

CTS (NINGBO) TESTING SERVICE TECHNOLOGY INTERNATIONAL

**OPERATE ACCORDING TO ISO/IEC 17025** 

# **C-TICK TEST REPORT**

# TEST REPORT NUMBER : CGZ3130926-00879-E



**CTS (Ningbo) Testing Service Technology Co., Ltd.** 2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China





Limits and methods of measu	TEST REPORT AS/NZS CISPR 15 : 2011 rements of radio disturbance charact similar equipment.	eristics of electrical lighting and
Report Reference No	CGZ3130926-00879-E	
Date of issue	29 September 2013	
Testing Laboratory Name	CTS (Ningbo) Testing Service	Technology Co., Ltd.
	GZ test site: A101, No.65, Zhuji I Guangzhou, Guangdong, China.	
	Full application of Harmonised st Partial application of Harmonised Other standard testing method	d standards ∐ ∃
Applicant's name	Shenzhen Aglare Lighting Co.,Lt	d.
	Factory A, Supply and Marketing Avenue, Guanlan Town Bao'ar China	Cooperative Park Guanlan
Test specification:		
Standard	AS/NZS CISPR 15 : 2011	
Test Report Form No	CTSEMC-1.0	
TRF Originator	CTS (Ningbo) Testing Service Te	echnology Co., Ltd.
Master TRF	Dated 2009-01	
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Test item description	LED Driver	
Trade Mark	Aglare Driver	
Manufacturer	Shenzhen Aglare Lighting Co.,Ltd.	
Model/Type reference	YJ-020WE036-600P	
Ratings	AC 230-240V, 50/60Hz, 10/20W	(A)
Result	PASSED	
Compiled by:	Supervised by:	Approved by:

Kate zhang / File administrators

Duke yang / Technique principal

Vincent yao / Manager



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Report No.: CGZ3130926-00879-E





# C-TICK--TEST REPORT

# Test Report No. : CGZ3130926-00879-E

29 September 2013 Date of issue

Type / Model	YJ-020WE036-600P
EUT	LED Driver
Applicant	Shenzhen Aglare Lighting Co.,Ltd.
Address	Factory A, Supply and Marketing Cooperative Park Guanlan Avenue, Guanlan Town Bao' an District, City, Guangdong, China
Telephone	+86-755-88868631
Fax	+86-755-88863251
Contact	Cheng Jun
Manufacturer	Shenzhen Aglare Lighting Co.,Ltd.
Address	Factory A, Supply and Marketing Cooperative Park Guanlan Avenue, Guanlan Town Bao' an District, City, Guangdong, China
Telephone	+86-755-88868631
Fax	+86-755-88863251
Contact	Cheng Jun
Factory	Shenzhen Aglare Lighting Co.,Ltd.
Address	Factory A, Supply and Marketing Cooperative Park Guanlan Avenue, Guanlan Town Bao' an District, City, Guangdong, China
Telephone	+86-755-88868631
Fax	+86-755-88863251
Contact	Cheng Jun

The test report merely corresponds to the test sample.

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# 1 TEST STANDARDS

The tests were performed according to following standards:

AS/NZS CISPR 15:2011 Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment.

## 2 SUMMARY

## 2.1 GENERAL REMARKS

Date of receipt of test sample	26 September 2013
Testing commenced on	26~28 September 2013
Testing concluded on	29 September 2013

## 2.2 FINAL ASSESSMENT

The EMC requirements pertaining to the technical standards and tested operation modes are

fulfilled.

□ - **not** fulfilled.

The equipment under test

- fulfils the EMC requirements cited on page 1.
- **does not** fulfil the EMC requirements cited on page 1.

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## **3 EQUIPMENT UNDER TEST**

#### 3.1 Power supply system utilised

Power supply voltage:

AC 230V/50Hz
 Other (Specified blank below)

## 3.2 Short description of the Equipment under Test (EUT)

1

Number of tested samples: Serial number: Prototype

#### 3.3 EUT operation mode

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

- Normal

Operating Mode:	Normal		

Emissions tests...... According to AS/NZS CISPR 15, searching for the highest disturbance.

