

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: P923872

Luminaire Tested: DFN2DIP-TR4F0-100D080US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923872
REPORT IS A COMBINATION OF REPORTS P900454 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D080US940-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

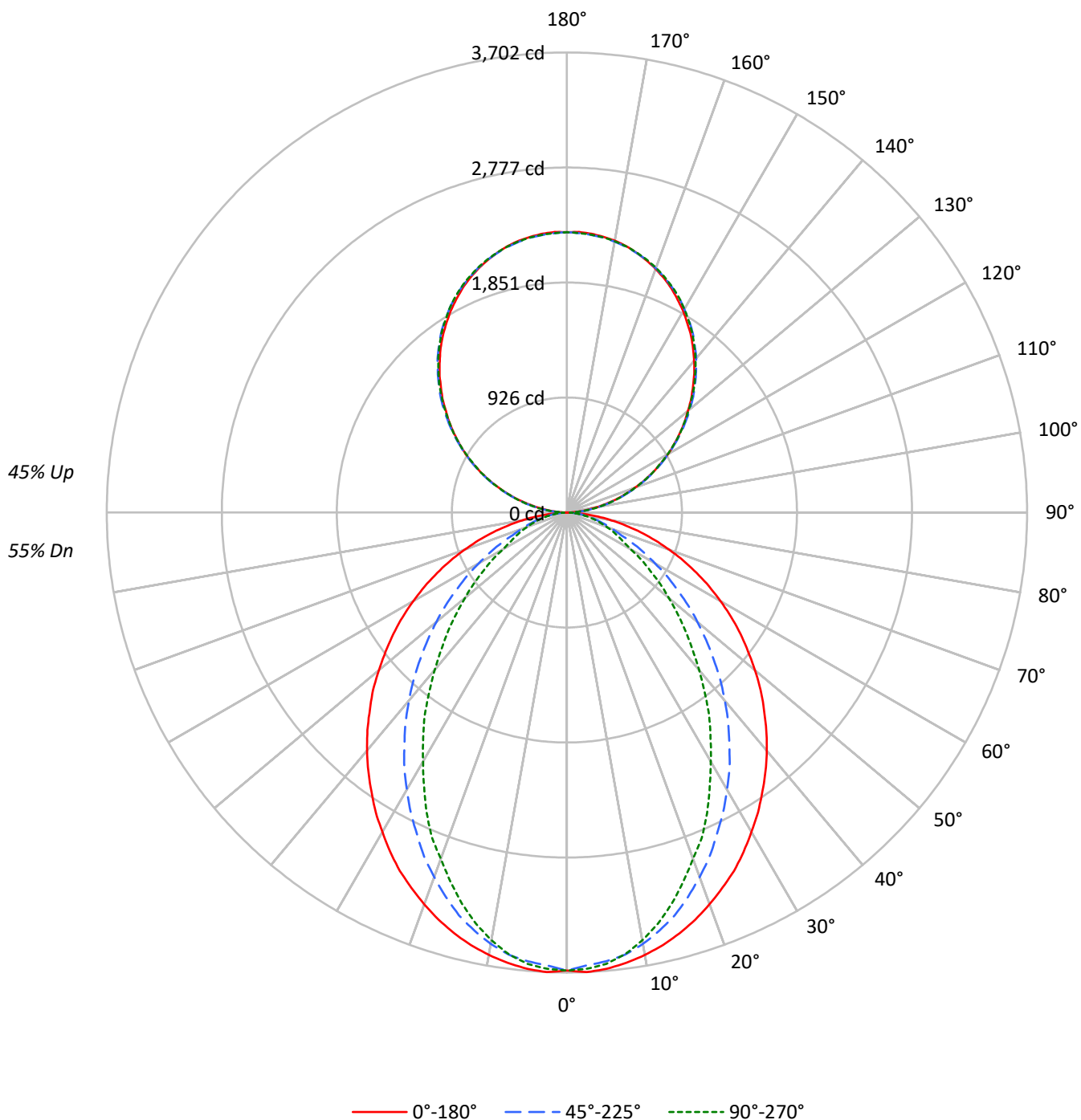
Lumens per Lamp: N/A
Luminaire Lumens: 13892.8 lumens
Efficiency: N/A
Efficacy: 86.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 160.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60
1	99	95	91	88	92	89	85	82	76	74	72	65	63	62	54	53	52
2	91	84	78	73	84	78	73	69	67	63	60	57	55	52	48	46	45
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	41	39
4	76	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34
5	70	59	51	45	65	55	48	43	48	43	38	42	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	25	22	19
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2928	2928	2928
5°	2933	2881	2900
10°	2904	2825	2805
15°	2864	2731	2659
20°	2811	2603	2480
25°	2757	2458	2307
30°	2684	2310	2088
35°	2613	2151	1895
40°	2540	1987	1675
45°	2456	1804	1474
50°	2369	1620	1279
55°	2278	1423	1091
60°	2173	1217	898
65°	2052	1008	808
70°	1905	812	731
75°	1721	716	665
80°	1454	601	577
85°	1013	401	433

