

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: P906698

Luminaire Tested: DFN2DIP-SQ4F0-060D160US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906698
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-SQ4F0-060D160US835-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

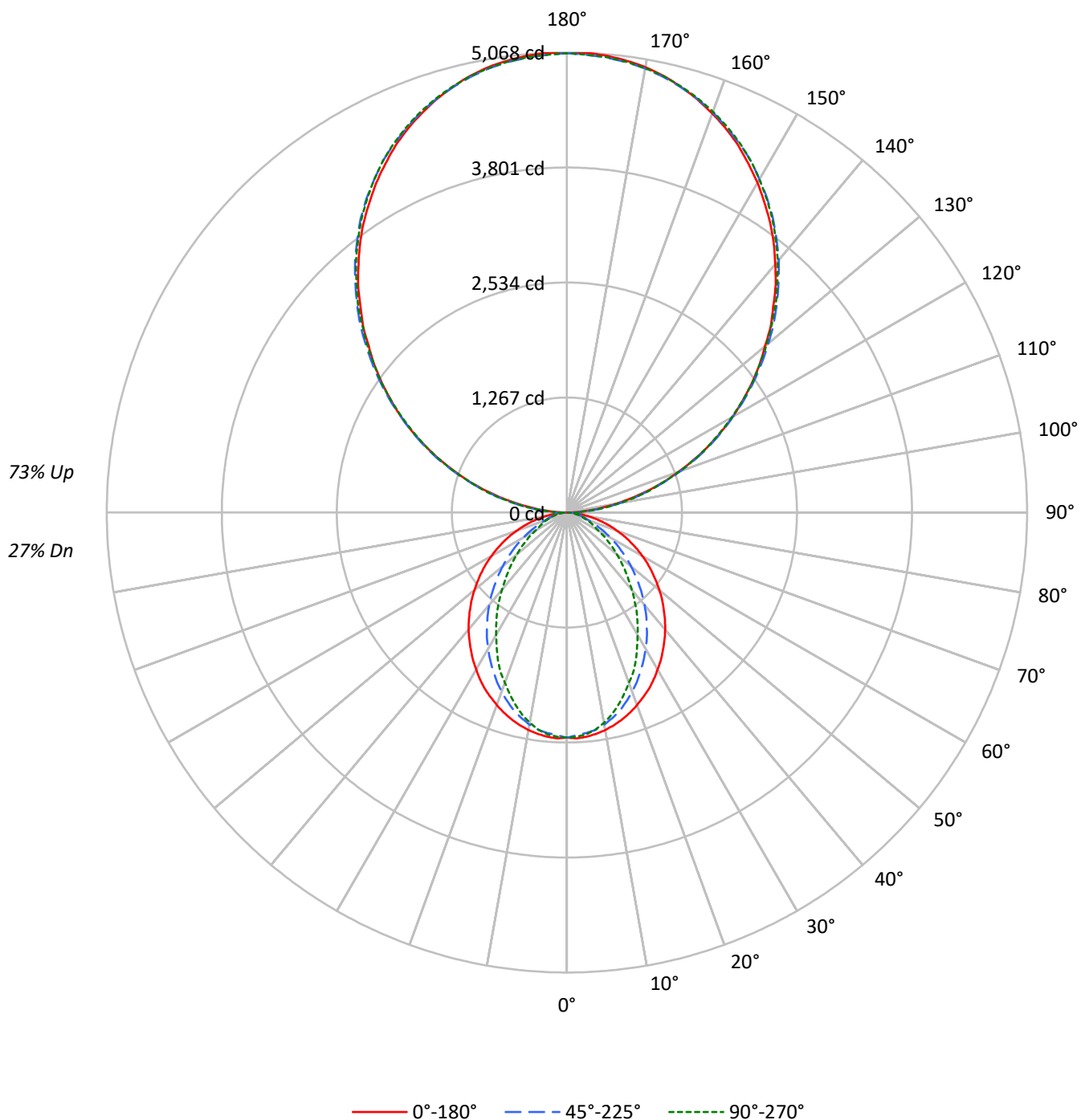
Lumens per Lamp: N/A
Luminaire Lumens: 19261.0 lumens
Efficiency: N/A
Efficacy: 111.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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: P906698

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US835-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P906698

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US835-RLFL

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°	1740	1740	1740
5°	1743	1713	1724
10°	1725	1680	1668
15°	1702	1624	1582
20°	1670	1548	1476
25°	1638	1463	1374
30°	1595	1375	1244
35°	1552	1281	1129
40°	1509	1183	998
45°	1459	1075	879
50°	1407	965	763
55°	1353	848	652
60°	1291	726	537
65°	1219	602	484
70°	1131	486	439
75°	1022	429	400
80°	863	361	349
85°	601	243	265

