

## 燈具配光曲線試驗報告

測試標準： CIE 70 (1987 年版) 、CIE 84 (1989 年版)

收件日期： 107 年 03 月 06 日

測試日期： 107 年 03 月 06 日 至 107 年 03 月 13 日

1. 報告發行日期：107 年 03 月 13 日
2. 報告編號：18030602
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報告簽署人：



報告簽署人  
黃錫偉



## 試驗報告

### 測試樣品基本資料表

委試公司：昶旭能源股份有限公司

委試公司地址：新竹市東區埔頂里公道五路二段 83 號 5 樓之 3

製造廠商：昶旭能源股份有限公司

製造廠商地址：新竹市東區埔頂里公道五路二段 83 號 5 樓之 3

產品名稱：21000LM LED 天井燈

產品商標：CooLED

產品型號：C3210C-601

額定電壓 (V)：100~277

額定頻率 (Hz)：50/60

額定功率 (W)：165

光源控制器廠牌/型號：明緯/HBG-160-36A

LED 晶片廠牌/型號/色溫：Lumileds/LUXEON 3030 2D/5000K

外觀尺寸：直徑 271 mm 、 高 341 mm

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## 試驗內容

### 試驗條件

環境溫度 (°C)	24.8
環境濕度 (% RH)	57.1
$\gamma$ 軸取樣步距 (°)	5
C 軸取樣步距 (°)	5

### 電氣量測

試驗項目	試驗結果
電壓 (V)	220.0
頻率 (Hz)	60
電流 (A)	0.778
功率 (W)	166.7
功率因數	0.974

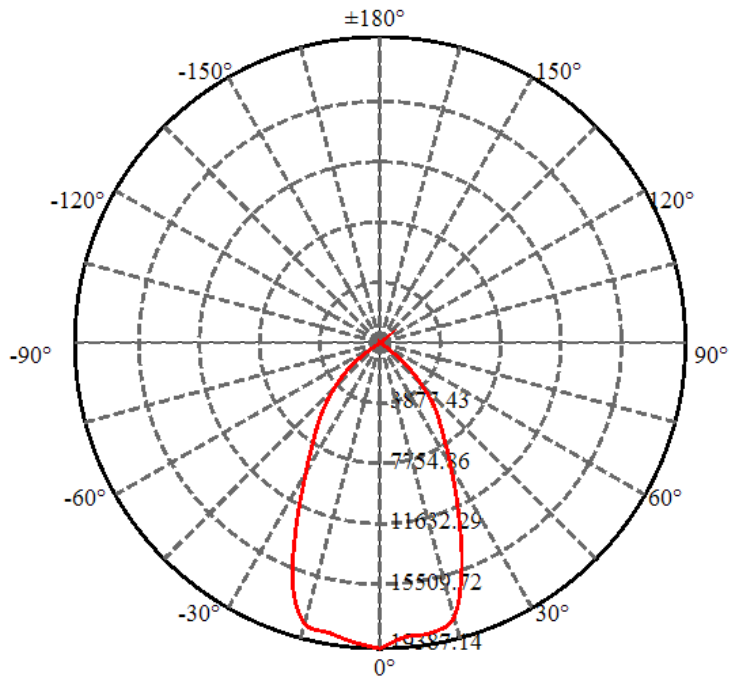
### 配光量測

試驗項目	試驗結果
燈具光通量 (lm)	20914.0
燈具發光效率 (lm/W)	125.5
中心光強度 (cd)	19365.9
最大光強度 (cd)	19387.1
最大光強度角度 (°)	C : 170.0 $\gamma$ : 0.0
半峰邊角(50%Imax)	C0_180    Left=29.6    Right=28.4
	C90_270    Left=30.4    Right=28.0
色溫 (K)	5288
色座標	x : 0.3378      y : 0.3526
演色性(Ra) / R9	82.2 / 11

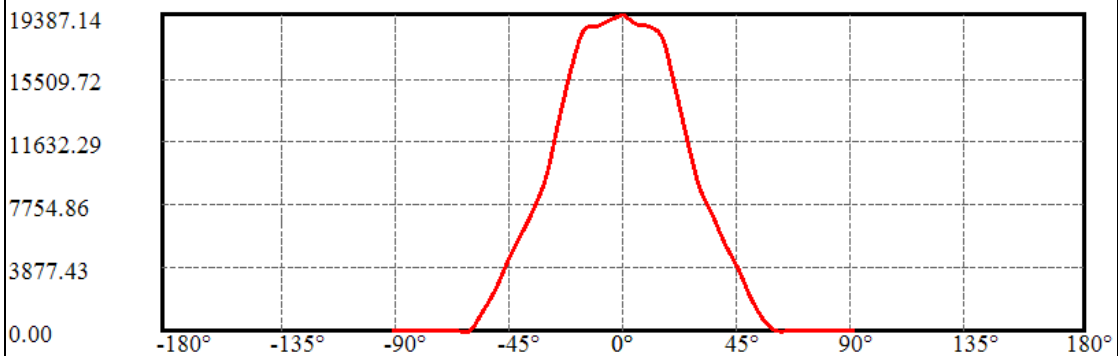
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**配光曲線圖(一)**

