

EMC TEST Report

FCC ID: N96120332ISMPFThis report concerns (check one) : ☒ Original Grant ☐ Class II Change**Issued Date :** May 23, 2006**Report No. :** 0605040**Equipment :** ELECTRONIC BALLAST**Model No. :** 120-3/32IS MPF**Applicant :** SUNPARK ELECTRONICS CORP.**Address :** 6F-2, No. 135, Sec. 4, Pa-Teh Rd., Taipei,
Taiwan, R.O.C.**Tested by:**

Neutron Engineering Inc. EMC Laboratory

Data of Test:

May 10, 2006 ~ May 23, 2006

Testing Engineer : Alan Liu
(Alan Liu)

Technical Manager : Jeff Yang
(Jeff Yang)

Authorized Signatory : Andy Chiu
(Andy Chiu)

NEUTRON ENGINEERING INC.

No. 132-1, Lane 329, Sec. 2, Palain Rd.,
Shijr City, Taipei, Taiwan
TEL : (02) 2646-5426 FAX : (02) 2646-6815



Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

Neutron's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

Neutron's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron's** authorized written approval.

Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents	Page
1 . CERTIFICATION	4
2 . SUMMARY OF TEST RESULTS	5
2.1 TEST FACILITY	6
2.2 MEASUREMENT UNCERTAINTY	6
3 . GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	8
3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	9
3.4 DESCRIPTION OF SUPPORT UNITS	10
4 . RFI EMC EMISSION TEST	11
4.1 CONDUCTED EMISSION MEASUREMENT	11
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS	11
4.1.2 MEASUREMENT INSTRUMENTS LIST	11
4.1.3 TEST PROCEDURE	12
4.1.4 DEVIATION FROM TEST STANDARD	12
4.1.5 TEST SETUP	12
4.1.6 EUT OPERATING CONDITIONS	12
4.1.7 TEST RESULTS	13
5 . EUT TEST PHOTO	17
6 . PRODUCT LABELING	19

1. CERTIFICATION

Equipment: ELECTRONIC BALLAST
Trade Name: SUNPARK
Model No.: 120-3/32IS MPF
Applicant: SUNPARK ELECTRONICS CORP.
Data of Test: May 10, 2006 ~ May 23, 2006
Test Item: ENGINEERING SAMPLE
Standards: FCC Part 18 , Section 18.305(C) and 18.307(C) , Consumer Equipment Limits

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCE-1-0605040) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and CNLA according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part18, Subpart C			
Standard Section	Test Item	Judgment	Remark
18.307(C)	Conducted Emission	PASS	Consumer Equipment

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01** at the location of No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan. A description of this test facilities is already on file with the FCC as registration number of 95335.

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95 %**.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U , (dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	ELECTRONIC BALLAST	
Trade Name	SUNPARK	
Model No.	120-3/32IS MPF	
Product Description	ISM Equipment Category:	Consumer Equipment
	Open Circuit Voltage:	600V
	Nominal Operating Frequency:	26 KHz
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as a consumer ISM equipment (RF lighting device). More details of EUT technical specification, please refer to the User's Manual.	
Power Supply	AC I/P 120V, 60Hz, 1.23A	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

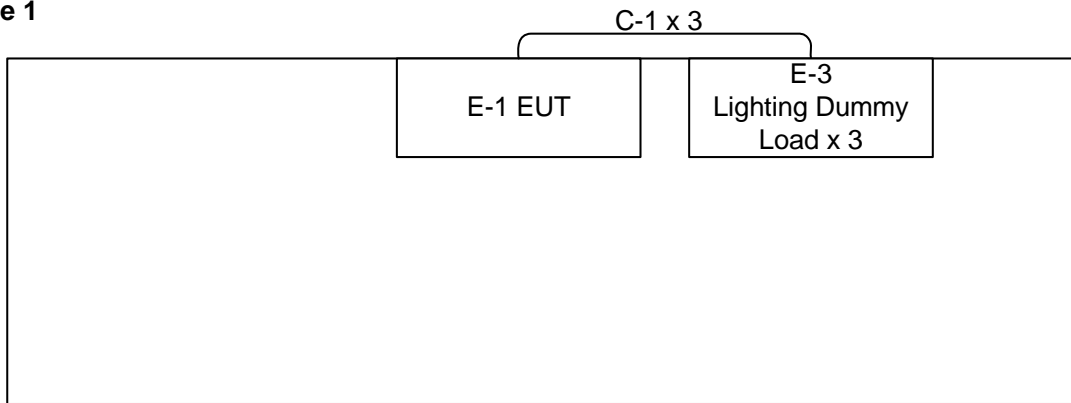
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Test Mode	Description
Mode 1	T8 32W x 3 / 85W
Mode 2	T8 25W x 3 / 65W
Mode 3	T8 18W x 3 / 48W
Mode 4	T8 17W x 3 / 46W
Mode 5	T8 15W x 3 / 38W
Mode 6	T12 40W x 3 / 72W
Mode 7	T12 34W x 3 / 60W
Mode 8	T12 25W x 3 / 67W

