



TEST REPORT

Wireless PCMCIA Card

Model Name **LM-WP100**

Tested at **December 12, 2000**

According to

47CFR Part 15C (15.247) & 15B

**Guidance on Measurements for Direct Sequence
Spread Spectrum Systems**

Issued for

Delta Networks, Inc.

No. 8, Kon Jan West Road, Liutu Industrial Zone,
Keelung, Taiwan, R.O.C.

PREPARED BY: **ADVANCE DATA TECHNOLOGY CORPORATION**



Accredited Laboratory

R & TTE Certification Division

13-1 Lane 19, Wen Shan 3rd St., Kweishan,
TAOYUAN, TAIWAN, R.O.C.

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REPORT NO : RF89120401
PRODUCT : Wireless PCMCIA Card
MODEL NO : LM-WP100
SERIAL NO : N/A
APPLICANT : Delta Networks, Inc.
ADDRESS : No. 8, Kon Jan West Road, Liutu Industrial Zone,
Keelung, Taiwan R.O.C.
ISSUED BY : Advance Data Technology Corporation (ADT
Corp.)
OFFICE ADDRESS : 11F, No. 1, Sec. 4, Nan-King East Rd., Taipei,
Taiwan, R.O.C.
LABORATORY ADDRESS : No. 13-1, Lane 19, Wen Shan 3rd St., Kweishan,
Taoyuan Hsien, Taiwan, R.O.C.
TEST STANDARD : 47CFR Part 15, Subpart C (15.247) & Subpart B
TEST DATE : December 22, 2000
TEST RESULT : Pass

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1 CERTIFICATION

Issue Date: December 18, 2000

PRODUCT : Wireless PCMCIA Card
MODEL NO : LM-WP100
FCC ID : PD5LMWP100
SPEC. : 2.412 ~ 2.462MHz, 11 Channels, DSSS Modulation
APPLICANT : Delta Networks, Inc.
TEST STANDARD : FCC 47CFR Part 15, Subpart C(Section 15.247) &Subpart B
ANSI C63.4-1992

We, ADVANCE DATA TECHNOLOGY CORPORATION, hereby certify that one sample of the designated sample has been tested in our facility. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate representation of the measurements of the sample's EMI characteristics and the energy emitted under the conditions herein specified.

TESTED BY: Steven Lu **DATE:** 18-Dec-2000
Steven Lu
PREPARED BY: Demi Chen **DATE:** 18-Dec-2000
Demi Chen
APPROVED BY: Alan Lane **DATE:** 18 Dec. 2000
Dr. Alan Lane, Manager



2 SUMMARY OF TEST RESULTS

47 CFR Part 15, Subpart C			
PARAGRAPH.	TEST REQUIREMENTS	COMPLIANCE (YES/NO)	TEST RESULT
15.107	AC Power Conducted Emissions Spec.: 48 dBuV	Yes	Minimum passing margin is -9.67 dBuV At 24.22432 MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Spec.: min. 500 kHz	Yes	9.66 MHz > 500 kHz
15.247(b)	Maximum Peak Output Power Spec.: max. 30 dBm	Yes	17.49 dBm < 30 dBm
15.247(c)	Transmitter Radiated Emissions Spec.: Table 15.209	Yes	Minimum passing margin is -5.7 dBuV At 2037.90 MHz
15.247(d)	Power Spectral Density Spec.: max. 8dBm	Yes	-12.21 dBm < 8 dBm
15.247(c)	Band Edge Measurement	Yes	N/A
15.247(e)	Processing Gain of Direct Sequence Spread Spectrum System Spec.: min. 10 dB	Yes	11.4dB \geq 10dB



3 DECLARATION OF COMPLIANCE WITH SUBPART B

The digital circuits and receiver portion of the EUT has been tested in ADT. The test result has been verified to comply with FCC Part 15, Subpart B, Class B – Computing Devices (FCC DoC). The engineering test report can be provided upon FCC requests.



4 GENERAL DESCRIPTION

4.1 General Description of EUT

Product	:	Wireless PCMCIA Card
Model No	:	LM-WP100
Modulation Type	:	DBPSK(1Mbps)/DQPSK(2Mbps)/CCK(5.5/11Mbps)
Data Rate	:	11/5.5/2/1Mbps
Operating Frequency	:	2.412 - 2.462GHz
Number of Channel	:	11
Channel Spacing	:	11 MHz
Rated RF Output Power	:	15dBm
Antenna Type	:	Dipole Antenna
Power Supply	:	DC Power
Signaling Type	:	SST
Others	:	N/A

Note: LM-WP100 is a Wireless LAN Adapter. The Wireless interface is IEEE802.11b standard compatible. Its data transmission rate could be 1/2/5.5/11Mbps. The PCMCIA interface is PCMCIA Standard Release 2.0, Type II Extended (5.0mm) definition.



4.2 Description of Test mode

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		

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 chosen for evaluation.

4.3 Test Methodology

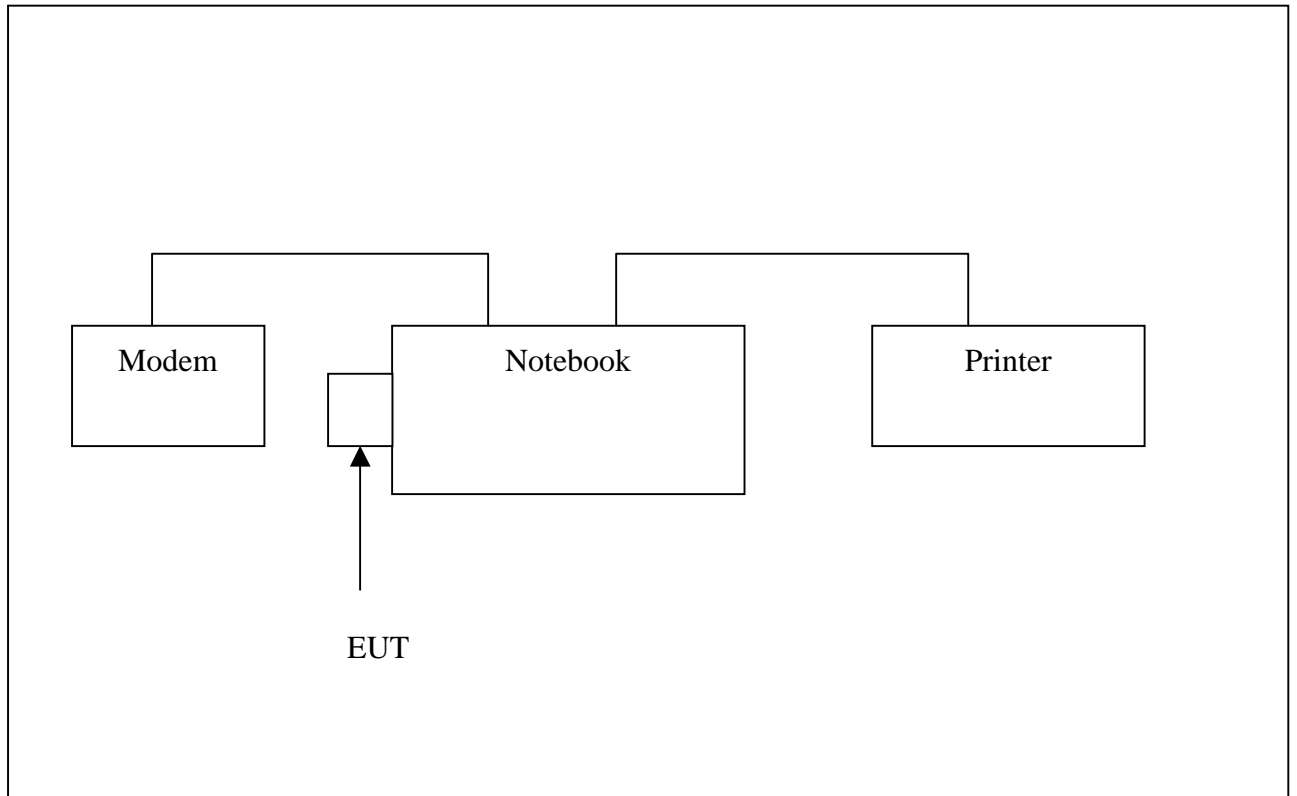
These tests were conducted on a sample of EUT for the evaluation in compliance with FCC CFR47 Part 15, Subpart C (15.247) & Subpart 15 B.

