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# **Test Report**

Client : JIAXING ITEL ELECTRICS TECHNOLOGY LIMITED

1st and 2nd floors of Building 3, West Zone, No. 211 Yanbei Road, Wuyuan Street, Address :

Haiyan County, Jiaxing City, Zhejiang Province

#### Description of the submitted sample(s):

Sample Name : All In One Solar Street Light

Model/Type : IBA-LA12

Trademark : itel

Address

Ratings : 3.2V, 100W (Built-in battery pack), 7500K, 9000 lm

Test Item : LM-79-19
State of Sample(s) : Normal
Sample Quantity : 1 PCS

Manufacturer : JIAXING ITEL ELECTRICS TECHNOLOGY LIMITED

1st and 2nd floors of Building 3, West Zone, No. 211 Yanbei Road,

Wuyuan Street, Haiyan County, Jiaxing City, Zhejiang Province

Sample Received Date : 2025-07-11
Sample tested Date : 2025-07-11
Test Standard : LM-79-19

Test Laboratory : Shenzhen AOCE Electronic Technology Service Co., Ltd

Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu

Testing location : Industrial Park, Fuhai Street, Baoan District, Shenzhen,

Guangdong, China

The tested sample(s) and the sample information are provided by

Remark : the client.

Compiled by: Fill kin Reviewed by: John word

Approved by: **Lobin** . **Lin** Date : <u>2025-07-31</u>

Robin Liu Lab Supervisor

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# **Summary of Result**

Test Item	Test Result		
rest item	Luminous Flux (lm)	Luminous Efficacy (lm/W)	
Integrating Sphere Test	8350.419	83.88	
Goniophotometer Test	8401.72	84.50	

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#### 1 Test Condition

#### 1.1 Air Temperature

The ambient temperature in which measurements are being taken shall be maintained at 25°C±1°C, measured at a point not more than 1 m from the SSL product and at the same height as the SSL product. The temperature sensor shall be shielded from direct optical radiation from the SSL product and optical radiation from any other source. If measurements are performed at other than this recommended temperature, this is a non-standard condition and shall be noted in the test report.

#### 1.2Thermal Conditions for Mounting SSL Products

The method of mounting can be the primary path for heat flow away from the device and can affect measurement results significantly. The SSL product under test shall be mounted to the measuring instrument so that heat conduction through supporting objects causes negligible cooling effects. If the SSL product under test is provided with a support structure that is designated to be used as a component of the luminaire thermal management system, the product shall be tested with the support structure attached. Any such support structure included in the measurement shall be reported.

#### 1.3 Air Movement

The incidence of air movements on the surface of a SSL product under test may substantially after electrical and photometric values. Air flow around the SSL product being tested should be such that normal convective air flow induced by device under test is not affected.

#### 1.4Waveshape of AC Power Supply

The AC power supply, while operating the SSL product, shall have a sinusoidal voltage waveshapeat the prescribed frequency typically 50/60 Hz or 50 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

#### 1.5 Voltage Regulation

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

#### 1.6 Seasoning

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

#### 1.7 Stabilization

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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 to 2 or more hours for large SSL products.

#### 1.8 Operating Orientation

The SSL product under test shall be evaluated in the operating orientation recommended by the manufacturer for an intended use of the SSL product. Stabilization and photometric measurements of SSL products shall be done in such operating orientation.

#### 2 Test Method

#### 2.1 Integrating Sphere Measurement

The integrating sphere system includes AC power source, digital power meter, DC power supply, spectrophotometer, and integrating sphere. The system is calibrated by standard lamp before measurement weekly. The standard lamp has been calibrated regularly and traced to the National Primary Standard.

The  $4\pi$  geometry was used to measure total luminous, luminous efficacy, chromaticity coordinates, correlated color temperature, and color rendering index, the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm. The product was operated in its intended orientation and was recorded in the report.

#### 2.2 Goniophotometer Measurement

The goniophotometer system is calibrated by standard lamp before measurement weekly. The standard lamp has been calibrated regularly and traced to National Primary Standards.

Type C goniophotometer was used for measuring total luminous flux, luminous efficacy, luminous intensity distribution, and color angular uniformity, which were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. The product was operated in its intended orientation and was recorded in the report.

#### 2.3 Electrical Measurement

According to ANSI C82.77-2002, the measurement was made using a digital power meter and power supply, the SSL product under test was operated at rated voltage and stabilized enough before measurement. The total harmonic distortion of current and power factor can be calculated from the digital power meter. The digital power meter was calibrated regularly and traced to National Primary Standards.

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# 3 Test Result

### 3.1 Integrating Sphere

Temperature (°C)	Test Humidity	Orientation	Stabilization Time(min)	Test Time(min)	Number of hours operated prior to measurement
24.8	48.3%	Face down	10	5	0

Input Voltage	Frequency	Current	Power Factor	Power
(V)	(Hz)	(A)		(W)
3.2	N/A	31.11	N/A	99.55

Luminous Flux	Radiant Flux	CCT	Duv	Luminous Efficacy
(lm)	(W)	(K)		(lm/W)
8350.419	26.229	7282	+0.0061	83.88

Ra	SDCM	X	у	u'	V'
66.4	3.49	0.3006	0.3224	0.1919	0.4629

R1	R2	R3	R4	R5
66	68	69	68	69
R6	R7	R8	R9	R10
60	73	59	-41	24
R11	R12	R13	R14	R15
70	40	66	82	60

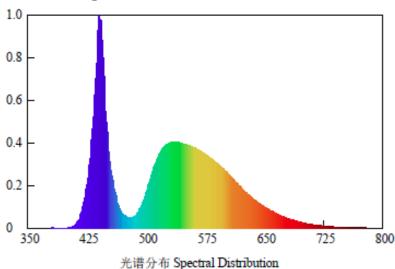
# **Spectral Distribution & Chromaticity Diagram**

