

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: P917092

Luminaire Tested: DFN2DIP-PN4F0-120D090US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917092
REPORT IS A COMBINATION OF REPORTS P899715 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D090US930-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

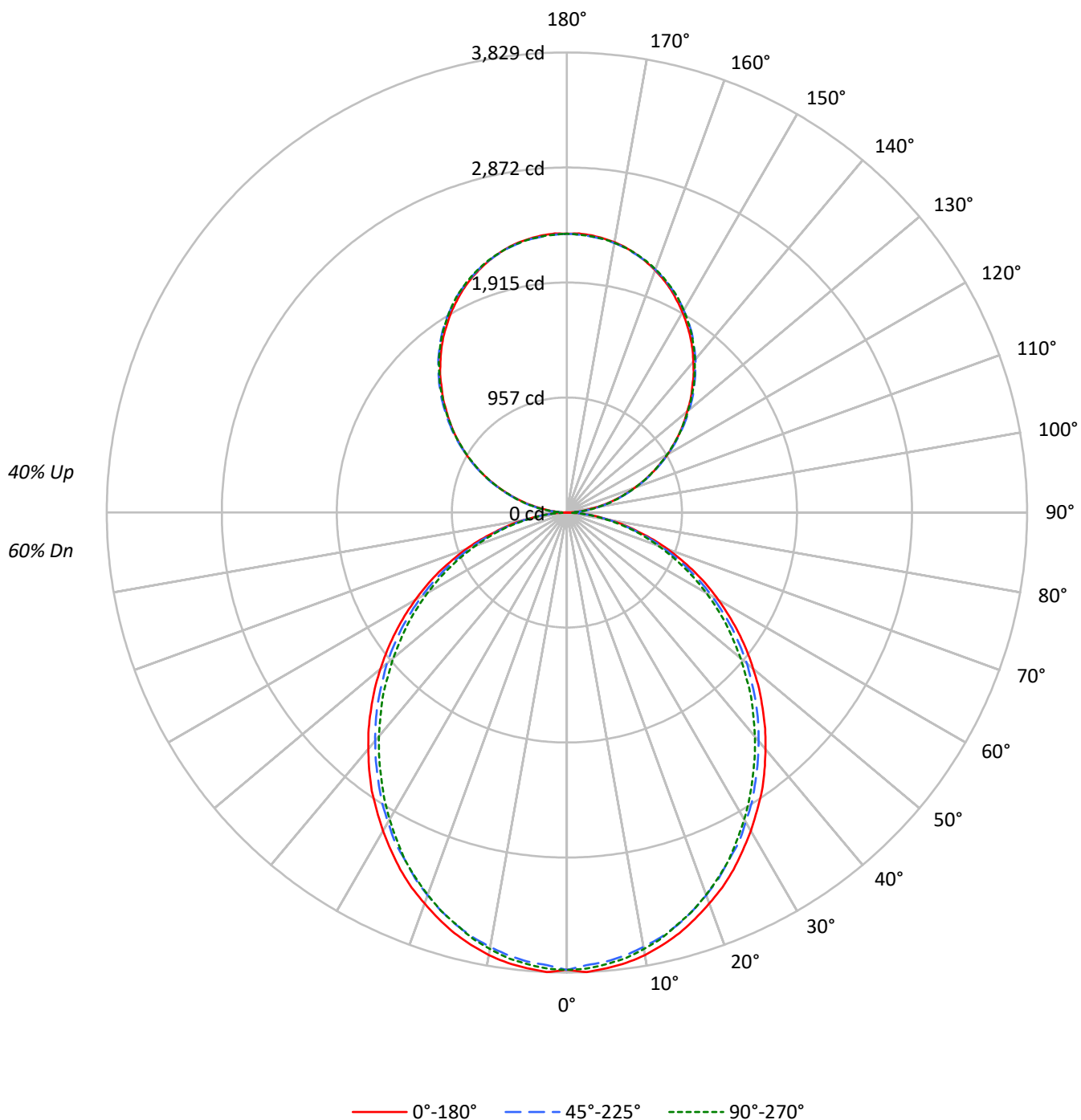
Lumens per Lamp: N/A
Luminaire Lumens: 16179.6 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 192.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917092

CATALOG NUMBER: DFN2DIP-PN4F0-120D090US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P917092

CATALOG NUMBER: DFN2DIP-PN4F0-120D090US930-FLLFL

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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2779	2779	2779
5°	2783	2741	2759
10°	2761	2704	2722
15°	2720	2660	2664
20°	2665	2598	2605
25°	2611	2525	2536
30°	2542	2456	2449
35°	2478	2375	2357
40°	2398	2294	2269
45°	2318	2212	2179
50°	2231	2126	2075
55°	2140	2027	1979
60°	2037	1909	1870
65°	1925	1787	1741
70°	1782	1639	1602
75°	1584	1461	1474
80°	1346	1234	1229
85°	973	842	823

