

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: P912443

Luminaire Tested: DFN2DIP-SQ4F0-160D160US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912443
REPORT IS A COMBINATION OF REPORTS P901740 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D160US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

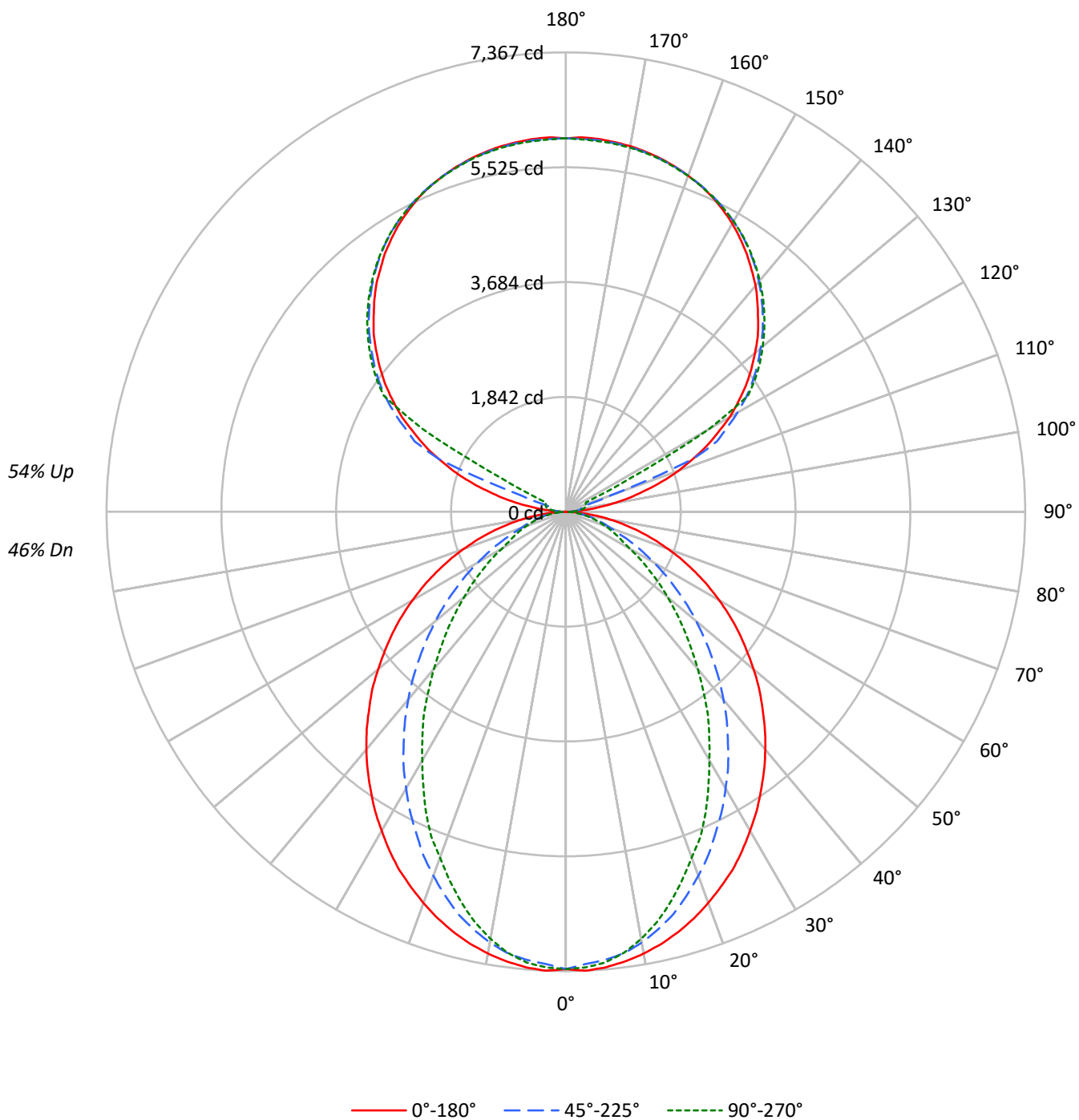
Lumens per Lamp: N/A
Luminaire Lumens: 32649.0 lumens
Efficiency: N/A
Efficacy: 113.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 288.8
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

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	2.1
10°-20°	1886.8	5.8
20°-30°	2649.0	8.1
30°-40°	2887.6	8.8
40°-50°	2654.0	8.1
50°-60°	2084.3	6.4
60°-70°	1356.7	4.2
70°-80°	698.4	2.1
80°-90°	188.8	0.6
90°-100°	197.5	0.6
100°-110°	736.1	2.3
110°-120°	1952.3	6.0
120°-130°	3238.0	9.9
130°-140°	3439.5	10.5
140°-150°	3196.6	9.8
150°-160°	2570.0	7.9
160°-170°	1656.0	5.1
170°-180°	570.0	1.7
0°-30°	5223.1	16.0
0°-40°	8110.7	24.8
0°-60°	12849.0	39.4
0°-90°	15092.9	46.2
90°-120°	2885.9	8.8
90°-150°	12760.0	39.1
90°-180°	17556.0	53.8
0°-180°	32649.0	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°	4	52	86	109	117	31
95°	282	138	169	191	186	333
105°	1317	1448	264	312	329	1407
115°	2492	2565	2674	667	356	2453
125°	3523	3579	3662	3692	3705	3142
135°	4359	4429	4467	4511	4502	3367
145°	5057	5052	5126	5156	5135	3163
155°	5568	5529	5581	5607	5573	2566
165°	5867	5841	5854	5884	5854	1658
175°	6001	5971	5980	6010	5967	571
180°	5988	5988	5988	5988	5988	

