

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: P923901

Luminaire Tested: DFN2DIP-TR4F0-110D060US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923901
REPORT IS A COMBINATION OF REPORTS P901940 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D060US940-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

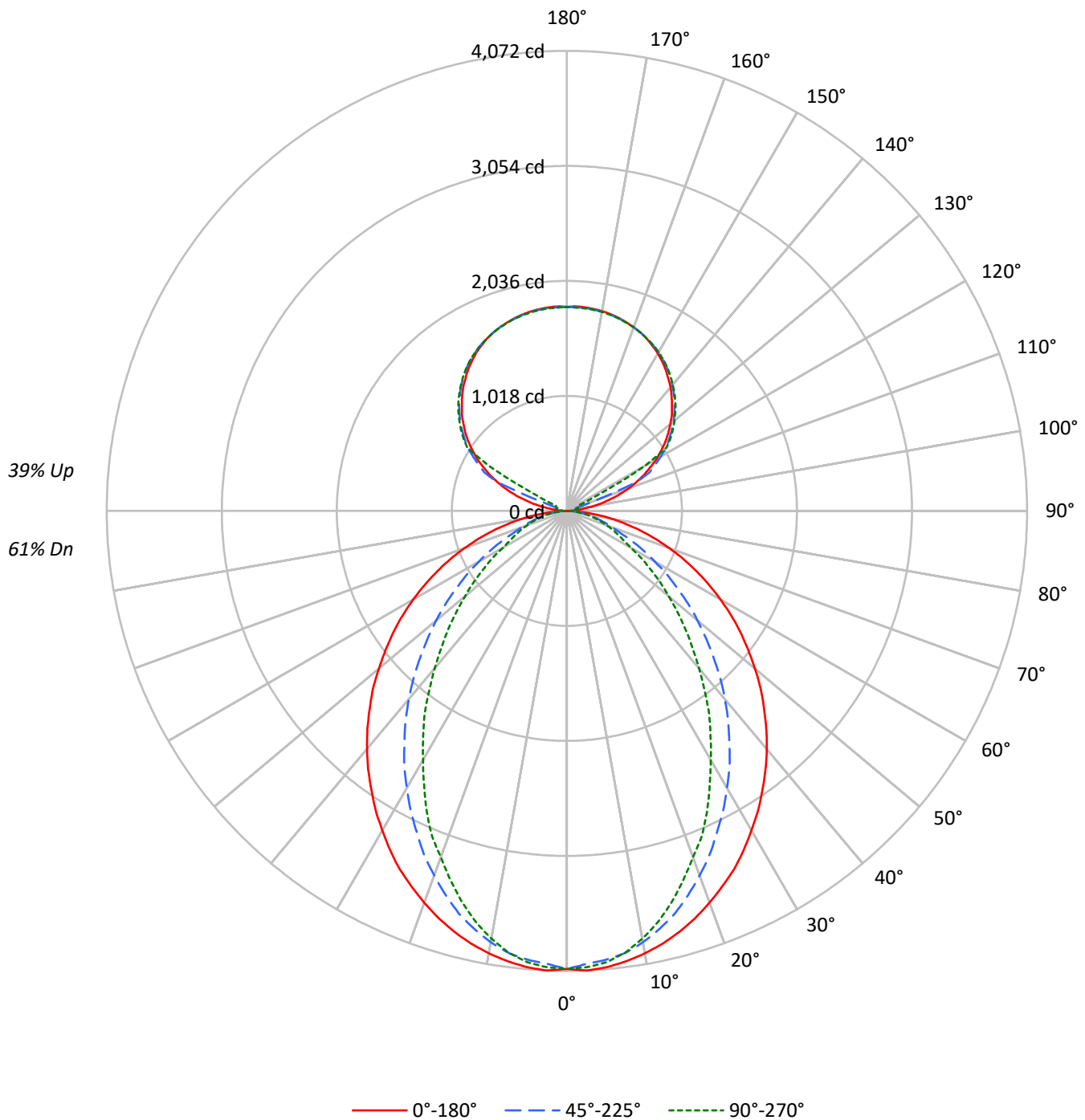
Lumens per Lamp: N/A
Luminaire Lumens: 13634.2 lumens
Efficiency: N/A
Efficacy: 86.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157.4
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: P923901

CATALOG NUMBER: DFN2DIP-TR4F0-110D060US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P923901

CATALOG NUMBER: DFN2DIP-TR4F0-110D060US940-RLLONL

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	77	77	77	66	66	66
1	101	97	93	90	94	91	87	85	79	77	75	69	67	66	60	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	59	54	73	63	56	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	61	49	41	36	58	47	40	35	42	36	32	37	32	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	29	26	30	26	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3221	3221	3221
5°	3226	3169	3190
10°	3194	3107	3086
15°	3150	3005	2925
20°	3092	2863	2728
25°	3032	2704	2538
30°	2952	2542	2297
35°	2874	2367	2085
40°	2794	2185	1842
45°	2702	1985	1622
50°	2606	1782	1407
55°	2506	1565	1200
60°	2390	1339	988
65°	2257	1108	889
70°	2096	894	804
75°	1893	788	732
80°	1600	660	634
85°	1115	440	476