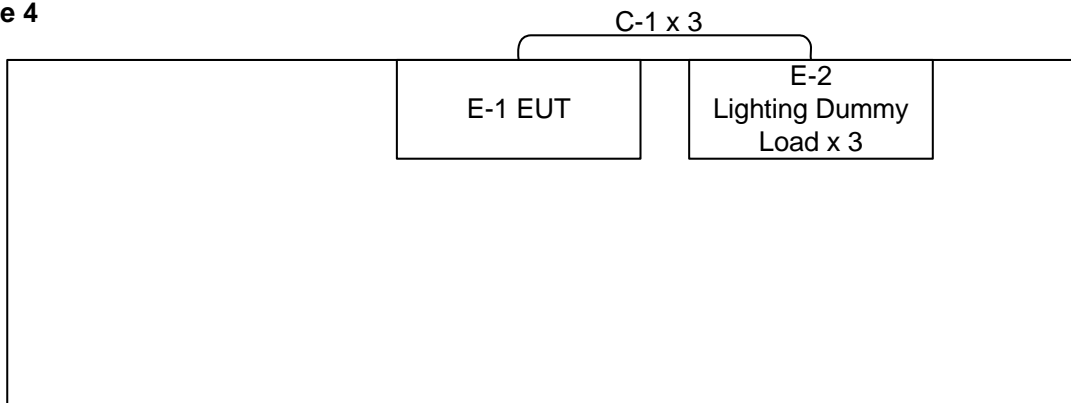
For Conducted / Radiated Test	
Final Test Mode	Description
Mode 1	T8 32W x 3 / 85W
Mode 4	T8 17W x 3 / 46W

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Mode 1



Mode 4



C-1 Power Cable

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	ELECTRONIC BALLAST	SUNPARK	120-3/32IS MPF	N96120332ISM PF	N/A	EUT
E-2	Light Dummy Load	PHILIPS	631503	N/A	N/A	
E-3	Light Dummy Load	PHILIPS	TL-D/840	N/A	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1M	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

4. RFI EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 450KHz-30MHz)

Frequency Range (MHz)	Non-consumer Equipment		Frequency Range (MHz)	consumer Equipment	
	dBuV	uV		dBuV	uV
0.45 - 1.60	60.00	1000	0.45 - 2.51	48	250
1.60 - 30.0	69.50	3000	2.51 - 3.00	69.5	3000
			3.00 - 30.0	48	250

Note:

(1) The tighter limit applies at the band edges.

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	Rolf Heine	NNB-2/16Z	98053	Dec. 19, 2006
2	Pulse Limiter	Electro-Metrics	EM-7600	112644	Nov. 29, 2006
3	Test Cable	N/A	C01	N/A	Nov. 29, 2006
4	EMI Test Receiver	R&S	ESCI	100082	Feb. 01, 2007

Remark: " N/A" denotes No Model No. , Serial No. or No Calibration specified.