極座標圖 C0 / 180

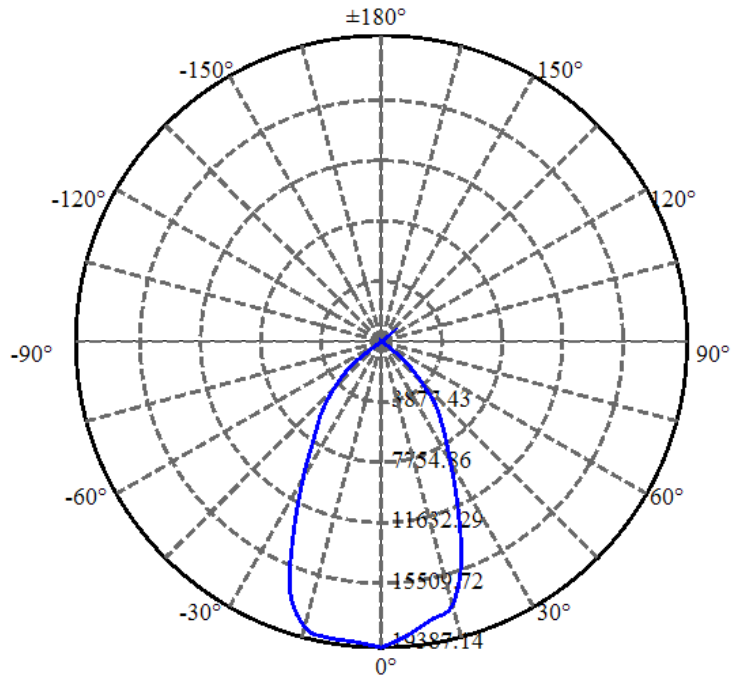


直角座標圖 C0 / 180

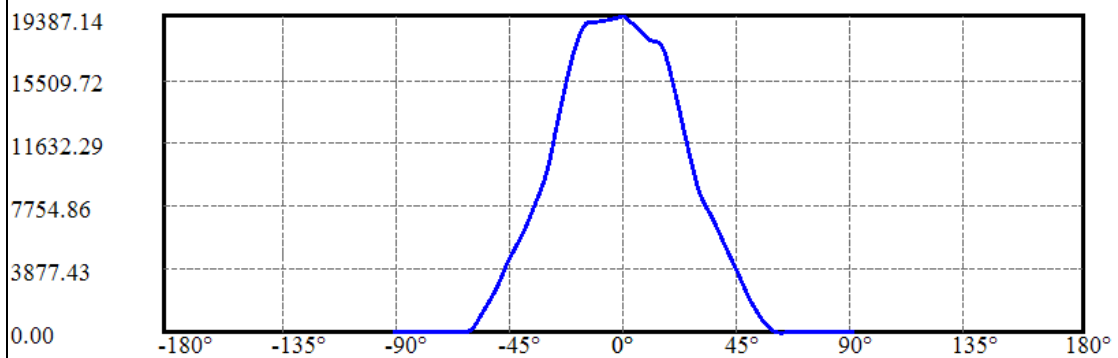


### 配光曲線圖(二)

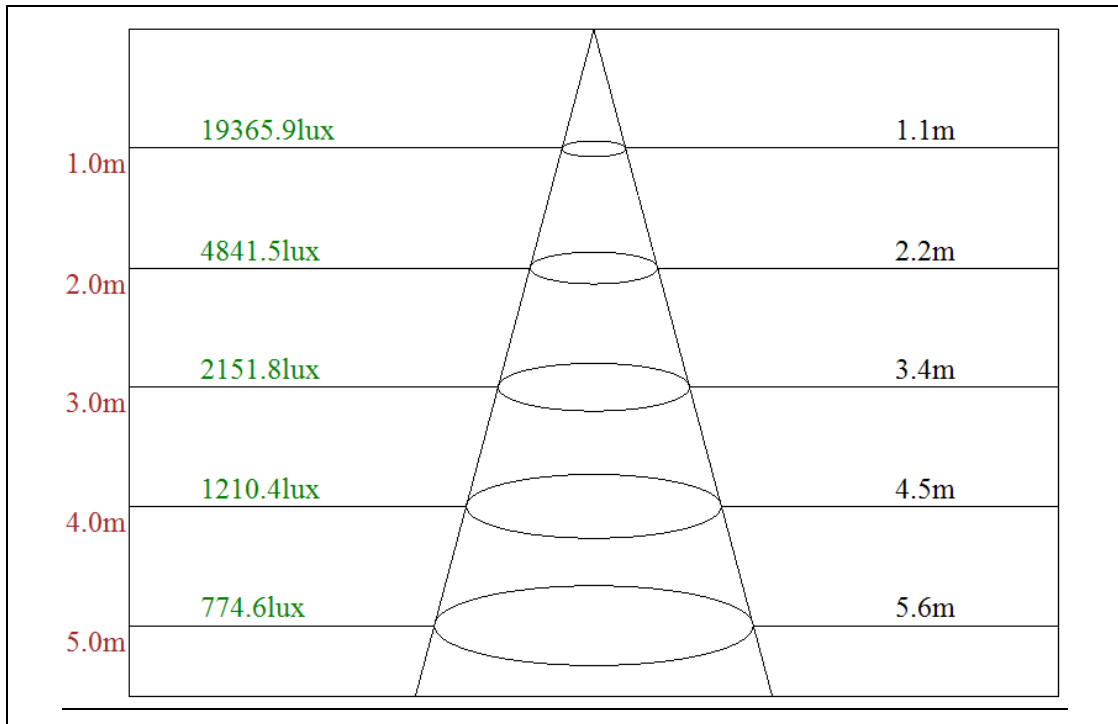
極座標圖 C90 / 270



直角座標圖 C90 / 270

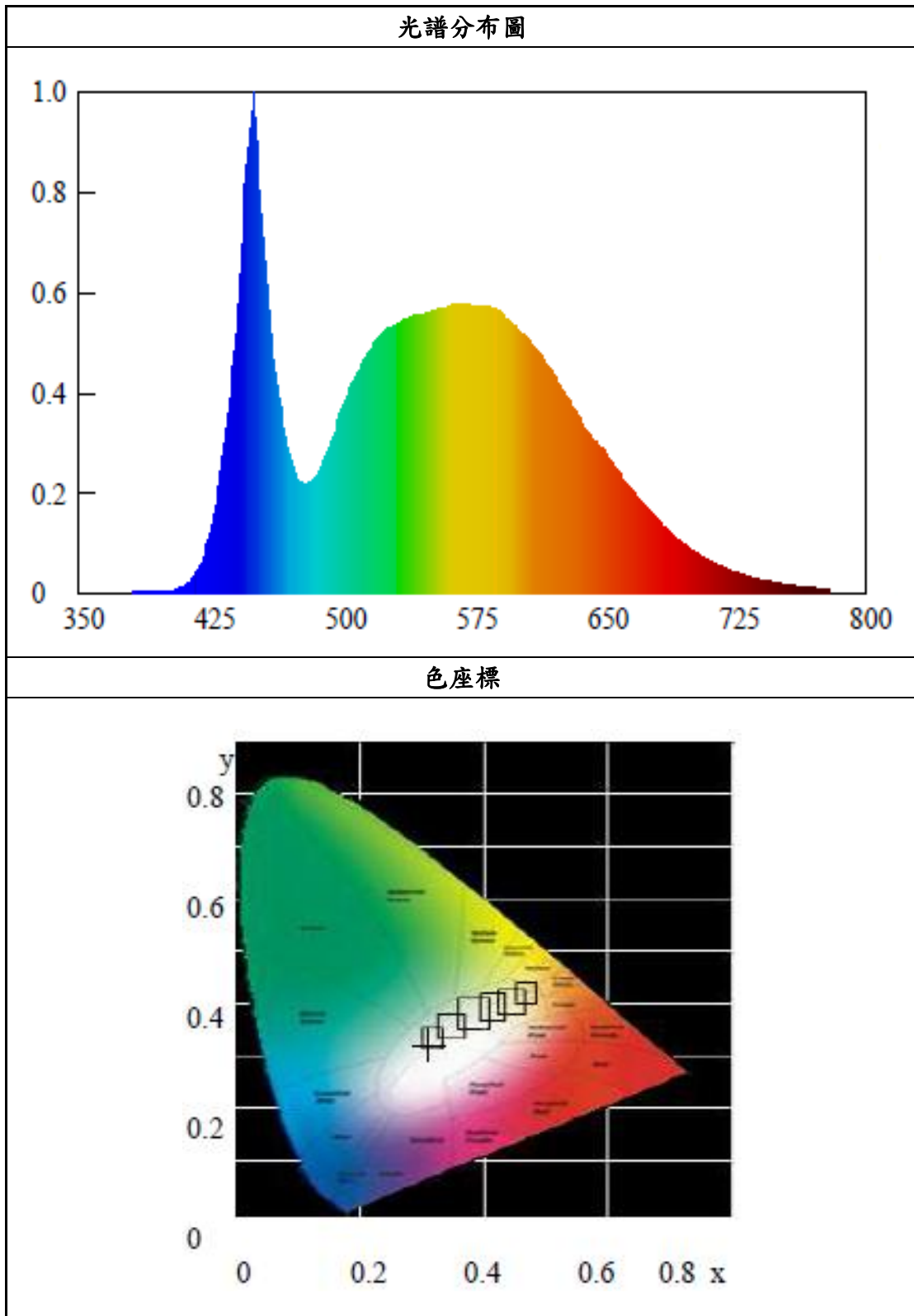


**照度距離表**



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### 光譜分布圖及色座標



測試樣品照片

測試樣品外觀



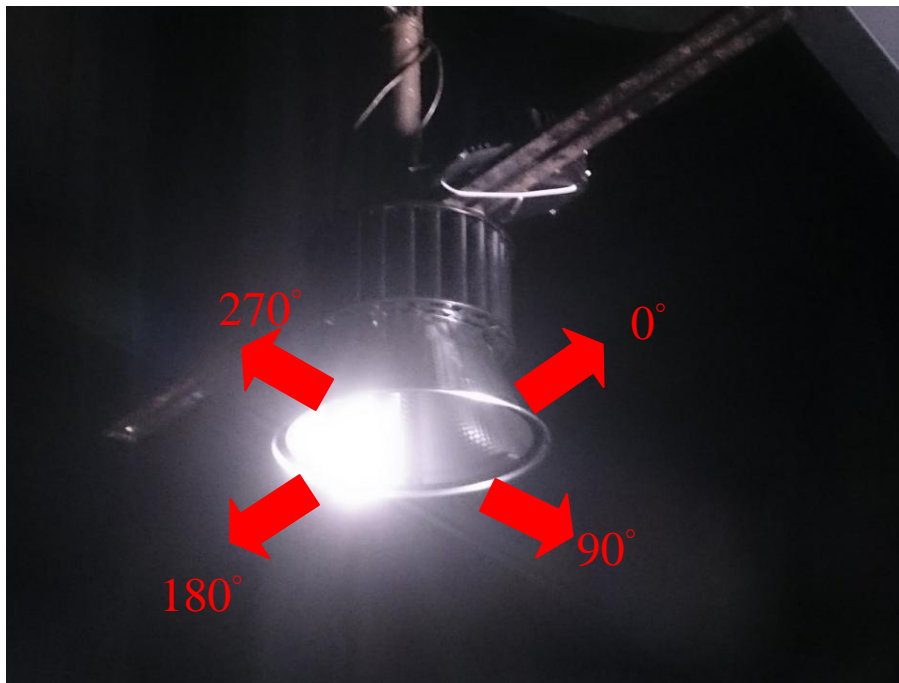
測試樣品搭配變壓器





### 測試樣品照片

測試樣品架設方向



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### 光強數據表(一)

Intensity data(cd)								
$\gamma/C(^{\circ})$	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0
0	19365.92	19351.77	19323.46	19337.62	19323.46	19309.31	19337.62	19337.62
