

Approval number :

Customer :

Manufacturer : Chengdu HercuLux Photoelectric Technology Co.,Ltd

PN	Code	Product
HK-SZ-55@25-15-D9-2#-1g-1	1. 08. 02205	HK Gemini 55@25-15 degree reflective cup
HK-SZ-55@25-24-D9-2#-1g-1	1. 08. 02210	HK Gemini 55@25-24 degree reflective cup
HK-SZ-55@25-36-D9-2#-1g-1	1. 08. 02264	HK Gemini 55@25-36 degree reflective cup
HK-SZ-55@25-50-D9-2#-1g-1	1. 08. 02265	HK Gemini 55@25-50 degree reflective cup



15°



24°



36°



50°

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, 501-505

TEL: 0755-2937 1541

FAX: 0755-2907 5140

*Approval In duplicate , for both supplier and customer.



HERCULUX
恒坤光电

Product Approval

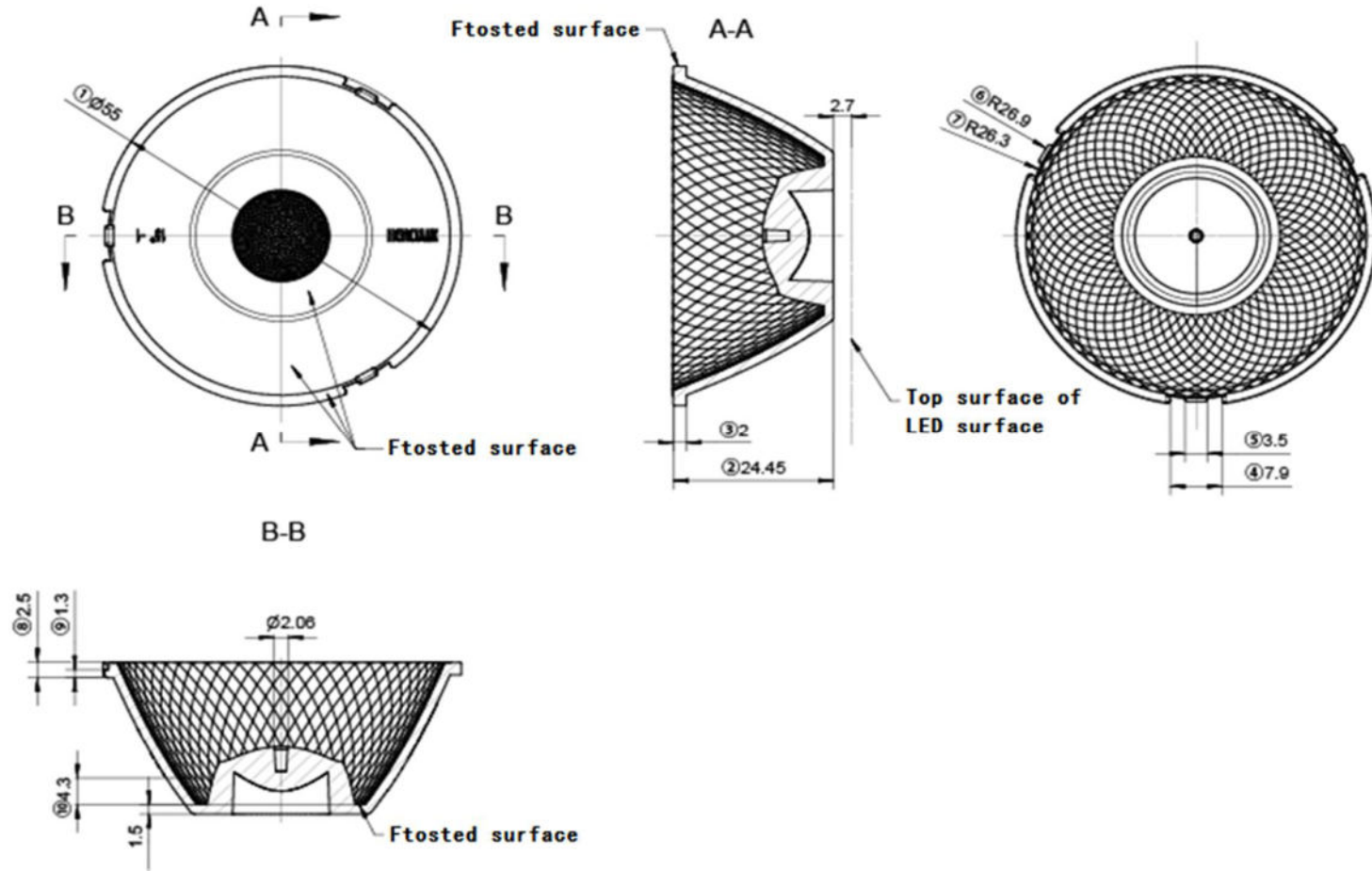
TEL: 0755-2937 1541

FAX: 0755-2907 5140

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

Date updated: 2021/12/23

<p>Product Picture:</p>	
<p>PN:</p>	<p>HK-SZ-55@25-15-D9-2#-1g-1</p>
<p>Size(L*W*H/Φ*H):</p>	<p>Φ:55mm; H:24.45mm</p>
<p>Material:</p>	<p>PC half plating</p>
<p>Efficiency:</p>	<p>\</p>
<p>Temperature(Topr):</p>	<p>Material extreme temperature resistance : -40°C to +120°C long-term use temperature : -40°C to +90°C</p>
<p>FWHM:</p>	<p>15°</p>
<p>Matched LES:</p>	<p>D9</p>

