

Test Report for Luminous Intensity Distributions

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

Date of Receipt : 2017 / 01 / 20

Test Date : 2017 / 01 / 20 ~ 2017 / 01 / 23

1. Issue Date for test report : 2017 / 04 / 07
 2. Report No : 17011703-1
 3. Total pages : 19
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- Remark : report No.17011703 is replaced by report No.17011703-1, as well as become invalid.

Approved Signatory:



Test Report

Information for test items

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

Trade Mark : CoolLED

Test item description : floodlight

Model : F2070C-001

Rated voltage(V) : 100~240

Rated frequency(Hz) : 50/60

Rated power(W) : 60

Trademark/model of LED chip : Lumileds / LUXEON 3030 2D

Trademark/model of driver : MEAN WELL / PLP-60-48

Dimension for test item LxWxH (mm) : 311 × 220 × 50

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Test Content

Test Condition

Temperature (°C)	25.1
Humidity (% RH)	58.6
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)	0.291
Watt (W)	60.6
Power factor (PF)	0.947

Luminosity Test

Test item	Test Result
Total luminous flux of luminaire (lm)	6960.3
Initial luminaire efficiency (lm/W)	114.9
Central intensity (cd)	2611.6
Max intensity (cd)	2611.6
Angle for max intensity (°)	C : 0.0 γ : 0.0
Color temperature(K)	5206
Rendering Index	83.4
Beam angle (50%Imax)	C0_180 Left=56.0 Right=54.2
	C90_270 Left=55.7 Right=53.9

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Diagram for luminous intensity distribution I

