

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: P906778

Luminaire Tested: DFN2DIP-SQ4F0-090D070US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

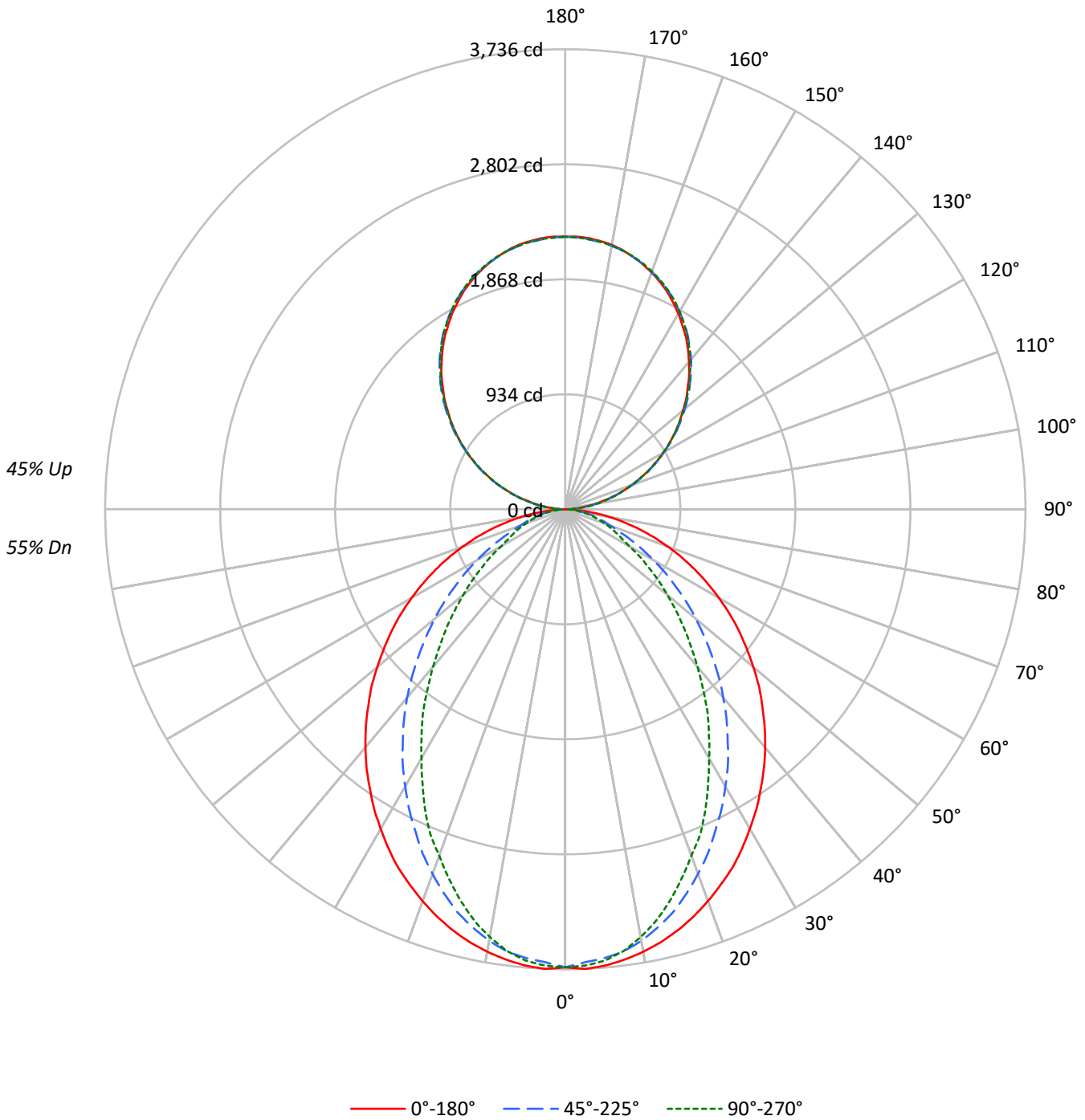
Test Method: LM-79-2019  
Report Number: P906778  
REPORT IS A COMBINATION OF REPORTS P900084 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-090D070US835-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13845.0 lumens  
Efficiency: N/A  
Efficacy: 102.6 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): 134.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
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
RCR																				
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55		
1	99	95	92	88	92	89	86	83	76	74	72	65	63	62	55	54	53	48		
2	91	84	78	73	84	78	73	69	68	64	60	58	55	53	49	47	45	41		
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	41	39	35		
4	77	66	58	52	71	62	55	50	54	49	44	46	42	39	39	36	34	31		
5	71	59	51	45	65	55	48	43	48	43	39	42	38	34	36	33	30	27		
6	65	53	45	40	60	50	43	38	44	38	34	38	34	30	33	29	27	24		
7	60	48	41	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21		
8	56	44	36	31	52	41	35	30	37	31	27	32	28	24	28	24	22	19		
9	52	40	33	28	49	38	31	27	34	28	24	30	25	22	26	22	20	18		
10	49	37	30	25	46	35	29	24	31	26	22	27	23	20	24	20	18	16		

