

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: P910371

Luminaire Tested: DFN2DIP-4P3F0-020D050US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910371
REPORT IS A COMBINATION OF REPORTS P900579 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D050US850-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

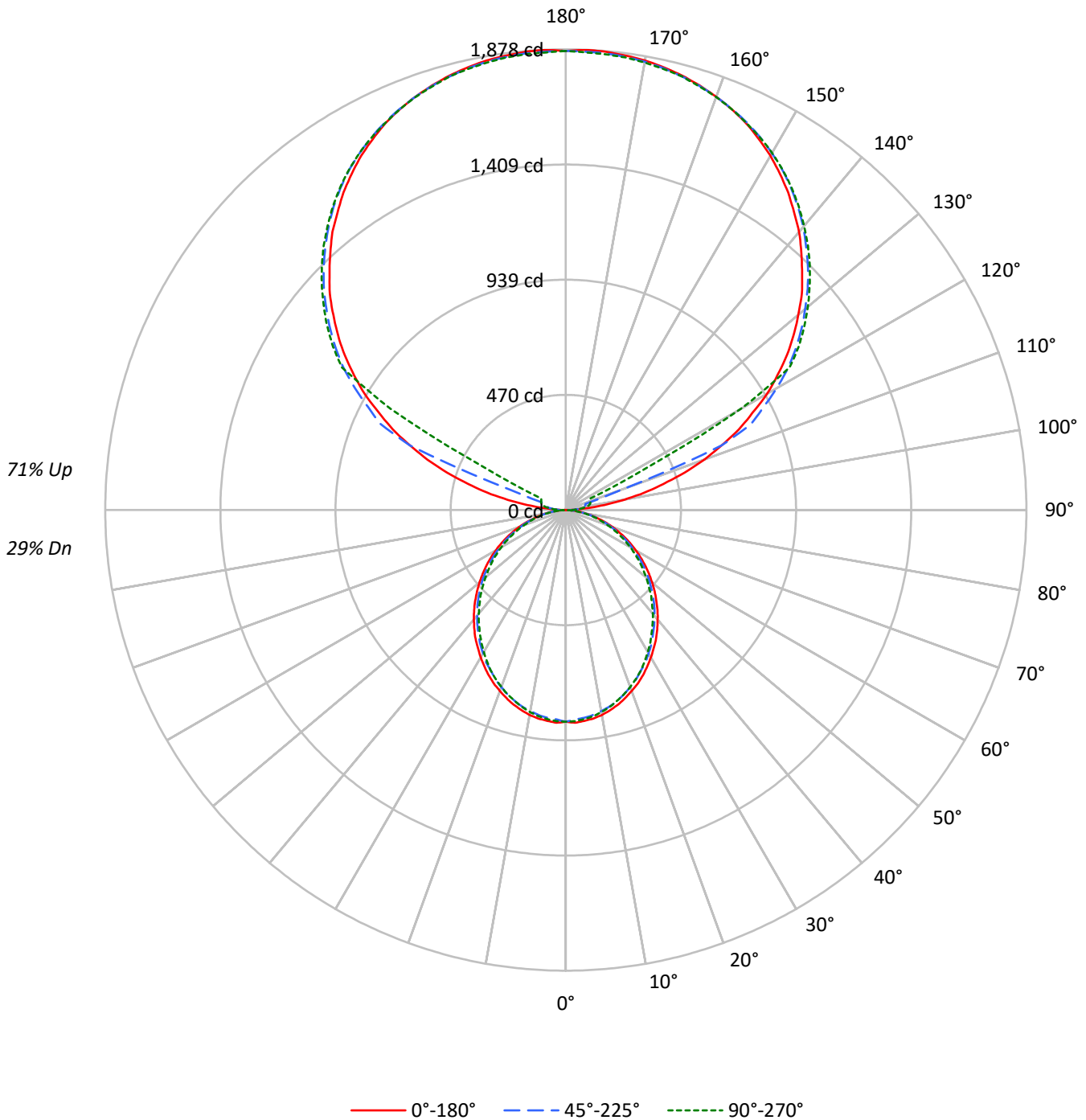
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7685.4 lumens
Efficiency: N/A
Efficacy: 142.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 53.8
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				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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	29			
1	93	89	85	82	83	80	77	74	62	60	58	47	45	44	32	31	31	24			
2	85	77	72	67	76	70	65	60	55	51	48	41	39	37	28	27	26	20			
3	77	68	61	55	69	61	55	50	48	44	41	36	33	31	25	23	22	17			
4	71	60	53	47	63	54	48	43	43	38	34	32	29	27	22	21	19	15			
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	16	13			
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	14	11			
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	14	13	10			
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	11	9			
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10	8			
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9	7			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	983	983	983
5°	984	969	976
10°	976	955	962
15°	961	939	942
20°	941	917	920
25°	921	890	895
30°	896	865	864
35°	873	835	831
40°	844	806	799
45°	815	776	767
50°	783	745	729
55°	750	709	695
60°	713	666	655
65°	671	621	609
70°	619	567	559
75°	547	502	512
80°	460	419	423
85°	323	278	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1278 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.2	1.1
10°-20°	228.6	3.0
20°-30°	335.9	4.4
30°-40°	390.1	5.1
40°-50°	389.6	5.1
50°-60°	339.7	4.4
60°-70°	251.1	3.3
70°-80°	142.1	1.8
80°-90°	40.8	0.5
90°-100°	61.7	0.8
100°-110°	230.0	3.0
110°-120°	610.1	7.9
120°-130°	1011.9	13.2
130°-140°	1074.8	14.0
140°-150°	999.0	13.0
150°-160°	803.1	10.5
160°-170°	517.5	6.7
170°-180°	178.1	2.3
0°-30°	645.7	8.4
0°-40°	1035.8	13.5
0°-60°	1765.1	23.0
0°-90°	2199.1	28.6
90°-120°	901.9	11.7
90°-150°	3987.5	51.9
90°-180°	5486.0	71.4
0°-180°	7685.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	863	863	863	863	863	
5°	863	860	851	857	856	82
15°	822	817	806	809	805	231
25°	744	737	723	724	723	342
35°	642	633	620	615	611	401
45°	522	516	504	495	491	403
55°	395	390	380	370	366	353
65°	266	261	253	246	242	263
75°	139	138	134	129	130	149
85°	34	33	32	30	29	38
90°	1	16	27	34	36	7
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	863.0	863.0	863.0	863.0	863.0
2.5°	868.0	863.9	854.7	863.0	861.5
5°	863.0	859.8	850.6	857.3	855.6
7.5°	857.3	852.3	843.2	849.8	848.2
10°	848.2	842.4	832.4	839.0	836.5
12.5°	835.6	830.8	820.8	824.9	823.2
15°	821.5	816.7	805.8	809.1	805.0
17.5°	804.1	799.3	788.4	792.5	788.4
20°	785.1	780.1	768.4	771.0	767.6
22.5°	766.0	758.6	747.7	747.7	746.0
25°	743.6	736.9	722.8	724.4	722.8
27.5°	718.6	712.9	702.1	699.7	695.5
30°	693.8	687.1	674.7	672.3	668.8
32.5°	667.2	662.3	649.0	644.0	640.7
35°	641.6	633.2	619.9	614.9	610.7
37.5°	612.5	605.0	591.7	585.9	581.7
40°	582.6	575.9	562.6	555.3	551.8
42.5°	553.5	546.8	533.7	525.3	520.3
45°	522.0	516.2	503.7	494.6	491.3
47.5°	491.3	485.5	472.2	463.0	458.1
50°	458.9	454.8	443.2	431.5	427.4
52.5°	427.4	421.5	410.8	401.7	395.9
55°	395.0	390.0	380.1	370.2	366.0
57.5°	362.6	358.5	347.7	337.8	334.4
60°	330.3	327.0	315.4	306.2	303.8
62.5°	298.8	292.9	284.7	276.4	273.0
65°	266.4	261.4	253.2	245.6	241.5
67.5°	233.2	229.0	221.6	215.8	212.5
70°	202.5	199.2	191.6	185.9	182.7
72.5°	171.0	167.7	163.5	157.7	155.3
75°	139.4	137.8	133.5	128.6	130.3
77.5°	111.2	107.9	106.1	103.7	101.3
80°	83.1	82.2	80.5	78.0	76.3
82.5°	56.4	56.4	55.7	52.3	52.3
85°	33.9	33.2	32.4	29.8	29.1
87.5°	15.0	13.3	11.6	9.2	8.3
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3



