



**HERCULUX**  
恒坤光电

Chengdu HercuLux Photoelectric  
Technology Co.,Ltd  
**Product Approval**

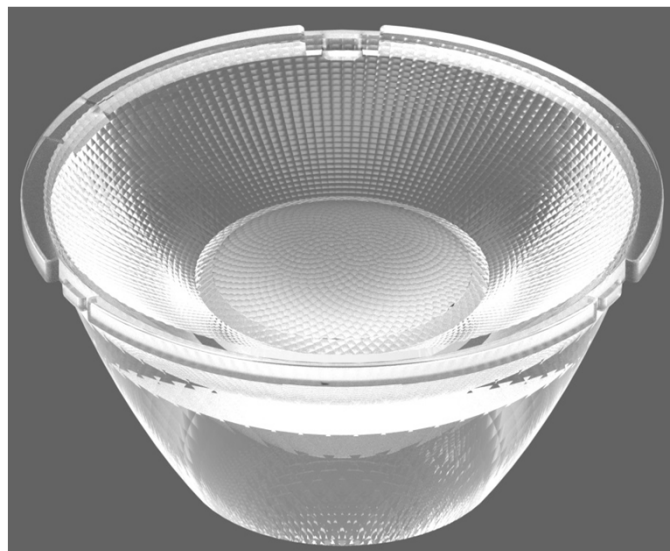
Approval number :

Customer :

Manufacturer : Chengdu HercuLux Photoelectric Technology Co.,Ltd

PN	Code	Product
HK-RG-55@25-15-D9-21-1g-1	1. 01. 23168	HK Moony 55@25-15° Lens
HK-RG-55@25-24-D9-21-1g-1	1. 01. 13010	HK Moony 55@25-24° Lens
HK-RG-55@25-36-D9-21-1g-1	1. 01. 23164	HK Moony 55@25-36° Lens
HK-RG-55@25-50-D9-21-1g-1	1. 01. 23173	HK Moony 55@25-50° Lens

Manufacturer : Chengdu HercuLux Photoelectric Technology Co.,Ltd



Supplier confirmation				Client confirmation			
Proposed		DATE		Qualified <input type="checkbox"/>		DATE	
Project manager		DATE		Unqualified <input type="checkbox"/>		DATE	
Audit		DATE		Audit		DATE	
Approved		DATE		Approved		DATE	
Stamp		DATE		Stamp		DATE	

( Confirmation of acceptance by both parties must be signed and sealed )

Factory: Chengdu Shuangliu District, Iot industrial park 2 road HercuLux Photoelectric Park

Phone : 028-85887727 ( 801 ) 028-85887990 ( 801 )

Fax : 028-85887730

<http://www.herculux.cn/>

Sales Dept: Shenzhen Nanshan District Nanshan Cloud Valley Innovation Industrial Park Comprehensive Service Building,

TEL: 0755-2937 1541

FAX: 0755-2907 5140

\*Approval In duplicate , for both supplier and customer.



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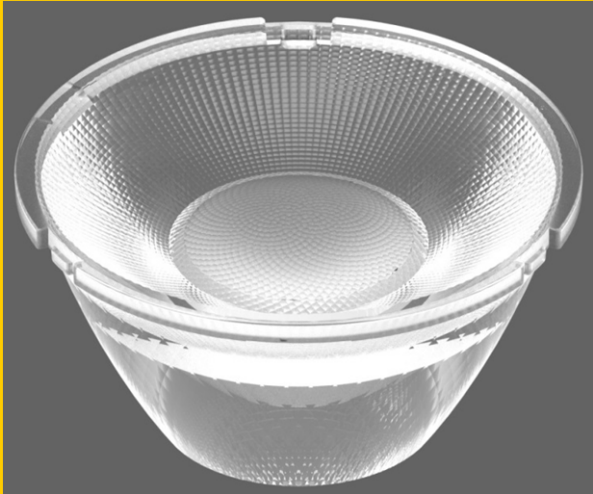
# Product Approval

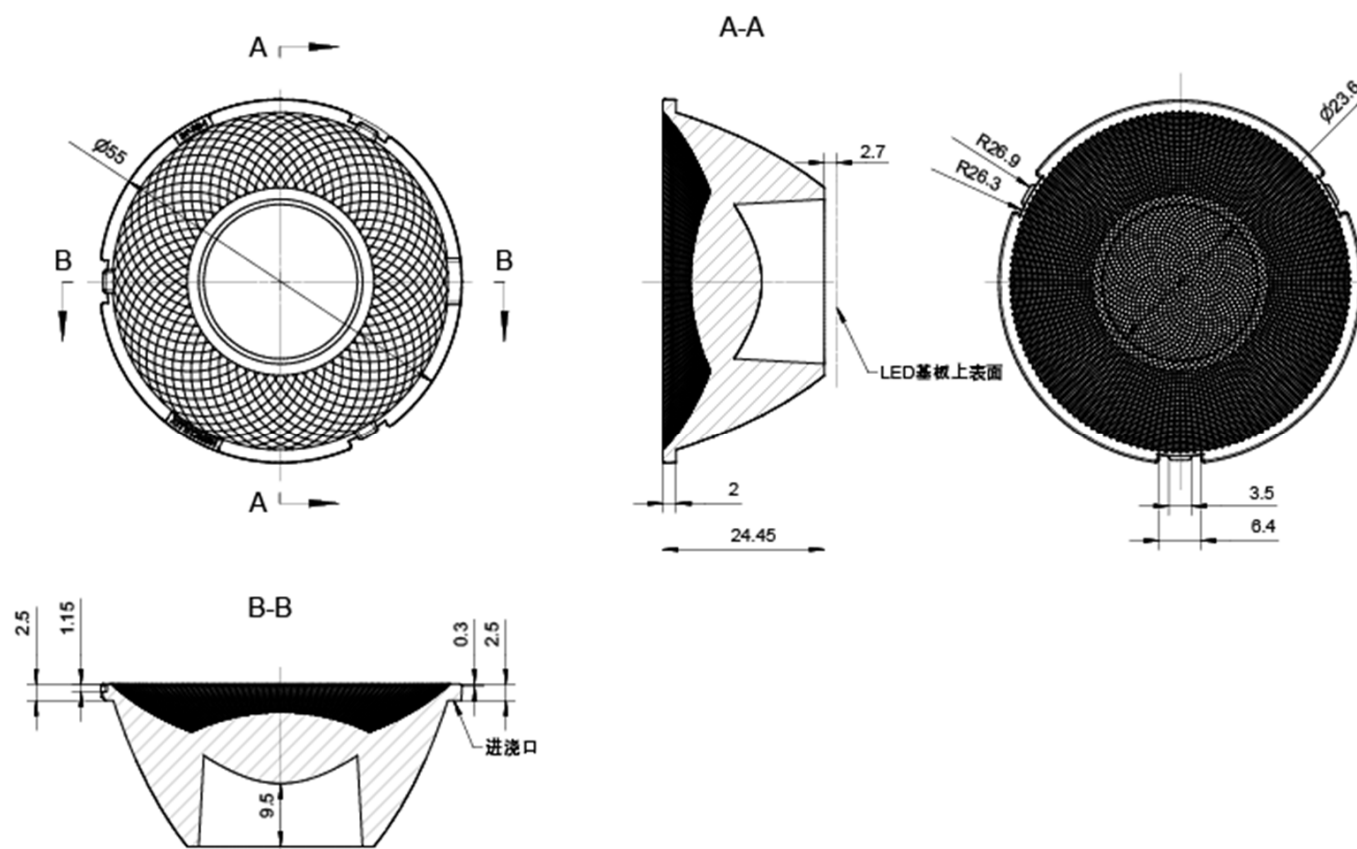
TEL: 0755-2937 1541

FAX: 0755-2907 5140

[www.hkoptics.com](http://www.hkoptics.com)

