

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: P903873

Luminaire Tested: DFN2DIP-SQ3F0-110D060US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903873
REPORT IS A COMBINATION OF REPORTS P901431 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D060US830-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

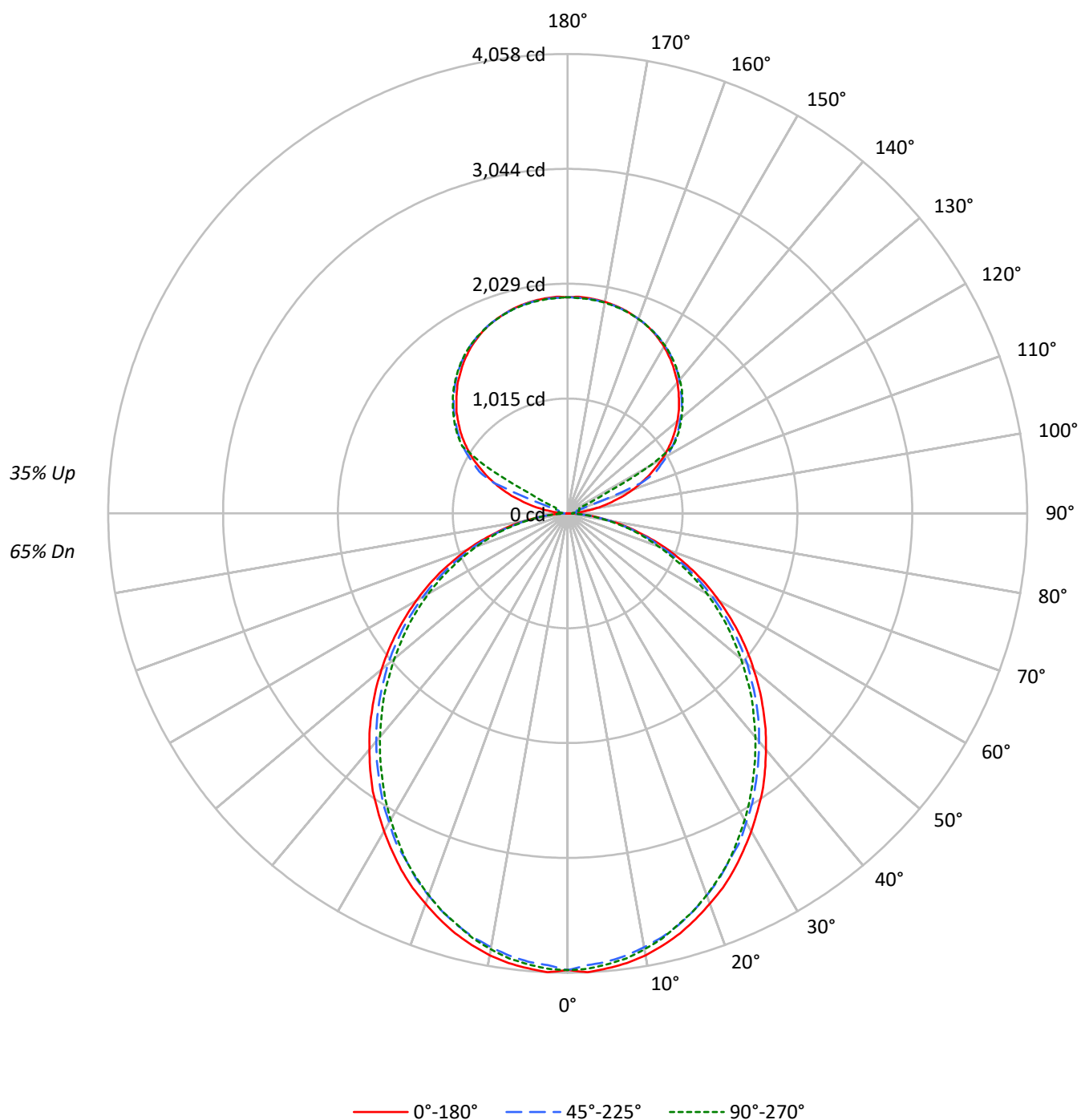
Lumens per Lamp: N/A
Luminaire Lumens: 15862.9 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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	111	111	111	111	104	104	104	104	92	92	92	80	80	80	70	70	70
1	101	97	93	89	95	91	88	84	80	78	75	71	69	67	62	60	59
2	92	84	78	73	86	80	74	69	70	66	62	62	59	56	54	52	50
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42
4	77	66	58	51	72	62	55	49	55	49	45	49	44	41	43	39	36
5	71	59	50	44	66	56	48	42	50	43	39	44	39	35	39	35	32
6	65	53	44	39	61	50	42	37	45	39	34	40	35	31	35	31	28
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25
8	56	43	36	30	53	41	34	29	37	31	27	33	28	25	30	25	22
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4623	4623	4623
5°	4627	4555	4587
10°	4586	4491	4524
15°	4516	4414	4425
20°	4422	4308	4324
25°	4328	4182	4208
30°	4212	4064	4060
35°	4101	3926	3904
40°	3965	3787	3756
45°	3829	3647	3604
50°	3681	3500	3428
55°	3525	3330	3266
60°	3349	3128	3080
65°	3156	2919	2861
70°	2910	2664	2624
75°	2571	2358	2404
80°	2161	1967	1987
85°	1522	1304	1300

