

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: P921223

Luminaire Tested: DFN2DIP-TR4F0-120D100US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921223
REPORT IS A COMBINATION OF REPORTS P902013 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D100US935-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

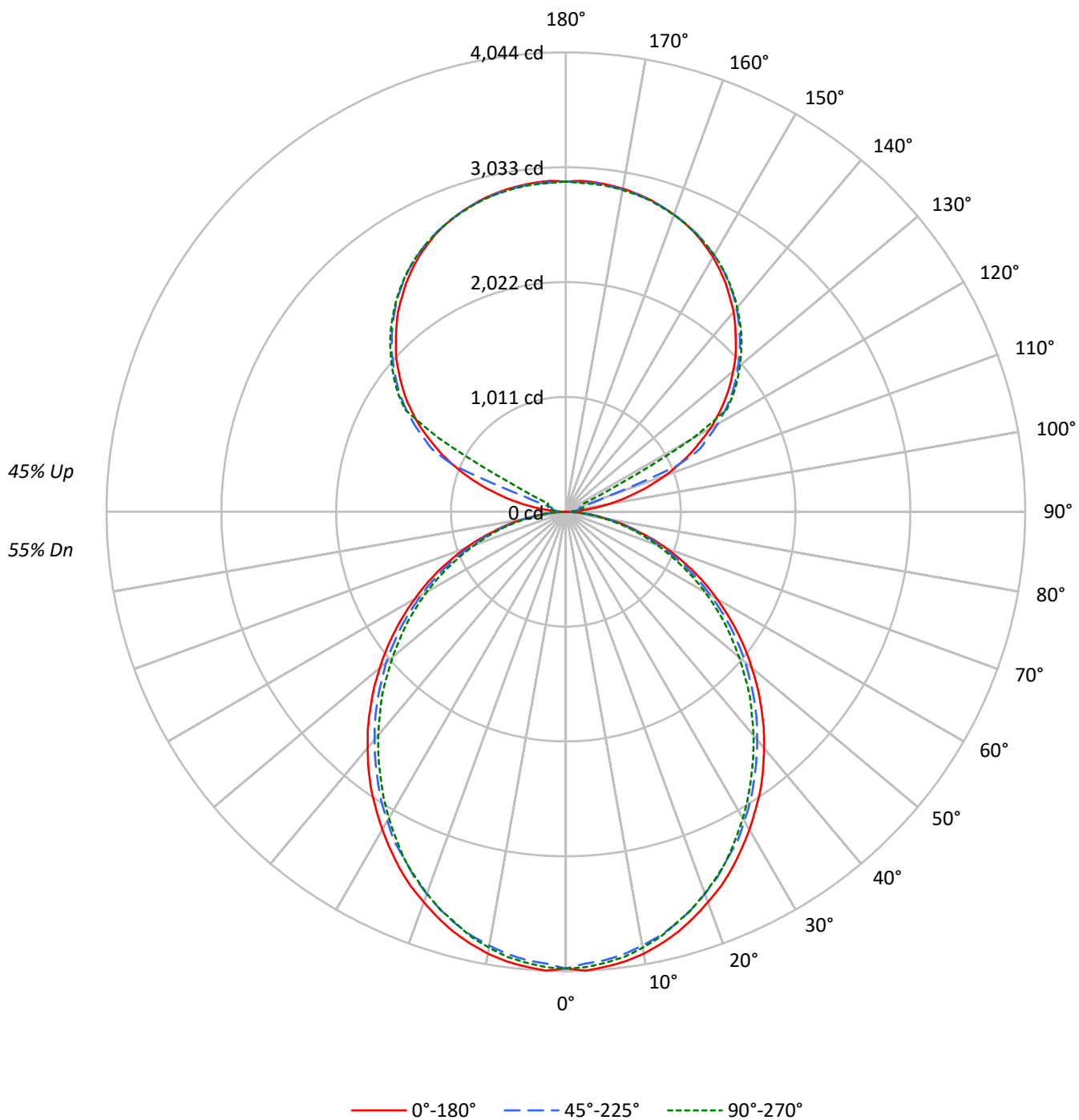
Lumens per Lamp: N/A
Luminaire Lumens: 18752.6 lumens
Efficiency: N/A
Efficacy: 92.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 202
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: P921223

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P921223

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US935-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	86	86	86	73	73	73	60	60	60
1	99	94	91	87	92	88	84	81	75	73	71	64	62	60	53	52	51
2	90	82	76	71	83	77	71	67	66	62	58	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	69	60	53	47	52	46	42	44	40	37	37	34	32
5	69	57	49	43	64	53	46	41	46	41	36	40	35	32	34	30	27
6	64	51	43	37	59	48	41	35	42	36	32	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	17
10	48	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3194	3194	3194
5°	3199	3149	3170
10°	3173	3107	3127
15°	3126	3056	3060
20°	3063	2985	2992
25°	3001	2900	2912
30°	2922	2820	2811
35°	2848	2727	2704
40°	2756	2633	2602
45°	2665	2538	2498
50°	2565	2439	2378
55°	2460	2325	2267
60°	2342	2188	2140
65°	2213	2047	1990
70°	2049	1876	1829
75°	1821	1670	1680
80°	1548	1408	1396
85°	1119	955	925

