

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 : 19031903
3. Total pages : 20
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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-601

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

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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)	1.119
Watt (W)	242.6
Power factor (PF)	0.985

Luminosity Test

Test item	Test Result
Total luminous flux of luminaires (lm)	28136.2
Initial luminaires efficiency(lm/W)	116.0
Central intensity (cd)	20115.9
Max intensity (cd)	21163.1
Angle for max intensity (°)	C : 35.0 γ : 5.0
Beam Angle (50% I _{max})	C0_180 Left=31.4 Right=37.6
	C90_270 Left=30.1 Right=32.8
Color temperature(K)	6140
Chromaticity Coordinates	x : 0.3193 y : 0.3323
Rendering Index(Ra)	83.1
R9	13
UGR , Unified Glare Rating	Viewing direction at right angles to lamp axis
	24.4
	Viewing direction parallel to lamp axis
	23.5

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Diagram for luminous intensity distribution I

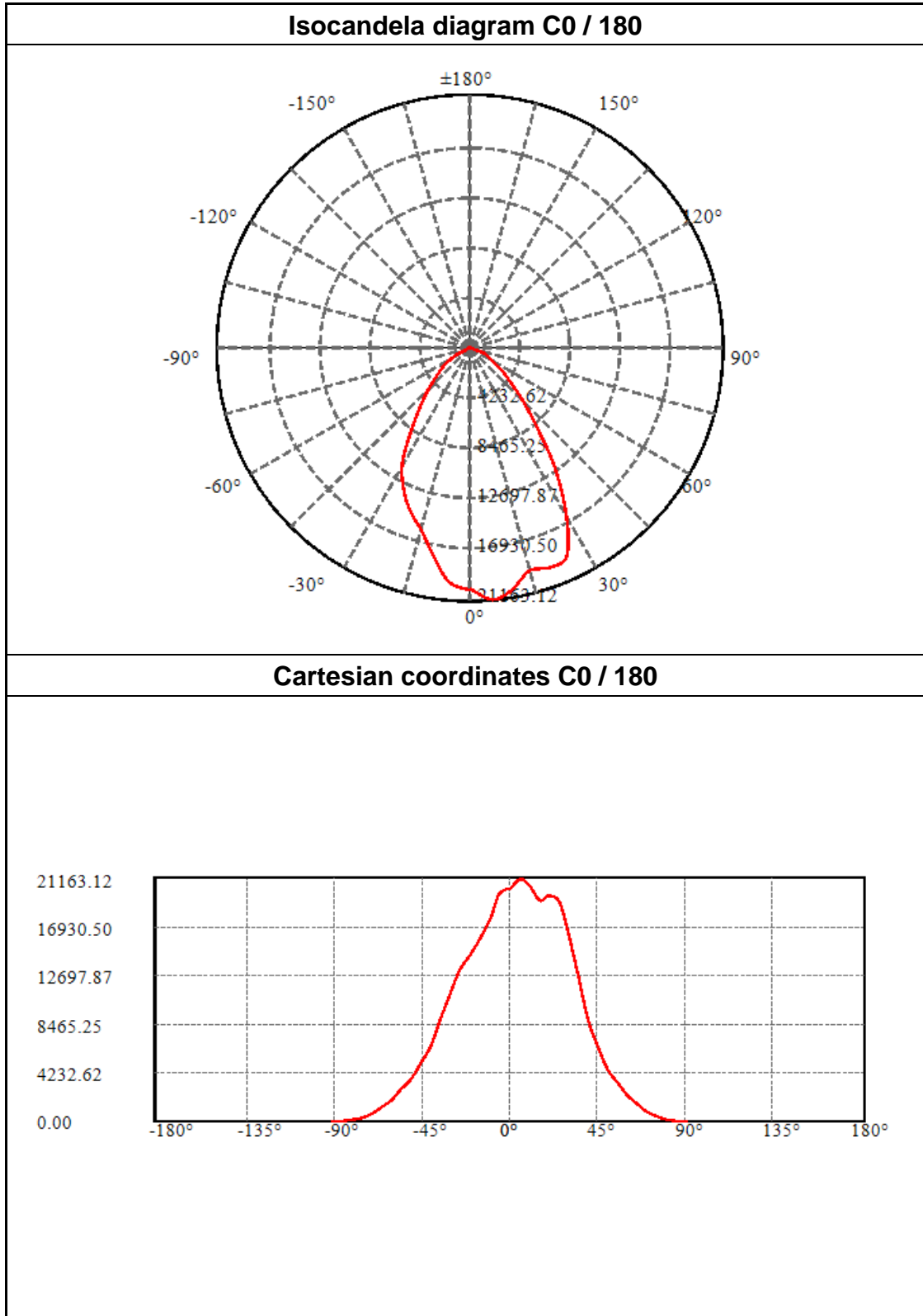


Diagram for luminous intensity distribution II

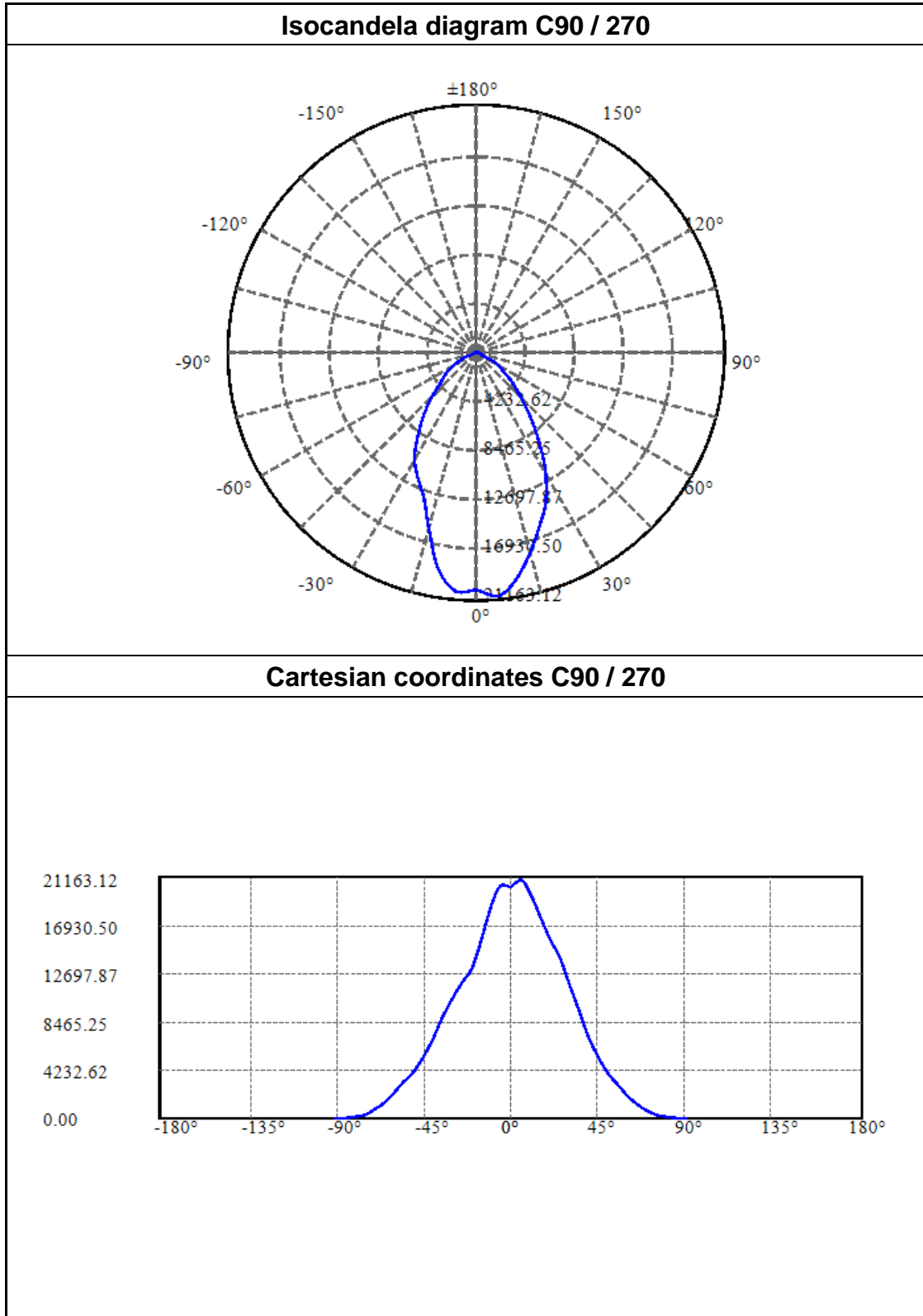
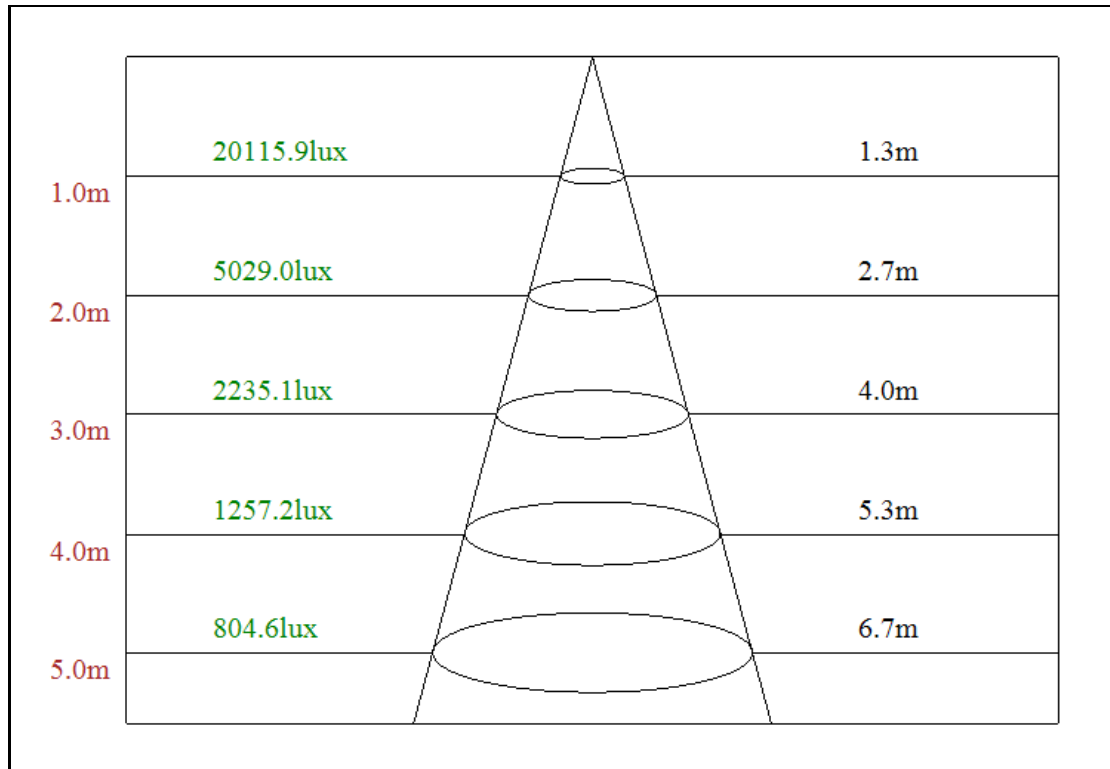


