EMC

TEST REPORT

REPORT NO. : ADT-F97024
MODEL NO. : SBC-455, PCM-3335,
SBC-400, SBC-410
DATE OF TEST : March 12, 1997

PREPARED FOR: AAEON TECHNOLOGY INC.

ADDRESS : 1F, NO. 6, ALLEY 6, LANE 45, PAO-HSIN RD.,
HSIN-TIEN CITY, TAIPEI, TAIWAN, R.O.C.

PREPARED BY:

NVLAP®
Accredited Laboratory

ADVANCE DATA TECHNOLOGY CORPORATION
12F, NO.1, SEC.4, NAN-KING EAST RD.,
TAIPEI, TAIWAN, R.O.C.

This test report consists of 27 pages in total. It may be duplicated completely for legal use with the allowance of the applicant. The test result in the report only applies to the tested sample.

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1. CERTIFICATION

Issue Date: March 24, 1997

Product	:	CPU BOARD
Trade Name	:	AAEON
Model No.	:	SBC-455, PCM-3335, SBC-400, SBC-410
Applicant	:	AAEON TECHNOLOGY INC.
Standard	:	FCC Part 15, Subpart B, Class A ANSI C63.4-1992 CISPR 22:1993

We hereby certify that one sample of the designation has been tested in our facility on March 12, 1997. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class A limits of conducted and radiated emission of applicable standards.

PREPARED BY: Sharon Hsiung , DATE: 3/24/97
(Sharon Hsiung)

TESTED BY: Thomas Tung , DATE: 3/24/97
(Thomas Tung)

APPROVED BY: Charles Wang , DATE: 3/24/97
(Charles Wang)

ADVANCE DATA TECHNOLOGY CORPORATION

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	CPU BOARD
Model No.	:	SBC-455, PCM-3335, SBC-400, SBC-410
Power Supply Type	:	DC

Note: The EUT has four model names which use identical case and power supply:

* SBC-455 (CPU: IBM 5x86C-100 MHz)
* PCM-3335 (CPU: 386SX-40 MHz)
* SBC-400 (CPU: IBM 5x86C-100 MHz)
* SBC-410 (CPU: IBM 5x86C-100 MHz)

During the test, the EUT was installed in a metal enclosure with a slot board to form an industrial PC. The other parts of industrial PC includes the following:

* Case: AAEON, model: AIPC-110
* Switching power supply: SEASONIC, model: SSG-250G
* VGA Card: AAEON, model: DPC-421 (for model: SBC-400 and SBC-410)

For more detailed features, please refer to ATTACHMENT 1 - TECHNICAL DESCRIPTION OF EUT and User's Manual.

2.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

No.	Product	Brand	Model No.	FCC ID	I/O Cable
1	COLOR MONITOR	ACER	7134T	JVP7134T	Nonshielded Power Shielded signal
2	KEYBOARD	FORWARD	FDA-102D	F4Z4K3FDA-102D	Shielded signal
3	PRINTER	HP	2225C+	DSI6XU2225	Shielded signal Nonshielded Power
4	MODEM	DATATRONICS	1200CK	E2O5OV1200CK	Shielded signal Nonshielded Power
5	MODEM	HAYES	231AA	BFJ9D9-231AA	Shielded signal Nonshielded Power

Note: There is no ferrite core on the interface cable of all support units.

2.3 TEST METHODOLOGY AND CONFIGURATION

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4:1992. Radiated testing was performed at an antenna to EUT distance of 10 m on an open area test site. Please refer to the photos of test configuration in Item 5.

3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Date of Calibration
HP Spectrum Analyzer	8590L	3544A00941	Dec. 17, 1996
HP Pre-Amplifier	8447D	2944A08312	Sept. 9, 1996
R&S Receiver	ESVS10	844591010	Sept. 15, 1996
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 30, 1996
CHASE BiLOG Antenna	CBL6111A	1500	Sept. 21, 1996
EMCO Turn Table	1060-04	1196	N/A
EMCO Tower	1051	1264	N/A
Open Field Test Site	Site-1	ADT-R01	Sept. 11, 1996

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Date of Calibration
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 17, 1996
ROHDE & SCHWARZ Spectrum	EZM	893787/013	July 17, 1996
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	892107/003	July 25, 1996
EMCO-L.I.S.N.	3825/2	9204-1964	July 25, 1996
Shielding Room	Site 2	ADT-C02	N/A

Note: The calibration interval of the above test instruments is 12 months.
And the calibrations are traceable to NML/ROC and NIST/USA.

3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (at 10m) dBuV/m	Class B (at 10m) dBuV/m
30 - 230	40	30
230 - 1000	47	37

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

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
Above 1000	300	49.5	500	54.0

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION OF CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range	:	0.15 - 30 MHz (Conducted Emission)
		30 - 1000 MHz (Radiated Emission)
Input Voltage	:	120 Vac, 60 Hz
Temperature	:	24 ℃
Humidity	:	65 %
Atmospheric Pressure	:	1060 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: 30.3 dB at 0.204 MHz Minimum passing margin of radiated emission: 3.4 dB at 125.93 MHz

4.1.1 EUT OPERATION CONDITION

1. Turn on the power of all equipments.
2. Confirm the CPU board installed in Industrial PC is model: SBC-455.
3. Industrial PC reads a test program to enable all functions.
5. The Industrial PC reads and writes messages from HDD.
6. The Industrial PC sends "H" messages to monitor and monitor display "H" patterns on screen.
7. The Industrial PC sends "H" messages to each modem.
8. The Industrial PC sends "H" messages to printer, and the printer prints them on paper.
9. Repeat steps 3-9.
10. Change the CPU board with model: PCM-3335 and repeat steps 3-9.
11. Change the CPU board with model: SBC-400 and repeat steps 3-9.
12. Change the CPU board with model: SBC-410 and repeat steps 3-9.

