

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: P927986

Luminaire Tested: DFN2DIP-HX4F0-070D120US850-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927986
REPORT IS A COMBINATION OF REPORTS P900970 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D120US850-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

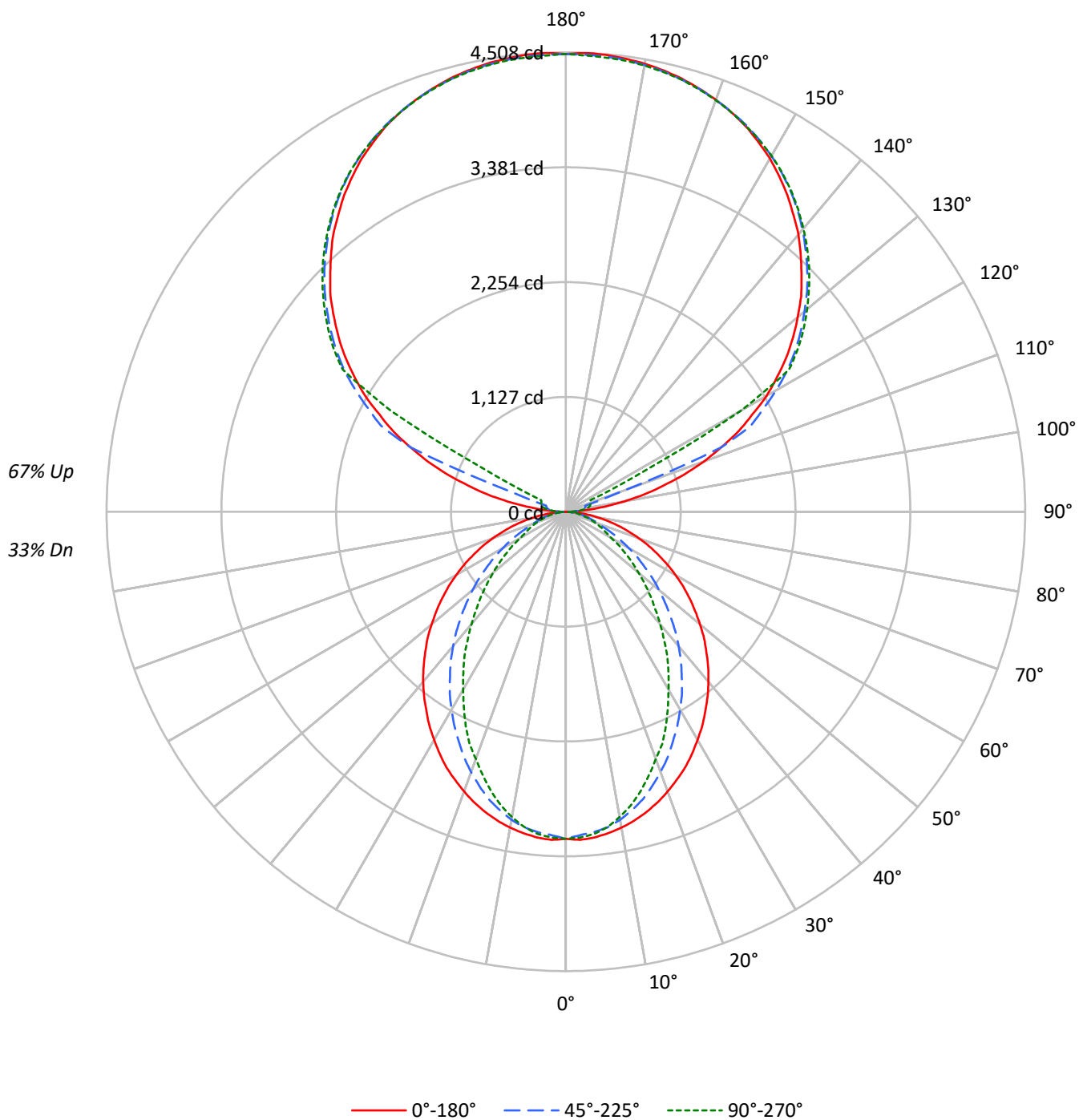
Lumens per Lamp: N/A
Luminaire Lumens: 19773.4 lumens
Efficiency: N/A
Efficacy: 121.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 162.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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°	2386	2386	2386
5°	2390	2348	2363
10°	2366	2302	2286
15°	2334	2226	2167
20°	2291	2122	2022
25°	2247	2004	1881
30°	2188	1884	1702
35°	2130	1755	1546
40°	2071	1621	1365
45°	2003	1472	1203
50°	1932	1322	1043
55°	1858	1161	890
60°	1773	994	733
65°	1675	823	660
70°	1556	664	597
75°	1406	586	544
80°	1190	492	472
85°	832	330	355

