



EMC

TEST REPORT

REPORT NO. : F88081606
MODEL NO. : U8T011, 810FD,
A-910T, N-910T
DATE OF TEST : Aug. 27, 1999

PREPARED FOR : MAG TECHNOLOGY CO., LTD.

ADDRESS : 15F, NO. 287, SEC. 3, NANKING E. RD.
TAIPEI, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

11F, NO.1, SEC.4, NAN-KING EAST RD.,
TAIPEI, TAIWAN, R.O.C.

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1.

CERTIFICATION

Issue Date: Sept. 1, 1999

Product : COLOR MONITOR
Trade Name : MAG, PTC
Model No. : U8T011, 810FD, A-910T, N-910T
Applicant : MAG TECHNOLOGY CO., LTD.
Standard : FCC Part 15, Subpart B, Class B
CISPR 22: 1993+A1: 1995+A2: 1996, Class B
ANSI C63.4-1992

We hereby certify that one sample of the designation has been tested in our facility on Aug. 27, 1999. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class B limits of conducted and radiated emission of applicable standards.

TESTED BY : John Liao , DATE: 9/1/99
(John Liao)

CHECKED BY : Ariel Hsieh , DATE: 9/1/99
(Ariel Hsieh)

APPROVED BY : Mike Su , DATE: 9/1/99
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product : COLOR MONITOR
Model No. : U8T011, 810FD, A-910T, N-910T
Power Supply Type : Switching
Power Cord : Nonshielded (1.8 m)
Data Cable : Shielded (1.8 m)

Note: The EUT is a 19" Color Monitor with resolution up to 1600x1200.

The EUT has four model names, which are identical to each other in all aspects except for the following:

MODEL	BRAND	REMARK
U8T011	MAG	The different model names used are for marketing distinction only.
810FD		
A-910T	PTC	The different model names used are for marketing distinction only.
N-910T		

From the above models, model: U8T011 was selected as the representative during the test and therefore only its data is recorded in this report.

There are two ferrite cores on the video cable outside the monitor.

For more detailed features description, please refer to manufacturer's specification or User's Manual.



2.2 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 are used to form representative test configuration during the tests.

No.	Product	Brand	Model No.	FCC ID	I/O Cable
1.	PERSONAL COMPUTER	NTI	PII-333T	FCC DoC Approved	Nonshielded Power (1.8 m)
2.	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded signal (1.4 m)
3.	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (2.2 m) Nonshielded Power (1.2 m)
4.	MODEM	ACEEX	1414	IFAXDM1414	Shielded signal (1.2 m) Nonshielded Power (1.2 m)
5.	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded signal (1.5 m)
6.	VGA CARD	CARDEX	CD-GX2A44T	ICUVGA-GW710	NA

2.3 TEST METHODOLOGY AND CONFIGURATION

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 3/10 m on an open area test site.

Please refer to the photos of test configuration in Item 5.



3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 7, 2000
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 8, 2000
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 7, 2000
EMCO-L.I.S.N.	3825/2	9204-1964	July 7, 2000
Shielded Room	Site 2	ADT-C02	NA

Note: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per 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.

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated until
HP Spectrum Analyzer	8590L	3544A00941	Dec. 06, 1999
HP Pre-Amplifier	8447D	2944A08312	Sept. 15, 1999
HP Preamplifier	8347A	3307A01088	Sept. 9, 1999
R&S Receiver	ESVS10	844594/010	Sept. 24, 1999
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 25, 1999
CHASE BILOG Antenna	CBL6111A	1500	Sept. 4, 1999
EMCO Double Ridged Guide Antenna	3115	9312-4192	April 5, 2000
EMCO Turn Table	1060-04	1196	NA
EMCO Tower	1051	1264	NA
Open Field Test Site	Site 1	ADT-R01	Aug. 28, 1999

Note: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per 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.



