

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: P927012

Luminaire Tested: DFN2DIP-HX4F0-070D120US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927012
REPORT IS A COMBINATION OF REPORTS P900969 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D120US830-FLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

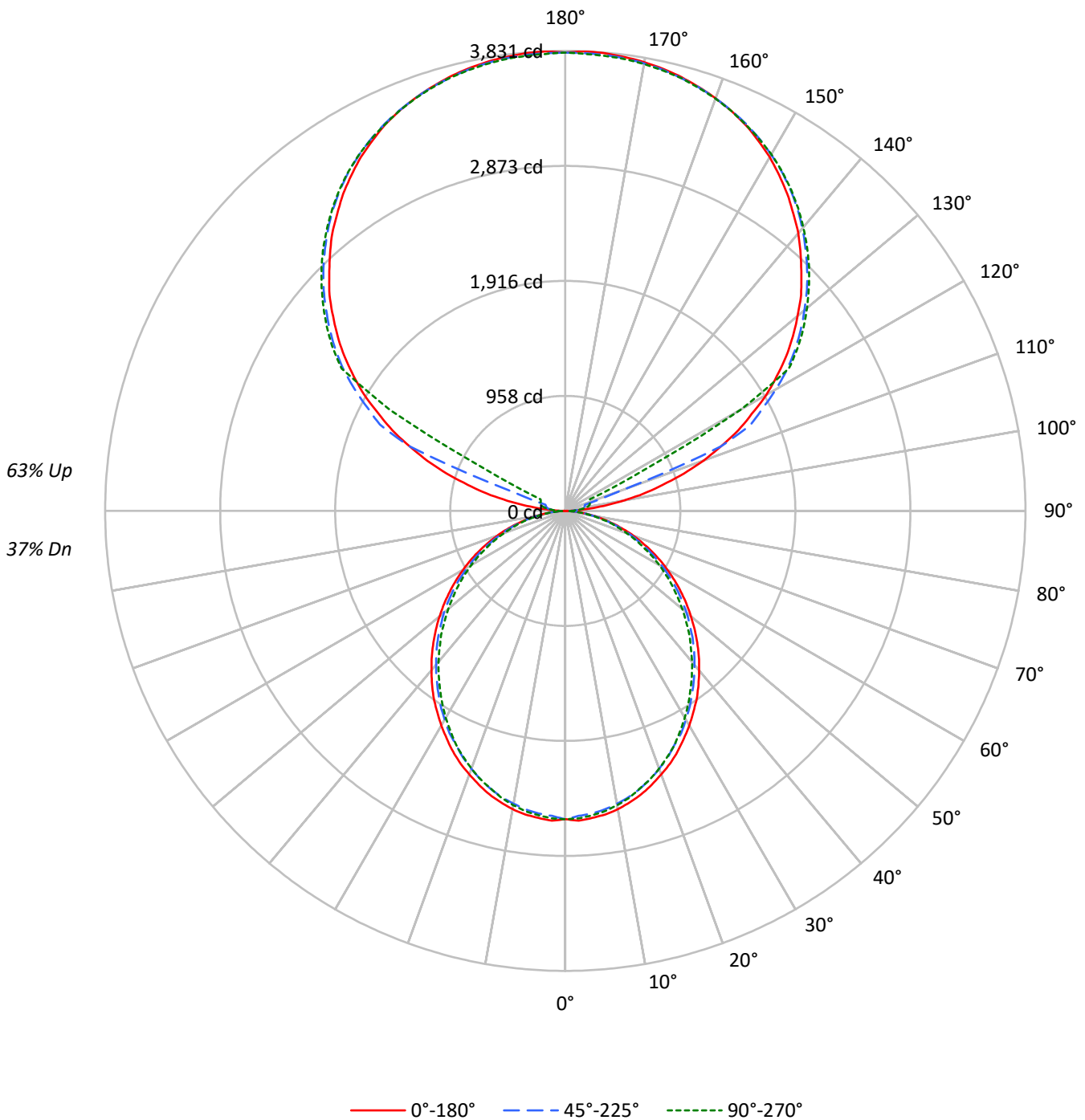
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17728.5 lumens
Efficiency: N/A
Efficacy: 109.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	37				37
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37	31				31
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31	26				26
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27	22				22
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	19				19
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20	16				16
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18	14				14
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16	13				13
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14	11				11
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13	10				10
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1909	1909	1909
5°	1912	1882	1895
10°	1897	1857	1869
15°	1869	1827	1829
20°	1831	1785	1789
25°	1794	1734	1741
30°	1747	1687	1681
35°	1703	1631	1617
40°	1648	1575	1557
45°	1594	1519	1494
50°	1534	1460	1423
55°	1472	1392	1357
60°	1402	1311	1281
65°	1325	1227	1192
70°	1227	1124	1096
75°	1091	1002	1008
80°	928	846	838
85°	674	577	557

