

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: P912986

Luminaire Tested: DFN2DIP-TR4F0-110D060US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912986
REPORT IS A COMBINATION OF REPORTS P900419 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D060US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

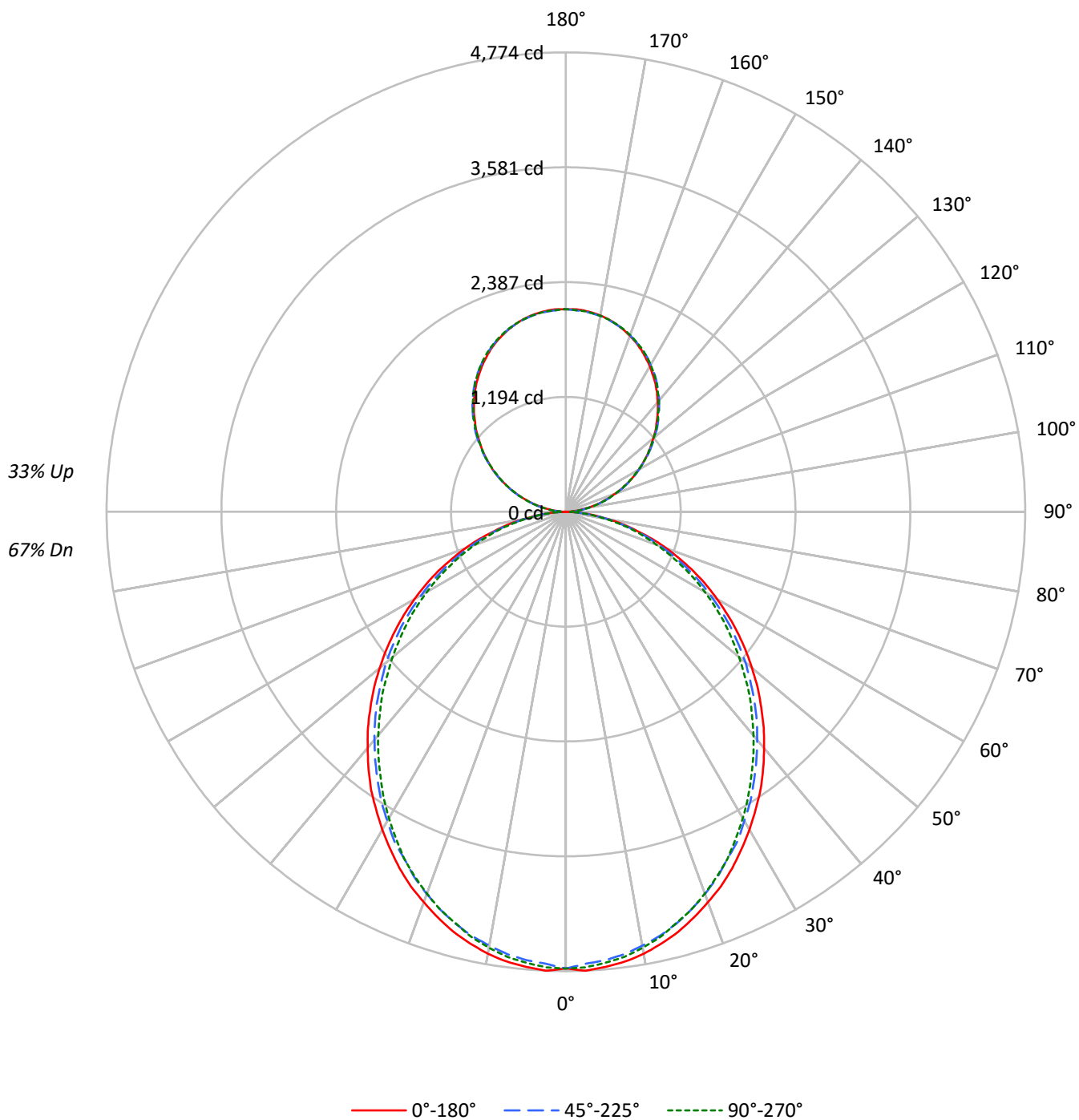
Lumens per Lamp: N/A
Luminaire Lumens: 17965.8 lumens
Efficiency: N/A
Efficacy: 114.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		72
1	102	97	93	90	96	92	88	85	82	79	76		72	70	68		64
2	93	85	79	73	87	80	75	70	72	67	63		63	60	57		56
3	85	75	67	61	79	71	64	58	63	58	53		56	52	48		50
4	77	66	58	52	73	63	55	50	56	50	46		50	45	42		44
5	71	59	51	45	67	56	49	43	50	44	39		45	40	36		40
6	66	53	45	39	62	51	43	37	45	39	35		41	36	32		36
7	61	48	40	34	57	46	38	33	41	35	31		37	32	28		33
8	56	44	36	30	53	42	34	29	38	32	27		34	29	25		31
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28
10	49	37	29	24	46	35	28	24	32	26	22		29	24	21		26

