

**Test Report
Application for Certification
On Behalf Of
First International Computer Inc.
Notebook Computer**

**Model: Ruby 2.0 / DESIGNote 56XXXX /
DESIGNote 6 / 56XXXX / Legend 66 / StepNote SR /
friend V / Soliton / Soleil / AL300 Pentium II Model /
AL300 Pentium Model / CN600xxxxyyyzzz / ActionBook**

FCC ID: EUNDESIGNOTE56

**Prepared For:
First International Computer Inc.
6F., Formosa Plastics Rear Bldg 201, Tung-Hwa N. Road,
Taipei, Taiwan, R.O.C.**



**Report By : Global EMC Standard Tech. Corp.
No.3 Pau-Tou-Tsuo Valley, Chia-Pau
Tsuen, Lin Kou Hsiang, Taipei County,
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Tel : (02) 2603-5321
Fax : (02) 2603-5325**

Test results given in this report only relate to the specimen(s) tested, calibrated or measured.
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GTA98-F021

1. Test Report Certification

Applicant : First International Computer Inc.

Manufacturer : First International Computer Inc.

EUT Description : Notebook Computer

(A) Model No. : Ruby 2.0
(B) Serial No. : N/A
(C) Power : 110V/60Hz
(D) Rating DC-O/P : 20V

MEASUREMENT PROCEDURE / STANDARD USED :

- ☒ CFR 47, Part 15 Radio Frequency Device Subpart B Unintentional Radiators Class B :1996
☐ CISPR 22 Limits and methods of measurement of radio disturbance characteristics of information technology equipment: 1993
☒ ANSI C63.4 Methods of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9kHz to 40GHz. :1992

THE MEASUREMENT SHOWN IN THE ATTACHMENT WERE MADE IN ACCORDANCE WITH THE PROCEDURES INDICATED, AND THE MAXIMUM ENERGY EMITTED BY THE EQUIPMENT WAS FOUND TO BE WITHIN THE ABOVE LIMITS APPLICABLE.



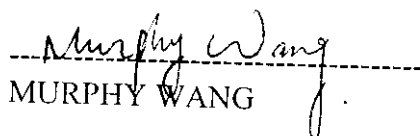
Sample Received Date : Oct. 09, 1998

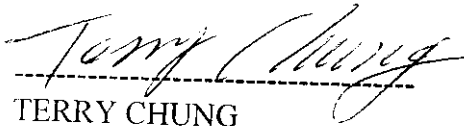
Final Test Date : Nov. 04, 1998

Documented by : May Tseng

Test Engineer :

Approve & Authorized Signer :


MURPHY WANG


TERRY CHUNG

This test data shown below is traceable to National or international standard such as NIST/USA, etc.
The laboratory's NVLAP accreditation in no way constitutes or implies product certification, approval, or endorsement by NVLAP or the United States government.

2. General Information

2.1 Production Description

Description : Notebook Computer
 Model Number : Ruby 2.0
 Serial Number : N/A
 Condition : Prototype
 Applicant : First International Computer Inc.
 Address : 6F., Formosa Plastics Rear Bldg 201, Tung-Hwa N. Road,
 Taipei, Taiwan, R.O.C.
 Manufacturer : First International Computer Inc.
 Address : 6F., Formosa Plastics Rear Bldg 201, Tung-Hwa N. Road,
 Taipei, Taiwan, R.O.C.
 CPU : Pentium 233/266/300MHz , Clock: 66/66/66MHz
 Power Adaptor : Delta, M/N: ADP-50MB, S/N: W882100083
 AC-100~240V 1.5A/50-60Hz, DC O/P: 20V 2.8A
 Power Cord : 1.8m, Non-shielded

2.2 Results:

2.2.1 The EUT(s) met the FCC Part 15 Class B requirements.

The Worst Emission data was found as following,

	Worst Emission Frequency (MHz)	Emission Level	Limit	Height of Antenna, Angel of Turntable
Conduction Mode 2	3.68269	38.9 dBuV Line 2	48 dBuV	N/A
Radiation Mode 5	307.912	43.67[dB(uV/m)], Vertical	46 [dB(uV/m)],	2 M, 130°

G7K98 F021

2.2.2 Test Mode:

Mode 1			
1.	CPU Module	Intel	MMCI-MP II 300
2.	Panel 13.3" TFT	Samsung	LT133X5-122
3.	6.4GB HDD	IBM	DADA-26480
4.	FDD	NEC	FD-1238T-018
5.	CD ROM 24X	TEAC	CD-224EA-93
6.	Li-ion Battery	Panasonic	2800mAh / 14.4V(2P4S)
Resolution: 1024x768, H-sync 56KHz, V-sync 75Hz, non-interlaced.			
Mode 2			
1.	CPU Module	Intel	MMCI-MP II 300
2.	Panel 13.3" TFT	Sanyo	TM133XG-02L02
3.	6.4GB HDD	Toshiba	MK6409MAV
4.	FDD	NEC	FD-1238T-018
5.	CD ROM 24X	Toshiba	XM-1802B
6.	Li-ion Battery	Panasonic	2800mAh / 14.4V(2P4S)
Resolution: 1024x768, H-sync 56KHz, V-sync 75Hz, non-interlaced.			
Mode 3			
1.	CPU Module	Intel	MMCI-MP II 266
2.	Panel 12.1" DSTN	Panasonic	EDMGRB6KAF
3.	4.0GB HDD	Fujitsu	MHC2040AT
4.	FDD	Mitsubishi	MF355H-348MN
5.	DVD ROM Drive	MKE	SR-8171-B
6.	NiMH Battery	Panasonic	3800mAh / 9.6V
Resolution: 800x600, H-sync 48KHz, V-sync 75Hz, non-interlaced.			
Mode 4			
1.	CPU Module	Intel	MMCI-MP II 233
2.	Panel 12.1 TFT	LG	LP121S3
3.	3.2GB HDD	Hitachi	DK237A-32
4.	FDD	Mitsubishi	MF355H-348MN
5.	DVD ROM Drive	Toshiba	SD-C2102
6.	NiMH Battery	Panasonic	3800mAh / 9.6V
Resolution: 800x600, H-sync 48KHz, V-sync 75Hz, non-interlaced.			
Mode 5			
1.	CPU Module	Intel	MMCI-MP II 300
2.	Panel 13.3" TFT	Samsung	LT133X5-122
3.	6.4GB HDD	IBM	DADA-26480
4.	FDD	NEC	FD-1238T-018
5.	CD ROM 24X	TEAC	CD-224EA-93
6.	PORT BAR	FIC	Versa Note Portbar
7.	NiMH Battery	Panasonic	3800mAh / 9.6V
Resolution: 1024x768, H-sync 56KHz, V-sync 75Hz, non-interlaced.			

2.2.3 Note:

1. This Notebook computer can support different CPU/Clock frequency modes and can support different types of LCD panel. The test condition of 233, 266, 300MHz and all the components listed at section 2.3 were investigated. During the performance of the testing, peripherals were connected to all available ports. The data shown in this test report reflects the worst-case data for each frequency/video resolution.

2. Model Name Designation for Ruby 2.0 as following,

OEM	EMC	Win Logo
LEO	DESIGNote 56XXXX	DESIGNote 5600, DESIGNote 6800
FIC	56XXXX	5600
Generic	56XXXX	5600
INCA	Legend 66	Legend 66
Everex	StepNote SR	StepNote SR
Hyun Ju	friend V	friend V
Elonex	Soliton	Soliton
Legen	Soleil	Soleil
Mitsubishi	AL300 Pentium II Model AL300 Pentium Model	
DAEWOO	CN600xxxxyyyzzz	
UMAX	ActionBook	

GTK93-F021

2.3 Tested System Details

The FCC IDs/Types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

☒ Notebook PC (EUT)

No.	Category	Manufacturer	Model No.
1.	Panel 12.1 TFT	LG	LP121S3
2.	Panel 12.1" DSTN	Panasonic	EDMGRB6KAF
3.	Panel 13.3" TFT	Samsung	LT133X5-122
4.	Panel 13.3" TFT	Sanyo	TM133XG-02L02
5.	3.2GB HDD	Fujitsu	MHD2032AT
6.	3.2GB HDD	Hitachi	DK237A-32
7.	4.1GB HDD	Fujitsu	MHC2040AT
8.	4.1GB HDD	Hitachi	DK227A-41
9.	6.4GB HDD	IBM	DADA-26480
10.	6.4GB HDD	Toshiba	MK6409MAV
11.	Invertor(12.1")	Delta	
12.	Invertor(13.3")	Delta	
13.	Keyboard(US)	Jing-Mold	
14.	LAN	CIS	
15.	Fax/Modem	Askey	
16.	AC Adaptor	Delta	ADP-50MB
17.	CD ROM 24X	TEAC	CD-224EA-93
18.	CD ROM 24X	Toshiba	XM-1802B
19.	DVD ROM Drive	MKE	SR-8171-B
20.	DVD ROM Drive	Toshiba	SD-C2102
21.	CPU Module	Intel	MMCI-MP II 233
22.	CPU Module	Intel	MMCI-MP II 266
23.	CPU Module	Intel	MMCI-MP II 300
24.	FDD	Mitsubishi	MF355H-348MN
25.	FDD	NEC	FD-1238T-018
26.	NiMH Battery	Panasonic	3800mAh / 9.6V
27.	Li-ion Battery	Panasonic	2800mAh / 14.4V(2P4S)
28.	Glide Pad	ALPS	KGDDGQ941A
29.	PORT BAR	FIC	Versa Note Portbar

☒ Monitor M01-010

Model Number : SyncMaster 700p
Serial Number : H3MH903296Y
Manufacturer : SAMSUNG
FCC ID : A3LCGH760
BCIQ No. : 3872A230
Data Cable : Shielded, Undetachable, 1.2m
Power Cord : Non-Shielded, Detachable, 1.5m

☒ Keyboard K01-033

Model Number : KB-5923
Serial Number : 8060032215
FCC ID : E8HKB-5923
Manufacturer : TATUNG
BCIQ ID : 3862A177
Data Cable : Sheiled, Undetachable, 2.0 m

☒ Printer P01-011

Model Number : C2642A(DJ-400)
Serial Number : MY7951C4J5
FCC ID : B94C2642X
Manufacturer : HP
Data Cable : Shielded, Detachable, 1.5m
Adaptor & Power Cord : AC 110V, 60Hz To DC 30V
: Non-Shielded, Detachable, 1.8m

☒ Modem M03-011

Model Number : 1414
Serial Number : 960018041
FCC ID : IFAXDM1414
Manufacturer : ACEEX
Adaptor & Power Cord : Non-Shielded, Detachable, 1.8m
Data Cable : Shielded, Detachable, 1.5m

☒ Mouse(PS2) M02-027

Model Number : MUS3P
Serial Number :
FCC ID : JKGMUS3P01

Manufacturer : Tremon Enterprises Co., Ltd.
Data Cable : Shielded, Undetachable, 1.5m

☒ Microphone M04-011 ~ 018
Model Number : M02
Serial Number : N/A
FCC ID : N/A
Manufacturer : GALAXY
Data Cable : Non-Shielded, Undetachable, 1.2m

☒ Radio Receiver R02-010 ~ 014
Model Number : HS-GS162
Serial Number : LYJ1084567
FCC ID : N/A
Manufacturer : AIWA CO., LTD
Power Cord : N/A (Battery)

☒ Mouse(USB) M02-034
Model Number : M-UA34
Serial Number : LTC70500272
FCC ID : DZL211087
Manufacturer : LOGITECH
Data Cable : Shielded, Undetachable, 1.5m

☒ Telephone
Model Number : SPF-208
Serial Number : N/A
FCC ID : N/A
Manufacturer : Solomon
Data Cable : Non-Shielded, detachable, 2.0m

☒ Earphone E01-012~ 017
Model Number : FI-100HP
Serial Number : N/A
Manufacturer : SHINPO
Power Cord : N/A
Data Cable : Non-Shielded, Undetachable, 1.5 m

2.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-1992.

Radiated testing was performed at an antenna to EUT distance of 3 meters.

