



The Hong Kong Standards and Testing Centre Ltd.

TEST REPORT

Page 1 of 7

Date: 1998-10-30

No.: WM1266A/504

APPLICANT: (CODE : 017107)

STD MANUFACTURING LTD.

Unit F-J, 5/F, Block 2, Kwai Tak Ind. Centre, 15-33 Kwai Tak Street, Kwai Chung, N.T., Hong Kong.

DATE OF SAMPLES RECEIVED: 1998.08.04.

DATE OF TESTING: 1998.08.26 & 1998.08.31.

DESCRIPTION OF SAMPLE(S):

A sample of product said to be:

Product: V4 FX Racing Wheel
Manufacturer: STD Manufacturing Ltd.
Model Number: SV-283
Brand Name: STD
Origin: China

The AC/DC adapter used for the tests was supplied by the applicant, the details of adapter as follows :
Malaysia AC - DC adapter, model no.: MULDS7201500, input : 120Va.c., 60Hz, 38W, output : 20Vd.c., 1500mA

INVESTIGATIONS REQUESTED:

Measurement to the relevant clauses of F.C.C. Rules and Regulations Part B - Unintentional Radiators. The results obtained are to compare with the class B digital device limit.

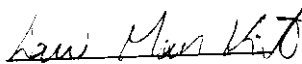
REMARKS : This product was tested as a system using the Ancillary Equipment listed & Photographs in Appendix B. (WM1266/504)
The test report supersedes our previous test report No. WM1266/504 (Page 1 to 7) issued on 1998-08-31 which is hereby deemed null and void.

RESULTS: Please see attached sheet(s).

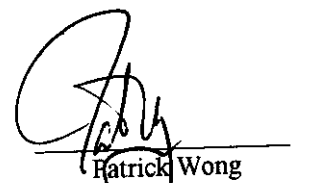
CONCLUSION:

From the measurement data obtained, the tested sample was considered to have COMPLIED with the requirement for the relevant clauses of Federal Communications Commission Rules for Class B digital device.

TEST EQUIPMENT AUDIT: Please see Appendix A. (WM1266/504)


Testing Engineer


Verify by


Patrick Wong
for Managing Director

Conditions in Issuance of Test Report

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TEST SUMMARY

(A) Measurement of Radiated Emission

Result -- Satisfactory

Data -- See the attached data

(B) Measurement of Line-Conducted Voltage Test

Result -- Satisfactory

Data -- See the attached data



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Date: 1998-10-30

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(A) Measurement of Radiated Interference

TEST REFERENCE: FCC Rules Part 15 Subpart B Section 15.109(a)
(Class B)

TEST CONDITION : Worst case Monitor Power supplied by computer & separately

TEST DATE : 1998.08.31.

| Emission Frequency | Meter Reading | Polarization (including antenna factor) | Field Strength (at 3m) | FCC Limit |
|--------------------|---------------|--|---------------------------|-----------|
| MHz | dB(μ V) | | μ V/m | μ V/m |
| 85.006 | 20.0 | H | 10.0 | 100 |
| 197.072 | 19.4 | V | 9.3 | 150 |
| *214.779 | 37.1 | H | 71.6 | 150 |
| 253.600 | 14.9 | V | 5.6 | 200 |
| 272.217 | 18.8 | H | 8.7 | 200 |
| 310.020 | 26.6 | H | 21.4 | 200 |
| 400.900 | 27.8 | H | 24.5 | 200 |
| 633.300 | 34.3 | V | 51.9 | 200 |

- End -

SUMMARY

All data is within limits

Broad-band Antennas were used and both polarizations of emissions were measured.
polarizations at highest reading indicated as:

H -- Horizontal V -- Vertical

Quasi-peak measurements were performed if the maximised measurements
were less than 6dB below the quasi-peak limit line.

Quasi-peak measurements are denoted by * in the table above



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NOTES FOR THE RADIATION MEASUREMENT

(1) Test site facility:

Open field test site located at Taipo (Hong Kong) with a metal ground plane in compliance with the requirements of ANSI C63.4:1992.

(2) Test Equipment

HP 8572A EMI receiver was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 100KHz or 1MHz depending on the type of signal. A biconical log-periodic antenna was used for frequency range from 30MHz to 1000MHz.

(3) Test Set-Up:

The EUT and support equipment are placed in accordance with ANSI C63.4.

