

Test Report for Luminous Intensity Distributions

Test Standard : CIE 70 (1987) 、 CIE 84 (1989)

Date of Receipt : 2019 / 03 / 19

Test Date : 2019 / 03 / 19 ~ 2019 / 04 / 15

1. Issue Date for test report : 2019 / 04 / 18
2. Report No : 19031902
3. Total pages : 20
4. Test report without steel stamp is not valid, and shall not be reproduced except in full.
5. Test sample is not sampling by laboratory, test result relate only to the items tested.
6. Test report is not responsible for advertisement or promotion for products.

Approved Signatory:



毅豐光電股份有限公司
報告簽署人
黃錫偉

Test Report

Information for test items

Applicant : CoolLED Corp

Applicant address : 5F.-3, No.83, Sec. 2, Gongdao 5th Rd., East Dist., Hsinchu
City 30070, Taiwan, R.O.C.

Manufacturer : CoolLED Corp

Manufacturer address : 5F.-3, No.83, Sec. 2, Gongdao 5th Rd., East Dist.,
Hsinchu City 30070, Taiwan, R.O.C.

Trademark or brand name : CoolLED

Product name : 28000lm LED Outdoor Floodlight

Product model number : F2280C-201

Rated input voltage (V) : 100~277

Rated input frequency (Hz) : 50 / 60

Rated input power (W) : 240

Dimension for test item LxWxH (mm) : 470 x 407 x 60

Brand / model of controller : MEAN WELL / ELG-240-36A

-The following blank-

Test Content

Test Condition

Temperature (°C)	25.1
Humidity (% RH)	60.6
γ Axis measurement of angles (°)	5
C Axis measurement of angles (°)	5

Electrical Test

Test item	Test Result
Voltage(V)	220.0
Frequency(Hz)	60
Current (A)	1.118
Watt (W)	238.8
Power factor (PF)	0.971

Luminosity Test

Test item	Test Result
Total luminous flux of luminaires (lm)	27809.0
Initial luminaires efficiency(lm/W)	116.5
Central intensity (cd)	91890.8
Max intensity (cd)	92633.8
Angle for max intensity (°)	C : 355.0 γ : 0.0
Beam Angle (50% I _{max})	C0_180 Left=11.6 Right=10.4
	C90_270 Left=11.2 Right=10.5
Color temperature(K)	6130
Chromaticity Coordinates	x : 0.3194 y : 0.3335
Rendering Index(Ra)	83.4
R9	14
UGR , Unified Glare Rating	Viewing direction at right angles to lamp axis
	21.3
	Viewing direction parallel to lamp axis
	20.5

