

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: P907502

Luminaire Tested: DFN2DIP-TR4F0-100D080US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907502
REPORT IS A COMBINATION OF REPORTS P900453 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D080US835-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

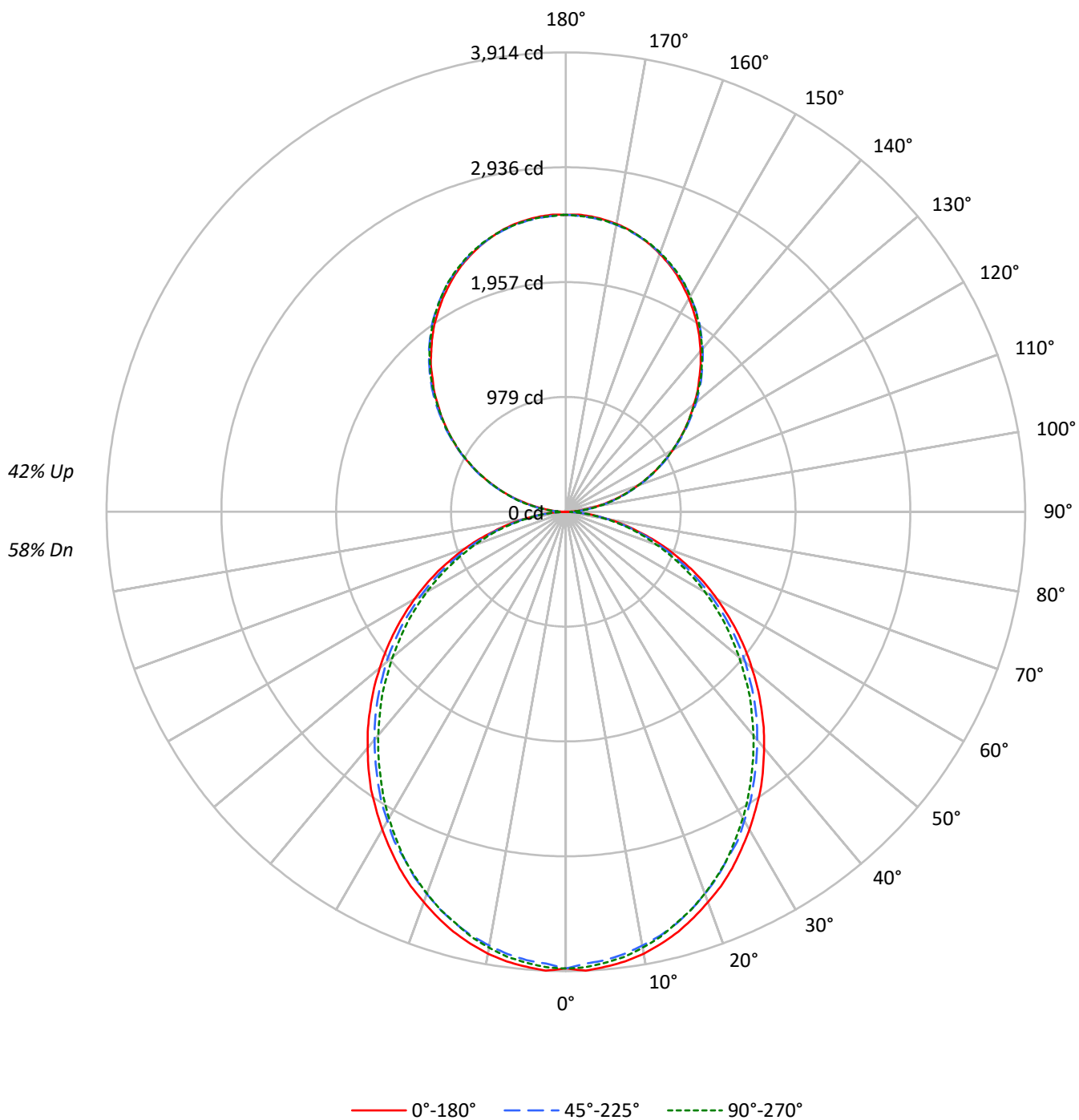
Lumens per Lamp: N/A
Luminaire Lumens: 16980.0 lumens
Efficiency: N/A
Efficacy: 106.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	52	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	28	24	45	34	27	23	30	25	21	27	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3091	3091	3091
5°	3096	3048	3069
10°	3071	3007	3027
15°	3026	2957	2962
20°	2965	2889	2895
25°	2904	2806	2818
30°	2828	2730	2721
35°	2756	2639	2617
40°	2667	2548	2519
45°	2579	2457	2418
50°	2482	2361	2301
55°	2381	2250	2194
60°	2267	2118	2071
65°	2142	1982	1926
70°	1983	1815	1770
75°	1763	1616	1626
80°	1498	1362	1351
85°	1083	925	895

