



**IESNA LM-79-08
(NOT INCLUDE SPATIAL NON-UNIFORMITY
OF CHROMATICITY)
ELECTRICAL AND PHOTOMETRIC MEASUREMENTS OF
SOLID-STATE LIGHTING PRODUCTS**

MEASUREMENT AND TEST REPORT

For
ELEC-TECH INTERNATIONAL CO., LTD

NO.1 Jinfeng Road, Tangjiawan Town,Zhuhai City, Guangdong Province,P.R of China.

Model: 520244/520263

Report Type: Original Report	Product Type: LED PAR38 Lamp
Test Engineer: Jack Zhou	<i>Jack Zhou</i>
Report Number:	R2DG120412060-10-M2
Test Date:	2011-12-15 to 2011-12-26
Report Date:	2013-08-15
Reviewed By:	Jeanne Han/Safety Manager <i>Jeanne Han</i>
Revised Note:	This version report "No. R2DG120412060-10-M2" at 2013-08-15 replaced the previous report "No. R2DG120412060-10-M1" at 2012-06-04
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Shenzhen). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

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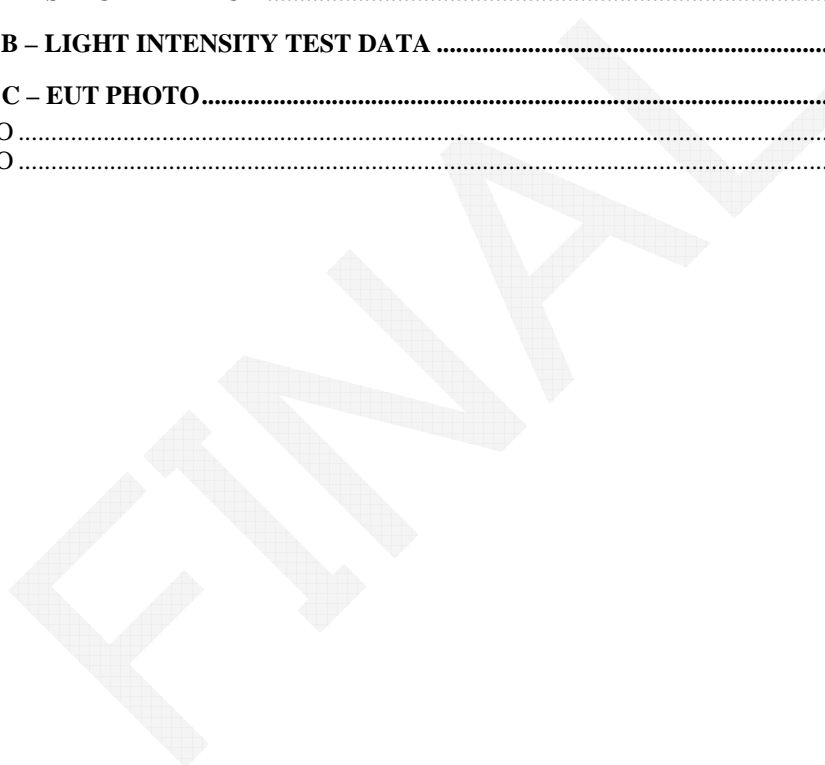
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1 - GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT	Description	Electrical Rate	Brand	Manufacturer	Model
LED PAR38 Lamp	520244 is tested model .Difference: Only color of finish and the packaging, The electronic circuit and basic construction are the same	AC 120V 60Hz 16W 3000K	ETI	ELEC-TECH INTERNATIONAL CO., LTD	520244/520263

1.2 Objective

The following test report is prepared on behalf of *ELEC-TECH INTERNATIONAL CO., LTD* in accordance with the following American National Standards or illumination Engineering Society of North America Test Guides:

- ANSI C78.377-2008 Specification for the Chromaticity of Solid State Lighting Products
- IESNA LM-79-2008: Approved Method: Electrical & Photometric Measurement of Solid-state Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits – Related Power Quality Requirements for Lighting
- ANSI/UL 153-2005: Portable Electric Luminaires
- UL 1598-2004: Luminaires
- ASTM E 283-2004: Restricted air movement
- IESNA LM-16: Correlated Color Temperature
- IESNA LM-58-94: Color Rendering Index and Correlated Color Temperature
- CIE Publication No.13.3-1995: Method of Measuring and Specifying Color Rendering of Light Sources

1.3 Test Facility

The test facility used by Bay Area Compliance Laboratories Corp. (Shenzhen). is located at 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade ZoneShenzhen, Guangdong, China.

Bay Area Compliance Laboratories Corp. (Shenzhen). is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The NVLAP Lab Code is 200707-0.

