EMC EMISSION - TEST REPORT

Report Number	:	**64.740.18.07644.01 – (E)**	Date of Issue:	2019-04-25
Model / Serial No.	:	Please refer to appendix B for model list		
Product Type	:	Fixed general purpose luminaires (LED Fixed Luminaire)		
Applicant	:	Profolux bv led supplier		
Manufacturer	:	Profolux bv led supplier		
Address	:	Van Leeuwenhoekweg 8, 5482 TK Schijndel, Nederland		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	43		

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DIRECTORY - EMISSIONS

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EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to the following regulations:

■ - EMC - Directive 2014/30/EU and its amendments

■ - EN 55015:2013+A1:2015

■ - EN 61000-3-2:2014

■ - EN 61000-3-3:2013

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

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Environmental Conditions In The Laboratory:

	Actual
Temperature:	: 23.2-24.2°C
Relative Humidity:	: 41-60%
Atmospheric Pressure:	: 100.1-101.0kPa

Power Rating of EUT:

Voltage	: 220-240 V
Frequency	: 50/60 Hz

STATEMENT OF 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 that can account for a nominal measurement error (please refer to each test item). Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Symbol Definitions:

■ - Applicable
☐ - Not Applicable

Test laboratory:

☐ - GRGT
Add: 163 Ping Yun Rd.West Of HuangPu Ave,Guangzhou 510656,P.O.Box.1411,China

☐ - LCTECH (Zhongshan) Testing Service Co.,Ltd
Add: 2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China

■ - Zhongshan Bontek Compliance Testing Laboratory Co., Ltd.
Add: Tongyi Industrial Zone Dongxing East Road, Guzhen Town, Zhongshan City, Guangdong Province, China.

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Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

☐ - Test not applicable

☐ - Test Area (TÜV SÜD Guangzhou) –Shielded room
☐ - Test Area (GRGT) –Shielded room
■ - Test Area (Bontek) –Shielded room

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
☐ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100727	2015-11-03
☐ -	ENV216	Rohde & Schwarz	AMN	3506.6550.05	2015-11-03
☐ -	ESH2-Z3	Rohde & Schwarz	Passive voltage probe	0299.7810.56	2015-11-03
☐ -	RSU-M314-N	Compliance Direction Systems Inc.	RF Switch Box	08042801	2015-11-03
☐ -			Artificial Hand		
☐ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100529	2015-07-25
■ -	ENV216	Rohde & Schwarz	LISN	101047	2019-12-05
■ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100943	2019-12-05

Measurement Uncertainty: ±2.9dB (9kHz-30MHz)
Remarks: All test equipments used are calibrated on a regular basis.

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Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

☐ - Test not applicable

☐ - Test Area (TÜV SÜD Guangzhou) –Shielded room
☐ - Test Area (GRGT) –Shielded room
■ - Test Area (Bontek) –Shielded room

Testing was performed at a test distance of :

■- 2 meters loops
☐ - 3 meters loops
☐ - 4 meters loops

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
☐ -	HXYZ 9170	Schwarzbeck	3-LOOP Antenna	YP170-193	2015-11-03
☐ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100727	2015-11-03
☐ -	RSU-M314-N	Compliance Direction Systems Inc.	RF Switch Box	08042801	2015-11-03
☐ -	HXYZ 9170	Schwarzbeck	3-LOOP Antenna	9170-147	2015-07-06
☐ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100529	2015-07-25
■ -	HXYZ-9170	SCHWARZBECK	2m Loop Antenna	/	2019-12-05
■ -	ESCI	Rohde & Schwarz	EMI Test Receiver	100943	2019-12-05

Measurement Uncertainty: ±3.34 dB (9kHz-30MHz)
Remarks: All test equipments used are calibrated on a regular basis.

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Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-300 MHz, were tested in a horizontal and vertical polarization at the following test location :

☐ - Test not applicable

☐ - Test Area (GRGT) - Anechoic ferrite lined shielded room
■ - Test Area (Bontek) - Anechoic ferrite lined shielded room

Testing was performed at a test distance of :

☐ - 3 meters
☐ - 10 meters
■ - CDN method

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
☐ -	ESU 40	Rohde & Schwarz	EMI Test Receiver	100106	2016-01-26
☐ -	3142C	ETS	Bi-Log Antenna	75971	2015-05-25
■ -	CDN L-801 M2/M3	LuTHI	CDN	2524	2019-12-05
■ -	ESCI	R&S	EMI Test Receiver	100943	2019-12-05
■ -	TS5	SCHWARZBECK	6dB Attenuator	128152	2019-12-05

Measurement Uncertainty: ±3.6dB (30MHz-300MHz)
Remarks: All test equipments used are calibrated on a regular basis.

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Emissions Test Conditions: CONDUCTED EMISSIONS (Harmonics and Flicker)

The *Harmonic Current Emissions and Voltage Fluctuations and Flicker* measurements were performed at the following test location :

☐- Test not performed

☐ - Test Area (TÜV SÜD Guangzhou) –Laboratory open area
☐ - Test Area (GRGT) –Laboratory open area
■ - Test Area (Bontek) –Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
☐ -	PCR6000LA	Kikusui	Multi purpose power supply	MG002890	2015-03-12
☐ -	PM6000-1	Voltech	Power anyalyser	100006700229	2015-03-12
☐ -	IMP555	Voltech	Impedance network	1494	2015-03-12
☐ -	5001ix-400-LF	California Instruments	AC Source	57549	2014-07-22
■ -	PM6000	Voltech	Harmonics analyzer with flicker meter	200006700524	2019-12-05
☐ -	AFC-150	EMToni	Power source	630642	2019-12-05

Remarks: All test equipments used are calibrated on a regular basis.

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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

☐ - _____

_____

_____

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:

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

■ - unshielded power cable

☐ - unshielded cables

☐ - shielded cables TÜV SÜD.No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

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Emissions Test Results:

Conducted Emissions, 9 kHz - 30 MHz

■ - PASS ☐ - FAIL ☐ - NOT APPLICABLE

Minimum limit margin _____ dB at _____ MHz

Maximum limit exceeding _____ dB at _____ MHz

Remarks: Voltage 230V/50Hz was selected for tests.

Radiated Emissions (Magnetic Field), 9 kHz - 30 MHz

■ - PASS ☐ - FAIL ☐ - NOT APPLICABLE

Minimum limit margin _____ dB at _____ MHz

Maximum limit exceeding _____ dB at _____ MHz

Remarks: Voltage 230V/50Hz was selected for tests.

Radiated Emissions (Electric Field), 30 MHz - 300 MHz

■ - PASS ☐ - FAIL ☐ - NOT APPLICABLE

Minimum limit margin _____ dB at _____ MHz

Maximum limit exceeding _____ dB at _____ MHz

Remarks: Voltage 230V/50Hz was selected for tests.

Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ - PASS ☐- FAIL ☐ - NOT APPLICABLE

Harmonic measurement exceeding limit _____ Above at _____ Harmonic

Flicker measurement exceeding limit _____ Above the _____ Requirement

Remarks: According to clause A.2 of EN 61000-3-3:2013, flicker test is not applied.

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GENERAL REMARKS:

Refer to all model list of appendix B. Considering the differences, RBL50-50W and RWL50-50W were selected for final test models.

SUMMARY:

All tests according to the regulations cited on page 3 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

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

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

Sample Received Date:	2019-03-19
Testing Start Date:	2019-03-21
Testing End Date:	2019-03-25

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Reviewed by:

Tony Liu

Prepared by:

