

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: P922502

Luminaire Tested: DFN2DIP-PN4F0-110D060US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922502
REPORT IS A COMBINATION OF REPORTS P899660 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D060US940-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

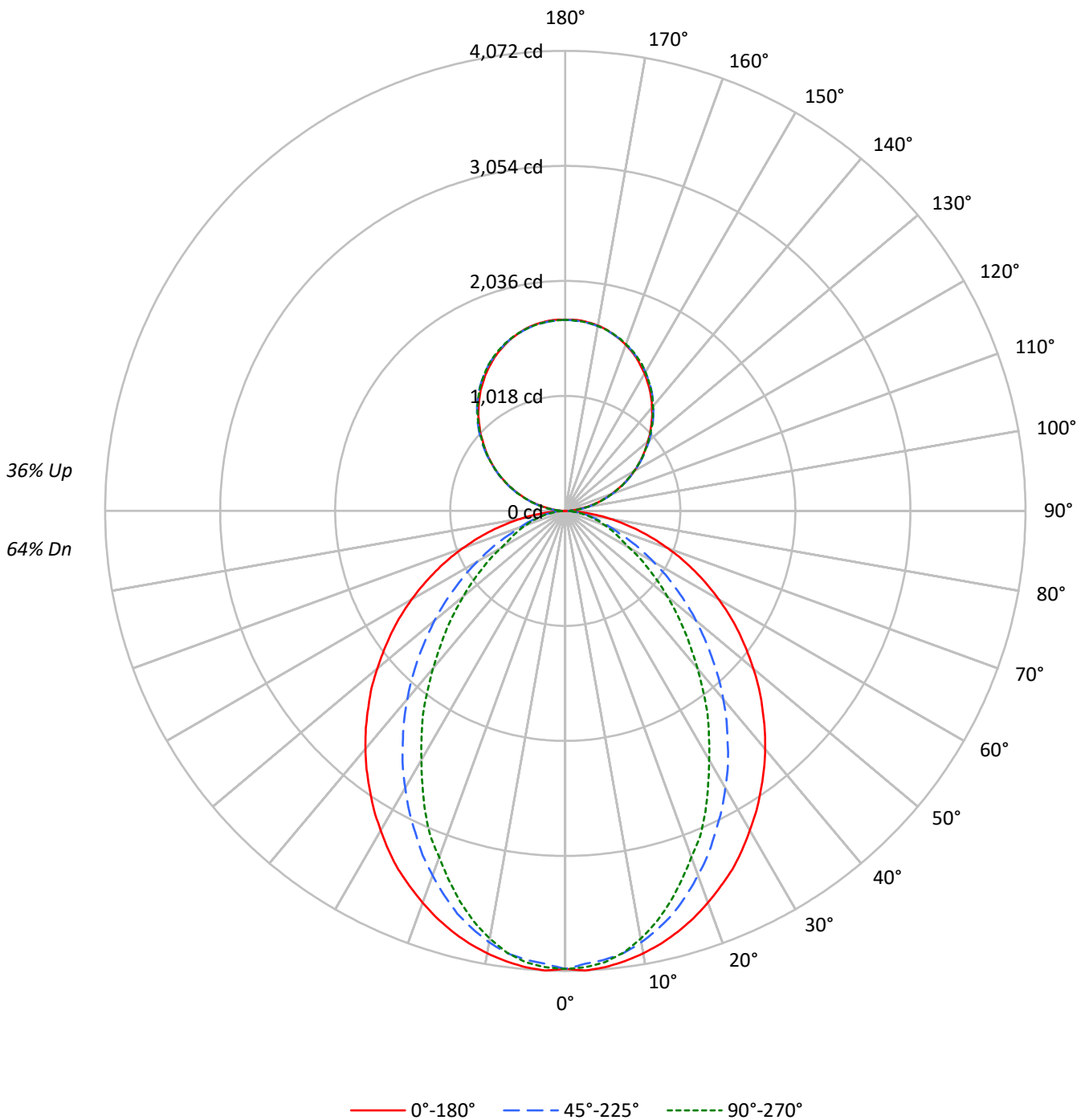
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13072.5 lumens
Efficiency: N/A
Efficacy: 82.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 159.4
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: P922502
CATALOG NUMBER: DFN2DIP-PN4F0-110D060US940-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P922502

