

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: P906793

Luminaire Tested: DFN2DIP-SQ4F0-090D110US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906793
REPORT IS A COMBINATION OF REPORTS P901675 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D110US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

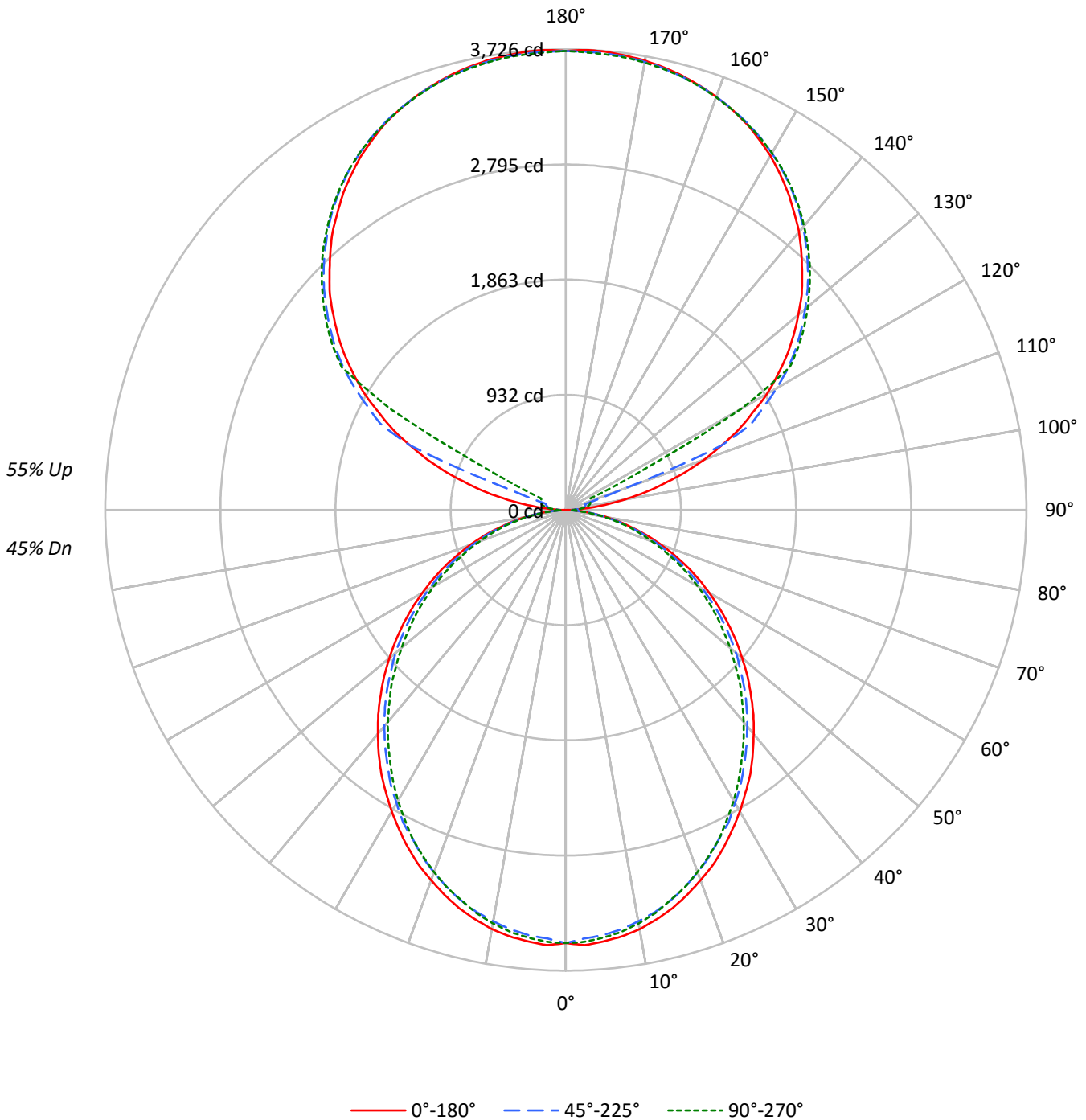
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19800.0 lumens
Efficiency: N/A
Efficacy: 119.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 165.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	106	106	106	106	97	97	97	97	81	81	81	65	65	65	52	52	52	45	45	45	45
1	97	92	89	85	88	85	82	79	71	68	66	58	56	54	46	45	44	38	38	38	38
2	88	81	75	69	80	74	69	64	62	58	55	51	48	45	40	38	37	32	32	32	32
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	36	33	31	27	27	27	27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23	23	23	23
5	67	56	48	42	61	52	44	39	43	38	34	36	32	29	29	26	23	20	20	20	20
6	62	50	42	36	57	46	39	34	39	34	29	32	28	25	26	23	21	18	18	18	18
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16	16	16	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14	14	14	14
9	50	37	30	25	45	35	28	23	30	24	21	25	21	18	20	17	15	13	13	13	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11	11	11	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2457	2457	2457
5°	2461	2424	2440
10°	2441	2391	2408
15°	2405	2352	2357
20°	2357	2298	2305
25°	2308	2233	2244
30°	2248	2173	2167
35°	2191	2102	2086
40°	2120	2030	2008
45°	2050	1958	1929
50°	1973	1882	1837
55°	1892	1794	1753
60°	1801	1690	1657
65°	1702	1583	1543
70°	1575	1452	1421
75°	1400	1295	1309
80°	1189	1095	1094
85°	859	749	735

