

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: P921291

Luminaire Tested: DFN2DIP-4P3F0-030D020US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921291
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-4P3F0-030D020US940-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

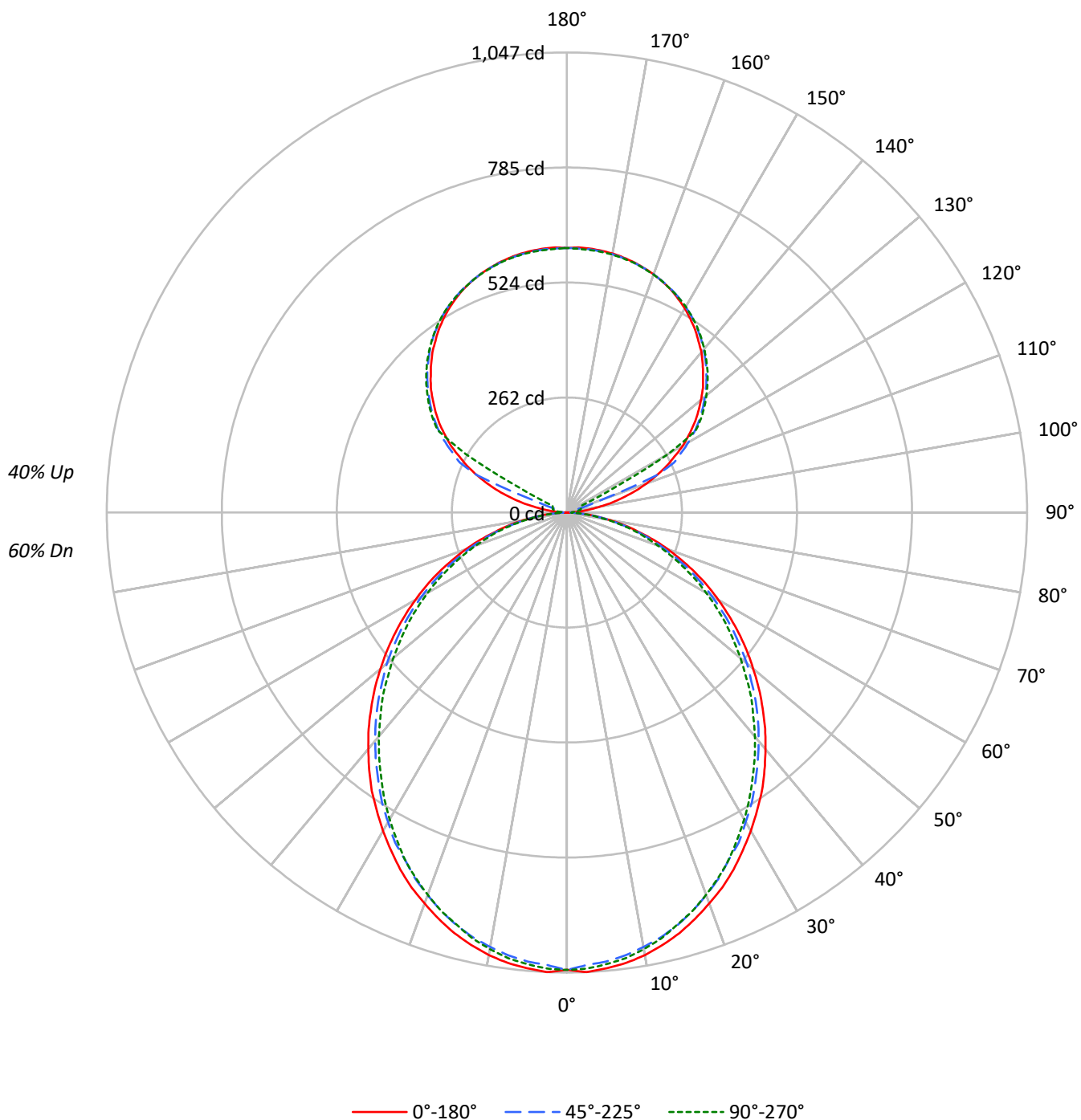
Lumens per Lamp: N/A
Luminaire Lumens: 4413.9 lumens
Efficiency: N/A
Efficacy: 106.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