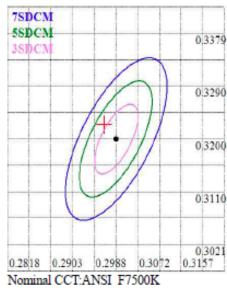
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# 光色参数 Spectroradiometric Parameters





x0=0.3006 y0=0.3224

峰值波长 Peak Wavelength: 442.1 nm

辐射通量 Radiant Flux: 26.229 W

谱线带宽 Bandwidth: 18nm

主波长 Dominant Wavelength: 487.0 nm(E)

色品坐标 Chromaticity Coordinates: x=0.3006 y=0.3224 u'=0.1919 v'=0.4629

相关色温 Correlated Color Temperature: 7282 K

显色指数 Rendering Index: Ra=66.4

色纯度 Purity: 0.1184

光通量 Luminous Flux: 8350.419 lm

色比 Color Ratio: Kr=26.7% Kg=63.1% Kb=10.3%

色 容 差 Color Tolerance(SDCM): 3.4862

色偏差 Chromaticity Difference: +0.0061Duv

R1=66 R2=68 R3=69 R4=68 R5=69 R7=73 R8=59 R6=60

R9=-41 R10=24 R11=70 R12=40 R13=66 R14=82 R15=60

#### 3.2. Goniophotometer

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Temperature (°C)	Test Humidity	Orientation	Stabilization Time(min)	Test Time(min)	Number of hours operated prior to measurement
24.9	48.3%	Face forward	15	30	0

Input Voltage	Frequency	Current	Power Factor	Power
(V)	(Hz)	(A)		(W)
3.2	N/A	31.07	N/A	99.43

Luminous Flux	CBCP	Field Angle	Beam Angle	Luminous Efficacy
(lm)	(cd)	(10%)	(50%)	(lm/W)
8401.72	3252.267	129.3*130.2	90.0*130.2	84.50

#### Photometric Results

Lumens(lm): 8401.72

Efficiency(%):

Lumens(lm)/Power(W): 84.50 Central intensity(cd): 2671.462 Maximum intensity(cd): 3252.267

Angle of maximum intensity: C=60.0  $\gamma$ =25.0 Beam Angle(50%Imax): [C0/180]Total=90.0

[C90/270]Total=130.2

Field angle(10%Imax): [C0/180]Total=129.3

[C90/270]Total=147.4

Maximum s/h(1/2): C0\_180=1.25 C90\_270=1.76 Maximum s/h(1/4): C0\_180=1.26 C90\_270=1.78

Up flux rate of lamp(%): 0.64% Down flux rate of lamp(%): 46.04% Up flux rate of LUM(%): 1.37% Down flux rate of LUM(%): 98.63%

CIE Type : Direct lighting

Output flux ratio in  $\pi$  solid angle : 85.679%

#### 4.1. Zonal flux distribution table

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γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)
0.0	2672.928	.000	.000
5.0	2690.900	64.123	64.123
10.0	2771.251	195.398	259.521
15.0	2833.329	332.460	591.981
20.0	2829.291	466.680	1058.661
25.0	2800.803	590.493	1649.154
30.0	2751.584	702.659	2351.813
35.0	2661.018	797.044	3148.856
40.0	2494.439	860.149	4009.005
45.0	2271.904	882.527	4891.532
50.0	1971.603	857.463	5748.995
55.0	1637.081	784.648	6533.643
60.0	1239.131	664.828	7198.471
65.0	780.211	490.906	7689.376
70.0	348.558	285.812	7975.188
75.0	191.116	141.062	8116.250
80.0	134.412	87.102	8203.353
85.0	72.134	56.123	8259.476
90.0	27.813	27.366	8286.842
95.0	12.039	10.912	8297.754
100.0	9.726	5.914	8303.668
105.0	8.491	4.874	8308.542
110.0	11.235	5.156	8313.698
115.0	13.504	6.264	8319.962
120.0	15.918	7.153	8327.114
125.0	18.288	7.907	8335.021
130.0	20.314	8.393	8343.414
135.0	22.096	8.569	8351.983
140.0	23.863	8.510	8360.493
145.0	25.630	8.257	8368.751
150.0	27.181	7.777	8376.527
155.0	28.618	7.061	8383.589
160.0	30.026	6.151	8389.739
165.0	31.319	5.056	8394.795
170.0	32.411	3.780	8398.575
175.0	33.244	2.349	8400.924
180.0	33.617	.799	8401.723

### 4.2. Zonal flux distribution table

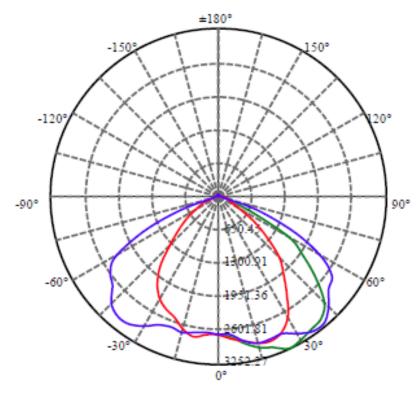
	ZONAL LUM	IEN SUMMARY	
Zone	Lumens	%Lamp	%Fixt
0-30	2351.81	N.A.	27.99%
0-40	4009.01	N.A.	47.72%
0-60	7198.47	N.A.	85.68%
0-90	8286.84	N.A.	98.63%
0-120	8327.11	N.A.	99.11%
0-180	8401.72	N.A.	100.00%
60-90	1753.20	N.A.	20.87%
90-120	67.64	N.A.	0.81%
90-130	83.94	N.A.	1.00%
90-150	117.05	N.A.	1.39%
90-180	141.45	N.A.	1.68%
0-56.41	6721.38	N.A.	80.00%

