

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: P921163

Luminaire Tested: DFN2DIP-TR4F0-110D040US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921163
REPORT IS A COMBINATION OF REPORTS P901903 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D040US935-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

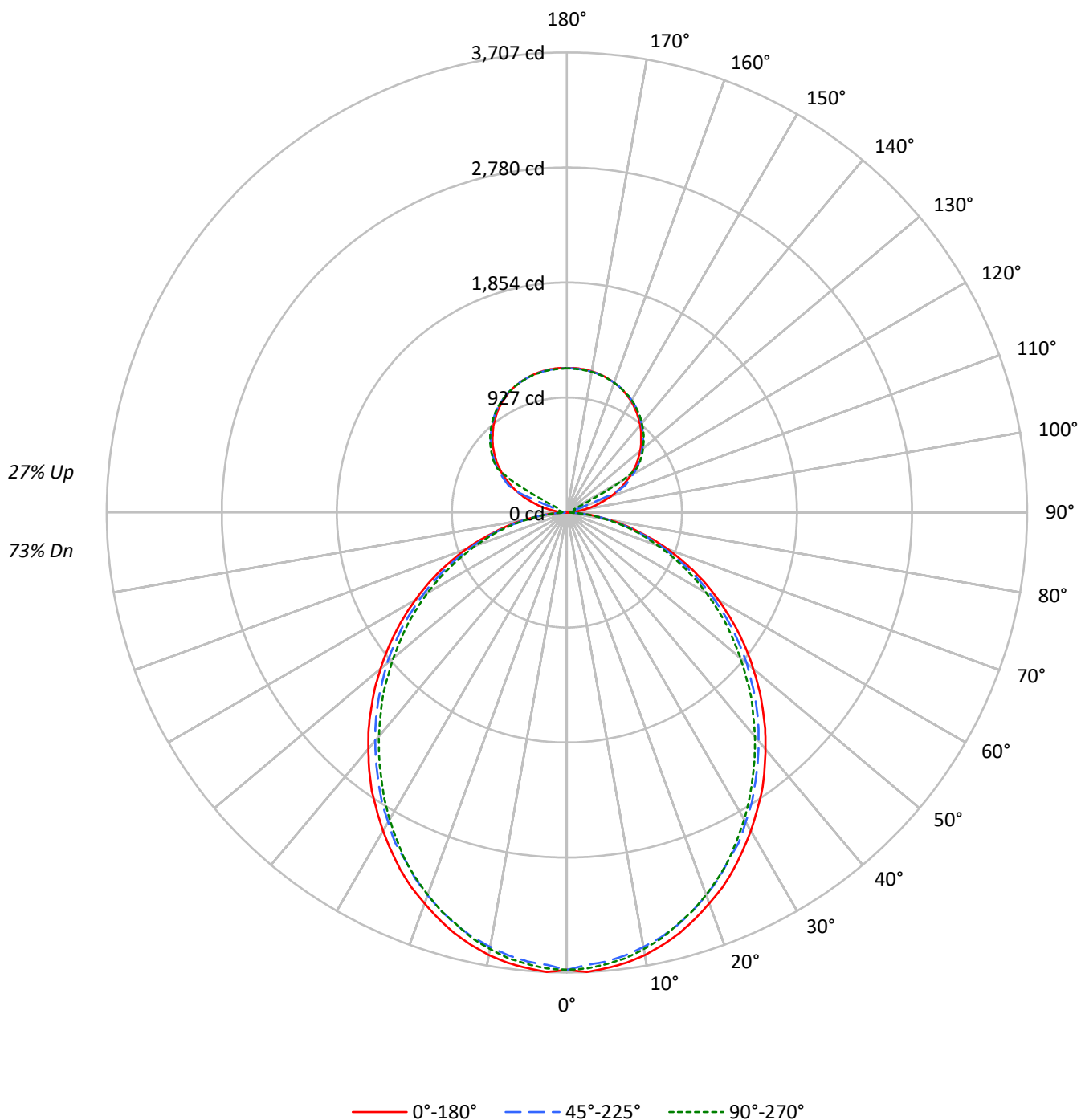
Lumens per Lamp: N/A
Luminaire Lumens: 12785.8 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 143
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921163