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°	1186	1186	1186
5°	1187	1169	1177
10°	1177	1152	1161
15°	1159	1133	1136
20°	1135	1105	1110
25°	1111	1073	1080
30°	1081	1043	1042
35°	1052	1008	1002
40°	1018	972	964
45°	983	936	925
50°	945	898	880
55°	905	855	838
60°	859	803	791
65°	810	749	734
70°	747	684	674
75°	660	605	617
80°	555	505	510
85°	391	335	334

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 983 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.0	2.2
10°-20°	275.6	6.2
20°-30°	405.1	9.2
30°-40°	470.5	10.7
40°-50°	469.9	10.6
50°-60°	409.8	9.3
60°-70°	302.9	6.9
70°-80°	171.4	3.9
80°-90°	46.3	1.0
90°-100°	19.8	0.4
100°-110°	74.0	1.7
110°-120°	196.2	4.4
120°-130°	325.4	7.4
130°-140°	345.7	7.8
140°-150°	321.3	7.3
150°-160°	258.3	5.9
160°-170°	166.4	3.8
170°-180°	57.3	1.3
0°-30°	778.7	17.6
0°-40°	1249.2	28.3
0°-60°	2128.9	48.2
0°-90°	2649.4	60.0
90°-120°	290.0	6.6
90°-150°	1282.5	29.1
90°-180°	1765.0	40.0
0°-180°	4413.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1041	1041	1041	1041	1041	
5°	1041	1037	1026	1034	1032	99
15°	991	985	972	976	971	279
25°	897	889	872	874	872	413
35°	774	764	748	742	737	483
45°	630	623	608	597	592	486
55°	476	470	458	446	442	426
65°	321	315	305	296	291	318
75°	168	166	161	155	157	179
85°	41	40	39	36	35	46
90°	0	5	9	11	12	4
95°	28	14	17	19	19	33
105°	132	145	27	31	33	141
115°	250	258	269	67	36	247
125°	354	360	368	371	372	316
135°	438	445	449	453	452	338
145°	508	508	515	518	516	318
155°	560	556	561	564	560	258
165°	590	587	588	592	588	167
175°	603	600	601	604	600	57
180°	602	602	602	602	602	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1040.9	1040.9	1040.9	1040.9	1040.9
2.5°	1047.0	1042.0	1030.9	1040.9	1039.0
5°	1040.9	1037.0	1025.9	1033.9	1032.0
7.5°	1033.9	1028.0	1016.9	1025.0	1023.0
10°	1023.0	1015.9	1004.0	1011.9	1009.0
12.5°	1007.9	1001.9	990.0	994.9	992.9
15°	990.9	985.0	971.9	975.9	970.9
17.5°	969.8	963.9	950.8	955.8	950.8
20°	946.8	940.8	926.8	929.8	925.9
22.5°	923.9	914.9	901.8	901.8	899.7
25°	896.8	888.9	871.8	873.8	871.8
27.5°	866.7	859.7	846.8	843.8	838.8
30°	836.8	828.8	813.8	810.7	806.7
32.5°	804.8	798.8	782.7	776.7	772.7
35°	773.7	763.7	747.7	741.6	736.6
37.5°	738.7	729.7	713.6	706.6	701.6
40°	702.7	694.6	678.6	669.7	665.7
42.5°	667.6	659.6	643.6	633.6	627.6
45°	629.6	622.6	607.5	596.6	592.5
47.5°	592.5	585.6	569.5	558.5	552.5
50°	553.5	548.5	534.5	520.5	515.5
52.5°	515.5	508.5	495.5	484.5	477.4
55°	476.5	470.5	458.4	446.5	441.5
57.5°	437.4	432.4	419.4	407.3	403.3
60°	398.3	394.4	380.4	369.3	366.4
62.5°	360.3	353.3	343.3	333.3	329.3
65°	321.4	315.3	305.3	296.3	291.3
67.5°	281.3	276.3	267.2	260.3	256.3
70°	244.2	240.2	231.2	224.2	220.3
72.5°	206.3	202.2	197.2	190.2	187.3
75°	168.1	166.2	161.1	155.2	157.2
77.5°	134.1	130.1	128.0	125.1	122.2
80°	100.1	99.1	97.0	94.1	92.1
82.5°	68.0	68.0	67.1	63.0	63.0
85°	41.0	40.0	39.1	36.0	35.0
87.5°	18.0	16.1	14.0	11.1	10.0
90°	0.4	5.3	8.6	10.9	11.8
92.5°	10.9	9.2	10.4	11.3	11.8
95°	28.3	13.9	16.9	19.2	18.7
97.5°	50.9	15.2	22.2	23.5	24.0
100°	77.1	17.4	24.8	28.3	29.2
102.5°	105.8	105.0	25.7	30.5	31.8
105°	132.4	145.4	26.6	31.3	33.1
107.5°	163.4	174.2	27.5	32.2	34.0
110°	193.0	202.1	76.2	32.7	34.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	220.8	228.6	221.2	33.5	34.9
115°	250.4	257.8	268.8	67.1	35.8
117.5°	276.1	284.8	292.2	230.0	115.8
120°	304.9	311.4	319.2	324.5	265.6
122.5°	329.2	336.2	344.9	347.5	348.0
125°	354.1	359.7	368.0	371.0	372.4
127.5°	376.7	382.8	389.4	393.7	394.1
130°	398.1	405.0	409.8	414.6	414.2
132.5°	419.8	425.5	430.3	434.2	433.8
135°	438.2	445.1	449.0	453.4	452.5
137.5°	457.3	462.5	466.9	471.3	469.9
140°	476.0	479.6	484.3	488.2	486.1
142.5°	491.7	494.8	500.4	503.9	501.7
145°	508.3	507.8	515.2	518.3	516.1
147.5°	522.6	521.3	528.7	530.8	529.1
150°	536.5	533.5	540.5	543.1	540.9
152.5°	548.3	544.8	551.3	554.0	550.9
155°	559.6	555.7	561.0	563.6	560.1
157.5°	568.8	565.3	569.3	572.3	568.8
160°	576.7	574.0	576.7	579.3	576.2
162.5°	583.5	580.9	583.2	586.2	582.3
165°	589.7	587.1	588.4	591.5	588.4
167.5°	594.5	591.8	593.2	596.3	592.3
170°	598.4	595.8	596.6	599.7	595.8
172.5°	601.0	598.4	599.3	602.4	598.4
175°	603.2	600.1	601.0	604.0	599.7
177.5°	604.0	601.0	601.5	604.5	600.6
180°	601.9	601.9	601.9	601.9	601.9