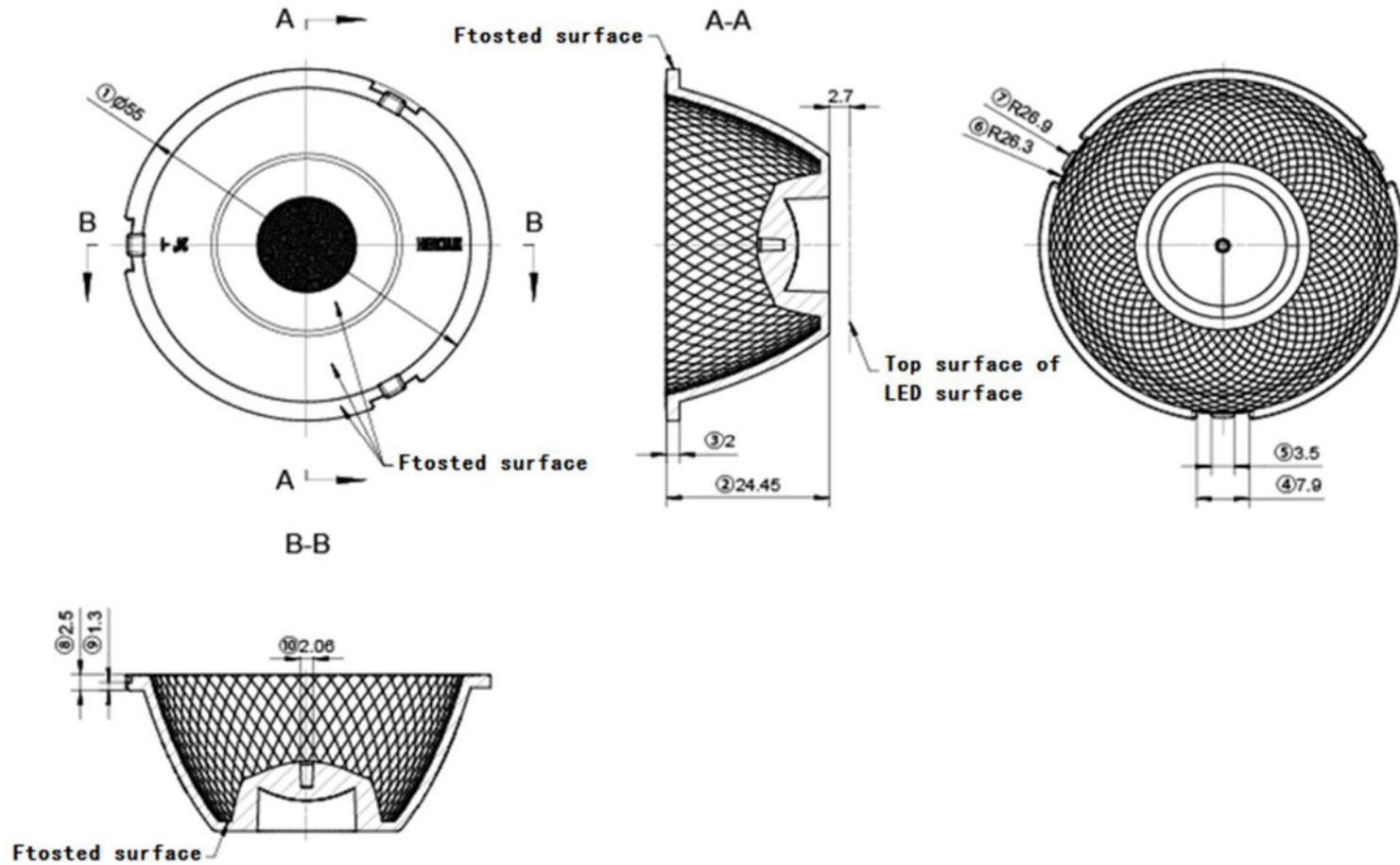


Technical remark:

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.

Optical design			HK Gemini 55@25-15 degree reflective cup		HK-SZ-55@25-15-D9-2#-1g-1		
structure design					1.08.02205		
Review					umber of drawin	qty	weight
Validation					Material: PC half plating		CDHK

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

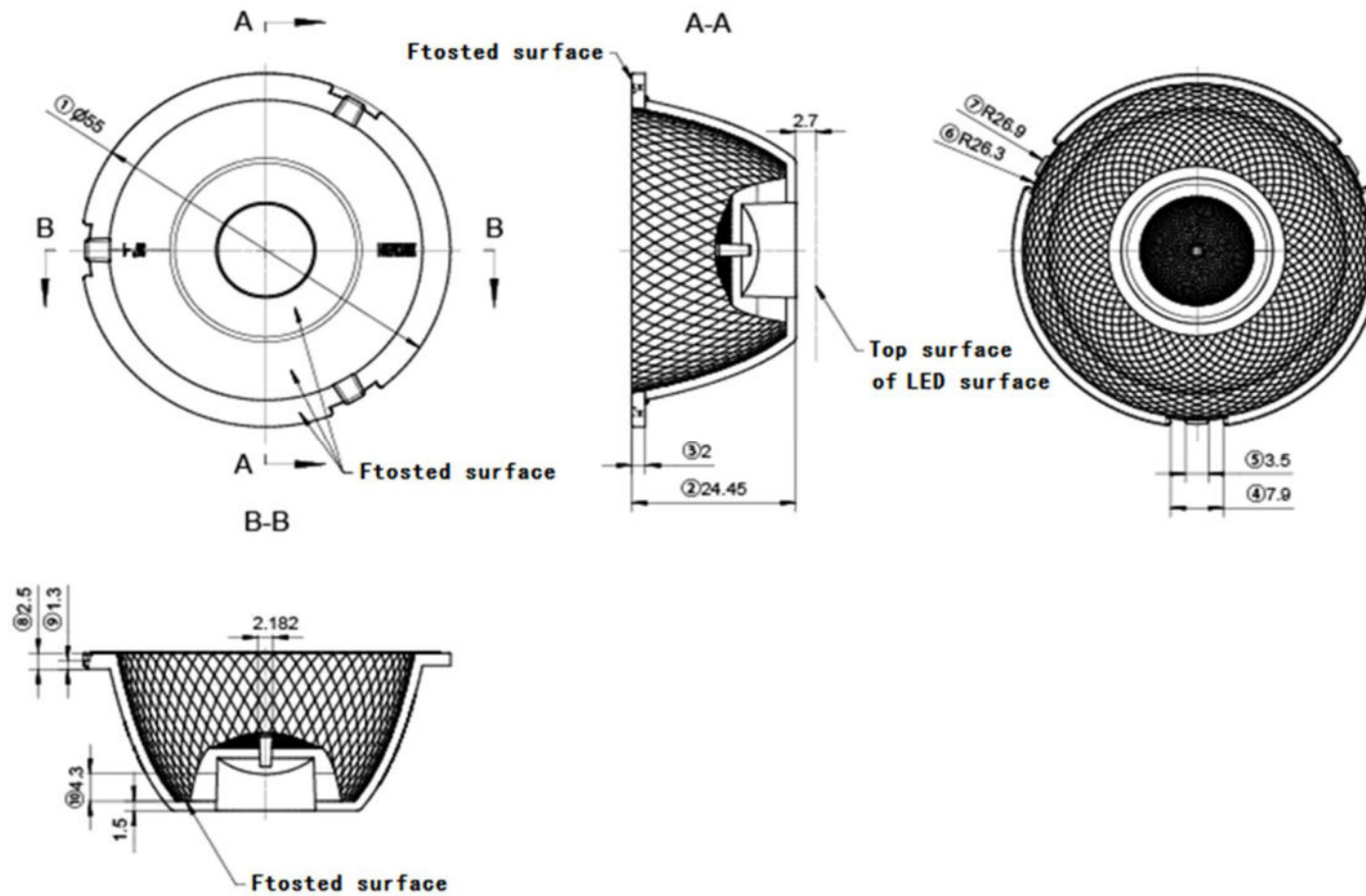


Technical remark:

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.

