

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: P910183

Luminaire Tested: DFN2DIP-TR4F0-090D050US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910183
REPORT IS A COMBINATION OF REPORTS P901917 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D050US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

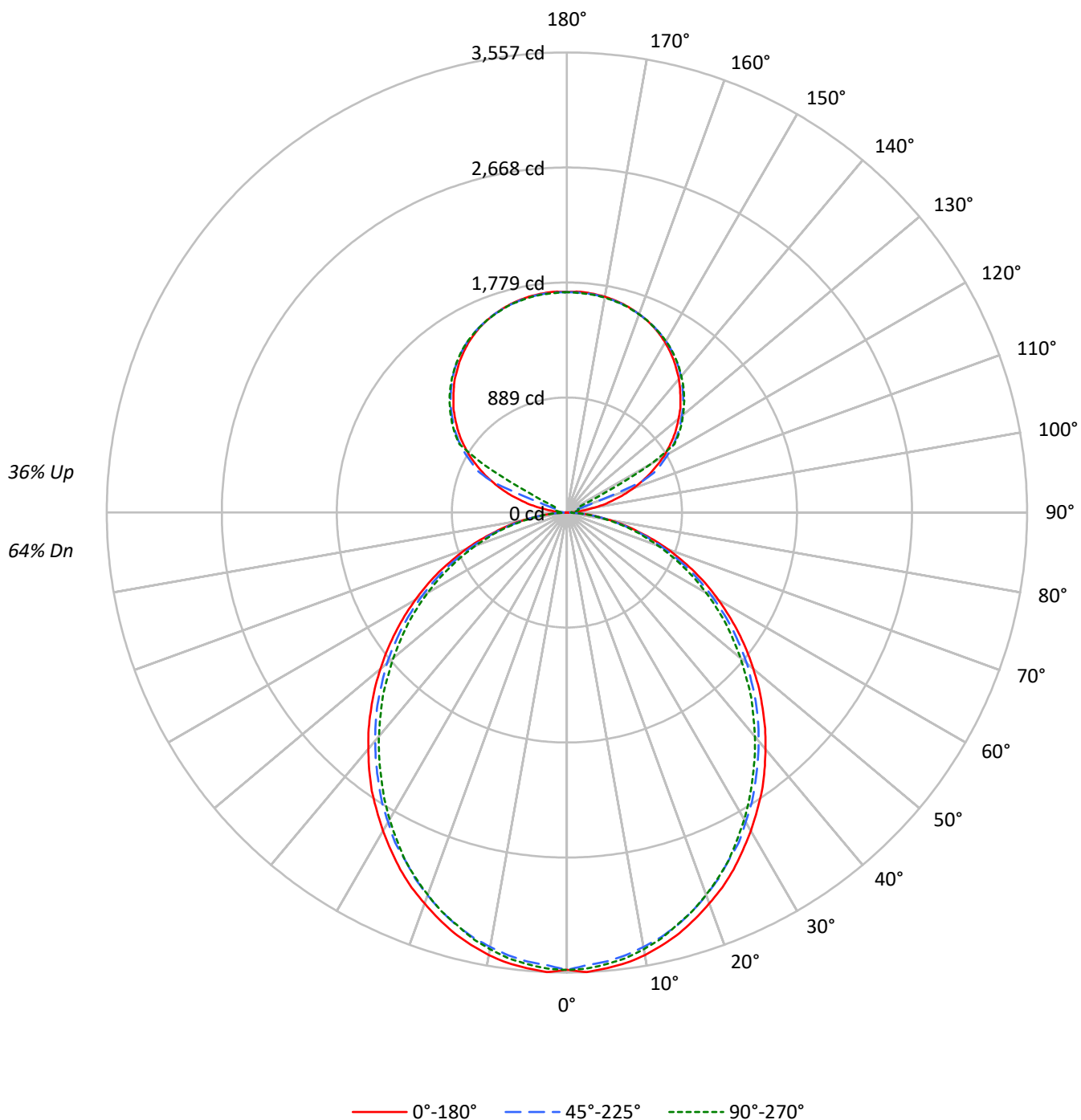
Lumens per Lamp: N/A
Luminaire Lumens: 13996.8 lumens
Efficiency: N/A
Efficacy: 111.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 125.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	111	111	111	111		104	104	104	104		91	91	91		80	80	80		69	69	69
1	101	97	93	89		95	91	87	84		80	78	75		70	68	67		61	60	59
2	92	84	78	73		86	79	74	69		70	66	62		62	59	56		54	51	49
3	84	74	67	61		79	70	63	58		62	57	52		55	51	47		48	45	42
4	77	66	58	51		72	62	55	49		55	49	45		49	44	40		43	39	36
5	71	59	50	44		66	55	48	42		49	43	39		44	39	35		39	35	32
6	65	53	44	38		61	50	42	37		45	38	34		40	35	31		35	31	28
7	60	48	40	34		57	45	38	33		41	34	30		36	31	27		32	28	25
8	56	43	35	30		53	41	34	29		37	31	27		33	28	24		29	25	22
9	52	40	32	27		49	38	31	26		34	28	24		30	26	22		27	23	20
10	49	37	29	24		46	35	28	23		31	26	22		28	23	20		25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2809	2809	2809
5°	2814	2770	2789
10°	2791	2733	2751
15°	2750	2688	2692
20°	2695	2625	2631
25°	2640	2551	2562
30°	2571	2481	2473
35°	2505	2399	2379
40°	2424	2316	2289
45°	2344	2233	2198
50°	2256	2146	2092
55°	2164	2045	1994
60°	2060	1925	1883
65°	1947	1801	1751
70°	1802	1650	1609
75°	1602	1469	1478
80°	1361	1238	1228
85°	985	840	814