Lance Lin

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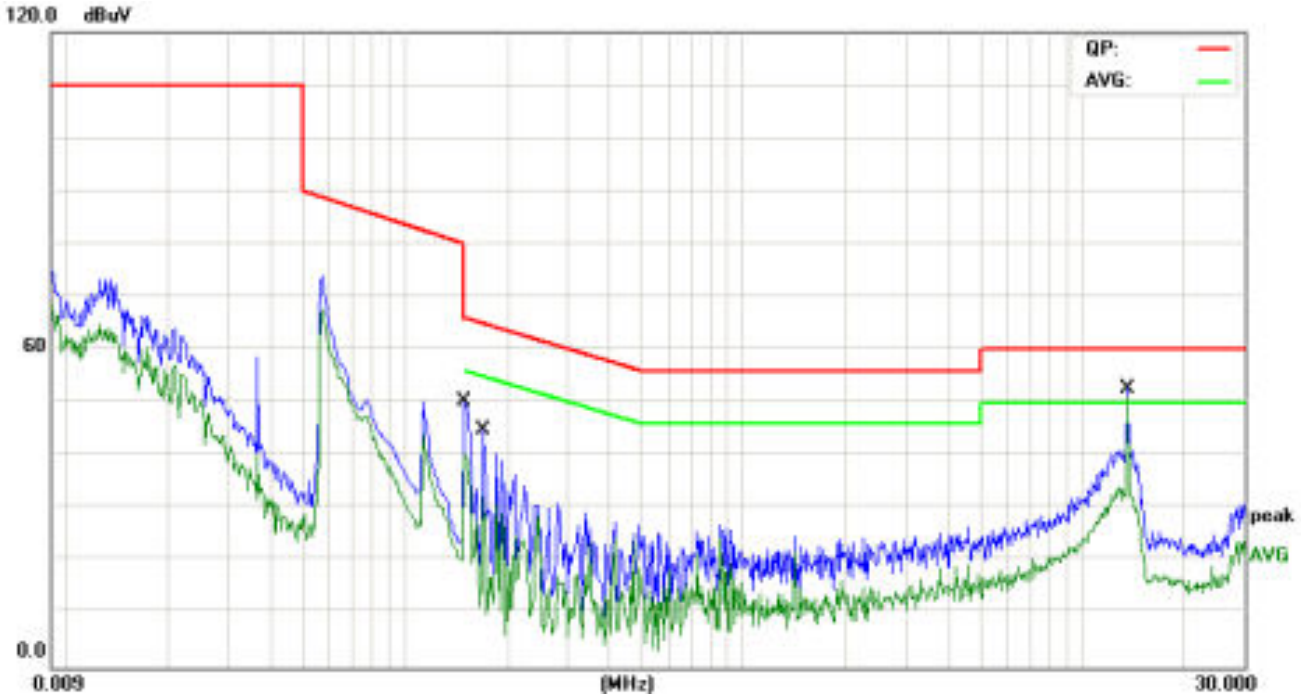
Conducted Emission (9kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	38.55	9.51	48.06	65.99	-17.93	QP	
2		0.1500	17.46	9.51	26.97	55.99	-29.02	AVG	
3		0.1700	35.74	9.57	45.31	64.96	-19.65	QP	
4		0.1700	24.03	9.57	33.60	54.96	-21.36	AVG	
5		13.5620	39.18	9.87	49.05	60.00	-10.95	QP	
6	*	13.5620	34.32	9.87	44.19	50.00	-5.81	AVG	

Model : RBL, RWL
Operating Mode : Lighting
Conduct Line/Port : L
Test By : Lance Lin
Test Date : 2019-03-21

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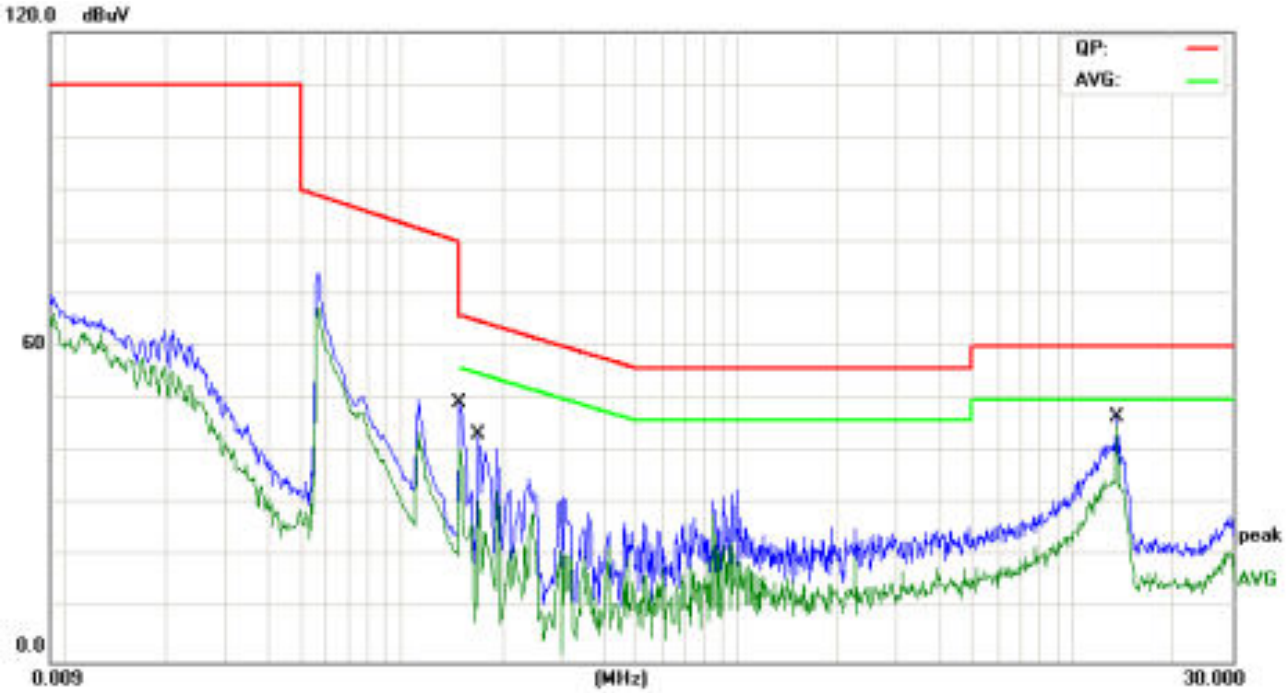
Conducted Emission (9kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	38.47	9.51	47.98	65.99	-18.01	QP	
2		0.1500	17.10	9.51	26.61	55.99	-29.38	AVG	
3		0.1700	35.67	9.57	45.24	64.96	-19.72	QP	
4		0.1700	24.35	9.57	33.92	54.96	-21.04	AVG	
5		13.5580	39.07	9.87	48.94	60.00	-11.06	QP	
6	*	13.5580	34.35	9.87	44.22	50.00	-5.78	AVG	

Model : RBL, RWL
Operating Mode : Lighting
Conduct Line/Port : N
Test By : Lance Lin
Test Date : 2019-03-21

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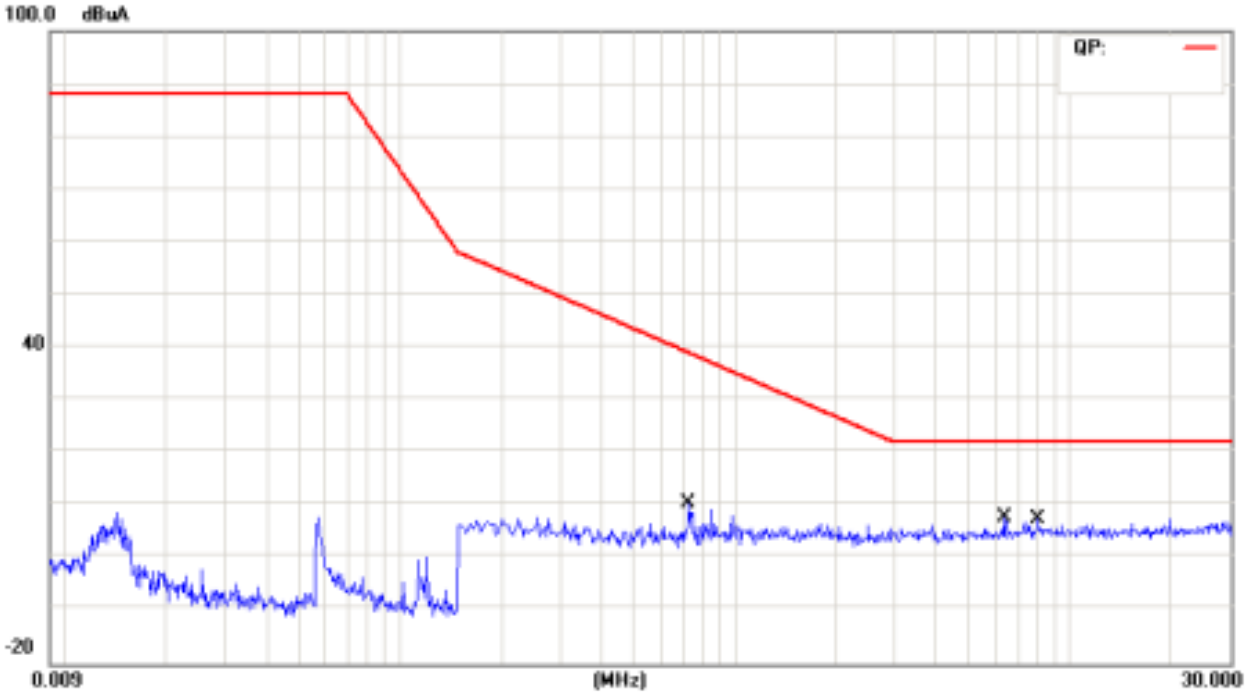
Radiated Emission (9kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector	Comment
1		0.7300	-26.54	34.00	7.46	38.98	-31.52	QP	
2		6.3700	-34.99	34.07	-0.92	22.00	-22.92	QP	
3	*	8.0580	-34.18	34.07	-0.11	22.00	-22.11	QP	

