

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: P921333

Luminaire Tested: DFN2DIP-4P3F0-050D020US940-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921333
REPORT IS A COMBINATION OF REPORTS P900556 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D020US940-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

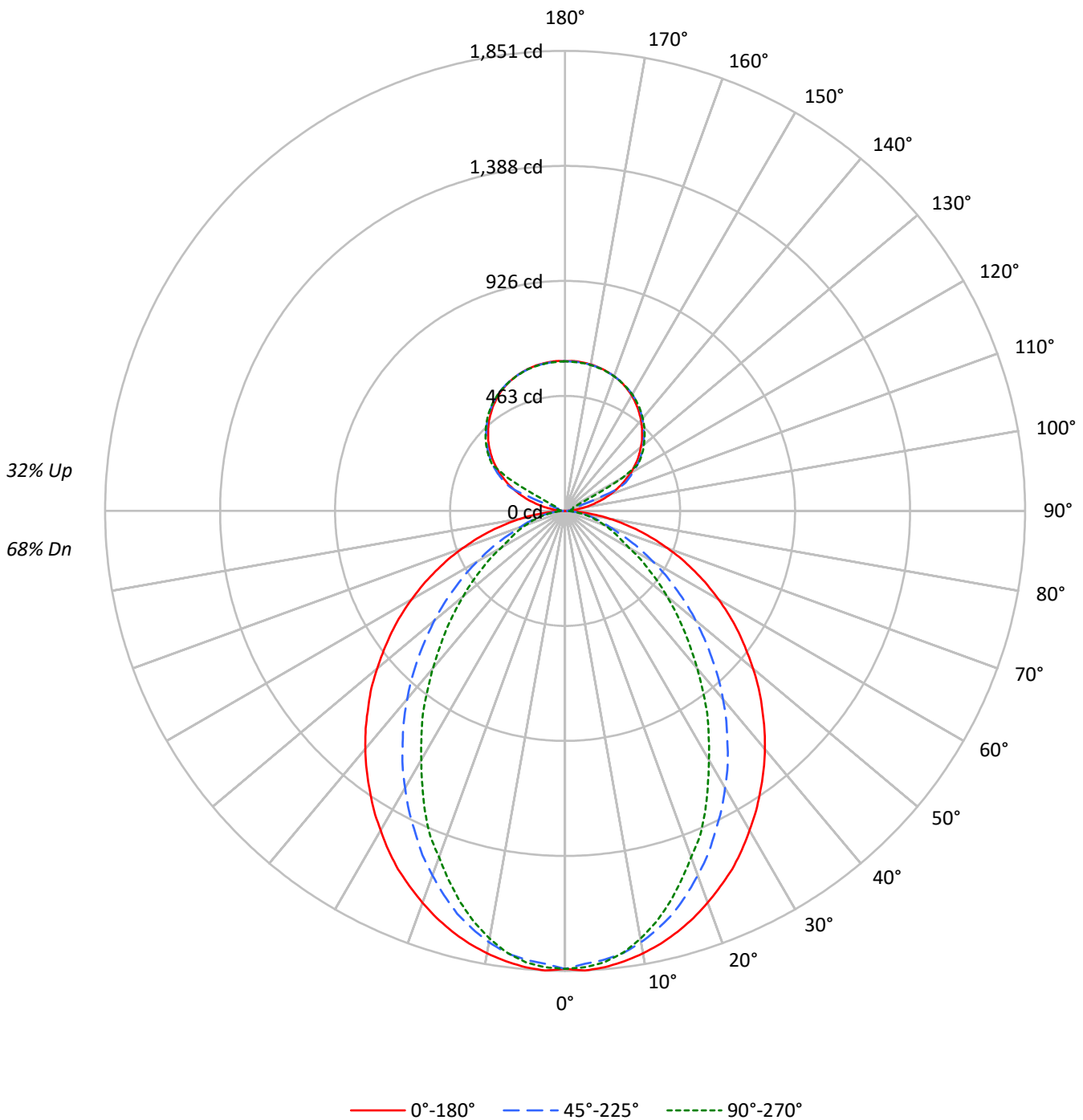
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5555.4 lumens
Efficiency: N/A
Efficacy: 86.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 64.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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			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	111	111	111	111	105	105	105	105	93	93	93	83	83	83	73	73	73	68			68
1	103	98	95	91	97	93	90	87	83	81	78	74	72	70	65	64	63	59			59
2	94	87	81	76	88	82	77	72	74	69	66	66	63	60	58	56	54	50			50
3	86	77	70	64	81	73	66	61	66	60	56	59	55	51	52	49	47	43			43
4	79	69	61	55	75	65	58	53	59	53	49	53	48	45	47	44	41	38			38
5	73	62	53	48	69	59	51	46	53	47	42	48	43	39	43	39	36	33			33
6	68	56	47	42	64	53	46	40	48	42	38	43	39	35	39	35	32	30			30
7	63	50	43	37	59	48	41	36	44	38	33	40	35	31	36	32	29	26			26
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24			24
9	55	42	35	30	52	41	34	29	37	31	27	34	29	25	31	27	24	22			22
10	51	39	32	27	48	37	31	26	34	29	25	31	27	23	29	25	22	20			20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2100	2100	2100
5°	2102	2065	2079
10°	2080	2023	2011
15°	2050	1955	1906
20°	2011	1862	1777
25°	1971	1757	1652
30°	1917	1650	1495
35°	1865	1535	1356
40°	1811	1416	1198
45°	1749	1285	1054
50°	1685	1152	914
55°	1618	1010	779
60°	1540	862	641
65°	1450	712	576
70°	1341	572	520
75°	1205	501	472
80°	1007	416	407
85°	683	272	302

