

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: P904846

Luminaire Tested: DFN2DIP-TR4F0-120D080US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904846
REPORT IS A COMBINATION OF REPORTS P900457 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D080US830-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

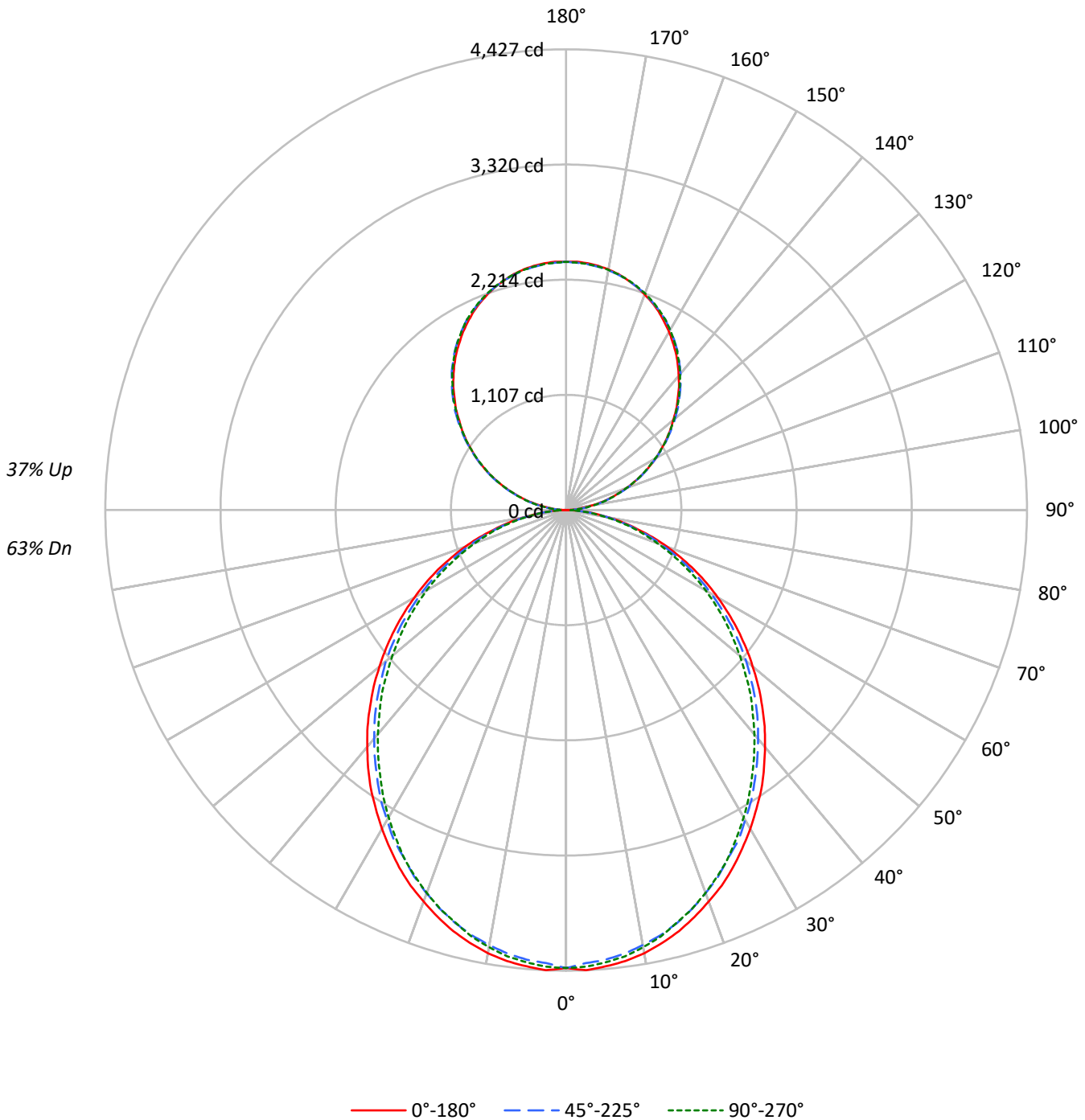
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17870.6 lumens
Efficiency: N/A
Efficacy: 96.7 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: Semi-Direct

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			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	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68	68	68	68	63
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57	60	59	57	53
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48	53	50	48	44
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41	47	44	41	37
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35	42	38	35	32
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31	38	34	31	28
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27	34	30	27	25
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24	31	27	24	22
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20	27	23	20	18
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3496	3496	3496
5°	3502	3448	3471
10°	3474	3401	3424
15°	3423	3345	3350
20°	3354	3267	3275
25°	3285	3174	3188
30°	3199	3088	3077
35°	3117	2985	2960
40°	3017	2882	2849
45°	2917	2779	2735
50°	2808	2670	2603
55°	2693	2545	2482
60°	2564	2396	2343
65°	2423	2241	2179
70°	2243	2053	2002
75°	1994	1828	1839
80°	1694	1541	1528
85°	1225	1046	1013

