

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: P917086

Luminaire Tested: DFN2DIP-PN4F0-120D070US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917086
REPORT IS A COMBINATION OF REPORTS P899680 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D070US930-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

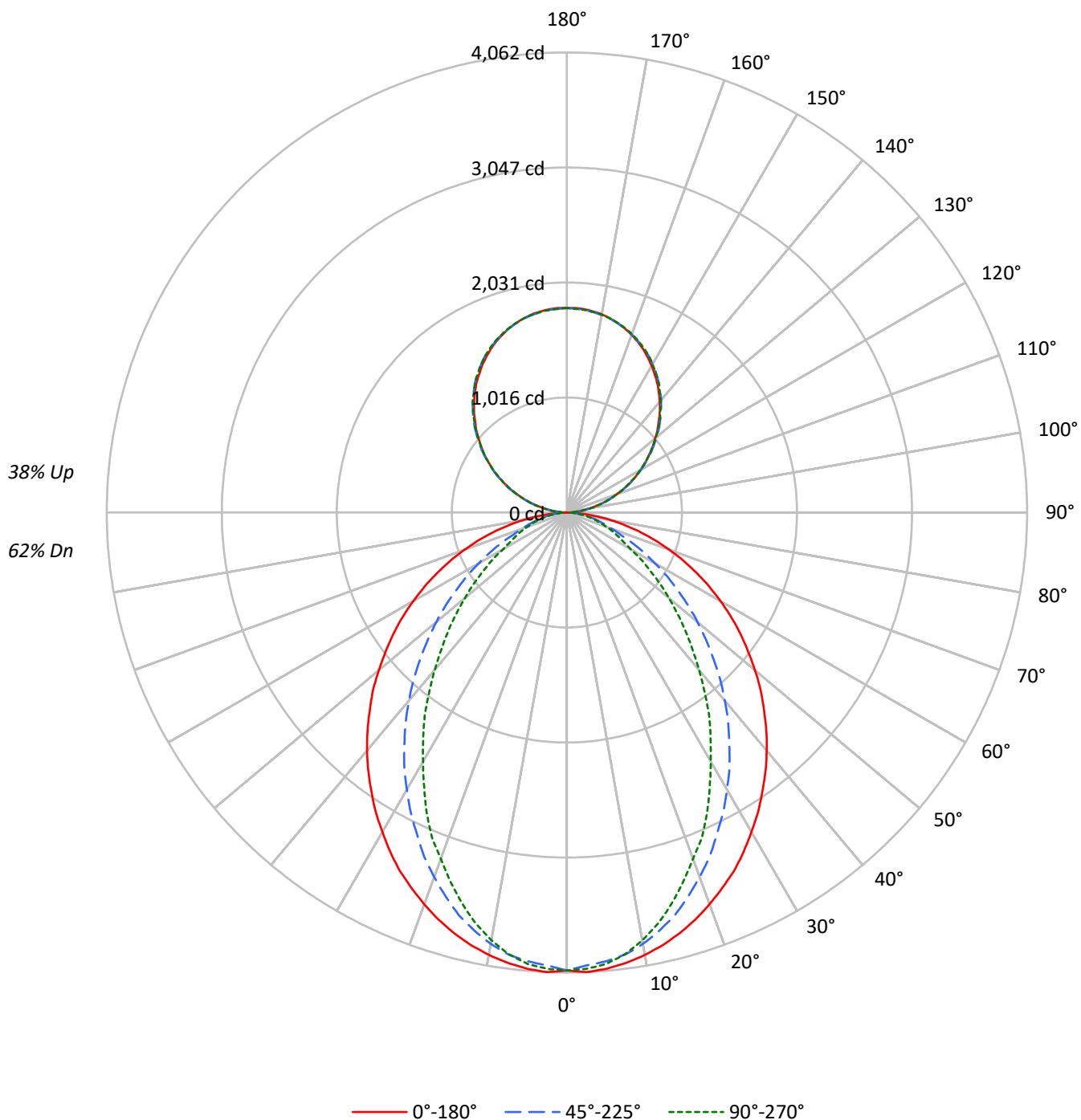
Lumens per Lamp: N/A
Luminaire Lumens: 13366.8 lumens
Efficiency: N/A
Efficacy: 74.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 178.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67
1	101	97	93	90	95	91	88	85	80	78	75	70	68	66	60	59	58
2	93	85	79	74	87	80	75	71	71	67	63	62	59	56	54	52	50
3	85	76	68	63	79	71	65	60	63	58	54	55	52	48	48	46	43
4	78	67	60	54	73	64	57	51	56	51	47	50	46	42	44	40	38
5	72	60	52	47	67	57	50	45	51	45	41	45	41	37	40	36	33
6	66	55	47	41	62	52	44	39	46	40	36	41	36	33	36	32	30
7	62	49	42	36	58	47	40	35	42	36	32	38	33	29	33	29	27
8	57	45	37	32	54	43	36	31	39	33	29	34	30	26	31	27	24
9	54	41	34	29	50	39	33	28	36	30	26	32	27	24	28	25	22
10	50	38	31	26	47	36	30	25	33	27	24	30	25	22	26	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2952	2952	2952
5°	2956	2905	2924
10°	2927	2849	2829
15°	2887	2755	2683
20°	2833	2625	2503
25°	2779	2480	2329
30°	2706	2331	2108
35°	2634	2171	1914
40°	2561	2006	1692
45°	2476	1822	1490
50°	2388	1636	1293
55°	2296	1438	1104
60°	2190	1230	909
65°	2068	1019	819
70°	1920	823	742
75°	1734	726	676
80°	1465	610	588
85°	1021	410	446

