

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: P903633

Luminaire Tested: DFN2DIP-SQ3F0-040D090US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903633
REPORT IS A COMBINATION OF REPORTS P901471 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-040D090US830-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

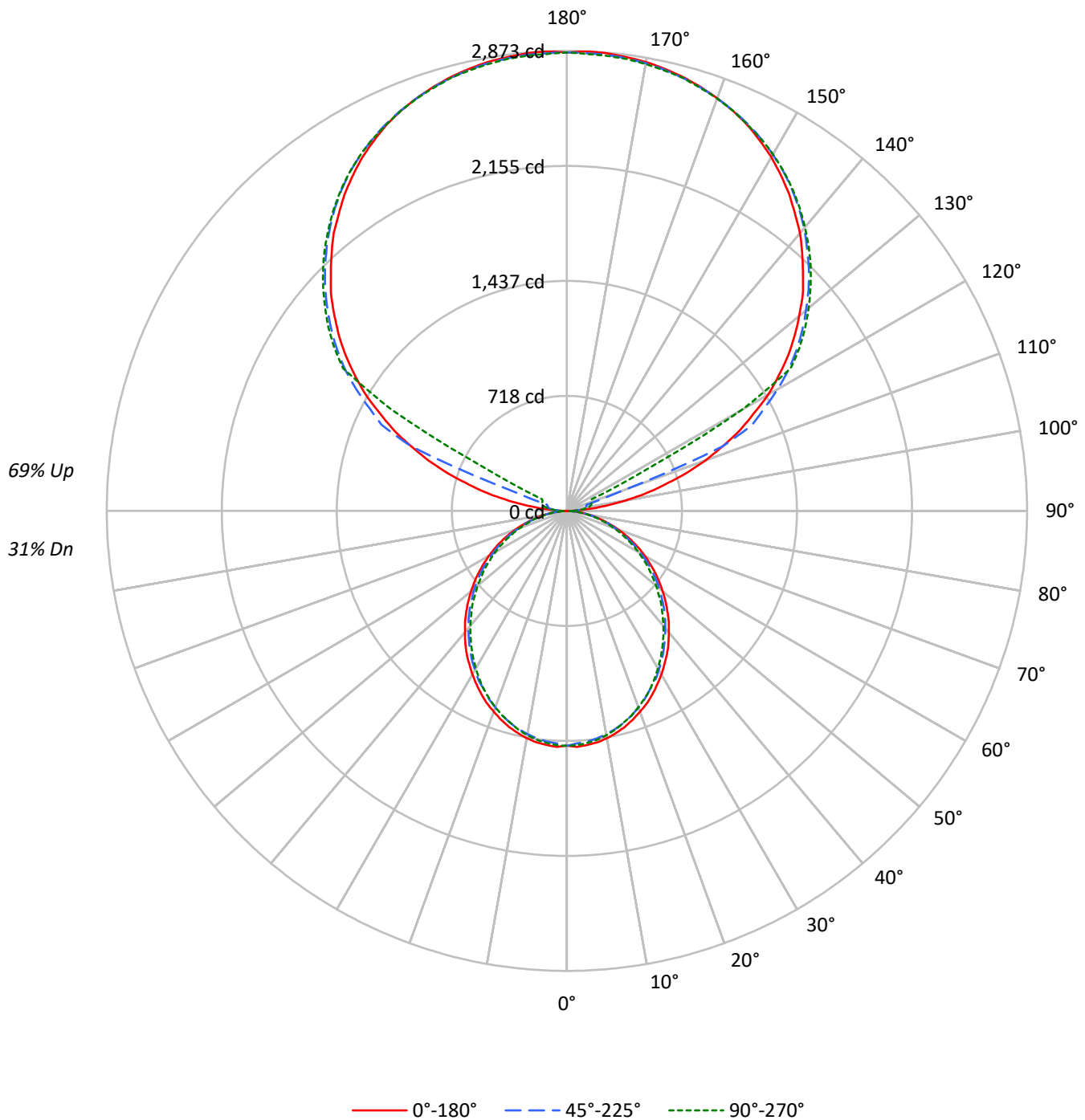
Lumens per Lamp: N/A
Luminaire Lumens: 12130.5 lumens
Efficiency: N/A
Efficacy: 120.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 100.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	103	103	103	103	92	92	92	92	73	73	73	55	55	55	38	38	38
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1681	1681	1681
5°	1683	1656	1668
10°	1668	1633	1645
15°	1642	1605	1609
20°	1608	1567	1572
25°	1574	1521	1530
30°	1531	1478	1477
35°	1491	1428	1420
40°	1442	1377	1366
45°	1392	1326	1310
50°	1338	1273	1246
55°	1282	1211	1188
60°	1218	1138	1120
65°	1148	1062	1040
70°	1058	969	954
75°	935	858	874
80°	786	715	723
85°	553	473	473

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1960 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	6.94	7.65	8.04	8.75	10.27	6.49	7.21	7.60	8.31	9.83
	3H	8.58	9.22	9.70	10.33	11.87	8.09	8.73	9.21	9.84	11.38
	4H	9.16	9.77	10.28	10.88	12.42	8.67	9.27	9.79	10.38	11.93
	6H	9.55	10.11	10.68	11.22	12.77	9.05	9.61	10.18	10.72	12.27
	8H	9.65	10.18	10.78	11.31	12.85	9.15	9.68	10.28	10.81	12.35
	12H	9.69	10.19	10.83	11.32	12.89	9.18	9.68	10.32	10.81	12.38
4H	2H	7.38	7.98	8.51	9.09	10.64	7.02	7.63	8.15	8.74	10.28
	3H	9.22	9.73	10.36	10.87	12.42	8.82	9.32	9.95	10.46	12.01
	4H	9.93	10.39	11.07	11.52	13.09	9.50	9.97	10.65	11.09	12.67
	6H	10.43	10.83	11.58	11.98	13.54	10.00	10.40	11.15	11.55	13.11
	8H	10.57	10.95	11.72	12.09	13.67	10.14	10.51	11.28	11.65	13.23
	12H	10.64	10.97	11.80	12.13	13.72	10.19	10.53	11.35	11.68	13.27
8H	4H	10.11	10.48	11.25	11.62	13.20	9.73	10.10	10.88	11.24	12.83
	6H	10.73	11.03	11.89	12.22	13.80	10.34	10.65	11.51	11.83	13.41
	8H	10.94	11.21	12.12	12.37	13.97	10.55	10.82	11.72	11.98	13.58
	12H	11.06	11.30	12.24	12.46	14.09	10.65	10.89	11.83	12.05	13.68
12H	4H	10.09	10.42	11.25	11.58	13.16	9.72	10.05	10.88	11.21	12.80
	6H	10.75	11.02	11.93	12.18	13.78	10.38	10.65	11.55	11.81	13.41
	8H	10.98	11.22	12.16	12.38	14.01	10.60	10.84	11.78	12.00	13.63

END OF REPORT