

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: P904873

Luminaire Tested: DFN2DIP-4P2F0-020D030US835-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904873
REPORT IS A COMBINATION OF REPORTS P900538 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D030US835-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

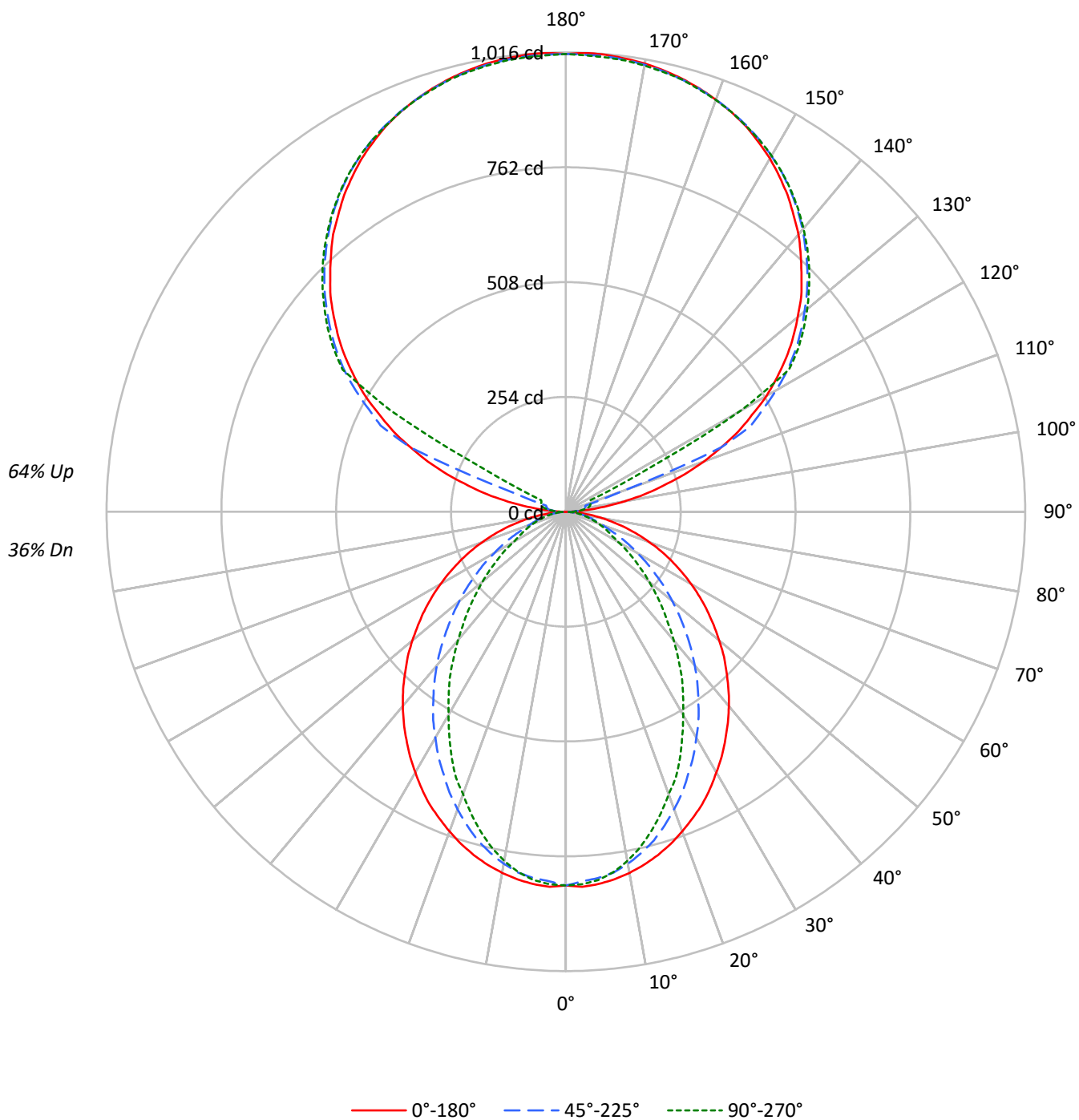
Lumens per Lamp: N/A
Luminaire Lumens: 4670.0 lumens
Efficiency: N/A
Efficacy: 116.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 40
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904873

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US835-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P904873

