FCC TEST REPORT

FCC ID : WZA-TFSLRF

Applicant : Zhong Shan Heng Sheng Logistic Co., Ltd.

Address : Luosan Industrial District, Fusha Town, Zhongshan, Guangdong, China

Equipment Under Test (EUT) :

Product description : Fluorescent fixtures

Model No. : TF508, TF513, TF416, TF521, TF528
SL508, SL513, SL416, SL521, SL528
RF508, RF513, RF416, RF521,RF528

Standards : FCC Part18

Date of Test : Dec. 18, 2008

Test Engineer : **Olic huang**

Reviewed By :

PERPARED BY:
Waltek Services (Shenzhen) Co., Ltd.
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Contents

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 18: 2007	ANSI C63.4:2003	N/A	N/A
Conducted Emission (150KHz to 30MHz)	FCC PART 18: 2007	ANSI C63.4:2003	N/A	PASS

3 General Information

3.1 Client Information

Applicant : Zhong Shan Heng Sheng Logistic Co., Ltd.

Address : Luosan Industrial District, Fusha Town, Zhongshan, Guangdong, China

3.2 General Description of E.U.T.

Product description: Fluorescent fixtures
Model No.: TF508, TF513, TF416, TF521, TF528
SL508, SL513, SL416, SL521, SL528
RF508, RF513, RF416, RF521,RF528

Note: All the EUT used a same circuit ballests,only difference is the EUT output power.

3.3 Details of E.U.T.

Power Supply: 120VAC / 60Hz

3.4 Description of Support Units

The EUT has been tested as an independent unit.

3.5 Standards Applicable for Testing

The customer requested FCC tests for a Fluorescent fixtures. The standards used were FCC Part18.

3.6 Test Methodology

All measurements contained in this report are conducted with FCC Measurement Procedure MP-5, technical requirements for Methods of Measurement of Radio-Noise Emission from ISM Equipment.

3.7 Test Facility

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

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) 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 880581.June 24， 2008.

- **IC – Registration No.: IC7760**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760.

3.8 Test Location

All Emissions testswere performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105, Guangdong,China.

4 Equipment Used during Test

Equipment	Brand Name	Model	Related standards	Cal.Intal Months	Last Cal. Date	Serial No
3m smioAnechoic chamber						
EMC Analyzer	Agilent	E7405A	ISO9001:2000	12	Jan-08	MY45114943
Trilog Broadband Antenne	SCHWARZBECK MESS-ELEKTROM	VULB9163	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	336
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM	BBHA 9120 D	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	667
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM	BBV 9718	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	9718-148
10m Coaxial Cable with N-male Connectors	SCHWARZBECK MESS-ELEKTROM	AK 9515 H	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM	AK 9513	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-
Positioning Controller	C&C LAB	CC-C-IF	ISO9001	12	Jan-08	MF7802108
Color Monitor	SUNSPO	SP-14C	ISO9001	12	Jan-08	-
EMI Shielded Room						
Test Receiver	ROHDE&SCHWARZ	ESPI	ISO9001	12	Jan-08	101155
LISN	SWHWARZBECK	NSLK8128	ISO9001 EN/ISO/IEC 17025	12	Jan-08	100115
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	ISO9001 EN/ISO/IEC 17025	12	Jan-08	100205

10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM	AK 9514	EN/ISO/IEC 17025 DIN EN ISO9001	12	Jan-08	-

5 Conducted Emission Test

Product Name:	Fluorescent fixtures
Test Requirement:	FCC Part 18
Test Method:	Based on FCC Part 18
Test Date:	Dec. 18, 2008
Frequency Range:	150kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

5.1 Test Equipment

Please refer to Section 5 this report.