#### **3.4 EUT configuration**

(The CDF filled by the applicant can be viewed at the test laboratory.)

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

Not Applicable

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# **4 TEST ENVIRONMENT**

#### 4.1 Address of the test laboratory

GZ test site: A101, No.65, Zhuji Road, Tianhe District, Guangzhou, Guangdong, China

Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406

#### 4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

#### CNAS-Lab Code: L3394

CTS (Ningbo) Testing Service Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### **IC-Registration No.: 8374A**

The 3m Alternate Test Site of CTS (Ningbo) Testing Service Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on June 06, 2011.

#### FCC-Registration No.: 971995

CTS (Ningbo) Testing Service Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.971995, July 13, 2012.

#### 4.3 Environmental conditions

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

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

#### 4.4 Definitions of symbols used in this test report

- The black square indicates that the listed condition, standard or equipment is applicable for this report.
- The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

#### 4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. 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.

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## 4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Dediction organization (2m)	30MHz~300MHz	±3.14dB	(1)
Radiation emission (3m)	300MHz~1000MHz	±3.18dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

(2) The actual EUT tested items in this test report, only applies to this "measurement uncertainty" in part / all of the corresponding data.

#### **4.7 Test Description**

#### 4.7.1 Description of Standards and Results

EMISSION				
Description of Test Item	Standard	Limits	Results	
Conducted disturbance at mains terminals	AS/NZS CISPR 15: 2011		PASSED	
Radiatd Electromagnetic Disturbance	AS/NZS CISPR 15: 2011		PASSED	
Radiatd Disturbance	AS/NZS CISPR 15: 2011		PASSED	
N/A is an abbreviation for Not Applicable.				

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# **5 TEST CONDITIONS AND RESULTS**

#### 5.1 Conducted disturbance

For test instruments and accessories used see section 6 part 6.3.

#### 5.1.1 Description of the test location

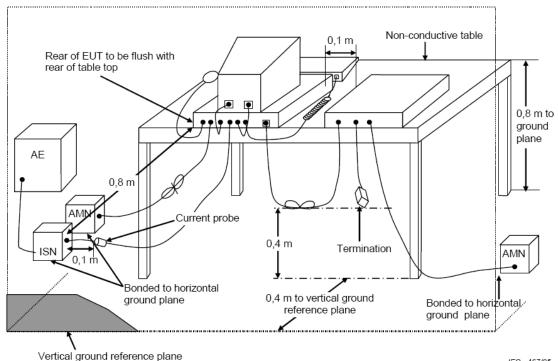
Test location: Shielded room

#### 5.1.2 Description of the test set-up

5.1.2.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

#### 5.1.2.2 Block Diagram of Test Setup



IEC 467/05

#### 5.1.3 Limits disturbance

Frequency			At mains terminals (dBµV)	
requeitcy		icy	Quasi-peak Level	Average Level
9kHz	~	50kHz	110	
50kHz	~	150kHz	90 ~ 80*	
150kHz	~	0.5MHz	66 ~ 56*	56 ~ 46*
0.5MHz	~	2.51MHz	56	46
2.51MHz	~	3.0MHz	73	63
3.0MHz	~	5.0MHz	56	46
5.0MHz	~	30MHz	60	50

#### Note: (1) The tighter limit shall apply at the edge between two frequency bands.

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#### 5.1.4 Test result

The requirements are	Fulfilled
Band width	9kHz
Frequency range	9kHz - 30 MHz
Min. limit margin	>1.26 dB at 9kHz - 30 MHz

**Remarks:** The limits are kept. For detailed results, please see the following page(s).

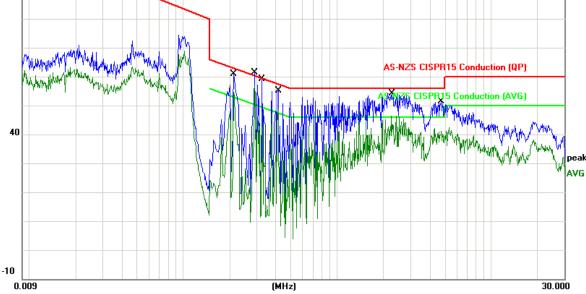
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#### 5.1.5 Test protocol

