

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: P905019

Luminaire Tested: DFN2DIP-4P4F0-030D070US835-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905019
REPORT IS A COMBINATION OF REPORTS P900647 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D070US835-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

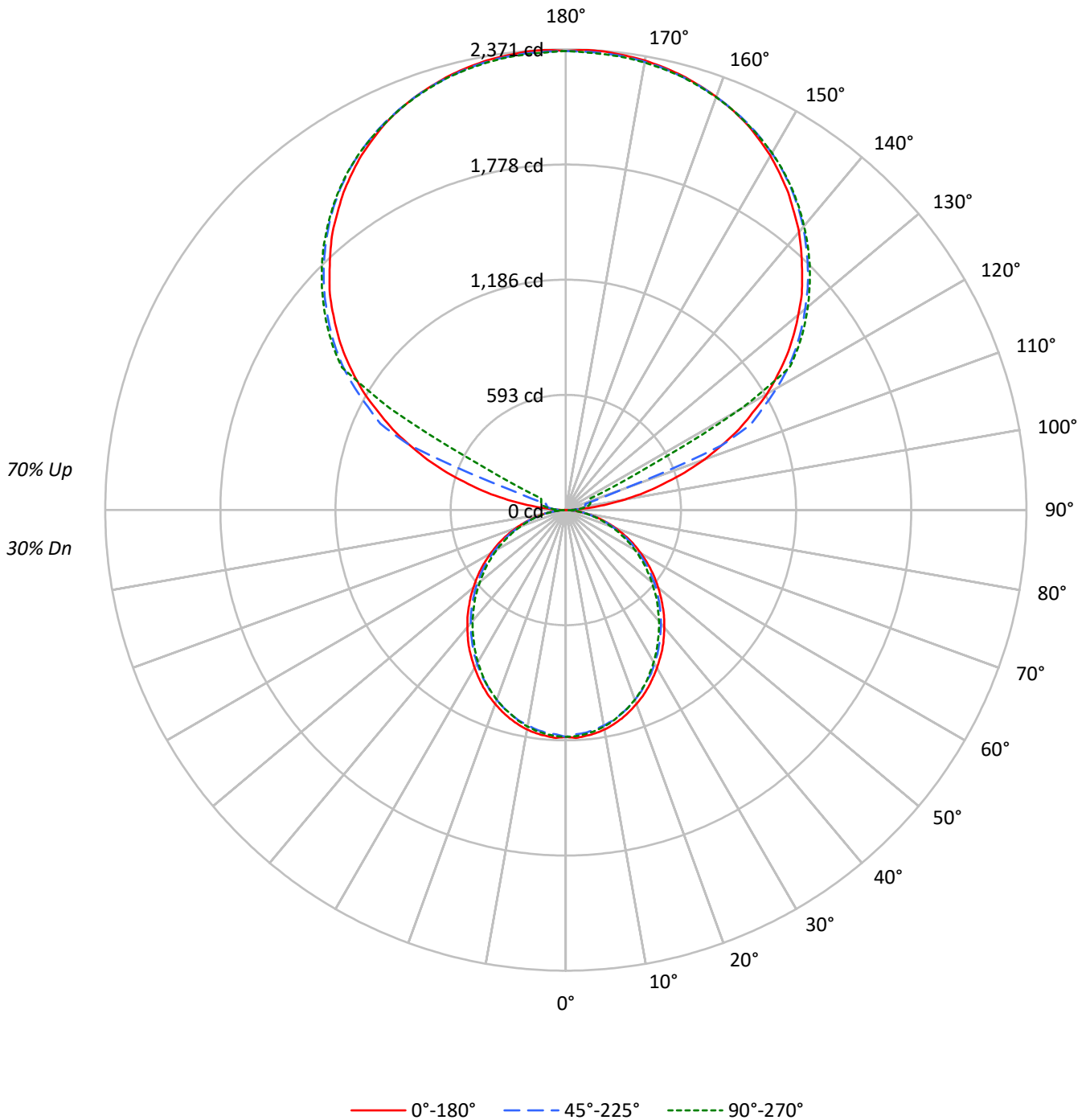
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9900.0 lumens
Efficiency: N/A
Efficacy: 111.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 88.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P905019
CATALOG NUMBER: DFN2DIP-4P4F0-030D070US835-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P905019
 CATALOG NUMBER: DFN2DIP-4P4F0-030D070US835-FLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	33	33	32	33	33	32	25
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	29	28	27	29	28	27	21
3	77	68	61	56	69	62	56	51	49	45	41	37	34	32	26	24	23	26	24	23	18
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20	23	21	20	15
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17	21	19	17	13
6	60	48	40	35	53	43	37	32	35	30	26	27	23	20	19	17	15	19	17	15	12
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13	17	15	13	10
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12	16	14	12	9
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11	15	12	11	8
10	44	32	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10	14	11	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	757	757	757
5°	759	747	752
10°	752	737	742
15°	741	725	726
20°	727	709	710
25°	712	689	692
30°	693	670	668
35°	676	648	643
40°	654	626	619
45°	632	604	595
50°	609	581	567
55°	584	554	541
60°	556	522	511
65°	526	489	476
70°	487	449	439
75°	433	401	405
80°	368	340	339
85°	267	233	228

