

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: P903438

Luminaire Tested: DFN2DIP-PN4F0-120D050US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903438
REPORT IS A COMBINATION OF REPORTS P899644 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US830-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

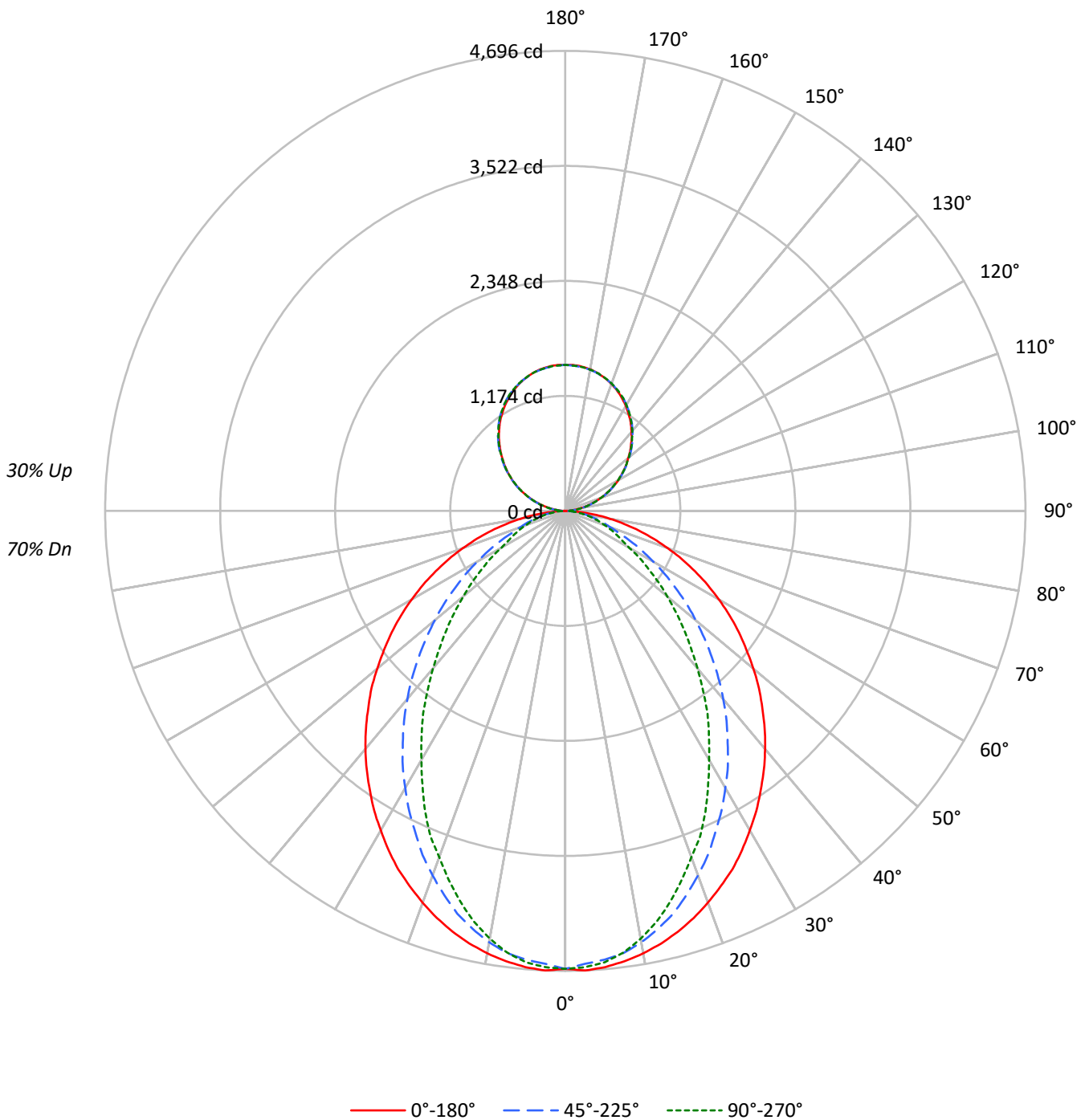
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13784.6 lumens
Efficiency: N/A
Efficacy: 84.1 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): 163.9
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: P903438
CATALOG NUMBER: DFN2DIP-PN4F0-120D050US830-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P903438

