

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: P927874

Luminaire Tested: DFN2DIP-HX4F0-040D110US850-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927874
REPORT IS A COMBINATION OF REPORTS P900946 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D110US850-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

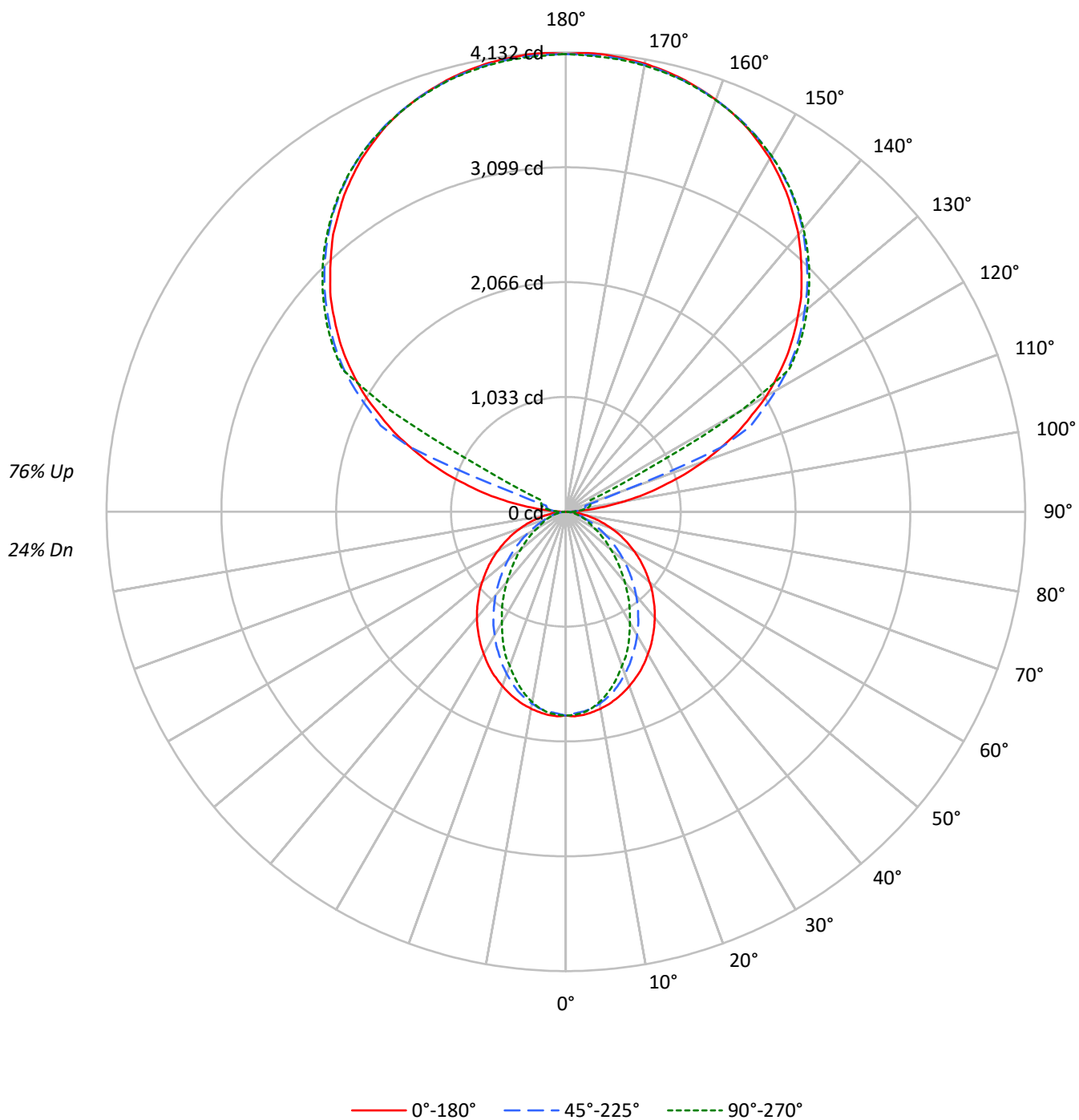
Lumens per Lamp: N/A
Luminaire Lumens: 15847.6 lumens
Efficiency: N/A
Efficacy: 131.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 120.5
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

