

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: P918514

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918514
REPORT IS A COMBINATION OF REPORTS P899023 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US935-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

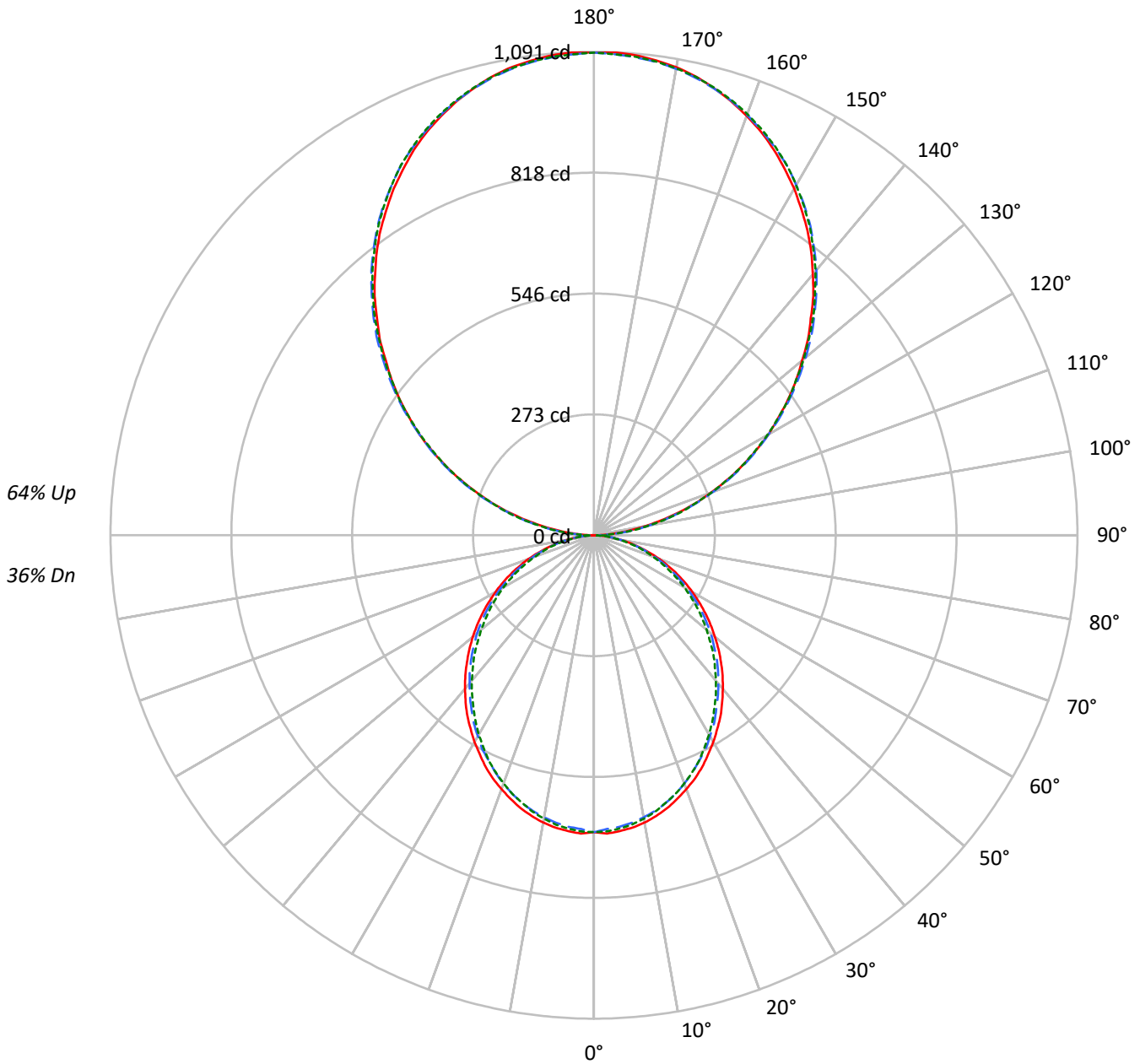
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4752.7 lumens
Efficiency: N/A
Efficacy: 96.4 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-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

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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36			36
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36	30			30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31	25			25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21			21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22	18			18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20	16			16
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17	14			14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12			12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11			11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10			10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11	9			9

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: 90°
 Vertical Angle: 90°
 Luminance: 1620 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.1	1.3
10°-20°	177.4	3.7
20°-30°	260.8	5.5
30°-40°	302.9	6.4
40°-50°	302.5	6.4
50°-60°	263.8	5.5
60°-70°	195.0	4.1
70°-80°	110.3	2.3
80°-90°	32.2	0.7
90°-100°	67.4	1.4
100°-110°	214.2	4.5
110°-120°	366.5	7.7
120°-130°	482.0	10.1
130°-140°	541.0	11.4
140°-150°	530.5	11.2
150°-160°	445.0	9.4
160°-170°	295.1	6.2
170°-180°	103.2	2.2
0°-30°	501.3	10.5
0°-40°	804.1	16.9
0°-60°	1370.4	28.8
0°-90°	1707.9	35.9
90°-120°	648.0	13.6
90°-150°	2201.5	46.3
90°-180°	3045.0	64.1
0°-180°	4752.7	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	12	32	30	31	5
95°	48	57	59	59	57	53
105°	198	200	202	204	204	209
115°	368	373	371	370	368	364
125°	535	543	540	538	537	478
135°	692	702	704	703	700	535
145°	840	846	852	853	849	525
155°	960	963	966	971	968	442
165°	1045	1044	1044	1050	1046	295
175°	1087	1085	1083	1089	1084	103
180°	1089	1089	1089	1089	1089	



