

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: P903995

Luminaire Tested: DFN2DIP-SQ4F0-070D110US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903995
REPORT IS A COMBINATION OF REPORTS P901672 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D110US830-RLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

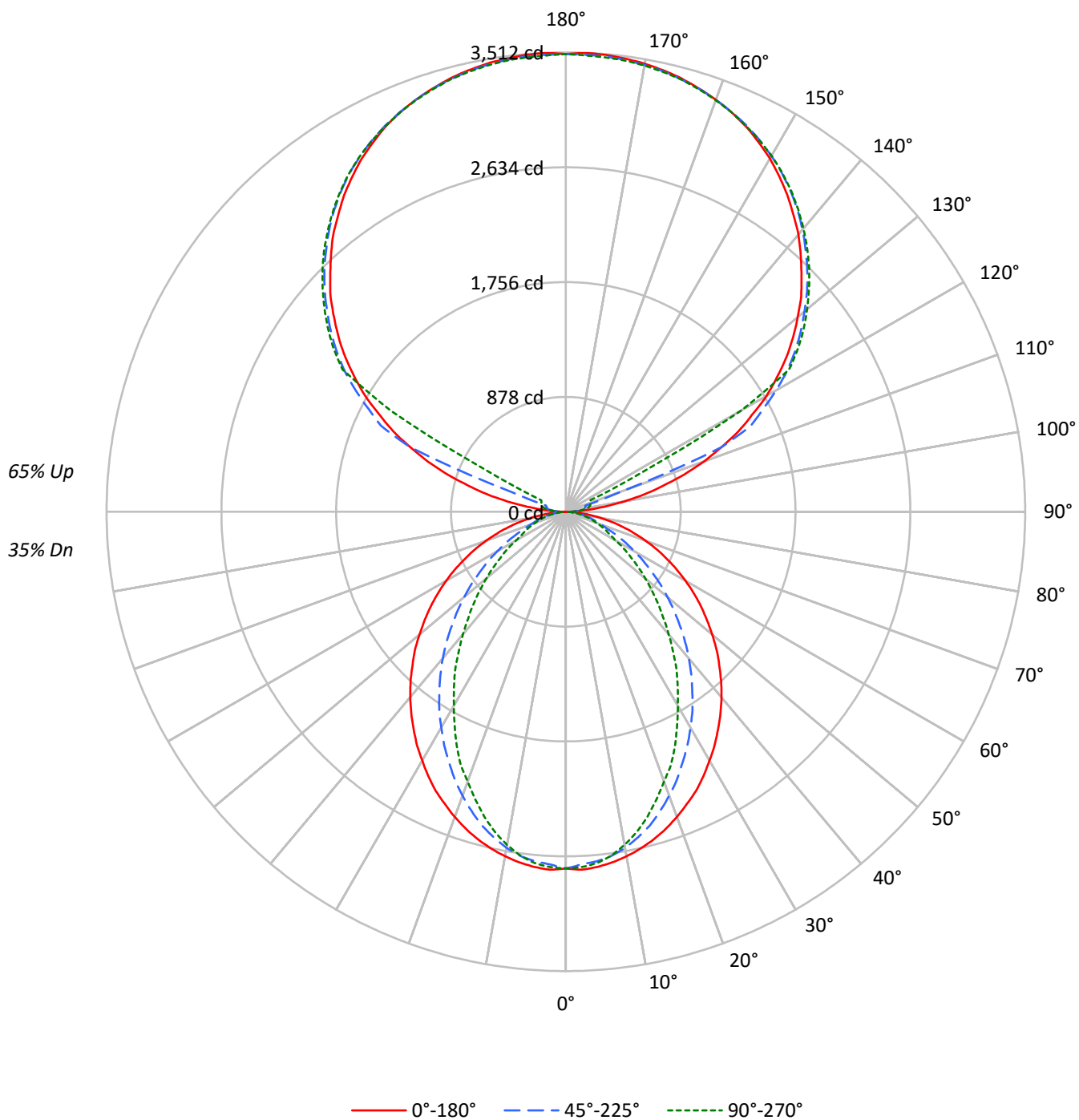
Lumens per Lamp: N/A
Luminaire Lumens: 15872.3 lumens
Efficiency: N/A
Efficacy: 110.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 144.1
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

