EMC

Measurement and Test Report

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For

EverExceed Industrial Co., Ltd.

Floor 19, Kechuang Building, Hengchangrong High-tech Industrial Park, Dezheng Road, Shiyan, Bao'an District, Shenzhen City, China

Prepared by

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TEST RESULT CERTIFICATION

Tested by (+ signature) .....: Sky Xiao

Compiled by (+ signature) ...: Fly Li

Approved by (+ signature) ...: Konstan Kang

Applicant's name.....: EverExceed Industrial Co., Ltd.

Address .....: Floor 19, Kechuang Building, Hengchangrong High-tech Industrial Park, Dezheng Road, Shiyan, Bao'an District, Shenzhen City, China

Manufacturer's Name .....: EverExceed Industrial Co., Ltd.

Address .....: Floor 19, Kechuang Building, Hengchangrong High-tech Industrial Park, Dezheng Road, Shiyan, Bao'an District, Shenzhen City, China

Product description

Product name .....: EverExceed All-In-One Solar street light

Trade Mark.....: EverExceed

Model and/or type reference ...: EVAL-8W, EVAL-12W, EVAL-15W, EVAL-18W, EVAL-20W, EVAL-25W, EVAL-30W, EVAL-40W, EVAL-50W, EVAL-50WCOB, EVAL-60W, EVAL-60WCOB, EVAL-70W, EVAL-70WCOB, EVAL-80W, EVAL-80WCOB, EVAL-90W, EVAL-90WCOB, EVAL-100W, EVAL-100WCOB

Test specification:

Standards.....: EN 55015:2013
EN 61547:2009

This device described above has been tested by Bory, and the test results show that the equipment under test (EUT) is in compliance with the EC Council Directive 0f 2014/30/EU. And it is applicable only to the tested sample identified in the report.

Date of Test.....:

Date (s) of performance of tests .....: Dec. 05, 2016~Dec. 09, 2016

Date of Issue .....: Dec. 14, 2016

Test Result .....: **Pass**

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	EverExceed All-In-One Solar street light
Trade Name:	--
Model No.:	EVAL-40W
Adding Model(s):	EVAL-8W, EVAL-12W, EVAL-15W, EVAL-18W, EVAL-20W, EVAL-25W, EVAL-30W, EVAL-40W, EVAL-50W, EVAL-50WCOB, EVAL-60W, EVAL-60WCOB, EVAL-70W, EVAL-70WCOB, EVAL-80W, EVAL-80WCOB, EVAL-90W, EVAL-90WCOB, EVAL-100W, EVAL-100WCOB
Note: The test data is gathered from a production sample, provided by the manufacturer. The Sales area of others models listed in the report is different from main-test model EVAL-40W, but the circuit、the electronic construction and specification is identical, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	/
Rated Current:	--
Rated Power:	40W
Power Adaptor Model:	--

1.2 Test Standards

The following report is prepared on behalf of the EverExceed Industrial Co., Ltd. in accordance with EN55015, Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment, and EN61547, Equipment for general lighting purposes - EMC immunity requirements.

The objective of the manufacturer is to demonstrate compliance with the standards EN55015 and EN61547 for general lighting purposes equipment.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with the standards EN55015, EN61547 for

general lighting purposes equipment, and all related testing and measurement techniques intentional standards.

1.4 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission/immunity level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Lights UP	/
/	/	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Power Cable	1.4	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

1.5 Performance Criteria for EMS

All the test data has been collected, reduced, and analyzed within this report in accordance with Immunity requires the following as specific performance criteria:

A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.

B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.

C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.

2. SUMMARY OF TEST RESULTS

Standards	Description of Test Item	Result
EN55015	Disturbance Voltages	N/A
	Radiated Electromagnetic Disturbances (Frequency range 9kHz to 30MHz)	Compliant
	Radiated Electromagnetic Disturbances (Frequency range 30MHz to 300MHz)	Compliant
EN61547	Electrostatic Discharge Immunity in accordance with IEC 61000-4-2	Compliant
	Radio-Frequency Electromagnetic Field Immunity in accordance with IEC 61000-4-3	Compliant
	Electrical Fast Transient/Burst Immunity in accordance with IEC 61000-4-4	N/A
	Surges Immunity in accordance with IEC 61000-4-5	N/A
	Injected Currents Immunity in accordance with IEC 61000-4-6	N/A
	Power-frequency Magnetic Field Immunity in accordance with IEC 61000-4-8	N/A
	Voltage Dips/Interruptions Immunity in accordance with IEC 61000-4-11	N/A

N/A: not applicable

3. Radiated Electromagnetic Disturbances (9kHz to 30MHz)

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.6 dB.

