

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: P909426

Luminaire Tested: DFN2DIP-SQ4F0-060D160US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909426
REPORT IS A COMBINATION OF REPORTS P900204 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

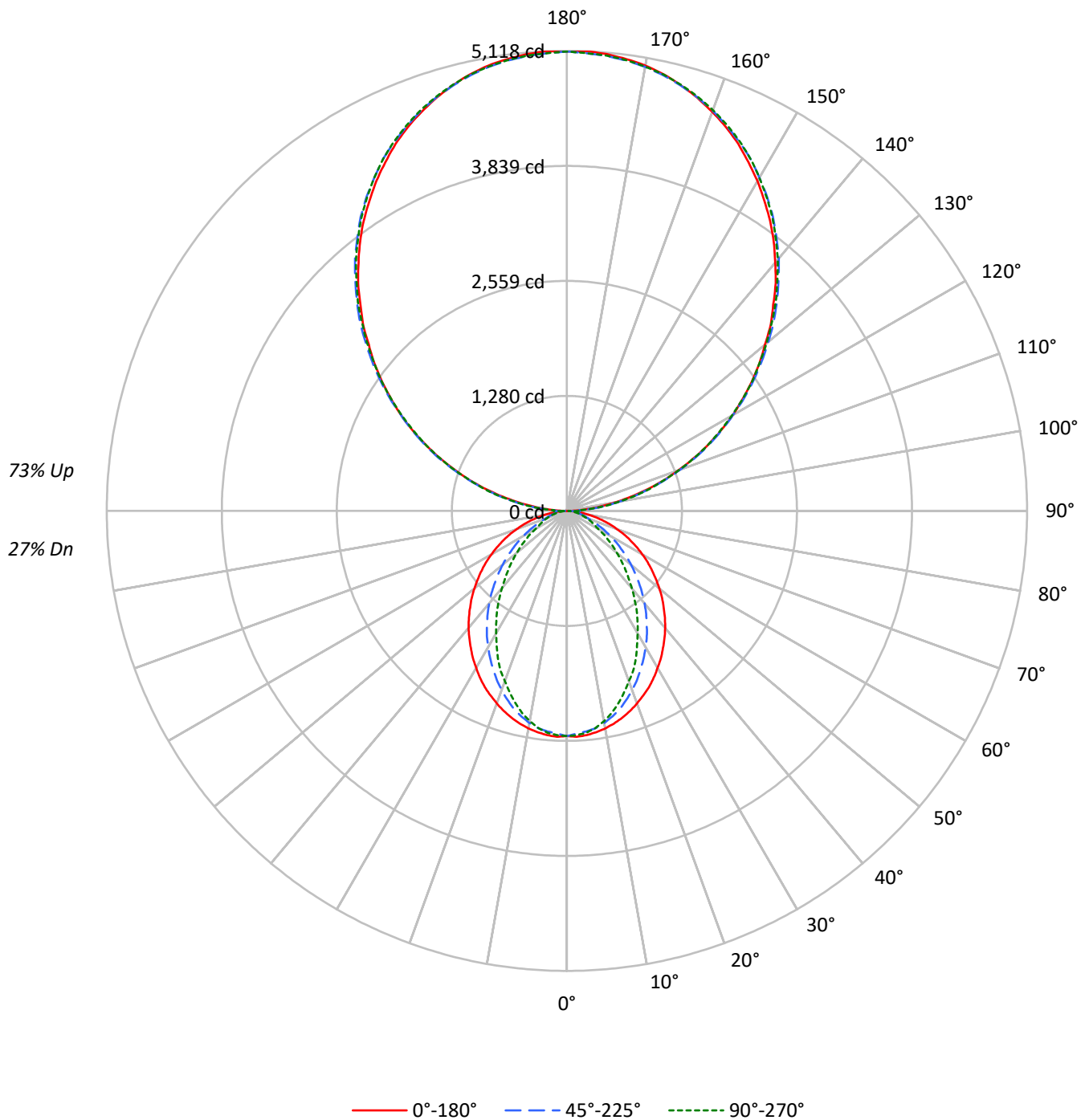
Lumens per Lamp: N/A
Luminaire Lumens: 19451.0 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	70	70	70	52	52	52	35	35	35
1	93	89	85	82	83	79	76	74	62	60	58	46	44	43	31	30	30
2	85	78	72	67	75	70	65	61	54	51	48	40	38	37	27	26	25
3	77	68	62	56	69	61	56	51	48	44	41	36	33	31	25	23	22
4	71	61	53	48	63	54	48	43	43	38	35	32	29	27	22	20	19
5	65	54	46	41	58	49	42	37	38	34	30	29	26	23	20	18	17
6	60	48	41	35	53	44	37	32	35	30	26	26	23	20	18	16	15
7	55	44	36	31	49	39	33	28	31	27	23	24	21	18	17	15	13
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12
9	48	36	29	24	42	33	26	22	26	21	18	20	17	14	14	12	11
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1757	1757	1757
5°	1760	1730	1741
10°	1742	1696	1685
15°	1719	1640	1598
20°	1687	1563	1491
25°	1654	1477	1387
30°	1611	1389	1256
35°	1568	1293	1140
40°	1524	1195	1008
45°	1474	1085	888
50°	1421	975	771
55°	1367	857	658
60°	1304	733	542
65°	1231	608	489
70°	1143	490	443
75°	1032	433	404
80°	871	365	352
85°	607	245	268

