

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: P909985

Luminaire Tested: DFN2DIP-TR3F0-090D060US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909985
REPORT IS A COMBINATION OF REPORTS P901845 AND P898751
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-090D060US840-FLLONL
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

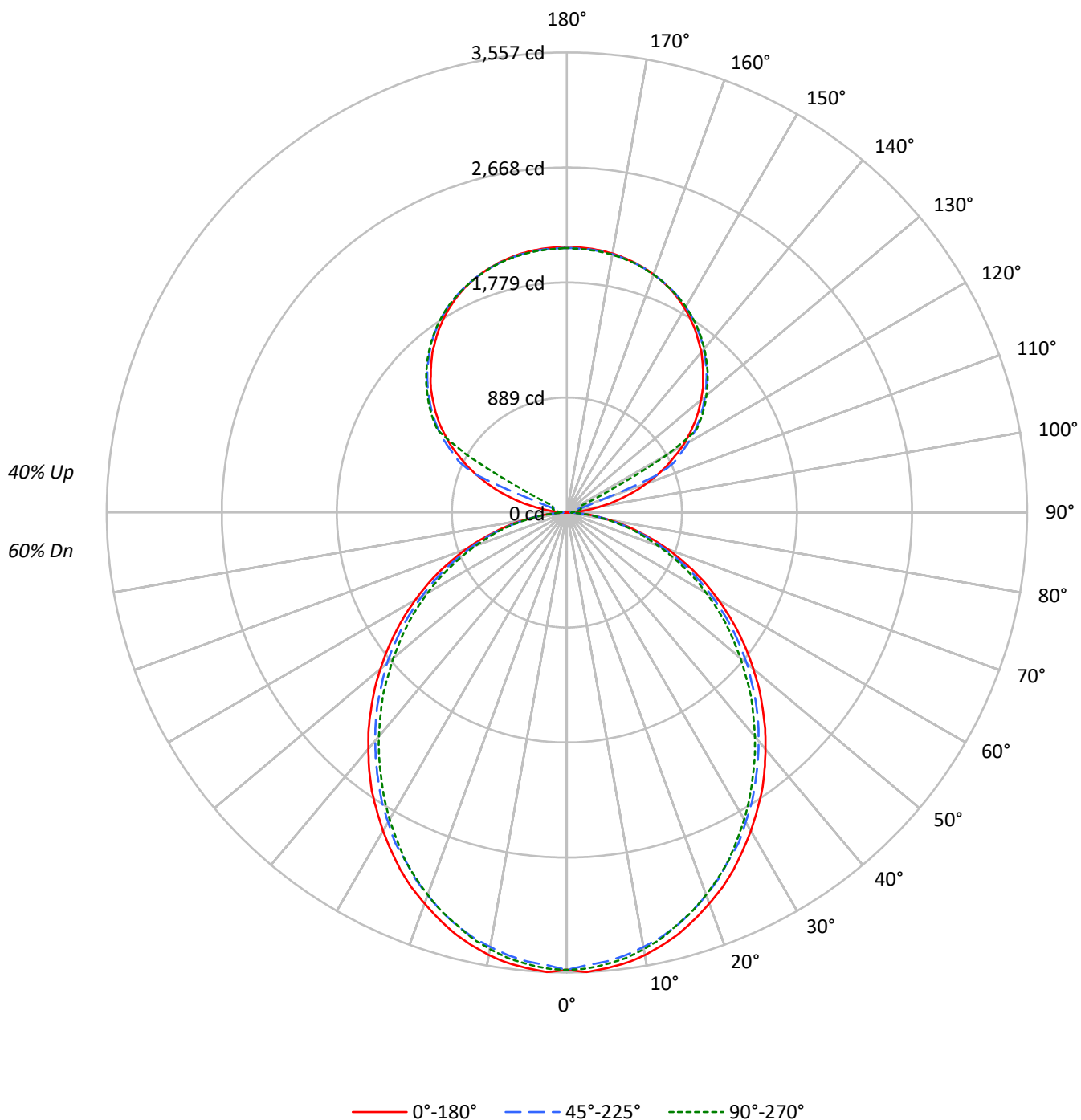
Lumens per Lamp: N/A
Luminaire Lumens: 14996.5 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 140
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909985

CATALOG NUMBER: DFN2DIP-TR3F0-090D060US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P909985

CATALOG NUMBER: DFN2DIP-TR3F0-090D060US840-FLONL

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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4407	4407	4407
5°	4411	4342	4372
10°	4373	4280	4310
15°	4307	4205	4214
20°	4217	4104	4117
25°	4128	3983	4004
30°	4017	3870	3862
35°	3912	3738	3712
40°	3783	3604	3569
45°	3654	3470	3423
50°	3513	3329	3253
55°	3365	3166	3097
60°	3197	2972	2918
65°	3015	2771	2706
70°	2781	2527	2477
75°	2459	2233	2262
80°	2070	1858	1860
85°	1462	1224	1201