2.5 Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	22-26
Humidity (%RH)	25-75	50-60
Barometric pressure (mbar)	860-1060	950-1000

FCC Site Description : Aug. 10, 1995 /Aug. 25, 1998 File on
Federal Communication Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

NVLAP Lab Code : 200085-0
United States Department of commerce
National Institute of Standards and Technology
National Voluntary Laboratory Accreditation Program

Name of firm : Global EMC Standard Tech. Corp.

Site location : No. 3 Pau-Tou Valley, Chia-Pau Tsuen, Lin Kou
Tsiang, Taipei Country, Taiwan, R.O.C.

3. Conducted Emission

3.1 Test Equipments

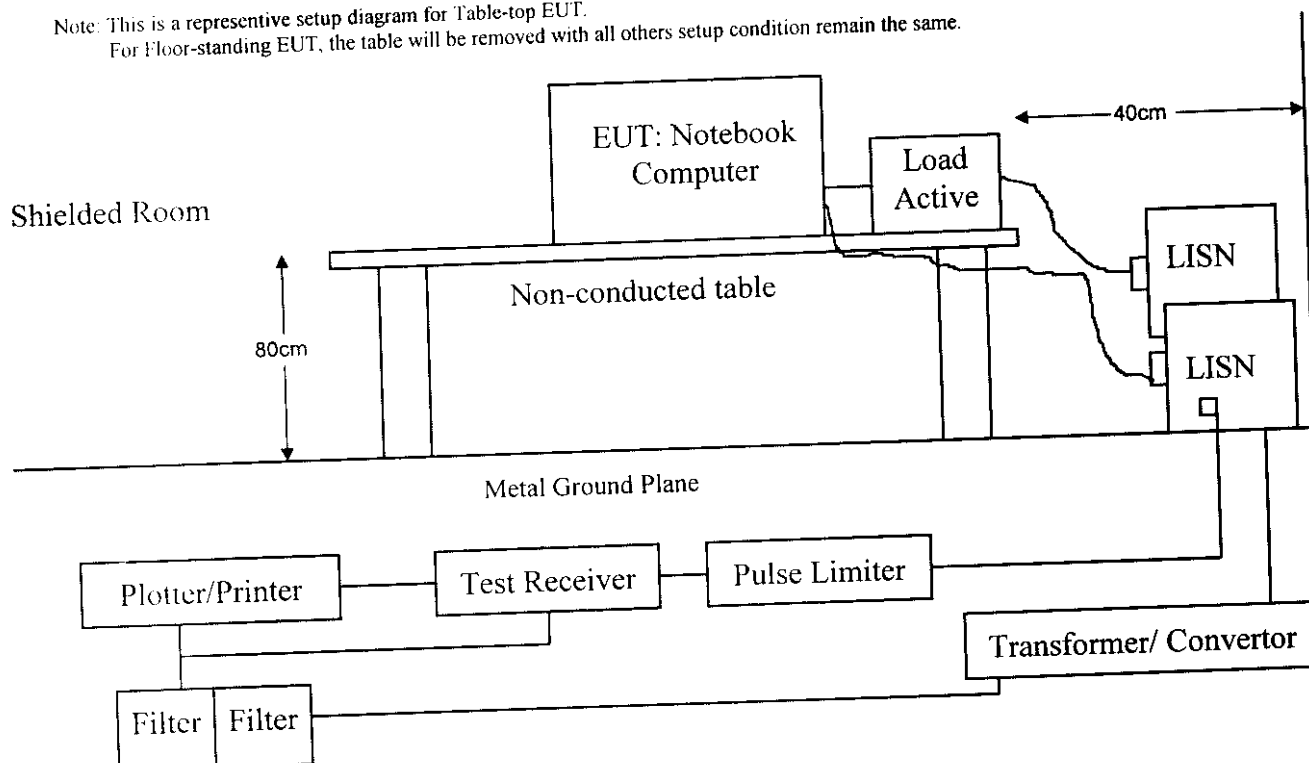
The following test equipments are used during the conducted power line tests:

Instrument	Manufacturer	Type /Serial No.	Last Calibration	Location	C.E.
Test Receiver	Rohde & Schwarz	ESHS 30 / 8281091010	Dec. 24, 1997	Shield Room #1	✓
L.I.S.N.	Kyoritsu	KNW-407	Oct.03,1998	Shield Room #1	✓
L.I.S.N.	Solar	8012-50-R24 / 90038	Jun. 02, 1998	Shield Room #1	
L.I.S.N.	EMCO	3825/2 / 91111-1902	Aug.10,1998	Shield Room #1	
L.I.S.N.	Rohde & Schwarz	ESH3-Z5 / 840567/002	Jun. 02, 1998	Shield Room #1	✓
L.I.S.N.	Schwarzbeck	NNLK 8121	Apr. 10, 1998	Shield Room #1	
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	Jan. 11, 1998	Shield Room #1	✓

3.2 Block Diagram of Test Setup

Note: This is a representative setup diagram for Table-top EUT.

For Floor-standing EUT, the table will be removed with all others setup condition remain the same.



3.3 Conducted Emission Limit

3.3.1 FCC Limits

Frequency	Maximum RF Line Voltage			
	Class A		Class B	
MHz	uV	dBuV	uV	dBuV
0.45 - 1.705	1000	60.0	250	48.0
1.705 - 30	3000	69.5	250	48.0

Remarks : 1. RF Line Voltage (dBuV) = $20 \log$ RF Line Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3.3.2 CISPR Limits

Frequency	Maximum RF Line Voltage dB(uV)			
	Class A		Class B	
MHz	QUASI-PEAK	AVERAGE	QUASI-PEAK	AVERAGE
0.15 - 0.50	79	66	66-56	56-46
0.50-5.0	73	60	56	46
5.0 - 30	73	60	60	50

Remarks : In the Above Table, the tighter limit applies at the band edges.

3.4 EUT Configuration on Measurement

The equipments which is listed 3.2 are installed on Conducted Power Line Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

The device under test, installed in a representative system as described in section 3.2, was placed on a non-conductive table whose total height equaled 80 CM. Powered from one LISN which signal output to receiver, and the other peripherals was powered from another LISN which signal output was terminated by 50Ω.

3.5 EUT Exercise Software

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to a typical use. The exercise sequence is listed as below:

- 3.5.1 Setup the EUT and simulators as shown on 3.2.
- 3.5.2 Turn on the power of all equipments.
- 3.5.3 Boot the PC from Hard Disk to windows 98, exercise EMI.EXE test program to active all devices.
- 3.5.4 Play CD Disk audio in windows environment, read HDD and FDD data.
- 3.5.5 PC sent "H" Pattern to Both LCD Panel And Ext. Monitor.
- 3.5.6 PC sent "H" Pattern to Parallel (printer) port.
- 3.5.7 PC sent "H" Pattern to Serial port.
- 3.5.8 Repeat 3.5.4 to 3.5.7

3.6 Conducted Emission Data

The measurement range of conducted emission which is from **0.45 MHz to 30 MHz** was investigated. All readings are quasi-peak and average values with a resolution Bandwidth of 9 KHz, unless otherwise noted. The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range for all the test modes. The two different lines were each measured separately, and the worst modes datas were reported on the following data pages. The final measurement equal to Receiver reading plus Correction factor if available. When LISN insertion loss bigger than 0.5dB then the receiver will add correction factor to reading level automatically.

The total uncertainty for this test is as follows:

- Uncertainty in the field strength measured: $< \pm 2.0$ dB

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

CONDUCTED EMISSION DATA

Date of Test	:	Oct. 28, 1998	Temperature	:	23.8 °C
EUT	:	Notebook PC	Humidity	:	56 %
Test Mode	:	Mode 1	Display Pattern	:	H Pattern

FREQUENCY	READING LEVEL				LIMIT
	LINE 1		LINE 2		
MHz	dBuV	uV	dBuV	uV	uV
0.47782	27.5	23.71	24.0	15.85	250
2.18471	25.0	17.78	25.2	18.20	250
**3.68854	33.8	48.98	34.7	54.33	250
4.91902	32.9	44.16	32.6	42.66	250
21.56064	29.9	31.26	29.1	28.51	250
24.97180	27.5	23.71	26.5	21.13	250

Remarks : 1. All readings are Quasi-peak.

2. “ ** ” means that this data is the worse case emission level.

3. Deviations from the specifications: None.

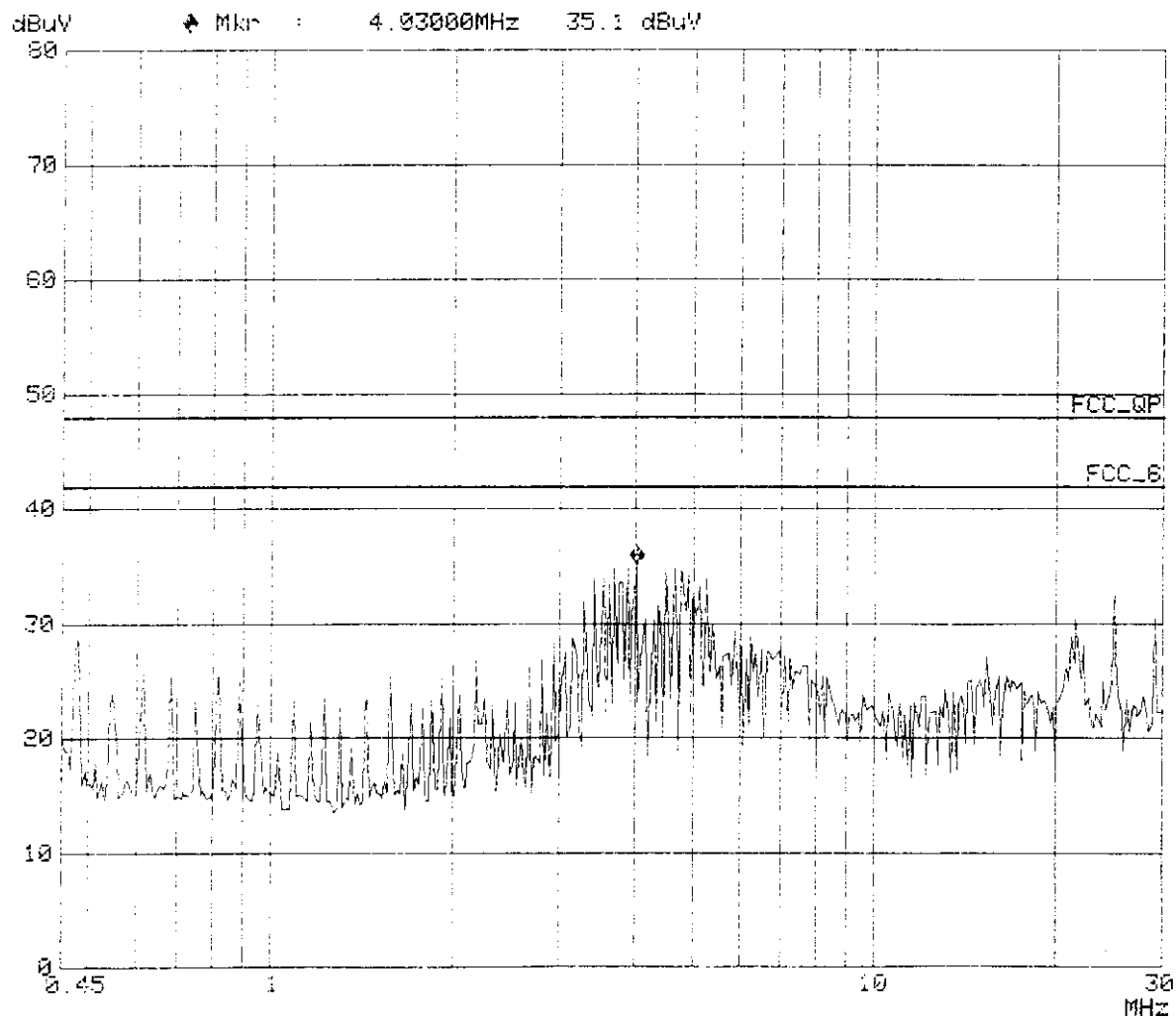
4. Final measurement = (Receiver reading) + (Correction factor if available)

Attached 2 individual pages of peak scan curve data sheets.

