

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: P928024

Luminaire Tested: DFN2DIP-HX4F0-090D040US850-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928024
REPORT IS A COMBINATION OF REPORTS P900829 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D040US850-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

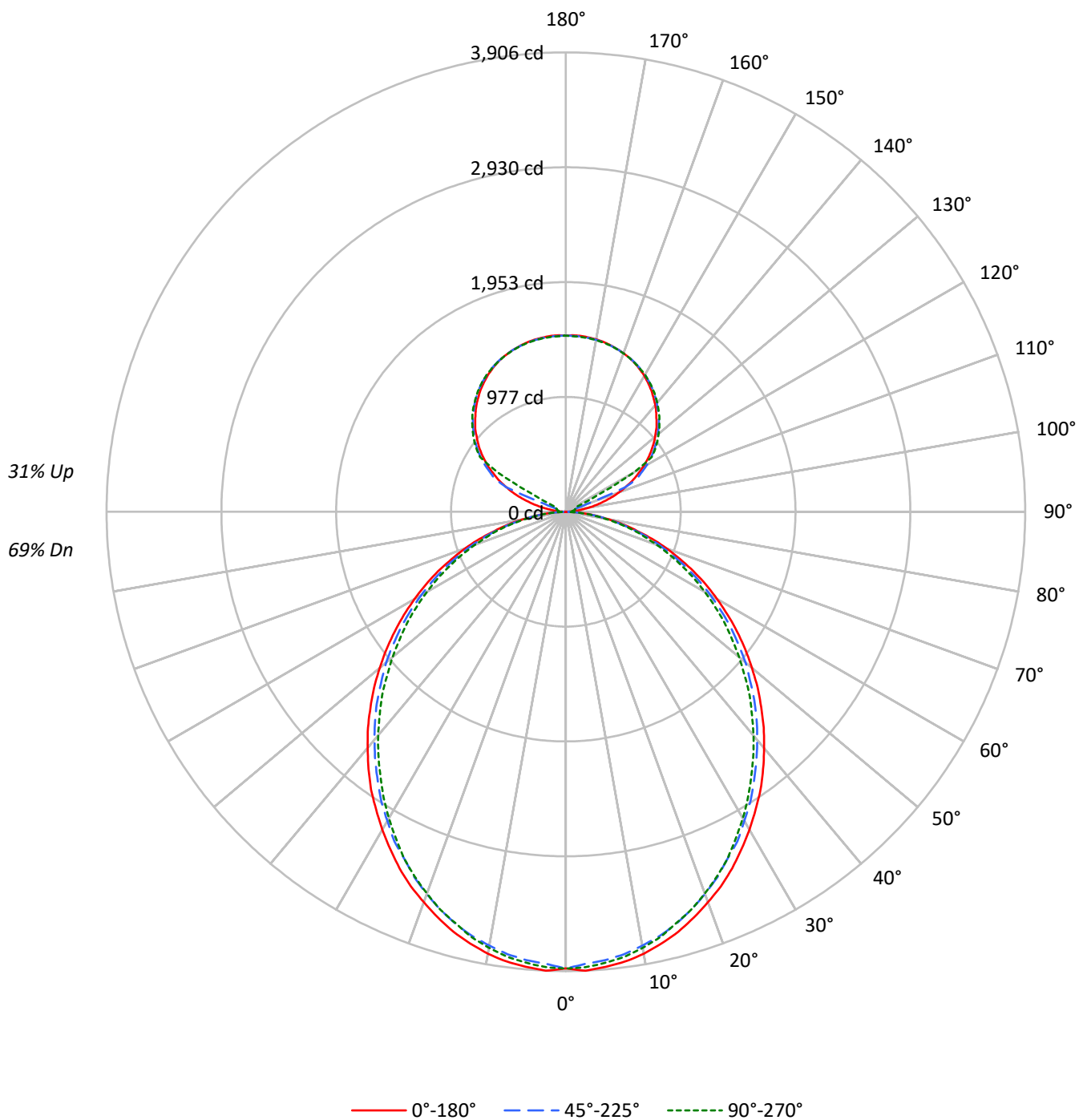
Lumens per Lamp: N/A
Luminaire Lumens: 14272.8 lumens
Efficiency: N/A
Efficacy: 120.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 118.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	72	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	53
3	85	75	67	61	80	71	64	59	64	59	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	42	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	27	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2888	2888	2888
5°	2893	2848	2867
10°	2869	2810	2828
15°	2827	2764	2768
20°	2771	2700	2706
25°	2714	2623	2634
30°	2643	2552	2543
35°	2576	2468	2447
40°	2494	2383	2355
45°	2411	2298	2261
50°	2321	2209	2152
55°	2227	2105	2052
60°	2120	1983	1938
65°	2004	1856	1803
70°	1856	1701	1658
75°	1651	1516	1524
80°	1405	1280	1268
85°	1019	872	844

