

FACTORY CONTROL NO. : FVD-98-F019 FCC ID. : GSS21012

APPLICATION FOR CERTIFICATION

On Behalf of
ViewSonic Corporation
21" Color CRT Display Monitor

Model : P815-3

FCC ID : GSS21012

Prepared for : ViewSonic Corporation
381 Brea Canyon Rd., Walnut,
CA 91789, U.S.A.

Prepared By : Taiwan Tokin EMC Eng. Corp.
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File Number : ATM-G98293(G97336)
Report Number : TTEMC-F98127V
Date of Test : Sep. 9, 1997
Date of Report : Sep. 9, 1997

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TEST REPORT CERTIFICATION

Applicant : ViewSonic Corporation
Manufacturer : ViewSonic Corporation
FCC ID : GSS21012
EUT Description : 21" Color CRT Display Monitor
(A) MODEL NO. : P815-3*
(B) SERIAL NO. : FX7240009
(C) POWER SUPPLY : AC 120V/60Hz

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 1996
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.

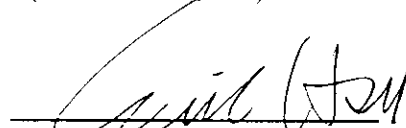
The measurement results were contained in this test report and TAIWAN TOKIN EMC ENG. CORP. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report showed that the EUT to be technically compliant with the FCC official limits. TAIWAN TOKIN EMC ENG. CORP. recommend that this data was submitted for FCC certification purposes if a 3dB margin below FCC limits was obtained. 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 : Sep. 09, 1997

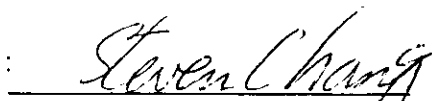
Prepared by :


(SHELENE HOU)

Test Engineer :


(ERIC HSU)

Approve & Authorized Signer :


(STEVEN CHANG)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	21" Color CRT Display Monitor
Model Number	:	P815-3*
		“*” is alphabet suffix A thru Z or 1 thru 9
Serial Number	:	FX7240009
Applicant	:	ViewSonic Corporation
		381 Brea Canyon Rd., Walnut, CA 91789, U.S.A.
Manufacturer	:	ViewSonic Corporation
		381 Brea Canyon Rd., Walnut, CA 91789, U.S.A.
CRT	:	Panasonic, M/N M51KYY540X
Data Cable # 1 (D-Sub)	:	Shielded, Detachable, 1.5m Bonded two ferrite cores
Data Cable # 2 (D-Sub)	:	Shielded, Detachable, 3.0m Bonded two ferrite cores
Data Cable # 3 (BNC)	:	Shielded, Detachable, 1.5m
Power Cord	:	Nonshielded, Detachable, 1.8m
Date of Test	:	Sep. 09, 1997

1.2. Tested System Details

1.2.1. PERSONAL COMPUTER

Model Number	:	D3001A
Serial Number	:	3442S00199
FCC ID	:	B94VECTRAXPXX
Manufacturer	:	Hewlett Packard
VGA Card	:	Matrox Graphics. M/N 79075010153 (MGA-MIL/2/DIP) S/N CAJ92909 FCC ID ID7057600
UTP Cable	:	Nonshielded, Detachable, 2m
Power Cord	:	Nonshielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number	:	RS3000
Serial Number	:	C015303F09
FCC ID	:	GDDG83-3000
Manufacturer	:	NCR
Data Cable	:	Shielded, Undetachable, 1.4m

1.2.3. PRINTER

Model Number	:	2225C+
Serial Number	:	2806S05196
FCC ID	:	DSI6XU2225
Manufacturer	:	Hewlett Packard
Power Adapter	:	Regulated, Model AD-09 Nonshielded, Undetachable, 2.0m
Data Cable	:	Shielded, Detachable, 1.2m

1.2.4. MODEM

Model Number	:	1414
Serial Number	:	950110300
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Nonshielded, Undetachable, 1.8m

1.2.5. MOUSE

Model Number	:	C3751B
Serial Number	:	LZA70433997
FCC ID	:	DZL211029
Manufacturer	:	HP
Data Cable	:	Shielded, Undetachable, 1.8m

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

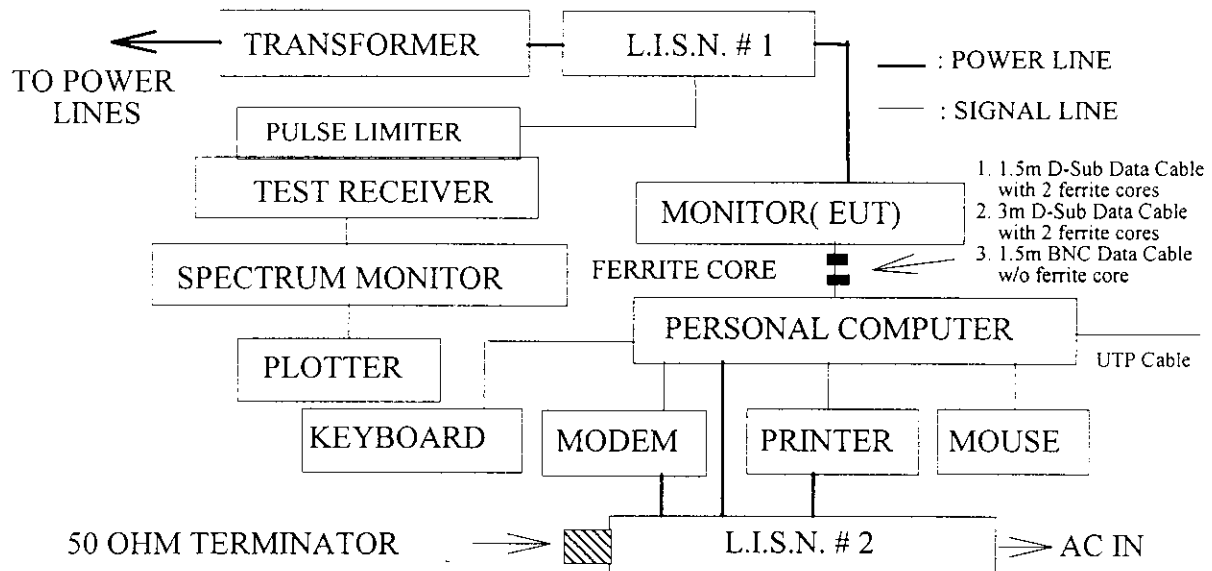
2. POWERLINE CONDUCTED TEST

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	ESHS10	844591/015	Nov.06, 96'	1 Year
2.	L.I.S.N. # 1	Kyoritsu	KNW-407	8-855-9	May.01, 97'	1 Year
3.	L.I.S.N. # 2	Kyoritsu	KNW-407	8-881-13	May.01, 97'	1 Year

2.2. Block Diagram of Test Setup



2.3. Conducted Powerline 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 Configuration on 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	:	P815-3*
Serial Number	:	FX7240009
Manufacturer	:	ViewSonic Corporation
CRT	:	Panasonic, M/N M51KYY540X
Data Cable # 1 (D-Sub)	:	Shielded, Detachable, 1.5m Bonded two ferrite cores
Data Cable # 2 (D-Sub)	:	Shielded, Detachable, 3m Bonded two ferrite cores
Data Cable # 3 (BNC)	:	Shielded, Detachable, 1.5m
Power Cord	:	Nonshielded, Detachable, 1.8m

2.4.2. Support Equipments : As in 1.2 Test System Details

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. Personal Computer sent "H" character to printer, the printer printed "H" pattern on paper.
- 2.5.6. Personal Computer read data from floppy disk and then wrote data into floppy disk.
- 2.5.7. Personal Computer read data from modem.

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 on conducted measurement.

The bandwidth of the field strength meter (R & S Test Receiver ESHS10) was set at 10KHz.

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

Two kinds of horizontal working frequency with three kinds of data cables were investigated during pre-scanning and reported the worst test mode (115KHz with three kinds of 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 :

	640x480 (Hf:31.5KHz)	1600x1200 (Hf:115KHz)
(a) Dot Clock Frequency	27.175 MHz	239.35 MHz
(b) Vertical Frequency	60.0 Hz	92 Hz
(c) Horizontal Frequency	31.5 KHz	115 KHz

Three kinds of data cable :

- (1) 1.5m D-Sub data cable with two ferrite cores
- (2) 3m D-Sub data cable with two ferrite cores
- (3) 1.5m BNC data cable without ferrite core

2.7. Line Conducted RF Voltage Measurement Results

The frequency range 150KHz to 30 MHz was investigated.

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

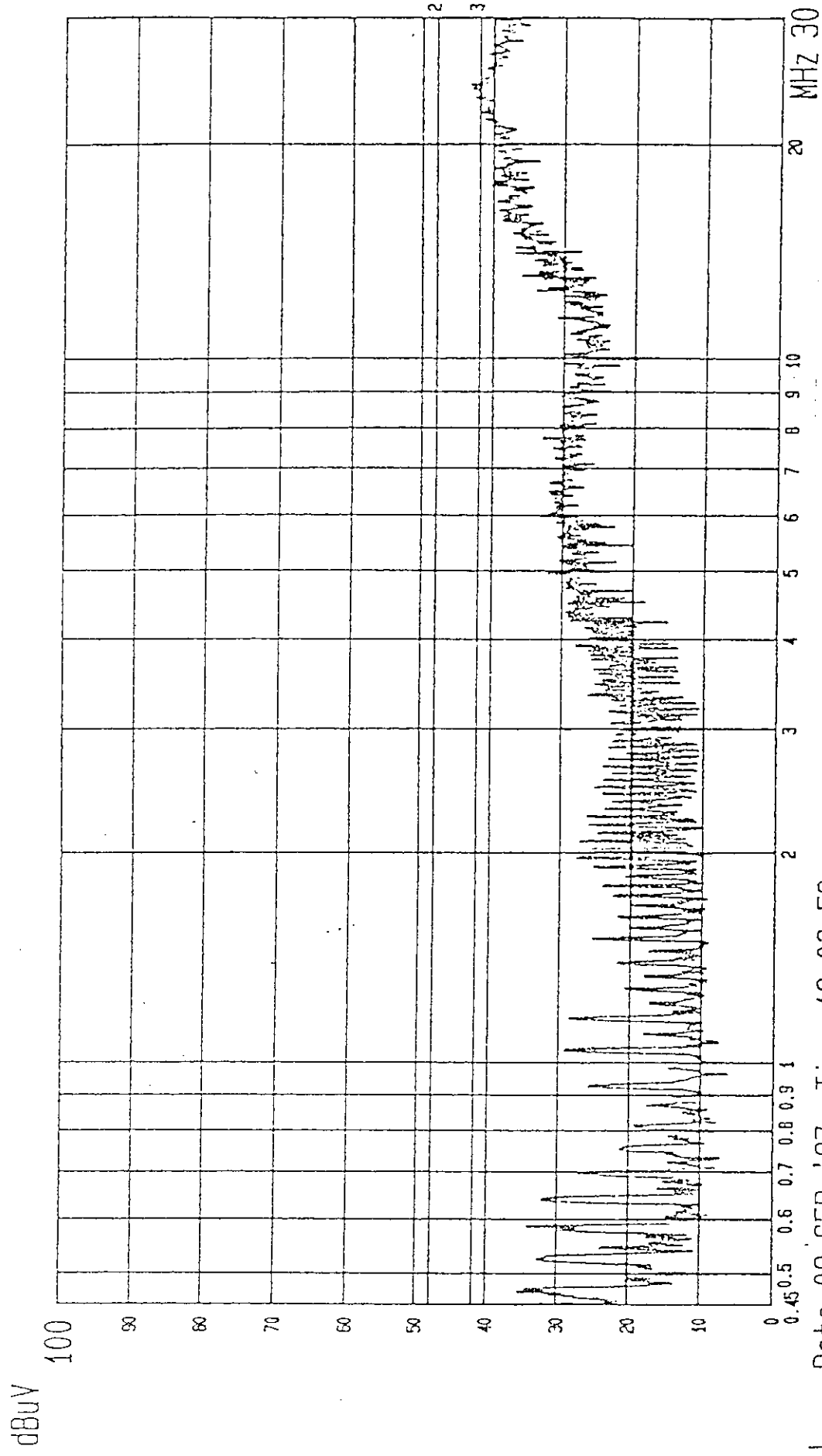
Date of Test : Sep. 09, 1997 Temperature : 24 °C

EUT : 21" Color CRT Display Monitor Humidity : 62 %

Test Mode : 115KHz/1600*1200 With 1.5m D-Sub Data Cable

Frequency (MHz)	Factor dBuV	Measurement (dBuV)				Reading (dBuV)				Limits (dBuV)	
		Phase A Neutral		Phase B Line		Phase A Neutral		Phase B Line			
		Q.P.	Average	Q.P.	Average	Q.P.	Average	Q.P.	Average	Q.P.	Average
0.4603	0.2	33.7	30.2	34.4	30.6	33.9	30.4	34.6	30.8	48.0	*
0.5755	0.2	33.6	29.9	35.7	30.2	33.8	30.1	35.9	30.4	48.0	*
2.0151	0.2	23.0	19.6	32.2	29.6	23.2	19.8	32.4	29.8	48.0	*
6.0800	0.5	*	*	29.6	23.2	*	*	30.1	23.7	48.0	*
6.1615	0.5	28.2	29.6	*	*	28.7	30.1	*	*	48.0	*
16.7048	0.8	35.5	27.1	*	*	36.3	27.9	*	*	48.0	*
23.3230	1.1	*	*	46.0	37.3	*	*	47.1	38.4	48.0	*
23.4369	1.1	40.0	30.0	*	*	41.1	31.1	*	*	48.0	*
24.9340	1.1	*	*	34.2	37.6	*	*	35.3	38.7	48.0	*

