

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: P902364

Luminaire Tested: DFN2DIP-4P4F0-060D070US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902364
REPORT IS A COMBINATION OF REPORTS P899134 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D070US830-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

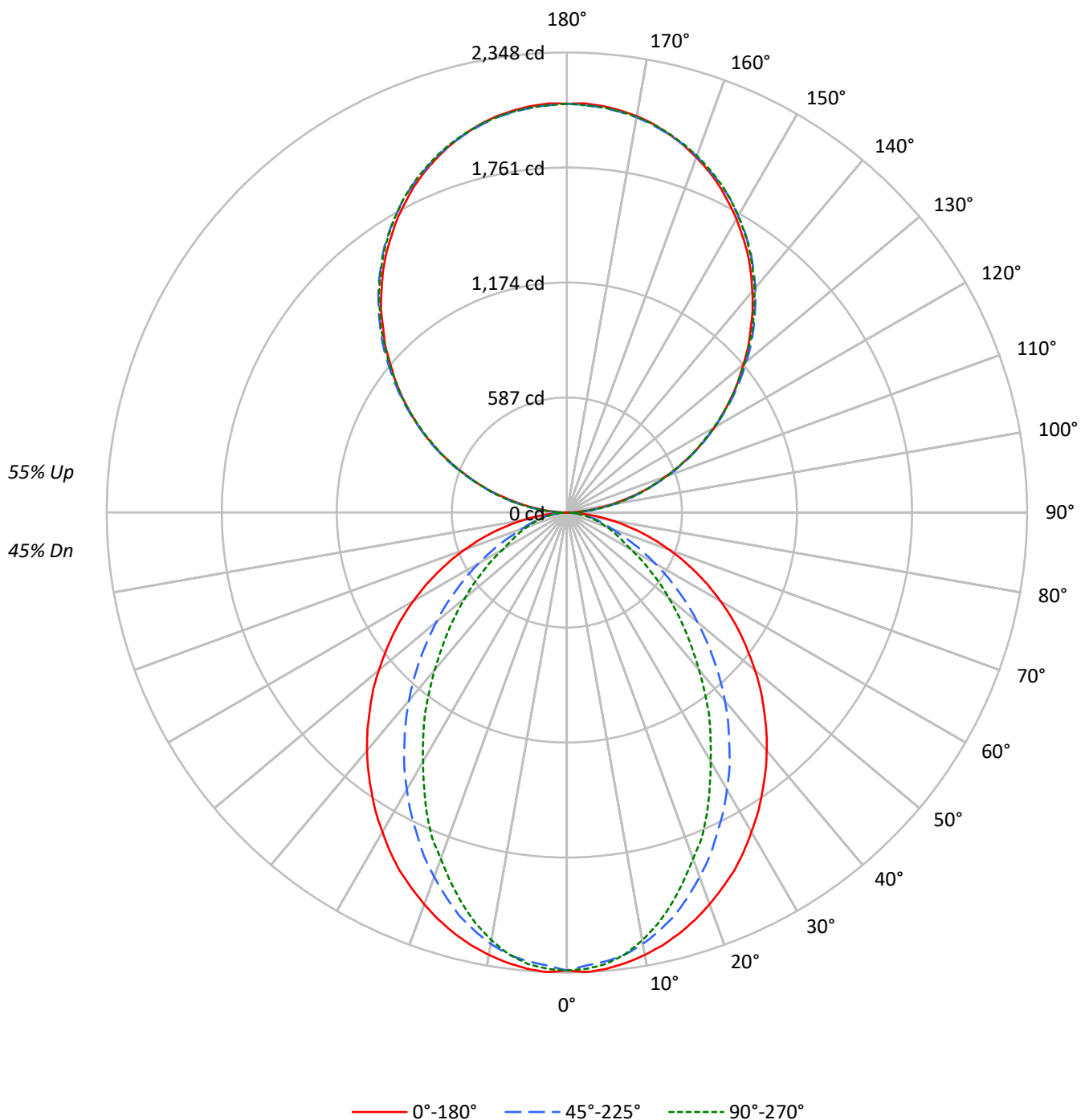
Lumens per Lamp: N/A
Luminaire Lumens: 10646.0 lumens
Efficiency: N/A
Efficacy: 86.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 122.6
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

TEST NUMBER: P902364

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US830-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P902364