Test point L Operation mode Nor Remarks:	mal	Result:	<ul> <li>■ - passed</li> <li>□ - not passed</li> </ul>
EUT	LED Driver		
Operating Condition	AC 240V/50Hz		
Operator	Leo		
MODEL NO.	YJ-020WE036-600P		
90.0 dBuV		AS-N	ZS CISPR15 Conduction (QP)



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2140	9.78	50.77	60.55	63.04	-2.49	QP
2	0.2140	9.78	35.88	45.66	53.04	-7.38	AVG
3	0.2940	9.79	48.79	58.58	60.41	-1.83	QP
4	0.2940	9.79	32.62	42.41	50.41	-8.00	AVG
5	0.3260	9.80	47.26	57.06	59.55	-2.49	QP
6	0.3260	9.80	29.11	38.91	49.55	-10.64	AVG
7	0.4140	9.82	43.67	53.49	57.57	-4.08	QP
8	0.4140	9.82	26.26	36.08	47.57	-11.49	AVG
9	2.2820	9.87	39.39	49.26	56.00	-6.74	QP
10	2.2820	9.87	25.08	34.95	46.00	-11.05	AVG
11	4.7940	9.92	34.60	44.52	56.00	-11.48	QP
12	4.7940	9.92	24.50	34.42	46.00	-11.58	AVG

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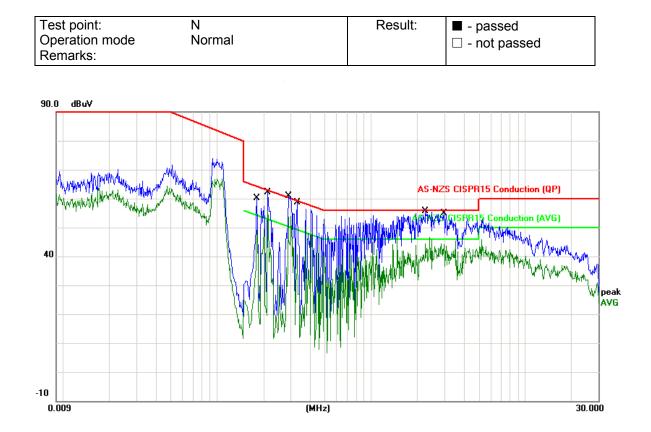
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1820	9.78	48.72	58.50	64.39	-5.89	QP
2	0.1820	9.78	31.28	41.06	54.39	-13.33	AVG
3	0.2140	9.78	51.63	61.41	63.04	-1.63	QP
4	0.2140	9.78	36.66	46.44	53.04	-6.60	AVG
5	0.2940	9.79	49.36	59.15	60.41	-1.26	QP
6	0.2940	9.79	35.51	45.30	50.41	-5.11	AVG
7	0.3300	9.80	49.03	58.83	59.45	-0.62	QP
8	0.3300	9.80	29.64	39.44	49.45	-10.01	AVG
9	2.2580	9.87	40.94	50.81	56.00	-5.19	QP
10	2.2580	9.87	26.86	36.73	46.00	-9.27	AVG
11	2.9940	9.89	40.23	50.12	56.00	-5.88	QP
12	2.9940	9.89	27.42	37.31	46.00	-8.69	AVG

Note:Level=Reading+Factor. Ma

Margin= Limit-Level

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## 5.2 Radiated disturbance (magnetic field)

For test instruments and accessories used see section 6 part 6.2.

#### 5.2.1 Description of the test location

Test location : Shielded room

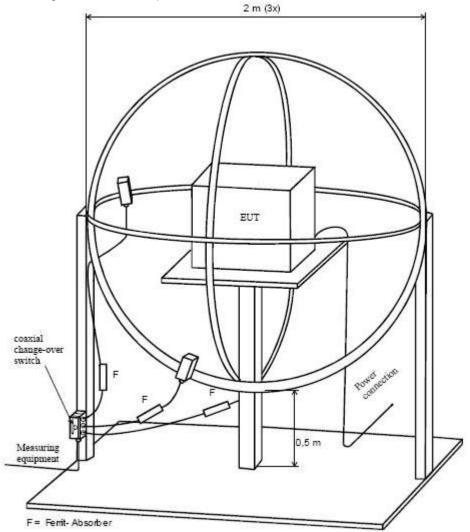
Test disturbance: 2 Meter

#### 5.2.2 Description of the test set-up

5.2.2.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

#### 5.2.2.2 Block Diagram of Test Setup



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#### 5.2.3 Limits of disturbance

