

APPLICATION FOR CERTIFICATION

On Behalf of
Matsushita Electric Industrial Co., Ltd.
21" Color CRT Display Monitor

Model : (1)TX-D1F64NM (2)TX-D1F64
(3)TX-D1F64ML (4)TX-D1F64*****

FCC ID : ACJ93312140

*TESTED WITH D-SUB & BNC CABLE @ 640 x 480 AND
1600 x 1200*

Prepared for : Matsushita Electric Industrial Co., Ltd.
6-4-1, Tsujidomotomachi, Fujisawa,
Kanagawa 251 Japan

Prepared By : Taiwan Tokin EMC Eng. Corp.
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File Number : ATM-G98671
Report Number : TTEMC-F98183
Date of Test : Nov. 19 / 26, 1998
Date of Report : Dec. 11, 1998

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TEST REPORT CERTIFICATION

Applicant : Matsushita Electric Industrial Co., Ltd.
 Manufacturer : Matsushita Electric Industrial Co., Ltd.
 FCC ID : ACJ93312140
 EUT Description : 21" Color CRT Display Monitor
 (A) MODEL NO. : (1)TX-D1F64NM (2)TX-D1F64
 (3)TX-D1F64ML (4)TX-D1F64*****
 (B) SERIAL NO. : FX8540009
 (C) POWER SUPPLY : AC 120V/60Hz

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 1997
 AND FCC / ANSI C63.4-1992

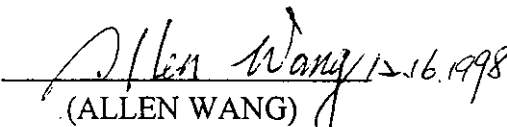
The device described above was tested by TAIWAN TOKIN EMC ENG. CORP. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15B Class B limits both radiated and conducted emissions.

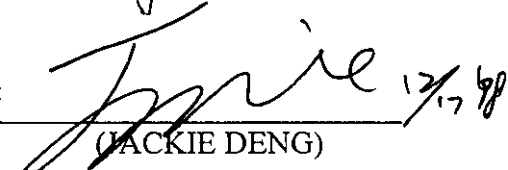
The measurement results were contained in this test report and TAIWAN TOKIN EMC ENG. CORP. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report showed that the EUT to be technically compliance with the FCC official limits.

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.

Date of Test : Nov. 19 / 26, 1998

Prepared by :  12/15/98
 (SHELENE HOU)

Test Engineer :  12/16/98
 (ALLEN WANG)

Approve & Authorized Signer :  12/17/98
 (JACKIE DENG)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description : 21" Color CRT Display Monitor

Model Number : (1)TX-D1F64NM (2)TX-D1F64
(3)TX-D1F64ML (4)TX-D1F64*****

TX-D1F64NM was selected in this test report.

Comparison Information for above models

Model Name		TX-D1F64NM	TX-D1F64	TX-D1F64ML	TX-D1F64*****
1	Brand Name	No-Brand	Panasonic	Panasonic	Future OEM Brand
2	Cabinet Cosmetic		Minor change	Minor change	Minor change
3	BNC Type Connector (Rear Panel)	Yes	Yes	None	Yes

*****: is one thru five suffix in any combination of the alphanumeric character, symbols or blank.

Serial Number : FX8540009

Applicant : Matsushita Electric Industrial Co., Ltd.
6-4-1, Tsujidomotomachi, Fujisai,
Kanagai, 251, Japan

Manufacturer : Matsushita Electric Industrial Co., Ltd.
6-4-1, Tsujidomotomachi, Fujisawa,
Kanagawa 251 Japan

CRT : Panasonic, M/N M51LRF280X

Data Cable # 1 (D-Sub) : Shielded, Detachable, 1.5m
Bonded two ferrite cores

Data Cable # 2 (D-Sub) : Shielded, Detachable, 1.8m
Bonded two ferrite cores

Data Cable # 3 (D-Sub) : Shielded, Detachable, 3m
Bonded two ferrite cores

Data Cable # 4 (BNC) : Shielded, Detachable, 1.8m

Power Cord	:	Non-Shielded, Detachable, 1.8m
Date of Receipt of Sample	:	Nov. 11, 1998
Date of Test	:	Nov. 19 / 26 , 1998

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Model Number	:	D4594B
Serial Number	:	SG74350121
FCC ID	:	By DoC
Manufacturer	:	Hewlett Packard
VGA Card	:	Matrox Graphics, M/N 79075010153 (MGA-MIL/2/DIP) S/N CAJ92909 FCC ID ID7057600
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number	:	RT6656TWJP
Serial Number	:	31470782
FCC ID	:	AQ6-MTN4C15
Manufacturer	:	Hewlett Packard
Data Cable	:	Shielded, Undetachable, 1.9m

1.2.3. PRINTER

Model Number	:	2225C
Serial Number	:	2526S40437
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	:	980034398
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	:	980034397
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. PS2 MOUSE

Model Number	:	M-S34
Serial Number	:	LZ64952349
FCC ID	:	DZL211029
Manufacturer	:	Hewlett Packard
Data Cable	:	Shielded, Undetachable, 2.0m

1.2.7. USB MOUSE # 1

Model Number	:	M-UB48
Serial Number	:	LZB81900216
FCC ID	:	DZL211137
Manufacturer	:	Logitech
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.8. USB MOUSE # 2

Model Number	:	M-UB48
Serial Number	:	LZB81900209
FCC ID	:	DZL211137
Manufacturer	:	Logitech
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.9. JOYSTICK

Model Number	:	1FD05015
Serial Number	:	N/A
Manufacturer	:	Rambo
Data Cable	:	Non-Shielded, Undetachable, 1.6m

1.2.10. SPEAKER

Model Number	:	J-008
Serial Number	:	97-C-009780-T
Manufacturer	:	(J-S) JAZZ HIPSTER
Data Cable	:	Non-Shielded, Undetachable, 1m

1.2.11. WALKMAN

Model Number	:	RQ-P35LT-K
Serial Number	:	HA08489
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.12. EARPHONE # 1

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	Cathay Pacific
Data Cable	:	Non-Shielded, Undetachable, 1.3m

1.2.13. EARPHONE # 2

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	Aiwa
Data Cable	:	Non-Shielded, Detachable, 1m

1.2.14. EARPHONE w/MIC.

Model Number	:	MI-2
Serial Number	:	N/A
Manufacturer	:	N/A
Data Cable	:	Non-Shielded, Undetachable, 1.7m

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.
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

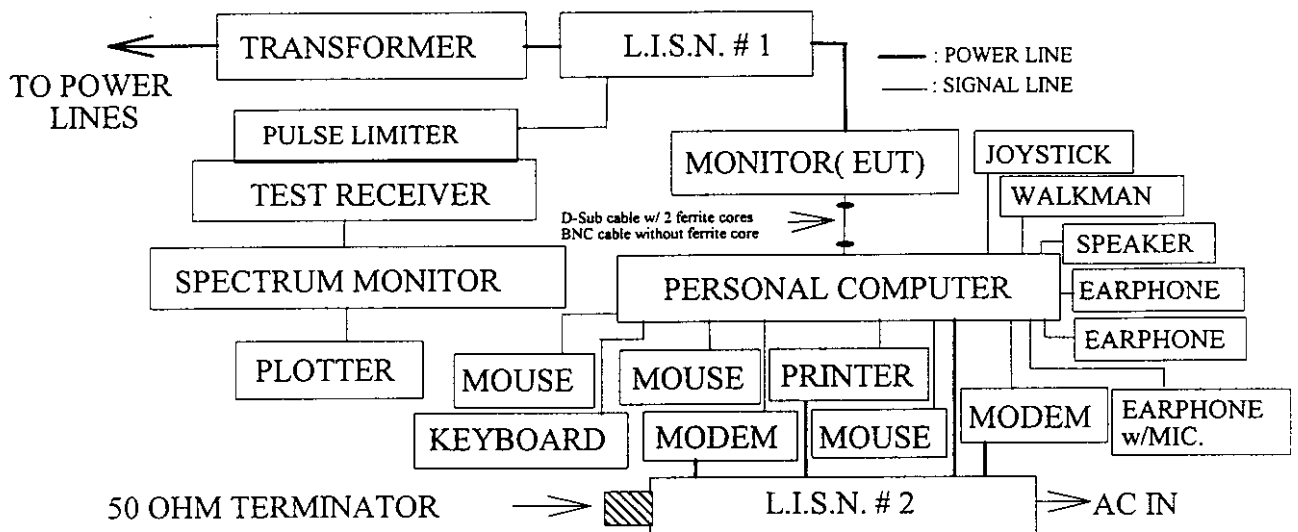
2. POWERLINE CONDUCTED TEST

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	8-855-9	Apr.14, 98'	1 Year
3.	L.I.S.N. # 2	Kyoritsu	KNW-407	8-881-13	Apr.14, 98'	1 Year

2.2. Block Diagram of Test Setup



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. 21" Color CRT Display Monitor (EUT)

Model Number	:	(1)TX-D1F64NM (2)TX-D1F64 (3)TX-D1F64ML (4)TX-D1F64*****
Serial Number	:	FX8540009
Manufacturer	:	Matsushita Electric Industrial Co., Ltd.
CRT	:	Panasonic, M/N M51LRF280X
Data Cable # 1 (D-Sub)	:	Shielded, Detachable, 1.5m Bonded two ferrite cores
Data Cable # 2 (D-Sub)	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Data Cable # 3 (D-Sub)	:	Shielded, Detachable, 3m Bonded two ferrite cores
Data Cable # 4 (BNC)	:	Shielded, Detachable, 1.8m
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.

2.5.5. 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 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 during conducted measurement.

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

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

Two kinds of horizontal working frequency with four kinds of data cables were investigated during pre-scanning and reported the two worst test modes (31.5kHz & 115kHz with 1.8m D-Sub Data Cable) in section 2.7., the others test data were attached within Appendix I. The detail of test modes are as follows :

Two kinds of display frequency :

	640 x 480 (Hf: 31.5kHz)	1600 x 1200 (Hf: 115.0kHz)
(a) Dot Clock Frequency	25.175 MHz	239.35 MHz
(b) Vertical Frequency	50 Hz	180 Hz
(c) Horizontal Frequency	30 kHz	115 kHz

Four kinds of data cable :

- (1) 1.5m D-Sub data cable with two ferrite cores
- (2) 1.8m D-Sub data cable with two ferrite cores
- (3) 3.0m D-Sub data cable with two ferrite cores
- (4) 1.8m BNC data cable

2.7. Line Conducted RF Voltage Measurement Results

The frequency range 450KHz to 30 MHz was investigated.

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

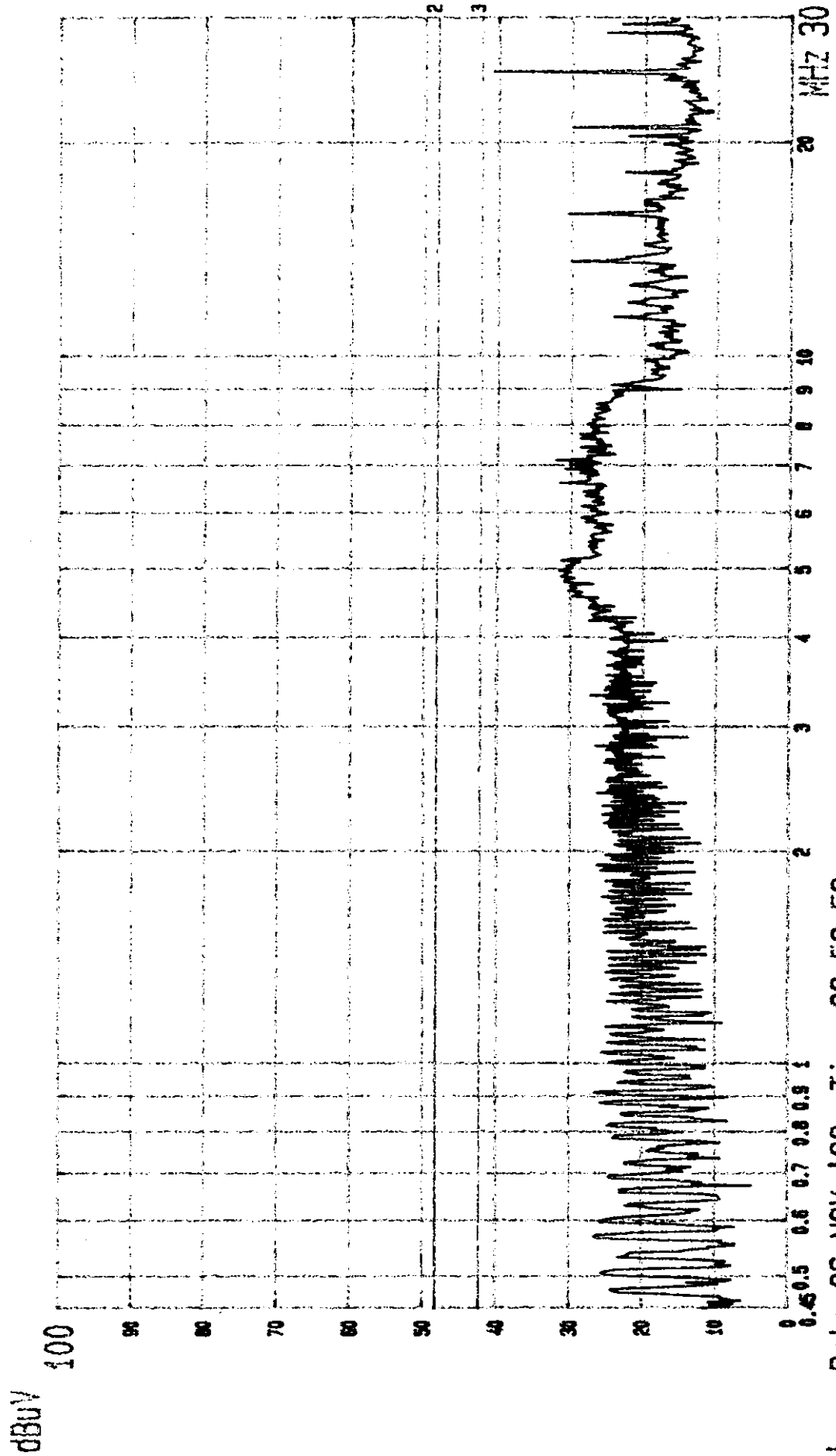
Date of Test : Nov. 26, 1998 Temperature : 22°C

EUT : 21" Color CRT Display Monitor Humidity : 50%

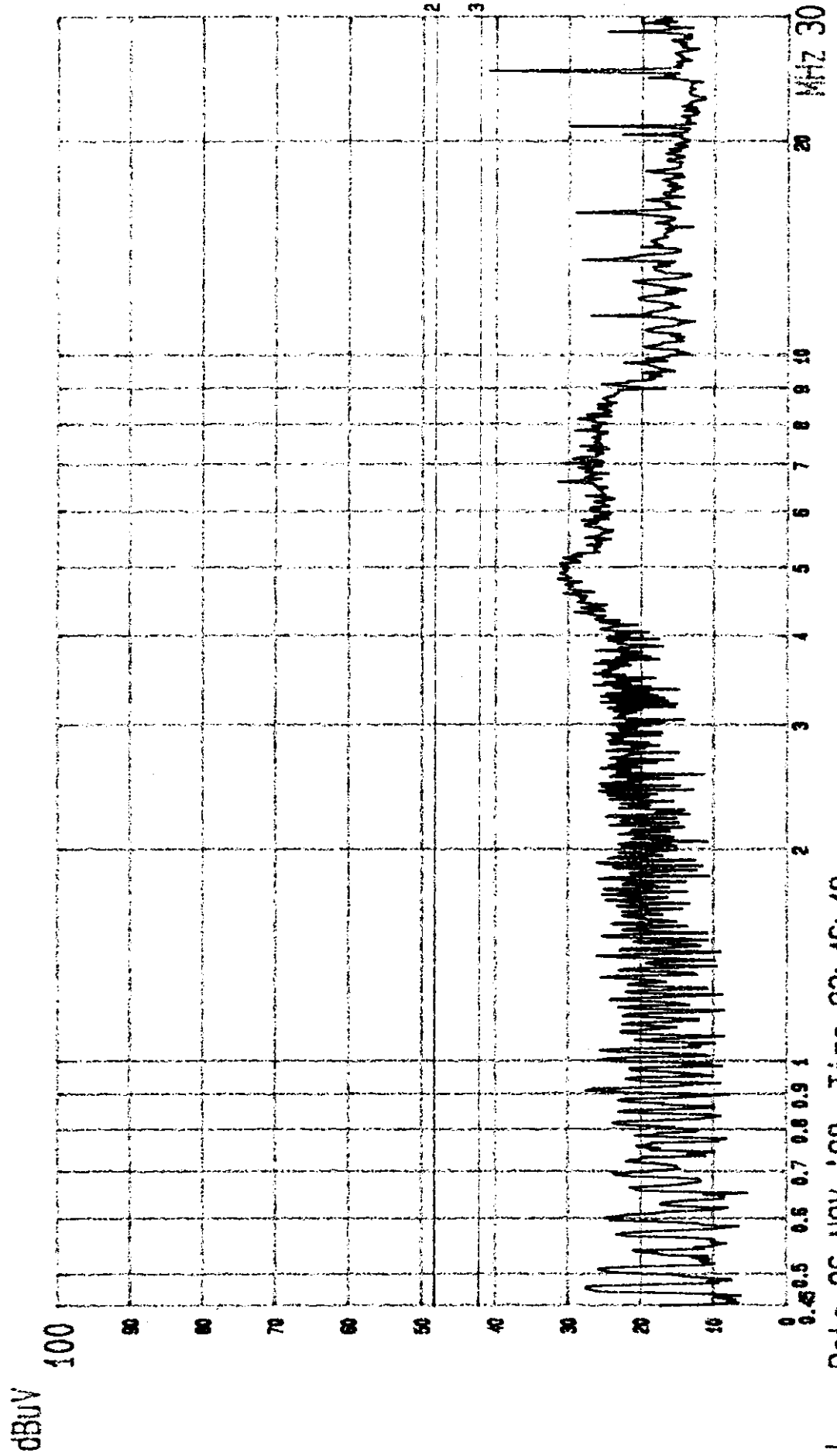
Test Mode : 31.5kHz/640*480 with 1.8m D-Sub Data Cable

Frequency (MHz)	Factor dB	Measurement (dBuV)		Reading (dBuV)		Limits (dBuV)	Margin (dBuV)	
		VA	VB	VA	VB		VA	VB
0.5013	0.5	27.3	*	27.8	*	48.0	20.2	*
0.6892	0.5	*	24.1	*	24.6	48.0	*	23.4
1.8671	0.5	21.9	*	22.4	*	48.0	25.6	*
1.9112	0.5	*	25.2	*	25.7	48.0	*	22.3
5.0165	0.8	27.9	29.1	28.7	29.9	48.0	19.3	18.1
7.1482	0.8	*	26.9	*	27.7	48.0	*	20.3
15.9031	1.0	21.6	31.4	22.6	32.4	48.0	25.4	15.6
21.0285	1.1	22.1	*	23.2	*	48.0	24.8	*
25.3395	1.2	41.0	40.3	42.2	41.5	48.0	5.8	6.5

- Remark :
1. All reading were Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. The worst emission was detected at 25.3395MHz with corrected signal level of 42.2dBuV (limit was 48dBuV) when the VA side of the EUT was connected to L.I.S.N.



Date 26.NOV.'98 Time 23:52:52
 MATSUSHITA EUT: MONITOR
 LINE: VA. MENO: (640X480; 31.5KHZ) 1.8M D-SUB TO LISN
 M/M: TX-D1F64NM
 (PEAK VALUE) TTENC. PAGE: 013.



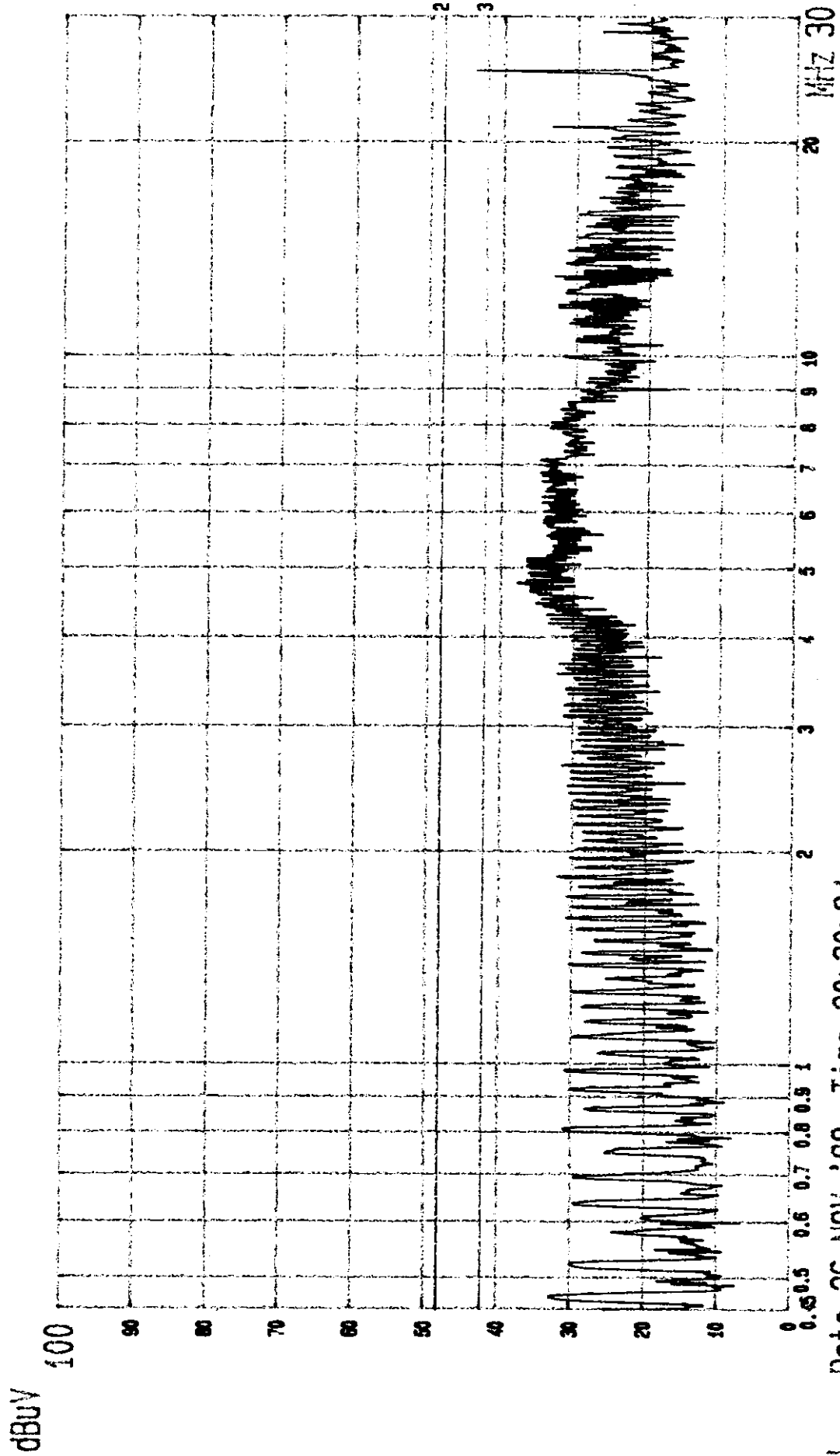
--- Date 26.NOV '98 Time 23:46:48
 MATSUSHITA EUT: MONITOR
 LINE: VB. MENO: (640X480; 31.5KHZ) 1.8W D-SUB TO LISN

PAGE: 014.
 (PEAK VALUE) ITEM C.

Date of Test : Nov. 26, 1998 Temperature : 22°CEUT : 21" Color CRT Display Monitor Humidity : 50%Test Mode : 115kHz/1600*1200 with 1.8m D-Sub Data Cable

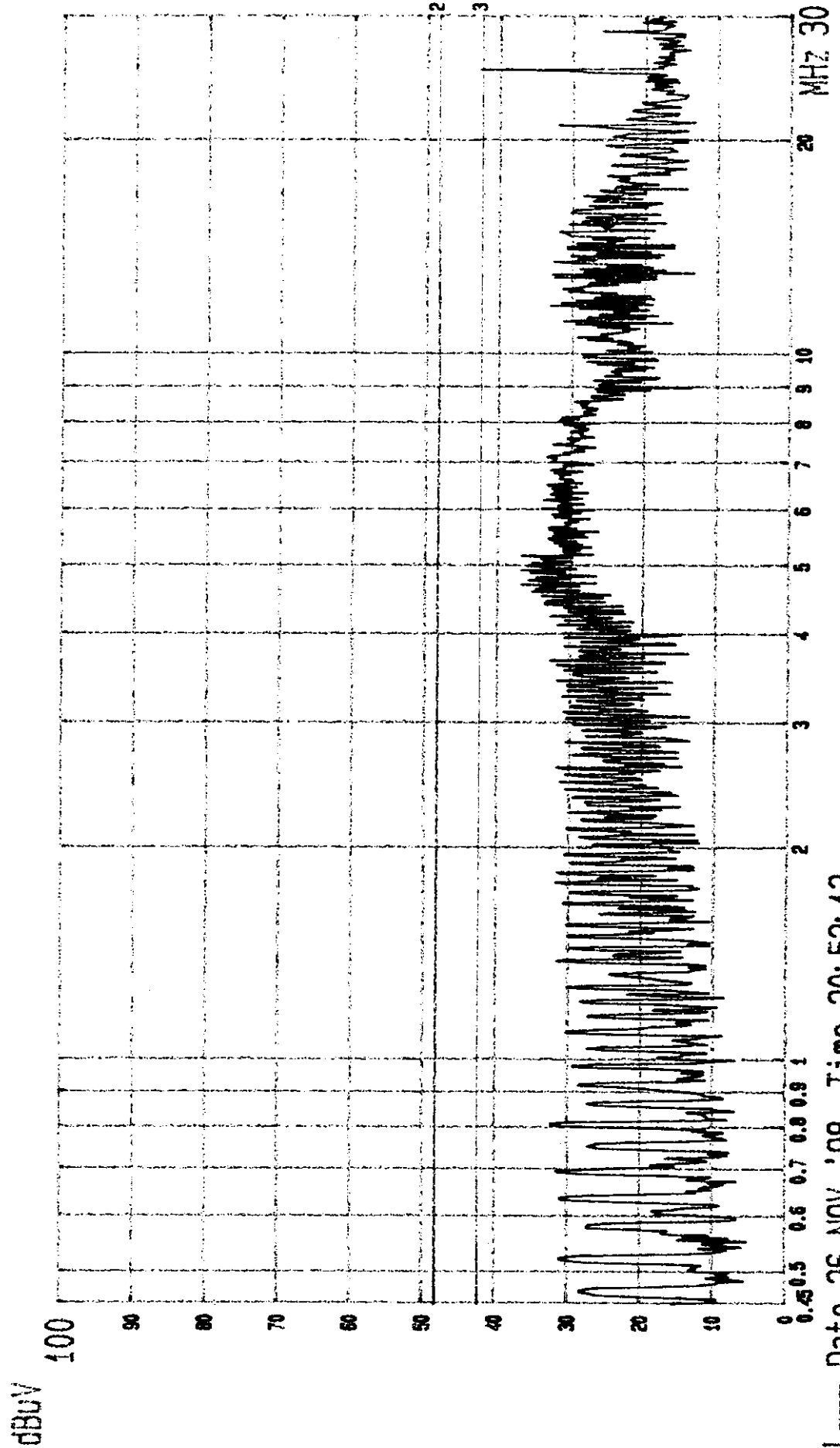
Frequency (MHz)	Factor dB	Measurement (dBuV)		Reading (dBuV)		Limits (dBuV)	Margin (dBuV)	
		VA	VB	VA	VB		VA	VB
0.6866	0.5	27.8	30.9	28.3	31.4	48.0	19.7	16.6
1.8913	0.5	25.2	30.8	25.7	31.3	48.0	22.3	16.7
5.1142	0.8	34.9	28.3	35.7	29.1	48.0	12.3	18.9
7.1444	0.8	26.1	27.1	26.9	27.9	48.0	21.1	20.1
15.2814	1.0	29.4	*	30.4	*	48.0	17.6	*
15.9745	1.0	*	31.3	*	32.3	48.0	*	15.7
25.2908	1.2	37.9	37.9	39.1	39.1	48.0	8.9	8.9

- Remark :
1. All reading were Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. The worst emission was detected at 25.2908MHz with corrected signal level of 39.1dBuV (limit was 48dBuV) when the VA & VB side of the EUT was connected to L.I.S.N.



Date 26.NOV.'98 Time 20:30:24
 MATSUSHITA EUT: MONITOR
 LINE: VA. M/M: TX-D1F64NM
 (PEAK VALUE) TTEM. MENO: (1600X1200; 115KHz) 1.8M D-SUB TO LISN

PAGE: 003.
 (PEAK VALUE) TTEM.



--- Date 26.NOV '98 Time 20:52:13
 MATSUSHITA EUT: MONITOR
 LINE: VB. MENO: (1600X1200; 115KHZ) 1.8M D-SUB TO LISN

PAGE: 004.
 (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 :

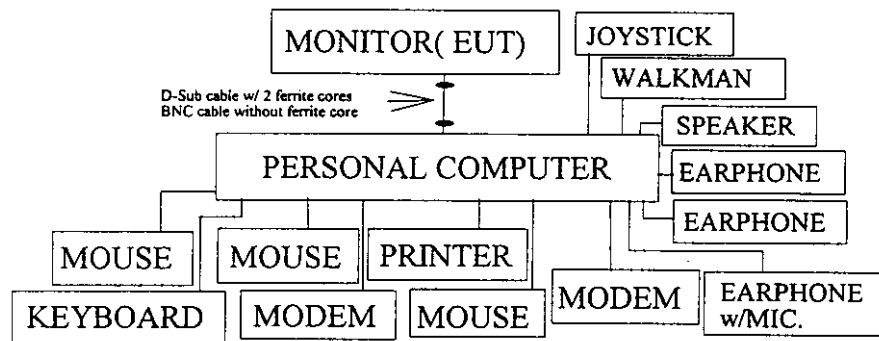
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593A	3212A01727	Jul.25, 98'	1 Year
2.	Pre-Amplifier	HP	8447D	2944A06305	May.13, 98'	1 Year
3.	Broadband Antenna	Schwarzbeck	BBA 9106	A3L	Dec.24, 97'	1 Year
4.	Broadband Antenna	Schwarzbeck	UHALP 9107	A3H	Dec.24, 97'	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	1240	Jul.15, 98'	1 Year
3.	Broadband Antenna	Chase	UPA6109	1048	Jul.15, 98'	1 Year

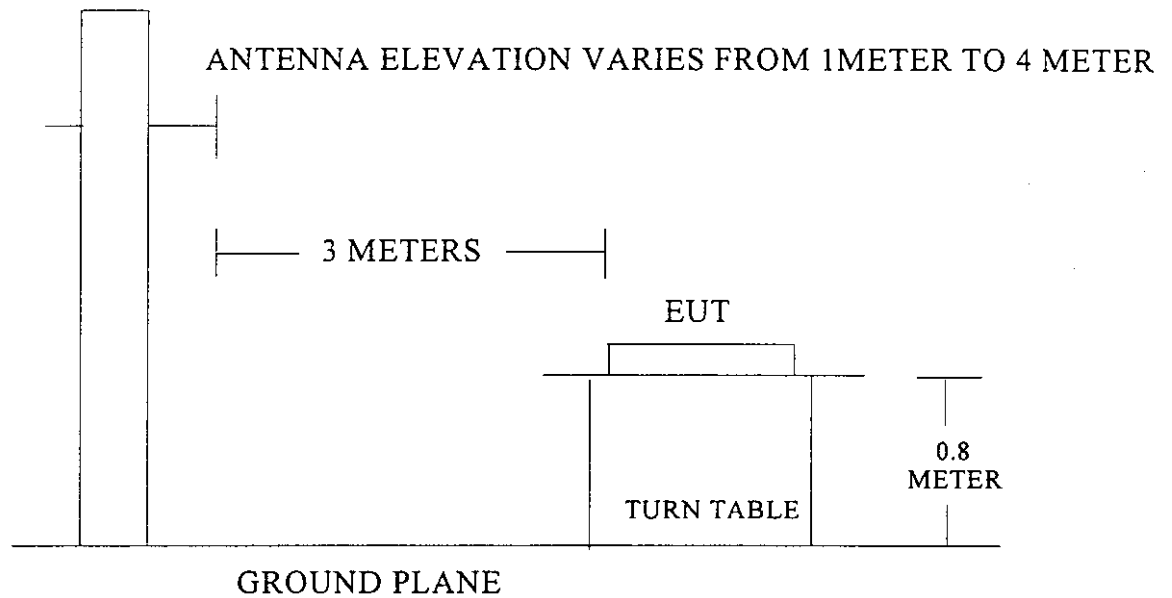
3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Field Test Site Setup Diagram

ANTENNA TOWER



3.3. Radiation Limit (CLASS B)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
		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.

Two kinds of horizontal working frequency with four kinds of data cable were investigated separately within Anechoic Chamber and all the scanning waveform were attached in Appendix II.

Finally, re-measured the worst operating situation (115kHz with 1.8m D-Sub data cable) at No. 2 Open Field Test site and all the test results are listed in section 3.7.

Two kinds of display frequency :

	640 x 480 (Hf: 31.5kHz)	1600 x 1200 (Hf: 115.0kHz)
(a) Dot Clock Frequency	25.175 MHz	239.35 MHz
(b) Vertical Frequency	50 Hz	180 Hz
(c) Horizontal Frequency	30 kHz	115 kHz

Four kinds of data cable :

- (1) 1.5m D-Sub data cable with two ferrite cores
- (2) 1.8m D-Sub data cable with two ferrite cores
- (3) 3.0m D-Sub data cable with two ferrite cores
- (4) 1.8m BNC data cable

3.7. Radiated Emission Noise Measurement Results

The frequency spectrum from 30 MHz to 1000MHz was investigated. All the emissions not reported below were too low against the FCC CLASS B limit.