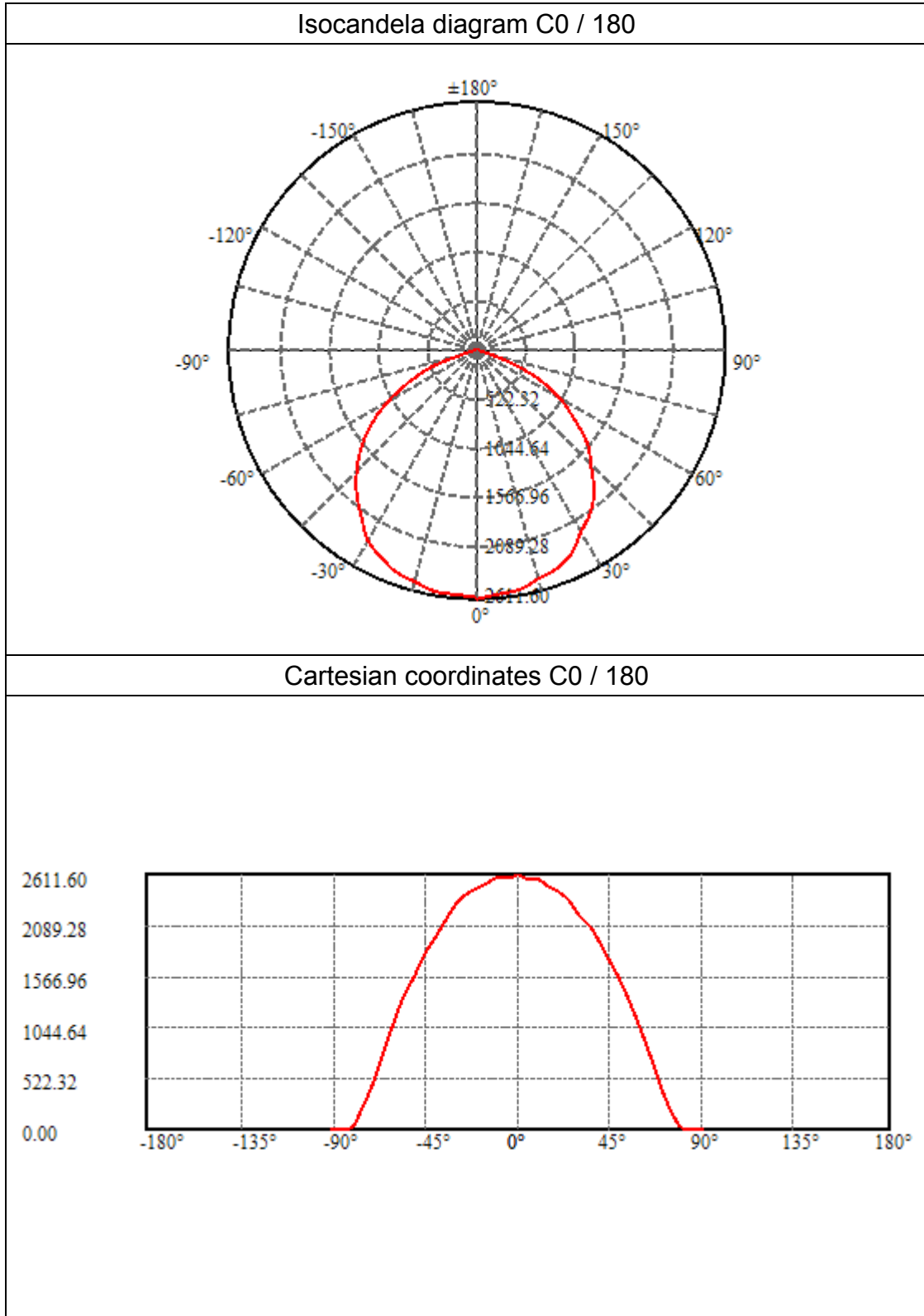


Diagram for luminous intensity distribution II

