

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: P910659

Luminaire Tested: DFN2DIP-HX2F0-040D060US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910659
REPORT IS A COMBINATION OF REPORTS P900715 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D060US850-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

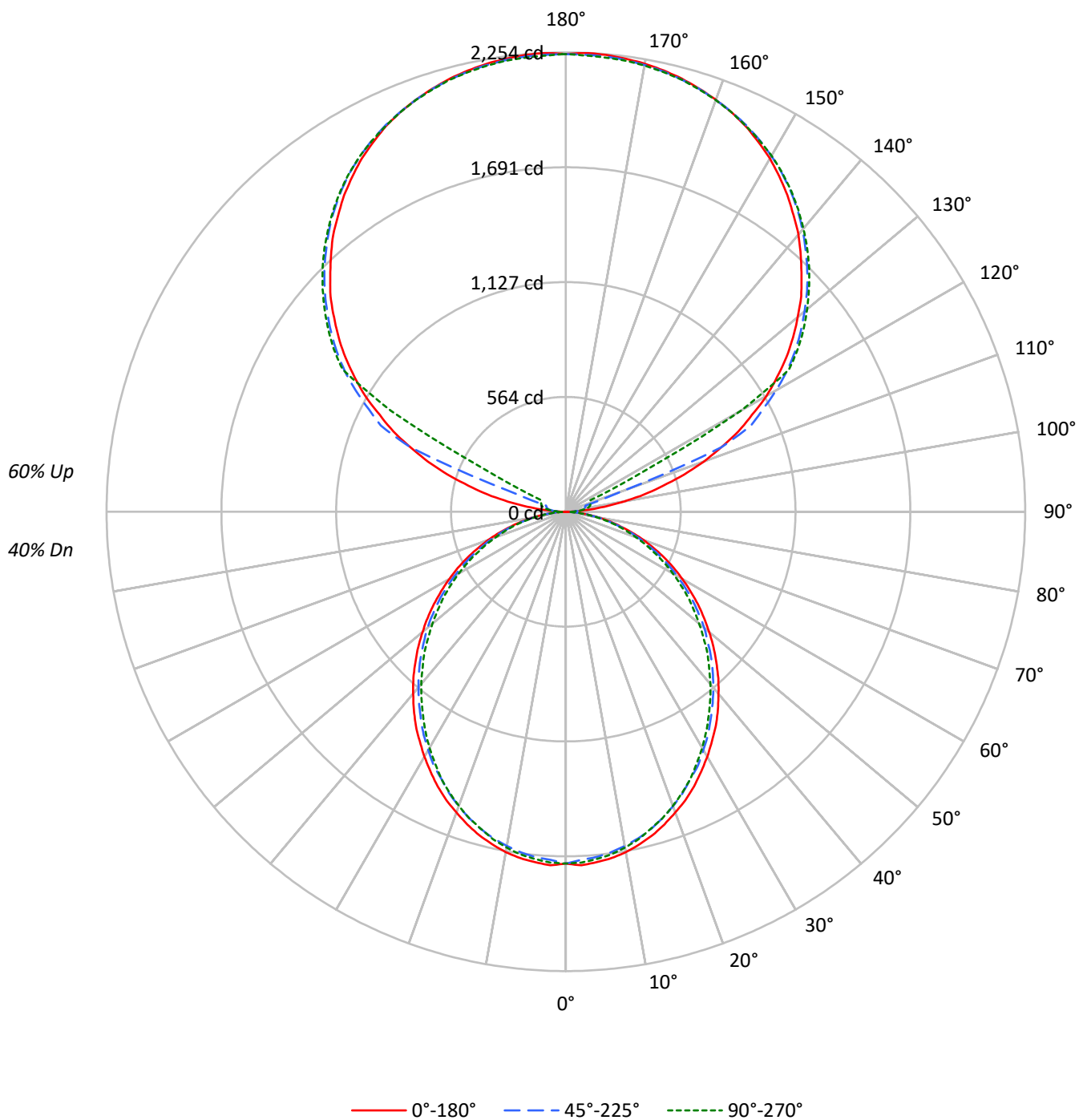
Lumens per Lamp: N/A
Luminaire Lumens: 10979.1 lumens
Efficiency: N/A
Efficacy: 130.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 84.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4067	4067	4067
5°	4067	4000	4030
10°	4027	3937	3967
15°	3962	3862	3875
20°	3875	3763	3781
25°	3789	3646	3672
30°	3683	3536	3537
35°	3581	3408	3394
40°	3458	3278	3258
45°	3334	3148	3117
50°	3198	3011	2956
55°	3056	2853	2806
60°	2894	2666	2633
65°	2717	2471	2431
70°	2492	2234	2211
75°	2183	1950	1998
80°	1806	1586	1612
85°	1227	996	997

