

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: P910373

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910373
REPORT IS A COMBINATION OF REPORTS P900580 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D050US850-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

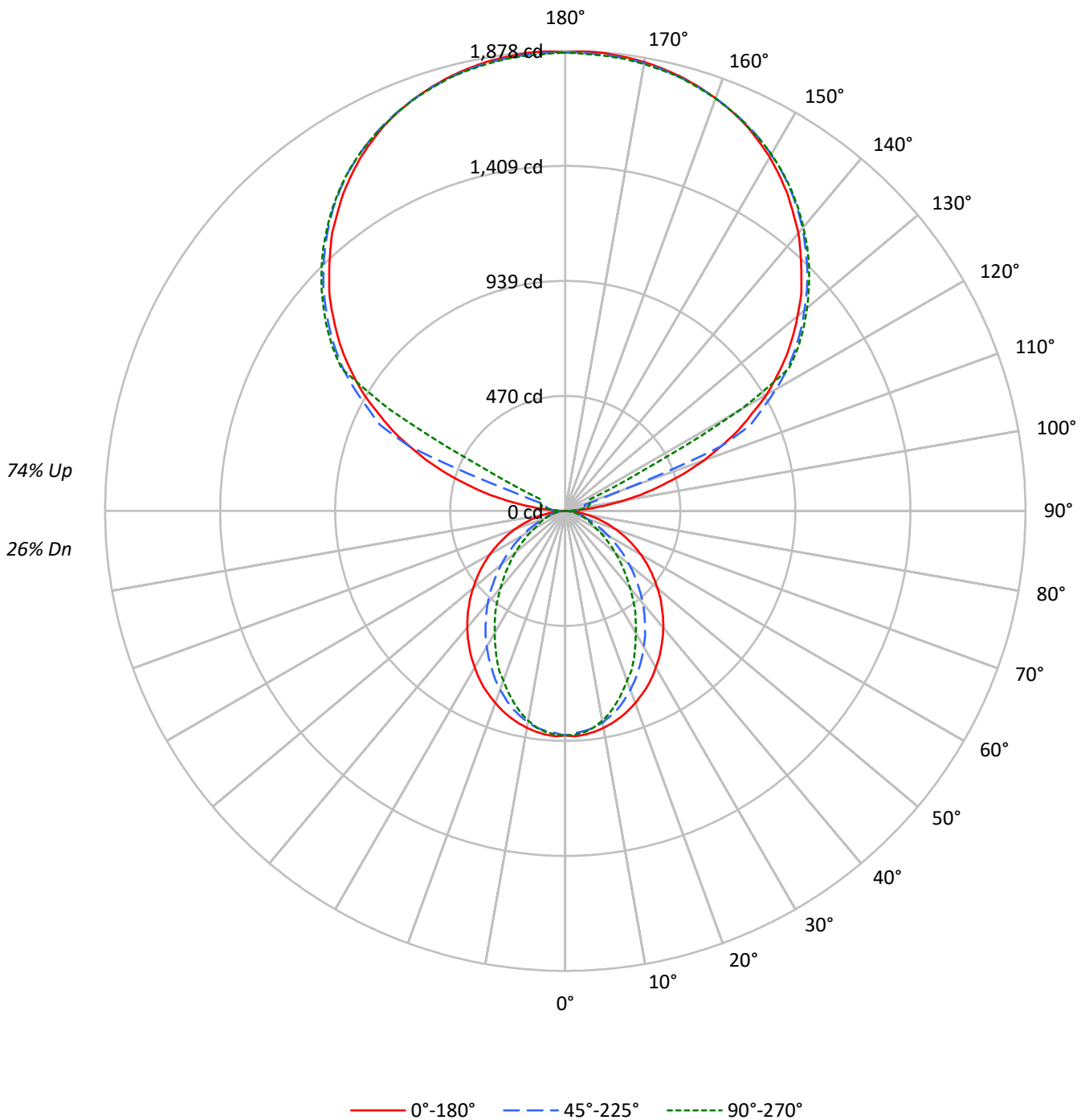
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7374.9 lumens
Efficiency: N/A
Efficacy: 137.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26				26
1	93	88	85	82	82	79	76	73	61	59	58	45	44	43	30	29	29	22				22
2	84	77	72	67	75	69	65	60	54	51	48	40	38	36	27	26	25	19				19
3	77	68	61	56	69	61	55	51	48	44	41	35	33	31	24	23	21	16				16
4	71	60	53	47	63	54	48	43	43	38	35	32	29	26	22	20	19	14				14
5	65	54	46	41	58	48	42	37	38	33	30	28	25	23	19	18	16	12				12
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	14	11				11
7	55	43	36	31	49	39	33	28	31	26	23	23	20	18	16	14	13	10				10
8	51	39	32	27	45	36	29	25	28	24	20	21	18	16	15	13	12	9				9
9	47	36	29	24	42	32	26	22	26	21	18	20	16	14	14	12	10	8				8
10	44	33	26	21	39	30	24	20	24	19	16	18	15	13	13	11	10	7				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1045	1045	1045
5°	1046	1027	1034
10°	1035	1007	1000
15°	1020	973	948
20°	1000	926	884
25°	980	874	822
30°	954	821	744
35°	928	764	675
40°	901	705	596
45°	870	639	524
50°	838	573	455
55°	805	503	388
60°	766	429	319
65°	721	354	287
70°	667	285	259
75°	599	249	235
80°	501	207	202
85°	339	135	150

