1. VERIFICATION OF COMPLIANCE

NVLAP® LAB CODE: 200064-0

COMPANY NAME: LABWAY CORPORATION
6F, 788, CHUNG CHENG RD.,
CHUNG HO CITY, TAIPEI, TAIWAN, R. O. C.

CONTACT PERSON: CHRIS FONG / MANAGER

TELEPHONE NO: (02) 323-40222

MODEL NO/NAME: A301D10

SERIAL NO: N/A

DATE TESTED: MAY 14, 1998

TYPE OF EQUIPMENT:	INFORMATION TECHNOLOGY EQUIPMENT (ITE)
MEASUREMENT DISTANCE:	( ) 3 METER (X) 10 METER
TECHNICAL LIMIT:	CLASS B
FCC RULES:	PART 15
MEASUREMENT PROCEDURE	ANSI C63.4:92 / EN55022
EQUIPMENT AUTHORIZATION PROCEDURE	CERTIFICATION
MODIFICATION MADE ON EUT	☒ YES ☐ NO
DEVIATIONS FROM MEASUREMENT PROCEDURE	☐ YES (refer to section 21 for comments) ☒ NO
RADIATED EMISSION TEST RESULT	-1.1 dB @ 133.65 MHz/HORIZONTAL
CONDUCTED EMISSION TEST RESULT	-2.3 dB @ 0.220 MHz/L1

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By

MIKE C.I. KUO / VICE PRESIDENT
COMPLIANCE ENGINEERING SERVICES

Acknowledged By

CHRIS FONG / MANAGER
LABWAY CORPORATION

2. PRODUCT DESCRIPTION

CHIPSET BRAND AND PART NO.	YAMAHA, YMF724-V
LIST OF EACH OSC. OR XTAL. FREQ. (FREQ.>=1 MHz)	X1=24.576 MHz
NUMBER OF PCB LAYERS	2 LAYERS
POWER REQUIREMENTS	DC 5/12 V
NO. OF EXTERNAL I/O CONNECTORS	5

3. TESTED SYSTEM DETAILS

The Model names for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Host Computer

Device Type	Manufacturer	Model Number	Serial Number	FCC ID
HOST COMPUTER	VIVA	VIVA586-133	HS-02	DOC
HARD DRIVE	Maxtor	71336AP	HD-02	N/A
FLOPPY DRIVE	Panasonic	JU-257A606P	FD-02	N/A
CD-ROM DRIVE	SONY	CDU77E	CD-03	AK8CDU77E01
VGA CARD	TNC	TRUESPEED S3_968 PCI	CV22	JDF-968PCI-001
I/O CARD	BUILT-IN	N/A	N/A	N/A
SOUND CARD **(EUT)**	LABWAY	A301D10	N/A	LWHA301D10

External Peripheral Devices

Device Type	Manufacturer	Model Number	Serial No.	FCC ID / DoC
MONITOR	VIEWSONIC	1782-2	MT-01	GSS933005
KEYBOARD	Acer	6511-AW	KB-12	JVPKBS-WIN
MOUSE	LOGITECH	M-M35	ME-05	DZL210365
PRINTER	EPSON	LX-300	PRN-04	BKMP850A
JOYSTICK	LOGITECH	3119	JOY-04	N/A
SPEAKER	Labtec	LCS-150	SPK-01	N/A
PLAYER	Matsushita	RQ-L317	PLY-02	N/A
MICROPHONE	KOKA	DM-510	MIC-02	N/A

4. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at No. 199, Chung Sheng Road, Hsin Tien City, Taipei, Taiwan R.O.C. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code:200064-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT(1300F2))

6. MEASUREMENT INSTRUMENTATION

Radiated emissions were measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, ridged waveguide, liner horn. EMI receivers were used for line conducted readings, spectrum analyzers with pre-selectors and quasi-peak detectors were used to perform radiated measurements. Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specification for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

7. MEASURING INSTRUMENT CALIBRATION

The measuring equipment which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

8. UNITS OF MEASUREMENT

Measurements of radiated interference are reported in terms of dB(uV/m) at a specified distance. The indicated readings on the spectrum analyzer were converted to dB(uV/m) by use of appropriate conversion factors. Measurements of conducted interference are reported in terms of dB(uV).

The field strength is calculated by adding the Antenna Factor and Cable Factors, then by subtracting the Amplifier Gain from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

WhereFS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor
AG = Amplifier Gain

Assume a receiver reading of 52.5 dBuV is obtained. The Antenna Factor of 7.4dB/m and a Cable Factor of 1.1dB is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dBuV/m. The 32 dBuV/m value was mathematically converted to its corresponding level in uV/m.

