

**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 Series: 529976XX---Where XX was changed from 11 to 30 for marketing purposes only, including packaging and printing

Report Type: Additional Report		Product Type: G16.5 LED Lamp	
Test Engineer:	Jack Zhou	<i>Jack Zhou</i>	
Report Number:	R2DG120727050-10A1		
Test Date:	2011-12-16		
Report Date:	2012-07-30		
Reviewed By:	Jeanne Han	<i>Jeanne Han</i>	
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen). 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China. Tel: +86-755-33320018 Fax: +86-755-33320008		

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.

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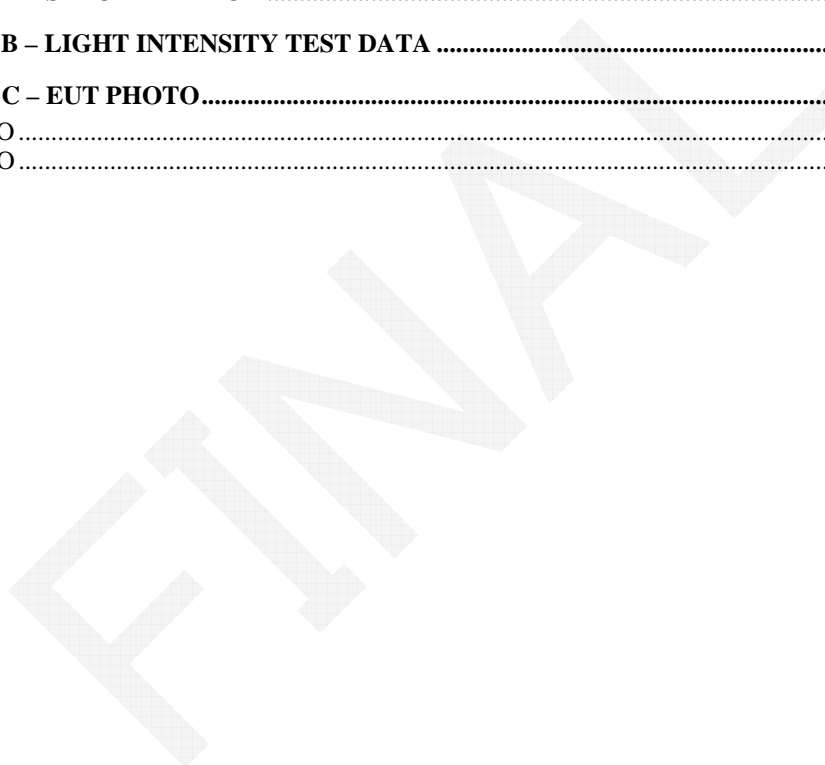
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1 - GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT	Rating	Brand	Manufacturer	Model
G16.5 LED Lamp	AC120V 60Hz 3.5W 3000K	ETI AEG	ELEC-TECH INTERNATIONAL CO., LTD	529976XX

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 Zone Shenzhen, 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)	208.231
SPECTRORADIOMETRIC	-
Observer	-
Chromaticity Ordinate x	0.4479
Chromaticity Ordinate y	0.4212
Observer	-
Chromaticity Ordinate u	0.2503
Chromaticity Ordinate v	0.3530
Correlated Color Temp CCT (K)	2959
Color Rendering Index (CRI)	81.2
Total Radiant Flux (W)	0.661
ELECTRICAL	-
Input Voltage (Volts AC)	120.04
Input Current (A AC)	0.064
Input Power (Watts)	3.79
Power Factor	0.495
EFFICACY	-
Lumens/Watt	54.942

LUMINOUS INTENSITY DISTRIBUTION	
Center beam candlepower(if applicable)(cd)	30.33
Beam angle(if applicable)(°)	188.1
Zonal lumens in the 0° -60° zone(%)	42.3%
Zonal lumens in the 60° -90° zone(%)	31.1%
Zonal lumens in the 90° -120° zone(%)	18.9%
Zonal lumens in the 120° -180° zone(%)	7.7%

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 reading 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 TLAL 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: 529976XX

