

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: P907830

Luminaire Tested: DFN2DIP-4P4F0-070D040US840-FLLFLL

Issue Date: 11/21/2024

**Test Information**

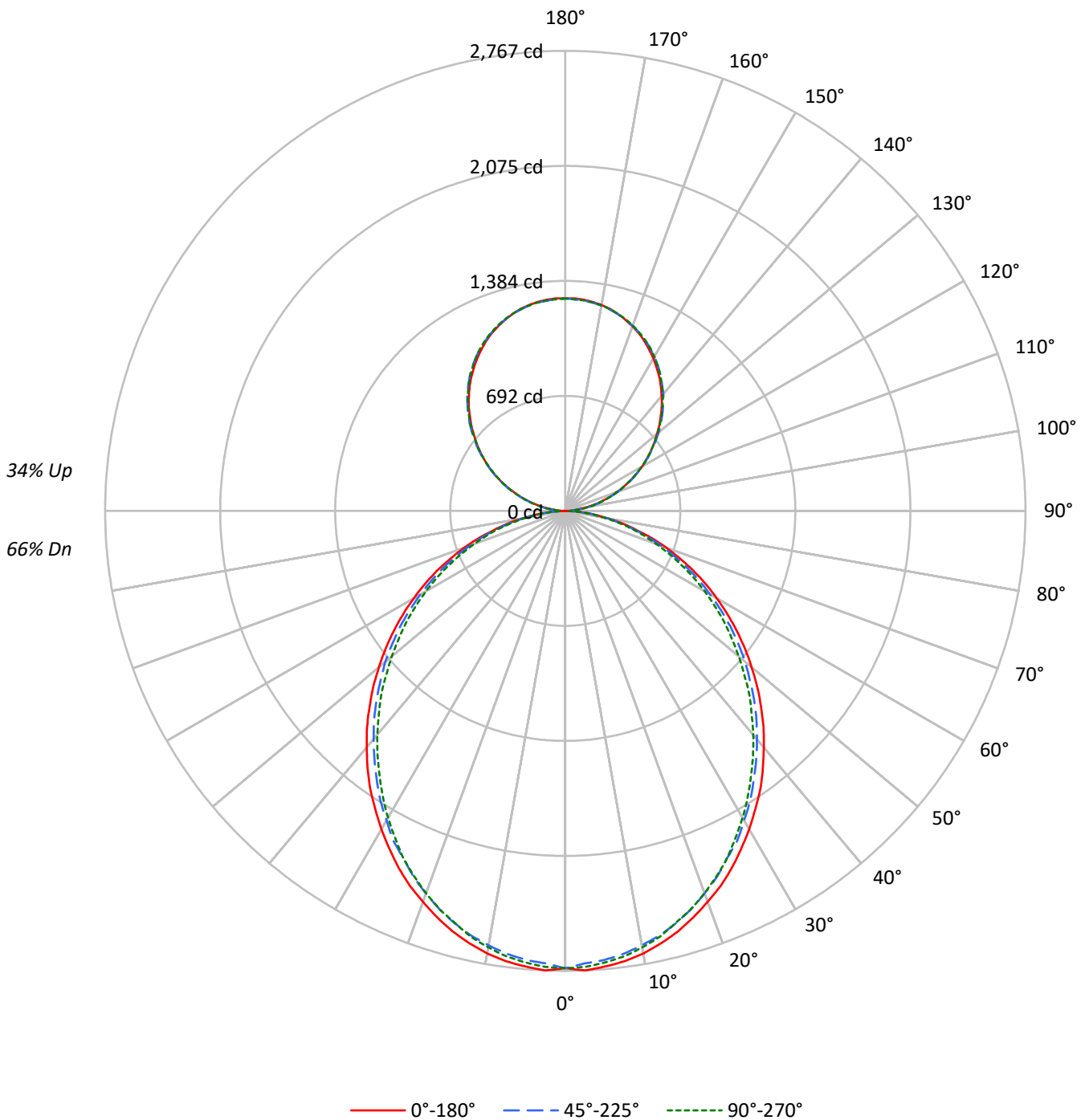
Test Method: LM-79-2019  
Report Number: P907830  
REPORT IS A COMBINATION OF REPORTS P899099 AND P895967  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-070D040US840-FLLFLL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10573.3 lumens  
Efficiency: N/A  
Efficacy: 100.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 105.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66			66
1	101	97	93	89	95	91	88	85	81	78	76	72	70	68	63	61	60	56			56
2	92	85	78	73	87	80	74	70	71	67	63	63	60	57	55	53	51	47			47
3	84	75	67	61	79	70	64	58	63	57	53	56	51	48	49	46	43	40			40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34			34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	32	30			30
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	29	26			26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	25	23			23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21			21
9	53	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21	19			19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17			17

