

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 : 19031904
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:



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-001

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)	1.120
Watt (W)	239.3
Power factor (PF)	0.971

Luminosity Test

Test item	Test Result
Total luminous flux of luminaires (lm)	29154.2
Initial luminaires efficiency(lm/W)	121.8
Central intensity (cd)	10962.9
Max intensity (cd)	11050.7
Angle for max intensity (°)	C : 350.0 γ : 0.0
Beam Angle (50% I _{max})	C0_180 Left=55.5 Right=55.5
	C90_270 Left=55.5 Right=54.0
Color temperature(K)	5974
Chromaticity Coordinates	x : 0.3226 y : 0.3321
Rendering Index(Ra)	83.5
R9	13
UGR , Unified Glare Rating	Viewing direction at right angles to lamp axis
	28.6
	Viewing direction parallel to lamp axis
	28.1

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Diagram for luminous intensity distribution I

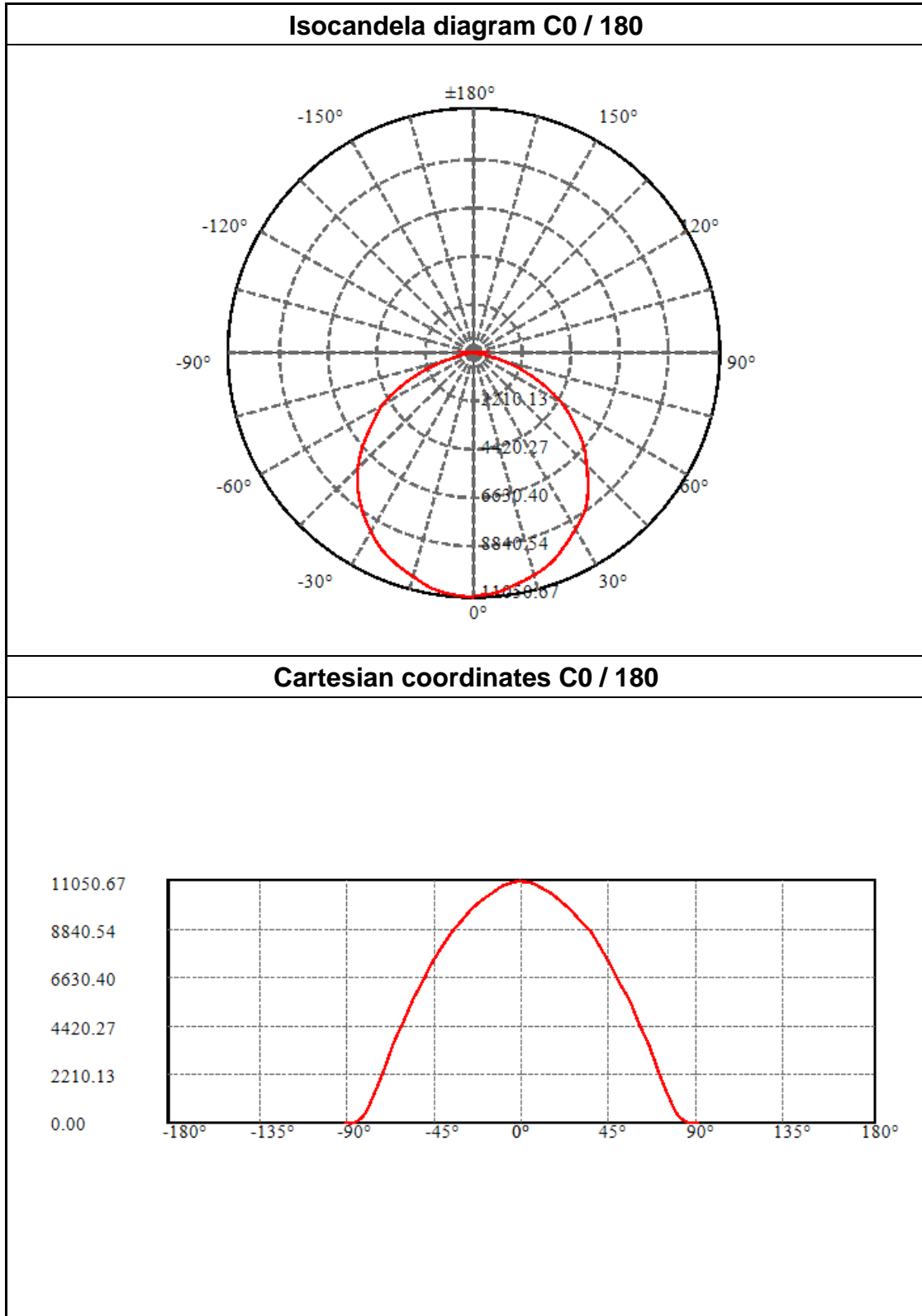


Diagram for luminous intensity distribution II

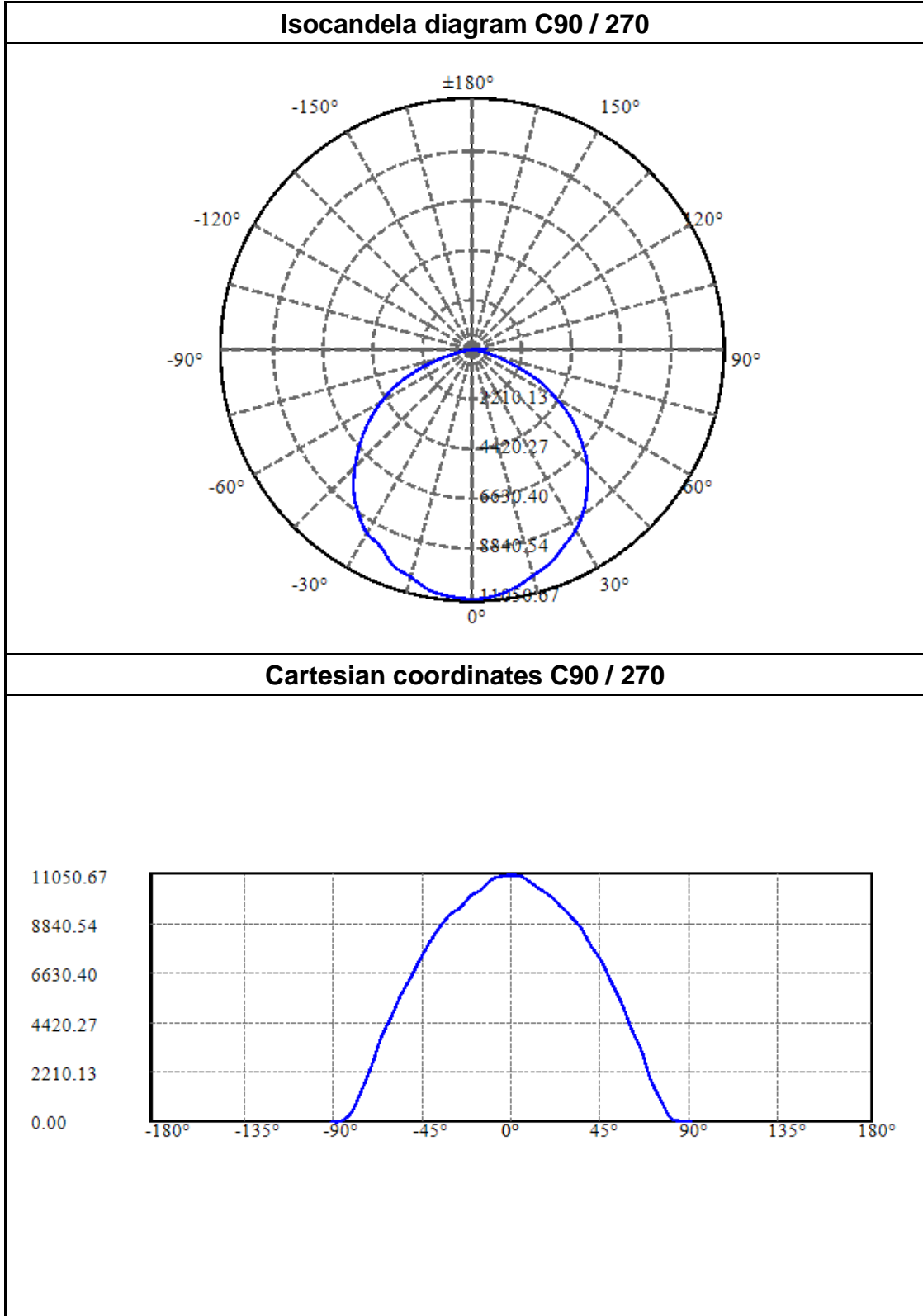
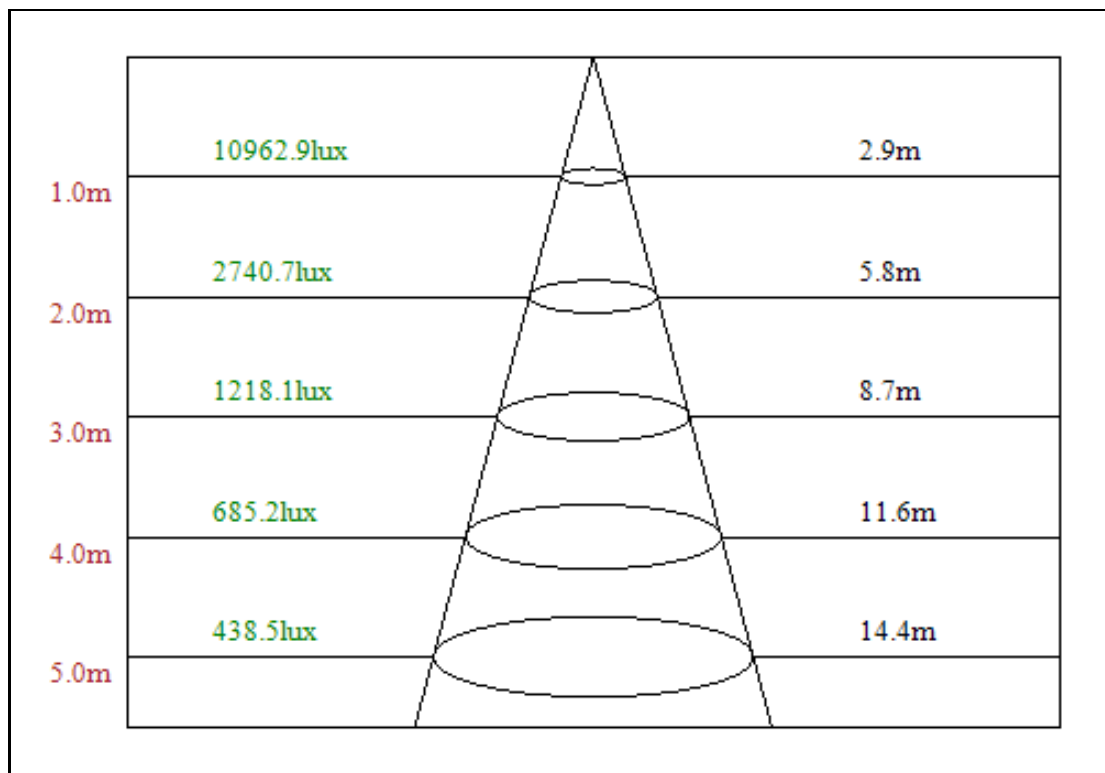


