

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: P923187

Luminaire Tested: DFN2DIP-SQ4F0-100D080US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923187
REPORT IS A COMBINATION OF REPORTS P901624 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D080US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

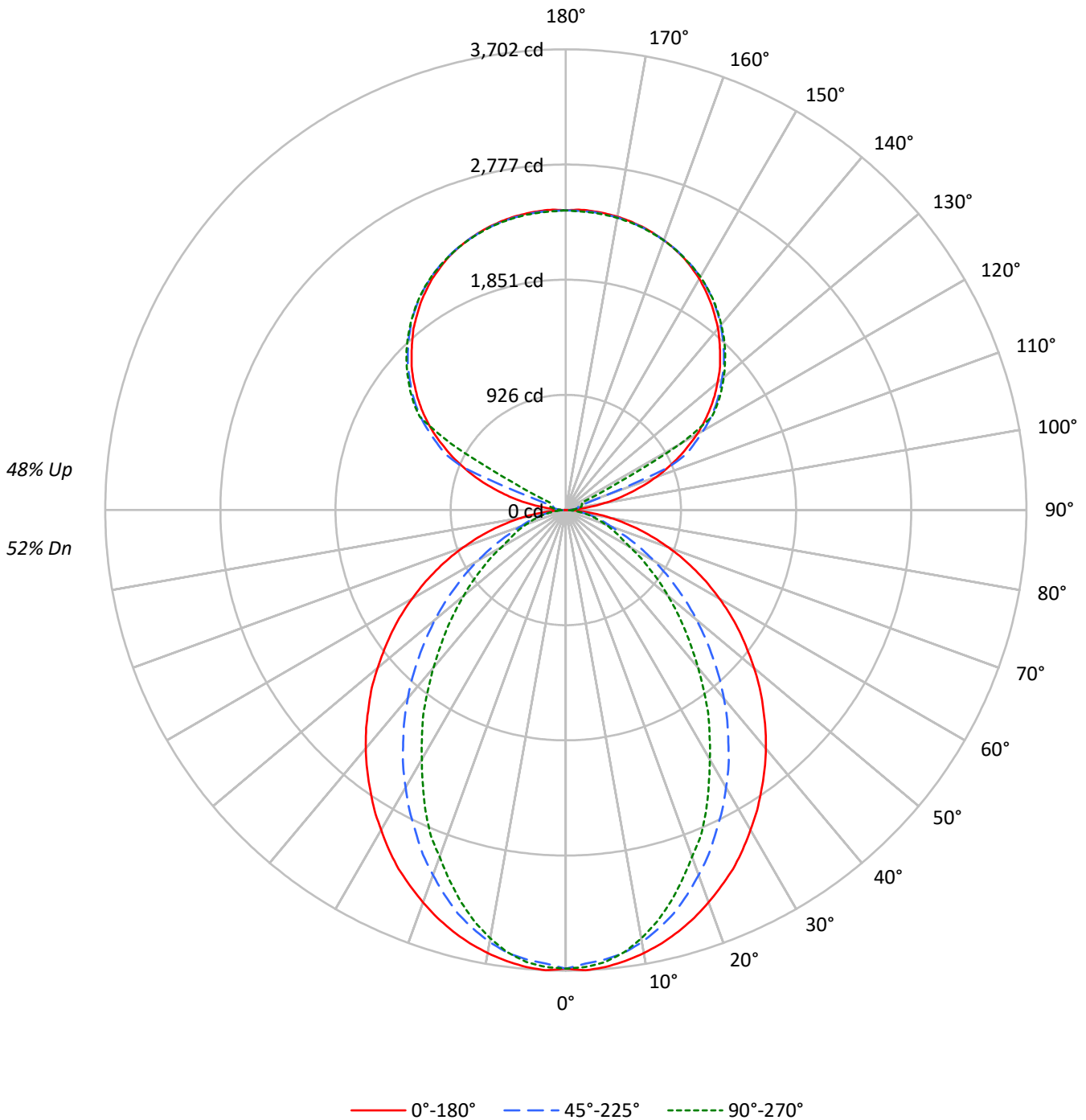
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14641.9 lumens
Efficiency: N/A
Efficacy: 96.2 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): 152.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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		0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58	52	52	52
1	99	95	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50	45	45	45
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43	38	38	38
3	83	74	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	33	33	33
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	35	32	29	29	29
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	25	25	25
6	65	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25	22	22	22
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23	20	20	20
8	56	44	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	18	18	18
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19	16	16	16
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2586	2586	2586
5°	2590	2545	2562
10°	2564	2496	2479
15°	2529	2414	2351
20°	2482	2301	2194
25°	2434	2174	2041
30°	2370	2043	1848
35°	2307	1903	1678
40°	2243	1758	1484
45°	2169	1597	1307
50°	2092	1435	1134
55°	2011	1261	969
60°	1918	1079	798
65°	1811	894	719
70°	1682	722	652
75°	1519	637	595
80°	1283	537	519
85°	893	361	394

