

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: P918360

Luminaire Tested: DFN2DIP-TR4F0-080D120US930-RLFL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918360
REPORT IS A COMBINATION OF REPORTS P900522 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D120US930-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

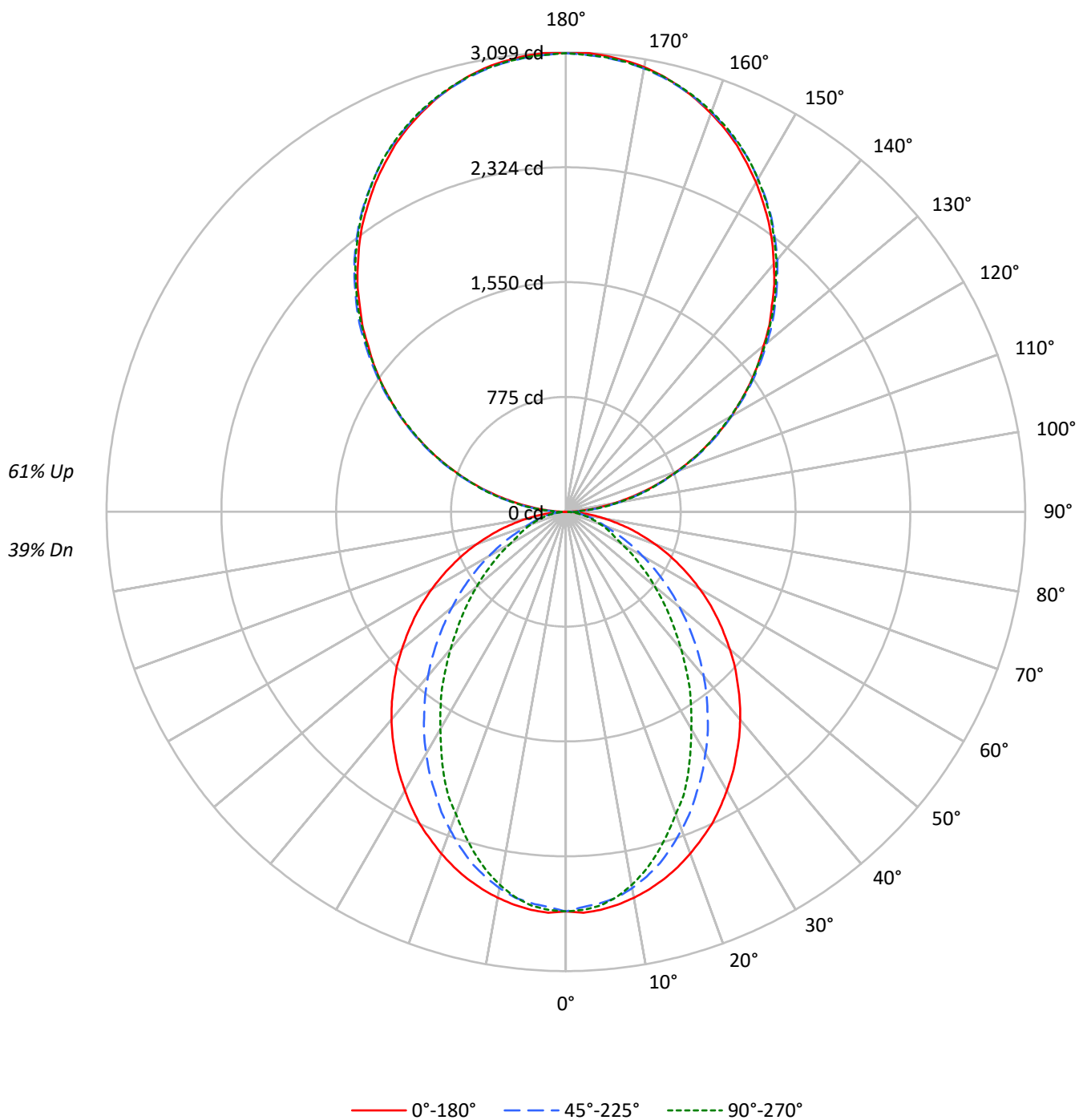
Lumens per Lamp: N/A
Luminaire Lumens: 14202.5 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 166.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2142	2142	2142
5°	2145	2108	2121
10°	2124	2066	2052
15°	2095	1998	1945
20°	2056	1904	1814
25°	2016	1798	1688
30°	1963	1690	1527
35°	1911	1574	1386
40°	1858	1453	1225
45°	1796	1320	1079
50°	1733	1185	935
55°	1666	1041	798
60°	1589	890	657
65°	1501	737	591
70°	1393	594	535
75°	1259	524	487
80°	1064	439	422
85°	741	293	316