FS = 52.5 + 7.4 + 1.1 - 29 = 32 dBuV/m

Level in uV/m = Common Antilogarithm [(32 dBuV/m)/20] = 39.8 uV/m

9. ANTENNAS

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 10 meters from the leading edge of the turn table.

10. CLASSIFICATION OF DIGITAL DEVICE

Class A includes digital devices that are marketed for use in commercial, industrial or business environments, excluding devices which are marketed for use by the general public or are intended to be used in the home.

Class B includes digital devices that are marketed for use in residential environments, notwithstanding use in commercial, business and industrial environments.

Note: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as Class B device, and in fact is encouraged to do so provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

11. RADIATED EMISSION LIMITS

FCC PART 15 CLASS B

MEASURING DISTANCE OF 3 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

FCC CLASS B ALTERNATIVE DISTANCE (CISPR 22:1993)

MEASURING DISTANCE OF 10 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	30	29.5
88-216	45	33.0
216-960	60	35.6
960-1000	150	43.5
ABOVE 1000	150	43.5

Note: Limits extrapolated 20dB/decade

FCC PART 15 CLASS A

MEASURING DISTANCE OF 10 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	90	39.1
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

12. CONDUCTED EMISSION LIMITS

CLASS B

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)
450kHz-30MHz	250	48

CLASS A

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)
450kHz-1.705MHz	1000	60
1.705MHz - 30MHz	3000	69.54

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13. CONDUCTED EMISSION TEST PROCEDURE

The EUT is located so that the distance between the boundary of the EUT and the closest surface to the LISN is 0.8m.

EUT test configuration is according to Section 7 of ANSI C63.4/1992.

Conducted disturbance shall be measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz shall be investigated.

Set the EMI receiver to PEAK detector setting and sweep continuously over the frequency range to be investigated. Set resolution bandwidth to 9kHz minimum. Connect EMI receiver input cable to LINE 1 RF measurement connection on the LISN. Connect a 50ohm terminator to the unused RF connection on the LISN. For each mode of EUT operation, maximize emissions readings by manipulating cable and wire positions. Record the configuration for each EUT power cord which produces emissions closest to the limit. Repeat the same procedure for LINE 2 of each EUT power cord.

14. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80 cm above the ground screen. Antenna to EUT distance is either 3 meters or 10 meters (Class B or Class A). During the test, the table is rotated 360 degrees to maximize emissions, and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

EUT test configuration is according to Section 8 of ANSI C63.4/1992.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and

manipulate cables to produce highest emissions, noting frequency and amplitude.

15. AMBIENT CONDITIONS

The ambient conditions at the time of final tests were as follows:

	Radiated Emission	Conducted Emission
Temperature	25 ℃	27 ℃
Humidity	73 %	70 %

16. SYSTEM TEST CONFIGURATION

The equipment under test was configured and operated in a manner which tended to maximize its emission characteristics in a typical application. Power and signal distribution, ground, interconnecting cabling and physical placement of equipment simulated the typical application and usage insofar as practicable.

SOFTWARE USED DURING THE TESTS	
Operating System	**MS-DOS 6.2**
File Name	**MKECDAPL.EXE, EMITEST.EXE**
Program Sequence	**1. MS-DOS 6.2 BOOTS SYSTEM.** **2. RUN MKECDAPL.EXE SET CD-ROM DRIVE TO PLAY CD.** **3. RUN EMITEST.EXE EXCUTE TO ALL PERIPHERALS AND DISPLAY "H" PATTERN ON MONITOR SCREEN.**

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17. EQUIPMENT MODIFICATIONS

To achieve compliance to CLASS B levels, the following change(s) were made during compliance testing:

Mod.#1 REPLACED C30, C31, C37 AND C38 CAPACITORS FROM 47 pF TO 1000 pF.

Mod.#2 ADDED 0.1 μF BYPASS CAPACITORS ON EACH PIN OF #1, #8 AND #9 OF GAME PORT.

Mod.#3 SOLDERED WITH GROUND BETWEEN PC BOARD AND BLANKET GROUND.

Mod.#4 CHANGE THE BLANKET TYPE TO HAVE CHASISS GROUND ON LINE IN, LINE OUT, MICROPHONE AND SPEAKER CONNECTORS' GROUND.