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2476 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.0	2.8
10°-20°	1040.3	7.8
20°-30°	1460.6	10.9
30°-40°	1592.1	11.9
40°-50°	1463.4	10.9
50°-60°	1149.2	8.6
60°-70°	748.0	5.6
70°-80°	385.1	2.9
80°-90°	103.4	0.8
90°-100°	111.7	0.8
100°-110°	354.9	2.7
110°-120°	607.3	4.5
120°-130°	798.7	6.0
130°-140°	896.5	6.7
140°-150°	879.1	6.6
150°-160°	737.5	5.5
160°-170°	489.1	3.7
170°-180°	170.9	1.3
0°-30°	2879.9	21.5
0°-40°	4472.0	33.5
0°-60°	7084.6	53.0
0°-90°	8321.2	62.3
90°-120°	1073.9	8.0
90°-150°	3648.2	27.3
90°-180°	5046.0	37.8
0°-180°	13366.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4044	4044	4044	4044	4044	
5°	4044	4025	3978	4010	4000	383
15°	3846	3806	3681	3612	3575	1084
25°	3491	3374	3132	2982	2927	1606
35°	3008	2821	2500	2269	2188	1883
45°	2459	2214	1830	1570	1482	1899
55°	1870	1584	1189	970	900	1671
65°	1263	966	637	512	501	1252
75°	673	417	293	267	264	712
85°	157	80	70	70	70	181
90°	2	20	53	50	52	13
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4043.6	4043.6	4043.6	4043.6	4043.6
2.5°	4061.8	4043.6	4003.2	4040.0	4032.6
5°	4043.6	4025.3	3977.5	4010.5	3999.7
7.5°	4010.5	3988.8	3937.6	3951.9	3933.7
10°	3966.7	3941.1	3868.0	3856.8	3835.1
12.5°	3911.9	3878.9	3779.9	3758.2	3717.8
15°	3845.9	3805.6	3681.3	3611.8	3575.3
17.5°	3769.0	3710.4	3556.7	3476.4	3417.7
20°	3681.3	3607.9	3425.1	3333.8	3253.0
22.5°	3586.2	3502.0	3289.6	3165.3	3110.6
25°	3491.1	3373.8	3132.3	2982.4	2927.3
27.5°	3377.7	3253.0	2985.9	2814.0	2729.7
30°	3257.0	3117.6	2824.8	2638.5	2539.5
32.5°	3139.7	2971.2	2671.5	2451.8	2360.1
35°	3008.1	2821.3	2499.5	2268.9	2188.1
37.5°	2880.0	2678.5	2338.4	2085.6	1994.4
40°	2744.5	2525.1	2169.9	1910.2	1815.0
42.5°	2605.4	2371.4	2001.8	1730.8	1639.6
45°	2459.1	2213.8	1829.8	1569.7	1481.9
47.5°	2320.1	2060.4	1665.2	1405.1	1324.7
50°	2166.4	1906.7	1504.1	1251.3	1174.8
52.5°	2016.2	1741.6	1350.3	1108.8	1039.3
55°	1869.8	1584.5	1189.2	969.8	900.3
57.5°	1719.9	1427.2	1046.7	841.7	783.1
60°	1566.2	1273.4	896.4	710.1	651.5
62.5°	1416.3	1123.6	768.3	592.9	563.7
65°	1262.6	966.0	636.7	512.5	501.2
67.5°	1116.2	819.5	512.5	450.0	439.1
70°	962.5	677.1	424.4	387.8	373.1
72.5°	816.1	545.1	354.8	325.7	318.4
75°	673.2	416.9	292.8	267.1	263.6
77.5°	530.8	296.2	230.6	215.9	208.5
80°	398.8	212.4	175.5	161.1	161.1
82.5°	278.0	142.8	120.7	113.3	113.3
85°	157.3	80.4	69.5	69.5	69.5
87.5°	58.6	29.1	29.1	25.6	25.6
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



