

EMC TEST REPORT No. SH08081026-001

Applicant : Suzhou Daming Electric Co., Ltd.

Weixi Village, Weitang Town Xiangcheng District, Suzhou,

China

Manufacturer : Suzhou Daming Electric Co., Ltd.

Weixi Village, Weitang Town Xiangcheng District, Suzhou,

China

Equipment : Energy Saving Lamp

Type/Model : BDS-18, BDS-19, BDS-23, BDS-26

SUMMARY

The equipment complies with the requirements according to the following standard(s):

47CFR Part 18 (2007): Industrial, scientific, and medical equipment

ANSI C63.4 (2003): American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Date of issue: Sep 17, 2008

Tested by:

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Desired Thoro

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FCC ID: VL7DM20080908

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IC Assigned Code: 2042B-1

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1. General Information

1.1 Applicant Information

Applicant: Suzhou Daming Electric Co., Ltd.

Weixi Village, Weitang Town Xiangcheng District,

Suzhou, China

Name of contact: Mr. Wei Min Zhang

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Manufacturer: Suzhou Daming Electric Co., Ltd.

Weixi Village, Weitang Town Xiangcheng District,

Suzhou, China

Sample received date : Sep 1, 2008

Date of test : Sep 1, 2008 ~ Sep 14, 2008

1.2 Identification of the EUT

Equipment: Energy Saving Lamp

Type/model: BDS-18, BDS-19, BDS-23, BDS-26

FCC ID: VL7DM20080908

IC: Not applied



FCC ID: VL7DM20080908

1.3 Technical specification

Maximum Operation Frequency: 42-50kHz

Rating: AC 120V, 60Hz

BDS-18: 18W; BDS-19: 19W; BDS-23: 23W; BDS-26: 26W

Description of EUT: There are four models. They are similar in electric

construction and outside view. For their different rated

input power, they were tested individually.

1.4 Mode of operation during the test / Test peripherals used

Within this test report, EUT was tested under its rating voltage and frequency. Foe each model, two samples were tested and the worse data was recorded.

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2. Test Specification

2.1 Instrument list

Equipment	Type	Manu.	Internal no.	Cal. Date	Due date
Test Receiver	ESIB 26	R&S	EC 3045	2008-6-1	2009-5-31
Semi-anechoic	-	Albatross	EC 3048	2008-6-1	2009-5-31
chamber		project			
A.M.N.	ESH2-Z5	R&S	EC 3119	2008-1-23	2009-1-22
Test Receiver	ESCS 30	R&S	EC 2107	2008-1-23	2009-1-22
Ultra-broadband	HL 562	R&S	EC 3046-1	2008-6-30	2009-6-29
antenna					
Conical metal	-	Self-made	EC 2109	2008-1-17	2009-1-16
housing					

2.2 Test Standard

47CFR Part 18 (2007) ANSI C63.4: 2003



FCC ID: VL7DM20080908

2.3 Radiated test description

Test site: Semi-anechoic chamber

Test distance: 3m

Antenna: Ultra-broadband antenna (30MHz ~ 1GHz);

Horn antenna (1GHz ~ 18GHz)

Typical Gain of Preamplifiers: 30dB (for 1GHz ~ 18GHz)

Test Receiver set: RBW = 100kHz, VBW = 300kHz, internal amplifier: ON; (30MHz~1GHz)

RBW = 1MHz, VBW = 3MHz, internal amplifier: OFF; (>1GHz for PK); RBW = 1MHz, VBW = 10Hz, internal amplifier: OFF; (>1GHz for AV);

Floor noise reading of the radiated test system (consisting of test site, antenna, preamplifier and receiver):

1GHz ~ 18GHz

Antenna	Frequency (MHz)	Uncorrected Reading (dBuV)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Detector
Н	1000	45.20	-0.60	44.60	PK
Н	8650	38.50	5.10	43.60	PK
Н	15000	38.90	5.50	44.40	PK
V	1000	45.30	-0.60	44.70	PK
V	8650	38.40	5.10	43.50	PK
V	15000	38.80	5.50	44.30	PK
Н	1000	29.10	-0.60	28.50	AV
Н	8650	24.30	5.10	29.40	AV
Н	15000	24.80	5.50	30.30	AV
V	1000	29.50	-0.60	28.90	AV
V	8650	24.60	5.10	29.70	AV
V	15000	24.10	5.50	29.60	AV

Remark: 1.Correct Factor = Antenna Factor + Cable Loss - Gain of Preamplifier.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB, Gain of Preamplifier = 32.00dB, then Correct Factor = 30.20 + 2.00 - 32.00 = 0.20dB/m

2. Corrected Reading = Uncorrected Reading + Correct Factor

Example: Assuming Uncorrected Reading = 35.00dBuV, Correct Factor = 0.20dB/m, then Corrected Reading = 35.00+0.20 = 35.20dBuV/m



2.4 Test Summary

This report applies to tested sample only. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.

