



香 港 標 準 及 檢 定 中 心
Hong Kong Standards and Testing Centre

Date : 2004-07-29
No. : HM151338

TEST REPORT

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Applicant:

THE SHARPER IMAGE
650 Davis Street, San Francisco, CA94111, U.S.A.

Description of Samples:

Model name: Wireless Transmitter
Model no.: SI481
Brand name: THE SHARPER IMAGE
FCC ID: MNISI481

Date Samples Received: 2004-06-01

Date Tested: 2004-06-12

Investigation Requested: FCC Part 15 Subpart C

Conclusions:

The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks:

K C Lee, EMC
for Chief Executive

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Appendix A

List of Measurement Equipment

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Appendix B

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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

1.2 Applicant Details

Applicant

THE SHARPER IMAGE
650 Davis Street, San Francisco, CA94111, U.S.A

HKSTC Code Number for Applicant

OEE001

Manufacturer

OEM Electronics Ltd.
Unit 1002-1004, 10/F., Kwai Cheong Centre,
40-52 Kwai Cheong Road, Kwai Chung

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1.3 Equipment Under Test [EUT]
Description of Sample

Product: Wireless Transmitter
Manufacturer: OEM Electronics Ltd.
Brand Name: THE SHARPER IMAGE
Model Number: SI481
Input Voltage: 12Vd.c. With Adaptor
The AC/DC Adaptor used for the tests was a "Winstar" adaptor: Model Number: NA-12, Input: 100-120/220-240Va.c., Ouput: 3-15Vd.c. 1200mA max.

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is The Sharper Image, Wireless Transmitter. The transmitter is a 2 button transmitter. The EUT continues to transmit while button is being pressed, Modulation by LCR.

1.4 Date of Order

2004-06-01

1.5 Submitted Sample(s):

1 Sample per model

1.6 Test Duration

2004-06-12

1.7 Country of Origin

China

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1.8 Additional Information of EUT

User Manual
Part List
Circuit Diagram
Printed Circuit Board [PCB] Layout
Block diagram
FCC ID Label

	Submitted	Not Available
User Manual	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Part List	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Circuit Diagram	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Printed Circuit Board [PCB] Layout	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Block diagram	<input type="checkbox"/>	<input checked="" type="checkbox"/>
FCC ID Label	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4:2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.249	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emissions on AC, 0.15MHz to 30MHz	FCC 47CFR 15.207	ANSI C63.4:2003	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

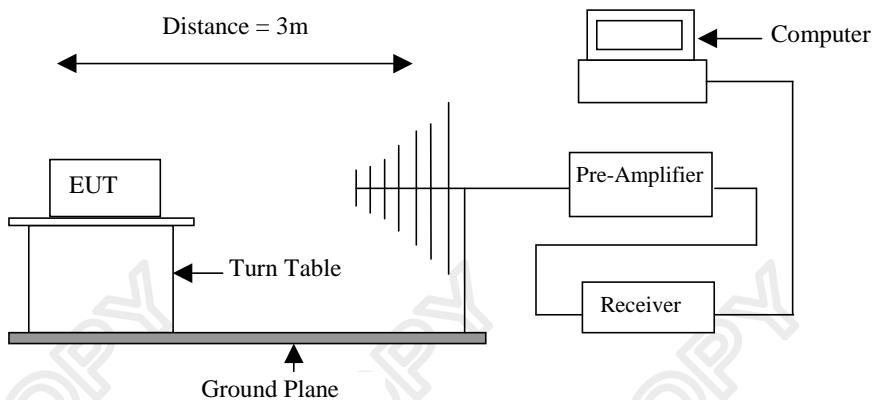
Test Requirement: FCC 47CFR 15.249
Test Method: ANSI C63.4:2003
Test Date: 2004-06-12
Mode of Operation: Tx Mode

Test Method:

The sample was placed 0.8m above the ground plane on the OATS *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*: OATS [Open Area Test Site] located at HKSTC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 90657.

Test Setup:



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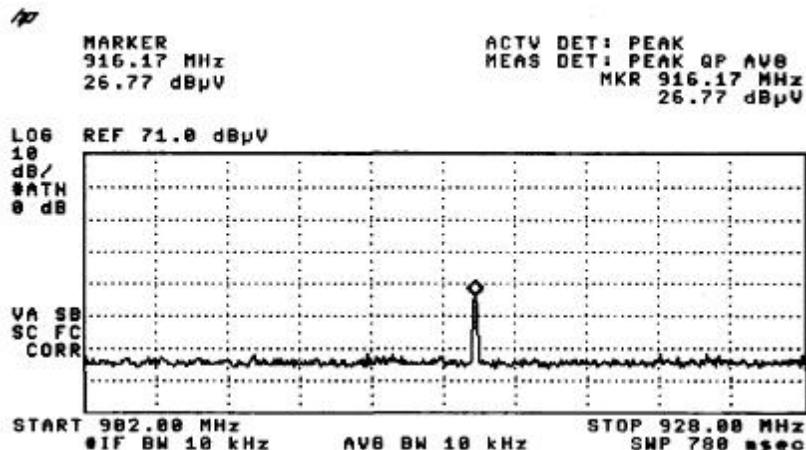
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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Millivolts/meter]	Field Strength of Fundamental Emission [microvolts/meter]
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-22500	250	2500

