

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: P910347

Luminaire Tested: DFN2DIP-4P2F0-040D020US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910347
REPORT IS A COMBINATION OF REPORTS P900535 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D020US850-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

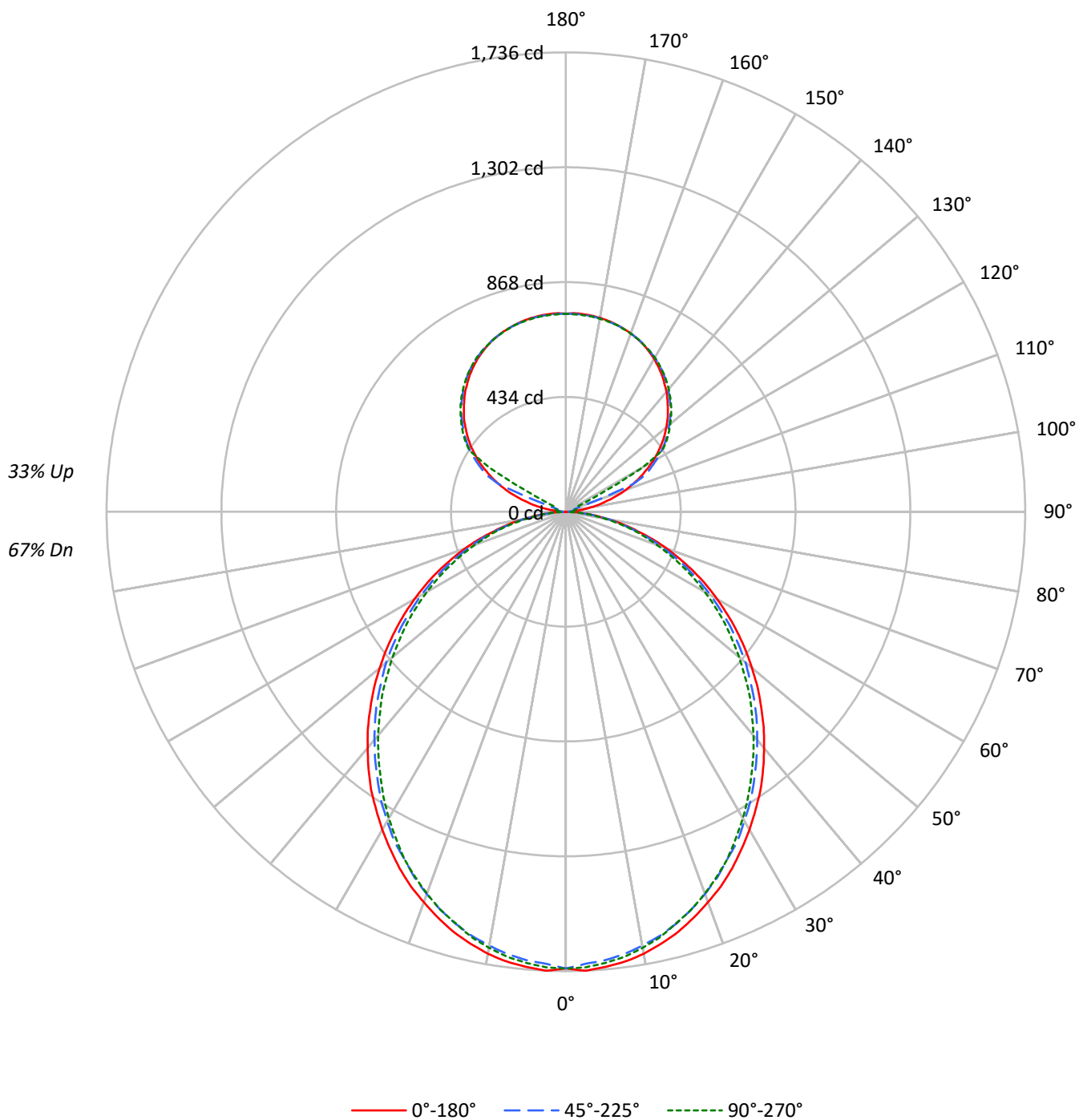
Lumens per Lamp: N/A
Luminaire Lumens: 6587.5 lumens
Efficiency: N/A
Efficacy: 117.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 56.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910347

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910347

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US850-FLONL

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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71
1	102	97	93	90	95	92	88	85	81	79	76		72	70	68		63
2	92	85	79	73	87	80	75	70	71	67	63		63	60	57		56
3	84	75	67	61	79	71	64	58	63	58	53		56	52	48		49
4	77	66	58	52	72	63	55	50	56	50	45		50	45	41		44
5	71	59	51	44	67	56	48	43	50	44	39		45	40	36		40
6	66	53	45	39	62	50	43	37	45	39	34		41	35	32		36
7	61	48	40	34	57	46	38	33	41	35	30		37	32	28		33
8	56	44	36	30	53	42	34	29	38	31	27		34	29	25		30
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28
10	49	37	29	24	46	35	28	24	32	26	22		29	24	20		26

