EU Energy Labeling

[redacted]

Product	:	ENERGY SAVING LAMP(WITH IONIZER)		
Sample Description	:	Model No.	Input Rating	Power Rating
		OP AND ES SERIES	230V	25W
Standard	:	Council Directive 92/75/EEC with Directive 98/11/EC		
Sample Received Date	:	March 01, 2009	Test Performed Date	March 04, 2009
Conclusion	:	Comply With Class A Labeling Requirements.		
Test Facility	:	BEST Testing Service (Shenzhen) Co., Ltd. C, 310-316,Huameiju Business Center, 82 Block, Baoan District, Shenzhen, China NVLAP Code: 200770-0		
Contact	:	Telephone:86-755-28236006 Fax:86-755-28236249	Website: www.bestcert.cn Email: cert@bestcert.cn	

Prepared by:

Paul Tan:
Test Engineer

Reviewed by:

Chris Tseng:
Certification Manager

EU Energy Labeling

MEASUREMENT AND TEST REPORT

For

[redacted]

Product Name:	ENERGY SAVING LAMP(WITH IONIZER)
Model No:	OP AND ES SERIES
Test Engineer:	
Report No.:	BTR09030101-4
Sample Received Date:	March 01, 2009
Reviewed By:	
Prepared By:	BEST Testing Service (Shenzhen) Co., Ltd. C,310-316, Huameiju, Business, Center, 82 Block, Baoan District, Shenzhen China. TEL: +86-755-86182350 FAX: +86-755-86182353 Email: cert@bestcert.cn

TABLE OF CONTENTS

1 - GENERAL INFORMATION

1.1 Product Description for Unit under Test (EUT)

1. UUT Manufacture:	[redacted]
2. Model:	OP AND ES SERIES
3. Country of manufacturer:	Made In China
4. Rated Power declared by manufacture	25W
5. Shape	Mini-Spiral

1.2 Objective

The following test report is prepared on behalf of [redacted] in accordance with the following Standards: **Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances and COMMISSION DIRECTIVE 98/11/EC of 27 January 1998 implementing Council Directive 92/75/EEC with regard to energy labelling of household lamps**

Test Method:
According to Standard EN50285: 1999, Energy efficiency of electric lamps for household use - Measurement methods and EN60969: 1993+A1:1993+A2:2000, Self-ballasted lamps for general lighting services - Performance requirements.

1.3 Test Facility:

The Energy Efficiency Lab used by BEST to collect energy efficiency measurement data is located in C, 310-316, Huameiju Business Center, 82 Block, Baoan District, Shenzhen China.
BEST Testing Service (Shenzhen) Co., Ltd. is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200770-0).

1.4 Test Equipment List

Device	Manufacture	Model No	Serial No	Cal. Date	Cal Due Date
Integral Sphere	EVERFINE	1.5M SPEKTRON	608040T	Sep 23, 2008	Sep 22, 2009
Plus UV-VIS-Near IR Spectrophotometer Colorimeter	EVERFINE	PMS-50 (380nm-800nm)	608033	Sep 23, 2008	Sep 22, 2009
Digital CC&CV DC Power Supply	EVERFINE	WY-305	608052	Sep 27, 2007	Sep 27, 2009
Standard Light Source	EVERFINE	D204	607004	Sep 25, 2008	Sep 25, 2009
Intelligent Pure Sine-ware Power Supply	EVERFINE	TPS-500B	607009	N/A	N/A
Multi-Function AC standard Meter	EVERFINE	PF2010S	605010	Sep 27, 2007	Sep 26, 2009
Ballast Parameter Analyzer	FORWORD	UI2000	0503018	Sep 27, 2008	Sep 26, 2009
Second Meter	TIANFU	PC 398	N/A	Sep 27, 2008	Sep 26, 2009
Spectrum Analyzers	HP	8901E	2919A00241	Sep 27, 2008	Sep 26, 2009
Digital Oscilloscope	Tektronix	TDS2012B	C013357	Sep 27, 2008	Sep 26, 2009
Compact Generator	Thermo KeyTek	EMCPro Plus Test System	E832654	Sep 27, 2008	Sep 26, 2009
6 1/2 Digital Multimeter	Agilent	34401A	007M54263	Sep 27, 2008	Sep 26, 2009

*** Statement of Traceability: BEST Testing Service (Shenzhen) Co., Ltd.** certifies that all calibration has been performed using suitable standards traceable to the NIM China.

2 – Test Data

Sample No.	Input Power (W)	Luminous Flux (Lumens)
1	21.59	1486.60
2	20.94	1425.00
3	20.80	1440.60
4	20.78	1422.70
5	21.39	1530.00
6	21.75	1482.40
7	21.16	1512.30
8	21.46	1516.00
9	21.08	1440.50
10	21.32	1488.90
11	20.33	1375.20
12	20.80	1373.20
13	21.08	1445.10
14	20.36	1375.40
15	21.28	1413.30
16	20.83	1411.50
17	20.76	1341.50
18	21.04	1443.80
19	20.18	1372.60
20	20.45	1411.60
Average	20.97	1435.41

Correction Factor: 1.002

Average Input Power:
W=20.97
Average Lumen Output:
Φ=1435.41

0.24*Square root Φ+0.0103*Φ=23.87

20.97W<23.87W, so the result comply Class A requirement

3 – Test Plots

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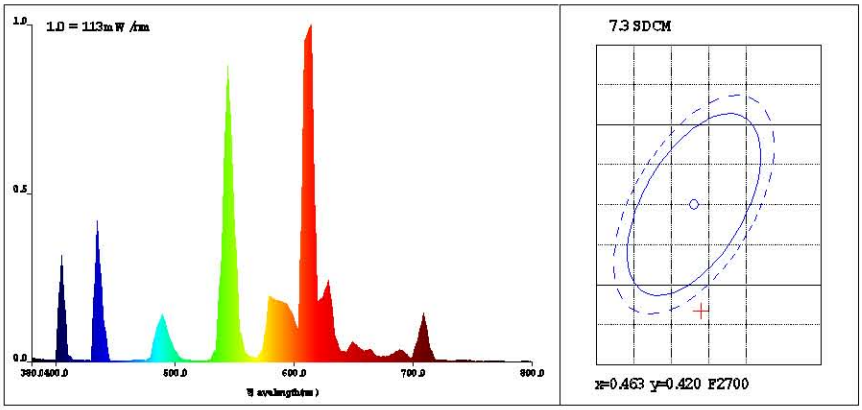
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4639 y=0.4067/u'=0.2669 v'=0.5265 (duv=-1.74e-003)