4.1.2 TEST DATA OF CONDUCTED EMISSION (A)

EUT: **CPU BOARD** MODEL: **SBC-455**

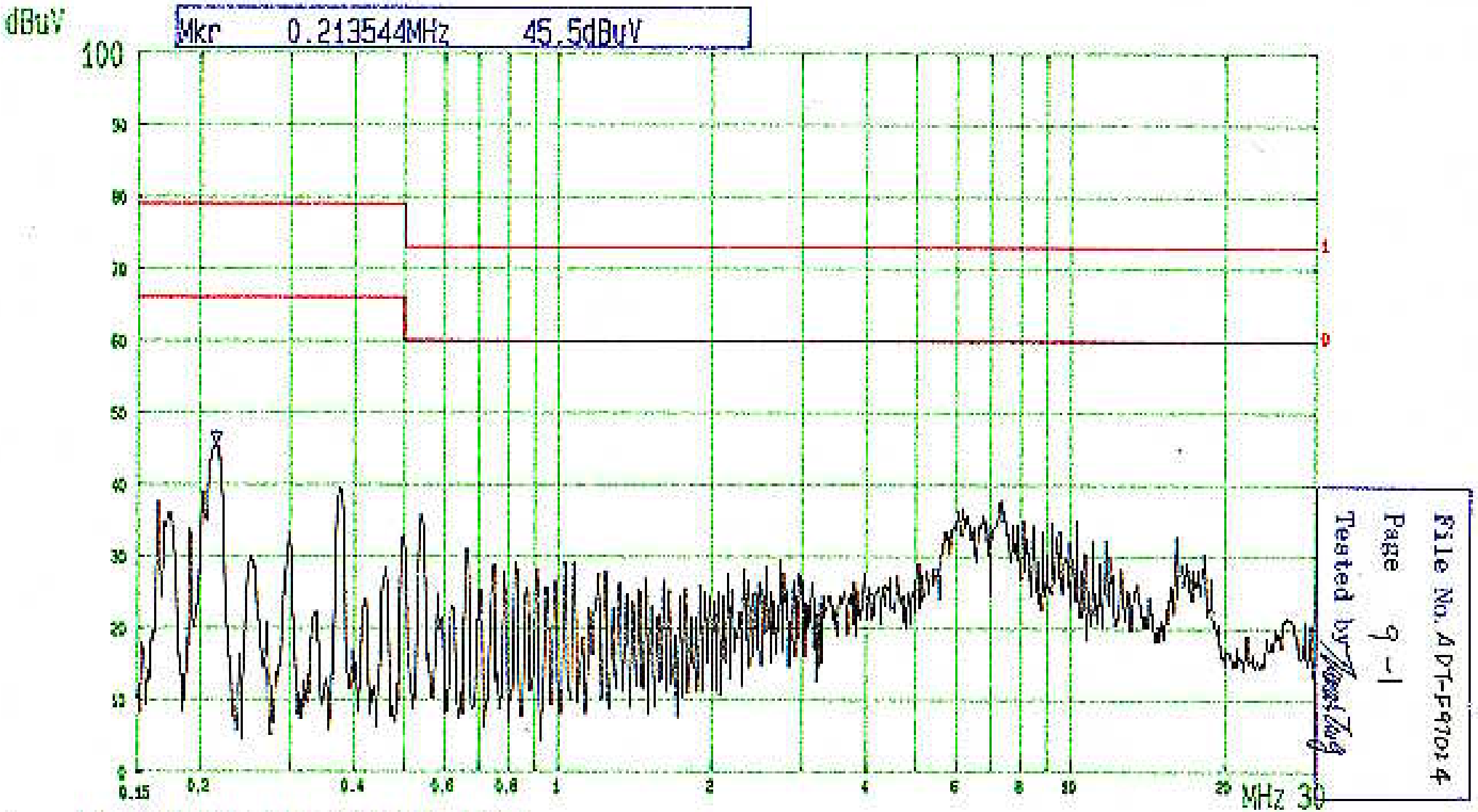
CPU: **5x86C-100 MHz**

6 dB Bandwidth: 10 kHz

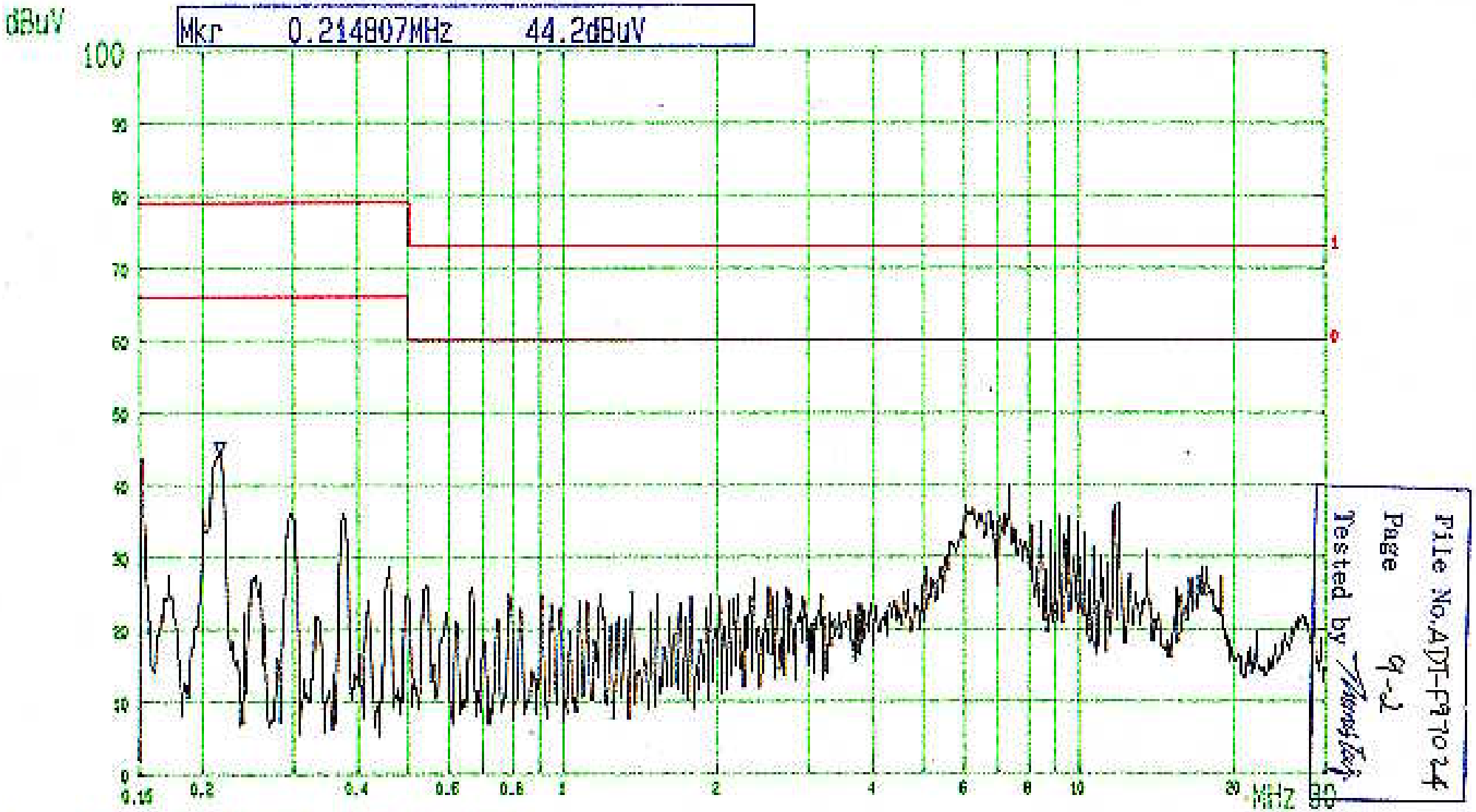
TEST PERSONNEL: Thomas Tung

Freq.	L1 Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L1		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.203	48.50	-	47.20	-	79.00	66.00	30.5	-	31.8	-
0.284	37.00	-	30.50	-	79.00	66.00	42.0	-	48.5	-
0.368	37.30	-	40.40	-	79.00	66.00	41.7	-	38.6	-
6.038	34.80	-	32.40	-	73.00	60.00	38.2	-	40.6	-
7.276	37.00	-	34.00	-	73.00	60.00	36.0	-	39.0	-
13.564	23.00	-	25.00	-	73.00	60.00	50.0	-	48.0	-

Remarks:
1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
4. The emission level of other frequencies were very low against the limit.



1--- Date 12.MAR.'97 Time 18:47:26
CISPR22 CLASS A CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : SBC-455 LISN : N



[--- Date 12.MAR.'97 Time 18:42:09
CISPR22 CLASS A CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : SBC-455 LISN : L1

4.1.3 TEST DATA OF CONDUCTED EMISSION (B)

EUT: **CPU BOARD** MODEL: **PCM-3335**

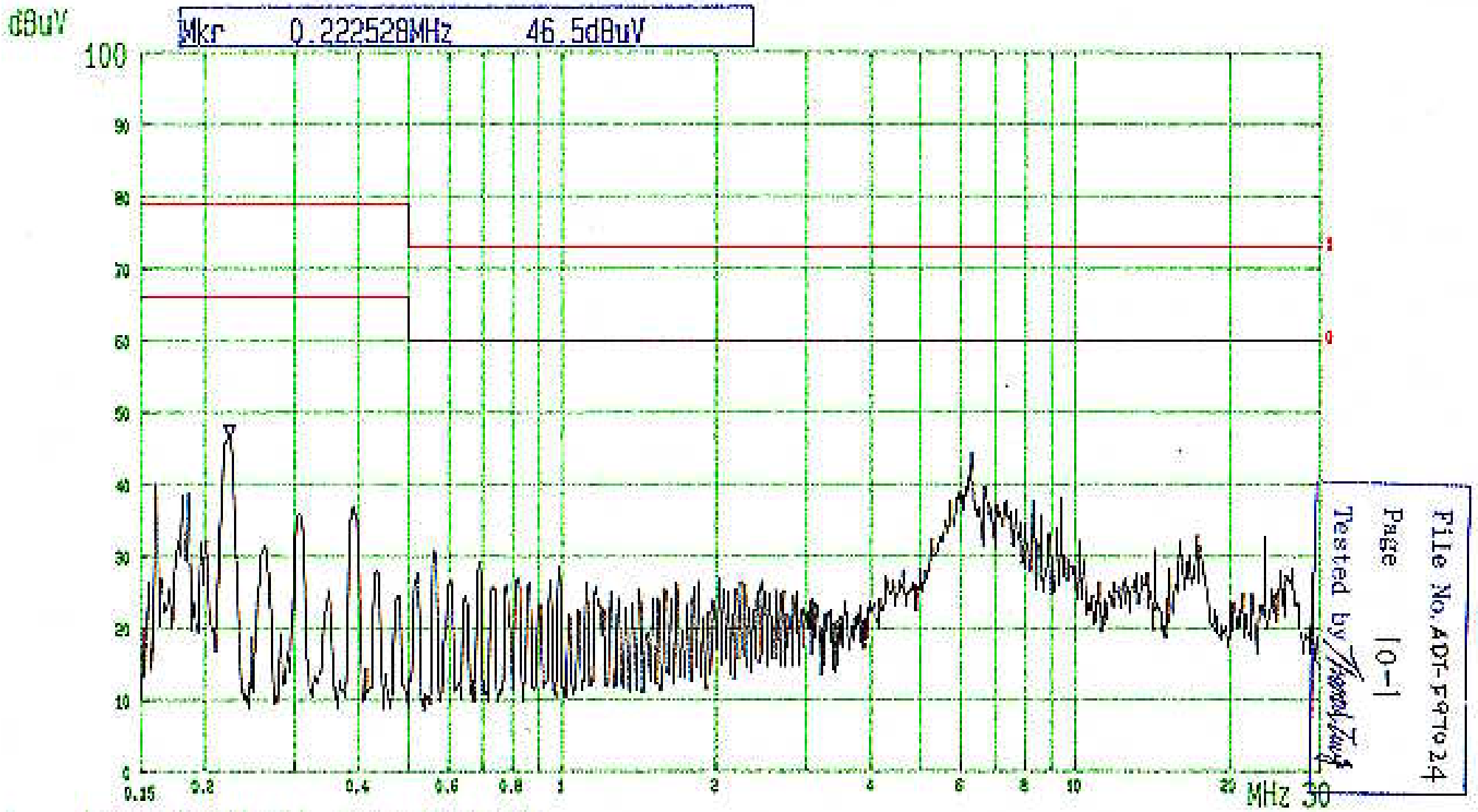
CPU: **386SX-40 MHz**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: Thomas Tung

Freq.	L1 Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L1		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.211	47.40	-	45.00	-	79.00	66.00	31.6	-	34.0	-
0.299	36.80	-	33.40	-	79.00	66.00	42.2	-	45.6	-
0.382	36.70	-	38.10	-	79.00	66.00	42.3	-	40.9	-
6.300	41.00	-	41.20	-	73.00	60.00	32.0	-	31.8	-
9.378	27.20	-	27.00	-	73.00	60.00	45.8	-	46.0	-
17.330	25.60	-	25.90	-	73.00	60.00	47.4	-	47.1	-

Remarks:
1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
4. The emission level of other frequencies were very low against the limit.



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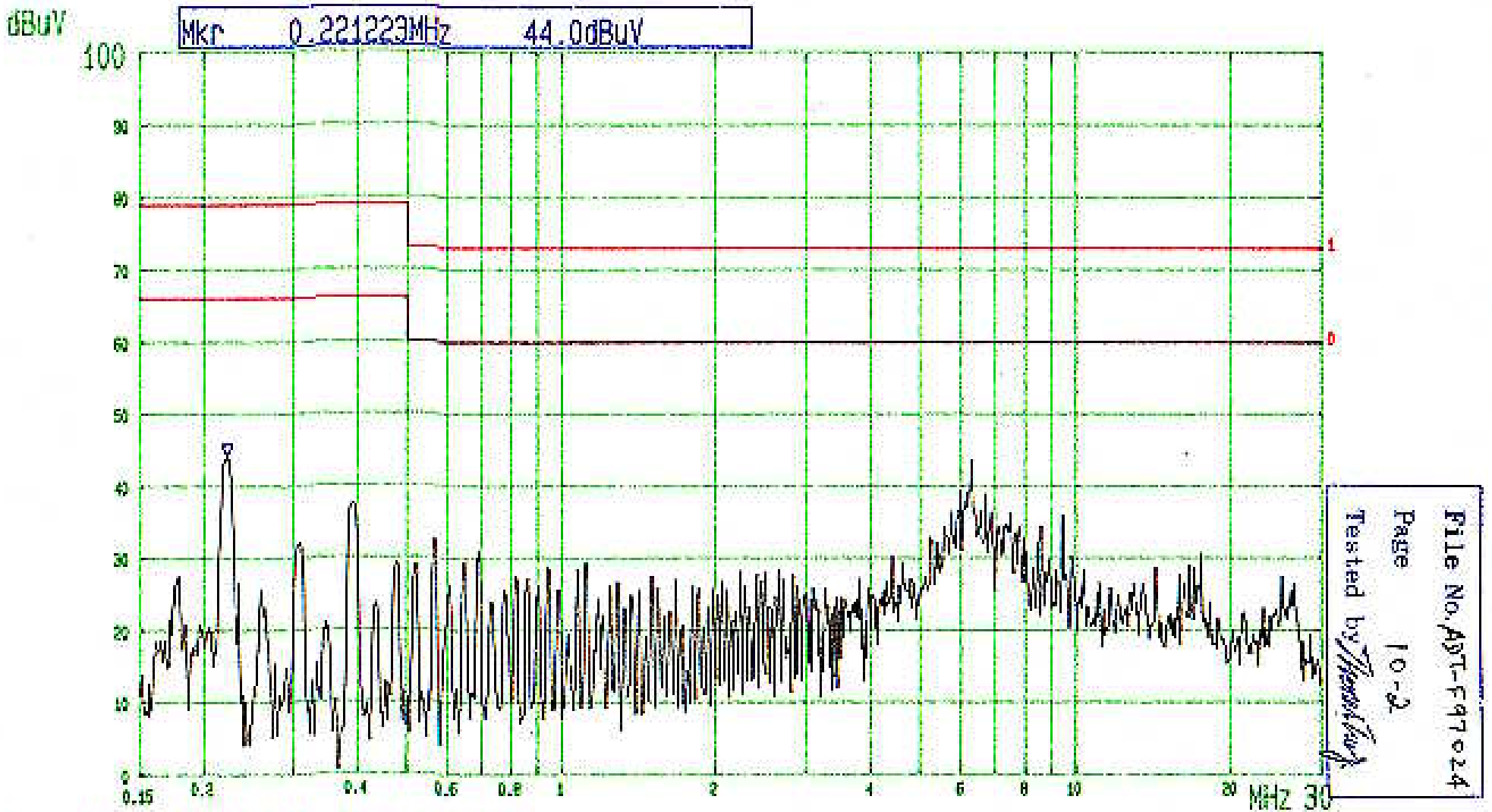
MODEL : PCM-3335 LISN : L1



