

# Amendment – EMC EMISSION TEST REPORT

(Supplement to Test Report: 7088815111904-00)

Report Number : 7088815111904-05-Part 1 Date of Issue: July 17, 2020

Model : Refer to Appendix B Model list

Product Type : LED street lights

Applicant : Ningbo Skyzon Energy Co.,Ltd.

Manufacturer : Ningbo Skyzon Energy Co.,Ltd.

Factory : Ningbo Skyzon Energy Co.,Ltd.

License holder : Ningbo Skyzon Energy Co.,Ltd.

Address : No.19, KeSan Road, 315600 Ninghai, Ningbo

: PEOPLE'S REPUBLIC OF CHINA

Test Result :

☒ Positive ☐ Negative

Total pages including  
Appendices

46



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## EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to the following regulations:

n - EMC - Directive 2014/30/EU

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☐ - EN 61000-6-3:2007+A1:2011

☐ - EN 61000-6-4:2007+A1:2011

☐ - EN 61326-1:2013

☐ - Class A

☐ - Class B

☐ - EN 55011:2009+A1:2010

☐ - Group 1

☐ - Group 2

☐ - Class A

☐ - Class B

☐ - EN 55012:2007+A1:2009

☐ - EN ISO 14982:2009

☐ - EN 55014-1:2006+A1:2009+A2:2011

☐ - Household appliances and similar

☐ - Electric tools

☐ - Others

n - EN 55015:2013+A1:2015

☐ - EN 55032:2012

☐ - Class A

☐ - Class B

n - EN 61000-3-2:2014

n - EN 61000-3-3:2013

☐ - EN 61000-3-11:2000

## Environmental Conditions In The Laboratory:

	<u>Actual</u>
Temperature	: 20-25 °C
Relative Humidity	: 40-60 %
Atmospheric Pressure	: 1000-1040 mBar

## Power Supply Utilized:

Power supply system : 220-240V~ / 50/60Hz / 1f

### Test site:

TÜV SÜD CERTIFICATION AND TESTING (CHINA) CO., LTD. SHANGHAI BRANCH  
No.16, Lane 1951, Duhui Road, 201108 Shanghai, People's Republic of China

## Statement of Measurement Uncertainty:

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Conducted Emission	9kHz to 30MHz	3.16 dB
Radiated Emission (Electric field)	30MHz to 1GHz	5.03 dB (Horizontal)
		5.12dB (Vertical)
Radiated Emission (Magnetic field)	9KHz to 30MHz	2.78dB
Disturbance power	30MHz to 300MHz	3.67 dB

## Symbol Definitions:

n - Applicable  
○ - Not Applicable

## Equipment Under Test (EUT) Test Operation Mode - Emissions Tests :

The equipment under test was operated under the following conditions during emissions testing:

- ☐ - Standby
- ☐ - Test Program (H - Pattern)
- ☐ - Test Program (Color Bar)
- ☐ - Test Program (Customer Specified)
- ☐ - Normal Operating Mode

☐ - Light on.

Record the worst state result when the EUT working in 220-240V~ / 50/60Hz range.

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### Configuration of the equipment under test:

- ☐ - See Constructional Data Form in Appendix B
- ☐ - See Product Information Form(s) in Appendix B

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

- |                               |              |
|-------------------------------|--------------|
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |
| <input type="radio"/> - _____ | Type : _____ |

☐ - unshielded power cable

☐ - unshielded cables

☐ - shielded cables

TUV  
PS.No.:

\_\_\_\_\_

☐ - customer specific cables

☐ - \_\_\_\_\_

☐ - \_\_\_\_\_

## Emissions Test Results:

### Conducted Emissions, 9kHz – 30 MHz

☒ - PASS

☐ - FAIL

☐ - NOT APPLICABLE

Minimum limit margin >6 dB at 0.009-30 MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

### Radiated Emissions (Magnetic Field), 9 kHz – 30 MHz

☒ - PASS

☐ - FAIL

☐ - NOT APPLICABLE

Minimum limit margin >6 dB at 0.009-30 MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

### Interference Power at the Mains and Interface Cables, 30 MHz – 300 MHz

☒ - PASS

☐ - FAIL

☐ - NOT APPLICABLE

Minimum limit margin \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Comply with the limits reduces by Table 2b of EN 55014-1? ☐ - YES ☐ - NO ☐ - N/A

Remarks: \_\_\_\_\_

### Radiated Emissions (Electric Field), ☒ - 30 MHz – 300 MHz, ☐ - 30MHz – 1000MHz

☒ - PASS

☐ - FAIL

☐ - NOT APPLICABLE

Minimum limit margin >6 dB at 30-300 MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

### Harmonic Current Emissions and Voltage Fluctuations and Flicker

☒ - PASS

☐ - FAIL

☐ - NOT APPLICABLE

Harmonic measurement exceeding limit \_\_\_\_\_ above at \_\_\_\_\_ MHz

Flicker measurement exceeding limit \_\_\_\_\_ above the \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

## GENERAL REMARKS:

**NOTICE: This report is a SUPPLEMENT OF PROJECT 7088815111904-00&7088815111904-01&7088815111904-02&7088815111904-03 and 7088815111904-04. So, this report is not valid without the report of 7088815111904-00&7088815111904-01&7088815111904-02&7088815111904-03 and 7088815111904-04.**

According to client's request:

1. the Applicant, Manufacturer and License Holder were changed from Everlite LED Lighting Co., Limited (Room 2105, Trend Centre, 29-31, Cheung Lee Street, Chaiwan, Hong Kong) to Ningbo Skyzon Energy Co.,Ltd.( No.19,KeSan Road, 315600 Ninghai, Ningbo, PEOPLE'S REPUBLIC OF CHINA).
2. New alternative LED chips was added.
3. Four new models EL-GL607-15, EL-GL607-20, EL-GL607-25 and EL-GL607-30 are added on the E8A attestation.
4. new two kinds of LED drivers EBS-040S070DTE and EBS-040S070BTE are added, LED Drivers EBS-040S070DTE and EBS-040S070BTE have same circuit diagram and PCB Layout, The light-regulating control port of LED Driver is only for manufactory's initial setting, details refer to model list of Appendix B

So the followed models were chosen to perform all tests.

Model	LED Driver	Sample No.
EL-GL607-20	EBS-040S070BTE	SHA-502934-1
EL-GL607-30	EBS-040S070BTE	SHA-502934-2

New added LED chips

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
LED chips	CREE	XP-G3 LEDs	V <sub>f</sub> =2.73-3.06V; I <sub>f</sub> =Max.2000Ma; 2700-6500K	IEC TR62778 EN62471	Test with appliance

For model EL-GL607-20

P-DSH: 617, decisions: A LED cannot be considered as an incandescent lamp, neither as discharge lamp. The clause 7.3 b of the standard (EN 61000-3-2:2014) give requirements for discharge lighting equipment with active power less than 25W and these requirements are not applicable to LED.

For model EL-GL607-20 and EL-GL607-30

Tests need not be made on equipment which is unlikely to produce significant voltage fluctuations or flicker. (EN 61000-3-3:2013, clause 6.1)

## SUMMARY:

All tests according to the regulations cited on page 3 were

n - Performed

○ - **Not** Performed

The Equipment Under Test

n - **Fulfills** the general approval requirements cited on page 3.

○ - **Does not** fulfill the general approval requirements cited on page 3.

Testing Start Date: July 03, 2020

Testing End Date: July 09, 2020

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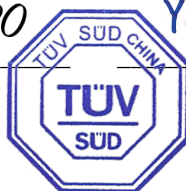
Reviewed by:

Prepared by:



*July 17.2020*

Yong ZHANG  
Review Engineer



*July 17. 2020*

Yongqing ZHENG  
Project Engineer





China

## Appendix A

Test Data Sheets

# 9K-30MHz Conducted Disturbance Test

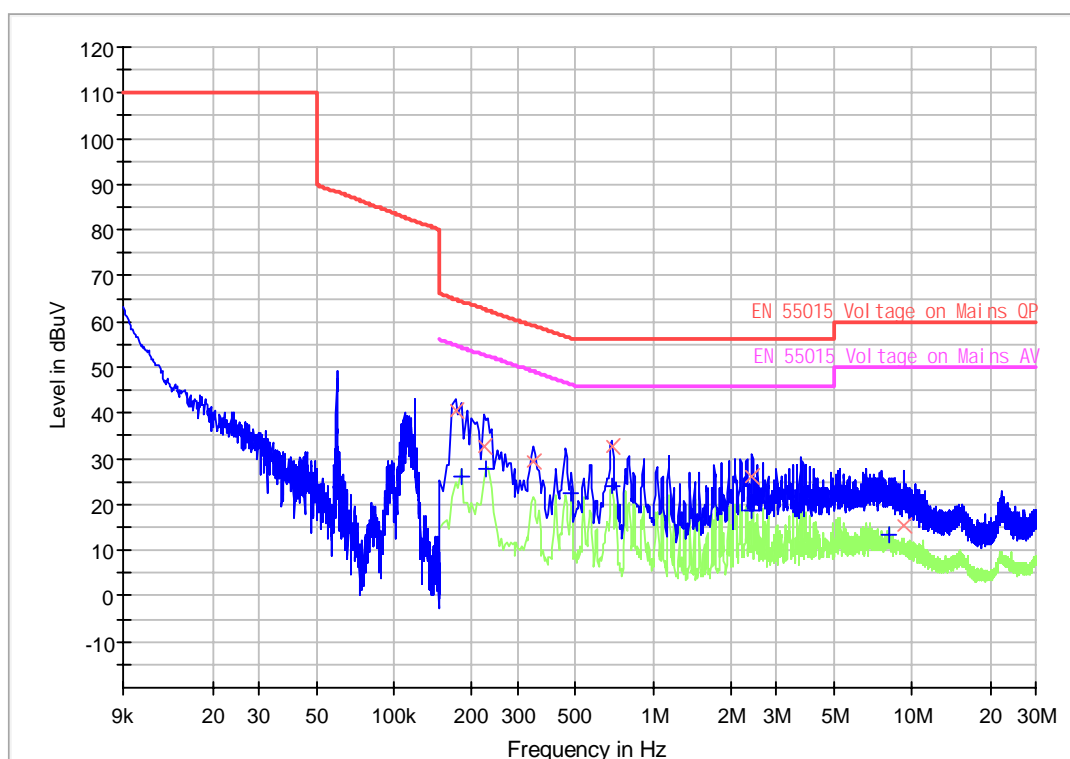
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V/50Hz, T21.2, H49.2%, P103.1kPa  
 Operator: Shi Chaojun  
 Standard: EN 55015  
 Comment: Phase L  
 Sample No.: SHA-502934-1

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



## Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.172500	40.70	---	64.84	24.14	1000.0	9.000	L1	19.4
0.181500	---	26.07	54.42	28.35	1000.0	9.000	L1	19.4
0.222000	32.65	---	62.74	30.09	1000.0	9.000	L1	19.4
0.226500	---	27.93	52.58	24.65	1000.0	9.000	L1	19.4
0.343500	29.55	---	59.12	29.57	1000.0	9.000	L1	19.4
0.483000	---	22.34	46.29	23.95	1000.0	9.000	L1	19.4
0.694500	32.51	---	56.00	23.49	1000.0	9.000	L1	19.4
0.694500	---	23.99	46.00	22.01	1000.0	9.000	L1	19.4
2.418000	26.22	---	56.00	29.78	1000.0	9.000	L1	19.5
2.418000	---	18.68	46.00	27.32	1000.0	9.000	L1	19.5
8.178000	---	13.24	50.00	36.76	1000.0	9.000	L1	19.7
9.289500	15.48	---	60.00	44.52	1000.0	9.000	L1	19.7

# 9K-30MHz Conducted Disturbance Test

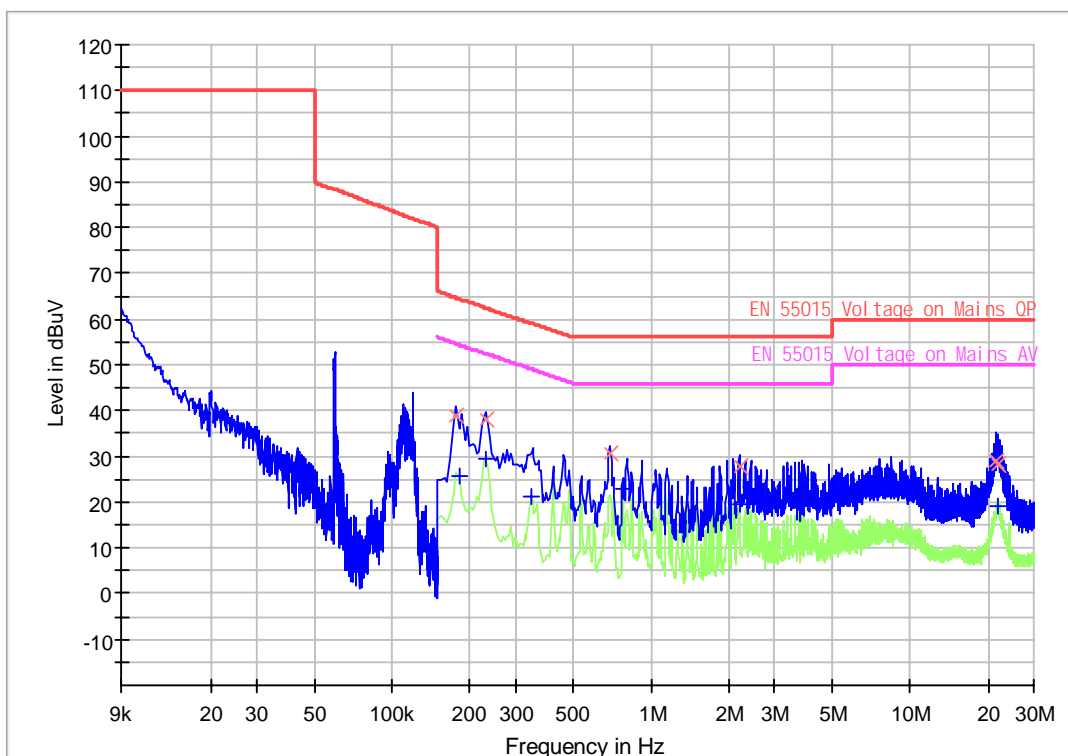
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V/50Hz, T21.2, H49.2%, P103.1kPa  
 Operator: Shi Chaojun  
 Standard: EN 55015  
 Comment: Phase N  
 Sample No.: SHA-502934-1