Date updated: 2022/7/22

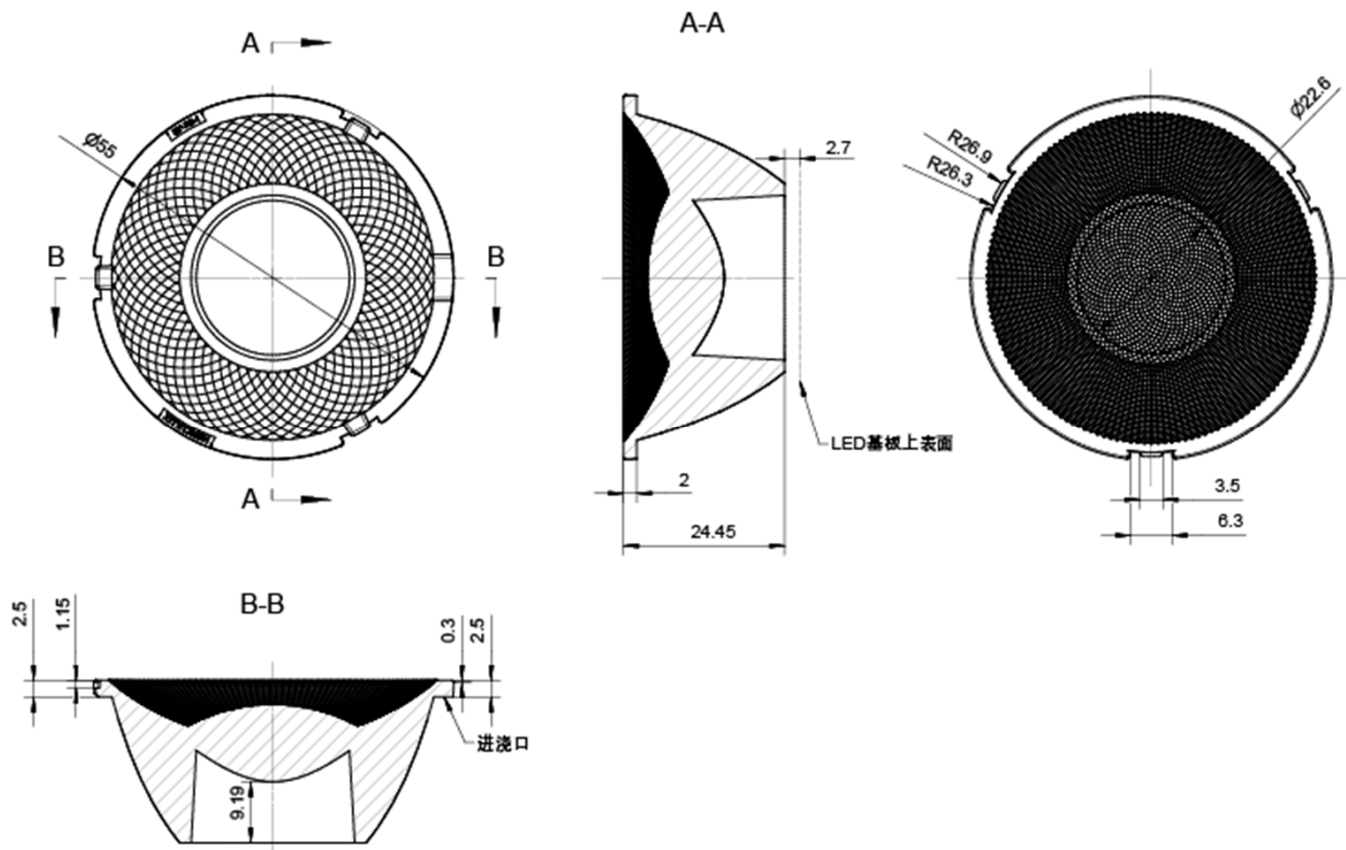
Product Picture:	
PN:	HK-RG-55@25-15-D9-21-1g-1
Size(L*W*H/Φ*H):	Φ:55mm; H:24.45mm
Material:	PC
Effiency:	\
Temperature(Topr):	Material extreme temperature resistance : -40°C to +120°C long-term use temperature : -40°C to +100°C
FWHM:	15°/24°/36°/60°
Matched LES:	D9

**Technical remark:**

1. The 3D map is not indicated for rounded corners and draft angle.
2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.
3. The surface has no flash, shrinkage, bubbles and other defects.
- \*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface between the radiator and the rubber ring is required:  $Ra < 3.2\mu m$

Optical design			HK Moony 55@25-15°Lens		HK-RG-55@25-15-D9-21-1g-1		
Structure design					1.01.23168		
Review					Number of drawing	qty	weight
Validation			Material:	PC	CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~450	>450
olerance value		±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.2	±2.0