ROHDE & SCHWARZ ESHS 30

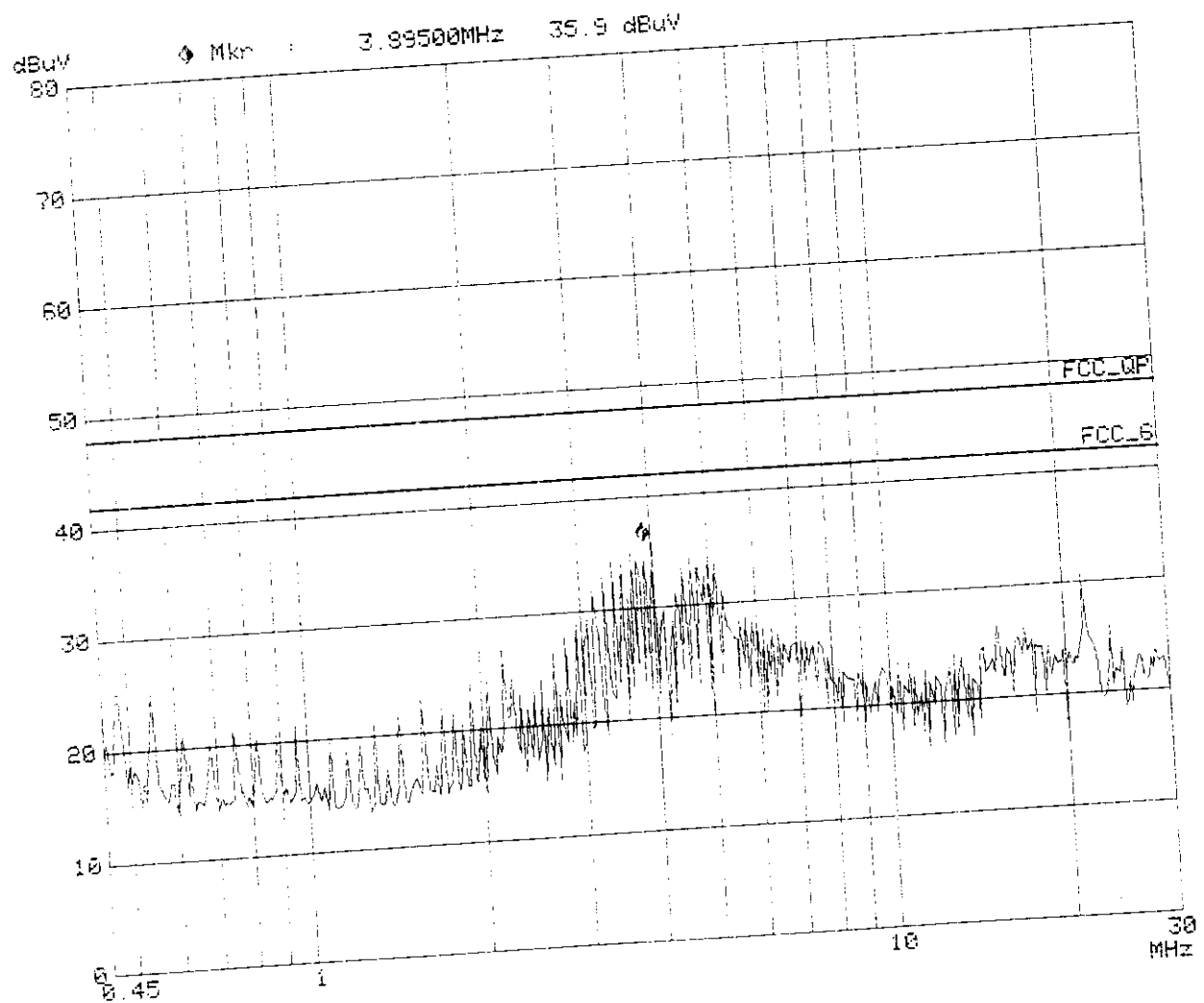
GesTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 1
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 1
M/N: RUBY 2.0
Date: 28. Oct 98 17:35



ROHDE & SCHWARZ ESHS 3C
GestTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 1
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 2
M/N: RUBY 2.0
Date: 28. Oct 98 17:40



CONDUCTED EMISSION DATA

Date of Test	:	Oct. 28, 1998	Temperature	:	23.8 °C
EUT	:	Notebook PC	Humidity	:	59 %
Test Mode	:	Mode 2	Display Pattern	:	H Pattern

FREQUENCY	READING LEVEL				LIMIT
	LINE 1		LINE 2		
	MHz	dBuV	uV	dBuV	
0.47705	26.9	22.13	27.6	23.99	250
1.70400	25.9	19.72	26.9	22.13	250
2.18058	29.4	29.51	31.5	37.58	250
**3.68269	38.2	81.28	38.9	88.10	250
4.70500	36.8	69.18	36.5	66.83	250
15.95951	25.4	18.62	26.9	22.13	250

Remarks : 1. All readings are Quasi-peak.

2. “ ** ” means that this data is the worse case emission level.

3. Deviations from the specifications: None.

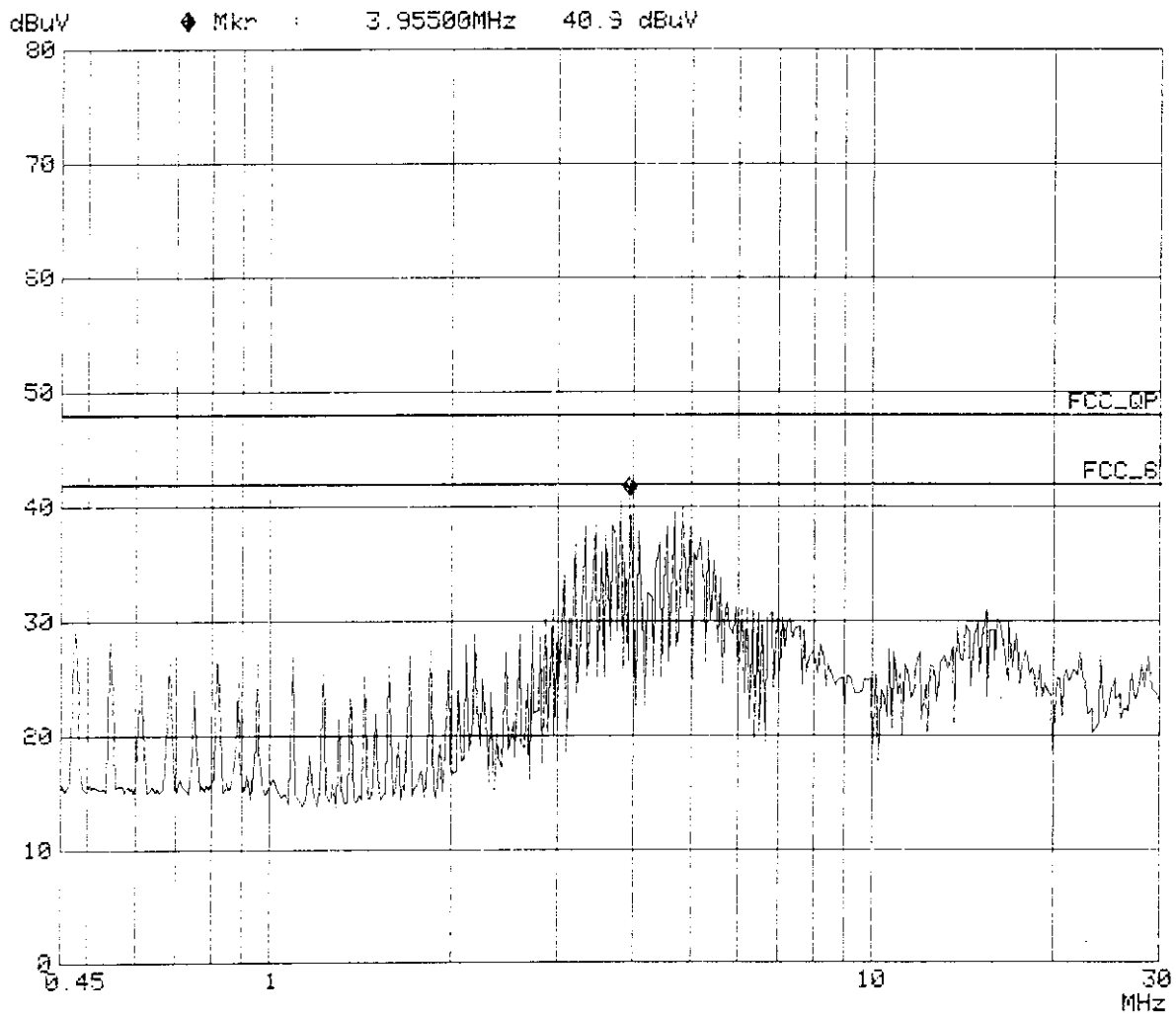
4. Final measurement = (Receiver reading) + (Correction factor if available)

Attached 2 individual pages of peak scan curve data sheets.

ROHDE & SCHWARZ ESHS 30

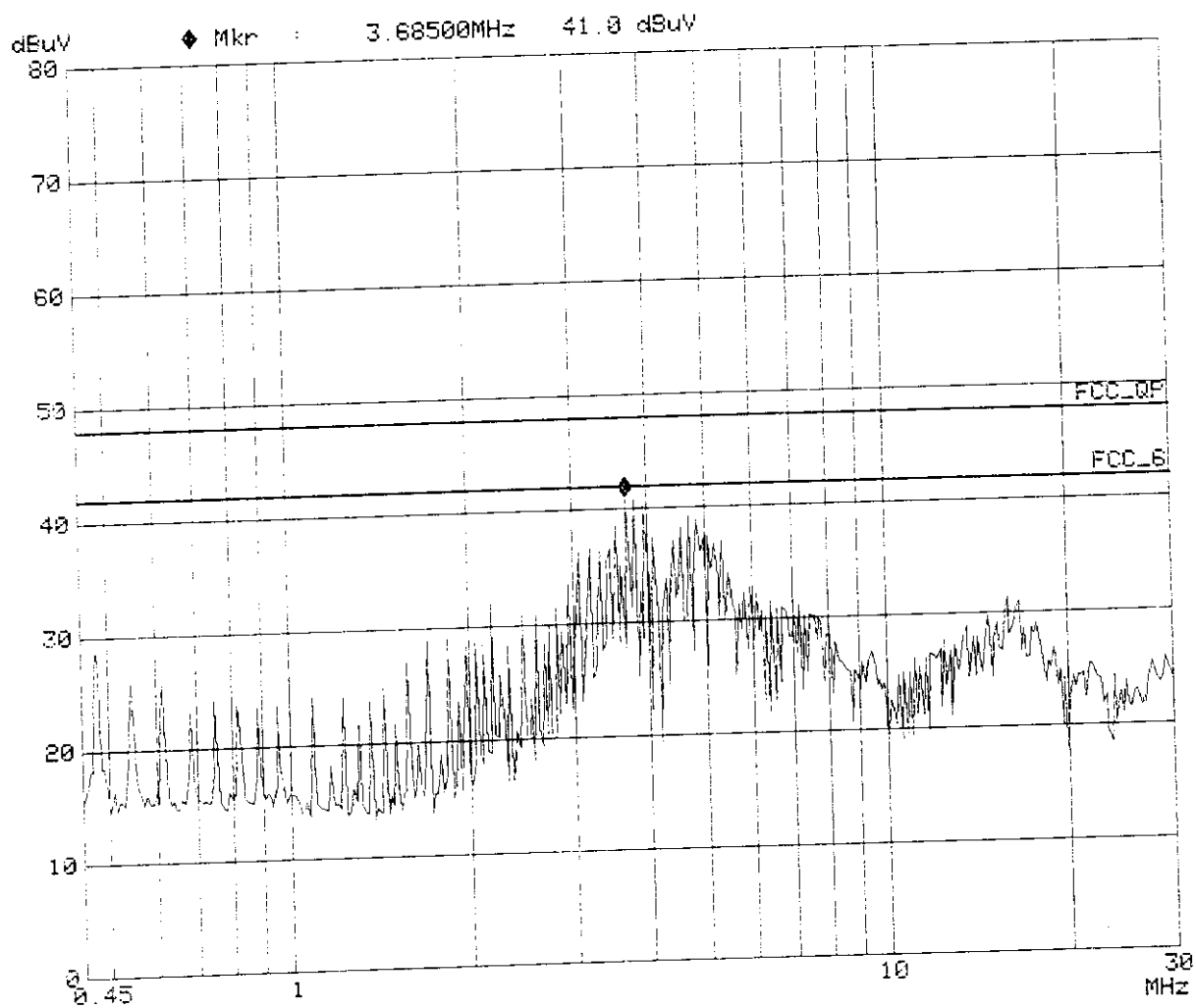
GesTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 2
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 1
M/N: RUBY 2.0
Date: 28. Oct 98 15:37



