



Testing Laboratory
1126



LUMINOUS INTENSITY DISTRIBUTION TEST REPORT

Report number : LUR20110250

Issued date : May 26, 2011

Laboratory : PHOTOVOLTAIC and LIGHTING LABORATORY
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Laboratory Accreditation No. : 1126



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台灣大電力研究試驗中心
Taiwan Electric Research & Testing Center

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Report No. : LUR20110250

LUMINOUS INTENSITY DISTRIBUTION TEST REPORT

Applicant : Top Win Optoelectronics Corp.

Applicant's address : 2F., No.148, Jian 1st Rd., Zhonghe City, Taipei County 235, Taiwan (R.O.C.)

Product : LED Street Light

Brand /Model No. : Slite/ TW-PI2072M02

Standard :

- 1.CIE 70: 1987 The Measurement of Absolute Luminous Intensity Distributions.
- 2.CIE 84:1989 The Measurement of Luminous Flux.
- 3.Illuminating engineering society of north America "Lighting Handbook"8th ed. 1995.

Sampling procedure : Sent by applicant

Product dimension : 265mm(L) × 240mm(W) × 40mm(H)

Sampling date : May 19, 2011

Testing date : May 19, 2011~May 24, 2011

Testing engineers : Chen-Lung Hsieh, Young-Tsan Lin

Result of test : Refer to page 3~10



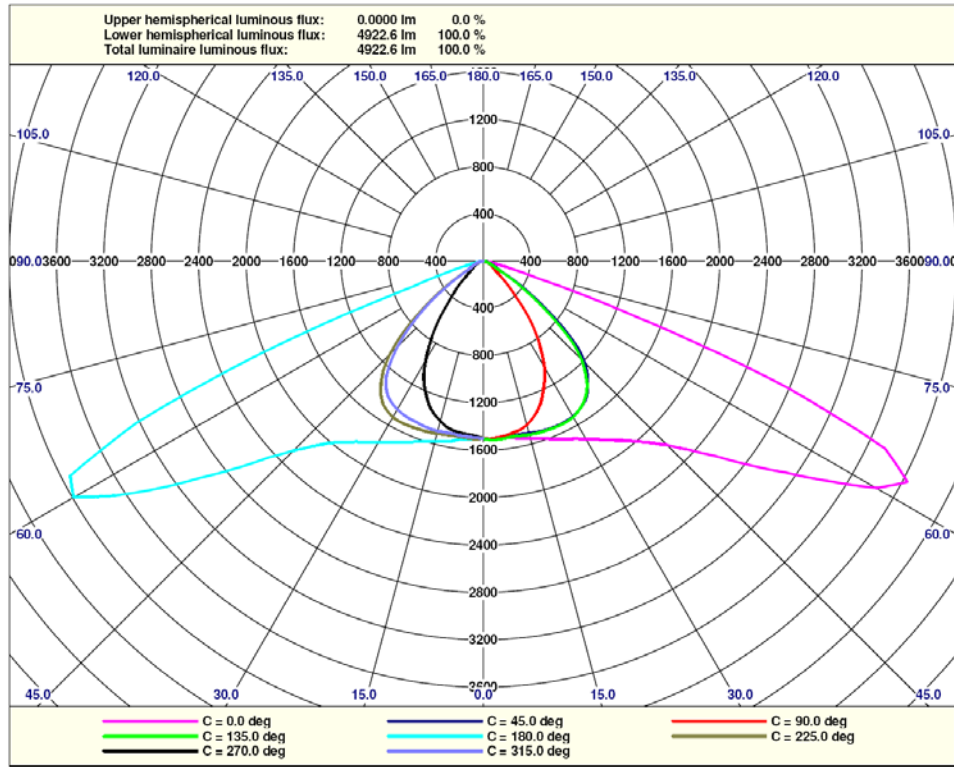
Signatory of the report _____



1. TEST RESULT :

(1) Luminous intensity distribution in polar coordinate

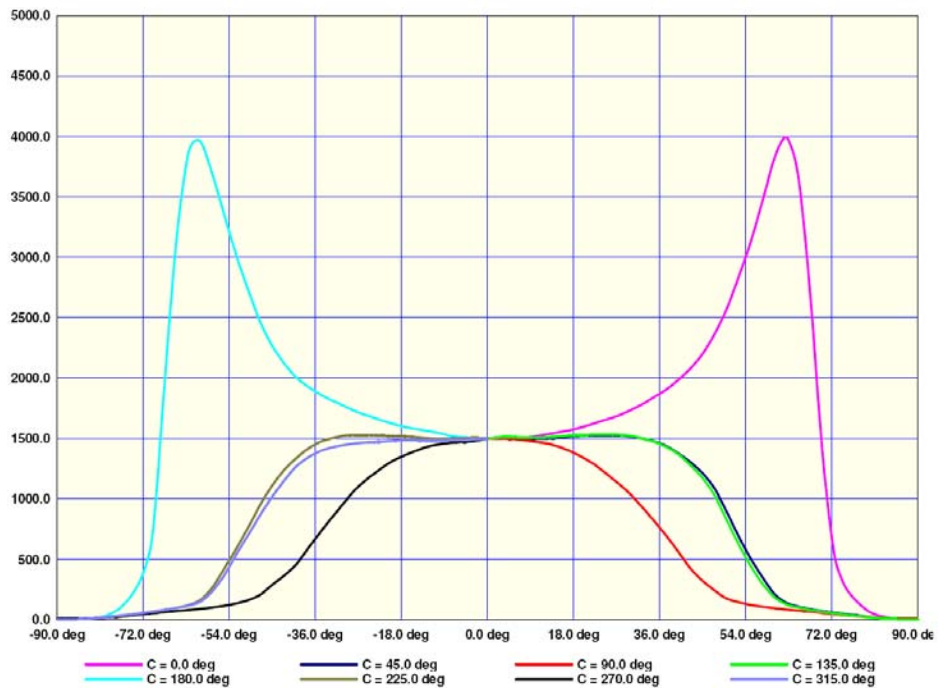
unit : cd



All luminous intensity values (shown radially from centre) are in cd.
Elevation angle values are shown around the outside of the graph.

(2) Luminous intensity distribution in Cartesian coordinate

unit : cd





$\gamma \setminus C$	260.0	265.0	270.0	275.0	280.0	285.0	290.0	295.0	300.0	305.0	310.0	315.0	320.0
0.0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
2.5	1500	1480	1480	1490	1490	1480	1490	1500	1500	1490	1500	1490	1490
5.0	1490	1480	1470	1490	1480	1480	1480	1490	1490	1490	1490	1490	1490
7.5	1470	1470	1460	1470	1460	1470	1480	1480	1480	1480	1480	1490	1480
10.0	1460	1460	1450	1450	1450	1460	1460	1460	1460	1470	1470	1480	1480