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3771	3771	3771
5°	3777	3718	3743
10°	3746	3668	3692
15°	3691	3608	3613
20°	3617	3524	3532
25°	3543	3424	3438
30°	3450	3330	3319
35°	3362	3220	3193
40°	3254	3109	3073
45°	3146	2997	2950
50°	3028	2880	2807
55°	2905	2745	2677
60°	2765	2584	2527
65°	2613	2417	2350
70°	2419	2214	2160
75°	2150	1971	1984
80°	1827	1662	1648
85°	1322	1128	1092

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3146 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	446.8	2.5
10°-20°	1257.0	7.0
20°-30°	1847.3	10.3
30°-40°	2145.5	11.9
40°-50°	2142.9	11.9
50°-60°	1868.5	10.4
60°-70°	1381.3	7.7
70°-80°	781.5	4.3
80°-90°	212.2	1.2
90°-100°	130.2	0.7
100°-110°	413.7	2.3
110°-120°	708.0	3.9
120°-130°	931.2	5.2
130°-140°	1045.3	5.8
140°-150°	1025.0	5.7
150°-160°	859.8	4.8
160°-170°	570.2	3.2
170°-180°	199.3	1.1
0°-30°	3551.1	19.8
0°-40°	5696.6	31.7
0°-60°	9708.0	54.0
0°-90°	12083.0	67.3
90°-120°	1252.0	7.0
90°-150°	4253.5	23.7
90°-180°	5883.0	32.7
0°-180°	17965.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4747	4747	4747	4747	4747	
5°	4747	4729	4678	4715	4706	451
15°	4519	4491	4432	4450	4428	1273
25°	4090	4053	3976	3984	3976	1882
35°	3528	3483	3410	3382	3359	2203
45°	2871	2839	2770	2721	2702	2216
55°	2173	2145	2091	2036	2013	1943
65°	1465	1438	1392	1351	1328	1449
75°	766	758	735	708	717	818
85°	187	182	178	164	160	209
90°	2	23	62	58	60	17
95°	93	110	114	114	110	103
105°	382	387	391	394	394	403
115°	710	721	718	716	710	703
125°	1034	1049	1044	1039	1037	924
135°	1337	1356	1360	1358	1353	1033
145°	1623	1636	1646	1648	1641	1014
155°	1856	1861	1866	1875	1870	854
165°	2019	2017	2017	2030	2021	569
175°	2101	2096	2092	2104	2094	200
180°	2104	2104	2104	2104	2104	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4746.7	4746.7	4746.7	4746.7	4746.7
2.5°	4774.2	4751.5	4701.2	4746.7	4738.0
5°	4746.7	4728.8	4678.4	4714.7	4706.0
7.5°	4714.7	4687.6	4637.3	4674.1	4664.9
10°	4664.9	4632.8	4578.2	4614.4	4600.9
12.5°	4596.1	4569.0	4514.3	4537.0	4527.8
15°	4518.6	4491.4	4431.9	4450.3	4427.6
17.5°	4422.7	4395.6	4336.1	4358.8	4336.1
20°	4317.7	4290.5	4226.6	4240.2	4222.3
22.5°	4213.1	4171.8	4112.3	4112.3	4103.1
25°	4089.5	4053.3	3975.8	3984.5	3975.8
27.5°	3952.5	3920.5	3861.4	3847.9	3825.2
30°	3816.0	3779.1	3710.8	3697.3	3678.9
32.5°	3669.7	3642.6	3569.4	3541.8	3523.4
35°	3528.3	3482.8	3409.6	3382.0	3359.3
37.5°	3368.5	3327.3	3254.2	3222.2	3199.5
40°	3204.3	3167.5	3094.4	3053.7	3035.3
42.5°	3044.5	3007.7	2935.1	2889.1	2862.0
45°	2871.2	2839.2	2770.4	2720.6	2702.2
47.5°	2702.2	2670.3	2597.1	2546.7	2519.5
50°	2524.0	2501.2	2437.2	2373.4	2350.6
52.5°	2350.6	2318.6	2259.6	2209.1	2177.2
55°	2172.9	2145.2	2090.6	2035.8	2013.1
57.5°	1994.6	1971.9	1912.4	1857.6	1839.2
60°	1816.4	1798.6	1734.6	1684.2	1670.7
62.5°	1643.1	1611.2	1565.6	1520.1	1501.7
65°	1465.3	1437.7	1392.2	1351.1	1328.4
67.5°	1282.8	1259.6	1218.9	1187.0	1168.6
70°	1113.8	1095.4	1054.2	1022.3	1004.3
72.5°	940.4	922.0	899.3	867.3	853.7
75°	766.5	757.9	734.6	707.5	716.7
77.5°	611.6	593.2	584.0	570.5	556.9
80°	456.7	451.8	442.6	429.1	419.9
82.5°	310.4	310.4	306.1	287.7	287.7
85°	187.0	182.5	178.2	164.1	159.8
87.5°	82.3	73.1	63.9	50.3	45.5
90°	1.9	22.8	62.2	58.3	60.2
92.5°	39.4	53.3	55.2	57.1	57.1
95°	92.6	110.3	113.6	113.6	110.3
97.5°	154.2	170.7	177.7	177.7	177.7
100°	225.2	239.8	244.9	244.9	243.0
102.5°	300.1	310.9	317.8	319.7	317.8
105°	381.9	387.0	390.8	394.0	394.0
107.5°	463.1	470.8	470.8	472.0	463.1
110°	541.9	551.9	551.9	551.9	546.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	626.8	637.6	635.7	630.6	626.8
115°	710.5	720.7	717.5	715.6	710.5
117.5°	793.7	807.7	798.7	793.7	788.6
120°	877.4	891.4	877.4	877.4	871.7
122.5°	953.5	971.3	962.4	957.4	953.5
125°	1033.5	1049.3	1044.2	1038.6	1036.7
127.5°	1111.6	1131.2	1124.2	1116.7	1111.6
130°	1184.5	1207.4	1204.2	1200.4	1193.4
132.5°	1266.4	1284.1	1285.3	1276.5	1271.4
135°	1336.8	1356.4	1360.2	1358.3	1353.2
137.5°	1415.4	1431.3	1434.5	1433.2	1425.6
140°	1484.6	1500.5	1509.3	1509.3	1502.4
142.5°	1555.6	1571.5	1576.6	1578.4	1571.5
145°	1622.9	1635.6	1645.8	1647.6	1640.7
147.5°	1683.1	1699.0	1706.6	1709.7	1702.8
150°	1745.3	1756.1	1763.1	1768.7	1763.1
152.5°	1800.5	1811.3	1820.2	1827.2	1820.2
155°	1855.7	1860.8	1866.4	1875.4	1869.7
157.5°	1903.3	1907.1	1910.3	1923.0	1914.1
160°	1945.9	1949.6	1951.5	1962.3	1954.7
162.5°	1985.1	1985.1	1987.0	1999.1	1990.2
165°	2018.7	2016.8	2016.8	2029.6	2020.7
167.5°	2049.2	2043.6	2043.6	2056.2	2047.3
170°	2072.1	2067.0	2065.1	2077.7	2067.0
172.5°	2087.9	2082.8	2080.9	2093.6	2082.8
175°	2100.6	2095.6	2091.7	2104.4	2093.6
177.5°	2107.5	2102.6	2098.7	2109.4	2098.7
180°	2104.4	2104.4	2104.4	2104.4	2104.4

