

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: P920371

Luminaire Tested: DFN2DIP-SQ4F0-070D140US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920371
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-SQ4F0-070D140US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

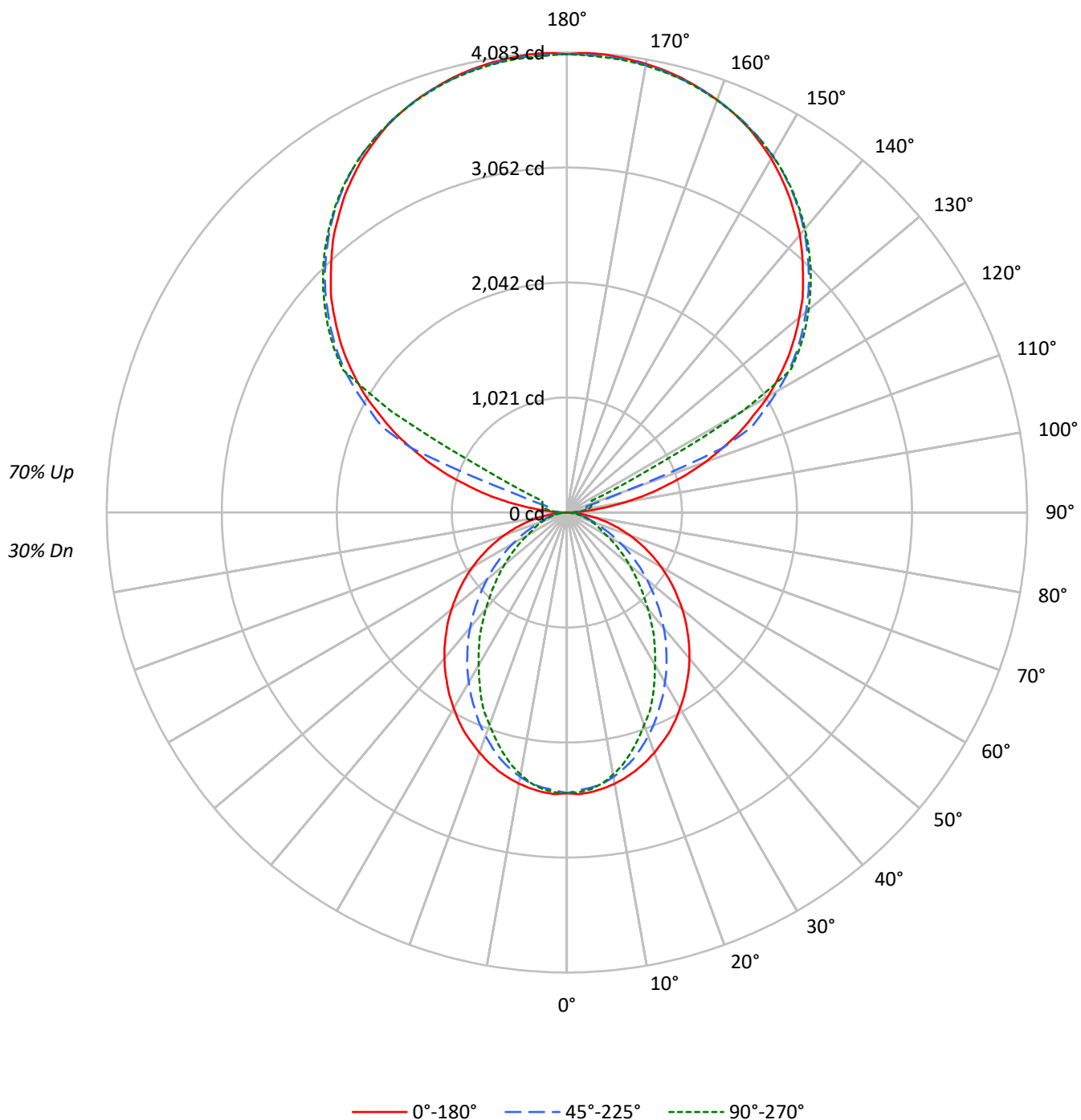
Lumens per Lamp: N/A
Luminaire Lumens: 17056.3 lumens
Efficiency: N/A
Efficacy: 102.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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

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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	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°	1748	1748	1748
5°	1751	1720	1732
10°	1733	1687	1676
15°	1709	1632	1589
20°	1678	1555	1483
25°	1645	1469	1380
30°	1602	1381	1249
35°	1559	1286	1134
40°	1516	1188	1003
45°	1466	1080	883
50°	1414	970	767
55°	1359	852	655
60°	1297	729	539
65°	1224	605	486
70°	1137	488	441
75°	1026	431	402
80°	867	363	350
85°	604	244	267