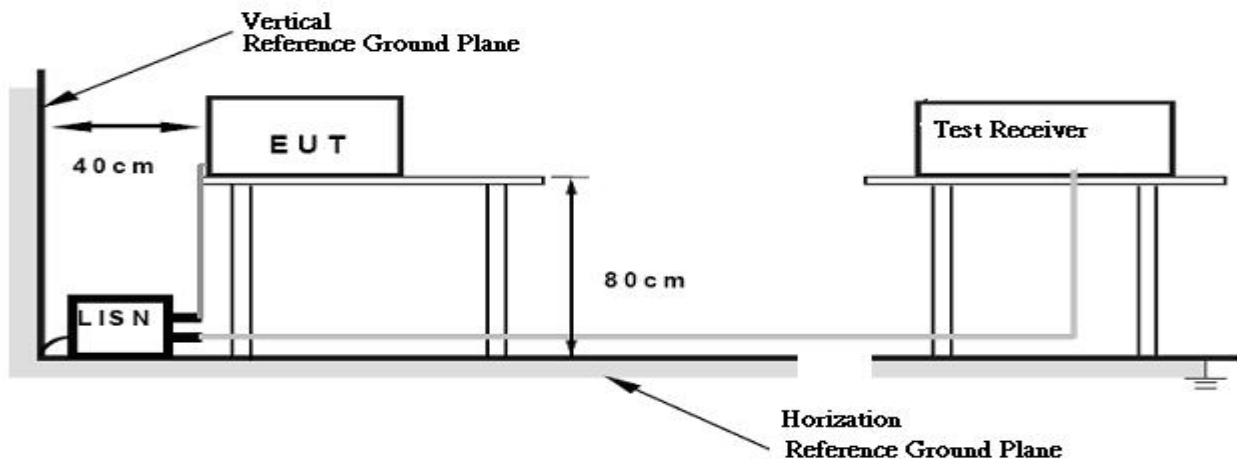
4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The system was configured for testing in a typical fashion (as a customer would normally use it). The EUT was connected to support equipment-Lamp. This operating condition was tested and used to collect the included data.

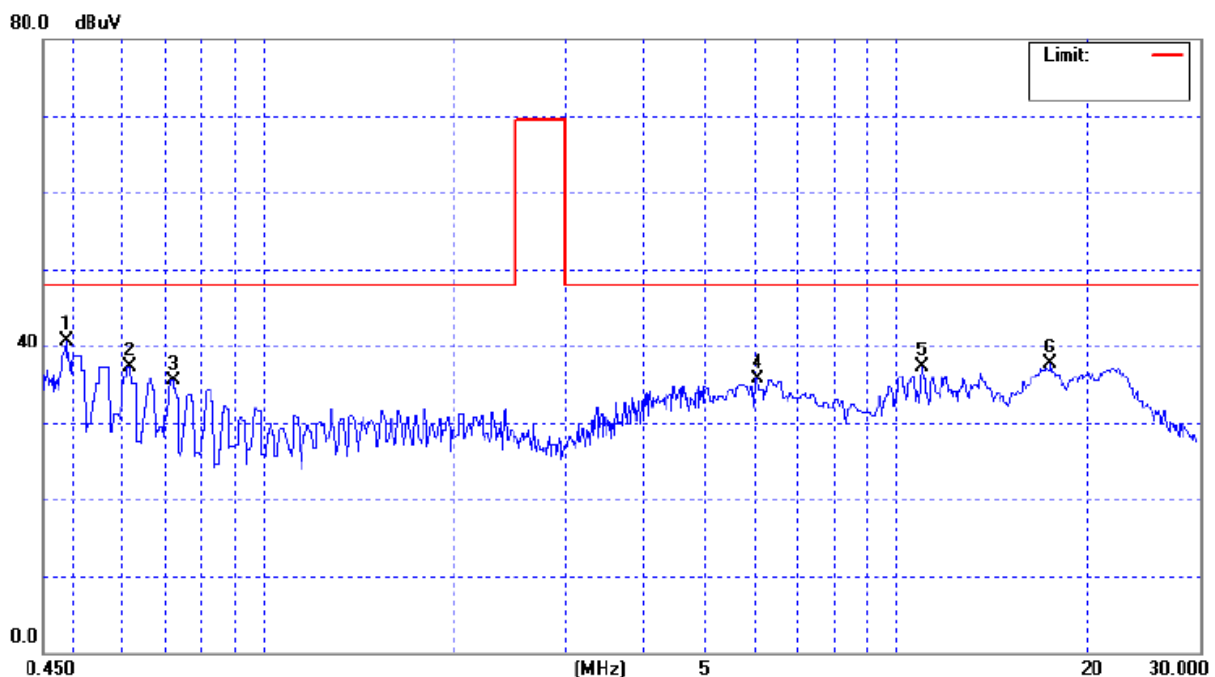
4.1.7 TEST RESULTS

EUT :	ELECTRONIC BALLAST	Model No. :	120-3/32IS MPF
Temperature :	22 °C	Relative Humidity :	58 %
Pressure :	1014 hPa	Test Power :	AC 120V/60Hz
Test Mode :	T8 32W x 3 / 85W		