CCT:Tc= 2614K Prcp WaveL:λd=585.2nm Purity=61.3%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.8% G=65.0% B=2.3%

Average Wave: 591nm

Rendering Index:Ra=82.2

R1 =98 R2 =96 R3 =52 R4 =88 R5 =88 R6 =85 R7 =87 R8 =64

R9 =0 R10=54 R11=79 R12=46 R13=93 R14=66 R15=92

Photo Parameters:

Flux:Φ=1486.6(lm) Luminous Efficacy: 68.85(lm/W) Luminous Power:P=4.291(W)

Electrical Parameters:

U=230.0V I=0.1661A P=21.59W PF=0.565

Instrument Status:

Scan Range:380.0nm-800.0nm Interval:5.0nm Ip = 44298(G=3,D=53)

REF = 8669 % = 0.093% TMP(PMT) = 28.0degrees centigrade

NO.1

Product Type:OP AND ES SERIES [redacted]

Instrument:PMS-50 System Test Department:BEST EEL Laboratory

Temperature:26.4deg Humidity:50.0%

Test Operator:David Test Date:2009-03-04

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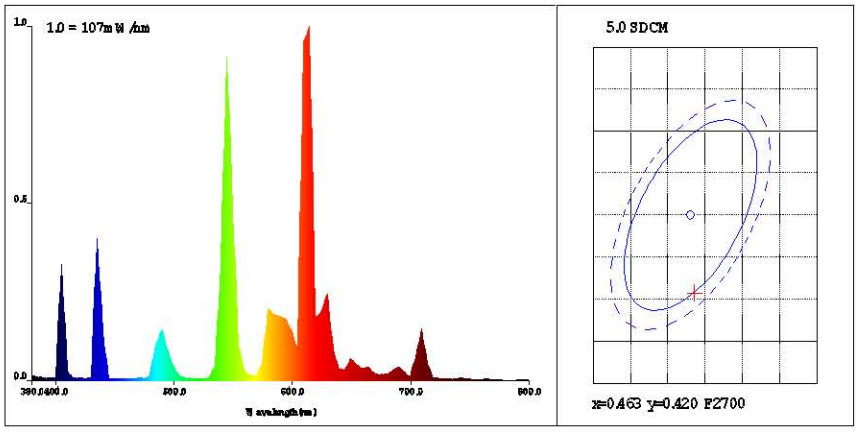
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4635 y=0.4107/u'=0.2648 v'=0.5279 (duv=-2.63e-004)

CCT:Tc= 2650K Prcp WaveL:λd=584.5nm Purity=62.4%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.3% G=65.5% B=2.2%

Average Wave: 590nm

Rendering Index:Ra=81.9

R1 =98	R2 =95	R3 =51	R4 =88	R5 =88	R6 =83	R7 =87	R8 =65
R9 =0	R10=52	R11=78	R12=44	R13=94	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1425.0(lm) Luminous Efficacy: 68.04(lm/W) Luminous Power:P=4.079(W)

Electrical Parameters:

U=230.0V I=0.1625A P=20.94W PF=0.560

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 41943(G=3,D=53)
REF = 8325	% = -0.219%	TMP(PMT) = 27.9degrees centigrade

NO.2

Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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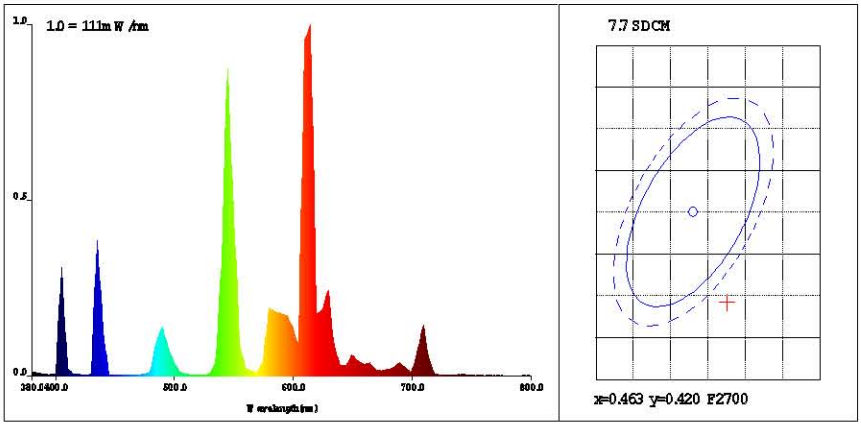
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4675 y=0.4091/u'=0.2681 v'=0.5280 (duv=-1.09e-003)
CCT:Tc= 2585K Prcp WaveL:λd=585.2nm Purity=63.2%
Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=33.0% G=64.7% B=2.2%
Average Wave: 592nm
Rendering Index:Ra=82.3

R1 =98	R2 =96	R3 =53	R4 =88	R5 =88	R6 =85	R7 =87	R8 =63
R9 =0	R10=54	R11=79	R12=46	R13=93	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1440.6(lm) Luminous Efficacy: 69.24(lm/W) Luminous Power:P=4.142(W)

Electrical Parameters:

U=230.0V I=0.1619A P=20.80W PF=0.559

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 41236(G=3,D=53)
REF = 8412	% = 0.048%	TMP(PMT) = 27.9degrees centigrade

NO.3

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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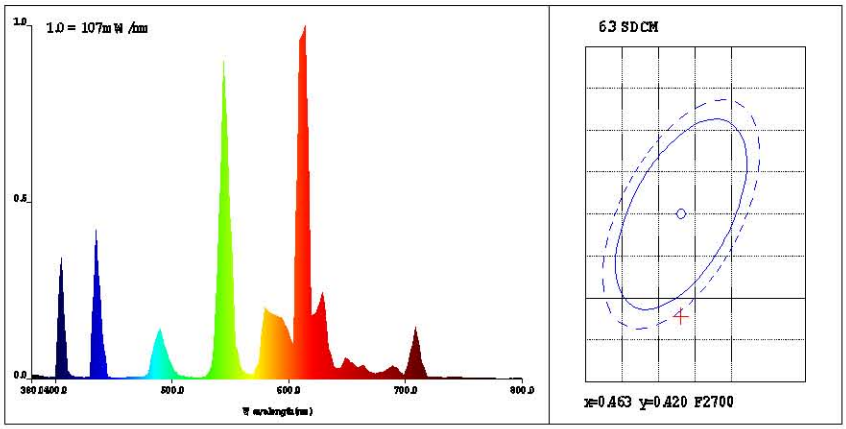
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4629 y=0.4078/u'=0.2658 v'=0.5267 (duv=-1.28e-003)