3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (at 10m) *	Class B (at 10m) *
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

* Detector Function: Quasi-Peak

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	80.0	60.0	74.0	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) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

- Note: (1) The lower limit shall apply at the transition frequencies.
 (2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz
 (3) All emanation from a class A/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. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range	:	0.15 - 30 MHz (Conducted Emission) 30 - 2000 MHz (Radiated Emission)
Input Voltage	:	120 Vac, 60 Hz
Temperature	:	25 °C
Humidity	:	65 %
Atmospheric Pressure	:	993 mbar

TEST RESULT	Remarks
	Minimum passing margin of conducted emission: -5.0 dB at 0.177 MHz
	Minimum passing margin of radiated emission: -5.1 dB at 45.84 MHz

Note: The EUT was pretested under the following resolution & horizontal synchronization speed mode:

- * 1600x1200 mode (106 kHz)
- * 1280x1024 mode (91 kHz),
- * 640x480 mode (31.5 kHz)

The worst emission levels were found under 1600x1200 (106 kHz) and therefore the test data of only this mode is recorded.

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipment.
2. PC runs a test program to enable all functions.
3. PC reads and writes messages from FDD and HDD.
4. PC sends "H" messages to Color Monitor (EUT) and Color Monitor displays "H" patterns on screen.
5. PC sends "H" messages to modem.
6. PC sends "H" messages to printer, and the printer prints them on paper.
7. Repeat steps 3-7.

