

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: P906504

Luminaire Tested: DFN2DIP-SQ3F0-080D090US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906504
REPORT IS A COMBINATION OF REPORTS P899959 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-080D090US835-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

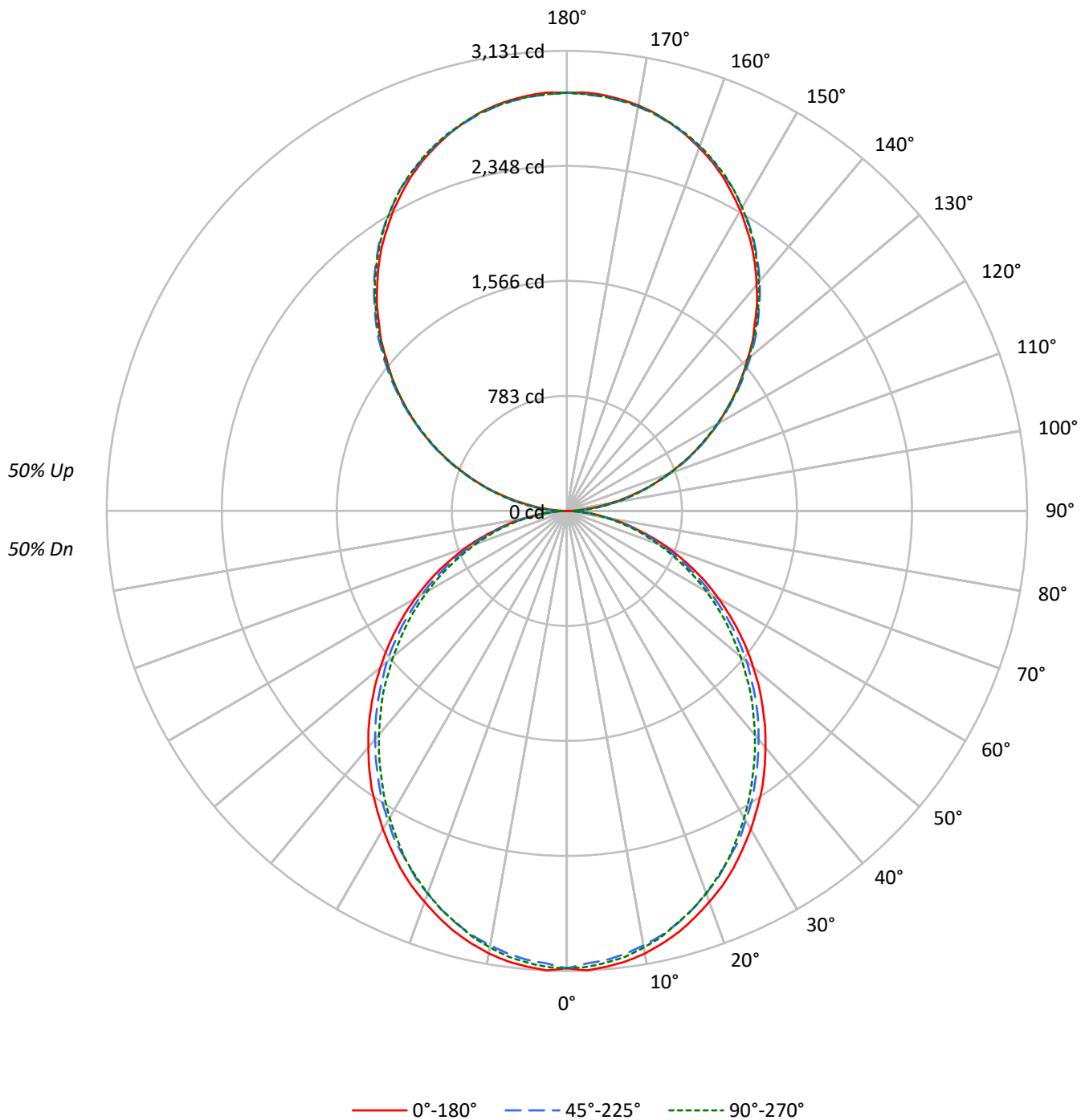
Lumens per Lamp: N/A
Luminaire Lumens: 15885.0 lumens
Efficiency: N/A
Efficacy: 109.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 144.7
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

TEST NUMBER: P906504

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US835-FLLFLL

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	75	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	63	56	50	68	59	52	46	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	25
6	63	51	43	37	58	47	40	35	40	35	31	34	30	26	28	25	22
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	22	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3567	3567	3567
5°	3570	3515	3540
10°	3539	3465	3490
15°	3485	3406	3414
20°	3412	3324	3337
25°	3340	3227	3247
30°	3250	3136	3133
35°	3164	3030	3013
40°	3059	2922	2898
45°	2955	2814	2781
50°	2840	2701	2645
55°	2720	2569	2520
60°	2584	2414	2376
65°	2435	2252	2207
70°	2246	2056	2025
75°	1984	1820	1855
80°	1668	1518	1533
85°	1174	1006	1004