Diagram for illumination distance



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Test Results

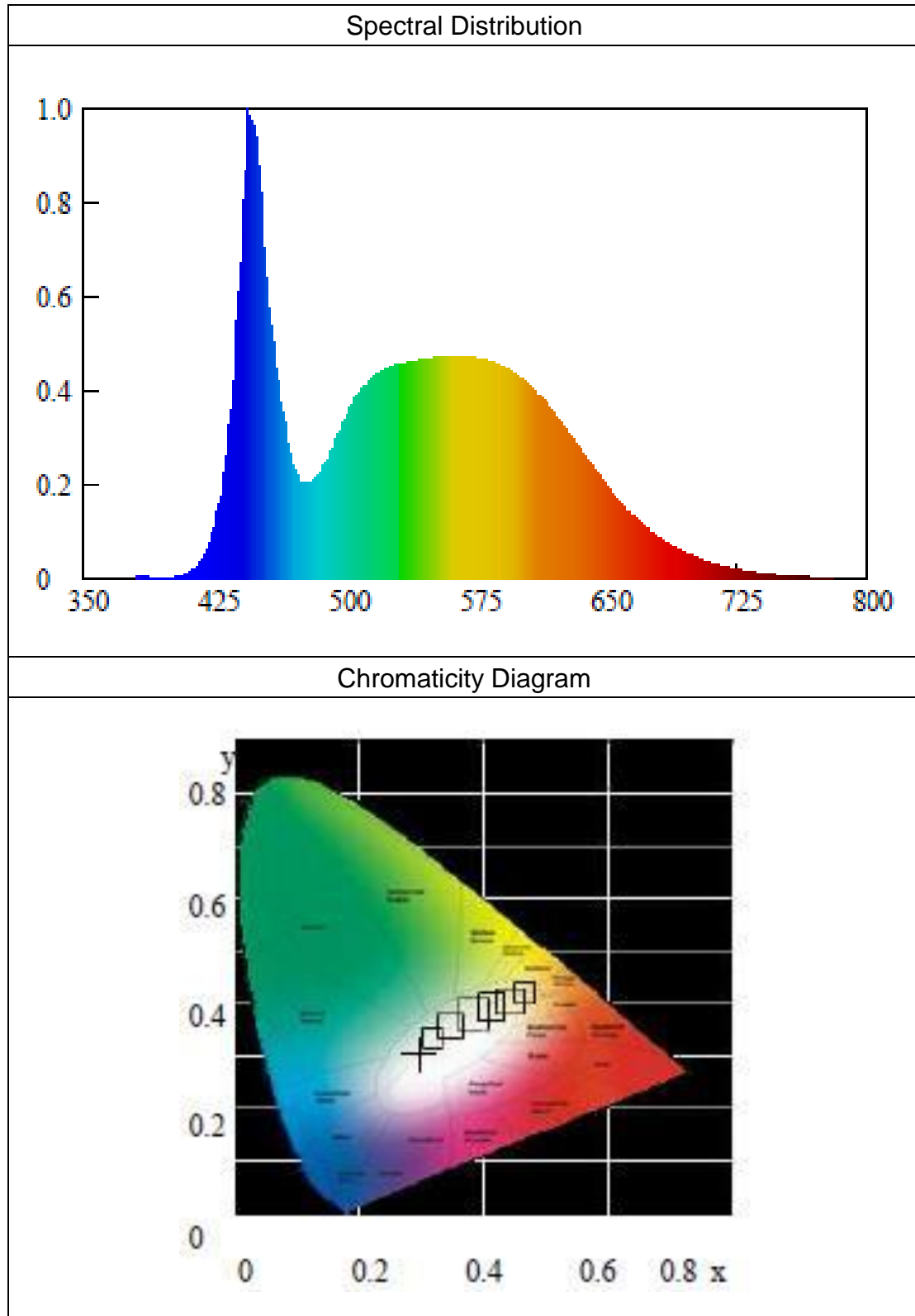
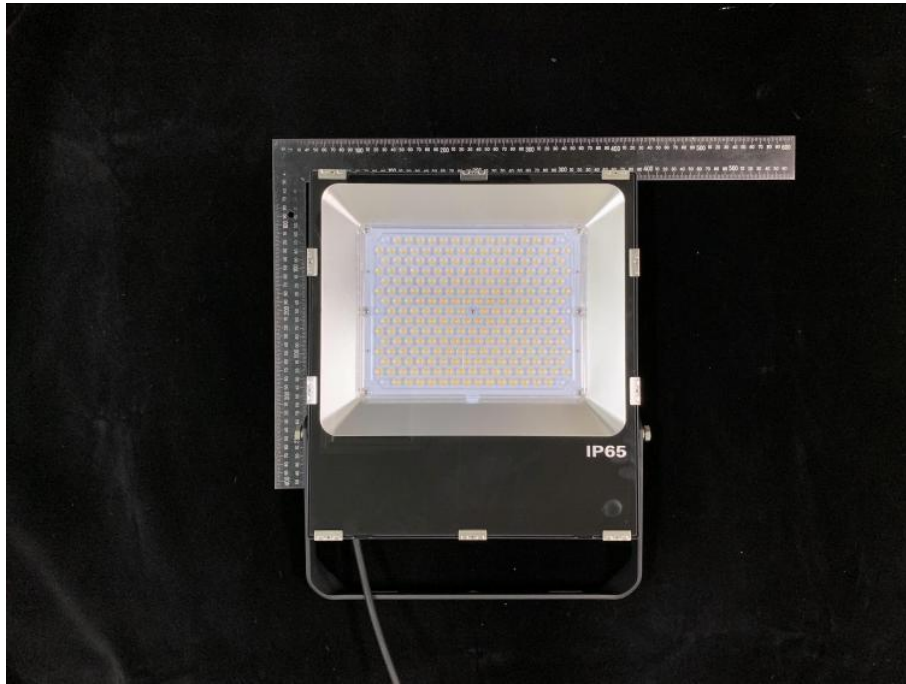