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2579 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.2	2.2
10°-20°	1030.4	6.1
20°-30°	1514.3	8.9
30°-40°	1758.8	10.4
40°-50°	1756.6	10.3
50°-60°	1531.7	9.0
60°-70°	1132.3	6.7
70°-80°	640.6	3.8
80°-90°	176.3	1.0
90°-100°	156.6	0.9
100°-110°	497.5	2.9
110°-120°	851.3	5.0
120°-130°	1119.6	6.6
130°-140°	1256.7	7.4
140°-150°	1232.3	7.3
150°-160°	1033.7	6.1
160°-170°	685.6	4.0
170°-180°	239.6	1.4
0°-30°	2911.0	17.1
0°-40°	4669.7	27.5
0°-60°	7958.0	46.9
0°-90°	9907.2	58.3
90°-120°	1505.3	8.9
90°-150°	5113.9	30.1
90°-180°	7073.0	41.7
0°-180°	16980.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3891	3891	3891	3891	3891	
5°	3891	3876	3835	3865	3858	369
15°	3704	3682	3633	3648	3630	1043
25°	3352	3323	3259	3266	3259	1543
35°	2892	2855	2795	2772	2754	1806
45°	2354	2327	2271	2230	2215	1816
55°	1781	1759	1714	1669	1650	1592
65°	1201	1179	1141	1108	1089	1188
75°	628	621	602	580	588	671
85°	153	150	146	135	131	171
90°	2	28	75	70	72	16
95°	111	133	136	136	133	124
105°	459	465	470	474	474	485
115°	854	866	863	860	854	845
125°	1242	1262	1256	1249	1246	1110
135°	1607	1631	1635	1633	1627	1242
145°	1951	1966	1979	1981	1972	1219
155°	2231	2237	2244	2255	2248	1027
165°	2427	2425	2425	2440	2429	685
175°	2526	2519	2515	2530	2517	240
180°	2530	2530	2530	2530	2530	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3891.1	3891.1	3891.1	3891.1	3891.1
2.5°	3913.7	3895.0	3853.7	3891.1	3883.9
5°	3891.1	3876.4	3835.1	3864.9	3857.7
7.5°	3864.9	3842.6	3801.3	3831.5	3824.0
10°	3824.0	3797.8	3752.9	3782.7	3771.6
12.5°	3767.6	3745.4	3700.5	3719.2	3711.6
15°	3704.1	3681.9	3633.0	3648.1	3629.5
17.5°	3625.5	3603.3	3554.4	3573.1	3554.4
20°	3539.3	3517.1	3464.7	3475.8	3461.1
22.5°	3453.6	3419.9	3371.0	3371.0	3363.5
25°	3352.4	3322.6	3259.1	3266.2	3259.1
27.5°	3240.0	3213.8	3165.4	3154.3	3135.6
30°	3128.1	3097.9	3041.9	3030.8	3015.7
32.5°	3008.2	2986.0	2926.0	2903.4	2888.3
35°	2892.3	2855.0	2795.0	2772.4	2753.7
37.5°	2761.3	2727.5	2667.6	2641.4	2622.7
40°	2626.7	2596.5	2536.6	2503.3	2488.2
42.5°	2495.7	2465.5	2406.0	2368.3	2346.1
45°	2353.6	2327.4	2271.0	2230.1	2215.1
47.5°	2215.1	2188.9	2128.9	2087.6	2065.4
50°	2069.0	2050.3	1997.9	1945.5	1926.9
52.5°	1926.9	1900.7	1852.2	1811.0	1784.8
55°	1781.2	1758.6	1713.7	1668.8	1650.2
57.5°	1635.1	1616.4	1567.6	1522.8	1507.7
60°	1489.0	1474.3	1421.9	1380.6	1369.5
62.5°	1346.9	1320.7	1283.4	1246.1	1231.0
65°	1201.2	1178.6	1141.3	1107.5	1088.9
67.5°	1051.6	1032.5	999.2	973.0	957.9
70°	913.0	897.9	864.2	838.0	823.3
72.5°	770.9	755.8	737.2	711.0	699.8
75°	628.4	621.3	602.2	580.0	587.5
77.5°	501.4	486.3	478.7	467.6	456.5
80°	374.3	370.4	362.8	351.7	344.2
82.5°	254.5	254.5	250.9	235.8	235.8
85°	153.2	149.7	146.1	134.6	131.0
87.5°	67.5	59.9	52.4	41.3	37.3
90°	2.3	27.5	74.8	70.2	72.5
92.5°	47.3	64.1	66.4	68.6	68.6
95°	111.4	132.7	136.5	136.5	132.7
97.5°	185.4	205.2	213.6	213.6	213.6
100°	270.8	288.3	294.4	294.4	292.1
102.5°	360.8	373.8	382.1	384.4	382.1
105°	459.2	465.3	469.9	473.7	473.7
107.5°	556.8	566.0	566.0	567.5	556.8
110°	651.4	663.6	663.6	663.6	657.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	753.6	766.6	764.3	758.2	753.6
115°	854.3	866.5	862.7	860.4	854.3
117.5°	954.2	971.0	960.3	954.2	948.1
120°	1054.9	1071.7	1054.9	1054.9	1048.0
122.5°	1146.4	1167.8	1157.1	1151.0	1146.4
125°	1242.5	1261.6	1255.5	1248.6	1246.4
127.5°	1336.4	1360.0	1351.6	1342.5	1336.4
130°	1424.1	1451.5	1447.7	1443.2	1434.8
132.5°	1522.5	1543.8	1545.4	1534.7	1528.6
135°	1607.1	1630.8	1635.4	1633.1	1627.0
137.5°	1701.7	1720.8	1724.6	1723.1	1713.9
140°	1784.9	1803.9	1814.6	1814.6	1806.2
142.5°	1870.3	1889.4	1895.5	1897.8	1889.4
145°	1951.2	1966.4	1978.6	1980.9	1972.5
147.5°	2023.6	2042.7	2051.8	2055.7	2047.3
150°	2098.4	2111.3	2119.7	2126.6	2119.7
152.5°	2164.7	2177.7	2188.4	2196.8	2188.4
155°	2231.1	2237.2	2244.1	2254.7	2247.9
157.5°	2288.3	2292.9	2296.7	2311.9	2301.3
160°	2339.4	2344.0	2346.3	2359.2	2350.1
162.5°	2386.7	2386.7	2389.0	2403.5	2392.8
165°	2427.1	2424.8	2424.8	2440.1	2429.4
167.5°	2463.7	2456.9	2456.9	2472.1	2461.4
170°	2491.2	2485.1	2482.8	2498.1	2485.1
172.5°	2510.3	2504.2	2501.9	2517.1	2504.2
175°	2525.5	2519.4	2514.8	2530.1	2517.1
177.5°	2533.9	2527.8	2523.2	2536.2	2523.2
180°	2530.1	2530.1	2530.1	2530.1	2530.1

