

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: P915015

Luminaire Tested: DFN2DIP-SQ4F0-100D110US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

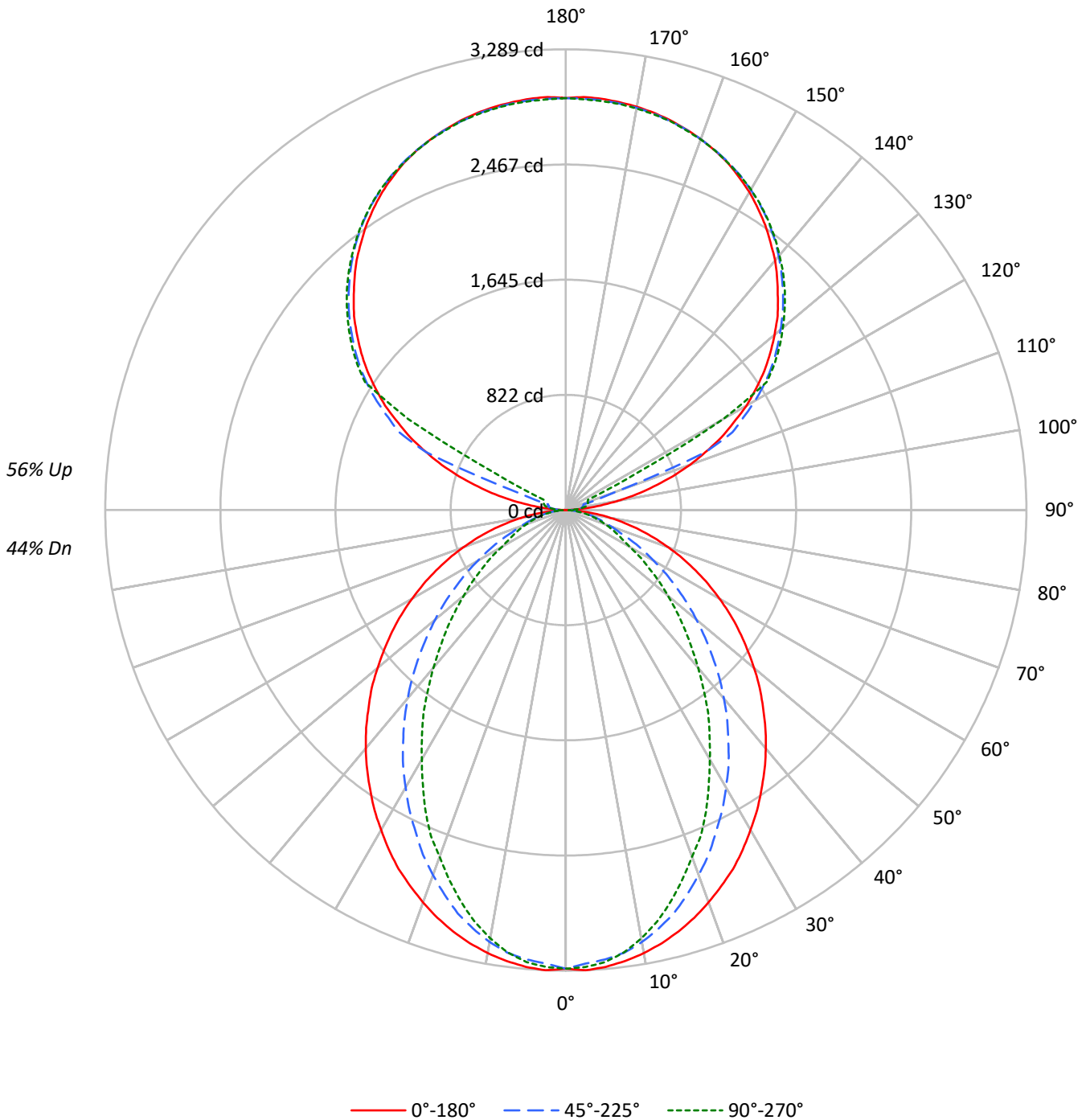
Test Method: LM-79-2019  
Report Number: P915015  
REPORT IS A COMBINATION OF REPORTS P901678 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-100D110US927-RLONL  
Description: 4 foot, 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: 15360.3 lumens  
Efficiency: N/A  
Efficacy: 87.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 175.5  
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									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	50	30	10	50	30	10	50	30	10	0																
RCR																																														
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50	44																			44									
1	97	93	89	86	89	85	82	79	71	68	66	57	56	55	45	44	43	38																			38									
2	89	81	76	71	81	75	70	66	62	59	56	51	48	46	40	39	37	32																			32									
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28																			28									
4	74	64	56	51	68	59	52	47	49	45	41	41	37	34	33	30	28	24																			24									
5	68	57	49	44	62	53	46	41	44	39	35	37	33	30	30	27	25	21																			21									
6	63	51	44	38	58	47	41	36	40	35	31	33	29	26	27	24	22	19																			19									
7	58	46	39	33	53	43	36	31	37	31	27	30	26	24	25	22	20	17																			17									
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15																			15									
9	50	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14																			14									
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13																			13									

