

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: P919689

Luminaire Tested: DFN2DIP-PN4F0-080D120US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919689
REPORT IS A COMBINATION OF REPORTS P901281 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D120US935-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

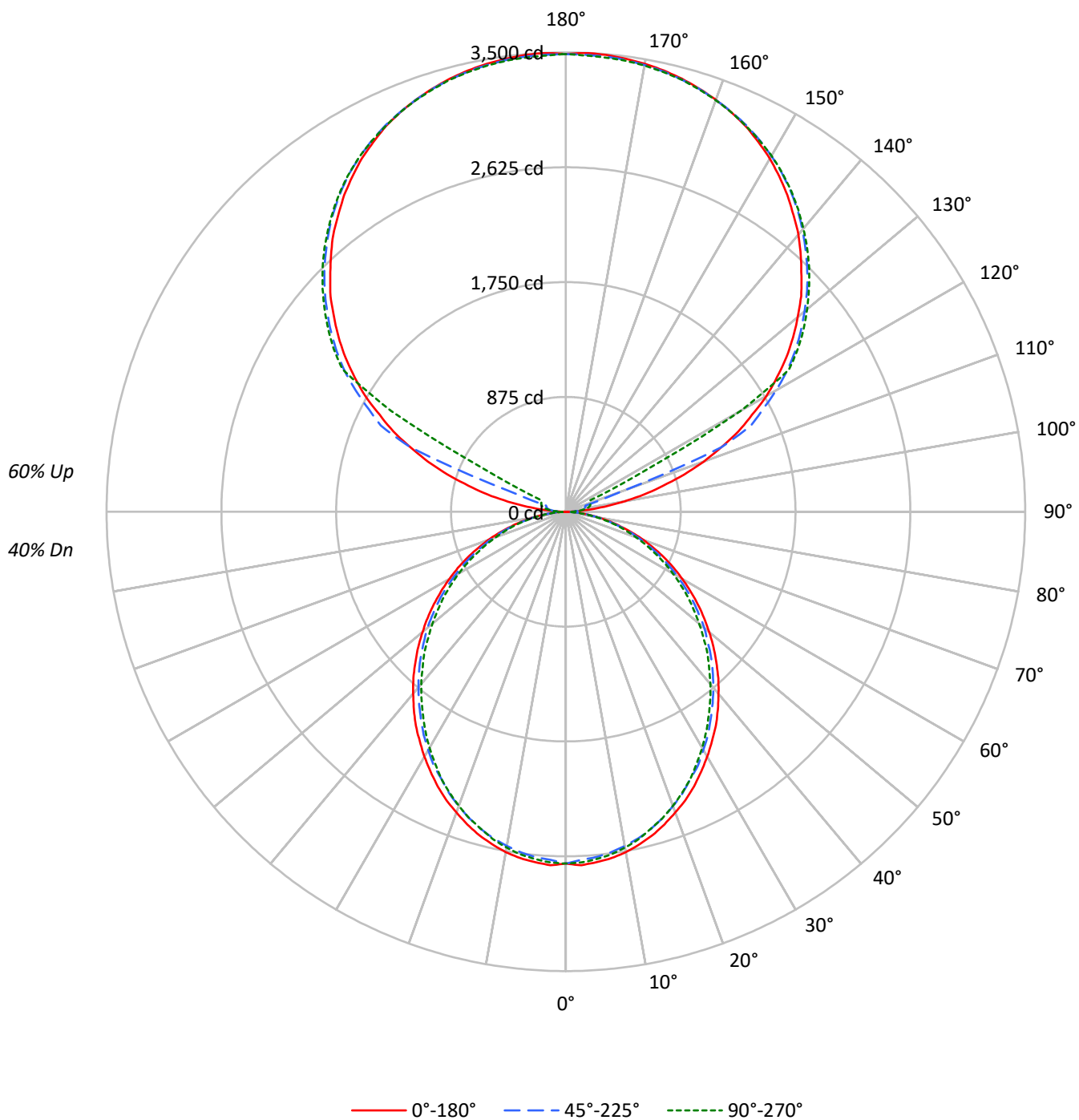
Lumens per Lamp: N/A
Luminaire Lumens: 17047.7 lumens
Efficiency: N/A
Efficacy: 94.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1956	1956	1956
5°	1959	1929	1943
10°	1944	1904	1917
15°	1915	1873	1876
20°	1876	1829	1834
25°	1838	1778	1786
30°	1790	1729	1724
35°	1744	1672	1659
40°	1688	1615	1597
45°	1632	1557	1534
50°	1571	1497	1461
55°	1507	1427	1393
60°	1434	1344	1316
65°	1355	1258	1225
70°	1255	1154	1128
75°	1115	1028	1038
80°	948	869	865
85°	685	593	579