CCT:Tc= 2636K Prcp WaveL:λd=585.0nm Purity=61.4%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.5% G=65.3% B=2.2%

Average Wave: 590nm

Rendering Index:Ra=81.9

R1 =98	R2 =96	R3 =52	R4 =87	R5 =88	R6 =83	R7 =87	R8 =64
R9 =0	R10=52	R11=78	R12=45	R13=94	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1422.7(lm) Luminous Efficacy: 68.44(lm/W) Luminous Power:P=4.102(W)

Electrical Parameters:

U=230.0V I=0.1618A P=20.78W PF=0.559

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 42179(G=3,D=53)
REF = 8317	% = -0.207%	TMP(PMT) = 27.9degrees centigrade

NO.4

Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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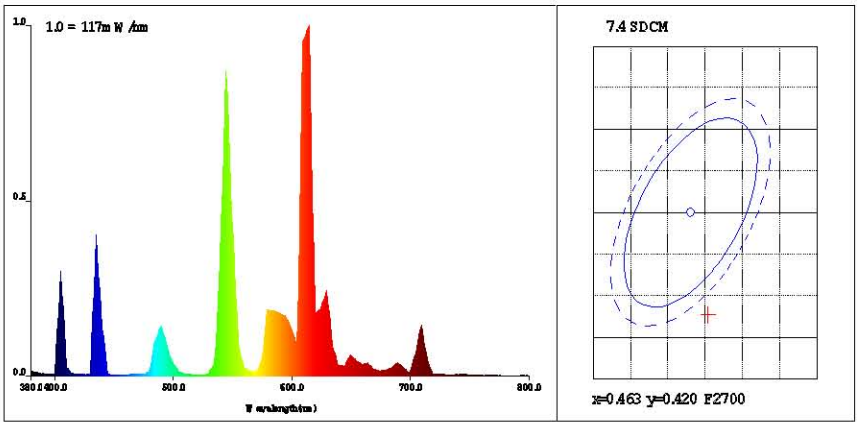
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4654 y=0.4076/u'=0.2674 v'=0.5271 (duv=-1.49e-003)
CCT:Tc= 2602K Prcp WaveL:λd=585.2nm Purity=62.1%
Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.9% G=64.8% B=2.3%
Average Wave: 592nm
Rendering Index:Ra=82.5

R1 =98	R2 =96	R3 =53	R4 =88	R5 =89	R6 =85	R7 =87	R8 =64
R9 =0	R10=55	R11=80	R12=47	R13=93	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1530.0(lm) Luminous Efficacy: 71.51(lm/W) Luminous Power:P=4.406(W)

Electrical Parameters:

U=230.0V I=0.1659A P=21.39W PF=0.561

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 43797(G=3,D=53)
REF = 8929	% = -0.057%	TMP(PMT) = 27.8degrees centigrade

NO.5

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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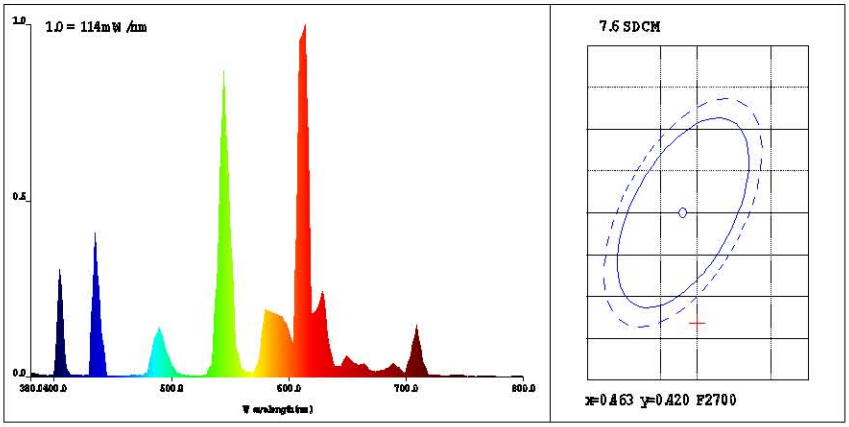
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4649 y=0.4068/u'=0.2675 v'=0.5266 (duv=-1.79e-003)

CCT:Tc= 2602K Prcp WaveL:λd=585.3nm Purity=61.6%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.9% G=64.8% B=2.3%

Average Wave: 592nm

Rendering Index:Ra=82.3

R1 =98	R2 =96	R3 =52	R4 =88	R5 =89	R6 =85	R7 =87	R8 =64
R9 =0	R10=54	R11=80	R12=47	R13=93	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1482.4(lm) Luminous Efficacy: 68.13(lm/W) Luminous Power:P=4.280(W)

Electrical Parameters:

U=230.0V I=0.1673A P=21.75W PF=0.566

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 43521(G=3,D=53)
REF = 8628	t = 0.398s	TMP(PMT) = 27.9degrees centigrade

NO.6

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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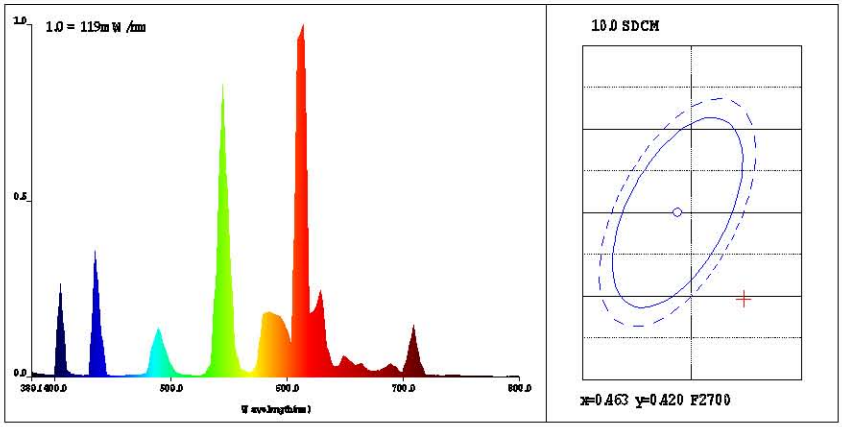
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4721 y=0.4096/u'=0.2709 y'=0.5288 (duv=-1.19e-003)
CCT:Tc= 2531K Prcp WaveL:λd=585.5nm Purity=64.7%
Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=33.8% G=64.0% B=2.2%
Average Wave: 595nm
Rendering Index:Ra=83.0