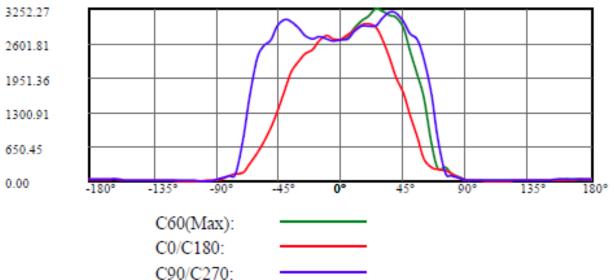
ZONAL LUMI	EN SUMMARY
0-10	259.52
10-20	799.14
20-30	1293.15
30-40	1657.19
40-50	1739.99
50-60	1449.48
60-70	776.72
70-80	228.16
80-90	83.49
90-100	16.83
100-110	10.03
110-120	13.42
120-130	16.30
130-140	17.08
140-150	16.03
150-160	13.21
160-170	8.84
170-180	2.35

# 4.3. Light Distribution Curve

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Field angle(10%Imax):C0/180Left:85.6 Right:43.7

:C90/270Left:108.6 Right:38.7

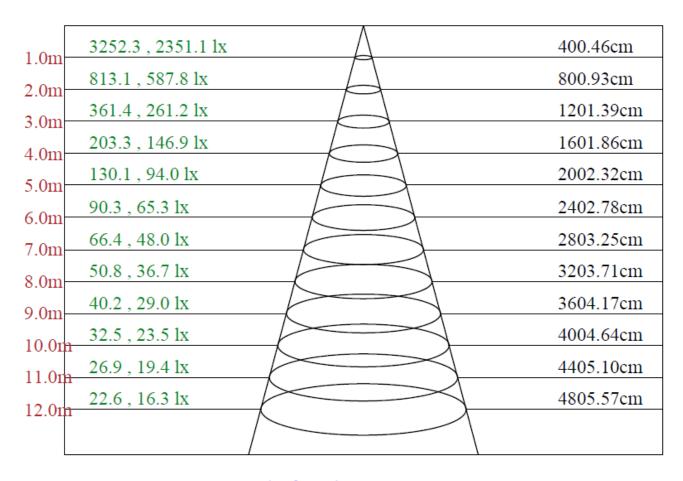
Beam Angle(50%Imax):C0/180Left:62.9 Right:27.1

:C90/270Left:99.8 Right:30.4

#### 4.4. Lux distance Curve

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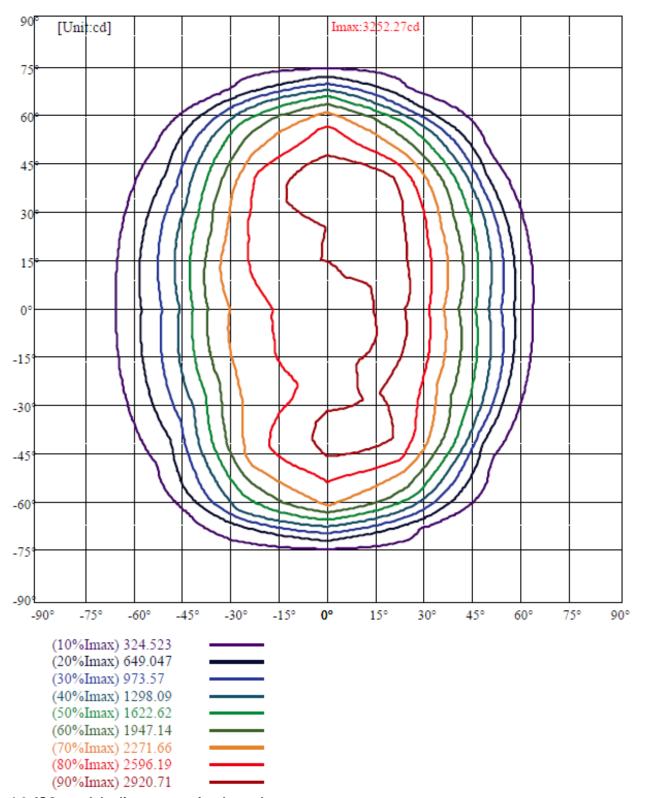
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Max , Ave Beam angle of C60plane126.71

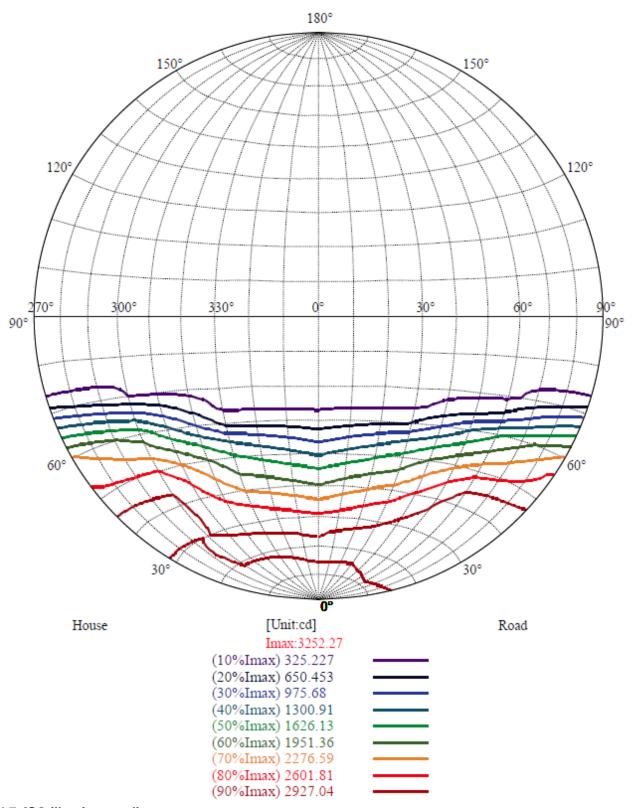
### 4.5. ISO-Intensity(V-H)

