

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: P907753

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907753
REPORT IS A COMBINATION OF REPORTS P900660 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D080US840-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

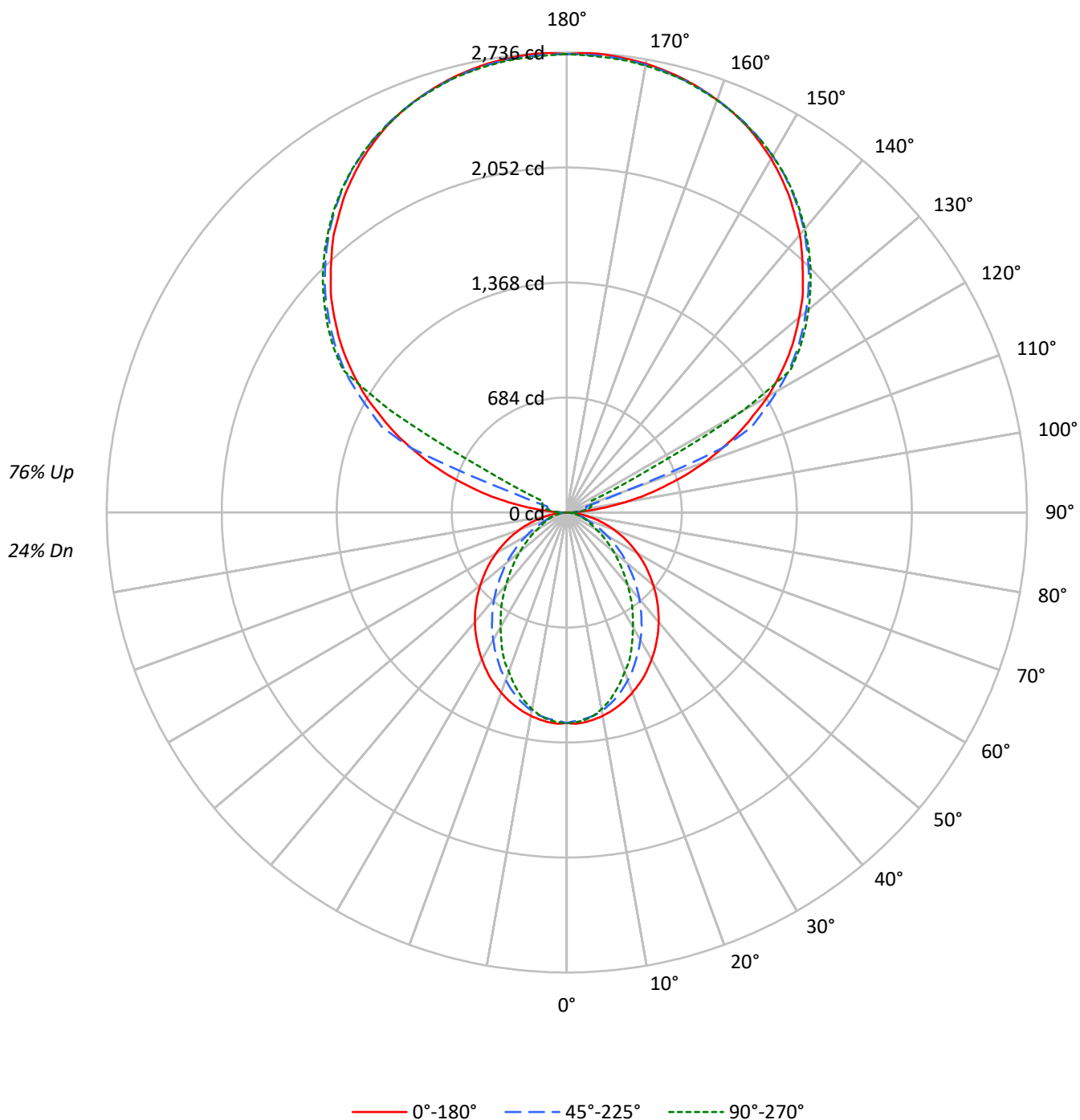
Lumens per Lamp: N/A
Luminaire Lumens: 10573.2 lumens
Efficiency: N/A
Efficacy: 104.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

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

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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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	21
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18
5	65	54	46	40	57	48	42	37	38	33	30	28	25	23	19	17	16
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12
8	51	39	32	27	45	35	29	25	28	23	20	21	18	16	14	13	11
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	812	812	812
5°	814	800	805
10°	806	784	779
15°	795	759	739
20°	780	723	689
25°	765	683	642
30°	745	642	581
35°	725	598	528
40°	705	553	466
45°	682	502	411
50°	658	451	357
55°	633	397	305
60°	603	340	251
65°	570	282	226
70°	530	228	205
75°	479	201	187
80°	405	169	164
85°	283	115	125