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2456 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	2.5
10°-20°	948.2	6.8
20°-30°	1331.2	9.6
30°-40°	1451.1	10.4
40°-50°	1333.8	9.6
50°-60°	1047.4	7.5
60°-70°	681.8	4.9
70°-80°	351.0	2.5
80°-90°	96.0	0.7
90°-100°	139.6	1.0
100°-110°	443.6	3.2
110°-120°	759.1	5.5
120°-130°	998.3	7.2
130°-140°	1120.6	8.1
140°-150°	1098.9	7.9
150°-160°	921.8	6.6
160°-170°	611.3	4.4
170°-180°	213.7	1.5
0°-30°	2624.8	18.9
0°-40°	4076.0	29.3
0°-60°	6457.2	46.5
0°-90°	7585.9	54.6
90°-120°	1342.3	9.7
90°-150°	4560.1	32.8
90°-180°	6307.0	45.4
0°-180°	13892.8	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	24	67	63	65	14
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

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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°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

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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	11.29	12.16	12.22	13.10	14.31	7.27	8.14	8.19	9.07	10.28
	3H	12.97	13.75	13.91	14.70	15.93	8.46	9.24	9.39	10.18	11.41
	4H	13.58	14.32	14.53	15.27	16.51	8.91	9.65	9.86	10.60	11.84
	6H	14.01	14.68	14.97	15.64	16.89	9.24	9.91	10.20	10.87	12.12
	8H	14.13	14.78	15.10	15.75	17.00	9.33	9.97	10.30	10.94	12.19
	12H	14.20	14.81	15.17	15.78	17.05	9.37	9.98	10.35	10.95	12.23
4H	2H	11.32	12.05	12.27	13.00	14.24	7.87	8.60	8.82	9.55	10.79
	3H	13.15	13.76	14.11	14.74	15.99	9.22	9.83	10.19	10.81	12.07
	4H	13.84	14.40	14.82	15.37	16.65	9.77	10.33	10.75	11.30	12.58
	6H	14.36	14.84	15.35	15.84	17.11	10.19	10.67	11.18	11.67	12.95
	8H	14.54	14.98	15.52	15.97	17.26	10.32	10.77	11.31	11.76	13.05
	12H	14.63	15.03	15.64	16.04	17.34	10.39	10.79	11.40	11.80	13.10
8H	4H	13.81	14.26	14.80	15.25	16.54	10.05	10.50	11.04	11.49	12.78
	6H	14.38	14.75	15.39	15.78	17.07	10.57	10.94	11.59	11.98	13.27
	8H	14.60	14.92	15.62	15.94	17.25	10.77	11.09	11.79	12.11	13.42
	12H	14.74	15.02	15.76	16.04	17.39	10.89	11.17	11.91	12.19	13.54
12H	4H	13.77	14.17	14.77	15.18	16.47	10.06	10.46	11.07	11.47	12.77
	6H	14.36	14.68	15.38	15.70	17.01	10.62	10.95	11.65	11.97	13.28
	8H	14.58	14.86	15.60	15.88	17.23	10.84	11.12	11.86	12.14	13.49