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2182 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.5	1.4
10°-20°	640.9	3.8
20°-30°	899.8	5.3
30°-40°	980.8	5.8
40°-50°	901.5	5.3
50°-60°	708.0	4.2
60°-70°	460.8	2.7
70°-80°	237.2	1.4
80°-90°	67.7	0.4
90°-100°	134.2	0.8
100°-110°	500.0	2.9
110°-120°	1326.2	7.8
120°-130°	2199.7	12.9
130°-140°	2336.6	13.7
140°-150°	2171.6	12.7
150°-160°	1745.9	10.2
160°-170°	1125.0	6.6
170°-180°	387.2	2.3
0°-30°	1774.1	10.4
0°-40°	2754.9	16.2
0°-60°	4364.3	25.6
0°-90°	5130.1	30.1
90°-120°	1960.4	11.5
90°-150°	8668.2	50.8
90°-180°	11926.0	69.9
0°-180°	17056.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2491	2491	2491	2491	2491	
5°	2491	2480	2450	2471	2464	236
15°	2369	2344	2268	2225	2202	668
25°	2151	2078	1930	1837	1803	989
35°	1853	1738	1540	1398	1348	1160
45°	1515	1364	1127	967	913	1170
55°	1152	976	732	597	555	1029
65°	778	595	392	316	309	771
75°	415	257	180	164	162	439
85°	97	50	43	43	43	111
90°	3	35	59	74	79	16
95°	191	94	115	130	127	226
105°	895	983	180	212	224	956
115°	1692	1742	1816	453	242	1666
125°	2393	2432	2487	2508	2517	2134
135°	2961	3009	3035	3064	3058	2288
145°	3435	3432	3482	3503	3488	2149
155°	3782	3756	3792	3809	3786	1743
165°	3986	3968	3977	3997	3977	1126
175°	4077	4056	4062	4083	4053	388
180°	4068	4068	4068	4068	4068	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2491.0	2491.0	2491.0	2491.0	2491.0
2.5°	2502.1	2491.0	2466.1	2488.8	2484.2
5°	2491.0	2479.7	2450.3	2470.6	2463.9
7.5°	2470.6	2457.2	2425.7	2434.5	2423.3
10°	2443.6	2427.8	2382.8	2375.9	2362.5
12.5°	2409.8	2389.5	2328.6	2315.1	2290.3
15°	2369.2	2344.3	2267.8	2225.0	2202.5
17.5°	2321.9	2285.8	2191.1	2141.5	2105.4
20°	2267.8	2222.6	2110.0	2053.7	2004.0
22.5°	2209.2	2157.3	2026.4	1949.9	1916.2
25°	2150.6	2078.4	1929.6	1837.3	1803.4
27.5°	2080.8	2004.0	1839.4	1733.5	1681.6
30°	2006.4	1920.5	1740.2	1625.4	1564.4
32.5°	1934.1	1830.4	1645.7	1510.4	1453.9
35°	1853.0	1738.0	1539.8	1397.7	1348.0
37.5°	1774.2	1650.0	1440.5	1284.8	1228.6
40°	1690.7	1555.6	1336.7	1176.7	1118.1
42.5°	1605.1	1460.9	1233.1	1066.2	1010.0
45°	1514.9	1363.7	1127.2	967.0	912.9
47.5°	1429.3	1269.3	1025.8	865.6	816.1
50°	1334.5	1174.6	926.5	770.9	723.8
52.5°	1242.0	1072.9	831.8	683.0	640.2
55°	1151.8	976.0	732.5	597.4	554.7
57.5°	1059.5	879.2	644.8	518.5	482.4
60°	964.8	784.5	552.2	437.5	401.3
62.5°	872.4	692.2	473.3	365.2	347.2
65°	777.7	595.0	392.3	315.7	308.8
67.5°	687.6	504.9	315.7	277.2	270.5
70°	592.9	417.1	261.4	238.9	229.8
72.5°	502.7	335.8	218.6	200.7	196.1
75°	414.7	256.8	180.3	164.5	162.4
77.5°	326.9	182.4	142.1	132.9	128.5
80°	245.6	130.8	108.1	99.3	99.3
82.5°	171.3	88.0	74.4	69.8	69.8
85°	96.9	49.5	42.8	42.8	42.8
87.5°	36.1	17.9	17.9	15.8	15.8
90°	2.8	35.3	58.7	73.8	79.4
92.5°	73.8	61.9	70.6	76.5	79.4
95°	191.2	94.0	114.7	129.7	126.6
97.5°	344.3	103.1	150.0	159.0	161.9
100°	521.2	117.8	167.8	191.2	197.2
102.5°	715.1	709.5	173.7	205.9	215.0
105°	894.8	983.3	179.7	211.8	223.7
107.5°	1103.9	1177.2	185.6	217.7	229.6
110°	1304.2	1365.7	515.2	220.9	232.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1492.5	1545.3	1495.4	226.5	235.6
115°	1692.5	1742.5	1816.3	453.4	241.5
117.5°	1866.2	1924.9	1975.3	1554.1	783.0
120°	2060.6	2104.6	2157.7	2193.0	1795.6
122.5°	2225.2	2272.4	2331.5	2349.0	2352.2
125°	2393.1	2431.5	2487.4	2508.0	2516.8
127.5°	2546.1	2587.4	2631.7	2661.1	2663.9
130°	2690.4	2737.7	2769.8	2802.4	2799.5
132.5°	2837.7	2876.1	2908.3	2934.8	2932.0
135°	2961.4	3008.6	3034.8	3064.5	3058.5
137.5°	3090.7	3126.0	3155.7	3185.1	3176.4
140°	3217.3	3241.1	3273.2	3299.8	3285.1
142.5°	3323.5	3344.1	3382.3	3405.7	3391.0
145°	3435.4	3432.2	3482.2	3502.9	3488.2
147.5°	3532.2	3523.5	3573.5	3588.1	3576.6
150°	3626.6	3605.9	3653.1	3670.6	3656.0
152.5°	3705.9	3682.5	3726.6	3744.4	3723.7
155°	3782.4	3756.3	3791.6	3809.1	3785.6
157.5°	3844.4	3820.9	3847.5	3868.1	3844.4
160°	3897.5	3879.7	3897.5	3915.0	3894.4
162.5°	3944.3	3926.8	3941.6	3962.1	3935.6
165°	3985.6	3968.1	3976.9	3997.4	3976.9
167.5°	4018.1	4000.3	4009.3	4030.0	4003.4
170°	4044.6	4026.8	4032.7	4053.4	4026.8
172.5°	4062.1	4044.6	4050.6	4071.2	4044.6
175°	4076.8	4056.2	4062.1	4082.8	4053.4
177.5°	4082.8	4062.1	4065.3	4085.9	4059.3
180°	4068.0	4068.0	4068.0	4068.0	4068.0