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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°	4.1	52.0	86.4	108.6	116.8
92.5°	108.6	91.0	103.9	112.7	116.8
95°	281.5	138.4	168.8	190.9	186.3
97.5°	506.8	151.8	220.7	234.1	238.2
100°	767.2	173.4	247.0	281.5	290.2
102.5°	1052.8	1044.6	255.7	303.1	316.4
105°	1317.3	1447.5	264.5	311.9	329.3
107.5°	1624.9	1733.0	273.3	320.6	338.0
110°	1919.8	2010.4	758.4	325.2	342.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2197.2	2274.9	2201.3	333.5	346.8
115°	2491.5	2565.0	2673.6	667.4	355.5
117.5°	2747.2	2833.6	2907.8	2287.8	1152.6
120°	3033.3	3098.1	3176.3	3228.3	2643.3
122.5°	3275.7	3345.1	3432.0	3457.8	3462.4
125°	3522.6	3579.2	3661.6	3692.0	3704.8
127.5°	3748.0	3808.7	3874.1	3917.3	3921.4
130°	3960.6	4030.0	4077.3	4125.1	4121.0
132.5°	4177.2	4233.7	4281.1	4320.2	4316.1
135°	4359.3	4428.8	4467.4	4511.1	4502.3
137.5°	4549.7	4601.7	4645.4	4688.6	4675.8
140°	4736.0	4770.9	4818.3	4857.4	4835.8
142.5°	4892.4	4922.7	4978.9	5013.3	4991.7
145°	5057.0	5052.4	5126.0	5156.3	5134.8
147.5°	5199.5	5186.7	5260.3	5281.9	5264.9
150°	5338.5	5308.1	5377.7	5403.4	5381.8
152.5°	5455.3	5420.8	5485.7	5512.0	5481.6
155°	5568.0	5529.4	5581.4	5607.1	5572.6
157.5°	5659.1	5624.6	5663.7	5694.0	5659.1
160°	5737.3	5711.0	5737.3	5763.0	5732.6
162.5°	5806.3	5780.6	5802.1	5832.5	5793.4
165°	5866.9	5841.2	5854.1	5884.5	5854.1
167.5°	5914.9	5888.6	5902.0	5932.3	5893.2
170°	5953.9	5927.7	5936.4	5966.8	5927.7
172.5°	5979.6	5953.9	5962.6	5993.0	5953.9
175°	6001.2	5970.9	5979.6	6010.0	5966.8
177.5°	6010.0	5979.6	5984.3	6014.7	5975.5
180°	5988.4	5988.4	5988.4	5988.4	5988.4

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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	12.49	13.29	13.48	14.29	15.62	8.45	9.25	9.44	10.25	11.58
	3H	14.17	14.88	15.17	15.89	17.24	9.64	10.35	10.64	11.36	12.71
	4H	14.78	15.45	15.80	16.47	17.83	10.08	10.76	11.10	11.78	13.13
	6H	15.20	15.82	16.23	16.84	18.21	10.41	11.03	11.43	12.05	13.41
	8H	15.33	15.92	16.36	16.96	18.32	10.50	11.09	11.53	12.12	13.49
	12H	15.39	15.96	16.43	16.98	18.37	10.54	11.10	11.58	12.13	13.52
4H	2H	12.50	13.18	13.53	14.19	15.55	9.04	9.72	10.07	10.73	12.09
	3H	14.33	14.90	15.37	15.94	17.31	10.39	10.95	11.42	12.00	13.37
	4H	15.03	15.54	16.07	16.58	17.97	10.94	11.45	11.98	12.49	13.88
	6H	15.55	15.99	16.60	17.05	18.43	11.36	11.80	12.41	12.86	14.25
	8H	15.72	16.14	16.77	17.19	18.59	11.49	11.90	12.54	12.95	14.35
	12H	15.82	16.19	16.89	17.26	18.66	11.55	11.92	12.62	12.99	14.40
8H	4H	14.99	15.41	16.05	16.46	17.86	11.22	11.63	12.27	12.68	14.08
	6H	15.56	15.90	16.64	17.00	18.40	11.74	12.08	12.81	13.17	14.57
	8H	15.78	16.08	16.86	17.16	18.58	11.93	12.23	13.01	13.31	14.72
	12H	15.92	16.19	17.01	17.26	18.72	12.05	12.31	13.13	13.38	14.84
12H	4H	14.94	15.32	16.01	16.38	17.79	11.22	11.60	12.29	12.66	14.07
	6H	15.54	15.84	16.62	16.92	18.33	11.79	12.09	12.87	13.16	14.58
	8H	15.76	16.02	16.85	17.10	18.56	12.00	12.26	13.08	13.33	14.79

END OF REPORT