

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: P913046

Luminaire Tested: DFN2DIP-TR4F0-120D120US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913046
REPORT IS A COMBINATION OF REPORTS P900529 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D120US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

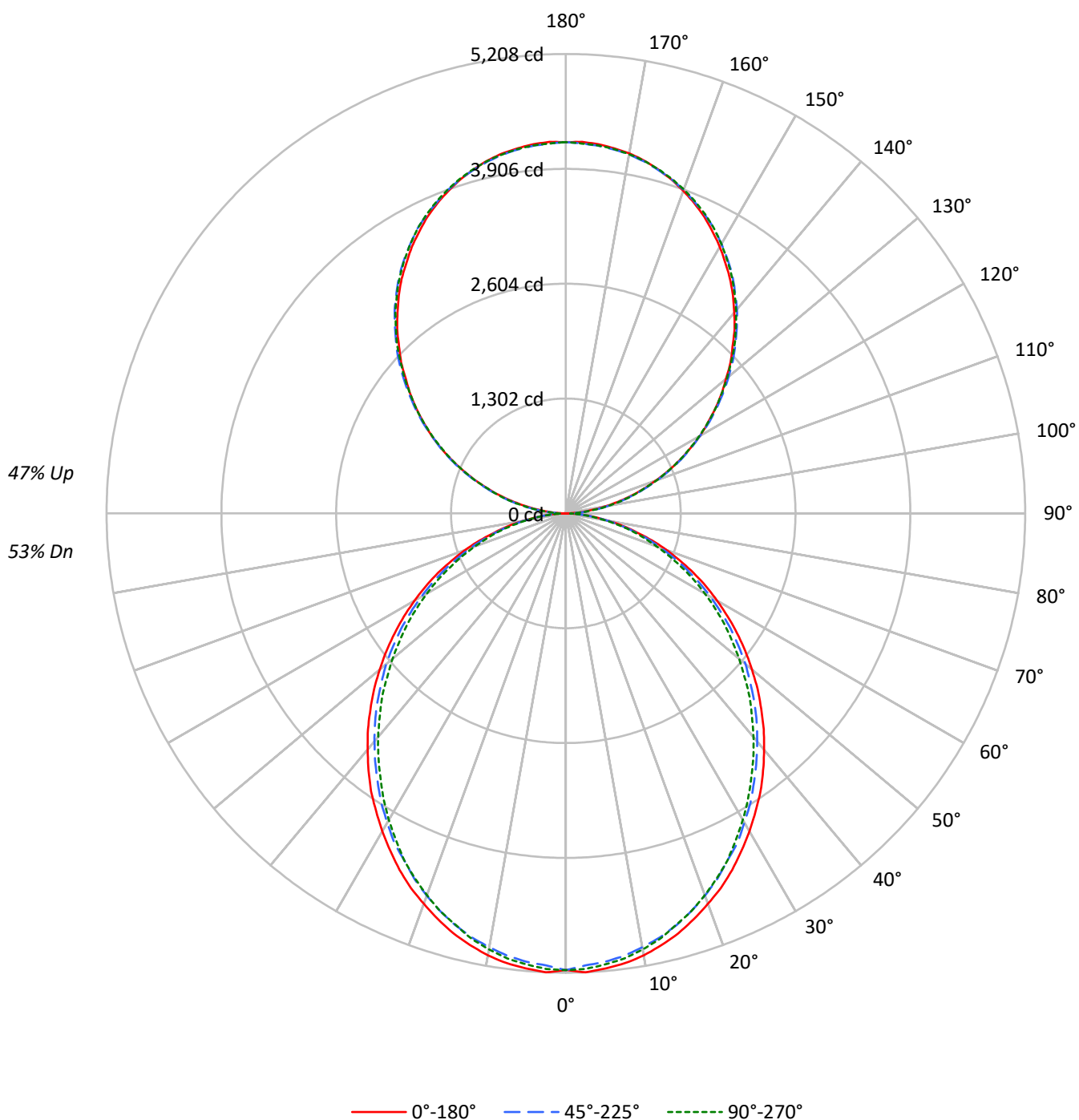
Lumens per Lamp: N/A
Luminaire Lumens: 24952.5 lumens
Efficiency: N/A
Efficacy: 115.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 217
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: P913046

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US850-FLLFLL

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	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	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: P913046

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US850-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	487.4	2.0
10°-20°	1371.3	5.5
20°-30°	2015.2	8.1
30°-40°	2340.6	9.4
40°-50°	2337.7	9.4
50°-60°	2038.4	8.2
60°-70°	1506.8	6.0
70°-80°	852.5	3.4
80°-90°	237.0	0.9
90°-100°	260.4	1.0
100°-110°	827.5	3.3
110°-120°	1416.1	5.7
120°-130°	1862.4	7.5
130°-140°	2090.5	8.4
140°-150°	2050.0	8.2
150°-160°	1719.6	6.9
160°-170°	1140.4	4.6
170°-180°	398.6	1.6
0°-30°	3873.9	15.5
0°-40°	6214.5	24.9
0°-60°	10590.5	42.4
0°-90°	13186.9	52.8
90°-120°	2504.0	10.0
90°-150°	8506.9	34.1
90°-180°	11766.0	47.2
0°-180°	24952.5	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°	4	46	124	117	120	24
95°	185	221	227	227	221	206
105°	764	774	782	788	788	806
115°	1421	1442	1435	1431	1421	1406
125°	2067	2099	2089	2077	2073	1847
135°	2674	2713	2720	2717	2706	2066
145°	3246	3271	3291	3295	3281	2028
155°	3711	3722	3733	3751	3739	1708
165°	4038	4034	4034	4059	4041	1139
175°	4201	4191	4184	4209	4187	399
180°	4209	4209	4209	4209	4209	

