TEST REPORT

Report No.: SET2015-18401

Product: LED Fixture

Model No. : TRI-05P-PC

Applicant: Blackjack Lighting

Issued by: CCIC Southern Electronic Product Testing

Lab Location: Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055, P. R. China

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NVLAP LAB CODE 201008-0

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Test Report

Product.....:	LED Fixture
Model No......:	TRI-05P-PC
Applicant.....:	Blackjack Lighting
Applicant Address.....:	1553 Barclay Blvd. Buffalo Grove, IL 60089
Manufacturer.....:	A-Bright Electronical & Hardware (Huizhou) Co.Ltd
Manufacturer Address.....:	Hengling Developing District, Satian Town, Huiyang,Huizhou,Guangdong, China
Rating.....:	120V 60Hz 7W
Test Standards.....:	IES LM-79-08: Electrical and Photometric Measurements of Solid-State Lighting Products

"☆" item cannot be Accredited by NVLAP.

Tested by .....: Manny Chen 2015.12.21

Signature, Date

Reviewed by.....: 2015.12.21

Signature, Date

Approved by.....: 2015.12.21

Signature, Date

Test Method

The method according to IESNA LM-79-08 following chapter

4.0 SENSONING OF SSL PRODUCTS

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

5.0 STABLISIZATION 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 SSLproducts under test. The stabilization time typically ranges from 30 min. (small integrated LED lamps) to 2 ormore hours for (large SSL luminaries). The SSL product during stabilization shall be operated in the ambienttemperature as specified in section 2.1. 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 min. apart, is less than 0.5%. The stabilization time used for each SSL product shall be reported.

9.0 TEST METHODS FOR TOTAL LUNIMOUS FLUX MEASUREMENT

The total luminous flux (lumen) of SSL products shall be measured with an integrating sphere system or agoniophotometer.Spectral radiant flux measurements are made using High-precision spectral radiometer attached to thedetector port of the integrating sphere. Luminous flux, chromaticity coordinates, correlated color temperature,u', v' and color rendering index for each lamp are calculated from the spectral radiant flux measurementstaken at 1 nm intervals over the range 380 to 780 nm. Lamp efficacy (lumens per watts) for each lamp model iscomputed based on this luminous flux result.Sphere size of 1.5m/2 m is used for compact lamps (size of typical incandescent and compact fluorescentlamps) or larger for larger lamps (size of 4-foot linear fluorescent lamps and HID lamps). 2 m sphere is used formeasurement of light sources of 500 W or larger.The total uncertainty of the light output measurements is estimated, at the 95% confidence level, k=2.

10.0 LUMINOUS INTENSITY DISTRIBUTION

Goniophotometers used to measure luminous intensity distribution. For measurement of luminous intensitydistribution, a sufficient photometric distance should be used – generally, more than five times of the largestdimension of the test SSL product having broad angular distributions.Electronic

data of measured luminous intensity distributions shall be prepared in the “IES file” format forabsolute photometry specified in IES LM-63.[18] IES file is an electronic data format that can be used byspecifiers and designers to reliably predict illuminance levels in design applications.

11.0 LUMINOUS EFFICACY

The luminous efficacy(lm/W) of the SSl product, çí, is given as the quotient of measured total luminousflux $ö_{TEST}$(lumen) and the measured electrical input power P_{TEST}(watt) of the SSL product under test as

çí =öTEST(lumen) / PTEST(watt) [lm/W]

12.0 TEST METHODS FOR COLOR CHARACTERISTICS OF SSL PRODUCTS

The color characteristics of SSL products include chromaticity coordinates, correlated color temperature,and colorrendering index.Using High-precision spectral radiometer system to measure luminous flux, chromaticity coordinates,correlated color temperature, u’, v’ and color rendering index.Using Goniophotometer system to measure chromaticity. The SSL product under test in different directions.This can be achieved most efficiently by mounting the color-measuring instrument on a goniometer.

13.0 UNCERTAINTY STATEMENT

The uncertainty of the light output measurements is U=1.5%(K=2),the uncertainty of correlated colortemperature measurements is U=14K(K=2), at the 95% confidence level. This calibration results traceable tothe NATIONAL INSTITUTE OF METROLOGY(NIM).

Remark :

1. 0 hour season, Pre-heating the lamp for 45 minutes at least ;

2. Ambient : ≥45% RH, 25±1 ℃.

Product Description

General Information	
Manufacture	A-Bright Electronical & Hardware (Huizhou) Co.Ltd
Test model number	TRI-05P-PC
Burning time before test	0 Hours (For new products)

Rating	
Rated input	120V 60Hz
Rated power	7W
Nominal CCT	3000K

Test Result

1. Integrating Sphere System

1.1 Electrical data

Model	Input Voltage (V)	Input Current (A)	Power (W)	Power Factor
TRI-05P-PC	120.1	0.0622	7.08	0.947

1.2 Photometric data

Model	Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	Duv	R9	CRI
TRI-05P-PC	321.2	45.39	2814	-0.00089	59	93.1

1.3 Chromaticity Coordinate

Model	x	y	u’	v’
TRI-05P-PC	0.4493	0.4056	0.2579	0.5238

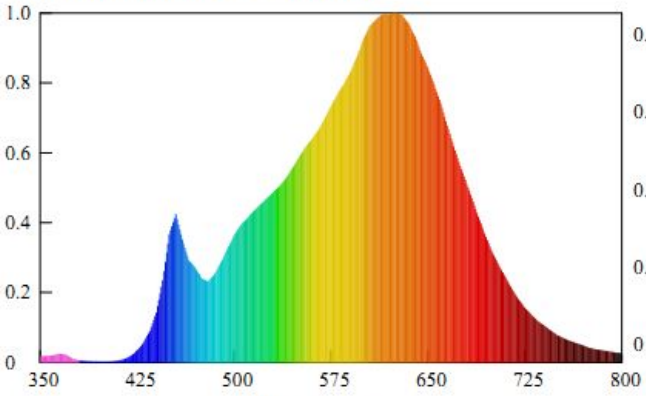
Report of Spectroradiometric & Electric Analysis for Light Source

