94465

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June 21, 1999
ICIPD99-F006
EA94465

Federal Communications Commission
Equipment Authorization Division
7435 Oakland Mills Road
Columbia, MD. 21046

Attn.: Mrs. Linda Elliott, Legal Application Examiner

Subject: Supplement to Original Matsushita Application for Class B Computing Device Peripheral
FCC ID: ACJ92512128 / Monitor, Model TX-T7F37A Series, Chassis Family 17THV15A

Dear Mrs. Elliott:

Please be advised Matsushita Electric Industrial Co., Ltd.'s original application dated May 17, 1999 was issued Confirmation Number EA94465 and logged into you facility on May 28, 1999. As of today, FCC's web site indicates this application was assigned for technical review on June 10, 1999 and its final review and grant are still pending.

The original application for monitor model TX-T7S37 Series under Chassis Family 17THV15Z reported 17" Multi-Scan Color Monitor that supports Hf 30~70 kHz, Vf 50~180 Hz frequencies with maximum resolution up to 1280x1024, Non-Interlaced. Also, it was reported as provided with such features as: (1) 1.8m non-shielded detachable power cord; (2) 1.5m shielded detachable 15-Pin D-Sub connector interface cable with two bonded ferrite cores; and (3) Panasonic CRT type M41LQU480X11.

This supplement filing is to report alternate construction for added model TX-T7F37A Series under Chassis Family 17THV15A. This alternate construction is the same as the original filing, except for following Class II Change type changes: (1) change model number and chassis number; (2) alternate CRT by Panasonic, type M41KXH320X01; (3) added audio circuitry with internal speakers and microphone; and (4) added terminal ports for audio, microphone and headphone.

This alternate construction monitor was system tested in accordance with ANSI C63.4-1992 to show compliance to FCC Part 15 Class B limits. Five preliminary tests were performed in different working frequencies and video modes while monitor's power cord was connected directly to the LISN and again while connected to the host PC. The worst-case test mode being fully reported is 1280x1024 @ 66 kHz.

Should you have any comments, please contact the undersigned. Thank you for your attention and cooperation in this matter.

Sincerely yours,

Richard Mullen
Project Manager
Product Safety & Compliance

6/25/99

1. General Information

1.1 NOTICE OF ALTERNATE CONSTRUCTION

Application Type : Certification
FCC ID : ACJ92512128
Models : TX-T7F37A* (Panasonic)
M-T7F37A* (No Brand)

(1). This is to make an application for certification of above mentioned models.
All these models marketted under FCC ID:ACJ92512128 are identical to previously reported original application, except that note below:

Item	ICIPD99-F005 EA94465 Current Construction	ICIPD99-F006 Alternate Construction
◎ Model Number	TX-T7S37*/M-T7S37*	TX-T7F37A*/M-T7F37A*
◎ CRT	M41LQU480X11 (Panasonic)	M41KXH320X01(Panasonic)
◎ Audio PWB Circuit	None	Provided (TNP4CA0024)
◎ Audio In and Microphone Out Cable	None	Provided
◎ Terminal Ports (Audio Input, Mic. I/0 and Headphone)	None	Provided
◎ Internal Speakers and Microphone	None	Provided
◎ Chassis Family	17THV15Z	17THV15A

(2). The original models (TX-T7S37*/M-T7S37*) and similar models (TX-T7F37A*/M-T7F37A*) will be producted and marketted simultaneously in the future.

1.2 Comparison Information For These Models

(1). The model no. TX-T7F37A* is treated as a basic model and model no. M-T7F37A* are similar to the basic model.

(2). The model no. M-T7F37A* are precisely identical to the basic model no. TX-T7F37A*, except that:

(1). The model number is different.

(2). The trade name is different.

Comparison Table of These Models

Item \ Model	Basic Model	Similar Model
Model No.	TX-T7F37A*	M-T7F37A*
Trade Name	Panasonic	No Brand

(3). Therefore the data and description attached for the basic model no. TX-T7F37A* are also applicable t and representative of the similar model no. M-T7F37A*.

(4). We also guarantee that every precaution regarding to FCC Rules and Regulations will be taken at the actual production line of the additional model as well as that of the basic model.

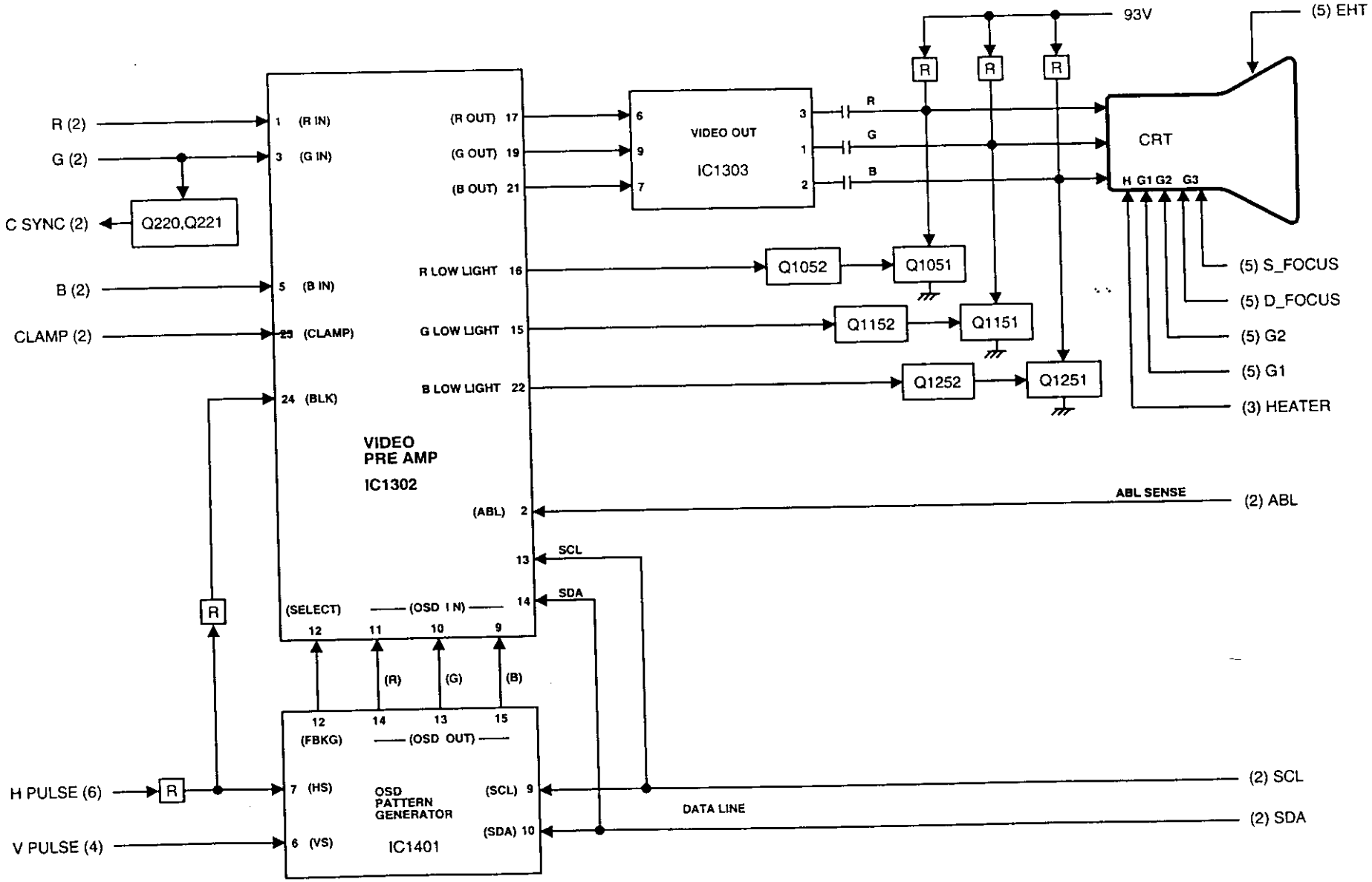
EXHIBIT 2

Alternate Block Diagram

BLOCK DIAGRAM

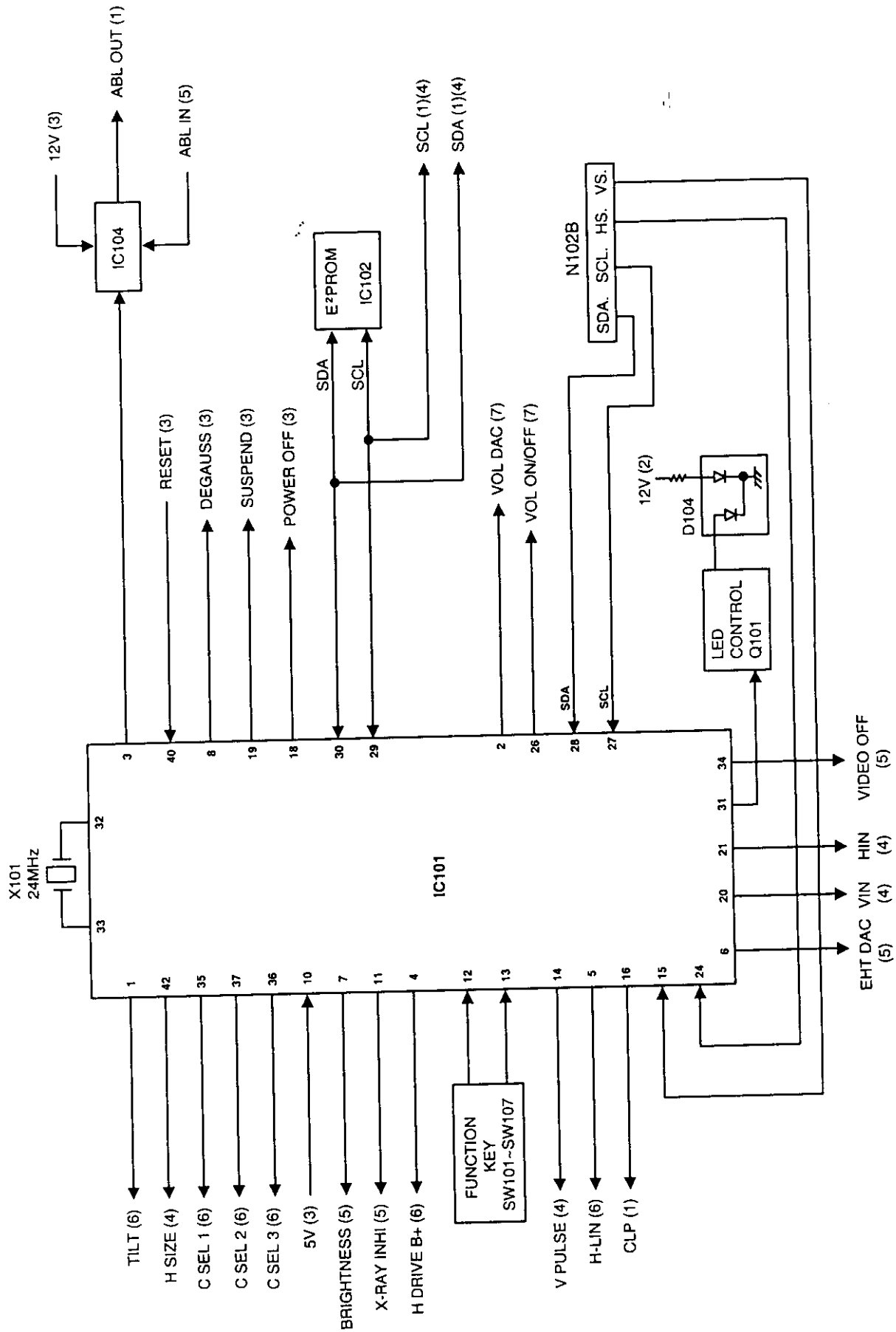
MODEL NO: TX-T7F37A

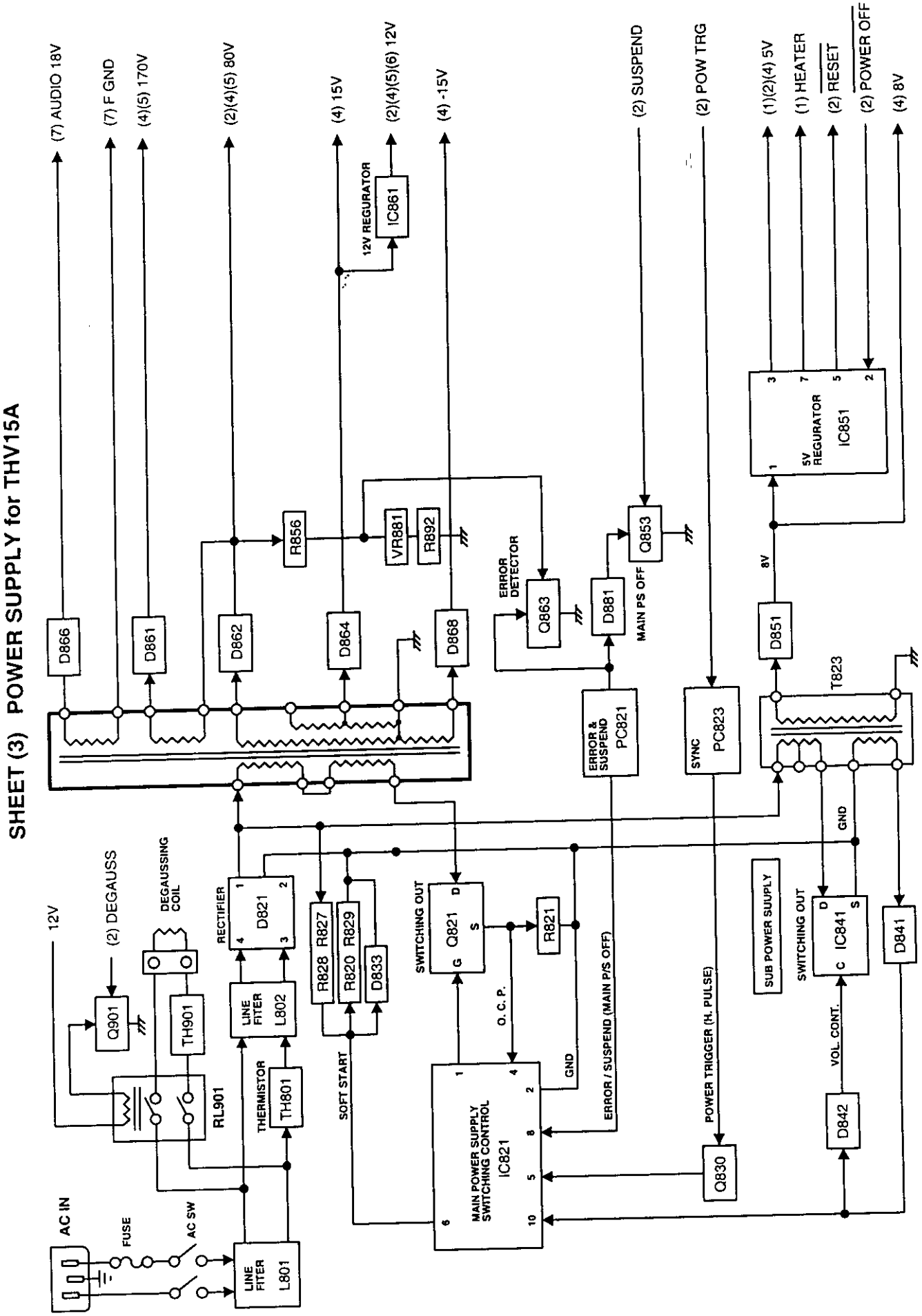
SHEET (1) VIDEO AMP for THV15A



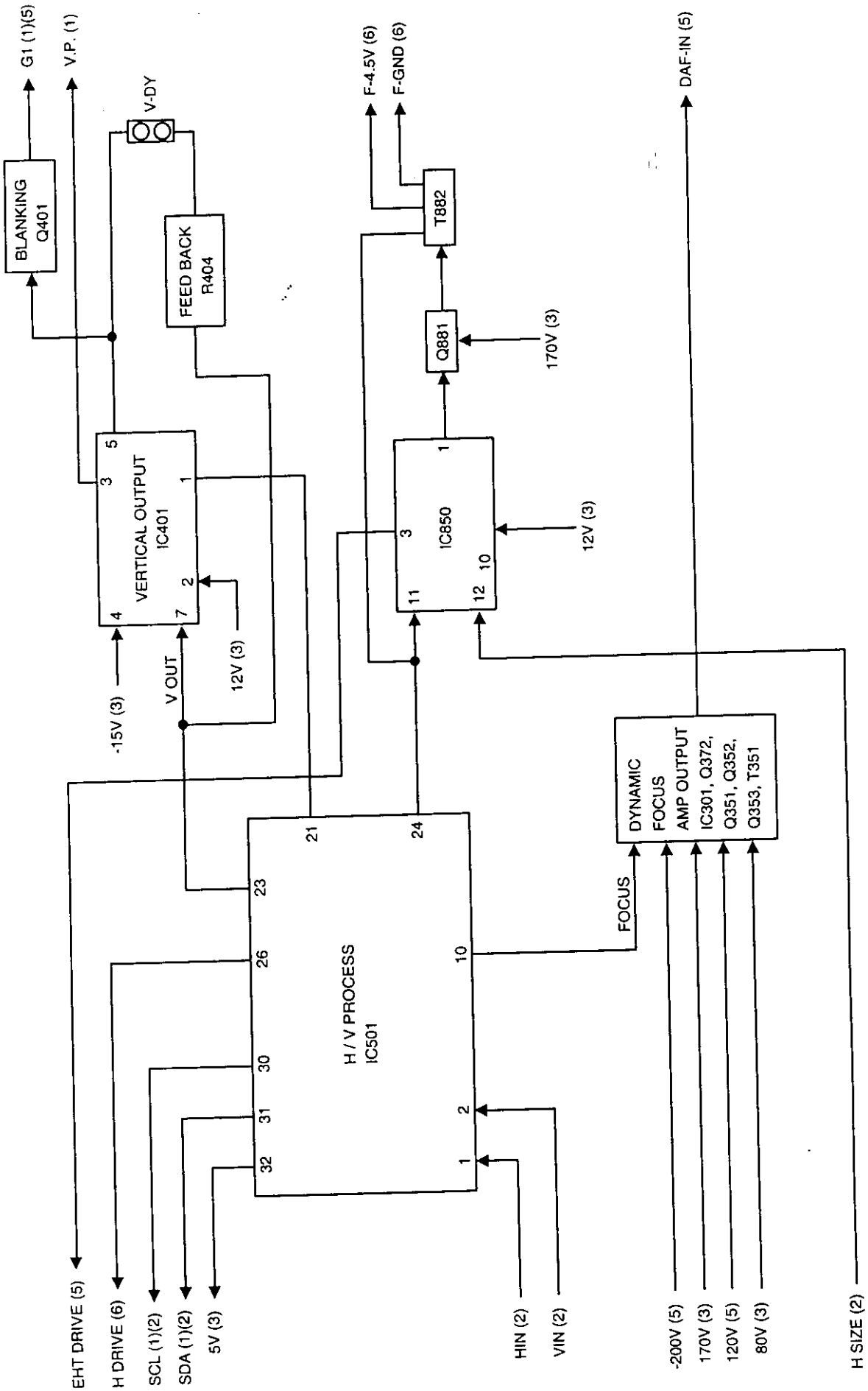
FCC ID: ACJ92512128

SHEET (2) MCU / BLOCK for THV15A

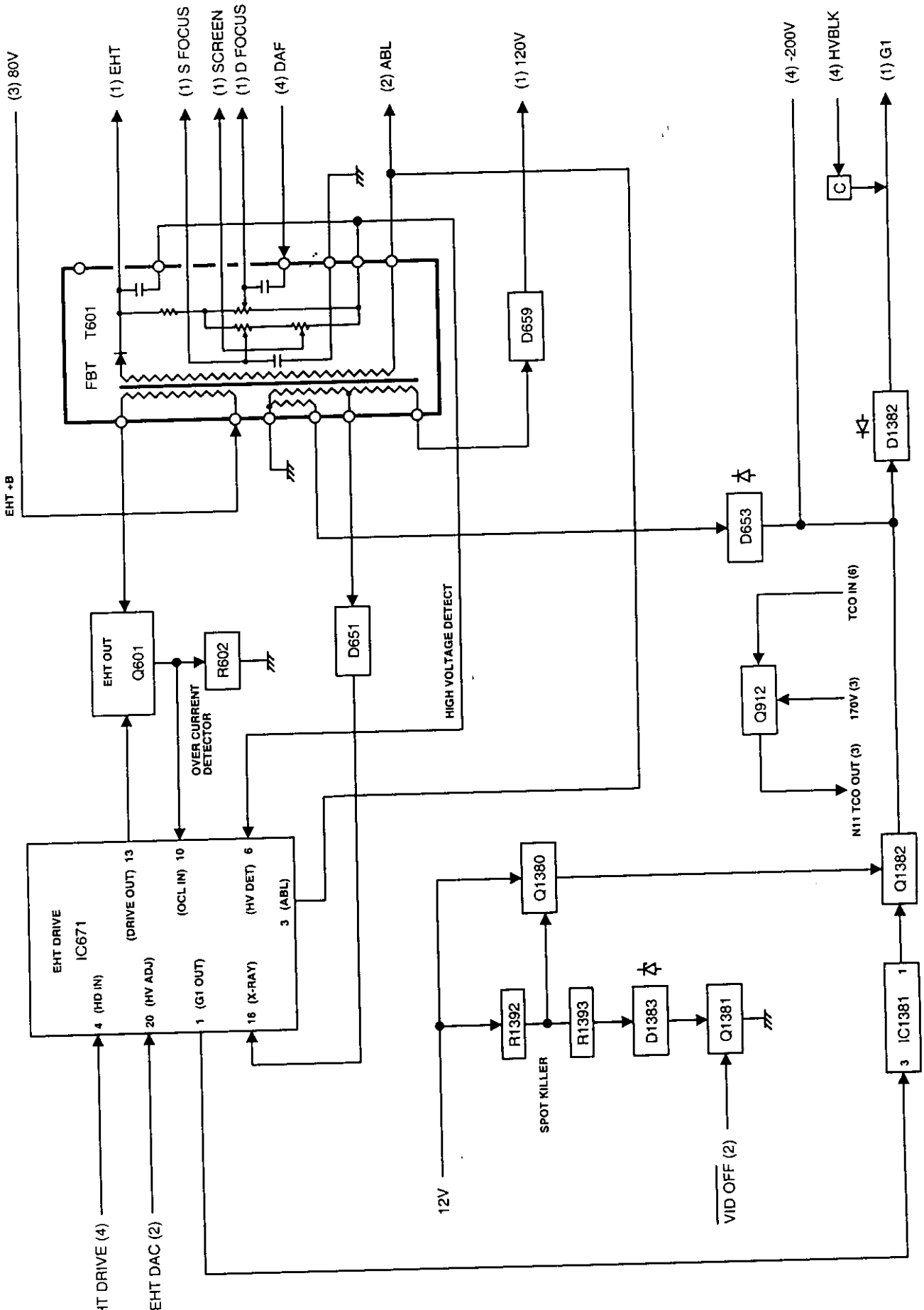



SHEET (3) POWER SUPPLY for THV15A
AC IN
FUSE
AC SW
LINE FITER L801
THERMISTOR TH801
LINE FITER L802
RECTIFIER D821
RL901
DEGAUSSING COIL
(2) DEGAUSS
Q901
TH901
12V
SOFT START
R828 R827
R820 R829
D833
SWITCHING OUT
Q821
R821
O. C. P.
GND
MAIN POWER SUPPLY SWITCHING CONTROL IC821
ERROR / SUSPEND (MAIN P/S OFF)
POWER TRIGGER (H. PULSE)
Q830
SUB POWER SUUPLY
SWITCHING OUT
IC841
VOL CONT.
D842
D841
GND
T823
D851
8V
5V REGURATOR IC851
(1)(2)(4) 5V
(1) HEATER
(2) RESET
(2) POWER OFF
(4) 8V
ERROR & SUSPEND PC821
SYNC PC823
MAIN P/S OFF
Q853
D881
ERROR DETECTOR
Q863
(2) SUSPEND
(2) POW TRG
D866
D861
D862
D864
D868
R856
VR881
R892
12V REGURATOR IC861
(7) AUDIO 18V
(7) F GND
(4)(5) 170V
(2)(4)(5) 80V
(4) 15V
(2)(4)(5)(6) 12V
(4) -15V

