

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: P920375

Luminaire Tested: DFN2DIP-SQ4F0-070D160US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920375
REPORT IS A COMBINATION OF REPORTS P901726 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

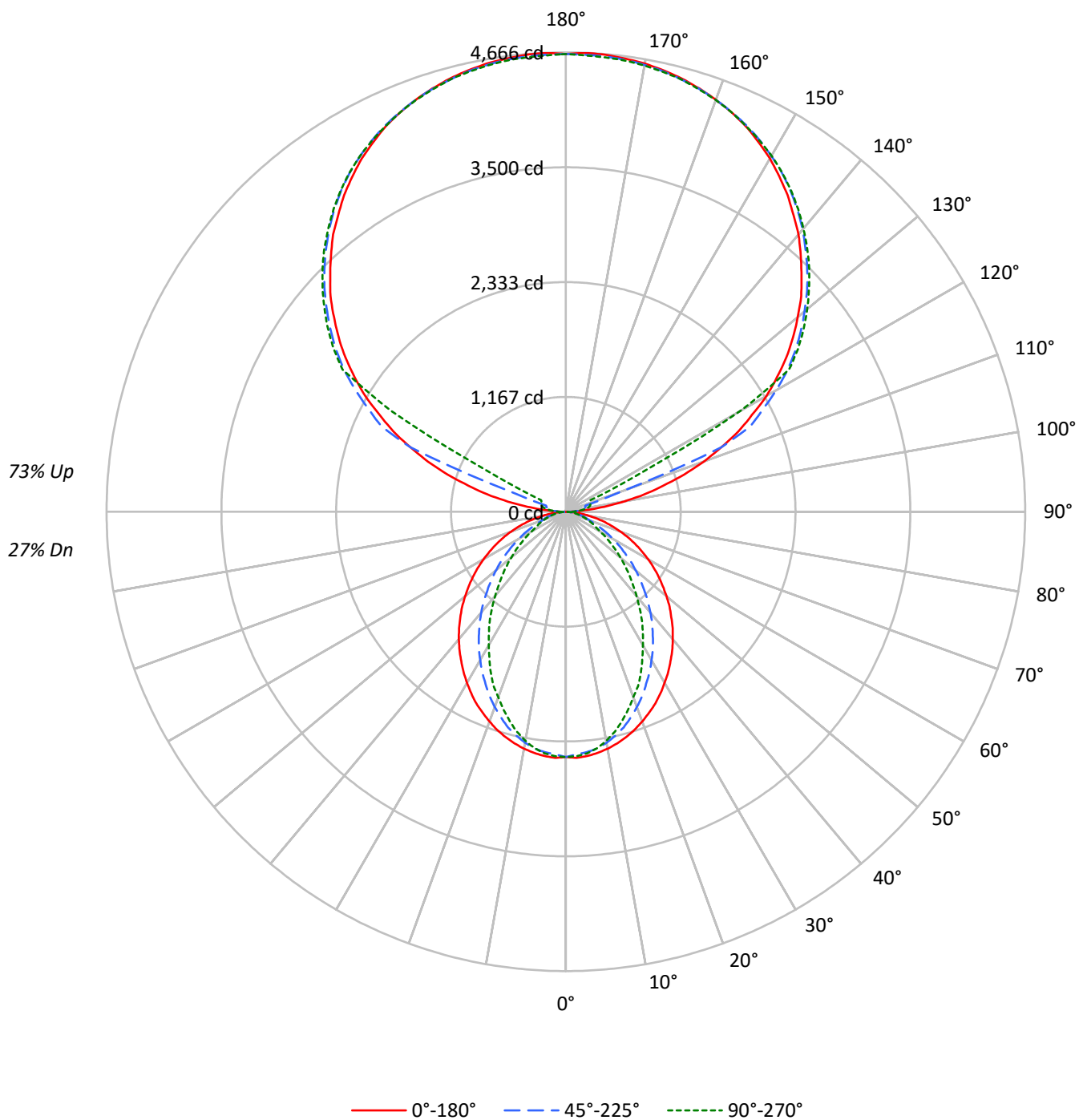
Lumens per Lamp: N/A
Luminaire Lumens: 18761.1 lumens
Efficiency: N/A
Efficacy: 102.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
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	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	82	83	80	77	74	62	60	58	46	45	44	32	31	30
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	28	27	26
3	77	69	62	56	69	62	56	51	49	44	41	36	34	32	25	24	22
4	71	61	53	48	63	55	48	43	43	39	35	33	30	27	23	21	19
5	65	54	46	41	58	49	42	37	39	34	30	29	26	24	20	19	17
6	60	49	41	35	53	44	37	32	35	30	27	26	23	21	19	17	15
7	55	44	36	31	49	40	33	28	32	27	23	24	21	18	17	15	13
8	51	40	32	27	46	36	29	25	29	24	21	22	19	16	16	14	12
9	48	36	29	24	43	33	27	22	26	22	18	20	17	15	14	12	11
10	44	33	26	22	40	30	24	20	24	20	17	19	15	13	13	11	10