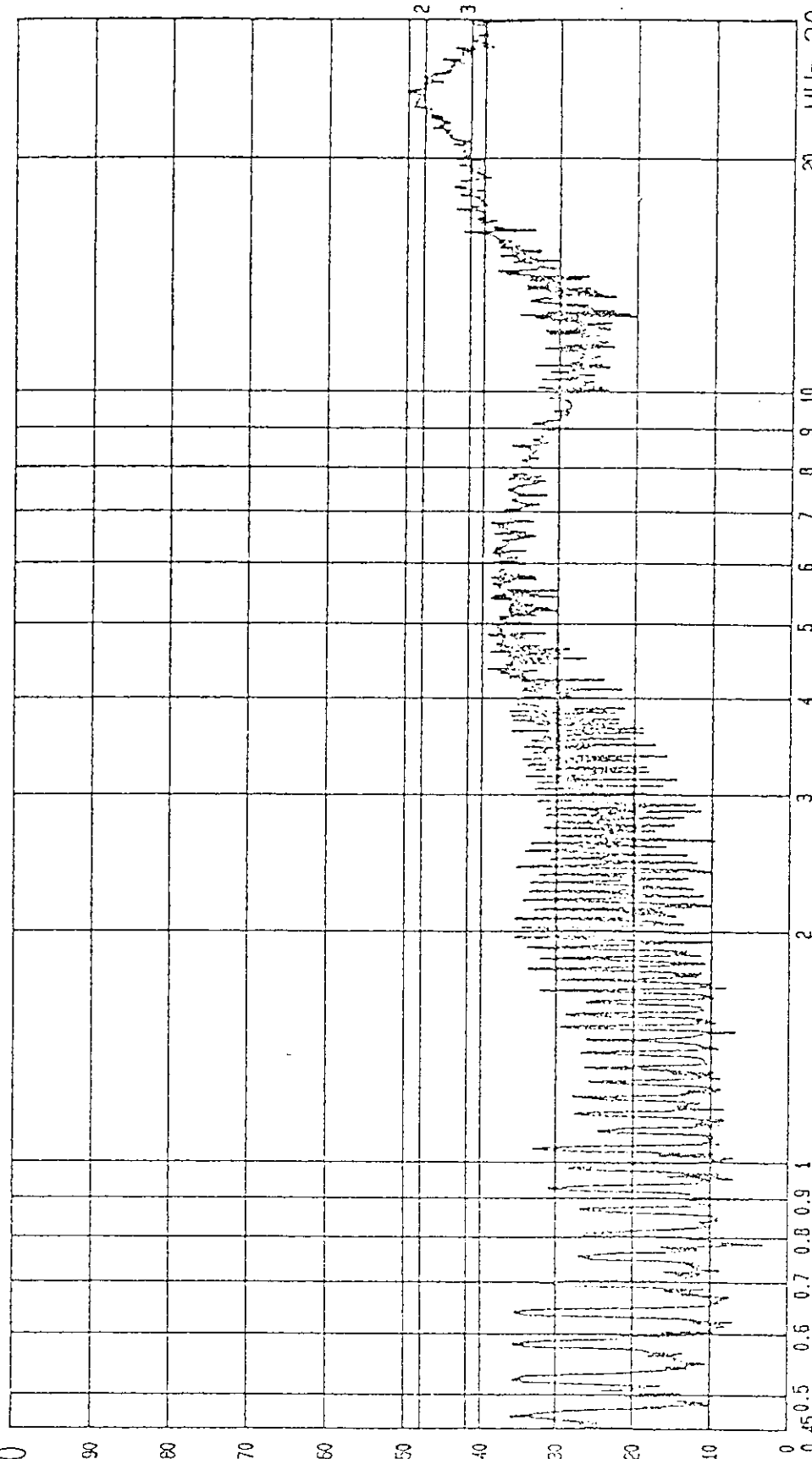
- Remark :
1. All reading were Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. Above Q.P. values of noise at 24.9340MHz have been deducted 13dB from the detected values according to 15.107(d) because the original detected Q.P. values are 6dB higher than their Average values.



----- Date: 09 SEP '97 Time 12:03:59
VIEWSONIC EUT: 21 MONITOR M/N: P815-3*
LINE: VA.MEMO: 115KHz (1600X1200; 92Hz) 1.5M D-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.
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dBuV

100



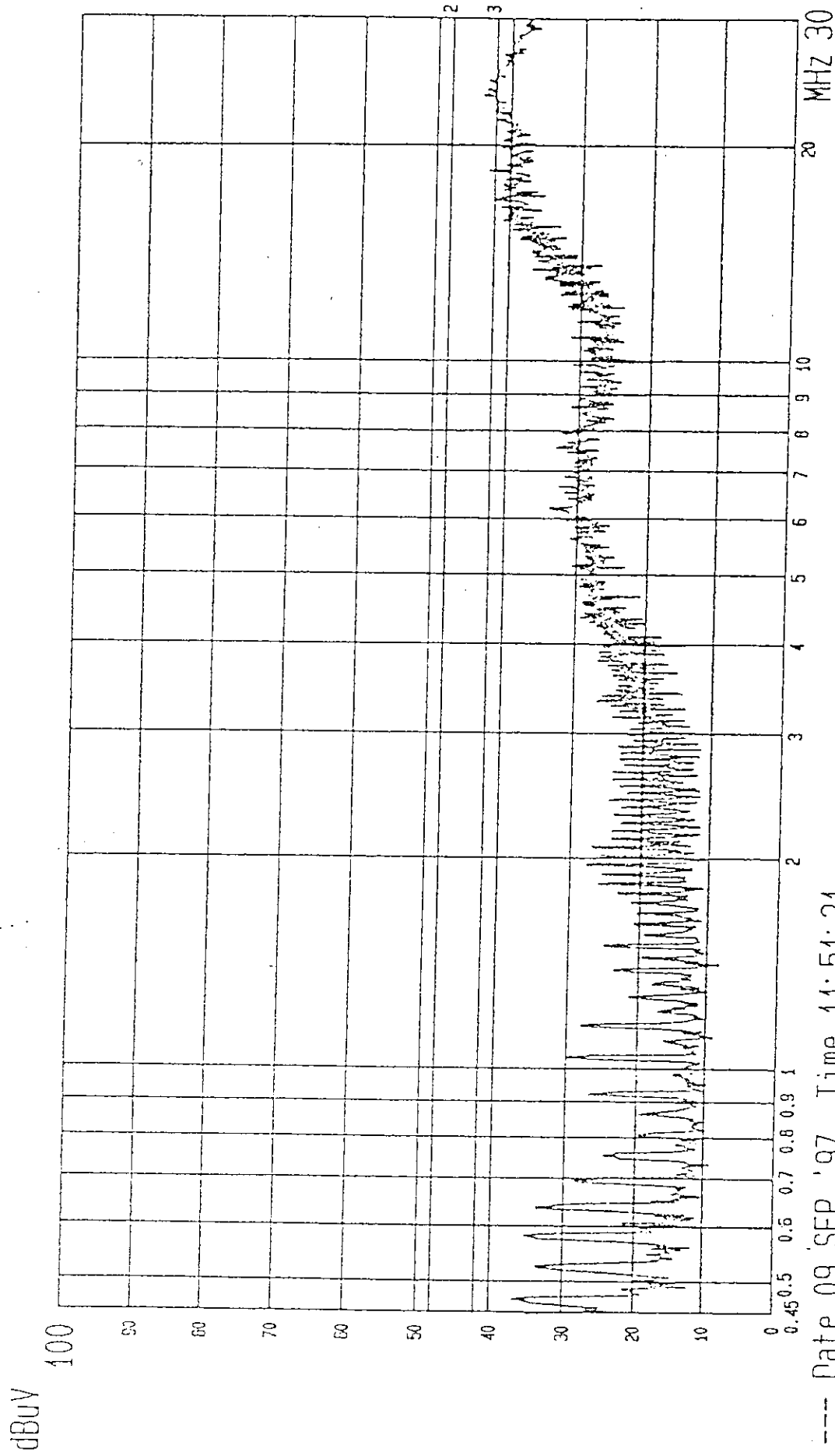
----- Date 09 SEP '97 Time 12:01:43
VIEWSONIC EUT: 21 MONITOR M/N: P815-3*
LINE: VB.MEMO: 115KHz (1600X1200; 92Hz) 1.5M D-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

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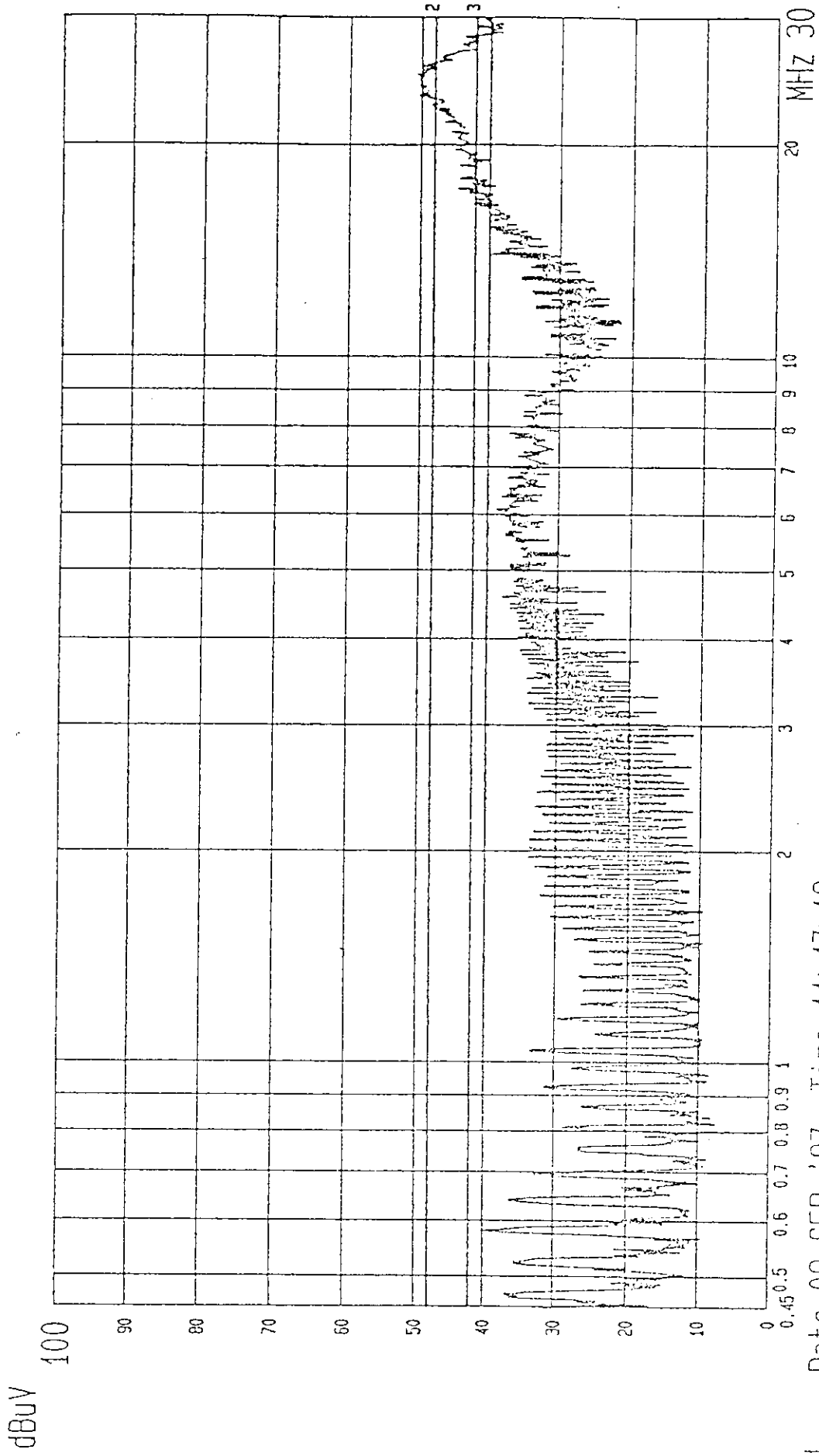
Date of Test : Sep. 09, 1997 Temperature : 24 °CEUT : 21" Color CRT Display Monitor Humidity : 62 %Test Mode : 115KHz/1600*1200 With 3m D-Sub Data Cable

Frequency (MHz)	Factor dBuV	Measurement (dBuV)				Reading (dBuV)				Limits (dBuV)	
		Phase A Neutral		Phase B Line		Phase A Neutral		Phase B Line			
		Q.P.	Average	Q.P.	Average	Q.P.	Average	Q.P.	Average	Q.P.	Average
0.4603	0.2	33.7	30.2	33.5	30.2	33.9	30.4	33.7	30.4	48.0	*
0.5755	0.2	33.5	30.1	*	*	33.7	30.3	*	*	48.0	*
0.6330	0.2	*	*	33.4	30.2	*	*	33.6	30.4	48.0	*
1.9574	0.2	24.6	20.6	33.4	30.3	24.8	20.8	33.6	30.5	48.0	*
5.5280	0.8	*	*	36.5	33.1	*	*	37.3	33.9	48.0	*
6.0276	0.8	24.1	20.3	*	*	24.9	21.1	*	*	48.0	*
17.6210	0.8	36.5	25.9	*	*	37.3	26.7	*	*	48.0	*
18.0241	0.8	*	*	40.2	31.6	*	*	41.0	32.4	48.0	*
23.6681	1.1	*	*	46.1	37.2	*	*	47.2	38.3	48.0	*
24.2440	1.1	39.2	30.0	*	*	40.3	31.1	*	*	48.0	*
24.3580	1.1	*	*	34.0	37.4	*	*	35.1	38.5	48.0	*

Remark : 1. All reading were Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. Above Q.P. values of noise at 24.3580MHz have been deducted 13dB from the detected values according to 15.107(d) because the original detected Q.P. values are 6dB higher than their Average values.



--- Date 09 SEP '97 Time 11:51:21
VIEWSONIC, EUT: 21 MONITOR R/N: P815-3*
LINE: VA: MEMO: 115KHz (1600X1200; 92Hz) 3M D-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP. PAGE: 02.

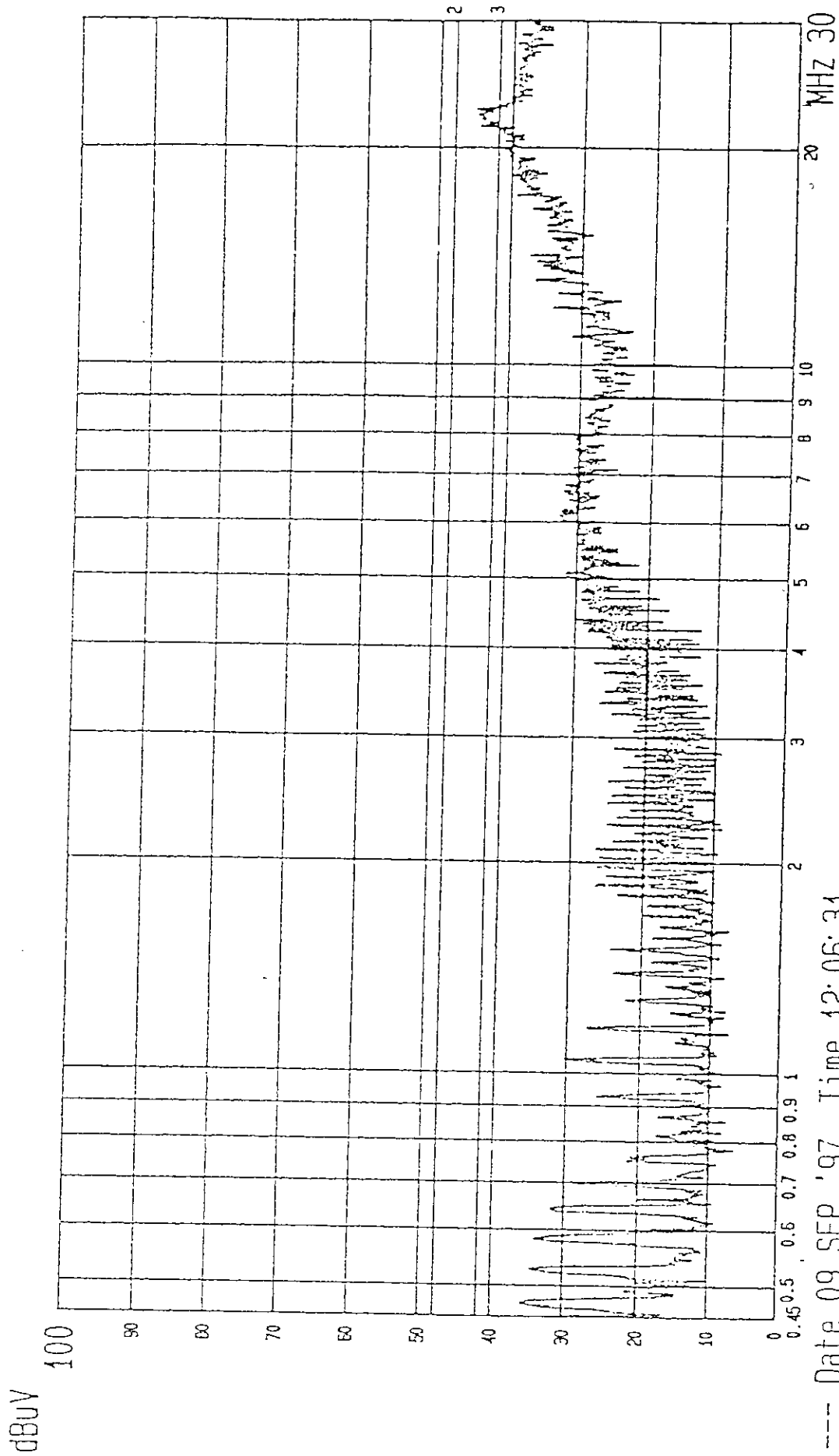


--- Date 09 SEP '97 Time 11:47:19
VIEWSONIC EUT: 21 MONITOR M/N: P815-3*
LINE: VB. MEMO: 115KHz (1600X1200; 92Hz) 3M D-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