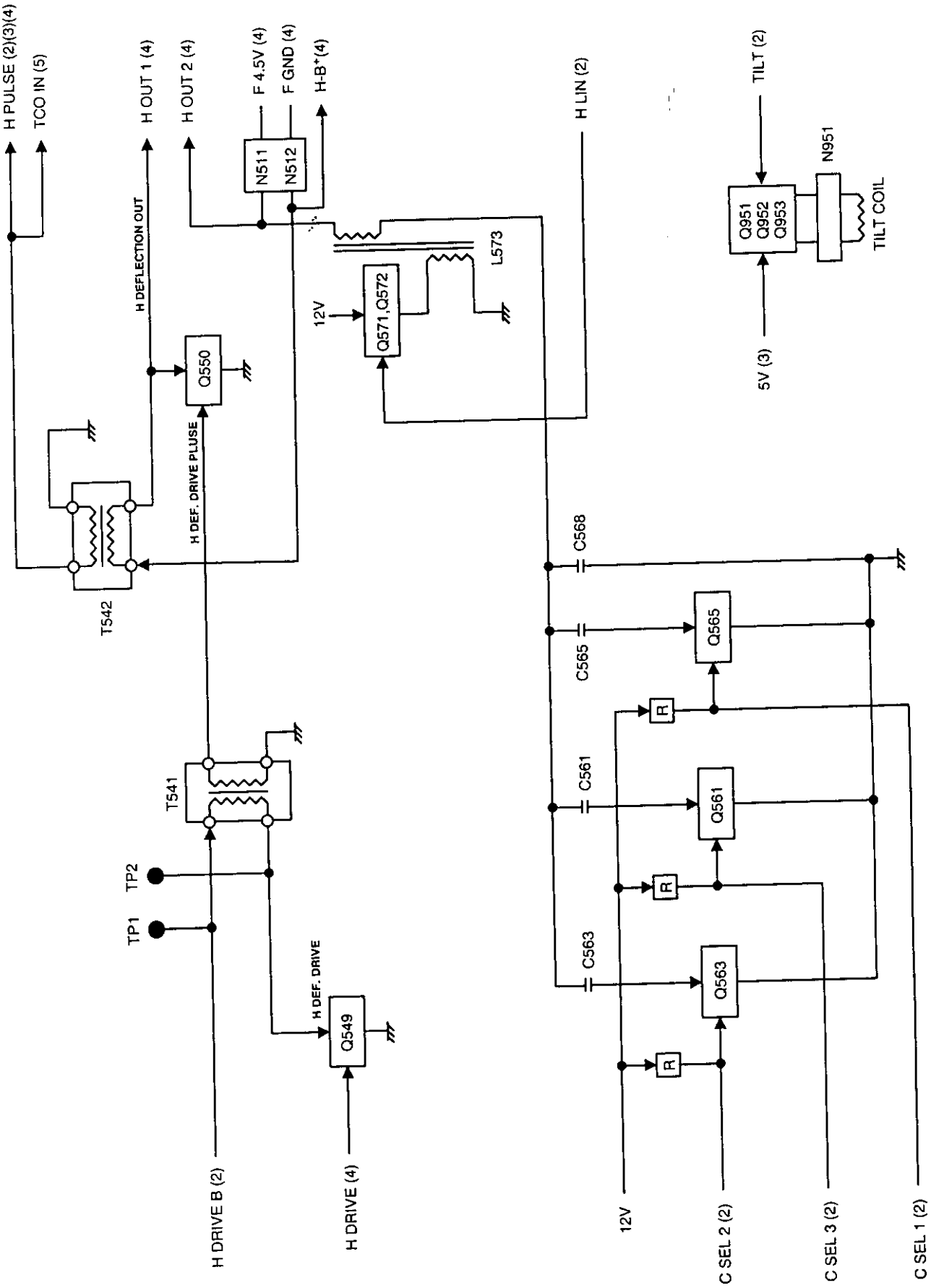
SHEET (4) H / V PROCESS / V. OUTPUT / DAF CIRCUIT / HOR. DEF for THV15A



SHEET (5) EHT OUT for THV15A



SHEET (6) HORIZONTAL DEFLECTION for THV15A



SHEET (7) / AUDIO CONTROL for THV15A

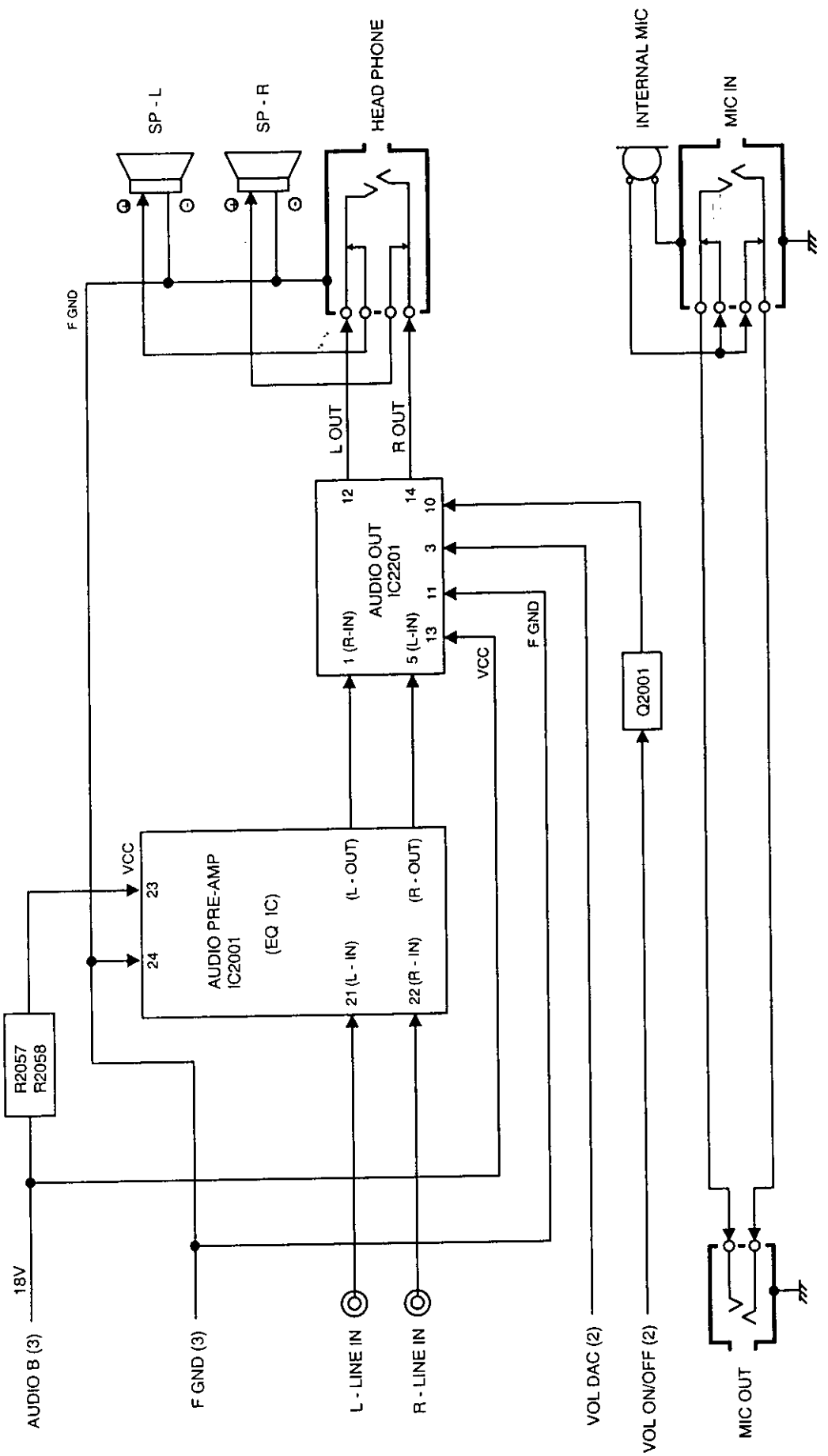
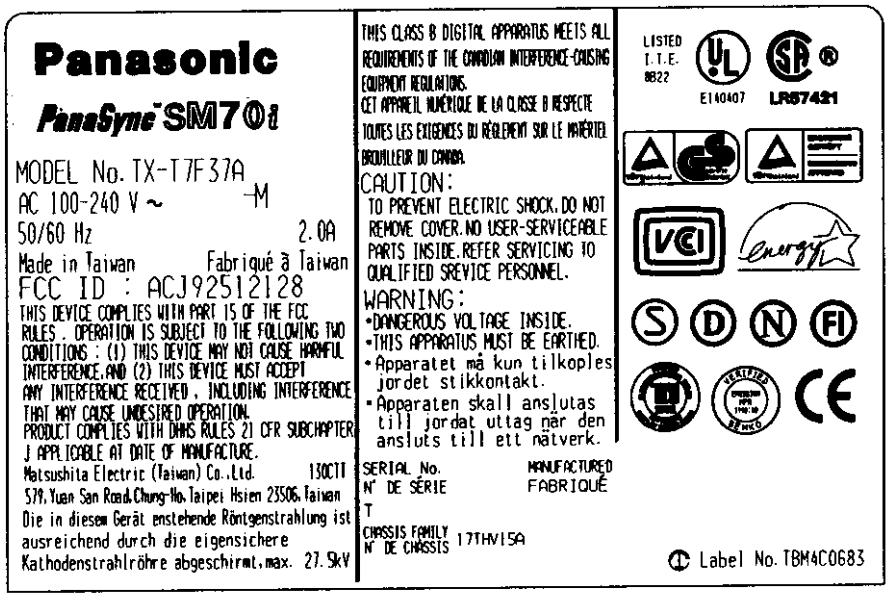


EXHIBIT 3

Alternate Label Drawing

3. Label Drawing

Figure 3.1. FCC ID Label



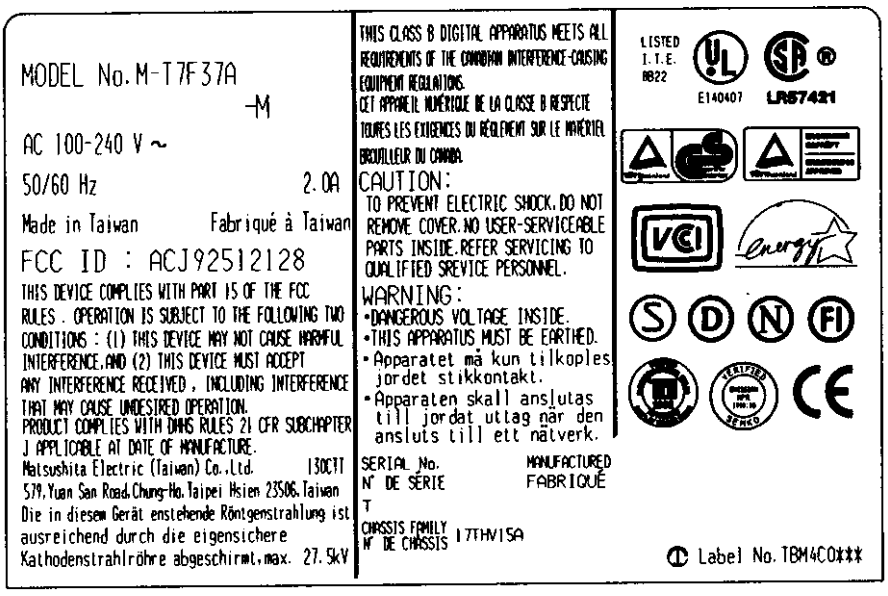


Figure 3.2. Location of Label on EUT (Rear View)

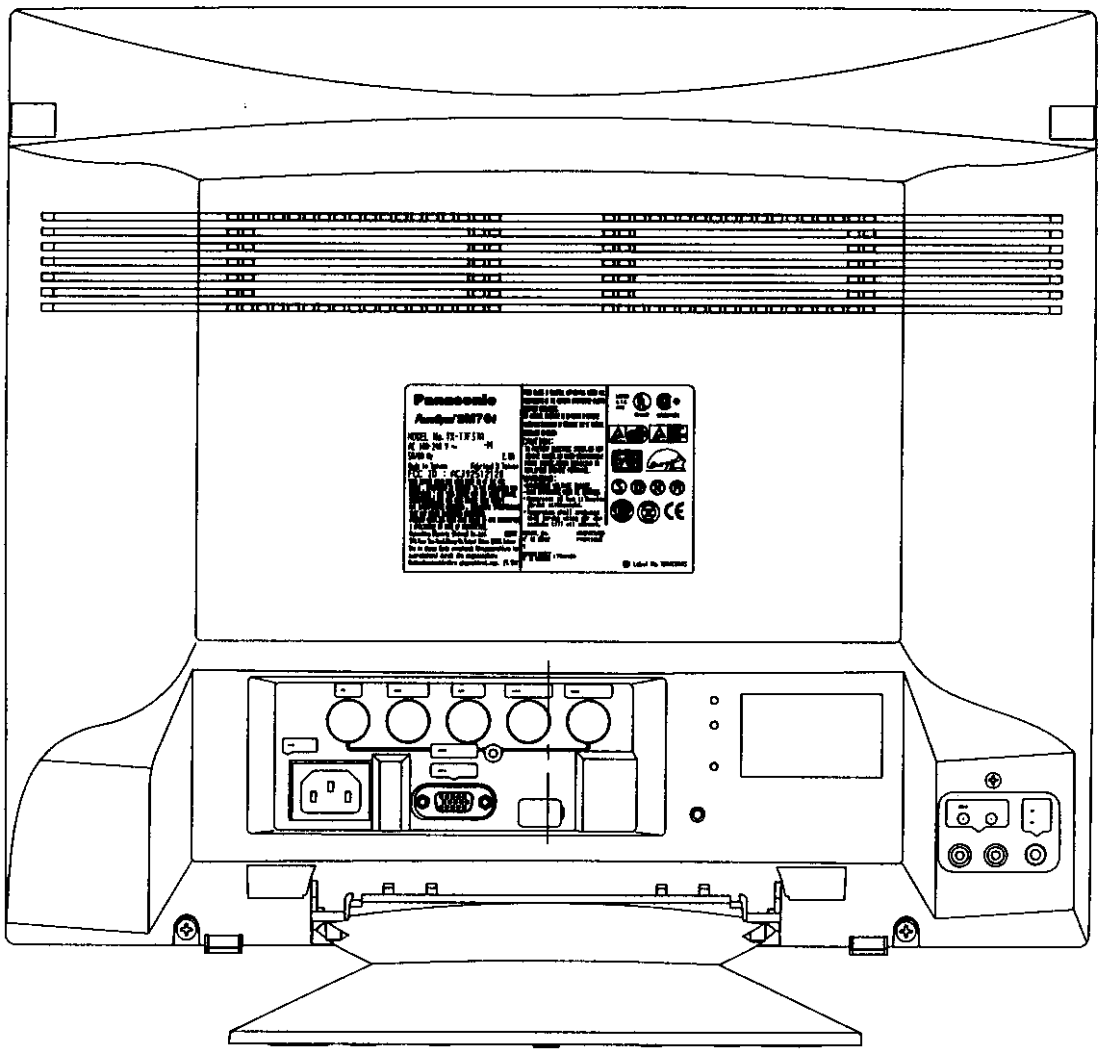


EXHIBIT 4

Test Report

Supplement Test Data
On Behalf of
Matsushita Electric Industrial Co., Ltd.
17" Multi-Scan Color Monitor

Model : (1)TX-T7F37A* (2)M-T7F37A*

FCC ID : ACJ92512128

Prepared for : Matsushita Electric Industrial Co., Ltd.
One Panasonic Way, Panazip 4B-8,
Secaucus, NJ 07094, U.S.A.

Prepared By : Taiwan Tokin EMC Eng. Corp.
No. 53-11, Tin-Fu Tsun, Lin-Kou,
Taipei Hsien, Taiwan, R.O.C.

Tel : (02) 2609-9301, 2609-2133
Fax : (02) 2609-9303

File Number	:	ATM-G99269
Report Number	:	TTEMC-F99083
Date of Test	:	Jun. 03 ~ 04, 1999
Date of Report	:	Jun. 14, 1999

TABLE OF CONTENTS

TEST REPORT CERTIFICATION

Applicant	:	Matsushita Electric Industrial Co., Ltd.
Manufacturer	:	Matsushita Electric (Taiwan) Co., Ltd.
FCC ID	:	ACJ92512128
EUT Description	:	17" Multi-Scan Color Monitor
		(A) MODEL NO. : (1)TX-T7F37A* (2)M-T7F37A*
		(B) SERIAL NO. : TB9350016
		(C) POWER SUPPLY : AC 120V/60Hz

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 1998 AND FCC / ANSI C63.4-1992

The device described above was tested by TAIWAN TOKIN EMC ENG. CORP. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15B Class B limits both radiated and conducted emissions.
The measurement results were contained in this test report and TAIWAN TOKIN EMC ENG. CORP. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report showed that the EUT to be technically compliance with the FCC official limits.
This report applied to above tested sample only. This report shall not be reproduced in part without written approval of Taiwan Tokin EMC Eng. corp.

The test results in this test report are traceable to national or international standards.

Date of Test : Jun. 03 ~ 04, 1999

Prepared by : _____ 6/15/99
(SHELENE HOU)

Test Engineer : _____ 6/15, '99
(ALLEN WANG)

Approve & Authorized Signer : _____ 6/16'99
(JACKIE DENG)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	17" Multi-Scan Color Monitor
Model Number	:	(1)TX-T7F37A* (2)M-T7F37A* The model (1) is for Panasonic, (2) is for OEM manufacturer and the "*" may be numeral 1 to 9 or alphabet A to Z.
Serial Number	:	TB9350016
Applicant	:	Matsushita Electric Industrial Co., Ltd. One Panasonic Way, Panazip 4B-8, Secaucus, NJ 07094, U.S.A.
Manufacturer	:	Matsushita Electric (Taiwan) Co., Ltd. 579 Yuan San Road, Chung-Ho, Taipei Hsien 23506, Taiwan, R.O.C.
CRT	:	Panasonic, M/N M41KXH320X01
Data Cable	:	Shielded, Detachable, 1.5m Bonded two ferrite cores
Mic. Out Cable	:	Shielded, Detachable, 1.5m
Audio In Cable	:	Shielded, Detachable, 1.5m
Power Cord	:	Non-Shielded, Detachable, 1.8m
Date of Sample Received	:	Jun. 01, 1999
Type of Sample Tested	:	Engineering Sample
Date of Test	:	Jun. 03 ~ 04, 1999

Remark : This is supplement test data for original test report (No. TTEMC-F99068), the difference between model no. TX-T7S37* and TX-T7F37A* as follows :

No.	Item	TX-T7S37*	TX-T7F37A*
1	CRT	M41LQU480X11	M41KXH320X01
2	Audio Circuit	None	Provided
3	Speaker	None	Provided
4	Appearance	Difference	
5	Electric Circuit (Main/Video)	Same	
6	Layout of Main/Video PCB	Same	
7	Microphone and Audio in/out ports/cable	None	Provided

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Model Number	:	PC763
Serial Number	:	TA421U7881
FCC ID	:	AO9-PC76X
Manufacturer	:	Digital
Switching Power Supply	:	Astec M/N SA-201-3440
Floppy Driver 3.5“	:	Teac Corp. M/N FD-235HF
VGA Card	:	Sixgraph Computing Ltd. M/N Wiz 924,S/N 189477, FCC ID JYOWIZ01
Sound Card	:	Creative Labs, Inc. M/N CT2260, FCC ID IBACT-SBV16MCD
Disk Ctrl Card	:	Within Mother Board
Serial/Parallel Card	:	Within Mother Board
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number	:	5121
Serial Number	:	J83300813
FCC ID	:	E5XKBM104M10UC
Manufacturer	:	Behavior Tech Computer Corp.
Data Cable	:	Shielded, Undetachable, 1.0m

1.2.3. PRINTER

Model Number	:	2225C
Serial Number	:	2615S40752
FCC ID	:	BS46XU2225C
Manufacturer	:	Hewlett Packard
Power Cord	:	Non-Shielded, Undetachable, 1.8m
Data Cable	:	Shielded, Detachable, 1.2m

1.2.4. MODEM #1

Model Number	:	DM-1414
Serial Number	:	980034392
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Non-Shielded, Undetachable, 1.8m

1.2.5. MODEM #2

Model Number	:	DM-1414
Serial Number	:	980034391
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Non-Shielded, Undetachable, 1.8m

1.2.6. MOUSE

Model Number	:	M-S35
Serial Number	:	LZA82103160
FCC ID	:	DZL211029
Manufacturer	:	Logitech
Data Cable	:	Non-Shielded, Undetachable, 1.8m

1.2.7. MICROPHONE

Model Number	:	HD-303
Serial Number	:	N/A
Manufacturer	:	Multimedia Microphone System
Data Cable	:	Non-Shielded, Undetachable, 2.2m

1.2.8. SPEAKER

Model Number	:	J-008
Serial Number	:	97-C-009783-T
Manufacturer	:	(J-S) JAZZ HIPSTER
Data Cable	:	Non-Shielded, Undetachable, 1m

1.2.9. WALKMAN

Model Number	:	RQ-P35LT-K
Serial Number	:	HA08465
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.10. EARPHONE

Model Number	:	RQ-P35LT-K
Serial Number	:	HA08465
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Undetachable, 1.1m

1.3. Description of Test Facility

Site Description (No. 2 Open Site)	:	Jul. 15, 1996 Re-file on Federal Communication Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, U.S.A.
Site Description (Anechoic Chamber)	:	Aug. 22, 1997 Re-file on Federal Communication Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, U.S.A.
Name of Firm	:	Taiwan Tokin EMC Eng. Corp.
Site Location	:	No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
NVLAP lab. Code	:	200077-0
DAR-Registration No.	:	DAT-P-092/99-00

1.4. Measurement Uncertainty

(1) Radiation Uncertainty Ur = ±4.01dB
(2) Conduction Uncertainty Uc = ±2.26dB

2. POWERLINE CONDUCTED TEST

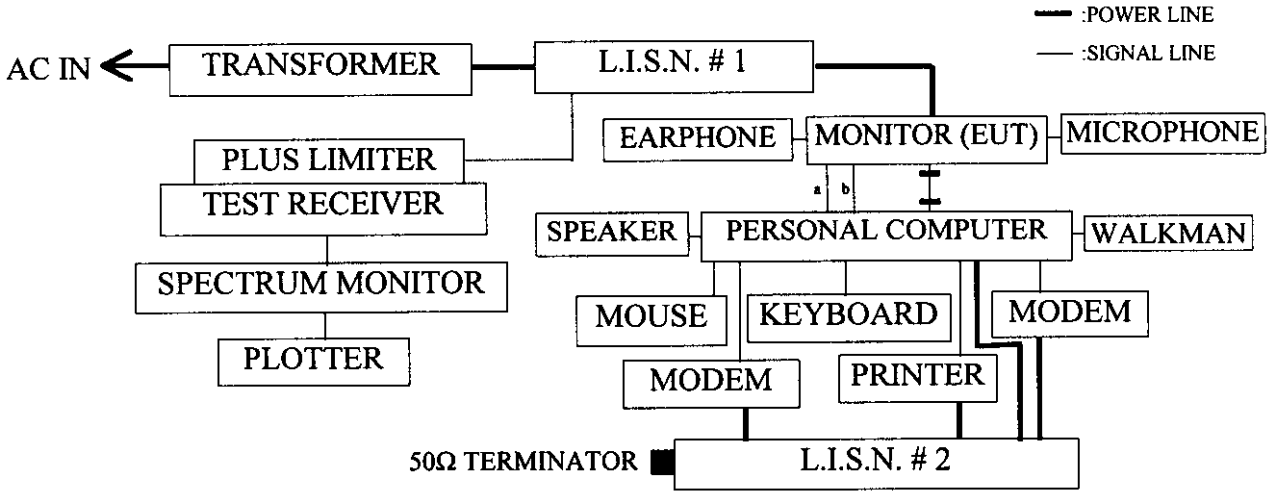
2.1. Test Equipment

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

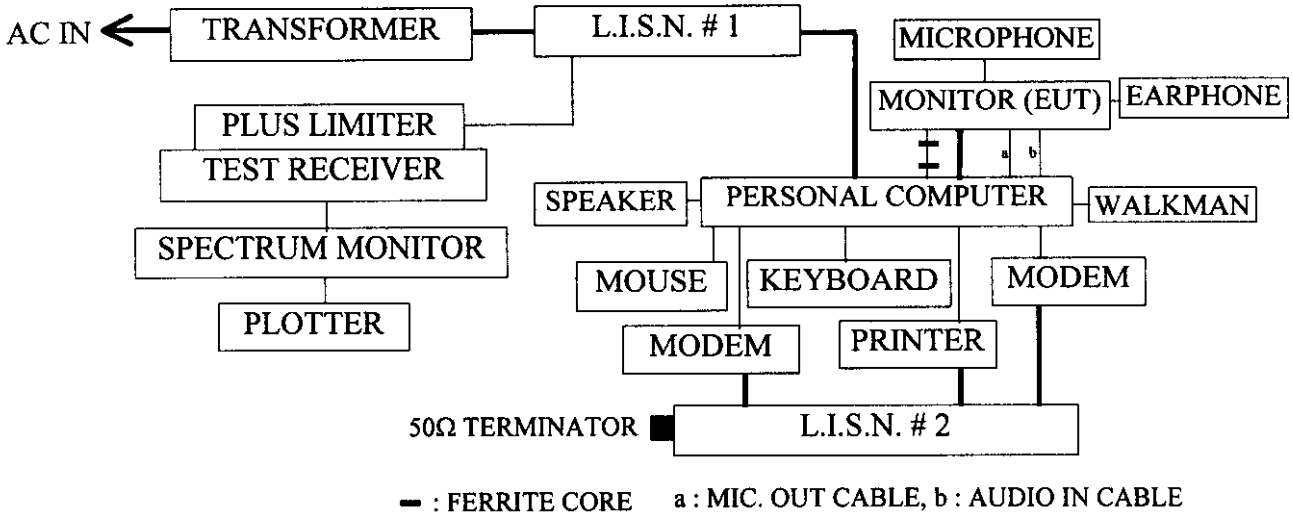
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESH3	880647/035	Jun.24, 98'	1 Year
2.	L.I.S.N. # 1	Kyoritsu	KNW-407	8-881-13	Apr.21, 99'	1 Year
3.	L.I.S.N. # 2	Kyoritsu	KNW-407	8-855-9	Apr.21, 99'	1 Year

2.2. Block Diagram of Test Setup

2.2.1. EUT Power Connects to L.I.S.N. Directly



2.2.2. EUT Power connects to PC AC Outlet then PC power connects to L.I.S.N.



: FERRITE CORE a : MIC. OUT CABLE, b : AUDIO IN CABLE

2.3. Powerline Conducted Emission Limit (CLASS B)

Frequency	Maximum RF Line Voltage	
	uV	dBuV
0.45MHz ~ 30Mhz	250	48

REMARKS : RF LINE VOLTAGE (dBuV) = 20 log RF LINE VOLTAGE (uV)

2.4. EUT's Configuration during Compliance Measurement

The following equipments were installed on RF LINE VOLTAGE measurement to meet the Commission requirement and operating in a manner which tend to maximize its emission characteristics in a normal application.

