

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: P909646

Luminaire Tested: DFN2DIP-SQ4F0-140D060US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909646
REPORT IS A COMBINATION OF REPORTS P900074 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D060US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

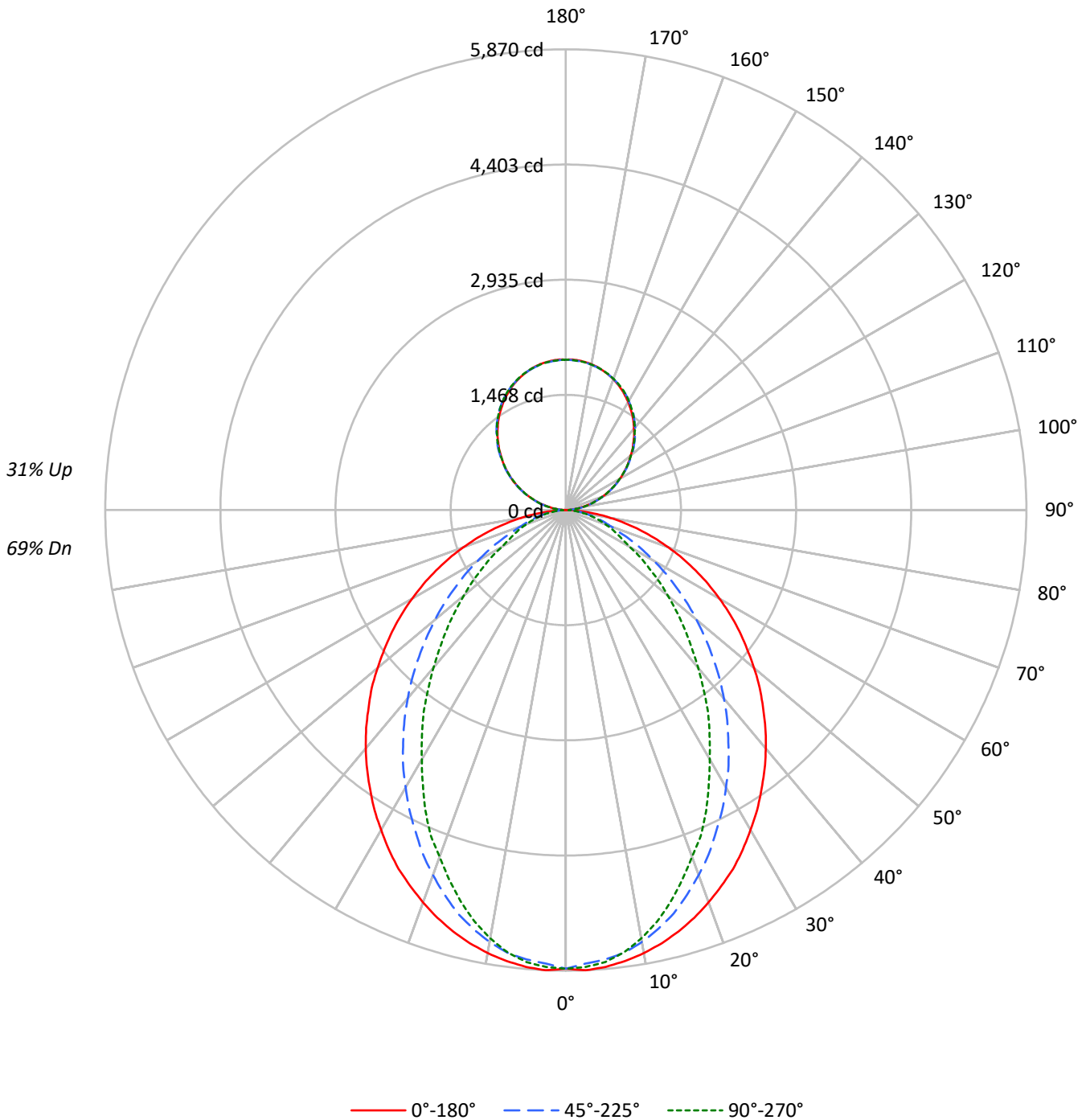
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17379.8 lumens
Efficiency: N/A
Efficacy: 92.0 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

