CERTIFICATION TEST REPORT

FOR THE

PS2 KEYBOARD, RT7D00

FCC/CISPR 22/85

CLASS B COMPLIANCE

DATE OF ISSUE: AUGUST 2, 2000

PREPARED FOR:

NMB Technologies Corp.
9730 Independence Ave.
Chatsworth, CA 91311

P.O. No: PQ011815
W.O. No: 74670

Report No: FC00-076

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: July 13, 2000

DOCUMENTATION CONTROL:

Tracy Phillips
Documentation Control Supervisor
CKC Laboratories, Inc.

APPROVED BY:

Dennis Ward
Director of Laboratories
CKC Laboratories, Inc.

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	July 13, 2000
PURPOSE OF TEST:	To demonstrate the compliance of the PS2 Keyboard, RT7D00, with the requirements for FCC/CISPR 22/85 Class B devices.
MANUFACTURER:	NMB Technologies Corp. 9730 Independence Ave. Chatsworth, CA 91311
REPRESENTATIVE:	Bob Dickerman
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92621
TEST PERSONNEL:	Eddie Wong
TEST METHOD:	ANSI C63.4 1992
FREQUENCY RANGE TESTED:	150kHz - 1000MHz
EQUIPMENT UNDER TEST:	**PS2 Keyboard** Manuf: NMB Technologies, Corp. Model: RT7D00 Serial: NA FCC ID:

SUMMARY OF RESULTS

The NMB Technologies Corp. PS2 Keyboard, RT7D00 was tested in accordance with ANSI C63.4 (1992) for compliance with the Class B requirements of the FCC/CISPR 22/85 Rules.

As received, the above equipment was found to be fully compliant with the Class B limits of FCC/CISPR 22/85 for both radiated and conducted emissions.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

PS2 Keyboard.

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ±4dB measurement uncertainty.

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Printer
Manuf: HP
Model: C2184A
Serial: CN5B21R1DM
FCC ID: B94C2184X

Modem
Manuf: Hayes
Model: 6802US
Serial: B10068023649
FCC ID: BFJ9D9 6802US

Monitor
Manuf: Gateway
Model: EV500A
Serial: 15052D000578
FCC ID: BEJCB575B

PS/2 Mouse
Manuf: Microsoft
Model: X03-65047
Serial:
FCC ID: DoC

Computer
Manuf: HP
Model: Pavilion
Serial: US911132177
FCC ID: DoC

REPORT OF MEASUREMENTS

The following Tables 1 and 2 report the six highest worst case radiated and conducted emissions levels recorded during the tests performed on the PS2 Keyboard, RT7D00. All readings taken are peak readings unless otherwise noted by a "Q" or "A". The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN DB	NOTES
62.895	40.3	8.0	-28.2	1.9		22.0	30.0	-8.0	V
82.318	44.3	7.5	-28.0	2.2		26.0	30.0	-4.0	VQ
121.260	37.4	15.6	-28.0	2.3		27.3	30.0	-2.7	VQ
334.561	35.8	19.8	-27.8	4.5		32.3	37.0	-4.7	HQ
501.108	31.3	17.1	-28.0	5.6		26.0	37.0	-11.0	V
624.069	31.0	20.1	-27.9	6.4		29.6	37.0	-7.4	H

Test Method: ANSI C63.4 1992
Spec Limit : CISPR 22 Class B
Test Distance: 10 Meters

NOTES:
H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: The EUT is a PS2 keyboard. The EUT is connected to the host computer. The EUT is continuously sending H's to the host computer and it is being displayed on the monitor (through Wordpad). Num Lock, Caps Lock, and Scroll Lock are all active. Connected to the host computer are a modem, a printer, a PS/2 mouse, and monitor. 110 VAC, 60 Hz, 22.2°C, 51% relative humidity.

Table 2: Six Highest Conducted Emission Levels									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Lisn dB	dB	dB	dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
0.150829	49.7	0.0				49.7	56.0	-6.3	W
0.177351	48.6	0.0				48.6	54.6	-6.0	B
3.340267	39.9	0.0				39.9	46.0	-6.1	B
8.896186	43.9	0.0				43.9	50.0	-6.1	W
9.271070	44.1	0.0				44.1	50.0	-5.9	W
9.513643	44.1	0.0				44.1	50.0	-5.9	B

Test Method: ANSI C63.4 1992
Spec Limit : CISPR 22 Class B

NOTES: Q = Quasi Peak Reading
A = Average Reading
B = Black Lead
W = White Lead

COMMENTS: The EUT is a PS2 keyboard. The EUT is connected to the host computer. The EUT is continuously sending H's to the host computer and it is being displayed on the monitor (through Wordpad). Num Lock, Caps Lock, and Scroll Lock are all active. Connected to the host computer are a modem, a printer, a PS/2 mouse, and monitor. 110 VAC, 60 Hz, 22.2°C, 51% relative humidity.

