

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: P918407

Luminaire Tested: DFN2DIP-TR4F0-100D060US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918407
REPORT IS A COMBINATION OF REPORTS P901937 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D060US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

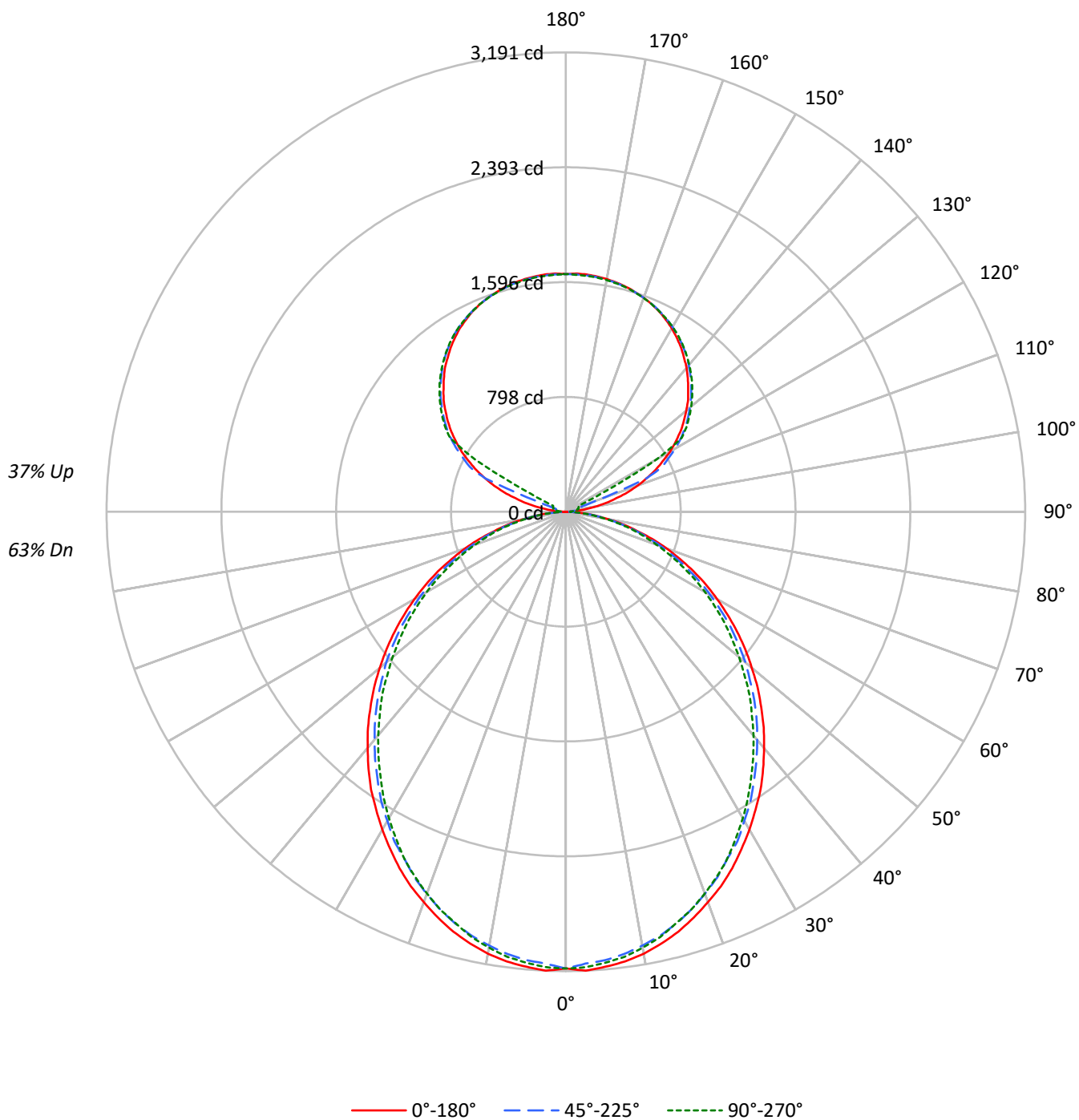
Lumens per Lamp: N/A
Luminaire Lumens: 12914.3 lumens
Efficiency: N/A
Efficacy: 88.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 145.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918407

CATALOG NUMBER: DFN2DIP-TR4F0-100D060US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918407

CATALOG NUMBER: DFN2DIP-TR4F0-100D060US930-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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57
2	92	84	78	72	86	79	73	69	69	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	57	61	56	52	54	50	46	47	44	41
4	77	65	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	34	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	38	32	40	34	30	35	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	37	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	34	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2520	2520	2520
5°	2524	2485	2502
10°	2504	2452	2468
15°	2467	2411	2415
20°	2417	2355	2361
25°	2368	2288	2298
30°	2306	2226	2218
35°	2247	2152	2134
40°	2175	2078	2053
45°	2103	2003	1971
50°	2024	1925	1876
55°	1941	1834	1789
60°	1848	1727	1689
65°	1746	1616	1571
70°	1617	1480	1443
75°	1437	1318	1326
80°	1221	1111	1101
85°	883	754	730