Test Condition

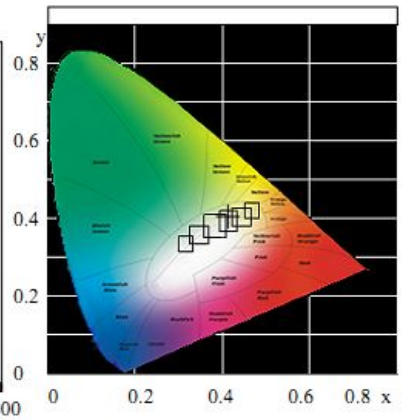
Temperature: 25.1°C RH: 56%

Spectrum Range: 350-800 nm Scan Step: 5 nm

Spectroradiometric Parameters



Spectral Distribution



CIE1931 Chromaticity Diagram

Chromaticity Coordinates: x=0.4493 y=0.4056 u'=0.2579 v'=0.5238

Correlated Color Temperature: 2814 K Dominant Wavelength: 582.0 nm(E)

Luminous Flux: 321.224 lm Purity: 0.5705

Chromaticity Difference: -0.00089Duv Peak Wavelength: 624.6 nm

Color Ratio: Kr=45.8% Kg=46.2% Kb=7.9% Color Tolerance: 5.1 SDCM

Bandwidth: 146.6nm Radiant Flux: 0.999 W

Rendering Index: Ra=93.1

R1=94	R2=98	R3=98	R4=93	R5=94	R6=97	R7=90	R8=81
R9=59	R10=96	R11=94	R12=86	R13=96	R14=100	R15=89	

Electric Parameters

Voltage: 120.1 V Current: 0.0622 A

Power Factor: 0.947 Power: 7.0762 W

Luminous Efficacy: 45.394 lm/W

2. Goniophotometer System

2.1 Electrical data

Model	Input Voltage (V)	Input Current (A)	Power (W)	Power Factor
TRI-05P-PC	120.2	0.0618	7.03	0.945

2.2 Photometric data

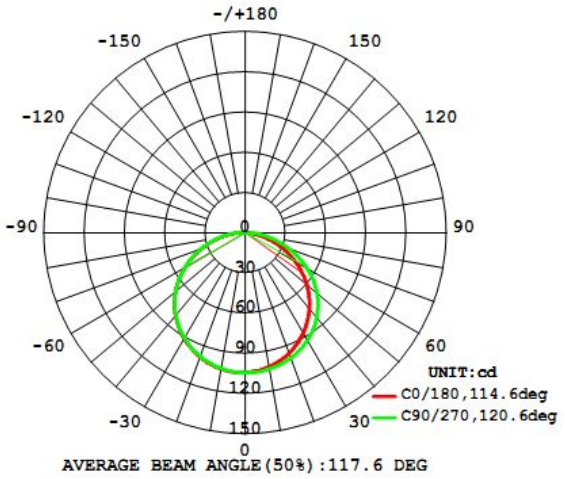
Luminous Flux (lm)	Efficacy (lm/W)	I max (cd)	Beam angle
316.5	45.03	104.7	117.6°

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.3V I:0.0618A P:7.028W PF:0.9454 Lamp Flux:316.497x1 lm		
NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:	PROTECTION ANGLE:

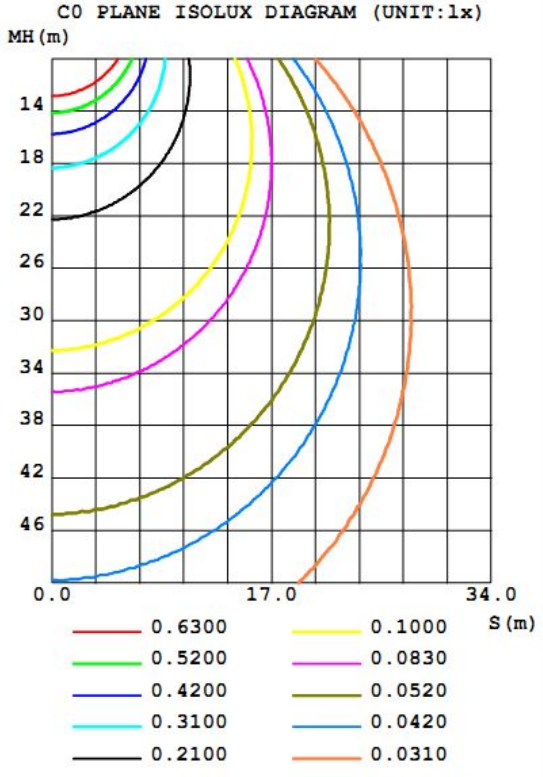
DATA OF LAMP		PHOTOMETRIC DATA Eff: 45.03 lm/W			
MODEL	LED8023	Imax(cd)	104.7	S/MH(C0/180)	1.24
NOMINAL POWER(W)	7	LOR(%)	100.0	S/MH(C90/270)	1.32
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	316.50	η UP,DN(C0-180)	0.0,49.8
NOMINAL FLUX(lm)	316.497	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.2
LAMPS INSIDE	1	η up(%)	0.1	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	120.3	η down(%)	99.9	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):117.6 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



