

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: P917887

Luminaire Tested: DFN2DIP-SQ4F0-160D110US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917887
REPORT IS A COMBINATION OF REPORTS P901686 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D110US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

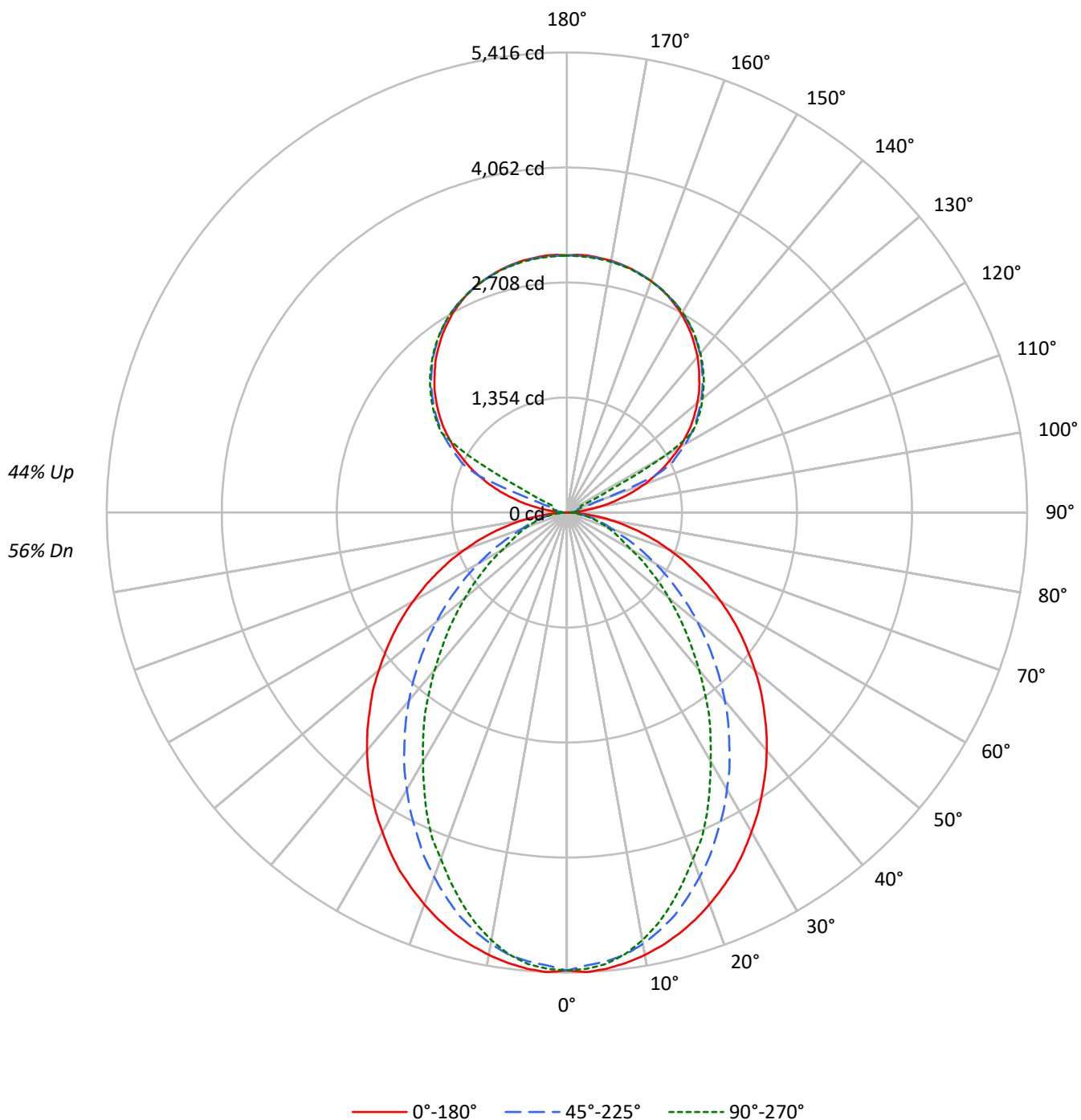
Lumens per Lamp: N/A
Luminaire Lumens: 19966.6 lumens
Efficiency: N/A
Efficacy: 80.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 249.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917887

