

EXHIBIT D

CKC TEST REPORT





# CERTIFICATION TEST REPORT

#### FOR THE

# KEYBOARD, RT23XXXXX & RT22XXXXX

FCC/CISPR 22/85

CLASS B COMPLIANCE

DATE OF ISSUE: APRIL 30, 1998

PREPARED FOR:

NMB Technologies 9730 Independence Avenue Chatsworth, CA 91311

P.O. No: Q010979

W.O. No: 68825

Report No: FB98-069

Date of test: April 17 & 23, 1998

**DOCUMENTATION CONTROL:** 

Director of Laboratories

CKC Laboratories

PREPARED BY:

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# ADMINISTRATIVE INFORMATION

DATE OF TEST:

April 17 & 23, 1998

**PURPOSE OF TEST:** 

To demonstrate the compliance of the Keyboard, RT23XXXXX, with the

requirements for FCC/CISPR 22/85 Class B

devices.

**MANUFACTURER:** 

NMB Technologies

9730 Independence Avenue Chatsworth, CA 91311

REPRESENTATIVE:

Bob Dickerman

**TEST LOCATION:** 

CKC Laboratories, Inc.

110 Olinda Place Brea, CA 92621

**TEST PERSONNEL:** 

**David Cortes** 

TEST METHOD:

ANSI C63.4 1992

FREQUENCY RANGE TESTED:

150kHz - 1000MHz

**EQUIPMENT UNDER TEST:** 

Keyboard

Manuf:

NMB Technologies

Model:

RT23XXXXX

Serial:

FCC ID:

Pending

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# **SUMMARY OF RESULTS**

The NMB Technologies Keyboard, RT23XXXXX 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

Keyboard, Computer HID serial input device

# ADDITIONAL TRADE NAMES OR MODEL NUMBERS

RT22XXXXX

#### MEASUREMENT UNCERTAINTY

Associated with data in this report is a <u>+</u>4dB measurement uncertainty.

#### PERIPHERAL DEVICES

The EUT was tested with the following peripheral devices:

Compute	er	Monitor	
Manuf:	<del>_</del>	Manuf:	HP
	S100EDZ8FLC	Model:	D2806B
	A05721230	Serial:	KR54366896
	EJMBATTAHITI	FCC ID:	CSYSC-528UXH
10012.			

Mouse		Modem	
	Logitech	Manuf:	Hayes
	M-CQ38	Model:	6802US
	LT554205822	Serial:	A00768023303
	DZLM04	FCC ID:	BFJ9D9 6802US

SCHAL CHUSDZIKIDIA	

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### REPORT OF MEASUREMENTS

The following Tables 1 and 2 report the six highest radiated and conducted emissions levels recorded during the tests performed on the Keyboard, RT23XXXXXX. 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	COR Ant dB	RECTIC Amp dB	ON FACT Cable dB	ORS Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
75.171	42.2	7.4	-28.1	1.5		23.0	30.0	-7.0	V
149.968	31.8	17.6	-28.1	2.2		23.5	30.0	-6.5	VQ
156.030	31.1	17.5	-28.1	2.3		22.8	30.0	-7.2	HQ
167.975	31.8	17.5	-28.1	2.4		23.6	30.0	-6.4	VQ
197.994	32.1	16.7	-28.0	2.7		23.5	30.0	-6.5	VQ
209.965	31.5	17.0	-28.0	2.7		23.2	30.0	-6.8	VQ

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 keyboard and is connected to the host computer. The computer also has a monitor, mouse, printer, and two modems connected. The EUT is continually sending H's which is being displayed on the monitor. Temperature: 21°C Humidity: 40%.