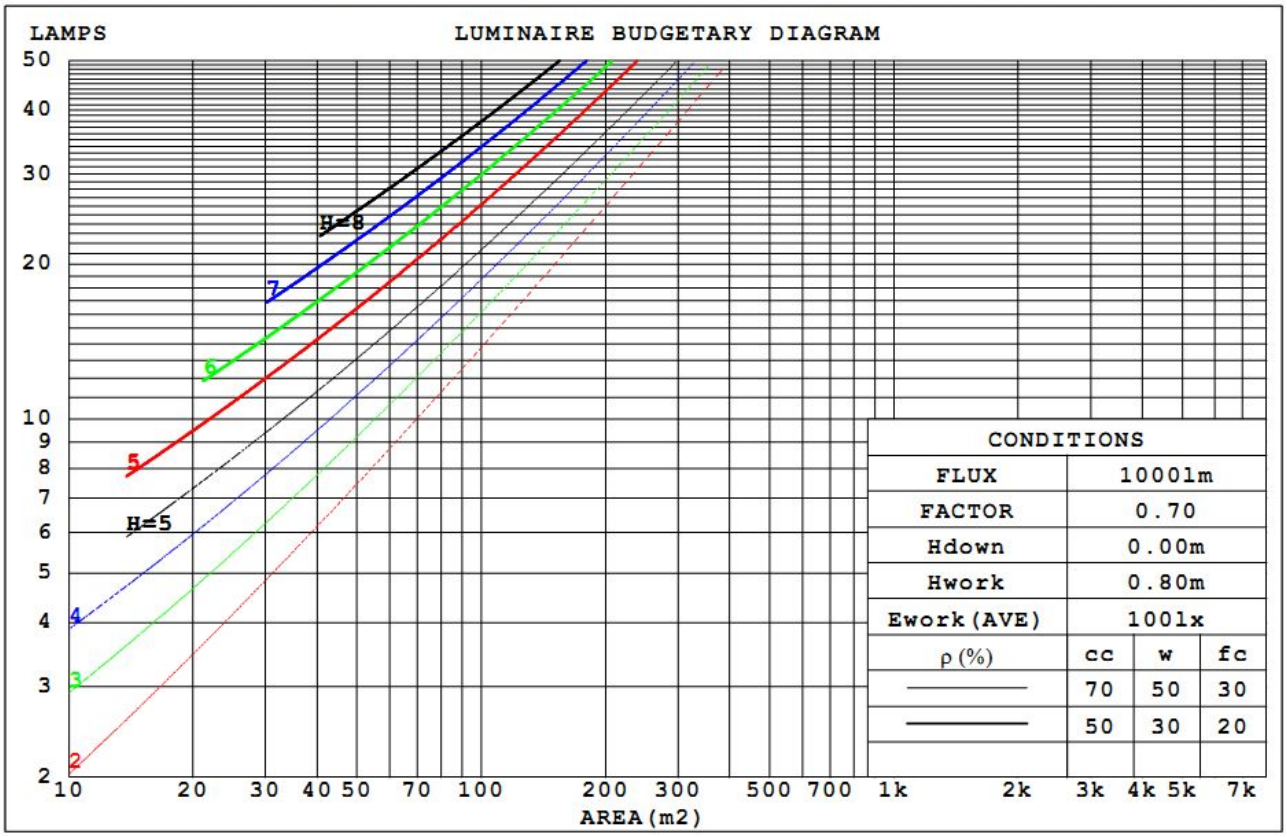
ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum
5	103.5	103.6	104.2	103.9	104.1	104.0	104.1	103.3	0- 5	2.487	2.487	0.79
10	101.6	102.2	103.6	103.2	103.2	103.1	102.8	101.6	5- 10	7.386	9.873	3.12
15	98.98	100.2	101.9	101.7	101.4	101.4	100.9	99.28	10- 15	12.07	21.94	6.93
20	95.70	97.47	99.55	99.55	98.89	98.84	98.26	96.60	15- 20	16.38	38.32	12.1
25	91.76	93.82	96.50	96.45	95.56	95.26	95.15	92.69	20- 25	20.20	58.53	18.5
30	86.65	89.29	92.84	92.50	91.41	90.97	91.02	88.06	25- 30	23.41	81.93	25.9
35	80.86	84.07	88.53	88.06	86.50	86.17	86.18	82.68	30- 35	25.89	107.8	34.1
40	74.46	78.35	83.18	82.57	80.66	80.68	80.51	76.82	35- 40	27.56	135.4	42.8
45	67.66	71.61	76.95	76.38	74.69	74.58	74.47	70.15	40- 45	28.35	163.7	51.7
50	60.02	64.11	69.94	69.45	67.77	67.96	67.73	63.01	45- 50	28.21	191.9	60.6
55	51.97	56.00	62.23	61.79	60.26	60.60	60.26	54.97	50- 55	27.13	219.1	69.2
60	43.34	47.50	53.44	53.60	51.92	52.46	52.14	46.64	55- 60	25.12	244.2	77.2
65	34.27	38.29	44.11	44.92	43.27	43.98	43.72	37.79	60- 65	22.21	266.4	84.2
70	25.13	28.46	34.41	35.30	34.29	34.96	35.14	28.70	65- 70	18.55	284.9	90
75	16.21	18.84	25.03	25.50	25.24	25.72	26.36	19.63	70- 75	14.34	299.3	94.6
80	7.899	10.17	16.20	16.22	16.43	16.84	18.07	11.27	75- 80	9.868	309.2	97.7
85	0.9136	2.602	8.204	7.767	8.126	8.829	10.41	4.088	80- 85	5.506	314.7	99.4
90	0	0	0	0.0767	1.033	1.755	0	0	85- 90	1.677	316.3	99.9
95	0	0	0	0	0	0	0	0	90- 95	0.0167	316.4	100
100	0	0	0	0	0	0	0	0	95-100	0	316.4	100
105	0	0	0	0	0	0	0	0	100-105	0.0000	316.4	100
110	0	0	0	0	0	0	0	0	105-110	0.0008	316.4	100
115	0	0	0	0	0	0	0	0	110-115	0.0013	316.4	100
120	0	0	0	0	0	0	0	0	115-120	0.0030	316.4	100
125	0.0004	0	0	0	0	0	0	0	120-125	0.0053	316.4	100
130	0	0	0	0	0.0121	0.0121	0.0122	0.0121	125-130	0.0077	316.4	100
135	0	0	0	0	0.0363	0.0243	0.0122	0.0243	130-135	0.0106	316.4	100
140	0.0121	0.0243	0	0	0.0363	0.0364	0.0365	0.0364	135-140	0.0123	316.4	100
145	0.0242	0.0121	0.0122	0	0.0363	0.0485	0.0487	0.0486	140-145	0.0155	316.4	100
150	0.0242	0.0359	0.0243	0.0121	0.0610	0.0606	0.0609	0.0607	145-150	0.0166	316.4	100
155	0.0842	0.0490	0.0487	0.0484	0.0963	0.0728	0.0730	0.0729	150-155	0.0167	316.4	100
160	0.0846	0.0485	0.0726	0.0364	0.0846	0.1152	0.1339	0.1287	155-160	0.0164	316.5	100
165	0.0846	0.1088	0.0974	0.0486	0.0846	0.1446	0.1339	0.1520	160-165	0.0151	316.5	100
170	0.1684	0.1553	0.1478	0.1337	0.0846	0.1358	0.1339	0.1497	165-170	0.0127	316.5	100
175	0.1692	0.1781	0.1749	0.1806	0.0846	0.1270	0.1339	0.1474	170-175	0.0092	316.5	100
180	0.1211	0.1698	0.1826	0.1579	0.0846	0.0849	0.1339	0.1457	175-180	0.0032	316.5	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	1.03	.99	.95	1.01	.97	.93	.97	.93	.90	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.81	.76	.84	.79	.74	.81	.76	.72	.78	.74	.71	.68
3.0	.78	.70	.63	.77	.69	.63	.74	.67	.62	.71	.65	.61	.68	.64	.59	.57
4.0	.69	.60	.53	.68	.60	.53	.65	.58	.52	.63	.57	.52	.61	.55	.51	.49
5.0	.62	.53	.46	.61	.52	.46	.58	.51	.45	.56	.50	.44	.55	.49	.44	.42
6.0	.55	.46	.40	.55	.46	.40	.53	.45	.39	.51	.44	.39	.49	.43	.39	.36
7.0	.50	.41	.35	.49	.41	.35	.48	.40	.35	.46	.39	.34	.45	.39	.34	.32
8.0	.46	.37	.31	.45	.37	.31	.44	.36	.31	.42	.36	.31	.41	.35	.30	.29
9.0	.42	.34	.28	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.27	.26
10.0	.39	.31	.25	.38	.30	.25	.37	.30	.25	.36	.30	.25	.35	.29	.25	.23