(4) Measuring Procedure:

An initial pre-scan measurement was performed in a semi-anechoic chamber using a 25dB gain pre-amplifier. The receive antenna in the chamber was 1.5m above the groundplane and 3m from the sample. The sample was placed 0.8m above the groundplane. Measurements in both horizontal and vertical polarities were performed. All emissions recorded during the prescan were subsequently remeasured on the open field test site (described in 1 above) using the following procedure: The ambient noise scanning was made before powering on the EUT and support equipment to identify the emissions from the environment. During the test, each emission was maximized by: having the V4 FX RACING WHEEL continuously working by running a special test program (PCB.exe) supplied by the customer, arranging and manipulating interconnecting cables, rotating turntable and varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The frequency range tested is from 30MHz to 1000MHz and the worst-case emissions are shown in Test Results.

(5) Measuring Uncertainty:

The calculated uncertainty for measurement performed at 3M test distance are:-
30MHz to 200MHz = $\pm 3.7\text{dB}$, 200MHz to 1000MHz = $+ 3.0\text{dB}/-2.7\text{dB}$.

Remark : Purpose of this test is to provide the Applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under FCC's Equipment Authorization Program. This test itself is not an Approval Test.



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Date: 1998-10-30

No.: WM1266A/504

(B) Measurement of Line-Conducted Voltage onto AC Power Line

TEST REFERENCE : FCC Rules Part 15 Subpart B Section 15.107(a)
(Class B)

TEST CONDITION : Worst case Monitor Power supplied by computer & separately

TEST DATE : 1998.08.26.

(1) Between "Live" and "Ground"

| Frequency Range of Emission | | | Maximum Measured Radio Noise | | FCC Limit (Class B) |
|-----------------------------|---|------|------------------------------|---------|---------------------|
| MHz | | | dB(μ V) | μ V | μ V |
| 0.45 | - | 0.8 | 0.00 | 1.00 | 250.00 |
| 0.8 | - | 1.6 | 0.00 | 1.00 | 250.00 |
| 1.6 | - | 3.0 | 22.66 | 13.58 | 250.00 |
| 3.0 | - | 5.0 | 38.70 | 86.10 | 250.00 |
| 5.0 | - | 7.0 | 30.68 | 34.20 | 250.00 |
| 7.0 | - | 9.0 | 31.82 | 38.99 | 250.00 |
| 9.0 | - | 11.0 | 29.13 | 28.61 | 250.00 |
| 11.0 | - | 13.0 | 28.13 | 25.50 | 250.00 |
| 13.0 | - | 15.0 | 26.67 | 21.55 | 250.00 |
| 15.0 | - | 17.0 | 19.15 | 9.07 | 250.00 |
| 17.0 | - | 19.0 | 0.00 | 1.00 | 250.00 |
| 19.0 | - | 21.0 | 42.51 | 133.51 | 250.00 |
| 21.0 | - | 23.0 | 0.00 | 1.00 | 250.00 |
| 23.0 | - | 25.0 | 0.00 | 1.00 | 250.00 |
| 25.0 | - | 27.0 | 29.06 | 28.38 | 250.00 |
| 27.0 | - | 30.0 | 28.32 | 26.05 | 250.00 |

- End -

SUMMARY

All data is within limits



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(B) Measurement of Line-Conducted Voltage onto AC Power Line

TEST REFERENCE : FCC Rules Part 15 Subpart B Section 15.107(a)
(Class B)

TEST CONDITION : Worst case Monitor Power supplied by computer & separately

TEST DATE : 1998.08.26.

(1) Between "Neutral" and "Ground"

| Frequency Range of Emission | | | Maximum Measured Radio Noise | | FCC Limit (Class B) |
|-----------------------------|---|------|------------------------------|---------|---------------------|
| MHz | | | dB(μ V) | μ V | μ V |
| 0.45 | - | 0.8 | 0.00 | 1.00 | 250.00 |
| 0.8 | - | 1.6 | 0.00 | 1.00 | 250.00 |
| 1.6 | - | 3.0 | 24.49 | 16.77 | 250.00 |
| 3.0 | - | 5.0 | 40.27 | 103.16 | 250.00 |
| 5.0 | - | 7.0 | 31.96 | 39.63 | 250.00 |
| 7.0 | - | 9.0 | 33.19 | 45.66 | 250.00 |
| 9.0 | - | 11.0 | 30.48 | 33.42 | 250.00 |
| 11.0 | - | 13.0 | 29.64 | 30.34 | 250.00 |
| 13.0 | - | 15.0 | 29.25 | 29.01 | 250.00 |
| 15.0 | - | 17.0 | 22.69 | 13.63 | 250.00 |
| 17.0 | - | 19.0 | 0.00 | 1.00 | 250.00 |
| 19.0 | - | 21.0 | 43.91 | 156.86 | 250.00 |
| 21.0 | - | 23.0 | 0.00 | 1.00 | 250.00 |
| 23.0 | - | 25.0 | 0.00 | 1.00 | 250.00 |
| 25.0 | - | 27.0 | 22.93 | 14.01 | 250.00 |
| 27.0 | - | 30.0 | 18.30 | 8.22 | 250.00 |