Date of Test : Nov. 23, 1998 Temperature : 24°C
 EUT : 21" Color CRT Display Monitor Humidity : 89%
 Test Mode : 115kHz/1600*1200 with 1.8m D-Sub Data Cable

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level	
			Horizontal dBuV	Horizontal dBuV/m	Limits dBuV/m	Margin dBuV/m
70.227	11.60	2.85	1.50	15.95	40.00	24.05
123.717	19.57	3.91	-2.80	20.68	43.50	22.82
134.415	20.29	4.05	1.20	25.54	43.50	17.96
145.123	20.68	4.25	0.00	24.93	43.50	18.57
182.556	21.20	4.78	-7.90	18.08	43.50	25.42
* 193.251	21.40	4.94	0.30	26.64	43.50	16.86
209.309	21.74	5.20	-8.40	18.54	43.50	24.96
220.006	21.89	5.29	-5.80	21.38	46.00	24.62
257.441	23.31	5.77	-8.90	20.18	46.00	25.82
284.190	24.33	6.12	-8.50	21.95	46.00	24.05
316.513	14.09	6.59	-7.50	13.18	46.00	32.82
327.234	14.46	6.68	-1.00	20.14	46.00	25.86
343.264	15.33	6.85	-6.50	15.68	46.00	30.32
364.581	14.93	7.10	-7.90	14.13	46.00	31.87
369.993	15.16	7.18	-6.00	16.34	46.00	29.66
391.357	16.67	7.42	-0.60	23.49	46.00	22.51
450.198	17.35	8.05	-5.20	20.20	46.00	25.80
466.205	16.98	8.26	-4.00	21.24	46.00	24.76
498.345	17.59	8.60	-4.20	21.99	46.00	24.01

- Remark :
1. All reading were Quasi-Peak values.
 2. The worst emission was detected at 193.251MHz with corrected signal level of 26.64dBuV/m (limit was 43.5dBuV/m) when the antenna was at horizontal polarization and was at 1m high and the turn table was at 150° .
 3. 0° is the table front facing the antenna. Degree was calculated from 0° clockwise facing the antenna.

Date of Test : Nov. 23, 1998 Temperature : 24°C

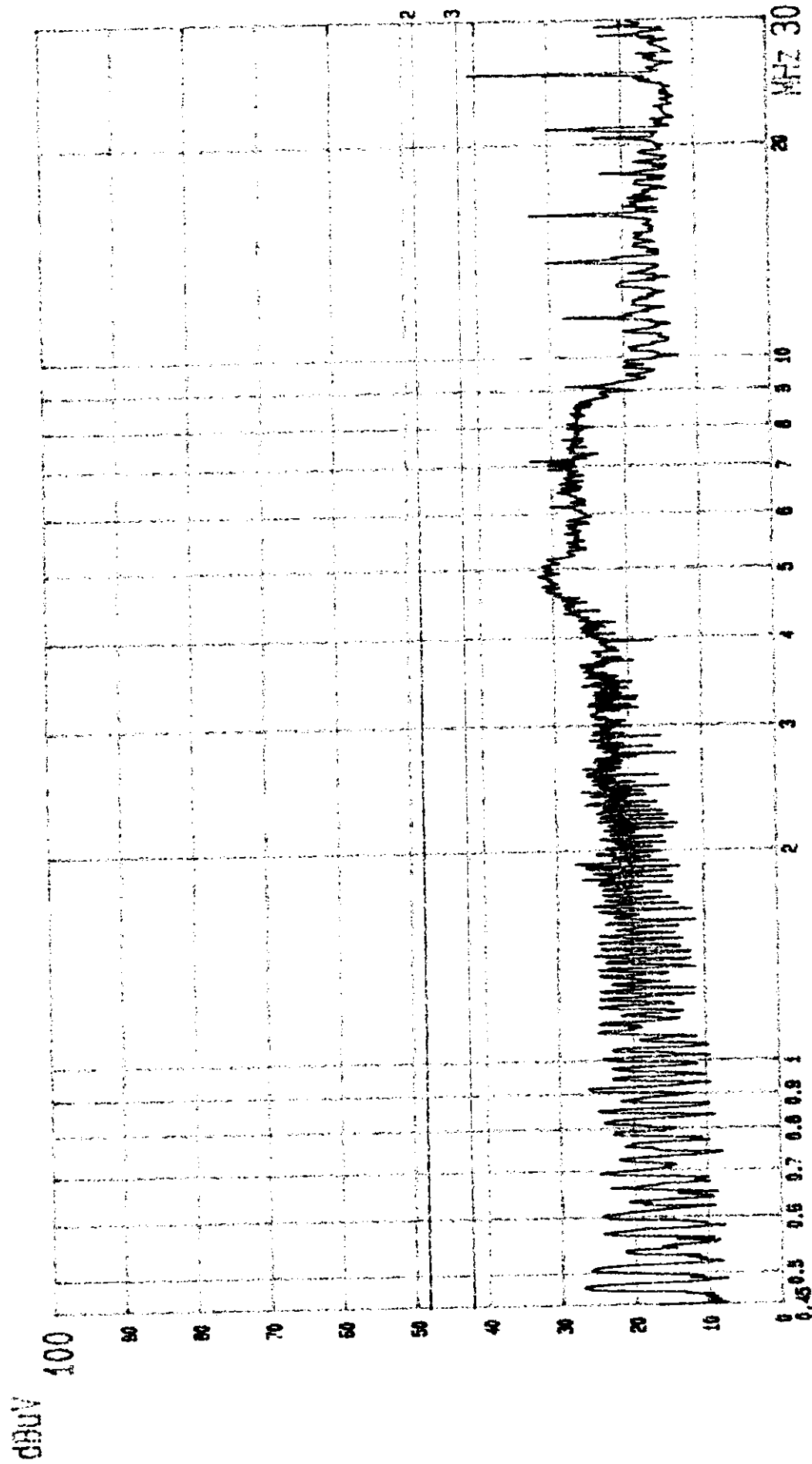
EUT : 21" Color CRT Display Monitor Humidity : 89%

Test Mode : 115kHz/1600*1200 with 1.8m D-Sub Data Cable

	Frequency MHz	Antenna		Cable		Meter Reading		Emission Level	
		Factor dB/m	Loss dB	Vertical dB	Vertical dBuV	Vertical dBuV/m	Limits dBuV/m	Margin dBuV/m	
*	64.880	12.46	2.72	5.00	20.18	40.00	19.82		
	118.369	18.22	3.80	-3.90	18.12	43.50	25.38		
	129.069	18.43	3.97	-4.60	17.80	43.50	25.70		
	145.118	19.29	4.25	-7.30	16.24	43.50	27.26		
	182.558	19.46	4.78	-7.60	16.64	43.50	26.86		
	193.252	21.08	4.94	-2.40	23.62	43.50	19.88		
	209.319	23.92	5.20	-6.50	22.62	43.50	20.88		
	220.001	23.64	5.29	-3.70	25.23	46.00	20.77		
	252.095	22.30	5.74	-8.00	20.04	46.00	25.96		
	284.190	23.44	6.12	-8.20	21.36	46.00	24.64		
	316.507	14.69	6.59	-6.20	15.08	46.00	30.92		
	327.206	15.52	6.68	-4.60	17.60	46.00	28.40		
	343.257	15.42	6.85	-7.20	15.07	46.00	30.93		
	364.682	14.01	7.10	-3.20	17.91	46.00	28.09		
	369.999	14.32	7.18	-4.90	16.60	46.00	29.40		
	407.373	16.08	7.63	-3.40	20.31	46.00	25.69		
	450.197	17.40	8.05	-5.40	20.05	46.00	25.95		
	466.208	17.79	8.26	0.00	26.05	46.00	19.95		
	498.339	18.50	8.60	-1.50	25.60	46.00	20.40		

- Remark :
1. All reading were Quasi-Peak values.
 2. The worst emission was detected at 64.880MHz with corrected signal level of 20.18dBuV/m (limit was 40dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 280° .
 3. 0° is the table front facing the antenna. Degree was calculated from 0° clockwise facing the antenna.

APPENDIX I



--- Date 26.NOV.98 Time 00:23:05

MATSUSHITA EUT: MONITOR

LINE: VA.

M/M: TX-D1E64NM

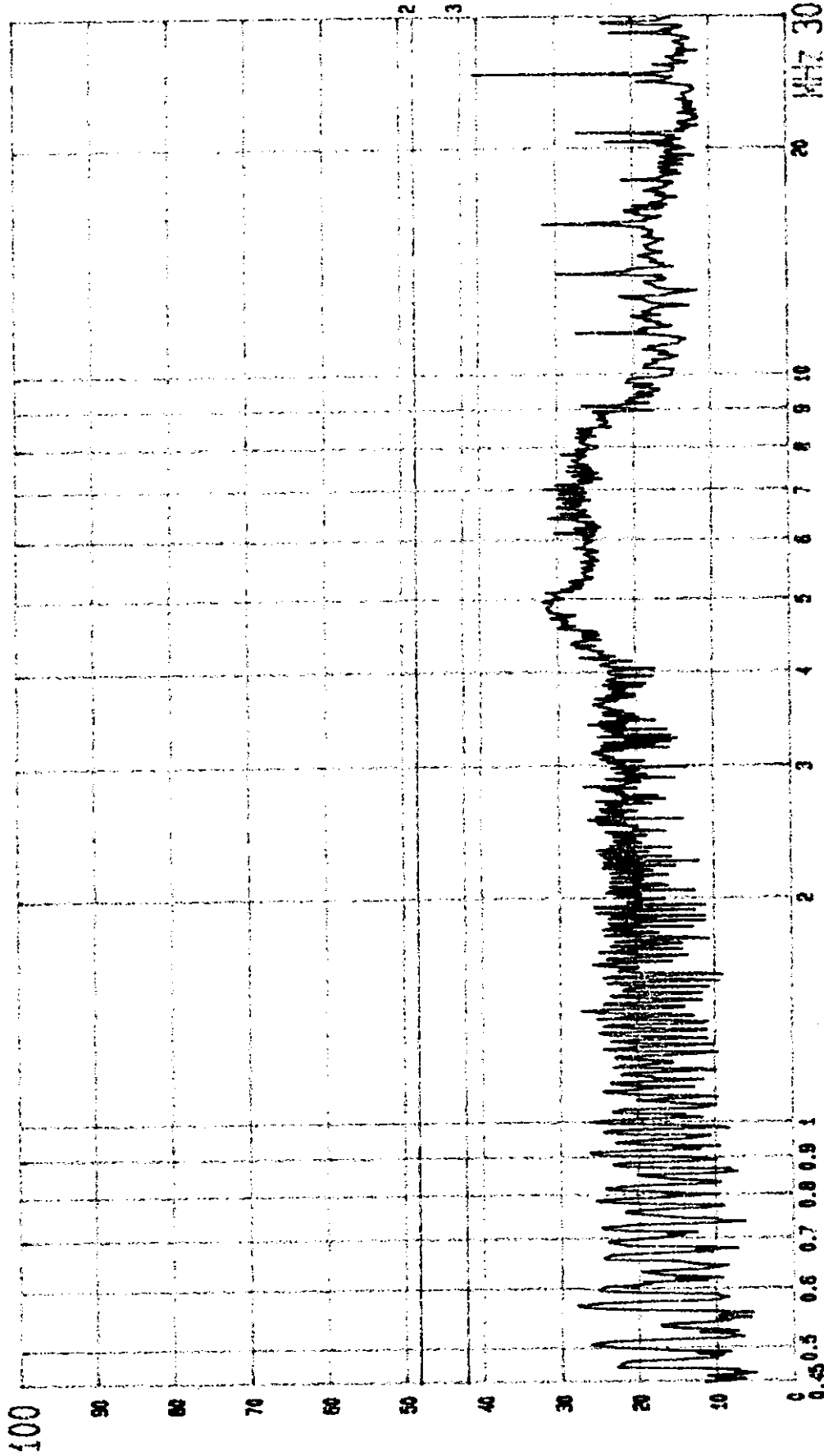
D-SUB TO LISN

MENO: (640X480; 31.5KHz) 1.5M

(PEAK VALUE) TTENC.

PAGE: 016.

dBuV



--- Date 26.NOV.'98 Time 00:15:39
MATSUSHITA EUT: MONITOR
LINE: VB.
MENO: (640X480; 31.5KHz) 1.5M D-SUB TO LISN

M/M: TX-D1F64MM

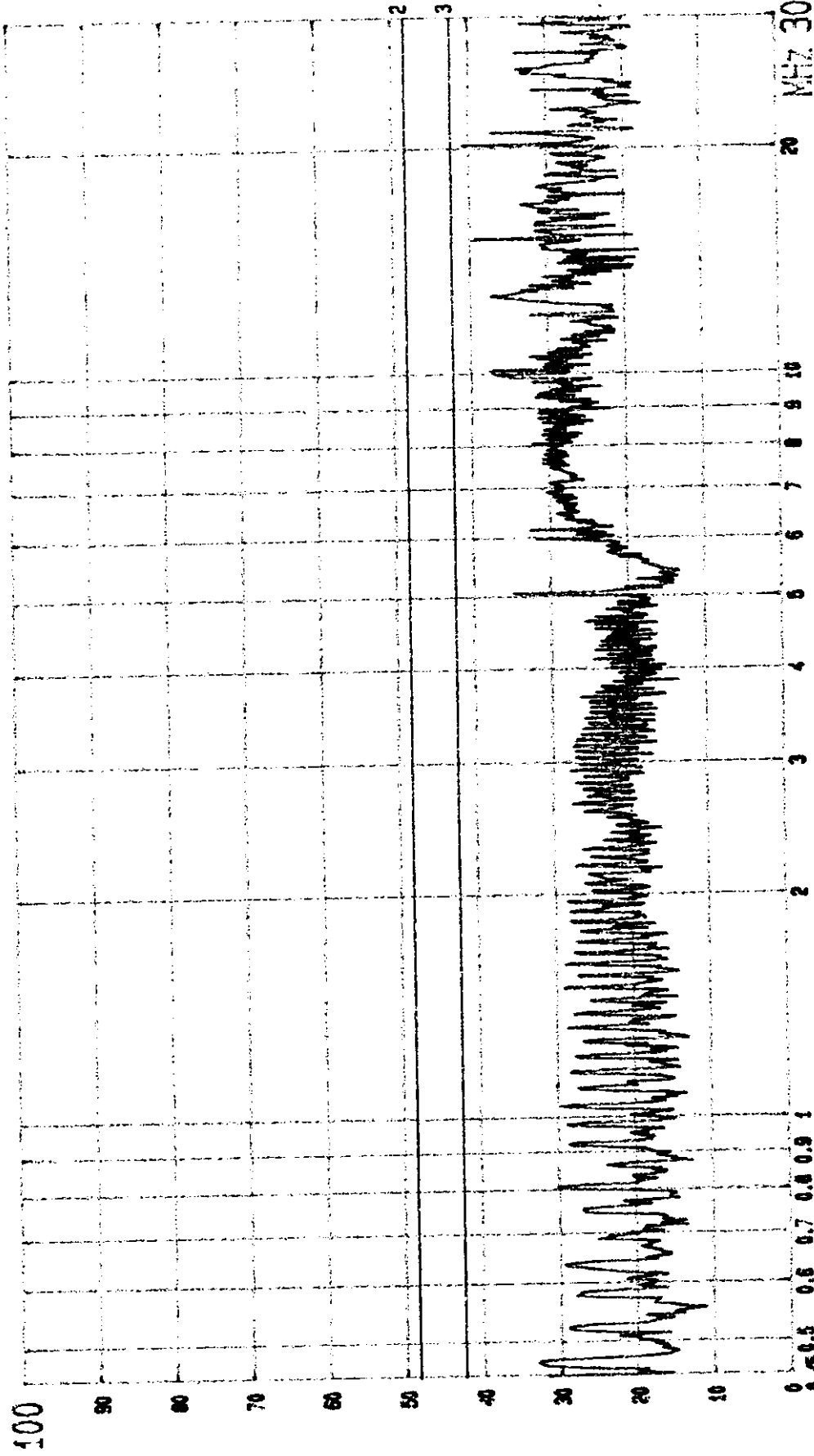
PAGE: 015.
(PEAK VALUE) TTENC.

4. DEVIATIONS TO TEST SPECIFICATIONS

[NONE]

APPENDIX I

dBuV



--- Date 09.DEC.'98 Time 02:52:23

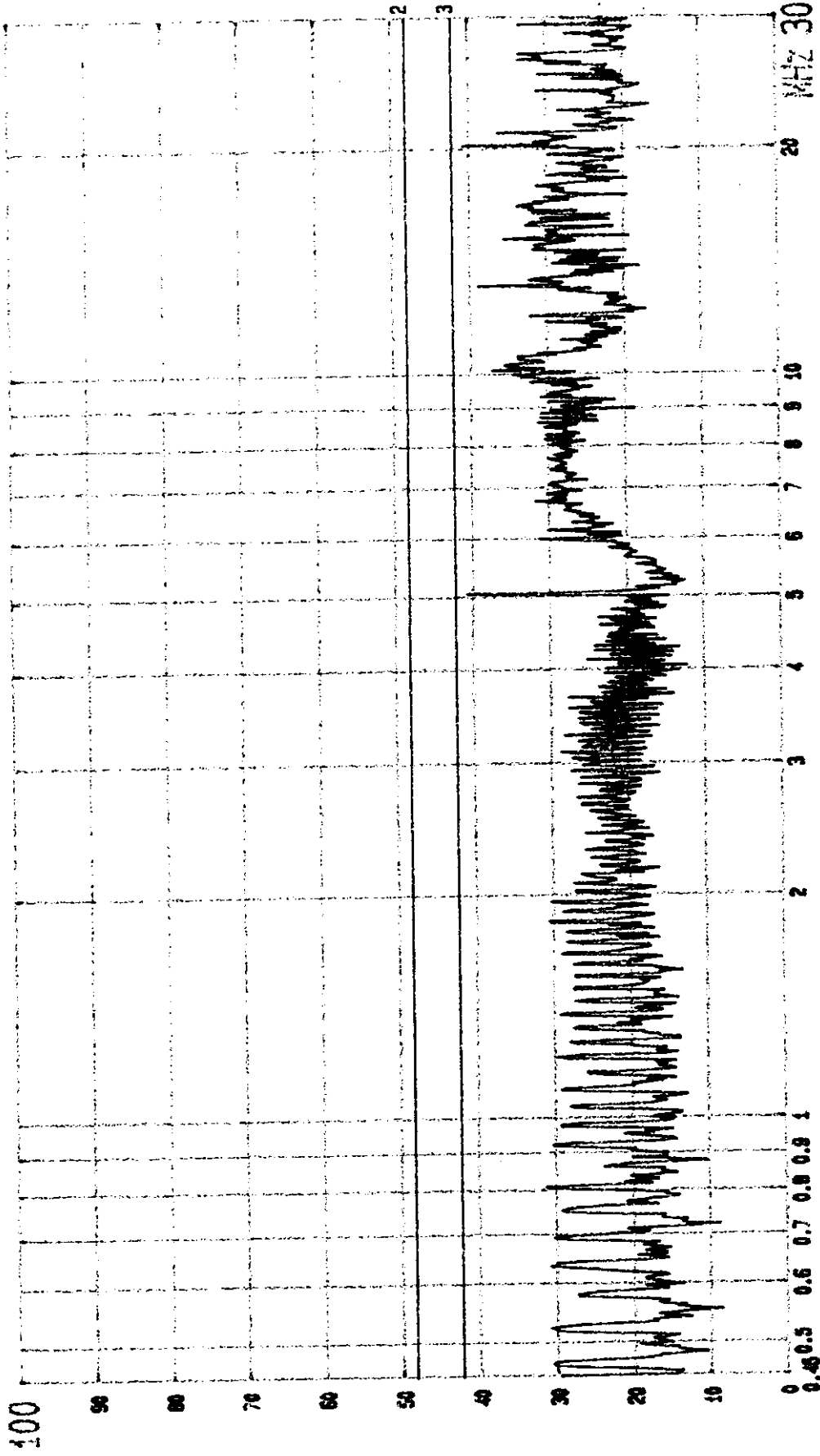
MATSUSHITA EUT: MONITOR

LINE: VA. MENO: (1800X1440; 105KHz) 1.5M D-SUB

M/N: TX-DIF64MM

PAGE: 002.
(PEAK VALUE) TTENC.

dBuV



--- Date 09.DEC.'98 Time 02:48:56

MATSUSHITA EUT: MONITOR

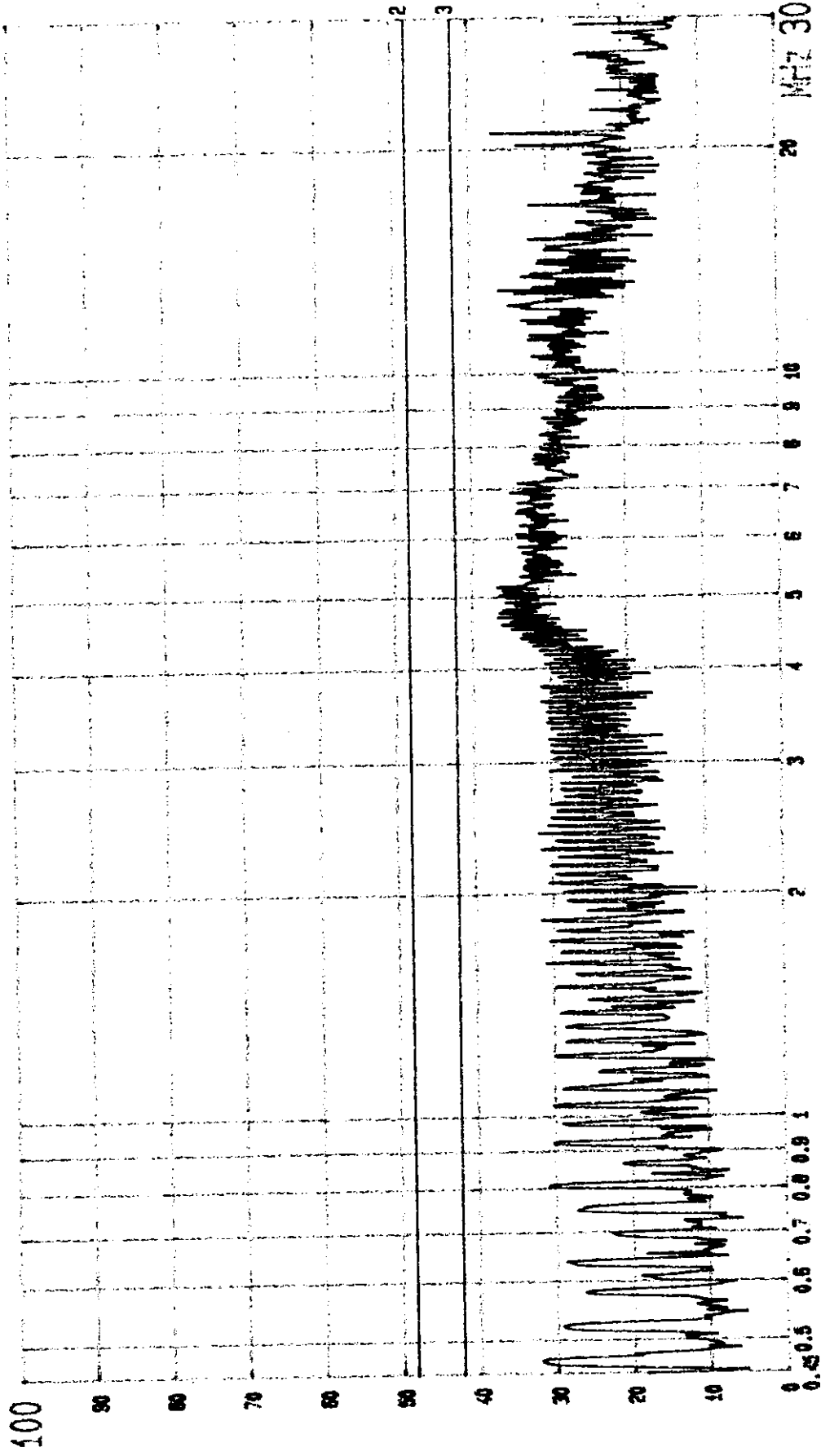
LINE: VB.

M/N: TX-D1F64MM

MEN0: (1800X1440; 105KHz) 1.5M D-SUB

PAGE: 001.
(PEAK VALUE) TTEMPC.

dBuV



--- Date 09.DEC.'98 Time 02:37:40

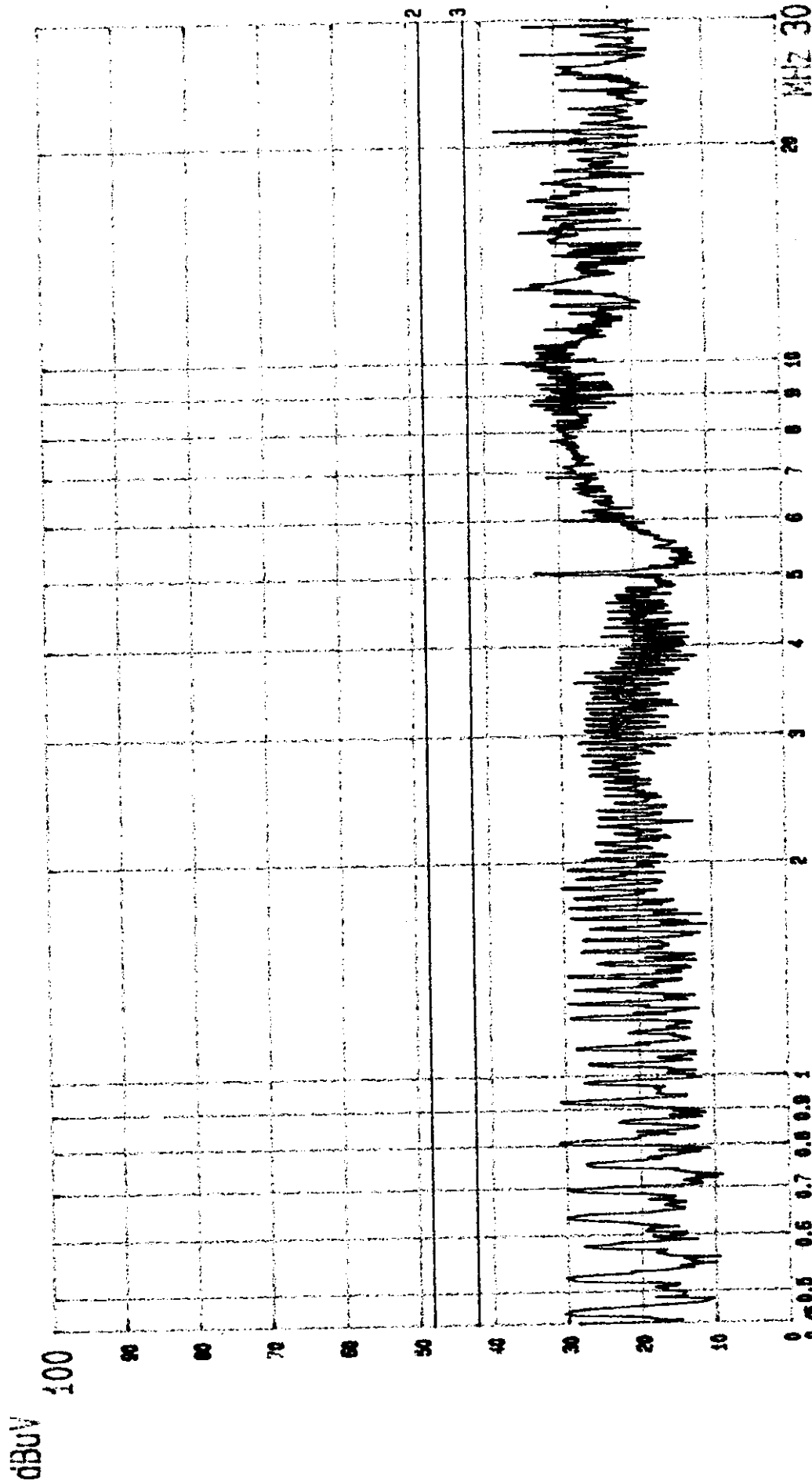
MATSUSHITA EUT: MONITOR

LINE: VA.

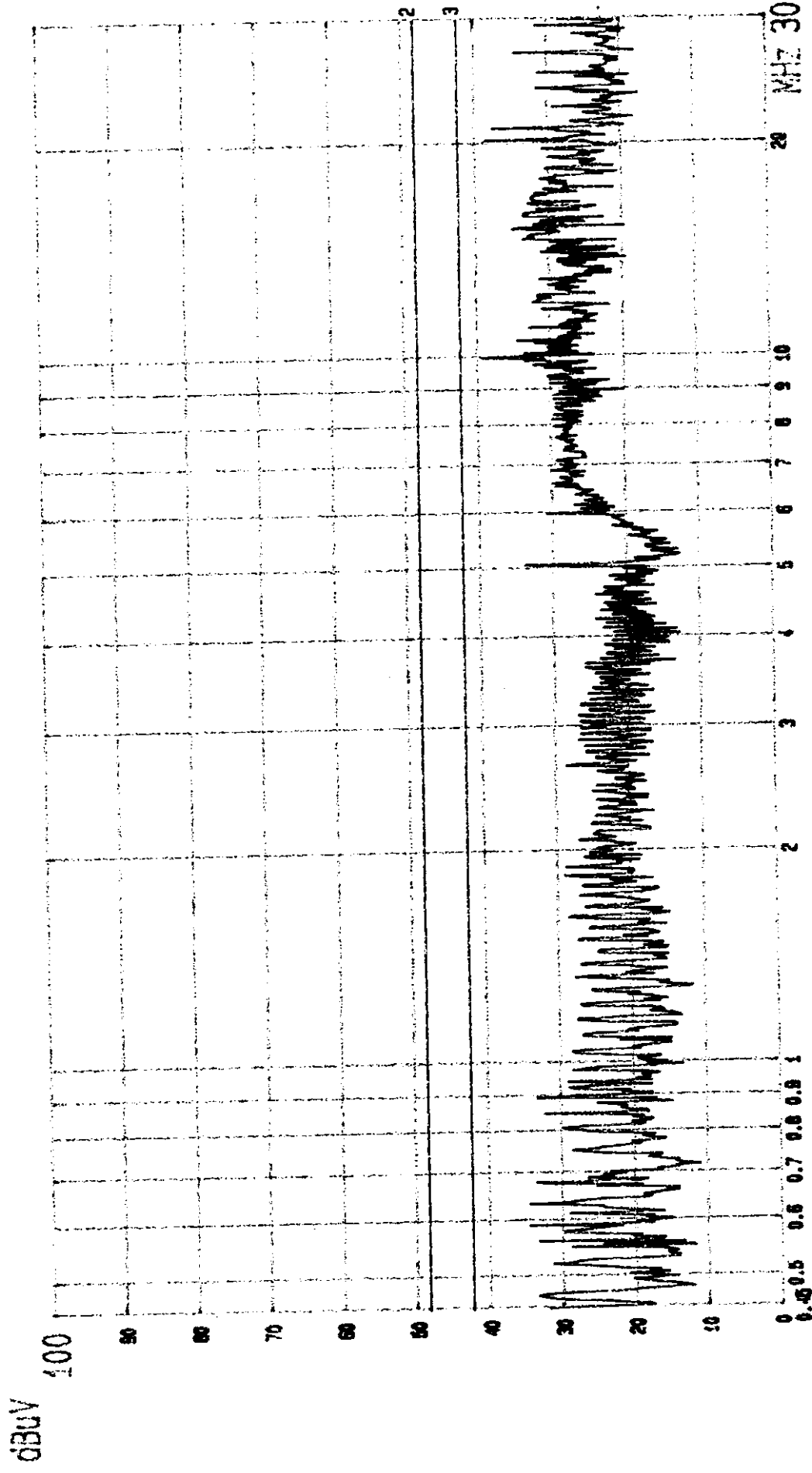
N/N: TX-D1F64NM

MEN0: (1800X1440; 105KHZ) 3.0M D-SUB

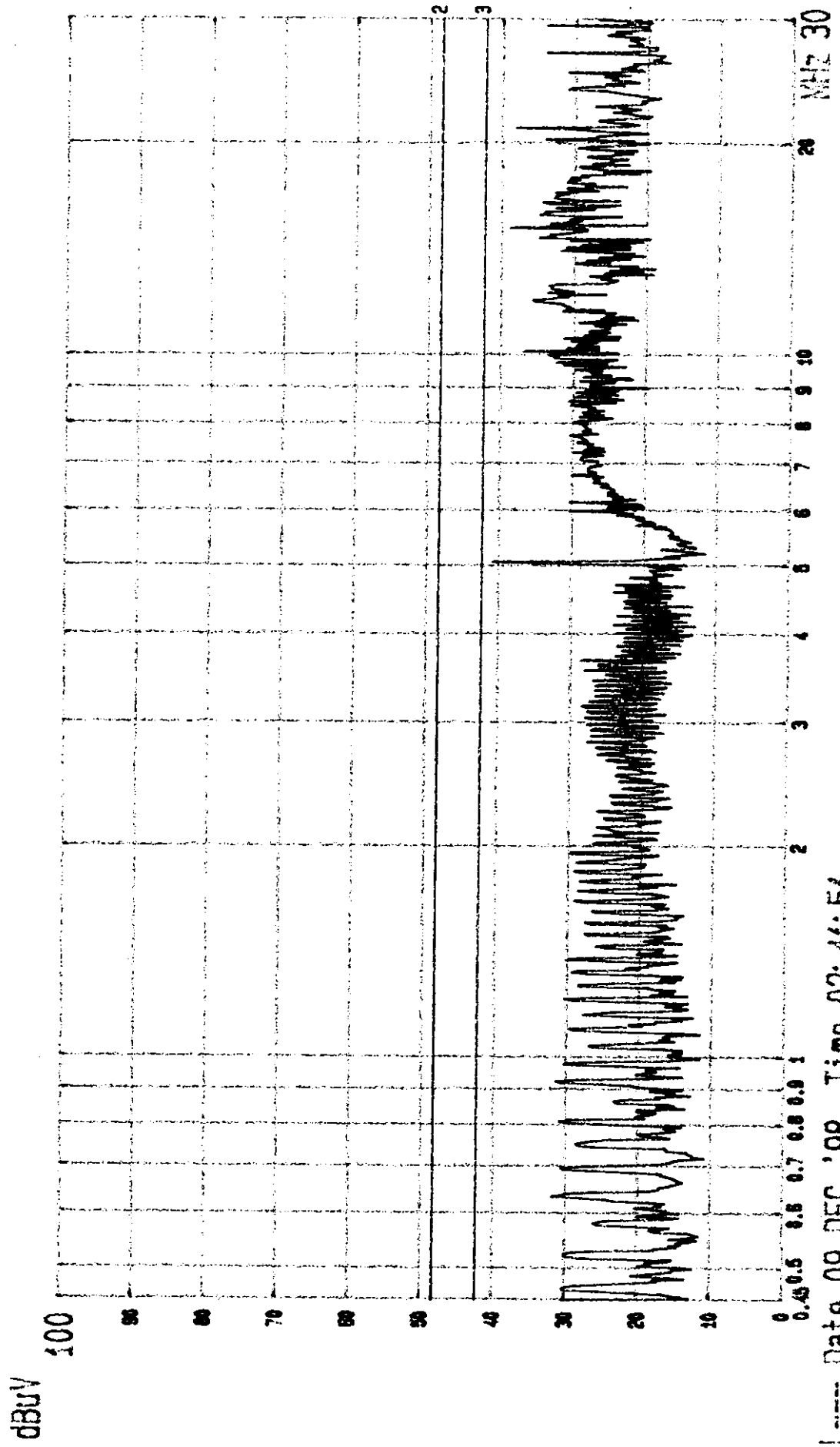
(PEAK VALUE) TTENC. PAGE: 001.