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2318 cd/sqm

TEST NUMBER: P917092

CATALOG NUMBER: DFN2DIP-PN4F0-120D090US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	358.3	2.2
10°-20°	1008.1	6.2
20°-30°	1481.5	9.2
30°-40°	1720.7	10.6
40°-50°	1718.6	10.6
50°-60°	1498.5	9.3
60°-70°	1107.8	6.8
70°-80°	626.7	3.9
80°-90°	172.0	1.1
90°-100°	143.6	0.9
100°-110°	456.3	2.8
110°-120°	780.8	4.8
120°-130°	1026.9	6.3
130°-140°	1152.6	7.1
140°-150°	1130.3	7.0
150°-160°	948.2	5.9
160°-170°	628.8	3.9
170°-180°	219.8	1.4
0°-30°	2848.0	17.6
0°-40°	4568.7	28.2
0°-60°	7785.8	48.1
0°-90°	9692.3	59.9
90°-120°	1380.7	8.5
90°-150°	4690.5	29.0
90°-180°	6487.0	40.1
0°-180°	16179.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3807	3807	3807	3807	3807	
5°	3807	3792	3752	3781	3774	361
15°	3624	3602	3554	3569	3551	1021
25°	3280	3251	3188	3196	3188	1509
35°	2830	2793	2734	2712	2694	1767
45°	2303	2277	2222	2182	2167	1777
55°	1743	1720	1677	1633	1614	1558
65°	1175	1153	1117	1084	1065	1162
75°	615	608	589	567	575	656
85°	150	146	143	132	128	167
90°	2	25	69	64	66	16
95°	102	122	125	125	122	114
105°	421	427	431	434	434	444
115°	784	795	791	789	784	775
125°	1140	1157	1152	1145	1143	1018
135°	1474	1496	1500	1498	1492	1139
145°	1790	1804	1815	1817	1809	1118
155°	2046	2052	2058	2068	2062	942
165°	2226	2224	2224	2238	2228	628
175°	2316	2311	2307	2321	2309	220
180°	2321	2321	2321	2321	2321	

TEST NUMBER: P917092

CATALOG NUMBER: DFN2DIP-PN4F0-120D090US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3806.9	3806.9	3806.9	3806.9	3806.9
2.5°	3829.0	3810.7	3770.3	3806.9	3799.9
5°	3806.9	3792.4	3752.1	3781.2	3774.2
7.5°	3781.2	3759.4	3719.1	3748.6	3741.2
10°	3741.2	3715.6	3671.7	3700.8	3690.0
12.5°	3686.0	3664.3	3620.4	3638.7	3631.3
15°	3623.9	3602.2	3554.4	3569.1	3550.9
17.5°	3547.0	3525.3	3477.5	3495.8	3477.5
20°	3462.7	3441.0	3389.8	3400.6	3386.3
22.5°	3378.8	3345.8	3298.0	3298.0	3290.7
25°	3279.8	3250.7	3188.5	3195.6	3188.5
27.5°	3169.9	3144.3	3096.9	3086.0	3067.8
30°	3060.4	3030.9	2976.1	2965.2	2950.5
32.5°	2943.1	2921.4	2862.7	2840.6	2825.8
35°	2829.7	2793.2	2734.5	2712.4	2694.2
37.5°	2701.5	2668.6	2609.9	2584.3	2566.0
40°	2569.9	2540.4	2481.7	2449.1	2434.3
42.5°	2441.7	2412.2	2353.9	2317.1	2295.3
45°	2302.6	2277.0	2221.9	2181.9	2167.1
47.5°	2167.1	2141.5	2082.8	2042.5	2020.7
50°	2024.2	2006.0	1954.7	1903.4	1885.1
52.5°	1885.1	1859.5	1812.2	1771.7	1746.1
55°	1742.6	1720.5	1676.6	1632.7	1614.5
57.5°	1599.7	1581.4	1533.7	1489.8	1475.0
60°	1456.8	1442.4	1391.1	1350.8	1339.9
62.5°	1317.8	1292.1	1255.6	1219.1	1204.4
65°	1175.3	1153.1	1116.6	1083.5	1065.4
67.5°	1028.8	1010.2	977.5	951.9	937.2
70°	893.2	878.5	845.5	819.9	805.5
72.5°	754.2	739.5	721.2	695.6	684.7
75°	614.8	607.8	589.1	567.4	574.8
77.5°	490.5	475.7	468.4	457.5	446.6
80°	366.2	362.3	355.0	344.1	336.7
82.5°	248.9	248.9	245.5	230.7	230.7
85°	149.9	146.4	142.9	131.7	128.2
87.5°	66.0	58.6	51.3	40.4	36.5
90°	2.1	25.2	68.6	64.3	66.4
92.5°	43.4	58.8	60.9	62.9	62.9
95°	102.2	121.7	125.2	125.2	121.7
97.5°	170.0	188.2	195.9	195.9	195.9
100°	248.3	264.5	270.0	270.0	268.0
102.5°	330.9	342.8	350.5	352.6	350.5
105°	421.2	426.7	431.0	434.5	434.5
107.5°	510.7	519.1	519.1	520.5	510.7
110°	597.5	608.7	608.7	608.7	603.1