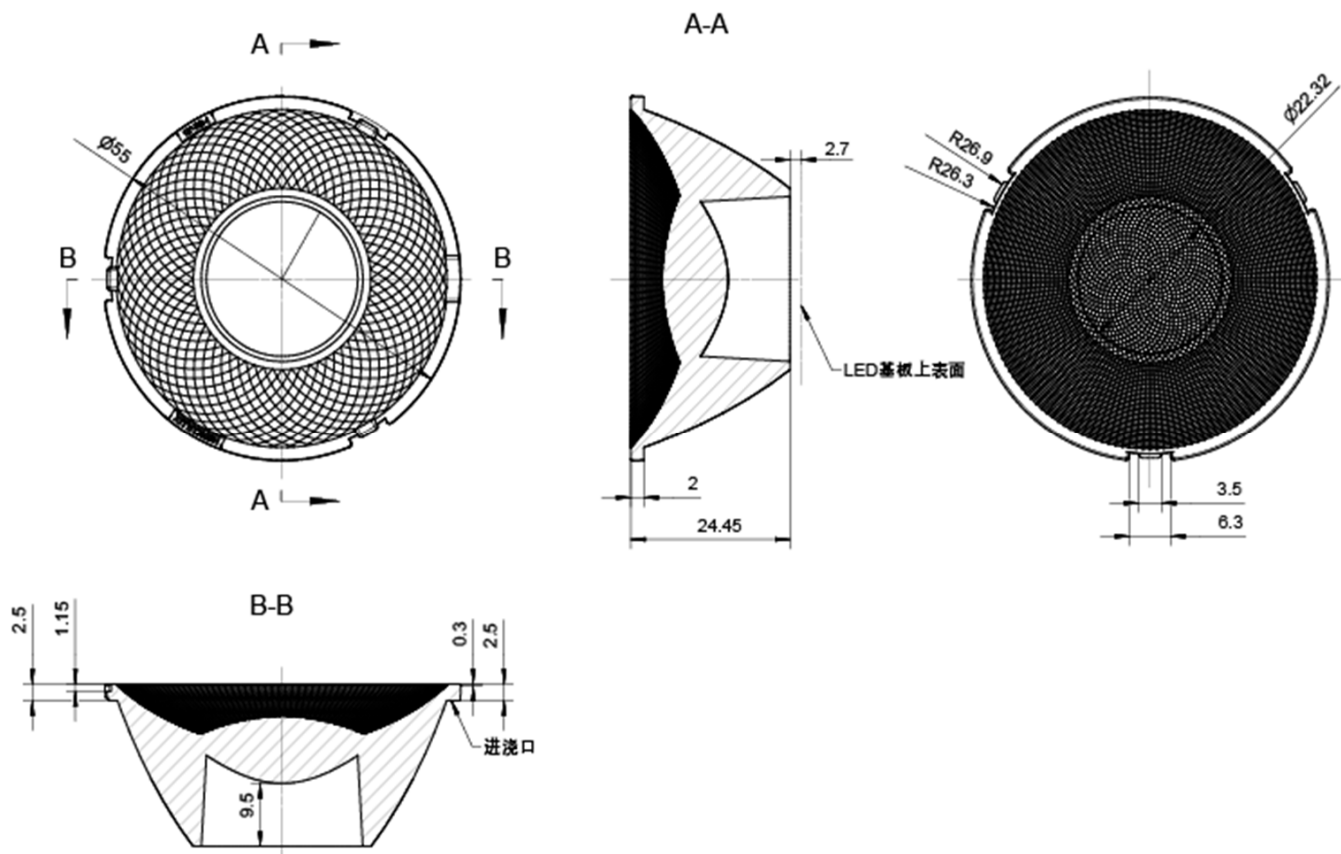


Technical remark:

- 1. The 3D map is not indicated for rounded corners and draft angle.
- 2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.
- 3. The surface has no flash, shrinkage, bubbles and other defects.
- \*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface between the radiator and the rubber ring is required:  $Ra < 3.2\mu m$

Optical design			HK Moony 55@25-24°Lens		HK-RG-55@25-24-D9-21-1g-1		
Structure design					1.01.13010		
Review					umber of drawin	qty	weight
Validation			Material:	PC	CDHK		

MT5	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~450	>450
Tolerance table (mm)	olerance valu	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.2	±2.0



Technical remark:

1. The 3D map is not indicated for rounded corners and draft angle.

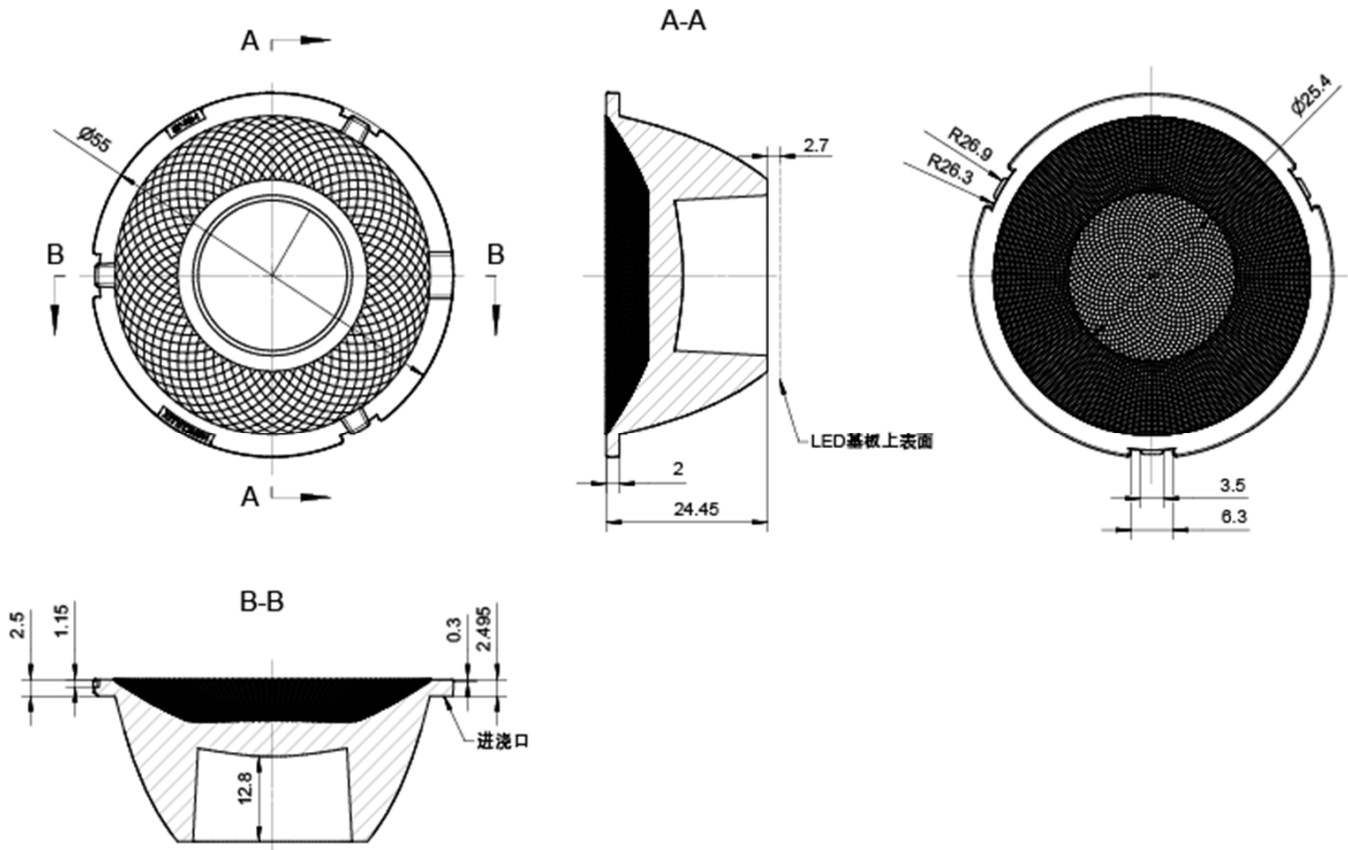
2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.

