

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: P908855

Luminaire Tested: DFN2DIP-PN4F0-110D040US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908855
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-PN4F0-110D040US840-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

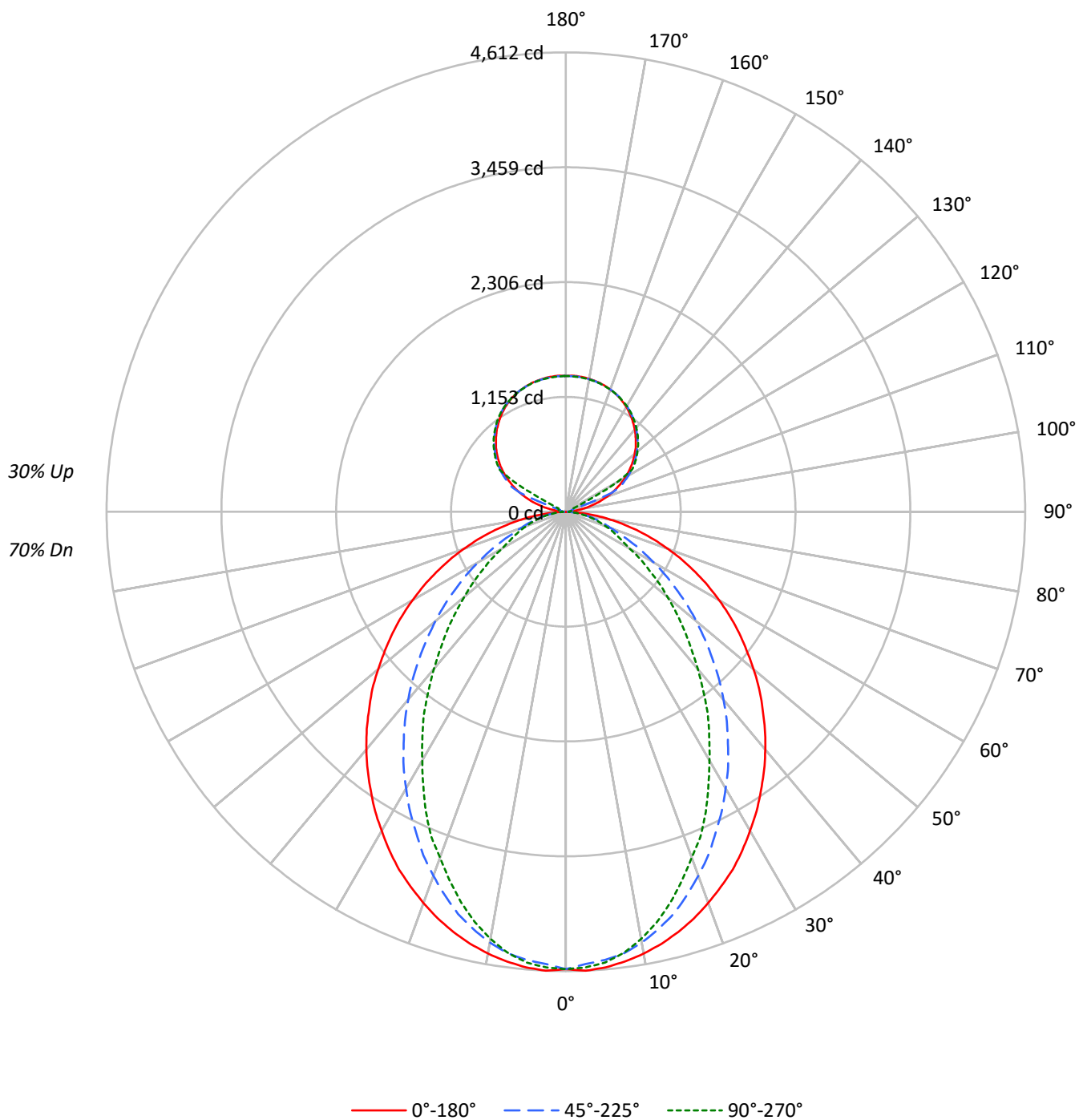
Lumens per Lamp: N/A
Luminaire Lumens: 13441.3 lumens
Efficiency: N/A
Efficacy: 93.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 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			0
RW	70	50	30	10	70	50	30	10	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	75	75	75
1	103	99	95	92	97	94	90	87	84	82	79	75	73	72	67	66	64	64	66	61
2	94	87	81	76	89	83	77	73	75	70	67	67	64	61	60	58	55	55	58	52
3	87	77	70	64	82	73	67	62	66	61	57	60	56	52	54	51	48	48	51	45
4	80	69	61	55	75	66	59	53	60	54	49	54	49	46	48	45	42	42	45	39
5	73	62	54	48	69	59	52	46	54	48	43	49	44	40	44	40	37	37	40	34
6	68	56	48	42	64	53	46	41	49	43	38	44	39	35	40	36	33	33	36	30
7	63	51	43	37	60	49	41	36	44	38	34	41	36	32	37	33	30	30	33	27
8	59	46	39	33	56	45	37	32	41	35	30	37	32	29	34	30	27	27	30	25
9	55	43	35	30	52	41	34	29	38	32	28	35	30	26	32	27	24	24	27	22
10	52	39	32	27	49	38	31	27	35	29	25	32	27	24	29	25	22	22	25	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3351	3351	3351
5°	3357	3299	3320
10°	3323	3234	3212
15°	3278	3128	3046
20°	3217	2981	2842
25°	3155	2816	2644
30°	3072	2647	2393
35°	2990	2465	2173
40°	2907	2277	1921
45°	2811	2069	1692
50°	2711	1858	1468
55°	2607	1632	1253
60°	2487	1397	1032
65°	2348	1157	930
70°	2180	934	842
75°	1969	824	768
80°	1663	693	668
85°	1159	465	506