CATALOG NUMBER: DFN2DIP-SQ4F0-160D110US930-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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61
1	100	95	92	88	92	89	86	83	77	74	72	65	64	62	55	54	53
2	91	84	78	73	84	78	73	69	68	64	61	58	55	53	49	47	45
3	83	74	67	62	77	69	63	58	60	56	52	52	48	45	44	41	39
4	77	66	58	53	71	62	55	50	54	49	44	47	43	39	40	37	34
5	71	59	51	45	65	56	48	43	49	43	39	42	38	34	36	33	30
6	65	53	45	40	61	50	43	38	44	38	34	38	34	30	33	29	27
7	60	48	41	35	56	46	38	33	40	34	30	35	30	27	30	27	24
8	56	44	36	31	52	42	35	30	37	31	27	32	28	24	28	24	22
9	52	40	33	28	49	38	31	27	34	28	24	30	25	22	26	22	20
10	49	37	30	25	46	35	29	24	31	26	22	27	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3783	3783	3783
5°	3789	3724	3748
10°	3751	3651	3627
15°	3700	3531	3439
20°	3631	3366	3209
25°	3561	3180	2986
30°	3467	2989	2704
35°	3375	2784	2455
40°	3282	2572	2170
45°	3173	2337	1912
50°	3060	2099	1659
55°	2942	1845	1417
60°	2806	1579	1167
65°	2650	1308	1052
70°	2460	1056	954
75°	2222	932	870
80°	1877	785	758
85°	1306	528	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3173 cd/sqm

TEST NUMBER: P917887

CATALOG NUMBER: DFN2DIP-SQ4F0-160D110US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	505.3	2.5
10°-20°	1387.1	6.9
20°-30°	1947.5	9.8
30°-40°	2122.9	10.6
40°-50°	1951.1	9.8
50°-60°	1532.3	7.7
60°-70°	997.4	5.0
70°-80°	513.4	2.6
80°-90°	136.4	0.7
90°-100°	99.8	0.5
100°-110°	372.1	1.9
110°-120°	986.7	4.9
120°-130°	1636.6	8.2
130°-140°	1738.4	8.7
140°-150°	1615.7	8.1
150°-160°	1298.9	6.5
160°-170°	837.0	4.2
170°-180°	288.1	1.4
0°-30°	3839.9	19.2
0°-40°	5962.7	29.9
0°-60°	9446.2	47.3
0°-90°	11093.4	55.6
90°-120°	1458.6	7.3
90°-150°	6449.2	32.3
90°-180°	8873.0	44.4
0°-180°	19966.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5391	5391	5391	5391	5391	
5°	5391	5367	5303	5347	5333	511
15°	5128	5074	4908	4816	4767	1445
25°	4655	4498	4176	3977	3903	2141
35°	4011	3762	3333	3025	2918	2510
45°	3279	2952	2440	2093	1976	2532
55°	2493	2112	1586	1293	1200	2228
65°	1683	1288	849	683	668	1669
75°	898	556	390	356	352	949
85°	210	107	93	93	93	241
90°	2	26	44	55	59	19
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

