

Statement of Data Measured and Test Data

1. General Information of EUT

The EUT, 17" color monitor :

Model No. : E771p
 FCC ID : A3KM076
 Brand : Dell

The color monitor automatically scans horizontal frequencies between 30HKz and 70KHz , and vertical frequencies between 50Hz and 120Hz. This color monitor displays sharp and brilliant images of text and graphics with a maximum resolution up to 1280x1024 pixels. .

The monitor has 8 factory-preset modes as indicated in the following table:

	Resolution	H-Frequency	V-Frequency	Remark
M01	720 X 400	31.5KHZ	70Hz	Non-interlaced
M02	640 X 480	31.5KHZ	60Hz	Non-interlaced
M03	640 X 480	43.3KHz	85Hz	Non-interlaced
M04	800 X 600	46.8KHz	75Hz	Non-interlaced
M05	800 X 600	53.7KHz	85Hz	Non-interlaced
M06	1024 X 768	60.0KHz	75Hz	Non-interlaced
M07	1024 X 768	68.7KHz	85Hz	Non-interlaced
M08	1280 X 1024	64.0KHz	60Hz	Non-interlaced

2. Test Equipment and Procedure

Test was performed by:

PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.
 CONSUMER ELECTRONICS DIVISION
 EMI - LAB

5, Tze Chiang 1 Road, Chungli Industrial Park
 P.O. Box 123, Chungli, Taoyuan, Taiwan
 R. O. C.
 Tel : 886-3-4549862 Fax : 886-3-4549887
 Internet: ronnie.yang@philips.com

The test was performed in accordance with ANSI C63.4-1992, "AMERICAN NATIONAL STANDARD FOR MEASUREMENT OF RADIO-NOISE EMISSION FROM LOW-

VOLTAGE ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE RANGE OF
9KHz TO 40GHz”

Test equipment used for line Conducted and Radiated emissions as following. All equipment were calibrated according to ANSI C63.4-1992 and ISO-9000 requirement unless otherwise specified.

Test Equipment	Model No.	Serial No.	Next Calibrate
Spectrum	HP8568B	2403A06961	11/30/2000
RF Preselector	HP85685A	2415A00346	11/30/2000
QP Adapter	HP85650A	2043A00366	11/30/2000
EMI Receiver	HP85460A	3441A00199	10/28/2000
RFI Filter Section	HP85460A	3330A00177	10/28/2000
EMI Receiver	R & S ESVS30	8419977/066	10/06/2000
Biconical Antenna	EMCO 3110B	3222	12/16/2000
Biconical Antenna	EMCO 3110B	3224	12/16/2000
Log-Periodic Antenna	EMCO 3146A	1424	12/20/2000
Log-Periodic Antenna	EMCO 3146A	1425	12/20/2000
LISN	EMCO 3825/2	9311-2153	10/04/2000
LISN	EMCO 3825/2	9311-2154	10/04/2000
Turn Table	EMCO 1060	1068	11/18/2000
Antenna Tower	EMCO 1050	1113	11/18/2000
RF Cable	M17/75-RG214-NE	N/A	11/18/2000
Computer	HP9000/300	2614A78610	N/A
Printer	HP2225A	2728S02586	N/A
Plotter	HP7440A	2539A40856	N/A

Traceability to R.O.C. and international standards is assured by using calibrated all equipment.

For system measurement, the EUT “[E771p](#)” was connected to:

Item	Model No.	Serial No.	FCC ID
1. Computer	Dell MMS	F18Q7	FCC Logo
2. Keyboard	KB-7959	10422	FCC Logo
3. Mouse	Logitech M-S34	457249	DZL211029
4. Printer	HP 2225C	3123S97227	DSI6XU2225
5. Modem	USRobotics 268	0002680559278575	CJE-0318
6. Vide Card	ATI XPERT LCD	10543	FCC Logo

The system was configured for testing in a typical fashion (as a customer would normally use it) according to ANSI C63.4-1992, please see the photographs for detail.

