

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: P908743

Luminaire Tested: DFN2DIP-PN4F0-070D120US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908743
REPORT IS A COMBINATION OF REPORTS P901280 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D120US840-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

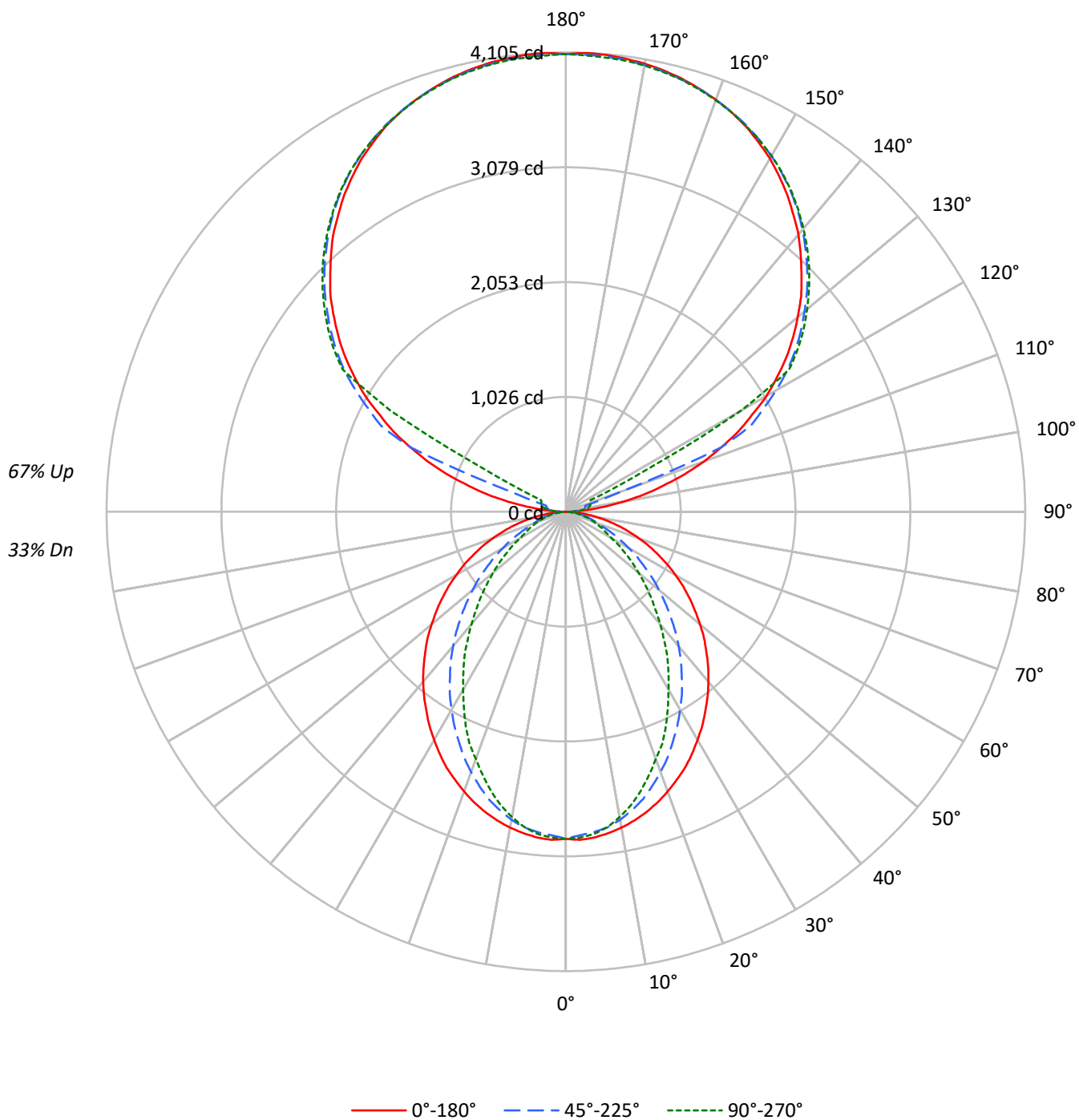
Lumens per Lamp: N/A
Luminaire Lumens: 18005.8 lumens
Efficiency: N/A
Efficacy: 105.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 170.2
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	87	83	85	82	79	76	65	63	61	50	49	48	37	36	35
2	86	79	73	69	78	72	67	63	58	54	51	45	42	40	33	31	30
3	79	70	63	57	71	63	57	53	51	47	43	40	37	35	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	36	32	30	26	24	23
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20
6	61	50	42	36	55	45	38	34	37	32	28	29	25	23	22	19	18
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	18	16
8	52	41	33	28	47	37	31	26	30	26	22	24	21	18	18	16	14
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2133	2133	2133
5°	2136	2099	2113
10°	2115	2058	2044
15°	2086	1990	1938
20°	2047	1897	1808
25°	2008	1792	1683
30°	1955	1684	1523
35°	1903	1569	1383
40°	1850	1449	1222
45°	1789	1316	1077
50°	1725	1182	934
55°	1659	1039	798
60°	1583	889	657
65°	1494	737	592
70°	1387	594	536
75°	1253	524	489
80°	1059	441	425
85°	737	296	322