Optical design			HK Gemini 55@25-24 degree reflective cup		HK-SZ-55@25-24-D9-2#-1g-1		
structure design					1.08.02210		
Review					umber of drawin	qty	weight
Validation			Material: PC half plating		CDHK		

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

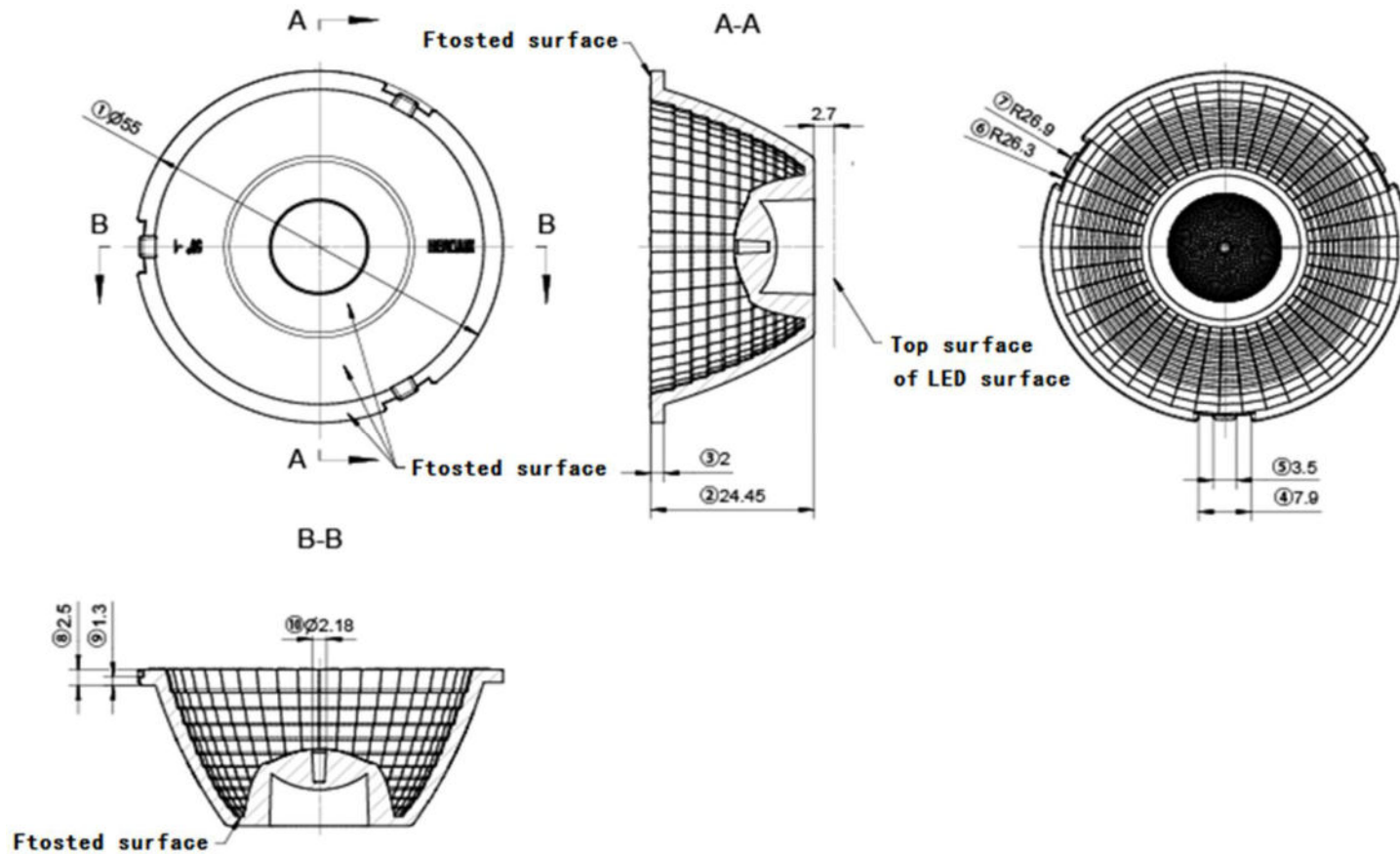


Technical remark:

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.

Optical design			HK Gemini 55@25-36 degree reflective cup		HK-SZ-55@25-36-D9-2#-1g-1		
structure design					1.08.02264		
Review					number of drawing	qty	weight
Validation					Material: PC half plating		CDHK

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

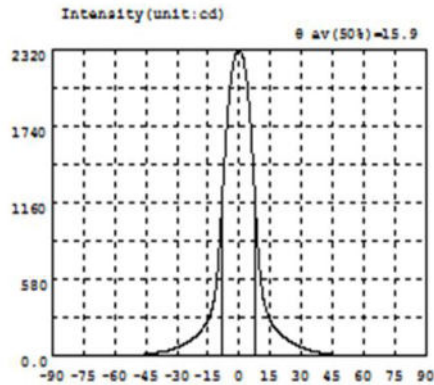
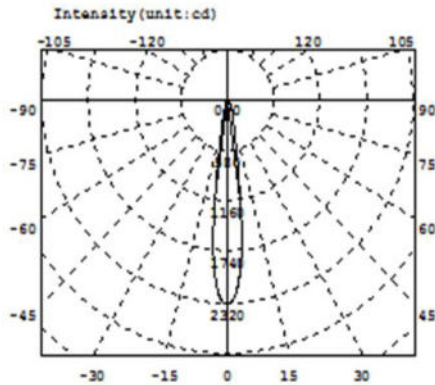


Technical remark:

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.

Optical design			HK Gemini 55@25-50 degree reflective cup		HK-SZ-55@25-50-D9-2#-1g-1		
structure design					1.08.02265		
Review					umber of drawin	qty	weight
Validation			Material:	PC half plating	CDHK		

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



Intensity data:(deg , cd) C0-180

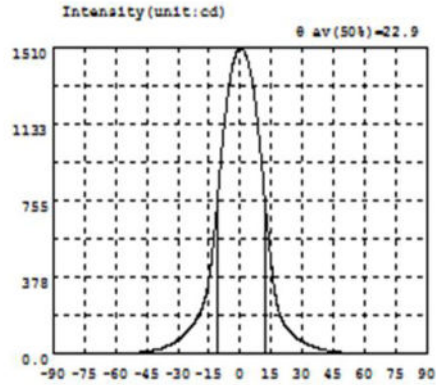
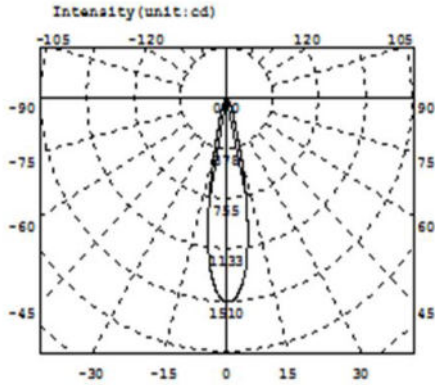
Α	I	Α	I	Α	I	Α	I	Α	I	Α	I
-90.0	0.3503	-58.5	3.163	-27.0	88.04	4.5	1936	36.0	37.43	67.5	0.3223
-88.5	0.3493	-57.0	4.230	-25.5	101.8	6.0	1610	37.5	32.22	69.0	0.3386
-87.0	0.3260	-55.5	5.448	-24.0	117.1	7.5	1196	39.0	27.97	70.5	0.3530
-85.5	0.2814	-54.0	6.673	-22.5	134.3	9.0	817.6	40.5	23.67	72.0	0.3488
-84.0	0.2629	-52.5	7.626	-21.0	153.3	10.5	555.9	42.0	19.87	73.5	0.3277
-82.5	0.2294	-51.0	8.995	-19.5	175.6	12.0	407.9	43.5	16.74	75.0	0.2735
-81.0	0.2311	-49.5	10.15	-18.0	200.2	13.5	319.2	45.0	14.57	76.5	0.2465
-79.5	0.2533	-48.0	11.44	-16.5	236.4	15.0	264.5	46.5	12.73	78.0	0.2325
-78.0	0.2958	-46.5	13.02	-15.0	278.5	16.5	225.9	48.0	11.21	79.5	0.2345
-76.5	0.3374	-45.0	14.90	-13.5	338.9	18.0	196.5	49.5	9.906	81.0	0.2566
-75.0	0.3556	-43.5	17.70	-12.0	446.5	19.5	171.7	51.0	8.748	82.5	0.2831
-73.5	0.3213	-42.0	21.47	-10.5	649.9	21.0	151.0	52.5	7.547	84.0	0.3034
-72.0	0.3401	-40.5	25.21	-9.0	972.6	22.5	132.9	54.0	6.307	85.5	0.3367
-70.5	0.3210	-39.0	28.96	-7.5	1375	24.0	116.7	55.5	5.020	87.0	0.3313
-69.0	0.3039	-37.5	33.01	-6.0	1750	25.5	101.7	57.0	3.800	88.5	0.3062
-67.5	0.2701	-36.0	37.46	-4.5	2027	27.0	88.28	58.5	2.761	90.0	0.4624
-66.0	0.2961	-34.5	42.79	-3.0	2204	28.5	76.32	60.0	1.905		
-64.5	0.3282	-33.0	49.46	-1.5	2297	30.0	66.09	61.5	1.078		
-63.0	0.8410	-31.5	56.73	0.0	2313	31.5	57.25	63.0	0.4387		
-61.5	1.454	-30.0	65.33	1.5	2271	33.0	49.55	64.5	0.2978		
-60.0	2.243	-28.5	75.88	3.0	2146	34.5	43.05	66.0	0.2825		