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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	13.33	14.38	14.13	15.19	16.19	12.90	13.94	13.70	14.76	15.76
	3H	15.01	15.94	15.81	16.77	17.80	14.54	15.47	15.34	16.30	17.33
	4H	15.60	16.49	16.43	17.32	18.36	15.13	16.01	15.95	16.85	17.89
	6H	16.01	16.83	16.85	17.67	18.72	15.54	16.35	16.37	17.19	18.25
	8H	16.12	16.90	16.97	17.76	18.81	15.65	16.42	16.49	17.28	18.34
	12H	16.18	16.92	17.03	17.77	18.85	15.70	16.44	16.55	17.29	18.37
4H	2H	13.82	14.70	14.65	15.53	16.58	13.47	14.36	14.30	15.19	16.23
	3H	15.70	16.44	16.54	17.30	18.36	15.31	16.04	16.15	16.91	17.97
	4H	16.42	17.09	17.27	17.96	19.04	16.02	16.69	16.87	17.55	18.64
	6H	16.95	17.53	17.82	18.42	19.50	16.54	17.12	17.41	18.01	19.10
	8H	17.10	17.64	17.97	18.53	19.63	16.69	17.23	17.56	18.12	19.22
	12H	17.18	17.67	18.07	18.57	19.68	16.76	17.25	17.65	18.15	19.26
8H	4H	16.63	17.18	17.50	18.06	19.16	16.27	16.82	17.14	17.70	18.80
	6H	17.27	17.72	18.17	18.65	19.75	16.91	17.36	17.81	18.28	19.39
	8H	17.49	17.89	18.40	18.81	19.93	17.12	17.52	18.03	18.44	19.56
	12H	17.63	17.99	18.55	18.90	20.07	17.25	17.60	18.16	18.51	19.68
12H	4H	16.63	17.12	17.52	18.02	19.13	16.27	16.76	17.17	17.67	18.77
	6H	17.30	17.70	18.21	18.62	19.74	16.95	17.35	17.86	18.27	19.39
	8H	17.55	17.90	18.47	18.82	19.99	17.20	17.55	18.11	18.46	19.63