Date of Test : Sep. 09, 1997 Temperature : 24 °CEUT : 21" Color CRT Display Monitor Humidity : 62 %Test Mode : 115KHz/1600*1200 With 1.5m BNC Data Cable

Frequency (MHz)	Factor dBuV	Measurement (dBuV)				Reading (dBuV)				Limits (dBuV)	
		Phase A Neutral		Phase B Line		Phase A Neutral		Phase B Line			
		Q.P.	Average	Q.P.	Average	Q.P.	Average	Q.P.	Average	Q.P.	Average
0.4603	0.2	33.6	30.2	33.1	29.9	33.8	30.4	33.3	30.1	48.0	*
0.5757	0.2	*	*	34.8	31.1	*	*	35.0	31.3	48.0	*
1.0360	0.2	27.0	24.1	*	*	27.2	24.3	*	*	48.0	*
2.0151	0.2	23.2	20.2	*	*	23.4	20.4	*	*	48.0	*
2.0727	0.2	*	*	33.3	30.1	*	*	33.5	30.3	48.0	*
5.0670	0.8	*	*	35.4	29.6	*	*	36.2	30.4	48.0	*
6.3220	0.8	24.6	21.1	*	*	25.4	21.9	*	*	48.0	*
13.8200	0.6	31.0	26.3	*	*	31.6	26.9	*	*	48.0	*
22.1702	1.1	41.8	33.8	*	*	42.9	34.9	*	*	48.0	*
22.5680	1.1	*	*	33.4	39.6	*	*	34.5	40.7	48.0	*
23.7831	1.1	*	*	45.5	37.4	*	*	46.6	38.5	48.0	*

Remark : 1. All reading were Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. Above Q.P. values of noise at 22.5680MHz have been deducted 13dB from the detected values according to 15.107(d) because the original detected Q.P. values are 6dB higher than their Average values.



--- Date 09 SEP '97 Time 12:06:31
VIEWSONIC, EUT: 21 MONITOR M/N: P815-3x
LINE: VA.MEMO: 115KHz (1600X1200; 92Hz) 1.5 M BNC (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

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

30

MHz

--- Date: 09 SEP '97 Time 12:08:45

VIEWSONIC, EUT: 21 MONITOR M/N: P815-3*

LINE: VB.MEMO: 115KHz (1600X1200; 92Hz) 1.5 M BNC (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

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3. RADIATED EMISSION TEST

3.1. Test Equipment

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

3.1.1. For Anechoic Chabmer :

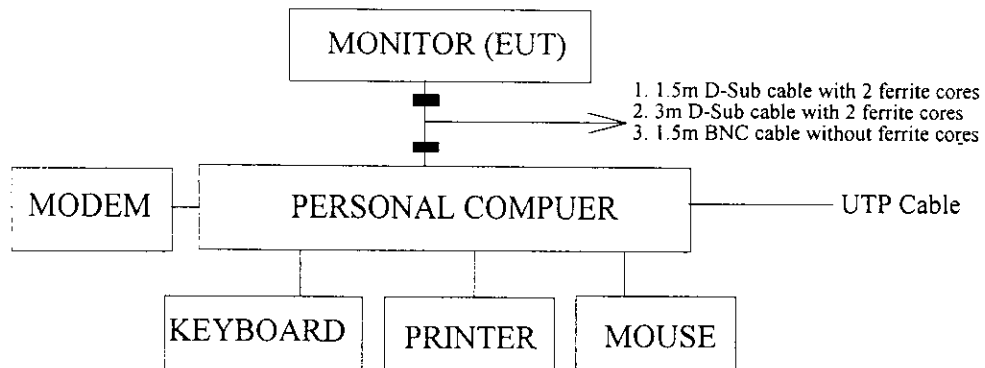
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8593A	3212A01727	Aug.02, 97'	1 Year
2.	Pre-Amplifier	HP	8447D	2944A06305	Jun.07, 97'	1 Year
3.	Computer	--	PC-AT386	N/A	N/A	NA
4.	Printer	NEC	P5200	N/A	N/A	N/A
5.	Antenna Turn Table Controller	Tokin	5906	N/A	N/A	N/A
6.	Antenna Turn Table Driver	Tokin	5907	88Y465	N/A	N/A
7.	Broadband Antenna	Schwarzbeck	BBA 9106	A3L	Jun. 1997	1 Year
8.	Broadband Antenna	Schwarzbeck	UHALP 9107	A3H	Jun. 1997	1 Year

3.1.2. For No. 2 Open Site :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Anritsu	MS2601A	MT60755	N/A	N/A
2.	Test Receiver	Rohde&Schwarz	ESVP	893202/001	Aug.04, 97'	1 Year
3.	Computer	--	PC-AT386	N/A	N/A	NA
4.	Printer	NEC	P5300	N/A	N/A	N/A
5.	Pre-Amplifier	HP	8447D	2727A06166	N/A	N/A
6.	Broadband Antenna	Schwarzbeck	BBA 9106	A2L	Mar.12, 97'	1 Year
7.	Broadband Antenna	Schwarzbeck	UHALP 9107	A2H	Jun.16, 97'	1 Year

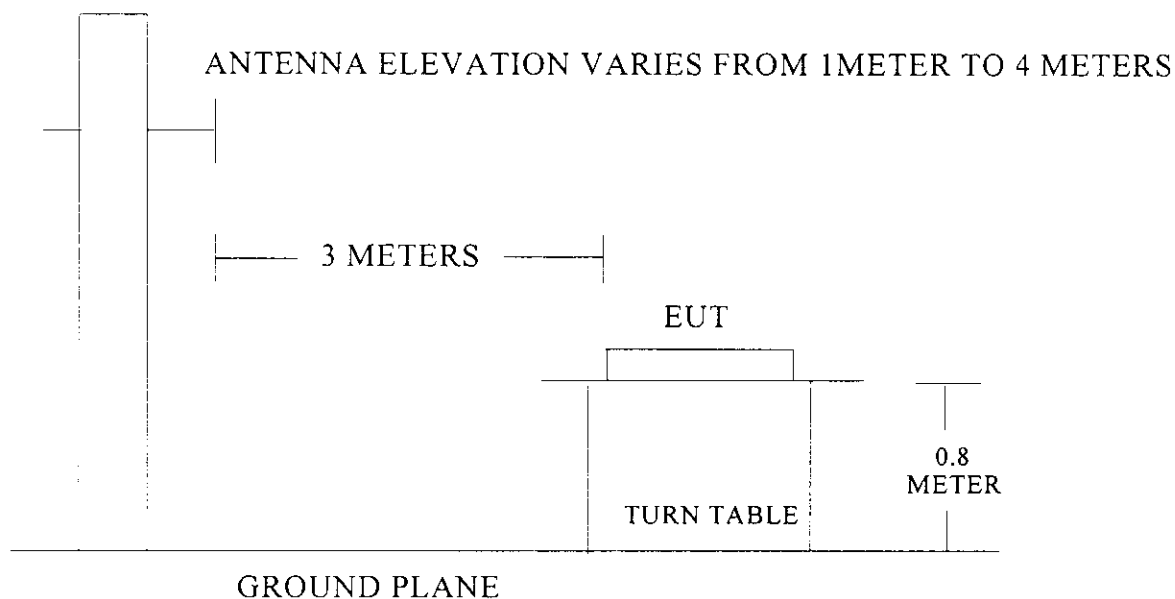
3.2. Block Diagram of Test Setup

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	
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 Configuration on 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 on radiated measurement.

The bandwidth setting on the field strength meter (R&S TEST RECEIVER ESVP) was 120KHz.

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

Two kinds of horizontal working frequency with three 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/1600*1200 with 3m D-Sub data cable) on No. 2 Open Field Test site and all the test results are listed in section 3.7.

Two kinds of display frequency :

	640x480 (Hf:31.5KHz)	1600x1200 (Hf:115KHz)
(a) Dot Clock Frequency	27.175 MHz	239.35 MHz
(b) Vertical Frequency	60.0 Hz	92 Hz
(c) Horizontal Frequency	31.5 KHz	115 KHz

Three kinds of data cable :

- (1) 1.5m D-Sub data cable with two ferrite cores
- (2) 3m D-Sub data cable with two ferrite cores
- (3) 1.5m BNC data cable without ferrite core

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 : Sep. 09, 1997 Temperature : 28 °C
 EUT : 21" Color CRT Display Monitor Humidity : 71 %
 Test Mode : 115KHz/1600*1200, 3m D-Sub Data Cable

	Frequency MHz	Antenna	Cable	Meter Reading		Emission Level	
		Factor dB/m	Loss dB	Horizontal dBuV	Horizontal dBuV/m	Limits dBuV/m	Margin dBuV/m
*	47.910	21.66	1.94	9.00	32.60	40.00	7.40
	50.098	21.04	2.00	9.20	32.24	40.00	7.76
	52.661	19.81	1.99	4.60	26.40	40.00	13.60
	66.156	15.25	2.37	8.90	26.52	40.00	13.48
	75.698	13.99	2.43	10.20	26.62	40.00	13.38
	111.750	17.90	2.94	8.50	29.34	43.50	14.16
	207.538	23.40	4.11	4.30	31.81	43.50	11.69
	211.575	23.74	4.20	6.30	34.24	43.50	9.26
	223.559	24.16	4.31	4.00	32.47	46.00	13.53
	306.936	13.52	5.19	6.20	24.91	46.00	21.09
	359.289	15.10	5.78	4.70	25.58	46.00	20.42
	479.108	17.34	6.93	7.60	31.87	46.00	14.13
	527.029	18.27	7.40	1.00	26.67	46.00	19.33
	538.897	18.67	7.63	5.60	31.90	46.00	14.10
	542.909	18.80	7.54	6.90	33.24	46.00	12.76

- Remark :
1. All reading were Quasi-Peak values.
 2. The worst emission was detected at 47.910MHz with corrected signal level of 32.60dBuV/m (limit was 40dBuV/m) when the antenna was at horizontal polarization and was at 1.5m high and the turn table was at 300 ° .
 3. 0 ° is the table front facing the antenna. Degree was calculated from 0 ° clockwise facing the antenna.

Date of Test : Sep. 09, 1997 Temperature : 28 °C

EUT : 21" Color CRT Display Monitor Humidity : 71 %

Test Mode : 115KHz/1600*1200, 3m D-Sub Data Cable

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading		Emission Level		Margin dBuV/m
			Vertical dBuV		Vertical dBuV/m	Limits dBuV/m	
31.056	26.94	1.58	6.40		34.92	40.00	5.08
47.913	20.08	1.94	13.00		35.02	40.00	4.98
* 50.960	19.76	2.00	14.60		36.36	40.00	3.64
52.761	19.08	1.99	14.60		35.67	40.00	4.33
59.064	17.90	2.10	14.10		34.10	40.00	5.90
62.658	16.99	2.15	15.20		34.34	40.00	5.66
97.663	16.12	2.67	18.10		36.89	43.50	6.61
111.922	16.36	2.94	10.30		29.60	43.50	13.90
207.543	23.91	4.11	2.00		30.02	43.50	13.48
211.574	25.42	4.20	2.10		31.72	43.50	11.78
331.357	14.28	5.41	5.50		25.19	46.00	20.81
479.020	17.19	6.93	13.10		37.22	46.00	8.78
506.988	18.62	7.21	7.00		32.83	46.00	13.17
538.899	19.19	7.63	14.10		40.92	46.00	5.08
546.360	19.26	7.64	7.90		34.80	46.00	11.20

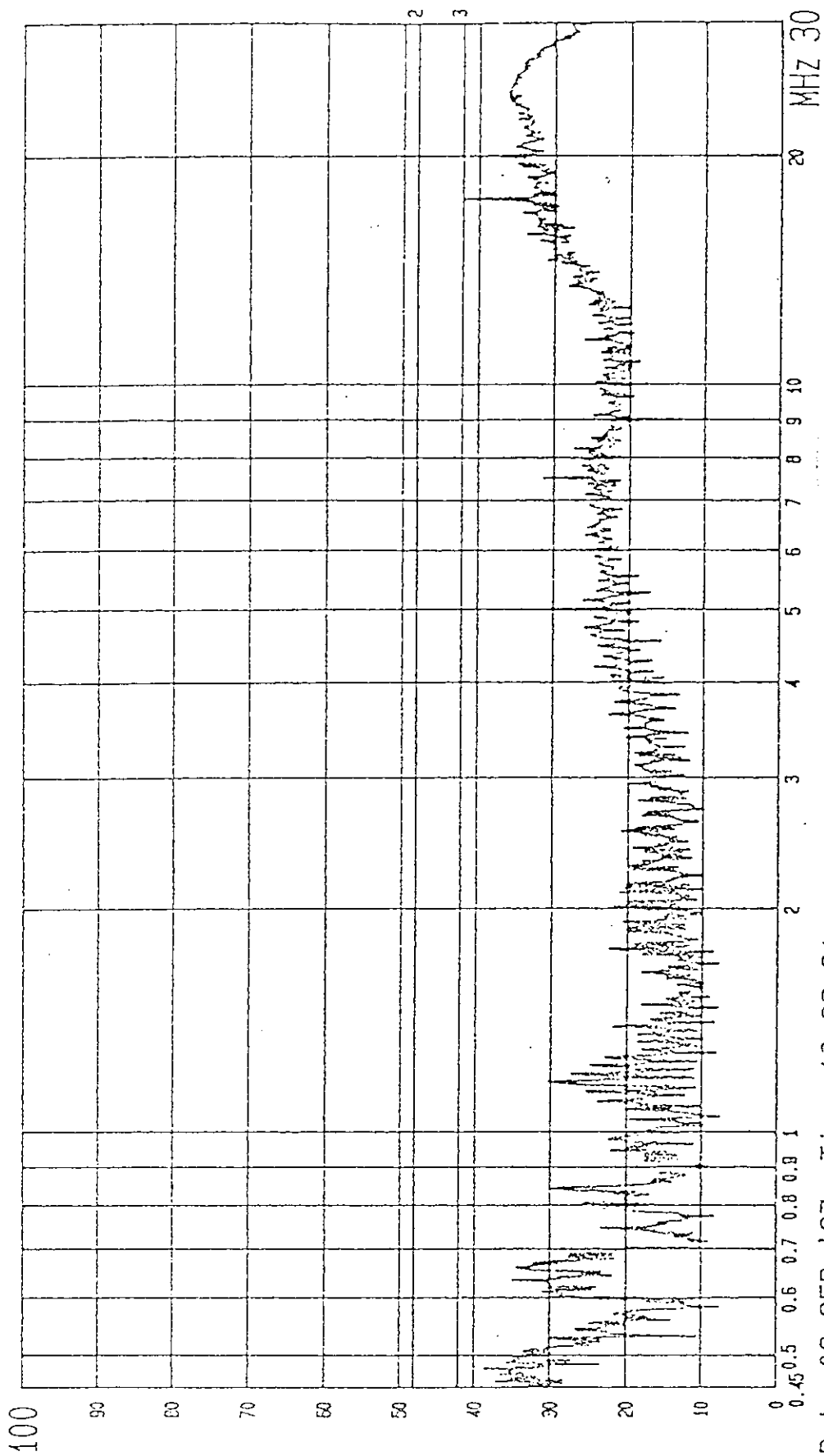
- Remark :
1. All reading were Quasi-Peak values.
 2. The worst emission was detected at 50.960MHz with corrected signal level of 36.36dBuV/m (limit was 40dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 240 ° .
 3. 0 ° is the table front facing the antenna. Degree was calculated from 0 ° clockwise facing the antenna.

