

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: P927136

Luminaire Tested: DFN2DIP-HX4F0-110D070US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927136
REPORT IS A COMBINATION OF REPORTS P900887 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D070US830-FLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

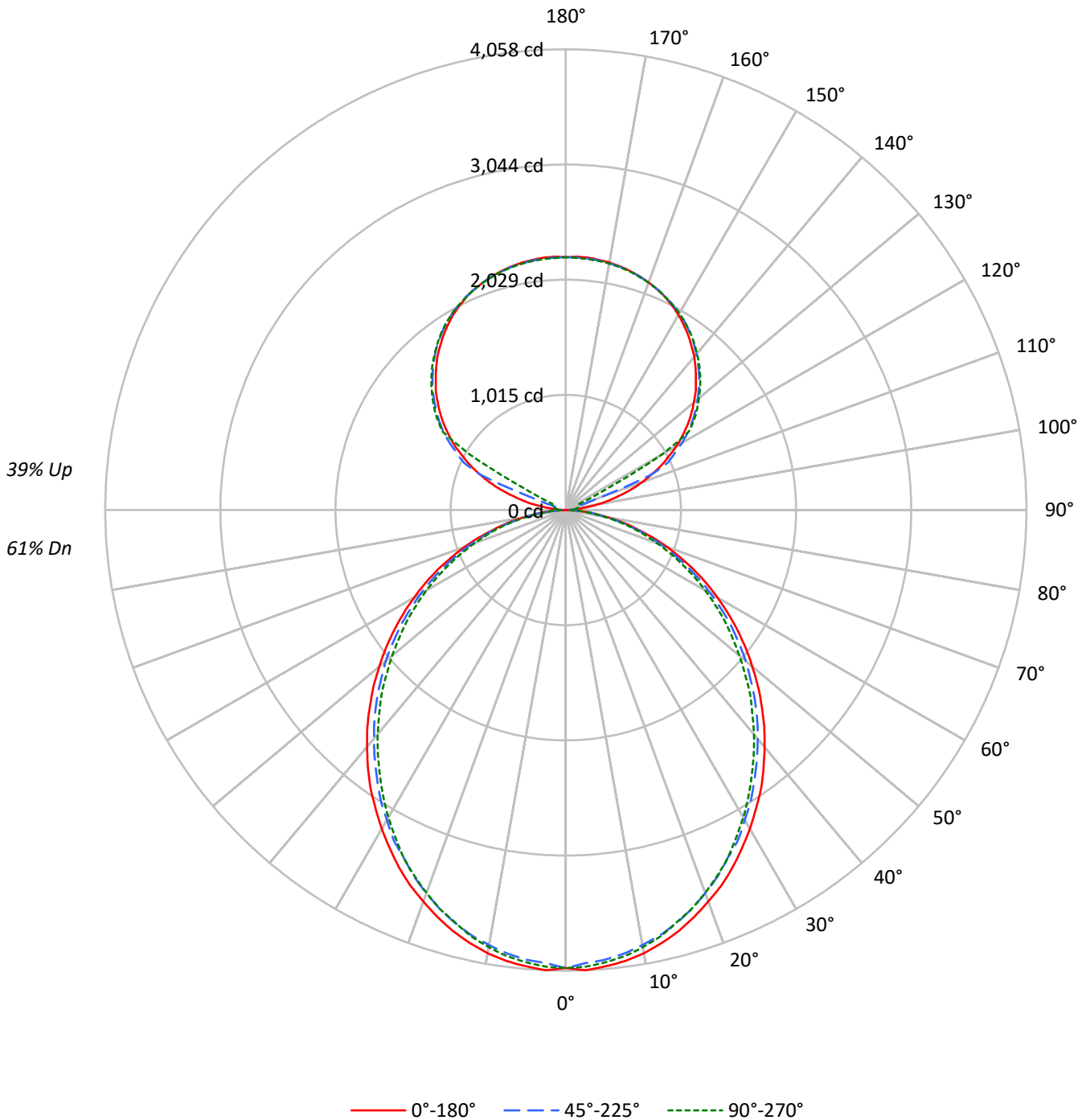
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16795.3 lumens
Efficiency: N/A
Efficacy: 102.2 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-Direct