2 - SUMMARY OF TEST RESULT

SPECTRORADIOMETRIC TESTING IN INTEGRATING SPHERE	
PHOTOMETRIC	-
Total Integrated Flux (Lumens)	740.244
SPECTRORADIOMETRIC	-
Observer	-
Chromaticity Ordinate x	0.4265
Chromaticity Ordinate y	0.3973
Observer	-
Chromaticity Ordinate u	0.2467
Chromaticity Ordinate v	0.3447
Correlated Color Temp CCT (K)	3128
Color Rendering Index (CRI)	83.8
Total Radiant Flux (W)	2.399
ELECTRICAL	-
Input Voltage (Volts AC)	120.04
Input Current (A AC)	0.126
Input Power (Watts)	14.3
Power Factor	0.942
EFFICACY	-
Lumens/Watt	51.765

LUMINOUS INTENSITY DISTRIBUTION	
Center beam candlepower(if applicable)(cd)	4053
Beam angle(if applicable)(°)	21.4
Zonal lumens in the 0° -60° zone(%)	99.8%
Zonal lumens in the 60° -90° zone(%)	0.2%
Zonal lumens in the 90° -120° zone(%)	0.0%
Zonal lumens in the 120° -180° zone(%)	0.0%

Note: The test data was only good for the test sample. It may have deviation for other test sample.

3 - Test Method

Test methods according to IESNA LM-79-08 following chapter:

4.0 SEASONING OF SSL PRODUCT

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning.

5.0 STABILIZATION OF SSL PRODUCT

Before measurements are taken. The SSL product under test shall be operated long enough to reach stabilization and temperature equilibrium. The time required for stabilization depends on the type of SSL products under test. The stabilization time typically ranges from 30 min (small integrated LED lamps) to 2 or more hours for large SSL luminaries. The SSL product during stabilization shall be operated in the ambient temperature as specified in section 2.2 and in the operating orientation as specified in 6. It can be judged that stability is reached when the variation (maximum –minimum) of at least 3 readings of the light output and electrical power over a period of 30 min, taken 15 minutes apart, is less than 0.5%. The stabilization time used for each SSL product shall be reported.

9.0 TEST METHODS FOR TOTAL LUMINOUS FLUX MEASUREMENT

10.0 LUMINOUS INTENSITY DISTRIBUTION

11.0 LUMINOUS EFFICACY

12.0 TEST METHODS FOR COLOR CHARACTERISTICS OF SSL PRODUCTS

13.0 UNCERTAINTY STATEMENT

The uncertainty of the light output measurements is $U=1.50\%$ ($K=2$), the uncertainty of the correlated color temperature measurements is $U=14K$ ($K=2$), at the 95% confidence level. This calibration results traceable to the NATIONAL INSTITUTE OF METROLOGY (NIM).

Remark:

1. 0 hour season, Pre-heating the lamp for 45 minutes at least;
2. Ambient: 65%RH, 25°C;

Attachment A – Spectral Flux

Report of Spectroradiometric & Electric Analysis for Light Source

Product: 520244

Manufacturer: Elec-Tech International Co.,Ltd

Sample No.: 1#

Date: 12-26-2011

Tested By: Blake

Reviewed By: Jack

Test Condition

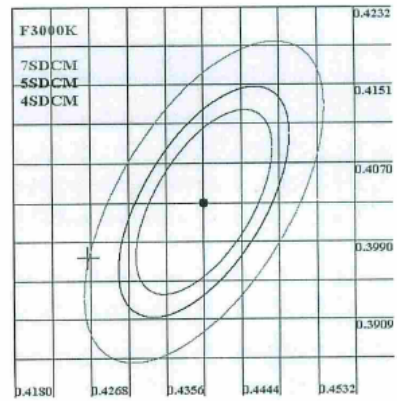
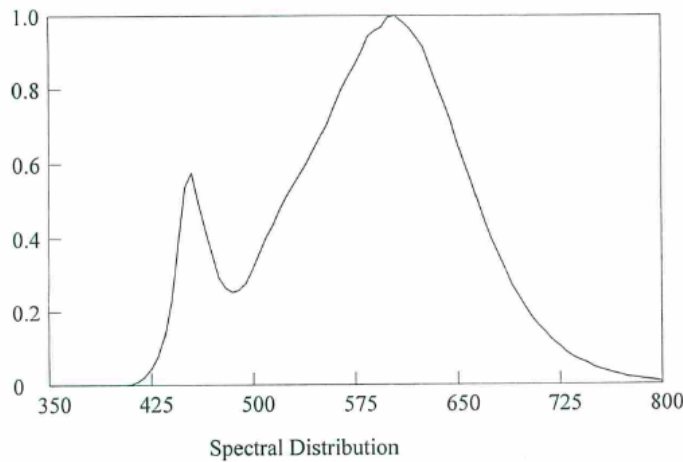
Temperature: 25.0°C

