

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: P906735

Luminaire Tested: DFN2DIP-SQ4F0-070D160US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906735
REPORT IS A COMBINATION OF REPORTS P901726 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US835-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

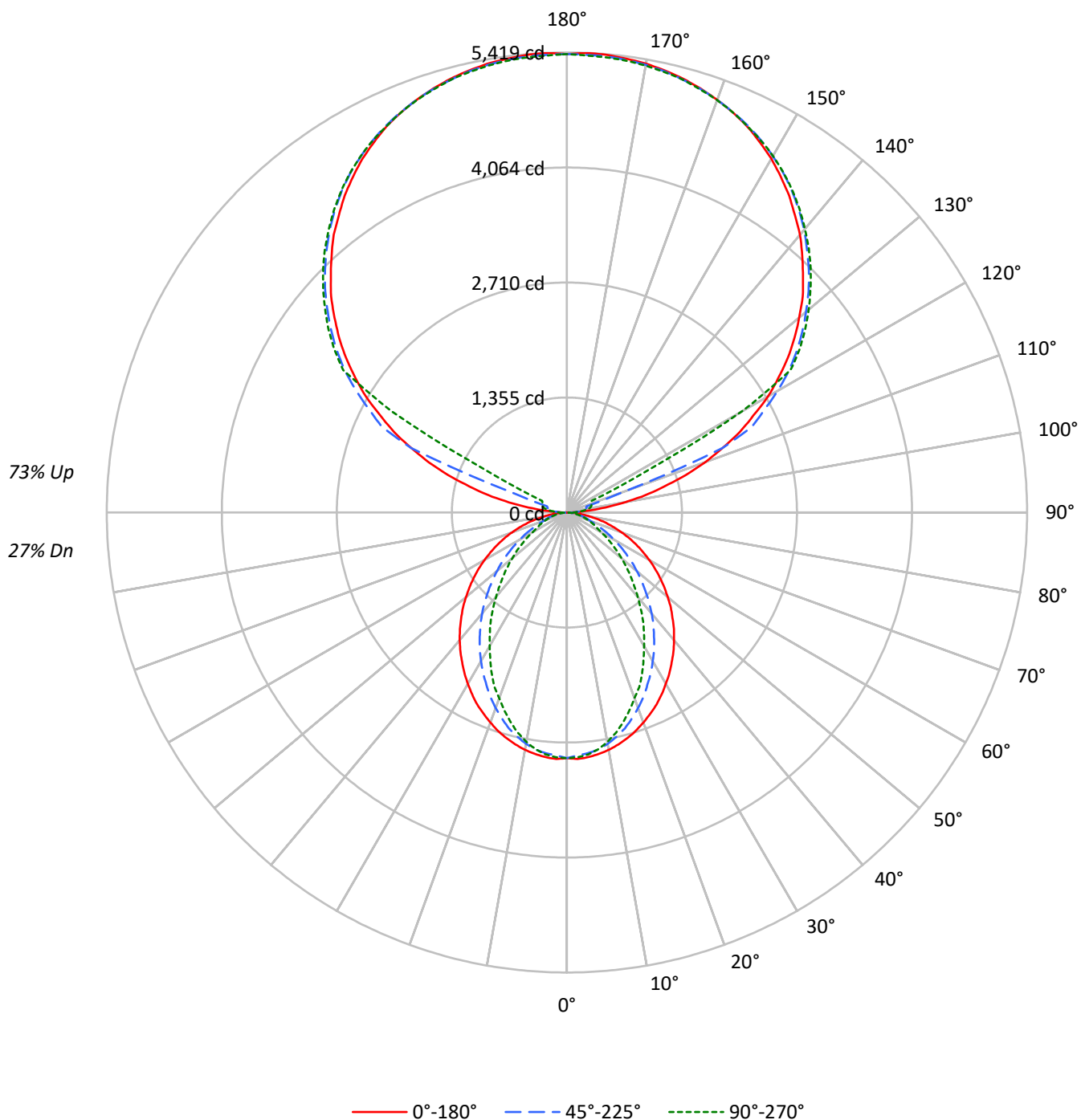
Lumens per Lamp: N/A
Luminaire Lumens: 21790.0 lumens
Efficiency: N/A
Efficacy: 118.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P906735

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US835-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
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		71	71	71		52	52	52		35	35	35
1	93	89	85	82		83	80	77	74		62	60	58		46	45	44		32	31	30
2	85	78	72	67		76	70	65	61		55	52	49		41	39	37		28	27	26
3	77	69	62	56		69	62	56	51		49	44	41		36	34	32		25	24	22
4	71	61	53	48		63	55	48	43		43	39	35		33	30	27		23	21	19
5	65	54	46	41		58	49	42	37		39	34	30		29	26	24		20	19	17
6	60	49	41	35		53	44	37	32		35	30	27		26	23	21		19	17	15
7	55	44	36	31		49	40	33	28		32	27	23		24	21	18		17	15	13
8	51	40	32	27		46	36	29	25		29	24	21		22	19	16		16	14	12
9	48	36	29	24		43	33	27	22		26	22	18		20	17	15		14	12	11
10	44	33	26	22		40	30	24	20		24	20	17		19	15	13		13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2030	2030	2030
5°	2033	1998	2011
10°	2013	1959	1946
15°	1985	1895	1846
20°	1949	1806	1722
25°	1911	1706	1603
30°	1861	1604	1451
35°	1811	1494	1318
40°	1761	1380	1165
45°	1703	1254	1026
50°	1642	1126	891
55°	1579	990	760
60°	1506	847	626
65°	1422	702	564
70°	1320	567	512
75°	1192	500	467
80°	1007	421	407
85°	701	283	310

