

FCC Test Report

E4064219801KY

Type / Model Name: WF-SD1-CH

Product Description: Flash light

Applicant: Capital Prospect Ltd.

FCC ID: KUTWF100

FCC --- TEST REPORT

Test Report No. : E4064219801KY	June 21, 2011 <hr style="border: 0; border-top: 1px solid black; margin: 0;"/> Date of issue
---	---

Type / Model Name: WF-SD1-CH

Product Description : Flash light

Applicant : Capital Prospect Ltd.

Address : Room 03, 13/F., Block B,
Veristrong Ind. Centre, 34-36 Au Pui Wan Street,
Fo Tan, N.T.,
Hong Kong

Test Result according to the standards listed in clause 1 test standards:	POSITIVE
--	-----------------

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

File No. **E4064219801KY**

Contents

1	<u>TEST STANDARDS</u>	4
2	<u>SUMMARY</u>	5
3	<u>EQUIPMENT UNDER TEST</u>	6
3.1	PHOTO DOCUMENTATION OF THE EUT	6
3.2	POWER SUPPLY SYSTEM UTILISED	7
3.3	SHORT DESCRIPTION OF THE EQUIPMENT UNDER TEST (EUT)	7
4	<u>TEST ENVIRONMENT</u>	8
4.1	ADDRESS OF THE TEST LABORATORY	8
4.2	ENVIRONMENTAL CONDITIONS	8
4.3	STATEMENT OF THE MEASUREMENT UNCERTAINTY	8
5	<u>TEST CONDITIONS AND RESULTS</u>	9
5.1	ANTENNA REQUIREMENT	9
5.2	AVERAGE FACTOR	10
5.3	RADIATED EMISSION	14
5.4	BANDWIDTH	16
5.5	PROVISION OF MOMENTARY OPERATION	17
6	<u>USED TEST EQUIPMENT AND ACCESSORIES</u>	18

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road, Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

Page 3 of 18

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 15:2009-10-01

Federal Communications Commission, Part 15 – Radio Frequency Device

ANSI C63.4:2003

Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road , Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

Page 4 of 18

2 SUMMARY

GENERAL REMARKS:

N/A

FINAL ASSESSMENT:

The equipment under test fulfils the FCC requirements cited in test standard listed in section 1.

Date of receipt of test sample : June 13, 2011

Testing commenced on : June 13, 2011

Testing concluded on : June 21, 2011

Checked by:

Tested by:

Ivan Toa
Technical Manager

Kidd Yang
Engineer

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road , Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

3 EQUIPMENT UNDER TEST

3.1 Photo documentation of the EuT



Top View



Bottom View

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road , Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

Page 6 of 18

3.2 Power supply system utilised

Power supply voltage: AC 120V/60Hz
DC 4.8V

3.3 Short description of the Equipment under Test (EuT)

The EuT is assembled in a case enclosure and act as remote flash light when receive the signal from the sensor. It responds when properly encoded signal modulated on a radio frequency of 433.92MHz.

Tested samples: One Set (model: WF-SD1-CH)
Serial number: Not Labelled
Dimensions: L: 10.5 cm W:10.5 cm H: 10.0 cm

EuT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- Operation mode 1: Transmitting mode

-

-

EuT configuration:

The following interface cables and peripheral devices were connected during the measurements:

Interface cables:

Interface cable	Length [m]	Type	Line		Line termination
			shielded	unshielded	
Power cable	3.8	2 wires	□	■	EuT to Power supply

Peripheral devices:

Kind of equipment	Model and/or Manufacturer
Power supply	AT10-1200650-U01-F

File No. **E4064219801KY**

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

emitel (Shenzhen) Limited
Building 2, 171 Meihua Road,
Futian District, Shenzhen,
P.R. China

Laboratory registration numbers:

FCC Registration number: 746887

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 860-1060 mbar

4.3 Statement of the measurement uncertainty

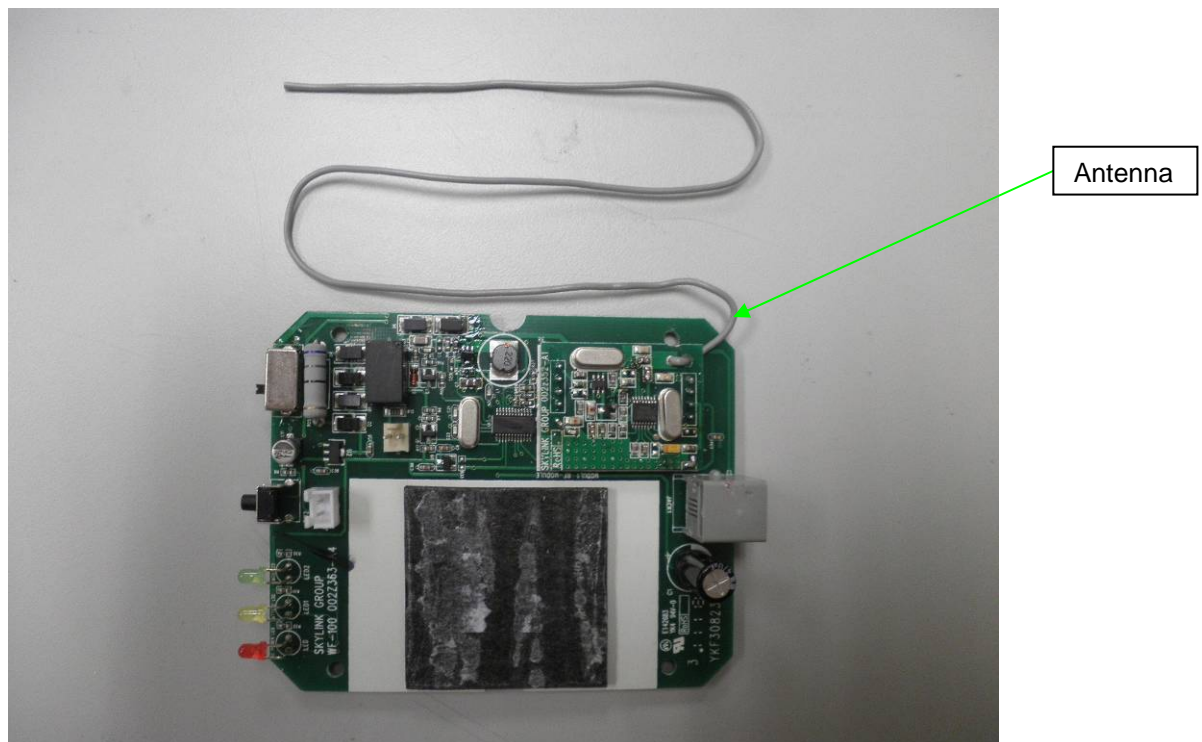
The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 /11.2003 "Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements" and is documented in the quality system acc. to ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer does have the sole responsibility for the continued compliance of the device.

5 TEST CONDITIONS AND RESULTS

5.1 Antenna Requirement

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

The EuT has component antenna, which accordance to the above sections, is considered sufficient to comply with the provisions of these sections. Please see EuT photo for details.



The requirements of section 15.203 are **FULFILLED**.

Remarks: _____

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road , Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