|--- Date 12.MAR.'97 Time 17:21:18
CISPR22 CLASS A CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : PCM-3335 LISN : N

4.1.4 TEST DATA OF CONDUCTED EMISSION (C)

EUT: **CPU BOARD** MODEL: **SBC-400**

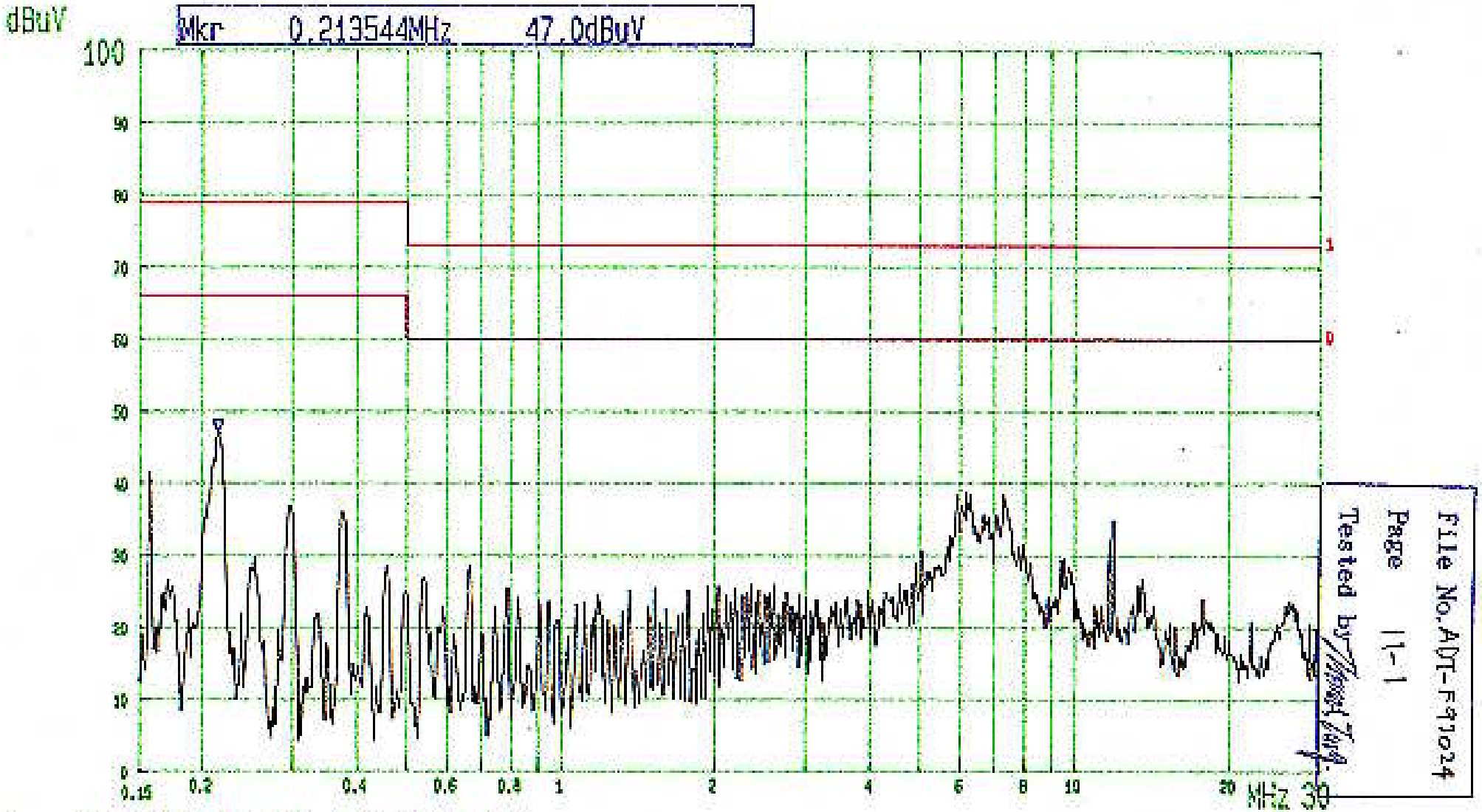
CPU: **5x86C-100 MHz**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: Thomas Tsai

Freq.	L1 Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L1		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.203	48.40	-	46.90	-	79.00	66.00	30.6	-	32.1	-
0.368	36.80	-	40.40	-	79.00	66.00	42.2	-	38.6	-
0.532	27.50	-	35.60	-	73.00	60.00	45.5	-	37.4	-
0.656	30.40	-	32.60	-	73.00	60.00	42.6	-	40.4	-
6.084	35.00	-	32.60	-	73.00	60.00	38.0	-	40.4	-
7.395	33.20	-	33.80	-	73.00	60.00	39.8	-	39.2	-

Remarks:
1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
4. The emission level of other frequencies were very low against the limit.



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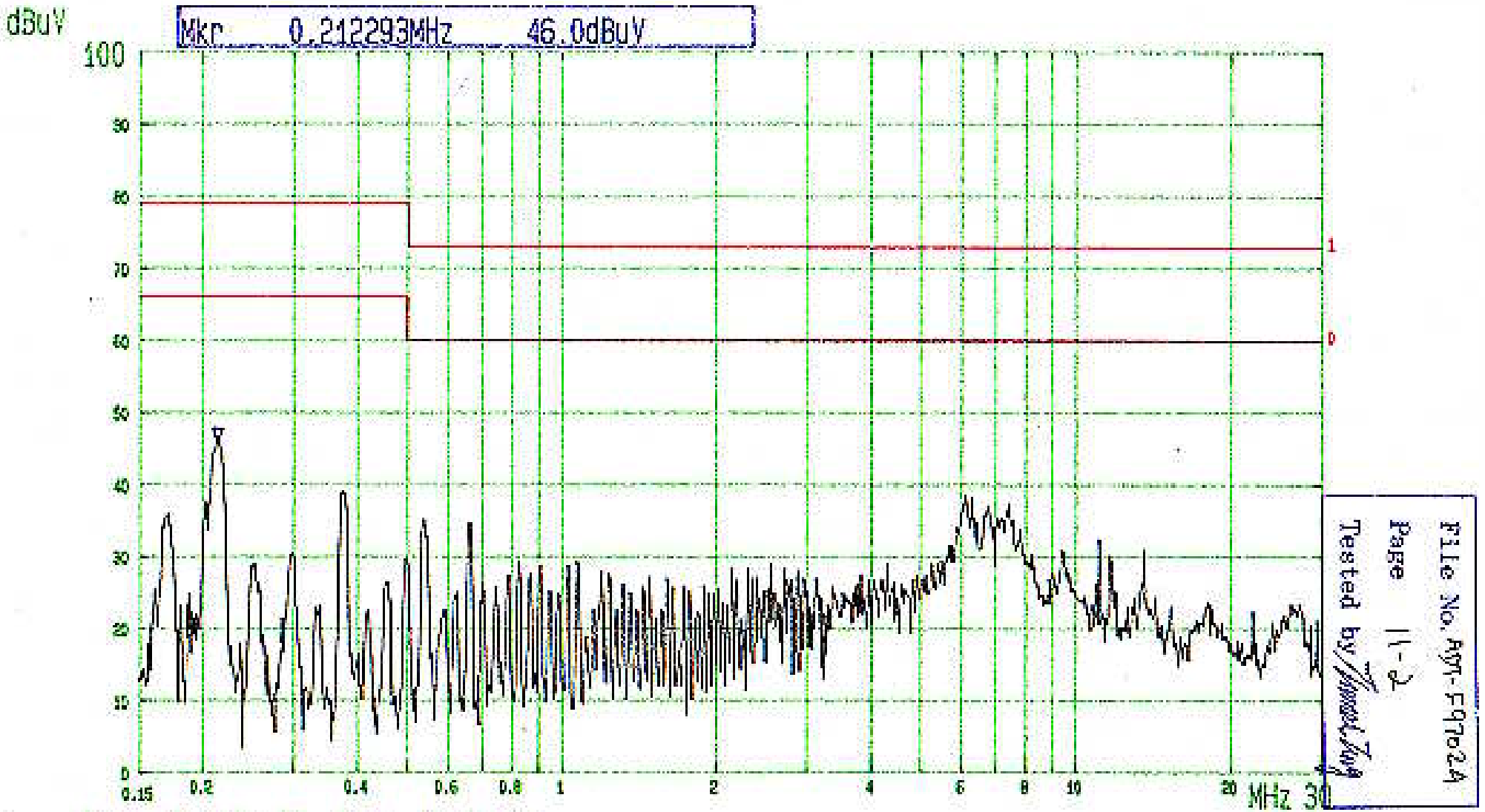
MODEL : SBC-400 LISN : L1



|--- Date 12.MAR.'97 Time 16:24:20
CISPR22 CLASS A CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : SBC-400 LISN : N