3. The surface has no flash, shrinkage, bubbles and other defects.

\*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface between the radiator and the rubber ring is required: Ra<3.2μm

Optical design			HK Moony 55@25-36°Lens		HK-RG-55@25-36-D9-21-1g-1		
structure design					1.01.23164		
Review					umber of drawin	qty	weight
Validation			Material:	PC	CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~450	>450
	olerance valu	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.2	±2.0

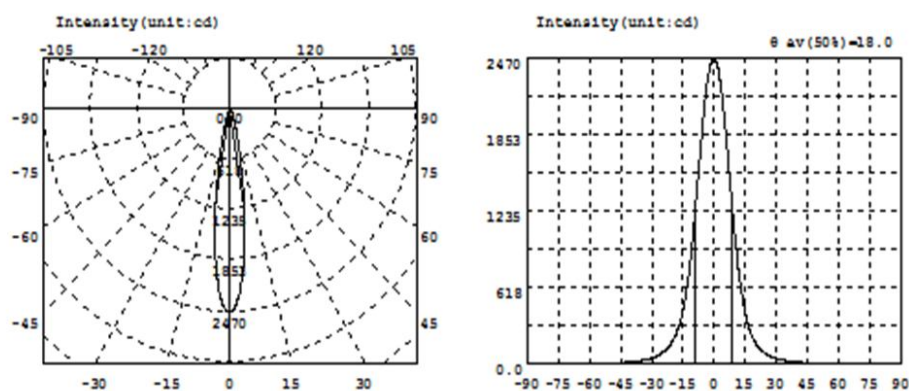


Technical remark:  
1. The 3D map is not indicated for rounded corners and draft angle.  
2. The dimensional tolerances are not specified according to GB/T 14486 2008 MT5.  
3. The surface has no flash, shrinkage, bubbles and other defects.  
\*4. When the lamp adopts rubber ring for waterproofing: the roughness of the contact surface between the radiator and the rubber ring is required: Ra<3.2μm

Optical design			HK Moony 55@25-50°Lens		HK-RG-55@25-50-D9-21-1g-1		
structure design					1.01.23173		
Review					umber of drawin	qty	weight
Validation			Material:	PC	CDHK		

MT5 Tolerance table (mm)	Basic size	<3	3~10	10~24	24~65	65~140	140~250	250~450	>450
	olerance valu	±0.1	±0.15	±0.2	±0.35	±0.50	±0.80	±1.2	±2.0





Intensity data: (deg, cd) CO-180

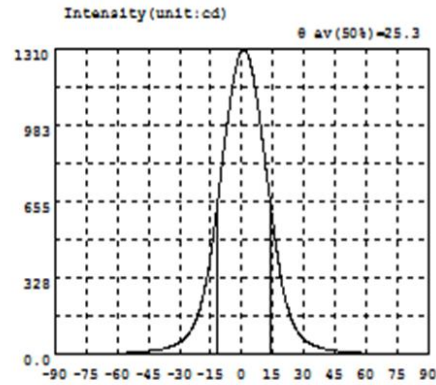
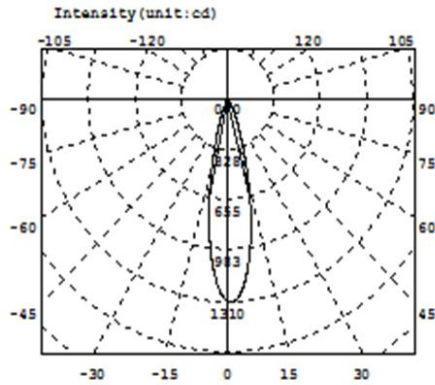
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.5084	-58.5	6.014	-27.0	72.78	4.5	2045	36.0	25.71	67.5	3.268
-88.5	0.5314	-57.0	6.490	-25.5	87.95	6.0	1779	37.5	22.52	69.0	2.879
-87.0	0.5545	-55.5	7.015	-24.0	106.9	7.5	1490	39.0	19.81	70.5	2.505
-85.5	0.5996	-54.0	7.586	-22.5	131.5	9.0	1207	40.5	17.50	72.0	2.154
-84.0	0.6447	-52.5	8.224	-21.0	163.6	10.5	944.3	42.0	15.55	73.5	1.805
-82.5	0.6792	-51.0	8.944	-19.5	203.2	12.0	722.3	43.5	13.83	75.0	1.497
-81.0	0.7570	-49.5	9.776	-18.0	258.1	13.5	545.4	45.0	12.40	76.5	1.139
-79.5	0.8486	-48.0	10.74	-16.5	335.0	15.0	412.1	46.5	11.21	78.0	0.9651
-78.0	1.052	-46.5	11.88	-15.0	439.3	16.5	301.3	48.0	10.23	79.5	0.7977
-76.5	1.303	-45.0	13.22	-13.5	579.6	18.0	233.0	49.5	9.388	81.0	0.7360
-75.0	1.554	-43.5	14.82	-12.0	762.3	19.5	182.0	51.0	8.654	82.5	0.6892
-73.5	1.851	-42.0	16.67	-10.5	997.5	21.0	144.6	52.5	7.991	84.0	0.6666
-72.0	2.180	-40.5	18.84	-9.0	1271	22.5	116.9	54.0	7.418	85.5	0.6512
-70.5	2.510	-39.0	21.53	-7.5	1559	24.0	95.60	55.5	6.889	87.0	0.6240
-69.0	2.884	-37.5	24.79	-6.0	1846	25.5	78.66	57.0	6.411	88.5	0.5875
-67.5	3.267	-36.0	28.37	-4.5	2111	27.0	65.23	58.5	5.952	90.0	0.6079
-66.0	3.674	-34.5	32.49	-3.0	2311	28.5	54.54	60.0	5.448		
-64.5	4.093	-33.0	37.31	-1.5	2428	30.0	46.09	61.5	4.972		
-63.0	4.537	-31.5	43.28	0.0	2461	31.5	39.30	63.0	4.508		
-61.5	4.992	-30.0	50.84	1.5	2403	33.0	33.89	64.5	4.098		
-60.0	5.506	-28.5	60.54	3.0	2262	34.5	29.47	66.0	3.703		

**Electricity Parameter:**

Current I: 0.2000A Power: 6.860W  
Voltage V: 34.29V PF: 1.000

**Optical Parameter (Distance=2.410m):**

Equivalent Luminous flux:  $\Phi_{\text{eff}} = 369.11\text{lm}$  Efficiency:  $\text{Eff} = 53.81\text{lm/W}$   
Diffuse angle: @ (25%): 25.9deg @ (50%): 18.0deg @ (75%): 11.5deg @ (50%): 18.0deg  
Diffuse angle: @ (25%): 25.9deg @ (50%): 18.0deg @ (75%): 11.5deg @ (50%): 18.0deg  
 $I_{\text{max}} = 2461\text{cd}$  (C=0.0deg, C=0.0deg) CO-180Plane  $I_{\text{max}} = 2461\text{cd}$  (C=0.0deg)  
CO-180Plane  $I_{\text{0}} = 2461\text{cd}$