Manufacturer: Elec-Tech International Co.,Ltd

Sample No.: 1#

Date: 12-16-2011

Tested By: Blake

Reviewed By: Jack

Test Condition

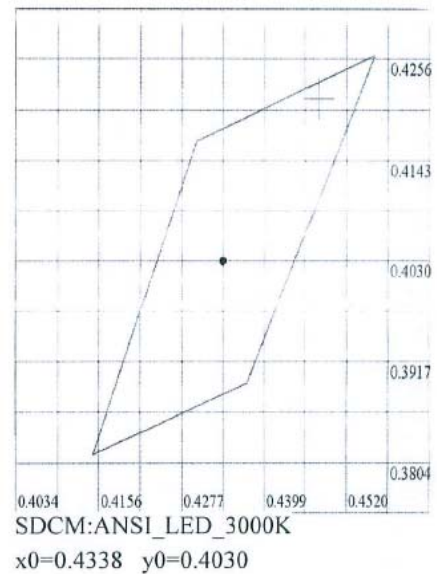
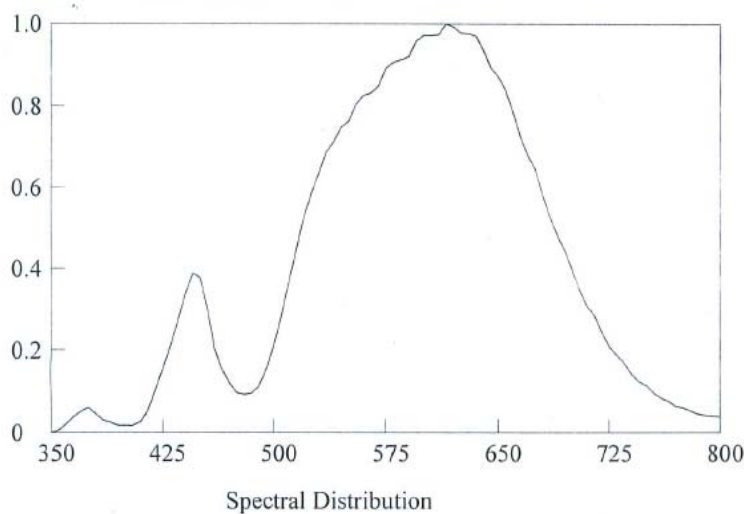
Temperature: 25.0°C

RH: 65.0%

Spectrum Range: 350-800 nm

Scan Step: 5 nm

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4479$ $y=0.4212$ $u'=0.2503$ $v'=0.5295$

Correlated Color Temperature: 2959 K

Dominant Wavelength: 580.0 nm(E)

Luminous Flux: 208.231 lm

Purity: 0.6101

Chromaticity Difference: 0.0052Duv

Peak Wavelength: 616.4 nm

Color Ratio: $K_r=42.6\%$ $K_g=52.1\%$ $K_b=5.2\%$

Color Tolerance: 0.0 SDCM

Bandwidth: 169.2nm

Radiant Flux: 0.661 W

Rendering Index: $R_a=81.2$

R1=81 R2=84 R3=85 R4=83 R5=78 R6=75 R7=90 R8=75

R9=35 R10=60 R11=79 R12=52 R13=81 R14=90 R15=78

Electric Parameters

Voltage: 120.04 V

Current: 0.064 A

Power Factor: 0.495

Power: 3.79 W

Luminous Efficacy: 54.942 lm/W

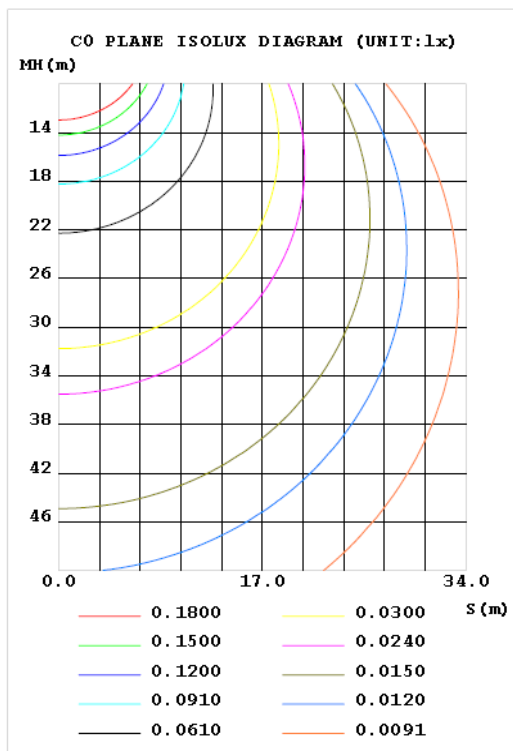
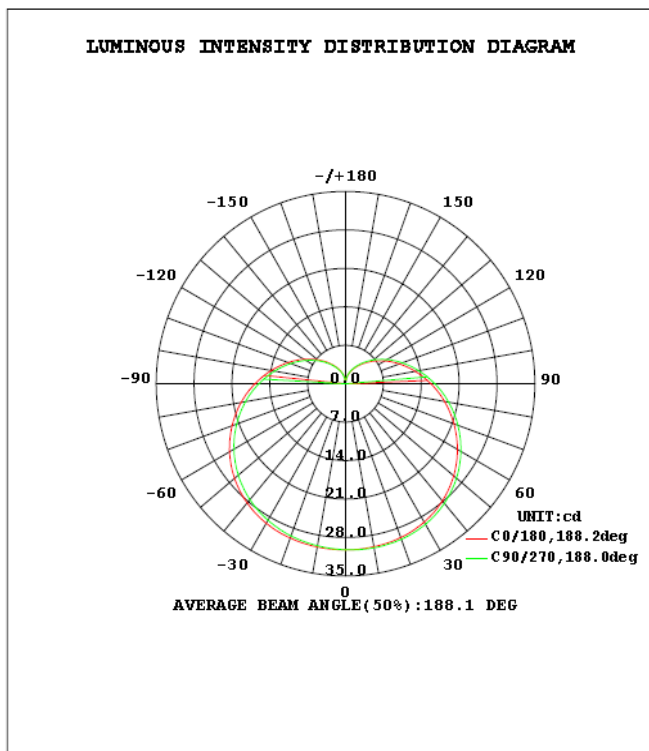
Attachment B – Light Intensity Test Data