Electricity Parameter:

Current I: 0.1000A Power: 3.260W
 Voltage V: 32.59V PF: 1.000

Optical Parameter (Distance=2.410m):

Equivalent Luminous flux: Φ_{eff}= 314.3lm Efficiency: Eff=96.43lm/W
 Diffuse angle: @ (25%) : 21.2deg @ (50%) : 15.9deg @ (75%) : 11.4deg @ (50%) : 15.9deg
 Diffuse angle: @ (25%) : 21.2deg @ (50%) : 15.9deg @ (75%) : 11.4deg @ (50%) : 15.9deg
 I_{max}=2314cd (C=0.0deg,G=-0.5deg) C0-180Plane I_{max}= 2314cd(G=-0.5deg)
 C0-180Plane I₀= 2313cd



Intensity data: (deg , cd) CO-180

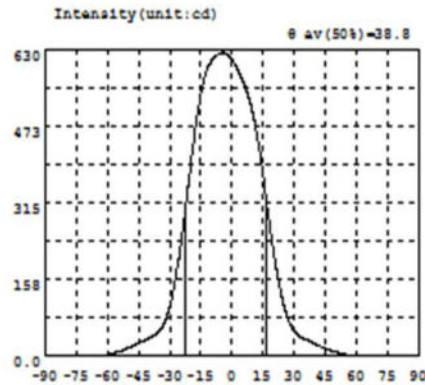
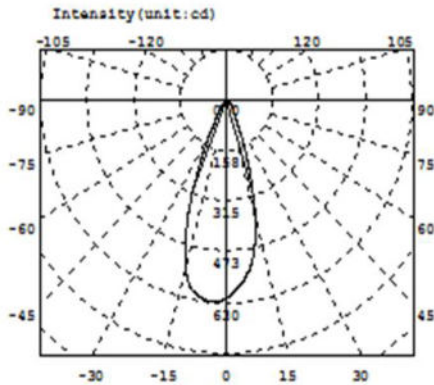
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.4632	-58.5	1.847	-27.0	95.84	4.5	1408	36.0	35.53	67.5	0.2878
-88.5	0.4503	-57.0	2.845	-25.5	111.1	6.0	1327	37.5	30.57	69.0	0.2870
-87.0	0.3602	-55.5	3.566	-24.0	128.3	7.5	1216	39.0	25.90	70.5	0.3188
-85.5	0.3377	-54.0	4.630	-22.5	148.1	9.0	1076	40.5	21.51	72.0	0.3333
-84.0	0.2934	-52.5	5.786	-21.0	170.5	10.5	914.2	42.0	18.06	73.5	0.3452
-82.5	0.2829	-51.0	6.995	-19.5	197.9	12.0	744.5	43.5	15.52	75.0	0.3405
-81.0	0.2634	-49.5	8.360	-18.0	235.9	13.5	580.1	45.0	13.27	76.5	0.3352
-79.5	0.2652	-48.0	9.965	-16.5	292.4	15.0	436.3	46.5	11.22	78.0	0.3122
-78.0	0.2902	-46.5	11.85	-15.0	377.5	16.5	314.3	48.0	9.452	79.5	0.2865
-76.5	0.3503	-45.0	13.98	-13.5	496.2	18.0	233.1	49.5	7.904	81.0	0.2647
-75.0	0.3469	-43.5	16.40	-12.0	644.1	19.5	181.4	51.0	6.600	82.5	0.2608
-73.5	0.3550	-42.0	19.05	-10.5	814.2	21.0	148.8	52.5	5.470	84.0	0.2642
-72.0	0.3637	-40.5	22.25	-9.0	985.9	22.5	126.3	54.0	4.444	85.5	0.3904
-70.5	0.3210	-39.0	26.27	-7.5	1145	24.0	109.0	55.5	3.353	87.0	0.3375
-69.0	0.3116	-37.5	30.92	-6.0	1277	25.5	94.13	57.0	2.544	88.5	0.3937
-67.5	0.2061	-36.0	36.35	-4.5	1378	27.0	81.58	58.5	1.763	90.0	0.3390
-66.0	0.2893	-34.5	42.88	-3.0	1447	28.5	71.38	60.0	1.180		
-64.5	0.2969	-33.0	50.66	-1.5	1489	30.0	62.82	61.5	0.7562		
-63.0	0.3301	-31.5	59.73	0.0	1505	31.5	54.31	63.0	0.4218		
-61.5	0.6392	-30.0	70.40	1.5	1497	33.0	46.95	64.5	0.3480		
-60.0	1.173	-28.5	82.56	3.0	1464	34.5	40.65	66.0	0.3046		

Electricity Parameter:

Current I: 0.1000A Power: 3.259W
Voltage V: 32.59V PF: 1.000

Optical Parameter (Distance=2.410m):

Equivalent Luminous flux: Φ_{eff} = 325.7lm Efficiency: Eff = 99.95lm/W
Diffuse angle: @ (25%) : 30.7deg @ (50%) : 22.9deg @ (75%) : 16.0deg @ (50%) : 22.9deg
Diffuse angle: @ (25%) : 30.7deg @ (50%) : 22.9deg @ (75%) : 16.0deg @ (50%) : 22.9deg
Imax=1505cd (C=0.0deg,G=0.0deg) CO-180Plane Imax= 1505cd(G=0.0deg)
CO-180Plane I0= 1505cd