5.2 Test Procedure

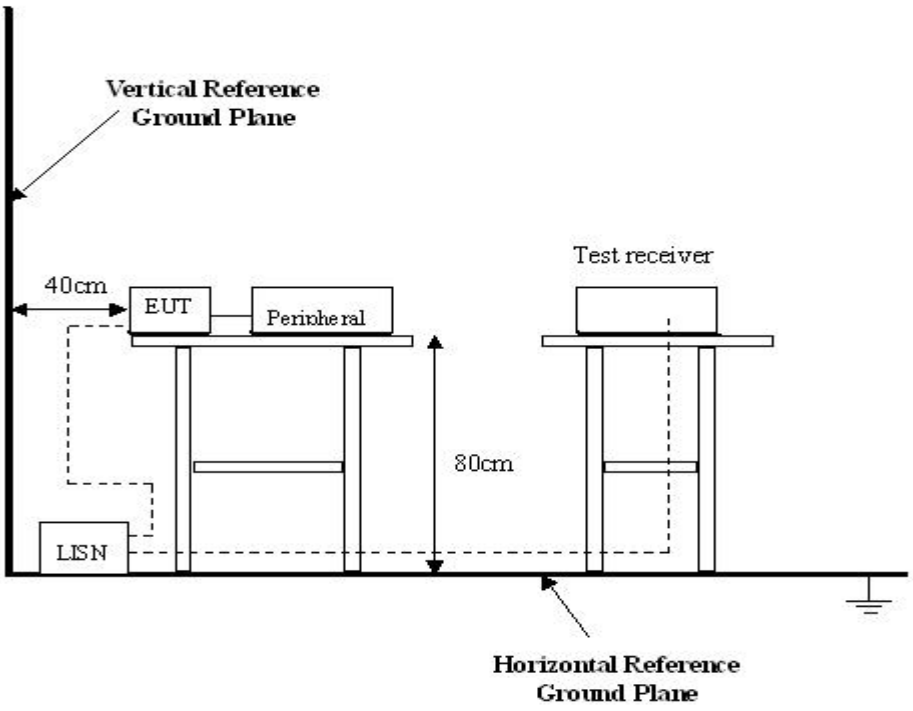
1. During the conducted emission test, the power cord of the EUT is connected to the auxiliary outlet of the LISN.
2. The EUT was tested according to FCC MP-5. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.3 Conducted Test Setup

The conducted emission tests were performed using the setup accordance with the FCC MP-5 measurement procedure.

The EUT is tested independently.

The power supply used by the EUT is connected to a 120VAC / 60Hz power source.



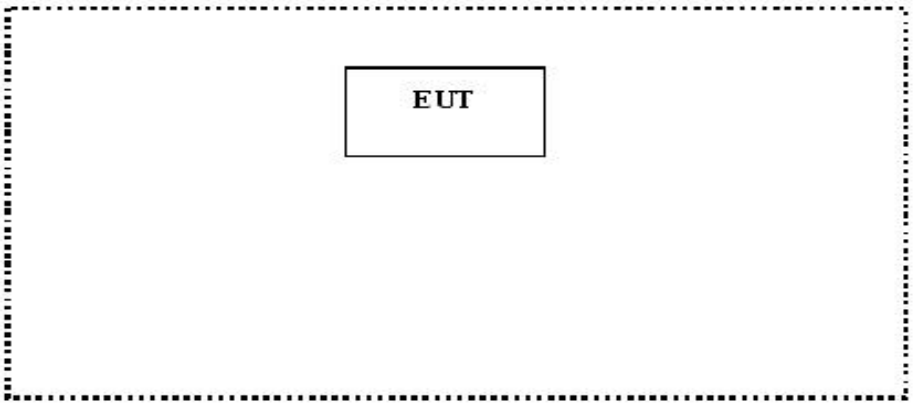
5.4 EUT Operating Condition

Operating condition is according to FCC MP-5.

A. Setup the EUT and simulators as shown on follow.

B. Enable RF signal and confirm EUT active.

C. Modulate output capacity of EUT up to specification.



5.5 Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dBuV)- Quasi-peak
0.15— 0.5	66-56
0.5 — 5.0	56
5.0 — 30	60

Note: In the above limits, the tighter limit applies at the band edges.

5.6 Spectrum Analyzer

The spectrum analyzer is configured during the conduction test is as follows:

Start Frequency ····· 150 kHz
Stop Frequency ····· 30 MHz
Sweep Speed ····· Auto
IF Bandwidth ····· 9 kHz
Video Bandwidth ····· 100 kHz
Quasi-Peak Adaptor Bandwidth ····· 9 kHz
Quasi-Peak Adaptor Mode ····· Normal

