

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: P925795

Luminaire Tested: DFN2DIP-SQ4F0-060D160US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925795
REPORT IS A COMBINATION OF REPORTS P901724 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

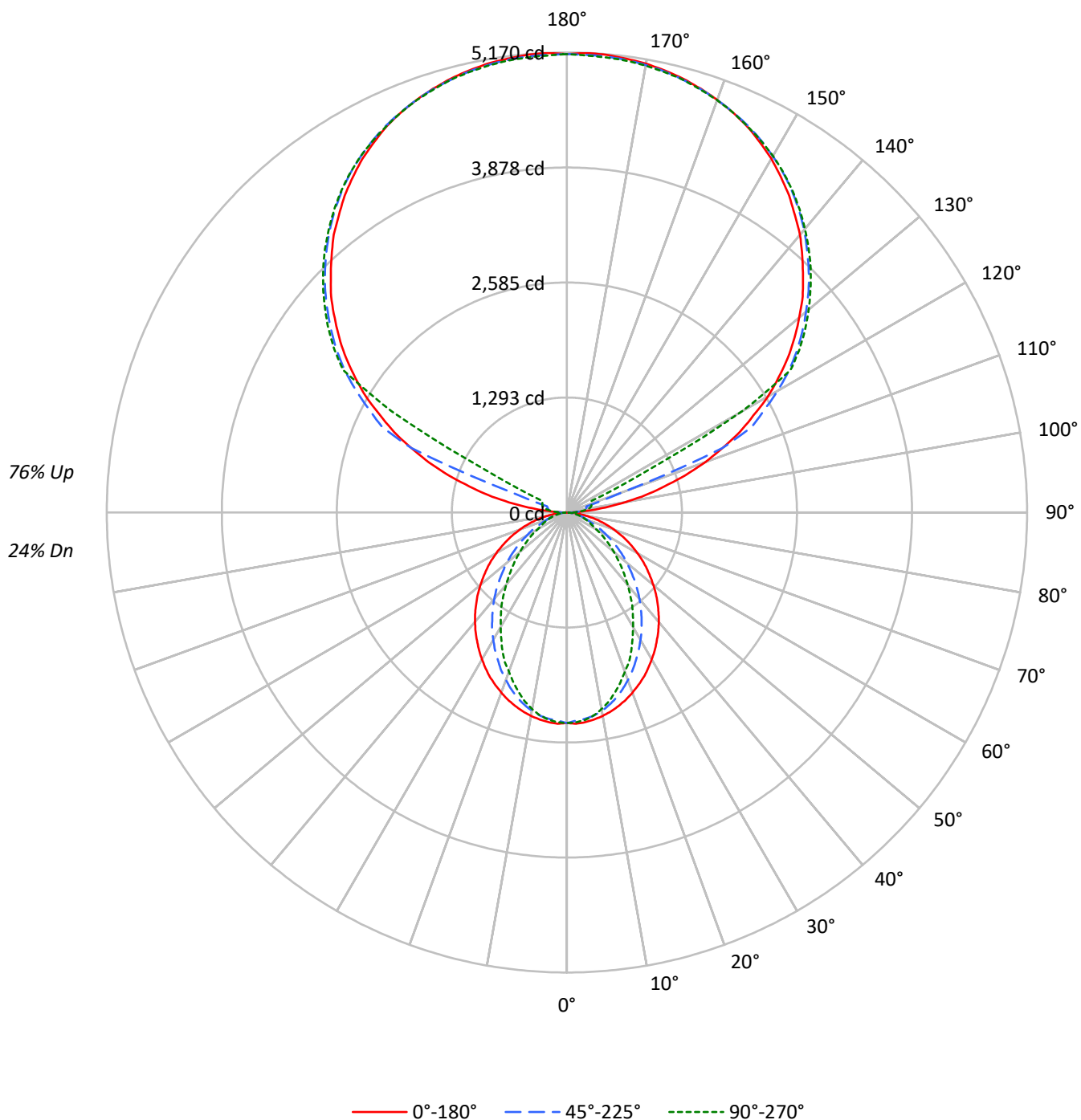
Lumens per Lamp: N/A
Luminaire Lumens: 19976.8 lumens
Efficiency: N/A
Efficacy: 116.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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

TEST NUMBER: P925795

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US950-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P925795

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US950-RLLONL

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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	21
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18
5	65	54	46	40	57	48	42	37	38	33	30	28	25	23	19	17	16
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12
8	51	39	32	27	45	35	29	25	28	23	20	21	18	16	14	13	11
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1660	1660	1660
5°	1663	1634	1645
10°	1646	1602	1591
15°	1623	1550	1509
20°	1593	1477	1408
25°	1563	1395	1310
30°	1521	1312	1186
35°	1481	1222	1077
40°	1440	1129	952
45°	1392	1025	839
50°	1343	921	728
55°	1291	809	622
60°	1231	693	512
65°	1163	574	462
70°	1080	463	418
75°	975	409	382
80°	823	344	333
85°	573	231	253