2.4.1. 17" Multi-Scan Color Monitor (EUT)

Model Number	:	(1)TX-T7F37A* (2)M-T7F37A*
Serial Number	:	TB9350016
Manufacturer	:	Matsushita Electric (Taiwan) Co., Ltd.
CRT	:	Panasonic, M/N M41KXH320X01
Mic. Out Cable	:	Shielded, Detachable, 1.5m
Audio In Cable	:	Shielded, Detachable, 1.5m
Data Cable	:	Shielded, Detachable, 1.5m Bonded two ferrite cores
Power Cord	:	Non-Shielded, Detachable, 1.8m

2.4.2. Supporting System : As in Section 1.2.

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown on 2.2.

2.5.2. Turn on the power of all equipments.

2.5.3. Personal Computer read data from disk.

2.5.4. Personal Computer sent "H" character to monitor (EUT) and the screen displayed and full with "H" pattern. (The software "Wintest" 98' was used)

2.5.5. Personal Computer sent sound to monitor (EUT) via audio in cable and hear sound from earphone.

2.5.6. The other peripheral devices were driven and operated in turn during all testing.

2.6. Test Procedure

The EUT was connected to the power mains through a line impedance stabilization network (L.I.S.N.# 1). The EUT is also connected to PC power outlet then the PC power cord connected to the power mains through a line impedance stabilization network (L.I.S.N # 1.). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. # 2). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to FCC ANSI C63.4-1992 on conducted measurement.

The bandwidth of the R&S Test Receiver ESH3 was set at 10kHz.

The frequency range from 450KHz to 30MHz was checked.

Five kinds of horizontal working frequency were investigated separately during prescanning and reported the worst test mode (66KHz) in section 2.7., the others test data were attached within Appendix I. The detail of test modes are as follows：

(1) 31.5KHz/640*480
(2) 48.1KHz/800*600
(3) 58KHz/1024*768
(4) 61.6KHz/1280*960
(5) 66KHz/1280*1024

2.7. Line Conducted RF Voltage Measurement Results

All emissions not reported below were too low against the prescribed limits.

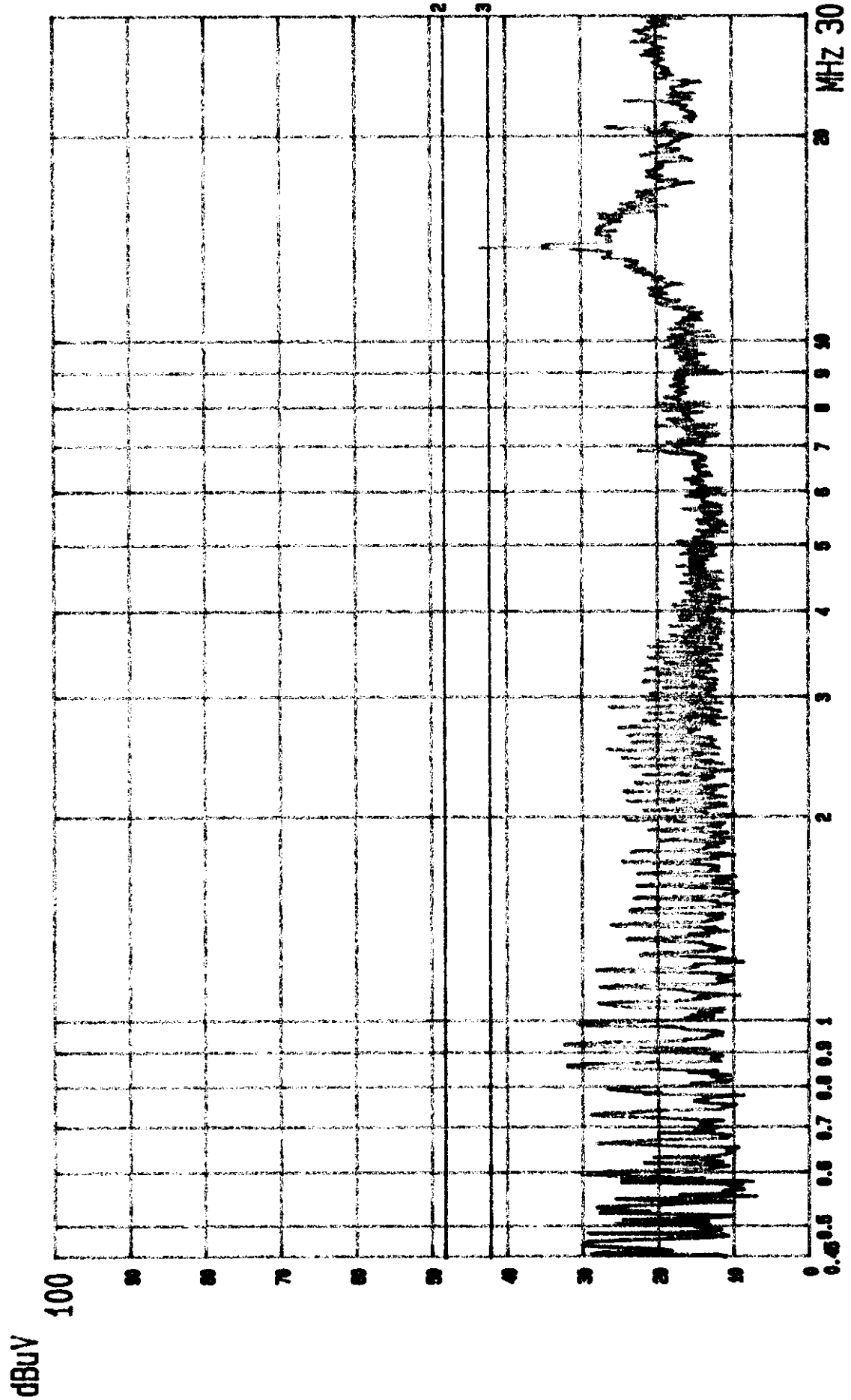
Date of Test : Jun. 03, 1999 Temperature : 26℃

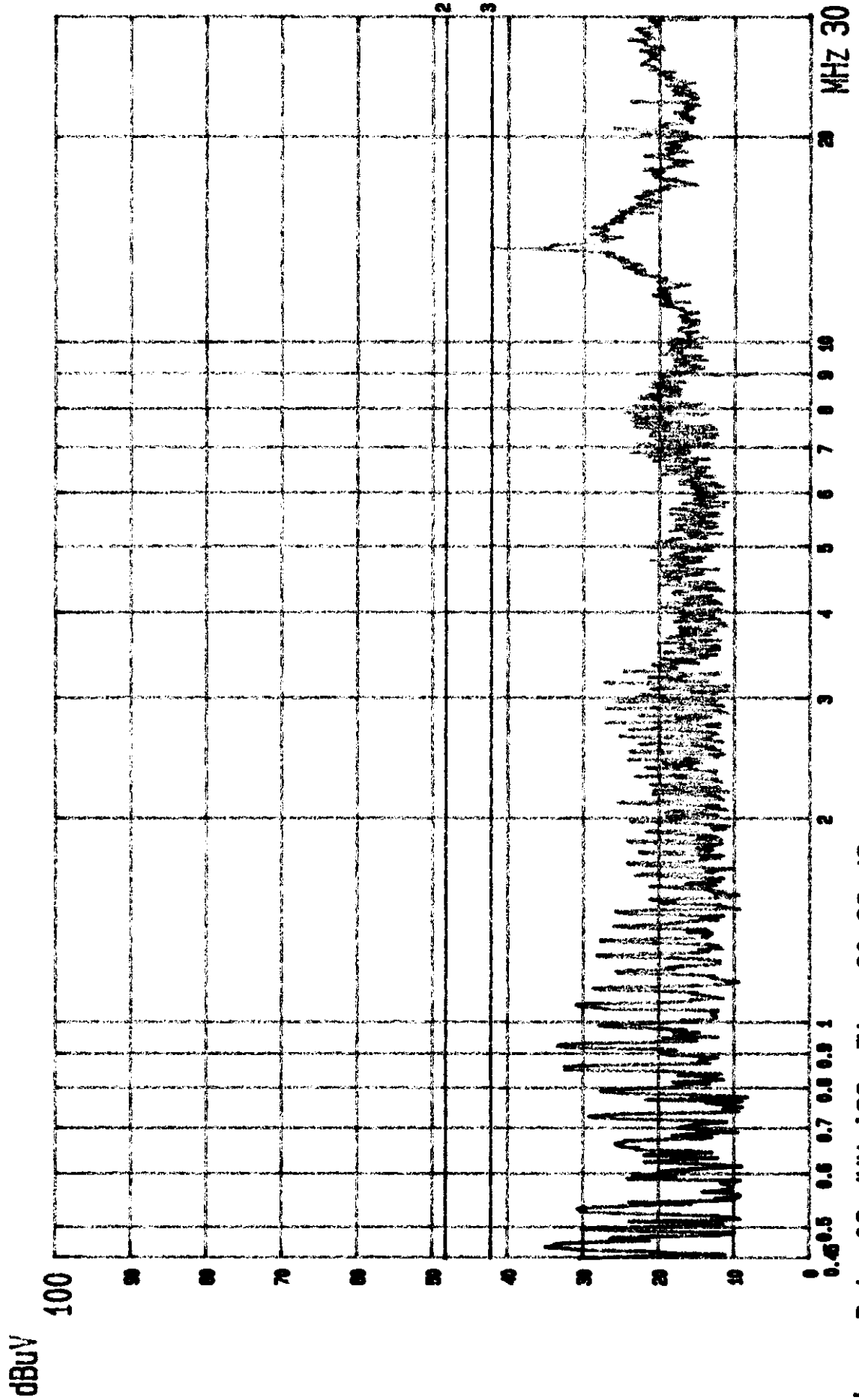
EUT : 17" Multi-Scan Color Monitor Humidity : 48%

Test Mode : 66KHz/1280*1024, EUT power to L.I.S.N.

Frequency	Factor	Reading (dBuV)		Measurement (dBuV)		Limits (dBuV)	Margin (dB)	
(MHz)	dB	VA	VB	VA	VB		VA	VB
0.4612	0.5	30.3	32.1	30.8	32.6	48.0	17.2	15.4
0.5930	0.5	24.6	20.2	25.1	20.7	48.0	22.9	27.3
0.9224	0.5	29.8	32.7	30.3	33.2	48.0	17.7	14.8
1.3837	0.5	24.7	24.0	25.2	24.5	48.0	22.8	23.5
2.5038	0.5	22.1	22.6	22.6	23.1	48.0	25.4	24.9
13.7707	**1.0**	**42.1**	41.9	**43.1**	42.9	**48.0**	**4.9**	5.1

Remark :
1. All reading were Quasi-Peak values.
2. Factor = Insertion Loss + Cable Loss
3. Measurement = Reading + Factor
4. The worst emission was detected at 13.7707MHz with corrected signal level of 42.1dBuV (limit was 48dBuV) when the VA side of the EUT power was connected to L.I.S.N.


dBuV
100
MHz 30
120V/60Hz PAGE: 01.
(PEAK VALUE) TTEMC.
Date 03.JUN. '99 Time 20:24:37
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A*
LINE: VA. MEMO: 1280X1024; 66KHz TO LISN


dBuV
100
MHz 30
|--- Date 03.JUN.'99 Time 20:28:43
MATSUSHITA EUT:MONITOR M/N:TX-T7F37A*/M-T7F37A*
LINE:VB. MEMO:1280X1024;66KHz TO LISN
120V/60Hz PAGE:02.
(PEAK VALUE) TTEMC.

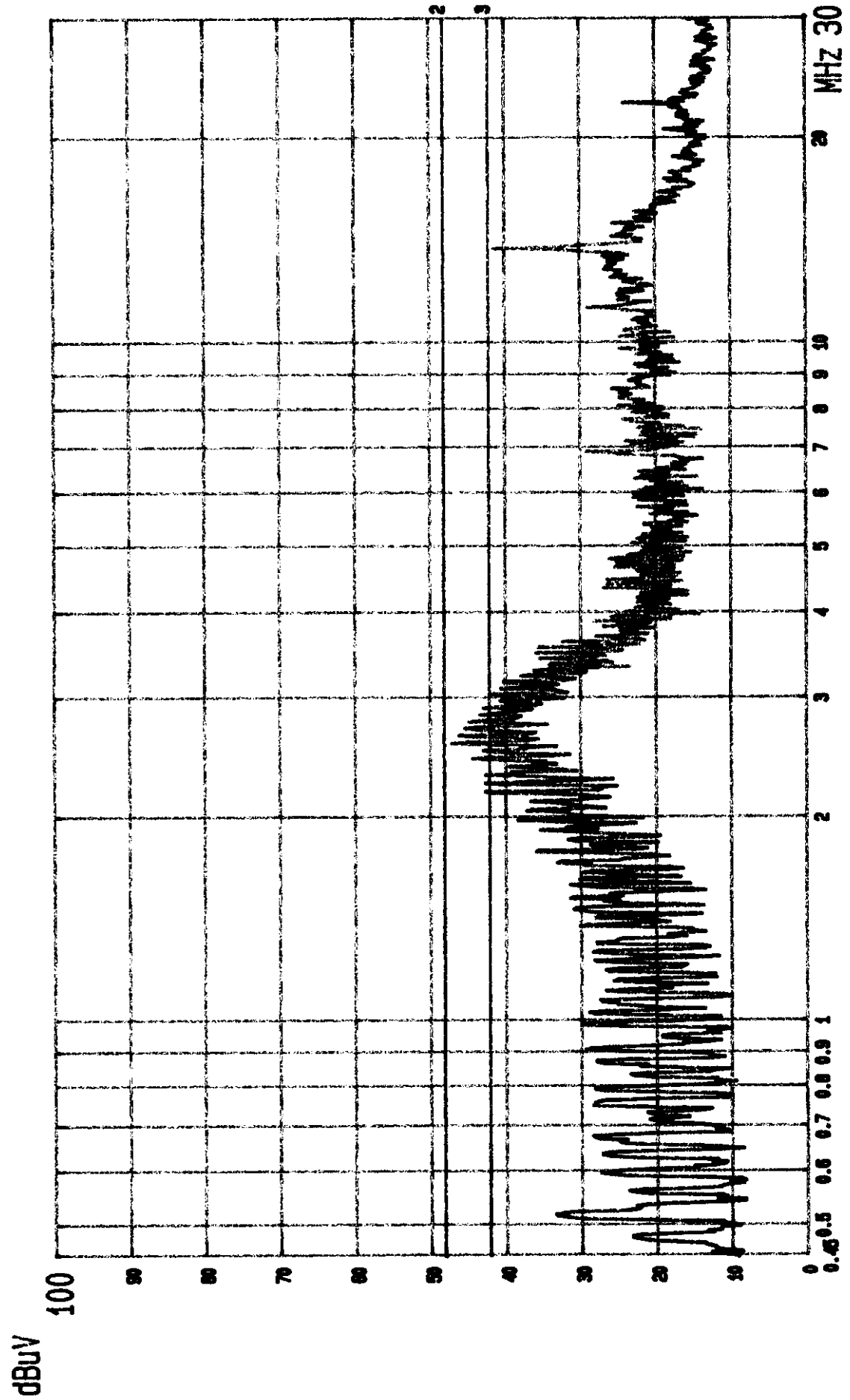
Date of Test : Jun. 03, 1999 Temperature : 26℃

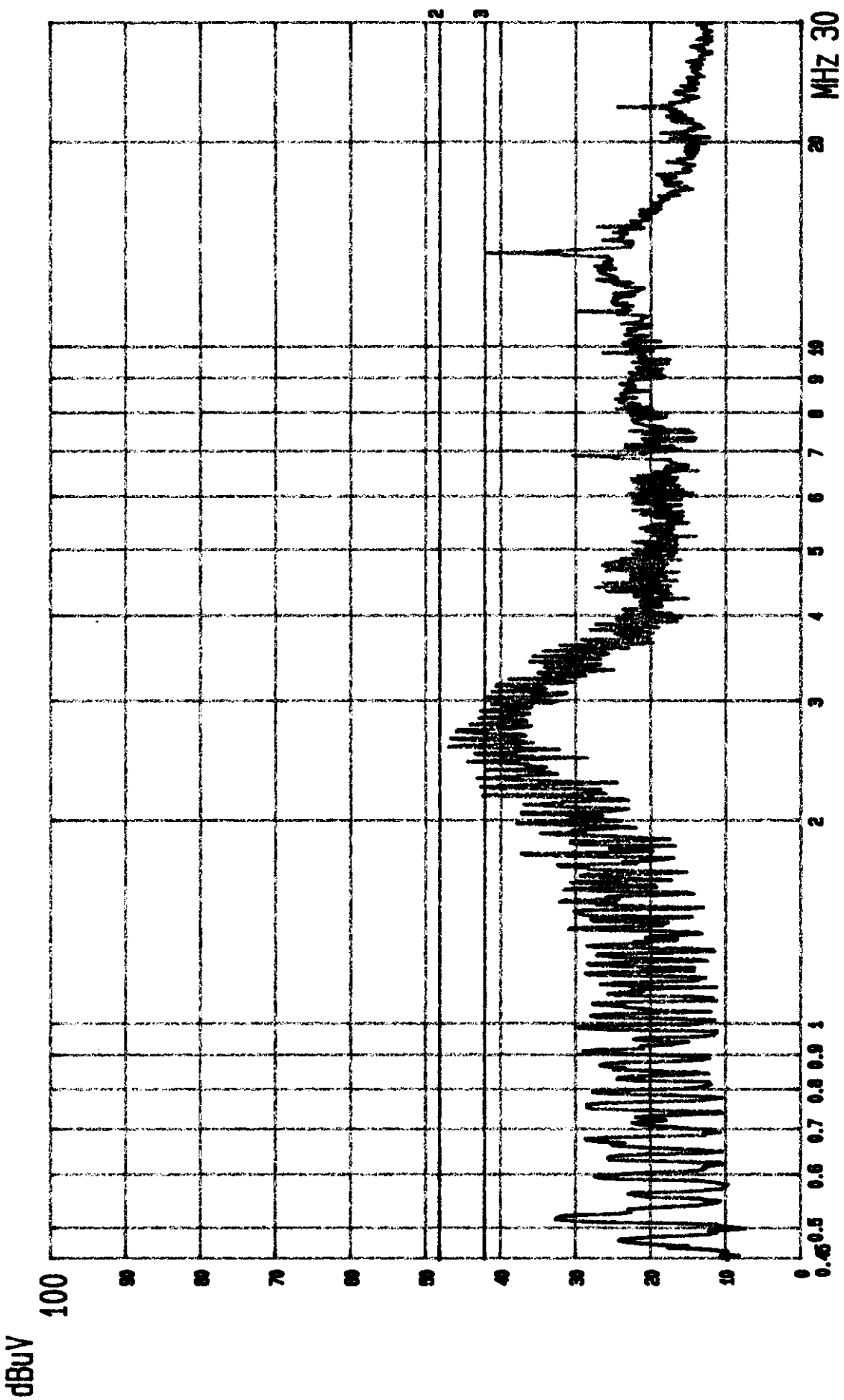
EUT : 17" Multi-Scan Color Monitor Humidity : 48%

Test Mode : 66KHz/1280*1024, EUT power to PC

Frequency	Factor	Reading (dBuV)		Measurement (dBuV)		Limits (dBuV)	Margin (dB)	
(MHz)	dB	VA	VB	VA	VB		VA	VB
0.5128	0.5	31.4	32.0	31.9	32.5	48.0	16.1	15.5
0.9861	0.5	27.9	28.0	28.4	28.5	48.0	19.6	19.5
1.7790	0.5	33.3	33.4	33.8	33.9	48.0	14.2	14.1
2.5697	**0.5**	**44.5**	44.2	**45.0**	44.7	**48.0**	**3.0**	3.3
6.9182	0.8	26.2	26.1	27.0	26.9	48.0	21.0	21.1
13.7711	1.0	40.7	40.5	41.7	41.5	48.0	6.3	6.5

Remark :
1. All reading were Quasi-Peak values.
2. Factor = Insertion Loss + Cable Loss
3. Measurement = Reading + Factor
4. The worst emission was detected at 2.5697MHz with corrected signal level of 45.0dBuV (limit was 48dBuV) when the VA side of the EUT power was connected to PC


dBuV
100
90
80
70
60
50
40
30
20
10
0.45 0.5 0.6 0.7 0.8 0.9 1 2 3 4 5 6 7 8 9 10 20 30 MHz
2
3
|--- Date 03.JUN.'99 Time 19:44:17
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A*
LINE: VA. MEMO: 1280X1024; 66KHz TO PC
120V/60Hz PAGE: 02.
(PEAK VALUE) TTEMC.


dBuV
100
90
80
70
60
50
40
30
20
10
0
0.45
0.5
0.6
0.7
0.8
0.9
1
2
3
4
5
6
7
8
9
10
20
MHz 30
2
3
Date 03.JUN.'99 Time 19:39:01
MATSUSHITA EUT:MONITOR M/N:TX-T7F37A*/M-T7F37A*
LINE:VB. MEMO:1280X1024;66KHz TO PC
120V/60Hz PAGE:01.
(PEAK VALUE) TTEMC.

