# TEST REPORT

**No.: HM102328**

**APPLICANT:** (CODE : SKC001)

SKY CITY INT'L LTD.
25/F., North Point Asia-Pacific Centre, 10 North Point Road, North Point, Hong Kong

**DATE OF SAMPLES RECEIVED:**
2000-03-15

**TEST DURATION**
2000-04-06

**DESCRIPTION OF SAMPLE(S):**

A sample of product said to be:

| | |
|---|---|
| Product: | MULTI-FUNCTION REMOTE CONTROL LANTERN |
| Manufacturer: | SKY CITY INT'L LTD. |
| Model Number: | SL9000RC |
| Brand Name: | N/A |
| Rating: | 12Vd.c. 300mA with Jack |
| Origin: | CHINA |
| Additional Model Number: | SL9000ARC, SL9000WRC, SL9000SWRC, SL9000MWRC, SL9000AMRC, SL9000ASRC, SCD9000RC, SCD9000ARC, SCD9000WRC, SCD9000SWRC, SCD9000MWRC, SCD9000AWRC, SCD9000ASRC |

The AC Adaptor used for the test was a Model: LF12300D-41, Input: 120V a.c. 60Hz, Output: 12V d.c. 300mA

**INVESTIGATIONS REQUESTED:**
Measurement to the relevant clauses of F.C.C. Rules and Regulations Part 15 Subpart B - Unintentional Radiator.

**RESULT/ REMARK:**

Please see attached sheet(s).

**CONCLUSION:**

From the measurement data obtained, the tested sample was considered to have COMPLIED after modification by customer with the clause 15.109(a) for the Receiver Section of Federal Communication Rules and Regulation Part 15 and ANSI C63.4-1992 Section 12.1.1.1-2.

**TEST EQUIPMENT AUDIT:**

Please see Appendix A

| Law Man Kit | Kitty Choy | Patrick Wong |
|---|---|---|
| Testing Engineer | Verify by | Patrick Wong<br>for Managing Director |

# TEST REPORT

## TEST SUMMARY

(A) Measurement of Radiated Emissions ..... Satisfactory

(B) Line Conducted Voltage Test. ..... Satisfactory

## TEST DATA

Please refer to the attached result sheets.

# TEST REPORT

**No.: HM102328**

*** RECEIVER SECTION ***

**(A) Measurement of Radiated Interference**

TEST REFERENCE: FCC Rules Part 15 Subpart B section 15.109(a)
TEST CONDITION : Normal
TEST DATE : 2000.04.06

| Emission Frequency | | Meter Reading | Polarization | | | Antenna Factor | | Field Strength (at 3m) | | FCC Limit |
|---|---|---|---|---|---|---|---|---|---|---|
| MHz | | dB(μV) | H-V | | | dB | | dB(μV/m) | μV/m | μV/m |
| 319.854 | | 22.0 | H | + | | 19.5 | | 41.5 | 118.9 | 200 |
| 639.708 | < | 1.0 | | + | < | 28.5 | < | 29.5 | 29.9 | 200 |
| 959.562 | < | 1.0 | | + | < | 25.8 | < | 26.8 | 21.9 | 500 |
| 1279.416 | < | 1.0 | | + | < | 26.2 | < | 27.2 | 22.9 | 500 |
| 1599.270 | < | 1.0 | | + | < | 28.0 | < | 29.0 | 28.2 | 500 |
| 1919.124 | < | 1.0 | | + | < | 28.5 | < | 29.5 | 29.9 | 500 |
| 2238.978 | < | 1.0 | | + | < | 30.6 | < | 31.6 | 38.0 | 500 |
| 2558.832 | < | 1.0 | | + | < | 32.0 | < | 33.0 | 44.7 | 500 |
| 2878.686 | < | 1.0 | | + | < | 33.2 | < | 34.2 | 51.3 | 500 |
| 3198.540 | < | 1.0 | | + | < | 33.3 | < | 34.3 | 51.9 | 500 |

==========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

**NOTES FOR THE RADIATION MEASUREMENT**

(1) Test site facility:
Open field test site located at Taipo (Hong Kong) with a metal ground plane on filed with the FCC pursuant to section 2.948 of the FCC Rules.

(2) Distance between the ET and measuring antenna:
3 meters.