Page 9 of 18

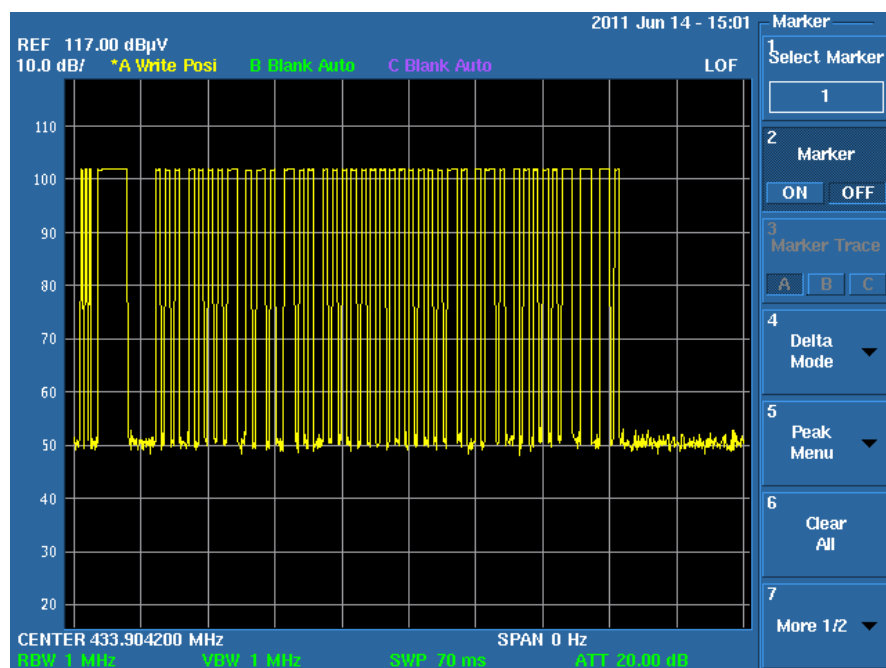
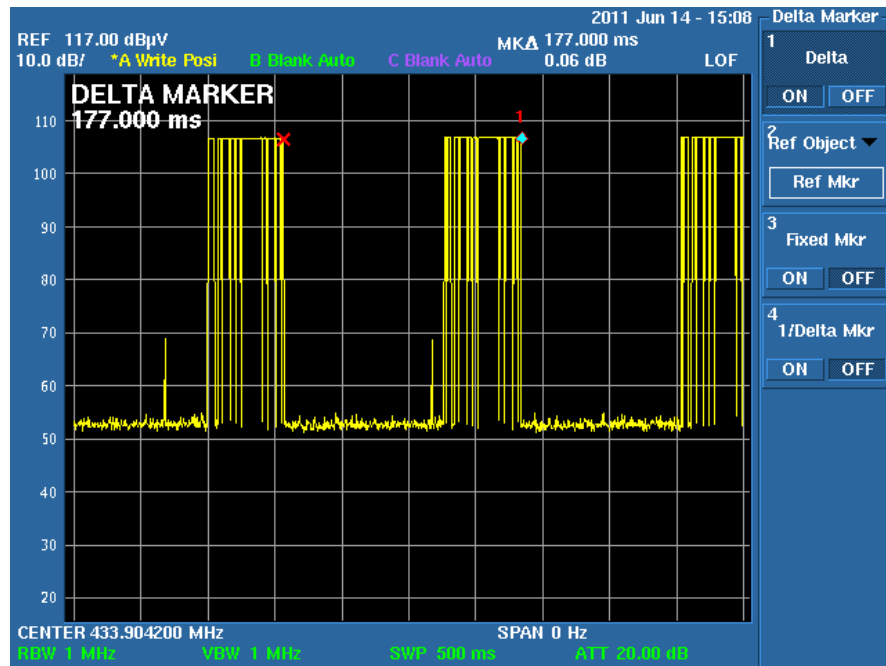
5.2 Average Factor

For test instruments and accessories used see section 6.

