

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: P918501

Luminaire Tested: DFN2DIP-TR4F0-120D110US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918501
REPORT IS A COMBINATION OF REPORTS P902032 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D110US930-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

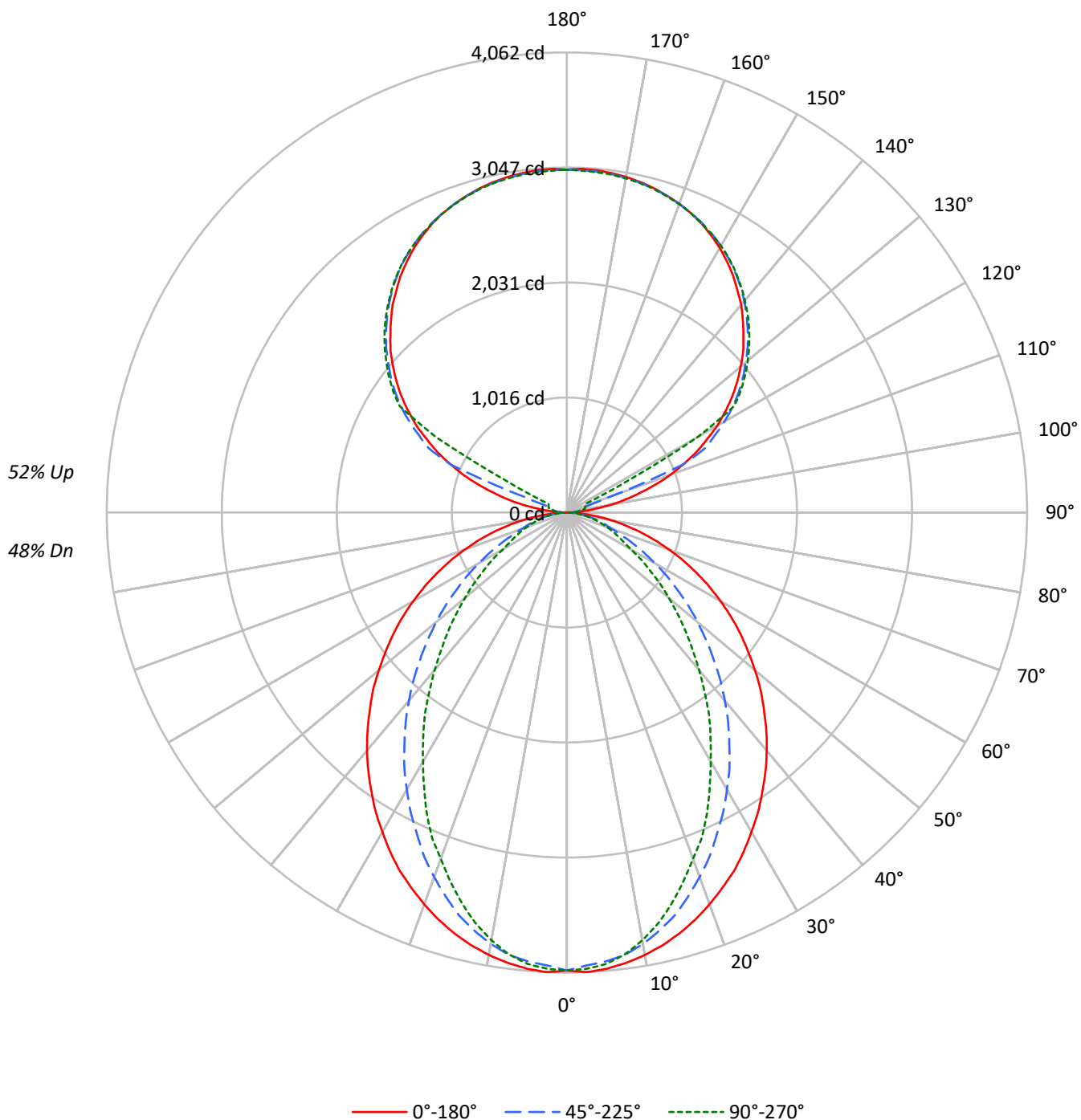
Lumens per Lamp: N/A
Luminaire Lumens: 17194.6 lumens
Efficiency: N/A
Efficacy: 81.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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: P918501

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918501

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-RLONL

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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55
1	98	94	90	87	90	87	83	80	73	71	69	60	59	58	49	48	47
2	90	82	77	72	82	76	71	67	64	61	58	54	51	49	44	42	40
3	82	73	66	60	75	67	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	35	33	30
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	36	42	36	32	35	31	28	29	26	24
7	59	47	39	34	54	44	37	32	38	32	29	32	28	25	27	24	21
8	55	43	35	30	51	40	33	29	35	29	25	30	25	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	27	23	29	24	21	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3212	3212	3212
5°	3218	3161	3182
10°	3186	3099	3078
15°	3142	2997	2918
20°	3084	2856	2721
25°	3025	2697	2531
30°	2945	2535	2291
35°	2867	2360	2080
40°	2787	2180	1837
45°	2695	1980	1618
50°	2599	1777	1403
55°	2500	1561	1197
60°	2384	1335	985
65°	2251	1106	887
70°	2090	891	802
75°	1888	786	730
80°	1596	659	632
85°	1112	440	475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2695 cd/sqm

