

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: P922181

Luminaire Tested: DFN2DIP-PN3F0-070D090US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922181
REPORT IS A COMBINATION OF REPORTS P901123 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-070D090US940-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

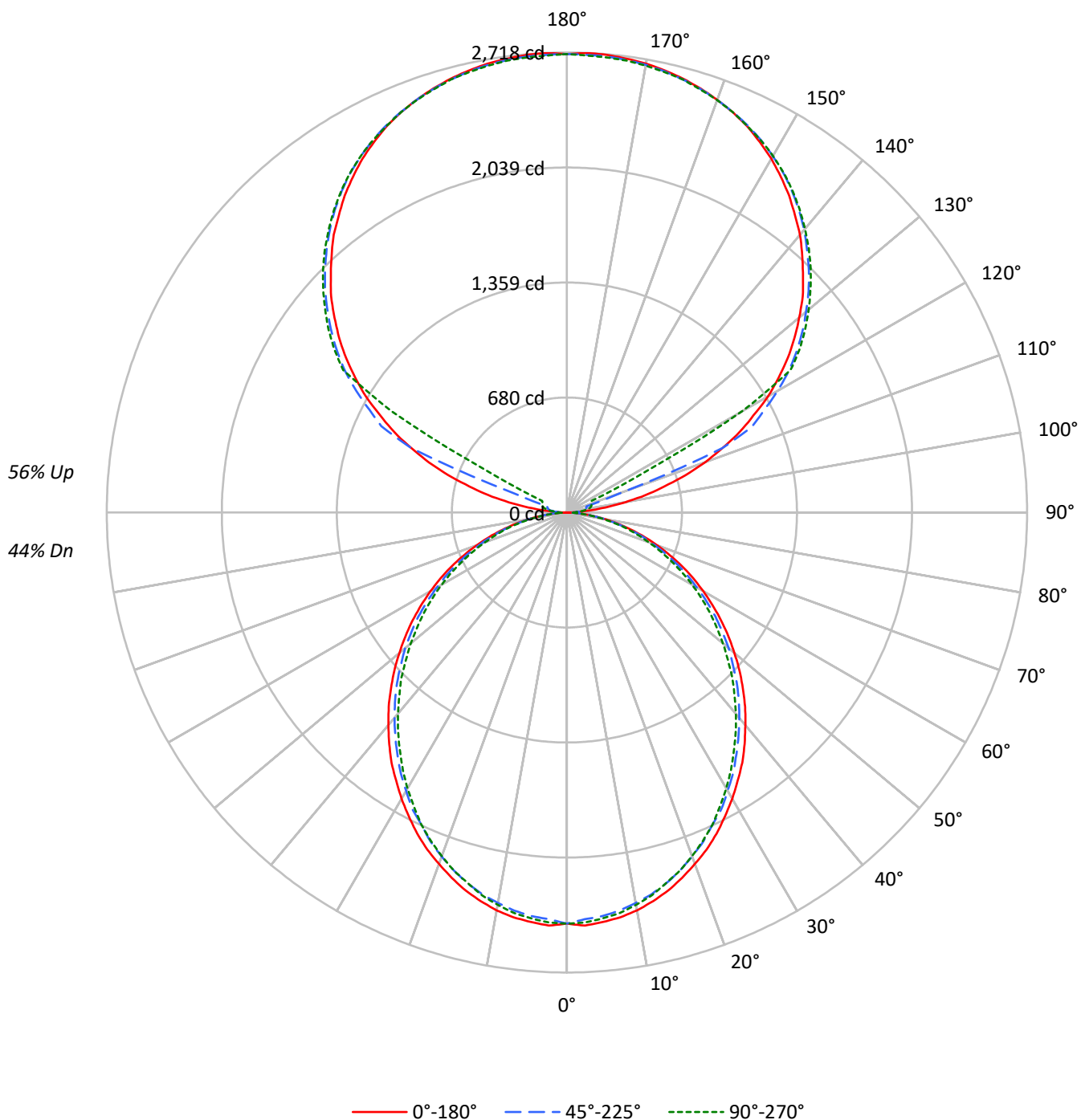
Lumens per Lamp: N/A
Luminaire Lumens: 14124.7 lumens
Efficiency: N/A
Efficacy: 100.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 140.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P922181

CATALOG NUMBER: DFN2DIP-PN3F0-070D090US940-FLLONL

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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43
2	88	80	74	69	80	74	69	64	61	58	54	50	47	45	39	37	36
3	80	71	63	58	73	65	59	54	54	49	46	44	41	38	35	32	31
4	73	63	55	49	67	58	51	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	38	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	39	33	29	32	28	25	25	22	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	27	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	20	17	14
10	46	34	27	22	42	32	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2839	2839	2839
5°	2842	2798	2817
10°	2817	2758	2778
15°	2774	2711	2717
20°	2716	2646	2655
25°	2659	2568	2583
30°	2588	2496	2492
35°	2520	2411	2396
40°	2436	2325	2305
45°	2353	2239	2211
50°	2262	2149	2103
55°	2166	2044	2003
60°	2058	1920	1888
65°	1940	1791	1753
70°	1790	1634	1607
75°	1582	1446	1471
80°	1330	1206	1213
85°	939	798	791

