

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: P917715

Luminaire Tested: DFN2DIP-SQ4F0-090D140US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917715
REPORT IS A COMBINATION OF REPORTS P901712 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D140US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

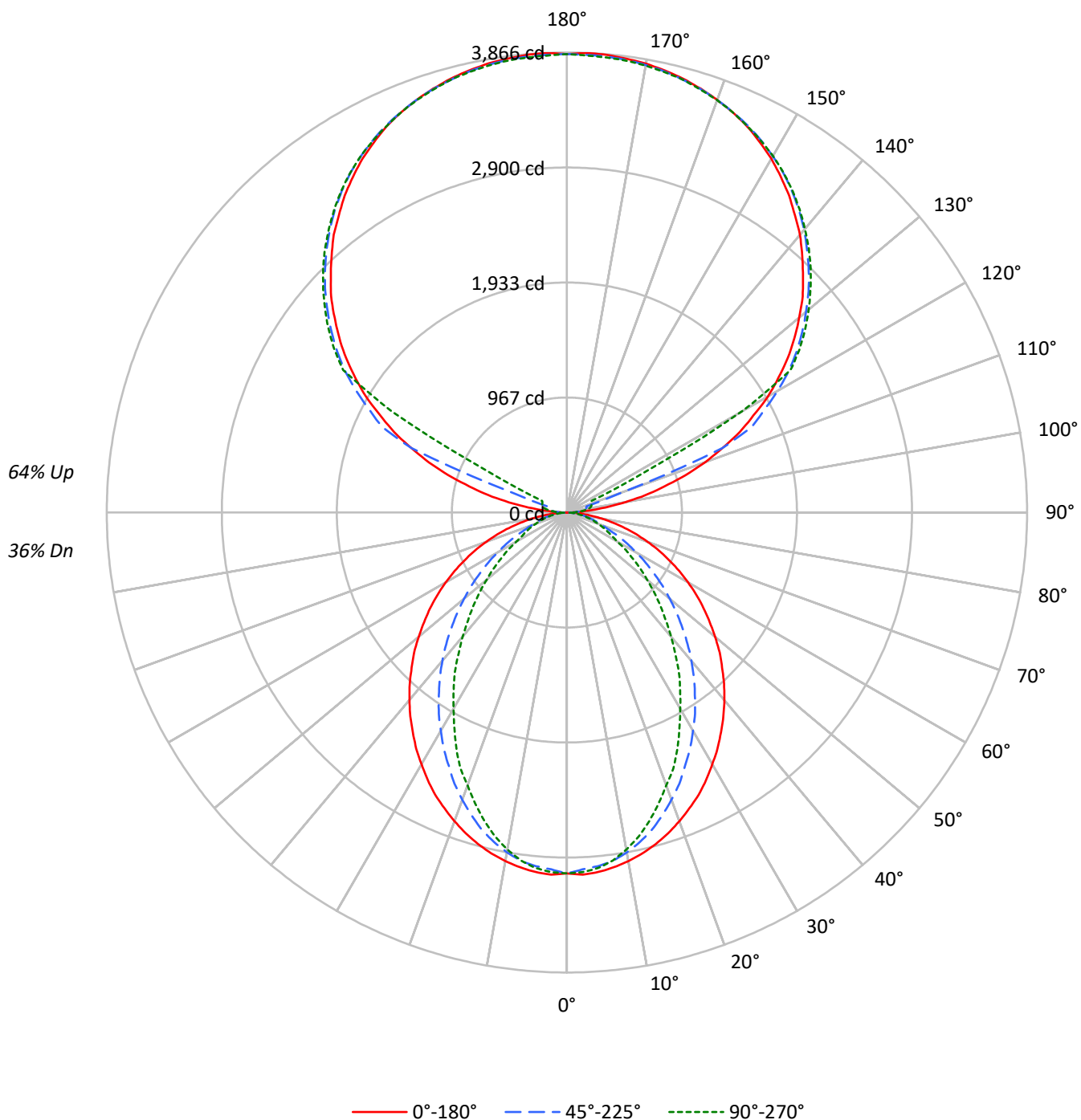
Lumens per Lamp: N/A
Luminaire Lumens: 17537.1 lumens
Efficiency: N/A
Efficacy: 93.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 188.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917715