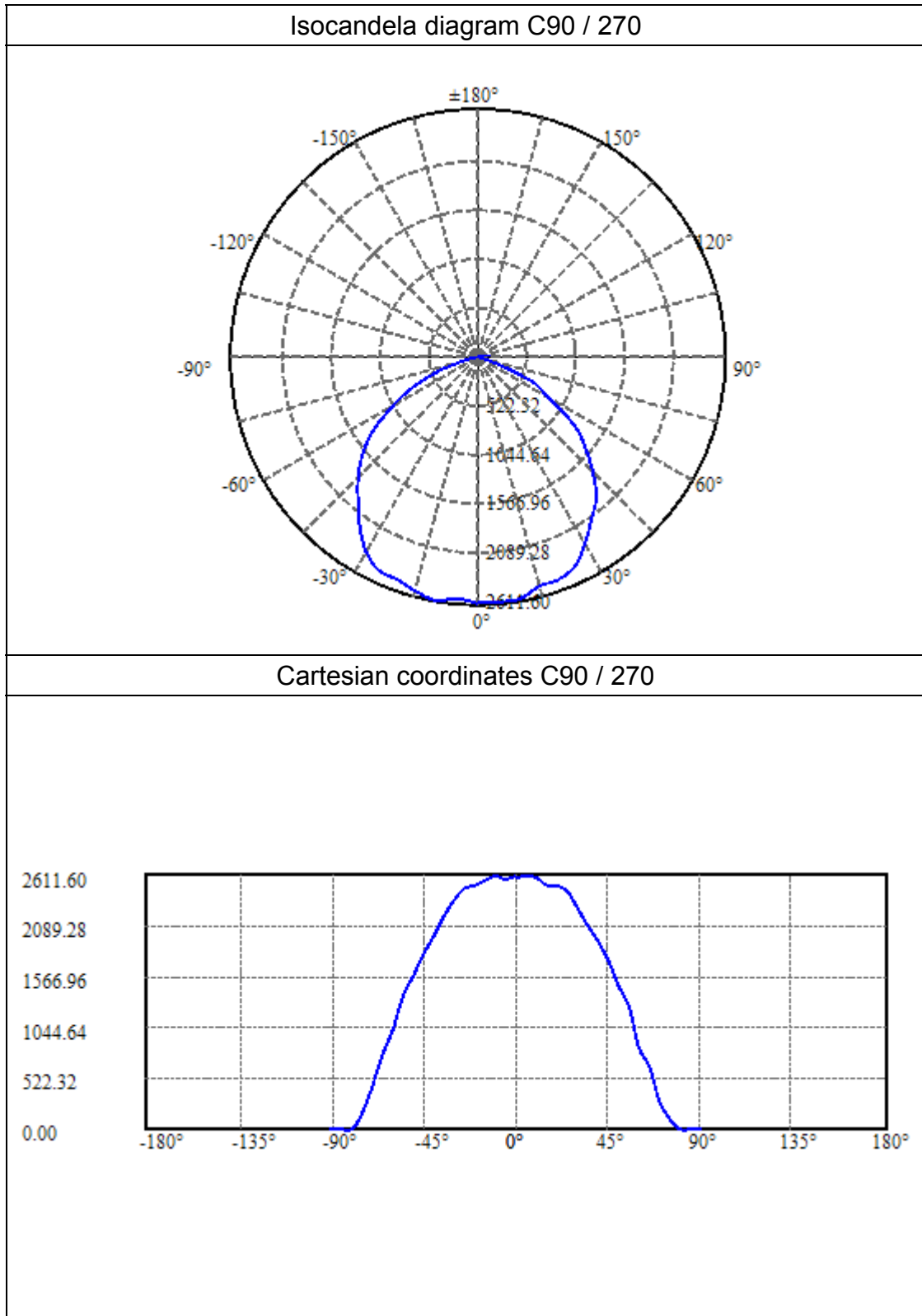
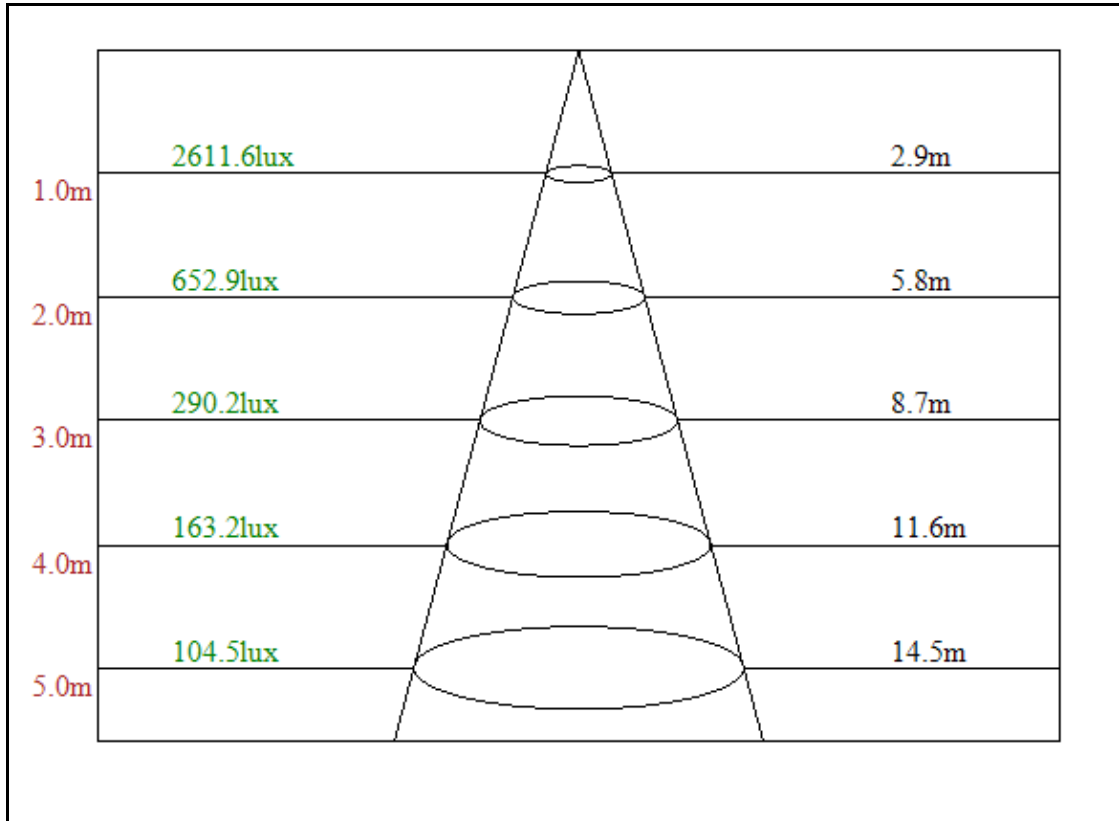


