

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: P907533

Luminaire Tested: DFN2DIP-TR4F0-110D060US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907533
REPORT IS A COMBINATION OF REPORTS P901940 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D060US835-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

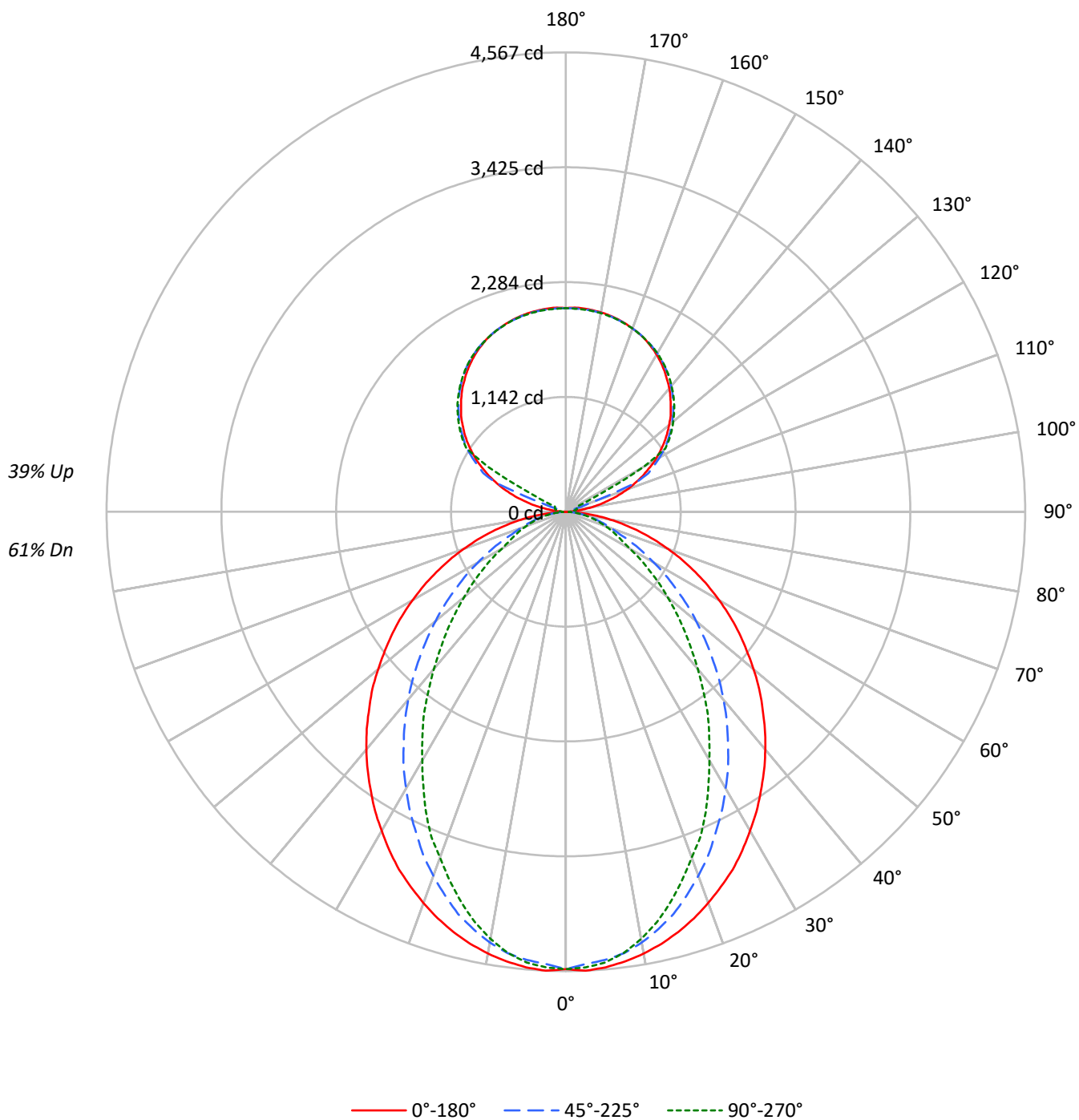
Lumens per Lamp: N/A
Luminaire Lumens: 15290.0 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

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	30	10
RCR																	
0	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66
1	101	97	93	90	94	91	87	85	79	77	75	69	67	66	60	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	59	54	73	63	56	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	61	49	41	36	58	47	40	35	42	36	32	37	32	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	29	26	30	26	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3612	3612	3612
5°	3618	3554	3577
10°	3582	3485	3461
15°	3532	3369	3280
20°	3467	3211	3060
25°	3400	3033	2846
30°	3311	2850	2576
35°	3223	2654	2338
40°	3134	2451	2066
45°	3030	2226	1819
50°	2922	1998	1578
55°	2810	1755	1346
60°	2680	1501	1108
65°	2531	1243	997
70°	2350	1002	902
75°	2123	883	820
80°	1794	741	711
85°	1250	494	534

