

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: P917870

Luminaire Tested: DFN2DIP-SQ4F0-160D070US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917870
REPORT IS A COMBINATION OF REPORTS P900094 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D070US930-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

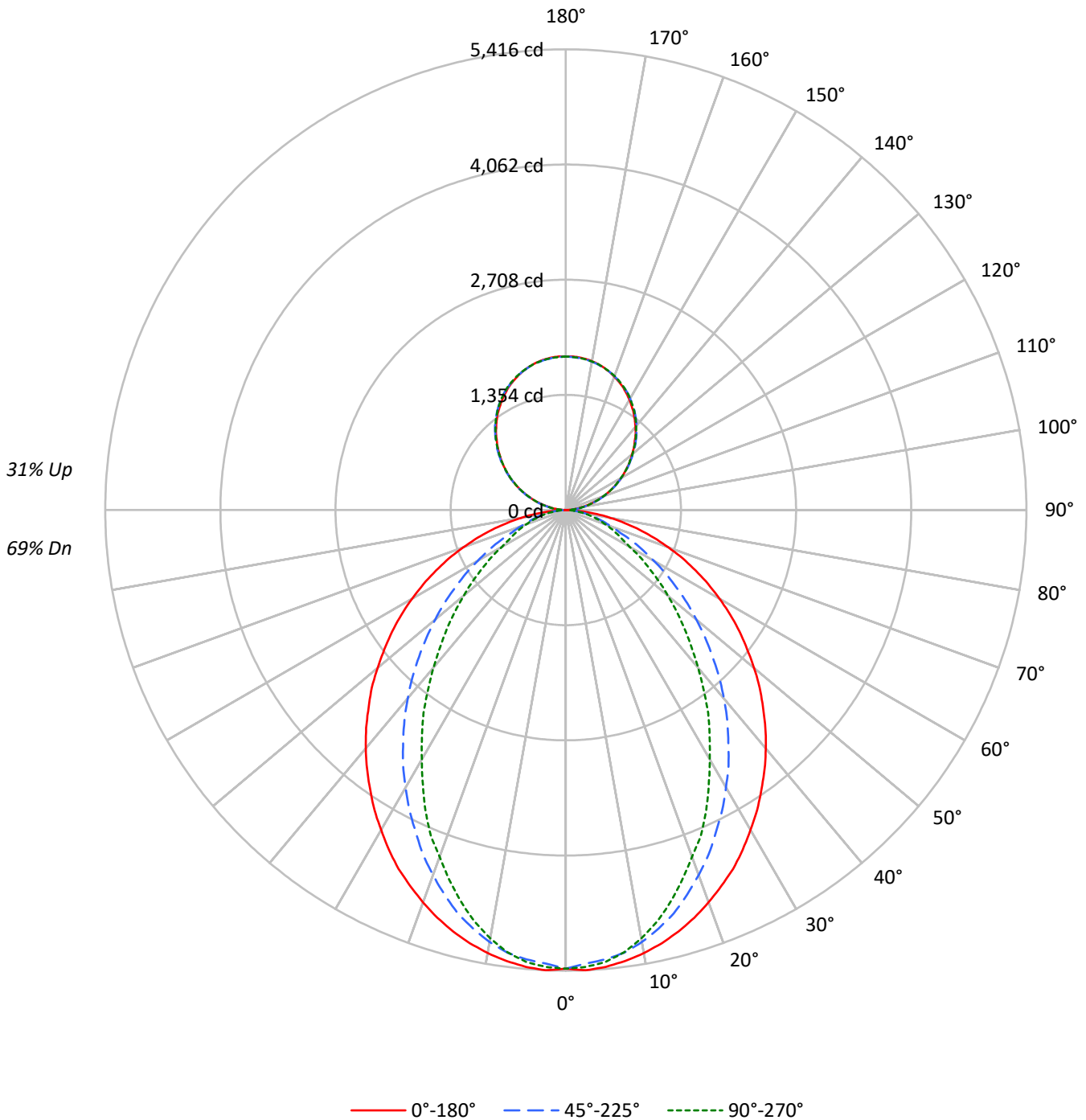
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16138.8 lumens
Efficiency: N/A
Efficacy: 73.7 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-Direct

Input Watts (W): 218.9
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: P917870
CATALOG NUMBER: DFN2DIP-SQ4F0-160D070US930-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P917870
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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	69			
1	103	98	95	91	97	93	90	87	83	81	79	74	72	71	66	65	63	59			
2	94	87	81	76	89	82	77	72	74	70	66	66	63	60	59	56	54	51			
3	86	77	70	64	81	73	67	61	66	61	56	59	55	52	53	50	47	44			
4	79	69	61	55	75	65	58	53	59	53	49	53	49	45	48	44	41	38			
5	73	62	54	48	69	59	51	46	53	47	43	48	43	39	43	39	36	34			
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	39	35	32	30			
7	63	51	43	37	59	48	41	36	44	38	34	40	35	31	36	32	29	27			
8	59	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24			
9	55	42	35	30	52	41	34	29	37	31	27	34	29	26	31	27	24	22			
10	51	39	32	27	49	38	31	26	34	29	25	32	27	23	29	25	22	20			

