

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: P912190

Luminaire Tested: DFN2DIP-SQ4F0-070D160US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912190
REPORT IS A COMBINATION OF REPORTS P900206 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

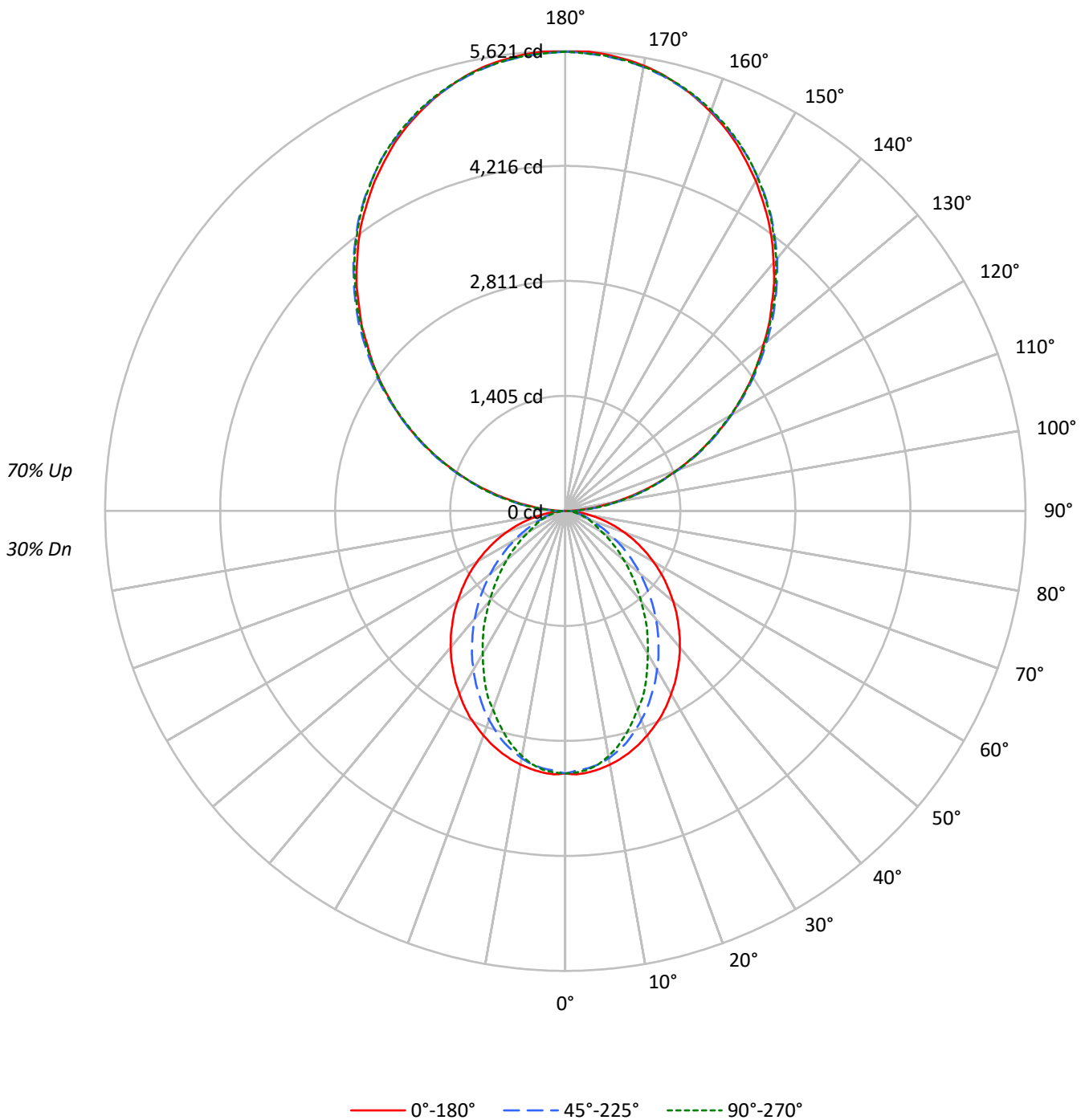
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 22303.0 lumens
Efficiency: N/A
Efficacy: 121.6 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: 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				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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	37	37	37	30
1	93	89	86	82	84	80	77	75	63	61	59	48	47	45	33	33	32	33	33	32	26
2	85	78	73	68	76	71	66	62	56	53	50	42	40	38	30	29	27	30	29	27	22
3	78	69	62	57	70	62	56	52	49	45	42	38	35	33	27	25	24	27	25	24	19
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	16
5	66	55	47	41	59	49	43	38	39	35	31	30	27	25	22	20	18	22	20	18	14
6	60	49	41	36	54	44	38	33	36	31	27	27	24	22	20	18	16	20	18	16	13
7	56	44	37	31	50	40	33	29	32	27	24	25	22	19	18	16	14	18	16	14	11
8	52	40	33	28	46	36	30	25	29	25	21	23	19	17	17	15	13	17	15	13	10
9	48	36	29	24	43	33	27	23	27	22	19	21	18	15	15	13	12	15	13	12	9
10	45	33	26	22	40	30	24	20	25	20	17	19	16	14	14	12	11	14	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2251	2251	2251
5°	2255	2216	2230
10°	2233	2173	2158
15°	2202	2102	2047
20°	2161	2003	1910
25°	2119	1892	1777
30°	2063	1779	1609
35°	2009	1657	1461
40°	1953	1531	1291
45°	1888	1391	1138
50°	1821	1249	988
55°	1751	1098	843
60°	1670	939	695
65°	1577	779	626
70°	1464	628	567
75°	1322	555	518
80°	1117	467	451
85°	778	314	343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 4416 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	1.3
10°-20°	825.5	3.7
20°-30°	1158.9	5.2
30°-40°	1263.3	5.7
40°-50°	1161.1	5.2
50°-60°	911.9	4.1
60°-70°	593.5	2.7
70°-80°	305.5	1.4
80°-90°	93.9	0.4
90°-100°	347.3	1.6
100°-110°	1103.4	4.9
110°-120°	1888.3	8.5
120°-130°	2483.4	11.1
130°-140°	2787.5	12.5
140°-150°	2733.5	12.3
150°-160°	2293.0	10.3
160°-170°	1520.7	6.8
170°-180°	531.5	2.4
0°-30°	2285.1	10.2
0°-40°	3548.4	15.9
0°-60°	5621.4	25.2
0°-90°	6614.4	29.7
90°-120°	3339.0	15.0
90°-150°	11343.4	50.9
90°-180°	15689.0	70.3
0°-180°	22303.0	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°	5	61	166	156	161	22
95°	247	294	303	303	294	275
105°	1018	1032	1042	1051	1051	1075
115°	1895	1922	1914	1908	1895	1874
125°	2756	2798	2785	2770	2765	2463
135°	3565	3617	3628	3622	3609	2756
145°	4328	4362	4389	4394	4375	2704
155°	4949	4962	4978	5001	4986	2278
165°	5384	5379	5379	5412	5389	1519
175°	5602	5588	5578	5612	5583	532
180°	5612	5612	5612	5612	5612	



