

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: P903643

Luminaire Tested: DFN2DIP-SQ3F0-040D110US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903643
REPORT IS A COMBINATION OF REPORTS P901508 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-040D110US830-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

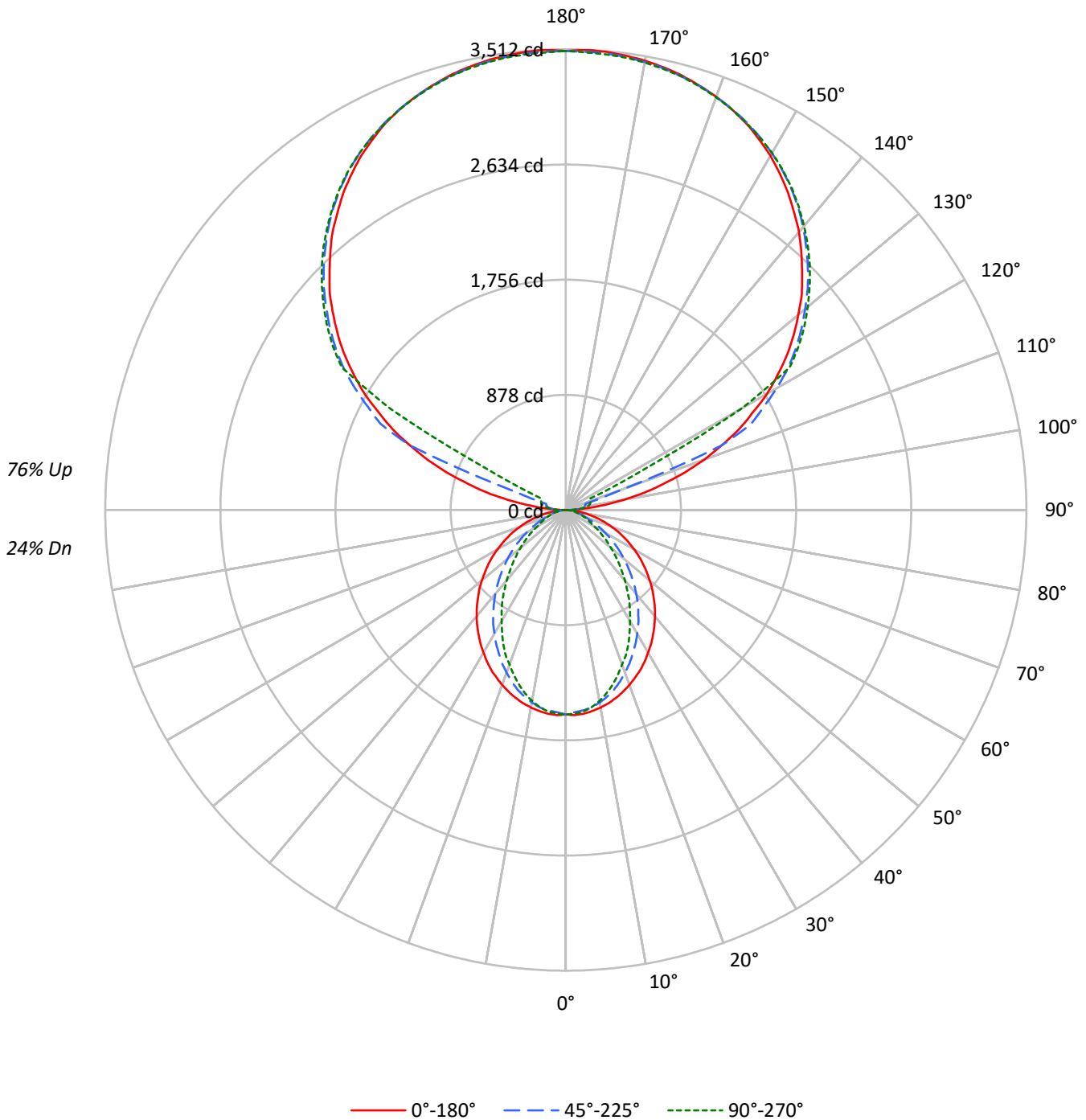
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13468.9 lumens
Efficiency: N/A
Efficacy: 113.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 118.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P903643
CATALOG NUMBER: DFN2DIP-SQ3F0-040D110US830-RLLONL