3. RADIATED EMISSION TEST

3.1. Test Equipment

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

3.1.1. For Anechoic Chamber :

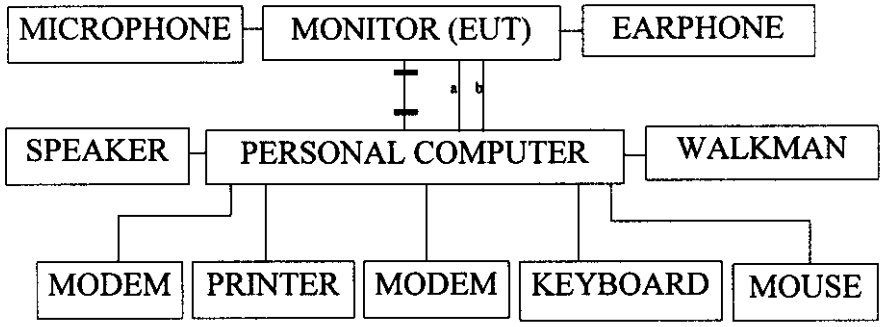
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593A	3212A01727	Jul.25, 98'	1 Year
2.	Pre-Amplifier	HP	8447D	2944A06305	Dec.09, 98'	1 Year
3.	Broadband Antenna	Schwarzbeck	BBA9106	A3L	Dec.09, 98'	1 Year
4.	Log Periodic Antenna	Schwarzbeck	UHALP9108-A	0139	Dec.09, 98'	1 Year

3.1.2. For No. 2 Open Site :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde&Schwarz	ESVP	893202/001	Jul.24, 98'	1 Year
2.	Broadband Antenna	Chase	VBA6106A	1258	Jan.14, 99'	1 Year
3.	Log Periodic Antenna	Chase	UPA6109	1048	Jan.14, 99'	1 Year

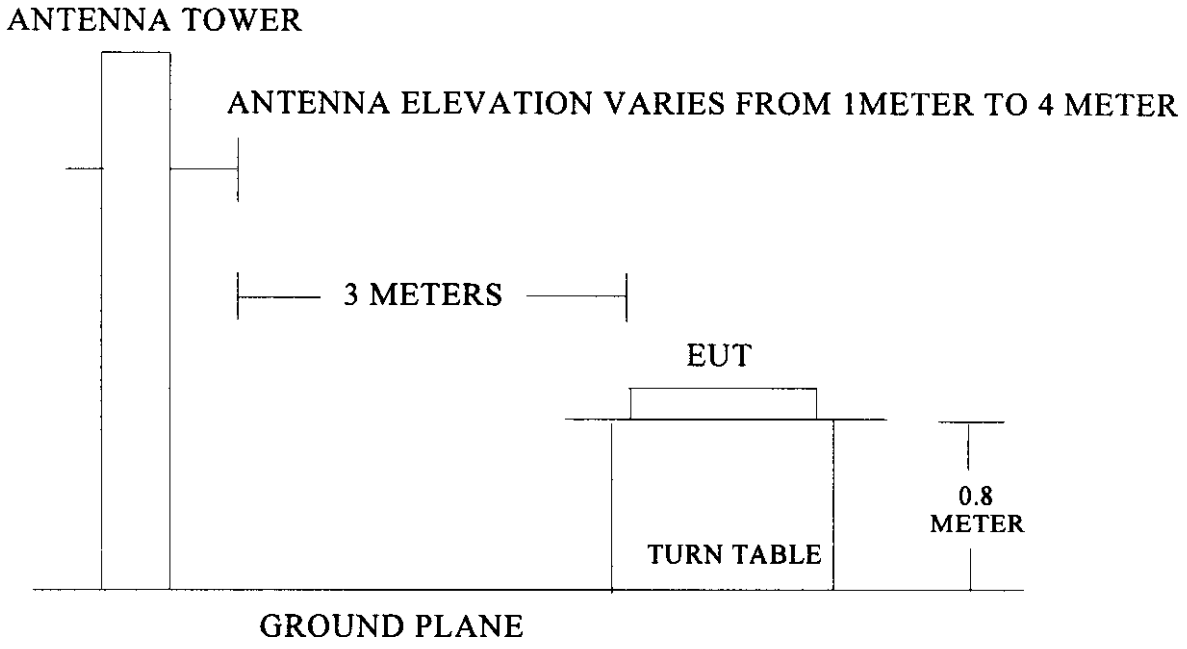
3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



▬ : FERRITE CORE a : MIC. OUT CABLE, b : AUDIO IN CABLE

3.2.2. Open Field Test Site Setup Diagram



3.3. Radiation Limit (CLASS B)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
MHz	Meters	uV/M	dBuV/M
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark : (1) Emission level (dBuV/M) = 20 log Emission level (uV/M)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. EUT's Configuration during Compliance Measurement

The configuration of EUT and its simulators were same as those used in conducted measurement. Please refer to 2.4.

3.5. Operating Condition of EUT

Same as conducted measurement which was listed in 2.5.

3.6. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. The turn table rotate 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which were mounted on a antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) and dipole antenna were used as receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-1992 during radiated measurement.

The bandwidth of the R&S Test Receiver ESVP was set at 120KHz.

The frequency range from 30MHz to 1000MHz was checked.

The following operating conditions were measured within Anechoic Chamber and all the scanning waveform were attached within Appendix II, which include :

(1) 37.9KHz/640*480
(2) 48.1KHz/800*600
(3) 58KHz/1024*768
(4) 61.6KHz/1280*960
(5) 66KHz/1280*1024

Finally, re-measured the each worst operating situation (66KHz/1280*1024) at No. 2 Open Field Test Site and all the test results are listed in section 3.7.

3.7. Radiated Emission Measurement Results

All the emissions not reported below were too low against the FCC CLASS B limit.

Date of Test : Jun. 04, 1999 Temperature : 25℃

EUT : 17" Multi-Scan Color Monitor Humidity : 69%

Test Mode : 66KHz/1280*1024

	Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	Limits dBuV/m	Margin dB
	41.314	20.31	2.06	0.10	22.47	40.00	17.53
	55.087	14.11	2.43	4.60	21.14	40.00	18.86
	68.847	11.96	2.69	15.60	30.25	40.00	9.75
*	73.376	12.72	2.77	21.40	36.89	40.00	3.11
	75.733	13.26	2.87	20.61	36.74	40.00	3.26
	123.931	19.85	3.74	1.00	24.59	43.50	18.91
	137.697	20.63	4.00	3.11	27.74	43.50	15.76
	149.872	21.11	4.16	5.40	30.67	43.50	12.83
	179.016	22.05	4.66	- 0.29	26.42	43.50	17.08
	206.556	22.13	4.99	0.80	27.92	43.50	15.58
	220.324	21.77	5.17	2.80	29.74	46.00	16.26
	268.454	24.09	5.63	- 3.20	26.52	46.00	19.48
	309.846	13.55	6.22	2.50	22.27	46.00	23.73
	351.149	15.89	6.77	2.70	25.36	46.00	20.64
	385.748	15.86	7.18	10.91	33.95	46.00	12.05
	406.224	16.05	7.38	- 0.40	23.03	46.00	22.97
	440.650	16.38	7.70	1.50	25.58	46.00	20.42
	495.732	17.70	8.22	0.70	26.62	46.00	19.38
	550.812	19.38	8.82	10.90	39.10	46.00	6.90
	585.251	18.96	9.18	4.00	32.14	46.00	13.86
	626.549	20.10	9.55	2.89	32.54	46.00	13.46
	660.974	20.11	9.86	4.80	34.77	46.00	11.23
	771.140	21.09	10.87	- 0.30	31.66	46.00	14.34
	881.307	22.22	11.89	- 0.10	34.01	46.00	11.99

Remark :
1. All reading were Quasi-Peak values.
2. The worst emission was detected at 73.376MHz with corrected signal level of 36.89dBuV/m (limit was 40dBuV/m) when the antenna was at horizontal polarization and was at 1.65m high and the turn table was at 285° .
3. 0° is the table front facing the antenna. Degree was calculated from 0° clockwise facing the antenna.

Date of Test : Jun. 04, 1999 Temperature : 25℃

EUT : 17" Multi-Scan Color Monitor Humidity : 69%

Test Mode : 66KHz/1280*1024

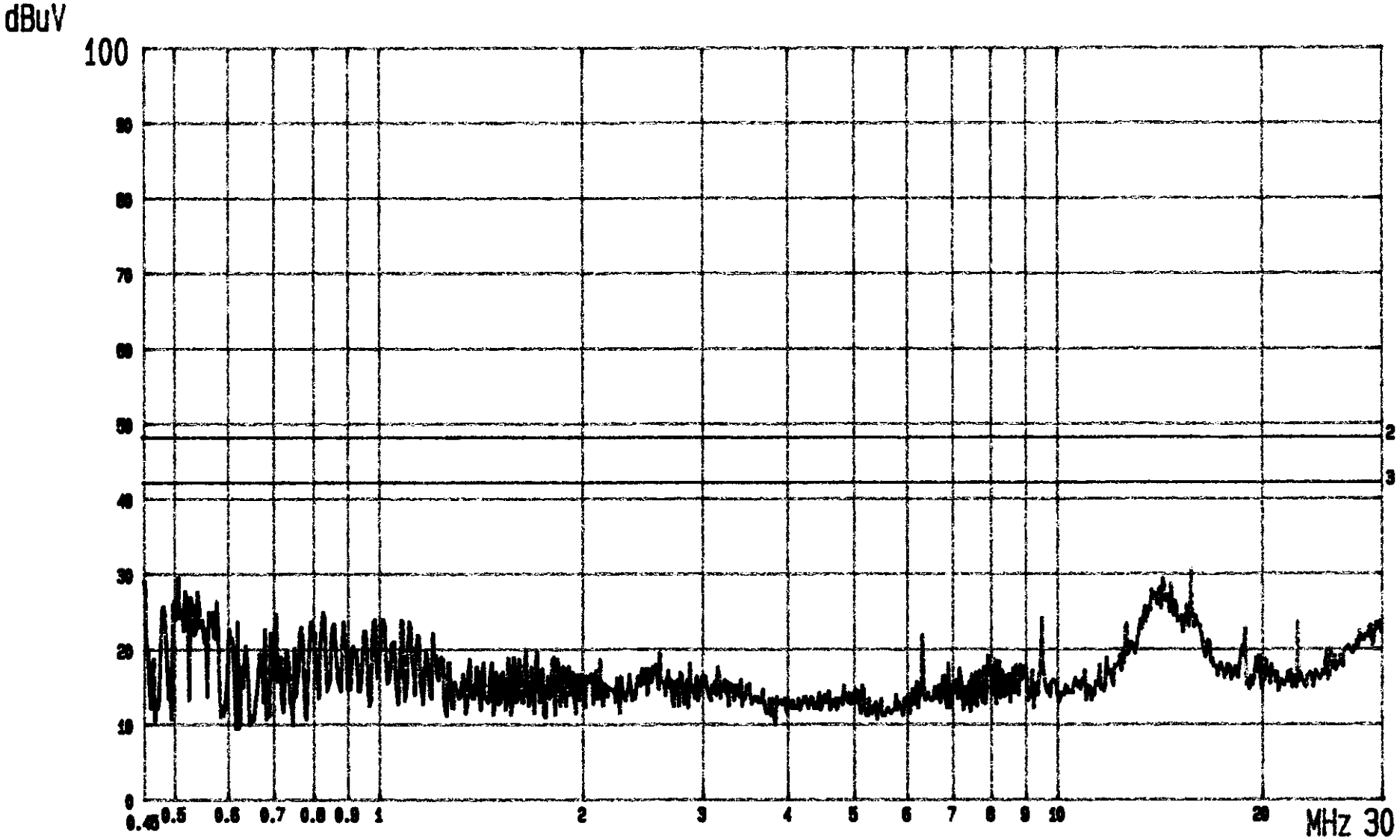
	Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	Limits dBuV/m	Margin dB
	41.845	19.19	2.07	3.09	24.35	40.00	15.65
	55.084	14.63	2.43	6.50	23.56	40.00	16.44
	68.122	13.11	2.68	15.70	31.49	40.00	8.51
*	75.741	14.52	2.87	18.90	36.29	40.00	3.71
	82.619	14.80	3.00	9.20	27.00	40.00	13.00
	110.166	17.95	3.49	6.00	27.44	43.50	16.06
	139.553	19.27	4.04	5.80	29.11	43.50	14.39
	165.149	21.43	4.46	3.30	29.19	43.50	14.31
	179.010	21.14	4.66	- 2.29	23.51	43.50	19.99
	206.756	21.87	5.04	2.40	29.31	43.50	14.19
	227.342	24.37	5.24	6.40	36.01	46.00	9.99
	275.534	23.71	5.88	- 3.00	26.59	46.00	19.41
	309.835	14.15	6.22	6.10	26.47	46.00	19.53
	330.488	15.33	6.43	6.11	27.87	46.00	18.13
	399.340	15.69	7.24	2.30	25.23	46.00	20.77
	413.112	15.79	7.43	2.20	25.42	46.00	20.58
	481.938	17.79	8.12	0.70	26.61	46.00	19.39
	502.588	18.19	8.25	1.19	27.63	46.00	18.37
	550.812	19.00	8.82	8.50	36.32	46.00	9.68
	585.249	19.56	9.18	6.10	34.84	46.00	11.16
	660.974	19.93	9.86	4.60	34.39	46.00	11.61
	771.139	21.85	10.87	- 0.10	32.62	46.00	13.38
	805.561	22.84	11.14	0.21	34.19	46.00	11.81

Remark :
1. All reading were Quasi-Peak values.
2. The worst emission was detected at 75.741MHz with corrected signal level of 36.29dBuV/m (limit was 40dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 220° .
3. 0° is the table front facing the antenna. Degree was calculated from 0° clockwise facing the antenna.

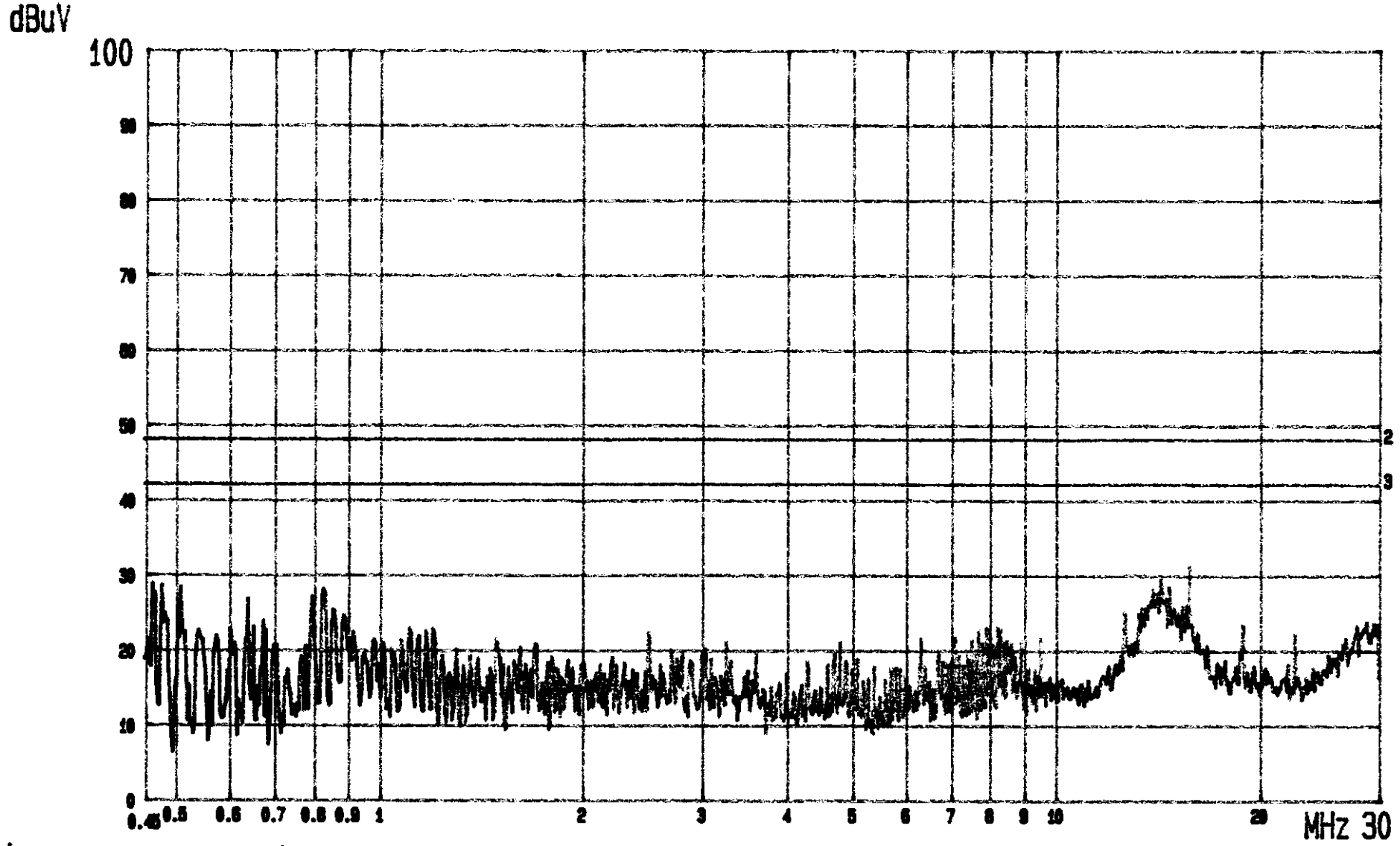
4. DEVIATIONS TO TEST SPECIFICATIONS

[NONE]

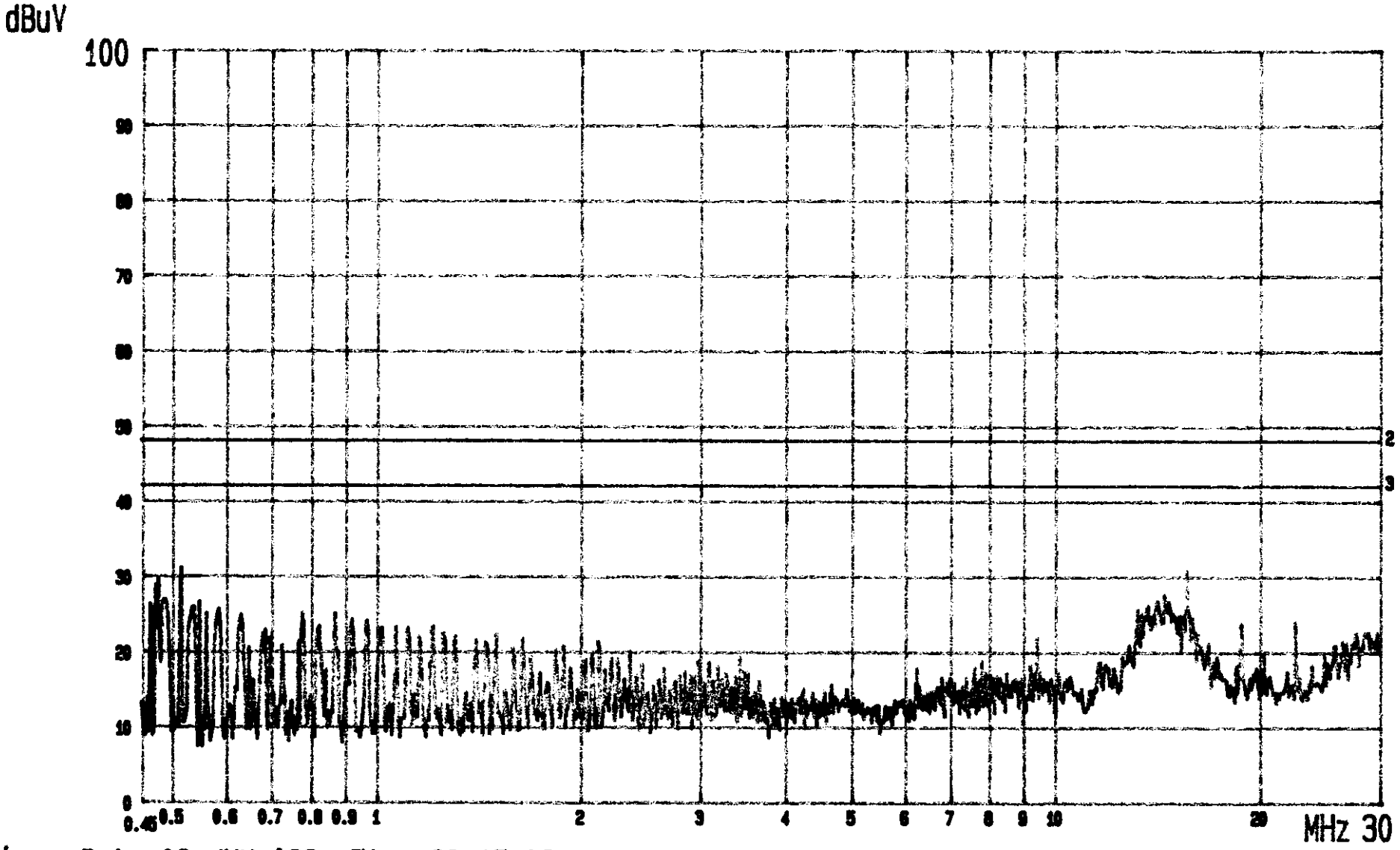
APPENDIX I



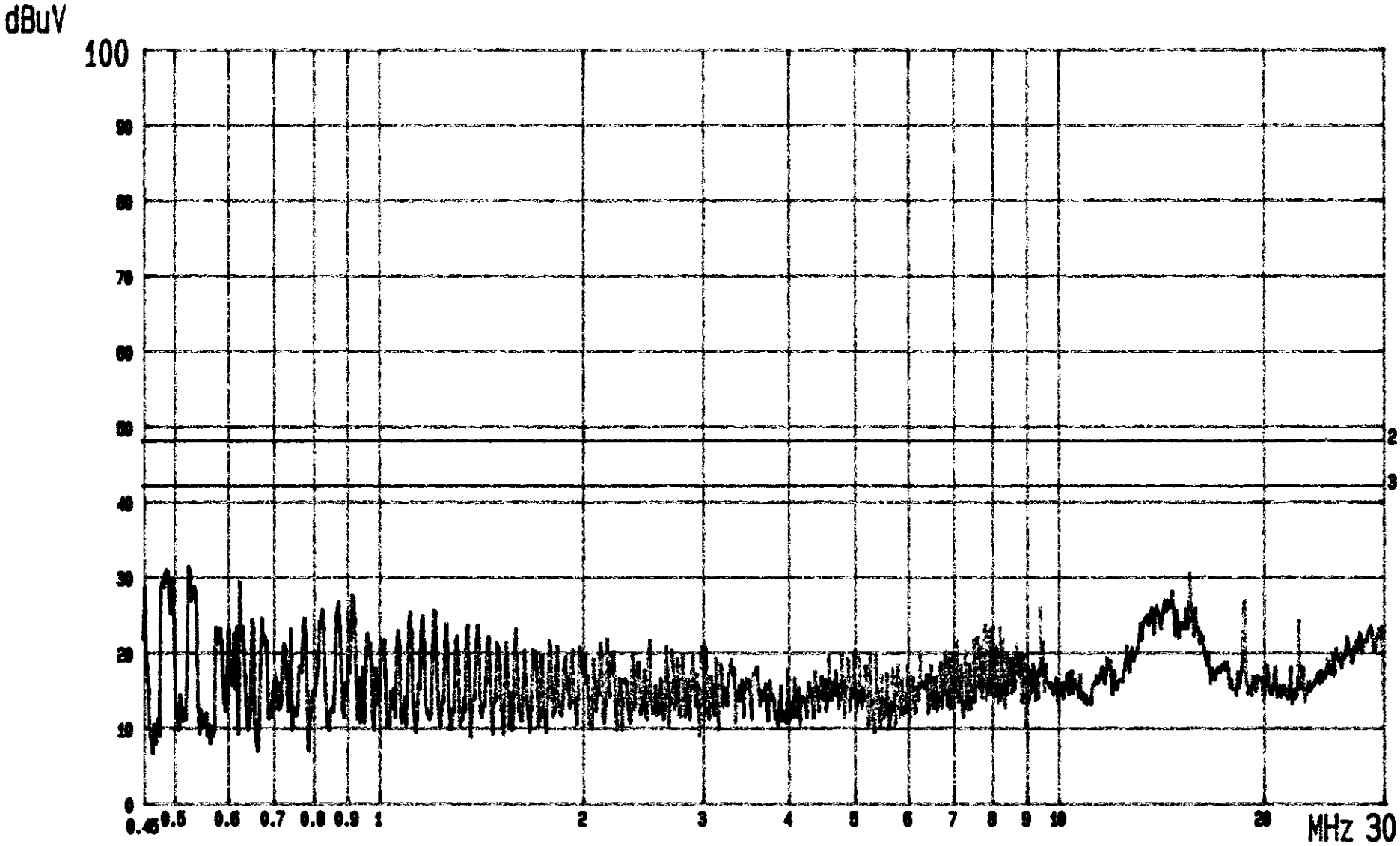
|--- Date 03.JUN.'99 Time 20:07:52
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.
LINE: VA. MEMO: 640X480; 31.5KHz TO LISN (PEAK VALUE) TTEMC.



