

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: P918283

Luminaire Tested: DFN2DIP-TR4F0-060D110US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918283
REPORT IS A COMBINATION OF REPORTS P902019 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D110US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

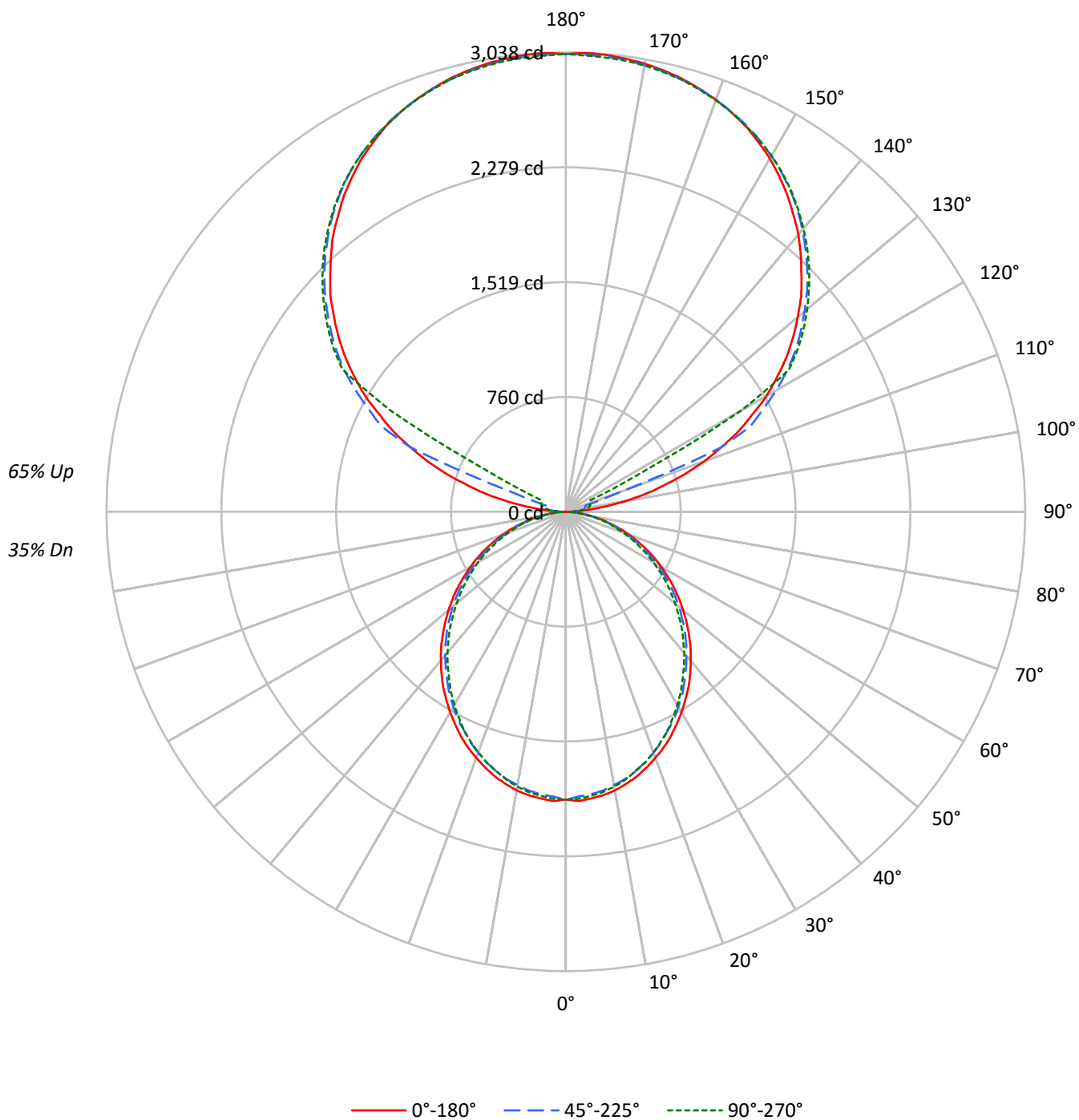
Lumens per Lamp: N/A
Luminaire Lumens: 13721.5 lumens
Efficiency: N/A
Efficacy: 99.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 138.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918283