5.7 Conducted Emission Test Result

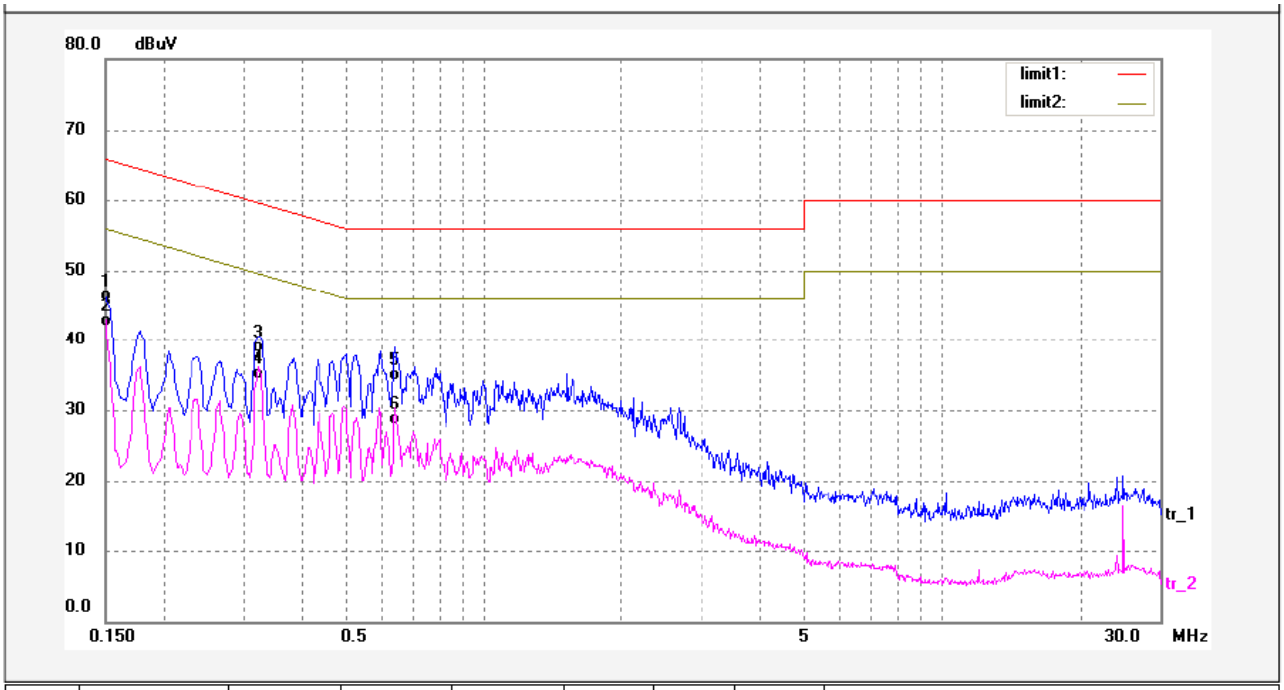
Test Item:	Conducted Emission Test
Test Voltage:	120VAC / 60Hz
Test Mode:	Normal
Temperature:	24 °C
Humidity:	52%RH
Test Result:	PASS

5.7.1 Measurement Data

An initial pre-scan was performed on the live and neutral lines.
No futher quasi-peak or average measurements were performed since no peak emissions were detected within 10dB line below the average limit.
Please refer to the following peak scan graph for reference.

