

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: P912430

Luminaire Tested: DFN2DIP-SQ4F0-160D110US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912430
REPORT IS A COMBINATION OF REPORTS P900166 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D110US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

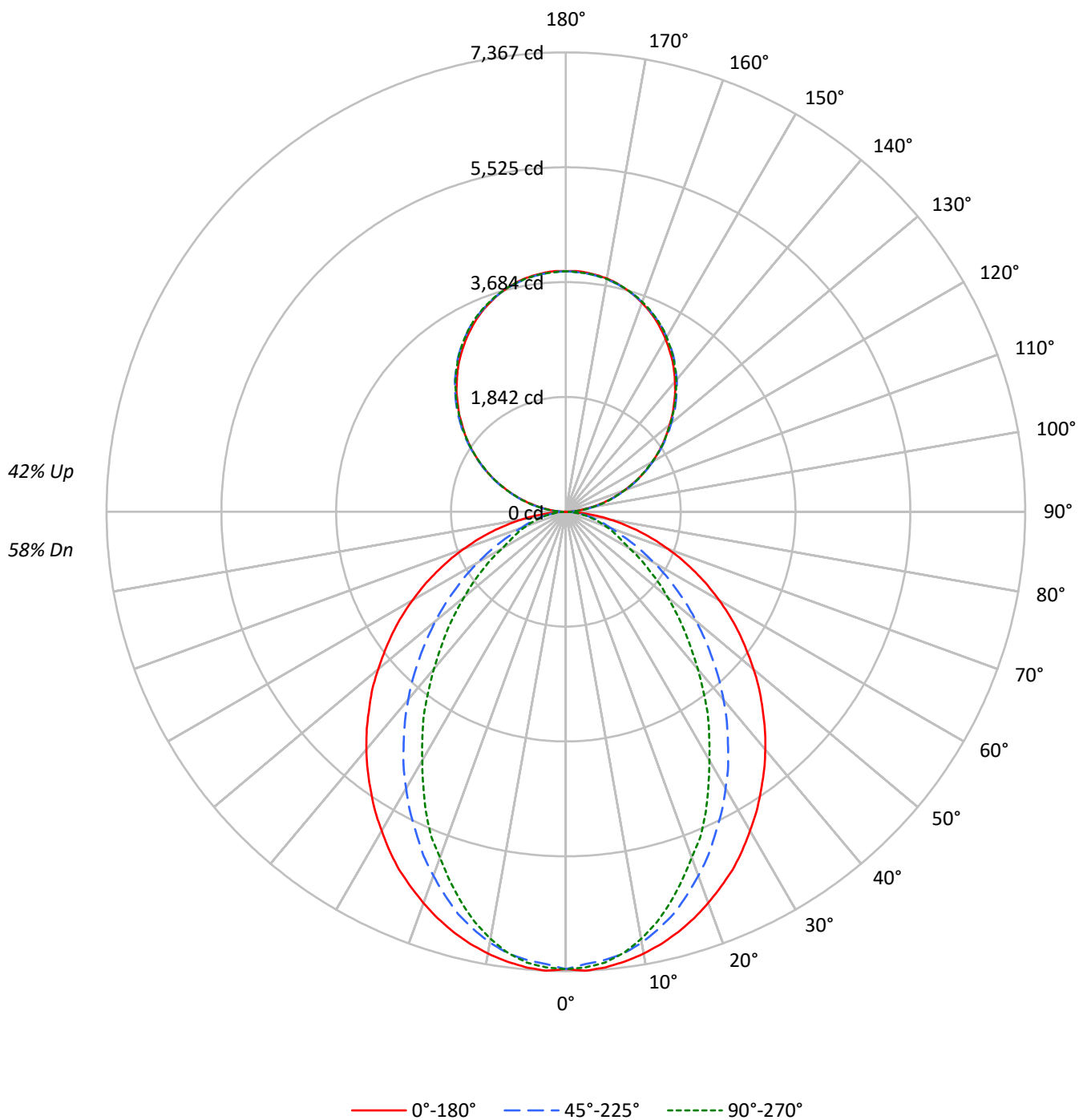
Lumens per Lamp: N/A
Luminaire Lumens: 25878.5 lumens
Efficiency: N/A
Efficacy: 103.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 249.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	96	92	89	93	90	87	84	78	76	73	67	65	64	57	56	55
2	92	85	79	74	85	79	74	70	69	65	62	60	57	54	51	49	47
3	84	75	68	62	78	70	64	59	61	57	53	53	50	47	46	43	41
4	77	67	59	53	72	63	56	50	55	50	45	48	44	40	41	38	36
5	71	60	52	46	66	56	49	44	50	44	40	43	39	35	37	34	31
6	66	54	46	40	61	51	44	38	45	39	35	39	35	31	34	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	31	28	31	28	25
8	57	45	37	32	53	42	35	30	37	32	28	33	29	25	29	25	23
9	53	41	33	28	49	39	32	27	34	29	25	31	26	23	27	23	21
10	50	38	30	26	46	36	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5146	5146	5146
5°	5154	5065	5098
10°	5103	4967	4934
15°	5033	4804	4678
20°	4940	4578	4365
25°	4844	4325	4062
30°	4716	4066	3678
35°	4591	3787	3340
40°	4464	3499	2952
45°	4316	3178	2601
50°	4162	2855	2257
55°	4003	2509	1927
60°	3817	2147	1588
65°	3605	1780	1431
70°	3346	1436	1297
75°	3022	1268	1183
80°	2553	1068	1031
85°	1777	719	786

