

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: P907747

Luminaire Tested: DFN2DIP-4P4F0-030D070US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907747
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-4P4F0-030D070US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

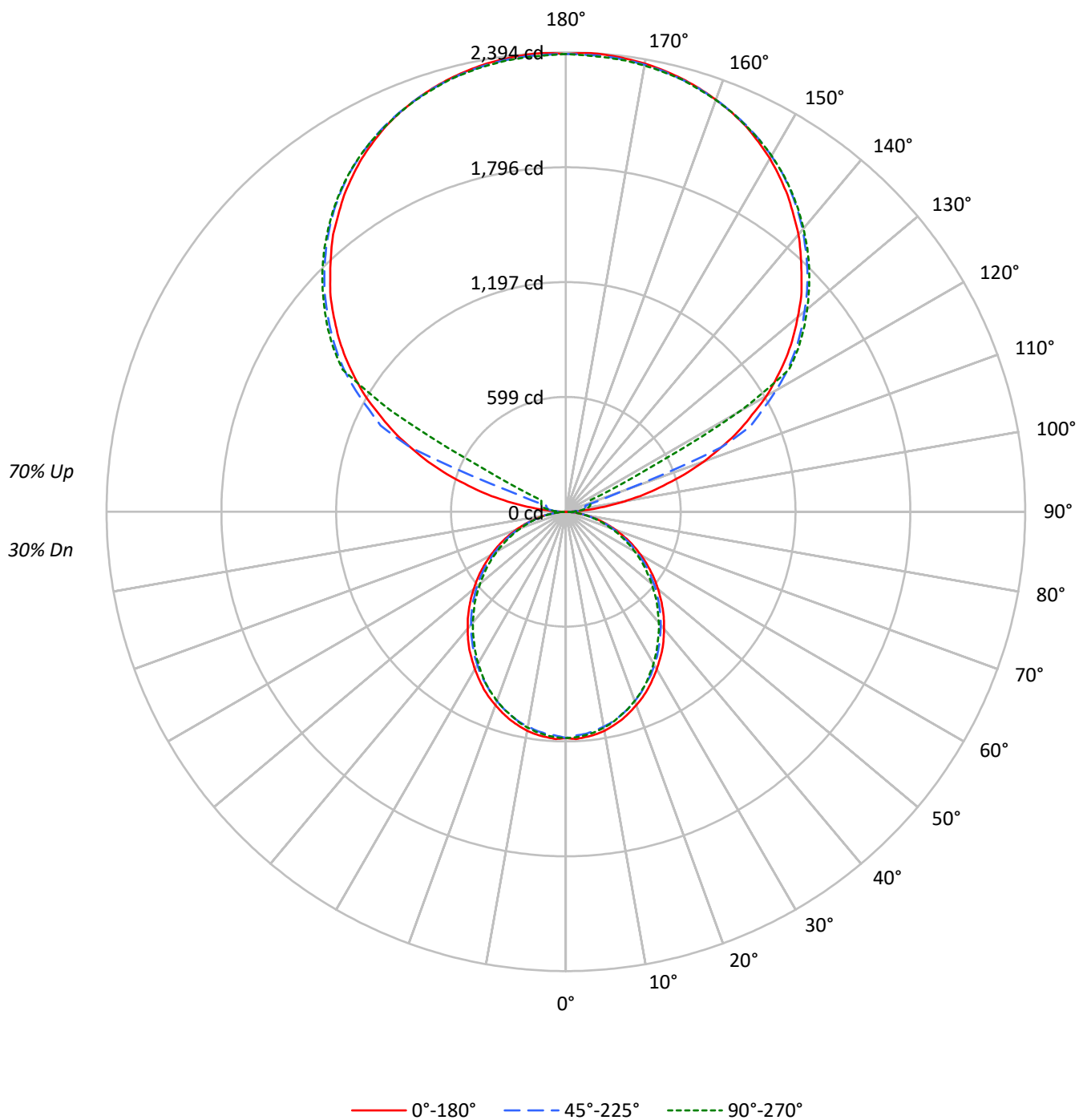
Lumens per Lamp: N/A
Luminaire Lumens: 9997.7 lumens
Efficiency: N/A
Efficacy: 112.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

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: P907747

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P907747

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US840-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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	33	33	32
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	29	28	27
3	77	68	61	56	69	62	56	51	49	45	41	37	34	32	26	24	23
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17
6	60	48	40	35	53	43	37	32	35	30	26	27	23	20	19	17	15
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11
10	44	32	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	765	765	765
5°	766	754	759
10°	760	744	750
15°	749	732	734
20°	734	716	717
25°	719	695	699
30°	700	677	675
35°	682	655	649
40°	660	632	626
45°	639	610	601
50°	615	587	572
55°	590	559	546
60°	561	527	516
65°	531	494	481
70°	491	454	443
75°	437	405	409
80°	372	343	342
85°	270	236	231