TABLE A

LIST OF TEST EQUIPMENT

Equipment	Manufacturer	Model	Serial Number	Cal Due date
Radiated Emission				
Bicon Antenna	A & H	SAS-200/540	220	100500
Log Periodic Antenna	A & H	SAS-200/526	331	100800
Pre-amp	HP	8447D	1937A02548	030701
Antenna cable	NA	RG214	Cable#1	070301
Pre-amp to SA cable	NA	RG58	Cable#5	070301
Spectrum Analyzer	HP	8566B	2532A02509	091100
QP Adapter	HP	85680A	3303A01884	091100
Conducted Emission				
LISN	Emco	3816/2NM	9809-1090	030801
LISN	Solar	8028-50-TS-24-BNC	Brea #2	100700
Spectrum Analyzer	HP	8566B	2532A02509	091100
QP Adapter	HP	85680A	3303A01884	091100

EUT SETUP

The equipment under test (EUT) and the peripheral(s) listed were set up in a manner that represented their normal use, as shown in the setup photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Table 1 for radiated emissions, and Table 2 for conducted emissions. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters. This configuration is typical for radiated emissions testing of table top devices.

I/O cables were connected to the EUT and peripherals in the manner required for normal operation of the system. Excess cabling was bundled in the center in a serpentine fashion using 30-40 centimeter lengths.

During conducted emissions testing, the EUT was located 80 centimeters above the conducting ground plane on the same nonconducting table as was used for radiated testing. The metal plane was grounded to the earth through the green wire safety ground. Power to the EUT was provided via 3 meters of shielded power cable from a filter grounded to the metal plane to a LISN. The LISN was also grounded to the plane and attached to the LISN was a 4 ganged grounded outlet whose source was also shielded and 60 cm in length. All other objects were kept a minimum of 1 meter away from the EUT during the conducted test.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the PS2 Keyboard, RT7D00. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. All antennas were located at a distance of 10 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISN's.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1 and 2 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the PS2 Keyboard, RT7D00.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For frequencies below 30 MHz, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

TEST METHODS

The radiated and conducted emissions data of the PS2 Keyboard, RT7D00, was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC/CISPR 22/85 Class B emissions limits to determine compliance.

Preliminary and final measurements were taken in order to better ensure that all emissions from the EUT were found and maximized.

Radiated Emissions Testing

During the preliminary radiated scan, the host PC was powered up and operating in its defined FCC test mode, with the I/O cables and line cords facing the antenna. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned in the same manner, using the biconical antenna, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

For the final radiated scan, the equipment was again positioned with its I/O and power cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the peripheral(s) and cables. Maximizing of the cables was achieved by monitoring the spectrum analyzer on a closed circuit television monitor while the EUT cables were being moved and rearranged on the EUT table for maximum emissions. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Conducted Emissions Testing

For the conducted emissions, the LISN's used were 50 µH-/+5 ohms. Above 150 kHz, a 0.15 µF series capacitor is added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz - 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the six highest emissions readings in Tables 1 and 2. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula:

Meter reading (dBµV)
+ Antenna Factor (dB)
+ Cable Loss (dB)
- Distance Correction (dB)
- Pre-amplifier Gain (dB)

= Corrected Reading(dBµV/m)

This reading was then compared to the applicable specification limit to determine compliance.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	**WordPad**
CRT was displaying:	**Scrolling "H's"**
Power Supply Manufacturer:	**N/A**
Power Supply Part Number:	**N/A**
AC Line Filter Manufacturer:	**N/A**
AC Line Filter Part Number:	**N/A**

The EUT has no power cord.

