

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: P912154

Luminaire Tested: DFN2DIP-SQ4F0-060D160US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912154
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-SQ4F0-060D160US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

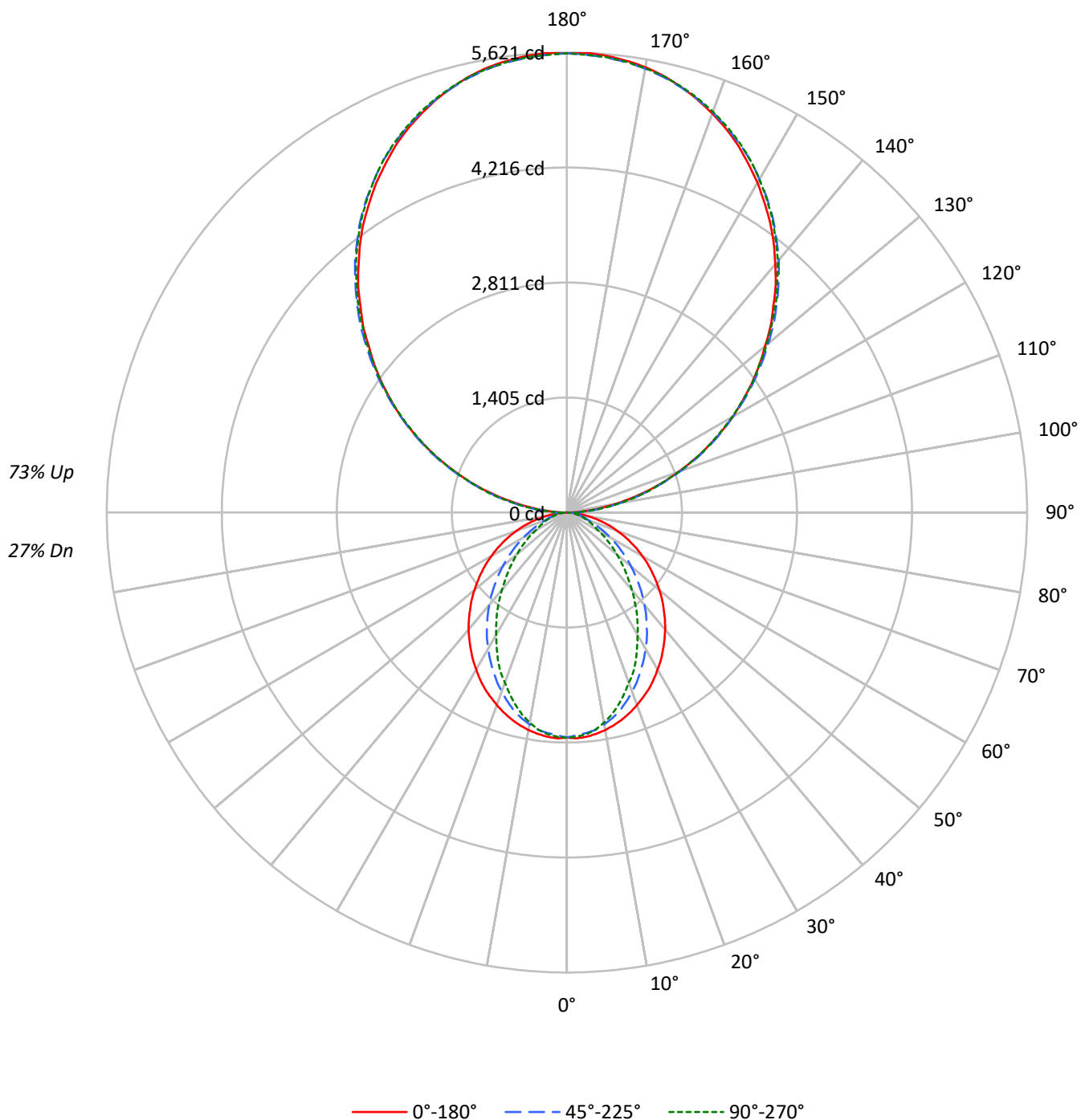
Lumens per Lamp: N/A
Luminaire Lumens: 21360.4 lumens
Efficiency: N/A
Efficacy: 124.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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

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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°	1930	1930	1930
5°	1933	1899	1912
10°	1914	1863	1850
15°	1887	1801	1754
20°	1852	1717	1637
25°	1817	1622	1523
30°	1769	1525	1379
35°	1722	1420	1252
40°	1674	1312	1107
45°	1618	1192	975
50°	1561	1071	846
55°	1501	941	723
60°	1432	805	595
65°	1352	667	537
70°	1255	539	486
75°	1133	476	444
80°	957	400	387
85°	666	269	294

