

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: P904923

Luminaire Tested: DFN2DIP-4P3F0-030D020US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904923
REPORT IS A COMBINATION OF REPORTS P900551 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-030D020US835-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

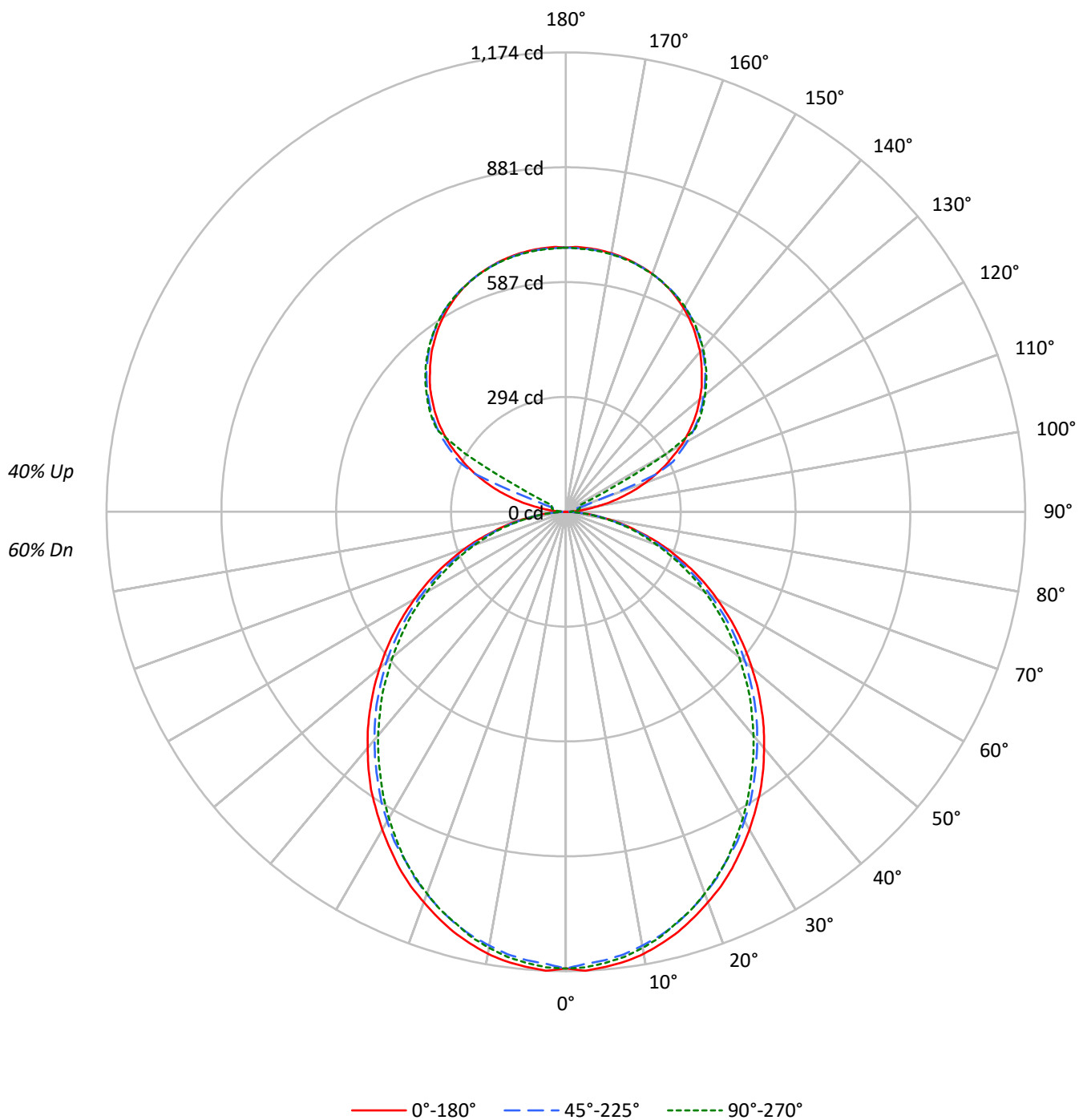
Lumens per Lamp: N/A
Luminaire Lumens: 4950.0 lumens
Efficiency: N/A
Efficacy: 119.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 41.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1330	1330	1330
5°	1332	1311	1320
10°	1320	1292	1302
15°	1300	1270	1273
20°	1273	1240	1244
25°	1246	1204	1211
30°	1212	1170	1169
35°	1180	1130	1124
40°	1141	1090	1081
45°	1102	1050	1037
50°	1059	1007	987
55°	1015	958	940
60°	964	901	887
65°	908	840	823
70°	838	767	755
75°	740	679	692
80°	622	566	572
85°	438	375	375