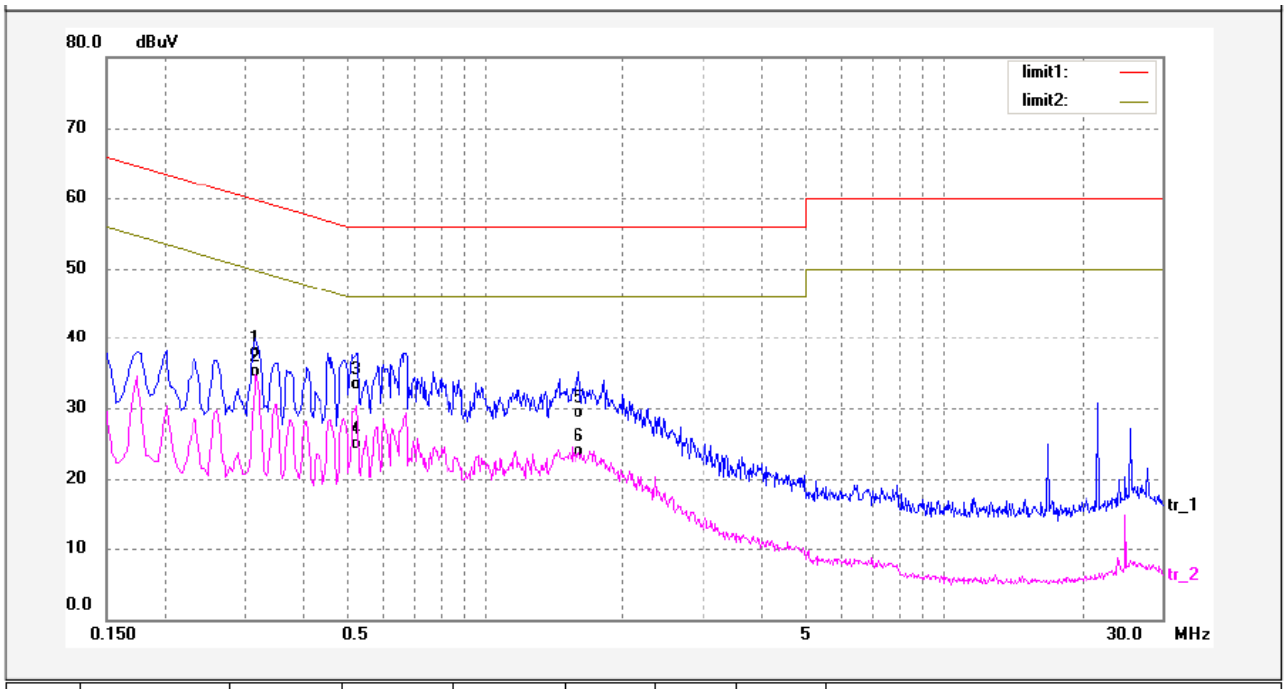
The test model TF508

LIVE LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	34.96	10.50	45.46	65.99	-20.53	QP	
2	0.1500	31.45	10.50	41.95	55.99	-14.04	AVG	
3	0.3260	27.62	10.50	38.12	59.55	-21.43	QP	
4	0.3260	23.75	10.50	34.25	49.55	-15.30	AVG	
5	0.6419	23.61	10.50	34.11	56.00	-21.89	QP	
6	0.6419	17.41	10.50	27.91	46.00	-18.09	AVG	

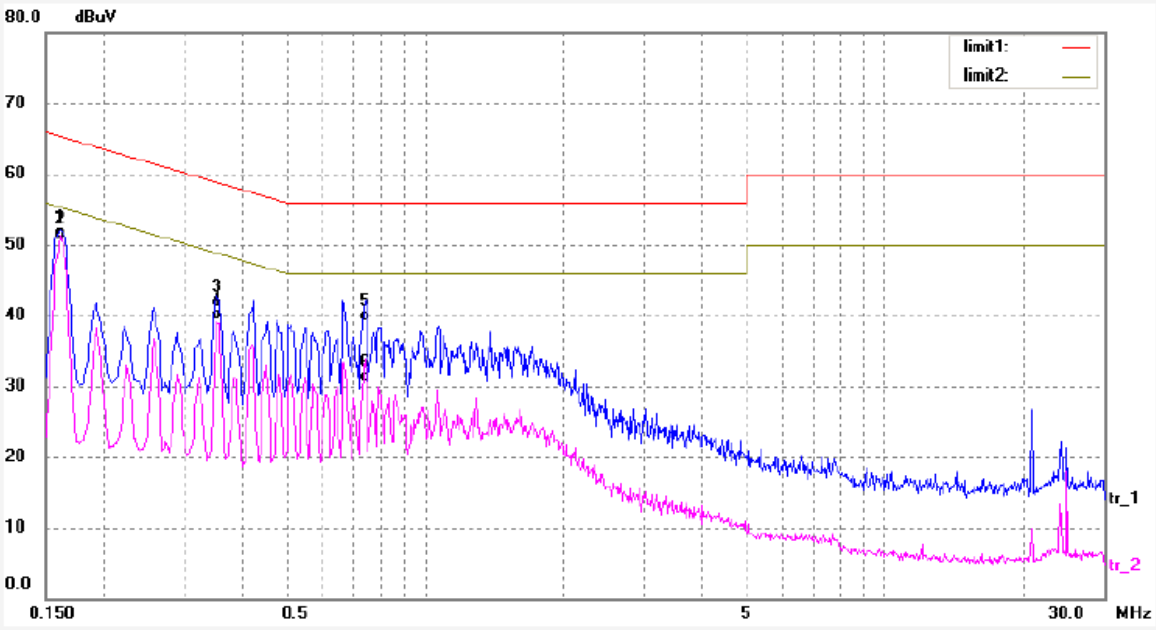
NEUTRAL LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.3180	26.69	10.50	37.19	59.76	-22.57	QP	
2	0.3180	23.73	10.50	34.23	49.76	-15.53	AVG	
3	0.5299	22.00	10.50	32.50	56.00	-23.50	QP	
4	0.5299	13.70	10.50	24.20	46.00	-21.80	AVG	
5	1.6019	18.03	10.50	28.53	56.00	-27.47	QP	
6	1.6019	12.54	10.50	23.04	46.00	-22.96	AVG	

