

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: P911185

Luminaire Tested: DFN2DIP-PN3F0-040D090US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911185
REPORT IS A COMBINATION OF REPORTS P901117 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-040D090US850-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

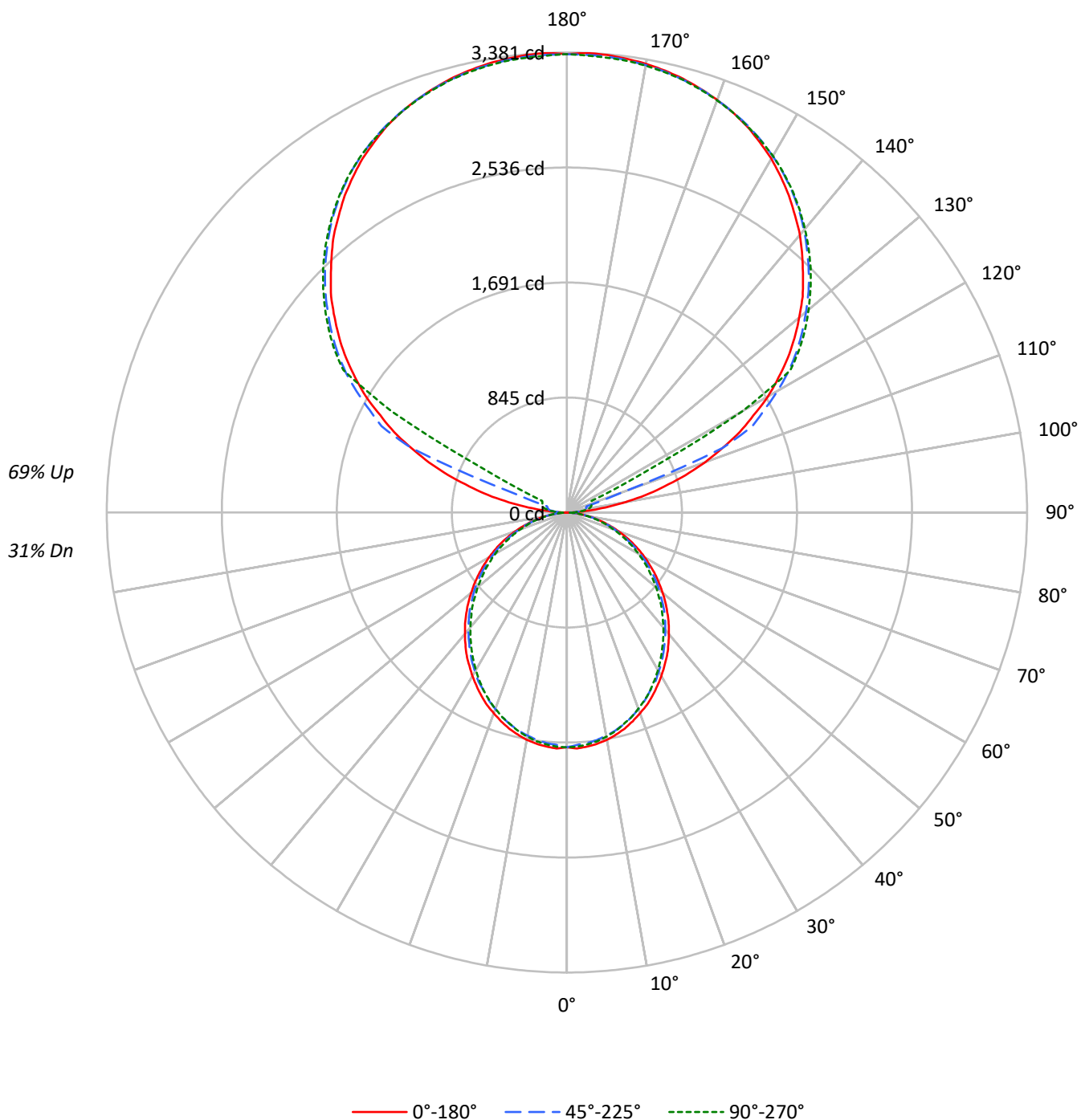
Lumens per Lamp: N/A
Luminaire Lumens: 14272.8 lumens
Efficiency: N/A
Efficacy: 134.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	38	38	38
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2018	2018	2018
5°	2020	1988	2002
10°	2002	1960	1974
15°	1972	1926	1931
20°	1931	1880	1887
25°	1890	1825	1836
30°	1839	1774	1771
35°	1791	1713	1703
40°	1731	1652	1638
45°	1672	1591	1571
50°	1608	1527	1494
55°	1540	1453	1423
60°	1463	1365	1342
65°	1379	1273	1246
70°	1272	1162	1142
75°	1124	1028	1045
80°	945	857	863
85°	667	567	562