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US830-RLFL

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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	74	74	74	74	74	74	70
1	103	99	95	92	97	94	90	87	84	81	79	75	73	71	67	65	64	64	64	64	60
2	94	87	81	76	89	83	77	73	74	70	67	67	63	61	60	57	55	55	55	55	51
3	86	77	70	64	82	73	67	62	66	61	57	60	56	52	53	50	48	48	48	48	44
4	80	69	61	55	75	66	58	53	59	54	49	54	49	45	48	45	42	42	42	42	39
5	73	62	54	48	69	59	52	46	54	48	43	48	44	40	44	40	37	37	37	37	34
6	68	56	48	42	64	53	46	41	49	42	38	44	39	35	40	36	33	33	33	33	30
7	63	51	43	37	60	49	41	36	44	38	34	40	35	32	37	33	29	29	29	29	27
8	59	46	39	33	56	44	37	32	41	35	30	37	32	28	34	30	27	27	27	27	24
9	55	43	35	30	52	41	34	29	38	32	27	34	29	26	31	27	24	24	24	24	22
10	51	39	32	27	49	38	31	26	35	29	25	32	27	24	29	25	22	22	22	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3412	3412	3412
5°	3418	3359	3380
10°	3384	3293	3271
15°	3337	3185	3101
20°	3276	3035	2893
25°	3213	2867	2692
30°	3128	2695	2437
35°	3045	2510	2213
40°	2960	2319	1956
45°	2862	2106	1723
50°	2761	1892	1495
55°	2655	1662	1276
60°	2532	1422	1051
65°	2391	1178	947
70°	2220	951	858
75°	2005	839	781
80°	1694	705	680
85°	1180	473	515

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2862 cd/sqm



TEST NUMBER: P903438

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US830-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	3.2
10°-20°	1202.7	8.7
20°-30°	1688.5	12.2
30°-40°	1840.6	13.4
40°-50°	1691.7	12.3
50°-60°	1328.6	9.6
60°-70°	864.8	6.3
70°-80°	445.2	3.2
80°-90°	117.9	0.9
90°-100°	92.2	0.7
100°-110°	293.0	2.1
110°-120°	501.5	3.6
120°-130°	659.5	4.8
130°-140°	740.3	5.4
140°-150°	725.9	5.3
150°-160°	609.0	4.4
160°-170°	403.9	2.9
170°-180°	141.2	1.0
0°-30°	3329.4	24.2
0°-40°	5170.0	37.5
0°-60°	8190.3	59.4
0°-90°	9618.1	69.8
90°-120°	886.7	6.4
90°-150°	3012.5	21.9
90°-180°	4167.0	30.2
0°-180°	13784.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4675	4675	4675	4675	4675	
5°	4675	4654	4598	4636	4624	443
15°	4446	4400	4256	4176	4133	1253
25°	4036	3900	3621	3448	3384	1856
35°	3478	3262	2890	2623	2530	2177
45°	2843	2559	2115	1815	1713	2195
55°	2162	1832	1375	1121	1041	1932
65°	1460	1117	736	592	580	1447
75°	778	482	338	309	305	823
85°	182	93	80	80	80	209
90°	1	16	44	41	43	13
95°	66	78	80	80	78	73
105°	270	274	277	279	279	285
115°	503	510	508	507	503	498
125°	732	743	740	736	734	654
135°	947	961	963	962	958	732
145°	1149	1158	1166	1167	1162	718
155°	1314	1318	1322	1328	1324	605
165°	1430	1428	1428	1438	1431	403
175°	1488	1484	1482	1490	1483	141
180°	1490	1490	1490	1490	1490	



TEST NUMBER: P903438

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US830-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4674.6	4674.6	4674.6	4674.6	4674.6
2.5°	4695.7	4674.6	4628.0	4670.6	4662.0
5°	4674.6	4653.5	4598.3	4636.5	4623.9
7.5°	4636.5	4611.3	4552.1	4568.7	4547.6
10°	4585.8	4556.2	4471.7	4458.7	4433.6
12.5°	4522.4	4484.3	4369.8	4344.7	4298.1
15°	4446.2	4399.5	4255.9	4175.5	4133.3
17.5°	4357.3	4289.5	4111.7	4018.9	3951.1
20°	4255.9	4171.0	3959.6	3854.1	3760.7
22.5°	4145.9	4048.5	3803.0	3659.3	3596.1
25°	4036.0	3900.3	3621.2	3447.9	3384.2
27.5°	3904.9	3760.7	3452.0	3253.2	3155.7
30°	3765.3	3604.2	3265.7	3050.3	2935.8
32.5°	3629.7	3434.9	3088.4	2834.4	2728.5
35°	3477.6	3261.7	2889.6	2623.0	2529.6
37.5°	3329.4	3096.5	2703.3	2411.1	2305.6
40°	3172.8	2919.2	2508.6	2208.3	2098.3
42.5°	3012.1	2741.5	2314.2	2000.9	1895.5
45°	2842.9	2559.3	2115.3	1814.7	1713.2
47.5°	2682.2	2382.0	1925.0	1624.4	1531.4
50°	2504.5	2204.2	1738.8	1446.6	1358.2
52.5°	2330.8	2013.5	1561.0	1281.9	1201.6
55°	2161.6	1831.7	1374.8	1121.2	1040.8
57.5°	1988.3	1649.9	1210.0	973.1	905.3
60°	1810.6	1472.2	1036.3	821.0	753.2
62.5°	1637.4	1298.9	888.3	685.4	651.7
65°	1459.6	1116.7	736.1	592.5	579.5
67.5°	1290.4	947.4	592.5	520.2	507.7
70°	1112.7	782.8	490.6	448.4	431.3
72.5°	943.5	630.2	410.2	376.5	368.1
75°	778.3	482.0	338.5	308.8	304.7
77.5°	613.6	342.4	266.6	249.6	241.0
80°	461.0	245.5	202.8	186.2	186.2
82.5°	321.4	165.1	139.6	131.0	131.0
85°	181.8	92.9	80.3	80.3	80.3
87.5°	67.8	33.6	33.6	29.6	29.6
90°	1.3	16.2	44.0	41.4	42.7
92.5°	27.9	37.7	39.1	40.4	40.4
95°	65.6	78.2	80.4	80.4	78.2
97.5°	109.1	120.8	125.8	125.8	125.8
100°	159.5	169.8	173.4	173.4	172.1
102.5°	212.5	220.2	225.1	226.5	225.1
105°	270.5	274.1	276.8	279.0	279.0
107.5°	328.0	333.4	333.4	334.3	328.0
110°	383.7	391.0	391.0	391.0	387.3



