

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: P927014

Luminaire Tested: DFN2DIP-HX4F0-070D120US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927014
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-HX4F0-070D120US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

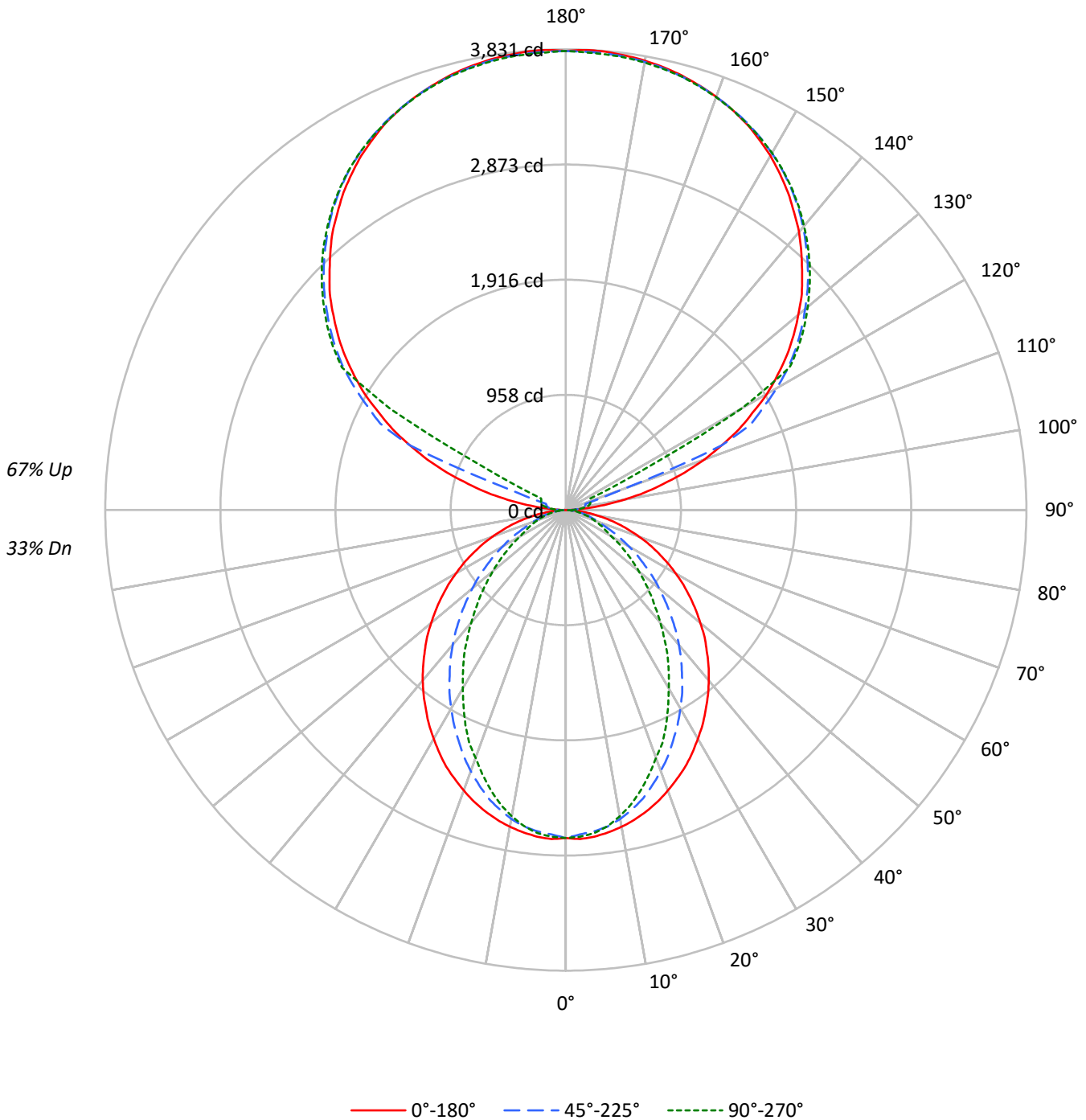
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16804.7 lumens
Efficiency: N/A
Efficacy: 103.6 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

TEST NUMBER: P927014
CATALOG NUMBER: DFN2DIP-HX4F0-070D120US830-RLLONL

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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33				33
1	94	90	87	83	85	82	79	76	65	63	61	50	49	48	37	36	35	29				29
2	86	79	73	69	78	72	67	63	58	54	51	45	42	40	33	31	30	25				25
3	79	70	63	57	71	63	57	53	51	47	43	40	37	35	29	27	26	21				21
4	72	62	54	49	65	56	50	45	45	41	37	36	32	30	26	24	23	19				19
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20	16				16
6	61	50	42	36	55	45	38	34	37	32	28	29	25	23	22	19	18	14				14
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	18	16	13				13
8	52	41	33	28	47	37	31	26	30	26	22	24	21	18	18	16	14	12				12
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13	11				11
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2027	2027	2027
5°	2031	1996	2008
10°	2011	1957	1943
15°	1983	1892	1842
20°	1947	1803	1718
25°	1910	1703	1599
30°	1859	1601	1447
35°	1810	1491	1313
40°	1760	1377	1160
45°	1702	1251	1022
50°	1642	1123	887
55°	1579	987	757
60°	1507	844	623
65°	1423	700	561
70°	1322	564	508
75°	1195	498	462
80°	1011	419	401
85°	707	280	302