R1 =97	R2 =97	R3 =54	R4 =89	R5 =90	R6 =87	R7 =87	R8 =63
R9 =0	R10=57	R11=81	R12=50	R13=92	R14=67	R15=92	

Photo Parameters:

Flux:Φ=1512.3(lm) Luminous Efficacy: 71.45(lm/W) Luminous Power:P=4.341(W)

Electrical Parameters:

U=230.0V I=0.1641A P=21.16W PF=0.561

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 42172(G=3,D=53)
REF = 8795	% = 0.367%	TMP(PMT) = 27.8degrees centigrade

NO.7

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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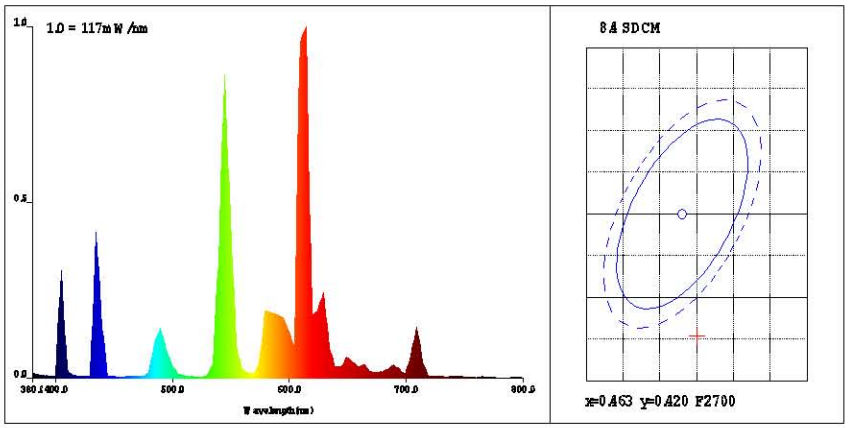
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4650 y=0.4053/u'=0.2683 v'=0.5261 (duv=-2.32e-003)

CCT:Tc= 2589K Prcp WaveL:λd=585.6nm Purity=61.2%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=33.1% G=64.6% B=2.3%

Average Wave: 592nm

Rendering Index:Ra=82.4

R1 =98 R2 =96 R3 =53 R4 =88 R5 =89 R6 =86 R7 =86 R8 =63

R9 =0 R10=55 R11=80 R12=48 R13=93 R14=66 R15=92

Photo Parameters:

Flux:Φ=1516.0(lm) Luminous Efficacy: 70.63(lm/W) Luminous Power:P=4.388(W)

Electrical Parameters:

U=230.0V I=0.1660A P=21.46W PF=0.562

Instrument Status:

Scan Range:380.0nm-800.0nm Interval:5.0nm Ip = 44876(G=3,D=53)

REF = 8848 % = -0.057% TMP(PMT) = 27.8degrees centigrade

NO.8

Product Type:OP AND ES SERIES [redacted]

Instrument:PMS-50 System Test Department:BEST EEL Laboratory

Temperature:25.6deg Humidity:50.0%

Test Operator:David Test Date:2009-03-04

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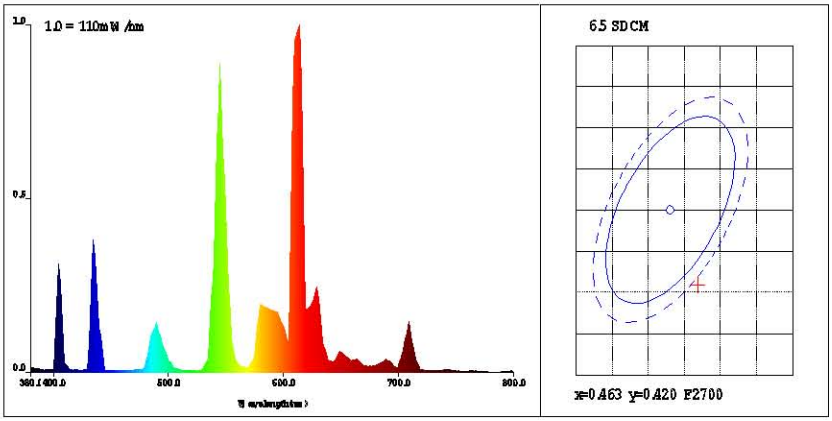
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4668 y=0.4108/u'=0.2669 v'=0.5285 (duv=-4.41e-004)

CCT:Tc= 2607K Prcp WaveL:λd=584.8nm Purity=63.5%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.8% G=65.0% B=2.2%

Average Wave: 592nm

Rendering Index:Ra=82.2

R1 =98 R2 =96 R3 =52 R4 =88 R5 =88 R6 =84 R7 =87 R8 =64

R9 =0 R10=53 R11=79 R12=46 R13=94 R14=66 R15=92

Photo Parameters:

Flux:Φ=1440.5(lm) Luminous Efficacy: 68.31(lm/W) Luminous Power:P=4.125(W)

Electrical Parameters:

U=230.0V I=0.1637A P=21.08W PF=0.560

Instrument Status:

Scan Range:380.0nm-800.0nm Interval:5.0nm Ip = 41592(G=3,D=53)

REF = 6418 % = -0.180% TMP(PMT) = 27.9degrees centigrade

NO.9

Product Type:OP AND ES SERIES [redacted]

Instrument:PMS-50 System Test Department:BEST EEL Laboratory

Temperature:25.6deg Humidity:50.0%

Test Operator:David Test Date:2009-03-04

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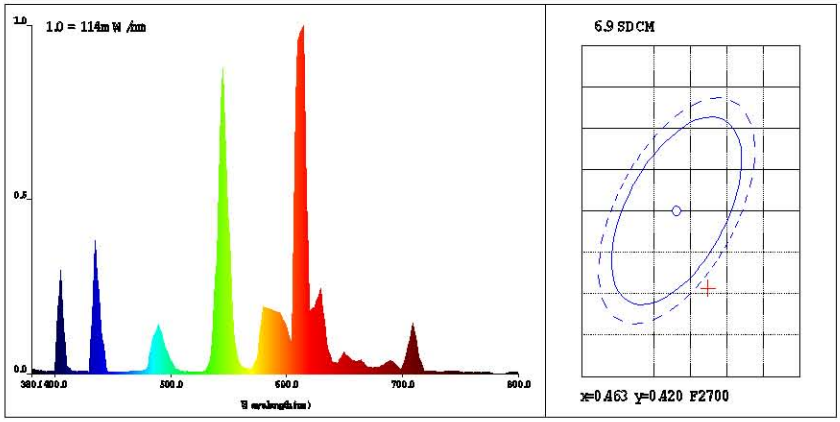
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4673 y=0.4106/u'=0.2673 v'=0.5285 (duv=-5.53e-004)