4. DEVIATIONS TO TEST SPECIFICATIONS

[NONE]

APPENDIX I

dBuV



--- Date 09 SEP '97 Time 12:26:31
VIEWSONIC EUT: 21 MONITOR M/N: P815-3*
LINE: VA.MEMO: 31.5KHz (640X480; 60Hz) 1.5 MU-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

dBuV

100

90

80

70

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dBuV

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MHZ

--- Date_09_SEP '97 Time 12:33:46

VIEWSONIC EUT: 21 MONITOR M/N: P815-3X

LINE: VA.MEMO: 31.5KHz (640X480; 60Hz) 3.0M D-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

PAGE: 14.

dBuV

100

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80

70

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50

40

30

20

10

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0.5 0.6 0.7 0.8 0.9 1

2

3

4

5

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9

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20

30

MHZ

--- Date 09 SEP '97 Time 12:35:29

VIEWSONIC, EUT: 21 MONITOR M/N: P815-3X

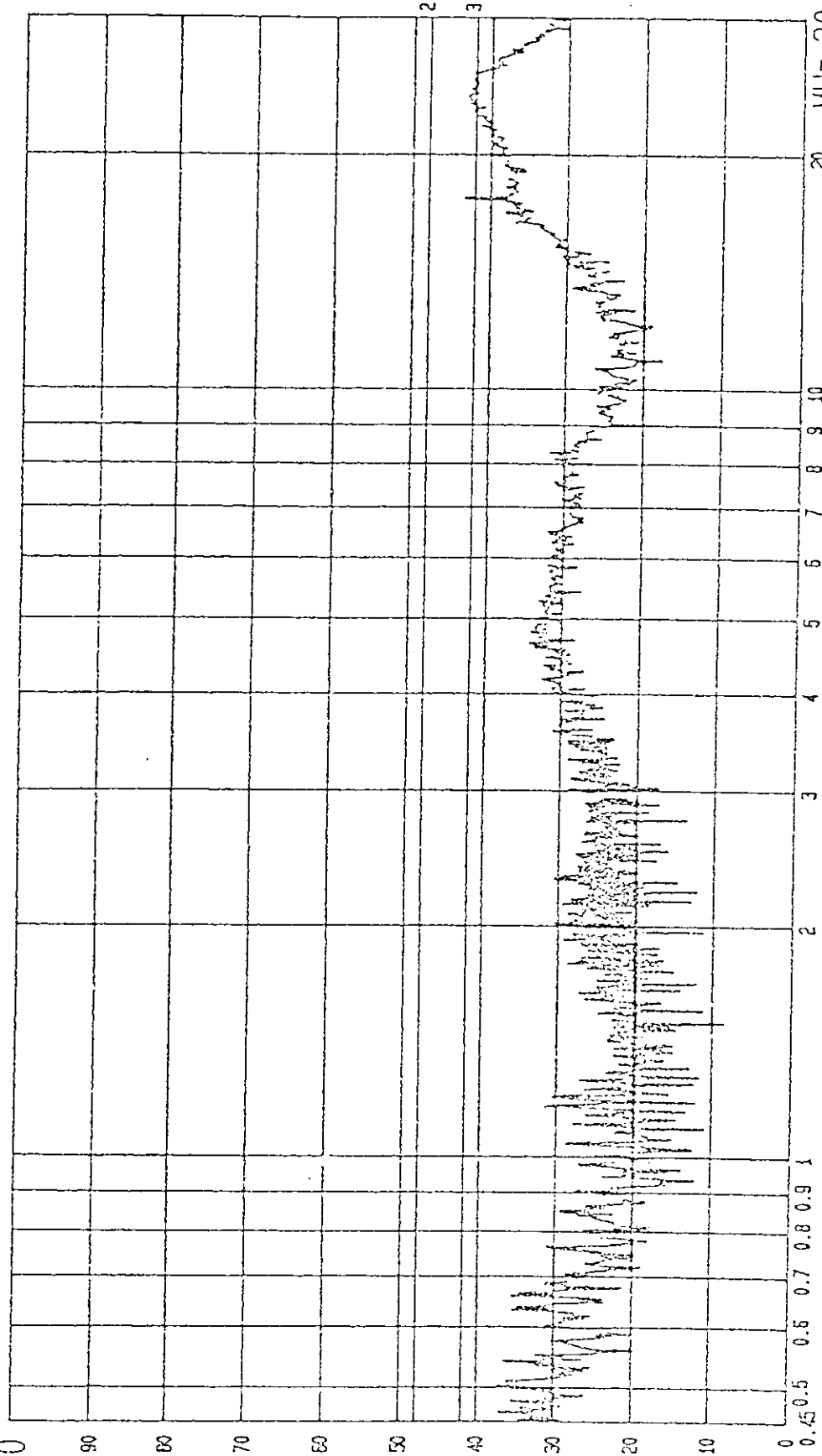
LINE: VA.MEMO: 31.5KHz (640X480; 60Hz) 1.5M BNC

(PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

PAGE: 15.

dBuV

100



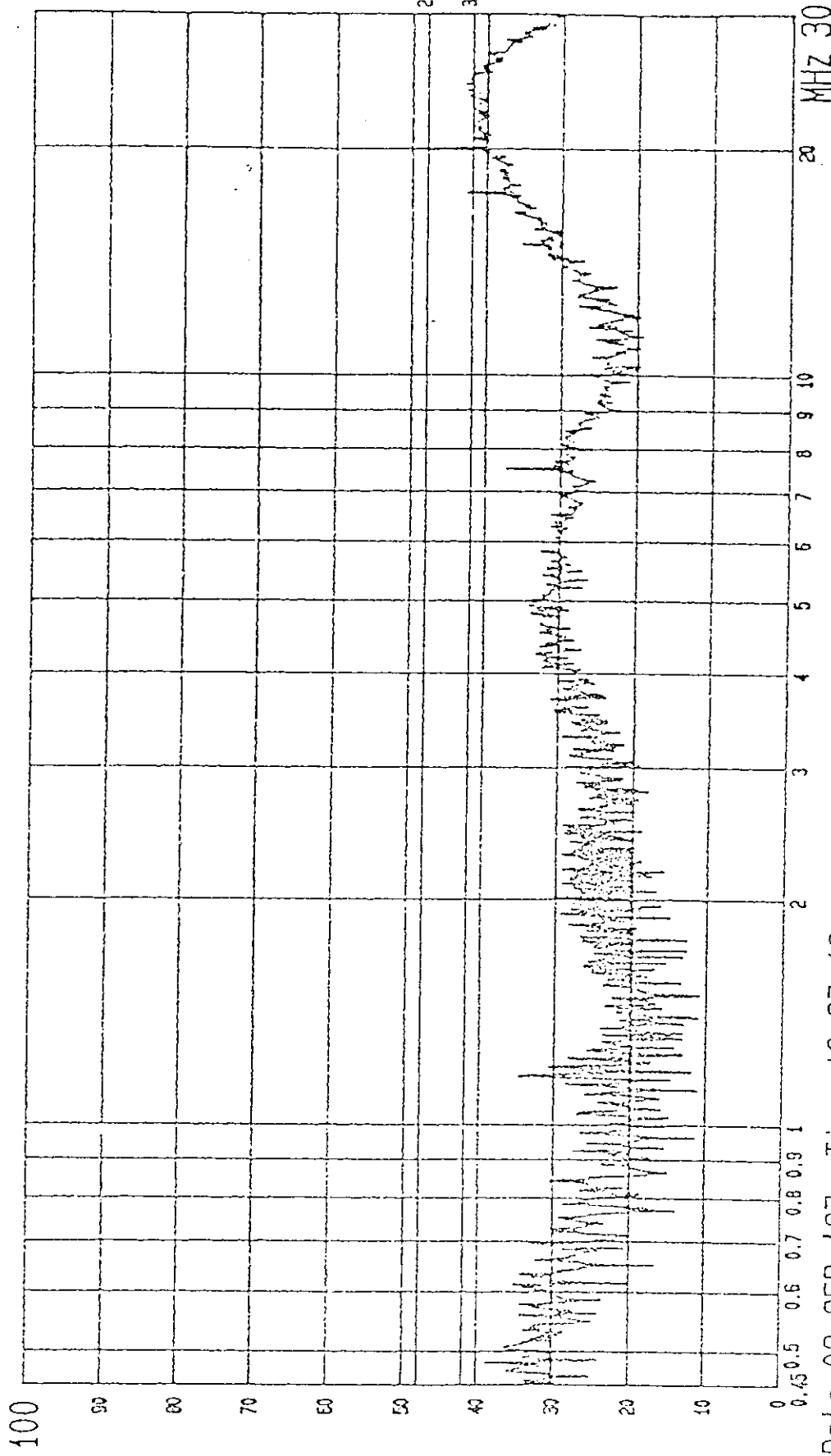
--- Date: 09 SEP '97 Time 12:31:53

VIEWSONIC EUT: 21 MONITOR M/N: P815-3*

LINE: VB.MEMO: 31.5KHz (640X480; 60Hz) 3.0W D-SUB (PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

PAGE: 13.

dBuV



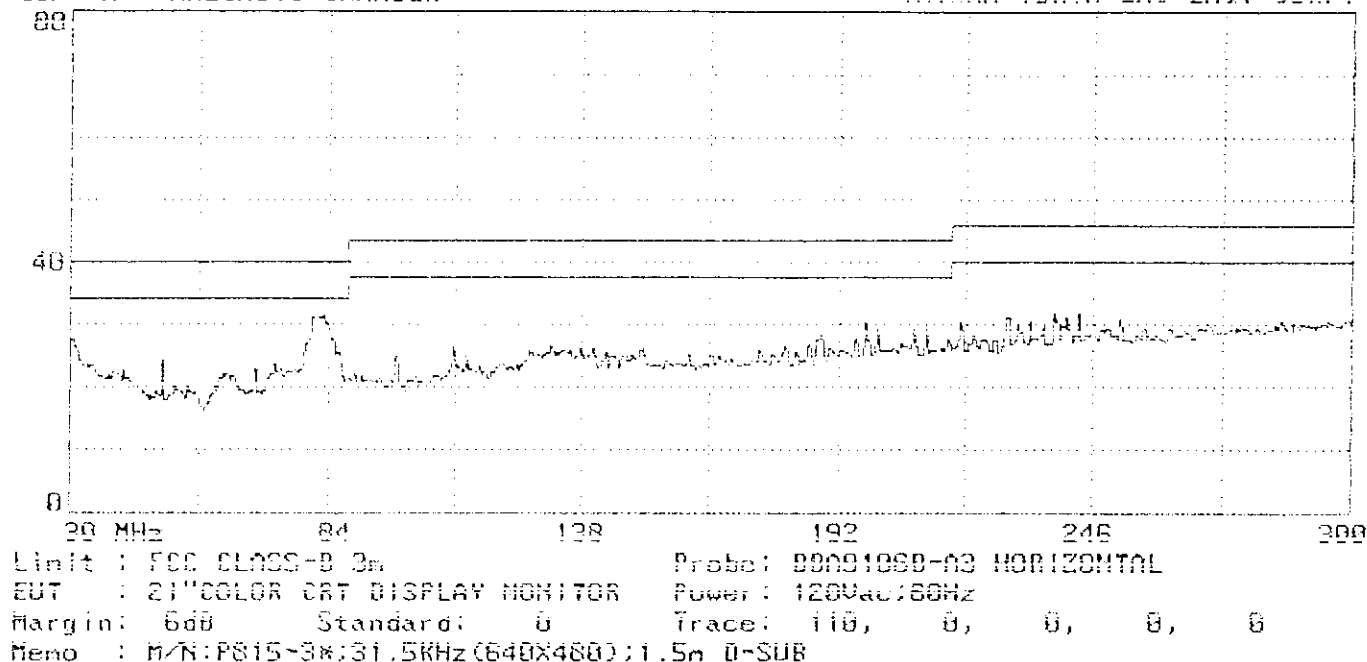
--- Date 09 SEP '97 Time 12:37:19
VIEWSONIC EUT: 21 MONITOR M/N: P815-3X
LINE: VB.MEMO: 31.5KHz (640X480; 60Hz) 1.5M BNC

(PEAK VALUE) TAIWAN TOKIN EMC.ENG CORP.