Diagram for illumination distance



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Photo for test items

Photo of product

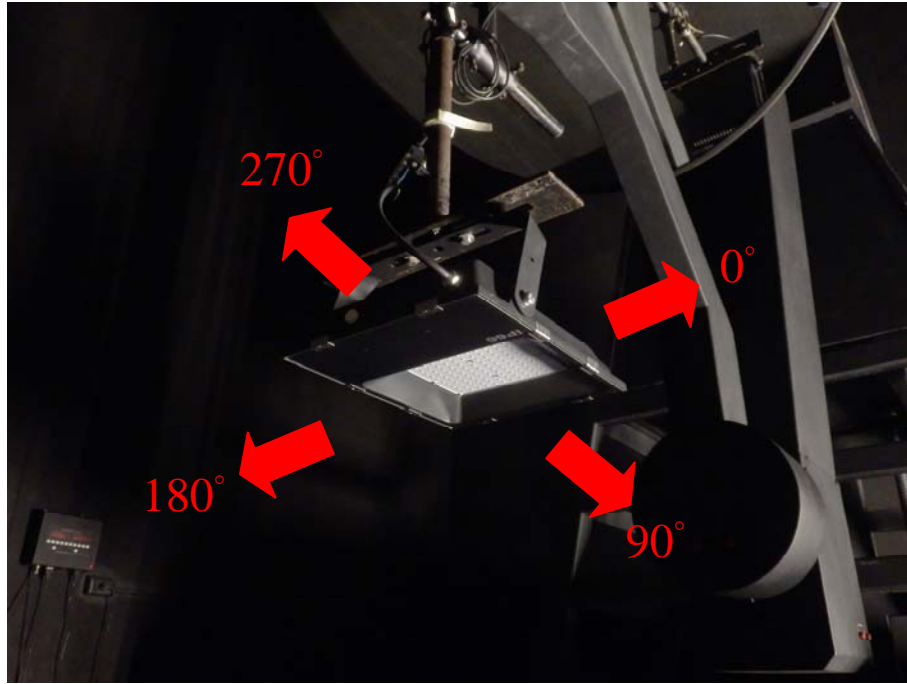


Photo of product



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	2611.604	2584.009	2584.009	2588.962	2585.424	2581.179	2582.594	2584.009
5	2570.565	2583.302	2579.056	2586.132	2580.471	2584.717	2584.717	2588.254
10	2557.829	2543.678	2554.292	2556.414	2563.49	2559.245	2562.075	2554.292
15	2487.073	2501.932	2504.762	2500.517	2498.394	2511.13	2498.394	2497.687
20	2437.544	2430.469	2436.129	2438.252	2434.714	2424.101	2441.082	2450.28
25	2343.439	2346.269	2345.562	2349.807	2347.684	2353.344	2365.373	2363.958
30	2186.36	2221.031	2226.691	2231.644	2233.767	2247.918	2266.315	2278.343
35	2079.519	2077.396	2077.396	2092.255	2097.208	2116.312	2133.293	2147.445
40	1908.997	1905.459	1901.214	1918.195	1942.252	1959.941	1977.63	1990.366
45	1705.22	1705.927	1710.88	1727.154	1744.135	1761.824	1773.853	1794.372
50	1521.254	1502.15	1500.735	1521.962	1531.16	1543.188	1555.217	1559.462
55	1263.702	1274.316	1284.929	1300.495	1308.278	1313.231	1309.693	1297.665
60	1027.377	1043.651	1045.774	1054.264	1062.048	1054.972	1047.896	1034.453
65	720.2961	728.0793	722.4188	722.4188	725.9566	718.1734	743.6456	764.1649
70	428.9936	434.4419	438.2627	436.14	431.187	426.7294	422.201	402.6017
75	167.8332	164.9322	168.187	186.7251	179.9325	162.0312	155.0972	145.1913
80	19.52866	21.36831	22.00512	17.83051	15.99086	20.51924	18.8211	14.92952
85	2.12268	2.12268	2.051924	1.910412	1.910412	1.839656	1.698144	1.627388
90	0.70756	0.778316	0.778316	0.778316	0.778316	0.778316	0.778316	0.778316

