

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: P906171

Luminaire Tested: DFN2DIP-PN4F0-120D060US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906171
REPORT IS A COMBINATION OF REPORTS P901182 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D060US835-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

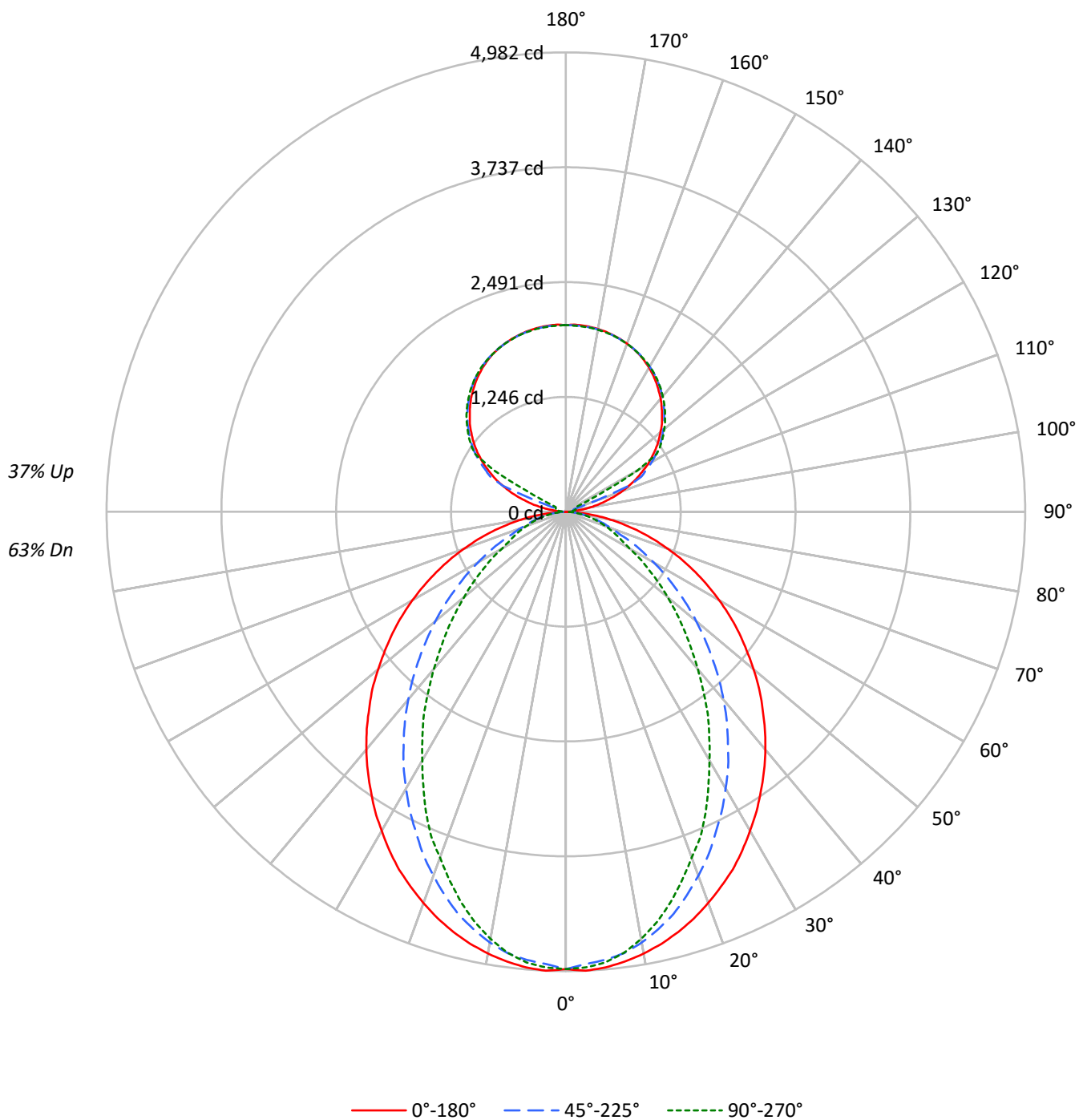
Lumens per Lamp: N/A
Luminaire Lumens: 16140.0 lumens
Efficiency: N/A
Efficacy: 94.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 171.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3620	3620	3620
5°	3626	3563	3586
10°	3590	3494	3470
15°	3541	3379	3290
20°	3475	3220	3070
25°	3408	3042	2856
30°	3318	2860	2586
35°	3230	2663	2348
40°	3141	2460	2075
45°	3037	2235	1828
50°	2929	2007	1586
55°	2817	1763	1354
60°	2686	1509	1115
65°	2537	1250	1004
70°	2355	1009	910
75°	2127	890	829
80°	1797	748	721
85°	1252	502	547