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2344 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	2.4
10°-20°	936.5	6.7
20°-30°	1376.3	9.8
30°-40°	1598.5	11.4
40°-50°	1596.5	11.4
50°-60°	1392.1	9.9
60°-70°	1029.1	7.4
70°-80°	582.2	4.2
80°-90°	156.7	1.1
90°-100°	56.2	0.4
100°-110°	209.5	1.5
110°-120°	555.6	4.0
120°-130°	921.4	6.6
130°-140°	978.8	7.0
140°-150°	909.7	6.5
150°-160°	731.3	5.2
160°-170°	471.2	3.4
170°-180°	162.2	1.2
0°-30°	2645.7	18.9
0°-40°	4244.2	30.3
0°-60°	7232.9	51.7
0°-90°	9000.9	64.3
90°-120°	821.2	5.9
90°-150°	3631.1	25.9
90°-180°	4996.0	35.7
0°-180°	13996.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3536	3536	3536	3536	3536	
5°	3536	3523	3486	3513	3506	336
15°	3367	3346	3302	3316	3299	948
25°	3047	3020	2962	2969	2962	1402
35°	2629	2595	2540	2520	2503	1642
45°	2139	2115	2064	2027	2013	1651
55°	1619	1598	1558	1517	1500	1447
65°	1092	1071	1037	1007	990	1079
75°	571	565	547	527	534	610
85°	139	136	133	122	119	155
90°	1	15	25	31	33	13
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1019	1042	1051	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1574	1588	1596	1586	730
165°	1670	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3536.4	3536.4	3536.4	3536.4	3536.4
2.5°	3557.0	3540.1	3502.6	3536.4	3530.0
5°	3536.4	3523.1	3485.7	3512.7	3506.2
7.5°	3512.7	3492.5	3455.0	3482.4	3475.6
10°	3475.6	3451.7	3410.9	3438.0	3427.9
12.5°	3424.3	3404.1	3363.4	3380.2	3373.5
15°	3366.6	3346.4	3302.0	3315.7	3298.7
17.5°	3295.1	3274.9	3230.6	3247.5	3230.6
20°	3216.8	3196.6	3149.0	3159.1	3145.7
22.5°	3138.9	3108.3	3063.8	3063.8	3057.0
25°	3046.9	3019.8	2962.1	2968.6	2962.1
27.5°	2944.8	2920.9	2877.0	2866.9	2849.9
30°	2843.1	2815.6	2764.7	2754.6	2741.0
32.5°	2734.1	2713.9	2659.4	2638.9	2625.1
35°	2628.8	2594.8	2540.3	2519.8	2502.9
37.5°	2509.7	2479.0	2424.5	2400.8	2383.8
40°	2387.3	2360.0	2305.4	2275.1	2261.5
42.5°	2268.3	2240.9	2186.8	2152.5	2132.3
45°	2139.1	2115.4	2064.1	2026.9	2013.3
47.5°	2013.3	1989.4	1934.9	1897.4	1877.2
50°	1880.5	1863.5	1815.8	1768.3	1751.3
52.5°	1751.3	1727.5	1683.4	1646.0	1622.1
55°	1618.9	1598.3	1557.5	1516.8	1499.9
57.5°	1486.1	1469.2	1424.8	1384.0	1370.3
60°	1353.3	1340.0	1292.3	1254.9	1244.8
62.5°	1224.2	1200.3	1166.4	1132.6	1118.8
65°	1091.8	1071.2	1037.2	1006.6	989.7
67.5°	955.7	938.5	908.1	884.3	870.6
70°	829.8	816.1	785.5	761.6	748.3
72.5°	700.6	686.9	669.9	646.2	636.1
75°	571.2	564.6	547.3	527.1	534.0
77.5°	455.7	442.0	435.2	425.1	415.0
80°	340.2	336.6	329.7	319.6	312.9
82.5°	231.3	231.3	228.0	214.3	214.3
85°	139.3	136.0	132.8	122.3	119.1
87.5°	61.3	54.4	47.7	37.6	33.9
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.7	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.9	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	190.0	101.2
117.5°	781.7	806.4	827.5	651.0	328.0
120°	863.1	881.6	903.8	918.7	752.1
122.5°	932.1	951.9	976.6	984.0	985.3
125°	1002.4	1018.6	1042.0	1050.6	1054.3
127.5°	1066.5	1083.8	1102.5	1114.7	1115.9
130°	1127.0	1146.8	1160.2	1173.9	1172.8
132.5°	1188.7	1204.8	1218.2	1229.4	1228.2
135°	1240.5	1260.3	1271.2	1283.7	1281.2
137.5°	1294.6	1309.5	1321.9	1334.2	1330.6
140°	1347.7	1357.7	1371.1	1382.2	1376.1
142.5°	1392.2	1400.9	1416.8	1426.6	1420.5
145°	1439.1	1437.7	1458.6	1467.3	1461.2
147.5°	1479.7	1475.9	1496.9	1503.1	1498.2
150°	1519.1	1510.6	1530.2	1537.6	1531.5
152.5°	1552.4	1542.6	1561.1	1568.5	1559.8
155°	1584.5	1573.5	1588.2	1595.6	1585.8
157.5°	1610.3	1600.5	1611.6	1620.3	1610.3
160°	1632.6	1625.2	1632.6	1639.9	1631.3
162.5°	1652.2	1645.0	1651.0	1659.7	1648.6
165°	1669.5	1662.2	1665.9	1674.5	1665.9
167.5°	1683.1	1675.7	1679.5	1688.1	1677.0
170°	1694.3	1686.8	1689.3	1697.9	1686.8
172.5°	1701.6	1694.3	1696.8	1705.4	1694.3
175°	1707.8	1699.1	1701.6	1710.2	1697.9
177.5°	1710.2	1701.6	1702.9	1711.5	1700.4
180°	1704.0	1704.0	1704.0	1704.0	1704.0