Intensity data:(deg , cd) C0-180

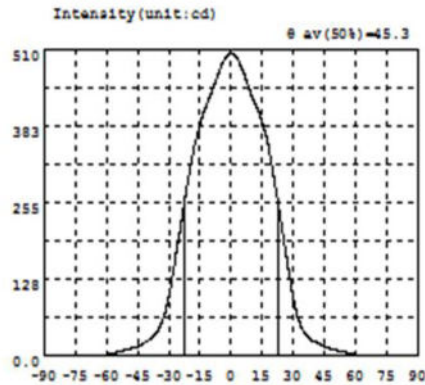
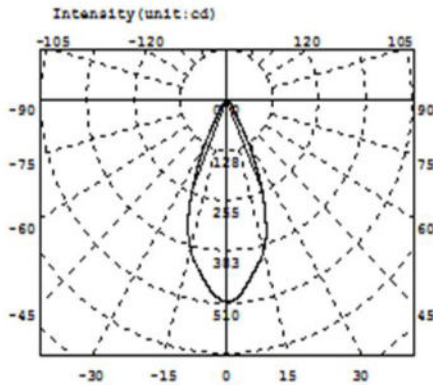
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.2825	-58.5	5.115	-27.0	166.7	4.5	571.6	36.0	33.73	67.5	0.4032
-88.5	0.2939	-57.0	6.659	-25.5	204.2	6.0	556.7	37.5	30.88	69.0	0.3930
-87.0	0.2946	-55.5	8.478	-24.0	250.5	7.5	538.5	39.0	28.13	70.5	0.3593
-85.5	0.3171	-54.0	10.53	-22.5	301.3	9.0	516.3	40.5	24.93	72.0	0.3383
-84.0	0.3068	-52.5	12.89	-21.0	353.6	10.5	488.3	42.0	21.92	73.5	0.3101
-82.5	0.3816	-51.0	15.38	-19.5	406.2	12.0	453.8	43.5	19.04	75.0	0.2755
-81.0	0.4011	-49.5	18.10	-18.0	456.1	13.5	413.6	45.0	16.33	76.5	0.2580
-79.5	0.3996	-48.0	20.96	-16.5	500.6	15.0	369.7	46.5	13.80	78.0	0.2652
-78.0	0.3595	-46.5	23.89	-15.0	538.4	16.5	318.0	48.0	11.51	79.5	0.2870
-76.5	0.2035	-45.0	26.91	-13.5	568.5	18.0	271.8	49.5	9.365	81.0	0.3147
-75.0	0.3570	-43.5	29.87	-12.0	589.7	19.5	227.9	51.0	7.489	82.5	0.3283
-73.5	0.3624	-42.0	32.85	-10.5	602.1	21.0	187.7	52.5	5.859	84.0	0.3514
-72.0	0.4067	-40.5	36.15	-9.0	610.3	22.5	152.1	54.0	4.456	85.5	0.3561
-70.5	0.4313	-39.0	39.61	-7.5	617.0	24.0	121.3	55.5	3.208	87.0	0.3830
-69.0	0.4918	-37.5	43.43	-6.0	621.7	25.5	95.48	57.0	2.165	88.5	0.3598
-67.5	0.5374	-36.0	48.04	-4.5	623.6	27.0	75.22	58.5	1.374	90.0	0.5120
-66.0	0.6228	-34.5	54.85	-3.0	621.6	28.5	61.14	60.0	0.7141		
-64.5	1.147	-33.0	65.46	-1.5	616.2	30.0	51.07	61.5	0.3860		
-63.0	1.845	-31.5	80.98	0.0	608.3	31.5	44.25	63.0	0.3781		
-61.5	2.731	-30.0	102.8	1.5	598.1	33.0	39.98	64.5	0.3853		
-60.0	3.772	-28.5	131.6	3.0	585.3	34.5	36.79	66.0	0.5549		

Electricity Parameter:

Current I: 0.1000A Power: 3.630W
Voltage V: 36.29V PF: 1.000

Optical Parameter(Distance=2.410m):

Equivalent Luminous flux: Φ eff= 306.8lm Efficiency: Eff=84.54lm/W
Diffuse angle: @ (25%): 49.7deg @ (50%): 38.8deg @ (75%): 29.0deg @ (50%): 38.8deg
Diffuse angle: @ (25%): 50.0deg @ (50%): 39.3deg @ (75%): 29.8deg @ (50%): 39.3deg
Imax=623.6cd (C=0.0deg,C=-4.5deg) C0-180Plane Imax= 623.6cd(G=-4.5deg)
C0-180Plane IO= 608.3cd



Intensity data: (deg , cd) CO-180

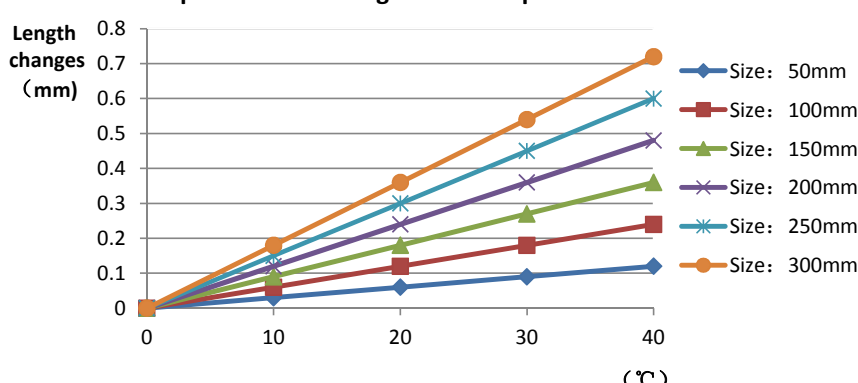
A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.2486	-58.5	3.870	-27.0	159.9	4.5	484.2	36.0	35.52	67.5	0.3491
-88.5	0.2382	-57.0	5.143	-25.5	191.4	6.0	470.7	37.5	30.09	69.0	0.2987
-87.0	0.2506	-55.5	6.407	-24.0	221.5	7.5	456.2	39.0	26.42	70.5	0.3001
-85.5	0.2953	-54.0	7.749	-22.5	255.8	9.0	441.4	40.5	23.83	72.0	0.2931
-84.0	0.3383	-52.5	9.136	-21.0	287.8	10.5	428.1	42.0	21.44	73.5	0.2938
-82.5	0.3477	-51.0	10.41	-19.5	317.9	12.0	416.3	43.5	18.62	75.0	0.3096
-81.0	0.3667	-49.5	11.67	-18.0	343.1	13.5	403.4	45.0	16.47	76.5	0.3523
-79.5	0.3324	-48.0	13.10	-16.5	364.6	15.0	388.4	46.5	14.42	78.0	0.3568
-78.0	0.3030	-46.5	14.81	-15.0	384.4	16.5	370.2	48.0	12.87	79.5	0.3418
-76.5	0.2938	-45.0	16.84	-13.5	401.7	18.0	347.4	49.5	11.50	81.0	0.3018
-75.0	0.2684	-43.5	19.29	-12.0	416.0	19.5	317.9	51.0	10.21	82.5	0.2932
-73.5	0.2824	-42.0	22.30	-10.5	429.6	21.0	287.9	52.5	8.899	84.0	0.2517
-72.0	0.3379	-40.5	25.14	-9.0	443.0	22.5	256.0	54.0	7.499	85.5	0.2608
-70.5	0.3773	-39.0	28.49	-7.5	456.9	24.0	222.2	55.5	6.201	87.0	0.2524
-69.0	0.4371	-37.5	33.08	-6.0	470.4	25.5	188.0	57.0	4.954	88.5	0.2914
-67.5	0.4556	-36.0	39.38	-4.5	483.5	27.0	156.1	58.5	3.795	90.0	0.1466
-66.0	0.5541	-34.5	47.40	-3.0	493.7	28.5	124.8	60.0	2.781		
-64.5	0.7190	-33.0	59.68	-1.5	500.4	30.0	93.94	61.5	1.876		
-63.0	1.233	-31.5	76.46	0.0	502.9	31.5	70.95	63.0	1.121		
-61.5	1.969	-30.0	99.62	1.5	501.4	33.0	54.89	64.5	0.6630		
-60.0	2.866	-28.5	129.2	3.0	494.6	34.5	43.70	66.0	0.4215		

