

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: P903408

Luminaire Tested: DFN2DIP-PN4F0-110D070US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903408
REPORT IS A COMBINATION OF REPORTS P899677 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D070US830-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

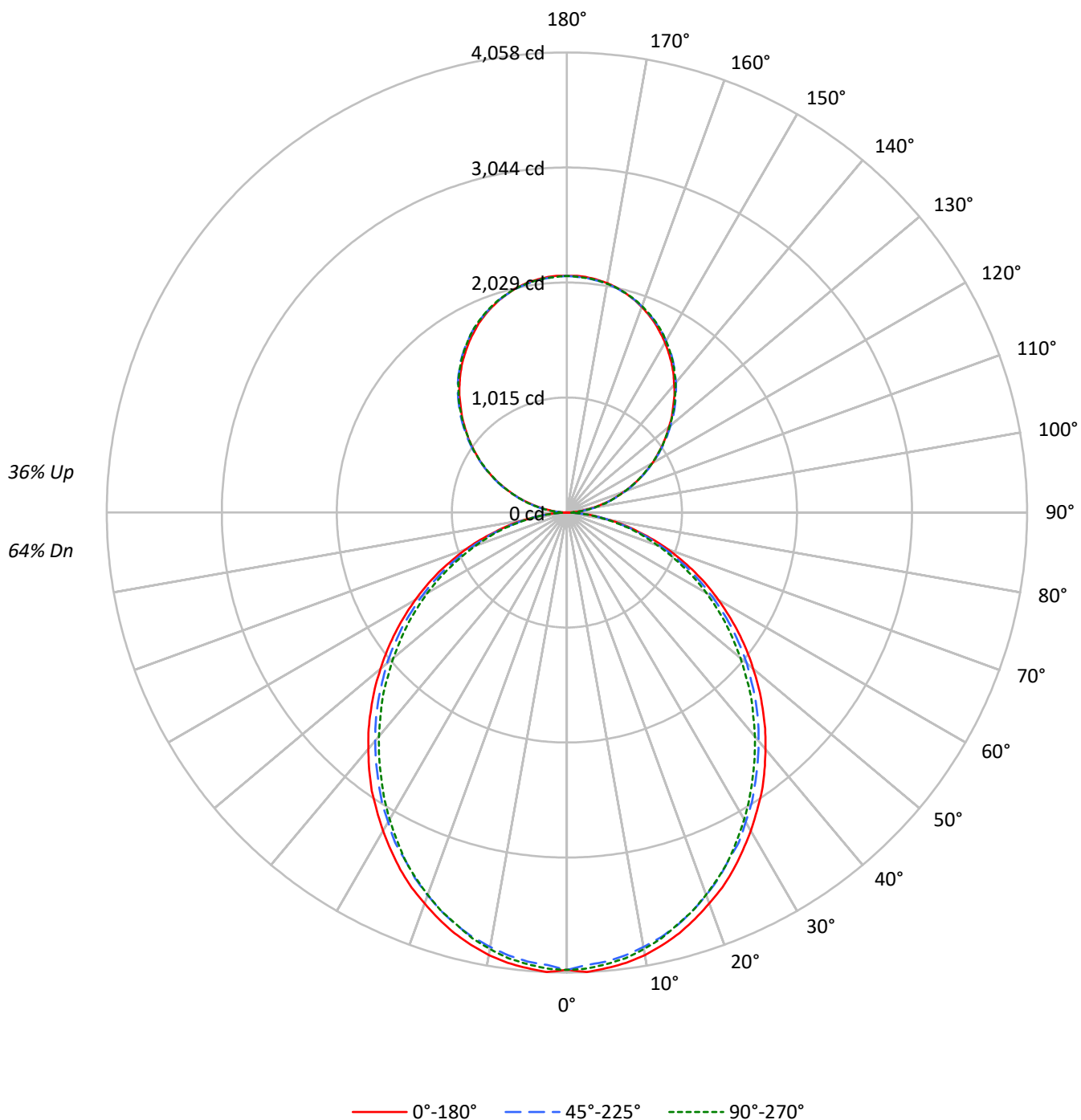
Lumens per Lamp: N/A
Luminaire Lumens: 16103.3 lumens
Efficiency: N/A
Efficacy: 96.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 166.8
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

