

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: P916923

Luminaire Tested: DFN2DIP-PN4F0-070D110US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916923
REPORT IS A COMBINATION OF REPORTS P901262 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D110US930-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

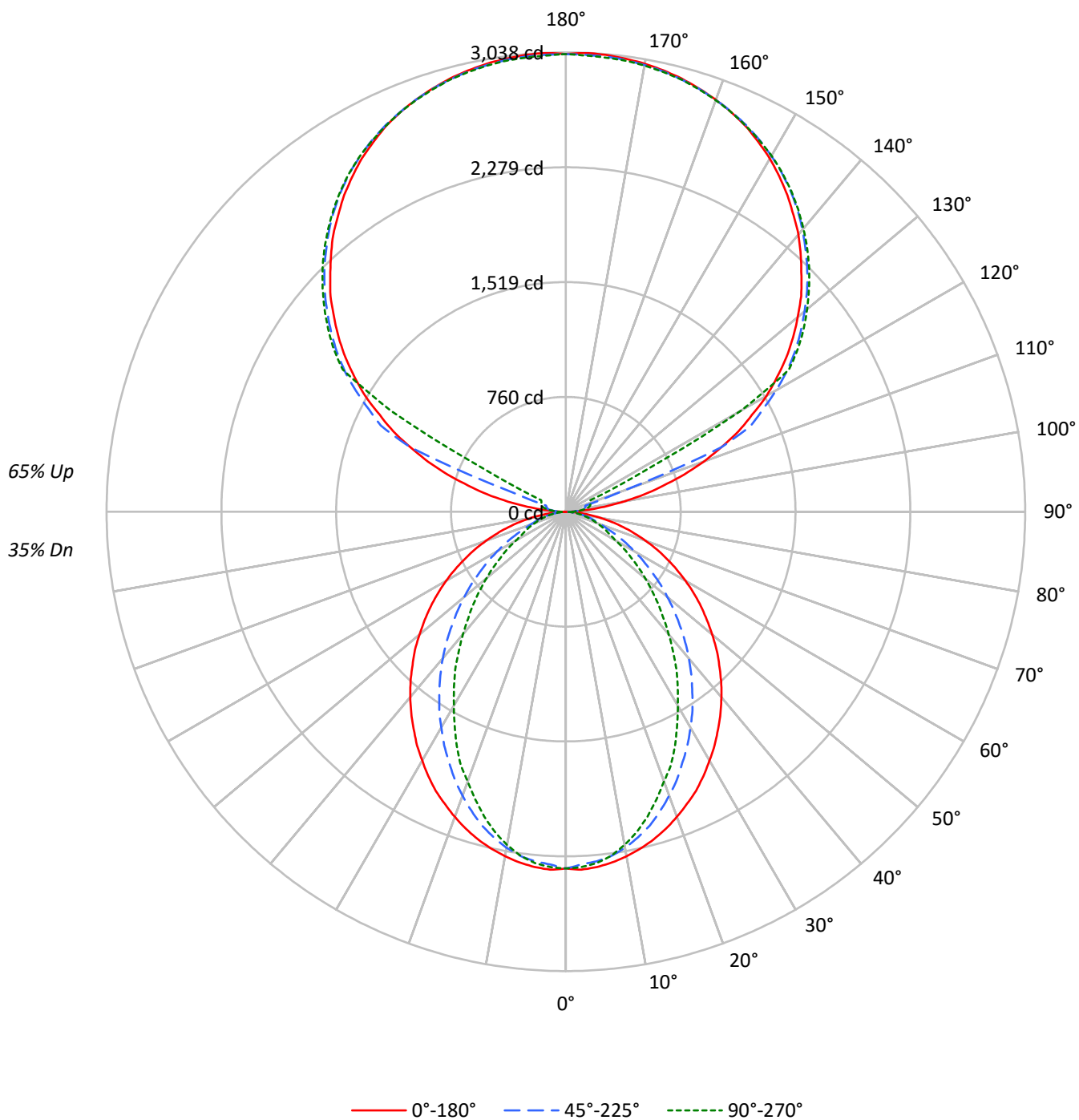
Lumens per Lamp: N/A
Luminaire Lumens: 13729.6 lumens
Efficiency: N/A
Efficacy: 86.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 158.3
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
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	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1722	1722	1722
5°	1724	1695	1706
10°	1707	1662	1650
15°	1684	1607	1565
20°	1653	1532	1460
25°	1621	1447	1358
30°	1578	1360	1230
35°	1536	1267	1117
40°	1494	1170	987
45°	1444	1063	869
50°	1393	954	754
55°	1339	839	644
60°	1278	718	530
65°	1206	595	478
70°	1120	480	433
75°	1012	423	394
80°	855	356	343
85°	595	239	260