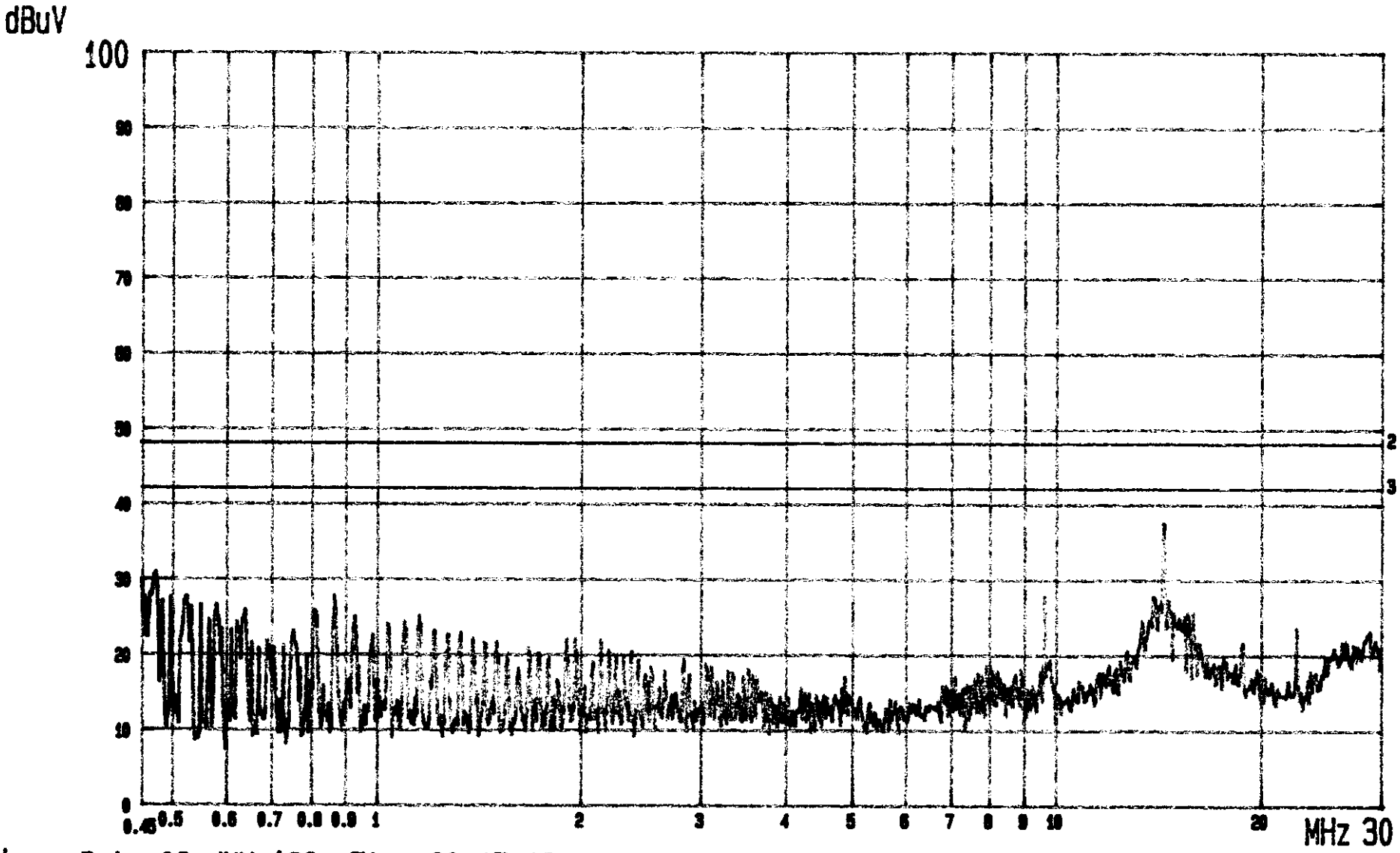
| --- Date 03.JUN.'99 Time 20:09:30
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VB. MEMO: 640X480; 31.5KHz TO LISN (PEAK VALUE) TTEMC.



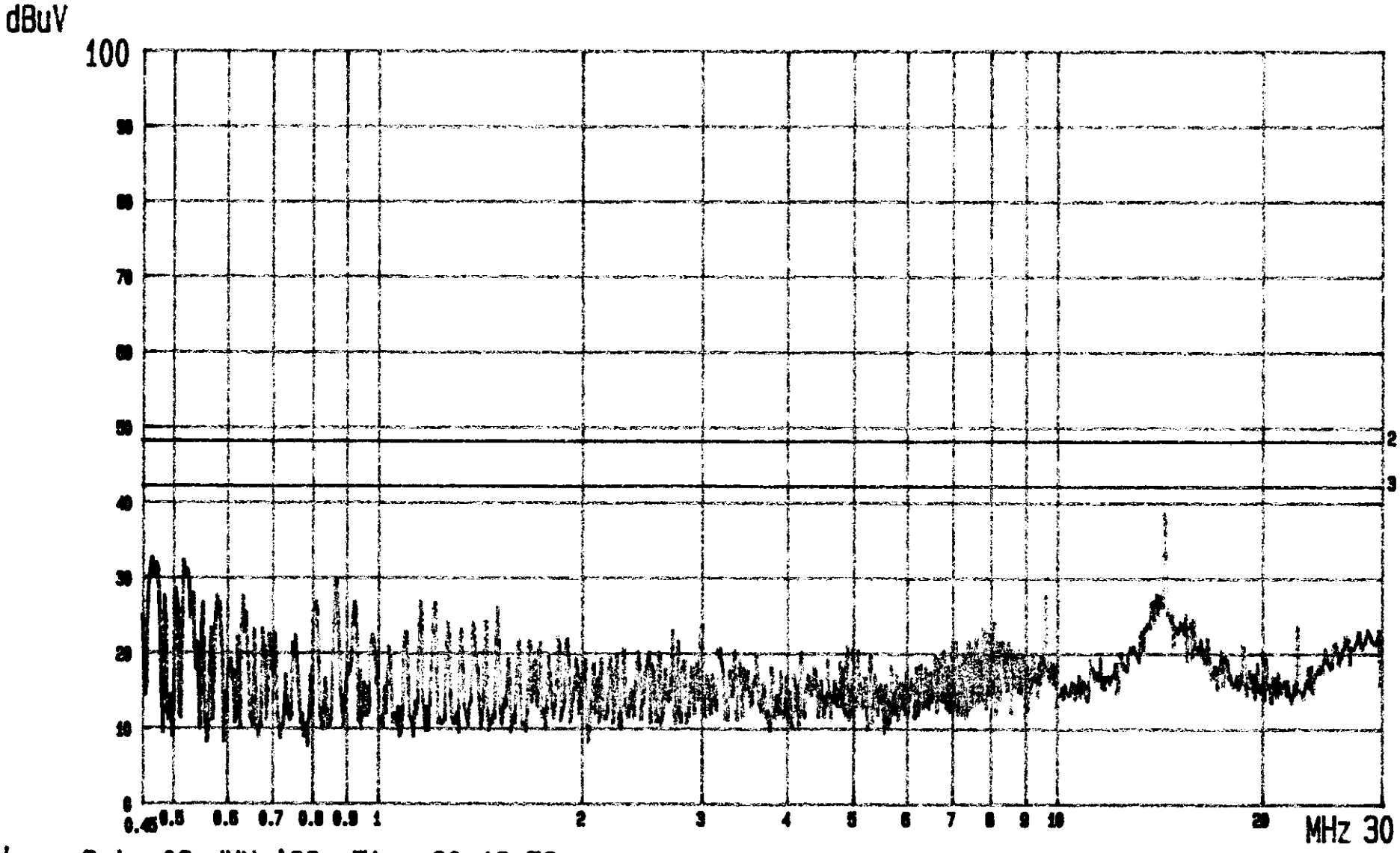
|--- Date 03.JUN.'99 Time 20:15:03
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VA. MEMO: 800X600; 48.1KHz TO LISN (PEAK VALUE) TTEMC.



|--- Date 03.JUN.'99 Time 20:13:25
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.
LINE: VB. MEMO: 800X600; 48.1KHz TO LISN (PEAK VALUE) TTEMC.



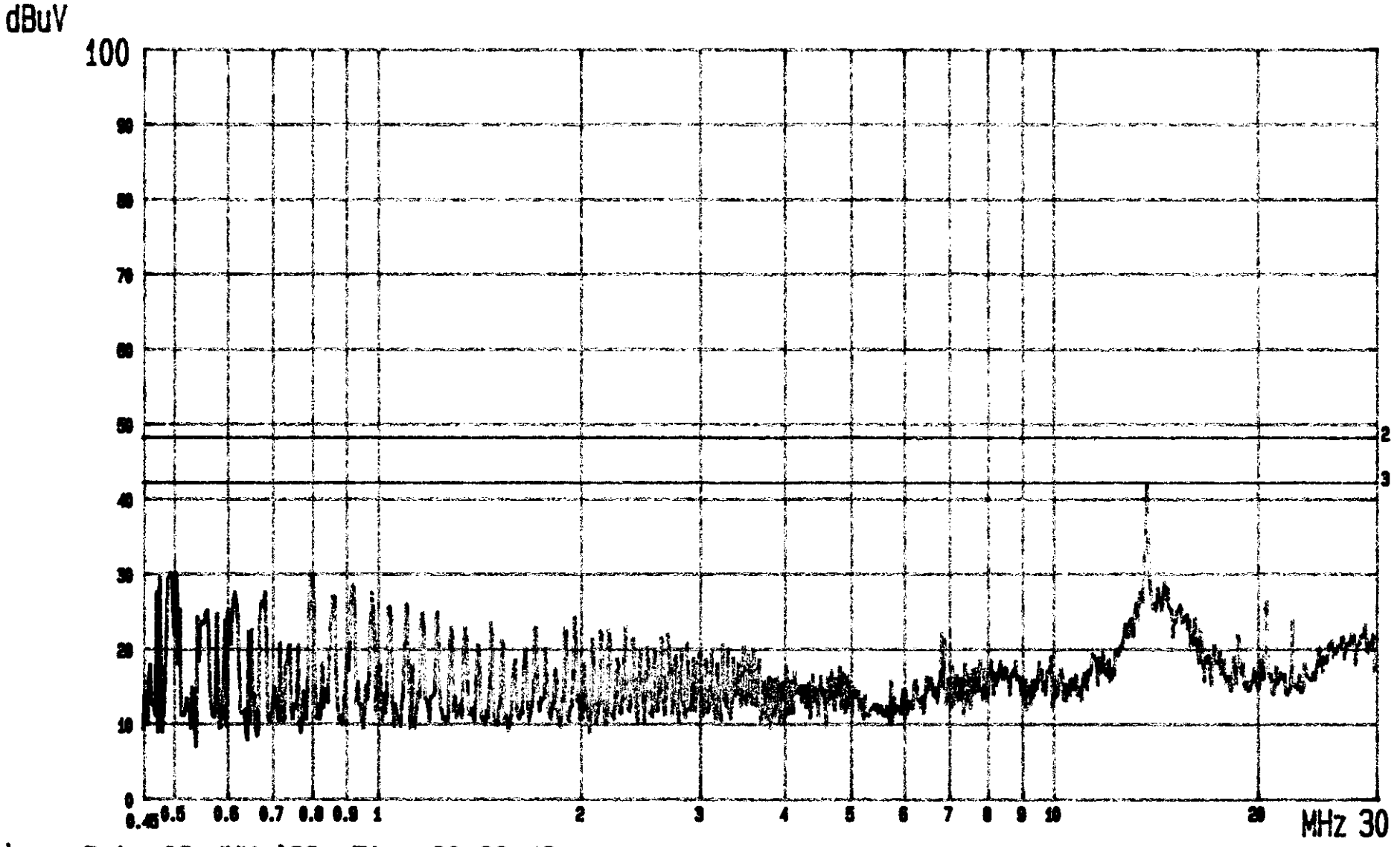
|--- Date 03.JUN.'99 Time 20:17:16
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.
LINE: VA. MEMO: 1024X768; 58KHz TO LISN (PEAK VALUE) TTEMC.



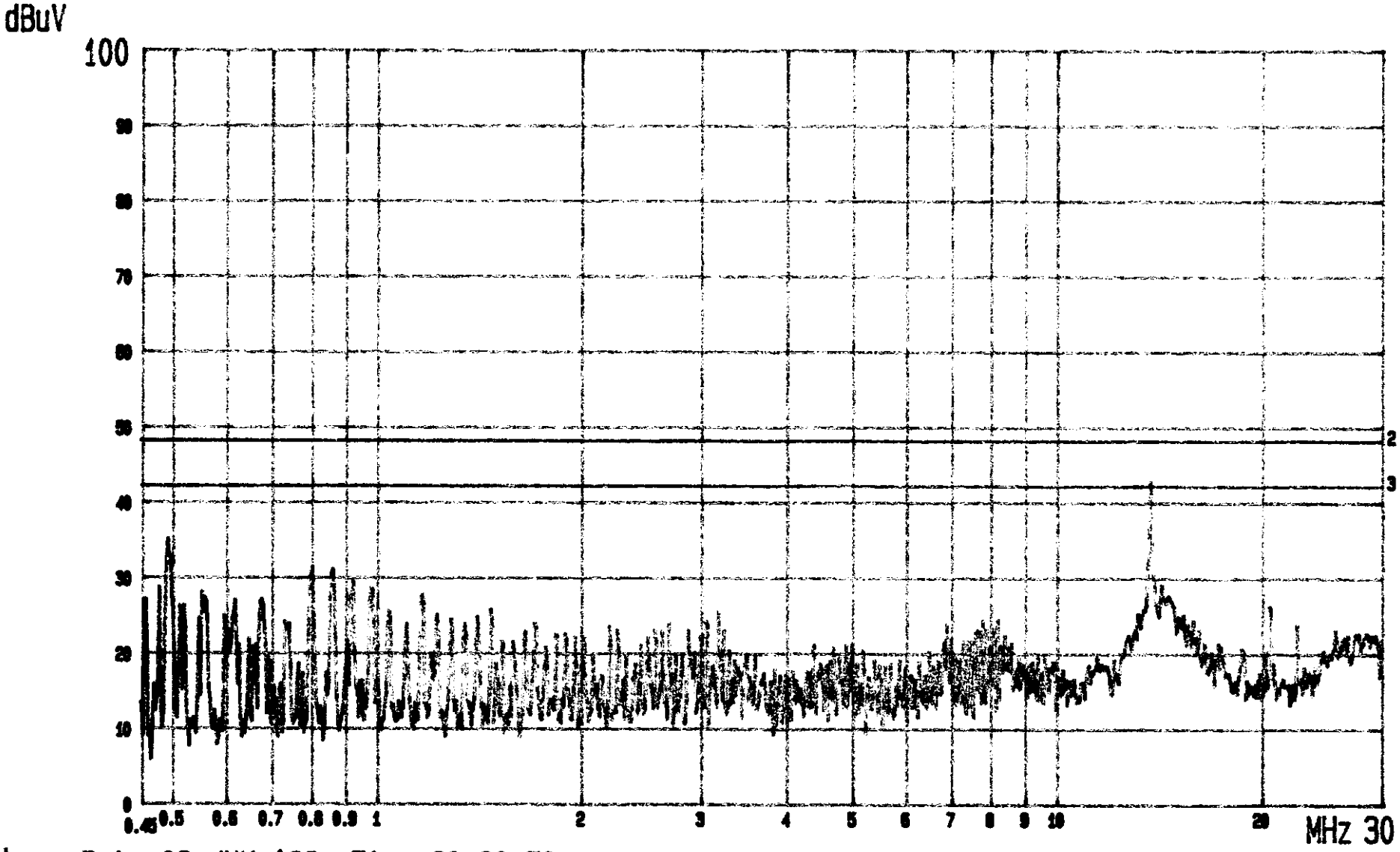
| --- Date 03.JUN.'99 Time 20:18:59

MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.

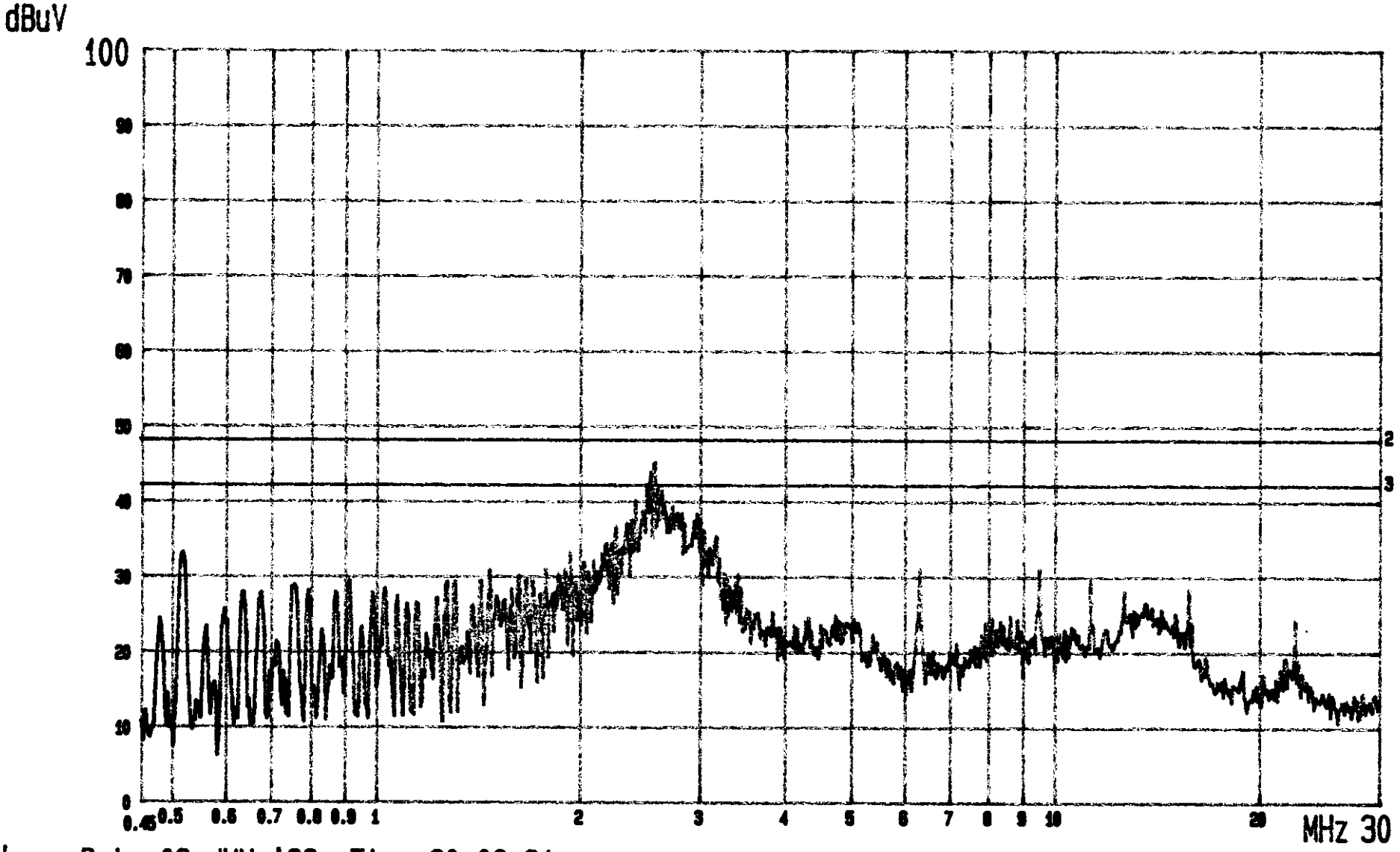
LINE: VB. MEMO: 1024X768; 58KHz TO LISN (PEAK VALUE) TTEMC.



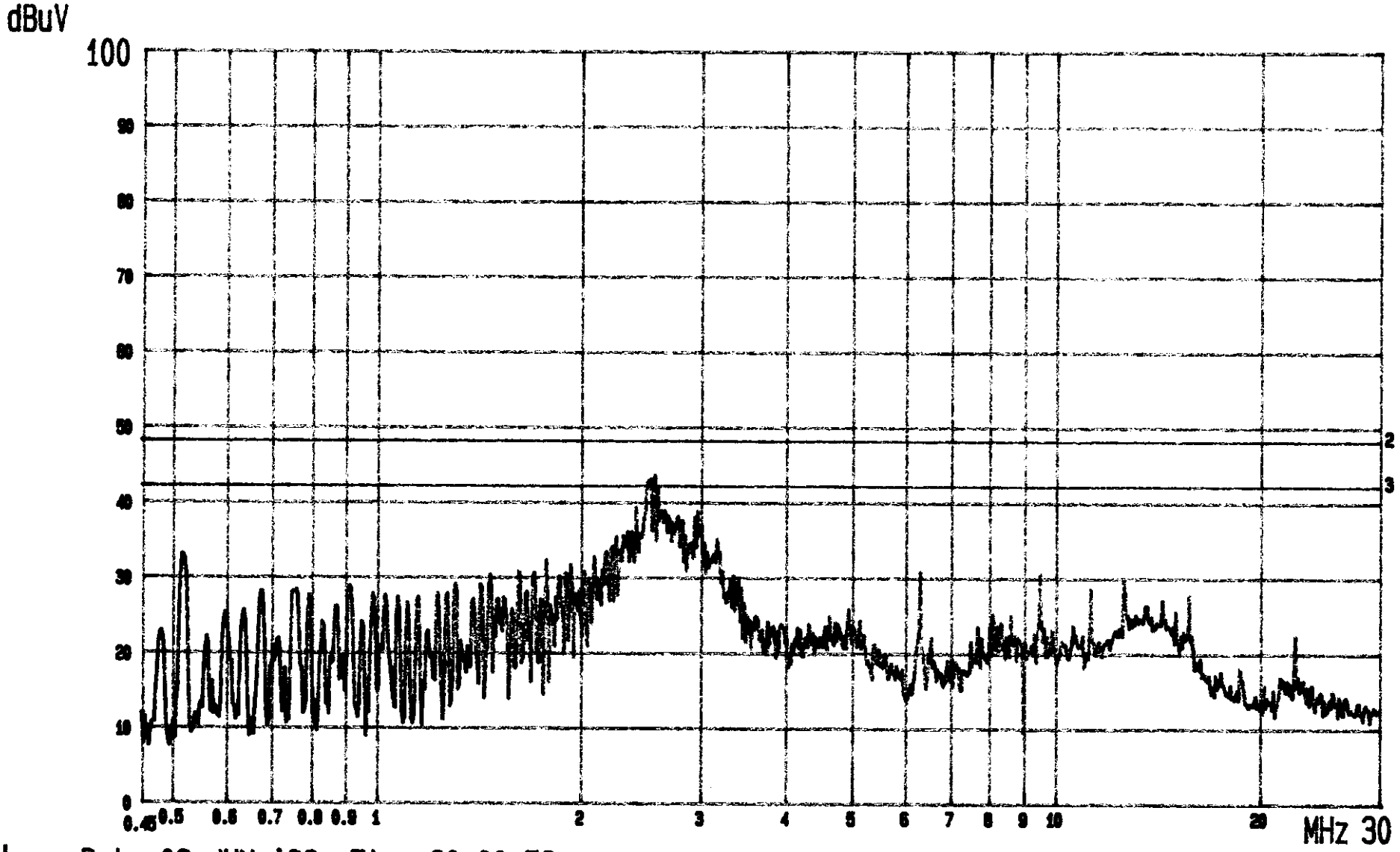
| --- Date 03.JUN.'99 Time 20:22:48
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VA. MEMO: 1280X960; 61.6KHz TO LISN (PEAK VALUE) TTEMC.



|--- Date 03.JUN.'99 Time 20:20:50
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.
LINE: VB. MEMO: 1280X960; 61.6KHz TO LISN (PEAK VALUE) TTEMC.



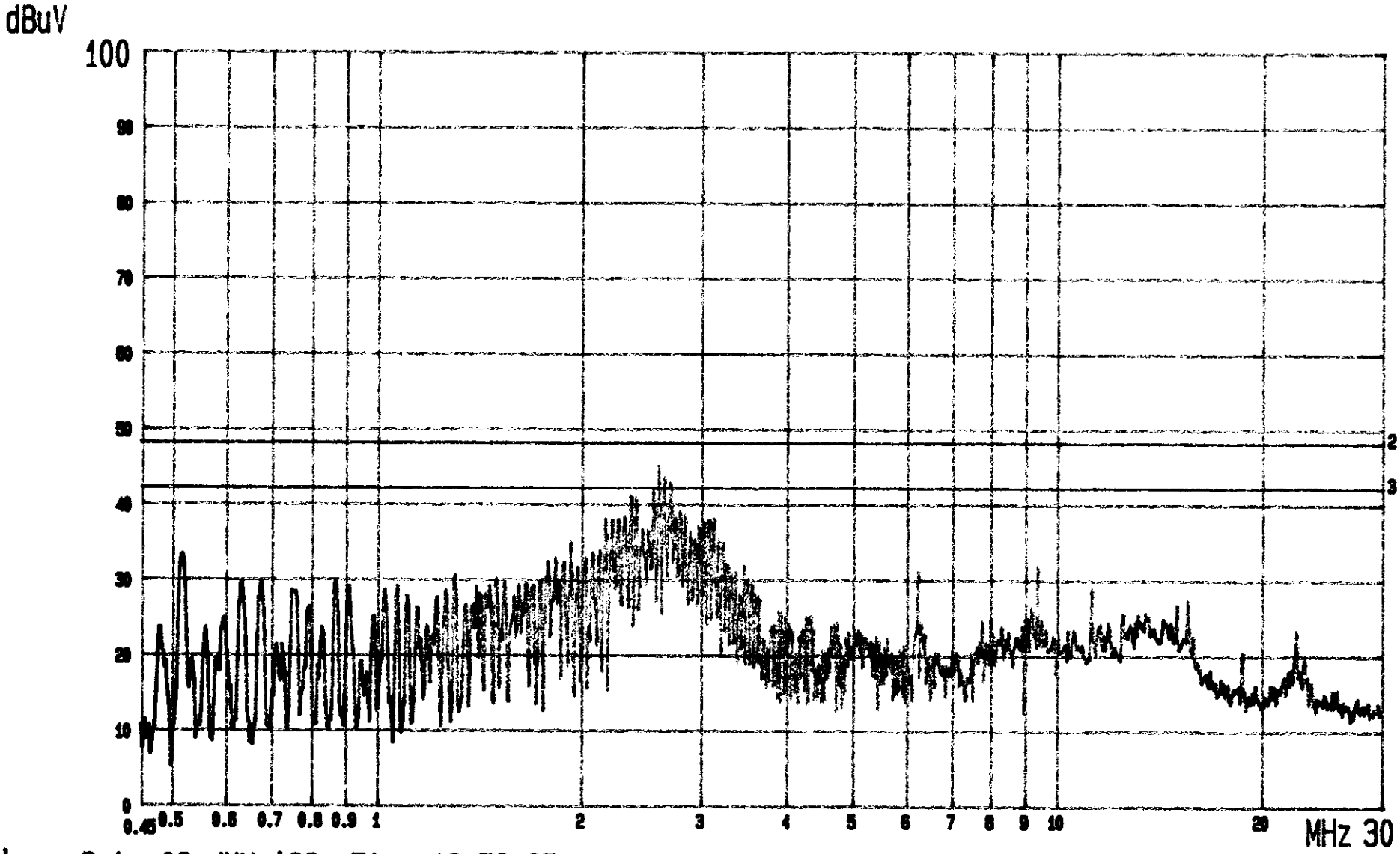
| --- Date 03.JUN.'99 Time 20:02:31
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VA. MEMO: 640X480; 31.5KHz TO PC (PEAK VALUE) TTEMC.