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1859 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.3	1.5
10°-20°	709.8	4.2
20°-30°	1043.1	6.1
30°-40°	1211.4	7.1
40°-50°	1209.9	7.1
50°-60°	1055.0	6.2
60°-70°	779.9	4.6
70°-80°	441.2	2.6
80°-90°	122.6	0.7
90°-100°	115.0	0.7
100°-110°	428.6	2.5
110°-120°	1136.8	6.7
120°-130°	1885.4	11.1
130°-140°	2002.8	11.7
140°-150°	1861.3	10.9
150°-160°	1496.5	8.8
160°-170°	964.3	5.7
170°-180°	331.9	1.9
0°-30°	2005.1	11.8
0°-40°	3216.5	18.9
0°-60°	5481.5	32.2
0°-90°	6825.2	40.0
90°-120°	1680.4	9.9
90°-150°	7429.9	43.6
90°-180°	10223.0	60.0
0°-180°	17047.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	2	30	50	63	68	16
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.6	1650.0	1693.2	1332.0	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.2	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2941.9	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.8
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.6	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.5	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

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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	8.61	9.39	9.65	10.44	11.84	8.17	8.95	9.21	10.00	11.40
	3H	10.27	10.97	11.32	12.02	13.45	9.79	10.48	10.83	11.54	12.96
	4H	10.86	11.52	11.92	12.57	14.01	10.37	11.03	11.43	12.09	13.52
	6H	11.25	11.86	12.32	12.92	14.37	10.76	11.37	11.83	12.43	13.88
	8H	11.36	11.94	12.43	13.01	14.45	10.86	11.44	11.94	12.52	13.96
	12H	11.40	11.95	12.48	13.02	14.49	10.90	11.45	11.98	12.52	13.99
4H	2H	9.06	9.73	10.13	10.78	12.21	8.71	9.37	9.78	10.43	11.86
	3H	10.93	11.48	12.00	12.56	14.01	10.52	11.08	11.60	12.16	13.60
	4H	11.64	12.15	12.72	13.22	14.69	11.22	11.73	12.30	12.80	14.27
	6H	12.15	12.59	13.24	13.68	15.15	11.73	12.16	12.82	13.26	14.72
	8H	12.30	12.71	13.39	13.80	15.27	11.87	12.28	12.96	13.37	14.85
	12H	12.37	12.74	13.48	13.84	15.32	11.93	12.30	13.04	13.40	14.88
8H	4H	11.83	12.24	12.92	13.32	14.80	11.46	11.86	12.55	12.95	14.43
	6H	12.46	12.80	13.57	13.93	15.40	12.08	12.42	13.20	13.55	15.02
	8H	12.68	12.98	13.80	14.09	15.58	12.30	12.59	13.42	13.70	15.20
	12H	12.81	13.07	13.93	14.18	15.71	12.41	12.67	13.53	13.78	15.31
12H	4H	11.81	12.18	12.92	13.28	14.76	11.45	11.82	12.56	12.92	14.40
	6H	12.49	12.78	13.61	13.90	15.39	12.13	12.42	13.24	13.53	15.03
	8H	12.73	12.99	13.85	14.10	15.63	12.36	12.62	13.48	13.73	15.26

END OF REPORT