

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: P906368

Luminaire Tested: DFN2DIP-SQ3F0-040D110US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

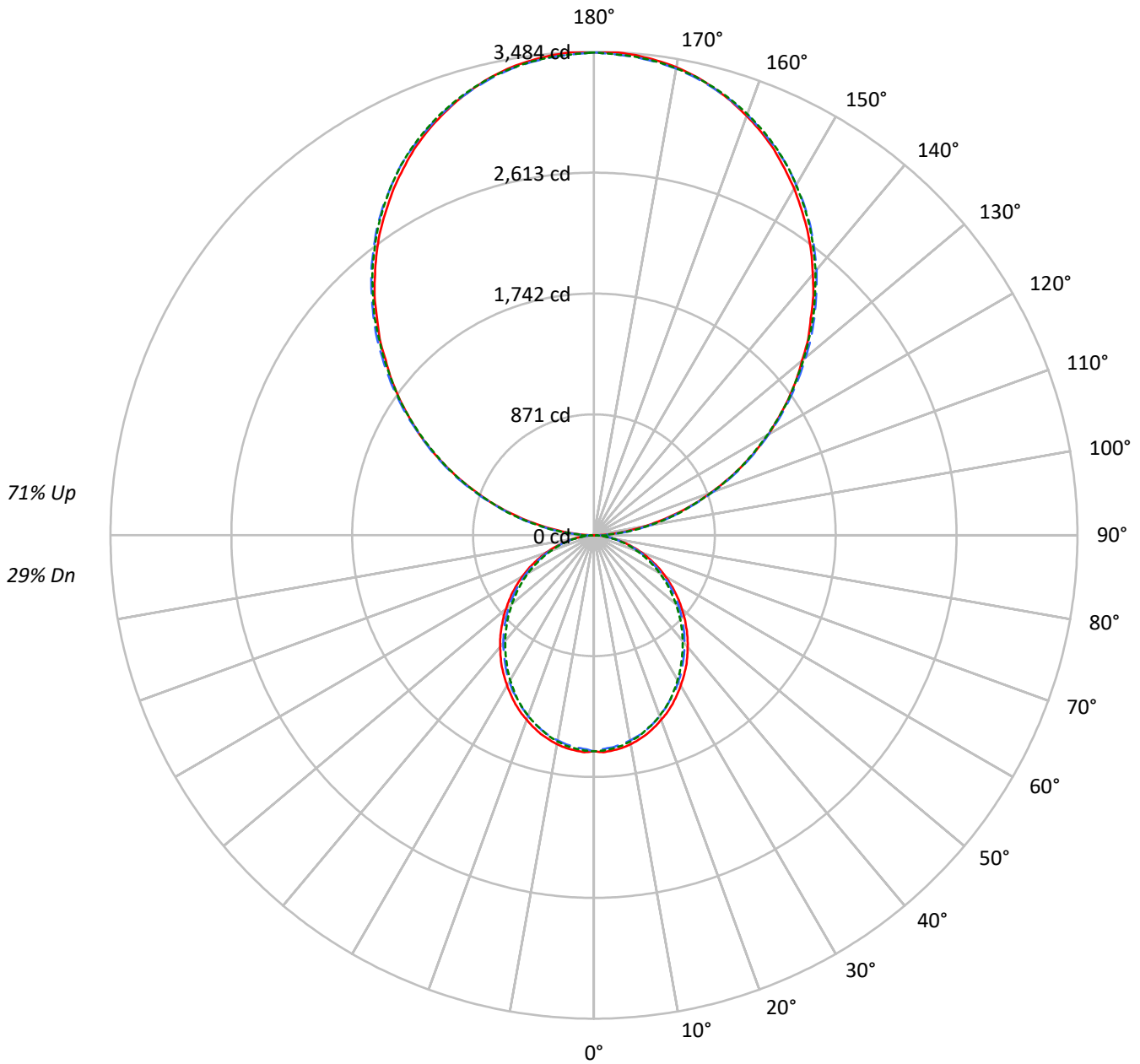
Test Method: LM-79-2019  
Report Number: P906368  
REPORT IS A COMBINATION OF REPORTS P899987 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-040D110US835-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13695.0 lumens  
Efficiency: N/A  
Efficacy: 115.9 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-Indirect  
  
Input Watts (W): 118.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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



— 0°-180°    - - 45°-225°    - - - 90°-270°



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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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	29			29
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31	24			24
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26	20			20
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22	17			17
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19	15			15
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17	13			13
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15	11			11
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13	10			10
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12	9			9
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10	8			8
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9	7			7

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

	0°	45°	90°
0°	1783	1783	1783
5°	1785	1757	1770
10°	1769	1733	1745
15°	1742	1703	1707
20°	1706	1662	1668
25°	1670	1613	1623
30°	1625	1568	1566
35°	1582	1515	1506
40°	1530	1461	1449
45°	1477	1407	1390
50°	1420	1350	1322
55°	1360	1285	1260
60°	1292	1207	1188
65°	1218	1126	1104
70°	1123	1028	1012
75°	992	910	927
80°	834	759	767
85°	587	503	502