4.1.5 TEST DATA OF CONDUCTED EMISSION (D)

EUT: **CPU BOARD** MODEL: **SBC-410**

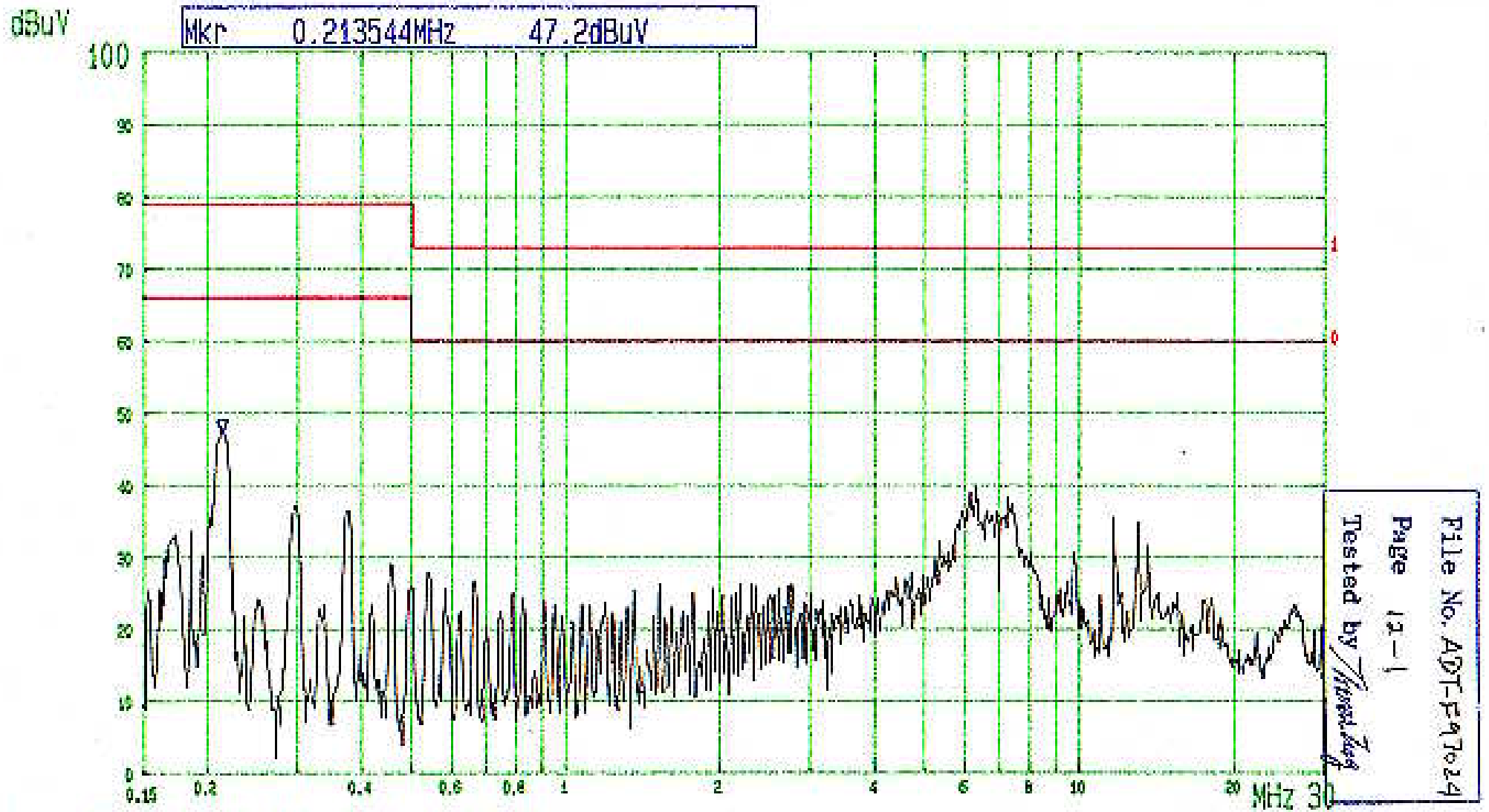
CPU: **5x86C-100 MHz**

6 dB Bandwidth: 10 kHz

TEST PERSONNEL: Thomas Tung

Freq.	L1 Level		N Level		Limit		Margin [dB (μV)]			
[MHz]	[dB (μV)]		[dB (μV)]		[dB (μV)]		L1		N	
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.204	48.70	-	47.40	-	79.00	66.00	30.3	-	31.6	-
0.367	36.80	-	40.20	-	79.00	66.00	42.2	-	38.8	-
0.533	28.20	-	35.80	-	73.00	60.00	44.8	-	37.2	-
6.190	31.40	-	31.00	-	73.00	60.00	41.6	-	42.0	-
7.238	33.70	-	33.60	-	73.00	60.00	39.3	-	39.4	-
11.645	23.90	-	22.50	-	73.00	60.00	49.1	-	50.5	-

Remarks: 1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
4. The emission level of other frequencies were very low against the limit.



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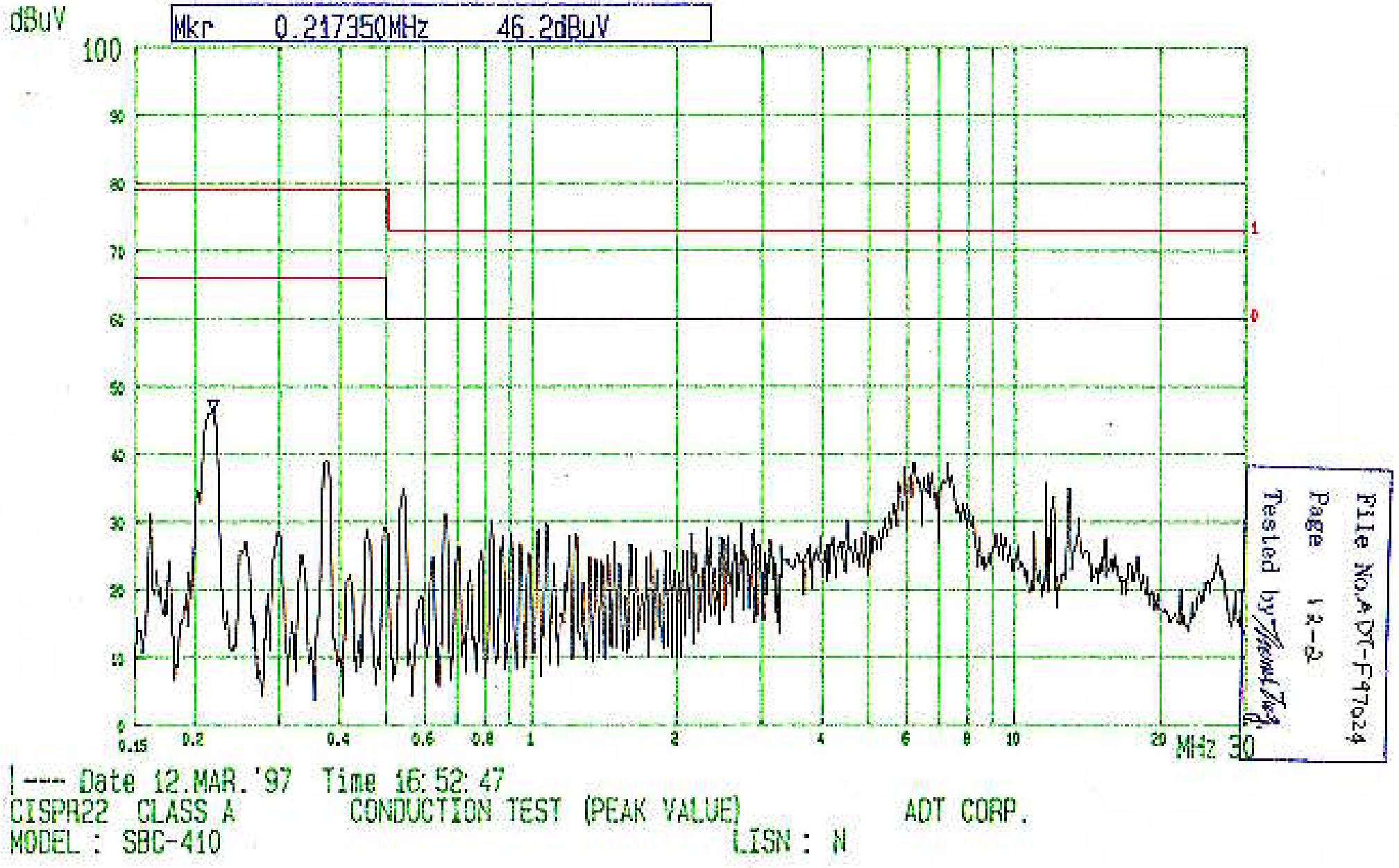
MODEL : SBC-410 LISN : L1



|--- Date 12.MAR.'97 Time 16:52:47
CISPR22 CLASS A CONDUCTION TEST (PEAK VALUE) ADT CORP.
MODEL : SBC-410 LISN : N

4.1.6 TEST DATA OF RADIATED EMISSION (A)

EUT: **CPU BOARD** MODEL: **SBC-455** CPU: **5x86C-100 MHz**

ANTENNA: CHASE BILOG CBL 6111A POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas Tung

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
69.26	8.2	14.1	22.3	40.0	-17.7
114.60	14.3	12.6	26.9	40.0	-13.1
185.71	12.3	11.6	23.9	40.0	-16.1
217.19	14.0	12.8	26.8	40.0	-13.2
232.91	15.5	17.9	33.4	47.0	-13.6
365.11	20.3	14.2	34.5	47.0	-12.5