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3982 cd/sqm

TEST NUMBER: P906698

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US835-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.4	1.2
10°-20°	638.0	3.3
20°-30°	895.7	4.7
30°-40°	976.4	5.1
40°-50°	897.4	4.7
50°-60°	704.8	3.7
60°-70°	458.8	2.4
70°-80°	236.1	1.2
80°-90°	74.7	0.4
90°-100°	313.1	1.6
100°-110°	995.0	5.2
110°-120°	1702.7	8.8
120°-130°	2239.3	11.6
130°-140°	2513.5	13.0
140°-150°	2464.8	12.8
150°-160°	2067.6	10.7
160°-170°	1371.2	7.1
170°-180°	479.3	2.5
0°-30°	1766.2	9.2
0°-40°	2742.6	14.2
0°-60°	4344.8	22.6
0°-90°	5114.4	26.6
90°-120°	3010.8	15.6
90°-150°	10228.5	53.1
90°-180°	14147.0	73.4
0°-180°	19261.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2480	2480	2480	2480	2480	
5°	2480	2469	2439	2460	2453	235
15°	2359	2334	2258	2215	2193	665
25°	2141	2069	1921	1829	1795	985
35°	1845	1730	1533	1391	1342	1155
45°	1508	1358	1122	963	909	1165
55°	1147	972	729	595	552	1025
65°	774	592	390	314	307	768
75°	413	256	180	164	162	437
85°	96	49	43	43	43	111
90°	5	55	150	140	145	19
95°	223	266	273	273	266	248
105°	918	931	940	947	947	969
115°	1709	1733	1726	1721	1709	1690
125°	2485	2523	2511	2498	2493	2221
135°	3214	3262	3271	3266	3254	2485
145°	3903	3933	3958	3962	3945	2438
155°	4462	4475	4488	4510	4496	2054
165°	4855	4850	4850	4880	4859	1369
175°	5051	5039	5030	5061	5035	480
180°	5061	5061	5061	5061	5061	

TEST NUMBER: P906698

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US835-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2479.8	2479.8	2479.8	2479.8	2479.8
2.5°	2491.0	2479.8	2455.0	2477.6	2473.1
5°	2479.8	2468.6	2439.3	2459.6	2452.9
7.5°	2459.6	2446.2	2414.8	2423.6	2412.4
10°	2432.6	2416.9	2372.2	2365.3	2351.9
12.5°	2399.1	2378.8	2318.1	2304.8	2280.0
15°	2358.6	2333.8	2257.6	2215.0	2192.6
17.5°	2311.5	2275.5	2181.2	2131.9	2096.0
20°	2257.6	2212.6	2100.5	2044.5	1995.0
22.5°	2199.3	2147.6	2017.4	1941.2	1907.6
25°	2141.0	2069.1	1921.0	1829.1	1795.3
27.5°	2071.5	1995.0	1831.2	1725.7	1674.1
30°	1997.4	1911.9	1732.4	1618.1	1557.4
32.5°	1925.5	1822.2	1638.4	1503.6	1447.4
35°	1844.8	1730.3	1532.9	1391.4	1341.9
37.5°	1766.2	1642.6	1434.1	1279.1	1223.1
40°	1683.1	1548.6	1330.7	1171.4	1113.1
42.5°	1597.9	1454.3	1227.6	1061.4	1005.5
45°	1508.1	1357.6	1122.2	962.6	908.8
47.5°	1422.9	1263.6	1021.2	861.7	812.4
50°	1328.6	1169.3	922.4	767.4	720.5
52.5°	1236.4	1068.1	828.1	680.0	637.4
55°	1146.7	971.7	729.3	594.8	552.1
57.5°	1054.8	875.2	641.9	516.2	480.2
60°	960.5	781.0	549.8	435.5	399.5
62.5°	868.6	689.1	471.2	363.6	345.7
65°	774.3	592.4	390.5	314.3	307.4
67.5°	684.5	502.6	314.3	276.0	269.3
70°	590.2	415.2	260.2	237.9	228.8
72.5°	500.5	334.3	217.6	199.8	195.2
75°	412.9	255.7	179.5	163.8	161.7
77.5°	325.5	181.7	141.4	132.4	127.9
80°	244.5	130.2	107.6	98.8	98.8
82.5°	170.5	87.6	74.0	69.5	69.5
85°	96.4	49.3	42.6	42.6	42.6
87.5°	36.0	17.9	17.9	15.7	15.7
90°	4.6	54.9	149.5	140.4	144.9
92.5°	94.6	128.2	132.7	137.3	137.3
95°	222.7	265.5	273.1	273.1	265.5
97.5°	370.7	410.4	427.2	427.2	427.2
100°	541.6	576.7	588.9	588.9	584.3
102.5°	721.6	747.6	764.3	768.9	764.3
105°	918.4	930.6	939.8	947.4	947.4
107.5°	1113.7	1132.0	1132.0	1135.1	1113.7
110°	1302.9	1327.3	1327.3	1327.3	1315.1

