

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: P911888

Luminaire Tested: DFN2DIP-SQ3F0-060D090US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911888
REPORT IS A COMBINATION OF REPORTS P899955 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-060D090US850-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

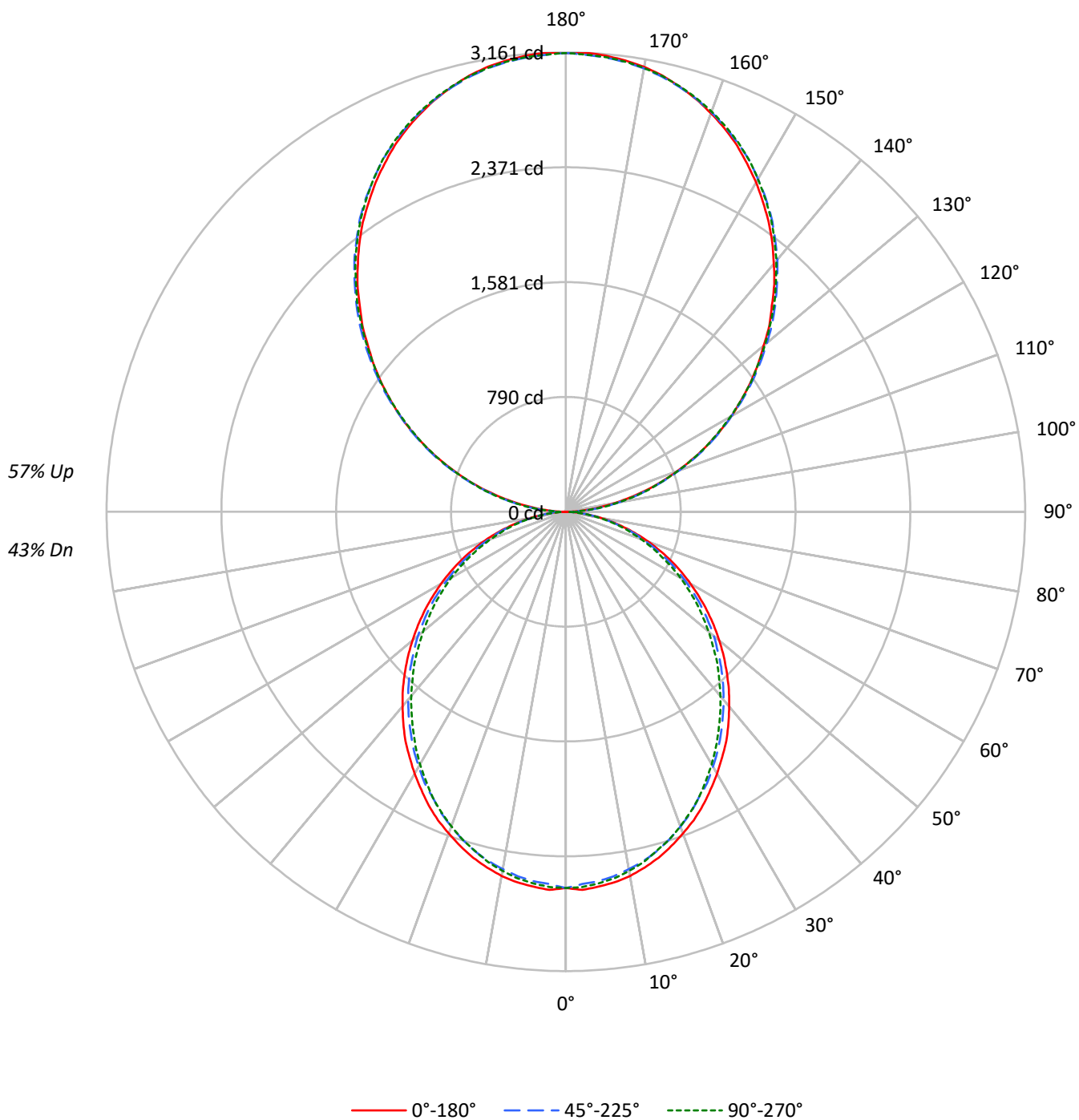
Lumens per Lamp: N/A
Luminaire Lumens: 15420.6 lumens
Efficiency: N/A
Efficacy: 126.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 121.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P911888