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2411 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	1.8
10°-20°	693.6	4.9
20°-30°	973.7	6.9
30°-40°	1061.4	7.5
40°-50°	975.6	6.9
50°-60°	766.2	5.4
60°-70°	498.7	3.5
70°-80°	256.7	1.8
80°-90°	74.3	0.5
90°-100°	191.5	1.3
100°-110°	608.3	4.3
110°-120°	1041.1	7.3
120°-130°	1369.2	9.6
130°-140°	1536.9	10.8
140°-150°	1507.1	10.6
150°-160°	1264.2	8.9
160°-170°	838.4	5.9
170°-180°	293.0	2.1
0°-30°	1919.9	13.5
0°-40°	2981.4	21.0
0°-60°	4723.1	33.3
0°-90°	5552.8	39.1
90°-120°	1840.9	13.0
90°-150°	6254.0	44.0
90°-180°	8650.0	60.9
0°-180°	14202.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2696	2696	2696	2696	2696	
5°	2696	2684	2652	2674	2666	256
15°	2564	2537	2454	2408	2384	722
25°	2327	2249	2088	1988	1952	1070
35°	2005	1881	1666	1513	1459	1255
45°	1639	1476	1220	1046	988	1266
55°	1246	1056	793	646	600	1114
65°	842	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	3	34	91	86	89	14
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2695.7	2695.7	2695.7	2695.7	2695.7
2.5°	2707.9	2695.7	2668.8	2693.3	2688.4
5°	2695.7	2683.6	2651.7	2673.7	2666.4
7.5°	2673.7	2659.2	2625.0	2634.6	2622.4
10°	2644.4	2627.4	2578.7	2571.2	2556.7
12.5°	2608.0	2586.0	2519.9	2505.4	2478.5
15°	2563.9	2537.0	2454.2	2407.9	2383.5
17.5°	2512.7	2473.6	2371.1	2317.6	2278.4
20°	2454.2	2405.3	2283.4	2222.6	2168.7
22.5°	2390.8	2334.6	2193.1	2110.2	2073.7
25°	2327.4	2249.2	2088.2	1988.3	1951.6
27.5°	2251.8	2168.7	1990.6	1876.0	1819.8
30°	2171.3	2078.4	1883.3	1759.0	1693.0
32.5°	2093.1	1980.8	1781.0	1634.5	1573.4
35°	2005.4	1880.9	1666.3	1512.6	1458.7
37.5°	1919.9	1785.7	1558.9	1390.4	1329.6
40°	1829.7	1683.4	1446.6	1273.4	1210.0
42.5°	1737.0	1580.9	1334.5	1153.9	1093.0
45°	1639.4	1475.9	1219.8	1046.4	988.0
47.5°	1546.8	1373.6	1110.1	936.7	883.1
50°	1444.2	1271.1	1002.7	834.2	783.2
52.5°	1344.1	1161.1	900.2	739.2	692.9
55°	1246.5	1056.3	792.8	646.5	600.2
57.5°	1146.6	951.5	697.8	561.2	522.0
60°	1044.1	849.0	597.6	473.4	434.3
62.5°	944.2	749.0	512.3	395.3	375.9
65°	841.7	643.9	424.4	341.7	334.1
67.5°	744.1	546.4	341.7	299.9	292.8
70°	641.6	451.4	282.9	258.5	248.7
72.5°	544.0	363.4	236.6	217.2	212.2
75°	448.8	278.0	195.2	178.1	175.8
77.5°	353.8	197.5	153.8	143.9	139.0
80°	265.8	141.6	117.0	107.4	107.4
82.5°	185.3	95.2	80.5	75.6	75.6
85°	104.8	53.6	46.3	46.3	46.3
87.5°	39.1	19.4	19.4	17.1	17.1
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	8.67	9.42	9.73	10.48	11.90	4.65	5.40	5.70	6.45	7.87
	3H	10.35	11.01	11.41	12.08	13.52	5.83	6.50	6.89	7.56	9.00
	4H	10.95	11.58	12.02	12.65	14.09	6.28	6.91	7.35	7.98	9.42
	6H	11.37	11.95	12.45	13.02	14.48	6.60	7.18	7.68	8.25	9.70
	8H	11.49	12.05	12.58	13.13	14.58	6.69	7.24	7.77	8.32	9.77
	12H	11.55	12.08	12.64	13.15	14.63	6.73	7.25	7.82	8.33	9.81
4H	2H	8.68	9.32	9.76	10.38	11.83	5.23	5.87	6.31	6.93	8.38
	3H	10.50	11.03	11.59	12.12	13.58	6.58	7.10	7.66	8.19	9.65
	4H	11.19	11.68	12.28	12.76	14.24	7.12	7.61	8.21	8.69	10.17
	6H	11.70	12.12	12.80	13.22	14.70	7.54	7.95	8.64	9.06	10.53
	8H	11.88	12.26	12.98	13.36	14.85	7.67	8.05	8.77	9.15	10.64
	12H	11.97	12.32	13.08	13.43	14.92	7.73	8.08	8.84	9.19	10.68
8H	4H	11.16	11.54	12.25	12.64	14.13	7.40	7.78	8.50	8.88	10.37
	6H	11.72	12.04	12.84	13.17	14.66	7.91	8.23	9.03	9.37	10.86
	8H	11.93	12.21	13.06	13.33	14.84	8.10	8.38	9.23	9.50	11.01
	12H	12.07	12.31	13.20	13.43	14.97	8.22	8.47	9.35	9.58	11.13
12H	4H	11.10	11.45	12.22	12.56	14.06	7.40	7.75	8.51	8.86	10.35
	6H	11.69	11.97	12.82	13.09	14.60	7.96	8.24	9.09	9.36	10.87
	8H	11.91	12.16	13.04	13.27	14.82	8.17	8.42	9.30	9.53	11.07