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1102 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.9	2.2
10°-20°	309.1	6.2
20°-30°	454.3	9.2
30°-40°	527.6	10.7
40°-50°	527.0	10.6
50°-60°	459.5	9.3
60°-70°	339.7	6.9
70°-80°	192.2	3.9
80°-90°	51.9	1.0
90°-100°	22.3	0.4
100°-110°	83.0	1.7
110°-120°	220.1	4.4
120°-130°	365.0	7.4
130°-140°	387.7	7.8
140°-150°	360.3	7.3
150°-160°	289.7	5.9
160°-170°	186.7	3.8
170°-180°	64.2	1.3
0°-30°	873.3	17.6
0°-40°	1400.9	28.3
0°-60°	2387.4	48.2
0°-90°	2971.2	60.0
90°-120°	325.3	6.6
90°-150°	1438.2	29.1
90°-180°	1979.0	40.0
0°-180°	4950.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1167	1167	1167	1167	1167	
5°	1167	1163	1150	1160	1157	111
15°	1111	1105	1090	1094	1089	313
25°	1006	997	978	980	978	463
35°	868	856	838	832	826	542
45°	706	698	681	669	664	545
55°	534	528	514	501	495	478
65°	360	354	342	332	327	356
75°	188	186	181	174	176	201
85°	46	45	44	40	39	51
90°	0	6	10	12	13	5
95°	32	16	19	22	21	38
105°	148	163	30	35	37	159
115°	281	289	301	75	40	276
125°	397	403	413	416	418	354
135°	491	499	504	508	508	380
145°	570	570	578	581	579	356
155°	628	623	629	632	628	289
165°	661	658	660	663	660	187
175°	676	673	674	677	672	64
180°	675	675	675	675	675	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1167.3	1167.3	1167.3	1167.3	1167.3
2.5°	1174.1	1168.5	1156.1	1167.3	1165.2
5°	1167.3	1162.9	1150.5	1159.5	1157.3
7.5°	1159.5	1152.8	1140.4	1149.5	1147.2
10°	1147.2	1139.3	1125.9	1134.8	1131.5
12.5°	1130.3	1123.6	1110.2	1115.7	1113.5
15°	1111.2	1104.6	1089.9	1094.4	1088.8
17.5°	1087.6	1081.0	1066.3	1071.9	1066.3
20°	1061.8	1055.1	1039.4	1042.7	1038.3
22.5°	1036.1	1026.0	1011.3	1011.3	1009.0
25°	1005.7	996.8	977.7	979.9	977.7
27.5°	972.0	964.1	949.6	946.3	940.7
30°	938.4	929.4	912.6	909.2	904.7
32.5°	902.5	895.8	877.8	871.0	866.5
35°	867.7	856.5	838.5	831.7	826.1
37.5°	828.4	818.3	800.3	792.4	786.8
40°	788.0	779.0	761.0	751.0	746.5
42.5°	748.7	739.7	721.8	710.5	703.8
45°	706.1	698.2	681.3	669.0	664.5
47.5°	664.5	656.7	638.7	626.3	619.6
50°	620.7	615.1	599.4	583.7	578.1
52.5°	578.1	570.2	555.7	543.3	535.4
55°	534.4	527.6	514.1	500.7	495.1
57.5°	490.5	484.9	470.3	456.8	452.3
60°	446.7	442.3	426.6	414.2	410.9
62.5°	404.1	396.2	385.0	373.8	369.3
65°	360.4	353.6	342.4	332.3	326.7
67.5°	315.5	309.8	299.7	291.9	287.4
70°	273.9	269.4	259.3	251.4	247.0
72.5°	231.3	226.7	221.1	213.3	210.0
75°	188.5	186.4	180.7	174.0	176.3
77.5°	150.4	145.9	143.6	140.3	137.0
80°	112.3	111.1	108.8	105.5	103.3
82.5°	76.3	76.3	75.3	70.7	70.7
85°	46.0	44.9	43.8	40.4	39.3
87.5°	20.2	18.0	15.7	12.4	11.2
90°	0.5	5.9	9.7	12.2	13.2
92.5°	12.2	10.3	11.7	12.7	13.2
95°	31.7	15.6	19.0	21.5	21.0
97.5°	57.1	17.1	24.9	26.4	26.9
100°	86.5	19.5	27.8	31.7	32.7
102.5°	118.7	117.7	28.8	34.2	35.7
105°	148.5	163.1	29.8	35.1	37.1
107.5°	183.2	195.3	30.8	36.1	38.1
110°	216.4	226.6	85.5	36.7	38.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	247.6	256.4	248.1	37.6	39.1
115°	280.8	289.1	301.4	75.2	40.1
117.5°	309.6	319.4	327.7	257.9	129.9
120°	341.9	349.2	358.0	363.9	297.9
122.5°	369.2	377.0	386.8	389.7	390.3
125°	397.1	403.4	412.7	416.1	417.6
127.5°	422.5	429.3	436.7	441.5	442.0
130°	446.4	454.2	459.6	465.0	464.5
132.5°	470.8	477.2	482.5	486.9	486.5
135°	491.4	499.2	503.5	508.5	507.5
137.5°	512.8	518.7	523.6	528.5	527.0
140°	533.8	537.8	543.1	547.5	545.1
142.5°	551.4	554.9	561.2	565.1	562.6
145°	570.0	569.5	577.8	581.2	578.8
147.5°	586.1	584.6	592.9	595.3	593.4
150°	601.7	598.3	606.1	609.0	606.6
152.5°	614.9	611.0	618.3	621.3	617.8
155°	627.6	623.2	629.1	632.0	628.1
157.5°	637.9	634.0	638.4	641.8	637.9
160°	646.7	643.7	646.7	649.6	646.2
162.5°	654.4	651.5	654.0	657.4	653.0
165°	661.3	658.4	659.8	663.3	659.8
167.5°	666.7	663.7	665.2	668.7	664.2
170°	671.1	668.1	669.1	672.5	668.1
172.5°	674.0	671.1	672.1	675.5	671.1
175°	676.4	673.0	674.0	677.4	672.5
177.5°	677.4	674.0	674.5	677.9	673.5
180°	675.0	675.0	675.0	675.0	675.0