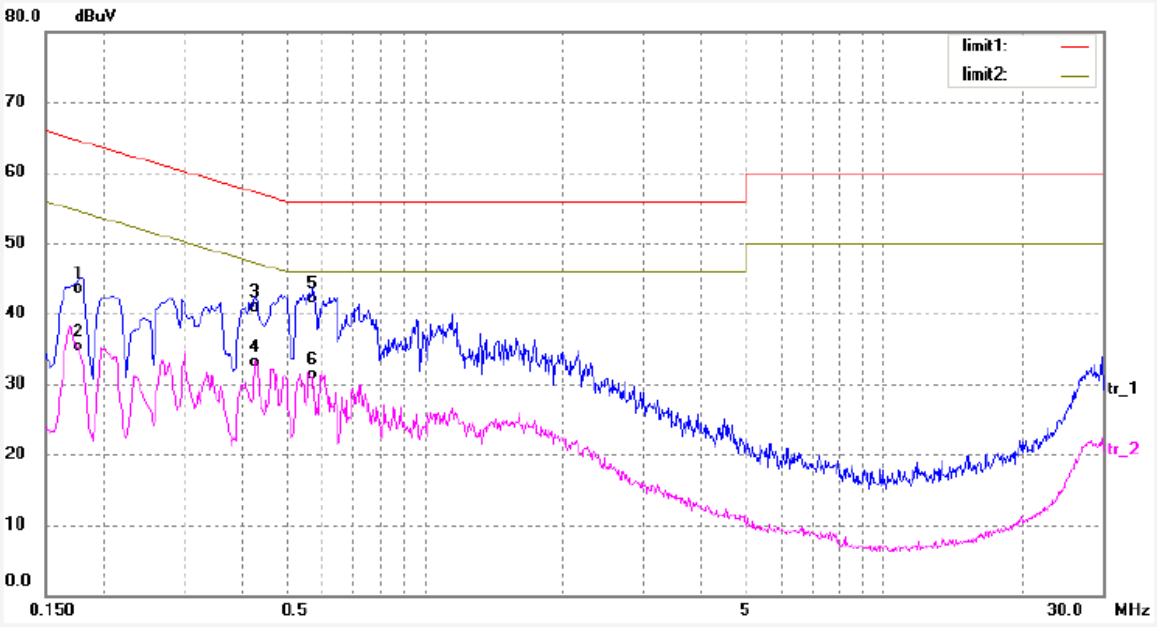
The test model TF416

LIVE LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1620	40.45	10.50	50.95	65.36	-14.41	QP	
2	0.1620	40.21	10.50	50.71	55.36	-4.65	AVG	
3	0.3540	30.68	10.50	41.18	58.87	-17.69	QP	
4	0.3540	28.81	10.50	39.31	48.87	-9.56	AVG	
5	0.7500	28.52	10.50	39.02	56.00	-16.98	QP	
6	0.7500	19.95	10.50	30.45	46.00	-15.55	AVG	

