



# The Hong Kong Standards and Testing Centre Ltd.

## TEST REPORT

Date: 1998-08-31

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No.: KM0041/504

**APPLICANT:** (CODE : 021789)

QUICKSHOT LTD.

Unit 7, 7/F, Blk B, Hoplite Industrial Centre, 3-5 Wang Tai Road, Kowloon Bay, Kowloon.

**DATE OF SAMPLES RECEIVED:** 1998.08.21.

**DATE OF TESTING:** 1998.08.27. & 1998.08.28.

### DESCRIPTION OF SAMPLE(S):

A sample of product said to be:

Product: Speaker System

Manufacturer: Quickshot Ltd

Model Number: QS7900

Brand Name: Quickshot

Rating: 120V a.c. 0.429A 51.5W 60Hz

Origin: China

The AC/AC adaptor used for the tests was supplied by the applicant, the details of adaptor as follows:

GS AC power adaptor

Model Number: GS - 143000 adaptor.

Input: 120V AC 60Hz Output: 14V AC 3A

### 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.

**RESULTS:** Please see attached sheet(s).

**REMARK:** This product was tested as a system using the Ancillary Equipment listed in Appendix B.

### 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

Testing Engineer

Verify by

Patrick Wong  
for Managing Director

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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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### (A) Measurement of Radiated Interference

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

TEST CONDITION : Normal

TEST DATE : 1998.08.31.

| Emission<br>Frequency | Meter Reading | Polarization<br>(including antenna factor) | Field Strength<br>(at 3m) | FCC Limit |
|-----------------------|---------------|--|---------------------------|-----------|
| MHz                   | dB( $\mu$ V)  |  | $\mu$ V/m                 | $\mu$ V/m |
| 48.201                | 22.8          | V  | 13.8                      | 100       |
| 48.203                | 26.1          | H  | 20.2                      | 100       |
| 112.777               | 20.0          | H  | 10.0                      | 150       |
| 112.786               | 18.8          | V  | 8.7                       | 150       |

- 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



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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 EUT continuously working, arranging, rotating turntable 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 =  $+ 3.0\text{dB}/-2.7\text{dB}$ .



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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 : Normal

TEST DATE : 1998.08.27

(1) Between "Live" and "Ground"

| Frequency | Range of Emission |      | Maximum Measured Radio Noise |         | FCC Limit (Class B) |
|-----------|-------------------|------|------------------------------|---------|---------------------|
|           | MHz               |      | dB( $\mu$ V)                 | $\mu$ V | $\mu$ 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  | 0.00                         | 1.00    | 250.00              |
| 3.0       | -                 | 5.0  | 0.00                         | 1.00    | 250.00              |
| 5.0       | -                 | 7.0  | 0.00                         | 1.00    | 250.00              |
| 7.0       | -                 | 9.0  | 16.32                        | 6.55    | 250.00              |
| 9.0       | -                 | 11.0 | < 19.51                      | 9.45    | 250.00              |
| 11.0      | -                 | 13.0 | 16.52                        | 6.70    | 250.00              |
| 13.0      | -                 | 15.0 | 0.00                         | 1.00    | 250.00              |
| 15.0      | -                 | 17.0 | 0.00                         | 1.00    | 250.00              |
| 17.0      | -                 | 19.0 | 28.37                        | 26.21   | 250.00              |
| 19.0      | -                 | 21.0 | 24.51                        | 16.81   | 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 | 0.00                         | 1.00    | 250.00              |
| 27.0      | -                 | 30.0 | 0.00                         | 1.00    | 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 : Normal

TEST DATE : 1998.08.27.

