

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: P902191

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902191
REPORT IS A COMBINATION OF REPORTS P900589 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D060US830-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

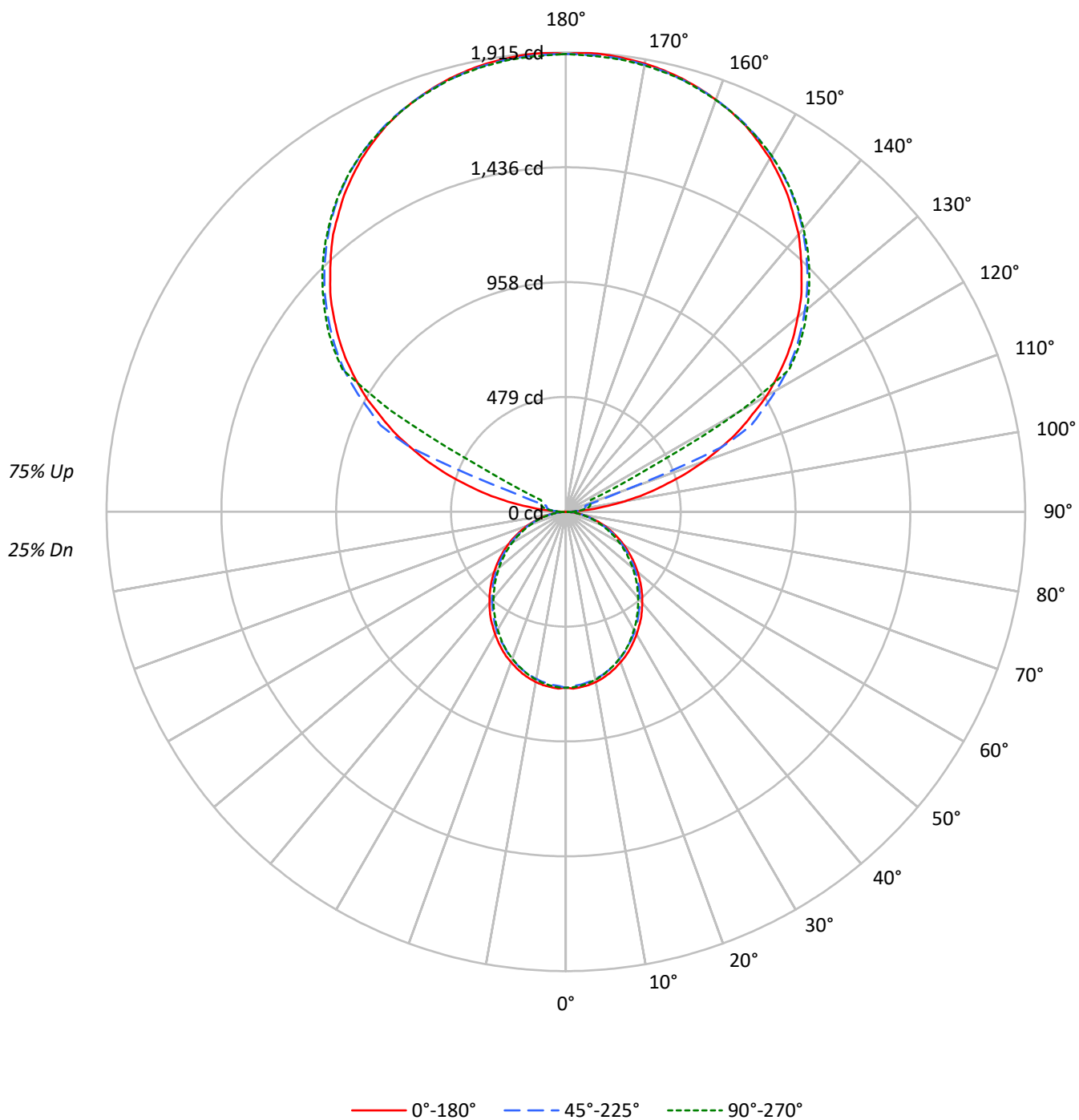
Lumens per Lamp: N/A
Luminaire Lumens: 7464.9 lumens
Efficiency: N/A
Efficacy: 118.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

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: P902191

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

Luminous Intensity Polar Plot



TEST NUMBER: P902191

CATALOG NUMBER: DFN2DIP-4P3F0-020D060US830-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	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8