TEST NUMBER: P917887

CATALOG NUMBER: DFN2DIP-SQ4F0-160D110US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5391.4	5391.4	5391.4	5391.4	5391.4
2.5°	5415.7	5391.4	5337.5	5386.8	5376.9
5°	5391.4	5367.0	5303.4	5347.4	5332.9
7.5°	5347.4	5318.4	5250.0	5269.2	5244.9
10°	5288.9	5254.8	5157.4	5142.4	5113.4
12.5°	5215.9	5171.9	5039.9	5010.9	4957.1
15°	5127.9	5074.1	4908.4	4815.7	4767.0
17.5°	5025.4	4947.2	4742.3	4635.1	4556.9
20°	4908.4	4810.6	4566.7	4445.1	4337.5
22.5°	4781.6	4669.2	4386.1	4220.5	4147.4
25°	4654.8	4498.4	4176.4	3976.6	3903.2
27.5°	4503.6	4337.5	3981.3	3752.0	3639.7
30°	4342.6	4156.8	3766.4	3518.0	3386.0
32.5°	4186.3	3961.6	3562.0	3269.0	3146.8
35°	4010.8	3761.8	3332.7	3025.2	2917.5
37.5°	3840.0	3571.3	3117.9	2780.8	2659.2
40°	3659.3	3366.9	2893.2	2546.8	2420.0
42.5°	3474.0	3161.8	2669.0	2307.7	2186.1
45°	3278.8	2951.7	2439.7	2092.9	1975.9
47.5°	3093.5	2747.2	2220.2	1873.4	1766.3
50°	2888.5	2542.2	2005.4	1668.4	1566.4
52.5°	2688.2	2322.2	1800.4	1478.5	1385.8
55°	2493.0	2112.5	1585.6	1293.1	1200.4
57.5°	2293.2	1902.9	1395.6	1122.3	1044.1
60°	2088.2	1697.9	1195.2	946.8	868.6
62.5°	1888.4	1498.1	1024.4	790.4	751.6
65°	1683.4	1287.9	849.0	683.3	668.3
67.5°	1488.2	1092.7	683.3	600.0	585.5
70°	1283.3	902.8	565.8	517.1	497.5
72.5°	1088.1	726.8	473.1	434.3	424.4
75°	897.6	556.0	390.3	356.1	351.5
77.5°	707.6	394.9	307.4	287.8	278.0
80°	531.7	283.2	234.0	214.8	214.8
82.5°	370.6	190.5	161.0	151.2	151.2
85°	209.6	107.1	92.7	92.7	92.7
87.5°	78.2	38.8	38.8	34.2	34.2
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9

TEST NUMBER: P917887

CATALOG NUMBER: DFN2DIP-SQ4F0-160D110US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

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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	12.29	13.16	13.20	14.09	15.29	8.25	9.13	9.16	10.05	11.25
	3H	13.97	14.76	14.90	15.70	16.91	9.44	10.23	10.37	11.16	12.38
	4H	14.59	15.33	15.53	16.27	17.50	9.89	10.63	10.84	11.58	12.80
	6H	15.01	15.70	15.97	16.65	17.88	10.22	10.90	11.17	11.85	13.09
	8H	15.14	15.79	16.10	16.76	17.99	10.31	10.96	11.27	11.92	13.16
	12H	15.21	15.83	16.17	16.79	18.05	10.36	10.97	11.32	11.93	13.19
4H	2H	12.31	13.05	13.26	14.00	15.22	8.85	9.59	9.80	10.54	11.76
	3H	14.15	14.76	15.11	15.74	16.98	10.21	10.82	11.16	11.80	13.04
	4H	14.85	15.41	15.81	16.38	17.64	10.76	11.32	11.72	12.29	13.55
	6H	15.37	15.85	16.35	16.84	18.11	11.18	11.66	12.16	12.65	13.92
	8H	15.55	16.00	16.53	16.98	18.26	11.31	11.76	12.29	12.75	14.02
	12H	15.65	16.05	16.65	17.05	18.34	11.38	11.78	12.38	12.79	14.07
8H	4H	14.82	15.27	15.80	16.25	17.53	11.04	11.49	12.02	12.48	13.76
	6H	15.39	15.76	16.40	16.79	18.07	11.56	11.94	12.57	12.96	14.24
	8H	15.61	15.94	16.62	16.95	18.25	11.76	12.09	12.77	13.10	14.39
	12H	15.75	16.04	16.77	17.05	18.39	11.88	12.17	12.90	13.18	14.52
12H	4H	14.77	15.18	15.77	16.18	17.46	11.05	11.46	12.05	12.46	13.74
	6H	15.37	15.69	16.38	16.71	18.00	11.62	11.94	12.63	12.96	14.25
	8H	15.59	15.88	16.61	16.89	18.23	11.83	12.12	12.85	13.13	14.47