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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	4.77	5.47	5.90	6.59	8.13	4.33	5.03	5.45	6.14	7.69
	3H	6.42	7.04	7.55	8.16	9.73	5.93	6.55	7.06	7.68	9.24
	4H	6.99	7.59	8.13	8.71	10.28	6.50	7.09	7.64	8.22	9.79
	6H	7.38	7.93	8.53	9.05	10.63	6.88	7.43	8.03	8.55	10.13
	8H	7.48	8.00	8.63	9.14	10.71	6.98	7.50	8.13	8.64	10.21
	12H	7.52	8.01	8.68	9.15	10.74	7.01	7.51	8.17	8.64	10.24
4H	2H	5.21	5.80	6.36	6.93	8.50	4.86	5.45	6.00	6.57	8.14
	3H	7.06	7.55	8.21	8.70	10.28	6.65	7.14	7.80	8.29	9.87
	4H	7.76	8.22	8.92	9.35	10.95	7.34	7.79	8.49	8.93	10.53
	6H	8.26	8.65	9.42	9.81	11.40	7.83	8.22	8.99	9.38	10.97
	8H	8.41	8.77	9.57	9.92	11.53	7.97	8.33	9.13	9.48	11.09
	12H	8.47	8.80	9.64	9.96	11.57	8.02	8.35	9.20	9.51	11.13
8H	4H	7.94	8.30	9.10	9.46	11.06	7.56	7.93	8.72	9.08	10.69
	6H	8.56	8.86	9.74	10.05	11.66	8.17	8.47	9.35	9.67	11.27
	8H	8.77	9.04	9.96	10.21	11.83	8.38	8.64	9.57	9.82	11.44
	12H	8.89	9.12	10.08	10.29	11.95	8.48	8.71	9.67	9.88	11.54
12H	4H	7.92	8.25	9.09	9.41	11.02	7.55	7.88	8.72	9.04	10.65
	6H	8.58	8.85	9.77	10.02	11.64	8.21	8.47	9.40	9.65	11.27
	8H	8.81	9.05	10.00	10.22	11.87	8.43	8.66	9.62	9.83	11.49