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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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1913	1913	1913
5°	1916	1883	1896
10°	1897	1847	1834
15°	1871	1786	1740
20°	1837	1702	1623
25°	1801	1608	1510
30°	1754	1512	1367
35°	1707	1408	1242
40°	1660	1301	1098
45°	1605	1182	967
50°	1548	1062	839
55°	1488	933	717
60°	1419	798	590
65°	1340	662	532
70°	1244	534	482
75°	1124	472	440
80°	949	397	384
85°	661	267	292

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1874 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.6
10°-20°	701.6	4.4
20°-30°	985.0	6.2
30°-40°	1073.7	6.8
40°-50°	986.9	6.2
50°-60°	775.0	4.9
60°-70°	504.5	3.2
70°-80°	259.7	1.6
80°-90°	72.4	0.5
90°-100°	115.4	0.7
100°-110°	430.1	2.7
110°-120°	1140.7	7.2
120°-130°	1892.0	11.9
130°-140°	2009.7	12.7
140°-150°	1867.8	11.8
150°-160°	1501.7	9.5
160°-170°	967.6	6.1
170°-180°	333.0	2.1
0°-30°	1942.1	12.2
0°-40°	3015.8	19.0
0°-60°	4777.7	30.1
0°-90°	5614.2	35.4
90°-120°	1686.2	10.6
90°-150°	7455.8	47.0
90°-180°	10258.0	64.6
0°-180°	15872.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2705	2697	259
15°	2594	2566	2483	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1903	1686	1530	1476	1270
45°	1658	1493	1234	1059	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	2	30	50	63	68	15
95°	164	81	99	112	109	195
105°	770	846	155	182	192	822
115°	1456	1499	1562	390	208	1433
125°	2058	2091	2140	2157	2165	1836
135°	2547	2588	2610	2636	2631	1968
145°	2955	2952	2995	3013	3000	1848
155°	3254	3231	3261	3276	3256	1499
165°	3428	3413	3421	3438	3421	969
175°	3506	3489	3494	3512	3486	334
180°	3499	3499	3499	3499	3499	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2726.9	2726.9	2726.9	2726.9	2726.9
2.5°	2739.1	2726.9	2699.6	2724.5	2719.5
5°	2726.9	2714.5	2682.4	2704.6	2697.3
7.5°	2704.6	2689.9	2655.4	2665.0	2652.8
10°	2675.0	2657.8	2608.5	2600.9	2586.2
12.5°	2638.1	2615.8	2549.1	2534.4	2507.2
15°	2593.6	2566.4	2482.6	2435.7	2411.1
17.5°	2541.8	2502.3	2398.6	2344.3	2304.8
20°	2482.6	2433.1	2309.8	2248.2	2193.8
22.5°	2418.5	2361.6	2218.4	2134.6	2097.7
25°	2354.3	2275.2	2112.3	2011.3	1974.2
27.5°	2277.8	2193.8	2013.6	1897.7	1840.9
30°	2196.4	2102.4	1905.0	1779.3	1712.6
32.5°	2117.3	2003.8	1801.6	1653.4	1591.6
35°	2028.5	1902.6	1685.6	1530.1	1475.6
37.5°	1942.2	1806.3	1577.0	1406.5	1345.0
40°	1850.8	1702.9	1463.3	1288.2	1224.0
42.5°	1757.1	1599.2	1349.9	1167.2	1105.7
45°	1658.4	1492.9	1234.0	1058.6	999.4
47.5°	1564.6	1389.5	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.3	843.9	792.3
52.5°	1359.6	1174.5	910.6	747.7	700.9
55°	1260.9	1068.5	801.9	654.0	607.2
57.5°	1159.9	962.4	705.9	567.6	528.1
60°	1056.2	858.8	604.5	478.9	439.3
62.5°	955.1	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.6	286.2	261.6	251.6
72.5°	550.4	367.6	239.3	219.7	214.7
75°	454.0	281.2	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	2.5	30.3	50.5	63.4	68.2
92.5°	63.4	53.3	60.7	65.9	68.2
95°	164.5	80.9	98.6	111.5	108.9
97.5°	296.1	88.7	128.9	136.8	139.2
100°	448.3	101.3	144.3	164.5	169.6
102.5°	615.1	610.3	149.4	177.1	184.9
105°	769.7	845.7	154.6	182.2	192.5
107.5°	949.5	1012.6	159.7	187.3	197.6
110°	1121.7	1174.7	443.2	190.0	199.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1283.8	1329.2	1286.2	194.8	202.6
115°	1455.8	1498.7	1562.3	389.9	207.7
117.5°	1605.2	1655.8	1699.0	1336.7	673.4
120°	1772.4	1810.2	1856.0	1886.3	1544.4
122.5°	1914.0	1954.5	2005.4	2020.4	2023.2
125°	2058.3	2091.4	2139.5	2157.2	2164.7
127.5°	2190.0	2225.4	2263.6	2288.9	2291.3
130°	2314.1	2354.8	2382.4	2410.4	2408.0
132.5°	2440.7	2473.8	2501.5	2524.3	2522.0
135°	2547.2	2587.7	2610.3	2635.9	2630.7
137.5°	2658.4	2688.8	2714.3	2739.6	2732.1
140°	2767.3	2787.7	2815.4	2838.2	2825.6
142.5°	2858.6	2876.4	2909.2	2929.3	2916.7
145°	2954.9	2952.1	2995.1	3012.9	3000.3
147.5°	3038.2	3030.7	3073.6	3086.3	3076.4
150°	3119.3	3101.6	3142.2	3157.2	3144.6
152.5°	3187.6	3167.4	3205.3	3220.7	3202.9
155°	3253.5	3230.8	3261.2	3276.3	3256.1
157.5°	3306.6	3286.5	3309.4	3327.1	3306.6
160°	3352.3	3337.0	3352.3	3367.3	3349.6
162.5°	3392.6	3377.6	3390.2	3408.0	3385.1
165°	3428.1	3413.0	3420.6	3438.3	3420.6
167.5°	3456.0	3440.8	3448.6	3466.3	3443.5
170°	3478.9	3463.6	3468.6	3486.5	3463.6
172.5°	3493.9	3478.9	3484.0	3501.7	3478.9
175°	3506.5	3488.8	3493.9	3511.7	3486.5
177.5°	3511.7	3493.9	3496.6	3514.4	3491.6
180°	3499.1	3499.1	3499.1	3499.1	3499.1