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

	0°	45°	90°
0°	2297	2297	2297
5°	2301	2261	2276
10°	2278	2217	2203
15°	2247	2145	2089
20°	2205	2044	1949
25°	2163	1931	1814
30°	2106	1815	1642
35°	2050	1691	1491
40°	1993	1562	1318
45°	1927	1419	1161
50°	1858	1275	1008
55°	1787	1120	860
60°	1704	959	709
65°	1609	795	639
70°	1494	641	579
75°	1349	566	528
80°	1139	477	461
85°	793	320	350

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1927 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	306.9	2.0
10°-20°	842.4	5.5
20°-30°	1182.6	7.7
30°-40°	1289.2	8.4
40°-50°	1184.9	7.7
50°-60°	930.5	6.1
60°-70°	605.7	3.9
70°-80°	311.8	2.0
80°-90°	84.8	0.6
90°-100°	97.0	0.6
100°-110°	361.5	2.4
110°-120°	958.7	6.2
120°-130°	1590.2	10.4
130°-140°	1689.1	11.0
140°-150°	1569.9	10.2
150°-160°	1262.1	8.2
160°-170°	813.3	5.3
170°-180°	279.9	1.8
0°-30°	2331.9	15.2
0°-40°	3621.0	23.6
0°-60°	5736.5	37.3
0°-90°	6738.7	43.9
90°-120°	1417.2	9.2
90°-150°	6266.3	40.8
90°-180°	8622.0	56.1
0°-180°	15360.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3274	3274	3274	3274	3274	
5°	3274	3259	3221	3247	3238	310
15°	3114	3081	2981	2924	2895	878
25°	2827	2732	2536	2415	2370	1300
35°	2436	2284	2024	1837	1772	1524
45°	1991	1792	1482	1271	1200	1538
55°	1514	1283	963	785	729	1353
65°	1022	782	516	415	406	1014
75°	545	338	237	216	213	577
85°	127	65	56	56	56	146
90°	2	26	42	53	57	14
95°	138	68	83	94	92	164
105°	647	711	130	153	162	691
115°	1224	1260	1313	328	175	1205
125°	1730	1758	1798	1813	1819	1543
135°	2141	2175	2194	2215	2211	1654
145°	2484	2481	2517	2532	2522	1553
155°	2734	2715	2741	2754	2737	1260
165°	2881	2869	2875	2890	2875	814
175°	2947	2932	2936	2952	2930	280
180°	2941	2941	2941	2941	2941	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3274.1	3274.1	3274.1	3274.1	3274.1
2.5°	3288.8	3274.1	3241.4	3271.2	3265.3
5°	3274.1	3259.3	3220.6	3247.4	3238.5
7.5°	3247.4	3229.7	3188.2	3199.9	3185.1
10°	3211.8	3191.1	3132.0	3122.9	3105.3
12.5°	3167.5	3140.8	3060.6	3043.0	3010.3
15°	3114.1	3081.3	2980.7	2924.5	2894.9
17.5°	3051.8	3004.3	2879.9	2814.8	2767.3
20°	2980.7	2921.3	2773.3	2699.4	2634.0
22.5°	2903.7	2835.5	2663.6	2563.0	2518.7
25°	2826.7	2731.8	2536.2	2414.9	2370.3
27.5°	2734.9	2634.0	2417.7	2278.5	2210.3
30°	2637.2	2524.3	2287.3	2136.4	2056.3
32.5°	2542.3	2405.8	2163.1	1985.2	1911.0
35°	2435.6	2284.5	2023.9	1837.1	1771.7
37.5°	2331.9	2168.8	1893.4	1688.8	1614.9
40°	2222.2	2044.6	1757.0	1546.7	1469.7
42.5°	2109.7	1920.1	1620.9	1401.4	1327.5
45°	1991.1	1792.5	1481.6	1271.0	1199.9
47.5°	1878.7	1668.3	1348.3	1137.7	1072.6
50°	1754.1	1543.8	1217.8	1013.2	951.3
52.5°	1632.4	1410.2	1093.4	897.8	841.5
55°	1513.9	1282.9	962.9	785.3	729.0
57.5°	1392.7	1155.6	847.6	681.5	634.1
60°	1268.1	1031.1	725.9	575.0	527.5
62.5°	1146.8	909.7	622.1	480.1	456.5
65°	1022.3	782.1	515.6	414.9	405.8
67.5°	903.8	663.6	414.9	364.3	355.5
70°	779.3	548.3	343.6	314.0	302.1
72.5°	660.8	441.3	287.3	263.7	257.8
75°	545.1	337.6	237.0	216.3	213.4
77.5°	429.8	239.9	186.7	174.8	168.8
80°	322.8	172.0	142.1	130.5	130.5
82.5°	225.1	115.7	97.8	91.8	91.8
85°	127.3	65.0	56.2	56.2	56.2
87.5°	47.5	23.6	23.6	20.8	20.8
90°	2.1	25.5	42.5	53.3	57.4
92.5°	53.3	44.8	51.0	55.4	57.4
95°	138.2	68.0	82.9	93.7	91.5
97.5°	248.9	74.5	108.4	114.9	117.0
100°	376.8	85.2	121.3	138.2	142.5
102.5°	517.0	512.9	125.6	148.9	155.4
105°	646.9	710.8	129.9	153.1	161.8
107.5°	798.0	851.0	134.2	157.4	166.0
110°	942.8	987.3	372.5	159.7	168.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1079.0	1117.1	1081.0	163.7	170.3
115°	1223.5	1259.6	1313.0	327.7	174.6
117.5°	1349.2	1391.6	1428.0	1123.5	566.0
120°	1489.6	1521.5	1559.9	1585.4	1298.1
122.5°	1608.7	1642.7	1685.4	1698.1	1700.4
125°	1730.0	1757.8	1798.2	1813.1	1819.4
127.5°	1840.6	1870.4	1902.5	1923.7	1925.8
130°	1945.0	1979.1	2002.3	2025.8	2023.9
132.5°	2051.4	2079.2	2102.4	2121.6	2119.6
135°	2140.9	2174.9	2193.9	2215.4	2211.1
137.5°	2234.3	2259.9	2281.3	2302.6	2296.2
140°	2325.8	2343.0	2366.2	2385.4	2374.8
142.5°	2402.6	2417.5	2445.1	2462.0	2451.4
145°	2483.5	2481.2	2517.3	2532.3	2521.7
147.5°	2553.5	2547.2	2583.3	2593.9	2585.6
150°	2621.7	2606.8	2640.9	2653.6	2643.0
152.5°	2679.1	2662.1	2694.0	2706.9	2692.0
155°	2734.5	2715.4	2740.9	2753.6	2736.7
157.5°	2779.1	2762.2	2781.4	2796.3	2779.1
160°	2817.6	2804.6	2817.6	2830.1	2815.3
162.5°	2851.4	2838.8	2849.4	2864.3	2845.1
165°	2881.2	2868.6	2874.9	2889.8	2874.9
167.5°	2904.7	2891.9	2898.4	2913.3	2894.2
170°	2923.9	2911.0	2915.3	2930.3	2911.0
172.5°	2936.5	2923.9	2928.2	2943.1	2923.9
175°	2947.2	2932.3	2936.5	2951.5	2930.3
177.5°	2951.5	2936.5	2938.8	2953.7	2934.6
180°	2940.9	2940.9	2940.9	2940.9	2940.9



