

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: P910377

Luminaire Tested: DFN2DIP-4P3F0-020D060US850-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910377
REPORT IS A COMBINATION OF REPORTS P900590 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D060US850-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

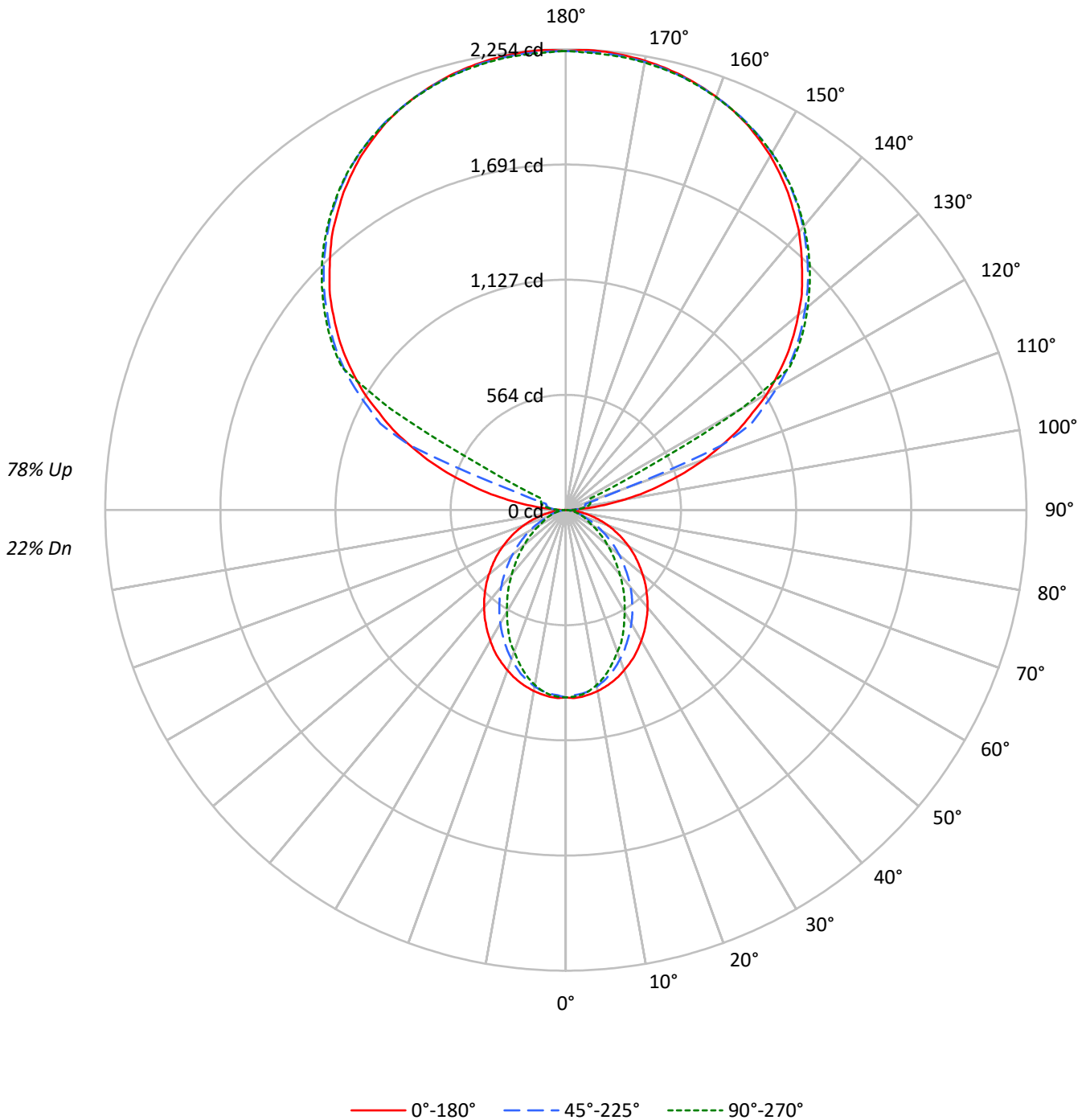
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8472.8 lumens
Efficiency: N/A
Efficacy: 134.9 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): 62.8
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	89	89	89	89	68	68	68	49	49	49	31	31	31	31	31	31	22
1	92	88	84	81	81	78	75	72	60	58	56	43	42	41	27	27	26	26	26	26	19
2	84	77	71	66	74	68	64	60	52	49	47	38	36	34	24	23	22	22	22	22	16
3	76	68	61	55	68	60	55	50	46	43	39	34	31	29	22	20	19	19	19	19	14
4	70	60	52	47	62	53	47	42	41	37	34	30	27	25	20	18	17	17	17	17	12
5	64	53	46	40	57	48	41	36	37	32	29	27	24	22	18	16	15	15	15	15	11
6	59	48	40	35	52	43	36	31	33	29	25	24	21	19	16	14	13	13	13	13	10
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12	12	12	12	9
8	50	39	32	27	45	35	29	24	27	23	20	20	17	15	14	12	10	10	10	10	8
9	47	35	28	23	42	32	26	21	25	20	17	19	16	13	12	11	9	9	9	9	7
10	44	32	25	21	39	29	23	19	23	19	16	17	14	12	12	10	9	9	9	9	6

