

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: P908658

Luminaire Tested: DFN2DIP-PN4F0-050D090US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908658
REPORT IS A COMBINATION OF REPORTS P899702 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D090US840-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

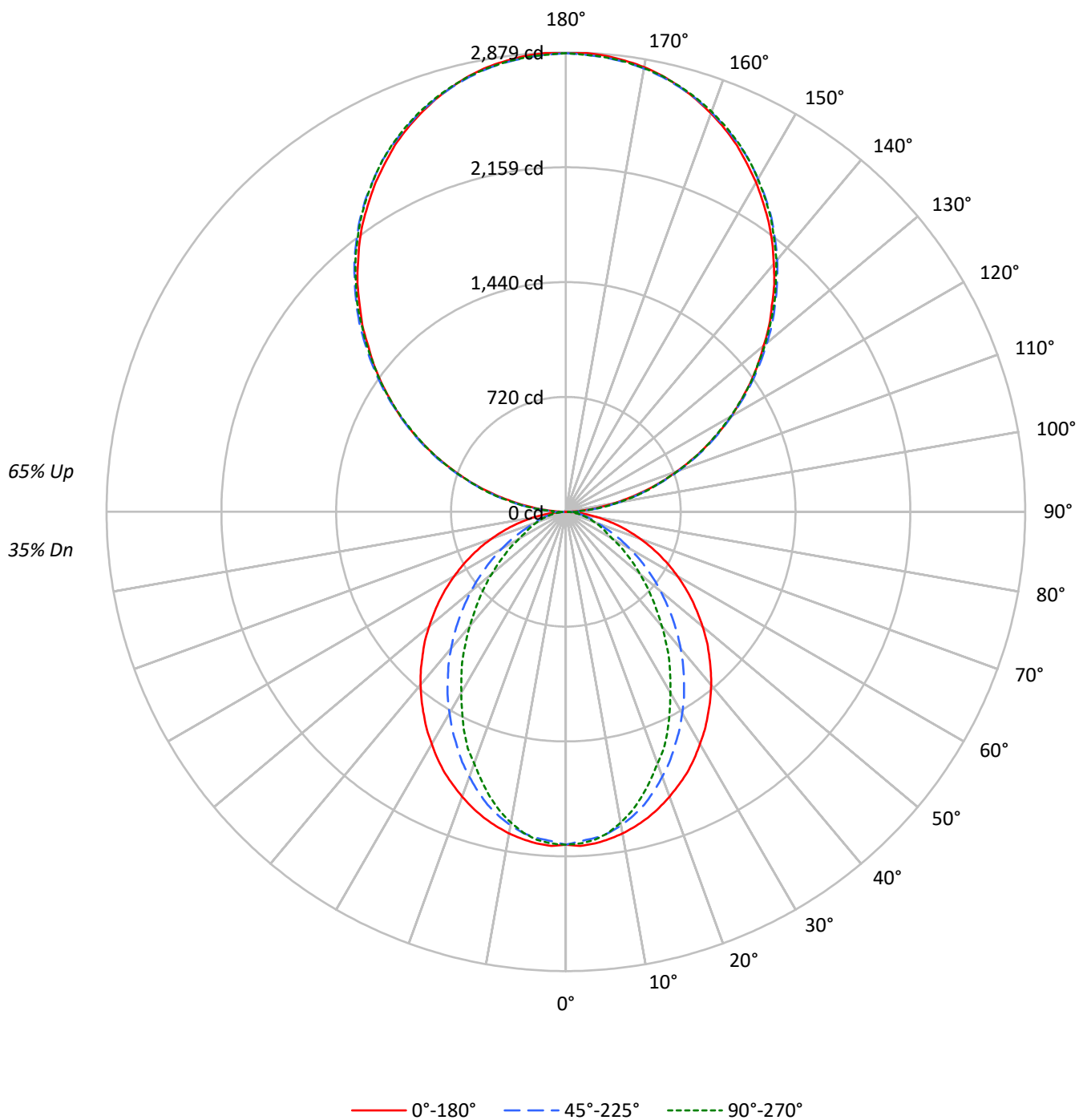
Lumens per Lamp: N/A
Luminaire Lumens: 12335.5 lumens
Efficiency: N/A
Efficacy: 111.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 110.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	75	75	75	58	58	58	42	42	42
1	95	91	87	84	85	82	79	76	66	64	62	51	50	49	38	37	36
2	86	79	74	69	78	72	67	63	58	55	52	45	43	41	34	32	31
3	79	70	63	58	71	64	58	53	52	47	44	40	38	35	30	28	27
4	72	62	55	49	65	57	50	45	46	41	38	36	33	30	27	25	23
5	67	55	48	42	60	51	44	39	41	36	33	33	29	26	25	22	21
6	61	50	42	37	55	45	39	34	37	32	29	30	26	23	22	20	18
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	22	25	21	19	19	16	15
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	17	15	13
10	46	34	27	23	41	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1523	1523	1523
5°	1526	1499	1509
10°	1511	1470	1460
15°	1490	1422	1385
20°	1462	1355	1292
25°	1434	1280	1202
30°	1396	1203	1088
35°	1359	1121	988
40°	1322	1035	873
45°	1278	940	769
50°	1232	844	667
55°	1185	742	570
60°	1130	635	469
65°	1067	526	423
70°	991	424	383
75°	895	375	349
80°	756	315	303
85°	527	212	230