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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°	0.9	11.8	32.2	30.2	31.2
92.5°	20.3	27.6	28.6	29.5	29.5
95°	48.0	57.2	58.8	58.8	57.2
97.5°	79.8	88.3	92.0	92.0	92.0
100°	116.6	124.2	126.7	126.7	125.8
102.5°	155.3	160.9	164.5	165.5	164.5
105°	197.7	200.3	202.2	203.9	203.9
107.5°	239.7	243.7	243.7	244.3	239.7
110°	280.4	285.7	285.7	285.7	283.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	324.4	330.0	329.0	326.4	324.4
115°	367.7	373.1	371.3	370.4	367.7
117.5°	410.8	418.0	413.5	410.8	408.2
120°	454.2	461.3	454.2	454.2	451.2
122.5°	493.5	502.7	498.2	495.5	493.5
125°	534.9	543.1	540.5	537.5	536.6
127.5°	575.3	585.5	581.9	577.9	575.3
130°	613.0	624.9	623.3	621.3	617.7
132.5°	655.4	664.6	665.3	660.6	658.1
135°	691.9	702.1	704.0	703.0	700.4
137.5°	732.6	740.8	742.4	741.7	737.9
140°	768.4	776.6	781.2	781.2	777.6
142.5°	805.2	813.4	816.0	817.0	813.4
145°	840.0	846.5	851.8	852.8	849.2
147.5°	871.2	879.3	883.3	884.9	881.3
150°	903.4	909.0	912.6	915.5	912.6
152.5°	931.9	937.5	942.1	945.7	942.1
155°	960.4	963.1	966.0	970.7	967.7
157.5°	985.2	987.0	988.7	995.3	990.7
160°	1007.1	1009.1	1010.0	1015.6	1011.7
162.5°	1027.4	1027.4	1028.5	1034.7	1030.1
165°	1044.9	1043.9	1043.9	1050.4	1045.9
167.5°	1060.7	1057.6	1057.6	1064.3	1059.6
170°	1072.5	1069.8	1068.8	1075.4	1069.8
172.5°	1080.6	1078.1	1077.0	1083.7	1078.1
175°	1087.3	1084.6	1082.6	1089.2	1083.7
177.5°	1090.9	1088.2	1086.2	1091.8	1086.2
180°	1089.2	1089.2	1089.2	1089.2	1089.2



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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	7.47	8.22	8.54	9.29	10.75	7.03	7.78	8.10	8.85	10.31
	3H	9.10	9.77	10.18	10.85	12.33	8.61	9.28	9.69	10.36	11.84
	4H	9.67	10.30	10.76	11.38	12.87	9.17	9.81	10.26	10.89	12.38
	6H	10.04	10.63	11.14	11.71	13.21	9.54	10.13	10.64	11.21	12.71
	8H	10.14	10.69	11.24	11.79	13.28	9.64	10.19	10.74	11.29	12.78
	12H	10.17	10.70	11.28	11.80	13.31	9.66	10.19	10.77	11.29	12.80
4H	2H	7.91	8.54	9.00	9.62	11.11	7.55	8.19	8.65	9.27	10.75
	3H	9.73	10.27	10.84	11.37	12.87	9.33	9.86	10.43	10.97	12.46
	4H	10.43	10.91	11.53	12.01	13.53	10.00	10.49	11.11	11.59	13.10
	6H	10.91	11.33	12.03	12.45	13.96	10.48	10.90	11.60	12.02	13.53
	8H	11.05	11.44	12.16	12.55	14.08	10.61	11.00	11.73	12.11	13.64
	12H	11.11	11.46	12.24	12.59	14.12	10.66	11.01	11.79	12.14	13.67
8H	4H	10.60	10.99	11.72	12.10	13.63	10.22	10.61	11.34	11.73	13.25
	6H	11.20	11.52	12.34	12.68	14.20	10.81	11.14	11.95	12.29	13.81
	8H	11.40	11.69	12.55	12.82	14.36	11.01	11.29	12.15	12.43	13.97
	12H	11.51	11.76	12.66	12.89	14.47	11.10	11.35	12.25	12.48	14.06
12H	4H	10.58	10.93	11.71	12.06	13.59	10.21	10.56	11.34	11.69	13.22
	6H	11.22	11.51	12.37	12.64	14.18	10.85	11.13	11.99	12.27	13.81
	8H	11.44	11.69	12.59	12.82	14.40	11.06	11.31	12.21	12.44	14.02