

TEST REPORT

(Application for Certification)

FCC ID : VVI-NL0203067475

Applicant Name : Atico International (Asia), Ltd
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Manufacturing Site JIАНДЕ ZHONGYΑ ELECTRIC APPLIANCE FACTORY
NO. 45 SANHE ROAD JIАНДЕ China

Sample Description

Product : Neon Lamp

Model No.

Electrical Rating

- Neon Lamp
- A14D1402, A14D1403, A14D1406, A14D1474, A14D1475, A014DA01402, A014DA01403, A014DA01406, A014DA01474, A014DA01475

: For adapter: Input AC120V, 60Hz,10W,Class II; Output: AC12V,600mA
For appliance: AC12V, 600mA

Date Received : 21 July 2011

Date Test Conducted : 21 July 2011 to 24 August 2011

Test standards : FCC Part 18: 2010

Test Result : Pass

The submitted samples complied with the above rules/standards.

Remark None.

***** End of Page *****

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24 August 2011 Date

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Contents

TEST REPORT	1
1 General Description	3
1.1 Product Description	3
1.2 Related Submittal(s) Grants	3
1.3 Test Methodology	3
1.4 Test Facility	3
2 System Test Configuration	4
2.1 Justification	4
2.2 EUT Exercising Software	4
2.3 Special Accessories	4
2.4 Equipment Modification	4
2.5 Measurement Uncertainty	4
2.6 Support Equipment List and Description	4
3 Emission Results	5
3.1 Field Strength Calculation	5
3.2 Radiated Emission Configuration Photograph	6
3.3 Radiated and Spurious Emission Data	6
3.1 Conducted Emission Configuration Photograph	7
3.2 Conducted Emission Data	7
4 Equipment photo	10
5 Product Labelling	10
6 Technical Specifications	10
7 Instruction Manual	10
8 Miscellaneous Information	10
8.1 Discussion of Pulse Desensitization	10
8.2 Calculation of Average Factor	10
8.3 Emissions Test Procedures	10
9 Equipment list	12
Conducted Emission test	12

1 General Description

1.1 Product Description

The equipment under test (EUT) is a Neon Lamp which is powered by AC 120V, 60Hz, and the operation frequency is 12.8KHz.

Models difference:

Each model has same circuit and PCB layout except for neon tube shape and the power:

A14D1402 is same to A014DA01402 except model number	the power is 3.5W
A14D1403 is same to A014DA01403 except model number	the power is 3.5W
A14D1406 is same to A014DA01406 except model number	the power is 4W
A14D1474 is same to A014DA01474 except model number	the power is 3.5W
A14D1475 is same to A014DA01475 except model number	the power is 4W

Model A14D1402 is the typically model. We have checked all models and presented the worse case in the report

For electronic filing, the brief circuit description is saved with filename: Technical description .pdf.

1.2 Related Submittal(s) Grants

No other related submitted grants.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in FCC/OST MP-5 (1986). Conducted emission test was performed in shield room and radiated emission test was done in Semi-anechoic chamber. Radiated test was performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application.

1.4 Test Facility

The Shield room and Semi-Anechoic Chamber facilities used to collect the test data were Intertek Testing Services Shenzhen ltd. Kejiyuan Branch and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District Shenzhen, P.R.China. These test facilities and site measurement data have been fully placed on file with File Number 242492.

2 System Test Configuration

2.1 Justification

The EUT was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in FCC/OST MP-5(1986).

The EUT was powered by 120V, 60Hz.

For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 2 meter above the ground, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is turned on, it works continuously

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

2.4 Equipment Modification

No modification.

2.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

2.6 Support Equipment List and Description

AC-AC adapter:

Model: KHU120060A-3

Rating:

Input AC120V, 60Hz, 10W, Class II;

Output: AC 12V, 600mA

3 Emission Results

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the spectrum analyzer to the factor associated with preamplifiers(if any), antennas, cables. A sample calculation is included below:

$$FS = RA + AF - DF$$

where FS = Field Strength in $dB\mu V/m$

RA = Receiver Amplitude (including preamplifier) in $dB\mu V$

AF = Antenna factor

DF = Distance Factor in $-dB$

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF - DF$$

EXAMPLE

Assume a receiver reading of 39.0 $dB\mu V$ is obtained. The antenna factor of 10.6 dB is added., however, the distance factor is 40 dB. The net field strength for comparison to appropriate emission limit is 9.6 $dB\mu V/m$. This value in $dB\mu V/m$ was converted to its corresponding level in $\mu V/m$.

RA = 39.0 $dB\mu V/m$

AF = 10.6 dB

DF=20 log(3/300)= -40dB

$$FS = 39 + 10.6 - 40 = 9.6 \text{ } dB\mu V/m$$

$$\text{Level in } \mu V/m = \text{Common Antilogarithm } [(9.6 \text{ } dB\mu V/m)/20] = 3.02 \text{ } \mu V/m$$

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission at 0.0423 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: Radiated photos.pdf.