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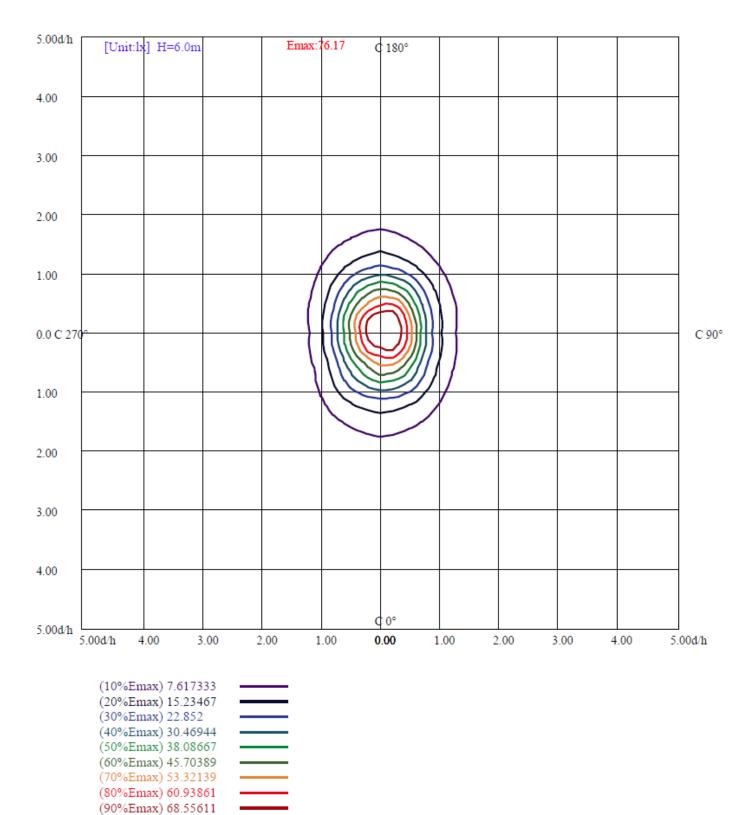
4.6. ISO candela diagram on circular web

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# 4.7. ISO illuminance diagram

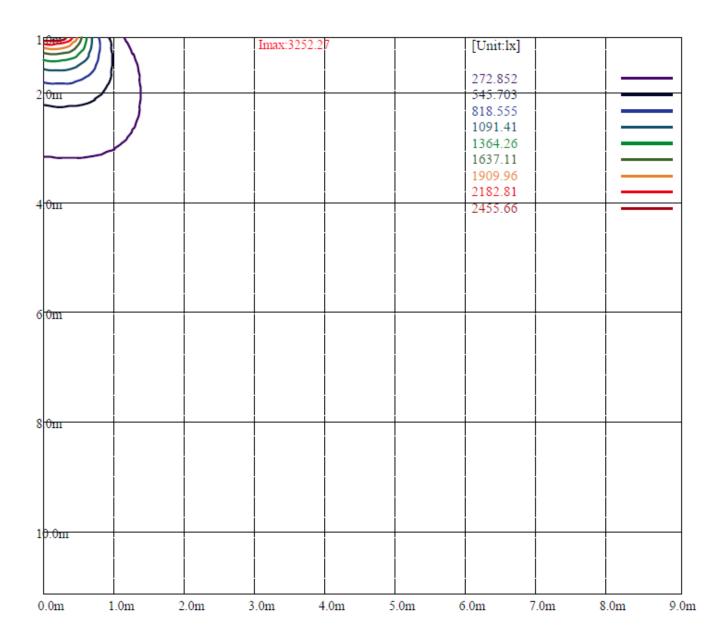
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# 4.8. Space ISO Lux diagram

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# 4.9. Luminance Limitting Curve(no luminous side)

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#### Luminance Table

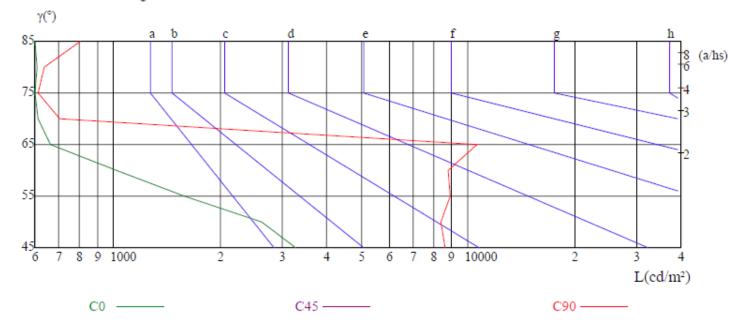
γ	45	50	55	60	65	70	75	80	85
C0	3260	2613	1590	1020	663	612	601	606	405
C45	0	0	0	0	0	0	0	0	0
C90	8652	8394	8893	8823	10625	706	611	638	805

]	L横(65)	L纵(65)	L45(65)	L横(75)	L纵(75)	L45(75)	L横(85)	L纵(85)	L45(85)
5	864	10966	0	957	666	0	1003	1052	0

