

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: P913043

Luminaire Tested: DFN2DIP-TR4F0-120D110US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913043
REPORT IS A COMBINATION OF REPORTS P902031 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D110US850-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

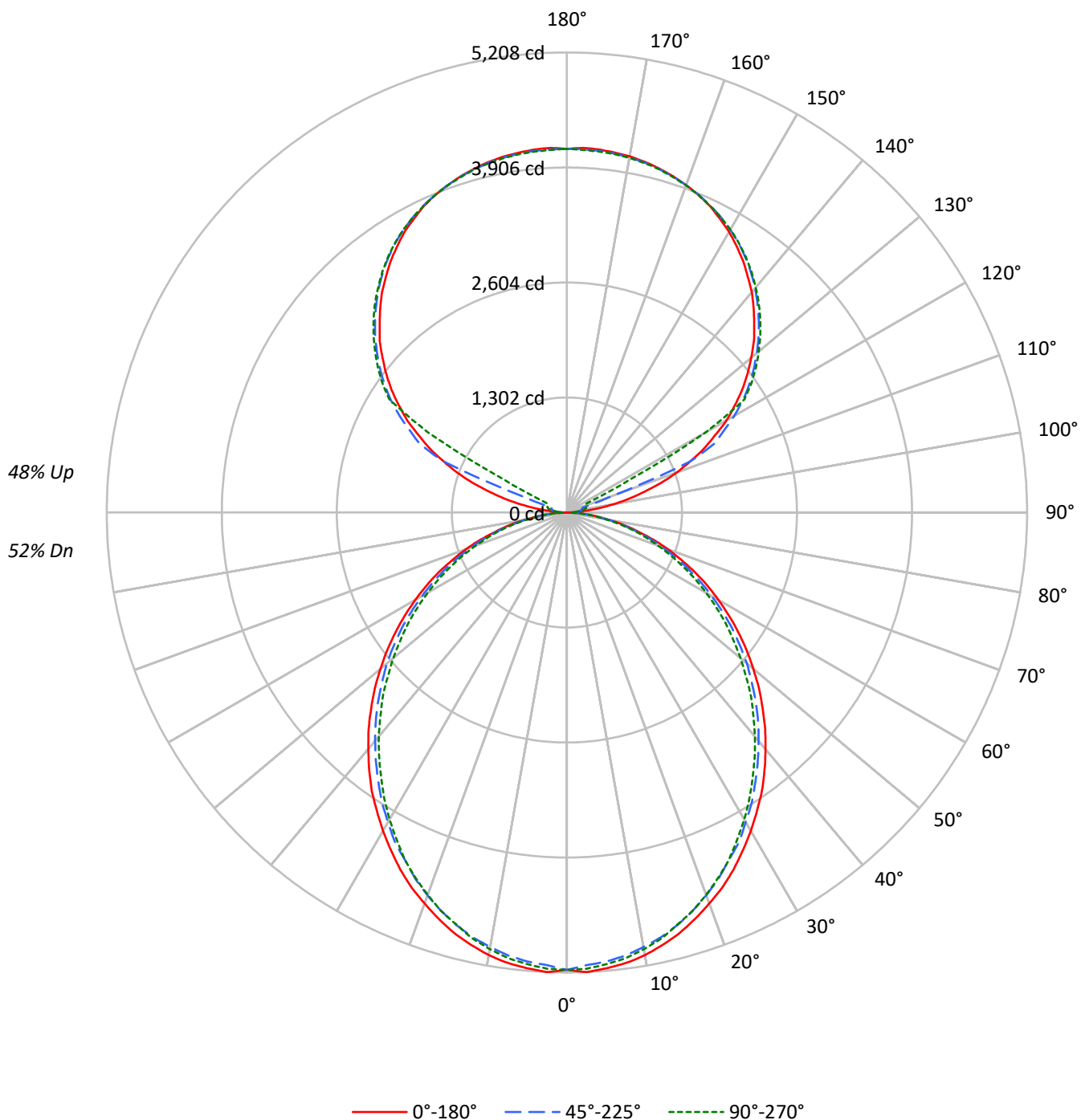
Lumens per Lamp: N/A
Luminaire Lumens: 25251.9 lumens
Efficiency: N/A
Efficacy: 120.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.4
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

