

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: P910913

Luminaire Tested: DFN2DIP-HX4F0-060D070US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910913
REPORT IS A COMBINATION OF REPORTS P899358 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D070US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

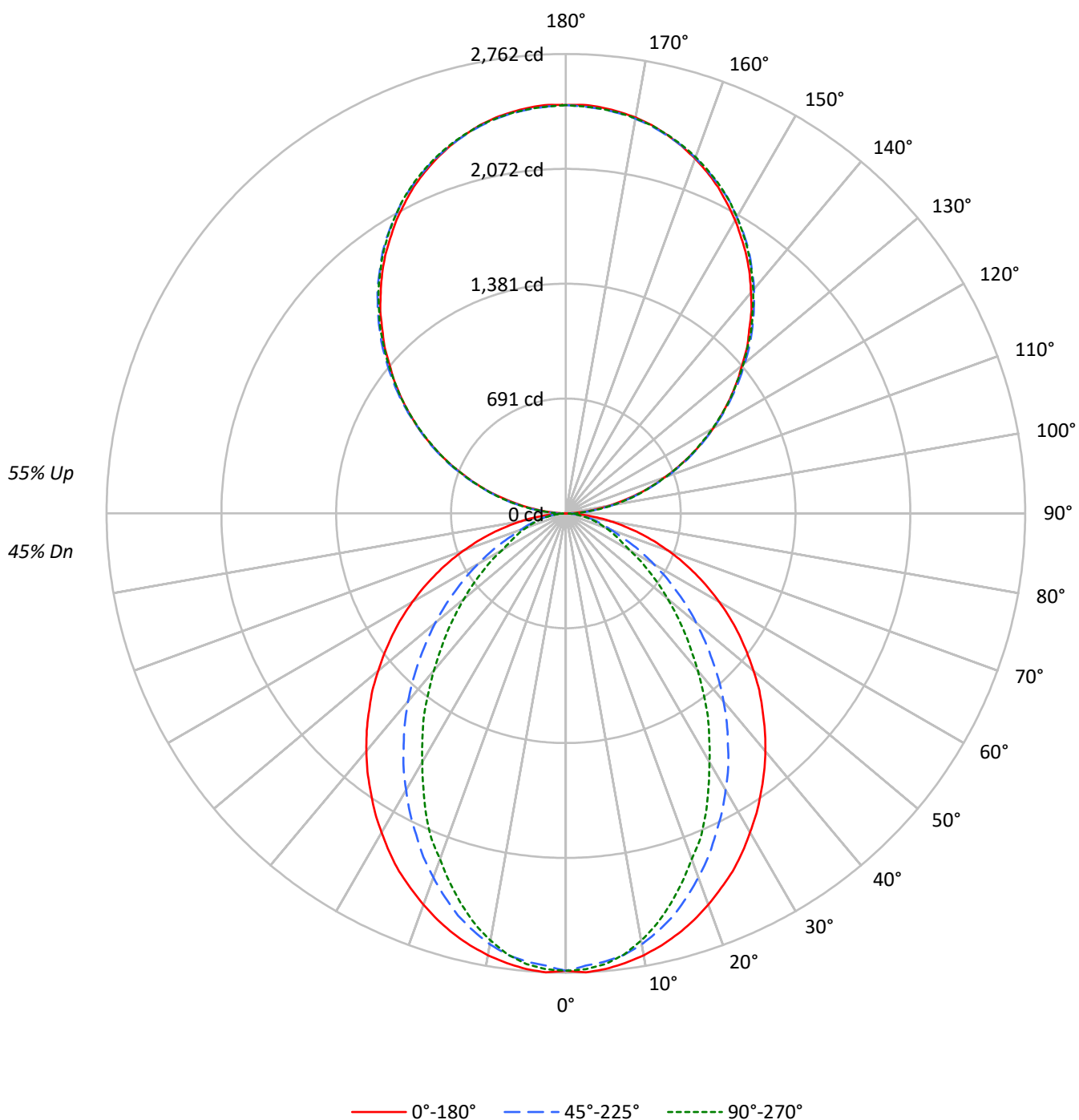
Lumens per Lamp: N/A
Luminaire Lumens: 12526.2 lumens
Efficiency: N/A
Efficacy: 133.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 93.7
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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	93	89	86	89	85	82	79	71	69	67	58	57	55	46	45	44
2	89	82	76	71	81	75	70	66	63	59	56	52	49	47	41	40	38
3	81	72	65	60	74	67	60	56	56	51	48	46	43	40	37	35	33
4	75	64	57	51	68	59	53	47	50	45	41	41	38	35	33	31	29
5	69	57	50	44	63	53	46	41	45	40	36	37	33	30	30	28	25
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23
7	59	47	39	34	54	43	36	32	37	32	28	31	27	24	25	22	20
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18
9	51	39	32	27	47	36	30	25	31	26	22	26	22	19	22	19	17
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2045	2045	2045
5°	2048	2013	2025
10°	2028	1973	1960
15°	2000	1908	1858
20°	1964	1819	1733
25°	1926	1718	1612
30°	1875	1615	1459
35°	1826	1504	1325
40°	1775	1389	1170
45°	1717	1262	1031
50°	1656	1133	894
55°	1593	996	763
60°	1520	852	628
65°	1436	706	566
70°	1333	569	512
75°	1205	502	466
80°	1020	422	405
85°	713	282	304