-The following blank-

Diagram for luminous intensity distribution I

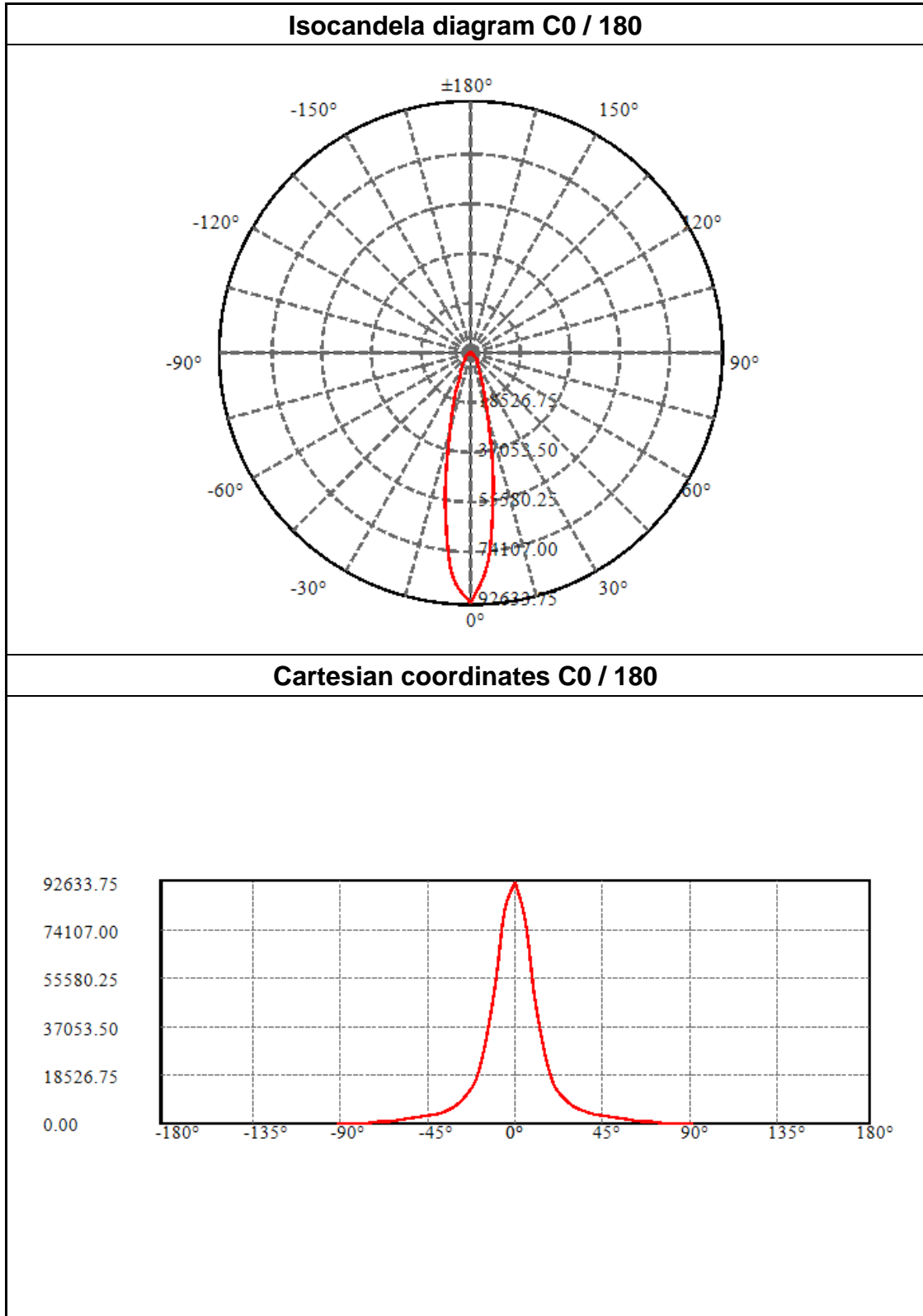


Diagram for luminous intensity distribution II

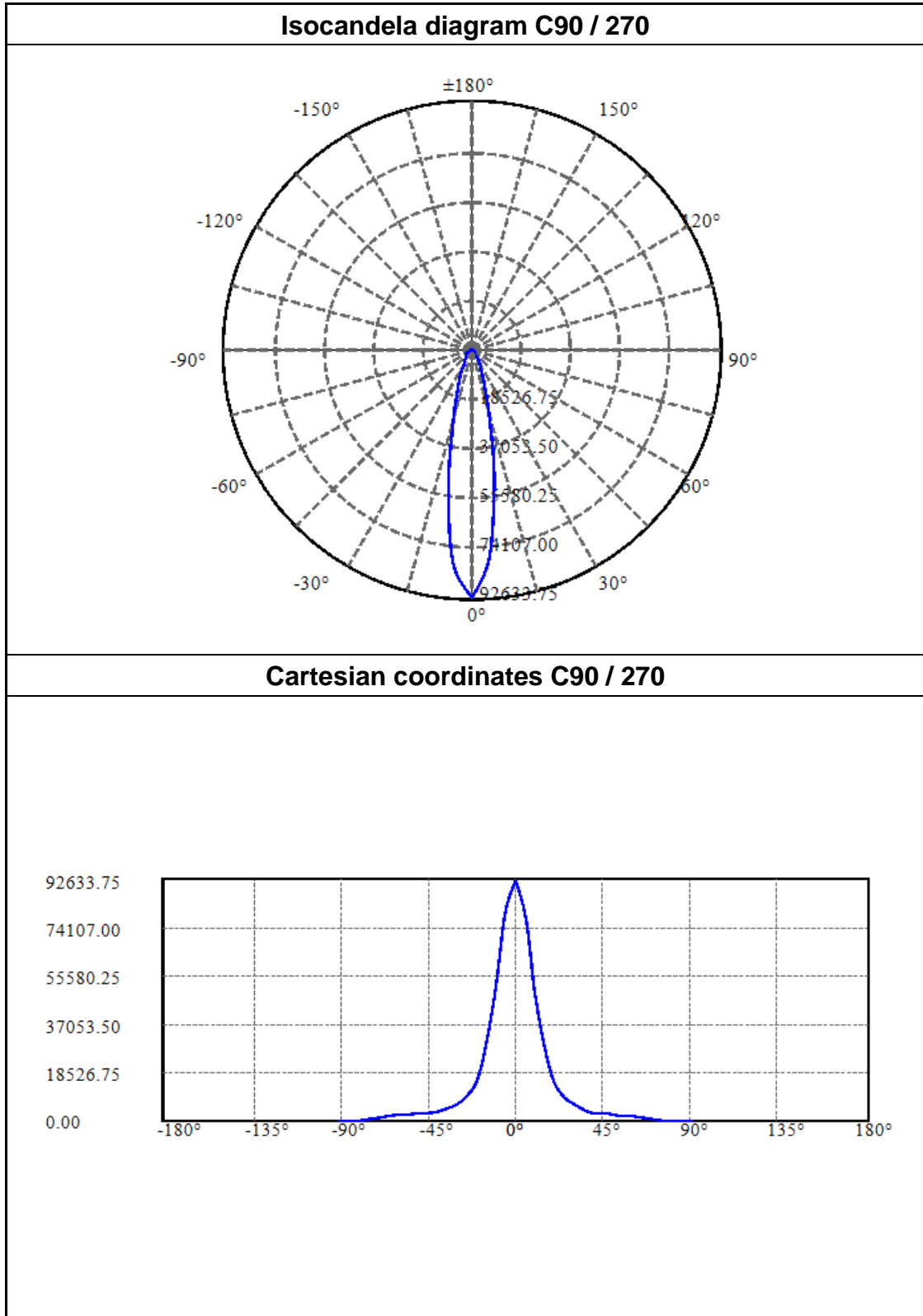
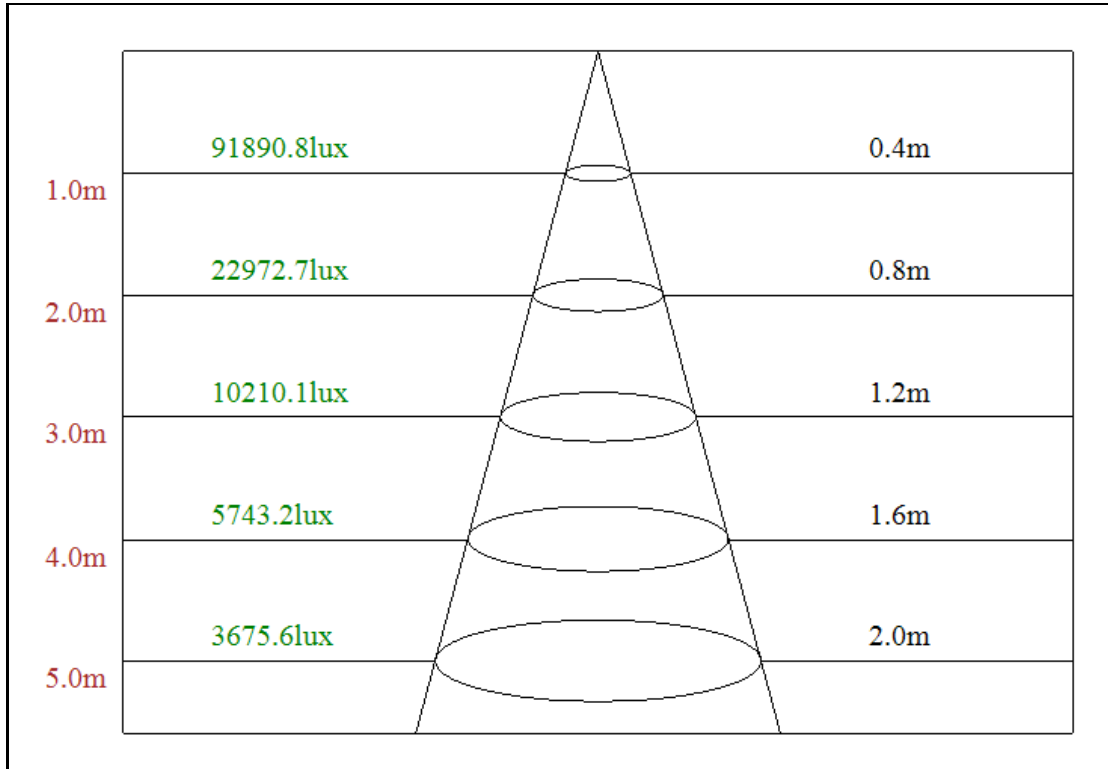