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3030 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	426.1	2.8
10°-20°	1169.7	7.7
20°-30°	1642.2	10.7
30°-40°	1790.1	11.7
40°-50°	1645.3	10.8
50°-60°	1292.1	8.5
60°-70°	841.1	5.5
70°-80°	432.9	2.8
80°-90°	114.1	0.7
90°-100°	66.8	0.4
100°-110°	248.9	1.6
110°-120°	660.2	4.3
120°-130°	1094.9	7.2
130°-140°	1163.0	7.6
140°-150°	1080.9	7.1
150°-160°	869.0	5.7
160°-170°	560.0	3.7
170°-180°	192.7	1.3
0°-30°	3238.0	21.2
0°-40°	5028.1	32.9
0°-60°	7965.5	52.1
0°-90°	9353.6	61.2
90°-120°	975.8	6.4
90°-150°	4314.7	28.2
90°-180°	5936.0	38.8
0°-180°	15290.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4546	4546	4546	4546	4546	
5°	4546	4526	4472	4509	4497	431
15°	4324	4279	4139	4061	4020	1218
25°	3925	3793	3522	3353	3291	1805
35°	3382	3172	2810	2551	2460	2117
45°	2765	2489	2057	1765	1666	2135
55°	2102	1781	1337	1090	1012	1879
65°	1420	1086	716	576	564	1407
75°	757	469	329	300	296	801
85°	177	90	78	78	78	203
90°	1	18	29	37	40	14
95°	95	47	57	65	63	113
105°	445	489	89	105	111	476
115°	842	867	904	226	120	829
125°	1191	1210	1238	1248	1253	1062
135°	1474	1498	1511	1525	1522	1139
145°	1710	1708	1733	1744	1736	1069
155°	1883	1870	1887	1896	1884	868
165°	1984	1975	1980	1990	1980	560
175°	2029	2019	2022	2032	2018	193
180°	2025	2025	2025	2025	2025	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4546.3	4546.3	4546.3	4546.3	4546.3
2.5°	4566.8	4546.3	4500.9	4542.4	4534.1
5°	4546.3	4525.8	4472.1	4509.2	4497.0
7.5°	4509.2	4484.7	4427.1	4443.3	4422.7
10°	4459.9	4431.0	4349.0	4336.3	4311.9
12.5°	4398.3	4361.2	4249.9	4225.4	4180.0
15°	4324.1	4278.7	4139.0	4060.9	4019.8
17.5°	4237.7	4171.8	3998.9	3908.5	3842.6
20°	4139.0	4056.5	3850.9	3748.3	3657.5
22.5°	4032.1	3937.3	3698.6	3558.9	3497.3
25°	3925.1	3793.3	3521.8	3353.3	3291.3
27.5°	3797.7	3657.5	3357.2	3163.8	3069.1
30°	3661.9	3505.2	3176.1	2966.5	2855.2
32.5°	3530.1	3340.6	3003.6	2756.6	2653.6
35°	3382.1	3172.1	2810.3	2551.0	2460.2
37.5°	3238.1	3011.5	2629.1	2344.9	2242.4
40°	3085.7	2839.1	2439.7	2147.6	2040.7
42.5°	2929.4	2666.2	2250.7	1946.0	1843.4
45°	2764.9	2489.0	2057.3	1764.8	1666.2
47.5°	2608.6	2316.6	1872.2	1579.7	1489.4
50°	2435.7	2143.7	1691.1	1406.9	1320.9
52.5°	2266.8	1958.2	1518.2	1246.7	1168.5
55°	2102.2	1781.4	1337.0	1090.4	1012.3
57.5°	1933.8	1604.6	1176.8	946.4	880.4
60°	1760.9	1431.8	1007.9	798.4	732.5
62.5°	1592.4	1263.3	863.9	666.6	633.8
65°	1419.5	1086.0	715.9	576.2	563.5
67.5°	1255.0	921.5	576.2	505.9	493.7
70°	1082.1	761.3	477.1	436.1	419.5
72.5°	917.5	612.9	399.0	366.2	357.9
75°	756.9	468.8	329.1	300.3	296.4
77.5°	596.7	333.1	259.3	242.7	234.4
80°	448.3	238.8	197.3	181.2	181.2
82.5°	312.5	160.6	135.8	127.5	127.5
85°	176.8	90.4	78.1	78.1	78.1
87.5°	65.9	32.7	32.7	28.8	28.8
90°	1.4	17.6	29.2	36.7	39.5
92.5°	36.7	30.8	35.1	38.1	39.5
95°	95.2	46.8	57.1	64.6	63.0
97.5°	171.4	51.3	74.6	79.2	80.6
100°	259.4	58.6	83.5	95.2	98.1
102.5°	356.0	353.2	86.5	102.5	107.0
105°	445.4	489.4	89.4	105.4	111.4
107.5°	549.5	586.0	92.4	108.4	114.3
110°	649.2	679.8	256.5	110.0	115.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	742.9	769.2	744.3	112.7	117.3
115°	842.5	867.4	904.1	225.7	120.2
117.5°	928.9	958.2	983.2	773.6	389.7
120°	1025.7	1047.6	1074.1	1091.6	893.8
122.5°	1107.6	1131.1	1160.5	1169.2	1170.8
125°	1191.2	1210.3	1238.1	1248.4	1252.7
127.5°	1267.4	1287.9	1310.0	1324.6	1326.0
130°	1339.2	1362.7	1378.7	1394.9	1393.5
132.5°	1412.5	1431.6	1447.6	1460.8	1459.4
135°	1474.1	1497.6	1510.6	1525.4	1522.4
137.5°	1538.4	1556.0	1570.8	1585.4	1581.1
140°	1601.4	1613.3	1629.3	1642.5	1635.2
142.5°	1654.3	1664.6	1683.6	1695.2	1687.9
145°	1710.0	1708.4	1733.3	1743.6	1736.3
147.5°	1758.2	1753.8	1778.7	1786.0	1780.3
150°	1805.2	1794.9	1818.4	1827.1	1819.8
152.5°	1844.7	1833.0	1854.9	1863.8	1853.5
155°	1882.8	1869.7	1887.3	1896.0	1884.3
157.5°	1913.6	1901.9	1915.1	1925.4	1913.6
160°	1940.0	1931.1	1940.0	1948.7	1938.5
162.5°	1963.3	1954.6	1961.9	1972.2	1959.0
165°	1983.9	1975.2	1979.5	1989.8	1979.5
167.5°	2000.0	1991.2	1995.7	2006.0	1992.7
170°	2013.3	2004.4	2007.4	2017.6	2004.4
172.5°	2022.0	2013.3	2016.2	2026.5	2013.3
175°	2029.3	2019.0	2022.0	2032.2	2017.6
177.5°	2032.2	2022.0	2023.5	2033.8	2020.6
180°	2024.9	2024.9	2024.9	2024.9	2024.9