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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	2583.302	2588.254	2582.594	2580.471	2579.764	2591.085	2584.717	2583.302	
5	2592.5	2589.67	2587.547	2589.67	2599.575	2597.453	2596.745	2587.547	
10	2541.555	2552.169	2550.754	2556.414	2545.093	2556.414	2559.952	2561.367	
15	2506.177	2506.885	2516.083	2528.112	2537.31	2526.697	2518.914	2536.603	
20	2460.894	2449.573	2454.526	2460.894	2477.875	2471.507	2480.705	2483.536	
25	2368.911	2387.307	2384.477	2399.336	2392.26	2412.072	2413.487	2406.412	
30	2293.91	2292.494	2299.57	2305.23	2317.259	2299.57	2295.325	2297.447	
35	2156.643	2167.964	2169.379	2165.841	2162.303	2148.86	2141.784	2135.416	
40	1987.536	1997.442	1993.904	1982.583	1964.187	1954.281	1943.667	1927.393	
45	1797.202	1782.344	1778.806	1762.532	1744.135	1736.352	1715.125	1710.173	
50	1568.661	1542.481	1533.283	1516.301	1499.32	1493.659	1485.876	1476.678	
55	1304.033	1272.901	1268.655	1265.117	1267.948	1262.287	1253.089	1254.504	
60	1028.085	1018.179	1018.886	1016.056	999.7823	993.4142	911.3373	855.44	
65	757.0892	729.4944	648.8325	643.8796	640.3418	640.3418	631.1436	624.7755	
70	393.3326	387.1768	387.4598	350.1007	347.1289	340.1949	325.9021	333.5438	
75	142.078	127.7853	121.9126	112.502	96.08665	100.049	90.70919	86.95912	
80	10.54264	6.509552	4.882164	4.740652	4.528384	4.528384	4.386872	4.316116	
85	1.627388	1.556632	1.556632	1.485876	1.41512	1.41512	1.344364	1.41512	
90	0.70756	0.70756	0.636804	0.70756	0.566048	0.566048	0.566048	0.566048	

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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	2585.424	2573.396	2577.641	2575.519	2581.886	2579.056	2581.886	2578.349	
5	2591.792	2603.821	2591.085	2581.179	2587.547	2586.132	2598.868	2591.792	
10	2557.122	2557.829	2578.349	2557.122	2559.952	2559.245	2557.122	2564.905	
15	2528.112	2516.791	2505.47	2540.848	2535.895	2531.65	2536.603	2528.112	
20	2489.904	2487.781	2490.611	2493.441	2489.904	2487.781	2495.564	2489.196	
25	2419.855	2431.176	2430.469	2417.733	2421.27	2428.346	2431.884	2425.516	
30	2293.202	2291.787	2274.098	2294.617	2300.278	2309.476	2313.721	2320.797	
35	2126.925	2122.68	2082.349	2128.34	2134.001	2147.445	2164.426	2179.992	
40	1923.148	1923.856	1933.054	1925.271	1934.469	1949.328	1969.14	1998.149	
45	1707.342	1687.531	1715.125	1699.559	1713.71	1726.446	1752.626	1769.608	
50	1471.017	1467.479	1479.508	1472.432	1486.584	1504.272	1521.254	1537.528	
55	1250.966	1248.843	1246.013	1255.919	1264.41	1275.731	1293.42	1305.448	
60	856.8551	846.9493	841.9965	858.9778	873.8366	906.3844	1009.688	1027.377	
65	626.1906	629.7284	637.5116	631.8511	633.2662	649.54	662.2761	670.0593	
70	303.2602	285.3589	285.7127	301.9159	340.1241	338.5675	366.5161	366.5161	
75	91.34599	97.78479	98.98764	94.53001	91.4875	97.99706	106.7708	110.5209	
80	4.316116	4.316116	4.386872	4.457628	4.59914	4.740652	5.023676	5.023676	
85	1.344364	1.344364	1.41512	1.485876	1.556632	1.485876	1.627388	1.627388	
90	0.495292	0.495292	0.566048	0.495292	0.566048	0.566048	0.566048	0.636804	