I/O PORTS	
Type	#
PS2	1

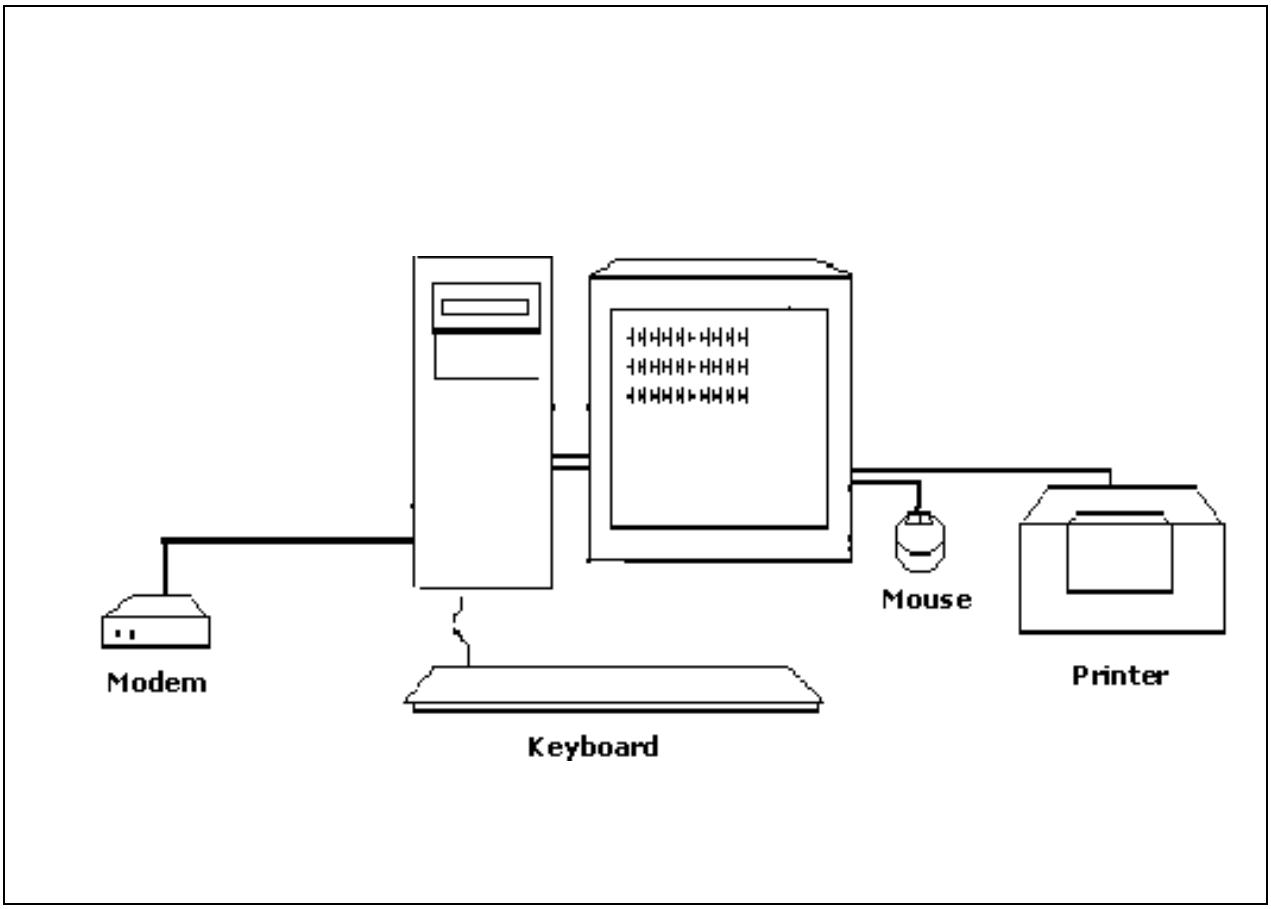
CRYSTAL OSCILLATORS	
Type	Freq In MHz
Internal RC Oscillator	2MHz

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Logic PCB, NT6880H	125736 Rev. A	2MHz	1	Inside K/B

CABLE INFORMATION

Cable #:		Cable(s) of this type:	
Cable Type:	PS2	Shield Type:	Foil
Construction:	Round	Length In Meters:	1.6m
Connected To End (1):	System PS2	Connected To End (2):	Logic PCB
Connector At End (1):		Connector At End (2):	
Shield Grounded At (1):	Chassis	Shield Grounded At (2):	Chassis
Part Number:		Number of Conductors:	4
Notes and/or description:			

EQUIPMENT CONFIGURATION BLOCK DIAGRAM



NOTES:

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

NOTES:

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View

NOTES:

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

Conducted Emissions - Front View

NOTES:

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

Conducted Emissions - Side View

NOTES:

APPENDIX B

MEASUREMENT DATA SHEETS

Test Location: CKC LABORATORIES INC • 110 N. OLINDA PL. • BREA, CA 92823 • 714-993-6112

