

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: P916957

Luminaire Tested: DFN2DIP-PN4F0-080D110US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916957
REPORT IS A COMBINATION OF REPORTS P901263 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D110US930-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

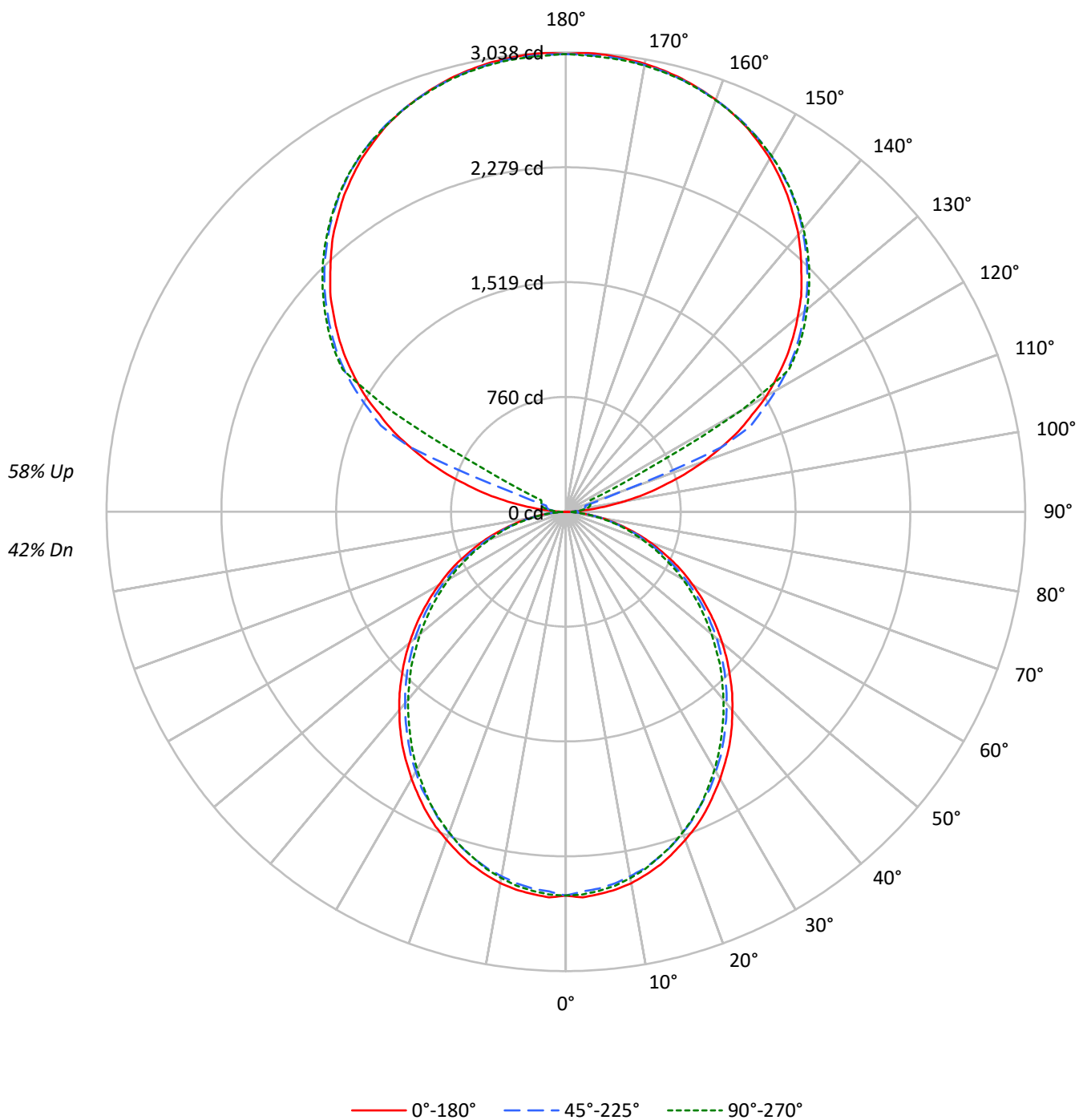
Lumens per Lamp: N/A
Luminaire Lumens: 15335.8 lumens
Efficiency: N/A
Efficacy: 90.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 168.8
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	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	88	84	88	84	81	78	69	67	65	56	54	53	43	42	41
2	87	80	74	69	80	73	68	64	61	57	54	49	46	44	38	36	35
3	80	70	63	57	72	65	58	53	53	49	45	43	40	37	34	31	30
4	73	62	54	49	66	57	50	45	47	42	38	38	35	32	30	28	25
5	67	55	47	41	61	51	44	39	42	37	33	35	31	28	27	24	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	28	24	21	22	20	17
8	53	41	33	28	48	37	31	26	32	26	22	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	21	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1853	1853	1853
5°	1856	1827	1839
10°	1841	1803	1815
15°	1813	1773	1776
20°	1777	1732	1737
25°	1740	1683	1691
30°	1695	1638	1633
35°	1652	1584	1571
40°	1599	1529	1513
45°	1545	1475	1453
50°	1487	1418	1383
55°	1427	1351	1319
60°	1358	1273	1246
65°	1283	1192	1160
70°	1188	1093	1068
75°	1056	974	983
80°	897	823	820
85°	649	562	548