Model : RBL, RWL
Operating Mode : Lighting
Antenna : LOOP X
Test By : Lance Lin
Test Date : 2019-03-21

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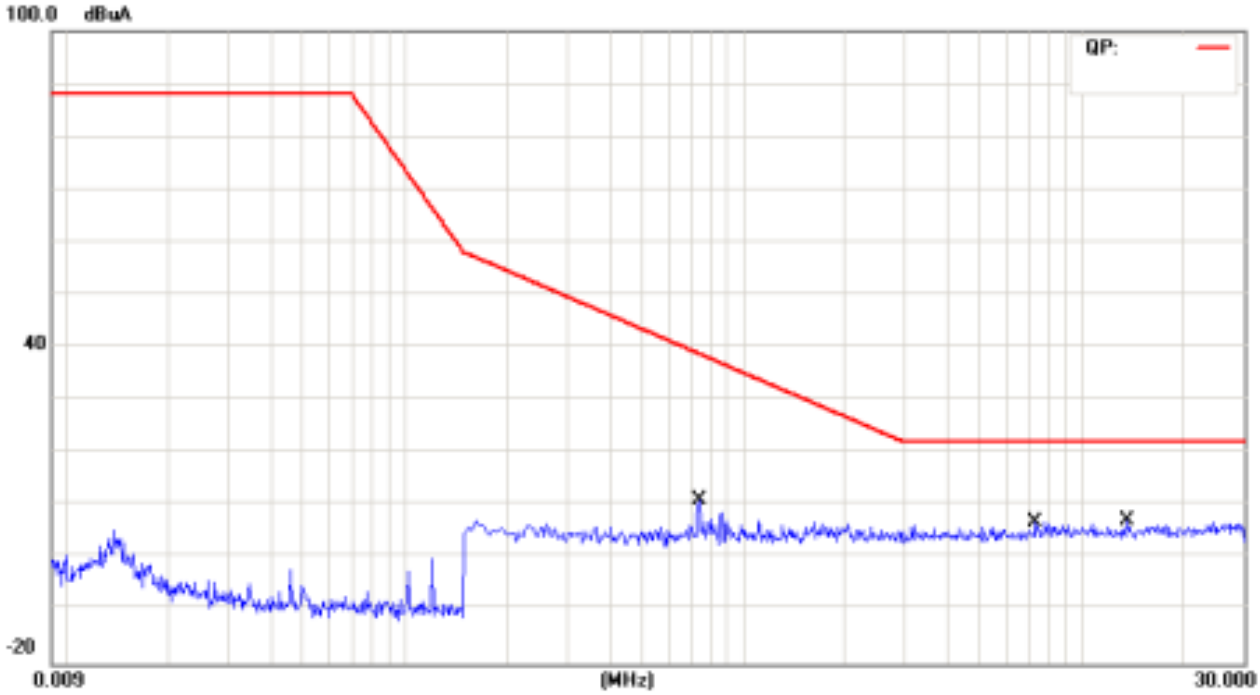
Radiated Emission (9kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector	Comment
1		0.7420	-27.50	34.00	6.50	38.78	-32.28	QP	
2	*	7.3100	-34.65	34.07	-0.58	22.00	-22.58	QP	
3		13.6580	-34.97	34.10	-0.87	22.00	-22.87	QP	

Model : RBL, RWL
Operating Mode : Lighting
Antenna : LOOP Y
Test By : Lance Lin
Test Date : 2019-03-21

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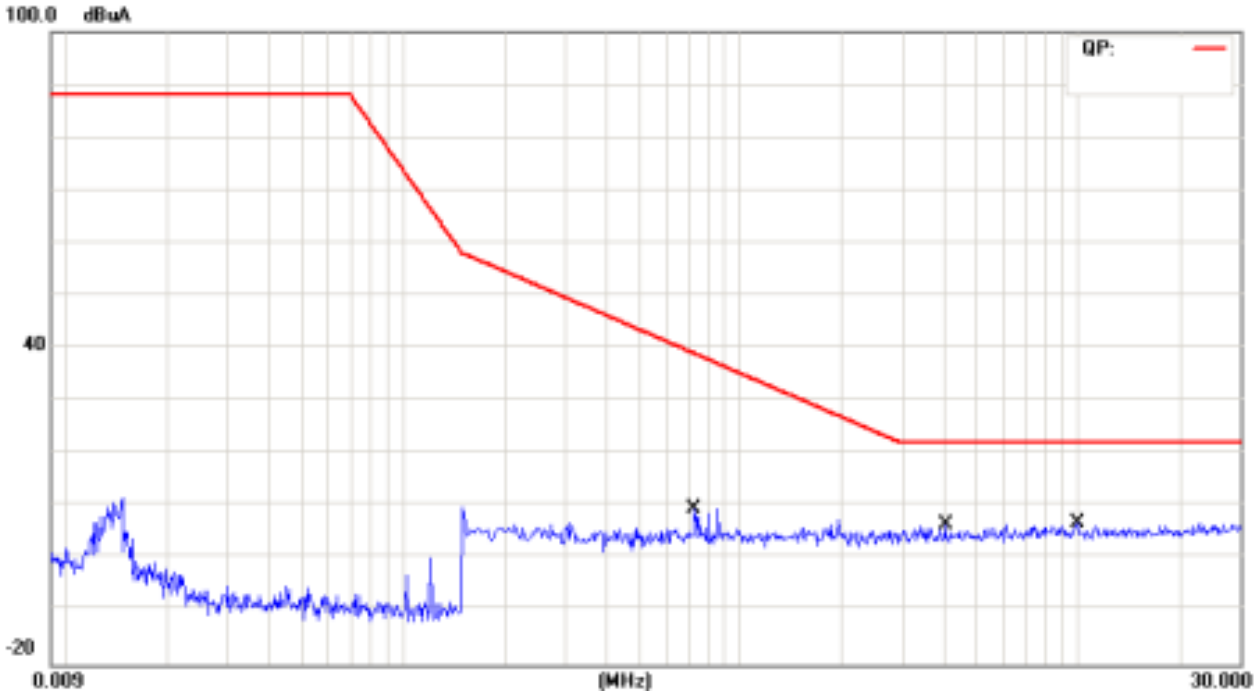
Radiated Emission (9kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector	Comment
1		0.7300	-28.42	34.00	5.58	38.98	-33.40	QP	
2		4.0420	-34.87	34.05	-0.82	22.00	-22.82	QP	
3	*	9.9540	-34.76	34.08	-0.68	22.00	-22.68	QP	

Model	:	RBL, RWL
Operating Mode	:	Lighting
Antenna	:	LOOP Z
Test By	:	Lance Lin
Test Date	:	2019-03-21

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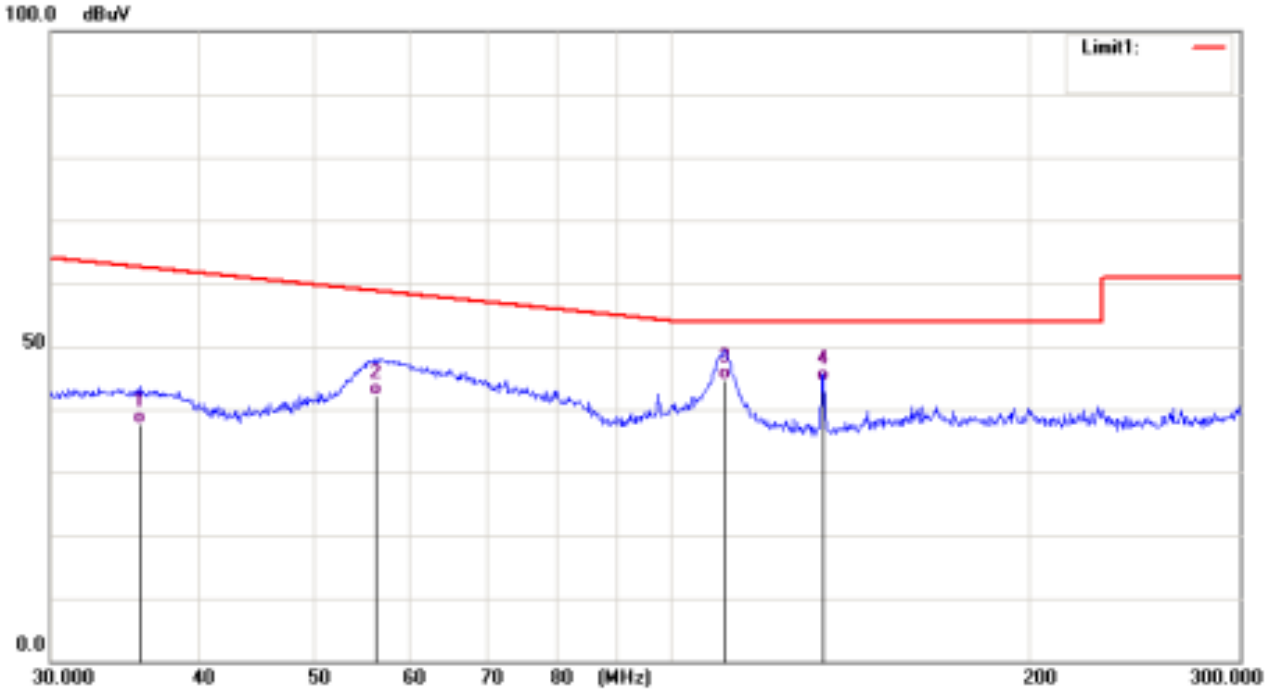
Radiated emission 30MHz-300MHz (CDN method)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		35.7200	21.38	16.23	37.61	62.55	-24.94	QP	
2		56.4400	25.86	16.34	42.20	58.75	-16.55	QP	
3	*	110.7200	28.27	16.38	44.65	54.00	-9.35	QP	
4		134.1600	28.12	16.33	44.45	54.00	-9.55	QP	