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918283

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US930-FLONL

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	94	94	94	94	75	75	75	58	58	58	43	43	43
1	95	90	86	83	85	82	79	76	66	64	62	51	50	48	38	37	36
2	86	79	73	68	78	71	66	62	58	54	51	45	43	40	33	32	30
3	78	69	62	56	71	63	57	52	51	46	43	40	37	34	29	27	26
4	72	61	53	48	65	56	49	44	45	40	36	35	32	29	26	24	22
5	66	54	46	41	59	50	43	38	40	35	31	32	28	25	24	21	19
6	60	49	41	35	54	44	37	32	36	31	27	29	25	22	21	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	19	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	15	13
9	48	36	29	24	43	33	27	22	27	22	19	22	18	15	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	16	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1512	1512	1512
5°	1515	1491	1501
10°	1502	1471	1481
15°	1480	1447	1449
20°	1450	1413	1416
25°	1421	1373	1379
30°	1384	1335	1331
35°	1348	1291	1280
40°	1305	1247	1232
45°	1262	1202	1183
50°	1214	1155	1126
55°	1165	1101	1073
60°	1109	1036	1013
65°	1048	969	942
70°	970	888	866
75°	862	791	796
80°	733	666	661
85°	530	452	438

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1606 cd/sqm

TEST NUMBER: P918283

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.3
10°-20°	504.1	3.7
20°-30°	740.8	5.4
30°-40°	860.4	6.3
40°-50°	859.3	6.3
50°-60°	749.3	5.5
60°-70°	553.9	4.0
70°-80°	313.4	2.3
80°-90°	88.0	0.6
90°-100°	99.8	0.7
100°-110°	372.1	2.7
110°-120°	986.7	7.2
120°-130°	1636.6	11.9
130°-140°	1738.4	12.7
140°-150°	1615.7	11.8
150°-160°	1298.9	9.5
160°-170°	837.0	6.1
170°-180°	288.1	2.1
0°-30°	1424.0	10.4
0°-40°	2284.3	16.6
0°-60°	3892.9	28.4
0°-90°	4848.2	35.3
90°-120°	1458.6	10.6
90°-150°	6449.2	47.0
90°-180°	8873.0	64.7
0°-180°	13721.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	2	26	44	55	59	13
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

TEST NUMBER: P918283

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9

TEST NUMBER: P918283

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

TEST NUMBER: P918283

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US930-FLLONL

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	7.17	7.91	8.24	8.99	10.46	6.74	7.48	7.81	8.56	10.02
	3H	8.82	9.49	9.90	10.57	12.06	8.35	9.02	9.43	10.10	11.58
	4H	9.40	10.04	10.50	11.12	12.61	8.93	9.56	10.02	10.65	12.14
	6H	9.80	10.38	10.90	11.47	12.97	9.32	9.90	10.42	10.99	12.49
	8H	9.90	10.45	11.00	11.56	13.05	9.42	9.98	10.53	11.08	12.58
	12H	9.94	10.47	11.05	11.57	13.09	9.46	9.99	10.57	11.09	12.61
4H	2H	7.62	8.25	8.72	9.33	10.83	7.27	7.91	8.37	8.99	10.48
	3H	9.47	10.00	10.58	11.11	12.61	9.08	9.61	10.19	10.72	12.22
	4H	10.18	10.67	11.29	11.77	13.29	9.78	10.26	10.89	11.36	12.89
	6H	10.69	11.11	11.81	12.23	13.75	10.28	10.70	11.40	11.82	13.34
	8H	10.84	11.22	11.96	12.34	13.87	10.43	10.81	11.54	11.93	13.46
	12H	10.90	11.26	12.04	12.38	13.92	10.48	10.83	11.62	11.96	13.50
8H	4H	10.37	10.76	11.49	11.87	13.41	10.01	10.40	11.13	11.51	13.05
	6H	11.00	11.32	12.14	12.47	14.00	10.63	10.95	11.77	12.11	13.64
	8H	11.22	11.50	12.36	12.63	14.18	10.85	11.13	11.99	12.27	13.81
	12H	11.34	11.59	12.49	12.72	14.31	10.96	11.20	12.11	12.34	13.92
12H	4H	10.35	10.70	11.49	11.83	13.37	10.00	10.35	11.13	11.48	13.01
	6H	11.02	11.30	12.17	12.44	13.99	10.67	10.95	11.82	12.09	13.64
	8H	11.26	11.51	12.41	12.64	14.23	10.90	11.15	12.05	12.29	13.87