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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	9.11	10.07	9.97	10.95	12.07	8.66	9.62	9.53	10.51	11.63
	3H	10.77	11.63	11.65	12.53	13.67	10.28	11.14	11.16	12.04	13.18
	4H	11.36	12.17	12.25	13.08	14.23	10.87	11.68	11.76	12.58	13.74
	6H	11.76	12.51	12.67	13.42	14.59	11.26	12.01	12.17	12.92	14.09
	8H	11.87	12.58	12.78	13.51	14.68	11.37	12.08	12.28	13.01	14.18
	12H	11.92	12.60	12.84	13.52	14.71	11.41	12.09	12.33	13.01	14.20
4H	2H	9.58	10.39	10.47	11.29	12.45	9.22	10.03	10.12	10.94	12.09
	3H	11.45	12.12	12.36	13.06	14.23	11.04	11.72	11.95	12.65	13.82
	4H	12.16	12.78	13.08	13.71	14.91	11.74	12.36	12.66	13.29	14.48
	6H	12.68	13.21	13.61	14.17	15.36	12.24	12.78	13.18	13.73	14.93
	8H	12.83	13.33	13.76	14.27	15.49	12.39	12.89	13.33	13.84	15.05
	12H	12.90	13.35	13.86	14.32	15.53	12.45	12.90	13.41	13.87	15.09
8H	4H	12.36	12.86	13.30	13.81	15.02	11.98	12.48	12.92	13.43	14.64
	6H	12.99	13.40	13.95	14.39	15.60	12.61	13.02	13.57	14.01	15.22
	8H	13.21	13.57	14.18	14.55	15.78	12.82	13.18	13.79	14.16	15.39
	12H	13.34	13.66	14.32	14.64	15.91	12.93	13.25	13.91	14.22	15.50
12H	4H	12.35	12.80	13.31	13.77	14.98	11.98	12.43	12.94	13.40	14.61
	6H	13.02	13.39	13.99	14.36	15.59	12.65	13.01	13.62	13.99	15.22
	8H	13.26	13.58	14.24	14.56	15.83	12.88	13.20	13.86	14.18	15.45