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: 1534 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	85.9	1.0
10°-20°	235.8	2.8
20°-30°	331.1	3.9
30°-40°	361.0	4.3
40°-50°	331.8	3.9
50°-60°	260.6	3.1
60°-70°	169.6	2.0
70°-80°	87.3	1.0
80°-90°	26.2	0.3
90°-100°	74.1	0.9
100°-110°	276.0	3.3
110°-120°	732.1	8.6
120°-130°	1214.2	14.3
130°-140°	1289.8	15.2
140°-150°	1198.7	14.1
150°-160°	963.8	11.4
160°-170°	621.0	7.3
170°-180°	213.7	2.5
0°-30°	652.9	7.7
0°-40°	1013.8	12.0
0°-60°	1606.2	19.0
0°-90°	1889.3	22.3
90°-120°	1082.2	12.8
90°-150°	4785.0	56.5
90°-180°	6583.0	77.7
0°-180°	8472.8	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°	2	20	32	41	44	8
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	



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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°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6



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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	3.84	4.49	5.01	5.63	7.26	0.00	0.45	0.97	1.60	3.22
	3H	5.50	6.08	6.67	7.23	8.87	0.97	1.55	2.15	2.71	4.34
	4H	6.09	6.64	7.28	7.80	9.44	1.41	1.96	2.59	3.11	4.75
	6H	6.50	7.01	7.69	8.17	9.82	1.71	2.22	2.90	3.38	5.03
	8H	6.62	7.10	7.81	8.28	9.92	1.79	2.27	2.99	3.45	5.09
	12H	6.68	7.13	7.87	8.30	9.96	1.83	2.28	3.02	3.45	5.12
4H	2H	3.83	4.38	5.02	5.54	7.18	0.37	0.92	1.56	2.08	3.72
	3H	5.64	6.10	6.83	7.28	8.93	1.70	2.16	2.89	3.34	4.99
	4H	6.32	6.74	7.52	7.91	9.58	2.23	2.66	3.43	3.83	5.50
	6H	6.82	7.18	8.02	8.37	10.03	2.64	2.99	3.83	4.19	5.85
	8H	6.99	7.33	8.19	8.51	10.19	2.76	3.09	3.95	4.28	5.95
	12H	7.07	7.38	8.29	8.57	10.25	2.81	3.11	4.02	4.31	5.99
8H	4H	6.27	6.61	7.47	7.79	9.47	2.50	2.83	3.69	4.02	5.69
	6H	6.83	7.10	8.04	8.33	10.00	3.00	3.28	4.22	4.50	6.17
	8H	7.04	7.28	8.26	8.48	10.18	3.18	3.42	4.41	4.63	6.32
	12H	7.17	7.38	8.39	8.58	10.30	3.29	3.50	4.51	4.70	6.42
12H	4H	6.22	6.52	7.43	7.72	9.40	2.49	2.80	3.71	3.99	5.67
	6H	6.80	7.04	8.02	8.25	9.94	3.05	3.29	4.27	4.49	6.18
	8H	7.01	7.22	8.23	8.42	10.15	3.24	3.45	4.47	4.66	6.38