

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: P922272

Luminaire Tested: DFN2DIP-PN4F0-040D120US940-FLLFLL

Issue Date: 11/21/2024

**Test Information**

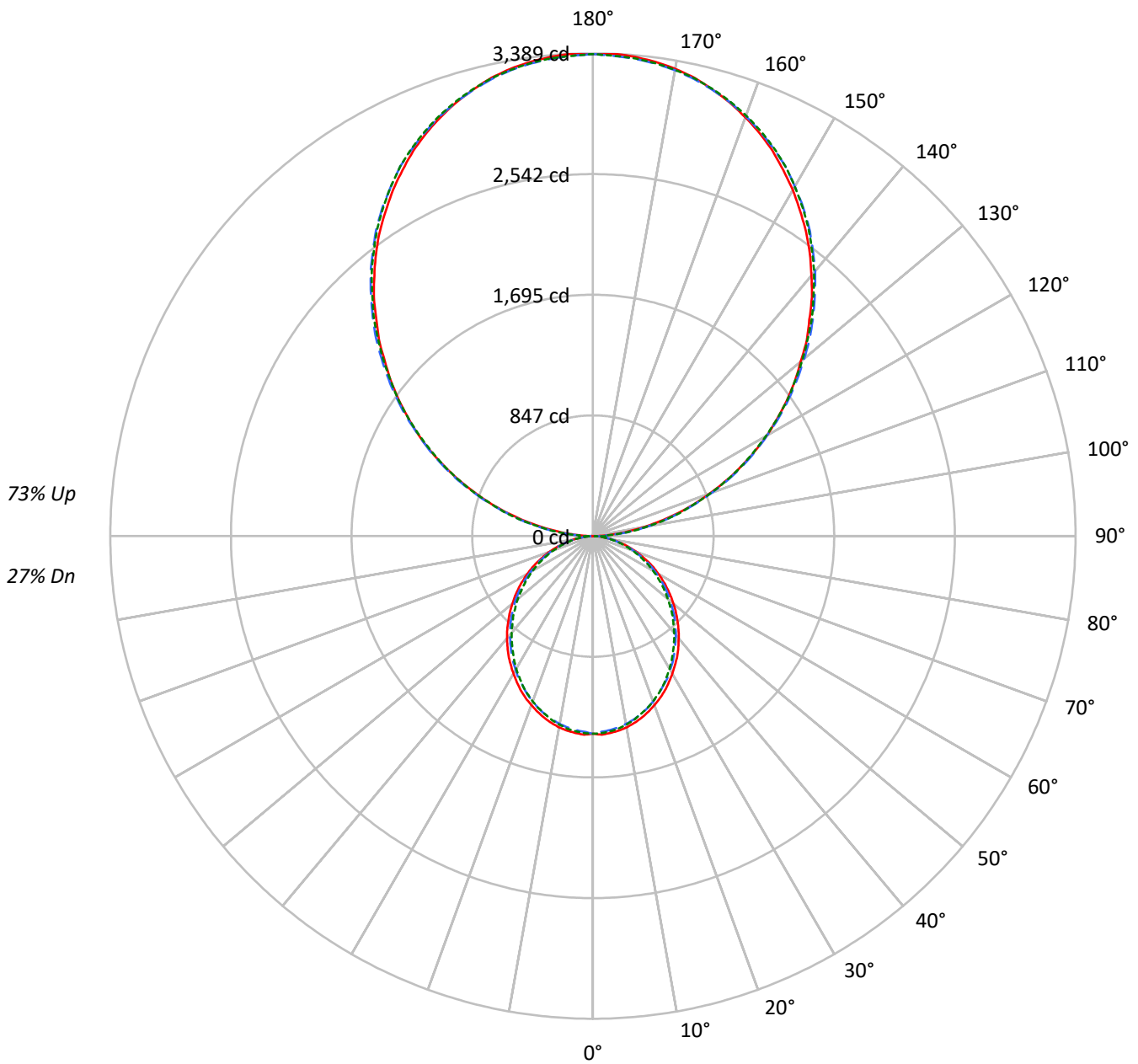
Test Method: LM-79-2019  
Report Number: P922272  
REPORT IS A COMBINATION OF REPORTS P899753 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-040D120US940-FLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13001.1 lumens  
Efficiency: N/A  
Efficacy: 95.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 136.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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



— 0°-180°    - - 45°-225°    ···· 90°-270°



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

RF	20				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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35	27				27
1	93	88	85	81	83	79	76	73	62	60	58	46	44	43	31	30	30	23				23
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25	19				19
3	77	68	61	55	68	61	55	50	48	44	40	35	33	30	24	23	21	16				16
4	70	60	52	47	62	54	47	42	42	38	34	32	29	26	22	20	18	14				14
5	64	53	45	40	57	48	41	36	38	33	29	28	25	22	19	17	16	12				12
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14	11				11
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12	9				9
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11	8				8
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	11	10	8				8
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	10	9	7				7

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

	0°	45°	90°
0°	1013	1013	1013
5°	1015	999	1006
10°	1007	986	992
15°	992	970	971
20°	972	947	950
25°	952	920	925
30°	927	895	893
35°	903	866	859
40°	874	836	827
45°	845	806	794
50°	813	775	756
55°	780	739	722
60°	743	696	682
65°	702	652	635
70°	650	598	584
75°	578	533	538
80°	491	450	448
85°	355	307	300