RH: 65.0%

Spectrum Range: 350-800 nm

Scan Step: 5 nm

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.4265 y=0.3973 u=0.2467 v=0.5171

Correlated Color Temperature: 3128 K

Dominant Wavelength: 581.0 nm(E)

Luminous Flux: 740.244 lm

Purity: 0.4750

Chromaticity Difference: -1.22E-03duv

Peak Wavelength: 577.4 nm

Red Color Ratio: 43.5%

Green Color Ratio: 49.1%

Blue Color Ratio: 7.4%

Color Tolerance: 7.1 SDCM

Rendering Index: Ra=83.8

Radiant Flux: 2.399 W

R1=82 R2=92 R3=96 R4=80 R5=82 R6=88 R7=85 R8=64

R9=20 R10=80 R11=78 R12=69 R13=85 R14=98 R15=77

Electric Parameters

Voltage: 120.04 V

Current: 0.126 A

Power Factor: 0.942

Power: 14.3 W

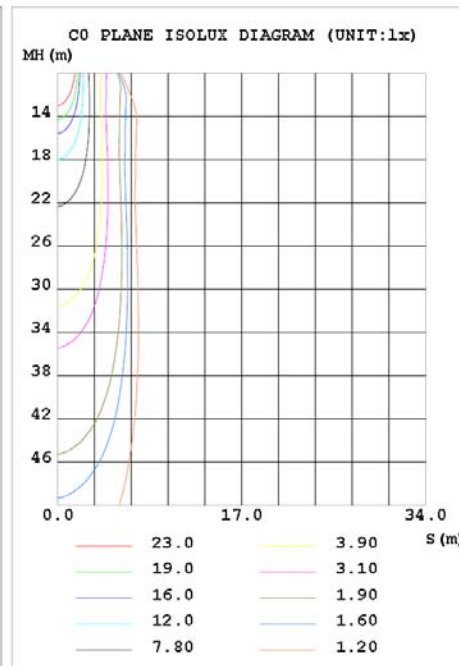
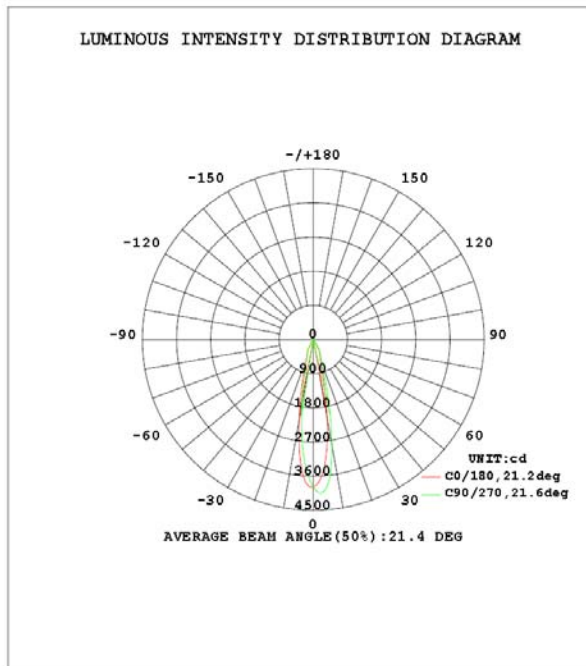
Luminous Efficacy: 51.765 lm/W

Attachment B – Light Intensity Test Data

LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	520244	Imax(cd)	4053	S/MH(C0/180)	0.36
NOMINAL POWER(W)	14	LOR(%)	100.0	S/MH(C90/270)	0.42
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	813.39	η UP, DN(C0-180)	0.0,56.9
NOMINAL FLUX(lm)	813.387	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,43.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	120.1	η down(%)	100.0	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	c0	c45	c90	c135	c180	c225	c270	c315	γ	ϕ zone	ϕ total	Φ lum,lamp
10	2097	2518	2844	2630	2142	1822	1745	1805	0- 10	287.9	287.9	35.4,35.4
20	562.8	617.9	672.0	644.9	549.0	495.4	480.5	512.1	10- 20	312.3	600.1	73.8,73.8
30	206.5	280.9	307.4	261.3	178.2	91.30	76.67	135.8	20- 30	174.2	774.3	95.2,95.2
40	11.79	13.11	13.56	12.52	11.17	10.83	10.60	11.44	30- 40	30.06	804.4	98.9,98.9
50	3.262	4.183	4.769	3.975	3.290	2.832	2.899	2.781	40- 50	5.776	810.1	99.6,99.6
60	1.075	1.147	1.247	1.090	1.035	1.007	1.048	1.066	50- 60	1.676	811.8	99.8,99.8
70	0.7218	0.7725	0.7750	0.7722	0.6904	0.6682	0.8122	0.6806	60- 70	0.8549	812.7	99.9,99.9
80	0.3055	0.3208	0.3289	0.3204	0.3040	0.2965	0.2935	0.2993	70- 80	0.4985	813.2	100,100
90	0.0002	0.0194	0.0646	0.0630	0.0160	0	0	0	80- 90	0.2085	813.4	100,100
100	0	0	0	0	0	0	0	0	90-100	0.0017	813.4	100,100
110	0	0	0	0	0	0	0	0	100-110	0	813.4	100,100
120	0	0	0	0	0	0	0	0	110-120	0	813.4	100,100
130	0	0	0	0	0	0	0	0	120-130	0.0000	813.4	100,100
140	0	0	0	0	0	0	0	0	130-140	0	813.4	100,100
150	0	0	0	0	0	0	0	0	140-150	0	813.4	100,100
160	0.0062	0.0053	0.0056	0.0070	0.0000	0.0027	0.0042	0.0052	150-160	0.0004	813.4	100,100
170	0.0374	0.0352	0.0448	0.0367	0.0193	0.0244	0.0286	0.0295	160-170	0.0043	813.4	100,100
180	0.0033	0.0062	0.0079	0.0079	0.0010	0.0033	0.0052	0.0060	170-180	0.0031	813.4	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Jack
 Test Date:2011-12-15