Model	:	RBL, RWL
Operating Mode	:	Lighting
Conduct Line/Port	:	AC mains
Test By	:	Lance Lin
Test Date	:	2019-03-21

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Harmonic Current Emissions Test

Harmonic Results Against Chosen Limits:	Notes:
PASS	

Test Parameter Details	User Entered	Measured
Operating Frequency:	50	50.0561
Operating Voltage:	230	230.3902
Specified Power:	0.0000	41.7030
Fundamental Current:	0.1840	0.1839
Power Factor:	0.9700	0.9711
Average Input Current:		0.1860
Maximum POHC:		0.0040
POHC Limit:		0.0175
Maximum THC:		0.0288
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	

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Overall Result:	
PASS	

Class	Class C > 25W
Class Multiplier	1

Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL	Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL
2	3.680mA	5.520mA	0.229mA	N/A	0.262mA	N/A	N/A	3	53.54mA	80.31mA	26.71mA	✓ ✓	26.75mA	✓	Pass
4	None	None	0.152mA		0.174mA		N/A	5	18.40mA	27.60mA	8.067mA	✓ ✓	8.100mA	✓	Pass
6	None	None	0.162mA		0.185mA		N/A	7	12.87mA	19.32mA	3.328mA	N/A	3.357mA	N/A	N/A
8	None	None	0.124mA		0.148mA		N/A	9	9.200mA	13.80mA	2.411mA	N/A	2.431mA	N/A	N/A
10	None	None	0.105mA		0.121mA		N/A	11	5.520mA	8.280mA	2.163mA	N/A	2.179mA	N/A	N/A
12	None	None	0.166mA		0.170mA		N/A	13	5.520mA	8.280mA	1.888mA	N/A	1.905mA	N/A	N/A
14	None	None	0.108mA		0.118mA		N/A	15	5.520mA	8.280mA	1.780mA	N/A	1.796mA	N/A	N/A
16	None	None	0.102mA		0.114mA		N/A	17	5.520mA	8.280mA	1.546mA	N/A	1.560mA	N/A	N/A
18	None	None	0.101mA		0.113mA		N/A	19	5.520mA	8.280mA	1.600mA	N/A	1.615mA	N/A	N/A
20	None	None	0.098mA		0.110mA		N/A	21	5.520mA	8.280mA	1.596mA	N/A	1.610mA	N/A	N/A
22	None	None	0.094mA		0.105mA		N/A	23	5.520mA	8.280mA	1.740mA	N/A	1.756mA	N/A	N/A
24	None	None	0.111mA		0.123mA		N/A	25	5.520mA	8.280mA	1.695mA	N/A	1.710mA	N/A	N/A
26	None	None	0.094mA		0.105mA		N/A	27	5.520mA	8.280mA	1.783mA	N/A	1.799mA	N/A	N/A
28	None	None	0.093mA		0.108mA		N/A	29	5.520mA	8.280mA	1.291mA	N/A	1.303mA	N/A	N/A
30	None	None	0.089mA		0.099mA		N/A	31	5.520mA	8.280mA	1.152mA	N/A	1.163mA	N/A	N/A
32	None	None	0.105mA		0.116mA		N/A	33	5.520mA	8.280mA	0.848mA	N/A	0.861mA	N/A	N/A
34	None	None	0.085mA		0.093mA		N/A	35	5.520mA	8.280mA	0.689mA	N/A	0.702mA	N/A	N/A
36	None	None	0.088mA		0.097mA		N/A	37	5.520mA	8.280mA	0.225mA	N/A	0.237mA	N/A	N/A
38	None	None	0.091mA		0.103mA		N/A	39	5.520mA	8.280mA	0.283mA	N/A	0.296mA	N/A	N/A
40	None	None	0.084mA		0.095mA		N/A								

Model : RBL, RWL
Operating Mode : Lighting
Conduct Line/Port : AC mains
Test By : Lance Lin
Test Date : 2019-03-21

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China

Harmonic Current Emissions Test

Harmonic Results Against Chosen Limits:	Notes:
PASS	

Test Parameter Details	User Entered	Measured
Operating Frequency:	60	60.0673
Operating Voltage:	230	229.6333
Specified Power:	0.0000	41.9626
Fundamental Current:	0.1870	0.1864
Power Factor:	0.9600	0.9668
Average Input Current:		0.1884
Maximum POHC:		0.0043
POHC Limit:		0.0177
Maximum THC:		0.0296
Minimum Power:	75	
Class Multiplier:	1.0000	
Test Duration:	00:02:30	

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Overall Result:	
PASS	

Class	Class C > 25W
Class Multiplier	1

Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL	Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL
2	3.740mA	5.610mA	0.245mA	N/A	0.269mA	N/A	N/A	3	53.85mA	80.78mA	27.05mA	✓ ✓	27.16mA	✓	Pass
4	None	None	0.157mA		0.174mA		N/A	5	18.70mA	28.04mA	8.569mA	✓ ✓	8.653mA	✓	Pass
6	None	None	0.119mA		0.132mA		N/A	7	13.09mA	19.63mA	3.894mA	N/A	3.938mA	N/A	N/A
8	None	None	0.124mA		0.170mA		N/A	9	9.350mA	14.02mA	2.894mA	N/A	2.919mA	N/A	N/A
10	None	None	0.155mA		0.172mA		N/A	11	5.610mA	8.415mA	2.487mA	N/A	2.504mA	N/A	N/A
12	None	None	0.106mA		0.117mA		N/A	13	5.610mA	8.415mA	2.216mA	N/A	2.236mA	N/A	N/A
14	None	None	0.105mA		0.116mA		N/A	15	5.610mA	8.415mA	2.003mA	N/A	2.026mA	N/A	N/A
16	None	None	0.103mA		0.113mA		N/A	17	5.610mA	8.415mA	1.807mA	N/A	1.825mA	N/A	N/A
18	None	None	0.105mA		0.115mA		N/A	19	5.610mA	8.415mA	1.856mA	N/A	1.874mA	N/A	N/A
20	None	None	0.122mA		0.136mA		N/A	21	5.610mA	8.415mA	1.784mA	N/A	1.807mA	N/A	N/A
22	None	None	0.106mA		0.114mA		N/A	23	5.610mA	8.415mA	1.984mA	N/A	2.016mA	N/A	N/A
24	None	None	0.108mA		0.120mA		N/A	25	5.610mA	8.415mA	1.822mA	N/A	1.845mA	N/A	N/A
26	None	None	0.110mA		0.122mA		N/A	27	5.610mA	8.415mA	1.807mA	N/A	1.829mA	N/A	N/A
28	None	None	0.109mA		0.120mA		N/A	29	5.610mA	8.415mA	1.361mA	N/A	1.381mA	N/A	N/A
30	None	None	0.106mA		0.117mA		N/A	31	5.610mA	8.415mA	1.216mA	N/A	1.231mA	N/A	N/A
32	None	None	0.105mA		0.115mA		N/A	33	5.610mA	8.415mA	0.867mA	N/A	0.881mA	N/A	N/A
34	None	None	0.096mA		0.106mA		N/A	35	5.610mA	8.415mA	0.695mA	N/A	0.709mA	N/A	N/A
36	None	None	0.088mA		0.098mA		N/A	37	5.610mA	8.415mA	0.152mA	N/A	0.167mA	N/A	N/A
38	None	None	0.088mA		0.097mA		N/A	39	5.610mA	8.415mA	0.090mA	N/A	0.101mA	N/A	N/A
40	None	None	0.087mA		0.097mA		N/A								

Model : RBL, RWL
Operating Mode : Lighting
Conduct Line/Port : AC mains
Test By : Lance Lin
Test Date : 2019-03-21

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Appendix B

Constructional Data Form

and

Product Information Form(s)

(The technical material were kept in confidential as requested.)