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3037 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	464.8	2.9
10°-20°	1276.0	7.9
20°-30°	1791.5	11.1
30°-40°	1952.8	12.1
40°-50°	1794.9	11.1
50°-60°	1409.6	8.7
60°-70°	917.5	5.7
70°-80°	472.3	2.9
80°-90°	124.1	0.8
90°-100°	66.8	0.4
100°-110°	248.9	1.5
110°-120°	660.2	4.1
120°-130°	1094.9	6.8
130°-140°	1163.0	7.2
140°-150°	1080.9	6.7
150°-160°	869.0	5.4
160°-170°	560.0	3.5
170°-180°	192.7	1.2
0°-30°	3532.3	21.9
0°-40°	5485.2	34.0
0°-60°	8689.6	53.8
0°-90°	10203.6	63.2
90°-120°	975.8	6.0
90°-150°	4314.7	26.7
90°-180°	5936.0	36.8
0°-180°	16140.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4960	4960	4960	4960	4960	
5°	4960	4937	4879	4919	4906	470
15°	4717	4668	4515	4430	4385	1329
25°	4282	4138	3842	3658	3590	1969
35°	3690	3460	3066	2783	2684	2309
45°	3016	2715	2244	1925	1818	2329
55°	2293	1943	1459	1190	1104	2049
65°	1549	1185	781	629	615	1535
75°	826	511	359	328	323	873
85°	193	99	85	85	85	221
90°	1	18	29	37	40	15
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°	4959.6	4959.6	4959.6	4959.6	4959.6
2.5°	4982.0	4959.6	4910.1	4955.3	4946.2
5°	4959.6	4937.2	4878.6	4919.1	4905.8
7.5°	4919.1	4892.4	4829.6	4847.2	4824.8
10°	4865.3	4833.9	4744.3	4730.5	4703.9
12.5°	4798.1	4757.7	4636.2	4609.6	4560.1
15°	4717.2	4667.7	4515.3	4430.0	4385.3
17.5°	4622.9	4551.0	4362.4	4263.9	4192.0
20°	4515.3	4425.3	4201.0	4089.1	3990.0
22.5°	4398.6	4295.3	4034.8	3882.4	3815.3
25°	4282.0	4138.1	3841.9	3658.1	3590.5
27.5°	4142.9	3990.0	3662.4	3451.5	3348.1
30°	3994.8	3823.9	3464.8	3236.2	3114.8
32.5°	3851.0	3644.3	3276.7	3007.2	2894.8
35°	3689.6	3460.5	3065.7	2782.9	2683.8
37.5°	3532.4	3285.3	2868.1	2558.1	2446.2
40°	3366.2	3097.2	2661.5	2342.9	2226.2
42.5°	3195.7	2908.6	2455.3	2122.9	2011.0
45°	3016.2	2715.3	2244.3	1925.3	1817.6
47.5°	2845.7	2527.2	2042.4	1723.4	1624.8
50°	2657.2	2338.6	1844.8	1534.8	1441.0
52.5°	2472.9	2136.2	1656.2	1360.0	1274.8
55°	2293.4	1943.4	1458.6	1189.5	1104.3
57.5°	2109.5	1750.5	1283.8	1032.4	960.5
60°	1921.0	1561.9	1099.5	871.0	799.1
62.5°	1737.2	1378.1	942.4	727.2	691.4
65°	1548.6	1184.8	781.0	628.6	614.8
67.5°	1369.1	1005.2	628.6	551.9	538.6
70°	1180.5	830.5	520.5	475.7	457.6
72.5°	1001.0	668.6	435.2	399.5	390.5
75°	825.7	511.4	359.1	327.6	323.3
77.5°	651.0	363.3	282.9	264.8	255.7
80°	489.1	260.5	215.2	197.6	197.6
82.5°	341.0	175.2	148.1	139.0	139.0
85°	192.9	98.6	85.2	85.2	85.2
87.5°	71.9	35.7	35.7	31.4	31.4
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	12.78	13.73	13.62	14.59	15.66	8.74	9.69	9.58	10.55	11.62
	3H	14.47	15.32	15.32	16.19	17.28	9.94	10.79	10.79	11.66	12.76
	4H	15.08	15.88	15.95	16.76	17.87	10.40	11.20	11.27	12.07	13.18
	6H	15.51	16.25	16.40	17.13	18.26	10.72	11.46	11.61	12.35	13.47
	8H	15.64	16.35	16.54	17.25	18.37	10.82	11.52	11.71	12.42	13.54
	12H	15.71	16.38	16.61	17.27	18.42	10.87	11.54	11.76	12.43	13.58
4H	2H	12.81	13.61	13.69	14.49	15.60	9.35	10.16	10.23	11.03	12.14
	3H	14.65	15.32	15.54	16.23	17.35	10.72	11.38	11.60	12.29	13.41
	4H	15.35	15.96	16.25	16.86	18.01	11.27	11.88	12.17	12.78	13.93
	6H	15.88	16.40	16.79	17.33	18.48	11.70	12.22	12.61	13.15	14.30
	8H	16.06	16.54	16.97	17.47	18.63	11.83	12.32	12.74	13.24	14.40
	12H	16.16	16.60	17.09	17.54	18.71	11.90	12.34	12.83	13.28	14.45
8H	4H	15.33	15.82	16.24	16.74	17.90	11.56	12.05	12.47	12.97	14.14
	6H	15.90	16.31	16.84	17.27	18.43	12.08	12.49	13.03	13.45	14.62
	8H	16.12	16.48	17.07	17.43	18.62	12.28	12.63	13.23	13.59	14.77
	12H	16.27	16.58	17.22	17.53	18.76	12.40	12.71	13.35	13.66	14.90
12H	4H	15.29	15.73	16.22	16.67	17.84	11.57	12.01	12.50	12.95	14.12
	6H	15.88	16.24	16.83	17.19	18.37	12.13	12.49	13.09	13.45	14.63
	8H	16.11	16.42	17.06	17.37	18.60	12.35	12.66	13.30	13.61	14.85