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1218 cd/sqm



TEST NUMBER: P905019

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.9	1.1
10°-20°	309.1	3.1
20°-30°	454.3	4.6
30°-40°	527.6	5.3
40°-50°	527.0	5.3
50°-60°	459.5	4.6
60°-70°	339.7	3.4
70°-80°	192.2	1.9
80°-90°	54.9	0.6
90°-100°	77.9	0.8
100°-110°	290.4	2.9
110°-120°	770.2	7.8
120°-130°	1277.4	12.9
130°-140°	1356.9	13.7
140°-150°	1261.1	12.7
150°-160°	1013.9	10.2
160°-170°	653.3	6.6
170°-180°	224.9	2.3
0°-30°	873.3	8.8
0°-40°	1400.9	14.2
0°-60°	2387.4	24.1
0°-90°	2974.2	30.0
90°-120°	1138.5	11.5
90°-150°	5033.8	50.8
90°-180°	6926.0	70.0
0°-180°	9900.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1167	1167	1167	1167	1167	
5°	1167	1163	1150	1160	1157	111
15°	1111	1105	1090	1094	1089	313
25°	1006	997	978	980	978	463
35°	868	856	838	832	826	542
45°	706	698	681	669	664	545
55°	534	528	514	501	495	478
65°	360	354	342	332	327	356
75°	188	186	181	174	176	201
85°	46	45	44	40	39	51
90°	2	20	34	43	46	9
95°	111	55	67	75	74	131
105°	520	571	104	123	130	555
115°	983	1012	1055	263	140	968
125°	1390	1412	1444	1456	1462	1239
135°	1720	1747	1762	1780	1776	1328
145°	1995	1993	2022	2034	2026	1248
155°	2197	2181	2202	2212	2198	1012
165°	2314	2304	2309	2321	2309	654
175°	2368	2356	2359	2371	2354	225
180°	2362	2362	2362	2362	2362	



TEST NUMBER: P905019

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US835-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1167.3	1167.3	1167.3	1167.3	1167.3
2.5°	1174.1	1168.5	1156.1	1167.3	1165.2
5°	1167.3	1162.9	1150.5	1159.5	1157.3
7.5°	1159.5	1152.8	1140.4	1149.5	1147.2
10°	1147.2	1139.3	1125.9	1134.8	1131.5
12.5°	1130.3	1123.6	1110.2	1115.7	1113.5
15°	1111.2	1104.6	1089.9	1094.4	1088.8
17.5°	1087.6	1081.0	1066.3	1071.9	1066.3
20°	1061.8	1055.1	1039.4	1042.7	1038.3
22.5°	1036.1	1026.0	1011.3	1011.3	1009.0
25°	1005.7	996.8	977.7	979.9	977.7
27.5°	972.0	964.1	949.6	946.3	940.7
30°	938.4	929.4	912.6	909.2	904.7
32.5°	902.5	895.8	877.8	871.0	866.5
35°	867.7	856.5	838.5	831.7	826.1
37.5°	828.4	818.3	800.3	792.4	786.8
40°	788.0	779.0	761.0	751.0	746.5
42.5°	748.7	739.7	721.8	710.5	703.8
45°	706.1	698.2	681.3	669.0	664.5
47.5°	664.5	656.7	638.7	626.3	619.6
50°	620.7	615.1	599.4	583.7	578.1
52.5°	578.1	570.2	555.7	543.3	535.4
55°	534.4	527.6	514.1	500.7	495.1
57.5°	490.5	484.9	470.3	456.8	452.3
60°	446.7	442.3	426.6	414.2	410.9
62.5°	404.1	396.2	385.0	373.8	369.3
65°	360.4	353.6	342.4	332.3	326.7
67.5°	315.5	309.8	299.7	291.9	287.4
70°	273.9	269.4	259.3	251.4	247.0
72.5°	231.3	226.7	221.1	213.3	210.0
75°	188.5	186.4	180.7	174.0	176.3
77.5°	150.4	145.9	143.6	140.3	137.0
80°	112.3	111.1	108.8	105.5	103.3
82.5°	76.3	76.3	75.3	70.7	70.7
85°	46.0	44.9	43.8	40.4	39.3
87.5°	20.2	18.0	15.7	12.4	11.2
90°	1.6	20.5	34.1	42.8	46.1
92.5°	42.8	35.9	41.0	44.5	46.1
95°	111.0	54.6	66.6	75.3	73.5
97.5°	199.9	59.9	87.1	92.4	94.0
100°	302.7	68.4	97.4	111.0	114.5
102.5°	415.3	412.1	100.9	119.6	124.8
105°	519.7	571.0	104.3	123.0	129.9
107.5°	641.0	683.7	107.8	126.5	133.4
110°	757.4	793.1	299.2	128.3	135.0