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US830-RLLFLL

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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45		
1	97	93	89	86	89	85	82	79	71	69	67	58	57	55	46	45	44	39		
2	89	82	76	71	81	75	70	66	63	59	56	52	49	47	41	40	38	33		
3	81	72	65	60	74	67	60	56	56	51	48	46	43	40	37	35	33	29		
4	75	64	57	51	68	59	53	47	50	45	41	41	38	35	33	31	29	25		
5	69	57	50	44	63	53	46	41	45	40	36	37	33	30	30	28	25	22		
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20		
7	59	47	39	34	54	43	36	32	37	32	28	31	27	24	25	22	20	18		
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18	16		
9	51	39	32	27	47	36	30	25	31	26	22	26	22	19	22	19	17	14		
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1516	1516	1516
5°	1519	1493	1502
10°	1504	1464	1454
15°	1483	1416	1379
20°	1456	1350	1287
25°	1428	1275	1198
30°	1391	1199	1084
35°	1354	1117	985
40°	1316	1032	871
45°	1273	938	767
50°	1228	843	666
55°	1181	741	569
60°	1127	634	469
65°	1064	526	422
70°	989	425	383
75°	894	375	350
80°	756	317	305
85°	528	214	234

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1580 cd/sqm

TEST NUMBER: P902364

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US830-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.1	2.1
10°-20°	601.3	5.6
20°-30°	844.3	7.9
30°-40°	920.3	8.6
40°-50°	845.9	7.9
50°-60°	664.3	6.2
60°-70°	432.4	4.1
70°-80°	222.6	2.1
80°-90°	62.8	0.6
90°-100°	129.1	1.2
100°-110°	410.3	3.9
110°-120°	702.1	6.6
120°-130°	923.3	8.7
130°-140°	1036.4	9.7
140°-150°	1016.3	9.5
150°-160°	852.6	8.0
160°-170°	565.4	5.3
170°-180°	197.6	1.9
0°-30°	1664.7	15.6
0°-40°	2585.0	24.3
0°-60°	4095.1	38.5
0°-90°	4812.9	45.2
90°-120°	1241.5	11.7
90°-150°	4217.6	39.6
90°-180°	5833.0	54.8
0°-180°	10646.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2337	2337	2337	2337	2337	
5°	2337	2327	2299	2318	2312	222
15°	2223	2200	2128	2088	2067	626
25°	2018	1950	1811	1724	1692	928
35°	1739	1631	1445	1312	1265	1088
45°	1421	1280	1058	907	857	1098
55°	1081	916	687	561	520	966
65°	730	558	368	296	290	724
75°	389	241	169	154	152	412
85°	91	46	40	40	40	104
90°	2	23	62	58	60	11
95°	92	109	113	113	109	102
105°	379	384	388	391	391	400
115°	705	715	712	710	705	697
125°	1025	1040	1036	1030	1028	916
135°	1326	1345	1349	1347	1342	1025
145°	1609	1622	1632	1634	1627	1005
155°	1840	1845	1851	1860	1854	847
165°	2002	2000	2000	2012	2004	565
175°	2083	2078	2074	2087	2076	198
180°	2087	2087	2087	2087	2087	

TEST NUMBER: P902364

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US830-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.3	2337.3	2337.3	2337.3	2337.3
2.5°	2347.9	2337.3	2313.9	2335.2	2331.0
5°	2337.3	2326.8	2299.1	2318.3	2312.0
7.5°	2318.3	2305.6	2276.1	2284.3	2273.8
10°	2292.8	2278.0	2235.9	2229.4	2216.8
12.5°	2261.3	2242.1	2184.9	2172.4	2149.0
15°	2223.1	2199.7	2127.9	2087.7	2066.6
17.5°	2178.7	2144.8	2055.9	2009.4	1975.6
20°	2127.9	2085.5	1979.8	1927.0	1880.4
22.5°	2072.9	2024.2	1901.5	1829.7	1798.0
25°	2018.0	1950.2	1810.6	1724.0	1692.1
27.5°	1952.5	1880.4	1726.0	1626.5	1577.9
30°	1882.6	1802.0	1632.9	1525.1	1467.9
32.5°	1814.9	1717.5	1544.3	1417.2	1364.2
35°	1738.8	1630.9	1444.8	1311.5	1264.8
37.5°	1664.7	1548.2	1351.7	1205.6	1152.8
40°	1586.4	1459.6	1254.2	1104.1	1049.1
42.5°	1506.1	1370.7	1157.1	1000.4	947.7
45°	1421.4	1279.6	1057.7	907.3	856.6
47.5°	1341.1	1191.0	962.5	812.2	765.7
50°	1252.3	1102.1	869.4	723.3	679.1
52.5°	1165.4	1006.7	780.5	640.9	600.8
55°	1080.8	915.9	687.4	560.6	520.4
57.5°	994.2	824.9	605.0	486.5	452.6
60°	905.3	736.1	518.2	410.5	376.5
62.5°	818.7	649.5	444.1	342.7	325.8
65°	729.8	558.4	368.1	296.2	289.7
67.5°	645.2	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.7
72.5°	471.7	315.1	205.1	188.3	184.0
75°	389.2	241.0	169.2	154.4	152.4
77.5°	306.8	171.3	133.3	124.8	120.6
80°	230.5	122.7	101.4	93.1	93.1
82.5°	160.7	82.6	69.7	65.5	65.5
85°	90.9	46.5	40.2	40.2	40.2
87.5°	33.9	16.9	16.9	14.8	14.8
90°	1.9	22.6	61.6	57.9	59.8
92.5°	39.0	52.9	54.8	56.6	56.6
95°	91.8	109.4	112.6	112.6	109.4
97.5°	152.9	169.2	176.2	176.2	176.2
100°	223.3	237.8	242.8	242.8	240.9
102.5°	297.6	308.2	315.2	317.1	315.2
105°	378.7	383.7	387.5	390.7	390.7
107.5°	459.2	466.7	466.7	468.1	459.2
110°	537.2	547.3	547.3	547.3	542.2