Freq. (MHz)	Terminal L/N	Measured (dBuV)	Limits		Margin (dBuV)	Note	Remark C
			(dBuV)	(uV)			
0.49	Line	40.71	48.00	250.00	-7.29		
0.62	Line	37.35	48.00	250.00	-10.65		
0.72	Line	35.56	48.00	250.00	-12.44		
6.04	Line	35.73	48.00	250.00	-12.27		
11.04	Line	37.29	48.00	250.00	-10.71		
17.57	Line	37.70	48.00	250.00	-10.30		

Remark

- (1) Reading was measured by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, SWP Time = 0.3 sec./ MHz ◦
- (2) All readings are QP Mode value unless otherwise stated Peak in column of 『 Note 』 .
- (3) Measuring frequency range from 450KHz to 30MHz ◦
- (4) Remark C denotes the Consumer Equipment limitation used for judgment.
- (5) Remark NC denotes the Non-Consumer Equipment limitation used for judgment.

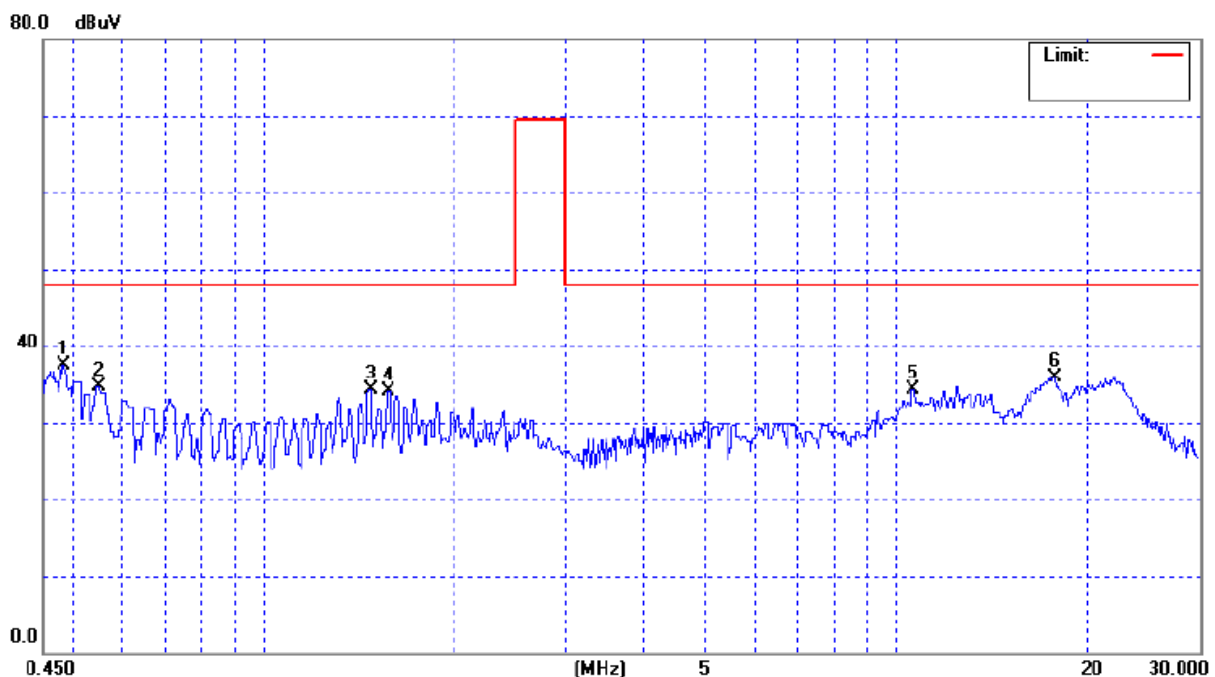


EUT :	ELECTRONIC BALLAST	Model No. :	120-3/32IS MPF
Temperature :	22 °C	Relative Humidity :	58 %
Pressure :	1014 hPa	Test Power :	AC 120V/60Hz
Test Mode :	T8 32W x 3 / 85W		

Freq. (MHz)	Terminal L/N	Measured (dBuV)	Limits		Margin (dBuV)	Note	Remark C
			(dBuV)	(uV)			
0.48	Neutral	37.50	48.00	250.00	-10.50		
0.55	Neutral	34.72	48.00	250.00	-13.28		
1.48	Neutral	34.26	48.00	250.00	-13.74		
1.57	Neutral	34.07	48.00	250.00	-13.93		
10.64	Neutral	34.30	48.00	250.00	-13.70		
17.75	Neutral	35.94	48.00	250.00	-12.06		

Remark

- (1) Reading was measured by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, SWP Time = 0.3 sec./ MHz ◦
- (2) All readings are QP Mode value unless otherwise stated Peak in column of 『 Note 』 .
- (3) Measuring frequency range from 450KHz to 30MHz ◦
- (4) Remark C denotes the Consumer Equipment limitation used for judgment.
- (5) Remark NC denotes the Non-Consumer Equipment limitation used for judgment.