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2273 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	1.1
10°-20°	457.1	3.2
20°-30°	671.7	4.7
30°-40°	780.2	5.5
40°-50°	779.2	5.5
50°-60°	679.5	4.8
60°-70°	502.3	3.5
70°-80°	284.2	2.0
80°-90°	80.9	0.6
90°-100°	111.1	0.8
100°-110°	414.0	2.9
110°-120°	1098.2	7.7
120°-130°	1821.4	12.8
130°-140°	1934.7	13.6
140°-150°	1798.1	12.6
150°-160°	1445.6	10.1
160°-170°	931.5	6.5
170°-180°	320.6	2.2
0°-30°	1291.3	9.0
0°-40°	2071.5	14.5
0°-60°	3530.2	24.7
0°-90°	4397.6	30.8
90°-120°	1623.3	11.4
90°-150°	7177.5	50.3
90°-180°	9875.0	69.2
0°-180°	14272.8	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	29	49	61	66	13
95°	158	78	95	107	105	188
105°	741	814	149	175	185	792
115°	1401	1443	1504	375	200	1380
125°	1982	2013	2060	2077	2084	1767
135°	2452	2491	2513	2538	2533	1894
145°	2845	2842	2883	2900	2888	1779
155°	3132	3110	3140	3154	3135	1443
165°	3300	3286	3293	3310	3293	932
175°	3376	3359	3364	3381	3356	321
180°	3368	3368	3368	3368	3368	

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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°	2.3	29.3	48.6	61.1	65.7
92.5°	61.1	51.2	58.4	63.4	65.7
95°	158.4	77.9	94.9	107.4	104.8
97.5°	285.1	85.4	124.2	131.6	134.0
100°	431.5	97.6	139.0	158.4	163.2
102.5°	592.2	587.5	143.8	170.5	178.0
105°	740.9	814.2	148.7	175.4	185.2
107.5°	914.0	974.8	153.7	180.3	190.2
110°	1079.8	1130.8	426.6	182.9	192.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1235.9	1279.6	1238.2	187.5	195.1
115°	1401.4	1442.8	1503.9	375.4	200.0
117.5°	1545.3	1594.0	1635.6	1286.9	648.3
120°	1706.2	1742.7	1786.7	1815.9	1486.8
122.5°	1842.6	1881.6	1930.5	1945.0	1947.6
125°	1981.5	2013.3	2059.6	2076.7	2083.9
127.5°	2108.2	2142.4	2179.2	2203.5	2205.8
130°	2227.8	2266.9	2293.5	2320.4	2318.1
132.5°	2349.6	2381.5	2408.1	2430.2	2427.8
135°	2452.1	2491.1	2512.9	2537.5	2532.6
137.5°	2559.2	2588.4	2613.0	2637.3	2630.1
140°	2663.9	2683.7	2710.3	2732.2	2720.2
142.5°	2752.0	2769.1	2800.6	2820.0	2807.9
145°	2844.6	2841.9	2883.4	2900.5	2888.3
147.5°	2924.8	2917.6	2958.9	2971.1	2961.5
150°	3003.0	2985.9	3024.9	3039.3	3027.2
152.5°	3068.6	3049.2	3085.7	3100.4	3083.4
155°	3132.0	3110.3	3139.5	3154.0	3134.6
157.5°	3183.3	3163.9	3185.8	3202.9	3183.3
160°	3227.2	3212.4	3227.2	3241.7	3224.6
162.5°	3266.0	3251.5	3263.7	3280.8	3258.8
165°	3300.2	3285.6	3293.0	3310.0	3293.0
167.5°	3327.1	3312.4	3319.8	3336.9	3314.9
170°	3349.1	3334.3	3339.2	3356.3	3334.3
172.5°	3363.6	3349.1	3353.9	3371.0	3349.1
175°	3375.7	3358.6	3363.6	3380.6	3356.3
177.5°	3380.6	3363.6	3366.1	3383.2	3361.3
180°	3368.5	3368.5	3368.5	3368.5	3368.5

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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	7.57	8.28	8.67	9.38	10.90	7.13	7.84	8.24	8.94	10.46
	3H	9.21	9.85	10.33	10.96	12.50	8.73	9.37	9.84	10.48	12.01
	4H	9.79	10.39	10.91	11.50	13.05	9.30	9.91	10.43	11.02	12.56
	6H	10.17	10.73	11.31	11.85	13.40	9.69	10.24	10.82	11.36	12.91
	8H	10.27	10.80	11.41	11.93	13.48	9.78	10.31	10.92	11.44	12.99
	12H	10.31	10.82	11.45	11.94	13.51	9.82	10.32	10.96	11.44	13.01
4H	2H	8.01	8.61	9.14	9.72	11.27	7.66	8.26	8.79	9.37	10.92
	3H	9.85	10.36	10.99	11.49	13.05	9.45	9.96	10.59	11.09	12.65
	4H	10.56	11.02	11.70	12.15	13.72	10.14	10.60	11.28	11.73	13.31
	6H	11.06	11.45	12.20	12.60	14.17	10.63	11.03	11.78	12.18	13.75
	8H	11.20	11.57	12.35	12.71	14.30	10.77	11.14	11.92	12.29	13.87
	12H	11.26	11.60	12.43	12.75	14.34	10.82	11.16	11.99	12.31	13.90
8H	4H	10.74	11.11	11.88	12.25	13.83	10.37	10.74	11.51	11.88	13.46
	6H	11.35	11.66	12.52	12.84	14.42	10.98	11.28	12.15	12.47	14.05
	8H	11.57	11.84	12.74	13.00	14.60	11.19	11.45	12.36	12.62	14.22
	12H	11.69	11.92	12.87	13.08	14.72	11.29	11.52	12.47	12.68	14.32
12H	4H	10.71	11.05	11.88	12.20	13.79	10.35	10.69	11.51	11.84	13.43
	6H	11.38	11.65	12.55	12.81	14.41	11.02	11.28	12.19	12.45	14.05
	8H	11.61	11.85	12.79	13.00	14.64	11.24	11.47	12.42	12.63	14.27