Customer: **NMB Technologies Inc.**
Specification: **CISPR 22 B RADIATED**
Work Order #: **74670** Date: 07/13/2000
Test Type: **Maximized Emissions** Time: 15:10:24
Equipment: **PS2 Keyboard** Sequence#: 2
Manufacturer: NMB Technologies, Inc. Tested By: Eddie Wong
Model: RT7D00
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
PS2 Keyboard*	NMB Technologies, Inc.	RT7D00	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C2184A	CN5B21R1DM
Modem	Hayes	6802US	B10068023649
Monitor	Gateway	EV500A	15052D000578
PS/2 Mouse	Microsoft	X03-65047	
Computer	HP	Pavilion	US911132177

Test Conditions / Notes:

The EUT is a PS2 keyboard. The EUT is connected to the host computer. The EUT is continuously sending H's to the host computer and it is being displayed on the monitor (through Wordpad). Num Lock, Caps Lock, and Scroll Lock are all active. Connected to the host computer are a modem, a printer, a PS/2 mouse, and monitor. 110 VAC, 60 Hz, 22.2°C, 51% relative humidity.

Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq	Rdng	Cable	Bicon	Log	Pream	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	136.378M	37.4	+2.5	+16.4	+0.0	-28.0	+0.0	28.3	30.0	-1.7	Vert
	QP						205		Non keyboard		100
^	136.378M	41.1	+2.5	+16.4	+0.0	-28.0	+0.0	32.0	30.0	+2.0	Vert
							205		Non keyboard		100
3	733.769M	32.2	+7.2	+0.0	+22.3	-27.3	+0.0	34.4	37.0	-2.6	Horiz
	QP						207		Non keyboard, Spread spectrum		103
^	733.755M	35.5	+7.2	+0.0	+22.3	-27.3	+0.0	37.7	37.0	+0.7	Horiz
							207		Non keyboard, Spread spectrum		103
5	135.787M	36.5	+2.5	+16.4	+0.0	-28.0	+0.0	27.4	30.0	-2.6	Vert
	QP						71		Non Keyboard		100
^	135.781M	40.9	+2.5	+16.4	+0.0	-28.0	+0.0	31.8	30.0	+1.8	Vert
							71		Non Keyboard		100
7	121.260M	37.4	+2.3	+15.6	+0.0	-28.0	+0.0	27.3	30.0	-2.7	Vert
	QP						303				100
^	121.260M	41.7	+2.3	+15.6	+0.0	-28.0	+0.0	31.6	30.0	+1.6	Vert
							303				100

9	82.318M QP	44.3	+2.2	+7.5	+0.0	-28.0	+0.0 162	26.0	30.0	-4.0	Vert 124
^	82.357M	46.7	+2.2	+7.5	+0.0	-28.0	+0.0 138	28.4	30.0	-1.6	Vert 148
11	233.528M QP	40.3	+3.4	+17.2	+0.0	-28.0	+0.0 167	32.9	37.0 Non keyboard, Spread spectrum	-4.1	Vert 100
^	233.528M	42.8	+3.4	+17.2	+0.0	-28.0	+0.0 167	35.4	37.0 Non keyboard, Spread spectrum	-1.6	Vert 100
13	334.561M QP	35.8	+4.5	+0.0	+19.8	-27.8	+0.0 303	32.3	37.0	-4.7	Horiz 158
^	334.576M	38.1	+4.5	+0.0	+19.8	-27.8	+0.0 303	34.6	37.0	-2.4	Horiz 158
15	79.997M	42.7	+2.2	+7.1	+0.0	-28.0	+0.0 289	24.0	30.0	-6.0	Vert 100
16	354.748M	35.6	+4.6	+0.0	+18.4	-27.8	+0.0 360	30.8	37.0	-6.2	Horiz 100
17	129.021M	33.0	+2.4	+16.0	+0.0	-28.0	+0.0 1	23.4	30.0	-6.6	Horiz 196
18	336.032M QP	34.0	+4.5	+0.0	+19.7	-27.8	+0.0 134	30.4	37.0	-6.6	Horiz 195
^	336.030M	36.4	+4.5	+0.0	+19.7	-27.8	+0.0 134	32.8	37.0	-4.2	Horiz 195
20	125.918M	33.2	+2.3	+15.8	+0.0	-28.0	+0.0	23.3	30.0	-6.7	Vert 101
21	129.569M	32.9	+2.4	+16.0	+0.0	-28.0	+0.0 359	23.3	30.0	-6.7	Vert 198
22	334.542M	33.7	+4.5	+0.0	+19.8	-27.8	+0.0 37	30.2	37.0	-6.8	Vert 130
23	137.741M	32.2	+2.5	+16.5	+0.0	-28.1	+0.0	23.1	30.0	-6.9	Vert 100
24	332.136M	33.4	+4.4	+0.0	+20.0	-27.8	+0.0 273	30.0	37.0	-7.0	Vert 204
25	658.599M	29.4	+6.7	+0.0	+21.4	-27.5	+0.0 107	30.0	37.0	-7.0	Horiz 153
26	129.695M	32.2	+2.4	+16.1	+0.0	-28.0	+0.0 359	22.7	30.0	-7.3	Vert 100
27	624.069M	31.0	+6.4	+0.0	+20.1	-27.9	+0.0 2	29.6	37.0	-7.4	Horiz 158
28	184.314M	30.8	+2.8	+16.9	+0.0	-28.0	+0.0 359	22.5	30.0	-7.5	Horiz 218
29	202.822M QP	31.3	+2.9	+16.3	+0.0	-28.0	+0.0 147	22.5	30.0	-7.5	Vert 100
^	202.834M	35.3	+2.9	+16.3	+0.0	-28.0	+0.0 298	26.5	30.0	-3.5	Vert 109
^	202.758M	34.9	+2.9	+16.3	+0.0	-28.0	+0.0 147	26.1	30.0	-3.9	Vert 100
32	62.430M	40.7	+1.9	+8.0	+0.0	-28.2	+0.0	22.4	30.0	-7.6	Vert 100