WEC AND CCEC

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coeffcients(WEC)									
0.0																
1.0	.320	.182	.058	.312	.178	.057	.299	.172	.055	.287	.165	.053	.275	.160	.051	
2.0	.299	.164	.050	.293	.161	.050	.281	.156	.049	.270	.151	.047	.260	.147	.046	
3.0	.276	.147	.044	.270	.145	.044	.260	.141	.043	.250	.137	.042	.241	.133	.041	
4.0	.254	.132	.039	.249	.130	.038	.240	.127	.038	.231	.124	.037	.223	.121	.037	
5.0	.234	.119	.035	.230	.118	.034	.221	.115	.034	.214	.113	.034	.207	.110	.033	
6.0	.217	.109	.031	.213	.108	.031	.206	.105	.031	.199	.103	.030	.192	.101	.030	
7.0	.201	.100	.028	.198	.099	.028	.191	.097	.028	.185	.095	.028	.180	.093	.027	
8.0	.188	.092	.026	.185	.091	.026	.179	.089	.026	.173	.088	.025	.168	.086	.025	
9.0	.176	.085	.024	.173	.084	.024	.168	.083	.024	.163	.082	.023	.158	.080	.023	
10.0	.165	.079	.022	.163	.079	.022	.158	.077	.022	.154	.076	.022	.149	.075	.022	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.191	.191	.191	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.181	.156	.134	.155	.134	.115	.106	.092	.080	.061	.053	.046	.020	.017	.015	
2.0	.174	.132	.098	.149	.114	.084	.102	.079	.059	.059	.046	.034	.019	.015	.011	
3.0	.166	.115	.074	.142	.099	.064	.098	.069	.045	.056	.040	.026	.018	.013	.009	
4.0	.158	.101	.058	.136	.088	.050	.093	.061	.036	.054	.036	.021	.017	.012	.007	
5.0	.151	.091	.047	.130	.079	.041	.089	.055	.029	.052	.032	.017	.017	.011	.006	
6.0	.144	.083	.039	.124	.072	.034	.085	.050	.024	.049	.030	.014	.016	.010	.005	
7.0	.137	.076	.033	.118	.066	.029	.081	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.130	.070	.029	.112	.061	.025	.078	.043	.018	.045	.025	.011	.015	.008	.004	
9.0	.124	.065	.025	.107	.057	.022	.074	.040	.016	.043	.023	.009	.014	.008	.003	
10.0	.118	.061	.023	.102	.053	.020	.071	.037	.014	.041	.022	.008	.013	.007	.003	