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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	6.88	7.57	7.99	8.68	10.21	2.84	3.53	3.96	4.64	6.17
	3H	8.55	9.17	9.67	10.28	11.83	4.02	4.63	5.14	5.75	7.30
	4H	9.15	9.74	10.29	10.86	12.41	4.46	5.05	5.60	6.16	7.72
	6H	9.57	10.11	10.71	11.23	12.79	4.78	5.31	5.92	6.43	8.00
	8H	9.70	10.21	10.84	11.34	12.90	4.86	5.38	6.01	6.51	8.07
	12H	9.76	10.24	10.91	11.37	12.95	4.90	5.39	6.05	6.52	8.10
4H	2H	6.88	7.46	8.02	8.58	10.14	3.42	4.01	4.56	5.12	6.68
	3H	8.70	9.19	9.85	10.33	11.90	4.76	5.25	5.90	6.39	7.95
	4H	9.39	9.84	10.54	10.97	12.56	5.30	5.75	6.45	6.88	8.47
	6H	9.90	10.28	11.06	11.44	13.02	5.71	6.10	6.87	7.25	8.83
	8H	10.08	10.43	11.23	11.58	13.17	5.84	6.20	6.99	7.34	8.94
	12H	10.17	10.49	11.34	11.65	13.25	5.90	6.22	7.07	7.38	8.98
8H	4H	9.35	9.71	10.50	10.85	12.44	5.57	5.93	6.73	7.08	8.67
	6H	9.91	10.21	11.09	11.40	12.99	6.09	6.38	7.26	7.57	9.16
	8H	10.13	10.39	11.31	11.56	13.17	6.28	6.54	7.46	7.70	9.31
	12H	10.27	10.49	11.45	11.66	13.30	6.39	6.62	7.58	7.78	9.43
12H	4H	9.29	9.62	10.46	10.77	12.37	5.57	5.90	6.74	7.05	8.65
	6H	9.89	10.15	11.07	11.31	12.92	6.14	6.39	7.32	7.56	9.17
	8H	10.11	10.33	11.29	11.50	13.14	6.34	6.57	7.53	7.73	9.38

END OF REPORT