

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: P910265

Luminaire Tested: DFN2DIP-TR4F0-110D070US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910265
REPORT IS A COMBINATION OF REPORTS P901958 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US840-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

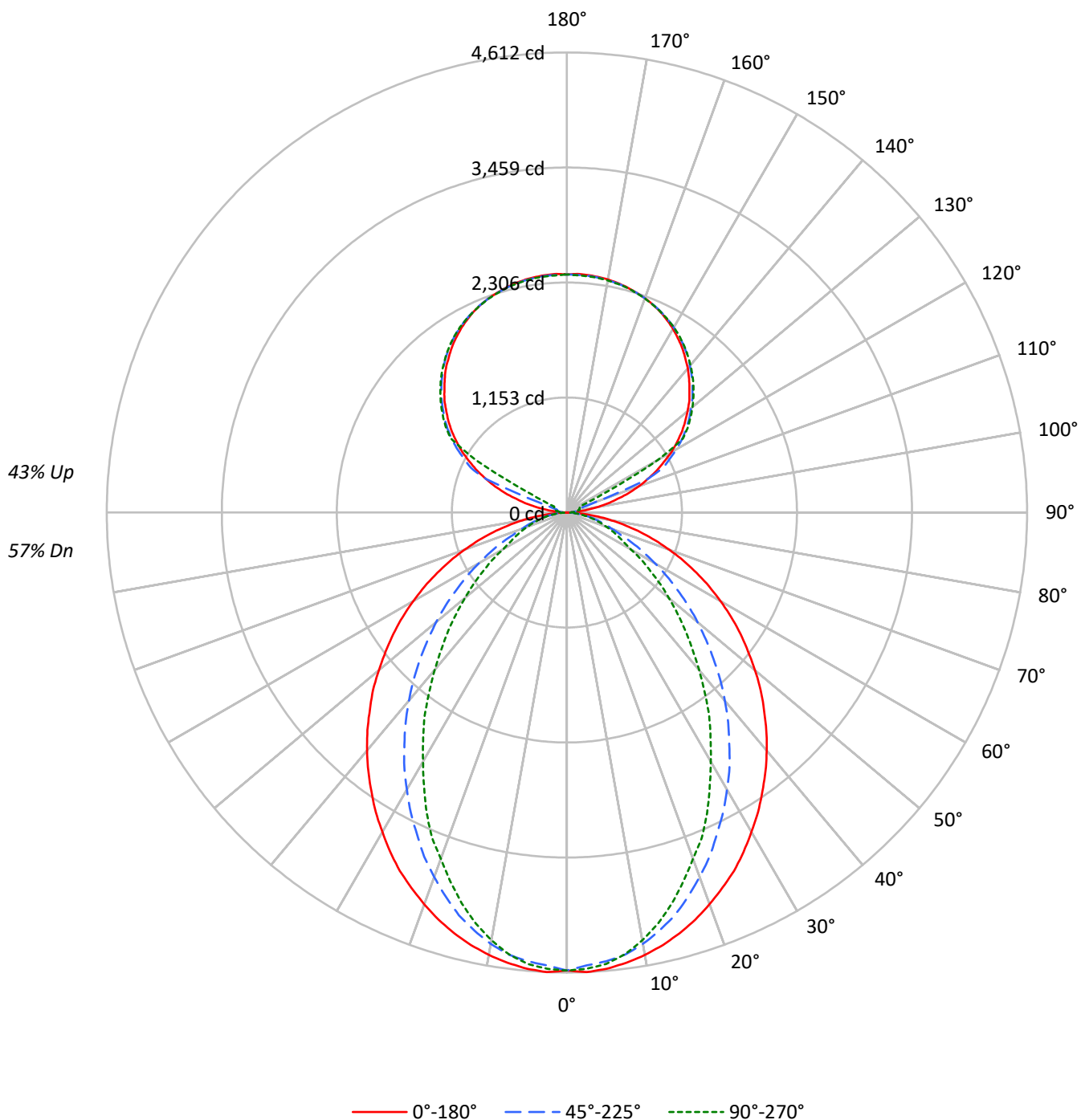
Lumens per Lamp: N/A
Luminaire Lumens: 16440.7 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63
1	100	96	92	89	93	89	86	83	78	75	73	67	65	63	57	55	54
2	92	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	47
3	84	75	68	62	78	70	64	59	61	56	52	53	49	46	45	43	40
4	77	66	59	53	72	62	56	50	55	49	45	47	43	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	39	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	35	31	34	30	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25
8	57	44	37	32	53	42	35	30	37	32	28	33	28	25	29	25	22
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	27	23	20
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3647	3647	3647
5°	3653	3589	3612
10°	3617	3519	3495
15°	3567	3403	3313
20°	3501	3242	3090
25°	3434	3062	2874
30°	3343	2878	2601
35°	3255	2680	2361
40°	3164	2475	2086
45°	3060	2248	1837
50°	2951	2018	1593
55°	2838	1773	1359
60°	2707	1516	1119
65°	2556	1255	1007
70°	2373	1012	911
75°	2144	892	828
80°	1811	748	718
85°	1262	499	539