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Table 2: Six Highest Conducted Emission Levels									
FREQUENCY MHz	METER READING dBμV	COR Lisn dB	RECTION DE LA COMPANION DE LA	ON FACT	TORS dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
0.150638	47.7	0.0				47.7	56.0	-8.3	W
0.205198	47.5	0.0				47.5	53.4	-5.9	W
0.414003	37.6	0.0		<u></u>		37.6	47.6	-10.0	W
0.480466	38.9	0.0		<u> </u>	ļ <u>-</u>	38.9	46.3	-7.4	W
0.549562	38.6	0.0		_		38.6	46.0	-7.4	W
3.072180	36.6	0.0			<u> </u>	36.6	46.0	-9.4	В

Test Method: Spec Limit:

Test Distance:

ANSI C63.4 1992

CISPR 22 Class B

No Distance

NOTES:

Q = Quasi Peak Reading

A = Average Reading

B = Black Lead

W = White Lead

COMMENTS: The EUT is a keyboard and is connected to the host computer. The computer also has a monitor, mouse, printer, and two modems connected. The EUT is continually sending H's which is being displayed on the monitor. Temperature: 21°C Humidity: 40%.

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#### TABLE A

## LIST OF TEST EQUIPMENT

# Brea VCCI Acceptance No. R-301 & C-314

- 1. Spectrum Analyzer, Hewlett Packard, Model No. 8568A, S/N 2049A01287.
- 2. Preamp, Hewlett Packard, Model No. 8447D, S/N 1937A02548.
- 3. Quasi-Peak Adapter, Hewlett Packard, Model No. 85650A, S/N 2030A00532.
- 4. Biconical Antenna, A & H Systems, Model No. SAS-200/540, S/N 220.
- 5. Log Periodic Antenna, A & H Systems, Model No. SAS-200/516, S/N 331.
- 6. Horn Antenna, Emco, Model No. 3115, S/N 4683.
- 7. Magnetic Loop Antenna, Electro Metrics, Model No. ALR-25M, S/N 536.
- 8. LISN, Solar Electronics, Model No. 8028-50-TS-24-BNC, S/N Brea #1.
- 9. LISN, Solar Electronics, Model No. 50 uH, S/N Brea #2.
- 10. Brea site calibration date: May 8, 1997. Brea site calibration due date: May 8, 1998.
- 11. Test software, EMI Test 2.86.

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#### **EUT SETUP**

The equipment under test (EUT) and the peripherals listed were setup 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 1 meter 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 host computer 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.

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#### 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 Keyboard, RT23XXXXX. 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, a reference level of  $100~dB\mu V$  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  $97~dB\mu V$ , and a vertical scale of 10~dB per division.

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

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#### 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 Table 1 or Table 2. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Keyboard, RT23XXXXXX.

#### 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 85650A Quasi-Peak Adapter for the HP 8568B Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

#### Average

When the frequencies exceed 1 GHz, 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.

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#### **TEST METHODS**

The radiated and conducted emissions data of the Keyboard, RT23XXXXX, 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 EUT was powered up and operating in its defined FCC test mode (printing "H's" to the CRT and peripherals) 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 peripherals 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.

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## **Conducted Emissions Testing**

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

#### 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  $dB\mu V/m$ , the spectrum analyzer reading in  $dB\mu V$  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( $dB\mu V/m$ )

This reading was then compared to the applicable specification limit to determine compliance. For conducted emissions, no correction factors were needed when 50  $\mu$ H LISN's were used.

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# APPENDIX A INFORMATION ABOUT THE EQUIPMENT UNDER TEST

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#### INFORMATION ABOUT THE EQUIPMENT UNDER TEST

Test Software/Firmware:

CRT was displaying:

Scrolling "H's"

Power Supply Manufacturer:

Power Supply Part Number: AC Line Filter Manufacturer:

AC Line Filter Part Number:

The host computer AC power cord is removable and is NOT shielded

Line voltage used during testing: 120V 60Hz

I/O PORTS				
Type	#			
Serial, Keyboard	1			

CRYSTAL OSCILLATORS					
Type Freq In MHz					
RC Oscillator (Clock)	4				

PRINTED CIRCUIT BOARDS							
Function	Model & Rev	Clocks, MHz	Layers	Location			
Logic Z86K15 MPU	3058-3069 Rev. A	4	1	Inside K/B			