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°	238.9	1.6
10°-20°	672.1	4.4
20°-30°	987.7	6.4
30°-40°	1147.1	7.5
40°-50°	1145.7	7.5
50°-60°	999.0	6.5
60°-70°	738.5	4.8
70°-80°	417.8	2.7
80°-90°	115.6	0.8
90°-100°	99.8	0.7
100°-110°	372.1	2.4
110°-120°	986.7	6.4
120°-130°	1636.6	10.7
130°-140°	1738.4	11.3
140°-150°	1615.7	10.5
150°-160°	1298.9	8.5
160°-170°	837.0	5.5
170°-180°	288.1	1.9
0°-30°	1898.6	12.4
0°-40°	3045.8	19.9
0°-60°	5190.5	33.8
0°-90°	6462.5	42.1
90°-120°	1458.6	9.5
90°-150°	6449.2	42.1
90°-180°	8873.0	57.9
0°-180°	15335.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
90°	2	26	44	55	59	14
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°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
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	8.65	9.44	9.67	10.47	11.85	8.21	9.00	9.23	10.03	11.41
	3H	10.31	11.02	11.34	12.06	13.46	9.82	10.53	10.85	11.57	12.97
	4H	10.89	11.57	11.94	12.61	14.02	10.41	11.08	11.45	12.12	13.53
	6H	11.29	11.91	12.35	12.96	14.38	10.80	11.42	11.85	12.47	13.89
	8H	11.40	11.99	12.45	13.05	14.46	10.90	11.49	11.96	12.56	13.97
	12H	11.44	12.01	12.51	13.06	14.50	10.94	11.51	12.01	12.56	14.00
4H	2H	9.10	9.78	10.15	10.82	12.22	8.75	9.43	9.80	10.47	11.87
	3H	10.96	11.53	12.02	12.60	14.02	10.56	11.13	11.62	12.19	13.61
	4H	11.68	12.20	12.74	13.26	14.70	11.26	11.78	12.33	12.84	14.28
	6H	12.19	12.64	13.27	13.72	15.16	11.77	12.21	12.84	13.30	14.73
	8H	12.34	12.76	13.42	13.83	15.28	11.91	12.33	12.99	13.40	14.86
	12H	12.41	12.79	13.51	13.88	15.34	11.97	12.35	13.07	13.44	14.89
8H	4H	11.87	12.28	12.94	13.36	14.81	11.50	11.91	12.57	12.99	14.44
	6H	12.50	12.84	13.60	13.96	15.41	12.13	12.47	13.22	13.59	15.03
	8H	12.72	13.02	13.83	14.13	15.59	12.34	12.64	13.44	13.74	15.21
	12H	12.85	13.12	13.96	14.22	15.72	12.45	12.72	13.56	13.81	15.32
12H	4H	11.85	12.23	12.94	13.32	14.77	11.49	11.87	12.58	12.96	14.41
	6H	12.53	12.83	13.64	13.93	15.40	12.17	12.47	13.27	13.57	15.04
	8H	12.77	13.04	13.88	14.13	15.64	12.40	12.66	13.51	13.76	15.27