

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: P917749

Luminaire Tested: DFN2DIP-SQ4F0-100D140US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917749
REPORT IS A COMBINATION OF REPORTS P901713 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US930-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

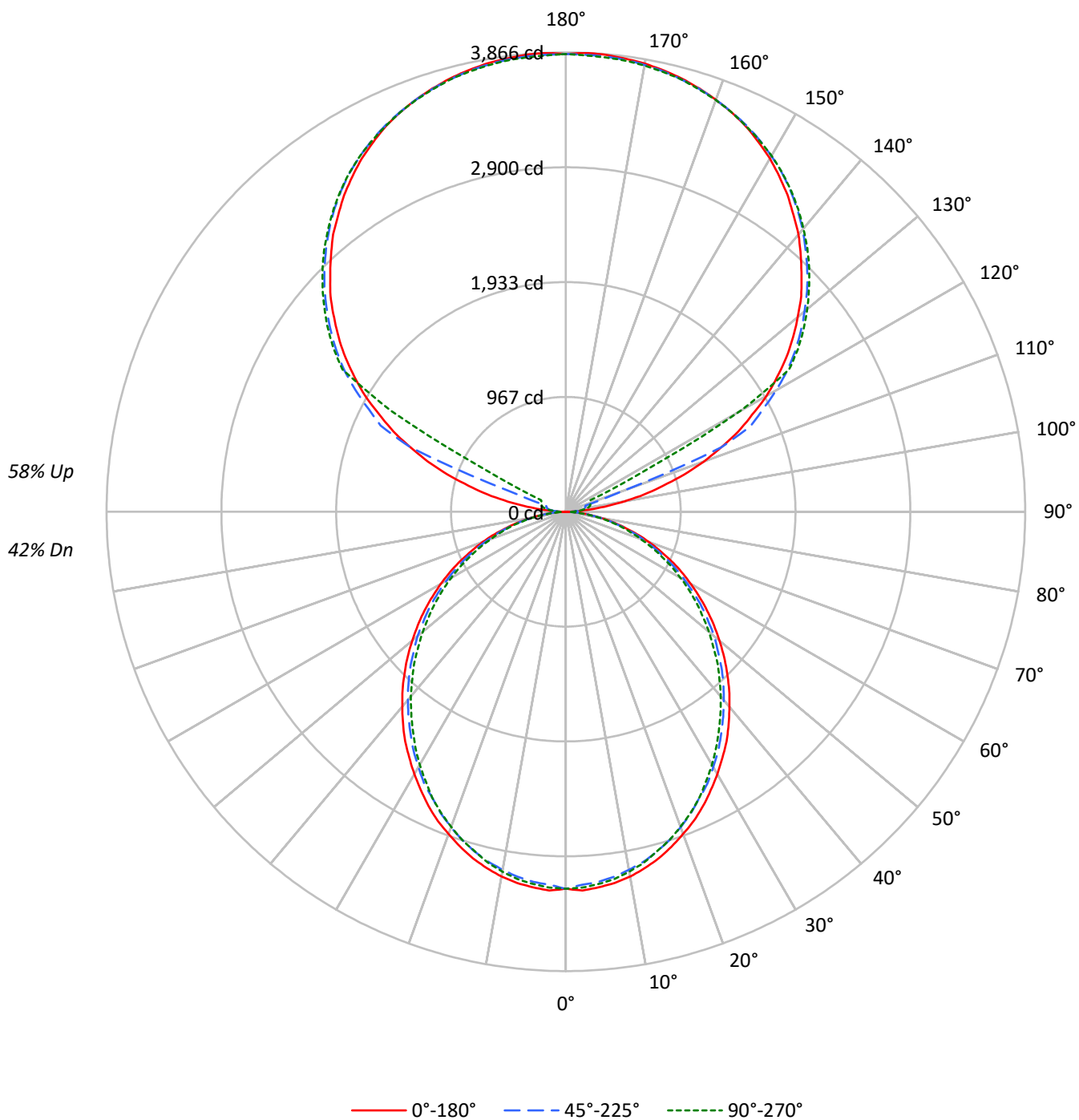
Lumens per Lamp: N/A
Luminaire Lumens: 19371.5 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 198.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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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	79	79	79	63	63	63	49	49	49
1	96	92	88	84	87	84	80	78	69	67	65	55	54	52	43	42	41
2	87	80	74	69	79	73	68	64	60	57	53	49	46	44	38	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	40	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	35	32	30	27	25
5	67	55	47	41	61	51	44	39	42	37	33	34	30	27	27	24	22
6	62	50	42	36	56	46	39	33	38	33	29	31	27	24	24	22	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	41	33	28	48	37	31	26	31	26	22	26	22	19	20	18	15
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2226	2226	2226
5°	2230	2195	2210
10°	2211	2166	2181
15°	2179	2131	2135
20°	2135	2082	2088
25°	2091	2023	2033
30°	2036	1968	1963
35°	1984	1904	1889
40°	1920	1839	1819
45°	1857	1773	1748
50°	1787	1705	1664
55°	1714	1625	1588
60°	1632	1531	1501
65°	1542	1434	1398
70°	1427	1315	1287
75°	1268	1173	1186
80°	1077	992	990
85°	778	679	666

