

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: P902344

Luminaire Tested: DFN2DIP-4P4F0-050D080US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902344
REPORT IS A COMBINATION OF REPORTS P899144 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D080US830-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

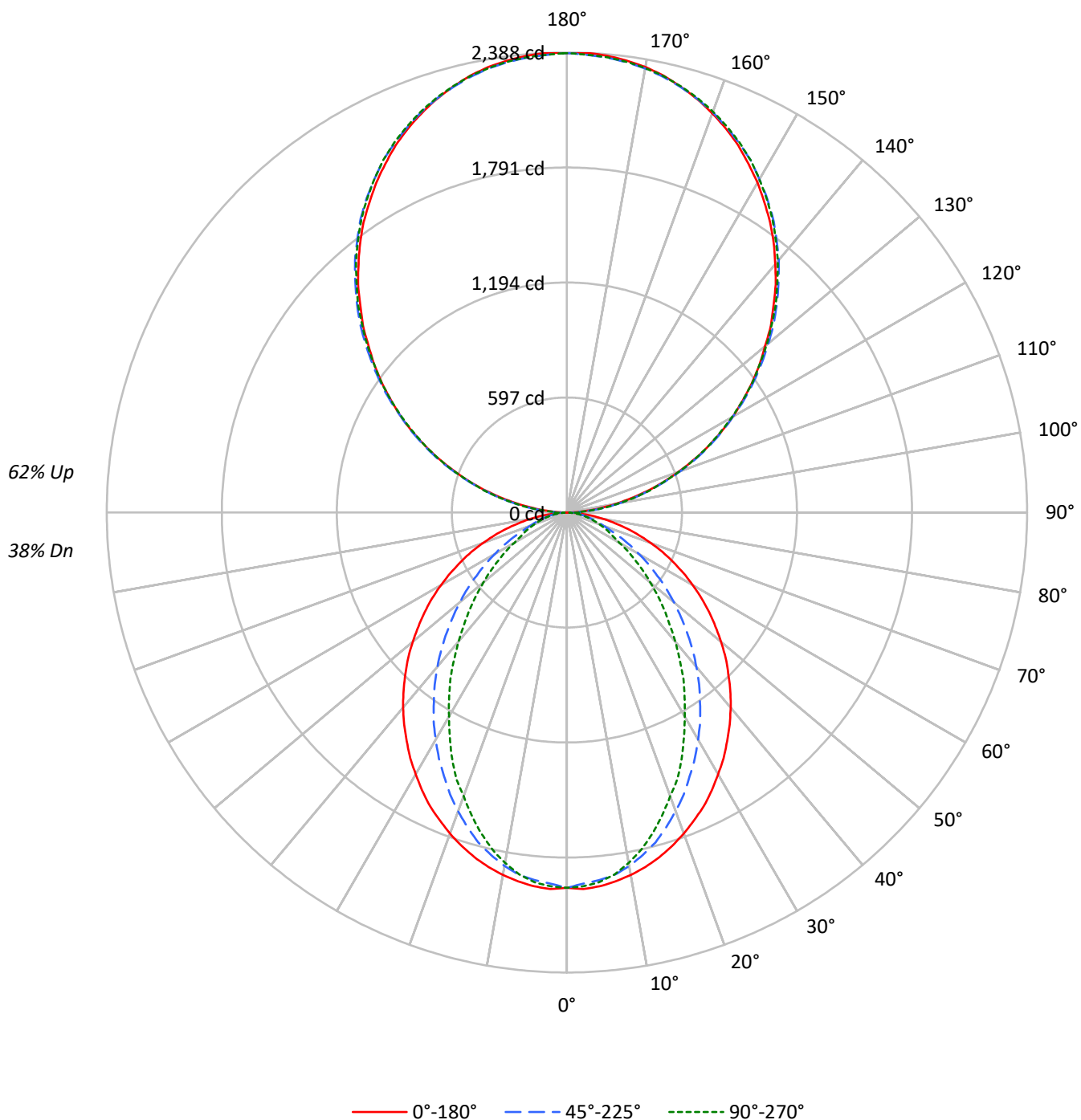
Lumens per Lamp: N/A
Luminaire Lumens: 10679.0 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 123.6
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
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	104	104	104	104	95	95	95	95	76	76	76	60	60	60	45	45	45
1	95	91	88	84	86	83	80	77	67	65	63	53	52	50	40	39	38
2	87	80	74	69	79	73	68	64	59	56	53	47	45	43	36	34	33
3	80	71	64	58	72	64	58	54	53	48	45	42	39	37	32	30	28
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25
5	67	56	48	42	61	51	44	39	42	37	33	34	30	28	26	24	22
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14
10	46	35	28	23	42	32	26	21	27	22	19	22	18	16	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1264	1264	1264
5°	1266	1244	1252
10°	1253	1220	1212
15°	1236	1180	1149
20°	1213	1125	1072
25°	1190	1063	998
30°	1159	999	903
35°	1128	931	821
40°	1097	860	725
45°	1061	782	639
50°	1023	702	555
55°	984	617	474
60°	939	528	391
65°	887	438	352
70°	824	354	319
75°	745	313	292
80°	630	264	254
85°	441	179	195