33	194.656M QP	30.9	+2.9	+16.4	+0.0	-28.0	+0.0 166	22.2	30.0	-7.8	Vert 100
^	194.739M	35.9	+2.9	+16.4	+0.0	-28.0	+0.0 166	27.2	30.0	-2.8	Vert 100
35	336.021M	32.8	+4.5	+0.0	+19.7	-27.8	+0.0 84	29.2	37.0	-7.8	Vert 266
36	204.506M QP	30.8	+3.0	+16.3	+0.0	-28.0	+0.0 153	22.1	30.0	-7.9	Vert 100
^	204.513M	34.5	+3.0	+16.3	+0.0	-28.0	+0.0 153	25.8	30.0	-4.2	Vert 100
38	202.867M QP	30.8	+2.9	+16.3	+0.0	-28.0	+0.0 298	22.0	30.0	-8.0	Vert 109
39	62.895M	40.3	+1.9	+8.0	+0.0	-28.2	+0.0	22.0	30.0	-8.0	Vert 114
40	198.446M QP	30.5	+2.9	+16.3	+0.0	-28.0	+0.0 190	21.7	30.0	-8.3	Vert 100
^	198.403M	35.8	+2.9	+16.3	+0.0	-28.0	+0.0 190	27.0	30.0	-3.0	Vert 100
42	221.805M QP	29.4	+3.3	+16.8	+0.0	-27.9	+0.0 162	21.6	30.0	-8.4	Horiz 100
^	221.793M	33.7	+3.3	+16.8	+0.0	-27.9	+0.0 162	25.9	30.0	-4.1	Horiz 100
44	256.158M	34.3	+3.8	+18.2	+0.0	-28.1	+0.0 169	28.2	37.0	-8.8	Vert 109
45	320.696M	30.7	+4.3	+0.0	+20.9	-27.9	+0.0 252	28.0	37.0	-9.0	Horiz 226
46	70.025M	39.9	+2.1	+7.0	+0.0	-28.1	+0.0	20.9	30.0	-9.1	Vert 109
47	366.921M	33.2	+4.6	+0.0	+17.6	-27.8	+0.0 32	27.6	37.0	-9.4	Horiz 100
48	212.999M QP	28.7	+3.1	+16.6	+0.0	-27.9	+0.0 75	20.5	30.0	-9.5	Vert 109
^	212.992M	34.4	+3.1	+16.6	+0.0	-27.9	+0.0 78	26.2	30.0	-3.8	Vert 109
50	87.230M QP	38.1	+2.1	+8.3	+0.0	-28.1	+0.0 206	20.4	30.0	-9.6	Vert 100
^	87.236M	44.0	+2.1	+8.3	+0.0	-28.1	+0.0 205	26.3	30.0	-3.7	Vert 100
52	323.993M	30.4	+4.3	+0.0	+20.6	-27.9	+0.0 105	27.4	37.0	-9.6	Horiz 167
53	238.300M	34.5	+3.5	+17.3	+0.0	-28.0	+0.0 119	27.3	37.0	-9.7	Vert 100
54	315.301M	29.3	+4.3	+0.0	+21.3	-27.9	+0.0 22	27.0	37.0	-10.0	Horiz 158
55	288.875M	29.4	+4.1	+21.1	+0.0	-28.0	+0.0 78	26.6	37.0	-10.4	Horiz 202
56	111.198M QP	31.3	+2.4	+14.0	+0.0	-28.1	+0.0 360	19.6	30.0	-10.4	Vert 114