#### Glare Table

Glare	Quality		Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300					
1.5	В		2000	1000	500	<=300				
1.85	C			2000	1000	500	<=300			
2.2	D				2000	1000	500	<=300		
2.55	Е					2000	1000	500	<=300	
		a	b	с	d	e	f	g	h	

### Luminance Limitting Curve



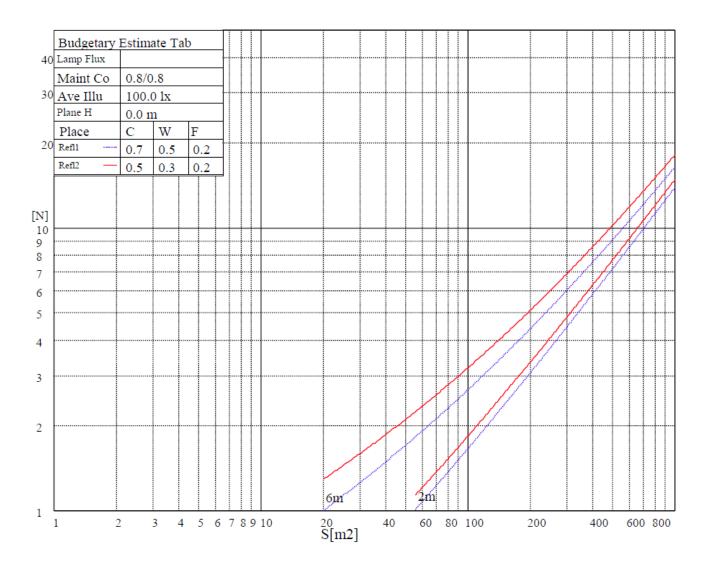
### 4.10. UGR Glare

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Rf of C	Ceiling	70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor 20 20 20 20 2				20	20	20	20	20			
Room	dimension	ıs	Viewe	d crosswi	se			Viewe	d endwise	:	
X	Y										
2H	2H	8.2	9.1	9.0	10.0	11.1	8.8	9.8	9.6	10.6	11.7
	3H	8.5	9.4	9.3	10.2	11.3	9.1	10.0	10.0	10.8	11.9
	4H	8.7	9.5	9.6	10.4	11.5	9.4	10.2	10.2	11.0	12.1
	6H	9.0	9.7	9.9	10.6	11.7	9.7	10.4	10.5	11.3	12.4
	8H	9.1	9.8	9.9	10.7	11.7	9.8	10.5	10.7	11.4	12.4
	12H	9.2	9.8	10.0	10.7	11.9	9.9	10.6	10.8	11.5	12.6
4H	2H	8.6	9.4	9.4	10.2	11.3	9.2	10.1	10.1	10.9	12.0
	3H	9.0	9.7	9.9	10.6	11.7	9.7	10.3	10.5	11.2	12.3
	4H	8.2	9.1	9.0	10.0	11.1	8.8	9.8	9.6	10.6	11.7
	6H	9.5	10.1	10.5	11.0	12.2	10.2	10.8	11.2	11.7	12.9
	8H	9.7	10.2	10.6	11.1	12.3	10.4	10.9	11.4	11.9	13.0
	12H	9.8	10.3	10.8	11.2	12.4	10.6	11.1	11.5	12.0	13.2
8H	4H	9.4	9.9	10.3	10.8	12.0	10.1	10.6	11.0	11.5	12.6
	6H	9.8	12.9	10.7	11.2	12.3	10.5	13.5	11.4	11.8	13.0
	8H	10.0	10.4	11.0	11.4	12.5	10.7	11.1	11.6	12.1	13.2
	12H	10.3	10.7	11.2	13.9	12.8	11.1	11.4	12.0	14.6	13.6
12H	4H	9.4	9.8	10.3	10.8	11.9	10.0	10.5	11.0	11.4	12.6
	6H	10.3	10.2	10.8	11.1	12.3	10.9	10.9	11.4	11.8	13.0
	8H	10.1	10.4	11.0	11.4	12.6	10.7	11.1	11.7	12.0	13.3
Variati	ion with th	e observ	er positio	n at spaci	ngs:		•				
S	= 1.0H			1.4/-0.	9				0.8/-2.		
S	= 1.5H			2.0/-1.	4				2.2/-4.	7	
	= 2.0H			3.6/-6.	5				3.7/-4.9	9	
Standa	rd tables:			BK1					BK2		
Uncon	rected UG	R		3.5					-2.3		

# 4.11. Budgetary Estimate Table

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# 4.12. Utilization factor table for indoor luminaire