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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	11.92	12.86	12.80	13.77	14.91	11.49	12.43	12.37	13.34	14.48
	3H	13.59	14.43	14.48	15.35	16.52	13.12	13.96	14.01	14.87	16.05
	4H	14.18	14.98	15.09	15.90	17.08	13.71	14.51	14.62	15.42	16.61
	6H	14.58	15.32	15.51	16.25	17.44	14.11	14.85	15.03	15.77	16.97
	8H	14.69	15.39	15.62	16.33	17.53	14.22	14.92	15.15	15.86	17.05
	12H	14.74	15.41	15.68	16.35	17.56	14.26	14.93	15.20	15.87	17.08
4H	2H	12.39	13.19	13.31	14.11	15.29	12.05	12.85	12.96	13.77	14.95
	3H	14.27	14.93	15.19	15.88	17.08	13.88	14.54	14.80	15.49	16.69
	4H	14.99	15.59	15.92	16.54	17.76	14.58	15.19	15.52	16.13	17.35
	6H	15.50	16.03	16.45	17.00	18.22	15.10	15.62	16.05	16.59	17.81
	8H	15.66	16.15	16.61	17.11	18.34	15.24	15.74	16.20	16.70	17.93
	12H	15.73	16.18	16.70	17.15	18.40	15.31	15.75	16.28	16.73	17.97
8H	4H	15.19	15.68	16.14	16.64	17.88	14.83	15.32	15.78	16.28	17.52
	6H	15.82	16.23	16.80	17.23	18.47	15.46	15.87	16.44	16.87	18.10
	8H	16.04	16.40	17.03	17.40	18.65	15.68	16.03	16.66	17.03	18.28
	12H	16.18	16.50	17.17	17.48	18.78	15.80	16.11	16.79	17.10	18.40
12H	4H	15.18	15.62	16.15	16.60	17.84	14.83	15.27	15.80	16.25	17.49
	6H	15.85	16.21	16.84	17.21	18.46	15.50	15.86	16.49	16.85	18.11
	8H	16.10	16.42	17.09	17.40	18.70	15.74	16.06	16.73	17.04	18.34