

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: P927124

Luminaire Tested: DFN2DIP-HX4F0-110D040US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927124
REPORT IS A COMBINATION OF REPORTS P900833 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D040US830-FLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

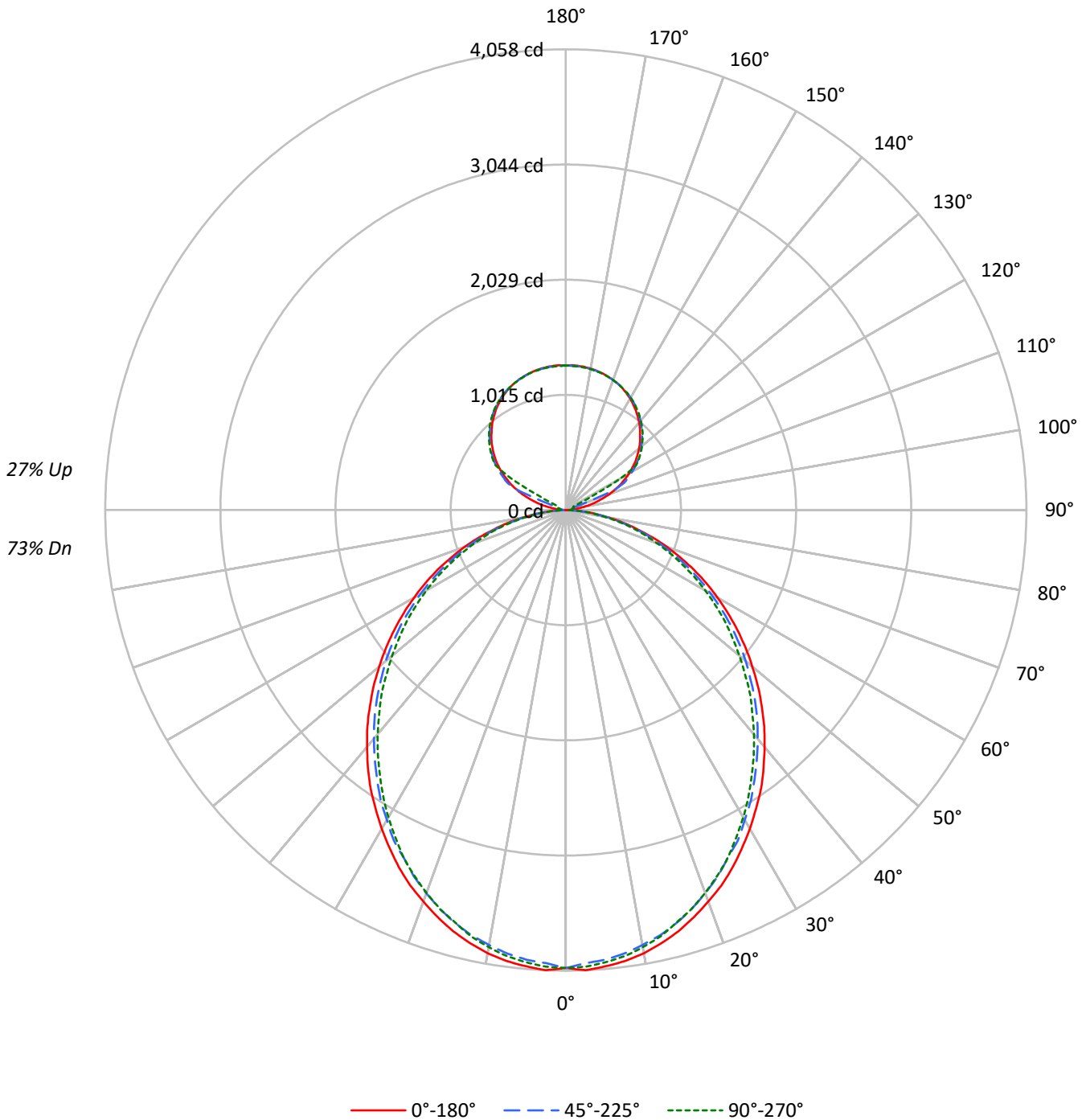
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13996.1 lumens
Efficiency: N/A
Efficacy: 98.3 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): 142.4
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

TEST NUMBER: P927124
CATALOG NUMBER: DFN2DIP-HX4F0-110D040US830-FLLONL

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	113	113	113	113	107	107	107	107	96	96	96	87	87	87	78	78	78	78	78	78	73
1	103	99	95	91	98	94	90	87	85	82	79	76	74	72	69	67	66	66	66	66	62
2	94	86	80	74	89	82	76	71	74	70	66	67	64	60	60	58	55	55	55	55	52
3	86	76	68	62	81	72	65	60	66	60	55	59	55	51	54	50	47	47	47	47	44
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	41	41	41	41	38
5	72	60	52	45	68	57	50	44	52	46	41	48	42	38	43	39	35	35	35	35	33
6	67	54	46	39	63	52	44	38	47	41	36	43	38	34	39	35	31	31	31	31	29
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28	28	28	28	26
8	57	45	37	31	54	43	35	30	39	33	28	36	31	27	33	28	25	25	25	25	23
9	54	41	33	28	51	39	32	27	36	30	26	33	28	24	30	26	23	23	23	23	21
10	50	38	30	25	48	36	29	24	33	27	23	31	26	22	28	24	21	21	21	21	19