3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-04-21	2017-04-20
Triple Loop Antenna	Schwarzbeck	HXYZ9170	9124	2016-04-21	2017-04-20

3.3 Test Procedure

Test is conducted under the description of EN 55015:2013, According to Clause 4.4

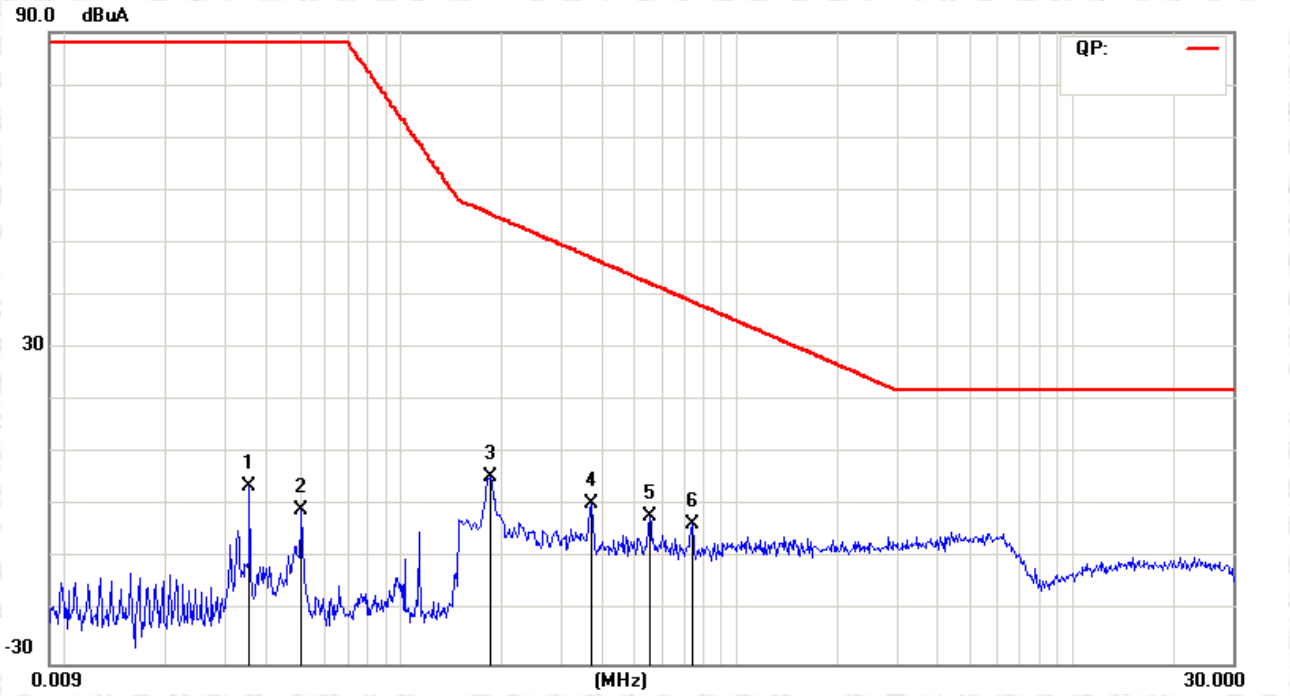
3.4 Test Result

Testing according to limit table 3b and the emissions below 10dB are not report.
Test Result: Pass
Please refer to the plots:

Plot of Electromagnetic Disturbances Test Data

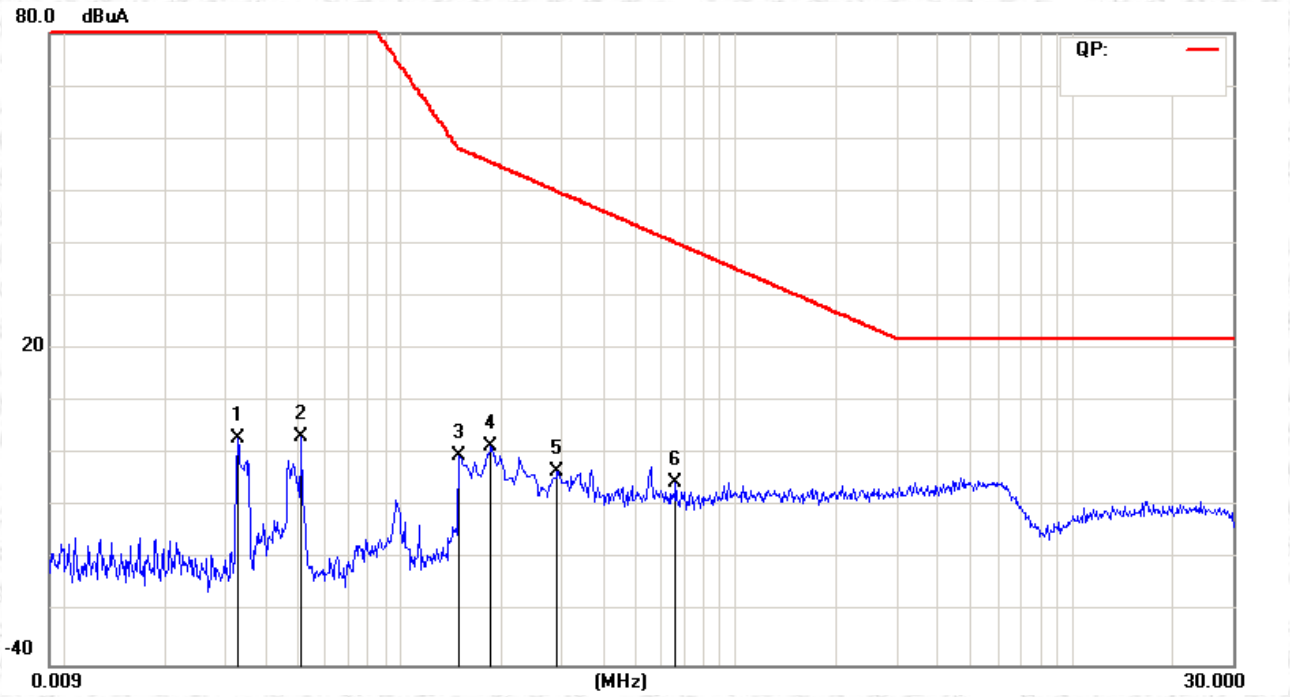
EUT: EverExceed All-In-One Solar street light
Tested Model: EVAL-40W
Operating Condition: TM1
Comment: Connect to Solar panels

