

EXHIBIT 4
RFI/EMI TEST REPORT



EMC

TEST REPORT

REPORT NO. : F87092503
MODEL NO. : JD199A
DATE OF TEST : Sept. 30, 1998

PREPARED FOR : JEAN CO., LTD.

ADDRESS : 5F, 167, FU HSING N. RD.,
TAIPEI, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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1.

CERTIFICATION

Issue Date: Oct. 03, 1998

Product : COLOR MONITOR
Trade Name : JEAN
Model No. : JD199A
Type No. : J91A
Applicant : JEAN CO., LTD.
Standard : FCC Part 15, Subpart B, Class B
ANSI C63.4-1992
CISPR 22:1993+A1:1995+A2:1997

We hereby certify that one sample of the designation has been tested in our facility on Sept. 30, 1998. 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: 10/03/98
(John Liao)

CHECKED BY: Yemmy Soong , DATE: 10/03/98
(Yemmy Soong)

APPROVED BY: Mike Su , DATE: 10/03/98
(Mike Su)

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	COLOR MONITOR
Model No.	:	JD199A
Power Supply Type	:	Switching
Power Cord	:	Nonshielded (1.8m)
Data Cable	:	Shielded (1.5m)

Note: The EUT is a 15" color monitor with resolution up to 1600x1200.

There is one ferrite core on the video cable outside the monitor.

For more detailed features description, please refer to ATTACHMENT 1 -
TECHNICAL DESCRIPTION OF EUT and 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-233T	FCC Doc Approved	Nonshielded Power (1.8m)
2	KEYBOARD	FORWARD	FDA-104GA	F4ZDA-104G	Shielded Signal (1.4m)
3	MOUSE	DEXIN	A2P800A	NIYA2P800A	Shielded Signal (1.5m)
4	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.1m) Nonshielded Power (1.9m)
5	MODEM	ACEEX	1414	IFAXDM1414	Shielded signal (1.2m) Nonshielded Power (1.9m)
6	VGA CARD	CARDEX	CD-GX2A44T	ICUVGA-GW710	N/A

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 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)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated until
HP Spectrum Analyzer	8590L	3544A00941	Dec. 14, 1998
HP Pre-Amplifier	8447D	2944A08312	March 14, 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. 28, 1998
CHASE BILOG Antenna	CBL6111A	1500	Sept. 4, 1999
EMCO Double Ridged Guide Antenna	3115	9312-4192	April 3, 1999
EMCO Turn Table	1060-04	1196	N/A
EMCO Tower	1051	1264	N/A
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 NAMA's 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.

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 15, 1999
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 16, 1999
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 14, 1999
EMCO-L.I.S.N.	3825/2	9204-1964	July 14, 1999
Shielded Room	Site 2	ADT-C02	N/A

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

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

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
Above 1000	300	49.5	500	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 : 70 %
Atmospheric Pressure : 998 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -15.6 dB at 7.406 MHz Minimum passing margin of radiated emission: -3.4 dB at 192.03 MHz

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

- * 1600x1200 mode (93.7 kHz),
- * 1280x1024 mode (91 kHz),
- * 640x480 mode (31.5 kHz)

The worst emission levels were found under 1600x1200 (93.7 kHz) and therefore the test data of only this mode is recorded.

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipments.
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 monitor (EUT) and 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: JD199A

MODE: 1600x1200 (93.7 kHz)

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: John Liao

Freq.	L Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.186	47.30	-	47.50	-	64.18	54.18	-16.9	-	-16.7	-
0.560	35.60	-	35.90	-	56.00	46.00	-20.4	-	-20.1	-
0.748	35.90	-	33.20	-	56.00	46.00	-20.1	-	-22.8	-
4.031	39.80	-	38.30	-	56.00	46.00	-16.2	-	-17.7	-
7.406	44.40	-	43.70	-	60.00	50.00	-15.6	-	-16.3	-
24.559	35.70	-	37.80	-	60.00	50.00	-24.3	-	-22.2	-

- 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



4.4 TEST DATA OF RADIATED EMISSION

EUT: **COLOR MONITOR**MODEL: **JD199A**MODE: **1600x1200 (93.7 kHz)**POLARITY: Horizontal

ANTENNA: CHASE BILOG CBL6111A & EMCO 3115

 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

TEST PERSONNEL: *John Liao*

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
46.82	12.2	6.9	19.1	30.0	-10.9
67.49	7.4	6.4	13.8	30.0	-16.2
86.42	9.7	6.5	16.2	30.0	-13.8
155.83	13.3	5.4	18.7	30.0	-11.3
171.60	12.5	4.3	16.8	30.0	-13.2
186.94	12.4	4.0	16.4	30.0	-13.6
192.03	12.5	13.6	26.1	30.0	-3.9
202.77	12.9	5.7	18.6	30.0	-11.4
217.98	14.2	6.4	20.6	30.0	-9.4

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB/m) + Meter Reading (dBuV).
 2. Correction Factor (dB/m) = Ant. Factor (dB/m) + 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 MONITOR

MODEL: JD199A

MODE: 1600x1200 (93.7 kHz)

