

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: P907751

Luminaire Tested: DFN2DIP-4P4F0-030D080US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907751
REPORT IS A COMBINATION OF REPORTS P900659 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D080US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

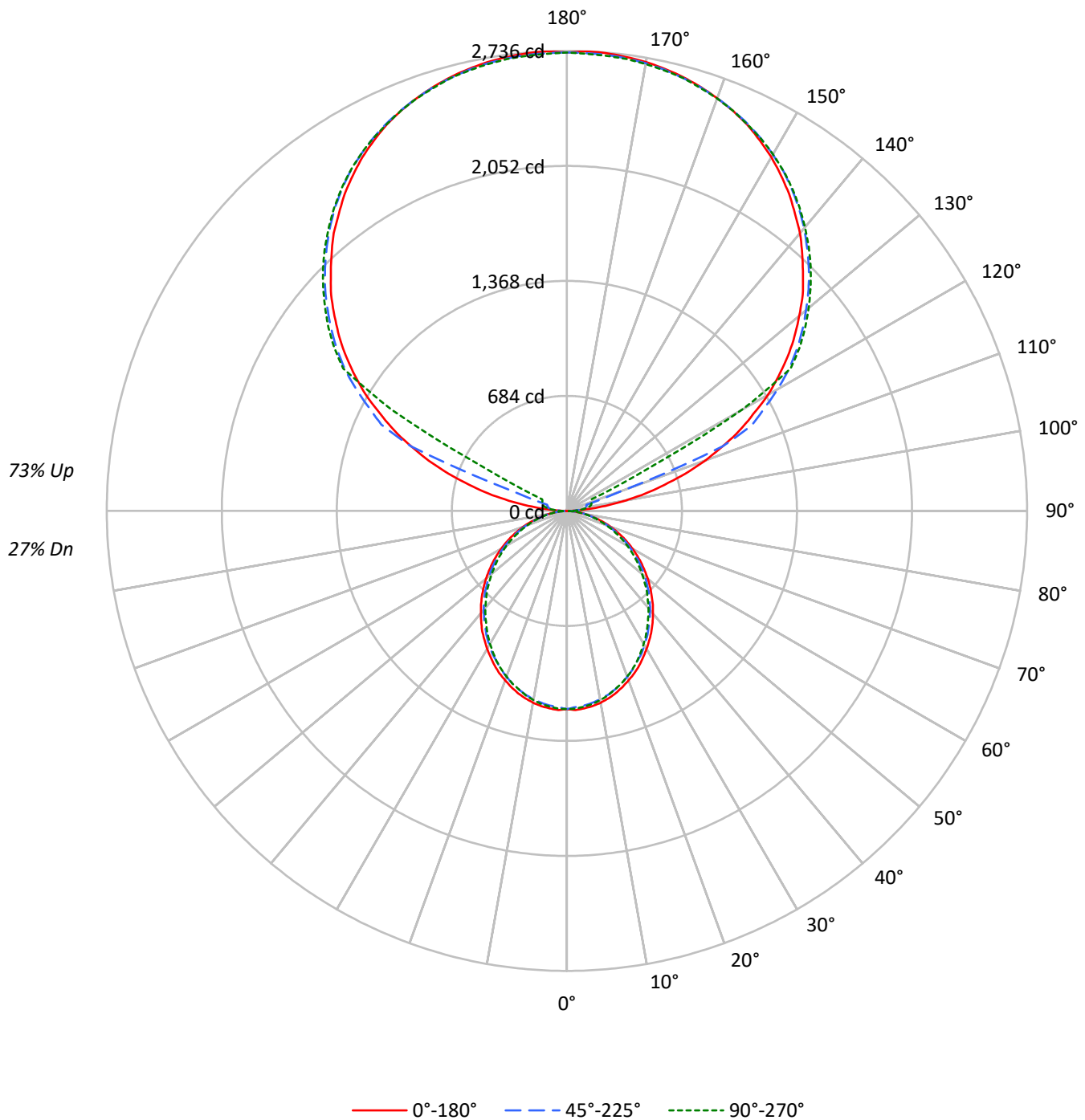
Lumens per Lamp: N/A
Luminaire Lumens: 10997.5 lumens
Efficiency: N/A
Efficacy: 108.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
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: P907751

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P907751

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US840-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	50	30	10
RCR																				
0	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35			27
1	93	89	85	81	83	79	76	73	62	60	58	46	45	43	31	30	30			23
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25			19
3	77	68	61	55	68	61	55	50	48	44	40	36	33	31	24	23	21			16
4	70	60	52	47	63	54	47	42	42	38	34	32	29	26	22	20	18			14
5	64	53	45	40	57	48	41	36	38	33	29	28	25	23	19	18	16			12
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14			11
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12			9
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11			8
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	12	10			8
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	11	9			7

