

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: P914267

Luminaire Tested: DFN2DIP-PN4F0-090D110US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914267
REPORT IS A COMBINATION OF REPORTS P901266 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D110US927-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

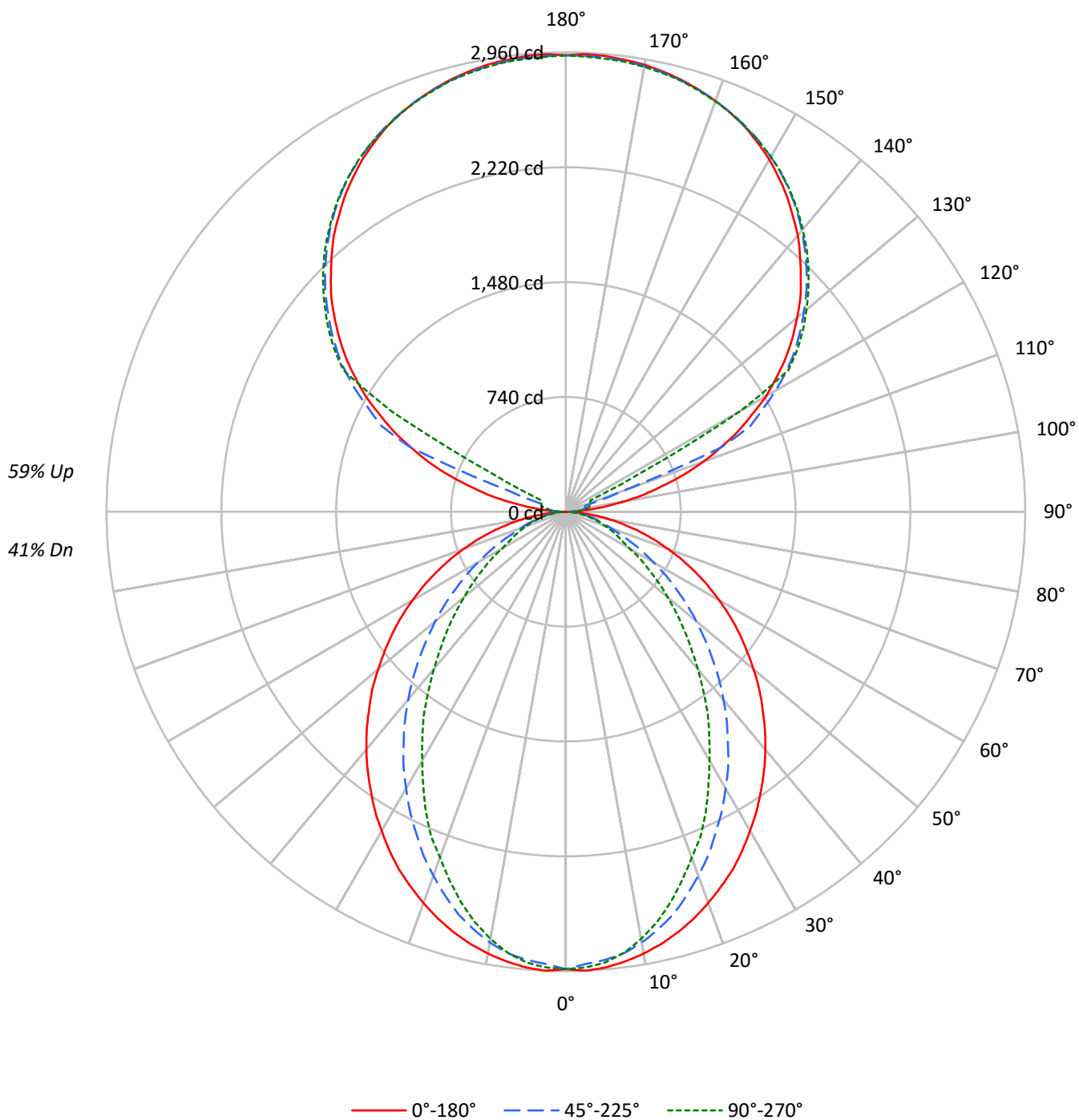
Lumens per Lamp: N/A
Luminaire Lumens: 14687.0 lumens
Efficiency: N/A
Efficacy: 81.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P914267

CATALOG NUMBER: DFN2DIP-PN4F0-090D110US927-RLLONL

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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	38	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	39	34	30	32	28	26	26	23	21
7	58	46	38	33	53	42	36	31	36	31	27	29	26	23	24	21	19
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17
9	50	38	31	26	46	35	29	25	30	25	21	25	21	18	20	17	15
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2151	2151	2151
5°	2154	2117	2131
10°	2133	2076	2062
15°	2104	2008	1955
20°	2065	1913	1824
25°	2025	1807	1697
30°	1972	1699	1536
35°	1919	1582	1395
40°	1866	1462	1233
45°	1804	1328	1086
50°	1740	1192	942
55°	1673	1048	804
60°	1596	897	663
65°	1507	743	597
70°	1399	599	541
75°	1264	529	493
80°	1068	445	429
85°	743	298	325