Any safety relevant information or constructional aspect concerning the sample or equipment under test as submitted by the applicant / report holder / certificate holder or any authorized agent is deemed to have no adverse effect on the electromagnetic compatibility (EMC) performance. Insofar as safety or compliance with Low Voltage Directive (LVD) or any relevant directive is concerned, the applicant / report holder / certificate holder or any authorized agent is required, by virtue of the relevant EU Directive provisions, to have satisfied that the product concerned (for which a sample was tested) meets with LVD or other relevant directives before placing it on the market.

Where applicable, changes or modifications made to the original sample submitted for testing are documented herein. The applicant or manufacturer shall ensure that such changes or modifications are applied to the production units. Any further changes or modifications made to the production units may void the validity of this test report unless such changes or modifications have been formally assessed by TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch through technical evaluations or other means as appropriate and it has been confirmed that the EMC performance of such units is not adversely affected.

The enclosed, if any, circuit diagram / parts list / printed circuit board diagram / component layout / user manual are strictly for reference only. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall not be held responsible for any error or omission in such documents. It is the manufacturer's responsibility to ensure that production units conform to the tested sample.

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1	RBL50-3000K-50W	50	ELEMENT60/220-240/350 D CS L
2	RBL50-4000K-50W	50	ELEMENT60/220-240/350 D CS L
3	RWL50-3000K-50W	50	ELEMENT60/220-240/350 D CS L
4	RWL50-4000K-50W	50	ELEMENT60/220-240/350 D CS L

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Appendix C

Constructional Photographs
of
Equipment under test (EUT)

Any safety relevant information or constructional aspect concerning the sample or equipment under test as submitted by the applicant / report holder / certificate holder or any authorized agent is deemed to have no adverse effect on the electromagnetic compatibility (EMC) performance. Insofar as safety or compliance with Low Voltage Directive (LVD) or any relevant directive is concerned, the applicant / report holder / certificate holder or any authorized agent is required, by virtue of the relevant EU Directive provisions, to have satisfied that the product concerned (for which a sample was tested) meets with LVD or other relevant directives before placing it on the market.

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Constructional Photographs

RWL50, RBL50

RWL50, RBL50

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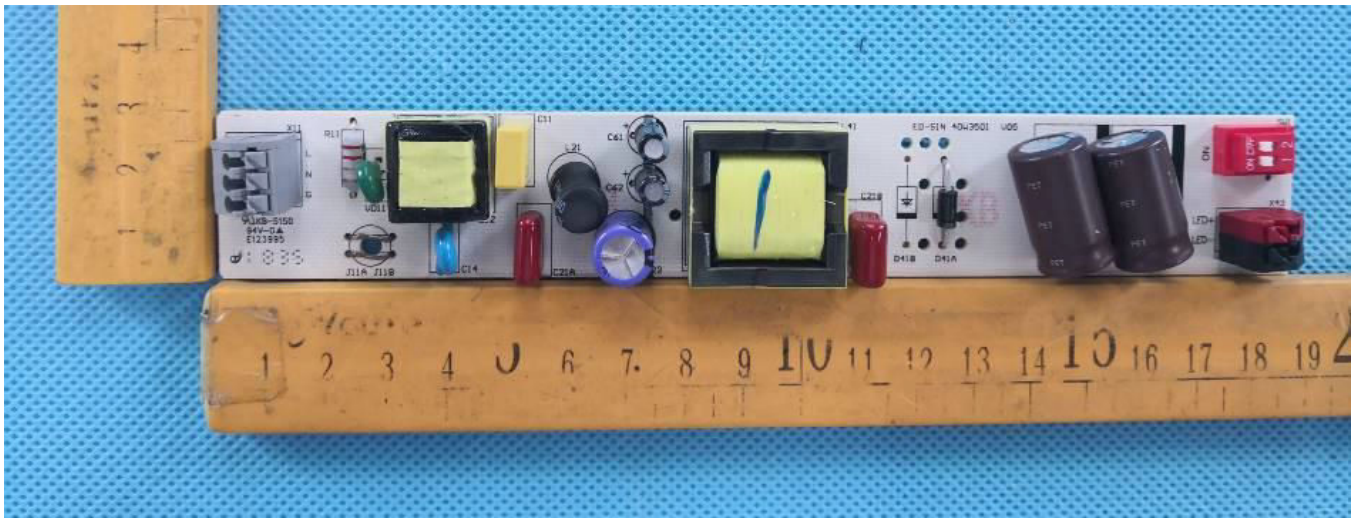
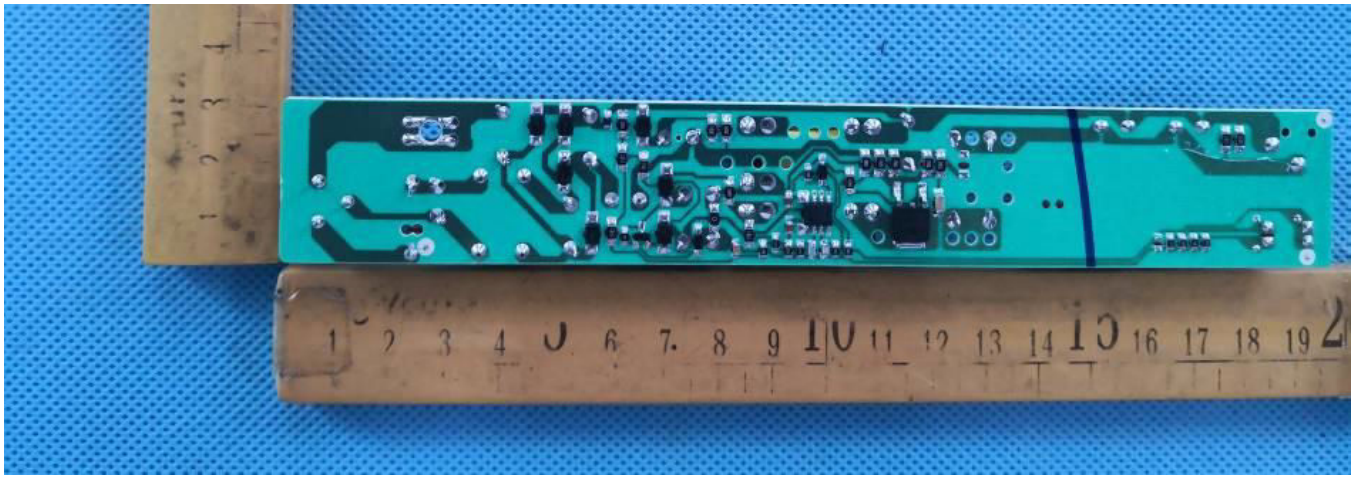
Constructional Photographs



RWL50, RBL50



RWL50, RBL50

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EMC IMMUNITY - TEST REPORT

Report Number	:	**64.740.18.07644.01 – (I)**	Date of Issue:	2019-04-25
Model / Serial No.	:	Please refer to EMI report for model list		
Product Type	:	Fixed general purpose luminaires (LED Fixed Luminaire)		
Applicant	:	Profolux bv led supplier		
Manufacturer	:	Profolux bv led supplier		
Address	:	Van Leeuwenhoekweg 8, 5482 TK Schijndel, Nederland		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	**20**		

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch is a subcontractor to TÜV SÜD Product Service, GmbH according to the principles outlined in ISO/IEC Guide 25 and EN 45001.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou 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 with the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou 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. Guangzhou Branch issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

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DIRECTORY - IMMUNITY

Remark: Constructional Data Form and Product Information Form(s) and Constructional Photographs of EUT refer to emission test report

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IMMUNITY TEST REGULATIONS :

The immunity tests were performed according to the following regulations :

■ - EMC - Directive 2014/30/EU and its amendments

■ - EN 61547:2009

Following basic standards were used as reference:

■ - IEC 61000-4-2:2008
■ - IEC 61000-4-3:2006+A1:2007
■ - IEC 61000-4-4:2004
■ - IEC 61000-4-5:2005
■ - IEC 61000-4-6:2008
☐ - IEC 61000-4-8:1993+A1:2000
■ - IEC 61000-4-11:2004

