

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: P927338

Luminaire Tested: DFN2DIP-HX4F0-070D120US835-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927338
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-HX4F0-070D120US835-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

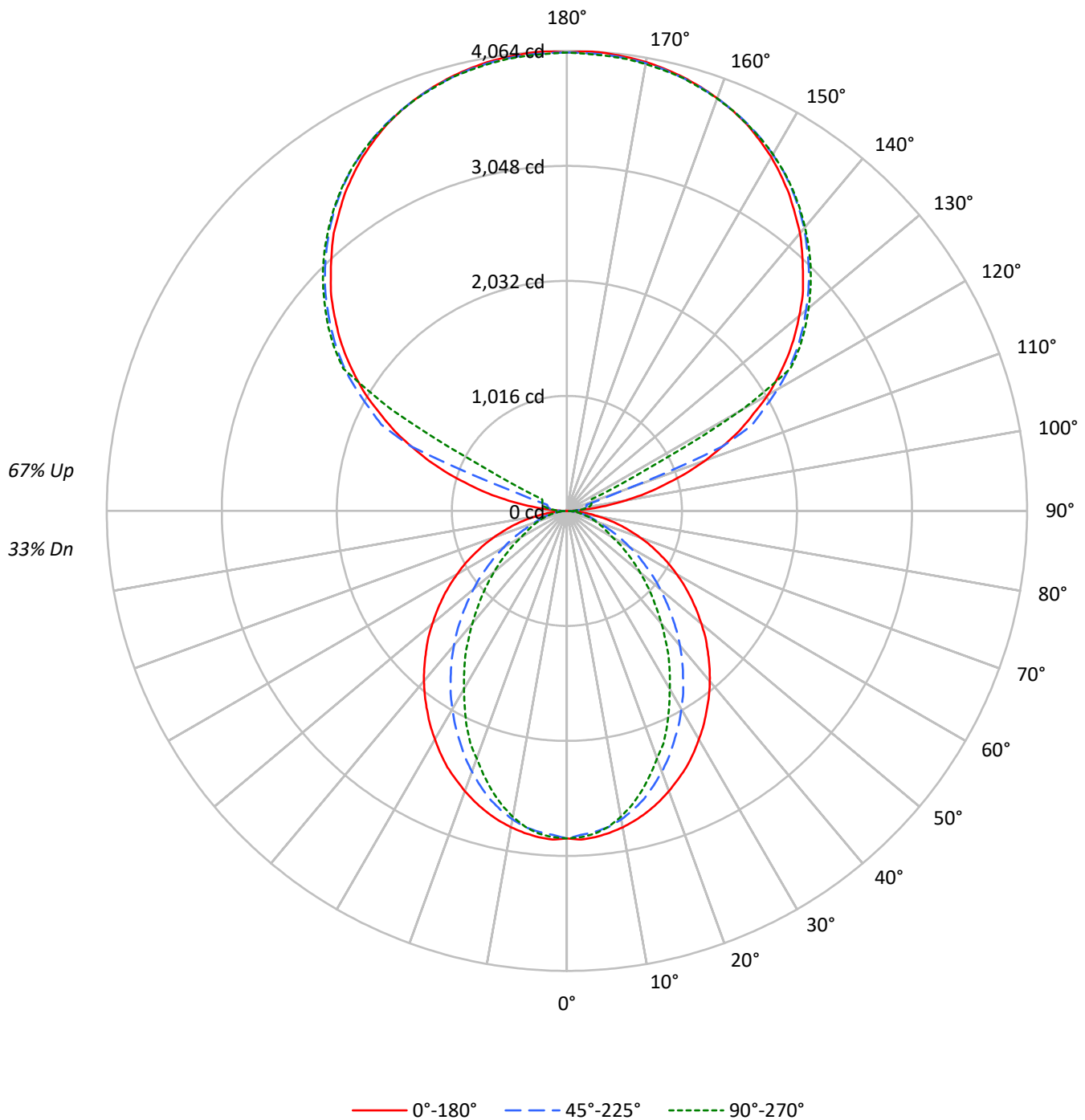
Lumens per Lamp: N/A
Luminaire Lumens: 17830.0 lumens
Efficiency: N/A
Efficacy: 109.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

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°	2151	2151	2151
5°	2155	2117	2131
10°	2134	2076	2061
15°	2104	2008	1954
20°	2066	1913	1823
25°	2026	1807	1696
30°	1973	1699	1535
35°	1921	1582	1394
40°	1868	1461	1231
45°	1806	1327	1084
50°	1742	1192	941
55°	1676	1047	803
60°	1599	896	661
65°	1510	742	595
70°	1403	599	538
75°	1268	528	490
80°	1073	444	426
85°	750	297	321

