

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: P920369

Luminaire Tested: DFN2DIP-SQ4F0-070D140US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920369
REPORT IS A COMBINATION OF REPORTS P901707 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US935-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

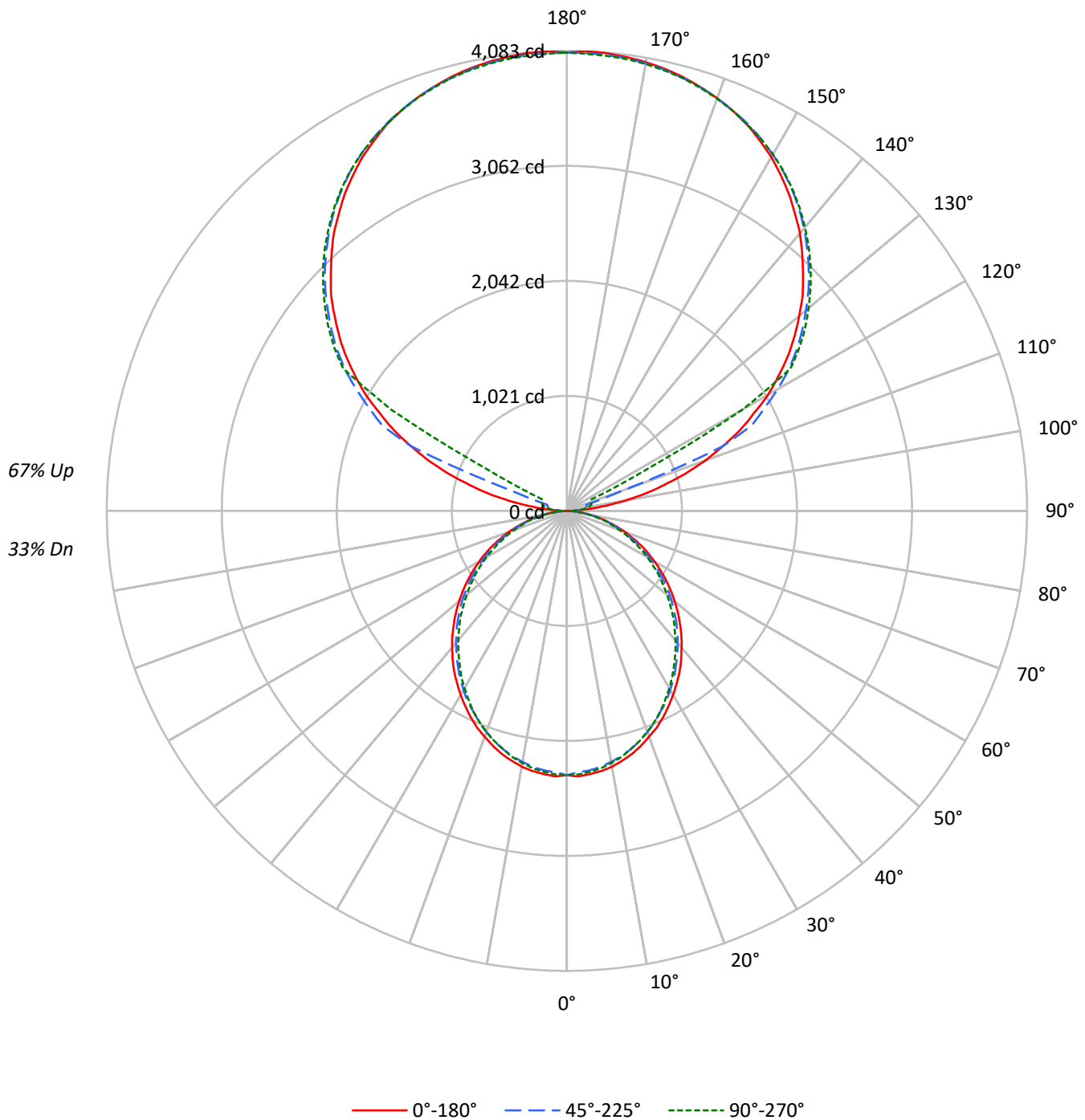
Lumens per Lamp: N/A
Luminaire Lumens: 17900.2 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1646	1646	1646
5°	1648	1623	1634
10°	1635	1601	1612
15°	1611	1575	1578
20°	1578	1539	1543
25°	1546	1496	1503
30°	1505	1455	1451
35°	1467	1407	1397
40°	1420	1359	1345
45°	1373	1311	1292
50°	1321	1260	1230
55°	1267	1202	1174
60°	1206	1132	1109
65°	1140	1060	1033
70°	1055	972	951
75°	938	867	876
80°	796	734	732
85°	576	502	492