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3829 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.4
10°-20°	1068.3	6.7
20°-30°	1570.0	9.9
30°-40°	1823.5	11.5
40°-50°	1821.2	11.5
50°-60°	1588.0	10.0
60°-70°	1173.9	7.4
70°-80°	664.2	4.2
80°-90°	178.6	1.1
90°-100°	62.9	0.4
100°-110°	234.6	1.5
110°-120°	622.2	3.9
120°-130°	1032.0	6.5
130°-140°	1096.2	6.9
140°-150°	1018.8	6.4
150°-160°	819.1	5.2
160°-170°	527.8	3.3
170°-180°	181.7	1.1
0°-30°	3018.1	19.0
0°-40°	4841.6	30.5
0°-60°	8250.9	52.0
0°-90°	10267.6	64.7
90°-120°	919.8	5.8
90°-150°	4066.8	25.6
90°-180°	5595.0	35.3
0°-180°	15862.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3767	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1873
45°	2440	2413	2355	2312	2297	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	696
85°	159	155	152	140	136	177
90°	1	17	28	35	37	15
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.3	4034.3	4034.3	4034.3	4034.3
2.5°	4057.6	4038.3	3995.5	4034.3	4026.8
5°	4034.3	4019.0	3976.2	4007.0	3999.7
7.5°	4007.0	3984.0	3941.2	3972.5	3964.7
10°	3964.7	3937.5	3891.0	3921.8	3910.3
12.5°	3906.3	3883.2	3836.7	3856.0	3848.2
15°	3840.4	3817.3	3766.7	3782.3	3763.0
17.5°	3758.9	3735.9	3685.2	3704.6	3685.2
20°	3669.6	3646.5	3592.2	3603.7	3588.5
22.5°	3580.7	3545.7	3495.0	3495.0	3487.2
25°	3475.7	3444.9	3379.0	3386.5	3379.0
27.5°	3359.2	3332.1	3281.8	3270.3	3251.0
30°	3243.2	3211.9	3153.8	3142.3	3126.7
32.5°	3118.9	3095.9	3033.7	3010.2	2994.6
35°	2998.7	2960.1	2897.8	2874.4	2855.1
37.5°	2862.9	2827.9	2765.8	2738.6	2719.2
40°	2723.4	2692.1	2630.0	2595.4	2579.7
42.5°	2587.6	2556.3	2494.5	2455.4	2432.4
45°	2440.2	2413.0	2354.6	2312.2	2296.6
47.5°	2296.6	2269.5	2207.2	2164.5	2141.4
50°	2145.1	2125.8	2071.4	2017.1	1997.8
52.5°	1997.8	1970.6	1920.4	1877.5	1850.4
55°	1846.7	1823.3	1776.8	1730.2	1710.9
57.5°	1695.3	1675.9	1625.3	1578.8	1563.1
60°	1543.8	1528.6	1474.2	1431.4	1419.9
62.5°	1396.5	1369.3	1330.6	1291.9	1276.3
65°	1245.4	1221.9	1183.3	1148.3	1129.0
67.5°	1090.2	1070.5	1035.9	1008.8	993.2
70°	946.6	930.9	896.0	868.8	853.6
72.5°	799.3	783.6	764.3	737.2	725.6
75°	651.5	644.1	624.3	601.3	609.2
77.5°	519.8	504.2	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
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

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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	13.82	14.83	14.63	15.67	16.71	13.37	14.38	14.19	15.22	16.27
	3H	15.48	16.39	16.31	17.24	18.31	14.99	15.90	15.82	16.75	17.82
	4H	16.07	16.93	16.92	17.79	18.87	15.58	16.44	16.43	17.30	18.38
	6H	16.48	17.27	17.34	18.14	19.23	15.98	16.77	16.84	17.64	18.73
	8H	16.58	17.34	17.45	18.22	19.32	16.08	16.84	16.95	17.72	18.82
	12H	16.64	17.35	17.51	18.23	19.36	16.13	16.85	17.00	17.72	18.85
4H	2H	14.29	15.15	15.14	16.01	17.09	13.94	14.79	14.79	15.65	16.73
	3H	16.16	16.88	17.03	17.77	18.87	15.76	16.47	16.62	17.36	18.46
	4H	16.88	17.53	17.76	18.42	19.55	16.46	17.11	17.33	18.00	19.12
	6H	17.40	17.96	18.29	18.88	20.00	16.97	17.53	17.86	18.44	19.57
	8H	17.55	18.08	18.45	18.99	20.13	17.11	17.64	18.01	18.55	19.69
	12H	17.63	18.10	18.54	19.03	20.18	17.18	17.66	18.10	18.58	19.73
8H	4H	17.09	17.61	17.98	18.52	19.66	16.71	17.24	17.60	18.14	19.28
	6H	17.72	18.15	18.64	19.10	20.24	17.33	17.77	18.26	18.72	19.86
	8H	17.94	18.32	18.87	19.26	20.42	17.54	17.93	18.48	18.87	20.03
	12H	18.07	18.41	19.01	19.34	20.55	17.66	18.00	18.60	18.93	20.14
12H	4H	17.08	17.55	17.99	18.48	19.62	16.71	17.18	17.62	18.11	19.26
	6H	17.75	18.13	18.68	19.07	20.23	17.37	17.76	18.31	18.70	19.86
	8H	17.99	18.33	18.93	19.27	20.47	17.61	17.95	18.55	18.88	20.09