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Test Report

EN 55015: 2013

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

EN 61547: 2009

Equipment for general lighting purposes - EMC immunity requirements

Report Reference No.: CTL1504271020-E

Original Report Reference No.: CTL1401160083-E

Compiled by

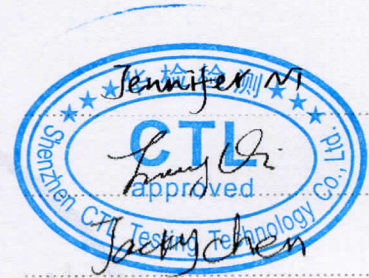
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Date of issue.....: April 28, 2015

Laboratory Name: Shenzhen CTL Testing Technology Co., Ltd.

Address.....: Floor 1-A, Baisha Technology Park, No.3011, Shahehexi Road, Nanshan District, Shenzhen, China 518055

Testing location/ procedure: Full application of Harmonised standards
Partial application of Harmonised standards
Other standard testing methods

Applicant's name: FOSHAN TUFF PLUS AUTO LIGHTING CO.,LTD

Address.....: Rd.Ritian, Songxia, Songgang, Nanhai, Foshan, Guangdong, China, 528234

Test specification:

Standards: EN 55015: 2013
EN 61547: 2009
EN 61000-3-2:2014
EN 61000-3-3: 2013

Test Report Form No.....:

TRF Originator.....: Shenzhen CTL Testing Technology Co., Ltd.

Master TRF.....: Dated 2011-01

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Trade Mark: TUFF PLUS

Manufacturer: FOSHAN TUFF PLUS AUTO LIGHTING CO.,LTD

Model/Type reference.....: F0201

Listed Models: See next page

Ratings.....: DC 10~30V

Result.....: Positive

EMC -- TEST REPORT

Test Report No. : CTL1504271020-E	April 28, 2015
	Date of issue

Equipment under Test : LED work light bar

Model / Type : F0201

Listed Models : F0101, F0102, F0103, F0104, F0105, F0106, F0107, F0108, F0109, F0110, F0111, F0112, F0113, F0114, F0115, F0116, F0117, F0118, F0119, F0120, F0121, F0202, F0203, F0204, F0205, F0206, F0206A, F0207, F0208, F0209, F0210, F0211, F0301, F0302, F0303, F0304, F0305, F0306, F0307, F0308, F0309, F0310, F0311, F0312, F0313, F0314, F0315, F0316, F0317, F0401, F0402, F0403, F0404, F0405, F0406, F0407, F0408, F0409, F0410, E01series, E02 series, E03 series, E04 series, E05 series, E06 series, E07 series, E08 series, E09 series, E10 series, E11 series, E12 series, E13 series, E14 series, E15 series, E16 series, E17 series, E18 series, E19series, E20 series, E21 series, E22 series, E23 series, E24 series, E25 series, E26 series, E27 series, E28 series, E29 series, E30 series, E31 series, E32 series, E33 series, A0101, A0102, A0103, A0104, A0105, A0106, A0107, A0108, A0109, A0110, A0201, A0202, A0203, A0204, A0205, A0206, A0207, A0208, A0209, A0210, B0101, B0102, B0103, B0104, B0105, B0106, B0107, B0108, C0101, C0102, C0103, C0104, C0105, C0106, C0107, C0108, C0109, C0110, C0201, C0202, C0203, C0204, C0205, C0206, C0207, C0208, C0209, C0210, C0211, C0212, C0213, C0214, C0215, C0216, C0217, C0218, C0218, C0219, C0220, C0221, C0222, D0101, D0102, D0103, D0104, D0201, D0202, D0203, D0204, D0205, D0206, D0207, D0208

Applicant : FOSHAN TUFF PLUS AUTO LIGHTING CO.,LTD

Address : Rd.Ritian, Songxia, Songgang, Nanhai, Foshan, Guangdong, China, 528234

Manufacturer : FOSHAN TUFF PLUS AUTO LIGHTING CO.,LTD

Address : Rd.Ritian, Songxia, Songgang, Nanhai, Foshan, Guangdong, China, 528234

Test Result according to the standards on page 5:	Positive
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

History of this test report

Report No.	Version	Description	Issued Date
CTL1401160083-E	V1.0	Initial Issued Report	January 21, 2014
CTL1504271020-E	V2.0	revise Applicant, Product, Trademark, Model(s), Manufacturer and Address	April 28, 2015



Contents

1.	<u>TEST STANDARDS.....</u>	<u>5</u>
2.	<u>SUMMARY.....</u>	<u>6</u>
2.1.	General Remarks	6
2.2.	Equipment Under Test	6
2.3.	Short description of the Equipment under Test (EUT)	6
2.4.	EUT operation mode	6
2.5.	EUT configuration:	7
2.6.	Performance level	7
3.	<u>TEST ENVIRONMENT</u>	<u>8</u>
3.1.	Address of the test laboratory	8
3.2.	Test Facility	8
3.3.	Environmental conditions	8
3.4.	Test Description	8
3.5.	Statement of the measurement uncertainty	9
3.6.	Equipments Used during the Test	10
4.	<u>TEST CONDITIONS AND RESULTS.....</u>	<u>12</u>
4.1.	Magnetic Field Emission	12
4.2.	Conducted disturbance	16
4.3.	Radiation Emission	16
4.4.	Harmonic current	19
4.5.	Voltage Fluctuation and Flicker	19
4.6.	Electrostatic discharge	19
4.7.	Radiated, radio-frequency, electromagnetic field	21
4.8.	Electrical fast transients / Burst	23
4.9.	Surge	23
4.10.	Conducted disturbances induced by radio-frequency fields	23
4.11.	Magnetic Field Immunity	23
4.12.	Voltage Dips and Interruptions	23
5.	<u>TEST SETUP PHOTOS OF THE EUT</u>	<u>24</u>
6.	<u>PHOTOS OF THE EUT.....</u>	<u>26</u>