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

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				Eff: 53.96 lm/W
MODEL	529976XX	I _{max} (cd)	30.33	S/MH (C0/180)	1.46	
NOMINAL POWER (W)	4	LOR (%)	100.0	S/MH (C90/270)	1.43	
RATED VOLTAGE (V)	120	TOTAL FLUX (lm)	205.28	η UP, DN (C0-180)	13.2, 36.4	
NOMINAL FLUX (lm)	205.28	CIE CLASS	SEMI-D.	η UP, DN (C180-360)	13.4, 36.9	
LAMPS INSIDE	1	η up (%)	26.6	CIBSE SHR NOM	1.50	
TEST VOLTAGE (V)	120.1	η down (%)	73.4	CIBSE SHR MAX	1.55	



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	ϕ zone	ϕ total	%lum,lamp
10	30.16	30.01	29.94	30.02	30.14	30.25	30.32	30.30	0- 10	2.882	2.882	1.4,1.4
20	29.88	29.60	29.48	29.61	29.80	30.00	30.13	30.14	10- 20	8.502	11.38	5.55,5.55
30	29.34	28.89	28.69	28.85	29.07	29.31	29.54	29.60	20- 30	13.66	25.04	12.2,12.2
40	28.32	27.79	27.52	27.68	27.84	28.10	28.41	28.59	30- 40	17.97	43.01	21,21
50	26.81	26.20	25.88	26.00	26.09	26.37	26.76	27.03	40- 50	21.08	64.09	31.2,31.2
60	24.77	24.17	23.82	23.87	23.86	24.16	24.62	24.94	50- 60	22.74	86.83	42.3,42.3
70	22.33	21.77	21.42	21.39	21.32	21.61	22.09	22.48	60- 70	22.87	109.7	53.4,53.4
80	19.61	19.11	18.78	18.68	18.57	18.86	19.34	19.74	70- 80	21.62	131.3	64,64
90	16.77	16.34	16.04	15.89	15.78	16.07	16.51	16.86	80- 90	19.29	150.6	73.4,73.4
100	13.96	13.61	13.34	13.18	13.08	13.33	13.74	14.05	90-100	16.25	166.9	81.3,81.3
110	11.32	11.03	10.80	10.65	10.60	10.82	11.17	11.42	100-110	12.95	179.8	87.6,87.6
120	8.931	8.694	8.505	8.382	8.340	8.536	8.834	9.025	110-120	9.733	189.6	92.3,92.3
130	6.822	6.632	6.491	6.394	6.367	6.520	6.766	6.914	120-130	6.845	196.4	95.7,95.7
140	5.031	4.888	4.783	4.711	4.689	4.800	4.986	5.099	130-140	4.448	200.8	97.8,97.8
150	3.541	3.442	3.377	3.328	3.311	3.385	3.516	3.589	140-150	2.613	203.5	99.1,99.1
160	2.283	2.234	2.200	2.167	2.150	2.196	2.270	2.318	150-160	1.320	204.8	99.8,99.8
170	0.9896	0.9554	0.9139	0.4927	0.9187	0.9587	0.9055	0.9333	160-170	0.4779	205.3	100,100
180	0	0	0	0	0	0	0	0	170-180	0.0234	205.3	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:2011-12-16

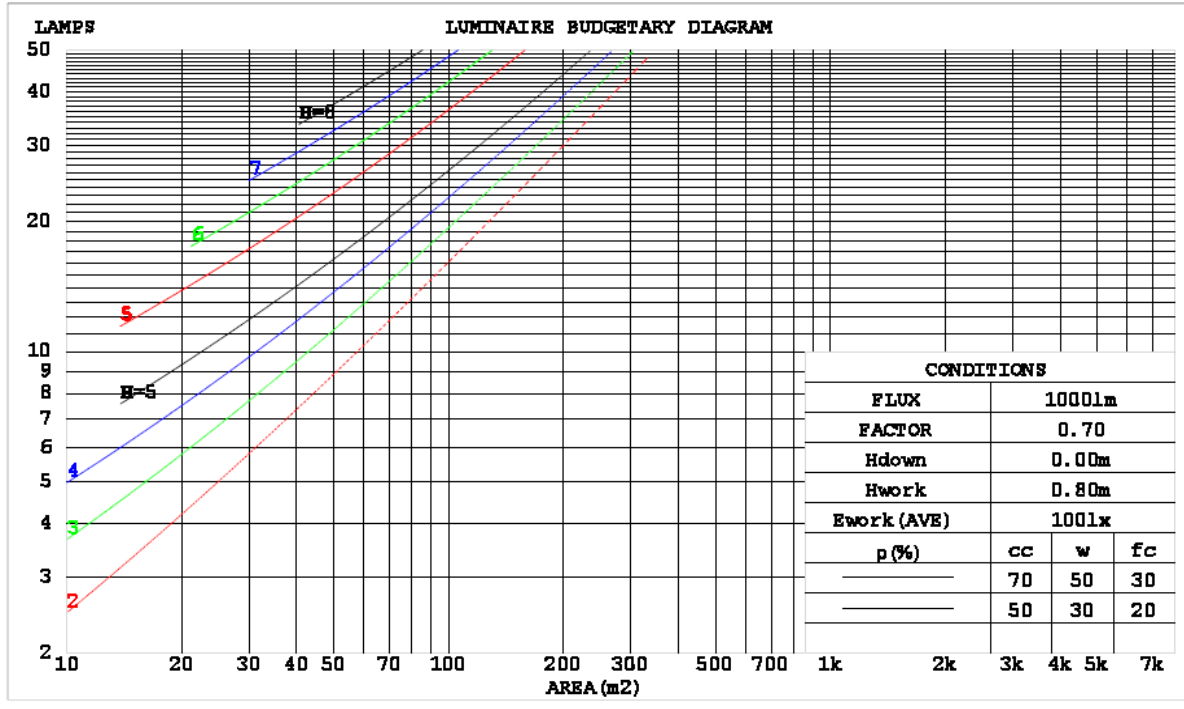
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.270
 Humidity:65.0%
 Test Distance:2.464m [K=1.0000]
 Remarks:

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
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	
pw	20%			20%			20%			20%			20%			0
pfc	20%			20%			20%			20%			20%			
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.13	1.13	1.13	1.07	1.07	1.07	.96	.96	.96	.87	.87	.87	.78	.78	.78	.73
1.0	.92	.86	.81	.87	.82	.77	.78	.74	.70	.69	.66	.63	.61	.59	.57	.52
2.0	.78	.70	.63	.74	.66	.60	.66	.60	.54	.58	.53	.49	.52	.48	.44	.40
3.0	.67	.58	.50	.63	.55	.48	.57	.50	.44	.50	.45	.40	.44	.40	.36	.32
4.0	.59	.49	.41	.55	.47	.40	.49	.42	.36	.44	.38	.33	.39	.34	.30	.26
5.0	.52	.42	.35	.49	.40	.33	.44	.36	.31	.39	.33	.28	.34	.29	.25	.22
6.0	.46	.37	.30	.44	.35	.29	.39	.32	.26	.35	.29	.24	.31	.26	.22	.19
7.0	.41	.32	.26	.39	.31	.25	.35	.28	.23	.32	.25	.21	.28	.23	.19	.16
8.0	.38	.29	.23	.36	.28	.22	.32	.25	.20	.29	.23	.18	.26	.21	.17	.14
9.0	.34	.26	.20	.33	.25	.19	.29	.23	.18	.26	.21	.16	.24	.19	.15	.13
10.0	.31	.23	.18	.30	.22	.17	.27	.21	.16	.24	.19	.15	.22	.17	.13	.11



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

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
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.414	.235	.075	.399	.227	.072	.370	.212	.068	.343	.198	.064	.319	.185	.060	
2.0	.350	.192	.059	.336	.185	.057	.310	.172	.054	.286	.160	.050	.263	.149	.047	
3.0	.307	.163	.049	.294	.158	.047	.270	.147	.045	.248	.136	.042	.228	.126	.039	
4.0	.274	.142	.042	.262	.137	.041	.241	.128	.038	.221	.118	.036	.202	.110	.033	
5.0	.248	.126	.037	.237	.122	.035	.217	.113	.033	.199	.105	.031	.182	.097	.029	
6.0	.226	.113	.032	.216	.109	.031	.198	.101	.030	.181	.094	.028	.165	.087	.026	
7.0	.207	.103	.029	.199	.099	.028	.182	.092	.027	.166	.085	.025	.152	.079	.023	
8.0	.192	.094	.026	.184	.090	.026	.168	.084	.024	.154	.078	.023	.140	.072	.021	
9.0	.178	.086	.024	.171	.083	.023	.157	.077	.022	.143	.072	.021	.131	.066	.019	
10.0	.167	.080	.022	.160	.077	.022	.147	.072	.020	.134	.067	.019	.122	.062	.018	

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						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.393	.393	.393	.336	.336	.336	.229	.229	.229	.132	.132	.132	.042	.042	.042	
1.0	.392	.360	.331	.335	.309	.285	.229	.212	.197	.132	.123	.114	.042	.040	.037	
2.0	.386	.338	.297	.331	.291	.257	.227	.201	.179	.131	.117	.105	.042	.038	.034	
3.0	.379	.322	.276	.325	.277	.239	.223	.193	.168	.129	.113	.099	.041	.037	.032	
4.0	.371	.310	.263	.318	.267	.228	.219	.186	.161	.127	.109	.095	.041	.036	.031	
5.0	.363	.300	.253	.312	.260	.220	.215	.181	.156	.124	.106	.092	.040	.035	.030	
6.0	.356	.292	.247	.306	.253	.215	.211	.177	.152	.122	.104	.090	.039	.034	.030	
7.0	.349	.286	.242	.300	.248	.211	.207	.174	.149	.120	.102	.089	.039	.034	.029	
8.0	.342	.280	.238	.294	.243	.208	.204	.171	.147	.118	.101	.088	.038	.033	.029	
9.0	.335	.276	.235	.289	.239	.205	.200	.168	.146	.117	.099	.087	.038	.033	.029	
10.0	.329	.272	.233	.284	.236	.203	.197	.166	.144	.115	.098	.086	.037	.032	.029	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Jack
 Test Date:2011-12-16

