

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: P922495

Luminaire Tested: DFN2DIP-PN4F0-110D040US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922495
REPORT IS A COMBINATION OF REPORTS P901144 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D040US940-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

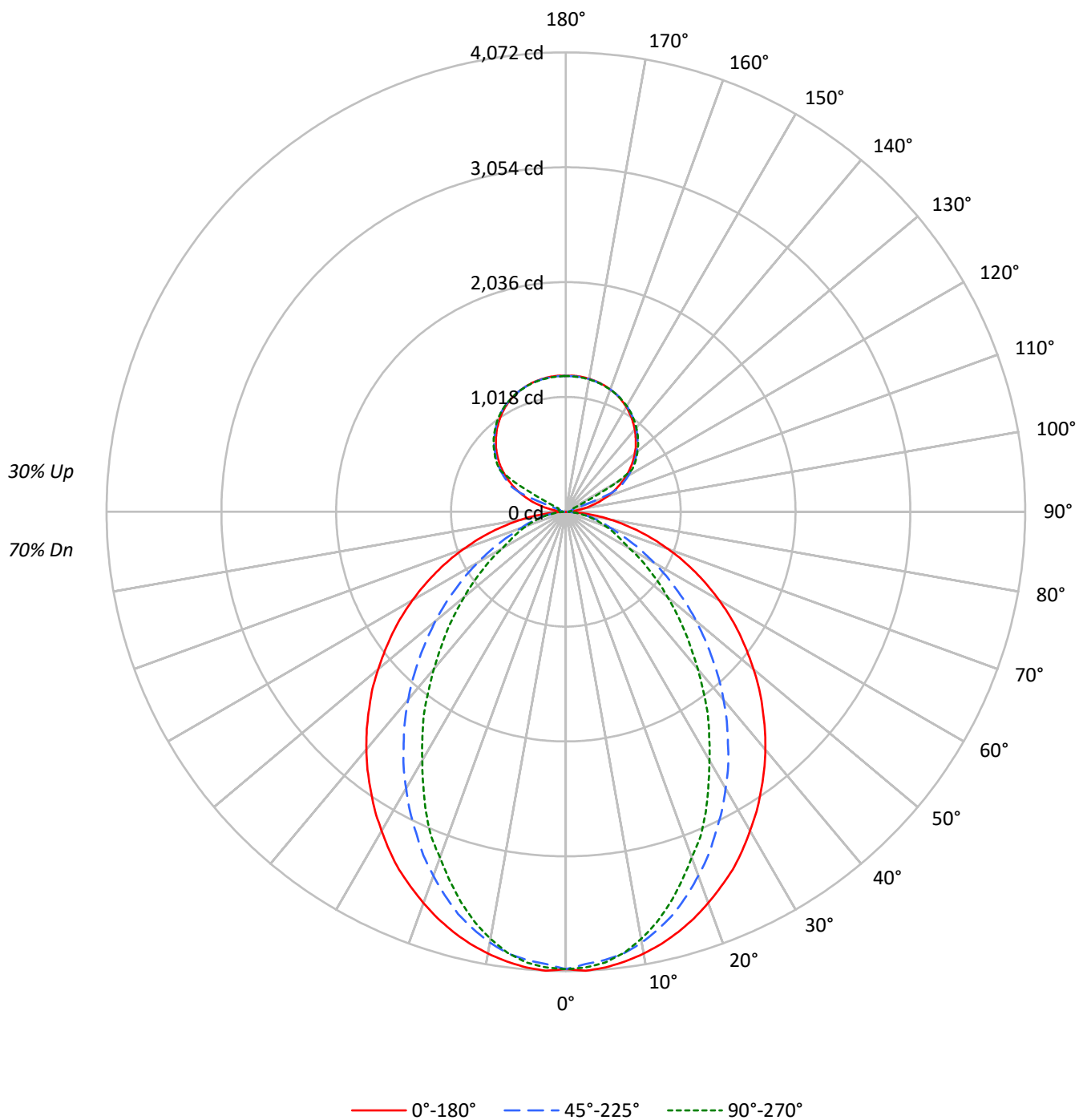
Lumens per Lamp: N/A
Luminaire Lumens: 11868.7 lumens
Efficiency: N/A
Efficacy: 82.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 144.6
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

