STC Test Report

Date : 2008-07-23
No. : HM162197

Applicant (SEL005): Senario Ltd.
Unit 1213, Tower 2, Harbourfront, 22 Tak Fung Street, Hunghom, Hong Kong.

Manufacturer: Sunlight Group Ltd.
Unit 1018-20, 10/F., Tower B, New Mandarin Plaza, 14 Science Museum Road, Tsimshatusi East, Kowloon

Description of Samples:

Product:	Huruhumi
Brand Name:	Huruhumi
Model Number:	23292
FCC ID:	WJRHURU23292

Date Samples Received: 2008-07-17

Date Tested: 2008-07-22

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 and ANSI C63.4:2003 for FCC Certification.

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: ----

Dr. LEE Kam Chuen,
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

The Hong Kong Standards and Testing Centre Ltd.
10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong
Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

CONTENT:

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

Telephone: 852 2666 1888
Fax: 852 2664 4353

1.2 Applicant Details

Applicant

Senario Ltd.
Unit 1213, Tower 2, Harbourfront, 22 Tak Fung Street,
Hunghom, Hong Kong.

Manufacturer

Sunlight Group Ltd.
Unit 1018-20, 10/F., Tower B, New Mandarin Plaza,
14 Science Museum Road, Tsimshatusi East, Kowloon

1.3 Equipment Under Test [EUT]

Description of Sample

Product:	Huruhumi
Manufacturer:	Sunlight Group Ltd.
Brand Name:	Huruhumi
Model Number:	23292
Rating:	4.5Vd.c. ("AAA" size battery x 3)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Senario Ltd., Huruhumi. The EUT is one button transmit. The EUT continues to transmit while button is being pressed, Modulation by IC; and type is pulse modulation.

1.4 Date of Order

2008-07-17

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2008-07-22

1.7 Country of Origin

China

2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 2007 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
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	☒	☐
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	☒	☐

Note: N/A - Not Applicable

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

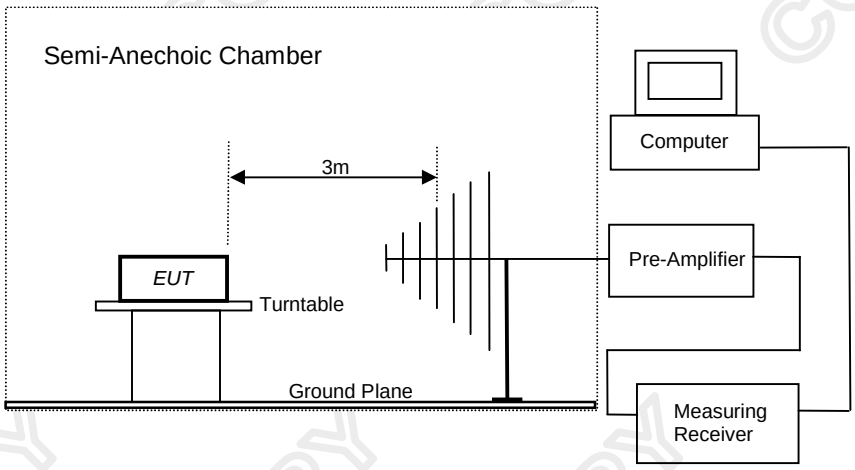
Test Requirement:	FCC 47CFR 15.209
Test Method:	ANSI C63.4:2003
Test Date:	2008-07-22
Mode of Operation:	Tx mode & Rx mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. 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.

*: Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Tx mode: PASS

	Field Strength of Spurious Emissions Peak Value						
	Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
	433.98	24.7	18.5	43.2	144.5	200.0	Vertical
	867.96	7.4	26.0	33.4	46.8	200.0	Vertical
+	1301.94	1.1	25.3	26.4	20.9	500.0	Vertical
	1735.92	< 1.0	32.2	< 33.2	< 45.7	500.0	Vertical
	2169.90	< 1.0	38.8	< 39.8	< 97.7	500.0	Vertical
	2603.88	< 1.0	17.4	< 18.4	< 8.3	500.0	Vertical
	3037.86	< 1.0	17.2	< 18.2	< 8.1	500.0	Vertical
	3471.84	< 1.0	18.8	< 19.8	< 9.8	500.0	Vertical
+	3905.82	< 1.0	19.7	< 20.7	< 10.8	500.0	Vertical
+	4339.80	< 1.0	20.6	< 21.6	< 12.0	500.0	Vertical

+: Denotes restricted band of operation.
Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 were not adjusted for averaging and the limits of FCC Rules Part 15 Section 15.209 were applied.