Higher Frequency



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Result:

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
916.1	64.1	25.9	90.0	31,622.8	50,000	Horizontal
1832.2	No Emission Detected				5,000	Vertical
2748.3					5,000	Vertical
3664.4					5,000	Vertical
4580.5					5,000	Vertical
5496.6					5,000	Vertical
6412.7					5,000	Vertical
7328.8					5,000	Vertical
8244.9					5,000	Vertical
9161.0					5,000	Vertical

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ± 4.1 dB

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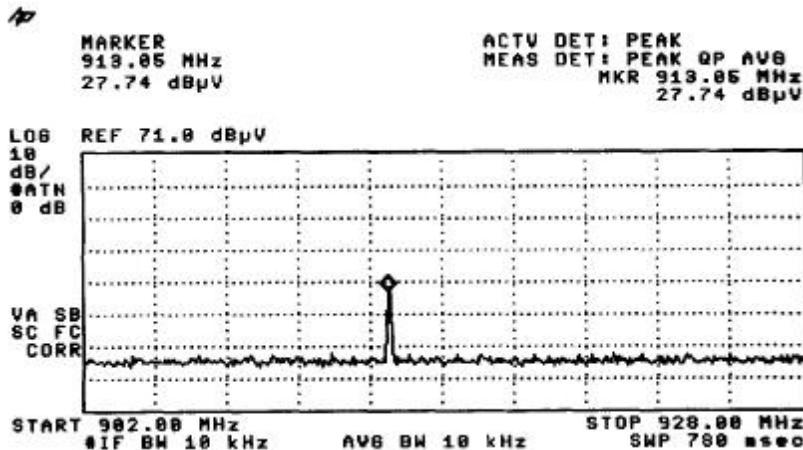
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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Millivolts/meter]	Field Strength of Fundamental Emission [microvolts/meter]
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-22500	250	2500

Lower Frequency



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Results:

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
913.0	65.4	25.9	91.3	36,728.2	50,000	Horizontal
1826.0	No Emission Detected				5,000	Vertical
2739.0					5,000	Vertical
3652.0					5,000	Vertical
4565.0					5,000	Vertical
5478.0					5,000	Vertical
6391.0					5,000	Vertical
7304.0					5,000	Vertical
8217.0					5,000	Vertical
9130.0					5,000	Vertical

Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz ±4.1dB

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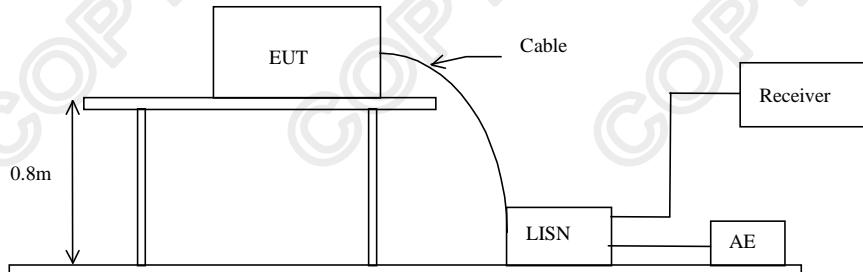
3.1.2 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC 47CFR 15.207
Test Method: ANSI C63.4:2003
Test Date: 2004-06-12
Mode of Operation: Tx Mode

Test Method:

The test was performed in accordance with ANSI C63.4:2003, with the following: an initial measurement was performed in peak and average detection mode on the live line. Any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