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US935-FLLONL

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	113	113	113	113	107	107	107	107	96	96	96	87	87	87	78	78	78
1	103	99	95	91	98	94	90	87	85	82	79	76	74	72	69	67	66
2	94	86	80	74	89	82	76	71	74	70	66	67	64	60	60	58	55
3	86	76	68	62	81	72	65	60	66	60	55	59	55	51	54	50	47
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	41
5	72	60	52	45	68	57	50	44	52	46	41	48	42	38	43	39	35
6	67	54	46	39	63	52	44	38	47	41	36	43	38	34	39	35	31
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28
8	57	45	37	31	54	43	35	30	39	33	28	36	31	27	33	28	25
9	54	41	33	28	51	39	32	27	36	30	26	33	28	24	30	26	23
10	50	38	30	25	48	36	29	24	33	27	23	31	26	22	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2928	2928	2928
5°	2932	2887	2906
10°	2909	2848	2867
15°	2866	2801	2805
20°	2808	2736	2742
25°	2751	2658	2669
30°	2679	2585	2577
35°	2610	2500	2479
40°	2526	2413	2386
45°	2443	2327	2290
50°	2351	2236	2180
55°	2255	2131	2078
60°	2147	2006	1962
65°	2028	1877	1824
70°	1878	1719	1677
75°	1669	1530	1540
80°	1419	1290	1280
85°	1027	876	848

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2443 cd/sqm

TEST NUMBER: P921163

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	346.9	2.7
10°-20°	975.9	7.6
20°-30°	1434.2	11.2
30°-40°	1665.7	13.0
40°-50°	1663.7	13.0
50°-60°	1450.7	11.3
60°-70°	1072.4	8.4
70°-80°	606.7	4.7
80°-90°	162.2	1.3
90°-100°	38.3	0.3
100°-110°	142.9	1.1
110°-120°	378.9	3.0
120°-130°	628.5	4.9
130°-140°	667.6	5.2
140°-150°	620.4	4.9
150°-160°	498.8	3.9
160°-170°	321.4	2.5
170°-180°	110.6	0.9
0°-30°	2757.0	21.6
0°-40°	4422.7	34.6
0°-60°	7537.0	58.9
0°-90°	9378.3	73.3
90°-120°	560.1	4.4
90°-150°	2476.6	19.4
90°-180°	3407.0	26.6
0°-180°	12785.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3671	3632	3660	3654	350
15°	3508	3487	3441	3455	3437	988
25°	3175	3147	3087	3094	3087	1461
35°	2739	2704	2647	2626	2608	1711
45°	2229	2204	2151	2112	2098	1720
55°	1687	1666	1623	1580	1563	1508
65°	1138	1116	1081	1049	1031	1125
75°	595	588	570	549	556	635
85°	145	142	138	127	124	162
90°	1	10	17	21	23	12
95°	55	27	33	37	36	65
105°	256	281	51	60	64	273
115°	484	498	519	130	69	476
125°	684	695	711	717	719	610
135°	846	860	867	876	874	654
145°	982	981	995	1001	997	614
155°	1081	1073	1083	1088	1082	498
165°	1139	1134	1136	1142	1136	322
175°	1165	1159	1161	1166	1158	111
180°	1162	1162	1162	1162	1162	

TEST NUMBER: P921163

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.2	3685.2	3685.2	3685.2	3685.2
2.5°	3706.6	3688.9	3649.9	3685.2	3678.4
5°	3685.2	3671.3	3632.2	3660.4	3653.6
7.5°	3660.4	3639.4	3600.3	3628.8	3621.7
10°	3621.7	3596.8	3554.4	3582.5	3572.0
12.5°	3568.3	3547.2	3504.8	3522.4	3515.3
15°	3508.1	3487.0	3440.8	3455.1	3437.4
17.5°	3433.7	3412.7	3366.4	3384.1	3366.4
20°	3352.1	3331.0	3281.4	3291.9	3278.1
22.5°	3270.9	3238.9	3192.7	3192.7	3185.5
25°	3175.0	3146.9	3086.7	3093.5	3086.7
27.5°	3068.6	3043.8	2997.9	2987.4	2969.8
30°	2962.6	2934.0	2881.0	2870.5	2856.2
32.5°	2849.0	2828.0	2771.2	2749.8	2735.5
35°	2739.3	2704.0	2647.1	2625.7	2608.0
37.5°	2615.2	2583.3	2526.5	2501.6	2484.0
40°	2487.8	2459.2	2402.4	2370.8	2356.6
42.5°	2363.7	2335.1	2278.7	2243.0	2222.0
45°	2229.1	2204.2	2150.9	2112.2	2097.9
47.5°	2097.9	2073.1	2016.3	1977.2	1956.1
50°	1959.5	1941.9	1892.2	1842.6	1825.0
52.5°	1825.0	1800.1	1754.3	1715.1	1690.3
55°	1687.0	1665.5	1623.1	1580.5	1562.9
57.5°	1548.6	1530.9	1484.7	1442.2	1427.9
60°	1410.2	1396.4	1346.7	1307.6	1297.1
62.5°	1275.7	1250.9	1215.5	1180.2	1165.9
65°	1137.6	1116.2	1080.9	1049.0	1031.3
67.5°	995.9	977.9	946.3	921.5	907.2
70°	864.7	850.4	818.5	793.7	779.7
72.5°	730.1	715.8	698.2	673.4	662.8
75°	595.1	588.4	570.3	549.3	556.5
77.5°	474.8	460.5	453.4	442.9	432.4
80°	354.6	350.8	343.6	333.1	326.0
82.5°	241.0	241.0	237.6	223.3	223.3
85°	145.2	141.7	138.4	127.4	124.1
87.5°	63.9	56.7	49.6	39.1	35.3
90°	0.8	10.1	16.8	21.1	22.6
92.5°	21.1	17.7	20.1	21.9	22.6
95°	54.6	26.9	32.7	37.0	36.2
97.5°	98.4	29.4	42.9	45.5	46.2
100°	148.9	33.7	48.0	54.6	56.3
102.5°	204.3	202.8	49.6	58.8	61.4
105°	255.6	280.9	51.3	60.5	63.9
107.5°	315.4	336.4	53.0	62.3	65.6
110°	372.6	390.2	147.2	63.1	66.4