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 3498 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	146.5	1.1
10°-20°	412.2	3.0
20°-30°	605.7	4.4
30°-40°	703.5	5.1
40°-50°	702.6	5.1
50°-60°	612.7	4.5
60°-70°	452.9	3.3
70°-80°	256.2	1.9
80°-90°	77.5	0.6
90°-100°	215.3	1.6
100°-110°	684.0	5.0
110°-120°	1170.5	8.5
120°-130°	1539.4	11.2
130°-140°	1727.9	12.6
140°-150°	1694.4	12.4
150°-160°	1421.4	10.4
160°-170°	942.6	6.9
170°-180°	329.5	2.4
0°-30°	1164.4	8.5
0°-40°	1867.9	13.6
0°-60°	3183.2	23.2
0°-90°	3969.9	29.0
90°-120°	2069.8	15.1
90°-150°	7031.6	51.3
90°-180°	9725.0	71.0
0°-180°	13695.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1556	1556	1556	1556	1556	
5°	1556	1550	1534	1546	1543	148
15°	1482	1473	1453	1459	1452	417
25°	1341	1329	1304	1306	1304	617
35°	1157	1142	1118	1109	1102	722
45°	941	931	908	892	886	727
55°	712	703	686	668	660	637
65°	480	471	456	443	436	475
75°	251	248	241	232	235	268
85°	61	60	58	54	52	68
90°	3	38	103	96	100	13
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1556.4	1556.4	1556.4	1556.4	1556.4
2.5°	1565.5	1558.0	1541.5	1556.4	1553.6
5°	1556.4	1550.5	1534.0	1545.9	1543.1
7.5°	1545.9	1537.0	1520.5	1532.6	1529.6
10°	1529.6	1519.1	1501.2	1513.1	1508.6
12.5°	1507.0	1498.1	1480.2	1487.7	1484.6
15°	1481.6	1472.7	1453.2	1459.2	1451.8
17.5°	1450.2	1441.3	1421.8	1429.2	1421.8
20°	1415.7	1406.8	1385.9	1390.3	1384.5
22.5°	1381.4	1367.9	1348.4	1348.4	1345.4
25°	1340.9	1329.0	1303.6	1306.5	1303.6
27.5°	1296.0	1285.5	1266.2	1261.7	1254.3
30°	1251.2	1239.2	1216.8	1212.3	1206.3
32.5°	1203.3	1194.4	1170.4	1161.4	1155.3
35°	1156.9	1142.0	1118.0	1109.0	1101.5
37.5°	1104.5	1091.0	1067.0	1056.6	1049.1
40°	1050.7	1038.6	1014.6	1001.3	995.3
42.5°	998.3	986.2	962.4	947.3	938.4
45°	941.4	931.0	908.4	892.1	886.0
47.5°	886.0	875.5	851.6	835.1	826.2
50°	827.6	820.1	799.2	778.2	770.7
52.5°	770.7	760.3	740.9	724.4	713.9
55°	712.5	703.4	685.5	667.5	660.1
57.5°	654.0	646.6	627.0	609.1	603.1
60°	595.6	589.7	568.8	552.3	547.8
62.5°	538.8	528.3	513.4	498.4	492.4
65°	480.5	471.4	456.5	443.0	435.6
67.5°	420.6	413.0	399.7	389.2	383.2
70°	365.2	359.2	345.7	335.2	329.3
72.5°	308.4	302.3	294.9	284.4	279.9
75°	251.4	248.5	240.9	232.0	235.0
77.5°	200.5	194.5	191.5	187.0	182.6
80°	149.7	148.1	145.1	140.7	137.7
82.5°	101.8	101.8	100.4	94.3	94.3
85°	61.3	59.9	58.4	53.8	52.4
87.5°	27.0	24.0	21.0	16.5	14.9
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9



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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	6.89	7.59	8.01	8.70	10.25	6.45	7.15	7.56	8.26	9.80
	3H	8.53	9.16	9.66	10.28	11.84	8.04	8.67	9.17	9.79	11.35
	4H	9.11	9.71	10.25	10.83	12.39	8.62	9.21	9.75	10.33	11.90
	6H	9.50	10.05	10.64	11.17	12.75	9.00	9.55	10.14	10.67	12.25
	8H	9.60	10.12	10.74	11.26	12.83	9.10	9.62	10.24	10.76	12.32
	12H	9.64	10.13	10.79	11.27	12.86	9.13	9.62	10.28	10.76	12.35
4H	2H	7.33	7.92	8.47	9.04	10.61	6.97	7.57	8.12	8.69	10.25
	3H	9.17	9.67	10.32	10.82	12.39	8.77	9.26	9.91	10.41	11.99
	4H	9.88	10.33	11.03	11.47	13.07	9.45	9.91	10.61	11.05	12.64
	6H	10.38	10.77	11.54	11.93	13.52	9.95	10.34	11.10	11.50	13.08
	8H	10.52	10.89	11.68	12.04	13.64	10.08	10.45	11.24	11.60	13.20
	12H	10.58	10.92	11.76	12.08	13.69	10.14	10.47	11.31	11.63	13.24
8H	4H	10.06	10.42	11.21	11.57	13.18	9.68	10.04	10.84	11.20	12.80
	6H	10.67	10.98	11.85	12.17	13.77	10.29	10.59	11.47	11.79	13.38
	8H	10.89	11.15	12.07	12.32	13.94	10.50	10.76	11.68	11.93	13.55
	12H	11.01	11.24	12.20	12.41	14.06	10.60	10.83	11.79	12.00	13.65
12H	4H	10.03	10.36	11.21	11.53	13.13	9.66	10.00	10.84	11.16	12.77
	6H	10.70	10.96	11.88	12.14	13.76	10.33	10.59	11.51	11.76	13.38
	8H	10.93	11.16	12.12	12.33	13.98	10.55	10.78	11.74	11.95	13.60