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: 1406 cd/sqm

TEST NUMBER: P907751

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.0	1.0
10°-20°	312.2	2.8
20°-30°	458.8	4.2
30°-40°	532.8	4.8
40°-50°	532.2	4.8
50°-60°	464.1	4.2
60°-70°	343.1	3.1
70°-80°	194.1	1.8
80°-90°	56.0	0.5
90°-100°	89.9	0.8
100°-110°	335.1	3.0
110°-120°	888.9	8.1
120°-130°	1474.3	13.4
130°-140°	1566.0	14.2
140°-150°	1455.4	13.2
150°-160°	1170.1	10.6
160°-170°	754.0	6.9
170°-180°	259.5	2.4
0°-30°	881.9	8.0
0°-40°	1414.7	12.9
0°-60°	2411.0	21.9
0°-90°	3004.1	27.3
90°-120°	1314.0	11.9
90°-150°	5809.7	52.8
90°-180°	7993.0	72.7
0°-180°	10997.5	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	24	39	49	53	10
95°	128	63	77	87	85	152
105°	600	659	120	142	150	641
115°	1134	1168	1217	304	162	1117
125°	1604	1630	1667	1681	1687	1430
135°	1985	2016	2034	2054	2050	1533
145°	2302	2300	2334	2348	2338	1440
155°	2535	2518	2541	2553	2537	1168
165°	2671	2660	2665	2679	2665	755
175°	2732	2719	2723	2736	2717	260
180°	2726	2726	2726	2726	2726	

TEST NUMBER: P907751

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US840-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°	1.9	23.6	39.4	49.4	53.2
92.5°	49.4	41.5	47.4	51.3	53.2
95°	128.2	63.0	76.9	86.9	84.8
97.5°	230.8	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.2	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.8	659.0	120.4	142.0	150.0
107.5°	739.8	789.0	124.4	145.9	153.9
110°	874.1	915.3	345.4	148.0	155.8

TEST NUMBER: P907751

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1000.4	1035.7	1002.3	151.8	157.9
115°	1134.4	1167.9	1217.3	303.9	161.9
117.5°	1250.8	1290.2	1323.9	1041.6	524.8
120°	1381.1	1410.6	1446.2	1469.9	1203.5
122.5°	1491.4	1523.1	1562.7	1574.4	1576.5
125°	1603.9	1629.6	1667.1	1680.9	1686.8
127.5°	1706.5	1734.1	1763.9	1783.5	1785.4
130°	1803.2	1834.8	1856.4	1878.2	1876.3
132.5°	1901.9	1927.6	1949.2	1967.0	1965.1
135°	1984.8	2016.4	2034.0	2054.0	2049.9
137.5°	2071.5	2095.2	2115.1	2134.8	2128.9
140°	2156.3	2172.2	2193.8	2211.6	2201.7
142.5°	2227.6	2241.3	2266.8	2282.6	2272.7
145°	2302.5	2300.4	2333.9	2347.7	2337.8
147.5°	2367.4	2361.6	2395.0	2404.9	2397.1
150°	2430.6	2416.8	2448.4	2460.1	2450.3
152.5°	2483.9	2468.1	2497.6	2509.6	2495.8
155°	2535.2	2517.6	2541.2	2552.9	2537.3
157.5°	2576.6	2560.9	2578.7	2592.5	2576.6
160°	2612.2	2600.3	2612.2	2623.9	2610.1
162.5°	2643.6	2631.9	2641.7	2655.5	2637.8
165°	2671.3	2659.6	2665.4	2679.2	2665.4
167.5°	2693.0	2681.1	2687.2	2701.0	2683.2
170°	2710.9	2698.9	2702.9	2716.7	2698.9
172.5°	2722.6	2710.9	2714.8	2728.7	2710.9
175°	2732.4	2718.6	2722.6	2736.3	2716.7
177.5°	2736.3	2722.6	2724.6	2738.5	2720.7
180°	2726.5	2726.5	2726.5	2726.5	2726.5

TEST NUMBER: P907751

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US840-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	3.76	4.45	4.89	5.57	7.14	3.32	4.01	4.45	5.13	6.69
	3H	5.42	6.03	6.56	7.16	8.74	4.93	5.54	6.07	6.67	8.25
	4H	6.00	6.59	7.15	7.72	9.30	5.51	6.09	6.65	7.22	8.81
	6H	6.40	6.94	7.55	8.07	9.66	5.90	6.43	7.05	7.57	9.16
	8H	6.50	7.01	7.66	8.16	9.75	6.00	6.51	7.15	7.66	9.24
	12H	6.54	7.03	7.71	8.17	9.78	6.03	6.52	7.20	7.66	9.27
4H	2H	4.21	4.79	5.36	5.92	7.50	3.85	4.44	5.01	5.57	7.15
	3H	6.06	6.55	7.22	7.71	9.30	5.65	6.14	6.81	7.30	8.89
	4H	6.77	7.22	7.94	8.37	9.98	6.35	6.80	7.51	7.94	9.56
	6H	7.28	7.67	8.45	8.84	10.44	6.85	7.24	8.02	8.41	10.01
	8H	7.43	7.79	8.60	8.95	10.57	7.00	7.35	8.16	8.51	10.14
	12H	7.50	7.83	8.68	9.00	10.62	7.05	7.38	8.23	8.55	10.17
8H	4H	6.96	7.32	8.12	8.48	10.10	6.58	6.94	7.75	8.10	9.72
	6H	7.59	7.88	8.77	9.09	10.70	7.20	7.50	8.39	8.70	10.32
	8H	7.81	8.07	9.00	9.25	10.89	7.42	7.68	8.61	8.86	10.49
	12H	7.94	8.16	9.13	9.34	11.01	7.53	7.75	8.72	8.93	10.60
12H	4H	6.93	7.26	8.12	8.43	10.06	6.57	6.89	7.75	8.06	9.69
	6H	7.62	7.87	8.81	9.05	10.69	7.24	7.50	8.44	8.68	10.32
	8H	7.85	8.08	9.05	9.26	10.93	7.47	7.70	8.67	8.88	10.55