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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	2577.641	2582.594	2588.962	2592.5	2582.594	2588.962	2586.839	2582.594	
5	2590.377	2596.745	2592.5	2600.283	2599.575	2597.453	2598.16	2604.528	
10	2567.028	2562.782	2567.735	2560.66	2567.028	2572.688	2568.443	2565.613	
15	2523.159	2521.744	2526.697	2535.188	2552.876	2529.527	2530.235	2538.018	
20	2476.46	2486.366	2476.46	2471.507	2465.846	2470.092	2474.337	2468.677	
25	2438.959	2424.808	2425.516	2426.223	2428.346	2414.195	2408.534	2404.996	
30	2327.165	2338.486	2344.146	2332.118	2327.872	2326.457	2315.136	2321.504	
35	2187.068	2212.54	2222.446	2232.352	2215.37	2209.002	2199.096	2179.285	
40	2029.282	2041.311	2051.924	2074.566	2085.887	2056.877	2042.018	2017.961	
45	1813.476	1829.043	1836.826	1861.59	1875.034	1861.59	1851.685	1829.75	
50	1555.217	1584.227	1587.765	1612.529	1617.482	1628.803	1631.633	1621.02	
55	1311.109	1315.354	1327.383	1345.072	1363.468	1376.204	1396.016	1403.092	
60	1055.68	1069.123	1072.661	1086.105	1093.18	1118.652	1139.879	1149.785	
65	676.4273	687.0408	779.0235	814.4016	832.0906	814.4016	781.8538	800.9579	
70	372.8841	400.4789	423.1209	433.7343	440.8099	483.2635	482.5559	489.6315	
75	128.1391	139.0355	137.8327	161.6067	163.3756	186.5836	184.7439	219.8389	
80	5.377456	5.66048	8.632232	14.64649	22.14663	25.61367	26.95804	30.42508	
85	1.698144	1.7689	1.839656	1.910412	1.981168	2.051924	2.193436	2.334948	
90	0.636804	0.70756	0.70756	0.70756	0.70756	0.70756	0.70756	0.849072	

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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	2584.717	2599.575	2586.839	2593.207	2591.085	2587.547	2589.67	2581.179	
5	2593.915	2596.745	2598.868	2582.594	2578.349	2585.424	2582.594	2576.934	
10	2573.396	2571.98	2564.198	2561.367	2573.396	2556.414	2559.245	2573.396	
15	2536.603	2530.942	2528.819	2520.329	2510.423	2518.914	2525.989	2525.989	
20	2479.29	2483.536	2479.29	2480.705	2472.922	2474.337	2468.677	2479.29	
25	2397.213	2412.072	2407.119	2385.892	2393.675	2386.6	2400.043	2400.751	
30	2305.938	2293.91	2299.57	2296.74	2296.74	2287.542	2293.202	2310.183	
35	2169.379	2158.058	2156.643	2143.907	2124.095	2143.199	2155.935	2182.823	
40	2007.348	1997.442	1980.46	1973.385	1967.724	1971.97	1993.196	2010.178	
45	1817.722	1795.787	1787.297	1783.051	1790.834	1783.759	1801.448	1821.259	
50	1608.991	1599.793	1578.566	1569.368	1574.321	1588.472	1605.454	1618.19	
55	1393.186	1381.865	1371.959	1361.345	1358.515	1375.497	1388.94	1408.752	
60	1145.54	1141.294	1129.266	1110.869	1103.794	1129.266	1155.445	1180.918	
65	805.2033	804.4957	796.005	782.5613	780.4387	798.1277	825.015	839.8737	
70	498.8298	504.4903	503.7827	492.4617	493.8769	498.1222	505.9054	529.2549	
75	226.7022	233.5656	232.0797	230.8061	231.9382	230.24	236.2543	249.1319	
80	36.08556	37.1469	36.86388	36.36858	40.0479	41.10924	41.17999	46.34518	
85	2.405704	2.47646	2.617972	2.617972	2.759484	2.759484	2.83024	2.688728	
90	0.778316	0.778316	0.778316	0.70756	0.778316	0.778316	0.849072	0.849072	