Frequency			Limits for loop diameter (dBµA)
Trequency		icy	2m
9kHz	~	70kHz	88
70kHz	~	150kHz	88 ~ 58*
150kHz	~	2.2MHz	58 ~ 26*
2.2MHz	~	3.0MHz	58
3.0MHz	~	30MHz	22

Note: (1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

#### 5.2.4 Test result

The requirements are	Fulfilled
Band width	9kHz
Frequency range	9kHz - 30 MHz
Min. limit margin MHz	>11.68 dB at 9kHz- 30MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).

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#### 5.2.5 Test protocol

Test pointXOperation modeNormalRemarks:	Result: ■ - passed □ - not passed
EUT	LED Driver
Operating Condition	AC 240V/50Hz
Operator	Leo
MODEL NO.	YJ-020WE036-600P
30	AS-NZS CISPR15 Loop

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						1 . WWW
D.009				(MHz)		30.1

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.0748	55.60	-42.36	13.24	85.39	-72.15	peak
2	0.1810	55.62	-44.70	10.92	55.74	-44.82	peak
3	0.6736	55.17	-41.09	14.08	39.95	-25.87	peak
4	1.5916	54.48	-42.71	11.77	29.62	-17.85	peak
5	2.9009	54.51	-43.79	10.72	22.40	-11.68	peak
6	4.3873	52.39	-43.08	9.31	22.00	-12.69	peak

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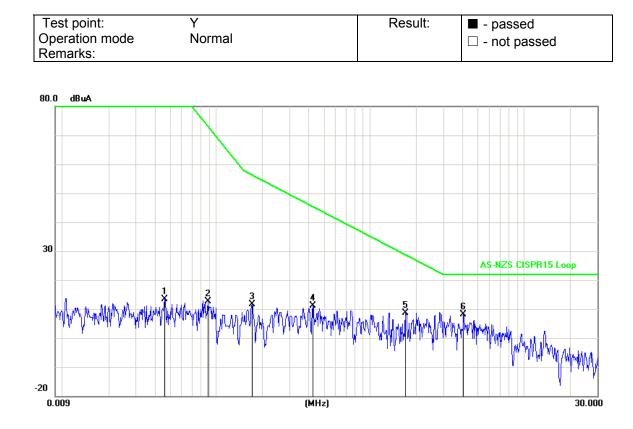
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.0463	56.50	-43.06	13.44	88.00	-74.56	peak
2	0.0887	56.56	-43.99	12.57	78.68	-66.11	peak
3	0.1710	56.19	-44.57	11.62	56.43	-44.81	peak
4	0.4242	55.98	-44.83	11.15	45.51	-34.36	peak
5	1.6983	53.59	-44.92	8.67	28.84	-20.17	peak
6	4.0455	52.75	-44.65	8.10	22.00	-13.90	peak

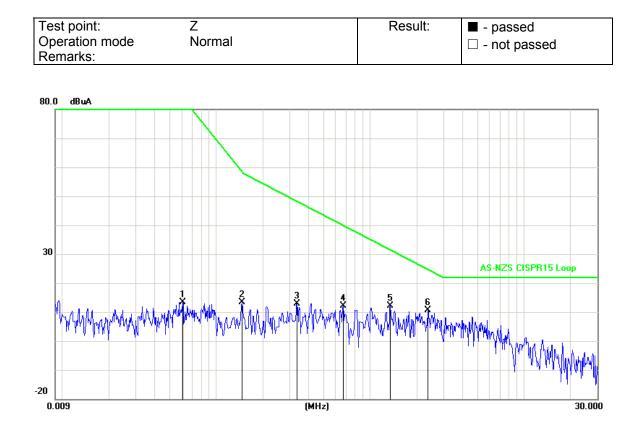
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.0606	57.25	-43.79	13.46	88.00	-74.54	peak
2	0.1466	56.49	-43.08	13.41	58.90	-45.49	peak
3	0.3353	56.67	-43.85	12.82	48.33	-35.51	peak
4	0.6682	56.16	-44.11	12.05	40.05	-28.00	peak
5	1.3533	55.99	-43.90	12.09	31.57	-19.48	peak
6	2.3684	54.97	-44.33	10.64	24.84	-14.20	peak