REQUIRED EUT CHANGES TO COMPLY:	
None	

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#### **CABLE INFORMATION**

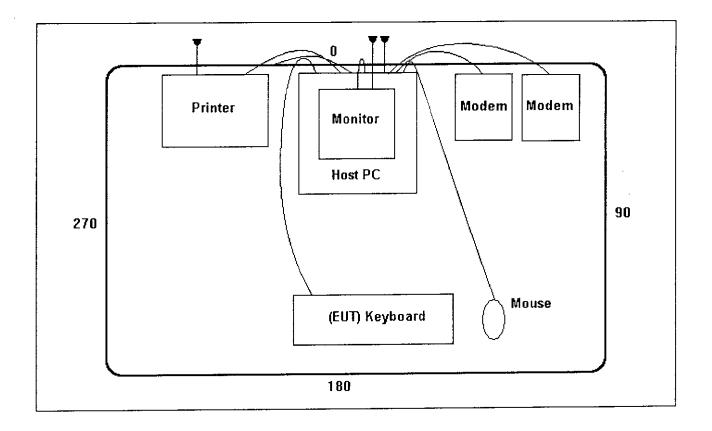
Cable #:	1	Cable(s) of this type:	1
Cable Type: Construction: Connected To End (1): Connector At End (1): Shield Grounded At (1): Part Number:	Round Mini Din	Shield Type: Length In Meters: Connected To End (2): Connector At End (2): Shield Grounded At (2): Number of Conductors:	2 PCB Chassis Ground
Notes:			

Cable Routing For Worst Case Emissions: Cable length only allows routing as shown in photograph.

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# **EQUIPMENT CONFIGURATION BLOCK DIAGRAM**



RT23XXXXX

NOTES:

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# APPENDIX B MEASUREMENT DATA SHEETS

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

Customer:

**NMB Technologies** 

Date: Apr-17-98

Specification:

CISPR 22 B RADIATED

Time: 16:49

Test Type:

Maximized Emissions

Sequence#: 1

Equipment: Manufacturer: Keyboard

Model:

NMB Technologies RT23XXXXX

Tested By: Stu Yamamoto

S/N:

Fauinment Under Test (\* = EUT):

Equipment Unaer 1	2S7 (" EU1).			-
Function	Manufacturer	Model #	S/N	
Keyboard*	NMB Technologies	RT23XXXXX		

Support Devices:

Support Devices:			0.0.1
Function	Manufacturer	Model #	S/N
	Intel	S100EDZ8FLC	A05721230
Computer	= -	D2806B	KR54366896
Monitor	HP		LT554205822
Mouse	Logitech	M-CQ38	
Modem	Hayes	6802US	A00768023303
Printer	HP	C2184A	CN5B21R1DM
	Haves	6802US	B10068023649
Modem	11ayes	000200	

#### Test Conditions / Notes:

The EUT is a keyboard and is connected to the host computer. The computer also has a monitor, mouse, printer, and two modems connected. The EUT is continually sending H's which is being displayed on the monitor. Temperature: 21°C Humidity: 40%.

Measi	rement Data:		Sorte	d by Mar	gin		Test Distance: 10 Meters				
			BICON (		<u> </u>	AMP	Dist	Corr	Spec	Margin	Polar
#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	dB	dBμV/m	dBμV/m	dB .	ļ
<u> </u>	149.968	31.8	+17.6	+2.2		-28.1	+0.0	23.5	. 30.0	-6.5	Vert
1	Quasi Peak	51.0									
2		31.8	+17.5	+2.4		-28.1	+0.0	23.5	30.0	-6.5	Vert
] ~	Quasi Peak										
3		32.1	+16.7	+2.7		-28.0	+0.0	23.5	30.0	-6.5	Vert
	Quasi Peak								20.0		Horiz
4	167.954	31.6	-17.5	+2.4		-28.1	+0.0	23.4	30.0	-6.6	HOLIZ
	Quasi Peak								20.0	-6.8	Vert
5	209.965	31.5	+17.0	+2.7		-28.0	+0.0	23.2	30.0	-0.8	VCIT
ļ	Quasi Peak	_			<u> </u>				20.0	7.0	Horiz
6	209.999	31.3	+17.0	+2.7		-28.0	+0.0	23.0	30.0	-7.0	нопи
Ì	Quasi Peak									- 7.0	More
7	75.171	42.2	+7.4	+1.5		-28.1	+0.0	23.0	30.0	-7.0	Vert
8	156.029	31.1	+17.5	+2.3		-28.1	+0.0	22.8	30.0	-7.2	Horiz
	Quasi Peak					<u></u>					