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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	11.99	12.93	12.84	13.80	14.88	7.95	8.89	8.80	9.76	10.85
	3H	13.68	14.52	14.54	15.40	16.51	9.15	9.99	10.01	10.87	11.98
	4H	14.29	15.09	15.17	15.97	17.09	9.61	10.40	10.49	11.28	12.41
	6H	14.72	15.45	15.61	16.34	17.48	9.93	10.66	10.83	11.56	12.69
	8H	14.85	15.55	15.75	16.46	17.59	10.03	10.72	10.93	11.63	12.77
	12H	14.92	15.58	15.82	16.48	17.65	10.07	10.74	10.98	11.64	12.80
4H	2H	12.02	12.81	12.90	13.70	14.82	8.56	9.36	9.45	10.24	11.37
	3H	13.86	14.52	14.76	15.44	16.58	9.92	10.58	10.82	11.50	12.64
	4H	14.56	15.16	15.47	16.07	17.24	10.48	11.08	11.38	11.99	13.16
	6H	15.08	15.60	16.01	16.54	17.71	10.90	11.42	11.82	12.36	13.52
	8H	15.26	15.75	16.19	16.68	17.86	11.03	11.52	11.96	12.45	13.63
	12H	15.36	15.80	16.31	16.75	17.93	11.10	11.54	12.05	12.49	13.67
8H	4H	14.54	15.02	15.46	15.95	17.13	10.77	11.25	11.69	12.18	13.36
	6H	15.11	15.51	16.06	16.48	17.66	11.29	11.69	12.24	12.66	13.84
	8H	15.33	15.68	16.29	16.64	17.84	11.48	11.84	12.44	12.80	14.00
	12H	15.47	15.78	16.44	16.74	17.99	11.61	11.92	12.57	12.87	14.12
12H	4H	14.49	14.93	15.44	15.88	17.06	10.78	11.21	11.72	12.16	13.35
	6H	15.08	15.44	16.04	16.40	17.60	11.34	11.69	12.30	12.66	13.85
	8H	15.31	15.62	16.27	16.58	17.83	11.56	11.87	12.52	12.82	14.07