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	101	101	101	101	90	90	90	90	69	69	69	50	50	50	32	32	32	24				24
1	92	88	84	81	82	78	75	73	60	58	57	44	43	42	29	28	27	21				21
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	25	24	23	18				18
3	77	68	61	56	68	61	55	50	47	43	40	34	32	30	23	21	20	15				15
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	20	19	18	13				13
5	64	53	46	40	57	48	41	37	37	33	29	28	25	22	19	17	15	12				12
6	59	48	40	35	53	43	36	32	34	29	26	25	22	20	17	15	14	10				10
7	55	43	36	30	49	39	32	28	30	26	22	23	20	17	15	14	12	9				9
8	51	39	32	27	45	35	29	24	28	23	20	21	18	15	14	12	11	8				8
9	47	36	28	24	42	32	26	22	25	21	18	19	16	14	13	11	10	8				8
10	44	32	26	21	39	29	23	19	23	19	16	18	15	12	12	10	9	7				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1785	1785	1785
5°	1787	1756	1768
10°	1768	1720	1710
15°	1743	1662	1620
20°	1709	1583	1511
25°	1675	1494	1405
30°	1630	1403	1271
35°	1585	1305	1153
40°	1540	1204	1018
45°	1487	1092	896
50°	1432	979	777
55°	1375	859	662
60°	1309	733	545
65°	1233	605	489
70°	1140	486	442
75°	1024	426	401
80°	855	354	346
85°	580	231	257

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2395 cd/sqm



TEST NUMBER: P903643

CATALOG NUMBER: DFN2DIP-SQ3F0-040D110US830-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.0	1.1
10°-20°	400.9	3.0
20°-30°	562.8	4.2
30°-40°	613.5	4.6
40°-50°	563.9	4.2
50°-60°	442.9	3.3
60°-70°	288.3	2.1
70°-80°	148.4	1.1
80°-90°	44.0	0.3
90°-100°	115.4	0.9
100°-110°	430.1	3.2
110°-120°	1140.7	8.5
120°-130°	1892.0	14.0
130°-140°	2009.7	14.9
140°-150°	1867.8	13.9
150°-160°	1501.7	11.1
160°-170°	967.6	7.2
170°-180°	333.0	2.5
0°-30°	1109.8	8.2
0°-40°	1723.3	12.8
0°-60°	2730.1	20.3
0°-90°	3210.8	23.8
90°-120°	1686.2	12.5
90°-150°	7455.8	55.4
90°-180°	10258.0	76.2
0°-180°	13468.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1558	1558	1558	1558	1558	
5°	1558	1551	1533	1546	1541	148
15°	1482	1466	1419	1392	1378	418
25°	1345	1300	1207	1149	1128	619
35°	1159	1087	963	874	843	726
45°	948	853	705	605	571	732
55°	721	611	458	374	347	644
65°	486	372	245	198	193	482
75°	259	161	113	103	102	274
85°	61	31	27	27	27	70
90°	2	30	50	63	68	12
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°	1558.2	1558.2	1558.2	1558.2	1558.2
2.5°	1565.3	1558.2	1542.7	1556.9	1554.0
5°	1558.2	1551.1	1532.8	1545.5	1541.3
7.5°	1545.5	1537.1	1517.4	1522.9	1515.9
10°	1528.6	1518.7	1490.5	1486.2	1477.9
12.5°	1507.5	1494.8	1456.6	1448.2	1432.7
15°	1482.1	1466.5	1418.6	1391.9	1377.8
17.5°	1452.5	1429.8	1370.6	1339.6	1317.0
20°	1418.6	1390.3	1319.8	1284.7	1253.6
22.5°	1382.0	1349.5	1267.6	1219.7	1198.7
25°	1345.3	1300.1	1207.0	1149.3	1128.0
27.5°	1301.7	1253.6	1150.7	1084.4	1051.9
30°	1255.1	1201.4	1088.5	1016.7	978.6
32.5°	1209.9	1145.0	1029.4	944.8	909.5
35°	1159.2	1087.2	963.2	874.3	843.2
37.5°	1109.8	1032.2	901.1	803.7	768.5
40°	1057.6	973.1	836.2	736.1	699.5
42.5°	1004.0	913.8	771.4	666.9	631.8
45°	947.6	853.1	705.1	604.9	571.1
47.5°	894.1	794.0	641.7	541.5	510.5
50°	834.8	734.7	579.6	482.2	452.7
52.5°	776.9	671.2	520.4	427.3	400.5
55°	720.6	610.6	458.3	373.7	346.9
57.5°	662.8	550.0	403.3	324.3	301.8
60°	603.5	490.7	345.4	273.6	251.1
62.5°	545.8	433.0	296.1	228.5	217.3
65°	486.5	372.2	245.3	197.5	193.1
67.5°	430.2	315.8	197.5	173.4	169.2
70°	370.9	260.9	163.5	149.5	143.7
72.5°	314.5	210.1	136.8	125.5	122.7
75°	259.4	160.7	112.8	102.9	101.6
77.5°	204.5	114.1	88.9	83.2	80.3
80°	153.6	81.8	67.6	62.1	62.1
82.5°	107.2	55.0	46.6	43.6	43.6
85°	60.6	31.0	26.8	26.8	26.8
87.5°	22.6	11.2	11.2	9.9	9.9
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