TEST ITEM	FCC REFERANCE	IC REFERANCE	RESULT
Radiated emission	18.305(c)	-	Pass
Power line conducted emission	18.307(c)	-	Pass



3. Radiated emission

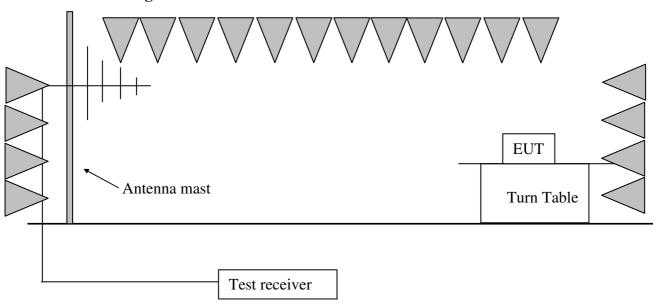
Test result: PASS

3.1 Test limit

The radiated emissions must also comply with the limits specified in §18.305(c) showed as below:

Frequency (MHz)	Field Strength (dBuV/m)	Measurement Distance (m)
30 - 88	40.0	3
88 - 216	43.5	3
216 - 1000	46.0	3

3.2 Test Configuration



3.3 Test procedure and test setup

The measurement was applied in a semi-anechoic chamber. While testing for restrict band emission higher than 1GHz, the pre-amplifier is equipped just at the output terminal of the antenna.

The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.



3.4 Test protocol

BDS-18

Antenna	Frequency (MHz)	Uncorrected Reading (dBuV)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Detector
Н	30.00	*	*	*	*	QP
Н	82.48	13.80	9.70	23.50	40.00	QP
Н	111.64	19.30	10.70	30.00	43.50	QP
Н	173.85	16.20	9.60	25.80	43.50	QP
Н	251.30	*	*	*	*	QP
Н	879.48	11.10	24.60	35.70	46.00	QP
V	30.00	10.00	19.60	29.60	40.00	QP
V	86.37	15.20	10.10	25.30	40.00	QP
V	111.64	21.30	10.70	32.00	43.50	QP
V	231.40	*	*	*	*	QP
V	252.00	*	*	*	*	QP
V	856.15	10.00	24.20	34.20	46.00	QP

Remark: 1.Correct Factor = Antenna Factor + Cable Loss

- 2. Corrected Reading = Uncorrected Reading + Correct Factor
- 3. If the margin is higher than 20dB, it would be marked as *.
- 4. For more details, please refer to the test data (Corrected PK data).



BDS-19

Antenna	Frequency (MHz)	Uncorrected Reading	Correct Factor	Corrected Reading	Limit (dBuV/m)	Detector
		(dBuV)	(dB/m)	(dBuV/m)		
Н	30.00	*	*	*	*	QP
Н	84.43	12.10	9.90	22.00	40.00	QP
Н	107.76	17.60	10.60	28.20	43.50	QP
Н	158.30	18.30	9.10	27.40	43.50	QP
Н	231.65	*	*	*	*	QP
Н	340.83	*	*	*	*	QP
V	30.00	9.40	19.60	29.00	40.00	QP
V	86.37	15.20	10.10	25.30	40.00	QP
V	113.59	19.30	10.90	30.20	43.50	QP
V	150.60	*	*	*	*	QP
V	231.65	*	*	*	*	QP
V	877.54	10.20	24.50	34.70	46.00	QP

Remark: 1.Correct Factor = Antenna Factor + Cable Loss

- 2. Corrected Reading = Uncorrected Reading + Correct Factor
- 3. If the margin is higher than 20dB, it would be marked as *.
- 4. For more details, please refer to the test data (Corrected PK data).



