

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: P918515

Luminaire Tested: DFN2DIP-4P2F0-020D040US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918515
REPORT IS A COMBINATION OF REPORTS P900543 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US935-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

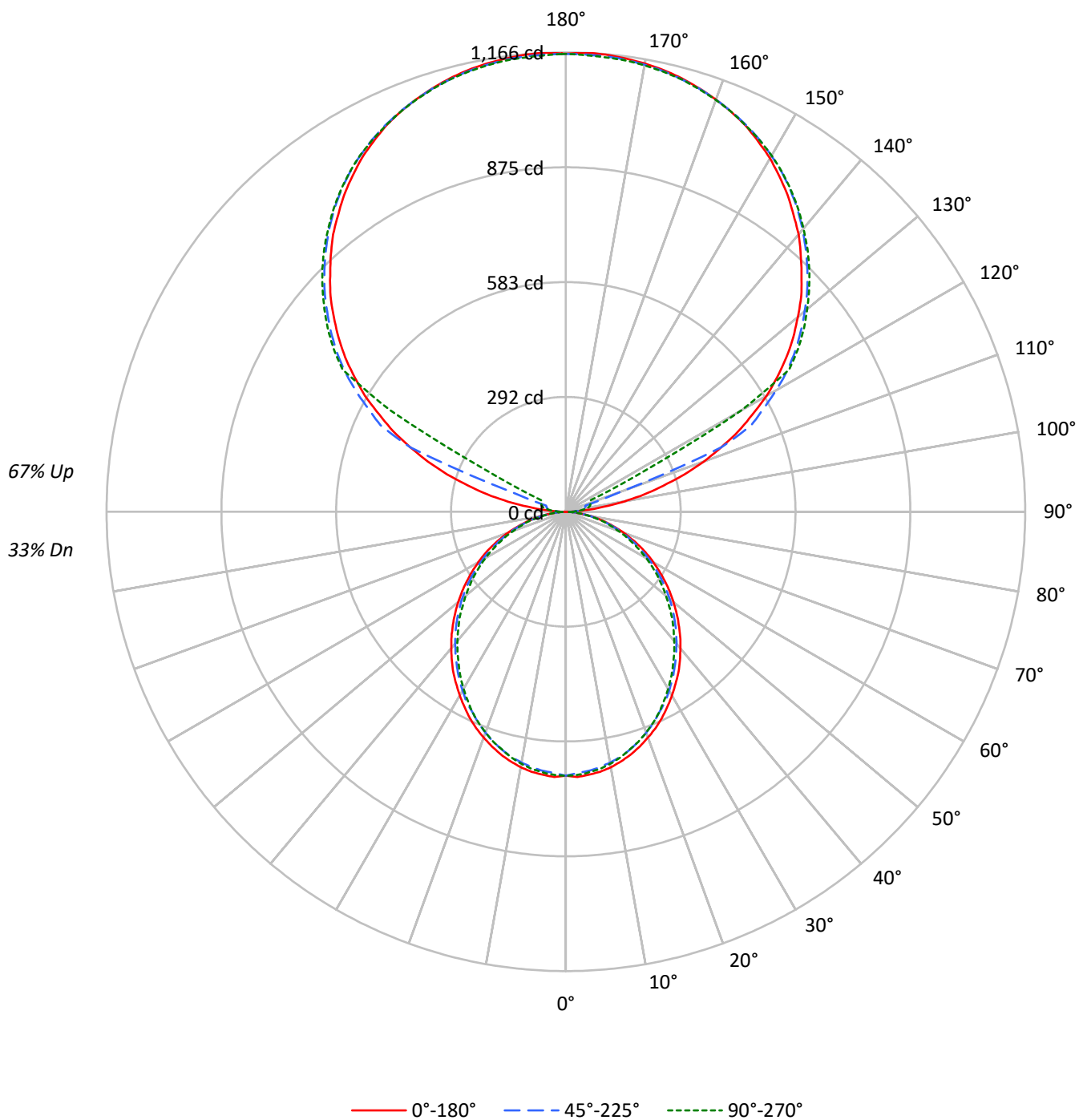
Lumens per Lamp: N/A
Luminaire Lumens: 5114.3 lumens
Efficiency: N/A
Efficacy: 103.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
Input Voltage (V): 120
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: P918515

CATALOG NUMBER: DFN2DIP-4P2F0-020D040US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918515

