

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P926597

Luminaire Tested: DFN2DIP-TR4F0-100D070US950-RLONL

Issue Date: 11/21/2024

**Test Information**

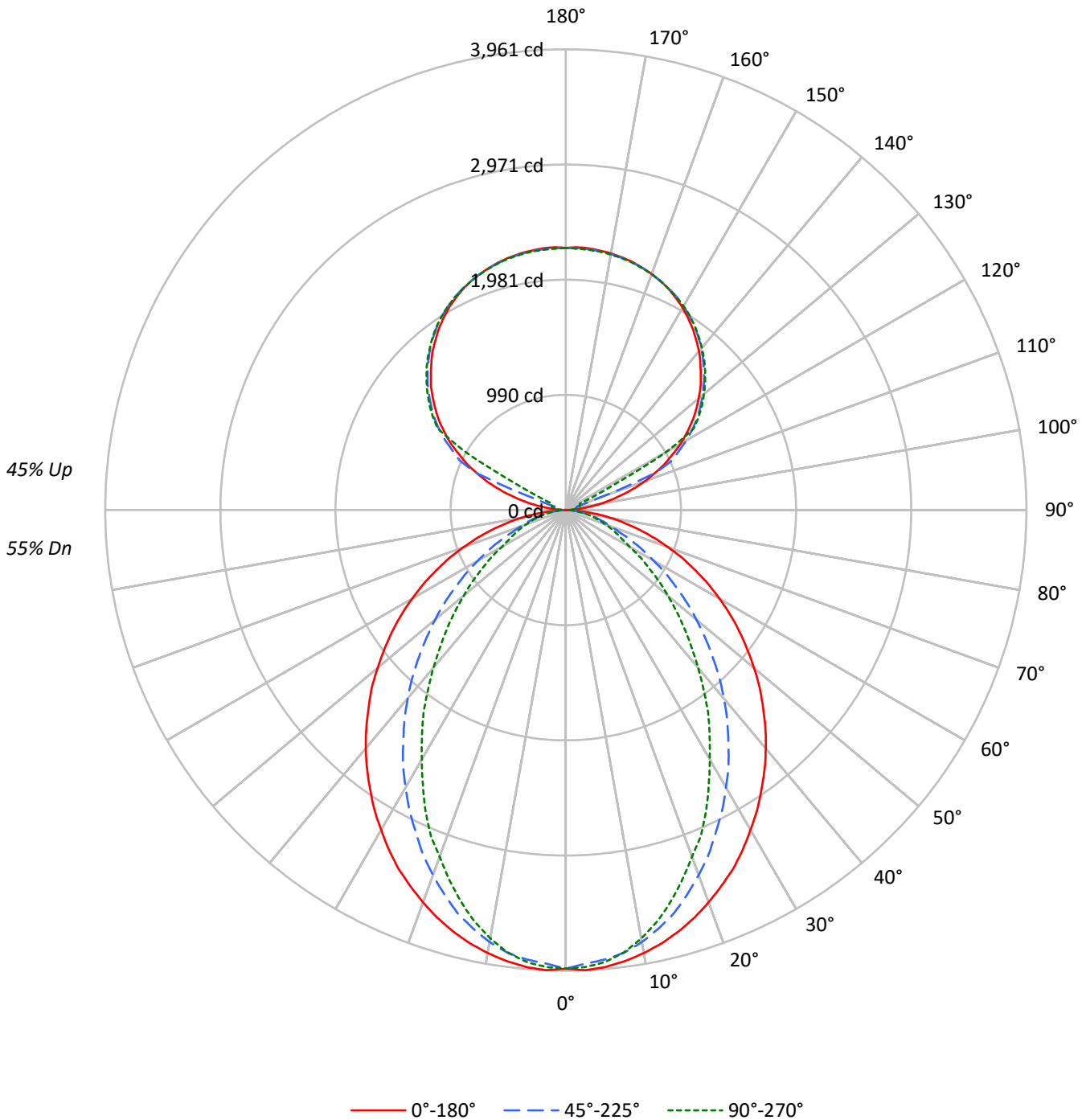
Test Method: LM-79-2019  
Report Number: P926597  
REPORT IS A COMBINATION OF REPORTS P901956 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-100D070US950-RLLONL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14720.2 lumens  
Efficiency: N/A  
Efficacy: 96.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 153.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55			55
1	99	95	92	88	92	89	86	83	76	74	72	65	63	62	55	53	52	47			47
2	91	84	78	73	84	78	73	69	68	64	60	58	55	52	49	47	45	41			41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	41	39	35			35
4	77	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34	31			31
5	70	59	51	45	65	55	48	43	48	43	39	42	38	34	36	33	30	27			27
6	65	53	45	40	60	50	43	38	44	38	34	38	34	30	33	29	27	24			24
7	60	48	41	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21			21
8	56	44	36	31	52	41	35	30	37	31	27	32	28	24	28	24	22	19			19
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	26	22	20	18			18
10	49	37	30	25	46	35	29	24	31	26	22	27	23	20	24	20	18	16			16