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1804 cd/sqm

TEST NUMBER: P914267

CATALOG NUMBER: DFN2DIP-PN4F0-090D110US927-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.2	1.9
10°-20°	758.1	5.2
20°-30°	1064.4	7.2
30°-40°	1160.3	7.9
40°-50°	1066.4	7.3
50°-60°	837.5	5.7
60°-70°	545.1	3.7
70°-80°	280.6	1.9
80°-90°	76.8	0.5
90°-100°	97.0	0.7
100°-110°	361.5	2.5
110°-120°	958.7	6.5
120°-130°	1590.2	10.8
130°-140°	1689.1	11.5
140°-150°	1569.9	10.7
150°-160°	1262.1	8.6
160°-170°	813.3	5.5
170°-180°	279.9	1.9
0°-30°	2098.7	14.3
0°-40°	3258.9	22.2
0°-60°	5162.8	35.2
0°-90°	6065.4	41.3
90°-120°	1417.2	9.6
90°-150°	6266.3	42.7
90°-180°	8622.0	58.7
0°-180°	14687.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2947	2947	2947	2947	2947	
5°	2947	2933	2899	2923	2915	279
15°	2803	2773	2683	2632	2606	790
25°	2544	2459	2283	2173	2133	1170
35°	2192	2056	1822	1653	1595	1372
45°	1792	1613	1333	1144	1080	1384
55°	1363	1155	867	707	656	1218
65°	920	704	464	373	365	912
75°	491	304	213	195	192	519
85°	114	58	51	51	51	132
90°	2	26	42	53	57	14
95°	138	68	83	94	92	164
105°	647	711	130	153	162	691
115°	1224	1260	1313	328	175	1205
125°	1730	1758	1798	1813	1819	1543
135°	2141	2175	2194	2215	2211	1654
145°	2484	2481	2517	2532	2522	1553
155°	2734	2715	2741	2754	2737	1260
165°	2881	2869	2875	2890	2875	814
175°	2947	2932	2936	2952	2930	280
180°	2941	2941	2941	2941	2941	

TEST NUMBER: P914267

CATALOG NUMBER: DFN2DIP-PN4F0-090D110US927-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2946.7	2946.7	2946.7	2946.7	2946.7
2.5°	2960.0	2946.7	2917.2	2944.1	2938.8
5°	2946.7	2933.4	2898.6	2922.6	2914.7
7.5°	2922.6	2906.8	2869.4	2879.9	2866.6
10°	2890.7	2872.0	2818.8	2810.6	2794.7
12.5°	2850.7	2826.7	2754.6	2738.7	2709.3
15°	2802.7	2773.3	2682.7	2632.0	2605.5
17.5°	2746.7	2704.0	2591.9	2533.3	2490.6
20°	2682.7	2629.2	2495.9	2429.5	2370.6
22.5°	2613.4	2552.0	2397.2	2306.7	2266.8
25°	2544.1	2458.6	2282.7	2173.4	2133.3
27.5°	2461.5	2370.6	2176.0	2050.6	1989.2
30°	2373.5	2271.9	2058.6	1922.8	1850.6
32.5°	2288.0	2165.2	1946.8	1786.7	1719.9
35°	2192.1	2056.0	1821.5	1653.4	1594.6
37.5°	2098.7	1951.9	1704.1	1519.9	1453.4
40°	2000.0	1840.2	1581.3	1392.0	1322.7
42.5°	1898.7	1728.1	1458.7	1261.3	1194.8
45°	1792.1	1613.3	1333.4	1143.8	1079.9
47.5°	1690.8	1501.5	1213.5	1023.9	965.4
50°	1578.7	1389.4	1096.1	911.9	856.1
52.5°	1469.3	1269.2	984.0	808.0	757.4
55°	1362.6	1154.6	866.6	706.8	656.1
57.5°	1253.4	1040.1	762.8	613.4	570.7
60°	1141.3	928.0	653.3	517.5	474.8
62.5°	1032.1	818.8	559.9	432.1	410.8
65°	920.0	703.9	464.0	373.4	365.3
67.5°	813.4	597.2	373.4	327.9	320.0
70°	701.4	493.4	309.3	282.7	271.9
72.5°	594.7	397.2	258.6	237.3	232.0
75°	490.6	303.9	213.3	194.6	192.1
77.5°	386.7	215.9	168.0	157.3	151.9
80°	290.6	154.8	127.9	117.4	117.4
82.5°	202.6	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.1	25.5	42.5	53.3	57.4
92.5°	53.3	44.8	51.0	55.4	57.4
95°	138.2	68.0	82.9	93.7	91.5
97.5°	248.9	74.5	108.4	114.9	117.0
100°	376.8	85.2	121.3	138.2	142.5
102.5°	517.0	512.9	125.6	148.9	155.4
105°	646.9	710.8	129.9	153.1	161.8
107.5°	798.0	851.0	134.2	157.4	166.0
110°	942.8	987.3	372.5	159.7	168.0