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2702 cd/sqm

TEST NUMBER: P923901

CATALOG NUMBER: DFN2DIP-TR4F0-110D060US940-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	2.8
10°-20°	1043.0	7.6
20°-30°	1464.4	10.7
30°-40°	1596.2	11.7
40°-50°	1467.1	10.8
50°-60°	1152.2	8.5
60°-70°	750.0	5.5
70°-80°	386.0	2.8
80°-90°	101.7	0.7
90°-100°	59.5	0.4
100°-110°	222.0	1.6
110°-120°	588.7	4.3
120°-130°	976.3	7.2
130°-140°	1037.1	7.6
140°-150°	963.9	7.1
150°-160°	774.9	5.7
160°-170°	499.3	3.7
170°-180°	171.9	1.3
0°-30°	2887.3	21.2
0°-40°	4483.6	32.9
0°-60°	7102.9	52.1
0°-90°	8340.7	61.2
90°-120°	870.2	6.4
90°-150°	3847.4	28.2
90°-180°	5294.0	38.8
0°-180°	13634.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4054	4054	4054	4054	4054	
5°	4054	4036	3988	4021	4010	384
15°	3856	3815	3691	3621	3584	1087
25°	3500	3382	3140	2990	2935	1610
35°	3016	2829	2506	2275	2194	1888
45°	2466	2220	1834	1574	1486	1904
55°	1875	1588	1192	972	903	1675
65°	1266	968	638	514	502	1255
75°	675	418	294	268	264	714
85°	158	81	70	70	70	181
90°	1	16	26	33	35	13
95°	85	42	51	58	56	101
105°	397	436	80	94	99	424
115°	751	774	806	201	107	740
125°	1062	1079	1104	1113	1117	947
135°	1314	1335	1347	1360	1358	1015
145°	1525	1523	1546	1555	1548	954
155°	1679	1667	1683	1691	1680	774
165°	1769	1761	1765	1774	1765	500
175°	1810	1800	1803	1812	1799	172
180°	1806	1806	1806	1806	1806	

TEST NUMBER: P923901

CATALOG NUMBER: DFN2DIP-TR4F0-110D060US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4054.0	4054.0	4054.0	4054.0	4054.0
2.5°	4072.3	4054.0	4013.5	4050.5	4043.1
5°	4054.0	4035.7	3987.8	4020.9	4010.0
7.5°	4020.9	3999.1	3947.7	3962.1	3943.8
10°	3976.9	3951.2	3878.0	3866.7	3845.0
12.5°	3922.0	3888.9	3789.7	3767.8	3727.3
15°	3855.8	3815.4	3690.8	3621.1	3584.5
17.5°	3778.8	3720.0	3565.9	3485.2	3426.5
20°	3690.8	3617.2	3433.9	3342.4	3261.4
22.5°	3595.5	3510.9	3298.1	3173.5	3118.6
25°	3500.1	3382.5	3140.4	2990.2	2934.9
27.5°	3386.4	3261.4	2993.7	2821.2	2736.7
30°	3265.4	3125.6	2832.2	2645.3	2546.0
32.5°	3147.8	2978.8	2678.3	2458.1	2366.2
35°	3015.9	2828.6	2506.0	2274.8	2193.8
37.5°	2887.4	2685.4	2344.4	2091.0	1999.6
40°	2751.6	2531.7	2175.5	1915.0	1819.7
42.5°	2612.2	2377.5	2007.0	1735.3	1643.8
45°	2465.5	2219.5	1834.5	1573.7	1485.8
47.5°	2326.1	2065.7	1669.5	1408.6	1328.1
50°	2171.9	1911.6	1508.0	1254.5	1177.9
52.5°	2021.3	1746.1	1353.8	1111.7	1042.0
55°	1874.6	1588.5	1192.2	972.3	902.7
57.5°	1724.4	1430.8	1049.4	843.9	785.1
60°	1570.2	1276.8	898.8	711.9	653.2
62.5°	1420.0	1126.5	770.3	594.4	565.2
65°	1265.8	968.4	638.4	513.8	502.5
67.5°	1119.1	821.7	513.8	451.1	440.2
70°	964.9	678.9	425.4	388.9	374.1
72.5°	818.1	546.5	355.8	326.5	319.1
75°	674.9	418.0	293.5	267.8	264.3
77.5°	532.1	297.0	231.2	216.4	209.0
80°	399.8	212.9	175.9	161.6	161.6
82.5°	278.7	143.2	121.1	113.7	113.7
85°	157.7	80.6	69.6	69.6	69.6
87.5°	58.8	29.2	29.2	25.7	25.7
90°	1.2	15.7	26.0	32.7	35.2
92.5°	32.7	27.5	31.3	34.0	35.2
95°	84.9	41.7	50.9	57.6	56.2
97.5°	152.8	45.7	66.5	70.6	71.9
100°	231.3	52.3	74.5	84.9	87.5
102.5°	317.4	315.0	77.1	91.4	95.4
105°	397.2	436.4	79.7	94.0	99.3
107.5°	490.0	522.5	82.4	96.7	101.9
110°	578.9	606.2	228.7	98.1	103.2