Test Specification: X



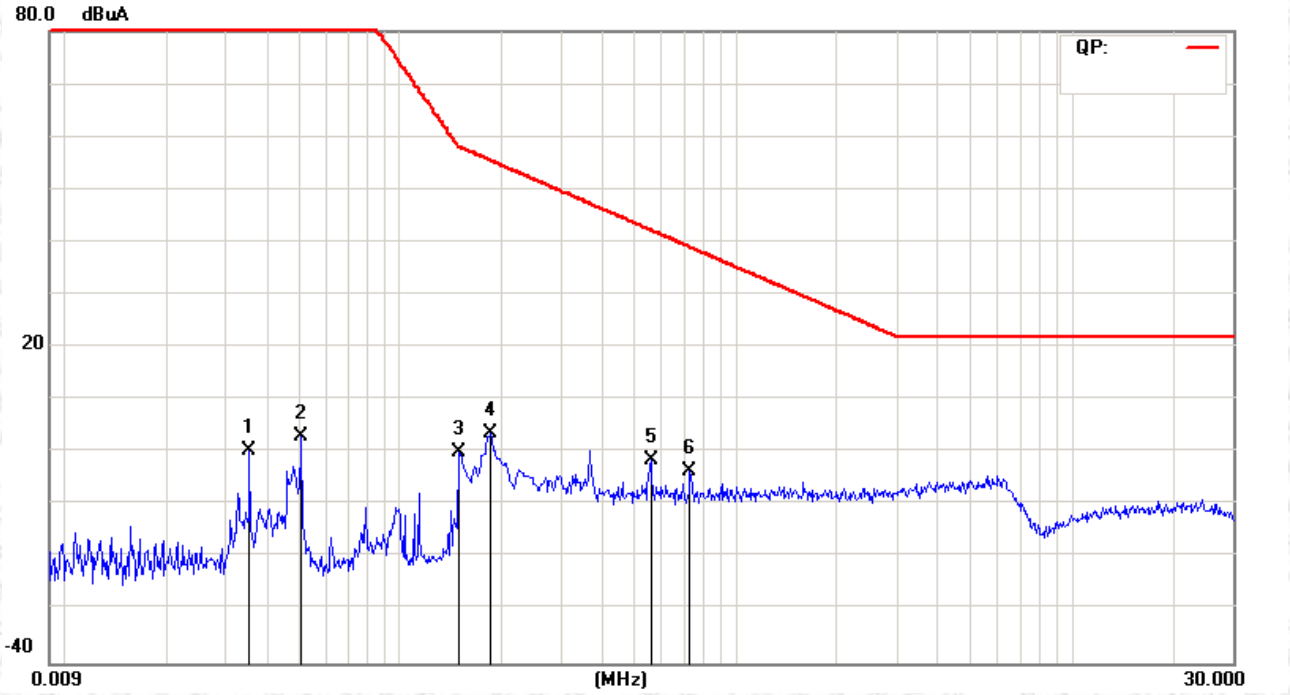
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector
1		0.0355	-17.12	20.84	3.72	88.00	-84.28	peak
2		0.0507	-21.43	20.77	-0.66	88.00	-88.66	peak
3		0.1860	-14.56	20.09	5.53	55.41	-49.88	peak
4		0.3700	-20.17	20.54	0.37	47.14	-46.77	peak
5		0.5540	-22.83	20.75	-2.08	42.29	-44.37	peak
6	*	0.7380	-24.13	20.80	-3.33	38.85	-42.18	peak

Test Specification: Y



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector
1		0.0329	-15.05	18.06	3.01	88.00	-84.99	peak
2		0.0507	-14.43	17.69	3.26	88.00	-84.74	peak
3		0.1500	-20.09	19.70	-0.39	57.99	-58.38	peak
4		0.1860	-18.33	19.99	1.66	55.41	-53.75	peak
5		0.2940	-23.57	20.34	-3.23	49.91	-53.14	peak
6	*	0.6620	-26.09	20.70	-5.39	40.16	-45.55	peak

Test Specification: Z



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector
1		0.0355	-19.05	19.52	0.47	88.00	-87.53	peak
2		0.0507	-15.88	18.80	2.92	88.00	-85.08	peak
3		0.1500	-19.73	19.70	-0.03	57.99	-58.02	peak
4		0.1860	-16.47	19.99	3.52	55.41	-51.89	peak
5		0.5580	-21.99	20.66	-1.33	42.21	-43.54	peak
6	*	0.7300	-24.37	20.70	-3.67	38.98	-42.65	peak