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3132	3132	3132
5°	3137	3083	3102
10°	3106	3022	3001
15°	3064	2922	2845
20°	3007	2784	2653
25°	2949	2630	2469
30°	2871	2472	2234
35°	2795	2302	2028
40°	2718	2126	1792
45°	2628	1930	1577
50°	2534	1733	1368
55°	2437	1522	1167
60°	2325	1302	961
65°	2195	1078	865
70°	2038	869	782
75°	1841	766	711
80°	1556	642	617
85°	1084	428	463

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2628 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	369.5	2.5
10°-20°	1014.4	6.9
20°-30°	1424.2	9.7
30°-40°	1552.5	10.5
40°-50°	1426.9	9.7
50°-60°	1120.6	7.6
60°-70°	729.4	5.0
70°-80°	375.5	2.6
80°-90°	99.8	0.7
90°-100°	74.3	0.5
100°-110°	277.0	1.9
110°-120°	734.8	5.0
120°-130°	1218.6	8.3
130°-140°	1294.5	8.8
140°-150°	1203.1	8.2
150°-160°	967.2	6.6
160°-170°	623.3	4.2
170°-180°	214.5	1.5
0°-30°	2808.2	19.1
0°-40°	4360.7	29.6
0°-60°	6908.2	46.9
0°-90°	8112.9	55.1
90°-120°	1086.1	7.4
90°-150°	4802.2	32.6
90°-180°	6607.0	44.9
0°-180°	14720.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3943	3943	3943	3943	3943	
5°	3943	3925	3878	3911	3900	374
15°	3750	3711	3590	3522	3486	1057
25°	3404	3290	3054	2908	2854	1566
35°	2933	2751	2437	2212	2134	1836
45°	2398	2159	1784	1531	1445	1852
55°	1823	1545	1160	946	878	1629
65°	1231	942	621	500	489	1221
75°	656	407	285	260	257	694
85°	153	78	68	68	68	176
90°	2	20	32	41	44	14
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3942.9	3942.9	3942.9	3942.9	3942.9
2.5°	3960.6	3942.9	3903.5	3939.4	3932.3
5°	3942.9	3925.0	3878.5	3910.7	3900.0
7.5°	3910.7	3889.5	3839.5	3853.5	3835.7
10°	3867.9	3842.9	3771.7	3760.8	3739.6
12.5°	3814.6	3782.3	3685.8	3664.6	3625.2
15°	3750.2	3710.8	3589.6	3521.9	3486.3
17.5°	3675.2	3618.0	3468.2	3389.8	3332.6
20°	3589.6	3518.1	3339.8	3250.9	3172.0
22.5°	3496.9	3414.7	3207.6	3086.6	3033.1
25°	3404.2	3289.9	3054.3	2908.2	2854.5
27.5°	3293.6	3172.0	2911.6	2743.9	2661.8
30°	3175.9	3039.9	2754.5	2572.8	2476.3
32.5°	3061.6	2897.2	2605.0	2390.7	2301.3
35°	2933.2	2751.1	2437.3	2212.4	2133.6
37.5°	2808.3	2611.8	2280.2	2033.7	1944.7
40°	2676.2	2462.3	2115.9	1862.6	1769.9
42.5°	2540.6	2312.3	1952.0	1687.7	1598.7
45°	2397.9	2158.6	1784.3	1530.6	1445.0
47.5°	2262.4	2009.1	1623.7	1370.0	1291.7
50°	2112.4	1859.2	1466.6	1220.2	1145.6
52.5°	1965.9	1698.3	1316.7	1081.2	1013.4
55°	1823.2	1545.0	1159.6	945.7	877.9
57.5°	1677.1	1391.6	1020.7	820.7	763.6
60°	1527.2	1241.7	874.2	692.4	635.3
62.5°	1381.0	1095.6	749.2	578.1	549.7
65°	1231.1	941.9	620.9	499.7	488.7
67.5°	1088.4	799.2	499.7	438.7	428.2
70°	938.4	660.3	413.7	378.2	363.9
72.5°	795.7	531.5	346.0	317.6	310.4
75°	656.4	406.6	285.4	260.4	257.0
77.5°	517.5	288.9	224.9	210.5	203.3
80°	388.8	207.1	171.1	157.1	157.1
82.5°	271.0	139.3	117.7	110.6	110.6
85°	153.3	78.3	67.7	67.7	67.7
87.5°	57.1	28.4	28.4	25.0	25.0
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7