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



## Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.177000	38.81	---	64.63	25.82	1000.0	9.000	N	19.6
0.181500	---	25.77	54.42	28.65	1000.0	9.000	N	19.6
0.231000	---	29.47	52.41	22.94	1000.0	9.000	N	19.6
0.231000	38.04	---	62.41	24.37	1000.0	9.000	N	19.6
0.343500	---	20.99	49.12	28.13	1000.0	9.000	N	19.6
0.694500	30.67	---	56.00	25.33	1000.0	9.000	N	19.5
0.780000	---	23.00	46.00	23.00	1000.0	9.000	N	19.5
2.193000	27.81	---	56.00	28.19	1000.0	9.000	N	19.6
2.193000	---	19.60	46.00	26.40	1000.0	9.000	N	19.6
21.624000	29.20	---	60.00	30.80	1000.0	9.000	N	19.9
21.669000	28.01	---	60.00	31.99	1000.0	9.000	N	19.9
21.736500	---	19.22	50.00	30.78	1000.0	9.000	N	19.9

# 9K-30MHz Conducted Disturbance Test

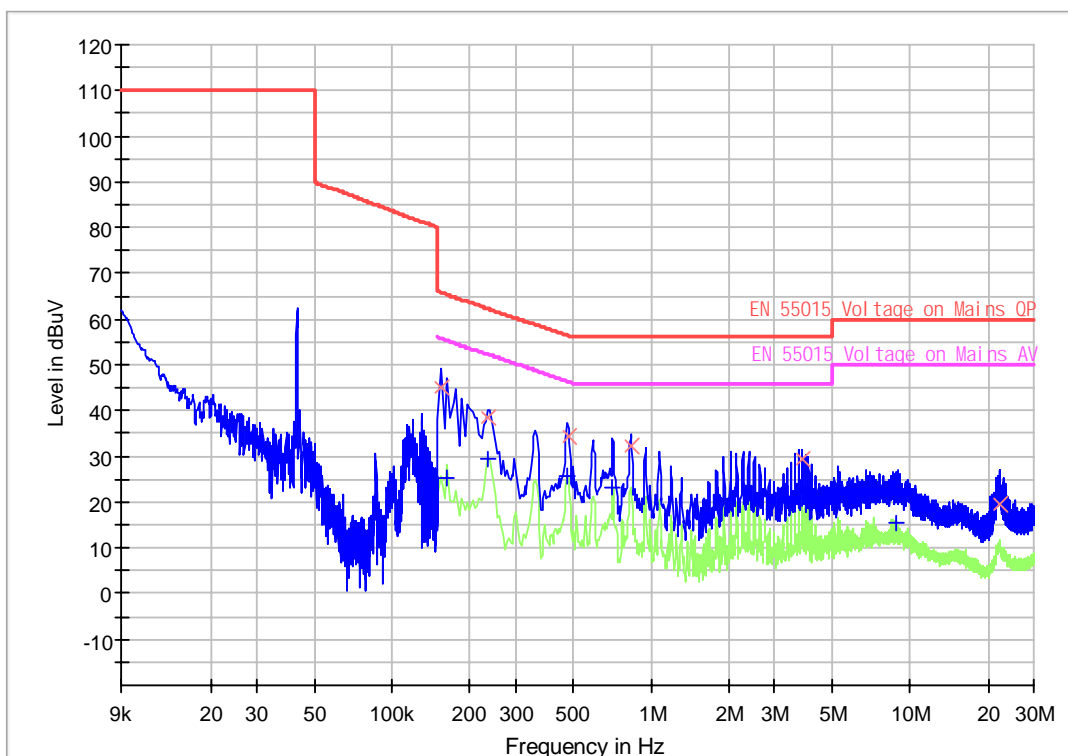
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V/50Hz, T21.2, H49.2%, P103.1kPa  
 Operator: Shi Chaojun  
 Standard: EN 55015  
 Comment: Phase L  
 Sample No.: SHA-502934-2

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



## Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154500	45.17	---	65.75	20.58	1000.0	9.000	L1	19.5
0.163500	---	25.22	55.28	30.06	1000.0	9.000	L1	19.4
0.235500	---	29.61	52.25	22.64	1000.0	9.000	L1	19.4
0.235500	38.38	---	62.25	23.87	1000.0	9.000	L1	19.4
0.474000	---	25.82	46.44	20.62	1000.0	9.000	L1	19.4
0.478500	34.37	---	56.37	22.00	1000.0	9.000	L1	19.4
0.712500	---	23.28	46.00	22.72	1000.0	9.000	L1	19.4
0.838500	32.48	---	56.00	23.52	1000.0	9.000	L1	19.4
3.817500	29.22	---	56.00	26.78	1000.0	9.000	L1	19.5
3.817500	---	20.87	46.00	25.13	1000.0	9.000	L1	19.5
8.830500	---	15.39	50.00	34.61	1000.0	9.000	L1	19.7
22.218000	19.47	---	60.00	40.53	1000.0	9.000	L1	19.9

# 9K-30MHz Conducted Disturbance Test

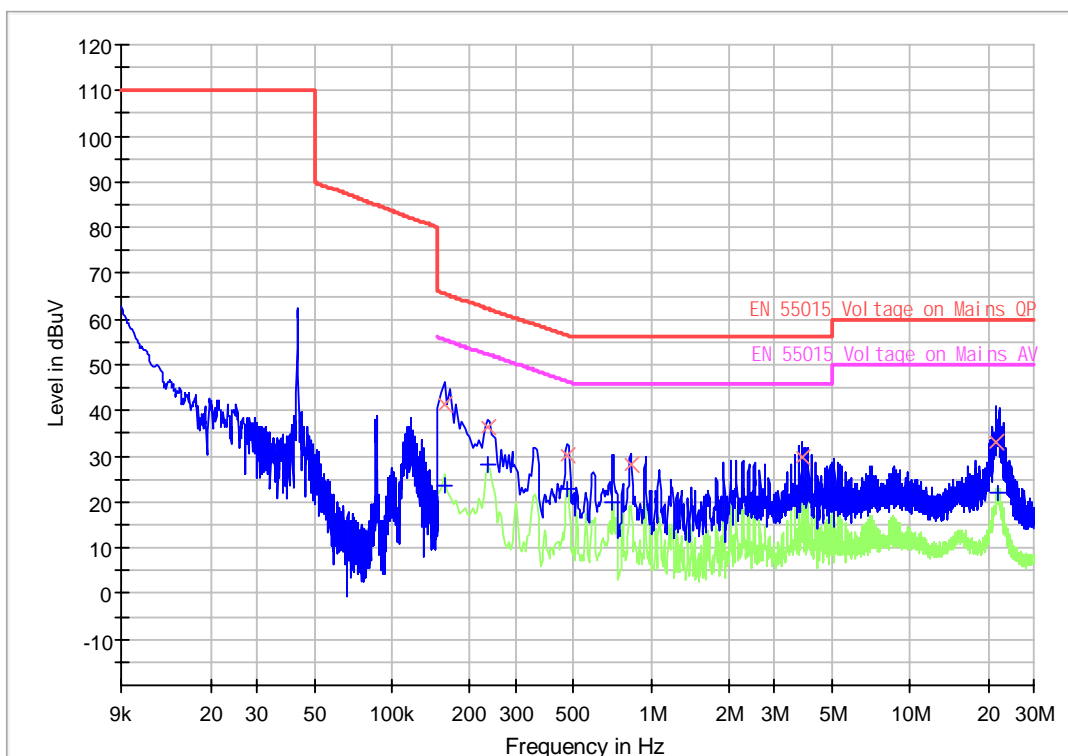
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V/50Hz, T21.2, H49.2%, P103.1kPa  
 Operator: Shi Chaojun  
 Standard: EN 55015  
 Comment: Phase N  
 Sample No.: SHA-502934-2

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB





## Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.159000	---	23.65	55.52	31.87	1000.0	9.000	N	19.6
0.159000	41.30	---	65.52	24.22	1000.0	9.000	N	19.6
0.235500	---	28.00	52.25	24.25	1000.0	9.000	N	19.6
0.235500	36.53	---	62.25	25.72	1000.0	9.000	N	19.6
0.474000	---	22.62	46.44	23.82	1000.0	9.000	N	19.5
0.474000	30.20	---	56.44	26.24	1000.0	9.000	N	19.5
0.712500	---	19.84	46.00	26.16	1000.0	9.000	N	19.5
0.834000	28.14	---	56.00	27.86	1000.0	9.000	N	19.5
3.813000	29.95	---	56.00	26.05	1000.0	9.000	N	19.6
3.813000	---	21.67	46.00	24.33	1000.0	9.000	N	19.6
21.601500	33.03	---	60.00	26.97	1000.0	9.000	N	19.9
21.655500	---	22.20	50.00	27.80	1000.0	9.000	N	19.9

# 9K-30MHz Radiated Disturbance Test

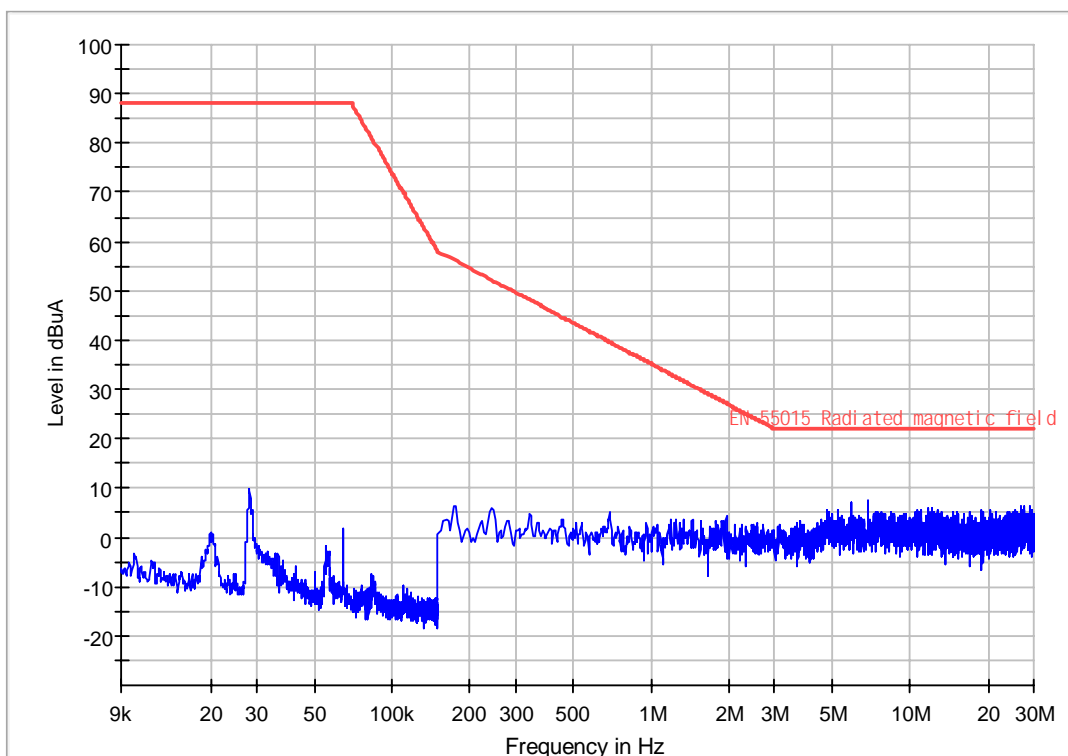
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op cond: loght on, AC 230V/50Hz, T22.7C, H47.5%, P103.1kPa  
 Operator: Shi Chaojun  
 Test Spec: EN 55015  
 Comment: X  
 Sample No.: SHA-502934-1

## Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup: TripleLoop  
 Receiver: [ESR 3]  
 Level Unit: dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



# 9K-30MHz Radiated Disturbance Test

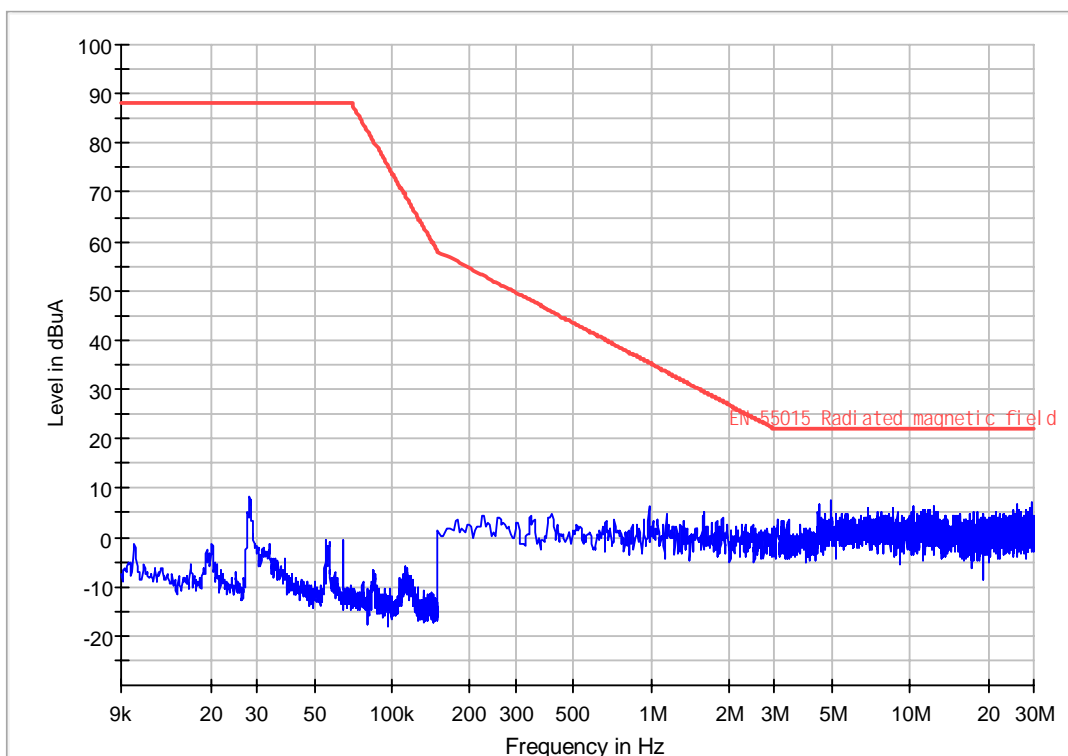
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op cond: loght on, AC 230V/50Hz, T22.7C, H47.5%, P103.1kPa  
 Operator: Shi Chaojun  
 Test Spec: EN 55015  
 Comment: Y  
 Sample No.: SHA-502934-1

## Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup: TripleLoop  
 Receiver: [ESR 3]  
 Level Unit: dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



# 9K-30MHz Radiated Disturbance Test

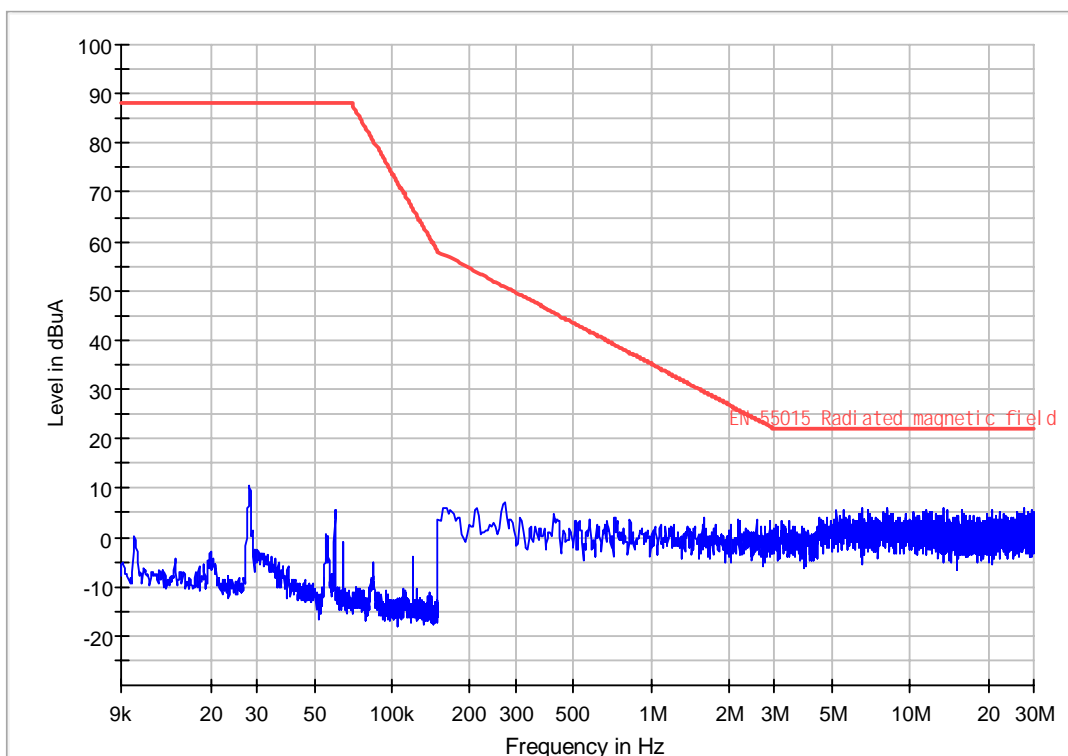
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op cond: loght on, AC 230V/50Hz, T22.7C, H47.5%, P103.1kPa  
 Operator: Shi Chaojun  
 Test Spec: EN 55015  
 Comment: Z  
 Sample No.: SHA-502934-1

## Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup: TripleLoop  
 Receiver: [ESR 3]  
 Level Unit: dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



# 9K-30MHz Radiated Disturbance Test

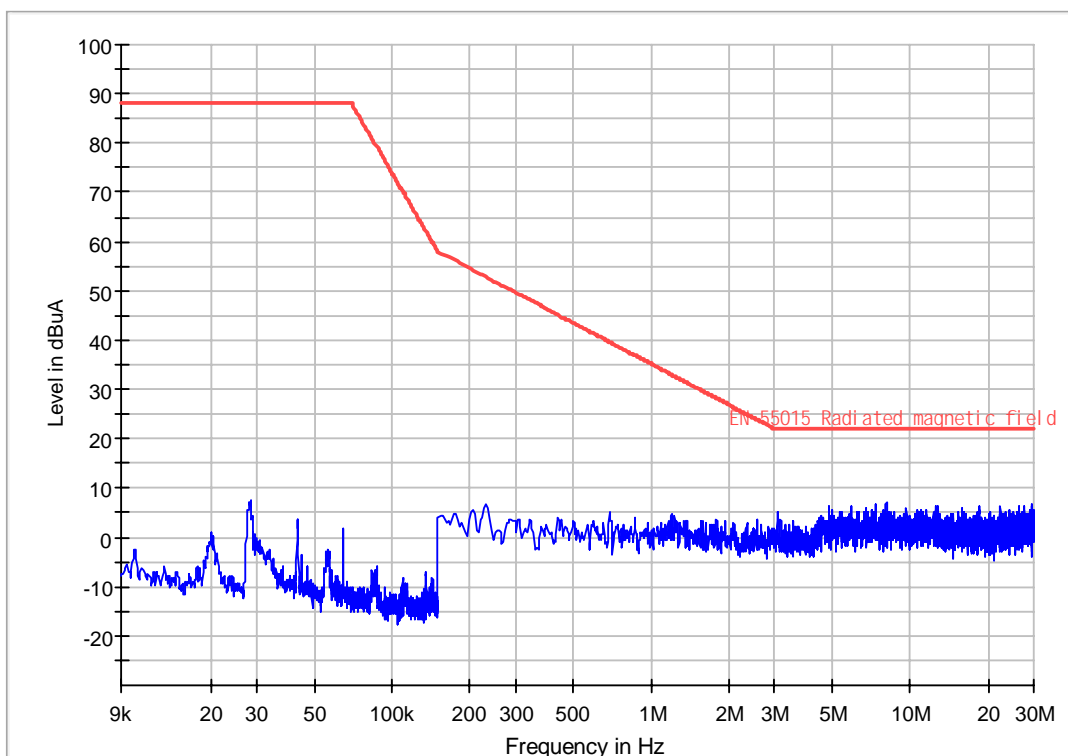
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op cond: loght on, AC 230V/50Hz, T22.7C, H47.5%, P103.1kPa  
 Operator: Shi Chaojun  
 Test Spec: EN 55015  
 Comment: X  
 Sample No.: SHA-502934-2

## Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup: TripleLoop  
 Receiver: [ESR 3]  
 Level Unit: dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



# 9K-30MHz Radiated Disturbance Test

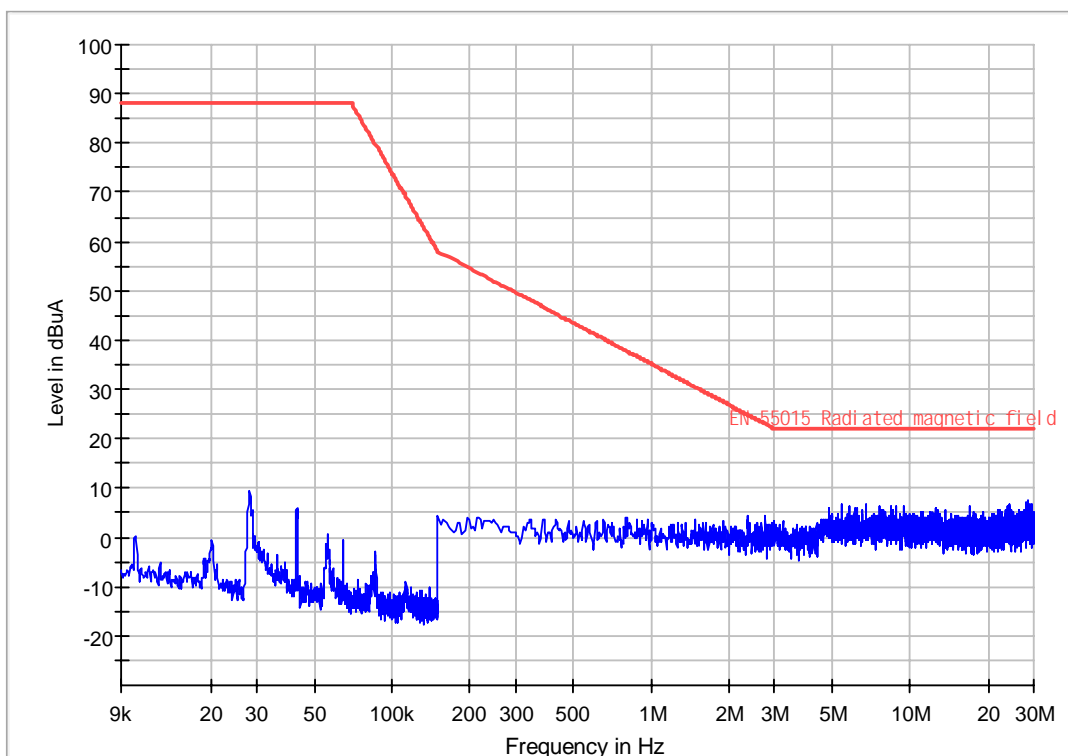
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op cond: loght on, AC 230V/50Hz, T22.7C, H47.5%, P103.1kPa  
 Operator: Shi Chaojun  
 Test Spec: EN 55015  
 Comment: Y  
 Sample No.: SHA-502934-2

## Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup: TripleLoop  
 Receiver: [ESR 3]  
 Level Unit: dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



# 9K-30MHz Radiated Disturbance Test

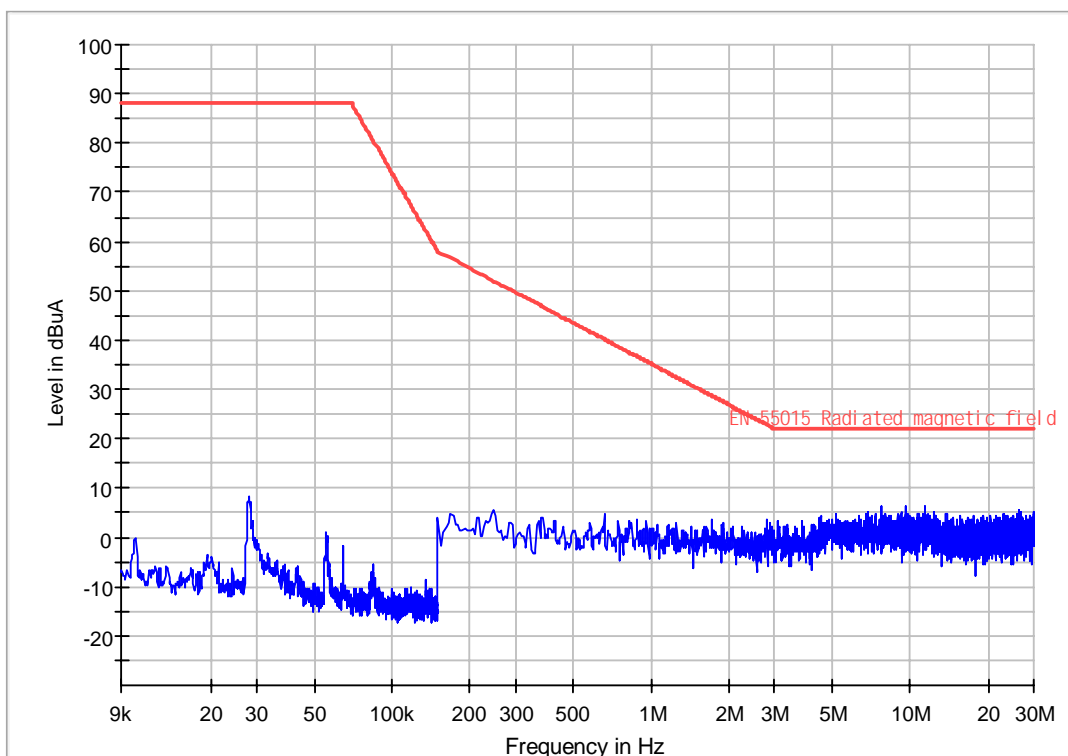
## EUT Information

EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op cond: loght on, AC 230V/50Hz, T22.7C, H47.5%, P103.1kPa  
 Operator: Shi Chaojun  
 Test Spec: EN 55015  
 Comment: Z  
 Sample No.: SHA-502934-2

## Scan Setup: TripleLoop max [EMI radiated]

Hardware Setup: TripleLoop  
 Receiver: [ESR 3]  
 Level Unit: dBuA

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.01 s	0 dB
150 kHz - 30 MHz	4 kHz	PK+	9 kHz	0.01 s	0 dB



# 30-300MHz Radiated Disturbance Test

## EUT Information

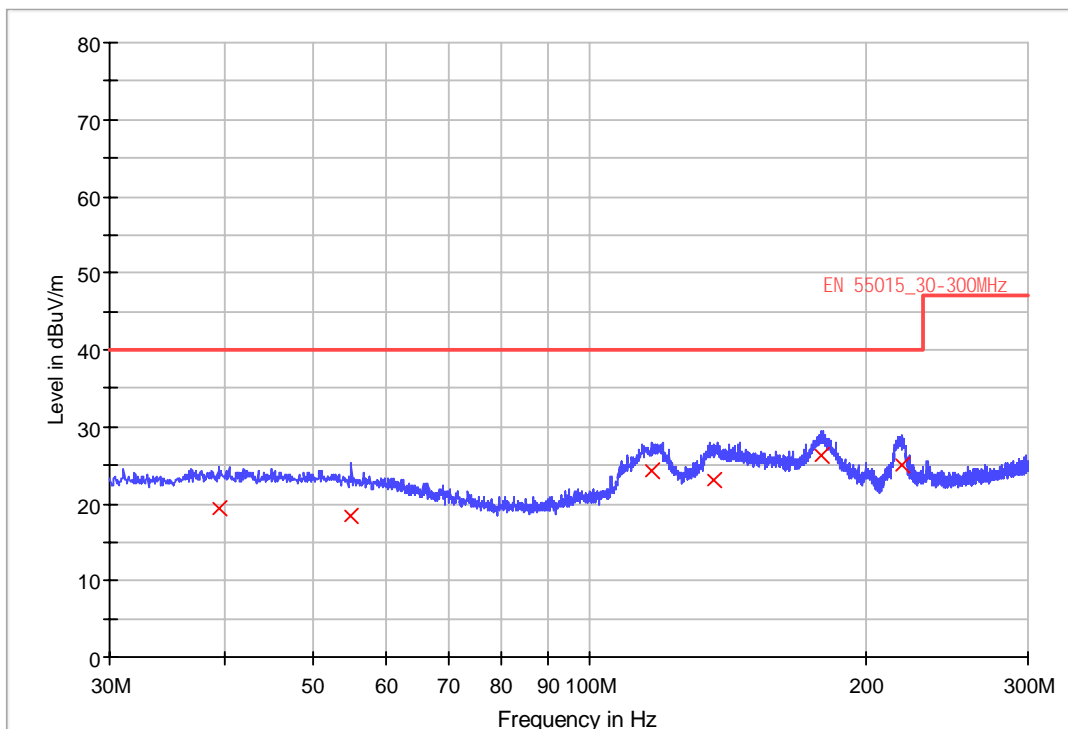
EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V 50Hz, T21.6, H49.2%, P103.1kPa  
 Operator: Shi chaojun  
 Test Spec: EN 55015  
 Comment: Horizontal  
 Sample No: SHA-502934-1