----- Date 09.DEC.'98 Time 02:40:25
MATSUSHITA EUT: MONITOR M/N: TX-D1F64NM
LINE: VB. MENO: (1800X1440; 105KHZ) 3.0M D-SUB (PEAK VALUE) TTEMC. PAGE: 002.



--- Date 09.DEC.'98 Time 02:43:50
MATSUSHITA EUT: MONITOR M/N: TX-D1F64NM
LINE: VA. MENO: (1800X1440; 105KHz) 1.8W BNC (PEAK VALUE) TTEXC. PAGE: 002.



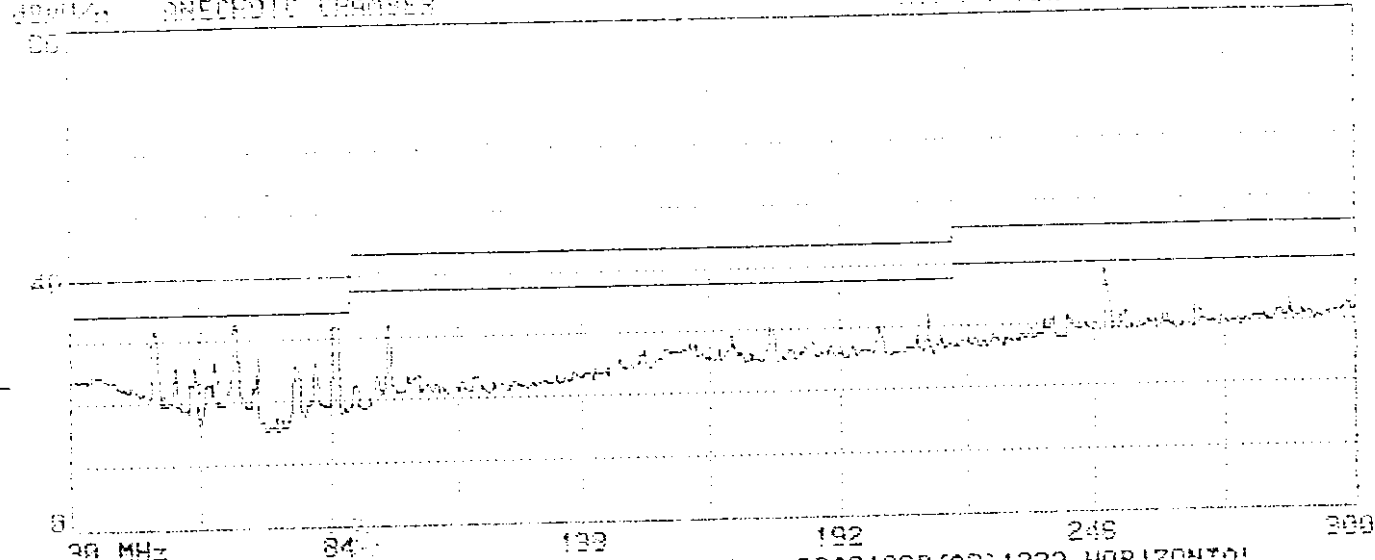
----- Date 09.DEC.'98 Time 02:41:51
MATSUSHITA
LINE: VB.

EUT: MONITOR
M/N: TX-D1F64NM
MENO: (1800X1440; 105KHz) 1.8M BNC

(PEAK VALUE) TTEMC.
PAGE: 001.

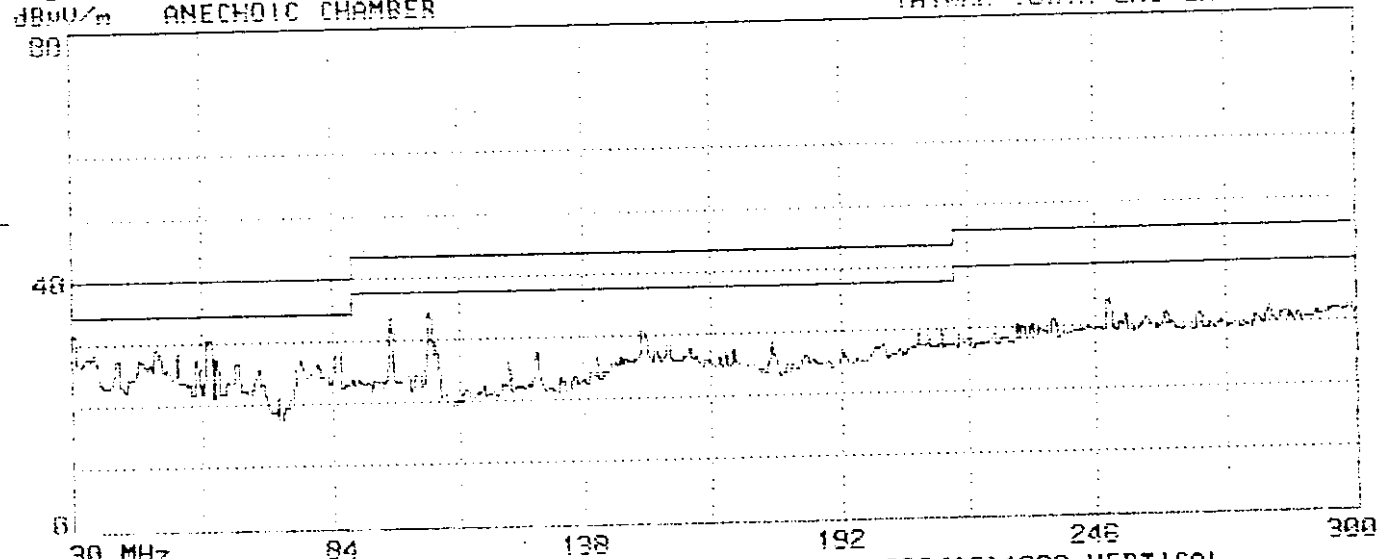
APPENDIX II

Page#: 1432 SP File#: MATSUSHI.EI Date: 12-11-1998 Time: 10:09:01
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



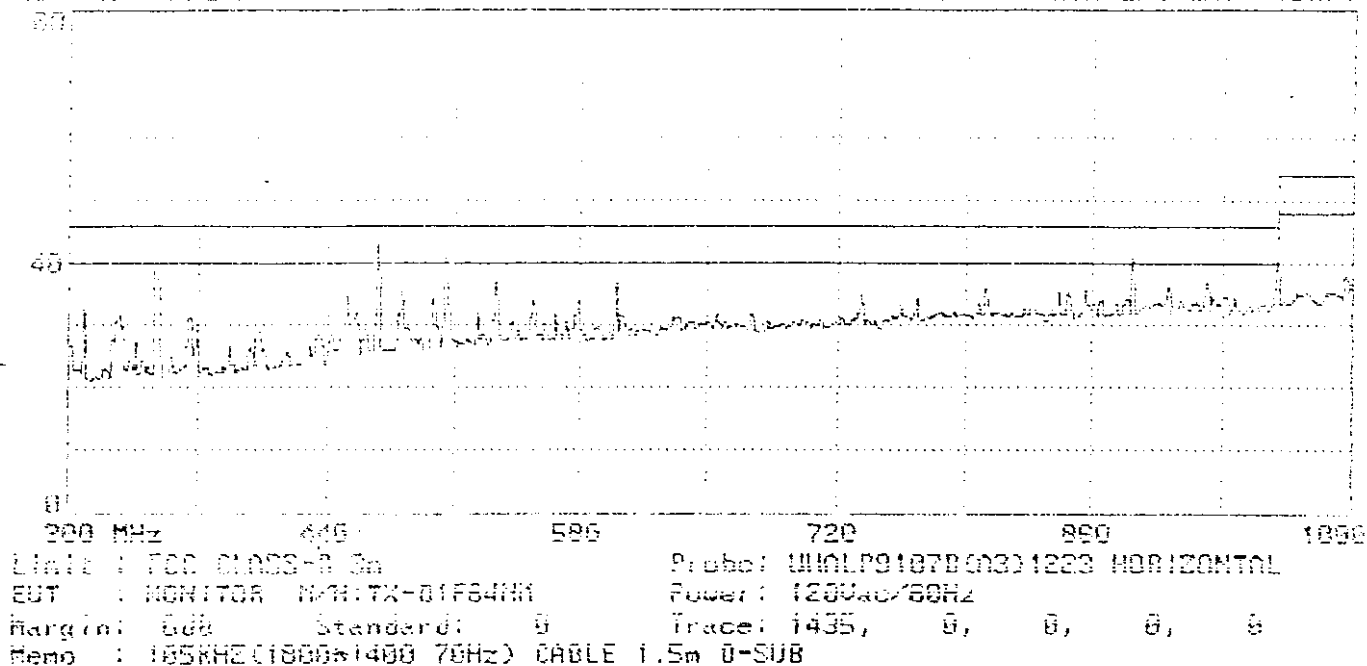
Limit : FCC CLASS-B 3m Probe: 8809105B (A3) 1223 HORIZONTAL
 EUT : MONITOR M/N: TX-01F84NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1433, 0, 0, 0, 0
 Memo : 105KHZ(1000*1400 70Hz) CABLE 1.5m O-SUB

Page#: 1434 SP File#: MATSUSHI.EI Date: 12-11-1998 Time: 10:41:14
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

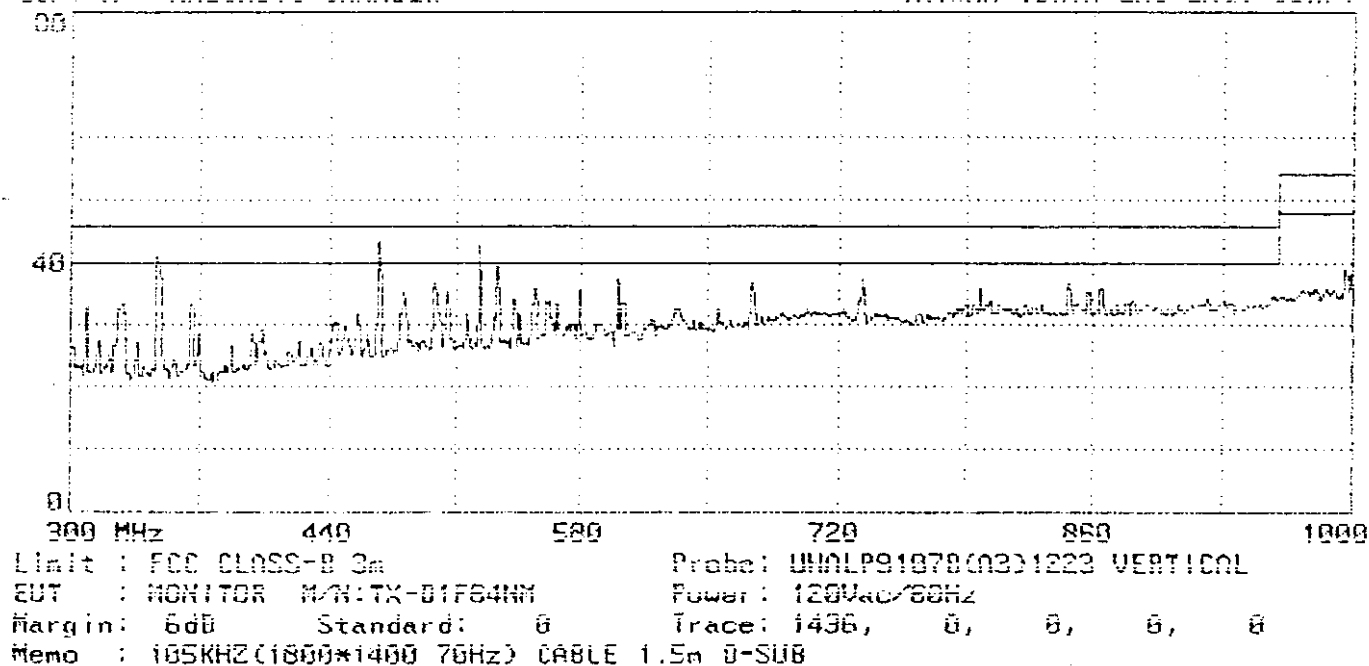


Limit : FCC CLASS-B 3m Probe: 8809105B (A3) 1223 VERTICAL
 EUT : MONITOR M/N: TX-01F84NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1434, 0, 0, 0, 0
 Memo : 105KHZ(1000*1400 70Hz) CABLE 1.5m O-SUB

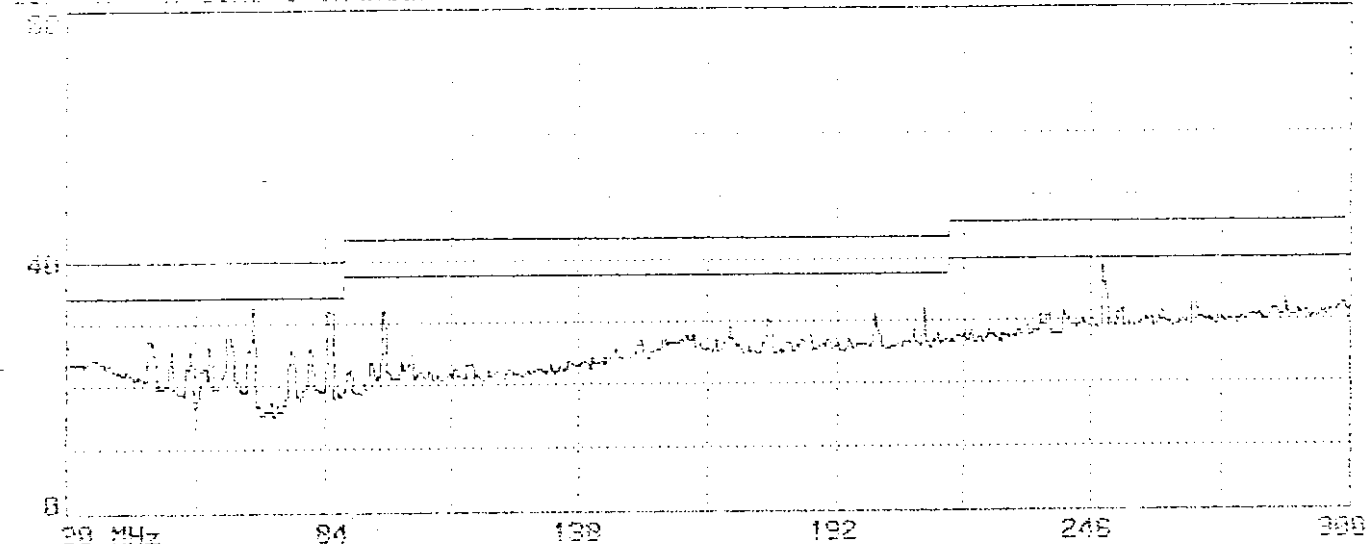
Page#: 1434 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:45:27
 4200V/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 1435 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:46:55
 4200V/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

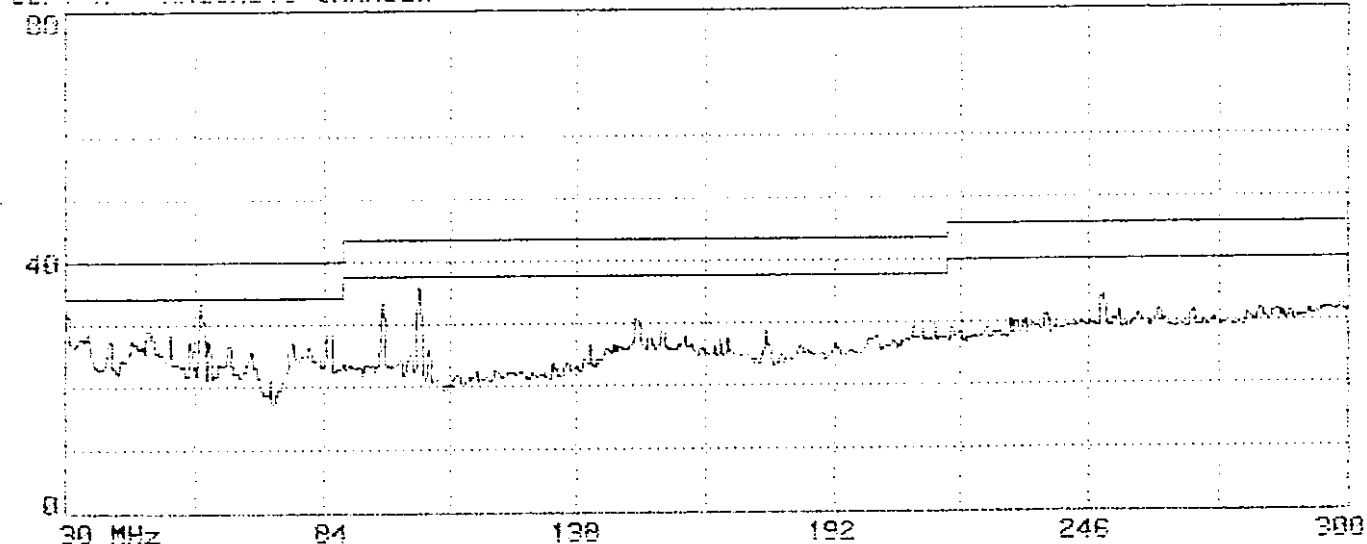


Page#: 1429 SP File#: MATSUSHI.EI Date: 12-11-1998 Time: 18:10:14
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



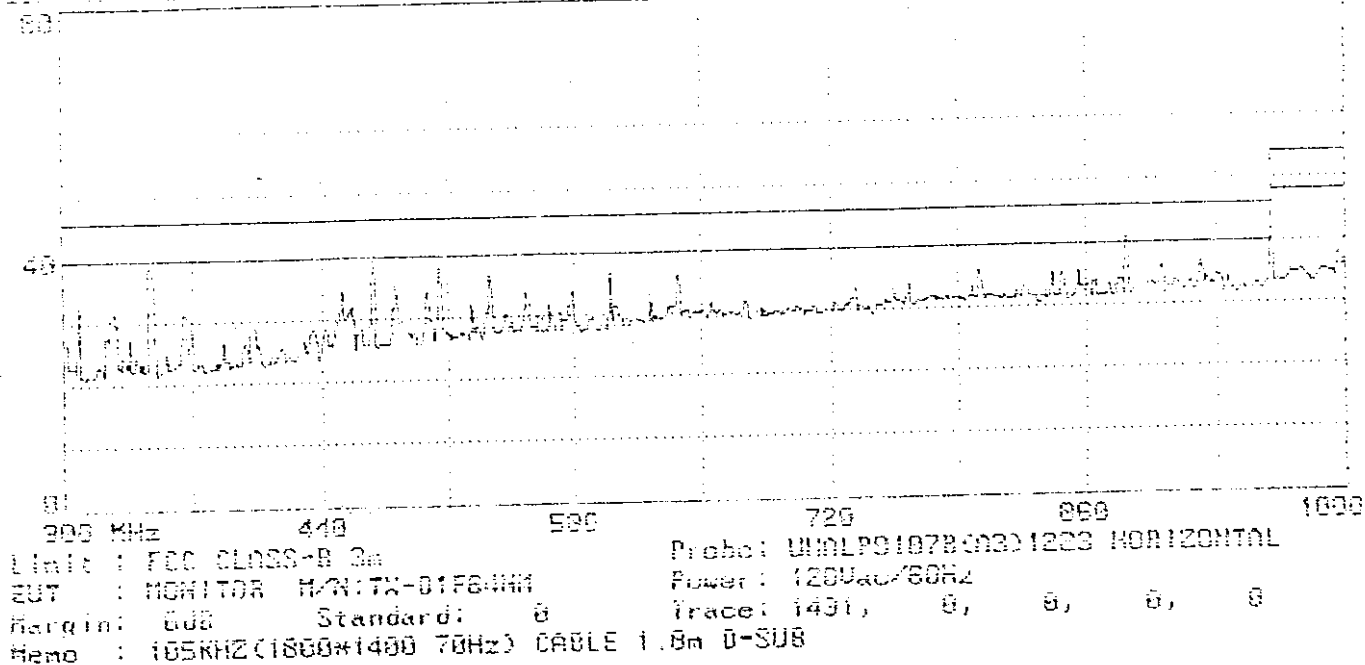
Limit : FCC CLASS-B 3m Probe: B0091058(03)1223 HORIZONTAL
 EUT : MONITOR M/N:TX-01F64MM Power: 120Vac/50Hz
 Margin: 6dB Standard: 0 Trace: 1429, 0, 0, 0, 0
 Memo : 105KHZ(1800*1400 70Hz) CABLE 1.8m O-SUB

Page#: 1430 SP File#: MATSUSHI.EI Date: 12-11-1998 Time: 18:41:14
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

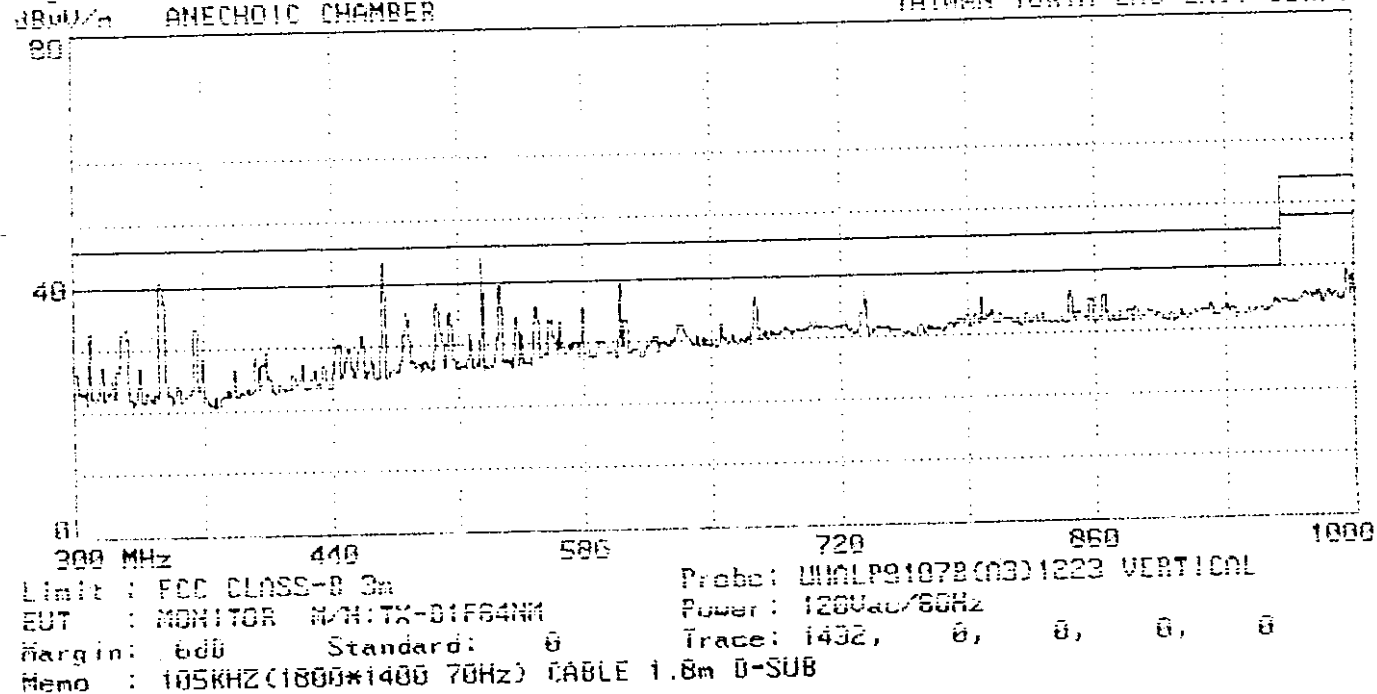


Limit : FCC CLASS-B 3m Probe: B0091058(03)1223 VERTICAL
 EUT : MONITOR M/N:TX-01F64MM Power: 120Vac/50Hz
 Margin: 6dB Standard: 0 Trace: 1430, 0, 0, 0, 0
 Memo : 105KHZ(1800*1400 70Hz) CABLE 1.8m O-SUB

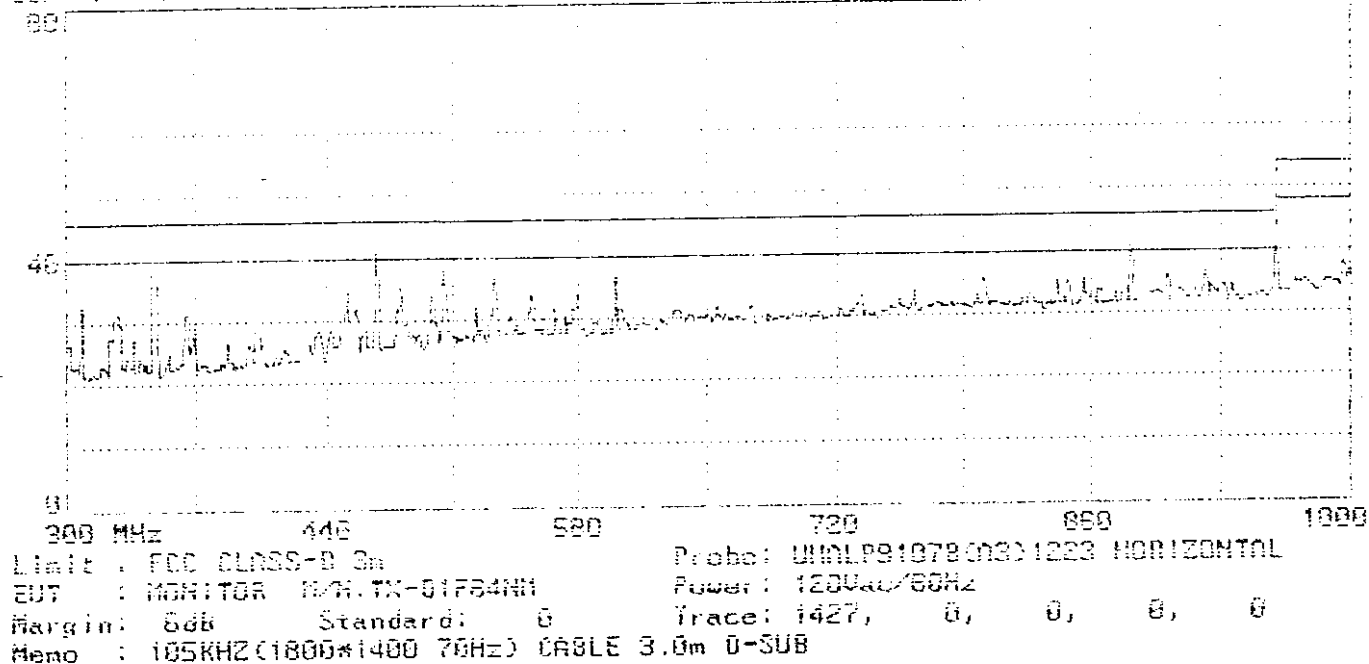
Page#: 1431 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:45:27
 JBM/44 ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



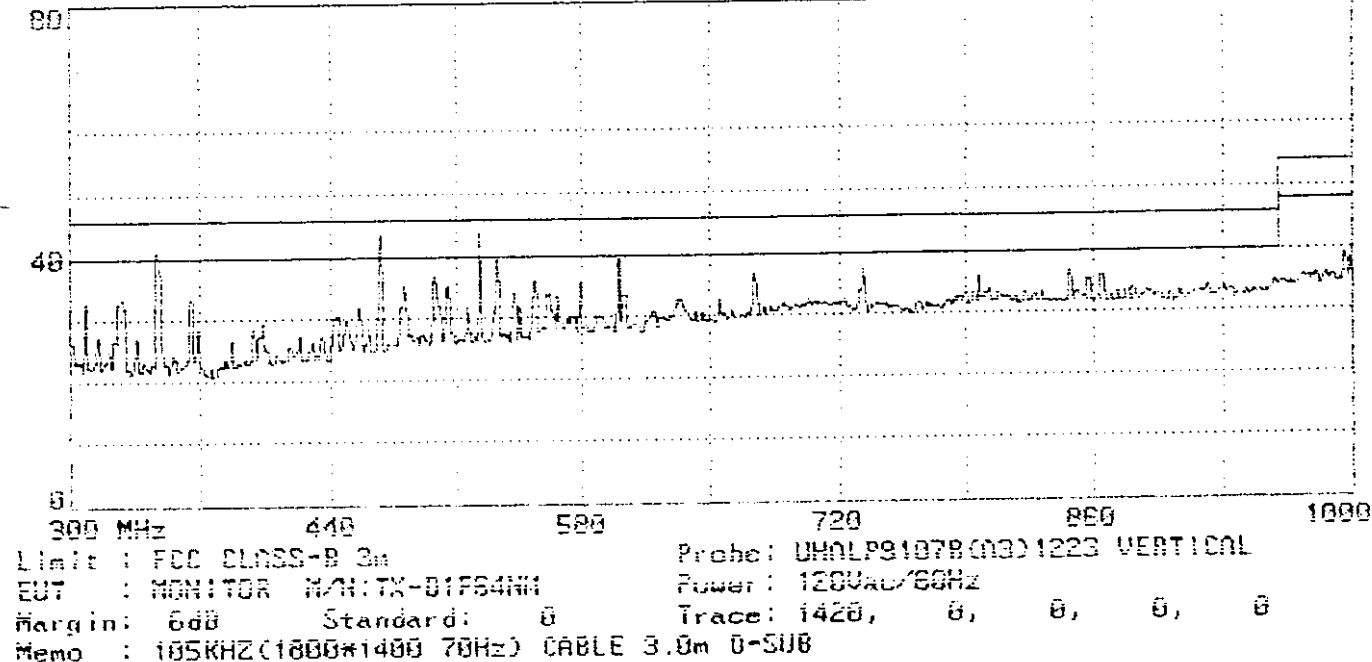
Page#: 1432 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:46:55
 JBM/44 ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 1427 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:45:27
 J80074 ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 1428 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:46:55
 J80074 ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