Intensity data: (deg , cd) C0-180

A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.7909	-58.5	6.692	-27.0	75.48	4.5	1232	36.0	35.38	67.5	4.072
-88.5	0.8029	-57.0	7.279	-25.5	91.78	6.0	1164	37.5	31.07	69.0	3.647
-87.0	0.8482	-55.5	8.002	-24.0	113.2	7.5	1079	39.0	27.45	70.5	3.196
-85.5	1.016	-54.0	8.691	-22.5	142.2	9.0	982.0	40.5	24.34	72.0	2.845
-84.0	1.027	-52.5	9.570	-21.0	177.8	10.5	877.7	42.0	21.72	73.5	2.459
-82.5	1.029	-51.0	10.56	-19.5	222.2	12.0	769.3	43.5	19.42	75.0	2.121
-81.0	1.120	-49.5	11.67	-18.0	278.2	13.5	661.0	45.0	17.49	76.5	1.851
-79.5	1.252	-48.0	12.84	-16.5	347.7	15.0	557.3	46.5	15.83	78.0	1.617
-78.0	1.367	-46.5	14.10	-15.0	431.1	16.5	461.9	48.0	14.37	79.5	1.369
-76.5	1.630	-45.0	15.48	-13.5	526.1	18.0	376.1	49.5	13.09	81.0	1.221
-75.0	1.770	-43.5	17.01	-12.0	631.4	19.5	294.8	51.0	11.89	82.5	1.141
-73.5	2.070	-42.0	18.90	-10.5	742.6	21.0	236.3	52.5	10.85	84.0	1.062
-72.0	2.379	-40.5	21.07	-9.0	853.2	22.5	188.6	54.0	9.807	85.5	0.9753
-70.5	2.765	-39.0	23.67	-7.5	959.8	24.0	150.0	55.5	8.937	87.0	0.8953
-69.0	3.183	-37.5	26.69	-6.0	1059	25.5	119.4	57.0	8.136	88.5	0.8593
-67.5	3.583	-36.0	30.30	-4.5	1147	27.0	96.29	58.5	7.475	90.0	0.8383
-66.0	4.027	-34.5	34.63	-3.0	1220	28.5	78.53	60.0	6.860		
-64.5	4.509	-33.0	39.73	-1.5	1273	30.0	65.32	61.5	6.198		
-63.0	4.985	-31.5	45.90	0.0	1301	31.5	54.99	63.0	5.606		
-61.5	5.528	-30.0	53.54	1.5	1304	33.0	46.95	64.5	5.068		
-60.0	6.099	-28.5	63.21	3.0	1280	34.5	40.61	66.0	4.552		

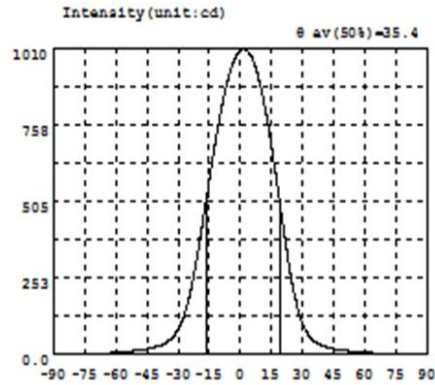
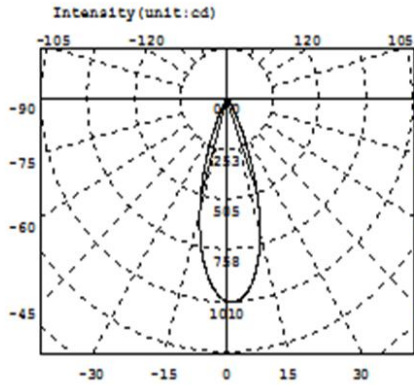
## Electricity Parameter:

Current I: 0.1000A      Power: 3.358W  
Voltage V: 33.59V      PF: 1.000

## Optical Parameter (Distance=2.410m):

Equivalent Luminous flux:  $\Phi_{\text{eff}} = 344.0\text{lm}$       Efficiency:  $\text{Eff} = 102.46\text{lm/W}$   
Diffuse angle:      @ (25%): 35.7deg @ (50%): 25.3deg @ (75%): 16.2deg @ (50%): 25.3deg  
Diffuse angle:      @ (25%): 35.7deg @ (50%): 25.3deg @ (75%): 16.2deg @ (50%): 25.3deg  
 $\text{Imax} = 1306\text{cd}$  (C=0.0deg, G=1.0deg)      C0-180Plane  $\text{Imax} = 1306\text{cd}$  (G=1.0deg)  
C0-180Plane  $\text{I0} = 1301\text{cd}$





Intensity data: (deg , cd) C0-180

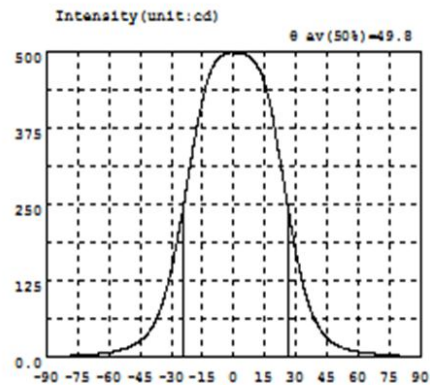
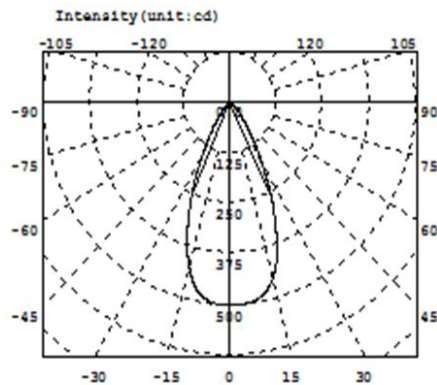
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.6440	-58.5	8.080	-27.0	132.4	4.5	990.6	36.0	42.48	67.5	4.701
-88.5	0.6325	-57.0	8.852	-25.5	168.0	6.0	970.0	37.5	36.03	69.0	4.187
-87.0	0.6668	-55.5	9.684	-24.0	209.2	7.5	940.1	39.0	31.15	70.5	3.705
-85.5	0.7234	-54.0	10.60	-22.5	260.1	9.0	902.8	40.5	27.28	72.0	3.254
-84.0	0.7796	-52.5	11.66	-21.0	317.6	10.5	858.2	42.0	24.12	73.5	2.803
-82.5	0.8369	-51.0	12.78	-19.5	379.5	12.0	806.6	43.5	21.46	75.0	2.398
-81.0	0.9064	-49.5	14.00	-18.0	443.8	13.5	748.1	45.0	19.20	76.5	2.024
-79.5	1.079	-48.0	15.50	-16.5	510.9	15.0	684.4	46.5	17.30	78.0	1.693
-78.0	1.362	-46.5	17.10	-15.0	577.4	16.5	615.8	48.0	15.72	79.5	1.395
-76.5	1.668	-45.0	19.04	-13.5	642.2	18.0	545.6	49.5	14.38	81.0	1.149
-75.0	2.007	-43.5	21.18	-12.0	704.2	19.5	474.2	51.0	13.19	82.5	0.9521
-73.5	2.380	-42.0	23.67	-10.5	762.5	21.0	404.3	52.5	12.10	84.0	0.8488
-72.0	2.767	-40.5	26.52	-9.0	816.4	22.5	329.2	54.0	10.96	85.5	0.7810
-70.5	3.208	-39.0	30.01	-7.5	864.6	24.0	267.0	55.5	10.07	87.0	0.7357
-69.0	3.666	-37.5	34.31	-6.0	906.8	25.5	212.7	57.0	9.242	88.5	0.6523
-67.5	4.156	-36.0	39.66	-4.5	941.9	27.0	166.9	58.5	8.500	90.0	0.9551
-66.0	4.704	-34.5	46.67	-3.0	969.8	28.5	129.7	60.0	7.801		
-64.5	5.284	-33.0	55.39	-1.5	991.0	30.0	100.8	61.5	7.070		
-63.0	5.907	-31.5	67.19	0.0	1002	31.5	78.67	63.0	6.385		
-61.5	6.572	-30.0	83.02	1.5	1006	33.0	62.67	64.5	5.790		
-60.0	7.305	-28.5	104.6	3.0	1003	34.5	51.04	66.0	5.245		

