

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Applicant:	Radomir Klabal Komenskeho 446, Bilovice nad Svitavou, Czech Republic	Number:	HK09010590-5
		Date:	11 Jan 2011

Sample Description

Product	:	Compact Fluorescent Lamp	
Model No.	:	CFL15T2S27E27	
Brand Name	:	Divetta	
Electrical Rating	:	220-240V, 50Hz/60Hz	
No. of Submitted Samples	:	25 pieces	
Date Received	:	12 Jan 2009	
Date Test Conducted	:	25 Jan 2009 to 30 Dec 2010	
Test Requested	:	EN 60969: 1993 +A1: 1993 +A2: 2000	
		1. Lumen Output	
		2. Energy Efficiency Ratio	
		3. Colour Temperature	
		4. Colour Rendering Index	
		5. Total Harmonic Distortion	
		6. Physical weight and dimension	
		8. SDCM	
		9. 2000, 6000 & 10000 Hours Lumen Maintenance	
		10. 15000 Hours Life Test	
Test Method	:	See the attached sheets.	
Test Result	:	The submitted samples complied with the above standard / requirement. The remarks in page 10 shall be noted. Measurement uncertainty for applicable tests has been established.	

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

Prepared and checked by:

Lam Chi Keung
Manager

- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

Description : Compact Fluorescent Lamp

Design : Bare Design

Test Sample Size : 20 pieces

1. **Measuring Method**

1.1 Lamp Pre-Conditioning

The lamps were pre-conditioned for 100 hours (mounted in base-up position), before the initial lumen measurement.

1.2 Light Output Measurements

Total light output (luminous flux) was measured using a Labsphere 65 inches integrating sphere spectral lamp measurement system SLMS-6521. Temperature was measured at a position inside the sphere shielded from direct light. Relative humidity of 65% was measured at a position in the testing laboratory.

Spectral radiant flux measurements were made using the Labsphere model DAS-1100 Diode Array spectrometer attached to the detector port of the integrating sphere. Each lamp was operated at 240V AC 50Hz in the base up orientation. Each lamp was allowed to stabilise before measurements were made. The calibration of the integrating sphere spectrometer system is by the reference/standard lamps which are traceable to NIST national standards in US. Lamp efficacy (lumens per watt) for each lamp model was then computed based on the luminous flux result. Electrical measurements including voltage, power and power factor were measured using the Voltech Instrument Ltd., model PM100 digital power meter.

1.3 Run-up Times from switch-on for self ballasted CFLs

Prior to run-up testing a sample of 20 lamps, which have been operated for 100 hours, shall be started under normal conditions at Rated Supply Voltage (240V). The light output at both 2 seconds after switch-on and 60 seconds after switch-on shall be recorded and logged as a percentage of the final light output for each lamp.

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



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

1. Measuring Method

1.4 Run-up Times at 60% of the initial stable lumen

Prior to run-up testing a sample of 20 lamps, which have been operated for 100 hours, shall be started under normal conditions at Rated Supply Voltage (240V). The light output at 60% of initial stable lumen will be recorded and logged.

1.5 Lumen Maintenance

The lamps were placed on the life racks in their designated positions for an elapsed period of specified hours. Each lamp was on a 2-hours-45-minutes-on/15-minutes-off cycle at 240 volts AC 50Hz. The lamps were then re-measured for lumens and divided by the initial value of the luminous flux of the lamp and expressed as a percentage.

1.6 Average Rated Life Test

The rated voltage of the lamp type was 240 volts. The lamps were operated at 240 volts AC 50Hz during the life test. All lamps were on a 2-hours-45-minutes-on/15-minutes-off cycle. The lamps were visually inspected at regular intervals throughout the life test. The life test was discontinued after 50% of the lamps failed to reignite. The time and date of failure of each lamp was recorded. The actual elapsed time to failure for each lamp was in hours. Any lamp still operating at the end of the life tests was so noted. The measured average rated lamp life was determined from the life test results.