(1) Between "Neutral" and "Ground"

| Frequency Range of Emission |   |      | Maximum Measured Radio Noise |       | FCC Limit (Class B) |
|-----------------------------|---|------|------------------------------|-------|---------------------|
| MHz                         |   |      | dB(μV)                       | μV    | μV                  |
| 0.45                        | - | 0.8  | 0.00                         | 1.00  | 250.00              |
| 0.8                         | - | 1.6  | 0.00                         | 1.00  | 250.00              |
| 1.6                         | - | 3.0  | 0.00                         | 1.00  | 250.00              |
| 3.0                         | - | 5.0  | 0.00                         | 1.00  | 250.00              |
| 5.0                         | - | 7.0  | 0.00                         | 1.00  | 250.00              |
| 7.0                         | - | 9.0  | 18.28                        | 8.20  | 250.00              |
| 9.0                         | - | 11.0 | 19.51                        | 9.45  | 250.00              |
| 11.0                        | - | 13.0 | 18.71                        | 8.62  | 250.00              |
| 13.0                        | - | 15.0 | 0.00                         | 1.00  | 250.00              |
| 15.0                        | - | 17.0 | 0.00                         | 1.00  | 250.00              |
| 17.0                        | - | 19.0 | 26.86                        | 22.03 | 250.00              |
| 19.0                        | - | 21.0 | 23.14                        | 14.35 | 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 | 0.00                         | 1.00  | 250.00              |
| 27.0                        | - | 30.0 | 0.00                         | 1.00  | 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  $\mu$ 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 150 KHz & 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 =  $\pm 2.3$ dB.

**\*\* 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 |
|---------|----------------------------|-----------------|----------------|------------|----------|
| EM051   | PORTABLE SPECTRUM ANALYSER | HEWLETT PACKARD | 8595EM         | 3710A00155 | 27/10/97 |
| EM016   | ANTENNA                    | ARA INC         | LPB-2513 A     | 1047       | 05/08/98 |
| EM034   | PREAMPLIFIER               | HP              | 8447F OP1 1664 | 2944A04240 | 25/06/98 |
| EM082   | ANCHOFF CHAMBER            | FELIAS & 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   | PREAMPLIFIER   | HP             | HP8449B                       | 3008A00262                             | 29/05/98 |
| EM013   | CONTROLER (COMPUTER),<br>COLOR MONITOR, KEYBOARD &<br>MOUSE,<br>FLOPPY DRIVE | HP<br>HP<br>HP | HP9000<br>HPA1097C<br>HP9133L | 6226A60314<br>3151J39517<br>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    | 03578810/52 | 05/02/98 |
| EM002   | LISN                 | EMCO         | 3825-2    | 9005-1657   | 20/06/98 |
| EM120   | EMI TEST RECEIVER    | R & S        | ESLIS10   | 10040401/10 | 02/07/98 |
| EM081   | SMAALL 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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### ANCILLARY EQUIPMENT

| ITEM NO. | DESCRIPTION              | MODEL NO.                | FCC ID          | REMARK  |
|----------|--------------------------|--------------------------|-----------------|---|
| 1        | AST COMPUTER             | AST PREMIUM II<br>486 33 | DJKASTPII486-33 | 1.92m SVT SHIELDED CABLE  |
| 2        | SVGA MONITOR             | CM6P                     | GDRCM6P         | RESOLUTION : 720*400 (DURING<br>TESTING)<br>1.0M UNSHIELDED POWER CORD<br>CONNECTED TO THE COMPUTER<br>1.8M SHIELDED CABLE<br>CONNECTED TO THE COMPUTER |
| 3        | AST KEYBOARD             | KB-101                   | AQ6MEMB-74004   | 1.8 SHIELDED COILED CABLE<br>CONNECTED TO THE COMPUTER  |
| 4        | MOUSE                    | PS12                     | ESUGMZC8        | 2.4M UNSHIELDED CABLE<br>CONNECTED TO THE COMPUTER  |
| 5        | SERIAL PROGRAM PAD (EUT) | SV-284                   | KY1SV-284       | 2.6M SHIELDED CABLE<br>CONNECTED TO COMPUTER<br>KEYBOARD SOCKET<br>2.3M SHIELDED CABLE<br>CONNECTED TO SOUND CARD<br>SOCKET OF THE COMPUTER             |
| 6        | PARALLEL PRINTER         | DMP3000                  | DE2850CDMP3000  | 1.8M UNSHIELDED POWER CORD<br>2.8M SHIELDED CABLE<br>(BUNDLED TO 1M) CONNECTED<br>TO THE COMPUTER   |
| 7        | SERIAL PRINTER           | N/A                      | N/A             | SAME AS PARALLEL PRINTER  |