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2250 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.6	1.6
10°-20°	536.9	4.4
20°-30°	753.8	6.1
30°-40°	821.7	6.7
40°-50°	755.2	6.1
50°-60°	593.1	4.8
60°-70°	386.1	3.1
70°-80°	198.7	1.6
80°-90°	58.9	0.5
90°-100°	177.9	1.4
100°-110°	565.2	4.6
110°-120°	967.2	7.8
120°-130°	1272.0	10.3
130°-140°	1427.7	11.6
140°-150°	1400.0	11.3
150°-160°	1174.4	9.5
160°-170°	778.9	6.3
170°-180°	272.2	2.2
0°-30°	1486.3	12.0
0°-40°	2308.0	18.7
0°-60°	3656.4	29.6
0°-90°	4300.1	34.9
90°-120°	1710.2	13.9
90°-150°	5809.9	47.1
90°-180°	8035.0	65.1
0°-180°	12335.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2087	2087	2087	2087	2087	
5°	2087	2078	2053	2070	2064	198
15°	1985	1964	1900	1864	1845	559
25°	1802	1741	1617	1539	1511	829
35°	1552	1456	1290	1171	1129	972
45°	1269	1143	944	810	765	980
55°	965	818	614	500	465	862
65°	652	499	329	264	259	646
75°	348	215	151	138	136	368
85°	81	42	36	36	36	93
90°	3	31	85	80	82	12
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2086.9	2086.9	2086.9	2086.9	2086.9
2.5°	2096.3	2086.9	2066.1	2085.1	2081.2
5°	2086.9	2077.5	2052.9	2069.8	2064.3
7.5°	2069.8	2058.6	2032.2	2039.6	2030.1
10°	2047.2	2034.0	1996.3	1990.5	1979.2
12.5°	2018.9	2002.0	1950.9	1939.6	1918.7
15°	1984.9	1964.1	1900.0	1864.1	1845.2
17.5°	1945.2	1915.0	1835.6	1794.1	1763.8
20°	1900.0	1862.1	1767.7	1720.6	1678.9
22.5°	1850.9	1807.4	1697.8	1633.7	1605.4
25°	1801.7	1741.2	1616.6	1539.2	1510.8
27.5°	1743.2	1678.9	1541.1	1452.3	1408.9
30°	1680.9	1609.0	1457.9	1361.7	1310.6
32.5°	1620.4	1533.5	1378.8	1265.4	1218.1
35°	1552.5	1456.1	1290.0	1170.9	1129.3
37.5°	1486.3	1382.4	1206.9	1076.4	1029.4
40°	1416.4	1303.2	1119.8	985.8	936.8
42.5°	1344.7	1223.9	1033.1	893.2	846.2
45°	1269.2	1142.6	944.3	810.1	764.8
47.5°	1197.4	1063.4	859.4	725.2	683.7
50°	1118.1	984.0	776.3	645.8	606.3
52.5°	1040.6	898.9	696.9	572.3	536.4
55°	965.0	817.7	613.7	500.5	464.6
57.5°	887.7	736.6	540.2	434.4	404.1
60°	808.3	657.2	462.6	366.5	336.2
62.5°	730.9	579.9	396.6	306.0	290.9
65°	651.6	498.6	328.6	264.5	258.7
67.5°	576.0	423.0	264.5	232.3	226.6
70°	496.8	349.4	219.0	200.2	192.6
72.5°	421.2	281.3	183.2	168.1	164.3
75°	347.5	215.2	151.1	137.8	136.0
77.5°	273.9	152.9	119.1	111.4	107.6
80°	205.8	109.6	90.6	83.1	83.1
82.5°	143.5	73.7	62.3	58.5	58.5
85°	81.2	41.5	35.9	35.9	35.9
87.5°	30.3	15.0	15.0	13.2	13.2
90°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

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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	7.01	7.73	8.09	8.81	10.28	2.97	3.69	4.06	4.77	6.25
	3H	8.68	9.33	9.77	10.41	11.90	4.16	4.80	5.25	5.89	7.38
	4H	9.29	9.90	10.39	10.99	12.48	4.60	5.21	5.70	6.30	7.80
	6H	9.71	10.27	10.82	11.36	12.87	4.92	5.48	6.03	6.57	8.08
	8H	9.83	10.36	10.94	11.47	12.97	5.00	5.54	6.12	6.65	8.15
	12H	9.89	10.40	11.01	11.50	13.02	5.04	5.55	6.16	6.65	8.18
4H	2H	7.01	7.62	8.12	8.71	10.21	3.56	4.17	4.67	5.26	6.75
	3H	8.84	9.34	9.95	10.46	11.97	4.90	5.41	6.01	6.52	8.03
	4H	9.53	9.99	10.65	11.10	12.63	5.44	5.91	6.56	7.01	8.55
	6H	10.04	10.44	11.16	11.57	13.09	5.86	6.26	6.98	7.38	8.91
	8H	10.21	10.59	11.34	11.71	13.25	5.98	6.36	7.11	7.48	9.02
	12H	10.30	10.64	11.45	11.77	13.32	6.04	6.38	7.19	7.51	9.06
8H	4H	9.49	9.86	10.61	10.98	12.52	5.72	6.09	6.84	7.21	8.75
	6H	10.05	10.36	11.20	11.52	13.06	6.23	6.54	7.38	7.70	9.24
	8H	10.27	10.54	11.42	11.68	13.24	6.42	6.69	7.58	7.83	9.39
	12H	10.41	10.64	11.56	11.78	13.37	6.54	6.77	7.69	7.91	9.51
12H	4H	9.43	9.77	10.58	10.90	12.45	5.72	6.05	6.86	7.19	8.73
	6H	10.03	10.30	11.18	11.44	12.99	6.28	6.55	7.43	7.69	9.25
	8H	10.24	10.48	11.40	11.62	13.21	6.49	6.72	7.64	7.86	9.46

END OF REPORT