Diagram for illumination distance



-The following blank-

Test Results

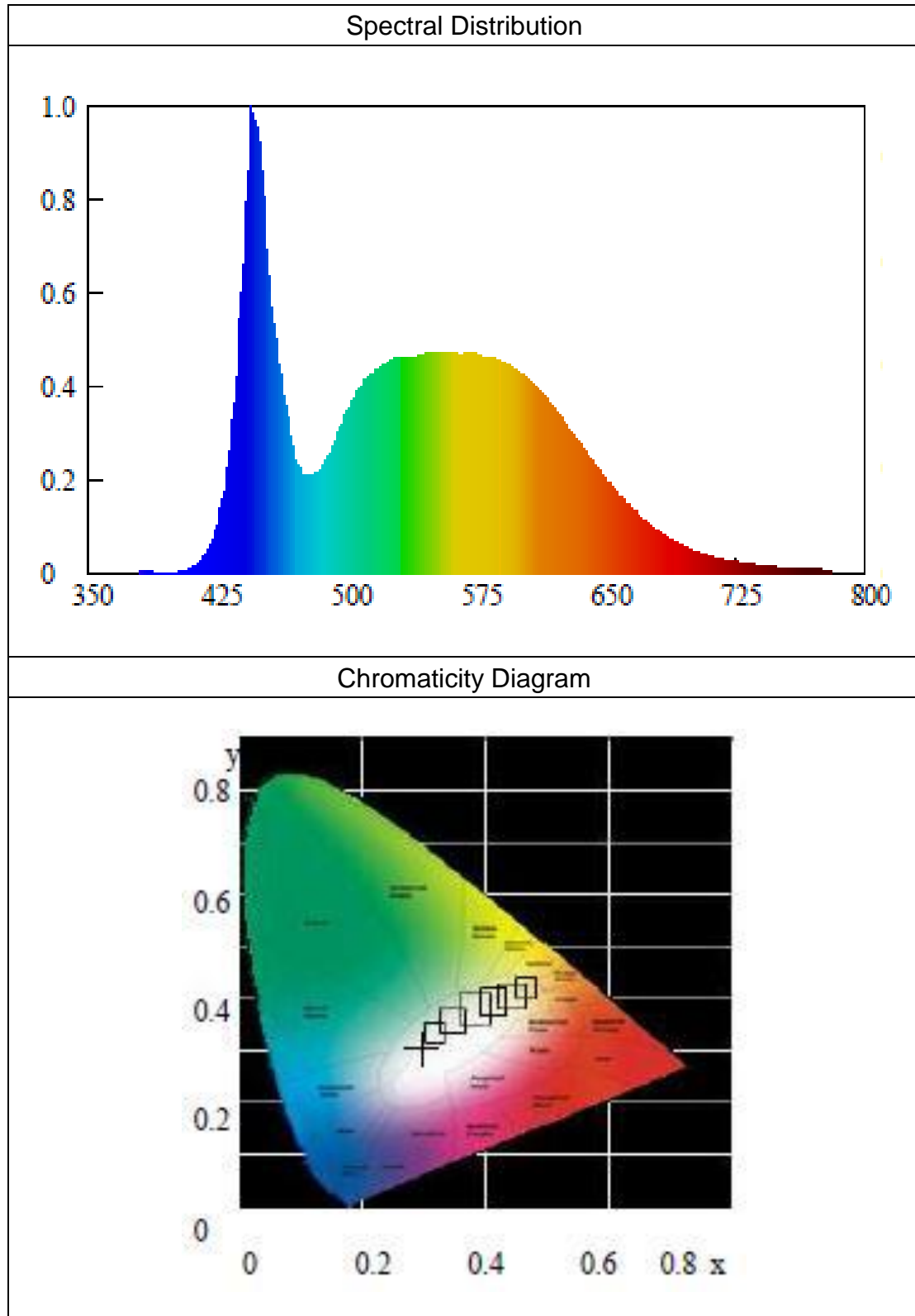
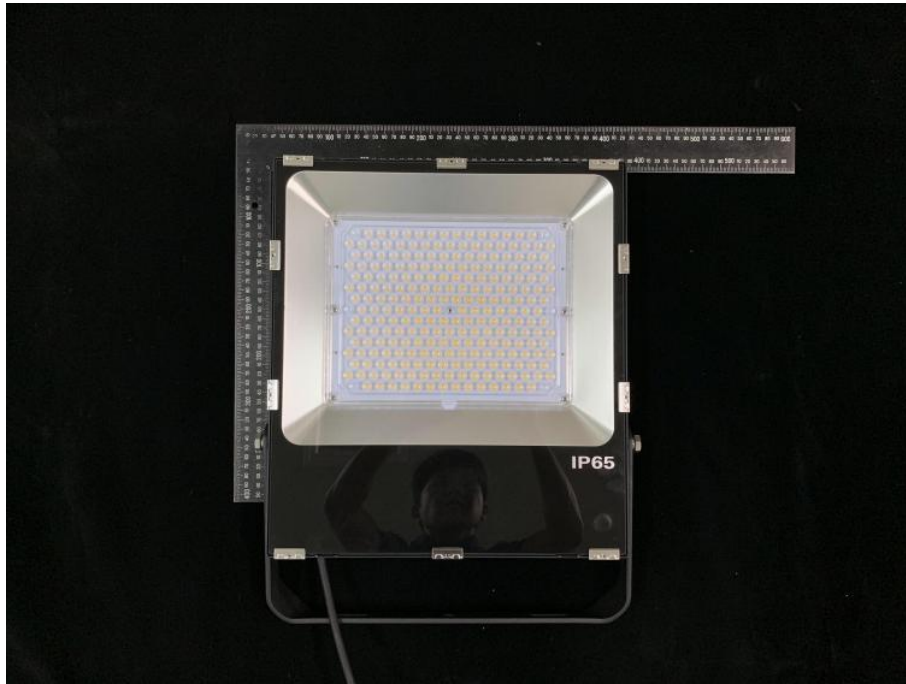