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2169 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	2.4
10°-20°	948.2	6.5
20°-30°	1331.2	9.1
30°-40°	1451.1	9.9
40°-50°	1333.8	9.1
50°-60°	1047.4	7.2
60°-70°	681.8	4.7
70°-80°	351.0	2.4
80°-90°	93.8	0.6
90°-100°	79.4	0.5
100°-110°	295.9	2.0
110°-120°	784.9	5.4
120°-130°	1301.8	8.9
130°-140°	1382.8	9.4
140°-150°	1285.1	8.8
150°-160°	1033.2	7.1
160°-170°	665.8	4.5
170°-180°	229.2	1.6
0°-30°	2624.8	17.9
0°-40°	4076.0	27.8
0°-60°	6457.2	44.1
0°-90°	7583.8	51.8
90°-120°	1160.2	7.9
90°-150°	5129.9	35.0
90°-180°	7058.0	48.2
0°-180°	14641.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	2	21	35	44	47	14
95°	113	56	68	77	75	134
105°	530	582	106	125	132	566
115°	1002	1031	1075	268	143	986
125°	1416	1439	1472	1484	1489	1263
135°	1753	1780	1796	1814	1810	1354
145°	2033	2031	2061	2073	2064	1272
155°	2238	2223	2244	2254	2240	1032
165°	2359	2348	2354	2366	2354	666
175°	2413	2400	2404	2416	2399	230
180°	2408	2408	2408	2408	2408	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	1.7	20.9	34.8	43.6	47.0
92.5°	43.6	36.6	41.8	45.3	47.0
95°	113.2	55.6	67.9	76.8	74.9
97.5°	203.8	61.0	88.7	94.2	95.8
100°	308.4	69.7	99.3	113.2	116.6
102.5°	423.3	419.9	102.8	121.8	127.2
105°	529.6	581.9	106.3	125.4	132.4
107.5°	653.3	696.7	109.9	128.9	135.9
110°	771.9	808.2	305.0	130.7	137.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	883.3	914.5	885.0	134.0	139.5
115°	1001.7	1031.3	1074.9	268.3	142.9
117.5°	1104.5	1139.2	1169.0	919.7	463.4
120°	1219.5	1245.5	1277.0	1297.9	1062.7
122.5°	1316.9	1344.9	1379.8	1390.2	1392.0
125°	1416.2	1439.0	1472.0	1484.3	1489.4
127.5°	1506.8	1531.2	1557.6	1574.8	1576.5
130°	1592.2	1620.1	1639.2	1658.5	1656.8
132.5°	1679.4	1702.1	1721.2	1736.9	1735.2
135°	1752.6	1780.5	1796.0	1813.6	1810.1
137.5°	1829.2	1850.0	1867.6	1885.0	1879.8
140°	1904.0	1918.1	1937.2	1952.8	1944.1
142.5°	1966.9	1979.1	2001.6	2015.5	2006.8
145°	2033.1	2031.2	2060.8	2073.0	2064.3
147.5°	2090.4	2085.3	2114.8	2123.5	2116.7
150°	2146.3	2134.0	2162.0	2172.3	2163.6
152.5°	2193.3	2179.3	2205.4	2216.0	2203.8
155°	2238.5	2223.0	2243.9	2254.2	2240.4
157.5°	2275.1	2261.3	2277.0	2289.2	2275.1
160°	2306.6	2296.1	2306.6	2316.9	2304.7
162.5°	2334.3	2324.0	2332.6	2344.8	2329.1
165°	2358.8	2348.4	2353.6	2365.7	2353.6
167.5°	2377.9	2367.4	2372.8	2385.0	2369.3
170°	2393.7	2383.1	2386.7	2398.9	2383.1
172.5°	2404.1	2393.7	2397.2	2409.4	2393.7
175°	2412.7	2400.5	2404.1	2416.2	2398.9
177.5°	2416.2	2404.1	2405.8	2418.1	2402.4
180°	2407.5	2407.5	2407.5	2407.5	2407.5



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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	10.63	11.47	11.58	12.43	13.68	6.59	7.43	7.54	8.39	9.64
	3H	12.31	13.07	13.27	14.03	15.31	7.78	8.53	8.74	9.50	10.77
	4H	12.92	13.64	13.90	14.61	15.89	8.23	8.94	9.20	9.92	11.20
	6H	13.35	14.01	14.33	14.98	16.28	8.55	9.21	9.54	10.19	11.48
	8H	13.48	14.10	14.47	15.10	16.39	8.64	9.27	9.63	10.26	11.55
	12H	13.54	14.14	14.54	15.12	16.44	8.69	9.28	9.68	10.27	11.58
4H	2H	10.65	11.36	11.63	12.33	13.61	7.19	7.90	8.17	8.87	10.15
	3H	12.48	13.08	13.47	14.08	15.37	8.54	9.13	9.53	10.14	11.43
	4H	13.18	13.72	14.18	14.72	16.03	9.09	9.63	10.09	10.63	11.94
	6H	13.70	14.16	14.71	15.18	16.50	9.51	9.98	10.52	10.99	12.31
	8H	13.88	14.31	14.89	15.32	16.65	9.64	10.07	10.65	11.09	12.42
	12H	13.98	14.37	15.00	15.40	16.73	9.71	10.10	10.73	11.13	12.46
8H	4H	13.15	13.58	14.16	14.59	15.92	9.37	9.81	10.38	10.82	12.15
	6H	13.72	14.08	14.75	15.13	16.46	9.89	10.25	10.93	11.31	12.63
	8H	13.94	14.25	14.98	15.30	16.64	10.09	10.40	11.13	11.44	12.79
	12H	14.08	14.36	15.13	15.39	16.78	10.21	10.48	11.25	11.52	12.91
12H	4H	13.10	13.49	14.13	14.52	15.86	9.38	9.77	10.41	10.80	12.13
	6H	13.69	14.01	14.74	15.05	16.40	9.94	10.26	10.99	11.30	12.65
	8H	13.92	14.20	14.96	15.23	16.62	10.16	10.43	11.20	11.47	12.86