Photo for test items

The appearance of photo



The appearance of photo

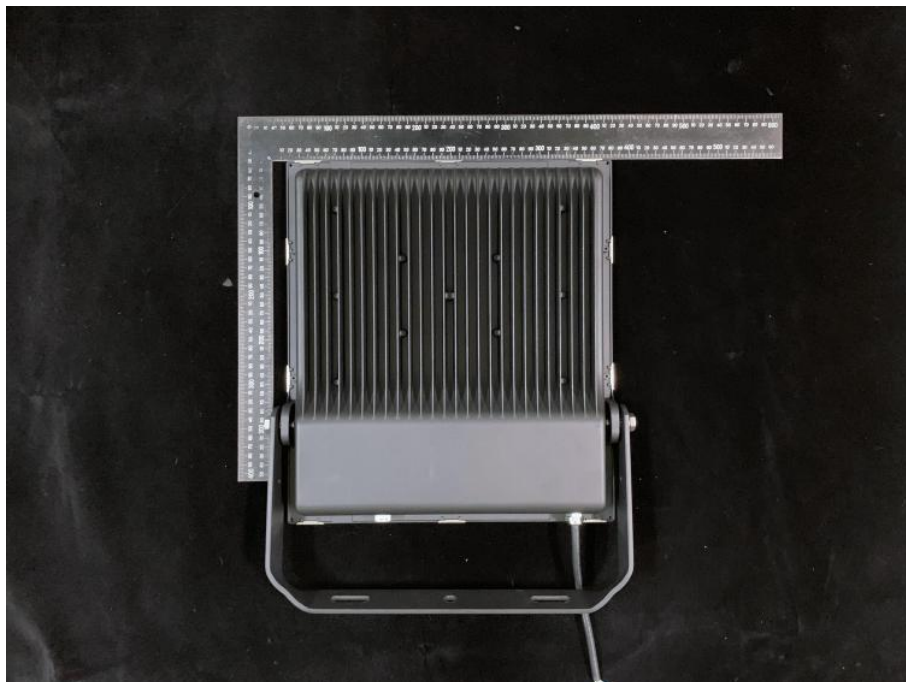
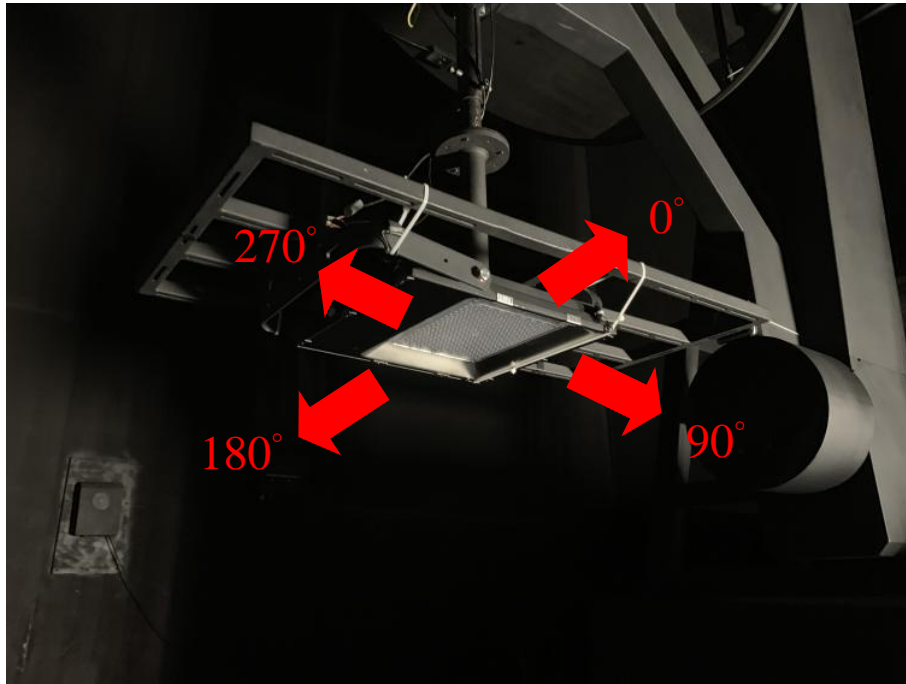