12.5	1440	1440	1430	1430	1420	1440	1440	1440	1450	1460	1460	1480	1490
15.0	1410	1410	1400	1390	1390	1400	1410	1420	1430	1440	1460	1490	1490
17.5	1380	1360	1360	1360	1360	1360	1370	1390	1400	1430	1460	1490	1500
20.0	1340	1320	1310	1310	1310	1320	1340	1370	1380	1410	1450	1480	1500
22.5	1280	1260	1240	1260	1260	1270	1290	1330	1360	1400	1440	1470	1500
25.0	1210	1180	1170	1190	1190	1200	1230	1290	1330	1380	1420	1470	1500
27.5	1140	1100	1090	1090	1100	1130	1170	1220	1280	1340	1410	1460	1500
30.0	1040	996	967	983	989	1040	1070	1150	1220	1300	1370	1450	1500
32.5	900	878	847	863	869	915	974	1060	1140	1250	1330	1430	1500
35.0	769	734	722	736	743	793	856	931	1050	1170	1280	1400	1480
37.5	634	600	590	584	611	662	729	808	927	1070	1210	1340	1460
40.0	488	476	454	463	470	530	593	674	779	947	1110	1270	1420
42.5	389	369	364	372	377	409	453	540	638	813	958	1150	1350
45.0	306	291	289	287	299	324	357	410	504	643	813	1020	1260
47.5	226	209	203	201	220	245	273	315	389	504	657	869	1130
50.0	167	165	160	160	163	170	187	232	275	381	497	703	948
52.5	141	137	133	135	139	143	147	160	182	247	362	544	765
55.0	122	119	114	114	120	122	123	128	134	151	227	366	576
57.5	107	107	101	103	108	109	109	114	117	124	141	233	412
60.0	95.9	95.4	89.7	92.5	95.4	95.4	94.4	101	104	109	118	143	252
62.5	87.3	85.8	79.6	83.9	86.8	86.3	82.0	84.4	90.1	94.0	102	117	153
65.0	75.4	73.9	71.5	72.0	74.4	76.3	73.4	73.4	76.8	81.6	86.3	95.9	115
67.5	62.0	63.4	63.4	63.4	62.5	63.4	62.0	63.4	64.4	71.5	71.5	79.6	93.0
70.0	52.5	52.9	51.5	52.5	52.0	52.5	52.0	55.3	54.8	58.2	59.6	65.3	73.4
72.5	42.9	42.1	41.8	41.4	42.1	43.2	44.5	47.6	44.8	46.0	48.2	52.0	57.7
75.0	33.4	32.8	31.8	32.1	32.5	35.0	36.9	41.1	36.9	36.4	37.2	39.9	43.1
77.5	23.7	23.0	23.3	23.3	23.0	26.0	25.9	29.0	24.6	25.6	27.8	30.5	30.3
80.0	17.2	16.5	15.7	15.9	15.3	17.6	17.9	18.2	16.9	16.8	18.5	18.6	19.4
82.5	11.0	11.0	10.5	10.5	10.0	10.5	10.0	10.5	13.8	9.1	10.0	10.5	10.5
85.0	8.1	7.6	7.2	7.2	6.7	6.7	6.2	6.2	7.2	5.2	5.7	4.8	4.6
87.5	6.7	6.7	6.2	5.7	5.2	4.8	4.5	4.1	3.6	3.3	2.9	2.8	2.5
90.0	6.7	6.2	5.7	5.7	5.2	4.6	4.3	3.8	3.3	3.1	2.6	2.3	2.0

