

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: P912387

Luminaire Tested: DFN2DIP-SQ4F0-140D090US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912387
REPORT IS A COMBINATION OF REPORTS P901648 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

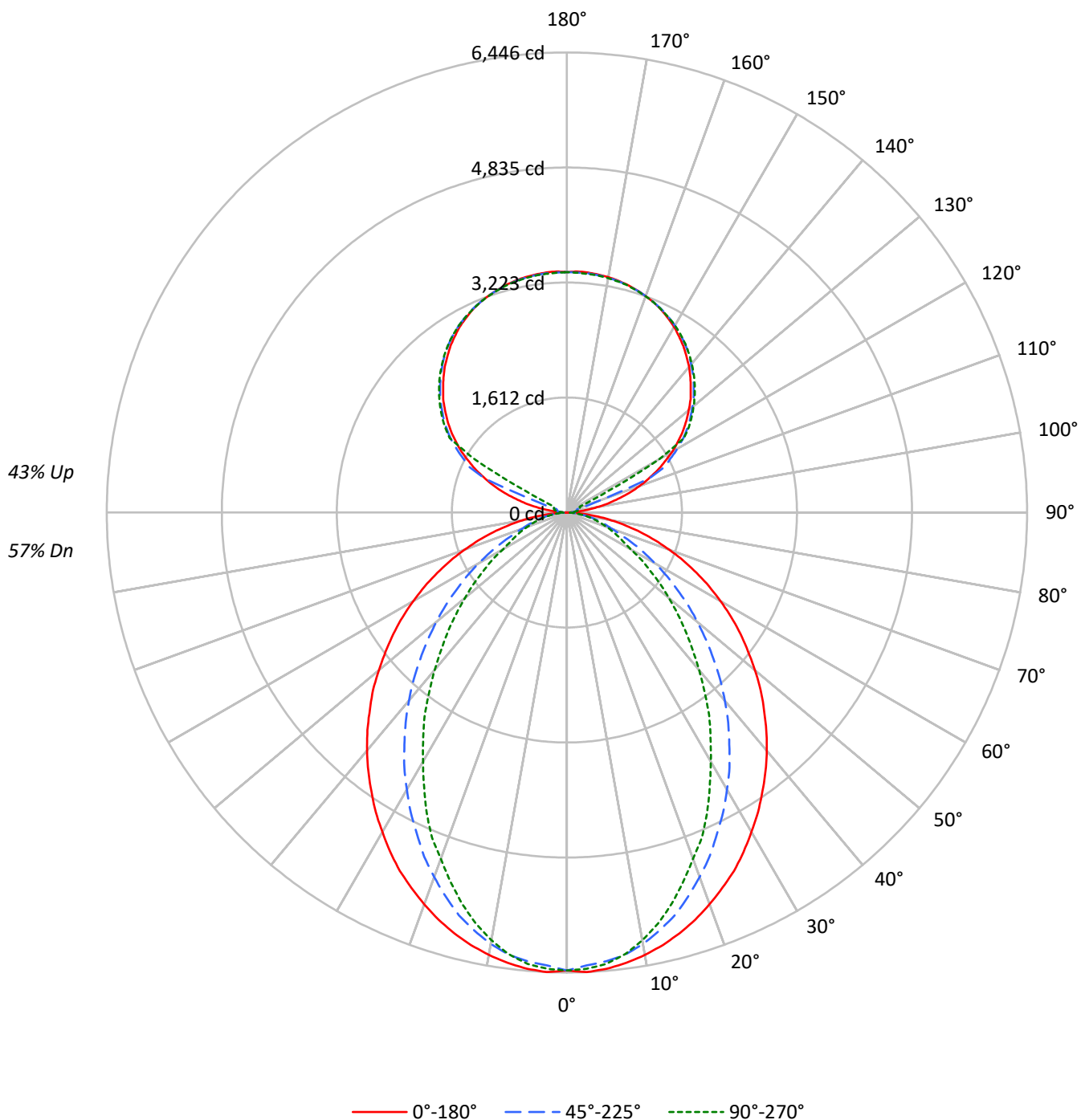
Lumens per Lamp: N/A
Luminaire Lumens: 23078.3 lumens
Efficiency: N/A
Efficacy: 109.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63
1	100	96	92	89	93	89	86	83	77	75	73	66	65	63	56	55	54
2	91	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	46
3	84	75	67	62	78	70	64	59	61	56	52	53	49	46	45	42	40
4	77	66	59	53	72	62	55	50	55	49	45	47	43	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	38	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	34	31	34	30	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25
8	57	44	37	31	53	42	35	30	37	32	27	33	28	25	29	25	22
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	26	23	20
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4503	4503	4503
5°	4510	4432	4461
10°	4465	4346	4317
15°	4403	4203	4094
20°	4322	4006	3819
25°	4239	3785	3554
30°	4127	3558	3218
35°	4017	3314	2922
40°	3906	3061	2583
45°	3776	2781	2276
50°	3642	2498	1975
55°	3502	2195	1686
60°	3340	1879	1389
65°	3154	1557	1252
70°	2928	1257	1135
75°	2644	1110	1035
80°	2234	934	903
85°	1555	628	687