POLARITY: Vertical

ANTENNA: CHASE BILOG CBL6111A & EMCO 3115

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

TEST PERSONNEL: John Liad

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
46.81	11.5	13.9	25.4	30.0	-4.6
67.48	7.6	13.9	21.5	30.0	-8.5
86.41	8.9	9.8	18.7	30.0	-11.3
124.64	15.6	5.9	21.5	30.0	-8.5
155.83	14.0	10.0	24.0	30.0	-6.0
171.60	13.0	11.4	24.4	30.0	-5.6
186.94	12.7	11.2	23.9	30.0	-6.1
192.03	13.0	13.6	26.6	30.0	-3.4
202.75	13.5	9.7	23.2	30.0	-6.8
217.99	14.2	9.8	24.0	30.0	-6.0

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB/m) + Meter Reading (dBuV).
 2. Correction Factor (dB/m) = Ant. Factor (dB/m) + Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



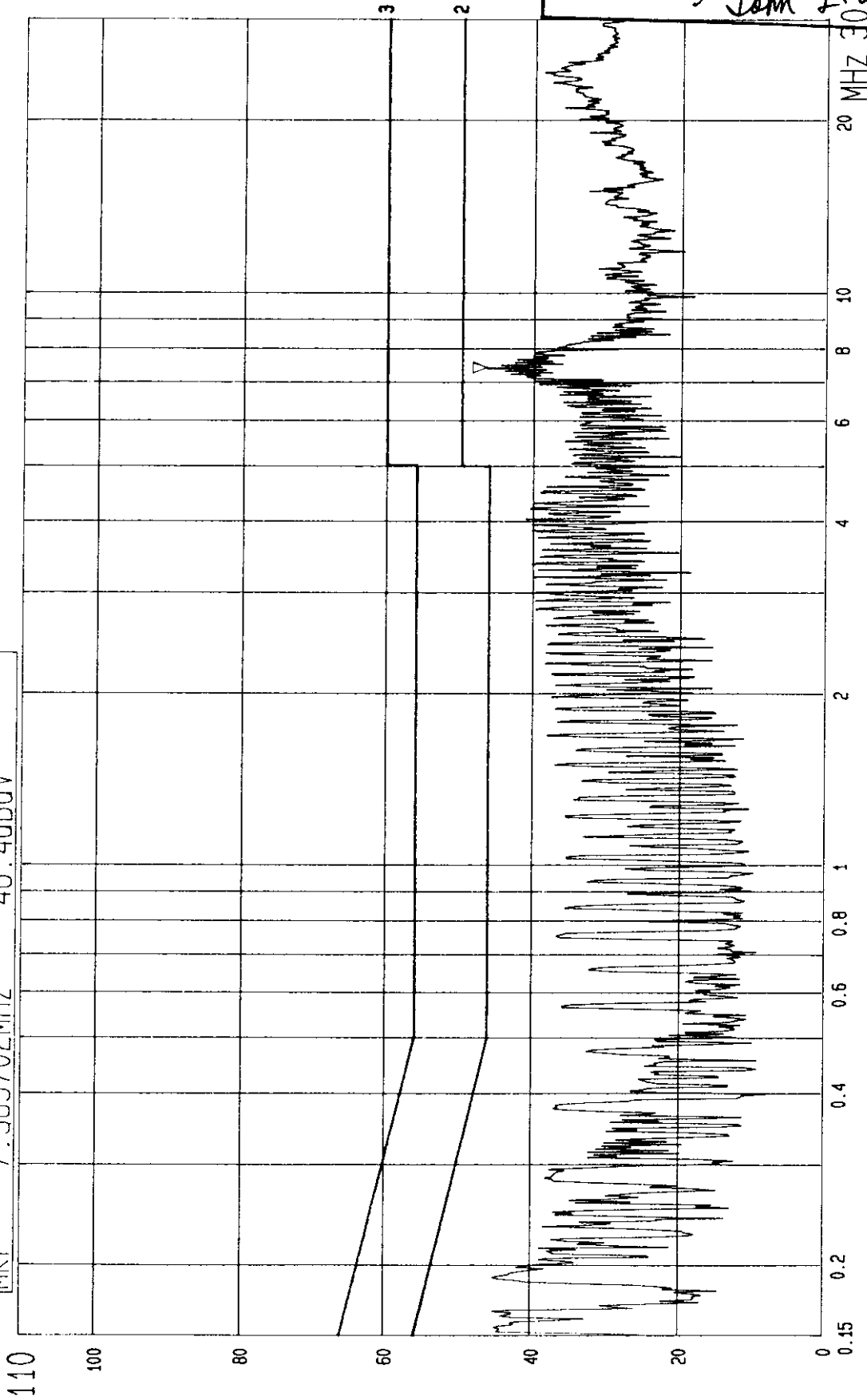
6. ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT

Specifications:

* CRT	Type	19" (Viewable size 18)
	Dot Pitch	Specified on carton box
	Phosphor	RGB, medium persistence
	Glass Surface	Anti-Static, Anti-reflection coating
* Input Signal	Video	RGB Analogue
	Sync.	H/V separate (TTL)
		H: 30-95 KHz, V: 50-160 KHz
* Compatibility	IBM PC	IBM® XT, AT, 386, 486, Pentium®, PS/2 and compatibles.
	Macintosh	Macintosh II, LC, Quadra series, Power Mac, Macintosh Clones.
* Connectors	Rear	Video-in : 15-pin HD mini D-SUB
		Power : 3-pin plug
* Power	Voltage	AC : 100-240 V
	Consumption	AC : 130 watts (typical)
* Operation Temperature		0°C ~ 45°C
* Dimension		Specified on carton box
* Weight	Net weight	22 kgs
	Gross weight	27 kgs

dBuV

Mkr 7.389702MHz 46.4dBuV

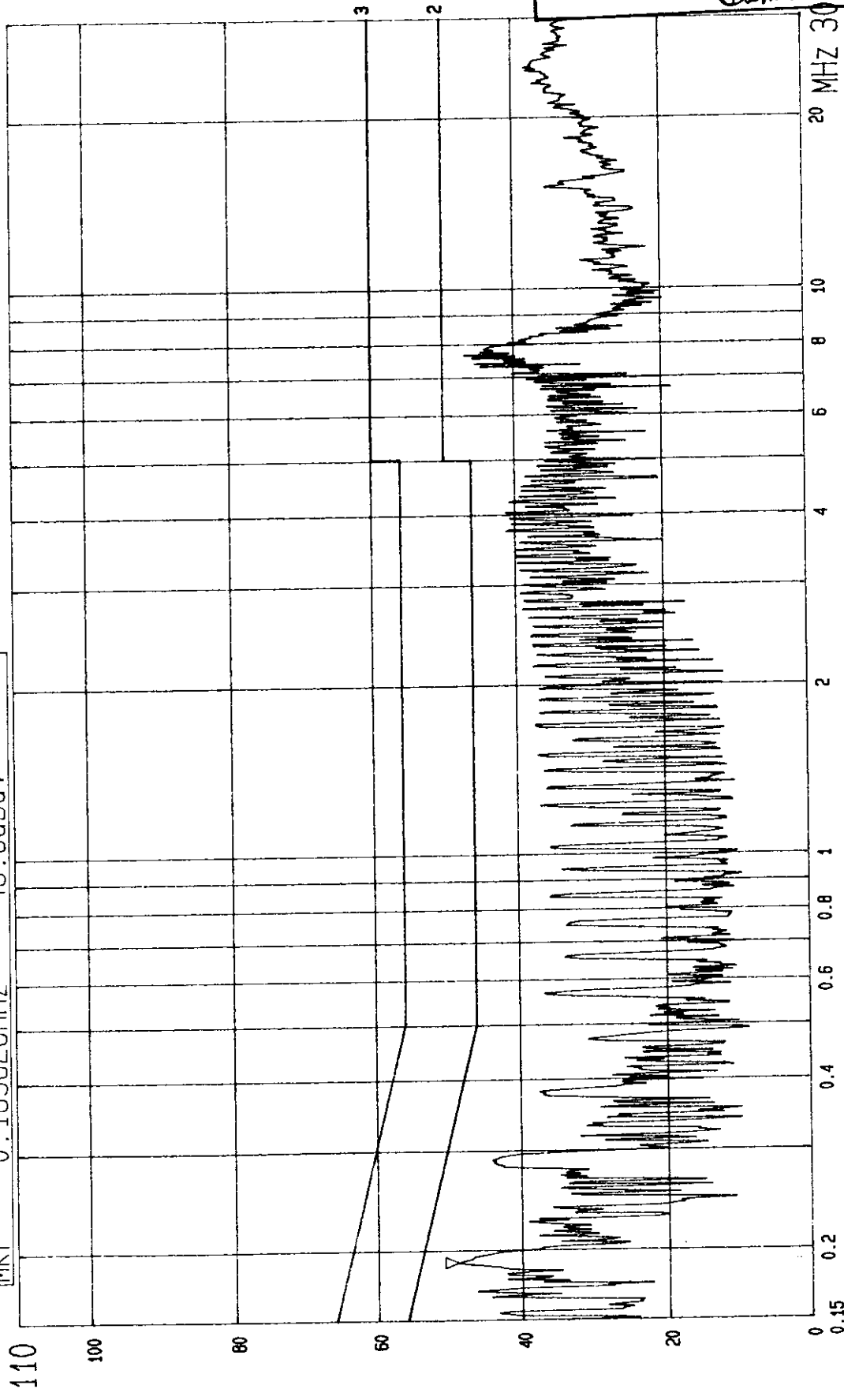


--- Date 30.SEP.'98 Time 19:46:22
CISPR 22 CLASS B CONDUCTION TEST
MODE: JD199A 1600X1200 93.7kHz

(PEAK VALUE)
ADT CORP
LISN: L

Mkr 0.189826MHz 48.6dBuV

dBuV



---- Date 30.SEP.'98 Time 19:51:35
CISPR 22 CLASS B CONDUCTION TEST (PEAK VALUE)
MODE: JD199A 1600X1200 93.7kHz
ADT CORP
LISN: N