TEST NUMBER: P913043

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P913043

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US850-FLONL

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	71	71	71	58	58	58
1	98	94	90	87	91	87	84	81	74	72	69	62	61	59	51	50	49
2	89	82	76	71	83	76	71	66	65	61	58	55	52	49	45	43	41
3	82	72	65	59	75	67	61	55	57	52	48	48	45	42	40	37	35
4	75	64	56	50	69	59	52	47	51	46	41	43	39	36	36	33	30
5	69	57	49	43	63	53	46	40	46	40	36	39	34	31	32	29	26
6	63	51	43	37	58	48	40	35	41	35	31	35	31	27	29	26	23
7	58	46	38	33	54	43	36	31	37	32	27	32	27	24	27	23	21
8	54	42	34	29	50	39	32	27	34	28	24	29	25	21	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	22	19	23	19	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	17	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4114	4114	4114
5°	4120	4056	4084
10°	4087	4002	4028
15°	4027	3936	3942
20°	3946	3844	3853
25°	3865	3735	3751
30°	3764	3633	3621
35°	3668	3513	3483
40°	3550	3391	3352
45°	3432	3269	3218
50°	3303	3142	3063
55°	3169	2994	2920
60°	3016	2819	2756
65°	2850	2637	2564
70°	2639	2416	2356
75°	2346	2151	2164
80°	1993	1813	1798
85°	1442	1230	1191

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3432 cd/sqm

TEST NUMBER: P913043

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	487.4	1.9
10°-20°	1371.3	5.4
20°-30°	2015.2	8.0
30°-40°	2340.6	9.3
40°-50°	2337.7	9.3
50°-60°	2038.4	8.1
60°-70°	1506.8	6.0
70°-80°	852.5	3.4
80°-90°	232.3	0.9
90°-100°	135.7	0.5
100°-110°	506.1	2.0
110°-120°	1342.2	5.3
120°-130°	2226.1	8.8
130°-140°	2364.7	9.4
140°-150°	2197.7	8.7
150°-160°	1766.9	7.0
160°-170°	1138.5	4.5
170°-180°	391.9	1.6
0°-30°	3873.9	15.3
0°-40°	6214.5	24.6
0°-60°	10590.5	41.9
0°-90°	13182.1	52.2
90°-120°	1984.0	7.9
90°-150°	8772.5	34.7
90°-180°	12070.0	47.8
0°-180°	25251.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5178	5178	5178	5178	5178	
5°	5178	5159	5104	5143	5134	492
15°	4929	4900	4835	4855	4830	1388
25°	4461	4422	4337	4347	4337	2053
35°	3849	3799	3720	3690	3665	2404
45°	3132	3097	3022	2968	2948	2417
55°	2370	2340	2280	2221	2196	2119
65°	1599	1568	1519	1474	1449	1581
75°	836	827	801	772	782	893
85°	204	199	194	179	174	227
90°	3	36	59	75	80	23
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