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4322	4322	4322
5°	4320	4251	4283
10°	4277	4183	4218
15°	4205	4103	4120
20°	4111	3996	4021
25°	4018	3871	3906
30°	3903	3754	3763
35°	3794	3617	3612
40°	3661	3479	3468
45°	3527	3340	3319
50°	3381	3193	3149
55°	3227	3024	2990
60°	3053	2825	2808
65°	2861	2617	2594
70°	2618	2364	2361
75°	2286	2061	2137
80°	1880	1673	1729
85°	1259	1046	1076

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3527 cd/sqm

TEST NUMBER: P910347

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	2.5
10°-20°	457.1	6.9
20°-30°	671.7	10.2
30°-40°	780.2	11.8
40°-50°	779.2	11.8
50°-60°	679.5	10.3
60°-70°	502.3	7.6
70°-80°	284.2	4.3
80°-90°	76.3	1.2
90°-100°	24.7	0.4
100°-110°	92.0	1.4
110°-120°	244.0	3.7
120°-130°	404.8	6.1
130°-140°	429.9	6.5
140°-150°	399.6	6.1
150°-160°	321.3	4.9
160°-170°	207.0	3.1
170°-180°	71.2	1.1
0°-30°	1291.3	19.6
0°-40°	2071.5	31.4
0°-60°	3530.2	53.6
0°-90°	4393.0	66.7
90°-120°	360.7	5.5
90°-150°	1595.0	24.2
90°-180°	2194.0	33.3
0°-180°	6587.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1701	1714	1711	164
15°	1643	1633	1612	1618	1610	463
25°	1487	1474	1446	1449	1446	684
35°	1283	1266	1240	1230	1222	801
45°	1044	1032	1007	989	983	806
55°	790	780	760	740	732	706
65°	533	523	506	491	483	527
75°	279	276	267	257	261	298
85°	68	66	65	60	58	76
90°	1	6	11	14	15	6
95°	35	17	21	24	23	42
105°	165	181	33	39	41	176
115°	311	321	334	83	44	307
125°	440	447	458	462	463	393
135°	545	554	558	564	563	421
145°	632	632	641	645	642	395
155°	696	691	698	701	697	321
165°	733	730	732	736	732	207
175°	750	746	748	751	746	71
180°	749	749	749	749	749	

TEST NUMBER: P910347

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1726.0	1726.0	1726.0	1726.0	1726.0
2.5°	1736.1	1727.8	1709.5	1726.0	1722.9
5°	1726.0	1719.5	1701.2	1714.4	1711.3
7.5°	1714.4	1704.5	1686.2	1699.7	1696.3
10°	1696.3	1684.7	1664.8	1678.0	1673.0
12.5°	1671.3	1661.4	1641.5	1649.9	1646.4
15°	1643.1	1633.2	1611.6	1618.3	1610.0
17.5°	1608.3	1598.4	1576.8	1585.0	1576.8
20°	1570.0	1560.1	1537.0	1541.8	1535.4
22.5°	1532.0	1517.0	1495.4	1495.4	1492.0
25°	1487.1	1473.9	1445.7	1448.9	1445.7
27.5°	1437.3	1425.6	1404.2	1399.2	1391.0
30°	1387.6	1374.3	1349.4	1344.4	1337.8
32.5°	1334.5	1324.6	1298.0	1288.0	1281.2
35°	1283.0	1266.5	1239.9	1229.9	1221.6
37.5°	1224.9	1209.9	1183.3	1171.8	1163.5
40°	1165.2	1151.8	1125.2	1110.4	1103.8
42.5°	1107.1	1093.7	1067.3	1050.6	1040.7
45°	1044.0	1032.5	1007.4	989.3	982.6
47.5°	982.6	970.9	944.4	926.1	916.3
50°	917.8	909.5	886.3	863.0	854.7
52.5°	854.7	843.2	821.7	803.4	791.7
55°	790.2	780.1	760.2	740.3	732.1
57.5°	725.3	717.1	695.3	675.5	668.8
60°	660.5	654.0	630.8	612.5	607.5
62.5°	597.5	585.9	569.4	552.7	546.1
65°	532.9	522.8	506.3	491.3	483.1
67.5°	466.4	458.0	443.3	431.6	425.0
70°	405.0	398.4	383.4	371.7	365.2
72.5°	342.0	335.3	327.0	315.4	310.4
75°	278.8	275.6	267.2	257.3	260.6
77.5°	222.4	215.7	212.4	207.4	202.5
80°	166.0	164.2	160.9	156.0	152.7
82.5°	112.9	112.9	111.3	104.6	104.6
85°	68.0	66.4	64.8	59.7	58.1
87.5°	29.9	26.6	23.3	18.3	16.5
90°	0.6	6.5	10.8	13.5	14.6
92.5°	13.5	11.4	13.0	14.1	14.6
95°	35.2	17.3	21.1	23.8	23.3
97.5°	63.3	19.0	27.6	29.3	29.8
100°	95.9	21.6	30.8	35.2	36.3
102.5°	131.6	130.5	31.9	37.9	39.6
105°	164.7	180.9	33.0	38.9	41.1
107.5°	203.2	216.6	34.2	40.0	42.3
110°	240.0	251.3	94.8	40.7	42.8

