

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: P912375

Luminaire Tested: DFN2DIP-SQ4F0-140D060US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912375
REPORT IS A COMBINATION OF REPORTS P901594 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D060US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

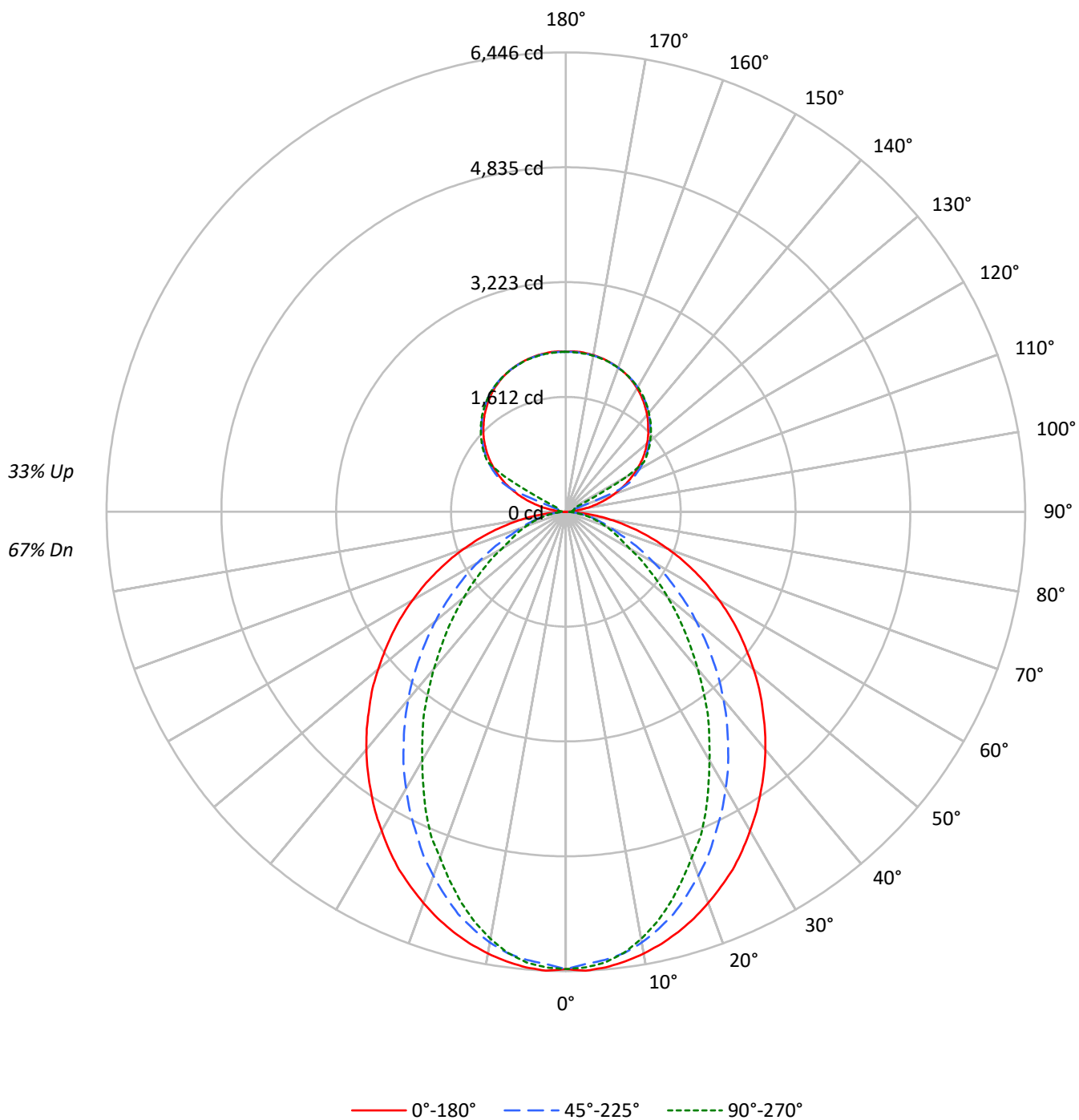
Lumens per Lamp: N/A
Luminaire Lumens: 19784.5 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 189
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