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US930-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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	38	37
2	87	80	74	69	78	72	67	63	59	55	52	46	44	42	34	33	32
3	79	70	63	58	71	64	58	53	52	48	44	41	38	36	31	29	27
4	73	62	55	49	66	57	50	45	46	42	38	37	33	31	28	25	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	61	50	42	37	56	46	39	34	37	32	29	30	26	24	23	20	19
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	17
8	53	41	34	28	48	38	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	14
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2128	2128	2128
5°	2131	2095	2108
10°	2110	2054	2040
15°	2081	1986	1935
20°	2043	1893	1805
25°	2003	1789	1680
30°	1950	1681	1521
35°	1899	1566	1381
40°	1846	1447	1221
45°	1785	1314	1075
50°	1721	1181	933
55°	1655	1038	797
60°	1579	888	657
65°	1491	736	592
70°	1384	594	536
75°	1250	525	489
80°	1056	441	426
85°	735	297	325

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2067 cd/sqm

TEST NUMBER: P917715

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.2	1.6
10°-20°	780.3	4.4
20°-30°	1095.5	6.2
30°-40°	1194.1	6.8
40°-50°	1097.5	6.3
50°-60°	861.9	4.9
60°-70°	561.0	3.2
70°-80°	288.8	1.6
80°-90°	80.5	0.5
90°-100°	127.0	0.7
100°-110°	473.5	2.7
110°-120°	1255.8	7.2
120°-130°	2082.9	11.9
130°-140°	2212.5	12.6
140°-150°	2056.3	11.7
150°-160°	1653.2	9.4
160°-170°	1065.3	6.1
170°-180°	366.7	2.1
0°-30°	2159.9	12.3
0°-40°	3354.0	19.1
0°-60°	5313.5	30.3
0°-90°	6243.8	35.6
90°-120°	1856.4	10.6
90°-150°	8208.1	46.8
90°-180°	11293.0	64.4
0°-180°	17537.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3033	3033	3033	3033	3033	
5°	3033	3019	2983	3008	3000	288
15°	2884	2854	2761	2709	2682	813
25°	2618	2530	2349	2237	2196	1204
35°	2256	2116	1875	1702	1641	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	947	724	478	384	376	939
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	3	33	56	70	75	16
95°	181	89	109	123	120	214
105°	847	931	170	201	212	905
115°	1603	1650	1720	429	229	1578
125°	2266	2302	2355	2375	2383	2021
135°	2804	2849	2874	2902	2896	2166
145°	3253	3250	3297	3317	3303	2035
155°	3582	3557	3590	3607	3585	1650
165°	3774	3758	3766	3785	3766	1066
175°	3860	3841	3846	3866	3838	367
180°	3852	3852	3852	3852	3852	

TEST NUMBER: P917715

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3032.7	3032.7	3032.7	3032.7	3032.7
2.5°	3046.4	3032.7	3002.3	3030.1	3024.5
5°	3032.7	3019.0	2983.2	3007.9	2999.7
7.5°	3007.9	2991.6	2953.2	2963.9	2950.2
10°	2975.0	2955.8	2901.1	2892.6	2876.3
12.5°	2933.9	2909.2	2835.0	2818.6	2788.3
15°	2884.4	2854.2	2761.0	2708.8	2681.5
17.5°	2826.8	2782.9	2667.5	2607.2	2563.3
20°	2761.0	2706.0	2568.8	2500.4	2439.8
22.5°	2689.7	2626.5	2467.2	2374.0	2333.0
25°	2618.3	2530.4	2349.3	2236.9	2195.5
27.5°	2533.3	2439.8	2239.5	2110.5	2047.3
30°	2442.7	2338.2	2118.6	1978.9	1904.6
32.5°	2354.7	2228.4	2003.6	1838.8	1770.1
35°	2256.1	2116.0	1874.6	1701.7	1641.1
37.5°	2160.0	2008.9	1753.8	1564.2	1495.8
40°	2058.4	1893.9	1627.4	1432.6	1361.3
42.5°	1954.1	1778.6	1501.3	1298.1	1229.6
45°	1844.4	1660.4	1372.3	1177.2	1111.4
47.5°	1740.1	1545.3	1248.9	1053.8	993.5
50°	1624.8	1430.0	1128.0	938.5	881.1
52.5°	1512.1	1306.3	1012.8	831.6	779.5
55°	1402.3	1188.3	891.9	727.4	675.2
57.5°	1290.0	1070.4	785.1	631.3	587.3
60°	1174.6	955.0	672.4	532.6	488.6
62.5°	1062.3	842.7	576.3	444.7	422.8
65°	946.9	724.5	477.5	384.3	375.9
67.5°	837.1	614.7	384.3	337.5	329.3
70°	721.9	507.8	318.3	290.9	279.8
72.5°	612.0	408.8	266.1	244.3	238.8
75°	504.9	312.7	219.6	200.3	197.7
77.5°	398.0	222.2	172.9	161.9	156.4
80°	299.1	159.3	131.6	120.8	120.8
82.5°	208.5	107.1	90.6	85.0	85.0
85°	117.9	60.3	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
90°	2.6	33.4	55.6	69.9	75.2
92.5°	69.9	58.6	66.9	72.5	75.2
95°	181.1	89.0	108.6	122.8	119.8
97.5°	326.0	97.7	142.0	150.6	153.3
100°	493.5	111.5	158.9	181.1	186.7
102.5°	677.2	671.9	164.5	194.9	203.6
105°	847.3	931.1	170.2	200.6	211.8
107.5°	1045.3	1114.8	175.8	206.2	217.4
110°	1234.9	1293.2	487.9	209.2	220.1

