

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: P917490

Luminaire Tested: DFN2DIP-SQ3F0-100D090US930-RLLFLL

Issue Date: 11/21/2024

**Test Information**

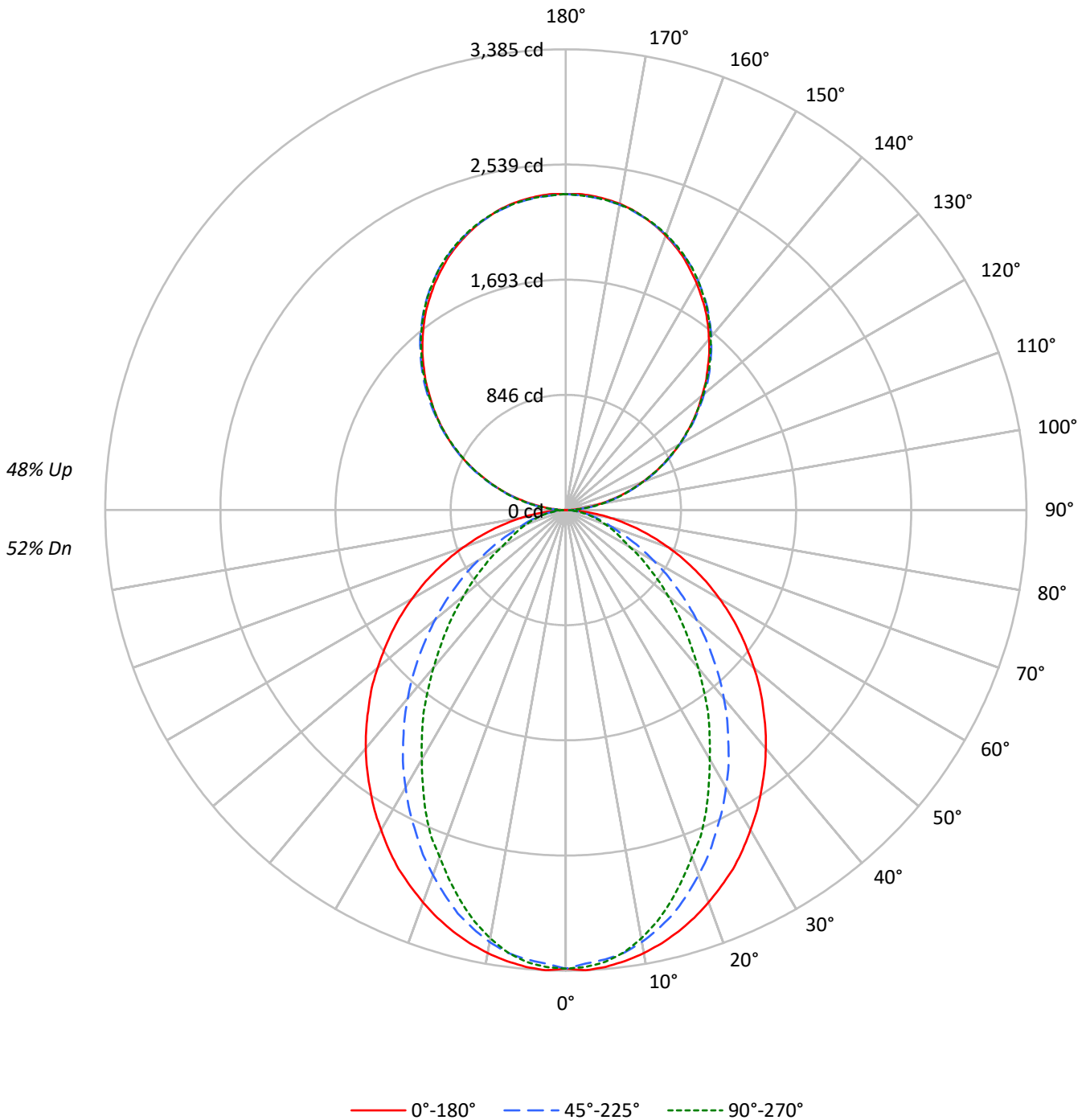
Test Method: LM-79-2019  
Report Number: P917490  
REPORT IS A COMBINATION OF REPORTS P899964 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-100D090US930-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13423.9 lumens  
Efficiency: N/A  
Efficacy: 80.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 167  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
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	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58	52	52	52	52
1	99	94	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50	45	45	45	45
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43	38	38	38	38
3	83	73	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	33	33	33	33
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	34	32	29	29	29	29
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	25	25	25	25
6	64	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25	22	22	22	22
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23	20	20	20	20
8	56	43	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	18	18	18	18
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19	16	16	16	16
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17	15	15	15	15

