

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: P911397

Luminaire Tested: DFN2DIP-PN4F0-050D120US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911397
REPORT IS A COMBINATION OF REPORTS P901275 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D120US850-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

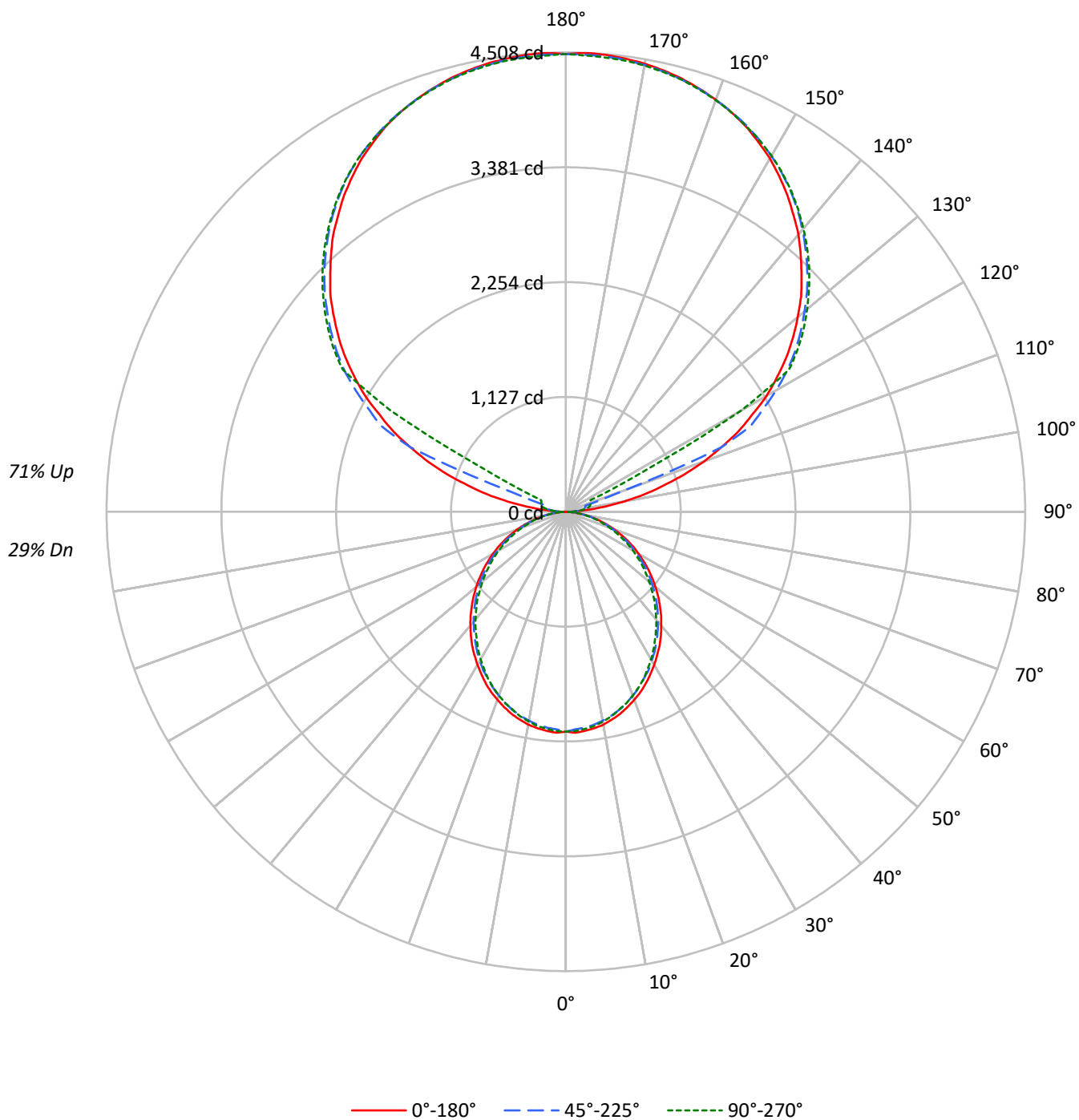
Lumens per Lamp: N/A
Luminaire Lumens: 18664.5 lumens
Efficiency: N/A
Efficacy: 126.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 147.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	31
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	29	28	26
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	22
4	71	60	53	47	63	54	48	43	43	38	35	33	29	27	23	21	19
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17
6	60	48	40	34	53	43	36	32	35	30	26	26	23	20	19	16	15
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13
8	51	39	32	26	46	35	29	24	28	23	20	22	18	16	16	13	12
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1575	1575	1575
5°	1577	1553	1564
10°	1565	1533	1543
15°	1542	1507	1510
20°	1511	1473	1476
25°	1480	1431	1438
30°	1441	1392	1388
35°	1404	1346	1336
40°	1359	1300	1286
45°	1314	1254	1235
50°	1265	1205	1176
55°	1213	1149	1122
60°	1155	1082	1060
65°	1091	1013	986
70°	1010	929	908
75°	898	828	836
80°	763	700	697
85°	551	477	466