Both conducted and radiated testing were performed according to the procedure in ANSI C63.4-1992. Conducted testing was performed in screen room and radiated testing was performed in open site at an antenna to EUT distance of 3-meter on horizontal and vertical polarization.

First, pre-scan all modes in screen room then select 2 higher modes (worst case) were tested and reported.

The line conductive interference was tested with 110VAC and 220VAC receptively. Unshielded power cord was used during test.

Tested and reported modes as following:

Report No.	Resolution	Frequencies	I/F Cable
EMI00-037	1024x768	68.7KHz/85Hz	D-sub
EMI00-037A	1280x1024	64.0KHz/60Hz	D-sub

3. Test Program and Test Results

Set up the EUT and all peripherals as chapter 6 of ANSI C63.4-1992 for AC power line conducted emissions testing and radiated emissions testing.

Turn on the power of EUT and all peripherals, select an appropriate displaying mode using the “setup” software. Then run an EMI test program “HTEST.EMI” as a basic software to execute the EUT operating under test.

- Step 1 : Run the “HTEST.EMI” on personal computer then sends “H” character to monitor continuously until full screen.
- Step 2 : Personal computer sends a complete line of continuously repeating “H” to HP 2225C printer.
- Step 3 : Personal computer sends a file of “H” pattern to floppy disk then read a file of “H” pattern from floppy disk.
- Step 4 : Personal computer sends a file of “H” pattern to hard disk then read a file of “H” pattern from hard disk.
- Step 5 : Personal computer sends a file of “H” pattern to USRobotics 268 modem.
- Step 6 : Return to step 1

All data in this report are “PEAK” value within 15dB margin unless otherwise noted.

The radiated (open site) data has included antenna and cable factors, sample calculation:

$$\text{Final Value (dB}\mu\text{v/m)} = \text{Reading (dBv)} + \text{Antenna Factor (dB)} + \text{Cable Loss (dB)}$$

The measured data of radiated RF interference at open site and line conducted interference as attached.

Uncertainty Statement: The system uncertainty listed below are based on the instrument absolute specifications, and do not include uncertainties of the equipment under test.

Uncertainty for Radiated Emissions Test at 3 meters Test Site.

Source of Measurement	Uncertainty/dB
Uncertainty	
Antenna factor calibration	+/-2.0
Cable loss calibration	+/-0.5
Receiver specification	+/-1.0
Antenna position ver.	+/-2.0
Measurement distance ver.	+/-0.5
Site imperfections	+/-2.0
Mismatch	+/-1.1
System repeatability	+/-0.5

Uncertainty for Conducted Emissions Test at 3 meters Test Site.

Source of Measurement	Uncertainty/dB
Uncertainty	
LISN specification	+/-2.0
Cable loss calibration	+/-0.5
Receiver specification	+/-1.0
Pulse limiter Spec.	+/-0.3
Measurement distance ver.	+/-0.5
Site imperfections	+/-2.0
System repeatability	+/-0.5

The subject device is in compliance with the limits for a class B digital device, pursuant to part 15, subpart B of FCC rules.

K. J. Hk for

Ronnie Yang - Manager, Safety/DEV
NVLAP Signatory

FCC TEST REPORT

Report No. : EMI00-037
Tested Date: Aug./24/00

Test Performed By
Philips Electronics Industries (Taiwan) Ltd.
Business Electronics
EMC Lab.
No. 5, Tze Chiang 1 Road,
Chungli, Taoyuan, Taiwan, R.O.C.
Tel.: + 886-3-454-9862 Fax.: +886-3-454-9887

Manufacturer : Philips Business Electronics

Tested System:

- | | | | |
|---------------|--------|--------------------------|----------------------|
| 1. EUT | : | Dell E771p color monitor | s/n: TY0005253 |
| | FCC ID | : | A3KM076 |
| 2. Computer | : | Dell MMS | s/n: F18Q7 |
| | FCC ID | : | FCC Logo |
| 3. Keyboard | : | KB-7959 | s/n: 10422 |
| | FCC ID | : | FCC Logo |
| 4. Mouse | : | Logitech M-S34 | s/n: 457249 |
| | FCC ID | : | DZL211029 |
| 5. Modem | : | USRoboties 268 | s/n: 002680559278575 |
| | FCC ID | : | CJE-0318 |
| 6. Printer | : | HP2225C | s/n: 3123S97227 |
| | FCC ID | : | DSI6XU2225 |
| 7. Video Card | : | ATI 3D RAGE PRO AGP | s/n: 024035 |
| | FCC ID | : | FCC Logo |

Note: Test was performed in according with FCC measurement procedure ANSI C63.4-1992
“AMERICAN NATIONAL STANDARD FOR MEASUREMENT OF RADIO-NOISE
EMISSION FROM LOW-VOLTAGE ELECTRONIC EQUIPMENT IN THE RANGE
OF 9KHz TO 40GHz”

Monitor was connected to floor mounted AC outlet.
68.7KHz mode (1024X768/85Hz) was tested.
D-sub I/F cable with three ferrite cores was used.
Non-shield power cord was used during test.
The test equipment used for testing please refer to the list as attached.

Deviation: None

Radiated RF Level – Peak Value

Frequency (MHz)	Horizontal (dB _{uv} /m)	Vertical (dB _{uv} /m)	FCC/B Limit (dB _{uv} /m)
47.1	32.48	32.88	40.0
53.83	25.74	31.14	40.0
67.32	25.71	28.81	40.0
74.05	28.12	28.42	40.0
114.45	36.14	33.64	43.5
121.15	35.33	35.83	43.5
127.89	33.44	35.54	43.5
134.65	33.45	33.25	43.5
141.36	33.31	32.11	43.5

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148.1	33.98	32.88	43.5
154.87	30.65	28.05	43.5
161.57	32.16	30.46	43.5
168.29	29.94	28.54	43.5
195.02	33.45	30.95	43.5
208.69	31.5	30.5	43.5
228.87	34.28	32.18	46.0
235.59	37.2	33.4	46.0
242.33	34.38	33.08	46.0
249.02	36.56	34.36	46.0
255.02	37.25	34.75	46.0
306.02	32.02	31.12	46.0
309.63	31.64	30.24	46.0
312.02	31.34	30.54	46.0
318.02	30.97	30.17	46.0
330.02	30.42	29.92	46.0
383.69	32.32	32.6	46.0
403.89	32.54	31.94	46.0
471.19	35.8	35.1	46.0
558.72	35.91	35.61	46.0
565.45	35.76	34.26	46.0
605.83	36.59	35.39	46.0
652.95	37.9	37.5	46.0
673.16	38.86	38.36	46.0
679.87	39.62	39.22	46.0

Spectrum Analyzer Setting:

RBW: 100KHz

VBW: 100KHz

Quasi-peak Values were taken with Rohde & Schwarz E SVN 30 EMI test receiver.

Radiated RF Level – QP Value

Frequency (MHz)	Horizontal (dB _{uv} /m)	Vertical (dB _{uv} /m)	FCC/B Limit (dB _{uv} /m)
33.62	27.24	35.84	40.0
37.49	27.12	35.92	40.0

The spectrum was scanned from 30MHz to 1000MHz and the significant emissions were recorded.

Test distance between device under test and receiving antenna was 3-meter.