^	111.211M	37.0	+2.4	+14.0	+0.0	-28.1	+0.0 360	25.3	30.0	-4.7	Vert 114
58	501.108M	31.3	+5.6	+0.0	+17.1	-28.0	+0.0 142	26.0	37.0	-11.0	Vert 105
59	236.563M	33.1	+3.5	+17.3	+0.0	-28.0	+0.0 117	25.9	37.0	-11.1	Vert 100
60	133.011M QP	28.0	+2.4	+16.2	+0.0	-28.0	+0.0 360	18.6	30.0	-11.4	Vert 100
^	133.017M	34.1	+2.4	+16.2	+0.0	-28.0	+0.0 359	24.7	30.0	-5.3	Vert 100
62	140.070M QP	27.1	+2.5	+16.6	+0.0	-28.1	+0.0 185	18.1	30.0	-11.9	Vert 109
^	140.076M	33.4	+2.5	+16.6	+0.0	-28.1	+0.0 186	24.4	30.0	-5.6	Vert 109

Test Location: CKC LABORATORIES INC • 110 N. OLINDA PL. • BREA, CA 92823 • 714-993-6112

Customer: **NMB Technologies Inc.**
Specification: **CISPR22 B COND [AVE]**
Work Order #: **74670** Date: 07/13/2000
Test Type: **Conducted Emissions** Time: 15:52:28
Equipment: **PS2 Keyboard** Sequence#: 1
Manufacturer: NMB Technologies, Inc. Tested By: Eddie Wong
Model: RT7D00
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
PS2 Keyboard*	NMB Technologies, Inc.	RT7D00	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C2184A	CN5B21R1DM
Modem	Hayes	6802US	B10068023649
Monitor	Gateway	EV500A	15052D000578
PS/2 Mouse	Microsoft	X03-65047	
Computer	HP	Pavilion	US911132177

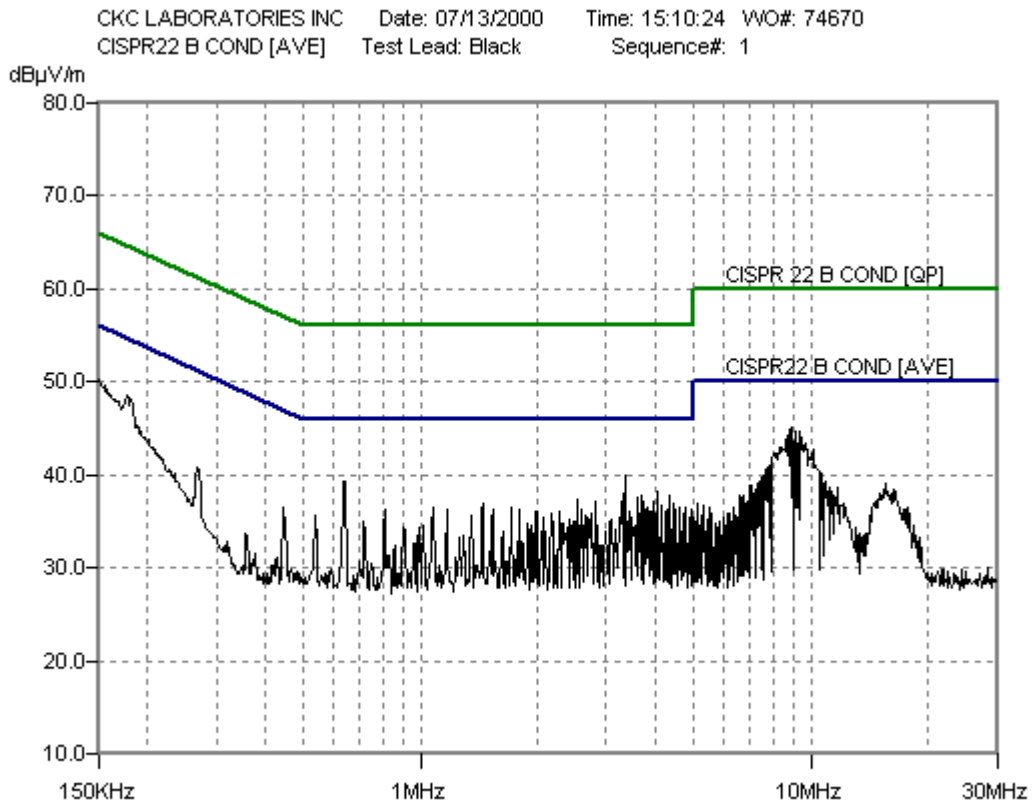
Test Conditions / Notes:

The EUT is a PS2 keyboard. The EUT is connected to the host computer. The EUT is continuously sending H's to the host computer and it is being displayed on the monitor (through Wordpad). Num Lock, Caps Lock, and Scroll Lock are all active. Connected to the host computer are a modem, a printer, a PS/2 mouse, and monitor. 110 VAC, 60 Hz, 22.2°C, 51% relative humidity.

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	9.514M	44.1					+0.0	44.1	50.0	-5.9	Black
2	177.351k	48.6					+0.0	48.6	54.6	-6.0	Black
3	3.340M	39.9					+0.0	39.9	46.0	-6.1	Black
4	8.632M	43.8					+0.0	43.8	50.0	-6.2	Black
5	181.496k	48.2					+0.0	48.2	54.4	-6.2	Black
6	9.073M	43.7					+0.0	43.7	50.0	-6.3	Black
7	9.249M	43.4					+0.0	43.4	50.0	-6.6	Black
8	641.928k	39.4					+0.0	39.4	46.0	-6.6	Black
9	9.690M	43.3					+0.0	43.3	50.0	-6.7	Black

10	8.345M	43.0	+0.0	43.0	50.0	-7.0	Black
11	9.093M Ave	41.5	+0.0	41.5	50.0	-8.5	Black
^	9.093M	45.7	+0.0	45.7	50.0	-4.3	Black
13	9.362M Ave	41.1	+0.0	41.1	50.0	-8.9	Black
^	9.362M	45.7	+0.0	45.7	50.0	-4.3	Black
15	9.455M Ave	40.8	+0.0	40.8	50.0	-9.2	Black
^	9.455M	45.6	+0.0	45.6	50.0	-4.4	Black
17	9.002M Ave	40.5	+0.0	40.5	50.0	-9.5	Black
^	8.999M	46.1	+0.0	46.1	50.0	-3.9	Black
19	8.726M Ave	35.6	+0.0	35.6	50.0	-14.4	Black
^	8.731M	45.1	+0.0	45.1	50.0	-4.9	Black
21	150.000k Ave	35.7	+0.0	35.7	56.0	-20.3	Black
^	150.000k	50.2	+0.0	50.2	56.0	-5.8	Black


CKC LABORATORIES INC Date: 07/13/2000 Time: 15:10:24 WO#: 74670
CISPR22 B COND [AVE] Test Lead: Black Sequence#: 1
dBµV/m
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
CISPR 22 B COND [QP]
CISPR22 B COND [AVE]
150KHz
1MHz
10MHz
30MHz

Test Location: CKC LABORATORIES INC • 110 N. OLINDA PL. • BREA, CA 92823 • 714-993-6112

Customer: **NMB Technologies Inc.**
Specification: **CISPR22 B COND [AVE]**
Work Order #: **74670** Date: 07/13/2000
Test Type: **Conducted Emissions** Time: 16:02:15
Equipment: **PS2 Keyboard** Sequence#: 2
Manufacturer: NMB Technologies, Inc. Tested By: Eddie Wong
Model: RT7D00
S/N: NA

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
PS2 Keyboard*	NMB Technologies, Inc.	RT7D00	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C2184A	CN5B21R1DM
Modem	Hayes	6802US	B10068023649
Monitor	Gateway	EV500A	15052D000578
PS/2 Mouse	Microsoft	X03-65047	
Computer	HP	Pavilion	US911132177