19. TEST EQUIPMENT LIST

Equipment	Manuf.	Model No.	Serial No.	Site	Cal Date	Due Date
EMI TEST DISPLAY	ROHDE & SCHWARZ	DSAI-D 804.8932.52	827832/001	D	11/97	11/98
EMI TEST RF UNIT	ROHDE & SCHWARZ	ESBI-RF/1005.4300.52	827832/001	D	11/97	11/98
AMPLIFIER	H.P.	8447E A	272A02379	D	12/97	12/98
ANTENNA	EMC TEST SYSTEMS	3142	1212	D	7/97	7/98
LISN(EUT)	EMCO	3825/2	1842	D	1/98	1/99
LISN	SOLAR	8012-50-R-24-BNC	8305114	D	7/97	7/98
CABLE	TALLEY	HELIX FSJ4-50B	D0301	D	12/97	12/98
CABLE	TIME MICROWAVE	LMR-400-2	D1001	D	12/97	12/98
SPECTRUM ANALYZER	H.P.	8568B	2928A04814	E	2/98	2/99
SPECTRUM DISPLAY	H.P.	85662A	2848A18276	E	2/98	2/99
QUASI-PEAK DETECTOR	H.P.	85650A	2811A01439	E	2/98	2/99
AMPLIFIER	H.P.	8447D B	1644A02328	E	4/98	4/99
ANTENNA	CHASE	CBL6111A	1547	E	10/97	10/98
TEST RECEIVER	ROHDE & SCHWARZ	ESHS20	840455/006	E	2/98	2/99
LISN(EUT)	FISCHER	FCC-LISN-50/250 -25-2	107	E	6/97	6/98
LISN	EMCO	3825/2	1371	E	9/97	9/98
CABLE	TIME MICROWAVE	LMR-400-2	E1001	E	4/98	4/99
CABLE	TALLEY	HELIX FSJ4-50B	E0301	E	4/98	4/99

20. CORRECTION FACTOR

OATS NO. E

	ANTENNA 3 METER			ANTENNA 10 METER			SITE E
FREQ (MHZ)	HORI.	VERT.	CABLE LOSS (dB)	HORI.	VERT.	CABLE LOSS (dB)	AMP GAIN (dB)
30	19.13	18.31	0.68	17.46	17.37	0.56	27.37
35	15.93	16.29	0.77	14.89	14.95	0.64	27.35
40	13.29	13.10	0.84	12.57	11.81	0.67	27.30
45	10.59	9.19	0.89	9.85	9.52	0.72	27.28
50	8.65	6.92	0.87	7.54	6.34	0.77	27.26
60	5.61	5.98	0.96	5.12	4.94	0.80	27.26
70	5.90	4.81	1.15	5.62	4.95	0.96	27.23
80	7.09	7.45	1.15	6.61	7.58	0.94	27.21
90	8.25	8.69	1.24	7.68	7.79	1.08	27.16
100	10.15	11.22	1.28	9.68	9.13	1.12	27.14
120	11.73	12.24	1.45	11.36	11.59	1.26	27.07
125	11.71	12.59	1.49	11.24	11.06	1.28	27.04
140	11.89	12.57	1.59	11.29	11.68	1.43	27.02
150	11.27	11.70	1.64	10.66	11.53	1.48	26.97
160	10.62	10.98	1.76	9.95	9.82	1.57	26.90
175	9.37	9.91	1.82	8.99	9.58	1.71	26.84
180	9.18	9.83	1.80	8.76	9.38	1.75	26.81
200	10.30	9.09	1.99	8.49	9.37	1.80	26.74
250	12.70	12.39	2.27	12.38	12.64	1.99	26.60
300	13.98	16.59	2.55	13.33	13.70	2.29	26.67
400	16.78	16.23	3.03	16.25	16.53	2.70	26.72
500	18.30	18.13	3.43	18.11	18.23	3.08	26.91
600	20.09	20.18	3.92	20.26	20.25	3.55	26.80
700	21.44	21.29	4.30	21.09	21.20	3.90	26.41
800	22.60	22.48	4.69	22.41	22.33	4.25	26.06
900	23.68	23.17	5.05	23.19	23.25	4.59	26.29
1000	25.16	24.72	5.39	24.73	24.48	4.95	26.77
1100	25.53	24.92	5.70	24.87	24.95		27.28
1200	26.52	25.89	6.07	25.95	25.70		27.85
1300	28.82	28.28	6.38	28.34	27.75		27.50
1400	27.93	27.23	6.67	27.31	27.34		
1500	29.97	29.04	6.98	28.70	28.70		
1600	29.10	28.48	7.12	28.31	28.44		
1700	30.70	29.88	7.46	29.43	29.53		
1800	32.52	31.64	7.85	31.06	31.30		
1900	32.32	31.71	7.92	31.68	31.43		
2000	32.11	31.51	8.27	31.25	31.75		

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21. TEST RESULT SUMMARY

Preliminary Radiated Emission Tests were performed at the 10 meter open area test site. CCS test procedure no:CCSUE2001B and the procedure listed in ANSI C63.4 /1992 section 8.3.1.1. were used. The following preliminary tests were conducted to determine the worst mode of operation and configuration.