TEST NUMBER: P903438

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US830-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	443.9	451.6	450.3	446.7	443.9
115°	503.2	510.5	508.2	506.9	503.2
117.5°	562.1	572.0	565.7	562.1	558.6
120°	621.4	631.3	621.4	621.4	617.4
122.5°	675.3	688.0	681.6	678.1	675.3
125°	732.0	743.2	739.6	735.6	734.2
127.5°	787.2	801.2	796.3	790.8	787.2
130°	839.0	855.1	852.8	850.2	845.2
132.5°	896.9	909.5	910.4	904.1	900.5
135°	946.8	960.6	963.4	962.1	958.5
137.5°	1002.5	1013.7	1016.0	1015.0	1009.7
140°	1051.4	1062.7	1068.9	1068.9	1064.0
142.5°	1101.7	1113.0	1116.6	1117.9	1113.0
145°	1149.4	1158.4	1165.5	1167.0	1162.0
147.5°	1192.1	1203.3	1208.7	1211.0	1206.0
150°	1236.1	1243.8	1248.7	1252.7	1248.7
152.5°	1275.3	1282.9	1289.1	1294.1	1289.1
155°	1314.3	1317.9	1321.9	1328.2	1324.2
157.5°	1348.0	1350.7	1352.9	1362.0	1355.7
160°	1378.1	1380.8	1382.1	1389.8	1384.4
162.5°	1406.0	1406.0	1407.3	1415.9	1409.6
165°	1429.8	1428.4	1428.4	1437.5	1431.2
167.5°	1451.3	1447.3	1447.3	1456.3	1450.0
170°	1467.5	1464.0	1462.6	1471.6	1464.0
172.5°	1478.8	1475.2	1473.9	1482.8	1475.2
175°	1487.8	1484.1	1481.5	1490.4	1482.8
177.5°	1492.7	1489.1	1486.4	1494.0	1486.4
180°	1490.4	1490.4	1490.4	1490.4	1490.4



TEST NUMBER: P903438
 CATALOG NUMBER: DFN2DIP-PN4F0-120D050US830-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	13.09	14.12	13.87	14.91	15.87	9.06	10.08	9.83	10.87	11.83
	3H	14.79	15.70	15.58	16.50	17.49	10.26	11.18	11.05	11.98	12.97
	4H	15.41	16.27	16.21	17.08	18.08	10.72	11.58	11.53	12.39	13.40
	6H	15.84	16.64	16.66	17.45	18.47	11.05	11.85	11.87	12.66	13.68
	8H	15.97	16.73	16.80	17.57	18.58	11.15	11.90	11.98	12.74	13.76
	12H	16.04	16.76	16.88	17.59	18.63	11.20	11.92	12.03	12.75	13.79
4H	2H	13.13	14.00	13.94	14.81	15.81	9.68	10.54	10.49	11.35	12.35
	3H	14.98	15.70	15.80	16.54	17.56	11.05	11.76	11.87	12.61	13.62
	4H	15.69	16.34	16.52	17.18	18.22	11.60	12.25	12.44	13.09	14.14
	6H	16.21	16.78	17.06	17.64	18.69	12.03	12.59	12.88	13.46	14.51
	8H	16.39	16.92	17.25	17.78	18.84	12.17	12.69	13.02	13.55	14.61
	12H	16.50	16.97	17.37	17.85	18.92	12.24	12.71	13.11	13.59	14.66
8H	4H	15.67	16.19	16.52	17.05	18.12	11.90	12.42	12.75	13.28	14.35
	6H	16.24	16.68	17.13	17.58	18.64	12.43	12.86	13.31	13.76	14.82
	8H	16.46	16.85	17.36	17.75	18.83	12.62	13.00	13.51	13.90	14.98
	12H	16.61	16.95	17.51	17.84	18.97	12.75	13.08	13.64	13.97	15.11
12H	4H	15.63	16.10	16.50	16.98	18.05	11.91	12.38	12.79	13.27	14.33
	6H	16.22	16.60	17.11	17.50	18.58	12.48	12.86	13.37	13.76	14.84
	8H	16.45	16.79	17.35	17.68	18.81	12.70	13.03	13.59	13.92	15.06