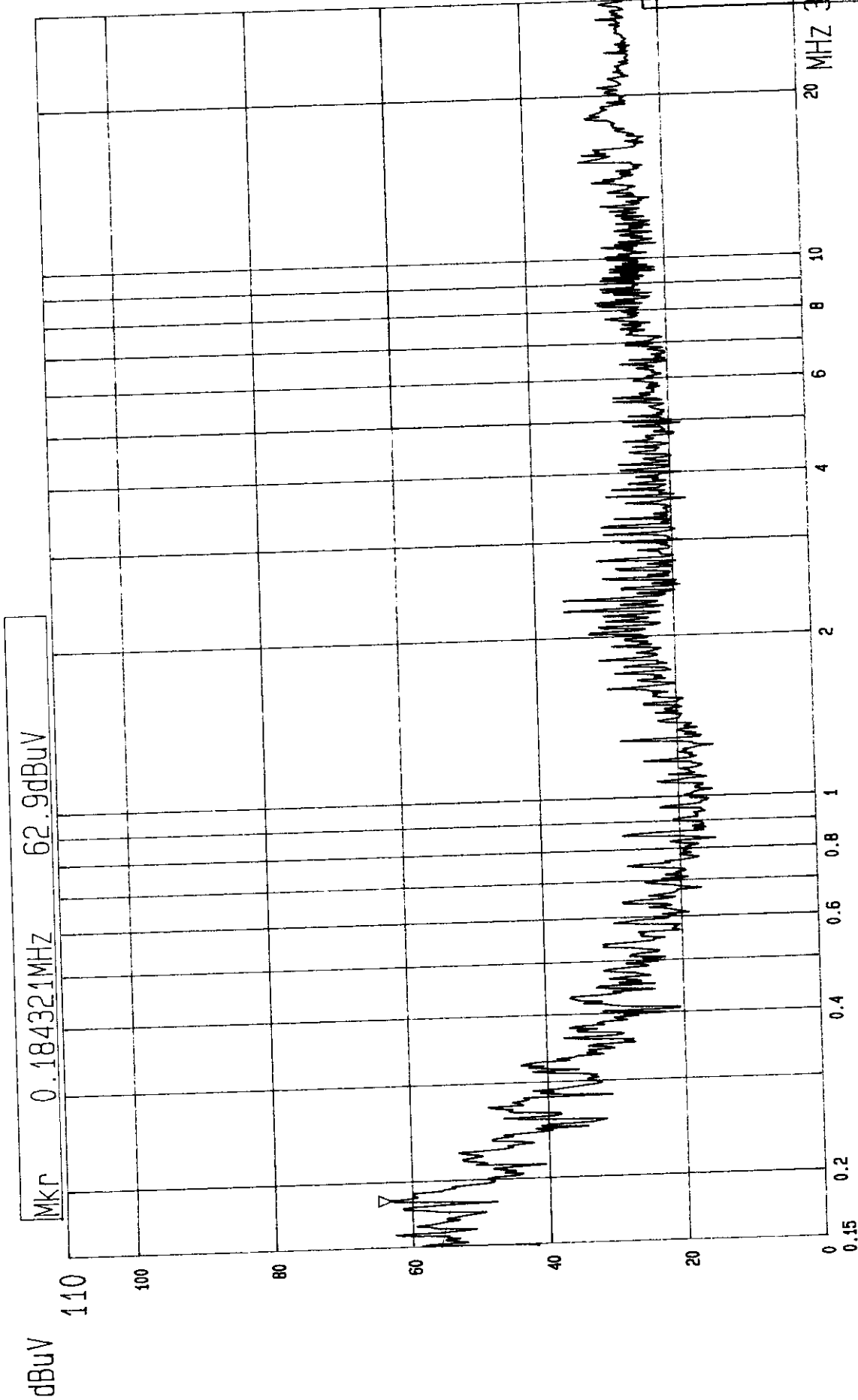


4.3 TEST DATA OF CONDUCTED EMISSION

EUT: COLOR MONITORMODEL: U8T011MODE: 1600x1200 (106 kHz)6 dB Bandwidth: 10 kHzPHASE: LINE (L)

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.
0.177	0.2	59.0	47.1	59.2	47.3	64.6	54.6	-5.4	-7.3
0.220	0.2	50.0	-	50.2	-	62.8	52.8	-12.6	-
0.528	0.2	31.3	-	31.5	-	56.0	46.0	-24.5	-
2.227	0.2	36.0	-	36.2	-	56.0	46.0	-19.8	-
14.457	1.0	31.0	-	32.0	-	60.0	50.0	-28.0	-
29.474	1.7	28.3	-	30.0	-	60.0	50.0	-30.0	-

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



---- Date 27.AUG '99 Time 21:00:08
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CROP
MODEL: U8T011 1600X1200 85Hz/106kHz LISN: L