Preliminary Radiated Emission Test			
Frequency Range Investigated		30 MHz TO 1000 MHz	
Mode of operation	Date	Data Report No.	Worst Mode
PLAY CD & EMITEST	**5/14/98**	**980514F1**	☒

Final Radiated Emission Test was conducted by operating the worst mode as indicated above.

OATS No: **E / 10 M**	Data Report No. **980514F1**	Date **5/14/98**	Tested By: **KEVIN LIN**

Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz TO 1000 MHz			
Freq (MHz)	Meter Reading (dBm)	C.F. (dB/m)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
133.66	**-64.8**	**-14.2**	**28.0**	**30**	**-2.0**	**P**	**V**
221.21	**-65.1**	**-14.0**	**27.9**	**30**	**-2.1**	**P**	**V**
122.90	**-64.9**	**-14.5**	**27.6**	**30**	**-2.4**	**P**	**H**
133.65	**-63.7**	**-14.4**	**28.9**	**30**	**-1.1**	**Q**	**H**
358.88	**-63.3**	**-9.1**	**34.6**	**37**	**-2.4**	**P**	**H**
367.50	**-63.4**	**-8.8**	**34.8**	**37**	**-2.2**	**P**	**H**
400.96	**-64.5**	**-7.7**	**34.8**	**37**	**-2.2**	**P**	**H**

C.F.(Correction Factor)=Antenna Factor+Cable Loss-Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

Comments: **N/A**

Preliminary Conducted Emission Tests were performed according to CCS test procedure no:CCSUE2002B and ANSI C63.4/1992 section 7.2.3. The following preliminary tests were conducted to determine the worst mode of operation.

Preliminary Conducted Emission Test			
Frequency Range Investigated		150 kHz TO 30 MHz	
Mode of operation	Date	Data Report/Plot No.	Worst Mode
PLAY CD & EMITEST	**5/14/98**	**980514E1~2 / N/A**	☒

Final Conducted Emission Test was conducted by operating the worst mode as indicated above.

Conducted Room	Plot No **N/A**	Date **5/14/98**	Tested By: **KEVIN LIN**

Six Highest Conducted Emission Readings							
Frequency Range Investigated				150 kHz TO 30 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type (P/Q/A)	Line (L1/L2)
0.175	**55.7**	**0**	**55.7**	**64.7**	**-9.0**	**P**	**L1**
0.175	**46.5**	**0**	**46.5**	**54.7**	**-8.2**	**A**	**L1**
0.220	**54.9**	**0**	**54.9**	**62.8**	**-7.9**	**P**	**L1**
0.220	**50.5**	**0**	**50.5**	**52.8**	**-2.3**	**A**	**L1**
0.270	**48.6**	**0**	**48.6**	**61.1**	**-12.5**	**P**	**L1**
0.220	**51.5**	**0**	**51.5**	**62.8**	**-11.3**	**P**	**L2**
0.270	**49.3**	**0**	**49.3**	**61.1**	**-11.8**	**P**	**L2**
0.320	**45.1**	**0**	**45.1**	**59.7**	**-14.6**	**P**	**L2**

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Comments: **N/A**

APPENDICES

EXTERNAL I/O CABLE CONSTRUCTION DESCRIPTION

CONFIGURATION BLOCK DIAGRAM

CONDUCTED EMISSION PLOT

RADIATED EMISSION DATA

EUT PHOTOGRAPHS

External I/O Cable Construction Description

CABLE NO: **1**	Number of I/O ports of this type: **1**
I/O Port: **MIDI/Joystick**	Connector Type: **DB15**
Capture Type: **Snap-In**	Type of Cable used: **Un-Shielded**
Cable Connector Type: **Molded**	Cable Length: **1.8 M**
Bundled During Tests: **No**	Data Traffic Generated: **Yes**
Remarks: **N/A**	

CABLE NO: **2**	Number of I/O ports of this type: **1**
I/O Port: **KB**	Connector Type: **DIN-5 Pin**
Capture Type: **Snap-In**	Type of Cable used: **Shielded**
Cable Connector Type: **Molded**	Cable Length: **1.0 M**
Bundled During Tests: **No**	Data Traffic Generated: **Yes**
Remarks: **N/A**	

CABLE NO: **3**	Number of I/O ports of this type: **1**
I/O Port: **Speaker Out**	Connector Type: **Phone Jack**
Capture Type: **Snap-In**	Type of Cable used: **Un-Shielded**
Cable Connector Type: **Molded**	Cable Length: **1.8 M**
Bundled During Tests: **Yes**	Data Traffic Generated: **Yes**
Remarks: **N/A**	

