

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: P910309

Luminaire Tested: DFN2DIP-TR4F0-120D090US840-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910309
REPORT IS A COMBINATION OF REPORTS P901996 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D090US840-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

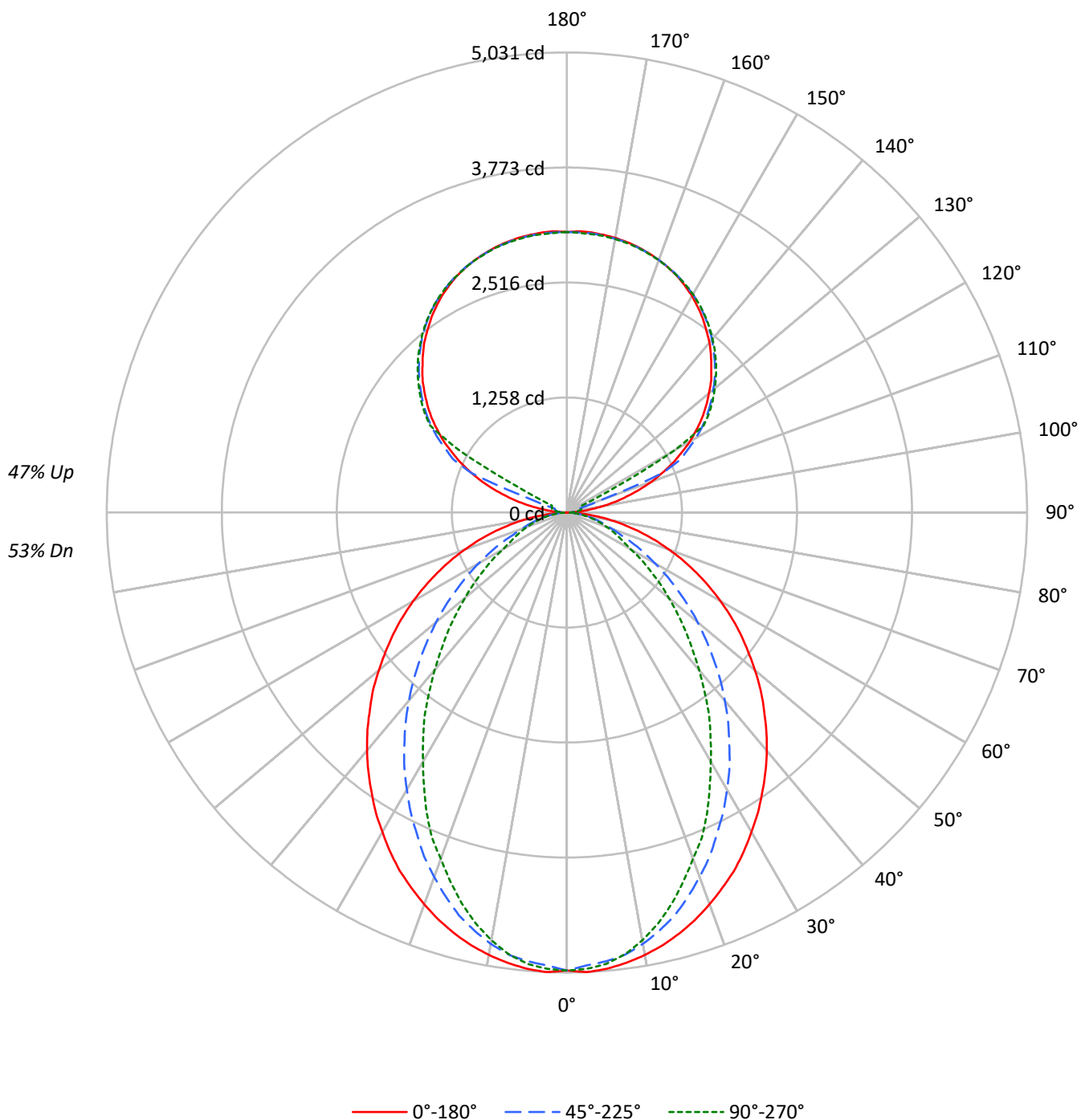
Lumens per Lamp: N/A
Luminaire Lumens: 19298.5 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 193.3
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
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	85	85	85	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	83	78	73	84	78	73	68	67	63	60	57	54	52	47	45	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38
4	76	66	58	52	70	61	55	49	53	48	44	45	42	38	38	35	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	28	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23
8	56	44	36	31	52	41	34	29	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	26	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3979	3979	3979
5°	3985	3916	3941
10°	3946	3839	3812
15°	3892	3712	3614
20°	3820	3537	3371
25°	3746	3341	3136
30°	3647	3140	2838
35°	3551	2924	2576
40°	3452	2700	2276
45°	3338	2452	2004
50°	3219	2201	1738
55°	3096	1934	1483
60°	2953	1654	1221
65°	2789	1369	1098
70°	2589	1104	994
75°	2339	973	904
80°	1976	816	783
85°	1378	544	588