(3) Measuring instrumentations:
CISPR Quasi-peak type field strength meter (25 MHz - 1000 MHz and 1GHz-18GHz ).6dB bandwidth set at 120KHz. Also, peak level of the fundamental emissions was measured in order to determine compliance with the 20dB peak to average limit specified in Section 15.231 of the FCC new Rules.

(4) Measuring antenna:
Broad band antenna for the frequency range 25-1000 MHz, connected with 10 meters coaxial cable.Horn antenna for the frequency range 1-18 GHz, connected with high frequency coaxial cable.Cable loss of the coaxial cable. Cable included in the Antenna Factor for measurement data. The antenna are capable of measuring both horizontal and vertical polarizations.

(5) Frequency range scanned:
The frequency range from 25 MHz to 1000 MHz had been searched. Readings of the highest emissions relating to the limit were reported as above.

(6) Arrangement of EUT:
During the test, the sample was operated at rated supply voltage and arranged for maximum emissions.

(7) Measuring Procedure:
In accordance with the relevant clauses of the FCC Rules Part 15 section 15.109(a) and ANSI C63.4:1992 section 12.1.1.1-2.
For superregenerative receivers, an independent signal generator had been used to radiated an unmodulated were (cw) signal to the receiver at its operating frequency in order to “cohere” or resolve the individual components of the characteristic broadband emission from such a receiver. The level of such signal may need to be adjusted in order to accomplish this.

(8) Measuring Uncertainty:
The calculated uncertainty for measurement performed at 3M test distance are:-
30MHz to 300MHz = ± 3.7dB, 300MHz to 1000MHz = + 3.0dB/-2.7dB.
1GHz to 18GHz = +3.3dB/-3.4dB.

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.

# TEST REPORT

**No.: HM102328**

(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 : 2000-04-10

(1) Between "Live" and "Ground"

| Frequency Range of Emission MHz | | | Maximum Measured Radio Noise dB(μV) | μV | FCC Limit (Class B) μV |
|---|---|---|---|---|---|
| 0.45 | - | 0.80 | 25.49 | 18.81 | 250.00 |
| 0.80 | - | 1.60 | 16.44 | 6.64 | 250.00 |
| 1.60 | - | 3.00 | 0.00 | 1.00 | 250.00 |
| 3.00 | - | 5.00 | 0.00 | 1.00 | 250.00 |
| 5.00 | - | 7.00 | 0.00 | 1.00 | 250.00 |
| 7.00 | - | 9.00 | 0.00 | 1.00 | 250.00 |
| 9.00 | - | 11.00 | 0.00 | 1.00 | 250.00 |
| 11.00 | - | 13.00 | 0.00 | 1.00 | 250.00 |
| 13.00 | - | 15.00 | 0.00 | 1.00 | 250.00 |
| 15.00 | - | 17.00 | 0.00 | 1.00 | 250.00 |
| 17.00 | - | 19.00 | 0.00 | 1.00 | 250.00 |
| 19.00 | - | 21.00 | 0.00 | 1.00 | 250.00 |
| 21.00 | - | 23.00 | 0.00 | 1.00 | 250.00 |
| 23.00 | - | 25.00 | 0.00 | 1.00 | 250.00 |
| 25.00 | - | 27.00 | 0.00 | 1.00 | 250.00 |
| 27.00 | - | 30.00 | 11.33 | 3.69 | 250.00 |

- End -

========== SUMMARY ==========

All data is within limits

(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 : 2000-04-10

(1) Between "Neutral" and "Ground"