CABLE NO: **4**	Number of I/O ports of this type: **1**
I/O Port: **MIC In**	Connector Type: **Phone Jack**
Capture Type: **Snap-In**	Type of Cable used: **Un-Shielded**
Cable Connector Type: **Molded**	Cable Length: **2.9 M**
Bundled During Tests: **Yes**	Data Traffic Generated: **Yes**
Remarks: **N/A**	

CABLE NO: **5, 6**	Number of I/O ports of this type: **2**
I/O Port: **Line In, Line Out**	Connector Type: **Phone Jack**
Capture Type: **Snap-In**	Type of Cable used: **Un-Shielded**
Cable Connector Type: **Molded**	Cable Length: **1.8 M**
Bundled During Tests: **No**	Data Traffic Generated: **Yes**
Remarks: **N/A**	

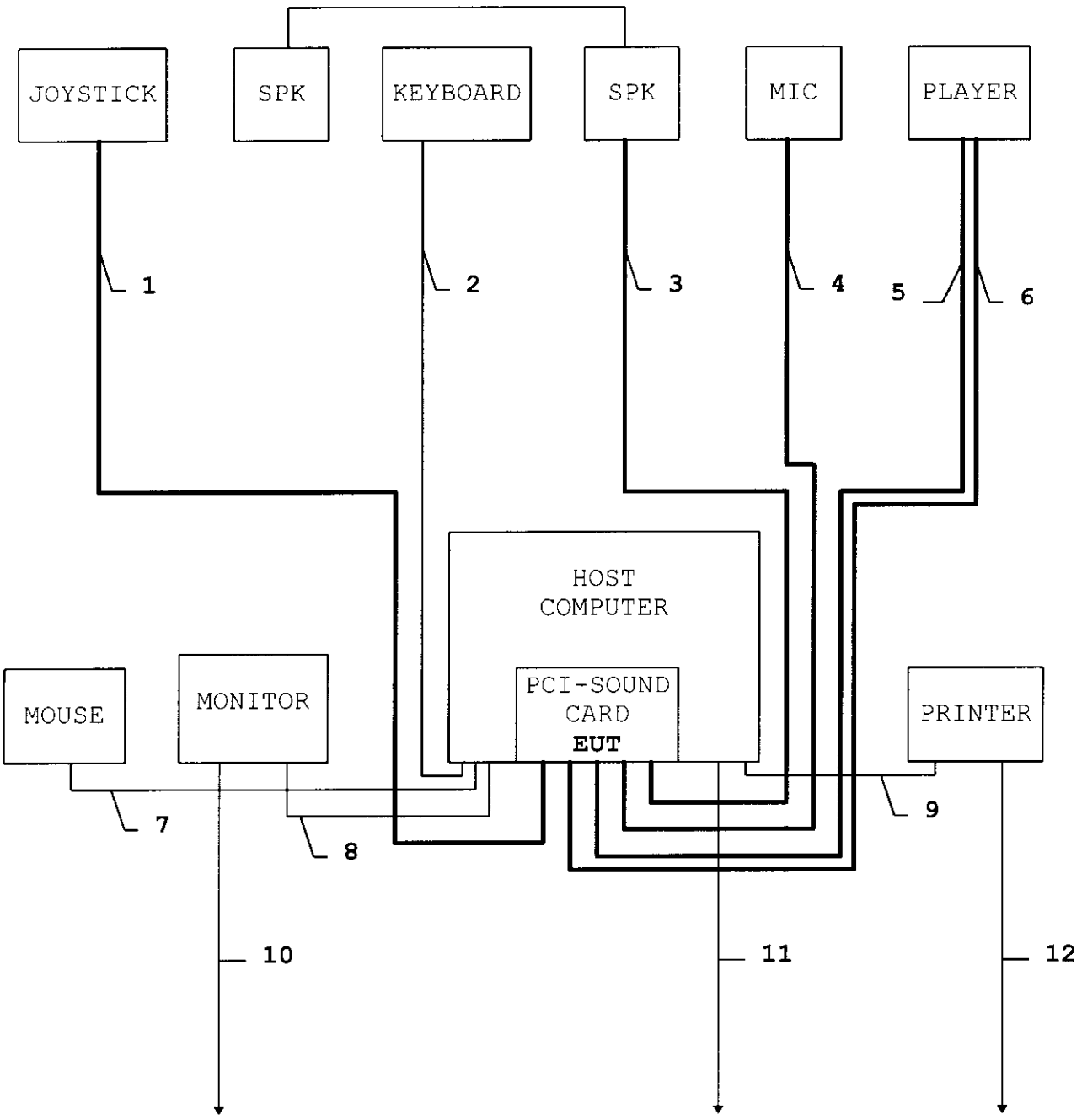
CABLE NO: **7**	Number of I/O ports of this type: **1**
I/O Port: **RS232 Mouse**	Connector Type: **DB9**
Capture Type: **Screw-In**	Type of Cable used: Un-**Shielded**
Cable Connector Type: **Metal**	Cable Length: **1.9 M**
Bundled During Tests: **No**	Data Traffic Generated: **Yes**
Remarks: N/A	