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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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	103	99	95	91	97	93	90	87	84	81	79	75	73	71	66	65	64	60			
2	94	87	81	76	89	82	77	73	74	70	66	66	63	60	59	57	55	51			
3	86	77	70	64	81	73	67	62	66	61	57	59	55	52	53	50	47	44			
4	79	69	61	55	75	65	58	53	59	53	49	53	49	45	48	44	41	38			
5	73	62	54	48	69	59	51	46	53	47	43	48	43	40	43	40	36	34			
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	40	36	32	30			
7	63	51	43	37	59	48	41	36	44	38	34	40	35	31	36	32	29	27			
8	59	46	39	33	55	44	37	32	41	35	30	37	32	28	34	29	26	24			
9	55	43	35	30	52	41	34	29	37	31	27	34	29	26	31	27	24	22			
10	51	39	32	27	49	38	31	26	35	29	25	32	27	23	29	25	22	20			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4100	4100	4100
5°	4107	4036	4062
10°	4066	3957	3931
15°	4010	3827	3728
20°	3936	3648	3478
25°	3860	3446	3237
30°	3758	3240	2930
35°	3658	3018	2661
40°	3557	2788	2352
45°	3439	2532	2072
50°	3316	2275	1799
55°	3189	1999	1536
60°	3042	1711	1265
65°	2872	1418	1140
70°	2666	1144	1034
75°	2408	1011	943
80°	2034	851	822
85°	1416	572	626

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3439 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	547.6	3.2
10°-20°	1503.4	8.7
20°-30°	2110.7	12.1
30°-40°	2300.8	13.2
40°-50°	2114.7	12.2
50°-60°	1660.7	9.6
60°-70°	1081.0	6.2
70°-80°	556.5	3.2
80°-90°	147.5	0.8
90°-100°	118.6	0.7
100°-110°	376.8	2.2
110°-120°	644.8	3.7
120°-130°	848.0	4.9
130°-140°	951.8	5.5
140°-150°	933.4	5.4
150°-160°	783.0	4.5
160°-170°	519.2	3.0
170°-180°	181.5	1.0
0°-30°	4161.7	23.9
0°-40°	6462.5	37.2
0°-60°	10237.9	58.9
0°-90°	12022.8	69.2
90°-120°	1140.1	6.6
90°-150°	3873.3	22.3
90°-180°	5357.0	30.8
0°-180°	17379.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5843	5843	5843	5843	5843	
5°	5843	5817	5748	5796	5780	554
15°	5558	5499	5320	5219	5167	1566
25°	5045	4875	4526	4310	4230	2320
35°	4347	4077	3612	3279	3162	2721
45°	3554	3199	2644	2268	2142	2744
55°	2702	2290	1718	1402	1301	2414
65°	1824	1396	920	740	724	1809
75°	973	603	423	386	381	1029
85°	227	116	100	100	100	261
90°	2	21	57	53	55	17
95°	84	100	103	103	100	94
105°	348	352	356	359	359	367
115°	647	656	653	652	647	640
125°	941	956	951	946	944	841
135°	1217	1235	1239	1237	1232	941
145°	1478	1489	1499	1500	1494	923
155°	1690	1694	1700	1708	1702	778
165°	1838	1836	1836	1848	1840	519
175°	1913	1908	1905	1916	1906	182
180°	1916	1916	1916	1916	1916	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5843.3	5843.3	5843.3	5843.3	5843.3
2.5°	5869.6	5843.3	5784.9	5838.2	5827.5
5°	5843.3	5816.9	5747.9	5795.6	5779.9
7.5°	5795.6	5764.1	5690.1	5710.9	5684.5
10°	5732.2	5695.1	5589.7	5573.3	5541.9
12.5°	5653.0	5605.4	5462.3	5430.9	5372.6
15°	5557.7	5499.3	5319.8	5219.4	5166.7
17.5°	5446.6	5361.9	5139.7	5023.6	4938.8
20°	5319.8	5213.7	4949.6	4817.7	4701.0
22.5°	5182.3	5060.6	4753.7	4574.2	4495.1
25°	5044.9	4875.4	4526.5	4309.9	4230.2
27.5°	4881.1	4701.0	4315.0	4066.4	3944.7
30°	4706.6	4505.2	4082.2	3812.8	3669.8
32.5°	4537.1	4293.6	3860.5	3543.0	3410.6
35°	4347.0	4077.1	3612.0	3278.7	3162.0
37.5°	4161.9	3870.6	3379.1	3013.9	2882.1
40°	3966.0	3649.0	3135.6	2760.4	2622.9
42.5°	3765.2	3426.9	2892.8	2501.1	2369.2
45°	3553.6	3199.1	2644.2	2268.3	2141.5
47.5°	3352.8	2977.5	2406.3	2030.4	1914.3
50°	3130.6	2755.3	2173.4	1808.3	1697.7
52.5°	2913.5	2516.8	1951.3	1602.4	1501.9
55°	2702.0	2289.6	1718.5	1401.5	1301.0
57.5°	2485.4	2062.3	1512.6	1216.4	1131.7
60°	2263.2	1840.2	1295.5	1026.1	941.4
62.5°	2046.7	1623.7	1110.3	856.7	814.7
65°	1824.5	1395.8	920.1	740.5	724.3
67.5°	1613.0	1184.4	740.5	650.3	634.5
70°	1390.8	978.5	613.2	560.5	539.2
72.5°	1179.3	787.7	512.8	470.7	460.1
75°	972.8	602.6	423.0	386.0	380.9
77.5°	767.0	428.1	333.3	311.9	301.2
80°	576.2	306.9	253.6	232.9	232.9
82.5°	401.7	206.4	174.5	163.8	163.8
85°	227.2	116.1	100.4	100.4	100.4
87.5°	84.7	42.1	42.1	37.1	37.1
90°	1.7	20.8	56.7	53.1	54.8
92.5°	35.9	48.6	50.3	52.0	52.0
95°	84.3	100.5	103.4	103.4	100.5
97.5°	140.4	155.4	161.8	161.8	161.8
100°	205.1	218.3	223.0	223.0	221.3
102.5°	273.3	283.1	289.4	291.1	289.4
105°	347.8	352.4	355.9	358.8	358.8
107.5°	421.7	428.7	428.7	429.8	421.7
110°	493.4	502.6	502.6	502.6	498.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	570.8	580.6	578.9	574.2	570.8
115°	647.0	656.3	653.4	651.7	647.0
117.5°	722.8	735.5	727.3	722.8	718.1
120°	799.0	811.7	799.0	799.0	793.8
122.5°	868.3	884.4	876.4	871.8	868.3
125°	941.1	955.5	950.9	945.7	944.0
127.5°	1012.2	1030.1	1023.7	1016.8	1012.2
130°	1078.6	1099.4	1096.5	1093.1	1086.7
132.5°	1153.2	1169.3	1170.4	1162.4	1157.7
135°	1217.3	1235.2	1238.6	1236.9	1232.2
137.5°	1288.9	1303.3	1306.3	1305.0	1298.2
140°	1351.9	1366.3	1374.4	1374.4	1368.1
142.5°	1416.5	1431.0	1435.6	1437.3	1431.0
145°	1477.8	1489.3	1498.6	1500.4	1494.0
147.5°	1532.7	1547.1	1554.1	1556.9	1550.5
150°	1589.3	1599.1	1605.5	1610.6	1605.5
152.5°	1639.5	1649.4	1657.5	1663.9	1657.5
155°	1689.8	1694.5	1699.6	1707.8	1702.5
157.5°	1733.1	1736.7	1739.5	1751.1	1743.0
160°	1771.9	1775.3	1777.1	1786.9	1780.0
162.5°	1807.7	1807.7	1809.4	1820.4	1812.3
165°	1838.3	1836.5	1836.5	1848.2	1840.1
167.5°	1866.0	1860.9	1860.9	1872.4	1864.3
170°	1886.8	1882.2	1880.5	1892.0	1882.2
172.5°	1901.3	1896.6	1894.9	1906.4	1896.6
175°	1912.8	1908.2	1904.7	1916.3	1906.4
177.5°	1919.1	1914.6	1911.1	1920.9	1911.1
180°	1916.3	1916.3	1916.3	1916.3	1916.3