TEST NUMBER: P917092

CATALOG NUMBER: DFN2DIP-PN4F0-120D090US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	691.2	703.1	701.0	695.4	691.2
115°	783.6	794.8	791.2	789.2	783.6
117.5°	875.2	890.6	880.8	875.2	869.6
120°	967.6	982.9	967.6	967.6	961.2
122.5°	1051.5	1071.1	1061.4	1055.7	1051.5
125°	1139.7	1157.2	1151.6	1145.2	1143.2
127.5°	1225.7	1247.4	1239.7	1231.3	1225.7
130°	1306.2	1331.4	1327.9	1323.6	1316.0
132.5°	1396.4	1416.0	1417.4	1407.6	1402.1
135°	1474.1	1495.7	1500.0	1497.9	1492.3
137.5°	1560.8	1578.3	1581.8	1580.5	1572.1
140°	1637.1	1654.6	1664.3	1664.3	1656.7
142.5°	1715.5	1732.9	1738.5	1740.7	1732.9
145°	1789.7	1803.6	1814.8	1816.9	1809.2
147.5°	1856.1	1873.6	1882.0	1885.5	1877.8
150°	1924.7	1936.6	1944.2	1950.5	1944.2
152.5°	1985.5	1997.4	2007.2	2014.9	2007.2
155°	2046.4	2051.9	2058.3	2068.1	2061.8
157.5°	2098.8	2103.1	2106.6	2120.5	2110.7
160°	2145.7	2149.9	2152.1	2163.9	2155.5
162.5°	2189.1	2189.1	2191.2	2204.5	2194.7
165°	2226.2	2224.1	2224.1	2238.1	2228.3
167.5°	2259.8	2253.5	2253.5	2267.4	2257.6
170°	2285.0	2279.3	2277.3	2291.2	2279.3
172.5°	2302.4	2296.9	2294.7	2308.8	2296.9
175°	2316.4	2310.8	2306.6	2320.7	2308.8
177.5°	2324.1	2318.5	2314.3	2326.2	2314.3
180°	2320.7	2320.7	2320.7	2320.7	2320.7

TEST NUMBER: P917092

CATALOG NUMBER: DFN2DIP-PN4F0-120D090US930-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	11.70	12.65	12.56	13.54	14.66	11.26	12.21	12.12	13.10	14.22
	3H	13.37	14.23	14.25	15.12	16.27	12.88	13.74	13.76	14.64	15.79
	4H	13.96	14.77	14.85	15.68	16.83	13.47	14.29	14.37	15.19	16.35
	6H	14.37	15.12	15.27	16.03	17.20	13.88	14.62	14.78	15.54	16.71
	8H	14.48	15.19	15.39	16.12	17.29	13.98	14.70	14.90	15.63	16.80
	12H	14.53	15.21	15.45	16.13	17.33	14.03	14.71	14.95	15.63	16.83
4H	2H	12.17	12.98	13.07	13.89	15.04	11.82	12.63	12.72	13.53	14.69
	3H	14.05	14.73	14.96	15.66	16.83	13.64	14.32	14.56	15.26	16.43
	4H	14.77	15.39	15.69	16.32	17.52	14.35	14.97	15.27	15.90	17.10
	6H	15.29	15.83	16.23	16.78	17.98	14.87	15.40	15.80	16.36	17.55
	8H	15.44	15.94	16.38	16.89	18.11	15.02	15.51	15.95	16.46	17.68
	12H	15.52	15.97	16.48	16.94	18.16	15.08	15.53	16.04	16.50	17.72
8H	4H	14.97	15.47	15.91	16.42	17.63	14.60	15.10	15.54	16.05	17.26
	6H	15.61	16.02	16.57	17.01	18.23	15.23	15.65	16.20	16.64	17.85
	8H	15.83	16.20	16.81	17.18	18.41	15.45	15.82	16.42	16.80	18.03
	12H	15.97	16.29	16.95	17.27	18.55	15.57	15.89	16.55	16.87	18.14
12H	4H	14.96	15.41	15.92	16.38	17.60	14.60	15.05	15.56	16.02	17.24
	6H	15.64	16.01	16.61	16.99	18.22	15.28	15.64	16.25	16.62	17.85
	8H	15.89	16.21	16.87	17.19	18.46	15.52	15.84	16.50	16.81	18.09