

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: P927618

Luminaire Tested: DFN2DIP-HX4F0-060D100US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927618
REPORT IS A COMBINATION OF REPORTS P900932 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D100US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

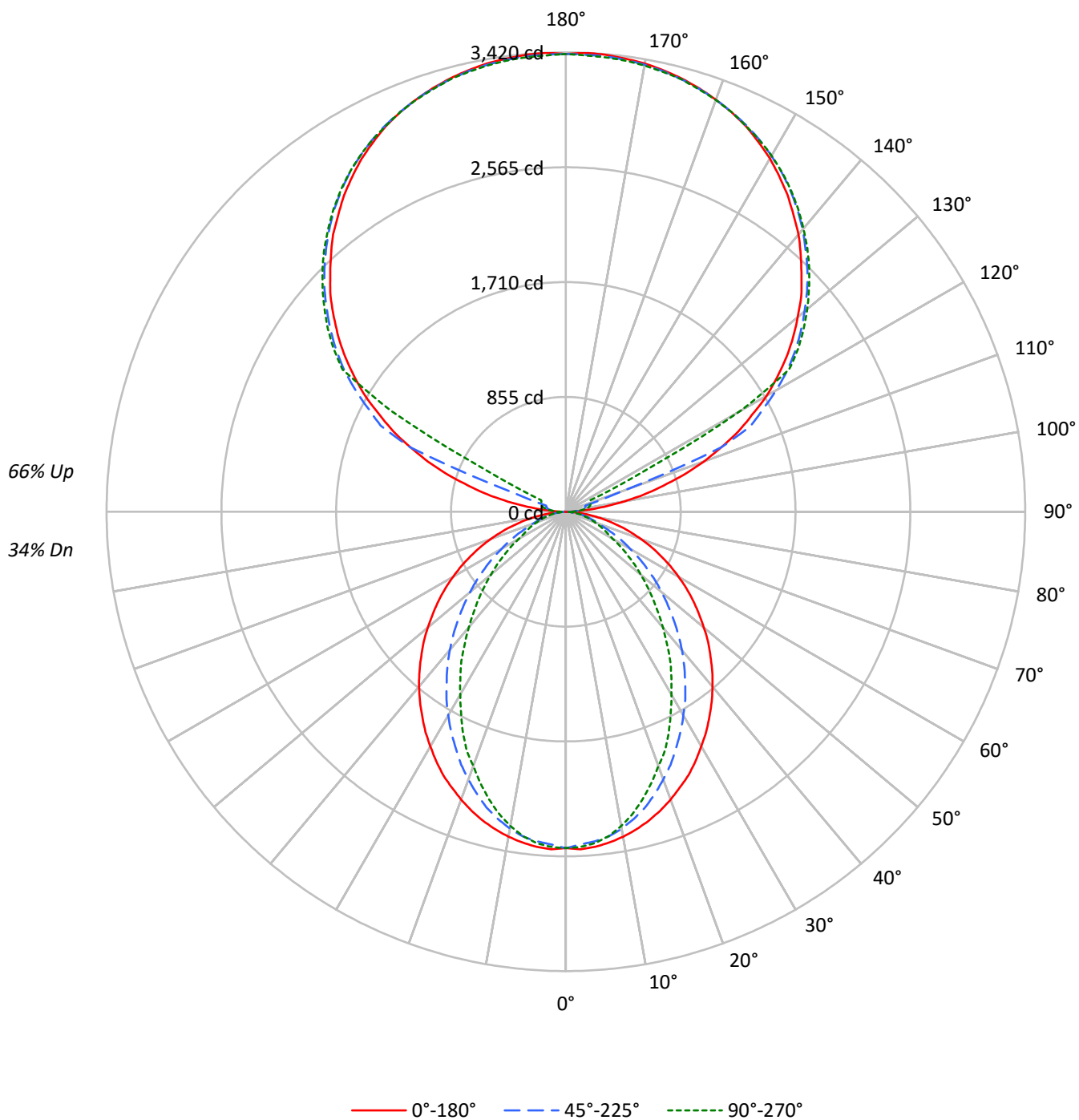
Lumens per Lamp: N/A
Luminaire Lumens: 15147.1 lumens
Efficiency: N/A
Efficacy: 116.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 130.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	95	90	87	83	85	82	79	76	66	64	62	51	49	48	37	36	36
2	86	79	74	69	78	72	67	63	58	54	52	45	43	41	33	32	30
3	79	70	63	58	71	63	58	53	51	47	44	40	37	35	30	28	26
4	72	62	55	49	65	56	50	45	46	41	37	36	33	30	27	25	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	39	34	37	32	28	29	26	23	22	20	18
7	57	45	37	32	51	41	34	30	34	29	25	27	23	20	20	18	16
8	52	41	33	28	47	37	31	26	31	26	22	24	21	18	19	16	14
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13
10	46	34	27	22	41	31	25	21	26	21	18	21	17	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1862	1862	1862
5°	1865	1833	1844
10°	1847	1797	1784
15°	1821	1738	1692
20°	1788	1656	1578
25°	1754	1564	1468
30°	1708	1470	1329
35°	1663	1369	1206
40°	1617	1265	1066
45°	1563	1149	939
50°	1508	1032	814
55°	1450	906	695
60°	1384	776	572
65°	1307	642	515
70°	1214	518	466
75°	1098	457	424
80°	928	384	368
85°	649	257	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1748 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	1.5
10°-20°	644.3	4.3
20°-30°	904.5	6.0
30°-40°	986.0	6.5
40°-50°	906.2	6.0
50°-60°	711.7	4.7
60°-70°	463.3	3.1
70°-80°	238.5	1.6
80°-90°	66.9	0.4
90°-100°	112.4	0.7
100°-110°	418.9	2.8
110°-120°	1111.0	7.3
120°-130°	1842.7	12.2
130°-140°	1957.4	12.9
140°-150°	1819.2	12.0
150°-160°	1462.6	9.7
160°-170°	942.4	6.2
170°-180°	324.4	2.1
0°-30°	1783.5	11.8
0°-40°	2769.5	18.3
0°-60°	4387.4	29.0
0°-90°	5156.0	34.0
90°-120°	1642.3	10.8
90°-150°	7261.7	47.9
90°-180°	9991.0	66.0
0°-180°	15147.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2089	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	2	30	49	62	66	14
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2875	2917	2934	2922	1800
155°	3169	3147	3176	3191	3171	1460
165°	3339	3324	3332	3349	3332	943
175°	3415	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.1	2504.1	2504.1	2504.1	2504.1
2.5°	2515.4	2504.1	2479.1	2501.9	2497.3
5°	2504.1	2492.8	2463.2	2483.7	2476.9
