

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: P904813

Luminaire Tested: DFN2DIP-TR4F0-110D080US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904813
REPORT IS A COMBINATION OF REPORTS P901976 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D080US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

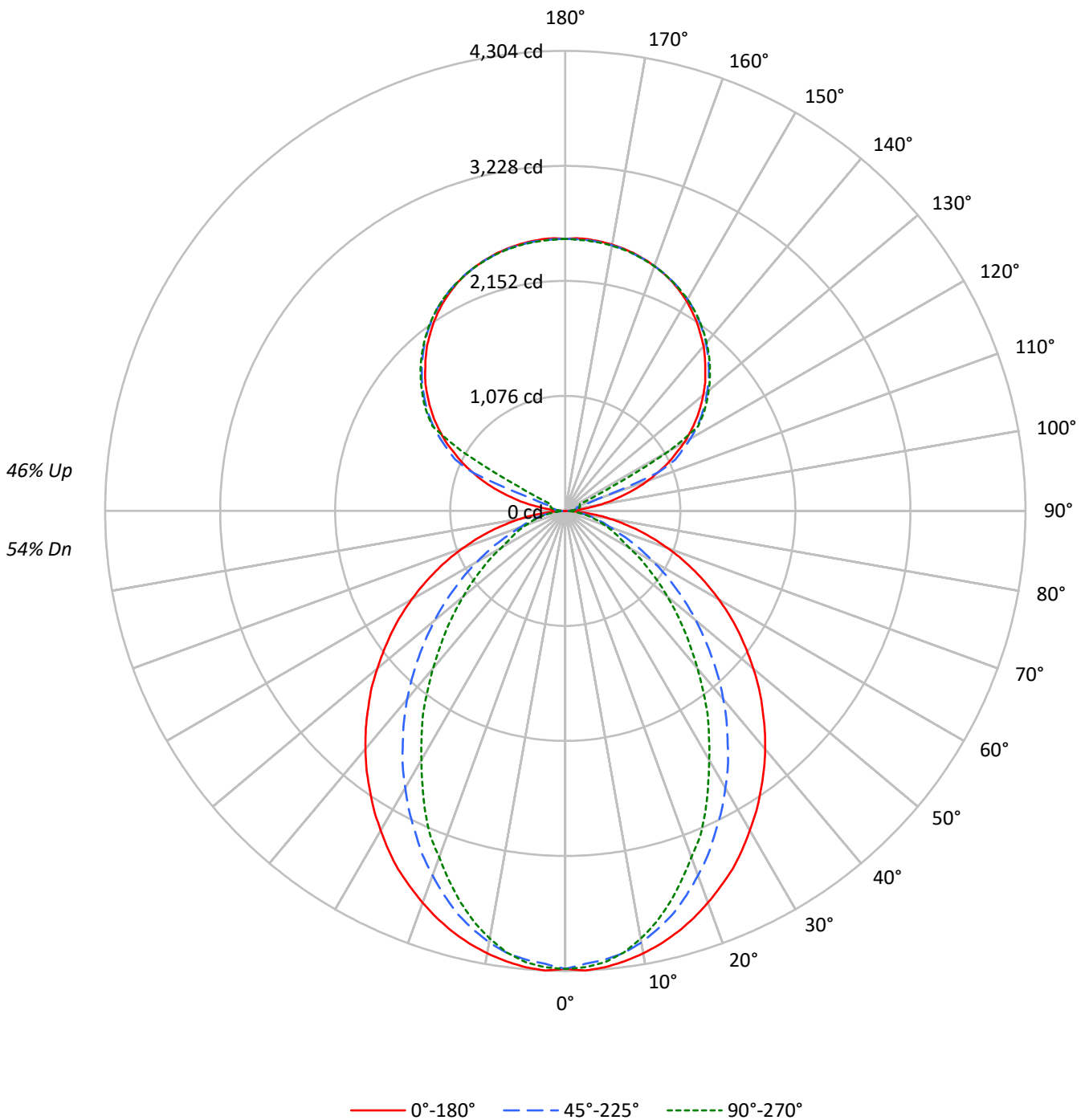
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16277.7 lumens
Efficiency: N/A
Efficacy: 94.7 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): 171.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	0
RCR																					
0	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	60	60	60	54
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52	54	53	52	47
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44	48	46	44	40
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38	43	40	38	34
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33	39	36	33	30
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30	35	32	30	26
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26	32	29	26	23
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24	29	26	24	21
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21	27	24	21	19
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19	25	22	19	17
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18	23	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3404	3404	3404
5°	3410	3350	3372
10°	3376	3284	3262
15°	3329	3176	3092
20°	3268	3026	2884
25°	3205	2858	2683
30°	3121	2686	2428
35°	3038	2501	2204
40°	2954	2310	1947
45°	2856	2098	1714
50°	2754	1883	1487
55°	2649	1654	1269
60°	2526	1415	1044
65°	2386	1172	940
70°	2215	945	850
75°	2001	832	773
80°	1691	698	670
85°	1178	466	503