5.2.1 Description of the test location

Test location: Shield room

5.2.2 Photo documentation of test

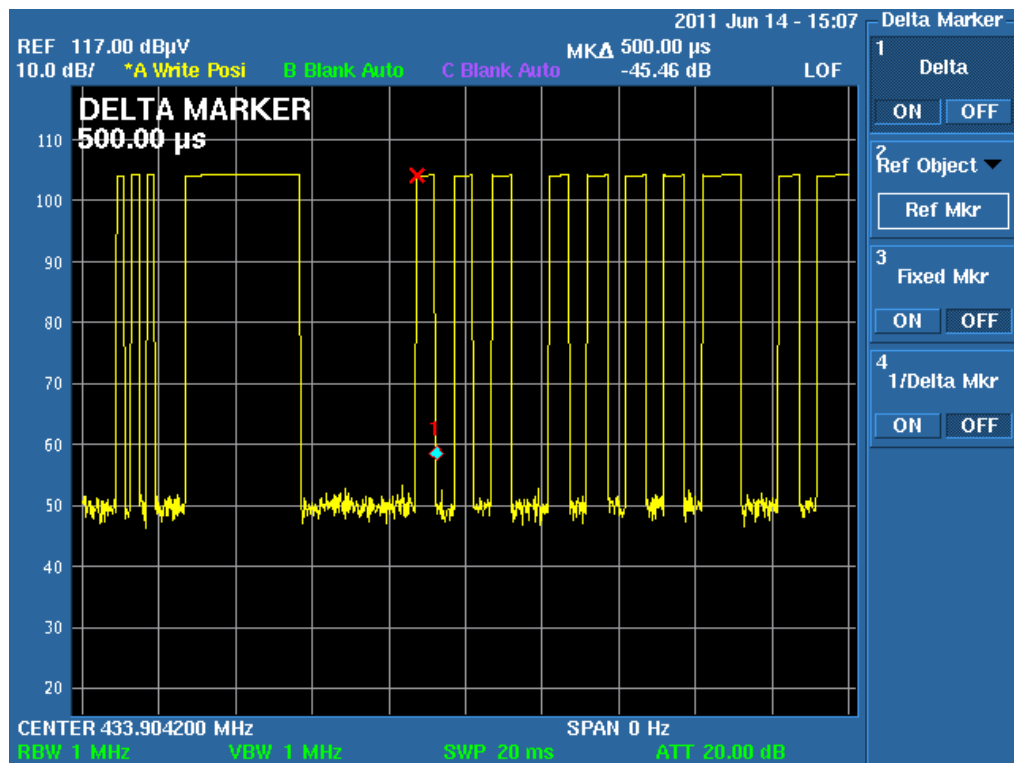
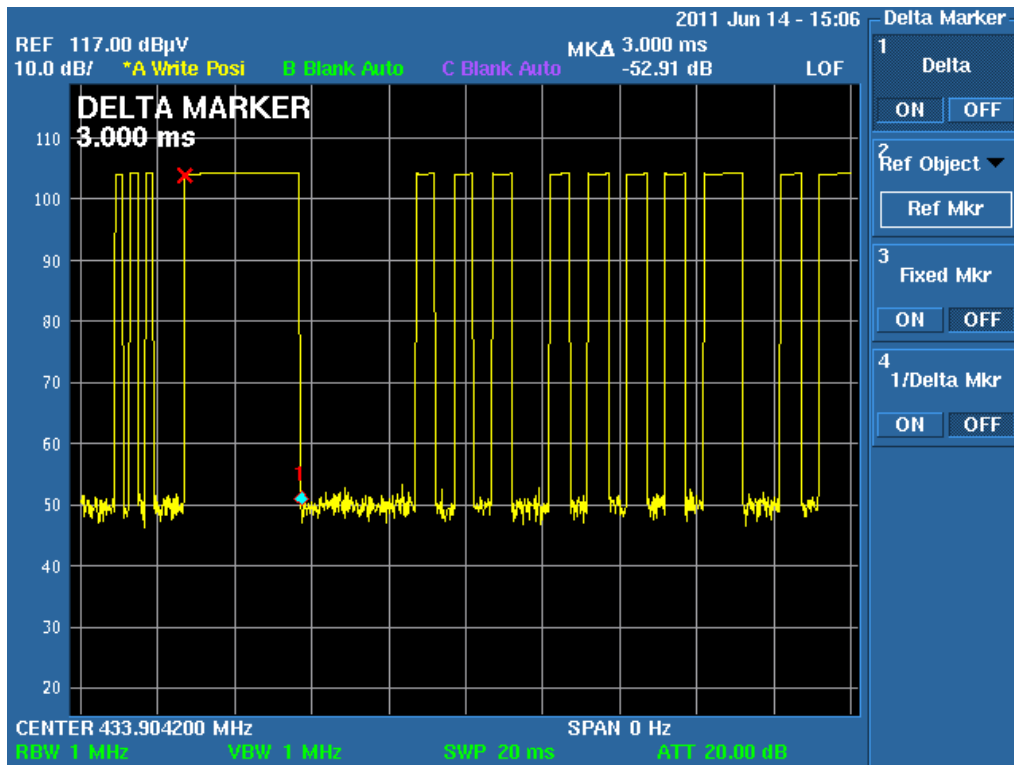