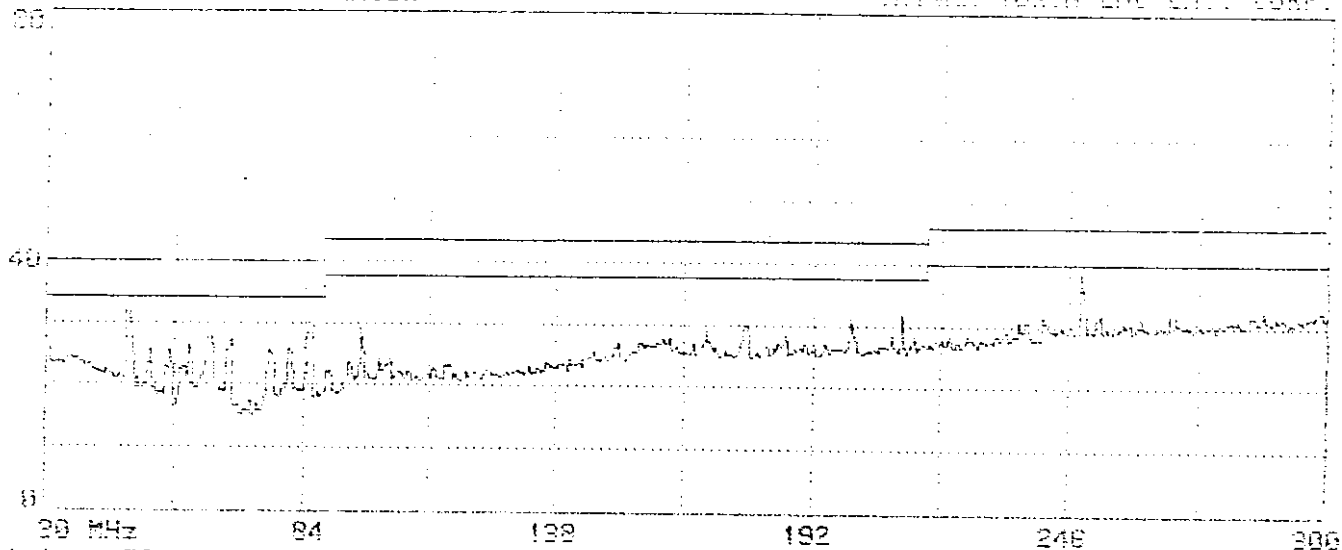


Page#: 1437 SP File#: MATSUSHI.E1

Date: 12-11-1998 Time: 18:38:01

dBuV/m ANECHOIC CHAMBER

TAIWAN TDKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m

Probe: BBAS1068(03)1223 HORIZONTAL

EUT : MONITOR M/N:TX-01F64NN

Power: 120Vac/60Hz

Margin: 6dB Standard: 0

Trace: 1437, 0, 0, 0, 0

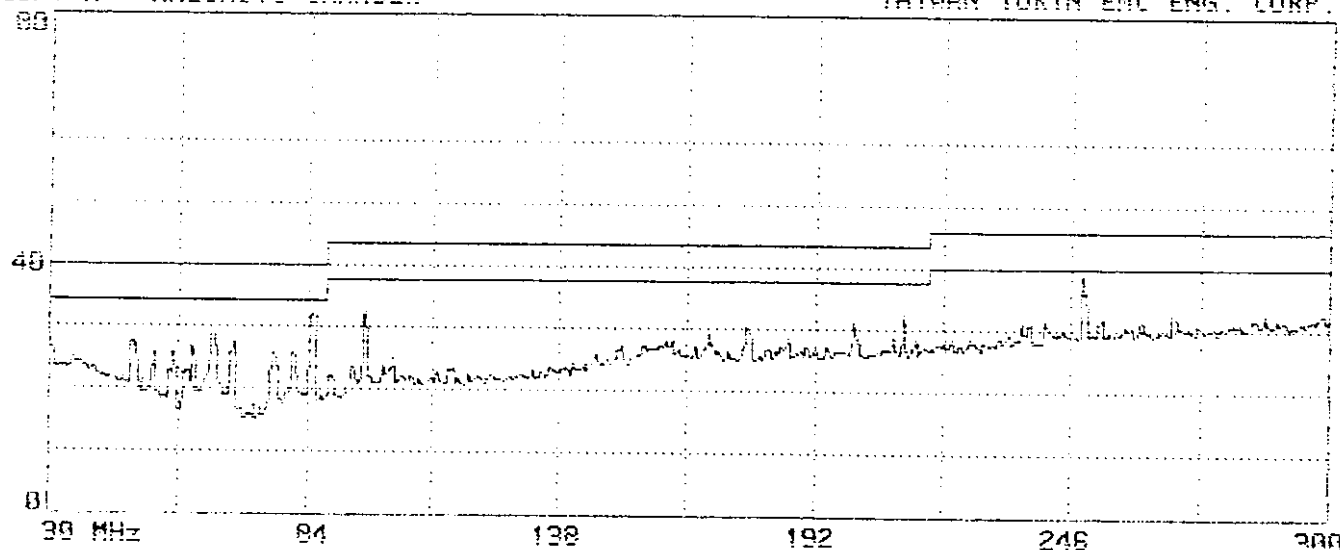
Memo : 105KHZ(1800*1400 70Hz) CABLE 1.8m BNC

Page#: 1438 SP File#: MATSUSHI.E1

Date: 12-11-1998 Time: 18:39:01

dBuV/m ANECHOIC CHAMBER

TAIWAN TDKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m

Probe: BBAS1068(03)1223 VERTICAL

EUT : MONITOR M/N:TX-01F64NN

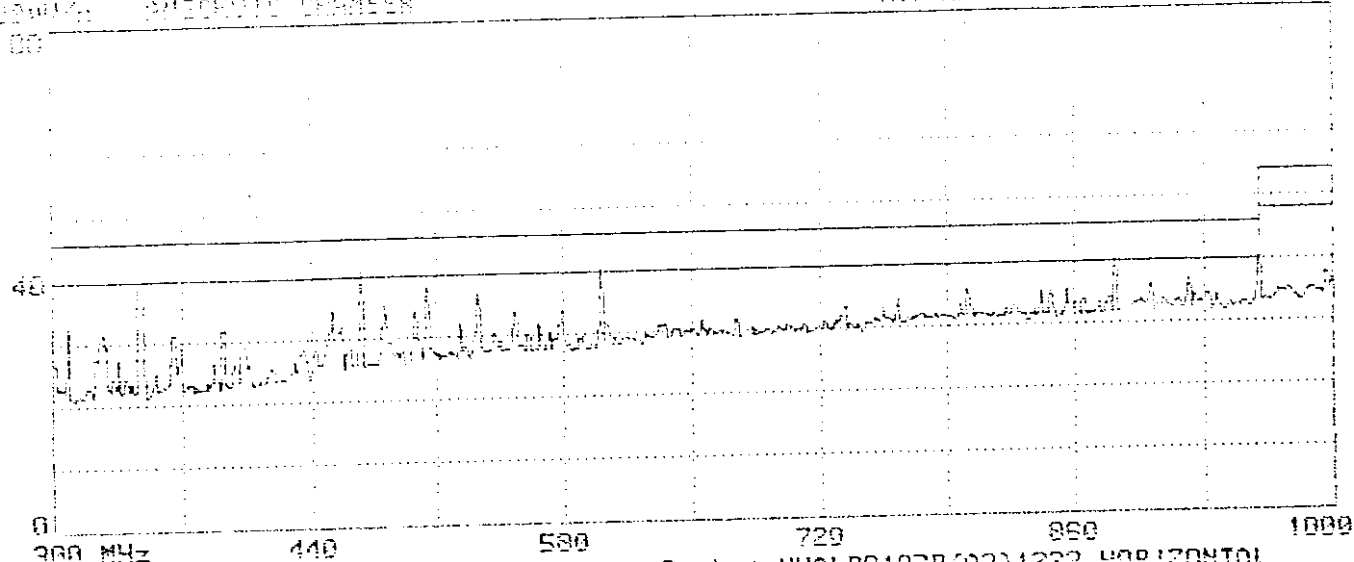
Power: 120Vac/60Hz

Margin: 6dB Standard: 0

Trace: 1438, 0, 0, 0, 0

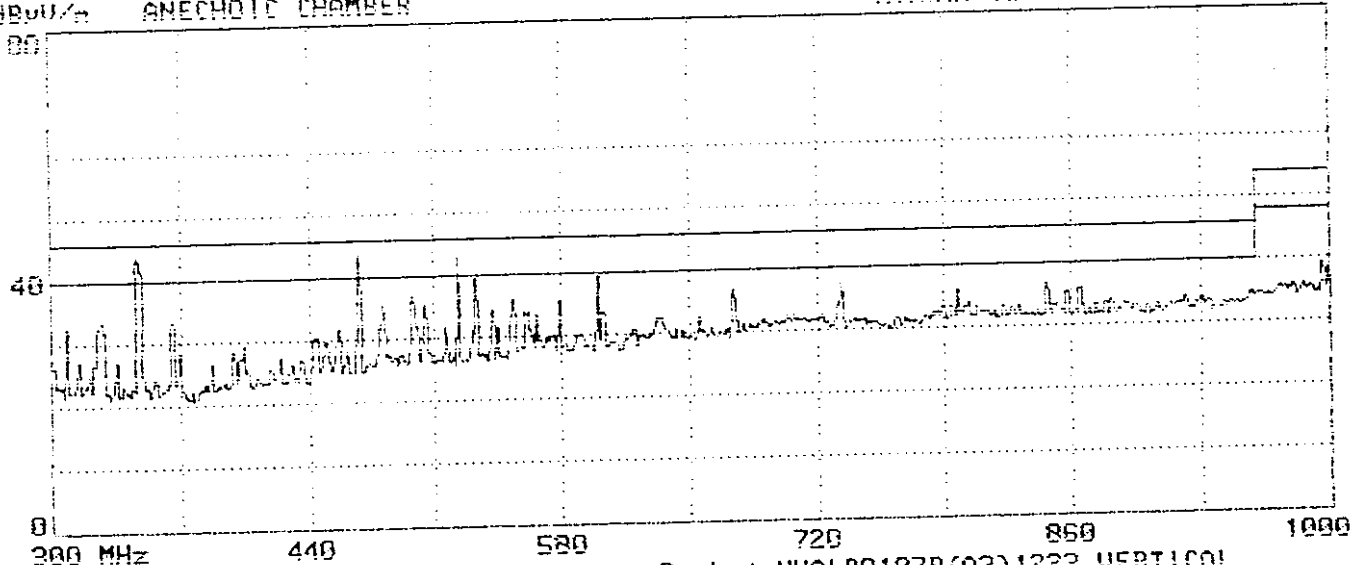
Memo : 105KHZ(1800*1400 70Hz) CABLE 1.8m BNC

Page#: 1438 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:45:27
 J890/a ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

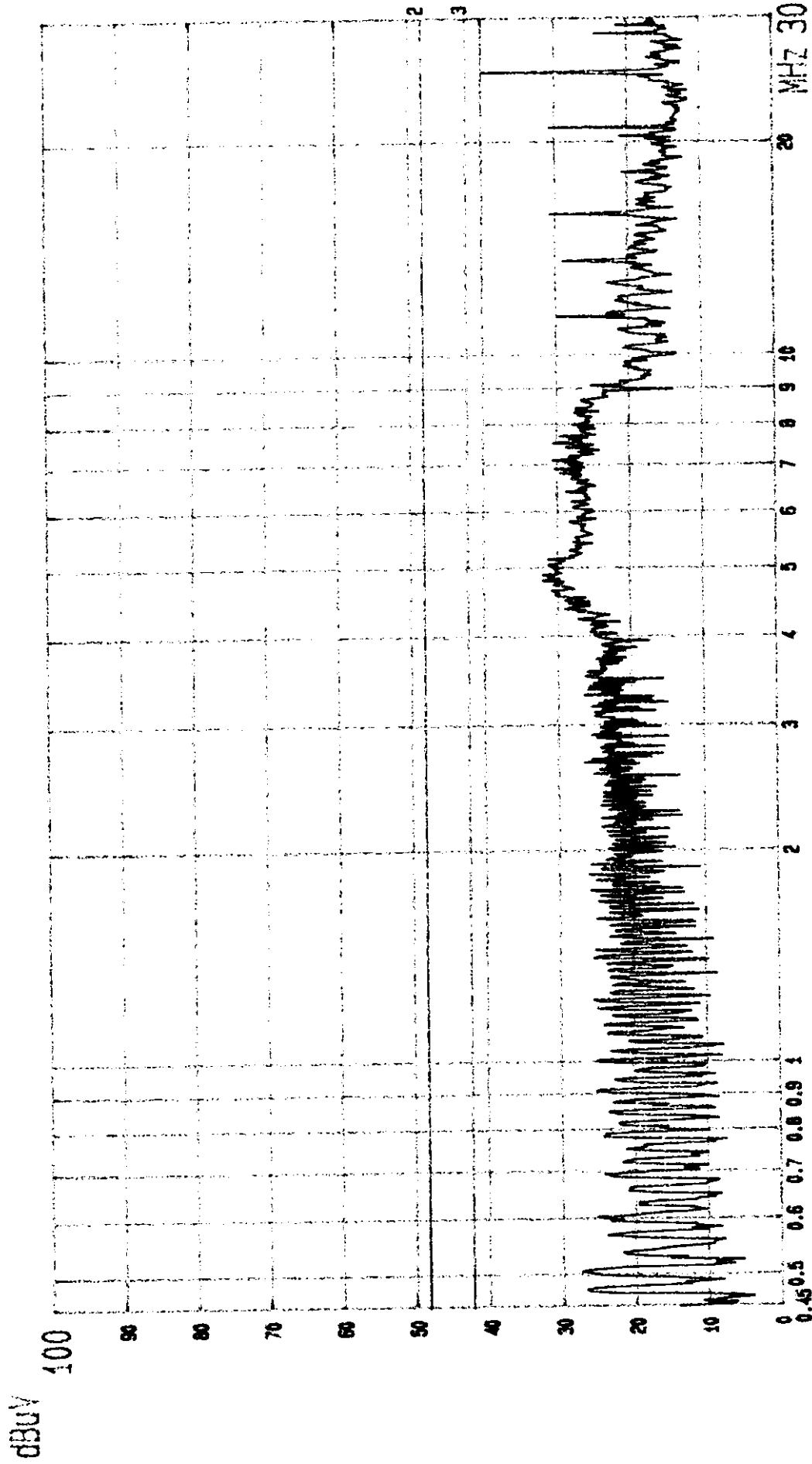


Limit : FCC CLASS-B 3m Probe: UH0LP9107B(03)1223 HORIZONTAL
 EUT : MONITOR M/N:TX-D1F64NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1439, 0, 0, 0, 0
 Memo : 105KHZ(1800*1400 70Hz) CABLE 1.8m BNC

Page#: 1440 SP File#: MATSUSHI.E1 Date: 12-11-1998 Time: 10:46:55
 J890/a ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probe: UH0LP9107B(03)1223 VERTICAL
 EUT : MONITOR M/N:TX-D1F64NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1440, 0, 0, 0, 0
 Memo : 105KHZ(1800*1400 70Hz) CABLE 1.8m BNC



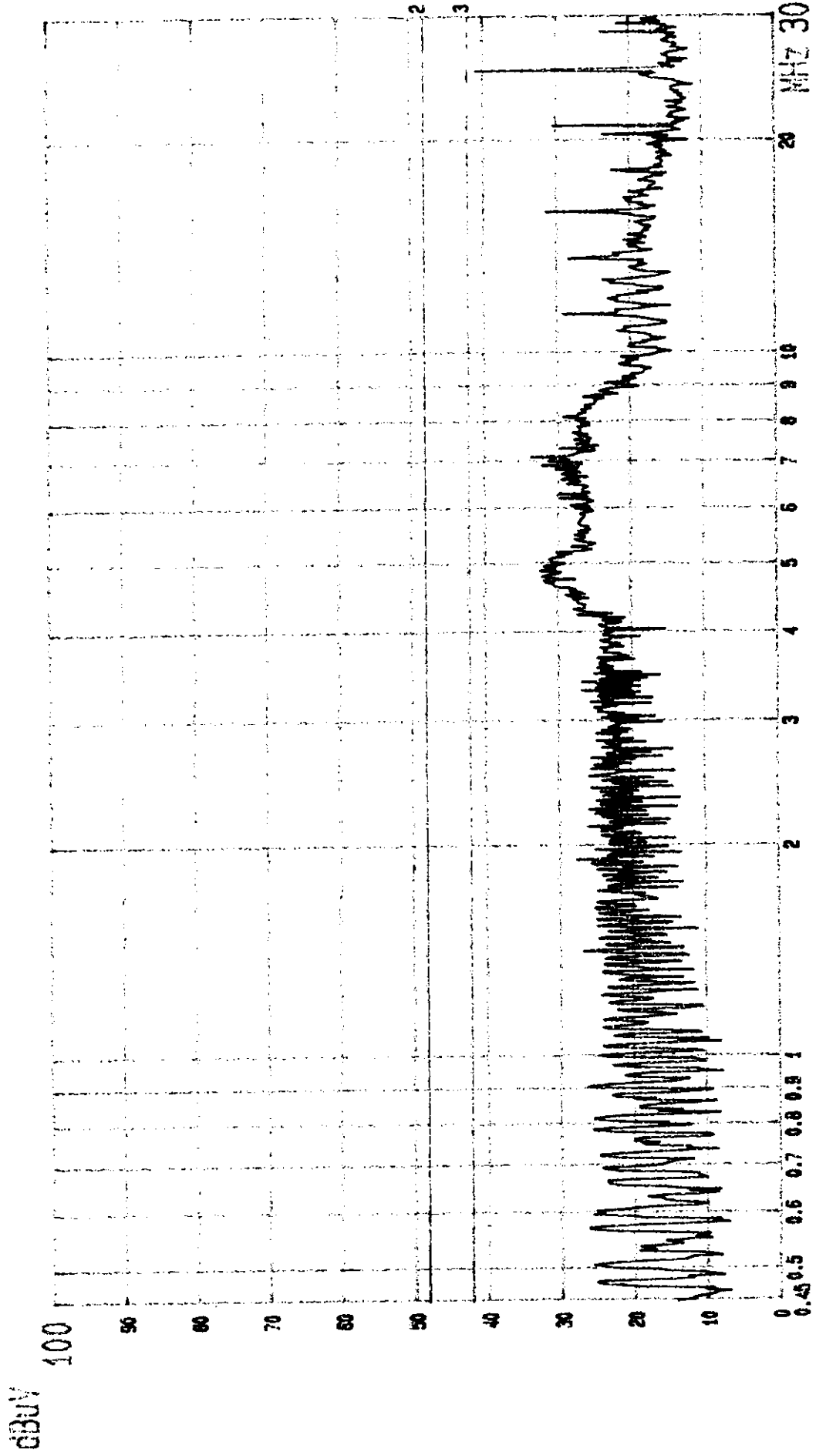
--- Date 26.NOV '98 Time 23:59:46

MATSUSHITA EUT: MONITOR

LINE: VA.

M/M: TX-D1F64NM
3.0M D-SUB TO LISN

PAGE: 011.
(PEAK VALUE) TTEMC.



--- Date 26.NOV '98 Time 00:05:02

MATSUSHITA EUT: MONITOR

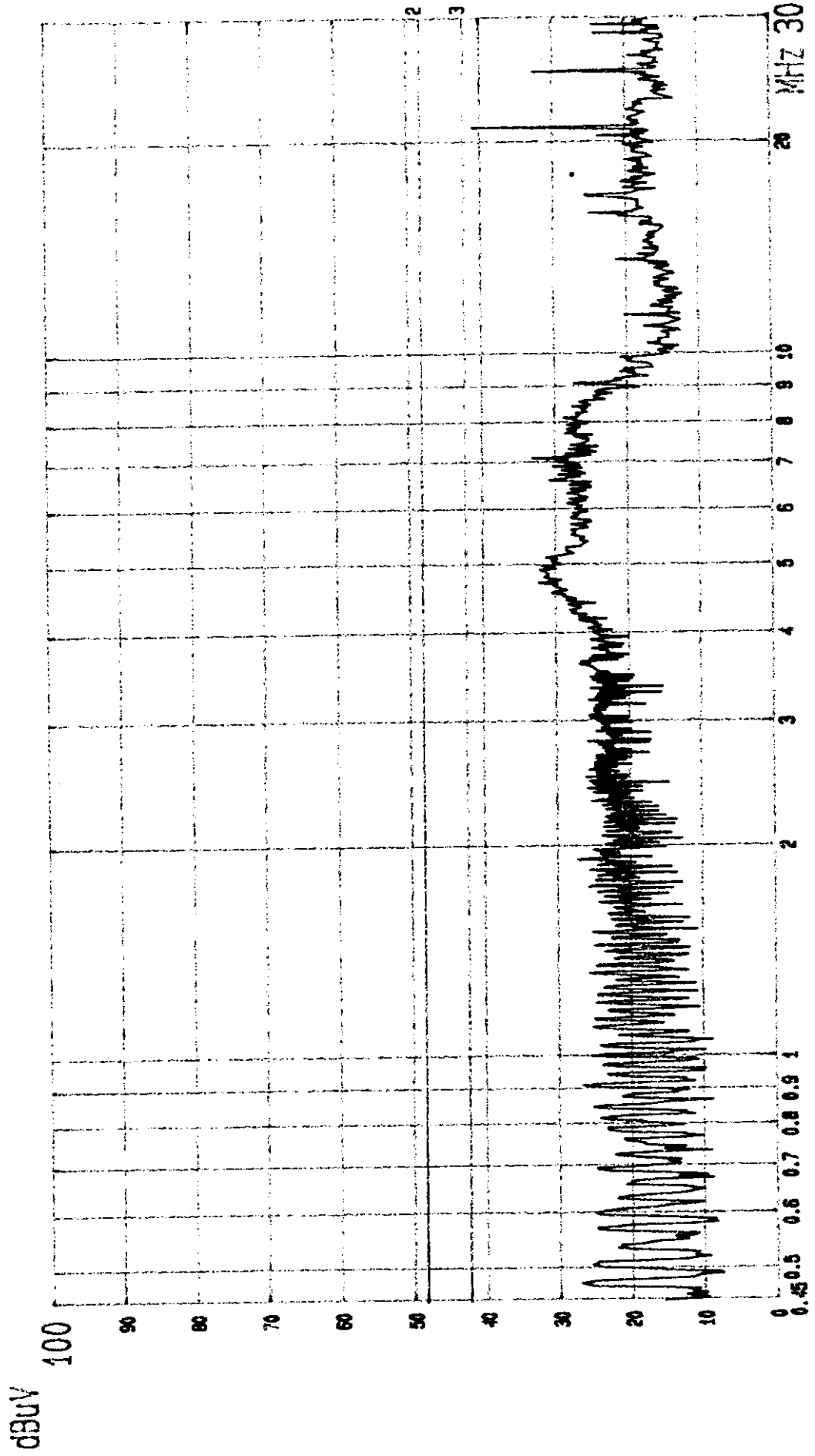
LINE: VB.

M/M: TX-D1F64NM

MENO: (640X480; 31.5KHZ) 3.0M D-SUB TO LISN

PAGE: 012.

(PEAK VALUE) TTEKC.



--- Date 26.NOV.'98 Time 22:26:22

MATSUSHITA EUT: MONITOR

LINE: VA.

M/M: TX-D1F64NM

TO LISN

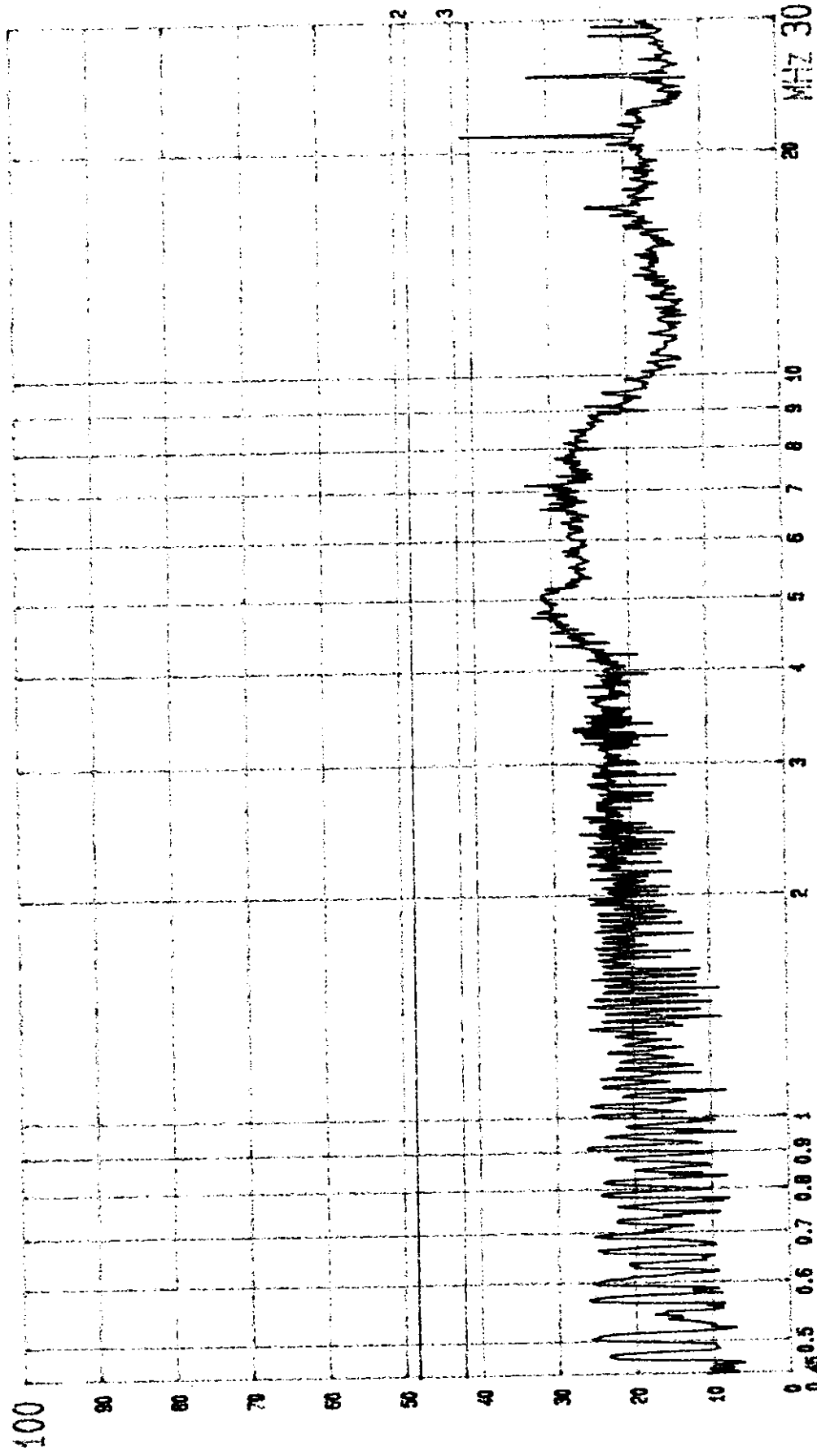
1.8M BNC

MENO: (640X480; 31.5KHz)

PAGE: 010.

(PEAK VALUE) ITEM C.

dBuV



--- Date 26.NOV '98 Time 22:19:04

MATSUSHITA

EUT: MONITOR

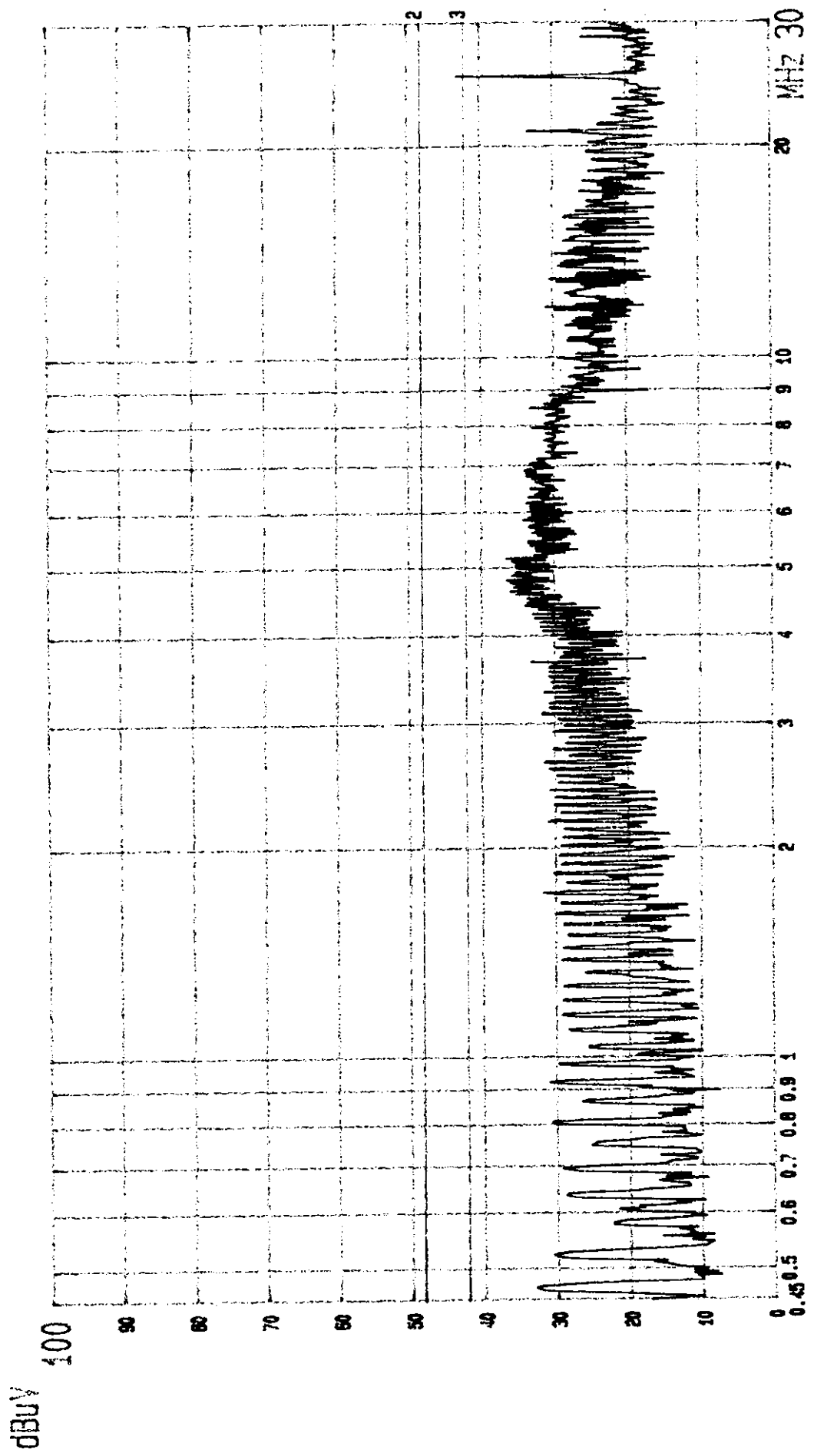
MEN0: (640X480:31.5KHz)

M/M: TX-D1F64NM

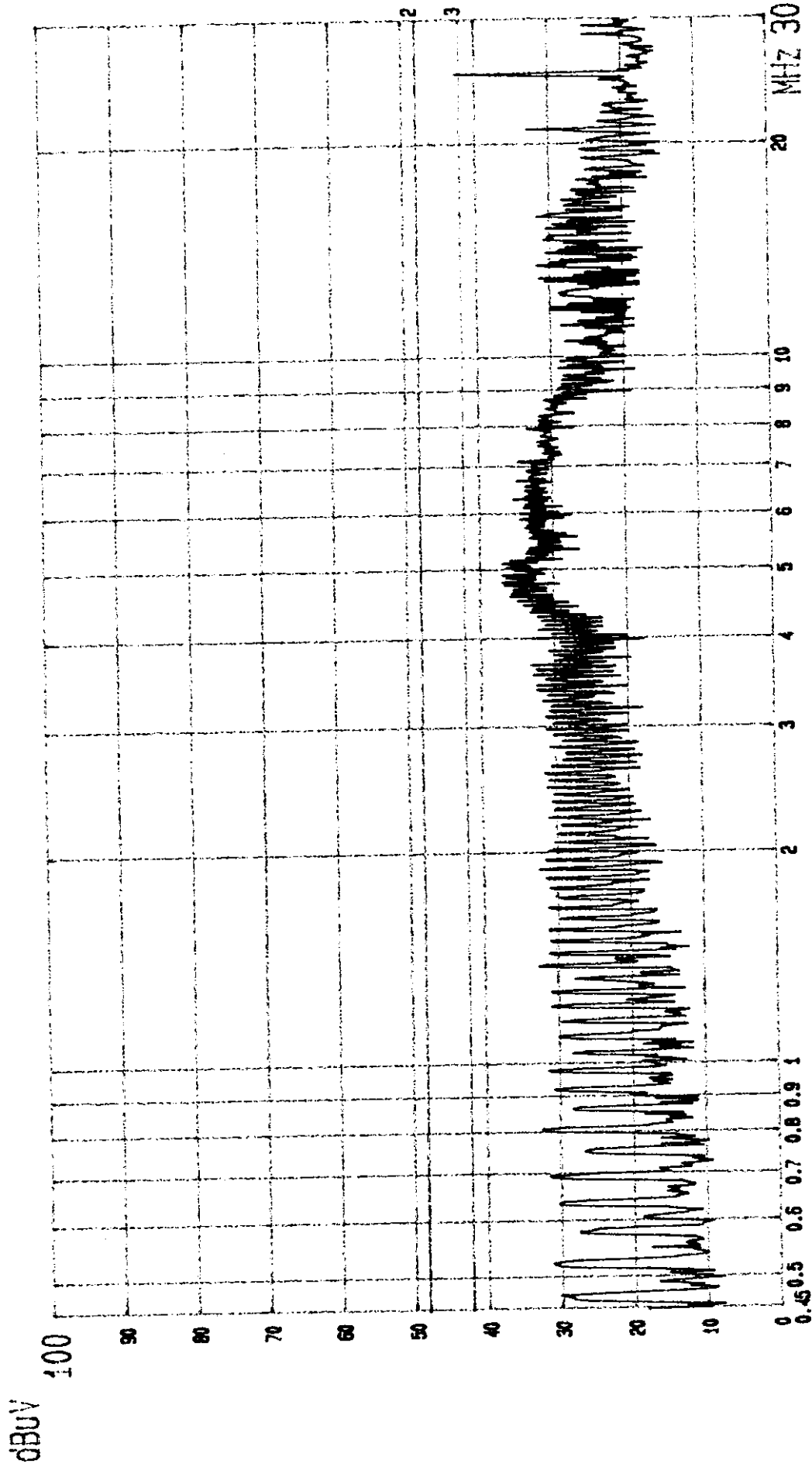
TO LISN

(PEAK VALUE) ITEM: C

PAGE: 009.



--- Date 26.NOV '98 Time 20:19:24
MATSUSHITA EUT: MONITOR
LINE: VA. MENO: (1600X1200; 115KHz) 1.5M D-SUB TO LISN
M/M: TX-D1F64NM
(PEAK VALUE) TTEMC. PAGE: 002.