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2665 cd/sqm

TEST NUMBER: P921223

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.4	2.0
10°-20°	1064.6	5.7
20°-30°	1564.6	8.3
30°-40°	1817.2	9.7
40°-50°	1814.9	9.7
50°-60°	1582.5	8.4
60°-70°	1169.9	6.2
70°-80°	661.9	3.5
80°-90°	179.8	1.0
90°-100°	95.8	0.5
100°-110°	357.2	1.9
110°-120°	947.3	5.1
120°-130°	1571.2	8.4
130°-140°	1669.0	8.9
140°-150°	1551.1	8.3
150°-160°	1247.1	6.7
160°-170°	803.6	4.3
170°-180°	276.6	1.5
0°-30°	3007.6	16.0
0°-40°	4824.8	25.7
0°-60°	8222.2	43.8
0°-90°	10233.8	54.6
90°-120°	1400.3	7.5
90°-150°	6191.6	33.0
90°-180°	8519.0	45.4
0°-180°	18752.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4020	4020	4020	4020	4020	
5°	4020	4005	3962	3993	3986	382
15°	3827	3804	3754	3769	3750	1078
25°	3464	3433	3367	3375	3367	1594
35°	2988	2950	2888	2864	2845	1866
45°	2432	2405	2346	2304	2289	1877
55°	1840	1817	1771	1724	1705	1645
65°	1241	1218	1179	1144	1125	1227
75°	649	642	622	599	607	693
85°	158	155	151	139	135	177
90°	2	25	42	53	57	17
95°	137	67	82	93	90	162
105°	639	702	128	151	160	683
115°	1209	1245	1297	324	172	1190
125°	1709	1737	1777	1792	1798	1524
135°	2115	2149	2168	2189	2185	1634
145°	2454	2452	2487	2502	2492	1535
155°	2702	2683	2708	2721	2704	1245
165°	2847	2834	2841	2855	2841	804
175°	2912	2897	2902	2916	2895	277
180°	2906	2906	2906	2906	2906	

TEST NUMBER: P921223

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4020.3	4020.3	4020.3	4020.3	4020.3
2.5°	4043.6	4024.3	3981.7	4020.3	4012.9
5°	4020.3	4005.0	3962.4	3993.1	3985.7
7.5°	3993.1	3970.1	3927.5	3958.7	3950.9
10°	3950.9	3923.8	3877.5	3908.2	3896.8
12.5°	3892.7	3869.7	3823.3	3842.6	3834.8
15°	3827.0	3804.1	3753.6	3769.2	3749.9
17.5°	3745.9	3722.9	3672.4	3691.7	3672.4
20°	3656.8	3633.8	3579.8	3591.2	3576.1
22.5°	3568.2	3533.4	3482.9	3482.9	3475.2
25°	3463.6	3432.9	3367.3	3374.7	3367.3
27.5°	3347.6	3320.5	3270.5	3259.0	3239.8
30°	3231.9	3200.8	3142.9	3131.4	3115.9
32.5°	3108.0	3085.1	3023.1	2999.8	2984.2
35°	2988.3	2949.8	2887.8	2864.5	2845.2
37.5°	2852.9	2818.1	2756.1	2729.1	2709.8
40°	2714.0	2682.8	2620.8	2586.4	2570.8
42.5°	2578.6	2547.4	2485.9	2447.0	2424.0
45°	2431.7	2404.7	2346.4	2304.2	2288.6
47.5°	2288.6	2261.5	2199.6	2157.0	2134.0
50°	2137.7	2118.4	2064.2	2010.1	1990.8
52.5°	1990.8	1963.8	1913.7	1871.0	1844.0
55°	1840.3	1817.0	1770.6	1724.2	1704.9
57.5°	1689.4	1670.1	1619.6	1573.3	1557.7
60°	1538.4	1523.3	1469.1	1426.5	1415.0
62.5°	1391.6	1364.5	1326.0	1287.5	1271.9
65°	1241.1	1217.7	1179.1	1144.3	1125.1
67.5°	1086.5	1066.8	1032.3	1005.3	989.7
70°	943.3	927.7	892.9	865.8	850.7
72.5°	796.5	780.9	761.6	734.6	723.1
75°	649.3	641.9	622.2	599.3	607.0
77.5°	518.0	502.4	494.6	483.1	471.7
80°	386.8	382.6	374.9	363.4	355.6
82.5°	262.9	262.9	259.2	243.7	243.7
85°	158.3	154.6	150.9	139.1	135.3
87.5°	69.7	61.9	54.2	42.6	38.6
90°	2.0	25.2	41.9	52.7	56.7
92.5°	52.7	44.2	50.5	54.7	56.7
95°	136.6	67.2	81.9	92.6	90.4
97.5°	245.9	73.6	107.1	113.6	115.6
100°	372.3	84.1	119.9	136.6	140.9
102.5°	510.8	506.9	124.1	147.1	153.5
105°	639.2	702.3	128.4	151.3	159.8
107.5°	788.5	840.9	132.6	155.6	164.0
110°	931.5	975.5	368.0	157.8	166.0

