

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: P903001

Luminaire Tested: DFN2DIP-PN3F0-040D090US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903001
REPORT IS A COMBINATION OF REPORTS P901117 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-040D090US830-FLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

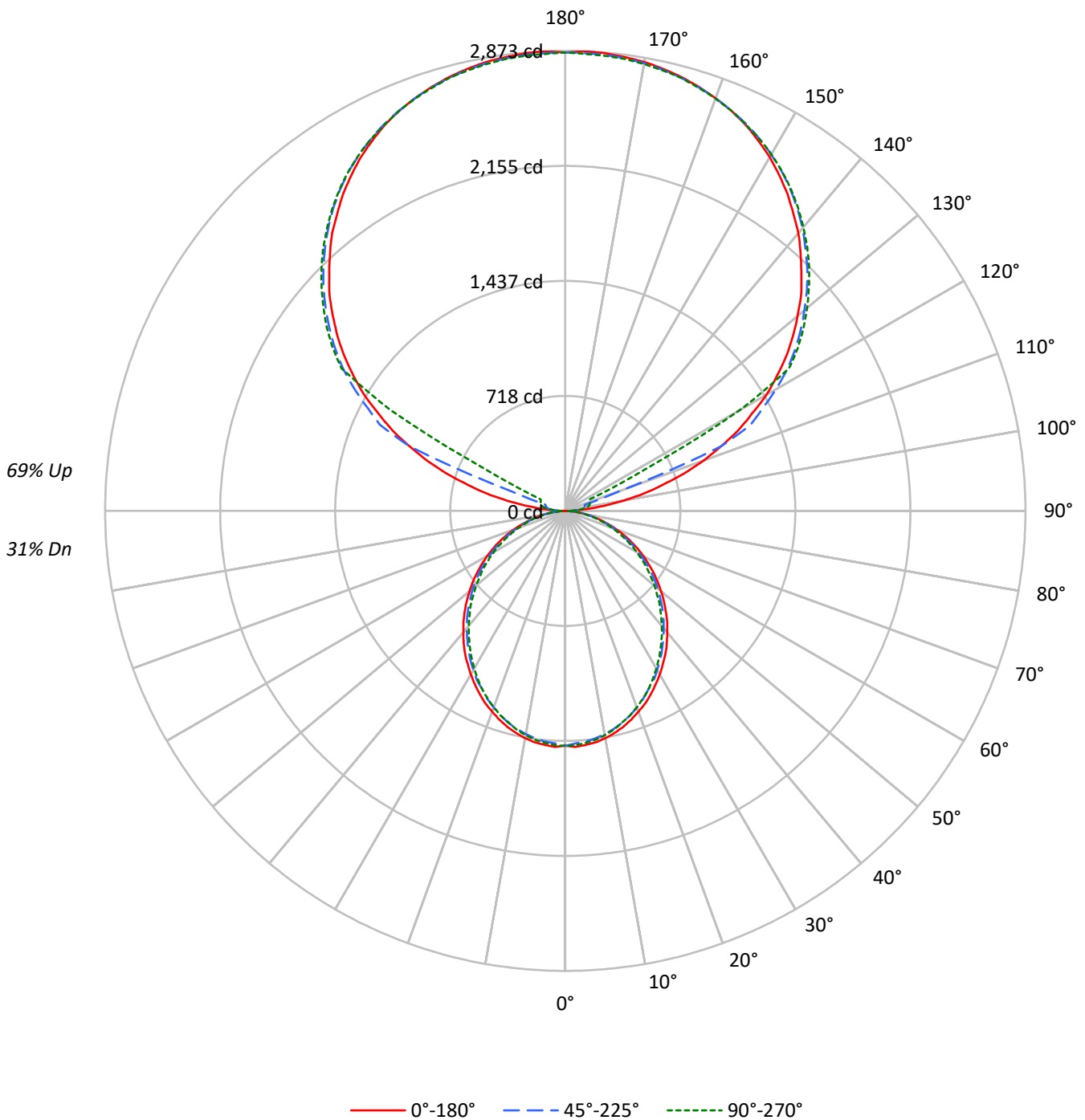
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12130.5 lumens
Efficiency: N/A
Efficacy: 114.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	38	38	38	31				31
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32	26				26
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27	22				22
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23	18				18
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20	16				16
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17	14				14
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15	12				12
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14	11				11
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12	10				10
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11	9				9
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1715	1715	1715
5°	1717	1690	1702
10°	1702	1666	1678
15°	1676	1637	1641
20°	1641	1598	1604
25°	1606	1551	1560
30°	1563	1508	1505
35°	1522	1456	1447
40°	1472	1404	1392
45°	1421	1352	1335
50°	1366	1298	1270
55°	1309	1235	1210
60°	1243	1160	1140
65°	1172	1082	1059
70°	1081	987	971
75°	956	874	888
80°	803	728	733
85°	567	481	478