Uncorrected UGR Table

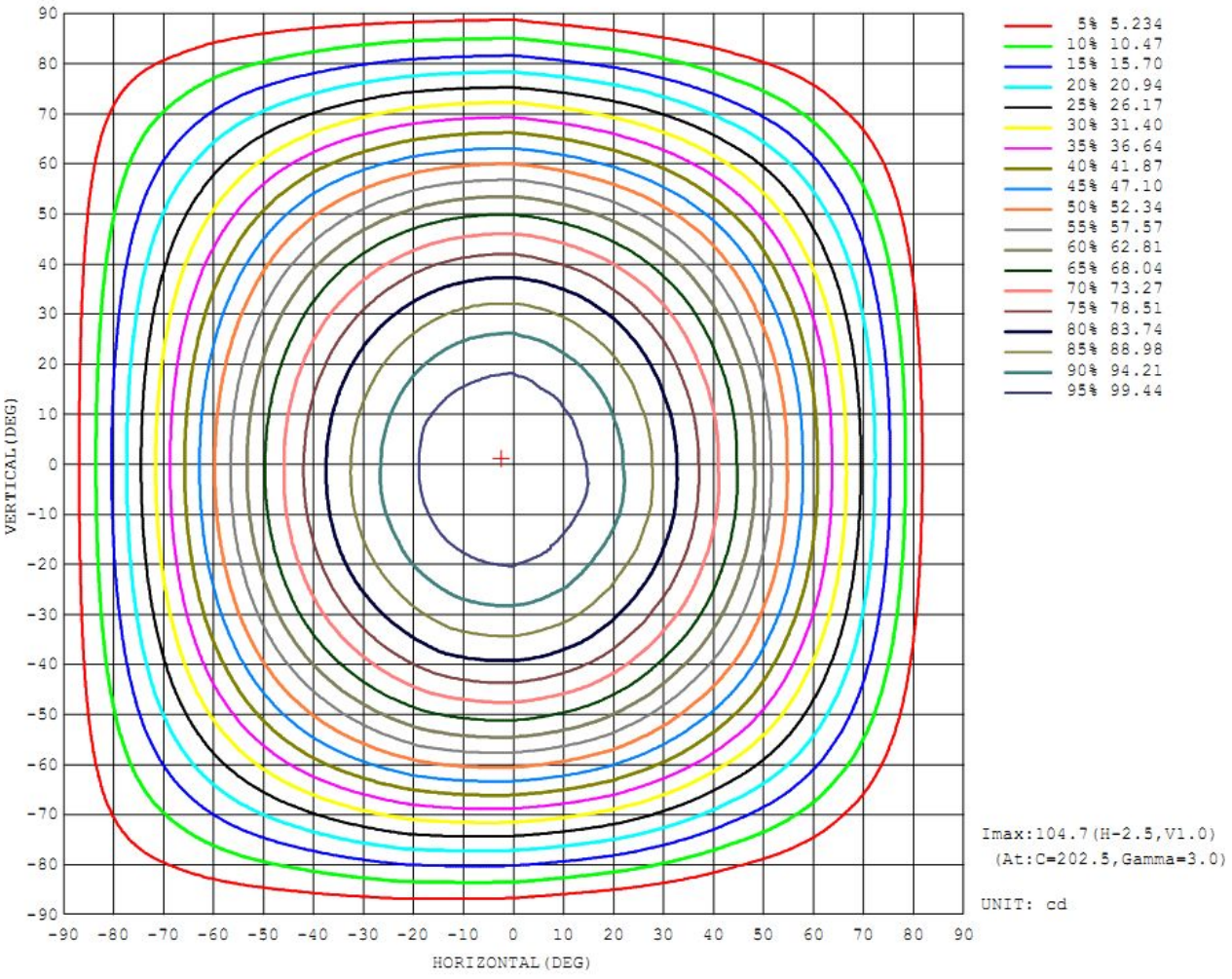
ceiling/cavity		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
x = 2H y =	2H	13.1	14.7	13.4	14.9	15.1	13.9	15.5	14.2	15.7	15.9
	3H	14.4	15.9	14.7	16.1	16.3	15.6	17.0	15.9	17.3	17.5
	4H	14.9	16.3	15.2	16.5	16.8	16.3	17.6	16.6	17.9	18.2
	6H	15.1	16.4	15.5	16.7	17.0	16.8	18.1	17.1	18.4	18.7
	8H	15.1	16.4	15.5	16.7	17.0	17.0	18.3	17.4	18.5	18.8
	12H	15.1	16.3	15.5	16.6	16.9	17.2	18.4	17.5	18.7	19.0
4H	2H	13.8	15.2	14.1	15.4	15.7	14.4	15.8	14.8	16.1	16.3
	3H	15.3	16.5	15.6	16.8	17.1	16.3	17.5	16.6	17.8	18.1
	4H	15.8	16.9	16.2	17.3	17.6	17.1	18.2	17.4	18.5	18.8
	6H	16.2	17.1	16.6	17.5	17.9	17.7	18.7	18.1	19.1	19.4
	8H	16.2	17.1	16.6	17.5	17.9	18.0	18.9	18.4	19.3	19.7
	12H	16.2	17.0	16.6	17.4	17.8	18.2	19.1	18.6	19.4	19.8
8H	4H	16.1	17.0	16.5	17.4	17.8	17.2	18.1	17.6	18.5	18.9
	6H	16.5	17.3	17.0	17.7	18.1	18.0	18.8	18.5	19.2	19.6
	8H	16.6	17.3	17.1	17.7	18.2	18.4	19.0	18.8	19.5	19.9
	12H	16.6	17.2	17.1	17.7	18.1	18.7	19.3	19.2	19.7	20.2
12H	4H	16.1	17.0	16.6	17.4	17.8	17.2	18.0	17.6	18.4	18.8
	6H	16.6	17.3	17.1	17.7	18.2	18.0	18.7	18.5	19.1	19.6
	8H	16.7	17.3	17.2	17.7	18.2	18.4	19.0	18.9	19.4	19.9
Variations with the observer position at spacings:											
S = 1.0H		+ 0.2 / - 0.2					+ 0.1 / - 0.2				
1.5H		+ 0.2 / - 0.4					+ 0.2 / - 0.3				
2.0H		+ 0.2 / - 0.4					+ 0.2 / - 0.3				

CIE Pub.117 Corrected 316.5 lm Total Lamp Luminous Flux.(8log(F/F0) = -4.0)