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

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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	8.6	9.9	9.2	10.5	11.2	8.4	9.7	9.0	10.3	11.1
3H	11.3	12.5	12.0	13.2	14.0	11.1	12.3	11.8	13.0	13.8
4H	12.8	14.0	13.5	14.7	15.5	12.6	13.8	13.3	14.4	15.2
6H	14.5	15.6	15.2	16.3	17.1	14.3	15.4	14.9	16.0	16.9
8H	15.4	16.5	16.1	17.2	18.0	15.2	16.2	15.9	16.9	17.8
12H	16.5	17.5	17.2	18.2	19.1	16.2	17.3	16.9	18.0	18.8
4H 2H	9.4	10.6	10.1	11.2	12.0	9.3	10.4	10.0	11.1	11.9
3H	12.3	13.3	13.0	14.1	14.9	12.2	13.2	12.9	13.9	14.8
4H	14.0	14.9	14.7	15.7	16.6	13.8	14.8	14.6	15.5	16.4
6H	15.9	16.7	16.6	17.5	18.4	15.7	16.5	16.4	17.3	18.2
8H	16.9	17.7	17.6	18.4	19.4	16.7	17.5	17.4	18.2	19.1
12H	18.1	18.8	18.8	19.6	20.5	17.8	18.6	18.6	19.3	20.3
8H 4H	14.6	15.4	15.4	16.2	17.1	14.5	15.3	15.2	16.0	17.0
6H	16.7	17.4	17.5	18.2	19.2	16.6	17.2	17.4	18.0	19.0
8H	18.0	18.6	18.8	19.4	20.3	17.8	18.4	18.6	19.2	20.2
12H	19.4	19.9	20.2	20.7	21.7	19.2	19.7	20.0	20.5	21.5
12H 4H	14.8	15.5	15.5	16.3	17.2	14.6	15.4	15.4	16.2	17.1
6H	17.0	17.6	17.8	18.4	19.4	16.9	17.5	17.7	18.3	19.3
8H	18.3	18.9	19.2	19.7	20.7	18.2	18.7	19.0	19.5	20.5
Variations with the observer position at spacings:										
s = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.3 / - 0.4					+ 0.3 / - 0.4				

CIE Pub.117 Corrected 205.3 lm Total Lamp Luminous Flux. (8log(F/F0) = -5.5)

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

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

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UTILIZATION FACTORS TABLE

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

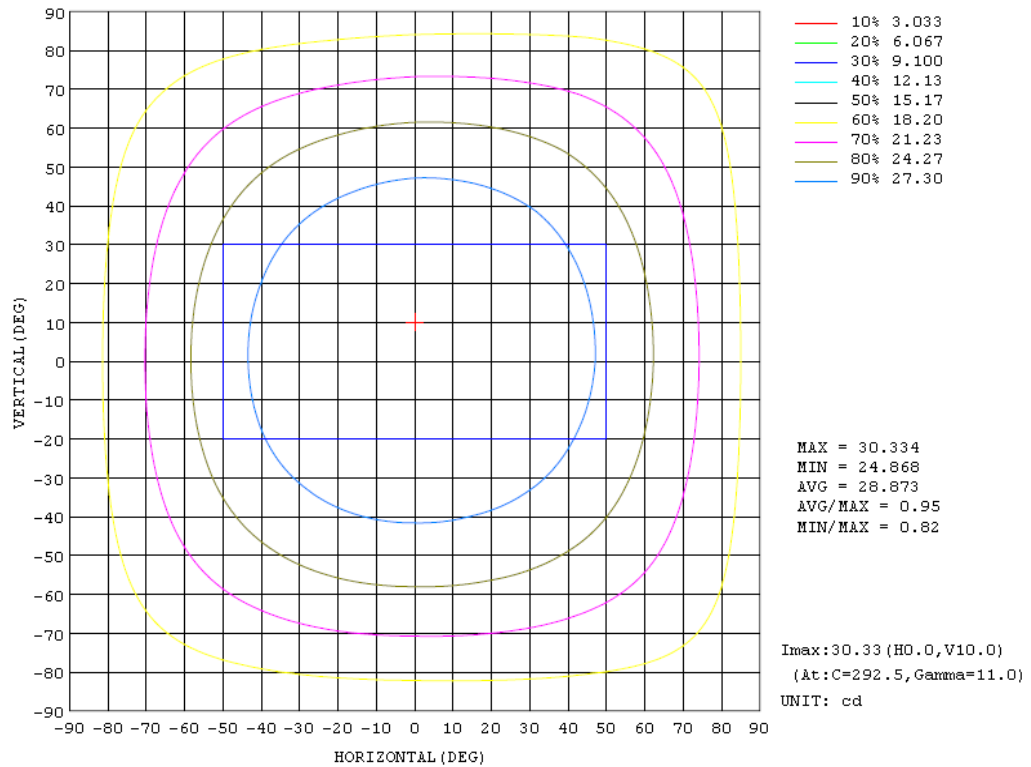
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	43	30	23	42	30	23	39	29	22	15
0.80	52	38	30	50	37	29	47	36	28	20
1.00	58	46	37	57	44	36	53	44	34	25
1.25	66	53	43	63	51	42	58	48	40	30
1.50	71	58	49	68	56	48	62	52	45	33
2.00	79	67	58	75	64	56	69	60	52	39
2.50	84	72	64	80	70	62	72	64	57	43
3.00	88	77	69	83	74	67	75	68	62	46
4.00	93	84	76	88	80	73	80	73	68	51
5.00	96	88	82	91	84	78	82	77	72	54
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended				SENR08 = 1.25			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.D.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