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2306 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	1.5
10°-20°	825.5	4.2
20°-30°	1158.9	5.9
30°-40°	1263.3	6.4
40°-50°	1161.1	5.9
50°-60°	911.9	4.6
60°-70°	593.5	3.0
70°-80°	305.5	1.5
80°-90°	85.9	0.4
90°-100°	148.1	0.7
100°-110°	552.1	2.8
110°-120°	1464.2	7.4
120°-130°	2428.5	12.3
130°-140°	2579.6	13.0
140°-150°	2397.5	12.1
150°-160°	1927.5	9.7
160°-170°	1242.0	6.3
170°-180°	427.5	2.2
0°-30°	2285.1	11.6
0°-40°	3548.4	17.9
0°-60°	5621.4	28.4
0°-90°	6606.4	33.4
90°-120°	2164.4	10.9
90°-150°	9570.0	48.4
90°-180°	13167.0	66.6
0°-180°	19773.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3208	3208	3208	3208	3208	
5°	3208	3194	3156	3182	3174	304
15°	3052	3020	2921	2866	2837	860
25°	2770	2677	2485	2366	2323	1274
35°	2387	2239	1983	1800	1736	1494
45°	1951	1756	1452	1246	1176	1507
55°	1484	1257	944	770	714	1326
65°	1002	766	505	407	398	993
75°	534	331	232	212	209	565
85°	125	64	55	55	55	143
90°	3	39	65	81	88	18
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3208.4	3208.4	3208.4	3208.4	3208.4
2.5°	3222.9	3208.4	3176.4	3205.7	3199.8
5°	3208.4	3193.9	3156.1	3182.3	3173.6
7.5°	3182.3	3165.0	3124.4	3135.7	3121.3
10°	3147.5	3127.2	3069.2	3060.3	3043.0
12.5°	3104.0	3077.8	2999.3	2982.0	2949.9
15°	3051.6	3019.6	2921.0	2865.9	2836.9
17.5°	2990.6	2944.2	2822.2	2758.3	2711.8
20°	2921.0	2862.8	2717.7	2645.3	2581.2
22.5°	2845.6	2778.7	2610.1	2511.6	2468.2
25°	2770.1	2677.0	2485.4	2366.5	2322.8
27.5°	2680.1	2581.2	2369.3	2232.9	2166.0
30°	2584.3	2473.7	2241.4	2093.6	2015.1
32.5°	2491.3	2357.6	2119.7	1945.4	1872.7
35°	2386.8	2238.6	1983.3	1800.4	1736.3
37.5°	2285.2	2125.3	1855.5	1654.8	1582.5
40°	2177.6	2003.6	1721.7	1515.7	1440.1
42.5°	2067.4	1881.6	1588.3	1373.3	1301.0
45°	1951.3	1756.5	1451.9	1245.5	1175.9
47.5°	1840.9	1634.9	1321.3	1114.9	1051.1
50°	1719.0	1512.9	1193.4	992.9	932.2
52.5°	1599.7	1381.9	1071.4	879.8	824.7
55°	1483.6	1257.2	943.5	769.5	714.4
57.5°	1364.7	1132.4	830.5	667.8	621.4
60°	1242.7	1010.4	711.3	563.5	516.9
62.5°	1123.7	891.5	609.6	470.4	447.3
65°	1001.8	766.4	505.3	406.7	397.7
67.5°	885.6	650.3	406.7	357.0	348.4
70°	763.7	537.2	336.7	307.7	296.0
72.5°	647.5	432.5	281.6	258.5	252.6
75°	534.2	330.8	232.2	211.9	209.2
77.5°	421.1	235.0	183.0	171.2	165.5
80°	316.4	168.5	139.3	127.9	127.9
82.5°	220.6	113.3	95.8	89.9	89.9
85°	124.8	63.8	55.1	55.1	55.1
87.5°	46.5	23.1	23.1	20.3	20.3
90°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3

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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	8.39	9.10	9.48	10.18	11.68	4.36	5.07	5.45	6.16	7.65
	3H	10.05	10.69	11.16	11.79	13.30	5.54	6.17	6.64	7.27	8.78
	4H	10.66	11.26	11.77	12.36	13.87	5.99	6.59	7.10	7.69	9.20
	6H	11.07	11.63	12.19	12.73	14.26	6.30	6.86	7.42	7.96	9.48
	8H	11.20	11.72	12.32	12.84	14.36	6.39	6.92	7.51	8.03	9.55
	12H	11.26	11.76	12.38	12.87	14.41	6.43	6.93	7.56	8.04	9.58
4H	2H	8.39	8.99	9.51	10.09	11.60	4.94	5.54	6.06	6.64	8.15
	3H	10.21	10.71	11.33	11.83	13.36	6.28	6.78	7.41	7.91	9.43
	4H	10.90	11.36	12.03	12.47	14.02	6.83	7.29	7.95	8.40	9.95
	6H	11.41	11.80	12.54	12.94	14.48	7.24	7.63	8.38	8.77	10.31
	8H	11.58	11.95	12.71	13.08	14.63	7.37	7.74	8.50	8.86	10.42
	12H	11.67	12.00	12.82	13.14	14.70	7.43	7.76	8.58	8.90	10.46
8H	4H	10.86	11.22	11.99	12.35	13.91	7.10	7.46	8.23	8.59	10.15
	6H	11.42	11.72	12.57	12.89	14.44	7.61	7.92	8.77	9.09	10.64
	8H	11.64	11.90	12.80	13.05	14.62	7.81	8.07	8.97	9.22	10.79
	12H	11.77	12.00	12.93	13.15	14.76	7.92	8.15	9.09	9.30	10.91
12H	4H	10.80	11.14	11.95	12.28	13.84	7.10	7.43	8.25	8.57	10.13
	6H	11.39	11.66	12.56	12.81	14.38	7.66	7.93	8.82	9.08	10.65
	8H	11.61	11.84	12.77	12.99	14.60	7.87	8.10	9.03	9.25	10.86

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

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