Sample of calculation:

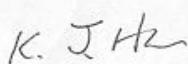
Final value (dB_{uv}/m) = Antenna Factor (dB) + Cable Loss (dB) + Reading value (dB_{uv}/m)

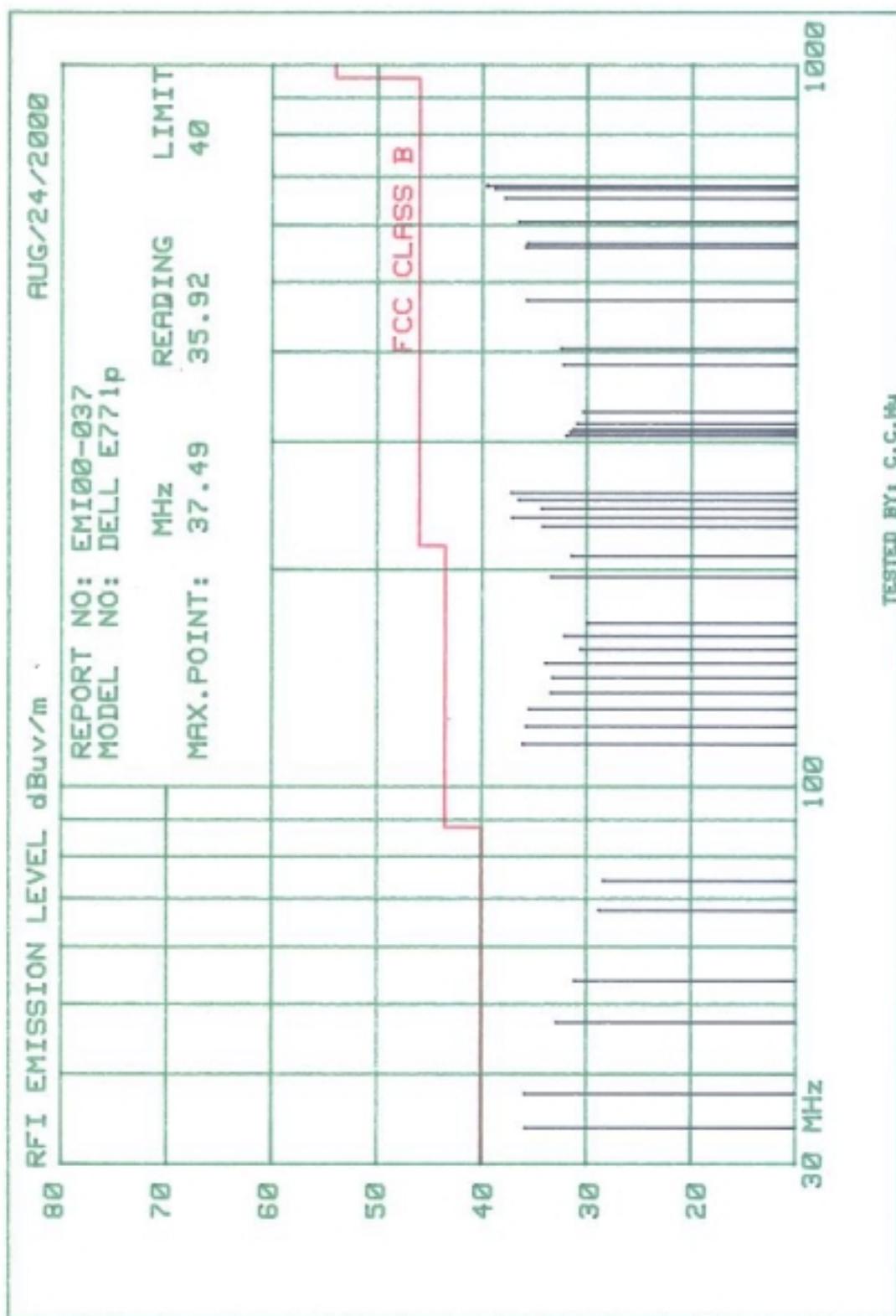
Tested by:

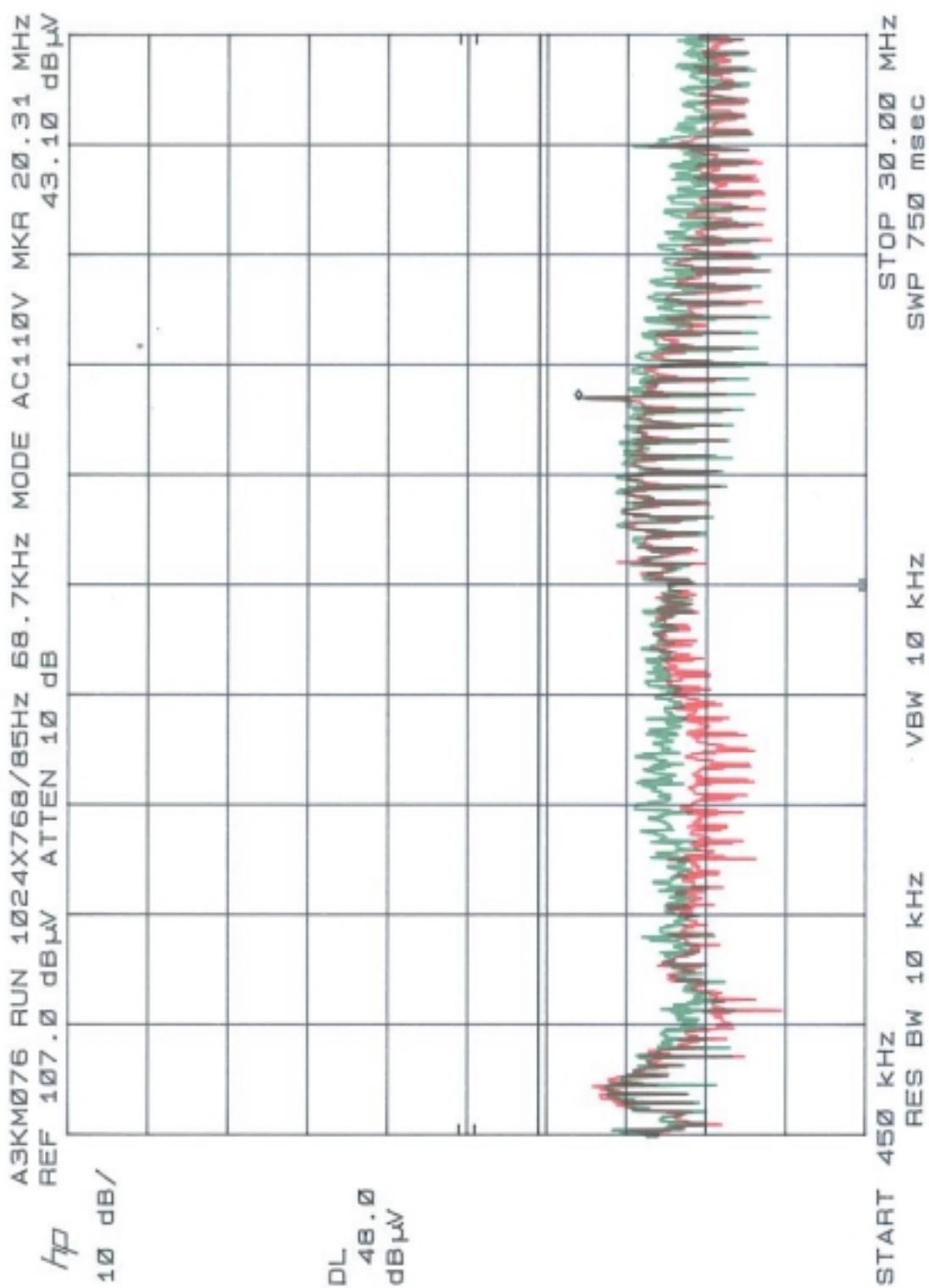