3.3 Radiated and Spurious Emission Data

The data on the following page lists the significant emission frequencies. The operating frequency of this product is 12.8KHz. There is no limit for the frequency range from 9KHz to 30MHz for RF lighting devices according to standard.

Judgement: Passed (no limit) .

Applicant: Atico International (Asia), Ltd

Date of test: 24 August 2011

Model: A14D1402

Polarity: Vertical

Mode: EUT on with adapter

Radiated Emissions

Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Calculated at 30m (dB μ V/m)	Limit at 30m (dB μ V/m)	Margin (dB)
0.0423	59.4	15.2	74.6	54.6	—	—
0.0854	29.6	15.2	44.8	24.8	—	—
0.1280	26.6	14.9	41.5	21.5	—	—
0.2694	25.3	14.6	39.9	19.9	—	—
0.6873	25.0	13.8	38.8	18.8	—	—
2.0007	21.5	12.0	33.5	13.5	—	—

Notes:

1. QP Detector Data.
2. Frequency range scanned: 9kHz- 30MHz
3. Only emission significantly above equipment noise floor are reported.
4. A closer fixed distance was used for testing and 1/d attenuation law factor was used.
5. Loop antenna is used for the emissions below 30MHz.

3.1 Conducted Emission Configuration Photograph

Worst Case Conducted Emission at 0.682 MHz

For electronic filing, the worst case conducted emission configuration photographs are saved with filename: Conducted photos.pdf.

3.2 Conducted Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by -11.5 dB

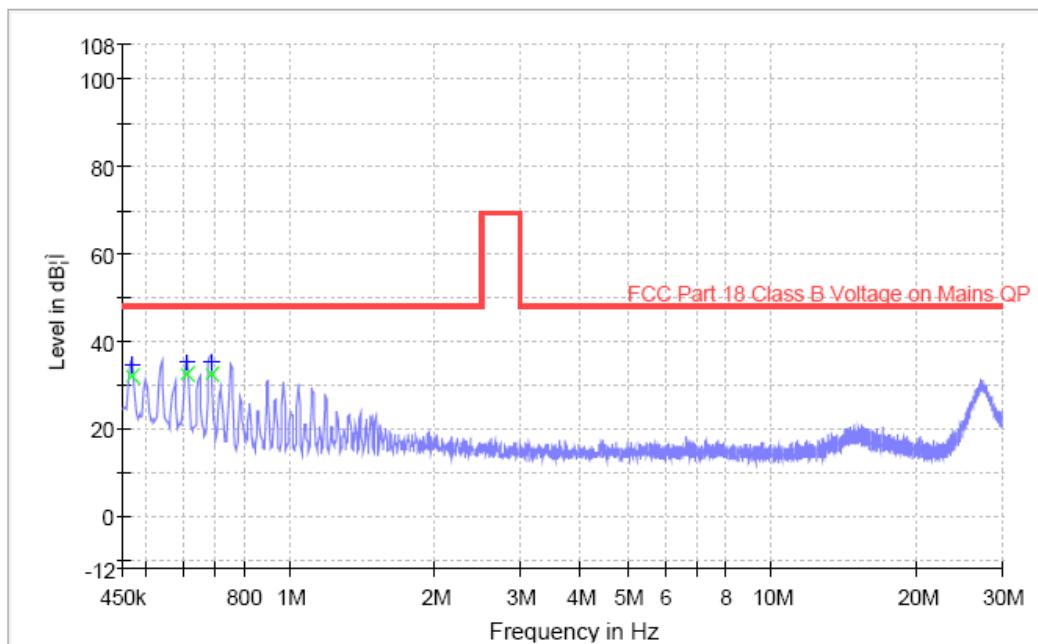
Applicant: Atico International (Asia), Ltd
Model: A14D1402