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US835-RLLONL

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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2070	2070	2070
5°	2069	2032	2046
10°	2044	1987	1977
15°	2012	1916	1871
20°	1971	1821	1741
25°	1928	1715	1617
30°	1873	1606	1460
35°	1818	1491	1323
40°	1762	1372	1166
45°	1698	1240	1023
50°	1632	1108	885
55°	1561	967	751
60°	1480	821	616
65°	1386	673	550
70°	1272	535	493
75°	1128	461	442
80°	923	373	373
85°	594	229	263

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1698 cd/sqm

TEST NUMBER: P904873

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US835-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.5	1.7
10°-20°	212.7	4.6
20°-30°	298.6	6.4
30°-40°	325.5	7.0
40°-50°	299.1	6.4
50°-60°	234.9	5.0
60°-70°	152.9	3.3
70°-80°	78.7	1.7
80°-90°	21.9	0.5
90°-100°	33.4	0.7
100°-110°	124.4	2.7
110°-120°	330.1	7.1
120°-130°	547.5	11.7
130°-140°	581.5	12.5
140°-150°	540.5	11.6
150°-160°	434.5	9.3
160°-170°	280.0	6.0
170°-180°	96.4	2.1
0°-30°	588.7	12.6
0°-40°	914.2	19.6
0°-60°	1448.3	31.0
0°-90°	1701.8	36.4
90°-120°	487.9	10.4
90°-150°	2157.3	46.2
90°-180°	2968.0	63.6
0°-180°	4670.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	827	827	827	827	827	
5°	827	823	813	820	818	78
15°	786	778	752	738	731	222
25°	714	690	640	610	598	328
35°	615	577	511	464	447	385
45°	503	452	374	321	303	388
55°	382	324	243	198	184	342
65°	258	198	130	105	102	256
75°	138	85	60	55	54	146
85°	32	16	14	14	14	37
90°	1	9	15	18	20	4
95°	48	23	28	32	32	56
105°	223	245	45	53	56	238
115°	421	434	452	113	60	415
125°	596	605	619	624	626	531
135°	737	749	755	763	761	569
145°	855	854	867	872	868	535
155°	941	935	944	948	942	434
165°	992	988	990	995	990	280
175°	1015	1010	1011	1016	1009	97
180°	1012	1012	1012	1012	1012	

TEST NUMBER: P904873

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US835-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	826.6	826.6	826.6	826.6	826.6
2.5°	830.3	826.6	818.3	825.9	824.4
5°	826.6	822.9	813.1	819.9	817.6
7.5°	819.9	815.4	804.9	807.9	804.1
10°	810.9	805.6	790.7	788.4	784.0
12.5°	799.7	792.9	772.7	768.3	760.0
15°	786.2	777.9	752.5	738.3	730.9
17.5°	770.5	758.5	727.1	710.6	698.7
20°	752.5	737.5	700.2	681.5	665.0
22.5°	733.1	715.9	672.5	647.1	635.9
25°	713.7	689.7	640.3	609.7	598.4
27.5°	690.5	665.0	610.4	575.2	558.0
30°	665.8	637.3	577.5	539.4	519.1
32.5°	641.8	607.4	546.1	501.2	482.5
35°	614.9	576.8	511.0	463.8	447.3
37.5°	588.7	547.5	478.0	426.4	407.7
40°	561.0	516.2	443.6	390.5	371.0
42.5°	532.6	484.8	409.2	353.8	335.2
45°	502.7	452.5	374.1	320.9	302.9
47.5°	474.3	421.2	340.4	287.2	270.8
50°	442.9	389.8	307.5	255.8	240.2
52.5°	412.1	356.0	276.0	226.7	212.5
55°	382.2	323.9	243.1	198.3	184.0
57.5°	351.6	291.7	214.0	172.1	160.1
60°	320.2	260.3	183.3	145.2	133.2
62.5°	289.5	229.7	157.1	121.2	115.2
65°	258.1	197.5	130.2	104.8	102.5
67.5°	228.2	167.5	104.8	92.0	89.8
70°	196.7	138.4	86.7	79.3	76.3
72.5°	166.8	111.4	72.5	66.6	65.1
75°	137.6	85.2	59.8	54.6	53.9
77.5°	108.5	60.6	47.1	44.1	42.6
80°	81.5	43.4	35.9	32.9	32.9
82.5°	56.8	29.2	24.7	23.2	23.2
85°	32.1	16.4	14.2	14.2	14.2
87.5°	12.0	6.0	6.0	5.2	5.2
90°	0.7	8.8	14.6	18.4	19.7
92.5°	18.4	15.4	17.6	19.1	19.7
95°	47.6	23.4	28.5	32.3	31.5
97.5°	85.7	25.7	37.3	39.6	40.3
100°	129.7	29.3	41.8	47.6	49.1
102.5°	178.0	176.6	43.2	51.2	53.5
105°	222.7	244.7	44.7	52.7	55.7
107.5°	274.7	293.0	46.2	54.2	57.2
110°	324.6	339.9	128.2	55.0	57.9