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: 1303 cd/sqm

TEST NUMBER: P902191

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	0.9
10°-20°	194.2	2.6
20°-30°	285.5	3.8
30°-40°	331.5	4.4
40°-50°	331.1	4.4
50°-60°	288.7	3.9
60°-70°	213.4	2.9
70°-80°	120.8	1.6
80°-90°	35.2	0.5
90°-100°	62.9	0.8
100°-110°	234.6	3.1
110°-120°	622.2	8.3
120°-130°	1032.0	13.8
130°-140°	1096.2	14.7
140°-150°	1018.8	13.6
150°-160°	819.1	11.0
160°-170°	527.8	7.1
170°-180°	181.7	2.4
0°-30°	548.7	7.4
0°-40°	880.3	11.8
0°-60°	1500.2	20.1
0°-90°	1869.6	25.0
90°-120°	919.8	12.3
90°-150°	4066.8	54.5
90°-180°	5595.0	75.0
0°-180°	7464.9	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°	1	17	28	35	37	7
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1775	1762	1779	1787	1776	818
165°	1870	1862	1866	1876	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1909	1909	1909	1909	1909	

TEST NUMBER: P902191

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

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°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.6	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.9
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.1

TEST NUMBER: P902191

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

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.6	852.2	212.7	113.3
117.5°	875.5	903.1	926.7	729.2	367.3
120°	966.8	987.4	1012.4	1028.9	842.4
122.5°	1044.0	1066.1	1093.8	1102.0	1103.5
125°	1122.8	1140.8	1167.0	1176.7	1180.7
127.5°	1194.6	1213.9	1234.7	1248.5	1249.8
130°	1262.3	1284.4	1299.5	1314.8	1313.4
132.5°	1331.3	1349.3	1364.4	1376.9	1375.5
135°	1389.4	1411.6	1423.8	1437.8	1434.9
137.5°	1450.0	1466.6	1480.5	1494.3	1490.3
140°	1509.4	1520.6	1535.7	1548.1	1541.2
142.5°	1559.2	1569.0	1586.9	1597.8	1590.9
145°	1611.7	1610.2	1633.7	1643.4	1636.5
147.5°	1657.2	1653.0	1676.5	1683.4	1678.0
150°	1701.5	1691.8	1713.9	1722.1	1715.2
152.5°	1738.7	1727.7	1748.3	1756.7	1747.0
155°	1774.6	1762.3	1778.9	1787.1	1776.0
157.5°	1803.6	1792.6	1805.1	1814.8	1803.6
160°	1828.5	1820.1	1828.5	1836.7	1827.1
162.5°	1850.5	1842.3	1849.2	1858.9	1846.4
165°	1869.9	1861.7	1865.8	1875.5	1865.8
167.5°	1885.1	1876.8	1881.0	1890.7	1878.2
170°	1897.6	1889.2	1892.1	1901.7	1889.2
172.5°	1905.8	1897.6	1900.4	1910.1	1897.6
175°	1912.7	1903.0	1905.8	1915.4	1901.7
177.5°	1915.4	1905.8	1907.2	1916.9	1904.5
180°	1908.6	1908.6	1908.6	1908.6	1908.6

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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	3.67	4.35	4.82	5.48	7.07	3.23	3.90	4.38	5.04	6.63
	3H	5.31	5.92	6.47	7.06	8.66	4.83	5.43	5.98	6.57	8.17
	4H	5.89	6.46	7.05	7.61	9.22	5.40	5.97	6.56	7.11	8.72
	6H	6.28	6.81	7.45	7.95	9.57	5.78	6.31	6.95	7.45	9.07
	8H	6.38	6.88	7.55	8.04	9.65	5.87	6.38	7.05	7.54	9.15
	12H	6.42	6.89	7.59	8.05	9.68	5.91	6.38	7.08	7.54	9.17
4H	2H	4.11	4.68	5.28	5.82	7.43	3.75	4.33	4.92	5.47	7.08
	3H	5.95	6.43	7.13	7.60	9.22	5.54	6.02	6.72	7.19	8.81
	4H	6.65	7.10	7.83	8.25	9.89	6.23	6.67	7.41	7.83	9.47
	6H	7.15	7.53	8.34	8.71	10.34	6.72	7.10	7.90	8.28	9.91
	8H	7.30	7.65	8.48	8.82	10.47	6.86	7.21	8.04	8.38	10.03
	12H	7.36	7.68	8.55	8.86	10.51	6.91	7.23	8.11	8.41	10.06
8H	4H	6.83	7.18	8.01	8.35	10.00	6.45	6.81	7.63	7.98	9.62
	6H	7.45	7.74	8.65	8.95	10.59	7.06	7.35	8.26	8.57	10.21
	8H	7.66	7.92	8.87	9.11	10.77	7.27	7.52	8.48	8.71	10.38
	12H	7.78	8.01	8.99	9.19	10.89	7.37	7.60	8.58	8.78	10.48
12H	4H	6.81	7.13	8.00	8.31	9.96	6.44	6.76	7.63	7.94	9.59
	6H	7.48	7.73	8.68	8.92	10.58	7.10	7.36	8.31	8.55	10.21
	8H	7.70	7.93	8.91	9.11	10.81	7.32	7.55	8.53	8.73	10.43