

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: P907870

Luminaire Tested: DFN2DIP-4P4F0-080D080US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907870
REPORT IS A COMBINATION OF REPORTS P899149 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D080US840-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

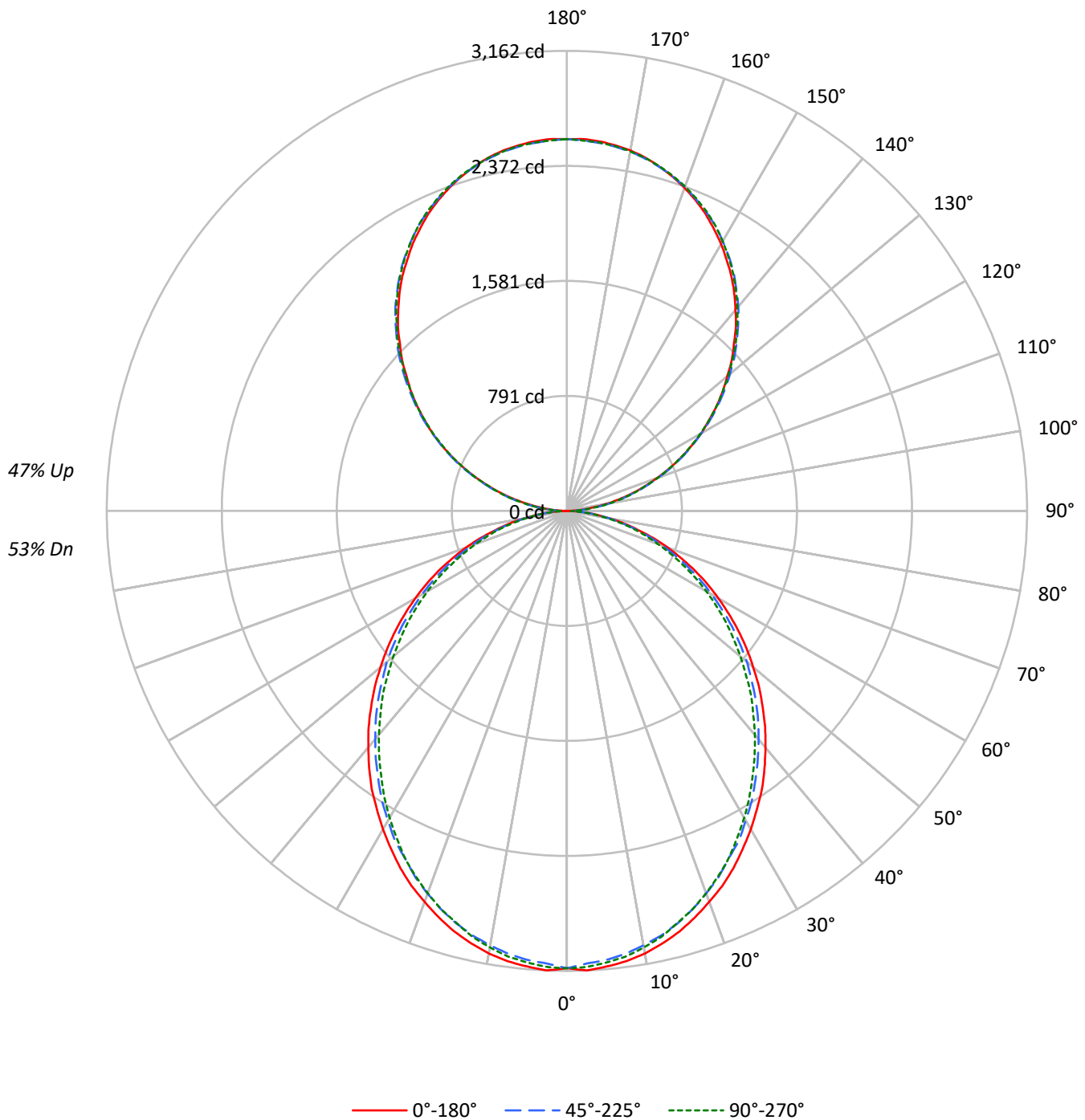
Lumens per Lamp: N/A
Luminaire Lumens: 15148.0 lumens
Efficiency: N/A
Efficacy: 95.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P907870

CATALOG NUMBER: DFN2DIP-4P4F0-080D080US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P907870

CATALOG NUMBER: DFN2DIP-4P4F0-080D080US840-FLLFLL

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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2039	2039	2039
5°	2043	2012	2025
10°	2026	1985	1999
15°	1997	1953	1956
20°	1957	1908	1913
25°	1917	1855	1863
30°	1867	1805	1800
35°	1819	1746	1732
40°	1761	1686	1668
45°	1703	1627	1603
50°	1639	1564	1526
55°	1572	1492	1457
60°	1497	1406	1377
65°	1415	1317	1283
70°	1311	1209	1182
75°	1166	1080	1090
80°	992	915	912
85°	720	629	615