## Sweep Setup: RE\_VULB9168\_pre\_Cont\_30\_300 [EMI radiated]

Hardware Setup: RE\_VULB9168  
 Receiver: [ESR 3]  
 Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 300 MHz	50 kHz	PK+	120 kHz	0.005 s	20 dB

RE\_VULB9168\_pre\_Cont\_30\_300



## Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
39.440000	19.4	1000.0	120.000	200.0	H	103.0	14.7	20.6	40.0
54.960000	18.5	1000.0	120.000	200.0	H	326.0	14.0	21.6	40.0
116.960000	24.3	1000.0	120.000	200.0	H	61.0	13.2	15.7	40.0
136.200000	23.0	1000.0	120.000	200.0	H	74.0	13.2	17.0	40.0
178.680000	26.3	1000.0	120.000	200.0	H	96.0	13.5	13.7	40.0
218.840000	25.1	1000.0	120.000	200.0	H	143.0	12.4	14.9	40.0



# 30-300MHz Radiated Disturbance Test

## EUT Information

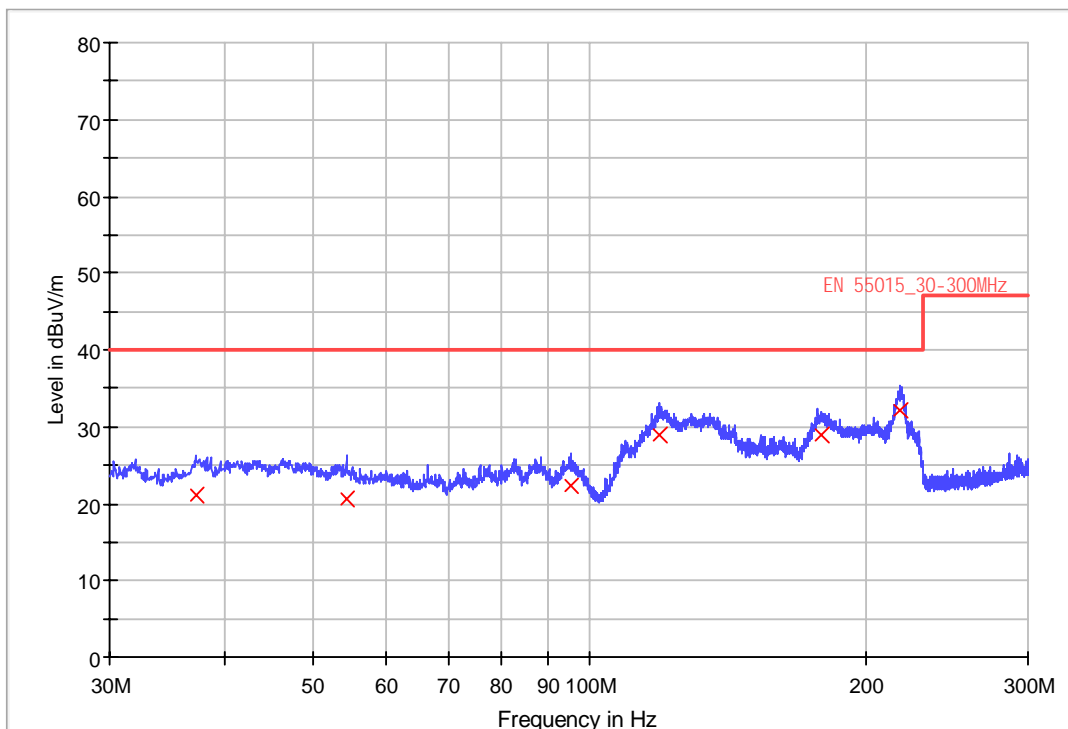
EUT Name: LED street lights  
 Model: EL-GL607-20  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V 50Hz, T21.6, H49.2%, P103.1kPa  
 Operator: Shi chaojun  
 Test Spec: EN 55015  
 Comment: Vertical  
 Sample No: SHA-502934-1

## Sweep Setup: RE\_VULB9168\_pre\_Cont\_30\_300 [EMI radiated]

Hardware Setup: RE\_VULB9168  
 Receiver: [ESR 3]  
 Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 300 MHz	50 kHz	PK+	120 kHz	0.005 s	20 dB

RE\_VULB9168\_pre\_Cont\_30\_300



## Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
37.200000	21.1	1000.0	120.000	100.0	V	311.0	14.4	18.9	40.0
54.280000	20.7	1000.0	120.000	100.0	V	268.0	14.0	19.3	40.0
95.480000	22.4	1000.0	120.000	100.0	V	227.0	11.0	17.6	40.0
119.080000	29.1	1000.0	120.000	100.0	V	109.0	13.4	10.9	40.0
178.480000	28.9	1000.0	120.000	100.0	V	69.0	13.6	11.1	40.0
217.680000	32.0	1000.0	120.000	100.0	V	184.0	12.4	8.0	40.0

# 30-300MHz Radiated Disturbance Test

## EUT Information

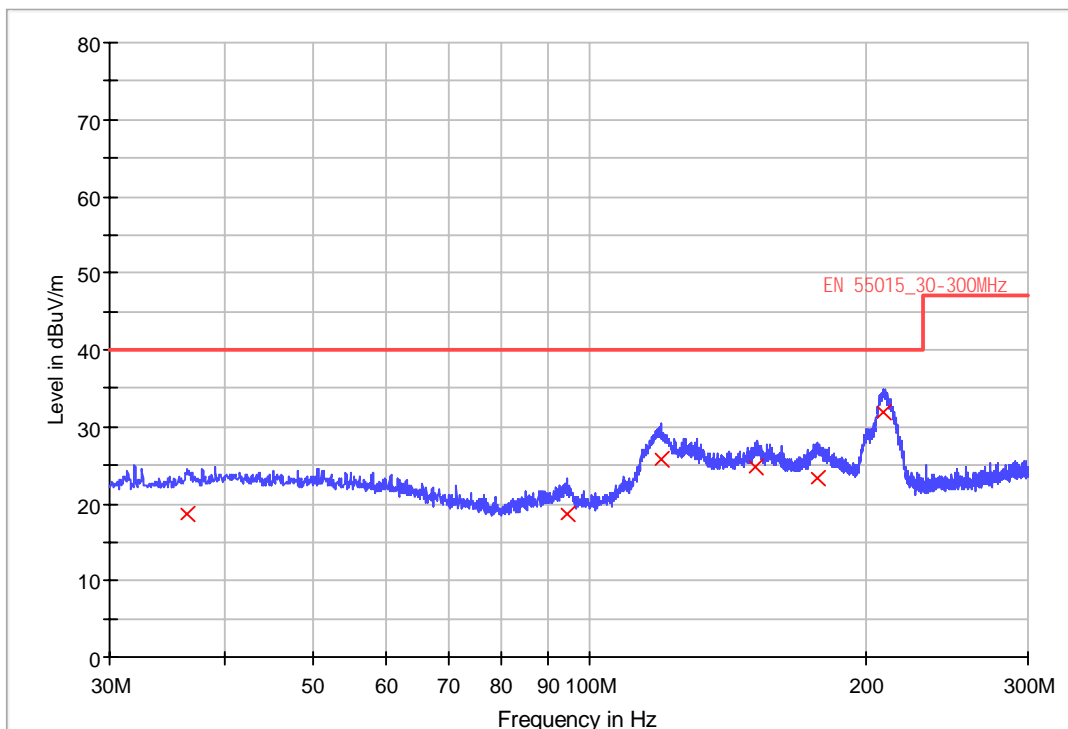
EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V 50Hz, T21.6, H49.2%, P103.1kPa  
 Operator: Shi chaojun  
 Test Spec: EN 55015  
 Comment: Horizontal  
 Sample No: SHA-502934-2

## Sweep Setup: RE\_VULB9168\_pre\_Cont\_30\_300 [EMI radiated]

Hardware Setup: RE\_VULB9168  
 Receiver: [ESR 3]  
 Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 300 MHz	50 kHz	PK+	120 kHz	0.005 s	20 dB

RE\_VULB9168\_pre\_Cont\_30\_300



## Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
36.400000	18.7	1000.0	120.000	200.0	H	102.0	14.2	21.3	40.0
94.360000	18.6	1000.0	120.000	200.0	H	265.0	10.9	21.4	40.0
119.480000	25.7	1000.0	120.000	200.0	H	71.0	13.5	14.3	40.0
151.280000	24.7	1000.0	120.000	200.0	H	93.0	15.7	15.3	40.0
176.600000	23.3	1000.0	120.000	200.0	H	184.0	13.9	16.7	40.0
208.280000	31.8	1000.0	120.000	200.0	H	204.0	12.0	8.2	40.0

# 30-300MHz Radiated Disturbance Test

## EUT Information

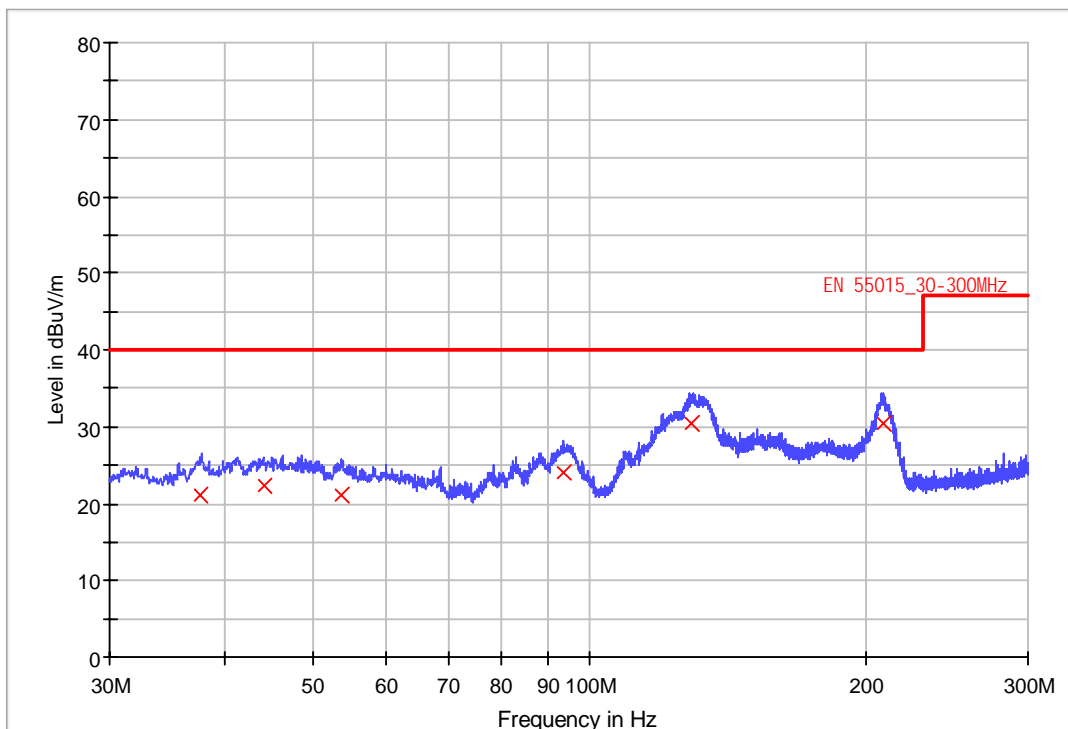
EUT Name: LED street lights  
 Model: EL-GL607-30  
 Client: Ningbo Skyzon Energy Co., Ltd  
 Op Cond: light on, AC230V 50Hz, T21.6, H49.2%, P103.1kPa  
 Operator: Shi chaojun  
 Test Spec: EN 55015  
 Comment: Vertical  
 Sample No: SHA-502934-2

## Sweep Setup: RE\_VULB9168\_pre\_Cont\_30\_300 [EMI radiated]

Hardware Setup: RE\_VULB9168  
 Receiver: [ESR 3]  
 Level Unit: dBuV/m

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 300 MHz	50 kHz	PK+	120 kHz	0.005 s	20 dB

RE\_VULB9168\_pre\_Cont\_30\_300



## Limit and Margin

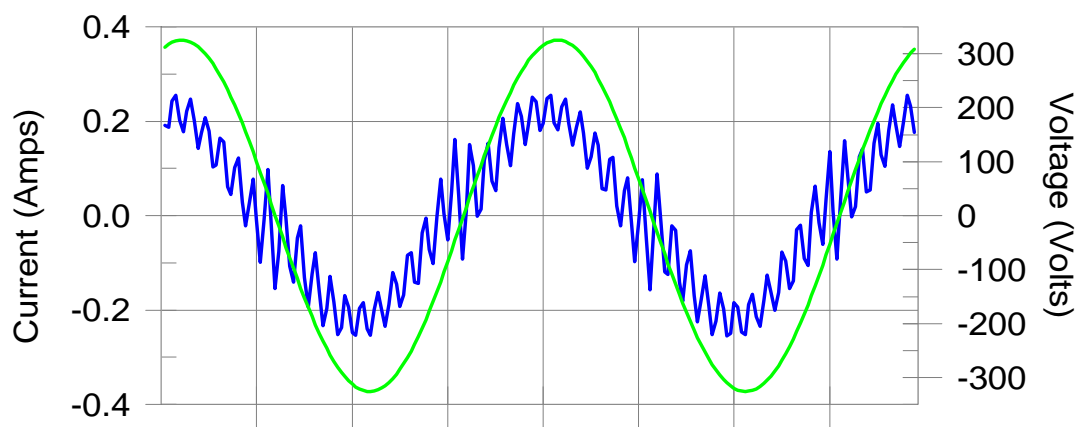
Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
37.640000	21.2	1000.0	120.000	100.0	V	162.0	14.4	18.8	40.0
44.080000	22.4	1000.0	120.000	100.0	V	51.0	14.4	17.6	40.0
53.600000	21.2	1000.0	120.000	100.0	V	79.0	14.1	18.8	40.0
93.440000	24.1	1000.0	120.000	100.0	V	206.0	10.8	16.0	40.0
129.040000	30.5	1000.0	120.000	100.0	V	132.0	14.2	9.5	40.0
208.280000	30.4	1000.0	120.000	100.0	V	85.0	12.0	9.6	40.0