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2103 cd/sqm

TEST NUMBER: P918407

CATALOG NUMBER: DFN2DIP-TR4F0-100D060US930-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	298.6	2.3
10°-20°	840.1	6.5
20°-30°	1234.6	9.6
30°-40°	1433.9	11.1
40°-50°	1432.1	11.1
50°-60°	1248.8	9.7
60°-70°	923.1	7.1
70°-80°	522.3	4.0
80°-90°	140.8	1.1
90°-100°	54.4	0.4
100°-110°	202.9	1.6
110°-120°	538.2	4.2
120°-130°	892.7	6.9
130°-140°	948.2	7.3
140°-150°	881.3	6.8
150°-160°	708.5	5.5
160°-170°	456.5	3.5
170°-180°	157.1	1.2
0°-30°	2373.3	18.4
0°-40°	3807.2	29.5
0°-60°	6488.2	50.2
0°-90°	8074.3	62.5
90°-120°	795.6	6.2
90°-150°	3517.8	27.2
90°-180°	4840.0	37.5
0°-180°	12914.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3172	3172	3172	3172	3172	
5°	3172	3160	3127	3151	3145	301
15°	3020	3002	2962	2974	2959	851
25°	2733	2709	2657	2663	2657	1258
35°	2358	2328	2279	2260	2245	1473
45°	1919	1898	1852	1818	1806	1481
55°	1452	1434	1397	1361	1345	1298
65°	979	961	930	903	888	968
75°	512	506	491	473	479	547
85°	125	122	119	110	107	139
90°	1	14	24	30	32	12
95°	78	38	47	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	987	1009	1018	1021	866
135°	1202	1221	1232	1244	1241	928
145°	1394	1393	1413	1422	1416	872
155°	1535	1524	1539	1546	1536	707
165°	1618	1610	1614	1622	1614	457
175°	1654	1646	1648	1657	1645	157
180°	1651	1651	1651	1651	1651	

TEST NUMBER: P918407

CATALOG NUMBER: DFN2DIP-TR4F0-100D060US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3172.4	3172.4	3172.4	3172.4	3172.4
2.5°	3190.8	3175.6	3141.9	3172.4	3166.5
5°	3172.4	3160.4	3126.8	3151.0	3145.2
7.5°	3151.0	3132.9	3099.2	3123.8	3117.7
10°	3117.7	3096.3	3059.7	3084.0	3075.0
12.5°	3071.7	3053.6	3017.0	3032.3	3026.1
15°	3019.9	3001.8	2962.0	2974.3	2959.1
17.5°	2955.9	2937.8	2897.9	2913.1	2897.9
20°	2885.6	2867.5	2824.8	2833.8	2821.8
22.5°	2815.7	2788.2	2748.4	2748.4	2742.3
25°	2733.2	2708.9	2657.1	2662.9	2657.1
27.5°	2641.6	2620.2	2580.7	2571.7	2556.4
30°	2550.3	2525.7	2480.1	2471.0	2458.7
32.5°	2452.6	2434.5	2385.6	2367.1	2354.8
35°	2358.1	2327.7	2278.8	2260.3	2245.1
37.5°	2251.3	2223.7	2174.9	2153.5	2138.3
40°	2141.5	2116.9	2068.1	2040.9	2028.6
42.5°	2034.7	2010.1	1961.6	1930.9	1912.8
45°	1918.9	1897.5	1851.5	1818.2	1806.0
47.5°	1806.0	1784.6	1735.7	1702.0	1683.9
50°	1686.9	1671.6	1628.9	1586.2	1571.0
52.5°	1571.0	1549.6	1510.1	1476.5	1455.1
55°	1452.2	1433.8	1397.2	1360.6	1345.4
57.5°	1333.1	1317.8	1278.1	1241.5	1229.2
60°	1214.0	1202.0	1159.3	1125.6	1116.6
62.5°	1098.1	1076.8	1046.4	1015.9	1003.6
65°	979.3	960.9	930.5	902.9	887.8
67.5°	857.4	841.8	814.6	793.3	781.0
70°	744.4	732.1	704.6	683.2	671.2
72.5°	628.5	616.2	601.0	579.7	570.5
75°	512.3	506.5	491.0	472.9	479.0
77.5°	408.8	396.5	390.3	381.2	372.2
80°	305.2	302.0	295.8	286.7	280.6
82.5°	207.5	207.5	204.6	192.2	192.2
85°	124.9	122.1	119.1	109.7	106.8
87.5°	55.0	48.8	42.7	33.7	30.4
90°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.2	46.6	52.7	51.4
97.5°	139.7	41.8	60.8	64.6	65.7
100°	211.5	47.8	68.1	77.6	80.0
102.5°	290.2	288.0	70.5	83.6	87.2
105°	363.1	399.0	72.9	85.9	90.8
107.5°	448.0	477.8	75.3	88.4	93.2
110°	529.3	554.2	209.1	89.7	94.3

