

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: P903491

Luminaire Tested: DFN2DIP-SQ2F0-030D080US830-RLLONL

Issue Date: 11/21/2024

**Test Information**

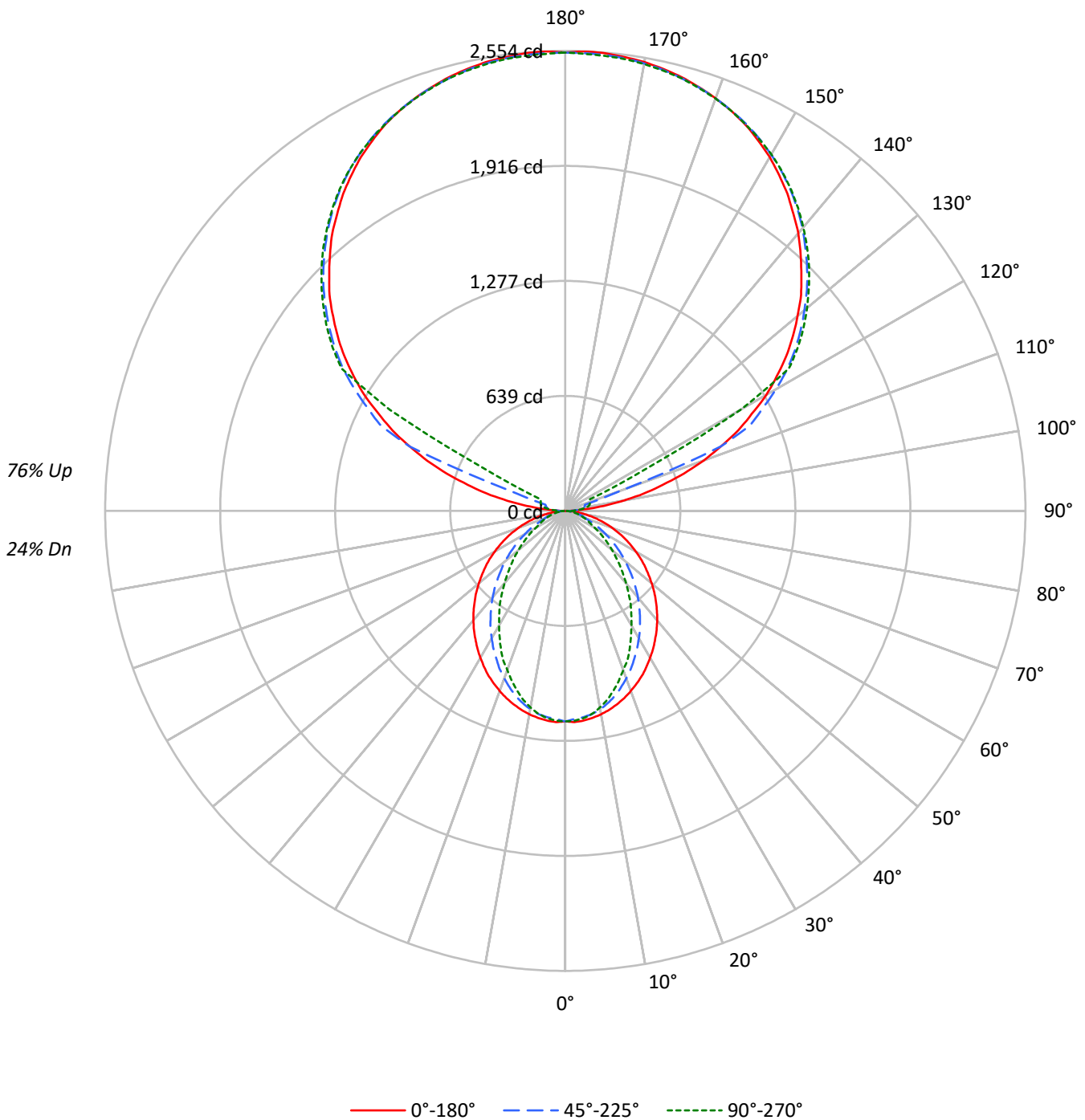
Test Method: LM-79-2019  
Report Number: P903491  
REPORT IS A COMBINATION OF REPORTS P901352 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-030D080US830-RLLONL  
Description: 2 foot, 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: 9868.4 lumens  
Efficiency: N/A  
Efficacy: 112.1 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-Indirect  
  
