

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: P907691

Luminaire Tested: DFN2DIP-4P3F0-050D020US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907691
REPORT IS A COMBINATION OF REPORTS P900555 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D020US840-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

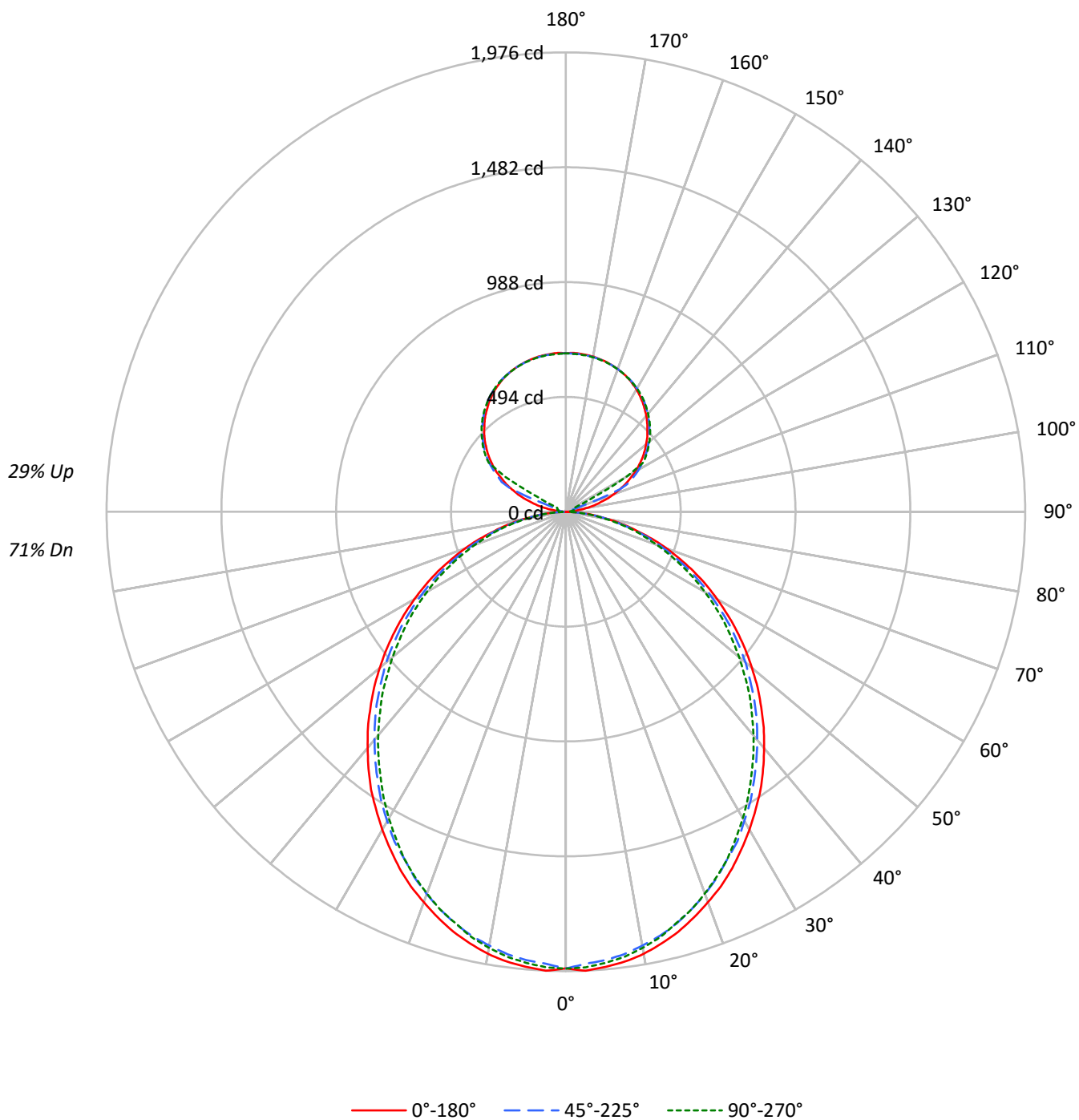
Lumens per Lamp: N/A
Luminaire Lumens: 6998.4 lumens
Efficiency: N/A
Efficacy: 109.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	112	112	112	112	106	106	106	106	95	95	95	85	85	85	76	76	76
1	103	98	94	90	97	93	90	86	84	81	78	75	73	71	67	66	64
2	93	86	79	74	88	81	76	71	73	69	65	66	62	59	59	56	54
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	52	49	46
4	78	67	59	52	74	64	56	50	58	52	47	52	47	43	47	43	40
5	72	60	51	45	68	57	49	44	52	45	40	47	42	38	42	38	35
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	31
7	61	49	40	35	58	47	39	34	42	36	31	39	33	29	35	31	27
8	57	44	36	31	54	42	35	30	39	33	28	35	30	26	32	28	24
9	53	41	33	28	50	39	32	27	36	30	25	33	27	24	30	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2239	2239	2239
5°	2241	2206	2222
10°	2222	2175	2191
15°	2188	2138	2143
20°	2142	2087	2095
25°	2097	2026	2038
30°	2040	1969	1967
35°	1986	1902	1891
40°	1921	1835	1819
45°	1855	1767	1746
50°	1783	1696	1660
55°	1708	1613	1582
60°	1622	1516	1492
65°	1529	1414	1386
70°	1410	1291	1272
75°	1246	1143	1165
80°	1047	953	963
85°	738	632	630