ROHDE & SCHWARZ ESHS 30
GesTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 2
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 2
M/N: RUBY 2.0
Date: 28. Oct 98 15:31



CONDUCTED EMISSION DATA

Date of Test	: Oct. 28, 1998	Temperature	: 24.1 °C
EUT	: Notebook PC	Humidity	: 61 %
Test Mode	: Mode 3	Display Pattern	: H Pattern

FREQUENCY	READING LEVEL				LIMIT
	LINE 1		LINE 2		
MHz	dBuV	uV	dBuV	uV	uV
0.47801	27.3	23.17	24.1	16.03	250
1.56993	24.9	17.58	22.2	12.88	250
4.29967	36.2	64.57	31.1	35.89	250
**4.64383	37.8	77.62	34.7	54.33	250
24.75711	36.5	66.83	36.2	64.57	250
27.24111	34.5	53.09	34.4	52.48	250

Remarks : 1. All readings are Quasi-peak.

2. " ** " means that this data is the worse case emission level.

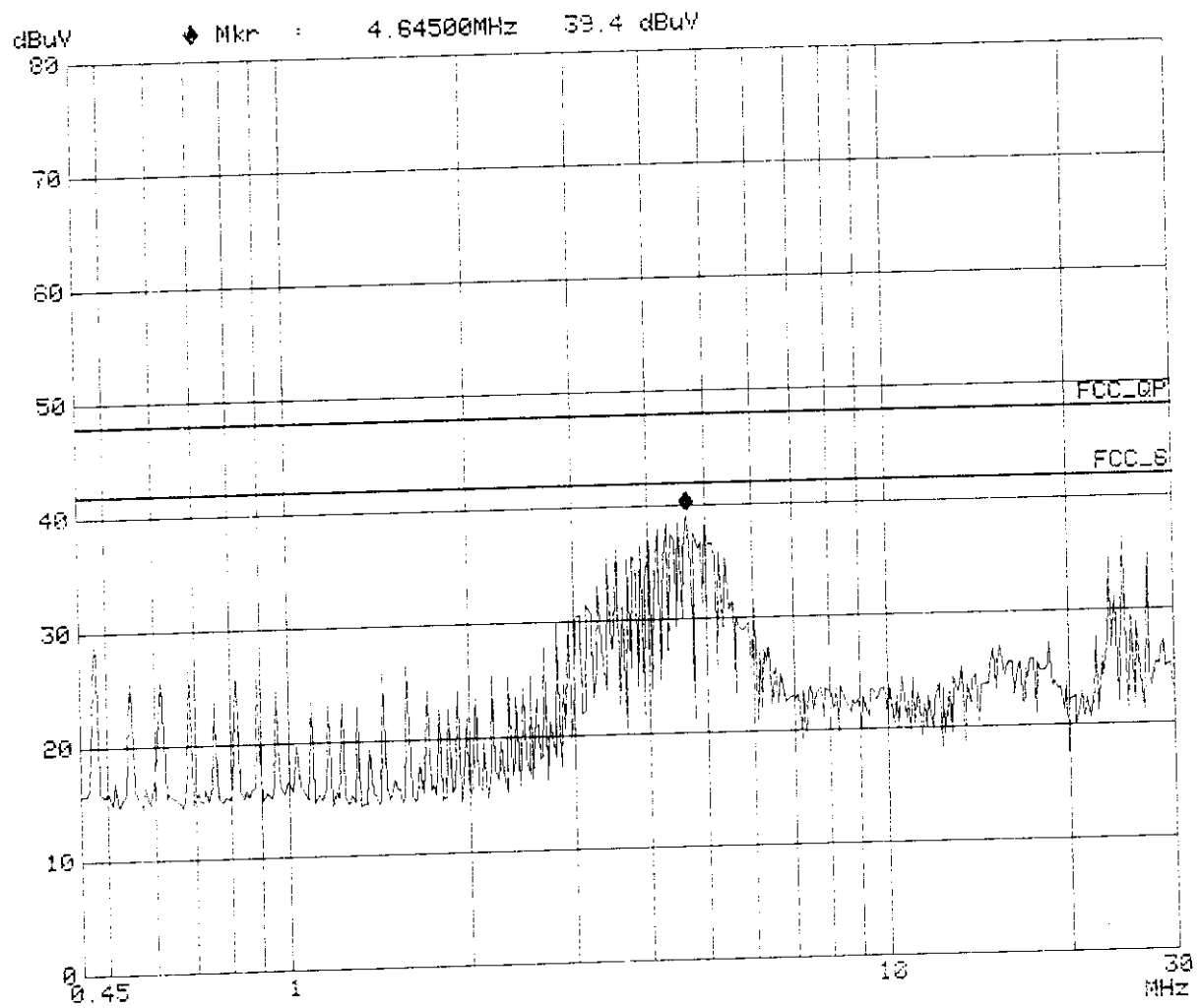
3. Deviations from the specifications: None.

4. Final measurement = (Receiver reading) + (Correction factor if available)

Attached 2 individual pages of peak scan curve data sheets.

ROHDE & SCHWARZ ESHS 30
GesTek, PowerLine Conducted Emission

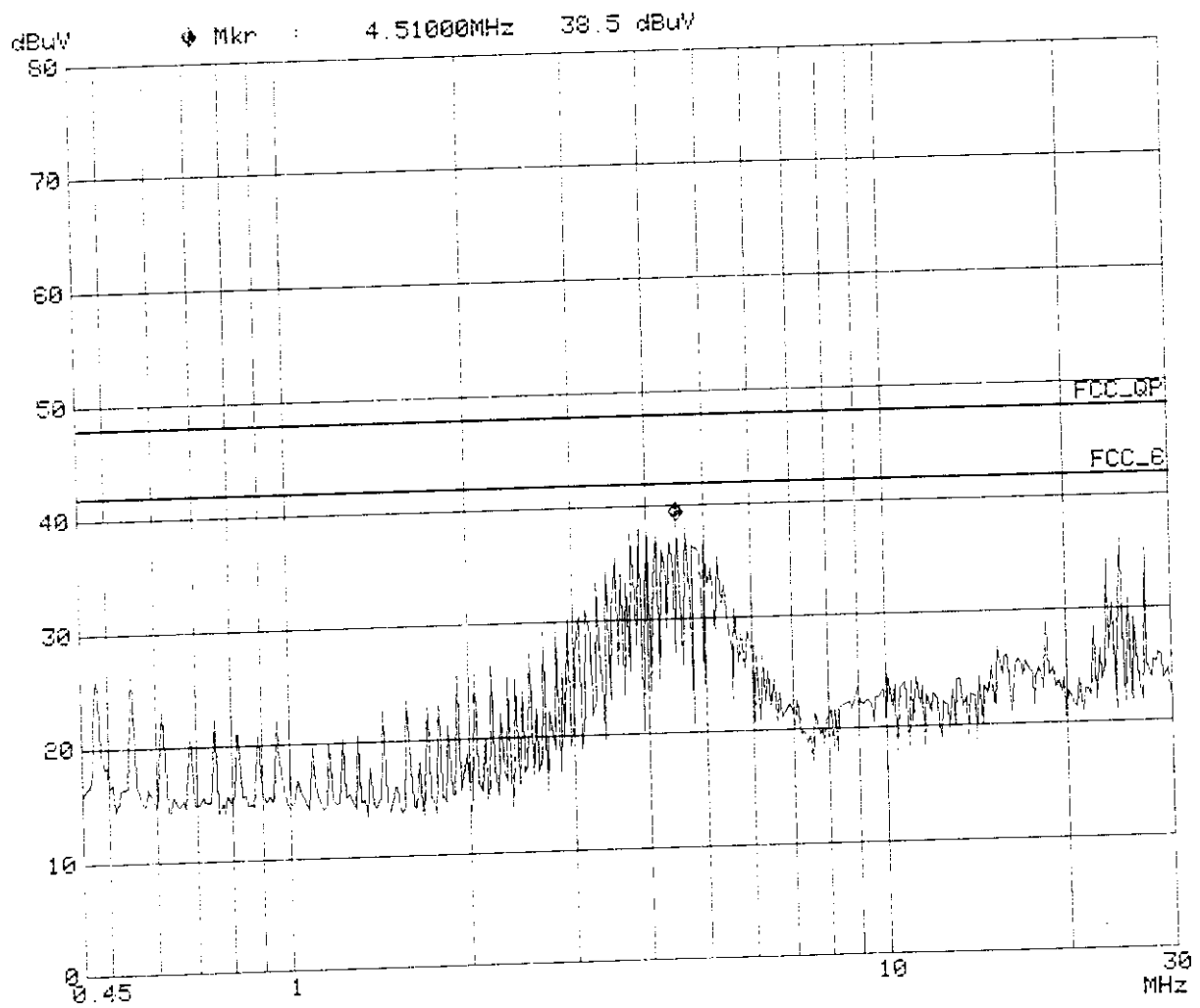
EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 3
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 1
M/N: RUBY 2.0
Date: 28. Oct 98 15:11



ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 3
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 2
M/N: RUBY 2.0
Date: 28. Oct 98 15:17



CONDUCTED EMISSION DATA

Date of Test	:	Oct. 28, 1998	Temperature	:	24.1 °C
EUT	:	Notebook PC	Humidity	:	57 %
Test Mode	:	Mode 4	Display Pattern	:	H Pattern

FREQUENCY	READING LEVEL				LIMIT
	LINE 1		LINE 2		
MHz	dBuV	uV	dBuV	uV	uV
0.54056	24.3	16.41	25.6	19.05	250
**2.18267	26.2	20.42	38.2	81.28	250
3.20627	30.9	35.08	32.3	41.21	250
3.82100	34.2	51.29	36.8	69.18	250
4.91520	33.1	45.19	36.7	68.39	250
16.00015	28.9	27.86	30.8	34.67	250