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2050 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	329.6	1.7
10°-20°	927.4	4.7
20°-30°	1362.9	6.9
30°-40°	1582.9	8.0
40°-50°	1580.9	8.0
50°-60°	1378.5	7.0
60°-70°	1019.0	5.1
70°-80°	576.6	2.9
80°-90°	158.7	0.8
90°-100°	122.4	0.6
100°-110°	456.3	2.3
110°-120°	1210.3	6.1
120°-130°	2007.3	10.1
130°-140°	2132.2	10.8
140°-150°	1981.7	10.0
150°-160°	1593.2	8.0
160°-170°	1026.6	5.2
170°-180°	353.3	1.8
0°-30°	2619.9	13.2
0°-40°	4202.8	21.2
0°-60°	7162.3	36.2
0°-90°	8916.5	45.0
90°-120°	1789.0	9.0
90°-150°	7910.3	40.0
90°-180°	10883.0	55.0
0°-180°	19800.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3502	3502	3502	3502	3502	
5°	3502	3489	3452	3478	3472	332
15°	3334	3314	3270	3283	3266	939
25°	3017	2990	2933	2940	2933	1388
35°	2603	2570	2516	2495	2478	1626
45°	2118	2095	2044	2007	1994	1635
55°	1603	1583	1542	1502	1485	1433
65°	1081	1061	1027	997	980	1069
75°	566	559	542	522	529	604
85°	138	135	132	121	118	154
90°	3	32	54	67	72	18
95°	174	86	105	118	116	207
105°	817	897	164	193	204	873
115°	1544	1590	1658	414	220	1521
125°	2184	2219	2270	2289	2297	1948
135°	2702	2746	2769	2797	2791	2088
145°	3135	3132	3178	3197	3183	1961
155°	3452	3428	3460	3476	3455	1591
165°	3637	3621	3629	3648	3629	1028
175°	3720	3702	3707	3726	3699	354
180°	3712	3712	3712	3712	3712	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3501.9	3501.9	3501.9	3501.9	3501.9
2.5°	3522.3	3505.5	3468.4	3501.9	3495.5
5°	3501.9	3488.7	3451.6	3478.4	3471.9
7.5°	3478.4	3458.4	3421.2	3448.4	3441.6
10°	3441.6	3418.0	3377.6	3404.4	3394.4
12.5°	3390.8	3370.8	3330.5	3347.2	3340.5
15°	3333.7	3313.7	3269.7	3283.3	3266.5
17.5°	3262.9	3242.9	3199.0	3215.8	3199.0
20°	3185.4	3165.4	3118.2	3128.2	3115.0
22.5°	3108.2	3077.9	3033.9	3033.9	3027.1
25°	3017.1	2990.3	2933.2	2939.6	2933.2
27.5°	2916.0	2892.4	2848.9	2838.9	2822.1
30°	2815.3	2788.1	2737.7	2727.7	2714.2
32.5°	2707.4	2687.4	2633.4	2613.1	2599.5
35°	2603.1	2569.5	2515.5	2495.2	2478.4
37.5°	2485.2	2454.8	2400.8	2377.3	2360.5
40°	2364.0	2336.9	2282.9	2252.9	2239.4
42.5°	2246.1	2219.0	2165.4	2131.5	2111.5
45°	2118.2	2094.7	2043.9	2007.1	1993.6
47.5°	1993.6	1970.0	1916.0	1878.9	1858.9
50°	1862.1	1845.3	1798.1	1751.0	1734.2
52.5°	1734.2	1710.6	1667.0	1629.9	1606.3
55°	1603.1	1582.7	1542.3	1502.0	1485.2
57.5°	1471.6	1454.8	1410.9	1370.5	1356.9
60°	1340.1	1326.9	1279.7	1242.6	1232.6
62.5°	1212.2	1188.6	1155.0	1121.5	1107.9
65°	1081.1	1060.7	1027.1	996.8	980.0
67.5°	946.4	929.3	899.2	875.7	862.1
70°	821.7	808.1	777.8	754.2	741.0
72.5°	693.8	680.2	663.4	639.9	629.9
75°	565.6	559.1	542.0	522.0	528.8
77.5°	451.2	437.7	430.9	420.9	410.9
80°	336.9	333.3	326.5	316.5	309.8
82.5°	229.0	229.0	225.8	212.2	212.2
85°	137.9	134.7	131.5	121.1	117.9
87.5°	60.7	53.9	47.2	37.2	33.6
90°	2.6	32.2	53.6	67.3	72.4
92.5°	67.3	56.5	64.4	69.9	72.4
95°	174.5	85.8	104.6	118.3	115.5
97.5°	314.2	94.1	136.8	145.1	147.7
100°	475.6	107.5	153.1	174.5	179.9
102.5°	652.6	647.5	158.5	187.9	196.2
105°	816.6	897.3	164.0	193.3	204.2
107.5°	1007.4	1074.3	169.4	198.7	209.6
110°	1190.1	1246.3	470.2	201.6	212.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1362.1	1410.2	1364.6	206.7	215.0
115°	1544.5	1590.1	1657.5	413.7	220.4
117.5°	1703.1	1756.7	1802.6	1418.2	714.5
120°	1880.4	1920.6	1969.1	2001.3	1638.6
122.5°	2030.7	2073.7	2127.6	2143.6	2146.5
125°	2183.8	2218.9	2269.9	2288.7	2296.7
127.5°	2323.5	2361.1	2401.6	2428.4	2431.0
130°	2455.2	2498.3	2527.6	2557.3	2554.8
132.5°	2589.5	2624.6	2654.0	2678.2	2675.7
135°	2702.5	2745.5	2769.4	2796.6	2791.1
137.5°	2820.5	2852.7	2879.8	2906.6	2898.6
140°	2936.0	2957.6	2987.0	3011.2	2997.8
142.5°	3032.9	3051.7	3086.5	3107.9	3094.5
145°	3135.0	3132.1	3177.7	3196.6	3183.2
147.5°	3223.4	3215.4	3261.0	3274.4	3263.9
150°	3309.5	3290.7	3333.7	3349.7	3336.3
152.5°	3381.9	3360.5	3400.7	3417.0	3398.2
155°	3451.8	3427.8	3460.0	3476.0	3454.6
157.5°	3508.2	3486.8	3511.1	3529.9	3508.2
160°	3556.7	3540.4	3556.7	3572.6	3553.8
162.5°	3599.4	3583.5	3596.9	3615.7	3591.5
165°	3637.1	3621.1	3629.1	3647.9	3629.1
167.5°	3666.7	3650.5	3658.8	3677.6	3653.4
170°	3691.0	3674.7	3680.1	3699.0	3674.7
172.5°	3706.9	3691.0	3696.4	3715.2	3691.0
175°	3720.3	3701.5	3706.9	3725.8	3699.0
177.5°	3725.8	3706.9	3709.8	3728.6	3704.4
180°	3712.4	3712.4	3712.4	3712.4	3712.4