TEST NUMBER: P910347

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	274.6	284.3	275.1	41.7	43.4
115°	311.4	320.6	334.3	83.4	44.5
117.5°	343.3	354.2	363.4	286.0	144.1
120°	379.2	387.3	397.0	403.6	330.4
122.5°	409.4	418.1	429.0	432.2	432.8
125°	440.4	447.4	457.7	461.5	463.1
127.5°	468.6	476.1	484.3	489.6	490.2
130°	495.1	503.7	509.7	515.7	515.1
132.5°	522.1	529.2	535.1	540.0	539.5
135°	545.0	553.6	558.4	563.9	562.8
137.5°	568.7	575.2	580.7	586.1	584.4
140°	592.0	596.4	602.3	607.2	604.5
142.5°	611.5	615.4	622.4	626.7	623.9
145°	632.1	631.6	640.8	644.6	641.9
147.5°	650.0	648.3	657.5	660.2	658.1
150°	667.3	663.5	672.2	675.4	672.7
152.5°	681.9	677.6	685.7	689.0	685.1
155°	696.0	691.1	697.7	700.9	696.6
157.5°	707.4	703.1	708.0	711.8	707.4
160°	717.2	713.9	717.2	720.4	716.6
162.5°	725.7	722.5	725.3	729.1	724.2
165°	733.4	730.2	731.7	735.6	731.7
167.5°	739.4	736.0	737.7	741.6	736.6
170°	744.2	740.9	742.0	745.8	740.9
172.5°	747.5	744.2	745.4	749.1	744.2
175°	750.1	746.4	747.5	751.2	745.8
177.5°	751.2	747.5	748.0	751.8	746.9
180°	748.6	748.6	748.6	748.6	748.6

TEST NUMBER: P910347

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US850-FLLONL

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	13.64	14.67	14.44	15.49	16.50	13.19	14.23	13.99	15.05	16.06
	3H	15.29	16.22	16.10	17.05	18.09	14.80	15.73	15.61	16.56	17.60
	4H	15.87	16.74	16.70	17.58	18.63	15.37	16.25	16.20	17.09	18.14
	6H	16.26	17.07	17.10	17.91	18.98	15.76	16.57	16.60	17.41	18.48
	8H	16.36	17.13	17.21	18.00	19.06	15.86	16.63	16.71	17.49	18.56
	12H	16.40	17.14	17.26	18.00	19.09	15.90	16.63	16.75	17.49	18.58
4H	2H	14.11	14.98	14.94	15.82	16.87	13.75	14.63	14.58	15.47	16.52
	3H	15.96	16.69	16.81	17.57	18.63	15.55	16.28	16.40	17.16	18.22
	4H	16.66	17.33	17.52	18.20	19.29	16.24	16.91	17.10	17.78	18.87
	6H	17.17	17.74	18.04	18.64	19.73	16.73	17.31	17.61	18.21	19.30
	8H	17.31	17.85	18.19	18.74	19.85	16.87	17.41	17.75	18.30	19.41
	12H	17.38	17.87	18.28	18.77	19.89	16.93	17.42	17.83	18.33	19.44
8H	4H	16.86	17.40	17.74	18.29	19.40	16.48	17.02	17.36	17.91	19.02
	6H	17.47	17.92	18.38	18.85	19.96	17.09	17.53	17.99	18.46	19.57
	8H	17.68	18.07	18.59	19.00	20.12	17.28	17.68	18.20	18.60	19.73
	12H	17.80	18.15	18.72	19.07	20.25	17.39	17.74	18.31	18.66	19.84
12H	4H	16.85	17.34	17.75	18.25	19.36	16.48	16.97	17.38	17.88	18.99
	6H	17.50	17.89	18.41	18.82	19.94	17.12	17.52	18.04	18.44	19.57
	8H	17.73	18.08	18.65	18.99	20.17	17.35	17.70	18.27	18.61	19.79