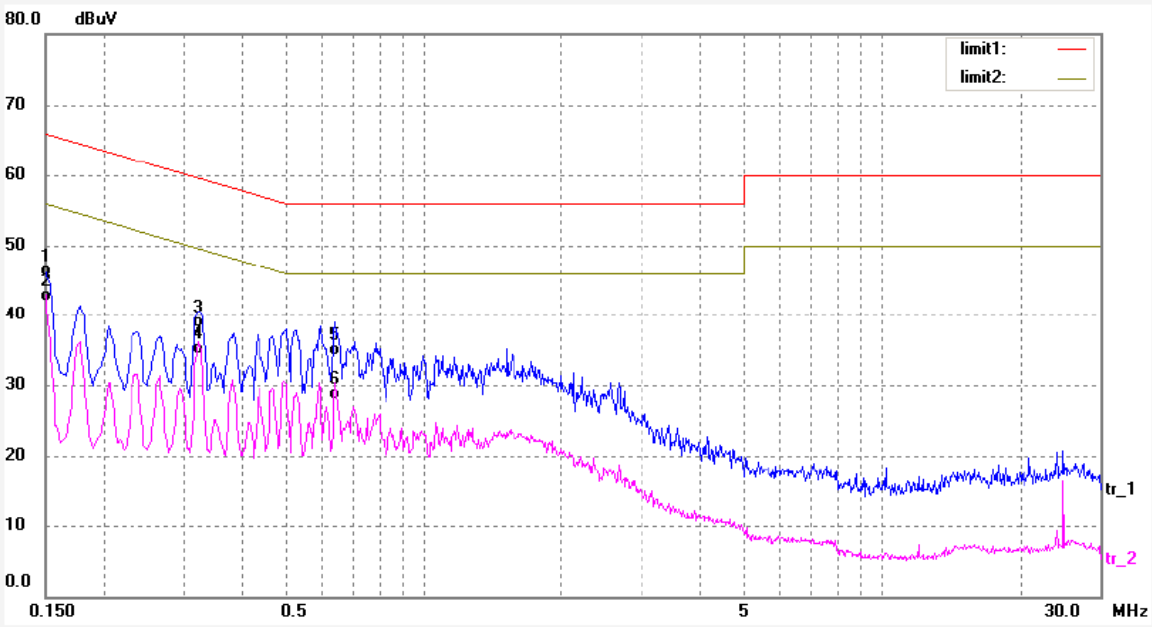
NEUTRAL LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1780	32.29	10.50	42.79	64.57	-21.78	QP	
2	0.1780	24.09	10.50	34.59	54.57	-19.98	AVG	
3	0.4300	29.61	10.50	40.11	57.25	-17.14	QP	
4	0.4300	21.82	10.50	32.32	47.25	-14.93	AVG	
5	0.5740	30.84	10.50	41.34	56.00	-14.66	QP	
6	0.5740	19.96	10.50	30.46	46.00	-15.54	AVG	