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2894 cd/sqm

TEST NUMBER: P906735

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US835-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	271.1	1.2
10°-20°	744.3	3.4
20°-30°	1045.0	4.8
30°-40°	1139.2	5.2
40°-50°	1047.0	4.8
50°-60°	822.3	3.8
60°-70°	535.2	2.5
70°-80°	275.5	1.3
80°-90°	79.8	0.4
90°-100°	178.0	0.8
100°-110°	663.8	3.0
110°-120°	1760.4	8.1
120°-130°	2919.7	13.4
130°-140°	3101.5	14.2
140°-150°	2882.5	13.2
150°-160°	2317.4	10.6
160°-170°	1493.3	6.9
170°-180°	514.0	2.4
0°-30°	2060.5	9.5
0°-40°	3199.7	14.7
0°-60°	5068.9	23.3
0°-90°	5959.5	27.3
90°-120°	2602.2	11.9
90°-150°	11505.9	52.8
90°-180°	15831.0	72.7
0°-180°	21790.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2893	2893	2893	2893	2893	
5°	2893	2880	2846	2870	2862	274
15°	2752	2723	2634	2584	2558	775
25°	2498	2414	2241	2134	2094	1149
35°	2152	2019	1788	1623	1566	1347
45°	1760	1584	1309	1123	1060	1359
55°	1338	1134	851	694	644	1195
65°	903	691	456	367	359	896
75°	482	298	209	191	189	509
85°	112	58	50	50	50	129
90°	4	47	78	98	105	20
95°	254	125	152	172	168	301
105°	1188	1305	238	281	297	1269
115°	2247	2313	2411	602	321	2212
125°	3176	3227	3302	3329	3341	2833
135°	3931	3994	4028	4068	4060	3036
145°	4560	4556	4622	4650	4630	2852
155°	5021	4986	5033	5056	5025	2314
165°	5290	5267	5279	5306	5279	1495
175°	5411	5384	5392	5419	5380	515
180°	5400	5400	5400	5400	5400	

TEST NUMBER: P906735

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US835-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2893.1	2893.1	2893.1	2893.1	2893.1
2.5°	2906.1	2893.1	2864.2	2890.6	2885.3
5°	2893.1	2880.0	2845.9	2869.5	2861.7
7.5°	2869.5	2853.9	2817.3	2827.5	2814.5
10°	2838.1	2819.8	2767.5	2759.5	2743.9
12.5°	2798.9	2775.3	2704.5	2688.9	2660.0
15°	2751.7	2722.8	2633.9	2584.2	2558.1
17.5°	2696.7	2654.8	2544.8	2487.2	2445.3
20°	2633.9	2581.4	2450.6	2385.3	2327.5
22.5°	2565.9	2505.6	2353.6	2264.7	2225.6
25°	2497.8	2413.9	2241.1	2133.9	2094.5
27.5°	2416.7	2327.5	2136.4	2013.4	1953.1
30°	2330.3	2230.6	2021.1	1887.8	1817.0
32.5°	2246.4	2125.9	1911.4	1754.2	1688.6
35°	2152.2	2018.6	1788.4	1623.4	1565.6
37.5°	2060.6	1916.4	1673.1	1492.2	1427.0
40°	1963.6	1806.7	1552.5	1366.7	1298.6
42.5°	1864.2	1696.7	1432.2	1238.3	1173.1
45°	1759.5	1583.9	1309.2	1123.1	1060.3
47.5°	1660.0	1474.2	1191.4	1005.3	947.8
50°	1550.0	1364.2	1076.1	895.3	840.6
52.5°	1442.5	1246.1	966.1	793.3	743.6
55°	1337.8	1133.6	850.8	693.9	644.2
57.5°	1230.6	1021.1	748.9	602.2	560.3
60°	1120.6	911.1	641.4	508.1	466.1
62.5°	1013.3	803.9	549.7	424.2	403.3
65°	903.3	691.1	455.6	366.7	358.6
67.5°	798.6	586.4	366.7	321.9	314.2
70°	688.6	484.4	303.6	277.5	266.9
72.5°	583.9	390.0	253.9	233.1	227.8
75°	481.7	298.3	209.4	191.1	188.6
77.5°	379.7	211.9	165.0	154.4	149.2
80°	285.3	151.9	125.6	115.3	115.3
82.5°	198.9	102.2	86.4	81.1	81.1
85°	112.5	57.5	49.7	49.7	49.7
87.5°	41.9	20.8	20.8	18.3	18.3
90°	3.7	46.9	77.9	97.9	105.3
92.5°	97.9	82.1	93.7	101.6	105.3
95°	253.8	124.8	152.2	172.1	168.0
97.5°	457.0	136.9	199.0	211.1	214.8
100°	691.8	156.4	222.7	253.8	261.7
102.5°	949.3	941.9	230.6	273.3	285.3
105°	1187.8	1305.2	238.5	281.2	296.9
107.5°	1465.2	1562.7	246.4	289.1	304.8
110°	1731.1	1812.8	683.9	293.2	308.5

