

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: P918446

Luminaire Tested: DFN2DIP-TR4F0-110D070US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918446
REPORT IS A COMBINATION OF REPORTS P900437 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US930-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

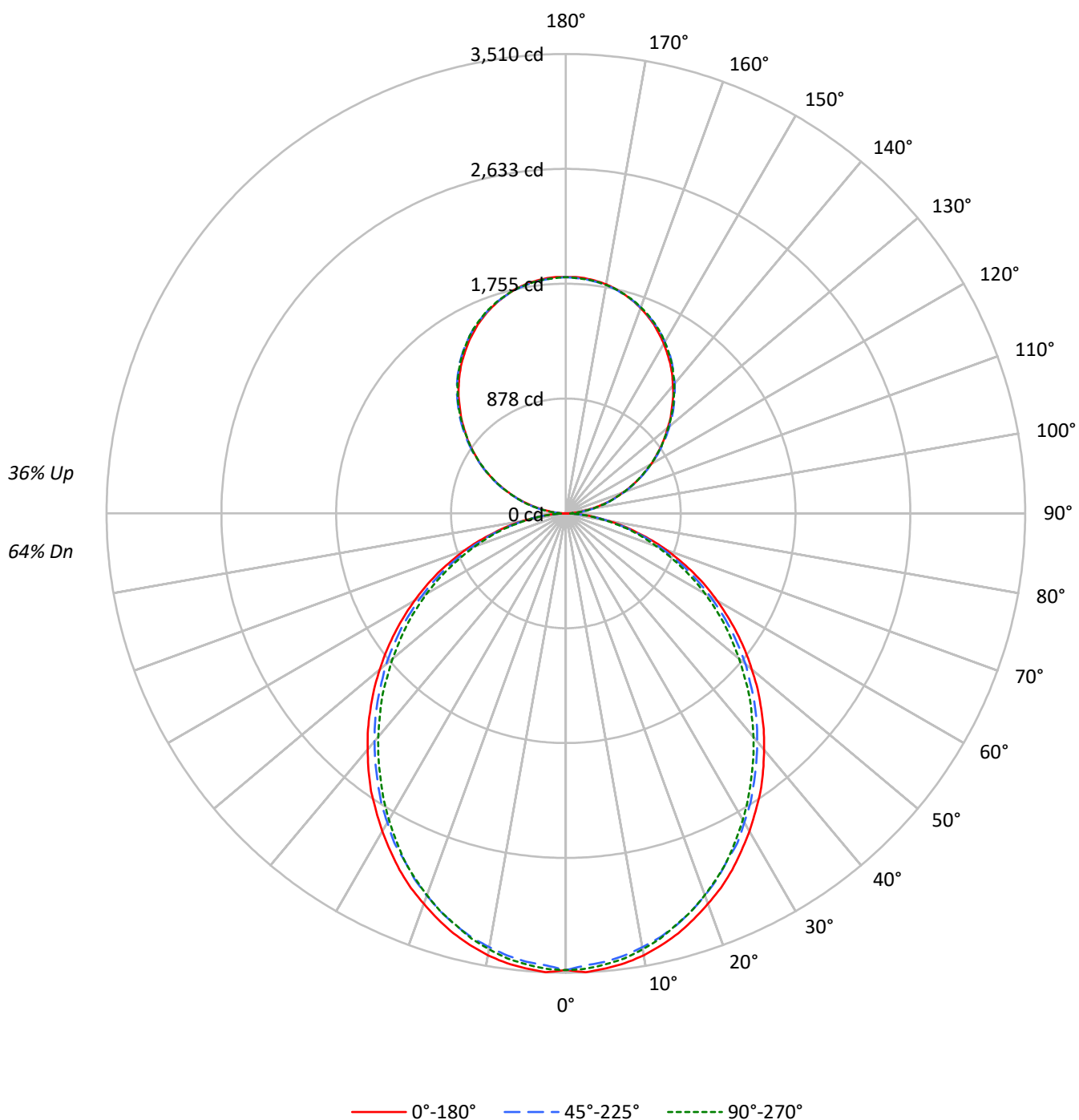
Lumens per Lamp: N/A
Luminaire Lumens: 13929.4 lumens
Efficiency: N/A
Efficacy: 84.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 164.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918446