## Harmonics – Class-C per Ed. 4.0 (2014)(Run time) incl. inter-harmonics

EUT: LED street lights  
 Test category: Class-C per Ed. 4.0 (2014) (European limits)  
 Test date: 7/9/2020 Start time: 7:39:24 PM End time: 7:42:16 PM  
 Test duration (min): 2.5 Data file name: H-000123.cts\_data  
 Comment: light on, EL-GL607-30, T23.5, H50.1%, P103.1kPa  
 Customer: Ningbo Skyzon Energy CO., Ltd

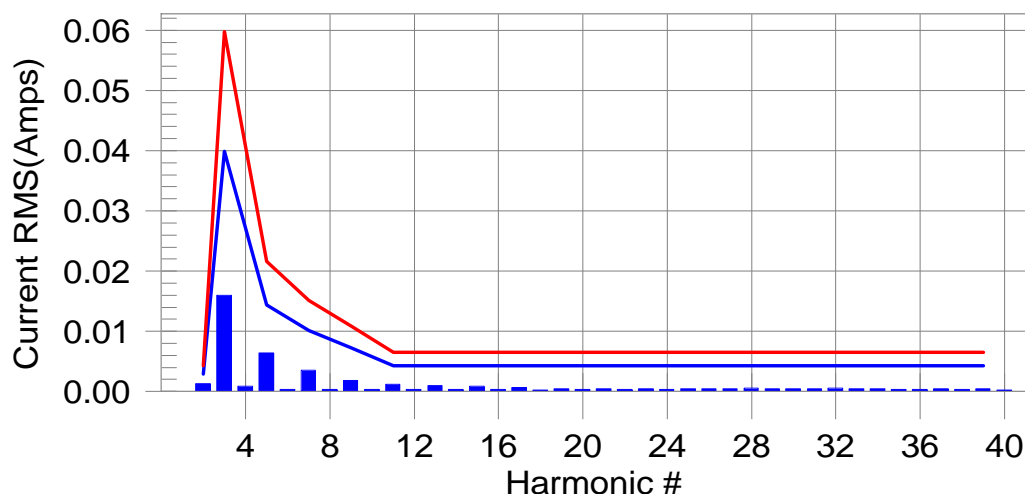
Test Result: Pass Source qualification: Normal

### Current & voltage waveforms



### Harmonics and Class C limit line

### European Limits



**Test result: Pass Worst harmonics H5-31.2% of 150% limit, H5-44.6% of 100% limit.**

## Current Test Result Summary (Run time)

EUT: LED street lights  
 Test category: Class-C per Ed. 4.0 (2014) (European limits)  
 Test date: 7/9/2020 Start time: 7:39:24 PM End time: 7:42:16 PM  
 Test duration (min): 2.5 Data file name: H-000123.cts\_data  
 Comment: light on, EL-GL607-30, T23.5, H50.1%, P103.1kPa  
 Customer: Ningbo Skyzon Energy CO., Ltd

Tested by: Shi Chaojun  
 Test Margin: 100  
 Test Result: Pass Source qualification: Normal  
 THCA: 0.018 I-THD(%): 12.5 POHC(A): 0.000 POHC Limit(A): 0.014

### Highest parameter values during test:

V_RMS (Volts): 230.24	Frequency(Hz): 50.00
I_Peak (Amps): 0.273	I_RMS (Amps): 0.154
I_Fund (Amps): 0.144	Crest Factor: 1.780
Power (Watts): 32.5	Power Factor: 0.920

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	0.003	N/A	0.001	0.004	N/A	Pass
3	0.016	0.040	40.1	0.017	0.060	28.4	Pass
4	0.001	0.000	N/A	0.001	0.000	N/A	Pass
5	0.006	0.014	44.6	0.007	0.022	31.2	Pass
6	0.000	0.000	N/A	0.000	0.000	N/A	Pass
7	0.004	0.010	N/A	0.004	0.015	N/A	Pass
8	0.000	0.000	N/A	0.000	0.000	N/A	Pass
9	0.002	0.007	N/A	0.002	0.011	N/A	Pass
10	0.000	0.000	N/A	0.000	0.000	N/A	Pass
11	0.001	0.004	N/A	0.001	0.006	N/A	Pass
12	0.000	0.000	N/A	0.000	0.000	N/A	Pass
13	0.001	0.004	N/A	0.001	0.006	N/A	Pass
14	0.000	0.000	N/A	0.000	0.000	N/A	Pass
15	0.001	0.004	N/A	0.001	0.006	N/A	Pass
16	0.000	0.000	N/A	0.000	0.000	N/A	Pass
17	0.001	0.004	N/A	0.001	0.006	N/A	Pass
18	0.000	0.000	N/A	0.000	0.000	N/A	Pass
19	0.000	0.004	N/A	0.001	0.006	N/A	Pass
20	0.000	0.000	N/A	0.000	0.000	N/A	Pass
21	0.000	0.004	N/A	0.000	0.006	N/A	Pass
22	0.000	0.000	N/A	0.000	0.000	N/A	Pass
23	0.001	0.004	N/A	0.001	0.006	N/A	Pass
24	0.000	0.000	N/A	0.000	0.000	N/A	Pass
25	0.001	0.004	N/A	0.001	0.006	N/A	Pass
26	0.000	0.000	N/A	0.001	0.000	N/A	Pass
27	0.001	0.004	N/A	0.001	0.006	N/A	Pass
28	0.001	0.000	N/A	0.001	0.000	N/A	Pass
29	0.001	0.004	N/A	0.001	0.006	N/A	Pass
30	0.000	0.000	N/A	0.001	0.000	N/A	Pass
31	0.000	0.004	N/A	0.001	0.006	N/A	Pass
32	0.001	0.000	N/A	0.001	0.000	N/A	Pass
33	0.000	0.004	N/A	0.000	0.006	N/A	Pass
34	0.000	0.000	N/A	0.001	0.000	N/A	Pass
35	0.000	0.004	N/A	0.000	0.006	N/A	Pass
36	0.000	0.000	N/A	0.000	0.000	N/A	Pass
37	0.000	0.004	N/A	0.000	0.006	N/A	Pass
38	0.000	0.000	N/A	0.000	0.000	N/A	Pass
39	0.000	0.004	N/A	0.001	0.006	N/A	Pass
40	0.000	0.000	N/A	0.000	0.000	N/A	Pass

## Voltage Source Verification Data (Run time)

EUT: LED street lights  
 Test category: Class-C per Ed. 4.0 (2014) (European limits)      Tested by: Shi Chaojun  
 Test date: 7/9/2020      Start time: 7:39:24 PM      Test Margin: 100  
 Test duration (min): 2.5      Data file name: H-000123.cts\_data      End time: 7:42:16 PM  
 Comment: light on, EL-GL607-30, T23.5, H50.1%, P103.1kPa  
 Customer: Ningbo Skyzon Energy CO., Ltd

Test Result: Pass      Source qualification: Normal

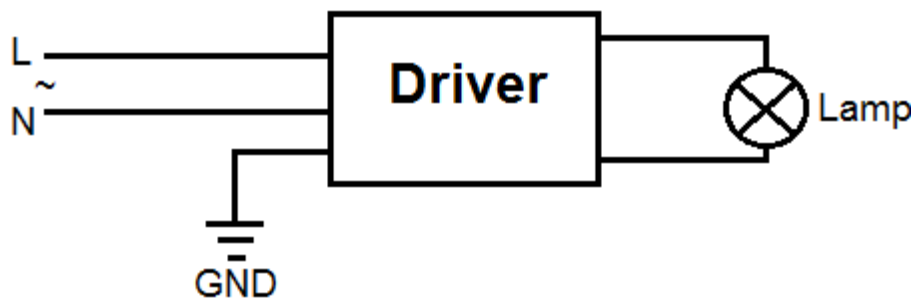
### Highest parameter values during test:

Voltage (Vrms): 230.24	Frequency(Hz): 50.00
I_Peak (Amps): 0.273	I_RMS (Amps): 0.154
I_Fund (Amps): 0.144	Crest Factor: 1.780
Power (Watts): 32.5	Power Factor: 0.920

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.077	0.460	16.69	OK
3	0.405	2.072	19.56	OK
4	0.053	0.460	11.60	OK
5	0.059	0.921	6.45	OK
6	0.011	0.460	2.45	OK
7	0.037	0.691	5.35	OK
8	0.018	0.460	3.95	OK
9	0.014	0.460	2.97	OK
10	0.017	0.460	3.65	OK
11	0.014	0.230	6.28	OK
12	0.011	0.230	4.65	OK
13	0.012	0.230	5.36	OK
14	0.006	0.230	2.75	OK
15	0.012	0.230	5.34	OK
16	0.008	0.230	3.49	OK
17	0.005	0.230	2.34	OK
18	0.007	0.230	2.90	OK
19	0.007	0.230	2.93	OK
20	0.013	0.230	5.53	OK
21	0.006	0.230	2.45	OK
22	0.006	0.230	2.42	OK
23	0.007	0.230	2.88	OK
24	0.003	0.230	1.31	OK
25	0.004	0.230	1.71	OK
26	0.003	0.230	1.13	OK
27	0.007	0.230	3.15	OK
28	0.004	0.230	1.86	OK
29	0.006	0.230	2.44	OK
30	0.003	0.230	1.49	OK
31	0.004	0.230	1.68	OK
32	0.004	0.230	1.55	OK
33	0.004	0.230	1.53	OK
34	0.002	0.230	0.89	OK
35	0.004	0.230	1.77	OK
36	0.002	0.230	1.03	OK
37	0.005	0.230	2.03	OK
38	0.003	0.230	1.10	OK
39	0.004	0.230	1.65	OK
40	0.006	0.230	2.67	OK

## Appendix B

Circuit Diagram



## Model list

Model	Rated power (W)	LED controlgear 1	LED controlgear 2	LED type
EL-SL11(Mini)-20	20	HLG-40H-36A/48A	EUC-026S070SVM EUC-026S050SVM	SMD
EL-SL11(Mini)-30	30	HLG-40H-36A/42A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	SMD
EL-SL11(Mini)-40	40	HLG-40H-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL11(S)-50	50	HLG-60H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL11(S)-60	60	HLG-60H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL11(S)-70	70	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL11(S)-80	80	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL11(M)-90	90	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL11(M)-100	100	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL11(M)-120	120	HLG-120H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL11(L)-150	150	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL11(L)-160	160	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL11(L)-180	180	HLG-185H-36A/42A ELG-200-36A/42A	EBD-200S560DV EUK-200S560DV/TV EUD-200S105DVA/BVA	SMD
EL-SL11(L)-200	200	HLG-240H-36A/42A ELG-200-36A/42A	EBD-200S560DV EUK-200S560DV/TV EUD-200S105DVA/BVA	SMD
EL-SL11(L)-220	220	HLG-240H-36A/42A ELG-240-36A/42A	EBD-240S560DV EUK-240S670DV/TV EUD-240S105DVA/BVA	SMD
EL-SL11(L)-240	240	HLG-240H-36A/42A ELG-240-36A/42A	EBD-240S560DV EUK-240S670DV/TV EUD-240S105DVA/BVA	SMD





China

EL-SL68(Mini)-20	20	HLG-40H-36A/48A	EUC-026S070SVM EUC-026S050SVM	SMD
EL-SL68(Mini)-30	30	HLG-40H-36A/42A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	SMD
EL-SL68(Mini)-40	40	HLG-40H-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL68(S)-40	40	HLG-40H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	
EL-SL68(S)-50	50	HLG-60H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL68(S)-60	60	HLG-60H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL68(S)-70	70	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL68(S)-80	80	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL68(M)-90	90	HLG-100H-36A/42A ELG-100-36A/42	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL68(M)-100	100	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL68(M)-120	120	HLG-120H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL68(L)-150	150	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL68(L)-160	160	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL68(L)-180	180	HLG-185H-36A/42A ELG-200-36A/42A	EBD-200S560DV EUK-200S560DV/TV EUD-200S105DVA/BVA	SMD
EL-SL68(L)-200	200	HLG-240H-36A/42A ELG-200-36A/42A	EBD-200S560DV EUK-200S560DV/TV EUD-200S105DVA/BVA	SMD
EL-SL68(L)-220	220	HLG-240H-36A/42A ELG-240-36A/42A	EBD-240S560DV EUK-240S670DV/TV EUD-240S105DVA/BVA	SMD
EL-SL68(L)-240	240	HLG-240H-36A/42A	EBD-240S560DV	SMD

		ELG-240-36A/42A	EUK-240S670DV/TV EUD-240S105DVA/BVA	
EL-SL20(S)-20	20	HLG-40H-36A/42A	EUC-026S070SVM EUC-026S050SVM	SMD
EL-SL20(S)-30	30	HLG-40H-36A/42A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	SMD
EL-SL20(S)-40	40	HLG-40H-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL20(M)-60	60	HLG-60H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL20(M)-80	80	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL20(M)-90	90	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL20(L)-100	100	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL20(L)-120	120	HLG-120H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL20(L)-150	150	HLG-185H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL20(L)-160	160	HLG-185H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL20(L)-180	180	HLG-185H-36A/42A ELG-200-36A/42A	EBD-200S560DV EUK-200S560DV/TV EUD-200S105DVA/BVA	SMD
EL-SL08(1S)-20	20	HLG-40H-48A	EUC-026S070SVM EUC-026S050SVM	COB
EL-SL08(1S)-30	30	HLG-40H-36A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	COB
EL-SL08(1S)-40	40	HLG-40H-36A	EUC-052S105SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	COB
EL-SL08(1S)-50	50	HLG-60H-36A/54A ELG-075-36A/54A	EUC-052S140SV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL08(1L)-60	60	HLG-60H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL08(1L)-70	70	HLG-80H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUK-075S280DV/TV EUK-075S175DV/TV	COB

