	147	43.90	30.41	6.68	34.58	-2.51

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.
 6. “ * “ = Fundamental frequency



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Jul. 16, 2002

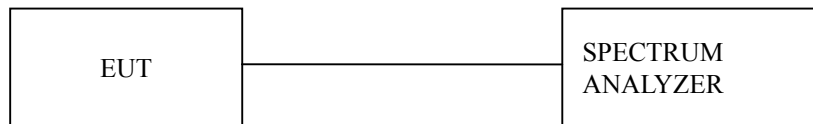
Notes:

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



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.



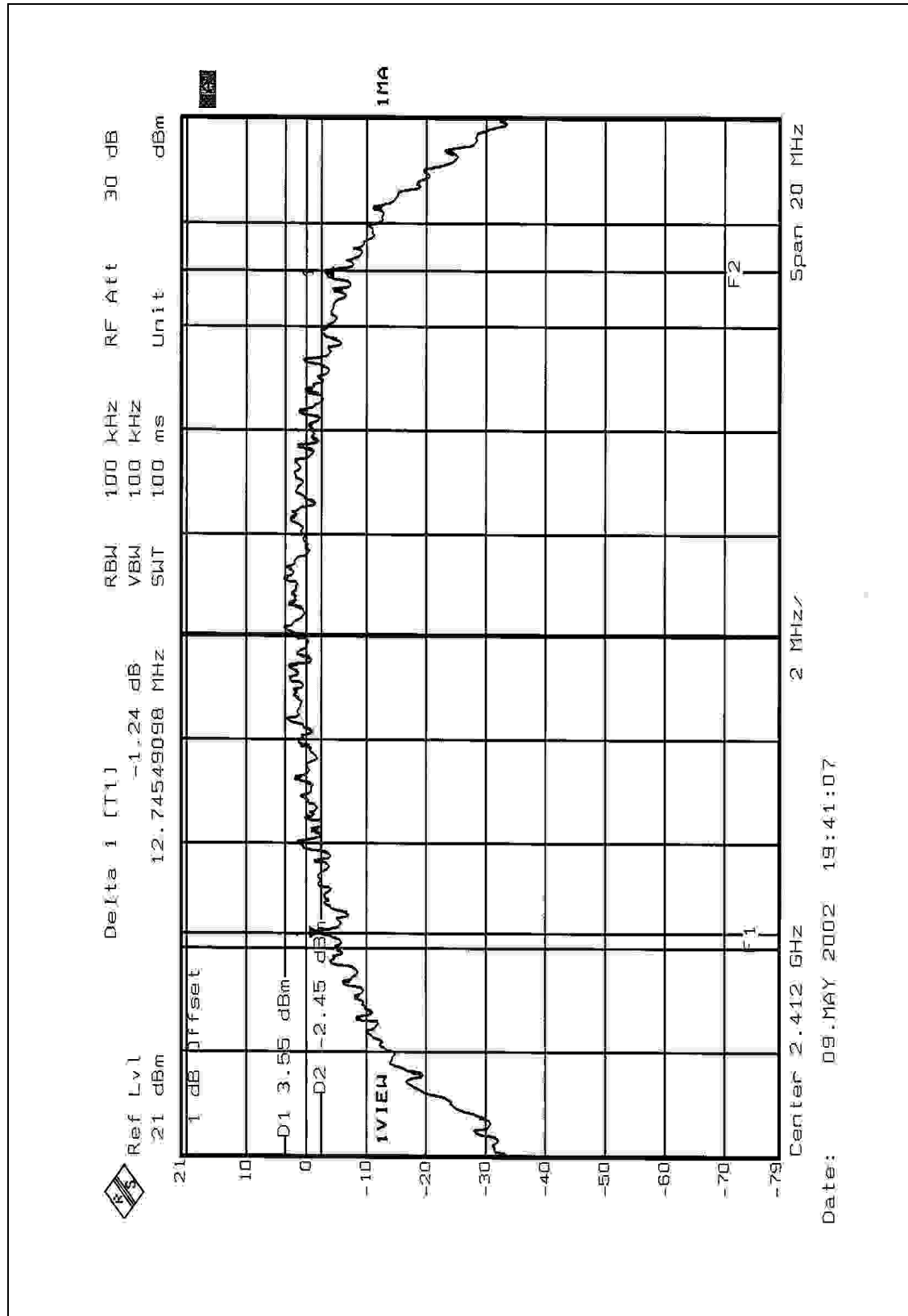
4.3.6 TEST RESULTS

EUT	11Mbps Wireless mini USB Module	MODEL	WL-383F
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26 deg. C, 65%RH, 1005 hPa
TESTED BY: Steven Lu			