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4316 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	687.3	2.7
10°-20°	1886.8	7.3
20°-30°	2649.0	10.2
30°-40°	2887.6	11.2
40°-50°	2654.0	10.3
50°-60°	2084.3	8.1
60°-70°	1356.7	5.2
70°-80°	698.4	2.7
80°-90°	189.3	0.7
90°-100°	238.7	0.9
100°-110°	758.6	2.9
110°-120°	1298.1	5.0
120°-130°	1707.2	6.6
130°-140°	1916.3	7.4
140°-150°	1879.1	7.3
150°-160°	1576.3	6.1
160°-170°	1045.4	4.0
170°-180°	365.4	1.4
0°-30°	5223.1	20.2
0°-40°	8110.7	31.3
0°-60°	12849.0	49.7
0°-90°	15093.4	58.3
90°-120°	2295.4	8.9
90°-150°	7798.0	30.1
90°-180°	10785.0	41.7
0°-180°	25878.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	7334	7334	7334	7334	7334	
5°	7334	7300	7214	7274	7254	695
15°	6975	6902	6677	6550	6484	1966
25°	6332	6119	5681	5409	5309	2912
35°	5456	5117	4533	4115	3969	3415
45°	4460	4015	3319	2847	2688	3444
55°	3391	2874	2157	1759	1633	3030
65°	2290	1752	1155	930	909	2270
75°	1221	756	531	484	478	1291
85°	285	146	126	126	126	327
90°	3	42	114	107	110	25
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	7333.6	7333.6	7333.6	7333.6	7333.6
2.5°	7366.6	7333.6	7260.3	7327.3	7313.9
5°	7333.6	7300.4	7213.8	7273.7	7254.0
7.5°	7273.7	7234.2	7141.3	7167.4	7134.3
10°	7194.2	7147.7	7015.3	6994.9	6955.4
12.5°	7094.8	7035.1	6855.5	6816.0	6742.8
15°	6975.2	6902.0	6676.6	6550.5	6484.3
17.5°	6835.8	6729.4	6450.6	6304.8	6198.5
20°	6676.6	6543.5	6211.8	6046.4	5900.0
22.5°	6504.1	6351.2	5966.1	5740.8	5641.5
25°	6331.6	6118.9	5681.0	5409.1	5309.2
27.5°	6126.0	5900.0	5415.5	5103.6	4950.8
30°	5907.0	5654.2	5123.2	4785.3	4605.8
32.5°	5694.4	5388.7	4845.1	4446.6	4280.4
35°	5455.6	5116.9	4533.3	4114.9	3968.6
37.5°	5223.3	4857.9	4241.0	3782.6	3617.1
40°	4977.5	4579.7	3935.4	3464.3	3291.8
42.5°	4725.4	4300.8	3630.5	3139.0	2973.6
45°	4460.0	4015.0	3318.6	2846.8	2687.7
47.5°	4207.9	3736.9	3020.0	2548.3	2402.5
50°	3929.1	3458.0	2727.8	2269.5	2130.7
52.5°	3656.6	3158.8	2449.0	2011.1	1885.0
55°	3391.1	2873.5	2156.8	1758.9	1632.9
57.5°	3119.3	2588.4	1898.4	1526.5	1420.2
60°	2840.5	2309.6	1625.8	1287.9	1181.5
62.5°	2568.7	2037.8	1393.5	1075.2	1022.4
65°	2289.9	1751.9	1154.8	929.5	909.0
67.5°	2024.4	1486.4	929.5	816.1	796.4
70°	1745.6	1228.0	769.6	703.4	676.7
72.5°	1480.1	988.6	643.6	590.8	577.3
75°	1221.0	756.2	530.9	484.4	478.1
77.5°	962.5	537.2	418.2	391.5	378.2
80°	723.2	385.2	318.3	292.2	292.2
82.5°	504.2	259.2	219.0	205.6	205.6
85°	285.1	145.7	126.1	126.1	126.1
87.5°	106.4	52.8	52.8	46.5	46.5
90°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1