--- Date 26. NOV '98 Time 20:11:35

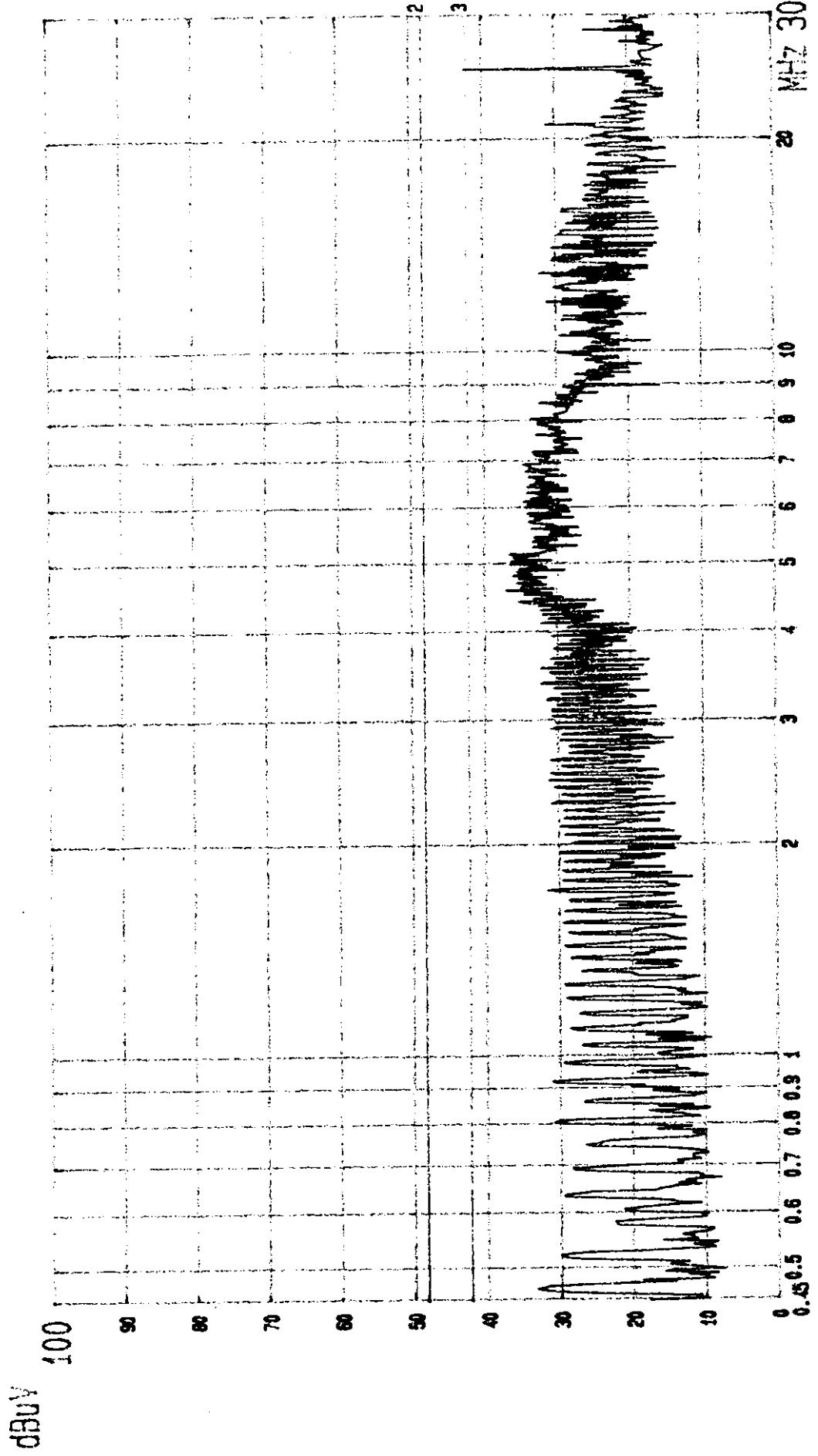
EUT: MONITOR

MENO: (1500X1200; 115KHz) 1.5M D-SUB TO LISN

M/M: TX-D1F64NM

TO LISN

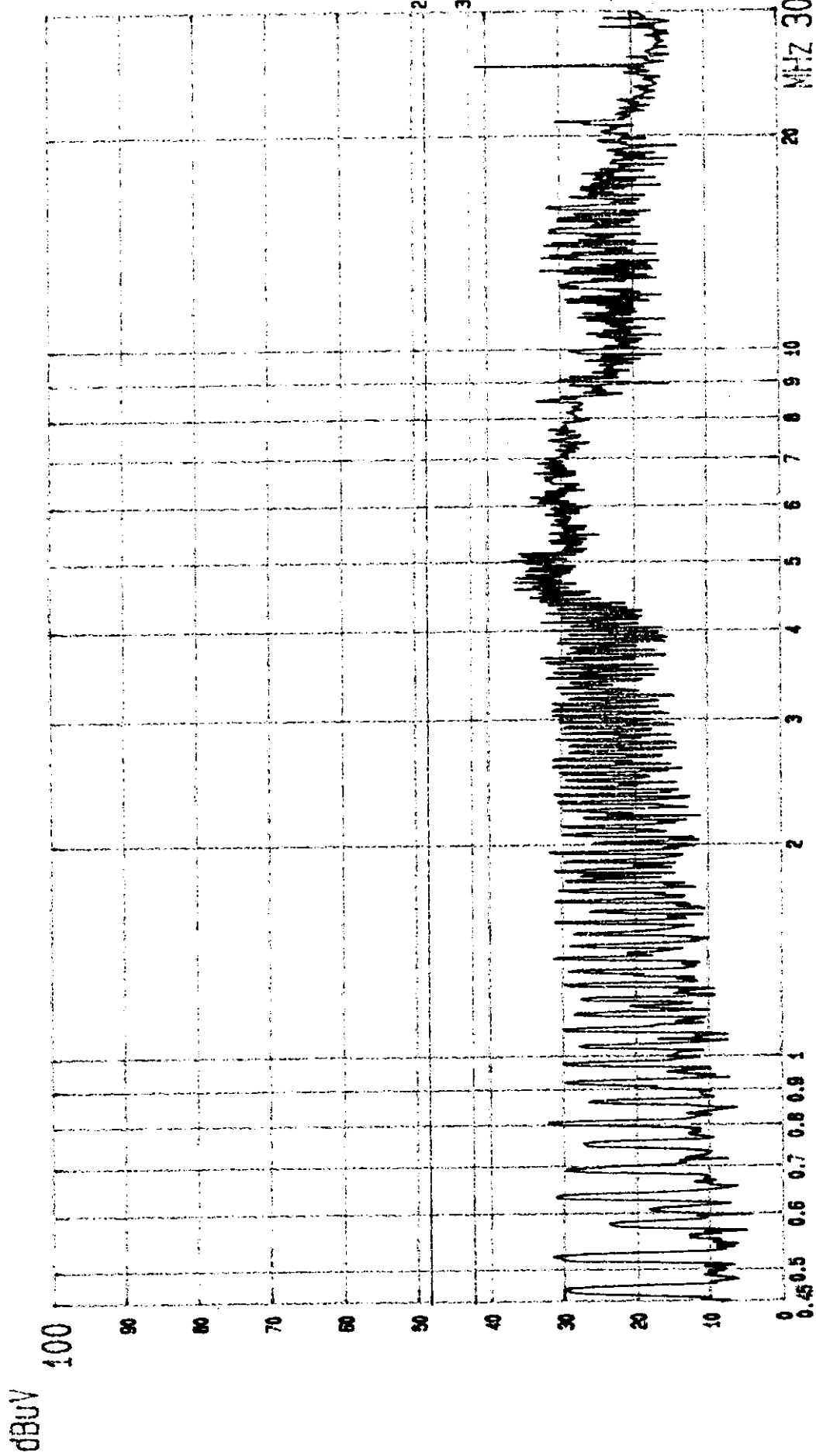
PAGE: 001.
(PEAK VALUE) TTEMC.



--- Date 26.NOV.'98 Time 21:11:44
MATSUSHITA EUT: MONITOR
LINE: VA. MENO: (1600X1200; 115KHz) 3.0W D-SUB TO LISH

M/M: TX-D1F64NM
(PEAK VALUE) ITEM: C.

PAGE: 006.



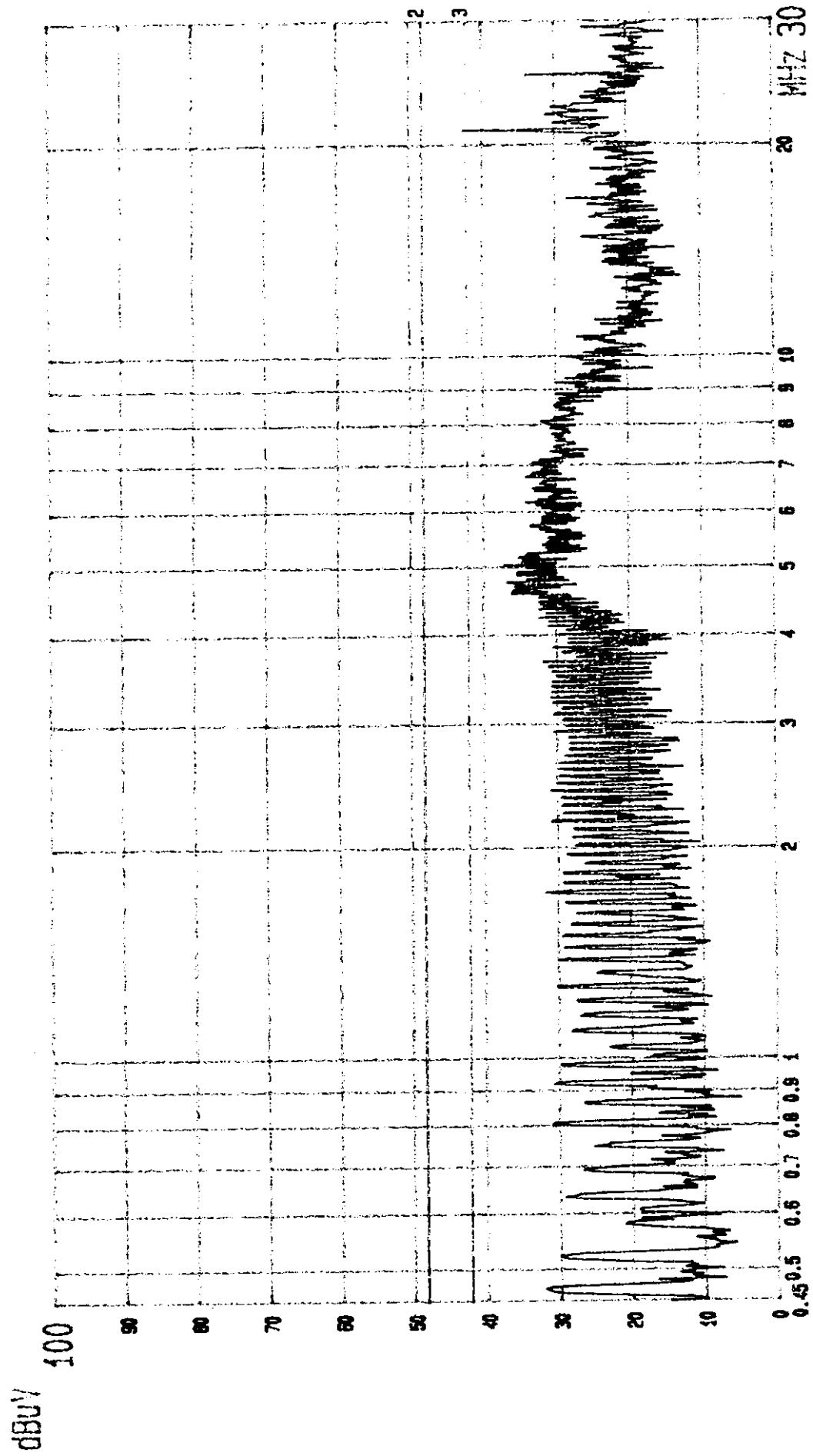
--- Date 26.NOV '98 Time 21:04:01

MATSUSHITA EUT: MONITOR

LINE: VB.

M/M: TX-D1F64NM
3.0M D-SUB TO LISN

PAGE: 005.
(PEAK VALUE) TTEMC.



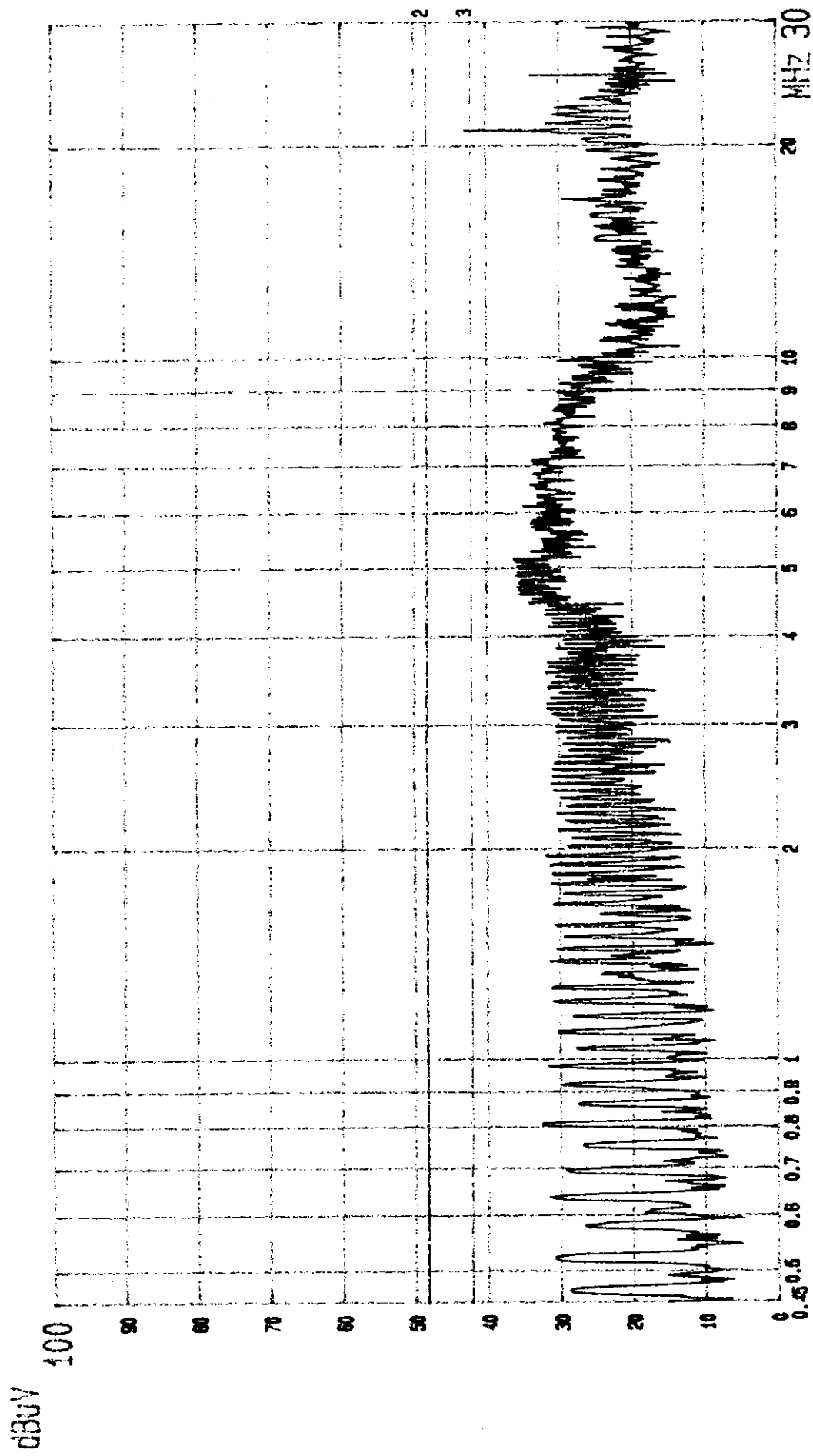
--- Date 26.NOV.'98 Time 21:56:25

MATSUSHITA EUT: MONITOR

LINE: VA. MENO: (1600X1200; 115KHZ) 1.8M BNC

W/M: TX-D1F64NM
TO LISN

PAGE: 007.
(PEAK VALUE) TTENC.



--- Date 26.NOV '98 Time 22:02:01

MATSUSHITA EUT: MONITOR

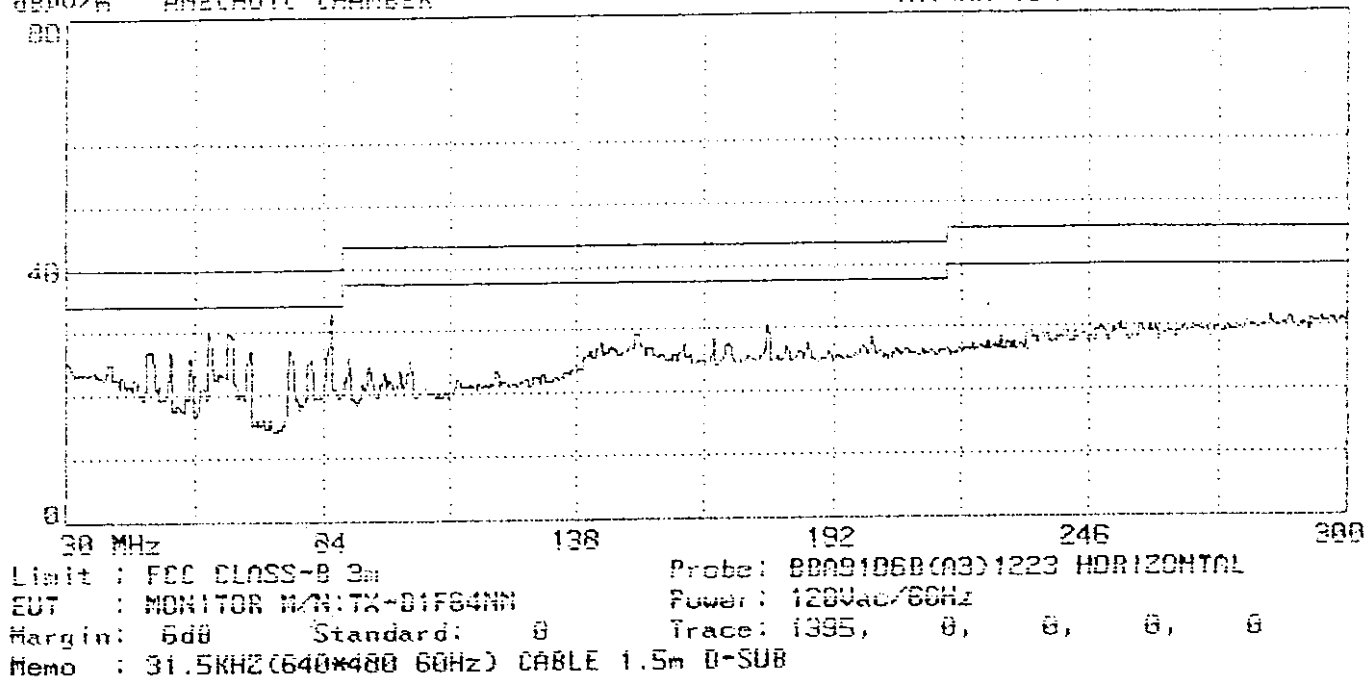
LINE: VB.

M/M: TX-D1F64NM
TO LISN
1.8M BNC

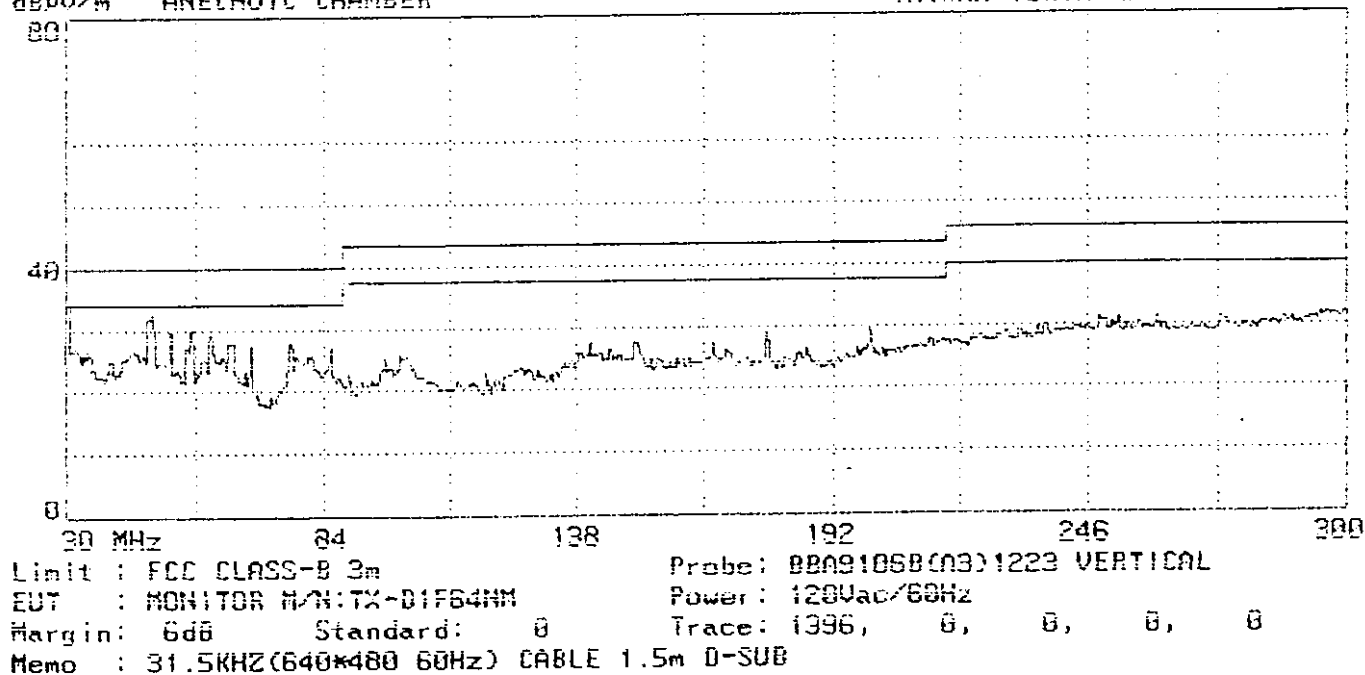
PAGE: 008.
(PEAK VALUE) TTEMC.

APPENDIX II

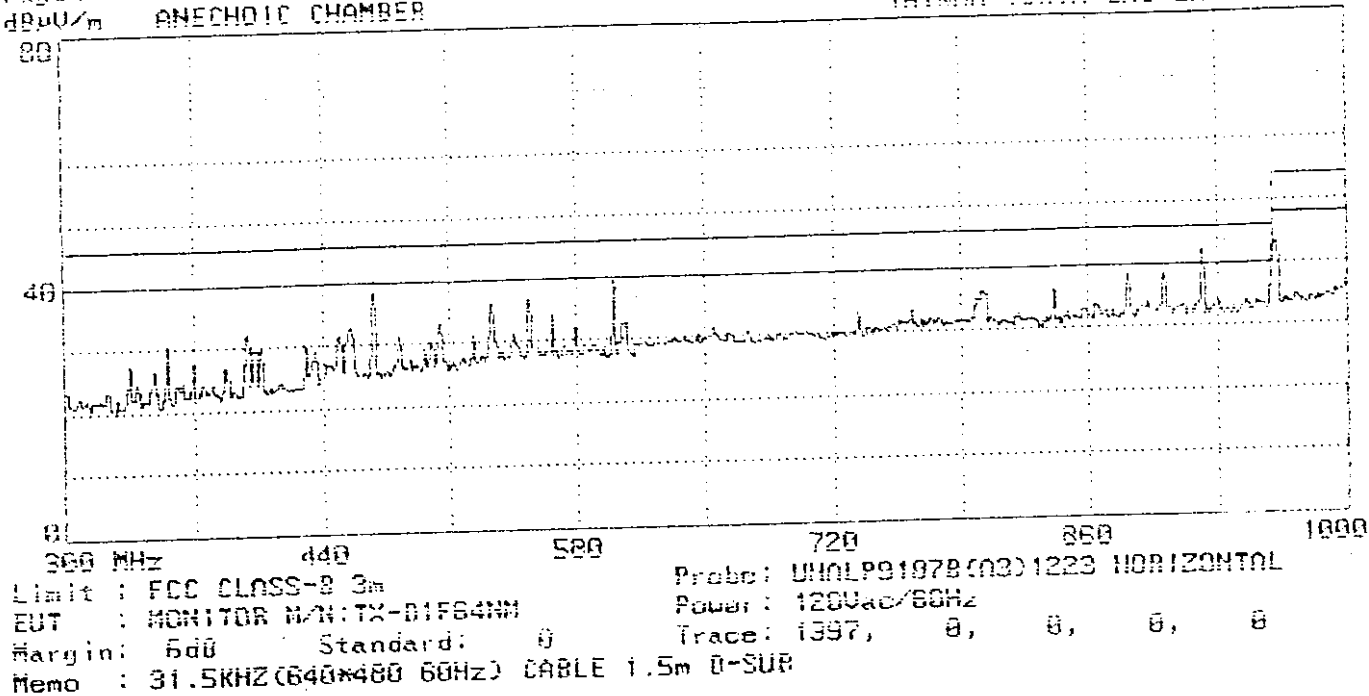
Page#: 1395 SP File#: MATSUSHI.EI Date: 11-19-1998 Time: 12:10:04
 dB μ V/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



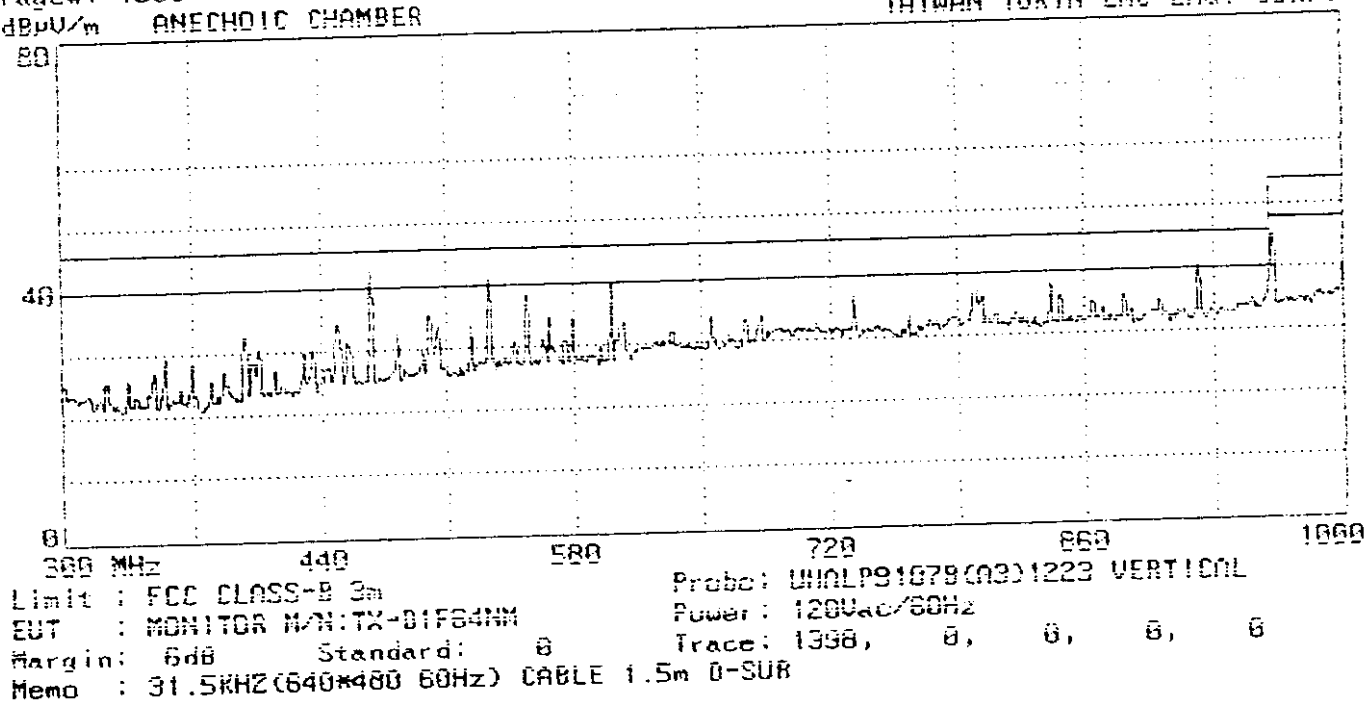
Page#: 1396 SP File#: MATSUSHI.EI Date: 11-19-1998 Time: 12:11:53
 dB μ V/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



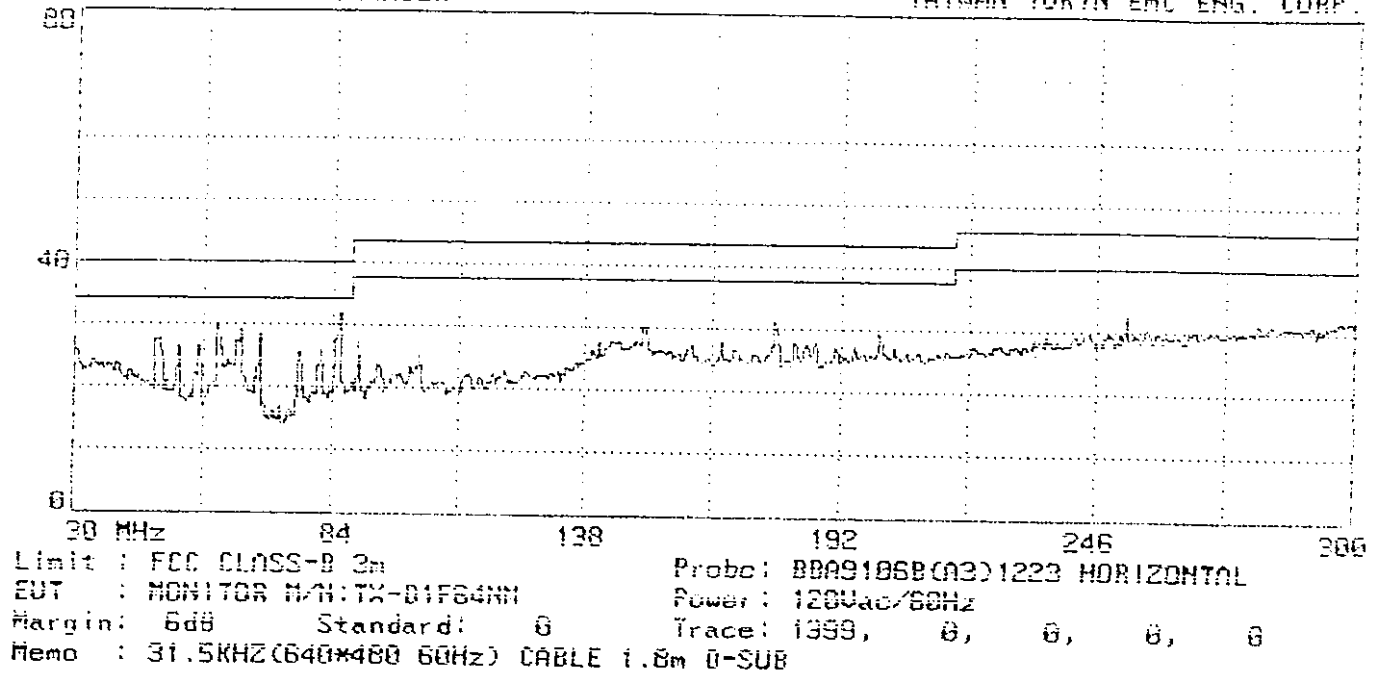
Page#: 1397 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 11:38:46
 dBμV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



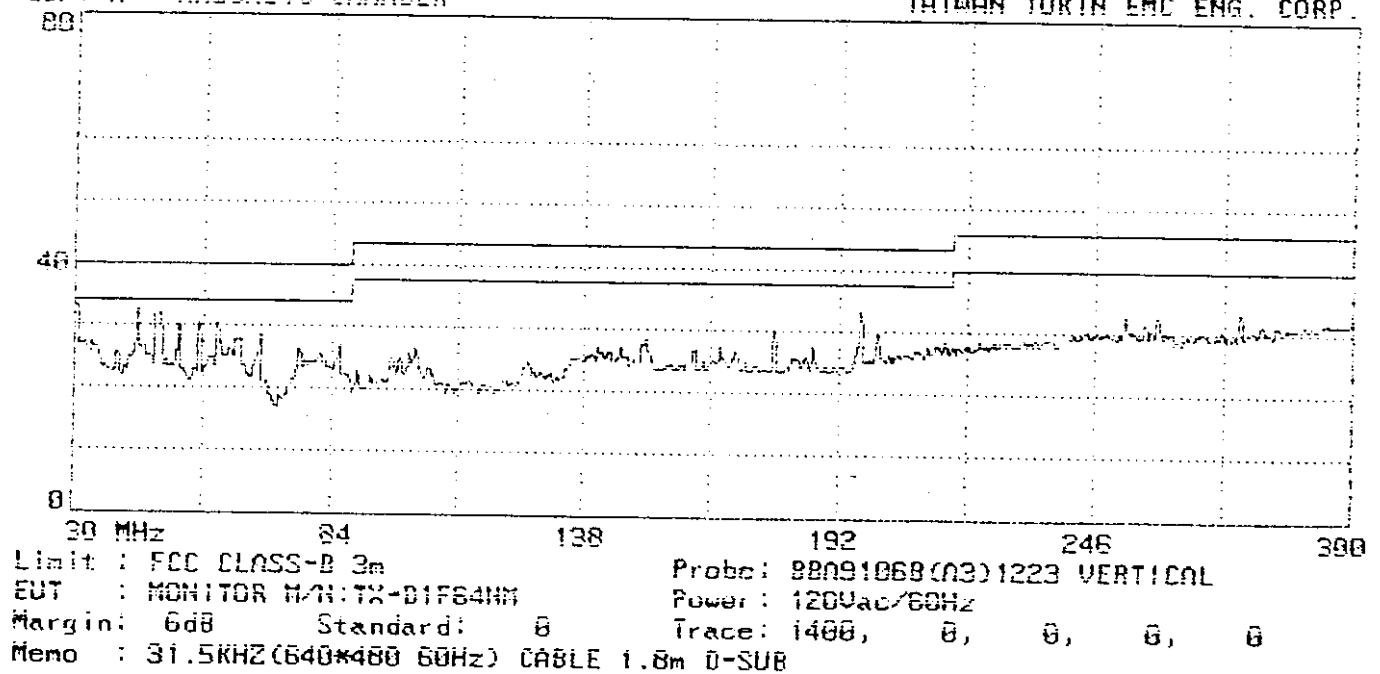
Page#: 1398 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 11:48:35
 dBμV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