CCT:Tc= 2599K Prcp WaveL:λd=584.9nm Purity=63.5%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.9% G=64.9% B=2.2%

Average Wave: 592nm

Rendering Index:Ra=82.4

R1 =98	R2 =96	R3 =52	R4 =88	R5 =88	R6 =85	R7 =87	R8 =64
R9 =0	R10=54	R11=79	R12=46	R13=93	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1488.9(lm) Luminous Efficacy: 69.82(lm/W) Luminous Power:P=4.264(W)

Electrical Parameters:

U=230.0V I=0.1653A P=21.32W PF=0.561

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 42542(G=3,D=53)
REF = 8700	% = -0.302%	TMP(PMT) = 27.9degrees centigrade

NO.10

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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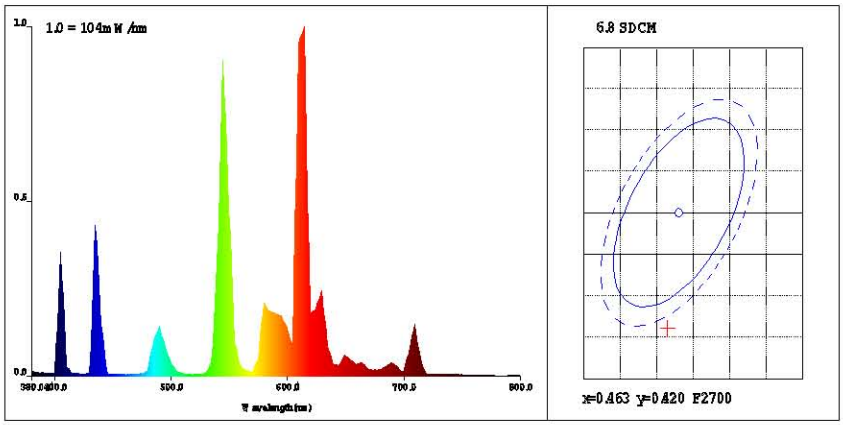
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4615 y=0.4060/u'=0.2656 v'=0.5258 (duv=-1.83e-003)

CCT:Tc= 2642K Prcp WaveL:λd=585.1nm Purity=60.4%

Peak WaveL: λp=615nm Half Width: Δλp=10.6nm Ratio:R=32.4% G=65.4% B=2.2%

Average Wave: 589nm

Rendering Index:Ra=81.8

R1 =98	R2 =95	R3 =52	R4 =87	R5 =88	R6 =83	R7 =86	R8 =64
R9 =0	R10=52	R11=78	R12=45	R13=94	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1375.2(lm) Luminous Efficacy: 67.62(lm/W) Luminous Power:P=3.980(W)

Electrical Parameters:

U=230.0V I=0.1586A P=20.33W PF=0.557

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 41440(G=3,D=53)
REF = 8033	% = -0.076%	TMP(PMT) = 27.8degrees centigrade

NO.11

Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

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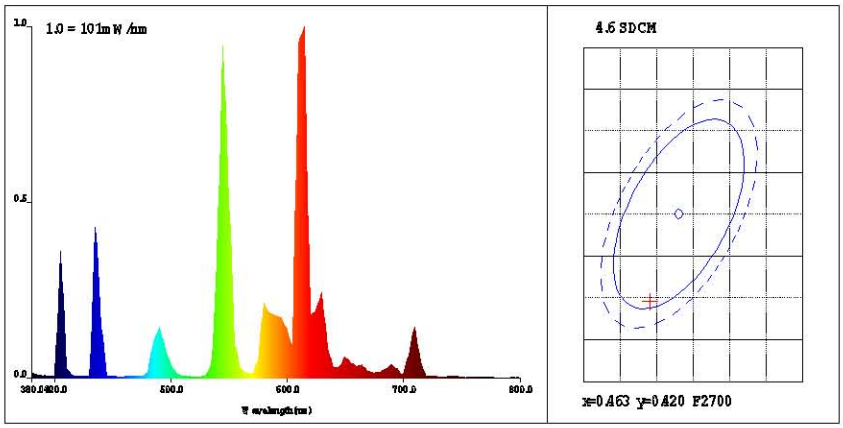
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4591 y=0.4095/u'=0.2625 v'=0.5268 (duv=-3.52e-004)
CCT:Tc= 2702K Prcp WaveL:λd=584.3nm Purity=60.7%
Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=31.7% G=66.1% B=2.3%
Average Wave: 588nm
Rendering Index:Ra=81.4

R1 =98	R2 =95	R3 =50	R4 =87	R5 =87	R6 =81	R7 =87	R8 =66
R9 =0	R10=50	R11=77	R12=42	R13=95	R14=65	R15=92	

Photo Parameters:

Flux:Φ=1373.2(lm) Luminous Efficacy: 66.01(lm/W) Luminous Power:P=3.949(W)

Electrical Parameters:

U=230.1V I=0.1612A P=20.80W PF=0.561

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 40388(G=3,D=51)
REF = 7926	% = 0.652%	TMP(PMT) = 28.0degrees centigrade

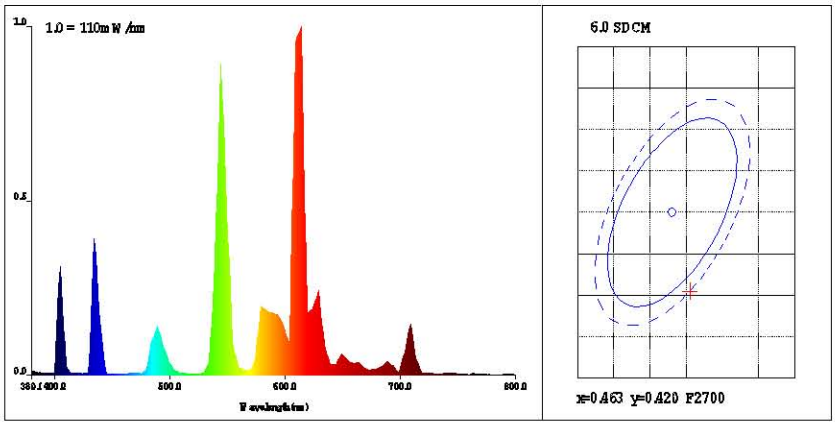
NO.12

Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:26.1deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4655 y=0.4105/u'=0.2662 v'=0.5281 (duv=-4.83e-004)