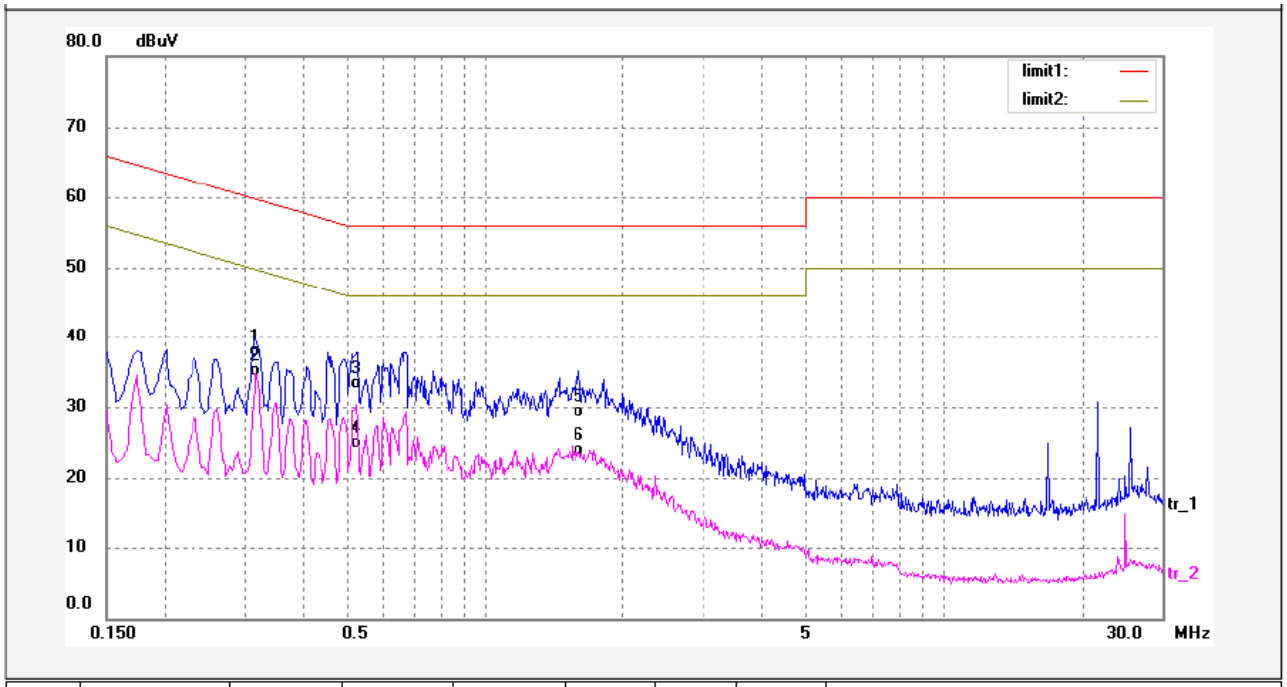
The test model TF528

LIVE LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	34.96	10.50	45.46	65.99	-20.53	QP	
2	0.1500	31.45	10.50	41.95	55.99	-14.04	AVG	
3	0.3260	27.62	10.50	38.12	59.55	-21.43	QP	
4	0.3260	23.75	10.50	34.25	49.55	-15.30	AVG	
5	0.6419	23.61	10.50	34.11	56.00	-21.89	QP	
6	0.6419	17.41	10.50	27.91	46.00	-18.09	AVG	

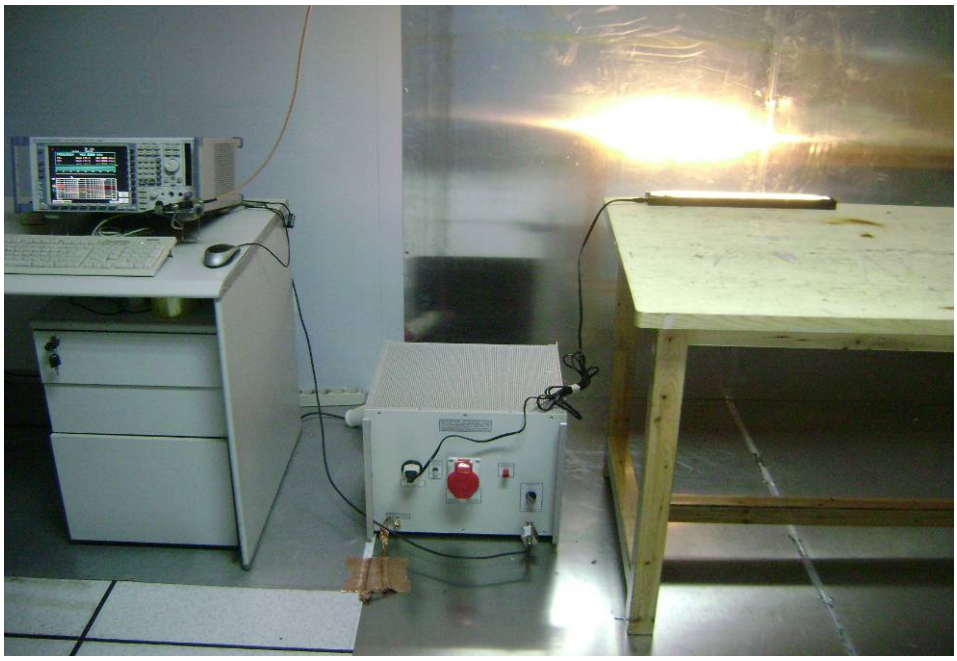
NEUTRAL LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.3180	26.69	10.50	37.19	59.76	-22.57	QP	
2	0.3180	23.73	10.50	34.23	49.76	-15.53	AVG	
3	0.5299	22.00	10.50	32.50	56.00	-23.50	QP	
4	0.5299	13.70	10.50	24.20	46.00	-21.80	AVG	
5	1.6019	18.03	10.50	28.53	56.00	-27.47	QP	
6	1.6019	12.54	10.50	23.04	46.00	-22.96	AVG	