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



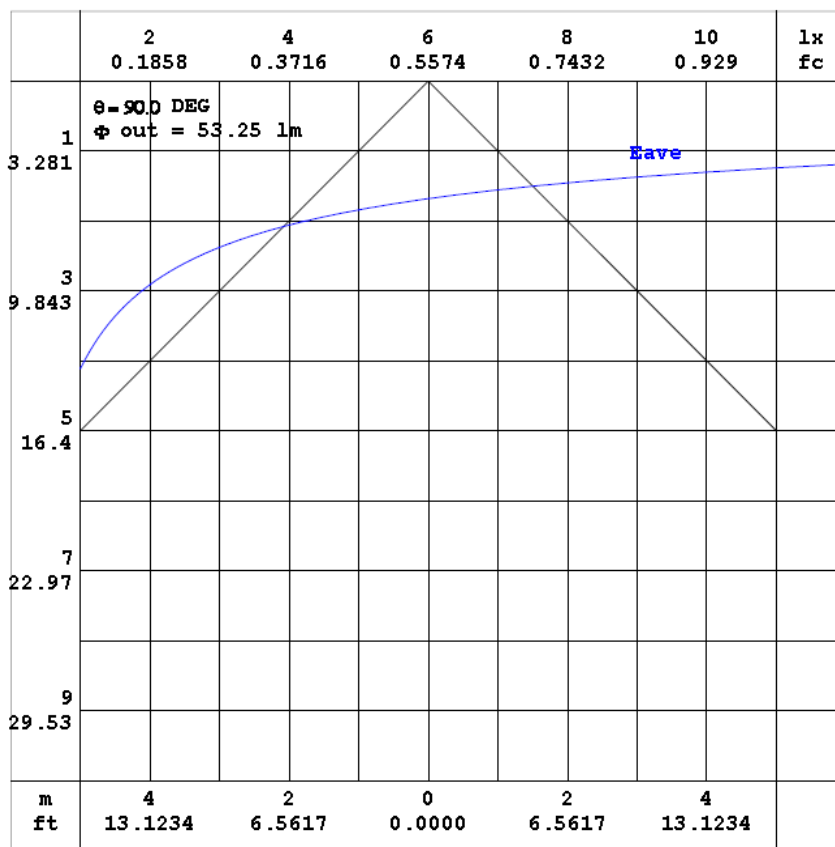
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Jack
 Test Date:2011-12-16

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

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.

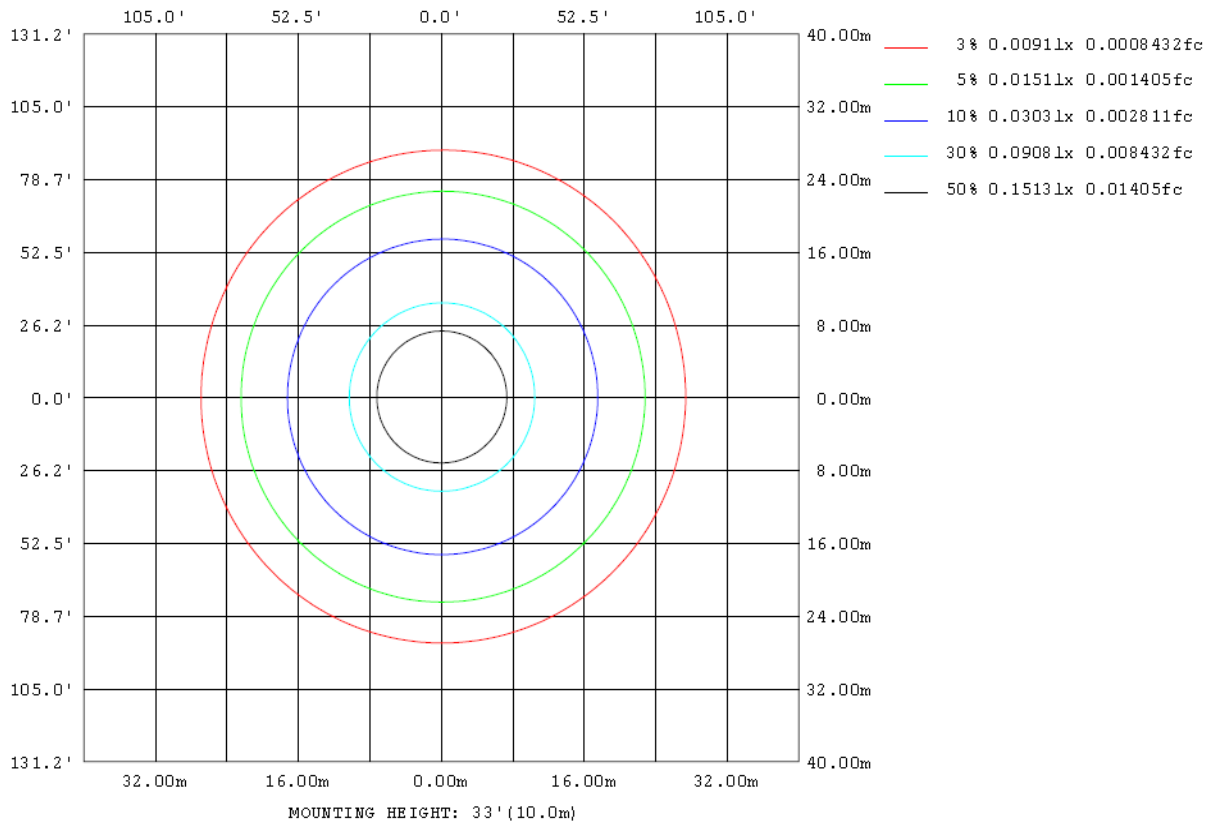
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.D.270
 Humidity: 65.0%
 Test Distance: 2.464m [K=1.0000]
 Remarks:

EVERFINE GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

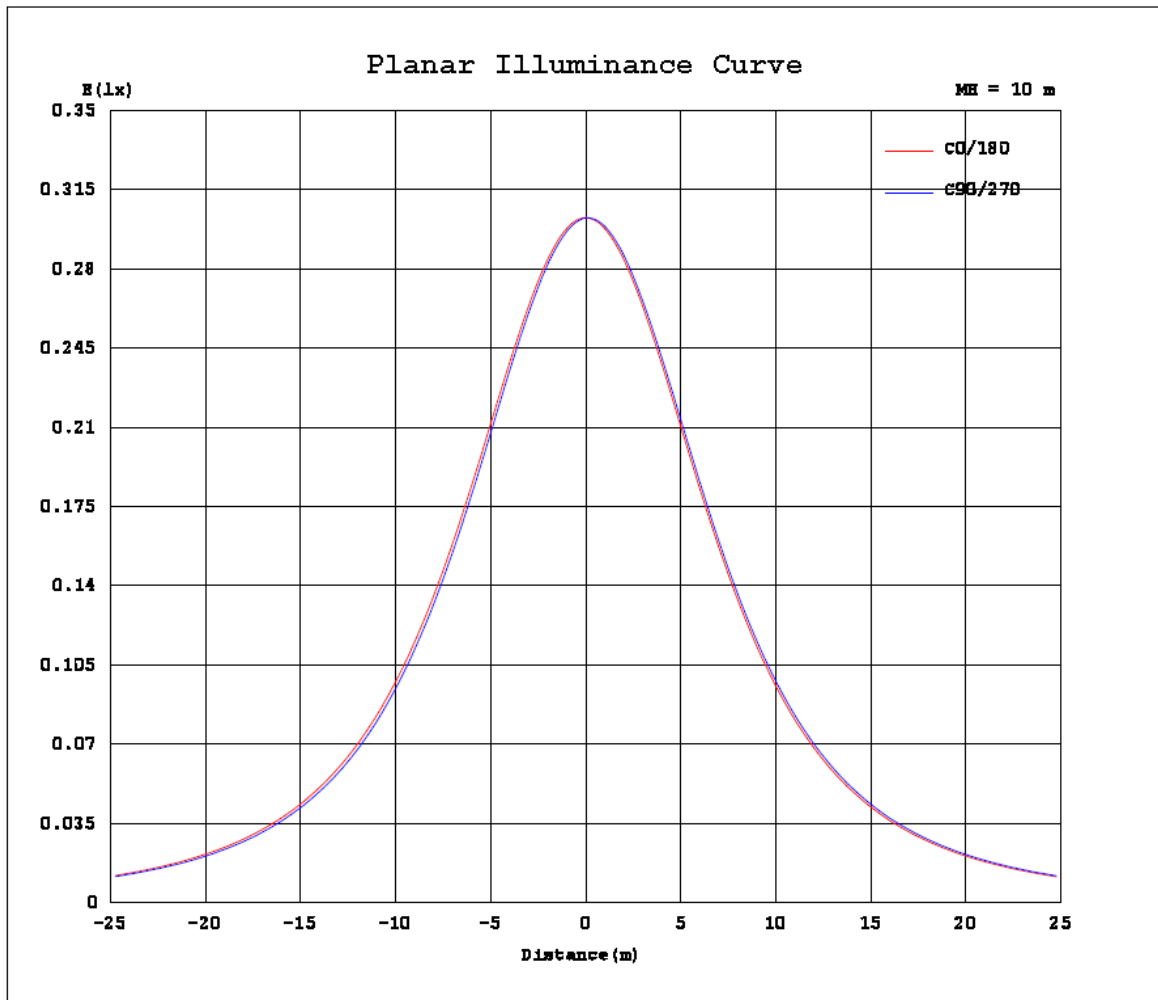
NAME: Elec-Tech International Co.,Ltd	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: Elec-Tech International Co.,Ltd	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