7.5°	2483.7	2470.2	2438.5	2447.4	2436.0
10°	2456.4	2440.6	2395.4	2388.5	2374.9
12.5°	2422.6	2402.1	2340.8	2327.4	2302.3
15°	2381.7	2356.7	2279.7	2236.7	2214.1
17.5°	2334.2	2297.8	2202.6	2152.8	2116.5
20°	2279.7	2234.3	2121.1	2064.5	2014.6
22.5°	2220.9	2168.6	2037.2	1960.2	1926.3
25°	2162.0	2089.4	1939.8	1847.0	1812.9
27.5°	2091.8	2014.6	1849.1	1742.6	1690.5
30°	2017.0	1930.6	1749.4	1634.0	1572.7
32.5°	1944.4	1840.1	1654.5	1518.3	1461.6
35°	1862.9	1747.3	1547.9	1405.0	1355.1
37.5°	1783.5	1658.7	1448.2	1291.6	1235.1
40°	1699.6	1563.8	1343.7	1182.9	1124.0
42.5°	1613.6	1468.6	1239.6	1071.8	1015.4
45°	1522.9	1370.9	1133.2	972.0	917.7
47.5°	1436.8	1276.0	1031.2	870.1	820.4
50°	1341.6	1180.8	931.4	774.9	727.6
52.5°	1248.5	1078.6	836.2	686.7	643.6
55°	1157.9	981.2	736.4	600.6	557.5
57.5°	1065.1	883.8	648.2	521.3	484.9
60°	969.9	788.7	555.2	439.8	403.4
62.5°	877.1	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.3	317.4	310.4
67.5°	691.2	507.5	317.4	278.7	271.9
70°	596.0	419.3	262.7	240.2	231.0
72.5°	505.4	337.6	219.7	201.8	197.1
75°	416.9	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.3	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.6	98.7	140.6	160.2	165.2
102.5°	599.1	594.5	145.5	172.5	180.0
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.5	1144.1	431.6	185.1	194.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.3	1294.6	1252.8	189.7	197.4
115°	1417.9	1459.8	1521.6	379.8	202.4
117.5°	1563.4	1612.7	1654.8	1301.9	656.0
120°	1726.3	1763.1	1807.6	1837.2	1504.3
122.5°	1864.2	1903.7	1953.2	1967.8	1970.4
125°	2004.8	2037.0	2083.8	2101.1	2108.4
127.5°	2133.0	2167.5	2204.7	2229.3	2231.7
130°	2253.9	2293.5	2320.4	2347.6	2345.3
132.5°	2377.2	2409.4	2436.3	2458.6	2456.2
135°	2480.9	2520.4	2542.4	2567.2	2562.3
137.5°	2589.2	2618.8	2643.7	2668.3	2660.9
140°	2695.2	2715.2	2742.0	2764.3	2752.0
142.5°	2784.2	2801.5	2833.4	2853.0	2840.8
145°	2877.9	2875.3	2917.2	2934.5	2922.2
147.5°	2959.0	2951.7	2993.6	3005.9	2996.3
150°	3038.1	3020.8	3060.4	3075.0	3062.7
152.5°	3104.5	3084.9	3121.9	3136.7	3119.5
155°	3168.8	3146.7	3176.3	3191.0	3171.4
157.5°	3220.6	3201.0	3223.2	3240.4	3220.6
160°	3265.1	3250.1	3265.1	3279.7	3262.5
162.5°	3304.3	3289.6	3301.9	3319.2	3297.0
165°	3338.8	3324.2	3331.5	3348.8	3331.5
167.5°	3366.1	3351.1	3358.8	3376.1	3353.7
170°	3388.3	3373.4	3378.4	3395.7	3373.4
172.5°	3402.9	3388.3	3393.3	3410.6	3388.3
175°	3415.2	3398.0	3402.9	3420.3	3395.7
177.5°	3420.3	3402.9	3405.7	3422.9	3400.6
180°	3408.0	3408.0	3408.0	3408.0	3408.0

