

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: P927174

Luminaire Tested: DFN2DIP-HX4F0-120D070US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927174
REPORT IS A COMBINATION OF REPORTS P900890 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D070US830-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

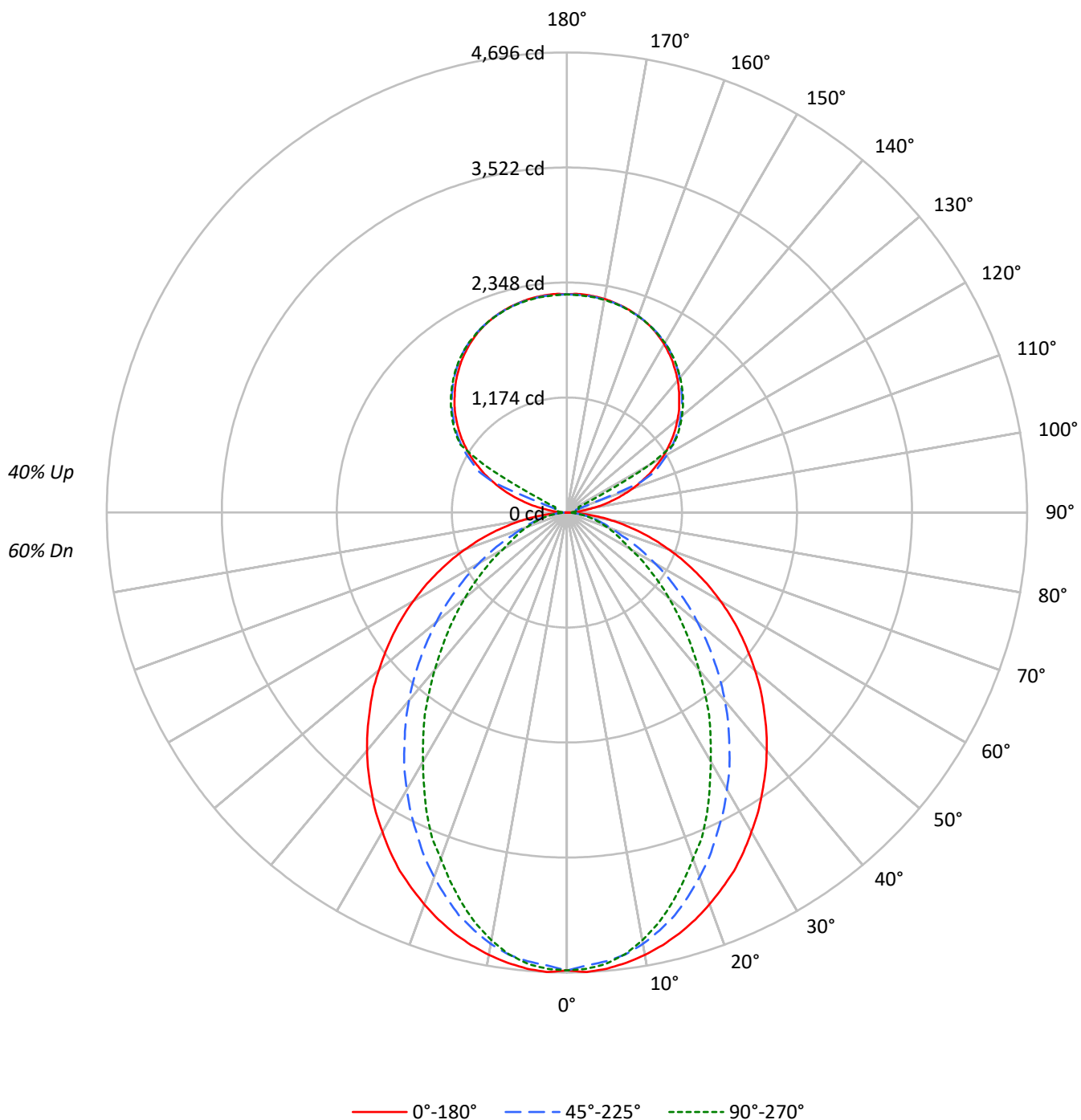
Lumens per Lamp: N/A
Luminaire Lumens: 16145.0 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 178.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	109	109	109	109	102	102	102	102	89	89	89	76	76	76	65	65	65
1	101	96	93	89	94	90	87	84	79	76	74	68	66	65	58	57	56
2	92	85	79	74	86	80	74	70	70	66	62	60	58	55	52	50	48
3	84	75	68	62	79	71	64	59	62	57	53	54	50	47	47	44	42
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	67	56	49	44	50	44	40	44	39	36	38	35	32
6	66	54	46	40	62	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	26
8	57	45	37	32	53	42	35	31	38	32	28	34	29	26	30	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3476	3476	3476
5°	3482	3421	3443
10°	3447	3354	3331
15°	3400	3244	3158
20°	3338	3091	2945
25°	3274	2920	2740
30°	3188	2745	2480
35°	3103	2556	2252
40°	3018	2361	1989
45°	2918	2144	1752
50°	2815	1926	1520
55°	2708	1692	1297
60°	2583	1448	1068
65°	2440	1199	961
70°	2267	968	870
75°	2049	854	792
80°	1734	717	687
85°	1212	480	518