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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	8.71	9.67	9.57	10.56	11.68	8.26	9.22	9.13	10.11	11.23
	3H	10.37	11.23	11.25	12.13	13.28	9.88	10.74	10.76	11.64	12.79
	4H	10.96	11.77	11.86	12.68	13.83	10.47	11.28	11.36	12.18	13.34
	6H	11.36	12.11	12.27	13.02	14.19	10.86	11.61	11.77	12.52	13.69
	8H	11.47	12.18	12.38	13.11	14.28	10.97	11.68	11.88	12.61	13.78
	12H	11.52	12.20	12.44	13.12	14.31	11.01	11.69	11.93	12.61	13.81
4H	2H	9.18	9.99	10.08	10.89	12.05	8.82	9.64	9.72	10.54	11.70
	3H	11.05	11.73	11.96	12.66	13.83	10.64	11.32	11.55	12.25	13.42
	4H	11.76	12.38	12.68	13.31	14.51	11.34	11.96	12.26	12.89	14.08
	6H	12.28	12.81	13.21	13.77	14.96	11.85	12.38	12.78	13.34	14.53
	8H	12.43	12.93	13.36	13.88	15.09	11.99	12.49	12.93	13.44	14.65
	12H	12.50	12.95	13.46	13.92	15.14	12.05	12.51	13.01	13.47	14.69
8H	4H	11.96	12.46	12.90	13.41	14.62	11.59	12.09	12.52	13.03	14.24
	6H	12.59	13.01	13.56	13.99	15.20	12.21	12.62	13.17	13.61	14.82
	8H	12.81	13.18	13.78	14.15	15.38	12.42	12.78	13.39	13.76	14.99
	12H	12.94	13.26	13.92	14.24	15.51	12.53	12.85	13.51	13.83	15.10
12H	4H	11.95	12.40	12.91	13.37	14.58	11.58	12.03	12.54	13.00	14.22
	6H	12.62	12.99	13.59	13.97	15.19	12.25	12.61	13.22	13.59	14.82
	8H	12.86	13.18	13.84	14.16	15.43	12.48	12.80	13.46	13.78	15.05