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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	9.93	10.75	10.93	11.76	13.10	9.49	10.30	10.48	11.31	12.65
	3H	11.59	12.33	12.60	13.34	14.71	11.10	11.84	12.11	12.85	14.22
	4H	12.18	12.88	13.20	13.90	15.27	11.69	12.38	12.71	13.40	14.77
	6H	12.58	13.22	13.61	14.25	15.63	12.08	12.72	13.11	13.75	15.13
	8H	12.69	13.30	13.72	14.34	15.72	12.19	12.79	13.22	13.84	15.21
	12H	12.74	13.32	13.78	14.35	15.75	12.23	12.81	13.27	13.84	15.24
4H	2H	10.39	11.08	11.42	12.10	13.47	10.03	10.73	11.06	11.75	13.12
	3H	12.25	12.83	13.29	13.88	15.27	11.85	12.43	12.88	13.48	14.86
	4H	12.97	13.50	14.01	14.54	15.95	12.55	13.08	13.59	14.12	15.52
	6H	13.49	13.94	14.54	15.01	16.41	13.05	13.51	14.11	14.58	15.98
	8H	13.64	14.06	14.69	15.12	16.54	13.20	13.63	14.25	14.68	16.10
	12H	13.71	14.10	14.78	15.17	16.59	13.26	13.65	14.33	14.72	16.14
8H	4H	13.16	13.59	14.22	14.65	16.06	12.79	13.21	13.84	14.27	15.69
	6H	13.80	14.15	14.88	15.25	16.66	13.41	13.77	14.49	14.87	16.28
	8H	14.02	14.33	15.11	15.41	16.85	13.63	13.94	14.71	15.02	16.45
	12H	14.15	14.43	15.24	15.50	16.98	13.74	14.01	14.83	15.09	16.57
12H	4H	13.15	13.53	14.22	14.60	16.03	12.78	13.16	13.85	14.24	15.66
	6H	13.83	14.14	14.91	15.22	16.65	13.46	13.77	14.54	14.85	16.28
	8H	14.07	14.34	15.16	15.42	16.89	13.69	13.96	14.78	15.04	16.51