TEST NUMBER: P921163

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	426.5	441.5	427.2	64.7	67.3
115°	483.5	497.8	518.9	129.5	69.1
117.5°	533.2	550.0	564.4	444.0	223.7
120°	588.8	601.3	616.5	626.6	513.1
122.5°	635.8	649.3	666.2	671.1	672.0
125°	683.7	694.7	710.7	716.6	719.1
127.5°	727.5	739.3	751.9	760.3	761.1
130°	768.7	782.2	791.3	800.6	799.9
132.5°	810.7	821.7	830.9	838.5	837.8
135°	846.1	859.6	867.1	875.5	873.9
137.5°	883.0	893.1	901.6	910.0	907.5
140°	919.2	926.0	935.2	942.8	938.6
142.5°	949.6	955.4	966.4	973.0	968.9
145°	981.5	980.7	994.9	1000.8	996.6
147.5°	1009.2	1006.7	1021.0	1025.2	1021.9
150°	1036.1	1030.3	1043.8	1048.8	1044.6
152.5°	1058.9	1052.1	1064.7	1069.8	1063.9
155°	1080.7	1073.2	1083.3	1088.3	1081.6
157.5°	1098.4	1091.7	1099.3	1105.2	1098.4
160°	1113.5	1108.4	1113.5	1118.5	1112.7
162.5°	1127.0	1122.0	1126.2	1132.0	1124.5
165°	1138.8	1133.8	1136.3	1142.1	1136.3
167.5°	1148.1	1142.9	1145.6	1151.4	1143.8
170°	1155.6	1150.6	1152.2	1158.1	1150.6
172.5°	1160.6	1155.6	1157.4	1163.2	1155.6
175°	1164.8	1158.9	1160.6	1166.5	1158.1
177.5°	1166.5	1160.6	1161.5	1167.4	1159.9
180°	1162.3	1162.3	1162.3	1162.3	1162.3

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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	12.92	14.04	13.65	14.79	15.68	12.49	13.61	13.22	14.36	15.25
	3H	14.60	15.61	15.34	16.36	17.29	14.13	15.13	14.87	15.89	16.82
	4H	15.20	16.15	15.96	16.92	17.85	14.73	15.68	15.49	16.44	17.38
	6H	15.61	16.49	16.38	17.27	18.22	15.14	16.01	15.91	16.79	17.74
	8H	15.72	16.56	16.51	17.36	18.31	15.25	16.09	16.03	16.88	17.83
	12H	15.78	16.58	16.57	17.37	18.35	15.30	16.10	16.09	16.89	17.87
4H	2H	13.41	14.36	14.18	15.13	16.07	13.07	14.02	13.83	14.79	15.72
	3H	15.30	16.10	16.08	16.90	17.85	14.91	15.70	15.68	16.51	17.46
	4H	16.03	16.75	16.82	17.55	18.53	15.62	16.34	16.41	17.15	18.13
	6H	16.56	17.18	17.36	18.01	19.00	16.15	16.77	16.95	17.60	18.59
	8H	16.71	17.30	17.52	18.12	19.12	16.30	16.88	17.11	17.71	18.71
	12H	16.80	17.32	17.63	18.17	19.17	16.38	16.90	17.21	17.75	18.75
8H	4H	16.24	16.83	17.06	17.65	18.65	15.88	16.47	16.70	17.29	18.29
	6H	16.89	17.37	17.73	18.24	19.24	16.52	17.01	17.36	17.87	18.88
	8H	17.11	17.54	17.96	18.40	19.42	16.74	17.17	17.59	18.03	19.05
	12H	17.25	17.63	18.11	18.48	19.56	16.87	17.25	17.72	18.10	19.17
12H	4H	16.24	16.77	17.07	17.61	18.62	15.89	16.42	16.72	17.26	18.27
	6H	16.92	17.35	17.77	18.21	19.23	16.57	17.00	17.42	17.86	18.88
	8H	17.17	17.55	18.03	18.40	19.48	16.82	17.20	17.67	18.05	19.12