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1934 cd/sqm

TEST NUMBER: P907870

CATALOG NUMBER: DFN2DIP-4P4F0-080D080US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.9	2.0
10°-20°	832.5	5.5
20°-30°	1223.4	8.1
30°-40°	1420.9	9.4
40°-50°	1419.1	9.4
50°-60°	1237.5	8.2
60°-70°	914.7	6.0
70°-80°	517.6	3.4
80°-90°	143.9	0.9
90°-100°	158.1	1.0
100°-110°	502.4	3.3
110°-120°	859.7	5.7
120°-130°	1130.6	7.5
130°-140°	1269.1	8.4
140°-150°	1244.5	8.2
150°-160°	1043.9	6.9
160°-170°	692.3	4.6
170°-180°	242.0	1.6
0°-30°	2351.8	15.5
0°-40°	3772.7	24.9
0°-60°	6429.3	42.4
0°-90°	8005.4	52.8
90°-120°	1520.1	10.0
90°-150°	5164.3	34.1
90°-180°	7143.0	47.2
0°-180°	15148.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3144	3144	3144	3144	3144	
5°	3144	3132	3098	3122	3117	298
15°	2992	2975	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2337	2306	2258	2240	2225	1459
45°	1902	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1287
65°	970	952	922	895	880	959
75°	508	502	487	469	475	542
85°	124	121	118	109	106	138
90°	2	28	76	71	73	15
95°	112	134	138	138	134	125
105°	464	470	474	478	478	489
115°	863	875	871	869	863	853
125°	1255	1274	1268	1261	1259	1121
135°	1623	1647	1652	1649	1643	1254
145°	1970	1986	1998	2000	1992	1231
155°	2253	2259	2266	2277	2270	1037
165°	2451	2449	2449	2464	2453	691
175°	2550	2544	2540	2555	2542	242
180°	2555	2555	2555	2555	2555	

TEST NUMBER: P907870

CATALOG NUMBER: DFN2DIP-4P4F0-080D080US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3143.5	3143.5	3143.5	3143.5	3143.5
2.5°	3161.8	3146.7	3113.4	3143.5	3137.8
5°	3143.5	3131.7	3098.4	3122.4	3116.6
7.5°	3122.4	3104.4	3071.1	3095.4	3089.4
10°	3089.4	3068.2	3031.9	3056.0	3047.1
12.5°	3043.8	3025.9	2989.6	3004.7	2998.6
15°	2992.5	2974.6	2935.1	2947.3	2932.2
17.5°	2929.0	2911.0	2871.6	2886.7	2871.6
20°	2859.4	2841.5	2799.1	2808.1	2796.2
22.5°	2790.2	2762.9	2723.4	2723.4	2717.3
25°	2708.4	2684.3	2633.0	2638.8	2633.0
27.5°	2617.6	2596.5	2557.3	2548.3	2533.2
30°	2527.2	2502.7	2457.6	2448.6	2436.4
32.5°	2430.3	2412.4	2363.9	2345.6	2333.5
35°	2336.6	2306.5	2258.1	2239.8	2224.7
37.5°	2230.8	2203.5	2155.2	2133.9	2118.9
40°	2122.1	2097.7	2049.3	2022.4	2010.1
42.5°	2016.3	1991.9	1943.8	1913.3	1895.4
45°	1901.5	1880.3	1834.7	1801.7	1789.6
47.5°	1789.6	1768.4	1719.9	1686.6	1668.6
50°	1671.5	1656.5	1614.1	1571.8	1556.7
52.5°	1556.7	1535.5	1496.4	1463.1	1441.9
55°	1439.0	1420.7	1384.5	1348.3	1333.1
57.5°	1321.0	1306.0	1266.5	1230.2	1218.0
60°	1203.0	1191.1	1148.7	1115.4	1106.4
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.5	952.2	922.0	894.7	879.7
67.5°	849.5	834.1	807.2	786.1	773.9
70°	737.6	725.4	698.2	677.0	665.1
72.5°	622.8	610.7	595.5	574.4	565.4
75°	507.7	501.9	486.6	468.6	474.6
77.5°	405.1	392.8	386.8	377.8	368.8
80°	302.5	299.2	293.2	284.2	278.0
82.5°	205.6	205.6	202.7	190.5	190.5
85°	123.8	120.9	118.1	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	2.3	27.8	75.5	70.9	73.2
92.5°	47.8	64.7	67.1	69.3	69.3
95°	112.5	134.0	137.8	137.8	134.0
97.5°	187.2	207.2	215.7	215.7	215.7
100°	273.5	291.1	297.3	297.3	295.0
102.5°	364.4	377.5	385.9	388.2	385.9
105°	463.7	469.9	474.5	478.4	478.4
107.5°	562.3	571.6	571.6	573.1	562.3
110°	657.8	670.1	670.1	670.1	664.0