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**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	11.57	12.45	12.49	13.38	14.58	7.55	8.42	8.47	9.35	10.55
	3H	13.25	14.04	14.19	14.98	16.20	8.74	9.52	9.67	10.46	11.69
	4H	13.86	14.60	14.81	15.55	16.78	9.19	9.93	10.14	10.88	12.11
	6H	14.29	14.97	15.25	15.92	17.17	9.52	10.20	10.47	11.15	12.39
	8H	14.42	15.06	15.38	16.03	17.27	9.61	10.26	10.57	11.23	12.47
	12H	14.48	15.09	15.45	16.06	17.32	9.66	10.27	10.62	11.23	12.50
4H	2H	11.60	12.34	12.55	13.28	14.51	8.15	8.89	9.10	9.83	11.07
	3H	13.43	14.04	14.39	15.02	16.27	9.50	10.12	10.46	11.09	12.34
	4H	14.12	14.68	15.09	15.65	16.93	10.05	10.61	11.02	11.58	12.85
	6H	14.64	15.12	15.62	16.12	17.39	10.48	10.96	11.46	11.95	13.22
	8H	14.82	15.27	15.80	16.25	17.54	10.61	11.06	11.59	12.04	13.33
	12H	14.91	15.32	15.92	16.32	17.61	10.67	11.08	11.68	12.08	13.37
8H	4H	14.10	14.54	15.08	15.53	16.82	10.34	10.79	11.32	11.77	13.06
	6H	14.66	15.03	15.67	16.06	17.35	10.86	11.23	11.87	12.26	13.54
	8H	14.88	15.21	15.90	16.22	17.52	11.05	11.38	12.07	12.39	13.70
	12H	15.02	15.31	16.04	16.32	17.67	11.17	11.46	12.19	12.47	13.82
12H	4H	14.05	14.45	15.05	15.46	16.75	10.34	10.75	11.35	11.75	13.04
	6H	14.64	14.97	15.66	15.98	17.28	10.91	11.23	11.92	12.25	13.55
	8H	14.86	15.15	15.88	16.16	17.51	11.12	11.41	12.14	12.42	13.77