TEST NUMBER: P904873

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US835-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	371.5	384.6	372.2	56.4	58.6
115°	421.2	433.7	452.0	112.8	60.1
117.5°	464.5	479.1	491.6	386.8	194.9
120°	512.8	523.8	537.0	545.8	446.9
122.5°	553.8	565.6	580.3	584.6	585.4
125°	595.6	605.1	619.1	624.2	626.4
127.5°	633.7	643.9	655.0	662.3	663.0
130°	669.6	681.4	689.4	697.4	696.8
132.5°	706.2	715.8	723.8	730.4	729.7
135°	737.0	748.8	755.3	762.7	761.2
137.5°	769.2	778.0	785.4	792.7	790.5
140°	800.7	806.6	814.6	821.2	817.6
142.5°	827.2	832.3	841.8	847.6	844.0
145°	855.0	854.2	866.7	871.8	868.1
147.5°	879.1	876.9	889.4	893.0	890.1
150°	902.6	897.5	909.2	913.5	909.9
152.5°	922.3	916.5	927.5	931.9	926.8
155°	941.4	934.9	943.6	948.0	942.2
157.5°	956.8	951.0	957.6	962.7	956.8
160°	970.0	965.6	970.0	974.4	969.2
162.5°	981.7	977.3	981.0	986.1	979.5
165°	991.9	987.6	989.8	994.9	989.8
167.5°	1000.0	995.6	997.8	1003.0	996.4
170°	1006.6	1002.2	1003.7	1008.8	1002.2
172.5°	1011.0	1006.6	1008.1	1013.2	1006.6
175°	1014.6	1009.5	1011.0	1016.1	1008.8
177.5°	1016.1	1011.0	1011.8	1016.9	1010.3
180°	1012.5	1012.5	1012.5	1012.5	1012.5

TEST NUMBER: P904873

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US835-RLONL

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	8.12	8.86	9.20	9.92	11.38	4.09	4.82	5.16	5.89	7.34
	3H	9.77	10.42	10.85	11.50	12.97	5.25	5.90	6.33	6.98	8.45
	4H	10.36	10.98	11.45	12.06	13.54	5.68	6.30	6.77	7.38	8.86
	6H	10.76	11.33	11.86	12.41	13.90	5.97	6.54	7.08	7.63	9.12
	8H	10.87	11.41	11.98	12.51	14.00	6.05	6.59	7.16	7.69	9.18
	12H	10.92	11.43	12.03	12.53	14.03	6.08	6.60	7.19	7.69	9.20
4H	2H	8.12	8.74	9.22	9.82	11.30	4.66	5.28	5.76	6.36	7.84
	3H	9.92	10.43	11.02	11.54	13.03	5.97	6.49	7.08	7.60	9.09
	4H	10.59	11.06	11.70	12.16	13.67	6.50	6.97	7.61	8.07	9.58
	6H	11.08	11.48	12.19	12.60	14.11	6.89	7.30	8.01	8.41	9.92
	8H	11.24	11.61	12.35	12.73	14.25	7.01	7.38	8.12	8.49	10.02
	12H	11.31	11.66	12.45	12.78	14.31	7.05	7.40	8.19	8.52	10.05
8H	4H	10.54	10.92	11.66	12.03	13.55	6.76	7.14	7.88	8.25	9.77
	6H	11.08	11.39	12.22	12.55	14.06	7.25	7.56	8.38	8.71	10.23
	8H	11.28	11.55	12.43	12.69	14.23	7.42	7.69	8.56	8.83	10.36
	12H	11.40	11.64	12.55	12.77	14.34	7.52	7.76	8.66	8.89	10.46
12H	4H	10.49	10.83	11.62	11.96	13.48	6.76	7.10	7.89	8.22	9.75
	6H	11.05	11.33	12.20	12.46	14.00	7.29	7.56	8.43	8.69	10.23
	8H	11.25	11.49	12.40	12.62	14.20	7.48	7.72	8.62	8.85	10.42