

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: P917677

Luminaire Tested: DFN2DIP-SQ4F0-080D140US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917677
REPORT IS A COMBINATION OF REPORTS P901709 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D140US930-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

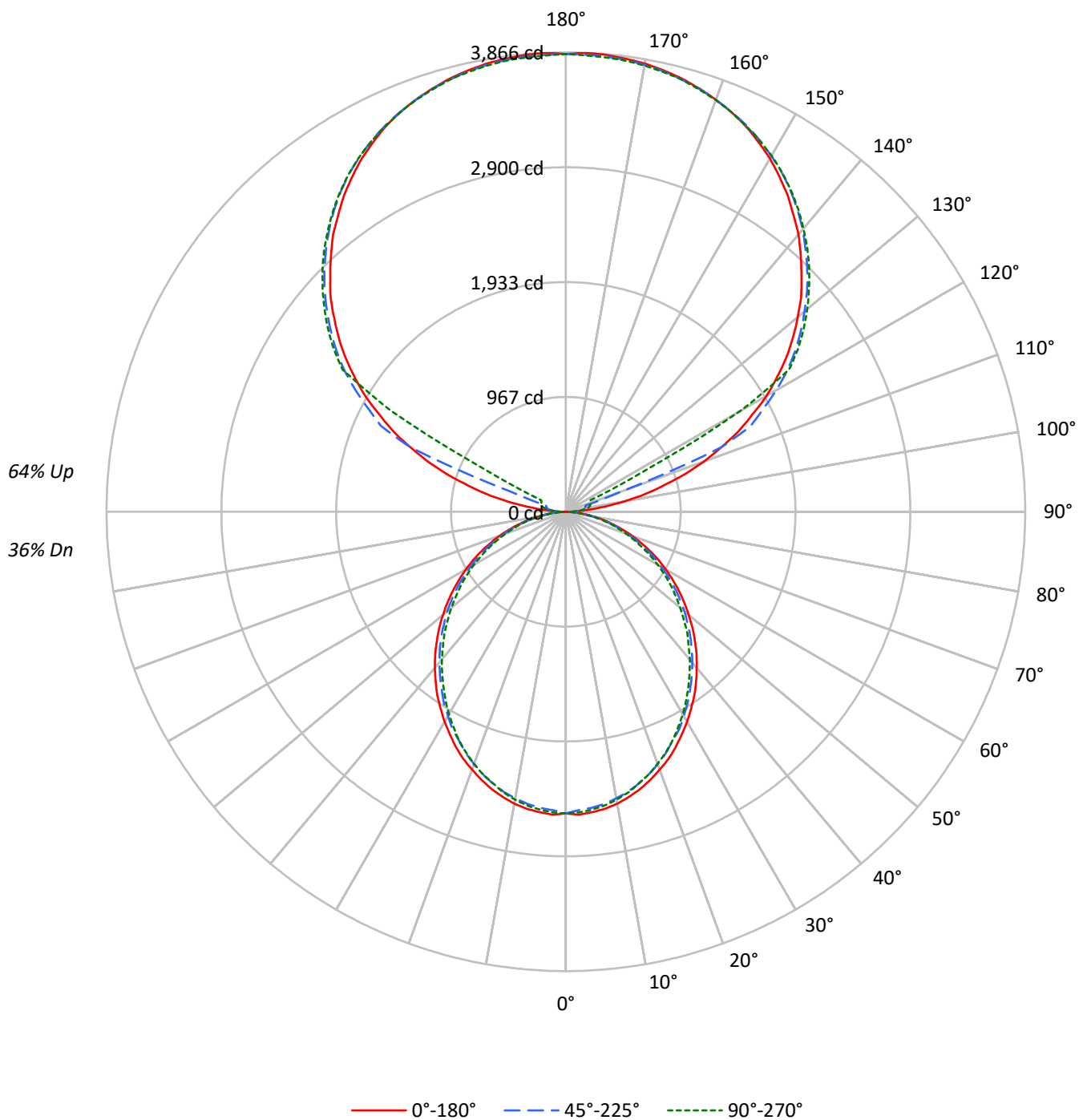
Lumens per Lamp: N/A
Luminaire Lumens: 17757.2 lumens
Efficiency: N/A
Efficacy: 100.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 177.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	44	44	36
1	95	90	87	83	86	82	79	76	66	64	62	52	50	49	39	38	37	37	37	31
2	86	79	73	68	78	72	67	62	58	54	51	46	43	41	34	32	31	31	31	26
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	26	26	26	22
4	72	61	54	48	65	56	49	44	45	41	37	36	32	30	27	25	23	23	23	19
5	66	55	47	41	59	50	43	38	41	35	32	32	28	26	24	22	20	20	20	16
6	61	49	41	35	55	45	38	33	37	31	27	29	25	22	22	19	17	17	17	14
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	17	15	15	15	13
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	18	16	14	14	14	11
9	48	36	29	24	44	33	27	22	28	23	19	22	18	16	17	14	12	12	12	10
10	45	33	26	21	41	31	24	20	25	20	17	20	17	14	16	13	11	11	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1781	1781	1781
5°	1784	1756	1768
10°	1769	1733	1745
15°	1743	1705	1708
20°	1708	1666	1670
25°	1673	1618	1626
30°	1629	1575	1571
35°	1587	1523	1511
40°	1536	1471	1455
45°	1485	1419	1398
50°	1430	1364	1331
55°	1371	1300	1270
60°	1305	1225	1200
65°	1233	1147	1118
70°	1142	1052	1029
75°	1015	938	949
80°	862	794	792
85°	623	543	532