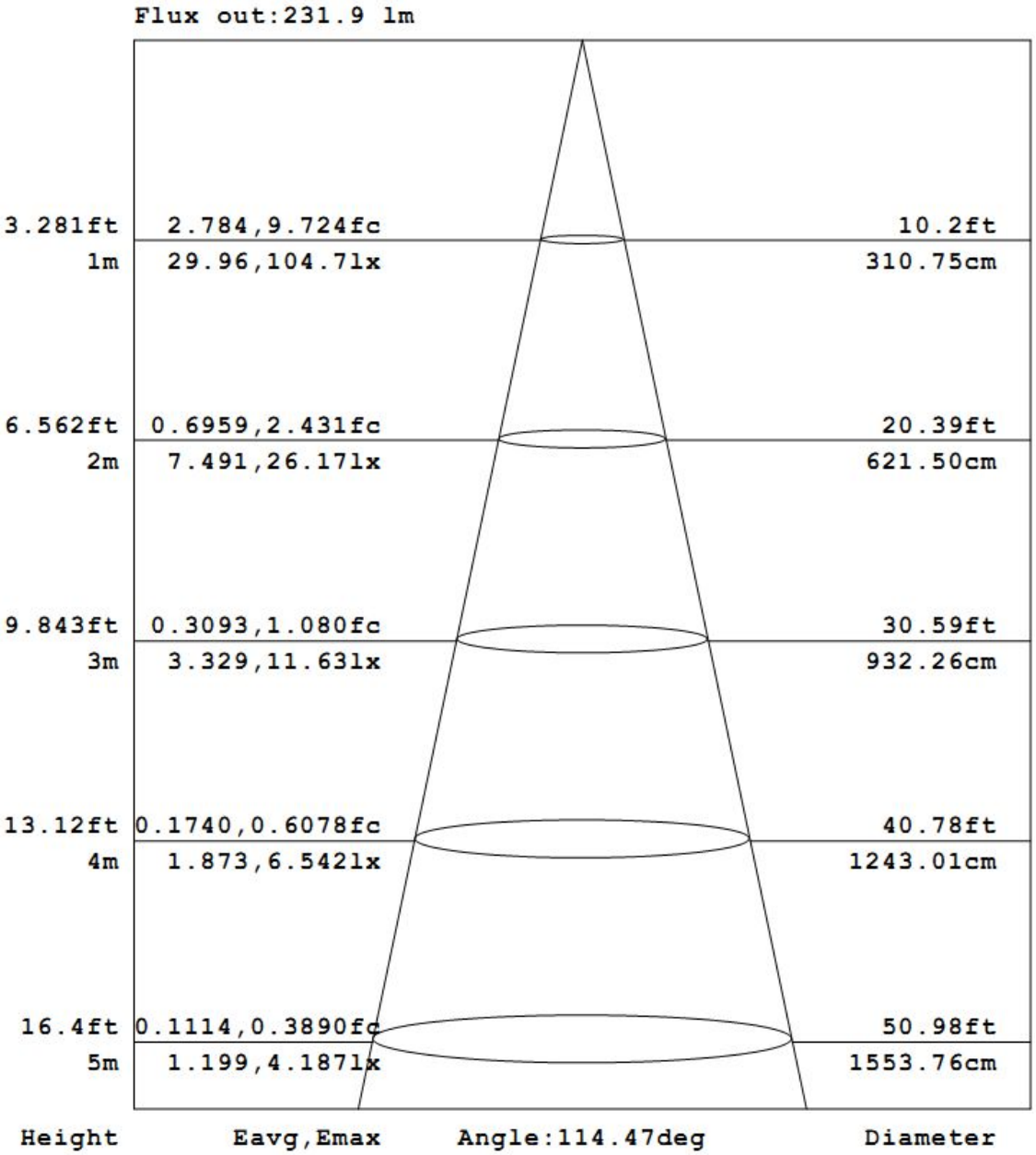
UTILIZATION FACTORS TABLE

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) x RCR = 5									
k = 0.60	56	45	38	56	44	37	55	44	37	31
0.80	67	55	47	65	54	47	64	53	47	40
1.00	75	64	56	74	63	56	71	64	55	48
1.25	82	71	64	81	71	64	78	69	63	55
1.50	87	77	70	85	76	69	82	74	68	61
2.00	94	85	79	92	84	78	89	82	76	68
2.50	98	90	84	96	89	83	92	86	81	73
3.00	102	95	89	99	93	88	95	90	86	77
4.00	106	100	95	103	98	94	99	95	91	82
5.00	108	103	99	106	101	97	101	98	94	85
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