5	18764.49	18707.89	18814.02	18828.17	18672.51	18651.28	18799.87	18714.96
10	18651.28	18658.36	18580.53	18523.92	18424.86	18325.8	18226.75	18127.69
15	17964.95	17957.87	17880.04	17639.47	17526.26	17398.9	17342.29	17243.24
20	15170.09	15042.73	14993.2	14872.91	14830.46	14766.78	14717.25	14646.49
25	11589.83	11469.55	11420.02	11384.64	11398.79	11391.72	11299.73	11207.75
30	8780.819	8674.686	8603.93	8632.231	8674.686	8646.384	8582.703	8504.871
35	6983.617	6934.088	6898.71	6912.861	6912.861	6877.483	6842.105	6827.954
40	5327.927	5299.624	5278.397	5285.473	5292.549	5320.851	5271.322	5257.171
45	3680.02	3678.604	3663.038	3630.49	3595.112	3585.914	3585.207	3567.517
50	2096.5	2065.368	2063.953	2020.791	1980.46	1943.667	1923.856	1918.195
55	658.7383	628.3133	617.6999	609.2092	574.5387	543.4061	530.67	532.7927
60	23.42024	23.27872	22.9957	22.71268	22.57116	22.64192	22.64192	22.71268
65	11.03794	10.96718	10.96718	10.96718	11.03794	11.17945	11.39172	11.53323
70	5.3067	5.377456	5.377456	5.377456	5.448212	5.518968	5.731236	5.801992
75	2.47646	2.547216	2.547216	2.47646	2.547216	2.688728	2.617972	2.759484
80	0.990584	0.990584	0.990584	0.990584	1.06134	1.06134	1.06134	1.06134
85	0.283024	0.283024	0.283024	0.35378	0.35378	0.212268	0.283024	0.35378
90	0	0.070756	0	0	0.070756	0.070756	0.070756	0.212268