TEST NUMBER: P913046

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US850-FLLFLL

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°	3.8	45.7	124.3	116.8	120.5
92.5°	78.6	106.6	110.3	114.2	114.2
95°	185.2	220.8	227.1	227.1	220.8
97.5°	308.3	341.4	355.3	355.3	355.3
100°	450.5	479.6	489.7	489.7	486.0
102.5°	600.2	621.7	635.7	639.6	635.7
105°	763.9	774.0	781.6	787.9	787.9
107.5°	926.2	941.5	941.5	944.0	926.2
110°	1083.6	1103.9	1103.9	1103.9	1093.8

TEST NUMBER: P913046

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US850-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1253.6	1275.2	1271.4	1261.3	1253.6
115°	1421.1	1441.5	1435.0	1431.3	1421.1
117.5°	1587.3	1615.3	1597.5	1587.3	1577.2
120°	1754.9	1782.7	1754.9	1754.9	1743.5
122.5°	1907.1	1942.6	1924.9	1914.7	1907.1
125°	2067.0	2098.7	2088.6	2077.2	2073.3
127.5°	2223.1	2262.4	2248.4	2233.2	2223.1
130°	2368.9	2414.6	2408.3	2400.7	2386.7
132.5°	2532.6	2568.2	2570.7	2552.9	2542.8
135°	2673.5	2712.8	2720.5	2716.6	2706.5
137.5°	2830.8	2862.6	2868.9	2866.3	2851.1
140°	2969.1	3000.8	3018.6	3018.6	3004.6
142.5°	3111.3	3143.0	3153.1	3156.9	3143.0
145°	3245.7	3271.1	3291.4	3295.3	3281.3
147.5°	3366.3	3398.0	3413.3	3419.6	3405.6
150°	3490.7	3512.2	3526.2	3537.6	3526.2
152.5°	3601.0	3622.5	3640.4	3654.4	3640.4
155°	3711.4	3721.6	3733.0	3750.7	3739.3
157.5°	3806.6	3814.2	3820.5	3845.9	3828.2
160°	3891.6	3899.2	3903.0	3924.6	3909.3
162.5°	3970.2	3970.2	3974.1	3998.2	3980.4
165°	4037.5	4033.8	4033.8	4059.1	4041.3
167.5°	4098.4	4087.0	4087.0	4112.4	4094.6
170°	4144.1	4133.9	4130.1	4155.5	4133.9
172.5°	4175.8	4165.6	4161.9	4187.3	4165.6
175°	4201.2	4191.0	4183.5	4208.8	4187.3
177.5°	4215.2	4205.0	4197.3	4219.0	4197.3
180°	4208.8	4208.8	4208.8	4208.8	4208.8

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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	12.44	13.33	13.37	14.28	15.51	12.01	12.89	12.94	13.84	15.07
	3H	14.10	14.90	15.04	15.86	17.11	13.63	14.42	14.57	15.38	16.64
	4H	14.69	15.44	15.65	16.41	17.67	14.22	14.97	15.17	15.93	17.20
	6H	15.09	15.78	16.06	16.75	18.03	14.62	15.31	15.58	16.28	17.55
	8H	15.20	15.86	16.17	16.84	18.12	14.72	15.38	15.70	16.37	17.64
	12H	15.25	15.87	16.23	16.85	18.15	14.76	15.39	15.75	16.37	17.67
4H	2H	12.90	13.66	13.87	14.62	15.88	12.56	13.31	13.52	14.28	15.54
	3H	14.77	15.40	15.75	16.39	17.67	14.38	15.01	15.35	16.00	17.28
	4H	15.49	16.06	16.47	17.05	18.35	15.08	15.66	16.06	16.64	17.94
	6H	16.00	16.50	17.00	17.51	18.81	15.59	16.09	16.59	17.10	18.40
	8H	16.15	16.62	17.15	17.62	18.93	15.74	16.20	16.74	17.21	18.52
	12H	16.23	16.65	17.24	17.67	18.98	15.81	16.22	16.82	17.24	18.56
8H	4H	15.69	16.15	16.68	17.15	18.47	15.33	15.79	16.32	16.79	18.11
	6H	16.32	16.70	17.34	17.75	19.06	15.96	16.34	16.98	17.38	18.70
	8H	16.54	16.88	17.57	17.91	19.24	16.17	16.51	17.20	17.54	18.87
	12H	16.67	16.97	17.70	18.00	19.37	16.29	16.59	17.32	17.61	18.99
12H	4H	15.67	16.09	16.69	17.11	18.43	15.32	15.74	16.34	16.76	18.08
	6H	16.35	16.69	17.38	17.72	19.05	16.00	16.34	17.03	17.37	18.70
	8H	16.59	16.89	17.62	17.92	19.29	16.23	16.53	17.27	17.56	18.93