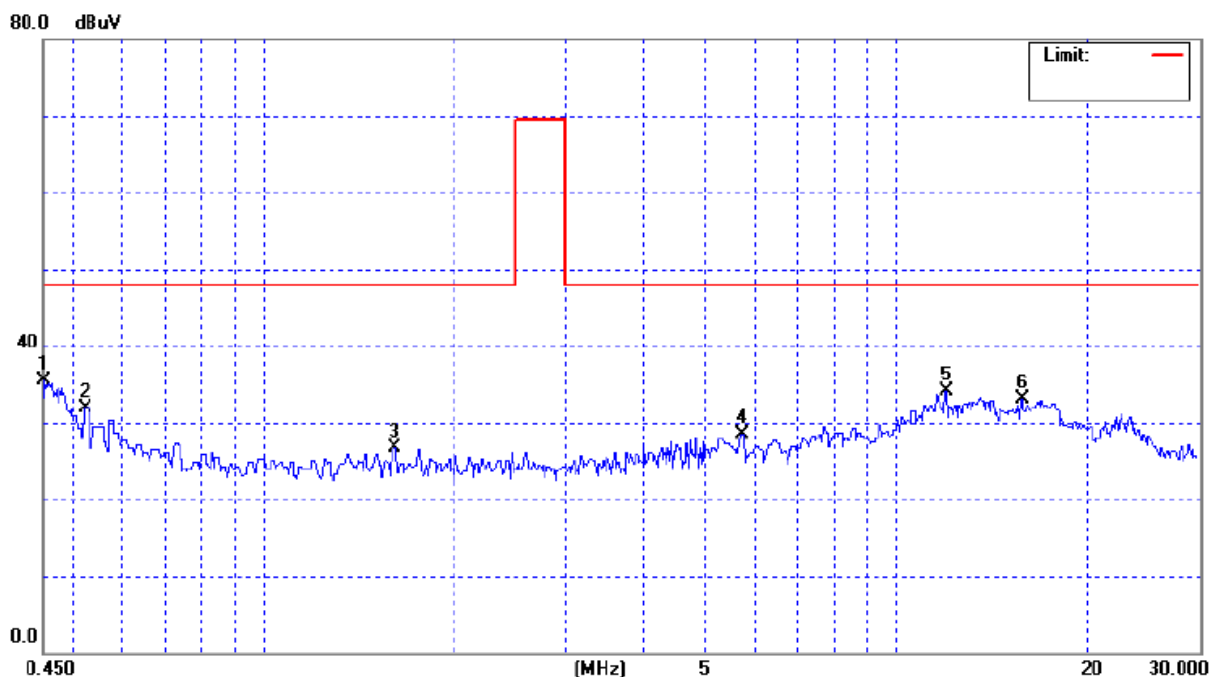


EUT :	ELECTRONIC BALLAST	Model No. :	120-3/32IS MPF
Temperature :	22 °C	Relative Humidity :	58 %
Pressure :	1014 hPa	Test Power :	AC 120V/60Hz
Test Mode :	T8 17W x 3 / 46W		

Freq. (MHz)	Terminal L/N	Measured (dBuV)	Limits		Margin (dBuV)	Note	Remark C
			(dBuV)	(uV)			
0.45	Line	35.52	48.00	250.00	-12.48		
0.53	Line	31.93	48.00	250.00	-16.07		
1.62	Line	26.69	48.00	250.00	-21.31		
5.71	Line	28.51	48.00	250.00	-19.49		
12.04	Line	34.13	48.00	250.00	-13.87		
15.79	Line	33.02	48.00	250.00	-14.98		

Remark

- (1) Reading was measured by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, SWP Time = 0.3 sec./ MHz ◦
- (2) All readings are QP Mode value unless otherwise stated Peak in column of 『 Note 』 .
- (3) Measuring frequency range from 450KHz to 30MHz ◦
- (4) Remark C denotes the Consumer Equipment limitation used for judgment.
- (5) Remark NC denotes the Non-Consumer Equipment limitation used for judgment.

