

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: P904849

Luminaire Tested: DFN2DIP-TR4F0-120D080US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904849
REPORT IS A COMBINATION OF REPORTS P901978 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D080US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

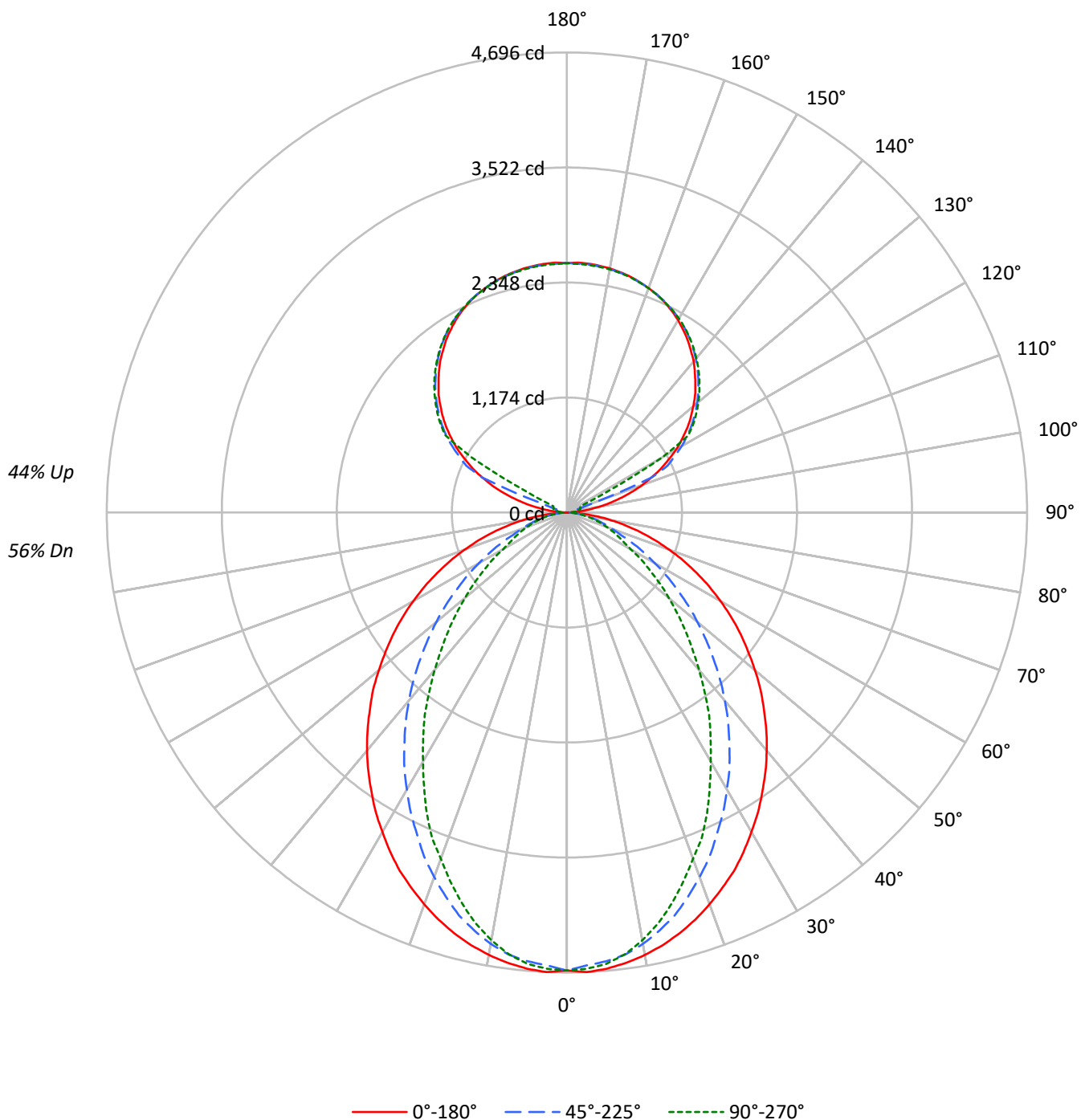
Lumens per Lamp: N/A
Luminaire Lumens: 17078.9 lumens
Efficiency: N/A
Efficacy: 92.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 184.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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		101	101	101	101		87	87	87		74	74	74		62	62	62
1	100	96	92	88		93	89	86	83		77	75	72		66	64	63		56	54	53
2	91	84	78	73		85	79	73	69		68	64	61		58	56	53		50	48	46
3	84	74	67	62		78	70	63	58		61	56	52		52	49	46		44	42	40
4	77	66	59	53		71	62	55	50		54	49	45		47	43	40		40	37	35
5	71	59	51	46		66	56	49	43		49	43	39		42	38	35		36	33	31
6	65	54	46	40		61	50	43	38		44	39	34		39	34	31		33	30	27
7	61	49	41	35		56	46	39	34		40	35	30		35	31	27		30	27	24
8	56	44	37	31		52	42	35	30		37	31	27		32	28	25		28	25	22
9	53	41	33	28		49	38	32	27		34	28	25		30	25	22		26	23	20
10	49	37	30	25		46	35	29	24		31	26	22		28	23	20		24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3714	3714	3714
5°	3720	3655	3678
10°	3683	3583	3558
15°	3632	3465	3373
20°	3565	3301	3146
25°	3497	3118	2927
30°	3404	2931	2648
35°	3314	2729	2404
40°	3222	2520	2124
45°	3115	2288	1870
50°	3005	2055	1622
55°	2890	1805	1384
60°	2756	1544	1139
65°	2603	1278	1025
70°	2417	1030	927
75°	2183	908	843
80°	1845	761	731
85°	1286	508	549