1. TEST STANDARDS

The tests were performed according to following standards:

[EN 55015: 2013](#) Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

[EN 61547: 2009](#) Equipment for general lighting purposes - EMC immunity requirements

[EN 61000-3-2:2014](#) Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)

[EN 61000-3-3: 2013](#) Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection



2. SUMMARY

2.1. General Remarks

Date of receipt of test sample : January15, 2014

Testing commenced on : January 15, 2014

Testing concluded on : January 21, 2014

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : 230V / 50 Hz 115V / 60Hz
 12 V DC 24 V DC
 Other (specified in blank below)

DC 10~30V

2.3. Short description of the Equipment under Test (EUT)

The EUT is a LED WORK LIGHT BAR

Serial number: Prototype

2.4. EUT operation mode

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

Test program (customer specific)

Emission tests.....:	According to EN 55015, searching for the highest disturbance.
Immunity tests.....:	According to EN 61547, searching for the highest susceptibility.
Harmonic current.....:	According to EN 61000-3-2, searching for the highest disturbance.
Voltage fluctuation.....:	According to EN 61000-3-3, searching for the highest disturbance.

2.5. EUT configuration:

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

- n - supplied by the manufacturer
- o - supplied by the lab

2.6. Performance level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test relative to a performance criteria defined by its manufacturer or the requestor of the test, or agreed between the manufacturer and the purchaser of the product. Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access(hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution
- quality of data display and transmission
- quality of speech transmission

Definition related to the performance level:

- based on the used product standard
- o based on the declaration of the manufacturer, requestor or purchaser

Criterion A:

During the test no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

Criterion B:

During the test the luminous intensity may change to any value. After the test the luminous intensity shall be restored to its initial value within 1 min.

Regulating controls need not function during the test, but after the test the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

Criterion C:

During and after the test any change of the luminous intensity is allowed and the lamp(s) may be extinguished . After the test , within 30 min, all functions shall return to normal if necessary by temporary interruption of the mains supply and/or operating the regulating control.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.

3.2. Test Facility

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

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 970318

Shenzhen CTL Testing 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 970318, December 19, 2013.

3.3. Environmental conditions

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

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Test Description

Emission Measurement		
Magnetic Field Emission (0.009~30MHz)	EN 55015: 2013	PASS
Conducted Disturbance	EN 55015: 2013	N/A
Radiation Emission(30~300MHz)	EN 55015: 2013	PASS
Harmonic Current	EN 61000-3-2: 2014	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013	N/A
Immunity Measurement		
Electrostatic Discharge	EN 61547: 2009 IEC 61000-4-2: 2008	PASS
RF Field Strength Susceptibility	EN 61547: 2009 IEC 61000-4-3: 2010	PASS
Electrical Fast Transient/Burst Test	EN 61547: 2009 IEC 61000-4-4: 2012	N/A
Surge Test	EN 61547: 2009 IEC 61000-4-5: 2014	N/A

Conducted Susceptibility Test	EN 61547: 2009 IEC 61000-4-6: 2013	N/A
Power Frequency Magnetic Field Susceptibility Test	EN 61547: 2009 IEC 61000-4-8: 2009	N/A
Voltage Dips and Interruptions Test	EN 61547: 2009 IEC 61000-4-11: 2004	N/A

Remark:

1. The test result PASS and /or FAIL has no relationship with the measurement uncertainty

3.5. 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 Shenzhen CTL Testing Technology Co., Ltd. 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.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	$\pm 4.10\text{dB}$	(1)
Radiated Emission	1~12.75GHz	$\pm 4.32\text{dB}$	(1)
Conducted Emission	0.15~30MHz	$\pm 3.22\text{dB}$	(1)

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

3.6. Equipments Used during the Test

Conducted Susceptibility (CS) :						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Conducted Disturbances test system	SCHLODER	CDG 6000	N/A	2014/05/20	2015/05/19
2	Amplifier	SCHLODER	4N100W-6DB	N/A	2014/07/01	2015/06/30
3	EM CLAMP	LÜTHI	EM101	335625	2014/05/20	2015/05/19
4	CDN	SCHLODER	CDN M2+M3	A2210225/2013	2014/05/20	2015/05/19

Harmonic Current/ Voltage Fluctuation and Flicker						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Purified Power Source	MToni	PHF 5010	N/A	2014/06/30	2015/06/29
2	Harmonic And Flicker Analyzer	Voltech	PM6000	N/A	2014/06/30	2015/06/29