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Environmental Conditions In The Laboratory:

	Actual
Temperature:	: 24.2-25.0°C
Relative Humidity:	: 56%
Atmospheric Pressure:	: 101.0kPa

Power Rating of EUT:

Voltage	: 220-240 V
Frequency	: 50/60 Hz

STATEMENT OF MEASUREMENT UNCERTAINTY

The tolerances for each tests are reduced by the uncertainty reported on the calibration certificate for the measurement, all the parameters are within the tolerances required by the relevant standard, reduced by the uncertainty reported on the calibration certificate, so the laboratory has confidence that all the tests compliant with the relevant standards with a 95% confidence level.
Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Symbol Definitions:

■ - Applicable
☐ - Not Applicable

Test laboratory:

☐ - GRGT
Add: 163 Ping Yun Rd.West Of HuangPu Ave,Guangzhou 510656,P.O.Box.1411,China

■- LCTECH (Zhongshan) Testing Service Co.,Ltd
Add: 2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China

■ - Zhongshan Bontek Compliance Testing Laboratory Co., Ltd.
Add: Tongyi Industrial Zone Dongxing East Road, Guzhen Town, Zhongshan City, Guangdong Province, China.

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Immunity Test Conditions: ELECTROSTATIC DISCHARGE (ESD)

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

☐ **- Test not applicable**

☐ - Test Area (TÜV SÜD Guangzhou) – Laboratory open area
☐ - Test Area (GRGT) – Laboratory open area
■ - Test Area (Bontek) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
☐ -	NSG435	Teseq	ESD tester	6155	2015-11-05
☐ -	---	TÜV SÜD Guangzhou	H/V Coupling Plane	(TÜV SÜD)	
☐ -	ESD-2030A	EMPEK	ESD tester	0230916N	2015-08-21
☐ -	---	GRGT	H/V Coupling Plane	(GRGT)	
■ -	KES4021A	KIKUSUI	Electrostatic Generator	SF002900	2019-12-05
■ -	---	Bontek	H/V Coupling Plane	/	/

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Discharge Voltage (Air): ☐ - 2 kV ■ - 8 kV ☐ - 6 kV
☐- 4 kV ☐ - 15 kV ☐ - _ kV

Discharge Voltage (Contact): ☐ - 2 kV ☐ - 6 kV ☐ - _ kV
■ - 4 kV ☐ - 8 kV

Discharge Impedance: ■ - 330 Ω / 150 pF ☐ - 150 Ω / 150 pF

Discharge Repetition Rate: ■ - ≥ 1 sec.

Number of Discharges: ■ - ≥ 10 at all locations

Kind of Discharges: ■ - Air discharge ■ - Conducted discharge
■ - Direct ■ - Indirect

Polarity: ■ - Positive ■ - Negative

Location of Discharge: ■ - HCP/VCP
■ - Each location on the surface touchable by hand
☐ - See drawing in Appendix A
☐ - _____

Result :

■ - 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: Voltage 230V/50Hz was selected for tests.

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Immunity Test Conditions: RADIATED ELECTROMAGNETIC FIELDS

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

☐ **- Test not applicable**

☐ - Test Area (GRGT) - Anechoic ferrite lined shielded room
■ - Test Area (LCTECH) - Anechoic ferrite lined shielded room

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
☐ -	STLP 9128 E	SCHWARZBECK	Log Periodic Antenna	9128E-029	2015-05-25
☐ -	BBHA 9120 E	SCHWARZBECK	Horn Antenna	BBHA9120E318	2015-10-14
☐ -	AP32SV150A	PRANA R&D	Power Amplifier I	0611-768	2016-01-09
☐ -	AP32 DT214	PRANA R&D	Power Amplifier II	0611-767	2016-01-09
☐ -	4232A	BOOTON	Isotropic Field Monitor	10543	2015-12-09
☐ -	SML03	R&S	R,F Signal Generator	103002	2016-01-23
■ -	BLWA 0810-160/100D	Rohde & Schwarz	Signal generator	102710	2020-01-10
■ -	EP-601	BONN Elektronik	Power amplifier	149644	2020-01-10
■ -	STLP 9128D	Narda	Isotropic Field Probe	511WX30620	2020-01-10
■ -	PMS 1084	SCHWARZBECK	Log-periodic Antenna	078	2020-01-10
■ -	BLWA 0810-160/100D	FEANKONIA	Power Meter	108B1289	2020-01-10

Remarks: All test equipments used are 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

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Test Specification (continued):

Modulation:	■ - AM :	80%	1kHz
	☐ - FM :	__ kHz dev.	__ kHz
	■ - sine wave:		
	■ - unmodulated		
	☐ - Pulse	ON/OFF	Duty Cycle: __ %
Step:	☐ -≤ 0.015 decades / sec		■ - 1%
Polarization of Antenna:	■ - Horizontal	■ - Vertical	

Result :

■ - 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: Voltage 230V/50Hz was selected for tests.

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Immunity Test Conditions: FAST TRANSIENTS (BURST)

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

☐ **- Test not applicable**

☐ - Test Area (TÜV SÜD Guangzhou) – Laboratory open area
☐ - Test Area (GRGT) – Laboratory open area
■ - Test Area (Bontek) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
☐ -	MODULA6150	Teseq	Immunity test system	34595	2015-11-03
☐ -	CDN8014	Teseq	Coupling Clamp	25528	2015-11-03
☐ -	TRA2000	EMC PARTNER	EFT Generator	853	2015-06-17
■ -	EFT-4001G	3CTEST	Electrical Fast Transient Generator	EC0461221	2019-12-05
☐ -	EFTC	3CTEST	Capacitive Coupling Clamp	EC0441348	2019-12-05
☐ -	HFK	EMTEST	Capacitive Coupling Clamp	P1426135389	2016-08-17

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Pulse Amplitude - AC Power Port:	■ - 1,0 kV	☐ - 2,0 kV	
	☐ - 4,0 kV	☐ - ___ kV	
Pulse Amplitude - DC Power Port:	☐ - 1,0 kV	☐ - 2,0 kV	
	☐ - 4,0 kV	☐ - ___ kV	
Pulse Amplitude - Signal/Data Non control Port:	☐ - 0,5 kV	☐ - 1,0 kV	
	☐ - 2,0 kV	☐ - ___ kV	
Pulse Amplitude - Process: Measurement & Control Port	☐ - 0,5 kV	☐ - 1,0 kV	
	☐ - 2,0 kV	☐ - ___ kV	
Burst Frequency:	☐ - 2,5 kHz	■ - 5,0 kHz	☐ - ___ kHz
Time of Coupling:	☐ - 60 seconds	■ - 120 seconds	☐ - ___ seconds
Coupling Method:	■ - Coupling/decoupling network		☐ - Coupling clamp
Polarity:	■ - Positive	■ - Negative	

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Immunity Test Conditions: FAST TRANSIENTS (BURST), continued

Location of Coupling:

name of lines:	AC POWER CORD	
type of lines:	☐ - shielded	■ - unshielded
status of lines:	☐ - Passive	■ - active
kind of transmission:	■ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

Result :

■ - 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: Voltage 230V/50Hz was selected for tests.

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Immunity Test Conditions: SURGE TRANSIENTS

The immunity against *SURGE TRANSIENTS* events was performed in the following test location:

☐ **- Test not applicable**

☐ - Test Area (TÜV SÜD Guangzhou) – Laboratory open area
☐ - Test Area (GRGT) – Laboratory open area
■ - Test Area (Bontek) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
☐ -	MODULA6150	Teseq	Immunity test system	34595	2015-11-03
☐ -	TRA2000	EMC PARTNER	Surge Generator	852	2015-04-09
☐ -	CDN 2000-06-32	EMC PARTNER	CDN	110	2015-04-09
■ -	EMS61000-5B	EVERFINE	Surge Generator	712004	2019-12-05
☐ -	CNV 504 N1	EMTEST	4kV coupling/decoupling network	P1420124192	2019-07-06

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Pulse Amplitude - AC Power Port:	■ - 2,0 kV ☐ - 4,0 kV	■ - 1,0 kV ☐ - 0.5 kV
Pulse Amplitude - DC Power Port:	☐ - 1,0 kV ☐ - 4,0 kV	☐ - 2,0 kV ☐ - ___ kV
Pulse Amplitude - Signal/Data Non control Port:	☐ - 0,5 kV ☐ - 2,0 kV	☐ - 1,0 kV ☐ - ___ kV
Pulse Amplitude - Process: Measurement & Control Port	☐ - 0,5 kV ☐ - 2,0 kV	☐ - 1,0 kV ☐ - ___ kV
Source Impedance:	■ - 2 Ω + 18 µF ☐ - 42 Ω + 0,1 µF	■ - 12 Ω + 9 µF ☐ - 42 Ω + 0,5 µF
Number of Surges:	■ - 5 surges/angle	☐ - ___ surges /angle
Angle:	■ - 90 ° ■ - 270 °	
Repetition Rate:	■ - 60 sec.	☐ - ___ sec.
Polarity:	■ - Positive	■ - Negative

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Immunity Test Conditions: SURGE TRANSIENTS, continued

Location of Coupling:

name of lines:	AC POWER CORD	
type of lines:	☐ - shielded	■ - unshielded
status of lines:	☐ - Passive	■ - active
kind of transmission:	■ - analog	☐ - digital
length of lines:		

name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

Result:

☐ - 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: Voltage 230V/50Hz was selected for tests. The brightness of light would be changed when influence was applied, but it could self-recover after influence removed.

