

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: P905853

Luminaire Tested: DFN2DIP-PN3F0-090D050US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905853
REPORT IS A COMBINATION OF REPORTS P901071 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D050US835-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

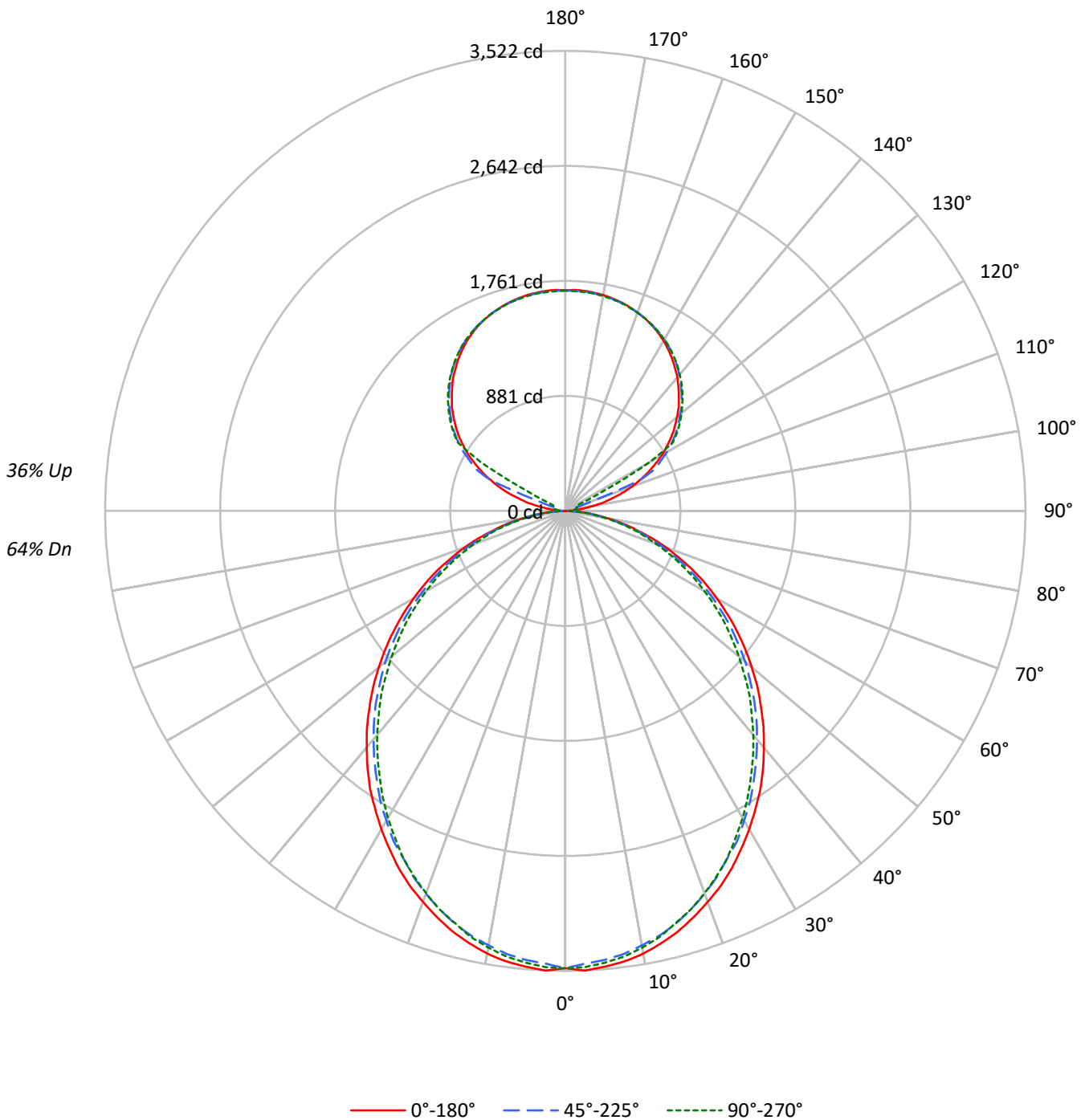
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13860.0 lumens
Efficiency: N/A
Efficacy: 106.0 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-Direct

Input Watts (W): 130.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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			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	104	104	104	104	91	91	91	80	80	80	69	69	69	64	64	64	64
1	101	97	93	89	95	91	87	84	80	78	75	70	68	67	61	60	59	54	54	54	54
2	92	84	78	73	86	79	74	69	70	66	62	62	59	56	54	51	49	45	45	45	45
3	84	74	67	61	79	70	63	58	62	57	52	55	51	47	48	45	42	38	38	38	38
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36	33	33	33	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	39	35	32	29	29	29	29
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28	25	25	25	25
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25	22	22	22	22
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22	20	20	20	20
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20	18	18	18	18
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	16	16	16	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4094	4094	4094
5°	4098	4034	4062
10°	4062	3977	4005
15°	4000	3908	3918
20°	3917	3814	3828
25°	3834	3703	3725
30°	3731	3599	3594
35°	3633	3476	3455
40°	3513	3353	3323
45°	3393	3228	3188
50°	3262	3098	3032
55°	3124	2947	2888
60°	2968	2768	2722
65°	2798	2583	2528
70°	2581	2357	2317
75°	2281	2085	2121
80°	1918	1738	1750
85°	1353	1151	1141