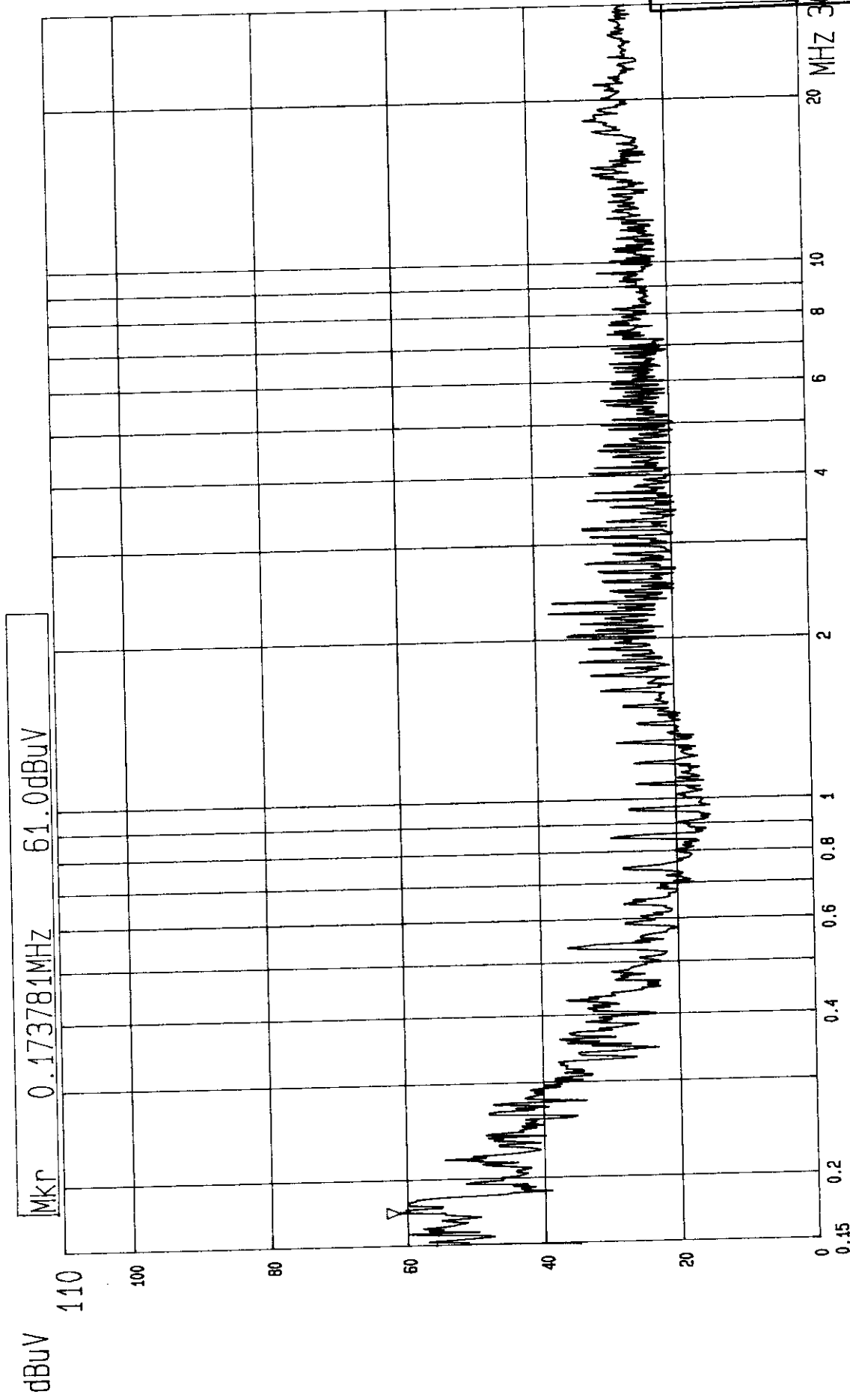


TEST DATA OF CONDUCTED EMISSION

EUT: COLOR MONITORMODEL: U8T011MODE: 1600x1200 (106 kHz)6 dB Bandwidth: 10 kHzPHASE: NEUTRAL (N)

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.
0.177	0.2	59.4	46.2	59.6	46.4	64.6	54.6	-5.0	-8.2
0.220	0.2	50.5	-	50.7	-	62.8	52.8	-12.1	-
0.528	0.2	36.0	-	36.2	-	56.0	46.0	-19.8	-
2.227	0.2	37.9	-	38.1	-	56.0	46.0	-17.9	-
14.457	0.8	30.2	-	31.0	-	60.0	50.0	-29.0	-
29.474	1.5	26.6	-	28.1	-	60.0	50.0	-31.9	-

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



---- Date 27.AUG '99 Time 20:47:33
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE) ADT CROP
MODEL: U8T011 1600X1200 85Hz/106kHz LISN: N



4.4 TEST DATA OF RADIATED EMISSION

EUT: COLOR MONITORMODEL: U8T011MODE: 1600x1200 (106 kHz)ANT. POLARITY: Horizontal

DETECTOR FUNCTION AND BANDWIDTH:

Quasi peak, 120 kHz (30-1000 MHz)Peak, 1 MHz (1000 MHz-2000 MHz)FREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 10 MFREQUENCY RANGE: 1000-2000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
160.08	11.5	7.0	18.5	30.0	-11.5	348	246
182.96	10.8	11.4	22.2	30.0	-7.8	356	265
205.87	11.5	11.4	22.9	30.0	-7.1	362	76
228.56	13.2	5.8	19.0	30.0	-11.0	391	252
251.74	14.8	8.2	23.0	37.0	-14.0	331	298
274.49	14.7	12.8	27.5	37.0	-9.5	290	307
297.41	15.8	15.9	31.7	37.0	-5.3	256	279
320.33	16.1	13.4	29.5	37.0	-7.5	277	286
526.09	21.5	5.5	27.0	37.0	-10.0	292	313