Photo for test items

The appearance of photo



The appearance of photo

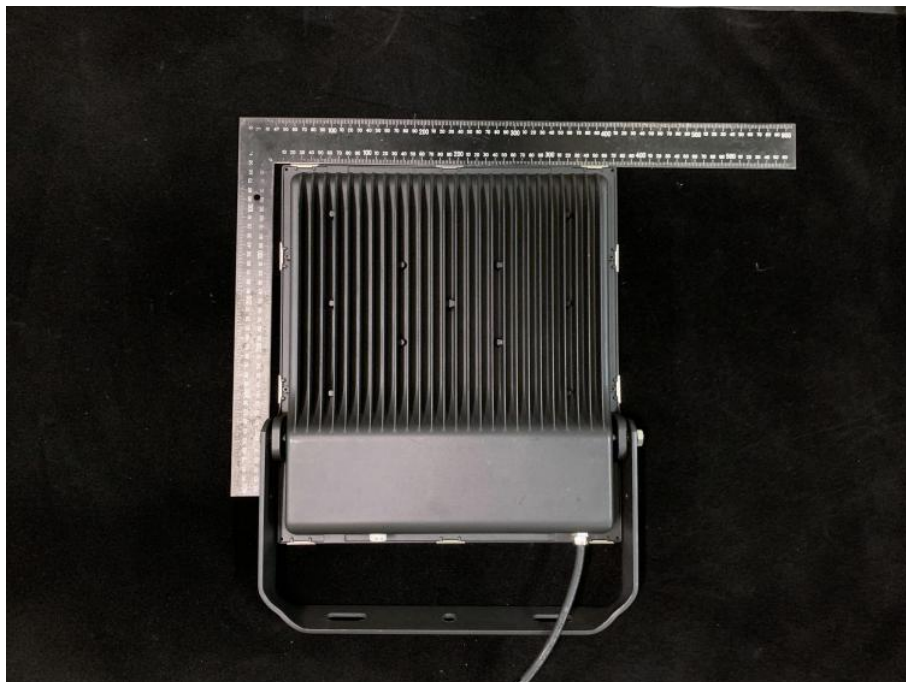
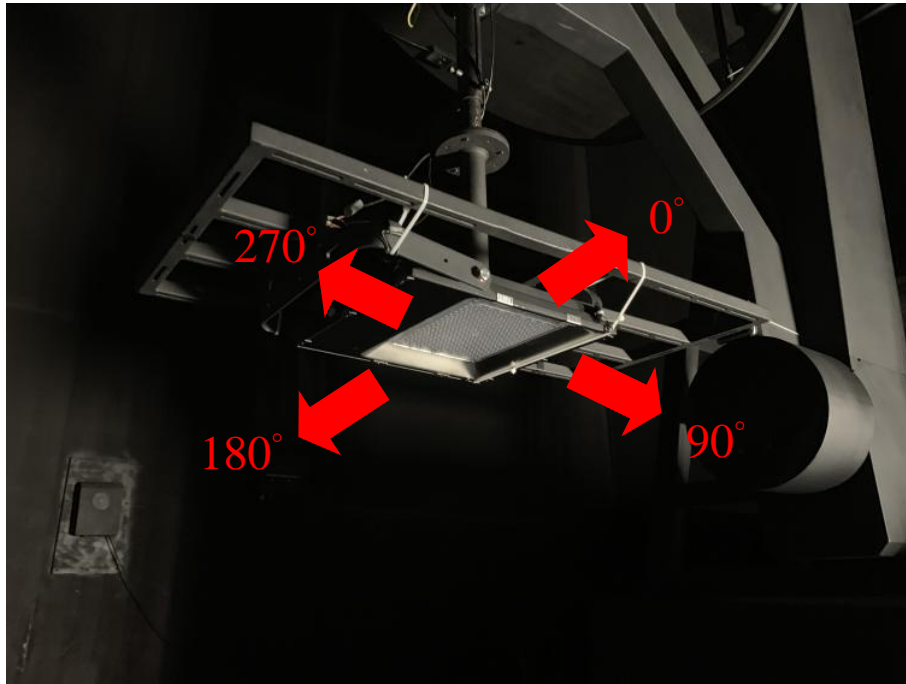