CCT:Tc= 2622K Prcp WaveL:λd=584.8nm Purity=62.9%

Peak WaveL: λp=615nm Half Width: Δλp=10.6nm Ratio:R=32.6% G=65.2% B=2.2%

Average Wave: 591nm

Rendering Index:Ra=82.1

R1 =98	R2 =96	R3 =52	R4 =88	R5 =88	R6 =84	R7 =87	R8 =64
R9 =0	R10=53	R11=79	R12=45	R13=94	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1445.1(lm) Luminous Efficacy: 68.56(lm/W) Luminous Power:P=4.144(W)

Electrical Parameters:

U=230.0V I=0.1626A P=21.08W PF=0.564

Instrument Status:		
Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 41243(G=3,D=51)
REF = 8398	% = -0.724%	TMP(PMT) = 28.0degrees centigrade

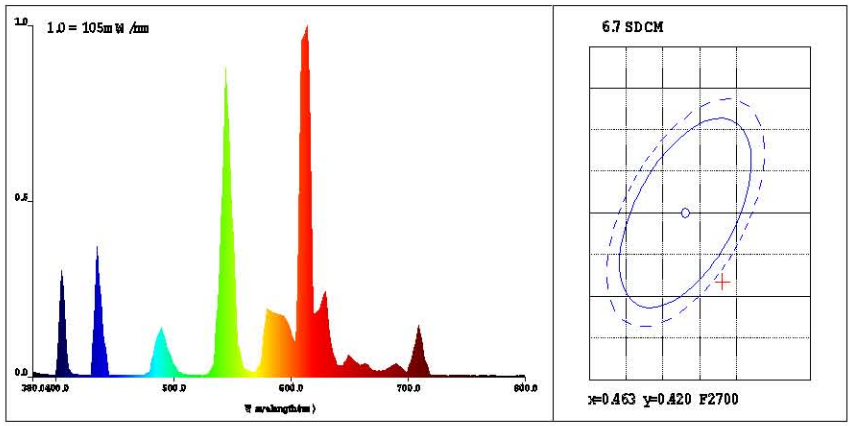
NO.13

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:26.0deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4680 y=0.4117/u'=0.2673 v'=0.5290 (duv=-2.06e-004)

CCT:Tc= 2598K Prcp WaveL:λd=584.8nm Purity=64.1%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.9% G=64.9% B=2.2%

Average Wave: 592nm

Rendering Index:Ra=82.3

R1 =98	R2 =96	R3 =52	R4 =88	R5 =88	R6 =84	R7 =87	R8 =64
R9 =0	R10=53	R11=79	R12=46	R13=93	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1375.4(lm) Luminous Efficacy: 67.56(lm/W) Luminous Power:P=3.941(W)

Electrical Parameters:

U=230.0V I=0.1584A P=20.36W PF=0.559

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 38927(G=3,D=51)
REF = 7950	% = 0.433%	TMP(PMT) = 28.0degrees centigrade

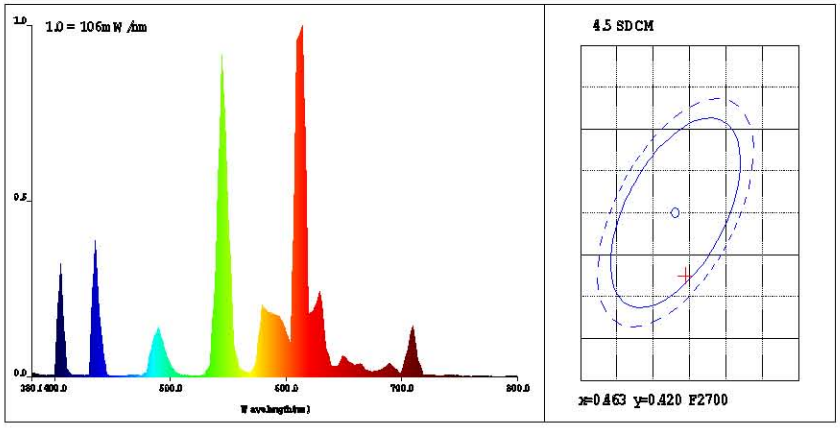
NO.14

Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:EESY EEL Laboratory
Temperature:26.1deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4644 y=0.4124/u'=0.2646 v'=0.5287 (duv=3.11e-004)

CCT:Tc= 2653K Prcp WaveL:λd=584.3nm Purity=63.2%

Peak WaveL: λp=615nm Half Width: Δλp=10.6nm Ratio:R=32.2% G=65.6% B=2.2%

Average Wave: 590nm

Rendering Index:Ra=81.8

R1 =98 R2 =95 R3 =51 R4 =88 R5 =87 R6 =82 R7 =87 R8 =65

R9 =0 R10=51 R11=78 R12=43 R13=94 R14=65 R15=92

Photo Parameters:

Flux:Φ=1413.3(lm) Luminous Efficacy: 66.39(lm/W) Luminous Power:P=4.037(W)

Electrical Parameters:

U=230.0V I=0.1633A P=21.28W PF=0.567

Instrument Status:

Scan Range:380.0nm-800.0nm Interval:5.0nm Ip = 40959(G=3,D=51)

REF = 8218 % = -0.840% TMP(PMT) = 28.0degrees centigrade

NO.15

Product Type:OP AND ES SERIES [redacted]

Instrument:PMS-50 System Test Department:BEST EEL Laboratory

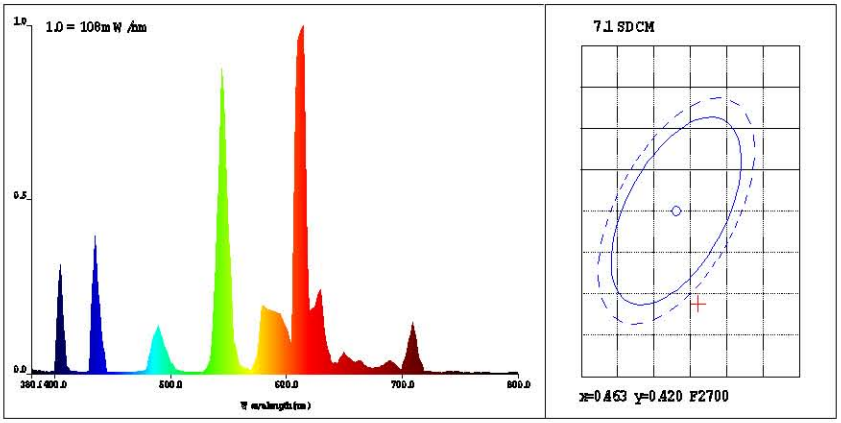
Temperature:26.0deg Humidity:50.0%

Test Operator:David Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4660 y=0.4087/u'=0.2673 v'=0.5276 (duv=-1.14e-003)