TEST NUMBER: P918501

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.0	2.2
10°-20°	1040.3	6.1
20°-30°	1460.6	8.5
30°-40°	1592.1	9.3
40°-50°	1463.4	8.5
50°-60°	1149.2	6.7
60°-70°	748.0	4.4
70°-80°	385.1	2.2
80°-90°	103.6	0.6
90°-100°	99.8	0.6
100°-110°	372.1	2.2
110°-120°	986.7	5.7
120°-130°	1636.6	9.5
130°-140°	1738.4	10.1
140°-150°	1615.7	9.4
150°-160°	1298.9	7.6
160°-170°	837.0	4.9
170°-180°	288.1	1.7
0°-30°	2879.9	16.7
0°-40°	4472.0	26.0
0°-60°	7084.6	41.2
0°-90°	8321.4	48.4
90°-120°	1458.6	8.5
90°-150°	6449.2	37.5
90°-180°	8873.0	51.6
0°-180°	17194.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4044	4044	4044	4044	4044	
5°	4044	4025	3978	4010	4000	383
15°	3846	3806	3681	3612	3575	1084
25°	3491	3374	3132	2982	2927	1606
35°	3008	2821	2500	2269	2188	1883
45°	2459	2214	1830	1570	1482	1899
55°	1870	1584	1189	970	900	1671
65°	1263	966	637	512	501	1252
75°	673	417	293	267	264	712
85°	157	80	70	70	70	181
90°	2	26	44	55	59	16
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	



TEST NUMBER: P918501

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4043.6	4043.6	4043.6	4043.6	4043.6
2.5°	4061.8	4043.6	4003.2	4040.0	4032.6
5°	4043.6	4025.3	3977.5	4010.5	3999.7
7.5°	4010.5	3988.8	3937.6	3951.9	3933.7
10°	3966.7	3941.1	3868.0	3856.8	3835.1
12.5°	3911.9	3878.9	3779.9	3758.2	3717.8
15°	3845.9	3805.6	3681.3	3611.8	3575.3
17.5°	3769.0	3710.4	3556.7	3476.4	3417.7
20°	3681.3	3607.9	3425.1	3333.8	3253.0
22.5°	3586.2	3502.0	3289.6	3165.3	3110.6
25°	3491.1	3373.8	3132.3	2982.4	2927.3
27.5°	3377.7	3253.0	2985.9	2814.0	2729.7
30°	3257.0	3117.6	2824.8	2638.5	2539.5
32.5°	3139.7	2971.2	2671.5	2451.8	2360.1
35°	3008.1	2821.3	2499.5	2268.9	2188.1
37.5°	2880.0	2678.5	2338.4	2085.6	1994.4
40°	2744.5	2525.1	2169.9	1910.2	1815.0
42.5°	2605.4	2371.4	2001.8	1730.8	1639.6
45°	2459.1	2213.8	1829.8	1569.7	1481.9
47.5°	2320.1	2060.4	1665.2	1405.1	1324.7
50°	2166.4	1906.7	1504.1	1251.3	1174.8
52.5°	2016.2	1741.6	1350.3	1108.8	1039.3
55°	1869.8	1584.5	1189.2	969.8	900.3
57.5°	1719.9	1427.2	1046.7	841.7	783.1
60°	1566.2	1273.4	896.4	710.1	651.5
62.5°	1416.3	1123.6	768.3	592.9	563.7
65°	1262.6	966.0	636.7	512.5	501.2
67.5°	1116.2	819.5	512.5	450.0	439.1
70°	962.5	677.1	424.4	387.8	373.1
72.5°	816.1	545.1	354.8	325.7	318.4
75°	673.2	416.9	292.8	267.1	263.6
77.5°	530.8	296.2	230.6	215.9	208.5
80°	398.8	212.4	175.5	161.1	161.1
82.5°	278.0	142.8	120.7	113.3	113.3
85°	157.3	80.4	69.5	69.5	69.5
87.5°	58.6	29.1	29.1	25.6	25.6
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9



TEST NUMBER: P918501

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

TEST NUMBER: P918501

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-RLONL

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	11.04	11.86	12.02	12.85	14.14	7.02	7.84	8.00	8.82	10.12
	3H	12.72	13.45	13.71	14.45	15.77	8.21	8.94	9.19	9.93	11.25
	4H	13.33	14.02	14.33	15.02	16.35	8.66	9.35	9.66	10.35	11.67
	6H	13.75	14.39	14.76	15.39	16.73	8.98	9.61	9.99	10.62	11.96
	8H	13.88	14.48	14.89	15.50	16.84	9.07	9.67	10.09	10.69	12.03
	12H	13.94	14.51	14.96	15.52	16.88	9.11	9.69	10.13	10.70	12.06
4H	2H	11.06	11.75	12.07	12.75	14.08	7.61	8.30	8.62	9.30	10.63
	3H	12.89	13.46	13.91	14.49	15.83	8.96	9.54	9.98	10.56	11.90
	4H	13.58	14.11	14.60	15.13	16.49	9.51	10.03	10.53	11.05	12.42
	6H	14.09	14.55	15.13	15.59	16.95	9.93	10.38	10.96	11.42	12.78
	8H	14.27	14.69	15.31	15.73	17.10	10.06	10.48	11.09	11.52	12.89
	12H	14.36	14.74	15.42	15.80	17.17	10.12	10.50	11.18	11.55	12.93
8H	4H	13.55	13.97	14.58	15.00	16.38	9.79	10.21	10.82	11.25	12.62
	6H	14.11	14.46	15.17	15.54	16.91	10.31	10.66	11.37	11.73	13.11
	8H	14.33	14.63	15.40	15.70	17.09	10.50	10.80	11.57	11.87	13.26
	12H	14.47	14.74	15.54	15.79	17.23	10.62	10.89	11.69	11.94	13.38
12H	4H	13.50	13.88	14.55	14.93	16.31	9.79	10.17	10.85	11.22	12.60
	6H	14.09	14.39	15.15	15.46	16.85	10.36	10.66	11.42	11.73	13.12
	8H	14.31	14.58	15.38	15.63	17.07	10.57	10.84	11.64	11.89	13.33