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1855 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	2.6
10°-20°	520.3	7.4
20°-30°	764.6	10.9
30°-40°	888.1	12.7
40°-50°	887.0	12.7
50°-60°	773.4	11.1
60°-70°	571.7	8.2
70°-80°	323.5	4.6
80°-90°	86.6	1.2
90°-100°	22.5	0.3
100°-110°	83.8	1.2
110°-120°	222.2	3.2
120°-130°	368.6	5.3
130°-140°	391.5	5.6
140°-150°	363.9	5.2
150°-160°	292.5	4.2
160°-170°	188.5	2.7
170°-180°	64.9	0.9
0°-30°	1469.8	21.0
0°-40°	2357.9	33.7
0°-60°	4018.3	57.4
0°-90°	5000.0	71.4
90°-120°	328.5	4.7
90°-150°	1452.4	20.8
90°-180°	1998.0	28.5
0°-180°	6998.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	0	6	10	12	13	6
95°	32	16	19	22	21	38
105°	150	165	30	35	38	160
115°	284	292	304	76	40	279
125°	401	407	417	420	422	358
135°	496	504	508	514	512	383
145°	576	575	584	587	584	360
155°	634	629	635	638	634	292
165°	668	665	666	670	666	189
175°	683	680	681	684	679	65
180°	682	682	682	682	682	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	0.5	6.0	9.8	12.3	13.3
92.5°	12.3	10.4	11.8	12.8	13.3
95°	32.0	15.8	19.2	21.7	21.2
97.5°	57.7	17.3	25.1	26.7	27.2
100°	87.4	19.7	28.1	32.0	33.0
102.5°	119.9	118.9	29.1	34.5	36.1
105°	150.0	164.7	30.1	35.4	37.5
107.5°	185.0	197.2	31.1	36.5	38.5
110°	218.5	228.8	86.3	37.1	39.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	250.0	258.9	250.5	38.0	39.5
115°	283.6	292.0	304.4	75.9	40.5
117.5°	312.7	322.6	330.9	260.4	131.2
120°	345.3	352.6	361.5	367.5	300.8
122.5°	372.8	380.7	390.6	393.5	394.2
125°	401.0	407.4	416.8	420.2	421.7
127.5°	426.7	433.5	441.0	445.9	446.4
130°	450.8	458.7	464.1	469.6	469.1
132.5°	475.4	481.9	487.3	491.7	491.3
135°	496.2	504.1	508.5	513.5	512.5
137.5°	517.9	523.8	528.8	533.7	532.2
140°	539.1	543.1	548.5	552.9	550.5
142.5°	556.8	560.4	566.7	570.7	568.2
145°	575.6	575.1	583.5	586.9	584.5
147.5°	591.9	590.4	598.7	601.2	599.3
150°	607.6	604.2	612.1	615.0	612.6
152.5°	621.0	617.0	624.4	627.4	623.9
155°	633.8	629.3	635.3	638.2	634.3
157.5°	644.2	640.3	644.7	648.1	644.2
160°	653.1	650.1	653.1	656.0	652.6
162.5°	660.9	657.9	660.5	663.9	659.4
165°	667.8	664.9	666.3	669.8	666.3
167.5°	673.3	670.2	671.8	675.3	670.8
170°	677.7	674.7	675.7	679.1	674.7
172.5°	680.6	677.7	678.7	682.2	677.7
175°	683.1	679.6	680.6	684.1	679.1
177.5°	684.1	680.6	681.2	684.6	680.1
180°	681.7	681.7	681.7	681.7	681.7

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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	11.82	12.91	12.57	13.68	14.61	11.37	12.47	12.12	13.24	14.17
	3H	13.49	14.47	14.25	15.25	16.21	13.00	13.98	13.76	14.76	15.72
	4H	14.09	15.01	14.87	15.80	16.77	13.59	14.52	14.37	15.31	16.28
	6H	14.49	15.35	15.29	16.15	17.13	13.99	14.85	14.79	15.65	16.63
	8H	14.60	15.42	15.41	16.24	17.22	14.10	14.92	14.91	15.74	16.72
	12H	14.66	15.44	15.47	16.25	17.26	14.15	14.93	14.96	15.74	16.75
4H	2H	12.30	13.23	13.09	14.02	14.99	11.95	12.88	12.73	13.66	14.63
	3H	14.18	14.96	14.98	15.78	16.77	13.78	14.55	14.57	15.37	16.36
	4H	14.90	15.61	15.71	16.43	17.45	14.48	15.19	15.29	16.01	17.02
	6H	15.43	16.04	16.26	16.89	17.91	15.00	15.61	15.82	16.45	17.47
	8H	15.58	16.15	16.41	16.99	18.03	15.14	15.71	15.97	16.56	17.59
	12H	15.66	16.18	16.51	17.04	18.08	15.21	15.73	16.07	16.59	17.63
8H	4H	15.12	15.69	15.95	16.53	17.56	14.74	15.31	15.57	16.15	17.18
	6H	15.75	16.22	16.61	17.11	18.14	15.37	15.84	16.23	16.72	17.76
	8H	15.97	16.39	16.84	17.27	18.32	15.58	16.00	16.45	16.88	17.93
	12H	16.11	16.48	16.98	17.35	18.46	15.70	16.07	16.57	16.94	18.05
12H	4H	15.11	15.63	15.96	16.49	17.53	14.74	15.26	15.59	16.12	17.16
	6H	15.78	16.20	16.65	17.08	18.13	15.41	15.83	16.28	16.71	17.76
	8H	16.03	16.40	16.90	17.27	18.38	15.65	16.02	16.52	16.89	18.00