TEST NUMBER: P912375

CATALOG NUMBER: DFN2DIP-SQ4F0-140D060US850-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			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71	71	71	67
1	102	98	94	91	96	93	89	86	82	80	78		73	71	69		64	63	62	58
2	94	86	80	75	88	82	76	72	73	69	65		65	62	59		57	55	53	49
3	86	77	69	64	81	72	66	61	65	60	56		58	54	51		51	48	46	42
4	79	68	60	54	74	65	58	52	58	53	48		52	48	44		46	43	40	37
5	73	61	53	47	68	58	51	45	52	47	42		47	42	39		42	38	35	33
6	67	55	47	41	63	53	45	40	48	42	37		43	38	34		38	35	31	29
7	62	50	42	37	59	48	41	36	43	37	33		39	34	31		35	31	28	26
8	58	46	38	33	55	44	37	32	40	34	30		36	31	28		33	29	26	23
9	54	42	35	30	51	40	33	29	37	31	27		33	29	25		30	26	23	21
10	51	39	32	27	48	37	31	26	34	28	24		31	26	23		28	24	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

TEST NUMBER: P912375

CATALOG NUMBER: DFN2DIP-SQ4F0-140D060US850-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	601.4	3.0
10°-20°	1651.0	8.3
20°-30°	2317.9	11.7
30°-40°	2526.6	12.8
40°-50°	2322.3	11.7
50°-60°	1823.8	9.2
60°-70°	1187.1	6.0
70°-80°	611.1	3.1
80°-90°	159.9	0.8
90°-100°	74.1	0.4
100°-110°	276.0	1.4
110°-120°	732.1	3.7
120°-130°	1214.2	6.1
130°-140°	1289.8	6.5
140°-150°	1198.7	6.1
150°-160°	963.8	4.9
160°-170°	621.0	3.1
170°-180°	213.7	1.1
0°-30°	4570.2	23.1
0°-40°	7096.9	35.9
0°-60°	11242.9	56.8
0°-90°	13201.0	66.7
90°-120°	1082.2	5.5
90°-150°	4785.0	24.2
90°-180°	6583.0	33.3
0°-180°	19784.5	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	20	32	41	44	19
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

TEST NUMBER: P912375

CATALOG NUMBER: DFN2DIP-SQ4F0-140D060US850-RLLONL

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°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

TEST NUMBER: P912375

CATALOG NUMBER: DFN2DIP-SQ4F0-140D060US850-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

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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	13.82	14.81	14.63	15.63	16.65	9.78	10.77	10.59	11.59	12.61
	3H	15.52	16.40	16.34	17.23	18.28	10.98	11.87	11.80	12.70	13.74
	4H	16.13	16.97	16.97	17.81	18.86	11.44	12.28	12.28	13.12	14.17
	6H	16.57	17.34	17.42	18.18	19.25	11.77	12.54	12.62	13.39	14.45
	8H	16.70	17.43	17.56	18.30	19.36	11.87	12.60	12.72	13.46	14.53
	12H	16.77	17.47	17.63	18.33	19.42	11.92	12.61	12.78	13.47	14.56
4H	2H	13.86	14.69	14.70	15.53	16.59	10.40	11.23	11.24	12.07	13.13
	3H	15.71	16.40	16.56	17.27	18.34	11.77	12.46	12.62	13.33	14.40
	4H	16.41	17.04	17.27	17.91	19.01	12.32	12.95	13.19	13.82	14.92
	6H	16.94	17.48	17.82	18.38	19.48	12.75	13.29	13.63	14.19	15.29
	8H	17.12	17.62	18.00	18.52	19.63	12.88	13.39	13.76	14.28	15.39
	12H	17.22	17.68	18.13	18.59	19.71	12.95	13.41	13.86	14.32	15.44
8H	4H	16.39	16.90	17.27	17.79	18.90	12.61	13.12	13.50	14.01	15.12
	6H	16.97	17.38	17.88	18.32	19.43	13.14	13.56	14.05	14.49	15.60
	8H	17.19	17.56	18.11	18.48	19.61	13.33	13.70	14.25	14.63	15.76
	12H	17.33	17.66	18.26	18.58	19.76	13.46	13.79	14.38	14.70	15.88
12H	4H	16.35	16.80	17.25	17.71	18.83	12.63	13.08	13.53	13.99	15.11
	6H	16.94	17.31	17.86	18.24	19.37	13.19	13.56	14.11	14.49	15.62
	8H	17.17	17.50	18.09	18.42	19.60	13.41	13.74	14.33	14.65	15.83

END OF REPORT