ISOCANDELA DIAGRAM

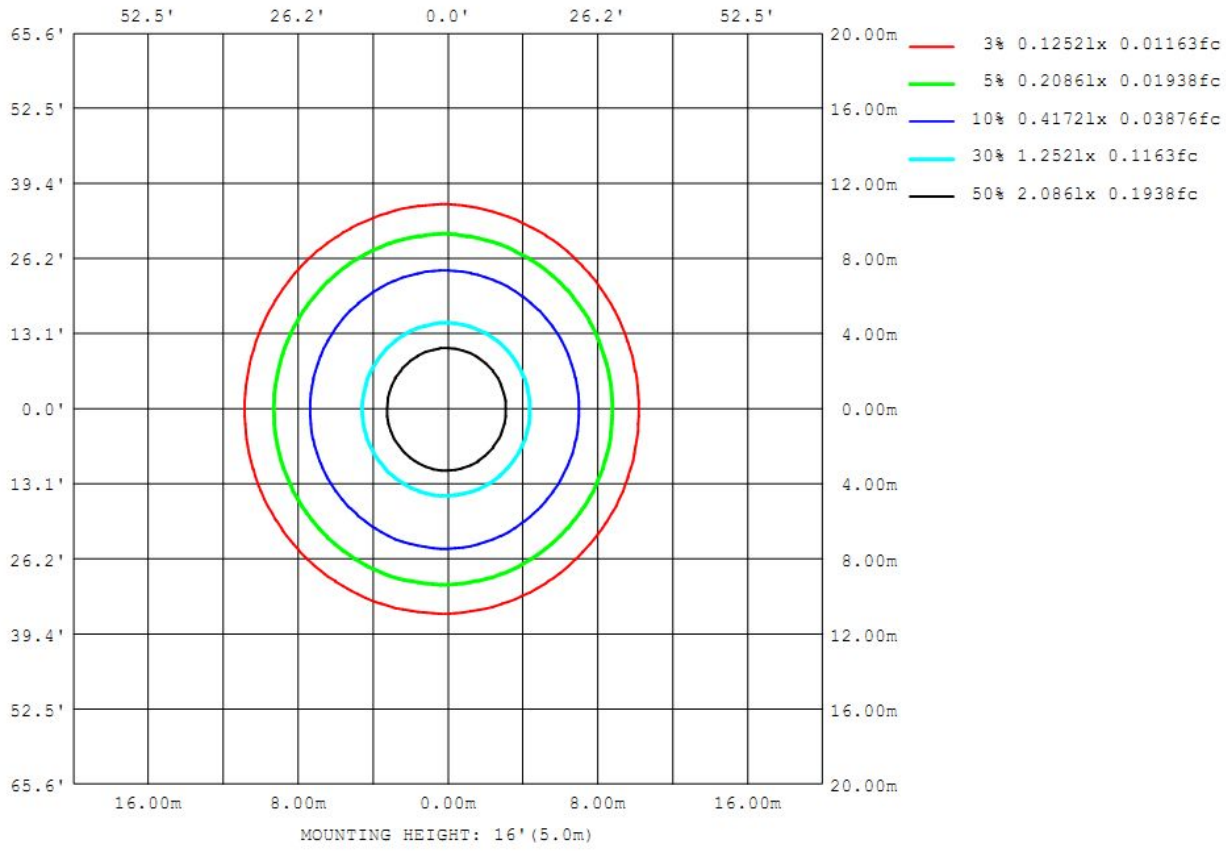


AAI Figure

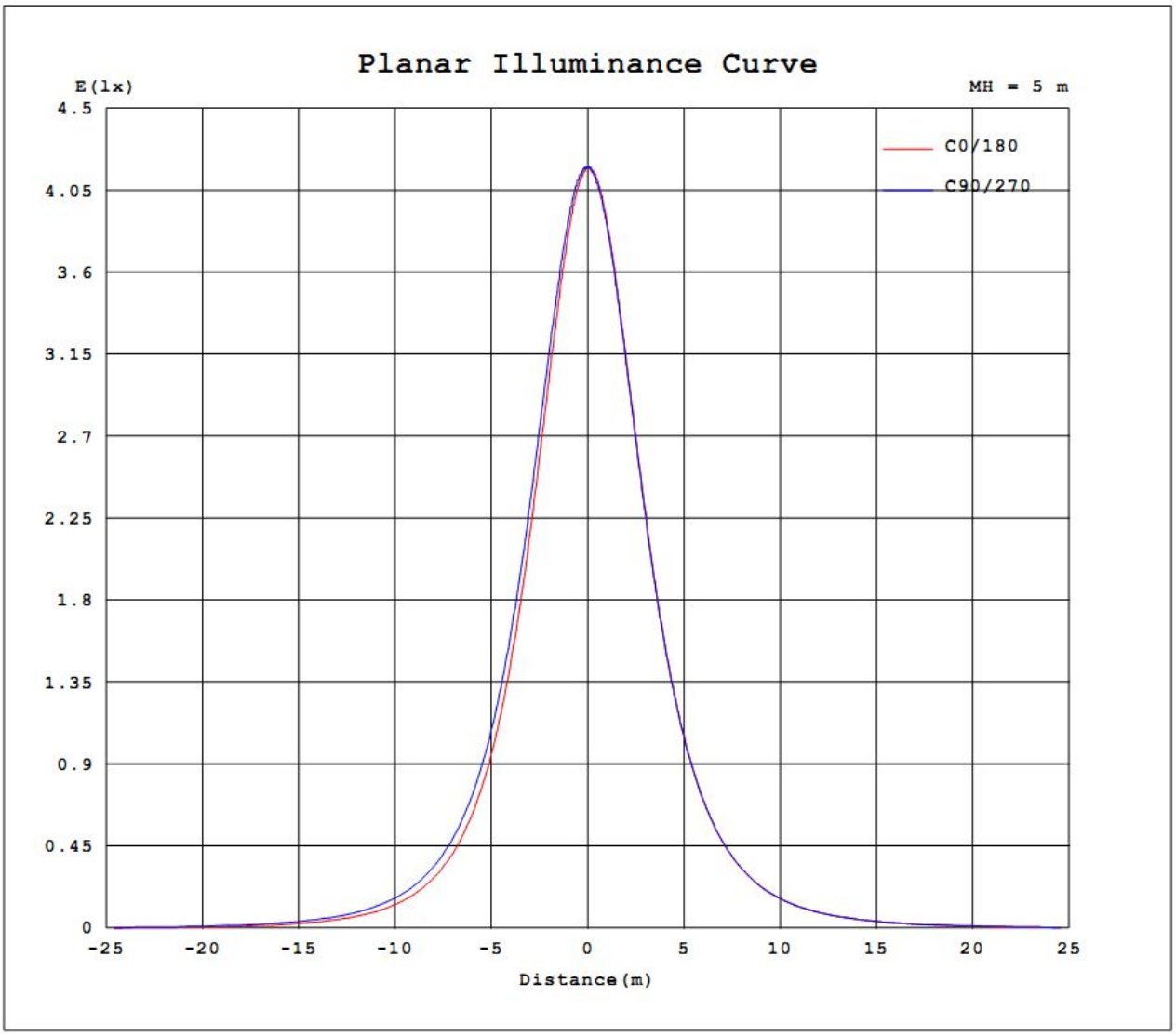


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

ISOLUX DIAGRAM



Planar Illuminance Curve

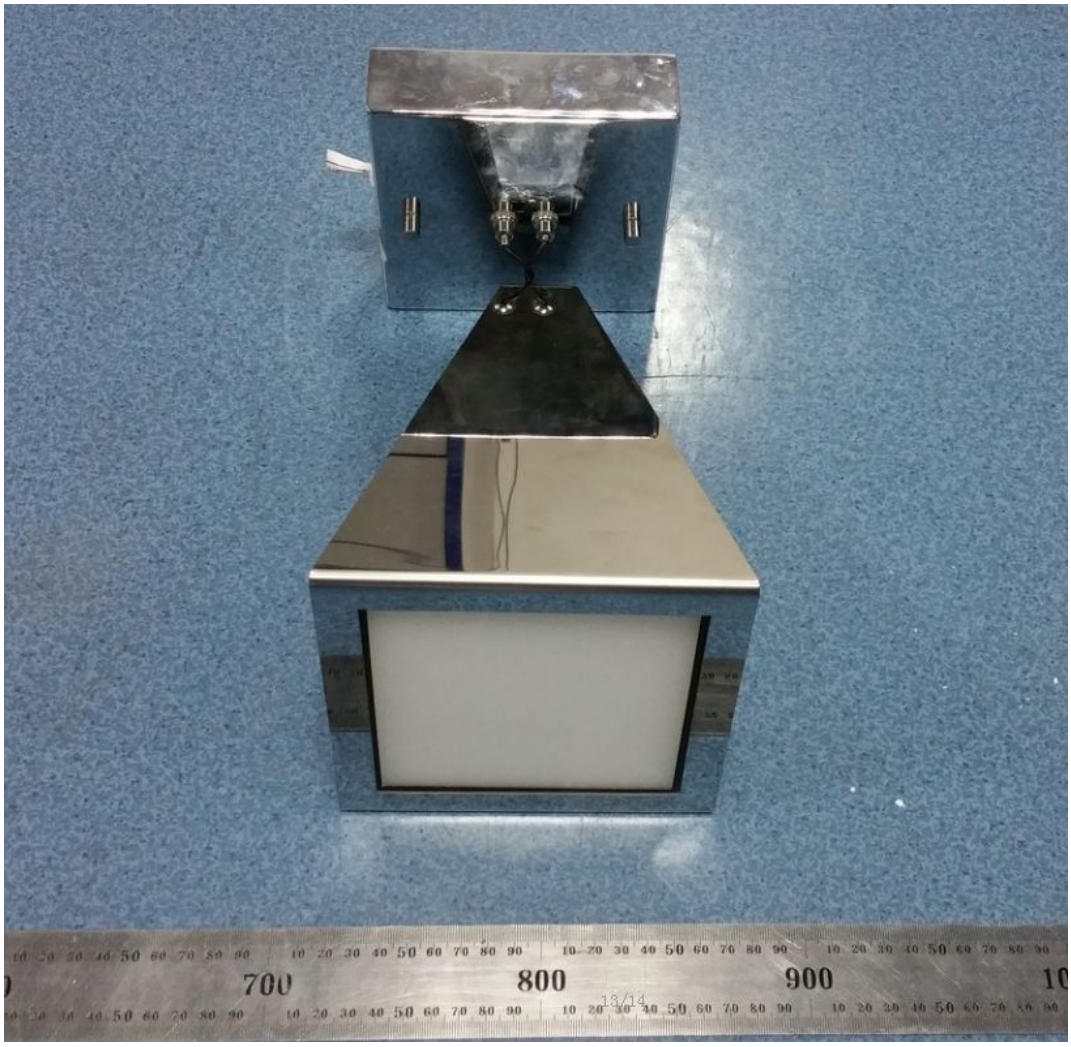


LUMINOUS DISTRIBUTION INTENSITY DATA

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	104	105	104	104	104	104	104	104	104	105	104	104	104	104	104	104			
5	103	104	104	104	104	104	104	104	104	104	104	104	104	103	103	103			
10	102	102	102	103	104	103	103	103	103	103	103	103	103	102	102	101			
15	99.0	99.7	100	101	102	102	102	102	101	102	101	101	101	100	99.3	98.8			
20	95.7	96.5	97.5	98.7	99.6	99.8	99.6	99.3	98.9	99.1	98.8	98.4	98.3	97.3	96.6	95.6			
25	91.8	92.7	93.8	95.4	96.5	96.8	96.5	96.0	95.6	95.5	95.3	95.4	95.1	93.6	92.7	91.5			
30	86.6	87.7	89.3	91.4	92.8	93.0	92.5	92.0	91.4	91.0	91.0	91.2	91.0	89.4	88.1	86.9			
35	80.9	82.1	84.1	86.9	88.5	89.0	88.1	87.2	86.5	86.1	86.2	86.6	86.2	84.4	82.7	81.1			
40	74.5	76.0	78.4	81.3	83.2	83.8	82.6	81.7	80.7	80.8	80.7	80.9	80.5	78.9	76.8	75.0			
45	67.7	69.2	71.6	75.0	76.9	77.6	76.4	75.4	74.7	74.6	74.6	75.0	74.5	72.4	70.1	68.2			
50	60.0	61.6	64.1	67.9	69.9	70.8	69.4	68.3	67.8	67.5	68.0	68.2	67.7	65.4	63.0	60.6			
55	52.0	53.4	56.0	60.0	62.2	63.1	61.8	60.8	60.3	60.0	60.6	60.7	60.3	57.6	55.0	52.6			
60	43.3	44.8	47.5	51.2	53.4	54.6	53.6	52.6	51.9	51.9	52.5	52.5	52.1	49.4	46.6	44.1			
65	34.3	35.7	38.3	41.7	44.1	45.2	44.9	43.8	43.3	43.2	44.0	44.0	43.7	40.8	37.8	35.1			
70	25.1	26.3	28.5	32.0	34.4	35.8	35.3	34.6	34.3	34.2	35.0	35.4	35.1	32.1	28.7	26.1			
75	16.2	17.1	18.8	22.5	25.0	26.3	25.5	25.4	25.2	25.1	25.7	26.6	26.4	23.4	19.6	17.2			
80	7.90	8.41	10.2	13.7	16.2	17.1	16.2	16.1	16.4	16.2	16.8	17.9	18.1	15.1	11.3	8.66			