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

Graph of Test Result

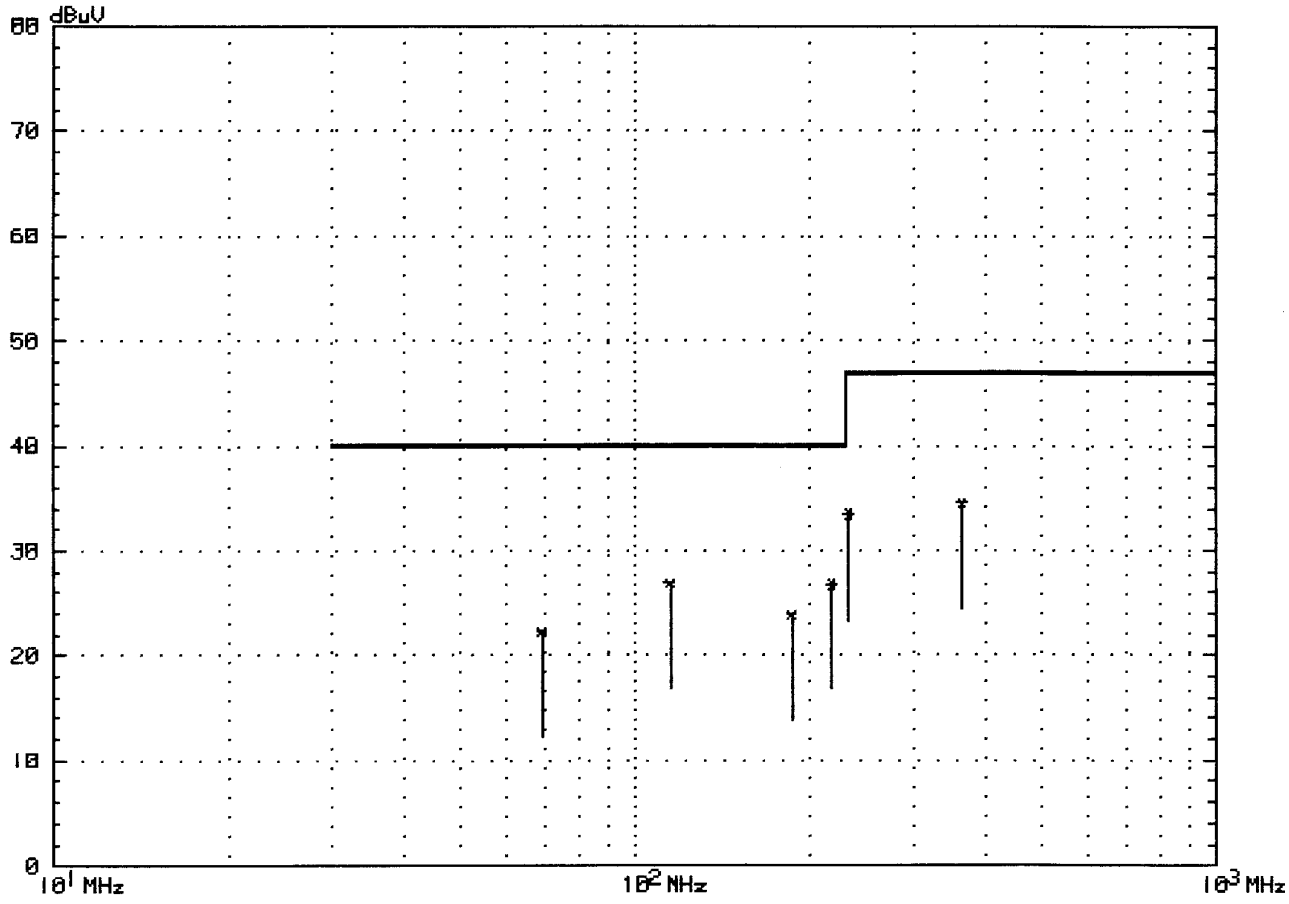
Model:SBC-455
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Horizontal

Tested By : Thomas Tsui

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	69.3	22.3	2	114.6	26.9
3	185.7	23.9	4	217.2	26.8
5	232.9	33.4	6	365.1	34.5



TEST DATA OF RADIATED EMISSION (A)

EUT: **CPU BOARD** MODEL: **SBC-455** CPU: **5x86C-100 MHz**

ANTENNA: CHASE BILOG CBL 6111A POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas Tung.

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
31.49	18.2	10.7	28.9	40.0	-11.1
56.68	8.2	22.4	30.6	40.0	-9.4
59.81	7.6	22.1	29.7	40.0	-10.3
185.71	12.5	15.5	28.0	40.0	-12.0
217.18	14.1	14.8	28.9	40.0	-11.1
364.33	20.6	12.1	32.7	47.0	-14.3

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

Graph of Test Result

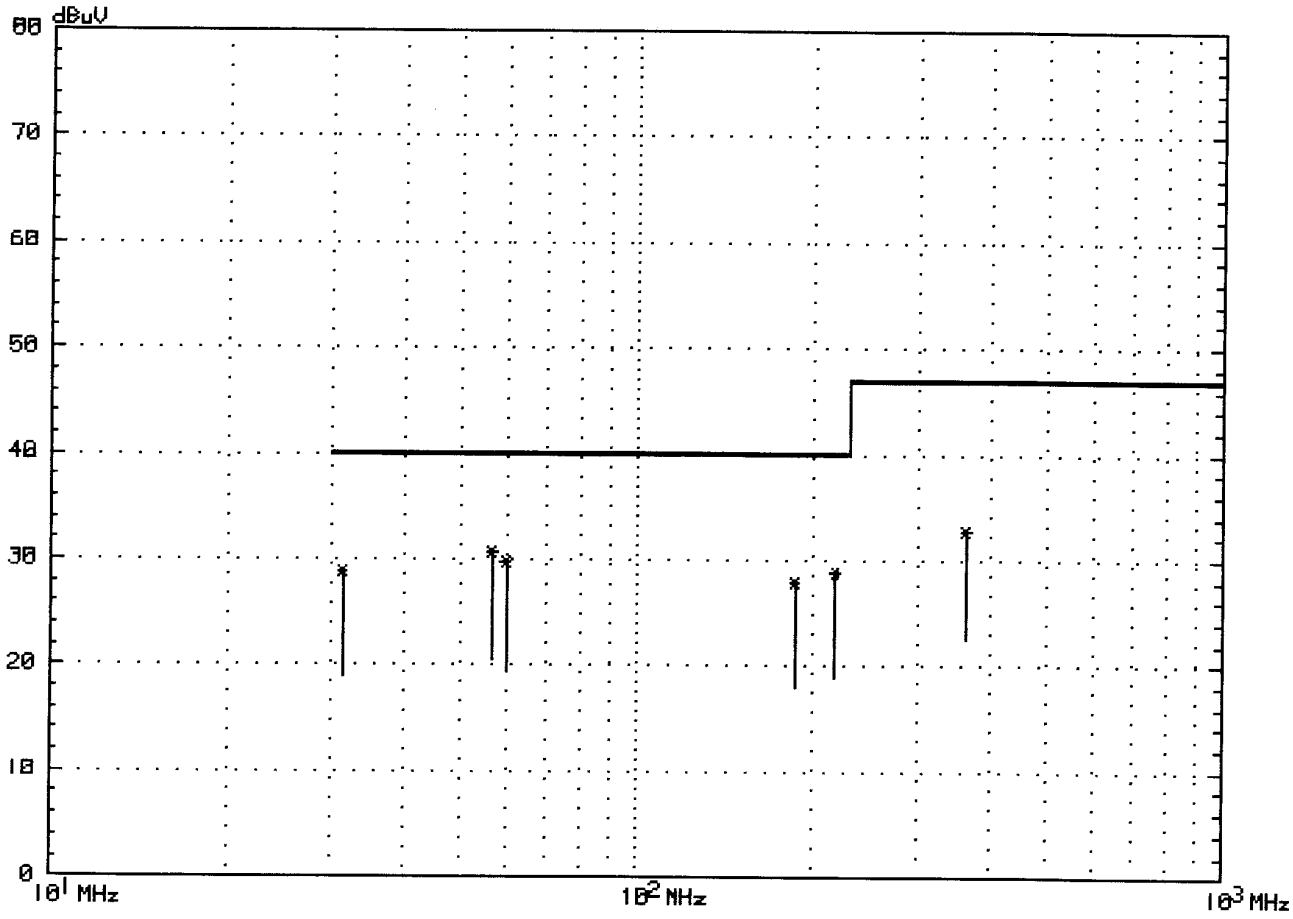
Model:SBC-455
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Vertical

Tested By : Thomas Tung

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	31.5	28.9	2	56.7	30.6
3	59.8	29.7	4	185.7	28.0
5	217.2	28.9	6	364.3	32.7



4.1.7 TEST DATA OF RADIATED EMISSION (B)

EUT: **CPU BOARD** MODEL: **PCM-3335** CPU: **386SX-40 MHz**

ANTENNA: CHASE BILOG CBL 6111A POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas, Tung

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
75.52	9.3	25.5	34.8	40.0	-5.2
80.21	10.1	19.2	29.3	40.0	-10.7
176.23	12.5	15.7	28.2	40.0	-11.8
226.57	14.9	13.7	28.6	40.0	-11.4
320.76	19.1	15.5	34.6	47.0	-12.4
503.51	25.0	14.5	39.5	47.0	-7.5

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

Graph of Test Result

Model:PCM-3335
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

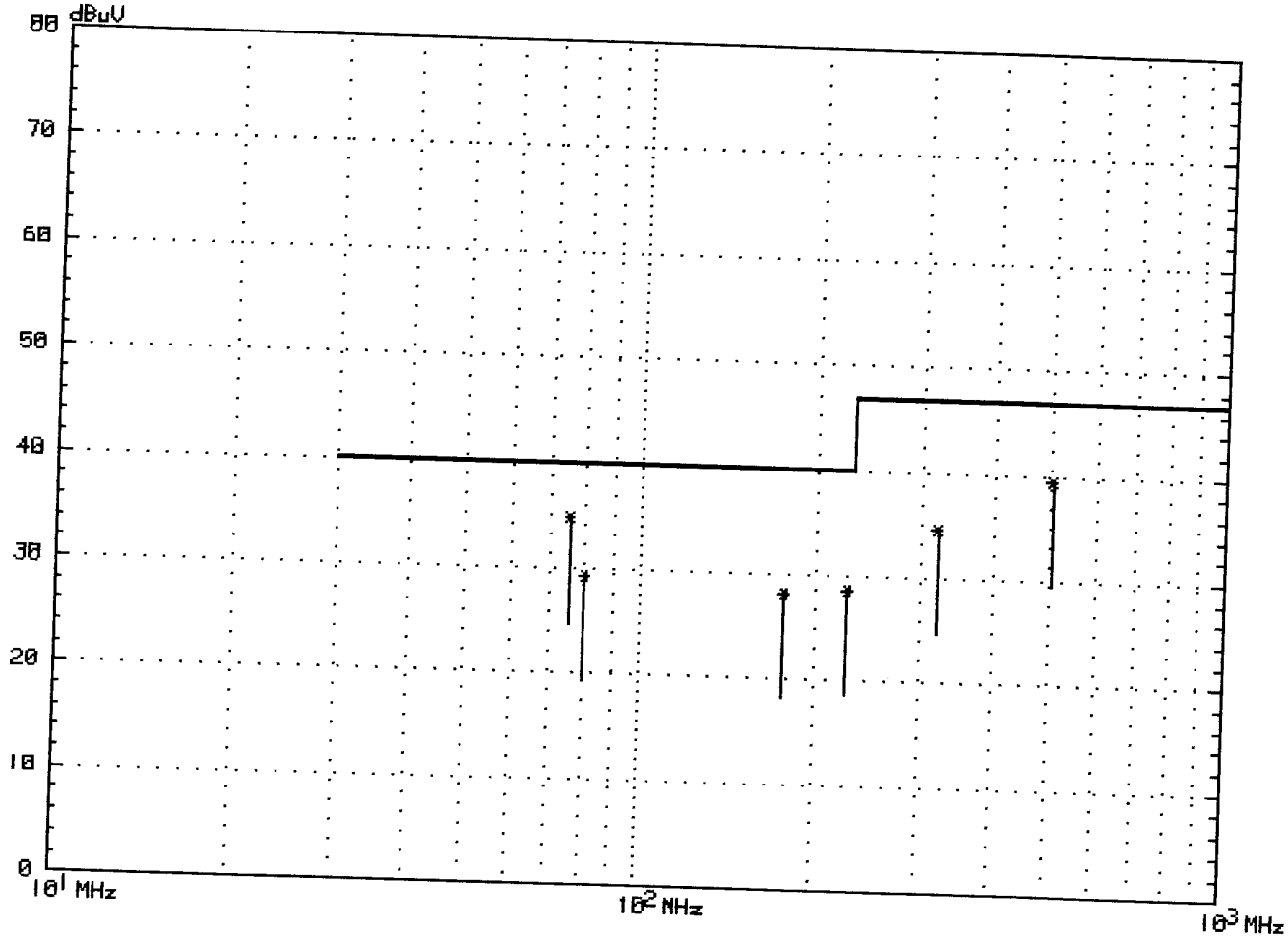
Tested By : Thomas Tung

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Horizontal

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)
1	75.5	34.8
3	176.2	28.2
5	320.8	34.6