Photo for test items

Direction for luminaire position in goniophotometer



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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	20115.93	20179.61	20172.54	20158.38	20130.08	20123.01	20130.08	20080.55
5	21056.99	21042.83	21049.91	21085.29	21127.74	21092.36	21099.44	21163.12
10	20540.47	20512.16	20462.63	20413.11	20406.03	20455.56	20554.62	20717.36
15	19252.71	19316.39	19281.01	19245.63	19125.35	19111.2	19238.56	19394.22
20	19528.66	19684.32	19762.15	19790.45	19726.77	19578.19	19394.22	19075.82
25	19125.35	19401.29	19514.5	19528.66	19316.39	18955.53	18573.45	18283.35
30	16295.11	16535.68	16691.34	16641.81	16401.24	16104.07	15721.98	15396.51
35	12361.07	12460.13	12460.13	12375.22	12162.96	11957.76	11802.1	11618.13
40	8794.971	8837.424	8809.122	8724.215	8632.231	8533.174	8462.418	8320.905
45	6247.755	6276.057	6254.831	6226.528	6162.848	6106.243	6028.412	5985.958
50	4464.704	4507.157	4521.308	4507.157	4528.384	4500.082	4471.779	4415.174
55	3232.842	3256.191	3224.351	3222.228	3261.144	3297.229	3251.946	3170.576
60	2211.833	2218.908	2186.36	2189.191	2211.125	2245.795	2213.955	2142.492
65	1434.224	1432.101	1398.846	1362.053	1376.912	1385.402	1366.298	1325.26
70	814.4016	803.7882	788.9294	776.1933	775.4857	787.5143	767.7026	744.3531
75	383.2852	379.3936	372.4596	367.2944	364.7472	361.7755	355.2659	332.907
80	129.4127	128.2099	126.0872	123.1154	121.9833	118.2333	113.9172	110.3794
85	22.42965	22.57116	22.42965	21.79285	21.43907	20.51924	19.88244	19.03337
90	4.811408	4.59914	4.174604	3.962336	3.679312	3.396288	3.113264	2.971752

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Data for luminous intensity (2)

Intensity data(cd)

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$\gamma/C(^{\circ})$	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0
0	20080.55	20073.48	20038.1	20059.33	20101.78	20094.7	20087.63	20101.78
5	21141.89	21141.89	21134.82	21141.89	21071.14	21042.83	21035.76	20972.08
10	20823.49	20887.17	20901.32	20865.94	20759.81	20533.39	20328.2	20052.25
15	19443.75	19408.37	19323.46	19167.8	18955.53	18778.64	18523.92	18198.44
20	18778.64	18502.69	18113.54	17689	17349.37	17080.5	16854.08	16578.13
25	17759.76	17122.95	16514.45	15997.93	15615.85	15276.22	14986.12	14752.63
30	15000.27	14533.28	14151.2	13620.53	13238.45	13012.03	12799.76	12523.81
35	11420.02	11151.15	10953.03	10740.76	10464.81	10245.47	10033.2	9849.235
40	8221.847	8129.864	7988.353	7860.991	7712.404	7620.421	7514.287	7358.624
45	5908.126	5858.597	5794.916	5681.707	5618.026	5589.724	5533.119	5469.439
50	4309.041	4245.36	4195.831	4125.075	4047.243	4026.016	4033.092	4004.79
55	3065.858	2998.639	2972.46	2919.393	2900.288	2888.968	2867.741	2876.231
60	2072.443	2025.037	1996.734	1986.121	1950.743	1947.205	1923.856	1928.809
65	1271.485	1265.117	1248.843	1248.843	1230.447	1180.918	1125.728	1103.794
70	716.7583	689.871	662.9837	659.4459	675.7198	645.2947	617.6999	603.5486
75	334.8882	318.3312	311.8217	313.7321	301.4913	287.7646	271.42	257.3396
80	105.9217	100.615	95.66211	92.12431	88.51575	83.27982	78.53916	73.72775
85	17.90127	17.12295	16.06161	15.2833	14.788	14.1512	13.37288	12.73608
90	2.83024	2.617972	2.617972	2.83024	2.971752	3.042508	3.042508	3.042508