EL-SL08(1L)-80	80	HLG-80H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUK-075S280DV/TV EUK-075S175DV/TV	COB
EL-SL08(2)-90	90	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB
EL-SL08(2)-100	100	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB
EL-SL08(2)-120	120	HLG-120H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL08(2)-150	150	HLG-150H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL08(3)-150	150	HLG-150H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL08(3)-180	180	HLG-185H-36A/54A ELG-200-36A/54A	EBD-200S560DV EUK-200S560DV/TV EUK-200S350DV/TV	COB
EL-SL08(3)-200	200	HLG-240H-36A/54A ELG-200-36A/54A	EBD-200S560DV EUK-200S560DV/TV EUK-200S350DV/TV	COB
EL-SL09(1S)-30	30	HLG-40H-36A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	COB
EL-SL09(1L)-50	50	HLG-60H-36A ELG-075-36A/54A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	COB
EL-SL09(1L)-60	60	HLG-60H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL09(1L)-80	80	HLG-80H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUK-075S280DV/TV EUK-075S175DV/TV	COB
EL-SL09(2)-100	100	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB
EL-SL09(2)-120	120	HLG-120H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL09(3)-120	120	HLG-150H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL09(3)-150	150	HLG-150H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL09(3)-180	180	HLG-185H-36A/54A ELG-200-36A/54A	EBD-200S560DV EUK-200S560DV/TV EUK-200S350DV/TV	COB
EL-SL09(4)-200	200	HLG-240H-36A/54A ELG-200-36A/54A	EBD-200S560DV EUK-200S560DV/TV EUK-200S350DV/TV	COB
EL-SL09(4)-240	240	HLG-240H-36A/54A ELG-240-36A/54A	EBD-240S660DV EUK-240S670DV/TV EUK-240S420DV/TV	COB

EL-SL09(4)-280	280	HLG-150H-36A/54AX2 ELG-150-36A/54AX2	EBD-150S420DVAX2 EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL10(1)-30	30	HLG-40H-36A/42A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	COB
EL-SL10(1)-40	40	HLG-40H-36A/42A	EUC-052S105SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	COB
EL-SL10(1)-50	50	HLG-60H-36A/54A ELG-075-36A/54A	EUC-052S140SV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL10(1)-60	60	HLG-60H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL10(1)-70	70	HLG-80H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUK-075S280DV/TV EUK-075S175DV/TV	COB
EL-SL10(1)-80	80	HLG-80H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUK-075S280DV/TV EUK-075S175DV/TV	COB
EL-SL10(2)-90	90	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB
EL-SL10(2)-100	100	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB
EL-SL10(2)-120	120	HLG-120H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL10(3)-150	150	HLG-150H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL10(3)-180	180	HLG-185H-36A/54A ELG-200-36A/54A	EBD-200S560DV EUK-200S560DV/TV EUK-200S350DV/TV	COB
EL-SL10(3)-200	200	HLG-240H-36A/54A ELG-200-36A/54A	EBD-200S560DV EUK-200S560DV/TV EUK-200S350DV/TV	COB
EL-SL18MA-20	20	HLG-40H-36A	EUC-026S070SVM EUC-026S050SVM EBS-040S070DTE EBS-040S070BTE	SMD
EL-SL18MA-30	30	HLG-40H-24A	EUC-036S140SV EUC-035S070SVM EUC-035S105SVM EBS-040S070DTE EBS-040S070BTE	SMD
EL-SL18MA-40	40	HLG-40H-30A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL18MA-50	50	HLG-60H-36A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM	SMD

			EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	
EL-SL18MA-60	60	HLG-60H-42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV EUD-075S070DV/BV	SMD
EL-SL18MA-70	70	HLG-80H-24A ELG-075-24A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL18MA-80	80	HLG-80H-36A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL18MA-90	90	HLG-100H-36A/42A ELG-100-36A/42	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL18MB-20	20	HLG-40H-48A	EUC-026S070SVM EUC-026S050SVM	COB
EL-SL18MB-30	30	HLG-40H-36A	EUC-036S070SV EUC-035S070SVM EUC-035S105SVM	COB
EL-SL18MB-40	40	HLG-40H-36A	EUC-052S105SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	COB
EL-SL18MB-50	50	HLG-60H-36A/54A ELG-075-36A/54A	EUC-052S140SV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL18MB-60	60	HLG-60H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUC-060S105SVM EUC-060S180SVM EUK-075S175DV/TV	COB
EL-SL18LA-90	90	HLG-100H-36A/42A ELG-100-36A/42	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL18LA-100	100	HLG-100H-36A/42A ELG-100-36A/42	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL18LA-120	120	HLG-120H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S350DV/TV EUD-150S105DVA/BVA	SMD
EL-SL18LA-150	150	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL18LA-160	160	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-SL18LB-80	80	HLG-80H-36A/54A ELG-075-36A/54A	EBD-075S250DV EUK-075S280DV/TV EUK-075S175DV/TV	COB
EL-SL18LB-90	90	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB
EL-SL18LB-100	100	HLG-100H-36A/54A ELG-100-36A/54A	EBD-100S280DV EUK-096S350DV/TV EUK-096S210DV/TV	COB

EL-SL18LB-120	120	HLG-120H-36A/54A ELG-150-36A/54A	EBD-150S420DVA EUK-150S560DV/TV EUK-150S350DV/TV	COB
EL-SL58(S)-20	20	HLG-40H-36A/48A	EUC-026S070SVM EUC-026S050SVM	SMD
EL-SL58(S)-30	30	HLG-40H-36A/42A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	SMD
EL-SL58(S)-40	40	HLG-40H-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL58(S)-50	50	HLG-60H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUD-075S070DV/BV	SMD
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EL-SL58-30	30	HLG-40H-36A	EUC-036S105SV EUC-036S070SV EUC-035S070SVM EUC-035S105SVM	SMD
EL-SL58-40	40	HLG-40H-30A/36A	EUC-052S EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL58-50	50	HLG-60H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL58-60	60	HLG-60H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL58-70	70	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL58-80	80	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL58-90	90	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL58-100	100	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL58-120	120	HLG-120H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD
EL-GL01-20	20	HLG-40H-54A	EUC-026S070SVM	SMD



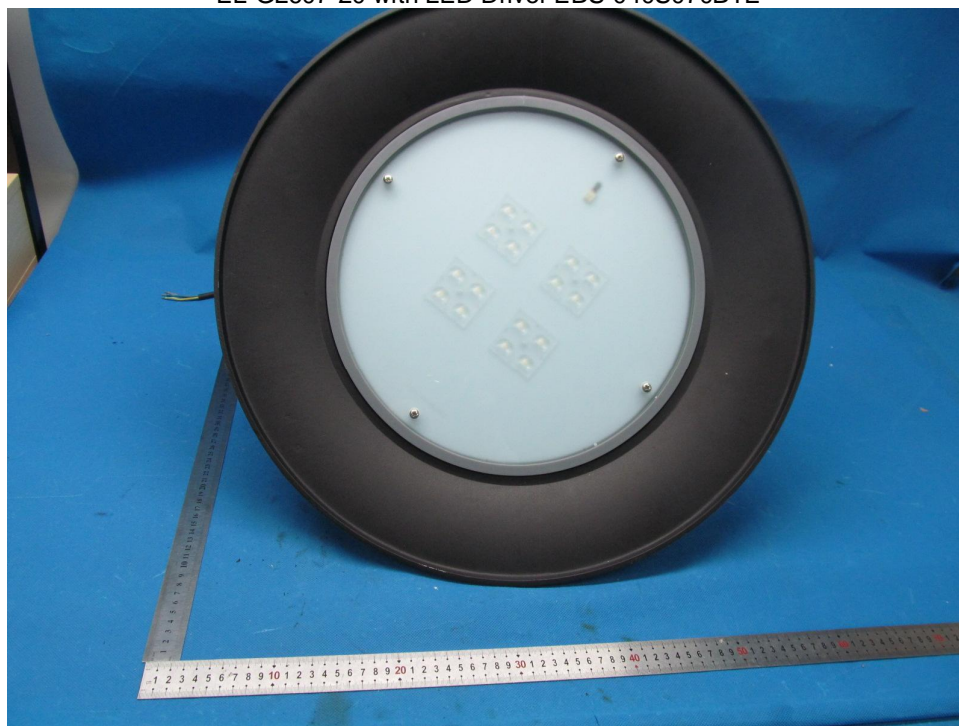
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EL-GL01-50	50	HLG-60H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-GL01-60	60	HLG-60H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-GL01-80	80	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-GL01-100	100	HLG-100H-36A/42A ELG-100-36A/42A	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL20A(S)-30	30	HLG-40H-24A/36A	EUC-036S105SV EUC-035S070SVM EUC-035S105SVM	SMD
EL-SL20A(S)-40	40	HLG-40H-30A/36A	EUC-052S EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM	SMD
EL-SL20A(S)-50	50	HLG-60H-36A/42A ELG-075-36A/42A	EUC-052S140SV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL20A(M)-60	60	HLG-60H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUC-060S070SVM EUC-060S105SVM EUC-060S180SVM EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL20A(M)-80	80	HLG-80H-36A/42A ELG-075-36A/42A	EBD-075S250DV EUK-075S280DV/TV EUD-075S070DV/BV	SMD
EL-SL20A(M)-90	90	HLG-100H-36A/42A ELG-100-36A/42	EBD-100S280DV EUK-096S350DV/TV EUD-096S070DVA/BVA	SMD
EL-SL20A(L)-100	100	HLG-100H-36A/42A ELG-100-36A/42	EBD-100S280DV EUK-096S350DV/TV	SMD
EL-SL20A(L)-120	120	HLG-120H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-096S070DVA/BVA	SMD
EL-SL20A(L)-150	150	HLG-150H-36A/42A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD

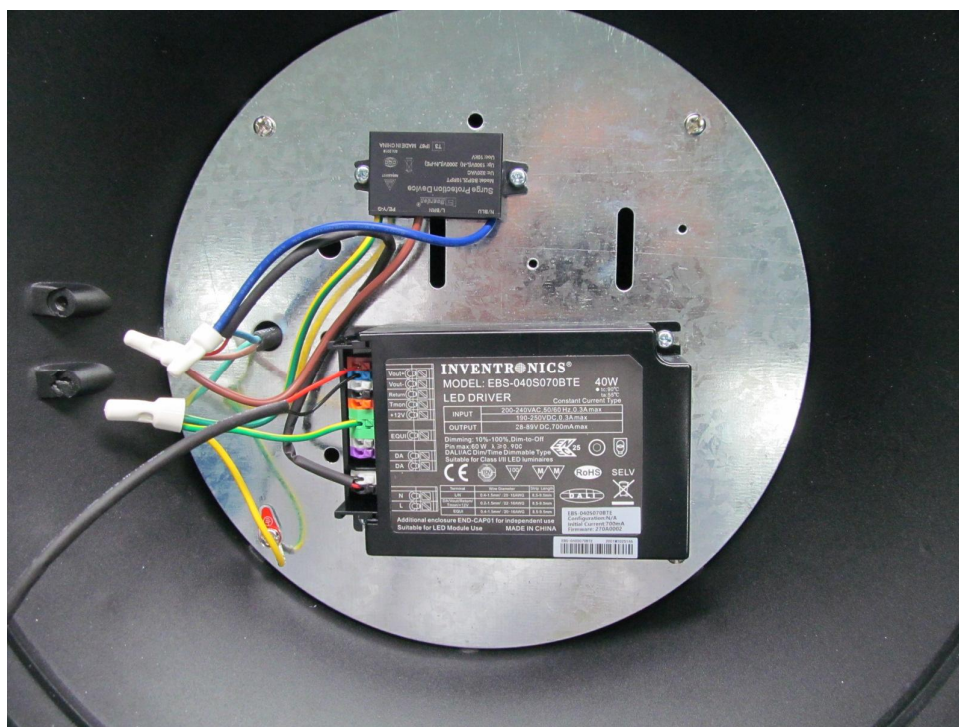
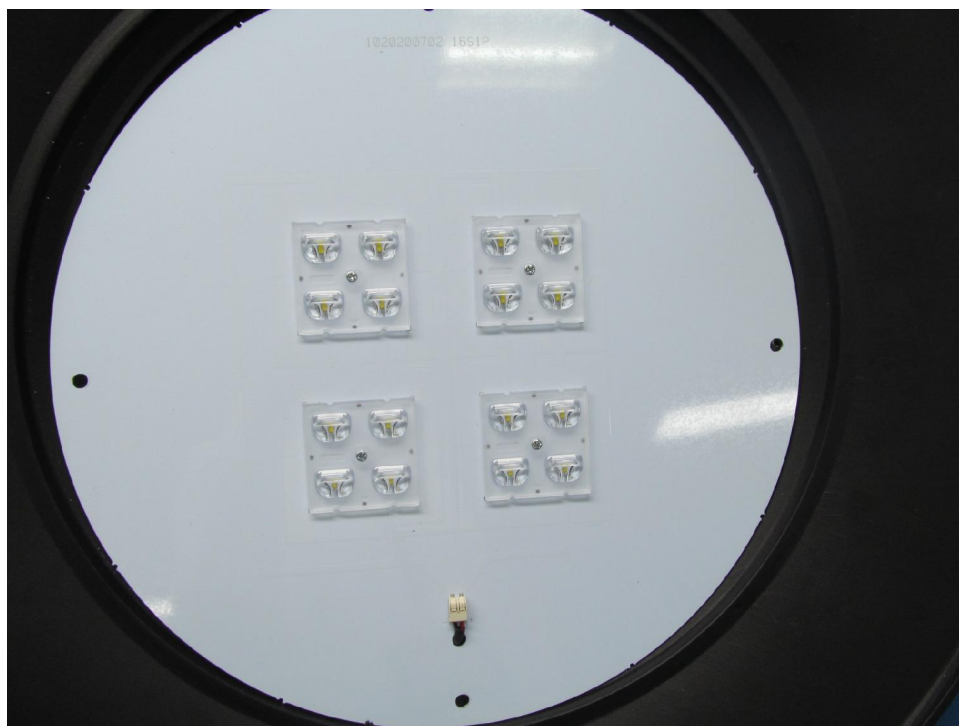
EL-SL20A(L)-160	160	HLG-185H-36A ELG-150-36A/42A	EBD-150S420DVA EUK-150S560DV/TV EUD-150S105DVA/BVA	SMD	China
EL-SL68(Mini)-20	20	SS-30VA-56 SS-30VA-56B	--	SMD	
EL-SL68(Mini)-30	30	SS-30VA-56 SS-30VA-56B	--	SMD	
EL-SL68(Mini)-40	40	SS-50VA-56 SS-50VA-56B	--	SMD	
EL-SL68(Mini)-50	50	SS-50VA-56 SS-50VA-56B	--	SMD	
EL-SL68(S)-40	40	SS-50VA-56 SS-50VA-56B	--	SMD	
EL-SL68(S)-50	50	SS-50VA-56 SS-50VA-56B	--	SMD	
EL-SL68(S)-60	60	SS-75VA-56 SS-75VA-56B	--	SMD	
EL-SL68(S)-70	70	SS-75VA-56 SS-75VA-56B	--	SMD	
EL-SL68(S)-80	80	SS-75VA-56 SS-75VA-56B	--	SMD	
EL-SL68(S)-90	90	SS-100VA-56 SS-100VA-56B	--	SMD	
EL-SL68(S)-100	100	SS-100VA-56 SS-100VA-56B	--	SMD	
EL-SL68(M)-90	90	SS-100VA-56 SS-100VA-56B	--	SMD	
EL-SL68(M)-100	100	SS-100VA-56 SS-100VA-56B	--	SMD	
EL-SL68(M)-120	120	SS-150VA-56 SS-150VA-56B	--	SMD	
EL-SL68(M)-150	150	SS-150VA-56 SS-150VA-56B	--	SMD	
EL-SL68(L)-150	150	SS-150VA-56 SS-150VA-56B	--	SMD	
New added models and LED Driver					
EL-GL607-15	15W	EBS-040S070DTE EBS-040S070BTE		COB	
<b>EL-GL607-20</b>	20W	EBS-040S070DTE <b>EBS-040S070BTE</b>		COB	
EL-GL607-25	25W	EBS-040S070DTE EBS-040S070BTE		COB	
<b>EL-GL607-30</b>	30W	EBS-040S070DTE <b>EBS-040S070BTE</b>		COB	