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## 光強數據表(二)

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	19351.77	19351.77	19358.84	19358.84	19365.92	19365.92	19365.92	19365.92	
5	18531	18538.07	18722.04	18651.28	18439.01	18495.62	18651.28	18488.54	
10	18056.93	17901.27	17802.21	17738.53	17745.61	17738.53	17703.15	17795.13	
15	17144.18	17059.27	16924.84	16868.23	16769.17	16804.55	16854.08	16889.46	
20	14512.06	14413	14292.71	14292.71	14391.77	14483.75	14575.74	14646.49	
25	11052.09	10938.88	10896.42	10924.73	11016.71	11129.92	11271.43	11299.73	
30	8419.964	8356.284	8342.133	8363.359	8427.039	8504.871	8561.477	8646.384	
35	6806.727	6792.576	6764.274	6771.349	6813.803	6849.181	6877.483	6905.786	
40	5207.642	5200.566	5214.717	5207.642	5207.642	5221.793	5235.944	5250.095	
45	3566.81	3550.536	3538.508	3522.234	3502.422	3477.657	3466.336	3473.412	
50	1947.913	1916.072	1933.761	1909.704	1926.686	1939.422	1964.894	1975.508	
55	537.038	523.5944	527.1322	498.8298	505.1978	515.1036	516.5188	552.6044	
60	23.13721	23.6325	24.05704	24.48158	25.11838	25.47216	25.96745	26.46274	
65	11.81625	12.17003	12.45306	12.73608	13.0191	13.30213	13.5144	13.72666	
70	5.943504	6.226528	6.36804	6.580308	6.72182	6.863332	7.0756	7.217112	
75	2.83024	2.971752	3.042508	3.113264	3.18402	3.325532	3.396288	3.5378	
80	1.06134	1.202852	1.132096	1.202852	1.273608	1.344364	1.344364	1.41512	
85	0.283024	0.283024	0.283024	0.35378	0.35378	0.35378	0.283024	0.35378	
90	0.070756	0	0.141512	0.070756	0	0	0.070756	0.070756	

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### 光強數據表(三)

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	19351.77	19358.84	19358.84	19365.92	19365.92	19337.62	19351.77	19344.69	
5	18375.33	18516.85	18665.43	18552.22	18467.32	18559.3	18622.98	18587.6	
10	17858.81	17880.04	17964.95	18035.71	18120.61	18163.06	18205.52	18226.75	
15	17045.12	17214.94	17413.05	17505.03	17512.11	17561.64	17490.88	17469.66	
20	14766.78	14830.46	14964.89	15000.27	15056.88	15078.1	15071.03	15113.48	
25	11335.11	11342.19	11342.19	11370.49	11391.72	11469.55	11582.76	11752.57	
30	8646.384	8632.231	8589.778	8589.778	8618.081	8702.988	8823.273	8894.029	
35	6934.088	6934.088	6905.786	6905.786	6948.239	6976.542	7026.071	7075.6	
40	5292.549	5292.549	5285.473	5320.851	5292.549	5327.927	5384.532	5398.683	
45	3474.827	3502.422	3529.309	3585.207	3595.82	3603.603	3608.556	3656.67	
50	1930.224	1954.988	1952.866	1957.818	1979.045	2021.499	2044.141	2118.435	
55	559.68	587.9824	622.6528	650.2477	697.6542	699.7769	702.6071	704.7297	
60	26.74577	27.09955	27.09955	27.02879	26.81652	26.88728	27.02879	27.17031	
65	13.79742	13.86818	13.86818	13.79742	13.65591	13.58515	13.5144	13.37288	
70	7.217112	7.217112	7.217112	7.217112	7.146356	7.004844	7.004844	6.863332	
75	3.5378	3.467044	3.467044	3.5378	3.467044	3.396288	3.325532	3.254776	
80	1.41512	1.344364	1.41512	1.344364	1.41512	1.485876	1.344364	1.41512	
85	0.283024	0.283024	0.35378	0.424536	0.35378	0.35378	0.35378	0.35378	
90	0	0.070756	0.070756	0.070756	0.070756	0	0.070756	0.141512	