CCT:Tc= 2602K Prcp WaveL:λd=585.1nm Purity=62.6%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.9% G=64.9% B=2.2%

Average Wave: 592nm

Rendering Index:Ra=82.2

R1 =98	R2 =96	R3 =52	R4 =88	R5 =88	R6 =84	R7 =87	R8 =64
R9 =0	R10=53	R11=79	R12=46	R13=93	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1411.5(lm) Luminous Efficacy: 67.74(lm/W) Luminous Power:P=4.067(W)

Electrical Parameters:

U=230.0V I=0.1613A P=20.83W PF=0.562

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 39757(G=3,D=51)
REF = 8159	% = -0.903%	TMP(PMT) = 28.0degrees centigrade

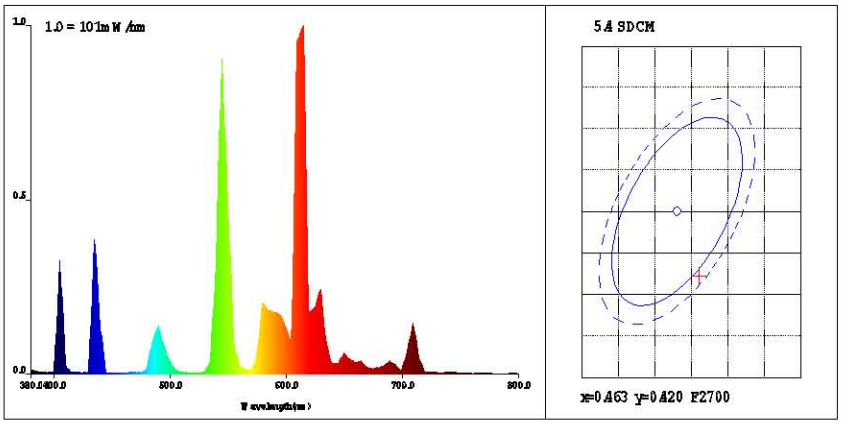
NO.16

Product Type:OP AND ES SERIES	[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4660 y=0.4122/u'=0.2658 v'=0.5289 (duv=1.00e-004)

CCT:Tc= 2628K Prcp WaveL:λd=584.5nm Purity=63.6%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.4% G=65.4% B=2.2%

Average Wave: 591nm

Rendering Index:Ra=81.7

R1 =99	R2 =95	R3 =51	R4 =88	R5 =87	R6 =83	R7 =87	R8 =64
R9 =0	R10=51	R11=78	R12=43	R13=94	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1341.5(lm) Luminous Efficacy: 64.61(lm/W) Luminous Power:P=3.832(W)

Electrical Parameters:

U=230.0V I=0.1611A P=20.76W PF=0.560

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 38375(G=3,D=51)
REF = 7790	% = -0.598%	TMP(PMT) = 28.0degrees centigrade

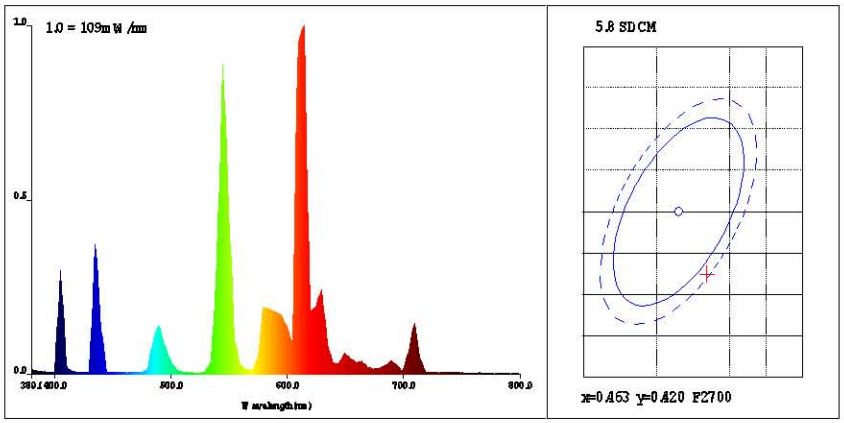
NO.17

Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:[redacted]
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4669 y=0.4124/u'=0.2662 v'=0.5291 (duv=1.19e-004)

CCT:Tc= 2619K Prcp WaveL:λd=584.6nm Purity=63.9%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.6% G=65.1% B=2.2%

Average Wave: 592nm

Rendering Index:Ra=82.2

R1 =98 R2 =96 R3 =52 R4 =88 R5 =88 R6 =84 R7 =87 R8 =64

R9 =0 R10=53 R11=79 R12=45 R13=94 R14=66 R15=92

Photo Parameters:

Flux:Φ=1443.8(lm) Luminous Efficacy: 68.61(lm/W) Luminous Power:P=4.125(W)

Electrical Parameters:

U=230.0V I=0.1631A P=21.04W PF=0.561

Instrument Status:

Scan Range:380.0nm-800.0nm Interval:5.0nm Ip = 40647(G=3,D=51)

REF = 8341 % = -0.364% TMP(PMT) = 28.0degrees centigrade

NO.18

Product Type:OP AND ES SERIES [redacted]

Instrument:PMS-50 System Test Department:BEST EEL Laboratory

Temperature:25.6deg Humidity:50.0%

Test Operator:David Test Date:2009-03-04

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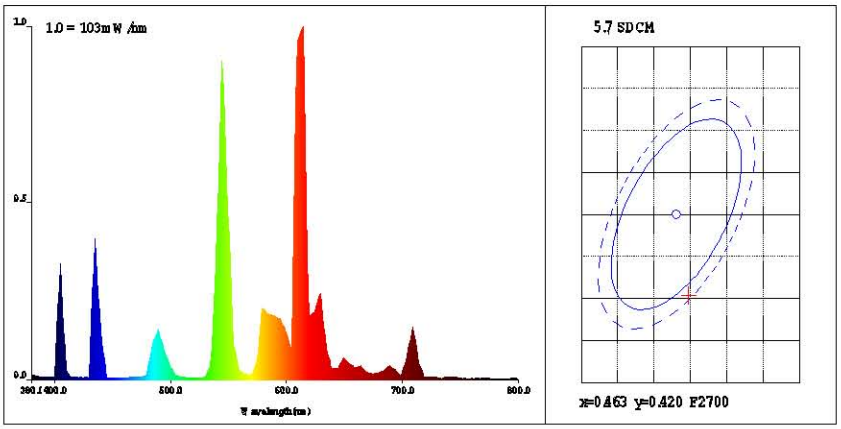
BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report