TEST NUMBER: P913043

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5178.3	5178.3	5178.3	5178.3	5178.3
2.5°	5208.3	5183.5	5128.6	5178.3	5168.7
5°	5178.3	5158.6	5103.7	5143.3	5133.8
7.5°	5143.3	5113.7	5058.8	5099.0	5089.0
10°	5089.0	5054.0	4994.4	5034.0	5019.2
12.5°	5013.9	4984.3	4924.6	4949.5	4939.4
15°	4929.4	4899.8	4834.8	4854.9	4830.0
17.5°	4824.8	4795.2	4730.2	4755.1	4730.2
20°	4710.1	4680.5	4610.9	4625.6	4606.1
22.5°	4596.0	4551.1	4486.1	4486.1	4476.1
25°	4461.3	4421.7	4337.2	4346.7	4337.2
27.5°	4311.8	4277.0	4212.5	4197.7	4172.9
30°	4162.9	4122.7	4048.2	4033.4	4013.4
32.5°	4003.3	3973.8	3893.9	3863.9	3843.8
35°	3849.0	3799.4	3719.6	3689.5	3664.7
37.5°	3674.7	3629.9	3550.0	3515.2	3490.4
40°	3495.7	3455.5	3375.7	3331.3	3311.3
42.5°	3321.3	3281.2	3201.9	3151.8	3122.2
45°	3132.1	3097.3	3022.2	2967.9	2947.8
47.5°	2947.8	2912.9	2833.2	2778.3	2748.7
50°	2753.4	2728.6	2658.8	2589.1	2564.2
52.5°	2564.2	2529.4	2465.0	2410.0	2375.1
55°	2370.4	2340.3	2280.5	2220.9	2196.0
57.5°	2176.0	2151.1	2086.1	2026.5	2006.4
60°	1981.6	1962.0	1892.3	1837.4	1822.5
62.5°	1792.5	1757.5	1708.0	1658.3	1638.2
65°	1598.6	1568.5	1518.8	1473.9	1449.1
67.5°	1399.4	1374.1	1329.7	1294.9	1274.8
70°	1215.0	1194.9	1150.0	1115.2	1095.7
72.5°	1025.9	1005.9	981.0	946.2	931.3
75°	836.3	826.8	801.4	771.9	781.8
77.5°	667.2	647.1	637.1	622.3	607.5
80°	498.2	492.8	482.9	468.1	458.0
82.5°	338.6	338.6	333.9	313.8	313.8
85°	203.9	199.2	194.4	179.1	174.3
87.5°	89.8	79.7	69.8	54.9	49.7
90°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

TEST NUMBER: P913043

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

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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	12.38	13.26	13.32	14.22	15.46	11.95	12.83	12.89	13.79	15.03
	3H	14.04	14.83	14.99	15.80	17.06	13.57	14.36	14.52	15.33	16.59
	4H	14.63	15.38	15.60	16.35	17.62	14.16	14.91	15.12	15.88	17.15
	6H	15.03	15.72	16.01	16.70	17.98	14.56	15.25	15.53	16.22	17.51
	8H	15.14	15.79	16.12	16.79	18.07	14.66	15.32	15.65	16.31	17.59
	12H	15.19	15.81	16.17	16.80	18.10	14.71	15.33	15.69	16.32	17.62
4H	2H	12.85	13.59	13.82	14.56	15.83	12.50	13.25	13.47	14.22	15.49
	3H	14.71	15.34	15.69	16.34	17.62	14.32	14.95	15.30	15.94	17.23
	4H	15.43	16.00	16.42	16.99	18.30	15.02	15.59	16.01	16.59	17.90
	6H	15.95	16.44	16.94	17.45	18.76	15.54	16.03	16.54	17.04	18.35
	8H	16.10	16.55	17.10	17.56	18.88	15.68	16.14	16.69	17.15	18.47
	12H	16.17	16.58	17.19	17.61	18.94	15.75	16.16	16.77	17.19	18.51
8H	4H	15.63	16.09	16.63	17.10	18.42	15.27	15.73	16.27	16.74	18.06
	6H	16.26	16.64	17.29	17.69	19.01	15.90	16.28	16.92	17.33	18.65
	8H	16.48	16.82	17.51	17.85	19.19	16.11	16.45	17.15	17.48	18.82
	12H	16.61	16.91	17.65	17.94	19.32	16.23	16.52	17.27	17.55	18.94
12H	4H	15.61	16.03	16.63	17.05	18.38	15.26	15.68	16.28	16.70	18.03
	6H	16.29	16.63	17.32	17.66	19.00	15.94	16.27	16.97	17.31	18.65
	8H	16.53	16.83	17.57	17.86	19.24	16.18	16.47	17.21	17.50	18.88

END OF REPORT