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3338 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.4
10°-20°	1288.6	6.7
20°-30°	1809.2	9.4
30°-40°	1972.1	10.2
40°-50°	1812.6	9.4
50°-60°	1423.5	7.4
60°-70°	926.6	4.8
70°-80°	476.9	2.5
80°-90°	127.1	0.7
90°-100°	101.2	0.5
100°-110°	377.0	2.0
110°-120°	1000.0	5.2
120°-130°	1658.6	8.6
130°-140°	1761.8	9.1
140°-150°	1637.4	8.5
150°-160°	1316.4	6.8
160°-170°	848.2	4.4
170°-180°	292.0	1.5
0°-30°	3567.2	18.5
0°-40°	5539.3	28.7
0°-60°	8775.3	45.5
0°-90°	10306.0	53.4
90°-120°	1478.2	7.7
90°-150°	6535.9	33.9
90°-180°	8992.0	46.6
0°-180°	19298.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5008	5008	5008	5008	5008	
5°	5008	4986	4927	4968	4954	475
15°	4764	4714	4560	4474	4429	1342
25°	4324	4179	3880	3694	3626	1989
35°	3726	3495	3096	2810	2710	2332
45°	3046	2742	2266	1944	1836	2352
55°	2316	1963	1473	1201	1115	2070
65°	1564	1196	789	635	621	1550
75°	834	516	363	331	326	882
85°	195	100	86	86	86	224
90°	2	27	44	56	60	18
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1370	342	182	1256
125°	1804	1833	1876	1891	1898	1609
135°	2233	2268	2288	2311	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2999	3014	2999	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5008.5	5008.5	5008.5	5008.5	5008.5
2.5°	5031.2	5008.5	4958.5	5004.2	4995.0
5°	5008.5	4985.9	4926.7	4967.6	4954.2
7.5°	4967.6	4940.7	4877.2	4895.0	4872.4
10°	4913.3	4881.6	4791.1	4777.2	4750.3
12.5°	4845.4	4804.6	4681.9	4655.1	4605.1
15°	4763.7	4713.7	4559.8	4473.7	4428.6
17.5°	4668.5	4595.9	4405.4	4306.0	4233.4
20°	4559.8	4469.0	4242.4	4129.4	4029.4
22.5°	4442.0	4337.7	4074.6	3920.7	3852.9
25°	4324.2	4178.9	3879.8	3694.2	3625.9
27.5°	4183.8	4029.4	3698.5	3485.6	3381.1
30°	4034.2	3861.6	3499.0	3268.1	3145.5
32.5°	3889.0	3680.3	3309.0	3036.9	2923.4
35°	3726.0	3494.6	3095.9	2810.4	2710.3
37.5°	3567.2	3317.7	2896.4	2583.3	2470.3
40°	3399.4	3127.8	2687.8	2366.0	2248.2
42.5°	3227.2	2937.3	2479.5	2143.8	2030.8
45°	3046.0	2742.1	2266.4	1944.3	1835.5
47.5°	2873.8	2552.1	2062.5	1740.4	1640.8
50°	2683.4	2361.7	1863.0	1549.9	1455.2
52.5°	2497.3	2157.3	1672.5	1373.4	1287.4
55°	2316.0	1962.6	1473.0	1201.2	1115.2
57.5°	2130.3	1767.8	1296.5	1042.6	970.0
60°	1940.0	1577.3	1110.3	879.6	807.0
62.5°	1754.3	1391.7	951.7	734.4	698.2
65°	1563.9	1196.5	788.7	634.8	620.9
67.5°	1382.6	1015.1	634.8	557.3	543.9
70°	1192.1	838.7	525.6	480.4	462.1
72.5°	1010.9	675.2	439.5	403.4	394.4
75°	833.8	516.4	362.6	330.8	326.5
77.5°	657.4	366.9	285.7	267.4	258.2
80°	493.9	263.1	217.3	199.5	199.5
82.5°	344.4	176.9	149.6	140.4	140.4
85°	194.8	99.6	86.0	86.0	86.0
87.5°	72.6	36.1	36.1	31.7	31.7
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.8	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.7
102.5°	539.3	535.0	131.0	155.2	162.1
105°	674.7	741.4	135.4	159.8	168.6
107.5°	832.3	887.7	140.0	164.2	173.2
110°	983.3	1029.8	388.5	166.5	175.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.4	1165.2	1127.5	170.8	177.6
115°	1276.2	1313.8	1369.5	341.8	182.1
117.5°	1407.1	1451.5	1489.3	1171.8	590.4
120°	1553.7	1586.9	1627.0	1653.6	1353.9
122.5°	1677.9	1713.4	1758.0	1771.1	1773.5
125°	1804.3	1833.3	1875.5	1891.1	1897.6
127.5°	1919.8	1950.9	1984.4	2006.5	2008.6
130°	2028.6	2064.3	2088.5	2112.9	2110.9
132.5°	2139.6	2168.6	2192.8	2212.9	2210.8
135°	2232.9	2268.5	2288.3	2310.7	2306.2
137.5°	2330.5	2357.0	2379.4	2401.6	2395.0
140°	2425.8	2443.8	2468.0	2488.0	2477.0
142.5°	2506.0	2521.5	2550.2	2567.9	2556.9
145°	2590.3	2587.9	2625.7	2641.2	2630.1
147.5°	2663.3	2656.8	2694.4	2705.5	2696.7
150°	2734.5	2719.0	2754.5	2767.6	2756.6
152.5°	2794.3	2776.6	2809.8	2823.3	2807.7
155°	2852.1	2832.3	2858.8	2872.1	2854.4
157.5°	2898.7	2881.0	2901.0	2916.6	2898.7
160°	2938.7	2925.3	2938.7	2951.9	2936.4
162.5°	2974.1	2960.8	2971.9	2987.5	2967.5
165°	3005.2	2991.9	2998.6	3014.1	2998.6
167.5°	3029.7	3016.3	3023.0	3038.6	3018.6
170°	3049.7	3036.3	3040.7	3056.3	3036.3
172.5°	3062.9	3049.7	3054.1	3069.7	3049.7
175°	3073.9	3058.4	3062.9	3078.4	3056.3
177.5°	3078.4	3062.9	3065.2	3080.8	3060.8
180°	3067.4	3067.4	3067.4	3067.4	3067.4