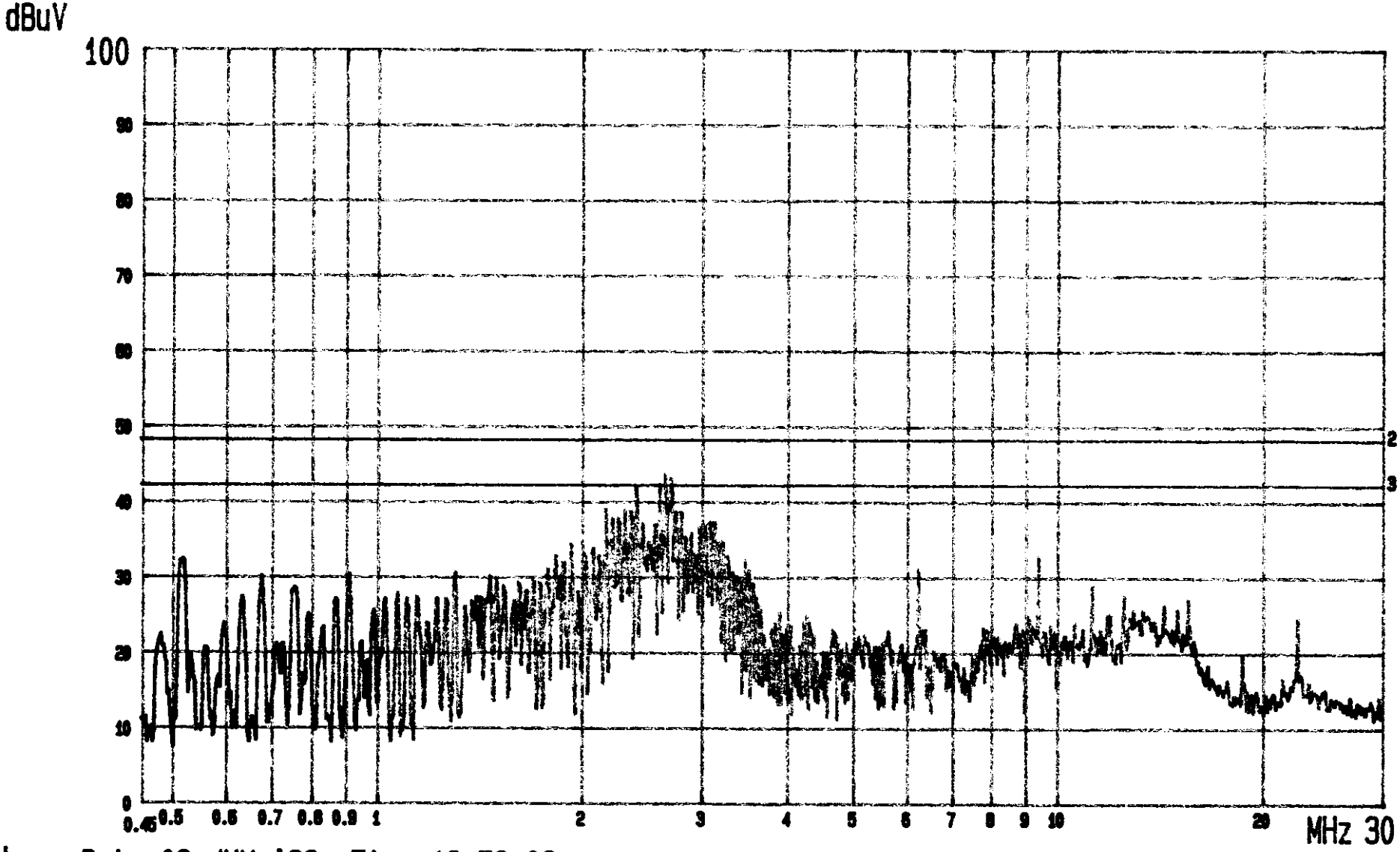
|--- Date 03.JUN.'99 Time 20:00:56

MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.

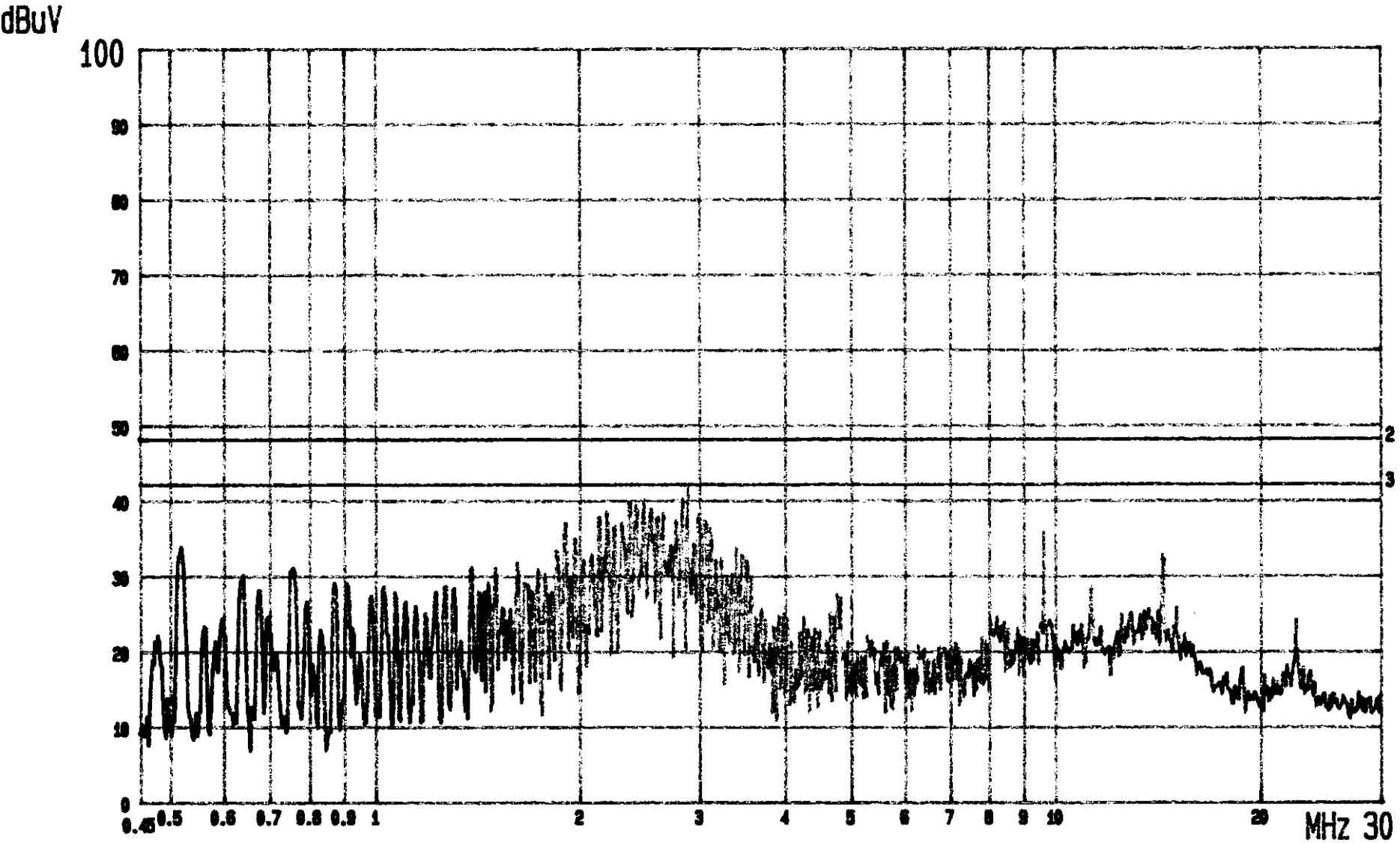
LINE: VB. MEMO: 640X480; 31.5KHz TO PC (PEAK VALUE) TTEMC.



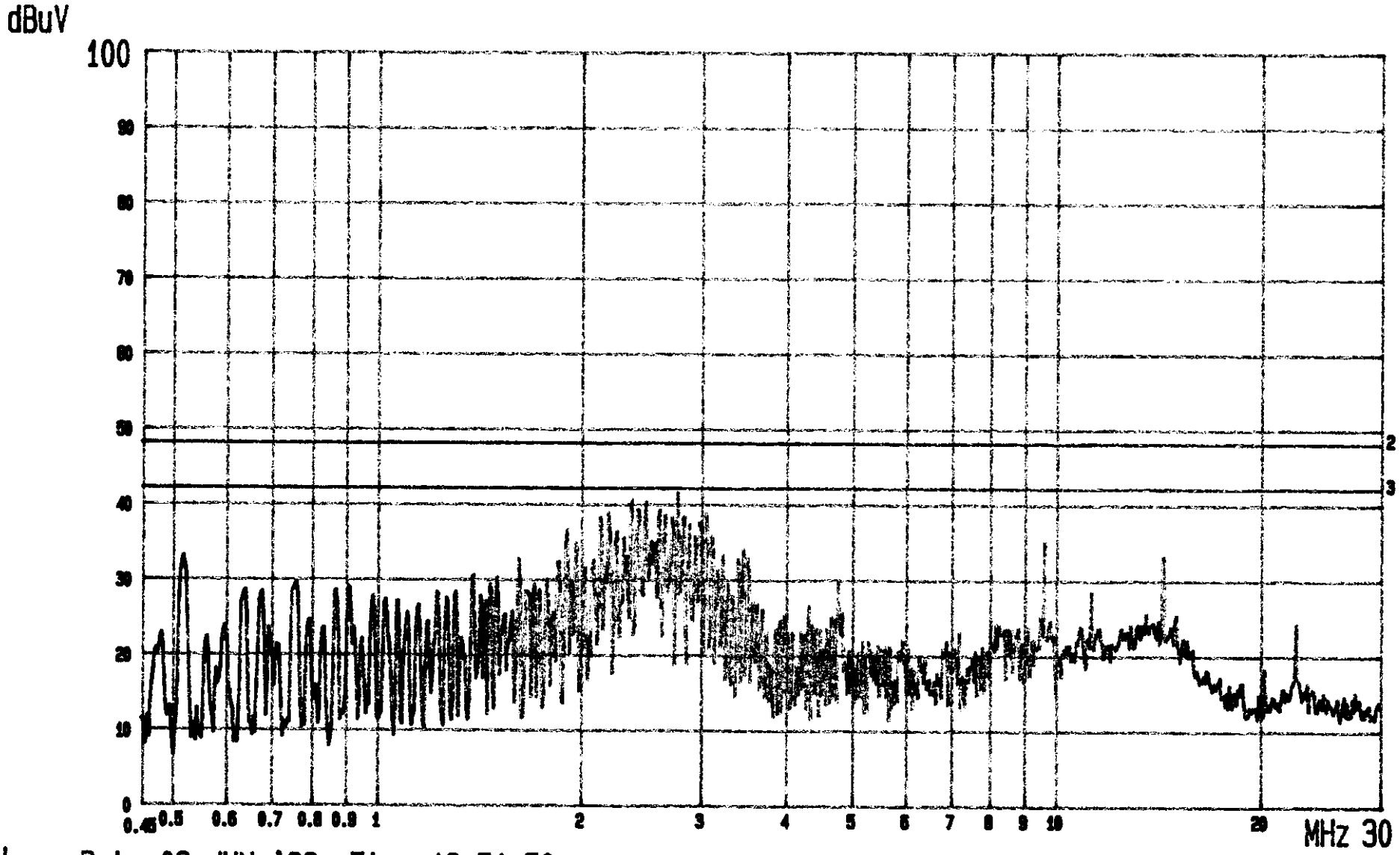
|--- Date 03.JUN.'99 Time 19:56:25
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.
LINE: VA. MEMO: 800X600; 48.1KHz TO PC (PEAK VALUE) TTEMC.



|--- Date 03.JUN.'99 Time 19:58:03
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VB. MEMO: 800X600; 48.1KHz TO PC (PEAK VALUE) TTEMC.



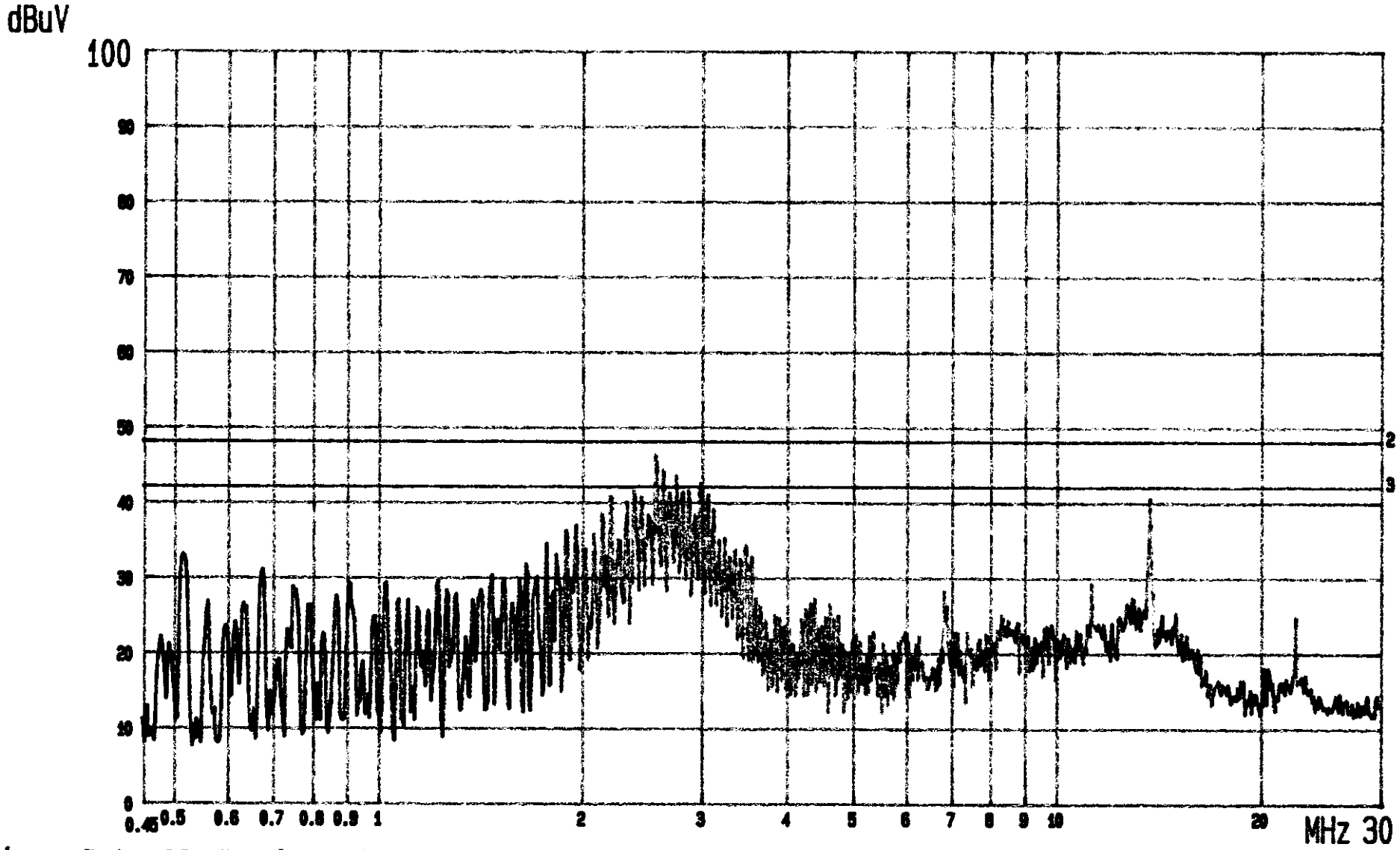
|--- Date 03.JUN.'99 Time 19:54:21
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VA. MEMO: 1024X768; 58KHz TO PC (PEAK VALUE) TTEMC.



|--- Date 03.JUN.'99 Time 19:51:50

MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.

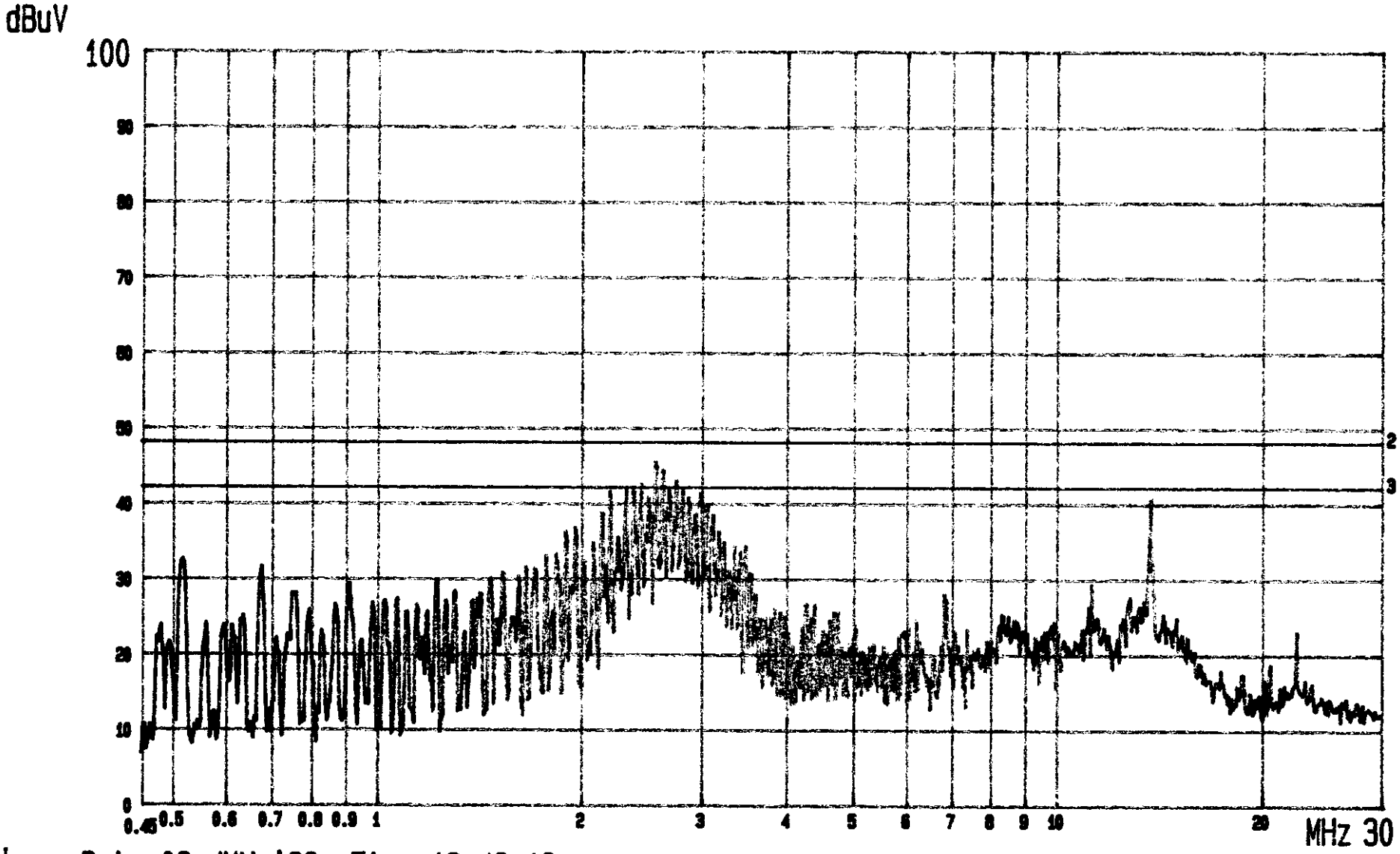
LINE: VB. MEMO: 1024X768; 58KHz TO PC (PEAK VALUE) TTEMC.



|--- Date 03.JUN.'99 Time 19:47:36

MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 01.

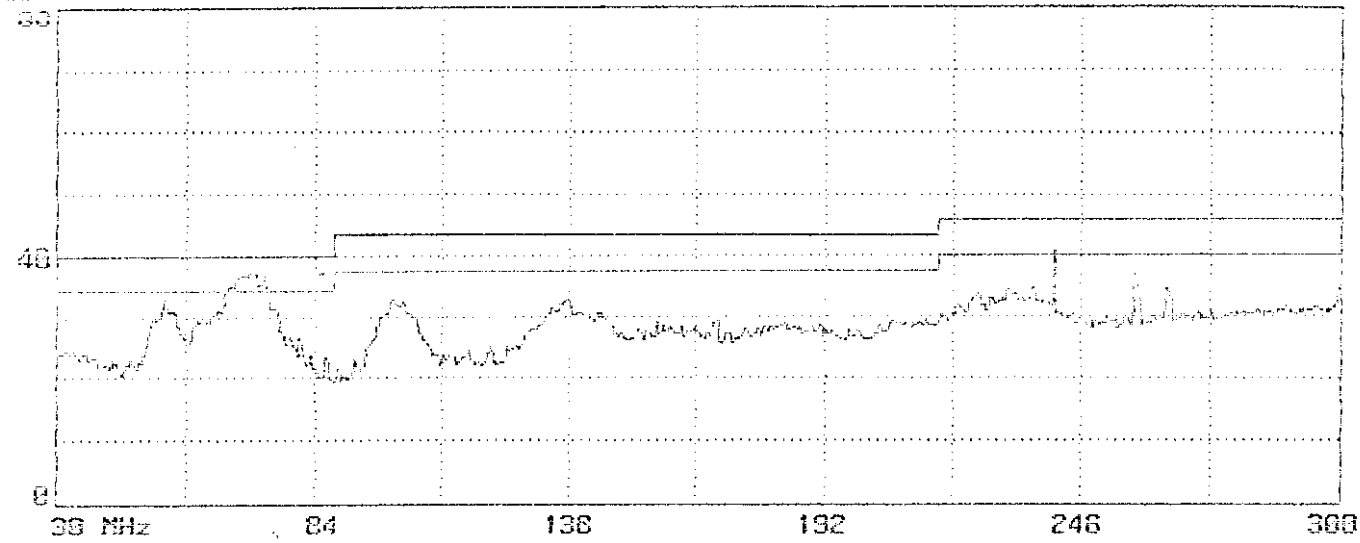
LINE: VA. MEMO: 1280X960; 61.6KHz TO PC (PEAK VALUE) TTEMC.



|--- Date 03.JUN.'99 Time 19:49:19
MATSUSHITA EUT: MONITOR M/N: TX-T7F37A*/M-T7F37A* 120V/60Hz PAGE: 02.
LINE: VB. MEMO: 1280X960; 61.6KHz TO PC (PEAK VALUE) TTEMC.