| Frequency Range of Emission MHz | | | Maximum Measured Radio Noise | | | FCC Limit (Class B) |
|---|---|---|---|---|---|---|
| | | | | dB(μV) | μV | μV |
| 0.45 | - | 0.80 | < | 25.49 | 18.81 | 250.00 |
| 0.80 | - | 1.60 | < | 16.44 | 6.64 | 250.00 |
| 1.60 | - | 3.00 | | 0.00 | 1.00 | 250.00 |
| 3.00 | - | 5.00 | | 0.00 | 1.00 | 250.00 |
| 5.00 | - | 7.00 | | 0.00 | 1.00 | 250.00 |
| 7.00 | - | 9.00 | | 0.00 | 1.00 | 250.00 |
| 9.00 | - | 11.00 | | 0.00 | 1.00 | 250.00 |
| 11.00 | - | 13.00 | | 0.00 | 1.00 | 250.00 |
| 13.00 | - | 15.00 | | 0.00 | 1.00 | 250.00 |
| 15.00 | - | 17.00 | | 0.00 | 1.00 | 250.00 |
| 17.00 | - | 19.00 | | 0.00 | 1.00 | 250.00 |
| 19.00 | - | 21.00 | | 0.00 | 1.00 | 250.00 |
| 21.00 | - | 23.00 | | 0.00 | 1.00 | 250.00 |
| 23.00 | - | 25.00 | | 0.00 | 1.00 | 250.00 |
| 25.00 | - | 27.00 | | 0.00 | 1.00 | 250.00 |
| 27.00 | - | 30.00 | < | 11.33 | 3.69 | 250.00 |

- End -

========== SUMMARY ==========

All data is within limits

## NOTES FOR THE CONDUCTED POWER-LINE MEASUREMENT

(1) LISN (Line Impedance Stabilization Network) used :
50 μH 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 form 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 = ±2.3dB.

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.

*** End of Document ***

# TEST REPORT

## TEST EQUIPMENT AUDIT

### Radiated Emission

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL. |
|---|---|---|---|---|---|
| EM007 | SPECTRUM ANALYZER | HEWLETT PACKARD | HP85660B | 3144A21192 | 11/06/99 |
| EM008 | SPECTRUM ANALYZER DISPLAY | HEWLETT PACKARD | HP85662A | 3144A20514 | 11/06/99 |
| EM009 | QUASI PEAK ADAPTOR | HEWLETT PACKARD | HP85650A | 3303A01702 | 11/06/99 |
| EM010 | RF PRESELECTOR | HEWLETT PACKARD | HP85685A | 3221A01410 | 11/06/99 |
| EM011 | ATTENNUATOR/SWITCH | HEWLETT PACKARD | HP11713A | 2508A10595 | 11/06/99 |
| EM012 | PRE-AMPLIFIER | HEWLETT PACKARD | HP8449B | 3008A00262 | 11/06/99 |
| EM013 | CONTROLLER (COMPUTER),<br>COLOR MONITOR, KEYBOARD & MOUSE<br>FLOPPY DRIVE | HEWLETT PACKARD<br>HEWLETT PACKARD<br>HEWLETT PACKARD | HP9000<br>HP A1097C<br>HP9133L | 6226A60314<br>3151J39517<br>2623A02468 | CM |
| EM017 | ANTENNA | ARA INC. | LPB-2513/A | 1069 | 17/02/00 |
| EM020 | HORN ANTENNA | EMCO | 3115 | 4032 | 30/06/97 |
| EM072 | SIGNAL GENERATOR | HEWLETT PACKARD | 8640B | 1948A11892 | 30/03/98 |
| EM083 | HKSTC OPEN AREA TEST SITE | HKSTC | N/A | N/A | 15/01/00 |
| EM145 | EMI TEST RECEIVER | R & S | ESCS 30 | 830245/021 | 10/05/99 |

### Line Conducted

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL |
|---|---|---|---|---|---|
| EM078 | VARIAC | SHANGHAI VOLTAGE | TDGC-3/0.5 | N/A | CM |
| EM081 | SMALL SCREENED ROOM | MIKO INST HK | N/A | N/A | 09/09/99 |
| EM119 | LISN | R & S | ESH3-Z5 | 0831.5518.52 | 09/08/98 |
| EM120 | EMI TEST RECEIVER | R&S | ESHS10 | 1004.0401.10 | 09/08/99 |
| EM123 | NOTEBOOK PC | ACER | 350CX | P007865 | N/A |
| EM127 | ISOLATION TRANSFORMER 220 TO 300 | WING SUN | N/A | N/A | 01/09/97 |
| EM142 | PLUSE LIMITER | R & S | ESH3Z2 | 357.8810.52 | 29/01/99 |
| EM145 | EMI TEST RECEIVER | R & S | ESCS 30 | 830245/021 | 10/05/99 |

**Remarks:-**

CM Corrective Maintenance

N/A Not Applicable or Not Available

TBD To Be Determined