- 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



TEST DATA OF RADIATED EMISSION

EUT: COLOR MONITORMODEL: U8T011MODE: 1600x1200 (106 kHz)ANT. POLARITY: Vertical

DETECTOR FUNCTION AND BANDWIDTH:

Quasi peak, 120 kHz (30-1000 MHz)
Peak, 1 MHz (1000 MHz-2000 MHz)
FREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 10 MFREQUENCY RANGE: 1000-2000 MHzMEASURED DISTANCE: 3 M

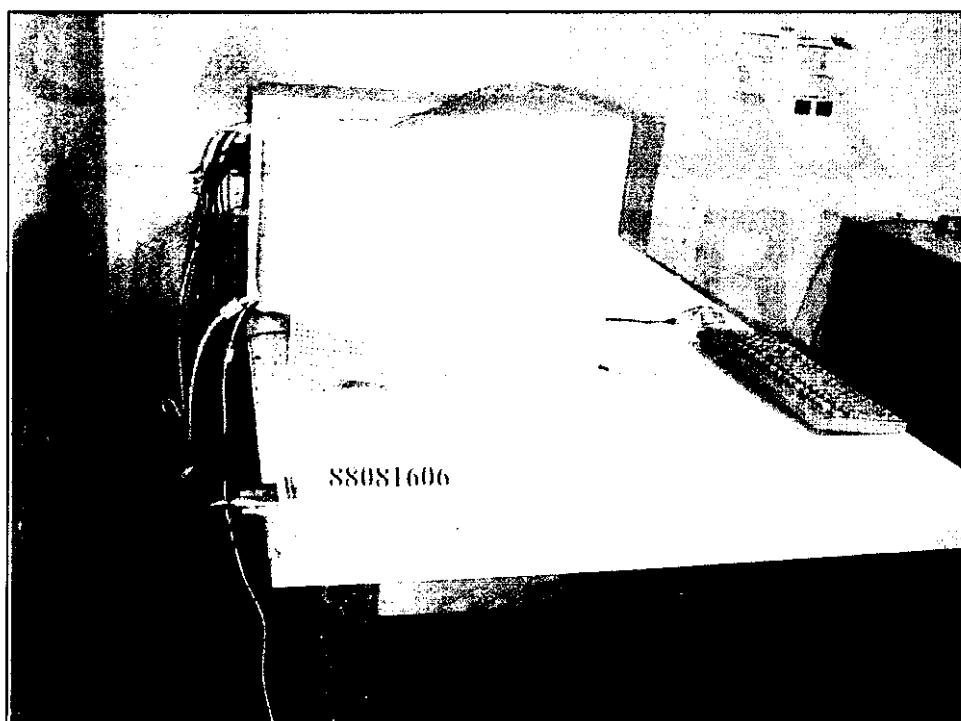
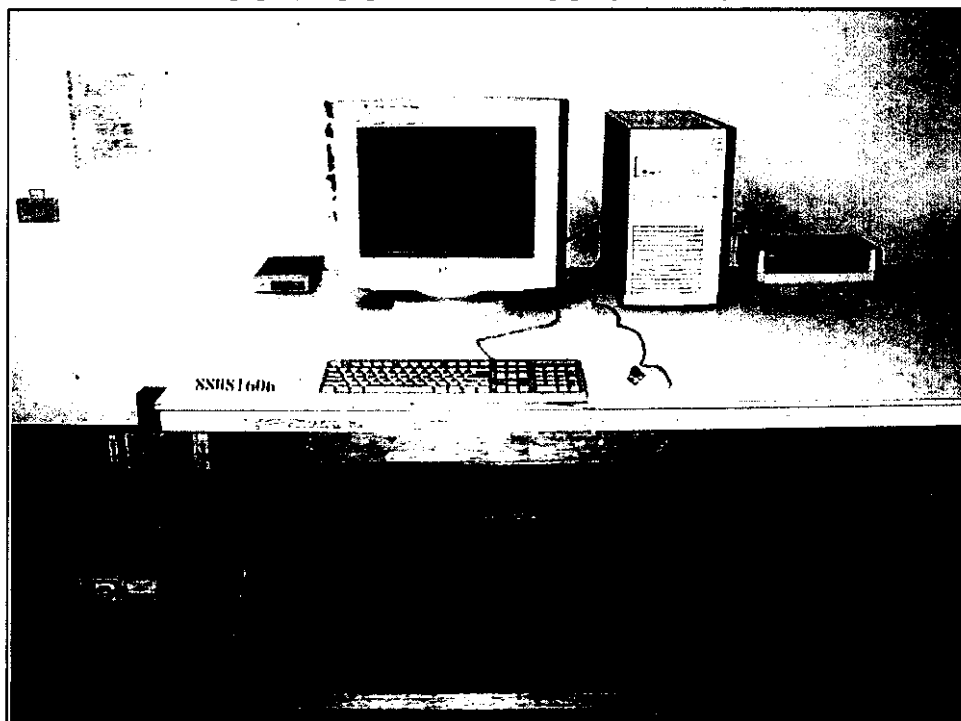
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
45.84	11.7	13.2	24.9	30.0	-5.1	100	52
68.75	7.1	15.7	22.8	30.0	-7.2	179	163
114.43	13.7	10.8	24.5	30.0	-5.5	100	120
160.28	12.4	9.3	21.7	30.0	-8.3	100	299
182.96	11.1	12.6	23.7	30.0	-6.3	100	302
205.87	11.9	10.7	22.6	30.0	-7.4	100	205
228.66	12.9	4.2	17.1	30.0	-12.9	100	74
274.49	15.5	10.9	26.4	37.0	-10.6	101	181
297.42	15.9	10.8	26.7	37.0	-10.3	110	210
526.08	21.3	5.0	26.3	37.0	-10.7	274	183