Diagram for illumination distance



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Test Results

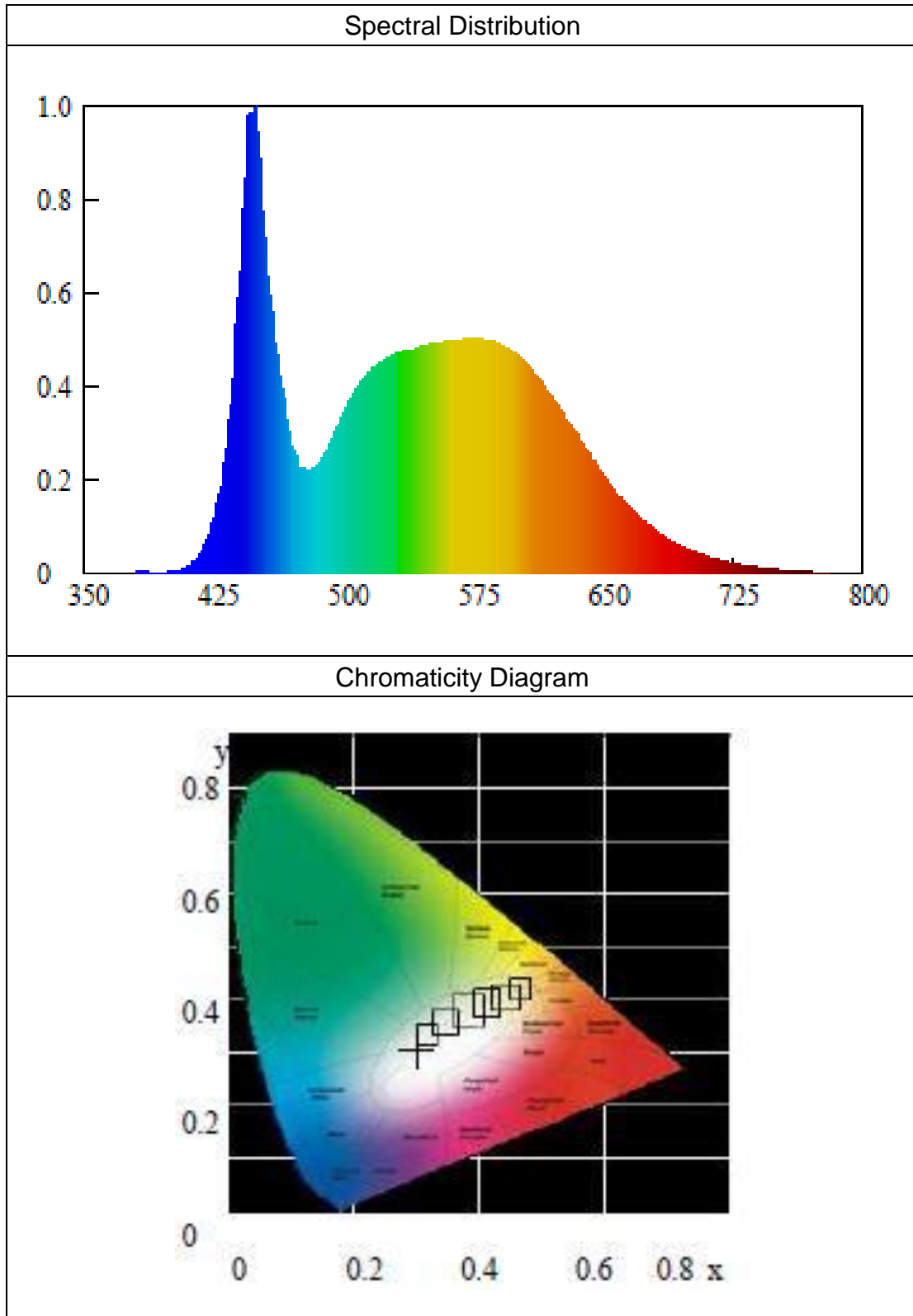
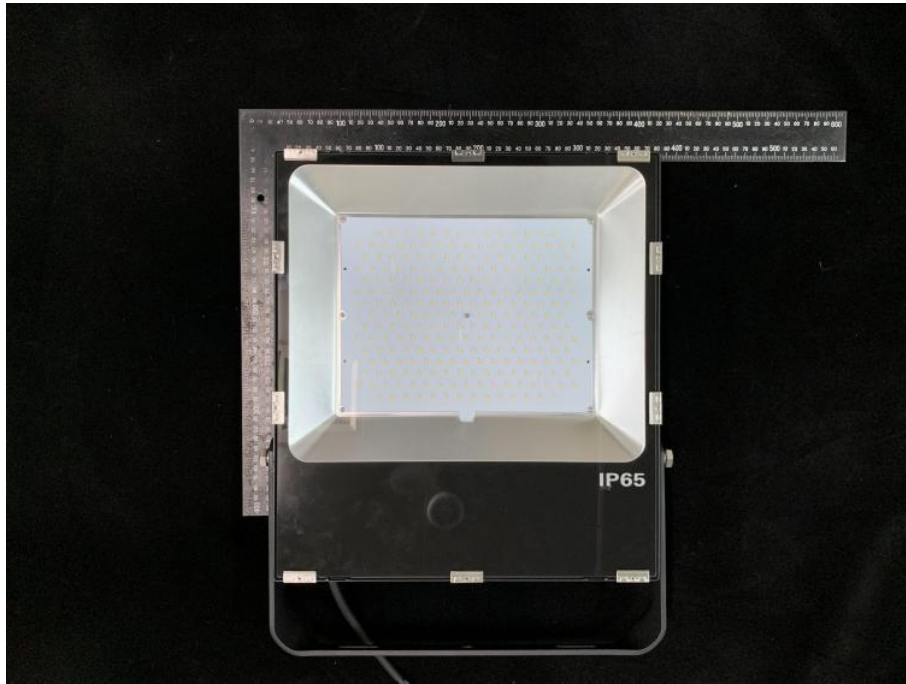