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 4021 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	1.2
10°-20°	644.3	3.3
20°-30°	904.6	4.7
30°-40°	986.1	5.1
40°-50°	906.3	4.7
50°-60°	711.7	3.7
60°-70°	463.3	2.4
70°-80°	238.5	1.2
80°-90°	75.4	0.4
90°-100°	316.2	1.6
100°-110°	1004.8	5.2
110°-120°	1719.5	8.8
120°-130°	2261.4	11.6
130°-140°	2538.3	13.0
140°-150°	2489.1	12.8
150°-160°	2088.0	10.7
160°-170°	1384.7	7.1
170°-180°	484.0	2.5
0°-30°	1783.6	9.2
0°-40°	2769.6	14.2
0°-60°	4387.7	22.6
0°-90°	5164.8	26.6
90°-120°	3040.5	15.6
90°-150°	10329.4	53.1
90°-180°	14286.0	73.4
0°-180°	19451.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2090	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	5	55	151	142	146	19
95°	225	268	276	276	268	250
105°	928	940	949	957	957	979
115°	1726	1750	1742	1738	1726	1707
125°	2510	2548	2536	2522	2518	2243
135°	3246	3294	3303	3299	3286	2509
145°	3941	3972	3996	4001	3984	2462
155°	4506	4519	4533	4554	4540	2074
165°	4902	4898	4898	4929	4907	1383
175°	5101	5089	5080	5110	5084	485
180°	5110	5110	5110	5110	5110	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.3	2504.3	2504.3	2504.3	2504.3
2.5°	2515.6	2504.3	2479.2	2502.0	2497.5
5°	2504.3	2493.0	2463.4	2483.9	2477.1
7.5°	2483.9	2470.3	2438.6	2447.5	2436.2
10°	2456.6	2440.7	2395.6	2388.6	2375.1
12.5°	2422.8	2402.3	2341.0	2327.5	2302.5
15°	2381.9	2356.8	2279.9	2236.9	2214.2
17.5°	2334.3	2297.9	2202.7	2152.9	2116.7
20°	2279.9	2234.4	2121.2	2064.7	2014.7
22.5°	2221.0	2168.8	2037.3	1960.4	1926.4
25°	2162.1	2089.5	1940.0	1847.1	1813.0
27.5°	2091.9	2014.7	1849.3	1742.7	1690.6
30°	2017.1	1930.8	1749.5	1634.1	1572.8
32.5°	1944.5	1840.2	1654.6	1518.4	1461.7
35°	1863.0	1747.4	1548.0	1405.1	1355.1
37.5°	1783.6	1658.8	1448.2	1291.7	1235.2
40°	1699.7	1563.9	1343.8	1183.0	1124.1
42.5°	1613.7	1468.6	1239.7	1071.9	1015.4
45°	1523.0	1371.0	1133.3	972.1	917.8
47.5°	1436.9	1276.1	1031.3	870.2	820.4
50°	1341.7	1180.8	931.5	775.0	727.6
52.5°	1248.6	1078.6	836.3	686.7	643.7
55°	1158.0	981.3	736.5	600.7	557.5
57.5°	1065.2	883.8	648.2	521.3	484.9
60°	970.0	788.7	555.2	439.8	403.4
62.5°	877.2	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.4	317.4	310.4
67.5°	691.3	507.6	317.4	278.7	272.0
70°	596.0	419.3	262.8	240.2	231.1
72.5°	505.4	337.6	219.7	201.8	197.1
75°	417.0	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.4	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
90°	4.6	55.4	151.0	141.8	146.3
92.5°	95.5	129.5	134.0	138.7	138.7
95°	224.9	268.1	275.8	275.8	268.1
97.5°	374.4	414.4	431.4	431.4	431.4
100°	546.9	582.4	594.7	594.7	590.1
102.5°	728.7	755.0	771.8	776.5	771.8
105°	927.5	939.8	949.1	956.7	956.7
107.5°	1124.7	1143.2	1143.2	1146.3	1124.7
110°	1315.8	1340.4	1340.4	1340.4	1328.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1522.2	1548.4	1543.8	1531.5	1522.2
115°	1725.6	1750.2	1742.5	1737.9	1725.6
117.5°	1927.4	1961.3	1939.7	1927.4	1915.1
120°	2130.8	2164.6	2130.8	2130.8	2116.9
122.5°	2315.6	2358.8	2337.2	2324.9	2315.6
125°	2509.8	2548.3	2536.0	2522.1	2517.5
127.5°	2699.3	2747.0	2730.1	2711.6	2699.3
130°	2876.5	2931.9	2924.3	2915.0	2898.0
132.5°	3075.2	3118.4	3121.4	3099.9	3087.6
135°	3246.2	3294.0	3303.3	3298.6	3286.3
137.5°	3437.3	3475.8	3483.5	3480.4	3461.9
140°	3605.2	3643.7	3665.3	3665.3	3648.3
142.5°	3777.8	3816.3	3828.6	3833.2	3816.3
145°	3941.1	3971.9	3996.5	4001.2	3984.2
147.5°	4087.4	4126.0	4144.5	4152.2	4135.2
150°	4238.4	4264.7	4281.6	4295.5	4281.6
152.5°	4372.5	4398.7	4420.3	4437.1	4420.3
155°	4506.5	4518.8	4532.7	4554.3	4540.5
157.5°	4622.1	4631.3	4639.0	4669.8	4648.3
160°	4725.3	4734.6	4739.2	4765.4	4746.9
162.5°	4820.8	4820.8	4825.4	4854.7	4833.1
165°	4902.5	4897.8	4897.8	4928.6	4907.1
167.5°	4976.4	4962.6	4962.6	4993.4	4971.8
170°	5031.9	5019.5	5015.0	5045.8	5019.5
172.5°	5070.4	5058.1	5053.5	5084.3	5058.1
175°	5101.2	5088.9	5079.6	5110.5	5084.3
177.5°	5118.2	5105.9	5096.6	5122.8	5096.6
180°	5110.5	5110.5	5110.5	5110.5	5110.5