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2182 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.7	1.2
10°-20°	621.0	3.5
20°-30°	912.7	5.1
30°-40°	1060.0	5.9
40°-50°	1058.7	5.9
50°-60°	923.2	5.2
60°-70°	682.4	3.8
70°-80°	386.1	2.2
80°-90°	109.1	0.6
90°-100°	134.2	0.7
100°-110°	500.0	2.8
110°-120°	1326.2	7.4
120°-130°	2199.7	12.3
130°-140°	2336.6	13.1
140°-150°	2171.6	12.1
150°-160°	1745.9	9.8
160°-170°	1125.0	6.3
170°-180°	387.2	2.2
0°-30°	1754.4	9.8
0°-40°	2814.4	15.7
0°-60°	4796.3	26.8
0°-90°	5973.9	33.4
90°-120°	1960.4	11.0
90°-150°	8668.2	48.4
90°-180°	11926.0	66.6
0°-180°	17900.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	3	35	59	74	79	16
95°	191	94	115	130	127	226
105°	895	983	180	212	224	956
115°	1692	1742	1816	453	242	1666
125°	2393	2432	2487	2508	2517	2134
135°	2961	3009	3035	3064	3058	2288
145°	3435	3432	3482	3503	3488	2149
155°	3782	3756	3792	3809	3786	1743
165°	3986	3968	3977	3997	3977	1126
175°	4077	4056	4062	4083	4053	388
180°	4068	4068	4068	4068	4068	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.0	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.2	2153.5	2142.2
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1564.9	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.5	857.0	832.2	825.4
62.5°	811.7	796.0	773.5	751.0	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	2.8	35.3	58.7	73.8	79.4
92.5°	73.8	61.9	70.6	76.5	79.4
95°	191.2	94.0	114.7	129.7	126.6
97.5°	344.3	103.1	150.0	159.0	161.9
100°	521.2	117.8	167.8	191.2	197.2
102.5°	715.1	709.5	173.7	205.9	215.0
105°	894.8	983.3	179.7	211.8	223.7
107.5°	1103.9	1177.2	185.6	217.7	229.6
110°	1304.2	1365.7	515.2	220.9	232.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1492.5	1545.3	1495.4	226.5	235.6
115°	1692.5	1742.5	1816.3	453.4	241.5
117.5°	1866.2	1924.9	1975.3	1554.1	783.0
120°	2060.6	2104.6	2157.7	2193.0	1795.6
122.5°	2225.2	2272.4	2331.5	2349.0	2352.2
125°	2393.1	2431.5	2487.4	2508.0	2516.8
127.5°	2546.1	2587.4	2631.7	2661.1	2663.9
130°	2690.4	2737.7	2769.8	2802.4	2799.5
132.5°	2837.7	2876.1	2908.3	2934.8	2932.0
135°	2961.4	3008.6	3034.8	3064.5	3058.5
137.5°	3090.7	3126.0	3155.7	3185.1	3176.4
140°	3217.3	3241.1	3273.2	3299.8	3285.1
142.5°	3323.5	3344.1	3382.3	3405.7	3391.0
145°	3435.4	3432.2	3482.2	3502.9	3488.2
147.5°	3532.2	3523.5	3573.5	3588.1	3576.6
150°	3626.6	3605.9	3653.1	3670.6	3656.0
152.5°	3705.9	3682.5	3726.6	3744.4	3723.7
155°	3782.4	3756.3	3791.6	3809.1	3785.6
157.5°	3844.4	3820.9	3847.5	3868.1	3844.4
160°	3897.5	3879.7	3897.5	3915.0	3894.4
162.5°	3944.3	3926.8	3941.6	3962.1	3935.6
165°	3985.6	3968.1	3976.9	3997.4	3976.9
167.5°	4018.1	4000.3	4009.3	4030.0	4003.4
170°	4044.6	4026.8	4032.7	4053.4	4026.8
172.5°	4062.1	4044.6	4050.6	4071.2	4044.6
175°	4076.8	4056.2	4062.1	4082.8	4053.4
177.5°	4082.8	4062.1	4065.3	4085.9	4059.3
180°	4068.0	4068.0	4068.0	4068.0	4068.0

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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	7.24	7.97	8.33	9.06	10.55	6.80	7.53	7.89	8.61	10.10
	3H	8.90	9.55	9.99	10.65	12.15	8.41	9.06	9.50	10.15	11.66
	4H	9.48	10.10	10.59	11.20	12.71	8.99	9.61	10.09	10.70	12.22
	6H	9.88	10.45	10.99	11.55	13.07	9.38	9.95	10.49	11.05	12.57
	8H	9.98	10.52	11.10	11.64	13.16	9.48	10.02	10.60	11.14	12.66
	12H	10.03	10.54	11.15	11.65	13.19	9.52	10.03	10.64	11.14	12.68
4H	2H	7.69	8.31	8.80	9.40	10.92	7.33	7.95	8.45	9.05	10.56
	3H	9.55	10.06	10.67	11.19	12.71	9.14	9.66	10.26	10.78	12.30
	4H	10.26	10.73	11.38	11.85	13.39	9.83	10.31	10.96	11.42	12.97
	6H	10.77	11.18	11.90	12.31	13.85	10.34	10.75	11.47	11.88	13.42
	8H	10.92	11.30	12.05	12.43	13.98	10.48	10.86	11.61	11.99	13.54
	12H	10.99	11.33	12.14	12.47	14.03	10.54	10.88	11.69	12.02	13.58
8H	4H	10.44	10.82	11.58	11.95	13.51	10.07	10.45	11.20	11.58	13.13
	6H	11.08	11.39	12.23	12.56	14.11	10.69	11.01	11.84	12.18	13.73
	8H	11.30	11.57	12.46	12.72	14.29	10.90	11.18	12.06	12.33	13.90
	12H	11.43	11.67	12.59	12.81	14.42	11.01	11.26	12.18	12.40	14.01
12H	4H	10.42	10.77	11.57	11.91	13.47	10.06	10.40	11.20	11.54	13.10
	6H	11.10	11.38	12.26	12.53	14.10	10.73	11.01	11.89	12.16	13.73
	8H	11.34	11.58	12.50	12.73	14.34	10.96	11.20	12.13	12.35	13.96

END OF REPORT