FCC ID: IAWS7T008

EMC

TEST REPORT

REPORT NO. : F88062306
MODEL NO. : S7T008, 786FD, A-740T, N-740T
DATE OF TEST : July 10, 1999

PREPARED FOR : MAG TECHNOLOGY CO., LTD.

ADDRESS : 9F, 245, SEC. 1, TUNHWA S. RD., TAIPEI, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION

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

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1. CERTIFICATION

Issue Date: July 15, 1999

Product	:	COLOR MONITOR
Trade Name	:	MAG, PACIFIC
Model No.	:	S7T008, 786FD, A-740T, N-740T
Applicant	:	MAG TECHNOLOGY CO., LTD.
Standard	:	FCC Part 15, Subpart B, Class B ANSI C63.4-1992 CISPR 22: 1993+A1: 1995+A2: 1996, Class B

We hereby certify that one sample of the designation has been tested in our facility on July 10, 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 : Ken Liu , DATE: 7/15/99
(Ken Liu)

CHECKED BY : Stacy Chang , DATE: 7/15/99
(Stacy Chang)

APPROVED BY : Mike Su , DATE: 7/15/99.
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	S7T008, 786FD, A-740T, N-740T
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8 m)
Data Cable	:	Shielded (1.8 m)

Note: The EUT is a 17" Color Monitor with resolution up to 1600x1200.

The EUT has four model names which are identical to each other in all aspects except for their brand names:

- Model: S7T008, Brand: MAG
- Model: 786FD, Brand: MAG
- Model: A-740T, Brand: Pacific
- Model: N-740T, Brand: Pacific

From the above models, model: S7T008 was selected as representative model for the test, and its data is recorded in this report.

There is one ferrite core 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 (1.2 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	ESHS30	828765/002	July 29, 1999
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	828075/003	July 27, 1999
EMCO-L.I.S.N.	3825/2	90031627	July 27, 1999
Shielded Room	Site 5	ADT-C05	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 +/- 3dB, 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) * dBuV/m	Class B (at 10m) * 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	:	27 ℃
Humidity	:	56 %
Atmospheric Pressure	:	1003 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -13.6 dB at 1.722 MHz Minimum passing margin of radiated emission: -2.8 dB at 228.64 MHz

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

* 1600x1200 mode (75 kHz)
* 1280x1024 mode (80 kHz),
* 640x480 mode (31.5 kHz)

The worst emission levels were found under 1600x1200 (75 kHz) and therefore 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 MONITOR** MODEL: **S7T008**

MODE: **1600x1200 (75kHz)** 6 dB Bandwidth: 10 kHz

PHASE: LINE (L)

Freq.	Meter Reading [dB (uV)]					Limit		Margin	
[MHz]	Corr.	Reading Data		Total		[dB (uV)]		[dB (uV)]	
	Factor	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.161	0.1	47.2	-	47.3	-	65.4	55.4	-18.1	-
0.239	0.2	41.9	-	42.1	-	62.1	52.1	-20.0	-
0.681	0.3	30.6	-	30.9	-	56.0	46.0	-25.1	-
1.722	0.3	42.1	-	42.4	-	56.0	46.0	-13.6	-
13.140	0.9	31.8	-	32.7	-	60.0	50.0	-27.3	-
17.261	1.2	33.8	-	35.0	-	60.0	50.0	-25.0	-

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.