Radiated Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	Sunol Sciences Corp.	JB1 Antenna	A061713	2014/05/22	2015/05/21
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2014/03/19	2015/05/21
3	Horn Antenna	Sunol Sciences Corp	DRH-118	A062013	2014/05/20	2015/05/19

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2014/03/19	2015/05/21
2	LISN	ROHDE & SCHWARZ	ESH2-Z5	860014/010	2014/03/19	2015/05/21

RF Field Strength Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	SIGNAL GENERATOR	IFR	2032	203002/100	2014/04/13	2015/04/12
2	AMPLIFIER	AR	150W1000	301584	2014/04/13	2015/04/12
3	DUAL DIRECTIONAL COUPLER	AR	DC6080	301508	2014/04/13	2015/04/12
4	POWER HEAD	AR	PH2000	301193	2014/04/13	2015/04/12
5	POWER METER	AR	PM2002	302799	2014/04/13	2015/04/12

Electrical Fast Transient/Surge/Dips						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Ultra Compact Simulator	HAEFELY	ECOMPACT4	174887	2014/05/16	2015/05/15

Electrostatic Discharge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ESD Simulator	EM TEST	ditto	SA313000001	2014/05/13	2015/05/12

Magnetic Field Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2014/05/22	2015/05/21
2	Triple-Loop Antenna	EVERFINE	LLA-2	1008002	2014/05/22	2015/05/21

Power Frequency Magnetic Field Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA COMPACT SIMULATOR	EM TEST	UCS500M6	202304/060	2014/04/13	2015/04/12
2	MOTOR DRIVEN VOLTAGE TRANSFORMER	EM TEST	MV2616	302205	2014/04/13	2015/04/12
3	CURRENT TRANSFORMER	EM TEST	MC2630	302389	2014/04/13	2015/04/12
4	MAGNETIC COIL	EM TEST	MS100	0010230A	2014/04/13	2015/04/12

4. TEST CONDITIONS AND RESULTS

4.1. Magnetic Field Emission

For test instruments and accessories used see section 3.6.

4.1.1. Description of the test location

Test location: Conduction Lab

4.1.2. Limits of disturbance

Frequency (MHz)	Limit For Loop Diameter of 2m (dBmA)
9K~70K	88
70K~150K	88 ~58
150K~2.2M	58~26
2.2M~3.0M	58
3.0M~30M	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.

4.1.3. Description of the test set-up

4.1.3.1. Operating Condition

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

4.1.3.2. Test Configuration and Procedure

EUT is placed in the center of triple-loop antenna (Diameter is 2m). Turn on the neon sign, and then the induced current in the loop antenna can be detected by a current probe and measured by the receiver. Three field directions shall be measured in sequence.

4.1.4. Test result

The requirements are **Fulfilled**

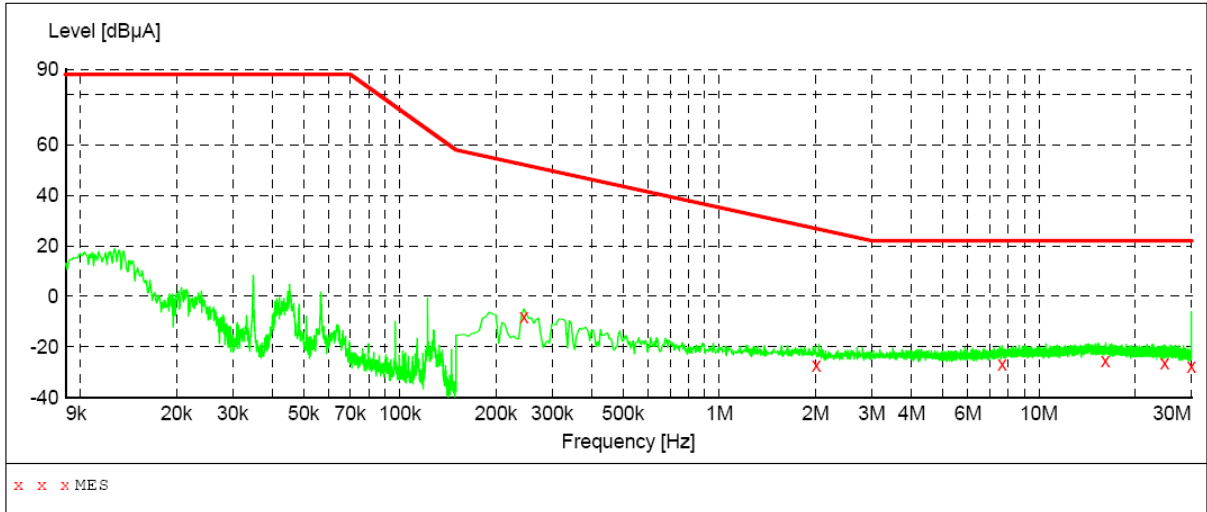
Band Width: 200Hz / 9KHz

Frequency Range: 9KHz to 150KHz / 150KHz to 30MHz

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

SCAN TABLE: "Magnetic test fin"