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1851 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.7	2.1
10°-20°	707.6	5.6
20°-30°	993.4	7.9
30°-40°	1082.8	8.6
40°-50°	995.2	7.9
50°-60°	781.6	6.2
60°-70°	508.8	4.1
70°-80°	261.9	2.1
80°-90°	73.8	0.6
90°-100°	151.9	1.2
100°-110°	482.7	3.9
110°-120°	826.1	6.6
120°-130°	1086.4	8.7
130°-140°	1219.5	9.7
140°-150°	1195.8	9.5
150°-160°	1003.1	8.0
160°-170°	665.3	5.3
170°-180°	232.5	1.9
0°-30°	1958.7	15.6
0°-40°	3041.5	24.3
0°-60°	4818.4	38.5
0°-90°	5662.9	45.2
90°-120°	1460.7	11.7
90°-150°	4962.4	39.6
90°-180°	6863.0	54.8
0°-180°	12526.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2738	2705	2728	2720	261
15°	2616	2588	2504	2456	2432	737
25°	2374	2295	2130	2028	1991	1092
35°	2046	1919	1700	1543	1488	1281
45°	1672	1506	1244	1068	1008	1292
55°	1272	1078	809	660	612	1136
65°	859	657	433	349	341	851
75°	458	284	199	182	179	484
85°	107	55	47	47	47	123
90°	2	27	72	68	70	12
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.1	2750.1	2750.1	2750.1	2750.1
2.5°	2762.5	2750.1	2722.6	2747.7	2742.7
5°	2750.1	2737.7	2705.2	2727.7	2720.3
7.5°	2727.7	2712.8	2678.0	2687.8	2675.4
10°	2697.8	2680.3	2630.8	2623.1	2608.3
12.5°	2660.6	2638.1	2570.8	2556.0	2528.5
15°	2615.7	2588.2	2503.7	2456.4	2431.6
17.5°	2563.5	2523.5	2419.0	2364.3	2324.5
20°	2503.7	2453.8	2329.5	2267.4	2212.5
22.5°	2439.0	2381.7	2237.3	2152.8	2115.5
25°	2374.4	2294.6	2130.4	2028.5	1991.0
27.5°	2297.3	2212.5	2030.8	1913.8	1856.6
30°	2215.1	2120.3	1921.2	1794.5	1727.2
32.5°	2135.4	2020.8	1817.0	1667.5	1605.2
35°	2045.9	1918.9	1700.0	1543.1	1488.2
37.5°	1958.7	1821.6	1590.4	1418.5	1356.4
40°	1866.6	1717.4	1475.7	1299.1	1234.4
42.5°	1772.1	1612.8	1361.4	1177.1	1115.1
45°	1672.5	1505.6	1244.5	1067.5	1007.9
47.5°	1578.0	1401.3	1132.5	955.6	901.0
50°	1473.4	1296.8	1022.9	851.0	799.0
52.5°	1371.2	1184.5	918.4	754.1	706.9
55°	1271.7	1077.6	808.8	659.6	612.3
57.5°	1169.8	970.6	711.9	572.5	532.5
60°	1065.2	866.1	609.7	483.0	443.0
62.5°	963.3	764.2	522.6	403.2	383.4
65°	858.7	657.0	433.1	348.6	340.9
67.5°	759.1	557.4	348.6	306.1	298.7
70°	654.5	460.5	288.6	263.8	253.7
72.5°	555.1	370.7	241.3	221.6	216.5
75°	457.9	283.6	199.1	181.7	179.3
77.5°	361.0	201.5	156.8	146.8	141.8
80°	271.2	144.4	119.3	109.6	109.6
82.5°	189.1	97.1	82.1	77.1	77.1
85°	106.9	54.7	47.2	47.2	47.2
87.5°	39.9	19.9	19.9	17.4	17.4
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1



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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	9.17	9.96	10.17	10.97	12.31	5.14	5.93	6.14	6.94	8.28
	3H	10.84	11.55	11.86	12.57	13.93	6.33	7.04	7.34	8.06	9.42
	4H	11.45	12.12	12.48	13.14	14.51	6.78	7.45	7.80	8.47	9.84
	6H	11.87	12.49	12.91	13.51	14.89	7.10	7.72	8.14	8.74	10.12
	8H	12.00	12.58	13.04	13.62	15.00	7.19	7.78	8.23	8.82	10.19
	12H	12.06	12.61	13.10	13.65	15.05	7.23	7.79	8.28	8.83	10.23
4H	2H	9.18	9.85	10.21	10.87	12.24	5.73	6.40	6.76	7.42	8.79
	3H	11.01	11.56	12.05	12.62	14.00	7.08	7.64	8.12	8.69	10.07
	4H	11.70	12.21	12.75	13.25	14.66	7.63	8.14	8.68	9.18	10.58
	6H	12.21	12.65	13.27	13.72	15.12	8.05	8.48	9.10	9.55	10.95
	8H	12.39	12.80	13.45	13.85	15.27	8.18	8.59	9.23	9.64	11.06
	12H	12.48	12.85	13.56	13.92	15.34	8.24	8.61	9.32	9.68	11.10
8H	4H	11.66	12.07	12.72	13.13	14.55	7.91	8.31	8.96	9.37	10.79
	6H	12.23	12.57	13.31	13.67	15.08	8.43	8.76	9.51	9.86	11.27
	8H	12.45	12.74	13.54	13.83	15.26	8.62	8.91	9.71	10.00	11.43
	12H	12.59	12.85	13.68	13.92	15.40	8.74	9.00	9.83	10.07	11.55
12H	4H	11.61	11.98	12.69	13.06	14.48	7.91	8.28	8.98	9.35	10.77
	6H	12.21	12.50	13.29	13.59	15.02	8.47	8.77	9.56	9.85	11.29
	8H	12.43	12.69	13.52	13.76	15.24	8.69	8.95	9.78	10.02	11.50

END OF REPORT