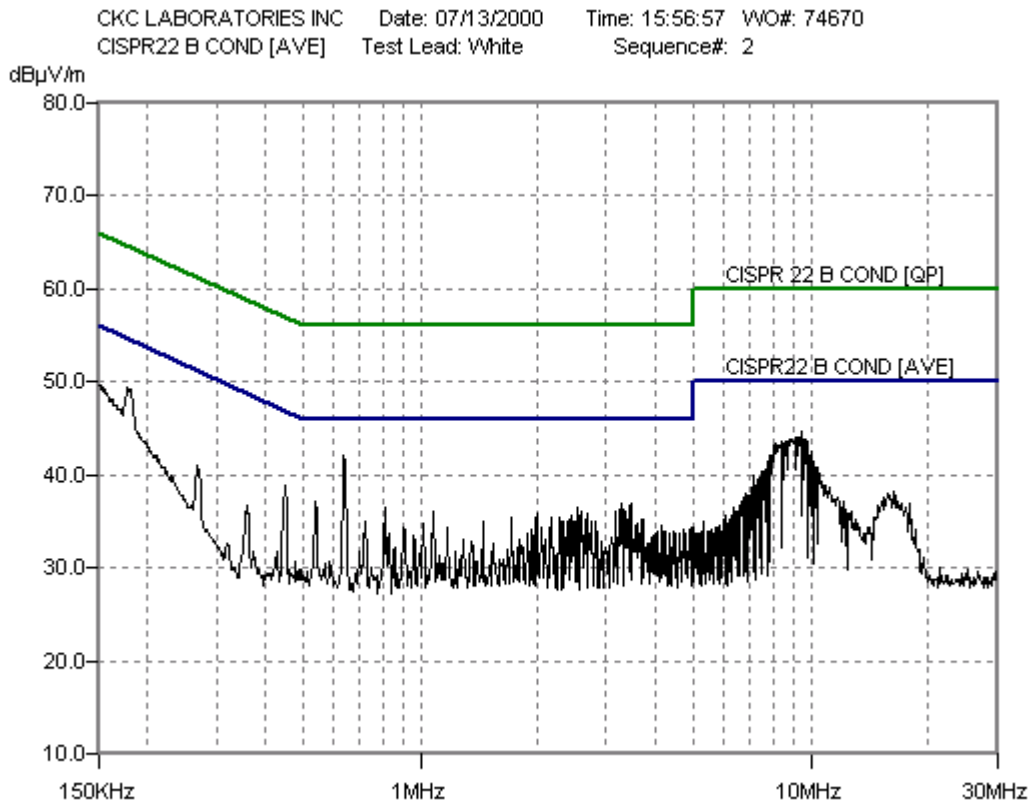
Test Conditions / Notes:

The EUT is a PS2 keyboard. The EUT is connected to the host computer. The EUT is continuously sending H's to the host computer and it is being displayed on the monitor (through Wordpad). Num Lock, Caps Lock, and Scroll Lock are all active. Connected to the host computer are a modem, a printer, a PS/2 mouse, and monitor. 110 VAC, 60 Hz, 22.2°C, 51% relative humidity.

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	638.811k	42.1					+0.0	42.1	46.0	-3.9	White
	Ambient								AM radio station		
2	9.271M	44.1					+0.0	44.1	50.0	-5.9	White
3	8.896M	43.9					+0.0	43.9	50.0	-6.1	White
4	9.624M	43.8					+0.0	43.8	50.0	-6.2	White
5	150.829k	49.7					+0.0	49.7	56.0	-6.3	White
6	9.822M	43.6					+0.0	43.6	50.0	-6.4	White
7	8.455M	43.6					+0.0	43.6	50.0	-6.4	White
8	156.631k	49.2					+0.0	49.2	55.6	-6.4	White
9	8.720M	43.5					+0.0	43.5	50.0	-6.5	White

10	8.632M	43.5	+0.0	43.5	50.0	-6.5	White
11	8.102M	43.3	+0.0	43.3	50.0	-6.7	White
12	8.257M	43.2	+0.0	43.2	50.0	-6.8	White
13	9.111M Ave	41.0	+0.0	41.0	50.0	-9.0	White
^	9.111M	45.4	+0.0	45.4	50.0	-4.6	White
^	9.117M	44.1	+0.0	44.1	50.0	-5.9	White
16	9.468M Ave	40.2	+0.0	40.2	50.0	-9.8	White
^	9.468M	45.1	+0.0	45.1	50.0	-4.9	White
^	9.470M	44.6	+0.0	44.6	50.0	-5.4	White
19	178.180k Ave	42.3	+0.0	42.3	54.6	-12.3	White
^	178.180k	49.4	+0.0	49.4	54.6	-5.2	White
21	9.296M Ave	34.3	+0.0	34.3	50.0	-15.7	White
^	9.290M	45.1	+0.0	45.1	50.0	-4.9	White


CKC LABORATORIES INC Date: 07/13/2000 Time: 15:56:57 WO#: 74670
CISPR22 B COND [AVE] Test Lead: White Sequence#: 2
dBµV/m
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
CISPR 22 B COND [QP]
CISPR22 B COND [AVE]
150KHz
1MHz
10MHz
30MHz