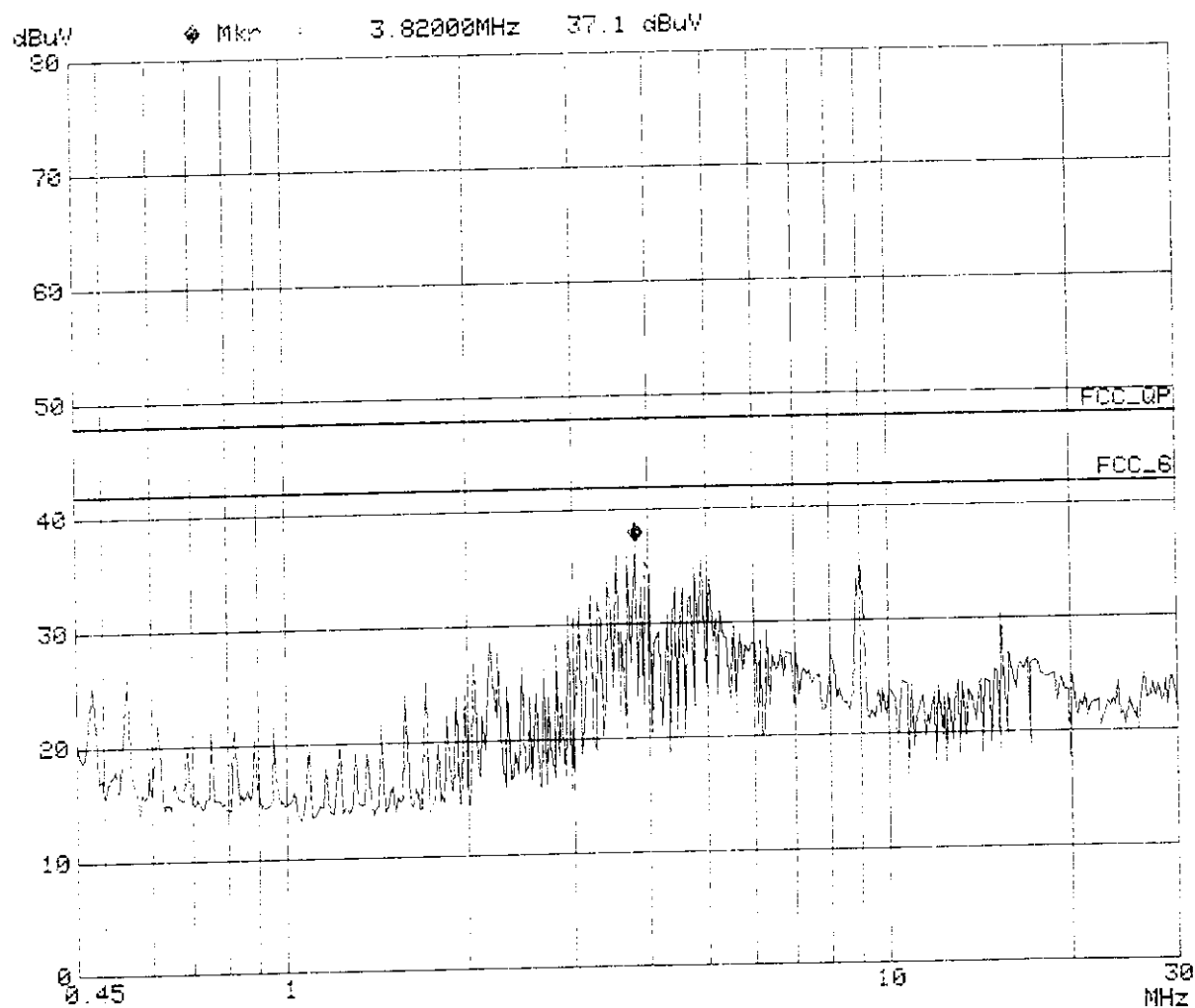
- Remarks :
1. All readings are Quasi-peak.
 2. " ** " means that this data is the worse case emission level.
 3. Deviations from the specifications: None.
 4. Final measurement = (Receiver reading) + (Correction factor if available)

Attached 2 individual pages of peak scan curve data sheets.

ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

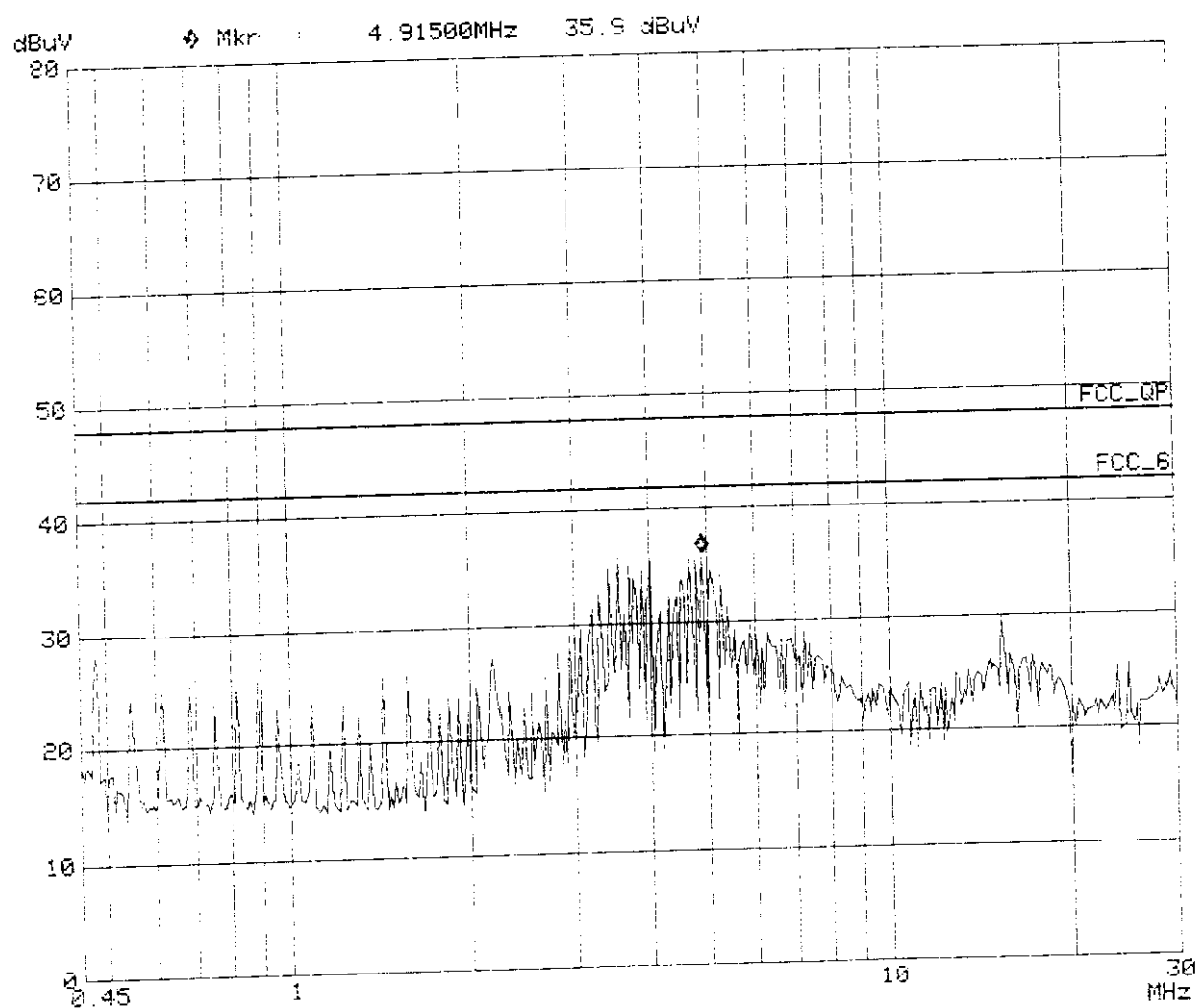
EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 4
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 1
M/N: RUBY 2.0
Date: 28. Oct 98 17:10



ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 4
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 2
M/N: RUBY 2.0
Date: 28. Oct 98 17:16



CONDUCTED EMISSION DATA

Date of Test	:	Oct. 28, 1998	Temperature	:	23.0 °C
EUT	:	Notebook PC	Humidity	:	56 %
Test Mode	:	Mode 5	Display Pattern	:	H Pattern

FREQUENCY		READING LEVEL			LIMIT
		LINE 1		LINE 2	
MHz		dBuV	uV	dBuV	uV
0.47758		27.8	24.55	25.2	18.20
1.43460		24.8	17.38	21.3	11.61
3.62501		31.5	37.58	32.1	40.27
**3.89648		35.2	57.54	35.1	56.89
4.98954		33.9	49.55	32.4	41.69
16.00015		26.2	20.42	26.1	20.18

Remarks : 1. All readings are Quasi-peak.

2. “ ** ” means that this data is the worse case emission level.

3. Deviations from the specifications: None.

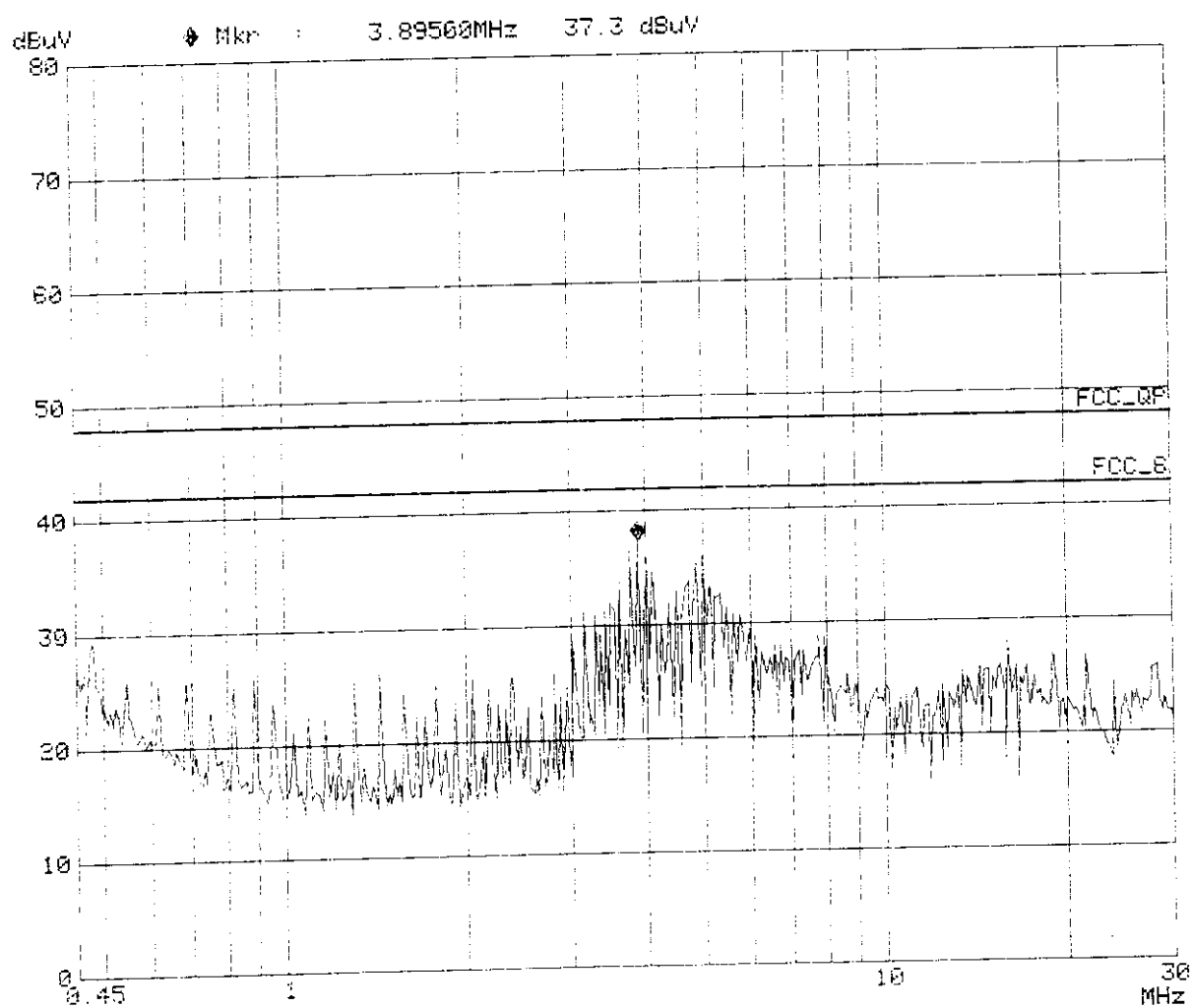
4. Final measurement = (Receiver reading) + (Correction factor if available)

Attached 2 individual pages of peak scan curve data sheets.

ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

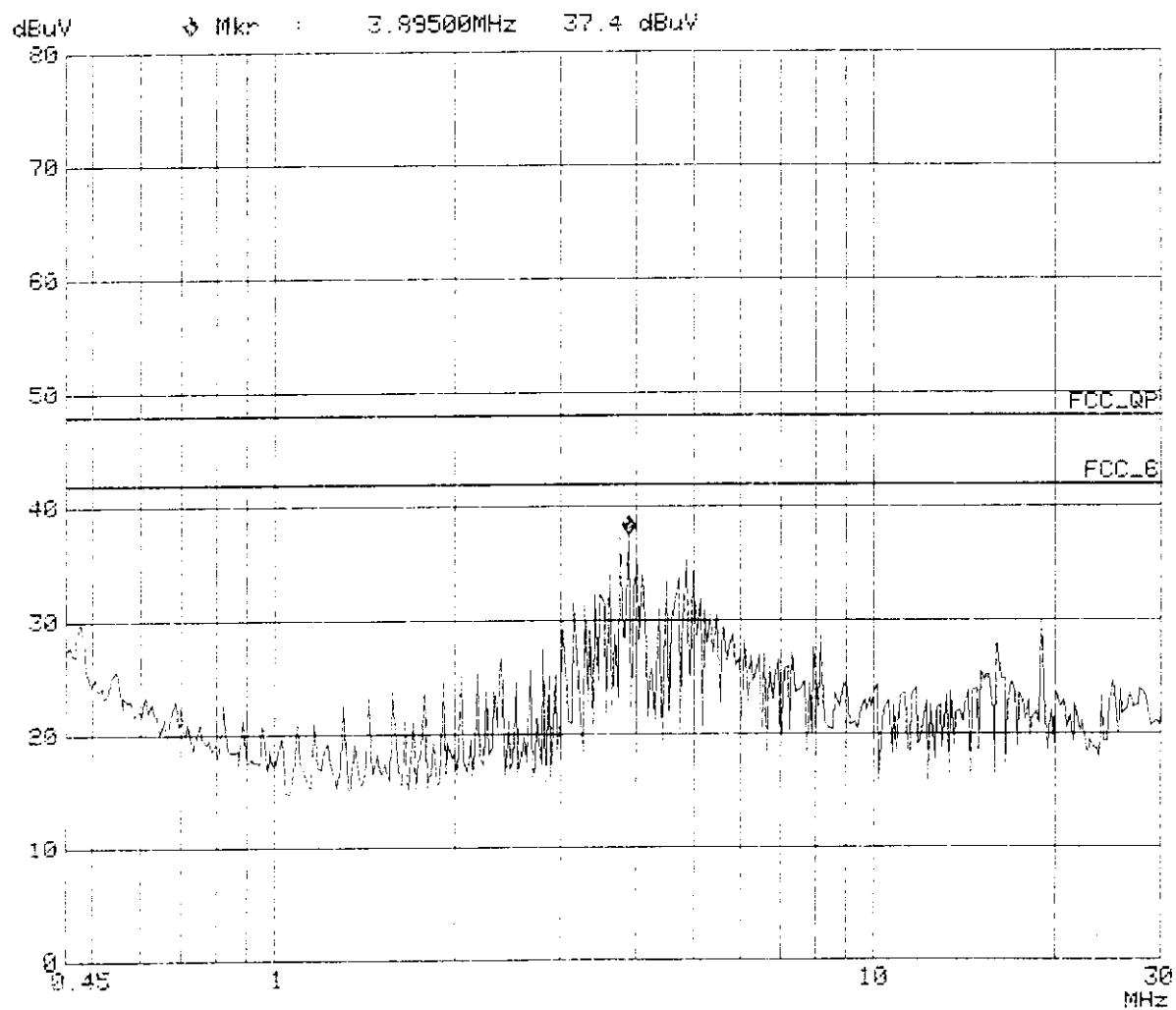
EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 5
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 1
M/N: RUBY 2.0
Date: 28. Oct 98 19:31



ROHDE & SCHWARZ ESHS 30

GesTek, PowerLine Conducted Emission

EUT: NOTEBOOK
Manuf: FIC
Op Cond: MODE 5
Operator: IVAN
Test Spec: FCC CLASS B
Comment: Line 2
M/N: RUBY 2.0
Date: 28. Oct 98 19:36



4. Radiation Emission Test

4.1 Test Equipment

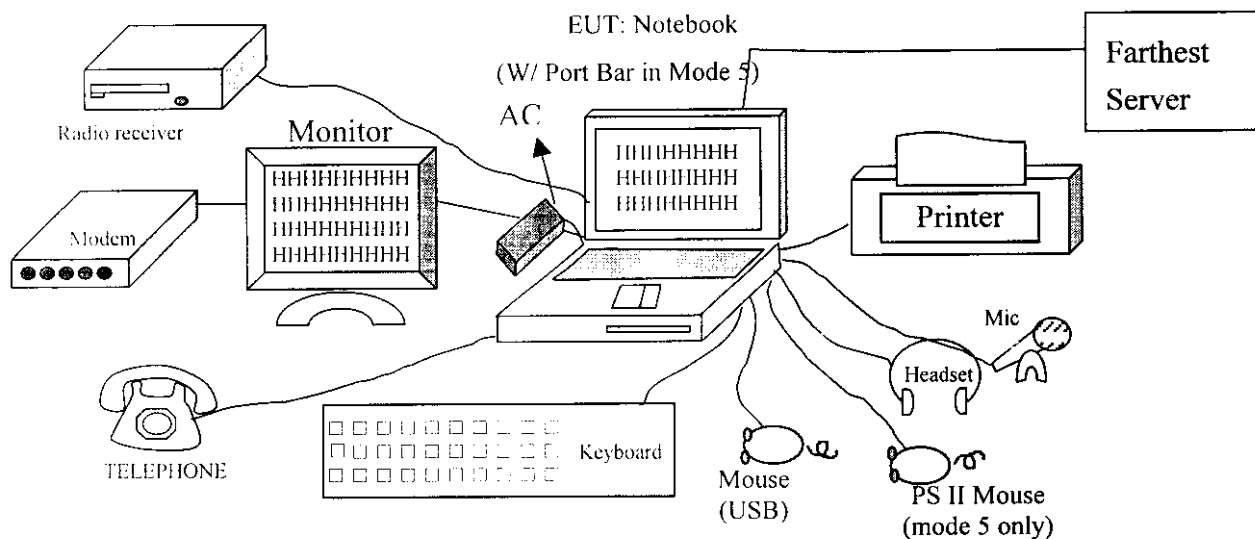
The following test equipments are used during the radiated emission measures:

Radiated test was performed on : ☐ Site #1 ☒ Site #2

Instrument	Manufacturer	Type /Serial No.	Last Calibration	Site #1	Site #2
Test Receiver	Rohde & Schwarz	ESVS 30/829007/014	Nov. 15,1997	✓	
Spectrum Analyzer	Anristu	MA2601B/MT16442	Jun. 15,1998	✓	
Pre-Amplifier	HP	7447F/3113A04998	Nov. 16,1997	✓	
Test Receiver	Rohde & Schwarz	ESVS 10/8421122/001	Dec. 26,1997		✓
Spectrum Analyzer	HP	8568B/4315B05847	Jan. 05,1998		✓
Pre Amplifier	HP	8447D/3113A04487	Jan. 05,1998		✓
Antenna 30Mhz-2Ghz	Chase	CBL 6112/2039	May. 16,1998	✓	
Bilog Antenna	Chase	CBL6111/1380	May. 16,1998		✓
Dipole Antenna	Schwarzbeck	VHAP/719,UHAP/736	May.19,1998		

4.2 Test Setup

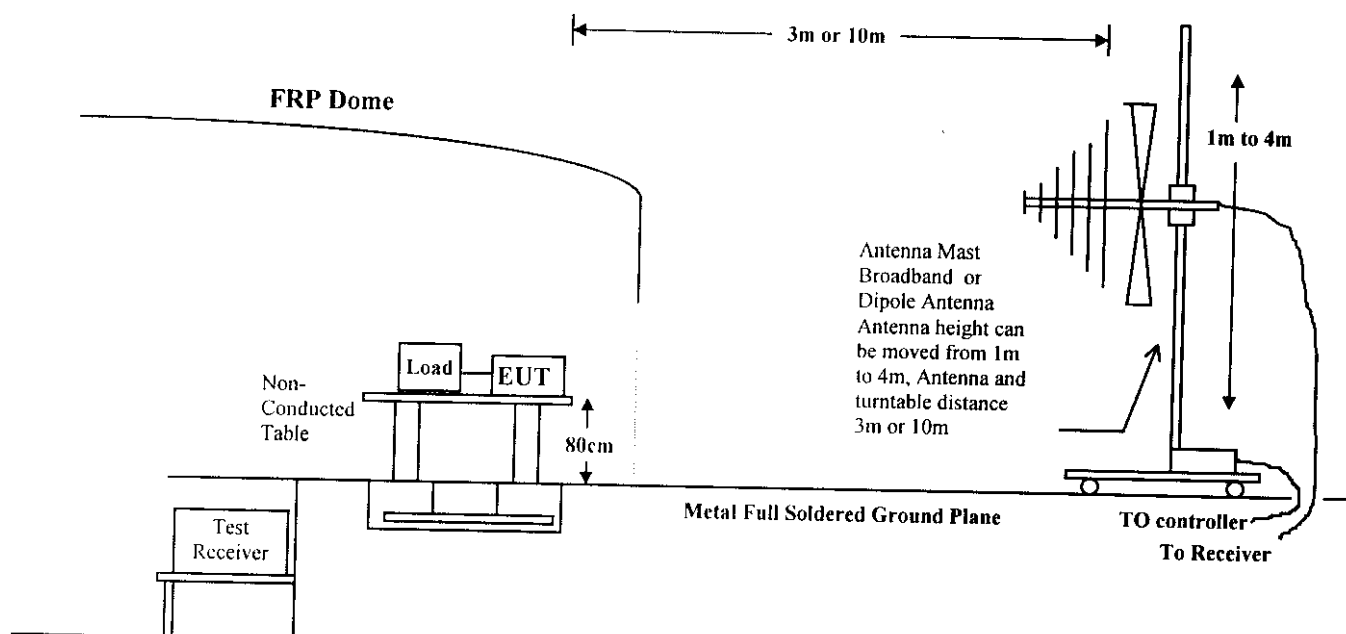
4.2.1 Block Diagram of Connections between EUT and simulators



4.2.2 Open Test Site Setup Diagram

Note: This is a representative setup diagram for Table-top EUT.

For Floor-standing EUT, the table will be removed with all others setup condition remain the same.



4.3 Radiated Emission Limit

4.3.1 FCC Class B Limits at 3m

Frequency	Distance	Field Strength	
MHz	Meter	$\mu\text{V/M}$	$\text{dB}\mu\text{V/M}$
30 - 88	3	100	40.0
88 - 216	3	150	43.5
216 - 960	3	200	46.0
960 - 2000	3	500	54.0

4.3.2 CISPR Class B Limits at 10m

Frequency	Distance	Field Strength
MHz	Meter	$\text{dB}(\mu\text{V/M})$
30 - 230	10	30
230 - 1000	10	37

Remark :

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4 EUT Configuration

The equipments which is listed 2.3 are installed on Radiated Emission Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

The device under test, installed in a representative system as described in section 4.2.2, was placed on a non-conductive table whose total height equaled 80 CM. This table can be rotated 360 degree. The measurement antenna was mounted to a non-conductive mast capable of moving the antenna vertically. Antenna height was varied from 1 meter to 4 meters and the system under test was rotated from 0 degree through 360 degrees relative to the antenna position and polarization (Horizontal and Vertical). Also the I/O cable position was investigated to find the maximum emission condition.

4.5 Operating Condition of EUT

Same as Conducted Power Line Test which is listed in 3.5.

4.6 Radiated Emission Data

Radiated emission were investigated over the frequency range of **30 MHz to 2 GHz**. All readings below 1GHz are quasi-peak values with a resolution Bandwidth of 120 KHz, unless otherwise noted. From 1-2GHz was investigated use both peak and average detector use bandwidth 1MHz. The initial step in collecting radiated emission data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes reading was measured use a test receiver and reported in the following data pages.

The total uncertainty for this test is as follows:

- Uncertainty in the field strength measured (3m antenna distance): $< \pm 4.0$ dB
- Uncertainty in the field strength measured (10m antenna distance): $< \pm 4.0$ dB

The uncertainty is calculated in accordance with NAMAS document NIS 81, and is given as 2 standard deviations.