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2649 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	130.6	1.0
10°-20°	367.5	2.8
20°-30°	540.1	4.2
30°-40°	627.3	4.8
40°-50°	626.6	4.8
50°-60°	546.3	4.2
60°-70°	403.9	3.1
70°-80°	228.5	1.8
80°-90°	69.9	0.5
90°-100°	209.4	1.6
100°-110°	665.4	5.1
110°-120°	1138.7	8.8
120°-130°	1497.5	11.5
130°-140°	1680.9	12.9
140°-150°	1648.3	12.7
150°-160°	1382.7	10.6
160°-170°	917.0	7.1
170°-180°	320.5	2.5
0°-30°	1038.3	8.0
0°-40°	1665.6	12.8
0°-60°	2838.5	21.8
0°-90°	3540.8	27.2
90°-120°	2013.4	15.5
90°-150°	6840.1	52.6
90°-180°	9460.0	72.8
0°-180°	13001.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	3	37	100	94	97	13
95°	149	178	183	183	178	166
105°	614	622	628	634	634	648
115°	1143	1159	1154	1151	1143	1130
125°	1662	1688	1679	1670	1667	1485
135°	2150	2181	2188	2184	2176	1662
145°	2610	2630	2646	2650	2638	1631
155°	2984	2992	3002	3016	3007	1374
165°	3246	3243	3243	3264	3250	916
175°	3378	3370	3364	3384	3367	321
180°	3384	3384	3384	3384	3384	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	3.0	36.7	100.0	93.9	96.9
92.5°	63.2	85.7	88.7	91.8	91.8
95°	148.9	177.5	182.6	182.6	177.5
97.5°	247.9	274.5	285.7	285.7	285.7
100°	362.2	385.7	393.8	393.8	390.7
102.5°	482.6	499.9	511.1	514.2	511.1
105°	614.2	622.3	628.5	633.6	633.6
107.5°	744.8	757.1	757.1	759.0	744.8
110°	871.3	887.6	887.6	887.6	879.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1008.0	1025.4	1022.3	1014.1	1008.0
115°	1142.6	1159.0	1153.9	1150.8	1142.6
117.5°	1276.3	1298.8	1284.5	1276.3	1268.2
120°	1411.0	1433.4	1411.0	1411.0	1401.9
122.5°	1533.5	1562.0	1547.7	1539.5	1533.5
125°	1662.0	1687.5	1679.4	1670.2	1667.1
127.5°	1787.5	1819.1	1807.9	1795.6	1787.5
130°	1904.8	1941.5	1936.4	1930.3	1919.0
132.5°	2036.4	2065.0	2067.0	2052.7	2044.6
135°	2149.6	2181.3	2187.5	2184.3	2176.2
137.5°	2276.2	2301.7	2306.8	2304.7	2292.5
140°	2387.4	2412.9	2427.1	2427.1	2415.9
142.5°	2501.7	2527.2	2535.3	2538.3	2527.2
145°	2609.8	2630.2	2646.5	2649.6	2638.4
147.5°	2706.7	2732.2	2744.5	2749.6	2738.4
150°	2806.7	2824.0	2835.3	2844.5	2835.3
152.5°	2895.5	2912.8	2927.1	2938.4	2927.1
155°	2984.2	2992.4	3001.6	3015.9	3006.7
157.5°	3060.8	3066.9	3071.9	3092.4	3078.1
160°	3129.1	3135.3	3138.3	3155.7	3143.4
162.5°	3192.3	3192.3	3195.4	3214.8	3200.5
165°	3246.4	3243.4	3243.4	3263.7	3249.5
167.5°	3295.4	3286.2	3286.2	3306.6	3292.4
170°	3332.1	3323.9	3320.9	3341.3	3323.9
172.5°	3357.6	3349.4	3346.4	3366.8	3349.4
175°	3378.1	3369.9	3363.8	3384.1	3366.8
177.5°	3389.3	3381.1	3374.9	3392.3	3374.9
180°	3384.1	3384.1	3384.1	3384.1	3384.1



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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	4.71	5.40	5.84	6.52	8.09	4.27	4.96	5.40	6.08	7.65
	3H	6.36	6.98	7.50	8.11	9.69	5.88	6.50	7.02	7.63	9.20
	4H	6.95	7.53	8.09	8.66	10.25	6.46	7.04	7.61	8.17	9.76
	6H	7.34	7.88	8.49	9.01	10.61	6.85	7.38	8.00	8.52	10.11
	8H	7.44	7.95	8.60	9.10	10.69	6.95	7.46	8.10	8.61	10.20
	12H	7.48	7.97	8.65	9.11	10.72	6.98	7.47	8.15	8.61	10.22
4H	2H	5.15	5.74	6.31	6.87	8.45	4.80	5.39	5.96	6.52	8.10
	3H	7.01	7.50	8.17	8.65	10.25	6.60	7.09	7.76	8.25	9.85
	4H	7.72	8.17	8.88	9.31	10.93	7.30	7.75	8.46	8.89	10.51
	6H	8.22	8.61	9.39	9.78	11.38	7.80	8.18	8.97	9.35	10.96
	8H	8.37	8.73	9.54	9.89	11.51	7.94	8.30	9.11	9.46	11.08
	12H	8.44	8.76	9.62	9.93	11.56	8.00	8.32	9.18	9.49	11.12
8H	4H	7.90	8.26	9.07	9.42	11.04	7.53	7.89	8.70	9.05	10.67
	6H	8.53	8.82	9.71	10.03	11.64	8.15	8.45	9.34	9.65	11.27
	8H	8.75	9.01	9.94	10.19	11.83	8.36	8.62	9.56	9.80	11.44
	12H	8.87	9.10	10.07	10.28	11.95	8.47	8.70	9.67	9.88	11.55
12H	4H	7.88	8.20	9.06	9.37	11.00	7.51	7.84	8.70	9.01	10.64
	6H	8.55	8.81	9.75	9.99	11.63	8.19	8.45	9.38	9.63	11.27
	8H	8.79	9.02	9.99	10.20	11.87	8.42	8.65	9.61	9.82	11.49