

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: P927870

Luminaire Tested: DFN2DIP-HX4F0-040D100US850-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927870
REPORT IS A COMBINATION OF REPORTS P900928 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D100US850-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

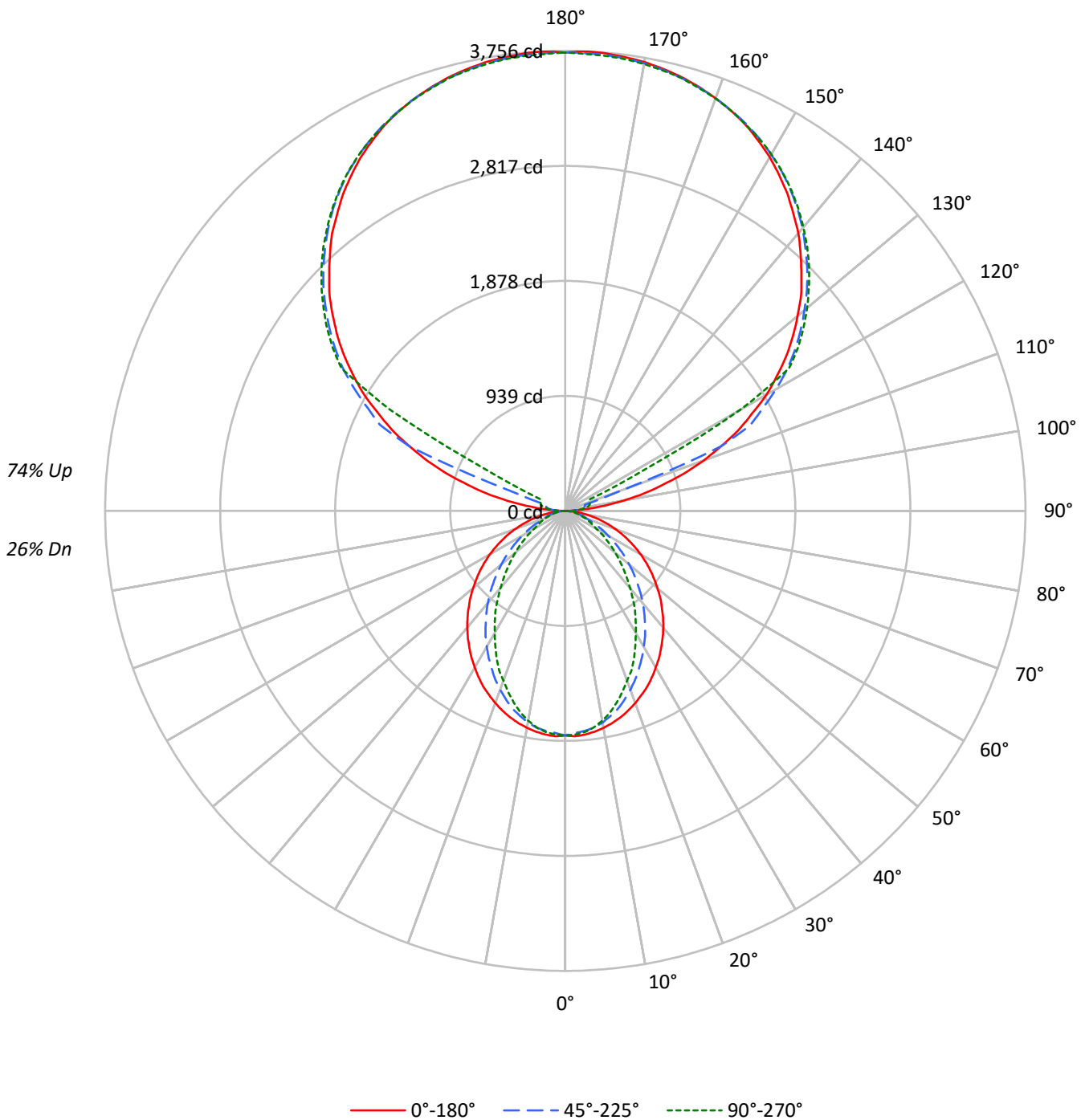
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14749.7 lumens
Efficiency: N/A
Efficacy: 134.8 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): 109.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927870
CATALOG NUMBER: DFN2DIP-HX4F0-040D100US850-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P927870
 CATALOG NUMBER: DFN2DIP-HX4F0-040D100US850-RLLONL