TEST NUMBER: P921223

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1066.1	1103.8	1068.2	161.8	168.3
115°	1208.9	1244.7	1297.4	323.8	172.5
117.5°	1333.0	1375.0	1410.9	1110.1	559.3
120°	1471.9	1503.3	1541.3	1566.5	1282.6
122.5°	1589.5	1623.2	1665.3	1677.8	1680.1
125°	1709.3	1736.8	1776.8	1791.5	1797.7
127.5°	1818.7	1848.1	1879.8	1900.8	1902.8
130°	1921.7	1955.5	1978.5	2001.6	1999.7
132.5°	2026.9	2054.3	2077.3	2096.3	2094.3
135°	2115.3	2149.0	2167.7	2188.9	2184.7
137.5°	2207.7	2232.9	2254.1	2275.1	2268.8
140°	2298.0	2315.1	2338.0	2357.0	2346.5
142.5°	2373.9	2388.7	2415.9	2432.6	2422.2
145°	2453.8	2451.6	2487.3	2502.1	2491.6
147.5°	2523.0	2516.8	2552.4	2562.9	2554.8
150°	2590.4	2575.7	2609.4	2621.9	2611.4
152.5°	2647.1	2630.3	2661.9	2674.5	2659.8
155°	2701.8	2683.0	2708.3	2720.8	2704.0
157.5°	2746.0	2729.3	2748.2	2762.9	2746.0
160°	2784.0	2771.2	2784.0	2796.4	2781.7
162.5°	2817.4	2804.9	2815.4	2830.1	2811.2
165°	2846.8	2834.3	2840.6	2855.3	2840.6
167.5°	2870.1	2857.3	2863.9	2878.6	2859.5
170°	2889.0	2876.3	2880.6	2895.3	2876.3
172.5°	2901.5	2889.0	2893.3	2908.0	2889.0
175°	2912.0	2897.3	2901.5	2916.3	2895.3
177.5°	2916.3	2901.5	2903.8	2918.5	2899.5
180°	2905.8	2905.8	2905.8	2905.8	2905.8

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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	11.71	12.62	12.63	13.55	14.76	11.28	12.19	12.20	13.12	14.33
	3H	13.38	14.19	14.31	15.13	16.36	12.90	13.72	13.83	14.66	15.89
	4H	13.97	14.73	14.91	15.68	16.92	13.49	14.26	14.44	15.21	16.45
	6H	14.37	15.08	15.32	16.03	17.28	13.89	14.60	14.85	15.56	16.81
	8H	14.47	15.15	15.44	16.12	17.37	14.00	14.67	14.96	15.65	16.89
	12H	14.52	15.16	15.49	16.13	17.40	14.04	14.68	15.01	15.65	16.92
4H	2H	12.18	12.95	13.13	13.90	15.13	11.84	12.60	12.78	13.55	14.79
	3H	14.05	14.69	15.01	15.67	16.92	13.66	14.30	14.62	15.28	16.53
	4H	14.77	15.35	15.73	16.32	17.60	14.36	14.95	15.33	15.92	17.20
	6H	15.28	15.79	16.26	16.79	18.06	14.87	15.38	15.86	16.38	17.65
	8H	15.43	15.91	16.42	16.90	18.19	15.02	15.49	16.01	16.48	17.77
	12H	15.51	15.93	16.51	16.94	18.24	15.09	15.51	16.09	16.52	17.82
8H	4H	14.97	15.44	15.95	16.43	17.72	14.61	15.08	15.59	16.07	17.36
	6H	15.60	15.99	16.61	17.02	18.31	15.24	15.63	16.24	16.66	17.95
	8H	15.82	16.16	16.84	17.18	18.49	15.45	15.80	16.47	16.82	18.12
	12H	15.95	16.26	16.97	17.27	18.62	15.57	15.87	16.59	16.89	18.24
12H	4H	14.95	15.38	15.96	16.39	17.68	14.60	15.03	15.60	16.03	17.33
	6H	15.63	15.97	16.65	16.99	18.30	15.28	15.62	16.29	16.64	17.95
	8H	15.87	16.18	16.89	17.19	18.54	15.52	15.82	16.54	16.83	18.18