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

	0°	45°	90°
0°	1784	1784	1784
5°	1787	1760	1772
10°	1773	1737	1749
15°	1747	1709	1712
20°	1712	1670	1674
25°	1677	1623	1630
30°	1633	1579	1575
35°	1592	1528	1516
40°	1541	1476	1459
45°	1490	1423	1402
50°	1434	1369	1336
55°	1376	1305	1275
60°	1310	1230	1205
65°	1238	1153	1122
70°	1147	1058	1034
75°	1020	945	954
80°	868	801	798
85°	630	550	538

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1490 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	258.9	2.4
10°-20°	728.4	6.9
20°-30°	1070.5	10.1
30°-40°	1243.3	11.8
40°-50°	1241.7	11.7
50°-60°	1082.8	10.2
60°-70°	800.4	7.6
70°-80°	452.9	4.3
80°-90°	123.2	1.2
90°-100°	79.1	0.7
100°-110°	251.2	2.4
110°-120°	429.8	4.1
120°-130°	565.3	5.3
130°-140°	634.5	6.0
140°-150°	622.2	5.9
150°-160°	522.0	4.9
160°-170°	346.2	3.3
170°-180°	121.0	1.1
0°-30°	2057.8	19.5
0°-40°	3301.1	31.2
0°-60°	5625.6	53.2
0°-90°	7002.0	66.2
90°-120°	760.1	7.2
90°-150°	2582.2	24.4
90°-180°	3571.0	33.8
0°-180°	10573.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	1	14	38	35	37	10
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5



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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	10.68	11.71	11.48	12.53	13.55	10.23	11.26	11.04	12.09	13.11
	3H	12.36	13.28	13.17	14.12	15.17	11.87	12.79	12.68	13.63	14.67
	4H	12.96	13.83	13.79	14.67	15.73	12.46	13.33	13.30	14.18	15.24
	6H	13.37	14.17	14.22	15.03	16.10	12.87	13.67	13.71	14.53	15.60
	8H	13.48	14.25	14.34	15.12	16.19	12.98	13.75	13.83	14.62	15.69
	12H	13.54	14.27	14.40	15.13	16.23	13.03	13.76	13.89	14.62	15.72
4H	2H	11.16	12.03	12.00	12.88	13.94	10.81	11.68	11.64	12.52	13.58
	3H	13.05	13.78	13.90	14.65	15.73	12.64	13.37	13.49	14.25	15.32
	4H	13.77	14.44	14.64	15.31	16.41	13.35	14.01	14.21	14.89	15.99
	6H	14.30	14.88	15.18	15.78	16.88	13.87	14.45	14.75	15.34	16.45
	8H	14.46	15.00	15.34	15.89	17.01	14.02	14.56	14.90	15.45	16.57
	12H	14.54	15.03	15.45	15.94	17.06	14.09	14.58	15.00	15.49	16.61
8H	4H	13.98	14.52	14.87	15.41	16.53	13.61	14.14	14.49	15.04	16.16
	6H	14.63	15.07	15.54	16.01	17.13	14.25	14.69	15.15	15.63	16.74
	8H	14.86	15.25	15.78	16.18	17.31	14.46	14.86	15.38	15.78	16.92
	12H	15.00	15.35	15.92	16.27	17.45	14.59	14.93	15.51	15.85	17.04
12H	4H	13.98	14.46	14.88	15.37	16.50	13.61	14.09	14.51	15.01	16.13
	6H	14.66	15.06	15.58	15.98	17.12	14.29	14.68	15.21	15.61	16.75
	8H	14.92	15.26	15.84	16.18	17.37	14.54	14.88	15.46	15.80	16.99