**Electricity Parameter:**

Current I: 0.2000A      Power: 6.860W  
Voltage V: 34.29V      PF: 1.000

**Optical Parameter(Distance=2.410m):**

Equivalent Luminous flux:  $\Phi_{\text{eff}}=419.2\text{lm}$       Efficiency:  $\text{Eff}=61.12\text{lm/W}$   
Diffuse angle:      @ (25%): 47.1deg @ (50%): 35.4deg @ (75%): 24.0deg @ (50%): 35.4deg  
Diffuse angle:      @ (25%): 47.1deg @ (50%): 35.6deg @ (75%): 24.1deg @ (50%): 35.6deg  
 $\text{Imax}=1006\text{cd}$  (C=0.0deg, G=1.5deg)      C0-180Plane  $\text{Imax}=1006\text{cd}$  (G=1.5deg)  
C0-180Plane  $\text{I0}=1002\text{cd}$



Intensity data: (deg , cd) C0-180

A	I	A	I	A	I	A	I	A	I	A	I
-90.0	1.235	-58.5	9.557	-27.0	195.1	4.5	496.0	36.0	87.71	67.5	6.264
-88.5	1.325	-57.0	10.55	-25.5	223.4	6.0	494.2	37.5	73.47	69.0	5.710
-87.0	1.491	-55.5	11.70	-24.0	250.4	7.5	491.4	39.0	61.64	70.5	5.219
-85.5	1.721	-54.0	12.98	-22.5	282.4	9.0	487.0	40.5	51.89	72.0	4.767
-84.0	2.027	-52.5	14.48	-21.0	312.7	10.5	480.8	42.0	43.96	73.5	4.362
-82.5	2.346	-51.0	16.25	-19.5	342.1	12.0	472.1	43.5	37.28	75.0	4.038
-81.0	2.640	-49.5	18.37	-18.0	370.5	13.5	460.3	45.0	31.61	76.5	3.742
-79.5	2.909	-48.0	20.91	-16.5	396.9	15.0	445.3	46.5	27.41	78.0	3.402
-78.0	3.151	-46.5	23.89	-15.0	420.7	16.5	426.6	48.0	23.79	79.5	3.119
-76.5	3.371	-45.0	27.37	-13.5	441.3	18.0	404.9	49.5	20.78	81.0	2.855
-75.0	3.654	-43.5	31.48	-12.0	458.3	19.5	376.5	51.0	18.30	82.5	2.553
-73.5	3.959	-42.0	36.52	-10.5	471.8	21.0	346.1	52.5	16.24	84.0	2.245
-72.0	4.288	-40.5	42.99	-9.0	481.3	22.5	316.9	54.0	14.53	85.5	1.903
-70.5	4.635	-39.0	50.99	-7.5	488.1	24.0	286.6	55.5	13.05	87.0	1.602
-69.0	5.019	-37.5	60.80	-6.0	492.9	25.5	255.6	57.0	11.79	88.5	1.345
-67.5	5.452	-36.0	72.61	-4.5	495.7	27.0	225.4	58.5	10.74	90.0	1.141
-66.0	5.927	-34.5	86.89	-3.0	497.3	28.5	196.5	60.0	9.843		
-64.5	6.495	-33.0	103.4	-1.5	497.8	30.0	169.9	61.5	9.016		
-63.0	7.095	-31.5	122.5	0.0	497.9	31.5	145.2	63.0	8.300		
-61.5	7.836	-30.0	144.1	1.5	497.7	33.0	123.2	64.5	7.526		
-60.0	8.661	-28.5	168.5	3.0	497.1	34.5	104.1	66.0	6.862		

## Electricity Parameter:

Current I: 0.4000A      Power: 14.00W  
Voltage V: 33.50V      PF: 1.000

## Optical Parameter(Distance=2.559m):

Equivalent Luminous flux:  $\Phi_{eff}=385.6lm$       Efficiency:  $Eff=27.55lm/W$   
Diffuse angle: @ (25%): 64.2deg @ (50%): 49.8deg @ (75%): 37.4deg @ (50%): 49.8deg  
Diffuse angle: @ (25%): 64.2deg @ (50%): 49.8deg @ (75%): 37.4deg @ (50%): 49.8deg  
Imax=498.0cd (C=0.0deg,G=-0.5deg)      C0-180Plane Imax= 498.0cd(G=-0.5deg)  
C0-180Plane IO= 497.9cd

		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks	
1.Size	diameter	55			54.8	54.8	54.8	54.8		Test environment: In 20 ℃ -25 ℃ environment to achieve thermal equilibrium after the test.	
	height1	24.45			24.51	24.53	24.5	24.48			
	thickness	2			2.02	2.04	2.05	2.03			
	Gate shear can not affect the appearance of the lamp										
	See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK			
				No stains	No stains	No stains	No stains				
3.Material		PC				Color	Transparent		OK		
4.Optical index	Testing LED	D9									
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.										
	FWHM	See light distribution curve									
	angle					18.9°	19°	19.3°	19.4°		
	K-value (CD/LM)					5.17	5.32	5.25	5.17		
	Efficiency					90.09%	89.05%	89.29%	89.55%		
Facula		See the signature sample									
Comprehensive judgment		Qualified									
Remarks:		<div><div>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</div><div>2、 Ambient temperature on the size of the product refer to the table on the right</div></div>									
		<div><div>PC product size changes with temperature table</div><div><div><div>Length changes (mm)</div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>Size: 50mm</div><div>Size: 100mm</div><div>Size: 150mm</div><div>Size: 200mm</div><div>Size: 250mm</div><div>Size: 300mm</div></div></div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0</div><div>10</div><div>20</div><div>30</div><div>40</div></div></div><div>(℃)</div></div></div></div></div>									
Precautions:											
1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.											
2. Try to avoid touching the total reflection surface when taking the lens.											
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).											
4. The working temperature of the lens should be within the temperature resistance limit of the lens material. Exceeding the temperature resistance limit will cause the lens to crack or melt and affect the service life of the lens. It is recommended that the upper surface temperature of the LED colloid should be less than 120 degrees.											