Photo for test items

The appearance of photo



The appearance of photo

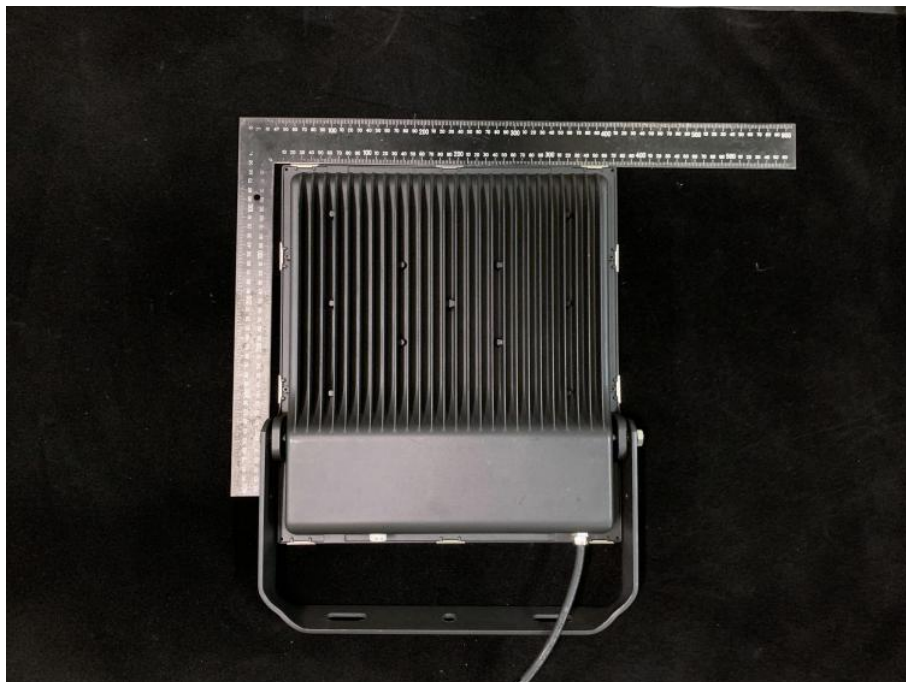
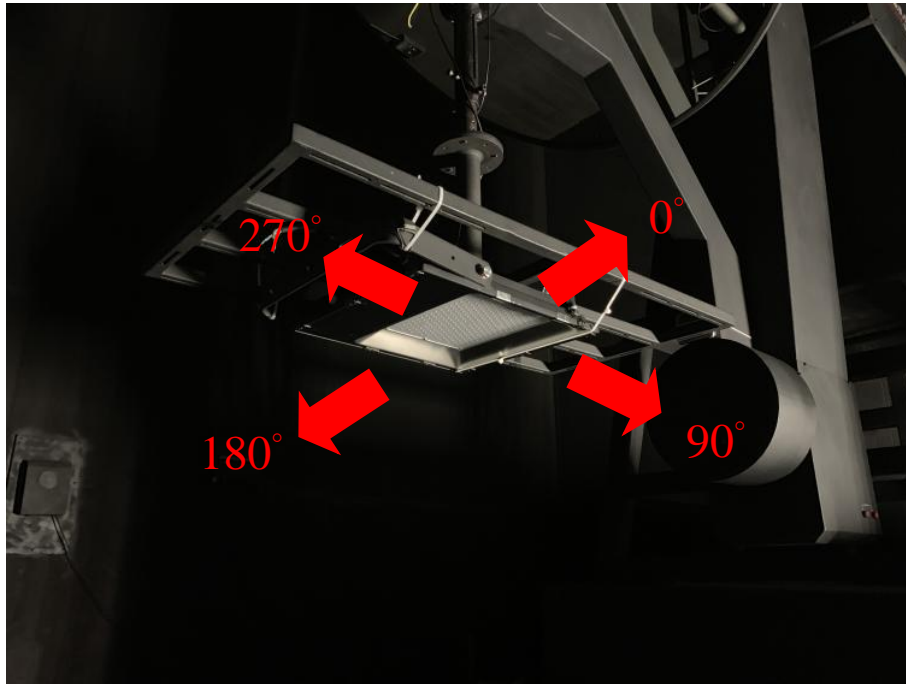