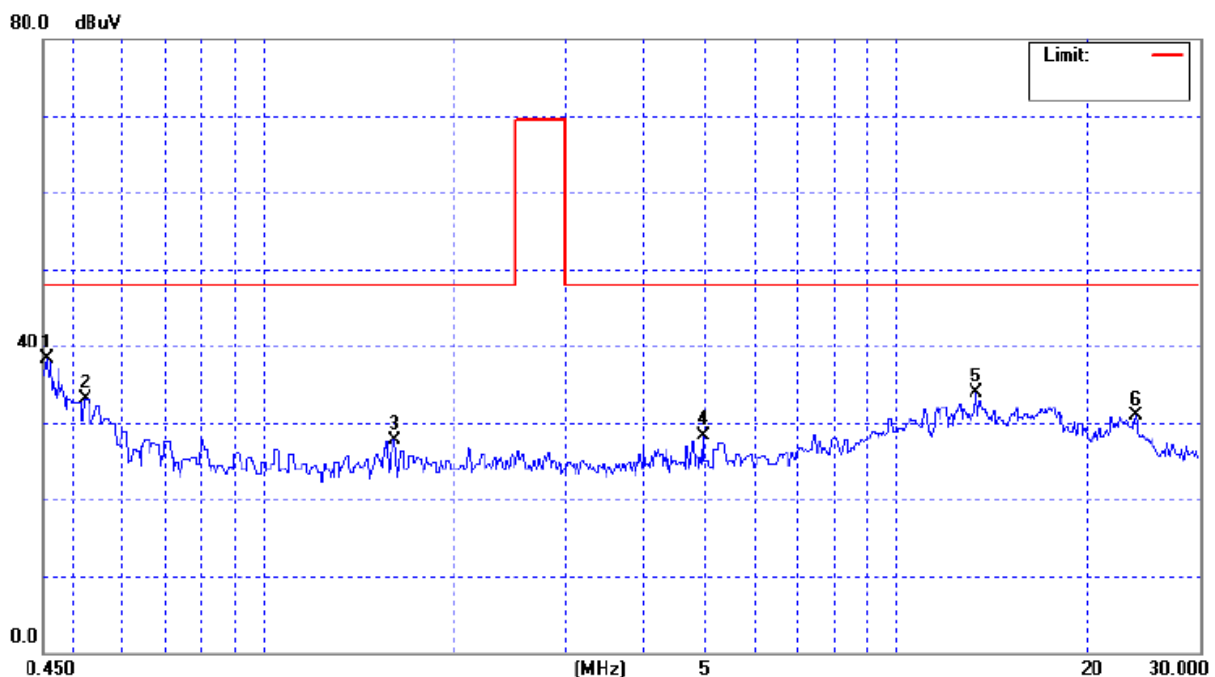


EUT :	ELECTRONIC BALLAST	Model No. :	120-3/32IS MPF
Temperature :	22 °C	Relative Humidity :	58 %
Pressure :	1014 hPa	Test Power :	AC 120V/60Hz
Test Mode :	T8 17W x 3 / 46W		

Freq. (MHz)	Terminal L/N	Measured (dBuV)	Limits		Margin (dBuV)	Note	Remark C
			(dBuV)	(uV)			
0.46	Neutral	38.32	48.00	250.00	-9.68		
0.53	Neutral	33.12	48.00	250.00	-14.88		
1.62	Neutral	27.69	48.00	250.00	-20.31		
4.97	Neutral	28.26	48.00	250.00	-19.74		
13.43	Neutral	33.95	48.00	250.00	-14.05		
23.96	Neutral	30.93	48.00	250.00	-17.07		

Remark

- (1) Reading was measured by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, SWP Time = 0.3 sec./ MHz ◦
- (2) All readings are QP Mode value unless otherwise stated Peak in column of 『 Note 』 .
- (3) Measuring frequency range from 450KHz to 30MHz ◦
- (4) Remark C denotes the Consumer Equipment limitation used for judgment.
- (5) Remark NC denotes the Non-Consumer Equipment limitation used for judgment.



ATTACHMENT

PHOTOGRAPHS OF EUT