Input Watts (W): 88  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9963  
Total Harmonic Distortion (THDi): 0.065  
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				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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33	24			24
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28	21			21
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24	18			18
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	21	15			15
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18	14			14
5	65	54	46	40	57	48	42	37	38	33	30	28	25	23	19	17	16	12			12
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14	11			11
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12	9			9
8	51	39	32	27	45	35	29	25	28	23	20	21	18	16	14	13	11	9			9
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10	8			8
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	11	9	7			7

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

	0°	45°	90°
0°	2570	2570	2570
5°	2569	2523	2541
10°	2539	2468	2455
15°	2500	2381	2324
20°	2449	2264	2164
25°	2398	2133	2010
30°	2329	1999	1816
35°	2262	1856	1646
40°	2194	1709	1451
45°	2115	1546	1274
50°	2032	1382	1102
55°	1946	1207	937
60°	1846	1026	768
65°	1731	842	687
70°	1590	670	617
75°	1414	580	554
80°	1162	471	470
85°	755	293	334

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2418 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	109.5	1.1
10°-20°	300.7	3.0
20°-30°	422.1	4.3
30°-40°	460.2	4.7
40°-50°	422.9	4.3
50°-60°	332.2	3.4
60°-70°	216.2	2.2
70°-80°	111.3	1.1
80°-90°	32.9	0.3
90°-100°	83.9	0.9
100°-110°	312.8	3.2
110°-120°	829.6	8.4
120°-130°	1376.0	13.9
130°-140°	1461.6	14.8
140°-150°	1358.4	13.8
150°-160°	1092.1	11.1
160°-170°	703.7	7.1
170°-180°	242.2	2.5
0°-30°	832.3	8.4
0°-40°	1292.5	13.1
0°-60°	2047.6	20.7
0°-90°	2408.0	24.4
90°-120°	1226.4	12.4
90°-150°	5422.4	54.9
90°-180°	7460.0	75.6
0°-180°	9868.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1169	1169	1169	1169	1169	
5°	1169	1163	1150	1159	1156	111
15°	1112	1100	1064	1044	1033	313
25°	1009	975	905	862	846	464
35°	869	815	722	656	632	544
45°	711	640	529	454	428	549
55°	540	458	344	280	260	483
65°	365	279	184	148	145	362
75°	194	121	85	77	76	206
85°	45	23	20	20	20	52
90°	2	22	37	46	50	9
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2501	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1168.7	1168.7	1168.7	1168.7	1168.7
2.5°	1173.9	1168.7	1157.0	1167.6	1165.5
5°	1168.7	1163.4	1149.6	1159.1	1155.9
7.5°	1159.1	1152.8	1138.0	1142.2	1136.9
10°	1146.4	1139.1	1117.9	1114.7	1108.4
12.5°	1130.6	1121.1	1092.5	1086.2	1074.5
15°	1111.5	1099.9	1063.9	1043.9	1033.3
17.5°	1089.3	1072.4	1027.9	1004.8	987.8
20°	1063.9	1042.7	989.9	963.6	940.2
22.5°	1036.5	1012.1	950.7	914.8	899.0
25°	1009.0	975.1	905.3	862.0	846.0
27.5°	976.2	940.2	863.0	813.3	788.9
30°	941.3	901.1	816.4	762.6	734.0
32.5°	907.4	858.8	772.1	708.6	682.1
35°	869.4	815.4	722.4	655.7	632.4
37.5°	832.4	774.1	675.8	602.8	576.5
40°	793.2	729.8	627.2	552.0	524.6
42.5°	753.0	685.4	578.5	500.2	473.8
45°	710.8	639.8	528.9	453.6	428.3
47.5°	670.5	595.5	481.3	406.0	382.9
50°	626.1	551.0	434.7	361.7	339.5
52.5°	582.7	503.4	390.3	320.5	300.4
55°	540.4	457.9	343.7	280.3	260.2
57.5°	497.1	412.5	302.6	243.3	226.3
60°	452.6	368.1	259.1	205.2	188.3
62.5°	409.3	324.7	222.1	171.4	163.0
65°	364.9	279.2	184.0	148.1	144.9
67.5°	322.6	236.9	148.1	130.1	126.9
70°	278.1	195.7	122.6	112.1	107.8
72.5°	235.8	157.5	102.5	94.2	92.0
75°	194.5	120.6	84.6	77.2	76.2
77.5°	153.4	85.6	66.6	62.4	60.2
80°	115.3	61.4	50.7	46.6	46.6
82.5°	80.3	41.3	34.9	32.8	32.8
85°	45.4	23.2	20.1	20.1	20.1
87.5°	17.0	8.4	8.4	7.4	7.4
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.2	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.8	134.5
105°	559.8	615.1	112.4	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.9	854.3	322.3	138.2	145.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	933.7	966.7	935.5	141.7	147.4
115°	1058.8	1090.1	1136.1	283.6	151.1
117.5°	1167.4	1204.2	1235.7	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.9	1123.2
122.5°	1391.9	1421.5	1458.5	1469.4	1471.4
125°	1496.9	1521.0	1555.9	1568.9	1574.3
127.5°	1592.7	1618.5	1646.3	1664.6	1666.4
130°	1683.0	1712.5	1732.7	1753.0	1751.2
132.5°	1775.1	1799.1	1819.3	1835.9	1834.1
135°	1852.5	1882.0	1898.4	1917.0	1913.3
137.5°	1933.4	1955.5	1974.1	1992.4	1987.0
140°	2012.5	2027.4	2047.6	2064.2	2054.9
142.5°	2079.1	2091.9	2115.7	2130.4	2121.2
145°	2149.0	2147.0	2178.3	2191.2	2182.0
147.5°	2209.6	2204.1	2235.3	2244.6	2237.3
150°	2268.6	2255.7	2285.2	2296.1	2287.0
152.5°	2318.3	2303.6	2331.1	2342.3	2329.4
155°	2366.2	2349.8	2371.8	2382.7	2368.1
157.5°	2404.8	2390.2	2406.8	2419.7	2404.8
160°	2438.1	2427.0	2438.1	2449.0	2436.1
162.5°	2467.4	2456.5	2465.6	2478.5	2461.9
165°	2493.2	2482.3	2487.7	2500.6	2487.7
167.5°	2513.5	2502.4	2508.0	2520.9	2504.3
170°	2530.2	2518.9	2522.7	2535.6	2518.9
172.5°	2541.1	2530.2	2533.8	2546.7	2530.2
175°	2550.2	2537.3	2541.1	2553.9	2535.6
177.5°	2553.9	2541.1	2543.0	2555.9	2539.3
180°	2544.8	2544.8	2544.8	2544.8	2544.8



