

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: P922952

Luminaire Tested: DFN2DIP-SQ3F0-100D110US940-FLLFLL

Issue Date: 11/21/2024

**Test Information**

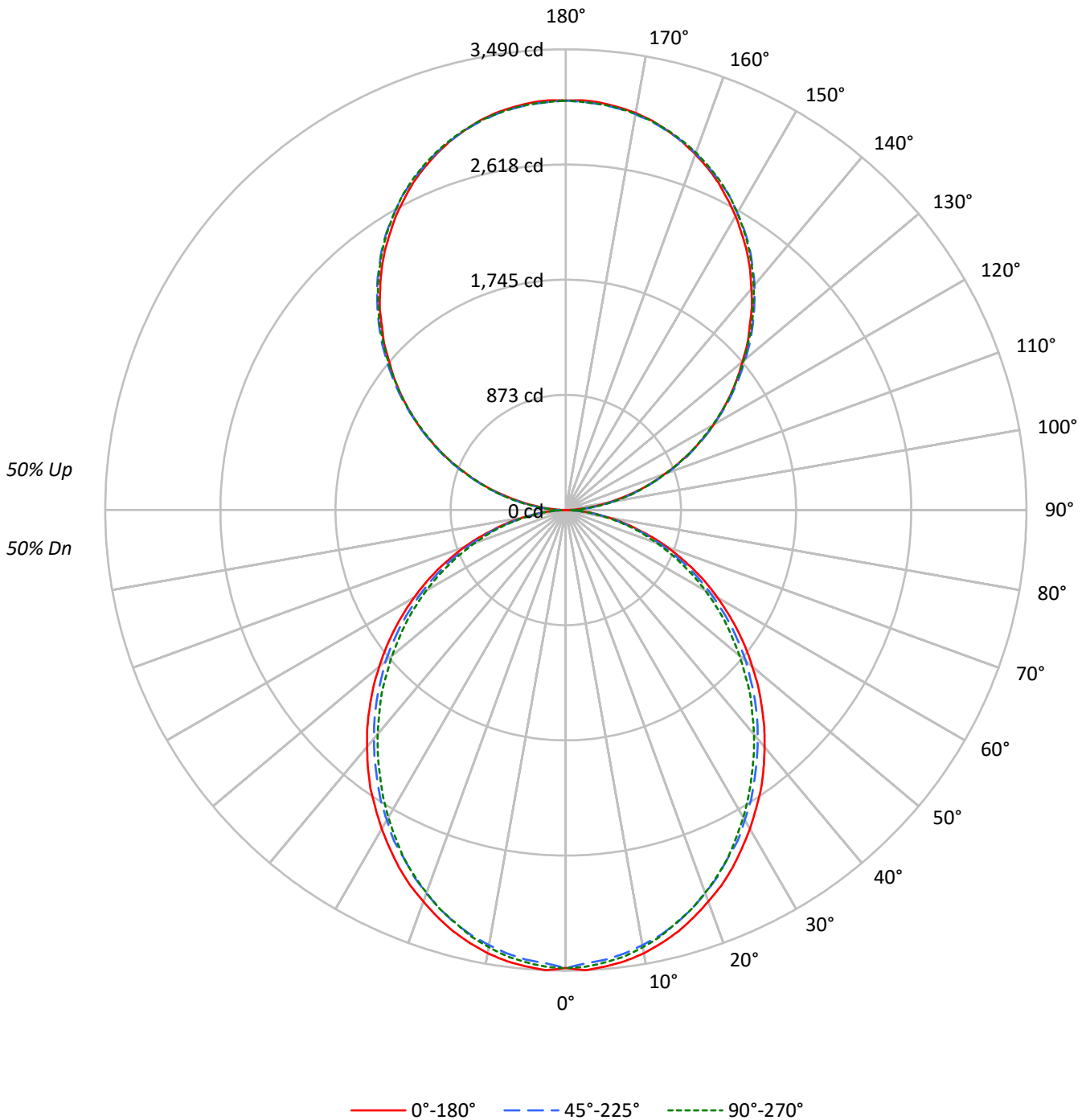
Test Method: LM-79-2019  
Report Number: P922952  
REPORT IS A COMBINATION OF REPORTS P899999 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-100D110US940-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 17508.7 lumens  
Efficiency: N/A  
Efficacy: 94.9 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): 184.4  
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	107	107	107	107	99	99	99	99	84	84	84	69	69	69	57	57	57	57	57	57	50
1	98	94	90	86	90	86	83	80	73	71	69	61	59	58	50	49	48	50	49	48	42
2	89	82	76	70	82	76	70	66	64	60	57	54	51	48	44	42	40	44	42	40	36
3	81	72	64	59	75	67	60	55	57	52	48	47	44	41	39	36	34	39	36	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	30	35	32	30	26
5	68	57	49	42	63	53	45	40	45	39	35	38	34	30	31	28	26	31	28	26	23
6	63	51	43	37	58	47	40	35	41	35	31	34	30	27	29	25	23	29	25	23	20
7	58	46	38	32	54	43	36	31	37	31	27	31	27	24	26	23	20	26	23	20	18
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	21	18	24	21	18	16
9	50	38	31	25	46	36	29	24	31	25	22	26	22	19	22	19	16	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	20	17	15	13