TEST NUMBER: P923901

CATALOG NUMBER: DFN2DIP-TR4F0-110D060US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	662.5	685.9	663.7	100.5	104.6
115°	751.3	773.5	806.2	201.3	107.2
117.5°	828.3	854.4	876.7	689.8	347.5
120°	914.6	934.2	957.8	973.4	797.0
122.5°	987.7	1008.6	1034.8	1042.6	1044.0
125°	1062.2	1079.2	1104.0	1113.2	1117.0
127.5°	1130.2	1148.4	1168.1	1181.2	1182.4
130°	1194.2	1215.1	1229.4	1243.8	1242.6
132.5°	1259.5	1276.6	1290.8	1302.6	1301.4
135°	1314.5	1335.4	1347.0	1360.2	1357.5
137.5°	1371.8	1387.5	1400.7	1413.7	1409.9
140°	1428.0	1438.6	1452.9	1464.6	1458.1
142.5°	1475.2	1484.3	1501.3	1511.6	1505.1
145°	1524.8	1523.4	1545.6	1554.8	1548.3
147.5°	1567.8	1563.9	1586.1	1592.6	1587.5
150°	1609.7	1600.5	1621.5	1629.2	1622.7
152.5°	1644.9	1634.5	1654.0	1662.0	1652.8
155°	1678.9	1667.2	1682.9	1690.7	1680.2
157.5°	1706.4	1695.9	1707.7	1716.9	1706.4
160°	1729.9	1722.0	1729.9	1737.7	1728.6
162.5°	1750.7	1742.9	1749.4	1758.6	1746.9
165°	1769.1	1761.3	1765.1	1774.3	1765.1
167.5°	1783.4	1775.6	1779.6	1788.8	1776.9
170°	1795.3	1787.3	1790.0	1799.1	1787.3
172.5°	1803.0	1795.3	1797.9	1807.1	1795.3
175°	1809.5	1800.4	1803.0	1812.1	1799.1
177.5°	1812.1	1803.0	1804.4	1813.6	1801.8
180°	1805.6	1805.6	1805.6	1805.6	1805.6

TEST NUMBER: P923901

CATALOG NUMBER: DFN2DIP-TR4F0-110D060US940-RLONL

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	12.19	13.12	13.05	14.00	15.10	8.16	9.09	9.03	9.97	11.08
	3H	13.87	14.71	14.75	15.59	16.73	9.36	10.19	10.23	11.08	12.21
	4H	14.49	15.27	15.38	16.17	17.31	9.82	10.60	10.71	11.50	12.64
	6H	14.91	15.64	15.82	16.54	17.69	10.14	10.87	11.05	11.77	12.92
	8H	15.04	15.73	15.95	16.65	17.80	10.24	10.92	11.15	11.84	13.00
	12H	15.11	15.76	16.02	16.67	17.85	10.28	10.94	11.20	11.85	13.03
4H	2H	12.22	13.01	13.12	13.90	15.04	8.77	9.56	9.67	10.45	11.59
	3H	14.06	14.71	14.96	15.64	16.79	10.13	10.78	11.04	11.71	12.87
	4H	14.75	15.35	15.67	16.27	17.45	10.68	11.28	11.60	12.20	13.38
	6H	15.27	15.79	16.21	16.73	17.92	11.11	11.62	12.04	12.57	13.75
	8H	15.45	15.93	16.39	16.87	18.07	11.24	11.72	12.17	12.66	13.85
	12H	15.55	15.98	16.50	16.94	18.14	11.31	11.74	12.26	12.70	13.90
8H	4H	14.73	15.21	15.66	16.15	17.34	10.97	11.45	11.90	12.39	13.58
	6H	15.30	15.69	16.26	16.67	17.87	11.49	11.89	12.45	12.87	14.07
	8H	15.52	15.86	16.48	16.84	18.05	11.69	12.03	12.66	13.01	14.22
	12H	15.66	15.97	16.63	16.93	18.19	11.81	12.12	12.78	13.08	14.34
12H	4H	14.69	15.12	15.64	16.07	17.27	10.98	11.41	11.93	12.37	13.57
	6H	15.27	15.62	16.24	16.60	17.81	11.54	11.89	12.51	12.86	14.08
	8H	15.50	15.81	16.47	16.77	18.03	11.76	12.07	12.73	13.03	14.29