

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: P925827

Luminaire Tested: DFN2DIP-SQ4F0-070D140US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925827
REPORT IS A COMBINATION OF REPORTS P901708 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

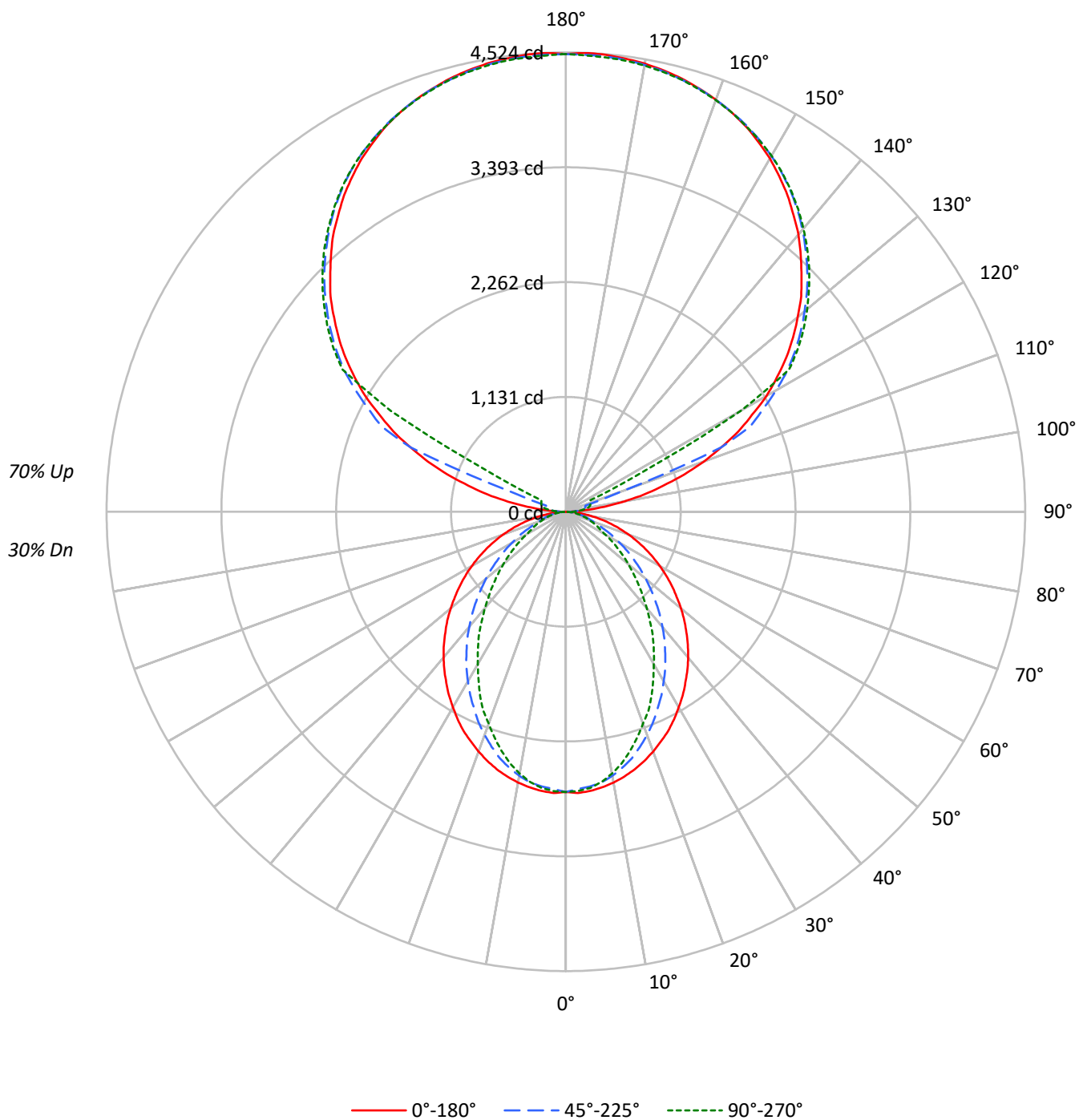
Lumens per Lamp: N/A
Luminaire Lumens: 18898.7 lumens
Efficiency: N/A
Efficacy: 113.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P925827

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US950-RLLONL

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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1937	1937	1937
5°	1940	1906	1919
10°	1920	1869	1857
15°	1894	1808	1761
20°	1859	1723	1643
25°	1823	1628	1529
30°	1775	1530	1384
35°	1728	1425	1257
40°	1680	1317	1111
45°	1624	1196	979
50°	1567	1074	850
55°	1506	944	725
60°	1437	808	598
65°	1356	670	539
70°	1259	541	488
75°	1137	477	445
80°	961	402	388
85°	669	270	295