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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	20108.86	20123.01	20214.99	20115.93	20108.86	20094.7	20094.7	20130.08
5	20929.63	20901.32	20880.1	20766.89	20710.28	20646.6	20561.69	20427.26
10	19847.06	19726.77	19677.24	19670.17	19571.11	19436.67	19273.93	19118.27
15	17936.65	17780.98	17653.62	17540.41	17455.51	17278.62	17115.88	16981.44
20	16238.5	15976.71	15806.89	15757.36	15630	15453.11	15332.83	15212.54
25	14526.21	14257.33	14066.29	13974.31	13839.87	13698.36	13542.7	13443.64
30	12219.56	12028.52	11887.01	11752.57	11695.97	11632.29	11526.15	11497.85
35	9665.27	9460.077	9318.565	9254.885	9205.355	9177.054	9077.995	9042.616
40	7238.338	7167.583	7089.751	6997.769	6927.012	6877.483	6842.105	6778.425
45	5434.061	5391.607	5292.549	5243.02	5193.491	5129.81	5115.659	5073.205
50	4047.243	4026.016	4004.79	3962.336	3905.731	3856.202	3827.899	3785.446
55	2939.204	2963.261	2951.233	2891.798	2813.966	2775.05	2760.192	2748.163
60	1960.649	1991.781	1988.244	1939.422	1889.893	1867.251	1841.071	1853.1
65	1114.407	1124.313	1126.436	1098.133	1067.708	1075.491	1074.076	1110.869
70	600.7184	607.0865	601.426	588.6899	573.1236	570.2933	577.369	584.4445
75	250.4762	246.3724	244.0374	239.5798	238.5185	240.5704	247.2922	253.165
80	70.756	69.48239	68.9871	68.20879	67.2182	67.50122	68.77483	70.11919
85	12.31154	12.09928	11.88701	11.88701	11.7455	11.81625	11.81625	12.02852
90	3.113264	3.113264	3.113264	3.042508	3.042508	2.971752	3.042508	2.900996

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Data for luminous intensity (4)

Page: 4 Total:10

Intensity data(cd)	120.0	125.0	130.0	135.0	140.0	145.0	150.0	155.0
$\gamma/C(^{\circ})$	20130.08	20094.7	20108.86	20094.7	20094.7	20137.16	20144.23	20137.16
0	20314.05	20250.37	20115.93	20009.8	19882.44	19740.92	19740.92	19670.17
5	18934.31	18630.05	18361.18	18071.08	17731.45	17512.11	17321.07	17413.05
10	16910.68	16755.02	16670.11	16549.83	16387.09	16252.65	16139.44	16111.14
15	15205.46	15290.37	15332.83	15375.28	15325.75	15226.69	15184.24	15233.77
20	13479.02	13613.45	13747.89	13896.48	13924.78	13868.18	13832.8	13882.33
25	11497.85	11490.77	11469.55	11504.93	11448.32	11377.56	11349.26	11405.87
30	9056.769	9000.163	8964.785	8901.104	8823.273	8780.819	8710.063	8674.686
35	6728.896	6700.593	6665.215	6636.913	6573.232	6544.93	6580.308	6516.627
40	5059.054	5051.979	5044.903	5009.525	5016.601	5002.449	4988.298	4945.844
45	3757.144	3792.522	3792.522	3785.446	3827.899	3842.051	3849.126	3799.597
50	2726.936	2743.21	2734.012	2750.993	2806.891	2860.665	2870.571	2842.976
55	1833.288	1831.873	1823.382	1849.562	1884.94	1931.639	1960.649	1922.441
60	1124.313	1110.869	1104.501	1096.718	1129.973	1154.03	1163.229	1158.276
65	602.8411	577.369	572.4161	577.369	604.2562	625.483	635.3889	630.4359
70	258.9669	260.1698	260.3113	257.6226	265.9718	262.717	272.8351	272.4814
75	71.67583	72.10036	72.59566	73.16171	75.49665	78.46841	80.52032	81.51091
80	12.3823	12.59457	12.52381	12.52381	12.80684	12.80684	12.94835	12.80684
85	2.83024	2.759484	2.547216	2.47646	2.334948	2.193436	1.981168	1.839656
90								

