

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: P903163

Luminaire Tested: DFN2DIP-PN4F0-040D080US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903163
REPORT IS A COMBINATION OF REPORTS P901202 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D080US830-RLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

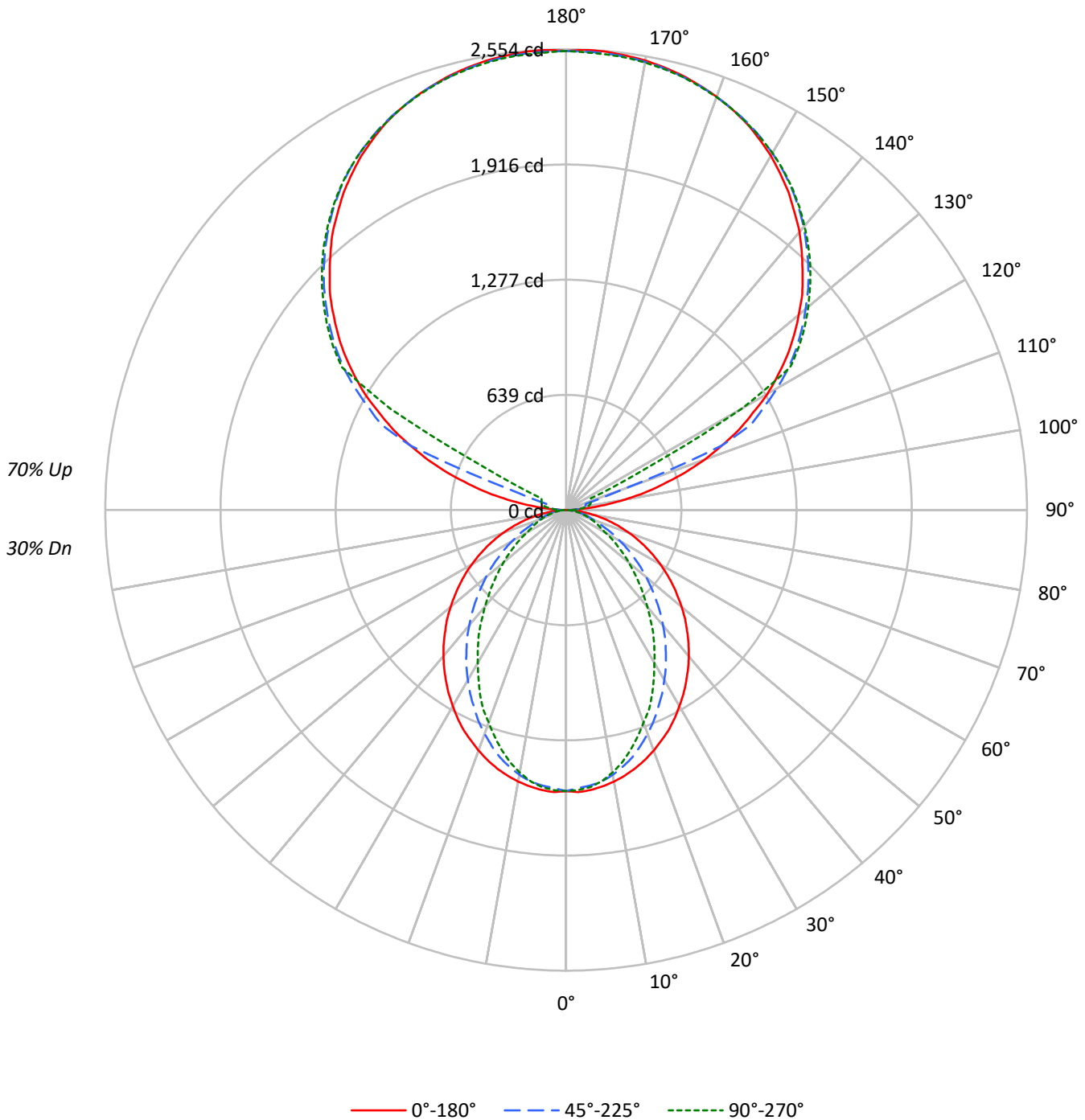
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10669.6 lumens
Efficiency: N/A
Efficacy: 116.9 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-Indirect