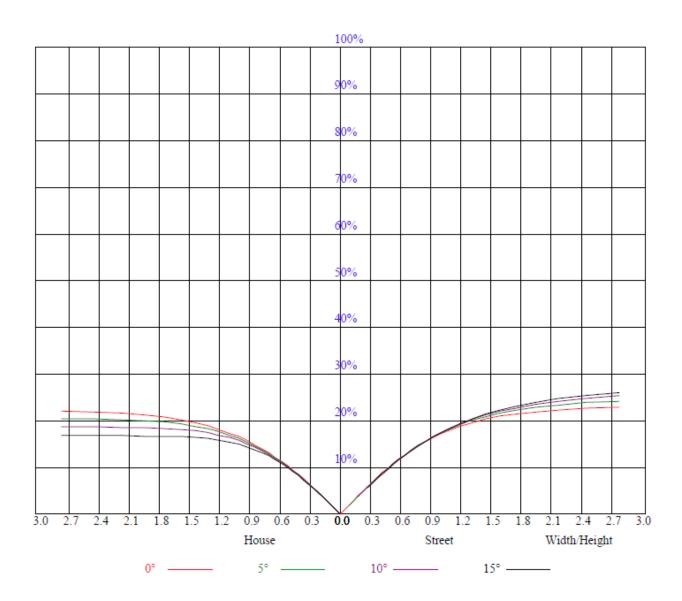
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RHOCC		80			70			50			30			10		0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR					COEF	FCIENT	S OF U	TILIZA	TION R	HOFC=	=20 C	U				
0	0.55	0.55	0.55	0.54	0.54	0.54	0.52	0.52	0.52	0.49	0.49	0.49	0.47	0.47	0.47	0.46
1	0.49	0.47	0.46	0.48	0.46	0.45	0.46	0.45	0.43	0.44	0.43	0.42	0.42	0.41	0.41	0.40
2	0.43	0.40	0.38	0.42	0.40	0.37	0.41	0.38	0.37	0.39	0.37	0.36	0.38	0.36	0.35	0.34
3	0.38	0.35	0.32	0.38	0.34	0.32	0.36	0.33	0.31	0.35	0.32	0.30	0.33	0.31	0.30	0.29
4	0.34	0.30	0.27	0.33	0.30	0.27	0.32	0.29	0.27	0.31	0.28	0.26	0.30	0.28	0.26	0.25
5	0.30	0.26	0.23	0.30	0.26	0.23	0.29	0.26	0.23	0.28	0.25	0.23	0.27	0.24	0.22	0.21
6	0.27	0.23	0.20	0.27	0.23	0.20	0.26	0.23	0.20	0.25	0.22	0.20	0.24	0.22	0.20	0.19
7	0.25	0.21	0.18	0.24	0.21	0.18	0.24	0.20	0.18	0.23	0.20	0.18	0.22	0.19	0.17	0.16
8	0.23	0.19	0.16	0.22	0.19	0.16	0.22	0.18	0.16	0.21	0.18	0.16	0.20	0.18	0.16	0.15
9	0.21	0.17	0.14	0.20	0.17	0.14	0.20	0.16	0.14	0.19	0.16	0.14	0.19	0.16	0.14	0.13
10	0.19	0.15	0.13	0.19	0.15	0.13	0.18	0.15	0.13	0.18	0.15	0.13	0.17	0.15	0.13	0.12

### 4.13. Coefficient Utilization Curve

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# 4.14. Intensity data(cd)

