

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: P920153

Luminaire Tested: DFN2DIP-SQ3F0-080D110US935-FLLONL

Issue Date: 11/21/2024

**Test Information**

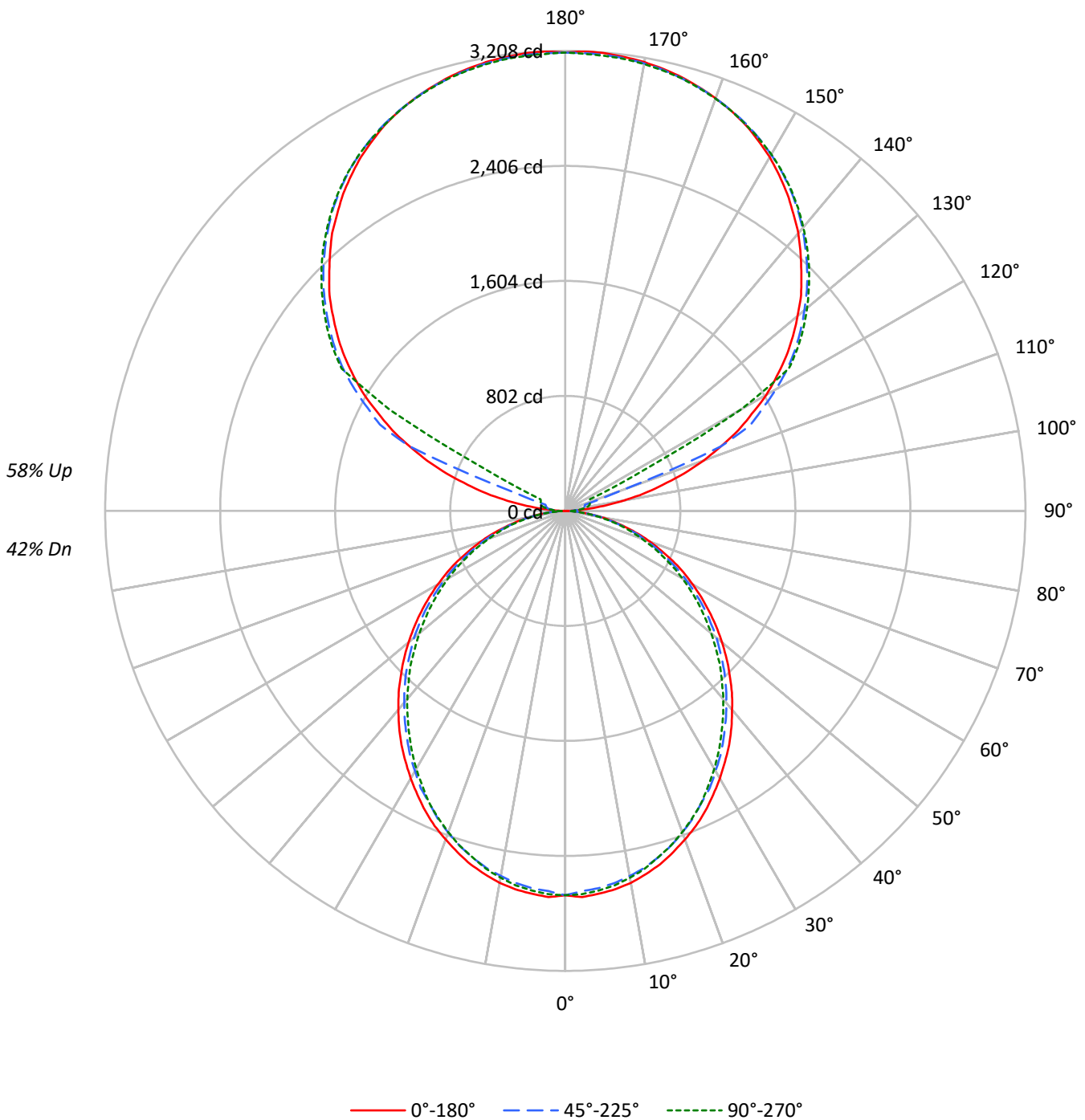
Test Method: LM-79-2019  
Report Number: P920153  
REPORT IS A COMBINATION OF REPORTS P901515 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D110US935-FLLONL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16195.3 lumens  
Efficiency: N/A  
Efficacy: 99.9 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: General Diffuse  
  