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 4416 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.7	1.2
10°-20°	707.6	3.3
20°-30°	993.4	4.7
30°-40°	1082.8	5.1
40°-50°	995.2	4.7
50°-60°	781.6	3.7
60°-70°	508.8	2.4
70°-80°	261.9	1.2
80°-90°	82.8	0.4
90°-100°	347.3	1.6
100°-110°	1103.4	5.2
110°-120°	1888.3	8.8
120°-130°	2483.4	11.6
130°-140°	2787.5	13.0
140°-150°	2733.5	12.8
150°-160°	2293.0	10.7
160°-170°	1520.7	7.1
170°-180°	531.5	2.5
0°-30°	1958.7	9.2
0°-40°	3041.5	14.2
0°-60°	4818.4	22.6
0°-90°	5671.9	26.6
90°-120°	3339.0	15.6
90°-150°	11343.4	53.1
90°-180°	15689.0	73.4
0°-180°	21360.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2738	2705	2728	2720	261
15°	2616	2588	2504	2456	2432	737
25°	2374	2295	2130	2028	1991	1092
35°	2046	1919	1700	1543	1488	1281
45°	1672	1506	1244	1068	1008	1292
55°	1272	1078	809	660	612	1136
65°	859	657	433	349	341	851
75°	458	284	199	182	179	484
85°	107	55	47	47	47	123
90°	5	61	166	156	161	21
95°	247	294	303	303	294	275
105°	1018	1032	1042	1051	1051	1075
115°	1895	1922	1914	1908	1895	1874
125°	2756	2798	2785	2770	2765	2463
135°	3565	3617	3628	3622	3609	2756
145°	4328	4362	4389	4394	4375	2704
155°	4949	4962	4978	5001	4986	2278
165°	5384	5379	5379	5412	5389	1519
175°	5602	5588	5578	5612	5583	532
180°	5612	5612	5612	5612	5612	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.1	2750.1	2750.1	2750.1	2750.1
2.5°	2762.5	2750.1	2722.6	2747.7	2742.7
5°	2750.1	2737.7	2705.2	2727.7	2720.3
7.5°	2727.7	2712.8	2678.0	2687.8	2675.4
10°	2697.8	2680.3	2630.8	2623.1	2608.3
12.5°	2660.6	2638.1	2570.8	2556.0	2528.5
15°	2615.7	2588.2	2503.7	2456.4	2431.6
17.5°	2563.5	2523.5	2419.0	2364.3	2324.5
20°	2503.7	2453.8	2329.5	2267.4	2212.5
22.5°	2439.0	2381.7	2237.3	2152.8	2115.5
25°	2374.4	2294.6	2130.4	2028.5	1991.0
27.5°	2297.3	2212.5	2030.8	1913.8	1856.6
30°	2215.1	2120.3	1921.2	1794.5	1727.2
32.5°	2135.4	2020.8	1817.0	1667.5	1605.2
35°	2045.9	1918.9	1700.0	1543.1	1488.2
37.5°	1958.7	1821.6	1590.4	1418.5	1356.4
40°	1866.6	1717.4	1475.7	1299.1	1234.4
42.5°	1772.1	1612.8	1361.4	1177.1	1115.1
45°	1672.5	1505.6	1244.5	1067.5	1007.9
47.5°	1578.0	1401.3	1132.5	955.6	901.0
50°	1473.4	1296.8	1022.9	851.0	799.0
52.5°	1371.2	1184.5	918.4	754.1	706.9
55°	1271.7	1077.6	808.8	659.6	612.3
57.5°	1169.8	970.6	711.9	572.5	532.5
60°	1065.2	866.1	609.7	483.0	443.0
62.5°	963.3	764.2	522.6	403.2	383.4
65°	858.7	657.0	433.1	348.6	340.9
67.5°	759.1	557.4	348.6	306.1	298.7
70°	654.5	460.5	288.6	263.8	253.7
72.5°	555.1	370.7	241.3	221.6	216.5
75°	457.9	283.6	199.1	181.7	179.3
77.5°	361.0	201.5	156.8	146.8	141.8
80°	271.2	144.4	119.3	109.6	109.6
82.5°	189.1	97.1	82.1	77.1	77.1
85°	106.9	54.7	47.2	47.2	47.2
87.5°	39.9	19.9	19.9	17.4	17.4
90°	5.1	60.9	165.8	155.7	160.7
92.5°	104.9	142.2	147.2	152.3	152.3
95°	247.0	294.4	302.9	302.9	294.4
97.5°	411.1	455.1	473.8	473.8	473.8
100°	600.6	639.6	653.1	653.1	648.0
102.5°	800.3	829.1	847.6	852.7	847.6
105°	1018.5	1032.0	1042.2	1050.7	1050.7
107.5°	1235.1	1255.4	1255.4	1258.8	1235.1
110°	1444.9	1472.0	1472.0	1472.0	1458.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1671.6	1700.4	1695.3	1681.8	1671.6
115°	1894.9	1922.0	1913.6	1908.5	1894.9
117.5°	2116.6	2153.8	2130.2	2116.6	2103.1
120°	2340.0	2377.1	2340.0	2340.0	2324.7
122.5°	2542.9	2590.4	2566.7	2553.1	2542.9
125°	2756.2	2798.5	2784.9	2769.7	2764.6
127.5°	2964.2	3016.7	2998.1	2977.8	2964.2
130°	3158.9	3219.8	3211.3	3201.1	3182.5
132.5°	3377.1	3424.5	3427.8	3404.2	3390.7
135°	3564.9	3617.3	3627.5	3622.4	3608.9
137.5°	3774.7	3817.0	3825.5	3822.1	3801.8
140°	3959.1	4001.4	4025.1	4025.1	4006.5
142.5°	4148.7	4190.9	4204.4	4209.5	4190.9
145°	4328.0	4361.8	4388.9	4394.0	4375.3
147.5°	4488.7	4531.0	4551.3	4559.8	4541.1
150°	4654.5	4683.3	4701.9	4717.1	4701.9
152.5°	4801.7	4830.5	4854.2	4872.7	4854.2
155°	4948.9	4962.4	4977.6	5001.4	4986.2
157.5°	5075.8	5086.0	5094.4	5128.2	5104.6
160°	5189.1	5199.3	5204.4	5233.1	5212.9
162.5°	5294.0	5294.0	5299.1	5331.3	5307.6
165°	5383.8	5378.6	5378.6	5412.5	5388.9
167.5°	5464.9	5449.7	5449.7	5483.6	5459.8
170°	5525.8	5512.3	5507.3	5541.1	5512.3
172.5°	5568.2	5554.6	5549.5	5583.4	5554.6
175°	5602.0	5588.5	5578.3	5612.2	5583.4
177.5°	5620.6	5607.1	5596.9	5625.7	5596.9
180°	5612.2	5612.2	5612.2	5612.2	5612.2