CATALOG NUMBER: DFN2DIP-PN4F0-110D060US940-RLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	69	69	69	64
1	101	97	94	90	95	92	88	85	81	78	76	71	69	67	62	61	59	62	61	59	55
2	93	86	80	75	87	81	76	71	72	68	64	63	60	57	55	53	51	55	53	51	47
3	85	76	69	63	80	72	65	60	64	59	55	56	52	49	49	47	44	49	47	44	41
4	78	68	60	54	73	64	57	52	57	52	47	51	46	43	45	41	39	45	41	39	35
5	72	61	53	47	68	58	50	45	51	46	41	46	41	38	40	37	34	40	37	34	31
6	67	55	47	41	63	52	45	39	47	41	36	42	37	33	37	33	30	37	33	30	28
7	62	50	42	36	58	47	40	35	43	37	32	38	33	30	34	30	27	34	30	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	25	31	27	25	22
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22	29	25	22	20
10	50	38	31	26	48	37	30	26	33	28	24	30	25	22	27	23	20	27	23	20	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2959	2959	2959
5°	2964	2913	2931
10°	2935	2856	2837
15°	2894	2762	2690
20°	2841	2632	2509
25°	2786	2487	2335
30°	2713	2337	2113
35°	2641	2177	1919
40°	2567	2011	1696
45°	2482	1826	1494
50°	2394	1640	1296
55°	2302	1441	1107
60°	2196	1233	911
65°	2073	1022	821
70°	1925	824	744
75°	1739	728	678
80°	1469	612	590
85°	1024	410	447

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2482 cd/sqm



TEST NUMBER: P922502

CATALOG NUMBER: DFN2DIP-PN4F0-110D060US940-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	2.9
10°-20°	1043.0	8.0
20°-30°	1464.4	11.2
30°-40°	1596.2	12.2
40°-50°	1467.1	11.2
50°-60°	1152.2	8.8
60°-70°	750.0	5.7
70°-80°	386.0	3.0
80°-90°	103.4	0.8
90°-100°	104.7	0.8
100°-110°	332.7	2.5
110°-120°	569.3	4.4
120°-130°	748.8	5.7
130°-140°	840.5	6.4
140°-150°	824.2	6.3
150°-160°	691.4	5.3
160°-170°	458.5	3.5
170°-180°	160.3	1.2
0°-30°	2887.3	22.1
0°-40°	4483.6	34.3
0°-60°	7102.9	54.3
0°-90°	8342.3	63.8
90°-120°	1006.7	7.7
90°-150°	3420.1	26.2
90°-180°	4730.0	36.2
0°-180°	13072.5	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°	2	18	50	47	48	13
95°	74	89	91	91	89	83
105°	307	311	314	317	317	324
115°	571	580	577	575	571	565
125°	831	844	840	835	834	743
135°	1075	1091	1094	1092	1088	831
145°	1305	1315	1323	1325	1319	815
155°	1492	1496	1501	1508	1503	687
165°	1623	1622	1622	1632	1625	458
175°	1689	1685	1682	1692	1683	160
180°	1692	1692	1692	1692	1692	



TEST NUMBER: P922502

CATALOG NUMBER: DFN2DIP-PN4F0-110D060US940-RLFL

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°	1.5	18.4	50.0	46.9	48.4
92.5°	31.7	42.9	44.4	45.9	45.9
95°	74.5	88.7	91.3	91.3	88.7
97.5°	123.9	137.2	142.9	142.9	142.9
100°	181.1	192.8	196.9	196.9	195.4
102.5°	241.3	249.9	255.6	257.1	255.6
105°	307.1	311.2	314.2	316.8	316.8
107.5°	372.4	378.5	378.5	379.5	372.4
110°	435.7	443.8	443.8	443.8	439.7