Radiated Emission Data

Date of Test :10-09,1998 Fri Temperature :24.5 deg/C
 EUT :NOTEBOOK Humidity :61 %RH
 Working Cond.:MODE 1 Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
[MHz]	Loss	Factor	Horizontal	Horizontal	
	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
57.747	1.16	6.32	23.87	31.35	36.95 100
66.309	1.20	6.08	18.73	26.01	19.97 100
113.842	1.47	12.25	18.80	32.51	42.24 150
147.458	1.93	10.75	19.79	32.47	42.02 150
159.746	2.09	10.06	21.92	34.07	50.52 150
172.040	2.04	9.60	21.17	32.82	43.73 150
194.068	2.14	9.95	19.49	31.58	37.92 150
198.674	2.17	10.11	18.41	30.69	34.25 150
199.838	2.20	10.20	19.43	31.83	39.04 150
213.992	2.28	10.83	14.43	27.55	23.84 150
243.384	2.46	12.19	22.22	36.88	69.79 200
307.922	2.95	13.74	14.19	30.88	35.01 200
331.694	3.09	14.17	18.93	36.19	64.49 200
356.361	3.25	14.80	18.24	36.28	65.18 200
* 368.648	3.36	15.49	19.69	38.53	84.43 200
414.014	3.65	17.09	13.78	34.53	53.27 200
416.429	3.67	17.13	16.20	37.00	70.76 200
516.112	4.00	18.56	11.81	34.37	52.28 200
596.340	4.47	19.35	10.90	34.73	54.49 200

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 1

Display Pattern:H Pattern

Frequency [MHz]	Cable Loss [dB]	Antenna Factor [dB/m]	Reading Level Vertical [dB(uV)]	Emission Level Vertical [dB(uV/m)]	Limit (uV/m)	Limit (uV/m)
57.747	1.16	6.32	20.58	28.06	25.30	100
128.854	1.63	12.27	16.15	30.05	31.81	150
144.924	1.87	11.02	16.12	29.02	28.24	150
147.459	1.93	10.75	17.92	30.60	33.88	150
178.531	2.01	9.46	16.66	28.13	25.50	150
199.871	2.20	10.20	19.19	31.59	37.98	150
214.749	2.29	10.92	14.13	27.35	23.30	150
219.941	2.32	11.11	20.59	34.01	50.19	200
258.764	2.57	12.67	19.17	34.41	52.56	200
323.449	3.05	14.03	20.58	37.65	76.30	200
331.761	3.09	14.17	15.80	33.06	44.97	200
356.358	3.25	14.80	12.55	30.59	33.85	200
* 452.827	3.80	17.44	18.45	39.69	96.53	200
491.672	3.88	18.23	10.78	32.89	44.11	200
517.522	4.00	18.56	15.99	38.55	84.59	200
549.985	4.21	18.90	11.48	34.59	53.62	200
569.988	4.32	19.10	9.74	33.16	45.49	200
596.807	4.49	19.37	11.31	35.17	57.33	200
614.413	4.55	19.57	10.92	35.04	56.49	200
663.568	4.82	20.00	8.42	33.24	45.90	200
711.593	5.17	20.09	8.87	34.13	50.90	200
761.875	5.47	20.52	10.08	36.07	63.59	200

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri Temperature :24.5 deg/C
 EUT :NOTEBOOK Humidity :61 %RH
 Working Cond.:MODE 2 Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)
57.317	1.16	6.32	16.00	23.48	14.93
66.450	1.20	6.08	10.06	17.34	7.36
157.482	2.09	10.06	13.53	25.68	19.23
166.149	2.07	9.75	20.81	32.63	42.82
186.122	2.06	9.64	16.52	28.21	25.75
214.750	2.29	10.92	20.23	33.45	47.03
232.893	2.40	11.74	19.05	33.19	45.68
243.386	2.46	12.19	17.33	31.99	39.74
299.189	2.89	13.54	18.02	34.45	52.77
307.913	2.95	13.74	16.40	33.09	45.16
313.077	2.98	13.81	16.26	33.05	44.92
323.452	3.05	14.03	19.82	36.89	69.91
336.027	3.12	14.24	16.94	34.29	51.84
* 388.142	3.51	16.47	20.09	40.07	100.81
398.923	3.59	16.96	13.93	34.48	52.97
417.802	3.67	17.13	10.28	31.08	35.79
432.031	3.73	17.25	16.29	37.27	73.06
437.314	3.75	17.28	13.01	34.04	50.36
452.830	3.80	17.44	15.72	36.96	70.50
478.703	3.86	17.95	12.57	34.38	52.35
599.949	4.50	19.40	2.23	26.13	20.25
646.901	4.69	19.97	3.88	28.53	26.71

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 2

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Vertical	Vertical		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
69.873	1.20	6.20	12.68	20.08	10.09	100
166.025	2.07	9.75	15.39	27.21	22.94	150
172.039	2.04	9.60	13.73	25.38	18.57	150
178.536	2.01	9.46	18.10	29.57	30.09	150
194.076	2.14	9.95	13.48	25.57	18.98	150
198.766	2.17	10.11	8.96	21.24	11.54	150
209.607	2.26	10.65	12.07	24.98	17.74	150
214.750	2.29	10.92	14.19	27.41	23.46	150
221.189	2.33	11.20	13.34	26.87	22.06	200
232.899	2.40	11.74	16.97	31.11	35.95	200
258.761	2.57	12.67	12.62	27.86	24.73	200
298.366	2.89	13.54	13.01	29.44	29.64	200
323.456	3.05	14.03	17.02	34.09	50.65	200
336.021	3.12	14.24	13.62	30.97	35.37	200
362.274	3.29	15.09	9.90	28.28	25.95	200
388.140	3.51	16.47	20.63	40.61	107.28	200
426.959	3.71	17.20	12.49	33.40	46.79	200
* 452.831	3.80	17.44	21.11	42.35	131.12	200
466.955	3.83	17.75	11.26	32.85	43.90	200
516.111	4.00	18.56	12.68	35.24	57.79	200
646.905	4.69	19.97	5.41	30.06	31.86	200

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.

2.“ * ”, means this data is worse case emission level.

3.Emission Level = Reading Level + Antenna Factor + Cable loss

4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 3

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
55.717	1.12	6.60	25.28	33.00 44.67	100
61.893	1.20	5.96	27.95	35.11 56.94	100
66.563	1.20	6.08	21.34	28.62 26.97	100
82.820	1.40	8.01	15.91	25.32 18.45	100
120.273	1.51	12.90	19.66	34.07 50.55	150
134.418	1.72	11.80	15.11	28.63 26.99	150
157.494	2.09	10.06	21.76	33.91 49.60	150
* 166.463	2.07	9.75	27.88	39.70 96.64	150
183.918	2.04	9.56	26.54	38.14 80.69	150
198.104	2.17	10.11	25.91	38.19 81.23	150
212.211	2.27	10.74	23.02	36.03 63.34	150
232.157	2.39	11.65	23.00	37.04 71.14	200
240.029	2.44	12.01	25.90	40.35 104.12	200
265.754	2.63	12.85	21.10	36.58 67.44	200
297.100	2.87	13.50	23.11	39.48 94.18	200
331.781	3.09	14.17	20.06	37.32 73.45	200
348.004	3.19	14.45	13.52	31.16 36.13	200
445.634	3.79	17.36	12.08	33.23 45.86	200
464.270	3.83	17.68	11.93	33.43 46.95	200
528.074	4.07	18.68	10.47	33.21 45.79	200
761.869	5.47	20.52	9.06	35.05 56.55	200
812.000	5.75	21.02	1.74	28.51 26.63	200

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.

2.“ * ”, means this data is worse case emission level.

3.Emission Level = Reading Level + Antenna Factor + Cable loss

4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 3

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Vertical	Vertical	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
35.356	0.82	17.10	13.25	31.17 36.19	100
56.578	1.12	6.60	26.92	34.64 53.95	100
63.679	1.20	6.02	24.53	31.75 38.67	100
70.743	1.24	6.42	25.51	33.17 45.53	100
* 84.867	1.40	8.36	25.32	35.08 56.78	100
120.241	1.51	12.90	23.28	37.69 76.69	150
127.318	1.60	12.43	20.02	34.05 50.40	150
134.384	1.72	11.80	18.36	31.88 39.24	150
162.708	2.09	9.85	20.26	32.20 40.74	150
169.755	2.05	9.65	20.85	32.56 42.44	150
199.281	2.20	10.20	20.50	32.90 44.16	150
232.502	2.39	11.65	20.22	34.26 51.65	200
297.087	2.87	13.50	16.96	33.33 46.39	200
332.456	3.09	14.17	14.67	31.93 39.49	200
346.616	3.19	14.45	12.73	30.37 32.98	200
381.941	3.45	16.08	10.98	30.50 33.51	200
445.604	3.79	17.36	15.42	36.57 67.37	200
464.240	3.83	17.68	14.11	35.61 60.35	200
528.062	4.07	18.68	8.55	31.29 36.71	200
594.190	4.46	19.33	5.98	29.78 30.82	200
614.411	4.55	19.57	10.69	34.81 55.02	200
927.670	6.16	22.10	2.69	30.96 35.31	200

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 4

Display Pattern:H Pattern

Frequency [MHz]	Cable Loss [dB]	Antenna Factor [dB/m]	Reading Level Horizontal [dB(uV)]	Emission Level Horizontal [dB(uV/m)]	Limit (uV/m)	Limit (uV/m)
66.343	1.20	6.08	13.84	21.12	11.37	100
112.256	1.46	12.09	13.15	26.70	21.62	150
132.300	1.69	11.95	14.61	28.25	25.86	150
148.280	1.93	10.75	14.62	27.30	23.17	150
166.221	2.07	9.75	20.86	32.68	43.07	150
172.391	2.04	9.60	15.34	26.99	22.35	150
192.438	2.12	9.87	23.76	35.75	61.30	150
199.753	2.20	10.20	20.61	33.01	44.72	150
204.465	2.22	10.38	14.29	26.89	22.12	150
212.478	2.28	10.83	22.21	35.33	58.38	150
232.525	2.39	11.65	22.60	36.64	67.94	200
265.680	2.62	12.80	14.42	29.84	31.04	200
* 298.722	2.89	13.54	25.69	42.12	127.62	200
312.708	2.98	13.81	20.46	37.25	72.85	200
331.800	3.09	14.17	21.88	39.14	90.57	200
336.045	3.12	14.24	20.66	38.01	79.56	200
364.780	3.32	15.29	14.65	33.26	46.04	200
398.474	3.59	16.96	15.96	36.51	66.92	200
464.913	3.83	17.72	-3.40	18.15	8.08	200
528.085	4.07	18.68	7.65	30.39	33.09	200
660.030	4.79	20.00	5.74	30.53	33.59	200
796.918	5.69	20.87	6.04	32.60	42.65	200
909.326	6.05	21.96	5.12	33.14	45.37	200

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.

2.“ * ”, means this data is worse case emission level.

3.Emission Level = Reading Level + Antenna Factor + Cable loss

4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 4

Display Pattern:H Pattern

Frequency [MHz]	Cable Loss [dB]	Antenna Factor [dB/m]	Reading Level Vertical [dB(uV)]	Emission Level Vertical [dB(uV/m)]	Limit (uV/m)	Limit (uV/m)
32.081	0.86	18.40	13.75	33.01	44.72	100
48.096	1.08	9.73	22.05	32.86	43.94	100
68.146	1.20	6.14	24.81	32.15	40.49	100
72.171	1.24	6.42	22.15	29.81	30.92	100
113.530	1.47	12.25	18.26	31.97	39.69	150
120.269	1.51	12.90	22.00	36.41	66.18	150
157.494	2.09	10.06	20.15	32.30	41.21	150
165.830	2.07	9.75	19.10	30.92	35.17	150
168.365	2.06	9.70	17.48	29.24	28.99	150
188.410	2.08	9.72	19.50	31.29	36.70	150
* 192.438	2.12	9.87	27.91	39.90	98.85	150
200.446	2.20	10.20	23.63	36.03	63.31	150
266.450	2.63	12.85	13.55	29.03	28.28	200
299.727	2.91	13.60	13.86	30.37	32.98	200
331.782	3.09	14.17	13.42	30.68	34.20	200
360.803	3.29	15.09	18.34	36.72	68.58	200
396.060	3.57	16.86	14.37	34.81	55.00	200
440.982	3.76	17.32	16.79	37.87	78.24	200
493.108	3.89	18.27	13.38	35.53	59.80	200
521.159	4.02	18.60	16.31	38.93	88.40	200
561.248	4.26	19.00	13.18	36.44	66.39	200
792.086	5.66	20.83	6.48	32.97	44.51	200

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.