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9	192.003	31.0	+16.9	+2.6	-28.0	+0.0	22.5	30.0	-7.5	Horiz
(	Quasi Peak									
10	191.975	31.0	+16.9	+2.6	-28.0	+0.0	22.5	30.0	-7.5	Vert
1	Quasi Peak									
11	58.461	40.9	+8.6	+1.2	-28.2	+0.0	22.5	30.0	-7.5	Vert
''	J <b>0.4</b> 01	70.7	10.0		20.2	. 0.0	22.0	5 0.0	, ,,,	,
<u> </u>	00.550	27.0		. 1 0	20.1	+0.0	22.4	30.0	-7.6	Vert
12	99.350	37.0	+11.7	+1.8	-28.1	+0.0	22.4	30.0	-7.0	ACIT
13	179.970	30.6	+17.3	+2.5	-28.1	+0.0	22.3	30.0	-7.7	Vert
	Quasi Peak									
14	62.633	41.1	+7.9	+1.3	-28.2	+0.0	22.1	30.0	-7.9	Vert
•										
15	180.000	30.3	+17.3	+2.5	-28.1	+0.0	22.0	30.0	-8.0	Horiz
1		30.3	(17.5	12.5	-20.1	10.0	22.0	30.0	0.0	
	Quasi Peak				20.4		21.7	20.0	0.7	Vort
16	222.017	29.4	+17.5	+2.8	-28.0	+0.0	21.7	30.0	-8.3	Vert
(	Quasi Peak									
17	166.193	29.9	+17.5	+2.4	-28.1	+0.0	21.6	30.0	-8.4	Vert
(	Quasi Peak									
18	222.014	29.0	+17.5	+2.8	-28.0	+0.0	21.3	30.0	-8.7	Horiz
1		29.0	117.5	. 2.0	-20.0	.0.0	201.0	30.0	0,,	
<del>,</del>	Quasi Peak						21.2	20.0	0.7	Vert
19	114.669	32.8	+14.7	+1.9	-28.1	+0.0	21.3	30.0	-8.7	vert
20	66.810	40.5	+7.6	+1.3	-28.2	+0.0	21.2	30.0	-8.8	Vert
21	70.988	39.8	+7.3	+1.4	-28.2	+0.0	20.3	30.0	-9.7	Vert
21	70.900	37.0	. ,	1	20.2					
			10.0		20.1	100	20.2	30.0	-9.7	Vert
22	33.399	29.5	+18.0	+0.9	-28.1	+0.0	20.3	30.0	-9.1	VEIL
23	114.731	31.3	+14.7	+1.9	-28.1	+0.0	19.8	30.0	-10.2	Horiz
	Quasi Peak									
24	91.874	35.9	+9.9	+1.6	-28.0	+0.0	19.4	30.0	-10.6	Vert
	71.074	55.7				*				
	70.247	20.2	17.4	. 1.6	-28.0	+0.0	19.2	30.0	-10.8	Veri
25	79.347	38.3	+7.4	+1.5	-28.0	±0.0	17.4	50.0	-10.6	7 0
									11.6	
26	58.459	36.8	+8.6	+1.2	-28.2	+0.0	18.4	30.0	-11.6	Horiz
27	87.699	35.5	+9.0	+1.6	-28.0	+0.0	18.1	30.0	-11.9	Vert
	5,10,7			· · •						
20	75 171	26.0	+7.4	+1.5	-28.1	+0.0	16.8	30.0	-13.2	Horiz
28	75.171	36.0	⊤/.4	⊤1.⊅	-20.1	10.0	10.0	50.0		
						.0.0	150	70.0	141	Horiz
29	66.812	35.2	+7.6	+1.3	-28.2	+0.0	15.9	30.0	-14.1	HOUZ
30	70.986	35.2	+7.3	+1.4	-28.2	+0.0	15.7	30.0	-14.3	Horiz
	_									,
1										