Photo for test items

Direction for luminaire position in goniophotometer



-The following blank-

Data for luminous intensity (1)

Intensity data(cd)

$\gamma/C(^{\circ})$	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0
0	91890.81	91890.81	91855.45	91855.45	91763.46	91706.85	91579.48	91586.57
5	76352.8	76147.61	75999.02	75899.96	75765.52	75482.5	75411.74	75355.14
10	47894.73	47710.77	47420.67	47187.17	46946.61	46805.09	46706.04	46642.36
15	25974.53	25776.41	25606.6	25514.62	25443.86	25358.95	25245.74	25104.23
20	14476.68	14391.77	14363.47	14405.92	14370.54	14271.49	14271.49	14229.03
25	8986.012	8936.482	8894.029	8872.803	8851.576	8844.5	8759.593	8702.988
30	6346.813	6318.511	6304.359	6233.604	6113.319	6049.638	6070.865	6077.94
35	4606.216	4606.216	4535.459	4514.233	4514.233	4450.552	4393.948	4365.645
40	3561.857	3525.064	3494.639	3459.261	3406.901	3343.928	3312.796	3321.994
45	2956.186	2942.034	2924.345	2889.675	2867.033	2840.853	2807.598	2768.682
50	2339.901	2337.778	2341.316	2400.043	2494.149	2504.762	2477.167	2432.591
55	1703.804	1684.7	1688.946	1732.107	1919.61	2112.066	2145.322	2008.763
60	1113.699	1121.483	1149.785	1238.938	1497.905	1758.994	1831.873	1683.285
65	829.2604	803.0806	782.5613	837.0435	1187.286	1473.847	1517.009	1325.967
70	519.3491	517.9339	512.981	549.7741	724.5414	818.6469	807.326	793.8823
75	276.656	274.3918	283.3778	360.6433	345.7846	337.0816	310.3358	331.2088
80	108.1859	105.9217	105.1434	112.219	102.5962	95.37909	90.28465	87.8082
85	13.44364	13.23137	12.59457	11.88701	11.39172	11.03794	10.6134	9.976596
90	1.202852	1.202852	1.344364	1.839656	2.051924	2.334948	2.47646	2.759484

-The following blank-

Data for luminous intensity (2)

Intensity data(cd)

Page: 2 Total:10

$\gamma/C(^{\circ})$	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0
0	91529.96	91487.51	91522.89	91544.12	91565.34	91586.57	91621.95	91678.55
5	75291.46	75298.53	75397.59	75524.95	75723.07	75871.66	76062.7	76374.03
10	46599.9	46571.6	46585.75	46720.19	46946.61	47158.88	47349.91	47470.2
15	25111.3	25196.21	25302.34	25415.55	25507.54	25585.37	25585.37	25649.05
20	14172.43	14179.5	14144.12	14115.82	14115.82	14158.28	14200.73	14342.24
25	8702.988	8724.215	8745.441	8738.366	8738.366	8780.819	8816.197	8809.122
30	6127.469	6113.319	6092.091	6113.319	6162.848	6141.621	6113.319	6113.319
35	4351.494	4330.267	4344.418	4351.494	4358.569	4365.645	4330.267	4316.116
40	3337.561	3331.193	3304.305	3278.833	3274.587	3271.758	3264.682	3244.163
45	2725.521	2712.785	2702.879	2667.501	2639.199	2627.17	2617.972	2593.915
50	2350.514	2269.145	2221.031	2177.87	2148.86	2138.954	2125.51	2141.784
55	1821.967	1646.492	1599.086	1592.01	1572.198	1555.924	1553.094	1621.728
60	1277.146	1086.105	1032.33	1001.905	995.5369	1000.49	1018.886	1068.416
65	1050.019	740.1078	711.8054	701.8995	693.4088	687.0408	677.8425	752.1362
70	626.8981	476.1879	486.8013	475.4803	442.225	438.6872	429.4889	467.6972
75	350.879	305.3121	244.8865	231.4429	225.0041	217.7162	231.7967	261.2311
80	88.65727	85.544	79.38823	75.00136	73.30322	71.03902	68.70407	71.25129
85	9.481303	8.561476	7.924672	7.641648	7.146356	6.934088	6.72182	6.934088
90	2.759484	2.83024	2.83024	3.042508	3.113264	3.18402	3.396288	3.396288

-The following blank-

Data for luminous intensity (3)