- End -

----- SUMMARY -----

All data is within limits



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NOTES FOR THE CONDUCTED POWER-LINE MEASUREMENT

- (1) LISN (Line Impedance Stabilization Network) used :
50 μ H LISN in accordance with Section of ANSI C63.4:1992.
- (2) Measurement Instrumentations:
CISPR quasi-peak type radio noise meter (9 KHz - 30 MHz), 6 dB bandwidth set at 9 KHz for measurement between 150KHz & 30MHz.
- (3) Frequency range scanned :
The frequency range from 450 KHz to 30 MHz had been searched. Reading of the highest emissions relating to the limit were reported as above.
- (4) Configuration of EUT
Connection of equipment and operation conditions were same as those in the Radiation measurement.
- (5) Measurement procedure :
In accordance with the relevant sections of ANSI C63.4:1992 "FCC Methods of measurement of Radio Noise Emissions from Computing Devices".
- (6) Measuring Uncertainty:
The calculated uncertainty for conducted power-line measurement is = ± 2.3 dB.

Remark :

Purpose of this test is to provide the Applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under the FCC's Equipment Authorization Program. This test itself is not an Approval Test.

**** End of document ****



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APPENDIX A

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TEST EQUIPMENT AUDIT

Pre-scan

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL |
|---------|----------------------------|-----------------|----------------|------------|----------|
| EM131 | PORTABLE SPECTRUM ANALYSER | HEWLETT PACKARD | 8595EM | 3710A00155 | 27/10/97 |
| EM016 | ANTENNA | ARA INC. | LPB-2513/A | 1047 | 05/08/98 |
| EM034 | PRE-AMPLIFIER | HP | 8447F OPT 1664 | 2944A04240 | 25/06/98 |
| EM082 | ANECHOIC CHAMBER | FELJAS & MASSON | N/A | N/A | 05/06/98 |

Radiated Emission

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL |
|---------|--|----------------|-------------------------------|--|----------|
| EM007 | SPECTRUM ANALYZER | HP | HP85660B | 3144A21192 | 29/05/98 |
| EM008 | SPECTRUM ANALYZER DISPLAY | HP | HP85662A | 3144A20514 | 29/05/98 |
| EM009 | QUASI PEAK ADAPTOR | HP | HP85650A | 3303A01702 | 29/05/98 |
| EM010 | RF PRESELECTOR | HP | HP85685A | 3221A01410 | 29/05/98 |
| EM011 | ATTENUATOR/SWITCH | HP | HP11713A | 2508A10595 | 29/05/98 |
| EM012 | PRE-AMPLIFIER | HP | HP8449B | 3008A00262 | 29/05/98 |
| EM013 | CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE | HP HP HP | HP9000 HPA1097C HP9133L | 6226A60314 3151J39517 2623A02468 | CM |
| EM017 | ANTENNA | ARA INC. | LPB-2513/A | 1069 | 31/12/97 |
| EM072 | SIGNAL GENERATOR | HP | 8640B | 1948A11892 | 30/03/98 |
| EM083 | HKSTC OPEN AREA TEST SITE | HKSTC | N/A | N/A | 16/02/98 |

Line Conducted

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL |
|---------|---------------------|---------------|-----------|--------------|----------|
| EM003 | SIGNAL GENERATOR | R & S | SMS | 871603/529 | CM |
| EM117 | IMPULSE LIMITER | R & S | ESH3Z2 | 0357.8810.52 | 05/02/98 |
| EM002 | LISN | EMCO | 3825-2 | 9005-1657 | 20/06/98 |
| EM120 | EMI TEST RECEIVER | R & S | ESHS10 | 1004.0401.10 | 02/07/98 |
| EM081 | SMALL SCREENED ROOM | MIKO INST. HK | N/A | N/A | TBD |