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3060 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.6
10°-20°	1181.2	7.2
20°-30°	1658.4	10.1
30°-40°	1807.8	11.0
40°-50°	1661.5	10.1
50°-60°	1304.9	7.9
60°-70°	849.4	5.2
70°-80°	437.2	2.7
80°-90°	115.8	0.7
90°-100°	78.7	0.5
100°-110°	293.3	1.8
110°-120°	777.8	4.7
120°-130°	1290.0	7.8
130°-140°	1370.3	8.3
140°-150°	1273.5	7.7
150°-160°	1023.9	6.2
160°-170°	659.7	4.0
170°-180°	227.1	1.4
0°-30°	3269.9	19.9
0°-40°	5077.7	30.9
0°-60°	8044.1	48.9
0°-90°	9446.4	57.5
90°-120°	1149.7	7.0
90°-150°	5083.5	30.9
90°-180°	6994.0	42.5
0°-180°	16440.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4554	4541	435
15°	4367	4321	4180	4101	4060	1231
25°	3964	3831	3556	3386	3324	1823
35°	3416	3203	2838	2576	2484	2138
45°	2792	2514	2078	1782	1683	2156
55°	2123	1799	1350	1101	1022	1897
65°	1434	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	2	21	34	43	47	15
95°	112	55	67	76	74	133
105°	525	577	105	124	131	561
115°	993	1022	1065	266	142	977
125°	1403	1426	1459	1471	1476	1252
135°	1737	1764	1780	1797	1794	1342
145°	2015	2013	2042	2054	2046	1260
155°	2218	2203	2224	2234	2220	1022
165°	2337	2327	2332	2344	2332	660
175°	2391	2379	2382	2394	2377	228
180°	2386	2386	2386	2386	2386	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4591.2	4591.2	4591.2	4591.2	4591.2
2.5°	4611.9	4591.2	4545.3	4587.2	4578.8
5°	4591.2	4570.4	4516.2	4553.7	4541.4
7.5°	4553.7	4528.9	4470.8	4487.1	4466.3
10°	4503.9	4474.7	4391.9	4379.1	4354.4
12.5°	4441.7	4404.2	4291.8	4267.1	4221.2
15°	4366.8	4320.9	4179.8	4101.0	4059.5
17.5°	4279.5	4213.0	4038.4	3947.1	3880.5
20°	4179.8	4096.5	3888.9	3785.3	3693.6
22.5°	4071.9	3976.1	3735.1	3594.0	3531.8
25°	3963.8	3830.7	3556.5	3386.4	3323.8
27.5°	3835.2	3693.6	3390.3	3195.0	3099.4
30°	3698.0	3539.8	3207.4	2995.8	2883.4
32.5°	3564.9	3373.6	3033.2	2783.8	2679.8
35°	3415.5	3203.4	2838.0	2576.2	2484.5
37.5°	3270.0	3041.2	2655.0	2368.0	2264.5
40°	3116.1	2867.1	2463.8	2168.8	2060.8
42.5°	2958.3	2692.5	2272.9	1965.2	1861.6
45°	2792.2	2513.6	2077.6	1782.2	1682.6
47.5°	2634.3	2339.5	1890.7	1595.3	1504.1
50°	2459.7	2164.8	1707.8	1420.8	1333.9
52.5°	2289.2	1977.5	1533.2	1259.0	1180.0
55°	2122.9	1799.0	1350.2	1101.2	1022.3
57.5°	1952.9	1620.4	1188.4	955.7	889.1
60°	1778.3	1445.9	1017.8	806.3	739.7
62.5°	1608.1	1275.8	872.4	673.2	640.1
65°	1433.5	1096.7	723.0	581.9	569.1
67.5°	1267.4	930.6	581.9	510.9	498.6
70°	1092.8	768.8	481.8	440.4	423.6
72.5°	926.6	618.9	402.9	369.8	361.4
75°	764.4	473.4	332.3	303.3	299.3
77.5°	602.6	336.4	261.9	245.1	236.7
80°	452.7	241.2	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.8	128.8
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.6	33.0	33.0	29.1	29.1
90°	1.6	20.7	34.4	43.2	46.6
92.5°	43.2	36.3	41.4	44.9	46.6
95°	112.1	55.1	67.3	76.0	74.2
97.5°	201.9	60.5	88.0	93.3	94.9
100°	305.7	69.1	98.4	112.1	115.6
102.5°	419.4	416.2	101.9	120.8	126.0
105°	524.8	576.6	105.3	124.2	131.2
107.5°	647.3	690.4	108.9	127.7	134.7
110°	764.9	800.9	302.2	129.6	136.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	875.4	906.3	877.0	132.8	138.1
115°	992.6	1021.9	1065.1	265.9	141.7
117.5°	1094.5	1128.9	1158.4	911.4	459.2
120°	1208.4	1234.3	1265.5	1286.2	1053.1
122.5°	1304.9	1332.6	1367.4	1377.6	1379.4
125°	1403.4	1425.9	1458.8	1470.9	1475.9
127.5°	1493.2	1517.3	1543.4	1560.6	1562.3
130°	1577.8	1605.5	1624.4	1643.5	1641.8
132.5°	1664.2	1686.7	1705.6	1721.1	1719.5
135°	1736.7	1764.3	1779.8	1797.2	1793.7
137.5°	1812.5	1833.3	1850.7	1867.9	1862.8
140°	1886.7	1900.7	1919.6	1935.1	1926.5
142.5°	1949.0	1961.2	1983.5	1997.2	1988.6
145°	2014.7	2012.9	2042.2	2054.3	2045.7
147.5°	2071.4	2066.4	2095.7	2104.3	2097.5
150°	2126.8	2114.8	2142.4	2152.6	2144.0
152.5°	2173.3	2159.6	2185.5	2195.9	2183.8
155°	2218.3	2202.8	2223.5	2233.8	2220.1
157.5°	2254.5	2240.8	2256.3	2268.5	2254.5
160°	2285.7	2275.2	2285.7	2295.9	2283.8
162.5°	2313.2	2302.9	2311.5	2323.6	2308.0
165°	2337.3	2327.1	2332.2	2344.3	2332.2
167.5°	2356.4	2345.9	2351.3	2363.4	2347.8
170°	2372.0	2361.6	2365.0	2377.1	2361.6
172.5°	2382.3	2372.0	2375.5	2387.5	2372.0
175°	2390.9	2378.7	2382.3	2394.3	2377.1
177.5°	2394.3	2382.3	2384.1	2396.2	2380.6
180°	2385.7	2385.7	2385.7	2385.7	2385.7