CABLE NO: **8**	Number of I/O ports of this type: **1**
I/O Port: **VGA**	Connector Type: **DB15**
Capture Type: **Screw-In**	Type of Cable used: **Shielded**
Cable Connector Type: **Molded**	Cable Length: **1.7 M**
Bundled During Tests: **Yes**	Data Traffic Generated: **Yes**
Remarks: **Ferrite bead loaded at both ends**	

CABLE NO: **9**	Number of I/O ports of this type: **1**
I/O Port: **Parallel**	Connector Type: **DB25**
Capture Type: **Screw-In**	Type of Cable used: **Shielded**
Cable Connector Type: **Metal**	Cable Length: **2.3 M**
Bundled During Tests: **Yes**	Data Traffic Generated: **Yes**
Remarks: N/A	

CABLE NO: **10, 11, 12**	Number of I/O ports of this type: **3**
I/O Port: **Power Cord**	Connector Type: **110 V AC**
Capture Type: **Snap-In**	Type of Cable used: **Un-Shielded**
Cable Connector Type: **Molded**	Cable Length: **1.8 M**
Bundled During Tests: **No (Radiation), Yes (Line Conduction)**	Data Traffic Generated: **No**
Remarks: N/A	

Configuration Block Diagram



COMPLIANCE ENGINEERING SERVICES, INC. 14. May 98 12:56

RFI VOLTAGE TEST.

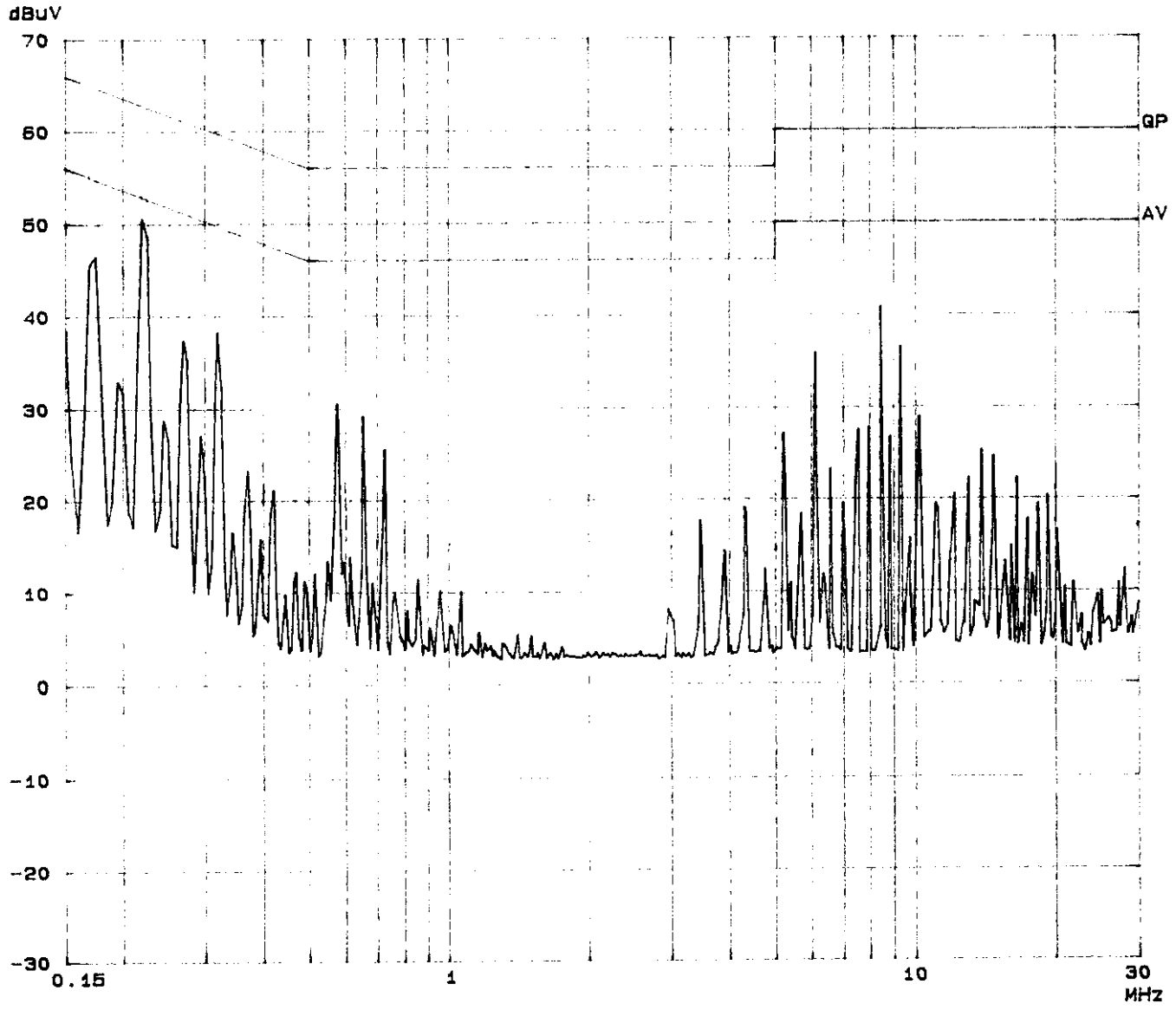
EUT: A301D10
Manuf: LABWAY CORPORATION
Op Cond: PLAY CD & EMITEST
Operator: KEVIN LIN
Test Spec: EN55022 CLASS B
Comment: LINE 1, PEAK (RED), AVERAGE (BLUE)