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3115 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	2.6
10°-20°	1202.7	7.0
20°-30°	1688.5	9.9
30°-40°	1840.6	10.8
40°-50°	1691.7	9.9
50°-60°	1328.6	7.8
60°-70°	864.8	5.1
70°-80°	445.2	2.6
80°-90°	118.1	0.7
90°-100°	83.9	0.5
100°-110°	312.8	1.8
110°-120°	829.6	4.9
120°-130°	1376.0	8.1
130°-140°	1461.6	8.6
140°-150°	1358.4	8.0
150°-160°	1092.1	6.4
160°-170°	703.7	4.1
170°-180°	242.2	1.4
0°-30°	3329.4	19.5
0°-40°	5170.0	30.3
0°-60°	8190.3	48.0
0°-90°	9618.4	56.3
90°-120°	1226.4	7.2
90°-150°	5422.4	31.7
90°-180°	7460.0	43.7
0°-180°	17078.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4675	4675	4675	4675	4675	
5°	4675	4654	4598	4636	4624	443
15°	4446	4400	4256	4176	4133	1253
25°	4036	3900	3621	3448	3384	1856
35°	3478	3262	2890	2623	2530	2177
45°	2843	2559	2115	1815	1713	2195
55°	2162	1832	1375	1121	1041	1932
65°	1460	1117	736	592	580	1447
75°	778	482	338	309	305	823
85°	182	93	80	80	80	209
90°	2	22	37	46	50	16
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2501	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4674.6	4674.6	4674.6	4674.6	4674.6
2.5°	4695.7	4674.6	4628.0	4670.6	4662.0
5°	4674.6	4653.5	4598.3	4636.5	4623.9
7.5°	4636.5	4611.3	4552.1	4568.7	4547.6
10°	4585.8	4556.2	4471.7	4458.7	4433.6
12.5°	4522.4	4484.3	4369.8	4344.7	4298.1
15°	4446.2	4399.5	4255.9	4175.5	4133.3
17.5°	4357.3	4289.5	4111.7	4018.9	3951.1
20°	4255.9	4171.0	3959.6	3854.1	3760.7
22.5°	4145.9	4048.5	3803.0	3659.3	3596.1
25°	4036.0	3900.3	3621.2	3447.9	3384.2
27.5°	3904.9	3760.7	3452.0	3253.2	3155.7
30°	3765.3	3604.2	3265.7	3050.3	2935.8
32.5°	3629.7	3434.9	3088.4	2834.4	2728.5
35°	3477.6	3261.7	2889.6	2623.0	2529.6
37.5°	3329.4	3096.5	2703.3	2411.1	2305.6
40°	3172.8	2919.2	2508.6	2208.3	2098.3
42.5°	3012.1	2741.5	2314.2	2000.9	1895.5
45°	2842.9	2559.3	2115.3	1814.7	1713.2
47.5°	2682.2	2382.0	1925.0	1624.4	1531.4
50°	2504.5	2204.2	1738.8	1446.6	1358.2
52.5°	2330.8	2013.5	1561.0	1281.9	1201.6
55°	2161.6	1831.7	1374.8	1121.2	1040.8
57.5°	1988.3	1649.9	1210.0	973.1	905.3
60°	1810.6	1472.2	1036.3	821.0	753.2
62.5°	1637.4	1298.9	888.3	685.4	651.7
65°	1459.6	1116.7	736.1	592.5	579.5
67.5°	1290.4	947.4	592.5	520.2	507.7
70°	1112.7	782.8	490.6	448.4	431.3
72.5°	943.5	630.2	410.2	376.5	368.1
75°	778.3	482.0	338.5	308.8	304.7
77.5°	613.6	342.4	266.6	249.6	241.0
80°	461.0	245.5	202.8	186.2	186.2
82.5°	321.4	165.1	139.6	131.0	131.0
85°	181.8	92.9	80.3	80.3	80.3
87.5°	67.8	33.6	33.6	29.6	29.6
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.2	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.8	134.5
105°	559.8	615.1	112.4	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.9	854.3	322.3	138.2	145.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	933.7	966.7	935.5	141.7	147.4
115°	1058.8	1090.1	1136.1	283.6	151.1
117.5°	1167.4	1204.2	1235.7	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.9	1123.2
122.5°	1391.9	1421.5	1458.5	1469.4	1471.4
125°	1496.9	1521.0	1555.9	1568.9	1574.3
127.5°	1592.7	1618.5	1646.3	1664.6	1666.4
130°	1683.0	1712.5	1732.7	1753.0	1751.2
132.5°	1775.1	1799.1	1819.3	1835.9	1834.1
135°	1852.5	1882.0	1898.4	1917.0	1913.3
137.5°	1933.4	1955.5	1974.1	1992.4	1987.0
140°	2012.5	2027.4	2047.6	2064.2	2054.9
142.5°	2079.1	2091.9	2115.7	2130.4	2121.2
145°	2149.0	2147.0	2178.3	2191.2	2182.0
147.5°	2209.6	2204.1	2235.3	2244.6	2237.3
150°	2268.6	2255.7	2285.2	2296.1	2287.0
152.5°	2318.3	2303.6	2331.1	2342.3	2329.4
155°	2366.2	2349.8	2371.8	2382.7	2368.1
157.5°	2404.8	2390.2	2406.8	2419.7	2404.8
160°	2438.1	2427.0	2438.1	2449.0	2436.1
162.5°	2467.4	2456.5	2465.6	2478.5	2461.9
165°	2493.2	2482.3	2487.7	2500.6	2487.7
167.5°	2513.5	2502.4	2508.0	2520.9	2504.3
170°	2530.2	2518.9	2522.7	2535.6	2518.9
172.5°	2541.1	2530.2	2533.8	2546.7	2530.2
175°	2550.2	2537.3	2541.1	2553.9	2535.6
177.5°	2553.9	2541.1	2543.0	2555.9	2539.3
180°	2544.8	2544.8	2544.8	2544.8	2544.8