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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	7.87	8.60	8.95	9.67	11.14	3.83	4.56	4.91	5.63	7.10
	3H	9.55	10.19	10.63	11.28	12.76	5.01	5.66	6.10	6.74	8.23
	4H	10.15	10.77	11.25	11.85	13.34	5.46	6.07	6.56	7.16	8.65
	6H	10.57	11.14	11.68	12.22	13.73	5.78	6.34	6.88	7.43	8.93
	8H	10.70	11.23	11.81	12.34	13.84	5.86	6.40	6.97	7.50	9.00
	12H	10.76	11.27	11.87	12.36	13.88	5.90	6.41	7.02	7.51	9.03
4H	2H	7.88	8.49	8.98	9.58	11.07	4.42	5.03	5.52	6.12	7.61
	3H	9.70	10.21	10.81	11.32	12.83	5.76	6.27	6.87	7.38	8.89
	4H	10.39	10.86	11.51	11.96	13.49	6.30	6.77	7.42	7.87	9.40
	6H	10.91	11.31	12.03	12.43	13.95	6.72	7.12	7.84	8.24	9.76
	8H	11.08	11.46	12.20	12.57	14.11	6.84	7.22	7.97	8.34	9.87
	12H	11.17	11.51	12.31	12.64	14.18	6.90	7.24	8.04	8.37	9.91
8H	4H	10.35	10.73	11.48	11.84	13.38	6.58	6.95	7.70	8.07	9.60
	6H	10.92	11.23	12.06	12.39	13.92	7.09	7.40	8.24	8.56	10.09
	8H	11.14	11.41	12.29	12.55	14.10	7.28	7.55	8.43	8.69	10.24
	12H	11.28	11.51	12.43	12.65	14.23	7.40	7.64	8.55	8.77	10.36
12H	4H	10.30	10.64	11.44	11.77	13.31	6.58	6.92	7.72	8.05	9.58
	6H	10.89	11.16	12.04	12.30	13.85	7.14	7.41	8.29	8.55	10.10
	8H	11.11	11.35	12.27	12.49	14.07	7.35	7.59	8.50	8.72	10.31