

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: P902190

Luminaire Tested: DFN2DIP-4P3F0-020D060US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902190
REPORT IS A COMBINATION OF REPORTS P899069 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D060US830-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

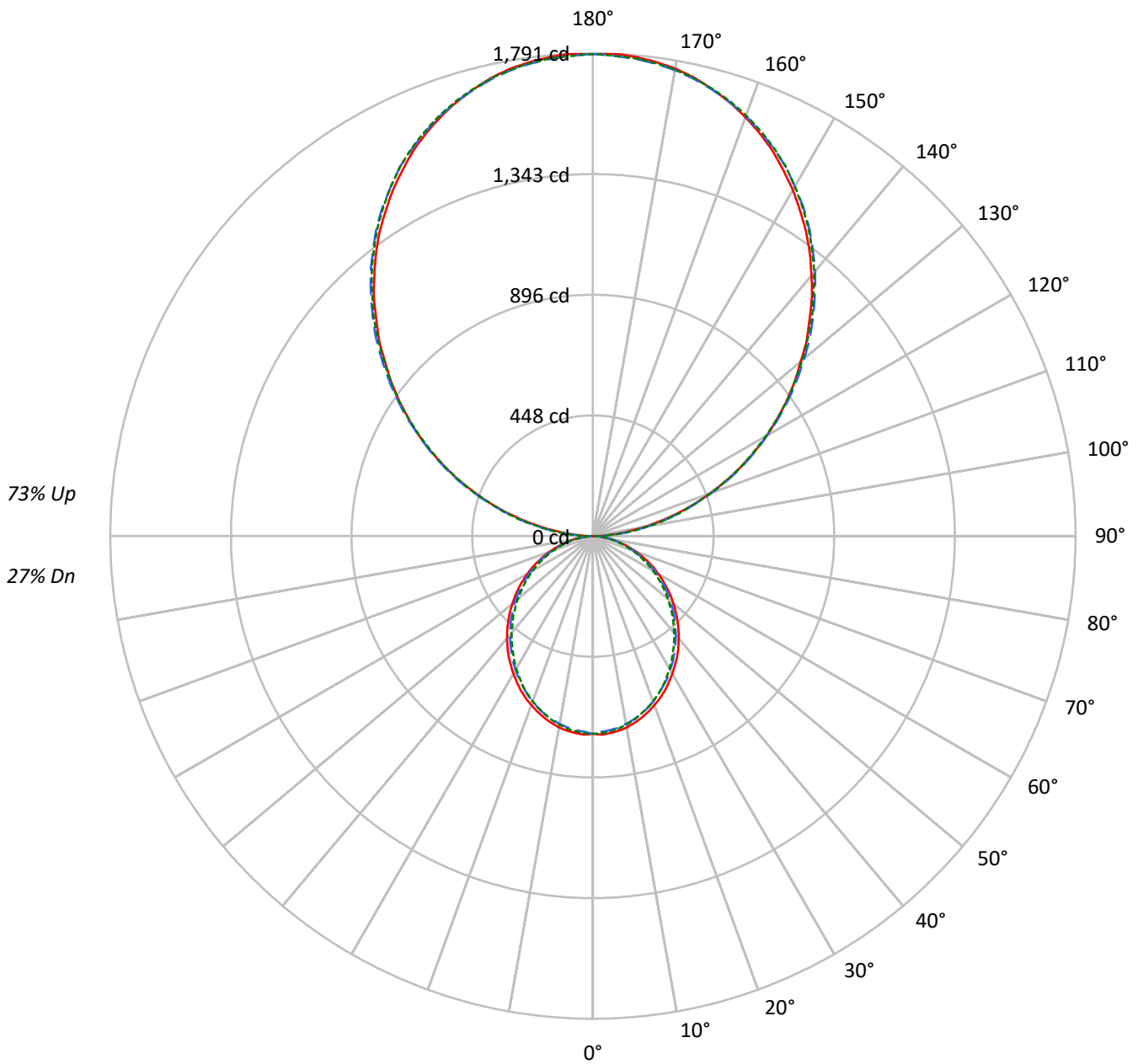
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6871.1 lumens
Efficiency: N/A
Efficacy: 109.4 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-Indirect

Input Watts (W): 62.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P902190
CATALOG NUMBER: DFN2DIP-4P3F0-020D060US830-FLLFL