$\gamma \setminus C$	325.0	330.0	335.0	340.0	345.0	350.0	355.0	360.0
0.0	1500	1500	1500	1500	1500	1500	1500	1500
2.5	1500	1490	1490	1500	1490	1500	1500	1500
5.0	1490	1490	1490	1500	1500	1500	1500	1500
7.5	1480	1490	1480	1500	1500	1510	1500	1500
10.0	1490	1500	1490	1510	1510	1520	1520	1520
12.5	1490	1510	1500	1510	1520	1530	1540	1530
15.0	1500	1520	1510	1530	1540	1540	1550	1550
17.5	1510	1530	1520	1540	1550	1550	1570	1570
20.0	1530	1540	1540	1560	1570	1580	1590	1600
22.5	1540	1560	1570	1600	1600	1610	1620	1630
25.0	1550	1580	1600	1630	1640	1650	1660	1660
27.5	1560	1600	1630	1670	1670	1690	1690	1690
30.0	1570	1630	1660	1700	1720	1730	1730	1730
32.5	1580	1650	1690	1750	1770	1780	1770	1780
35.0	1580	1670	1720	1790	1820	1830	1840	1840
37.5	1570	1690	1750	1830	1880	1900	1900	1910
40.0	1550	1690	1780	1870	1940	1960	1970	1980
42.5	1530	1680	1800	1910	2000	2030	2040	2080
45.0	1470	1660	1830	1960	2070	2140	2180	2200
47.5	1390	1630	1840	2010	2160	2280	2330	2360
50.0	1270	1560	1860	2080	2290	2440	2520	2560
52.5	1110	1460	1850	2150	2420	2670	2760	2830
55.0	881	1300	1790	2200	2570	2860	3060	3110
57.5	680	1110	1660	2220	2670	3040	3330	3460
60.0	502	861	1470	2140	2710	3170	3560	3830
62.5	330	667	1210	1940	2670	3210	3680	4040
65.0	208	504	966	1670	2390	2930	3320	3740
67.5	127	270	664	1220	1880	2310	2560	2740
70.0	100	150	324	687	1170	1460	1420	1380
72.5	75.4	113	163	258	328	398	471	491
75.0	55.8	80.1	116	165	201	230	243	250
77.5	39.6	52.0	77.7	96.3	115	137	138	138
80.0	24.7	31.2	40.6	54.4	59.1	67.7	66.8	57.2
82.5	12.9	13.4	14.6	18.1	24.1	27.8	26.2	22.9
85.0	5.7	5.7	5.7	6.7	7.2	9.1	9.5	9.5
87.5	2.6	2.6	2.8	3.2	3.2	3.6	2.9	2.9
90.0	2.0	1.9	1.9	1.9	2.0	2.0	1.4	2.9