File No. E4064219801KY

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road, Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

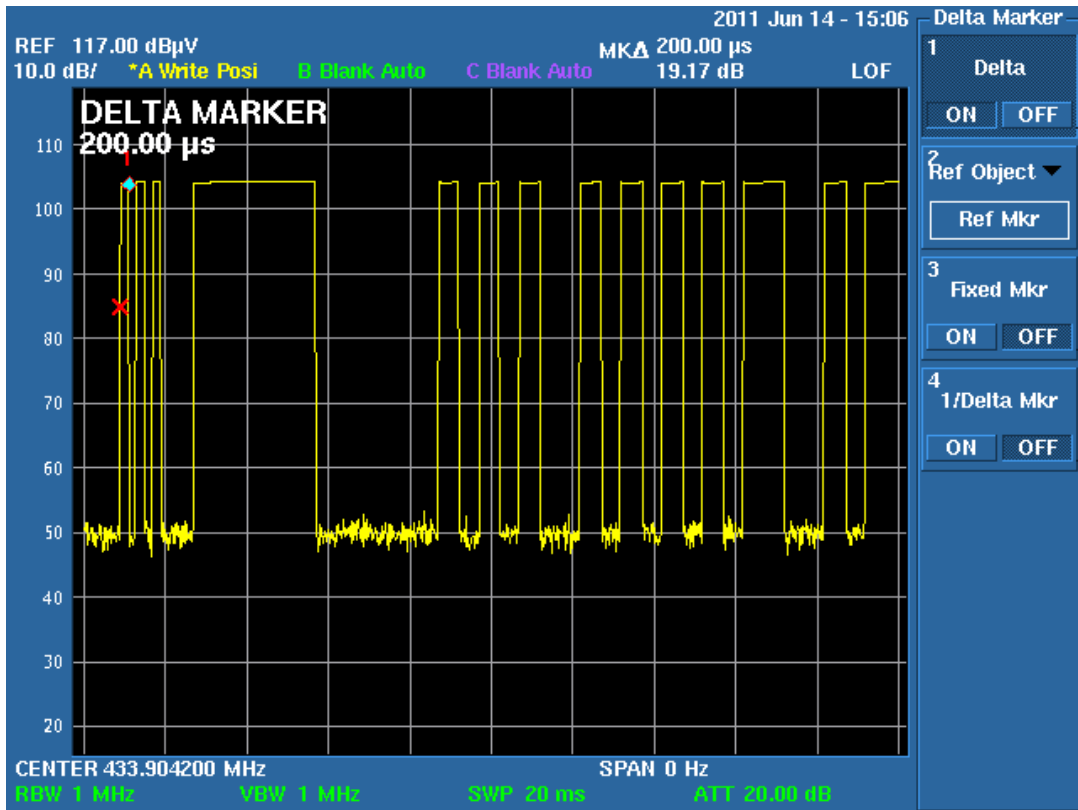
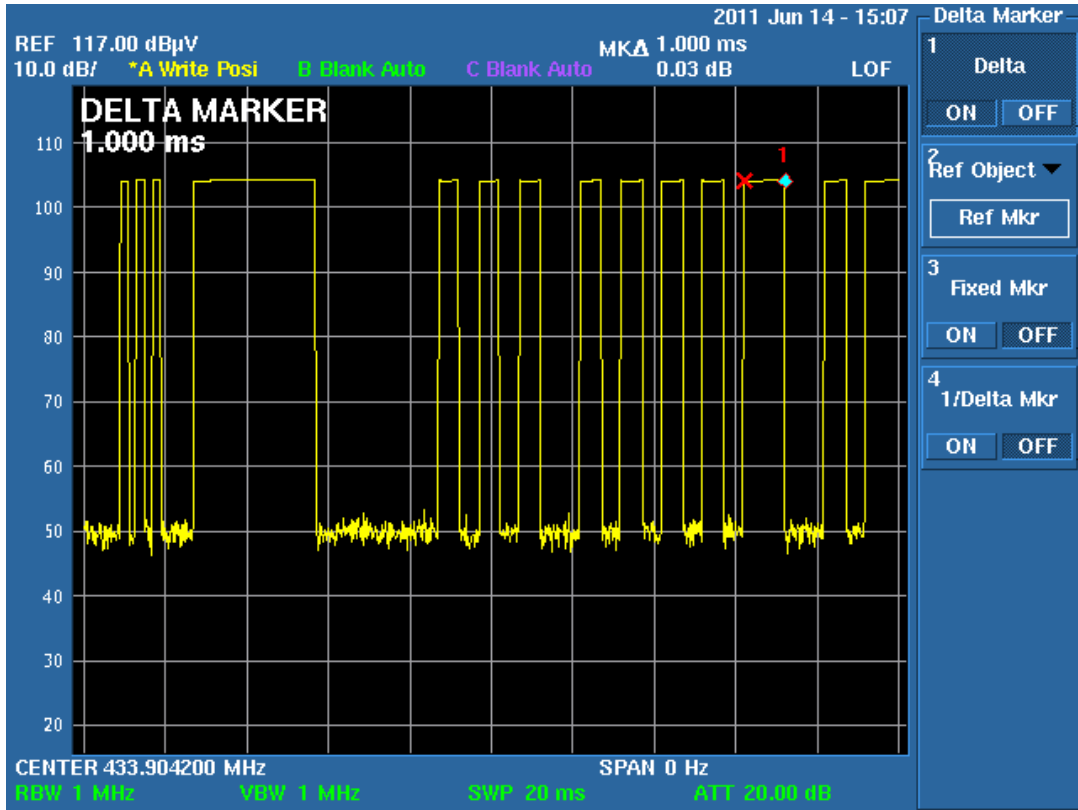