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2917 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.2	2.3
10°-20°	1165.5	6.5
20°-30°	1712.8	9.6
30°-40°	1989.3	11.1
40°-50°	1986.8	11.1
50°-60°	1732.4	9.7
60°-70°	1280.6	7.2
70°-80°	724.6	4.1
80°-90°	198.0	1.1
90°-100°	147.6	0.8
100°-110°	468.9	2.6
110°-120°	802.4	4.5
120°-130°	1055.3	5.9
130°-140°	1184.5	6.6
140°-150°	1161.5	6.5
150°-160°	974.4	5.5
160°-170°	646.2	3.6
170°-180°	225.9	1.3
0°-30°	3292.4	18.4
0°-40°	5281.7	29.6
0°-60°	9000.9	50.4
0°-90°	11204.1	62.7
90°-120°	1418.8	7.9
90°-150°	4820.1	27.0
90°-180°	6666.0	37.3
0°-180°	17870.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4401	4401	4401	4401	4401	
5°	4401	4384	4338	4371	4363	418
15°	4190	4164	4109	4126	4105	1180
25°	3792	3758	3686	3694	3686	1745
35°	3271	3229	3161	3136	3115	2043
45°	2662	2632	2569	2522	2505	2054
55°	2015	1989	1938	1888	1866	1801
65°	1359	1333	1291	1253	1232	1343
75°	711	703	681	656	664	759
85°	173	169	165	152	148	193
90°	2	26	70	66	68	17
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4401.0	4401.0	4401.0	4401.0	4401.0
2.5°	4426.6	4405.4	4358.8	4401.0	4392.9
5°	4401.0	4384.3	4337.7	4371.3	4363.2
7.5°	4371.3	4346.2	4299.5	4333.6	4325.1
10°	4325.1	4295.4	4244.7	4278.4	4265.9
12.5°	4261.3	4236.2	4185.5	4206.6	4198.0
15°	4189.5	4164.3	4109.1	4126.2	4105.1
17.5°	4100.6	4075.5	4020.2	4041.3	4020.2
20°	4003.2	3978.0	3918.8	3931.3	3914.8
22.5°	3906.2	3868.0	3812.8	3812.8	3804.3
25°	3791.7	3758.0	3686.2	3694.3	3686.2
27.5°	3664.6	3635.0	3580.2	3567.6	3546.6
30°	3538.0	3503.9	3440.6	3428.0	3411.0
32.5°	3402.4	3377.3	3309.5	3283.9	3266.9
35°	3271.3	3229.1	3161.3	3135.7	3114.6
37.5°	3123.1	3085.0	3017.2	2987.6	2966.5
40°	2971.0	2936.9	2869.0	2831.3	2814.2
42.5°	2822.8	2788.7	2721.3	2678.7	2653.5
45°	2662.0	2632.4	2568.6	2522.4	2505.4
47.5°	2505.4	2475.7	2407.9	2361.3	2336.1
50°	2340.1	2319.0	2259.7	2200.5	2179.3
52.5°	2179.3	2149.8	2095.0	2048.2	2018.6
55°	2014.6	1989.0	1938.2	1887.5	1866.4
57.5°	1849.4	1828.2	1773.0	1722.3	1705.2
60°	1684.1	1667.5	1608.3	1561.6	1549.0
62.5°	1523.4	1493.7	1451.6	1409.4	1392.3
65°	1358.7	1333.0	1290.8	1252.6	1231.6
67.5°	1189.4	1167.8	1130.1	1100.5	1083.5
70°	1032.6	1015.6	977.4	947.8	931.2
72.5°	871.9	854.9	833.8	804.2	791.5
75°	710.8	702.7	681.1	656.0	664.5
77.5°	567.0	550.0	541.5	528.9	516.3
80°	423.4	418.9	410.4	397.8	389.3
82.5°	287.8	287.8	283.8	266.7	266.7
85°	173.3	169.3	165.2	152.2	148.2
87.5°	76.3	67.8	59.3	46.7	42.2
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7



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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	12.71	13.70	13.55	14.56	15.64	12.28	13.27	13.12	14.13	15.21
	3H	14.38	15.27	15.23	16.14	17.24	13.91	14.79	14.76	15.67	16.77
	4H	14.97	15.81	15.84	16.69	17.80	14.50	15.34	15.37	16.22	17.33
	6H	15.38	16.15	16.26	17.04	18.17	14.90	15.68	15.78	16.56	17.69
	8H	15.49	16.22	16.38	17.13	18.26	15.01	15.75	15.90	16.65	17.78
	12H	15.54	16.24	16.43	17.14	18.29	15.06	15.76	15.95	16.66	17.81
4H	2H	13.19	14.03	14.06	14.90	16.02	12.84	13.68	13.72	14.56	15.67
	3H	15.06	15.76	15.95	16.67	17.80	14.67	15.37	15.56	16.28	17.41
	4H	15.78	16.42	16.68	17.33	18.48	15.38	16.02	16.27	16.92	18.08
	6H	16.31	16.86	17.22	17.79	18.95	15.90	16.45	16.81	17.38	18.54
	8H	16.46	16.97	17.37	17.90	19.07	16.05	16.56	16.96	17.49	18.66
	12H	16.54	17.00	17.47	17.95	19.12	16.12	16.58	17.05	17.52	18.70
8H	4H	15.99	16.51	16.90	17.43	18.60	15.63	16.15	16.54	17.07	18.24
	6H	16.63	17.05	17.57	18.02	19.19	16.26	16.69	17.21	17.66	18.83
	8H	16.85	17.23	17.80	18.18	19.37	16.48	16.86	17.43	17.82	19.00
	12H	16.99	17.32	17.94	18.27	19.51	16.60	16.94	17.56	17.89	19.12
12H	4H	15.98	16.45	16.92	17.39	18.57	15.63	16.10	16.56	17.04	18.22
	6H	16.66	17.04	17.61	17.99	19.18	16.31	16.68	17.26	17.64	18.83
	8H	16.91	17.24	17.86	18.19	19.43	16.55	16.88	17.50	17.83	19.07