

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: P904601

Luminaire Tested: DFN2DIP-TR4F0-050D090US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904601
REPORT IS A COMBINATION OF REPORTS P901982 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D090US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

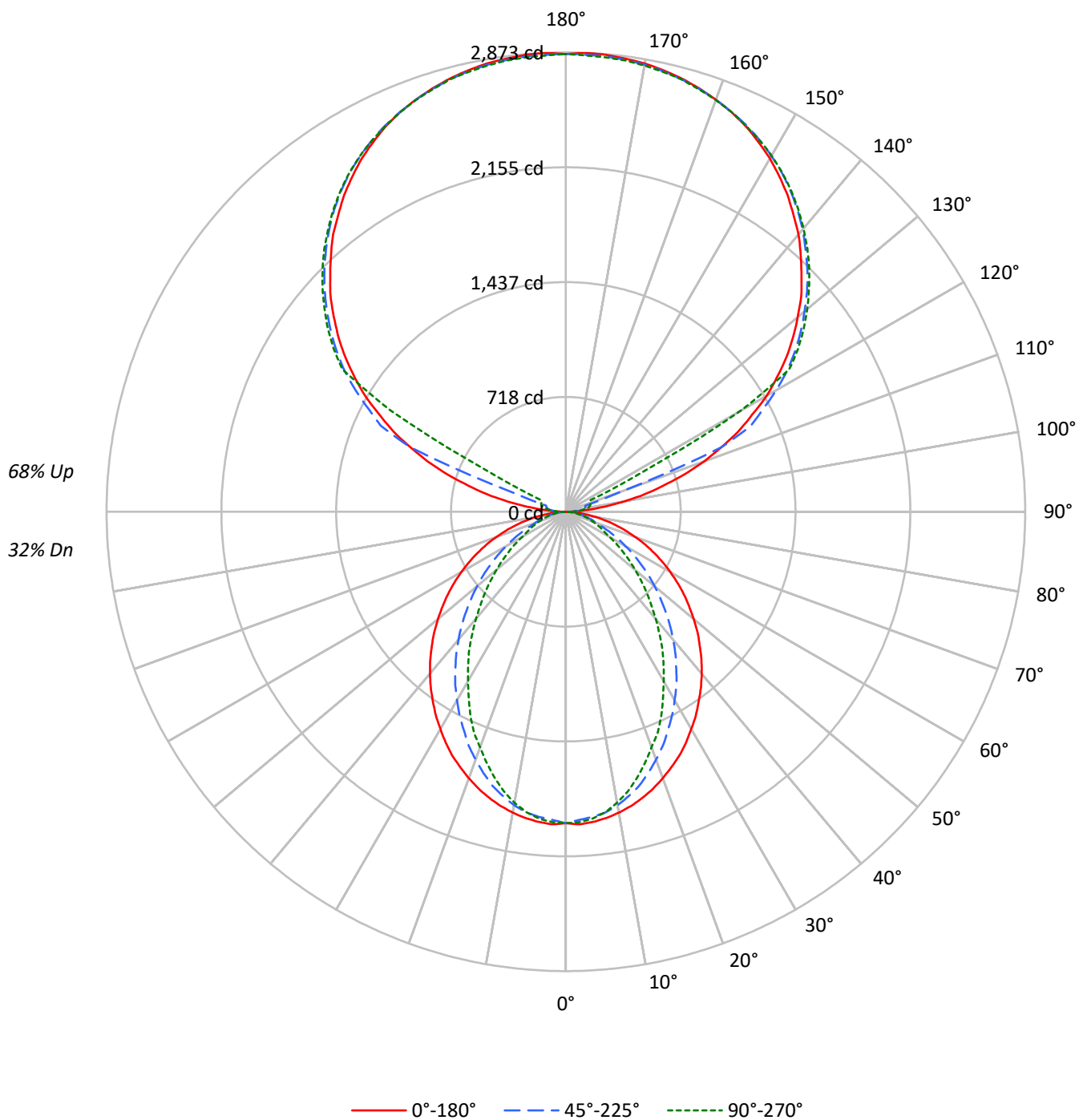
Lumens per Lamp: N/A
Luminaire Lumens: 12403.9 lumens
Efficiency: N/A
Efficacy: 113.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 109.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
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
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	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	30	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	28	27	25
4	72	62	54	49	65	56	50	45	45	40	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	22	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	18	16	16	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1547	1547	1547
5°	1550	1523	1533
10°	1534	1493	1483
15°	1513	1444	1405
20°	1486	1375	1311
25°	1457	1299	1219
30°	1418	1221	1103
35°	1381	1137	1002
40°	1343	1050	885
45°	1298	954	779
50°	1252	856	676
55°	1204	752	577
60°	1148	643	475
65°	1084	533	427
70°	1007	429	386
75°	910	378	352
80°	769	317	305
85°	536	212	229