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°	85.9	1.2
10°-20°	235.8	3.2
20°-30°	331.1	4.5
30°-40°	361.0	4.9
40°-50°	331.8	4.5
50°-60°	260.6	3.5
60°-70°	169.6	2.3
70°-80°	87.3	1.2
80°-90°	25.6	0.3
90°-100°	61.7	0.8
100°-110°	230.0	3.1
110°-120°	610.1	8.3
120°-130°	1011.9	13.7
130°-140°	1074.8	14.6
140°-150°	999.0	13.5
150°-160°	803.1	10.9
160°-170°	517.5	7.0
170°-180°	178.1	2.4
0°-30°	652.9	8.9
0°-40°	1013.8	13.7
0°-60°	1606.2	21.8
0°-90°	1888.6	25.6
90°-120°	901.9	12.2
90°-150°	3987.5	54.1
90°-180°	5486.0	74.4
0°-180°	7374.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	917	917	917	917	917	
5°	917	913	902	909	907	87
15°	872	863	834	819	811	246
25°	792	765	710	676	664	364
35°	682	640	567	514	496	427
45°	558	502	415	356	336	431
55°	424	359	270	220	204	379
65°	286	219	144	116	114	284
75°	153	94	66	61	60	161
85°	36	18	16	16	16	41
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°	916.7	916.7	916.7	916.7	916.7
2.5°	920.8	916.7	907.5	915.9	914.3
5°	916.7	912.6	901.7	909.3	906.7
7.5°	909.3	904.3	892.6	896.0	891.7
10°	899.3	893.4	876.9	874.3	869.5
12.5°	886.9	879.3	856.9	852.0	842.8
15°	871.9	862.7	834.5	818.8	810.6
17.5°	854.5	841.2	806.4	788.1	774.9
20°	834.5	817.9	776.5	755.8	737.5
22.5°	813.0	793.9	745.8	717.6	705.2
25°	791.5	764.9	710.1	676.2	663.6
27.5°	765.8	737.5	676.9	637.9	618.8
30°	738.4	706.8	640.4	598.2	575.7
32.5°	711.8	673.6	605.6	555.8	535.1
35°	681.9	639.7	566.7	514.4	496.1
37.5°	652.9	607.2	530.1	472.9	452.1
40°	622.1	572.5	492.0	433.1	411.4
42.5°	590.7	537.6	453.8	392.4	371.7
45°	557.5	501.8	414.9	355.9	335.9
47.5°	526.0	467.1	377.5	318.5	300.3
50°	491.2	432.3	341.0	283.7	266.4
52.5°	457.0	394.8	306.1	251.4	235.7
55°	423.9	359.2	269.6	219.9	204.1
57.5°	389.9	323.5	237.3	190.9	177.6
60°	355.1	288.7	203.3	161.0	147.7
62.5°	321.1	254.7	174.2	134.4	127.8
65°	286.2	219.0	144.4	116.2	113.7
67.5°	253.1	185.8	116.2	102.0	99.6
70°	218.1	153.5	96.2	87.9	84.6
72.5°	185.0	123.5	80.4	73.9	72.2
75°	152.6	94.5	66.3	60.6	59.8
77.5°	120.3	67.2	52.2	48.9	47.2
80°	90.4	48.1	39.8	36.5	36.5
82.5°	63.0	32.4	27.4	25.7	25.7
85°	35.6	18.2	15.7	15.7	15.7
87.5°	13.3	6.7	6.7	5.8	5.8
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	4.39	5.05	5.54	6.19	7.77	0.35	1.02	1.50	2.15	3.73
	3H	6.05	6.64	7.20	7.78	9.38	1.52	2.12	2.68	3.26	4.86
	4H	6.65	7.21	7.81	8.35	9.96	1.96	2.52	3.12	3.67	5.27
	6H	7.06	7.58	8.23	8.72	10.33	2.27	2.78	3.44	3.93	5.54
	8H	7.18	7.67	8.35	8.83	10.43	2.35	2.84	3.52	4.00	5.61
	12H	7.23	7.70	8.41	8.85	10.48	2.38	2.85	3.56	4.00	5.63
4H	2H	4.39	4.95	5.56	6.09	7.69	0.93	1.49	2.10	2.63	4.23
	3H	6.19	6.66	7.37	7.83	9.44	2.25	2.72	3.43	3.89	5.50
	4H	6.88	7.31	8.05	8.46	10.10	2.79	3.22	3.97	4.38	6.01
	6H	7.38	7.75	8.56	8.92	10.55	3.19	3.56	4.37	4.74	6.36
	8H	7.55	7.89	8.73	9.06	10.70	3.31	3.66	4.49	4.83	6.47
	12H	7.63	7.94	8.83	9.12	10.77	3.37	3.68	4.56	4.86	6.50
8H	4H	6.83	7.17	8.01	8.34	9.98	3.05	3.40	4.23	4.57	6.21
	6H	7.38	7.67	8.58	8.88	10.52	3.56	3.84	4.76	5.05	6.69
	8H	7.60	7.84	8.80	9.03	10.69	3.74	3.99	4.95	5.18	6.83
	12H	7.72	7.94	8.93	9.13	10.82	3.85	4.06	5.05	5.25	6.94
12H	4H	6.77	7.09	7.97	8.27	9.91	3.05	3.36	4.25	4.54	6.19
	6H	7.36	7.61	8.56	8.79	10.45	3.60	3.85	4.81	5.04	6.70
	8H	7.57	7.79	8.78	8.97	10.66	3.80	4.02	5.01	5.20	6.89