

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: P903571

Luminaire Tested: DFN2DIP-SQ2F0-070D040US830-RLLONL

Issue Date: 11/21/2024

**Test Information**

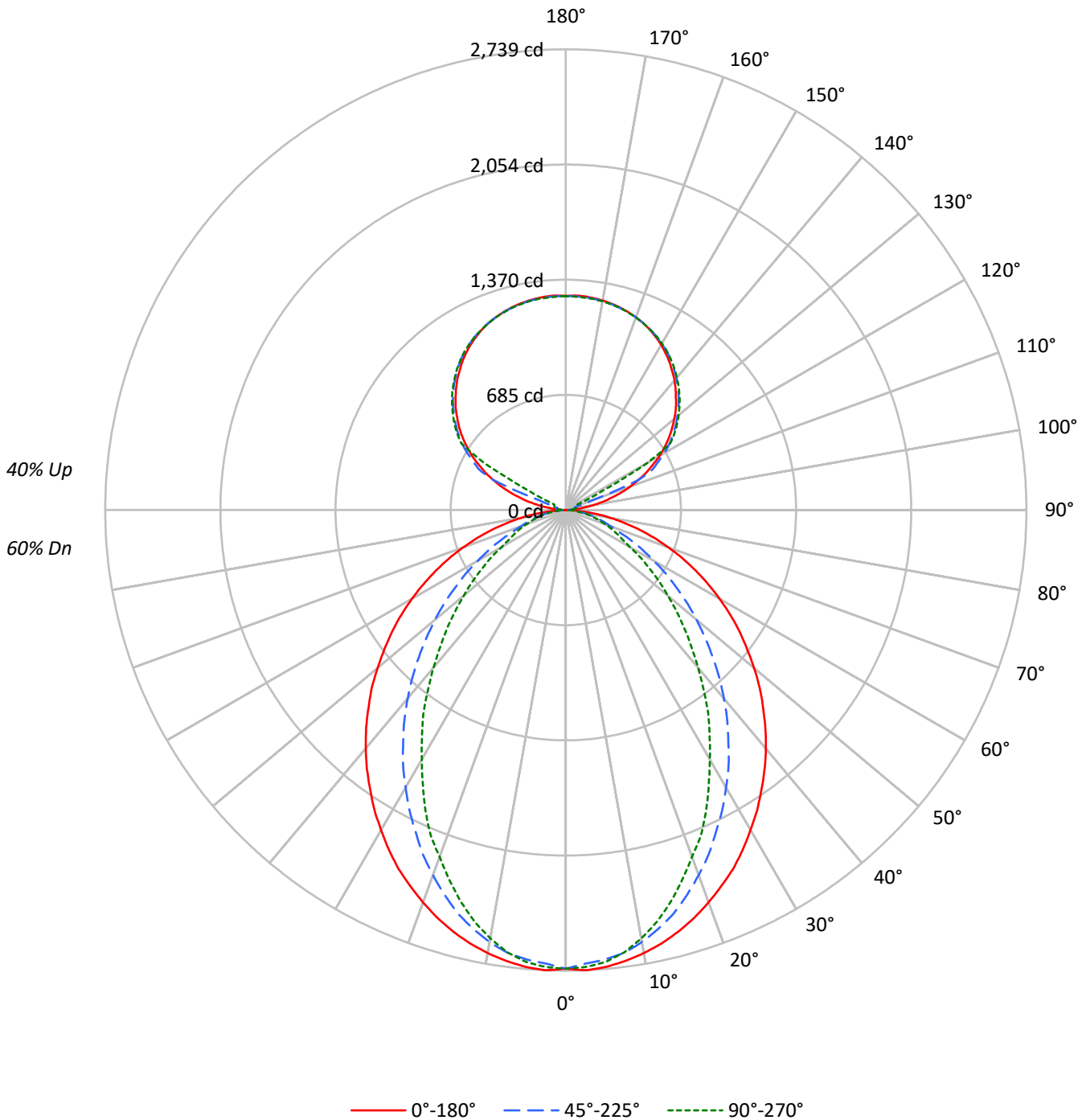
Test Method: LM-79-2019  
Report Number: P903571  
REPORT IS A COMBINATION OF REPORTS P901312 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-070D040US830-RLLONL  
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9340.6 lumens  
Efficiency: N/A  
Efficacy: 96.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 97.2  
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			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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60			
1	101	96	93	89	94	90	87	84	79	77	74	68	67	65	59	57	56	52			
2	92	85	79	74	86	80	74	70	70	66	62	61	58	55	52	50	48	44			
3	84	75	68	62	79	71	64	59	62	57	53	54	51	47	47	44	42	38			
4	78	67	59	53	72	63	56	51	56	50	46	49	45	41	42	39	37	33			
5	71	60	52	46	67	57	49	44	50	44	40	44	40	36	38	35	32	29			
6	66	54	46	40	62	51	44	39	45	40	35	40	35	32	35	32	29	26			
7	61	49	41	36	57	46	39	34	41	36	31	37	32	29	32	29	26	23			
8	57	45	37	32	53	42	35	31	38	32	28	34	29	26	30	26	23	21			
9	53	41	34	29	50	39	32	28	35	29	25	31	27	23	28	24	21	19			
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	26	22	19	17			

