
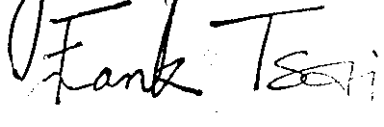


EXHIBIT B

Test Report

Report No.	K0615422	
Specifications	FCC Part 15.109(g), CISPR 22	
Test Method	ANSI C63.4 1992	
Applicant address	No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien, 241, Taiwan, R.O.C.	
Applicant Items tested	KYE SYSTEMS CORP. USB Joystick	
Model No.	USB F-31D (Sample # K06422)	
Results	Compliance (As detailed within this report)	
Sample received data	06/17/99 (month / day / year)	
Prepared by		project engineer
Authorized by		General Manager (Frank Tsai)
Issue date	Jul. 30, 1999	(month / day / year)
Modifications	None	
Tested by	Training Research Co., Ltd.	
Office at	2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan	
Open site at	No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec. 4, Taipei, Taiwan	

Conditions of issue:

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- (2) **This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.**

★ FCC ID: FSUGJUSBF31D

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Chapter 1 Introduction

Description of EUT:

This device is a USB joystick that works in Windows series. It designed to be connected with USB port of PC.

Connections of EUT:

- (1) Connect the EUT to USB Port A of PC via a USB cable.

Test method:

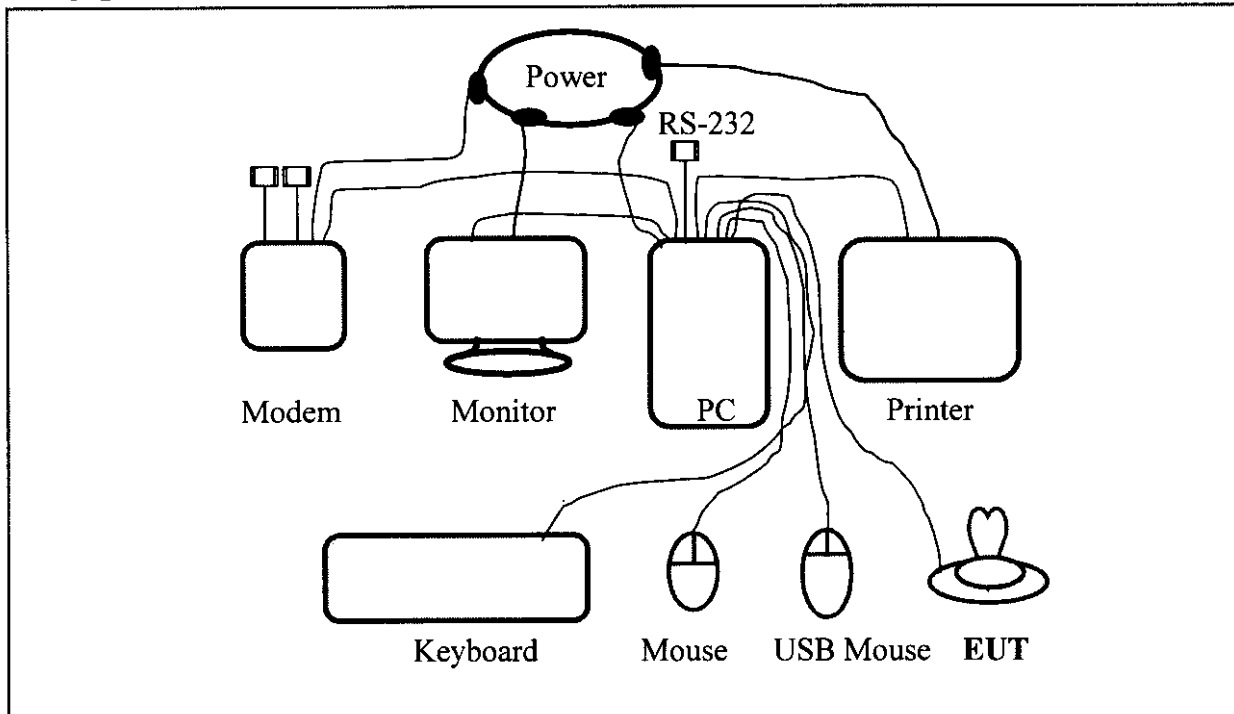
Pretest was found that the emission of operating mode is worse than standby mode. So, The final test is made at the operating mode.

During testing, the EUT was depressed one key continuously.

The test placement as the photographs showed is the worst case emission placed.

(If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

The testing configuration of test setup is showing in the next page.