1.7 Equipment List

Model	Description	Manufacturer
SLMS-6521	SLMS spectral lamp measurement system	Labsphere
LMS-650	65 inches Integrating Sphere unit	Labsphere
DAS-1100	Diode array spectrometer	Labsphere
SCL-1400	Calibrated lamp standard	Labsphere
6810	AC Power Supply	Extech
PM100	Digital Power Meter	Voltech Instrument Ltd

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

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

Performance test per each saving lamp: 20mins

100 hours initial lumen measurement

Model No.	Sample No.	Voltage (V)	Current (mA)	Power (Watt)	Power Factor	THD (%)	Luminous Flux (lm)	Efficacy (Lumen P Watt)	Ambient Temp (°C)
CFL15T2S27E27	1/20	240.0	104.5	14.7	0.585	117.4	971.5	66.1	25.0
	2/20	240.0	101.2	14.1	0.581	120.4	913.7	64.8	25.0
	3/20	240.0	99.9	13.9	0.580	119.8	925.7	66.6	24.9
	4/20	240.0	106.7	15.0	0.586	116.9	947.8	63.2	25.0
	5/20	240.0	106.1	14.9	0.587	115.8	929.5	62.4	25.0
	6/20	240.0	102.2	14.2	0.581	119.2	931.4	65.6	24.9
	7/20	240.0	105.3	14.8	0.586	118.0	977.2	66.0	24.9
	8/20	240.0	104.9	14.7	0.584	117.8	962.8	65.5	24.9
	9/20	240.0	104.3	14.7	0.586	118.1	953.2	64.8	25.0
	10/20	240.0	102.7	14.5	0.586	116.4	932.0	64.3	24.9
	11/20	240.0	102.1	14.2	0.581	119.3	951.8	67.0	25.0
	12/20	240.0	103.9	14.6	0.584	117.4	938.8	64.3	25.0
	13/20	240.0	102.6	14.3	0.581	119.2	932.2	65.2	25.1
	14/20	240.0	105.3	14.8	0.586	117.9	943.0	63.7	25.0
	15/20	240.0	101.1	14.1	0.580	120.4	926.5	65.7	25.0
	16/20	240.0	103.1	14.5	0.586	117.0	945.7	65.2	24.9
	17/20	240.0	104.9	14.7	0.584	117.6	951.8	64.7	24.9
	18/20	240.0	104.5	14.7	0.585	116.8	936.9	63.7	25.0
	19/20	240.0	104.2	14.6	0.583	118.0	963.4	66.0	25.1
	20/20	240.0	105.0	14.8	0.584	119.0	961.3	65.0	25.0
Average value	-----	240.0	103.7	14.5	0.584	118.1	944.8	65.0	-----

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

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

Run-up Times from switch-on for self ballasted CFLs

Model No.	Sample No.	Voltage (V)	100 hours Stabilised Lumen output (lm)	Lumen at 2 sec (Sec)	Lumen at 60 sec (Sec)	Percentage of Lumen output at 2 sec (%)	Percentage of Lumen output at 60 sec (%)	60 % Run-up time of initial stable lumen (Sec)
CFL15T2S27E27	1/20	240.0	974.9	365.8	964.9	37.52	98.97	21.62
	2/20	240.0	916.8	350.6	903.7	38.24	98.57	17.62
	3/20	240.0	929.5	299.9	892.1	32.26	95.98	25.98
	4/20	240.0	951.7	322.6	916.1	33.90	96.26	22.96
	5/20	240.0	934.2	320.6	922.0	34.32	98.69	22.18
	6/20	240.0	932.5	348.5	916.3	37.37	98.26	17.69
	7/20	240.0	979.5	354.7	953.3	36.21	97.33	19.63
	8/20	240.0	963.1	356.6	918.4	37.03	95.36	20.47
	9/20	240.0	954.3	350.2	935.0	36.70	97.98	16.62
	10/20	240.0	934.4	362.5	921.7	38.79	98.64	13.44
	11/20	240.0	952.5	362.0	941.6	38.01	98.86	12.60
	12/20	240.0	942.2	371.4	934.7	39.42	99.20	14.13
	13/20	240.0	936.8	366.0	921.0	39.07	98.31	14.34
	14/20	240.0	945.7	339.8	899.5	35.93	95.11	22.47
	15/20	240.0	930.5	365.6	914.1	39.29	98.24	13.72
	16/20	240.0	950.3	352.4	919.4	37.08	96.75	15.61
	17/20	240.0	956.3	325.5	918.8	34.04	96.08	21.06
	18/20	240.0	940.2	288.2	913.7	30.65	97.18	21.90
	19/20	240.0	967.5	338.7	884.3	35.01	91.40	25.66
	20/20	240.0	963.2	400.4	951.0	41.57	98.73	12.78
Average value	-----	240.0	947.8	347.1	922.1	36.62	97.30	18.62