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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	12.59	13.52	13.45	14.40	15.50	8.56	9.49	9.42	10.37	11.48
	3H	14.27	15.10	15.15	15.99	17.12	9.76	10.59	10.63	11.48	12.61
	4H	14.89	15.67	15.78	16.56	17.71	10.21	11.00	11.10	11.89	13.04
	6H	15.31	16.03	16.21	16.94	18.09	10.54	11.26	11.44	12.17	13.32
	8H	15.44	16.13	16.35	17.05	18.20	10.63	11.32	11.55	12.24	13.39
	12H	15.51	16.16	16.42	17.07	18.25	10.68	11.34	11.60	12.25	13.43
4H	2H	12.62	13.40	13.51	14.30	15.44	9.17	9.95	10.06	10.85	11.99
	3H	14.46	15.11	15.36	16.03	17.19	10.53	11.18	11.44	12.11	13.26
	4H	15.15	15.75	16.07	16.67	17.85	11.08	11.68	12.00	12.60	13.78
	6H	15.67	16.18	16.60	17.13	18.31	11.51	12.02	12.44	12.96	14.15
	8H	15.85	16.33	16.78	17.27	18.46	11.64	12.12	12.57	13.06	14.25
	12H	15.95	16.38	16.90	17.34	18.54	11.71	12.14	12.66	13.10	14.30
8H	4H	15.13	15.61	16.06	16.54	17.74	11.37	11.85	12.30	12.79	13.98
	6H	15.70	16.09	16.66	17.07	18.27	11.89	12.29	12.85	13.27	14.46
	8H	15.91	16.26	16.88	17.23	18.45	12.08	12.43	13.05	13.40	14.62
	12H	16.06	16.36	17.03	17.33	18.59	12.21	12.52	13.18	13.48	14.74
12H	4H	15.08	15.51	16.04	16.47	17.67	11.38	11.81	12.33	12.77	13.97
	6H	15.67	16.02	16.64	16.99	18.21	11.94	12.29	12.91	13.26	14.48
	8H	15.90	16.20	16.87	17.17	18.43	12.16	12.46	13.13	13.43	14.69