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2181 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.5
10°-20°	751.7	4.2
20°-30°	1055.3	5.9
30°-40°	1150.4	6.4
40°-50°	1057.3	5.9
50°-60°	830.4	4.6
60°-70°	540.5	3.0
70°-80°	278.2	1.5
80°-90°	78.2	0.4
90°-100°	134.9	0.7
100°-110°	502.7	2.8
110°-120°	1333.3	7.4
120°-130°	2211.4	12.3
130°-140°	2349.0	13.0
140°-150°	2183.2	12.1
150°-160°	1755.2	9.7
160°-170°	1131.0	6.3
170°-180°	389.3	2.2
0°-30°	2080.9	11.6
0°-40°	3231.2	17.9
0°-60°	5118.9	28.4
0°-90°	6015.8	33.4
90°-120°	1970.9	10.9
90°-150°	8714.5	48.4
90°-180°	11990.0	66.6
0°-180°	18005.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	3	35	59	74	80	17
95°	192	94	115	130	127	228
105°	900	989	181	213	225	961
115°	1702	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3025	3051	3081	3075	2300
145°	3454	3451	3501	3522	3507	2160
155°	3803	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4105	4075	390
180°	4090	4090	4090	4090	4090	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	77.0	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.5	168.6	192.2	198.2
102.5°	719.0	713.4	174.6	207.0	216.1
105°	899.6	988.6	180.7	213.0	224.9
107.5°	1109.7	1183.6	186.6	218.9	230.9
110°	1311.1	1373.0	518.0	222.1	233.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.6	1553.6	1503.4	227.7	236.8
115°	1701.5	1751.8	1825.9	455.8	242.9
117.5°	1876.2	1935.3	1985.9	1562.4	787.2
120°	2071.6	2115.9	2169.3	2204.8	1805.2
122.5°	2237.2	2284.6	2344.0	2361.6	2364.7
125°	2405.8	2444.5	2500.7	2521.4	2530.2
127.5°	2559.7	2601.2	2645.8	2675.3	2678.2
130°	2704.8	2752.3	2784.6	2817.3	2814.5
132.5°	2852.8	2891.4	2923.8	2950.5	2947.7
135°	2977.2	3024.6	3051.0	3080.9	3074.9
137.5°	3107.3	3142.7	3172.6	3202.1	3193.3
140°	3234.5	3258.3	3290.6	3317.4	3302.7
142.5°	3341.2	3362.0	3400.3	3423.8	3409.1
145°	3453.7	3450.6	3500.8	3521.6	3506.8
147.5°	3551.1	3542.3	3592.6	3607.3	3595.7
150°	3645.9	3625.2	3672.7	3690.3	3675.5
152.5°	3725.7	3702.2	3746.5	3764.4	3743.7
155°	3802.6	3776.3	3811.8	3829.4	3805.9
157.5°	3864.9	3841.3	3868.1	3888.8	3864.9
160°	3918.3	3900.4	3918.3	3935.8	3915.1
162.5°	3965.4	3947.9	3962.6	3983.3	3956.7
165°	4006.8	3989.3	3998.1	4018.9	3998.1
167.5°	4039.6	4021.6	4030.8	4051.5	4024.8
170°	4066.2	4048.3	4054.3	4075.0	4048.3
172.5°	4083.8	4066.2	4072.3	4093.0	4066.2
175°	4098.5	4077.8	4083.8	4104.6	4075.0
177.5°	4104.6	4083.8	4087.0	4107.7	4081.1
180°	4089.9	4089.9	4089.9	4089.9	4089.9

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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	8.00	8.71	9.09	9.80	11.29	3.97	4.68	5.06	5.76	7.26
	3H	9.67	10.31	10.77	11.40	12.91	5.15	5.78	6.25	6.88	8.39
	4H	10.28	10.88	11.39	11.98	13.49	5.59	6.19	6.70	7.29	8.81
	6H	10.70	11.25	11.82	12.35	13.88	5.91	6.46	7.03	7.56	9.09
	8H	10.82	11.35	11.94	12.46	13.98	6.00	6.52	7.12	7.64	9.16
	12H	10.88	11.38	12.01	12.49	14.03	6.04	6.54	7.16	7.64	9.19
4H	2H	8.01	8.61	9.12	9.71	11.22	4.55	5.15	5.67	6.25	7.76
	3H	9.83	10.33	10.95	11.45	12.98	5.89	6.39	7.01	7.51	9.04
	4H	10.52	10.98	11.65	12.09	13.64	6.43	6.89	7.56	8.01	9.55
	6H	11.03	11.42	12.16	12.56	14.10	6.85	7.24	7.98	8.38	9.92
	8H	11.20	11.57	12.34	12.70	14.25	6.97	7.34	8.11	8.47	10.03
	12H	11.29	11.63	12.44	12.77	14.33	7.03	7.37	8.19	8.51	10.07
8H	4H	10.48	10.84	11.61	11.97	13.53	6.71	7.07	7.84	8.20	9.76
	6H	11.04	11.34	12.20	12.51	14.07	7.22	7.52	8.38	8.69	10.25
	8H	11.26	11.52	12.42	12.67	14.25	7.41	7.68	8.57	8.83	10.40
	12H	11.39	11.63	12.56	12.77	14.38	7.53	7.76	8.69	8.91	10.51
12H	4H	10.42	10.76	11.57	11.90	13.46	6.71	7.04	7.86	8.18	9.74
	6H	11.02	11.28	12.18	12.43	14.00	7.27	7.54	8.43	8.69	10.26
	8H	11.23	11.47	12.40	12.61	14.22	7.48	7.71	8.64	8.86	10.46