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Immunity Test Conditions: CONDUCTED DISTURBANCE

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

☐ **- Test not applicable**

☐ - Test Area (TÜV SÜD Guangzhou) –Laboratory open area
☐ - Test Area (GRGT) –Laboratory open area
■ - Test Area (LCTECH) –Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
☐ -	CIT-10/75	Frankonia	C/S test generator	102D1319	2015-11-03
☐ -	75-A-MFN-06	BIRD	6dB attenuator	0638	2015-11-03
☐ -	M2+M3-801	Frankonia	CDN	A3011123	2015-11-03
☐ -	F-203I-32mm	FCC	EM Injected Clamp	08511	2015-11-03
☐ -	AP32 DT214	PRANA R&D	Power Amplifier II	0611-767	2016-01-09
☐ -	4232A	BOOTON	Isotropic Field Monitor	10543	2015-12-09
☐ -	SML03	R&S	R,F Signal Generator	103002	2016-01-25
☐ -	CDN L-801 M2/M3	Luthi	CDN	2265	2016-02-28
■ -	CIT-10/75	Frankonia	Conducted Immunity Test System	12B1113	2019-07-20
■ -	WA59-6-33	Weinschel	6dB attenuator	2537	2019-07-25
■ -	L-801M2/M3	SCHWARZBEZK	CDN	P1420134163	2019-07-20
■ -	L-801AF2	SCHWARZBEZK	CDN	2536	2019-07-20
☐ -	EM101	EMTEST	Electromagnetic Injection Clamp	P1411132453	2015-08-17

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Frequency Range:	☐ - 0,15 MHz - 230 MHz		■ - 0,15 MHz - 80 MHz
Voltage Level (EMF):	☐ - 1 V	■ - 3 V	
	☐ - 10 V	☐ - __ V	
Modulation:	■ - AM :	80 %	1 kHz
	☐ - FM :	__ kHz dev.	___ kHz
	■ - sine wave:		
	☐ - unmodulated		
	☐ - Pulse	ON/OFF	Duty Cycle: __ %
Step:	■ -≤ 1%		

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Immunity Test Conditions: CONDUCTED DISTURBANCE, continued

Location of Coupling:

name of lines:	AC POWER CORD	
type of lines:	☐ - shielded	■ - unshielded
status of lines:	☐ - Passive	■ - active
kind of transmission:	■ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

Result:

■ - 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: Voltage 230V/50Hz was selected for tests.

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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 test location:

☐ **- Test not applicable**

☐ - Test Area (TÜV SÜD Guangzhou) –Laboratory open area
☐ - Test Area (GRGT) –Laboratory open area
■ - Test Area (Bontek) –Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
☐ -	MODULA6150	Teseq	Immunity test system	34595	2015-11-03
☐ -	INA6501	Teseq	Step power supply	159	2015-11-03
☐ -	TRA2000	EMC PARTNER	Main Interference Simulator	851	2015-11-26
☐ -	UCS 500N7	EMTEST	Immunity simulator	P1313116005	2019-07-06
■ -	EMS61000-11K	EVERFINE	Voltage Dips and Interruptions Generator	706001	2019-12-05
☐ -	PFLS 32N1	EMTEST	Switch-Box for phase by phase	P1251107106	N/A

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:
Nominal Mains Voltage (V_{NOM}): ■ - 230 Vac ☐ - 100 Vac ☐ - ___ Vdc

Level of Reduction (dip): ■ - 25cycles at 30% of V_{NOM} 50Hz
☐ - 10cycles at 60% of V_{NOM} 50Hz
■ - 30cycles at 30% of V_{NOM} 60Hz
☐- 12cycles at 60% of V_{NOM} 60Hz

Duration of Interruption (>.95*V_{NOM}): ■ - 0.5cycles

Voltage Fluctuation: ☐ -V_{NOM} + 10% ☐ -V_{NOM} - 10%

Result :
☐ - 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: The brightness of light would be changed when influence was applied, but it could self-recover after influence removed.

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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

■ - Lighting

☐ - _____

Configuration of the equipment under test:

■ - See Constructional Data Form

■ - See Product Information Form(s)

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

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

■ - unshielded power cable

☐ - unshielded cables

☐ - shielded cables TÜV SÜD . No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

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GENERAL REMARKS:

Refer to all model list of appendix B of EMI report. Considering the differences, RBL50-50W and RWL50-50W were selected for final test models.

SUMMARY:

All tests according to the regulations cited on page 3 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

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

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

Sample Received Date:	2019-03-19
Testing Start Date:	2019-03-21
Testing End Date:	2019-03-22

- TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch-

Reviewed by:

Tony Liu

Prepared by:

Lance Lin

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Appendix A

Test Setup

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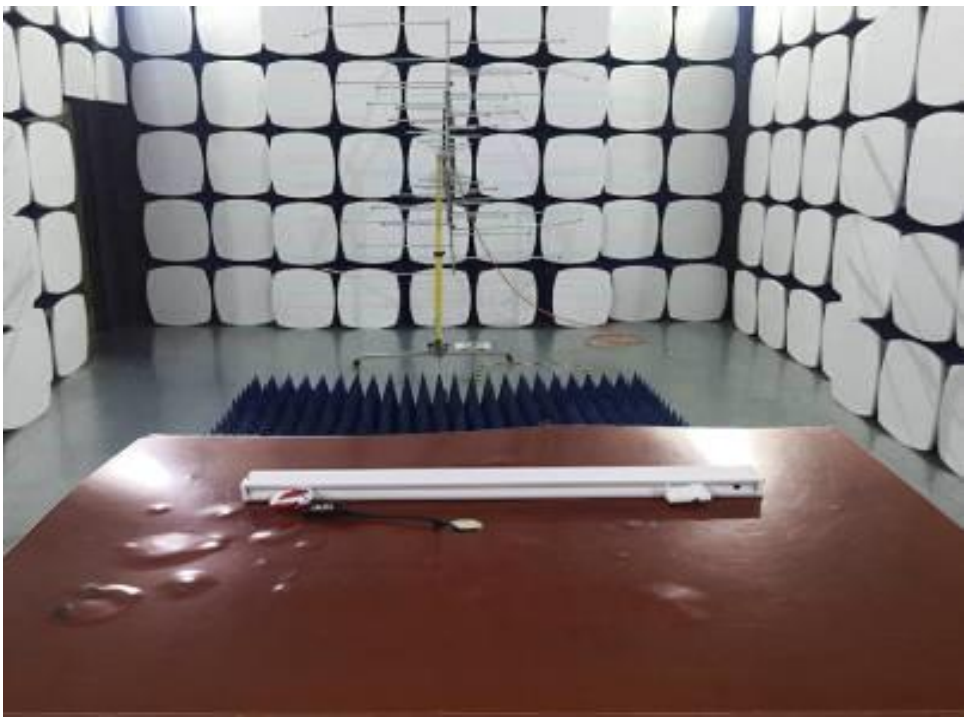
Test setup ESD