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: 2011-12-16

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

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) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338			
0	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2			
5	30.2	30.2	30.1	30.1	30.1	30.1	30.1	30.2	30.2	30.3	30.3	30.3	30.3	30.3	30.3	30.2			
10	30.2	30.1	30.0	30.0	29.9	30.0	30.0	30.1	30.1	30.2	30.3	30.3	30.3	30.3	30.3	30.2			
15	30.1	29.9	29.8	29.8	29.7	29.8	29.8	29.9	30.0	30.1	30.2	30.2	30.3	30.3	30.3	30.1			
20	29.9	29.7	29.6	29.5	29.5	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.1	30.1	30.1	30.0			
25	29.7	29.5	29.3	29.2	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	29.9	29.9	29.8			
30	29.3	29.1	28.9	28.8	28.7	28.7	28.9	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.6	29.5			
35	28.9	28.6	28.4	28.2	28.2	28.2	28.3	28.4	28.5	28.7	28.8	28.9	29.0	29.1	29.2	29.0			
40	28.3	28.0	27.8	27.6	27.5	27.6	27.7	27.8	27.8	28.0	28.1	28.3	28.4	28.5	28.6	28.4			
45	27.6	27.3	27.1	26.8	26.8	26.8	26.9	27.0	27.0	27.1	27.3	27.5	27.6	27.8	27.9	27.7			
50	26.8	26.5	26.2	26.0	25.9	25.9	26.0	26.0	26.1	26.2	26.4	26.5	26.8	26.9	27.0	26.9			
55	25.9	25.5	25.2	25.0	24.9	25.0	25.0	25.0	25.0	25.1	25.3	25.5	25.7	25.9	26.0	25.9			
60	24.8	24.5	24.2	24.0	23.8	23.9	23.9	23.9	23.9	24.0	24.2	24.3	24.6	24.8	24.9	24.9			
65	23.6	23.3	23.0	22.8	22.7	22.7	22.7	22.6	22.6	22.7	22.9	23.1	23.4	23.6	23.8	23.7			
70	22.3	22.1	21.8	21.6	21.4	21.4	21.4	21.3	21.3	21.4	21.6	21.8	22.1	22.3	22.5	22.4			
75	21.0	20.7	20.5	20.3	20.1	20.1	20.1	20.0	20.0	20.0	20.2	20.5	20.7	20.9	21.1	21.1			
80	19.6	19.4	19.1	18.9	18.8	18.8	18.7	18.6	18.6	18.6	18.9	19.1	19.3	19.5	19.7	19.7			
85	18.2	18.0	17.7	17.6	17.4	17.4	17.3	17.2	17.2	17.2	17.5	17.7	17.9	18.1	18.3	18.2			
90	16.8	16.6	16.3	16.2	16.0	16.0	15.9	15.8	15.8	15.8	16.1	16.3	16.5	16.7	16.9	16.8			
95	15.4	15.2	15.0	14.8	14.7	14.6	14.5	14.5	14.4	14.5	14.7	14.9	15.1	15.3	15.4	15.4			
100	14.0	13.8	13.6	13.5	13.3	13.3	13.2	13.1	13.1	13.1	13.3	13.5	13.7	13.9	14.0	14.0			
105	12.6	12.5	12.3	12.2	12.0	12.0	11.9	11.9	11.8	11.9	12.1	12.2	12.4	12.6	12.7	12.6			
110	11.3	11.2	11.0	10.9	10.8	10.8	10.6	10.6	10.6	10.6	10.8	10.9	11.2	11.3	11.4	11.3			
115	10.1	10.0	9.83	9.75	9.62	9.59	9.48	9.46	9.43	9.47	9.65	9.74	9.97	10.1	10.2	10.1			
120	8.93	8.85	8.69	8.64	8.50	8.48	8.38	8.37	8.34	8.37	8.54	8.64	8.83	8.91	9.03	8.96			
125	7.84	7.77	7.63	7.58	7.46	7.44	7.35	7.34	7.32	7.34	7.49	7.58	7.77	7.83	7.94	7.87			
130	6.82	6.76	6.63	6.60	6.49	6.48	6.39	6.39	6.37	6.39	6.52	6.60	6.77	6.82	6.91	6.85			
135	5.89	5.83	5.73	5.69	5.60	5.58	5.52	5.51	5.49	5.52	5.63	5.70	5.84	5.89	5.97	5.92			
140	5.03	4.98	4.89	4.86	4.78	4.77	4.71	4.71	4.69	4.71	4.80	4.87	4.99	5.03	5.10	5.05			
145	4.25	4.20	4.13	4.11	4.04	4.03	3.98	3.98	3.97	3.98	4.06	4.11	4.22	4.25	4.31	4.27			
150	3.54	3.50	3.44	3.43	3.38	3.37	3.33	3.33	3.31	3.32	3.38	3.43	3.52	3.54	3.59	3.56			
155	2.89	2.86	2.81	2.81	2.76	2.76	2.72	2.72	2.71	2.72	2.77	2.80	2.87	2.89	2.93	2.90			
160	2.28	2.26	2.23	2.23	2.20	2.18	2.17	2.13	2.15	2.16	2.20	2.22	2.27	2.29	2.32	2.29			
165	1.72	1.69	1.69	1.69	1.65	1.60	1.64	1.49	1.63	1.63	1.66	1.67	1.71	1.72	1.75	1.72			
170	0.99	0.94	0.96	0.96	0.91	0.61	0.49	0.76	0.92	0.87	0.96	0.96	0.91	0.99	0.93	0.98			
175	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			
180	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			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Jack
 Test Date: 2011-12-16

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