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1961 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	1.4
10°-20°	679.8	3.8
20°-30°	999.1	5.6
30°-40°	1160.4	6.5
40°-50°	1158.9	6.5
50°-60°	1010.5	5.7
60°-70°	747.0	4.2
70°-80°	422.7	2.4
80°-90°	118.3	0.7
90°-100°	125.9	0.7
100°-110°	469.2	2.6
110°-120°	1244.4	7.0
120°-130°	2063.9	11.6
130°-140°	2192.3	12.4
140°-150°	2037.5	11.5
150°-160°	1638.1	9.2
160°-170°	1055.6	6.0
170°-180°	363.3	2.0
0°-30°	1920.5	10.8
0°-40°	3080.9	17.4
0°-60°	5250.3	29.6
0°-90°	6538.3	36.9
90°-120°	1839.4	10.4
90°-150°	8133.2	45.9
90°-180°	11190.0	63.1
0°-180°	17728.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2394	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	792	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	3	33	55	69	74	16
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2281	2334	2353	2361	2003
135°	2779	2823	2848	2875	2870	2146
145°	3223	3220	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3731	3751	3731	1057
175°	3825	3806	3811	3831	3803	364
180°	3817	3817	3817	3817	3817	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.1	2567.1	2567.1	2567.1	2567.1
2.5°	2582.1	2569.7	2542.5	2567.1	2562.4
5°	2567.1	2557.5	2530.2	2549.8	2545.1
7.5°	2549.8	2535.1	2507.9	2527.9	2522.9
10°	2522.9	2505.5	2475.9	2495.6	2488.3
12.5°	2485.7	2471.0	2441.5	2453.7	2448.7
15°	2443.8	2429.1	2396.9	2406.9	2394.5
17.5°	2391.9	2377.3	2345.0	2357.4	2345.0
20°	2335.0	2320.4	2285.8	2293.2	2283.5
22.5°	2278.5	2256.3	2224.0	2224.0	2219.0
25°	2211.8	2192.1	2150.2	2154.9	2150.2
27.5°	2137.6	2120.3	2088.4	2081.0	2068.7
30°	2063.8	2043.8	2007.0	1999.6	1989.6
32.5°	1984.6	1970.0	1930.4	1915.5	1905.5
35°	1908.2	1883.6	1844.0	1829.1	1816.8
37.5°	1821.8	1799.5	1759.9	1742.7	1730.3
40°	1733.0	1713.1	1673.5	1651.5	1641.6
42.5°	1646.5	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.5	1498.3	1471.3	1461.3
47.5°	1461.3	1444.1	1404.5	1377.3	1362.7
50°	1365.0	1352.7	1318.1	1283.6	1271.2
52.5°	1271.2	1254.0	1222.0	1194.8	1177.5
55°	1175.1	1160.2	1130.6	1101.0	1088.7
57.5°	1078.8	1066.4	1034.2	1004.6	994.7
60°	982.4	972.7	938.2	910.9	903.6
62.5°	888.6	871.3	846.7	822.1	812.2
65°	792.5	777.6	753.0	730.7	718.4
67.5°	693.8	681.2	659.2	641.9	631.9
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.3	469.1	461.7
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.0	227.0
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.6	168.6	198.8	209.9
107.5°	1035.7	1104.6	174.2	204.3	215.5
110°	1223.6	1281.4	483.4	207.3	218.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1449.9	1403.1	212.5	221.0
115°	1588.0	1635.0	1704.1	425.4	226.7
117.5°	1751.1	1806.2	1853.4	1458.1	734.7
120°	1933.4	1974.7	2024.6	2057.8	1684.8
122.5°	2087.9	2132.2	2187.6	2204.0	2207.0
125°	2245.3	2281.4	2333.9	2353.2	2361.4
127.5°	2389.0	2427.7	2469.4	2496.9	2499.5
130°	2524.4	2568.7	2598.8	2629.4	2626.7
132.5°	2662.5	2698.6	2728.7	2753.7	2751.1
135°	2778.6	2822.9	2847.5	2875.4	2869.8
137.5°	2900.0	2933.1	2961.0	2988.5	2980.3
140°	3018.7	3041.0	3071.1	3096.1	3082.4
142.5°	3118.4	3137.8	3173.5	3195.5	3181.7
145°	3223.4	3220.4	3267.3	3286.7	3272.8
147.5°	3314.2	3306.0	3352.9	3366.7	3355.9
150°	3402.7	3383.4	3427.7	3444.1	3430.3
152.5°	3477.2	3455.2	3496.6	3513.3	3493.9
155°	3549.0	3524.4	3557.6	3574.0	3552.0
157.5°	3607.0	3585.1	3610.1	3629.4	3607.0
160°	3656.9	3640.2	3656.9	3673.3	3654.0
162.5°	3700.9	3684.5	3698.3	3717.6	3692.7
165°	3739.6	3723.2	3731.4	3750.8	3731.4
167.5°	3770.1	3753.3	3761.9	3781.2	3756.3
170°	3795.0	3778.3	3783.9	3803.2	3778.3
172.5°	3811.4	3795.0	3800.6	3820.0	3795.0
175°	3825.1	3805.8	3811.4	3830.8	3803.2
177.5°	3830.8	3811.4	3814.4	3833.7	3808.8
180°	3817.0	3817.0	3817.0	3817.0	3817.0