Configuration of test setup**Connections:****PC:**

- *Serial A port --- 120 cm shielded cable connected to a EUT
 - *Serial B port --- 76 cm shielded cable left unterminal
 - *Printer port --- a printer with 1.2m length data cable
 - *Keyboard port --- a keyboard with 1m length
 - *Mouse port --- a mouse with 1m length
 - *Monitor port --- a monitor with 0.7m long of data cable
 - *USB port A --- a EUT with 183cm long, shielded and no ferrite bead data cable
 - *USB port B --- a USB mouse with 1.5m long, shielded and no ferrite bead data cable
- (Each port on PC is connected with suitable device)

EUT:

- *USB cable --- 183 cm shielded cable connected to USB port A of PC

List of support equipment

Conducted (Radiated) test:

PC : **HP Brio 85xx 6/350**
Model No. : D6928A
Serial No. : SG91801443 (TW90400174)
FCC ID : N/A, Doc Approved
檢磁 : 3872H013
Power type : 100 ~ 230VAC / 50 ~ 60Hz, 5A, Switching
Power cord : Non-shielded, 2.30m long, Plastic, No ferrite core

Monitor : **HP 15' Color Monitor**
Model No. : D2827A (D2832A)
Serial No. : KR91161716 (MY90615892)
FCC ID : C5F7NFCMC1518X (N/A, Doc Approved)
檢磁 : 3872B039 (4872A167)
Power type : 110 ~ 240 VAC / 50 ~ 60 Hz, Switching
Power cord : Shielded, 1.80m long, No ferrite core
Data cable : Shielded, 1.50m long, with two ferrite cores

Keyboard : **HP**
Model No. : SK-2501K
Serial No. : M990308795 (M981216213)
FCC ID : GYUR38SK
檢磁 : 3862A621
Power type : By PC
Data cable : Shielded, 1.70m long, with ferrite core

Mouse : **HP**
Model No. : M-S34
Serial No. : LZC84446151 (LZB90910462)
FCC ID : DZL211029
檢磁 : 4862A011
Power type : By PC
Power cord : Non-shielded, 1.80m long, No ferrite core

Modem : **ACEEX**
Model No. : XDM-9624
FCC ID : IFAXDM-9624
Power type : 220VAC, 50Hz / 9VAC, 1A
Power cord : Non-shielded, 1.9m long, No ferrite cord
Data cable : RS232, Shielded, 1.2m long, No ferrite core
RJ11C x 2, 7' long non-shielded, No ferrite core

Printer : **EPSON**
Model No. : P78PA (P70RA)
Serial No. : 0EE0014030 (10010386)
FCC ID : BKM9A8P70RA
Power type : 220VAC, 50Hz
Power cord : Non-shielded, 2m long, No ferrite core
Data cable : Shielded, 1.84m long, No ferrite core (1.7m)

USB Mouse : **Logitech (Chic Technology Corporation)**
Model No. : M-BA47 (CM-USB)
Serial No. : LZE92250027 (N/A)
FCC ID : N/A, Doc Approved (IOWCM-USB)
檢磁 : 4872A220 N/A
Power type : Powered by PC
Power Cable : Shielded. 1.8M (1.5M) long, Plastic hoods, No ferrite bead

Chapter 2 Conducted emission test

Test condition and setup:

All the equipment is placed and setup according to the ANSI C63.4 - 1992.

The EUT is assembled on a wooden table which is 80 cm high, is placed 40 cm from the back-wall which is a vertical conducting plane. One LISN is for EUT, the other LISN is for support equipment. They are all placed on the conductive ground. The EUT's LISN connect a line switch box for selecting L1 or L2, then connect to a preamplifier and spectrum.

The spectrum scans from 150KHz to 30MHz. Conducted emission levels are detected at max. peak mode. But if the max. peak mode failed or over average limit, it will be measured by average detection mode.

While testing, there is the worst-emission plot printed at peak detection mode, and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report.

List of test Instrument:

Instrument Name	Model No.	Brand	Serial No.	Calibration Date	
				Last time	Next time
Spectrum analyzer	8591EM	H P	3619A00821	10/29/98	10/29/99
LISN (EUT)	3825/2	EMCO	9411-2284	05/20/99	05/20/00
LISN (Support E.)	3825/2	EMCO	9210-2007	05/20/99	05/20/00
Preamplifier	8447F	H P	2944A03706	05/20/99	05/20/00
Line switch box	AC1-003	TRC	-----	05/20/99	05/20/00
Line selector	AC1-002	TRC	-----	05/20/99	05/20/00

The level of confidence of 95% , the uncertainty of measurement of conducted emission is ± 2.4 dB.

Test Result: Pass (Appendix A)

Chapter 3 Radiated emission test

Test condition and setup:

Pretest : Prior to the final test (OATS test) ,the EUT is placed in a shielded enclosure, and scan from 30MHz to 1GHz. This is done to ensure the radiation exactly emits form the EUT.