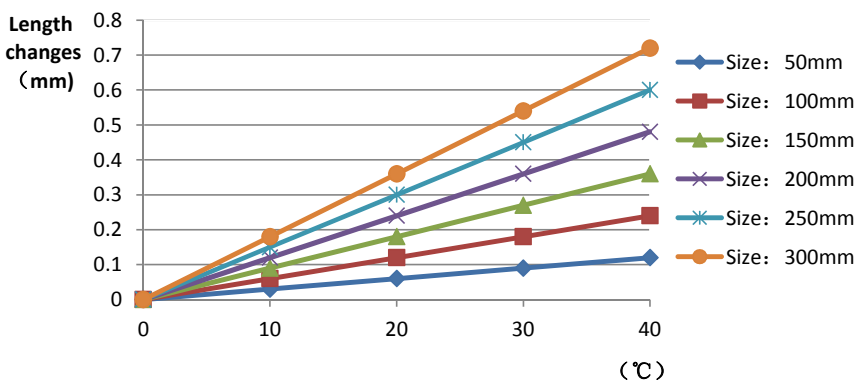
Electricity Parameter:

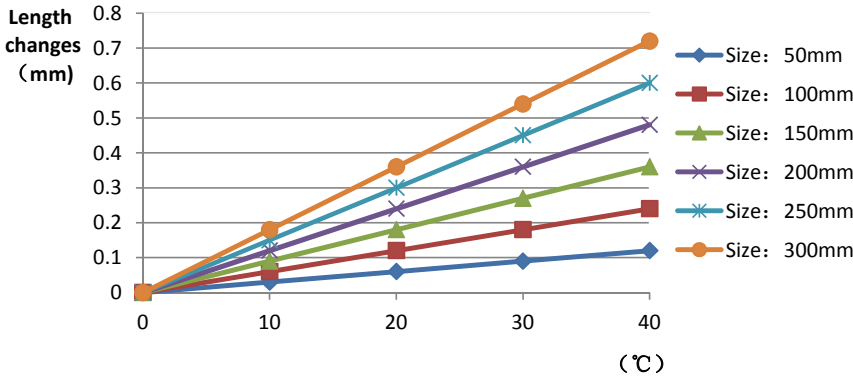
Current I: 0.1000A Power: 3.260W
Voltage V: 32.59V PF: 1.000

Optical Parameter (Distance=2.410m):

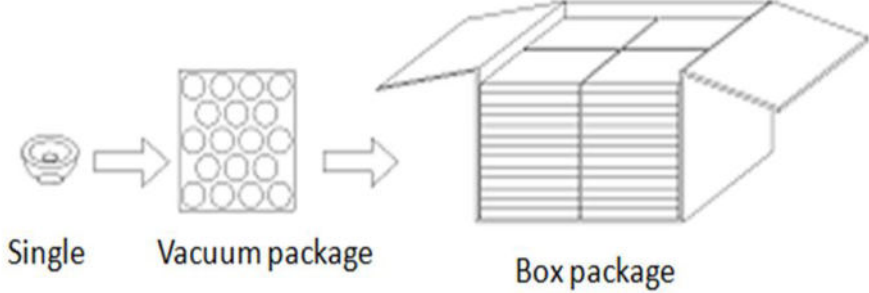
Equivalent Luminous flux: Φ_{eff} = 291.0lm Efficiency: Eff = 89.29lm/W
Diffuse angle: @ (25%) : 57.0deg @ (50%) : 45.3deg @ (75%) : 31.4deg @ (50%) : 45.3deg
Diffuse angle: @ (25%) : 57.0deg @ (50%) : 45.3deg @ (75%) : 31.4deg @ (50%) : 45.3deg
Imax=503.2cd (C=0.0deg,G=0.5deg) CO-180Plane Imax= 503.2cd(G=0.5deg)
CO-180Plane IO= 502.9cd

	Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks																																									
1.Size	diameter	55	55	54.8	54.8	54.88	54.89		Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.																																									
	thickness	2	2.1	1.9	2.05	2.03	2.02			2.04																																								
	height	24.45	24.55	24.35	24.55	24.54	24.52			24.53																																								
	card buckle thickness1	2.5	2.5	2.4	2.52	2.5	2.49			2.51																																								
	card buckle thickness2	1.3	1.3	1.2	1.28	1.23	1.27			1.26																																								
	slot width1	3.5	3.6	3.4	3.49	3.41	3.45			3.42																																								
	slot width2	7.9	8	7.8	7.91	7.89	7.85			7.91																																								
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 half plating			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		15.9°	15.9°	15.8°	15.4°																																												
	K-value		7.36	7.13	7.18	7.11																																												
	Efficiency		76.13%	75.19%	74.80%	75.20%																																												
Facula	See the signature sample																																																	
Comprehensive judgment	Qualified																																																	
Remarks:	<p>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</p> <p>2、 Ambient temperature on the size of the product refer to the table on the right</p>																																																	
	<p style="text-align: center;">PC product size changes with temperature table</p>  <table border="1"> <caption>Data for PC product size changes with temperature table</caption> <thead> <tr> <th>Temperature (°C)</th> <th>50mm</th> <th>100mm</th> <th>150mm</th> <th>200mm</th> <th>250mm</th> <th>300mm</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>10</td> <td>0.05</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> <td>0.22</td> </tr> <tr> <td>20</td> <td>0.08</td> <td>0.12</td> <td>0.18</td> <td>0.25</td> <td>0.32</td> <td>0.38</td> </tr> <tr> <td>30</td> <td>0.10</td> <td>0.15</td> <td>0.25</td> <td>0.35</td> <td>0.45</td> <td>0.55</td> </tr> <tr> <td>40</td> <td>0.12</td> <td>0.20</td> <td>0.35</td> <td>0.48</td> <td>0.60</td> <td>0.72</td> </tr> </tbody> </table>									Temperature (°C)	50mm	100mm	150mm	200mm	250mm	300mm	0	0.00	0.00	0.00	0.00	0.00	0.00	10	0.05	0.08	0.12	0.15	0.18	0.22	20	0.08	0.12	0.18	0.25	0.32	0.38	30	0.10	0.15	0.25	0.35	0.45	0.55	40	0.12	0.20	0.35	0.48	0.60
Temperature (°C)	50mm	100mm	150mm	200mm	250mm	300mm																																												
0	0.00	0.00	0.00	0.00	0.00	0.00																																												
10	0.05	0.08	0.12	0.15	0.18	0.22																																												
20	0.08	0.12	0.18	0.25	0.32	0.38																																												
30	0.10	0.15	0.25	0.35	0.45	0.55																																												
40	0.12	0.20	0.35	0.48	0.60	0.72																																												
<p>1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.</p> <p>2. Try to avoid touching the total reflection surface when taking the lens.</p> <p>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.).</p> <p>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.</p>																																																		

	Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks																																									
1.Size	diameter	55	55	54.8	54.82	54.83	54.82	54.81	Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.																																									
	thickness	2	2.1	1.9	2.01	2.03	2.02	2.02																																										
	height	24.45	24.55	24.35	24.55	24.54	24.52	24.53																																										
	card buckle thickness1	2.5	2.5	2.4	2.52	2.5	2.49	2.51																																										
	card buckle thickness2	1.3	1.3	1.2	1.28	1.23	1.27	1.26																																										
	slot width1	3.5	3.6	3.4	3.43	3.41	3.45	3.42																																										
	slot width2	7.9	8	7.8	7.99	7.99	7.95	7.91																																										
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 half plating			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		22.9°	23.2°	23°	22.9°																																												
	K-value		4.62	4.52	4.54	4.58																																												
	Efficiency		78.86%	78.90%	78.20%	78.57%																																												
Facula	See the signature sample																																																	
Comprehensive judgment	Qualified																																																	
Remarks:	<p>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</p> <p>2、 Ambient temperature on the size of the product refer to the table on the right</p>																																																	
	<p style="text-align: center;">PC product size changes with temperature table</p>  <table border="1"> <caption>Data for PC product size changes with temperature table</caption> <thead> <tr> <th>Temperature (°C)</th> <th>50mm</th> <th>100mm</th> <th>150mm</th> <th>200mm</th> <th>250mm</th> <th>300mm</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>10</td> <td>0.05</td> <td>0.08</td> <td>0.10</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> </tr> <tr> <td>20</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> <td>0.22</td> <td>0.28</td> </tr> <tr> <td>30</td> <td>0.10</td> <td>0.15</td> <td>0.20</td> <td>0.25</td> <td>0.30</td> <td>0.38</td> </tr> <tr> <td>40</td> <td>0.12</td> <td>0.18</td> <td>0.25</td> <td>0.32</td> <td>0.38</td> <td>0.48</td> </tr> </tbody> </table>									Temperature (°C)	50mm	100mm	150mm	200mm	250mm	300mm	0	0.00	0.00	0.00	0.00	0.00	0.00	10	0.05	0.08	0.10	0.12	0.15	0.18	20	0.08	0.12	0.15	0.18	0.22	0.28	30	0.10	0.15	0.20	0.25	0.30	0.38	40	0.12	0.18	0.25	0.32	0.38
Temperature (°C)	50mm	100mm	150mm	200mm	250mm	300mm																																												
0	0.00	0.00	0.00	0.00	0.00	0.00																																												
10	0.05	0.08	0.10	0.12	0.15	0.18																																												
20	0.08	0.12	0.15	0.18	0.22	0.28																																												
30	0.10	0.15	0.20	0.25	0.30	0.38																																												
40	0.12	0.18	0.25	0.32	0.38	0.48																																												
<p>1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.</p> <p>2. Try to avoid touching the total reflection surface when taking the lens.</p> <p>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.).</p> <p>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.</p>																																																		

	Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks																																									
1.Size	diameter	55	55	54.8	54.82	54.83	54.85	54.82	Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.																																									
	thickness	2	2.1	1.9	2.02	1.95	1.96	1.97																																										
	height	24.45	24.55	24.35	24.46	24.54	24.51	24.49																																										
	card buckle thickness1	2.5	2.5	2.4	2.43	2.44	2.47	2.49																																										
	card buckle thickness2	1.3	1.3	1.2	1.21	1.23	1.22	1.25																																										
	slot width1	3.5	3.6	3.4	3.3	3.31	3.32	3.31																																										
	slot width2	7.9	8	7.8	8	7.92	7.93	7.91																																										
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 half plating			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		38.8°	39.9°	39.2°	40.2°																																												
	K-value		2.03	1.94	1.97	1.92																																												
	Efficiency		74.28%	73.40%	74.33%	73.65%																																												
Facula	See the signature sample																																																	
Comprehensive judgment	Qualified																																																	
Remarks:	<p>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</p> <p>2、 Ambient temperature on the size of the product refer to the table on the right</p>																																																	
	<p style="text-align: center;">PC product size changes with temperature table</p>  <table border="1"> <caption>Data for PC product size changes with temperature table</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Size: 50mm</th> <th>Size: 100mm</th> <th>Size: 150mm</th> <th>Size: 200mm</th> <th>Size: 250mm</th> <th>Size: 300mm</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>10</td> <td>0.05</td> <td>0.08</td> <td>0.10</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> </tr> <tr> <td>20</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> <td>0.22</td> <td>0.28</td> </tr> <tr> <td>30</td> <td>0.10</td> <td>0.15</td> <td>0.20</td> <td>0.25</td> <td>0.30</td> <td>0.38</td> </tr> <tr> <td>40</td> <td>0.12</td> <td>0.18</td> <td>0.25</td> <td>0.32</td> <td>0.40</td> <td>0.50</td> </tr> </tbody> </table>									Temperature (°C)	Size: 50mm	Size: 100mm	Size: 150mm	Size: 200mm	Size: 250mm	Size: 300mm	0	0.00	0.00	0.00	0.00	0.00	0.00	10	0.05	0.08	0.10	0.12	0.15	0.18	20	0.08	0.12	0.15	0.18	0.22	0.28	30	0.10	0.15	0.20	0.25	0.30	0.38	40	0.12	0.18	0.25	0.32	0.40
Temperature (°C)	Size: 50mm	Size: 100mm	Size: 150mm	Size: 200mm	Size: 250mm	Size: 300mm																																												
0	0.00	0.00	0.00	0.00	0.00	0.00																																												
10	0.05	0.08	0.10	0.12	0.15	0.18																																												
20	0.08	0.12	0.15	0.18	0.22	0.28																																												
30	0.10	0.15	0.20	0.25	0.30	0.38																																												
40	0.12	0.18	0.25	0.32	0.40	0.50																																												
<p>1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.</p> <p>2. Try to avoid touching the total reflection surface when taking the lens.</p> <p>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.).</p> <p>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.</p>																																																		