APPENDIX II

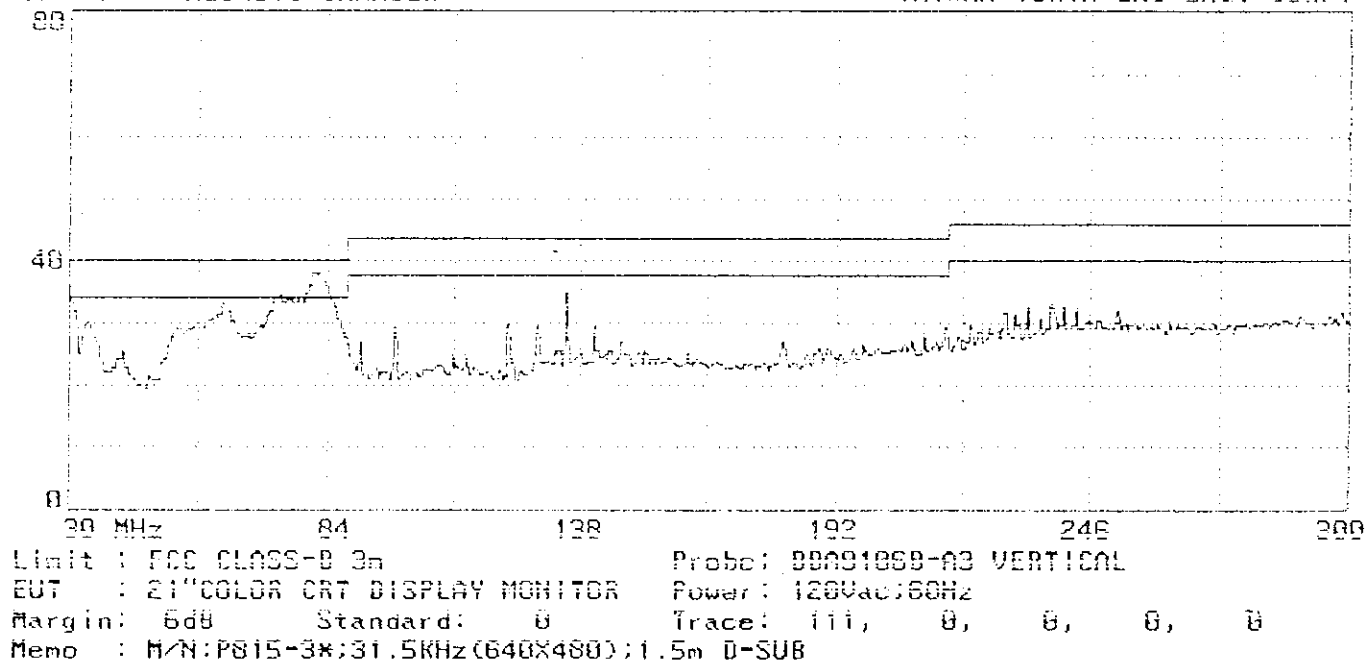
Page#: 110 SP File#: VIEWSONC.EI
dBμV/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:23:00
TAIWAN TOKIN EMC ENG. CORP.

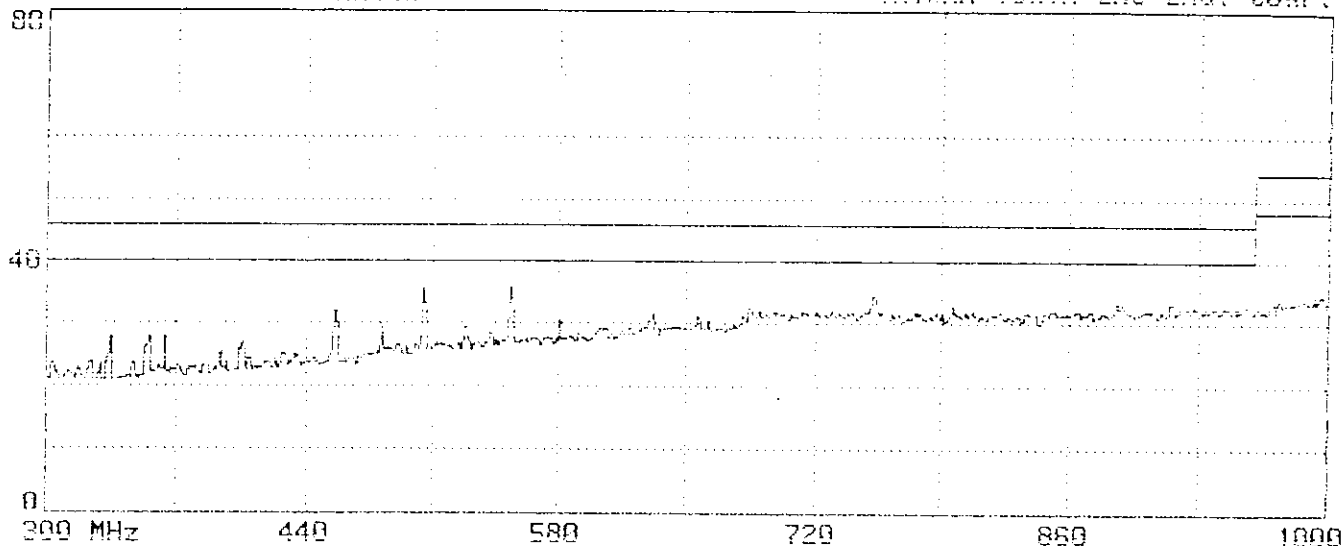


Page#: 111 SP File#: VIEWSONC.EI
dBμV/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:24:01
TAIWAN TOKIN EMC ENG. CORP.

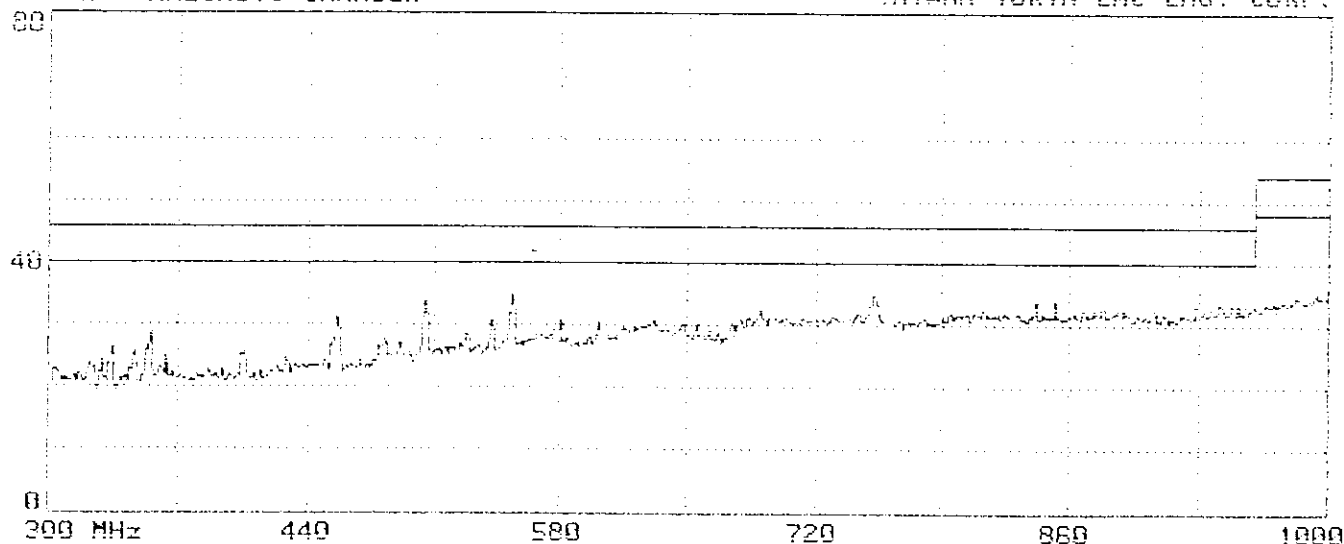


Page#: 108 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:20:01
dBµV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probe: UHALP9107B(A3) HORIZONTAL
EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 100, 0, 0, 0, 0
Memo : M/N:P815-3*;31.5KHz(640X480);1.5m D-SUB

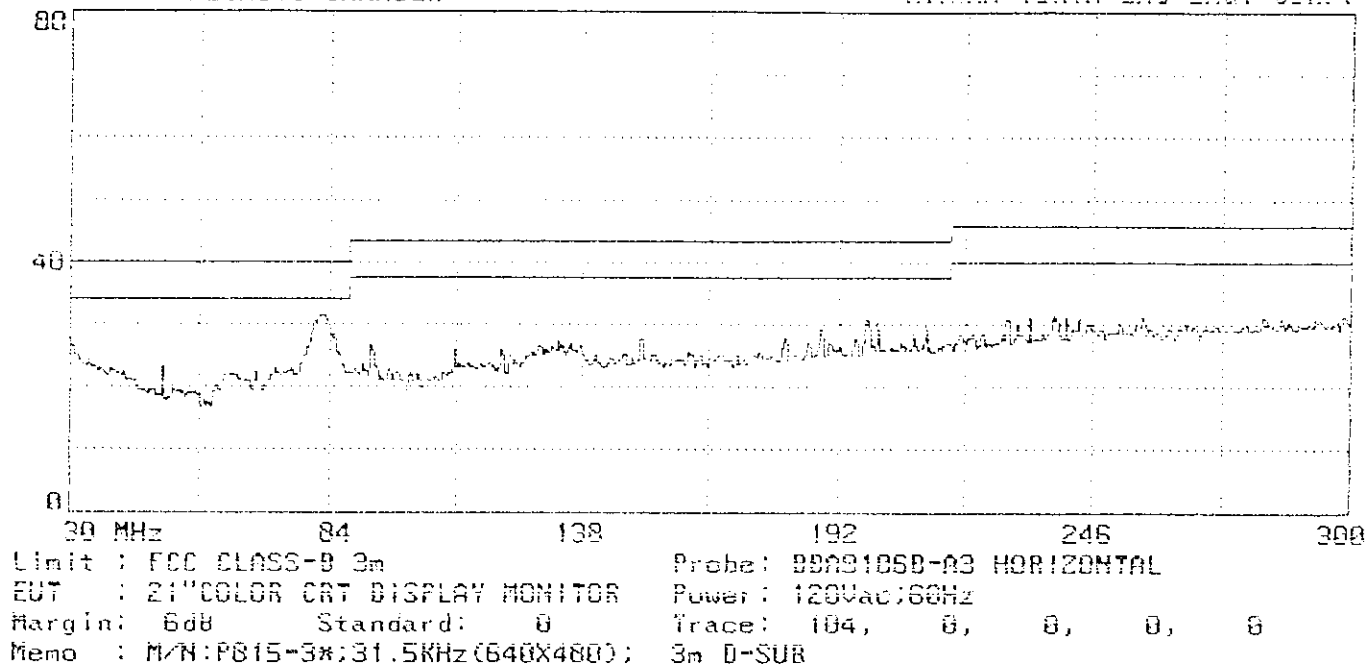
Page#: 109 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:21:01
dBµV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probe: UHALP9107B(A3) VERTICAL
EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 109, 0, 0, 0, 0
Memo : M/N:P815-3*;31.5KHz(640X480);1.5m D-SUB

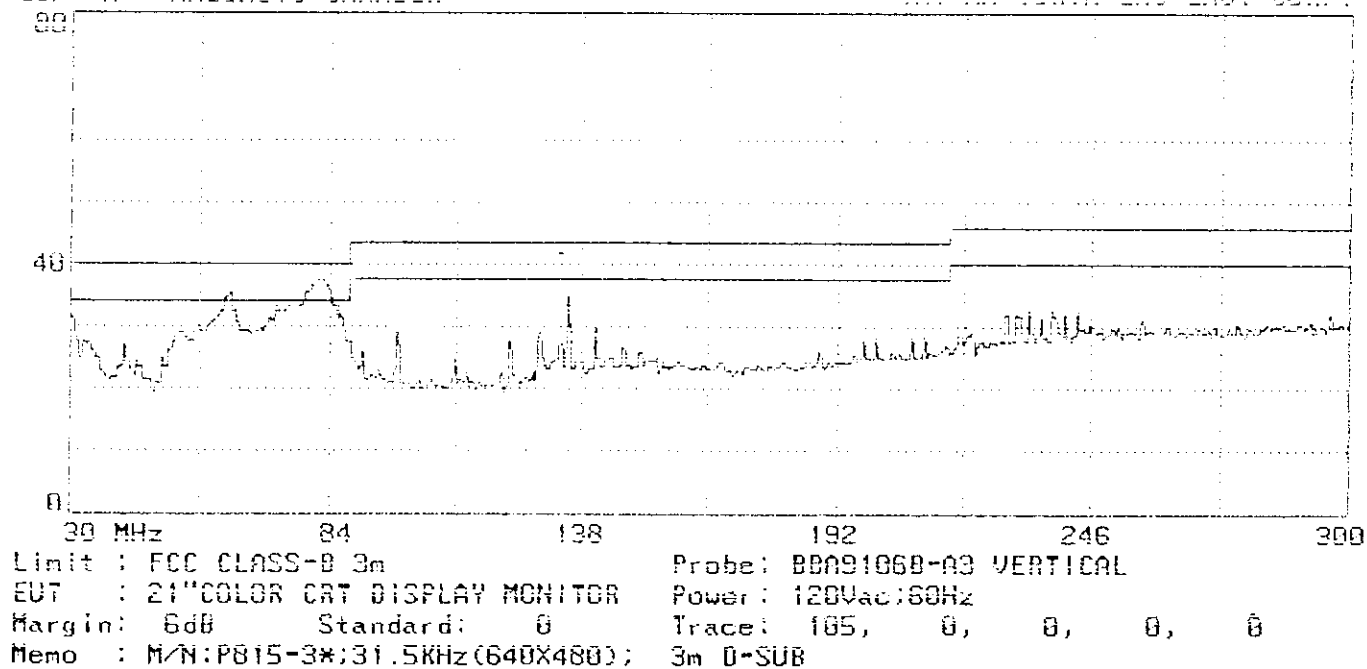
Page#: 104 SP File#: VIEWSONC.E1
dB μ V/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:11:53
TAIWAN TOKIN EMC ENG. CORP.



Page#: 105 SP File#: VIEWSONC.E1
dB μ V/m ANECHOIC CHAMBER

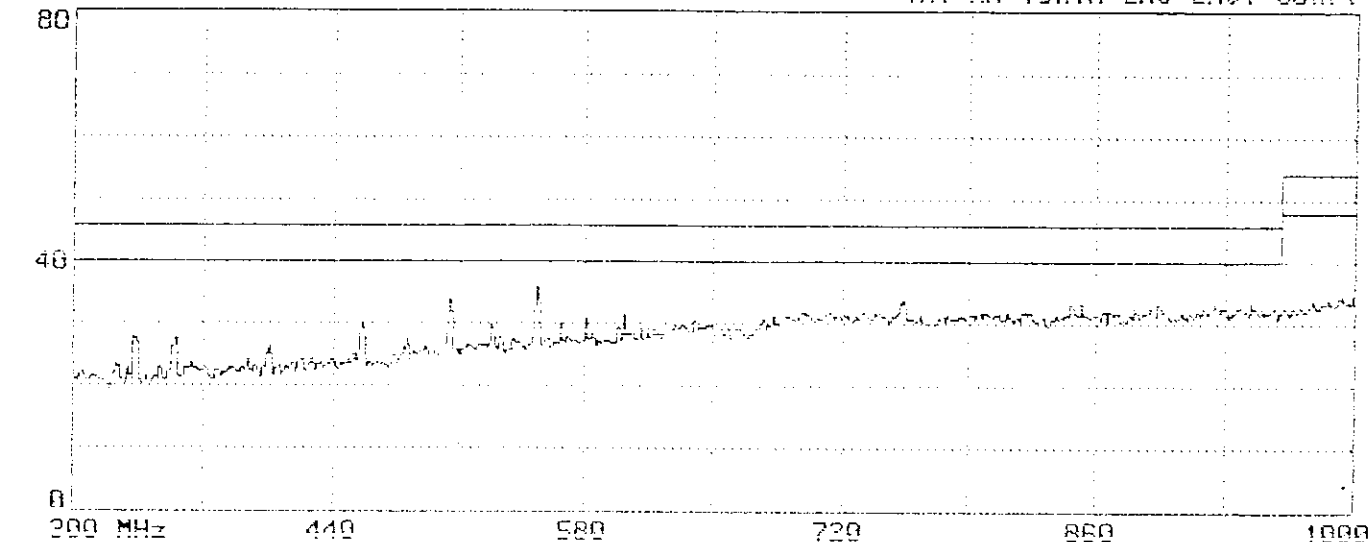
Date: 89-09-1997 Time: 21:12:41
TAIWAN TOKIN EMC ENG. CORP.