Test setup Radiated Electromagnetic Fields



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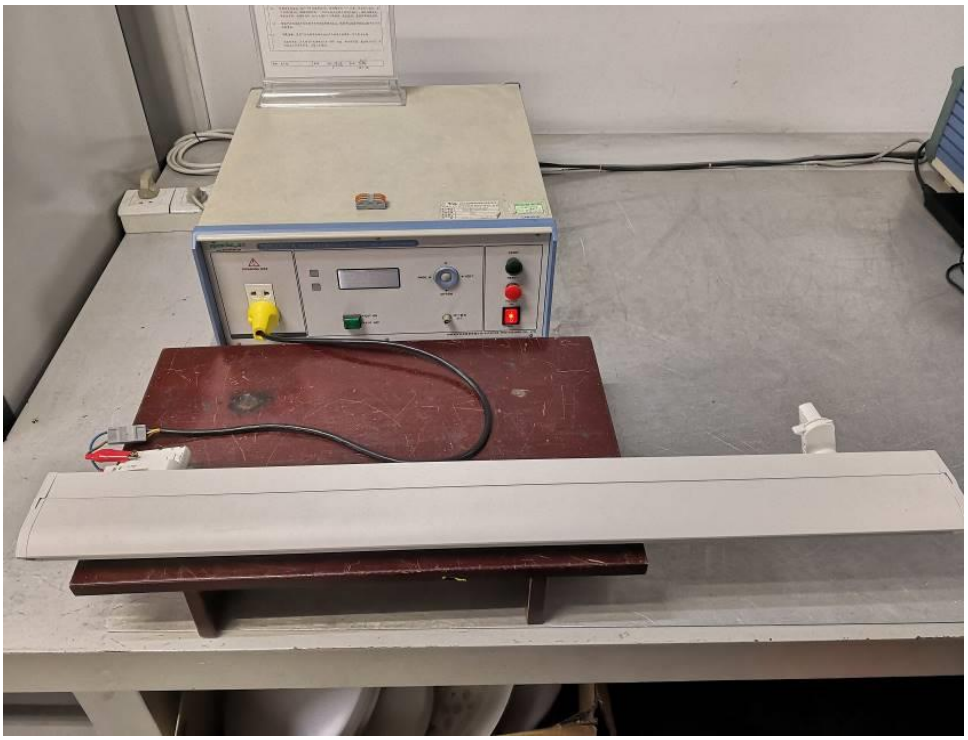
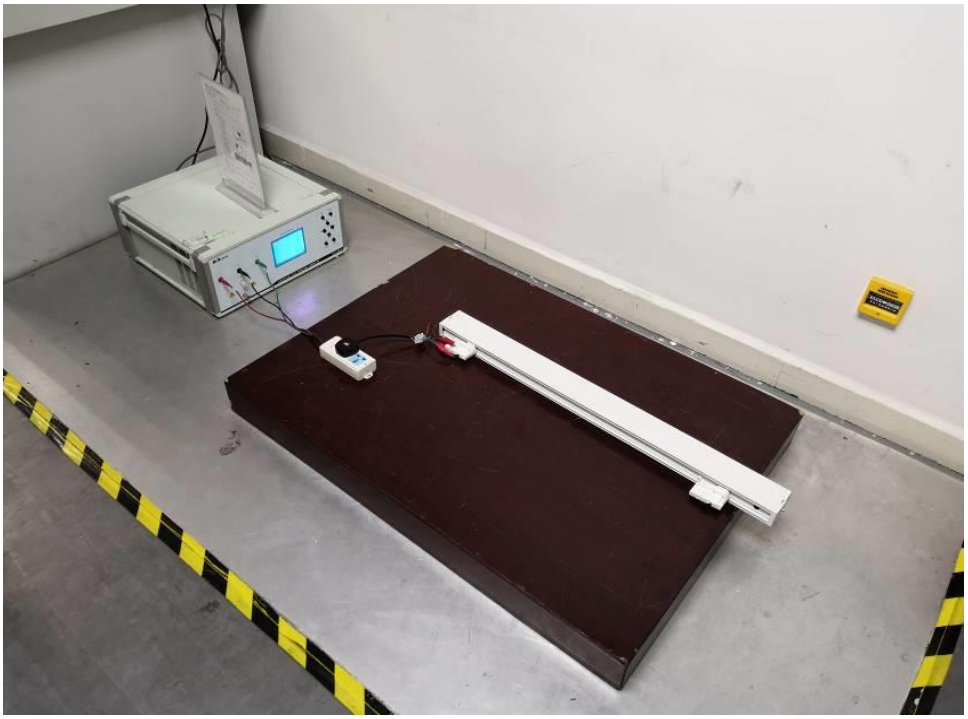
Test setup Voltage Dips & Short Interruptions



Test setup EFT



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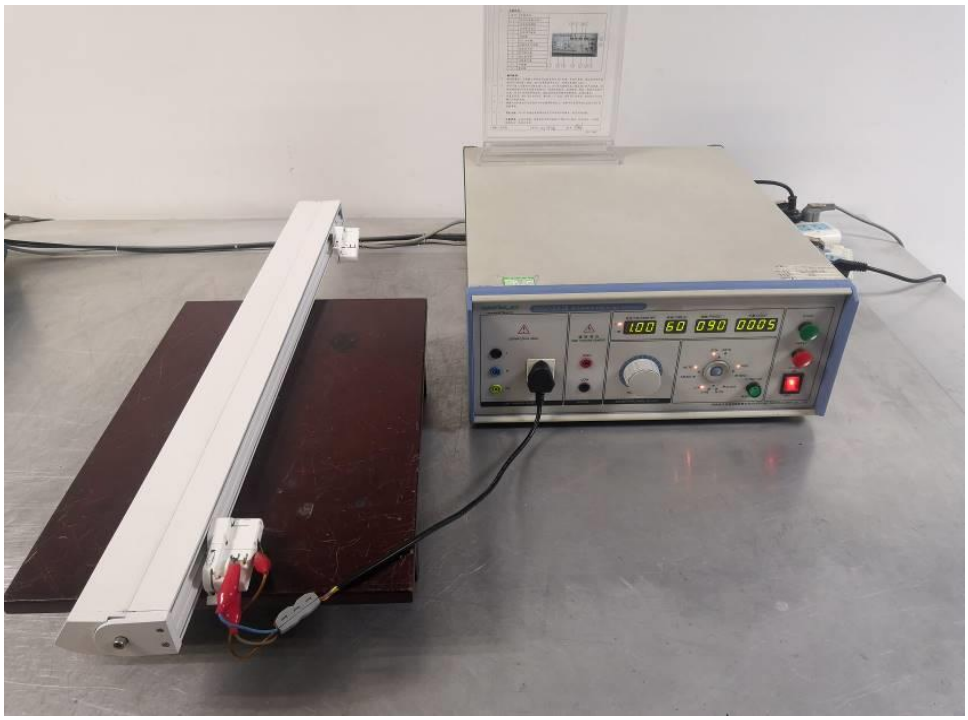
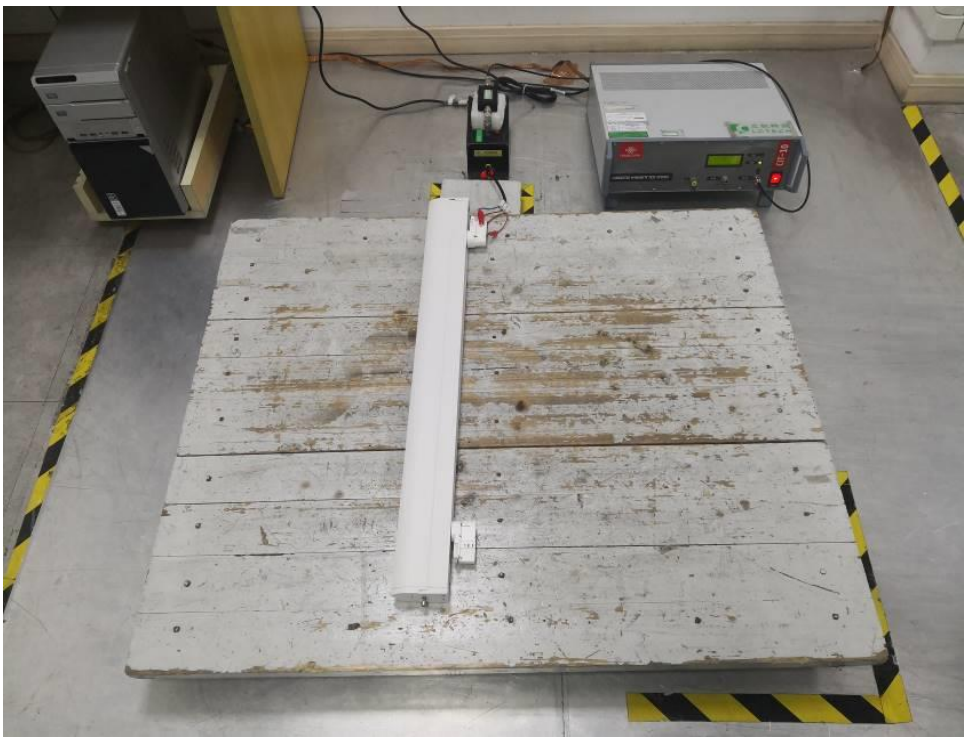
Test setup Surge



Test setup Conducted Immunity



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