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



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CATALOG NUMBER: DFN2DIP-4P3F0-020D060US830-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35				27
1	93	88	85	81	83	79	76	73	62	60	58	46	44	43	31	30	30				23
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25				19
3	77	68	61	55	68	61	55	50	48	44	40	35	33	30	24	23	21				16
4	70	60	52	47	62	54	47	42	42	38	34	32	29	26	22	20	18				14
5	64	53	45	40	57	48	41	36	38	33	29	28	25	22	19	17	16				12
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14				11
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12				9
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11				8
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	11	10				8
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	10	9				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	836	836	836
5°	837	824	830
10°	829	812	818
15°	817	798	800
20°	800	779	782
25°	783	756	761
30°	762	735	734
35°	742	710	706
40°	717	685	679
45°	693	660	652
50°	666	633	620
55°	637	602	590
60°	606	566	557
65°	571	528	517
70°	526	482	475
75°	465	427	435
80°	391	356	359
85°	274	236	235

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1793 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	1.0
10°-20°	194.2	2.8
20°-30°	285.5	4.2
30°-40°	331.5	4.8
40°-50°	331.1	4.8
50°-60°	288.7	4.2
60°-70°	213.4	3.1
70°-80°	120.8	1.8
80°-90°	37.0	0.5
90°-100°	110.7	1.6
100°-110°	351.6	5.1
110°-120°	601.8	8.8
120°-130°	791.4	11.5
130°-140°	888.4	12.9
140°-150°	871.1	12.7
150°-160°	730.8	10.6
160°-170°	484.6	7.1
170°-180°	169.4	2.5
0°-30°	548.7	8.0
0°-40°	880.3	12.8
0°-60°	1500.2	21.8
0°-90°	1871.3	27.2
90°-120°	1064.1	15.5
90°-150°	3615.0	52.6
90°-180°	5000.0	72.8
0°-180°	6871.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	734	734	734	734	734	
5°	734	731	723	729	727	70
15°	698	694	685	688	684	197
25°	632	626	614	616	614	291
35°	545	538	527	523	519	340
45°	444	439	428	420	418	342
55°	336	332	323	315	311	300
65°	226	222	215	209	205	224
75°	118	117	114	109	111	126
85°	29	28	28	25	25	32
90°	2	19	53	50	51	7
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	613	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1582	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1789	1779	170
180°	1789	1789	1789	1789	1789	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	733.5	733.5	733.5	733.5	733.5
2.5°	737.7	734.2	726.4	733.5	732.2
5°	733.5	730.8	722.9	728.6	727.2
7.5°	728.6	724.3	716.6	722.3	720.9
10°	720.9	716.0	707.5	713.0	711.0
12.5°	710.2	706.1	697.6	701.1	699.6
15°	698.2	694.1	684.9	687.7	684.2
17.5°	683.4	679.3	670.1	673.5	670.1
20°	667.2	663.0	653.1	655.3	652.4
22.5°	651.0	644.7	635.5	635.5	634.0
25°	632.0	626.3	614.3	615.7	614.3
27.5°	610.8	605.9	596.7	594.6	591.1
30°	589.7	584.0	573.4	571.4	568.4
32.5°	567.0	562.9	551.6	547.3	544.5
35°	545.3	538.2	526.9	522.6	519.1
37.5°	520.6	514.2	502.8	497.9	494.4
40°	495.1	489.5	478.2	471.9	469.0
42.5°	470.4	464.8	453.6	446.5	442.2
45°	443.7	438.8	428.1	420.4	417.5
47.5°	417.5	412.6	401.3	393.5	389.4
50°	390.0	386.5	376.6	366.7	363.3
52.5°	363.3	358.3	349.1	341.4	336.5
55°	335.7	331.5	323.0	314.6	311.0
57.5°	308.2	304.7	295.5	287.1	284.2
60°	280.7	278.0	268.1	260.2	258.2
62.5°	253.9	248.9	242.0	234.9	232.1
65°	226.4	222.2	215.2	208.8	205.3
67.5°	198.2	194.6	188.3	183.4	180.6
70°	172.1	169.3	162.9	158.0	155.2
72.5°	145.3	142.5	138.9	134.0	132.0
75°	118.5	117.2	113.5	109.3	110.7
77.5°	94.5	91.7	90.2	88.1	86.1
80°	70.6	69.8	68.4	66.3	64.8
82.5°	48.0	48.0	47.3	44.5	44.5
85°	28.8	28.2	27.5	25.4	24.7
87.5°	12.7	11.3	9.9	7.8	7.1
90°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.1	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.2	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.8