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1231 cd/sqm

TEST NUMBER: P907747

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.0	1.1
10°-20°	312.2	3.1
20°-30°	458.8	4.6
30°-40°	532.8	5.3
40°-50°	532.2	5.3
50°-60°	464.1	4.6
60°-70°	343.1	3.4
70°-80°	194.1	1.9
80°-90°	55.4	0.6
90°-100°	78.7	0.8
100°-110°	293.3	2.9
110°-120°	777.8	7.8
120°-130°	1290.0	12.9
130°-140°	1370.3	13.7
140°-150°	1273.5	12.7
150°-160°	1023.9	10.2
160°-170°	659.7	6.6
170°-180°	227.1	2.3
0°-30°	881.9	8.8
0°-40°	1414.7	14.2
0°-60°	2411.0	24.1
0°-90°	3003.5	30.0
90°-120°	1149.7	11.5
90°-150°	5083.5	50.8
90°-180°	6994.0	70.0
0°-180°	9997.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1179	1179	1179	1179	1179	
5°	1179	1174	1162	1171	1169	112
15°	1122	1116	1101	1105	1100	316
25°	1016	1007	987	990	987	467
35°	876	865	847	840	834	547
45°	713	705	688	676	671	550
55°	540	533	519	506	500	482
65°	364	357	346	336	330	360
75°	190	188	182	176	178	203
85°	46	45	44	41	40	52
90°	2	21	34	43	47	9
95°	112	55	67	76	74	133
105°	525	577	105	124	131	561
115°	993	1022	1065	266	142	977
125°	1403	1426	1459	1471	1476	1252
135°	1737	1764	1780	1797	1794	1342
145°	2015	2013	2042	2054	2046	1260
155°	2218	2203	2224	2234	2220	1022
165°	2337	2327	2332	2344	2332	660
175°	2391	2379	2382	2394	2377	228
180°	2386	2386	2386	2386	2386	

TEST NUMBER: P907747

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1178.8	1178.8	1178.8	1178.8	1178.8
2.5°	1185.7	1180.0	1167.5	1178.8	1176.7
5°	1178.8	1174.4	1161.9	1170.9	1168.7
7.5°	1170.9	1164.2	1151.7	1160.8	1158.5
10°	1158.5	1150.5	1137.0	1146.0	1142.7
12.5°	1141.5	1134.7	1121.2	1126.7	1124.5
15°	1122.2	1115.5	1100.7	1105.2	1099.5
17.5°	1098.3	1091.7	1076.8	1082.5	1076.8
20°	1072.3	1065.5	1049.7	1053.0	1048.5
22.5°	1046.3	1036.1	1021.3	1021.3	1019.0
25°	1015.6	1006.6	987.3	989.6	987.3
27.5°	981.6	973.6	959.0	955.6	950.0
30°	947.7	938.6	921.6	918.2	913.6
32.5°	911.4	904.6	886.5	879.6	875.0
35°	876.3	864.9	846.8	839.9	834.2
37.5°	836.6	826.4	808.2	800.2	794.6
40°	795.8	786.7	768.5	758.4	753.9
42.5°	756.1	747.0	728.9	717.5	710.7
45°	713.1	705.1	688.0	675.6	671.1
47.5°	671.1	663.2	645.0	632.5	625.7
50°	626.8	621.2	605.3	589.5	583.8
52.5°	583.8	575.8	561.2	548.7	540.7
55°	539.7	532.8	519.2	505.6	500.0
57.5°	495.3	489.7	474.9	461.3	456.8
60°	451.1	446.7	430.8	418.3	415.0
62.5°	408.1	400.1	388.8	377.5	372.9
65°	364.0	357.1	345.8	335.6	329.9
67.5°	318.6	312.9	302.7	294.8	290.2
70°	276.6	272.1	261.9	253.9	249.4
72.5°	233.6	228.9	223.3	215.4	212.1
75°	190.4	188.2	182.5	175.7	178.0
77.5°	151.9	147.3	145.0	141.7	138.4
80°	113.4	112.2	109.9	106.5	104.3
82.5°	77.1	77.1	76.0	71.4	71.4
85°	46.5	45.3	44.2	40.8	39.7
87.5°	20.4	18.2	15.9	12.5	11.3
90°	1.6	20.7	34.4	43.2	46.6
92.5°	43.2	36.3	41.4	44.9	46.6
95°	112.1	55.1	67.3	76.0	74.2
97.5°	201.9	60.5	88.0	93.3	94.9
100°	305.7	69.1	98.4	112.1	115.6
102.5°	419.4	416.2	101.9	120.8	126.0
105°	524.8	576.6	105.3	124.2	131.2
107.5°	647.3	690.4	108.9	127.7	134.7
110°	764.9	800.9	302.2	129.6	136.3