Page: 23 of 29 Report No: FB98-069 Test Location:

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

Customer:

NMB Technologies

Date: Apr-23-98

Specification:

CISPR 22 B COND [AVE]

Time: 11:00

Test Type:

Conducted Emissions

Sequence#: 2

Equipment:

Keyboard

Manufacturer:

NMB Technologies

RT23XXXXX

Tested By: David Cortes

Model:

S/N:

Equipment Under Test (\* = EUT):

Equipment Chack Less (	201).			
Function	Manufacturer	Model #	S/N	
Keyboard*	NMB Technologies	RT23XXXXX		·

Support Devices:

Support Devices.				
Function	Manufacturer	Model #	S/N	
Computer	Intel	S100EDZ8FLC	A05721230	1
Monitor	HP	D2806B	KR54366896	
Mouse	Logitech	M-CQ38	LT554205822	
Modem	Hayes	6802US	A00768023303	
Printer	HP	C2184A	CN5B21R1DM	
Modem	Haves	6802US	B10068023649	
HAIOGCIII	114,05			

#### Test Conditions / Notes:

The EUT is a keyboard and is connected to the host computer. The computer also has a monitor, mouse, printer, and two modems connected. The EUT is continually sending H's which is being displayed on the monitor. Temperature: 21°C Humidity: 40%. Voltage to the computer is 120 VAC 60 Hz.

Measur	ement Data:		Sorted by Margin				Test Lead: Black				· <del></del>
#	Freq	Rdng dBµV	dB	dB	dB	dB	Dist dB	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar
1	205.517k	45.4					+0.0	45.4	53.4	-8.0	Black
2	3.072M	36.6	<u> </u>				+0.0	36.6	46.0	-9.4	Black
3	150.000k	46.6					+0.0	46.6	56.0	-9.4	Black
4	3.043M	36.3			<u></u> -		+0.0	36.3	46.0	-9.7	Black
5	477.834k	36.6					+0.0	36.6	46.4	-9.8	Black
6	3.113M	36.0					+0.0	36.0	46.0	-10.0	Black
7	548.904k	36.0		- <del></del>	<del></del>		+0.0	36.0	46.0	-10.0	Black
8	3.009M	35.6					+0.0	35.6	46.0	-10.4	Black

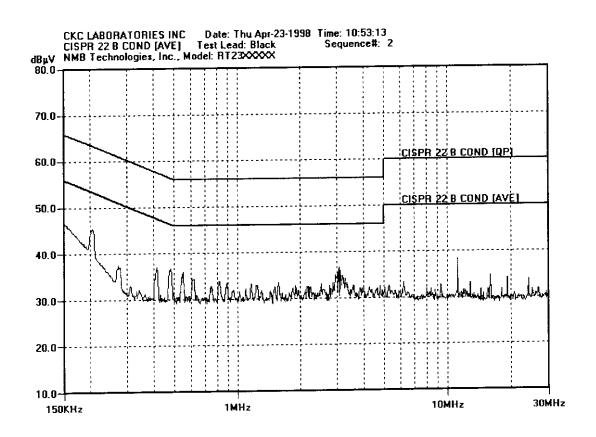
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9	413.344k	37.0	+0.0	37.0	47.6	-10.6	Black
10	2.937M	35.1	+0.0	35.1	46.0	-10.9	Black
11	3.179M	35.0	+0.0	35.0	46.0	-11.0	Black
12	3.147M	34.9	+0.0	34.9	46.0	-11.1	Black
13	608.129k	34.6	+0.0	34.6	46.0	-11.4	Black
14	183.501k	42.7	+0.0	42.7	54.3	-11.6	Black
15	3.251M	34.3	+0.0	34.3	46.0	-11.7	Black
16	11.183M	38.2	+0.0	38.2	50.0	-11.8	Black
17	824.011k	33.9	+0.0	33.9	46.0	-12.1	Black
18	889.158k	33.6	+0.0	33.6	46.0	-12.4	Black
19	1.571M	33.5	+0.0	33.5	46.0	-12.5	Black
20	1.162M	33.4	+0.0	33.4	46.0	-12.6	Black