		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks	
1.Size	diameter	55			54.74	54.7	54.71	54.75		Test environment: In 20 ℃ -25 ℃ environment to achieve thermal equilibrium after the test.	
	height1	24.45			24.38	24.52	24.51	24.45			
	thickness	2			2.02	2	2.07	2.07			
	Gate shear can not affect the appearance of the lamp										
	See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK			
				No stains	No stains	No stains	No stains				
3.Material		PC				Color	Transparent		OK		
4.Optical index	Testing LED	D9									
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.										
	FWHM	See light distribution curve									
	angle					25.3	24.8	25.1	24.5		
	K-value (CD/LM)					3.79	3.85	3.79	3.88		
	Efficiency					84.30%	84.10%	84.70%	84.20%		
Facula		See the signature sample									
Comprehensive judgment		Qualified									
Remarks:		<div><div>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</div><div>2、 Ambient temperature on the size of the product refer to the table on the right</div></div>									
		<div><div>PC product size changes with temperature table</div><div><div><div>Length changes (mm)</div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0.9</div><div>0.8</div><div>0.7</div><div>0.6</div><div>0.5</div><div>0.4</div><div>0.3</div><div>0.2</div><div>0.1</div><div>0</div></div><div><div>0</div><div>10</div><div>20</div><div>30</div><div>40</div></div></div></div><div><div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>Size: 50mm</div><div>Size: 100mm</div><div>Size: 150mm</div><div>Size: 200mm</div><div>Size: 250mm</div><div>Size: 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		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks	
1.Size	diameter	55			54.78	54.72	54.74	54.73		Test environment: In 20 ℃ -25 ℃ environment to achieve thermal equilibrium after the test.	
	height1	24.45			24.42	24.51	24.53	24.41			
	thickness	2			2.02	2	2.07	2.07			
	Gate shear can not affect the appearance of the lamp										
	See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr		No burr	No burr	No burr	OK		
			No stains		No stains	No stains	No stains				
3.Material		PC				Color	Transparent			OK	
4.Optical index	Testing LED	D9									
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.										
	FWHM	See light distribution curve									
	angle					35.1°	35.4°	36.3°	34.8°		
	K-value (CD/LM)					2.42	2.40	2.35	2.48		
	Efficiency					85.10%	85.30%	84.90%	85.10%		
Facula		See the signature sample									
Comprehensive judgment		Qualified									
Remarks:		<div><div>1、Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</div><div>2、Ambient temperature on the size of the product refer to the table on the right</div></div>									
		<div><div>PC product size changes with temperature table</div><div><div><div>Length changes (mm)</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0.9</div><div>0.8</div><div>0.7</div><div>0.6</div><div>0.5</div><div>0.4</div><div>0.3</div><div>0.2</div><div>0.1</div><div>0</div></div><div><div>0</div><div>10</div><div>20</div><div>30</div><div>40</div></div></div><div><div>Size: 50mm</div><div>Size: 100mm</div><div>Size: 150mm</div><div>Size: 200mm</div><div>Size: 250mm</div><div>Size: 300mm</div></div><div><div>(℃)</div></div></div></div></div>									
Precautions:											
1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.											
2. Try to avoid touching the total reflection surface when taking the lens.											
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).											
4. The working temperature of the lens should be within the temperature resistance limit of the lens material. Exceeding the temperature resistance limit will cause the lens to crack or melt and affect the service life of the lens. It is recommended that the upper surface temperature of the LED colloid should be less than 120 degrees.											

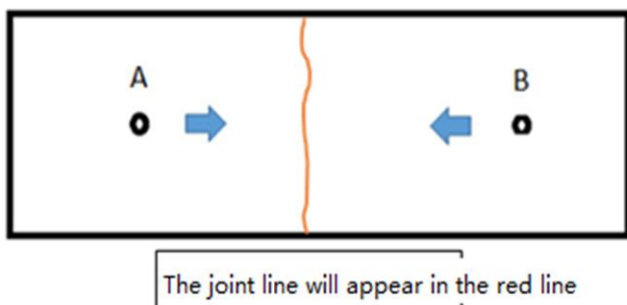
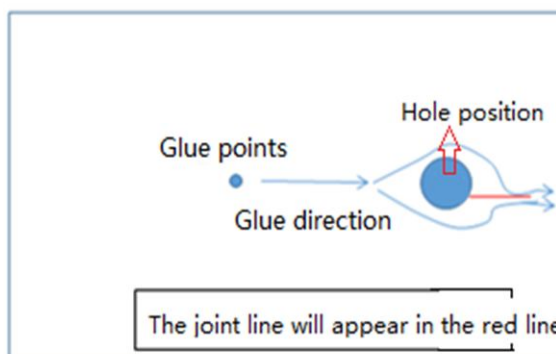
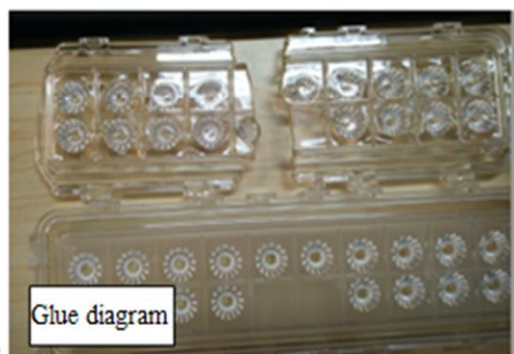
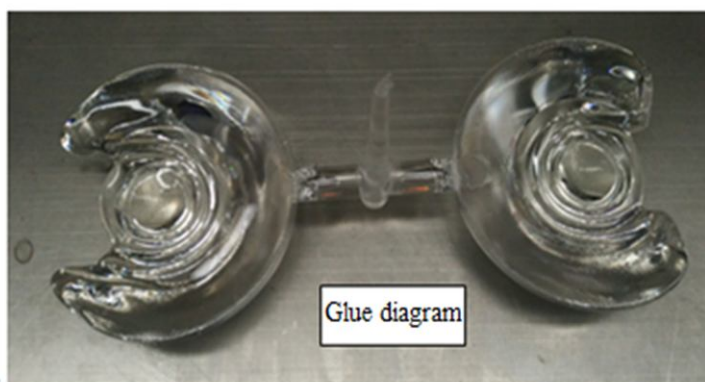
		Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks	
1.Size	diameter	55			54.87	54.84	54.89	54.88		Test environment: In 20 ℃ -25 ℃ environment to achieve thermal equilibrium after the test.	
	height1	24.45			24.45	24.5	24.46	24.47			
	thickness	2			2.04	2.04	2.04	2.03			
	Gate shear can not affect the appearance of the lamp										
	See attachment "Appearance Inspection Standards"										
2.Appearance Quality		See attachment "Appearance Inspection Standards"	E	No burr	No burr	No burr	No burr	OK			
				No stains	No stains	No stains	No stains				
3.Material		PC				Color	Transparent		OK		
4.Optical index	Testing LED	D9									
	The recommended size and power rating of the LED light source recommended for this lens should be comparable to the source of the test, if it is required to be out of range. According to the heat dissipation capability of the lamp and the actual conditions of the use environment, the lens should be fully tested and tested to prevent the lens life.										
	FWHM	See light distribution curve									
	angle					49.8°	49.9°	49.3°	49.5°		
	K-value (CD/LM)					1.29	1.28	1.30	1.29		
	Efficiency					82.60%	82.70%	82.90%	83.20%		
	Facula	See the signature sample									
Comprehensive judgment		Qualified									
Remarks:		<div><div>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</div><div>2、 Ambient temperature on the size of the product refer to the table on the right</div></div> <div><div>PC product size changes with temperature table</div><div><div><div>Length changes (mm)</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0.9</div><div>0.8</div><div>0.7</div><div>0.6</div><div>0.5</div><div>0.4</div><div>0.3</div><div>0.2</div><div>0.1</div><div>0</div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>0</div><div>10</div><div>20</div><div>30</div><div>40</div></div><div><div>℃</div></div></div><div><div>Size: 50mm</div><div>Size: 100mm</div><div>Size: 150mm</div><div>Size: 200mm</div><div>Size: 250mm</div><div>Size: 300mm</div></div></div></div>									
Precautions:											
1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.											
2. Try to avoid touching the total reflection surface when taking the lens.											
3. The lens surface is contaminated. Only use a soft cotton cloth dipped in analytically pure neutral solvent to wipe gently. Do not wipe with industrial solvents (alcohol, isopropanol, acetone, ether, toluene, xylene, carbon tetrachloride, MMA Body, etc.).											
4. The working temperature of the lens should be within the temperature resistance limit of the lens material. Exceeding the temperature resistance limit will cause the lens to crack or melt and affect the service life of the lens. It is recommended that the upper surface temperature of the LED colloid should be less than 120 degrees.											