TEST NUMBER: P906698

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US835-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1507.3	1533.3	1528.7	1516.5	1507.3
115°	1708.7	1733.1	1725.5	1720.9	1708.7
117.5°	1908.6	1942.1	1920.8	1908.6	1896.4
120°	2110.0	2143.5	2110.0	2110.0	2096.2
122.5°	2293.0	2335.8	2314.4	2302.2	2293.0
125°	2485.3	2523.4	2511.2	2497.5	2492.9
127.5°	2672.9	2720.2	2703.4	2685.1	2672.9
130°	2848.4	2903.3	2895.7	2886.5	2869.7
132.5°	3045.2	3087.9	3090.9	3069.6	3057.4
135°	3214.5	3261.8	3271.0	3266.4	3254.2
137.5°	3403.7	3441.8	3449.5	3446.4	3428.1
140°	3570.0	3608.1	3629.5	3629.5	3612.7
142.5°	3740.9	3779.0	3791.2	3795.8	3779.0
145°	3902.6	3933.1	3957.5	3962.1	3945.3
147.5°	4047.5	4085.7	4104.0	4111.6	4094.8
150°	4197.0	4223.0	4239.8	4253.5	4239.8
152.5°	4329.8	4355.7	4377.1	4393.8	4377.1
155°	4462.5	4474.7	4488.4	4509.8	4496.1
157.5°	4576.9	4586.1	4593.7	4624.2	4602.9
160°	4679.1	4688.3	4692.9	4718.8	4700.5
162.5°	4773.7	4773.7	4778.3	4807.3	4785.9
165°	4854.6	4850.0	4850.0	4880.5	4859.2
167.5°	4927.8	4914.1	4914.1	4944.6	4923.2
170°	4982.7	4970.5	4966.0	4996.5	4970.5
172.5°	5020.9	5008.7	5004.1	5034.6	5008.7
175°	5051.4	5039.2	5030.0	5060.6	5034.6
177.5°	5068.2	5056.0	5046.8	5072.8	5046.8
180°	5060.6	5060.6	5060.6	5060.6	5060.6

TEST NUMBER: P906698

CATALOG NUMBER: DFN2DIP-SQ4F0-060D160US835-RLFL

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	6.35	7.02	7.49	8.15	9.72	2.31	2.98	3.45	4.11	5.68
	3H	8.02	8.62	9.17	9.75	11.34	3.49	4.09	4.64	5.22	6.81
	4H	8.62	9.19	9.78	10.33	11.92	3.93	4.50	5.09	5.64	7.23
	6H	9.04	9.56	10.20	10.70	12.31	4.24	4.77	5.41	5.91	7.51
	8H	9.16	9.66	10.33	10.81	12.41	4.33	4.83	5.50	5.98	7.58
	12H	9.22	9.69	10.39	10.84	12.46	4.37	4.84	5.54	5.99	7.61
4H	2H	6.35	6.92	7.51	8.05	9.65	2.89	3.46	4.05	4.59	6.19
	3H	8.17	8.64	9.34	9.80	11.41	4.23	4.70	5.39	5.86	7.46
	4H	8.86	9.29	10.03	10.44	12.07	4.77	5.20	5.94	6.35	7.98
	6H	9.37	9.74	10.54	10.91	12.53	5.18	5.55	6.35	6.72	8.34
	8H	9.54	9.89	10.72	11.05	12.68	5.31	5.65	6.48	6.82	8.45
	12H	9.63	9.95	10.82	11.12	12.76	5.36	5.68	6.55	6.85	8.49
8H	4H	8.81	9.16	9.99	10.32	11.95	5.04	5.39	6.21	6.55	8.18
	6H	9.38	9.66	10.57	10.87	12.50	5.55	5.84	6.75	7.04	8.67
	8H	9.60	9.85	10.80	11.03	12.68	5.74	5.99	6.94	7.18	8.82
	12H	9.73	9.95	10.93	11.13	12.81	5.86	6.08	7.06	7.26	8.94
12H	4H	8.76	9.07	9.95	10.25	11.88	5.04	5.35	6.23	6.53	8.16
	6H	9.35	9.60	10.55	10.79	12.43	5.60	5.85	6.80	7.04	8.68
	8H	9.57	9.79	10.77	10.97	12.65	5.81	6.03	7.01	7.21	8.89

END OF REPORT