

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: P927988

Luminaire Tested: DFN2DIP-HX4F0-080D040US850-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927988
REPORT IS A COMBINATION OF REPORTS P900827 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D040US850-FLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

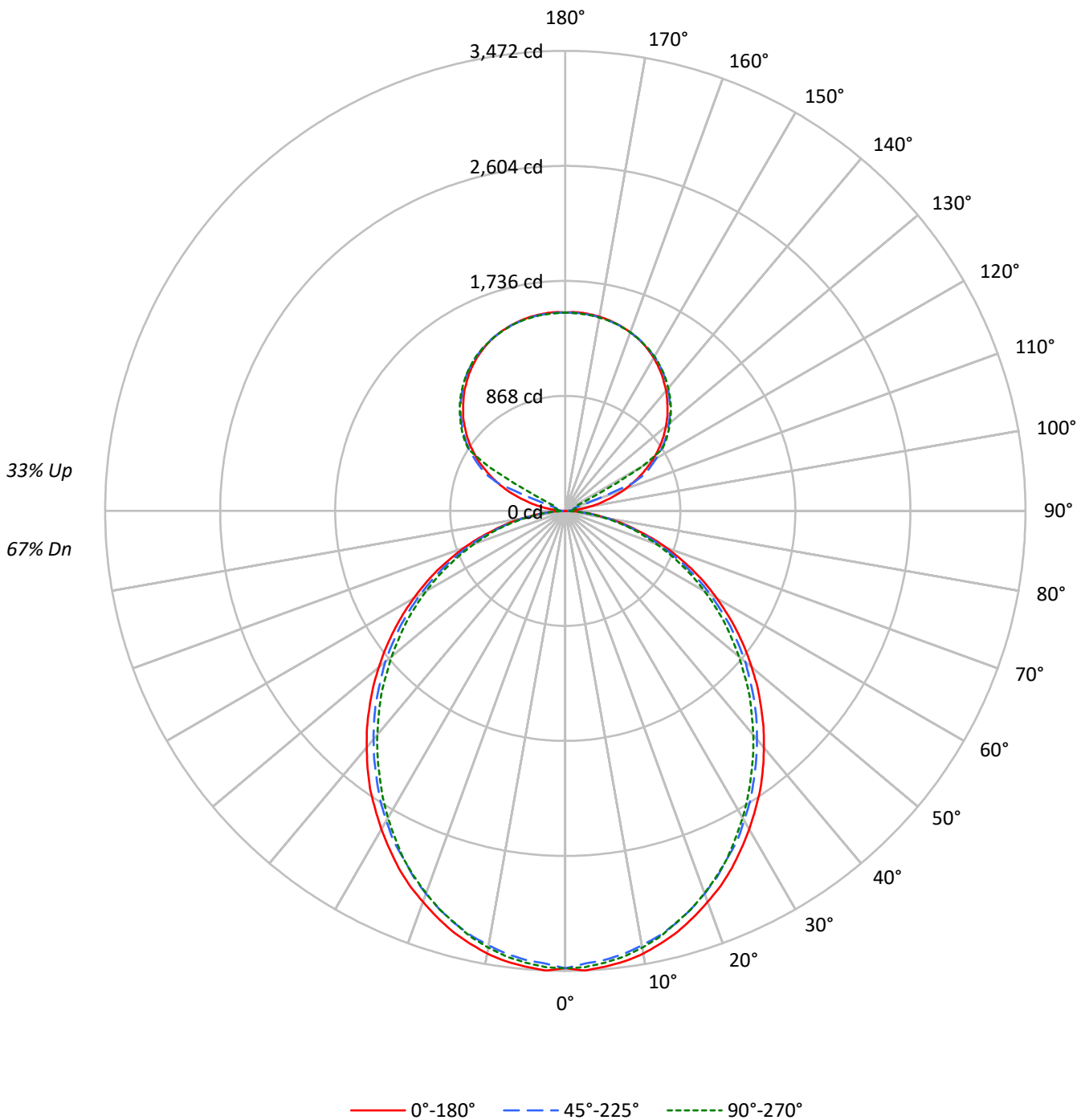
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13174.9 lumens
Efficiency: N/A
Efficacy: 123.4 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): 106.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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				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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67				67
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60	56				56
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51	47				47
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43	40				40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34				34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30				30
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29	26				26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23				23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21				21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19				19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17				17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2567	2567	2567
5°	2571	2531	2548
10°	2551	2498	2514
15°	2513	2457	2460
20°	2463	2400	2405
25°	2413	2332	2341
30°	2350	2268	2260
35°	2290	2194	2175
40°	2217	2118	2093
45°	2143	2043	2010
50°	2063	1963	1913
55°	1979	1871	1824
60°	1885	1762	1723
65°	1782	1650	1603
70°	1650	1512	1474
75°	1468	1348	1355
80°	1249	1138	1127
85°	907	775	749