File No. E4064219801KY

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road, Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang



File No. E4064219801KY

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road, Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

5.2.3 Test result

whole period=177ms>100ms
Pulse 1= 3.0 ms
Pulse 2= 0.5 ms
Pulse 3= 1.0 ms
Pulse 4= 2.0ms
$T_{on}=(3.0*1+0.2*3+0.5*33+1.0*8)ms=28.1ms$
Average factor= $20 \log(28.1ms/100ms)=20 \log(0.281)=-11.0dB$

Remarks:

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road , Futian District, Shenzhen, P.R.China。

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

5.3 Radiated Emission

For test instruments and accessories used see section 6.

5.3.1 Description of the test location

Test location: Semi-anechoic Chamber

Test distance: 3m

5.3.2 Photo documentation of test



5.3.3 Test result

Frequency range: 30MHz to 4340MHz

Min. limit margin: - 4.3 dB

The requirements of section 15.231(b) are **FULFILLED**.

Remarks: 1) The emissions lower than 20dB below the limit are not measured.

5.3.4 Test protocol

Product Description: Flash light
 Worst Case Operation mode: Transmitting mode
 Date: June 20, 2011
 Tested by: Kidd Yang

Result: PASS

Start frequency [MHZ]	Stop frequency [MHZ]	Resolution bandwidth	Video bandwidth	step size	Measurement time	Detector
30	1000	120 KHz	1 MHz	40 KHz	100ms	Peak
1000	4340	1 MHz	3 MHz	400 KHz	100ms	Peak

Polarization	Frequency (MHz)	Read Value (dBuV/m)	Antenna Factor(dB)	Cable Loss(dB)	Measured Result (dBuV/m)	PK limit (dBuV/m)	margin (dB)
V	433.92	69.6	16.3	1.6	87.5	100.8	-13.3
H	433.92	62.8	16.6	1.6	81.0	100.8	-19.8
V	867.84	38.1	22.8	2.3	63.2	80.8	-17.6
H	867.84	33.1	22.7	2.3	58.1	80.8	-22.7
V	1301.76	28.1	25.0	2.8	55.9	74.0	-18.1
V	1735.68	24.3	27.3	3.6	55.2	80.8	-25.6
V	2169.60	19.2	30.0	4.3	53.5	80.8	-27.3
V	2603.52	22.5	33.3	4.0	59.8	80.8	-21.0

Polarization	Frequency (MHz)	Detector	Measured Result (dBuV/m)	Average Factor (dB)	Calculated Average Value (dBuV/m)	AV limit (dBuV/m)	margin (dB)
V	433.92	Peak	87.5	-11.0	76.5	80.8	-4.3
H	433.92	Peak	81.0	-11.0	70.0	80.8	-10.8
V	867.84	Peak	63.2	-11.0	52.2	60.8	-8.6
H	867.84	Peak	58.1	-11.0	47.1	60.8	-13.7
V	1301.76	Peak	55.9	-11.0	44.9	54.0	-9.1
V	1735.68	Peak	55.2	-11.0	44.2	60.8	-16.6
V	2169.60	Peak	53.5	-11.0	42.5	60.8	-18.3
V	2603.52	Peak	59.8	-11.0	48.8	60.8	-12.0

File No. E4064219801KY

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road, Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

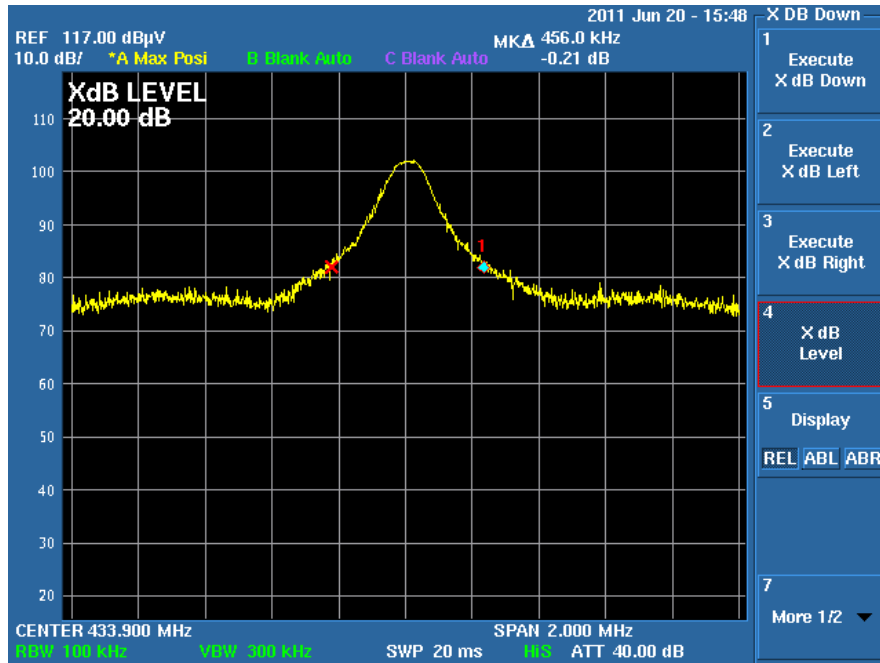
5.4 Bandwidth

For test instruments and accessories used see section 6.