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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	13.59	14.50	14.48	15.40	16.55	9.55	10.46	10.44	11.36	12.51
	3H	15.28	16.09	16.18	17.00	18.18	10.75	11.56	11.65	12.47	13.65
	4H	15.90	16.66	16.81	17.58	18.76	11.20	11.97	12.12	12.89	14.07
	6H	16.33	17.03	17.25	17.95	19.15	11.53	12.23	12.46	13.16	14.35
	8H	16.46	17.12	17.39	18.07	19.26	11.62	12.29	12.56	13.23	14.43
	12H	16.52	17.16	17.46	18.09	19.31	11.67	12.30	12.61	13.24	14.46
4H	2H	13.62	14.38	14.54	15.30	16.49	10.16	10.92	11.08	11.84	13.03
	3H	15.46	16.10	16.39	17.05	18.25	11.52	12.15	12.45	13.10	14.30
	4H	16.16	16.74	17.10	17.68	18.91	12.07	12.65	13.01	13.59	14.82
	6H	16.68	17.18	17.64	18.15	19.37	12.49	12.99	13.45	13.96	15.19
	8H	16.86	17.33	17.82	18.29	19.53	12.63	13.09	13.58	14.05	15.29
	12H	16.96	17.38	17.94	18.36	19.60	12.69	13.11	13.67	14.09	15.34
8H	4H	16.13	16.60	17.09	17.56	18.80	12.36	12.82	13.32	13.79	15.02
	6H	16.71	17.09	17.69	18.09	19.33	12.88	13.26	13.86	14.27	15.51
	8H	16.93	17.26	17.92	18.26	19.51	13.07	13.41	14.07	14.41	15.66
	12H	17.07	17.37	18.07	18.36	19.66	13.20	13.49	14.19	14.48	15.78
12H	4H	16.09	16.51	17.06	17.49	18.73	12.37	12.79	13.34	13.77	15.01
	6H	16.68	17.02	17.67	18.01	19.27	12.93	13.27	13.92	14.26	15.52
	8H	16.91	17.21	17.90	18.19	19.50	13.15	13.44	14.14	14.43	15.73

END OF REPORT