TEST NUMBER: P922502

CATALOG NUMBER: DFN2DIP-PN4F0-110D060US940-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.0	512.6	511.1	507.0	504.0
115°	571.3	579.5	576.9	575.4	571.3
117.5°	638.2	649.4	642.2	638.2	634.1
120°	705.5	716.8	705.5	705.5	700.9
122.5°	766.7	781.0	773.8	769.8	766.7
125°	831.0	843.7	839.6	835.1	833.6
127.5°	893.8	909.5	903.9	897.9	893.8
130°	952.4	970.8	968.2	965.2	959.6
132.5°	1018.2	1032.5	1033.5	1026.4	1022.3
135°	1074.9	1090.7	1093.7	1092.2	1088.1
137.5°	1138.1	1150.8	1153.4	1152.4	1146.3
140°	1193.7	1206.5	1213.6	1213.6	1208.0
142.5°	1250.8	1263.6	1267.7	1269.2	1263.6
145°	1304.9	1315.1	1323.3	1324.8	1319.2
147.5°	1353.3	1366.1	1372.3	1374.7	1369.1
150°	1403.4	1412.0	1417.6	1422.2	1417.6
152.5°	1447.7	1456.4	1463.6	1469.2	1463.6
155°	1492.1	1496.2	1500.7	1508.0	1503.3
157.5°	1530.4	1533.5	1536.0	1546.2	1539.1
160°	1564.6	1567.6	1569.1	1577.8	1571.7
162.5°	1596.2	1596.2	1597.7	1607.4	1600.3
165°	1623.2	1621.7	1621.7	1631.9	1624.8
167.5°	1647.7	1643.2	1643.2	1653.3	1646.2
170°	1666.1	1662.0	1660.5	1670.6	1662.0
172.5°	1678.8	1674.7	1673.2	1683.4	1674.7
175°	1689.0	1685.0	1681.9	1692.1	1683.4
177.5°	1694.6	1690.6	1687.5	1696.1	1687.5
180°	1692.1	1692.1	1692.1	1692.1	1692.1



TEST NUMBER: P922502
 CATALOG NUMBER: DFN2DIP-PN4F0-110D060US940-RLLFLL

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	12.12	13.08	12.96	13.93	15.00	8.09	9.05	8.92	9.90	10.96
	3H	13.81	14.67	14.66	15.53	16.62	9.29	10.14	10.14	11.01	12.10
	4H	14.43	15.24	15.30	16.11	17.21	9.74	10.55	10.61	11.42	12.52
	6H	14.86	15.60	15.74	16.48	17.59	10.07	10.82	10.95	11.69	12.81
	8H	14.99	15.70	15.88	16.59	17.71	10.17	10.87	11.05	11.77	12.88
	12H	15.06	15.73	15.95	16.62	17.76	10.22	10.89	11.11	11.78	12.91
4H	2H	12.16	12.96	13.03	13.83	14.93	8.70	9.51	9.57	10.38	11.48
	3H	14.00	14.67	14.88	15.57	16.69	10.06	10.73	10.94	11.64	12.75
	4H	14.70	15.31	15.59	16.21	17.35	10.62	11.23	11.51	12.13	13.27
	6H	15.23	15.75	16.13	16.67	17.82	11.04	11.57	11.95	12.49	13.64
	8H	15.40	15.90	16.31	16.81	17.97	11.18	11.67	12.09	12.58	13.74
	12H	15.51	15.95	16.44	16.88	18.05	11.25	11.69	12.18	12.63	13.79
8H	4H	14.68	15.17	15.59	16.09	17.24	10.91	11.40	11.82	12.32	13.47
	6H	15.25	15.66	16.19	16.62	17.77	11.43	11.84	12.37	12.80	13.95
	8H	15.47	15.83	16.42	16.78	17.95	11.63	11.98	12.57	12.93	14.11
	12H	15.62	15.93	16.57	16.88	18.10	11.75	12.07	12.70	13.01	14.23
12H	4H	14.64	15.08	15.56	16.01	17.17	10.92	11.36	11.85	12.30	13.46
	6H	15.23	15.59	16.17	16.54	17.71	11.48	11.84	12.43	12.79	13.97
	8H	15.46	15.77	16.40	16.71	17.94	11.70	12.02	12.65	12.96	14.18