No.	Freq.(MHz)	Emission(dBuV)
2	80.2	29.3
4	226.6	28.6
6	503.5	39.5



TEST DATA OF RADIATED EMISSION (B)

EUT: **CPU BOARD** MODEL: **PCM-3335** CPU: **386SX-40 MHz**

ANTENNA: CHASE BILOG CBL 6111A POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas Tsui

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
31.49	18.2	10.7	28.9	40.0	-11.1
56.68	8.2	22.4	30.6	40.0	-9.4
59.81	7.6	22.1	29.7	40.0	-10.3
185.71	12.5	15.5	28.0	40.0	-12.0
217.18	14.1	14.8	28.9	40.0	-11.1
364.33	20.6	12.1	32.7	47.0	-14.3

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

Graph of Test Result

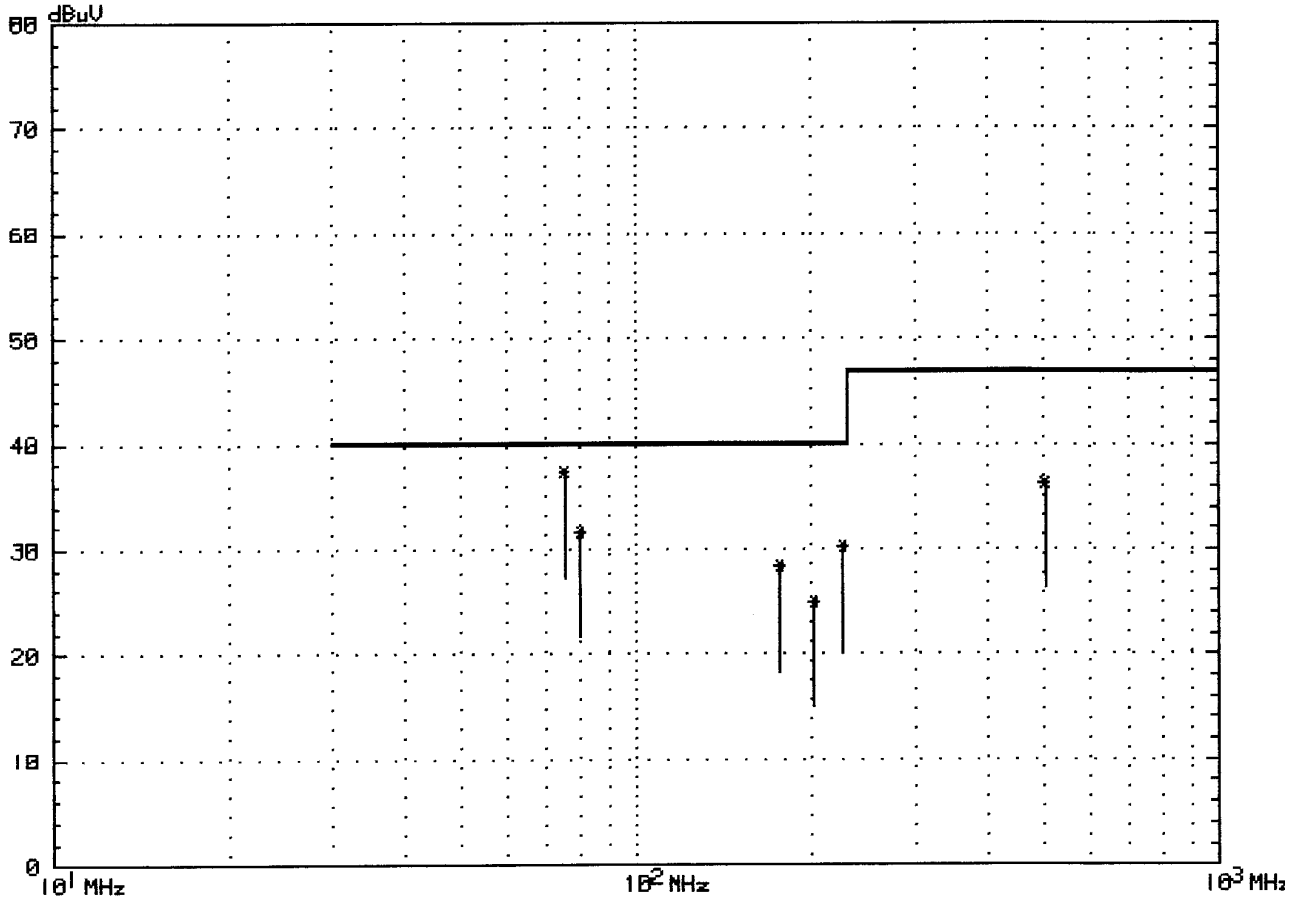
Model:PCM-3335
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Vertical

Tested By : Thomas Tung

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	75.5	37.3	2	80.2	31.6
3	176.2	28.3	4	201.4	25.0
5	226.6	30.3	6	503.5	36.3



4.1.8 TEST DATA OF RADIATED EMISSION (C)

EUT: **CPU BOARD** MODEL: **SBC-400** CPU: **5x86C-100 MHz**

ANTENNA: CHASE BILOG CBL6111A POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas Tung

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
114.59	14.3	12.7	27.0	40.0	-13.0
135.39	14.7	11.2	25.9	40.0	-14.1
171.87	12.8	11.2	24.0	40.0	-16.0
210.94	13.4	7.1	20.5	40.0	-19.5
232.53	15.5	18.8	34.3	47.0	-12.7
432.06	22.7	11.8	34.5	47.0	-12.5

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

Graph of Test Result

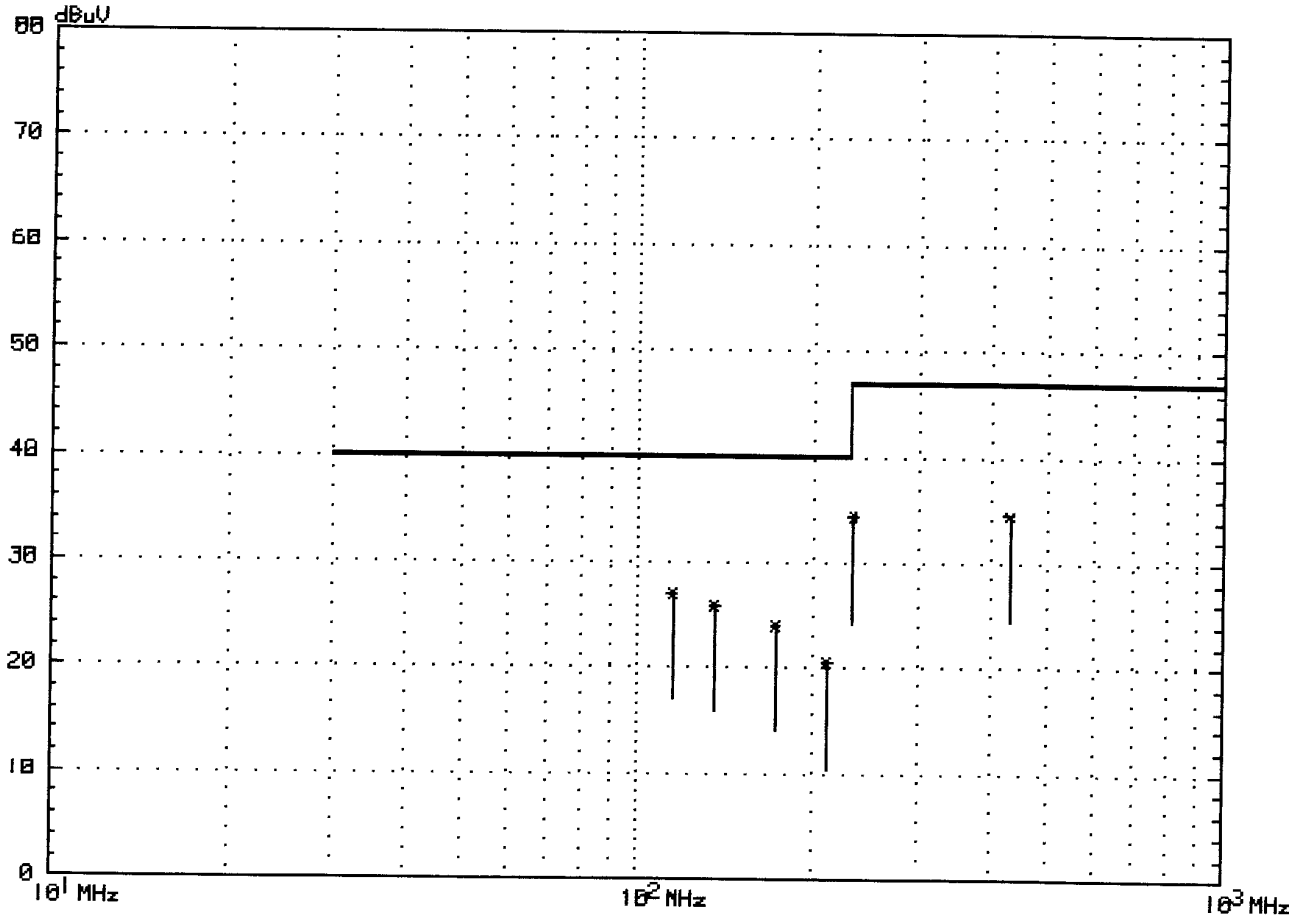
Model:SBC-400
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Horizontal