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2418 cd/sqm

TEST NUMBER: P925827

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.7	1.4
10°-20°	710.1	3.8
20°-30°	997.0	5.3
30°-40°	1086.8	5.8
40°-50°	998.8	5.3
50°-60°	784.4	4.2
60°-70°	510.6	2.7
70°-80°	262.8	1.4
80°-90°	75.0	0.4
90°-100°	148.7	0.8
100°-110°	554.1	2.9
110°-120°	1469.5	7.8
120°-130°	2437.3	12.9
130°-140°	2588.9	13.7
140°-150°	2406.1	12.7
150°-160°	1934.5	10.2
160°-170°	1246.5	6.6
170°-180°	429.0	2.3
0°-30°	1965.7	10.4
0°-40°	3052.5	16.2
0°-60°	4835.8	25.6
0°-90°	5684.2	30.1
90°-120°	2172.2	11.5
90°-150°	9604.5	50.8
90°-180°	13215.0	69.9
0°-180°	18898.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2760	2760	2760	2760	2760	
5°	2760	2748	2715	2738	2730	262
15°	2625	2598	2513	2465	2440	740
25°	2383	2303	2138	2036	1998	1096
35°	2053	1926	1706	1549	1494	1285
45°	1679	1511	1249	1071	1012	1296
55°	1276	1082	812	662	615	1140
65°	862	659	435	350	342	854
75°	460	285	200	182	180	486
85°	107	55	47	47	47	123
90°	3	39	65	82	88	18
95°	212	104	127	144	140	251
105°	992	1090	199	235	248	1059
115°	1875	1931	2012	502	268	1846
125°	2652	2694	2756	2779	2789	2365
135°	3281	3334	3363	3396	3389	2535
145°	3806	3803	3858	3881	3865	2381
155°	4191	4162	4201	4220	4194	1931
165°	4416	4397	4406	4429	4406	1248
175°	4517	4494	4501	4524	4491	430
180°	4508	4508	4508	4508	4508	

TEST NUMBER: P925827

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2760.0	2760.0	2760.0	2760.0	2760.0
2.5°	2772.4	2760.0	2732.4	2757.6	2752.6
5°	2760.0	2747.5	2715.0	2737.5	2730.1
7.5°	2737.5	2722.6	2687.7	2697.4	2685.0
10°	2707.5	2690.1	2640.2	2632.6	2617.7
12.5°	2670.2	2647.6	2580.1	2565.2	2537.6
15°	2625.1	2597.6	2512.7	2465.3	2440.4
17.5°	2572.7	2532.7	2427.7	2372.8	2332.8
20°	2512.7	2462.7	2337.9	2275.6	2220.4
22.5°	2447.9	2390.3	2245.3	2160.5	2123.2
25°	2382.9	2302.9	2138.0	2035.7	1998.2
27.5°	2305.5	2220.4	2038.1	1920.8	1863.3
30°	2223.1	2128.0	1928.1	1801.0	1733.4
32.5°	2143.1	2028.1	1823.5	1673.5	1610.9
35°	2053.2	1925.7	1706.1	1548.7	1493.6
37.5°	1965.8	1828.2	1596.1	1423.6	1361.4
40°	1873.3	1723.6	1481.1	1303.8	1238.9
42.5°	1778.4	1618.7	1366.3	1181.3	1119.1
45°	1678.6	1511.0	1249.0	1071.4	1011.5
47.5°	1583.6	1406.4	1136.6	959.1	904.2
50°	1478.7	1301.4	1026.6	854.1	801.9
52.5°	1376.1	1188.8	921.7	756.8	709.4
55°	1276.3	1081.5	811.7	662.0	614.6
57.5°	1174.0	974.1	714.5	574.5	534.5
60°	1069.1	869.2	611.9	484.7	444.7
62.5°	966.7	766.9	524.4	404.7	384.7
65°	861.7	659.3	434.6	349.8	342.1
67.5°	761.9	559.4	349.8	307.1	299.7
70°	656.9	462.1	289.6	264.7	254.6
72.5°	557.0	372.1	242.2	222.4	217.3
75°	459.5	284.6	199.8	182.3	179.9
77.5°	362.2	202.2	157.4	147.3	142.3
80°	272.2	144.9	119.8	110.0	110.0
82.5°	189.8	97.5	82.4	77.4	77.4
85°	107.3	54.9	47.4	47.4	47.4
87.5°	40.0	19.8	19.8	17.5	17.5
90°	3.1	39.1	65.1	81.8	88.0
92.5°	81.8	68.6	78.2	84.8	88.0
95°	211.9	104.2	127.1	143.7	140.2
97.5°	381.5	114.3	166.2	176.2	179.4
100°	577.5	130.5	185.9	211.9	218.5
102.5°	792.4	786.2	192.5	228.1	238.2
105°	991.5	1089.5	199.1	234.7	247.8
107.5°	1223.1	1304.4	205.7	241.3	254.4
110°	1445.0	1513.2	570.9	244.8	257.6