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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	12.08	13.09	12.90	13.93	14.98	11.65	12.66	12.47	13.50	14.55
	3H	13.75	14.66	14.59	15.51	16.59	13.28	14.18	14.12	15.04	16.12
	4H	14.35	15.20	15.20	16.06	17.15	13.87	14.73	14.73	15.59	16.68
	6H	14.75	15.54	15.62	16.41	17.51	14.28	15.07	15.14	15.94	17.04
	8H	14.86	15.61	15.74	16.50	17.60	14.39	15.14	15.26	16.03	17.13
	12H	14.91	15.63	15.79	16.51	17.64	14.43	15.15	15.31	16.03	17.16
4H	2H	12.56	13.41	13.42	14.28	15.37	12.22	13.07	13.07	13.93	15.02
	3H	14.44	15.15	15.31	16.05	17.15	14.05	14.76	14.92	15.65	16.76
	4H	15.16	15.81	16.04	16.70	17.83	14.75	15.40	15.63	16.30	17.43
	6H	15.68	16.24	16.58	17.16	18.29	15.27	15.83	16.17	16.75	17.88
	8H	15.83	16.36	16.73	17.27	18.42	15.42	15.95	16.32	16.86	18.01
	12H	15.91	16.39	16.83	17.32	18.47	15.49	15.97	16.41	16.90	18.05
8H	4H	15.37	15.89	16.27	16.80	17.95	15.01	15.53	15.91	16.44	17.59
	6H	16.00	16.44	16.93	17.39	18.54	15.64	16.08	16.57	17.03	18.18
	8H	16.23	16.61	17.16	17.56	18.72	15.86	16.24	16.79	17.19	18.35
	12H	16.36	16.70	17.30	17.64	18.86	15.98	16.32	16.92	17.26	18.47
12H	4H	15.36	15.83	16.28	16.76	17.92	15.01	15.48	15.93	16.41	17.56
	6H	16.04	16.42	16.97	17.37	18.53	15.68	16.07	16.62	17.01	18.18
	8H	16.28	16.62	17.22	17.56	18.77	15.93	16.27	16.87	17.20	18.42