TEST NUMBER: P907870

CATALOG NUMBER: DFN2DIP-4P4F0-080D080US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	761.0	774.2	771.8	765.7	761.0
115°	862.7	875.0	871.2	868.9	862.7
117.5°	963.6	980.6	969.8	963.6	957.5
120°	1065.3	1082.3	1065.3	1065.3	1058.3
122.5°	1157.7	1179.3	1168.5	1162.4	1157.7
125°	1254.8	1274.0	1267.9	1260.9	1258.7
127.5°	1349.6	1373.4	1364.9	1355.7	1349.6
130°	1438.1	1465.8	1462.0	1457.4	1449.0
132.5°	1537.5	1559.0	1560.6	1549.8	1543.7
135°	1623.0	1646.9	1651.5	1649.2	1643.1
137.5°	1718.5	1737.8	1741.6	1740.1	1730.8
140°	1802.5	1821.7	1832.5	1832.5	1824.0
142.5°	1888.8	1908.0	1914.2	1916.5	1908.0
145°	1970.4	1985.8	1998.1	2000.4	1992.0
147.5°	2043.6	2062.9	2072.0	2076.0	2067.5
150°	2119.1	2132.1	2140.6	2147.6	2140.6
152.5°	2186.1	2199.2	2210.0	2218.5	2210.0
155°	2253.1	2259.3	2266.2	2276.9	2270.1
157.5°	2310.9	2315.5	2319.4	2334.7	2324.0
160°	2362.5	2367.1	2369.4	2382.5	2373.3
162.5°	2410.2	2410.2	2412.6	2427.2	2416.4
165°	2451.0	2448.7	2448.7	2464.2	2453.4
167.5°	2488.0	2481.1	2481.1	2496.5	2485.7
170°	2515.8	2509.6	2507.3	2522.7	2509.6
172.5°	2535.1	2528.9	2526.6	2541.9	2528.9
175°	2550.4	2544.3	2539.6	2555.1	2541.9
177.5°	2558.9	2552.7	2548.1	2561.2	2548.1
180°	2555.1	2555.1	2555.1	2555.1	2555.1

TEST NUMBER: P907870

CATALOG NUMBER: DFN2DIP-4P4F0-080D080US840-FLLFLL

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	10.03	10.91	10.96	11.86	13.09	9.58	10.47	10.51	11.42	12.65
	3H	11.69	12.49	12.64	13.45	14.70	11.20	12.00	12.15	12.96	14.21
	4H	12.29	13.04	13.24	14.00	15.26	11.79	12.54	12.75	13.51	14.77
	6H	12.69	13.39	13.66	14.35	15.63	12.19	12.89	13.16	13.85	15.13
	8H	12.80	13.46	13.78	14.45	15.72	12.30	12.96	13.27	13.94	15.22
	12H	12.85	13.48	13.83	14.46	15.76	12.34	12.97	13.32	13.95	15.25
4H	2H	10.49	11.24	11.45	12.21	13.47	10.14	10.89	11.10	11.85	13.11
	3H	12.36	12.99	13.34	13.99	15.26	11.96	12.59	12.93	13.58	14.86
	4H	13.08	13.66	14.07	14.65	15.95	12.66	13.24	13.64	14.22	15.52
	6H	13.61	14.10	14.60	15.11	16.41	13.17	13.67	14.17	14.68	15.98
	8H	13.76	14.22	14.76	15.23	16.54	13.32	13.79	14.32	14.79	16.10
	12H	13.84	14.26	14.85	15.27	16.59	13.39	13.81	14.40	14.83	16.14
8H	4H	13.28	13.75	14.28	14.75	16.06	12.91	13.37	13.90	14.37	15.69
	6H	13.92	14.31	14.94	15.35	16.66	13.54	13.92	14.56	14.97	16.28
	8H	14.15	14.49	15.18	15.52	16.85	13.76	14.09	14.79	15.13	16.45
	12H	14.28	14.58	15.32	15.61	16.98	13.87	14.17	14.91	15.20	16.57
12H	4H	13.27	13.69	14.29	14.71	16.03	12.90	13.32	13.92	14.34	15.66
	6H	13.95	14.29	14.98	15.32	16.65	13.58	13.92	14.61	14.95	16.28
	8H	14.20	14.50	15.23	15.52	16.90	13.82	14.12	14.85	15.14	16.52