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2856 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	2.5
10°-20°	1102.5	6.8
20°-30°	1547.8	9.5
30°-40°	1687.2	10.4
40°-50°	1550.8	9.5
50°-60°	1217.9	7.5
60°-70°	792.7	4.9
70°-80°	408.1	2.5
80°-90°	108.6	0.7
90°-100°	83.9	0.5
100°-110°	312.8	1.9
110°-120°	829.6	5.1
120°-130°	1376.0	8.5
130°-140°	1461.6	9.0
140°-150°	1358.4	8.3
150°-160°	1092.1	6.7
160°-170°	703.7	4.3
170°-180°	242.2	1.5
0°-30°	3051.9	18.7
0°-40°	4739.1	29.1
0°-60°	7507.8	46.1
0°-90°	8817.2	54.2
90°-120°	1226.4	7.5
90°-150°	5422.4	33.3
90°-180°	7460.0	45.8
0°-180°	16277.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4239	406
15°	4076	4033	3901	3828	3789	1148
25°	3700	3575	3319	3161	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2013
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	2	22	37	46	50	15
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°	4285.1	4285.1	4285.1	4285.1	4285.1
2.5°	4304.4	4285.1	4242.3	4281.4	4273.6
5°	4285.1	4265.8	4215.1	4250.1	4238.6
7.5°	4250.1	4227.0	4172.7	4188.0	4168.6
10°	4203.6	4176.4	4099.1	4087.1	4064.1
12.5°	4145.6	4110.6	4005.7	3982.6	3939.8
15°	4075.6	4032.9	3901.2	3827.6	3788.8
17.5°	3994.2	3932.1	3769.1	3683.9	3621.8
20°	3901.2	3823.4	3629.6	3532.9	3447.3
22.5°	3800.4	3711.1	3486.1	3354.4	3296.4
25°	3699.6	3575.3	3319.4	3160.6	3102.2
27.5°	3579.5	3447.3	3164.3	2982.0	2892.8
30°	3451.5	3303.8	2993.6	2796.1	2691.1
32.5°	3327.3	3148.7	2831.0	2598.2	2501.1
35°	3187.8	2989.8	2648.8	2404.4	2318.8
37.5°	3052.0	2838.5	2478.0	2210.2	2113.6
40°	2908.4	2676.0	2299.5	2024.2	1923.4
42.5°	2761.1	2513.0	2121.4	1834.2	1737.5
45°	2606.0	2346.0	1939.1	1663.4	1570.5
47.5°	2458.7	2183.5	1764.6	1488.9	1403.8
50°	2295.8	2020.5	1593.9	1326.1	1245.0
52.5°	2136.6	1845.7	1431.0	1175.1	1101.4
55°	1981.4	1679.0	1260.2	1027.7	954.1
57.5°	1822.7	1512.4	1109.2	892.0	829.8
60°	1659.7	1349.5	950.0	752.5	690.4
62.5°	1500.9	1190.7	814.3	628.3	597.4
65°	1337.9	1023.6	674.8	543.1	531.1
67.5°	1182.9	868.6	543.1	476.8	465.3
70°	1019.9	717.6	449.7	411.0	395.4
72.5°	864.8	577.7	376.1	345.2	337.3
75°	713.4	441.9	310.2	283.0	279.4
77.5°	562.4	314.0	244.4	228.8	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
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	11.78	12.64	12.71	13.59	14.80	7.75	8.62	8.68	9.56	10.77
	3H	13.46	14.23	14.40	15.18	16.42	8.94	9.72	9.88	10.67	11.91
	4H	14.07	14.80	15.02	15.75	17.00	9.40	10.13	10.35	11.08	12.33
	6H	14.49	15.17	15.46	16.13	17.38	9.72	10.39	10.69	11.35	12.61
	8H	14.62	15.26	15.59	16.24	17.49	9.81	10.45	10.79	11.43	12.69
	12H	14.68	15.29	15.66	16.26	17.54	9.86	10.47	10.84	11.44	12.72
4H	2H	11.80	12.53	12.76	13.49	14.73	8.35	9.08	9.31	10.04	11.28
	3H	13.63	14.24	14.60	15.23	16.49	9.71	10.31	10.68	11.30	12.56
	4H	14.33	14.88	15.31	15.86	17.14	10.26	10.81	11.23	11.79	13.07
	6H	14.84	15.32	15.83	16.32	17.61	10.68	11.16	11.67	12.16	13.44
	8H	15.02	15.47	16.01	16.46	17.76	10.81	11.25	11.80	12.25	13.55
	12H	15.12	15.52	16.13	16.53	17.83	10.88	11.28	11.89	12.29	13.59
8H	4H	14.30	14.74	15.29	15.74	17.04	10.54	10.98	11.53	11.98	13.28
	6H	14.87	15.23	15.88	16.27	17.57	11.06	11.43	12.08	12.46	13.76
	8H	15.08	15.41	16.11	16.43	17.74	11.25	11.58	12.28	12.60	13.91
	12H	15.22	15.51	16.25	16.52	17.88	11.37	11.66	12.40	12.68	14.04
12H	4H	14.25	14.65	15.26	15.66	16.97	10.55	10.95	11.56	11.96	13.26
	6H	14.84	15.17	15.87	16.19	17.50	11.11	11.43	12.13	12.46	13.77
	8H	15.06	15.35	16.09	16.37	17.73	11.32	11.61	12.35	12.63	13.98