Date of test: 05 August 2011

Conducted Emissions

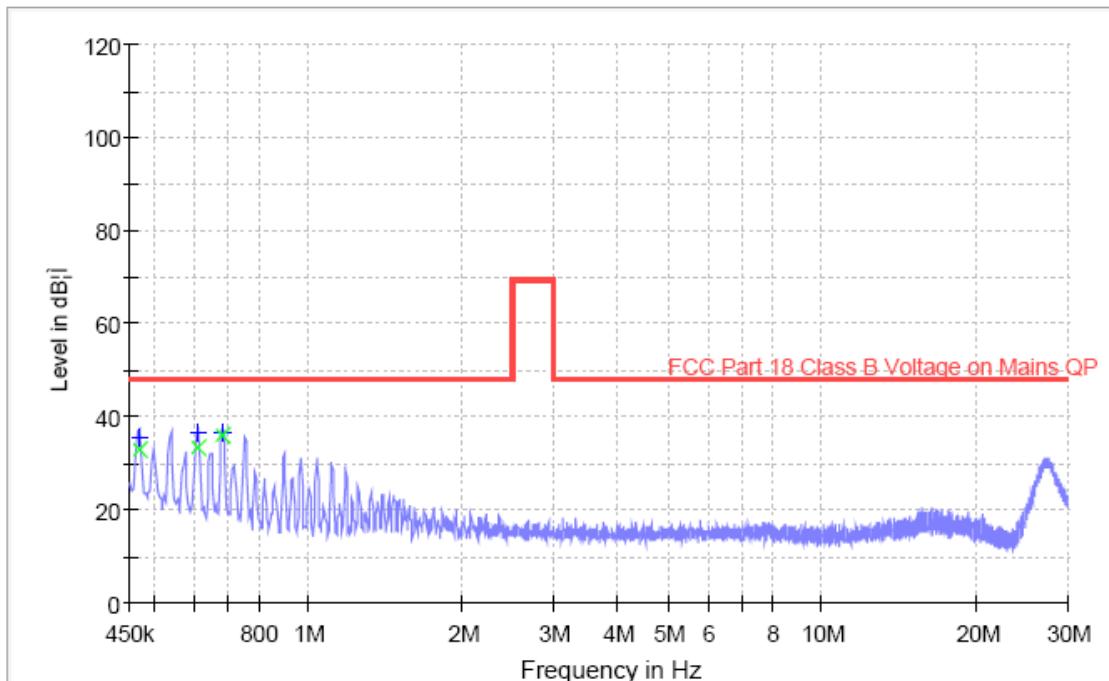
Tested Wire: Live

Mode: EUT on with adapter



Frequency [M H z]	Quasi-Peak	
	Disturbance level [d B (μ V)]	Permitted limit [d B (μ V)]
0 . 4 7 0	3 4 . 8	4 8 . 0
0 . 6 1 4	3 5 . 3	4 8 . 0
0 . 6 8 6	3 5 . 0	4 8 . 0
0 . 7 4 5	3 4 . 7	4 8 . 0
0 . 9 1 6	3 0 . 3	4 8 . 0
2 7 . 1 5 6	2 9 . 7	4 8 . 0

Tested Wire: Neutral
Mode: EUT on with adapter



Frequency [M Hz]	Disturbance level [dB (μ V)]	Permitted limit [dB (μ V)]
0.470	35.7	48.0
0.614	36.3	48.0
0.682	36.5	48.0
0.745	35.4	48.0
0.916	30.6	48.0
27.156	29.2	48.0

Notes:

1. Frequency range scanned: 0.45kHz- 30MHz

4 Equipment photo

For electronic filing, the photographs are saved with filename: External and Internal photos.pdf .

5 Product Labelling

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

6 Technical Specifications

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: Block diagram.pdf and Circuit diagram.pdf respectively.

7 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: Manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States

8 Miscellaneous Information

This miscellaneous information includes details of the test procedure.

8.1 Discussion of Pulse Desensitization

N/A

8.2 Calculation of Average Factor

It is not applicable for FCC part 18 device.

8.3 Emissions Test Procedures

The following is a description of the test procedure used by GZ Intertek Testing Services in the measurements of EUT operating under Part 18, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of

FCC/OST MP-5 (1986).

The transmitting equipment under test (EUT) is placed on a wooden turntable which is 1.5X1m dimension and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna polarization is varied during the testing to search for maximum signal levels.

According to FCC/OST MP-5 (1986), the frequency range scanned is 9 kHz to 30 MHz in field strength emission. The detector function of the measurement is set to average. For line conducted emissions, the range scanned is 0.45 kHz to 30 MHz in quasi peak and average measurement.

9 Equipment list

Radiated Emission test

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ185-01	EMI Receiver	R&S	ESCI	100547	08-Mar-11	08-Mar-12
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	06-Mar-11	06-Mar-12
SZ062-04	RF Cable	RADIALL	RG 213U	--	25-Mar-11	25-Sep-11
SZ062-06	RF Cable	RADIALL	0.04-26.5GHz	--	16-Sep-10	16-Sep-11
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	27-May-11	27-May-13

Conducted Emission test

Equipment No.	Equipment	Model	Manufacturer	Serial No.	Cal. Date	Due Date
SZ185-02	EMI Test Receiver	ESCI	R&S	100692	12-Nov-10	12-Nov-11
SZ187-01	LISN	ENV216	R&S	100072	12-Nov-10	12-Nov-11
SZ067-03	Power Splitter	RVZ	R&S	100410	08-Mar-11	08-Mar-12
SZ066-01	Isolation Transformer	ISO TRAN	Erika Fiedler OHG	89	11-Jan-11	11-Jan-12
SZ067-01	Matching Pad	RAM	R&S	101055	08-Mar-11	08-Mar-12
SZ067-02	Matching Pad	RAM	R&S	101056	08-Mar-11	08-Mar-12
SZ062-09	RF Cable	RG58/AU	MIZU	/	/	/
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Sep-10	16-Sep-11