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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	9.45	10.23	10.46	11.25	12.61	5.41	6.19	6.42	7.21	8.57
	3H	11.13	11.83	12.15	12.86	14.23	6.59	7.29	7.62	8.32	9.70
	4H	11.74	12.40	12.77	13.43	14.82	7.04	7.71	8.08	8.74	10.12
	6H	12.16	12.77	13.21	13.80	15.20	7.36	7.97	8.41	9.01	10.41
	8H	12.29	12.87	13.34	13.92	15.31	7.45	8.03	8.50	9.08	10.48
	12H	12.35	12.90	13.41	13.94	15.36	7.49	8.04	8.55	9.09	10.51
4H	2H	9.46	10.12	10.51	11.15	12.54	6.00	6.66	7.05	7.69	9.08
	3H	11.29	11.84	12.34	12.90	14.30	7.35	7.90	8.40	8.96	10.36
	4H	11.98	12.49	13.04	13.54	14.96	7.89	8.40	8.95	9.45	10.87
	6H	12.50	12.93	13.57	14.01	15.42	8.31	8.74	9.38	9.82	11.24
	8H	12.68	13.08	13.75	14.15	15.58	8.44	8.84	9.51	9.91	11.34
	12H	12.77	13.14	13.86	14.22	15.66	8.50	8.87	9.59	9.95	11.39
8H	4H	11.95	12.35	13.02	13.42	14.85	8.17	8.58	9.24	9.64	11.08
	6H	12.52	12.85	13.61	13.96	15.39	8.69	9.03	9.78	10.13	11.56
	8H	12.74	13.03	13.83	14.12	15.57	8.88	9.18	9.98	10.27	11.72
	12H	12.88	13.13	13.98	14.22	15.71	9.00	9.26	10.10	10.35	11.83
12H	4H	11.90	12.26	12.98	13.34	14.78	8.18	8.54	9.26	9.62	11.06
	6H	12.49	12.79	13.59	13.88	15.33	8.74	9.03	9.84	10.13	11.57
	8H	12.72	12.97	13.82	14.06	15.55	8.95	9.21	10.05	10.30	11.78