Photo for test items

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	10962.93	10986.99	10943.83	10989.82	10980.62	10981.33	11008.22	10953.03
5	10907.75	10873.07	10880.15	10882.27	10868.12	10853.97	10874.49	10834.87
10	10677.79	10686.99	10685.57	10673.54	10667.88	10657.98	10675.67	10638.16
15	10405.38	10396.89	10376.37	10370.71	10356.56	10360.8	10350.89	10316.93
20	10078.49	10055.14	10038.86	10015.51	9995.7	9929.897	9946.171	9923.528
25	9650.411	9637.675	9632.722	9602.297	9549.938	9538.616	9514.559	9466.445
30	9193.327	9182.714	9172.101	9119.033	9088.608	9036.956	8997.333	8979.644
35	8683.884	8632.939	8597.562	8572.089	8516.192	8498.503	8477.984	8461.71
40	8023.73	7977.032	7935.993	7901.322	7879.388	7858.869	7876.558	7850.378
45	7214.989	7217.82	7188.103	7169.706	7143.525	7125.129	7132.913	7132.205
50	6407.663	6390.682	6359.549	6335.493	6330.539	6322.049	6312.143	6336.908
55	5529.582	5502.694	5489.25	5468.024	5457.41	5438.306	5458.826	5434.061
60	4555.271	4535.459	4529.799	4517.063	4488.053	4481.685	4489.468	4451.26
65	3520.818	3505.96	3493.931	3474.119	3468.459	3445.11	3411.147	3398.411
70	2311.598	2300.985	2288.249	2274.805	2289.664	2286.834	2304.523	2198.389
75	1153.323	1138.464	1130.681	1132.803	1147.662	1081.859	1105.209	1110.162
80	331.9164	324.2747	321.3737	310.0528	305.7367	289.8166	272.4814	250.1932
85	11.46247	12.45306	12.94835	13.16062	13.44364	14.00969	14.29271	14.50498
90	3.962336	4.386872	4.811408	5.448212	6.01426	6.651064	7.146356	7.924672

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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	10950.2	10945.95	10948.08	10963.64	10947.37	10962.23	10960.81	10978.5
5	10830.62	10837.7	10831.33	10830.62	10848.31	10847.6	10882.27	10842.65
10	10628.26	10607.03	10606.32	10609.86	10573.07	10589.34	10595	10601.37
15	10309.15	10287.21	10266.7	10269.53	10311.98	10264.57	10290.04	10275.19
20	9894.52	9876.123	9885.32	9887.443	9892.396	9886.028	9900.887	9922.821
25	9450.879	9442.389	9455.832	9457.954	9414.086	9482.72	9502.531	9515.267
30	8948.512	8964.785	8986.012	8981.059	9027.758	9027.051	9037.664	9072.334
35	8453.219	8445.437	8472.323	8461.003	8501.334	8485.767	8503.456	8523.268
40	7853.916	7860.991	7873.728	7846.133	7851.085	7846.133	7864.529	7873.02
45	7149.187	7147.063	7154.139	7130.082	7094.705	7109.563	7093.997	7092.582
50	6336.2	6335.493	6322.049	6300.114	6230.773	6247.047	6232.188	6242.802
55	5418.495	5395.145	5371.088	5356.937	5313.068	5361.89	5332.88	5325.097
60	4420.127	4384.042	4385.457	4384.042	4246.775	4134.273	4123.66	4146.302
65	3384.26	3215.153	3170.576	3337.561	3279.541	3157.133	3159.963	3142.981
70	2320.089	2174.332	2153.105	2034.235	2006.64	2050.509	1945.79	1880.694
75	1051.434	1013.933	1053.557	979.9706	981.3857	887.2802	885.1576	897.1861
80	246.5139	236.8203	232.7872	214.3907	210.0038	210.2161	189.6968	188.2817
85	14.71725	14.92952	15.14178	15.07103	15.2833	15.49556	15.63708	15.63708
90	8.207696	8.844501	9.19828	9.764328	9.835084	10.25962	10.40113	10.40113