BDS-23

Antenna	Frequency (MHz)	Uncorrected Reading (dBuV)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Detector
Н	30.00	*	*	*	*	QP
Н	82.48	16.40	9.70	26.10	40.00	QP
Н	109.70	20.20	10.60	30.80	43.50	QP
Н	160.24	17.50	9.00	26.50	43.50	QP
Н	235.90	*	*	*	*	QP
Н	345.82	*	*	*	*	QP
V	30.00	7.80	19.60	27.40	40.00	QP
V	86.37	17.10	10.10	27.20	40.00	QP
V	107.76	21.50	10.60	32.10	43.50	QP
V	158.30	15.20	9.10	24.30	43.50	QP
V	380.61	*	*	*	*	QP
V	947.52	10.20	25.30	35.50	46.00	QP

Remark: 1.Correct Factor = Antenna Factor + Cable Loss

- 2. Corrected Reading = Uncorrected Reading + Correct Factor
- 3. If the margin is higher than 20dB, it would be marked as *.
- 4. For more details, please refer to the test data (Corrected PK data).



BDS-26

Antenna	Frequency (MHz)	Uncorrected Reading	Correct Factor	Corrected Reading	Limit (dBuV/m)	Detector
	(IVIIIZ)	(dBuV)	(dB/m)	(dBuV/m)	(dDd V/III)	
Н	30.00	*	*	*	*	QP
Н	82.48	13.20	9.70	22.90	40.00	QP
Н	117.47	16.20	11.20	27.40	43.50	QP
Н	158.30	15.10	9.10	24.20	43.50	QP
Н	332.85	*	*	*	*	QP
Н	947.52	8.50	25.30	33.80	46.00	QP
V	30.00	9.30	19.60	28.90	40.00	QP
V	86.37	15.10	10.10	25.20	40.00	QP
V	107.76	19.30	10.60	29.90	43.50	QP
Н	325.90	*	*	*	*	QP
V	410.52	*	*	*	*	QP
V	856.15	10.80	24.20	35.00	46.00	QP

Remark: 1.Correct Factor = Antenna Factor + Cable Loss

- 2. Corrected Reading = Uncorrected Reading + Correct Factor
- 3. If the margin is higher than 20dB, it would be marked as *.
- 4. For more details, please refer to the test data (Corrected PK data).

3.5 Measurement uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty of radiated emission is: \pm 5.31dB

The measurement uncertainty is given with a confidence of 95%, k=2.

The measurement uncertainty is traceable to internal procedure TI-036.



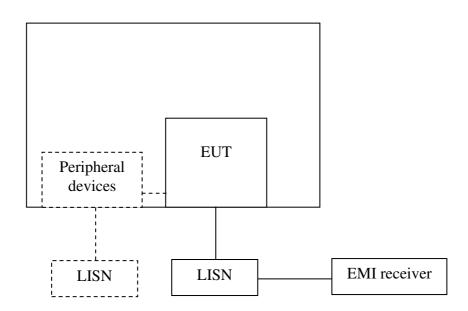
4. Power line conducted emission

Test result: Pass

4.1 Limit

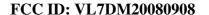
	Conducted Limit (dBuV)					
Frequency of Emission (MHz)						
	QP	AV				
0.45-2.51	48.00	-				
2.51-3.0	69.50	-				
3.0-30	48.00	-				
* Decreases with the logarithm of the frequency.						

4.2 Test configuration



For table top equipment, wooden support is 0.8m height table

For floor standing equipment, wooden support is 0.1m height rack.





4.3 Test procedure and test set up

The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a $50\Omega/50uH$ coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a $50\Omega/50uH$ coupling impedance with 50Ω termination.

Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement. The bandwidth of the test receiver is set at 9 kHz.



4.4 Test protocol

BDS-18, Power line: L

Frequency	Correct Factor	Corrected	Reading	Limit		Margin	
	(dB)	(dBu	ıV)	(dBuV)		(dB)	
		QP	AV	QP	AV	QP	AV
0.45	3.00	37.96	-	48.00	-	10.04	1
0.68	3.00	38.84	-	48.00	-	9.16	-
1.00	3.00	37.81	-	48.00	-	10.19	-
2.43	3.00	45.04	-	48.00	-	2.96	-
2.62	3.00	44.33	-	69.50	-	*	-
6.96	3.00	38.35	-	48.00	-	9.65	-
8.70	3.00	38.19	-	48.00	-	9.81	-

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.

BDS-18, Power line: N

Frequency	Correct Factor	Corrected Reading		Limit		Margin	
	(dB)	(dBu	ıV)	(dBuV)		(dB)	
		QP	AV	QP	AV	QP	AV
0.47	3.00	39.17	-	48.00	-	8.83	-
0.61	3.00	39.23	-	48.00	-	8.77	-
2.80	3.00	30.40	-	48.00	-	17.60	-
2.43	3.00	45.97	-	48.00	-	2.03	-
2.63	3.00	43.48	-	69.50	-	*	-
3.07	3.00	41.79	-	48.00	1	6.21	-
8.84	3.00	38.72	-	48.00	-	9.28	-

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.



