

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: P916926

Luminaire Tested: DFN2DIP-PN4F0-070D120US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916926
REPORT IS A COMBINATION OF REPORTS P899760 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D120US930-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

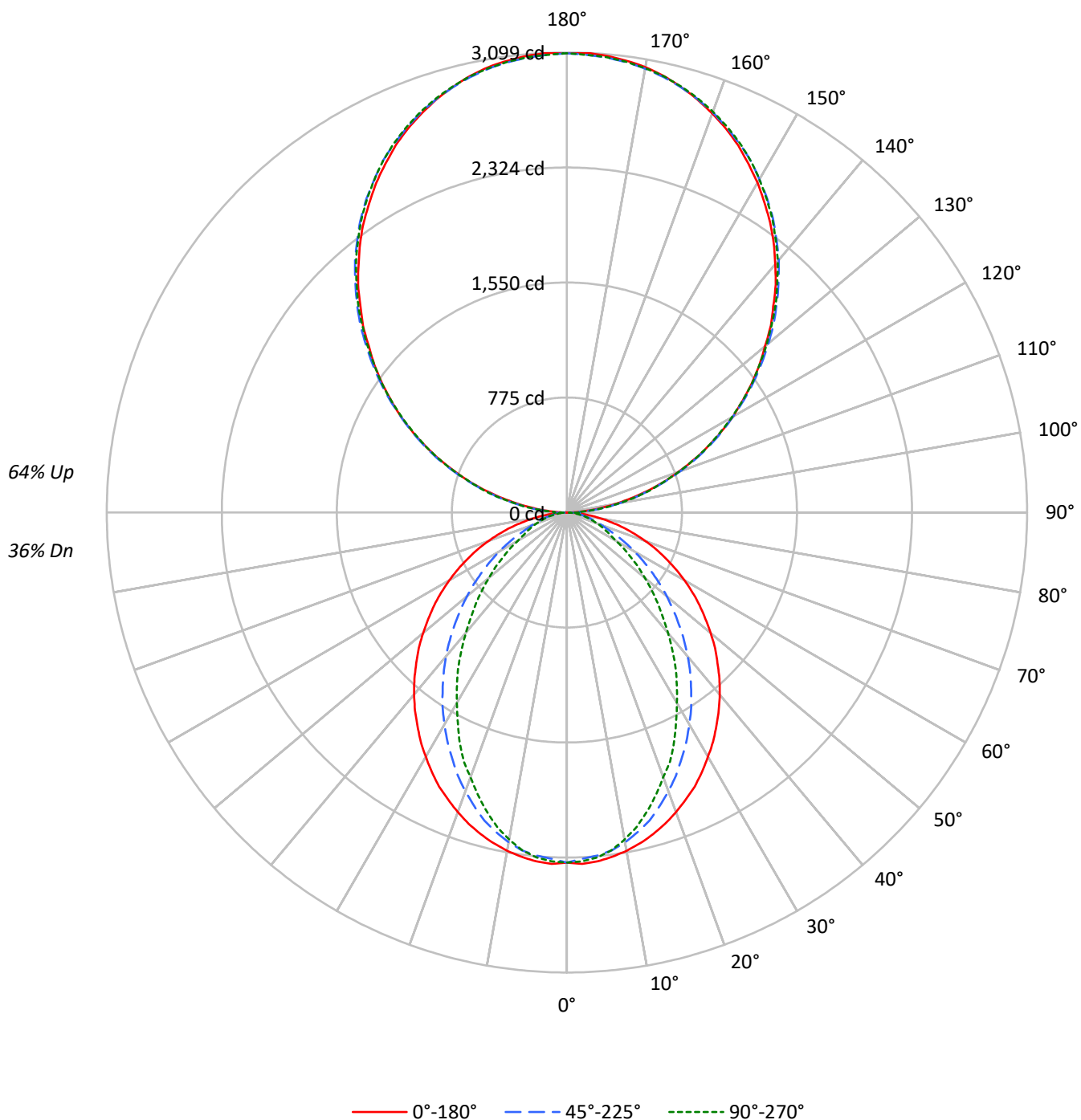
Lumens per Lamp: N/A
Luminaire Lumens: 13509.4 lumens
Efficiency: N/A
Efficacy: 79.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 170.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916926

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-RLLFLL

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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36		
1	95	91	87	84	86	82	79	77	67	64	63	52	51	49	39	38	37	31		
2	87	80	74	69	78	72	68	63	59	55	52	46	44	42	34	33	32	26		
3	79	70	63	58	72	64	58	53	52	48	44	41	38	36	31	29	27	23		
4	73	62	55	49	66	57	50	45	46	42	38	37	34	31	28	26	24	20		
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	18		
6	62	50	42	37	56	46	39	34	38	33	29	30	26	24	23	21	19	16		
7	57	45	38	32	51	41	35	30	34	29	25	27	24	21	21	19	17	14		
8	53	41	34	28	48	38	31	26	31	26	23	25	21	19	19	17	15	13		
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	15	14	11		
10	46	34	27	23	42	32	25	21	26	22	18	21	18	15	17	14	12	10		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1722	1722	1722
5°	1724	1695	1706
10°	1707	1662	1650
15°	1684	1607	1565
20°	1653	1532	1460
25°	1621	1447	1358
30°	1578	1360	1230
35°	1536	1267	1117
40°	1494	1170	987
45°	1444	1063	869
50°	1393	954	754
55°	1339	839	644
60°	1278	718	530
65°	1206	595	478
70°	1120	480	433
75°	1012	423	394
80°	855	356	343
85°	595	239	260