Note:Level=Reading+Factor. Margin= Limit-Level

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### 5.3 Radiated disturbance (Electric field)

For test instruments and accessories used see section 6 part 6.1.

#### 5.3.1 Description of the test location

: Semi-Anechoic chamber Test location

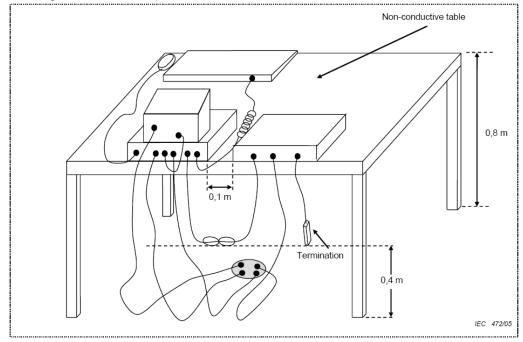
Test disturbance: 3 Meter

#### 5.3.2 Description of the test set-up

5.3.2.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

#### 5.3.2.2 Block Diagram of Test Setup



#### 5.3.3 Limits of disturbance

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBµV/m)
30 ~ 230	3	40
230 ~ 300	3	47

Note: (1) The tighter limit shall apply at the edge between two frequency bands. (2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

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#### 5.3.4 Test result

The requirements are	Fulfilled
Band width	120kHz
Frequency range	30 MHz - 300 MHz
Min. limit margin	>2.71 dB at 30 - 300 MHz

**Remarks:** The limits are kept. For detailed results, please see the following page(s).

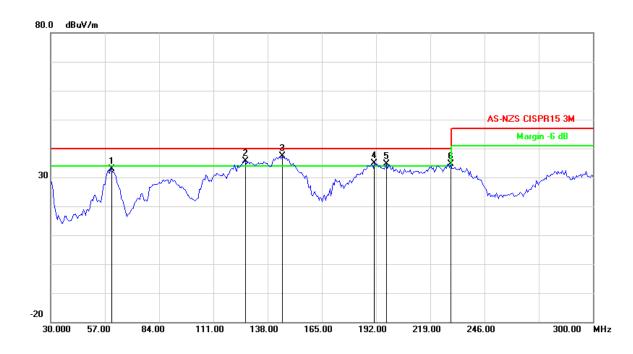
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#### 5.3.5 Test protocol

Test point: Operation mode Remarks:	Horizonta Normal	l	Result:	<ul> <li>passed</li> <li>not passed</li> </ul>
EUT		LED Driver		
Operating Condition		AC 240V/50Hz		
Operator		Leo		
MODEL NO.		YJ-020WE036-60	10P	



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	60.3006	-24.12	56.98	32.86	40.00	-7.14	QP
2	126.8537	-17.40	53.11	35.71	40.00	-4.29	QP
3	145.2505	-16.88	54.17	37.29	40.00	-2.71	QP
4	191.2425	-12.09	46.96	34.87	40.00	-5.13	QP
5	197.1944	-12.48	47.08	34.60	40.00	-5.40	QP
6	229.1182	-12.35	46.90	34.55	40.00	-5.45	QP

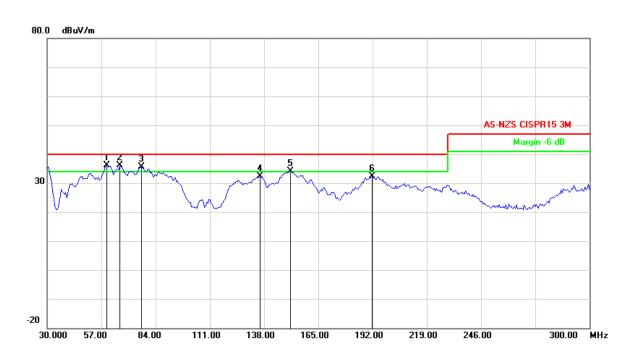
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Test point:	Vertical	Result:	- passed
Operation mode	Normal		□ - not passed
Remarks:			