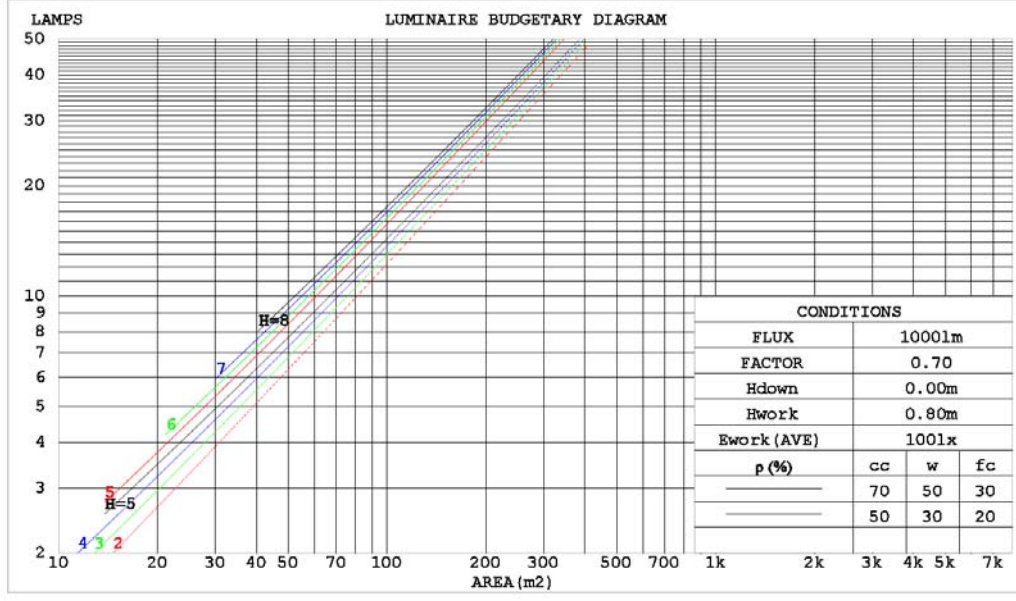
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity:65.0%
 Test Distance:2.464m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	.00
1.0	1.13	1.11	1.09	1.11	1.09	1.07	1.07	1.05	1.04	1.03	1.02	1.01	.00	.99	.98	.96
2.0	1.07	1.04	1.02	1.06	1.03	1.01	1.03	1.00	.99	.00	.98	.96	.97	.96	.94	.93
3.0	1.03	.99	.96	1.01	.98	.95	.99	.96	.94	.97	.94	.92	.95	.93	.91	.90
4.0	.99	.95	.91	.97	.94	.91	.96	.92	.90	.94	.91	.89	.92	.90	.88	.87
5.0	.95	.91	.88	.94	.90	.87	.92	.89	.86	.91	.88	.86	.89	.87	.85	.84
6.0	.91	.87	.84	.91	.87	.84	.89	.86	.83	.88	.85	.83	.87	.84	.82	.81
7.0	.88	.84	.81	.88	.84	.81	.87	.83	.81	.86	.82	.80	.85	.82	.80	.79
8.0	.86	.81	.78	.85	.81	.78	.84	.81	.78	.83	.80	.78	.82	.80	.77	.76
9.0	.83	.79	.76	.83	.79	.76	.82	.78	.76	.81	.78	.75	.80	.77	.75	.74
10.0	.81	.76	.74	.80	.76	.74	.79	.76	.73	.79	.76	.73	.78	.75	.73	.72