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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	12.27	13.16	13.18	14.08	15.26	8.24	9.13	9.15	10.05	11.23
	3H	13.95	14.74	14.87	15.67	16.88	9.44	10.23	10.36	11.16	12.37
	4H	14.56	15.31	15.50	16.25	17.46	9.89	10.64	10.83	11.58	12.79
	6H	14.99	15.68	15.93	16.62	17.85	10.22	10.90	11.16	11.85	13.07
	8H	15.12	15.77	16.07	16.73	17.95	10.31	10.96	11.26	11.92	13.15
	12H	15.18	15.80	16.14	16.75	18.00	10.35	10.98	11.31	11.93	13.18
4H	2H	12.30	13.04	13.24	13.98	15.19	8.85	9.59	9.79	10.53	11.75
	3H	14.13	14.75	15.08	15.72	16.95	10.20	10.82	11.15	11.79	13.02
	4H	14.82	15.39	15.78	16.35	17.61	10.75	11.32	11.71	12.28	13.54
	6H	15.34	15.83	16.31	16.81	18.07	11.18	11.66	12.15	12.65	13.90
	8H	15.52	15.97	16.49	16.95	18.22	11.31	11.76	12.28	12.74	14.01
	12H	15.62	16.03	16.61	17.02	18.29	11.38	11.78	12.37	12.78	14.05
8H	4H	14.80	15.25	15.77	16.23	17.50	11.04	11.49	12.01	12.47	13.74
	6H	15.36	15.74	16.36	16.76	18.03	11.56	11.93	12.56	12.95	14.22
	8H	15.58	15.91	16.59	16.92	18.20	11.75	12.08	12.76	13.09	14.37
	12H	15.72	16.01	16.73	17.02	18.35	11.87	12.16	12.88	13.17	14.50
12H	4H	14.75	15.16	15.74	16.16	17.43	11.04	11.45	12.04	12.45	13.72
	6H	15.34	15.67	16.35	16.68	17.96	11.61	11.94	12.62	12.95	14.23
	8H	15.56	15.85	16.57	16.86	18.19	11.82	12.11	12.83	13.12	14.45