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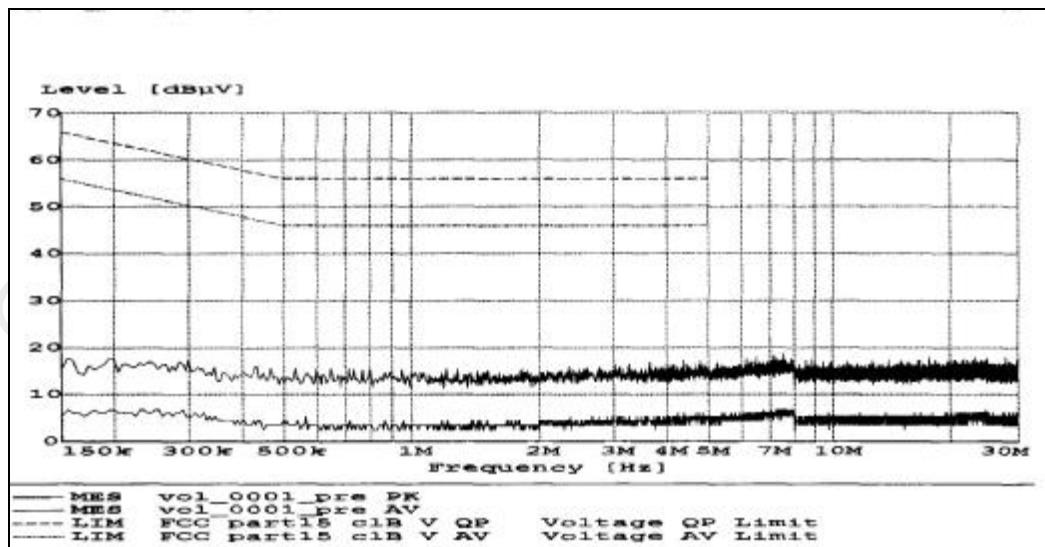
Limits for Conducted Emissions (FCC 47 CFR 15.107):

Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram labelled as (QP and AV).

Results:



Conductor	Frequency	Quasi-Peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
NO EMISSION DETECTED WITHIN 20dB OF THE FCC LIMITS					

Remarks:

Calculated measurement uncertainty: ± 2.8 dB

-*- Emission greater than 30dB below limit line

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Appendix A

Test Equipment Audit

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	14/03/03
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	14/03/03
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	14/03/03
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	14/03/03
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	14/03/03
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	14/03/03
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE	HEWLETT PACKARD HEWLETT PACKARD HEWLETT PACKARD	HP9000 HP A1097C HP9133L	6226A60314 3151J39517 2623A02468	CM
EM020	HORN ANTENNA	EMCO	3115	4032	19/07/00
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	04/08/00
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	N/A
EM083	HKSTC OPEN AREA TEST SITE	HKSTC	N/A	N/A	08/11/02
EM131	PORTABLE SPECTRUM ANALYSER	HEWLETT PACKARD	8595EM	3710A00155	18/12/01
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	02/08/03
EM194	BICONILOG ANTENNA	EMCO	3142B	1795	14/05/02
EM195	ANTENNA POSITIONING MAST	EMCO	2075	2368	N/A
EM196	MULTI-DEVICE CONTROLLER	EMCO	2090	1662	N/A

Conducted Emission

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	18/10/02
EM119	LISN	R & S	ESH3-Z5	0831.5518.52	01/10/02
EM127	ISOLATION TRANSFORMER 220 TO 300	WING SUN	N/A	N/A	CM
EM142	PULES LIMITER	R & S	ESH3Z2	357.8810.52	03/07/02
EM181	EMI TEST RECEIVER	R & S	ESIB7	100072	28/11/01
EM154	SHIELDING ROOM	SIEMENA MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	18/10/02
EM197	LISN	EMCO	4825/2	1193	08/04/03

Remarks:

CM Corrective Maintenance
N/A Not Applicable or Not Available
TBD To Be Determined

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Appendix B

Photographs of EUT

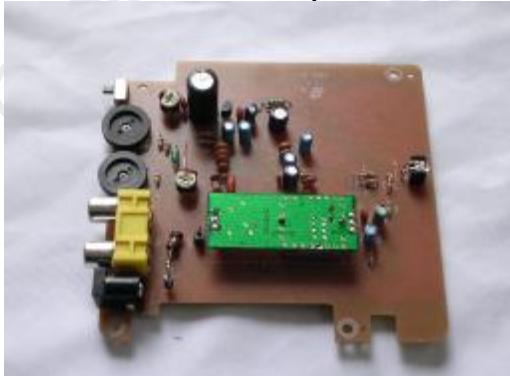
Front View of the product



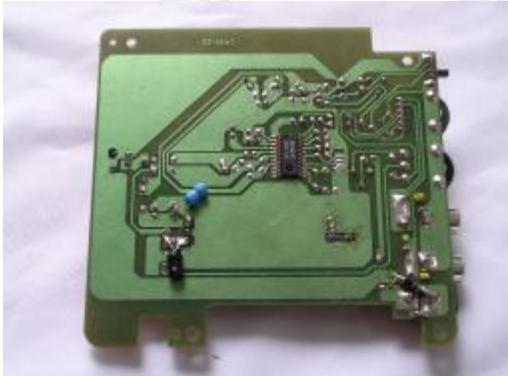
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Conducted Emission Test Set Up



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