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3776 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	601.4	2.6
10°-20°	1651.0	7.2
20°-30°	2317.9	10.0
30°-40°	2526.6	10.9
40°-50°	2322.3	10.1
50°-60°	1823.8	7.9
60°-70°	1187.1	5.1
70°-80°	611.1	2.6
80°-90°	161.9	0.7
90°-100°	111.1	0.5
100°-110°	414.0	1.8
110°-120°	1098.2	4.8
120°-130°	1821.4	7.9
130°-140°	1934.7	8.4
140°-150°	1798.1	7.8
150°-160°	1445.6	6.3
160°-170°	931.5	4.0
170°-180°	320.6	1.4
0°-30°	4570.2	19.8
0°-40°	7096.9	30.8
0°-60°	11242.9	48.7
0°-90°	13203.0	57.2
90°-120°	1623.3	7.0
90°-150°	7177.5	31.1
90°-180°	9875.0	42.8
0°-180°	23078.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6417	6417	6417	6417	6417	
5°	6417	6388	6312	6365	6347	608
15°	6103	6039	5842	5732	5674	1720
25°	5540	5354	4971	4733	4646	2548
35°	4774	4477	3967	3601	3472	2988
45°	3902	3513	2904	2491	2352	3014
55°	2967	2514	1887	1539	1429	2651
65°	2004	1533	1010	813	795	1986
75°	1068	662	465	424	418	1130
85°	250	128	110	110	110	286
90°	2	29	49	61	66	22
95°	158	78	95	107	105	188
105°	741	814	149	175	185	792
115°	1401	1443	1504	375	200	1380
125°	1982	2013	2060	2077	2084	1767
135°	2452	2491	2513	2538	2533	1894
145°	2845	2842	2883	2900	2888	1779
155°	3132	3110	3140	3154	3135	1443
165°	3300	3286	3293	3310	3293	932
175°	3376	3359	3364	3381	3356	321
180°	3368	3368	3368	3368	3368	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6416.9	6416.9	6416.9	6416.9	6416.9
2.5°	6445.8	6416.9	6352.8	6411.4	6399.6
5°	6416.9	6388.0	6312.1	6364.6	6347.3
7.5°	6364.6	6330.0	6248.7	6271.5	6242.6
10°	6294.9	6254.2	6138.4	6120.5	6086.0
12.5°	6208.0	6155.6	5998.5	5964.0	5900.0
15°	6103.3	6039.2	5842.0	5731.8	5673.9
17.5°	5981.3	5888.2	5644.3	5516.7	5423.7
20°	5842.0	5725.5	5435.4	5290.6	5162.5
22.5°	5691.1	5557.4	5220.4	5023.2	4936.4
25°	5540.1	5354.0	4970.9	4733.0	4645.5
27.5°	5360.2	5162.5	4738.5	4465.6	4332.0
30°	5168.6	4947.5	4482.9	4187.1	4030.0
32.5°	4982.5	4715.1	4239.5	3890.8	3745.4
35°	4773.7	4477.4	3966.6	3600.6	3472.4
37.5°	4570.4	4250.6	3710.8	3309.8	3165.0
40°	4355.4	4007.3	3443.4	3031.3	2880.4
42.5°	4134.8	3763.3	3176.7	2746.7	2601.8
45°	3902.5	3513.1	2903.8	2490.9	2351.7
47.5°	3681.9	3269.8	2642.5	2229.8	2102.2
50°	3437.9	3025.8	2386.8	1985.8	1864.3
52.5°	3199.5	2763.8	2142.8	1759.7	1649.3
55°	2967.2	2514.3	1887.2	1539.1	1428.7
57.5°	2729.4	2264.8	1661.1	1335.8	1242.7
60°	2485.4	2020.8	1422.6	1126.9	1033.8
62.5°	2247.6	1783.1	1219.3	940.8	894.6
65°	2003.6	1532.9	1010.4	813.2	795.4
67.5°	1771.3	1300.6	813.2	714.1	696.8
70°	1527.3	1074.5	673.4	615.5	592.1
72.5°	1295.1	865.0	563.2	516.9	505.3
75°	1068.3	661.7	464.6	423.9	418.3
77.5°	842.3	470.1	366.0	342.6	330.8
80°	632.8	337.0	278.5	255.7	255.7
82.5°	441.2	226.7	191.6	179.9	179.9
85°	249.5	127.5	110.2	110.2	110.2
87.5°	93.0	46.2	46.2	40.7	40.7
90°	2.3	29.3	48.6	61.1	65.7
92.5°	61.1	51.2	58.4	63.4	65.7
95°	158.4	77.9	94.9	107.4	104.8
97.5°	285.1	85.4	124.2	131.6	134.0
100°	431.5	97.6	139.0	158.4	163.2
102.5°	592.2	587.5	143.8	170.5	178.0
105°	740.9	814.2	148.7	175.4	185.2
107.5°	914.0	974.8	153.7	180.3	190.2
110°	1079.8	1130.8	426.6	182.9	192.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1235.9	1279.6	1238.2	187.5	195.1
115°	1401.4	1442.8	1503.9	375.4	200.0
117.5°	1545.3	1594.0	1635.6	1286.9	648.3
120°	1706.2	1742.7	1786.7	1815.9	1486.8
122.5°	1842.6	1881.6	1930.5	1945.0	1947.6
125°	1981.5	2013.3	2059.6	2076.7	2083.9
127.5°	2108.2	2142.4	2179.2	2203.5	2205.8
130°	2227.8	2266.9	2293.5	2320.4	2318.1
132.5°	2349.6	2381.5	2408.1	2430.2	2427.8
135°	2452.1	2491.1	2512.9	2537.5	2532.6
137.5°	2559.2	2588.4	2613.0	2637.3	2630.1
140°	2663.9	2683.7	2710.3	2732.2	2720.2
142.5°	2752.0	2769.1	2800.6	2820.0	2807.9
145°	2844.6	2841.9	2883.4	2900.5	2888.3
147.5°	2924.8	2917.6	2958.9	2971.1	2961.5
150°	3003.0	2985.9	3024.9	3039.3	3027.2
152.5°	3068.6	3049.2	3085.7	3100.4	3083.4
155°	3132.0	3110.3	3139.5	3154.0	3134.6
157.5°	3183.3	3163.9	3185.8	3202.9	3183.3
160°	3227.2	3212.4	3227.2	3241.7	3224.6
162.5°	3266.0	3251.5	3263.7	3280.8	3258.8
165°	3300.2	3285.6	3293.0	3310.0	3293.0
167.5°	3327.1	3312.4	3319.8	3336.9	3314.9
170°	3349.1	3334.3	3339.2	3356.3	3334.3
172.5°	3363.6	3349.1	3353.9	3371.0	3349.1
175°	3375.7	3358.6	3363.6	3380.6	3356.3
177.5°	3380.6	3363.6	3366.1	3383.2	3361.3
180°	3368.5	3368.5	3368.5	3368.5	3368.5