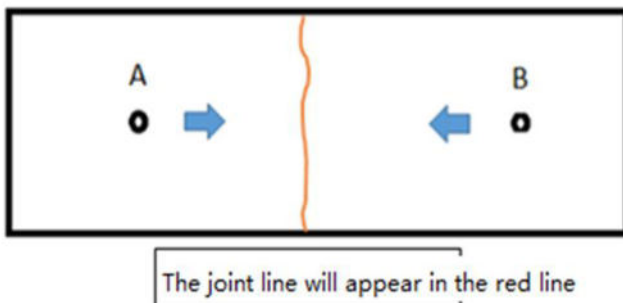
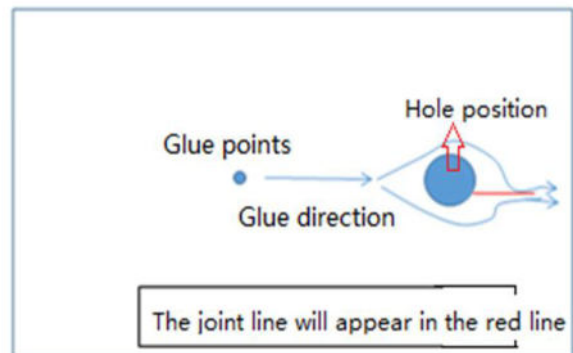
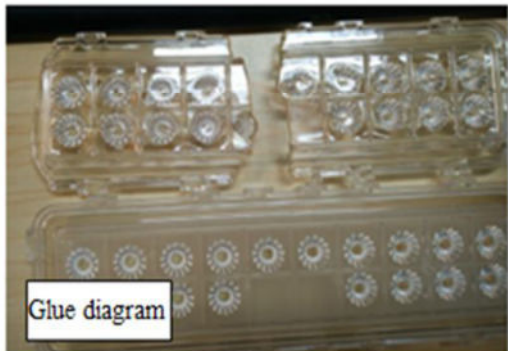
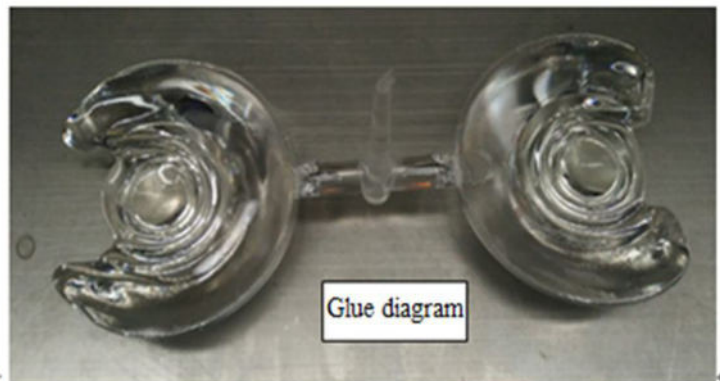
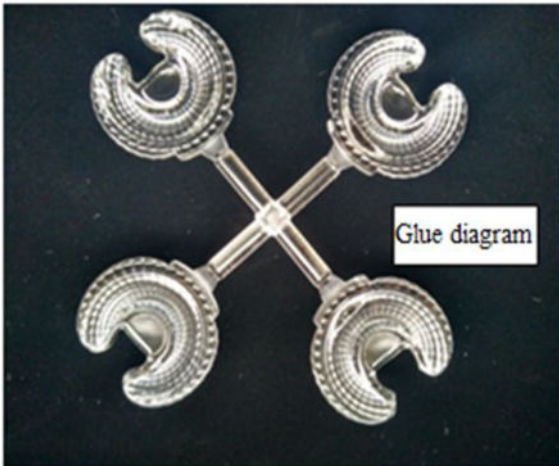
	Standard size	Upper Size limit	Lower size limit	Test result1	Test result2	Test result3	Test result4	Judgment	Remarks																																										
1.Size	diameter	55	55	54.8	54.88	54.87	54.86	54.81	Test environment: In 20 °C -25 °C environment to achieve thermal equilibrium after the test.																																										
	thickness	2	2.1	1.9	2.04	2.03	2.08	2.07																																											
	height	24.45	24.55	24.35	24.54	24.53	24.54	24.55																																											
	card buckle thickness1	2.5	2.5	2.4	2.49	2.43	2.47	2.48																																											
	card buckle thickness2	1.3	1.3	1.2	1.26	1.27	1.25	1.24																																											
	slot width1	3.5	3.6	3.4	3.41	3.42	3.45	3.46																																											
	slot width2	7.9	8	7.8	7.98	7.95	7.96	7.97																																											
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 half plating			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		45.3°	47.7°	45.6°	46.2°																																													
	K-value																																																		
	Efficiency		70.68%	71.62%	70.53%	71.38%																																													
Facula	See the signature sample																																																		
Comprehensive judgment	Qualified																																																		
Remarks:	<p>1、 Tool Number: V-Vernier Caliper 2D-Quadratic H-Height Gauge M-Tool Microscope P-Needle T-Thick Gauge R-Radius Gauge E-Visual.</p> <p>2、 Ambient temperature on the size of the product refer to the table on the right</p>																																																		
	<p style="text-align: center;">PC product size changes with temperature table</p> <table border="1"> <caption>Data for PC product size changes with temperature table</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Size: 50mm</th> <th>Size: 100mm</th> <th>Size: 150mm</th> <th>Size: 200mm</th> <th>Size: 250mm</th> <th>Size: 300mm</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>10</td> <td>0.05</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.18</td> <td>0.22</td> </tr> <tr> <td>20</td> <td>0.10</td> <td>0.15</td> <td>0.22</td> <td>0.28</td> <td>0.35</td> <td>0.42</td> </tr> <tr> <td>30</td> <td>0.15</td> <td>0.22</td> <td>0.30</td> <td>0.38</td> <td>0.48</td> <td>0.58</td> </tr> <tr> <td>40</td> <td>0.20</td> <td>0.28</td> <td>0.38</td> <td>0.48</td> <td>0.60</td> <td>0.72</td> </tr> </tbody> </table>										Temperature (°C)	Size: 50mm	Size: 100mm	Size: 150mm	Size: 200mm	Size: 250mm	Size: 300mm	0	0.00	0.00	0.00	0.00	0.00	0.00	10	0.05	0.08	0.12	0.15	0.18	0.22	20	0.10	0.15	0.22	0.28	0.35	0.42	30	0.15	0.22	0.30	0.38	0.48	0.58	40	0.20	0.28	0.38	0.48	0.60
Temperature (°C)	Size: 50mm	Size: 100mm	Size: 150mm	Size: 200mm	Size: 250mm	Size: 300mm																																													
0	0.00	0.00	0.00	0.00	0.00	0.00																																													
10	0.05	0.08	0.12	0.15	0.18	0.22																																													
20	0.10	0.15	0.22	0.28	0.35	0.42																																													
30	0.15	0.22	0.30	0.38	0.48	0.58																																													
40	0.20	0.28	0.38	0.48	0.60	0.72																																													
<p>1. Please wear clean gloves during the lens assembly process to prevent the lens surface from being contaminated.</p> <p>2. Try to avoid touching the total reflection surface when taking the lens.</p> <p>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.).</p> <p>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.</p>																																																			

PN		HK-SZ-55@25-15-D9-2#-1g-1		Product Name		K Gemini 55@25-15 degree reflective c	
Product material		PC half plating		Customer			
Package diagram		 <p style="text-align: center;">Single Vacuum package Box package</p>					
Product packing		10	A/ Box	4	pcs/Layer		
		11	Layer/Box	440	A/ Carton		
Packaging Materials	NO.	Part No	Part name	Size	Dosage	Unit	Remarks
	1	2.07.0041	Blister box	23cm*21cm	44	BAG	
	2	2.08.0001	PE film	30cm*30cm	44	PCS	
	3	2.06.0005	Reel label paper	6.2cm*8cm	44	PCS	
	4	2.06.0005	Box label paper	6.2cm*9.2cm	1	PCS	
	5	2.06.0003	big plate	46.8cm*42.8cm	12	PCS	
	6	2.06.0015	big flat carton	48cm*44cm*19cm	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:

Syntner



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 ²	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 ≤ 10mm, 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		√	