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

	0°	45°	90°
0°	3976	3976	3976
5°	3979	3918	3945
10°	3945	3862	3891
15°	3884	3796	3806
20°	3803	3705	3719
25°	3723	3597	3619
30°	3622	3496	3492
35°	3527	3377	3358
40°	3410	3257	3230
45°	3293	3137	3100
50°	3166	3010	2948
55°	3032	2864	2809
60°	2880	2691	2649
65°	2714	2511	2460
70°	2503	2291	2257
75°	2212	2028	2068
80°	1859	1692	1709
85°	1308	1122	1118

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3293 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	326.6	1.9
10°-20°	918.8	5.2
20°-30°	1350.3	7.7
30°-40°	1568.3	9.0
40°-50°	1566.4	8.9
50°-60°	1365.8	7.8
60°-70°	1009.7	5.8
70°-80°	571.3	3.3
80°-90°	159.6	0.9
90°-100°	192.0	1.1
100°-110°	609.9	3.5
110°-120°	1043.8	6.0
120°-130°	1372.7	7.8
130°-140°	1540.8	8.8
140°-150°	1511.0	8.6
150°-160°	1267.5	7.2
160°-170°	840.6	4.8
170°-180°	293.8	1.7
0°-30°	2595.7	14.8
0°-40°	4164.0	23.8
0°-60°	7096.2	40.5
0°-90°	8836.7	50.5
90°-120°	1845.7	10.5
90°-150°	6270.1	35.8
90°-180°	8672.0	49.5
0°-180°	17508.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3470	3470	3470	3470	3470	
5°	3470	3457	3420	3446	3440	329
15°	3303	3283	3240	3253	3236	930
25°	2989	2963	2906	2912	2906	1376
35°	2579	2546	2492	2472	2456	1611
45°	2099	2075	2025	1989	1975	1620
55°	1588	1568	1528	1488	1472	1420
65°	1071	1051	1018	988	971	1059
75°	560	554	537	517	524	598
85°	137	134	130	120	117	152
90°	3	34	92	86	89	17
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3469.7	3469.7	3469.7	3469.7	3469.7
2.5°	3489.9	3473.2	3436.4	3469.7	3463.3
5°	3469.7	3456.6	3419.8	3446.4	3440.0
7.5°	3446.4	3426.5	3389.7	3416.6	3409.9
10°	3409.9	3386.5	3346.5	3373.1	3363.2
12.5°	3359.6	3339.8	3299.8	3316.4	3309.7
15°	3303.0	3283.2	3239.6	3253.0	3236.5
17.5°	3232.9	3213.1	3169.5	3186.2	3169.5
20°	3156.0	3136.2	3089.5	3099.4	3086.3
22.5°	3079.6	3049.6	3006.0	3006.0	2999.3
25°	2989.4	2962.8	2906.2	2912.5	2906.2
27.5°	2889.1	2865.8	2822.6	2812.7	2796.0
30°	2789.4	2762.4	2712.5	2702.6	2689.1
32.5°	2682.4	2662.6	2609.1	2589.0	2575.5
35°	2579.1	2545.8	2492.3	2472.2	2455.5
37.5°	2462.3	2432.1	2378.7	2355.4	2338.7
40°	2342.3	2315.3	2261.9	2232.2	2218.8
42.5°	2225.4	2198.5	2145.5	2111.8	2092.0
45°	2098.7	2075.4	2025.1	1988.6	1975.2
47.5°	1975.2	1951.9	1898.4	1861.5	1841.7
50°	1844.9	1828.3	1781.5	1734.8	1718.2
52.5°	1718.2	1694.9	1651.6	1614.9	1591.5
55°	1588.3	1568.2	1528.1	1488.1	1471.5
57.5°	1458.0	1441.4	1397.8	1357.9	1344.4
60°	1327.8	1314.6	1267.9	1231.1	1221.2
62.5°	1201.0	1177.7	1144.4	1111.2	1097.7
65°	1071.1	1051.0	1017.7	987.6	971.0
67.5°	937.7	920.7	891.0	867.6	854.2
70°	814.1	800.7	770.6	747.3	734.1
72.5°	687.4	674.0	657.4	634.0	624.0
75°	560.4	554.0	537.0	517.2	523.9
77.5°	447.1	433.6	426.9	417.0	407.1
80°	333.8	330.3	323.5	313.6	306.9
82.5°	226.9	226.9	223.7	210.3	210.3
85°	136.6	133.5	130.3	120.0	116.8
87.5°	60.2	53.4	46.7	36.8	33.3
90°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2