Both conducted and radiated emissions measurements were conducted in accordance with ANSI C63.4:1992.

4.4 Support Units List

No	Product	Brand	Model No.	Serial No.	I/O Cable
1.	NOTEBOOK	DELL	PPX	99125	Nonshielded Power (1.8m)
2.	PRINTER	HP	2225C+	3123S97230	Nonshielded Power (1.8m) Shielded Signal (1.2m)
3.	MODEM	ACEEX	1414	980020508	Nonshielded Power (1.9m) Shielded Signal (1.2m)

4.5 Configuration of System Under Test





5 GENERAL INFORMATION OF TEST FACILITY

5.1 Test Lab.

Advance Data Technology Corporation (NVLAP accredited)
R&TTE Certification Division

No. 13-1, Lane 19, Wen Shan 3rd St., Kweishan, Taoyuan, Taiwan, R.O.C.

Tel: +886-3-3270910

Fax: +886-3-3270892

5.2 Calibration Interval

All calibration intervals of the test sites and test instruments are 12 months. The calibrations are traceable to NML/ROC and NIST/USA.



6 TEST PROCEDURES AND TEST RESULTS

6.1 Conducted Emission Measurement

6.1.1 Test Instruments

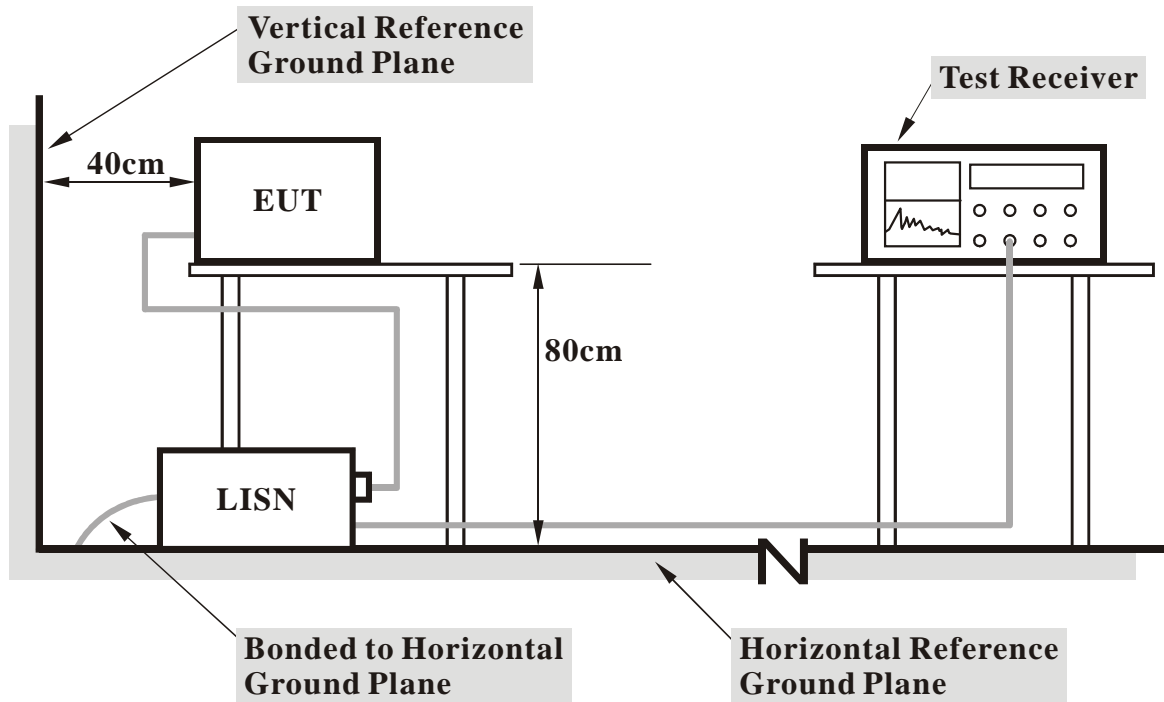
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESHS30	828109/007	July 6, 2001
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 9, 2001
ROHDE & SCHWARZ 4-wire ISN	ENY41	835154/007	Apr. 26, 2001
EMCO-L.I.S.N.	3825/2	9204-1964	July 9, 2001
Shielded Room	Site 2	ADT-C02	NA

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

6.1.2 Test Procedures

1. Place the EUT at 0.4 meter away from the conduction wall of the shielded room.
2. Connect the EUT to the power mains through a Line Impedance Stabilization Network (LISN).
3. Connect the other support units to the other LISN too.
4. Make sure the 50OHM/ 50uH coupling impedance is provided to the measurement instrument by the LISNs.
5. Measure the maximum conducted interference on both lines of the power mains connected to the EUT, within frequency range 450KHz ~ 30MHz.
6. The emission level under limit by 10dB is not needed to be reported.

6.1.3 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.