Short Description: EN55015 Triple Loop



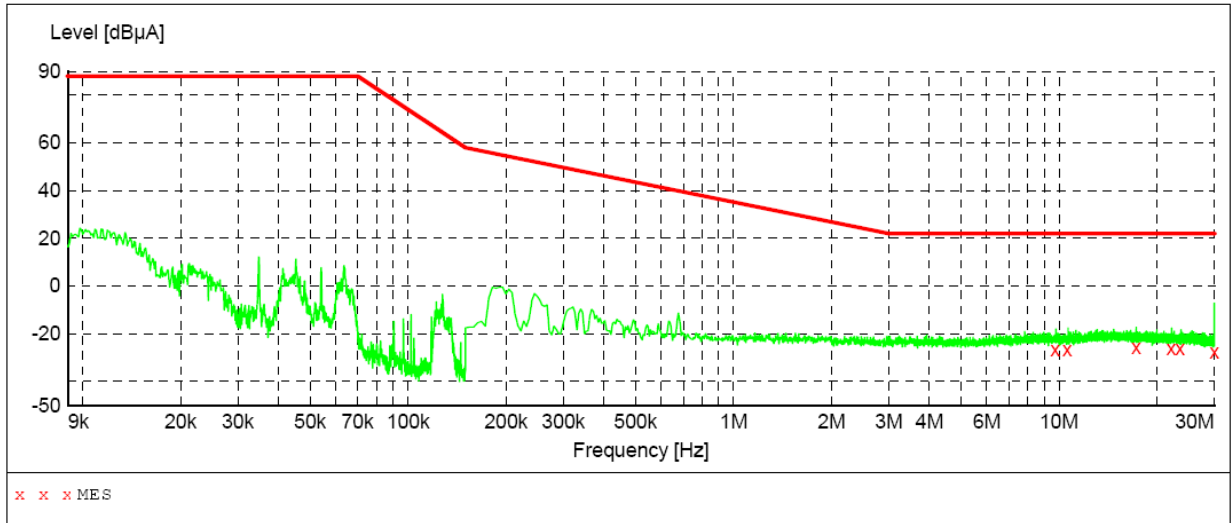
MEASUREMENT RESULT:

Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Det.	Loop	Azimuth deg
0.244500	-8.20	-15.3	52	60.3	QP	X	0.00
2.008500	-27.40	-16.4	27	54.2	QP	X	0.00
7.669500	-26.90	-15.9	22	48.9	QP	X	0.00
16.161000	-25.60	-14.8	22	47.6	QP	X	0.00
24.765000	-26.50	-15.8	22	48.5	QP	X	0.00
30.000000	-27.50	-17.3	22	49.5	QP	X	0.00



SCAN TABLE: "Magnetic test fin"

Short Description: EN55015 Triple Loop

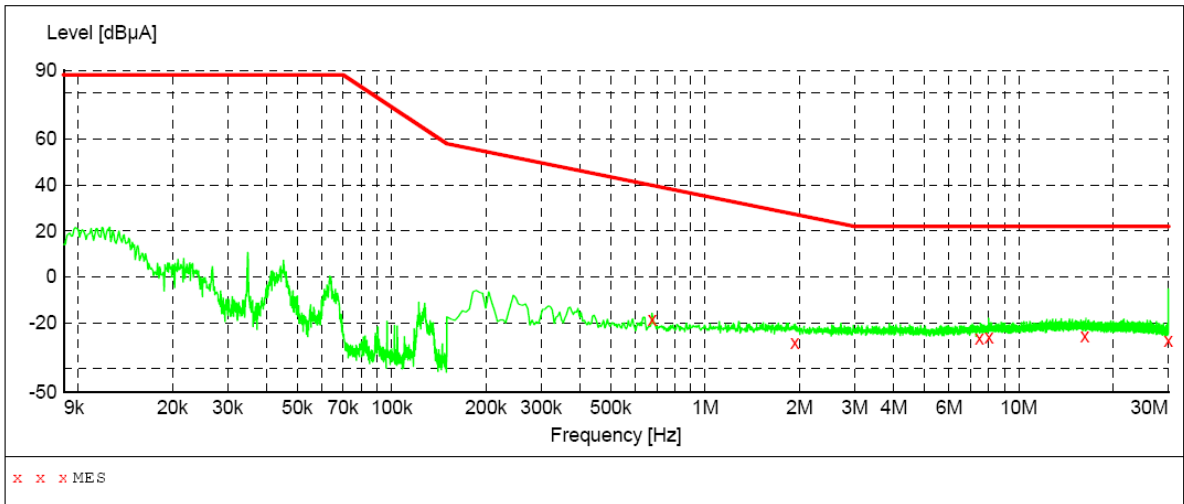


MEASUREMENT RESULT:

Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Det.	Loop	Azimuth deg
9.726000	-26.50	-15.5	22	48.5	QP	Y	0.00
10.576500	-26.50	-15.2	22	48.5	QP	Y	0.00
17.223000	-25.70	-15.0	22	47.7	QP	Y	0.00
22.087500	-26.10	-15.2	22	48.1	QP	Y	0.00
23.527500	-26.40	-15.5	22	48.4	QP	Y	0.00
30.000000	-27.60	-17.3	22	49.6	QP	Y	0.00



SCAN TABLE: "Magnetic test fin"
 Short Description: EN55015 Triple Loop



MEASUREMENT RESULT:

Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Det.	Loop	Azimuth deg
0.676500	-18.60	-16.3	40	58.5	QP	Z	0.00
1.927500	-28.40	-16.4	27	55.7	QP	Z	0.00
7.494000	-26.80	-16.0	22	48.8	QP	Z	0.00
8.034000	-26.30	-15.8	22	48.3	QP	Z	0.00
16.246500	-25.50	-14.9	22	47.5	QP	Z	0.00
30.000000	-27.60	-17.3	22	49.6	QP	Z	0.00



4.2. Conducted disturbance

The test is not applicable.