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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	7.60	8.32	8.69	9.40	10.89	3.58	4.29	4.66	5.37	6.86
	3H	9.27	9.91	10.37	11.00	12.51	4.76	5.40	5.85	6.49	7.99
	4H	9.88	10.48	10.98	11.58	13.08	5.20	5.81	6.31	6.90	8.41
	6H	10.29	10.85	11.41	11.95	13.47	5.52	6.08	6.64	7.17	8.69
	8H	10.42	10.95	11.54	12.06	13.57	5.61	6.14	6.73	7.25	8.76
	12H	10.47	10.98	11.60	12.08	13.62	5.65	6.15	6.77	7.26	8.79
4H	2H	7.61	8.21	8.72	9.31	10.81	4.16	4.76	5.27	5.86	7.37
	3H	9.43	9.93	10.55	11.05	12.57	5.50	6.00	6.62	7.12	8.64
	4H	10.11	10.58	11.24	11.69	13.23	6.04	6.51	7.17	7.62	9.16
	6H	10.62	11.02	11.76	12.15	13.69	6.46	6.86	7.59	7.99	9.52
	8H	10.80	11.17	11.93	12.29	13.84	6.59	6.96	7.72	8.08	9.63
	12H	10.89	11.22	12.04	12.36	13.91	6.65	6.98	7.80	8.12	9.67
8H	4H	10.07	10.44	11.21	11.57	13.12	6.32	6.69	7.45	7.81	9.36
	6H	10.64	10.94	11.79	12.11	13.65	6.83	7.14	7.98	8.30	9.85
	8H	10.85	11.12	12.01	12.27	13.83	7.03	7.29	8.18	8.44	10.00
	12H	10.99	11.22	12.15	12.37	13.97	7.14	7.37	8.30	8.52	10.12
12H	4H	10.02	10.36	11.17	11.49	13.05	6.32	6.65	7.46	7.79	9.34
	6H	10.61	10.88	11.77	12.03	13.59	6.88	7.15	8.04	8.30	9.86
	8H	10.83	11.06	11.99	12.21	13.81	7.09	7.32	8.25	8.47	10.07

END OF REPORT