TEST NUMBER: P917715

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1413.3	1463.3	1416.0	214.5	223.1
115°	1602.7	1650.0	1719.9	429.3	228.7
117.5°	1767.2	1822.8	1870.5	1471.6	741.4
120°	1951.3	1992.9	2043.2	2076.6	1700.3
122.5°	2107.1	2151.8	2207.7	2224.3	2227.3
125°	2266.0	2302.4	2355.4	2374.9	2383.2
127.5°	2411.0	2450.1	2492.0	2519.8	2522.5
130°	2547.6	2592.4	2622.8	2653.6	2650.9
132.5°	2687.1	2723.4	2753.9	2779.0	2776.4
135°	2804.2	2848.9	2873.7	2901.8	2896.2
137.5°	2926.7	2960.1	2988.2	3016.0	3007.8
140°	3046.5	3069.0	3099.4	3124.6	3110.7
142.5°	3147.1	3166.6	3202.7	3224.9	3211.0
145°	3253.0	3250.0	3297.4	3317.0	3303.0
147.5°	3344.8	3336.4	3383.8	3397.7	3386.7
150°	3434.1	3414.6	3459.2	3475.8	3461.9
152.5°	3509.2	3487.0	3528.8	3545.7	3526.1
155°	3581.7	3556.9	3590.3	3606.9	3584.7
157.5°	3640.3	3618.1	3643.3	3662.8	3640.3
160°	3690.6	3673.7	3690.6	3707.2	3687.7
162.5°	3735.0	3718.4	3732.4	3751.8	3726.7
165°	3774.0	3757.5	3765.8	3785.3	3765.8
167.5°	3804.8	3788.0	3796.5	3816.1	3790.9
170°	3829.9	3813.1	3818.7	3838.3	3813.1
172.5°	3846.5	3829.9	3835.6	3855.1	3829.9
175°	3860.4	3840.9	3846.5	3866.1	3838.3
177.5°	3866.1	3846.5	3849.5	3869.0	3843.9
180°	3852.1	3852.1	3852.1	3852.1	3852.1

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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	8.27	8.99	9.35	10.07	11.53	4.23	4.95	5.31	6.03	7.49
	3H	9.94	10.59	11.03	11.67	13.16	5.41	6.06	6.50	7.14	8.62
	4H	10.55	11.16	11.65	12.25	13.74	5.86	6.47	6.95	7.56	9.04
	6H	10.97	11.53	12.08	12.62	14.12	6.17	6.74	7.28	7.83	9.33
	8H	11.09	11.63	12.20	12.74	14.23	6.26	6.80	7.37	7.90	9.40
	12H	11.16	11.67	12.27	12.76	14.28	6.30	6.81	7.41	7.91	9.43
4H	2H	8.27	8.89	9.38	9.97	11.46	4.81	5.43	5.92	6.51	8.00
	3H	10.10	10.61	11.21	11.72	13.22	6.16	6.67	7.27	7.78	9.28
	4H	10.79	11.26	11.90	12.36	13.88	6.70	7.17	7.81	8.27	9.79
	6H	11.30	11.71	12.43	12.83	14.34	7.11	7.52	8.24	8.64	10.16
	8H	11.48	11.85	12.60	12.97	14.50	7.24	7.62	8.36	8.73	10.26
	12H	11.57	11.91	12.71	13.04	14.58	7.30	7.64	8.44	8.77	10.31
8H	4H	10.75	11.12	11.87	12.24	13.77	6.98	7.35	8.10	8.47	10.00
	6H	11.32	11.63	12.46	12.78	14.31	7.49	7.80	8.63	8.96	10.49
	8H	11.54	11.81	12.68	12.94	14.49	7.68	7.95	8.83	9.09	10.64
	12H	11.67	11.91	12.83	13.05	14.63	7.80	8.04	8.95	9.17	10.75
12H	4H	10.70	11.04	11.84	12.16	13.70	6.98	7.32	8.11	8.44	9.98
	6H	11.29	11.56	12.44	12.70	14.25	7.54	7.81	8.69	8.95	10.50
	8H	11.51	11.75	12.66	12.88	14.47	7.75	7.99	8.90	9.12	10.70