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: P917870

CATALOG NUMBER: DFN2DIP-SQ4F0-160D070US930-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	505.3	3.1
10°-20°	1387.1	8.6
20°-30°	1947.5	12.1
30°-40°	2122.9	13.2
40°-50°	1951.1	12.1
50°-60°	1532.3	9.5
60°-70°	997.4	6.2
70°-80°	513.4	3.2
80°-90°	136.2	0.8
90°-100°	111.7	0.7
100°-110°	354.9	2.2
110°-120°	607.3	3.8
120°-130°	798.7	4.9
130°-140°	896.5	5.6
140°-150°	879.1	5.4
150°-160°	737.5	4.6
160°-170°	489.1	3.0
170°-180°	170.9	1.1
0°-30°	3839.9	23.8
0°-40°	5962.7	36.9
0°-60°	9446.2	58.5
0°-90°	11093.2	68.7
90°-120°	1073.9	6.7
90°-150°	3648.2	22.6
90°-180°	5046.0	31.3
0°-180°	16138.8	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	20	53	50	52	16
95°	79	95	97	97	95	88
105°	328	332	335	338	338	346
115°	609	618	616	614	609	603
125°	886	900	896	891	889	792
135°	1147	1163	1167	1165	1161	886
145°	1392	1403	1412	1413	1407	870
155°	1592	1596	1601	1608	1604	733
165°	1731	1730	1730	1741	1733	488
175°	1802	1797	1794	1805	1796	171
180°	1805	1805	1805	1805	1805	



TEST NUMBER: P917870

CATALOG NUMBER: DFN2DIP-SQ4F0-160D070US930-RLFL

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°	1.6	19.6	53.3	50.1	51.7
92.5°	33.8	45.7	47.4	49.0	49.0
95°	79.4	94.7	97.4	97.4	94.7
97.5°	132.2	146.3	152.4	152.4	152.4
100°	193.1	205.7	210.0	210.0	208.4
102.5°	257.4	266.6	272.6	274.3	272.6
105°	327.6	331.9	335.2	337.9	337.9
107.5°	397.2	403.7	403.7	404.9	397.2
110°	464.7	473.4	473.4	473.4	469.0



TEST NUMBER: P917870

CATALOG NUMBER: DFN2DIP-SQ4F0-160D070US930-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	537.6	546.9	545.3	540.9	537.6
115°	609.4	618.2	615.5	613.8	609.4
117.5°	680.7	692.7	685.1	680.7	676.4
120°	752.5	764.5	752.5	752.5	747.6
122.5°	817.8	833.1	825.5	821.1	817.8
125°	886.4	900.0	895.7	890.8	889.2
127.5°	953.3	970.2	964.3	957.7	953.3
130°	1015.9	1035.5	1032.8	1029.6	1023.5
132.5°	1086.1	1101.4	1102.4	1094.9	1090.5
135°	1146.6	1163.3	1166.7	1165.0	1160.7
137.5°	1214.0	1227.6	1230.3	1229.2	1222.7
140°	1273.3	1286.9	1294.5	1294.5	1288.6
142.5°	1334.2	1347.9	1352.2	1353.8	1347.9
145°	1392.0	1402.8	1411.5	1413.2	1407.2
147.5°	1443.6	1457.3	1463.8	1466.5	1460.5
150°	1497.0	1506.2	1512.2	1517.1	1512.2
152.5°	1544.3	1553.6	1561.1	1567.2	1561.1
155°	1591.6	1595.9	1600.9	1608.5	1603.6
157.5°	1632.5	1635.7	1638.4	1649.3	1641.7
160°	1668.9	1672.2	1673.8	1683.0	1676.5
162.5°	1702.7	1702.7	1704.3	1714.6	1707.0
165°	1731.4	1729.8	1729.8	1740.7	1733.1
167.5°	1757.6	1752.7	1752.7	1763.6	1756.0
170°	1777.2	1772.9	1771.2	1782.1	1772.9
172.5°	1790.8	1786.4	1784.8	1795.7	1786.4
175°	1801.6	1797.3	1794.1	1804.9	1795.7
177.5°	1807.7	1803.3	1800.0	1809.3	1800.0
180°	1804.9	1804.9	1804.9	1804.9	1804.9



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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	13.38	14.39	14.16	15.19	16.17	9.34	10.35	10.12	11.15	12.13
	3H	15.07	15.98	15.87	16.79	17.80	10.54	11.44	11.34	12.26	13.26
	4H	15.69	16.54	16.51	17.36	18.38	11.00	11.85	11.81	12.67	13.69
	6H	16.13	16.91	16.95	17.74	18.77	11.33	12.11	12.16	12.94	13.98
	8H	16.26	17.01	17.10	17.85	18.89	11.42	12.17	12.26	13.02	14.05
	12H	16.33	17.04	17.17	17.88	18.94	11.47	12.19	12.32	13.03	14.09
4H	2H	13.42	14.27	14.24	15.09	16.11	9.96	10.81	10.78	11.63	12.65
	3H	15.27	15.97	16.10	16.83	17.86	11.32	12.03	12.15	12.89	13.92
	4H	15.97	16.61	16.81	17.46	18.53	11.88	12.52	12.72	13.37	14.44
	6H	16.50	17.05	17.36	17.93	19.00	12.31	12.86	13.17	13.74	14.81
	8H	16.68	17.20	17.54	18.07	19.15	12.44	12.96	13.31	13.83	14.91
	12H	16.78	17.25	17.67	18.14	19.23	12.52	12.98	13.40	13.87	14.96
8H	4H	15.95	16.47	16.81	17.34	18.42	12.17	12.69	13.04	13.56	14.64
	6H	16.53	16.95	17.42	17.87	18.95	12.70	13.13	13.59	14.04	15.12
	8H	16.75	17.13	17.65	18.03	19.13	12.89	13.27	13.80	14.18	15.28
	12H	16.90	17.23	17.80	18.13	19.28	13.02	13.36	13.93	14.25	15.41
12H	4H	15.91	16.38	16.79	17.27	18.35	12.19	12.65	13.07	13.55	14.63
	6H	16.50	16.88	17.40	17.79	18.89	12.75	13.13	13.65	14.04	15.14
	8H	16.73	17.07	17.64	17.97	19.12	12.97	13.31	13.88	14.20	15.36