Kevin

Scan Settings (3 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB
1M	10M	10k	10k	PK+AV	20ms	AUTO	LN OFF	60dB
10M	30M	20k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 2dB



COMPLIANCE ENGINEERING SERVICES, INC.

14. May 98 13:23

RFI VOLTAGE TEST.

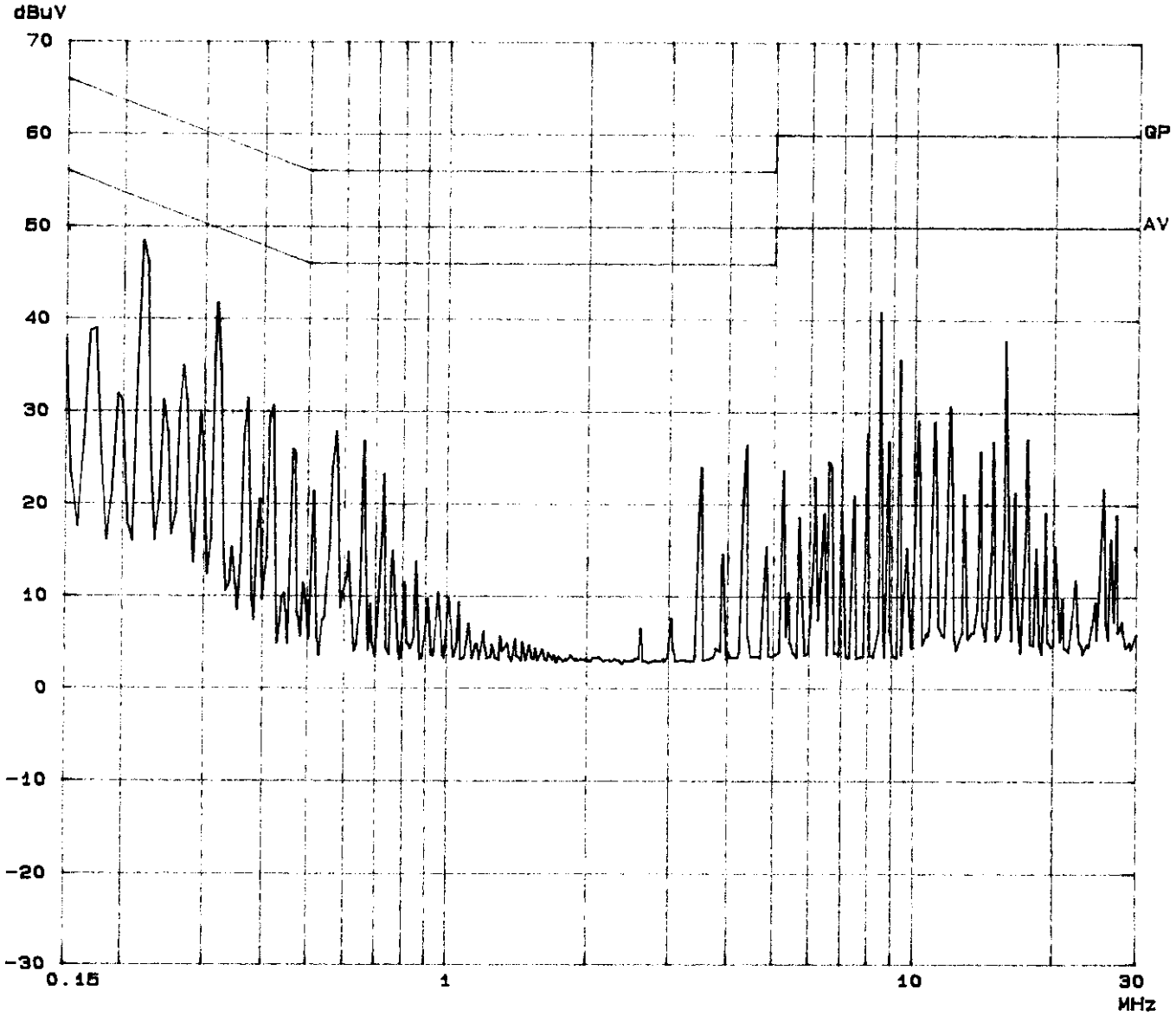
Kevin

EUT: A301D10
Manuf: LABWAY CORPORATION
Op Cond: PLAY CD & EMITEST
Operator: KEVIN LIN
Test Spec: EN55022 CLASS B
Comment: LINE 2, PEAK (RED), AVERAGE (BLUE)

Scan Settings (3 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB
1M	10M	10k	10k	PK+AV	20ms	AUTO	LN OFF	60dB
10M	30M	20k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 2dB



Compliance Engineering Services, Inc.

>> 10 M RADIATED EMISSION DATA <<

Report No. : 980514F1
Date : 05/14/1998
Time : 09:37
Test Engr : KEVIN LIN

Kevin

Company : LABWAY CORPORATION
Equipment Under Test : A301D10
Test Configuration : EUT/HS02/KB12/ME05/PLY02/MIC02/MT01/SPK01/JOY04/PRN04
Type of Test : EN55022 CLASS B
Mode of Operation : PLAY CD & EMITEST

Freq.	dBm	CF(dB)	dBuV	EN55022-A	EN55022-B	EUT-A	EUT-B	Note
122.90	-68.2	-14.5	24.3	40.0	30.0	-15.7	-5.7	Vertical
133.66	-64.8	-14.2	28.0	40.0	30.0	-12.0	-2.0	Vertical