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2918 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	2.7
10°-20°	1202.7	7.4
20°-30°	1688.5	10.5
30°-40°	1840.5	11.4
40°-50°	1691.7	10.5
50°-60°	1328.5	8.2
60°-70°	864.8	5.4
70°-80°	445.1	2.8
80°-90°	117.5	0.7
90°-100°	73.4	0.5
100°-110°	273.7	1.7
110°-120°	725.9	4.5
120°-130°	1203.9	7.5
130°-140°	1278.9	7.9
140°-150°	1188.6	7.4
150°-160°	955.6	5.9
160°-170°	615.7	3.8
170°-180°	211.9	1.3
0°-30°	3329.2	20.6
0°-40°	5169.8	32.0
0°-60°	8190.0	50.7
0°-90°	9617.4	59.6
90°-120°	1073.0	6.6
90°-150°	4744.3	29.4
90°-180°	6528.0	40.4
0°-180°	16145.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4674	4674	4674	4674	4674	
5°	4674	4653	4598	4636	4624	443
15°	4446	4399	4256	4175	4133	1253
25°	4036	3900	3621	3448	3384	1856
35°	3477	3262	2889	2623	2530	2177
45°	2843	2559	2115	1815	1713	2195
55°	2162	1832	1375	1121	1041	1931
65°	1460	1117	736	592	579	1447
75°	778	482	338	309	305	823
85°	182	93	80	80	80	209
90°	2	19	32	40	43	15
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°	4674.4	4674.4	4674.4	4674.4	4674.4
2.5°	4695.5	4674.4	4627.8	4670.4	4661.8
5°	4674.4	4653.3	4598.1	4636.3	4623.7
7.5°	4636.3	4611.1	4551.9	4568.5	4547.4
10°	4585.5	4556.0	4471.5	4458.5	4433.4
12.5°	4522.2	4484.1	4369.6	4344.5	4297.9
15°	4446.0	4399.3	4255.7	4175.3	4133.1
17.5°	4357.1	4289.3	4111.6	4018.7	3951.0
20°	4255.7	4170.8	3959.4	3854.0	3760.6
22.5°	4145.7	4048.3	3802.8	3659.2	3595.9
25°	4035.8	3900.2	3621.0	3447.8	3384.0
27.5°	3904.7	3760.6	3451.8	3253.0	3155.6
30°	3765.1	3604.0	3265.6	3050.1	2935.7
32.5°	3629.6	3434.8	3088.3	2834.3	2728.3
35°	3477.4	3261.5	2889.4	2622.9	2529.5
37.5°	3329.3	3096.4	2703.2	2411.0	2305.5
40°	3172.6	2919.1	2508.5	2208.2	2098.2
42.5°	3011.9	2741.4	2314.1	2000.8	1895.4
45°	2842.8	2559.2	2115.3	1814.6	1713.1
47.5°	2682.1	2381.9	1925.0	1624.3	1531.4
50°	2504.4	2204.1	1738.7	1446.5	1358.1
52.5°	2330.7	2013.4	1561.0	1281.8	1201.5
55°	2161.5	1831.7	1374.7	1121.1	1040.8
57.5°	1988.2	1649.8	1210.0	973.0	905.3
60°	1810.5	1472.1	1036.3	820.9	753.2
62.5°	1637.3	1298.9	888.2	685.4	651.6
65°	1459.6	1116.7	736.1	592.5	579.4
67.5°	1290.4	947.4	592.5	520.2	507.6
70°	1112.6	782.7	490.6	448.3	431.3
72.5°	943.4	630.2	410.2	376.5	368.0
75°	778.2	482.0	338.5	308.8	304.7
77.5°	613.6	342.4	266.6	249.6	241.0
80°	461.0	245.5	202.8	186.2	186.2
82.5°	321.4	165.1	139.6	131.0	131.0
85°	181.8	92.9	80.3	80.3	80.3
87.5°	67.8	33.6	33.6	29.6	29.6
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	12.33	13.24	13.20	14.13	15.26	8.30	9.21	9.18	10.11	11.24
	3H	14.01	14.83	14.90	15.73	16.89	9.50	10.31	10.39	11.22	12.37
	4H	14.62	15.40	15.53	16.30	17.47	9.95	10.72	10.86	11.63	12.80
	6H	15.05	15.76	15.97	16.68	17.86	10.28	10.99	11.20	11.90	13.08
	8H	15.18	15.86	16.10	16.79	17.97	10.37	11.05	11.30	11.98	13.16
	12H	15.24	15.89	16.17	16.81	18.02	10.42	11.06	11.35	11.99	13.19
4H	2H	12.35	13.13	13.27	14.04	15.20	8.91	9.68	9.82	10.59	11.75
	3H	14.19	14.83	15.11	15.77	16.96	10.26	10.91	11.19	11.85	13.03
	4H	14.89	15.47	15.82	16.41	17.62	10.82	11.40	11.75	12.34	13.54
	6H	15.41	15.91	16.36	16.87	18.08	11.24	11.75	12.19	12.71	13.91
	8H	15.59	16.06	16.53	17.01	18.23	11.37	11.84	12.32	12.80	14.02
	12H	15.69	16.11	16.65	17.08	18.31	11.44	11.87	12.41	12.84	14.06
8H	4H	14.86	15.33	15.81	16.29	17.51	11.10	11.57	12.05	12.53	13.75
	6H	15.43	15.82	16.41	16.82	18.04	11.63	12.02	12.60	13.01	14.23
	8H	15.65	15.99	16.63	16.98	18.22	11.82	12.16	12.80	13.15	14.39
	12H	15.79	16.10	16.78	17.07	18.36	11.95	12.25	12.93	13.22	14.51
12H	4H	14.82	15.24	15.79	16.21	17.44	11.11	11.54	12.08	12.51	13.73
	6H	15.41	15.75	16.39	16.74	17.97	11.68	12.02	12.66	13.01	14.24
	8H	15.63	15.94	16.62	16.91	18.20	11.89	12.20	12.88	13.17	14.46