6.1.4 Photograph of Test Setup





6.1.5 EUT Operating Condition

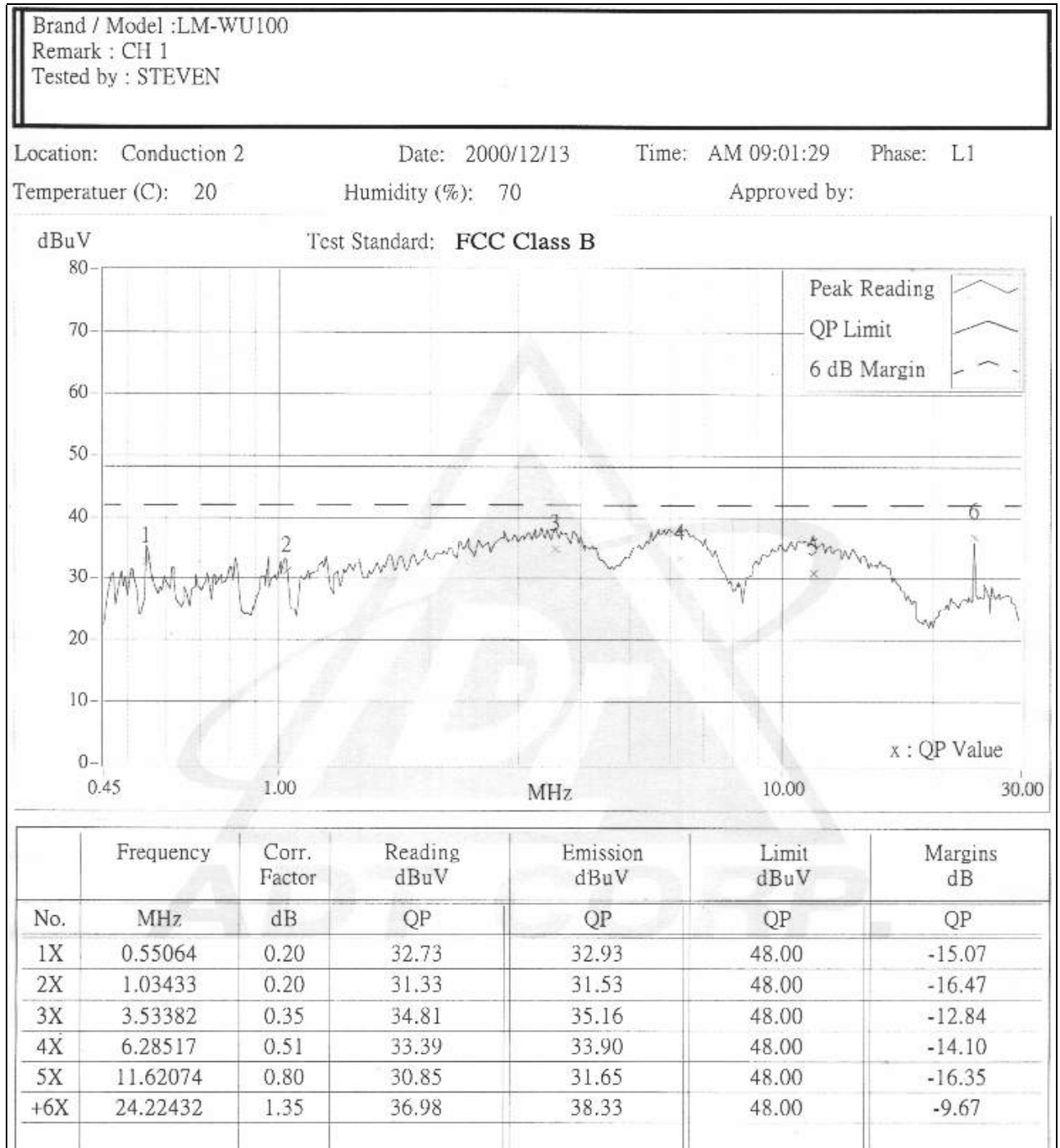
The software provided by client enabled the EUT to continuously transmit and receive data at lowest, middle and highest channel frequencies individually. “H” patterns were sent to support units and displayed on the screen of support unit for maintaining the operating condition.

6.1.6 Climate Condition

The temperature and related humidity is 20Degree C and 70%.



6.1.7 Test Results

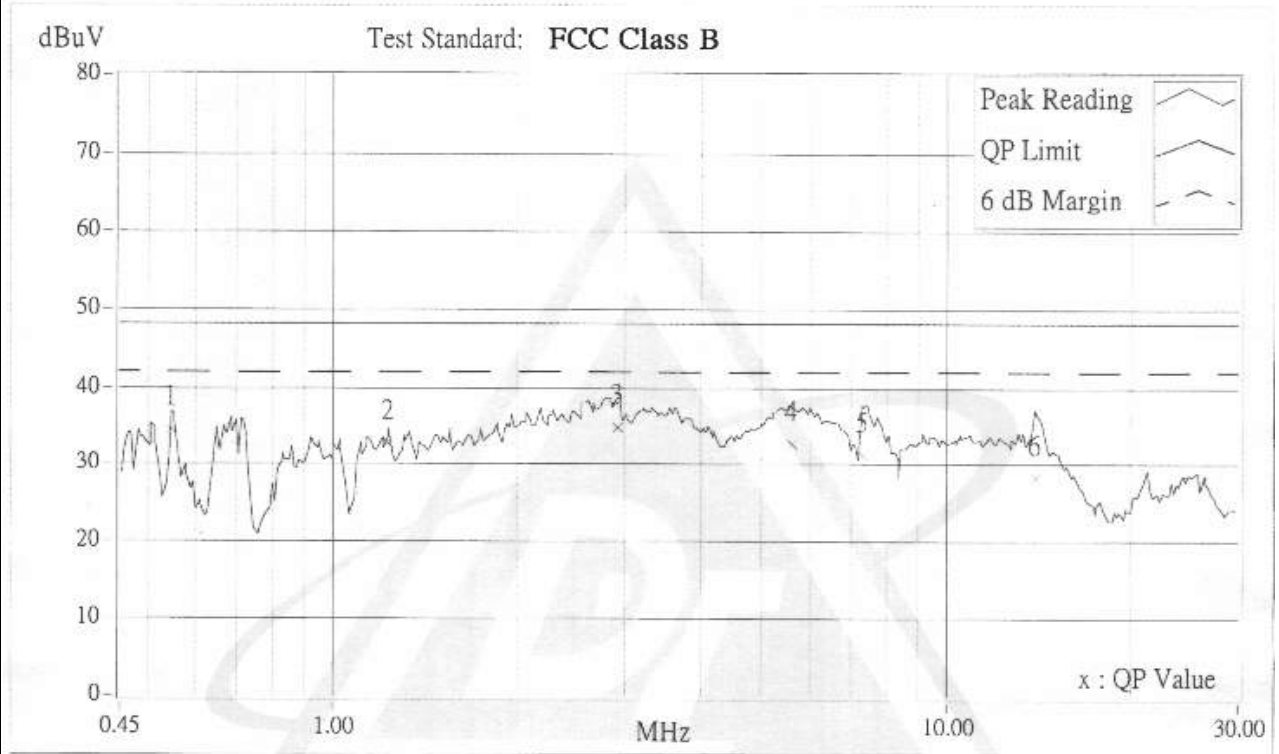


- Remarks:**
1. "X": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": NA
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



Brand / Model :LM-WU100
 Remark : CH 1
 Tested by : STEVEN

Location: Conduction 2 Date: 2000/12/13 Time: AM 08:57:17 Phase: N
 Temperatuer (C): 20 Humidity (%): 70 Approved by:



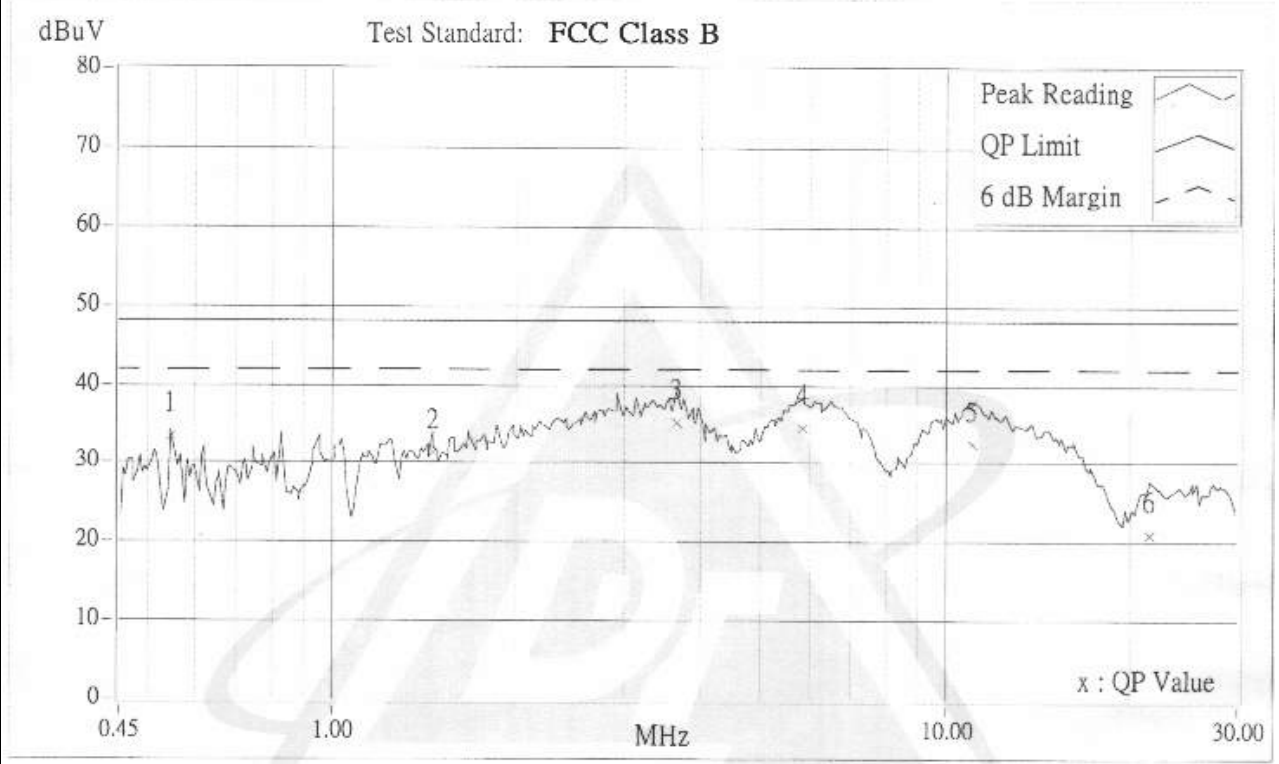
	Frequency	Corr. Factor	Reading dBuV	Emission dBuV	Limit dBuV	Margins dB
No.	MHz	dB	QP	QP	QP	QP
1	0.54830	0.20	34.65	34.85	48.00	-13.15
2	1.23101	0.20	32.70	32.90	48.00	-15.10
+3	2.89704	0.29	34.80	35.09	48.00	-12.91
4	5.58285	0.45	32.63	33.08	48.00	-14.92
5	7.34346	0.51	31.26	31.77	48.00	-16.23
6	13.99744	0.84	28.22	29.06	48.00	-18.94

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



Brand / Model :LM-WU100
 Remark : CH 6
 Tested by : STEVEN

Location: Conduction 2 Date: 2000/12/13 Time: AM 09:05:09 Phase: L1
 Temperatur (C): 20 Humidity (%): 70 Approved by:



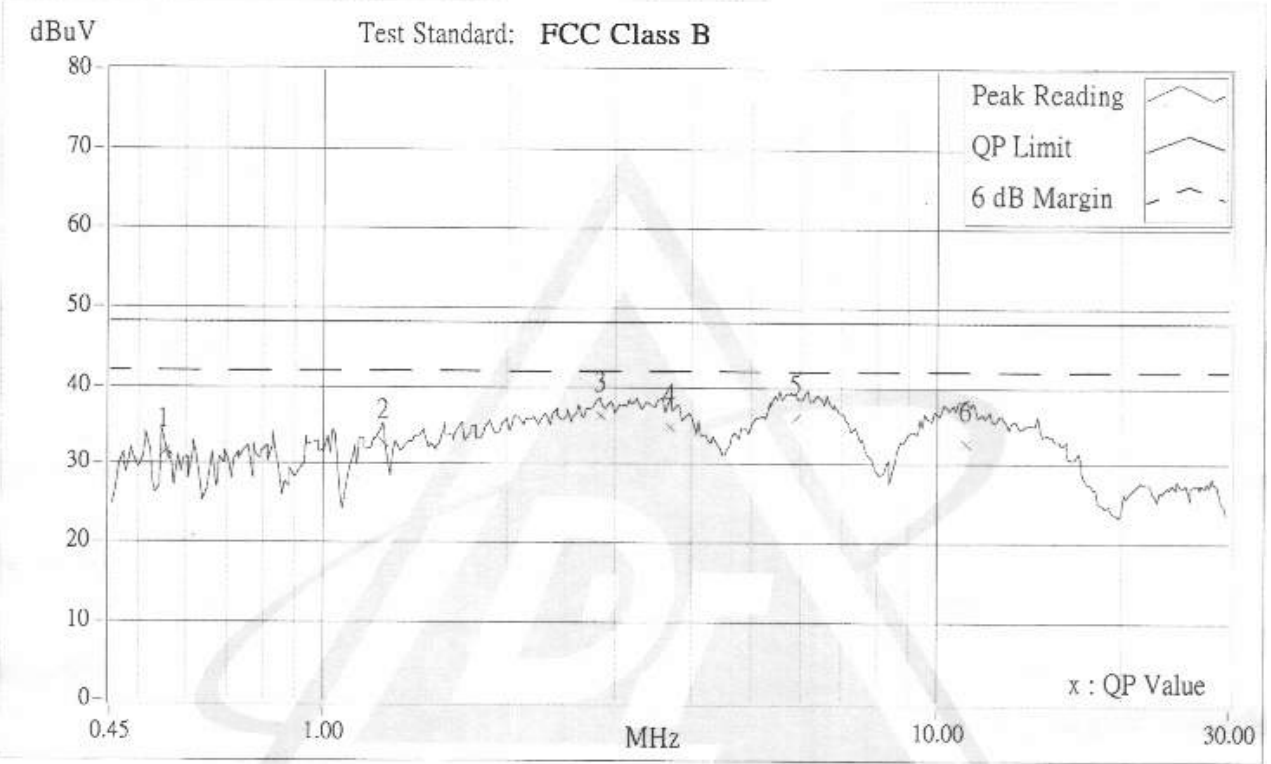
	Frequency	Corr. Factor	Reading dBuV	Emission dBuV	Limit dBuV	Margins dB
No.	MHz	dB	QP	QP	QP	QP
+1X	0.54931	0.20	33.42	33.62	48.00	-14.38
2X	1.45367	0.20	31.28	31.48	48.00	-16.52
3X	3.65434	0.37	35.27	35.64	48.00	-12.36
4X	5.87958	0.49	34.59	35.08	48.00	-12.92
5X	11.04087	0.76	32.43	33.19	48.00	-14.81
6X	21.57252	1.19	21.10	22.29	48.00	-25.71

