

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: P910190

Luminaire Tested: DFN2DIP-TR4F0-090D070US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910190
REPORT IS A COMBINATION OF REPORTS P900433 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D070US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

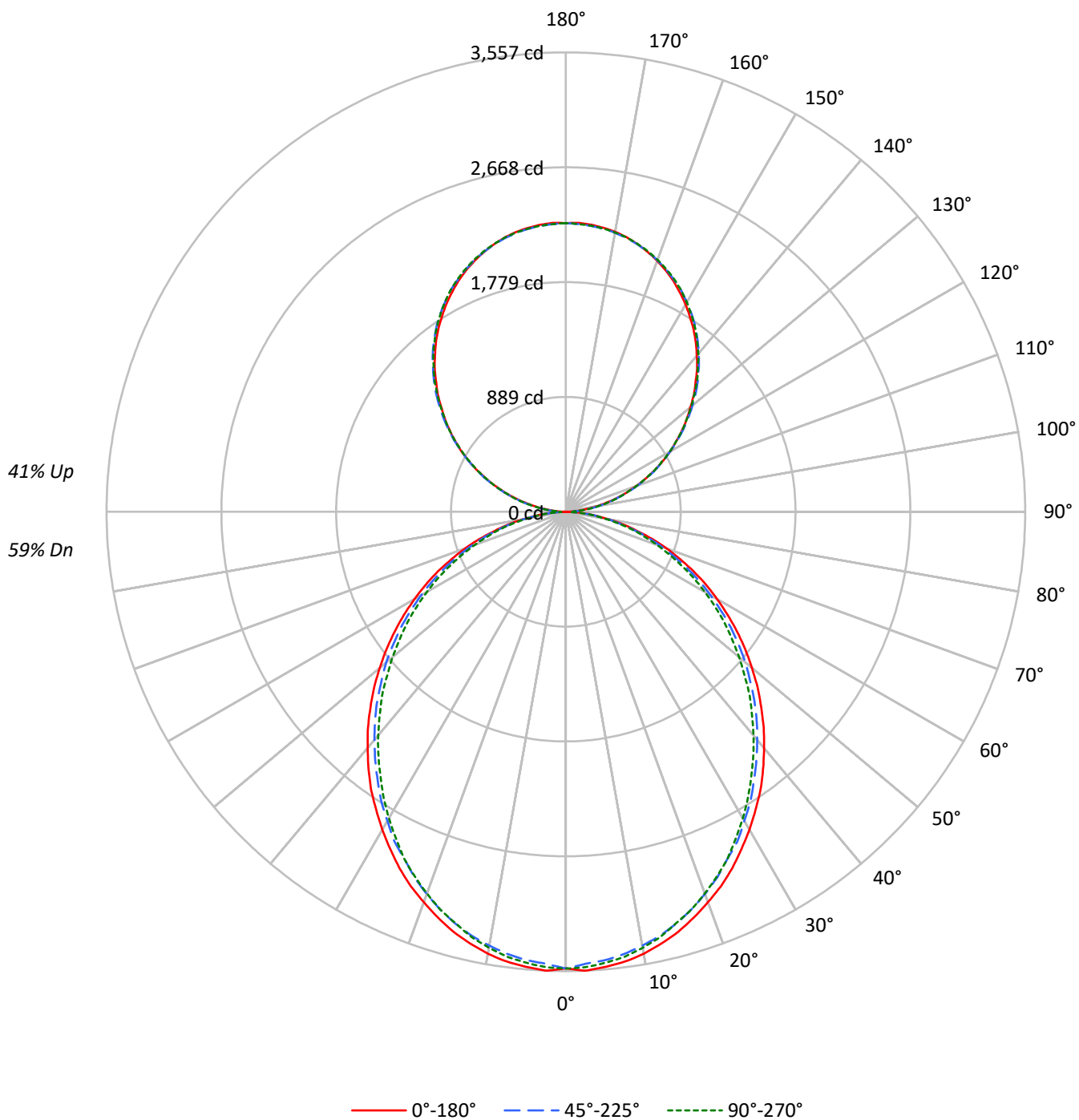
Lumens per Lamp: N/A
Luminaire Lumens: 15254.0 lumens
Efficiency: N/A
Efficacy: 109.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 139.6
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

TEST NUMBER: P910190

CATALOG NUMBER: DFN2DIP-TR4F0-090D070US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P910190

CATALOG NUMBER: DFN2DIP-TR4F0-090D070US840-FLLFLL

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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	95	91	88	93	89	86	83	78	75	73	67	65	63	57	56	54
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	50	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	42	39
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	33	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17

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

TEST NUMBER: P910190

CATALOG NUMBER: DFN2DIP-TR4F0-090D070US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	2.2
10°-20°	936.5	6.1
20°-30°	1376.3	9.0
30°-40°	1598.5	10.5
40°-50°	1596.5	10.5
50°-60°	1392.1	9.1
60°-70°	1029.1	6.7
70°-80°	582.2	3.8
80°-90°	160.0	1.0
90°-100°	138.3	0.9
100°-110°	439.6	2.9
110°-120°	752.2	4.9
120°-130°	989.3	6.5
130°-140°	1110.5	7.3
140°-150°	1088.9	7.1
150°-160°	913.5	6.0
160°-170°	605.8	4.0
170°-180°	211.7	1.4
0°-30°	2645.7	17.3
0°-40°	4244.2	27.8
0°-60°	7232.9	47.4
0°-90°	9004.3	59.0
90°-120°	1330.1	8.7
90°-150°	4518.8	29.6
90°-180°	6250.0	41.0
0°-180°	15254.0	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°	2	24	66	62	64	15
95°	98	117	121	121	117	109
105°	406	411	415	419	419	428
115°	755	766	762	760	755	747
125°	1098	1115	1109	1103	1101	981
135°	1420	1441	1445	1443	1438	1098
145°	1724	1738	1748	1750	1743	1077
155°	1972	1977	1983	1992	1986	907
165°	2145	2143	2143	2156	2147	605
175°	2232	2226	2222	2236	2224	212
180°	2236	2236	2236	2236	2236	