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1749 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.7	3.1
10°-20°	474.1	8.5
20°-30°	665.6	12.0
30°-40°	725.6	13.1
40°-50°	666.9	12.0
50°-60°	523.7	9.4
60°-70°	340.9	6.1
70°-80°	175.5	3.2
80°-90°	45.9	0.8
90°-100°	19.8	0.4
100°-110°	74.0	1.3
110°-120°	196.2	3.5
120°-130°	325.4	5.9
130°-140°	345.7	6.2
140°-150°	321.3	5.8
150°-160°	258.3	4.6
160°-170°	166.4	3.0
170°-180°	57.3	1.0
0°-30°	1312.4	23.6
0°-40°	2038.0	36.7
0°-60°	3228.6	58.1
0°-90°	3790.8	68.2
90°-120°	290.0	5.2
90°-150°	1282.5	23.1
90°-180°	1765.0	31.8
0°-180°	5555.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1843	1843	1843	1843	1843	
5°	1843	1834	1813	1828	1823	175
15°	1753	1734	1678	1646	1629	494
25°	1591	1538	1427	1359	1334	732
35°	1371	1286	1139	1034	997	858
45°	1121	1009	834	715	675	865
55°	852	722	542	442	410	761
65°	575	440	290	234	228	570
75°	307	190	133	122	120	324
85°	72	37	32	32	32	82
90°	0	5	9	11	12	5
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°	1842.7	1842.7	1842.7	1842.7	1842.7
2.5°	1851.0	1842.7	1824.4	1841.1	1837.7
5°	1842.7	1834.4	1812.7	1827.6	1822.7
7.5°	1827.6	1817.8	1794.4	1801.0	1792.6
10°	1807.7	1796.0	1762.7	1757.7	1747.7
12.5°	1782.7	1767.7	1722.6	1712.7	1694.2
15°	1752.7	1734.3	1677.7	1646.0	1629.3
17.5°	1717.6	1691.0	1620.9	1584.2	1557.5
20°	1677.7	1644.2	1560.8	1519.3	1482.5
22.5°	1634.3	1595.9	1499.1	1442.5	1417.6
25°	1590.9	1537.5	1427.4	1359.1	1334.0
27.5°	1539.3	1482.5	1360.8	1282.4	1244.0
30°	1484.3	1420.8	1287.4	1202.4	1157.3
32.5°	1430.8	1354.1	1217.5	1117.3	1075.6
35°	1370.8	1285.8	1139.1	1033.9	997.2
37.5°	1312.4	1220.7	1065.7	950.5	908.9
40°	1250.7	1150.8	988.8	870.5	827.2
42.5°	1187.4	1080.7	912.2	788.7	747.2
45°	1120.7	1008.9	833.8	715.3	675.3
47.5°	1057.3	939.0	758.8	640.3	603.7
50°	987.3	868.9	685.5	570.2	535.4