Tested By : Thomas Tung

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	114.6	27.0	2	135.4	25.9
3	171.9	24.0	4	210.9	20.5
5	232.5	34.3	6	432.1	34.5



TEST DATA OF RADIATED EMISSION (C)

EUT: **CPU BOARD** MODEL: **SBC-400** CPU: **5x86C-100 MHz**

ANTENNA: CHASE BILOG CBL6111A POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL:

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
37.93	15.8	5.0	20.8	40.0	-19.2
114.59	14.2	17.4	31.6	40.0	-8.4
135.36	15.4	15.9	31.3	40.0	-8.7
171.88	13.3	14.1	27.4	40.0	-12.6
210.91	13.7	11.0	24.7	40.0	-15.3
431.55	23.2	16.5	39.7	47.0	-7.3

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

Graph of Test Result

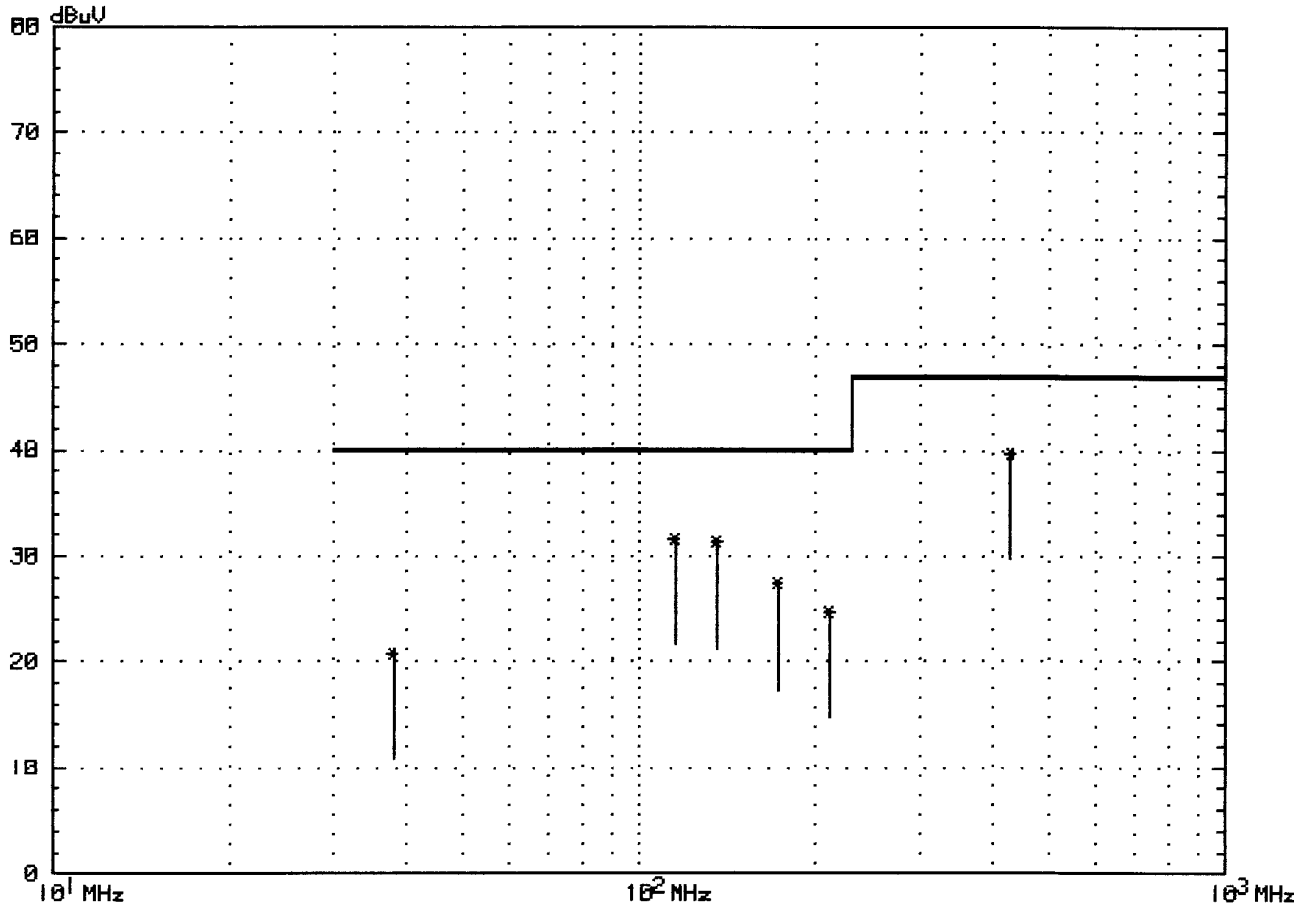
Model:SBC-400
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Vertical

Tested By : Thomas Tsui

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	37.9	20.8	2	114.6	31.6
3	135.4	31.3	4	171.9	27.4
5	210.9	24.7	6	431.6	39.7



4.1.9 TEST DATA OF RADIATED EMISSION (D)

EUT: **CPU BOARD** MODEL: **SBC-410** CPU: **5x86C-100 MHz**

ANTENNA: CHASE BILOG CBL6111A POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas Jung

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
116.48	14.5	17.8	32.3	40.0	-7.7
120.01	14.9	20.2	35.1	40.0	-4.9
124.88	14.9	18.5	33.4	40.0	-6.6
151.11	14.0	11.5	25.5	40.0	-14.5
226.66	14.9	16.9	31.8	40.0	-8.2
402.95	21.8	16.6	38.4	47.0	-8.6

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

Graph of Test Result

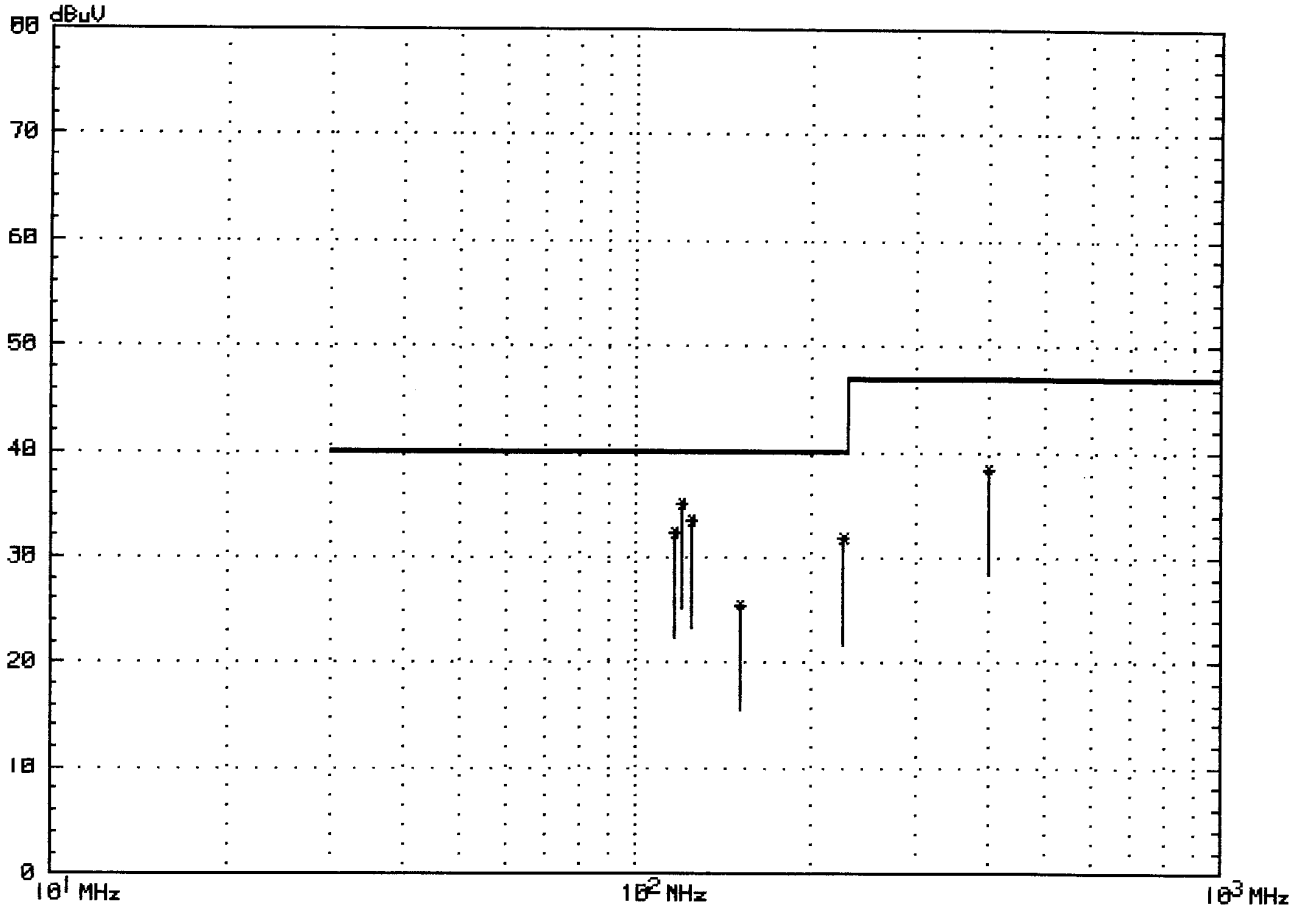
Model:SBC-410
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Horizontal

Tested By : Thomas Tung

Report No. : F97024

No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	116.5	32.3	2	120.0	35.1
3	124.9	33.4	4	151.1	25.5
5	226.7	31.8	6	403.0	38.4



TEST DATA OF RADIATED EMISSION (D)

EUT: **CPU BOARD** MODEL: **SBC-410** CPU: **5x86C-100 MHz**

ANTENNA: CHASE BILOG CBL6111A POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak 6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz MEASURED DISTANCE: 10 M

TEST PERSONNEL: Thomas Tung

Frequency (MHz)	Correction Factor (dB/m)	Reading Data (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
114.58	14.2	20.2	34.4	40.0	-5.6
120.01	14.7	19.6	34.3	40.0	-5.7
125.93	15.0	21.6	36.6	40.0	-3.4
129.06	15.1	20.5	35.6	40.0	-4.4
151.09	15.1	17.6	32.7	40.0	-7.3
210.93	13.7	16.8	30.5	40.0	-9.5
226.68	14.8	17.7	32.5	40.0	-7.5
277.04	16.8	12.0	28.8	47.0	-18.2
402.95	22.7	15.5	38.2	47.0	-8.8
430.78	23.2	10.7	33.9	47.0	-13.1