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光強數據表(四)

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	19365.92	19351.77	19358.84	19351.77	19372.99	19337.62	19337.62	19358.84
5	18573.45	18573.45	18566.38	18608.83	18658.36	18651.28	18722.04	18792.79
10	18304.58	18325.8	18347.03	18431.94	18410.71	18474.39	18545.15	18559.3
15	17391.82	17547.49	17689	17880.04	18035.71	18056.93	18177.22	18219.67
20	15170.09	15240.84	15318.67	15431.88	15523.87	15672.45	15813.97	15891.8
25	11816.25	11865.78	11908.23	11950.69	12078.05	12191.26	12346.92	12403.53
30	8936.482	9007.238	9035.541	9063.844	9085.07	9162.901	9247.809	9311.489
35	7132.205	7160.507	7188.81	7167.583	7181.734	7202.961	7238.338	7287.868
40	5419.91	5434.061	5426.985	5441.136	5462.363	5497.741	5561.422	5603.875
45	3689.926	3763.511	3844.881	3873.891	3936.864	3972.949	4021.771	4035.922
50	2150.982	2167.256	2182.823	2230.229	2299.57	2314.429	2332.825	2388.015
55	693.4088	720.2961	772.6555	794.5899	819.3545	856.1476	901.4315	946.0078
60	27.09955	27.02879	27.02879	27.09955	27.31182	27.31182	27.52408	27.80711
65	13.16062	12.94835	13.0191	12.94835	12.87759	12.94835	13.08986	13.0191
70	6.863332	6.792576	6.651064	6.509552	6.651064	6.651064	6.651064	6.651064
75	3.325532	3.325532	3.254776	3.18402	3.18402	3.18402	3.18402	3.254776
80	1.41512	1.485876	1.41512	1.41512	1.41512	1.41512	1.344364	1.41512
85	0.35378	0.283024	0.35378	0.35378	0.35378	0.424536	0.495292	0.424536
90	0.141512	0.070756	0.070756	0	0	0.070756	0.141512	0.070756

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### 光強數據表(五)

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	19351.77	19358.84	19387.14	19380.07	19372.99	19365.92	19351.77	19351.77	
5	18814.02	18856.47	19005.06	18997.99	19047.52	19125.35	19026.29	19054.59	
10	18608.83	18679.58	18700.81	18714.96	18707.89	18792.79	18828.17	18863.55	
15	18297.5	18375.33	18453.16	18474.39	18417.79	18417.79	18339.96	18311.65	
20	16026.23	16104.07	16203.12	16252.65	16295.11	16309.26	16273.88	16295.11	
25	12516.74	12566.27	12637.02	12693.63	12707.78	12707.78	12729	12778.53	
30	9396.396	9403.473	9445.926	9467.153	9453.001	9481.304	9509.606	9552.06	
35	7344.473	7351.549	7386.926	7379.851	7394.002	7365.7	7422.304	7478.909	
40	5688.782	5738.312	5766.614	5830.294	5858.597	5929.353	5971.806	6000.108	
45	4058.564	4086.866	4143.471	4175.312	4221.303	4262.341	4311.871	4349.371	
50	2438.959	2467.969	2479.998	2465.846	2525.282	2547.216	2613.727	2636.369	
55	983.5084	1033.745	1046.481	1076.199	1095.303	1100.256	1099.548	1129.973	
60	28.23165	28.79769	29.4345	30.35432	31.41566	32.61852	35.73178	42.73663	
65	13.08986	13.30213	13.23137	13.37288	13.5144	13.72666	13.93893	14.22196	
70	6.72182	6.72182	6.792576	6.792576	6.863332	7.004844	7.0756	7.217112	
75	3.254776	3.254776	3.254776	3.254776	3.325532	3.396288	3.396288	3.467044	
80	1.344364	1.485876	1.485876	1.41512	1.41512	1.41512	1.41512	1.556632	
85	0.424536	0.424536	0.495292	0.35378	0.495292	0.495292	0.495292	0.495292	
90	0.141512	0.070756	0.141512	0.141512	0.070756	0.070756	0.070756	0.141512	

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### 光強數據表(六)