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3654 cd/sqm

TEST NUMBER: P909985

CATALOG NUMBER: DFN2DIP-TR3F0-090D060US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	2.2
10°-20°	936.5	6.2
20°-30°	1376.3	9.2
30°-40°	1598.5	10.7
40°-50°	1596.5	10.6
50°-60°	1392.1	9.3
60°-70°	1029.1	6.9
70°-80°	582.2	3.9
80°-90°	157.3	1.0
90°-100°	67.4	0.4
100°-110°	251.4	1.7
110°-120°	666.7	4.4
120°-130°	1105.7	7.4
130°-140°	1174.5	7.8
140°-150°	1091.6	7.3
150°-160°	877.6	5.9
160°-170°	565.5	3.8
170°-180°	194.6	1.3
0°-30°	2645.7	17.6
0°-40°	4244.2	28.3
0°-60°	7232.9	48.2
0°-90°	9001.5	60.0
90°-120°	985.5	6.6
90°-150°	4357.2	29.1
90°-180°	5995.0	40.0
0°-180°	14996.5	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	18	30	37	40	14
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1489	1512	1526	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2004	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2038	195
180°	2045	2045	2045	2045	2045	

TEST NUMBER: P909985

CATALOG NUMBER: DFN2DIP-TR3F0-090D060US840-FLLONL

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°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	262.0	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.4	103.5	108.1
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.8	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8

TEST NUMBER: P909985

CATALOG NUMBER: DFN2DIP-TR3F0-090D060US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.8	751.6	113.8	118.5
115°	850.8	876.0	913.0	227.9	121.4
117.5°	938.1	967.7	992.9	781.2	393.5
120°	1035.8	1057.9	1084.7	1102.4	902.6
122.5°	1118.5	1142.3	1171.9	1180.7	1182.4
125°	1203.0	1222.2	1250.3	1260.7	1265.1
127.5°	1279.9	1300.6	1322.9	1337.7	1339.1
130°	1352.4	1376.1	1392.3	1408.7	1407.2
132.5°	1426.4	1445.7	1461.9	1475.2	1473.8
135°	1488.6	1512.4	1525.5	1540.4	1537.4
137.5°	1553.6	1571.4	1586.3	1601.0	1596.7
140°	1617.2	1629.2	1645.4	1658.7	1651.3
142.5°	1670.6	1681.0	1700.2	1711.9	1704.6
145°	1726.9	1725.3	1750.4	1760.8	1753.4
147.5°	1775.5	1771.1	1796.2	1803.6	1797.9
150°	1823.0	1812.6	1836.3	1845.1	1837.8
152.5°	1862.9	1851.1	1873.2	1882.2	1871.8
155°	1901.4	1888.1	1905.9	1914.7	1902.9
157.5°	1932.5	1920.7	1934.0	1944.4	1932.5
160°	1959.1	1950.2	1959.1	1967.9	1957.6
162.5°	1982.7	1973.9	1981.3	1991.7	1978.3
165°	2003.5	1994.7	1999.0	2009.4	1999.0
167.5°	2019.7	2010.8	2015.4	2025.8	2012.4
170°	2033.2	2024.2	2027.2	2037.5	2024.2
172.5°	2041.9	2033.2	2036.1	2046.5	2033.2
175°	2049.3	2038.9	2041.9	2052.2	2037.5
177.5°	2052.2	2041.9	2043.5	2053.9	2040.5
180°	2044.9	2044.9	2044.9	2044.9	2044.9

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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	13.25	14.21	14.12	15.10	16.22	12.82	13.78	13.69	14.67	15.79
	3H	14.91	15.77	15.79	16.67	17.81	14.44	15.30	15.32	16.20	17.34
	4H	15.49	16.31	16.39	17.21	18.37	15.03	15.84	15.92	16.74	17.90
	6H	15.89	16.64	16.80	17.55	18.72	15.42	16.17	16.33	17.08	18.25
	8H	16.00	16.71	16.91	17.64	18.81	15.53	16.24	16.44	17.17	18.34
	12H	16.04	16.72	16.96	17.65	18.84	15.57	16.25	16.49	17.17	18.37
4H	2H	13.72	14.53	14.62	15.44	16.59	13.38	14.19	14.28	15.09	16.25
	3H	15.58	16.26	16.49	17.20	18.37	15.19	15.87	16.10	16.81	17.98
	4H	16.29	16.91	17.22	17.84	19.04	15.89	16.51	16.81	17.44	18.64
	6H	16.81	17.34	17.74	18.30	19.49	16.40	16.94	17.34	17.89	19.09
	8H	16.95	17.45	17.89	18.40	19.61	16.55	17.05	17.49	18.00	19.21
	12H	17.03	17.48	17.98	18.44	19.66	16.61	17.06	17.57	18.03	19.25
8H	4H	16.50	17.00	17.43	17.94	19.15	16.14	16.64	17.08	17.59	18.80
	6H	17.12	17.53	18.08	18.52	19.73	16.76	17.18	17.73	18.16	19.38
	8H	17.34	17.70	18.31	18.68	19.91	16.97	17.34	17.94	18.32	19.54
	12H	17.47	17.79	18.44	18.76	20.04	17.09	17.41	18.06	18.38	19.66
12H	4H	16.48	16.94	17.44	17.90	19.12	16.14	16.59	17.09	17.55	18.77
	6H	17.15	17.52	18.12	18.49	19.72	16.80	17.17	17.77	18.15	19.37
	8H	17.39	17.71	18.36	18.68	19.96	17.04	17.36	18.01	18.33	19.61