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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	8.17	8.92	9.23	9.99	11.43	7.74	8.49	8.80	9.56	11.00
	3H	9.82	10.50	10.89	11.57	13.04	9.35	10.02	10.42	11.10	12.56
	4H	10.40	11.05	11.49	12.12	13.59	9.93	10.57	11.01	11.65	13.12
	6H	10.80	11.39	11.89	12.47	13.95	10.32	10.91	11.42	11.99	13.48
	8H	10.90	11.46	12.00	12.56	14.04	10.43	10.99	11.52	12.08	13.56
	12H	10.95	11.48	12.05	12.57	14.07	10.47	11.00	11.57	12.09	13.59
4H	2H	8.62	9.26	9.71	10.33	11.81	8.27	8.91	9.36	9.99	11.46
	3H	10.47	11.01	11.57	12.11	13.60	10.08	10.62	11.18	11.72	13.20
	4H	11.19	11.68	12.29	12.77	14.27	10.78	11.27	11.88	12.36	13.87
	6H	11.70	12.12	12.80	13.23	14.73	11.29	11.71	12.39	12.82	14.32
	8H	11.84	12.24	12.95	13.34	14.86	11.43	11.82	12.54	12.93	14.45
	12H	11.91	12.27	13.04	13.39	14.91	11.49	11.85	12.62	12.97	14.49
8H	4H	11.37	11.77	12.48	12.88	14.39	11.01	11.41	12.12	12.51	14.03
	6H	12.00	12.33	13.13	13.48	14.99	11.64	11.96	12.77	13.11	14.62
	8H	12.22	12.51	13.36	13.64	15.17	11.85	12.14	12.99	13.27	14.80
	12H	12.35	12.60	13.49	13.73	15.29	11.96	12.22	13.11	13.34	14.91
12H	4H	11.35	11.71	12.48	12.83	14.35	11.00	11.36	12.13	12.48	14.00
	6H	12.03	12.32	13.17	13.45	14.98	11.68	11.96	12.82	13.09	14.63
	8H	12.27	12.52	13.41	13.65	15.21	11.91	12.16	13.05	13.29	14.86