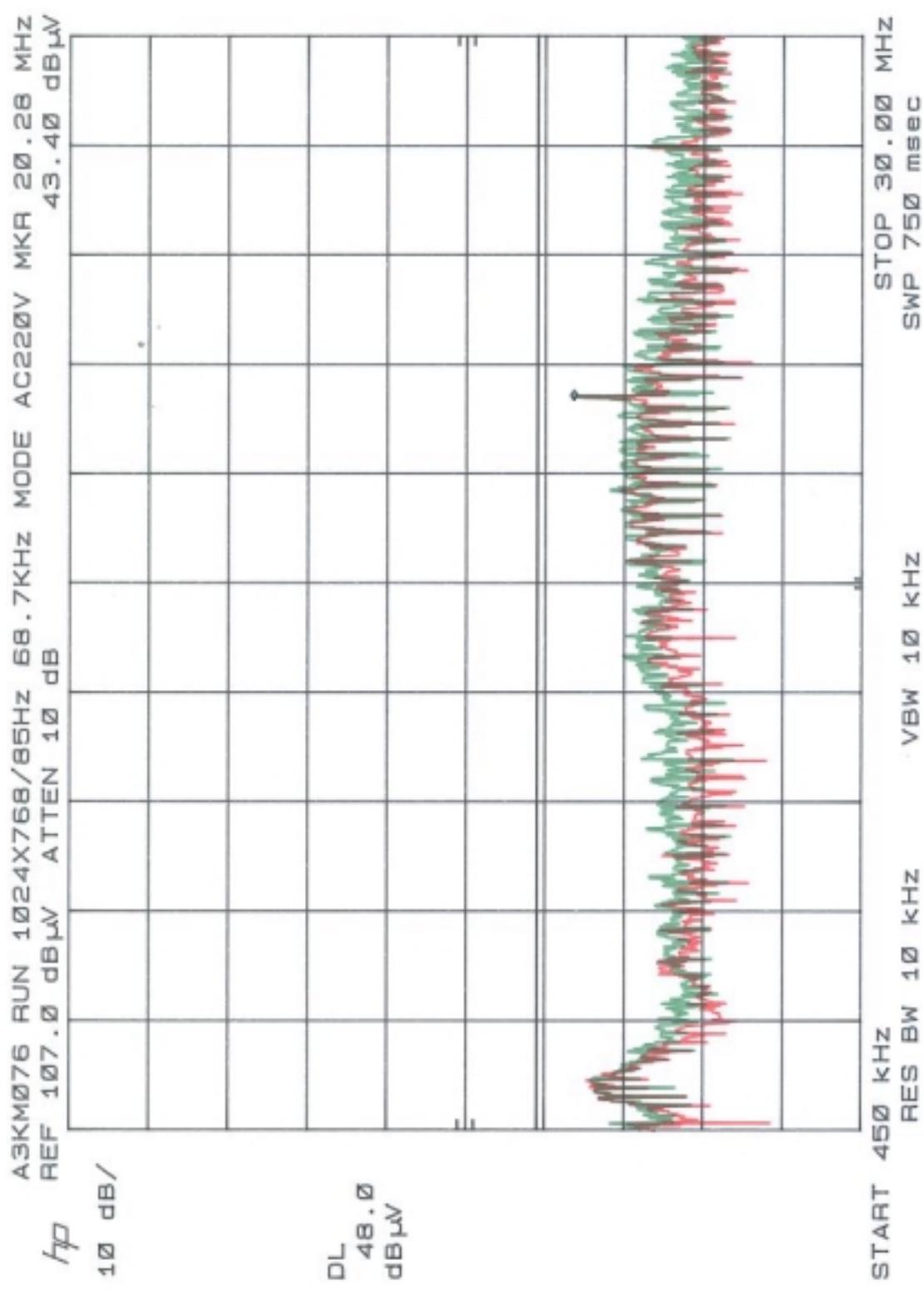
C.C.Wu

Checked by:

K.J.Hsu – EMC Engineer
NVLAP Signatory







FCC TEST REPORT

Report No. : EMI00-037A
Tested Date: Aug./25/00

Test Performed By
Philips Electronics Industries (Taiwan) Ltd.
Business Electronics
EMC Lab.
No. 5, Tze Chiang 1 Road,
Chungli, Taoyuan, Taiwan, R.O.C.
Tel.: + 886-3-454-9862 Fax.: +886-3-454-9887

Manufacturer : Philips Business Electronics

Tested System:

1. EUT	: Dell E771p color monitor s/n: TY0005253
FCC ID	: A3KM076
2. Computer	: Dell MMS s/n: F18Q7
FCC ID	: FCC Logo
3. Keyboard	: KB-7959 s/n: 10422
FCC ID	: FCC Logo
4. Mouse	: Logitech M-S34 s/n: 457249
FCC ID	: DZL211029
5. Modem	: USRoboties 268 s/n: 002680559278575
FCC ID	: CJE-0318
6. Printer	: HP2225C s/n: 3123S97227
FCC ID	: DSI6XU2225
7. Video Card	: ATI 3D RAGE PRO AGP s/n: 024035
FCC ID	: FCC Logo

Note: Test was performed in according with FCC measurement procedure ANSI C63.4-1992
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Monitor was connected to floor mounted AC outlet.
64.0KHz mode (1280x1024/60Hz) was tested.
D-sub I/F cable with three ferrite cores was used.
Non-shield power cord was used during test.
The test equipment used for testing please refer to the list as attached.

Deviation: None

Radiated RF Level – Peak Value

Frequency (MHz)	Horizontal (dB _B v/m)	Vertical (dB _B v/m)	FCC/B Limit (dB _B v/m)
48.64	31.16	32.26	40.0
54.05	25.94	32.54	40.0
59.45	24.79	27.99	40.0
64.87	24.35	27.55	40.0
70.27	26.4	32.6	40.0
75.67	26.58	29.58	40.0
86.47	31.3	31.3	40.0
113.49	33.28	33.58	43.5

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124.32	33.62	35.92	43.5
129.72	34.9	33.8	43.5
135.12	30.95	30.75	43.5
140.52	31.21	29.41	43.5
144.0	36.64	32.44	43.5
156.0	34.3	29.5	43.5
162.12	29.06	27.76	43.5
168.0	35.04	33.44	43.5
183.75	29.36	28.46	43.5
210.79	31.38	30.48	43.5
216.19	34.18	31.18	46.0
232.39	33.9	33.6	46.0
248.62	33.96	33.36	46.0
254.02	36.4	35.2	46.0
264.82	34.6	33.9	46.0
270.25	35.1	34.7	46.0
306.02	31.62	31.12	46.0
308.08	31.03	29.43	46.0
318.03	30.57	30.87	46.0
345.04	31.38	30.48	46.0
394.54	33.92	33.02	46.0
399.95	33.7	33.0	46.0
556.69	36.06	35.16	46.0
562.12	35.88	34.98	46.0
572.92	36.75	34.65	46.0
578.32	35.43	34.33	46.0
610.74	36.65	36.35	46.0
616.15	36.71	35.61	46.0
664.81	38.72	38.92	46.0
670.21	38.56	38.26	46.0

Spectrum Analyzer Setting:

RBW: 100KHz

VBW: 100KHz

Quasi-peak Values were taken with Rohde & Schwarz ESVS 30 EMI test receiver.

Radiated RF Level – OP Value

Frequency (MHz)	Horizontal (dB _B /m)	Vertical (dB _B /m)	FCC/B Limit (dB _B /m)
32.43	28.62	35.92	40.0
37.85	28.68	34.38	40.0

The spectrum was scanned from 30MHz to 1000MHz and the significant emissions were recorded.

Test distance between device under test and receiving antenna was 3-meter.

Sample of calculation:

Final value (dB_B/m) = Antenna Factor (dB) + Cable Loss (dB) + Reading value (dB_B/m)

Tested by:

C.C.Wu

Checked by:

K.J.Hsu – EMC Engineer
NVLAP Signatory