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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CATALOG NUMBER: DFN2DIP-HX4F0-110D040US830-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.7
10°-20°	1068.3	7.6
20°-30°	1570.0	11.2
30°-40°	1823.4	13.0
40°-50°	1821.2	13.0
50°-60°	1588.0	11.3
60°-70°	1173.9	8.4
70°-80°	664.1	4.7
80°-90°	177.5	1.3
90°-100°	41.9	0.3
100°-110°	156.4	1.1
110°-120°	414.8	3.0
120°-130°	688.0	4.9
130°-140°	730.8	5.2
140°-150°	679.2	4.9
150°-160°	546.0	3.9
160°-170°	351.9	2.5
170°-180°	121.1	0.9
0°-30°	3017.9	21.6
0°-40°	4841.4	34.6
0°-60°	8250.5	58.9
0°-90°	10266.1	73.3
90°-120°	613.1	4.4
90°-150°	2711.1	19.4
90°-180°	3730.0	26.7
0°-180°	13996.1	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°	1	11	18	23	25	13
95°	60	29	36	40	40	71
105°	280	308	56	66	70	299
115°	529	545	568	142	76	521
125°	748	760	778	784	787	667
135°	926	941	949	958	957	715
145°	1074	1074	1089	1096	1091	672
155°	1183	1175	1186	1191	1184	545
165°	1247	1241	1244	1250	1244	352
175°	1275	1269	1270	1277	1268	121
180°	1272	1272	1272	1272	1272	



TEST NUMBER: P927124

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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°	0.8	11.0	18.4	23.1	24.8
92.5°	23.1	19.3	22.1	23.9	24.8
95°	59.8	29.4	35.8	40.5	39.6
97.5°	107.7	32.2	46.9	49.8	50.6
100°	163.0	36.9	52.5	59.8	61.6
102.5°	223.7	222.0	54.3	64.4	67.2
105°	279.8	307.5	56.2	66.3	69.9
107.5°	345.2	368.2	58.1	68.1	71.8
110°	407.9	427.1	161.2	69.1	72.7



TEST NUMBER: P927124

CATALOG NUMBER: DFN2DIP-HX4F0-110D040US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	466.8	483.3	467.7	70.9	73.7
115°	529.3	545.0	568.0	141.8	75.6
117.5°	583.7	602.1	617.8	486.0	244.9
120°	644.5	658.2	674.8	686.0	561.6
122.5°	695.9	710.7	729.2	734.7	735.6
125°	748.4	760.5	777.9	784.4	787.2
127.5°	796.3	809.2	823.1	832.3	833.2
130°	841.5	856.3	866.3	876.4	875.6
132.5°	887.5	899.5	909.6	917.9	917.1
135°	926.2	941.0	949.2	958.4	956.6
137.5°	966.6	977.7	987.0	996.1	993.4
140°	1006.2	1013.7	1023.7	1032.0	1027.4
142.5°	1039.5	1045.9	1057.9	1065.1	1060.6
145°	1074.4	1073.5	1089.1	1095.6	1090.9
147.5°	1104.7	1102.0	1117.6	1122.2	1118.7
150°	1134.2	1127.8	1142.6	1148.1	1143.4
152.5°	1159.1	1151.7	1165.5	1171.1	1164.6
155°	1183.0	1174.8	1185.9	1191.3	1184.0
157.5°	1202.3	1195.0	1203.4	1209.8	1202.3
160°	1218.9	1213.4	1218.9	1224.4	1218.0
162.5°	1233.6	1228.2	1232.8	1239.2	1230.9
165°	1246.6	1241.1	1243.8	1250.2	1243.8
167.5°	1256.7	1251.1	1254.0	1260.4	1252.1
170°	1265.0	1259.5	1261.3	1267.8	1259.5
172.5°	1270.5	1265.0	1266.9	1273.3	1265.0
175°	1275.0	1268.6	1270.5	1276.9	1267.8
177.5°	1276.9	1270.5	1271.4	1277.9	1269.6
180°	1272.4	1272.4	1272.4	1272.4	1272.4



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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	13.01	14.13	13.74	14.88	15.77	12.58	13.70	13.31	14.45	15.34
	3H	14.69	15.70	15.43	16.46	17.38	14.22	15.23	14.96	15.98	16.91
	4H	15.29	16.24	16.05	17.01	17.95	14.82	15.77	15.58	16.54	17.47
	6H	15.71	16.58	16.48	17.36	18.31	15.23	16.11	16.00	16.88	17.83
	8H	15.82	16.65	16.60	17.45	18.40	15.34	16.18	16.12	16.97	17.93
	12H	15.88	16.67	16.66	17.46	18.44	15.39	16.19	16.18	16.98	17.96
4H	2H	13.50	14.45	14.27	15.22	16.16	13.16	14.11	13.92	14.88	15.81
	3H	15.39	16.19	16.17	16.99	17.94	15.00	15.79	15.78	16.60	17.55
	4H	16.12	16.84	16.91	17.64	18.63	15.71	16.44	16.50	17.24	18.22
	6H	16.65	17.28	17.46	18.10	19.09	16.24	16.87	17.05	17.69	18.68
	8H	16.81	17.39	17.62	18.21	19.22	16.39	16.98	17.21	17.80	18.80
	12H	16.89	17.42	17.72	18.26	19.27	16.47	17.00	17.30	17.84	18.85
8H	4H	16.34	16.92	17.15	17.75	18.75	15.98	16.56	16.79	17.38	18.39
	6H	16.98	17.47	17.82	18.33	19.33	16.62	17.10	17.46	17.97	18.97
	8H	17.21	17.64	18.06	18.50	19.52	16.84	17.27	17.69	18.13	19.15
	12H	17.35	17.73	18.20	18.58	19.66	16.97	17.34	17.82	18.20	19.27
12H	4H	16.34	16.86	17.17	17.71	18.71	15.98	16.51	16.82	17.35	18.36
	6H	17.01	17.45	17.87	18.31	19.32	16.66	17.09	17.51	17.95	18.97
	8H	17.27	17.65	18.12	18.50	19.58	16.91	17.29	17.77	18.14	19.22