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2762 cd/sqm

TEST NUMBER: P925795

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.7	1.1
10°-20°	608.7	3.0
20°-30°	854.5	4.3
30°-40°	931.5	4.7
40°-50°	856.2	4.3
50°-60°	672.4	3.4
60°-70°	437.7	2.2
70°-80°	225.3	1.1
80°-90°	66.6	0.3
90°-100°	169.9	0.9
100°-110°	633.2	3.2
110°-120°	1679.4	8.4
120°-130°	2785.4	13.9
130°-140°	2958.8	14.8
140°-150°	2749.9	13.8
150°-160°	2210.8	11.1
160°-170°	1424.6	7.1
170°-180°	490.3	2.5
0°-30°	1684.9	8.4
0°-40°	2616.4	13.1
0°-60°	4144.9	20.7
0°-90°	4874.5	24.4
90°-120°	2482.5	12.4
90°-150°	10976.6	54.9
90°-180°	15102.0	75.6
0°-180°	19976.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	4	45	74	93	100	18
95°	242	119	145	164	160	287
105°	1133	1245	228	268	283	1211
115°	2143	2206	2300	574	306	2110
125°	3030	3079	3150	3176	3187	2703
135°	3750	3810	3843	3881	3873	2897
145°	4350	4346	4410	4436	4417	2721
155°	4790	4756	4801	4823	4794	2207
165°	5047	5025	5036	5062	5036	1426
175°	5162	5136	5144	5170	5133	491
180°	5151	5151	5151	5151	5151	

TEST NUMBER: P925795

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
90°	3.5	44.7	74.3	93.4	100.5
92.5°	93.4	78.3	89.4	96.9	100.5
95°	242.1	119.1	145.2	164.2	160.3
97.5°	436.0	130.6	189.8	201.4	204.9
100°	660.0	149.2	212.5	242.1	249.7
102.5°	905.6	898.6	220.0	260.7	272.2
105°	1133.2	1245.2	227.5	268.3	283.2
107.5°	1397.8	1490.8	235.1	275.8	290.8
110°	1651.5	1729.4	652.4	279.7	294.3

TEST NUMBER: P925795

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1890.1	1956.9	1893.6	286.9	298.3
115°	2143.3	2206.5	2299.9	574.1	305.9
117.5°	2363.2	2437.6	2501.4	1968.0	991.5
120°	2609.4	2665.1	2732.4	2777.1	2273.9
122.5°	2817.8	2877.6	2952.3	2974.5	2978.5
125°	3030.3	3078.9	3149.8	3176.0	3187.0
127.5°	3224.1	3276.4	3332.6	3369.8	3373.3
130°	3407.0	3466.7	3507.5	3548.6	3545.1
132.5°	3593.3	3642.0	3682.7	3716.4	3712.9
135°	3750.0	3809.8	3843.0	3880.6	3873.0
137.5°	3913.8	3958.5	3996.1	4033.3	4022.3
140°	4074.1	4104.1	4144.8	4178.5	4159.9
142.5°	4208.6	4234.7	4283.0	4312.7	4294.0
145°	4350.2	4346.2	4409.6	4435.6	4417.1
147.5°	4472.8	4461.8	4525.1	4543.7	4529.0
150°	4592.4	4566.2	4626.0	4648.2	4629.6
152.5°	4692.8	4663.2	4719.0	4741.6	4715.4
155°	4789.7	4756.5	4801.3	4823.4	4793.8
157.5°	4868.2	4838.5	4872.1	4898.2	4868.2
160°	4935.4	4912.8	4935.4	4957.6	4931.4
162.5°	4994.8	4972.6	4991.1	5017.3	4983.7
165°	5046.9	5024.8	5035.9	5062.0	5035.9
167.5°	5088.2	5065.5	5077.1	5103.1	5069.6
170°	5121.7	5099.2	5106.7	5132.8	5099.2
172.5°	5143.9	5121.7	5129.3	5155.4	5121.7
175°	5162.5	5136.3	5143.9	5170.0	5132.8
177.5°	5170.0	5143.9	5147.9	5174.0	5140.3
180°	5151.4	5151.4	5151.4	5151.4	5151.4

TEST NUMBER: P925795

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US950-RLONL

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	5.85	6.51	7.01	7.65	9.24	1.81	2.47	2.97	3.61	5.21
	3H	7.52	8.11	8.68	9.25	10.87	2.99	3.58	4.15	4.72	6.34
	4H	8.12	8.68	9.29	9.83	11.45	3.43	3.99	4.60	5.14	6.75
	6H	8.54	9.05	9.72	10.20	11.83	3.74	4.26	4.92	5.41	7.03
	8H	8.66	9.15	9.84	10.32	11.93	3.83	4.32	5.01	5.48	7.10
	12H	8.72	9.18	9.90	10.34	11.98	3.87	4.33	5.05	5.49	7.13
4H	2H	5.85	6.41	7.03	7.55	9.17	2.39	2.95	3.57	4.09	5.71
	3H	7.67	8.13	8.85	9.30	10.93	3.72	4.19	4.91	5.36	6.99
	4H	8.35	8.78	9.54	9.94	11.59	4.27	4.69	5.45	5.85	7.50
	6H	8.86	9.23	10.05	10.41	12.05	4.68	5.04	5.87	6.23	7.86
	8H	9.04	9.38	10.23	10.55	12.21	4.80	5.14	5.99	6.32	7.97
	12H	9.13	9.44	10.33	10.62	12.28	4.86	5.17	6.06	6.36	8.01
8H	4H	8.31	8.65	9.50	9.83	11.48	4.54	4.88	5.72	6.05	7.71
	6H	8.87	9.16	10.08	10.37	12.02	5.05	5.33	6.26	6.55	8.20
	8H	9.09	9.34	10.30	10.53	12.20	5.24	5.49	6.45	6.68	8.35
	12H	9.23	9.44	10.44	10.63	12.34	5.35	5.57	6.57	6.76	8.46
12H	4H	8.25	8.56	9.46	9.75	11.41	4.53	4.84	5.74	6.03	7.69
	6H	8.85	9.09	10.06	10.29	11.96	5.10	5.34	6.31	6.54	8.21
	8H	9.07	9.28	10.28	10.47	12.17	5.30	5.52	6.52	6.71	8.41

END OF REPORT