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

	0°	45°	90°
0°	2610	2610	2610
5°	2614	2569	2586
10°	2588	2519	2502
15°	2553	2436	2373
20°	2505	2322	2214
25°	2457	2194	2060
30°	2392	2062	1865
35°	2329	1921	1694
40°	2264	1775	1497
45°	2189	1612	1319
50°	2111	1448	1145
55°	2030	1273	978
60°	1936	1089	805
65°	1828	903	726
70°	1697	729	658
75°	1533	643	600
80°	1295	541	523
85°	901	364	398

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2189 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	348.6	2.5
10°-20°	957.0	6.9
20°-30°	1343.6	9.7
30°-40°	1464.6	10.6
40°-50°	1346.2	9.7
50°-60°	1057.2	7.6
60°-70°	688.1	5.0
70°-80°	354.2	2.6
80°-90°	96.7	0.7
90°-100°	137.0	1.0
100°-110°	435.3	3.1
110°-120°	744.9	5.4
120°-130°	979.6	7.1
130°-140°	1099.6	7.9
140°-150°	1078.3	7.8
150°-160°	904.5	6.5
160°-170°	599.9	4.3
170°-180°	209.7	1.5
0°-30°	2649.2	19.1
0°-40°	4113.9	29.7
0°-60°	6517.2	47.1
0°-90°	7656.3	55.3
90°-120°	1317.2	9.5
90°-150°	4474.7	32.3
90°-180°	6189.0	44.7
0°-180°	13845.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3720	3720	3720	3720	3720	
5°	3720	3703	3659	3689	3679	353
15°	3538	3501	3386	3322	3289	997
25°	3212	3104	2882	2744	2693	1477
35°	2767	2595	2299	2087	2013	1732
45°	2262	2036	1683	1444	1363	1747
55°	1720	1458	1094	892	828	1537
65°	1161	889	586	471	461	1151
75°	619	384	269	246	242	655
85°	145	74	64	64	64	166
90°	2	24	65	61	63	14
95°	97	116	120	120	116	108
105°	402	407	411	414	414	424
115°	748	758	755	753	748	739
125°	1087	1104	1099	1093	1091	972
135°	1406	1427	1431	1429	1424	1087
145°	1707	1721	1731	1733	1726	1067
155°	1952	1958	1964	1973	1967	899
165°	2124	2122	2122	2135	2126	599
175°	2210	2204	2200	2214	2202	210
180°	2214	2214	2214	2214	2214	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3719.7	3719.7	3719.7	3719.7	3719.7
2.5°	3736.5	3719.7	3682.5	3716.5	3709.7
5°	3719.7	3702.9	3659.0	3689.3	3679.3
7.5°	3689.3	3669.3	3622.2	3635.4	3618.6
10°	3649.0	3625.4	3558.3	3547.9	3527.9
12.5°	3598.6	3568.3	3477.2	3457.2	3420.0
15°	3537.9	3500.8	3386.5	3322.5	3289.0
17.5°	3467.2	3413.3	3271.8	3197.9	3144.0
20°	3386.5	3319.0	3150.7	3066.8	2992.5
22.5°	3299.0	3221.5	3026.1	2911.8	2861.5
25°	3211.5	3103.6	2881.5	2743.6	2692.9
27.5°	3107.2	2992.5	2746.8	2588.6	2511.1
30°	2996.1	2867.9	2598.6	2427.2	2336.1
32.5°	2888.2	2733.2	2457.5	2255.4	2171.1
35°	2767.2	2595.4	2299.3	2087.2	2012.9
37.5°	2649.3	2464.0	2151.1	1918.6	1834.7
40°	2524.7	2322.9	1996.1	1757.2	1669.7
42.5°	2396.8	2181.5	1841.4	1592.2	1508.2
45°	2262.2	2036.5	1683.2	1443.9	1363.2
47.5°	2134.3	1895.4	1531.8	1292.5	1218.6
50°	1992.9	1753.9	1383.6	1151.1	1080.7
52.5°	1854.7	1602.2	1242.2	1020.0	956.1
55°	1720.0	1457.5	1093.9	892.2	828.2
57.5°	1582.2	1312.9	962.9	774.3	720.4
60°	1440.7	1171.4	824.7	653.2	599.3
62.5°	1302.9	1033.6	706.8	545.4	518.6
65°	1161.4	888.6	585.7	471.4	461.1
67.5°	1026.8	753.9	471.4	413.9	403.9
70°	885.4	622.9	390.4	356.8	343.2
72.5°	750.7	501.4	326.4	299.6	292.9
75°	619.3	383.6	269.3	245.7	242.5
77.5°	488.2	272.5	212.1	198.6	191.8
80°	366.8	195.4	161.4	148.2	148.2
82.5°	255.7	131.4	111.1	104.3	104.3
85°	144.6	73.9	63.9	63.9	63.9
87.5°	53.9	26.8	26.8	23.6	23.6
90°	2.0	24.0	65.4	61.4	63.4
92.5°	41.4	56.1	58.1	60.1	60.1
95°	97.4	116.1	119.5	119.5	116.1
97.5°	162.2	179.5	186.9	186.9	186.9
100°	236.9	252.3	257.6	257.6	255.6
102.5°	315.7	327.0	334.4	336.4	334.4
105°	401.8	407.1	411.1	414.5	414.5
107.5°	487.2	495.2	495.2	496.6	487.2
110°	570.0	580.7	580.7	580.7	575.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	659.4	670.8	668.8	663.4	659.4
115°	747.5	758.2	754.9	752.9	747.5
117.5°	834.9	849.6	840.3	834.9	829.6
120°	923.0	937.7	923.0	923.0	917.0
122.5°	1003.1	1021.8	1012.5	1007.1	1003.1
125°	1087.2	1103.9	1098.6	1092.6	1090.6
127.5°	1169.3	1190.0	1182.7	1174.7	1169.3
130°	1246.1	1270.1	1266.8	1262.8	1255.4
132.5°	1332.2	1350.9	1352.2	1342.9	1337.5
135°	1406.3	1426.9	1431.0	1428.9	1423.6
137.5°	1489.0	1505.7	1509.0	1507.7	1499.7
140°	1561.8	1578.5	1587.8	1587.8	1580.5
142.5°	1636.5	1653.2	1658.5	1660.5	1653.2
145°	1707.3	1720.6	1731.3	1733.3	1726.0
147.5°	1770.7	1787.4	1795.4	1798.7	1791.4
150°	1836.1	1847.4	1854.8	1860.8	1854.8
152.5°	1894.1	1905.5	1914.8	1922.2	1914.8
155°	1952.2	1957.5	1963.6	1972.9	1966.9
157.5°	2002.3	2006.3	2009.6	2023.0	2013.6
160°	2047.0	2051.0	2053.0	2064.3	2056.3
162.5°	2088.4	2088.4	2090.4	2103.0	2093.7
165°	2123.7	2121.7	2121.7	2135.1	2125.7
167.5°	2155.8	2149.8	2149.8	2163.1	2153.8
170°	2179.8	2174.5	2172.5	2185.8	2174.5
172.5°	2196.5	2191.1	2189.1	2202.5	2191.1
175°	2209.8	2204.5	2200.5	2213.8	2202.5
177.5°	2217.2	2211.8	2207.8	2219.2	2207.8
180°	2213.8	2213.8	2213.8	2213.8	2213.8