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operator: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

WEC AND CCEC

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pf _c	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.139	.079	.025	.132	.075	.024	.120	.069	.022	.108	.063	.020	.098	.057	.018	
2.0	.129	.071	.022	.124	.068	.021	.113	.063	.020	.104	.058	.018	.095	.054	.017	
3.0	.120	.064	.019	.116	.062	.019	.107	.058	.018	.099	.054	.017	.092	.051	.016	
4.0	.113	.059	.017	.109	.057	.017	.102	.054	.016	.095	.051	.015	.089	.048	.015	
5.0	.107	.054	.016	.103	.053	.015	.097	.051	.015	.091	.048	.014	.086	.046	.014	
6.0	.101	.051	.014	.098	.050	.014	.093	.048	.014	.088	.046	.013	.083	.044	.013	
7.0	.096	.047	.013	.094	.047	.013	.089	.045	.013	.085	.043	.013	.081	.042	.012	
8.0	.092	.045	.013	.089	.044	.012	.085	.043	.012	.082	.041	.012	.078	.040	.012	
9.0	.088	.042	.012	.086	.042	.012	.082	.041	.012	.079	.039	.011	.076	.038	.011	
10.0	.084	.040	.011	.082	.040	.011	.079	.039	.011	.076	.038	.011	.073	.037	.011	

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pf _c	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.168	.158	.148	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017	
2.0	.151	.133	.118	.129	.114	.102	.088	.079	.071	.051	.046	.042	.016	.015	.014	
3.0	.136	.113	.095	.116	.098	.083	.080	.068	.058	.046	.040	.034	.015	.013	.011	
4.0	.123	.098	.079	.106	.085	.068	.073	.059	.048	.042	.035	.028	.014	.011	.009	
5.0	.113	.086	.066	.097	.074	.057	.067	.052	.040	.039	.030	.024	.012	.010	.008	
6.0	.104	.076	.055	.089	.066	.048	.062	.046	.034	.036	.027	.020	.012	.009	.007	
7.0	.097	.068	.047	.083	.059	.041	.057	.041	.029	.033	.024	.017	.011	.008	.006	
8.0	.090	.061	.041	.078	.053	.035	.054	.037	.025	.031	.022	.015	.010	.007	.005	
9.0	.085	.055	.035	.073	.048	.031	.050	.034	.022	.029	.020	.013	.010	.007	.004	
10.0	.080	.050	.031	.069	.044	.027	.048	.031	.019	.028	.018	.011	.009	.006	.004	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Jack
 Test Date:2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity:65.0%
 Test Distance:2.464m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

Uncorrected UGR Table

NAME: Elec-Tech International Co.,Ltd					TYPE:					WEIGHT:				
DIM.:					SPEC.:					SERIAL No.:				
MFR.: Elec-Tech International Co.,Ltd					SUR.:					PROTECTION ANGLE:				
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3				
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3				
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2				
Room dimensions	Viewed crosswise					Viewed endwise								
x = 2H y = 2H	-4.9	-4.2	-4.7	-4.1	-3.9	-0.3	0.4	-0.1	0.5	0.7				
3H	-5.0	-4.3	-4.7	-4.2	-4.0	-0.4	0.2	-0.2	0.4	0.6				
4H	-5.0	-4.4	-4.7	-4.2	-4.0	-0.5	0.1	-0.2	0.3	0.5				
6H	-5.1	-4.5	-4.8	-4.3	-4.0	-0.5	0.0	-0.3	0.2	0.5				
8H	-5.1	-4.5	-4.8	-4.3	-4.0	-0.6	-0.0	-0.3	0.2	0.5				
12H	-5.1	-4.6	-4.8	-4.3	-4.0	-0.6	-0.1	-0.3	0.2	0.4				
4H 2H	-5.1	-4.5	-4.8	-4.3	-4.1	-0.5	0.1	-0.2	0.3	0.5				
3H	-5.1	-4.6	-4.8	-4.3	-4.1	-0.6	-0.1	-0.3	0.1	0.4				
4H	-5.2	-4.7	-4.8	-4.4	-4.1	-0.7	-0.2	-0.4	0.1	0.4				
6H	-5.2	-4.8	-4.8	-4.4	-4.1	-0.8	-0.4	-0.4	-0.0	0.3				
8H	-5.2	-4.8	-4.8	-4.5	-4.1	-0.8	-0.4	-0.4	-0.1	0.3				
12H	-5.2	-4.9	-4.8	-4.5	-4.1	-0.9	-0.5	-0.5	-0.1	0.3				
8H 4H	-5.3	-4.9	-4.9	-4.5	-4.2	-0.8	-0.5	-0.5	-0.1	0.3				
6H	-5.3	-5.0	-4.9	-4.6	-4.2	-0.9	-0.6	-0.5	-0.2	0.2				
8H	-5.3	-5.0	-4.8	-4.6	-4.1	-1.0	-0.7	-0.5	-0.3	0.2				
12H	-5.3	-5.0	-4.8	-4.6	-4.1	-1.0	-0.7	-0.5	-0.3	0.2				
12H 4H	-5.3	-5.0	-4.9	-4.6	-4.2	-0.9	-0.5	-0.5	-0.2	0.2				
6H	-5.3	-5.0	-4.9	-4.6	-4.2	-1.0	-0.7	-0.5	-0.3	0.2				
8H	-5.3	-5.1	-4.8	-4.6	-4.2	-1.0	-0.8	-0.6	-0.3	0.1				
Variations with the observer position at spacings:														
S = 1.0H	+ 1.8 / - 3.4					+ 2.3 / - 3.5								
1.5H	+ 2.6 / - 3.3					+ 3.5 / - 3.6								
2.0H	+ 4.2 / - 2.4					+ 4.2 / - 2.8								