4. Radiated Electromagnetic Disturbances (30MHz to 300MHz)

4.1 Measurement Uncertainty

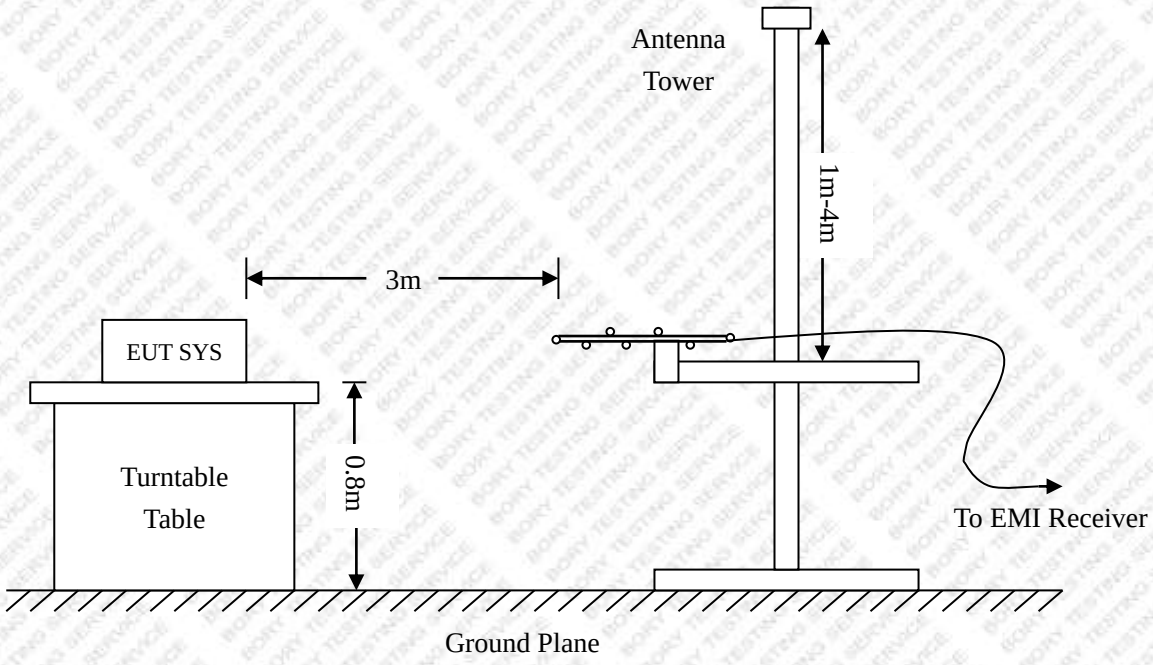
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2016-04-21	2017-04-20
EMI Test Receiver	R&S	ESVB	825471/005	2016-04-21	2017-04-20
Pre-amplifier	Agilent	8447F	3113A06717	2016-04-21	2017-04-20
Pre-amplifier	Compliance Direction	PAP-0118	24002	2016-04-21	2017-04-20
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2016-04-21	2017-04-20
Horn Antenna	ETS	3117	00086197	2016-04-21	2017-04-20

4.3 Test Procedure

Test is conducting under the description of EN55015 According to Clause 4.4.2.



4.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a lighting device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – EN55015 Limit