52.5°	918.8	793.7	615.4	505.3	473.7
55°	852.1	722.0	541.9	441.9	410.3
57.5°	783.8	650.4	477.0	383.6	356.9
60°	713.7	580.3	408.5	323.6	296.9
62.5°	645.4	512.0	350.2	270.2	256.9
65°	575.3	440.2	290.2	233.5	228.5
67.5°	508.6	373.5	233.5	205.1	200.1
70°	438.6	308.5	193.4	176.7	170.0
72.5°	371.9	248.4	161.8	148.5	145.1
75°	306.8	190.0	133.4	121.7	120.1
77.5°	241.8	135.0	105.1	98.4	95.0
80°	181.7	96.8	80.0	73.4	73.4
82.5°	126.7	65.1	55.0	51.6	51.6
85°	71.7	36.6	31.7	31.7	31.7
87.5°	26.8	13.3	13.3	11.7	11.7
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	11.25	12.25	12.04	13.06	14.05	7.21	8.21	8.00	9.02	10.01
	3H	12.93	13.83	13.74	14.65	15.67	8.40	9.30	9.21	10.12	11.14
	4H	13.55	14.39	14.37	15.22	16.25	8.86	9.70	9.68	10.53	11.56
	6H	13.97	14.75	14.81	15.59	16.63	9.18	9.96	10.01	10.79	11.84
	8H	14.10	14.84	14.94	15.70	16.74	9.27	10.01	10.11	10.87	11.91
	12H	14.17	14.87	15.02	15.72	16.79	9.32	10.03	10.17	10.87	11.94
4H	2H	11.28	12.13	12.11	12.96	13.99	7.82	8.67	8.65	9.49	10.52
	3H	13.12	13.83	13.96	14.69	15.73	9.18	9.88	10.02	10.74	11.79
	4H	13.82	14.46	14.67	15.31	16.39	9.73	10.37	10.58	11.23	12.30
	6H	14.34	14.89	15.20	15.77	16.85	10.15	10.70	11.02	11.58	12.66
	8H	14.51	15.03	15.38	15.91	16.99	10.28	10.79	11.15	11.67	12.76
	12H	14.62	15.08	15.50	15.97	17.07	10.35	10.81	11.24	11.71	12.80
8H	4H	13.80	14.31	14.67	15.19	16.28	10.02	10.53	10.89	11.41	12.50
	6H	14.36	14.79	15.26	15.71	16.80	10.54	10.96	11.43	11.88	12.97
	8H	14.58	14.96	15.49	15.87	16.97	10.72	11.10	11.63	12.01	13.12
	12H	14.72	15.05	15.63	15.96	17.12	10.84	11.18	11.75	12.08	13.24
12H	4H	13.76	14.22	14.65	15.12	16.21	10.03	10.49	10.92	11.39	12.48
	6H	14.34	14.72	15.25	15.63	16.73	10.58	10.96	11.49	11.87	12.98
	8H	14.56	14.90	15.47	15.80	16.96	10.80	11.13	11.70	12.03	13.19