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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	13.69	14.71	14.47	15.50	16.47	9.65	10.67	10.43	11.46	12.43
	3H	15.39	16.29	16.18	17.10	18.10	10.85	11.76	11.65	12.57	13.57
	4H	16.01	16.86	16.82	17.68	18.69	11.31	12.17	12.12	12.99	14.00
	6H	16.44	17.23	17.26	18.05	19.08	11.64	12.43	12.47	13.26	14.28
	8H	16.57	17.32	17.41	18.17	19.19	11.74	12.49	12.57	13.33	14.36
	12H	16.64	17.36	17.48	18.19	19.25	11.79	12.51	12.63	13.34	14.39
4H	2H	13.73	14.59	14.55	15.40	16.41	10.27	11.13	11.09	11.94	12.96
	3H	15.58	16.29	16.41	17.14	18.17	11.64	12.35	12.47	13.20	14.23
	4H	16.28	16.93	17.12	17.78	18.83	12.19	12.84	13.03	13.69	14.74
	6H	16.81	17.37	17.67	18.24	19.30	12.62	13.18	13.48	14.05	15.11
	8H	16.99	17.52	17.85	18.38	19.45	12.76	13.28	13.62	14.14	15.22
	12H	17.10	17.57	17.98	18.46	19.53	12.83	13.30	13.71	14.19	15.26
8H	4H	16.27	16.79	17.12	17.65	18.73	12.49	13.01	13.35	13.88	14.95
	6H	16.84	17.27	17.73	18.18	19.25	13.02	13.45	13.90	14.36	15.43
	8H	17.06	17.44	17.96	18.35	19.44	13.21	13.59	14.11	14.49	15.58
	12H	17.21	17.55	18.11	18.44	19.59	13.34	13.67	14.24	14.57	15.71
12H	4H	16.23	16.69	17.10	17.58	18.66	12.50	12.97	13.38	13.86	14.94
	6H	16.82	17.20	17.72	18.10	19.19	13.07	13.45	13.97	14.35	15.44
	8H	17.05	17.39	17.95	18.28	19.43	13.29	13.62	14.19	14.52	15.66