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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	10977.79	10987.7	10972.13	10980.62	10972.84	10969.3	10967.89	10948.78
5	10859.63	10890.06	10882.27	10868.83	10869.54	10872.37	10869.54	10884.4
10	10612.69	10587.93	10645.24	10613.4	10616.94	10631.8	10630.38	10621.89
15	10279.43	10312.69	10276.6	10311.98	10314.1	10309.86	10290.04	10297.83
20	9931.313	9931.313	9987.209	9937.681	9929.189	9928.481	9928.481	9936.973
25	9546.399	9549.229	9515.267	9547.814	9550.645	9535.786	9515.975	9508.898
30	9093.562	9100.637	9127.523	9118.326	9099.222	9084.362	9072.334	9056.769
35	8552.277	8573.504	8547.325	8562.892	8546.617	8535.296	8531.051	8509.824
40	7899.2	7902.737	7851.793	7911.228	7899.907	7873.728	7880.803	7880.096
45	7113.101	7125.129	7169.706	7096.827	7108.855	7100.364	7113.101	7125.837
50	6242.802	6247.755	6272.519	6263.321	6251.292	6252.708	6261.906	6291.624
55	5356.229	5344.908	5311.653	5368.965	5347.031	5357.645	5383.824	5393.73
60	4164.698	4207.859	4197.246	4195.831	4177.434	4157.623	4191.585	4241.115
65	3171.991	3179.775	3164.208	3180.482	3180.482	3203.832	3217.275	3305.013
70	1872.204	1875.742	1887.063	1889.185	1905.459	1952.866	2098.623	2079.519
75	902.8466	873.8366	878.082	916.9977	919.1205	917.7053	927.6111	1054.972
80	174.7673	168.0455	170.3804	180.9939	197.6923	200.5932	216.5841	225.9239
85	15.77859	15.77859	15.77859	15.56632	15.9201	15.63708	15.77859	15.70783
90	10.47189	10.54264	10.68416	10.54264	10.54264	10.33038	10.18886	10.04735

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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	10941.71	10970.72	10977.79	10969.3	10981.33	11015.29	10936.75	10999.73
5	10878.03	10874.49	10913.41	10870.24	10880.15	10878.74	10904.91	10899.25
10	10645.24	10657.27	10646.66	10671.42	10691.23	10687.69	10698.31	10717.41
15	10307.03	10319.05	10358.68	10363.63	10364.34	10391.93	10411.04	10436.51
20	9935.558	9934.851	9953.954	9949.001	9969.521	9987.209	9988.624	10036.03
25	9476.351	9475.644	9491.917	9485.55	9508.191	9523.05	9557.013	9601.589
30	9001.578	9008.654	8973.983	9005.116	9007.238	9047.569	9117.618	9128.231
35	8531.051	8487.89	8499.918	8498.503	8511.239	8530.343	8487.89	8562.184
40	7899.907	7877.973	7873.02	7893.54	7904.152	7879.388	7901.322	7937.408
45	7132.913	7202.253	7202.253	7220.65	7225.603	7207.206	7218.527	7207.206
50	6316.388	6385.021	6399.88	6410.494	6404.125	6407.663	6398.465	6402.003
55	5447.504	5456.703	5463.071	5481.467	5518.26	5516.845	5542.317	5531.704
60	4427.203	4444.892	4461.166	4500.082	4519.186	4575.791	4579.329	4606.923
65	3438.742	3273.88	3258.314	3462.091	3489.686	3537.8	3535.677	3589.452
70	2092.962	2245.795	2268.438	2404.996	2293.202	2425.516	2431.176	2441.082
75	1030.915	1112.992	1100.256	1156.861	1181.625	1208.512	1212.758	1259.457
80	238.5185	255.4999	268.5898	279.6277	297.246	325.1238	375.7144	377.1295
85	15.56632	15.35405	15.21254	15.14178	15.14178	15.56632	15.70783	14.50498
90	9.835084	9.410548	8.915256	8.632232	8.066184	7.570892	6.934088	6.36804