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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	12.25	13.11	13.19	14.06	15.28	8.23	9.09	9.16	10.03	11.26
	3H	13.93	14.70	14.88	15.66	16.90	9.42	10.19	10.36	11.14	12.39
	4H	14.54	15.27	15.50	16.23	17.49	9.87	10.60	10.83	11.56	12.81
	6H	14.96	15.63	15.94	16.60	17.87	10.19	10.86	11.16	11.83	13.10
	8H	15.09	15.73	16.07	16.71	17.98	10.29	10.92	11.26	11.90	13.17
	12H	15.15	15.76	16.14	16.73	18.03	10.33	10.93	11.31	11.91	13.20
4H	2H	12.27	13.00	13.24	13.96	15.22	8.83	9.55	9.79	10.51	11.77
	3H	14.11	14.71	15.08	15.70	16.97	10.18	10.78	11.15	11.77	13.04
	4H	14.80	15.35	15.78	16.33	17.63	10.73	11.28	11.71	12.26	13.56
	6H	15.32	15.79	16.31	16.80	18.09	11.15	11.62	12.15	12.63	13.92
	8H	15.49	15.93	16.49	16.93	18.24	11.28	11.72	12.28	12.72	14.03
	12H	15.59	15.99	16.60	17.00	18.32	11.35	11.75	12.36	12.76	14.07
8H	4H	14.77	15.21	15.77	16.21	17.52	11.01	11.45	12.01	12.45	13.76
	6H	15.34	15.70	16.36	16.74	18.05	11.53	11.90	12.55	12.94	14.24
	8H	15.55	15.87	16.58	16.90	18.23	11.72	12.04	12.75	13.07	14.40
	12H	15.69	15.98	16.73	17.00	18.37	11.84	12.13	12.88	13.15	14.52
12H	4H	14.72	15.12	15.74	16.14	17.45	11.02	11.41	12.03	12.43	13.74
	6H	15.31	15.63	16.34	16.66	17.99	11.58	11.90	12.61	12.93	14.26
	8H	15.53	15.82	16.57	16.84	18.21	11.79	12.08	12.83	13.10	14.47