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3393 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	329.6	2.4
10°-20°	927.4	6.7
20°-30°	1362.9	9.8
30°-40°	1582.9	11.4
40°-50°	1580.9	11.4
50°-60°	1378.5	9.9
60°-70°	1019.0	7.4
70°-80°	576.6	4.2
80°-90°	155.1	1.1
90°-100°	55.7	0.4
100°-110°	207.4	1.5
110°-120°	550.1	4.0
120°-130°	912.4	6.6
130°-140°	969.2	7.0
140°-150°	900.8	6.5
150°-160°	724.2	5.2
160°-170°	466.6	3.4
170°-180°	160.6	1.2
0°-30°	2619.9	18.9
0°-40°	4202.8	30.3
0°-60°	7162.3	51.7
0°-90°	8913.0	64.3
90°-120°	813.2	5.9
90°-150°	3595.6	25.9
90°-180°	4947.0	35.7
0°-180°	13860.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3502	3502	3502	3502	3502	
5°	3502	3489	3452	3478	3472	332
15°	3334	3314	3270	3283	3266	939
25°	3017	2990	2933	2940	2933	1388
35°	2603	2570	2516	2495	2478	1626
45°	2118	2095	2044	2007	1994	1635
55°	1603	1583	1542	1502	1485	1433
65°	1081	1061	1027	997	980	1069
75°	566	559	542	522	529	604
85°	138	135	132	121	118	154
90°	1	15	24	31	33	13
95°	79	39	48	54	52	94
105°	371	408	74	88	93	397
115°	702	723	753	188	100	691
125°	993	1009	1032	1040	1044	885
135°	1228	1248	1259	1271	1269	949
145°	1425	1424	1444	1453	1447	891
155°	1569	1558	1573	1580	1570	723
165°	1653	1646	1650	1658	1650	467
175°	1691	1682	1685	1694	1681	161
180°	1687	1687	1687	1687	1687	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3501.9	3501.9	3501.9	3501.9	3501.9
2.5°	3522.3	3505.5	3468.4	3501.9	3495.5
5°	3501.9	3488.7	3451.6	3478.4	3471.9
7.5°	3478.4	3458.4	3421.2	3448.4	3441.6
10°	3441.6	3418.0	3377.6	3404.4	3394.4
12.5°	3390.8	3370.8	3330.5	3347.2	3340.5
15°	3333.7	3313.7	3269.7	3283.3	3266.5
17.5°	3262.9	3242.9	3199.0	3215.8	3199.0
20°	3185.4	3165.4	3118.2	3128.2	3115.0
22.5°	3108.2	3077.9	3033.9	3033.9	3027.1
25°	3017.1	2990.3	2933.2	2939.6	2933.2
27.5°	2916.0	2892.4	2848.9	2838.9	2822.1
30°	2815.3	2788.1	2737.7	2727.7	2714.2
32.5°	2707.4	2687.4	2633.4	2613.1	2599.5
35°	2603.1	2569.5	2515.5	2495.2	2478.4
37.5°	2485.2	2454.8	2400.8	2377.3	2360.5
40°	2364.0	2336.9	2282.9	2252.9	2239.4
42.5°	2246.1	2219.0	2165.4	2131.5	2111.5
45°	2118.2	2094.7	2043.9	2007.1	1993.6
47.5°	1993.6	1970.0	1916.0	1878.9	1858.9
50°	1862.1	1845.3	1798.1	1751.0	1734.2
52.5°	1734.2	1710.6	1667.0	1629.9	1606.3
55°	1603.1	1582.7	1542.3	1502.0	1485.2
57.5°	1471.6	1454.8	1410.9	1370.5	1356.9
60°	1340.1	1326.9	1279.7	1242.6	1232.6
62.5°	1212.2	1188.6	1155.0	1121.5	1107.9
65°	1081.1	1060.7	1027.1	996.8	980.0
67.5°	946.4	929.3	899.2	875.7	862.1
70°	821.7	808.1	777.8	754.2	741.0
72.5°	693.8	680.2	663.4	639.9	629.9
75°	565.6	559.1	542.0	522.0	528.8
77.5°	451.2	437.7	430.9	420.9	410.9
80°	336.9	333.3	326.5	316.5	309.8
82.5°	229.0	229.0	225.8	212.2	212.2
85°	137.9	134.7	131.5	121.1	117.9
87.5°	60.7	53.9	47.2	37.2	33.6
90°	1.2	14.6	24.4	30.6	32.9
92.5°	30.6	25.7	29.3	31.8	32.9
95°	79.3	39.0	47.6	53.8	52.5
97.5°	142.8	42.8	62.2	66.0	67.1
100°	216.2	48.9	69.6	79.3	81.8
102.5°	296.7	294.3	72.1	85.4	89.2
105°	371.2	407.9	74.5	87.9	92.8
107.5°	457.9	488.3	77.0	90.3	95.3
110°	541.0	566.5	213.7	91.6	96.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	619.1	641.0	620.3	94.0	97.7
115°	702.1	722.8	753.4	188.1	100.2
117.5°	774.1	798.5	819.4	644.6	324.8
120°	854.7	873.0	895.0	909.7	744.8
122.5°	923.0	942.6	967.1	974.4	975.7
125°	992.6	1008.6	1031.8	1040.3	1044.0
127.5°	1056.1	1073.2	1091.7	1103.8	1105.0
130°	1116.0	1135.6	1148.9	1162.4	1161.3
132.5°	1177.1	1193.0	1206.3	1217.4	1216.2
135°	1228.4	1248.0	1258.8	1271.2	1268.7
137.5°	1282.0	1296.7	1309.0	1321.2	1317.6
140°	1334.5	1344.4	1357.7	1368.7	1362.7
142.5°	1378.6	1387.2	1403.0	1412.7	1406.6
145°	1425.0	1423.7	1444.4	1453.0	1446.9
147.5°	1465.2	1461.5	1482.3	1488.4	1483.6
150°	1504.3	1495.8	1515.3	1522.6	1516.5
152.5°	1537.2	1527.5	1545.8	1553.2	1544.6
155°	1569.0	1558.1	1572.7	1580.0	1570.3
157.5°	1594.6	1584.9	1595.9	1604.5	1594.6
160°	1616.7	1609.3	1616.7	1623.9	1615.4
162.5°	1636.1	1628.9	1634.9	1643.5	1632.5
165°	1653.2	1646.0	1649.6	1658.1	1649.6
167.5°	1666.7	1659.3	1663.1	1671.6	1660.6
170°	1677.7	1670.3	1672.8	1681.3	1670.3
172.5°	1685.0	1677.7	1680.2	1688.7	1677.7
175°	1691.1	1682.5	1685.0	1693.5	1681.3
177.5°	1693.5	1685.0	1686.3	1694.8	1683.8
180°	1687.4	1687.4	1687.4	1687.4	1687.4