ADT CORP. Shielded Room 5
CISPR 22 CLASS B

10. Jul 99 10:43

EUT: S7T008
Test Spec: LISN : L

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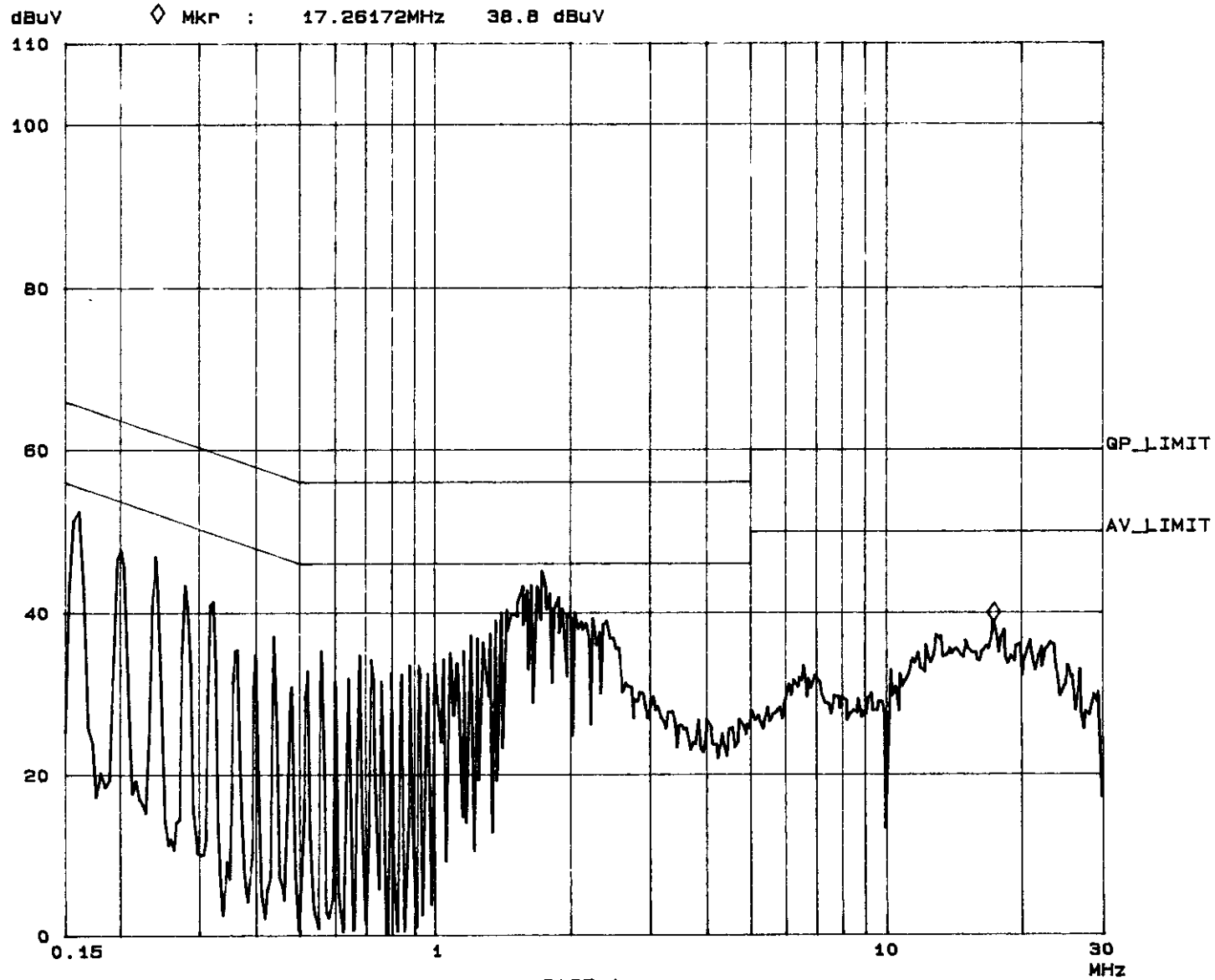
Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	3.9k	9k	AV	10ms	10dBLN	OFF
1M	10M	3.9k	9k	AV	0.10ms	10dBLN	OFF
10M	30M	3.9k	9k	AV	0.10ms	10dBLN	OFF



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TEST DATA OF CONDUCTED EMISSION

EUT: **COLOR MONITOR** MODEL: **S7T008**

MODE: **1600x1200 (75kHz)** 6 dB Bandwidth: 10 kHz

PHASE: NEUTRAL (N)

Freq.	Meter Reading [dB (uV)]					Limit		Margin	
[MHz]	Corr.	Reading Data		Total		[dB (uV)]		[dB (uV)]	
	Factor	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.161	0.1	44.2	-	44.3	-	65.4	55.4	-21.1	-
0.239	0.2	43.1	-	43.3	-	62.1	52.1	-18.8	-
0.681	0.3	29.6	-	29.9	-	56.0	46.0	-26.1	-
1.722	0.3	39.5	-	39.8	-	56.0	46.0	-16.2	-
13.140	0.7	33.1	-	33.8	-	60.0	50.0	-26.2	-
17.261	0.8	33.8	-	34.6	-	60.0	50.0	-25.4	-

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 levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.

