

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: P904503

Luminaire Tested: DFN2DIP-TR3F0-080D060US830-FLLONL

Issue Date: 11/21/2024

**Test Information**

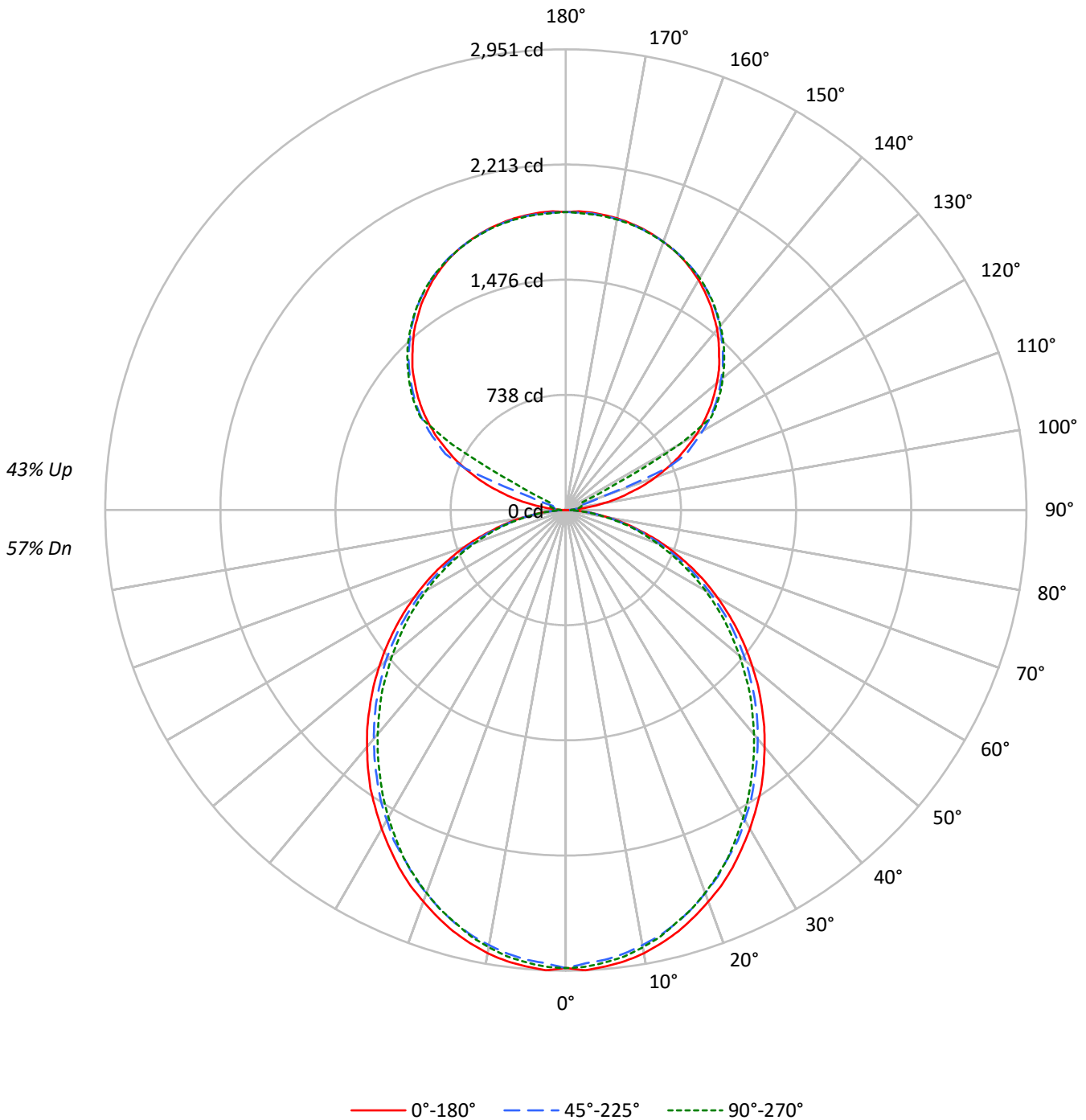
Test Method: LM-79-2019  
Report Number: P904503  
REPORT IS A COMBINATION OF REPORTS P901843 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-080D060US830-FLLONL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13063.6 lumens  
Efficiency: N/A  
Efficacy: 103.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 126  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63	57	57	57	57
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53	48	48	48	48
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45	40	40	40	40
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38	34	34	34	34
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33	29	29	29	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29	26	26	26	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	22	22	22	22
7	59	47	39	33	55	44	37	31	39	33	28	34	29	25	29	25	22	20	20	20	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18	18	18	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16	16	16	16
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17	15	15	15	15

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3656	3656	3656
5°	3660	3602	3627
10°	3628	3550	3575
15°	3573	3489	3496
20°	3499	3405	3415
25°	3425	3305	3322
30°	3333	3211	3204
35°	3246	3101	3080
40°	3139	2990	2961
45°	3031	2879	2840
50°	2914	2762	2699
55°	2791	2626	2569
60°	2653	2466	2420
65°	2501	2299	2245
70°	2307	2097	2055
75°	2040	1853	1877
80°	1717	1542	1542
85°	1214	1016	996