Input Watts (W): 91.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32	34	33	32	26
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28	30	29	28	22
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24	27	25	24	19
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	17
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18	22	20	18	15
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	13
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15	18	16	15	12
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13	17	15	13	11
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12	16	13	12	10
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11	14	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1137	1137	1137
5°	1139	1120	1127
10°	1128	1098	1090
15°	1112	1062	1034
20°	1092	1012	964
25°	1071	956	897
30°	1043	898	812
35°	1015	837	738
40°	987	773	652
45°	954	702	574
50°	920	631	498
55°	885	554	425
60°	844	474	350
65°	797	393	315
70°	740	317	286
75°	668	280	261
80°	564	235	227
85°	393	158	172

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1359 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	1.4
10°-20°	400.9	3.8
20°-30°	562.8	5.3
30°-40°	613.5	5.8
40°-50°	563.9	5.3
50°-60°	442.9	4.2
60°-70°	288.3	2.7
70°-80°	148.4	1.4
80°-90°	42.4	0.4
90°-100°	83.9	0.8
100°-110°	312.8	2.9
110°-120°	829.6	7.8
120°-130°	1376.0	12.9
130°-140°	1461.6	13.7
140°-150°	1358.4	12.7
150°-160°	1092.1	10.2
160°-170°	703.7	6.6
170°-180°	242.2	2.3
0°-30°	1109.8	10.4
0°-40°	1723.3	16.2
0°-60°	2730.1	25.6
0°-90°	3209.1	30.1
90°-120°	1226.4	11.5
90°-150°	5422.4	50.8
90°-180°	7460.0	69.9
0°-180°	10669.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1558	1558	1558	1558	1558	
5°	1558	1551	1533	1546	1541	148
15°	1482	1466	1419	1392	1378	418
25°	1345	1300	1207	1149	1128	619
35°	1159	1087	963	874	843	726
45°	948	853	705	605	571	732
55°	721	611	458	374	347	644
65°	486	372	245	198	193	482
75°	259	161	113	103	102	274
85°	61	31	27	27	27	70
90°	2	22	37	46	50	10
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2501	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1558.2	1558.2	1558.2	1558.2	1558.2
2.5°	1565.3	1558.2	1542.7	1556.9	1554.0
5°	1558.2	1551.1	1532.8	1545.5	1541.3
7.5°	1545.5	1537.1	1517.4	1522.9	1515.9
10°	1528.6	1518.7	1490.5	1486.2	1477.9
12.5°	1507.5	1494.8	1456.6	1448.2	1432.7
15°	1482.1	1466.5	1418.6	1391.9	1377.8
17.5°	1452.5	1429.8	1370.6	1339.6	1317.0
20°	1418.6	1390.3	1319.8	1284.7	1253.6
22.5°	1382.0	1349.5	1267.6	1219.7	1198.7
25°	1345.3	1300.1	1207.0	1149.3	1128.0
27.5°	1301.7	1253.6	1150.7	1084.4	1051.9
30°	1255.1	1201.4	1088.5	1016.7	978.6
32.5°	1209.9	1145.0	1029.4	944.8	909.5
35°	1159.2	1087.2	963.2	874.3	843.2
37.5°	1109.8	1032.2	901.1	803.7	768.5
40°	1057.6	973.1	836.2	736.1	699.5
42.5°	1004.0	913.8	771.4	666.9	631.8
45°	947.6	853.1	705.1	604.9	571.1
47.5°	894.1	794.0	641.7	541.5	510.5
50°	834.8	734.7	579.6	482.2	452.7
52.5°	776.9	671.2	520.4	427.3	400.5
55°	720.6	610.6	458.3	373.7	346.9
57.5°	662.8	550.0	403.3	324.3	301.8
60°	603.5	490.7	345.4	273.6	251.1
62.5°	545.8	433.0	296.1	228.5	217.3
65°	486.5	372.2	245.3	197.5	193.1
67.5°	430.2	315.8	197.5	173.4	169.2
70°	370.9	260.9	163.5	149.5	143.7
72.5°	314.5	210.1	136.8	125.5	122.7
75°	259.4	160.7	112.8	102.9	101.6
77.5°	204.5	114.1	88.9	83.2	80.3
80°	153.6	81.8	67.6	62.1	62.1
82.5°	107.2	55.0	46.6	43.6	43.6
85°	60.6	31.0	26.8	26.8	26.8
87.5°	22.6	11.2	11.2	9.9	9.9
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.2	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.8	134.5
105°	559.8	615.1	112.4	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.9	854.3	322.3	138.2	145.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	933.7	966.7	935.5	141.7	147.4
115°	1058.8	1090.1	1136.1	283.6	151.1
117.5°	1167.4	1204.2	1235.7	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.9	1123.2
122.5°	1391.9	1421.5	1458.5	1469.4	1471.4
125°	1496.9	1521.0	1555.9	1568.9	1574.3
127.5°	1592.7	1618.5	1646.3	1664.6	1666.4
130°	1683.0	1712.5	1732.7	1753.0	1751.2
132.5°	1775.1	1799.1	1819.3	1835.9	1834.1
135°	1852.5	1882.0	1898.4	1917.0	1913.3
137.5°	1933.4	1955.5	1974.1	1992.4	1987.0
140°	2012.5	2027.4	2047.6	2064.2	2054.9
142.5°	2079.1	2091.9	2115.7	2130.4	2121.2
145°	2149.0	2147.0	2178.3	2191.2	2182.0
147.5°	2209.6	2204.1	2235.3	2244.6	2237.3
150°	2268.6	2255.7	2285.2	2296.1	2287.0
152.5°	2318.3	2303.6	2331.1	2342.3	2329.4
155°	2366.2	2349.8	2371.8	2382.7	2368.1
157.5°	2404.8	2390.2	2406.8	2419.7	2404.8
160°	2438.1	2427.0	2438.1	2449.0	2436.1
162.5°	2467.4	2456.5	2465.6	2478.5	2461.9
165°	2493.2	2482.3	2487.7	2500.6	2487.7
167.5°	2513.5	2502.4	2508.0	2520.9	2504.3
170°	2530.2	2518.9	2522.7	2535.6	2518.9
172.5°	2541.1	2530.2	2533.8	2546.7	2530.2
175°	2550.2	2537.3	2541.1	2553.9	2535.6
177.5°	2553.9	2541.1	2543.0	2555.9	2539.3
180°	2544.8	2544.8	2544.8	2544.8	2544.8