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2067 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	298.6	1.5
10°-20°	840.1	4.3
20°-30°	1234.6	6.4
30°-40°	1433.9	7.4
40°-50°	1432.1	7.4
50°-60°	1248.8	6.4
60°-70°	923.1	4.8
70°-80°	522.3	2.7
80°-90°	144.6	0.7
90°-100°	127.0	0.7
100°-110°	473.5	2.4
110°-120°	1255.8	6.5
120°-130°	2082.9	10.8
130°-140°	2212.5	11.4
140°-150°	2056.3	10.6
150°-160°	1653.2	8.5
160°-170°	1065.3	5.5
170°-180°	366.7	1.9
0°-30°	2373.3	12.3
0°-40°	3807.2	19.7
0°-60°	6488.2	33.5
0°-90°	8078.2	41.7
90°-120°	1856.4	9.6
90°-150°	8208.1	42.4
90°-180°	11293.0	58.3
0°-180°	19371.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3172	3172	3172	3172	3172	
5°	3172	3160	3127	3151	3145	301
15°	3020	3002	2962	2974	2959	851
25°	2733	2709	2657	2663	2657	1258
35°	2358	2328	2279	2260	2245	1473
45°	1919	1898	1852	1818	1806	1481
55°	1452	1434	1397	1361	1345	1298
65°	979	961	930	903	888	968
75°	512	506	491	473	479	547
85°	125	122	119	110	107	139
90°	3	33	56	70	75	18
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3172.4	3172.4	3172.4	3172.4	3172.4
2.5°	3190.8	3175.6	3141.9	3172.4	3166.5
5°	3172.4	3160.4	3126.8	3151.0	3145.2
7.5°	3151.0	3132.9	3099.2	3123.8	3117.7
10°	3117.7	3096.3	3059.7	3084.0	3075.0
12.5°	3071.7	3053.6	3017.0	3032.3	3026.1
15°	3019.9	3001.8	2962.0	2974.3	2959.1
17.5°	2955.9	2937.8	2897.9	2913.1	2897.9
20°	2885.6	2867.5	2824.8	2833.8	2821.8
22.5°	2815.7	2788.2	2748.4	2748.4	2742.3
25°	2733.2	2708.9	2657.1	2662.9	2657.1
27.5°	2641.6	2620.2	2580.7	2571.7	2556.4
30°	2550.3	2525.7	2480.1	2471.0	2458.7
32.5°	2452.6	2434.5	2385.6	2367.1	2354.8
35°	2358.1	2327.7	2278.8	2260.3	2245.1
37.5°	2251.3	2223.7	2174.9	2153.5	2138.3
40°	2141.5	2116.9	2068.1	2040.9	2028.6
42.5°	2034.7	2010.1	1961.6	1930.9	1912.8
45°	1918.9	1897.5	1851.5	1818.2	1806.0
47.5°	1806.0	1784.6	1735.7	1702.0	1683.9
50°	1686.9	1671.6	1628.9	1586.2	1571.0
52.5°	1571.0	1549.6	1510.1	1476.5	1455.1
55°	1452.2	1433.8	1397.2	1360.6	1345.4
57.5°	1333.1	1317.8	1278.1	1241.5	1229.2
60°	1214.0	1202.0	1159.3	1125.6	1116.6
62.5°	1098.1	1076.8	1046.4	1015.9	1003.6
65°	979.3	960.9	930.5	902.9	887.8
67.5°	857.4	841.8	814.6	793.3	781.0
70°	744.4	732.1	704.6	683.2	671.2
72.5°	628.5	616.2	601.0	579.7	570.5
75°	512.3	506.5	491.0	472.9	479.0
77.5°	408.8	396.5	390.3	381.2	372.2
80°	305.2	302.0	295.8	286.7	280.6
82.5°	207.5	207.5	204.6	192.2	192.2
85°	124.9	122.1	119.1	109.7	106.8
87.5°	55.0	48.8	42.7	33.7	30.4
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

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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	9.25	10.04	10.27	11.07	12.45	8.80	9.59	9.83	10.63	12.01
	3H	10.91	11.61	11.94	12.66	14.06	10.41	11.12	11.45	12.17	13.57
	4H	11.49	12.16	12.54	13.21	14.62	11.00	11.67	12.05	12.71	14.13
	6H	11.89	12.51	12.95	13.56	14.98	11.39	12.01	12.45	13.06	14.48
	8H	12.00	12.59	13.06	13.65	15.07	11.49	12.08	12.56	13.15	14.57
	12H	12.04	12.60	13.11	13.66	15.11	11.53	12.09	12.60	13.15	14.60
4H	2H	9.70	10.37	10.75	11.42	12.83	9.34	10.02	10.40	11.06	12.47
	3H	11.56	12.12	12.62	13.20	14.62	11.16	11.72	12.22	12.79	14.21
	4H	12.28	12.79	13.35	13.86	15.30	11.85	12.37	12.92	13.43	14.88
	6H	12.79	13.24	13.87	14.32	15.76	12.36	12.80	13.44	13.89	15.33
	8H	12.94	13.36	14.02	14.44	15.89	12.51	12.92	13.58	14.00	15.45
	12H	13.02	13.39	14.11	14.48	15.94	12.57	12.94	13.66	14.03	15.49
8H	4H	12.47	12.88	13.55	13.96	15.42	12.09	12.51	13.17	13.58	15.04
	6H	13.10	13.44	14.20	14.56	16.02	12.72	13.06	13.82	14.18	15.63
	8H	13.33	13.62	14.43	14.73	16.20	12.93	13.23	14.04	14.33	15.81
	12H	13.46	13.72	14.57	14.82	16.33	13.05	13.31	14.16	14.41	15.92
12H	4H	12.45	12.82	13.55	13.92	15.38	12.08	12.46	13.18	13.55	15.01
	6H	13.13	13.43	14.24	14.53	16.01	12.76	13.06	13.87	14.16	15.64
	8H	13.37	13.64	14.48	14.74	16.25	12.99	13.26	14.10	14.36	15.87