Intensity data(cd) Page: 3 Total:10

$\gamma/C(^{\circ})$	80.0	85.0	90.0	95.0	100.0	105.0	110.0	115.0
0	91678.55	91721.01	91777.61	91671.47	91664.4	91643.17	91621.95	91607.8
5	76628.75	76756.11	77102.81	77251.4	77470.74	77725.46	77909.43	78256.13
10	47710.77	47944.27	48213.14	48694.28	48991.45	49408.91	49734.39	50151.85
15	25825.94	26059.44	26193.87	26300	26561.8	26979.26	27361.34	27700.97
20	14462.53	14497.9	14604.04	14738.47	14830.46	14908.29	15099.33	15283.3
25	8787.896	8858.651	8879.878	8943.559	9092.146	9240.733	9339.792	9445.926
30	6056.714	6063.789	6113.319	6127.469	6219.452	6353.889	6431.721	6488.325
35	4309.041	4309.041	4287.813	4323.192	4351.494	4379.796	4415.174	4500.082
40	3213.03	3171.284	3159.256	3191.803	3221.521	3270.343	3290.154	3339.683
45	2604.528	2600.283	2600.283	2604.528	2612.312	2640.614	2679.53	2704.294
50	2198.389	2228.106	2237.305	2242.965	2211.125	2188.483	2209.71	2241.55
55	1756.871	1887.77	1934.469	1843.901	1715.833	1647.907	1651.445	1693.899
60	1320.307	1558.755	1585.642	1471.017	1229.739	1076.199	1056.387	1057.095
65	1022.424	1245.306	1264.41	1158.983	876.6668	703.3146	701.192	706.8524
70	566.048	633.9738	629.7284	621.9453	510.8583	443.6401	446.4703	450.7157
75	248.7781	242.8346	240.4996	249.9102	271.2785	260.7358	225.7824	224.0135
80	65.52006	61.69923	61.84074	63.46813	69.05785	71.60507	71.18053	71.32204
85	6.863332	7.0756	6.934088	6.863332	6.651064	6.580308	6.297284	6.72182
90	3.5378	3.608556	3.608556	3.467044	3.5378	3.254776	3.254776	3.113264

-The following blank-

Data for luminous intensity (4)

Intensity data(cd)		Page: 4 Total:10						
$\gamma/C(^{\circ})$	120.0	125.0	130.0	135.0	140.0	145.0	150.0	155.0
0	91572.41	91664.4	91671.47	91685.63	91713.92	91791.76	91763.46	91791.76
5	78532.09	78808.03	79105.21	79352.85	79699.55	79897.67	80244.38	80392.97
10	50576.39	50894.79	51361.78	51758.02	52076.41	52274.53	52515.11	52868.88
15	27934.47	28295.33	28514.67	28677.41	28833.07	29172.7	29462.8	29660.91
20	15431.88	15672.45	15813.97	16033.31	16351.71	16535.68	16620.58	16747.95
25	9495.455	9672.346	9785.555	9884.613	9927.066	9997.823	10068.58	10096.88
30	6544.93	6636.913	6707.668	6764.274	6714.744	6728.896	6764.274	6813.803
35	4507.157	4556.687	4542.535	4556.687	4620.367	4662.82	4684.047	4733.577
40	3363.74	3380.722	3416.807	3424.591	3427.42	3424.591	3442.987	3489.686
45	2741.087	2792.032	2830.24	2834.485	2873.401	2898.873	2925.053	2966.092
50	2278.343	2313.014	2373.156	2448.865	2536.603	2590.377	2620.095	2641.322
55	1729.984	1761.117	1795.787	1875.742	2097.208	2255.701	2300.278	2169.379
60	1057.802	1070.538	1116.53	1225.494	1600.501	1765.362	1833.995	1662.766
65	722.4188	728.0793	730.2019	819.3545	1194.361	1420.073	1473.14	1282.806
70	457.0838	493.1693	481.1408	529.9625	747.8909	806.6184	830.6755	803.7882
75	229.674	231.0891	256.632	345.077	317.0576	309.4868	314.3689	336.0202
80	71.60507	69.69466	70.82676	78.32689	76.69951	77.90236	80.66184	88.72803
85	6.863332	6.934088	7.217112	7.712404	7.712404	7.853916	8.561476	9.127524
90	2.971752	2.900996	2.83024	2.759484	2.759484	2.547216	2.334948	2.12268

-The following blank-

Data for luminous intensity (5)

Intensity data(cd)

Page: 5 Total:10

$\gamma/C(^{\circ})$	160.0	165.0	170.0	175.0	180.0	185.0	190.0	195.0
0	91869.59	91912.04	91961.57	92011.09	92011.09	92067.7	92067.7	92074.79
5	80626.46	80824.58	81022.7	81164.2	81256.19	81263.27	81270.34	81249.12
10	53095.3	53371.25	53569.37	53682.58	53781.63	53767.48	53788.71	53817.01
15	29745.82	29788.28	29922.71	30078.38	30050.07	30050.07	30014.69	29894.41
20	16769.17	16733.79	16762.1	16811.63	16783.32	16712.57	16627.66	16521.53
25	10125.18	10188.86	10203.02	10238.39	10210.09	10153.49	10103.96	10033.2
30	6969.466	7096.827	7103.902	7089.751	7018.995	7026.071	7033.146	6976.542
35	4761.879	4768.954	4832.635	4853.862	4832.635	4853.862	4783.106	4747.728
40	3546.291	3571.055	3624.83	3644.642	3665.161	3638.274	3632.613	3605.726
45	2998.639	3036.847	3066.565	3084.962	3096.99	3126.708	3154.302	3127.415
50	2587.547	2533.065	2511.13	2541.555	2559.245	2586.839	2646.274	2726.229
55	2010.885	1934.469	1920.318	1938.714	1951.45	1971.97	2006.64	2109.236
60	1377.619	1270.778	1245.306	1243.183	1250.259	1268.655	1314.646	1402.384
65	980.6782	812.9865	821.4772	851.1946	858.2703	850.4871	849.7795	992.7067
70	602.1335	515.8112	522.8868	525.0095	537.038	542.6985	533.5002	607.0865
75	363.7566	316.9869	270.3587	271.8445	275.9484	276.939	312.2462	458.3574
80	101.7471	102.5254	101.3933	102.8792	105.568	106.134	114.1294	130.191
85	9.693572	10.54264	10.6134	11.53323	12.17003	13.65591	15.35405	16.69842
90	1.7689	1.485876	0.990584	1.06134	1.273608	1.344364	1.7689	2.051924