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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	12.08	12.94	13.03	13.91	15.17	11.63	12.50	12.58	13.47	14.73
	3H	13.73	14.51	14.70	15.49	16.77	13.24	14.02	14.21	15.00	16.28
	4H	14.32	15.05	15.29	16.03	17.33	13.82	14.56	14.80	15.54	16.83
	6H	14.71	15.39	15.70	16.38	17.69	14.21	14.89	15.20	15.88	17.19
	8H	14.82	15.46	15.81	16.46	17.77	14.31	14.96	15.31	15.96	17.27
	12H	14.86	15.48	15.86	16.47	17.80	14.35	14.97	15.35	15.96	17.29
4H	2H	12.53	13.27	13.52	14.25	15.55	12.18	12.91	13.16	13.90	15.19
	3H	14.39	15.01	15.39	16.02	17.33	13.99	14.60	14.98	15.61	16.92
	4H	15.10	15.67	16.11	16.67	18.00	14.68	15.24	15.68	16.25	17.58
	6H	15.62	16.10	16.63	17.13	18.46	15.18	15.67	16.20	16.69	18.02
	8H	15.76	16.21	16.78	17.24	18.58	15.33	15.78	16.34	16.80	18.14
	12H	15.83	16.24	16.87	17.28	18.63	15.39	15.79	16.42	16.83	18.18
8H	4H	15.30	15.75	16.31	16.77	18.11	14.92	15.37	15.93	16.39	17.74
	6H	15.92	16.30	16.96	17.36	18.70	15.54	15.91	16.58	16.97	18.32
	8H	16.14	16.47	17.19	17.52	18.88	15.75	16.08	16.79	17.12	18.49
	12H	16.27	16.56	17.32	17.60	19.01	15.86	16.15	16.91	17.19	18.59
12H	4H	15.28	15.69	16.32	16.73	18.08	14.91	15.32	15.95	16.36	17.71
	6H	15.95	16.28	17.00	17.33	18.69	15.58	15.91	16.63	16.96	18.32
	8H	16.19	16.48	17.24	17.52	18.93	15.81	16.10	16.86	17.14	18.55