172.06	-66.9	-15.5	24.6	40.0	30.0	-15.4	-5.4	Vertical
196.63	-66.8	-15.6	24.6	40.0	30.0	-15.4	-5.4	Vertical
200.48	-64.7	-15.5	26.8	40.0	30.0	-13.2	-3.2	Vertical
208.92	-64.6	-14.9	27.5	40.0	30.0	-12.5	-2.5	Vertical
221.21	-65.1	-14.0	27.9	40.0	30.0	-12.1	-2.1	Vertical
245.76	-61.4	-12.3	33.3	47.0	37.0	-13.7	-3.7	Vertical
334.10	-64.3	-9.6	33.1	47.0	37.0	-13.9	-3.9	Vertical
367.54	-65.5	-8.5	33.0	47.0	37.0	-14.0	-4.0	Vertical
QP READING AT 400.94MHZ								
400.94	-67.4	-7.5	32.1	47.0	37.0	-14.9	-4.9	Vertical
122.90	-64.9	-14.5	27.6	40.0	30.0	-12.4	-2.4	Horizontal
QP READING AT 133.67MHZ								
133.65	-63.7	-14.4	28.9	40.0	30.0	-11.1	-1.1	Horizontal
159.77	-65.9	-15.4	25.7	40.0	30.0	-14.3	-4.3	Horizontal
167.06	-66.3	-15.7	25.0	40.0	30.0	-15.0	-5.0	Horizontal
172.04	-66.9	-16.0	24.1	40.0	30.0	-15.9	-5.9	Horizontal
184.33	-66.6	-16.3	24.1	40.0	30.0	-15.9	-5.9	Horizontal
208.91	-65.5	-15.7	25.8	40.0	30.0	-14.2	-4.2	Horizontal
221.21	-66.6	-14.6	25.8	40.0	30.0	-14.2	-4.2	Horizontal
334.12	-63.1	-9.9	34.0	47.0	37.0	-13.0	-3.0	Horizontal
358.88	-63.3	-9.1	34.6	47.0	37.0	-12.4	-2.4	Horizontal
367.50	-63.4	-8.8	34.8	47.0	37.0	-12.2	-2.2	Horizontal
400.96	-64.5	-7.7	34.8	47.0	37.0	-12.2	-2.2	Horizontal

Total # of data 23
V2.0.a