TEST NUMBER: P903643

CATALOG NUMBER: DFN2DIP-SQ3F0-040D110US830-RLONL

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	5.97	6.62	7.12	7.76	9.37	1.93	2.58	3.08	3.72	5.32
	3H	7.63	8.21	8.79	9.36	10.98	3.09	3.68	4.26	4.83	6.45
	4H	8.22	8.78	9.40	9.93	11.55	3.53	4.09	4.71	5.24	6.86
	6H	8.63	9.14	9.81	10.29	11.93	3.84	4.35	5.02	5.50	7.13
	8H	8.75	9.24	9.93	10.40	12.03	3.92	4.41	5.10	5.57	7.20
	12H	8.80	9.27	9.99	10.43	12.07	3.95	4.42	5.14	5.58	7.22
4H	2H	5.96	6.52	7.14	7.67	9.29	2.50	3.05	3.68	4.20	5.82
	3H	7.77	8.23	8.95	9.41	11.04	3.82	4.29	5.01	5.46	7.10
	4H	8.45	8.88	9.64	10.04	11.69	4.36	4.79	5.55	5.95	7.60
	6H	8.95	9.31	10.14	10.50	12.14	4.76	5.13	5.95	6.31	7.95
	8H	9.12	9.46	10.31	10.64	12.30	4.88	5.22	6.07	6.40	8.06
	12H	9.20	9.51	10.41	10.70	12.36	4.94	5.24	6.14	6.43	8.10
8H	4H	8.40	8.74	9.59	9.92	11.58	4.62	4.96	5.81	6.14	7.80
	6H	8.96	9.24	10.17	10.46	12.11	5.13	5.41	6.34	6.63	8.28
	8H	9.17	9.41	10.38	10.61	12.29	5.31	5.55	6.52	6.75	8.43
	12H	9.30	9.51	10.51	10.70	12.41	5.42	5.63	6.63	6.83	8.53
12H	4H	8.35	8.65	9.55	9.84	11.51	4.62	4.93	5.82	6.12	7.78
	6H	8.93	9.17	10.14	10.37	12.05	5.17	5.42	6.39	6.61	8.29
	8H	9.14	9.35	10.36	10.55	12.26	5.37	5.58	6.59	6.78	8.49