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: 2493 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	233.5	1.2
10°-20°	640.9	3.4
20°-30°	899.8	4.8
30°-40°	980.8	5.2
40°-50°	901.5	4.8
50°-60°	708.0	3.8
60°-70°	460.8	2.5
70°-80°	237.2	1.3
80°-90°	68.7	0.4
90°-100°	153.3	0.8
100°-110°	571.5	3.0
110°-120°	1515.7	8.1
120°-130°	2513.9	13.4
130°-140°	2670.3	14.2
140°-150°	2481.8	13.2
150°-160°	1995.3	10.6
160°-170°	1285.7	6.9
170°-180°	442.5	2.4
0°-30°	1774.1	9.5
0°-40°	2754.9	14.7
0°-60°	4364.3	23.3
0°-90°	5131.1	27.3
90°-120°	2240.5	11.9
90°-150°	9906.5	52.8
90°-180°	13630.0	72.7
0°-180°	18761.1	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	40	67	84	91	17
95°	218	108	131	148	145	259
105°	1023	1124	205	242	256	1093
115°	1934	1991	2076	518	276	1904
125°	2735	2779	2843	2866	2876	2439
135°	3384	3438	3468	3502	3496	2614
145°	3926	3922	3980	4003	3986	2456
155°	4323	4293	4333	4353	4326	1992
165°	4555	4535	4545	4568	4545	1287
175°	4659	4636	4642	4666	4632	443
180°	4649	4649	4649	4649	4649	

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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°	3.2	40.4	67.1	84.3	90.7
92.5°	84.3	70.7	80.7	87.5	90.7
95°	218.5	107.5	131.0	148.2	144.6
97.5°	393.5	117.9	171.3	181.8	184.9
100°	595.6	134.7	191.7	218.5	225.3
102.5°	817.3	811.0	198.5	235.3	245.6
105°	1022.7	1123.8	205.3	242.1	255.6
107.5°	1261.5	1345.5	212.1	248.9	262.4
110°	1490.5	1560.8	588.8	252.4	265.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1705.8	1766.2	1709.0	258.9	269.2
115°	1934.3	1991.4	2075.7	518.1	276.0
117.5°	2132.9	2199.9	2257.5	1776.2	894.8
120°	2355.0	2405.3	2466.0	2506.4	2052.2
122.5°	2543.1	2597.0	2664.5	2684.5	2688.1
125°	2734.9	2778.8	2842.8	2866.3	2876.3
127.5°	2909.8	2957.0	3007.7	3041.3	3044.5
130°	3074.9	3128.8	3165.5	3202.7	3199.5
132.5°	3243.0	3286.9	3323.7	3354.1	3350.9
135°	3384.4	3438.4	3468.4	3502.3	3495.5
137.5°	3532.2	3572.6	3606.5	3640.1	3630.1
140°	3676.9	3704.0	3740.8	3771.2	3754.4
142.5°	3798.3	3821.9	3865.4	3892.2	3875.4
145°	3926.2	3922.5	3979.7	4003.2	3986.5
147.5°	4036.8	4026.8	4084.0	4100.8	4087.5
150°	4144.7	4121.1	4175.1	4195.0	4178.3
152.5°	4235.3	4208.6	4258.9	4279.3	4255.7
155°	4322.8	4292.8	4333.2	4353.2	4326.4
157.5°	4393.6	4366.8	4397.1	4420.7	4393.6
160°	4454.3	4433.9	4454.3	4474.3	4450.7
162.5°	4507.8	4487.9	4504.6	4528.2	4497.9
165°	4554.9	4535.0	4544.9	4568.5	4544.9
167.5°	4592.1	4571.7	4582.1	4605.6	4575.3
170°	4622.4	4602.1	4608.8	4632.4	4602.1
172.5°	4642.4	4622.4	4629.2	4652.8	4622.4
175°	4659.2	4635.6	4642.4	4666.0	4632.4
177.5°	4666.0	4642.4	4646.0	4669.6	4639.2
180°	4649.2	4649.2	4649.2	4649.2	4649.2

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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	6.49	7.16	7.62	8.29	9.85	2.45	3.12	3.59	4.25	5.81
	3H	8.16	8.76	9.30	9.89	11.47	3.63	4.23	4.77	5.36	6.94
	4H	8.76	9.34	9.92	10.47	12.05	4.07	4.64	5.22	5.77	7.36
	6H	9.18	9.71	10.34	10.84	12.44	4.38	4.91	5.54	6.04	7.64
	8H	9.31	9.81	10.47	10.95	12.54	4.47	4.97	5.63	6.12	7.71
	12H	9.36	9.84	10.53	10.98	12.59	4.51	4.98	5.68	6.13	7.74
4H	2H	6.49	7.06	7.65	8.19	9.78	3.03	3.60	4.19	4.73	6.32
	3H	8.31	8.78	9.47	9.94	11.54	4.37	4.84	5.53	6.00	7.60
	4H	9.00	9.44	10.16	10.58	12.20	4.91	5.35	6.07	6.49	8.11
	6H	9.51	9.88	10.68	11.05	12.66	5.32	5.69	6.49	6.86	8.47
	8H	9.68	10.03	10.85	11.19	12.81	5.45	5.80	6.62	6.96	8.58
	12H	9.77	10.09	10.96	11.26	12.89	5.50	5.82	6.69	6.99	8.62
8H	4H	8.95	9.30	10.12	10.46	12.09	5.18	5.53	6.35	6.69	8.31
	6H	9.52	9.81	10.71	11.01	12.63	5.69	5.98	6.88	7.18	8.80
	8H	9.74	9.99	10.93	11.17	12.81	5.88	6.14	7.08	7.32	8.95
	12H	9.87	10.09	11.07	11.27	12.94	6.00	6.22	7.20	7.40	9.07
12H	4H	8.90	9.22	10.08	10.39	12.01	5.18	5.49	6.36	6.67	8.29
	6H	9.49	9.74	10.69	10.92	12.56	5.74	5.99	6.94	7.17	8.81
	8H	9.71	9.93	10.91	11.11	12.78	5.95	6.17	7.15	7.35	9.02

END OF REPORT