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

	0°	45°	90°
0°	5996	5996	5996
5°	5995	5888	5930
10°	5926	5759	5729
15°	5834	5556	5423
20°	5715	5282	5050
25°	5594	4977	4691
30°	5435	4665	4238
35°	5278	4331	3840
40°	5119	3987	3385
45°	4934	3607	2973
50°	4742	3224	2572
55°	4541	2817	2187
60°	4308	2393	1792
65°	4038	1965	1603
70°	3712	1565	1439
75°	3300	1354	1293
80°	2710	1100	1096
85°	1763	682	779

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4934 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	255.6	2.7
10°-20°	701.6	7.5
20°-30°	985.0	10.5
30°-40°	1073.7	11.5
40°-50°	986.9	10.6
50°-60°	775.0	8.3
60°-70°	504.5	5.4
70°-80°	259.7	2.8
80°-90°	68.5	0.7
90°-100°	41.9	0.4
100°-110°	156.4	1.7
110°-120°	414.8	4.4
120°-130°	688.0	7.4
130°-140°	730.8	7.8
140°-150°	679.2	7.3
150°-160°	546.1	5.8
160°-170°	351.9	3.8
170°-180°	121.1	1.3
0°-30°	1942.1	20.8
0°-40°	3015.8	32.3
0°-60°	4777.7	51.1
0°-90°	5610.3	60.1
90°-120°	613.2	6.6
90°-150°	2711.2	29.0
90°-180°	3730.0	39.9
0°-180°	9340.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2705	2697	259
15°	2594	2566	2483	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1903	1686	1530	1476	1270
45°	1658	1493	1234	1059	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	1	11	18	23	25	9
95°	60	29	36	40	40	71
105°	280	308	56	66	70	299
115°	529	545	568	142	76	521
125°	748	760	778	784	787	668
135°	926	941	949	958	957	715
145°	1074	1074	1089	1096	1091	672
155°	1183	1175	1186	1191	1184	545
165°	1247	1241	1244	1250	1244	352
175°	1275	1269	1270	1277	1268	121
180°	1272	1272	1272	1272	1272	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2726.9	2726.9	2726.9	2726.9	2726.9
2.5°	2739.1	2726.9	2699.6	2724.5	2719.5
5°	2726.9	2714.5	2682.4	2704.6	2697.3
7.5°	2704.6	2689.9	2655.4	2665.0	2652.8
10°	2675.0	2657.8	2608.5	2600.9	2586.2
12.5°	2638.1	2615.8	2549.1	2534.4	2507.2
15°	2593.6	2566.4	2482.6	2435.7	2411.1
17.5°	2541.8	2502.3	2398.6	2344.3	2304.8
20°	2482.6	2433.1	2309.8	2248.2	2193.8
22.5°	2418.5	2361.6	2218.4	2134.6	2097.7
25°	2354.3	2275.2	2112.3	2011.3	1974.2
27.5°	2277.8	2193.8	2013.6	1897.7	1840.9
30°	2196.4	2102.4	1905.0	1779.3	1712.6
32.5°	2117.3	2003.8	1801.6	1653.4	1591.6
35°	2028.5	1902.6	1685.6	1530.1	1475.6
37.5°	1942.2	1806.3	1577.0	1406.5	1345.0
40°	1850.8	1702.9	1463.3	1288.2	1224.0
42.5°	1757.1	1599.2	1349.9	1167.2	1105.7
45°	1658.4	1492.9	1234.0	1058.6	999.4
47.5°	1564.6	1389.5	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.3	843.9	792.3
52.5°	1359.6	1174.5	910.6	747.7	700.9
55°	1260.9	1068.5	801.9	654.0	607.2
57.5°	1159.9	962.4	705.9	567.6	528.1
60°	1056.2	858.8	604.5	478.9	439.3
62.5°	955.1	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.6	286.2	261.6	251.6
72.5°	550.4	367.6	239.3	219.7	214.7
75°	454.0	281.2	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	0.8	11.0	18.4	23.1	24.8
92.5°	23.1	19.3	22.1	23.9	24.8
95°	59.8	29.4	35.8	40.5	39.6
97.5°	107.7	32.2	46.9	49.8	50.6
100°	163.0	36.9	52.5	59.8	61.6
102.5°	223.7	222.0	54.3	64.4	67.2
105°	279.8	307.6	56.2	66.3	69.9
107.5°	345.3	368.3	58.1	68.1	71.8
110°	407.9	427.2	161.2	69.1	72.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	466.8	483.3	467.7	70.9	73.7
115°	529.3	545.0	568.1	141.8	75.6
117.5°	583.7	602.1	617.8	486.1	244.9
120°	644.5	658.3	674.9	686.0	561.7
122.5°	696.0	710.8	729.2	734.7	735.7
125°	748.5	760.5	778.0	784.5	787.2
127.5°	796.4	809.3	823.1	832.4	833.2
130°	841.5	856.3	866.3	876.5	875.6
132.5°	887.5	899.6	909.6	917.9	917.1
135°	926.2	941.0	949.2	958.5	956.7
137.5°	966.7	977.7	987.0	996.2	993.4
140°	1006.3	1013.7	1023.8	1032.1	1027.5
142.5°	1039.5	1045.9	1057.9	1065.2	1060.6
145°	1074.5	1073.6	1089.1	1095.6	1091.0
147.5°	1104.8	1102.0	1117.7	1122.3	1118.7
150°	1134.3	1127.8	1142.6	1148.1	1143.5
152.5°	1159.1	1151.8	1165.5	1171.1	1164.7
155°	1183.1	1174.9	1185.9	1191.4	1184.0
157.5°	1202.4	1195.0	1203.4	1209.8	1202.4
160°	1219.0	1213.4	1219.0	1224.5	1218.0
162.5°	1233.7	1228.2	1232.8	1239.3	1231.0
165°	1246.6	1241.1	1243.9	1250.3	1243.9
167.5°	1256.8	1251.1	1254.1	1260.5	1252.2
170°	1265.1	1259.5	1261.3	1267.8	1259.5
172.5°	1270.5	1265.1	1267.0	1273.4	1265.1
175°	1275.1	1268.7	1270.5	1277.0	1267.8
177.5°	1277.0	1270.5	1271.5	1278.0	1269.7
180°	1272.4	1272.4	1272.4	1272.4	1272.4