6 Photographs of Testing

6.1 Conducted Emission Test View



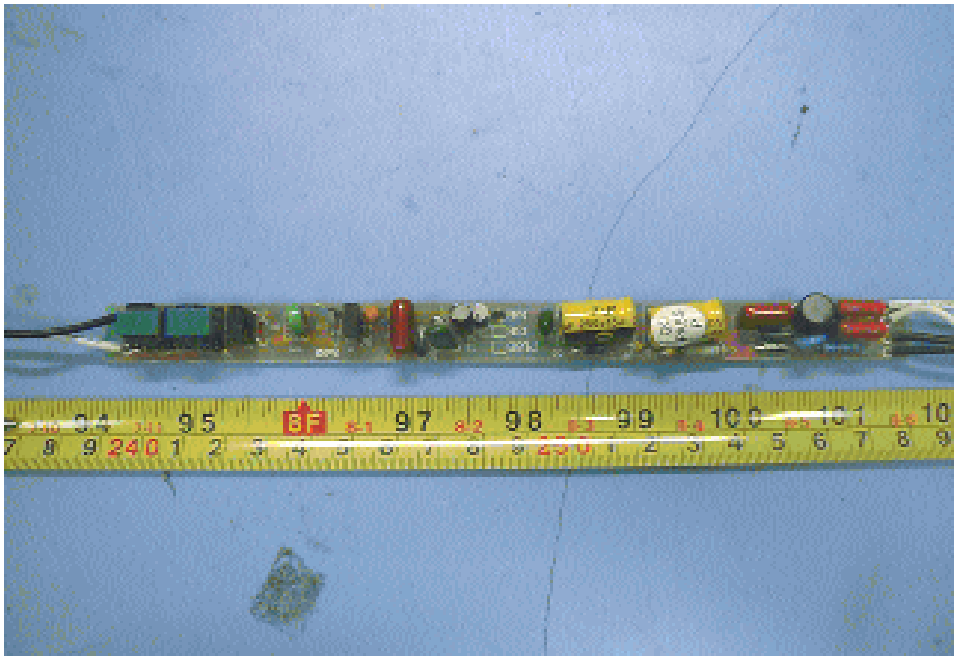
7 Photographs - Constructional Details

7.1 EUT - Front View

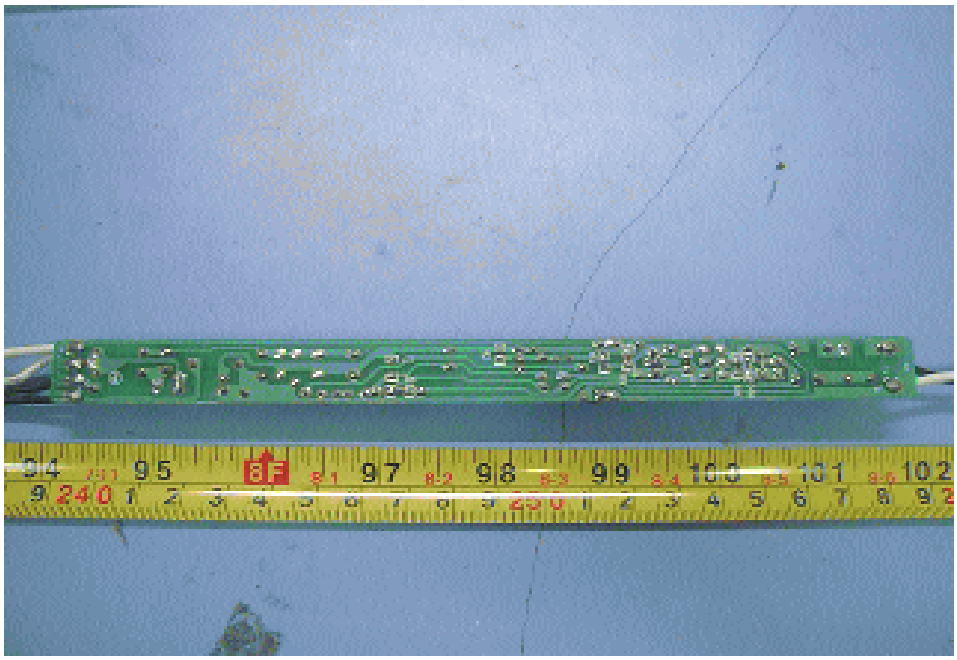
7.2 EUT - Back View

7.3 PCB - Front View

The PCB of all models are the same.



7.4 PCB - Back View



8 FCC ID Label

This device complies with Part 18 of the FCC Rules.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Top View/ proposed FCC Label Location