## Appendix C

### Constructional Photographs EL-GL607-20 with LED Driver EBS-040S070BTE

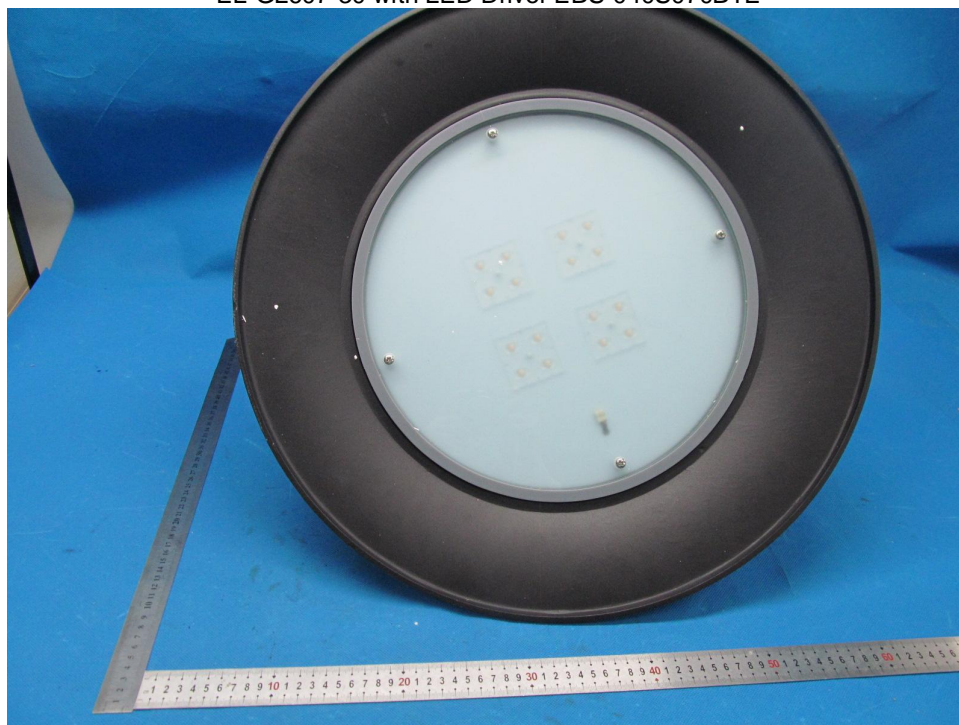




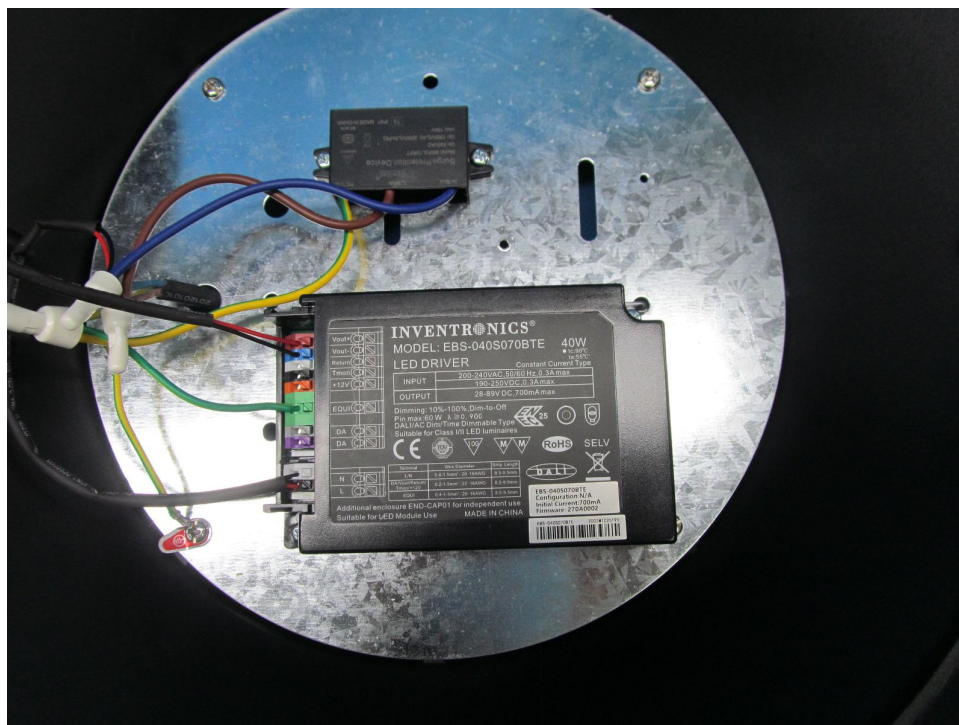




EL-GL607-30 with LED Driver EBS-040S070BTE









# Amendment – EMC IMMUNITY TEST REPORT

(Supplement to test report 7088815111904-00)

Report Number : 7088815111904-05-Part 2 Date of Issue: July 17, 2020

Model : Refer to EMC EMISSION TEST REPORT Appendix B Model list

Product Type : LED street lights

Applicant : Ningbo Skyzon Energy Co.,Ltd.

Manufacturer : Ningbo Skyzon Energy Co.,Ltd.

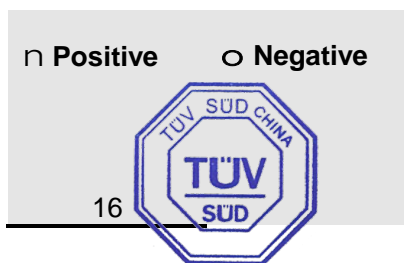
Factory : Ningbo Skyzon Energy Co.,Ltd.

License Holder : Ningbo Skyzon Energy Co.,Ltd.

Address : No.19, KeSan Road, 315600 Ninghai, Ningbo

: PEOPLE'S REPUBLIC OF CHINA

Test Result :



Total Pages including  
Appendices

*TÜV SÜD CERTIFICATION AND TESTING (CHINA) CO., LTD. SHANGHAI BRANCH reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch issued reports.*

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China

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Product Information Forms	N/A
<b>D) Appendix B</b>	
Photo Documents of EUT	N/A

Note: N/A means Not Applicable.





China

## IMMUNITY TEST REGULATIONS:

The immunity tests were performed according to the following regulations:

n - EMC - Directive 2014/30/EU

- 
- - EN 61000-6-1: 2007
- - EN 61000-6-2: 2005
- - EN 55014-2: 2015
- - EN 55020: 2007+A11: 2011
- - EN 55024: 2010
- - EN 61326-1: 2013
- n - EN 61547: 2009
- 

- n - IEC 61000-4-2: 2008
- n - IEC 61000-4-3: 2006+A1:2007+A2:2010
- n - IEC 61000-4-4: 2012
- n - IEC 61000-4-5: 2014
- n - IEC 61000-4-6: 2013
- - IEC 61000-4-8: 2003
- n - IEC 61000-4-11: 2004

## Symbol Definitions:

- n - Applicable
- - Not Applicable



China

## Environmental Conditions in the Laboratory:

	<u>Actual</u>
Temperature	: 20-25 °C
Relative Humidity	: 40-60 %
Atmospheric Pressure	: 1000-1040 mBar

## Power Supply Utilized:

Power supply system : 220-240V~ / 50/60Hz / 1Ø

## Test Site:

TÜV SÜD CERTIFICATION AND TESTING (CHINA) CO., LTD. SHANGHAI BRANCH  
No.16, Lane 1951, Duhui Road, 201108 Shanghai, People's Republic of China

## Symbol Definitions:

n - Applicable

○ - Not Applicable

Note: For undated references, the latest edition of the publication at the time of testing (including amendments) was applied.

## Immunity Test Conditions: ELECTROSTATIC DISCHARGE (ESD)

The immunity against *ELECTROSTATIC DISCHARGE (ESD)* events was performed in the following location:

☐ - Test not applicable

### Test Equipment Used:

Model Number	Manufacturer	Description	TÜV PS Number
n - ONYX 16	HAEFELY	ESD Simulator	S1905298-YQ-EMC
n - ---	TÜV Product Service	Horizontal Coupling Plane	---
n - ---	TÜV Product Service	Vertical Coupling Plane	---
n - ZJ1-2A	Shanghai Meteorological Instrument	T/H Record	S1503201-YQ-EMC

Remarks: Test equipment used is calibrated on a regular basis.

### Test Specification:

<u>Discharge Voltage (Air):</u>	n - 2 kV	n - 6 kV	<input type="radio"/> - 15 kV
	n - 4 kV	n - 8 kV	<input type="radio"/> - _ kV
<u>Discharge Voltage (Contact):</u>	n - 2 kV	<input type="radio"/> - 6 kV	<input type="radio"/> - _ kV
	n - 4 kV	<input type="radio"/> - 8 kV	
<u>Discharge Impedance:</u>	n - 330 W/ 150 pF	<input type="radio"/> - 150 W/ 150 pF	
<u>Discharge Repetition Rate:</u>	n - <sup>3</sup> 1 sec.		
<u>Number of Discharges:</u>	n - <sup>3</sup> 10 at all locations		
<u>Kind of Discharges:</u>	n - Air discharge	n - Conducted discharge (relay)	
	n - Direct	n - Indirect	
<u>Polarity:</u>	n - Positive	n - Negative	
<u>Location of Discharge:</u>	<input type="radio"/> - See Data Record(s) in Appendix A n - Each location on the surface touchable by hand <input type="radio"/> - See drawing in Appendix A n - HCP, VCP		

### Result:

n - No degradation of function	- Met Criterion A
<input type="radio"/> - Distortion of function	- Met Criterion B
<input type="radio"/> - Error of function	- Met Criterion C
<input type="radio"/> - Loss of function	- Unrecoverable Failure

Remarks: \_\_\_\_\_

## Immunity Test Conditions: RADIATED ELECTROMAGNETIC FIELD

The immunity against *RADIATED ELECTROMAGNETIC FIELDS* exposure was performed in the following location:

☐ - Test not applicable

### Test Equipment Used:

Model Number	Manufacturer	Description	TÜV PS Number
n - SMB100A	Rohde & Schwarz	Signal Generator	S1503055-YQ-EMC
n - 1000W1000EM1	AR	Amplifier	S1503076-YQ-EMC
n - NRP2	Rohde & Schwarz	Power Meter	S1503062-YQ-EMC
<input type="radio"/> - 125S1G4	AR	Amplifier	S1503078-YQ-EMC
n - DC6280AM1	AR	Dual Directional Coupler	S1503077-YQ-EMC
<input type="radio"/> - DC7144A	AR	Dual Directional Coupler	S1503079-YQ-EMC
n - HL046E	Rohde & Schwarz	High Gain Log-Per Antenna	S1503083-SB-EMC
<input type="radio"/> - STLP9149	Schwarzbeck	Stacked Double Log-Per Antenna	S1503082-SB-EMC
n - NRP-Z91	Rohde & Schwarz	Wideband Power Sensor	S1503068-YQ-EMC
n - NRP-Z91	Rohde & Schwarz	Wideband Power Sensor	S1503069-YQ-EMC

Remarks: Test equipment used is calibrated on a regular basis.

### Test Specification:

Frequency Range: ☐ - 27 MHz - 500 MHz ☐ - 26 MHz - 1000 MHz  
☐ - 9 kHz - 27 MHz ☐ - 80 MHz - 1000 MHz

Field Strength: ☐ - 1 V/m ☐ - 3 V/m  
☐ - 10 V/m ☐ - \_ V/m

Distance Antenna - EUT: ☐ - 1 m ☐ - 3 m

Modulation: n - AM: 80 % 1 kHz  
☐ - FM: \_ kHz dev. \_ kHz  
n - Sine wave:  
☐ - Unmodulated  
☐ - Pulse ON/OFF Duty Cycle: \_ %

Step: n - 1%

Dwell time: n - 3 sec

Polarization of Antenna: n - Horizontal n - Vertical

### Result:

n - No degradation of function - Met Criterion A  
☐ - Distortion of function - Met Criterion B  
☐ - Error of function - Met Criterion C  
☐ - Loss of function - Unrecoverable Failure

Remarks: \_\_\_\_\_

## Immunity Test Conditions: FAST TRANSIENTS (BURST)

The immunity against *FAST TRANSIENTS (BURST)* events was performed in the following location:

☐ - Test not applicable

### Test Equipment Used:

Model Number	Manufacturer	Description	TÜV PS Number
n - UCS500N5T	EM TEST	Ultra Compact Simulator	S1503171-YQ-EMC
<input type="radio"/> - HFK	EM TEST	Capacitive Coupling Clamp	S1503173-YQ-EMC
<input type="radio"/> - CNI503A	EM TEST	3- phase Coupling/Decoupling Network	S1503172-YQ-EMC

Remarks: Test equipment used is calibrated on a regular basis.