No further spurious emissions found between lowest internal frequency and 30MHz.

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Rx mode: PASS

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
433.70	13.0	18.4	31.4	37.2	200.0	Vertical

Remarks:
No further spurious emissions found between lowest internal frequency and 30MHz.
Correction Factor includes Antenna Factor and Cable Attenuation.
Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

3.2 20dB Bandwidth of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.209
Test Method:	ANSI C63.4:2003 (Section 13.1.7)
Test Date:	2008-07-22
Mode of Operation:	On mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

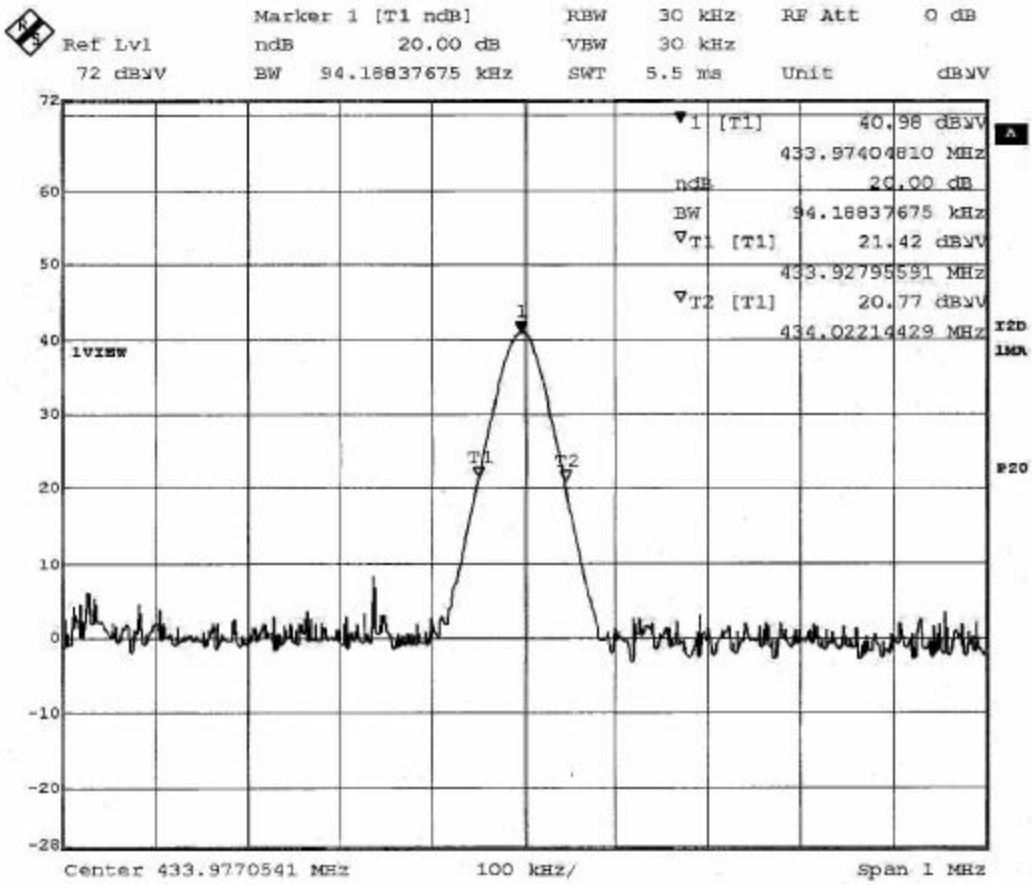
Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Limits for 20 dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [KHz]
433.97	94.19

20dB Bandwidth of Fundamental Emission



Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2006/05/02	2009/05/02
EM219	BICONILOG ANTENNA	EMCO	3142C	00029071	2006/08/23	2008/08/23
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2007/07/20	2008/08/20
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2006/07/26	2009/07/26
EM020	HORN ANTENNA	EMCO	3115	4032	2006/07/11	2009/07/11

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

Appendix B

Photographs of EUT

Front View of the product

Rear View of the product

Inner Circuit Top View

Inner Circuit Bottom View

Photographs of EUT

Measurement of Radiated Emission Test Set Up

******* End of Test Report *******