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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	2589.67	2584.717	2591.085	2583.302	2582.594	2585.424	2587.547	2587.547	
5	2579.056	2580.471	2570.565	2579.764	2574.811	2576.934	2591.085	2582.594	
10	2561.367	2555.707	2560.66	2562.782	2581.886	2568.443	2571.98	2570.565	
15	2520.329	2528.819	2533.772	2533.772	2521.744	2542.263	2549.339	2539.433	
20	2481.413	2482.828	2483.536	2495.564	2497.687	2490.611	2488.489	2492.026	
25	2415.61	2427.638	2427.638	2423.393	2422.686	2441.082	2450.28	2454.526	
30	2322.212	2323.627	2342.023	2356.882	2376.694	2382.354	2382.354	2381.647	
35	2189.898	2214.663	2221.031	2253.579	2275.513	2272.683	2278.343	2278.343	
40	2029.282	2064.66	2090.132	2102.868	2111.359	2129.048	2122.68	2112.774	
45	1840.364	1882.11	1903.336	1926.686	1930.931	1921.025	1918.195	1906.874	
50	1647.907	1670.549	1679.747	1691.776	1685.408	1683.285	1675.502	1664.889	
55	1427.148	1444.13	1440.592	1444.13	1425.734	1417.243	1411.582	1397.431	
60	1186.578	1199.314	1187.993	1180.21	1160.398	1153.323	1155.445	1156.153	
65	844.119	845.5342	874.5441	906.3844	914.1675	912.0449	902.8466	770.5328	
70	534.9153	531.3776	549.7741	576.6614	504.4903	507.3205	537.7456	534.2078	
75	251.2546	258.4717	236.8911	241.0657	212.6925	226.8437	218.07	195.4988	
80	45.3546	45.14233	45.00082	46.41594	39.76487	39.48185	26.25047	26.03821	
85	2.688728	2.688728	2.688728	2.547216	2.47646	2.405704	2.405704	2.264192	
90	0.849072	0.849072	0.778316	0.778316	0.778316	0.778316	0.70756	0.70756	

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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	2575.519	2581.179	2583.302	2579.764	2575.519	2583.302	2591.792	2569.858
5	2592.5	2574.103	2581.886	2584.009	2576.934	2571.98	2560.66	2583.302
10	2560.66	2579.764	2579.764	2586.132	2579.764	2574.811	2594.623	2580.471
15	2559.952	2538.725	2550.046	2540.14	2550.046	2547.216	2542.263	2539.433
20	2496.979	2511.13	2514.668	2509.008	2518.914	2537.31	2502.64	2506.177
25	2456.648	2458.771	2465.139	2470.092	2466.554	2448.865	2470.092	2455.941
30	2391.553	2371.034	2366.788	2368.911	2362.543	2344.854	2353.344	2356.175
35	2254.286	2251.456	2230.937	2214.663	2201.219	2208.295	2181.407	2202.634
40	2090.132	2073.858	2044.849	2025.037	2014.423	2009.47	1976.923	2010.178
45	1883.525	1853.807	1834.703	1814.184	1790.834	1781.636	1782.344	1786.589
50	1641.539	1618.897	1594.84	1577.859	1565.83	1565.123	1577.859	1559.462
55	1396.723	1396.723	1377.619	1365.591	1350.732	1344.364	1345.072	1344.364
60	1162.521	1155.445	1149.785	1117.237	1035.16	999.7823	1014.641	1011.811
65	769.1177	762.7496	763.4572	758.5043	747.8909	747.1833	750.0135	742.2305
70	448.593	445.0552	444.3477	438.6872	433.7343	435.857	435.1494	428.7814
75	205.6877	210.0038	162.668	146.1111	144.2007	143.0686	142.1488	141.4412
80	7.0756	6.651064	6.438796	6.36804	6.155772	6.085016	5.943504	5.943504
85	2.193436	2.193436	2.051924	2.193436	2.12268	1.981168	1.981168	2.051924
90	0.636804	0.566048	0.566048	0.495292	0.566048	0.566048	0.566048	0.566048

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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	2581.179	2581.179	2584.717	2576.226	2586.132	2577.641	2586.839	2591.792
5	2573.396	2575.519	2572.688	2584.717	2575.519	2579.056	2579.056	2582.594
10	2575.519	2573.396	2570.565	2564.198	2567.028	2556.414	2560.66	2550.046
15	2538.725	2539.433	2530.942	2538.725	2526.697	2534.48	2535.188	2532.357
20	2511.838	2499.81	2495.564	2484.951	2484.243	2475.045	2460.894	2452.403
25	2451.695	2450.28	2437.544	2443.912	2421.27	2421.27	2420.563	2402.874
30	2356.882	2355.467	2362.543	2349.807	2350.514	2348.392	2329.288	2310.891
35	2204.757	2213.955	2217.493	2228.106	2249.333	2233.059	2221.031	2213.955
40	2014.423	2019.376	2043.433	2042.018	2058.292	2073.151	2065.368	2061.122
45	1793.665	1803.57	1824.797	1836.118	1845.317	1859.468	1866.543	1860.175
50	1560.17	1569.368	1576.444	1593.425	1609.699	1611.822	1621.728	1620.312
55	1347.902	1351.44	1351.44	1352.855	1350.732	1359.93	1356.393	1362.76
60	1052.142	1115.115	1120.067	1112.992	1115.115	1105.916	1096.01	1096.718
65	737.2775	737.2775	737.985	729.4944	725.249	746.4758	853.3173	847.6569
70	427.3662	425.2436	422.4133	418.8755	421.8473	497.2024	480.3625	458.1451
75	139.0355	137.6912	165.9228	188.494	172.8569	168.0455	196.3479	193.6592
80	6.01426	6.01426	6.01426	6.085016	6.297284	23.42024	22.14663	28.37316
85	1.981168	1.981168	2.051924	2.051924	1.981168	1.981168	1.981168	2.12268
90	0.566048	0.636804	0.636804	0.636804	0.70756	0.778316	0.70756	0.70756