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°	238.9	1.3
10°-20°	672.1	3.8
20°-30°	987.7	5.6
30°-40°	1147.1	6.5
40°-50°	1145.7	6.5
50°-60°	999.0	5.6
60°-70°	738.5	4.2
70°-80°	417.8	2.4
80°-90°	117.1	0.7
90°-100°	127.0	0.7
100°-110°	473.5	2.7
110°-120°	1255.8	7.1
120°-130°	2082.9	11.7
130°-140°	2212.5	12.5
140°-150°	2056.3	11.6
150°-160°	1653.2	9.3
160°-170°	1065.3	6.0
170°-180°	366.7	2.1
0°-30°	1898.6	10.7
0°-40°	3045.8	17.2
0°-60°	5190.5	29.2
0°-90°	6464.0	36.4
90°-120°	1856.4	10.5
90°-150°	8208.1	46.2
90°-180°	11293.0	63.6
0°-180°	17757.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
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	7.88	8.63	8.95	9.70	11.15	7.44	8.19	8.50	9.26	10.71
	3H	9.54	10.21	10.61	11.29	12.76	9.05	9.72	10.12	10.80	12.27
	4H	10.12	10.76	11.21	11.84	13.32	9.63	10.27	10.72	11.35	12.82
	6H	10.52	11.11	11.62	12.19	13.68	10.02	10.61	11.12	11.69	13.18
	8H	10.63	11.18	11.72	12.28	13.77	10.12	10.68	11.22	11.78	13.26
	12H	10.67	11.20	11.78	12.29	13.80	10.16	10.69	11.27	11.78	13.29
4H	2H	8.33	8.97	9.42	10.05	11.52	7.98	8.61	9.07	9.69	11.17
	3H	10.19	10.72	11.29	11.83	13.32	9.78	10.32	10.88	11.42	12.91
	4H	10.90	11.39	12.01	12.49	14.00	10.48	10.97	11.59	12.06	13.58
	6H	11.42	11.84	12.53	12.96	14.46	10.99	11.40	12.10	12.52	14.03
	8H	11.57	11.96	12.68	13.07	14.59	11.13	11.52	12.24	12.63	14.15
	12H	11.64	11.99	12.77	13.11	14.64	11.19	11.54	12.32	12.67	14.19
8H	4H	11.09	11.48	12.20	12.59	14.11	10.72	11.11	11.83	12.22	13.74
	6H	11.72	12.05	12.86	13.20	14.72	11.34	11.66	12.47	12.82	14.33
	8H	11.95	12.23	13.09	13.36	14.90	11.55	11.84	12.69	12.97	14.51
	12H	12.08	12.33	13.22	13.45	15.03	11.66	11.91	12.81	13.04	14.62
12H	4H	11.07	11.43	12.20	12.55	14.08	10.71	11.06	11.83	12.18	13.71
	6H	11.75	12.04	12.89	13.17	14.71	11.38	11.66	12.52	12.80	14.33
	8H	11.99	12.24	13.14	13.37	14.94	11.61	11.86	12.76	12.99	14.56