ADT CORP. Shielded Room 5
CISPR 22 CLASS B

10. Jul 99 11:04

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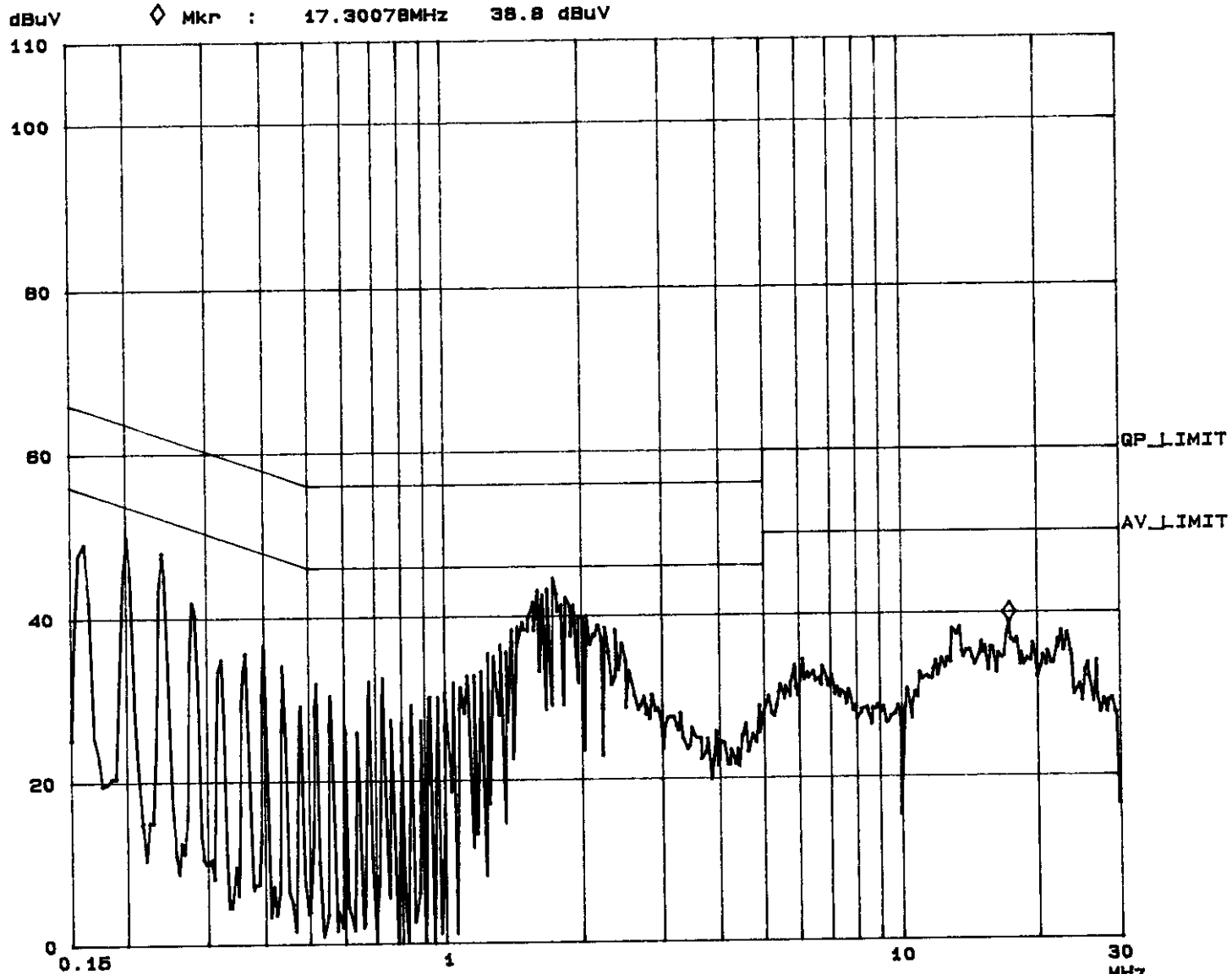
Tested by Ken Liu

EUT: STT008
Test Spec: LISN : N

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	3.9k	9k	AV	10ms	10dBLN	OFF
1M	10M	3.9k	9k	AV	0.10ms	10dBLN	OFF
10M	30M	3.9k	9k	AV	0.10ms	10dBLN	OFF



4.4 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **S7T008**

MODE: **1600x1200 (75kHz)** 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 MHz MEASURED DISTANCE: 10 M

FREQUENCY RANGE: 1000-2000 MHz MEASURED 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)
67.29	7.5	12.3	19.8	30.0	-10.2	380	181
134.58	13.8	10.1	23.9	30.0	-6.1	400	104
161.51	11.3	9.3	20.6	30.0	-9.4	400	258
174.91	11.5	13.5	25.0	30.0	-5.0	400	248
201.80	12.0	13.3	25.3	30.0	-4.7	400	264
228.70	14.0	11.8	25.8	30.0	-4.2	400	131
242.19	14.9	14.0	28.9	37.0	-8.1	400	72
269.11	16.5	6.6	23.1	37.0	-13.9	400	179
282.56	16.3	8.8	25.1	37.0	-11.9	400	182

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

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TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR** MODEL: **S7T008**

MODE: **1600x1200 (75kHz)** 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 MHz MEASURED DISTANCE: 10 M

FREQUENCY RANGE: 1000-2000 MHz MEASURED 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)
67.30	6.5	12.9	19.4	30.0	-10.6	216	156
134.59	14.1	12.1	26.2	30.0	-3.8	100	86
148.06	13.1	6.4	19.5	30.0	-10.5	100	118
174.95	11.4	15.5	26.9	30.0	-3.1	100	141
201.84	12.7	12.4	25.1	30.0	-4.9	100	182
215.30	13.3	7.1	20.4	30.0	-9.6	100	154
228.64	14.0	13.2	27.2	30.0	-2.8	100	141
242.20	14.6	17.5	32.1	37.0	-4.9	100	148
269.10	15.8	14.7	30.5	37.0	-6.5	100	164
282.57	15.9	11.5	27.4	37.0	-9.6	100	186

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

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, SGS
• 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:

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