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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	20158.38	20172.54	20222.06	20222.06	20236.22	20222.06	20243.29	20207.91
5	19670.17	19670.17	19677.24	19656.02	19663.09	19712.62	19719.7	19712.62
10	17462.58	17497.96	17490.88	17505.03	17526.26	17476.73	17462.58	17398.9
15	16033.31	15955.48	15877.65	15813.97	15743.21	15637.08	15509.71	15438.96
20	15191.31	15106.41	14908.29	14646.49	14462.53	14370.54	14292.71	14221.96
25	13854.02	13719.59	13493.17	13302.13	13118.16	12990.8	12997.88	12983.73
30	11427.09	11427.09	11370.49	11320.96	11214.83	11158.22	11066.24	11045.01
35	8702.988	8766.669	8759.593	8759.593	8787.896	8745.441	8695.912	8660.534
40	6516.627	6552.006	6573.232	6559.082	6573.232	6559.082	6587.384	6559.082
45	4945.844	4952.92	4974.147	4938.769	4938.769	4945.844	4974.147	4974.147
50	3778.371	3742.992	3757.144	3742.992	3714.69	3735.917	3771.295	3742.992
55	2749.578	2716.323	2721.983	2728.351	2723.398	2741.087	2719.861	2733.304
60	1857.345	1845.317	1841.071	1865.128	1860.883	1872.911	1848.854	1873.619
65	1126.436	1136.341	1146.955	1169.597	1168.182	1178.087	1161.813	1151.908
70	612.7469	614.8696	624.7755	633.2662	636.804	637.5116	640.3418	639.6342
75	272.6936	273.8257	276.4437	280.9013	284.1561	286.774	289.3213	291.727
80	81.22789	83.56284	83.84586	84.83645	86.0393	87.66668	90.07238	92.05355
85	12.80684	12.66532	12.66532	12.45306	12.59457	13.23137	13.86818	14.71725
90	1.698144	1.556632	1.273608	1.273608	1.344364	1.344364	1.485876	1.556632

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Data for luminous intensity (6)

Intensity data(cd)

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$\gamma/C(^{\circ})$	200.0	205.0	210.0	215.0	220.0	225.0	230.0	235.0
0	20179.61	20186.69	20222.06	20123.01	20144.23	20144.23	20130.08	20123.01
5	19712.62	19677.24	19677.24	19705.55	19733.85	19748	19847.06	19939.04
10	17335.22	17214.94	17101.72	17122.95	17222.01	17427.2	17646.55	17865.89
15	15297.45	15219.62	15141.78	15063.95	15063.95	15071.03	15099.33	15127.63
20	14101.67	13903.55	13684.21	13556.85	13457.79	13351.66	13203.07	13054.48
25	12912.97	12736.08	12488.43	12304.47	12155.88	12014.37	11816.25	11582.76
30	10882.27	10712.46	10599.25	10521.42	10500.19	10464.81	10379.91	10316.22
35	8582.703	8497.796	8448.266	8441.191	8455.342	8504.871	8540.249	8540.249
40	6502.476	6495.401	6502.476	6509.552	6502.476	6544.93	6573.232	6587.384
45	4981.222	4981.222	5016.601	5002.449	5023.676	5009.525	5016.601	5016.601
50	3792.522	3827.899	3856.202	3877.429	3849.126	3813.748	3827.899	3820.824
55	2780.003	2872.694	2914.44	2888.26	2832.363	2804.06	2814.674	2823.872
60	1917.488	1988.951	2019.376	1993.196	1926.686	1915.365	1909.704	1942.96
65	1183.748	1210.635	1217.711	1217.711	1183.04	1190.823	1208.512	1243.891
70	653.7855	677.1349	682.0878	680.6727	660.861	662.9837	675.7198	688.4559
75	295.2648	306.232	308.9915	312.3878	308.4962	309.9821	314.6519	319.6756
80	95.52061	97.43102	99.19991	98.49236	98.42159	98.70463	100.1197	101.3933
85	15.42481	15.99086	16.5569	16.83993	17.19371	17.54749	17.61824	17.689
90	1.627388	1.7689	2.051924	2.193436	2.264192	2.405704	2.47646	2.900996

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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	20158.38	20179.61	20144.23	20200.84	20222.06	20229.14	20236.22	20200.84
5	20002.72	20073.48	20165.46	20236.22	20342.35	20363.58	20427.26	20498.01
10	18078.16	18255.05	18368.26	18545.15	18630.05	18729.11	18707.89	18891.85
15	15134.71	15226.69	15325.75	15368.2	15403.58	15446.04	15460.19	15615.85
20	12934.2	12842.21	12877.59	12920.05	12983.73	13033.25	13188.92	13323.35
25	11405.87	11342.19	11370.49	11476.62	11596.91	11724.27	11802.1	11922.39
30	10280.85	10252.54	10323.3	10323.3	10379.91	10415.28	10464.81	10634.63
35	8526.098	8561.477	8589.778	8646.384	8660.534	8681.762	8745.441	8816.197
40	6587.384	6643.989	6672.291	6721.82	6743.046	6806.727	6912.861	6919.937
45	5016.601	5073.205	5122.734	5158.112	5186.415	5243.02	5292.549	5356.229
50	3842.051	3877.429	3934.033	3941.109	4033.092	4089.697	4125.075	4153.377
55	2845.099	2893.92	2907.364	2947.695	3015.621	3095.575	3151.472	3147.227
60	1958.526	1998.857	2003.81	2046.263	2090.84	2189.191	2231.644	2215.37
65	1259.457	1273.608	1272.901	1275.731	1294.835	1331.628	1367.714	1365.591
70	693.4088	696.2391	701.192	699.7769	711.8054	742.2305	755.6741	754.9666
75	321.869	313.0953	310.0528	308.8499	309.133	315.9255	320.0294	323.6379
80	100.7565	100.4735	99.62445	98.91689	98.28008	99.41218	101.1103	103.8698
85	17.689	17.83051	17.689	17.47673	17.689	17.83051	18.25505	18.96261
90	3.325532	3.89158	4.528384	5.165188	5.943504	6.36804	6.934088	7.358624