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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	13.35	14.36	14.18	15.21	16.26	12.92	13.92	13.74	14.77	15.82
	3H	15.02	15.92	15.86	16.78	17.86	14.54	15.44	15.37	16.30	17.38
	4H	15.61	16.46	16.46	17.33	18.42	15.13	15.98	15.98	16.84	17.93
	6H	16.01	16.80	16.88	17.67	18.77	15.52	16.31	16.39	17.18	18.28
	8H	16.12	16.87	16.99	17.76	18.86	15.63	16.38	16.50	17.27	18.37
	12H	16.17	16.89	17.05	17.77	18.90	15.67	16.39	16.55	17.27	18.40
4H	2H	13.83	14.68	14.69	15.55	16.64	13.48	14.33	14.34	15.20	16.29
	3H	15.70	16.41	16.57	17.31	18.41	15.30	16.01	16.17	16.91	18.01
	4H	16.42	17.07	17.30	17.96	19.09	16.00	16.65	16.88	17.54	18.67
	6H	16.93	17.50	17.83	18.41	19.55	16.51	17.07	17.41	17.99	19.12
	8H	17.08	17.61	17.98	18.52	19.67	16.66	17.18	17.56	18.09	19.24
	12H	17.16	17.63	18.08	18.56	19.72	16.72	17.20	17.64	18.13	19.28
8H	4H	16.62	17.15	17.52	18.06	19.20	16.25	16.78	17.15	17.69	18.83
	6H	17.25	17.69	18.18	18.64	19.78	16.88	17.31	17.80	18.26	19.41
	8H	17.47	17.85	18.41	18.80	19.96	17.09	17.47	18.02	18.42	19.58
	12H	17.60	17.94	18.54	18.88	20.09	17.20	17.54	18.14	18.48	19.69
12H	4H	16.61	17.09	17.53	18.02	19.17	16.25	16.72	17.17	17.65	18.81
	6H	17.28	17.67	18.22	18.61	19.77	16.92	17.30	17.85	18.25	19.41
	8H	17.52	17.86	18.46	18.80	20.01	17.15	17.49	18.09	18.43	19.64