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	59.7595	-24.62	60.85	36.23	40.00	-3.77	QP
2	66.2525	-23.65	59.70	36.05	40.00	-3.95	QP
3	77.0741	-21.43	57.04	35.61	40.00	-4.39	QP
4	136.0521	-16.65	48.99	32.34	40.00	-7.66	QP
5	151.2024	-17.53	51.69	34.16	40.00	-5.84	QP
6	191.7836	-12.13	44.46	32.33	40.00	-7.67	QP

Note:Level=Reading+Factor. Margin= Limit-Level

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#### USED TEST EQUIPMENT 6

	6.1					
Radia	ted disturbance (Electric	field)				
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2013/03/28	
2	EMI Test Receiver	ROHDE & SCHWARZ	ESVS 10	842885/001	2012/11/06	
3	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2013/03/29	
4	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2013/03/29	
5	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2013/03/29	
6	Pre-Amplifier	EMC	EMC330	980113	2013/03/28	
7	Pre-Amplifier	EMC	EMC012645	980114	2013/03/28	
8	EMI Test Software	Farad	EZ-EMC	N/A	N/A	

	6.2						
Radia	Radiated Disturbance (Magnetic field)						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	Triple-Loop Antenna	ROHDE & SCHWARZ	HM020	100015	2012/11/20		
2	EMI Test Software	Farad	EZ-EMC	N/A	N/A		

	6.3						
Cond	Conducted Disturbance						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2012/11/06		
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2012/11/06		
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z6	100140	2012/11/06		
4	Pulse Limiter	ROHDE & SCHWARZ	ESHS-Z2	100301	2012/11/06		
5	EMI Test Software	Farad	EZ-EMC	N/A	N/A		

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# 7 TEST PHOTOGRAPHS

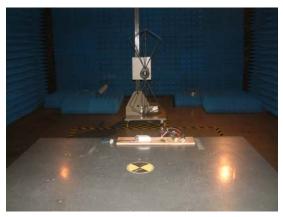
7.1. Photo of power line conducted emission measurement (C.E.)



7.2. Photo of radiated emission measurement (R.E. Magnetic field)



7.3. Photo of radiated emission measurement (R.E. Electric field)



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# CTS

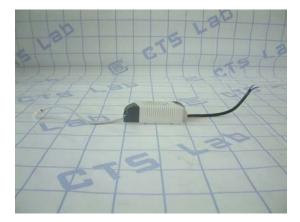
# 8 EXTERNAL AND INTERNAL PHOTOS OF THE EUT



#### **External view 1**



**External view 2** 

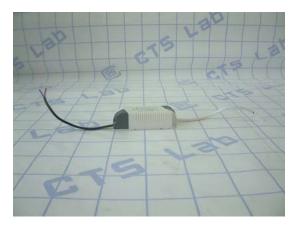


#### **External view 3**

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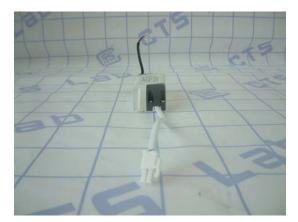




**External view 4** 



**External view 5** 



**External view 6** 

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**Internal View** 



Label



PCB View 1

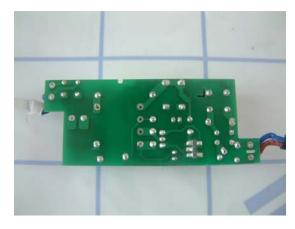
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PCB View 2

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# 9 Manufacturer/ Approval holder Declaration

The following identical model(s):

# YJ-010WE036-250P, YJ-010WE036-150P, YJ-010WE036-300P, YJ-020WE036-500P, YJ-020WE036-450P, YJ-020WE036-350P, YJ-020WE036-550P

Belong to the tested device:

Product description: LED Driver Model name: YJ-020WE036-600P

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