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2353 cd/sqm

TEST NUMBER: P922181

CATALOG NUMBER: DFN2DIP-PN3F0-070D090US940-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	1.6
10°-20°	643.2	4.6
20°-30°	945.2	6.7
30°-40°	1097.8	7.8
40°-50°	1096.5	7.8
50°-60°	956.1	6.8
60°-70°	706.8	5.0
70°-80°	399.9	2.8
80°-90°	110.3	0.8
90°-100°	89.3	0.6
100°-110°	332.9	2.4
110°-120°	883.0	6.3
120°-130°	1464.5	10.4
130°-140°	1555.6	11.0
140°-150°	1445.8	10.2
150°-160°	1162.4	8.2
160°-170°	749.0	5.3
170°-180°	257.8	1.8
0°-30°	1817.0	12.9
0°-40°	2914.9	20.6
0°-60°	4967.4	35.2
0°-90°	6184.4	43.8
90°-120°	1305.2	9.2
90°-150°	5771.2	40.9
90°-180°	7940.0	56.2
0°-180°	14124.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	2	24	39	49	53	13
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1209	302	161	1109
125°	1593	1619	1656	1670	1676	1421
135°	1972	2003	2020	2040	2036	1523
145°	2287	2285	2318	2332	2322	1431
155°	2518	2501	2524	2536	2520	1161
165°	2654	2642	2648	2662	2648	750
175°	2714	2700	2705	2718	2699	258
180°	2708	2708	2708	2708	2708	

TEST NUMBER: P922181

CATALOG NUMBER: DFN2DIP-PN3F0-070D090US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.3	62.6	76.3	86.3	84.3
97.5°	229.3	68.7	99.9	105.8	107.7
100°	347.0	78.5	111.7	127.3	131.3
102.5°	476.2	472.4	115.7	137.1	143.1
105°	595.8	654.7	119.6	141.1	148.9
107.5°	734.9	783.8	123.6	145.0	152.9
110°	868.3	909.3	343.0	147.0	154.8



TEST NUMBER: P922181

CATALOG NUMBER: DFN2DIP-PN3F0-070D090US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	993.7	1028.9	995.6	150.8	156.9
115°	1126.9	1160.1	1209.2	301.8	160.8
117.5°	1242.5	1281.7	1315.1	1034.7	521.3
120°	1371.9	1401.2	1436.6	1460.1	1195.5
122.5°	1481.6	1513.0	1552.3	1563.9	1566.0
125°	1593.2	1618.8	1656.1	1669.8	1675.6
127.5°	1695.1	1722.6	1752.2	1771.7	1773.6
130°	1791.3	1822.7	1844.1	1865.7	1863.9
132.5°	1889.3	1914.9	1936.3	1954.0	1952.1
135°	1971.7	2003.0	2020.5	2040.3	2036.4
137.5°	2057.8	2081.3	2101.0	2120.6	2114.8
140°	2142.0	2157.8	2179.3	2196.9	2187.2
142.5°	2212.8	2226.5	2251.8	2267.4	2257.7
145°	2287.2	2285.1	2318.4	2332.2	2322.4
147.5°	2351.7	2345.9	2379.2	2389.0	2381.2
150°	2414.6	2400.8	2432.2	2443.8	2434.1
152.5°	2467.4	2451.8	2481.1	2493.0	2479.2
155°	2518.4	2500.9	2524.3	2536.0	2520.4
157.5°	2559.6	2544.0	2561.6	2575.3	2559.6
160°	2594.9	2583.0	2594.9	2606.6	2592.8
162.5°	2626.1	2614.4	2624.2	2637.9	2620.3
165°	2653.6	2641.9	2647.8	2661.5	2647.8
167.5°	2675.2	2663.4	2669.3	2683.1	2665.4
170°	2692.9	2681.0	2684.9	2698.7	2681.0
172.5°	2704.6	2692.9	2696.8	2710.5	2692.9
175°	2714.3	2700.5	2704.6	2718.2	2698.7
177.5°	2718.2	2704.6	2706.6	2720.3	2702.7
180°	2708.5	2708.5	2708.5	2708.5	2708.5

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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	10.26	11.06	11.26	12.08	13.44	9.82	10.62	10.82	11.64	13.00
	3H	11.91	12.63	12.92	13.66	15.04	11.42	12.15	12.44	13.17	14.55
	4H	12.49	13.17	13.52	14.20	15.59	12.00	12.69	13.03	13.72	15.10
	6H	12.88	13.51	13.92	14.55	15.94	12.39	13.02	13.43	14.06	15.45
	8H	12.98	13.58	14.03	14.63	16.03	12.49	13.09	13.54	14.14	15.54
	12H	13.02	13.60	14.08	14.64	16.06	12.53	13.10	13.58	14.14	15.56
4H	2H	10.71	11.39	11.74	12.42	13.81	10.36	11.04	11.39	12.07	13.46
	3H	12.56	13.13	13.61	14.19	15.59	12.16	12.73	13.21	13.79	15.19
	4H	13.27	13.79	14.32	14.84	16.26	12.85	13.38	13.90	14.43	15.85
	6H	13.77	14.23	14.84	15.30	16.71	13.35	13.80	14.41	14.88	16.29
	8H	13.92	14.34	14.98	15.41	16.84	13.49	13.91	14.56	14.98	16.41
	12H	13.99	14.37	15.07	15.45	16.88	13.55	13.93	14.63	15.01	16.45
8H	4H	13.46	13.88	14.52	14.94	16.37	13.09	13.51	14.15	14.57	16.00
	6H	14.08	14.43	15.16	15.53	16.96	13.70	14.05	14.79	15.16	16.59
	8H	14.29	14.60	15.39	15.69	17.14	13.91	14.22	15.00	15.31	16.75
	12H	14.42	14.69	15.52	15.77	17.26	14.02	14.29	15.12	15.37	16.86
12H	4H	13.44	13.82	14.52	14.90	16.34	13.08	13.46	14.16	14.54	15.97
	6H	14.11	14.41	15.20	15.50	16.95	13.74	14.05	14.83	15.14	16.59
	8H	14.34	14.61	15.44	15.70	17.18	13.97	14.24	15.07	15.32	16.81