TEST NUMBER: P918407

CATALOG NUMBER: DFN2DIP-TR4F0-100D060US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.7	627.1	606.8	91.9	95.6
115°	686.9	707.2	737.1	184.0	98.0
117.5°	757.3	781.2	801.6	630.7	317.7
120°	836.3	854.1	875.7	890.0	728.7
122.5°	903.0	922.2	946.2	953.2	954.6
125°	971.2	986.8	1009.4	1017.8	1021.3
127.5°	1033.3	1050.0	1068.0	1079.9	1081.1
130°	1091.8	1111.0	1124.1	1137.3	1136.1
132.5°	1151.6	1167.2	1180.2	1191.0	1189.8
135°	1201.8	1221.0	1231.6	1243.7	1241.2
137.5°	1254.3	1268.6	1280.7	1292.6	1289.1
140°	1305.6	1315.3	1328.4	1339.1	1333.2
142.5°	1348.7	1357.1	1372.6	1382.1	1376.1
145°	1394.2	1392.9	1413.2	1421.6	1415.6
147.5°	1433.5	1429.9	1450.2	1456.1	1451.5
150°	1471.8	1463.4	1482.5	1489.6	1483.7
152.5°	1504.0	1494.4	1512.3	1519.6	1511.2
155°	1535.0	1524.4	1538.7	1545.8	1536.3
157.5°	1560.2	1550.6	1561.4	1569.8	1560.2
160°	1581.7	1574.4	1581.7	1588.8	1580.5
162.5°	1600.7	1593.6	1599.5	1607.9	1597.2
165°	1617.5	1610.4	1613.9	1622.3	1613.9
167.5°	1630.6	1623.4	1627.1	1635.5	1624.6
170°	1641.4	1634.2	1636.6	1644.9	1634.2
172.5°	1648.5	1641.4	1643.8	1652.2	1641.4
175°	1654.5	1646.1	1648.5	1656.8	1644.9
177.5°	1656.8	1648.5	1649.8	1658.2	1647.4
180°	1650.9	1650.9	1650.9	1650.9	1650.9

TEST NUMBER: P918407

CATALOG NUMBER: DFN2DIP-TR4F0-100D060US930-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	11.56	12.55	12.40	13.41	14.49	11.13	12.11	11.97	12.98	14.06
	3H	13.23	14.11	14.08	14.99	16.10	12.76	13.64	13.61	14.52	15.62
	4H	13.82	14.66	14.69	15.54	16.66	13.35	14.19	14.22	15.07	16.18
	6H	14.23	15.00	15.11	15.89	17.02	13.75	14.52	14.64	15.41	16.54
	8H	14.34	15.07	15.23	15.98	17.11	13.86	14.60	14.75	15.50	16.63
	12H	14.39	15.09	15.29	15.99	17.14	13.91	14.61	14.81	15.51	16.66
4H	2H	12.04	12.87	12.91	13.75	14.87	11.69	12.53	12.57	13.41	14.53
	3H	13.91	14.61	14.80	15.52	16.66	13.52	14.22	14.41	15.13	16.26
	4H	14.63	15.27	15.53	16.18	17.34	14.23	14.86	15.13	15.77	16.93
	6H	15.15	15.71	16.07	16.64	17.80	14.75	15.30	15.66	16.23	17.39
	8H	15.31	15.82	16.22	16.75	17.92	14.90	15.41	15.81	16.34	17.51
	12H	15.39	15.85	16.32	16.79	17.97	14.96	15.43	15.90	16.37	17.55
8H	4H	14.84	15.35	15.76	16.28	17.45	14.48	14.99	15.40	15.92	17.09
	6H	15.48	15.90	16.42	16.87	18.04	15.11	15.54	16.06	16.51	17.68
	8H	15.70	16.07	16.65	17.03	18.23	15.33	15.71	16.28	16.66	17.86
	12H	15.84	16.17	16.79	17.12	18.36	15.45	15.78	16.41	16.73	17.98
12H	4H	14.83	15.29	15.77	16.24	17.42	14.48	14.94	15.41	15.89	17.07
	6H	15.51	15.88	16.46	16.84	18.03	15.16	15.53	16.11	16.49	17.68
	8H	15.76	16.09	16.71	17.04	18.28	15.40	15.73	16.35	16.68	17.92

END OF REPORT