

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: P911939

Luminaire Tested: DFN2DIP-SQ3F0-070D120US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911939
REPORT IS A COMBINATION OF REPORTS P901532 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D120US850-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

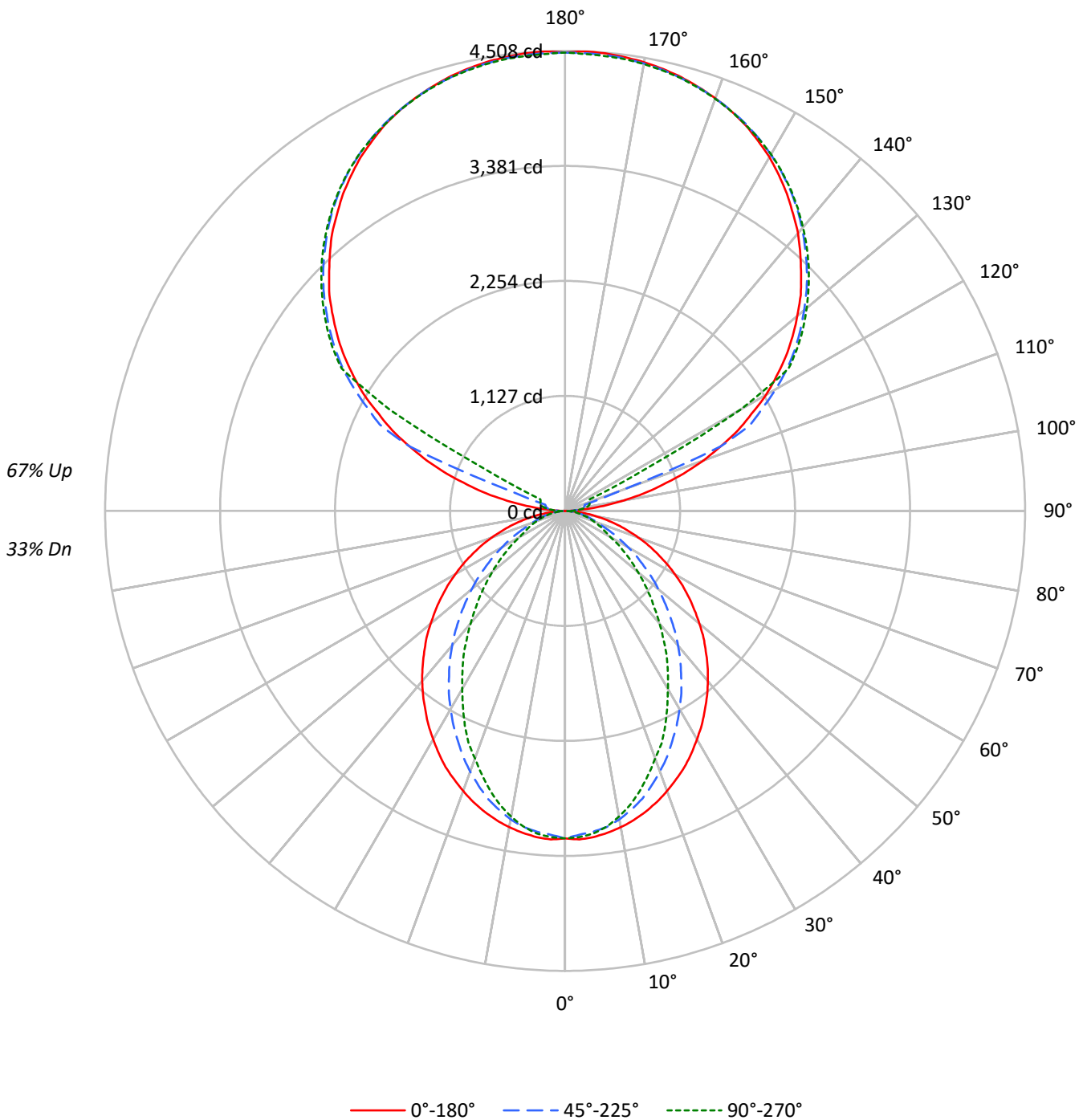
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19773.4 lumens
Efficiency: N/A
Efficacy: 123.8 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: Semi-Indirect

Input Watts (W): 159.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33				33
1	94	90	87	83	85	82	79	76	65	63	61	50	49	48	37	36	35	29				29
2	86	79	73	69	78	72	67	63	58	54	51	45	42	40	33	31	30	25				25
3	79	70	63	57	71	63	57	53	51	47	43	40	37	35	29	27	26	21				21
4	72	62	54	49	65	56	50	45	45	41	37	36	32	30	26	24	23	19				19
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20	16				16
6	61	50	42	36	55	45	38	34	37	32	28	29	25	23	22	19	18	14				14
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	18	16	13				13
8	52	41	33	28	47	37	31	26	30	26	22	24	21	18	18	16	14	12				12
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13	11				11
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3676	3676	3676
5°	3680	3615	3640
10°	3641	3542	3520
15°	3588	3423	3336
20°	3520	3259	3110
25°	3450	3076	2893
30°	3356	2889	2617
35°	3264	2687	2374
40°	3170	2479	2097
45°	3062	2249	1845
50°	2950	2016	1600
55°	2832	1768	1364
60°	2695	1509	1121
65°	2538	1247	1008
70°	2348	1001	910
75°	2108	877	826
80°	1762	729	712
85°	1195	474	528