Intensity data(cd)		Page: 6 Total:10						
$\gamma/C(^{\circ})$	200.0	205.0	210.0	215.0	220.0	225.0	230.0	235.0
0	19344.69	19351.77	19330.54	19330.54	19330.54	19344.69	19344.69	19358.84
5	19097.04	19097.04	19104.12	19047.52	18934.31	19012.14	19111.2	19189.03
10	18835.25	18729.11	18580.53	18417.79	18368.26	18417.79	18545.15	18714.96
15	18191.37	18148.91	18014.48	17908.34	17957.87	18049.86	18226.75	18495.62
20	16203.12	16196.05	16203.12	16231.43	16302.18	16457.85	16578.13	16691.34
25	12849.29	12983.73	13019.1	13012.03	12976.65	13033.25	13075.71	13210.15
30	9665.27	9728.95	9828.009	9828.009	9813.857	9813.857	9820.933	9820.933
35	7521.363	7592.119	7613.346	7655.799	7627.497	7613.346	7613.346	7627.497
40	6042.563	6042.563	6070.865	6092.091	6120.394	6141.621	6113.319	6106.243
45	4391.825	4417.297	4441.354	4489.468	4510.695	4522.724	4538.29	4528.384
50	2659.718	2695.803	2704.294	2725.521	2756.654	2757.361	2784.956	2765.145
55	1128.558	1128.558	1143.417	1162.521	1176.672	1226.909	1212.758	1241.768
60	53.63305	64.8125	72.66641	78.32689	83.98737	87.10063	87.73744	82.0062
65	14.50498	14.64649	15.00027	15.35405	15.77859	16.06161	16.41539	16.69842
70	7.358624	7.42938	7.641648	7.853916	8.066184	8.278452	8.49072	8.632232
75	3.5378	3.608556	3.679312	3.750068	3.820824	3.89158	4.103848	4.174604
80	1.485876	1.556632	1.627388	1.7689	1.698144	1.7689	1.839656	1.839656
85	0.495292	0.566048	0.566048	0.566048	0.566048	0.636804	0.566048	0.566048
90	0.070756	0.141512	0.141512	0	0.141512	0.141512	0.070756	0.070756

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光強數據表(七)

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	19344.69	19351.77	19344.69	19337.62	19337.62	19351.77	19351.77	19337.62	
5	19203.18	19054.59	19047.52	19160.72	19238.56	19266.86	19132.42	19075.82	
10	18898.93	18976.76	19075.82	19068.74	19026.29	19026.29	19033.36	19040.44	
15	18608.83	18714.96	18771.57	18849.4	18821.1	18821.1	18799.87	18679.58	
20	16790.4	16896.53	16967.29	16953.14	16995.59	16910.68	16882.38	16783.32	
25	13231.37	13280.9	13323.35	13309.2	13295.05	13259.67	13203.07	13132.31	
30	9884.613	9877.537	9870.462	9884.613	9898.765	9870.462	9835.084	9849.235	
35	7641.648	7677.026	7669.951	7655.799	7662.875	7641.648	7641.648	7620.421	
40	6113.319	6070.865	6056.714	6021.336	5985.958	5957.655	5943.504	5943.504	
45	4512.817	4494.421	4480.978	4478.147	4426.496	4395.363	4375.551	4333.098	
50	2770.805	2748.163	2746.04	2747.455	2726.229	2703.587	2695.803	2686.605	
55	1244.598	1240.353	1242.475	1241.06	1262.995	1239.645	1226.909	1215.588	
60	73.65699	63.53889	56.88782	55.47271	62.12377	67.35971	69.48239	59.85958	
65	16.98144	17.19371	17.26446	17.33522	17.33522	17.12295	16.83993	16.41539	
70	8.773745	8.915256	9.056767	9.056767	8.986012	8.915256	8.702988	8.49072	
75	4.316116	4.316116	4.386872	4.457628	4.386872	4.316116	4.24536	4.103848	
80	1.839656	1.910412	1.910412	1.981168	1.910412	1.839656	1.839656	1.7689	
85	0.636804	0.636804	0.636804	0.636804	0.636804	0.566048	0.566048	0.566048	
90	0.141512	0.070756	0	0.070756	0.070756	0.070756	0.070756	0.141512	

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### 光強數據表(八)