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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	14.15	15.07	15.02	15.95	17.08	10.11	11.03	10.98	11.91	13.04
	3H	15.81	16.63	16.70	17.53	18.68	11.28	12.11	12.17	13.00	14.15
	4H	16.41	17.19	17.31	18.09	19.25	11.73	12.50	12.63	13.41	14.56
	6H	16.82	17.54	17.73	18.45	19.62	12.03	12.75	12.95	13.66	14.83
	8H	16.94	17.62	17.86	18.55	19.72	12.12	12.80	13.04	13.73	14.90
	12H	17.00	17.64	17.92	18.57	19.76	12.16	12.80	13.08	13.73	14.92
4H	2H	14.17	14.95	15.08	15.85	17.01	10.70	11.48	11.61	12.38	13.54
	3H	15.99	16.63	16.90	17.57	18.74	12.04	12.68	12.96	13.62	14.79
	4H	16.67	17.25	17.59	18.18	19.38	12.58	13.16	13.50	14.09	15.29
	6H	17.17	17.67	18.11	18.63	19.83	12.98	13.49	13.92	14.44	15.64
	8H	17.33	17.80	18.28	18.75	19.97	13.10	13.57	14.04	14.52	15.73
	12H	17.42	17.85	18.38	18.81	20.03	13.16	13.58	14.12	14.55	15.77
8H	4H	16.64	17.11	17.58	18.06	19.27	12.85	13.32	13.79	14.27	15.48
	6H	17.18	17.57	18.15	18.56	19.78	13.35	13.74	14.32	14.73	15.94
	8H	17.39	17.73	18.37	18.71	19.94	13.52	13.87	14.50	14.85	16.08
	12H	17.52	17.82	18.50	18.79	20.07	13.63	13.94	14.61	14.91	16.19
12H	4H	16.59	17.02	17.55	17.98	19.20	12.86	13.28	13.82	14.25	15.47
	6H	17.16	17.50	18.13	18.48	19.71	13.39	13.74	14.37	14.72	15.95
	8H	17.37	17.67	18.35	18.64	19.92	13.59	13.89	14.57	14.87	16.15