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2143 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	2.5
10°-20°	914.2	6.9
20°-30°	1343.5	10.2
30°-40°	1560.4	11.8
40°-50°	1558.4	11.8
50°-60°	1358.9	10.3
60°-70°	1004.5	7.6
70°-80°	568.4	4.3
80°-90°	152.7	1.2
90°-100°	49.4	0.4
100°-110°	184.0	1.4
110°-120°	488.1	3.7
120°-130°	809.5	6.1
130°-140°	859.9	6.5
140°-150°	799.2	6.1
150°-160°	642.5	4.9
160°-170°	414.0	3.1
170°-180°	142.5	1.1
0°-30°	2582.6	19.6
0°-40°	4143.0	31.4
0°-60°	7060.4	53.6
0°-90°	8785.9	66.7
90°-120°	721.5	5.5
90°-150°	3190.0	24.2
90°-180°	4389.0	33.3
0°-180°	13174.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	1	13	22	27	29	12
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°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
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	11.96	13.00	12.76	13.82	14.83	11.53	12.56	12.33	13.39	14.40
	3H	13.64	14.56	14.45	15.40	16.44	13.16	14.09	13.97	14.92	15.96
	4H	14.23	15.11	15.06	15.95	17.00	13.76	14.63	14.59	15.47	16.52
	6H	14.64	15.45	15.48	16.30	17.36	14.16	14.97	15.01	15.82	16.89
	8H	14.75	15.52	15.60	16.39	17.45	14.28	15.05	15.13	15.91	16.98
	12H	14.81	15.54	15.66	16.40	17.49	14.32	15.06	15.18	15.92	17.01
4H	2H	12.44	13.32	13.28	14.16	15.21	12.10	12.98	12.93	13.82	14.87
	3H	14.33	15.06	15.17	15.93	17.00	13.93	14.67	14.78	15.54	16.61
	4H	15.05	15.72	15.91	16.59	17.68	14.64	15.31	15.50	16.18	17.27
	6H	15.57	16.15	16.45	17.05	18.14	15.16	15.74	16.04	16.64	17.73
	8H	15.73	16.27	16.61	17.16	18.27	15.32	15.86	16.19	16.74	17.85
	12H	15.81	16.30	16.71	17.21	18.32	15.39	15.87	16.29	16.78	17.90
8H	4H	15.26	15.80	16.14	16.69	17.80	14.90	15.44	15.78	16.33	17.44
	6H	15.90	16.35	16.80	17.28	18.39	15.54	15.98	16.44	16.91	18.02
	8H	16.12	16.52	17.04	17.44	18.57	15.75	16.15	16.67	17.07	18.20
	12H	16.26	16.61	17.18	17.53	18.71	15.88	16.23	16.80	17.14	18.32
12H	4H	15.25	15.74	16.15	16.65	17.76	14.90	15.39	15.80	16.30	17.41
	6H	15.93	16.33	16.85	17.25	18.38	15.58	15.98	16.49	16.90	18.03
	8H	16.18	16.53	17.10	17.45	18.63	15.83	16.17	16.74	17.09	18.27