### Test Specification:

<u>Pulse Amplitude - AC Power Port:</u>	n - 1,0 kV <input type="radio"/> - 4,0 kV	<input type="radio"/> - 2,0 kV <input type="radio"/> - ____ kV	
<u>Pulse Amplitude - DC Power Port:</u>	<input type="radio"/> - 1,0 kV <input type="radio"/> - 4,0 kV	<input type="radio"/> - 2,0 kV <input type="radio"/> - ____ kV	
<u>Pulse Amplitude - Signal/Data Non control Port:</u>	<input type="radio"/> - 0,5 kV <input type="radio"/> - 2,0 kV	<input type="radio"/> - 1,0 kV <input type="radio"/> - ____ kV	
<u>Pulse Amplitude - Process: Measurement &amp; Control Port</u>	<input type="radio"/> - 0,5 kV <input type="radio"/> - 2,0 kV	<input type="radio"/> - 1,0 kV <input type="radio"/> - ____ kV	
<u>Burst Frequency:</u>	<input type="radio"/> - 2,5 kHz	n - 5,0 kHz <input type="radio"/> - ____ kHz	
<u>Time of Coupling:</u>	<input type="radio"/> - 60 seconds	n - 120 seconds	
<u>Coupling Method:</u>	n - Coupling/decoupling network	<input type="radio"/> - Coupling clamp	
<u>Polarity:</u>	n - Positive	n - Negative	



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## Immunity Test Conditions: FAST TRANSIENTS (BURST), continued

### Location of Coupling:

Name of lines:	<u>Input A.C. power line</u>	
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital
Length of lines:	<u>0.5m</u>	

Name of lines:	<u></u>	
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital
Length of lines:	<u></u>	

Name of lines:	<u></u>	
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital
Length of lines:	<u></u>	

### **Result:**

<input type="radio"/> - No degradation of function	- Met Criterion A
<input type="radio"/> - Distortion of function	- Met Criterion B
<input type="radio"/> - Error of function	- Met Criterion C
<input type="radio"/> - Loss of function	- Unrecoverable Failure

Remarks: \_\_\_\_\_

\_\_\_\_\_



China

**Immunity Test Conditions: SURGE TRANSIENTS**

The immunity against <i>SURGE TRANSIENTS</i> events was performed in the following location:
--

<input type="radio"/> - Test not applicable
---

**Test Equipment Used:**

Model Number	Manufacturer	Description	TÜV PS Number
n - UCS500N5T	EM TEST	Ultra Compact Simulator	S1503171-YQ-EMC
<input type="radio"/> - CNI503A	EM TEST	3-phase Coupling/Decoupling Network	S1503172-YQ-EMC
<input type="radio"/> - CNV504N1	EM TEST	Coupling/Decoupling Network for Surge to Signal and Detalines	S1503174-YQ-EMC

**Remarks: Test equipment used is calibrated on a regular basis.****Test Specification:**

<u>Pulse Amplitude - AC Power Port:</u>	<input checked="" type="radio"/> - 0,5 kV (phase and phase) (phase and neutral) n - 1,0 kV	<input checked="" type="radio"/> - 1,0 kV (phase and protective earth) (neutral and protective earth) n - 2,0 kV
<u>Pulse Amplitude - DC Power Port:</u>	<input type="radio"/> - 1,0 kV <input type="radio"/> - 4,0 kV	<input type="radio"/> - 2,0 kV <input type="radio"/> - ____ kV
<u>Pulse Amplitude - Signal/Data Non control Port:</u>	<input type="radio"/> - 0,5 kV <input type="radio"/> - 2,0 kV	<input type="radio"/> - 1,0 kV <input type="radio"/> - ____ kV
<u>Pulse Amplitude - Process: Measurement &amp; Control Port</u>	<input type="radio"/> - 0,5 kV <input type="radio"/> - 2,0 kV	<input type="radio"/> - 1,0 kV <input type="radio"/> - ____ kV
<u>Source Impedance:</u>	n - 2 W+ 18 µF (phase and phase) (phase and neutral) <input type="radio"/> - 42 W+ 0,1 µF	n - 12 W+ 9 µF (phase and protective earth) (neutral and protective earth) <input type="radio"/> - 42 W+ 0,5 µF
<u>Number of Surges:</u>	n - 5 surges/angle	<input type="radio"/> - __ surges /angle
<u>Angle:</u>	<input type="radio"/> - 0 ° n - 270 °	n - 90 °
<u>Repetition Rate:</u>	n - 60 sec.	<input type="radio"/> - ____ sec.
<u>Polarity:</u>	n - Positive	n - Negative



China

## Immunity Test Conditions: SURGE TRANSIENTS, continued

### Location of Coupling:

Name of lines:	Input A.C. power line		
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded	
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active	
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital	
Length of lines:	1m		

Name of lines:			
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded	
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active	
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital	
Length of lines:			

Name of lines:			
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded	
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active	
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital	
Length of lines:			

### **Result:**

<input type="radio"/> - No degradation of function	- Met Criterion A
<input type="radio"/> - Distortion of function	- Met Criterion B
<input type="radio"/> - Error of function	- Met Criterion C
<input type="radio"/> - Loss of function	- Unrecoverable Failure

Remarks: For model EL-GL607-20, 0.5kV and 1kV;

For model EL-GL607-30, 1kV and 2kV.





The immunity against *CONDUCTED DISTURBANCE* events, induced by radio frequency fields above 9 kHz, was performed in the following location:

### Test Equipment Used:

**Remarks:** Test equipment used is calibrated on a regular basis.

<u>Voltage Level (EMF):</u>	<input type="radio"/> - 1 V <input type="radio"/> - 10 V	<input type="radio"/> - 3 V <input type="radio"/> - __ V	
<u>Modulation:</u>	<input type="radio"/> - AM : <input type="radio"/> - FM : <input type="radio"/> - Sine wave: <input type="radio"/> - Unmodulated <input type="radio"/> - Pulse	__ kHz dev. ON/OFF	<u>80</u> % <u>1</u> kHz __ kHz Duty Cycle: __ %
<u>Step:</u>	<input type="radio"/> - 1%		
Dwell time:	<input type="radio"/> - 3 sec		



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## Immunity Test Conditions: CONDUCTED DISTURBANCE, continued

### Location of Coupling:

Name of lines:	Input A.C. power line	
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital
Length of lines:	0.3m	

Name of lines:		
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital
Length of lines:		

Name of lines:		
Type of lines:	<input type="radio"/> - shielded	<input type="radio"/> - unshielded
Status of lines:	<input type="radio"/> - passive	<input type="radio"/> - active
Kind of transmission:	<input type="radio"/> - analog	<input type="radio"/> - digital
Length of lines:		

### **Result:**

<input type="radio"/> - No degradation of function	- Met Criterion A
<input type="radio"/> - Distortion of function	- Met Criterion B
<input type="radio"/> - Error of function	- Met Criterion C
<input type="radio"/> - Loss of function	- Unrecoverable Failure

Remarks: \_\_\_\_\_

\_\_\_\_\_

## Immunity Test Conditions: POWER FREQUENCY MAGNETIC FIELD

The immunity against *POWER FREQUENCY MAGNETIC FIELD* exposure, induced by power frequency magnetic fields, was performed in the following location:

n - Test not applicable

### Test Equipment Used:

Model Number	Manufacturer	Description	TÜV PS Number
<input type="radio"/> - UCS500N5T	EM TEST	Ultra Compact Simulator	S1503171-YQ-EMC
<input type="radio"/> - MS100N	EM TEST	Magnetic Field Coil	S1503177-YQ-EMC
<input type="radio"/> - MC2630	EM TEST	Current Transformer	S1503176-YQ-EMC

Remarks: Test equipment used is calibrated on a regular basis.

### Test Specification:

<u>Frequency Range:</u>	<input type="radio"/> - 50 Hz	<input type="radio"/> - 60 Hz	<input type="radio"/> - 400 Hz
<u>Field level (EMF):</u>	<input type="radio"/> - 1 A/m <input type="radio"/> - 30 A/m	<input type="radio"/> - 3 A/m <input type="radio"/> - 100 A/m	<input type="radio"/> - 10 A/m <input type="radio"/> - ____ A/m
<u>Short Field (1-3 sec):</u>	<input type="radio"/> - 300 A/m	<input type="radio"/> - 1000 A/m	<input type="radio"/> - ____ A/m
<u>Duration:</u>	<input type="radio"/> - ____ seconds		
<u>Axis of Orientation:</u>	<input type="radio"/> - X-axis	<input type="radio"/> - Y-axis	<input type="radio"/> - Z-axis

### Result:

- |  |                         |
|--|-------------------------|
| <input type="radio"/> - No degradation of function | - Met Criterion A       |
| <input type="radio"/> - Distortion of function     | - Met Criterion B       |
| <input type="radio"/> - Error of function          | - Met Criterion C       |
| <input type="radio"/> - Loss of function           | - Unrecoverable Failure |

Remarks: \_\_\_\_\_

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## Immunity Test Conditions: VOLTAGE DIPS, INTERRUPTIONS & VARIATIONS

The immunity against *VOLTAGE DIPS, INTERRUPTIONS & VARIATIONS* events, induced by radio frequency fields above 9 kHz, was performed in the following location:

☐ - Test not applicable

### Test Equipment Used:

Model Number	Manufacturer	Description	TÜV PS Number
n - UCS500N5T	EM TEST	Ultra Compact Simulator	S1503171-YQ-EMC
n - MV2616	EM TEST	Motor Driven AC Source	S1503175-YQ-EMC

Remarks: Test equipment used is calibrated on a regular basis.

### Test Specification:

Nominal Mains Voltage ( $U_T$ ):      n - 230 V<sub>AC</sub>      ☐ - \_\_\_\_ V<sub>AC</sub>      ☐ - \_\_\_\_ V<sub>DC</sub>

Level of Reduction (dip):      ☐ - 500 ms voltage dips in 30% of  $U_T$   
☐ - 200 ms voltage dips in 60% of  $U_T$   
n - 200 ms voltage dips in 30% of  $U_T$

Duration of Interruption ( $>.95 \cdot U_T$ ):      ☐ - 5000 ms      n - 10 ms

Voltage Fluctuation:      ☐ -  $U_T + 10\%$       ☐ -  $U_T - 10\%$

### Result:

- |  |                         |
|--|-------------------------|
| <input type="radio"/> - No degradation of function           | - Met Criterion A       |
| <input checked="" type="checkbox"/> - Distortion of function | - Met Criterion B       |
| <input type="radio"/> - Error of function                    | - Met Criterion C       |
| <input type="radio"/> - Loss of function                     | - Unrecoverable Failure |

Remarks: During the test of voltage dips and interruption, the EUT got flashed, when adding the disturbance,  
Once removing the disturbance, the EUT restored to its normal status by itself

## Equipment under Test (EUT) Test Operation Mode - Immunity Tests:

The equipment under test was operated under the following conditions during immunity testing:

- ☐ - Standby
- ☐ - Test Program (H - Pattern)
- ☐ - Test Program (Color Bar)
- ☐ - Test Program (Customer Specified)
- ☐ - Normal Operating Mode

☐ - Light on.

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### Configuration of the equipment under test:

- ☐ - See Constructional Data Form in Appendix A
- ☐ - See Product Information Form(s) in Appendix A

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

- |                               |             |
|-------------------------------|-------------|
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |
| <input type="radio"/> - _____ | Type: _____ |

☐ - Unshielded power cable

☐ - Unshielded cables

☐ - Shielded cables

TUVPS. No.: \_\_\_\_\_

☐ - Customer specific cables

☐ - \_\_\_\_\_

☐ - \_\_\_\_\_

## GENERAL REMARKS:

**NOTICE:** This report is a SUPPLEMENT OF PROJECT 7088815111904-00&7088815111904-01&7088815111904-02&7088815111904-03 and 7088815111904-04. So, this report is not valid without the report of 7088815111904-00&7088815111904-01&7088815111904-02&7088815111904-03 and 7088815111904-04.

According to client's request:

1. the Applicant, Manufacturer and License Holder were changed from Everlite LED Lighting Co., Limited (Room 2105, Trend Centre, 29-31, Cheung Lee Street, Chaiwan, Hong Kong) to Ningbo Skyzon Energy Co.,Ltd.( No.19,KeSan Road, 315600 Ninghai, Ningbo, PEOPLE'S REPUBLIC OF CHINA).
2. New alternative LED chips was added.
3. Four new models EL-GL607-15, EL-GL607-20, EL-GL607-25 and EL-GL607-30 are added on the E8A attestation.
4. new two kinds of LED drivers EBS-040S070DTE and EBS-040S070BTE are added, LED Drivers EBS-040S070DTE and EBS-040S070BTE have same circuit diagram and PCB Layout, The light-regulating control port of LED Driver is only for manufactory's initial setting, details refer to model list of Appendix B of 7088815111904-05-Part 1

So the followed models were chosen to perform all tests.

Model	LED Driver	Sample No.
EL-GL607-20	EBS-040S070BTE	SHA-502934-1
EL-GL607-30	EBS-040S070BTE	SHA-502934-2

New added LED chips

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity <sup>1)</sup>
LED chips	CREE	XP-G3 LEDs	Vf=2.73-3.06V; If=Max.2000Ma; 2700-6500K	IEC TR62778 EN62471	Test with appliance

## SUMMARY:

All tests according to the regulations cited on page 3 were

n - Performed

o - **Not** Performed

The Equipment under Test

n - **Fulfills** the general approval requirements cited on page 3.

o - **Does not** fulfill the general approval requirements cited on page 3.

Testing Start Date: July 03, 2020

Testing End Date: July 09, 2020

- TÜV SÜD CERTIFICATION AND TESTING (CHINA) CO., LTD. SHANGHAI BRANCH -

Reviewed by:

Prepared by:



July 17, 2020




July 17, 2020

Yong ZHANG  
Review Engineer

Yongqing ZHENG  
Project Engineer