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P918446

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US930-FLLFLL

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
RCR																	
0	110	110	110	110	104	104	104	104	91	91	91		79	79	79		69
1	101	96	92	89	95	91	87	84	80	77	75		70	68	66		61
2	92	84	78	73	86	79	74	69	70	66	62		61	58	55		54
3	84	74	67	61	78	70	63	58	62	57	52		54	50	47		47
4	77	66	58	51	72	62	55	49	55	49	45		48	44	40		42
5	71	59	50	44	66	55	48	42	49	43	39		44	39	35		38
6	65	53	44	38	61	50	42	37	44	38	34		39	34	31		35
7	60	48	39	34	56	45	38	32	40	34	30		36	31	27		32
8	56	43	35	30	52	41	34	29	37	31	27		33	28	24		29
9	52	40	32	27	49	38	31	26	34	28	24		30	25	22		27
10	49	36	29	24	46	35	28	23	31	26	22		28	23	20		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2772	2772	2772
5°	2777	2734	2752
10°	2754	2697	2715
15°	2714	2652	2656
20°	2659	2591	2597
25°	2605	2517	2528
30°	2536	2448	2440
35°	2472	2367	2347
40°	2392	2285	2259
45°	2313	2203	2169
50°	2226	2117	2064
55°	2135	2018	1968
60°	2033	1899	1858
65°	1921	1777	1728
70°	1778	1628	1588
75°	1580	1449	1458
80°	1343	1222	1212
85°	972	829	803

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2313 cd/sqm

TEST NUMBER: P918446

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.4	2.4
10°-20°	924.1	6.6
20°-30°	1358.1	9.7
30°-40°	1577.3	11.3
40°-50°	1575.4	11.3
50°-60°	1373.7	9.9
60°-70°	1015.5	7.3
70°-80°	574.5	4.1
80°-90°	156.8	1.1
90°-100°	111.7	0.8
100°-110°	354.9	2.5
110°-120°	607.3	4.4
120°-130°	798.7	5.7
130°-140°	896.5	6.4
140°-150°	879.1	6.3
150°-160°	737.5	5.3
160°-170°	489.1	3.5
170°-180°	170.9	1.2
0°-30°	2610.6	18.7
0°-40°	4187.9	30.1
0°-60°	7137.0	51.2
0°-90°	8883.7	63.8
90°-120°	1073.9	7.7
90°-150°	3648.2	26.2
90°-180°	5046.0	36.2
0°-180°	13929.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3490	3490	3490	3490	3490	
5°	3490	3476	3439	3466	3460	331
15°	3322	3302	3258	3272	3255	936
25°	3006	2980	2923	2929	2923	1383
35°	2594	2560	2507	2486	2470	1620
45°	2111	2087	2037	2000	1987	1629
55°	1597	1577	1537	1497	1480	1428
65°	1077	1057	1024	993	977	1065
75°	564	557	540	520	527	602
85°	138	134	131	121	118	153
90°	2	20	53	50	52	13
95°	79	95	97	97	95	88
105°	328	332	335	338	338	346
115°	609	618	616	614	609	603
125°	886	900	896	891	889	792
135°	1147	1163	1167	1165	1161	886
145°	1392	1403	1412	1413	1407	870
155°	1592	1596	1601	1608	1604	733
165°	1731	1730	1730	1741	1733	488
175°	1802	1797	1794	1805	1796	171
180°	1805	1805	1805	1805	1805	

TEST NUMBER: P918446

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US930-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3489.6	3489.6	3489.6	3489.6	3489.6
2.5°	3509.9	3493.1	3456.1	3489.6	3483.2
5°	3489.6	3476.4	3439.4	3466.1	3459.7
7.5°	3466.1	3446.2	3409.2	3436.2	3429.5
10°	3429.5	3405.9	3365.7	3392.4	3382.4
12.5°	3378.9	3358.9	3318.8	3335.5	3328.7
15°	3321.9	3302.0	3258.2	3271.7	3255.0
17.5°	3251.4	3231.5	3187.7	3204.4	3187.7
20°	3174.2	3154.2	3107.3	3117.2	3104.1
22.5°	3097.3	3067.0	3023.2	3023.2	3016.4
25°	3006.5	2979.8	2922.8	2929.3	2922.8
27.5°	2905.7	2882.2	2838.8	2828.8	2812.1
30°	2805.4	2778.3	2728.1	2718.1	2704.6
32.5°	2697.8	2677.9	2624.1	2603.8	2590.3
35°	2593.9	2560.4	2506.6	2486.3	2469.6
37.5°	2476.4	2446.1	2392.4	2368.8	2352.1
40°	2355.7	2328.7	2274.9	2245.0	2231.5
42.5°	2238.2	2211.2	2157.8	2123.9	2104.0
45°	2110.8	2087.2	2036.7	2000.1	1986.6
47.5°	1986.6	1963.1	1909.3	1872.3	1852.3
50°	1855.5	1838.8	1791.8	1744.8	1728.1
52.5°	1728.1	1704.5	1661.2	1624.1	1600.6
55°	1597.4	1577.1	1536.9	1496.6	1479.9
57.5°	1466.4	1449.7	1405.9	1365.6	1352.1
60°	1335.4	1322.3	1275.2	1238.2	1228.2
62.5°	1207.9	1184.5	1151.0	1117.5	1104.0
65°	1077.3	1057.0	1023.5	993.3	976.6
67.5°	943.1	926.0	896.1	872.6	859.1
70°	818.8	805.3	775.0	751.5	738.3
72.5°	691.4	677.8	661.1	637.6	627.6
75°	563.5	557.2	540.1	520.2	526.9
77.5°	449.6	436.1	429.3	419.4	409.4
80°	335.7	332.2	325.4	315.4	308.7
82.5°	228.2	228.2	225.0	211.5	211.5
85°	137.5	134.2	131.0	120.7	117.5
87.5°	60.5	53.7	47.0	37.0	33.4
90°	1.6	19.6	53.3	50.1	51.7
92.5°	33.8	45.7	47.4	49.0	49.0
95°	79.4	94.7	97.4	97.4	94.7
97.5°	132.2	146.3	152.4	152.4	152.4
100°	193.1	205.7	210.0	210.0	208.4
102.5°	257.4	266.6	272.6	274.3	272.6
105°	327.6	331.9	335.2	337.9	337.9
107.5°	397.2	403.7	403.7	404.9	397.2
110°	464.7	473.4	473.4	473.4	469.0