Input Watts (W): 164.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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			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	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66	66	66	66	61
1	100	96	92	88	94	90	86	83	79	76	74	68	66	65	59	57	56	56	56	56	52
2	91	84	77	72	85	79	73	68	69	65	61	60	57	54	52	49	47	47	47	47	43
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40	40	40	40	37
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35	35	35	35	31
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30	30	30	30	27
6	65	52	44	38	60	49	42	36	44	38	33	38	34	30	34	30	27	27	27	27	24
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	31	27	24	24	24	24	21
8	56	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21	21	21	21	19
9	52	39	32	27	48	37	30	25	33	27	23	30	25	21	26	22	19	19	19	19	17
10	48	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18	18	18	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3000	3000	3000
5°	3005	2958	2978
10°	2980	2919	2938
15°	2937	2871	2875
20°	2878	2804	2811
25°	2819	2725	2736
30°	2746	2651	2641
35°	2676	2563	2541
40°	2590	2475	2446
45°	2505	2387	2349
50°	2411	2294	2236
55°	2313	2187	2132
60°	2202	2059	2013
65°	2082	1928	1873
70°	1928	1767	1722
75°	1715	1575	1583
80°	1459	1330	1317
85°	1059	906	876

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2505 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.3
10°-20°	1068.3	6.4
20°-30°	1570.0	9.3
30°-40°	1823.4	10.9
40°-50°	1821.2	10.8
50°-60°	1588.0	9.5
60°-70°	1173.9	7.0
70°-80°	664.1	4.0
80°-90°	179.2	1.1
90°-100°	73.4	0.4
100°-110°	273.7	1.6
110°-120°	725.9	4.3
120°-130°	1203.9	7.2
130°-140°	1278.9	7.6
140°-150°	1188.6	7.1
150°-160°	955.6	5.7
160°-170°	615.7	3.7
170°-180°	211.9	1.3
0°-30°	3017.9	18.0
0°-40°	4841.4	28.8
0°-60°	8250.5	49.1
0°-90°	10267.7	61.1
90°-120°	1073.0	6.4
90°-150°	4744.3	28.2
90°-180°	6528.0	38.9
0°-180°	16795.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3766	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1872
45°	2440	2413	2354	2312	2296	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	695
85°	159	155	152	140	136	177
90°	2	19	32	40	43	16
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1361	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2181	2172	2177	2188	2177	616
175°	2231	2220	2223	2235	2219	212
180°	2227	2227	2227	2227	2227	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.1	4034.1	4034.1	4034.1	4034.1
2.5°	4057.5	4038.1	3995.4	4034.1	4026.6
5°	4034.1	4018.8	3976.0	4006.9	3999.5
7.5°	4006.9	3983.9	3941.1	3972.4	3964.5
10°	3964.5	3937.3	3890.8	3921.6	3910.1
12.5°	3906.1	3883.0	3836.5	3855.9	3848.0
15°	3840.2	3817.1	3766.5	3782.2	3762.8
17.5°	3758.7	3735.7	3685.1	3704.4	3685.1
20°	3669.4	3646.3	3592.1	3603.6	3588.4
22.5°	3580.6	3545.5	3494.9	3494.9	3487.1
25°	3475.6	3444.7	3378.9	3386.3	3378.9
27.5°	3359.1	3331.9	3281.7	3270.2	3250.9
30°	3243.0	3211.8	3153.7	3142.2	3126.6
32.5°	3118.7	3095.7	3033.5	3010.1	2994.4
35°	2998.6	2959.9	2897.7	2874.2	2854.9
37.5°	2862.7	2827.8	2765.7	2738.4	2719.1
40°	2723.3	2692.0	2629.9	2595.3	2579.6
42.5°	2587.4	2556.2	2494.4	2455.3	2432.3
45°	2440.1	2412.9	2354.5	2312.1	2296.5
47.5°	2296.5	2269.4	2207.1	2164.4	2141.3
50°	2145.0	2125.7	2071.3	2017.0	1997.7
52.5°	1997.7	1970.5	1920.3	1877.5	1850.3
55°	1846.6	1823.2	1776.7	1730.1	1710.8
57.5°	1695.2	1675.9	1625.2	1578.7	1563.0
60°	1543.7	1528.5	1474.2	1431.4	1419.9
62.5°	1396.4	1369.3	1330.5	1291.9	1276.2
65°	1245.3	1221.9	1183.2	1148.2	1128.9
67.5°	1090.2	1070.5	1035.9	1008.8	993.1
70°	946.6	930.9	895.9	868.8	853.5
72.5°	799.2	783.6	764.3	737.1	725.5
75°	651.5	644.1	624.3	601.3	609.1
77.5°	519.8	504.1	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
90°	1.5	19.3	32.1	40.3	43.4
92.5°	40.3	33.8	38.6	41.9	43.4
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.1	644.4	101.6	119.2	125.7
110°	713.8	747.5	282.0	120.9	127.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.7	994.1	248.2	132.2
117.5°	1021.5	1053.6	1081.1	850.6	428.6
120°	1127.8	1151.9	1181.0	1200.4	982.8
122.5°	1217.9	1243.7	1276.1	1285.7	1287.4
125°	1309.8	1330.8	1361.4	1372.8	1377.5
127.5°	1393.6	1416.1	1440.4	1456.5	1458.0
130°	1472.6	1498.4	1516.0	1533.8	1532.3
132.5°	1553.1	1574.2	1591.8	1606.3	1604.8
135°	1620.8	1646.6	1661.1	1677.3	1674.1
137.5°	1691.6	1711.0	1727.2	1743.3	1738.5
140°	1760.9	1773.9	1791.5	1806.0	1798.0
142.5°	1819.0	1830.3	1851.2	1864.0	1856.0
145°	1880.3	1878.6	1905.9	1917.2	1909.2
147.5°	1933.3	1928.5	1955.9	1963.9	1957.6
150°	1984.9	1973.7	1999.5	2009.0	2001.0
152.5°	2028.4	2015.5	2039.7	2049.4	2038.2
155°	2070.3	2055.9	2075.2	2084.8	2072.0
157.5°	2104.1	2091.3	2105.8	2117.1	2104.1
160°	2133.3	2123.5	2133.3	2142.8	2131.5
162.5°	2158.9	2149.3	2157.3	2168.6	2154.1
165°	2181.4	2171.9	2176.6	2187.9	2176.6
167.5°	2199.2	2189.4	2194.4	2205.7	2191.2
170°	2213.7	2204.0	2207.2	2218.6	2204.0
172.5°	2223.4	2213.7	2217.0	2228.3	2213.7
175°	2231.4	2220.1	2223.4	2234.6	2218.6
177.5°	2234.6	2223.4	2225.1	2236.4	2221.8
180°	2226.6	2226.6	2226.6	2226.6	2226.6