CIE Pub.117 Corrected 813.4 lm Total Lamp Luminous Flux. (8log(F/F0) = -0.7)

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Jack
 Test Date:2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity:65.0%
 Test Distance:2.464m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:

REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	91	85	82	90	85	82	90	85	82	78
0.80	98	93	89	97	92	89	96	92	89	86
1.00	102	97	93	101	96	93	99	96	93	89
1.25	105	100	97	104	100	97	102	99	96	92
1.50	108	103	100	106	103	100	104	101	99	95
2.00	110	106	103	108	105	102	106	103	101	96
2.50	111	108	105	110	107	104	107	104	102	97
3.00	113	110	107	111	108	106	108	105	104	98
4.00	114	112	110	112	110	109	109	107	106	99
5.00	116	114	112	114	112	110	110	108	107	100
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SERNOM = 1.25			

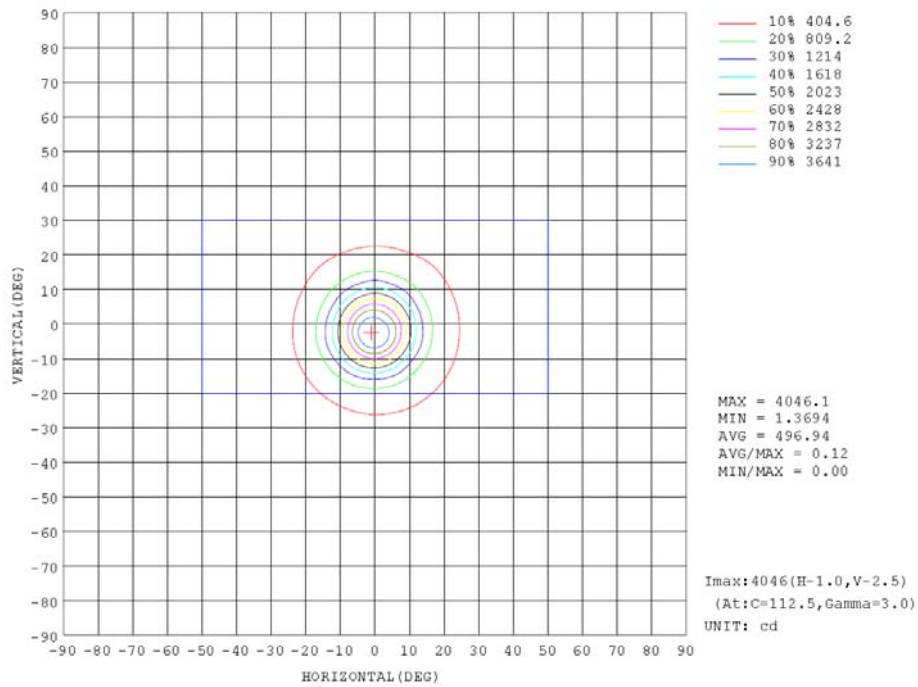
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR. : Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:

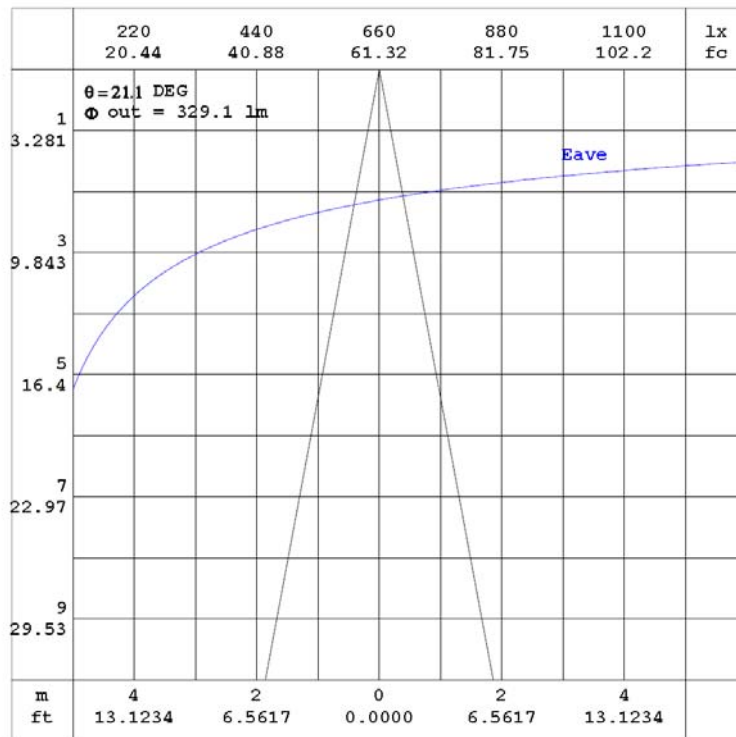


C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Jack
 Test Date:2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity:65.0%
 Test Distance:2.464m [K=1.0000]
 Remarks:

AAI CURVES

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:



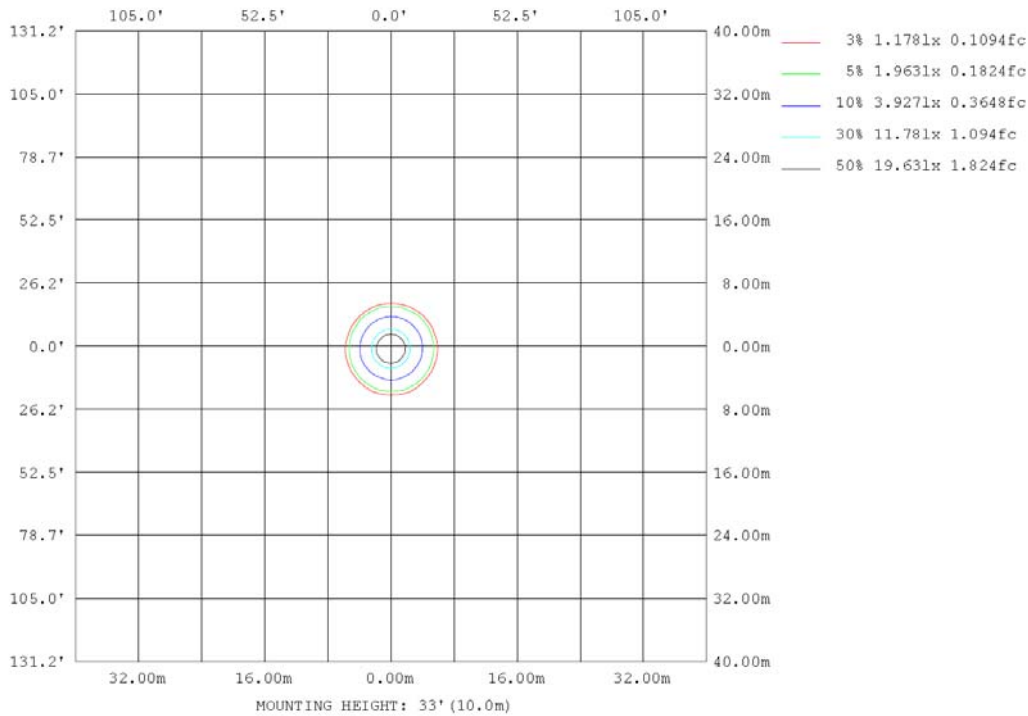
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