4.5 Environmental Conditions

Temperature:	23° C
Relative Humidity:	53%
ATM Pressure:	1011 mbar

4.6 Summary of Test Results/Plots

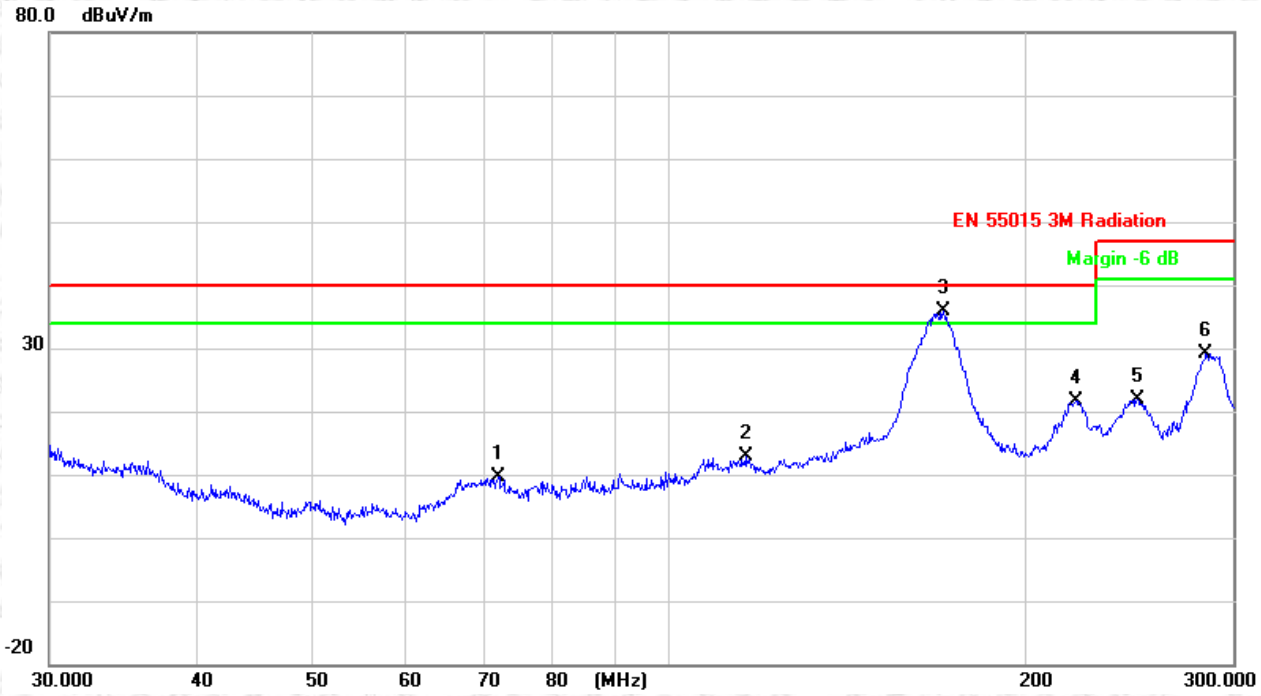
According to the data in section 5.6, the EUT complied with the EN55015 standards, and had the worst margin is:

-7.51 dB at **163.3508 MHz** in the, **Horizontal** polarization, **TM1** Model, **30 MHz to 300 MHz, 3Meters**

Plot of Radiated Emissions Test Data

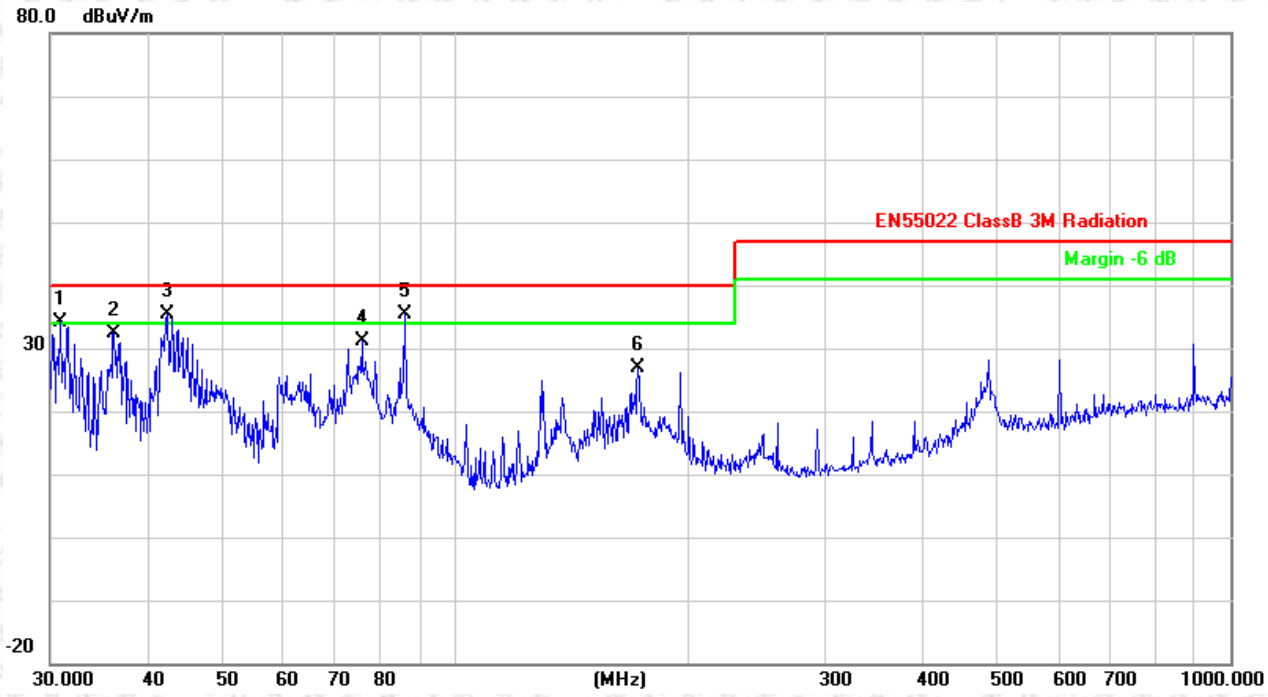
EUT: EverExceed All-In-One Solar street light
Tested Model: EVAL-40W
Operating Condition: TM1
Comment: Connect to Solar panels