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2411 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.6
10°-20°	1028.5	7.2
20°-30°	1511.4	10.6
30°-40°	1755.4	12.3
40°-50°	1753.3	12.3
50°-60°	1528.8	10.7
60°-70°	1130.1	7.9
70°-80°	639.4	4.5
80°-90°	171.4	1.2
90°-100°	49.4	0.3
100°-110°	184.0	1.3
110°-120°	488.1	3.4
120°-130°	809.5	5.7
130°-140°	859.9	6.0
140°-150°	799.2	5.6
150°-160°	642.5	4.5
160°-170°	414.0	2.9
170°-180°	142.5	1.0
0°-30°	2905.4	20.4
0°-40°	4660.9	32.7
0°-60°	7942.9	55.7
0°-90°	9883.8	69.2
90°-120°	721.5	5.1
90°-150°	3190.0	22.4
90°-180°	4389.0	30.8
0°-180°	14272.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	1	13	22	27	29	13
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2

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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	12.57	13.63	13.34	14.43	15.40	12.14	13.20	12.91	14.00	14.96
	3H	14.25	15.20	15.03	16.01	17.00	13.77	14.73	14.56	15.53	16.53
	4H	14.84	15.75	15.65	16.56	17.57	14.37	15.27	15.17	16.09	17.09
	6H	15.25	16.09	16.07	16.91	17.93	14.78	15.61	15.59	16.43	17.46
	8H	15.36	16.16	16.19	17.00	18.02	14.89	15.68	15.71	16.52	17.55
	12H	15.42	16.18	16.25	17.01	18.06	14.94	15.70	15.77	16.53	17.58
4H	2H	13.06	13.96	13.86	14.77	15.78	12.71	13.61	13.52	14.43	15.44
	3H	14.94	15.70	15.76	16.54	17.57	14.55	15.30	15.37	16.15	17.17
	4H	15.66	16.35	16.50	17.20	18.25	15.26	15.95	16.09	16.79	17.84
	6H	16.19	16.79	17.04	17.66	18.71	15.78	16.38	16.63	17.25	18.30
	8H	16.35	16.90	17.20	17.77	18.84	15.93	16.49	16.79	17.36	18.42
	12H	16.43	16.93	17.30	17.82	18.89	16.01	16.51	16.88	17.39	18.47
8H	4H	15.88	16.43	16.73	17.30	18.37	15.52	16.07	16.37	16.94	18.01
	6H	16.52	16.98	17.40	17.89	18.96	16.16	16.62	17.04	17.52	18.59
	8H	16.74	17.15	17.63	18.05	19.14	16.37	16.78	17.26	17.68	18.77
	12H	16.88	17.24	17.78	18.14	19.28	16.50	16.86	17.39	17.75	18.89
12H	4H	15.87	16.37	16.75	17.26	18.33	15.52	16.02	16.39	16.91	17.98
	6H	16.55	16.96	17.44	17.86	18.95	16.20	16.61	17.09	17.51	18.60
	8H	16.80	17.16	17.70	18.06	19.20	16.45	16.81	17.34	17.70	18.84

END OF REPORT