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3076 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	1.5
10°-20°	825.5	4.2
20°-30°	1158.9	5.9
30°-40°	1263.3	6.4
40°-50°	1161.1	5.9
50°-60°	911.9	4.6
60°-70°	593.5	3.0
70°-80°	305.5	1.5
80°-90°	85.9	0.4
90°-100°	148.1	0.7
100°-110°	552.1	2.8
110°-120°	1464.2	7.4
120°-130°	2428.5	12.3
130°-140°	2579.6	13.0
140°-150°	2397.5	12.1
150°-160°	1927.5	9.7
160°-170°	1242.0	6.3
170°-180°	427.5	2.2
0°-30°	2285.1	11.6
0°-40°	3548.4	17.9
0°-60°	5621.4	28.4
0°-90°	6606.4	33.4
90°-120°	2164.4	10.9
90°-150°	9570.0	48.4
90°-180°	13167.0	66.6
0°-180°	19773.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3208	3208	3208	3208	3208	
5°	3208	3194	3156	3182	3174	304
15°	3052	3020	2921	2866	2837	860
25°	2770	2677	2485	2366	2323	1274
35°	2387	2239	1983	1800	1736	1494
45°	1951	1756	1452	1246	1176	1507
55°	1484	1257	944	770	714	1326
65°	1002	766	505	407	398	993
75°	534	331	232	212	209	565
85°	125	64	55	55	55	143
90°	3	39	65	81	88	18
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3208.4	3208.4	3208.4	3208.4	3208.4
2.5°	3222.9	3208.4	3176.4	3205.7	3199.8
5°	3208.4	3193.9	3156.1	3182.3	3173.6
7.5°	3182.3	3165.0	3124.4	3135.7	3121.3
10°	3147.5	3127.2	3069.2	3060.3	3043.0
12.5°	3104.0	3077.8	2999.3	2982.0	2949.9
15°	3051.6	3019.6	2921.0	2865.9	2836.9
17.5°	2990.6	2944.2	2822.2	2758.3	2711.8
20°	2921.0	2862.8	2717.7	2645.3	2581.2
22.5°	2845.6	2778.7	2610.1	2511.6	2468.2
25°	2770.1	2677.0	2485.4	2366.5	2322.8
27.5°	2680.1	2581.2	2369.3	2232.9	2166.0
30°	2584.3	2473.7	2241.4	2093.6	2015.1
32.5°	2491.3	2357.6	2119.7	1945.4	1872.7
35°	2386.8	2238.6	1983.3	1800.4	1736.3
37.5°	2285.2	2125.3	1855.5	1654.8	1582.5
40°	2177.6	2003.6	1721.7	1515.7	1440.1
42.5°	2067.4	1881.6	1588.3	1373.3	1301.0
45°	1951.3	1756.5	1451.9	1245.5	1175.9
47.5°	1840.9	1634.9	1321.3	1114.9	1051.1
50°	1719.0	1512.9	1193.4	992.9	932.2
52.5°	1599.7	1381.9	1071.4	879.8	824.7
55°	1483.6	1257.2	943.5	769.5	714.4
57.5°	1364.7	1132.4	830.5	667.8	621.4
60°	1242.7	1010.4	711.3	563.5	516.9
62.5°	1123.7	891.5	609.6	470.4	447.3
65°	1001.8	766.4	505.3	406.7	397.7
67.5°	885.6	650.3	406.7	357.0	348.4
70°	763.7	537.2	336.7	307.7	296.0
72.5°	647.5	432.5	281.6	258.5	252.6
75°	534.2	330.8	232.2	211.9	209.2
77.5°	421.1	235.0	183.0	171.2	165.5
80°	316.4	168.5	139.3	127.9	127.9
82.5°	220.6	113.3	95.8	89.9	89.9
85°	124.8	63.8	55.1	55.1	55.1
87.5°	46.5	23.1	23.1	20.3	20.3
90°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3



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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	9.85	10.56	10.95	11.65	13.14	5.81	6.52	6.91	7.61	9.10
	3H	11.52	12.15	12.62	13.25	14.76	6.99	7.62	8.09	8.72	10.23
	4H	12.12	12.72	13.23	13.82	15.33	7.43	8.03	8.54	9.13	10.64
	6H	12.53	13.08	13.65	14.18	15.71	7.74	8.29	8.86	9.39	10.92
	8H	12.65	13.18	13.77	14.29	15.81	7.82	8.35	8.94	9.46	10.98
	12H	12.71	13.21	13.83	14.31	15.86	7.86	8.36	8.98	9.47	11.01
4H	2H	9.85	10.46	10.97	11.55	13.07	6.39	6.99	7.51	8.09	9.61
	3H	11.67	12.17	12.79	13.29	14.82	7.72	8.22	8.85	9.35	10.88
	4H	12.35	12.81	13.48	13.92	15.47	8.26	8.72	9.39	9.83	11.38
	6H	12.85	13.25	13.99	14.39	15.93	8.67	9.06	9.80	10.20	11.74
	8H	13.03	13.39	14.16	14.52	16.08	8.79	9.16	9.92	10.29	11.84
	12H	13.11	13.45	14.26	14.59	16.15	8.85	9.18	10.00	10.32	11.88
8H	4H	12.31	12.68	13.44	13.80	15.36	8.53	8.90	9.66	10.03	11.58
	6H	12.86	13.17	14.02	14.34	15.89	9.04	9.34	10.19	10.51	12.06
	8H	13.08	13.34	14.24	14.49	16.06	9.22	9.49	10.38	10.64	12.21
	12H	13.21	13.44	14.37	14.59	16.19	9.33	9.56	10.49	10.71	12.32
12H	4H	12.25	12.59	13.41	13.73	15.29	8.53	8.86	9.68	10.00	11.56
	6H	12.84	13.10	14.00	14.25	15.83	9.08	9.35	10.24	10.50	12.07
	8H	13.05	13.28	14.22	14.43	16.04	9.28	9.51	10.45	10.66	12.27