CATALOG NUMBER: DFN2DIP-4P2F0-020D040US935-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	30	10
RCR																	
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1678	1678	1678
5°	1677	1650	1663
10°	1660	1624	1638
15°	1632	1593	1600
20°	1596	1551	1561
25°	1560	1503	1516
30°	1515	1457	1461
35°	1473	1404	1402
40°	1421	1350	1346
45°	1369	1297	1288
50°	1313	1240	1222
55°	1253	1174	1160
60°	1185	1097	1090
65°	1110	1016	1007
70°	1016	917	917
75°	887	800	830
80°	730	650	670
85°	487	405	419

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1369 cd/sqm

TEST NUMBER: P918515

CATALOG NUMBER: DFN2DIP-4P2F0-020D040US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.1	1.2
10°-20°	177.4	3.5
20°-30°	260.8	5.1
30°-40°	302.9	5.9
40°-50°	302.5	5.9
50°-60°	263.8	5.2
60°-70°	195.0	3.8
70°-80°	110.3	2.2
80°-90°	31.1	0.6
90°-100°	38.3	0.7
100°-110°	142.9	2.8
110°-120°	378.9	7.4
120°-130°	628.5	12.3
130°-140°	667.6	13.1
140°-150°	620.4	12.1
150°-160°	498.8	9.8
160°-170°	321.4	6.3
170°-180°	110.6	2.2
0°-30°	501.3	9.8
0°-40°	804.1	15.7
0°-60°	1370.4	26.8
0°-90°	1706.8	33.4
90°-120°	560.1	11.0
90°-150°	2476.6	48.4
90°-180°	3407.0	66.6
0°-180°	5114.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	670	670	670	670	670	
5°	670	668	660	666	664	64
15°	638	634	626	628	625	180
25°	577	572	561	562	561	266
35°	498	492	481	477	474	311
45°	405	401	391	384	381	313
55°	307	303	295	287	284	274
65°	207	203	197	191	188	205
75°	108	107	104	100	101	116
85°	26	26	25	23	23	29
90°	1	10	17	21	23	5
95°	55	27	33	37	36	65
105°	256	281	51	60	64	273
115°	484	498	519	130	69	476
125°	684	695	711	717	719	610
135°	846	860	867	876	874	654
145°	982	981	995	1001	997	614
155°	1081	1073	1083	1088	1082	498
165°	1139	1134	1136	1142	1136	322
175°	1165	1159	1161	1166	1158	111
180°	1162	1162	1162	1162	1162	

TEST NUMBER: P918515

CATALOG NUMBER: DFN2DIP-4P2F0-020D040US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	670.0	670.0	670.0	670.0	670.0
2.5°	673.9	670.7	663.6	670.0	668.8
5°	670.0	667.5	660.4	665.6	664.3
7.5°	665.6	661.7	654.6	659.8	658.5
10°	658.5	654.0	646.3	651.3	649.5
12.5°	648.8	645.0	637.2	640.4	639.1
15°	637.8	634.0	625.6	628.2	625.0
17.5°	624.3	620.5	612.1	615.3	612.1
20°	609.5	605.6	596.6	598.6	596.0
22.5°	594.7	588.9	580.5	580.5	579.2
25°	577.3	572.1	561.2	562.4	561.2
27.5°	557.9	553.4	545.1	543.2	539.9
30°	538.6	533.5	523.8	521.9	519.3
32.5°	518.0	514.2	503.9	500.0	497.4
35°	498.1	491.6	481.3	477.4	474.2
37.5°	475.5	469.7	459.3	454.9	451.6
40°	452.3	447.1	436.8	431.1	428.4
42.5°	429.7	424.6	414.3	407.9	404.0
45°	405.3	400.8	391.1	384.0	381.4
47.5°	381.4	376.9	366.6	359.5	355.7
50°	356.3	353.1	344.1	335.0	331.8
52.5°	331.8	327.3	318.9	311.9	307.4
55°	306.7	302.8	295.1	287.4	284.1
57.5°	281.5	278.4	269.9	262.3	259.6
60°	256.4	253.9	244.9	237.7	235.8
62.5°	232.0	227.4	221.0	214.6	212.0
65°	206.8	202.9	196.6	190.7	187.5
67.5°	181.1	177.8	172.0	167.6	165.0
70°	157.2	154.6	148.8	144.3	141.8
72.5°	132.8	130.2	126.9	122.4	120.5
75°	108.2	107.0	103.7	99.9	101.2
77.5°	86.4	83.8	82.4	80.5	78.6
80°	64.5	63.8	62.5	60.5	59.2
82.5°	43.8	43.8	43.2	40.6	40.6
85°	26.3	25.7	25.1	23.2	22.6
87.5°	11.6	10.3	9.0	7.1	6.5
90°	0.8	10.1	16.8	21.1	22.6
92.5°	21.1	17.7	20.1	21.9	22.6
95°	54.6	26.9	32.7	37.0	36.2
97.5°	98.4	29.4	42.9	45.5	46.2
100°	148.9	33.7	48.0	54.6	56.3
102.5°	204.3	202.8	49.6	58.8	61.4
105°	255.6	280.9	51.3	60.5	63.9
107.5°	315.4	336.4	53.0	62.3	65.6
110°	372.6	390.2	147.2	63.1	66.4