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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	12.06	13.03	12.91	13.91	15.01	11.63	12.60	12.48	13.47	14.58
	3H	13.73	14.60	14.59	15.49	16.61	13.25	14.13	14.12	15.01	16.14
	4H	14.32	15.14	15.20	16.04	17.18	13.85	14.67	14.73	15.56	16.70
	6H	14.73	15.49	15.62	16.39	17.54	14.25	15.01	15.15	15.91	17.06
	8H	14.83	15.56	15.74	16.48	17.63	14.36	15.08	15.26	16.00	17.15
	12H	14.89	15.58	15.80	16.49	17.67	14.41	15.10	15.32	16.01	17.18
4H	2H	12.53	13.36	13.42	14.25	15.39	12.19	13.01	13.08	13.90	15.04
	3H	14.41	15.10	15.31	16.02	17.18	14.02	14.70	14.92	15.63	16.78
	4H	15.13	15.76	16.04	16.68	17.86	14.72	15.35	15.63	16.27	17.45
	6H	15.65	16.19	16.58	17.14	18.32	15.24	15.78	16.17	16.73	17.91
	8H	15.80	16.31	16.73	17.25	18.44	15.39	15.90	16.32	16.84	18.03
	12H	15.88	16.34	16.83	17.30	18.50	15.46	15.92	16.41	16.87	18.07
8H	4H	15.34	15.84	16.26	16.78	17.98	14.98	15.48	15.90	16.42	17.61
	6H	15.97	16.39	16.93	17.37	18.57	15.61	16.03	16.56	17.01	18.20
	8H	16.20	16.57	17.16	17.54	18.75	15.83	16.20	16.79	17.17	18.38
	12H	16.33	16.66	17.30	17.62	18.88	15.95	16.27	16.92	17.24	18.50
12H	4H	15.33	15.78	16.27	16.74	17.94	14.97	15.43	15.92	16.39	17.59
	6H	16.00	16.38	16.97	17.35	18.56	15.65	16.02	16.62	16.99	18.21
	8H	16.25	16.58	17.22	17.54	18.80	15.89	16.22	16.86	17.18	18.45