- 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



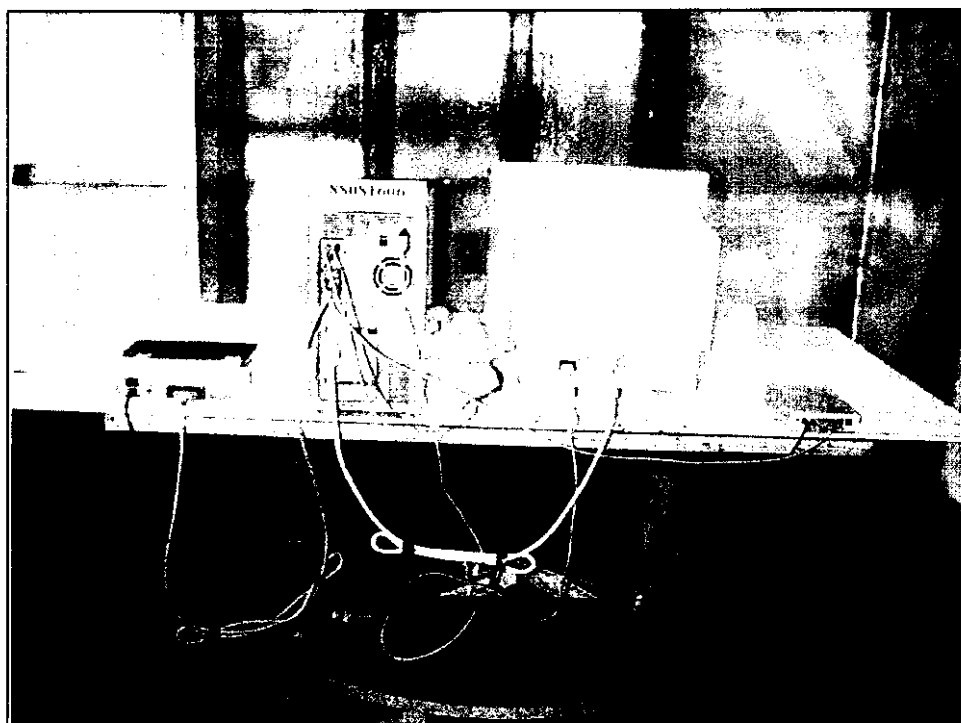
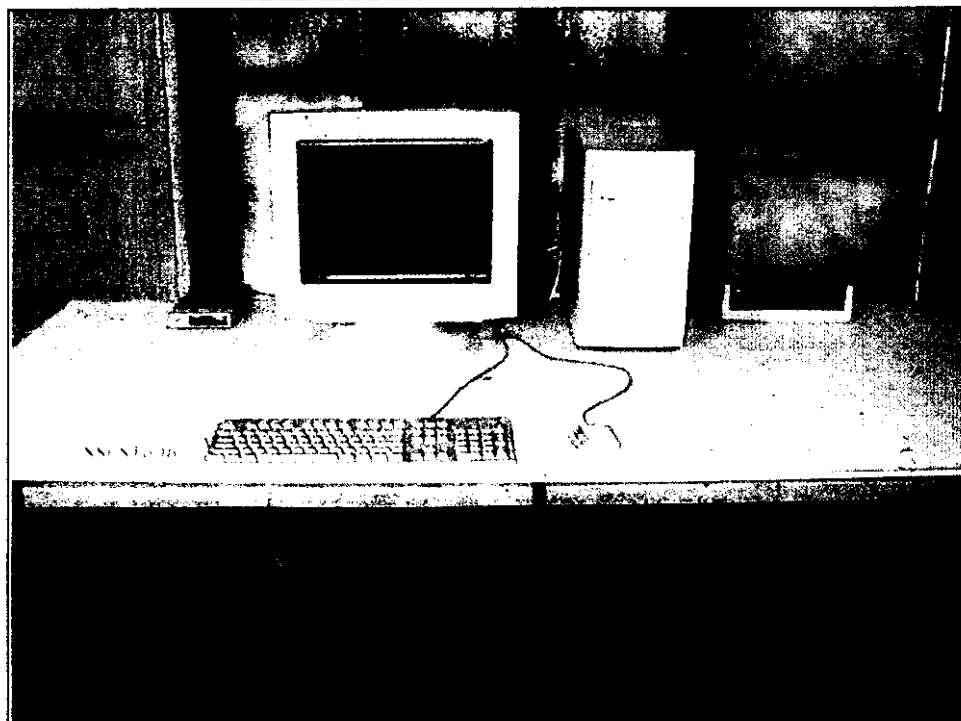
5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN

CONDUCTED EMISSION TEST





RADIATED EMISSION TEST





6. APPENDIX - INFORMATION OF THE TESTING LABORATORY

Information of the testing laboratory

We, ADT Corp., is founded in 1988, to provide our best service in EMC and Safety consultation. Our laboratory is accredited by the following approval agencies according to ISO/IEC Guide 25 or EN 45001:

- | | |
|---------------|--------------------------------------|
| ● USA | FCC, UL, NVLAP |
| ● Germany | TUV Rheinland
TUV Product Service |
| ● Japan | VCCI |
| ● New Zealand | RFS |
| ● Norway | NEMKO, DNV |
| ● U.K. | INCHCAPE |
| ● R.O.C. | BSMI |

Enclosed please find some certificates of our laboratory obtained from approval agencies. If you have any comments, please feel free to contact us with the following:

Lin Kou EMC Lab.:

Tel: 886-2-26032180

Fax: 886-2-26022943

Hsin Chu EMC Lab:

Tel: 886-35-935343

Fax: 886-35-935342

Lin Kou Safety Lab.:

Tel: 886-2-26093195

Fax: 886-2-26093184

Design Center:

Tel: 886-2-26093195

Fax: 886-2-26093184

E-mail: service@mail.adt.com.tw<http://www.adt.com.tw>