TEST NUMBER: P903408

CATALOG NUMBER: DFN2DIP-PN4F0-110D070US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P903408

CATALOG NUMBER: DFN2DIP-PN4F0-110D070US830-FLLFL

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	110	110	110	110		104	104	104	104		91	91	91		79	79	79		69	69	69
1	101	96	92	89		95	91	87	84		80	77	75		70	68	66		61	59	58
2	92	84	78	73		86	79	74	69		70	66	62		61	58	55		54	51	49
3	84	74	67	61		78	70	63	58		62	57	52		54	50	47		47	44	42
4	77	66	58	51		72	62	55	49		55	49	45		48	44	40		42	39	36
5	71	59	50	44		66	55	48	42		49	43	39		44	39	35		38	34	31
6	65	53	44	38		61	50	42	37		44	38	34		39	34	31		35	31	28
7	60	48	39	34		56	45	38	32		40	34	30		36	31	27		32	28	25
8	56	43	35	30		52	41	34	29		37	31	27		33	28	24		29	25	22
9	52	40	32	27		49	38	31	26		34	28	24		30	25	22		27	23	20
10	49	36	29	24		46	35	28	23		31	26	22		28	23	20		25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2945	2945	2945
5°	2950	2904	2924
10°	2926	2865	2885
15°	2883	2819	2824
20°	2824	2754	2761
25°	2767	2676	2688
30°	2694	2603	2595
35°	2625	2517	2498
40°	2541	2431	2404
45°	2457	2344	2309
50°	2364	2253	2199
55°	2268	2148	2097
60°	2159	2023	1981
65°	2040	1894	1844
70°	1889	1737	1697
75°	1678	1548	1562
80°	1426	1308	1303
85°	1031	893	871

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2457 cd/sqm

TEST NUMBER: P903408

CATALOG NUMBER: DFN2DIP-PN4F0-110D070US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.4
10°-20°	1068.3	6.6
20°-30°	1570.0	9.7
30°-40°	1823.5	11.3
40°-50°	1821.2	11.3
50°-60°	1588.0	9.9
60°-70°	1173.9	7.3
70°-80°	664.2	4.1
80°-90°	181.2	1.1
90°-100°	129.1	0.8
100°-110°	410.3	2.5
110°-120°	702.1	4.4
120°-130°	923.3	5.7
130°-140°	1036.4	6.4
140°-150°	1016.3	6.3
150°-160°	852.6	5.3
160°-170°	565.4	3.5
170°-180°	197.6	1.2
0°-30°	3018.1	18.7
0°-40°	4841.6	30.1
0°-60°	8250.9	51.2
0°-90°	10270.2	63.8
90°-120°	1241.5	7.7
90°-150°	4217.6	26.2
90°-180°	5833.0	36.2
0°-180°	16103.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3767	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1873
45°	2440	2413	2355	2312	2297	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	696
85°	159	155	152	140	136	177
90°	2	23	62	58	60	15
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: P903408