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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	2583.302	2588.962	2587.547	2599.575	2597.453	2591.792	2592.5	2580.471		
5	2580.471	2578.349	2582.594	2573.396	2581.179	2585.424	2571.98	2579.056		
10	2552.169	2550.754	2547.216	2557.122	2547.924	2560.66	2548.631	2542.971		
15	2545.801	2518.206	2515.376	2496.979	2499.81	2506.885	2493.441	2494.149		
20	2444.62	2453.818	2449.573	2453.818	2439.667	2437.544	2429.761	2415.61		
25	2403.581	2383.062	2371.034	2366.081	2353.344	2343.439	2338.486	2337.071		
30	2301.693	2293.202	2269.853	2261.362	2254.286	2233.767	2225.984	2215.37		
35	2187.776	2172.209	2153.813	2126.925	2112.066	2095.793	2074.566	2066.783		
40	2061.83	2022.207	1993.196	1969.847	1942.96	1927.393	1911.12	1896.261		
45	1851.685	1829.043	1809.938	1783.759	1759.702	1735.645	1716.541	1702.389		
50	1617.482	1608.284	1596.963	1577.151	1558.755	1528.33	1517.009	1507.103		
55	1367.714	1367.714	1374.789	1353.562	1337.288	1312.524	1292.712	1279.976		
60	1105.209	1106.624	1122.898	1111.577	1097.426	1080.444	1050.019	1035.868		
65	845.5342	815.1091	794.5899	772.6555	764.1649	749.306	733.7397	719.5885		
70	472.5086	498.6175	478.3813	474.4897	465.0792	444.843	435.2909	435.7862		
75	175.1919	200.5225	187.4326	212.9756	200.098	192.6686	182.409	173.706		
80	26.10896	27.87786	27.09955	25.18913	25.47216	22.9957	19.24563	15.63708		
85	2.12268	2.12268	2.193436	2.193436	2.264192	2.193436	2.193436	2.193436		
90	0.70756	0.778316	0.778316	0.849072	0.778316	0.70756	0.70756	0.70756		

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Data for luminous intensity (10)

Intensity data(cd)

Page: 10 Total:10

$\gamma/C(^{\circ})$	Intensity (cd)
0	2611.604
5	2570.565
10	2557.829
15	2487.073
20	2437.544
25	2343.439
30	2186.36
35	2079.519
40	1908.997
45	1705.22
50	1521.254
55	1263.702
60	1027.377
65	720.2961
70	428.9936
75	167.8332
80	19.52866
85	2.12268
90	0.70756

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Equipment list and testing engineer for test

Item	Equipment No	Equipment	Manufacturer / Type / Series No
1	99A-01	Magnetic angle locator	Johnson
2	99E-06	Digital power meter	YOKOGAWA WT210 (91JB34563)
3	99E-08	Digital power meter	YOKOGAWA WT210 (91K539455)
4	99E-12	AC Power Source	APC AFC-500W
5	99E-17	AC Power Source	APC AFC-5kW
6	99O-01	Goniophotometer System	Sensing GMS-2000
7	99O-02	Spectroradiometer (2π)	Sensing SPR-3000
8	99O-23	Thermostatic Stabilized Photometric Sphere (2π)	Sensing
9	104O-30	Photometric standard lamp 110V/100W	Sensing (S13100250)
10	103T-13	Temperature and humidity records	TANDD(TR-72UI/F80417A2)
11	103T-14	Temperature and humidity records	TANDD(TR-72UI/F8043A00)
Testing engineers: JIAN YUN CHEN			

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