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



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

Physical weights and dimensions for lamps & colour performance

Model No.	Sample No.	Sample Weight (g)	Sample Height (mm)	Sample Diameter (mm)	Colour temp. -CCT (K)	Colour Rendering Index (%)	Chromaticity Coordinate x	Chromaticity Coordinate y	SDCM
CFL15T2S27E27	1/20	54	100.36	48.77	2734	81.6	0.4610	0.4172	1
	2/20	55	100.73	47.36	2732	81.6	0.4624	0.4195	0
	3/20	54	101.50	48.74	2692	82.1	0.4651	0.4191	2
	4/20	55	101.44	48.63	2697	82.1	0.4631	0.4163	2
	5/20	55	101.02	48.82	2703	81.9	0.4622	0.4153	2
	6/20	56	100.73	47.43	2702	81.9	0.4628	0.4164	2
	7/20	54	100.65	47.59	2709	81.8	0.4619	0.4157	2
	8/20	55	99.83	47.02	2706	81.9	0.4625	0.4166	2
	9/20	54	100.68	48.65	2710	81.8	0.4622	0.4163	2
	10/20	55	101.53	49.47	2741	81.5	0.4603	0.4170	2
	11/20	55	100.26	47.95	2708	81.8	0.4631	0.4175	1
	12/20	55	99.48	48.16	2711	81.7	0.4619	0.4159	2
	13/20	54	99.23	48.73	2706	81.9	0.4629	0.4171	1
	14/20	54	100.65	48.66	2706	81.6	0.4624	0.4162	2
	15/20	56	100.73	49.68	2711	81.8	0.4621	0.4163	2
	16/20	54	99.89	49.23	2687	82.2	0.4654	0.4190	2
	17/20	55	100.71	48.46	2709	81.8	0.4625	0.4167	2
	18/20	54	100.74	47.93	2697	82.0	0.4628	0.4156	2
	19/20	55	101.63	48.85	2700	82.1	0.4642	0.4185	1
	20/20	54	100.22	48.04	2701	82.0	0.4629	0.4163	2
Average value	-----	55	100.60	48.41	2708	81.9	0.4627	0.4169	1

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



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

2000 hours Lumen Maintenance Test:

Model No.	Sample No.	Luminous Flux (lm)	Initial Lumen (lm)	Lumen Maintenance (%)
CFL15T2S27E27	1/20	953.5	971.5	98.1
	2/20	895.8	913.7	98.0
	3/20	902.1	925.7	97.5
	4/20	914.8	947.8	96.5
	5/20	906.7	929.5	97.5
	6/20	908.4	931.4	97.5
	7/20	932.1	977.2	95.4
	8/20	921.9	962.8	95.8
	9/20	917.2	953.2	96.2
	10/20	909.9	932.0	97.6
	11/20	926.6	951.8	97.4
	12/20	897.7	938.8	95.6
	13/20	912.9	932.2	97.9
	14/20	906.9	943.0	96.2
	15/20	887.5	926.5	95.8
	16/20	925.2	945.7	97.8
	17/20	907.3	951.8	95.3
	18/20	912.4	936.9	97.4
	19/20	913.5	963.4	94.8
	20/20	935.4	961.3	97.3
Average value	-----	914.4	944.8	96.8

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



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

6000 hours Lumen Maintenance Test:

Model No.	Sample No.	Luminous Flux (lm)	Initial Lumen (lm)	Lumen Maintenance (%)	Life Status (Hours)	
CFL15T2S27E27	1/20	868.7	971.5	89.4	>6000	
	2/20	856.6	913.7	93.8	>6000	
	3/20	859.3	925.7	92.8	>6000	
	4/20	870.0	947.8	91.8	>6000	
	5/20	839.1	929.5	90.3	>6000	
	6/20	844.7	931.4	90.7	>6000	
	7/20	878.2	977.2	89.9	>6000	
	8/20	820.9	962.8	85.3	>6000	
	9/20	889.4	953.2	93.3	>6000	
	10/20	859.7	932.0	92.2	>6000	
	11/20	788.1	951.8	82.8	>6000	
	12/20	839.6	938.8	89.4	>6000	
	13/20	806.0	932.2	86.5	>6000	
	14/20	776.6	943.0	82.4	>6000	
	15/20	858.7	926.5	92.7	>6000	
	16/20	852.9	945.7	90.2	>6000	
	17/20	838.9	951.8	88.1	>6000	
	18/20	Sample burnt out				5894
	19/20	879.2	963.4	91.3	>6000	
	20/20	849.3	961.3	88.3	>6000	
Average value	-----	846.1	945.2	89.5	Pass	

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



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

10000 hours Lumen Maintenance Test:

Model No.	Sample No.	Luminous Flux (lm)	Initial Lumen (lm)	Lumen Maintenance (%)	Life Status (Hours)
CFL15T2S27E27	1/20	787.9	971.5	81.1	>10000
	2/20	738.1	913.7	80.8	>10000
	3/20	Sample burnt out			9644
	4/20	808.9	947.8	85.3	>10000
	5/20	Sample burnt out			6934
	6/20	Sample burnt out			8980
	7/20	828.3	977.2	84.8	>10000
	8/20	736.8	962.8	76.5	>10000
	9/20	829.1	953.2	87.0	>10000
	10/20	714.2	932.0	76.6	>10000
	11/20	723.6	951.8	76.0	>10000
	12/20	706.1	938.8	75.2	>10000
	13/20	721.6	932.2	77.4	>10000
	14/20	Sample burnt out			8562
	15/20	689.4	926.5	74.4	>10000
	16/20	735.0	945.7	77.7	>10000
	17/20	752.8	951.8	79.1	>10000
	18/20	Sample burnt out			5894
	19/20	737.5	963.4	76.6	>10000
	20/20	Sample burnt out			7110
Average value	-----	750.7	947.7	79.2	Pass

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



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Test Result:

Number: HK09010590-5

2. Performance Test Result

15000 hours Lumen Maintenance Test:

Model No.	Sample No.	Luminous Flux (lm)	Initial Lumen (lm)	Lumen Maintenance (%)	Life Status (Hours)
CFL15T2S27E27	1/20	745.8	971.5	76.8	>15000
	2/20	644.8	913.7	70.6	>15000
	3/20	Sample burnt out			9644
	4/20	729.4	947.8	77.0	>15000
	5/20	Sample burnt out			6934
	6/20	Sample burnt out			8980
	7/20	678.4	977.2	69.4	>15000
	8/20	688.6	962.8	71.5	>15000
	9/20	692.1	953.2	72.6	>15000
	10/20	651.5	932.0	69.9	>15000
	11/20	706.5	951.8	74.2	>15000
	12/20	647.1	938.8	68.9	>15000
	13/20	687.9	932.2	73.8	>15000
	14/20	Sample burnt out			8562
	15/20	657.9	926.5	71.0	>15000
	16/20	717.3	945.7	75.8	>15000
	17/20	722.5	951.8	75.9	>15000
	18/20	Sample burnt out			5894
	19/20	709.7	963.4	73.7	>15000
	20/20	Sample burnt out			7110
Average value	-----	691.4	947.7	72.9	Pass

Remarks:

- 1) The lamps were pre-conditioned for 100 hours (mounted in base-up position).
- 2) The rated input voltage of 240V was used and the line frequency is 50Hz.
- 3) The test was performed with the lamp in base-up position.
- 4) Model CFL15T2S27E27 can be classified as **Class 2** CFL.
- 5) Sample #3, #5, #6, #14, #18 & #20 burnt out during 15000 hours Lumen Maintenance.
- 6) The marking label was not provided.

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

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Appendix A:

Number: HK09010590-5

Product Photo



Model No.: CFL15T2S27E27

***** End of Report *****