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2395 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	1.1
10°-20°	571.4	3.1
20°-30°	839.7	4.5
30°-40°	975.2	5.2
40°-50°	974.0	5.2
50°-60°	849.3	4.6
60°-70°	627.9	3.4
70°-80°	355.2	1.9
80°-90°	101.7	0.5
90°-100°	148.1	0.8
100°-110°	552.1	3.0
110°-120°	1464.2	7.8
120°-130°	2428.5	13.0
130°-140°	2579.6	13.8
140°-150°	2397.5	12.8
150°-160°	1927.5	10.3
160°-170°	1242.0	6.7
170°-180°	427.5	2.3
0°-30°	1614.1	8.6
0°-40°	2589.4	13.9
0°-60°	4412.7	23.6
0°-90°	5497.5	29.5
90°-120°	2164.4	11.6
90°-150°	9570.0	51.3
90°-180°	13167.0	70.5
0°-180°	18664.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2126	2143	2139	205
15°	2054	2042	2014	2023	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	3	39	65	81	88	17
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.6	2157.6	2157.6	2157.6	2157.6
2.5°	2170.1	2159.8	2136.9	2157.6	2153.7
5°	2157.6	2149.5	2126.5	2143.0	2139.2
7.5°	2143.0	2130.7	2107.9	2124.6	2120.4
10°	2120.4	2105.9	2081.0	2097.5	2091.4
12.5°	2089.1	2076.8	2052.0	2062.3	2058.1
15°	2053.9	2041.6	2014.5	2022.9	2012.5
17.5°	2010.3	1998.0	1970.9	1981.2	1970.9
20°	1962.6	1950.3	1921.2	1927.3	1919.2
22.5°	1915.0	1896.3	1869.2	1869.2	1865.0
25°	1858.9	1842.4	1807.1	1811.1	1807.1
27.5°	1796.6	1782.1	1755.2	1749.0	1738.7
30°	1734.5	1717.8	1686.8	1680.6	1672.3
32.5°	1668.0	1655.7	1622.5	1609.9	1601.6
35°	1603.7	1583.1	1549.8	1537.3	1527.0
37.5°	1531.1	1512.5	1479.2	1464.7	1454.3
40°	1456.6	1439.8	1406.5	1388.0	1379.7
42.5°	1383.9	1367.2	1334.1	1313.2	1300.9
45°	1305.1	1290.5	1259.3	1236.6	1228.2
47.5°	1228.2	1213.7	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.8	1068.4
52.5°	1068.4	1053.9	1027.0	1004.2	989.7
55°	987.7	975.1	950.2	925.3	915.0
57.5°	906.6	896.3	869.2	844.4	836.0
60°	825.7	817.6	788.5	765.5	759.4
62.5°	746.9	732.4	711.6	690.9	682.6
65°	666.1	653.5	632.8	614.2	603.7
67.5°	583.1	572.6	554.1	539.5	531.1
70°	506.3	497.9	479.2	464.7	456.6
72.5°	427.5	419.1	408.8	394.2	388.0
75°	348.4	344.5	333.9	321.6	325.8
77.5°	278.0	269.6	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.1	190.9
82.5°	141.1	141.1	139.1	130.8	130.8
85°	84.9	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.8	20.7
90°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3

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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	6.57	7.27	7.68	8.38	9.92	6.13	6.83	7.24	7.94	9.48
	3H	8.22	8.85	9.34	9.97	11.52	7.74	8.36	8.86	9.48	11.04
	4H	8.80	9.40	9.94	10.52	12.08	8.31	8.91	9.45	10.03	11.59
	6H	9.20	9.75	10.34	10.87	12.44	8.70	9.25	9.85	10.38	11.95
	8H	9.30	9.82	10.44	10.96	12.52	8.80	9.33	9.95	10.46	12.03
	12H	9.34	9.84	10.49	10.97	12.55	8.84	9.34	9.99	10.47	12.05
4H	2H	7.01	7.61	8.15	8.73	10.29	6.66	7.26	7.80	8.38	9.93
	3H	8.86	9.36	10.01	10.51	12.08	8.46	8.96	9.61	10.11	11.68
	4H	9.57	10.03	10.72	11.17	12.76	9.16	9.62	10.31	10.75	12.34
	6H	10.08	10.48	11.24	11.63	13.21	9.66	10.05	10.81	11.21	12.79
	8H	10.23	10.60	11.39	11.75	13.34	9.80	10.17	10.96	11.32	12.92
	12H	10.30	10.63	11.47	11.79	13.39	9.86	10.19	11.03	11.35	12.95
8H	4H	9.76	10.13	10.91	11.27	12.87	9.39	9.75	10.54	10.90	12.50
	6H	10.39	10.69	11.56	11.88	13.47	10.01	10.31	11.19	11.50	13.10
	8H	10.61	10.87	11.79	12.04	13.66	10.22	10.49	11.40	11.66	13.27
	12H	10.73	10.97	11.92	12.13	13.78	10.33	10.56	11.52	11.73	13.38
12H	4H	9.74	10.07	10.91	11.23	12.83	9.37	9.71	10.55	10.87	12.47
	6H	10.42	10.68	11.60	11.85	13.46	10.05	10.32	11.23	11.48	13.10
	8H	10.65	10.88	11.84	12.05	13.70	10.28	10.51	11.46	11.68	13.33

END OF REPORT