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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°	5.1	60.9	165.8	155.7	160.7
92.5°	104.9	142.2	147.2	152.3	152.3
95°	247.0	294.4	302.9	302.9	294.4
97.5°	411.1	455.1	473.8	473.8	473.8
100°	600.6	639.6	653.1	653.1	648.0
102.5°	800.3	829.1	847.6	852.7	847.6
105°	1018.5	1032.0	1042.2	1050.7	1050.7
107.5°	1235.1	1255.4	1255.4	1258.8	1235.1
110°	1444.9	1472.0	1472.0	1472.0	1458.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1671.6	1700.4	1695.3	1681.8	1671.6
115°	1894.9	1922.0	1913.6	1908.5	1894.9
117.5°	2116.6	2153.8	2130.2	2116.6	2103.1
120°	2340.0	2377.1	2340.0	2340.0	2324.7
122.5°	2542.9	2590.4	2566.7	2553.1	2542.9
125°	2756.2	2798.5	2784.9	2769.7	2764.6
127.5°	2964.2	3016.7	2998.1	2977.8	2964.2
130°	3158.9	3219.8	3211.3	3201.1	3182.5
132.5°	3377.1	3424.5	3427.8	3404.2	3390.7
135°	3564.9	3617.3	3627.5	3622.4	3608.9
137.5°	3774.7	3817.0	3825.5	3822.1	3801.8
140°	3959.1	4001.4	4025.1	4025.1	4006.5
142.5°	4148.7	4190.9	4204.4	4209.5	4190.9
145°	4328.0	4361.8	4388.9	4394.0	4375.3
147.5°	4488.7	4531.0	4551.3	4559.8	4541.1
150°	4654.5	4683.3	4701.9	4717.1	4701.9
152.5°	4801.7	4830.5	4854.2	4872.7	4854.2
155°	4948.9	4962.4	4977.6	5001.4	4986.2
157.5°	5075.8	5086.0	5094.4	5128.2	5104.6
160°	5189.1	5199.3	5204.4	5233.1	5212.9
162.5°	5294.0	5294.0	5299.1	5331.3	5307.6
165°	5383.8	5378.6	5378.6	5412.5	5388.9
167.5°	5464.9	5449.7	5449.7	5483.6	5459.8
170°	5525.8	5512.3	5507.3	5541.1	5512.3
172.5°	5568.2	5554.6	5549.5	5583.4	5554.6
175°	5602.0	5588.5	5578.3	5612.2	5583.4
177.5°	5620.6	5607.1	5596.9	5625.7	5596.9
180°	5612.2	5612.2	5612.2	5612.2	5612.2