MAXIMUM LUMINANCE 45°-90°:

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



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CATALOG NUMBER: DFN2DIP-HX4F0-070D120US830-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.5
10°-20°	701.5	4.2
20°-30°	984.9	5.9
30°-40°	1073.7	6.4
40°-50°	986.8	5.9
50°-60°	775.0	4.6
60°-70°	504.4	3.0
70°-80°	259.7	1.5
80°-90°	73.0	0.4
90°-100°	125.9	0.7
100°-110°	469.2	2.8
110°-120°	1244.4	7.4
120°-130°	2063.9	12.3
130°-140°	2192.3	13.0
140°-150°	2037.5	12.1
150°-160°	1638.1	9.7
160°-170°	1055.6	6.3
170°-180°	363.3	2.2
0°-30°	1942.0	11.6
0°-40°	3015.7	17.9
0°-60°	4777.5	28.4
0°-90°	5614.5	33.4
90°-120°	1839.4	10.9
90°-150°	8133.2	48.4
90°-180°	11190.0	66.6
0°-180°	16804.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2704	2697	259
15°	2594	2566	2482	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1902	1686	1530	1476	1270
45°	1658	1493	1234	1058	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
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	



TEST NUMBER: P927014

CATALOG NUMBER: DFN2DIP-HX4F0-070D120US830-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2726.7	2726.7	2726.7	2726.7	2726.7
2.5°	2739.0	2726.7	2699.5	2724.4	2719.4
5°	2726.7	2714.4	2682.3	2704.5	2697.2
7.5°	2704.5	2689.8	2655.3	2664.9	2652.7
10°	2674.9	2657.7	2608.4	2600.8	2586.1
12.5°	2638.0	2615.7	2549.0	2534.3	2507.0
15°	2593.5	2566.2	2482.5	2435.6	2411.0
17.5°	2541.6	2502.1	2398.5	2344.2	2304.7
20°	2482.5	2433.0	2309.7	2248.1	2193.7
22.5°	2418.4	2361.5	2218.3	2134.5	2097.6
25°	2354.2	2275.1	2112.2	2011.2	1974.1
27.5°	2277.7	2193.7	2013.6	1897.6	1840.8
30°	2196.3	2102.3	1904.9	1779.3	1712.5
32.5°	2117.2	2003.7	1801.5	1653.3	1591.5
35°	2028.4	1902.5	1685.6	1530.1	1475.6
37.5°	1942.1	1806.2	1576.9	1406.4	1344.9
40°	1850.7	1702.8	1463.2	1288.1	1223.9
42.5°	1757.0	1599.1	1349.8	1167.1	1105.6
45°	1658.3	1492.8	1233.9	1058.5	999.3
47.5°	1564.6	1389.4	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.2	843.8	792.3
52.5°	1359.6	1174.4	910.5	747.7	700.8
55°	1260.9	1068.4	801.9	654.0	607.2
57.5°	1159.8	962.4	705.8	567.6	528.1
60°	1056.2	858.7	604.5	478.9	439.3
62.5°	955.0	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.5	286.1	261.5	251.6
72.5°	550.3	367.6	239.3	219.7	214.7
75°	454.0	281.1	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
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



TEST NUMBER: P927014

CATALOG NUMBER: DFN2DIP-HX4F0-070D120US830-RLONL

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	7.82	8.53	8.91	9.62	11.11	3.79	4.50	4.89	5.59	7.08
	3H	9.49	10.12	10.59	11.22	12.73	4.97	5.61	6.08	6.71	8.22
	4H	10.09	10.70	11.20	11.79	13.31	5.42	6.02	6.53	7.12	8.64
	6H	10.51	11.06	11.63	12.16	13.69	5.74	6.29	6.86	7.39	8.92
	8H	10.63	11.16	11.76	12.28	13.80	5.83	6.35	6.95	7.47	8.99
	12H	10.69	11.19	11.82	12.30	13.84	5.87	6.37	6.99	7.47	9.02
4H	2H	7.82	8.43	8.94	9.52	11.04	4.37	4.98	5.49	6.07	7.59
	3H	9.64	10.14	10.77	11.27	12.80	5.72	6.22	6.84	7.34	8.87
	4H	10.33	10.79	11.46	11.90	13.45	6.26	6.72	7.39	7.83	9.38
	6H	10.84	11.24	11.98	12.37	13.91	6.67	7.07	7.81	8.21	9.75
	8H	11.01	11.38	12.15	12.51	14.07	6.80	7.17	7.94	8.30	9.85
	12H	11.10	11.44	12.26	12.58	14.14	6.86	7.20	8.01	8.34	9.90
8H	4H	10.29	10.66	11.43	11.79	13.34	6.53	6.90	7.67	8.03	9.58
	6H	10.85	11.16	12.01	12.33	13.88	7.05	7.35	8.20	8.52	10.07
	8H	11.07	11.34	12.23	12.49	14.06	7.24	7.51	8.40	8.66	10.23
	12H	11.20	11.44	12.37	12.58	14.19	7.36	7.59	8.52	8.73	10.34
12H	4H	10.24	10.57	11.39	11.71	13.27	6.53	6.86	7.68	8.00	9.57
	6H	10.83	11.09	11.99	12.24	13.82	7.10	7.36	8.26	8.51	10.09
	8H	11.04	11.28	12.21	12.42	14.03	7.30	7.54	8.47	8.68	10.29