Input Watts (W): 162.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49	49	49	49	42
1	96	92	88	84	88	84	81	78	69	67	65	56	54	53	43	42	41	41	41	41	35
2	87	80	74	69	80	73	68	64	61	57	54	49	46	44	38	36	35	35	35	35	30
3	80	70	63	57	72	65	58	53	53	49	45	43	40	37	34	31	30	30	30	30	25
4	73	62	54	49	66	57	50	45	47	42	38	38	35	32	30	28	25	25	25	25	22
5	67	55	47	41	61	51	44	39	42	37	33	35	31	28	27	24	22	22	22	22	19
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20	20	20	20	17
7	57	45	37	31	52	41	34	29	35	29	25	28	24	21	22	20	17	17	17	17	15
8	53	41	33	28	48	37	31	26	32	26	22	26	22	19	21	18	16	16	16	16	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	14	14	14	12
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13	13	13	13	11

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

	0°	45°	90°
0°	3071	3071	3071
5°	3074	3026	3048
10°	3047	2983	3005
15°	3000	2932	2940
20°	2938	2862	2873
25°	2876	2778	2796
30°	2798	2700	2697
35°	2724	2609	2594
40°	2634	2516	2495
45°	2544	2423	2394
50°	2445	2325	2277
55°	2342	2212	2169
60°	2225	2078	2046
65°	2097	1939	1900
70°	1934	1770	1744
75°	1708	1567	1597
80°	1436	1307	1320
85°	1011	867	864

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2544 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	252.3	1.6
10°-20°	709.8	4.4
20°-30°	1043.1	6.4
30°-40°	1211.4	7.5
40°-50°	1209.9	7.5
50°-60°	1055.0	6.5
60°-70°	779.9	4.8
70°-80°	441.2	2.7
80°-90°	122.1	0.8
90°-100°	105.4	0.7
100°-110°	392.9	2.4
110°-120°	1042.0	6.4
120°-130°	1728.3	10.7
130°-140°	1835.9	11.3
140°-150°	1706.2	10.5
150°-160°	1371.8	8.5
160°-170°	883.9	5.5
170°-180°	304.2	1.9
0°-30°	2005.1	12.4
0°-40°	3216.5	19.9
0°-60°	5481.5	33.8
0°-90°	6824.7	42.1
90°-120°	1540.3	9.5
90°-150°	6810.7	42.1
90°-180°	9371.0	57.9
0°-180°	16195.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	2	28	46	58	62	15
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.2	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.8	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.8	2363.9	2384.4	2407.9	2403.1
137.5°	2428.4	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.5
152.5°	2911.8	2893.4	2928.0	2942.0	2925.8
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.0	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.6	3140.8	3124.6
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3177.9	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3177.9	3182.6	3198.8	3177.9
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4



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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	10.36	11.16	11.38	12.19	13.57	9.92	10.71	10.94	11.74	13.12
	3H	12.01	12.73	13.05	13.77	15.16	11.52	12.24	12.56	13.28	14.67
	4H	12.60	13.27	13.64	14.31	15.72	12.10	12.78	13.15	13.82	15.22
	6H	12.99	13.61	14.04	14.66	16.07	12.49	13.11	13.54	14.16	15.57
	8H	13.09	13.68	14.15	14.74	16.16	12.59	13.18	13.65	14.24	15.66
	12H	13.13	13.70	14.20	14.75	16.19	12.62	13.19	13.69	14.24	15.68
4H	2H	10.81	11.49	11.86	12.53	13.94	10.46	11.13	11.51	12.17	13.58
	3H	12.67	13.23	13.73	14.30	15.72	12.26	12.82	13.32	13.89	15.31
	4H	13.37	13.89	14.44	14.95	16.39	12.95	13.47	14.02	14.53	15.97
	6H	13.88	14.33	14.96	15.41	16.84	13.45	13.89	14.52	14.98	16.41
	8H	14.03	14.44	15.10	15.52	16.97	13.59	14.00	14.66	15.08	16.53
	12H	14.09	14.47	15.19	15.56	17.02	13.65	14.02	14.74	15.11	16.57
8H	4H	13.56	13.98	14.64	15.05	16.50	13.18	13.60	14.26	14.68	16.13
	6H	14.18	14.53	15.28	15.64	17.09	13.80	14.14	14.90	15.26	16.71
	8H	14.40	14.70	15.50	15.80	17.27	14.01	14.31	15.11	15.41	16.88
	12H	14.53	14.79	15.63	15.89	17.39	14.11	14.38	15.22	15.48	16.98
12H	4H	13.54	13.92	14.64	15.01	16.46	13.17	13.55	14.27	14.64	16.10
	6H	14.21	14.51	15.32	15.61	17.08	13.84	14.14	14.94	15.24	16.71
	8H	14.45	14.71	15.55	15.81	17.31	14.07	14.33	15.17	15.43	16.93