85	0.91	1.18	2.60	5.58	8.20	8.77	7.77	7.43	8.13	7.84	8.83	10.1	10.4	7.49	4.09	1.80			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.52	1.03	1.14	1.76	1.48	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	0.02	0.00	0.02	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	0.05	0.00	0.02	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	0.06	0.00	0.05	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
125	0.00	0.05	0.00	0.06	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
130	0.00	0.08	0.00	0.09	0.00	0.06	0.00	0.07	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00			
135	0.00	0.08	0.00	0.09	0.00	0.10	0.00	0.09	0.04	0.00	0.02	0.00	0.01	0.00	0.02	0.00			
140	0.01	0.11	0.02	0.13	0.00	0.14	0.00	0.10	0.04	0.00	0.04	0.00	0.04	0.00	0.04	0.00			
145	0.02	0.16	0.01	0.14	0.01	0.15	0.00	0.12	0.04	0.00	0.05	0.00	0.05	0.00	0.05	0.00			
150	0.02	0.16	0.04	0.16	0.02	0.16	0.01	0.13	0.06	0.00	0.06	0.00	0.06	0.00	0.06	0.00			
155	0.08	0.16	0.05	0.18	0.05	0.16	0.05	0.13	0.10	0.00	0.07	0.00	0.07	0.00	0.07	0.00			
160	0.08	0.16	0.05	0.18	0.07	0.17	0.04	0.13	0.08	0.01	0.12	0.01	0.13	0.00	0.13	0.00			
165	0.08	0.16	0.11	0.18	0.10	0.17	0.05	0.13	0.08	0.02	0.14	0.02	0.13	0.05	0.15	0.02			
170	0.17	0.15	0.16	0.18	0.15	0.16	0.13	0.12	0.08	0.04	0.14	0.07	0.13	0.05	0.15	0.04			
175	0.17	0.14	0.18	0.19	0.17	0.16	0.18	0.11	0.08	0.06	0.13	0.11	0.13	0.13	0.15	0.06			
180	0.12	0.12	0.17	0.15	0.18	0.15	0.16	0.11	0.08	0.08	0.08	0.13	0.13	0.15	0.15	0.07			

Photo Document



Test Equipment List

Device	Manufacture	Model No.	Serial No.	Calibration due date
Goniophotometeric System	EVERFINE	GO-R5000	YG111493N1 2040001	2015-12-23
AC Power Source	ALL POWER	APW-105N	971499	2016-05-27
Total Luminous Flux Standard Lamp	SENSING	24V/50W	LSD245120	2016-05-06
Digital Power Meter	YOKOGAWA	WT210	91K310011	2016-03-16
Integral Sphere	SENSING	Diameter 2.0M	A130301235	2015-12-23
Optical Color and Electrical Measurement System	SENSING	SPR-3000	A130301237	2015-12-23
Temperature/humidity/clock	Shanghai Meteorological Instrument Factory Co., Ltd.	ZJ1-2B	808187	2016-11-25

End of report