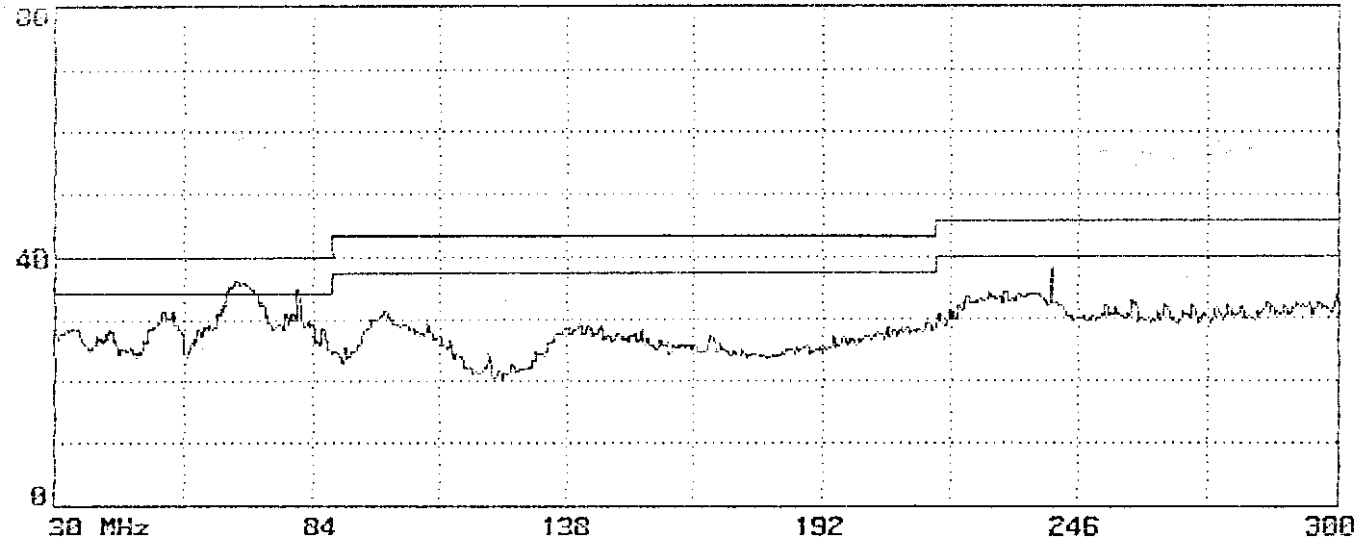
APPENDIX II

Page#: 1021 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:35:49
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



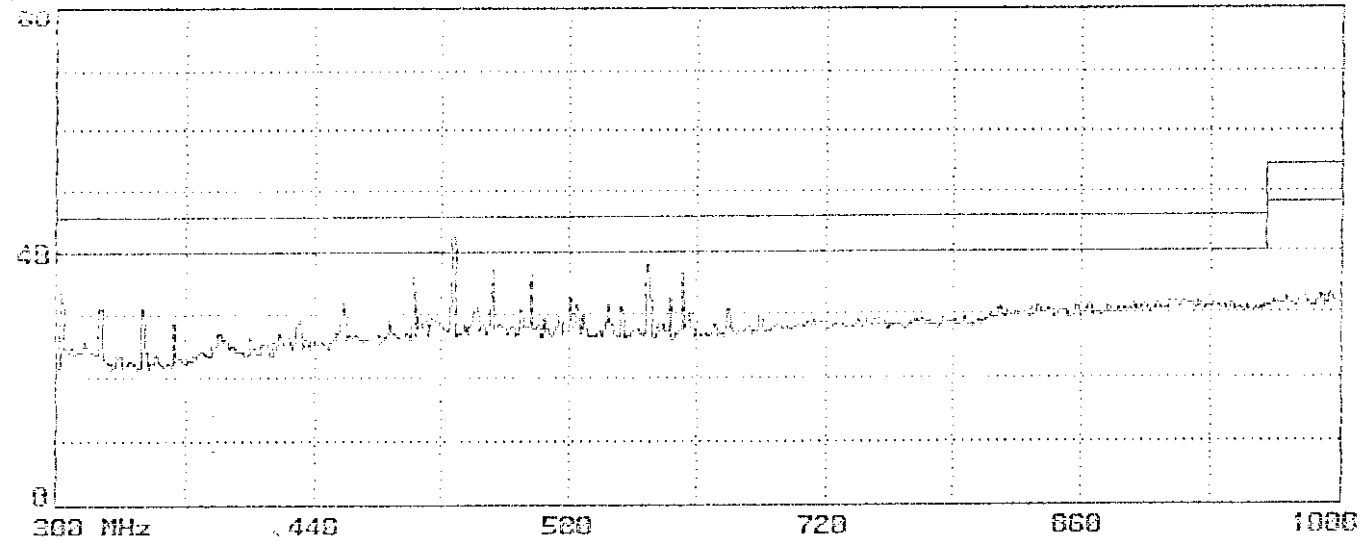
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1021, 0, 0, 0, 0
Memo : 640X480,31.5KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1022 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:39:41
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



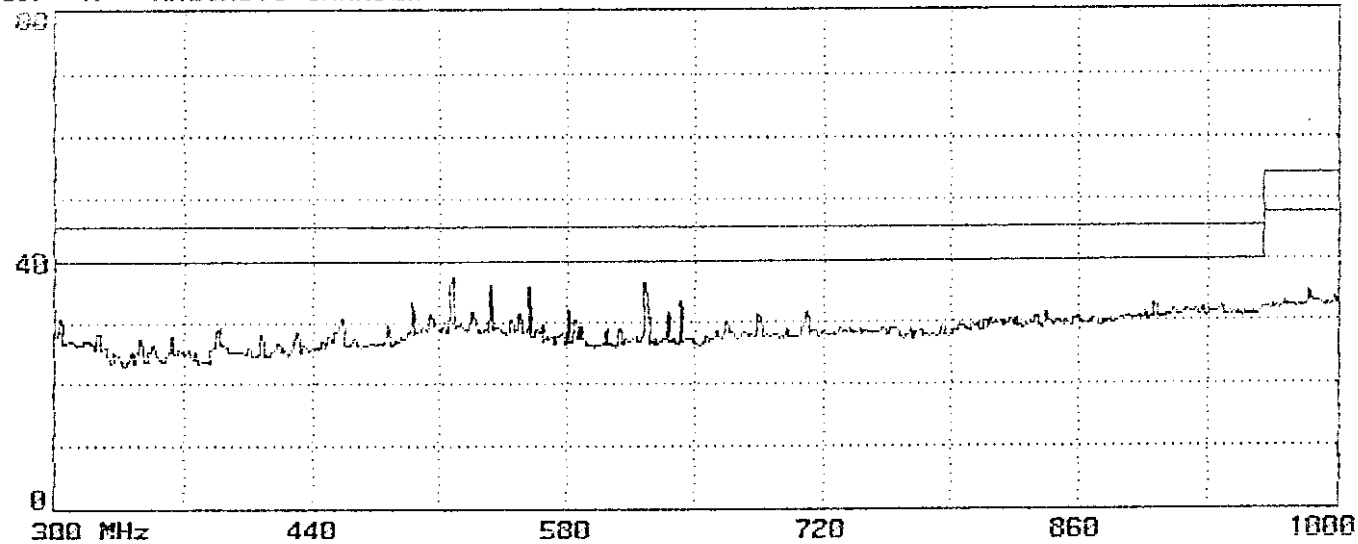
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1022, 0, 0, 0, 0
Memo : 640X480,31.5KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1023 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:45:21
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



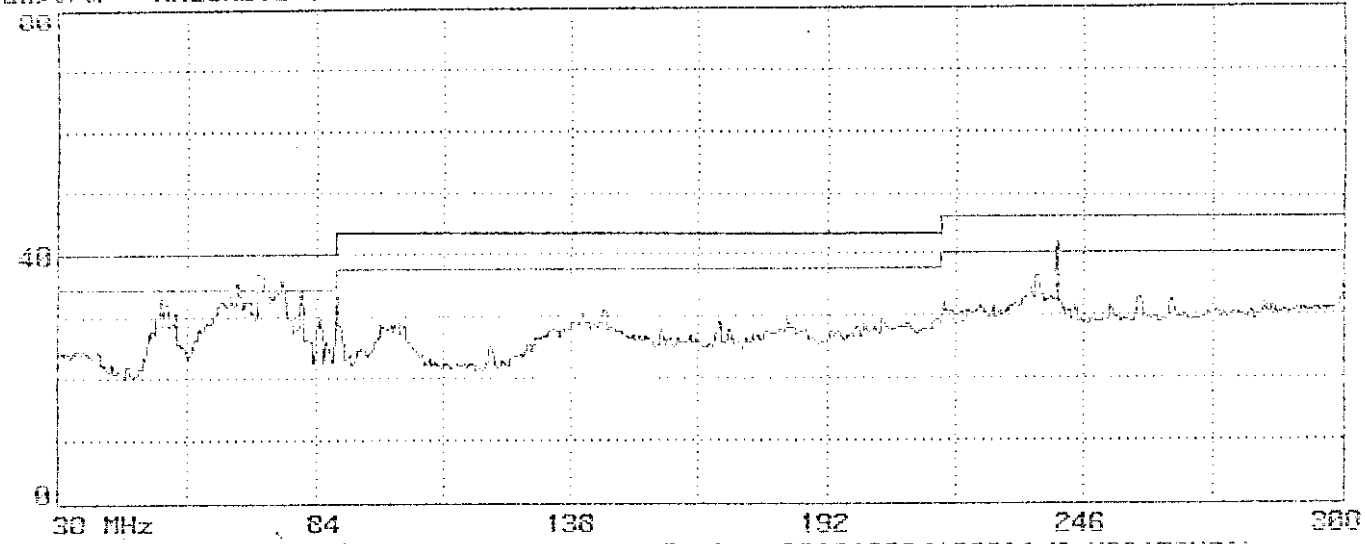
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1023, 0, 0, 0, 0
Memo : 640X480,31.5KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1024 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:49:12
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



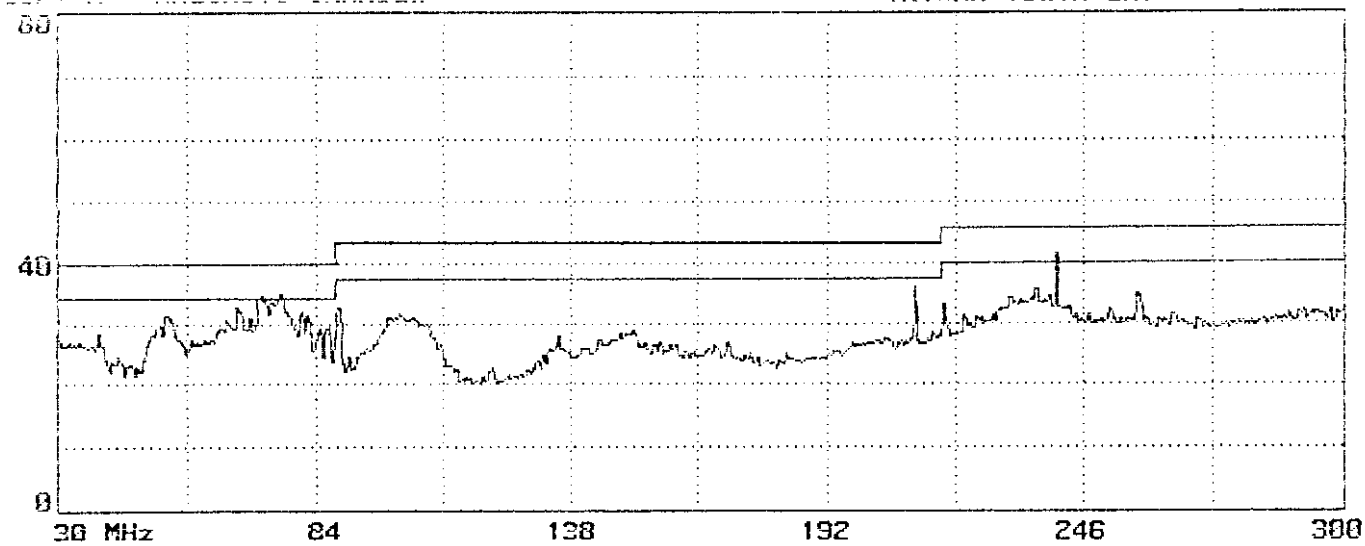
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1024, 0, 0, 0, 0
Memo : 640X480,31.5KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1005 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:14:07
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



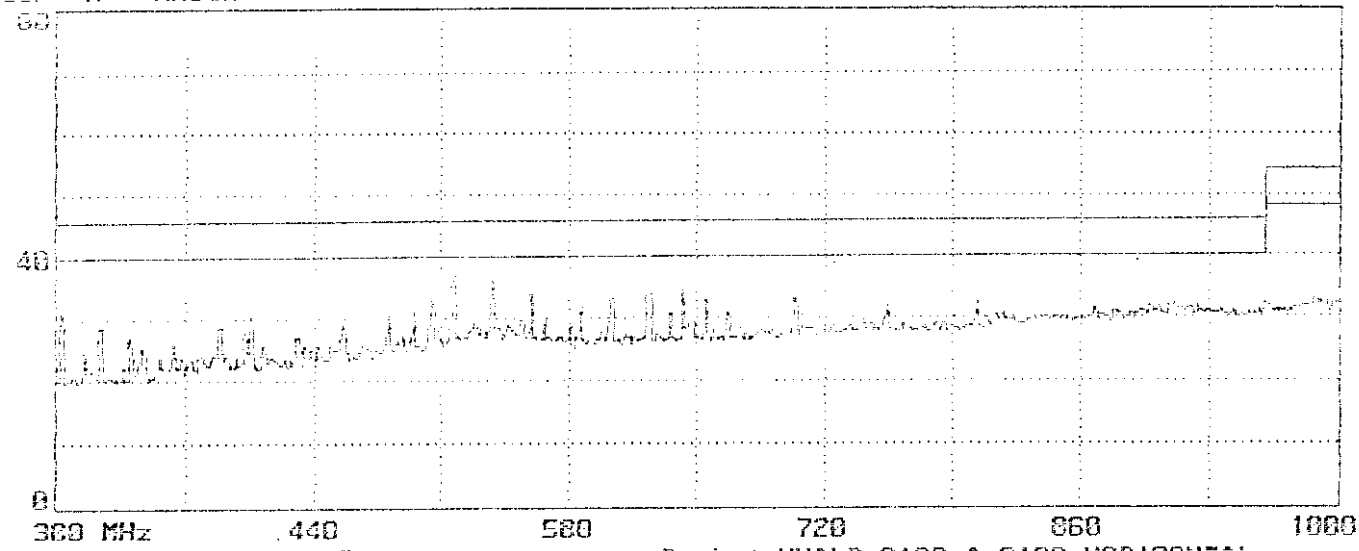
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1005, 0, 0, 0, 0
Memo : 800X600,48.1KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1006 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:18:03
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



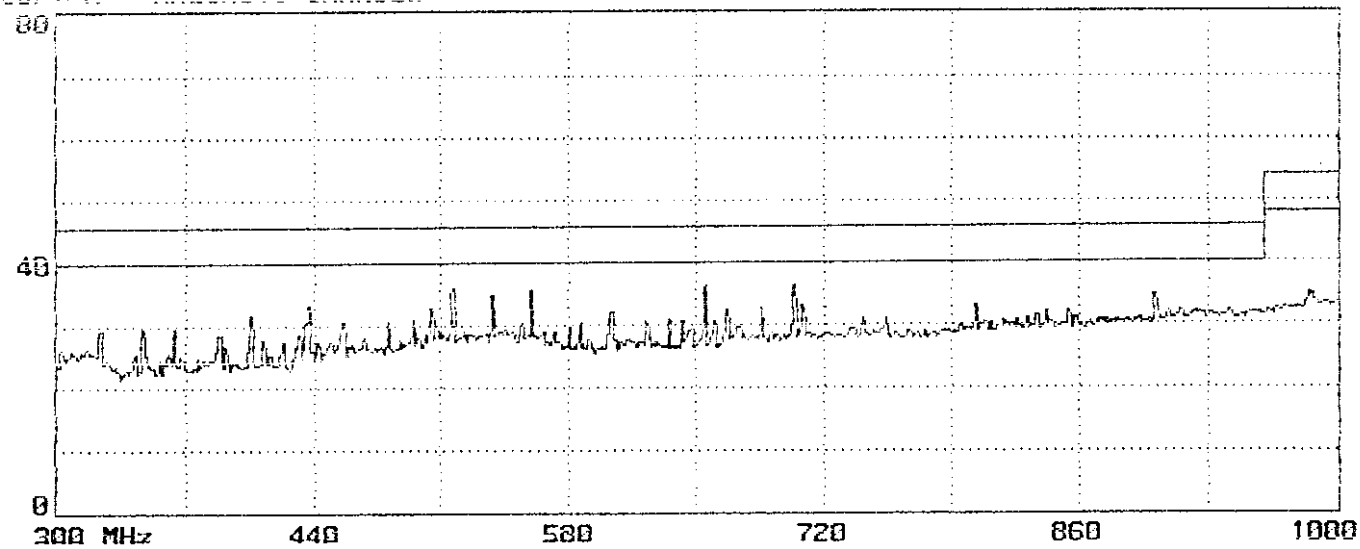
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1006, 0, 0, 0, 0
Memo : 800X600,48.1KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1007 SP File#: MATSUSHI.EI Date: 05-02-1999 Time: 16:23:33
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



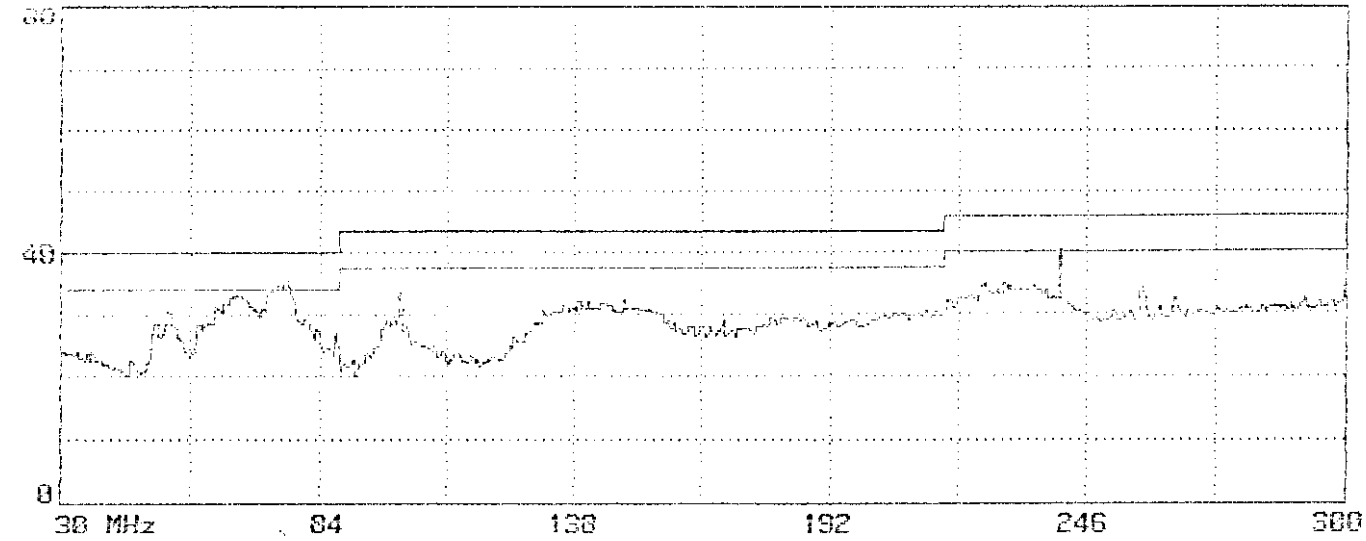
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1007, 0, 0, 0, 0
Memo : 800X600,48.1KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1008 SP File#: MATSUSHI.EI Date: 05-02-1999 Time: 16:30:07
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



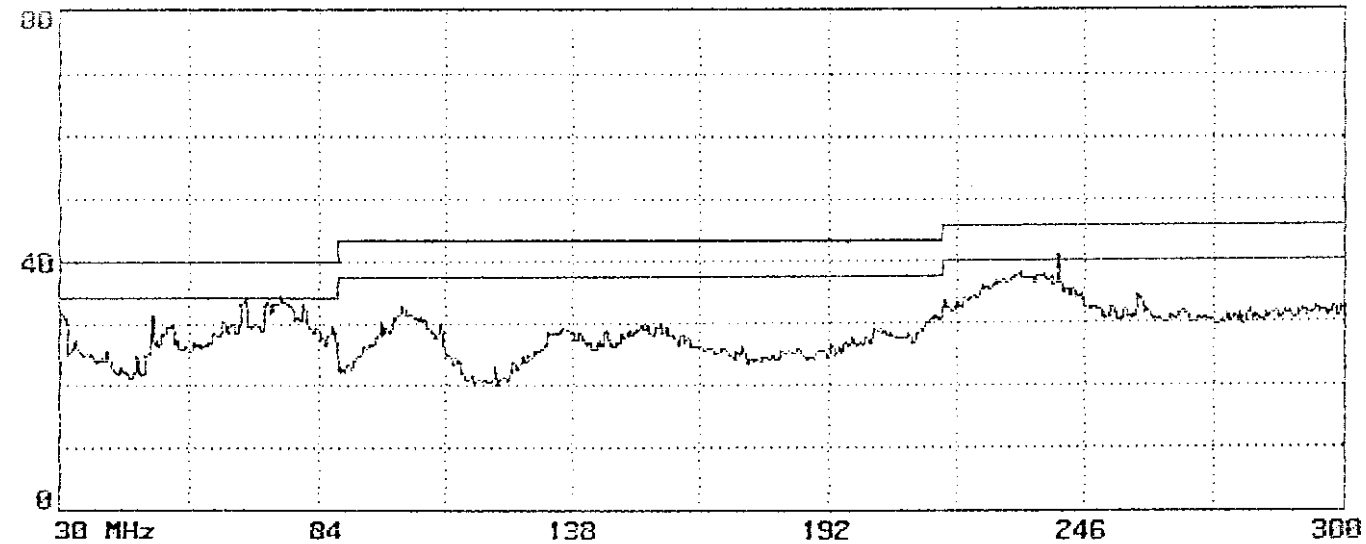
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1008, 0, 0, 0, 0
Memo : 800X600,48.1KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1011 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:44:53
dBPV/m ONECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



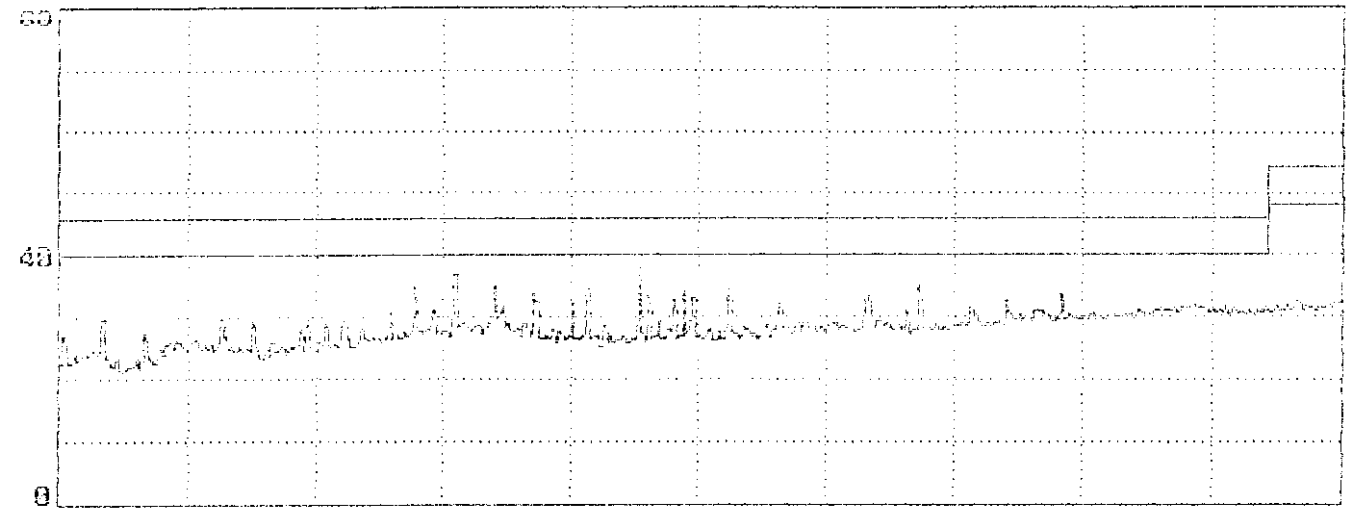
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1011, 0, 0, 0, 0
Memo : 1024X768,58KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1012 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:48:40
dBPV/m ONECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