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1805 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.5	1.7
10°-20°	501.1	4.7
20°-30°	703.6	6.6
30°-40°	766.9	7.2
40°-50°	704.9	6.6
50°-60°	553.6	5.2
60°-70°	360.3	3.4
70°-80°	185.5	1.7
80°-90°	54.1	0.5
90°-100°	147.6	1.4
100°-110°	468.9	4.4
110°-120°	802.4	7.5
120°-130°	1055.3	9.9
130°-140°	1184.5	11.1
140°-150°	1161.5	10.9
150°-160°	974.4	9.1
160°-170°	646.2	6.1
170°-180°	225.9	2.1
0°-30°	1387.2	13.0
0°-40°	2154.2	20.2
0°-60°	3412.7	32.0
0°-90°	4012.6	37.6
90°-120°	1418.8	13.3
90°-150°	4820.1	45.1
90°-180°	6666.0	62.4
0°-180°	10679.0	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	26	70	66	68	11
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	

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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°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7

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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	6.69	7.43	7.76	8.49	9.93	2.65	3.39	3.72	4.45	5.89
	3H	8.37	9.03	9.44	10.10	11.56	3.84	4.50	4.91	5.57	7.03
	4H	8.98	9.60	10.06	10.68	12.14	4.28	4.91	5.37	5.98	7.45
	6H	9.40	9.97	10.49	11.05	12.53	4.60	5.18	5.69	6.25	7.73
	8H	9.53	10.07	10.62	11.16	12.64	4.69	5.24	5.79	6.33	7.80
	12H	9.59	10.11	10.69	11.19	12.69	4.73	5.25	5.83	6.34	7.83
4H	2H	6.70	7.33	7.79	8.40	9.86	3.24	3.87	4.33	4.94	6.40
	3H	8.53	9.05	9.62	10.15	11.62	4.59	5.11	5.68	6.20	7.68
	4H	9.22	9.70	10.32	10.79	12.29	5.13	5.61	6.23	6.70	8.20
	6H	9.74	10.14	10.85	11.26	12.75	5.55	5.96	6.66	7.07	8.56
	8H	9.91	10.29	11.02	11.40	12.91	5.68	6.06	6.78	7.16	8.67
	12H	10.01	10.35	11.13	11.47	12.98	5.74	6.08	6.86	7.20	8.71
8H	4H	9.18	9.56	10.29	10.67	12.18	5.41	5.79	6.52	6.89	8.40
	6H	9.75	10.07	10.88	11.21	12.72	5.93	6.24	7.06	7.39	8.89
	8H	9.97	10.25	11.11	11.37	12.90	6.12	6.39	7.25	7.52	9.05
	12H	10.11	10.35	11.25	11.48	13.04	6.23	6.48	7.37	7.60	9.16
12H	4H	9.13	9.47	10.26	10.59	12.10	5.41	5.75	6.54	6.87	8.38
	6H	9.73	10.00	10.86	11.13	12.65	5.98	6.25	7.11	7.38	8.90
	8H	9.95	10.19	11.09	11.31	12.87	6.18	6.43	7.32	7.55	9.11