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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	10999.02	11008.22	11023.08	11037.23	11049.96	11031.57	11017.42	11016.71
5	10907.04	10917.65	10942.42	10926.85	10920.48	10945.95	10977.09	10948.08
10	10720.24	10736.52	10750.67	10764.82	10789.58	10774.72	10771.19	10766.23
15	10429.43	10440.75	10463.4	10481.09	10466.94	10479.67	10481.09	10486.04
20	10080.61	10102.54	10094.76	10123.06	10158.44	10145.7	10161.98	10129.43
25	9641.92	9697.109	9709.139	9726.827	9768.573	9742.394	9755.13	9728.242
30	9167.854	9220.215	9266.205	9284.603	9264.083	9273.989	9253.47	9223.752
35	8594.023	8665.487	8683.884	8735.535	8724.923	8752.517	8741.196	8706.526
40	7954.389	7981.984	8037.881	8067.6	8091.656	8088.826	8086.703	8035.051
45	7220.65	7256.028	7288.575	7317.585	7355.086	7352.256	7330.321	7302.019
50	6414.739	6433.136	6466.391	6493.986	6516.627	6532.901	6498.231	6499.646
55	5552.931	5576.28	5584.771	5622.272	5625.81	5641.376	5644.206	5633.593
60	4616.829	4635.933	4662.113	4686.17	4688.292	4699.614	4711.642	4721.548
65	3609.971	3625.538	3644.642	3661.623	3661.623	3687.095	3700.539	3706.907
70	2443.912	2439.667	2453.818	2465.846	2486.366	2496.272	2517.499	2558.537
75	1290.589	1277.853	1270.07	1282.099	1291.297	1308.986	1342.241	1375.497
80	396.9412	410.3848	419.5831	420.2906	425.9511	428.0738	448.593	466.9896
85	14.00969	13.86818	13.58515	13.0191	12.73608	15.2833	19.03337	23.27872
90	5.731236	5.094432	5.023676	4.95292	4.95292	5.448212	6.297284	7.0756

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Data for luminous intensity (6)

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	11011.05	10986.28	10997.61	10992.65	10986.99	10974.26	10994.07	11008.93
5	10947.37	10929.68	10917.65	10916.94	10907.04	10909.16	10910.58	10902.79
10	10747.13	10778.26	10735.81	10732.98	10732.98	10737.22	10728.73	10721.66
15	10483.92	10458.44	10495.94	10447.12	10433.68	10428.02	10406.79	10417.41
20	10118.11	10103.96	10059.38	10066.46	10055.14	10045.94	10033.91	10021.17
25	9679.421	9676.59	9607.958	9573.286	9560.551	9545.692	9544.984	9544.984
30	9217.385	9155.119	9106.297	9080.825	9077.995	9080.825	9088.608	9105.59
35	8654.874	8619.496	8572.089	8579.873	8567.137	8593.316	8594.731	8615.958
40	8010.287	8008.164	7986.229	8023.022	8025.146	8052.74	8063.354	8065.477
45	7278.669	7297.066	7326.784	7357.208	7393.294	7410.275	7411.691	7384.804
50	6518.042	6524.411	6582.431	6582.431	6603.658	6588.799	6598.705	6569.694
55	5652.697	5654.112	5697.981	5688.782	5689.49	5685.245	5677.461	5665.433
60	4721.548	4737.822	4750.558	4722.963	4707.396	4706.689	4693.246	4707.396
65	3735.209	3723.181	3741.577	3696.293	3685.68	3683.557	3692.756	3690.633
70	2588.254	2590.377	2618.679	2640.614	2639.199	2642.029	2644.859	2637.076
75	1388.233	1428.564	1475.263	1492.952	1454.036	1492.244	1454.743	1435.639
80	493.8769	491.7542	491.7542	494.5844	492.4617	479.7256	473.3577	491.0466
85	25.61367	33.11381	37.99597	41.67528	43.0904	42.87814	39.5526	33.39683
90	7.995428	8.915256	9.90584	10.89642	11.81625	12.73608	13.44364	13.93893

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Data for luminous intensity (7)

Intensity data(cd)

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$\gamma/C(^{\circ})$	240.0	245.0	250.0	255.0	260.0	265.0	270.0	275.0
0	11016	10996.9	10953.74	11011.05	11018.83	11025.91	11011.76	11011.76
5	10887.23	10924.73	10909.87	10920.48	10917.65	10948.08	10911.28	10928.26
10	10734.39	10715.29	10742.18	10718.12	10713.17	10685.57	10747.13	10707.51
15	10419.53	10399.72	10377.08	10400.42	10391.93	10411.04	10324.01	10355.85
20	9966.69	9991.455	10001.36	9993.577	9999.945	10013.39	10082.02	9992.87
25	9590.976	9589.561	9589.561	9612.91	9635.552	9610.08	9561.258	9627.062
30	9138.845	9160.779	9206.063	9221.63	9239.318	9249.224	9237.196	9237.903
35	8621.619	8690.959	8722.092	8723.508	8734.12	8762.423	8749.688	8748.272
40	8020.192	8074.674	8102.977	8094.486	8115.005	8105.1	8105.1	8095.902
45	7377.728	7328.906	7326.784	7335.982	7342.35	7361.455	7303.434	7348.011
50	6586.676	6519.458	6493.986	6491.863	6506.014	6529.363	6467.099	6508.137
55	5639.961	5632.178	5622.272	5608.828	5611.659	5622.979	5609.536	5622.979
60	4698.198	4701.736	4694.661	4691.831	4681.925	4697.491	4667.066	4698.198
65	3704.784	3703.369	3704.784	3702.661	3702.661	3686.388	3680.02	3686.388
70	2537.31	2511.838	2501.225	2493.441	2484.951	2483.536	2472.922	2462.309
75	1424.318	1340.119	1331.628	1324.552	1316.769	1310.401	1306.863	1294.127
80	471.0934	477.1077	444.1354	431.6823	426.7294	421.2812	417.2481	412.7198
85	27.45333	27.09955	27.24106	27.38257	27.17031	27.45333	27.38257	27.31182
90	14.43422	15.14178	15.49556	15.63708	15.9201	15.99086	16.20313	15.70783