Final test: Final radiation measurements is made on a **10 - meter, open-field** test site. The EUT is placed on a nonconductive table which is 0.8 m height, the top surface is 1.0 x 1.5 meter. All the placement is according to ANSI C63.4 - 1992.

The spectrum is examined from 30 MHz to 1000 MHz measured by HP spectrum.

The EMCO whole range Antenna is used to measure frequency from 30 MHz to 1GHz. The final test is used the spectrum analyzer.

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meters to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 KHz, and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the data will be rechecked by the tester and the corrected data will be written in the test data sheet. If the emission is just within the ambient , the data from shield room will be taken as the final data.

List of test Instrument:

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Serial No.</u>	<u>Calibration Date</u>	
				<u>Last time</u>	<u>Next time</u>
Spectrum analyzer	8591EM	H P	3710A01203	01/29/99	01/29/00
Spectrum analyzer	8568B	H P	3004A18617	05/18/99	05/18/00
Quasi-peak Adapter	85650A	H P	2521A00984	05/18/99	05/18/00
RF Pre-selector	85685A	H P	2947A01011	05/18/99	05/18/00
Antenna (30M-1.5G Hz)VULB 9160	M.E.		3064	01/20/99	01/20/00
Open test side (Antenna, Amplify, cable calibrated together)				05/20/99	05/20/00

The level of confidence of 95%, the uncertainty of measurement of radiated emission is ± 4.96 dB.

Test Result: Pass (Appendix B)

Appendix A

Conducted Emission Test Result:

Testing room : Temperature : 24 ° C

Humidity : 65 % RH

Line 1

<i>Frequency (KHz)</i>	<i>Amplitude (dBuV)</i>	<i>Limit (dBuV/m)</i>	<i>Margin (dB)</i>
195.00	43.20	54.71	-11.51
818.00	29.81	46.00	-16.19
1948.00	31.26	46.00	-14.74
2030.00	30.52	46.00	-15.48
2420.00	28.91	46.00	-17.09
2530.00	28.85	46.00	-17.15
2810.00	29.06	46.00	-16.94
2890.00	30.14	46.00	-15.86
3380.00	29.05	46.00	-16.95
3780.00	29.91	46.00	-16.09

Line 2

<i>Frequency (KHz)</i>	<i>Amplitude (dBuV)</i>	<i>Limit (dBuV/m)</i>	<i>Margin (dB)</i>
195.00	42.81	54.71	-11.90
778.00	27.22	46.00	-18.78
818.00	28.37	46.00	-17.63
1070.00	29.41	46.00	-16.59
1163.00	28.40	46.00	-17.60
1458.00	27.56	46.00	-18.44
1555.00	28.98	46.00	-17.02
1847.00	27.70	46.00	-18.30
1948.00	27.93	46.00	-18.07
2030.00	28.89	46.00	-17.11

* The reading amplitudes are all under average limit.

Appendix B

Radiated Emission Test Result :(Horizontal)

Test Conditions:

Testing room :	Temperature : 25 ° C	Humidity : 70 % RH
Testing site :	Temperature : 30 ° C	Humidity : 81 % RH

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B Limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

165.400	42.80	1.00	299	-13.83	28.97	30.00	-1.03
168.410	42.70	4.00	81	-13.68	29.02	30.00	-0.98
171.420	36.50	4.00	348	-13.53	22.97	30.00	-7.03
177.430	38.20	4.00	41	-13.23	24.97	30.00	-5.03
180.440	37.10	4.00	47	-13.07	24.03	30.00	-5.97
189.450	36.20	4.00	99	-12.53	23.67	30.00	-6.33

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude + Correction Factors
3. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)
 (For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

Radiated Emission Test Result: (Vertical)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class B limit	Margin
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB

75.180	40.90	2.57	228	-17.09	23.81	30.00	-6.19
78.240	41.50	4.00	310	-16.97	24.53	30.00	-5.47
156.380	40.30	1.00	152	-14.28	26.02	30.00	-3.98
159.390	38.80	1.00	156	-14.13	24.67	30.00	-5.33
165.400	39.60	4.00	93	-13.83	25.77	30.00	-4.23
171.450	38.30	1.00	174	-13.53	24.77	30.00	-5.23
177.440	39.70	4.00	187	-13.23	26.47	30.00	-3.53
180.440	37.80	1.00	103	-13.07	24.73	30.00	-5.27
189.450	40.50	2.57	121	-12.53	27.97	30.00	-2.03
192.470	41.10	1.00	89	-12.45	28.65	30.00	-1.35