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

	0°	45°	90°
0°	3861	3861	3861
5°	3865	3797	3823
10°	3824	3720	3697
15°	3769	3595	3504
20°	3697	3423	3267
25°	3623	3231	3038
30°	3525	3034	2748
35°	3428	2822	2494
40°	3330	2604	2202
45°	3216	2362	1938
50°	3098	2118	1680
55°	2974	1857	1432
60°	2831	1585	1178
65°	2666	1309	1058
70°	2466	1051	956
75°	2214	921	867
80°	1850	765	748
85°	1254	498	554

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3216 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	315.8	2.4
10°-20°	866.9	6.5
20°-30°	1217.2	9.1
30°-40°	1326.8	9.9
40°-50°	1219.5	9.1
50°-60°	957.7	7.1
60°-70°	623.4	4.6
70°-80°	320.9	2.4
80°-90°	88.5	0.7
90°-100°	143.6	1.1
100°-110°	456.3	3.4
110°-120°	780.8	5.8
120°-130°	1026.9	7.6
130°-140°	1152.6	8.6
140°-150°	1130.3	8.4
150°-160°	948.2	7.1
160°-170°	628.8	4.7
170°-180°	219.8	1.6
0°-30°	2399.9	17.9
0°-40°	3726.7	27.8
0°-60°	5903.9	44.0
0°-90°	6936.6	51.7
90°-120°	1380.7	10.3
90°-150°	4690.5	34.9
90°-180°	6487.0	48.3
0°-180°	13423.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3370	3370	3370	3370	3370	
5°	3370	3354	3315	3342	3333	320
15°	3205	3171	3068	3010	2979	903
25°	2909	2812	2610	2485	2440	1338
35°	2507	2351	2083	1891	1823	1569
45°	2049	1845	1525	1308	1235	1583
55°	1558	1320	991	808	750	1392
65°	1052	805	531	427	418	1043
75°	561	348	244	223	220	593
85°	131	67	58	58	58	150
90°	2	25	69	64	66	13
95°	102	122	125	125	122	114
105°	421	427	431	434	434	444
115°	784	795	791	789	784	775
125°	1140	1157	1152	1145	1143	1018
135°	1474	1496	1500	1498	1492	1139
145°	1790	1804	1815	1817	1809	1118
155°	2046	2052	2058	2068	2062	942
165°	2226	2224	2224	2238	2228	628
175°	2316	2311	2307	2321	2309	220
180°	2321	2321	2321	2321	2321	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3369.6	3369.6	3369.6	3369.6	3369.6
2.5°	3384.8	3369.6	3336.0	3366.7	3360.6
5°	3369.6	3354.4	3314.6	3342.2	3333.0
7.5°	3342.2	3324.0	3281.2	3293.2	3278.1
10°	3305.5	3284.2	3223.4	3214.0	3195.9
12.5°	3260.0	3232.4	3149.9	3131.8	3098.1
15°	3204.9	3171.3	3067.7	3009.8	2979.4
17.5°	3140.9	3092.0	2963.9	2896.9	2848.1
20°	3067.7	3006.6	2854.2	2778.2	2710.9
22.5°	2988.5	2918.3	2741.3	2637.8	2592.2
25°	2909.2	2811.6	2610.3	2485.4	2439.5
27.5°	2814.7	2710.9	2488.3	2345.0	2274.8
30°	2714.1	2597.9	2354.0	2198.8	2116.3
32.5°	2616.5	2476.0	2226.3	2043.1	1966.7
35°	2506.7	2351.2	2082.9	1890.8	1823.4
37.5°	2400.0	2232.0	1948.6	1738.1	1662.0
40°	2287.1	2104.3	1808.2	1591.8	1512.5
42.5°	2171.2	1976.1	1668.2	1442.3	1366.3
45°	2049.3	1844.8	1524.9	1308.1	1234.9
47.5°	1933.5	1717.0	1387.6	1170.8	1103.9
50°	1805.3	1588.9	1253.4	1042.8	979.0
52.5°	1680.1	1451.4	1125.3	924.0	866.1
55°	1558.1	1320.4	991.0	808.2	750.2
57.5°	1433.3	1189.3	872.3	701.4	652.6
60°	1305.1	1061.2	747.1	591.7	542.9
62.5°	1180.2	936.3	640.3	494.1	469.8
65°	1052.1	804.9	530.6	427.1	417.7
67.5°	930.2	683.0	427.1	375.0	365.9
70°	802.0	564.3	353.6	323.2	311.0
72.5°	680.0	454.2	295.7	271.4	265.3
75°	561.0	347.5	243.9	222.6	219.6
77.5°	442.3	246.9	192.2	179.9	173.7
80°	332.2	177.0	146.3	134.3	134.3
82.5°	231.6	119.0	100.6	94.5	94.5
85°	131.0	66.9	57.9	57.9	57.9
87.5°	48.8	24.3	24.3	21.4	21.4
90°	2.1	25.2	68.6	64.3	66.4
92.5°	43.4	58.8	60.9	62.9	62.9
95°	102.2	121.7	125.2	125.2	121.7
97.5°	170.0	188.2	195.9	195.9	195.9
100°	248.3	264.5	270.0	270.0	268.0
102.5°	330.9	342.8	350.5	352.6	350.5
105°	421.2	426.7	431.0	434.5	434.5
107.5°	510.7	519.1	519.1	520.5	510.7
110°	597.5	608.7	608.7	608.7	603.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	691.2	703.1	701.0	695.4	691.2
115°	783.6	794.8	791.2	789.2	783.6
117.5°	875.2	890.6	880.8	875.2	869.6
120°	967.6	982.9	967.6	967.6	961.2
122.5°	1051.5	1071.1	1061.4	1055.7	1051.5
125°	1139.7	1157.2	1151.6	1145.2	1143.2
127.5°	1225.7	1247.4	1239.7	1231.3	1225.7
130°	1306.2	1331.4	1327.9	1323.6	1316.0
132.5°	1396.4	1416.0	1417.4	1407.6	1402.1
135°	1474.1	1495.7	1500.0	1497.9	1492.3
137.5°	1560.8	1578.3	1581.8	1580.5	1572.1
140°	1637.1	1654.6	1664.3	1664.3	1656.7
142.5°	1715.5	1732.9	1738.5	1740.7	1732.9
145°	1789.7	1803.6	1814.8	1816.9	1809.2
147.5°	1856.1	1873.6	1882.0	1885.5	1877.8
150°	1924.7	1936.6	1944.2	1950.5	1944.2
152.5°	1985.5	1997.4	2007.2	2014.9	2007.2
155°	2046.4	2051.9	2058.3	2068.1	2061.8
157.5°	2098.8	2103.1	2106.6	2120.5	2110.7
160°	2145.7	2149.9	2152.1	2163.9	2155.5
162.5°	2189.1	2189.1	2191.2	2204.5	2194.7
165°	2226.2	2224.1	2224.1	2238.1	2228.3
167.5°	2259.8	2253.5	2253.5	2267.4	2257.6
170°	2285.0	2279.3	2277.3	2291.2	2279.3
172.5°	2302.4	2296.9	2294.7	2308.8	2296.9
175°	2316.4	2310.8	2306.6	2320.7	2308.8
177.5°	2324.1	2318.5	2314.3	2326.2	2314.3
180°	2320.7	2320.7	2320.7	2320.7	2320.7