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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26			
1	93	88	85	82	82	79	76	73	61	59	58	45	44	43	30	29	29	22			
2	84	77	72	67	75	69	65	60	54	51	48	40	38	36	27	26	25	19			
3	77	68	61	56	69	61	55	51	48	44	41	35	33	31	24	23	21	16			
4	71	60	53	47	63	54	48	43	43	38	35	32	29	26	22	20	19	14			
5	65	54	46	41	58	48	42	37	38	33	30	28	25	23	19	18	16	12			
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	14	11			
7	55	43	36	31	49	39	33	28	31	26	23	23	20	18	16	14	13	10			
8	51	39	32	27	45	36	29	25	28	24	20	21	18	16	15	13	12	9			
9	47	36	29	24	42	32	26	22	26	21	18	20	16	14	14	12	10	8			
10	44	33	26	21	39	30	24	20	24	19	16	18	15	13	13	11	10	7			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1363	1363	1363
5°	1366	1342	1350
10°	1352	1316	1306
15°	1334	1272	1239
20°	1309	1212	1155
25°	1284	1145	1075
30°	1250	1077	973
35°	1217	1003	883
40°	1184	926	780
45°	1144	841	687
50°	1104	755	596
55°	1062	664	509
60°	1013	568	419
65°	957	470	377
70°	889	379	341
75°	803	335	311
80°	680	281	270
85°	475	188	203

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1922 cd/sqm



TEST NUMBER: P927870

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US850-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.2
10°-20°	471.7	3.2
20°-30°	662.3	4.5
30°-40°	721.9	4.9
40°-50°	663.5	4.5
50°-60°	521.1	3.5
60°-70°	339.2	2.3
70°-80°	174.6	1.2
80°-90°	51.2	0.3
90°-100°	123.4	0.8
100°-110°	460.1	3.1
110°-120°	1220.2	8.3
120°-130°	2023.8	13.7
130°-140°	2149.7	14.6
140°-150°	1997.9	13.5
150°-160°	1606.3	10.9
160°-170°	1035.0	7.0
170°-180°	356.2	2.4
0°-30°	1305.8	8.9
0°-40°	2027.7	13.7
0°-60°	3212.2	21.8
0°-90°	3777.2	25.6
90°-120°	1803.7	12.2
90°-150°	7975.0	54.1
90°-180°	10973.0	74.4
0°-180°	14749.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1833	1833	1833	1833	1833	
5°	1833	1825	1804	1818	1814	174
15°	1744	1726	1669	1638	1621	491
25°	1583	1530	1420	1352	1327	728
35°	1364	1279	1133	1029	992	854
45°	1115	1004	830	712	672	861
55°	848	718	539	440	408	758
65°	572	438	289	232	227	568
75°	305	189	133	121	120	323
85°	71	36	32	32	32	82
90°	3	32	54	68	73	14
95°	176	86	106	119	116	208
105°	823	905	165	195	206	880
115°	1557	1603	1671	417	222	1533
125°	2202	2237	2288	2308	2316	1964
135°	2725	2768	2792	2819	2814	2105
145°	3161	3158	3204	3223	3209	1977
155°	3480	3456	3488	3504	3483	1604
165°	3667	3651	3659	3678	3659	1036
175°	3751	3732	3737	3756	3729	357
180°	3743	3743	3743	3743	3743	



TEST NUMBER: P927870

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US850-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.4	1833.4	1833.4	1833.4	1833.4
2.5°	1841.7	1833.4	1815.1	1831.8	1828.4
5°	1833.4	1825.1	1803.5	1818.4	1813.5
7.5°	1818.4	1808.6	1785.4	1791.8	1783.6
10°	1798.6	1786.9	1753.8	1748.7	1738.9
12.5°	1773.7	1758.8	1713.8	1704.0	1685.7
15°	1743.8	1725.5	1669.2	1637.7	1621.1
17.5°	1709.0	1682.4	1612.6	1576.2	1549.6
20°	1669.2	1635.9	1552.9	1511.6	1475.0
22.5°	1626.0	1587.9	1491.5	1435.2	1410.4
25°	1582.9	1529.8	1420.2	1352.3	1327.3
27.5°	1531.5	1475.0	1353.9	1275.9	1237.6
30°	1476.7	1413.5	1280.8	1196.3	1151.5
32.5°	1423.6	1347.2	1211.2	1111.7	1070.1
35°	1364.0	1279.2	1133.3	1028.7	992.1
37.5°	1305.8	1214.5	1060.2	945.6	904.3
40°	1244.4	1144.9	983.9	866.1	823.0
42.5°	1181.3	1075.2	907.6	784.7	743.4
45°	1115.0	1003.8	829.6	711.8	671.9
47.5°	1052.0	934.2	755.0	637.1	600.6
50°	982.2	864.5	681.9	567.4	532.7
52.5°	914.1	789.7	612.3	502.7	471.2
55°	847.8	718.4	539.2	439.7	408.2
57.5°	779.8	647.1	474.5	381.6	355.1
60°	710.1	577.3	406.4	321.9	295.4
62.5°	642.2	509.5	348.3	268.8	255.6
65°	572.5	437.9	288.7	232.3	227.2
67.5°	506.1	371.6	232.3	204.1	199.1
70°	436.4	307.0	192.4	175.9	169.1
72.5°	370.1	247.2	160.9	147.7	144.4
75°	305.2	189.1	132.7	121.1	119.6
77.5°	240.7	134.3	104.6	97.9	94.5
80°	180.8	96.3	79.5	73.1	73.1
82.5°	126.1	64.8	54.8	51.3	51.3
85°	71.3	36.5	31.5	31.5	31.5
87.5°	26.6	13.2	13.2	11.6	11.6
90°	2.6	32.5	54.0	67.9	73.0
92.5°	67.9	56.9	65.0	70.4	73.0
95°	175.9	86.5	105.5	119.3	116.4
97.5°	316.7	94.8	138.0	146.3	148.9
100°	479.5	108.3	154.4	175.9	181.4
102.5°	658.0	652.9	159.8	189.4	197.7
105°	823.3	904.6	165.4	194.9	205.8
107.5°	1015.6	1083.2	170.8	200.4	211.3
110°	1199.8	1256.5	474.0	203.3	213.8