5.4.1 Description of the test location

Test location: Shielded Room

5.4.2 Photo documentation of the test



5.4.3 Test result

Measured Occupied Bandwidth (kHz)	Limit (kHz)
456.0	1084.8

The requirements of section 15.231(c) are **FULFILLED**

Remarks:

File No. **E4064219801KY**

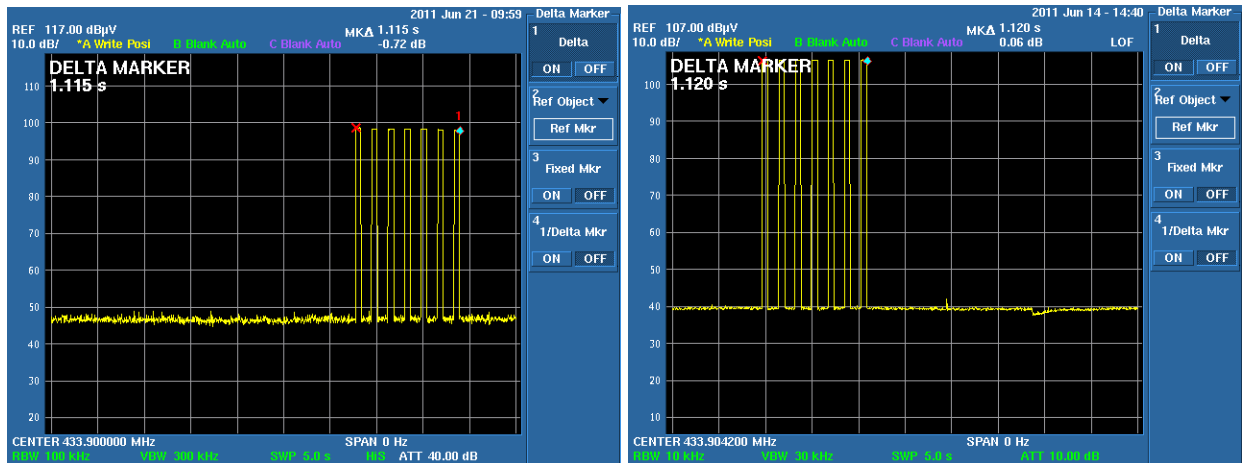
5.5 Provision of Momentary operation

For test instruments and accessories used see section 6.

5.5.1 Description of the test location

Test location: Shielded Room

5.5.2 Photo documentation of the test



5.5.3 Test result

The time of stopping transmission after automatic activation(s)	Limit (s)
1.115	5.000
.	
The time of stopping transmission after switch releasing(s)	Limit (s)
1.120	5.000

The requirement of section 15.231(a)(1) and section 15.231(a)(2) are **FULFILLED**

Remarks:

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road, Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test Item	Model / Type	Kind of Equipment	Manufacturer	Next Cal. Date	Equipment o.
Radiated Emission	ESPI3	EMI Test Receiver	Rohde & Schwarz	Apr 26, 2012	04-02/03-06-002
	U3772	Spectrum Analyzer	Advantest	Apr 26, 2012	04-02/11-08-001
	3142C	Biconilog Antenna	EMCO	Mar 26,2013	04-02/24-06-001
	3117	Horn Antenna	ETS Lindgren	Mar 26,2013	04-02/24-07-001
Bandwidth	U3772	Spectrum Analyzer	Advantest	Apr 26, 2012	04-02/11-08-001
Momentary operation	U3772	Spectrum Analyzer	Advantest	Apr 26, 2012	04-02/11-08-001
Average Factor	U3772	Spectrum Analyzer	Advantest	Apr 26, 2012	04-02/11-08-001

File No. **E4064219801KY**

emitel (Shenzhen)Limited, Building 2, No.171 Meihua Road , Futian District, Shenzhen, P.R.China.

Phone: +86 (755) 8318 2012 Fax: +86 (755) 8312 3810 Email: info@emitel.com.cn

4_F510_25_Rev2_0 / Date of release: 05-01-2009 / Author: Kidd Yang