Test Specification: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		30.2111	37.61	-14.09	23.52	40.00	-16.48	peak
2		42.4508	43.47	-21.19	22.28	40.00	-17.72	peak
3		85.8984	45.41	-22.94	22.47	40.00	-17.53	peak
4	*	171.9946	47.72	-21.06	26.66	40.00	-13.34	peak
5		344.3855	41.27	-14.96	26.31	47.00	-20.69	peak
6		487.3151	40.15	-11.65	28.50	47.00	-18.50	peak

Test Specification: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	!	30.8535	48.52	-14.49	34.03	40.00	-5.97	peak
2		36.2541	50.25	-17.83	32.42	40.00	-7.58	peak
3	*	42.4508	56.68	-21.19	35.49	40.00	-4.51	peak
4		75.7114	54.55	-23.42	31.13	40.00	-8.87	peak
5	!	85.8984	58.34	-22.94	35.40	40.00	-4.60	peak
6		171.9946	47.94	-21.06	26.88	40.00	-13.12	peak

5. Electrostatic Discharge Immunity (ESD)

5.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
ESD Generator	TESQ AG	NSG 437	161	2016-04-21	2017-04-20

5.2 Test Procedure

Test is conducting under the description of IEC61000-4-2.

Test Performance

Performance Criterion: B

Environmental Conditions

Temperature:	24 °C
Relative Humidity:	55%
ATM Pressure:	1011 mbar

5.3 Electrostatic Discharge Immunity Test Data

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2	Test Levels (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Gaps	A	A	A	A	A	A	B	B		
Non-metallic Parts	A	A	A	A	A	A	B	B		

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2	Test Levels (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Metal Part	A	A	A	A						

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

EN 61000-4-2	Test Levels (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Front Side	A	A	A	A						
Top Side	A	A	A	A						
Back Side	A	A	A	A						
Left Side	A	A	A	A						
Right Side	A	A	A	A						

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

EN 61000-4-2	Test Levels (kV)									
Test Points	-2	+2	-4	+4	-6	+6	-8	+8	-15	+15
Front Side	A	A	A	A						
Top Side	A	A	A	A						
Back Side	A	A	A	A						
Left Side	A	A	A	A						
Right Side	A	A	A	A						

Test Result: Pass

6. Radio-Frequency Electromagnetic Fields (R/S)

6.1 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Signal Generator	Rohde & Schwarz	SMT03	100059	2016-04-21	2017-04-20
Voltage Probe	Rohde & Schwarz	URV5-Z2	100013	2016-04-21	2017-04-20
Power Amplifier	AR	150W1000	300999	2016-04-21	2017-04-20
Power Amplifier	AR	25S1G4AM1	305993	2016-04-21	2017-04-20
Trilog Antenna	SCHWARZBECK	VULB9163	9163-333	2016-04-21	2017-04-20
Anechoic chamber	Albatross Projects	MCDC	----	2016-04-21	2017-04-20

6.2 Test Procedure

Test is conducting under the description of IEC61000-4-3.

Test Performance

Performance Criterion: A

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1010 mbar

6.3 Continuous Radiated Disturbances Test Data

Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A

Test Result: Pass

EXHIBIT 1- PRODUCT LABELING

Proposed CE Label Format

Specifications: Text is Black in color and is justified. Labels are printed in indelible ink on permanent adhesive backing or silk-screened onto the EUT or shall be affixed at a conspicuous location on the EUT. The 'CE' marking must be affixed to the EUT or to its data plate. Where this is not possible or not warranted on account of the nature of the apparatus, it must be affixed to the packaging, if any, and to the accompanying documents. The 'CE' marking must have a height of at least 5 mm. If the 'CE' marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.