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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	7.24	7.90	8.40	9.04	10.64	3.20	3.86	4.36	5.00	6.60
	3H	8.89	9.47	10.05	10.62	12.23	4.36	4.95	5.52	6.10	7.71
	4H	9.47	10.03	10.64	11.18	12.80	4.79	5.35	5.96	6.50	8.11
	6H	9.87	10.38	11.05	11.53	13.16	5.09	5.60	6.26	6.75	8.38
	8H	9.98	10.47	11.16	11.64	13.26	5.16	5.65	6.34	6.82	8.43
	12H	10.03	10.50	11.22	11.65	13.29	5.19	5.66	6.38	6.81	8.45
4H	2H	7.23	7.79	8.41	8.94	10.56	3.77	4.33	4.94	5.47	7.09
	3H	9.03	9.49	10.21	10.66	12.29	5.08	5.54	6.26	6.72	8.35
	4H	9.70	10.12	10.88	11.28	12.93	5.61	6.03	6.79	7.19	8.84
	6H	10.18	10.55	11.37	11.73	13.37	6.00	6.36	7.18	7.54	9.18
	8H	10.34	10.68	11.53	11.86	13.51	6.11	6.45	7.30	7.63	9.28
	12H	10.42	10.73	11.62	11.91	13.57	6.16	6.47	7.36	7.65	9.31
8H	4H	9.65	9.99	10.83	11.16	12.81	5.86	6.20	7.05	7.38	9.03
	6H	10.18	10.47	11.39	11.68	13.33	6.35	6.63	7.55	7.85	9.50
	8H	10.39	10.63	11.60	11.83	13.50	6.53	6.77	7.74	7.96	9.63
	12H	10.50	10.72	11.72	11.91	13.61	6.62	6.84	7.84	8.03	9.73
12H	4H	9.59	9.90	10.79	11.08	12.74	5.85	6.16	7.06	7.35	9.01
	6H	10.16	10.40	11.37	11.60	13.27	6.39	6.64	7.60	7.83	9.50
	8H	10.36	10.57	11.57	11.76	13.46	6.58	6.79	7.79	7.99	9.69