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1519 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.5	1.5
10°-20°	501.1	4.0
20°-30°	703.6	5.7
30°-40°	766.9	6.2
40°-50°	704.9	5.7
50°-60°	553.6	4.5
60°-70°	360.3	2.9
70°-80°	185.5	1.5
80°-90°	52.4	0.4
90°-100°	94.4	0.8
100°-110°	351.9	2.8
110°-120°	933.3	7.5
120°-130°	1548.0	12.5
130°-140°	1644.3	13.3
140°-150°	1528.2	12.3
150°-160°	1228.6	9.9
160°-170°	791.7	6.4
170°-180°	272.5	2.2
0°-30°	1387.2	11.2
0°-40°	2154.2	17.4
0°-60°	3412.7	27.5
0°-90°	4010.9	32.3
90°-120°	1379.6	11.1
90°-150°	6100.2	49.2
90°-180°	8393.0	67.7
0°-180°	12403.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1948	1948	1948	1948	1948	
5°	1948	1939	1916	1932	1927	185
15°	1853	1833	1773	1740	1722	522
25°	1682	1625	1509	1437	1410	773
35°	1449	1359	1204	1093	1054	907
45°	1185	1066	881	756	714	915
55°	901	763	573	467	434	805
65°	608	465	307	247	242	603
75°	324	201	141	129	127	343
85°	76	39	34	34	34	87
90°	2	25	41	52	56	12
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°	1947.8	1947.8	1947.8	1947.8	1947.8
2.5°	1956.5	1947.8	1928.3	1946.1	1942.5
5°	1947.8	1939.0	1916.0	1931.8	1926.7
7.5°	1931.8	1921.4	1896.7	1903.7	1894.8
10°	1910.7	1898.4	1863.2	1857.8	1847.3
12.5°	1884.3	1868.5	1820.8	1810.3	1790.8
15°	1852.6	1833.2	1773.3	1739.8	1722.2
17.5°	1815.5	1787.3	1713.3	1674.5	1646.2
20°	1773.3	1738.0	1649.8	1605.9	1567.0
22.5°	1727.5	1686.9	1584.6	1524.8	1498.4
25°	1681.6	1625.1	1508.8	1436.6	1410.0
27.5°	1627.0	1567.0	1438.3	1355.5	1314.9
30°	1568.9	1501.8	1360.7	1270.9	1223.2
32.5°	1512.4	1431.3	1286.9	1181.0	1136.9
35°	1449.0	1359.1	1204.0	1092.9	1054.0
37.5°	1387.2	1290.2	1126.4	1004.7	960.7
40°	1322.0	1216.4	1045.2	920.1	874.3
42.5°	1255.1	1142.3	964.2	833.7	789.8
45°	1184.6	1066.4	881.4	756.1	713.8
47.5°	1117.6	992.5	802.1	676.8	638.1
50°	1043.6	918.4	724.5	602.8	565.9
52.5°	971.2	839.0	650.4	534.1	500.7
55°	900.7	763.2	572.8	467.1	433.7
57.5°	828.5	687.5	504.2	405.5	377.2
60°	754.4	613.4	431.8	342.0	313.8
62.5°	682.2	541.2	370.1	285.6	271.5
65°	608.1	465.3	306.7	246.9	241.5
67.5°	537.6	394.8	246.9	216.8	211.5
70°	463.6	326.1	204.4	186.8	179.7
72.5°	393.1	262.6	171.0	156.9	153.4
75°	324.3	200.9	141.0	128.7	127.0
77.5°	255.6	142.7	111.1	104.0	100.4
80°	192.1	102.3	84.5	77.6	77.6
82.5°	133.9	68.8	58.2	54.6	54.6
85°	75.8	38.7	33.5	33.5	33.5
87.5°	28.3	14.0	14.0	12.3	12.3
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	6.74	7.44	7.84	8.54	10.04	2.71	3.42	3.81	4.51	6.02
	3H	8.41	9.03	9.51	10.14	11.66	3.89	4.52	5.00	5.62	7.15
	4H	9.01	9.61	10.13	10.71	12.24	4.34	4.93	5.46	6.04	7.57
	6H	9.42	9.97	10.55	11.08	12.62	4.65	5.20	5.78	6.31	7.85
	8H	9.55	10.07	10.68	11.19	12.72	4.74	5.26	5.87	6.38	7.92
	12H	9.60	10.10	10.74	11.21	12.77	4.78	5.27	5.91	6.39	7.95
4H	2H	6.74	7.34	7.87	8.44	9.97	3.29	3.89	4.42	4.99	6.52
	3H	8.56	9.05	9.69	10.18	11.72	4.63	5.13	5.76	6.26	7.80
	4H	9.25	9.70	10.38	10.82	12.38	5.17	5.63	6.31	6.75	8.31
	6H	9.75	10.14	10.90	11.29	12.84	5.59	5.98	6.73	7.12	8.67
	8H	9.93	10.29	11.07	11.42	12.99	5.72	6.08	6.86	7.21	8.78
	12H	10.02	10.35	11.17	11.49	13.06	5.77	6.11	6.93	7.25	8.82
8H	4H	9.20	9.57	10.35	10.70	12.27	5.45	5.81	6.59	6.94	8.51
	6H	9.77	10.07	10.93	11.24	12.81	5.96	6.26	7.12	7.44	9.00
	8H	9.98	10.24	11.15	11.40	12.98	6.15	6.41	7.32	7.57	9.15
	12H	10.11	10.34	11.29	11.50	13.12	6.27	6.50	7.44	7.65	9.27
12H	4H	9.15	9.48	10.31	10.63	12.20	5.44	5.77	6.60	6.92	8.49
	6H	9.74	10.00	10.91	11.16	12.74	6.01	6.27	7.18	7.43	9.01
	8H	9.96	10.19	11.13	11.34	12.96	6.21	6.45	7.39	7.60	9.22