TEST NUMBER: P902364

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US830-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	621.5	632.3	630.4	625.3	621.5
115°	704.6	714.6	711.5	709.6	704.6
117.5°	786.9	800.8	792.0	786.9	781.9
120°	870.0	883.8	870.0	870.0	864.3
122.5°	945.5	963.1	954.3	949.2	945.5
125°	1024.7	1040.5	1035.5	1029.8	1027.9
127.5°	1102.1	1121.6	1114.7	1107.2	1102.1
130°	1174.5	1197.1	1194.0	1190.2	1183.3
132.5°	1255.7	1273.3	1274.5	1265.7	1260.7
135°	1325.5	1344.9	1348.8	1346.8	1341.8
137.5°	1403.4	1419.2	1422.3	1421.1	1413.5
140°	1472.1	1487.8	1496.6	1496.6	1489.7
142.5°	1542.5	1558.2	1563.2	1565.1	1558.2
145°	1609.2	1621.7	1631.8	1633.7	1626.8
147.5°	1669.0	1684.7	1692.2	1695.4	1688.5
150°	1730.6	1741.3	1748.2	1753.9	1748.2
152.5°	1785.3	1796.0	1804.8	1811.8	1804.8
155°	1840.0	1845.0	1850.8	1859.5	1853.9
157.5°	1887.3	1891.0	1894.1	1906.8	1897.9
160°	1929.4	1933.2	1935.0	1945.7	1938.1
162.5°	1968.4	1968.4	1970.3	1982.2	1973.4
165°	2001.7	1999.8	1999.8	2012.4	2003.6
167.5°	2031.9	2026.3	2026.3	2038.8	2030.0
170°	2054.6	2049.6	2047.7	2060.2	2049.6
172.5°	2070.3	2065.2	2063.3	2075.9	2065.2
175°	2082.8	2077.8	2074.1	2086.6	2075.9
177.5°	2089.8	2084.7	2080.9	2091.7	2080.9
180°	2086.6	2086.6	2086.6	2086.6	2086.6

TEST NUMBER: P902364

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US830-RLFL

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	8.15	8.94	9.15	9.95	11.29	4.11	4.90	5.11	5.91	7.25
	3H	9.83	10.53	10.84	11.55	12.91	5.29	6.00	6.31	7.02	8.38
	4H	10.44	11.11	11.46	12.13	13.50	5.74	6.41	6.77	7.44	8.80
	6H	10.86	11.48	11.90	12.50	13.89	6.06	6.68	7.10	7.71	9.09
	8H	10.99	11.58	12.03	12.62	14.00	6.15	6.74	7.20	7.78	9.16
	12H	11.05	11.61	12.10	12.65	14.05	6.20	6.76	7.24	7.79	9.19
4H	2H	8.16	8.83	9.19	9.85	11.22	4.70	5.37	5.73	6.39	7.76
	3H	9.99	10.55	11.03	11.60	12.98	6.05	6.61	7.09	7.66	9.04
	4H	10.69	11.20	11.73	12.24	13.64	6.60	7.11	7.64	8.15	9.55
	6H	11.21	11.64	12.26	12.71	14.11	7.02	7.45	8.07	8.52	9.92
	8H	11.38	11.79	12.44	12.85	14.26	7.15	7.55	8.20	8.61	10.03
	12H	11.48	11.85	12.56	12.92	14.34	7.21	7.58	8.29	8.65	10.07
8H	4H	10.65	11.06	11.71	12.12	13.53	6.88	7.29	7.94	8.34	9.76
	6H	11.22	11.56	12.30	12.66	14.07	7.40	7.73	8.48	8.83	10.25
	8H	11.44	11.74	12.53	12.82	14.25	7.59	7.89	8.68	8.97	10.40
	12H	11.58	11.84	12.68	12.92	14.40	7.71	7.97	8.80	9.05	10.52
12H	4H	10.60	10.97	11.68	12.04	13.46	6.88	7.25	7.96	8.32	9.74
	6H	11.20	11.49	12.29	12.58	14.01	7.45	7.74	8.54	8.83	10.26
	8H	11.42	11.68	12.51	12.76	14.23	7.66	7.92	8.75	9.00	10.47