(4) Luminous Flux Table

Lumen Summary				Luminaire Summary	
Zone	Lumens (lm)	Lamp %	Luminaire %	Total Lumens (0 - 180 deg):	4923 lm
0-30 deg	1247	25.3	25.3	Downward Lumens (0 - 90 deg):	4923 lm
0-40 deg	2111	42.9	42.9	Upward Lumens (90 - 180 deg):	-
0-60 deg	4022	81.7	81.7	Light Output Ratio (LOR):	100.0%
0-70 deg	4795	97.4	97.4	Downward LOR (DLOR):	100.0%
40-90 deg	2812	57.1	57.1	Upward LOR (ULOR):	0.0%
60-90 deg	900.6	18.3	18.3		
80-90 deg	10.96	0.2	0.2		
90-100 deg	0.000	0.0	0.0		

Complete Zonal Lumen Analysis

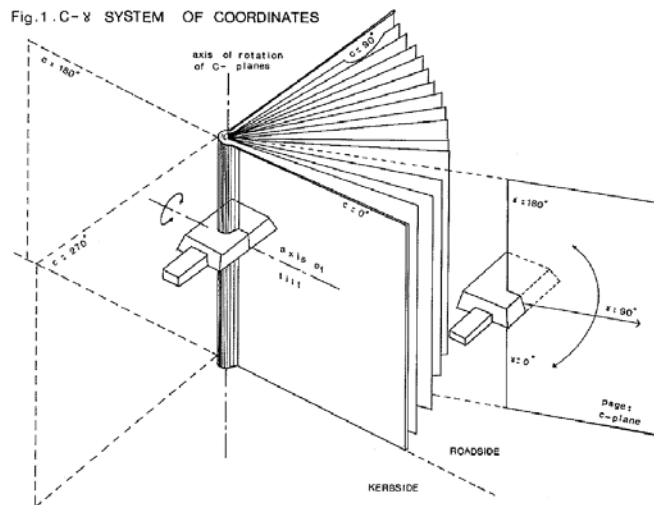
Elevation	Cone	Lumens (lm)	Cumulative	Lamp %	Luminaire %
0 deg	0.00 - 1.25	2.2	2.2	0.0	0.0
2.5 deg	1.25 - 3.75	17.9	20.1	0.4	0.4
5 deg	3.75 - 6.25	35.8	55.9	1.1	1.1
7.5 deg	6.25 - 8.75	53.5	109.4	2.2	2.2
10 deg	8.75 - 11.25	71.1	180.5	3.7	3.7
12.5 deg	11.25 - 13.75	88.7	269.2	5.5	5.5
15 deg	13.75 - 16.25	105.9	375.2	7.6	7.6
17.5 deg	16.25 - 18.75	122.8	497.9	10.1	10.1
20 deg	18.75 - 21.25	139.4	637.3	12.9	12.9
22.5 deg	21.25 - 23.75	155.4	792.8	16.1	16.1
25 deg	23.75 - 26.25	170.6	963.4	19.6	19.6
27.5 deg	26.25 - 28.75	184.8	1148.2	23.3	23.3
30 deg	28.75 - 31.25	197.6	1345.8	27.3	27.3
32.5 deg	31.25 - 33.75	208.6	1554.4	31.6	31.6
35 deg	33.75 - 36.25	217.6	1772.0	36.0	36.0
37.5 deg	36.25 - 38.75	224.5	1996.4	40.6	40.6
40 deg	38.75 - 41.25	228.7	2225.1	45.2	45.2
42.5 deg	41.25 - 43.75	230.9	2456.0	49.9	49.9
45 deg	43.75 - 46.25	232.8	2688.8	54.6	54.6
47.5 deg	46.25 - 48.75	235.5	2924.3	59.4	59.4
50 deg	48.75 - 51.25	237.8	3162.1	64.2	64.2
52.5 deg	51.25 - 53.75	241.3	3403.4	69.1	69.1
55 deg	53.75 - 56.25	245.2	3648.6	74.1	74.1
57.5 deg	56.25 - 58.75	248.9	3897.5	79.2	79.2
60 deg	58.75 - 61.25	249.0	4146.5	84.2	84.2
62.5 deg	61.25 - 63.75	241.0	4387.5	89.1	89.1
65 deg	63.75 - 66.25	211.1	4598.6	93.4	93.4
67.5 deg	66.25 - 68.75	154.8	4753.3	96.6	96.6
70 deg	68.75 - 71.25	82.8	4836.1	98.2	98.2
72.5 deg	71.25 - 73.75	35.7	4871.8	99.0	99.0
75 deg	73.75 - 76.25	22.6	4894.4	99.4	99.4
77.5 deg	76.25 - 78.75	13.6	4908.0	99.7	99.7
80 deg	78.75 - 81.25	7.3	4915.3	99.9	99.9
82.5 deg	81.25 - 83.75	3.7	4919.0	99.9	99.9
85 deg	83.75 - 86.25	1.9	4920.9	100.0	100.0
87.5 deg	86.25 - 88.75	1.2	4922.1	100.0	100.0
90 deg	88.75 - 90.00	0.5	4922.6	100.0	100.0