TEST NUMBER: P902190

CATALOG NUMBER: DFN2DIP-4P3F0-020D060US830-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.9	540.3	535.9	532.7
115°	603.9	612.6	609.8	608.2	603.9
117.5°	674.6	686.5	678.8	674.6	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.5	817.9	813.7	810.4
125°	878.4	891.8	887.5	882.7	881.1
127.5°	944.7	961.4	955.5	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.3
132.5°	1076.3	1091.4	1092.4	1084.9	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.1
137.5°	1203.0	1216.4	1219.2	1218.0	1211.6
140°	1261.8	1275.3	1282.8	1282.8	1276.9
142.5°	1322.1	1335.6	1339.9	1341.5	1335.6
145°	1379.3	1390.1	1398.7	1400.3	1394.4
147.5°	1430.5	1444.0	1450.5	1453.1	1447.2
150°	1483.4	1492.5	1498.5	1503.3	1498.5
152.5°	1530.2	1539.5	1547.0	1552.9	1547.0
155°	1577.2	1581.5	1586.3	1593.9	1589.0
157.5°	1617.6	1620.9	1623.5	1634.4	1626.8
160°	1653.8	1657.0	1658.6	1667.7	1661.3
162.5°	1687.2	1687.2	1688.8	1699.0	1691.5
165°	1715.7	1714.1	1714.1	1724.9	1717.4
167.5°	1741.6	1736.8	1736.8	1747.6	1740.0
170°	1761.0	1756.7	1755.1	1765.9	1756.7
172.5°	1774.5	1770.2	1768.6	1779.3	1770.2
175°	1785.3	1781.0	1777.7	1788.6	1779.3
177.5°	1791.2	1787.0	1783.7	1792.8	1783.7
180°	1788.6	1788.6	1788.6	1788.6	1788.6



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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	4.00	4.69	5.14	5.82	7.38	3.56	4.25	4.69	5.37	6.94
	3H	5.65	6.26	6.79	7.39	8.97	5.16	5.77	6.30	6.91	8.48
	4H	6.22	6.81	7.37	7.94	9.52	5.73	6.32	6.88	7.45	9.03
	6H	6.61	7.15	7.77	8.28	9.88	6.11	6.65	7.27	7.78	9.38
	8H	6.71	7.22	7.87	8.37	9.96	6.21	6.72	7.37	7.87	9.46
	12H	6.75	7.24	7.91	8.38	9.99	6.24	6.73	7.40	7.87	9.48
4H	2H	4.44	5.03	5.60	6.16	7.74	4.09	4.67	5.24	5.80	7.39
	3H	6.29	6.77	7.45	7.93	9.53	5.88	6.37	7.04	7.52	9.12
	4H	6.99	7.44	8.15	8.58	10.20	6.57	7.01	7.73	8.16	9.78
	6H	7.49	7.88	8.66	9.04	10.65	7.06	7.44	8.23	8.61	10.22
	8H	7.63	7.99	8.80	9.15	10.78	7.20	7.56	8.36	8.72	10.34
	12H	7.70	8.02	8.88	9.19	10.82	7.25	7.57	8.43	8.74	10.37
8H	4H	7.17	7.53	8.34	8.69	10.31	6.79	7.15	7.96	8.31	9.93
	6H	7.79	8.08	8.97	9.28	10.90	7.40	7.70	8.59	8.90	10.52
	8H	8.00	8.26	9.19	9.44	11.08	7.61	7.87	8.80	9.05	10.69
	12H	8.12	8.35	9.32	9.53	11.20	7.71	7.94	8.91	9.12	10.79
12H	4H	7.14	7.47	8.33	8.64	10.27	6.77	7.10	7.96	8.27	9.90
	6H	7.81	8.07	9.00	9.25	10.89	7.44	7.70	8.63	8.88	10.52
	8H	8.04	8.27	9.24	9.45	11.12	7.66	7.89	8.86	9.07	10.74