TEST NUMBER: P914267

CATALOG NUMBER: DFN2DIP-PN4F0-090D110US927-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1079.0	1117.1	1081.0	163.7	170.3
115°	1223.5	1259.6	1313.0	327.7	174.6
117.5°	1349.2	1391.6	1428.0	1123.5	566.0
120°	1489.6	1521.5	1559.9	1585.4	1298.1
122.5°	1608.7	1642.7	1685.4	1698.1	1700.4
125°	1730.0	1757.8	1798.2	1813.1	1819.4
127.5°	1840.6	1870.4	1902.5	1923.7	1925.8
130°	1945.0	1979.1	2002.3	2025.8	2023.9
132.5°	2051.4	2079.2	2102.4	2121.6	2119.6
135°	2140.9	2174.9	2193.9	2215.4	2211.1
137.5°	2234.3	2259.9	2281.3	2302.6	2296.2
140°	2325.8	2343.0	2366.2	2385.4	2374.8
142.5°	2402.6	2417.5	2445.1	2462.0	2451.4
145°	2483.5	2481.2	2517.3	2532.3	2521.7
147.5°	2553.5	2547.2	2583.3	2593.9	2585.6
150°	2621.7	2606.8	2640.9	2653.6	2643.0
152.5°	2679.1	2662.1	2694.0	2706.9	2692.0
155°	2734.5	2715.4	2740.9	2753.6	2736.7
157.5°	2779.1	2762.2	2781.4	2796.3	2779.1
160°	2817.6	2804.6	2817.6	2830.1	2815.3
162.5°	2851.4	2838.8	2849.4	2864.3	2845.1
165°	2881.2	2868.6	2874.9	2889.8	2874.9
167.5°	2904.7	2891.9	2898.4	2913.3	2894.2
170°	2923.9	2911.0	2915.3	2930.3	2911.0
172.5°	2936.5	2923.9	2928.2	2943.1	2923.9
175°	2947.2	2932.3	2936.5	2951.5	2930.3
177.5°	2951.5	2936.5	2938.8	2953.7	2934.6
180°	2940.9	2940.9	2940.9	2940.9	2940.9

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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	8.95	9.71	9.98	10.75	12.14	4.91	5.67	5.94	6.71	8.10
	3H	10.62	11.30	11.66	12.35	13.76	6.09	6.78	7.14	7.82	9.24
	4H	11.23	11.87	12.28	12.92	14.34	6.54	7.19	7.60	8.24	9.66
	6H	11.65	12.24	12.71	13.30	14.73	6.86	7.46	7.93	8.51	9.94
	8H	11.77	12.34	12.85	13.41	14.83	6.95	7.52	8.02	8.58	10.01
	12H	11.84	12.37	12.91	13.43	14.88	6.99	7.53	8.07	8.59	10.04
4H	2H	8.96	9.60	10.02	10.65	12.07	5.50	6.15	6.56	7.19	8.61
	3H	10.78	11.32	11.85	12.40	13.83	6.84	7.38	7.91	8.46	9.89
	4H	11.47	11.97	12.55	13.03	14.49	7.39	7.88	8.47	8.95	10.40
	6H	11.99	12.41	13.07	13.50	14.95	7.81	8.23	8.89	9.32	10.77
	8H	12.16	12.56	13.25	13.64	15.10	7.93	8.33	9.02	9.41	10.87
	12H	12.26	12.61	13.36	13.71	15.18	8.00	8.35	9.10	9.45	10.92
8H	4H	11.44	11.83	12.52	12.91	14.38	7.67	8.06	8.75	9.14	10.61
	6H	12.00	12.33	13.11	13.45	14.91	8.18	8.51	9.29	9.63	11.09
	8H	12.22	12.51	13.34	13.61	15.09	8.38	8.66	9.49	9.77	11.25
	12H	12.36	12.61	13.48	13.71	15.23	8.49	8.74	9.61	9.85	11.36
12H	4H	11.39	11.74	12.49	12.84	14.31	7.67	8.03	8.77	9.12	10.59
	6H	11.98	12.26	13.09	13.37	14.85	8.23	8.52	9.35	9.63	11.11
	8H	12.20	12.45	13.32	13.55	15.07	8.44	8.69	9.56	9.80	11.31