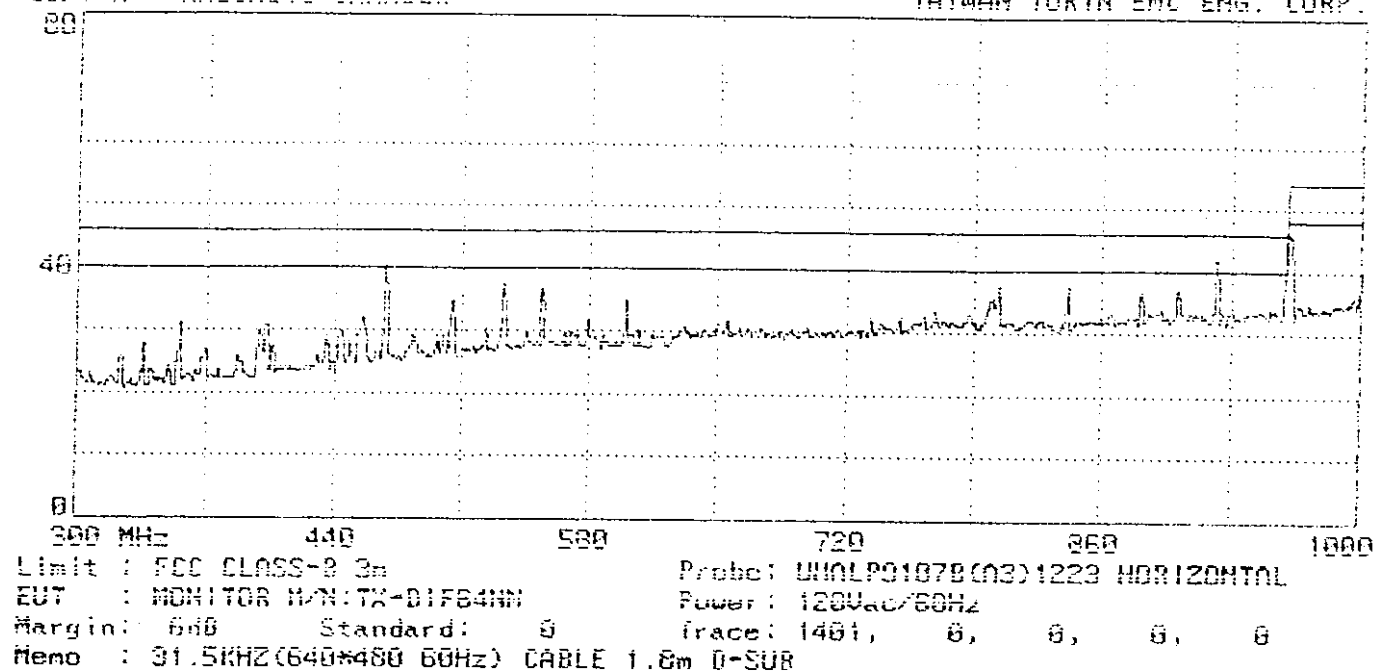
Page#: 1399 SP File#: MATSUSHI.EI Date: 11-19-1998 Time: 12:35:26
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



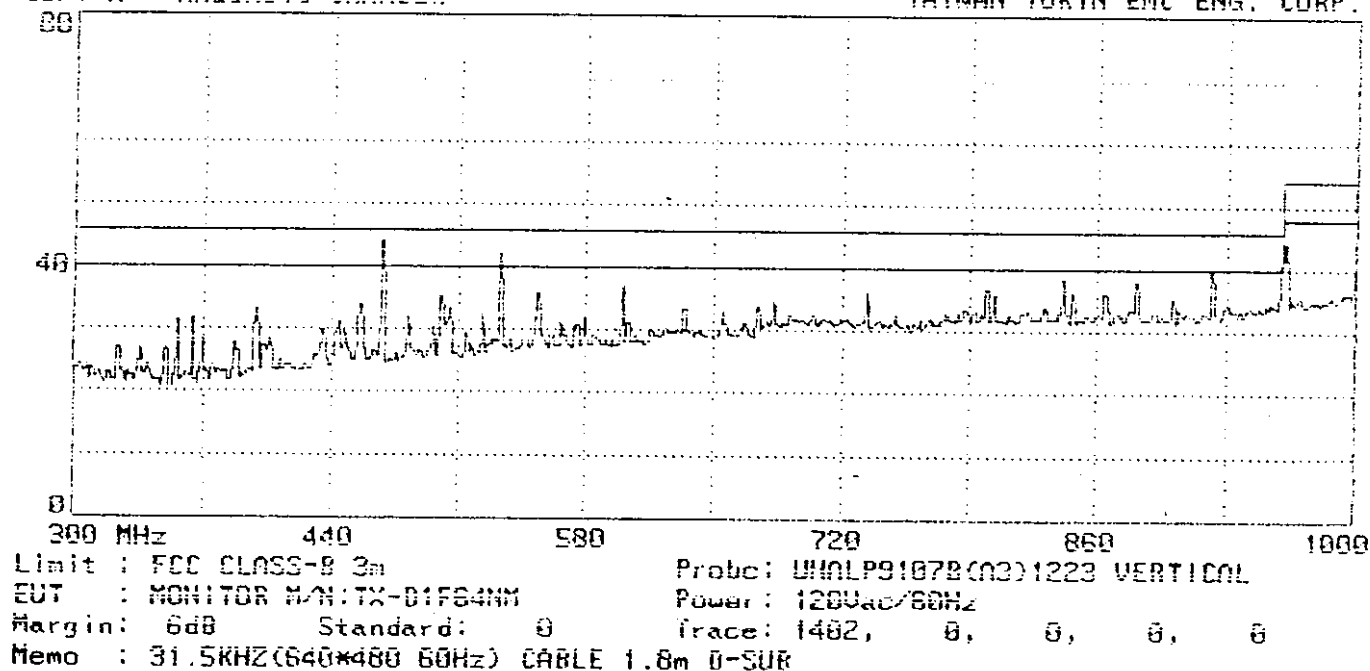
Page#: 1400 SP File#: MATSUSHI.EI Date: 11-19-1998 Time: 12:37:17
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



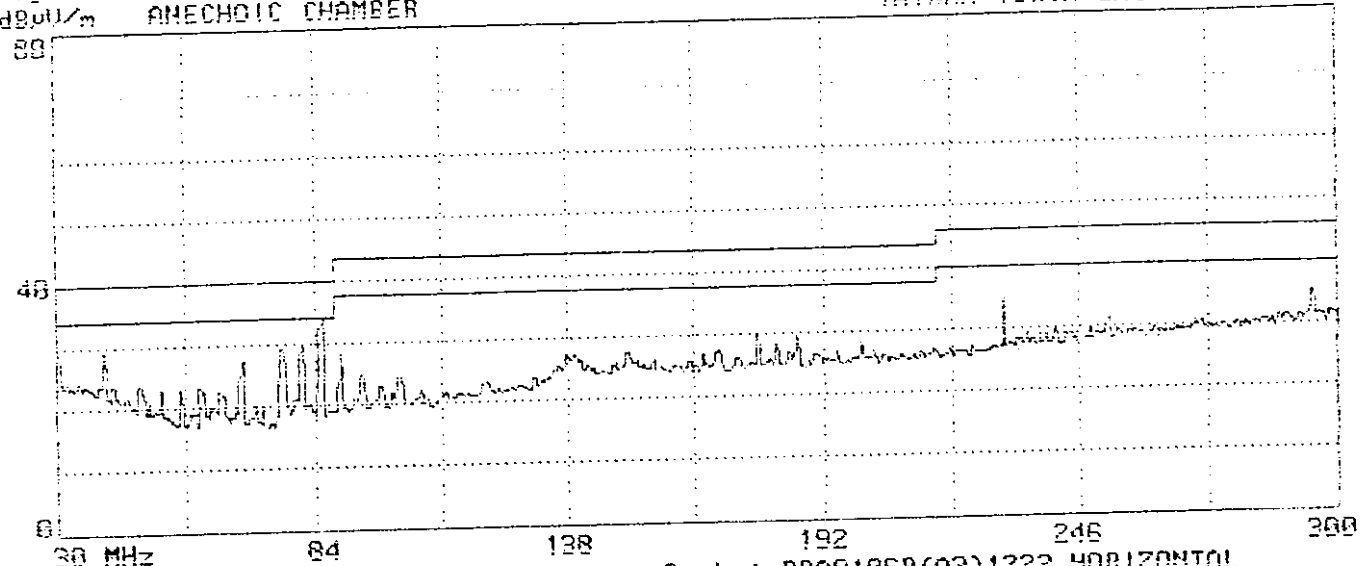
Page#: 1401 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 12:41:46
 dBμV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 1402 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 12:43:50
 dBμV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

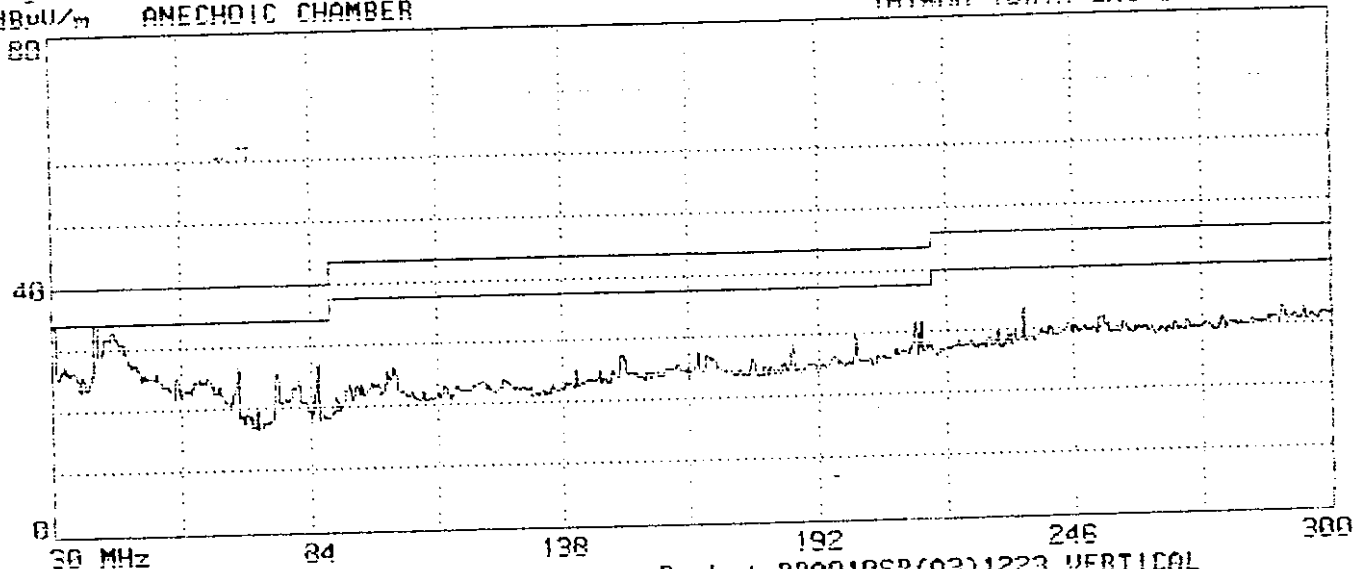


Page#: 1411 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 15:20:05
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



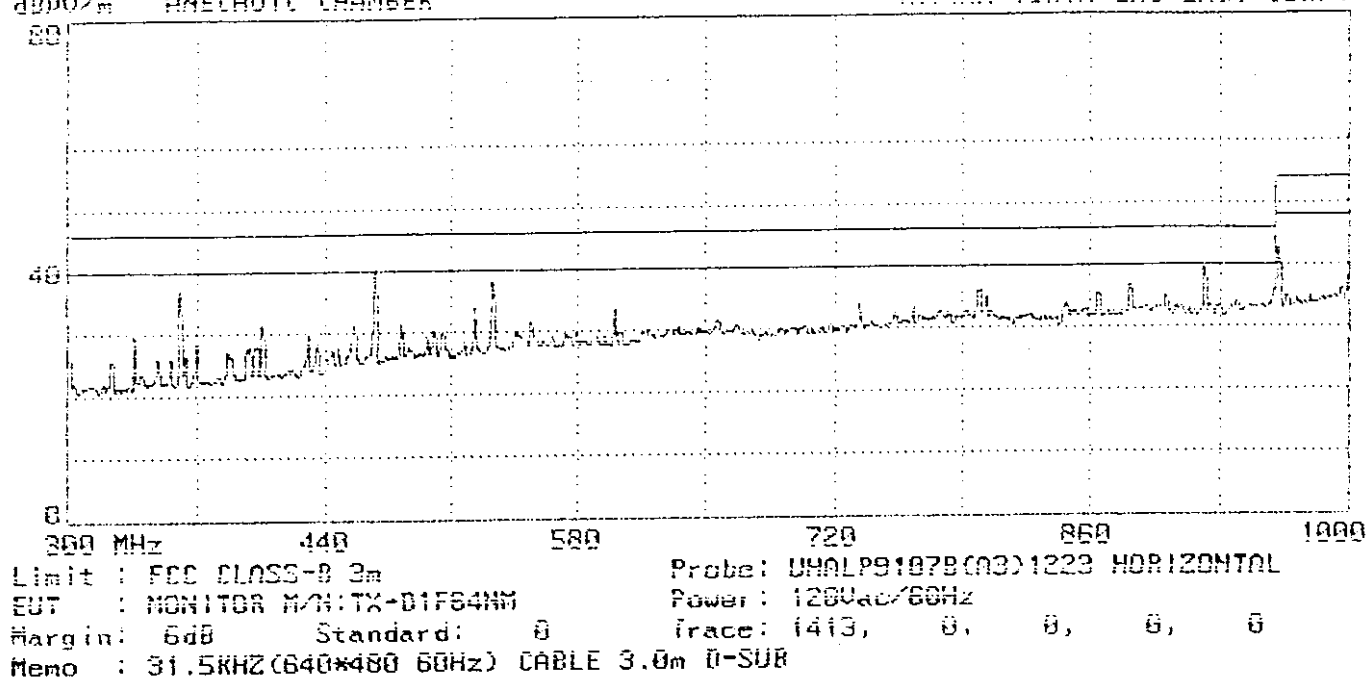
Limit : FCC CLASS-B 3m Probe: 880910SB(03)1223 HORIZONTAL
 EUT : MONITOR M/N:TX-D1F64NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1411, 0, 0, 0, 0
 Memo : 31.5KHZ(640*480 60Hz) CABLE 3.0m O-SUB

Page#: 1412 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 15:21:53
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

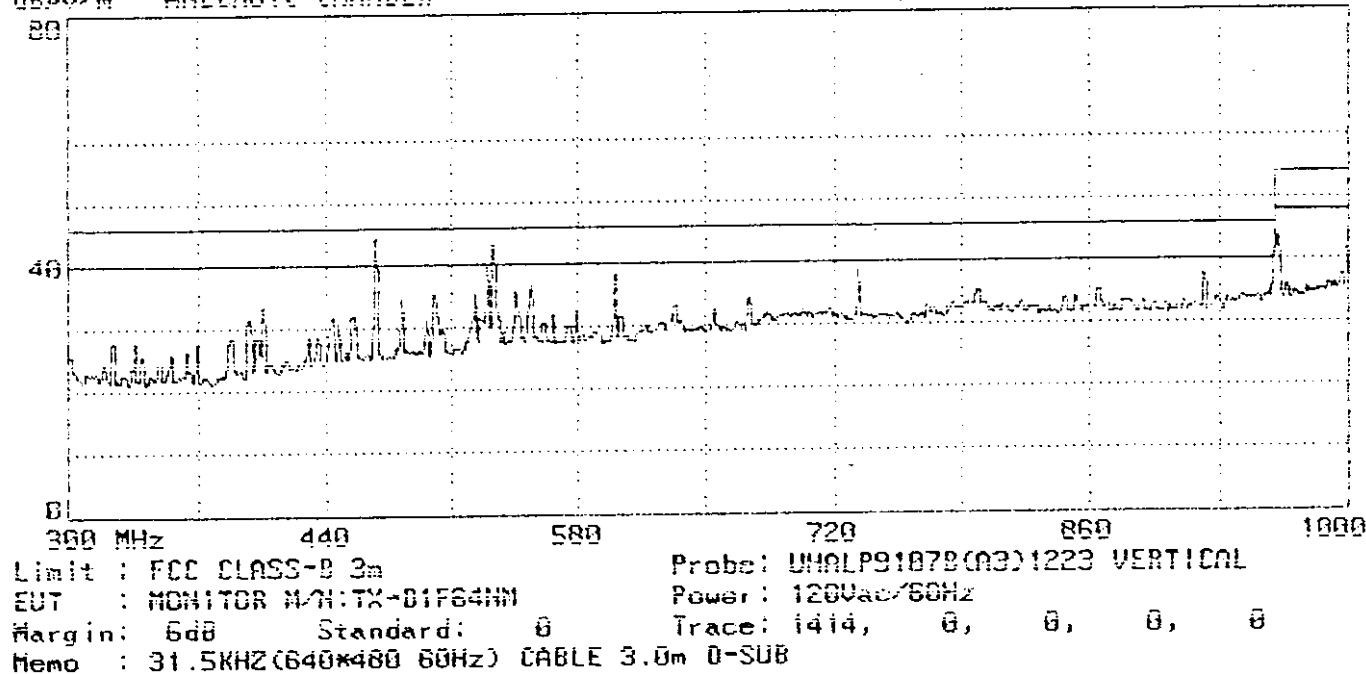


Limit : FCC CLASS-B 3m Probe: 880910SB(03)1223 VERTICAL
 EUT : MONITOR M/N:TX-D1F64NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1412, 0, 0, 0, 0
 Memo : 31.5KHZ(640*480 60Hz) CABLE 3.0m O-SUB

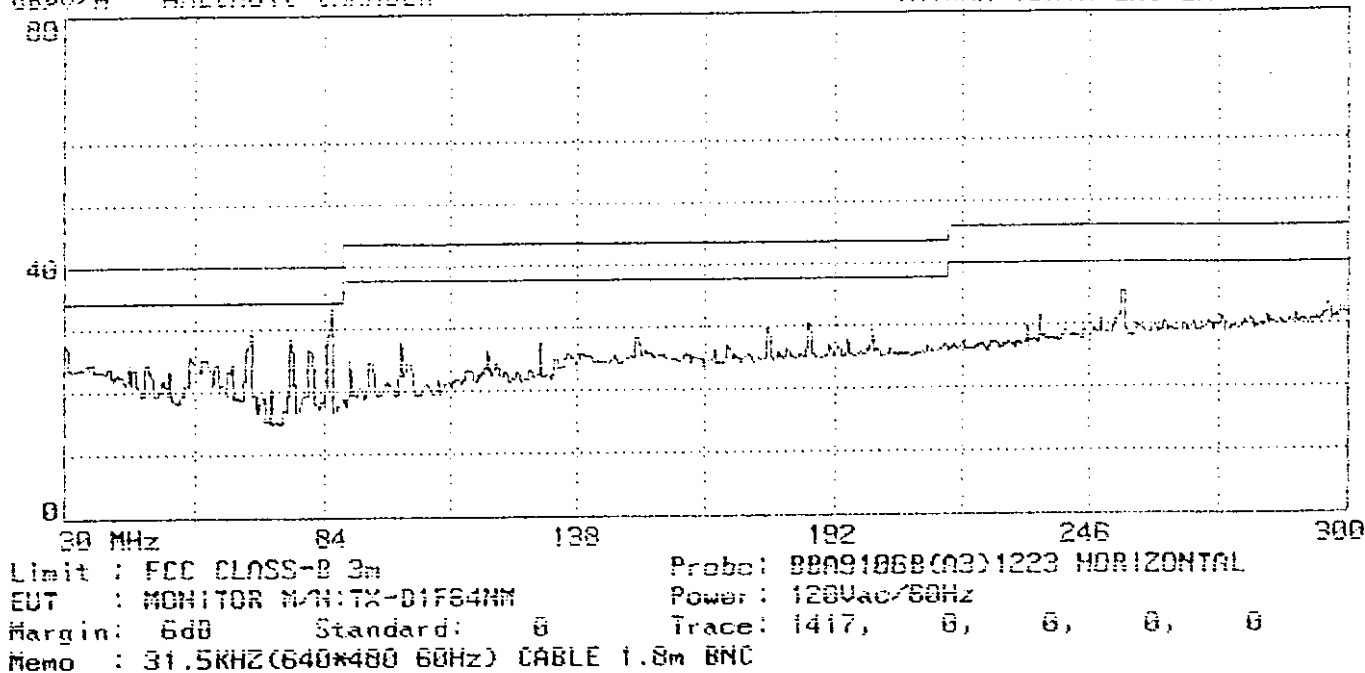
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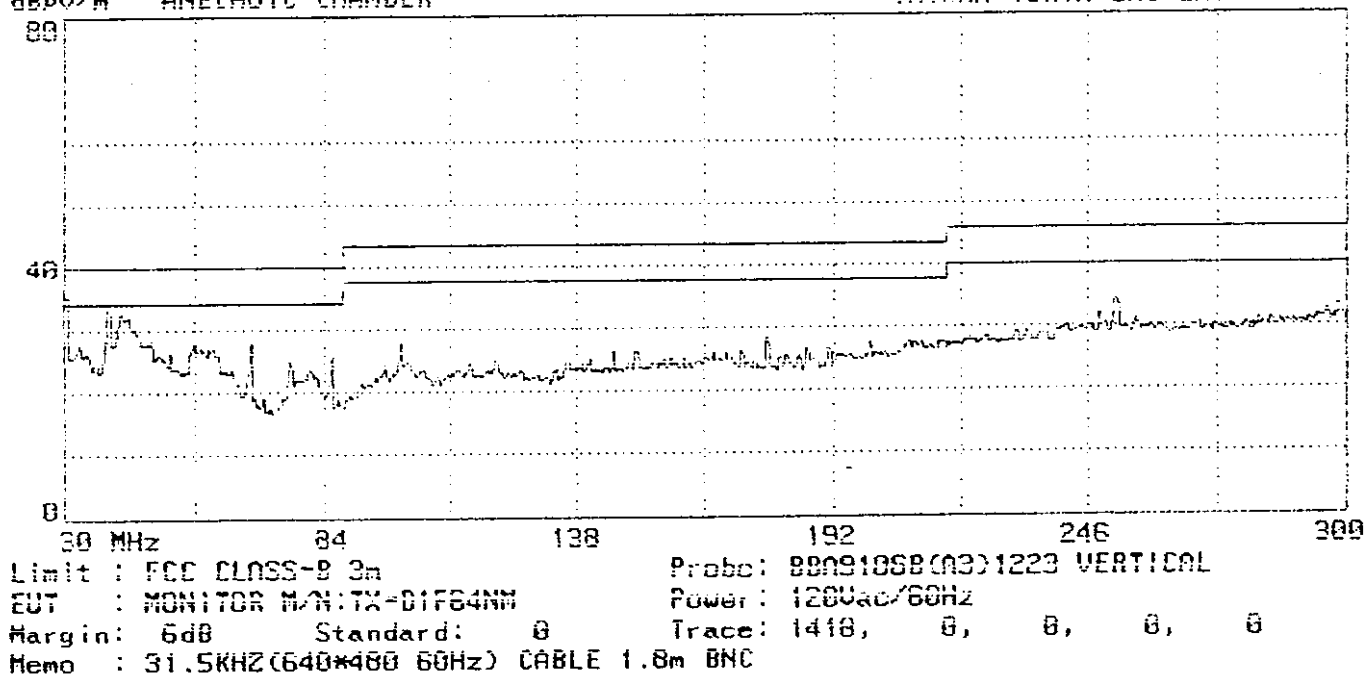
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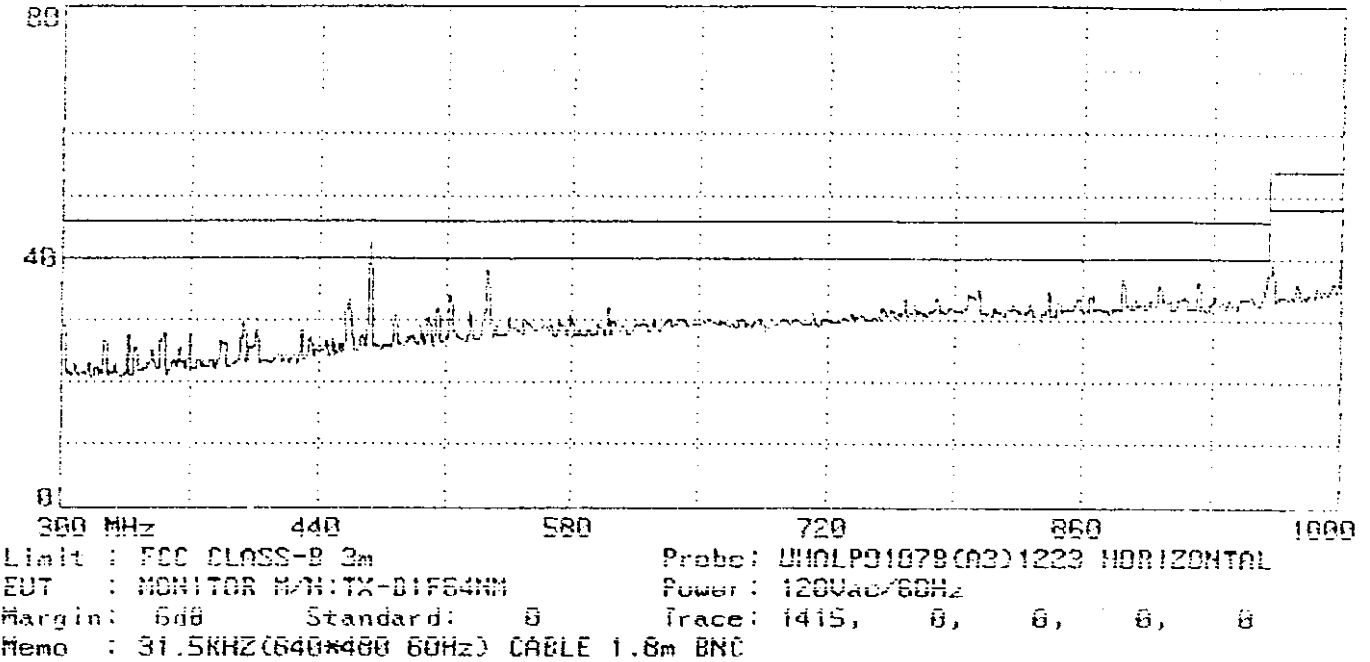
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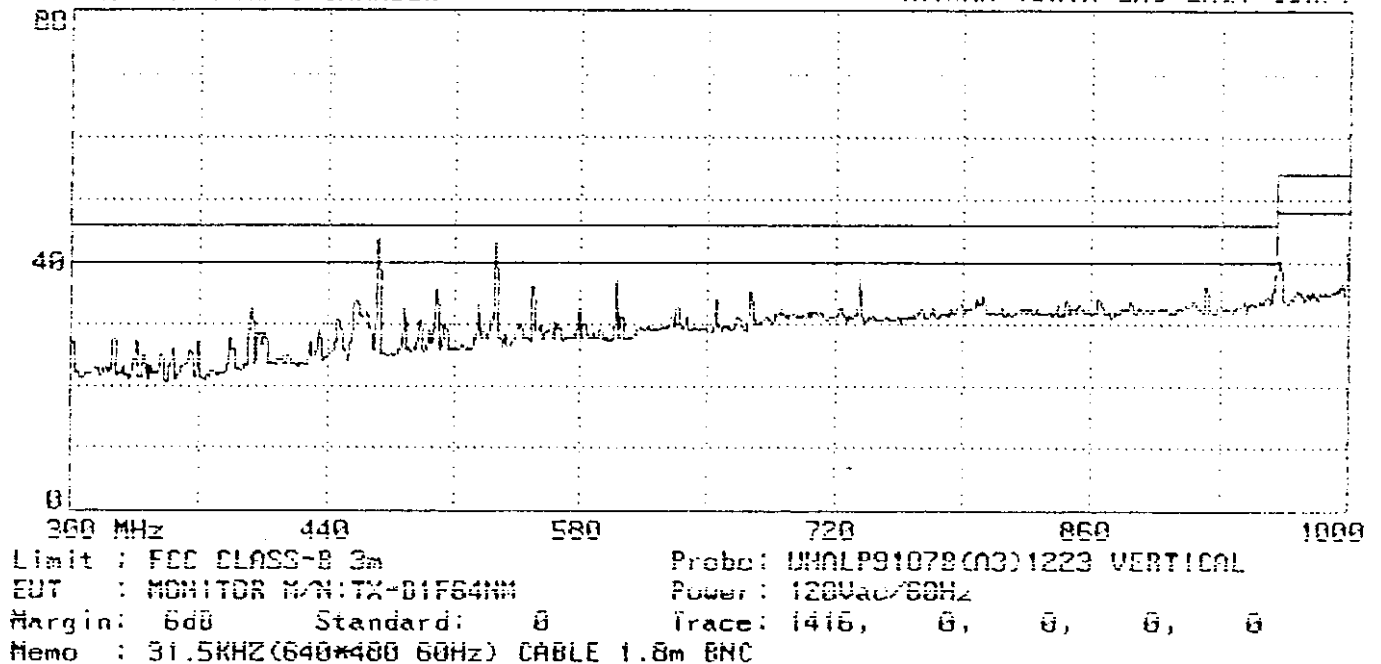
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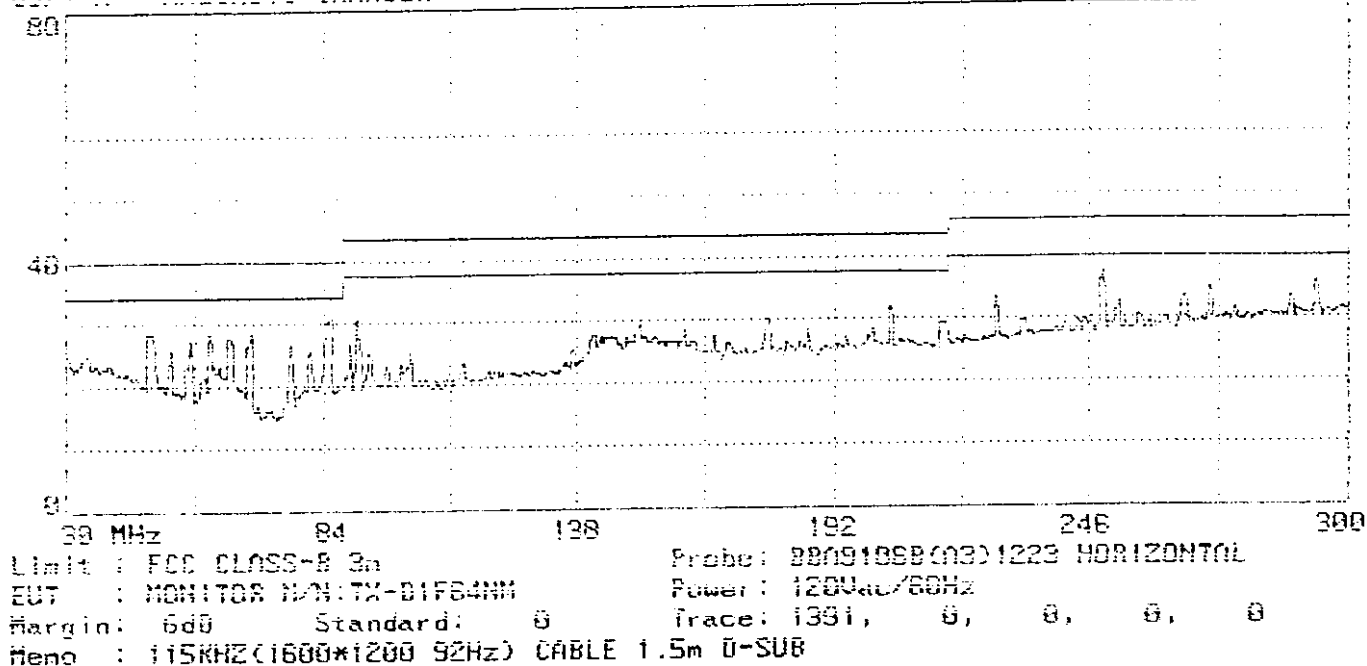
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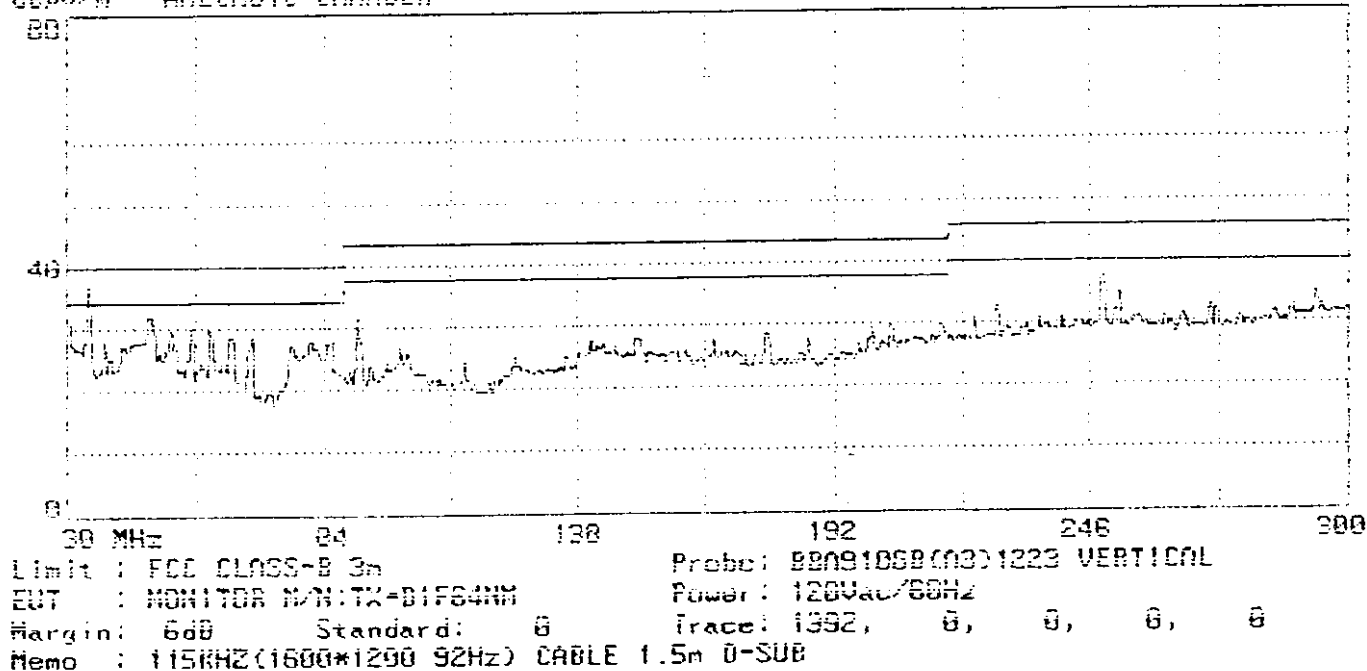
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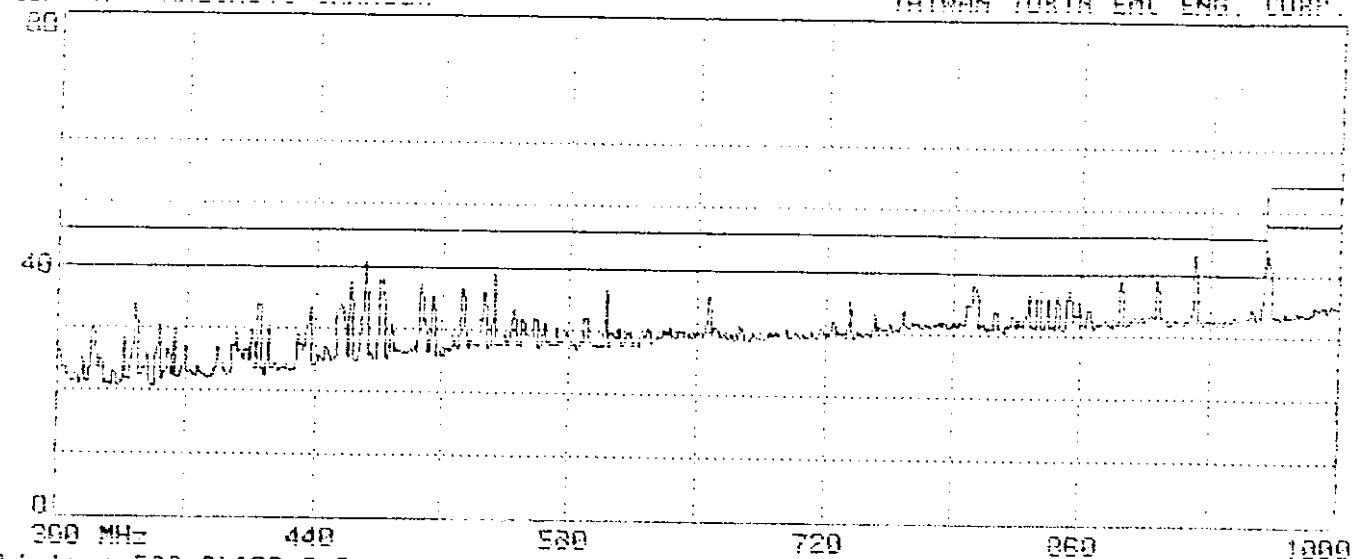
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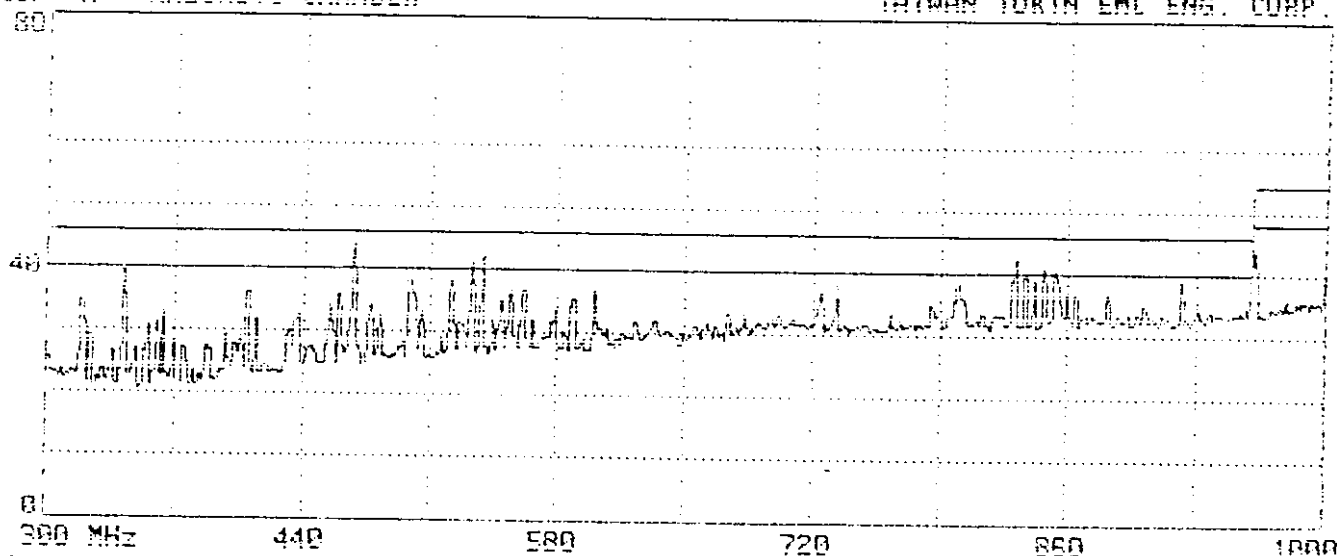