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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	7.70	8.38	8.82	9.49	11.03	3.66	4.34	4.78	5.45	6.99
	3H	9.37	9.98	10.49	11.10	12.65	4.83	5.45	5.96	6.57	8.12
	4H	9.97	10.56	11.11	11.67	13.23	5.28	5.86	6.42	6.98	8.54
	6H	10.39	10.93	11.53	12.05	13.62	5.59	6.13	6.74	7.25	8.82
	8H	10.51	11.02	11.66	12.16	13.72	5.68	6.19	6.83	7.33	8.89
	12H	10.57	11.06	11.73	12.19	13.77	5.72	6.20	6.87	7.33	8.92
4H	2H	7.70	8.28	8.84	9.40	10.96	4.24	4.82	5.38	5.94	7.50
	3H	9.52	10.00	10.67	11.15	12.72	5.57	6.06	6.72	7.21	8.78
	4H	10.21	10.65	11.36	11.79	13.38	6.12	6.56	7.27	7.70	9.29
	6H	10.72	11.10	11.88	12.26	13.84	6.53	6.91	7.69	8.07	9.65
	8H	10.89	11.25	12.05	12.40	14.00	6.66	7.01	7.81	8.16	9.76
	12H	10.98	11.31	12.16	12.47	14.07	6.72	7.04	7.89	8.20	9.80
8H	4H	10.16	10.52	11.32	11.67	13.27	6.39	6.75	7.55	7.89	9.49
	6H	10.73	11.02	11.91	12.21	13.81	6.90	7.20	8.08	8.39	9.98
	8H	10.95	11.21	12.13	12.37	13.99	7.10	7.35	8.28	8.52	10.14
	12H	11.08	11.31	12.27	12.48	14.12	7.21	7.43	8.39	8.60	10.25
12H	4H	10.11	10.43	11.28	11.59	13.19	6.39	6.71	7.56	7.87	9.47
	6H	10.71	10.96	11.89	12.13	13.75	6.95	7.21	8.14	8.38	9.99
	8H	10.92	11.15	12.11	12.31	13.96	7.16	7.39	8.35	8.55	10.20