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1930 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.1
10°-20°	388.5	3.2
20°-30°	570.9	4.7
30°-40°	663.1	5.5
40°-50°	662.3	5.5
50°-60°	577.5	4.8
60°-70°	426.9	3.5
70°-80°	241.5	2.0
80°-90°	68.8	0.6
90°-100°	94.4	0.8
100°-110°	351.9	2.9
110°-120°	933.3	7.7
120°-130°	1548.0	12.8
130°-140°	1644.3	13.6
140°-150°	1528.2	12.6
150°-160°	1228.6	10.1
160°-170°	791.7	6.5
170°-180°	272.5	2.2
0°-30°	1097.5	9.0
0°-40°	1760.6	14.5
0°-60°	3000.3	24.7
0°-90°	3737.5	30.8
90°-120°	1379.6	11.4
90°-150°	6100.2	50.3
90°-180°	8393.0	69.2
0°-180°	12130.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	25	41	52	56	11
95°	135	66	81	91	89	159
105°	630	692	126	149	157	673
115°	1191	1226	1278	319	170	1173
125°	1684	1711	1750	1765	1771	1502
135°	2084	2117	2136	2157	2152	1610
145°	2418	2415	2451	2465	2455	1512
155°	2662	2644	2668	2681	2664	1227
165°	2805	2792	2799	2813	2799	792
175°	2869	2854	2859	2873	2852	273
180°	2863	2863	2863	2863	2863	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	2.0	24.9	41.3	51.9	55.8
92.5°	51.9	43.5	49.7	53.9	55.8
95°	134.6	66.2	80.7	91.2	89.1
97.5°	242.3	72.6	105.6	111.9	113.9
100°	366.7	82.9	118.1	134.6	138.7
102.5°	503.3	499.4	122.2	144.9	151.3
105°	629.7	692.0	126.4	149.1	157.4
107.5°	776.8	828.5	130.6	153.3	161.6
110°	917.8	961.1	362.6	155.4	163.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1050.4	1087.5	1052.3	159.4	165.8
115°	1191.1	1226.2	1278.2	319.1	169.9
117.5°	1313.3	1354.7	1390.1	1093.7	551.0
120°	1450.1	1481.1	1518.5	1543.3	1263.7
122.5°	1566.0	1599.2	1640.8	1653.0	1655.3
125°	1684.0	1711.1	1750.5	1765.0	1771.1
127.5°	1791.8	1820.8	1852.1	1872.7	1874.7
130°	1893.4	1926.7	1949.3	1972.1	1970.2
132.5°	1997.0	2024.0	2046.6	2065.4	2063.4
135°	2084.1	2117.2	2135.7	2156.6	2152.5
137.5°	2175.1	2199.9	2220.8	2241.5	2235.3
140°	2264.1	2280.9	2303.5	2322.1	2311.9
142.5°	2338.9	2353.4	2380.2	2396.7	2386.4
145°	2417.6	2415.4	2450.6	2465.1	2454.8
147.5°	2485.8	2479.6	2514.8	2525.2	2517.0
150°	2552.2	2537.7	2570.9	2583.1	2572.9
152.5°	2608.0	2591.5	2622.5	2635.1	2620.6
155°	2661.9	2643.5	2668.2	2680.6	2664.1
157.5°	2705.5	2689.0	2707.6	2722.2	2705.5
160°	2742.8	2730.3	2742.8	2755.1	2740.6
162.5°	2775.8	2763.4	2773.8	2788.3	2769.7
165°	2804.8	2792.5	2798.7	2813.2	2798.7
167.5°	2827.7	2815.2	2821.5	2836.0	2817.4
170°	2846.4	2833.8	2838.0	2852.5	2833.8
172.5°	2858.7	2846.4	2850.5	2865.0	2846.4
175°	2869.0	2854.5	2858.7	2873.2	2852.5
177.5°	2873.2	2858.7	2860.9	2875.4	2856.8
180°	2862.9	2862.9	2862.9	2862.9	2862.9



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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	7.00	7.71	8.11	8.82	10.34	6.56	7.28	7.67	8.38	9.90
	3H	8.65	9.28	9.76	10.39	11.93	8.16	8.80	9.28	9.91	11.45
	4H	9.22	9.83	10.35	10.94	12.48	8.74	9.34	9.86	10.45	12.00
	6H	9.61	10.17	10.74	11.28	12.84	9.12	9.68	10.25	10.79	12.35
	8H	9.71	10.24	10.84	11.37	12.92	9.22	9.75	10.35	10.88	12.43
	12H	9.75	10.25	10.89	11.38	12.95	9.25	9.75	10.39	10.88	12.45
4H	2H	7.44	8.05	8.57	9.16	10.70	7.09	7.70	8.22	8.81	10.35
	3H	9.29	9.79	10.42	10.93	12.49	8.89	9.39	10.02	10.53	12.08
	4H	9.99	10.45	11.13	11.58	13.16	9.57	10.04	10.72	11.17	12.74
	6H	10.49	10.89	11.64	12.04	13.60	10.07	10.47	11.22	11.62	13.18
	8H	10.63	11.01	11.78	12.15	13.73	10.21	10.58	11.35	11.72	13.30
	12H	10.70	11.03	11.86	12.19	13.78	10.26	10.60	11.42	11.75	13.34
8H	4H	10.17	10.54	11.32	11.68	13.27	9.80	10.17	10.95	11.31	12.90
	6H	10.79	11.09	11.96	12.28	13.86	10.41	10.72	11.58	11.90	13.48
	8H	11.00	11.27	12.18	12.43	14.03	10.62	10.89	11.79	12.05	13.65
	12H	11.12	11.36	12.30	12.52	14.15	10.72	10.96	11.90	12.12	13.75
12H	4H	10.15	10.49	11.31	11.64	13.23	9.79	10.12	10.95	11.28	12.86
	6H	10.81	11.08	11.99	12.25	13.85	10.45	10.72	11.62	11.88	13.48
	8H	11.04	11.28	12.22	12.44	14.07	10.67	10.91	11.85	12.07	13.70