BDS-19, Power line: L

Frequency	Correct Factor	Corrected Reading		Limit		Mai	rgin
	(dB)	(dBuV)		(dBuV)		(dB)	
		QP	AV	QP	AV	QP	AV
0.47	3.00	37.66	-	48.00	-	10.34	-
0.67	3.00	37.36	-	48.00	-	10.64	-
0.86	3.00	39.55	-	48.00	-	8.45	-
0.96	3.00	32.84	-	48.00	-	15.16	-
2.42	3.00	36.57	-	48.00	-	11.43	-
2.65	3.00	34.34	-	69.50	-	*	-
9.39	3.00	33.53	-	48.00	-	14.47	-

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.

BDS-19, Power line: N

Frequency	Correct Factor	Corrected Reading		Limit		Mai	rgin	
	(dB)	(dBuV)		(dBuV)		(dB)		
		QP	AV	QP	AV	QP	AV	
0.47	3.00	41.18	-	48.00	-	6.82	-	
0.60	3.00	39.45	-	48.00	-	8.55	-	
1.16	3.00	36.97	-	48.00	-	11.03	-	
2.38	3.00	44.70	-	48.00	-	3.30	-	
2.62	3.00	47.03	-	69.50	-	*	-	
3.14	3.00	32.69	-	48.00	-	15.31	-	
7.45	3.00	33.38	-	48.00	-	14.62	-	

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.



BDS-23, Power line: L

Frequency	Correct Factor	Corrected Reading		Limit		Mai	rgin
	(dB)	(dBuV)		(dBuV)		(dB)	
		QP	AV	QP	AV	QP	AV
0.45	3.00	38.85	-	48.00	-	9.15	-
0.50	3.00	42.65	-	48.00	-	5.35	-
0.77	3.00	40.07	-	48.00	-	7.93	-
1.23	3.00	36.81	-	48.00	-	11.19	-
2.44	3.00	42.40	-	48.00	-	5.60	-
2.93	3.00	47.81	-	69.50	-	*	-
3.13	3.00	43.73	-	48.00	-	4.27	-

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.

BDS-23, Power line: N

Frequency	Correct Factor	Corrected Reading		Limit		Mai	rgin	
	(dB)	(dBuV)		(dBuV)		(dB)		
		QP	AV	QP	AV	QP	AV	
0.49	3.00	36.72	-	48.00	-	11.28	-	
0.58	3.00	36.24	-	48.00	-	11.76	-	
0.67	3.00	38.29	-	48.00	-	9.71	-	
2.36	3.00	40.45	-	48.00	-	7.55	-	
2.77	3.00	46.78	-	69.50	-	*	-	
3.09	3.00	42.74	-	48.00	-	5.26	-	
3.90	3.00	34.43	-	48.00	-	13.57	-	

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.



BDS-26, Power line: L

Frequency	Correct Factor	Corrected Reading		Limit		Mai	rgin
	(dB)	(dBuV)		(dBuV)		(dB)	
		QP	AV	QP	AV	QP	AV
0.47	3.00	39.80	-	48.00	-	8.20	-
0.77	3.00	36.25	-	48.00	-	11.75	-
1.13	3.00	34.98	-	48.00	-	13.02	-
2.39	3.00	44.18	-	48.00	-	3.82	-
2.59	3.00	45.48	-	69.50	-	*	-
3.69	3.00	37.83	-	48.00	-	10.17	-
5.61	3.00	37.45	-	48.00	-	10.55	-

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.

BDS-26, Power line: N

Frequency	Correct Factor	Corrected Reading		Limit		Mai	rgin	
	(dB)	(dBuV)		(dBuV)		(dB)		
		QP	AV	QP	AV	QP	AV	
0.49	3.00	34.99	-	48.00	-	13.01	-	
0.53	3.00	39.72	-	48.00	-	8.28	-	
0.72	3.00	39.34	-	48.00	-	8.66	-	
2.27	3.00	40.72	-	48.00	-	7.28	-	
2.37	3.00	41.24	-	48.00	-	6.76	-	
2.61	3.00	48.38	-	69.50	-	*	-	
3.34	3.00	37.04	-	48.00	-	10.96	-	

Remark: 1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB).

- 2. Margin (dB) = Limit Corrected Reading.
- 3. If the margin higher than 20dB, it would be marked as *.

4.5 Measurement Uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty at mains terminal: ± 1.99dB

The measurement uncertainty is given with a confidence of 95%, k=2.

The measurement uncertainty is traceable to internal procedure TI-036.