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

Graph of Test Result

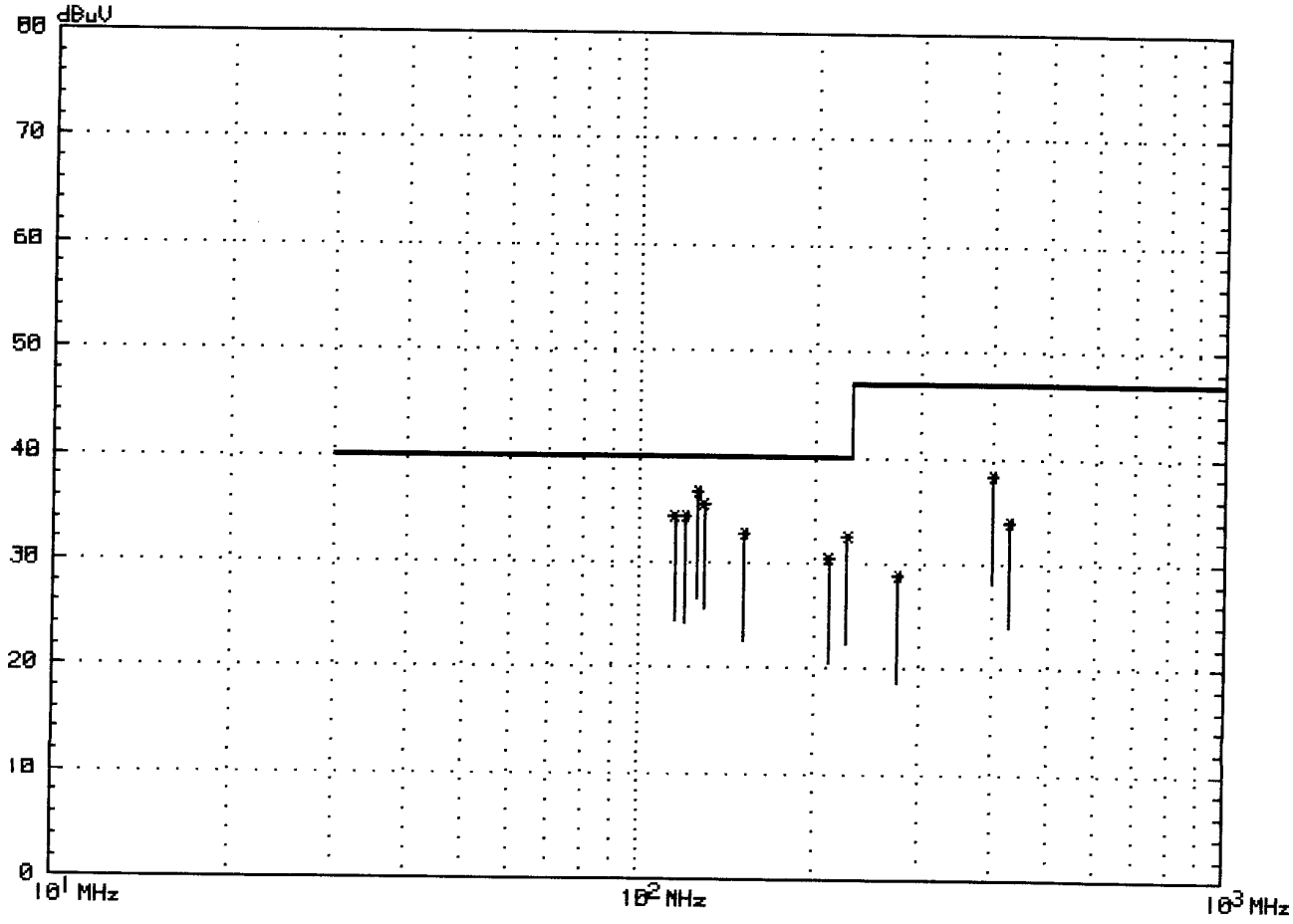
Model:SBC-410
Mode:
EMI Type:CISPR 22 Class A
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

Test Date: 12 Mar 1997
Remark:FULL SYSTEM
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:Vertical

Tested By : Thomas Tung

Report No. : F97024

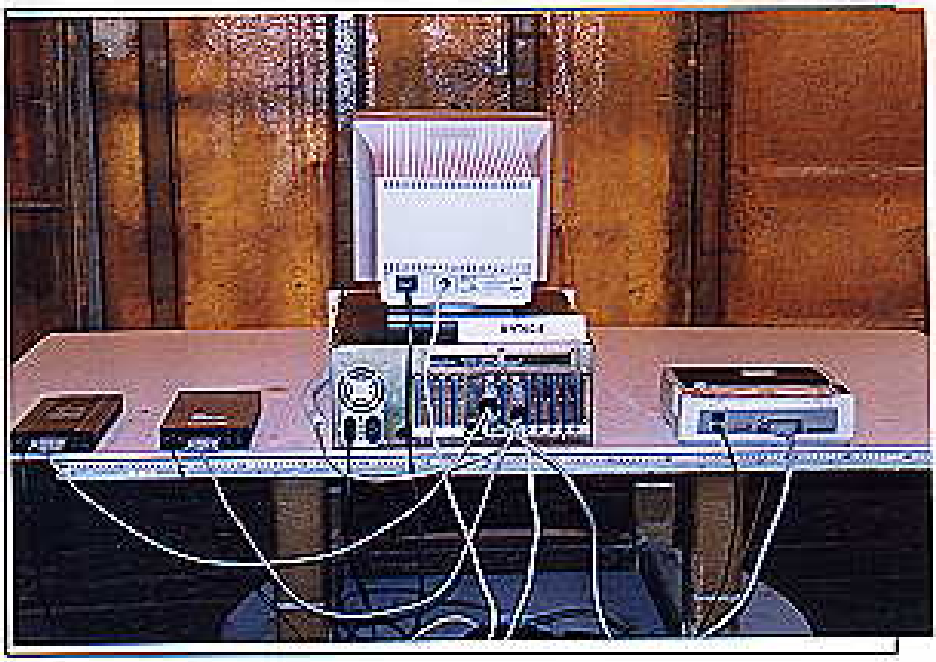
No.	Freq.(MHz)	Emission(dBuV)	No.	Freq.(MHz)	Emission(dBuV)
1	114.6	34.4	2	120.0	34.3
3	125.9	36.6	4	129.1	35.6
5	151.1	32.7	6	210.9	30.5
7	226.7	32.5	8	277.0	28.8
9	402.9	38.2	10	430.8	33.9



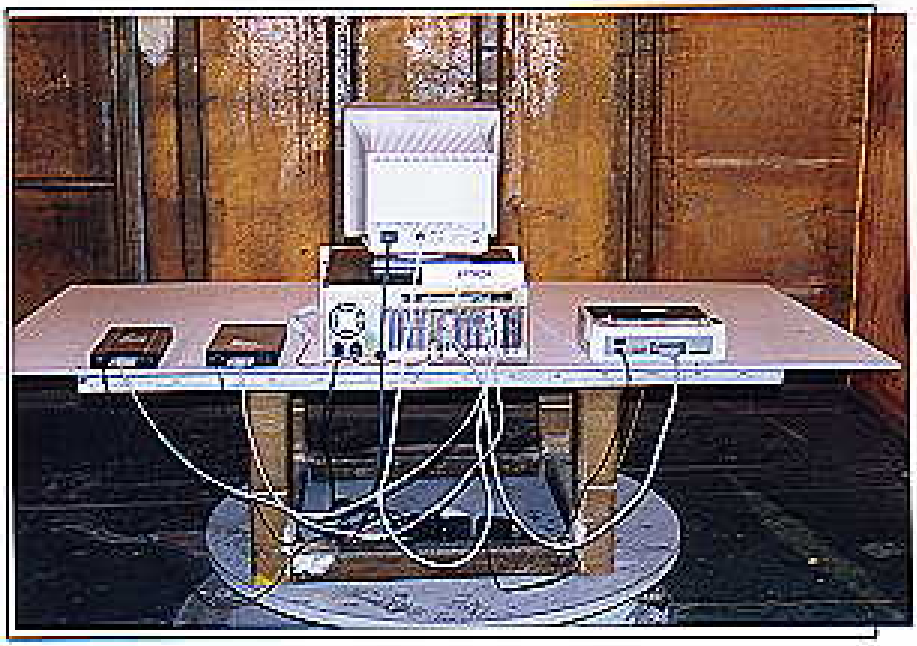
5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN

RADIATED EMISSION TEST (MODEL: SBC-455)

RADIATED EMISSION TEST (MODEL: PCM-3335)



RADIATED EMISSION TEST (MODEL: SBC-400)



RADIATED EMISSION TEST (MODEL: SBC-410)

CONDUCTED EMISSION TEST (MODEL: SBC-455)

CONDUCTED EMISSION TEST (MODEL: PCM-3335)

CONDUCTED EMISSION TEST (MODEL: SBC-400)

CONDUCTED EMISSION TEST (MODEL: SBC-410)

6. ATTACHMENT I - TECHNICAL DESCRIPTION OF EUT

SPECIFICATIONS:

* CPU	IBM 5x86C 100 MHz (Model: SBC-455, SBC-400, SBC-410) 386SX-40 MHz (Model: PCM-3335)
* BIOS	AMI Flash Win
* 2nd Level Cache	128K-512K (Model: SBC-455, SBC-400, SBC-410) N/A (Model: PCM-3335)
* DRAM	4 MB
* SCSI Interface	N/A
* IDE	Enhanced x 2 (Model: SBC-400) Enhanced x 2 (Model: SBC-410) Enhanced (Model: SBC-455, PCM-3335)
* FDD Interlace	Yes
* Parallel Port	SPP/EPP/ECP
* RS-232 Port	2 (Model: SBC-455, PCM-3335) 1 (Model: SBC-400, SBC-410)
* Watch Dog Timer	2-32 sec. (Model: SBC-455, SBC-410, SBC-400) N/A (Model: PCM-3335)
* Video Memory Size	512K/1M (Model: SBC-455) 512K (Model: PCM-3335) N/A (Model: SBC-400, SBC-410)
* PCI Bus	N/A
* ISA Bus	Yes (SBC-455, SBC-400, SBC-410) No (PCM-3335)
* PC-104 Connector	Yes
* Power Saving	Yes
* Size (LxW Inches)	7.3x4.8 (Model: SBC-455) 7.3x4.8 (Model: SBC-410, SBC-400) 3.55x3.77 (Model: PCM-3335)