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



Brand / Model :LM-WU100
 Remark : CH 6
 Tested by : STEVEN

Location: Conduction 2 Date: 2000/12/13 Time: AM 09:09:25 Phase: N
 Temperaturer (C): 20 Humidity (%): 70 Approved by:



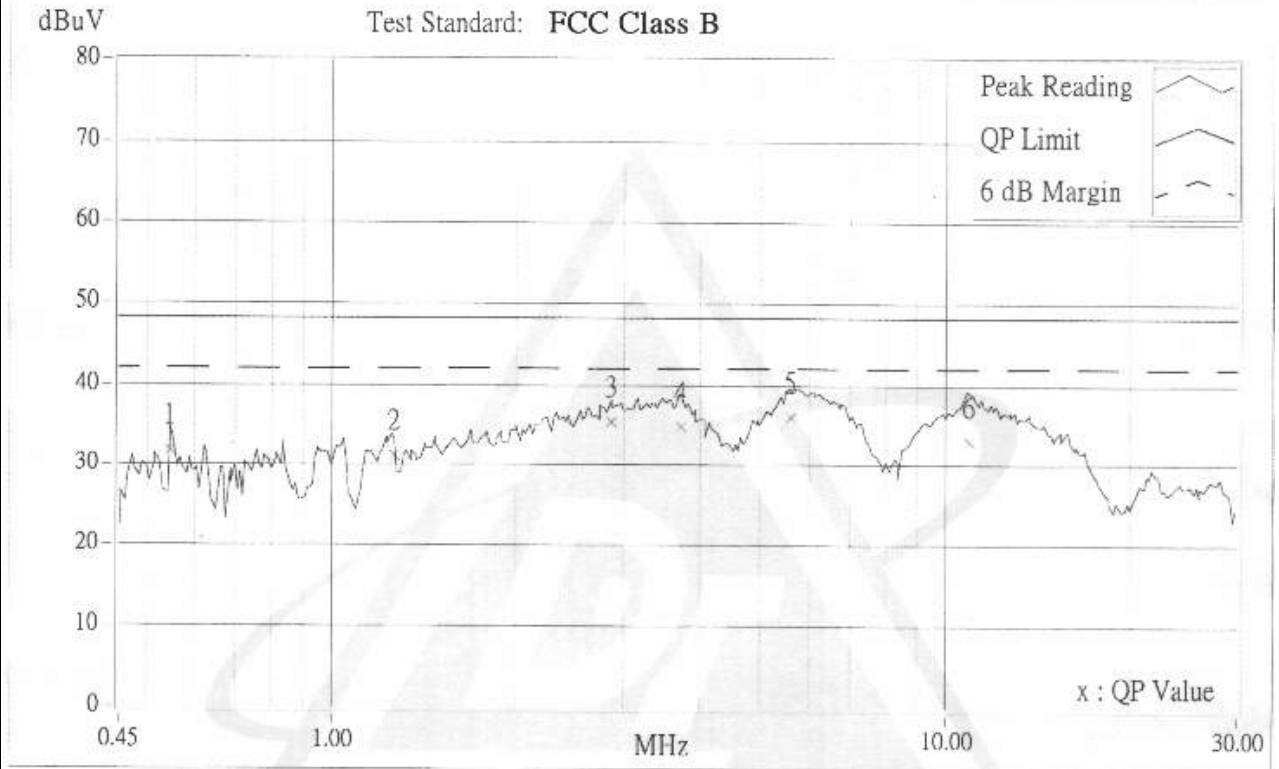
	Frequency	Corr. Factor	Reading dBuV	Emission dBuV	Limit dBuV	Margins dB
No.	MHz	dB	QP	QP	QP	QP
1X	0.55256	0.20	31.51	31.71	48.00	-16.29
2X	1.24627	0.20	32.68	32.88	48.00	-15.12
3X	2.83108	0.28	36.38	36.66	48.00	-11.34
4X	3.68162	0.37	34.82	35.19	48.00	-12.81
+5X	5.89827	0.46	35.92	36.38	48.00	-11.62
6X	11.17076	0.67	32.82	33.49	48.00	-14.51

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



Brand / Model :LM-WU100
 Remark : CH 11
 Tested by : STEVEN

Location: Conduction 2 Date: 2000/12/13 Time: AM 09:18:19 Phase: L1
 Temperatuer (C): 20 Humidity (%): 70 Approved by:



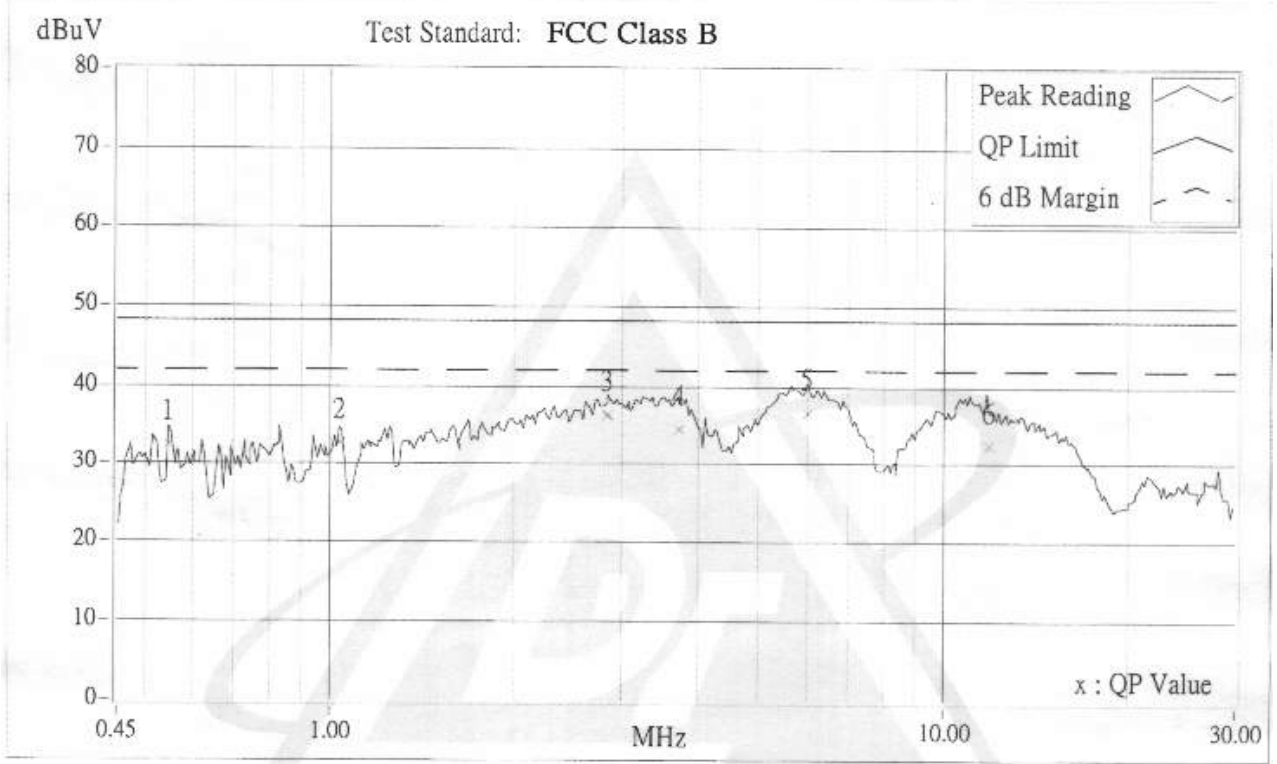
	Frequency	Corr. Factor	Reading dBuV	Emission dBuV	Limit dBuV	Margins dB
No.	MHz	dB	QP	QP	QP	QP
1	0.54694	0.20	31.75	31.95	48.00	-16.05
2	1.26087	0.20	31.40	31.60	48.00	-16.40
3	2.84884	0.28	35.42	35.70	48.00	-12.30
4	3.72269	0.37	34.96	35.33	48.00	-12.67
+5	5.59752	0.48	36.11	36.59	48.00	-11.41
6	10.95849	0.76	33.08	33.84	48.00	-14.16