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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	6.71	7.38	7.85	8.51	10.08	2.67	3.34	3.81	4.47	6.04
	3H	8.38	8.98	9.53	10.11	11.70	3.85	4.45	5.00	5.58	7.17
	4H	8.98	9.55	10.14	10.69	12.28	4.29	4.86	5.45	5.99	7.59
	6H	9.40	9.92	10.56	11.06	12.67	4.60	5.13	5.77	6.26	7.87
	8H	9.52	10.02	10.69	11.17	12.77	4.69	5.19	5.86	6.34	7.94
	12H	9.58	10.05	10.75	11.20	12.82	4.73	5.20	5.90	6.35	7.97
4H	2H	6.71	7.28	7.87	8.41	10.01	3.25	3.82	4.41	4.95	6.55
	3H	8.53	9.00	9.70	10.16	11.77	4.58	5.06	5.75	6.22	7.82
	4H	9.22	9.65	10.39	10.80	12.43	5.13	5.56	6.30	6.71	8.34
	6H	9.73	10.10	10.90	11.27	12.89	5.54	5.91	6.71	7.08	8.70
	8H	9.90	10.25	11.08	11.41	13.04	5.66	6.01	6.84	7.18	8.81
	12H	9.99	10.31	11.18	11.48	13.12	5.72	6.04	6.91	7.21	8.85
8H	4H	9.17	9.52	10.35	10.68	12.31	5.40	5.75	6.57	6.91	8.54
	6H	9.74	10.02	10.93	11.23	12.86	5.91	6.20	7.11	7.40	9.03
	8H	9.96	10.21	11.16	11.39	13.04	6.10	6.35	7.30	7.54	9.18
	12H	10.09	10.31	11.29	11.49	13.17	6.22	6.43	7.42	7.62	9.30
12H	4H	9.12	9.43	10.31	10.61	12.24	5.40	5.71	6.59	6.89	8.52
	6H	9.71	9.96	10.91	11.15	12.79	5.96	6.21	7.16	7.39	9.04
	8H	9.93	10.15	11.13	11.33	13.01	6.17	6.39	7.37	7.57	9.25

END OF REPORT