PN		HK-RG-55@25-15-D9-21-1g-1		Product Name	HK Moony 55@25-15°Lens		
Product material		PC		Customer			
Package diagram		<div></div> <p>Single      Vacuum package      Box package</p>					
Product packing		10	A/ Box	4	Box/Layer		
		12	Layer/Box	480	A/ Carton		
Packaging Materials	NO.	Part No	Part name	Size	Dosage	Unit	Remarks
	1	2. 07. 0081	Blister box	23cm*21cm	48	BAG	
	2	2.08.0001	PE film	30cm*30cm	48	PCS	
	3	2.06.0005	Reel label paper	6.2cm*8cm	48	PCS	
	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS	
	5	2.06.0003	big plate	46.8cm*42.8cm	13	PCS	
	6	2. 06. 0011	big carton	48cm*44cm*37cm	1	PCS	
Remarks	The loose packing is not subject to this specification. Customer's requirements shall prevail						

## Special notice

When glue pass through holes, columns and other structures, or part of the thin structure, will form a weld line. The product which uses multi-point injection welding line will appear because of the combination of sol, as shown below:

## Synthesis



Please note :

The appearance of lines in the structure of the product as well as at the screw hole is a normal phenomenon, will not affect the actual use of the product, and can not be avoided at this stage.



## Appearance inspection standards

### 1 Operating procedures

#### 1.1.1 Sampling standards, sampling plan and AQL

Test level : GB/T2828.1-2012 The first part is according to the acceptance quality limit (AQL) retrieval batch inspection sampling plan, general inspection level II level, CR class defect coefficient 0, MA defect rejection level AQL = 0.65, MI class defect rejection level AQL = 1.0; defect level please see 5.4.

#### 2 Code table

Code	Code description	Unit	Code		Code description	Unit
N	Amount/pcs	pcs	D		Diameter	mm
L	Length	mm	H		Depth	mm
W	Width	mm	DS		Distance	mm
S	Proportion	mm <sup>2</sup>	SS		Offset	mm

### 3 Test conditions

3.1 Sight distance and working hours: Sight distance should be 30-35cm, each side of the inspection time does not exceed 12s, the visual angle of 45-135 degrees;

3.2 Light: 2x40w cool white fluorescent lamp, the light source is 500-550mm away from the lens surface; in order to make the appearance defect can be correctly recognized, the illumination should be 500-1000Lux, and the observation time is 10 seconds.

3.3 Visual inspection staff should be 1.0 (including corrected visual acuity) above, no color blindness, color weakness.

## 4 Appearance inspection standards

Test items	Judging standard	Inspection equipment	Defect level		
		Testing method	MI	MA	CR
Check the sample	When start the machine and process, all products have to check the appearance of the sample, the appearance of the sample is divided into qualified samples and limited samples.	Sample comparison , visual			√
	1: Qualified sample refers to the appearance and structure standard of the product which recognized by the client, the sample size should be confirmed before mass production;				

	2: The limited sample refers to the limit of a particular exceptionally developed sample. Limit the sample only for its specific point of exception to confirm; The priority is higher than the other criteria in this table. When there is a limited sample, the limit sample shall prevail.				
Raw edge	Not allowed to affect the size and assembly	Visual, point card		√	
Scratch	1: Non-optical surface and non-exposed surface scratches should be visually insignificant and the length is less than 1/10 of the maximum surface size.	Visual, point card, calipers		√	
Fingerprint	Fingerprints are not allowed on all products	Visual		√	
Foreign objects, black spots, white spots	The product may not be attached to foreign objects, including oil, fiber, dregs of water gap and so on				√
Deformation	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces.	Visual, feeler			√
Poor ejection	Products may not appear bad ejection, including no convex top, thimble printed on the assembly surface shall not be higher than the product surface, non-assembled surface thimble height should not exceed the product size tolerances; thimble printing should be less than the product surface and no more than 0.3; thimble surface treatment should be consistent with the product side.	Visual, point card		√	
	Ejection strain: the optical surface and the appearance of the exposed surface after assembly are not allowed to have a strain, and the structural surface does not allow visual obvious strain.				
Insufficient filling	Insufficient filling shall not affect the appearance of the assembly and the exposed surfaces , The signature sample shall prevail.	Visual, point card		√	
Shrink	When the entire surface of the product shrinks, the optical properties and dimensions must meet the requirements, and the visual will not significantly affect the appearance.Part shrink reference point defects	Visual, point card		√	
Flow marks、Welding line	1 : Product does not allow the presence of flow marks and welding lines unless the structure can not be avoided;	Visual		√	
	2: The remaining flow marks shall not appear in the optical surface, a single $L \leq 10\text{mm}$ , no more than two				

Bubble	No bubbles are allowed	Visual		√	
Foreign objects, black spots, white spots	Not obvious or $D \leq 0.3\text{mm}$ black spots and foreign bodies in the area of 100x100mm not more than 1; Exceeded foreign matter black spots is judged bad.	Visual, point card	√		
Damaged	No damage is allowed	Visual			√
Cold glue	Optical surface may not have cold glue, non-optical surface cold glue should meet the visual is not obvious.	Visual	√		
Bad incision	1: Do not affect the product size, shall not penetrate the optical surface, the cut should be smooth;	Visual			√
	2: Laser cutting products, the optical surface burns shall not occur after the processing is completed. Beading must not affect product installation				
	3: Three molds and hot runner gate shall not appear residue.				
Scrub	Scrub surface should be uniform, off the scrub phenomenon should not be obvious , A single off scrub imprint requires $D \leq 1\text{ mm}$ and no more than 1 area within a 50x50 mm area	Visual		√	