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C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	<b>40.0</b> C/γ(°)	180.0
0.0	2671.46	2757.83	2840.24	2940.57	2978.33	2901.10	2677.67	2320.46	1961.88 0.0	32.93
30.0	2662.50	2738.87	2837.14	2924.89	2989.88	3029.70	2876.62	2679.05	2389.94 30.0	33.10
60.0	2674.05	2724.56	2891.44	3021.43	3106.59	3252.27	3210.55	3131.93	3092.97 60.0	33.45
								3182.62	3178.83 90.0	34.31
90.0	2669.74	2689.56	2833.34	2929.54	2938.51	2927.82	3073.15		31/8.83 90.0	
120.0	2675.08	2714.73	2813.35	2894.03	2837.48	2738.87	2788.87	2833.17	2787.31 120.0	34.13
150.0	2684.74	2674.57	2731.11	2784.21	2746.80	2659.40	2567.16	2398.73	2072.04 150.0	33.79
180.0	2671.46	2679.91	2746.80	2655.43	2493.20	2401.66	2267.71	2059.97	1725.35 180.0	32.93
210.0	2662.50	2637.33	2670.77	2662.33	2574.75	2466.48	2400.45	2194.96	<b>1897.40</b> 210.0	33.10
240.0	2674.05	2618.02	2672.84	2723.01	2699.05	2541.65	2500.96		2549.23 240.0	33.45
270.0	2669.74	2636.47	2681.46	2717.32	2686.46	2744.90	2890.41	3017.46	3041.43 270.0	34.31
300.0	2675.08	2679.39	2736.11	2851.62	2948.68	2985.91	2931.78	2972.47	<b>2970.92</b> 300.0	34.13
330.0	2684.74	2739.56	2800.42		2951.78	2959.88	2833.69		2265.99 330.0	33.79
360.0	2671.46	2757.83	2840.24	2940.57	2978.33	2901.10	2677.67	2320.46	1961.88 360.0	32.93
200.0	20/11/0	2707100	2010.21	2540.07	2570.00	2701.10	2077.07	2020.40	1501.00 200.0	02.00
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	
0.0	1660.35	1249.88	829.40	428.75	252.73	214.98	196.19	151.36	68.96	
30.0	2028.08	1732.07	1301.94	662.00	262.73	194.29	162.92	130.68	87.23	
60.0	2886.61	2456.48	1990.50		736.48	249.46	254.80	135.16	81.37	
90.0	3008.67	2796.11	2672.67	2303.91	1651.74	811.64	151.54	99.30	63.27	
120.0	2665.43	2358.73	2051.18	1736.90	1145.75	343.24	269.80	187.22	67.06	
150.0	1783.10	1442.45	1116.96	706.31	396.69	205.67	155.16	114.30	75.68	
180.0	1319.01	1011.11	734.76	519.26	314.62	171.19	134.99	94.82	45.00	
210.0	1591.05	1239.88	933.36	600.80	346.35	187.22	143.43	104.64	64.99	
240.0	2539.23	2411.83	2038.25	1670.35	1326.42	508.74	241.18	191.71	78.79	
270.0	2928.16	2668.70	2555.09	2299.60	1569.33	782.85	144.47	92.23	57.75	
300.0	2923.10	2607.68	2154.96		1120.06	326.35	282.21	189.98	98.78	
		1684.32	2154.90	1600.34						
330.0	1951.36		1265.91	562.19	239.63	187.05	156.71	121.54	76.72	
360.0	1660.35	1249.88	829.40	428.75	252.73	214.98	196.19	151.36	68.96	
C1/(0)	00.0	05.0	100.0	105.0	1100	1150	120.0	125.0	120.0	
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0	
0.0	28.27	16.55	16.55	5.86	6.21	7.93	10.00	12.24	14.31	
	28.27 24.48	16.55 16.38	16.55 9.31	5.86 6.55	6.21 8.28	7.93 10.52	10.00 12.76	12.24 15.34	14.31 17.76	
0.0	28.27	16.55 16.38	16.55	5.86 6.55 11.21	6.21	7.93	10.00 12.76 19.31	12.24	14.31	
0.0 30.0 60.0	28.27 24.48 27.93	16.55 16.38 14.14	16.55 9.31 10.69	5.86 6.55 11.21	6.21 8.28 14.31	7.93 10.52 17.07	10.00 12.76 19.31	12.24 15.34 21.20	14.31 17.76 22.76	
0.0 30.0 60.0 90.0	28.27 24.48 27.93 28.45	16.55 16.38 14.14 17.41	16.55 9.31 10.69 17.07	5.86 6.55 11.21 13.96	6.21 8.28 14.31 17.76	7.93 10.52 17.07 20.69	10.00 12.76 19.31 22.93	12.24 15.34 21.20 24.48	14.31 17.76 22.76 26.03	
0.0 30.0 60.0 90.0 120.0	28.27 24.48 27.93 28.45 23.27	16.55 16.38 14.14 17.41 13.62	16.55 9.31 10.69 17.07 11.03	5.86 6.55 11.21 13.96 11.21	6.21 8.28 14.31 17.76 15.52	7.93 10.52 17.07 20.69 18.79	10.00 12.76 19.31 22.93 21.38	12.24 15.34 21.20 24.48 23.27	14.31 17.76 22.76 26.03 24.48	
0.0 30.0 60.0 90.0 120.0 150.0	28.27 24.48 27.93 28.45 23.27 28.79	16.55 16.38 14.14 17.41 13.62 13.10	16.55 9.31 10.69 17.07 11.03 5.00	5.86 6.55 11.21 13.96 11.21 6.55	6.21 8.28 14.31 17.76 15.52 8.79	7.93 10.52 17.07 20.69 18.79 12.07	10.00 12.76 19.31 22.93 21.38 15.00	12.24 15.34 21.20 24.48 23.27 17.58	14.31 17.76 22.76 26.03 24.48 19.83	
0.0 30.0 60.0 90.0 120.0 150.0 180.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90	16.55 16.38 14.14 17.41 13.62 13.10 10.52	16.55 9.31 10.69 17.07 11.03 5.00 9.83	5.86 6.55 11.21 13.96 11.21 6.55 5.52	6.21 8.28 14.31 17.76 15.52 8.79 7.07	7.93 10.52 17.07 20.69 18.79 12.07 9.48	10.00 12.76 19.31 22.93 21.38 15.00 12.41	12.24 15.34 21.20 24.48 23.27 17.58 15.34	14.31 17.76 22.76 26.03 24.48 19.83 18.27	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/y(°) 0.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/y(°) 0.0 30.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.07	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/y(°) 0.0 30.0 60.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.07 32.41 32.93	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/\gamma(^\circ) 0.0 30.0 60.0 90.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/\gamma(^\circ) 0.0 30.0 60.0 90.0 120.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 32.24	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/\gamma(^c) 0.0 30.0 60.0 90.0 120.0 150.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 32.24 31.38	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.93 32.58	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.62	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/\gamma(^\circ) 0.0 30.0 60.0 90.0 120.0 150.0 180.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89 20.86	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62 23.27	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34 25.69	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07 27.58	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62 29.48	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17 30.69	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 31.38 31.89	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.58 32.76	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.10	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0 270.0 300.0 330.0 360.0 C/\gamma(^\circ) 0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89 20.86 19.83	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62 23.27 21.55	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34 25.69 23.62	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07 27.58 25.69	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62 29.48 27.58	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17 30.69 29.65	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 31.38 31.89 31.38	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.58 32.76 32.58	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.10 33.10	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 240.0 270.0 300.0 360.0 C/y(°) 0.0 30.0 60.0 90.0 120.0 150.0 180.0 210.0 240.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89 20.86 19.83 21.89	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62 23.27 21.55 23.45	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34 25.69 23.62 25.00	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07 27.58 25.69 26.38	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62 29.48 27.58 27.76	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17 30.69 29.65 29.14	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 31.38 31.89 31.38 30.86	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.93 32.58 32.76 32.58 32.24	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.10 33.10 33.10 33.10	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 240.0 270.0 300.0 360.0 C/γ(°) 0.0 30.0 60.0 90.0 120.0 150.0 180.0 240.0 270.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89 20.86 19.83 21.89 24.83	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62 23.27 21.55 23.45 26.38	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34 25.69 23.62 25.00 27.76	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07 27.58 25.69 26.38 28.62	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62 29.48 27.58 27.76 29.82	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17 30.69 29.65 29.14 31.20	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 32.24 31.38 31.38 31.38 30.86 32.24	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.93 32.58 32.76 32.58 32.24 33.62	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.10 33.10 34.31	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 240.0 270.0 300.0 360.0 C/γ(°) 0.0 30.0 60.0 90.0 120.0 150.0 180.0 240.0 270.0 300.0 300.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89 20.86 19.83 21.89 24.83 22.93	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62 23.27 21.55 23.45 26.38 24.65	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34 25.69 23.62 25.00 27.76 26.89	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07 27.58 25.69 26.38 28.62 28.45	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62 29.48 27.76 29.82 29.82	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17 30.69 29.65 29.14 31.20	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 32.24 31.38 31.38 31.38 31.38 31.38 31.38 32.24 32.24	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.93 32.93 32.58 32.76 32.58 32.76 33.62 33.27	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.10 33.10 33.10 34.31 33.96	
0.0 30.0 60.0 90.0 120.0 150.0 180.0 240.0 270.0 300.0 330.0 60.0 60.0 90.0 120.0 150.0 180.0 240.0 2270.0 300.0 300.0 300.0	28.27 24.48 27.93 28.45 23.27 28.79 11.90 21.89 38.44 25.69 52.75 21.89 28.27 135.0 16.55 19.83 23.96 26.89 25.86 21.89 20.86 19.83 21.89 24.83 22.93 19.83	16.55 16.38 14.14 17.41 13.62 13.10 10.52 7.24 7.41 9.31 10.34 8.45 16.55 140.0 18.79 21.72 25.69 28.10 26.89 23.62 23.27 21.55 23.45 24.65 22.24	16.55 9.31 10.69 17.07 11.03 5.00 9.83 5.52 6.21 8.10 6.55 10.86 16.55 145.0 21.03 23.79 27.24 29.14 28.10 25.34 25.69 23.62 25.00 27.76 26.89 23.96	5.86 6.55 11.21 13.96 11.21 6.55 5.52 6.38 8.62 10.52 8.79 6.72 5.86 150.0 22.93 25.51 28.62 30.17 29.14 27.07 27.58 25.69 26.38 28.62 28.45 26.03	6.21 8.28 14.31 17.76 15.52 8.79 7.07 8.28 12.24 15.34 12.58 8.45 6.21 155.0 24.48 27.24 29.65 31.03 30.17 28.62 29.48 27.58 27.76 29.82 29.82 27.76	7.93 10.52 17.07 20.69 18.79 12.07 9.48 10.52 13.62 16.89 14.14 10.34 7.93 160.0 26.72 28.79 30.69 31.55 31.20 30.17 30.69 29.65 29.14 31.20 29.31	10.00 12.76 19.31 22.93 21.38 15.00 12.41 12.58 16.03 19.48 16.38 12.76 10.00 165.0 28.79 30.17 31.55 32.24 32.24 31.38 31.38 31.38 31.38 31.38 31.38 32.24 32.24 30.86	12.24 15.34 21.20 24.48 23.27 17.58 15.34 15.17 18.79 21.89 19.14 15.00 12.24 170.0 30.51 31.20 32.24 32.93 32.93 32.93 32.58 32.76 32.58 32.76 33.62 33.27 32.07	14.31 17.76 22.76 26.03 24.48 19.83 18.27 17.76 20.52 23.45 21.03 17.58 14.31 175.0 32.07 32.41 32.93 33.62 33.62 33.62 33.10 33.10 34.31 33.96 33.10	
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# 5.Test Equipment