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1406 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.4	1.1
10°-20°	322.1	3.0
20°-30°	452.3	4.3
30°-40°	493.0	4.7
40°-50°	453.1	4.3
50°-60°	355.9	3.4
60°-70°	231.6	2.2
70°-80°	119.2	1.1
80°-90°	35.2	0.3
90°-100°	89.9	0.9
100°-110°	335.1	3.2
110°-120°	888.9	8.4
120°-130°	1474.3	13.9
130°-140°	1566.0	14.8
140°-150°	1455.4	13.8
150°-160°	1170.1	11.1
160°-170°	754.0	7.1
170°-180°	259.5	2.5
0°-30°	891.8	8.4
0°-40°	1384.8	13.1
0°-60°	2193.8	20.7
0°-90°	2579.9	24.4
90°-120°	1314.0	12.4
90°-150°	5809.7	54.9
90°-180°	7993.0	75.6
0°-180°	10573.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1252	1252	1252	1252	1252	
5°	1252	1246	1232	1242	1238	119
15°	1191	1178	1140	1118	1107	336
25°	1081	1045	970	924	906	497
35°	932	874	774	703	678	583
45°	762	686	567	486	459	588
55°	579	491	368	300	279	517
65°	391	299	197	159	155	388
75°	208	129	91	83	82	220
85°	49	25	22	22	22	56
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1252.1	1252.1	1252.1	1252.1	1252.1
2.5°	1257.8	1252.1	1239.6	1251.0	1248.8
5°	1252.1	1246.5	1231.7	1241.9	1238.5
7.5°	1241.9	1235.2	1219.3	1223.8	1218.1
10°	1228.3	1220.4	1197.8	1194.3	1187.6
12.5°	1211.3	1201.1	1170.5	1163.8	1151.2
15°	1190.9	1178.4	1139.9	1118.4	1107.1
17.5°	1167.1	1149.0	1101.4	1076.5	1058.3
20°	1139.9	1117.2	1060.6	1032.4	1007.3
22.5°	1110.5	1084.4	1018.7	980.2	963.2
25°	1081.1	1044.7	970.0	923.5	906.5
27.5°	1045.9	1007.3	924.6	871.4	845.3
30°	1008.6	965.4	874.7	817.1	786.4
32.5°	972.2	920.1	827.3	759.2	730.8
35°	931.5	873.6	774.0	702.6	677.6
37.5°	891.8	829.4	724.1	645.8	617.6
40°	849.9	781.9	672.0	591.5	562.1
42.5°	806.8	734.4	619.9	535.9	507.7
45°	761.5	685.5	566.6	486.0	458.9
47.5°	718.4	638.0	515.6	435.1	410.2
50°	670.9	590.4	465.7	387.5	363.8
52.5°	624.3	539.4	418.2	343.4	321.8
55°	579.0	490.6	368.2	300.3	278.8
57.5°	532.6	441.9	324.2	260.6	242.5
60°	484.9	394.4	277.6	219.8	201.8
62.5°	438.6	347.9	237.9	183.6	174.6
65°	390.9	299.1	197.1	158.6	155.2
67.5°	345.7	253.8	158.6	139.4	135.9
70°	298.0	209.6	131.4	120.1	115.5
72.5°	252.7	168.7	109.9	100.9	98.6
75°	208.4	129.2	90.7	82.7	81.6
77.5°	164.3	91.7	71.4	66.9	64.5
80°	123.5	65.7	54.3	49.9	49.9
82.5°	86.0	44.2	37.4	35.1	35.1
85°	48.7	24.8	21.5	21.5	21.5
87.5°	18.2	9.0	9.0	8.0	8.0
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

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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

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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	3.38	4.03	4.53	5.17	6.77	0.00	0.00	0.49	1.13	2.73
	3H	5.05	5.63	6.21	6.78	8.39	0.51	1.10	1.67	2.25	3.86
	4H	5.65	6.21	6.82	7.35	8.97	0.96	1.51	2.13	2.66	4.28
	6H	6.07	6.58	7.24	7.73	9.36	1.27	1.78	2.45	2.93	4.56
	8H	6.19	6.68	7.37	7.84	9.46	1.36	1.84	2.53	3.01	4.63
	12H	6.25	6.71	7.43	7.87	9.51	1.39	1.86	2.58	3.01	4.66
4H	2H	3.37	3.93	4.55	5.08	6.69	0.00	0.47	1.09	1.62	3.23
	3H	5.19	5.66	6.37	6.83	8.46	1.25	1.71	2.43	2.89	4.51
	4H	5.88	6.31	7.06	7.47	9.12	1.79	2.22	2.97	3.38	5.03
	6H	6.39	6.76	7.58	7.94	9.58	2.20	2.57	3.39	3.75	5.39
	8H	6.57	6.91	7.75	8.08	9.74	2.33	2.67	3.52	3.85	5.50
	12H	6.66	6.97	7.86	8.15	9.81	2.39	2.70	3.59	3.88	5.54
8H	4H	5.84	6.18	7.02	7.35	9.01	2.06	2.40	3.25	3.58	5.23
	6H	6.40	6.68	7.61	7.90	9.55	2.58	2.86	3.78	4.08	5.72
	8H	6.62	6.87	7.83	8.06	9.73	2.77	3.01	3.98	4.21	5.88
	12H	6.76	6.97	7.97	8.16	9.86	2.88	3.10	4.10	4.29	5.99
12H	4H	5.78	6.09	6.98	7.28	8.93	2.06	2.37	3.26	3.55	5.21
	6H	6.38	6.62	7.59	7.82	9.49	2.63	2.87	3.84	4.07	5.74
	8H	6.59	6.81	7.81	8.00	9.70	2.83	3.05	4.05	4.24	5.94