Page#: 1393 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 12:00:57
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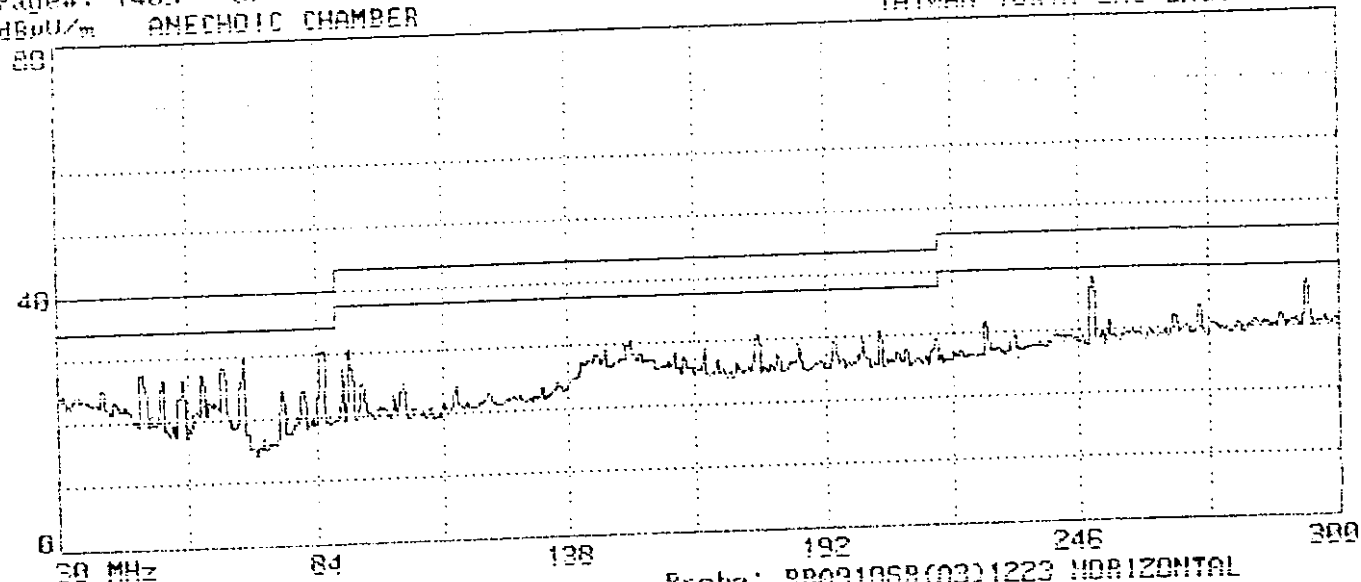
300 MHz 440 580 720 860 1000
 Limit : FCC CLASS-B 3m Probe: UNALP9167B(03)1223 HORIZONTAL
 EUT : MONITOR M/N:TX-D1F84NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1393, 0, 0, 0, 0
 Memo : 115KHZ(1600*1200 92Hz) CABLE 1.5m D-SUB

Page#: 1394 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 12:02:45
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



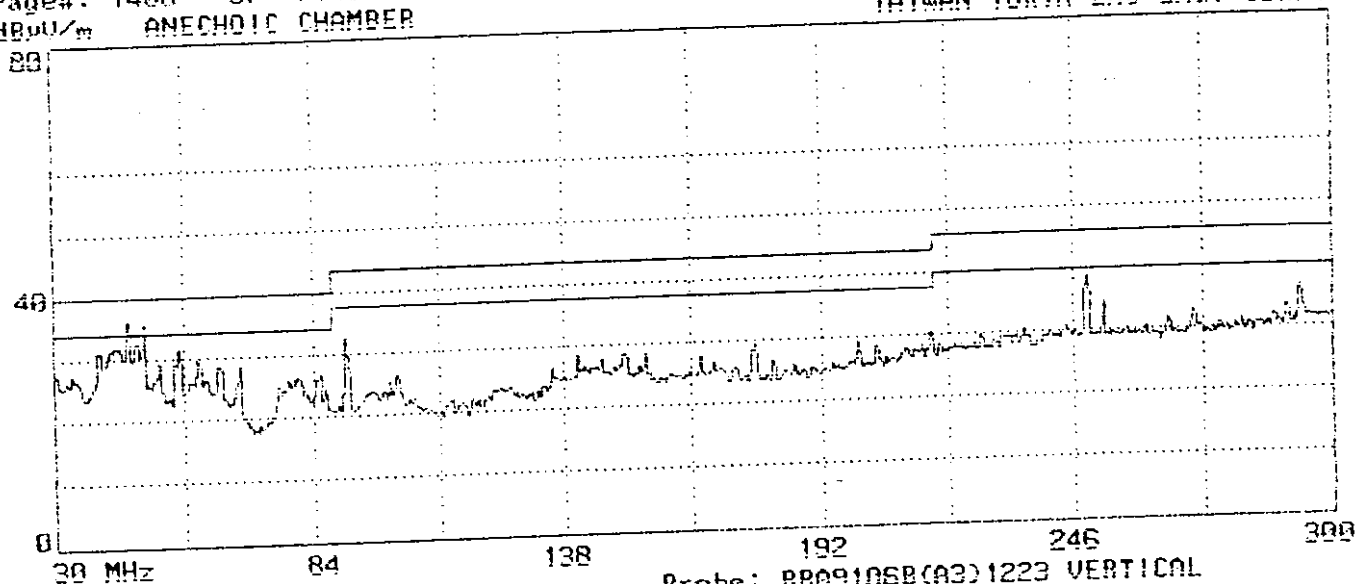
300 MHz 440 580 720 860 1000
 Limit : FCC CLASS-B 3m Probe: UNALP9167B(03)1223 VERTICAL
 EUT : MONITOR M/N:TX-D1F84NM Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 1394, 0, 0, 0, 0
 Memo : 115KHZ(1600*1200 92Hz) CABLE 1.5m D-SUB

Page#: 1405 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 12:55:09
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m
 EUT : MONITOR M/N:TX-D1F84NM
 Margin: 6dB Standard: 0
 Memo : 115KHZ(1600*1200 92Hz) CABLE 1.0m D-SUB
 Probe: BBA9106B(A3)1223 HORIZONTAL
 Power: 120Vac/60Hz
 Trace: 1405, 0, 0, 0, 0

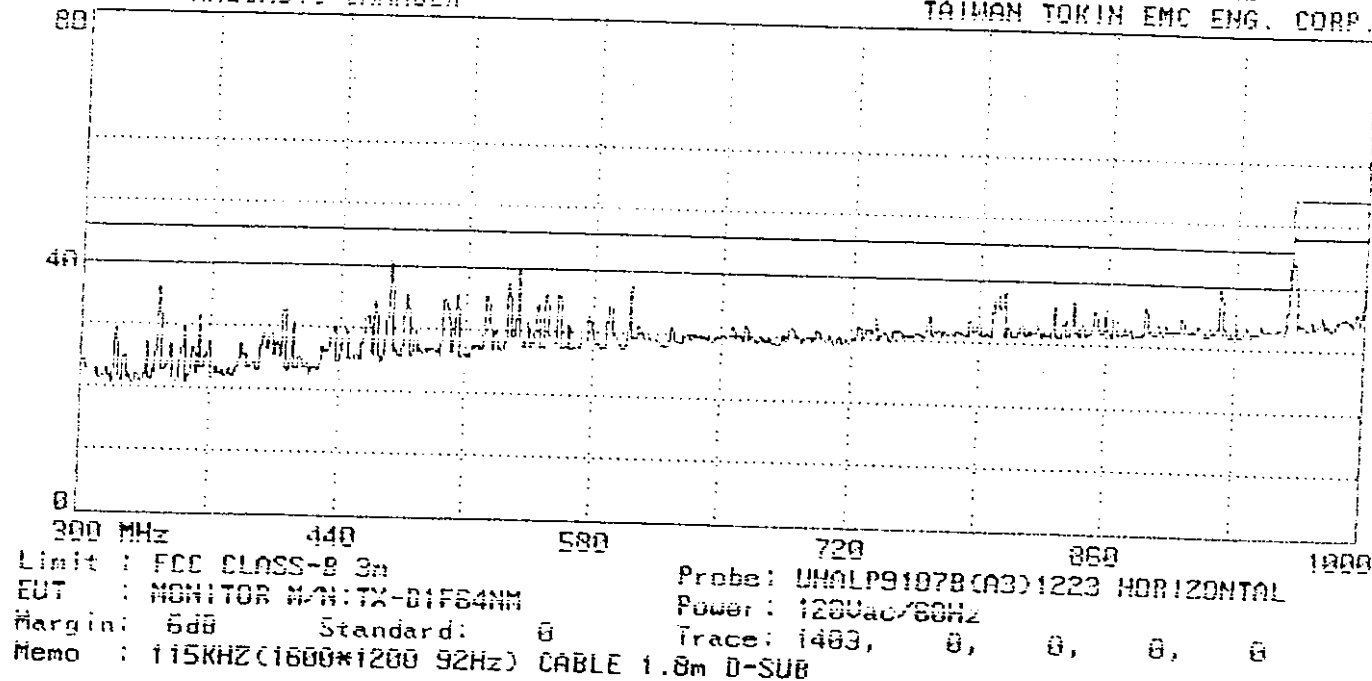
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 EUT : MONITOR M/N:TX-D1F84NM
 Margin: 6dB Standard: 0
 Memo : 115KHZ(1600*1200 92Hz) CABLE 1.0m D-SUB
 Probe: BBA9106B(A3)1223 VERTICAL
 Power: 120Vac/60Hz
 Trace: 1406, 0, 0, 0, 0

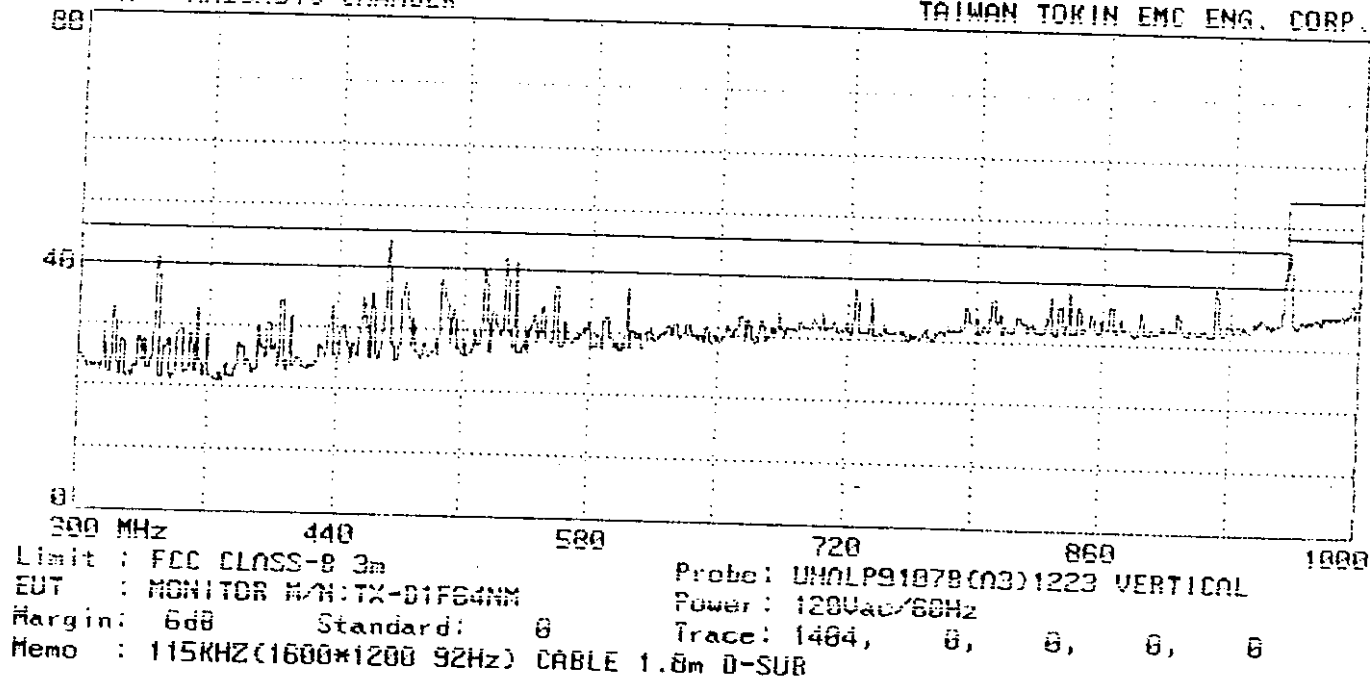
Page#: 1483 SP File#: MATSUSHI.EI
dB μ V/m ANECHOIC CHAMBER

Date: 11-19-1998 Time: 12:49:45
TAIWAN TOKIN EMC ENG. CORP.



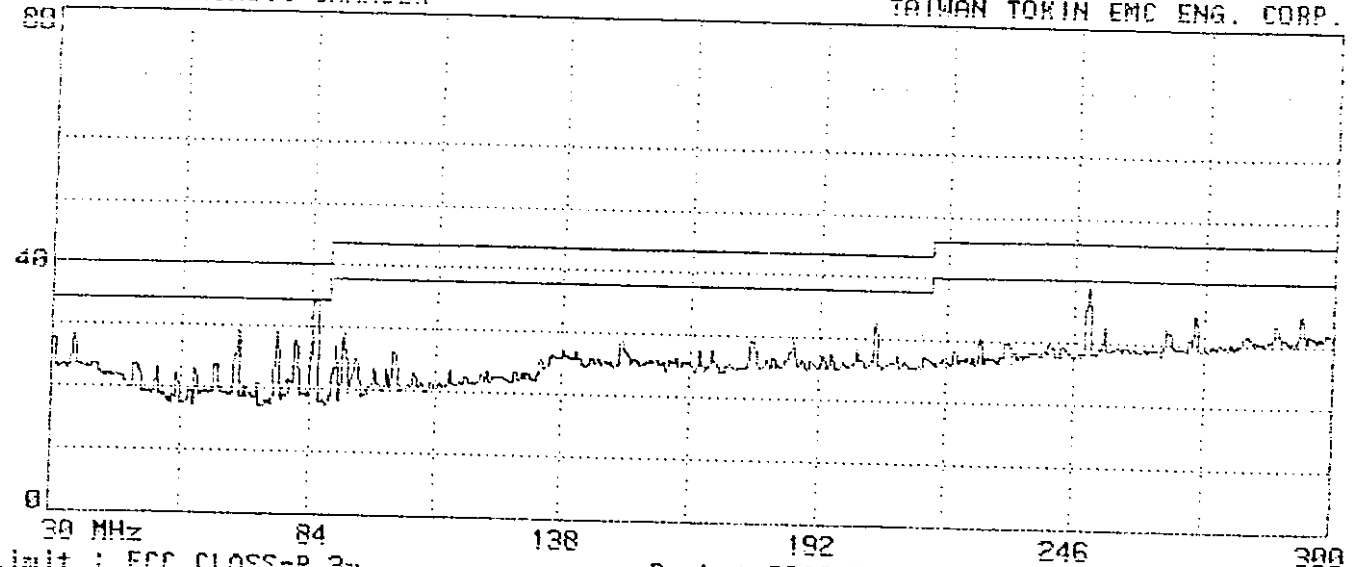
Page#: 1484 SP File#: MATSUSHI.EI
dB μ V/m ANECHOIC CHAMBER

Date: 11-19-1998 Time: 12:51:33
TAIWAN TOKIN EMC ENG. CORP.



Page#: 1409 SP File#: MATSUSHI.E1
dB μ V/m ANECHOIC CHAMBER

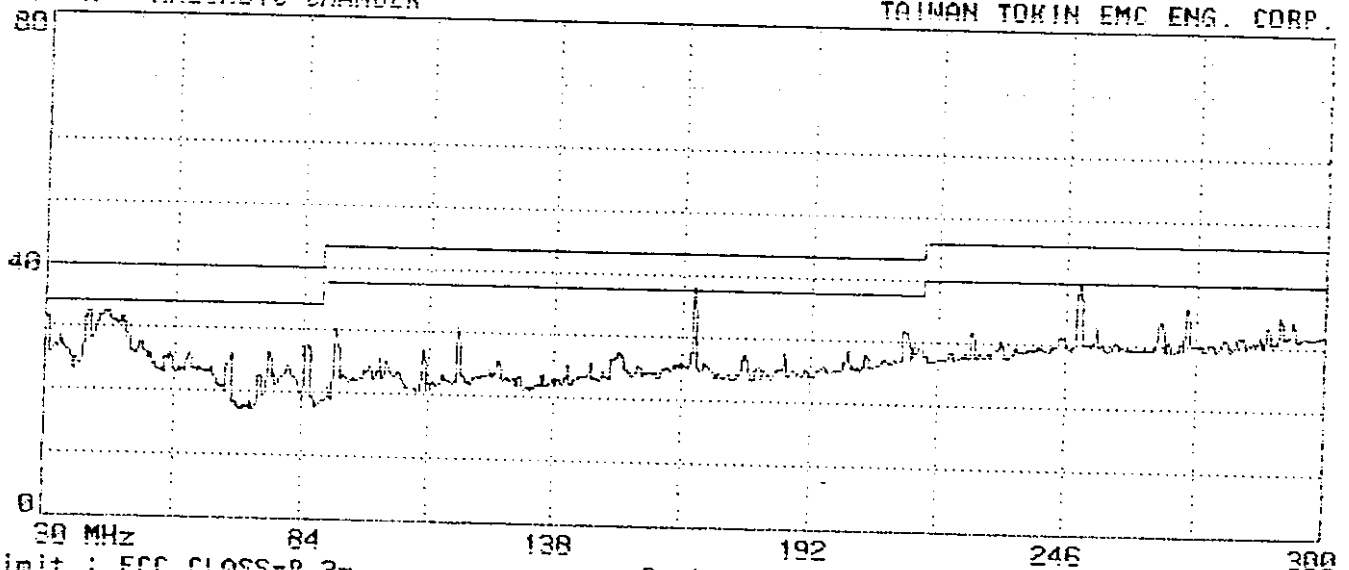
Date: 11-19-1998 Time: 15:11:31
TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m
EUT : MONITOR M/N:TX-D1F64NM
Margin: 6dB Standard: 0
Memo : 115KHZ(1600*1200 92Hz) CABLE 3.0m D-SUB
Probe: BB09105B(A3)1223 HORIZONTAL
Power: 120Vac/60Hz
Trace: 1409, 0, 0, 0, 0

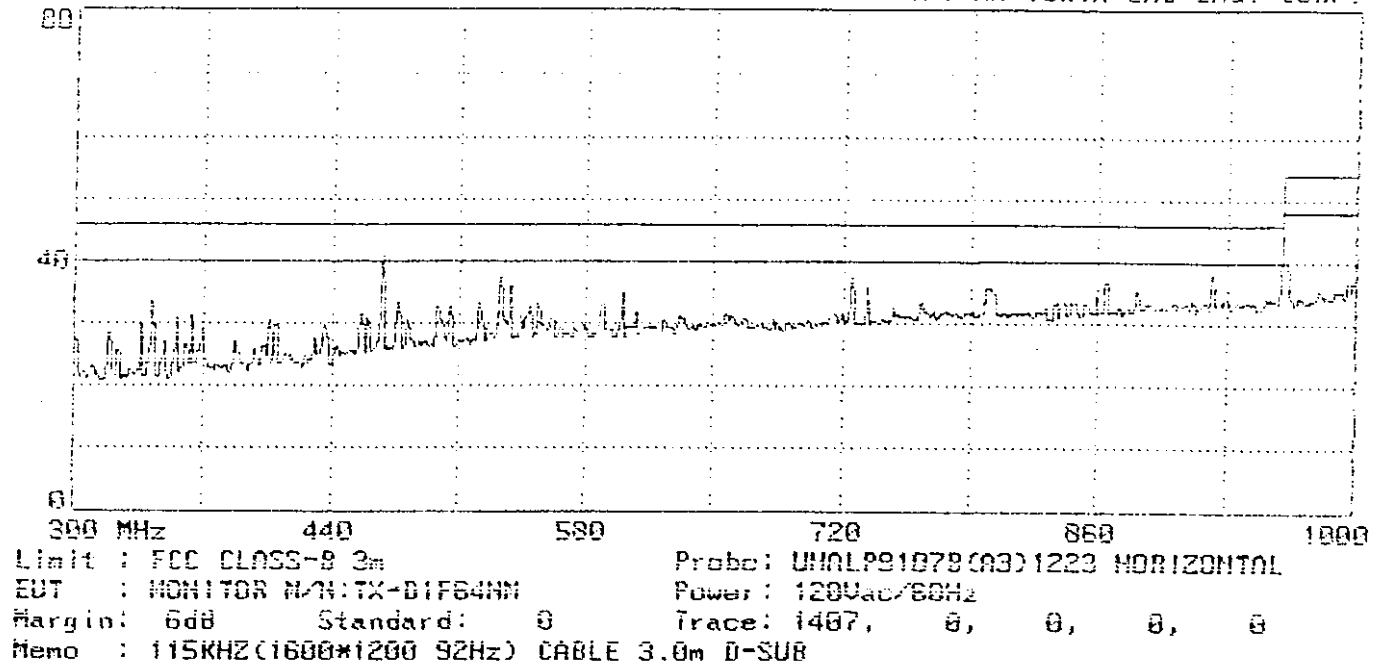
Page#: 1410 SP File#: MATSUSHI.E1
dB μ V/m ANECHOIC CHAMBER

Date: 11-19-1998 Time: 15:13:18
TAIWAN TOKIN EMC ENG. CORP.

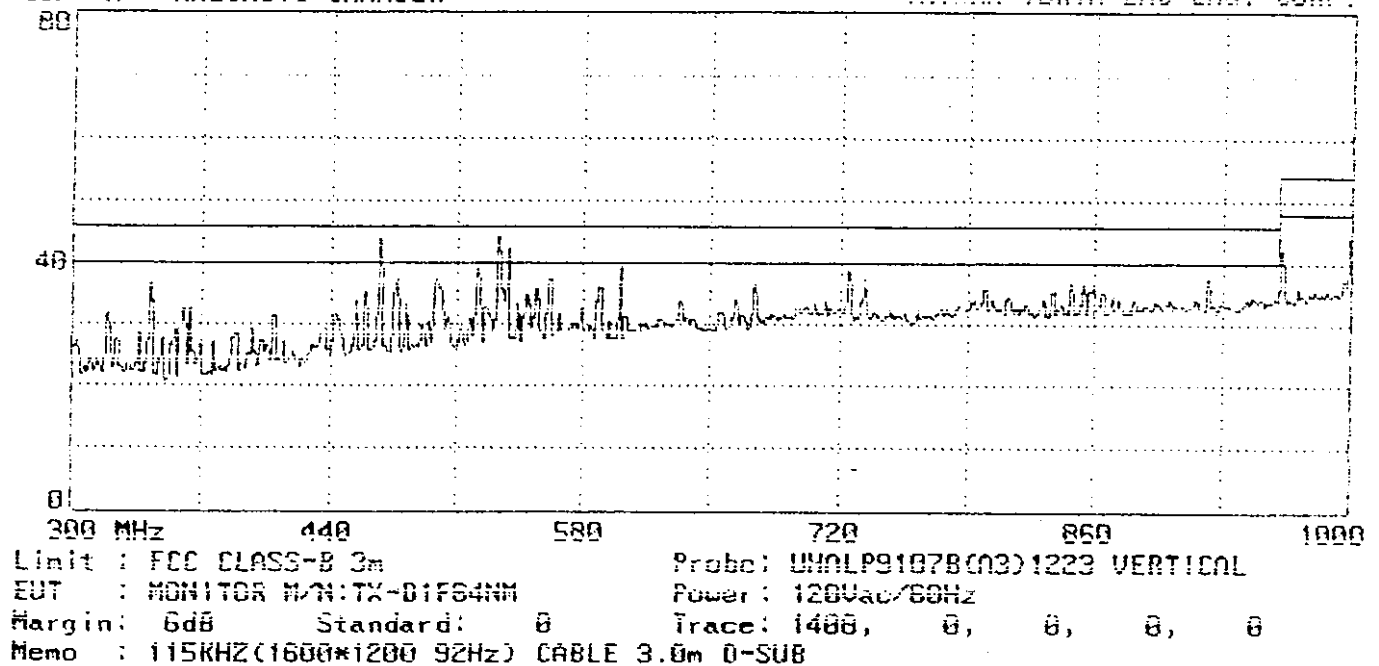


Limit : FCC CLASS-B 3m
EUT : MONITOR M/N:TX-D1F64NM
Margin: 6dB Standard: 0
Memo : 115KHZ(1600*1200 92Hz) CABLE 3.0m D-SUB
Probe: BB09105B(A3)1223 VERTICAL
Power: 120Vac/60Hz
Trace: 1410, 0, 0, 0, 0