2. " * ", means this data is worse case emission level.

3. Emission Level = Reading Level + Antenna Factor + Cable loss

4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 5

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
66.342	1.20	6.08	17.51	24.79 17.35	100
113.842	1.47	12.25	15.03	28.74 27.36	150
147.458	1.93	10.75	17.03	29.71 30.58	150
159.748	2.09	10.06	22.39	34.54 53.33	150
172.037	2.04	9.60	22.48	34.13 50.85	150
194.072	2.14	9.95	22.13	34.22 51.39	150
198.644	2.17	10.11	23.53	35.81 61.76	150
199.838	2.20	10.20	27.62	40.02 100.23	150
214.750	2.29	10.92	24.08	37.30 73.27	150
243.221	2.46	12.19	24.43	39.09 90.01	200
* 307.912	2.95	13.74	26.98	43.67 152.66	200
331.784	3.09	14.17	24.32	41.58 119.94	200
356.361	3.25	14.80	17.06	35.10 56.90	200
368.648	3.36	15.49	19.28	38.12 80.54	200
414.009	3.65	17.09	11.94	32.69 43.10	200
516.108	4.00	18.56	13.46	36.02 63.22	200
596.340	4.47	19.35	6.42	30.25 32.53	200
720.077	5.22	20.16	7.53	32.90 44.18	200
776.307	5.56	20.68	5.14	31.38 37.06	200

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.

2.“ * ”, means this data is worse case emission level.

3.Emission Level = Reading Level + Antenna Factor + Cable loss

4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :10-09,1998 Fri

Temperature :24.5 deg/C

EUT :NOTEBOOK

Humidity :61 %RH

Working Cond.:MODE 5

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Vertical	Vertical	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
147.459	1.93	10.75	14.96	27.64	24.10
199.869	2.20	10.20	19.82	32.22	40.83
214.752	2.29	10.92	23.31	36.53	67.05
219.942	2.32	11.11	19.19	32.61	42.72
258.764	2.57	12.67	14.65	29.89	31.24
307.912	2.95	13.74	21.61	38.30	82.26
323.452	3.05	14.03	22.18	39.25	91.74
331.783	3.09	14.17	18.98	36.24	64.86
356.360	3.25	14.80	18.08	36.12	63.99
* 452.831	3.80	17.44	21.38	42.62	135.26
491.643	3.88	18.23	10.93	33.04	44.88
517.522	4.00	18.56	12.69	35.25	57.85
549.985	4.21	18.90	8.82	31.93	39.47
569.988	4.32	19.10	7.48	30.90	35.07
596.781	4.49	19.37	11.24	35.10	56.87
614.415	4.55	19.57	8.90	33.02	44.77
663.567	4.82	20.00	7.69	32.51	42.20
711.593	5.17	20.09	7.93	33.19	45.68
761.872	5.47	20.52	9.64	35.63	60.45

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.

2.“ * ”, means this data is worse case emission level.

3.Emission Level = Reading Level + Antenna Factor + Cable loss

4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 1 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
[MHz]	Loss	Factor	Horizontal	Horizontal	
	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1098.645	6.73	22.78	35.40	29.36	29.37 500
1256.684	7.09	23.90	40.30	36.00	63.11 500
1369.887	7.35	24.40	39.90	36.54	67.12 500

- Remarks:
1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss -
Amp Factor(35.54, 35.29, 35.11)
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 1 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
[MHz]	Loss	Factor	Vertical	Vertical	
	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1056.684	6.63	22.10	45.60	38.72	86.27 500
1198.504	6.96	23.31	36.60	31.49	37.53 500
1263.546	7.11	23.90	36.80	32.52	42.29 500

- Remarks:
1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss - Amp Factor(35.61, 35.38, 35.28)
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
EUT :NOTEBOOK Humidity :59 %RH
Working Cond.:Mode 1 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Horizontal	Horizontal		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1098.645	6.73	22.78	30.60	24.56	16.90	500
1256.684	7.09	23.90	36.60	32.30	41.22	500
1369.887	7.35	24.40	35.20	31.84	39.07	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
2.“ * ”, means this data is worse case emission level.
3.Emission Level = Reading Level + Antenna Factor + Cable loss-
Amp Factor(35.54, 35.29, 35.11)
4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun
 EUT :NOTEBOOK
 Working Cond.:Mode 1 (Average)

Temperature :24.1 deg/C
 Humidity :59 %RH
 Display Pattern:H Pattern

Frequency [MHz]	Cable Loss [dB]	Antenna Factor [dB/m]	Reading Level Vertical [dB(uV)]	Emission Level Vertical [dB(uV/m)]	Limit (uV/m)	Limit (uV/m)
1056.684	6.63	22.10	40.30	33.42	46.87	500
1198.504	6.96	23.31	30.90	25.79	19.47	500
1263.546	7.11	23.90	31.50	27.22	22.97	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.61, 35.38, 35.28)
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 2 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Horizontal	Horizontal		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1023.954	6.55	22.00	35.80	28.69	27.19	500
1198.557	6.96	23.31	40.20	35.09	56.81	500
1369.197	7.35	24.40	34.60	31.24	36.46	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 2 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Vertical	Vertical	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1023.954	6.55	22.00	36.90	29.79	30.87 500
1198.557	6.96	23.31	39.60	34.49	53.02 500
1369.197	7.35	24.40	35.80	32.44	41.87 500

- Remarks:
1. All Readings below 1GHz are Quasi-Peak, above are average value.
 - 2.“ * ”, means this data is worse case emission level.
 - 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
Amp Factor(35.66, 35.38, 35.11)
 - 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 2 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
1023.954	6.55	22.00	30.30	23.19 14.44	500
1198.557	6.96	23.31	35.80	30.69 34.23	500
1369.197	7.35	24.40	30.10	26.74 21.72	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 2 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Vertical	Vertical		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1023.954	6.55	22.00	30.60	23.49	14.94	500
1198.557	6.96	23.31	34.60	29.49	29.81	500
1369.197	7.35	24.40	29.90	26.54	21.23	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 3 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
[MHz]	Loss	Factor	Horizontal	Horizontal	
	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
1023.954	6.55	22.00	42.30	35.19 57.48	500
1198.557	6.96	23.31	46.10	40.99 112.05	500
1369.197	7.35	24.40	38.50	35.14 57.13	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 3 (Peak) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Vertical	Vertical		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1023.954	6.55	22.00	42.30	35.19	57.48	500
1198.557	6.96	23.31	46.30	41.19	114.66	500
1369.197	7.35	24.40	39.80	36.44	66.35	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 3 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)] (uV/m)	(uV/m)
1023.954	6.55	22.00	38.30	31.19 36.26	500
1198.557	6.96	23.31	42.60	37.49 74.89	500
1369.197	7.35	24.40	34.30	30.94 35.23	500

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2. " * ", means this data is worse case emission level.
 3. Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4. Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 3 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Vertical	Vertical	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1023.954	6.55	22.00	38.60	31.49	37.54 500
1198.557	6.96	23.31	40.90	35.79	61.58 500
1369.197	7.35	24.40	36.60	33.24	45.90 500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 4 (Peak) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1023.887	6.55	22.00	44.31	37.20	72.44 500
1200.023	6.96	23.33	47.59	42.50	133.35 500
1369.200	7.35	24.40	38.20	34.84	55.21 500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 4 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Vertical	Vertical		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1023.770	6.55	22.00	8.65	37.20	72.44	500
1201.230	6.96	23.33	9.91	40.20	102.33	500
1369.177	7.35	24.40	6.50	38.25	81.75	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.69, 35.39, 35.25)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 4 (Average)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Horizontal	Horizontal		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1022.540	6.55	22.00	35.25	28.14	25.53	500
1198.557	6.96	23.31	38.43	33.32	46.34	500
1369.180	7.35	24.40	32.78	29.42	29.58	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.66, 35.38, 35.11)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
EUT :NOTEBOOK Humidity :59 %RH
Working Cond.:Mode 4 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Vertical	Vertical		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1008.200	6.52	22.00	34.80	27.63	24.07	500
1195.980	6.95	23.29	38.04	32.89	44.11	500
1282.137	7.15	23.88	31.35	27.13	22.72	500

- Remarks:
1. All Readings below 1GHz are Quasi-Peak, above are average value.
 - 2.“ * ”, means this data is worse case emission level.
 - 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
Amp Factor(35.69, 35.39, 35.25)
 - 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 5 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Horizontal	Horizontal	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1003.523	6.51	22.00	41.39	34.20	51.29 500
1102.762	6.73	22.83	45.17	39.20	91.20 500
1270.798	7.12	23.89	36.40	32.14	40.46 500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
2.“ * ”, means this data is worse case emission level.
3.Emission Level = Reading Level + Antenna Factor + Cable loss-
Amp Factor(35.70, 35.54, 35.27)
4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun

Temperature :24.1 deg/C

EUT :NOTEBOOK

Humidity :59 %RH

Working Cond.:Mode 5 (Peak)

Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Vertical	Vertical	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1007.850	6.52	22.00	45.73	38.56	84.72 500
1097.400	6.73	22.78	46.05	40.01	100.12 500
1208.400	6.98	23.42	40.50	35.53	59.77 500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.69, 35.54, 35.37)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
 EUT :NOTEBOOK Humidity :59 %RH
 Working Cond.:Mode 5 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit	
	Loss	Factor	Horizontal	Horizontal		
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m)	(uV/m)
1008.180	6.52	22.00	34.77	27.60	23.99	500
1100.040	6.73	22.82	38.53	32.54	42.36	500
1209.940	6.98	23.42	31.44	26.48	21.09	500

- Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
 2.“ * ”, means this data is worse case emission level.
 3.Emission Level = Reading Level + Antenna Factor + Cable loss-
 Amp Factor(35.69, 35.54, 35.37)
 4.Deviations from the specifications: None.

Radiated Emission Data

Date of Test :11-01,1998 Sun Temperature :24.1 deg/C
EUT :NOTEBOOK Humidity :59 %RH
Working Cond.:Mode 5 (Average) Display Pattern:H Pattern

Frequency	Cable	Antenna	Reading Level	Emission Level	Limit
	Loss	Factor	Vertical	Vertical	
[MHz]	[dB]	[dB/m]	[dB(uV)]	[dB(uV/m)]	(uV/m) (uV/m)
1001.008	6.50	22.00	31.99	24.80	17.38 500
1109.040	6.75	22.86	33.31	27.40	23.44 500
1222.315	7.01	23.58	28.65	23.90	15.67 500

Remarks: 1. All Readings below 1GHz are Quasi-Peak, above are average value.
2.“ * ”, means this data is worse case emission level.
3.Emission Level = Reading Level + Antenna Factor + Cable loss-
Amp Factor(35.70, 35.53, 35.34)
4.Deviations from the specifications: None.

7. EMI Reduction Method During Compliance Testing

1. Taped a copper foil tape from LG LCD Panel to panel rear cover.
2. Added a spring finger to touch the keyboard rear side on PCMCIA metal frame
3. Added a spring finger to touch the CD-ROM drive on HDD metal frame
4. Added two gasket on chassis left and right bottom sides of the Fax/modem module area.
5. Added a ferrite ring core on internal cable of phone jack.
6. Added a ferrite ring core near DC output side of AC adaptor.
7. Added three gaskets on I/O bracket.