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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	13.04	13.93	13.94	14.84	16.01	9.00	9.89	9.90	10.80	11.97
	3H	14.72	15.52	15.63	16.44	17.64	10.19	10.99	11.10	11.91	13.10
	4H	15.34	16.09	16.26	17.02	18.22	10.64	11.40	11.57	12.33	13.53
	6H	15.77	16.46	16.70	17.39	18.61	10.97	11.66	11.91	12.60	13.81
	8H	15.90	16.56	16.84	17.51	18.72	11.06	11.72	12.01	12.67	13.89
	12H	15.96	16.59	16.91	17.53	18.77	11.11	11.74	12.06	12.68	13.92
4H	2H	13.06	13.81	13.99	14.74	15.95	9.60	10.36	10.53	11.28	12.49
	3H	14.90	15.53	15.84	16.49	17.70	10.96	11.58	11.90	12.54	13.76
	4H	15.60	16.17	16.55	17.12	18.37	11.51	12.08	12.46	13.03	14.28
	6H	16.12	16.61	17.09	17.59	18.83	11.93	12.42	12.90	13.40	14.64
	8H	16.30	16.76	17.27	17.73	18.99	12.06	12.52	13.03	13.49	14.75
	12H	16.40	16.81	17.39	17.80	19.06	12.13	12.55	13.12	13.53	14.79
8H	4H	15.57	16.03	16.54	17.00	18.26	11.80	12.26	12.76	13.23	14.48
	6H	16.14	16.52	17.14	17.54	18.79	12.32	12.70	13.31	13.71	14.96
	8H	16.36	16.70	17.37	17.70	18.97	12.51	12.85	13.51	13.85	15.12
	12H	16.51	16.80	17.51	17.80	19.12	12.63	12.93	13.64	13.92	15.24
12H	4H	15.53	15.94	16.51	16.93	18.19	11.81	12.22	12.79	13.21	14.47
	6H	16.12	16.45	17.12	17.46	18.73	12.37	12.70	13.37	13.71	14.98
	8H	16.35	16.64	17.35	17.64	18.95	12.58	12.88	13.59	13.87	15.19