TEST NUMBER: P910190

CATALOG NUMBER: DFN2DIP-TR4F0-090D070US840-FLLFLL

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°	2.0	24.2	66.0	62.0	64.0
92.5°	41.8	56.7	58.7	60.7	60.7
95°	98.4	117.2	120.7	120.7	117.2
97.5°	163.8	181.3	188.7	188.7	188.7
100°	239.2	254.8	260.1	260.1	258.1
102.5°	318.8	330.2	337.7	339.7	337.7
105°	405.8	411.1	415.2	418.6	418.6
107.5°	492.0	500.1	500.1	501.5	492.0
110°	575.6	586.4	586.4	586.4	581.0

TEST NUMBER: P910190

CATALOG NUMBER: DFN2DIP-TR4F0-090D070US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	665.9	677.4	675.4	669.9	665.9
115°	754.9	765.7	762.3	760.3	754.9
117.5°	843.1	858.0	848.6	843.1	837.8
120°	932.1	947.0	932.1	932.1	926.0
122.5°	1013.0	1031.9	1022.5	1017.0	1013.0
125°	1097.9	1114.8	1109.4	1103.4	1101.4
127.5°	1180.8	1201.7	1194.4	1186.3	1180.8
130°	1258.4	1282.6	1279.3	1275.3	1267.8
132.5°	1345.3	1364.2	1365.5	1356.1	1350.7
135°	1420.2	1441.0	1445.1	1443.0	1437.6
137.5°	1503.7	1520.6	1523.9	1522.6	1514.5
140°	1577.2	1594.1	1603.5	1603.5	1596.1
142.5°	1652.6	1669.5	1674.9	1676.9	1669.5
145°	1724.1	1737.6	1748.4	1750.4	1743.0
147.5°	1788.2	1805.0	1813.1	1816.4	1809.1
150°	1854.2	1865.6	1873.1	1879.2	1873.1
152.5°	1912.8	1924.3	1933.7	1941.2	1933.7
155°	1971.5	1976.8	1983.0	1992.4	1986.3
157.5°	2022.1	2026.1	2029.4	2043.0	2033.5
160°	2067.2	2071.2	2073.3	2084.7	2076.6
162.5°	2109.0	2109.0	2111.0	2123.7	2114.4
165°	2144.7	2142.6	2142.6	2156.2	2146.7
167.5°	2177.1	2171.0	2171.0	2184.4	2175.0
170°	2201.3	2196.0	2193.9	2207.4	2196.0
172.5°	2218.2	2212.7	2210.7	2224.2	2212.7
175°	2231.6	2226.2	2222.2	2235.6	2224.2
177.5°	2239.1	2233.6	2229.6	2241.1	2229.6
180°	2235.6	2235.6	2235.6	2235.6	2235.6

TEST NUMBER: P910190

CATALOG NUMBER: DFN2DIP-TR4F0-090D070US840-FLLFLL

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	11.65	12.60	12.52	13.49	14.63	11.22	12.17	12.09	13.06	14.20
	3H	13.32	14.17	14.20	15.07	16.23	12.84	13.69	13.73	14.60	15.76
	4H	13.91	14.71	14.81	15.62	16.80	13.43	14.24	14.34	15.15	16.32
	6H	14.31	15.05	15.23	15.97	17.16	13.84	14.58	14.75	15.50	16.68
	8H	14.42	15.13	15.34	16.06	17.24	13.94	14.65	14.87	15.59	16.77
	12H	14.47	15.14	15.40	16.07	17.28	13.99	14.66	14.92	15.59	16.80
4H	2H	12.12	12.93	13.03	13.84	15.01	11.78	12.58	12.68	13.49	14.66
	3H	13.99	14.67	14.91	15.61	16.80	13.60	14.27	14.52	15.22	16.40
	4H	14.71	15.33	15.64	16.26	17.48	14.31	14.92	15.24	15.86	17.07
	6H	15.23	15.76	16.18	16.72	17.94	14.82	15.35	15.77	16.31	17.53
	8H	15.38	15.88	16.33	16.83	18.06	14.97	15.47	15.92	16.42	17.65
	12H	15.46	15.91	16.43	16.88	18.11	15.04	15.49	16.00	16.46	17.69
8H	4H	14.92	15.41	15.86	16.37	17.59	14.56	15.05	15.50	16.01	17.23
	6H	15.55	15.96	16.52	16.96	18.18	15.19	15.60	16.16	16.60	17.82
	8H	15.77	16.13	16.75	17.12	18.36	15.40	15.77	16.38	16.75	18.00
	12H	15.91	16.23	16.89	17.21	18.50	15.52	15.84	16.51	16.82	18.11
12H	4H	14.91	15.35	15.87	16.33	17.56	14.55	15.00	15.52	15.97	17.21
	6H	15.58	15.94	16.56	16.93	18.17	15.23	15.59	16.21	16.58	17.82
	8H	15.83	16.15	16.81	17.13	18.42	15.47	15.79	16.46	16.77	18.06