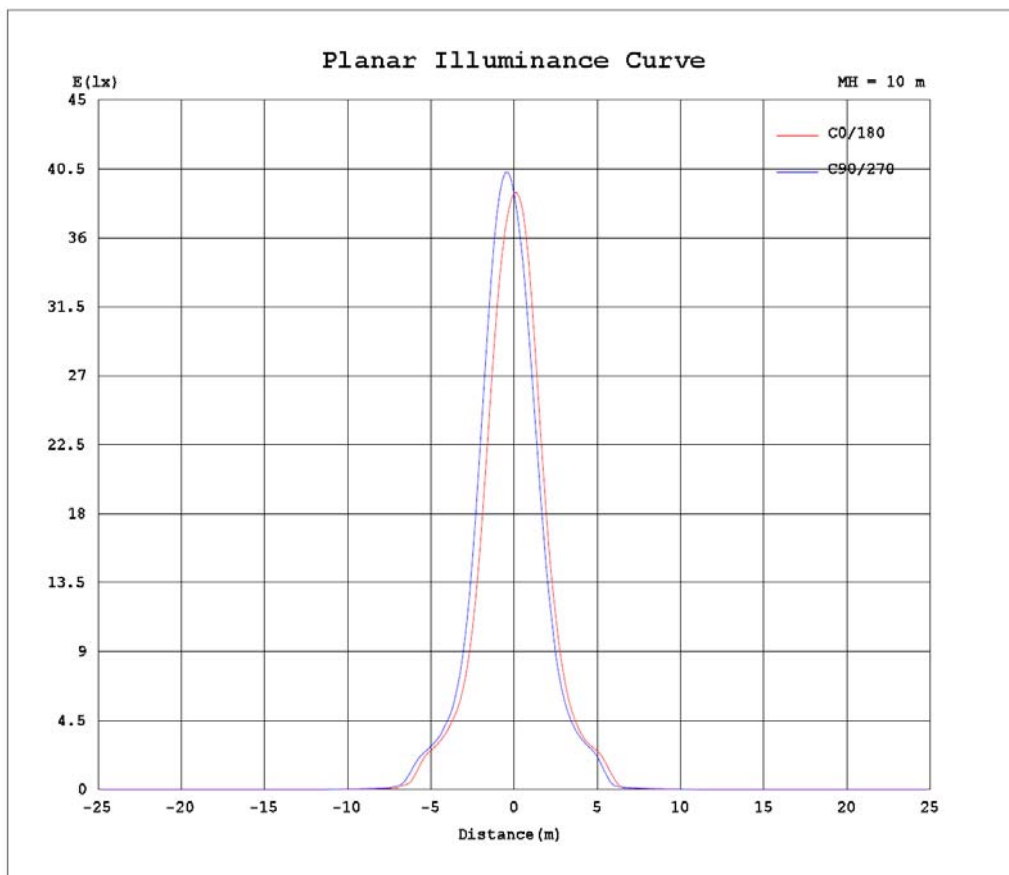
NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338			
0	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888			
5	3370	3549	3719	3867	3934	3950	3859	3695	3475	3286	3149	3057	3018	3028	3099	3200			
10	2097	2299	2518	2735	2844	2804	2630	2411	2142	1946	1822	1747	1745	1747	1805	1897			
15	998	1135	1212	1392	1417	1417	1325	1232	1065	943	893	846	841	835	885	921			
20	563	583	618	659	672	673	645	610	549	512	495	488	480	497	512	538			
25	388	406	420	434	434	421	408	393	376	365	365	357	352	357	376	381			
30	206	250	281	315	307	301	261	222	178	108	91.3	77.5	76.7	80.7	136	155			
35	22.6	25.7	36.1	35.9	46.7	30.9	38.3	23.5	20.1	18.6	17.9	17.0	16.8	16.6	18.7	19.8			
40	11.8	13.1	13.1	13.8	13.6	13.3	12.5	12.9	11.2	10.8	10.8	11.0	10.6	10.4	11.4	11.9			
45	7.65	8.42	9.01	9.19	9.19	8.52	8.37	8.29	7.20	6.79	6.23	6.20	6.15	6.15	6.47	6.90			
50	3.26	3.73	4.18	4.73	4.77	4.61	3.97	3.85	3.29	3.07	2.83	2.72	2.90	2.72	2.78	2.93			
55	1.56	1.73	1.81	2.16	1.99	1.97	1.68	1.76	1.51	1.51	1.51	1.49	1.56	1.54	1.48	1.58			
60	1.08	1.13	1.15	1.27	1.25	1.16	1.09	1.11	1.04	1.02	1.01	1.04	1.05	1.04	1.07	1.07			
65	0.75	0.85	0.87	0.92	0.92	0.93	0.85	0.82	0.78	0.79	0.75	0.74	0.79	0.76	0.77	0.77			
70	0.72	0.87	0.77	0.78	0.78	0.80	0.77	0.73	0.69	0.73	0.67	0.68	0.81	0.69	0.68	0.75			
75	0.38	0.42	0.45	0.55	0.57	0.53	0.45	0.45	0.39	0.37	0.36	0.35	0.36	0.35	0.36	0.36			
80	0.31	0.32	0.32	0.33	0.33	0.33	0.32	0.32	0.30	0.30	0.30	0.29	0.29	0.29	0.30	0.30			
85	0.20	0.23	0.24	0.26	0.26	0.26	0.26	0.25	0.23	0.21	0.19	0.17	0.16	0.15	0.17	0.18			
90	0.00	0.00	0.02	0.06	0.06	0.08	0.06	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
160	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01			
165	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
170	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03			
175	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.02			
180	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operator: Jack
 Test Date: 2011-12-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

Attachment C – EUT PHOTO

C1.EUT PHOTO



C2.EUT PHOTO



*****END OF REPORT*****