Page#: 186 SP File#: VIEWSONC.EI
dBuV/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:15:38

TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m

Probe: UH0LP91879(A3) HORIZONTAL

EUT : 21"COLOR CRT DISPLAY MONITOR

Power: 120Vac/60Hz

Margin: 6dB Standard: 0

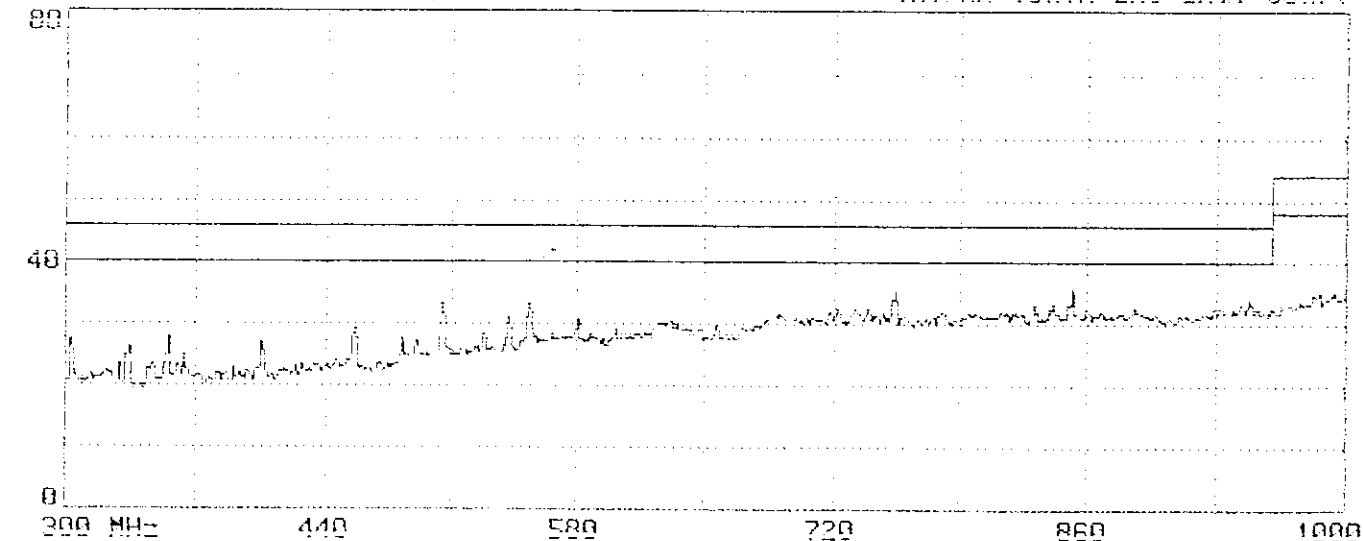
Trace: 186, 0, 0, 0, 0

Memo : M/N:P815-3*;31.5KHz(640X480); 3m 0-SUB

Page#: 187 SP File#: VIEWSONC.EI
dBuV/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:16:31

TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m

Probe: UH0LP91879(A3) VERTICAL

EUT : 21"COLOR CRT DISPLAY MONITOR

Power: 120Vac/60Hz

Margin: 6dB Standard: 0

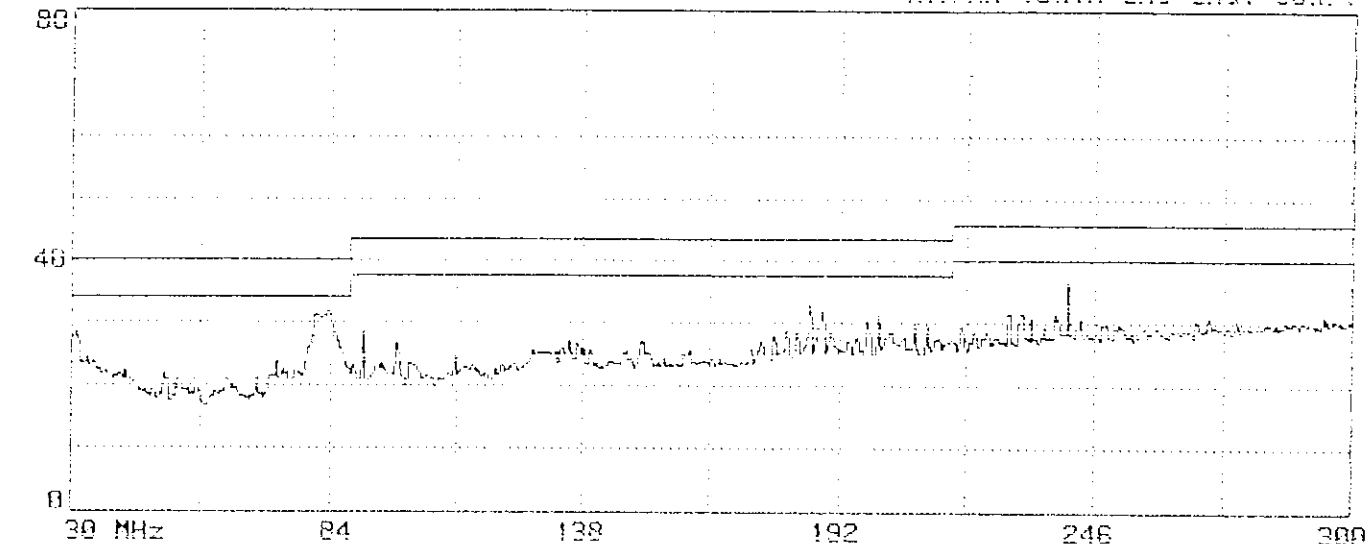
Trace: 187, 0, 0, 0, 0

Memo : M/N:P815-3*;31.5KHz(640X480); 3m 0-SUB

Page#: 120 SP File#: VIEWSONC.E1
dB μ V/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:46:44

TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m

Probe: BBA910GB-A3 HORIZONTAL

EUT : 21"COLOR CRT DISPLAY MONITOR

Power: 120Vac/60Hz

Margin: 6dB

Standard: 0

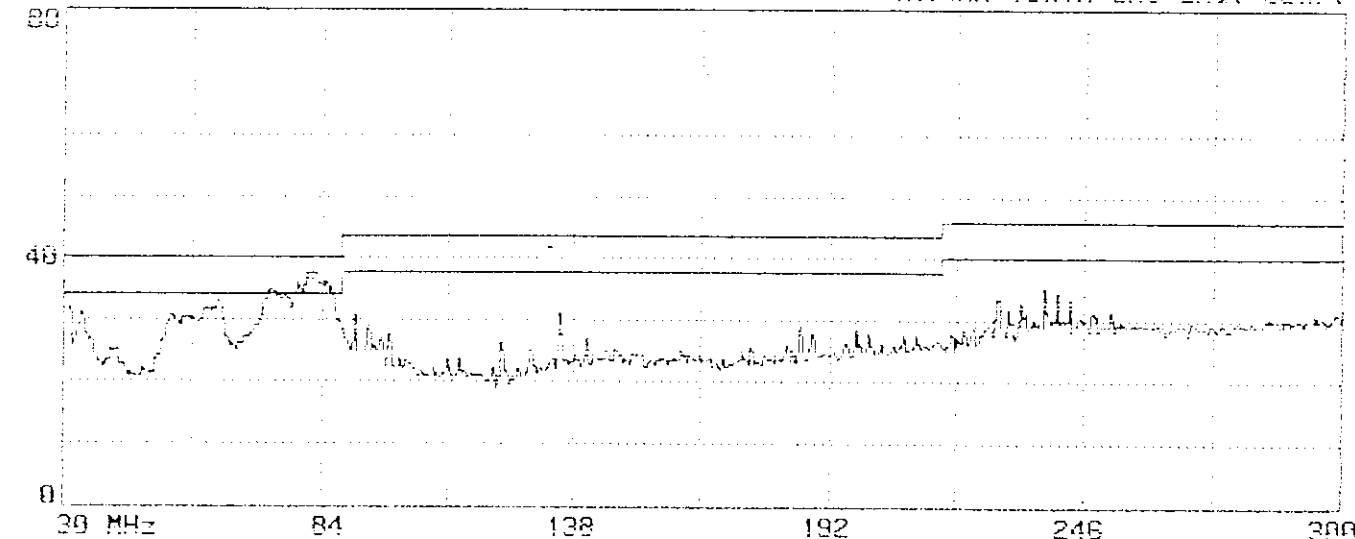
Trace: 120, 0, 0, 0, 0

Memo : M/N:P815-3*;31.5KHz(640X480);1.5m BNC

Page#: 121 SP File#: VIEWSONC.E1
dB μ V/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:47:16

TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m

Probe: BBA910GB-A3 VERTICAL

EUT : 21"COLOR CRT DISPLAY MONITOR

Power: 120Vac/60Hz

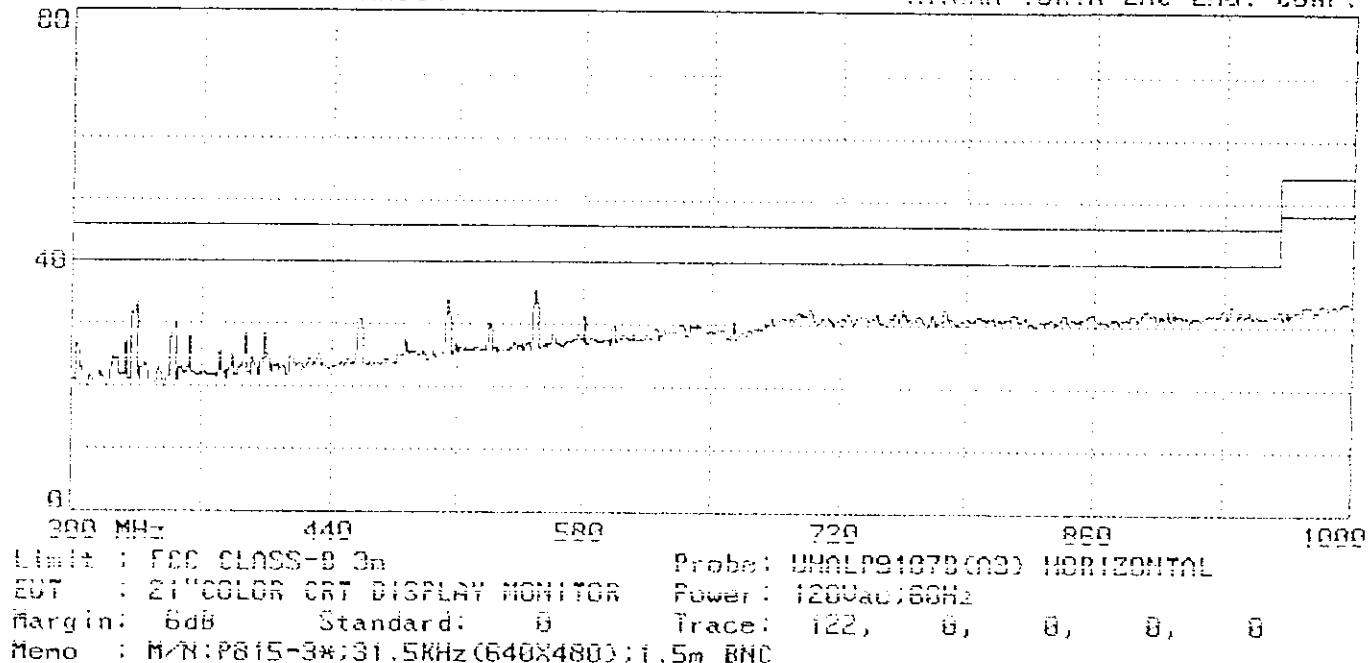
Margin: 6dB

Standard: 0

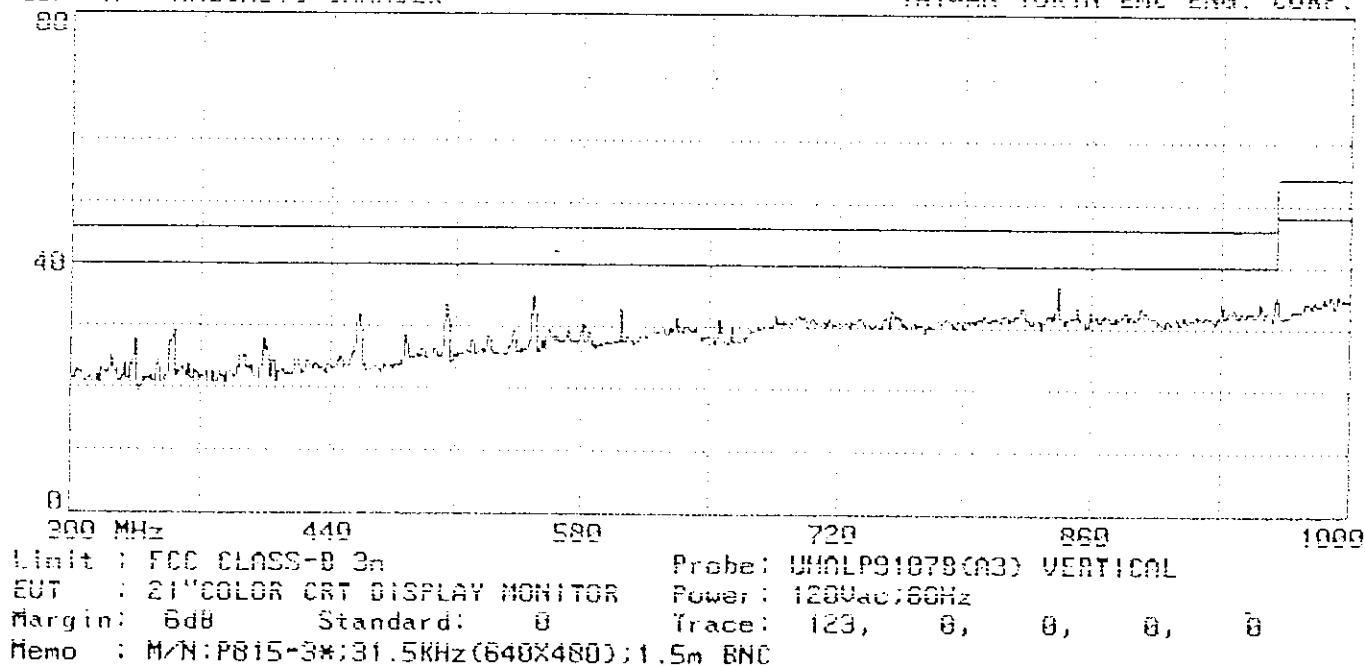
Trace: 121, 0, 0, 0, 0

Memo : M/N:P815-3*;31.5KHz(640X480);1.5m BNC

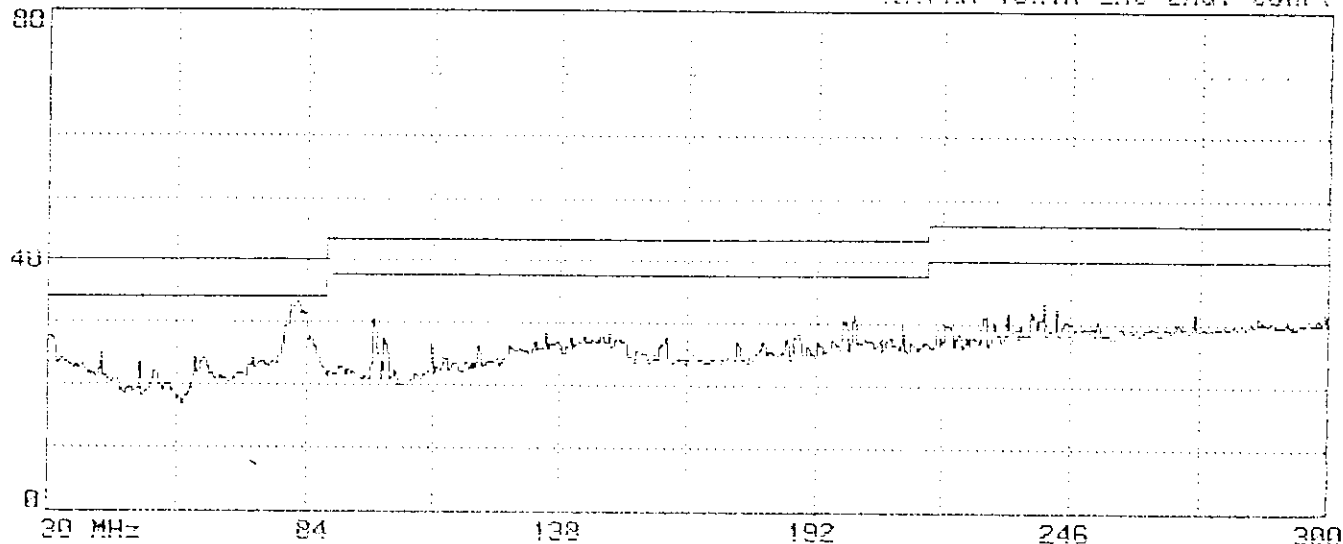
Page#: 122 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:51:22
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 123 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:52:08
dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