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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	10.97	11.85	11.89	12.78	13.98	6.93	7.81	7.85	8.74	9.94
	3H	12.66	13.44	13.59	14.38	15.60	8.13	8.91	9.06	9.85	11.07
	4H	13.27	14.01	14.22	14.96	16.19	8.58	9.32	9.52	10.26	11.49
	6H	13.70	14.38	14.65	15.33	16.57	8.90	9.58	9.86	10.53	11.78
	8H	13.83	14.48	14.79	15.44	16.69	9.00	9.64	9.96	10.61	11.85
	12H	13.89	14.51	14.86	15.47	16.74	9.04	9.66	10.01	10.62	11.88
4H	2H	11.00	11.74	11.95	12.68	13.91	7.54	8.28	8.49	9.22	10.45
	3H	12.83	13.45	13.79	14.42	15.67	8.89	9.51	9.85	10.48	11.73
	4H	13.53	14.09	14.50	15.06	16.33	9.44	10.00	10.41	10.97	12.24
	6H	14.05	14.54	15.04	15.53	16.80	9.87	10.35	10.85	11.34	12.61
	8H	14.23	14.68	15.22	15.67	16.95	10.00	10.45	10.98	11.43	12.71
	12H	14.33	14.74	15.33	15.74	17.03	10.06	10.47	11.06	11.47	12.76
8H	4H	13.50	13.95	14.49	14.94	16.22	9.73	10.18	10.71	11.17	12.45
	6H	14.08	14.45	15.08	15.48	16.76	10.25	10.62	11.26	11.65	12.93
	8H	14.30	14.62	15.31	15.64	16.94	10.44	10.77	11.46	11.79	13.08
	12H	14.44	14.73	15.46	15.74	17.08	10.56	10.85	11.58	11.86	13.21
12H	4H	13.46	13.86	14.46	14.87	16.15	9.74	10.14	10.74	11.14	12.43
	6H	14.05	14.38	15.07	15.40	16.69	10.30	10.63	11.32	11.64	12.94
	8H	14.28	14.57	15.30	15.58	16.92	10.51	10.80	11.53	11.81	13.16