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2955 cd/sqm

TEST NUMBER: P906504

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US835-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.0	1.8
10°-20°	824.3	5.2
20°-30°	1211.5	7.6
30°-40°	1407.0	8.9
40°-50°	1405.3	8.8
50°-60°	1225.4	7.7
60°-70°	905.8	5.7
70°-80°	512.5	3.2
80°-90°	143.4	0.9
90°-100°	176.1	1.1
100°-110°	559.6	3.5
110°-120°	957.7	6.0
120°-130°	1259.5	7.9
130°-140°	1413.8	8.9
140°-150°	1386.4	8.7
150°-160°	1163.0	7.3
160°-170°	771.2	4.9
170°-180°	269.6	1.7
0°-30°	2328.8	14.7
0°-40°	3735.8	23.5
0°-60°	6366.4	40.1
0°-90°	7928.1	49.9
90°-120°	1693.5	10.7
90°-150°	5753.1	36.2
90°-180°	7957.0	50.1
0°-180°	15885.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3113	3113	3113	3113	3113	
5°	3113	3101	3068	3092	3086	295
15°	2963	2946	2906	2918	2904	835
25°	2682	2658	2607	2613	2607	1234
35°	2314	2284	2236	2218	2203	1445
45°	1883	1862	1817	1784	1772	1453
55°	1425	1407	1371	1335	1320	1274
65°	961	943	913	886	871	950
75°	503	497	482	464	470	537
85°	123	120	117	108	105	137
90°	3	31	84	79	82	15
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	

TEST NUMBER: P906504

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US835-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3112.8	3112.8	3112.8	3112.8	3112.8
2.5°	3130.9	3116.0	3083.0	3112.8	3107.1
5°	3112.8	3101.1	3068.1	3091.9	3086.2
7.5°	3091.9	3074.1	3041.1	3065.2	3059.2
10°	3059.2	3038.2	3002.3	3026.1	3017.3
12.5°	3014.1	2996.3	2960.4	2975.3	2969.3
15°	2963.3	2945.5	2906.4	2918.5	2903.6
17.5°	2900.4	2882.6	2843.5	2858.5	2843.5
20°	2831.5	2813.7	2771.8	2780.7	2768.9
22.5°	2762.9	2735.9	2696.8	2696.8	2690.8
25°	2681.9	2658.1	2607.3	2613.0	2607.3
27.5°	2592.0	2571.1	2532.3	2523.4	2508.5
30°	2502.5	2478.3	2433.6	2424.7	2412.6
32.5°	2406.6	2388.8	2340.8	2322.7	2310.7
35°	2313.8	2284.0	2236.0	2217.9	2203.0
37.5°	2209.0	2182.0	2134.1	2113.1	2098.2
40°	2101.4	2077.2	2029.3	2002.6	1990.5
42.5°	1996.6	1972.4	1924.8	1894.6	1876.9
45°	1882.9	1861.9	1816.8	1784.1	1772.1
47.5°	1772.1	1751.1	1703.1	1670.1	1652.3
50°	1655.2	1640.3	1598.3	1556.4	1541.5
52.5°	1541.5	1520.5	1481.8	1448.8	1427.8
55°	1424.9	1406.8	1371.0	1335.1	1320.1
57.5°	1308.1	1293.2	1254.1	1218.2	1206.1
60°	1191.2	1179.5	1137.5	1104.5	1095.6
62.5°	1077.5	1056.6	1026.7	996.9	984.8
65°	961.0	942.9	913.0	886.0	871.1
67.5°	841.2	826.0	799.3	778.4	766.3
70°	730.4	718.3	691.4	670.4	658.6
72.5°	616.7	604.7	589.7	568.8	559.9
75°	502.7	497.0	481.8	464.0	470.0
77.5°	401.1	389.0	383.0	374.1	365.2
80°	299.5	296.3	290.3	281.4	275.3
82.5°	203.6	203.6	200.7	188.6	188.6
85°	122.6	119.7	116.9	107.7	104.8
87.5°	54.0	48.0	41.9	33.0	29.9
90°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7



TEST NUMBER: P906504

CATALOG NUMBER: DFN2DIP-SQ3F0-080D090US835-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4

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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	11.65	12.51	12.60	13.48	14.75	11.20	12.06	12.16	13.04	14.31
	3H	13.30	14.07	14.27	15.06	16.35	12.81	13.58	13.78	14.57	15.86
	4H	13.89	14.62	14.87	15.60	16.91	13.39	14.12	14.38	15.11	16.41
	6H	14.28	14.96	15.28	15.95	17.26	13.78	14.46	14.78	15.45	16.76
	8H	14.39	15.03	15.39	16.04	17.35	13.88	14.53	14.88	15.53	16.85
	12H	14.43	15.04	15.44	16.04	17.38	13.92	14.53	14.93	15.53	16.87
4H	2H	12.10	12.83	13.09	13.82	15.12	11.75	12.48	12.74	13.47	14.77
	3H	13.96	14.57	14.96	15.59	16.91	13.56	14.17	14.55	15.18	16.50
	4H	14.67	15.23	15.68	16.24	17.58	14.25	14.81	15.26	15.82	17.16
	6H	15.18	15.67	16.20	16.70	18.03	14.75	15.23	15.77	16.26	17.60
	8H	15.33	15.78	16.35	16.81	18.16	14.89	15.34	15.91	16.37	17.72
	12H	15.40	15.81	16.44	16.85	18.21	14.95	15.36	15.99	16.40	17.76
8H	4H	14.87	15.32	15.89	16.34	17.69	14.49	14.94	15.51	15.96	17.32
	6H	15.49	15.86	16.53	16.93	18.28	15.11	15.48	16.15	16.55	17.90
	8H	15.71	16.04	16.76	17.09	18.46	15.32	15.64	16.37	16.69	18.06
	12H	15.84	16.12	16.89	17.17	18.58	15.43	15.71	16.48	16.76	18.17
12H	4H	14.85	15.26	15.89	16.30	17.65	14.48	14.89	15.52	15.93	17.29
	6H	15.52	15.85	16.57	16.90	18.27	15.15	15.47	16.20	16.53	17.90
	8H	15.76	16.05	16.81	17.09	18.50	15.38	15.66	16.43	16.71	18.12