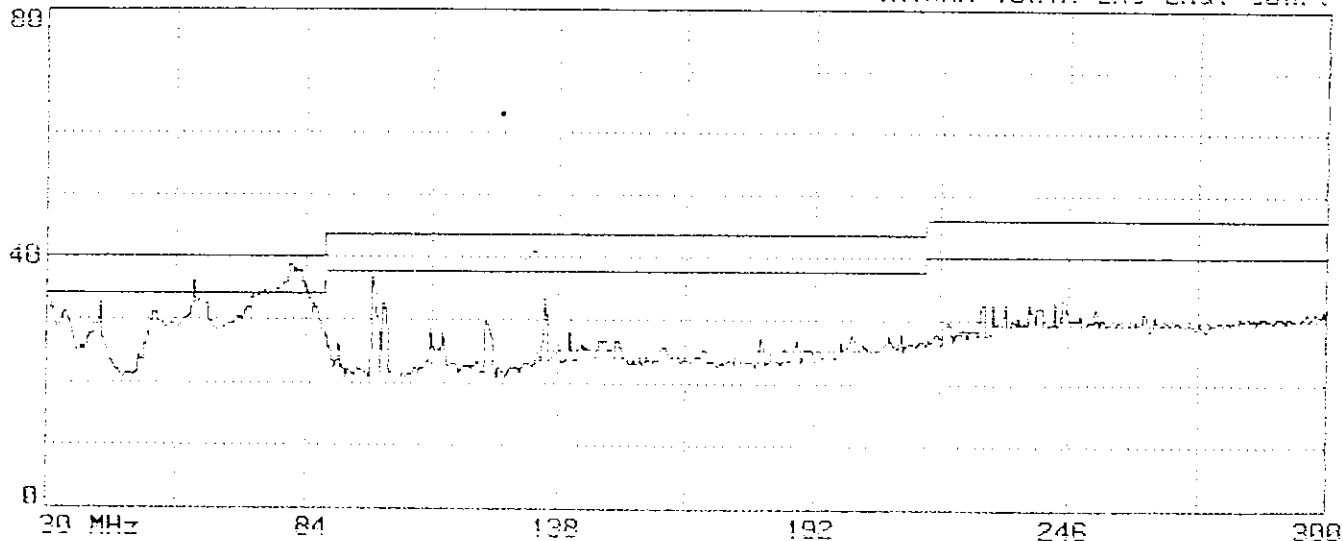


Page#: 112 SP File#: VIEWSONC.E1 Date: 09-09-1997 Time: 21:29:45
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



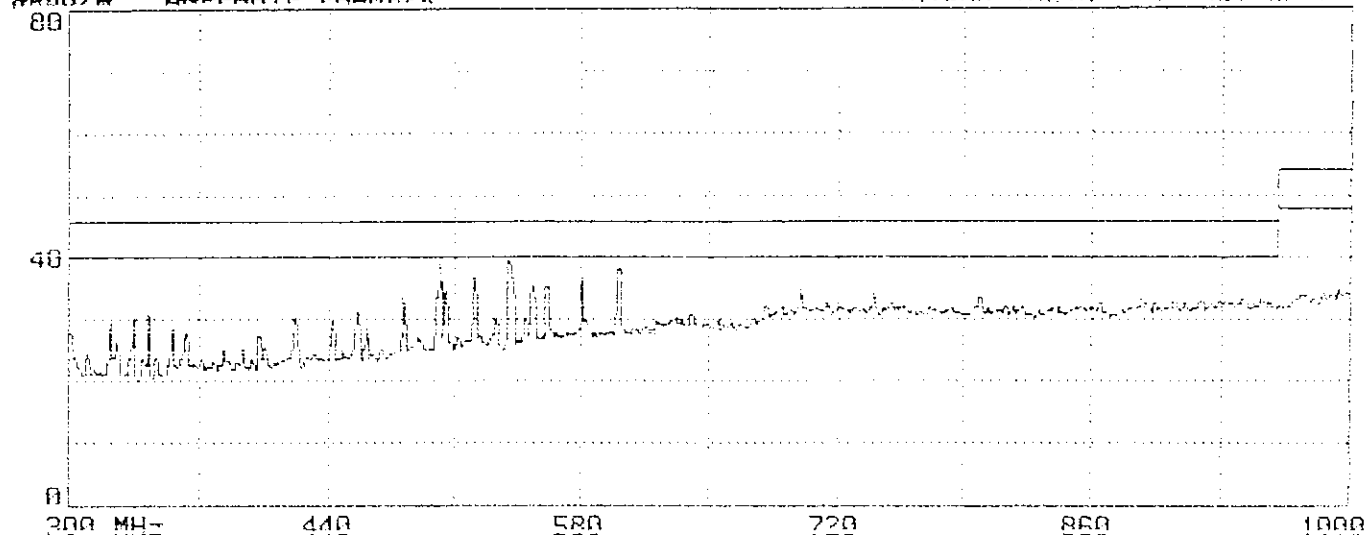
Limit : FCC CLASS-B 3m Probe: B009106B-A3 HORIZONTAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac;60Hz
 Margin: 6dB Standard: 0 Trace: 112, 0, 0, 0, 0
 Memo : M/N:P815-3*;115KHz(1600X1200);1.5m 0-SUB

Page#: 113 SP File#: VIEWSONC.E1 Date: 09-09-1997 Time: 21:31:07
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



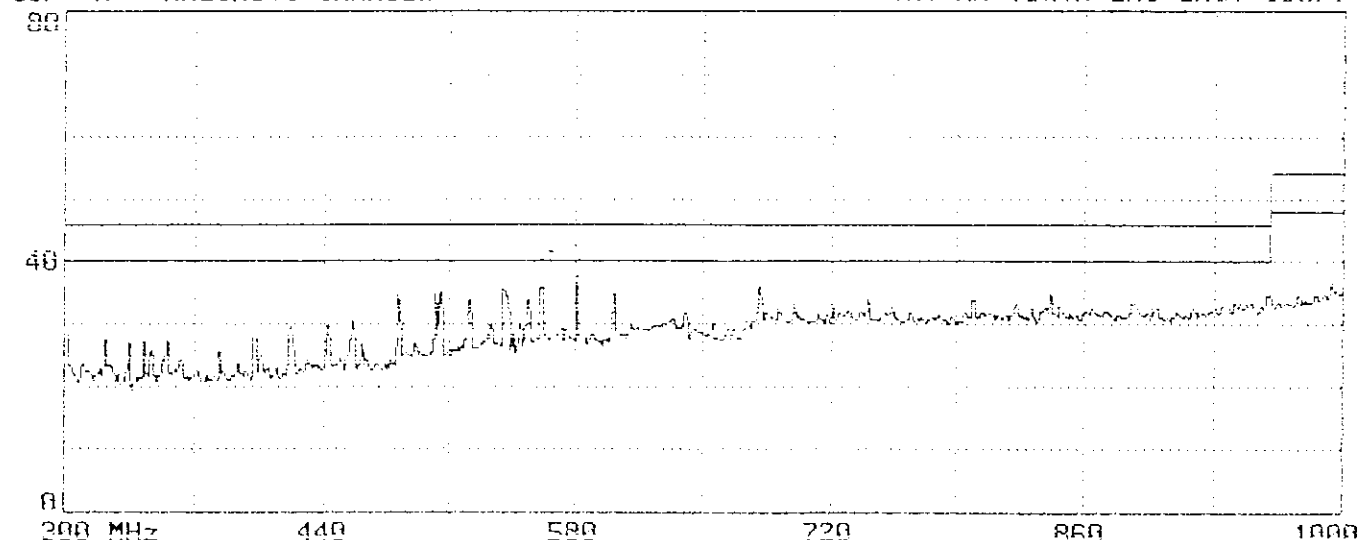
Limit : FCC CLASS-B 3m Probe: B009106B-A3 VERTICAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac;60Hz
 Margin: 6dB Standard: 0 Trace: 113, 0, 0, 0, 0
 Memo : M/N:P815-3*;115KHz(1600X1200);1.5m 0-SUB

Page#: 114 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:34:32
 #R011/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



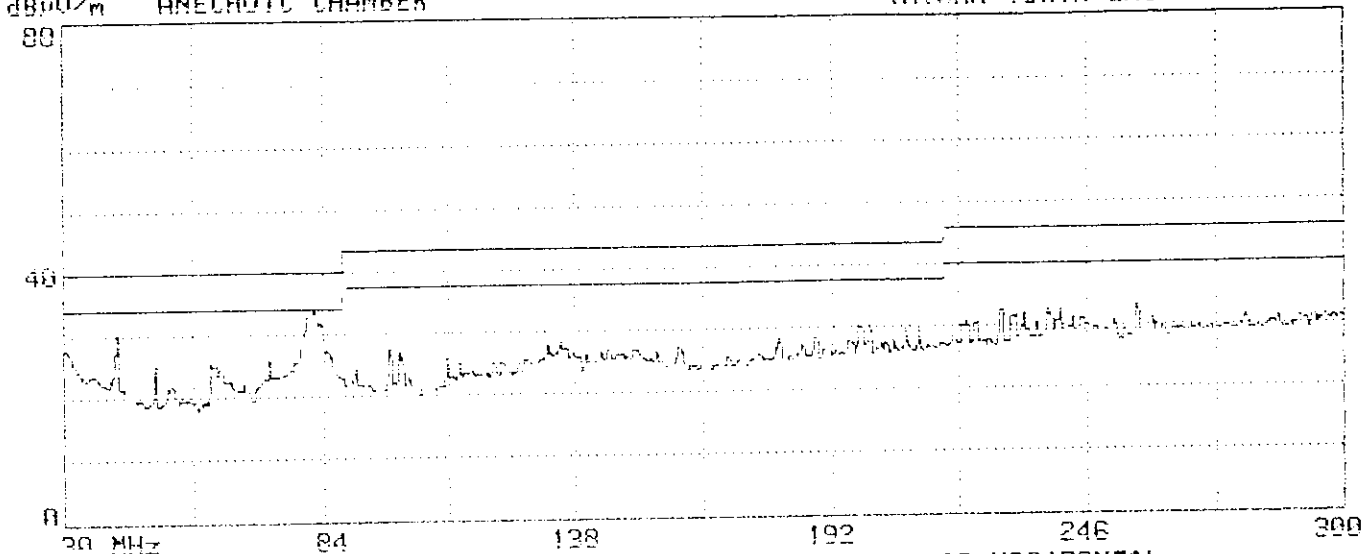
Limit : FCC CLASS-B 3m Probe: UH0LP9107B(03) HORIZONTAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac;60Hz
 Margin: 6dB Standard: 0 Trace: 114, 0, 0, 0, 0
 Memo : M/N:P815-3*;115KHz(1600X1200);1.5m 0-SUB

Page#: 115 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:35:47
 #R011/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



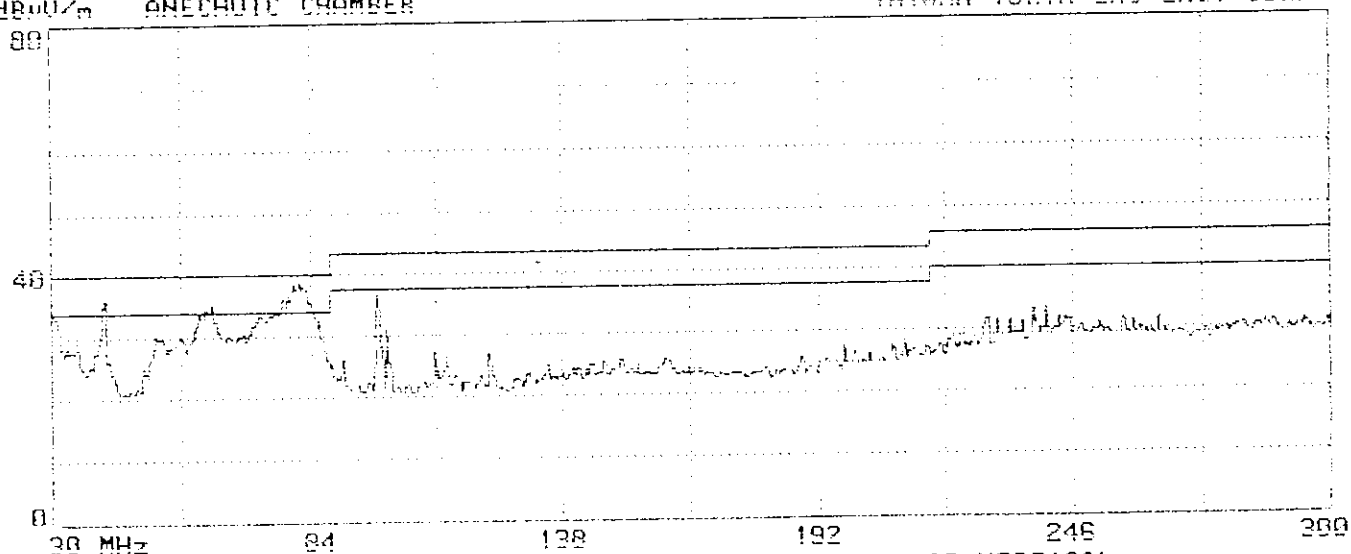
Limit : FCC CLASS-B 3m Probe: UH0LP9107B(03) VERTICAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac;60Hz
 Margin: 6dB Standard: 0 Trace: 115, 0, 0, 0, 0
 Memo : M/N:P815-3*;115KHz(1600X1200);1.5m 0-SUB