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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	12.31	13.20	13.20	14.11	15.28	8.28	9.18	9.18	10.09	11.25
	3H	13.99	14.79	14.90	15.71	16.90	9.48	10.28	10.39	11.20	12.39
	4H	14.60	15.36	15.53	16.28	17.48	9.93	10.68	10.85	11.61	12.81
	6H	15.03	15.72	15.96	16.65	17.87	10.25	10.95	11.19	11.88	13.09
	8H	15.15	15.82	16.10	16.77	17.97	10.35	11.01	11.29	11.96	13.17
	12H	15.22	15.85	16.17	16.79	18.02	10.39	11.02	11.34	11.97	13.20
4H	2H	12.33	13.09	13.26	14.02	15.21	8.88	9.64	9.81	10.57	11.77
	3H	14.17	14.80	15.11	15.75	16.97	10.24	10.87	11.18	11.83	13.04
	4H	14.86	15.44	15.81	16.39	17.63	10.79	11.36	11.74	12.32	13.55
	6H	15.38	15.87	16.34	16.85	18.09	11.22	11.71	12.18	12.68	13.92
	8H	15.56	16.02	16.52	16.99	18.24	11.35	11.81	12.31	12.78	14.03
	12H	15.66	16.07	16.64	17.06	18.31	11.42	11.83	12.40	12.82	14.07
8H	4H	14.84	15.30	15.80	16.27	17.52	11.08	11.54	12.04	12.51	13.76
	6H	15.40	15.78	16.39	16.80	18.04	11.60	11.98	12.59	12.99	14.24
	8H	15.62	15.96	16.62	16.96	18.22	11.79	12.13	12.79	13.13	14.39
	12H	15.76	16.06	16.76	17.05	18.37	11.91	12.21	12.92	13.20	14.52
12H	4H	14.79	15.20	15.77	16.19	17.45	11.08	11.50	12.07	12.49	13.74
	6H	15.38	15.72	16.38	16.72	17.98	11.65	11.98	12.65	12.98	14.25
	8H	15.60	15.90	16.61	16.89	18.21	11.86	12.16	12.86	13.15	14.47