TEST NUMBER: P918446

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	537.6	546.9	545.3	540.9	537.6
115°	609.4	618.2	615.5	613.8	609.4
117.5°	680.7	692.7	685.1	680.7	676.4
120°	752.5	764.5	752.5	752.5	747.6
122.5°	817.8	833.1	825.5	821.1	817.8
125°	886.4	900.0	895.7	890.8	889.2
127.5°	953.3	970.2	964.3	957.7	953.3
130°	1015.9	1035.5	1032.8	1029.6	1023.5
132.5°	1086.1	1101.4	1102.4	1094.9	1090.5
135°	1146.6	1163.3	1166.7	1165.0	1160.7
137.5°	1214.0	1227.6	1230.3	1229.2	1222.7
140°	1273.3	1286.9	1294.5	1294.5	1288.6
142.5°	1334.2	1347.9	1352.2	1353.8	1347.9
145°	1392.0	1402.8	1411.5	1413.2	1407.2
147.5°	1443.6	1457.3	1463.8	1466.5	1460.5
150°	1497.0	1506.2	1512.2	1517.1	1512.2
152.5°	1544.3	1553.6	1561.1	1567.2	1561.1
155°	1591.6	1595.9	1600.9	1608.5	1603.6
157.5°	1632.5	1635.7	1638.4	1649.3	1641.7
160°	1668.9	1672.2	1673.8	1683.0	1676.5
162.5°	1702.7	1702.7	1704.3	1714.6	1707.0
165°	1731.4	1729.8	1729.8	1740.7	1733.1
167.5°	1757.6	1752.7	1752.7	1763.6	1756.0
170°	1777.2	1772.9	1771.2	1782.1	1772.9
172.5°	1790.8	1786.4	1784.8	1795.7	1786.4
175°	1801.6	1797.3	1794.1	1804.9	1795.7
177.5°	1807.7	1803.3	1800.0	1809.3	1800.0
180°	1804.9	1804.9	1804.9	1804.9	1804.9

TEST NUMBER: P918446

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US930-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	11.99	12.99	12.82	13.84	14.90	11.56	12.56	12.39	13.41	14.47
	3H	13.66	14.56	14.50	15.42	16.51	13.19	14.09	14.03	14.95	16.04
	4H	14.26	15.10	15.11	15.97	17.07	13.78	14.63	14.64	15.50	16.60
	6H	14.66	15.44	15.53	16.32	17.43	14.19	14.97	15.06	15.84	16.96
	8H	14.77	15.52	15.65	16.41	17.52	14.30	15.04	15.17	15.94	17.05
	12H	14.82	15.53	15.71	16.42	17.56	14.34	15.05	15.23	15.94	17.08
4H	2H	12.47	13.32	13.33	14.19	15.28	12.12	12.97	12.99	13.84	14.94
	3H	14.35	15.06	15.22	15.96	17.07	13.95	14.66	14.83	15.56	16.68
	4H	15.07	15.71	15.95	16.61	17.75	14.66	15.31	15.55	16.21	17.34
	6H	15.59	16.15	16.49	17.07	18.21	15.18	15.74	16.08	16.66	17.80
	8H	15.74	16.26	16.65	17.18	18.34	15.33	15.85	16.24	16.77	17.92
	12H	15.82	16.29	16.75	17.23	18.39	15.40	15.87	16.33	16.81	17.97
8H	4H	15.28	15.80	16.18	16.71	17.87	14.92	15.44	15.82	16.35	17.51
	6H	15.91	16.34	16.84	17.30	18.46	15.55	15.98	16.48	16.94	18.09
	8H	16.13	16.52	17.08	17.47	18.64	15.77	16.15	16.71	17.10	18.27
	12H	16.27	16.61	17.22	17.55	18.77	15.89	16.23	16.83	17.17	18.39
12H	4H	15.27	15.74	16.19	16.67	17.83	14.92	15.39	15.84	16.32	17.48
	6H	15.94	16.33	16.88	17.28	18.45	15.59	15.98	16.53	16.92	18.10
	8H	16.19	16.53	17.14	17.47	18.69	15.84	16.17	16.78	17.11	18.34