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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	11.96	12.80	12.91	13.77	15.02	7.92	8.77	8.87	9.73	10.98
	3H	13.63	14.39	14.60	15.36	16.63	9.10	9.86	10.07	10.83	12.10
	4H	14.24	14.95	15.22	15.93	17.21	9.55	10.26	10.53	11.24	12.52
	6H	14.66	15.32	15.65	16.30	17.59	9.87	10.52	10.85	11.50	12.80
	8H	14.78	15.41	15.78	16.40	17.70	9.95	10.58	10.95	11.58	12.87
	12H	14.84	15.44	15.84	16.43	17.74	10.00	10.59	10.99	11.58	12.89
4H	2H	11.98	12.69	12.96	13.67	14.95	8.52	9.23	9.50	10.20	11.49
	3H	13.80	14.40	14.79	15.40	16.70	9.86	10.45	10.85	11.46	12.75
	4H	14.49	15.03	15.49	16.03	17.35	10.40	10.94	11.40	11.94	13.26
	6H	15.00	15.47	16.01	16.49	17.81	10.82	11.28	11.83	12.30	13.62
	8H	15.18	15.61	16.19	16.62	17.96	10.94	11.38	11.95	12.39	13.72
	12H	15.27	15.66	16.30	16.69	18.03	11.00	11.40	12.03	12.42	13.76
8H	4H	14.46	14.89	15.47	15.91	17.24	10.68	11.12	11.69	12.13	13.46
	6H	15.02	15.38	16.06	16.44	17.76	11.19	11.55	12.23	12.61	13.93
	8H	15.23	15.55	16.28	16.59	17.94	11.38	11.69	12.42	12.74	14.08
	12H	15.37	15.65	16.42	16.68	18.08	11.49	11.77	12.54	12.81	14.20
12H	4H	14.41	14.80	15.44	15.83	17.17	10.69	11.08	11.71	12.11	13.44
	6H	15.00	15.31	16.04	16.35	17.70	11.24	11.56	12.28	12.60	13.94
	8H	15.21	15.49	16.26	16.53	17.92	11.45	11.72	12.49	12.76	14.15