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Customer:

NMB Technologies

Date: Apr-23-98

Specification:

CISPR 22 B COND [AVE]

Time: 11:06

Test Type:

**Conducted Emissions** 

Sequence#: 3

Equipment:

Keyboard

Manufacturer:

NMB Technologies

RT23XXXXX

Tested By: David Cortes

Model: S/N:

Equipment Under Test (\* = EUT):

	<del></del>		
Function	Manufacturer	Model #	S/N
Keyboard*	NMB Technologies	RT23XXXXX	

#### Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Intel	S100EDZ8FLC	A05721230
Monitor	HP	D2806B	KR54366896
Mouse	Logitech	M-CQ38	LT554205822
Modem	Hayes	6802US	A00768023303
Printer	HP	C2184A	CN5B21R1DM
Modem	Hayes	6802US	B10068023649

#### Test Conditions / Notes:

The EUT is a keyboard and is connected to the host computer. The computer also has a monitor, mouse, printer, and two modems connected. The EUT is continually sending H's which is being displayed on the monitor. Temperature: 21°C Humidity: 40%. Voltage to computer is 120 VAC 60 Hz.

Measur	ement Data:		Sorted by Margin				Test Lead: White				
#	Freq	Rdng dBµV	dB	dВ	dB	dB	Dist dB	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar
1	205.198k	47.5					+0.0	47.5	53.4	-5.9	White
2	549.562k	38.6					+0.0	38.6	46.0	-7.4	White
3	480.466k	38.9	_				+0.0	38.9	46.3	-7.4	White
4	150.638k	47.7				•	+0.0	47.7	56.0	-8.3	White
5	3.107M	36.5			••••		+0.0	36.5	46.0	-9.5	White
6	3.072M	36.2					+0.0	36.2	46.0	-9.8	White
7	3.141M	36.0					+0.0	36.0	46.0	-10.0	White
8	414.003k	37.6					+0.0	37.6	47.6	-10.0	White

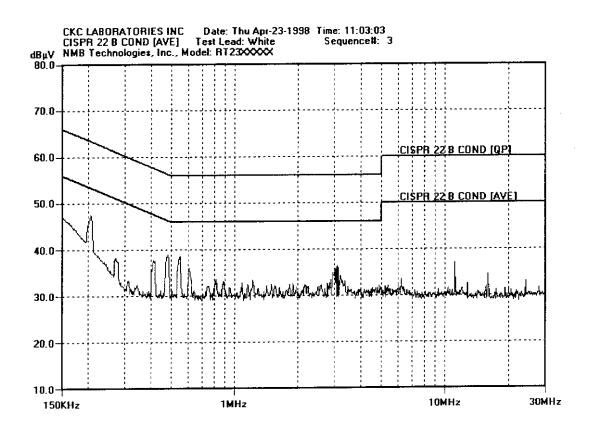
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9	409.067k	37.7	+0.0	37.7	47.7	-10.0	White
10	604.181k	35.9	+0.0	35.9	46.0	-10.1	White
11	3.003M	35.8	+0.0	35.8	46.0	-10.2	White
12	3.043M	35.7	+0.0	35.7	46.0	-10.3	White
13	2.934M	35.0	+0.0	35.0	46.0	-11.0	White
14	3.179M	34.2	+0.0	34.2	46.0	-11.8	White
15	815.868k	33.5	+0.0	33.5	46.0	-12.5	White
16	2.861M	33.4	+0.0	33.4	46.0	-12.6	White
17	1.224M	33.4	+0.0	33.4	46.0	-12.6	White
18	3.251M	33.2	+0.0	33.2	46.0	-12.8	White
19	2.899M	33.2	+0.0	33.2	46.0	-12.8	White
20	810.439k	33.2	+0.0	33.2	46.0	-12.8	White

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