Equipment Name	Manufacturer	Model No.	Equipment No.	Calibration Due Date	
2m Integating Sphere	SENSING	SL-300	AOC-S-126	2026-04-13	
Horizontal Distribution Photometer	SENSING	GMS1800D	AOC-S-124	2026-04-13	
Standard Lamp	SENSING	240V/150W	AOC-S-151	2025-08-01	
Digital power meter	HENGHE	WT310E	AOC-S-012	2026-04-13	
Digital power meter	SENSING	UI2008	AOC-S-123	2026-04-13	
Digital power meter	SENSING	Ul2021	AOC-S-123	2026-04-13	
DC source	OYHS	OYHS-Z120V- 50A	AOC-S-062	2026-04-13	
Variable frequency power supply	WOSEN	BP6005	AOC-S-129	2026-04-13	
Variable frequency power supply	AIPUSI	KDF-500	AOC-S-130	2026-04-13	
Oscilloscope	TEKTRONIX	MDO3012	AOC-S-028	2026-04-13	

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# **Photo Document**

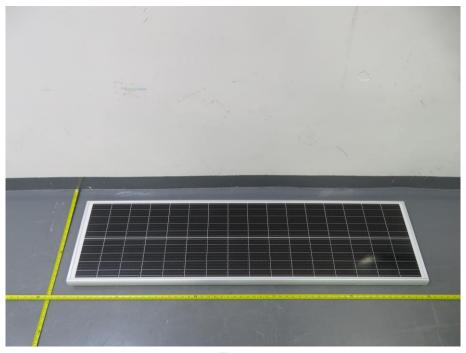


Fig.1



Fig.2

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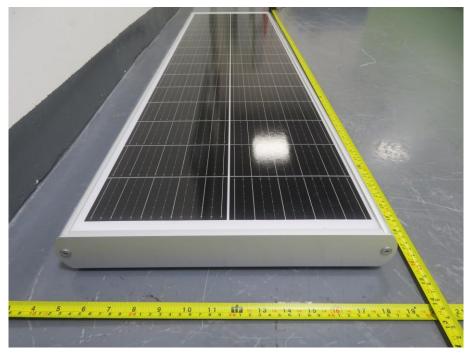


Fig.3

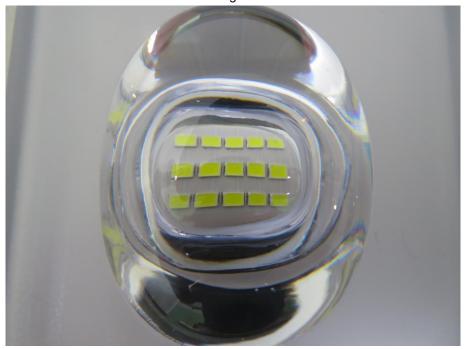


Fig.4

-- End of Report --

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