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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	6.38	7.05	7.52	8.18	9.75	2.35	3.02	3.49	4.14	5.71
	3H	8.05	8.65	9.20	9.79	11.38	3.52	4.12	4.67	5.26	6.84
	4H	8.66	9.23	9.81	10.36	11.95	3.97	4.53	5.12	5.67	7.26
	6H	9.07	9.60	10.24	10.74	12.34	4.28	4.80	5.44	5.94	7.54
	8H	9.20	9.70	10.37	10.85	12.45	4.37	4.86	5.53	6.02	7.61
	12H	9.26	9.73	10.43	10.88	12.49	4.40	4.88	5.57	6.02	7.64
4H	2H	6.38	6.95	7.55	8.09	9.68	2.92	3.49	4.09	4.63	6.22
	3H	8.20	8.67	9.37	9.84	11.44	4.26	4.73	5.43	5.89	7.50
	4H	8.89	9.33	10.06	10.48	12.10	4.80	5.24	5.97	6.39	8.01
	6H	9.40	9.77	10.58	10.95	12.56	5.21	5.59	6.39	6.76	8.37
	8H	9.58	9.92	10.75	11.09	12.72	5.34	5.69	6.51	6.85	8.48
	12H	9.67	9.98	10.86	11.16	12.79	5.40	5.71	6.59	6.89	8.52
8H	4H	8.85	9.19	10.02	10.36	11.99	5.07	5.42	6.25	6.58	8.21
	6H	9.41	9.70	10.61	10.90	12.53	5.59	5.87	6.78	7.08	8.71
	8H	9.63	9.88	10.83	11.06	12.71	5.78	6.03	6.98	7.21	8.86
	12H	9.77	9.98	10.97	11.17	12.85	5.89	6.11	7.09	7.29	8.97
12H	4H	8.79	9.11	9.98	10.28	11.92	5.07	5.39	6.26	6.56	8.20
	6H	9.39	9.64	10.59	10.82	12.47	5.64	5.89	6.84	7.07	8.72
	8H	9.60	9.82	10.81	11.00	12.68	5.84	6.06	7.04	7.24	8.92