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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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	32	32	32
1	92	88	84	81	82	78	75	73	60	58	57	44	43	42	29	28	27
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	25	24	23
3	77	68	61	56	68	61	55	50	47	43	40	34	32	30	23	21	20
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	20	19	18
5	64	53	46	40	57	48	41	37	37	33	29	28	25	22	19	17	15
6	59	48	40	35	53	43	36	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	30	26	22	23	20	17	15	14	12
8	51	39	32	27	45	35	29	24	28	23	20	21	18	15	14	12	11
9	47	36	28	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	32	26	21	39	29	23	19	23	19	16	18	15	12	12	10	9

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: 2114 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.1
10°-20°	471.7	3.0
20°-30°	662.3	4.2
30°-40°	721.9	4.6
40°-50°	663.5	4.2
50°-60°	521.1	3.3
60°-70°	339.2	2.1
70°-80°	174.6	1.1
80°-90°	51.8	0.3
90°-100°	135.7	0.9
100°-110°	506.1	3.2
110°-120°	1342.2	8.5
120°-130°	2226.1	14.0
130°-140°	2364.7	14.9
140°-150°	2197.7	13.9
150°-160°	1766.9	11.1
160°-170°	1138.5	7.2
170°-180°	391.9	2.5
0°-30°	1305.8	8.2
0°-40°	2027.7	12.8
0°-60°	3212.2	20.3
0°-90°	3777.8	23.8
90°-120°	1984.0	12.5
90°-150°	8772.5	55.4
90°-180°	12070.0	76.2
0°-180°	15847.6	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	36	59	75	80	15
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

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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°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

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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	5.06	5.72	6.22	6.86	8.46	1.04	1.69	2.19	2.83	4.44
	3H	6.73	7.31	7.89	8.46	10.08	2.21	2.80	3.38	3.95	5.57
	4H	7.33	7.88	8.50	9.03	10.66	2.66	3.21	3.83	4.36	5.98
	6H	7.74	8.25	8.92	9.41	11.04	2.97	3.48	4.15	4.63	6.27
	8H	7.86	8.35	9.05	9.52	11.14	3.06	3.54	4.24	4.71	6.33
	12H	7.92	8.38	9.11	9.54	11.19	3.09	3.56	4.28	4.72	6.36
4H	2H	5.06	5.62	6.24	6.77	8.39	1.61	2.17	2.79	3.32	4.94
	3H	6.87	7.34	8.06	8.51	10.15	2.95	3.41	4.13	4.58	6.22
	4H	7.56	7.99	8.75	9.15	10.80	3.49	3.92	4.68	5.08	6.73
	6H	8.07	8.43	9.26	9.62	11.26	3.90	4.26	5.09	5.45	7.09
	8H	8.24	8.58	9.43	9.76	11.42	4.03	4.37	5.22	5.54	7.20
	12H	8.33	8.64	9.53	9.82	11.49	4.08	4.39	5.29	5.58	7.24
8H	4H	7.52	7.85	8.70	9.03	10.69	3.76	4.10	4.95	5.27	6.93
	6H	8.08	8.36	9.28	9.58	11.23	4.27	4.55	5.48	5.77	7.43
	8H	8.29	8.54	9.51	9.73	11.41	4.46	4.71	5.68	5.90	7.58
	12H	8.42	8.64	9.64	9.83	11.54	4.57	4.79	5.79	5.98	7.69
12H	4H	7.46	7.77	8.66	8.96	10.62	3.75	4.06	4.96	5.25	6.91
	6H	8.05	8.29	9.26	9.49	11.17	4.32	4.56	5.53	5.76	7.44
	8H	8.27	8.48	9.48	9.67	11.38	4.52	4.74	5.74	5.93	7.64