TEST NUMBER: P906735

CATALOG NUMBER: DFN2DIP-SQ4F0-070D160US835-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1981.2	2051.3	1984.9	300.7	312.7
115°	2246.6	2312.9	2410.8	601.8	320.6
117.5°	2477.2	2555.1	2622.0	2062.9	1039.3
120°	2735.2	2793.6	2864.1	2911.0	2383.5
122.5°	2953.7	3016.3	3094.7	3117.9	3122.1
125°	3176.4	3227.4	3301.7	3329.1	3340.7
127.5°	3379.6	3434.4	3493.3	3532.3	3536.0
130°	3571.3	3633.9	3676.6	3719.7	3716.0
132.5°	3766.6	3817.6	3860.3	3895.6	3891.9
135°	3930.8	3993.5	4028.3	4067.7	4059.8
137.5°	4102.5	4149.4	4188.8	4227.8	4216.2
140°	4270.5	4302.0	4344.7	4380.0	4360.5
142.5°	4411.5	4438.9	4489.5	4520.6	4501.1
145°	4560.0	4555.8	4622.2	4649.5	4630.1
147.5°	4688.5	4676.9	4743.3	4762.8	4747.4
150°	4813.8	4786.4	4849.1	4872.3	4852.8
152.5°	4919.1	4888.0	4946.5	4970.2	4942.8
155°	5020.7	4985.9	5032.8	5056.0	5024.9
157.5°	5102.9	5071.8	5107.0	5134.4	5102.9
160°	5173.4	5149.7	5173.4	5196.6	5169.2
162.5°	5235.6	5212.4	5231.8	5259.2	5224.0
165°	5290.3	5267.1	5278.7	5306.1	5278.7
167.5°	5333.5	5309.8	5321.9	5349.2	5314.0
170°	5368.7	5345.1	5352.9	5380.3	5345.1
172.5°	5391.9	5368.7	5376.6	5404.0	5368.7
175°	5411.4	5384.0	5391.9	5419.3	5380.3
177.5°	5419.3	5391.9	5396.1	5423.5	5388.2
180°	5399.8	5399.8	5399.8	5399.8	5399.8

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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	7.01	7.68	8.14	8.81	10.37	2.97	3.64	4.10	4.77	6.33
	3H	8.68	9.28	9.82	10.41	11.99	4.15	4.75	5.29	5.88	7.46
	4H	9.28	9.86	10.44	10.99	12.57	4.59	5.16	5.74	6.29	7.88
	6H	9.70	10.23	10.86	11.36	12.96	4.90	5.43	6.06	6.56	8.16
	8H	9.83	10.33	10.99	11.47	13.06	4.99	5.49	6.15	6.64	8.23
	12H	9.88	10.36	11.05	11.50	13.11	5.03	5.50	6.20	6.65	8.26
4H	2H	7.01	7.58	8.17	8.71	10.30	3.55	4.12	4.71	5.25	6.84
	3H	8.83	9.30	9.99	10.46	12.06	4.89	5.36	6.05	6.52	8.12
	4H	9.52	9.96	10.68	11.10	12.72	5.43	5.87	6.59	7.01	8.63
	6H	10.03	10.40	11.20	11.57	13.18	5.84	6.21	7.01	7.38	8.99
	8H	10.20	10.55	11.37	11.71	13.33	5.97	6.32	7.14	7.48	9.10
	12H	10.29	10.61	11.48	11.78	13.41	6.02	6.34	7.21	7.51	9.14
8H	4H	9.47	9.82	10.64	10.98	12.61	5.70	6.05	6.87	7.21	8.83
	6H	10.04	10.33	11.23	11.53	13.15	6.21	6.50	7.40	7.70	9.32
	8H	10.26	10.51	11.45	11.69	13.33	6.40	6.66	7.60	7.84	9.47
	12H	10.39	10.61	11.59	11.79	13.46	6.52	6.74	7.72	7.92	9.59
12H	4H	9.42	9.74	10.60	10.91	12.53	5.70	6.01	6.88	7.19	8.81
	6H	10.01	10.26	11.21	11.44	13.08	6.26	6.51	7.46	7.69	9.33
	8H	10.23	10.45	11.43	11.63	13.30	6.47	6.69	7.67	7.87	9.54

END OF REPORT