2. Basic characteristics :

Item		Test Value	Note
Input electrical characteristics	Voltage (Vac)	220	
	Frequency(Hz)	60	
	Current (A)	0.3639	
	Power (W)	73.71	
	Power factor (p.f.)	0.9207	
Output optical characteristics	Total luminous flux (lm)	4922.6	
	Luminous efficacy (lm/W)	66.78	
	Correlated Color Temp. (K)	3148.0	
	Color Rendering Index(CRI),Ra	80.1	

3.Note :

- (1) Horizontal alignment follows with the lighting plane of luminaire.
- (2) The light source : LED.
- (3) The test data are measured while the output is stable after operating about 60 minutes.
- (4) Ambient conditions of test: $(25 \pm 1)^\circ\text{C}$, $(60 \pm 10)\%$ R. H.
- (5) Test C-plane is as the diagram (Lighting plane is in the rear).



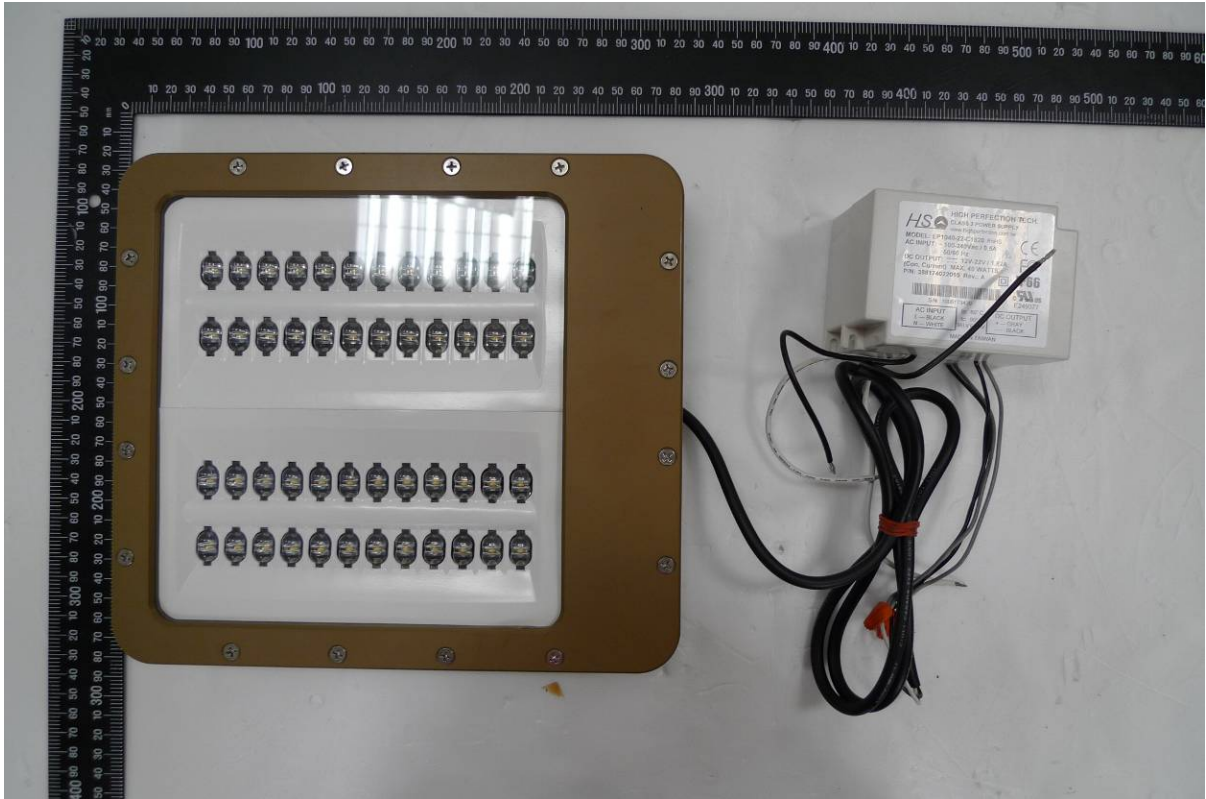
4. Test equipment

Item	Test equipment	Test equipment brand/ Model
Input electrical characteristics	Power meter	YOKOGAWA/ WT210
Output optical characteristics	Mirror swinging gonio-photometer, gonio-spectrometer	PSI/ LG 2.0



4.PHOTO :

Front view of appearance



Side view of appearance





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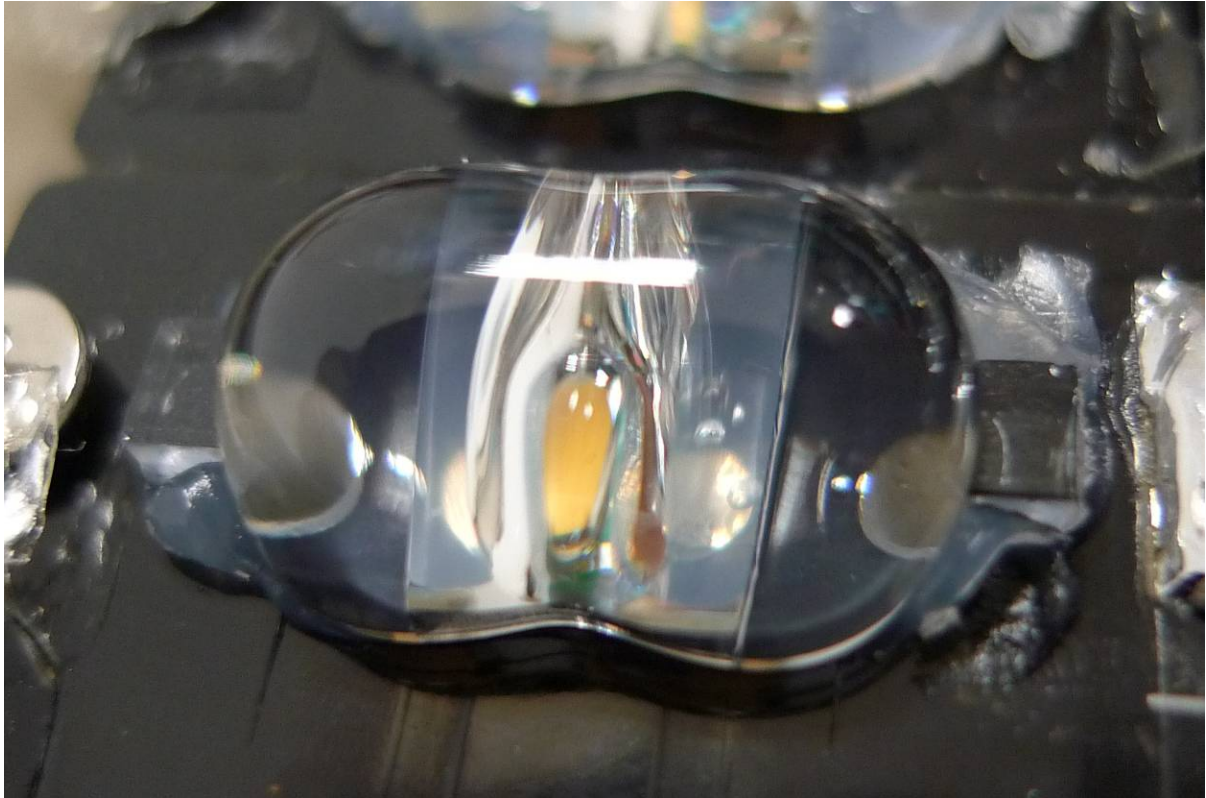
台灣大電力研究試驗中心

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LED



Control gear