4.3. Radiation Emission

For test instruments and accessories used see section 3.6.

4.3.1. Description of the test location

Test location: Radiation Lab

4.3.2. Limit of Radiation Emission

Test configuration and procedure see the standard EN 55015: 2013

4.3.3. Description of the test set-up

4.3.3.1 Operating Condition

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

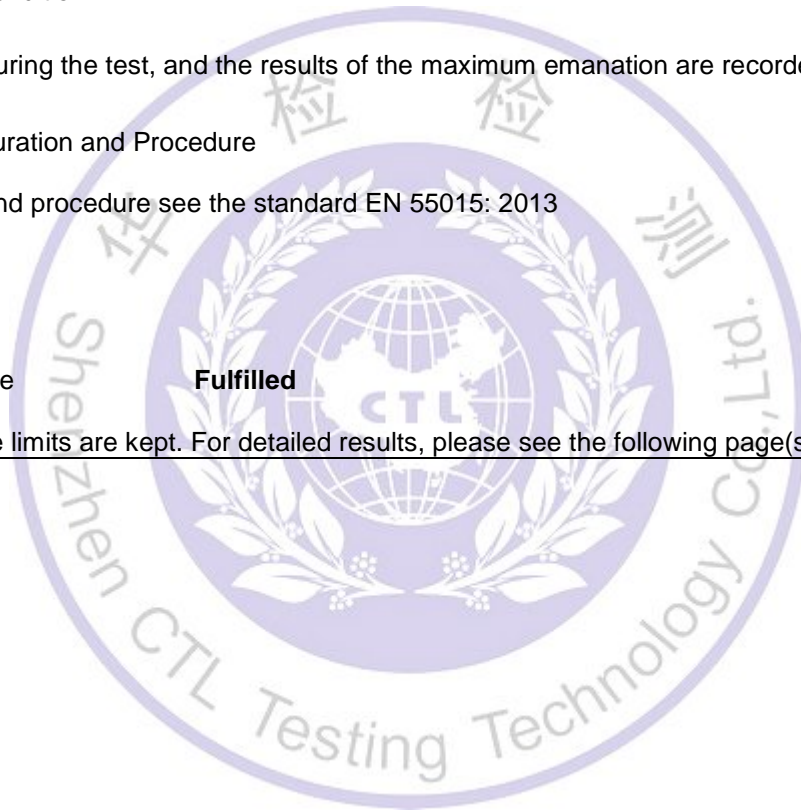
4.3.3.2 Test Configuration and Procedure

Test configuration and procedure see the standard EN 55015: 2013

4.3.4. Test Result

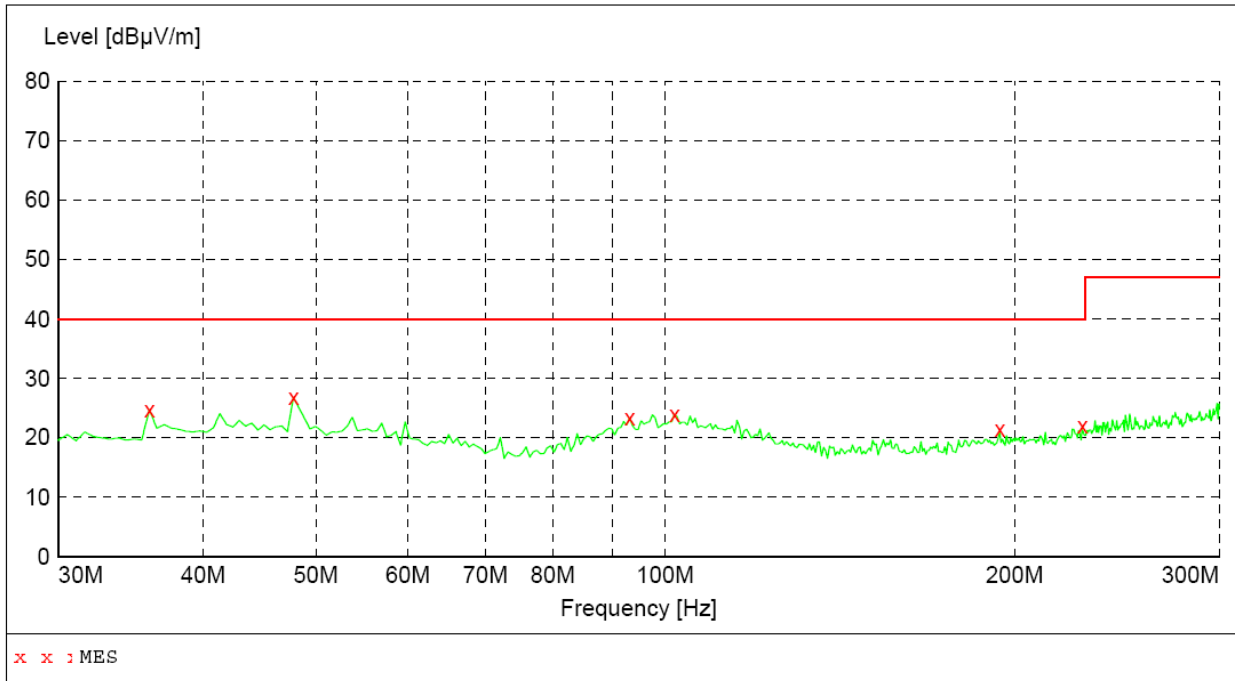
The requirements are **Fulfilled**

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



SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
Frequency 30.0 MHz	Frequency 1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