EXHIBIT 2 - EUT PHOTOGRAPHS

EUT View 1

EUT View 2

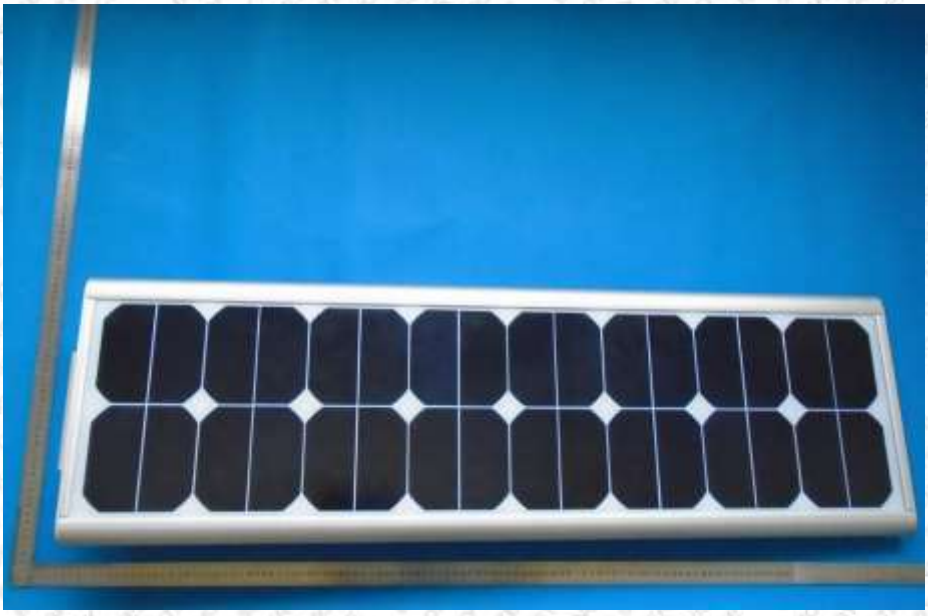
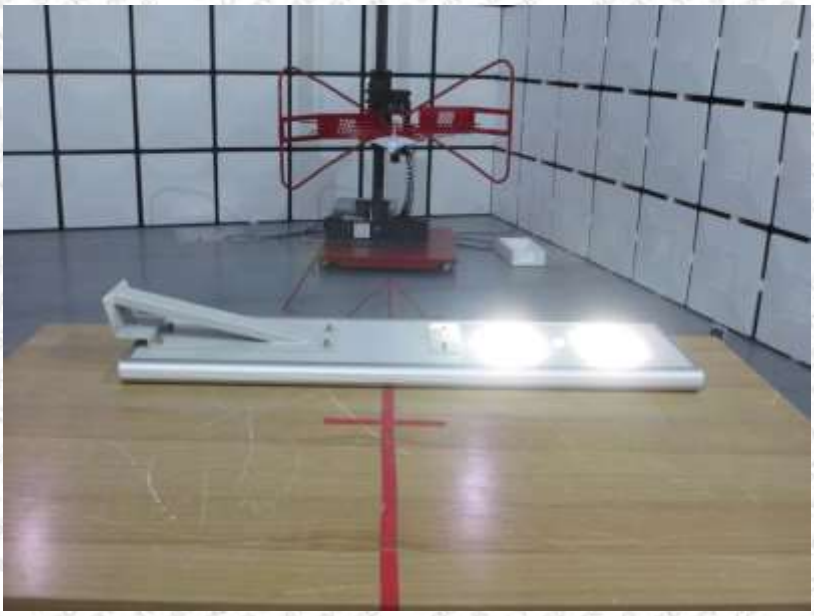


EXHIBIT 3 - TEST SETUP PHOTOGRAPHS

Radiation Emission Test View (9kHz to 30MHz)

Radiation Emission Test View



IEC61000-4-2 Test View

IEC61000-4-3 Test View

******* END OF REPORT *******