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.745	0.5	PASS
6	2437	11.142	0.5	PASS
11	2462	11.583	0.5	PASS

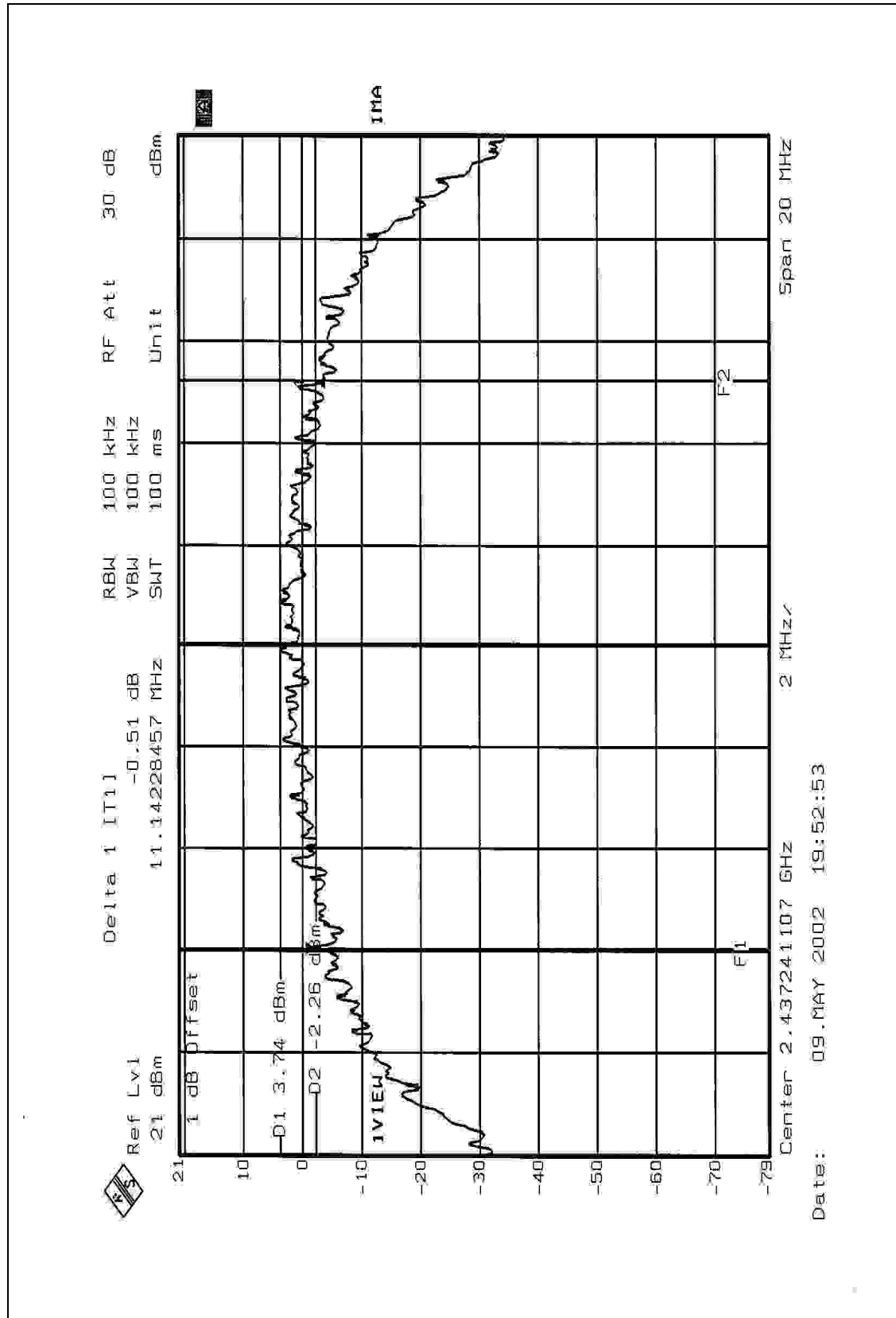


CH1





CH6





CH11