TEST NUMBER: P918515

CATALOG NUMBER: DFN2DIP-4P2F0-020D040US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	426.5	441.5	427.2	64.7	67.3
115°	483.5	497.8	518.9	129.5	69.1
117.5°	533.2	550.0	564.4	444.0	223.7
120°	588.8	601.3	616.5	626.6	513.1
122.5°	635.8	649.3	666.2	671.1	672.0
125°	683.7	694.7	710.7	716.6	719.1
127.5°	727.5	739.3	751.9	760.3	761.1
130°	768.7	782.2	791.3	800.6	799.9
132.5°	810.7	821.7	830.9	838.5	837.8
135°	846.1	859.6	867.1	875.5	873.9
137.5°	883.0	893.1	901.6	910.0	907.5
140°	919.2	926.0	935.2	942.8	938.6
142.5°	949.6	955.4	966.4	973.0	968.9
145°	981.5	980.7	994.9	1000.8	996.6
147.5°	1009.2	1006.7	1021.0	1025.2	1021.9
150°	1036.1	1030.3	1043.8	1048.8	1044.6
152.5°	1058.9	1052.1	1064.7	1069.8	1063.9
155°	1080.7	1073.2	1083.3	1088.3	1081.6
157.5°	1098.4	1091.7	1099.3	1105.2	1098.4
160°	1113.5	1108.4	1113.5	1118.5	1112.7
162.5°	1127.0	1122.0	1126.2	1132.0	1124.5
165°	1138.8	1133.8	1136.3	1142.1	1136.3
167.5°	1148.1	1142.9	1145.6	1151.4	1143.8
170°	1155.6	1150.6	1152.2	1158.1	1150.6
172.5°	1160.6	1155.6	1157.4	1163.2	1155.6
175°	1164.8	1158.9	1160.6	1166.5	1158.1
177.5°	1166.5	1160.6	1161.5	1167.4	1159.9
180°	1162.3	1162.3	1162.3	1162.3	1162.3

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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	7.16	7.89	8.25	8.98	10.47	6.72	7.45	7.81	8.54	10.03
	3H	8.79	9.44	9.89	10.54	12.05	8.30	8.96	9.40	10.05	11.56
	4H	9.36	9.98	10.46	11.07	12.59	8.86	9.48	9.97	10.58	12.09
	6H	9.73	10.30	10.85	11.40	12.93	9.23	9.80	10.35	10.90	12.43
	8H	9.82	10.37	10.94	11.48	13.00	9.32	9.87	10.44	10.98	12.50
	12H	9.86	10.38	10.98	11.48	13.03	9.35	9.87	10.48	10.98	12.52
4H	2H	7.60	8.22	8.71	9.31	10.83	7.24	7.86	8.36	8.96	10.47
	3H	9.42	9.94	10.54	11.06	12.59	9.02	9.53	10.14	10.66	12.18
	4H	10.11	10.59	11.24	11.70	13.25	9.69	10.16	10.81	11.28	12.82
	6H	10.60	11.01	11.73	12.14	13.68	10.17	10.57	11.30	11.71	13.25
	8H	10.73	11.12	11.87	12.24	13.80	10.30	10.68	11.43	11.80	13.36
	12H	10.79	11.14	11.94	12.27	13.83	10.34	10.69	11.49	11.83	13.39
8H	4H	10.29	10.67	11.42	11.79	13.35	9.91	10.29	11.04	11.42	12.97
	6H	10.88	11.20	12.04	12.37	13.92	10.50	10.81	11.65	11.98	13.53
	8H	11.09	11.36	12.25	12.51	14.08	10.69	10.97	11.85	12.12	13.69
	12H	11.20	11.44	12.36	12.58	14.19	10.79	11.03	11.95	12.17	13.78
12H	4H	10.26	10.61	11.41	11.75	13.31	9.89	10.24	11.04	11.38	12.94
	6H	10.91	11.18	12.07	12.33	13.90	10.53	10.81	11.69	11.96	13.53
	8H	11.12	11.37	12.29	12.51	14.12	10.74	10.98	11.90	12.13	13.74