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1613 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.1	1.6
10°-20°	606.9	4.4
20°-30°	852.0	6.2
30°-40°	928.8	6.8
40°-50°	853.6	6.2
50°-60°	670.4	4.9
60°-70°	436.4	3.2
70°-80°	224.6	1.6
80°-90°	62.7	0.5
90°-100°	99.8	0.7
100°-110°	372.1	2.7
110°-120°	986.7	7.2
120°-130°	1636.6	11.9
130°-140°	1738.4	12.7
140°-150°	1615.7	11.8
150°-160°	1298.9	9.5
160°-170°	837.0	6.1
170°-180°	288.1	2.1
0°-30°	1679.9	12.2
0°-40°	2608.7	19.0
0°-60°	4132.7	30.1
0°-90°	4856.3	35.4
90°-120°	1458.6	10.6
90°-150°	6449.2	47.0
90°-180°	8873.0	64.6
0°-180°	13729.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2359	2359	2359	2359	2359	
5°	2359	2348	2320	2340	2333	224
15°	2244	2220	2147	2107	2086	632
25°	2036	1968	1827	1740	1708	937
35°	1755	1646	1458	1324	1276	1098
45°	1434	1291	1067	916	864	1108
55°	1091	924	694	566	525	975
65°	736	564	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	2	26	44	55	59	13
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2358.7	2358.7	2358.7	2358.7	2358.7
2.5°	2369.3	2358.7	2335.2	2356.7	2352.4
5°	2358.7	2348.1	2320.3	2339.5	2333.1
7.5°	2339.5	2326.8	2296.9	2305.3	2294.7
10°	2313.9	2299.0	2256.3	2249.8	2237.1
12.5°	2281.9	2262.7	2205.0	2192.3	2168.7
15°	2243.5	2219.9	2147.4	2106.9	2085.6
17.5°	2198.6	2164.5	2074.8	2027.8	1993.6
20°	2147.4	2104.6	1998.0	1944.7	1897.6
22.5°	2092.0	2042.8	1918.9	1846.4	1814.5
25°	2036.5	1968.0	1827.2	1739.8	1707.6
27.5°	1970.3	1897.6	1741.8	1641.5	1592.4
30°	1899.9	1818.6	1647.8	1539.1	1481.4
32.5°	1831.5	1733.2	1558.4	1430.2	1376.7
35°	1754.7	1645.8	1458.1	1323.6	1276.4
37.5°	1680.0	1562.4	1364.1	1216.6	1163.4
40°	1600.9	1473.0	1265.8	1114.3	1058.7
42.5°	1519.9	1383.3	1167.7	1009.6	956.4
45°	1434.5	1291.4	1067.4	915.7	864.5
47.5°	1353.4	1201.9	971.3	819.6	772.7
50°	1263.7	1112.2	877.3	729.9	685.3
52.5°	1176.1	1015.9	787.7	646.8	606.3
55°	1090.7	924.2	693.7	565.7	525.2
57.5°	1003.3	832.5	610.6	491.0	456.8
60°	913.6	742.8	522.9	414.3	380.0
62.5°	826.1	655.4	448.2	345.8	328.8
65°	736.5	563.5	371.4	299.0	292.4
67.5°	651.1	478.1	299.0	262.4	256.2
70°	561.4	394.9	247.5	226.2	217.6
72.5°	476.1	318.0	207.0	190.0	185.7
75°	392.7	243.2	170.7	155.8	153.8
77.5°	309.6	172.8	134.5	125.9	121.6
80°	232.6	123.8	102.4	94.0	94.0
82.5°	162.2	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.2	17.0	17.0	14.9	14.9
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

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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	7.50	8.22	8.58	9.30	10.77	3.46	4.19	4.54	5.26	6.73
	3H	9.17	9.82	10.26	10.90	12.39	4.65	5.29	5.73	6.38	7.86
	4H	9.78	10.39	10.88	11.48	12.97	5.09	5.70	6.19	6.79	8.28
	6H	10.20	10.76	11.30	11.85	13.35	5.41	5.97	6.52	7.06	8.56
	8H	10.32	10.86	11.43	11.96	13.46	5.50	6.03	6.61	7.14	8.63
	12H	10.38	10.89	11.50	11.99	13.51	5.54	6.05	6.65	7.14	8.66
4H	2H	7.50	8.12	8.61	9.20	10.70	4.05	4.66	5.15	5.75	7.24
	3H	9.33	9.84	10.44	10.95	12.45	5.39	5.90	6.50	7.01	8.52
	4H	10.02	10.49	11.13	11.59	13.11	5.93	6.40	7.05	7.50	9.03
	6H	10.53	10.93	11.65	12.06	13.57	6.35	6.75	7.47	7.87	9.39
	8H	10.70	11.08	11.83	12.20	13.73	6.48	6.85	7.60	7.97	9.50
	12H	10.80	11.13	11.94	12.26	13.80	6.54	6.87	7.68	8.00	9.54
8H	4H	9.98	10.35	11.10	11.47	13.00	6.21	6.58	7.33	7.70	9.23
	6H	10.54	10.85	11.69	12.01	13.54	6.72	7.03	7.87	8.19	9.72
	8H	10.76	11.03	11.91	12.17	13.72	6.92	7.18	8.07	8.32	9.87
	12H	10.90	11.13	12.05	12.27	13.86	7.03	7.27	8.18	8.40	9.99
12H	4H	9.92	10.26	11.06	11.39	12.93	6.21	6.55	7.35	7.68	9.21
	6H	10.52	10.79	11.67	11.93	13.48	6.77	7.04	7.92	8.18	9.73
	8H	10.74	10.97	11.89	12.11	13.70	6.98	7.22	8.13	8.35	9.94

END OF REPORT