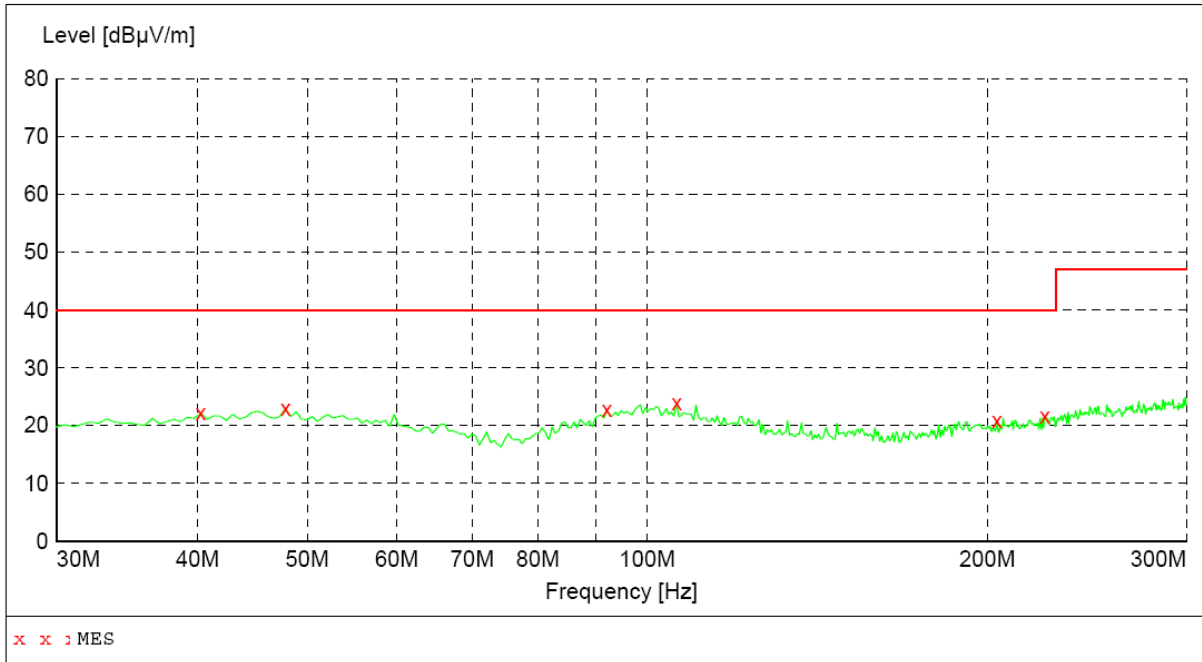
MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
35.940000	24.70	14.7	40.0	15.3	---	100.0	0.00	VERTICAL
47.820000	26.80	15.8	40.0	13.2	---	100.0	0.00	VERTICAL
93.180000	23.40	16.7	40.0	16.6	---	100.0	0.00	VERTICAL
101.820000	24.00	17.3	40.0	16.0	---	100.0	0.00	VERTICAL
194.160000	21.40	14.8	40.0	18.6	---	100.0	0.00	VERTICAL
228.720000	22.00	16.0	40.0	18.0	---	100.0	0.00	VERTICAL



SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
40.260000	22.20	15.9	40.0	17.8	---	100.0	0.00	HORIZONTAL
47.820000	23.00	15.8	40.0	17.0	---	100.0	0.00	HORIZONTAL
92.100000	22.70	16.5	40.0	17.3	---	100.0	0.00	HORIZONTAL
106.140000	24.00	16.9	40.0	16.0	---	100.0	0.00	HORIZONTAL
203.880000	20.80	14.9	40.0	19.2	---	100.0	0.00	HORIZONTAL
224.940000	21.70	15.7	40.0	18.3	---	100.0	0.00	HORIZONTAL



4.4. Harmonic current

The test is not applicable.

4.5. Voltage Fluctuation and Flicker

The test is not applicable.

4.6. Electrostatic discharge

For test instruments and accessories used see section 3.6.

4.6.1. Description of the test location and date

Test location: 1# EMC Test Room

Date of test: January 20, 2014

Operator: Byron

4.6.2. Severity levels of electrostatic discharge

4.6.2.1. Severity level: Contact Discharge at $\pm 4\text{KV}$ Air Discharge at $\pm 8\text{KV}$

Level	Test Voltage	Test Voltage
	Contact Discharge (KV)	Air Discharge (KV)
1	2	2
2	4	4
3	6	8
4	8	15
X	Special	Special

4.6.2.2. Performance criterion: **B**

4.6.3. Description of the test set-up

4.6.3.1. Operating Condition

The EUT is ON during the test, and the results of the maximum susceptible results are recorded.