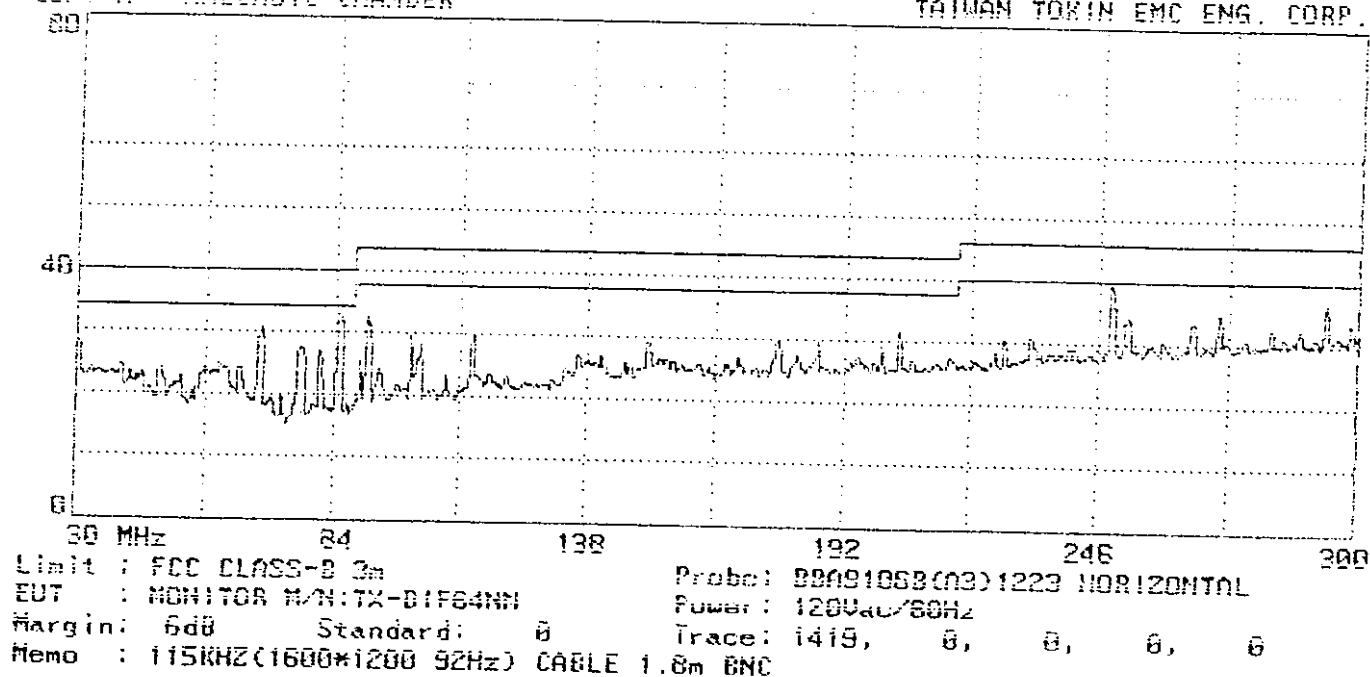
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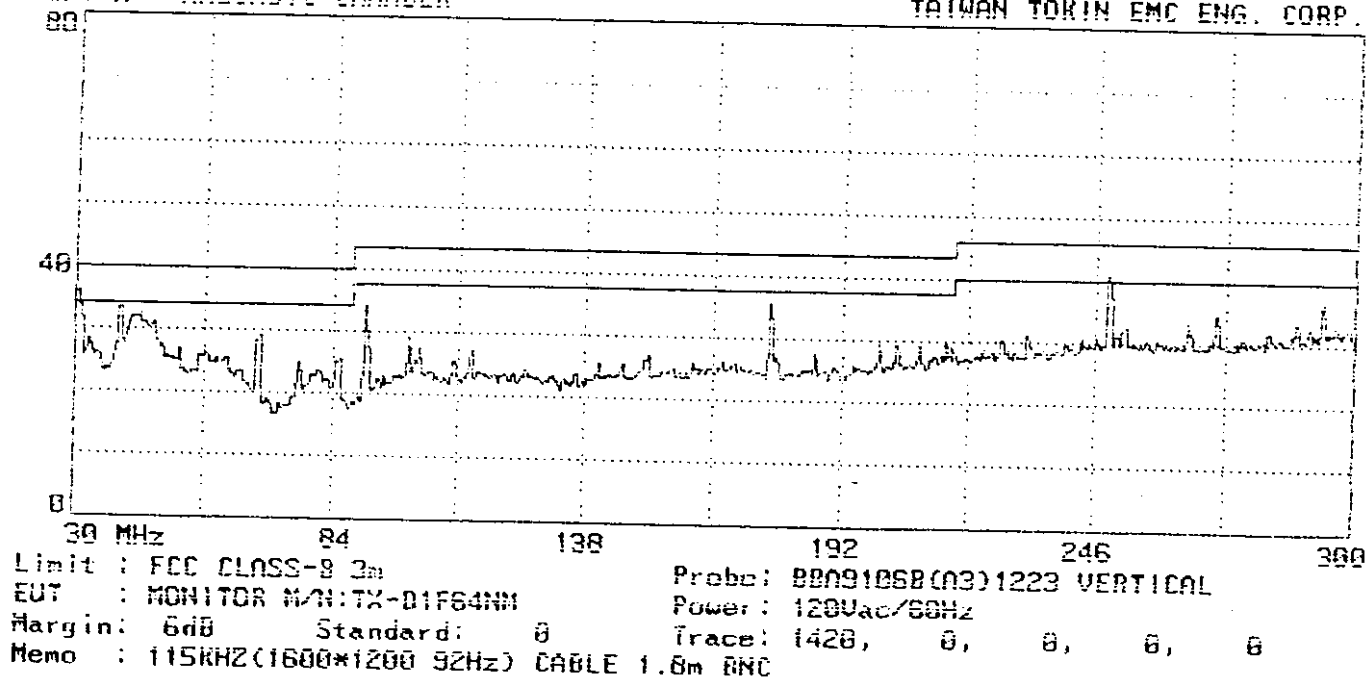
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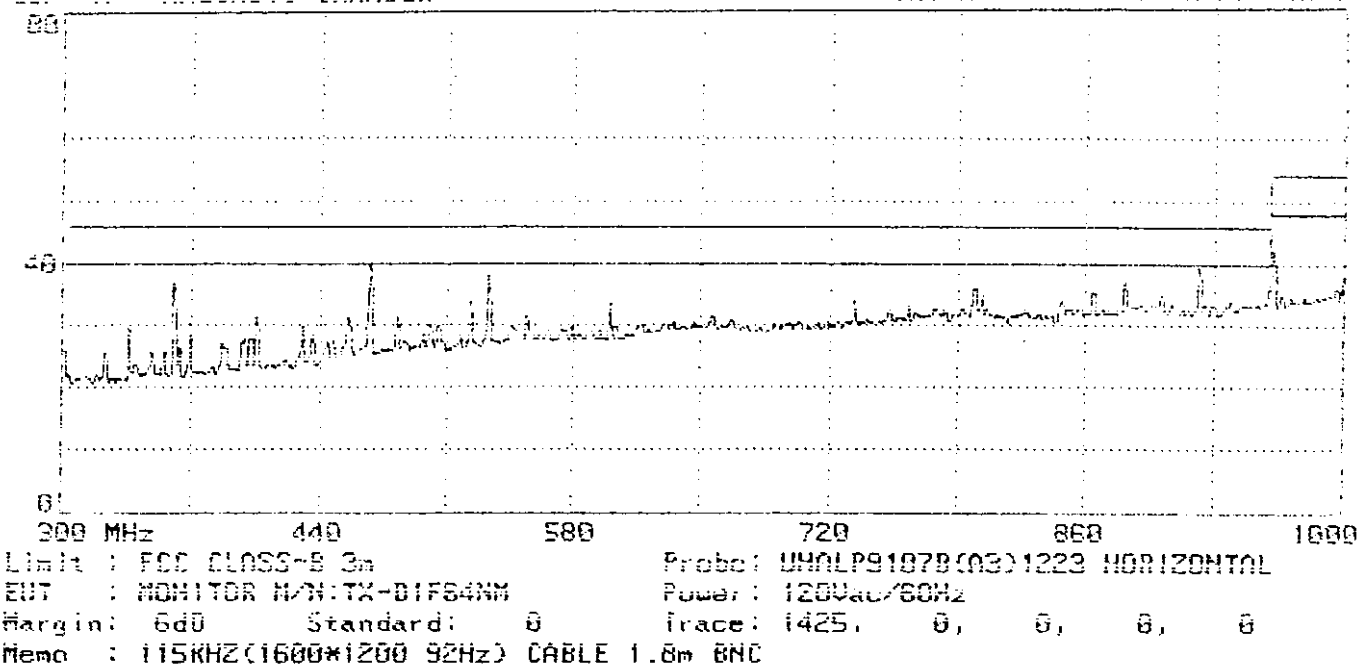
Page#: 1419 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 15:53:45
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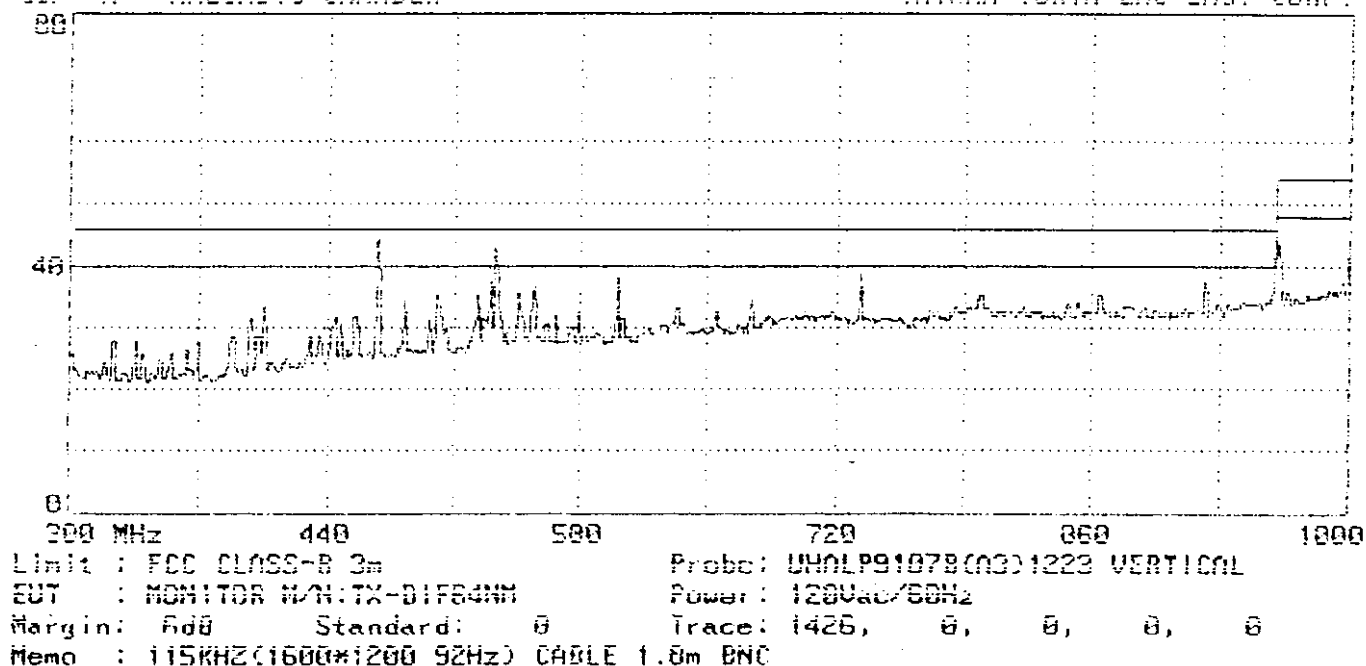
Page#: 1420 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 15:55:32
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 1425 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 15:25:25
dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 1426 SP File#: MATSUSHI.E1 Date: 11-19-1998 Time: 15:27:12
dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



APPLICATION FOR CERTIFICATION
On Behalf of
Matsushita Electric Industrial Co., Ltd.
21" Color CRT Display Monitor

Model : (1)TX-D1F64NM (2)TX-D1F64
(3)TX-D1F64ML (4)TX-D1F64*****

FCC ID : ACJ93312140

TESTED WITH D-SUB & BNC CABLE @ 1800 X 1440

Prepared for : Matsushita Electric Industrial Co., Ltd.
6-4-1, Tsujidomotomachi, Fujisawa,
Kanagawa 251 Japan

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, 2609-2311
Fax : (02) 2609-9303

File Number : ATM-G98671
Report Number : TTEMC-F98188
Date of Test : Dec. 09 / 11, 1998
Date of Report : Dec. 11, 1998

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TEST REPORT CERTIFICATION

Applicant : Matsushita Electric Industrial Co., Ltd.
 Manufacturer : Matsushita Electric Industrial Co., Ltd.
 FCC ID : ACJ93312140
 EUT Description : 21" Color CRT Display Monitor
 (A) MODEL NO. : (1)TX-D1F64NM (2)TX-D1F64
 (3)TX-D1F64ML (4)TX-D1F64*****
 (B) SERIAL NO. : FX8540009
 (C) POWER SUPPLY : AC 120V/60Hz

Measurement Procedure Used:

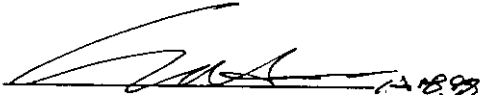
FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 1997
 AND FCC / ANSI C63.4-1992

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.

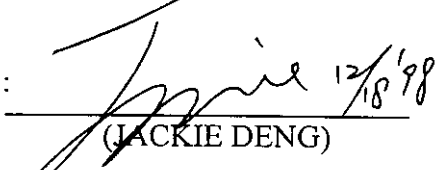
The measurement results were contained in this test report and TAIWAN TOKIN EMC ENG. CORP. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report showed that the EUT to be technically compliance with the FCC official limits.

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.

Date of Test : Dec. 09 / 11, 1998

Prepared by : 
 (SHELENE HOU)

Test Engineer : 
 (ALLEN WANG)

Approve & Authorized Signer : 
 (JACKIE DENG)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description : 21" Color CRT Display Monitor

Model Number : (1)TX-D1F64NM (2)TX-D1F64
(3)TX-D1F64ML (4)TX-D1F64*****

TX-D1F64NM was selected in this test report.

Comparison Information for above models

Model Name		TX-D1F64NM	TX-D1F64	TX-D1F64ML	TX-D1F64*****
1	Brand Name	No-Brand	Panasonic	Panasonic	Future OEM Brand
2	Cabinet Cosmetic		Minor change	Minor change	Minor change
3	BNC Type Connector (Rear Panel)	Yes	Yes	None	Yes

*****: is one thru five suffix in any combination of the alphanumeric character, symbols or blank.

Serial Number : FX8540009

Applicant : Matsushita Electric Industrial Co., Ltd.
6-4-1, Tsujidomotomachi, Fujisai,
Kanagai, 251, Japan

Manufacturer : Matsushita Electric Industrial Co., Ltd.
6-4-1, Tsujidomotomachi, Fujisawa,
Kanagawa 251 Japan

CRT : Panasonic, M/N M51LRF280X

Data Cable # 1 (D-Sub) : Shielded, Detachable, 1.5m
Bonded two ferrite cores

Data Cable # 2 (D-Sub) : Shielded, Detachable, 1.8m
Bonded two ferrite cores

Data Cable # 3 (D-Sub) : Shielded, Detachable, 3m
Bonded two ferrite cores

Data Cable # 4 (BNC) : Shielded, Detachable, 1.8m

Power Cord	:	Non-Shielded, Detachable, 1.8m
Date of Receipt of Sample	:	Nov. 11, 1998
Date of Test	:	Dec. 09 / 11 , 1998

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Model Number	:	D4594B
Serial Number	:	SG74350121
FCC ID	:	By DoC
Manufacturer	:	Hewlett Packard
VGA Card	:	Matrox Graphics, M/N 79075010153 (MGA-MIL/2/DIP) S/N CAJ92909 FCC ID ID7057600
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number	:	RT6656TWJP
Serial Number	:	31470782
FCC ID	:	AQ6-MTN4C15
Manufacturer	:	Hewlett Packard
Data Cable	:	Shielded, Undetachable, 1.9m

1.2.3. PRINTER

Model Number	:	2225C
Serial Number	:	2526S40437
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	:	980034398
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	:	980034397
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. PS2 MOUSE

Model Number	:	M-S34
Serial Number	:	LZ64952349
FCC ID	:	DZL211029
Manufacturer	:	Hewlett Packard
Data Cable	:	Shielded, Undetachable, 2.0m

1.2.7. USB MOUSE # 1

Model Number	:	M-UB48
Serial Number	:	LZB81900216
FCC ID	:	DZL211137
Manufacturer	:	Logitech
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.8. USB MOUSE # 2

Model Number	:	M-UB48
Serial Number	:	LZB81900209
FCC ID	:	DZL211137
Manufacturer	:	Logitech
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.9. JOYSTICK

Model Number	:	1FD05015
Serial Number	:	N/A
Manufacturer	:	Rambo
Data Cable	:	Non-Shielded, Undetachable, 1.6m

1.2.10. SPEAKER

Model Number	:	J-008
Serial Number	:	97-C-009780-T
Manufacturer	:	(J-S) JAZZ HIPSTER
Data Cable	:	Non-Shielded, Undetachable, 1m

1.2.11. WALKMAN

Model Number	:	RQ-P35LT-K
Serial Number	:	HA08489
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.12. EARPHONE # 1

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	Cathay Pacific
Data Cable	:	Non-Shielded, Undetachable, 1.3m

1.2.13. EARPHONE # 2

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	Aiwa
Data Cable	:	Non-Shielded, Detachable, 1m

1.2.14. EARPHONE w/MIC.

Model Number	:	MI-2
Serial Number	:	N/A
Manufacturer	:	N/A
Data Cable	:	Non-Shielded, Undetachable, 1.7m

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.
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

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. 21" Color CRT Display Monitor (EUT)

Model Number	:	(1)TX-D1F64NM (2)TX-D1F64 (3)TX-D1F64ML (4)TX-D1F64*****
Serial Number	:	FX8540009
Manufacturer	:	Matsushita Electric Industrial Co., Ltd.
CRT	:	Panasonic, M/N M51LRF280X
Data Cable # 1 (D-Sub)	:	Shielded, Detachable, 1.5m Bonded two ferrite cores
Data Cable # 2 (D-Sub)	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Data Cable # 3 (D-Sub)	:	Shielded, Detachable, 3m Bonded two ferrite cores
Data Cable # 4 (BNC)	:	Shielded, Detachable, 1.8m
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.

2.5.5. 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 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 during conducted measurement.

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

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

The one horizontal working frequency with four kinds of data cables were investigated during pre-scanning and reported the worst test modes (with 1.8m D-Sub Data Cable) in section 2.7., the others test data were attached within Appendix I. The detail of test modes are as follows :

One display frequency :

	1800 x 1440
	(Hf: 105kHz)
(a) Dot Clock Frequency	250 MHz
(b) Vertical Frequency	70 Hz
(c) Horizontal Frequency	105 kHz

Four kinds of data cable :

- (1) 1.5m D-Sub data cable with two ferrite cores
- (2) 1.8m D-Sub data cable with two ferrite cores
- (3) 3.0m D-Sub data cable with two ferrite cores
- (4) 1.8m BNC data cable

2.7. Line Conducted RF Voltage Measurement Results

The frequency range 450KHz to 30 MHz was investigated.

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

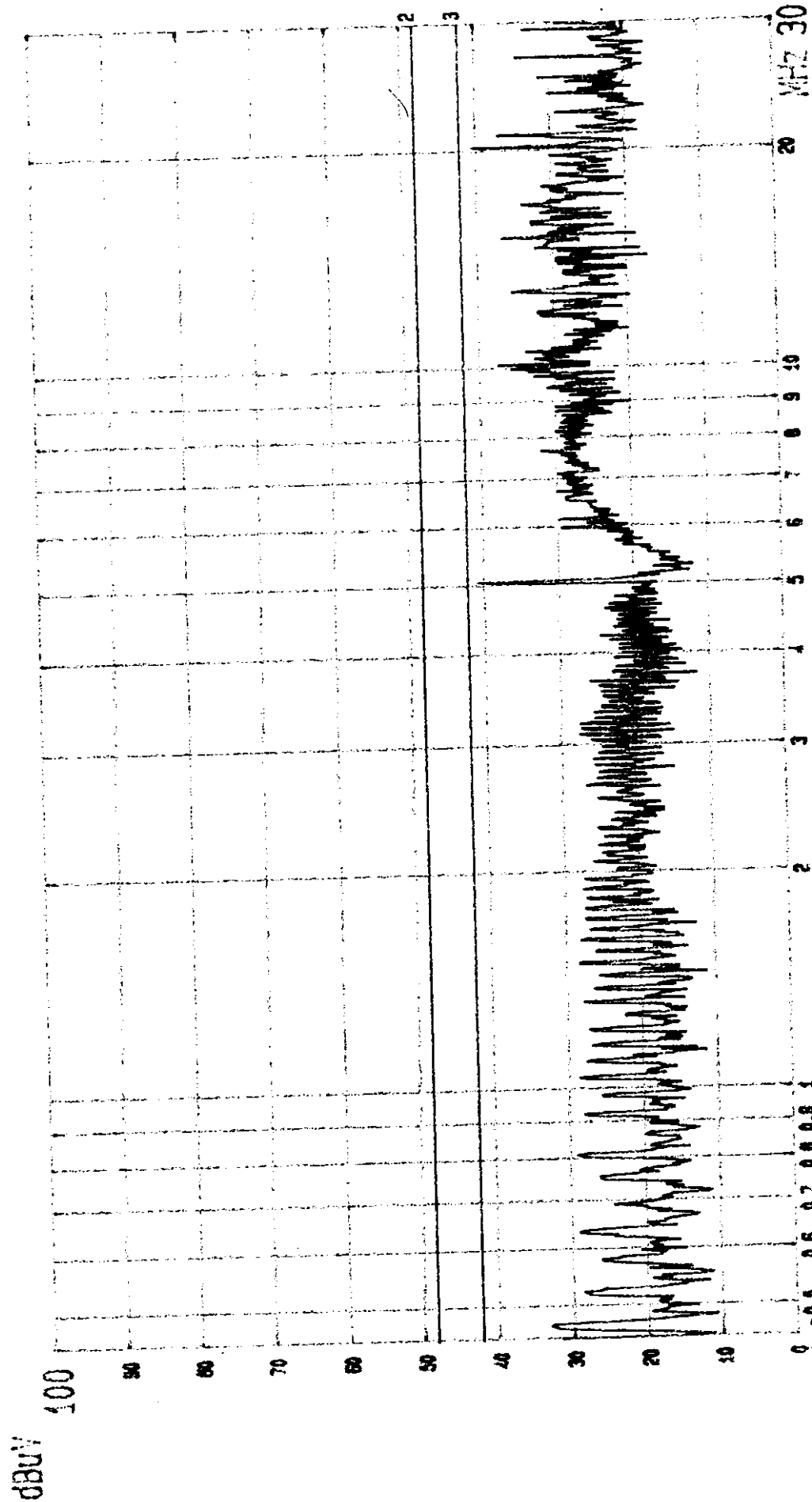
Date of Test : Dec. 09, 1998 Temperature : 24°C

EUT : 21" Color CRT Display Monitor Humidity : 45%

Test Mode : 105kHz/1800*1440 with 1.8m D-Sub Data Cable

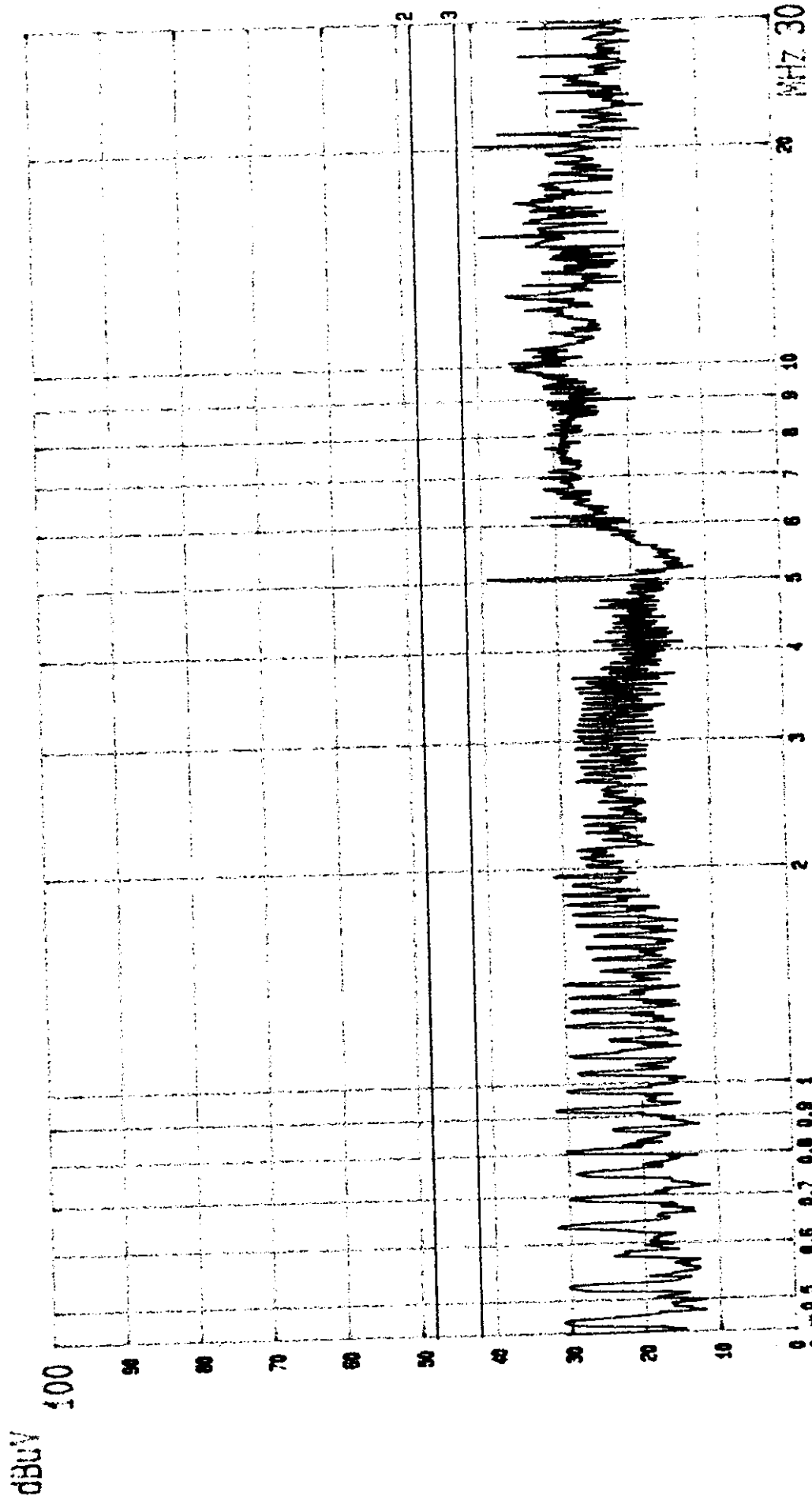
Frequency (MHz)	Factor dB	Measurement (dBuV)		Reading (dBuV)		Limits (dBuV)	Margin (dBuV)	
		VA	VB	VA	VB		VA	VB
0.4671	0.5	33.1	*	33.6	*	48.0	14.4	*
0.6326	0.5	*	30.5	*	31.0	48.0	*	17.0
1.0374	0.5	27.7	*	28.2	*	48.0	19.8	*
1.9478	0.5	*	29.4	*	29.9	48.0	*	18.1
3.0916	0.5	26.3	25.7	26.8	26.2	48.0	21.2	21.8
5.0462	0.8	30.9	30.7	31.7	31.5	48.0	16.3	16.5
9.9272	0.8	*	33.3	*	34.1	48.0	*	13.9
10.2568	1.0	34.2	*	35.2	*	48.0	12.8	*
20.2717	1.1	*	25.5	*	26.6	48.0	*	21.4
20.9448	1.1	28.7	*	29.8	*	48.0	18.2	*

- Remark :
1. All reading were Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. The worst emission was detected at 10.2568MHz with corrected signal level of 35.2dBuV (limit was 48dBuV) when the VA side of the EUT was connected to L.I.S.N.



PAGE: 001.
(PEAK VALUE) TTEVC.

Date: 09.DEC.'98 Time: 02:45:12
EUT: MONITOR
MEN0: (1800X1440: 105KHz) 1.8M D-SUB
W/N: TX-D1F64NM
MATSUSHITA
LINE: VA.



--- Date 09.DEC.'98 Time 02:47:02
 MATSUSHITA EUT: MONITOR M/N: TX-D1F64NM
 LINE: V8. MENO: (1800X1440; 105KHz) 1.8M D-SUB (PEAK VALUE) ITEM: C.
 PAGE: 002.

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 :

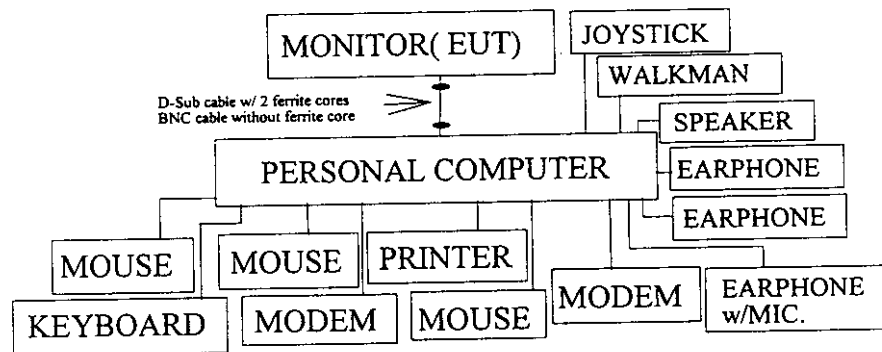
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593A	3212A01727	Jul.25, 98'	1 Year
2.	Pre-Amplifier	HP	8447D	2944A06305	May.13, 98'	1 Year
3.	Broadband Antenna	Schwarzbeck	BBA 9106	A3L	Dec.24, 97'	1 Year
4.	Broadband Antenna	Schwarzbeck	UHALP 9107	A3H	Dec.24, 97'	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	1240	Jul.15, 98'	1 Year
3.	Broadband Antenna	Chase	UPA6109	1048	Jul.15, 98'	1 Year

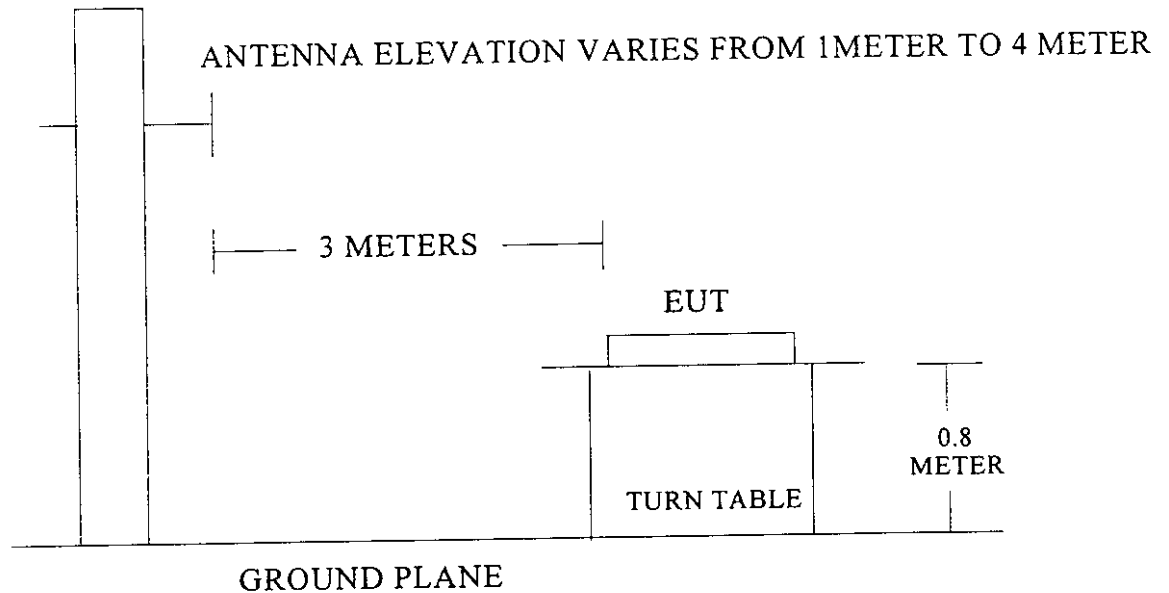
3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Field Test Site Setup Diagram

ANTENNA TOWER



3.3. Radiation Limit (CLASS B)

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS	
		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 one horizontal working frequency with four kinds of data cable were investigated separately within Anechoic Chamber and all the scanning waveform were attached in Appendix II.

Finally, re-measured the worst operating situation (with 1.8m D-Sub data cable) at No. 2 Open Field Test site and all the test results are listed in section 3.7.

One display frequency :

	1800 x 1440
	(Hf: 105kHz)
(a) Dot Clock Frequency	250 MHz
(b) Vertical Frequency	70 Hz
(c) Horizontal Frequency	105 kHz

Four kinds of data cable :

- (1) 1.5m D-Sub data cable with two ferrite cores
- (2) 1.8m D-Sub data cable with two ferrite cores
- (3) 3.0m D-Sub data cable with two ferrite cores
- (4) 1.8m BNC data cable

3.7. Radiated Emission Measurement Results

The frequency spectrum from 30 MHz to 1000MHz was investigated. All the emissions not reported below were too low against the FCC CLASS B limit.

Date of Test : Dec. 11, 1998 Temperature : 21°C
 EUT : 21" Color CRT Display Monitor Humidity : 93%
 Test Mode : 105kHz/1800*1440 with 1.8m D-Sub Data Cable

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	Limits dBuV/m	Margin dBuV/m
53.489	14.41	2.44	5.10	21.95	40.00	18.05
76.390	13.01	2.96	4.50	20.47	40.00	19.53
114.554	18.66	3.74	1.80	24.20	43.50	19.30
122.191	19.44	3.86	-1.90	21.40	43.50	22.10
152.726	20.93	4.35	-1.50	23.78	43.50	19.72
175.625	21.13	4.71	-2.90	22.94	43.50	20.56
190.899	21.26	4.91	-1.90	24.27	43.50	19.23
198.537	21.60	5.02	-2.90	23.72	43.50	19.78
229.089	22.38	5.44	1.70	29.52	46.00	16.48
252.000	23.07	5.74	-6.00	22.81	46.00	23.19
267.306	23.40	5.91	-0.60	28.71	46.00	17.29
305.510	13.58	6.42	12.90	32.90	46.00	13.10
343.690	15.35	6.90	14.60	36.85	46.00	9.15
381.888	16.32	7.31	1.50	25.13	46.00	20.87
420.040	16.37	7.80	4.70	28.87	46.00	17.13
458.256	17.06	8.16	5.00	30.22	46.00	15.78
* 496.464	17.46	8.51	12.50	38.47	46.00	7.53
534.628	19.09	8.96	3.50	31.55	46.00	14.45

- Remark :
1. All reading were Quasi-Peak values.
 2. The worst emission was detected at 496.464MHz with corrected signal level of 38.47dBuV/m (limit was 46dBuV/m) when the antenna was at horizontal polarization and was at 1m high and the turn table was at 185° .
 3. 0° is the table front facing the antenna. Degree was calculated from 0° clockwise facing the antenna.

Date of Test : Dec. 11, 1998 Temperature : 21°C

EUT : 21" Color CRT Display Monitor Humidity : 93%

Test Mode : 105kHz/1800*1440 with 1.8m D-Sub Data Cable

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	Limits dBuV/m	Margin dBuV/m
53.500	14.71	2.44	8.10	25.25	40.00	14.75
76.416	14.15	2.96	9.50	26.61	40.00	13.39
114.557	17.59	3.74	5.00	26.33	43.50	17.17
122.240	18.47	3.86	-0.80	21.53	43.50	21.97
145.141	19.29	4.25	-0.30	23.24	43.50	20.26
175.684	19.28	4.71	-1.40	22.59	43.50	20.91
191.002	20.36	4.91	1.00	26.27	43.50	17.23
213.900	23.84	5.24	-7.60	21.48	43.50	22.02
252.029	22.30	5.74	-6.00	22.04	46.00	23.96
267.310	21.85	5.91	0.70	28.46	46.00	17.54
305.490	13.85	6.42	12.30	32.57	46.00	13.43
* 343.672	15.45	6.90	18.30	40.65	46.00	5.35
381.838	14.84	7.31	0.80	22.95	46.00	23.05
420.051	16.20	7.80	-2.10	21.90	46.00	24.10
458.224	17.48	8.16	3.50	29.14	46.00	16.86
496.464	18.52	8.51	11.40	38.43	46.00	7.57
534.624	18.95	8.96	-2.60	25.31	46.00	20.69

- Remark :
1. All reading were Quasi-Peak values.
 2. The worst emission was detected at 343.672MHz with corrected signal level of 40.65dBuV/m (limit was 46dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 145° .
 3. 0° is the table front facing the antenna. Degree was calculated from 0° clockwise facing the antenna.