TEST NUMBER: P927870

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US850-RLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1373.2	1421.7	1375.8	208.4	216.8
115°	1557.1	1603.2	1671.0	417.1	222.2
117.5°	1717.0	1771.1	1817.3	1429.8	720.4
120°	1895.8	1936.3	1985.2	2017.7	1652.1
122.5°	2047.3	2090.7	2145.0	2161.1	2164.0
125°	2201.7	2237.1	2288.5	2307.5	2315.5
127.5°	2342.5	2380.5	2421.3	2448.3	2450.9
130°	2475.3	2518.8	2548.4	2578.2	2575.7
132.5°	2610.7	2646.1	2675.7	2700.1	2697.5
135°	2724.6	2768.0	2792.1	2819.4	2814.0
137.5°	2843.6	2876.1	2903.4	2930.4	2922.3
140°	2959.9	2981.9	3011.4	3035.9	3022.4
142.5°	3057.7	3076.7	3111.7	3133.3	3119.8
145°	3160.6	3157.8	3203.8	3222.8	3209.2
147.5°	3249.7	3241.7	3287.6	3301.2	3290.6
150°	3336.5	3317.6	3361.0	3377.1	3363.6
152.5°	3409.5	3388.0	3428.6	3444.9	3425.9
155°	3480.0	3455.9	3488.4	3504.4	3482.9
157.5°	3536.9	3515.4	3539.8	3558.8	3536.9
160°	3585.8	3569.4	3585.8	3601.9	3583.0
162.5°	3628.9	3612.8	3626.3	3645.3	3620.9
165°	3666.8	3650.7	3658.8	3677.8	3658.8
167.5°	3696.7	3680.3	3688.8	3707.7	3683.2
170°	3721.1	3704.8	3710.3	3729.2	3704.8
172.5°	3737.2	3721.1	3726.7	3745.6	3721.1
175°	3750.7	3731.8	3737.2	3756.3	3729.2
177.5°	3756.3	3737.2	3740.2	3759.2	3734.7
180°	3742.8	3742.8	3742.8	3742.8	3742.8



TEST NUMBER: P927870
 CATALOG NUMBER: DFN2DIP-HX4F0-040D100US850-RLONL

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	5.35	6.01	6.50	7.15	8.73	1.32	1.99	2.47	3.12	4.70
	3H	7.02	7.61	8.17	8.75	10.35	2.50	3.09	3.65	4.23	5.83
	4H	7.62	8.18	8.78	9.32	10.92	2.94	3.51	4.11	4.65	6.25
	6H	8.03	8.55	9.20	9.69	11.31	3.26	3.78	4.43	4.92	6.53
	8H	8.15	8.65	9.32	9.80	11.41	3.34	3.84	4.52	5.00	6.60
	12H	8.21	8.68	9.39	9.83	11.46	3.38	3.85	4.56	5.00	6.63
4H	2H	5.35	5.91	6.52	7.05	8.65	1.90	2.46	3.07	3.60	5.21
	3H	7.16	7.63	8.34	8.80	10.41	3.23	3.70	4.41	4.87	6.49
	4H	7.85	8.28	9.03	9.44	11.07	3.78	4.21	4.95	5.36	7.00
	6H	8.36	8.73	9.54	9.90	11.53	4.19	4.56	5.37	5.74	7.36
	8H	8.53	8.87	9.71	10.04	11.68	4.32	4.66	5.50	5.83	7.47
	12H	8.62	8.93	9.81	10.11	11.75	4.37	4.69	5.57	5.87	7.51
8H	4H	7.80	8.15	8.98	9.32	10.96	4.05	4.39	5.23	5.56	7.20
	6H	8.37	8.65	9.57	9.86	11.50	4.56	4.84	5.76	6.06	7.69
	8H	8.58	8.83	9.79	10.02	11.68	4.75	5.00	5.96	6.19	7.85
	12H	8.72	8.93	9.92	10.12	11.81	4.86	5.08	6.07	6.27	7.96
12H	4H	7.75	8.06	8.94	9.24	10.89	4.04	4.36	5.24	5.54	7.18
	6H	8.34	8.59	9.55	9.78	11.43	4.61	4.86	5.81	6.05	7.70
	8H	8.56	8.77	9.76	9.96	11.65	4.81	5.03	6.02	6.22	7.91