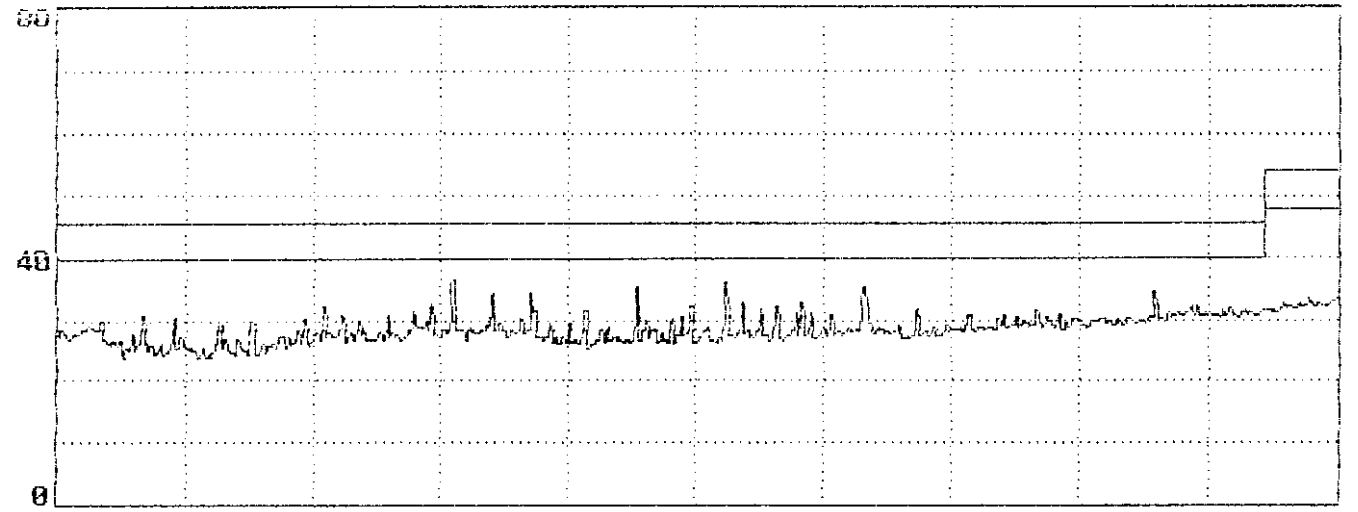
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1012, 0, 0, 0, 0
Memo : 1024X768,58KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1009 SP File#: MATSUSHI.E1 Date: 06-02-1999 Time: 15:36:39
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

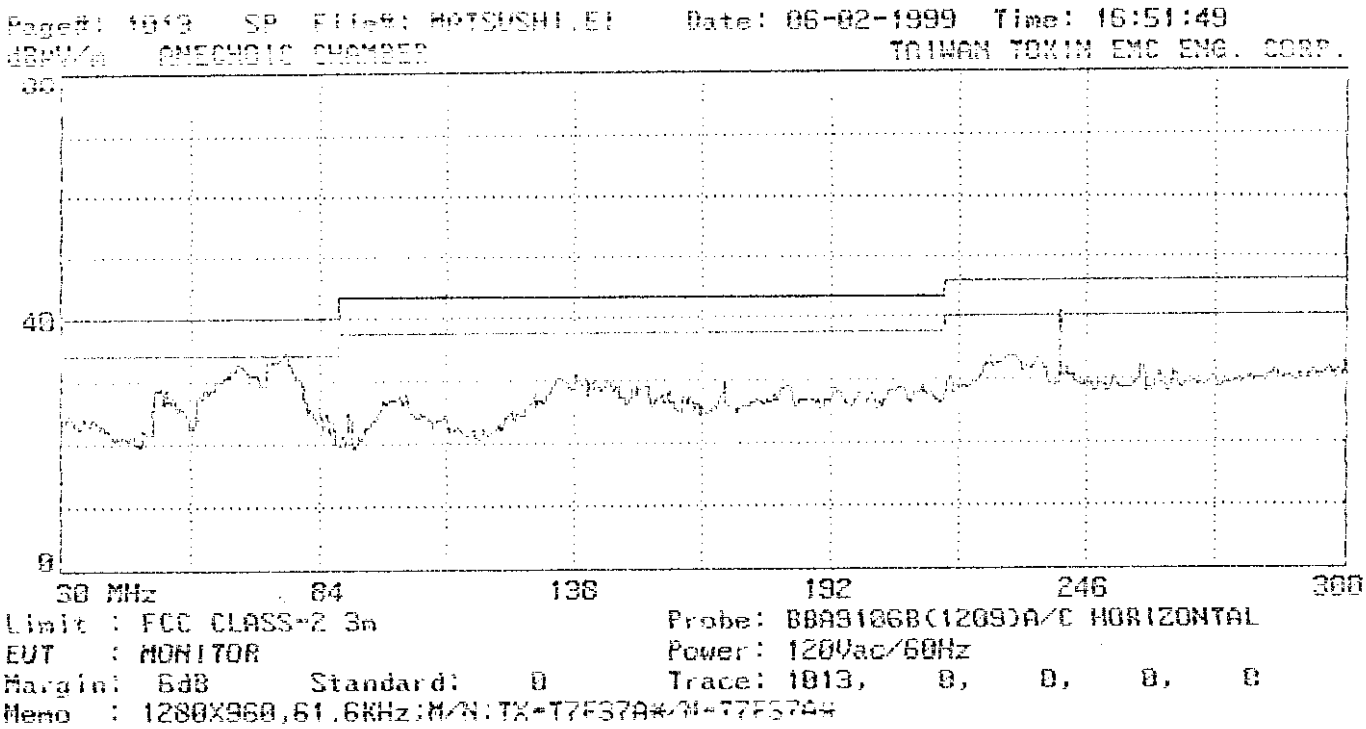


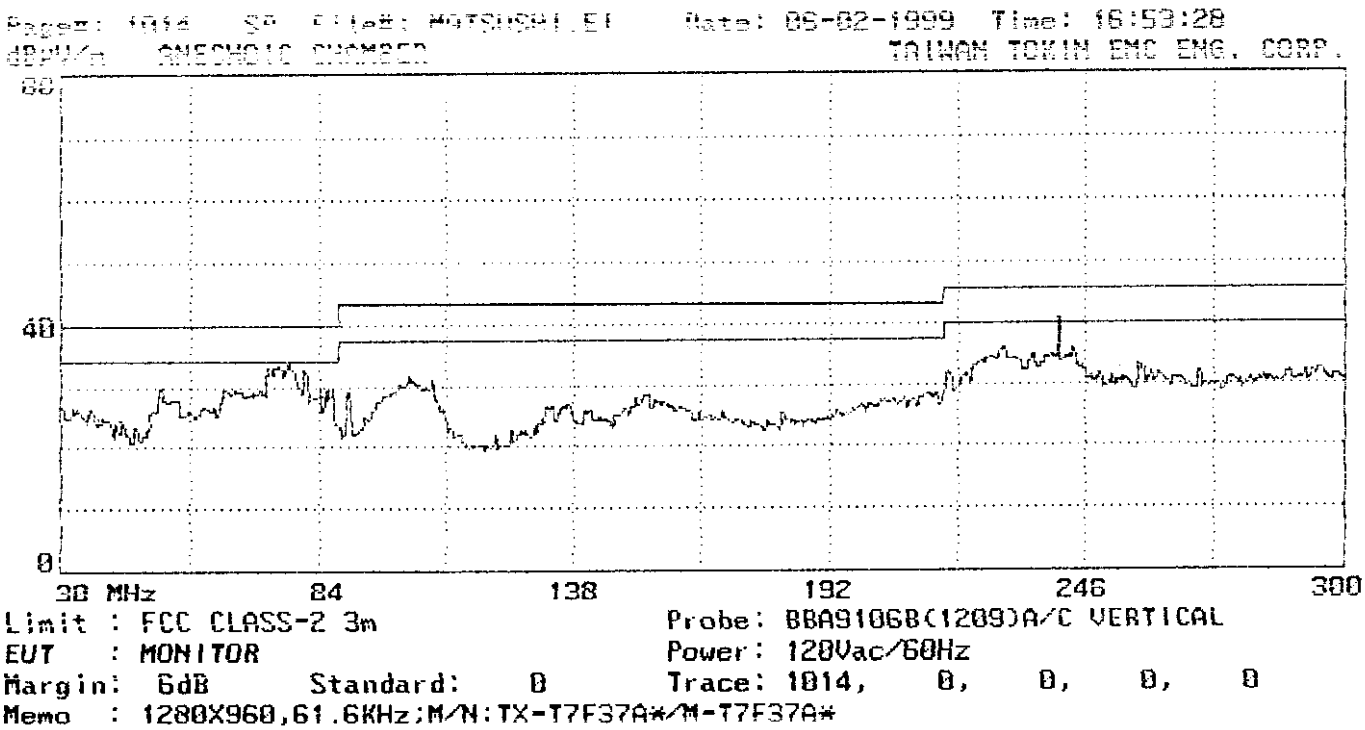
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1009, 0, 0, 0, 0
Memo : 1024X768,58KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1010 SP File#: MATSUSHI.E1 Date: 06-02-1999 Time: 15:39:38
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

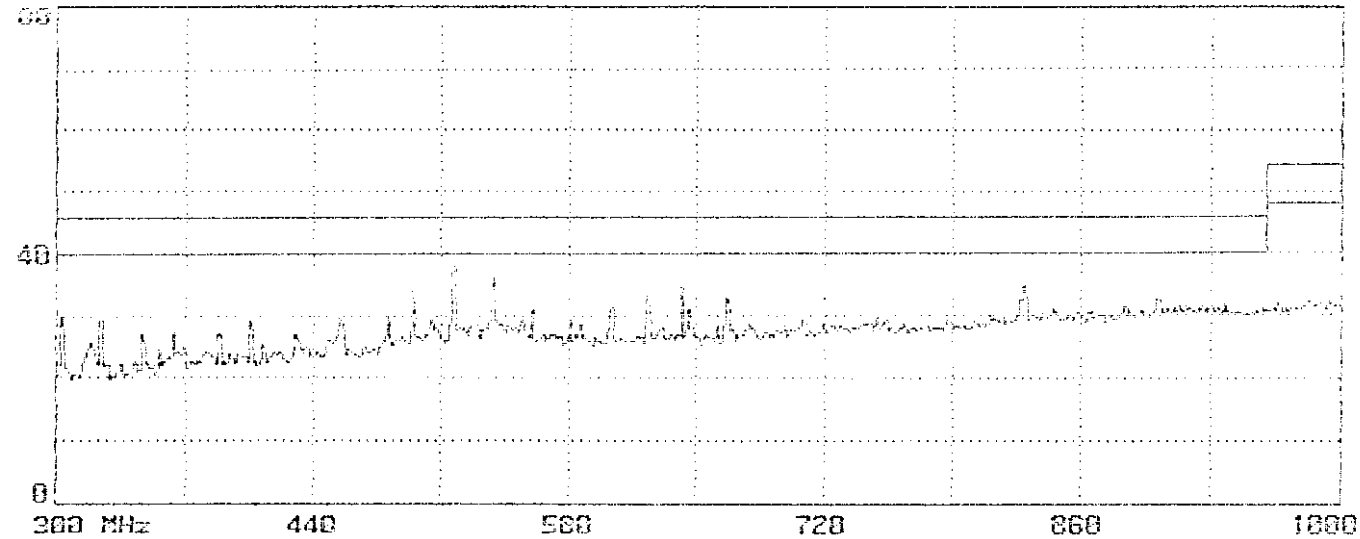


Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1010, 0, 0, 0, 0
Memo : 1024X768,58KHz;M/N:TX-T7F37A*/M-T7F37A*


Page#: 1013 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:51:49
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.
80
40
0
30 MHz
84
138
192
246
300
Limit : FCC CLASS-2 3m
EUT : MONITOR
Margin: 6dB Standard: 0
Memo : 1280X960,61.6KHz;M/N:TX-T7F37A*/M-T7F37A*
Probe: BBA9106B(1209)A/C HORIZONTAL
Power: 120Vac/60Hz
Trace: 1013, 0, 0, 0, 0

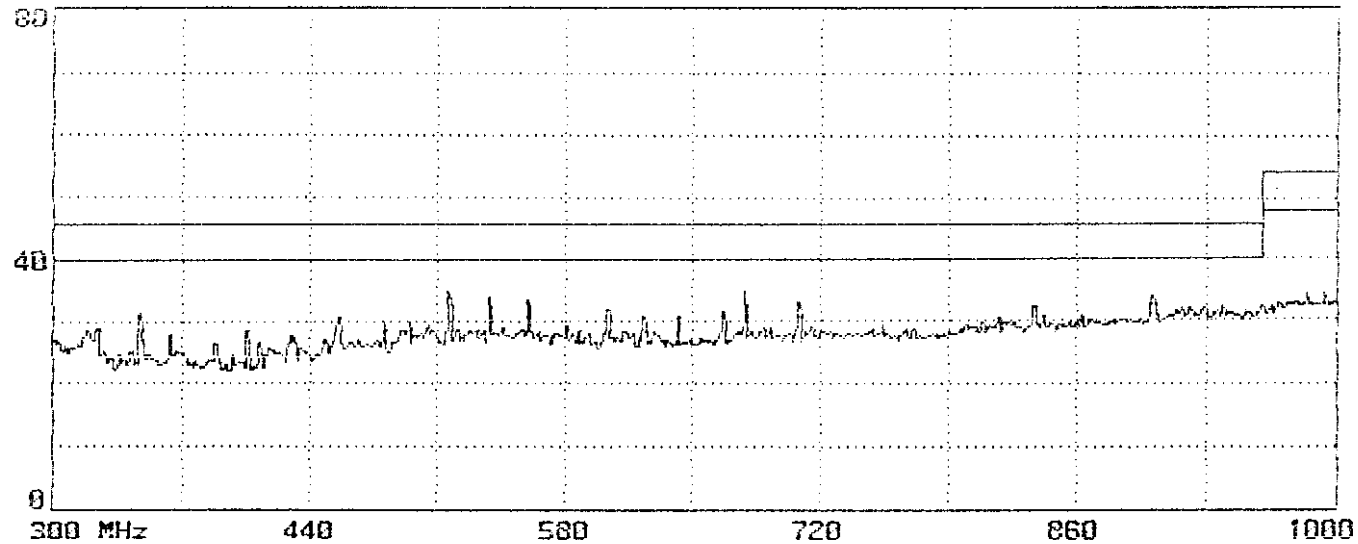

Page#: 1014 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:53:28
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.
80
40
0
30 MHz
84
138
192
246
300
Limit : FCC CLASS-2 3m
EUT : MONITOR
Margin: 6dB Standard: 0
Memo : 1280X960,61.6KHz;M/N:TX-T7F37A*/M-T7F37A*
Probe: BBA9106B(1209)A/C VERTICAL
Power: 120Vac/60Hz
Trace: 1014, 0, 0, 0, 0

Page#: 1015 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:57:20
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



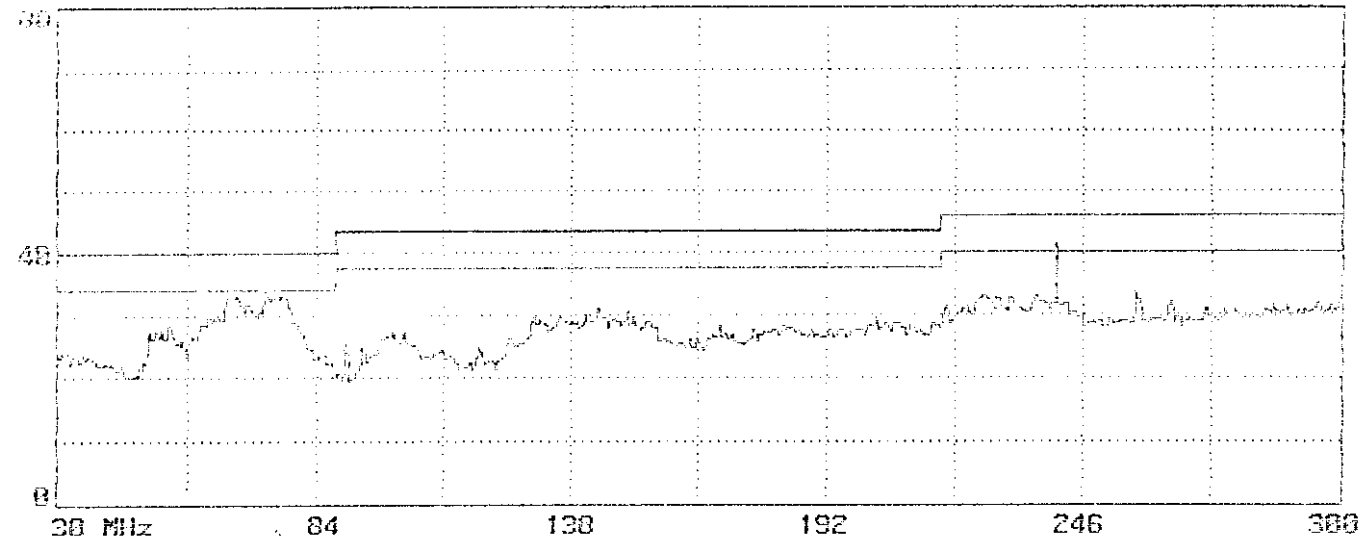
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1015, 0, 0, 0, 0
Memo : 1280X960,61.6KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1015 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 16:59:00
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



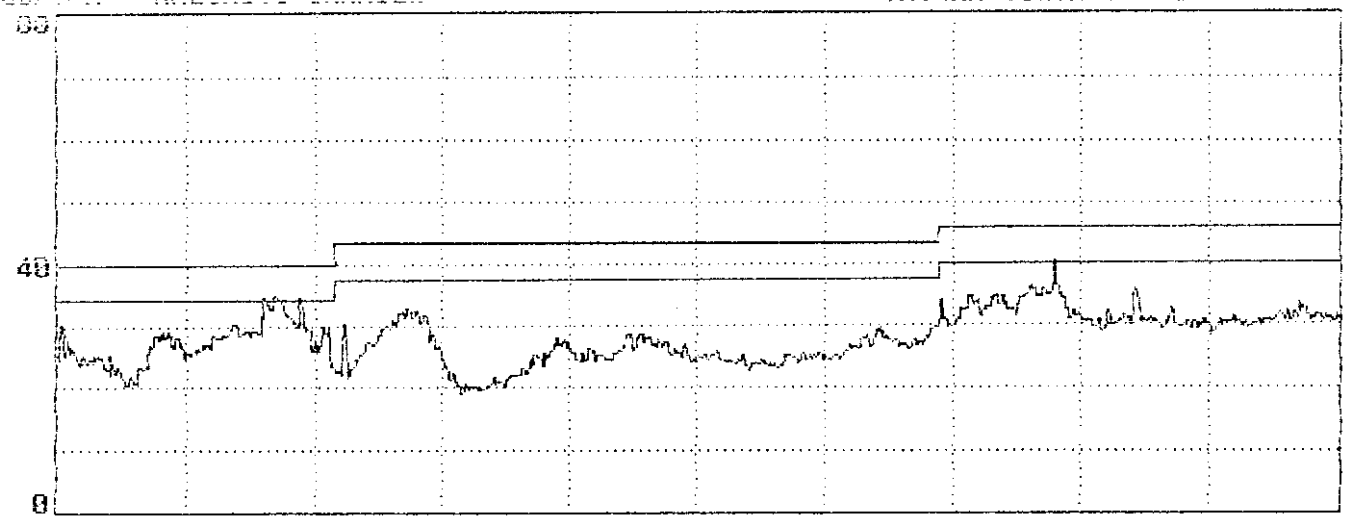
Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1016, 0, 0, 0, 0
Memo : 1280X960,61.6KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1019 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:07:42
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



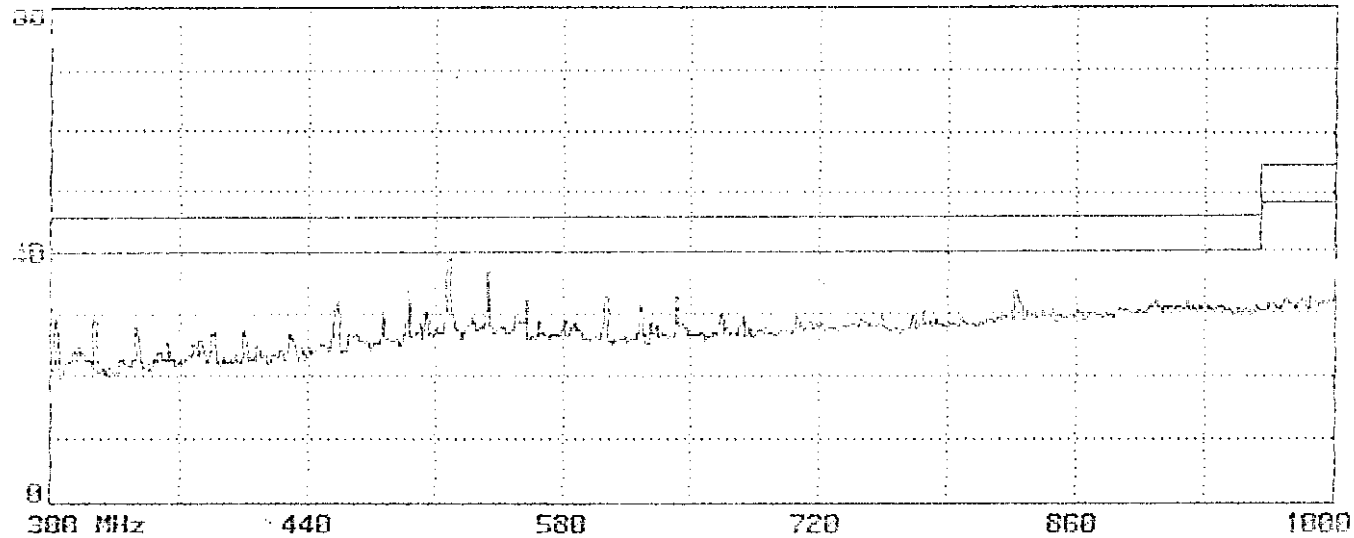
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1019, 0, 0, 0, 0
Memo : 1280X1024,66KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1020 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:09:22
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



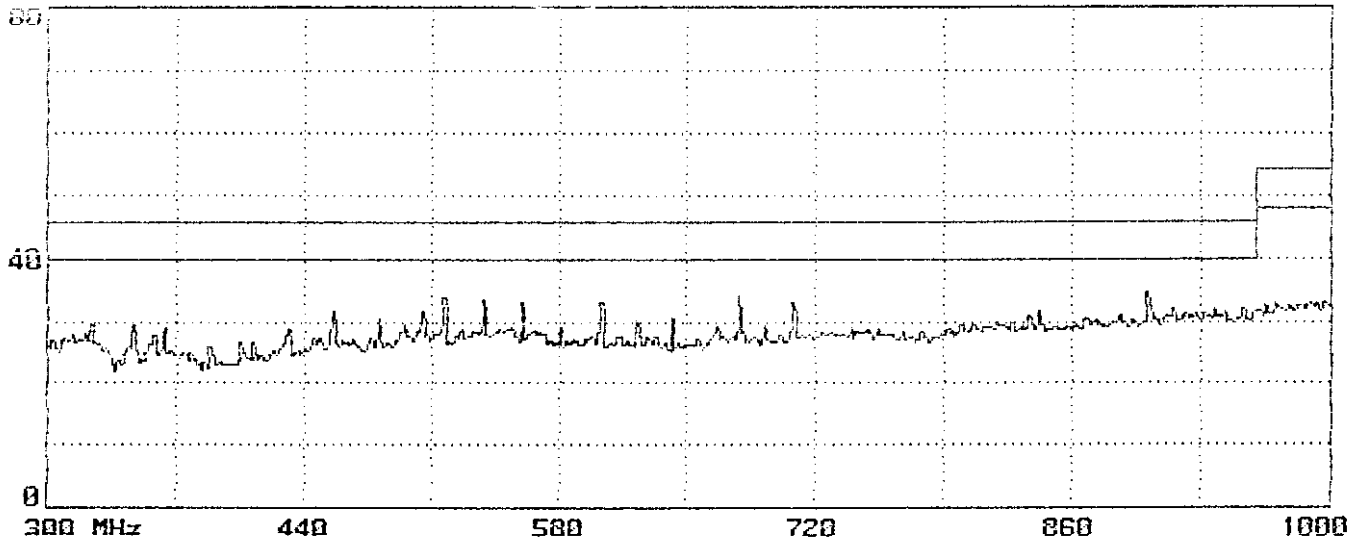
Limit : FCC CLASS-2 3m Probe: BBA9106B(1209)A/C VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1020, 0, 0, 0, 0
Memo : 1280X1024,66KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1017 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:02:32
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 HORIZONTAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1017, 0, 0, 0, 0
Memo : 1280X1024,66KHz;M/N:TX-T7F37A*/M-T7F37A*

Page#: 1018 SP File#: MATSUSHI.EI Date: 06-02-1999 Time: 17:04:11
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-2 3m Probe: UHALP 9108-A 0139 VERTICAL
EUT : MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 1018, 0, 0, 0, 0
Memo : 1280X1024,66KHz;M/N:TX-T7F37A*/M-T7F37A*