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3031 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.1	2.1
10°-20°	777.0	5.9
20°-30°	1141.8	8.7
30°-40°	1326.2	10.2
40°-50°	1324.5	10.1
50°-60°	1155.0	8.8
60°-70°	853.8	6.5
70°-80°	483.0	3.7
80°-90°	130.9	1.0
90°-100°	62.9	0.5
100°-110°	234.6	1.8
110°-120°	622.2	4.8
120°-130°	1032.0	7.9
130°-140°	1096.2	8.4
140°-150°	1018.8	7.8
150°-160°	819.1	6.3
160°-170°	527.8	4.0
170°-180°	181.7	1.4
0°-30°	2195.0	16.8
0°-40°	3521.1	27.0
0°-60°	6000.6	45.9
0°-90°	7468.3	57.2
90°-120°	919.8	7.0
90°-150°	4066.8	31.1
90°-180°	5595.0	42.8
0°-180°	13063.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	279
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2458	2463	2458	1163
35°	2181	2153	2108	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	896
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	1	17	28	35	37	12
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°	2933.9	2933.9	2933.9	2933.9	2933.9
2.5°	2951.0	2937.0	2905.9	2933.9	2928.6
5°	2933.9	2922.9	2891.8	2914.2	2908.9
7.5°	2914.2	2897.5	2866.4	2889.1	2883.4
10°	2883.4	2863.6	2829.8	2852.2	2843.9
12.5°	2840.9	2824.1	2790.3	2804.3	2798.7
15°	2793.0	2776.3	2739.4	2750.8	2736.8
17.5°	2733.7	2717.0	2680.1	2694.3	2680.1
20°	2668.8	2652.0	2612.5	2620.9	2609.8
22.5°	2604.2	2578.7	2541.8	2541.8	2536.2
25°	2527.8	2505.4	2457.5	2462.9	2457.5
27.5°	2443.1	2423.4	2386.8	2378.4	2364.4
30°	2358.7	2335.9	2293.8	2285.4	2274.0
32.5°	2268.3	2251.5	2206.3	2189.2	2177.9
35°	2180.9	2152.8	2107.5	2090.5	2076.4
37.5°	2082.1	2056.6	2011.5	1991.7	1977.6
40°	1980.7	1957.8	1912.7	1887.5	1876.1
42.5°	1881.9	1859.1	1814.2	1785.7	1769.1
45°	1774.7	1754.9	1712.4	1681.6	1670.3
47.5°	1670.3	1650.5	1605.2	1574.1	1557.4
50°	1560.1	1546.1	1506.5	1467.0	1452.9
52.5°	1452.9	1433.1	1396.7	1365.6	1345.8
55°	1343.0	1326.0	1292.2	1258.4	1244.3
57.5°	1232.9	1218.9	1182.0	1148.2	1136.8
60°	1122.8	1111.7	1072.1	1041.0	1032.6
62.5°	1015.6	995.9	967.7	939.6	928.2
65°	905.8	888.7	860.5	835.1	821.0
67.5°	792.9	778.5	753.4	733.7	722.3
70°	688.4	677.0	651.7	631.9	620.8
72.5°	581.3	570.0	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.1	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
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	12.36	13.29	13.25	14.20	15.37	11.93	12.86	12.83	13.78	14.94
	3H	14.02	14.85	14.92	15.77	16.96	13.55	14.38	14.45	15.31	16.50
	4H	14.60	15.39	15.52	16.32	17.52	14.13	14.92	15.05	15.85	17.05
	6H	15.00	15.73	15.93	16.66	17.87	14.53	15.26	15.46	16.19	17.40
	8H	15.10	15.79	16.04	16.75	17.96	14.63	15.33	15.57	16.28	17.49
	12H	15.15	15.81	16.09	16.75	17.99	14.67	15.33	15.62	16.28	17.52
4H	2H	12.83	13.62	13.75	14.54	15.74	12.48	13.27	13.41	14.20	15.40
	3H	14.69	15.35	15.62	16.31	17.52	14.30	14.96	15.24	15.92	17.13
	4H	15.40	16.00	16.34	16.95	18.19	15.00	15.60	15.94	16.55	17.79
	6H	15.91	16.43	16.87	17.40	18.64	15.50	16.02	16.46	17.00	18.24
	8H	16.06	16.54	17.02	17.51	18.76	15.65	16.13	16.61	17.10	18.36
	12H	16.13	16.56	17.11	17.55	18.81	15.71	16.15	16.69	17.14	18.40
8H	4H	15.60	16.08	16.56	17.05	18.30	15.24	15.72	16.20	16.70	17.95
	6H	16.22	16.62	17.21	17.63	18.88	15.86	16.26	16.85	17.28	18.53
	8H	16.44	16.79	17.43	17.79	19.06	16.07	16.43	17.07	17.43	18.70
	12H	16.56	16.88	17.56	17.87	19.19	16.19	16.50	17.18	17.49	18.81
12H	4H	15.58	16.02	16.57	17.01	18.27	15.24	15.67	16.22	16.66	17.92
	6H	16.25	16.60	17.24	17.60	18.87	15.90	16.26	16.90	17.26	18.53
	8H	16.49	16.80	17.49	17.79	19.11	16.13	16.45	17.13	17.44	18.76