CIE Color Parameters:

Chromaticity Coordinate:x=0.4647 y=0.4103/u'=0.2658 v'=0.5280 (duv=-4.86e-004)

CCT:Tc= 2632K Prcp WaveL:λd=584.7nm Purity=62.6%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.5% G=65.3% B=2.2%

Average Wave: 591nm

Rendering Index:Ra=81.9

R1 =98	R2 =95	R3 =51	R4 =88	R5 =88	R6 =83	R7 =87	R8 =64
R9 =0	R10=52	R11=78	R12=44	R13=94	R14=66	R15=92	

Photo Parameters:

Flux:Φ=1372.6(lm) Luminous Efficacy: 68.02(lm/W) Luminous Power:P=3.941(W)

Electrical Parameters:

U=230.0V I=0.1570A P=20.18W PF=0.559

Instrument Status:

Scan Range:380.0nm-800.0nm	Interval:5.0nm	Ip = 39020(G=3,D=51)
REF = 7944	t = -0.153t	TMP(PMT) = 27.9degrees centigrade

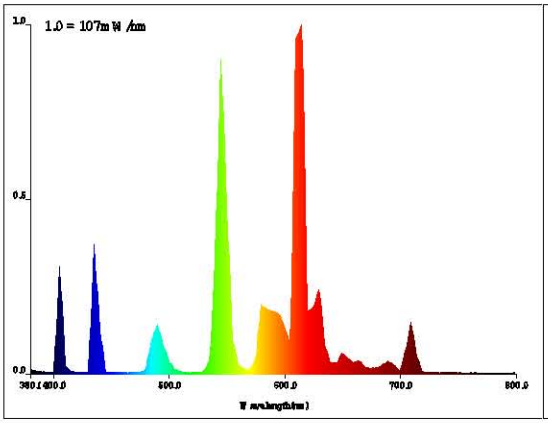
NO.19

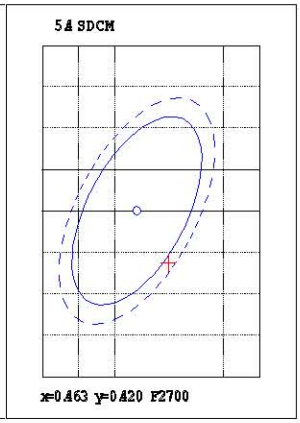
Product Type:OP AND ES SERIES	Manufacturer:[redacted]
Instrument:PMS-50 System	Test Department:BEST EEL Laboratory
Temperature:25.6deg	Humidity:50.0%
Test Operator:David	Test Date:2009-03-04

Spectrophotocolorimeter Test Report Page 1 of 1

BEST TESTING SERVICE SHENZHEN CO., LTD

Light Source Test Report





CIE Color Parameters:

Chromaticity Coordinate:x=0.4674 y=0.4136/u'=0.2660 v'=0.5296 (duv=5.40e-004)

CCT:Tc= 2622K Prcp WaveL:λd=584.4nm Purity=64.5%

Peak WaveL: λp=615nm Half Width: Δλp=10.7nm Ratio:R=32.5% G=65.3% B=2.2%

Average Wave: 592nm

Rendering Index:Ra=82.0

R1 =98 R2 =96 R3 =51 R4 =88 R5 =88 R6 =83 R7 =87 R8 =64

R9 =0 R10=52 R11=78 R12=44 R13=94 R14=66 R15=92

Photo Parameters:

Flux:Φ=1411.6(lm) Luminous Efficacy: 69.02(lm/W) Luminous Power:P=4.021(W)

Electrical Parameters:

U=230.0V I=0.1587A P=20.45W PF=0.561

Instrument Status:

Scan Range:380.0nm-800.0nm Interval:5.0nm Ip = 40334(G=3,D=51)

REF = 8158 % = -0.198% TMP(PMT) = 27.9degrees centigrade

NO.20

Product Type:OP AND ES SERIES [redacted]

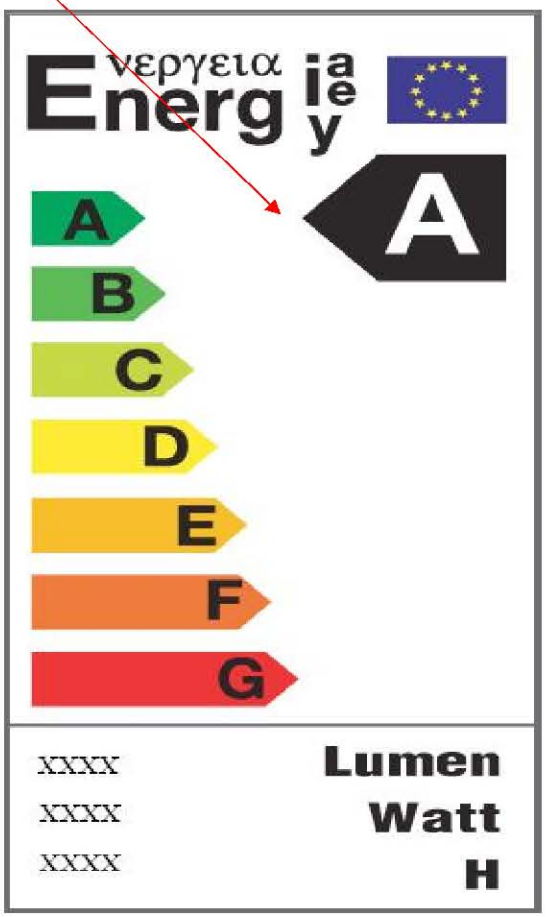
Instrument:PMS-50 System Test Department:BEST EEL Laboratory

Temperature:25.6deg Humidity:50.0%

Test Operator:David Test Date:2009-03-04

– Energy Labeling Sample

Energy Label Specification sample



Remark: the label is only a sample for format use; please use correct class label on your products.

5–PHOTOGRAPH

EUT Photo – Front View