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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	20193.76	20200.84	20236.22	20165.46	20165.46	20200.84	20200.84	20207.91
5	20547.54	20575.84	20618.3	20696.13	20759.81	20710.28	20703.21	20752.73
10	19054.59	19245.63	19549.88	19797.53	19889.51	20066.4	20123.01	20137.16
15	15806.89	16160.67	16486.15	16896.53	17137.1	17462.58	17667.77	17865.89
20	13563.92	13818.65	14115.82	14526.21	14936.59	15354.05	15828.12	16259.73
25	12141.73	12389.38	12580.42	12870.52	13167.69	13698.36	14413	15120.56
30	10839.82	11016.71	11151.15	11356.34	11618.13	12007.29	12396.45	12934.2
35	8978.937	9169.978	9304.414	9460.077	9580.362	9778.479	9997.823	10245.47
40	7011.919	7125.129	7224.188	7294.944	7365.7	7471.834	7599.194	7712.404
45	5405.758	5462.363	5497.741	5540.195	5582.648	5646.329	5717.085	5766.614
50	4167.528	4181.68	4217.058	4195.831	4188.755	4273.663	4323.192	4337.343
55	3111.849	3109.726	3123.17	3138.736	3141.566	3175.529	3180.482	3212.322
60	2173.624	2159.473	2172.209	2194.144	2198.389	2203.342	2200.511	2245.088
65	1345.779	1366.298	1384.695	1414.412	1412.29	1420.78	1412.997	1413.705
70	744.3531	752.1362	772.6555	788.9294	791.7596	792.4672	796.005	795.2974
75	324.9116	334.8174	352.5064	364.9594	372.7426	377.554	379.0399	383.1437
80	106.3463	110.0256	114.6247	118.4455	124.6721	126.5825	130.0495	130.6156
85	19.4579	20.44848	21.36831	22.35889	23.34948	23.84477	24.34007	24.62309
90	7.641648	7.78316	7.853916	7.924672	7.924672	7.924672	7.78316	7.570892

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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	20236.22	20186.69	20229.14	20243.29	20257.44	20264.52	20278.67	20264.52	
5	20781.04	20773.96	20759.81	20773.96	20823.49	20887.17	20908.4	21014.53	
10	20073.48	20059.33	19946.12	20052.25	20179.61	20321.12	20420.18	20526.32	
15	17972.02	17936.65	17979.1	18240.9	18587.6	18877.7	19040.44	19217.33	
20	16698.42	17130.03	17462.58	17872.96	18368.26	18785.72	19075.82	19337.62	
25	15573.4	16111.14	16670.11	17427.2	17972.02	18368.26	18644.21	18884.78	
30	13471.94	13875.25	14427.15	14851.68	15396.51	15778.59	15983.78	16132.37	
35	10415.28	10684.16	10967.18	11278.51	11646.44	11865.78	12056.82	12276.17	
40	7797.312	7882.219	8066.184	8165.242	8370.435	8519.022	8674.686	8738.366	
45	5794.916	5879.824	5943.504	5985.958	6049.638	6134.545	6212.376	6212.376	
50	4415.174	4450.552	4478.854	4500.082	4500.082	4493.006	4521.308	4478.854	
55	3302.89	3354.542	3393.458	3363.74	3296.522	3265.389	3264.682	3246.285	
60	2278.343	2359.005	2374.571	2358.297	2305.23	2265.607	2247.211	2237.305	
65	1437.762	1472.432	1480.923	1475.263	1442.715	1446.96	1432.809	1446.253	
70	812.2789	837.751	844.8267	843.4116	817.9394	810.8638	814.4016	820.0621	
75	388.2382	396.3044	398.144	397.2242	388.3089	388.3089	387.2476	386.0447	
80	131.6769	135.2147	136.0638	135.2147	134.2949	132.1722	129.9788	129.9788	
85	24.97687	25.04762	25.25989	25.33065	25.25989	24.97687	23.84477	22.9957	
90	7.358624	7.217112	6.863332	6.580308	6.085016	5.731236	5.448212	5.094432	

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Data for luminous intensity (10)

Intensity data(cd)

Page: 10 Total:10

$\gamma/C(^{\circ})$	360.0
0	20115.93
5	21056.99
10	20540.47
15	19252.71
20	19528.66
25	19125.35
30	16295.11
35	12361.07
40	8794.971
45	6247.755
50	4464.704
55	3232.842
60	2211.833
65	1434.224
70	814.4016
75	383.2852
80	129.4127
85	22.42965
90	4.811408

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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 (2 π)	Sensing SPR-3000
7	99O-23	Integrating sphere (2 π)	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			

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