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US850-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P911888

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US850-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2967	2967	2967
5°	2969	2923	2944
10°	2944	2882	2903
15°	2898	2833	2840
20°	2838	2765	2775
25°	2778	2684	2700
30°	2703	2609	2606
35°	2632	2520	2506
40°	2545	2431	2410
45°	2458	2341	2313
50°	2362	2246	2200
55°	2262	2137	2096
60°	2149	2008	1977
65°	2025	1874	1836
70°	1868	1710	1684
75°	1650	1513	1543
80°	1387	1262	1275
85°	976	836	835

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3175 cd/sqm

TEST NUMBER: P911888

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US850-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	1.6
10°-20°	685.6	4.4
20°-30°	1007.6	6.5
30°-40°	1170.3	7.6
40°-50°	1168.8	7.6
50°-60°	1019.2	6.6
60°-70°	753.4	4.9
70°-80°	426.3	2.8
80°-90°	121.5	0.8
90°-100°	195.3	1.3
100°-110°	620.6	4.0
110°-120°	1062.1	6.9
120°-130°	1396.8	9.1
130°-140°	1567.9	10.2
140°-150°	1537.5	10.0
150°-160°	1289.7	8.4
160°-170°	855.3	5.5
170°-180°	299.0	1.9
0°-30°	1937.0	12.6
0°-40°	3107.2	20.1
0°-60°	5295.3	34.3
0°-90°	6596.4	42.8
90°-120°	1878.1	12.2
90°-150°	6380.2	41.4
90°-180°	8824.0	57.2
0°-180°	15420.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	3	34	93	88	90	15
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	

TEST NUMBER: P911888

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US850-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3

TEST NUMBER: P911888

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US850-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7

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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	10.31	11.11	11.32	12.13	13.50	9.86	10.66	10.88	11.69	13.06
	3H	11.96	12.68	12.99	13.71	15.10	11.47	12.19	12.50	13.22	14.61
	4H	12.54	13.22	13.58	14.26	15.66	12.05	12.73	13.09	13.76	15.16
	6H	12.93	13.56	13.98	14.60	16.01	12.43	13.06	13.48	14.10	15.51
	8H	13.03	13.63	14.09	14.69	16.09	12.53	13.13	13.59	14.19	15.59
	12H	13.08	13.65	14.14	14.70	16.13	12.57	13.14	13.63	14.19	15.62
4H	2H	10.76	11.44	11.80	12.47	13.87	10.40	11.08	11.45	12.12	13.52
	3H	12.61	13.18	13.67	14.24	15.66	12.20	12.77	13.26	13.84	15.25
	4H	13.32	13.84	14.38	14.90	16.33	12.90	13.42	13.96	14.47	15.91
	6H	13.83	14.27	14.90	15.35	16.78	13.39	13.84	14.46	14.92	16.35
	8H	13.97	14.39	15.04	15.46	16.91	13.54	13.95	14.61	15.03	16.47
	12H	14.04	14.42	15.13	15.50	16.95	13.59	13.97	14.68	15.06	16.50
8H	4H	13.51	13.92	14.58	15.00	16.44	13.13	13.55	14.20	14.62	16.06
	6H	14.13	14.47	15.22	15.59	17.03	13.75	14.09	14.84	15.20	16.65
	8H	14.35	14.65	15.45	15.75	17.21	13.95	14.26	15.05	15.35	16.81
	12H	14.47	14.74	15.58	15.83	17.33	14.06	14.33	15.16	15.42	16.92
12H	4H	13.49	13.87	14.58	14.95	16.40	13.12	13.50	14.21	14.58	16.03
	6H	14.16	14.46	15.26	15.56	17.02	13.78	14.09	14.88	15.18	16.64
	8H	14.39	14.66	15.50	15.75	17.25	14.01	14.28	15.12	15.37	16.87