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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	5.38	6.07	6.50	7.18	8.71	1.34	2.03	2.46	3.14	4.67
	3H	7.05	7.67	8.17	8.78	10.33	2.52	3.14	3.65	4.26	5.80
	4H	7.65	8.24	8.79	9.36	10.91	2.97	3.55	4.10	4.67	6.22
	6H	8.07	8.61	9.21	9.73	11.29	3.28	3.82	4.42	4.94	6.50
	8H	8.19	8.71	9.34	9.84	11.40	3.37	3.88	4.51	5.01	6.57
	12H	8.25	8.74	9.40	9.87	11.45	3.41	3.89	4.56	5.02	6.60
4H	2H	5.38	5.97	6.52	7.08	8.64	1.92	2.51	3.07	3.63	5.18
	3H	7.20	7.69	8.35	8.83	10.40	3.26	3.75	4.41	4.89	6.46
	4H	7.89	8.34	9.04	9.47	11.05	3.81	4.25	4.96	5.38	6.97
	6H	8.40	8.78	9.56	9.94	11.51	4.22	4.60	5.37	5.76	7.33
	8H	8.57	8.93	9.73	10.08	11.67	4.34	4.70	5.50	5.85	7.44
	12H	8.66	8.99	9.83	10.15	11.74	4.40	4.73	5.57	5.89	7.48
8H	4H	7.85	8.20	9.00	9.35	10.94	4.08	4.43	5.23	5.58	7.17
	6H	8.41	8.71	9.59	9.89	11.48	4.59	4.89	5.77	6.07	7.66
	8H	8.63	8.89	9.81	10.05	11.66	4.78	5.04	5.96	6.21	7.82
	12H	8.76	8.99	9.95	10.15	11.80	4.90	5.12	6.08	6.29	7.93
12H	4H	7.79	8.12	8.96	9.27	10.87	4.08	4.40	5.25	5.56	7.15
	6H	8.39	8.64	9.57	9.81	11.42	4.64	4.90	5.82	6.07	7.68
	8H	8.60	8.83	9.79	9.99	11.64	4.85	5.07	6.03	6.24	7.88