Page#: 102 SP File#: VIEWSONC.E1 Date: 09-09-1997 Time: 20:57:43
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



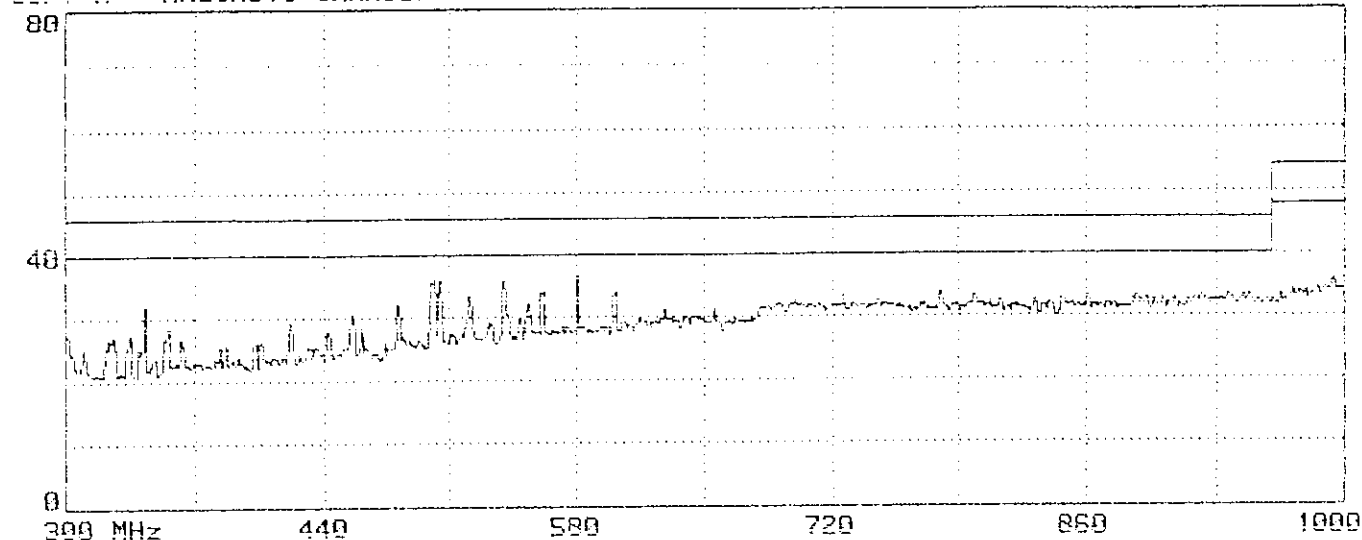
Limit : FCC CLASS-B 3m Probe: 0909106B-A3 HORIZONTAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 102, 0, 0, 0, 0
 Memo : M/N:P815-3*;115KHz(1600X1200); 3m D-SUB

Page#: 103 SP File#: VIEWSONC.E1 Date: 09-09-1997 Time: 20:58:45
 dBuV/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



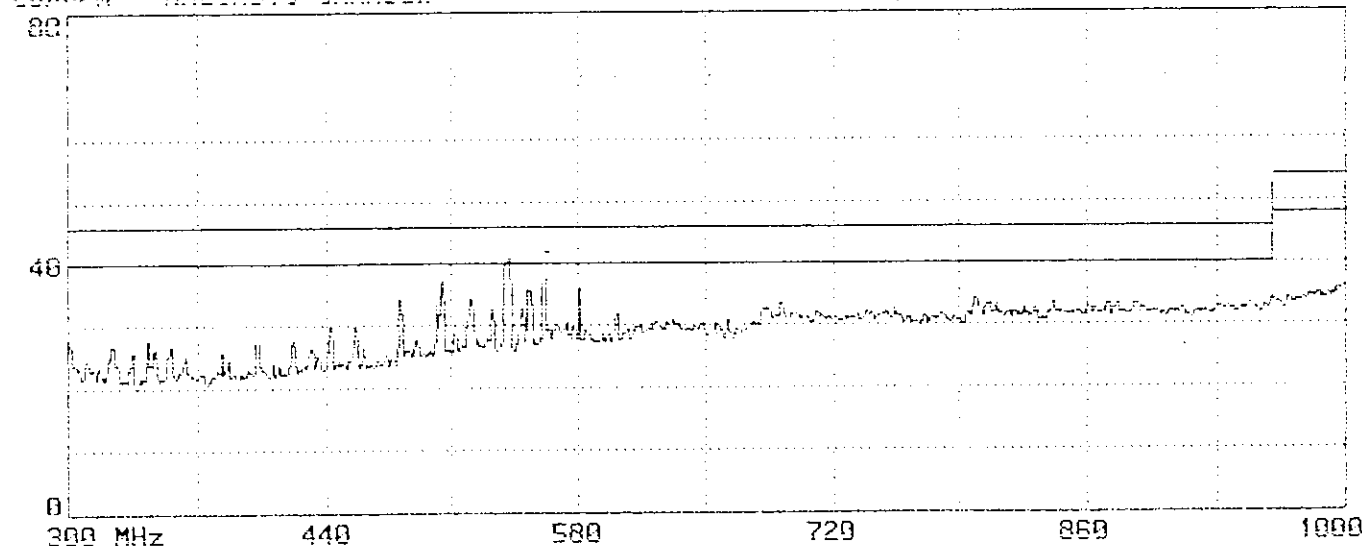
Limit : FCC CLASS-B 3m Probe: 0909106B-A3 VERTICAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 103, 0, 0, 0, 0
 Memo : M/N:P815-3*;115KHz(1600X1200); 3m D-SUB

Page#: 100 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 20:29:06
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probe: UH1LP9107B(A3) HORIZONTAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power : 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 100, 0, 0, 0, 0
 Memo : M/N:P815-3*:115KHz(1600X1200); 3m D-SUB

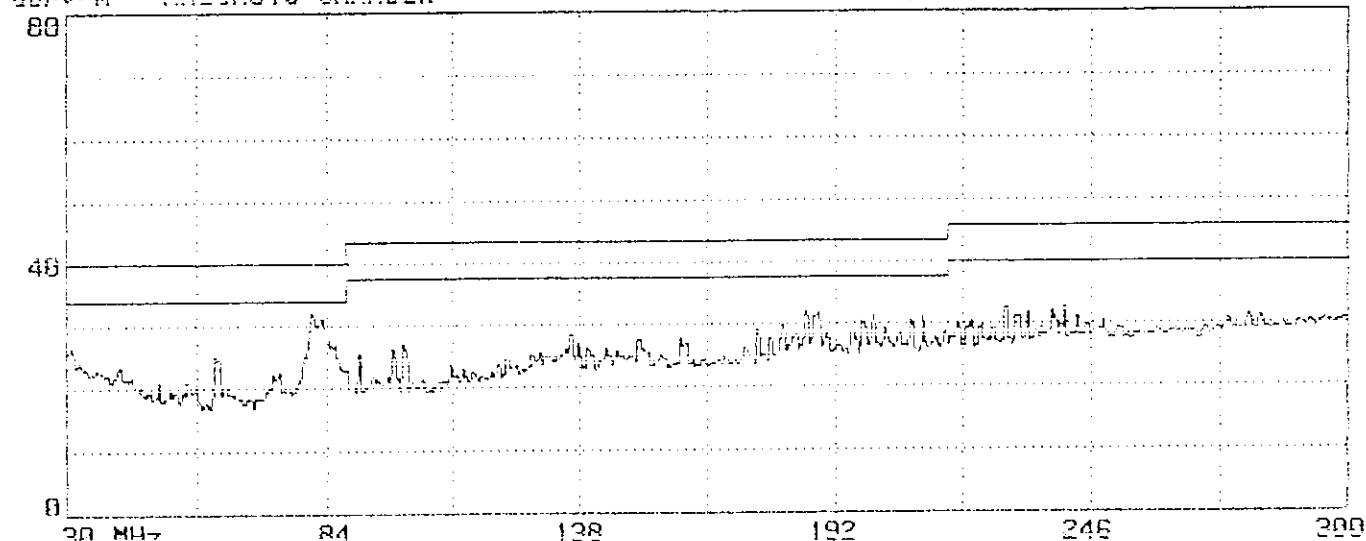
Page#: 101 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 20:31:33
 dBu/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probe: UH1LP9107B(A3) VERTICAL
 EUT : 21"COLOR CRT DISPLAY MONITOR Power : 120Vac/60Hz
 Margin: 6dB Standard: 0 Trace: 101, 0, 0, 0, 0
 Memo : M/N:P815-3*:115KHz(1600X1200); 3m D-SUB

Page#: 118 SP File#: VIEWSONC.EI
dBμV/m ANECHOIC CHAMBER

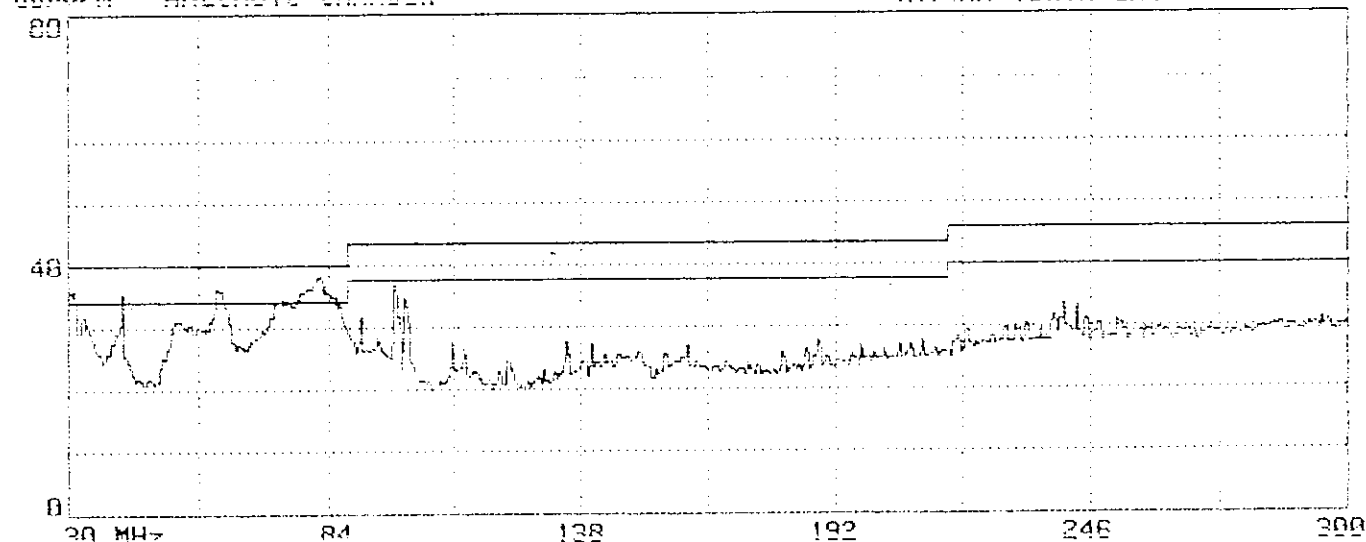
Date: 89-09-1997 Time: 21:41:53
TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probs: BBA9106B-A3 HORIZONTAL
EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 118, 0, 0, 0, 0
Memo : M/N:P815-3*;115KHz(1600X1200);1.5m BNC

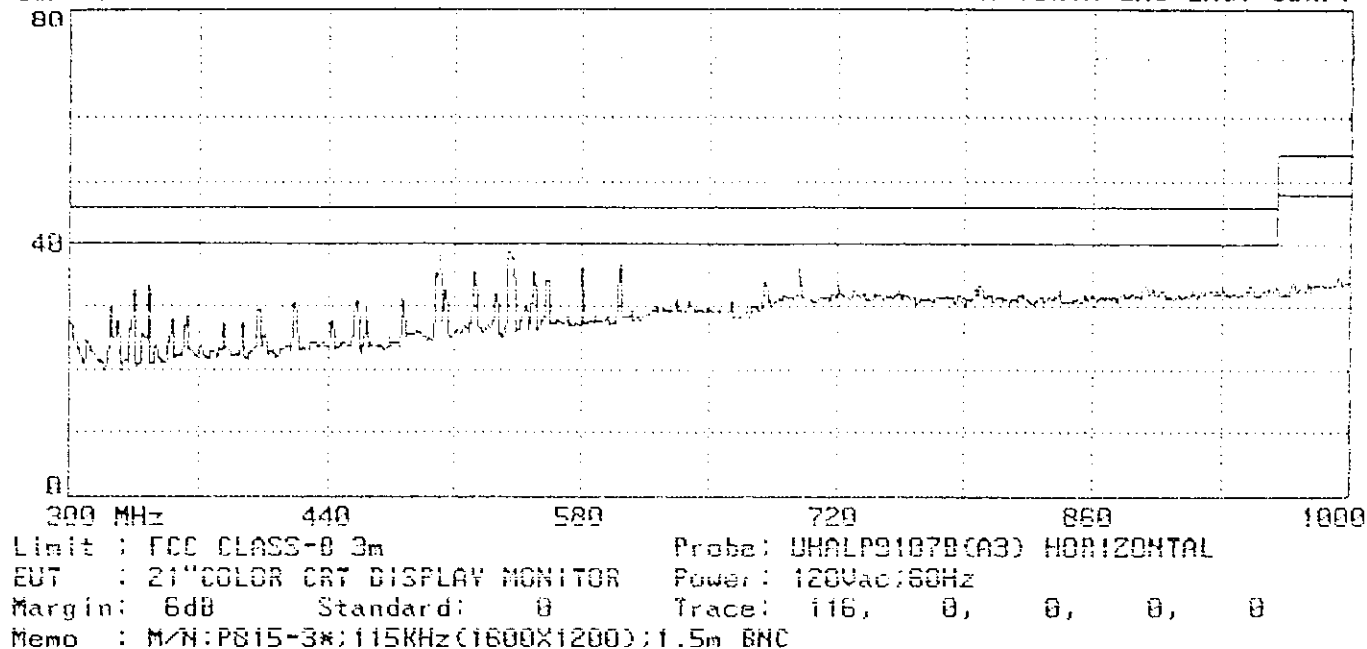
Page#: 119 SP File#: VIEWSONC.EI
dBμV/m ANECHOIC CHAMBER

Date: 89-09-1997 Time: 21:42:22
TAIWAN TOKIN EMC ENG. CORP.



Limit : FCC CLASS-B 3m Probs: BBA9106B-A3 VERTICAL
EUT : 21"COLOR CRT DISPLAY MONITOR Power: 120Vac/60Hz
Margin: 6dB Standard: 0 Trace: 119, 0, 0, 0, 0
Memo : M/N:P815-3*;115KHz(1600X1200);1.5m BNC

Page#: 116 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:38:52
 dB μ V/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.



Page#: 117 SP File#: VIEWSONC.E1 Date: 89-09-1997 Time: 21:39:51
 dB μ V/m ANECHOIC CHAMBER TAIWAN TOKIN EMC ENG. CORP.