ABBREVIATIONS:

CM = Corrective Maintenance

N/A = Not Applicable

TBD = To Be Determined



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APPENDIX B

ANCILLARY EQUIPMENT

| ITEM NO. | DESCRIPTION | MODEL NO. | FCC ID | REMARK |
|----------|--------------------------|--------------------------|-----------------|--|
| 1 | AST COMPUTER | AST PREMIUM II 486/33 | DJKASTPII486-33 | 1.92m SVT SHIELDED CABLE |
| 2 | SVGA MONITOR | CM6P | GDRCM6P | RESOLUTION : 720*400 (DURING TESTING) 1.0M UNSHIELDED POWER CORD CONNECTED TO THE COMPUTER 1.8M SHIELDED CABLE CONNECTED TO THE COMPUTER |
| 3 | AST KEYBOARD | KB-101 | AQ6MEMB-74004 | 1.8 SHIELDED COILED CABLE CONNECTED TO THE COMPUTER |
| 4 | MOUSE | PS12 | FSUGMZC8 | 2.4M UNSHIELDED CABLE CONNECTED TO THE COMPUTER |
| 5 | SERIAL PROGRAM PAD (EUT) | SV-284 | KYISV-284 | 2.6M SHIELDED CABLE CONNECTED TO COMPUTER KEYBOARD SOCKET 2.3M SHIELDED CABLE CONNECTED TO SOUND CARD SOCKET OF THE COMPUTER |
| 6 | PARALLEL PRINTER | DMP3000 | DE2850CDMP3000 | 1.8M UNSHIELDED POWER CORD 2.8M SHIELDED CABLE (BUNDLED TO 1M) CONNECTED TO THE COMPUTER |
| 7 | SERIAL PRINTER | N/A | N/A | SAME AS PARALLEL PRINTER |



高標準製造廠有限公司
STD MANUFACTURING LTD.



The Hong Kong Standards and Testing Centre Ltd
10 Dai Wang Street
Taipo Industrial Estate
Taipo, NT
HONG KONG

Attn : Mr Patrick Wong

Dear Sir,

Re : Letter of Attestation

This equipment has been tested in accordance with the requirements contained in the appropriate Commission regulations. To the best of my knowledge, these tests were performed using measurement procedures consistent with industry or Commission standards and demonstrate that the equipment complies with the appropriate standards. Each unit manufactured, imported or marketed, as defined in the Commission's regulations, will conform to the samples tested within the variations that can be expected due to quantity production and testing on a statistical basis. I further certify that the necessary measurements were made by the Hong Kong Standards and Testing Centre Ltd. 10 Dai Wang Street, Taipo Industrial Estate, Taipo, NT, Hong Kong.

Yours sincerely,


David Ng
Engineering Vice President



香港標準及檢定中心
The Hong Kong Standards and Testing Centre Ltd
Date : November 20, 1998

Federal Communications Commission
EQUIPMENT APPROVAL SERVICES
P.O.BOX 358315
Pittsburgh, PA 15251-5315
U S A

Dear Sirs,

Re: Application for Equipment Authorization (CERTIFICATION)

On behalf of "STD MANUFACTURING LTD.", we have the Pleasure in submitting the application for Equipment Authorization for their following product:

| | | |
|--------------|---|---|
| DESCRIPTION | : | Class B digital Device - Peripheral V4 Fx Racing Wheel |
| MODEL NUMBER | : | SV-283 |
| FCC ID | : | KYISV-283 |

Your kind attention and prompt processing of this application will be much appreciated.

Yours sincerely,

Patrick Wong
EED Manager

Encls.





香港標準及檢定中心
The Hong Kong Standards and Testing Centre Ltd

Date : November 20, 1998

FCC ID: KYISV-283

LIST OF DOCUMENTS

- A. A bank-draft of the amount of US\$940.00 as fee for application
- B. FCC Form 151 and 731 - completed and signed
- C. Letter of Appointment submitted by the Applicant
- D. Exhibits submitted with applications:
 - 1. Technical Report (including the User's Manual)
 - 2. Expository Statement
 - 3. Photographs of the Device
 - 4. Drawing of the FCC ID label and position of where the label will be put on the device
 - 5. Report of Measurement (Report Number WM1266A/504)
 - 6. Letter of Attestation