-The following blank-

Data for luminous intensity (6)

Page: 6 Total:10

Intensity data(cd)								
$\gamma/C(^{\circ})$	200.0	205.0	210.0	215.0	220.0	225.0	230.0	235.0
0	91975.73	91897.9	91834.21	91784.69	91742.23	91728.08	91763.46	91812.98
5	81227.89	81065.15	81036.84	80803.35	80654.77	80520.33	80435.42	80272.68
10	53788.71	53682.58	53505.69	53378.32	53293.42	53208.51	53088.23	52953.79
15	29667.99	29547.71	29434.49	29342.51	29229.3	29073.64	28946.28	28847.22
20	16486.15	16450.77	16380.01	16273.88	16125.29	15941.33	15806.89	15729.06
25	9976.597	9898.765	9785.555	9636.967	9488.38	9361.019	9276.111	9233.658
30	6735.972	6622.761	6629.837	6651.063	6679.366	6714.744	6700.593	6665.215
35	4776.03	4783.106	4747.728	4712.35	4676.972	4669.896	4719.425	4768.954
40	3569.64	3530.017	3528.602	3546.998	3587.329	3619.877	3651.01	3653.84
45	3126.708	3118.925	3124.585	3126.708	3132.368	3152.18	3158.548	3140.859
50	2830.948	2863.495	2877.646	2878.354	2825.287	2753.823	2709.247	2685.19
55	2358.297	2523.866	2577.641	2460.894	2230.229	2090.132	2065.368	2054.754
60	1763.24	2066.783	2088.01	1938.714	1507.103	1323.137	1263.702	1245.306
65	1452.621	1646.492	1682.578	1503.565	1064.17	827.1376	836.3359	848.3644
70	859.6854	939.6396	938.9321	873.8366	697.6542	556.8497	575.2463	583.737
75	401.045	390.5731	394.8185	435.7155	462.8858	347.5535	303.7555	303.897
80	124.8843	120.639	117.9503	119.4361	127.5023	123.0447	118.2333	119.7192
85	17.33522	18.04278	18.75034	19.03337	19.38714	19.24563	19.52866	19.74092
90	2.47646	2.759484	3.254776	3.5378	3.679312	3.89158	4.103848	4.386872

-The following blank-

Data for luminous intensity (7)

Intensity data(cd) Page: 7 Total:10

$\gamma/C(^{\circ})$	240.0	245.0	250.0	255.0	260.0	265.0	270.0	275.0
0	91834.21	91876.67	91947.42	91975.73	92103.09	92117.23	92131.39	92081.86
5	80194.84	80060.41	79925.98	79869.37	79812.77	79664.18	79501.45	79352.85
10	52755.67	52670.76	52522.18	52465.57	52359.44	52260.38	52005.66	51857.07
15	28755.24	28649.11	28514.67	28380.23	28323.63	28259.95	28083.05	27962.77
20	15615.85	15566.32	15467.26	15382.35	15325.75	15254.99	15212.54	15148.86
25	9240.733	9162.901	9049.692	9000.163	9007.238	9056.769	9077.995	9007.238
30	6615.686	6594.459	6566.157	6537.854	6396.342	6304.359	6254.831	6276.057
35	4754.803	4754.803	4712.35	4691.123	4698.198	4684.047	4691.123	4698.198
40	3656.67	3648.887	3634.028	3603.603	3556.197	3525.064	3520.111	3544.876
45	3122.462	3126	3118.217	3089.915	3093.452	3070.103	3073.641	3077.178
50	2669.624	2671.747	2699.342	2755.239	2829.532	2850.052	2852.175	2848.636
55	2046.263	2041.311	2056.169	2138.954	2343.439	2527.404	2542.263	2362.543
60	1242.475	1253.089	1286.344	1408.044	1778.806	2058.292	2089.425	1828.335
65	855.44	856.1476	861.1005	1042.236	1479.508	1723.616	1720.786	1584.934
70	587.9824	558.9724	548.359	644.5872	871.7139	954.4984	960.1589	899.3088
75	303.897	298.8734	331.4919	479.5134	385.8325	362.9783	361.3509	372.8134
80	123.6107	120.8512	123.9645	133.3043	120.7805	114.4832	113.7049	115.403
85	19.59941	18.60883	17.83051	17.40598	16.98144	16.5569	16.41539	16.83993
90	4.669896	4.882164	5.023676	5.235944	5.518968	5.589724	5.801992	5.589724

-The following blank-

Data for luminous intensity (8)