4.6.3.2. Test Configuration and Procedure:

Direct Discharge:

Air Discharge:

- This test is done on a non-conductive surfaces. The round discharge tip of the Electrostatic Discharge simulator shall be approached as fast as possible then to touch the EUT. After each discharge, the simulator shall be removed from the EUT. The simulator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

Contact Discharge:

- All the procedure shall be same as air discharge, except using the acute discharge tip. The top end of the Electrostatic Discharge simulator is touch the EUT all the time when the simulator is re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.

Indirect Discharge:

- The vertical coupling plane(VCP) is placed 0.1m away from EUT. The top end of Electrostatic Discharge simulator should aim at the center of one border of the VCP for at least 10 times discharge.

- The top end of Electrostatic Discharge simulator should place at the point 0.1m away from EUT on the horizontal coupling plane(HCP). At least 10 times discharge should be done for every pre-selected point around EUT.

Record any performance degradation of the EUT during the test and judge the test result according to nce criterion.

4.6.4. Test specification:

<u>Contact discharge voltage:</u>	<input checked="" type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 4 kV	
<u>Air discharge voltage:</u>	<input checked="" type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 4 kV	<input checked="" type="checkbox"/> 8 kV
<u>Number of discharges:</u>	<input checked="" type="checkbox"/> 10	<input type="checkbox"/> 25	
<u>Type of discharge:</u>	Direct discharge	<input checked="" type="checkbox"/> Air discharge	
		<input checked="" type="checkbox"/> Contact discharge	
	Indirect discharge	<input checked="" type="checkbox"/> Contact discharge	
<u>Polarity:</u>	<input checked="" type="checkbox"/> Positive	<input checked="" type="checkbox"/> Negative	
<u>Discharge location:</u>	<input checked="" type="checkbox"/> all external locations accessible by hand		
	<input checked="" type="checkbox"/> horizontal coupling plane (HCP)		
	<input checked="" type="checkbox"/> vertical coupling plane (VCP)		

4.6.5. Test result

The requirements are **Fulfilled** Performance Criterion: **B**

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.7. Radiated, radio-frequency, electromagnetic field

For test instruments and accessories used see section 3.6.

4.7.1. Description of the test location and date

Test location: Subcontracted Lab

Date of test: January 20, 2014

Operator: Byron

4.7.2. Severity levels of radiated, radio-frequency, electromagnetic field

4.7.2.1 Severity level: 3 V/m

Level	Field Strength (V/m)
1.	1
2.	3
3.	10
X	Special

4.7.2.2 Performance criterion: A

4.7.3. Description of the test set-up

4.7.3.1. Operating Condition

The EUT is ON during the test, and the results of the maximum susceptible results are recorded.

4.7.3.2. Test Configuration and Procedure

EUT is placed on a table which is 0.8 meter above ground. The center of the transmitting antenna mounted on an antenna mast is set 3 meter away from the EUT. During the test, each of four sides of EUT will face the transmitting antenna with the turntable cycled. Both horizontal and vertical polarization of the antenna are set on test and measured individually.

In order to judge the performance of the EUT, a set of monitor system is used.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.7.4. Test specification:

Frequency range: n 80 MHz to 1000 MHz

Field strength: n 3 V/m

EUT - antenna separation: n 3 m

Modulation: n AM: 80 %
n sinusoidal 1000Hz

Frequency step: n 1 % with 3 s dwell time

Antenna polarisation: n horizontal n vertical

4.7.5. Test result

The requirements are **Fulfilled**

Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).



4.8. Electrical fast transients / Burst

The test is not applicable.

4.9. Surge

The test is not applicable.

4.10. Conducted disturbances induced by radio-frequency fields

The test is not applicable.