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3334 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	1.5
10°-20°	457.1	4.2
20°-30°	671.7	6.1
30°-40°	780.2	7.1
40°-50°	779.2	7.1
50°-60°	679.5	6.2
60°-70°	502.3	4.6
70°-80°	284.2	2.6
80°-90°	79.0	0.7
90°-100°	74.1	0.7
100°-110°	276.0	2.5
110°-120°	732.1	6.7
120°-130°	1214.2	11.1
130°-140°	1289.8	11.7
140°-150°	1198.7	10.9
150°-160°	963.8	8.8
160°-170°	621.0	5.7
170°-180°	213.7	1.9
0°-30°	1291.3	11.8
0°-40°	2071.5	18.9
0°-60°	3530.2	32.2
0°-90°	4395.6	40.0
90°-120°	1082.2	9.9
90°-150°	4785.0	43.6
90°-180°	6583.0	60.0
0°-180°	10979.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1701	1714	1711	164
15°	1643	1633	1612	1618	1610	463
25°	1487	1474	1446	1449	1446	684
35°	1283	1266	1240	1230	1222	801
45°	1044	1032	1007	989	983	806
55°	790	780	760	740	732	706
65°	533	523	506	491	483	527
75°	279	276	267	257	261	298
85°	68	66	65	60	58	76
90°	2	20	32	41	44	10
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1726.0	1726.0	1726.0	1726.0	1726.0
2.5°	1736.1	1727.8	1709.5	1726.0	1722.9
5°	1726.0	1719.5	1701.2	1714.4	1711.3
7.5°	1714.4	1704.5	1686.2	1699.7	1696.3
10°	1696.3	1684.7	1664.8	1678.0	1673.0
12.5°	1671.3	1661.4	1641.5	1649.9	1646.4
15°	1643.1	1633.2	1611.6	1618.3	1610.0
17.5°	1608.3	1598.4	1576.8	1585.0	1576.8
20°	1570.0	1560.1	1537.0	1541.8	1535.4
22.5°	1532.0	1517.0	1495.4	1495.4	1492.0
25°	1487.1	1473.9	1445.7	1448.9	1445.7
27.5°	1437.3	1425.6	1404.2	1399.2	1391.0
30°	1387.6	1374.3	1349.4	1344.4	1337.8
32.5°	1334.5	1324.6	1298.0	1288.0	1281.2
35°	1283.0	1266.5	1239.9	1229.9	1221.6
37.5°	1224.9	1209.9	1183.3	1171.8	1163.5
40°	1165.2	1151.8	1125.2	1110.4	1103.8
42.5°	1107.1	1093.7	1067.3	1050.6	1040.7
45°	1044.0	1032.5	1007.4	989.3	982.6
47.5°	982.6	970.9	944.4	926.1	916.3
50°	917.8	909.5	886.3	863.0	854.7
52.5°	854.7	843.2	821.7	803.4	791.7
55°	790.2	780.1	760.2	740.3	732.1
57.5°	725.3	717.1	695.3	675.5	668.8
60°	660.5	654.0	630.8	612.5	607.5
62.5°	597.5	585.9	569.4	552.7	546.1
65°	532.9	522.8	506.3	491.3	483.1
67.5°	466.4	458.0	443.3	431.6	425.0
70°	405.0	398.4	383.4	371.7	365.2
72.5°	342.0	335.3	327.0	315.4	310.4
75°	278.8	275.6	267.2	257.3	260.6
77.5°	222.4	215.7	212.4	207.4	202.5
80°	166.0	164.2	160.9	156.0	152.7
82.5°	112.9	112.9	111.3	104.6	104.6
85°	68.0	66.4	64.8	59.7	58.1
87.5°	29.9	26.6	23.3	18.3	16.5
90°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

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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	11.01	11.79	12.05	12.84	14.24	10.59	11.37	11.63	12.41	13.82
	3H	12.64	13.34	13.69	14.39	15.82	12.18	12.88	13.23	13.93	15.36
	4H	13.21	13.87	14.27	14.92	16.36	12.75	13.41	13.81	14.47	15.90
	6H	13.58	14.19	14.65	15.25	16.70	13.12	13.73	14.19	14.79	16.24
	8H	13.68	14.26	14.75	15.33	16.77	13.22	13.80	14.29	14.87	16.31
	12H	13.71	14.26	14.79	15.33	16.80	13.25	13.80	14.33	14.87	16.33
4H	2H	11.45	12.12	12.52	13.17	14.60	11.11	11.78	12.18	12.83	14.26
	3H	13.28	13.83	14.36	14.92	16.36	12.90	13.45	13.97	14.53	15.98
	4H	13.97	14.48	15.05	15.55	17.02	13.58	14.09	14.66	15.16	16.63
	6H	14.46	14.90	15.55	15.99	17.45	14.07	14.50	15.15	15.60	17.06
	8H	14.60	15.00	15.68	16.09	17.57	14.20	14.61	15.29	15.69	17.17
	12H	14.65	15.02	15.76	16.12	17.61	14.25	14.62	15.36	15.72	17.20
8H	4H	14.15	14.56	15.24	15.65	17.12	13.80	14.21	14.89	15.30	16.77
	6H	14.75	15.09	15.86	16.22	17.69	14.40	14.74	15.51	15.87	17.34
	8H	14.95	15.25	16.07	16.36	17.85	14.60	14.89	15.72	16.01	17.50
	12H	15.07	15.32	16.19	16.43	17.96	14.70	14.96	15.82	16.06	17.60
12H	4H	14.13	14.50	15.24	15.60	17.08	13.79	14.16	14.89	15.26	16.74
	6H	14.78	15.07	15.89	16.18	17.68	14.43	14.73	15.55	15.84	17.33
	8H	14.99	15.25	16.12	16.36	17.89	14.65	14.91	15.77	16.02	17.55

END OF REPORT