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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	11012.46	11004.68	11011.76	11014.59	11006.8	10995.48	10971.42	11008.93
5	10934.63	10925.43	10911.28	10911.28	10911.99	10911.99	10907.75	10914.82
10	10712.46	10708.92	10710.34	10725.19	10658.68	10661.51	10674.96	10654.44
15	10350.19	10350.19	10350.89	10352.31	10309.15	10353.02	10345.94	10372.12
20	9992.87	9987.917	9957.492	9972.351	9985.087	9979.427	9969.521	9983.671
25	9617.155	9602.297	9557.721	9544.984	9561.966	9535.786	9517.39	9540.739
30	9226.582	9196.157	9179.884	9140.968	9070.212	9078.702	9070.919	9061.721
35	8722.8	8705.111	8679.639	8643.553	8574.92	8591.193	8563.599	8535.296
40	8093.071	8065.477	8066.892	8044.25	8067.6	8037.174	8012.41	7985.522
45	7335.982	7316.877	7331.737	7322.539	7372.067	7360.747	7341.643	7328.199
50	6494.693	6486.202	6517.335	6500.354	6517.335	6547.053	6525.826	6532.194
55	5601.752	5601.045	5584.063	5600.337	5618.026	5630.763	5629.347	5612.366
60	4684.047	4679.094	4660.698	4659.99	4626.735	4630.98	4613.999	4627.442
65	3679.312	3672.944	3664.453	3653.132	3629.075	3608.556	3601.48	3580.254
70	2463.016	2456.648	2463.016	2453.818	2509.715	2542.263	2550.046	2531.65
75	1287.759	1287.052	1281.391	1283.514	1353.562	1354.977	1376.912	1371.959
80	409.8895	409.2527	419.1585	431.6116	418.5925	426.8709	411.2339	413.498
85	27.02879	26.74577	26.46274	25.96745	25.4014	27.80711	30.28357	31.06189
90	15.70783	15.35405	15.00027	14.08044	13.65591	12.31154	11.03794	9.976596

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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	11022.37	10997.61	10988.41	11028.74	11025.2	11037.94	11050.67	11036.52
5	10914.11	10958.69	10836.99	10874.49	10875.2	10888.64	10895.01	10902.79
10	10664.34	10647.36	10675.67	10648.07	10665.76	10666.47	10689.11	10688.4
15	10374.95	10382.74	10379.91	10403.96	10401.13	10411.75	10412.45	10394.06
20	9992.162	10009.14	9981.549	10038.15	10047.35	10057.26	10069.29	10066.46
25	9557.721	9557.721	9615.032	9616.447	9633.43	9661.731	9672.346	9663.854
30	9058.184	9090.73	9067.381	9134.6	9169.27	9198.28	9225.167	9209.601
35	8537.419	8560.769	8587.655	8577.75	8615.958	8636.478	8649.921	8641.431
40	7977.032	7949.437	8010.287	7943.068	7947.314	7970.664	7985.522	8007.457
45	7279.377	7266.642	7214.282	7222.065	7223.48	7235.508	7243.999	7247.537
50	6525.826	6503.892	6457.9	6416.862	6396.342	6418.277	6432.428	6423.229
55	5604.583	5607.413	5557.176	5560.006	5550.101	5538.78	5550.808	5538.072
60	4611.876	4626.027	4620.367	4608.338	4604.8	4591.357	4591.357	4580.036
65	3588.037	3603.603	3587.329	3583.792	3567.517	3566.102	3551.951	3542.045
70	2518.206	2496.272	2472.215	2431.176	2419.855	2359.005	2337.778	2316.551
75	1386.818	1362.053	1311.816	1277.853	1243.891	1215.588	1176.672	1157.568
80	413.8519	420.6444	420.7859	408.8989	397.2242	371.3275	351.445	337.2231
85	30.70811	28.01937	23.70326	18.75034	16.20313	14.92952	13.79742	12.59457
90	8.702988	8.066184	7.146356	6.438796	5.3067	4.740652	4.528384	4.316116

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Data for luminous intensity (10)

Intensity data(cd)

Page: 10 Total:10

$\gamma/C(^{\circ})$	360.0
0	10962.93
5	10907.75
10	10677.79
15	10405.38
20	10078.49
25	9650.411
30	9193.327
35	8683.884
40	8023.73
45	7214.989
50	6407.663
55	5529.582
60	4555.271
65	3520.818
70	2311.598
75	1153.323
80	331.9164
85	11.46247
90	3.962336

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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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