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2422 cd/sqm

TEST NUMBER: P916926

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.1	1.6
10°-20°	606.9	4.5
20°-30°	852.0	6.3
30°-40°	928.8	6.9
40°-50°	853.6	6.3
50°-60°	670.4	5.0
60°-70°	436.4	3.2
70°-80°	224.6	1.7
80°-90°	66.1	0.5
90°-100°	191.5	1.4
100°-110°	608.3	4.5
110°-120°	1041.1	7.7
120°-130°	1369.2	10.1
130°-140°	1536.9	11.4
140°-150°	1507.1	11.2
150°-160°	1264.2	9.4
160°-170°	838.4	6.2
170°-180°	293.0	2.2
0°-30°	1679.9	12.4
0°-40°	2608.7	19.3
0°-60°	4132.7	30.6
0°-90°	4859.8	36.0
90°-120°	1840.9	13.6
90°-150°	6254.0	46.3
90°-180°	8650.0	64.0
0°-180°	13509.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2359	2359	2359	2359	2359	
5°	2359	2348	2320	2340	2333	224
15°	2244	2220	2147	2107	2086	632
25°	2036	1968	1827	1740	1708	937
35°	1755	1646	1458	1324	1276	1098
45°	1434	1291	1067	916	864	1108
55°	1091	924	694	566	525	975
65°	736	564	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	3	34	91	86	89	13
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

TEST NUMBER: P916926

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2358.7	2358.7	2358.7	2358.7	2358.7
2.5°	2369.3	2358.7	2335.2	2356.7	2352.4
5°	2358.7	2348.1	2320.3	2339.5	2333.1
7.5°	2339.5	2326.8	2296.9	2305.3	2294.7
10°	2313.9	2299.0	2256.3	2249.8	2237.1
12.5°	2281.9	2262.7	2205.0	2192.3	2168.7
15°	2243.5	2219.9	2147.4	2106.9	2085.6
17.5°	2198.6	2164.5	2074.8	2027.8	1993.6
20°	2147.4	2104.6	1998.0	1944.7	1897.6
22.5°	2092.0	2042.8	1918.9	1846.4	1814.5
25°	2036.5	1968.0	1827.2	1739.8	1707.6
27.5°	1970.3	1897.6	1741.8	1641.5	1592.4
30°	1899.9	1818.6	1647.8	1539.1	1481.4
32.5°	1831.5	1733.2	1558.4	1430.2	1376.7
35°	1754.7	1645.8	1458.1	1323.6	1276.4
37.5°	1680.0	1562.4	1364.1	1216.6	1163.4
40°	1600.9	1473.0	1265.8	1114.3	1058.7
42.5°	1519.9	1383.3	1167.7	1009.6	956.4
45°	1434.5	1291.4	1067.4	915.7	864.5
47.5°	1353.4	1201.9	971.3	819.6	772.7
50°	1263.7	1112.2	877.3	729.9	685.3
52.5°	1176.1	1015.9	787.7	646.8	606.3
55°	1090.7	924.2	693.7	565.7	525.2
57.5°	1003.3	832.5	610.6	491.0	456.8
60°	913.6	742.8	522.9	414.3	380.0
62.5°	826.1	655.4	448.2	345.8	328.8
65°	736.5	563.5	371.4	299.0	292.4
67.5°	651.1	478.1	299.0	262.4	256.2
70°	561.4	394.9	247.5	226.2	217.6
72.5°	476.1	318.0	207.0	190.0	185.7
75°	392.7	243.2	170.7	155.8	153.8
77.5°	309.6	172.8	134.5	125.9	121.6
80°	232.6	123.8	102.4	94.0	94.0
82.5°	162.2	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.2	17.0	17.0	14.9	14.9
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1

TEST NUMBER: P916926

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	7.57	8.30	8.64	9.37	10.83	3.53	4.26	4.61	5.33	6.79
	3H	9.24	9.89	10.32	10.97	12.45	4.72	5.37	5.80	6.45	7.92
	4H	9.85	10.46	10.94	11.55	13.03	5.16	5.78	6.26	6.86	8.34
	6H	10.27	10.83	11.37	11.92	13.41	5.48	6.04	6.58	7.13	8.63
	8H	10.39	10.93	11.50	12.03	13.52	5.57	6.11	6.67	7.21	8.70
	12H	10.45	10.96	11.56	12.06	13.57	5.61	6.12	6.72	7.21	8.73
4H	2H	7.57	8.19	8.68	9.27	10.76	4.12	4.73	5.22	5.82	7.30
	3H	9.40	9.91	10.50	11.02	12.52	5.46	5.97	6.57	7.08	8.58
	4H	10.09	10.56	11.20	11.66	13.18	6.00	6.47	7.12	7.57	9.09
	6H	10.60	11.00	11.72	12.12	13.64	6.42	6.82	7.54	7.94	9.45
	8H	10.77	11.15	11.89	12.26	13.79	6.55	6.92	7.67	8.04	9.56
	12H	10.87	11.21	12.00	12.33	13.86	6.61	6.95	7.74	8.07	9.61
8H	4H	10.05	10.42	11.17	11.54	13.06	6.28	6.65	7.40	7.77	9.29
	6H	10.61	10.92	11.75	12.08	13.60	6.79	7.10	7.93	8.26	9.78
	8H	10.83	11.10	11.98	12.24	13.78	6.99	7.26	8.13	8.39	9.94
	12H	10.97	11.21	12.12	12.34	13.92	7.10	7.34	8.25	8.47	10.05
12H	4H	10.00	10.34	11.13	11.46	12.99	6.28	6.62	7.41	7.75	9.28
	6H	10.59	10.86	11.73	12.00	13.54	6.84	7.12	7.99	8.25	9.80
	8H	10.81	11.05	11.96	12.18	13.76	7.05	7.29	8.20	8.42	10.00

END OF REPORT