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Luminous Intensity Polar Plot



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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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75
1	103	99	95	92	97	94	90	87	84	82	79	75	73	72	67	66	64
2	94	87	81	76	89	83	77	73	75	70	67	67	64	61	60	58	55
3	87	77	70	64	82	73	67	62	66	61	57	60	56	52	54	51	48
4	80	69	61	55	75	66	59	53	60	54	49	54	49	46	48	45	42
5	73	62	54	48	69	59	52	46	54	48	43	49	44	40	44	40	37
6	68	56	48	42	64	53	46	41	49	43	38	44	39	35	40	36	33
7	63	51	43	37	60	49	41	36	44	38	34	41	36	32	37	33	30
8	59	46	39	33	56	45	37	32	41	35	30	37	32	29	34	30	27
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	27	24
10	52	39	32	27	49	38	31	27	35	29	25	32	27	24	29	25	22

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

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	3.2
10°-20°	1043.0	8.8
20°-30°	1464.4	12.3
30°-40°	1596.2	13.4
40°-50°	1467.1	12.4
50°-60°	1152.2	9.7
60°-70°	750.0	6.3
70°-80°	386.0	3.3
80°-90°	100.7	0.8
90°-100°	39.7	0.3
100°-110°	148.0	1.2
110°-120°	392.4	3.3
120°-130°	650.9	5.5
130°-140°	691.4	5.8
140°-150°	642.6	5.4
150°-160°	516.6	4.4
160°-170°	332.9	2.8
170°-180°	114.6	1.0
0°-30°	2887.3	24.3
0°-40°	4483.6	37.8
0°-60°	7102.9	59.8
0°-90°	8339.6	70.3
90°-120°	580.1	4.9
90°-150°	2565.0	21.6
90°-180°	3529.0	29.7
0°-180°	11868.7	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	10	17	22	24	11
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

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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°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

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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	12.64	13.67	13.41	14.45	15.40	8.60	9.63	9.37	10.42	11.37
	3H	14.33	15.25	15.11	16.05	17.03	9.81	10.73	10.59	11.52	12.50
	4H	14.95	15.82	15.75	16.62	17.62	10.27	11.13	11.07	11.94	12.93
	6H	15.39	16.18	16.20	17.00	18.00	10.60	11.40	11.41	12.21	13.22
	8H	15.52	16.28	16.34	17.11	18.12	10.69	11.45	11.52	12.28	13.29
	12H	15.59	16.31	16.42	17.14	18.17	10.74	11.47	11.57	12.29	13.33
4H	2H	12.68	13.55	13.48	14.35	15.34	9.22	10.09	10.03	10.89	11.89
	3H	14.53	15.25	15.34	16.09	17.10	10.59	11.31	11.41	12.15	13.16
	4H	15.23	15.88	16.06	16.72	17.76	11.15	11.80	11.98	12.64	13.68
	6H	15.76	16.32	16.61	17.18	18.23	11.58	12.14	12.42	13.00	14.05
	8H	15.94	16.47	16.79	17.32	18.38	11.71	12.24	12.56	13.10	14.15
	12H	16.05	16.52	16.91	17.40	18.46	11.79	12.26	12.66	13.14	14.20
8H	4H	15.21	15.74	16.06	16.60	17.65	11.44	11.97	12.29	12.83	13.88
	6H	15.79	16.23	16.67	17.12	18.18	11.97	12.41	12.85	13.31	14.36
	8H	16.01	16.40	16.90	17.29	18.36	12.16	12.55	13.05	13.44	14.52
	12H	16.16	16.50	17.05	17.38	18.51	12.29	12.63	13.18	13.52	14.64
12H	4H	15.17	15.65	16.04	16.52	17.59	11.46	11.93	12.33	12.81	13.87
	6H	15.77	16.15	16.65	17.05	18.12	12.02	12.41	12.91	13.30	14.37
	8H	16.00	16.34	16.89	17.22	18.35	12.24	12.58	13.13	13.47	14.59