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



Brand / Model :LM-WU100
 Remark : CH 11
 Tested by : STEVEN

Location: Conduction 2 Date: 2000/12/13 Time: AM 09:13:44 Phase: N
 Temperatuer (C): 20 Humidity (%): 70 Approved by:



	Frequency	Corr. Factor	Reading dBuV	Emission dBuV	Limit dBuV	Margins dB
No.	MHz	dB	QP	QP	QP	QP
1X	0.54745	0.20	32.51	32.71	48.00	-15.29
2X	1.04100	0.20	32.86	33.06	48.00	-14.94
+3X	2.84181	0.28	36.44	36.72	48.00	-11.28
4X	3.71133	0.37	34.66	35.03	48.00	-12.97
5X	6.03744	0.47	36.47	36.94	48.00	-11.06
6X	11.86993	0.71	32.35	33.06	48.00	-14.94

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



6.2 Radiated Emission Measurement

6.2.1 Test instruments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01176	Apr 18, 2001
HP Preamplifier	8447D	2944A08485	Oct. 23, 2000
HP Preamplifier	8347A	3307A01088	Sep. 04, 2001
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Aug. 3, 2001
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	N/A
CHASE BILOG Antenna	CBL6112A	2221	Aug. 4, 2001
SCHWARZBECK Horn Antenna	BBHA9120-D	D130	Jul. 9, 2001
SCHWARZBECK Horn Antenna	BBHA9170	123	Jan. 30, 2001
EMCO Turn Table	1060	1115	N/A
SHOSHIN Tower	AP-4701	A6Y005	N/A
Open Field Test Site	Site 5	ADT-R05	Aug. 08, 2001

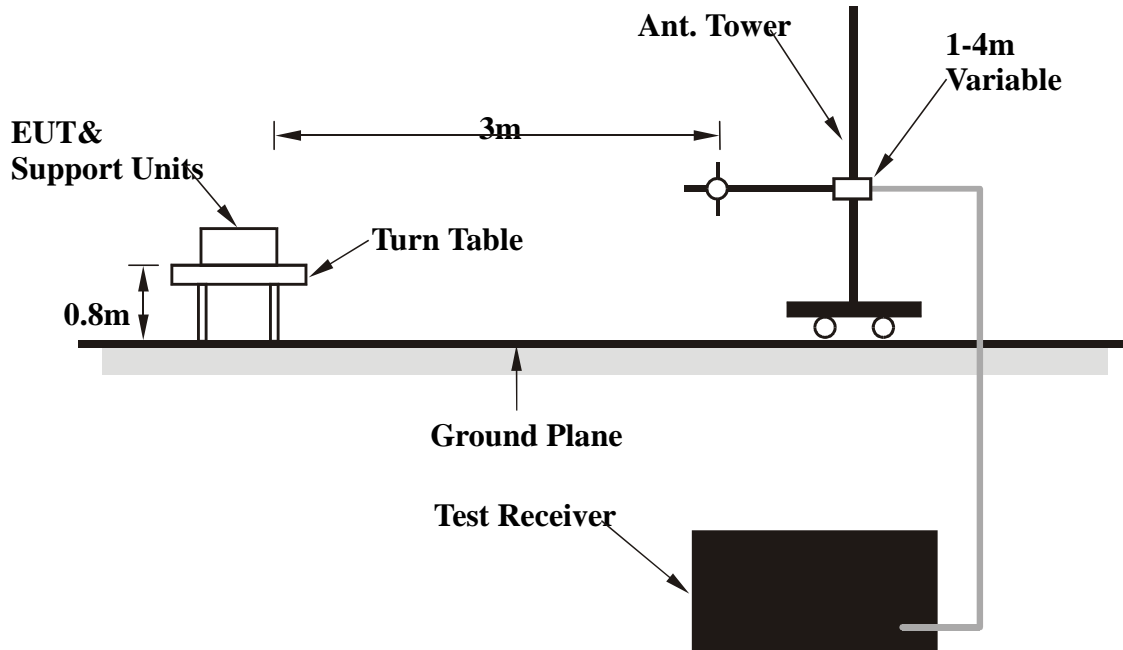
The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMAS document NIS81.



6.2.2 Test Procedures

- a. The EUT was placed on the turn table 0.8 meter above ground in 3 meter open area test site.
- b. Set the resolution bandwidth to 120KHz in the test receiver and select Peak function to scan the frequency below 1 GHz.
- c. Shift the interference-receiving antenna located in antenna tower upwards and downwards between 1 and 4 meters above ground and find out the local peak emission on frequency domain.
- d. Locate the interference-receiving antenna at the position where the local peak reach the maximum emission.
- e. Rotate the turn table and stop at the angle where the measurement device has maximum reading
- f. Shift the interference-receiving antenna again to detect the maximum emission of the local peak
- g. If the reading of the local peak under Peak function is lower than limit by 6dB, then Quasi Peak detection is not needed and this reading should be recorded. And if it is higher than Peak limit, then the test is fail. Others, switch the receiver to Quasi Peak function, set the resolution bandwidth to 100kHz and repeat the procedures C ~ F. If the reading is lower than limit, this reading should be recorded, otherwise, the test is fail.
- h. Set the resolution and video bandwidth of the spectrum analyzer to 1MHz and repeat procedures C ~ F for frequency band from 1 GHz to 10 times carrier frequency.
- i. If the reading for the local peak is lower than the Average limit, no further testing is needed in this local peak and this reading should be recorded. If it is higher than Average limit but lower than Peak limit, then set the resolution bandwidth to 1MHz and video bandwidth to 300Hz. Repeat procedures C ~ F. If the maximum reading is lower than Average limit, then this reading should be recorded. If it is higher, then the test is fail.