Intensity data(cd) Page: 8 Total:10

$\gamma/C(^{\circ})$	280.0	285.0	290.0	295.0	300.0	305.0	310.0	315.0
0	92088.93	92088.93	92110.16	92131.39	92138.46	92131.39	92166.76	92180.91
5	79267.95	79098.13	78956.62	78751.43	78673.6	78510.86	78369.34	78249.05
10	51736.79	51552.82	51354.71	51142.44	50541.01	50392.43	50201.38	50031.57
15	27920.32	27870.79	27821.26	27757.58	27658.52	27559.46	27509.93	27439.18
20	15056.88	14943.67	14943.67	15000.27	15021.5	15021.5	15035.65	15021.5
25	8943.559	8886.954	8865.727	8865.727	8872.803	8872.803	8844.5	8851.576
30	6375.116	6431.721	6410.494	6403.418	6346.813	6346.813	6339.738	6304.359
35	4676.972	4655.745	4712.35	4726.5	4684.047	4676.972	4613.291	4584.989
40	3603.603	3625.538	3619.169	3646.764	3638.274	3614.924	3603.603	3563.272
45	3086.377	3120.34	3116.802	3096.99	3114.679	3119.632	3119.632	3072.226
50	2753.116	2651.227	2606.651	2583.302	2579.764	2598.16	2652.643	2702.879
55	2149.567	1976.215	1934.469	1927.393	1920.318	1915.365	1930.931	2007.348
60	1451.913	1240.353	1202.144	1180.918	1173.842	1186.578	1236.815	1326.675
65	1143.417	834.2133	835.6284	846.2418	841.2888	828.5527	817.9394	970.0648
70	678.55	533.5002	550.4817	559.68	579.4916	577.369	558.9724	631.8511
75	429.1352	343.5204	300.2885	303.614	305.3121	303.897	337.4354	467.8387
80	126.441	129.1297	121.6296	124.0353	122.9032	121.1343	123.0447	135.4977
85	17.0522	17.47673	18.18429	19.52866	20.23622	20.16546	19.88244	19.67017
90	5.518968	5.3067	5.023676	4.882164	4.59914	4.24536	3.750068	3.608556

-The following blank-



Data for luminous intensity (9)

Intensity data(cd)

Page: 9 Total:10

$\gamma/C(^{\circ})$	320.0	325.0	330.0	335.0	340.0	345.0	350.0	355.0
0	92272.9	92244.59	92428.56	92386.12	92456.87	92513.47	92541.77	92633.75
5	78100.47	77951.88	77194.8	77088.66	76904.7	76805.64	76635.82	76487.23
10	49819.3	49621.18	49345.23	49125.89	48949	48658.9	48390.03	48135.3
15	27361.34	27198.61	27078.32	26887.28	26696.24	26519.35	26342.46	26130.19
20	15000.27	14993.2	14943.67	14844.61	14759.7	14731.4	14632.34	14526.21
25	8872.803	8929.407	8950.634	8964.785	8943.559	8950.634	8943.559	8964.785
30	6219.452	6191.15	6155.772	6169.923	6276.057	6339.738	6332.662	6353.889
35	4556.687	4549.611	4592.064	4592.064	4577.913	4584.989	4641.594	4641.594
40	3519.403	3479.78	3482.61	3479.78	3522.941	3546.291	3549.121	3550.536
45	3074.348	3051.706	3055.951	3039.678	3027.649	3041.8	3036.14	2982.365
50	2792.739	2811.136	2786.371	2743.21	2649.812	2521.036	2428.346	2369.618
55	2254.286	2408.534	2425.516	2246.503	1968.432	1796.495	1742.72	1722.909
60	1695.314	1988.951	2028.575	1783.051	1425.734	1209.22	1152.615	1122.19
65	1370.544	1658.521	1722.909	1544.604	1154.738	832.0906	820.0621	828.5527
70	873.8366	955.9135	960.1589	921.9507	704.0222	546.9439	535.6229	526.4246
75	446.0458	411.5877	386.0447	395.3138	436.2815	376.2804	285.0052	278.5664
80	123.823	118.9408	120.9928	127.8561	126.9363	124.6013	112.219	108.8935
85	19.4579	19.03337	18.8211	18.18429	17.12295	16.20313	15.00027	14.00969
90	3.113264	3.042508	2.617972	2.193436	1.981168	1.627388	1.273608	1.202852

-The following blank-

Data for luminous intensity (10)

Intensity data(cd)

Page: 10 Total:10

$\gamma/C(^{\circ})$	360.0
0	91890.81
5	76352.8
10	47894.73
15	25974.53
20	14476.68
25	8986.012
30	6346.813
35	4606.216
40	3561.857
45	2956.186
50	2339.901
55	1703.804
60	1113.699
65	829.2604
70	519.3491
75	276.656
80	108.1859
85	13.44364
90	1.202852

-The following blank-



Equipment list and testing engineer for test

Item	Equipment No	Equipment	Manufacturer / Type / Series No
1	107A-01	Magnetic angle locator	ACUANGLE A-300
2	99E-05	Digital power meter	YOKOGAWA WT210 (91K116100)
3	99E-08	Digital power meter	YOKOGAWA WT210 (91K539455)
4	99E-17	AC Power Source	APC AFC-5KW
5	99O-01	Goniophotometer System	Sensing GMS-2000
6	99O-22	Spectroradiometer (2π)	Sensing SPR-3000
7	99O-23	Integrating sphere (2π)	Sensing
8	104O-29	Photometric standard lamp 110V/100W	Sensing (S11030003)
9	103T-14	Temperature and humidity records	TANDD(TR-72UI/F8043A00)
Testing engineer : Chun-Tse Liu			

-Following blank-