CATALOG NUMBER: DFN2DIP-PN4F0-110D070US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.3	4034.3	4034.3	4034.3	4034.3
2.5°	4057.6	4038.3	3995.5	4034.3	4026.8
5°	4034.3	4019.0	3976.2	4007.0	3999.7
7.5°	4007.0	3984.0	3941.2	3972.5	3964.7
10°	3964.7	3937.5	3891.0	3921.8	3910.3
12.5°	3906.3	3883.2	3836.7	3856.0	3848.2
15°	3840.4	3817.3	3766.7	3782.3	3763.0
17.5°	3758.9	3735.9	3685.2	3704.6	3685.2
20°	3669.6	3646.5	3592.2	3603.7	3588.5
22.5°	3580.7	3545.7	3495.0	3495.0	3487.2
25°	3475.7	3444.9	3379.0	3386.5	3379.0
27.5°	3359.2	3332.1	3281.8	3270.3	3251.0
30°	3243.2	3211.9	3153.8	3142.3	3126.7
32.5°	3118.9	3095.9	3033.7	3010.2	2994.6
35°	2998.7	2960.1	2897.8	2874.4	2855.1
37.5°	2862.9	2827.9	2765.8	2738.6	2719.2
40°	2723.4	2692.1	2630.0	2595.4	2579.7
42.5°	2587.6	2556.3	2494.5	2455.4	2432.4
45°	2440.2	2413.0	2354.6	2312.2	2296.6
47.5°	2296.6	2269.5	2207.2	2164.5	2141.4
50°	2145.1	2125.8	2071.4	2017.1	1997.8
52.5°	1997.8	1970.6	1920.4	1877.5	1850.4
55°	1846.7	1823.3	1776.8	1730.2	1710.9
57.5°	1695.3	1675.9	1625.3	1578.8	1563.1
60°	1543.8	1528.6	1474.2	1431.4	1419.9
62.5°	1396.5	1369.3	1330.6	1291.9	1276.3
65°	1245.4	1221.9	1183.3	1148.3	1129.0
67.5°	1090.2	1070.5	1035.9	1008.8	993.2
70°	946.6	930.9	896.0	868.8	853.6
72.5°	799.3	783.6	764.3	737.2	725.6
75°	651.5	644.1	624.3	601.3	609.2
77.5°	519.8	504.2	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
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: P903408

CATALOG NUMBER: DFN2DIP-PN4F0-110D070US830-FLLFLL

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: P903408

CATALOG NUMBER: DFN2DIP-PN4F0-110D070US830-FLLFLL

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	12.21	13.21	13.04	14.07	15.12	11.77	12.77	12.60	13.62	14.68
	3H	13.89	14.78	14.73	15.65	16.73	13.40	14.30	14.24	15.16	16.25
	4H	14.48	15.33	15.34	16.20	17.30	14.00	14.84	14.85	15.71	16.81
	6H	14.89	15.67	15.76	16.55	17.66	14.40	15.18	15.27	16.06	17.17
	8H	15.00	15.75	15.88	16.64	17.75	14.51	15.25	15.39	16.15	17.26
	12H	15.06	15.77	15.94	16.65	17.79	14.56	15.27	15.44	16.15	17.29
4H	2H	12.69	13.54	13.55	14.41	15.51	12.34	13.19	13.20	14.06	15.15
	3H	14.57	15.28	15.45	16.18	17.30	14.17	14.88	15.04	15.78	16.89
	4H	15.29	15.94	16.18	16.84	17.98	14.88	15.52	15.76	16.42	17.56
	6H	15.82	16.38	16.72	17.30	18.44	15.40	15.95	16.30	16.88	18.02
	8H	15.98	16.50	16.88	17.41	18.57	15.55	16.07	16.45	16.98	18.14
	12H	16.06	16.53	16.98	17.46	18.62	15.62	16.09	16.54	17.02	18.18
8H	4H	15.50	16.02	16.41	16.94	18.10	15.13	15.65	16.04	16.57	17.72
	6H	16.14	16.58	17.07	17.53	18.69	15.77	16.20	16.70	17.16	18.31
	8H	16.37	16.75	17.31	17.70	18.87	15.98	16.37	16.92	17.31	18.49
	12H	16.51	16.84	17.45	17.79	19.01	16.11	16.44	17.05	17.38	18.61
12H	4H	15.50	15.97	16.42	16.90	18.06	15.13	15.60	16.06	16.54	17.70
	6H	16.17	16.56	17.12	17.51	18.68	15.81	16.19	16.75	17.14	18.31
	8H	16.43	16.76	17.37	17.70	18.93	16.05	16.39	17.00	17.33	18.55

END OF REPORT