6.2.3 Test Setup



6.2.4 Photograph of Test Setup





6.2.5 EUT Operating Condition

1. Place the EUT on the turn table.
2. Connect antenna with antenna port if needed.
3. Power on.
4. Prepare the same setup as above, but place it outside testing area.
5. Send data to EUT (on the turn table) by command "PIN".
6. The linkage of these two PC have been established when the address of the other PC is shown on the monitor.
7. Rotate the turn table and scan the antenna mast to detect the maximum emission.

6.2.6 Climate Condition

The temperature and related humidity is 20Degree C and 70%.



6.2.7 Test Results

6.2.7.1 Digital Portion

Channel:11 ANTENNA POLARITY: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
396.00	8.32	22.98	31.3	46.0	-14.7	166	83
440.01	7.80	29.10	36.9	46.0	-9.1	116	29
484.01	6.80	26.40	33.2	46.0	-12.8	175	324
528.04	6.29	31.11	37.4	46.0	-8.6	141	47
572.00	6.01	28.19	34.2	46.0	-11.8	150	333
748.50	3.98	31.12	35.1	46.0	-10.9	113	76

- Remarks:**
1. **Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).**
 2. **Correction Factor (dB) = Ant. Factor (dB)+Cable loss (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**



Channel:11 ANTENNA POLARITY: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
220.22	14.59	14.41	29.0	46.0	-17.0	99	246
307.99	11.08	21.82	32.9	46.0	-13.1	99	175
351.99	9.75	22.95	32.7	46.0	-13.3	99	81
440.02	7.80	25.90	33.7	46.0	-12.3	148	238
528.04	6.29	31.41	37.7	46.0	-8.3	102	314
748.51	3.98	29.62	33.6	46.0	-12.4	138	162

- Remarks:**
1. **Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).**
 2. **Correction Factor (dB) = Ant. Factor (dB)+Cable loss (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**



6.2.7.2 RF Portion

Channel 1 ANTENNA POLARITY: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2037.90	37.17	16.83	11.13	54.0	48.3	74.0	54.0	-20.0	-5.7	119	268
*2413.30	37.17	71.03	62.83	108.2	100.0	-	-	-	-	113	319
4076.70	43.12	8.08	-	51.2	-	74.0	54.0	-22.8	-	103	141
4824.70	43.86	7.64	-	51.5	-	74.0	54.0	-22.5	-	119	322

Channel 1 ANTENNA POLARITY: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2038.00	37.17	12.23	-	49.4	-	74.0	54.0	-24.6	-	99	257
*2412.00	37.17	73.03	65.23	110.2	102.4	-	-	-	-	120	0
4076.20	43.12	9.08	-	52.2	-	74.0	54.0	-21.8	-	103	96
4824.20	43.86	8.84	-	52.7	-	74.0	54.0	-21.3	-	116	247

- Remarks:**
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (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
 6. “ * “ : Fundamental Frequency



Channel 6 ANTENNA POLARITY: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2062.70	43.78	7.32	-	51.1	-	74.0	54.0	-22.9	-	103	110
*2437.60	43.78	64.02	72.82	107.8	116.6	-	-	-	-	101	291
4126.10	43.78	7.72	-	51.5	-	74.0	54.0	-22.5	-	102	288
4874.10	43.62	7.38	-	51.0	-	74.0	54.0	-23.0	-	99	156

Channel 6 ANTENNA POLARITY: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2063.00	37.17	18.83	9.83	56.0	47.0	74.0	54.0	-18.0	-7.0	116	335
*2437.0	37.17	72.33	68.03	109.5	105.2	-	-	-	-	115	314
4125.90	42.75	8.45	-	51.2	-	74.0	54.0	-22.8	-	116	27
4873.90	43.67	7.63	-	51.3	-	74.0	54.0	-22.7	-	106	321

- Remarks:**
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (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
 6. “ * “ : Fundamental Frequency



Channel 11 ANTENNA POLARITY: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2087.70	36.15	15.95	-	52.1	-	74.0	54.0	-21.9	-	100	316
*2463.60	36.43	72.07	64.17	108.5	100.6	-	-	-	-	101	216
4175.70	36.44	15.26	-	51.7	-	74.0	54.0	-22.3	-	102	140
4924.00	36.44	14.76	-	51.2	-	74.0	54.0	-22.8	-	102	214

Channel 11 ANTENNA POLARITY: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2088.00	43.12	9.18	-	52.3	-	74.0	54.0	-21.7	-	102	315
*2462.50	43.12	72.28	64.18	115.4	107.3	-	-	-	-	102	202
4176.00	43.12	8.28	-	51.4	-	74.0	54.0	-22.6	-	102	292
4924.00	43.37	7.73	-	51.1	-	74.0	54.0	-22.9	-	99	190

- Remarks:**
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (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
 6. " * " : Fundamental Frequency

6.3 6dB Bandwidth Measurement

6.3.1 Test Instruments

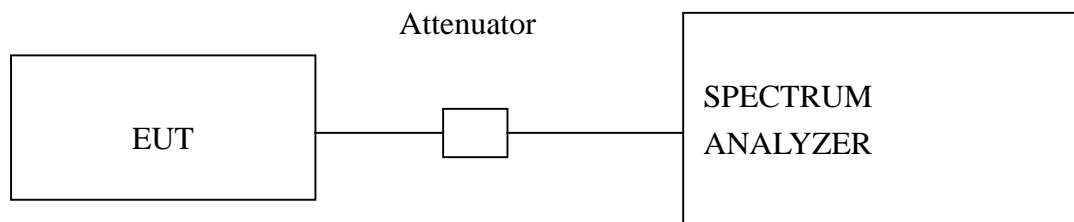
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	846839/018 848926/005	Mar. 03, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7475A	2641V27755	N/A

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

6.3.2 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 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum whose power is larger than peak power minus 6 dB.