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2080 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	271.1	1.5
10°-20°	744.3	4.2
20°-30°	1045.0	5.9
30°-40°	1139.2	6.4
40°-50°	1047.0	5.9
50°-60°	822.3	4.6
60°-70°	535.2	3.0
70°-80°	275.5	1.5
80°-90°	77.4	0.4
90°-100°	133.5	0.7
100°-110°	497.8	2.8
110°-120°	1320.3	7.4
120°-130°	2189.8	12.3
130°-140°	2326.1	13.0
140°-150°	2161.8	12.1
150°-160°	1738.1	9.7
160°-170°	1119.9	6.3
170°-180°	385.5	2.2
0°-30°	2060.5	11.6
0°-40°	3199.7	17.9
0°-60°	5068.9	28.4
0°-90°	5957.1	33.4
90°-120°	1951.7	10.9
90°-150°	8629.4	48.4
90°-180°	11873.0	66.6
0°-180°	17830.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2893	2893	2893	2893	2893	
5°	2893	2880	2846	2870	2862	274
15°	2752	2723	2634	2584	2558	775
25°	2498	2414	2241	2134	2094	1149
35°	2152	2019	1788	1623	1566	1347
45°	1760	1584	1309	1123	1060	1359
55°	1338	1134	851	694	644	1195
65°	903	691	456	367	359	896
75°	482	298	209	191	189	509
85°	112	58	50	50	50	129
90°	3	35	58	73	79	17
95°	190	94	114	129	126	225
105°	891	979	179	211	223	952
115°	1685	1735	1808	451	240	1659
125°	2382	2421	2476	2497	2506	2125
135°	2948	2995	3021	3051	3045	2277
145°	3420	3417	3467	3487	3472	2139
155°	3766	3739	3775	3792	3769	1735
165°	3968	3950	3959	3980	3959	1121
175°	4058	4038	4044	4064	4035	386
180°	4050	4050	4050	4050	4050	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2893.1	2893.1	2893.1	2893.1	2893.1
2.5°	2906.1	2893.1	2864.2	2890.6	2885.3
5°	2893.1	2880.0	2845.9	2869.5	2861.7
7.5°	2869.5	2853.9	2817.3	2827.5	2814.5
10°	2838.1	2819.8	2767.5	2759.5	2743.9
12.5°	2798.9	2775.3	2704.5	2688.9	2660.0
15°	2751.7	2722.8	2633.9	2584.2	2558.1
17.5°	2696.7	2654.8	2544.8	2487.2	2445.3
20°	2633.9	2581.4	2450.6	2385.3	2327.5
22.5°	2565.9	2505.6	2353.6	2264.7	2225.6
25°	2497.8	2413.9	2241.1	2133.9	2094.5
27.5°	2416.7	2327.5	2136.4	2013.4	1953.1
30°	2330.3	2230.6	2021.1	1887.8	1817.0
32.5°	2246.4	2125.9	1911.4	1754.2	1688.6
35°	2152.2	2018.6	1788.4	1623.4	1565.6
37.5°	2060.6	1916.4	1673.1	1492.2	1427.0
40°	1963.6	1806.7	1552.5	1366.7	1298.6
42.5°	1864.2	1696.7	1432.2	1238.3	1173.1
45°	1759.5	1583.9	1309.2	1123.1	1060.3
47.5°	1660.0	1474.2	1191.4	1005.3	947.8
50°	1550.0	1364.2	1076.1	895.3	840.6
52.5°	1442.5	1246.1	966.1	793.3	743.6
55°	1337.8	1133.6	850.8	693.9	644.2
57.5°	1230.6	1021.1	748.9	602.2	560.3
60°	1120.6	911.1	641.4	508.1	466.1
62.5°	1013.3	803.9	549.7	424.2	403.3
65°	903.3	691.1	455.6	366.7	358.6
67.5°	798.6	586.4	366.7	321.9	314.2
70°	688.6	484.4	303.6	277.5	266.9
72.5°	583.9	390.0	253.9	233.1	227.8
75°	481.7	298.3	209.4	191.1	188.6
77.5°	379.7	211.9	165.0	154.4	149.2
80°	285.3	151.9	125.6	115.3	115.3
82.5°	198.9	102.2	86.4	81.1	81.1
85°	112.5	57.5	49.7	49.7	49.7
87.5°	41.9	20.8	20.8	18.3	18.3
90°	2.8	35.1	58.5	73.4	79.0
92.5°	73.4	61.6	70.3	76.2	79.0
95°	190.3	93.6	114.1	129.1	126.0
97.5°	342.8	102.7	149.3	158.3	161.1
100°	518.8	117.3	167.0	190.3	196.3
102.5°	712.0	706.4	172.9	205.0	214.0
105°	890.8	978.9	178.9	210.9	222.7
107.5°	1098.9	1172.0	184.8	216.8	228.6
110°	1298.3	1359.6	512.9	219.9	231.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1485.9	1538.4	1488.7	225.5	234.5
115°	1684.9	1734.7	1808.1	451.3	240.5
117.5°	1857.9	1916.4	1966.5	1547.1	779.5
120°	2051.4	2095.2	2148.1	2183.3	1787.6
122.5°	2215.3	2262.3	2321.1	2338.5	2341.6
125°	2382.3	2420.6	2476.3	2496.8	2505.5
127.5°	2534.7	2575.8	2620.0	2649.2	2652.0
130°	2678.4	2725.4	2757.4	2789.8	2787.0
132.5°	2824.9	2863.2	2895.2	2921.7	2918.9
135°	2948.1	2995.1	3021.2	3050.8	3044.9
137.5°	3076.9	3112.0	3141.6	3170.8	3162.1
140°	3202.9	3226.5	3258.5	3285.0	3270.4
142.5°	3308.6	3329.2	3367.1	3390.4	3375.8
145°	3420.0	3416.9	3466.6	3487.2	3472.5
147.5°	3516.4	3507.7	3557.5	3572.1	3560.6
150°	3610.3	3589.8	3636.8	3654.2	3639.6
152.5°	3689.3	3666.0	3709.9	3727.6	3707.1
155°	3765.5	3739.4	3774.6	3792.0	3768.7
157.5°	3827.1	3803.8	3830.3	3850.8	3827.1
160°	3880.0	3862.3	3880.0	3897.4	3876.9
162.5°	3926.7	3909.3	3923.9	3944.4	3918.0
165°	3967.7	3950.3	3959.0	3979.6	3959.0
167.5°	4000.1	3982.3	3991.4	4011.9	3985.5
170°	4026.5	4008.8	4014.7	4035.2	4008.8
172.5°	4043.9	4026.5	4032.5	4053.0	4026.5
175°	4058.5	4038.0	4043.9	4064.5	4035.2
177.5°	4064.5	4043.9	4047.1	4067.6	4041.2
180°	4049.9	4049.9	4049.9	4049.9	4049.9