TEST NUMBER: P905019

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US835-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	866.8	897.4	868.4	131.5	136.8
115°	982.9	1011.9	1054.7	263.3	140.3
117.5°	1083.8	1117.9	1147.1	902.5	454.7
120°	1196.6	1222.2	1253.1	1273.6	1042.8
122.5°	1292.2	1319.6	1354.0	1364.1	1365.9
125°	1389.7	1412.0	1444.5	1456.5	1461.5
127.5°	1478.6	1502.5	1528.3	1545.4	1547.0
130°	1562.4	1589.8	1608.5	1627.4	1625.8
132.5°	1647.9	1670.2	1688.9	1704.3	1702.7
135°	1719.7	1747.1	1762.4	1779.6	1776.2
137.5°	1794.8	1815.4	1832.6	1849.7	1844.6
140°	1868.3	1882.1	1900.8	1916.2	1907.7
142.5°	1930.0	1942.0	1964.1	1977.7	1969.2
145°	1995.0	1993.2	2022.2	2034.2	2025.7
147.5°	2051.2	2046.2	2075.2	2083.7	2077.0
150°	2106.0	2094.1	2121.5	2131.6	2123.1
152.5°	2152.1	2138.5	2164.1	2174.4	2162.5
155°	2196.6	2181.3	2201.8	2212.0	2198.4
157.5°	2232.5	2218.9	2234.3	2246.3	2232.5
160°	2263.4	2253.0	2263.4	2273.5	2261.5
162.5°	2290.6	2280.4	2288.9	2300.9	2285.5
165°	2314.5	2304.4	2309.4	2321.4	2309.4
167.5°	2333.4	2323.0	2328.3	2340.3	2324.9
170°	2348.8	2338.5	2341.9	2353.9	2338.5
172.5°	2359.0	2348.8	2352.3	2364.2	2348.8
175°	2367.5	2355.5	2359.0	2370.9	2353.9
177.5°	2370.9	2359.0	2360.8	2372.8	2357.3
180°	2362.4	2362.4	2362.4	2362.4	2362.4



TEST NUMBER: P905019
 CATALOG NUMBER: DFN2DIP-4P4F0-030D070US835-FLLONL

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	4.12	4.82	5.23	5.93	7.46	3.67	4.38	4.78	5.49	7.02
	3H	5.77	6.40	6.89	7.52	9.07	5.28	5.91	6.40	7.03	8.58
	4H	6.36	6.96	7.49	8.07	9.62	5.86	6.46	6.99	7.58	9.13
	6H	6.75	7.30	7.89	8.42	9.99	6.25	6.80	7.39	7.92	9.49
	8H	6.85	7.38	8.00	8.51	10.07	6.35	6.88	7.49	8.01	9.57
	12H	6.90	7.40	8.04	8.53	10.11	6.39	6.89	7.54	8.02	9.60
4H	2H	4.56	5.16	5.70	6.28	7.83	4.21	4.81	5.34	5.92	7.47
	3H	6.42	6.92	7.56	8.06	9.63	6.01	6.51	7.15	7.65	9.22
	4H	7.13	7.59	8.28	8.72	10.31	6.71	7.17	7.85	8.30	9.88
	6H	7.64	8.04	8.79	9.19	10.77	7.21	7.61	8.36	8.76	10.33
	8H	7.79	8.16	8.94	9.30	10.90	7.35	7.72	8.51	8.87	10.46
	12H	7.86	8.19	9.03	9.35	10.95	7.41	7.74	8.58	8.90	10.50
8H	4H	7.32	7.68	8.47	8.83	10.42	6.94	7.31	8.09	8.45	10.04
	6H	7.95	8.25	9.12	9.44	11.03	7.56	7.87	8.74	9.06	10.64
	8H	8.17	8.43	9.35	9.60	11.21	7.78	8.04	8.95	9.21	10.82
	12H	8.30	8.53	9.48	9.69	11.34	7.89	8.12	9.07	9.28	10.93
12H	4H	7.29	7.63	8.46	8.78	10.38	6.93	7.26	8.09	8.42	10.01
	6H	7.98	8.24	9.15	9.41	11.02	7.60	7.87	8.78	9.04	10.65
	8H	8.21	8.45	9.40	9.61	11.25	7.83	8.07	9.02	9.23	10.87