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2811 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	3.2
10°-20°	1181.2	8.8
20°-30°	1658.4	12.3
30°-40°	1807.8	13.4
40°-50°	1661.5	12.4
50°-60°	1304.9	9.7
60°-70°	849.4	6.3
70°-80°	437.2	3.3
80°-90°	114.0	0.8
90°-100°	44.9	0.3
100°-110°	167.6	1.2
110°-120°	444.4	3.3
120°-130°	737.1	5.5
130°-140°	783.0	5.8
140°-150°	727.7	5.4
150°-160°	585.1	4.4
160°-170°	377.0	2.8
170°-180°	129.8	1.0
0°-30°	3269.9	24.3
0°-40°	5077.7	37.8
0°-60°	8044.1	59.8
0°-90°	9444.7	70.3
90°-120°	656.9	4.9
90°-150°	2904.8	21.6
90°-180°	3997.0	29.7
0°-180°	13441.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4554	4541	435
15°	4367	4321	4180	4101	4060	1231
25°	3964	3831	3556	3386	3324	1823
35°	3416	3203	2838	2576	2484	2138
45°	2792	2514	2078	1782	1683	2156
55°	2123	1799	1350	1101	1022	1897
65°	1434	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	1	12	20	25	27	13
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1271	1276	1269	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4591.2	4591.2	4591.2	4591.2	4591.2
2.5°	4611.9	4591.2	4545.3	4587.2	4578.8
5°	4591.2	4570.4	4516.2	4553.7	4541.4
7.5°	4553.7	4528.9	4470.8	4487.1	4466.3
10°	4503.9	4474.7	4391.9	4379.1	4354.4
12.5°	4441.7	4404.2	4291.8	4267.1	4221.2
15°	4366.8	4320.9	4179.8	4101.0	4059.5
17.5°	4279.5	4213.0	4038.4	3947.1	3880.5
20°	4179.8	4096.5	3888.9	3785.3	3693.6
22.5°	4071.9	3976.1	3735.1	3594.0	3531.8
25°	3963.8	3830.7	3556.5	3386.4	3323.8
27.5°	3835.2	3693.6	3390.3	3195.0	3099.4
30°	3698.0	3539.8	3207.4	2995.8	2883.4
32.5°	3564.9	3373.6	3033.2	2783.8	2679.8
35°	3415.5	3203.4	2838.0	2576.2	2484.5
37.5°	3270.0	3041.2	2655.0	2368.0	2264.5
40°	3116.1	2867.1	2463.8	2168.8	2060.8
42.5°	2958.3	2692.5	2272.9	1965.2	1861.6
45°	2792.2	2513.6	2077.6	1782.2	1682.6
47.5°	2634.3	2339.5	1890.7	1595.3	1504.1
50°	2459.7	2164.8	1707.8	1420.8	1333.9
52.5°	2289.2	1977.5	1533.2	1259.0	1180.0
55°	2122.9	1799.0	1350.2	1101.2	1022.3
57.5°	1952.9	1620.4	1188.4	955.7	889.1
60°	1778.3	1445.9	1017.8	806.3	739.7
62.5°	1608.1	1275.8	872.4	673.2	640.1
65°	1433.5	1096.7	723.0	581.9	569.1
67.5°	1267.4	930.6	581.9	510.9	498.6
70°	1092.8	768.8	481.8	440.4	423.6
72.5°	926.6	618.9	402.9	369.8	361.4
75°	764.4	473.4	332.3	303.3	299.3
77.5°	602.6	336.4	261.9	245.1	236.7
80°	452.7	241.2	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.8	128.8
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.6	33.0	33.0	29.1	29.1
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.7	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.6	62.2	73.0	77.0
110°	437.1	457.7	172.7	74.0	77.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.9	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	662.0	520.8	262.4
120°	690.5	705.3	723.1	735.0	601.8
122.5°	745.7	761.5	781.3	787.2	788.2
125°	801.9	814.9	833.5	840.5	843.4
127.5°	853.2	867.1	881.9	891.8	892.7
130°	901.6	917.5	928.2	939.1	938.2
132.5°	950.9	963.8	974.6	983.5	982.6
135°	992.4	1008.2	1017.0	1026.9	1025.0
137.5°	1035.7	1047.5	1057.5	1067.3	1064.4
140°	1078.1	1086.1	1096.9	1105.8	1100.9
142.5°	1113.8	1120.6	1133.5	1141.2	1136.4
145°	1151.2	1150.2	1166.9	1173.9	1168.9
147.5°	1183.7	1180.7	1197.5	1202.4	1198.6
150°	1215.3	1208.4	1224.3	1230.1	1225.2
152.5°	1241.9	1234.1	1248.8	1254.8	1247.9
155°	1267.6	1258.8	1270.6	1276.5	1268.6
157.5°	1288.3	1280.4	1289.4	1296.3	1288.3
160°	1306.1	1300.1	1306.1	1311.9	1305.0
162.5°	1321.8	1316.0	1320.9	1327.8	1318.9
165°	1335.6	1329.8	1332.7	1339.6	1332.7
167.5°	1346.6	1340.5	1343.6	1350.5	1341.6
170°	1355.4	1349.5	1351.4	1358.4	1349.5
172.5°	1361.3	1355.4	1357.5	1364.3	1355.4
175°	1366.1	1359.3	1361.3	1368.2	1358.4
177.5°	1368.2	1361.3	1362.3	1369.3	1360.4
180°	1363.3	1363.3	1363.3	1363.3	1363.3