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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	8.03	8.74	9.12	9.82	11.32	4.00	4.71	5.09	5.80	7.29
	3H	9.70	10.33	10.80	11.43	12.94	5.18	5.82	6.28	6.91	8.42
	4H	10.30	10.90	11.41	12.00	13.51	5.63	6.23	6.74	7.33	8.84
	6H	10.71	11.27	11.84	12.37	13.90	5.94	6.50	7.06	7.60	9.12
	8H	10.84	11.37	11.96	12.48	14.00	6.03	6.56	7.15	7.67	9.19
	12H	10.90	11.40	12.02	12.51	14.05	6.07	6.57	7.20	7.68	9.22
4H	2H	8.03	8.63	9.15	9.73	11.24	4.58	5.18	5.70	6.28	7.80
	3H	9.85	10.35	10.97	11.47	13.00	5.92	6.42	7.05	7.55	9.07
	4H	10.54	11.00	11.67	12.11	13.66	6.47	6.93	7.59	8.04	9.59
	6H	11.05	11.44	12.18	12.58	14.12	6.88	7.27	8.02	8.41	9.95
	8H	11.22	11.59	12.35	12.72	14.27	7.01	7.38	8.14	8.50	10.06
	12H	11.31	11.64	12.46	12.78	14.34	7.07	7.40	8.22	8.54	10.10
8H	4H	10.50	10.86	11.63	11.99	13.55	6.74	7.11	7.87	8.23	9.79
	6H	11.06	11.36	12.21	12.53	14.09	7.25	7.56	8.41	8.73	10.28
	8H	11.28	11.54	12.44	12.69	14.26	7.45	7.71	8.61	8.86	10.43
	12H	11.41	11.64	12.58	12.79	14.40	7.56	7.79	8.73	8.94	10.55
12H	4H	10.44	10.78	11.59	11.92	13.48	6.74	7.07	7.89	8.21	9.77
	6H	11.03	11.30	12.20	12.45	14.02	7.30	7.57	8.46	8.72	10.29
	8H	11.25	11.48	12.42	12.63	14.24	7.51	7.74	8.67	8.89	10.50