TEST NUMBER: P907747

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	875.4	906.3	877.0	132.8	138.1
115°	992.6	1021.9	1065.1	265.9	141.7
117.5°	1094.5	1128.9	1158.4	911.4	459.2
120°	1208.4	1234.3	1265.5	1286.2	1053.1
122.5°	1304.9	1332.6	1367.4	1377.6	1379.4
125°	1403.4	1425.9	1458.8	1470.9	1475.9
127.5°	1493.2	1517.3	1543.4	1560.6	1562.3
130°	1577.8	1605.5	1624.4	1643.5	1641.8
132.5°	1664.2	1686.7	1705.6	1721.1	1719.5
135°	1736.7	1764.3	1779.8	1797.2	1793.7
137.5°	1812.5	1833.3	1850.7	1867.9	1862.8
140°	1886.7	1900.7	1919.6	1935.1	1926.5
142.5°	1949.0	1961.2	1983.5	1997.2	1988.6
145°	2014.7	2012.9	2042.2	2054.3	2045.7
147.5°	2071.4	2066.4	2095.7	2104.3	2097.5
150°	2126.8	2114.8	2142.4	2152.6	2144.0
152.5°	2173.3	2159.6	2185.5	2195.9	2183.8
155°	2218.3	2202.8	2223.5	2233.8	2220.1
157.5°	2254.5	2240.8	2256.3	2268.5	2254.5
160°	2285.7	2275.2	2285.7	2295.9	2283.8
162.5°	2313.2	2302.9	2311.5	2323.6	2308.0
165°	2337.3	2327.1	2332.2	2344.3	2332.2
167.5°	2356.4	2345.9	2351.3	2363.4	2347.8
170°	2372.0	2361.6	2365.0	2377.1	2361.6
172.5°	2382.3	2372.0	2375.5	2387.5	2372.0
175°	2390.9	2378.7	2382.3	2394.3	2377.1
177.5°	2394.3	2382.3	2384.1	2396.2	2380.6
180°	2385.7	2385.7	2385.7	2385.7	2385.7

TEST NUMBER: P907747

CATALOG NUMBER: DFN2DIP-4P4F0-030D070US840-FLONL

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	4.15	4.86	5.26	5.96	7.49	3.71	4.41	4.82	5.52	7.05
	3H	5.81	6.44	6.93	7.55	9.10	5.31	5.95	6.43	7.06	8.61
	4H	6.39	6.99	7.52	8.11	9.66	5.90	6.50	7.02	7.61	9.16
	6H	6.79	7.34	7.92	8.46	10.02	6.29	6.84	7.42	7.96	9.52
	8H	6.89	7.41	8.03	8.55	10.11	6.39	6.91	7.53	8.05	9.60
	12H	6.93	7.43	8.08	8.56	10.14	6.42	6.92	7.57	8.05	9.63
4H	2H	4.59	5.20	5.73	6.31	7.86	4.24	4.84	5.38	5.96	7.51
	3H	6.45	6.95	7.60	8.10	9.66	6.04	6.55	7.19	7.69	9.25
	4H	7.16	7.63	8.31	8.76	10.34	6.74	7.20	7.89	8.33	9.92
	6H	7.68	8.07	8.83	9.23	10.80	7.24	7.64	8.40	8.79	10.37
	8H	7.83	8.19	8.98	9.34	10.93	7.39	7.76	8.54	8.90	10.49
	12H	7.89	8.23	9.06	9.39	10.98	7.44	7.78	8.61	8.94	10.53
8H	4H	7.35	7.72	8.50	8.86	10.46	6.97	7.34	8.12	8.49	10.08
	6H	7.98	8.29	9.15	9.47	11.06	7.60	7.90	8.77	9.09	10.68
	8H	8.20	8.47	9.38	9.64	11.24	7.81	8.08	8.99	9.24	10.85
	12H	8.33	8.57	9.51	9.73	11.37	7.92	8.15	9.10	9.32	10.96
12H	4H	7.33	7.66	8.50	8.82	10.42	6.96	7.29	8.13	8.45	10.05
	6H	8.01	8.28	9.19	9.44	11.05	7.64	7.90	8.82	9.07	10.68
	8H	8.25	8.48	9.43	9.65	11.29	7.87	8.10	9.05	9.27	10.91