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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	13.07	14.10	13.84	14.88	15.83	9.03	10.06	9.80	10.85	11.80
	3H	14.76	15.68	15.55	16.48	17.46	10.24	11.16	11.02	11.95	12.94
	4H	15.38	16.25	16.18	17.05	18.05	10.70	11.57	11.50	12.37	13.36
	6H	15.82	16.62	16.63	17.43	18.44	11.03	11.83	11.84	12.64	13.65
	8H	15.95	16.71	16.77	17.54	18.55	11.13	11.89	11.95	12.72	13.73
	12H	16.02	16.74	16.85	17.57	18.60	11.18	11.90	12.00	12.73	13.76
4H	2H	13.11	13.98	13.92	14.78	15.78	9.66	10.52	10.46	11.33	12.32
	3H	14.96	15.68	15.78	16.52	17.53	11.02	11.74	11.84	12.58	13.59
	4H	15.66	16.32	16.49	17.15	18.19	11.58	12.23	12.41	13.07	14.11
	6H	16.19	16.76	17.04	17.62	18.66	12.01	12.58	12.86	13.44	14.48
	8H	16.37	16.90	17.22	17.76	18.81	12.15	12.67	12.99	13.53	14.58
	12H	16.48	16.95	17.35	17.83	18.89	12.22	12.69	13.09	13.57	14.63
8H	4H	15.65	16.17	16.50	17.03	18.08	11.88	12.40	12.73	13.26	14.31
	6H	16.22	16.66	17.10	17.56	18.61	12.40	12.84	13.28	13.74	14.79
	8H	16.44	16.83	17.33	17.72	18.79	12.60	12.98	13.48	13.88	14.95
	12H	16.59	16.93	17.48	17.82	18.94	12.73	13.07	13.61	13.95	15.08
12H	4H	15.61	16.08	16.48	16.96	18.02	11.89	12.36	12.76	13.24	14.30
	6H	16.20	16.59	17.09	17.48	18.55	12.45	12.84	13.34	13.73	14.81
	8H	16.43	16.77	17.32	17.65	18.78	12.68	13.02	13.56	13.90	15.03