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	19337.62	19351.77	19337.62	19351.77	19372.99	19358.84	19337.62	19358.84
5	19181.95	19224.4	19181.95	19047.52	18920.15	18806.95	18757.42	18686.66
10	19040.44	19019.21	18941.38	18863.55	18736.19	18679.58	18509.77	18431.94
15	18587.6	18495.62	18431.94	18304.58	18269.2	18283.35	18297.5	18240.9
20	16684.27	16585.21	16535.68	16387.09	16394.17	16316.33	16295.11	16231.43
25	13089.86	13104.01	13075.71	13040.33	12955.42	12813.91	12700.7	12637.02
30	9813.857	9792.631	9799.706	9757.252	9736.025	9651.118	9559.136	9495.455
35	7620.421	7613.346	7599.194	7577.968	7563.816	7514.287	7450.606	7386.926
40	5922.277	5886.899	5837.37	5794.916	5766.614	5731.236	5674.631	5674.631
45	4311.163	4242.53	4198.661	4137.104	4123.66	4069.177	4074.13	4059.272
50	2673.162	2626.463	2583.302	2540.848	2505.47	2467.262	2424.808	2408.534
55	1173.842	1146.247	1121.483	1077.614	1059.925	1050.019	1054.972	1003.32
60	48.96315	41.53377	35.378	33.11381	31.55717	30.42508	29.50525	28.51467
65	16.06161	15.56632	15.00027	14.50498	14.22196	13.72666	13.30213	12.94835
70	8.13694	7.924672	7.570892	7.358624	7.004844	6.792576	6.651064	6.509552
75	3.89158	3.820824	3.679312	3.467044	3.325532	3.18402	3.042508	3.042508
80	1.698144	1.627388	1.556632	1.41512	1.41512	1.344364	1.344364	1.202852
85	0.495292	0.424536	0.495292	0.424536	0.495292	0.424536	0.35378	0.424536
90	0.070756	0.070756	0.070756	0.141512	0.070756	0.141512	0.070756	0

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光強數據表(九)

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	19337.62	19358.84	19351.77	19372.99	19372.99	19387.14	19372.99	19344.69	
5	18630.05	18651.28	18651.28	18637.13	18722.04	18799.87	18764.49	18792.79	
10	18283.35	18148.91	18064.01	18134.76	18276.28	18361.18	18453.16	18552.22	
15	18134.76	18099.38	17922.49	17766.83	17745.61	17823.44	17865.89	17993.25	
20	16153.59	16005.01	15842.27	15658.3	15481.41	15389.43	15290.37	15205.46	
25	12545.04	12481.36	12325.7	12191.26	12035.6	11978.99	11830.4	11710.12	
30	9438.851	9368.094	9346.867	9276.111	9169.978	9092.146	8978.937	8886.954	
35	7351.549	7344.473	7316.17	7294.944	7259.566	7181.734	7125.129	7054.374	
40	5618.026	5568.497	5526.043	5504.817	5476.514	5448.212	5412.834	5384.532	
45	4022.479	3953.138	3916.344	3846.296	3795.352	3746.53	3689.926	3677.897	
50	2352.637	2275.513	2264.192	2216.785	2220.323	2199.804	2177.162	2116.312	
55	958.7438	916.2902	886.5727	834.9208	808.0335	761.3345	718.1734	681.3802	
60	27.59484	26.74577	26.10896	25.68443	25.04762	24.62309	24.34007	23.84477	
65	12.59457	12.31154	11.95776	11.67474	11.53323	11.32096	11.17945	11.03794	
70	6.155772	6.155772	5.943504	5.731236	5.66048	5.448212	5.589724	5.448212	
75	2.900996	2.900996	2.759484	2.688728	2.617972	2.547216	2.47646	2.47646	
80	1.202852	1.132096	1.132096	1.132096	1.06134	1.06134	0.990584	1.06134	
85	0.283024	0.283024	0.35378	0.283024	0.35378	0.283024	0.35378	0.283024	
90	0.070756	0	0	0.070756	0.070756	0.070756	0.070756	0.070756	

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## 光強數據表(十)

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Intensity data(cd)

Page: 10 Total:10

$\gamma/C(^{\circ})$	360.0
0	19365.92
5	18764.49
10	18651.28
15	17964.95
20	15170.09
25	11589.83
30	8780.819
35	6983.617
40	5327.927
45	3680.02
50	2096.5
55	658.7383
60	23.42024
65	11.03794
70	5.3067
75	2.47646
80	0.990584
85	0.283024
90	0

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### 測試設備列表及人員

項次	儀器 編號	量儀名稱	廠牌 / 型號 / 序號
1	99A-01	角度規	Johnson
2	99E-05	數位電力計	YOKOGAWA WT210 (91K116100)
3	99E-08	數位電力計	YOKOGAWA WT210 (91K539455)
4	99E-17	AC Power Source	APC AFC-5KW
5	990-01	立式大型分佈光度計	浙大三色 GMS-2000
6	990-22	快速光譜輻射分析儀	浙大三色 SPR-3000
7	990-23	2 $\pi$ 積分球	浙大三色
8	1040-31	測光標準燈 110V/100W	浙大三色(S13100197)
			測試人員：張鈞閔

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