TEST NUMBER: P925827

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1653.8	1712.2	1656.9	251.0	261.0
115°	1875.4	1930.7	2012.5	502.4	267.6
117.5°	2067.8	2132.9	2188.7	1722.0	867.6
120°	2283.2	2332.0	2390.8	2429.9	1989.6
122.5°	2465.6	2517.9	2583.3	2602.7	2606.2
125°	2651.5	2694.1	2756.1	2778.9	2788.6
127.5°	2821.2	2866.9	2916.0	2948.5	2951.7
130°	2981.1	3033.4	3069.0	3105.1	3101.9
132.5°	3144.2	3186.7	3222.4	3251.8	3248.8
135°	3281.3	3333.6	3362.6	3395.5	3388.9
137.5°	3424.6	3463.7	3496.6	3529.1	3519.5
140°	3564.8	3591.1	3626.7	3656.2	3639.9
142.5°	3682.5	3705.3	3747.6	3773.5	3757.2
145°	3806.5	3802.9	3858.4	3881.3	3864.9
147.5°	3913.8	3904.1	3959.5	3975.7	3962.9
150°	4018.3	3995.4	4047.7	4067.1	4050.9
152.5°	4106.2	4080.3	4129.1	4148.9	4126.0
155°	4191.0	4162.0	4201.1	4220.5	4194.5
157.5°	4259.6	4233.7	4263.1	4285.9	4259.6
160°	4318.5	4298.7	4318.5	4337.8	4315.0
162.5°	4370.4	4351.0	4367.3	4390.1	4360.7
165°	4416.1	4396.7	4406.4	4429.2	4406.4
167.5°	4452.1	4432.4	4442.4	4465.3	4435.8
170°	4481.5	4461.8	4468.3	4491.2	4461.8
172.5°	4500.9	4481.5	4488.1	4511.0	4481.5
175°	4517.2	4494.3	4500.9	4523.8	4491.2
177.5°	4523.8	4500.9	4504.4	4527.2	4497.8
180°	4507.5	4507.5	4507.5	4507.5	4507.5

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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	7.23	7.93	8.35	9.03	10.56	3.20	3.89	4.31	4.99	6.52
	3H	8.91	9.52	10.03	10.64	12.19	4.37	4.99	5.50	6.11	7.65
	4H	9.51	10.10	10.64	11.21	12.77	4.82	5.40	5.95	6.52	8.07
	6H	9.93	10.47	11.07	11.59	13.15	5.13	5.67	6.27	6.79	8.35
	8H	10.05	10.57	11.20	11.70	13.26	5.22	5.73	6.36	6.87	8.42
	12H	10.11	10.60	11.26	11.73	13.31	5.26	5.74	6.41	6.87	8.45
4H	2H	7.24	7.82	8.38	8.94	10.49	3.78	4.36	4.92	5.48	7.03
	3H	9.06	9.54	10.20	10.69	12.25	5.11	5.60	6.26	6.74	8.31
	4H	9.75	10.19	10.90	11.33	12.91	5.66	6.10	6.81	7.24	8.82
	6H	10.26	10.64	11.41	11.80	13.37	6.07	6.45	7.22	7.61	9.18
	8H	10.43	10.79	11.59	11.94	13.53	6.20	6.55	7.35	7.70	9.29
	12H	10.52	10.85	11.70	12.01	13.60	6.26	6.58	7.43	7.74	9.33
8H	4H	9.70	10.06	10.86	11.21	12.80	5.93	6.29	7.08	7.43	9.03
	6H	10.27	10.56	11.44	11.75	13.34	6.44	6.74	7.62	7.93	9.52
	8H	10.49	10.75	11.67	11.91	13.52	6.64	6.89	7.82	8.06	9.67
	12H	10.62	10.85	11.81	12.01	13.66	6.75	6.97	7.93	8.14	9.78
12H	4H	9.65	9.97	10.82	11.13	12.73	5.93	6.25	7.10	7.41	9.01
	6H	10.24	10.50	11.42	11.67	13.28	6.49	6.75	7.67	7.92	9.53
	8H	10.46	10.69	11.65	11.85	13.50	6.70	6.93	7.88	8.09	9.73