4.11. Magnetic Field Immunity

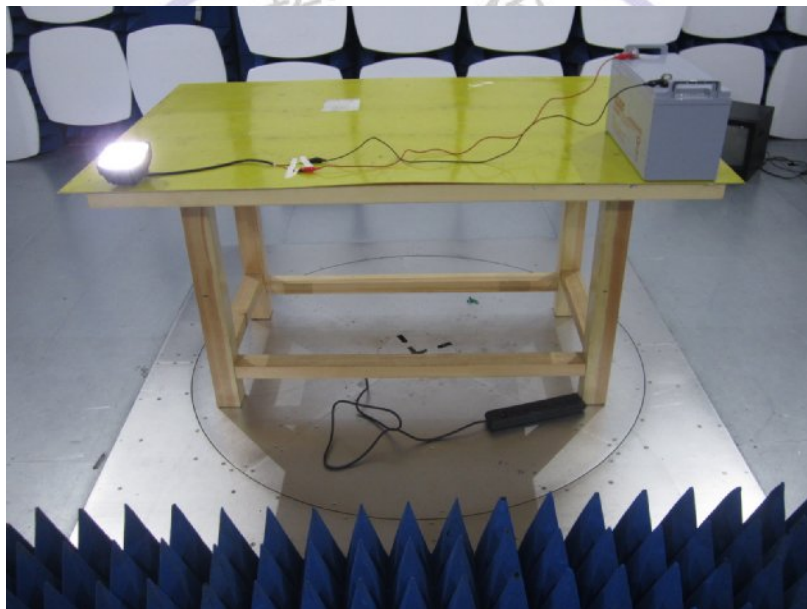
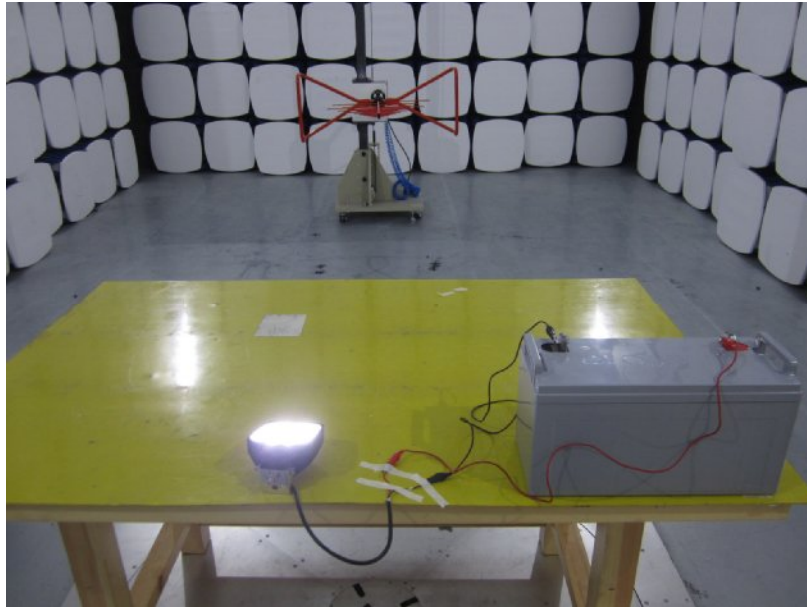
The test is not applicable.

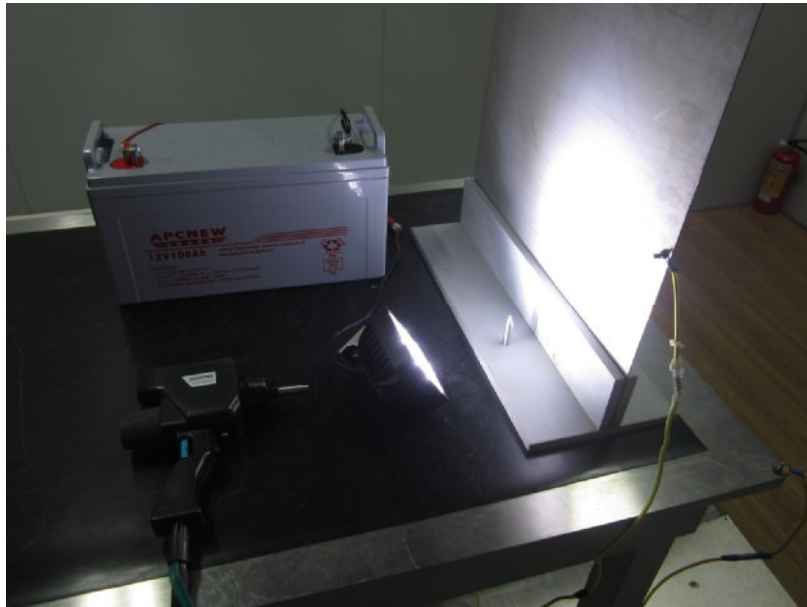
4.12. Voltage Dips and Interruptions

The test is not applicable.

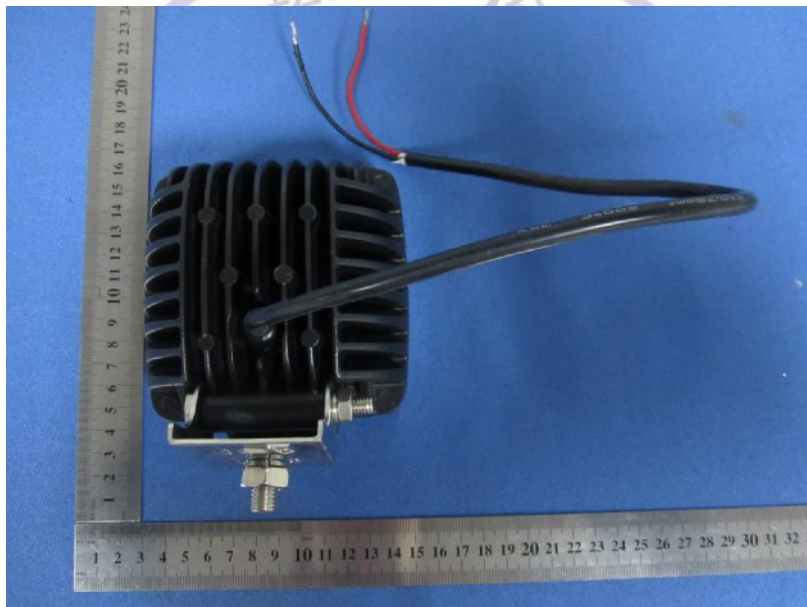


5. Test Setup Photos of the EUT





6. Photos of the EUT



.....End of Report.....