6.3.3 Test Setup



6.3.4 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



6.3.5 Climate Condition

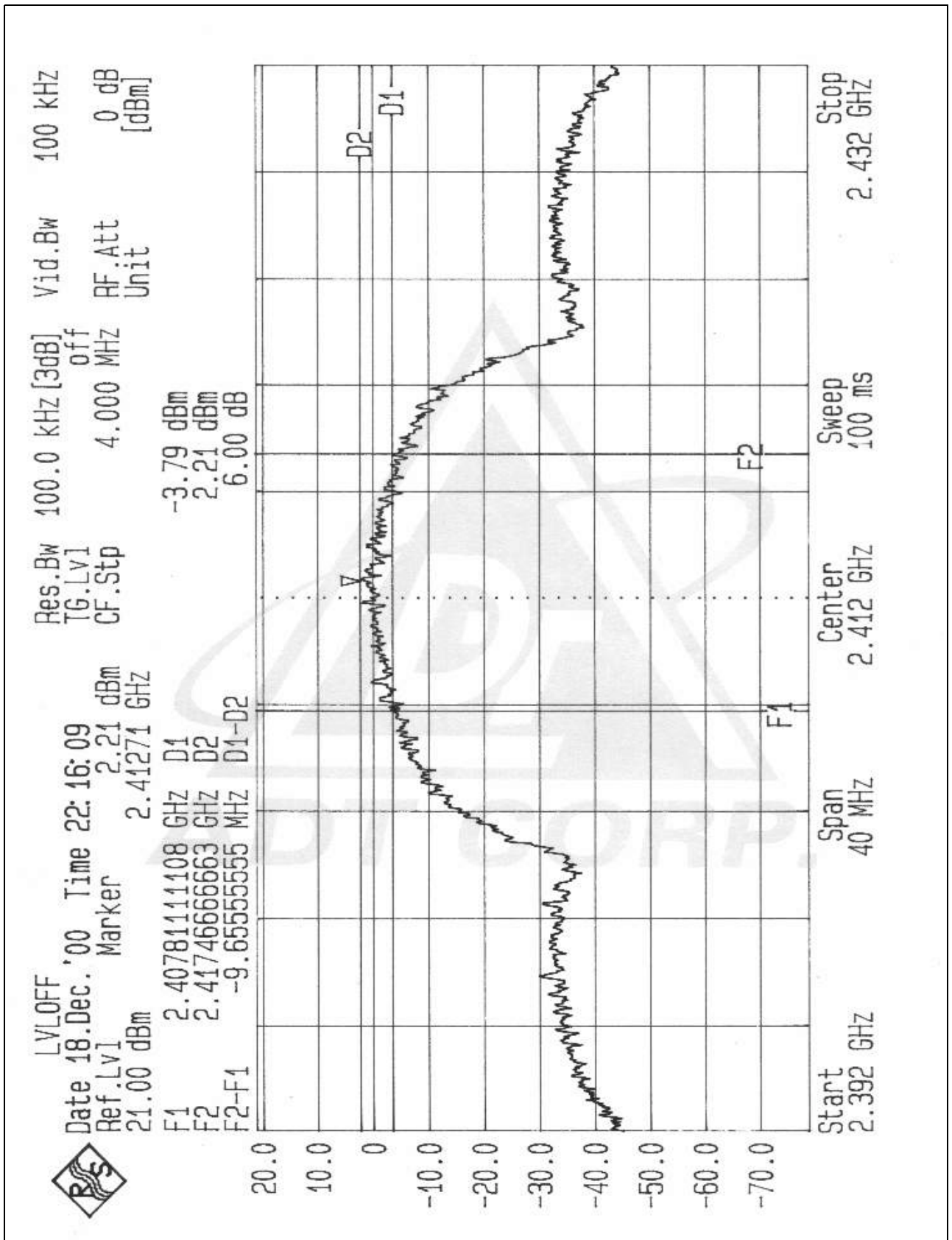
The temperature and related humidity is 18Degree C and 78%.

6.3.6 Test Results

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.66	0.5	PASS
6	2437	10.49	0.5	PASS
11	2462	10.47	0.5	PASS

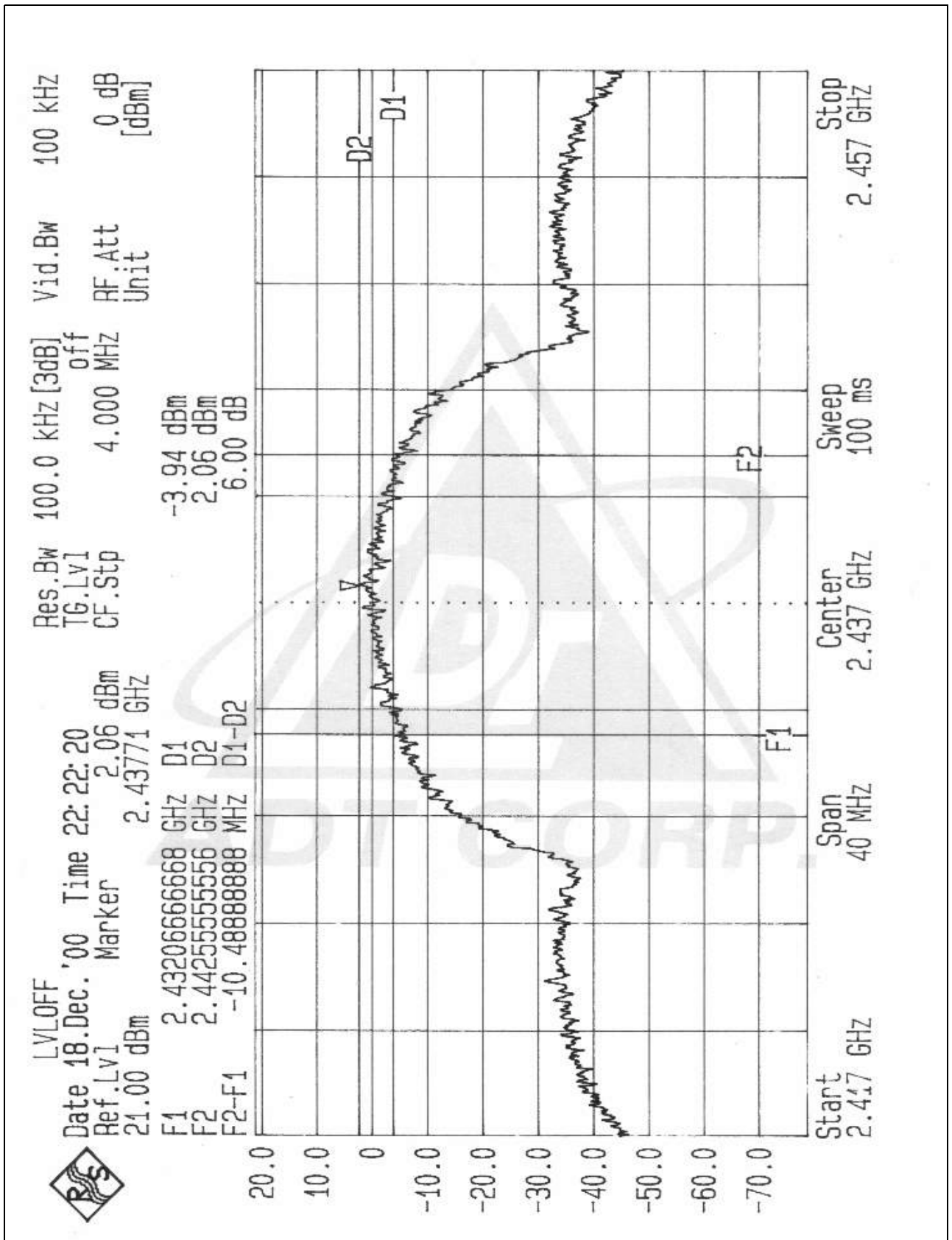


CH1





CH6





CH11

